64 WILLIAMS AVE, POCASSET, MA
Water Resources Nitrogen Loading and Mitigation Worksheet
See Technical Bulletin 91-001 for further details: http://www.capecodcommission.org/regulatory/NitrogenLoadTechbulletin.pdf

Project Nitrogen Load	*Wastewater*	*Proposed development*	
1.	Project Title-5 wastewater flows:	330.0 gpd	**(a)**
	Actual wastewater flows:	137.5 *	**(b)**
	Average wastewater flows:	233.8 gpd **(a)+(b) ÷2=**	**(A)**

* Title-5 flows prescribed by TB91-001 for commercial us

Place √ in applicable box:

	Yes	**No**	
	☐	☒ X	Will the project be connected to sewer ?
	☐	☑ √	Is project Title-5 wastewater flow 10,000 gpd or greater ?

(If 'Yes', then the project must be reviewed for consistency with Additional Methods under Objective WR1)

Place √ in applicable box and multiply unsewered wastewater flow by applicable conversion factor:

☒ x	Standard Title-5 System (35-ppm-N)	x	0.048359
☐	DEP-approved I/A System (25-ppm-N)	x	0.034542
☐	DEP-approved I/A System (19-ppm-N)	x	0.026252
☐	Groundwater Discharge (10-ppm-N)	x	0.013817

} Type of system: _____

Wastewater nitrogen load (**Title-5 flows**) = 15.96 kg-N/yr **(B)**

Wastewater nitrogen load (**Actual flows**) = 6.65 kg-N/yr **(C)**

Stormwater Runoff

Town: _____

Recharge rate for town (inches; for natural areas from Technical Bulletin 91-001): : 21 **(RECH)**

Project site area:	0.230	acres	**(D)**
Project site wetland area:	0.010	acres	**(E)**
Project site upland area:	0.220	acres	**(F)**
Pervious unpaved upland:	0.174	acres	**(G)**

0 % using LID Paved area: 723 s.f. **(H)**

Factor may be adjusted for employment of LID → x 1.4158E-04

= 0.10236523 kg-N/yr **(I)**

Roof area: 1,300 s.f. **(J)**

x 7.0792E-05

= 0.0920 kg-N/yr **(K)**

Fertilizer

Managed turf: 2,500 s.f.

x 3.4019E-04

= 0.850 kg-N/yr **(L)**

Total Nitrogen Load

Total project nitrogen load (**Title-5 flows**):	17.00	kg-N/yr	**(M)=**
Total project nitrogen load (**Actual flows**):	7.69	kg-N/yr	**(N)=**
Nitrogen load per acre (**Average**):	53.69	kg-N/yr/acre	**(O)=**

Nitrogen Loading Concentration

Project nitrogen loading concentration (**Title-5 flows**):	**16.64**	ppm-N	**(P)=**
Project nitrogen loading concentration (**Actual flows**):	**10.18**	ppm-N	**(Q)=**
Project nitrogen loading concentration (**Average**):	**13.41**	ppm-N	**(R)=**

es

_____

Calculate (A') through (P') as w/ (A) through (P):

Title-5 wastewater flows: [   ] gpd

Actual wastewater flows: [   ] *

Ave. wastewater flows: [   ] gpd **(A')**

Place √ in applicable box:

Yes **No**

[ ] [ ] Is existing development on sewer ?
(If 'Yes', then go to line 2.)

[ ] Standard Title-5 System
[ ] DEP-approved I/A System (commercial)
[ ] DEP-approved I/A System (residential)
[ ] Wastewater Treatment Facility (GWDP)

[   ] kg-N/yr **(B')**

[   ] kg-N/yr **(C')**
wastewater offsets

Project site area: [0.230] acres **(D)**

Project site wetland area: [0.010] acres **(E)**

Project site upland area: [0.220] acres **(F)**

Pervious unpaved upland: [0.220] acres **(G')**

Paved area: [   ] s.f. **(H')**

Paving runoff offset: [   ] kg-N/yr **(I')**

Roof area: [   ] s.f. **(J')**

Roof runoff offset: [   ] kg-N/yr **(K')**

Managed turf: [   ] s.f.

Fertilizer offset: [   ] kg-N/yr **(L')**

(B)+(I)+(K)+(L)   Existing nitrogen load (Title-5 flows): [   ] kg-N/yr **(M')**

(C)+(I)+(K)+(L)   Existing nitrogen load (Actual flows): [   ] kg-N/yr **(N')**

(M)+(N) ÷2 ÷(F)   Nitrogen offset per acre: [   ] kg-N/yr/acre **(O')**

Existing nitrogen loading concentrations:

$$\frac{(M)}{(a)\div723.76 + (G)\times(RECH)\div9.7286 + (H)\div10{,}594 + (K)\div0.75}$$

Title-5 flows [   ] ppm-N **(P')**

$$\frac{(N)}{(b)\div723.76 + (G)\times(RECH)\div9.7286 + (H)\div10{,}594 + (K)\div0.75}$$

Actual flows [   ] ppm-N **(Q')**

(P)+(Q) ÷2   Average [   ] ppm-N **(R')**

Resource/ Impact Based Criteria

Marine Water Recharge Areas

	Yes	No	
2.	☐	☒	Is the project in Marine Water Recharge Area (MWRA) with a nitrogen-loading limit OR in a MWRA that discharges to coastal

(If 'No', then go to line 3.)

Name of Marine Water Recharge Area sub-embayment
(*from RPP Data Viewer*):

Nitrogen-loading limit** : [**0.000**] kg-N/year/acre **(S)**

	Yes	No	
	☒	☐	Does project's nitrogen load **(O)** exceed the existing load **(O')** <u>AND</u> the critical nitrogen load **(S)** ?

(If 'No', then go to line 3.)

Excess project nitrogen load to be mitigated: [　　　　　] kg-N/yr **(T)=**

x　　$8,290　/kg/yr

= $ [　　　　　] **(U)**

☐ Place √ in box if applicant intends to make this payment **(S)**

(If not checked, then the project must provide an alternative strategy for meeting its nitrogen load requirement pursua

** When a nitrogen-loading limit has been determined through either a Total Maximum Daily Load (TMDL), a Massachusetts Estuaries Proje Objective WR3, or if impaired water quality has been documented for the receiving coastal waters, the nitrogen loading limit shall be 0 kg-N/

Groundwater Quality

	Yes	No	
3.	☒	☐	Does the project's nitrogen loading concentration in groundwater **(R)** exceed the greater of **5 ppm** *or* the existing concentratio

(If 'Yes' and the project is not located in an Impaired Area, the project will need to provide an alternative strategy for m

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Potential Public Water Supply Areas

	Yes	No	
4.	☐	☒	Is project in a Potential Public Water Supply Area (PPWSA) ?

(If 'No', then go to line 5.)

	Yes	No	
	☒	☐	Does the project's nitrogen loading concentration **(R)** exceed the greater of **1 ppm** *or* the existing concentration **(R')** ?

(If 'Yes', the project must provide an alternative strategy for meeting Objective WR1)

	☐	☒	Does the project use, treat, generate, store or dispose of hazardous materials in excess of the greater of a) household quantiti

(If 'Yes', the project must provide an alternative strategy for meeting Objective WR1)

Wellhead Protection Areas

	Yes	No	
5.	☐	☒	Is project in a Wellhead Protection Area (WHPA) ?

(If 'No', then go to line 6.)

	☒	☐	Does the project's nitrogen loading concentration **(R)** exceed the greater of **5 ppm** *or* the existing concentration **(R')** ?

(If 'Yes' and the project is not located in an Impaired Area, the project must provide an alternative strategy for meeting

	☐	☒	Does the project use, treat, generate, store or dispose of hazardous materials in excess of the greater of a) household quantiti

(If 'Yes', the project must provide an alternative strategy for meeting Objective WR1)

Fresh Water Recharge Areas

	Yes	No	
6.	☒	☐	Is project wastewater disposed of within 300 feet of a stream or fresh surface water body?

(If 'No', then go to line 7.)

	☒	☐	Is the project located in a freshwater recharge area (FWRA) hydraulically upgradient of a stream or fresh surface water body?

(If 'Yes', the project must provide an alternative strategy for meeting Objective WR2)

Other Potential Impacts

	Yes	No	
7.	☐	☒	Will the project withdraw more than 20,000 gallons of water per day ?

(If 'Yes', then the project must provide documentation demonstrating that there will not be significant impacts to wate

8. ***The project must demonstrate compliance with Objective WR4, including use of Low Impact Development to mitigate impacts of s***

waters with documented impaired water quality** ?

LESSER OF **(O)-(S) x(F)** <u>AND</u> **(O)-(O') x(F)**

int to Objective WR3)

ct-accepted technical report, or specified by a Commission-approved comprehensive wastewater management plan pursuant to
/yr per acre pursuant to Objective WR3.

ı (R') ?
ıeeting Objective WR1)

es or b) existing quantities ?

ı Objective WR1)

es or b) existing quantities ?

r levels, surface waters and wetlands)

tormwater runoff and O & M plans for maintaining stormwater infrastructure and landscaping.