

NEW

DIMENSIONS

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August 13, 2020

City of Napoleon
Attn: Mr. Chad Lulfs, P.E., City Engineer
255 W. Riverview Avenue
Napoleon, Ohio 43545

Ref: **Goodville Mutual Insurance
1000 Westmoreland, Napoleon, Ohio
Parking Lot Addition/Drainage**

Mr. Lulfs,

Thank you for timely review. Apparently I completely misunderstood our discussion.

Attached are revised storm water calculations indicating pre-construction and post construction flows and the resulting detention volume required. I have also eliminated the grassed lot areas (approx. 0.89 ac.) that appear to surface drain directly to the road swales along Westmoreland Avenue.

Accordingly, this would limit the site drainage flowing to the existing 18" to 2.137cfs. My calculations would therefore indicate an outlet restriction size of approximately 10.5" in diameter. However, I have not considered the effect of head pressure in my calculations.

I believe, as previously noted, that there would still be more than adequate detention available on the site for this restriction size. However, there would likely be a greater occurrence of short term ponding during intense storm events.

Please let us know if this proposal meets with your approval or if you have any concerns related to it.

Finally, I would assume that Goodville's overflow abatement utility charges of approximately \$1,080 per year would be eliminated or, at the least, very greatly reduced if the restrictive action is implemented. Please let me know what the changes in those fees would be so that the owner can consider that in their final decision.

Respectfully,

Ron Sonnenberg
Ron Sonnenberg,
New Dimensions

Attachment:
CC: Neil Giffey, Goodville Mutual Insurance Co.
RDS/rds

Storm Water Calculations						
Project: GOODVILLE MUT. w/35 PKG SPACE ADD'N., NAPOLEON, OH						
Runoff flows & Coefficients, Pre & Post development						
By:RDS		Date: August 11, 2020				
1) Existing (Pre-development) runoff: as per July, 2020						
	Area(Ac.)	Land use description	"C"	"I" in/hr	"Q" cfs	
	4.110	Grassed area	0.20	2.60	2.137	
	0.000	Building roof	0.90	2.60	0.000	
	0.000	Asph/Conc pavement	0.90	2.60	0.000	
	0.000	Gravel pavement	0.50	2.60	0.000	
	0.000	Total area	Total Existing Runoff		2.137	
2) PROPOSED (Post-development) runoff:						
Project Description:						
Calculations are based on an existing grassed lot area of approximately						
152,893 s.f. (3.510 Ac.); 44,890 s.f. (1.031 Ac.) Asph/Conc. & 20,000 s.f. (0.459 Ac.)						
existing roof area.						
This includes 6,520 s.f. additional Asphalt and 668 s.f. additional Concrete pavements.						
	Area(Ac.)	Land use description	"C"	"CA"		
	0.459	Building roof	0.90	0.413		
	1.031	Asph/Conc pavement	0.90	0.928		
	0.000	Gravel pavement	0.50	0.000		
	2.620	Lawn-grassed area	0.20	0.524		
	4.110	TOTAL AREA	TOTAL		1.865	
	Weighted "C" =		TOTAL "CA"	1.865		
			TOTAL "A"	4.110		
			Weighted "C" =	0.454		
3) Proposed (Post-development) runoff:						
	Area(Ac.)	Land use description	"C"	"I" in/hr	"Q" cfs	
	4.110	See "2" Above	0.454	2.60	4.849	
	Total Proposed Runoff				4.849	
4) Critical Storm Determination:						
(4.849-2.137)/(2.137)=1.2691 or 126.91% therefore :				Critical Storm = 25 Year		

Site Storm calculations_2020

Storm Water Calculations						
Project: GOODVILLE MUT. w/35 PKG SPACE ADD'N., NAPOLEON, OH						
Storm Water Detention Calculations						
By:RDS		Date: August 11, 2020				
Site Area:		4.110				
Weighted "C'		0.454				
"T"(min.)	"I"(in/hr)	"CA"	"Q" in	"Q" out	"Q" in-"Q"out	Detention
Time of	Intensity		(cfs)	(cfs)	(cfs)	Volume(c.f.)
Concentration	25 Year Storm					
20	4.20	1.8650	7.83	2.137	5.70	6835
30	3.43	1.8650	6.40	2.137	4.26	7668
40	2.82	1.8650	5.26	2.137	3.12	7493
50	2.37	1.8650	4.42	2.137	2.28	6849
60	2.05	1.8650	3.82	2.137	1.69	6070
70	0.00	1.8650	0.00	2.137	-2.14	-8976
80	0.00	1.8650	0.00	2.137	-2.14	-10259
90	0.00	1.8650	0.00	2.137	-2.14	-11541
100	0.00	1.8650	0.00	2.137	-2.14	-12823
110	0.00	1.8650	0.00	2.137	-2.14	-14106
120	0.00	1.8650	0.00	2.137	-2.14	-15388
130	0.00	1.8650	0.00	2.137	-2.14	-16670
140	0.00	1.8650	0.00	2.137	-2.14	-17952
150	0.00	1.8650	0.00	2.137	-2.14	-19235
160	0.00	1.8650	0.00	2.137	-2.14	-20517
170	0.00	1.8650	0.00	2.137	-2.14	-21799
180	0.00	1.8650	0.00	2.137	-2.14	-23082
190	0.00	1.8650	0.00	2.137	-2.14	-24364
200	0.00	1.8650	0.00	2.137	-2.14	-25646
210	0.00	1.8650	0.00	2.137	-2.14	-26929
220	0.00	1.8650	0.00	2.137	-2.14	-28211
230	0.00	1.8650	0.00	2.137	-2.14	-29493
240	0.00	1.8650	0.00	2.137	-2.14	-30776
250	0.00	1.8650	0.00	2.137	-2.14	-32058
260	0.00	1.8650	0.00	2.137	-2.14	-33340
270	0.00	1.8650	0.00	2.137	-2.14	-34623
Minimum Detention Volume Required =					6835	Cubic Feet
Area required for 1' depth of storage =					0.157	Acres
Area required for 1.5' depth of storage =					0.105	Acres
Area required for 2' depth of storage =					0.078	Acres
Area required for 2.5' depth of storage =					0.063	Acres