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700 Nilles Road
Fairfield, OH 45014
P. 513.829.2149
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REC'D MAY 02 2003

May 1, 2003

Ms. Amy Pursley
Butler County Engineers Office
1921 Fairgrove Avenue
Hamilton, Ohio 45011

RE: Chesterwood Village

Dear Amy,

Enclosed please find 2 copies of the revised construction drawings and drainage calculations for the Assisted Living Addition at Chesterwood Village, as requested. My client has decided to leave the existing 15" outlet pipe as is. While they understand it is slightly undersized, any overflow can utilize the existing ditch to the lake.

If you have any questions, or need any additional information please contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Etta M. Reed'.

Etta M. Reed, P.E.

Cc: Greg Dixon

O:\2002jobs\02167\030501ap.doc

BBE026-F(020813)

700 Nilles Road
Fairfield, OH 45014

14 East Eighth Street
Covington, KY 41011

6900 Tylersville Road 777 Eads Pkwy., Suite C
Mason, OH 45040 Lawrenceburg, IN 47025

Storm Sewer Design

10 yr. Storm

Formulas Used:

$Q_r = ACI$
 $V_p = 1.486 R^{2/3} S^{1/2} / n$
 $Q_p = A_p V_p$

Project: Chesterwood Ass Liv Add
 Job No.: 2167

Designed By: ELB Date: 12/18/02
 Reviewed By: EMR Date: 5/1/03
 Revisions:

Bayer Becker Engineers

LOCATION		TOPOGRAPHY				TIME				DESIGN													
Street	From Structure	To Structure	Area (acres)	"C"	A*C (acres)	Cumm. AC (acres)	T _{o-inlet} (min.)	T _{p-pipe} (min.)	T _{c-conc.} (min.)	Intensity (in./hr.)	Q _r (c.f.s.)	Pipe Size (inches)	"n"	Distance (ft.)	Slope (%)	Velocity (ft./sec)	Q _p (c.f.s.)	Flow Time (min.)	T/Grate	Inlet Invert	Outlet Invert	Inlet Clearance	
	M	N	0.75	0.50	0.38	0.38	10.00	0.00	10.00	5.15	1.93	12	0.015	44	0.50	2.78	2.18	0.26	890.92	888.92	888.70	1.00	
	N	P	0.12	0.50	0.06	0.44	10.00	0.26	10.26	5.11	2.22	12	0.015	194	0.85	3.62	2.85	0.89	890.19	888.70	887.40	0.49	
	O	P	0.37	0.50	0.19	0.19	10.00	0.00	10.00	5.15	0.95	8	0.015	30	1.40	3.55	1.24	0.14	888.65	887.46	887.04	0.52	
	P	Q	0.08	0.50	0.04	0.66	10.26	0.89	11.16	4.98	3.28	12	0.015	125	1.60	4.97	3.91	0.42	889.00	887.04	884.05	0.96	
		Ex YD2	0.20	0.51	0.10	1.26	11.16	0.42	11.58	4.92	6.19	15	0.015	174	0.98	4.52	5.54	0.64					

Constant n value: 0.015

Storm Sewer Design

10 yr. Storm

Formulas Used:
 $Q_p = ACI$
 $V_p = 1.486 R^{2/3} S^{1/2} / n$
 $Q_p = A_p V_p$

Bayer Becker Engineers

Designed By: _____ Date: 12/18/02
 Reviewed By: _____ Date: _____
 Revisions: _____ Date: _____

LOCATION		TOPOGRAPHY				TIME				DESIGN				Constant n value: 0.015								
Street	From Structure	To Structure	Area (acres)	"C"	A*C (acres)	Cumm. AC (acres)	T _{o-inlet} (min.)	T _{p-pipe} (min.)	T _{c-conc.} (min.)	Intensity (in./hr.)	Q _r (c.f.s.)	Pipe Size (inches)	"n"	Distance (ft.)	Slope (%)	Velocity (ft./sec)	Q _p (c.f.s.)	Flow Time (min.)	T/Grate	Inlet Invert	Outlet Invert	Inlet Clearance
	M	N	1	0.75	0.50	0.38	10.00	0.00	10.00	5.15	1.93	12	0.015	44	0.50	2.78	2.18	0.26	890.92	888.92	888.70	1.00
	N	P	2	0.12	0.50	0.44	10.00	0.26	10.26	5.11	2.22	12	0.015	194	0.85	3.62	2.85	0.89	590.19	888.70	887.05	-299.51
	O	P	3	0.37	0.50	0.19	10.00	0.00	10.00	5.15	0.95	8	0.015	30	1.40	3.55	1.24	0.14	888.65	887.46	887.04	0.52
	P	Q	4	0.08	0.50	0.04	10.26	0.89	11.16	4.98	3.28	12	0.015	125	1.15	4.22	3.31	0.49	889.00	887.04	885.60	0.96

ex. 12" STM capacity = 5.54 cfs

ex. flow to pipe is 3.03 cfs

available capacity for new system is 2.51 cfs



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