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**PROJECT:**  
NEW O'REILLY AUTO PARTS STORE  
U.S. HIGHWAY 11  
STRASBURG, VA  
**SWM/BMP DETAILS**

**O'Reilly AUTO PARTS**  
CORPORATE OFFICES  
233 SOUTH PATTERSON  
SPRINGFIELD, MISSOURI 65802  
(417) 862-2674 TELEPHONE

COMM # 4253  
DATE: 11-2-18  
REVISION  
DATE: 3-8-19  
6-20-19

9-27-19  
11-20-19

**C3.6**

DEQ Virginia Runoff Reduction Method New Development Compliance Spreadsheet - Version 3.0  
BMP Design Specifications List: 2011 SWS & Specs

**Site Summary**  
Project Title: O'Reilly Auto Parts - Strasburg VA  
Date: 9/27/18  
Total Rainfall = 43 inches

**Site Land Cover Summary**

	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
Managed Turf (acres)	0.00	0.00	0.00	0.48	0.48	1.1
Impervious cover (acres)	0.00	0.00	0.00	0.96	0.96	2.3
					1.44	3.4

**Site Turf and Land Cover Nutrient Loads**

Site By	Value
Treatment Volume (ft <sup>3</sup> )	3,746
TP Load (lb/yr)	2.35
TN Load (lb/yr)	16.84

**Total TP Load Reduction Required (lb/yr)** = 1.76

**Site Compliance Summary**

Total Runoff Volume Reduction (%)	Value
Total TP Load Reduction Achieved (lb/yr)	0.00
Total TN Load Reduction Achieved (lb/yr)	0.00
Remaining Post Development TP Load (lb/yr)	2.35
Remaining TP Load Reduction (lb/yr) Required	1.76

**Drainage Area Summary**

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres)	0.00	0.00	0.00	0.00	0.00	0.00
Impervious cover (acres)	0.00	0.00	0.00	0.00	0.00	0.00
Total Area (acres)	0.00	0.00	0.00	0.00	0.00	0.00

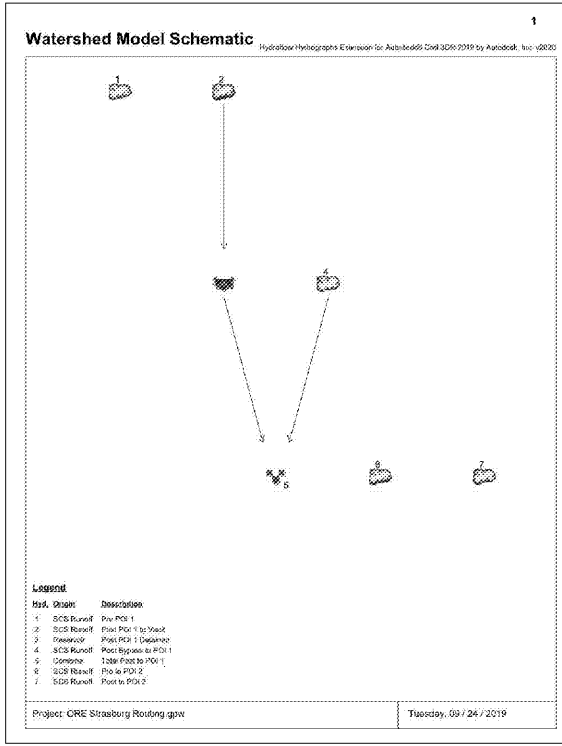
**Drainage Area Compliance Summary**

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	Total
TP Load Reduced (lb/yr)	0.00	0.00	0.00	0.00	0.00	0.00
TN Load Reduced (lb/yr)	0.00	0.00	0.00	0.00	0.00	0.00

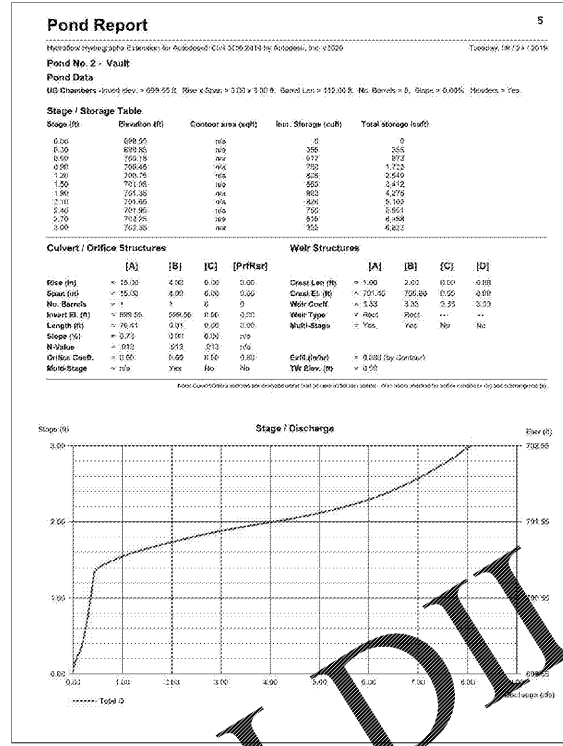
**Runoff Volume and CN Calculations**

Target Rainfall Event (in)	1-year storm	2-year storm	10-year storm
	2.31	2.78	4.08

**VRRM SUMMARY SHEETS**



WATERSHED SCHEMATIC



UNDERGROUND DIMENSION SYSTEM REPORT

**POINT PRECIPITATION FREQUENCY (PF) ESTIMATES**  
WITH 90% CONFIDENCE INTERVALS AND SUPPLEMENTARY INFORMATION  
NOAA Atlas 14, Volume 3

PF table

Return Period (yr)	0.2	0.5	1	2	5	10	20	50	100
1-hr	0.024	0.033	0.045	0.059	0.078	0.100	0.128	0.165	0.215
2-hr	0.048	0.066	0.090	0.118	0.156	0.200	0.256	0.330	0.430
3-hr	0.072	0.099	0.135	0.180	0.234	0.300	0.384	0.495	0.645
4-hr	0.096	0.132	0.180	0.240	0.318	0.400	0.512	0.660	0.860
6-hr	0.144	0.198	0.270	0.360	0.468	0.600	0.768	0.990	1.290
8-hr	0.192	0.264	0.360	0.480	0.624	0.800	1.024	1.320	1.740
12-hr	0.288	0.396	0.540	0.720	0.936	1.200	1.536	1.980	2.610
18-hr	0.432	0.588	0.810	1.080	1.404	1.800	2.304	2.970	3.900
24-hr	0.576	0.792	1.080	1.440	1.908	2.400	3.072	3.960	5.160
30-hr	0.720	0.996	1.350	1.800	2.376	3.000	3.840	4.950	6.420
36-hr	0.864	1.188	1.620	2.160	2.856	3.600	4.512	5.820	7.560
48-hr	1.152	1.584	2.160	2.880	3.816	4.800	6.048	7.740	10.080
60-hr	1.440	1.980	2.700	3.600	4.752	6.000	7.680	9.900	12.960
72-hr	1.728	2.376	3.240	4.320	5.616	7.200	9.120	11.760	15.480
96-hr	2.304	3.168	4.320	5.760	7.488	9.600	12.192	15.660	20.520
120-hr	2.880	3.960	5.400	7.200	9.360	12.000	15.360	19.800	26.040
144-hr	3.456	4.752	6.480	8.640	11.136	14.400	18.432	23.760	31.140
168-hr	4.032	5.544	7.560	10.080	12.996	16.800	21.504	27.960	36.720
192-hr	4.608	6.336	8.640	11.520	14.856	19.200	24.576	31.500	41.280
216-hr	5.184	7.128	9.720	12.960	16.716	21.600	27.648	35.640	46.440
240-hr	5.760	7.920	10.800	14.400	18.576	24.000	30.720	39.720	51.600
264-hr	6.336	8.712	11.880	15.840	20.436	26.400	33.792	43.800	57.240
288-hr	6.912	9.504	12.960	17.280	22.296	28.800	36.864	47.880	62.880
312-hr	7.488	10.296	14.040	18.720	24.156	31.200	39.936	51.960	68.520
336-hr	8.064	11.088	15.120	20.160	26.016	33.600	43.008	56.040	74.160
360-hr	8.640	11.880	16.200	21.600	27.876	36.000	46.080	60.120	79.800
384-hr	9.216	12.672	17.280	23.040	29.736	38.400	49.152	64.200	85.440
408-hr	9.792	13.464	18.360	24.480	31.596	40.800	52.224	68.280	91.080
432-hr	10.368	14.256	19.440	25.920	33.456	43.200	55.296	72.360	96.720
456-hr	10.944	15.048	20.520	27.360	35.316	45.600	58.368	76.440	102.360
480-hr	11.520	15.840	21.600	28.800	37.176	48.000	61.440	80.520	108.000
504-hr	12.096	16.632	22.680	30.240	39.036	50.400	64.512	84.600	113.640
528-hr	12.672	17.424	23.760	31.680	40.896	52.800	67.584	88.680	119.280
552-hr	13.248	18.216	24.840	33.120	42.756	55.200	70.656	92.760	124.920
576-hr	13.824	19.008	25.920	34.560	44.616	57.600	73.728	96.840	130.560
600-hr	14.400	19.800	27.000	36.000	46.476	60.000	76.800	100.920	136.200
624-hr	14.976	20.592	28.080	37.440	48.336	62.400	79.872	105.000	141.840
648-hr	15.552	21.384	29.160	38.880	50.196	64.800	82.944	109.080	147.480
672-hr	16.128	22.176	30.240	40.320	52.056	67.200	86.016	113.160	153.120
696-hr	16.704	22.968	31.320	41.760	53.916	69.600	89.088	117.240	158.760
720-hr	17.280	23.760	32.400	43.200	55.776	72.000	92.160	121.320	164.400
744-hr	17.856	24.552	33.480	44.640	57.636	74.400	95.232	125.400	170.040
768-hr	18.432	25.344	34.560	46.080	59.496	76.800	98.304	129.480	175.680
792-hr	19.008	26.136	35.640	47.520	61.356	79.200	101.376	133.560	181.320
816-hr	19.584	26.928	36.720	48.960	63.216	81.600	104.448	137.640	186.960
840-hr	20.160	27.720	37.800	50.400	65.076	84.000	107.520	141.720	192.600
864-hr	20.736	28.512	38.880	51.840	66.936	86.400	110.592	145.800	198.240
888-hr	21.312	29.304	39.960	53.280	68.796	88.800	113.664	149.880	203.880
912-hr	21.888	30.096	41.040	54.720	70.656	91.200	116.736	153.960	209.520
936-hr	22.464	30.888	42.120	56.160	72.516	93.600	119.808	158.040	215.160
960-hr	23.040	31.680	43.200	57.600	74.376	96.000	122.880	162.120	220.800
984-hr	23.616	32.472	44.280	59.040	76.236	98.400	125.952	166.200	226.440
1008-hr	24.192	33.264	45.360	60.480	78.096	100.800	129.024	170.280	232.080
1032-hr	24.768	34.056	46.440	61.920	80.956	103.200	132.096	174.360	237.720
1056-hr	25.344	34.848	47.520	63.360	82.816	105.600	135.168	178.440	243.360
1080-hr	25.920	35.640	48.600	64.800	84.676	108.000	138.240	182.520	249.000
1104-hr	26.496	36.432	49.680	66.240	86.536	110.400	141.312	186.600	254.640
1128-hr	27.072	37.224	50.760	67.680	88.396	112.800	144.384	190.680	260.280
1152-hr	27.648	38.016	51.840	69.120	90.256	115.200	147.456	194.760	265.920
1176-hr	28.224	38.808	52.920	70.560	92.116	117.600	150.528	198.840	271.560
1200-hr	28.800	39.600	54.000	72.000	93.976	120.000	153.600	202.920	277.200
1224-hr	29.376	40.392	55.080	73.440	95.836	122.400	156.672	207.000	282.840
1248-hr	29.952	41.184	56.160	74.880	97.696	124.800	159.744	211.080	288.480
1272-hr	30.528	41.976	57.240	76.320	99.556	127.200	162.816	215.160	294.120
1296-hr	31.104	42.768	58.320	77.760	101.416	129.600	165.888	219.240	299.760
1320-hr	31.680	43.560	59.400	79.200	103.276	132.000	168.960	223.320	305.400
1344-hr	32.256	44.352	60.480	80.640	105.136	134.400	172.032	227.400	311.040
1368-hr	32.832	45.144	61.560	82.080	106.996	136.800	175.104	231.480	316.680
1392-hr	33.408	45.936	62.640	83.520	108.856	139.200	178.176	235.560	322.320
1416-hr	33.984	46.728	63.720	84.					