CITY OF NAPOLEON, OHIO
STORMWATER ABATEMENT CREDIT APPLICATION

SERVICE ADDRESS: 655 (STREET NUMBER) American Road (STREET NAME)

ACCOUNT NUMBER:

SERVICE CLASS: ☐ RESIDENTIAL ☒ COMMERCIAL ☐ INDUSTRIAL

DATE 1/15/07

ARE YOU THE OWNER: ☒ YES ☐ NO IF NO, COMPLETE PROPERTY OWNER & TENANT INFORMATION BELOW
IF YES, COMPLETE PROPERTY OWNER INFORMATION BELOW

Tenant	Property Owner
NAME: (LAST, FIRST, MIDDLE INITIAL)	NAME: (LAST, FIRST, MIDDLE INITIAL) PetVet (Doug Burger)
ADDRESS: (IF DIFFERENT FROM SERVICE ADDRESS)	ADDRESS: 655 American Rd
CITY, STATE, ZIP:	CITY, STATE, ZIP: Napoleon OH 43545
HOME PHONE: / WORK PHONE:	HOME PHONE: 419-599-9191 / WORK PHONE: 419-592-6876

ARE YOU APPLYING FOR A COMMERCIAL/ INDUSTRIAL CREDIT (RETENTION & DETENTION) OR ARE YOU CHALLENGING THE E.R.U. CALCULATION FOR THIS ACCOUNT? ☒ YES ☐ NO
(IF YES, PLEASE COMPLETE THIS BLOCK)

Total Area of Property/Lot: 54,600 s.f. (1.3 acres)

Impervious Area: 23,500 s.f.

(ATTACH DRAINAGE & DETENTION CALCULATIONS) 185 l.f. of swale 8%

ARE YOU APPLYING FOR RESIDENTIAL MULTIPLE LEVEL UNIT CREDIT?
☐ YES ☐ NO (IF YES, PLEASE COMPLETE THIS BLOCK)

MULTI-LEVEL BUILDING* ☐ YES ☐ NO
BUILDING USE: ☐ RESIDENTIAL ☐ COMMERCIAL

* Multi-level residential units where there are separate residents on multiple levels are eligible for up to 50% credit.

* Multi-level single family residents are **NOT** eligible.

If applying for a multiple electric meter credit, please provide details in the "Additional Information" section below.

Additional Information: Swale drainage flows to open ditch along American Road. Eaves from East slope of roof empty onto lot and flow down to swale

Signature DA Burger, DVM (APPLICANT) Date 1/15/07

FOR CITY USE ONLY:

E.R.U. 8.2

Credit* 80 %

E.R.U. Credit: 6.6 (If zero, see explanation below.)

Net Billable E.R.U. 1.6

☐ APPROVED
☐ DENIED (EXPLANATION ATTACHED IF APPLICABLE)

EFFECTIVE DATE: ____/____/20____

CITY ENGINEER Date 01/22/07

RETURN COMPLETED APPLICATION TO ENGINEERING DEPARTMENT

Corporate Office

3480 N. Main St.
Findlay, OH 45840
Tel. 419-422-6672
Fax 419-422-9466
E-Mail:
Petermansw@aol.com

Branch Offices

6540 W. Central Ave.
Suite L
Toledo, OH 43617
Tel. 419-843-8606
Fax 419-843-8607

525 E. Riverview Ave.
Napoleon, OH 43545
Tel. 419-592-6672

Delaware, OH 43015
Tel. 740-363-6672

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City of Napoleon Engineer's Office
Attn: Joseph R. Kleiner, P.E., City Engineer
255 West Riverview Avenue
Napoleon, Ohio 43545

December 12, 2002

Re: Storm Calculations for Napoleon Veterinary Clinic and Kennel Napoleon, Ohio

Dear Mr. Kleiner:

The storm sewers on site were sized to flow full for a 5 year design storm. A 10 year design storm was then used to check the hydraulic grade line for the system. The critical storm for the site was calculated to be a 25 year storm and the detention for the site is provided in the swale along the sides and rear of the property.

Based on our telephone conversation, a 30 inch storm sewer is proposed to enclose the existing ditch and two catch basin are being installed to allow roadway drainage to enter the system. Based upon the elevation of the existing 30 inch storm sewer that you provided, there is approximately 2.5 feet of fall from the proposed 30 inch storm sewer to the existing 30 inch storm sewer.

Please feel free to give me a call at our Findlay office if you have any questions or require additional information.

Sincerely,

Brian A. Thomas, E.I.
Design Engineer

for

Daniel R. Thornton, P.E.
Engineering Department Manager

Attachment: Storm Sewer and Detention Calculations

cc: file

Napoleon Veterinary Clinic and Kennel
Napoleon, Ohio
12/11/2002
Detention Basin Storage Design

1) Calculate the predeveloped peak flow for the two year storm

$q_2 = A * c * I$

A = 2.60 Acres
c = 0.20
i = 2.00 in / hr
i = a / (tc + b)
a = 104.70
tc = 30.00 min
b = 22.40

q_2 = 1.04 cfs

2) Calculate the postdeveloped peak flow for the one year storm

$Q_2 = A * c * i$

A = 2.6 Acres
c = 0.51

	A	c	cA
Impervious	49462.45	0.90	44516.21
Pervious	63793.55	0.20	12758.71
sum	113256.00		57274.92

i = 2.47 in / hr
i = a / (tc + b)
a = 104.7
tc = 20.00 min
b = 22.40

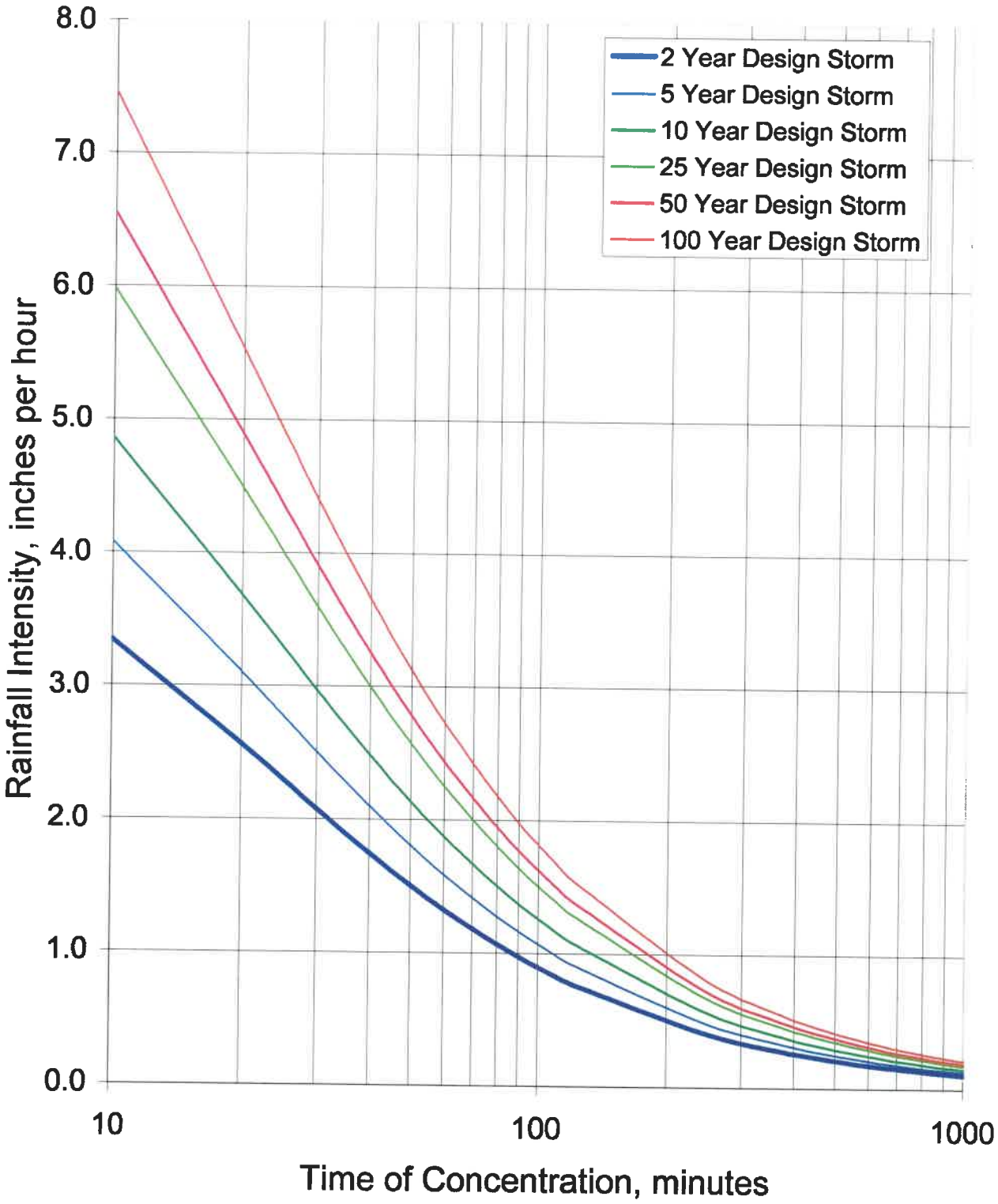
Q_2 = 3.25 cfs

3) Critical storm calculation

$PC = ((Q_2 - q_2) / q_2) * 100$

PC = 212.49 25 Year Critical Storm

Critical Storm	
PC < 20	2 Year Storm
20 < PC < 50	5 Year Storm
50< PC < 100	10 Year Storm
100 < PC < 250	25 Year Storm
250 < PC < 500	50 Year Storm
PC > 500	100 Year Storm


Intensity-Duration-Frequency Curves
ODOT Zone A
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Rainfall Intensity, inches per hour
2 Year Design Storm
5 Year Design Storm
10 Year Design Storm
25 Year Design Storm
50 Year Design Storm
100 Year Design Storm
10
100
1000
Time of Concentration, minutes

Napoleon Veterinary Clinic and Kennel
Napoleon, Ohio
Existing Conditions

1. Approximate Area (A)	2.6 acres
2. Rational Method Runoff Coefficient (C)	0.20
3. Time of Concentration (t_c)	30.0
4. Rainfall Intensity (i)	
2 Year Design Storm	2.1 in/hr
5. $Q_{allowable}$ = C x i x A = (Qpeak)	1.08 cfs

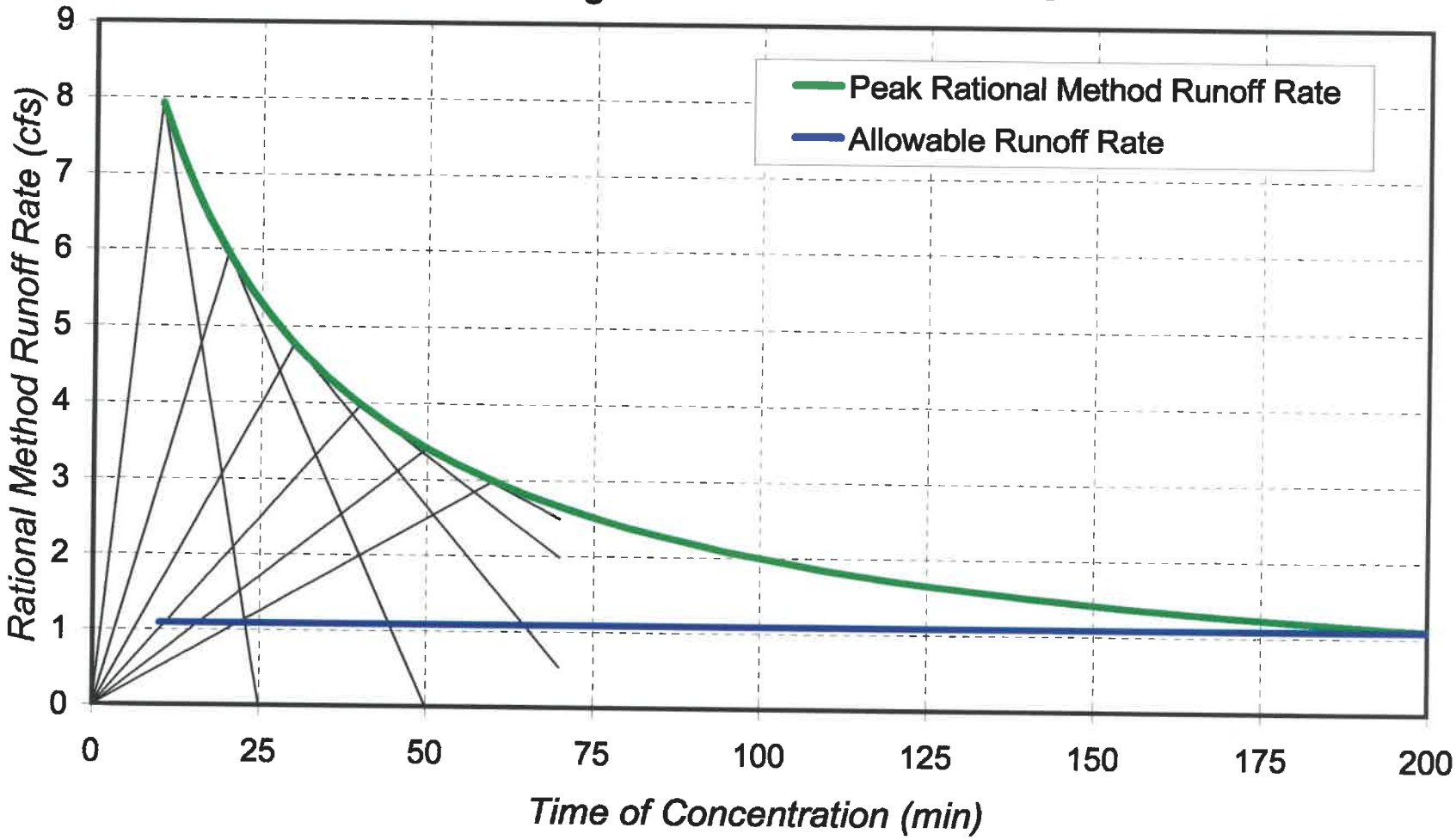
Napoleon Veterinary Clinic and Kennel
Napoleon, Ohio
Retention Pond and Storage Volume Calculations

Area (A)	2.6	acres
Coefficient $_{weighted}$ (C_w)	0.51	
Allowable Q_{out}	1.1	

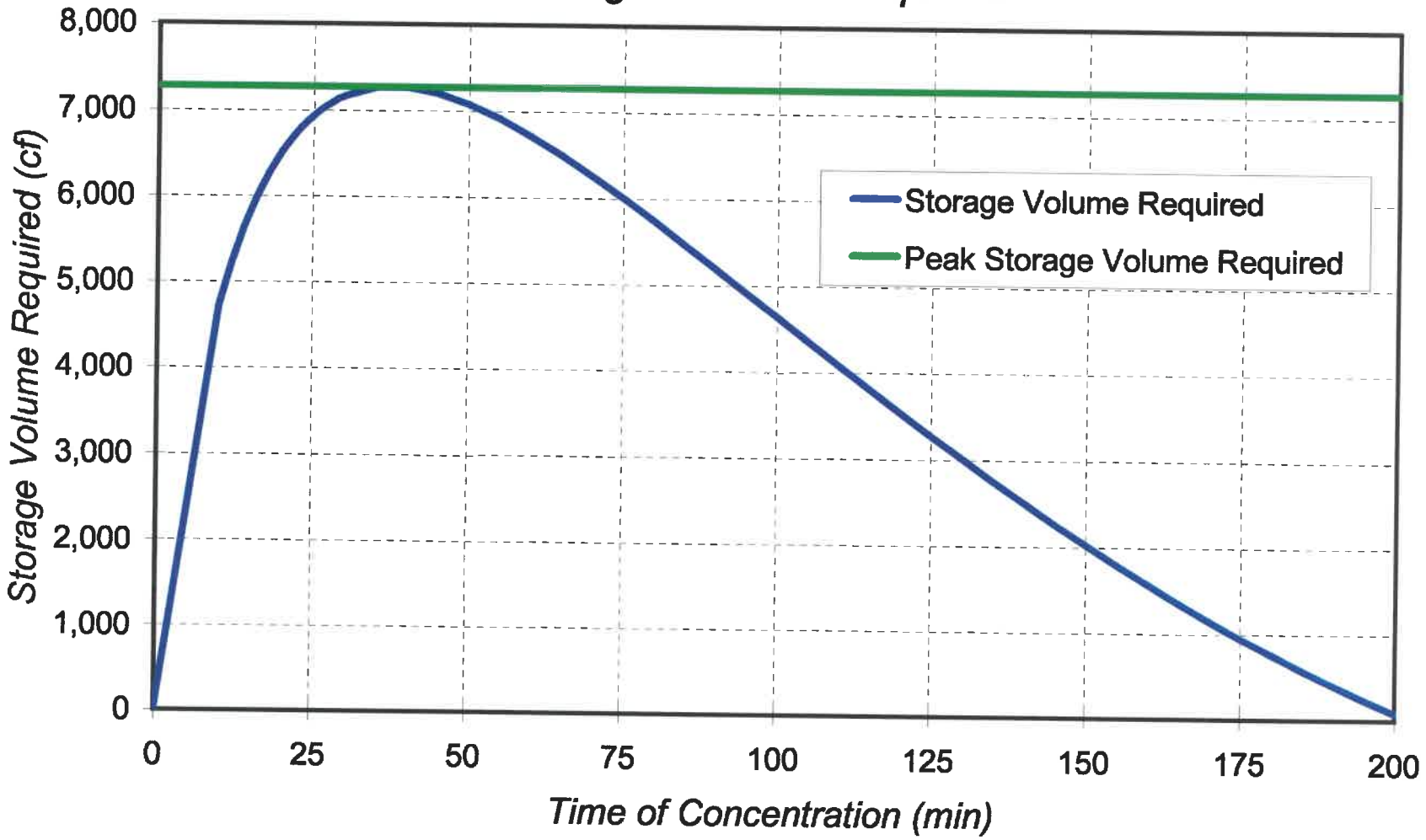
Time of Concentration (t_c)	25 Year Rainfall Intensity (i)	Peak Flow Rational Method $Q_{in}=C_wiA$	Allowable Q_{out}	1.5to + tc Intersection with Qout	Calculated Storage Volume Required
minutes	in/hr	cfs	cfs	minutes	ft^3
0					
25	0.4	5.3	1.1	55	6,937
30	3.6	4.8	1.1	65	7,169
35	3.3	4.3	1.1	74	7,269
40	3.0	4.0	1.1	84	7,273
45	2.8	3.7	1.1	93	7,203
50	2.6	3.4	1.1	101	7,080
55	2.4	3.2	1.1	110	6,915

Minimum Storage Required 7,273 ft^3

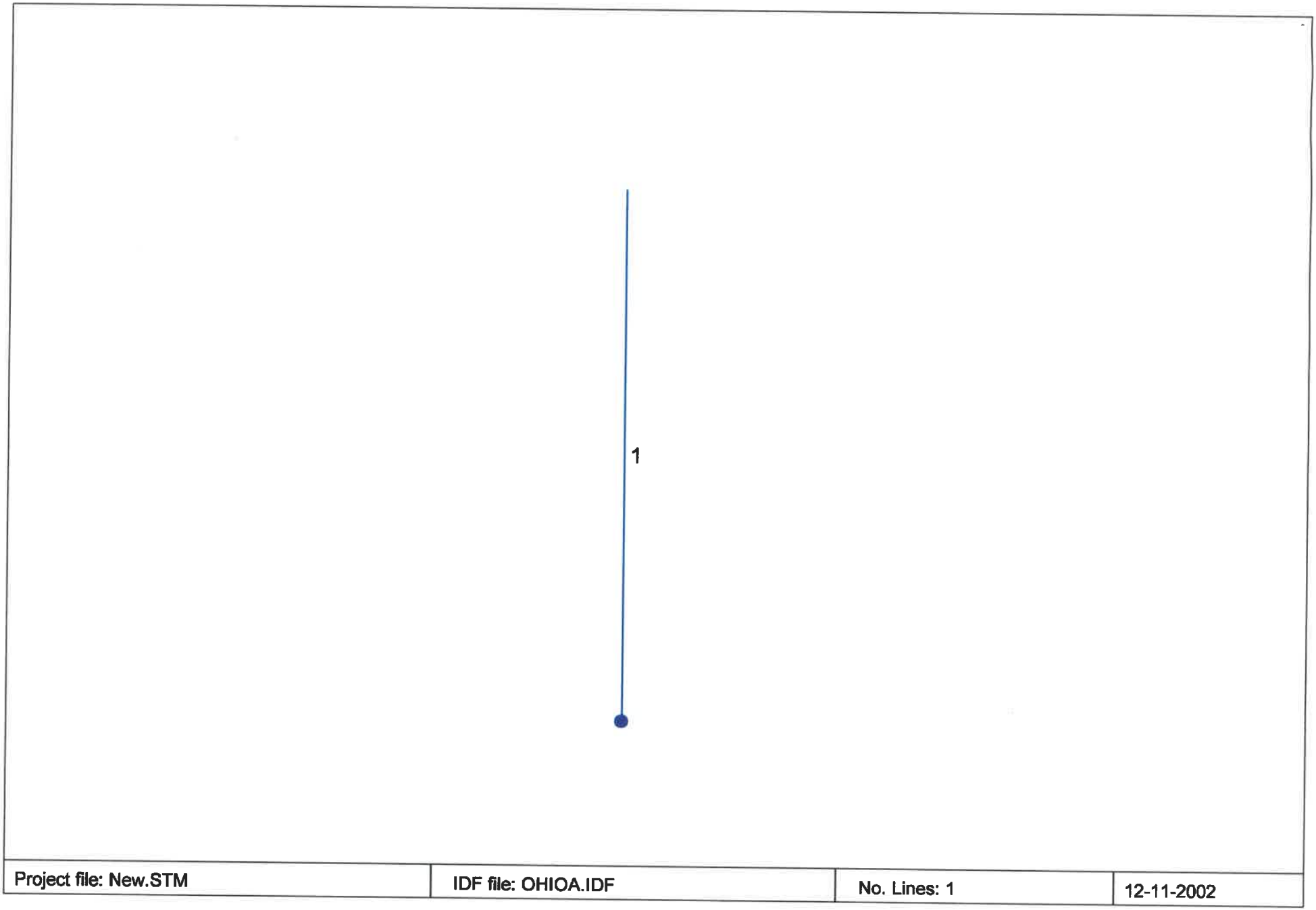
Napoleon Veterinary Clinic and Kennel
Napoleon, Ohio
Storage Volume Calculations



Napoleon Beterinary Clinic and Kennel
Napoleon, Ohio
Storage Volume Required



Hydraflow Plan View



Project file: New.STM	IDF file: OHIOA.IDF	No. Lines: 1	12-11-2002

Hydraflow Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
1	End	70.0	90.0	MH	0.00	0.23	0.90	20.0	94.29	1.00	94.99	6	Cir	0.010	1.00	98.20	

Project File: east one.stm | IDF File: OHIOA.IDF | Total number of lines: 1 | Date: 12-11-2002

Hydraflow Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	Dns line No.
1		0.64	6 c	70.0	94.29	94.99	1.000	94.79	95.40	0.22	End

Project File: east one.stm	IDF File: OHIOA.IDF	Total No. Lines: 1	Run Date: 12-11-2002

NOTES: c = circular; e = elliptical; b = box; Return period = 5 Yrs.; * Indicates surcharge condition.

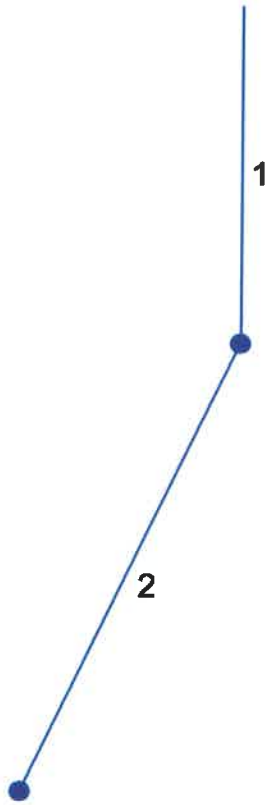
Hydraflow Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	Dns line No.
1		0.76	6 c	70.0	94.29	94.99	1.000	94.79	95.47	0.24	End

Project File: east one.stm	IDF File: OHIOA.IDF	Total No. Lines: 1	Run Date: 12-11-2002

NOTES: c = circular; e = elliptical; b = box; Return period = 10 Yrs.; * Indicates surcharge condition.

Hydraflow Plan View



Project file: west ones.stm	IDF file: OHIOA.IDF	No. Lines: 2	12-11-2002

Hydraflow Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
1	End	70.0	90.0	MH	0.00	0.23	0.90	20.0	94.52	1.00	95.22	6	Cir	0.010	0.45	98.20	
2	1	109.0	31.0	MH	0.00	0.19	0.90	20.0	95.22	0.32	95.57	8	Cir	0.010	1.00	98.46	

Project File: west ones.stm | IDF File: OHIOA.IDF | Total number of lines: 2 | Date: 12-11-2002

Hydraflow Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	Dns line No.
1		1.14	6 c	70.0	94.52	95.22	1.000	95.02*	96.73*	0.24	End
2		0.53	8 c	109.0	95.22	95.57	0.321	96.97*	97.10*	0.04	1

Project File: west ones.stm	IDF File: OHIOA.IDF	Total No. Lines: 2	Run Date: 12-11-2002

NOTES: c = circular; e = elliptical; b = box; Return period = 5 Yrs.; * Indicates surcharge condition.

Hydraflow Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	Dns line No.
1		1.36	6 c	70.0	94.52	95.22	1.000	95.02*	97.46*	0.34	End
2		0.63	8 c	109.0	95.22	95.57	0.321	97.79*	97.97*	0.05	1

Project File: west ones.stm	IDF File: OHIOA.IDF	Total No. Lines: 2	Run Date: 12-11-2002

NOTES: c = circular; e = elliptical; b = box; Return period = 10 Yrs.; * Indicates surcharge condition.

CB D

Orifice Diameter	3.5	inches
CL Elevation	95.47	
g	32.2	

Discharge Coefficient	Area of Orifice	Water Elevation	(h-a)	Q
0.6	0.0668133854	97	1.53	0.397927
0.6	0.0668133854	97.5	2.03	0.458359
0.6	0.0668133854	98	2.53	0.511703
0.6	0.0668133854	98.5	3.03	0.559988
0.6	0.0668133854	98.67	3.2	0.575483
0.6	0.0668133854	99	3.53	0.604429

Headwall

Orifice Diameter	3	inches
CL Elevation	96.29	
g	32.2	

Discharge Coefficient	Area of Orifice	Water Elevation	(h-a)	Q
0.6	0.0490873852	96.5	0.21	0.108311
0.6	0.0490873852	97	0.71	0.199156
0.6	0.0490873852	97.5	1.21	0.25999
0.6	0.0490873852	98	1.71	0.309074
0.6	0.0490873852	98.5	2.21	0.351366
0.6	0.0490873852	99	2.71	0.389089

CB A

Orifice Diameter	3.5	inches
CL Elevation	95.24	
g	32.2	

Discharge Coefficient	Area of Orifice	Water Elevation	(h-a)	Q
0.6	0.0668133854	95.5	0.26	0.164038
0.6	0.0668133854	96	0.76	0.280456
0.6	0.0668133854	96.5	1.26	0.361113
0.6	0.0668133854	97	1.76	0.42679
0.6	0.0668133854	97.5	2.26	0.483628
0.6	0.0668133854	98	2.76	0.534456

City of NAPOLEON

255 West Riverview Avenue
P.O. Box 151
NAPOLEON, OHIO 43545
Telephone: (419) 592-4010
Fax: (419) 599-8393

Letter of TRANSMITTAL

DATE:
December 26, 2002
REGARDING:
Plans for Napoleon Veterinary Clinic and Kennel

TO Peterman Associates, Inc.
Mr. Dan Thorton
3480 North Main Street
Findlay, Ohio 45840

WE ARE SENDING YOU X „ **Attached** „ **Under separate cover via** _____ **the following items:**

„ **Shop Drawings** „ **Prints** X „ **Plans** „ **Samples** „ **Copy of Letter**

„ **Specifications** „ **Application for Payment** „ **Change Order** „ **Other** _____

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REMARKS _____

COPY TO _____

SIGNED: Joseph R Klein

If enclosures are not as noted, kindly notify us at once