

## **Cape Pickle, LLC**

Project Address: 51 Evergreen Circle, Mashpee MA 02649

Company Address: 166 Hollidge Hill Lane Marstons Mills, MA 02648

### **NITROGEN MITIGATION FEE REVIEW**

#### **Summary**

Review of Water Recourse Findings (pages 38-39 of 50) and Conditions (pages 44-48 of 50) of the Evergreen Circle Development of Regional Impact Decision (DRI /HDEX-11008, dated December 15, 2011) provides a basis for the Nitrogen mitigation fee structure and fair share credit that are to be applied to all future lots developed within the Evergreen Circle Subdevelopment.

This basis provides a calculation for a mitigation fee for the project as proposed at 51 Evergreen Circle, Mashpee MA.

This fee as calculated for the 10 ppm-N I/A system proposed for 51 Evergreen Circle, using the details of the mitigation fee structure per the DRI/HDEX-11008 and the Cape Cod Commission Water Resources Technical Bulletin is **\$53,423**.

#### **Background to come to the Proposed Mitigation Fee**

Working backwards from the highest to lowest potential mitigation fees.

As defined in Water Resources Technical Bulletin (See Appendix A), the basis for the current monetary offset is \$8,290 per kilogram of nitrogen load to be offset.

- Applying this to a 25 ppm-N I/A system results in a monetary fee of **\$834,118**.
- Applying that same fee to a 19 ppm-N I/A system results in a monetary fee of **\$633,930**.
- The applicant is pursuing a 10 ppm-N I/A solution for 51 Evergreen Circle. Using 10 ppm-N performance reduces the fee to **\$333,647**.

The defined fee of \$8,290 is based on the cost of removing one kilogram of nitrogen per year for 20 years using a conventional sewer collection system and municipal wastewater treatment based on reductions from 26.25 ppm as defined in the Water Resources Technical Bulletin.

But our proposed system is 10 ppm capable not 26.25 ppm. The fee should therefore be reduced to a basis of removal from 10 ppm-N for 51 Evergreen Circle. The monetary fee is reduced from \$8,290 to \$3,158, to remove one kilogram of nitrogen per year for 20 years starting from an I/A system at 10 ppm-N effluent discharge versus 26.25 ppm.

- Applying \$3,158 to the 10 ppm-N A/I system results in a monetary fee of **\$127,104**.

Should there not have been a prior DRI that defined mitigation fee schedules for the entire Evergreen Circle subdivision the fee of \$127,104 would represent an upper range for a proposed fee. Said fee could potentially be further reduced subject to specific project details as discussed and determined by the Cape Cod Commission. This flexibility is defined in the Water Resources Technical Bulletin, for as shown in Appendix A, the monetary fee can be reduced at the discretion of the Commission.

One detail that is considered when determining a fee reduction is does the project attempt to remove nitrogen to the greatest extent practical. This is indeed the case for this project given the specifics of the I/A system chosen and being designed for the 51 Evergreen Circle project. The Biomicrobics Biobarrier system is the **only** I/A system greater than 2000 GPD, that is MA DEP approved at 19ppm, and it has proven capability below the 10ppm capability per details previously provided to the commission.

Also relevant to a fee reduction determination: the facility will utilize zero water urinals and 0.8 gallon per flush toilets which further reduces the total amount of effluent to be processed. There is a very high probability that the actual effluent discharge from the facility will be significantly below the figures required for calculation in the nitrogen mitigation worksheet.

Additionally, DRI/HDEX 11008 had both a detailed mitigation fee defined for the entirety of the Evergreen Circle subdivision as well as a Fair Share Credit that could be applied to each future site developed. DRI/HDEX 11008 Water Resource Condition WRPC3 and Water Resource Finding WRF8 defines the nitrogen load calculation to be based upon \$1,550 per kg of nitrogen per year for future developments.

- Applying \$1,550 to the 10 ppm-N A/I system results in a monetary fee of **\$62,383**.

There is also a fair share credit of \$55,056 detailed in Water Resources Findings WRF9. Fair share, determined on an acreage basis where lot 4 is 3.6 acres of the developable land in the subdivision of 22.1 acres, is 16.27%.

- Applying a fair share credit of 16.27% of the \$55,056 (or \$8,960) to the \$62,383 fee defined by WRF8 / WRPC3 results in a monetary fee of **\$53,423**.

This walk of fee structure previously described is summarized in the following table:

<b>System Capability</b>	<b>Fee Basis for Cost per KG/Yr</b>	<b>Fee per KG</b>	<b>Fee</b>
25ppm-N	26.25 ppm-N Effluent (WR Tech. Bulletin)	\$8,290	\$834,118
19ppm-N	26.25 ppm-N Effluent (WR Tech. Bulletin)	\$8,290	\$633,930
10ppm-N	26.25 ppm-N Effluent (WR Tech. Bulletin)	\$8,290	\$333,647
10ppm-N	10ppm-N Proposed Septic Capabiity	\$3,158	\$127,104
10ppm-N	2011 DRI - WRF8	\$1,550	\$62,383
	2011 DRI - WRF9 Fair Share Credit	\$55,056	
	Acres of Lot 4	3.6	
	Acres of Developed Land	22.1	
	Lot 4 as % of Buildable Development	16.27%	
	Fair Share Credit to Lot 4 on lot size	\$8,960	
<b>10ppm-N</b>	<b>Proposed Fee - 2011 DRI WRF8 and WRF9</b>		<b>\$53,423</b>

## ATTACHMENT A

### CAPE COD COMMISSION - WATER RESOURCES TECHNICAL BULLETIN EXCERPTS

#### **Water Resources Technical Bulletin**

This guidance is intended to clarify how the Water Resources Goal and Objectives of the Regional Policy Plan (RPP) are to be applied and interpreted in Cape Cod Commission Development of Regional Impact (DRI) project review. This technical bulletin presents specific methods by which a project can meet these goals and objectives.

#### **DETAILED METHODS FOR MEETING OBJECTIVE WR3**

*Objective WR3 – Prevent and mitigate loading of nutrients and other contaminants to marine water resources.*

Areas without available sewer connections may contribute a monetary offset calculated **as up to \$8,290** per kilogram nitrogen load to be offset. The monetary offset is based on the cost of removing one kilogram of nitrogen per year for 20 years using a conventional sewer collection system and municipal wastewater treatment. The monetary offset is calculated based on reductions from 26.25 ppm, consistent with the MEP assumption for a standard septic system and with values used for planning purposes in watershed MVP.