ENVIRONMENTAL PROTECTION

LAND USE MANAGEMENT

LAND USE REGULATION PROGRAM

Highlands Water Protection and Planning Act Rules

Definitions; Septic System Density Standards

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

Proposed: May 2, 2016, at 48 N.J.R. 677(a) (see also 48 N.J.R. 1037(a)).

Adopted: , by Bob Martin, Commissioner, Department of Environmental Protection.

Filed: , as R. 2017 d. , **without change**.

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.

DEP Docket Number: 02-16-04.

Effective Date:

Expiration Date:

The Department is adopting 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) 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 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. Where development is not otherwise authorized pursuant to a Highlands Water Protection and Planning Act, N.J.S.A. 13:20-1 et seq. (Highlands Act or Act), exemption or waiver, the septic system density standards are applied through Highlands permits (the Highlands Preservation Area Approvals or HPAA) in order to limit the amount of septic effluent that may be discharged into the ground water in a particular area.

The rule adoption can also be viewed or downloaded from the Department's website at www.nj.gov/dep/rules.

Summary of Hearing Officer's Recommendation and Agency Response:

The Department held a public hearing on the notice of proposal on Wednesday, June 1, 2016, at 6:00 P.M., at the offices of the New Jersey Highlands Council. John Hutchison, Senior Policy Advisor, was the hearing officer. Thirty-five individuals provided written comments and/or oral comments at the public hearing. The hearing officer recommended that the amendments be adopted. The Department accepts the recommendation. The hearing record is available for inspection in accordance with applicable law by contacting:

Office of Legal Affairs
Attention: DEP Docket No. 02-16-04

Department of Environmental Protection

401 East State Street, 7th floor

Mail Code 401-04L

P.O. Box 402

Trenton, NJ 08625-0402

Summary of Public Comments and Agency Responses:

The Department accepted comments on the proposal through July 15, 2016. The comment period was originally scheduled to close on July 1, 2016. In response to public requests for additional time to review the proposal, the comment period was extended from July 1, 2016, to July 15, 2016 (see 48 N.J.R. 1037(a)). The following persons timely submitted comments on the notice of proposal:

1. Abbott, Kathy
2. Abma, James
3. Allesio, Renee, Sustainable West Milford
4. Alstede, Kurt, Alstede Farms
5. Arkema, Carroll
6. Arminio, Michele
7. Arrigo, Rosetta
8. Babcock, Margaret
9. Baduini, Louis
10. Balwierczak, Joseph
11. Baraka, Ras
12. Basralian, Joseph

13. Baum, Modris
14. Beeler, Roy
15. Beelitz, Kathryn
16. Benko, Sue
17. Bennett, Robin Rose
18. Bennett, Tiffany
19. Blau, Julian
20. Blinder, David
21. Bohm, Jason
22. Bolton, Ryan
23. Brunner, Ada
24. Bullock, Martin, New Jersey State Board of Agriculture
25. Canright, Mark
26. Canright, Rebecca
27. Caren, Kathleen
28. Cassa, George, President, New Jersey Highlands Coalition
29. Chappel, Bill
30. Charpentier, C.L.
31. Ciraldo, Andrew
32. Cochrane, Barbara
33. Cocuzzo, Sarah
34. Collins, Kenneth
35. Comeau, Steve
36. Coomber, Annette
37. Coughlin, Sharon
38. Crowley, Maureen

39. Crump, Mildred, Municipal Council, City of Newark

40. D'Angelo, Thomas, Eco Systems Environmental Consulting

41. Daniels, Toya

42. Dannenbaum, John

43. Dayton, Allan Shea

44. de la Puente, Noemi, New Jersey Environmental Lobby

45. Dech, David K. P.P., Planning Director/Solid Waste Coordinator, Warren County Planning Department

46. DePinto, Katey, Chatham Citizens

47. Duerr, Margaret

48. Dzielak, Charlene, New Jersey Audubon Society

49. Eisinger, Styra, Bethlehem Township County Agriculture Development Board Liaison

50. Elliker, Donald

51. Evans, Deborah

52. Evans, Katherine

53. Famularo, Frank

54. Ferguson, Dawn

55. Ferguson, Bob

56. Ferrara, Franklin

57. Finardi, Marilaluisa

58. Findlay, Robert R.

59. Florance, Jim/James

60. Frey, Wilma, New Jersey Conservation Foundation

61. George-Cheniara, Elizabeth, New Jersey Builders Association, joined by Carol Ann Short, CEO

62. Grose, Harriet, New Jersey Highlands Coalition

63. Grossman, Michael

64. Gruenstein, Gad, Preserve Our Wetlands and Woods

65. Gusciora, Hon. W. Reed, Assemblyman, District 15

66. Haag, Marcia

67. Hall, Patrick

68. Halpern, Barbara

69. Hanley, Debra

70. Harrison, John

71. Harwell, Monica

72. Heinrich, Helen, New Jersey Farm Bureau

73. Held, Nancy, Tewksbury Land Trust

74. Hernandez, Enrique

75. Hicks, Teresa

76. Homyak, Nick/Nicholas

77. Honachefsky, Jr., William, Union Forge Heritage Association

78. Hone, Basil, Citizens to Save Tewksbury

79. Howard, Laurie, Chair, Passaic River Coalition

80. Huston, Diana

81. Israel, Tanja

82. Jack, Thomas

83. Jany, Steven, Mercer County Board of Agriculture

84. Johnson, Kenneth W.

85. Johnson, Sue

86. Kallesser, Steven

87. Kashwick, John, Sierra Club of North Jersey

88. Kendall, Melissa

89. Kibler, William S., Raritan Headwaters Association

90. Kirby, Edward, Dr.

91. Klimek, Randy

92. Klinger, Barbara

93. Klumpf, Hank

94. Kobylarz, Denise

95. Koven, Tom, Musconetcong Mountain Conservancy

96. Lagay, Suzanne, Director, Hunterdon County Board of Chosen Freeholders

97. Lander, Laura

98. Lanez, Greg, Commissioner, Jersey City Environmental Commission

99. Lee Lewis, Carla

100. Lum, Hing

101. Malato, Lucha

102. Mandell, Laura, Warren Township Green Team and Environmental Commission

103. Marano, George

104. Masone, Carolyn

105. McRae, Virginia

106. Melizia, Richard, East Jersey Chapter Trout Unlimited

107. Metelski, Joseph H.

108. Mickel, Robert, Rutgers University, New Jersey Agricultural Experiment Station

109. Moore, David F. and Mary W.T.

110. Mullin, Susan

111. Nelson, Diana, Upper Rockaway River Watershed Association

112. New Jersey Conservation Foundation on behalf of 178 individuals.

113. New Jersey Highlands Coalition on behalf of 1,055 individuals.

114. New Jersey Sierra Club on behalf of 449 individuals.

115. Niewenhuis, Richard, New Jersey Farm Bureau

116. Nolan, Melissa

117. Nunzio, Charles, Advocates for Justice

118. Occhipinti, John and Kathryn

119. Olszewski, James

120. O'Malley, Doug, Environment New Jersey

121. Op, Silvia, Friends of Sparta Mountain

122. Oroho, Hon. Steven V., Senator, District 24

123. Osterman, Kenneth

124. Paino, Clifford

125. Patrone, Nora

126. Pederson, Maria

127. Peifer, David, Association of New Jersey Environmental Commissions

128. Pezzati, Mark

129. Piatek, Alice

130. Pierson, Kurt

131. Pollio, Erin

132. Pope, Spence

133. Post, Deborah

134. Poyner, Kendra

135. Prais, Eugene

136. Prigge, Robert

137. Pringle, Dave, Clean Water Action

138. Proto, Diane

139. Prouty, Hilary, Raritan Headwaters Association/Tewksbury Land Trust

140. Pumphrey, Eugene

141. Race, Sam, Warren County Board of Agriculture

142. Regrut, Thomas

143. Reilly, Kathy

144. Resto, Len, Chatham Borough Council

145. Rigney, Jane

146. Rohsler, Mark

147. Royle, Majorie

148. Ruga, Elliott, Policy Director, New Jersey Highlands Coalition

149. Sachau, Barbara

150. Sayler Kalb, Mary

151. Schramm, Jacquelyn, Franciscan Response to Fracking, Sustainable West Milford, Kinnelon Conserves, CAPP

152. Schultzer, Sara, Chair, Jersey City Environmental Commission

153. Schweinberg, Peter J.

154. Shaw, Stephen, New Jersey Builders Association

155. Shendel, Derek

156. Shipkey, Matthew

157. Shope, Dave

158. Sippie-Gora, Jo

159. Slack, David, President, Warren County Board of Agriculture

160. Smith, Edward, Warren County Board of Chosen Freeholders

161. Solaun, Silvia, Friends of Sparta Mountain

162. Somers, Daniel

163. Somers, Julia M., New Hersey Highlands Coalition, joined by:

Bizub, Richard G., Pinelands Preservation Alliance

Byers, Michele S., New Jersey Conservation Foundation

Canright, Mark, Comeback Farm

Cassa, George, Alliance for Historic Hamlets; Shannon's Fly & Tackle Shop

Coffey, Jen, ANJEC

de la Puente, Noemi, New Jersey Environmental Lobby

Epstein, David, The Land Conservancy of New Jersey

Florance, Jim/James, Preserve Our Wetlands and Woods

Goodell, Edward K., NY-NJ Trail Conference

Honachefsky, Jr., William, Union Forge Heritage Association;

Hone, Basil, Citizens to Save Tewksbury

Kibler, William S., Raritan Headwaters Association

Koven, Tom, Musconetcong Mountain Conservancy

Kushner, Ross, Pequannock River Coalition

Love, Robin, Residents Alliance for Neighborhood Preservation

Mooij, Kelly, New Jersey Audubon Society

Morrell, Brian

O' Malley, Doug, Environment New Jersey

Pesin, Sam, Friends of Liberty State Park

Pringle, Dave, Clean Water Action

Ruby, Patricia, Hunterdon Land Trust

Stroh, Constance, Upper Rockaway River Watershed Association

Stroh, Edward

Styler Barry, Beth, Musconetcong Watershed Association

Sullivan, Judith, Ramapough Conservancy, Inc.

Tittel, Jeff, New Jersey Sierra Club

Walsh, Jim

Wentzel, Britta

164. Sommer, John

165. Spann, Frances T.

166. Sporkin, David

167. Stafford, George J.

168. Stomber, Richard J. and Barbara, Wayne Environmental Commission/Franciscan Response of St. Mary

169. Straight, Ted

170. Stroh, Constance, Upper Rockaway River Watershed Association

171. Suydam, Ryck, New Jersey Farm Bureau

172. Teasdale, Christopher, Tewksbury Land Trust/Tewksbury Environmental Commission

173. Teeple, Kevin

174. Thomas, Jack

175. Thomson, Douglas M., New Jersey Association of Realtors

176. Timmons, Karen

177. Tittel, Jeff, New Jersey Sierra Club

178. Tomczyk, James

179. Tomkins, Bob

180. Totten, James, Totten Family Farm, LLC

181. Varney, Ruth H.

182. Ventola, Gigi

183. Vickers, Jenny

184. Vigil, Marcos, Deputy Mayor, Jersey City

185. W., A.

186. Walsh, Jim

187. Walsh, Mary

188. Watson-Hallowell, Wendy

189. Whitney, Anna

190. Winters, Majorie

191. Wolfe, Bill

192. Zorn, Gretta

193. The following 65 individuals submitted an identical form letter:

(No last name), Carrie

Abel, Claire

Abrams, Betty

Bayardi, Bonne

Berman, Maureen

Cassidy, John

Chen, Sau-Ha Nikki

Cohan, Elleanor

Coppole, Anita

Coughlin, David

Cousins-Coleman, Betsy

Crowder, Diana

Cusick, Rebekah

Donovan, Irene

F., Nancy

Galdames, Olinda

Gleeson, Rosemary

Grom, Ken

Grossman, Michele

Haan, Wendy

Hart, Kathy

Hirsch, Stephen

Holtzman, Dorothy

Holzman, Neil

Hopkins, Harding

Johnson, Sue

Kenneth, Oliver

Knox, Mary Jo

Lee, Madeleine

Leverett, Grant

Lilly, Chris

Lombardi, Michael

MacKinnon, Pat

Marsala, Agnes

McDonough, Dennis

Mendelsohn, Ellen

Nini, Matthew

Oliver, Kenneth

Pascual, Florentino

Pazienza, Maryanne

Pressman, Jan

Pressman, Jane

Pringle, Dave

Richardson, Jennifer

Shendell, Derek

Sikand, Vikram

Skeuse, Madelyn

Smith, Clive

Strack, Rita

Taiani, Nancy-Jo

Tarino, Genevieve

Thurber, Doris

Thurber, Alex

Turner, Chris

Turrel, Todd

Vickers, Jenny

Walden, Patrick

Waldman, Susan

Walker, Saul

Wilder, Suzanne

Wilkes, Riley

Williams, Linda

Wilson, Jean

Wyble, Robert

Yacka, Maryellen

194. The following 49 individuals submitted an identical form letter:

Altneu, N. (Ms.)

Balko, Pat

Balko, Steven

Borge, Mary Anne

Brownlie, Kevin

Cacciapuoti, Anthony

Carden, Sarah

Carola, Hugh

Christie, Patricia

Clark, Raymond

Copleman, Joyce

Delia, Maggie

Dillingham, Tim

Ebeling, Lynn

Fenster, Steven

Fink, Dr. Ellen

Fisher, Julia

Green, Glen

Gross, Steve

Haas, David

Harris, Roger

Harris, Jr., Dr. Louis C.

Hudson, Harry

Hullin, Susan

Jamieson, Susan

Judd, Martin

Kemple, Jason

Kerr, Pamela

LaFevre, Lawrence

Machnowski, Gloria

May, Kimba

McKillip, Linda

McVey, Cheryl

Mullin, Susan

Otero, Elisabeth Micich

Peterson, Dr. Karin

Rothaug, Walter

Schleifer, Douglas

Schundler, Bruce

Sconyers, Mark

Simpson, Sandra

Sinden, Grace, Frank and Family

Stewart, Sarah

Sverdlove, Dr. Ronald

T., L.

Tiesi, James

Vanstrien, R. (Mr.)

Ward, Kathleen

Warren, Aaron

The timely submitted comments and the Department's responses are summarized below. The number(s) in parentheses after each comment identify the respective commenter(s) listed above.

Concerns about the public comment process

1. COMMENT: The Department should extend the comment period an additional 60 days, because the proposed amendments would constitute a significant change in the Department's regulations, the impacts of which require additional time to analyze and comprehend. (25, 28, 32, 44, 59, 60, 77, 78, 95, 137, 148, 163, 170, and 177)

2. COMMENT: The Department does not seem interested in listening to public remarks on the proposed septic system density standards. Because of the statewide significance of the Highlands water and land resources, the Department should hold additional public hearings on the proposal at several locations around the State, and at different times. (25, 28, 32, 44, 59, 60, 77 - 79, 89, 95, 117, 137, 148, 155, 163, 170, 177, 183, 186, and 193)

3. COMMENT: I object to the Department giving only a one-day notice of this important public comment opportunity. (118)

RESPONSE TO COMMENTS 1 THROUGH 3: The Department believes there was sufficient notice and opportunity to provide comments and discuss the rulemaking.

The Department initially provided a 60-day public comment period on the proposal, consistent with the requirements of the Administrative Procedure Act, N.J.S.A. 52:14B-1 et seq.

(APA). In response to requests for extension, the Department extended the comment period for an additional 14 days (see 48 N.J.R. 1037(a)).

While a public hearing was not required under the APA, the Department held a public hearing on the proposal on June 1, 2016, at 6:00 P.M.at the Highlands Council offices in Chester. The Department held the public hearing at that location because the amendments affect the Highlands Region. The Department scheduled the public hearing in the evening hours to accommodate individuals who might work during regular business hours.

It is unclear to what the commenter is referring with regard to "one-day notice." The Department provided notice of the proposal, including the scheduled public hearing date and public comment period, on its website, to media outlets in the Statehouse, by e-mail to the Department's rulemaking listserv, and by press release at the time of publication of the proposal in the New Jersey Register on May 2, 2016.

4. COMMENT: The Department did not proceed with the rulemaking under the provisions of the APA, but rather proceeded informally pursuant to the process established under Governor Christie's Executive Order No. 2. Executive Order No. 2 is clearly not merely a procedural order. It sets very clear policy objectives, including "relief from regulatory burden" and to "prevent" certain rules from being adopted, that are not authorized by and are inconsistent with applicable law, including the Highlands Act and the APA. The APA says nothing about relief from regulatory burden or preventing overly proscriptive or ill-advised rules and provides no authority to the Governor to embark on a procedure to implement such regulatory policy. (191)

RESPONSE: The Highlands Rules are promulgated pursuant to the Highlands Act, which requires the Department to establish septic system density standards. The Department proposed and adopted these amendments to the septic system density standards in the Highlands Rules in accordance with the public notice and comment procedural requirements in the APA. Executive Order No. 2 (see http://www.state.nj.us/infobank/circular/eocc2.pdf) sets forth a set of "Common Sense Principles" to inform the executive agencies' rulemaking process , including the principle that rules are to be "based on the best scientific and technical information that can be reasonably obtained and designed so that they can be applied consistently." However, Executive Order No. 2 does not change the APA rulemaking requirements or the substantive mandates of the Highlands Act.

As explained in detail in the summary of the proposal, subsequent to the Department's promulgation of the Highlands Rules in 2005, the Highlands Council developed a land use capability map as part of the Regional Master Plan (RMP), which was adopted in 2008. The land use capability map reflects the Council's resource assessment that determined the amount and type of development that the Highlands ecosystem can sustain, including the maintenance of ground water quality, and established three land use capability zones that group like land uses, land cover types, and resources. The Department's amended septic system density standards are based on nitrate target concentrations reflective of the land uses in the LUC zones, thus enhancing consistency between the Highlands Rules and the RMP with respect to development standards and water quality protection. In determining the nitrate target concentrations on which the amended septic system density standards are based, the Department used Highlands Region-specific ground water nitrate data from USGS's database as well as additional ground water

nitrate data reported pursuant to the Private Well Testing Act and a logistic-regression model developed by USGS, which was determined to be an appropriate approach to estimate region-wide median nitrate concentrations by the Science Advisory Board (SAB), to correlate the nitrate data with Highlands Region land use characteristics.

Accordingly, the Department's amended septic system density standards are promulgated in accordance with the APA and comport with the mandates of the Highlands Act, and at the same time reflect the principles articulated in Executive Order No. 2.

5. COMMENT: The Department's April 21, 2016, informational session with municipal and county government officials at the Parsippany-Troy Township municipal building to discuss the proposal was closed and selective in nature. The meeting invited violations of, and was inconsistent with the spirit and intent of, the Open Public Meetings Act (OPMA), N.J.S.A. 10:4-6 et seq. The closed nature of the meeting undermines public trust and confidence in government and creates a climate of mistrust and suspicion that is divisive and a disservice to the public and stakeholders.

The informational session constituted a pre-proposal activity that violated both the APA and the Rules for Agency Rulemaking, particularly N.J.A.C. 1:30-5.3 regarding the solicitation of public input from the regulated or interested public, and N.J.A.C. 1:30-5.7 regarding negotiation of the language of a rule proposal with the assistance of the Office of Administrative Law.

The informational session violated the spirit and intent of the APA. The subject matter of the meeting is clearly regulatory in nature regarding the Department's exercise of discretion

delegated by the Legislature. The public and impacted persons have statutory and constitutional due process rights that must be recognized and protected by the Department in the course of rulemaking activities, including informal pre-proposal activities. (191)

RESPONSE: The informational meeting was held after the proposal had been authorized by the Commissioner and filed for publication in the New Jersey Register. It was not pre-proposal activity as contemplated by the Rules for Agency Rulemaking. The meeting was intended to provide information on the proposed rule to municipal and county government officials whose communities might be affected by the amended septic system density standards. Public input was not solicited, and the rule language was not being negotiated.

The Open Public Meetings Act (OPMA) imposes certain requirements on the meetings of public bodies, including that the public be given adequate notice of and the right to attend those meetings. N.J.S.A. 10:4-6 et seq. OPMA defines a "public body" as a group of two or more persons organized under the laws of this State, collectively empowered as a voting body to perform a public governmental function or collectively authorized to spend public funds, N.J.S.A. 10:4-8.a, and a "meeting" as a meeting held by a public body with the intent to discuss or act on the specific public business of that public body. N.J.S.A. 10:4-8.b. As discussed above, the April 21, 2016 informational meeting was a courtesy briefing for municipal and county government officials whose communities might be affected by the amended septic system density standards. As such, the informational meeting was not subject to the requirements of the OPMA. Members of the public who wished to attend the meeting were permitted to do so.

6. COMMENT: The Highlands Rules were readopted without change on December 1, 2015 (see 48 N.J.R. 79(a)), and the Department was under an obligation at that time to inform the public that it was contemplating a change to the septic density standards. The failure to announce a future rulemaking at that time amounted to a bait-and-switch that was problematic from a regulatory agency perspective. The anticipated rulemaking should have been published in the New Jersey Register as part of a quarterly calendar setting forth a schedule of the Department's anticipated rulemaking activities for the next six months pursuant to the provisions of the APA at N.J.S.A. 52:14B-3(4). (191)

RESPONSE: The APA provides for readoption of a rule without change to continue in effect a rule that is about to expire. The APA requirements governing the readoption of rules without change, N.J.S.A. 52:14B-5.1, provide that a notice of readoption must include the citation for the rule, a general description of the rule, the specific authority under which the rule is authorized, and the new expiration date of the rule. See also N.J.A.C. 1:30-6.4. The Department's notice of readoption of the Highlands Rules met those requirements, and renewed the chapter for a period of seven years. Renewing the rules ensured the continuation of the Highlands permitting program and the resource protection it provides.

That the Department was engaged in an effort to review and potentially revise the septic system density standards was a matter of public knowledge because of the proceedings in the New Jersey Superior Court, Appellate Division with respect to the Farm Bureau's appeal challenging the septic system density standards promulgated as part of the Highlands Rules in 2005 (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)), as well as subsequent activity such as the SAB's May 2011

report regarding the nitrate dilution model and its August 2014 review of the logistic-regression model used to correlate Highlands ground water nitrate data with land use characteristics.

As to the application of the APA quarterly rulemaking calendar provisions, the statute establishes several situations in which a proposal is excepted from the calendaring requirement, including a proposal for which a comment period of at least 60 days is provided. See N.J.S.A. 52:14B-3(5)(e). This proposal was exempt from the rulemaking calendaring requirement because the Department initially provided a 60-day comment period and subsequently extended that period by two weeks.

Comments in support of the amended septic system density standards

7. COMMENT: The proposed amendments are supported. (2, 30, 31, 43, 63, 67, 72, 74, 83, 86, 101, 115, 123, 141, 146, and 154)

8. COMMENT: The reduction in required lot sizes for new septic systems as proposed in the rules is supported. The rationale to tie the septic densities to the Protection Zone, Conservation Zone, and Existing Community Zone within the Highlands preservation area and tying the target nitrate level to actual data collected is reasonable. (45)

9. COMMENT: The Department is applauded for its continued efforts to collect scientific data and reassess the Highlands Rules. In 2005, when the Highlands Water Protection and Planning Act Rules (Highlands Rules), N.J.A.C. 7:38 were put in place, the commenter expressed concerns regarding the impact on landowner equity and development potential. In Hunterdon County, 15 of 26 municipalities, amounting to 45 percent of the county's land area, are affected

by the Highlands Rules, and 64,943 acres of the county are within the Highlands preservation area. The proposed amendments modifying the septic system density standards and relating them to the three defined land use capability zones (LUC) in the Highlands preservation area will help preserve landowner equity and increase the ability to develop property and potentially add to the municipalities' tax revenues. In addition, the proposed changes may also increase agricultural property values and positively impact Hunterdon County's very successful and robust farmland preservation program, which includes over 18,000 acres within the Highlands Region. The amendments will allow responsible economic development within the region without adverse effect on water quality or the environment. (96)

10. COMMENT: The Department is commended for remaining receptive to the concerns of New Jersey farmers and landowners, who raised legitimate questions about the lack of scientific basis for the septic system density standards instituted when the Highlands Act and the Highlands Rules were put in place. These fair and balanced amendments have the potential to restore at least some of the decline in economic value to the family farms and thousands of landowners who were negatively impacted by those septic standards. Those who continue to harbor concerns regarding these rule changes should consider the wealth of scientific evidence supplied by the Department. The proposed amendments are based on more than 20,000 well tests and peer-reviewed research, including extensive data compiled by the prestigious United States Geological Survey (USGS). This effort far surpasses the few hundred well tests conducted when the septic system density standards were first established. The implementation of these rule changes poses no threat to the water quality or open space protected in this region. (122)

11. COMMENT: The revised septic system density standards will continue to be protective as required by the environmental standards in the Highlands Act and will at the same time assist property owners in the Highlands Region by allowing them to use more of the land they own, which will in turn help strengthen the local economy and housing market.

Property owners will see certain constraints on the use of their land lifted due to this change in the septic system density standards, which could result in a reasonable, limited increase in development. This is important given the financial burden many property owners in the Highlands Region have faced since the Highlands Act was enacted. These amendments are one step that should be taken to assist property owners in the Highlands Region realize a potential increase in their property values. (175)

12. COMMENT: The amendments are a critical first step in addressing the loss of equity to farmland owners in the Highlands Region. The changes will not harm existing water quality, since, as described by the Department in the proposal summary and impacts, if there were no other environmental constraints in the region, the maximum number of new septic systems the revised septic system density standards would yield is 10,710 or 1,145 more systems than under the existing rules. This is less than one new system per square mile of the preservation area. (159)

13. COMMENT: As a full-time farmer in the Highlands preservation area owning more than 400 acres of permanently preserved land in addition to several other homes and tracts of land, I am well aware of impacts that the Highlands Act has had upon landowners in the region. The proposed amendments offer a small amount of necessary and reasonable assistance to those that

live in the Highlands Region and have felt the challenging economic impacts of the Highlands Act upon their daily lives. Septic systems are needed even on preserved lands for non-residential buildings and uses, and the new rules will allow for a little more practical construction of new systems on an appropriate amount of land that is used for full time agricultural production. (4)

14. COMMENT: It is appropriate for the Department to evaluate and consider the additional ground water nitrate data reported pursuant to the New Jersey Private Well Testing Act (PWTA, N.J.S.A. 58:12A-26 et seq.), which was reviewed and modeled by USGS, to inform and amend the septic system density standards. The revised standards will increase the development potential for agricultural lands in the preservation area by varying degrees depending on land use capability zone (LUC Zone) in which they are located. The increased density should then be reflected in local zoning, easement value, and a landowner's Highlands Development Credit allocation. These modest changes will not result in the fragmentation of the preservation area, as the slight to moderate increase in land value alone will provide a financial benefit to farmland owners. Since the majority of agricultural land is located in the Conservation LUC Zone, any land that is ultimately developed would have to be clustered, with at least 80 percent of the total project area preserved in perpetuity for agricultural use or environmental protection. (24)

15. COMMENT: The proposed changes to the septic system density standards, though modest, are welcome. The four-part formula used to create the septic density standard is only being changed in one aspect (nitration dilution target), and it is being changed on the basis of more abundant well data with a still conservative target. Other parts of the formula are also flawed and deserve to be moderated, so this one change is really a bare minimum in what should be revised.

The nitrate standard target used to develop the prior standards was overly protective, in that it was ten times more strict than the potable drinking water standard. There was little well water data to support it. This lack of science created the suspicion that the rule was geared to simply stop development. Everyone should keep in mind that the proposed revision only does two things: it adjusts the nitrate target and then applies it to the three planning zones of the Highlands RMP. The Highlands Water Protection and Planning Act envisioned a balance between careful protection of the most pristine areas and planned growth in the region, where more than 800,000 people already live and work. The New Jersey Highlands is not and never has been a wilderness area.

The rule change now synchronizes the land use restrictions of the Highlands Act and the adopted RMP so any limited amount of new growth must protect the Highlands natural resources subject to more than 50 layers of regulation. The LUC Zones make it clear where limited development might be accommodated without danger to the water and other resources, thus providing more protection from development, not less. In what is now the Conservation Zone of the preservation area, for example, only cluster development is permitted, thus reducing development options on agricultural land in the preservation area. If towns decide to build more housing or development to enhance economic viability, they will be more protected from legal challenge, not less.

Criticism of this proposal regarding massive new development and increased impervious cover in the forested areas is false. Only about 17 percent or 70,000 acres of the 415,000-acre preservation area is available for any use. The remaining 83 percent is already preserved or owned by State, local or municipal governments. The Highlands Act and the Department's

Highlands Rules already allow 9,565 new septic systems, if landowners exercised the development exemptions provided by the Act and Highlands municipalities used their land use powers. The proposed changes could add only 1,145 new septic systems but in no way make it easier to build anywhere. Local planning and zoning, the RMP, and the Highlands Act Rules and restrictions are unchanged, which are still major hurdles for any development proposal to overcome.

The "fair compensation" funding source promised by the Legislature to Highlands landowners is nonexistent. The transfer of development rights (TDR) program that the Highlands Act promised as an equity compensation tool has also failed to materialize. These rule changes may be beneficial if it becomes easier for municipalities to use TDR to compensate their landowners. In summary, these rule changes are long overdue. They will restore a measure of Highlands protection on a fair and reasonable basis. (171)

16. COMMENT: The Department is applauded for reviewing and proposing to revise the septic density standards based upon a larger data set (specifically, 19,371 nitrate samples from private potable water supply wells) that was obtained through the implementation of the New Jersey Private Well Testing Act (N.J.S.A. 58:12A-26 et seq.). Various affected entities had questioned the development of the prior standards, which were based upon a significantly smaller well water data set. The Department's regulatory programs should always be grounded in up-to-date science and in keeping with the latest information and technological advancements. While the rulemaking is supported, the underlying methodology and formula should be re-examined. The revised septic system density standards represent only a modest improvement over the previous

standards because they still rely upon overly conservative assumptions, and are not fully supported by the data.

Since the proposed revisions and data collected are limited to the preservation area of the Highlands Region, which is under the purview of the Department., the Highlands Council is urged to also review the data to determine if any improvements may be made to allow for appropriate development in the planning area. Without the Council also taking such a proactive step for the planning area, these rule changes are only an incremental step towards addressing global issues of how to facilitate appropriate economic development opportunities in the Highlands Region. (61)

17. COMMENT: I am a farmer in the Highlands area of Northwestern New Jersey. The Department has already stolen the equity from old time farmers with the Highlands Rules, and farmers have never been compensated. However, I support the new septic density rule changes, using well testing data for nitrates and matching up with the Highlands Regional Master Plan,. (180)

18. COMMENT: The proposed amendments are a fair and balanced approach to address the loss of equity to owners of farmland across the Highlands Region who lost equity as a result of the Highlands Act. (93, 108, 118, 160, and 180)

RESPONSE TO COMMENTS 7 THROUGH 18: The Department acknowledges these comments in support of the amended septic system density standards, including the Department's use of the expanded ground water nitrate data set to develop the standards and relating the standards to the LUC zones established by the Highlands Council in the RMP. To

the extent the amended septic system density standards might enhance property values, the amendments support the goals of the Highlands Act to encourage appropriate economic growth and development, as well as maintain agricultural production and a positive agricultural business climate, in the Highlands Region, while ensuring the protection of the water resources and other natural resources of the area. See N.J.S.A. 13:20-2.

Comments generally opposing the amended septic system density standards

19. COMMENT: The proposed amendments are opposed. (49, 82, 105, 107, 167, 174, 187, 188)

RESPONSE: The Department acknowledges the commenters' opposition to the rulemaking.

20. COMMENT: The rule proposal is not necessary because no court has ordered it. The existing rules have been challenged in court and they have been upheld by the court. (10, 60, 90, 132, 148, 169, and 177)

RESPONSE: A court order is not necessary for the Department to undertake rulemaking. However, as explained in the proposal summary, the Department's effort to amend the septic system density standards was prompted in part by the challenge brought in the New Jersey Superior Court, Appellate Division, by the New Jersey Farm Bureau of the prior septic system density standards, which were promulgated in 2005 as part of the new Highlands Rules. 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). After remand to the Department for an evidentiary hearing before the

Office of Administrative Law, the standards were found to have been based upon substantial credible evidence in the record and a valid exercise of the agency's discretion, and the Farm Bureau was found to not have met 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. 7:38-1 et seq., OAL Dkt No. ELU6353-08, 2009 N.J. AGEN LEXIS 175, Initial Decision (March 24, 2009), 2009 N.J. AGEN LEXIS 1119, Final Decision (July 13, 2009). Thereafter, at the request of the Department, and with the consent of the Farm Bureau, the Department sought another remand of the matter so that it could develop and propose appropriate amendments to the septic system density standards. The Appellate Division granted the Department's motion and dismissed the Farm Bureau's appeal without prejudice in 2012. The proposal of the amended standards followed, after significant research and effort by the Department aimed at expanding the ground water nitrate data set on which the standards are based and relating the standards to the LUC zones that the Highlands Council established based on its own extensive work assessing the natural resources of the Highlands Region and the appropriate amount of development the Highlands ecosystem can sustain.

21. COMMENT: The Department should not adopt the proposed changes to the Highlands septic rule. The changes will threaten drinking water in the Highlands and lead to sprawl and over-development. They will open up the contiguous forests of the Highlands Preservation Area, which form the core of the watersheds that supply nearly three-fourths of New Jersey's population with drinking water and provide habitat for rare, threatened and endangered species, to four times more development. These changes will lead to loss of forests, increase of runoff, pollution, and flooding, all impacting pristine trout streams and reservoirs. They will also

increase towns' affordable housing obligation, leading to further sprawl, over-development and pollution.

The changes violate the legislative intent of the Highlands Act to prohibit any activity that could degrade ground water quality by failing to reflect deep aquifer recharge and using a false baseline – ground water test results from development built on septics as opposed to core forest. The Highlands Act requires water quality data that has not been impacted by development. The USGS study on which the changes are based uses data from a shallow aquifer outside of the Forest Preservation Area. (3, 5, 7, 8, 10, 12-16, 20-22, 25, 26, 27, 29, 32, 35-37, 40-42, 46-48, 50, 52-56. 58, 59, 62, 65, 68-71, 76-81, 85, 87-92, 94, 95, 97, 99, 103, 104, 109, 110, 117, 120, 125-128, 130-132, 134, 136-138, 140, 142, 143, 145, 147-149, 152, 153, 155, 156, 158, 161, 164-166, 169, 170, 172, 176, 177, 179, 182-186, 189, 190, 193, 194)

RESPONSE: Implementation of the amended septic system density standards will not lead to sprawl and overdevelopment in the Highlands preservation area, or threaten water quality. As explained in the proposal summary, the Department conducted a parcel analysis to determine the number of additional septic systems that might be possible under the amended septic system density standards, as compared to the prior standards. There are approximately 414,900 acres of land in the Highlands preservation area. 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 among 9,378 individual lots. There is the potential for one septic system to be built on each of those 9,378 lots under an applicable Highlands Act exemption (N.J.S.A. 13:20-28 and N.J.A.C. 7:38-2.3), notwithstanding the septic system density standards.

In its parcel analysis, the Department evaluated each of the 9,378 lots to determine how many septic systems could be built under the amended standards based on the total number of acres of each lot and the number of acres of each LUC zone present on the lot, and compared that to the number of septic systems that could be built under the prior standards based on the number of forest and non-forest acres per lot. Where the calculation indicated no septic system could be built on one of the 9,378 lots under the amended or prior standards, the Department assumed one septic system could be built under an applicable Highlands Act exemption.

The results of the parcel analysis indicated that the amended septic system density standards might result in up to 1,145 additional individual septic systems, or about 12 percent more septic systems than could be built under the prior standards. This result reflects the fact that approximately 90 percent of the 9,378 lots not already developed or preserved are less than 22 acres in size, and thus, under the amended septic system density standards, would not support one or more individual septic systems other than the one septic system that would be allowable under an applicable exemption.

The basis for the commenters' assertion that the amended standards will result in four times more development in the preservation area is not clear. It appears that the assertion is based on 88 being roughly four times 23, such that the adopted septic system density standard for the Protection Zone (which comprises primarily high resource value lands in terms of forest resources, critical habitat, water quality and quantity and ecological function) of 23 acres per septic system will enable four times more septic systems to be built than could be built in forest areas under the prior septic system density standard of 88 acres per system. That reasoning, however, is an

oversimplification of the impact of the amended standards as explained above and in the proposal summary.

A person seeking to construct a development that constitutes a major Highlands development (including residential development) on septic systems must obtain a Highlands Preservation Area Approval (HPAA) from the Department in accordance with the Highlands Rules, N.J.A.C. 7:38. An HPAA, as required by the Highlands Act, satisfies the requirements for approval under other State environmental statutes, including the Flood Hazard Area Control Act and the Freshwater Wetlands Protection Act, and the Highlands Rules incorporate the appropriate requirements of the Department rules implementing those statutes. See N.J.A.C. 7:38-2.2(d). The issuance of an HPAA is subject to all the prohibitions and standards that provide strict protection for Highlands water and other natural resources under the Highlands Act. These resource protection standards, which are incorporated into the Highlands Rules at N.J.A.C. 7:38-3, govern, among other things, impervious surfaces; Highlands open waters; flood hazard areas; steep slopes; upland forested areas; historic or archaeological areas; rare, threatened or endangered plant and animal species; and unique or irreplaceable land types and existing public scenic attributes.

Thus, while there is the potential for some additional development on individual septic systems to take place in the Highlands preservation area, including in the Protection Zone – notwithstanding the potential number that could be built because the Highlands Act specifically allows them through statutory exemption – any additional development is subject to the overall Highlands preservation area permitting program under the Highlands Rules that ensure protection of natural resources in the Highlands.

With respect to the effect of the amended septic system density standards on towns' affordable housing obligations, the current statutory, regulatory, and administrative framework implements a cooperative planning process that fosters the constitutional and legislative mandates of both the Fair Housing Act, N.J.S.A. 52:27D-301 et seq., and the Highlands Act. Specifically, the Highlands Act provides that the Council on Affordable Housing (COAH) shall take into consideration the RMP prior to making any determination regarding the allocation of the prospective fair share of the housing need in any municipality in the Highlands Region under the Fair Housing Act for the fair share period subsequent to 1999. See N.J.S.A. 13:20-23.a. Additionally, Executive Order No. 114 (2008) established a series of cooperative mechanisms between the Highlands Council, the Department, COAH, and the Department of Community Affairs to ensure that municipalities that voluntarily conformed to the Highlands RMP did so in a way that maximized affordable housing opportunities while preserving critical environmental resources.

As to the assertion that the amended septic system density standards do not conform to the mandate of the Highlands Act that the Department establish them in consideration of deep aquifer recharge available for dilution, and do not account for nitrate levels in the ground water in undeveloped areas of the Highlands preservation area, please see the response to Comments 27 and 28.

Concerns with Nitrate Dilution Model Inputs

22. COMMENT: The values used for calculating the number of persons per household in the Highlands region should be revised. The average number of persons per household is 2.7 region wide according to U.S. Census Bureau data, and the household size in the Highlands region has been declining over the years, which fact has been documented in many governmental and non-governmental documents. (45, 93, and 157)

23. COMMENT: The Basis and Background document referenced in the 2005 proposal of the prior septic system density standards, which the Department also references in the proposal of the revised standards, states that a number of modifications were made to the GSR-32 Recharge based nitrate dilution model to allow for a smoother approximation of meteorological conditions across the State. The standard GSR-32 model incorporates variations in land use, soil type and locally based climate based factors that account for rainfall and temperature. In the modeling used for the Highlands calculations, the climate factors were revised to allow for a smoother transition throughout the state (regionalization). This "smoothing" includes the use of the drought of record to estimate recharge rates, and the use of three percent impervious coverage as a fixed value.

The ground water recharge rate during the drought of record, 1961 to 1966, was calculated and averaged out to be 9.8 inches per year region wide. Two issues are raised with using the averaged ground water recharge rate based on the drought of record and applied region wide. The Basis and Background document states that the recharge rates varied among watersheds from 9.2 inches per year to 10.4 inches per year so the average of 9.8 inches was selected as the recharge rate. This assumption ignores the varying local soil types and recharge rates that are within each of the watersheds. To establish sound results it would seem

appropriate to use model assumptions that are germane to the specific areas to which the results will be applied, rather than based on a broad-based analysis that may have no rational application to the area being regulated.

The use of the drought of record is problematic inasmuch as the drought of record was an aberration in New Jersey's precipitation history. According to the Rutgers Climate website the average rainfall normal periods have been increasing since 1895. From 1895 to 1970 the mean precipitation amount was 44.57 inches. From 1971 to 2000 the mean precipitation amount was 49.79 inches. From 2001 to 2015 the mean precipitation amount was 50.91 inches.

The Sustainable Jersey Climate Change Adaptation Task Force (CATF) "New Jersey Climate Change Trends and Projections Summary" from 2011 discusses similar historical trends regarding precipitation and drought. Looking at the Rutgers data and the Sustainable Jersey report, it would be more appropriate to use an assumption based on the fact that average annual precipitation has been increasing over time and that precipitation is projected to continue to increase into the future. In further support of abandoning the drought of record is that although short term soil moisture droughts affecting agriculture may be more frequent, the severity and frequency of water-supply droughts are not projected to change from what occurs under existing climate conditions. (45)

24. COMMENT: The drought of record is an extremely conservative value and not reflective of the non-degradation standard found in the Highlands Act, because the drought of record reflects extreme conditions. (157 and 160)

RESPONSE TO COMMENTS 22 THROUGH 24: As discussed in the proposal summary, the Department employed the same nitrate dilution model and equation in developing the amended septic system density standards as it used in developing the prior standards that were promulgated in 2005 as part of the then-new Highlands Rules. The basis and inputs for the nitrate dilution model were explained in the summary statement of the notice of proposal to readopt the Highlands Rules (see 37 N.J.R. 4767(a), 4779-4781) and in the Basis and Background document referenced in that notice of proposal and made available at that time (see http://www.state.nj.us/dep/highlands). The Department also responded to comments regarding the model in the notice of adoption (see 38 N.J.R. 5011(a)).

The reasonableness of the methodology was challenged by the Farm Bureau and, after a fact-finding hearing at the Office of Administrative Law, was determined to constitute a rational, scientific basis for the standards. In re Highlands Water Protection and Planning Act Rules, N.J.A.C. 7:38-1 et seq., OAL Dkt No. ELU6353-08, 2009 N.J. AGEN LEXIS 175, Initial Decision (March 24, 2009), 2009 N.J. AGEN LEXIS 1119, Final Decision (July 13, 2009).

Subsequently, during the time the Department was developing the amended septic system density standards, it referred a series of questions regarding the nitrate dilution model to the Water Quality and Quantity Committee of the SAB which issued a March 14, 2011 report concluding that the nitrate dilution model is an appropriate tool for estimating, on a 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/.

As explained in the prior rulemaking documents, as well as in the summary of the May 2016 proposal of the amended standards (see 48 N.J.R. 677(a), at 678, 680), in developing the both the prior and the amended standards, the Department took into consideration the mandate under the Highlands Act to establish the septic system density standards at levels that will prevent the degradation of water quality and protect ecological uses from individual, secondary, and cumulative impacts, in consideration of deep aquifer recharge available for dilution. In doing so, the Department used conservative values for inputs to the nitrate dilution model, specifically, the number of persons per household (four) and the recharge rate (9.8 inches/year based on the drought of record), that would result in standards more protective of water quality. As explained above, these values had been determined appropriate. For the amended standards, the Department used the same nitrate dilution model with the same values for the inputs, except for the target ground water nitrate concentration.

With respect to the target ground water nitrate concentration, in developing the amended standards the Department had significantly more data than was available when the prior septic system density standards were developed, specifically, the additional ground water nitrate data reported from 2002 through 2011 pursuant to the New Jersey Private Well Testing Act, amounting to 19,371 nitrate analyses. In addition, the Highlands Council had established the land use capability map, which reflected the Highland Council's extensive assessment of Highlands resources and land uses that appropriately grouped like land uses, land cover types, and resources in the Highlands Region into three land use capability zones (Protection, Conservation, and Existing Community), thus providing a basis for the Department to establish a target nitrate concentration for each zone.

Concerns with the revised ground water nitrate target concentrations and use in the nitrate dilution model

25. COMMENT: Rather than being based on new or comprehensively scientific information, the USGS study that is the basis for the proposal was based on old state data of extremely poor quality and reliability. The commenter provided a website link to the "Information Quality Complaint" (dated May 18, 2016), requesting rescission of the USGS study, submitted by the Public Employees for Environmental Responsibility (PEER) to the USGS Office of Science Quality and Integrity. (191)

RESPONSE: The Department believes its use of the logistic-regression model developed by USGS to correlate Highlands ground water nitrate data with Highlands land use characteristics and described in the USGS report, 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), was proper. As stated in the proposal summary, the logistic-regression model was reviewed and found appropriate by the SAB in 2014. The PWTA nitrate data used by USGS was subject to strict quality controls. The PWTA requires that any test for drinking water contaminants must be conducted by a laboratory certified by the Department. N.J.S.A. 58:12A-30.a. The Department's rules implementing the PWTA at N.J.A.C. 7:9E provide that water samples must be collected by a New Jersey certified laboratory or a certified laboratory's authorized representative, in accordance with the water sampling and testing requirements in the PWTA rules as well as in compliance with the Department's Regulations Governing the Certification of Laboratories and

Environmental Measurements at N.J.A.C. 7:18. See N.J.A.C. 7:9E-2.2. In addition, the Department notes that the USGS responded to the complaint submitted by PEER by letter dated February 10, 2017, finding no corrective action with respect to the study is warranted (see https://www2.usgs.gov/info_qual/documents/Final_USGS_Response_021017.pdf).

26. COMMENT: Twenty-three percent of the Private Well Testing data is classified as non-detect, with a method detection limit up as high as 10 milligrams. This violates the drinking water quality standard. If the nitrate reading was 9.7 mg/L in such a circumstance, the Department threw it out. Having 23 percent of the data as non-detect with an analytical detection limit at 10 mg/L is bizarre. (191)

RESPONSE: The Department explained in the proposal summary how the PWTA data set for the period September 2002 through January 2011 was analyzed for purposes of developing the target nitrate concentration for each of the LUC zones in the preservation area (48 N.J.R. 677, at 679-680). Because the PWTA prohibits the release to the public of specific sample locations, the Department superimposed a grid of 9,745 2,000 foot by 2,000 foot cells on the Highlands Region, and provided the USGS with the nitrate sample data identified by cell, not specific location. Of those 9,745 cells, there were 5,228 for which there was no nitrate data. Because there was no nitrate date for some cells and because the 4,517 cells with nitrate data were not evenly distributed across the Highlands Region, a logistic-regression model was used to estimate the median nitrate concentrations in each cell in relation to particular land use characteristics. The centroid of each cell was then assigned to either the Highlands planning area or preservation area and also to one of the overlay LUC zones. The median of all the median nitrate

concentrations of the cells of a zone became the target median nitrate concentration used in the nitrate dilution model to establish the septic system density standard for that zone.

The commenter asserts that the Department disregarded 23 percent of the PWTA nitrate results because they were non-detect (ND). However, this is not the case.

Of the 19,371 samples in the PWTA data set, 4,471 samples, or approximately 23 percent, were reported as ND. An ND result means nitrate was not detected in the ground water sample in a concentration greater than the method detection level. Thus the nitrate concentration could have ranged from zero to the method detection level. The method detection levels for the PWTA data set ranged from 0.020 to 10.0 mg/L (USGS report, 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).)

As further explained in the proposal summary, in order to calculate a median nitrate level in any one cell, a value had to be assigned to any nitrate sample, or nitrate samples, for that cell that was reported as ND. Otherwise, the median value for the cell (which is the value that is at the midpoint of the distribution of values in the cell, such that there is an equal probability of values falling above or below it) would reflect only those samples in which nitrate was reported above the method detection level and would not account for any samples in the cell in which nitrate was tested for but not detected because the nitrate concentration was less than the method detection level. To determine the value to assign ND samples, the USGS evaluated four substitutions for the ND values. Based on those evaluations, the Department determined to use the substitution of zero nitrate for the ND value because, of the four substitutions, it provided the

lowest estimate of median nitrate concentration in the Protection LUC zone, which is where, as established by the RMP, the high natural resource value lands important to maintaining water quality, water quantity, and sensitive ecological resources are found. Using the lowest estimated median nitrate concentration in the nitrate-dilution model yielded the most protective septic system density standard for that zone.

27. COMMENT: The USGS study on which the proposed septic density standards are based conflicts in both its design and in its statistical analyses with the Highlands Act's legislative policies and standards. The PWTA data were collected from residential wells of unknown but likely relatively shallow depth, ignoring the legislative mandate to consider "deep aquifer recharge." The PWTA data, which accounts for 96 percent of the data analyzed, is skewed and not likely to be representative of the Highlands deep aquifer. According to the USGS report, the PWTA data has a "spatial bias in well locations because many sampled wells are located in urban areas; thus a bias in median nitrate concentrations…over representation of urban and possibly agricultural areas and under-representation of forested areas in the…database must, therefore, result in higher median nitrate concentrations for all water samples than the actual median concentration for groundwater underlying the entire Highlands Region or any Area, Zone or Area/Zone combination." USGS/DEP SIR 2015-5075, page 14. (60 and 148)

28. COMMENT: The proposed septic density standards were not derived "in consideration of deep aquifer recharge available for dilution" as expressly mandated by the Highlands Act. The purpose of using the deep aquifer recharge was to find the standard to show what background nitrate levels would be in the area of the Highlands that are undeveloped and to be as close to the

original Highlands water conditions before man-made activities and development. Almost all data that was used for the proposed septic density standards came from a shallow aquifer, developed areas, and lake communities that have higher levels of nitrates. The new standards are based on a USGS study that relied almost exclusively on data from the PWTA. According to the USGS study, the source of the PWTA data was shallow residential wells and the data did not include well depth or aquifer, which are essential data attributes required to determine if deep aquifer recharge is considered. (177, 191)

RESPONSE TO COMMENTS 27 AND 28: The Highlands Act mandates that the Department establish the septic system density standards "at a level to prevent the 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." N.J.S.A. 13:20-32.e. There is no explanation in the Act of the phrase "in consideration of deep aquifer recharge available for dilution," and, as the Department noted in the summary of the 2005 proposal to readopt the prior septic system density standards, there is no widely accepted means to estimate deep aquifer recharge. See 37 N.J.R. 4767(a) at 4779. Recharge is precipitation that percolates into the ground to recharge the aquifer. The Department nitrate dilution model used to develop the prior septic system density standards, which the Department used again to develop the amended standards, accounts for aquifer recharge through the ground water recharge rate parameter assigned the value of 9.8 inches/year. The recharge rate was derived using a ground water recharge model customized to reflect conditions specific to New Jersey and the Highlands, and based on conservative assumptions, including using the

drought of record in the model for developing the recharge rate value, to provide a more water-quality protective result. See 37 N.J.R. 4767(a) at 4779.

While the Department acknowledges that direct measurement of the nitrate levels in the ground water throughout the Highlands would also have yielded very reliable results for purposes of determining target nitrate concentrations in the various areas of the Highlands with land use types ranging from forest to agricultural areas to towns, there are significant cost and environmental impacts that would be associated with attempting to directly measure ground water nitrate levels that the use of the PWTA well data combined with the data from existing USGS wells, and the application of the USGS logistic-regression model avoided. The Highlands Region encompasses approximately 860,000 acres. To obtain ground water nitrate samples from so large an area would necessarily require the installation of many new observation wells. At a cost of approximately $10,000 per observation well, the cost to drill multiple wells for the purpose of directly measuring ground water nitrate levels would quickly become exorbitant. As to environmental impacts, access to the well location for a drilling rig may necessitate construction of some type of temporary road, and the drilling process generates drill cuttings (broken bits of rock) that must be properly disposed of. These potential impacts to the environment militate against installing numerous wells to measure nitrate levels across the Highlands Region, especially in forested or relatively undeveloped areas.

The Department also acknowledges that the PWTA wells are, by definition, from areas where there is some development – for example, a single home. However, as explained in the proposal summary, the USGS logistic-regression model was used to correlate all of the nitrate concentrations from both the PWTA and the USGS NWIS data sets with various Highlands

Region land use characteristics. This allowed the nitrate data from wells in areas with some development to be used to accurately estimate median nitrate concentrations throughout the Highlands. (See USGS report, 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 Department also notes that, following the paragraph in the USGS report cited by the commenters, the report states: "Spatial bias in well locations was reduced by calculating a single nitrate concentration for each grid cell, then calculating the median concentration at the grid-cell level. Each grid cell that contained wells in the combined NWIS-PWTA database received equal weight in all calculations. The remaining spatial bias is caused by the lack of nitrate data for about one-half the grid cells; those grid cells tended to have a larger percentage of forested land use [citing table 1 in the report]. Therefore, although median concentrations at the grid-cell level are subject to less spatial bias than those calculated from individual nitrate concentrations, some spatial bias remains and leads to over-estimation of median nitrate concentrations." In order to address the latter concern about the remaining spatial bias leading to an over-estimation of median nitrate concentrations, as explained in response to Comment 26 and in the proposal summary, the Department determined it was appropriate to employ the most conservative of four approaches for assigning a nitrate value to samples reported as having non-detect (ND) values. Replacing all ND values with a value of zero nitrate resulted in the lowest estimate of median nitrate values, which when used in the nitrate-dilution model yielded the most protective septic system density standards.

Amended septic system density standards are not consistent with the mandate of the Highlands Act regarding establishment of the septic system density standard

29. COMMENT: The proposed septic system density standards, as compared to the existing standards, do not meet the legislative requirement relating to the development of a septic system density standard at N.J.S.A. 13:20-32e, that is, the Department's rules were to establish a septic density standard "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."

Simply adopting the existing median concentrations as a determinant of density most certainly guarantees that where water quality is currently better than the median values, (natural conditions) it will be allowed to degrade. Additionally, those waters that are worse than the median will not be capable of restoration as required. This approach is, on its face, contrary to legislative intent.

Using a single factor (median nitrate concentrations) to increase density ignores the additional negative environmental consequences of allowing more development in the preservation area, such as forest fragmentation, impervious surfaces generated by access roads, thermal impacts, increased erosion and sedimentation, and increased ground water withdrawals, which may rationally be expected to increase but remain unaddressed under the proposal. Importantly, the Department's approach to viewing each application in isolation guarantees that secondary and cumulative impacts will remain unaddressed as water quality is allowed to degrade to the median values.

The position taken by the Department not only undermines the Highlands Act's goal of restoring water quality, but directly contradicts the Highlands Act's requirement to institute a non-degradation water quality policy as required in section 32g. The Department's Surface Water Quality Standards for "non-degradation (F1) waters" (present in the Highlands Region, especially in the preservation area) state that the quality of nondegradation waters shall be maintained in their natural state (set aside for posterity) and shall not be subject to any manmade wastewater discharges. The Department shall not approve any activity which, alone or in combination with any other activities, might cause changes, other than toward natural water quality, in the existing surface water quality characteristics.

The policy in the Surface Water Quality Standards with regards to Category One Waters, specifically named in the Highlands Act, states that Category One Waters shall be protected from any measurable changes (including calculable or predicted changes) to the existing water quality. Water quality characteristics that are generally worse than the water quality criteria, except as due to natural conditions, shall be improved to maintain or provide for the designated uses where this can be accomplished without adverse impacts on organisms, communities, or ecosystems of concern.

In sum, the rule proposal not only falls short of complying with legislative intent but does not comply with the non-degradation policies as defined in the Department's Surface Water Quality Standards as required in the Highlands Act. (127)

RESPONSE: The commenter cites two of the provisions in the section of the Highlands Act, N.J.S.A. 13:30-32, that describes the environmental standards the Department must promulgate in its rules implementing the Act. Citing N.J.S.A. 13:30-32.e, which requires that the septic

system density standards be established "at a level to prevent the 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," the commenter takes issue with the Department's use of existing median nitrate concentrations in ground water as a determinant of septic system density because doing so will mean that, where ground water quality is better than the median nitrate concentration, development on septic systems pursuant to the amended septic system density standards will worsen water quality. The commenter suggests that the septic system density standards based on the existing median nitrate concentrations will allow more development in the Highlands preservation area and consequent adverse environmental impacts, including increased forest fragmentation, additional impervious surface, and increased erosion and sedimentation. Thus, the commenter asserts, the Department's approach to establishing the septic system density standards also contradicts the provision at N.J.S.A. 13:30-32.g, which requires that the antidegradation provisions of the Department's Surface Water Quality Standards (N.J.A.C 7:9B) and the Stormwater Management Rules (N.J.A.C. 7:8) applicable to Category One waters be applied to Highlands open waters, since the antidegradation standard in the SWQS provides that Category One Waters shall be protected from any measurable changes (including calculable or predicted changes) to the existing water quality.

In order to establish a septic system density standard to meet the mandate of the Highlands Act, it was necessary for the Department to establish target nitrate levels in the ground water of the Highlands that the septic system density standards, when implemented, would protect from degradation. As discussed in response to Comments 22 through 24, and in the

proposal summary, the Department employed the same nitrate dilution model and equation in developing the amended septic system density standards as it used in developing the prior standards that were promulgated in 2005 as part of the then-new Highlands Rules. The reasonableness of the methodology, including the inputs to the nitrate dilution model, was challenged by the Farm Bureau and, after a fact-finding hearing at the Office of Administrative Law, was determined to constitute a rational, scientific basis for the standards. In addition, during the time the Department was developing the amended septic system density standards, it referred a series of questions regarding the nitrate dilution model to the Water Quality and Quantity Committee of the SAB, which issued a March 14, 2011 report concluding that the nitrate dilution model is an appropriate tool for estimating, on a regional basis, the impacts to ground water from nitrate in septic system effluent.

Of the inputs to the nitrate dilution model, only the value for the target ground water nitrate concentration was modified for purposes of developing the amended septic system density standards. As explained in the proposal summary, the Department had information it did not have at the time the prior septic system density standards were developed. It had the additional ground water nitrate data reported from 2002 through 2011 pursuant to the New Jersey Private Well Testing Act, amounting to 19,371 nitrate analyses, which data was combined with the nitrate results measured in USGS wells for an expanded and more accurate data set of nitrate levels in ground water throughout the Highlands. Also available as of 2008 was the Highlands Council's RMP and land use capability map, which reflected the Highlands Council's extensive assessment of Highlands resources and land uses that appropriately grouped like land uses, land cover types, and resources in the Highlands Region into three land use capability zones

(Protection, Conservation, and Existing Community), thus providing a basis for the Department to establish a target nitrate concentration for each zone and therefore a septic system density standard appropriate to each zone.

As noted in response to Comments 27 and 28, median nitrate concentrations predicted through a logistic regression model were used because direct measurement of nitrate levels in ground water throughout the Highlands by drilling observation wells would have been cost-prohibitive and also would likely have had adverse environmental impacts, especially in the undeveloped, more pristine areas that the Highlands Act seeks in particular to protect.

The Department acknowledges that the amended septic system density standards allow for some further development in the Highlands preservation area as compared to the amount that would have been possible under the prior standards. As discussed in the proposal summary as well as in the response to Comment 21, the parcel analysis conducted by the Department showed that the amended septic system density standards might result in up to 1,145 additional individual septic systems, or about 12 percent more septic systems than could be built under the prior standards. Under either the prior standards or the amended standards, the potential amount of development on septic systems does not include the amount of development on individual septic systems that could potentially be undertaken pursuant to an applicable Highlands Act exemption, which the parcel analysis indicates is 9,378.

The commenter's assertion that the additional development that might be possible pursuant to the amended septic system density standards will necessarily result in adverse environmental impacts including forest fragmentation, increased impervious surface, and

increased erosion and sedimentation, and will therefore also have impermissible impacts to surface waters in the Highlands, ignores the fact that any major Highlands development is also subject to all of the applicable resource protection standards of the Highlands Act and rules, which are described in the response to Comment 21.

The Highlands Act requirement that the antidegradation provisions of the SWQS applicable to Category One waters be applied to Highlands open waters is incorporated into the Highlands Rules at N.J.A.C. 7:38-3.6, Highlands open waters. Under that rule, no major Highlands development is permitted within a Highlands open water or in the 300-foot buffer to a Highlands open water except for, in very limited circumstances, linear development. Thus, where applicable, any development allowed pursuant to the amended septic system density standards must comply with that prohibition.

Amended septic system density standards related to the LUC Zones will not allow property owners in the Protection and Conservation LUC zones of the preservation area to realize the development potential of their land

30. COMMENT: The existing rule was developed by the Department using a nitrate dilution standard applied to two clearly knowable land characteristics: forested and unforested properties. This may be described as "zero based mapping," as the map onto which the nitrate dilution standards were applied was blank, excepting only the clear differentiation of land with forests and land without forests. This mapping was not arbitrary or capricious because the underlying map included no pre-existing assumptions. All properties in the Highlands preservation area were treated equally.

The proposed rule both changes the nitrate dilution standards and changes the zero-based mapping. The proposed rule maps new nitrate dilution standards onto the three land use capability zones of the Highland Regional Master Plan map. The proposal states that the use of zones in determining nitrate targets "better accounts for the influence of land uses." The private well data uninfluenced by map manipulation is what must determine the nitrate targets in order for the targets to be scientifically sound. It is the nitrate data that must determine the land's use capabilities, not the other way around.

Mapping the new nitrate dilution standards onto a different map that is itself not reasonable results in the lion's share of any property value benefits from the new standards being immediately vaporized. The new standards have been mapped in a manner that improves almost nothing. The information provided by the Department at the informational meeting with municipal and county government officials on April 21, 2016 evidences this point. The Department indicated that 92 percent of lots in the Highlands preservation area would not be impacted by the rule change and that only slightly over 1,000 additional buildable lots would be created, a figure that is insignificant.

Most of the Highlands preservation area is in the Protection land use capability zone. Non-forested preservation area Protection LUC zone properties are rezoned from 25 acres to 23 acres. This is not meaningful. In theory, forested preservation area Protection LUC zone properties are rezoned from 88 acres to 25 acres. However, the number of preservation area Protection LUC zone properties that are unconstrained and without existing deed restrictions approximates a null set. There are few if any property owners in the preservation area who will benefit from the forested rezoning. Preservation area Conservation LUC zone properties are

rezoned from 25 acres to 12 acres. However, the Conservation LUC zone is largely in the Highlands planning area, not the preservation area. There are a miniscule number of property owners in the preservation area who will benefit from the Conservation LUC zone rezoning.

The preservation area is largely designated as Protection LUC zone. This zone, where the vast majority of property value loss is located, will not benefit from any rezoning. To apply the new nitrate dilution standards to unforested Protection zone properties differently than unforested Conservation zone properties is a violation of equal protection. The existing rule did not violate equal protection in its mapping; the proposed rule does.

The proposed rule must be revised by remapping using the original zero-based mapping approach of applying the new nitrate dilution standards to the original forested and unforested map without contamination by the RMP map. All property owners in the preservation area must be treated equally in the application of the new standards. Each property zoning must reflect its actual septic capabilities based on the new standard without reference to the artificial and arbitrary RMP Zone mapping. (133)

RESPONSE: As noted in the proposal summary, the Highlands Act requires that the Highlands Council's RMP include a land use capability map and statement of policies for planning and managing the development and use of land in the preservation area. N.J.S.A. 13:20-11.a(6) and N.J.S.A. 13:20-12. The RMP LUC zones result from the resource assessment and the smart growth assessment that the Act required the Highlands Council to conduct. The LUC zones reflect a more sophisticated analysis of land uses, land cover types, and resources than the forest and non-forest distinction the Department incorporated as a basis for applying the prior septic

system density standards. Relating the septic system density standards to the LUC zones 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.

The PWTA ground water nitrate data were combined with the USGS ground water nitrate data and, using the USGS logistic-regression analysis, correlated with Highlands Region land use characteristics (percent urban land use, percent agricultural land use, density of existing septic systems, total length of streams, and number of known contaminated sites), not the LUC zones. Use of the logistic-regression analysis was necessary to estimate the ground water nitrate concentrations in areas of the Highlands where there was no nitrate data either from the PWTA well samples or the USGS well samples. Only at the point when the median nitrate concentration was determined for each cell did the Department assign the centroid of the cell to either the preservation or the planning area and the applicable overlay LUC zone. (The cells made up the grid that the Department superimposed on the Highlands Region to avoid making public specific private well locations, which is prohibited by the PWTA.)

The Department acknowledges that, as explained in the proposal summary, the parcel analysis the Department conducted shows that development on septic systems in the preservation area pursuant to the amended septic system density standards could result in up to 1,145 additional systems as compared to the prior standards. While the commenter asserts that this is an insignificant number, and that the amended septic system density standards as applied in the three LUC zones will not benefit property owners seeking to realize the development potential of their land, the Department believes the amended septic system density standards that relate to the LUC zones will ensure the protection of the water resources and other natural resources of the

Highlands preservation area while appropriately supporting the goals of the Highlands Act to encourage appropriate economic growth and development, as well as maintain agricultural production and a positive agricultural business climate.

Amended septic system density standards will cause violation of the impervious surface limit in the Highlands Act

31. COMMENT: The proposed increase in septic density is likely to violate the Highlands Act limit for permitted impervious cover in the Preservation Area. The Highlands Act calls for rules and regulations that "shall provide for… a prohibition on impervious surfaces of greater than three percent of the land area…" (N.J.S.A. 13:20-32.h) The current 88/25-acre septic density standard for the Preservation Area is unlikely to collide with this standard, at least for an 88 acre parcel. However, three percent of one acre (43,560 square feet) equals 1,307 square feet. For an 11-acre parcel, impervious cover would be limited to 14,377 square feet. Including as potential impervious cover a house (which could itself exceed 7,000 square feet), garage, sheds, stables, terraces, deck, swimming pool, tennis court, paved walkways, a driveway leading to the house, plus new roads necessary to serve the subdivision, it is highly likely that the three percent impervious cover limit would be exceeded. There has been no evaluation in the proposed rule of the potential for violating the three percent impervious cover limit contained in the Highlands Act. (60 and148)

RESPONSE: The Highlands Act requirement at N.J.S.A. 13:20-32.h that the Department include in its rules implementing the Act a prohibition on impervious surfaces of greater than three percent of the land area is incorporated in the Highlands Rules at N.J.A.C. 7:38-3.5. The

rule provides that Department shall not issue an HPAA if a proposed development or activity will result in impervious surface of greater than three percent of the land area of a lot. As to lots created by subdivision after August 10, 2004 (the date the Highlands Act became effective), the calculation of the limitation on impervious surface shall include all impervious surface existing on the entire land area of the lot which existed on August 10, 2004. This provision will be applicable to any Highlands major development that is subject to the septic system density standards at N.J.A.C. 7:38-3.4(b), as will the other resource protection standards required by the Highlands Act at N.J.A.C. 13:20-32 and incorporated into the Highlands Rules at N.J.A.C. 7:38-3. Thus, if an applicant proposes a development that exceeds the impervious surface limit, the applicant will have to reduce the size of the proposed development or the application will be denied in accordance with N.J.A.C. 7:38-3.5.

The Department also notes that the nitrate dilution model equation used to develop the amended septic system density standards, as well as the prior standards, includes a factor to convert the result to acres and account for the assumption that only 97 percent of the lot is available to generate recharge because of the three percent impervious surface limitation imposed by the Act. See the proposal summary, 48 N.J.R. 677, at 678.

Amended septic system density standards will have consequences to the Highlands Regional Master Plan

32. COMMENT: The Highlands Rules, and in particular the septic system density standards, are inextricably linked to the Highlands Regional Master Plan (RMP). The linkage is established by Section 12 of the Highlands Act, which reads in relevant part: "In addition to the contents of the

regional master plan described in section 11 of this act, the plan shall also include, with respect to the preservation area, a land use capability map and a comprehensive statement of policies for planning and managing the development and use of land in the preservation area, which shall be based upon, comply with, and implement the environmental standards adopted by the Department of Environmental Protection pursuant to sections 33 and 34 of this act, and the resource assessment prepared pursuant to paragraph (1) of subsection a. of section 11 of this act." Unilateral changes such as those in the rule proposal will have far reaching consequences to and conflicts with the provisions of the RMP. These changes or conflicts remain unaddressed in the various analyses provided by the Department in its proposal. (127)

33. COMMENT: The proposed amendments to the septic density standard will undercut the Highlands Regional Master Plan, the authority and decisions of the New Jersey Highlands Council, and fundamental processes of planning for the Highlands Region. The proposal raises serious uncertainties and poses potential conflicts among key Highlands planning issues including municipal buildout analyses, required water conservation plans, plan conformance checklist approvals in the preservation area, and affordable housing obligations, among others. None of these issues are considered or analyzed in the proposed rule amendment. (28, 60, and 148)

RESPONSE TO COMMENTS 32 AND 33: The Highlands Act provision the commenter cites does link the Highlands Council's RMP to the Department's rules establishing the environmental standards for its Highlands preservation area permitting program. However, nothing in the provision suggests that the Department should not amend its rules when it determines doing so is appropriate to ensure they reflect updated science and information, which in this case was the

significantly expanded ground water nitrate data set comprising PWTA and USGS sample results, as well as the LUC Zones established by the Highlands Council in the land use capability map of the RMP.

The Department acknowledges that the amendments may require that the Highlands Council review and possibly revise the RMP and supporting analyses and planning processes. That the Council might undertake to do so is contemplated in the Act at N.J.S.A. 13:20-8.a, which provides for the periodic review and revision of the RMP. The Department is committed to working in a cooperative fashion with the Highlands Council and will coordinate with the Council in the event any issues arise.

Amended septic system density standards do not account for sub-zones of the Land Use Capability (LUC) Zones

34. COMMENT: The Department simplistically adopts the three primary zones of the Highlands RMP in its attempt to apply the proposed median concentration "targets." The Department ignores the fact that the RMP provides for sub-zones, with differing policies, including the Lake Community Sub-zone, the Conservation Environmentally Constrained Sub-zone, the Existing Community Environmentally Constrained Sub-zone, and the Wildlife Management Sub-zone. The simplistic approach taken by the Department in its adoption of the RMP's "zones" belies a proper understanding of the purpose for which these zones were established. The fact that no minimum lot sizes are specified for all zones will expose the Department to challenge as to minimum lot sizes in these areas, several of which have extreme environmental importance. (127)

RESPONSE: The amended septic system density standards relate to the LUC zones (Protection, Conservation, and Existing Community) established by the Highlands Council in the RMP, referred to in the RMP as the overlay zones. The four sub-zones the commenter identifies are areas within the overlay LUC zones, specifically: the Lake Community sub-zone within the Existing Community zone; the Wildlife Management sub-zone within the Protection zone; the Conservation – Environmentally Constrained sub-zone within the Conservation zone; and the Existing Community - Environmentally Constrained sub-zone within the Existing Community zone. The RMP explains that the sub-zones recognize regionally significant sensitive environmental features where development should be subject to limitations on resource protection, consumptive and depletive water use, and degradation of water quality (see RMP Chapter 3, Part 6, Subpart D, pp. 111-113). The Department determined that the overlay zones were the appropriate level at which to establish region-wide septic system density standards. The environmental constraints that distinguish the RMP sub-zones would be addressed on a site-specific basis during the Department's review of an application for an HPAA through the application of the Highlands Rules resource protection standards at N.J.A.C. 7:38-3.

Alternative septic systems, septic mitigation, and/or extension of sewer lines should be allowed

35. COMMENT: Given the need for such large lots with standard septic systems, the Department is encouraged to allow development on smaller lots utilizing alternate septic system designs. Following the successful model of the Pinelands Commission, the Council should allow alternative design septic systems that have proven effective at removing nitrates. These systems

support clustering and low impact development on reasonably sized lots. Alternative septic systems are equivalent to mini-sewer treatment systems and provide much better environmental protection than would low density development. (61)

RESPONSE: The Highlands Rules do not prohibit the installation of alternative design septic systems in a particular development for which an HPAA is issued, provided all other applicable requirements are met. However, for purposes of establishing septic system density standards on a region-wide basis, the Department assumed development would be built with the most commonly used types of individual septic system.

36. COMMENT: There is no septic system mitigation in the proposed regulations, not even the option of using select fill. The Department should put standard septic mitigation practices in as part of the proposed rule change. (157)

RESPONSE: N.J.A.C. 7:38-3.4(c) requires that the construction of an individual subsurface sewage system in the Highlands preservation area must comply with the Standards for Individual Subsurface Sewage Disposal Systems, N.J.A.C. 7:9A, without extraordinary measures, including replacement of disposal field soil with permeable material or mounding of a disposal field to achieve the required depth to ground water or confining layer. The Department notes that because septic systems are intended to be the long-term method of wastewater management in the Highlands preservation area, it is essential to maximize the likelihood of success and operation of the systems. The objective of the septic density standards is to prevent the degradation of ground water. Consequently, the use of systems highly modified to accept the hydraulic load, like a mound or a soil replacement bed, are prohibited because such systems are

inherently less reliable than traditional systems. In terms of costs and benefits, the benefit to the property owner is that traditional systems are less expensive to build and operate than modified systems. The benefit to the Highlands region is an added measure of protection for the ground water quality.

37. COMMENT: If we are really interested in keeping the water clean, then existing septic systems should be directed to hook up to sewer service instead of prohibiting extension of sewer service. There are many thousands of existing septic systems in the Highlands Region. Think of how many acres equivalent are gained if you say one septic needs 25 acres or 80 acres. (101)

RESPONSE: The Highlands Act amended the Water Quality Planning Act at N.J.S.A. 58:11A-7.1 to revoke designated sewer service areas for which wastewater collection systems had not been installed by August 10, 2004, and cancelled as of that date associated treatment works approvals in the preservation area other than those for projects that are exempt from the Highlands Act. Consequently, proposed major Highlands development within the preservation area must rely on individual septic systems.

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. 13:20-32.e. 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 septic density is consistent with Federal requirements since there are no specific Federal standards of this type available for comparison.

Full text of the adoption follows:

(No change from proposal.)