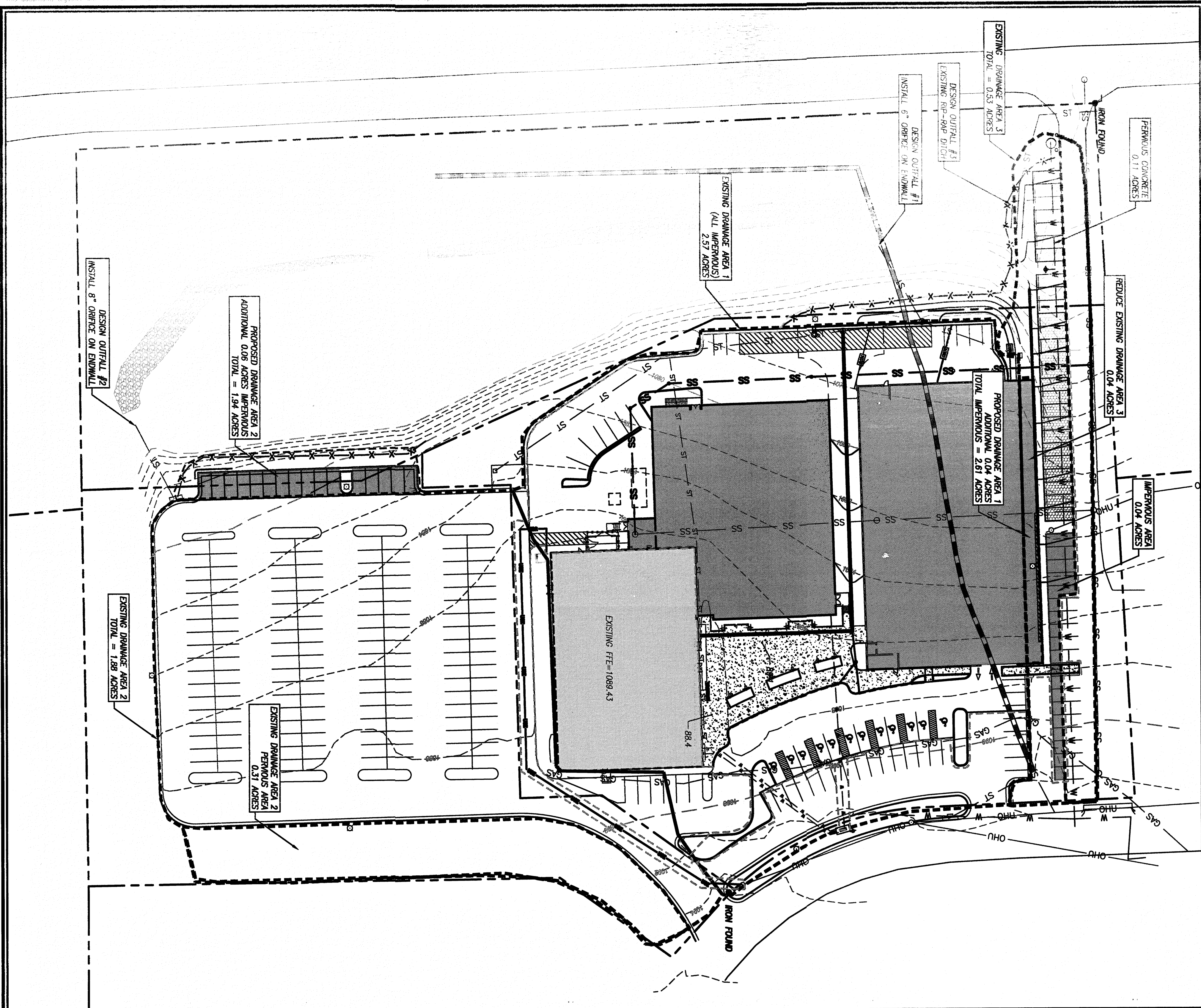




DEQ Virginia Runoff Reduction Method Re-Development Compliance Spreadsheet - Version 3.0

BMP Design Specifications List 2013 Draft 3rd & Spec

Project Title: Rosie's Gaming Emporium Expansion
Date: 4/1/24

Total Rainfall (mm)	48
Total Disturbed Area:	2.48

Site Land Cover Summary

Pre-Redevelopment Land Cover (acres)

	A soils	B soils	C soils	D soils	Totals	% of total
Forest/Down (acres)	0.00	0.00	0.00	0.00	0.00	0
Managed (acres)	4.00	0.00	0.00	0.00	4.00	28
Unmanaged (acres)	0.00	0.00	0.00	0.00	0.00	0
Impervious cover (acres)	0.00	0.00	1.77	0.00	1.77	71
					2.48	100

Post-Redevelopment Land Cover (acres)

	A soils	B soils	C soils	D soils	Totals	% of total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0
Grassland (acres)	0.00	0.00	0.00	0.00	0.00	28
Mixed-use (acres)	0.00	0.00	0.00	0.00	0.00	77
Impervious Cover (acres)	0.00	0.00	1.95	0.00	1.95	248
						300

Sites Tv and Land Cover Cover Nutrient Loads

	Final Post-Development Postdevelopment (New Interests)	Post- development (New Interests)	Adjusted Pre- development
Sex N	0.76	0.77	0.77
Treatment Volume (m ³)	7.042	6.850	6.850
TV cost (€/m ³)	4.42	4.12	4.12

Total TP Load Reduction Required (lb/yr)	1.07	0.82	0.25
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Final Post-Development Land (Post-ReDevelopment & New Impervious)	Pre-AndDevelopment
31.65	29.98

Site Compliance Summary

Maximum % Reduction Required Below Pre-Development Load	20%
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Total Permit Volume Reduction (k ³)	372
Total TP Load Reduction Achieved (lb/y)	0.31
Total TP Load Reduction Additional (lb/y)	2.18
Remaining Post Development TP Load (lb/y)	4.12
Remaining TP Load Reduction (lb/y) Required	0.29

Drainage Area Summary

	D.A.A	D.A.B	D.A.C	D.A.D	D.A.E	Total
Forest/Green (area)	0.00	0.00	0.00	0.00	0.00	0.00
Shrubland (ha)	0.22	0.00	0.00	0.00	0.00	0.22
Shrubland (1st years)	0.22	0.00	0.00	0.00	0.00	0.27
Inspired core (area)	0.00	0.00	0.00	0.00	0.00	0.00
Total (area forest)	0.88	0.00	0.00	0.00	0.00	0.88

Drainage Area Compliance Summary

	D.A.A	D.A.B	D.A.C	D.A.D	D.A.E	Total
TP Load Reduced (kg/y)	0.31	0.00	0.00	0.00	0.00	0.31
TN Load Reduced (kg/y)	2.18	0.00	0.00	0.00	0.00	2.18

STORMWATER QUALITY MANAGEMENT SHALL BE MET THROUGH THE PURCHASE OF NUTRIENT CREDITS OF 0.76 LBS. MINIMUM.

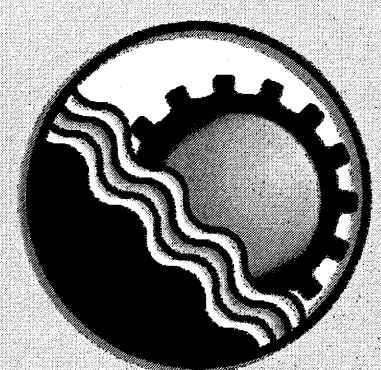
STORMWATER QUANTITY MANAGEMENT MET THROUGH ENERGY BALANCE AT EACH DESIGN OUTFALL:

DESIGN OUTFALL #1

	IF	0.8	(0.8 for sites > 1ac, 0.9 for sites <= 1ac.)	IF	0.8
Q1 pre	9.63	cfs		Q1 pre	6.5
Pre Vol1	22,557	cfs		Pre Vol1	13,862
					cfs
Q1 post	6.92	cfs		Q1 post	3.82
Post Vol1	22,996	cfs		Post Vol1	14,305
					cfs

DESIGN OUT-FALL #3

Q1 pre	1.10	Q5
Pre Vol1	2.356	d
Q1 post	1.18	d5
Post Vol1	2.013	d5
IF	0.9	
Q1 post	<=	Q1 pre (Pre Vol2/Post Vol1)/IF
1.18	<=	1.21

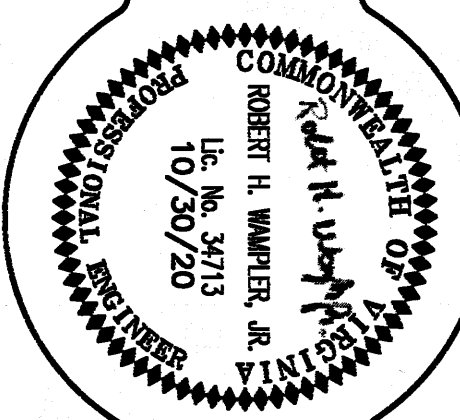


**ENGINEERING
CONCEPTS, INC.**

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ROSIE'S GAMING EMPORIUM VINTON EXPANSION

DRAINAGE AREA MAPS & STORMWATER CALCS



PROJECT:	20048
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PROJECT: 2004