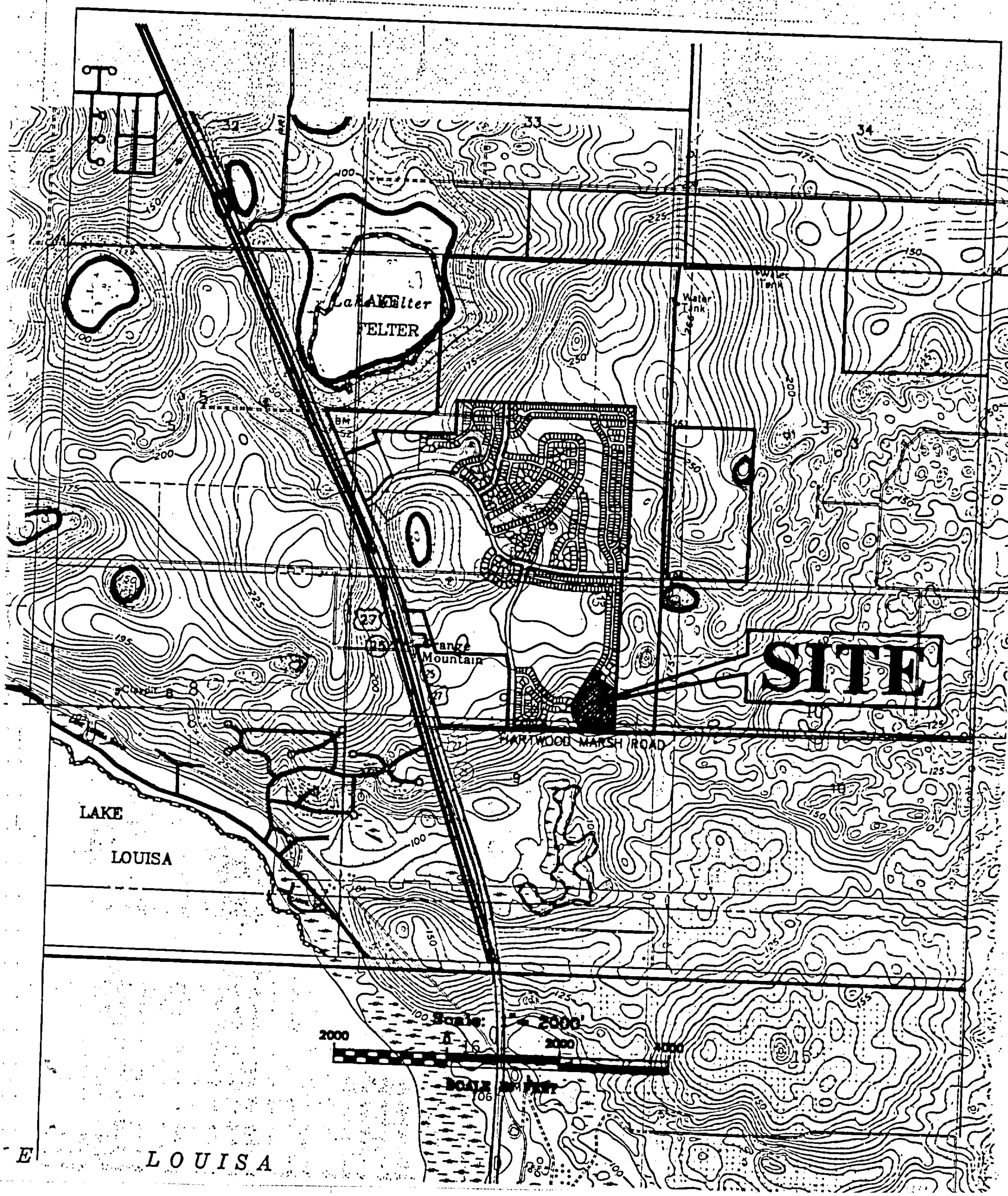
Bound Reports
1720

WELLINGTON PHASE III @ KINGS RIDGE
STORMWATER CALCULATIONS

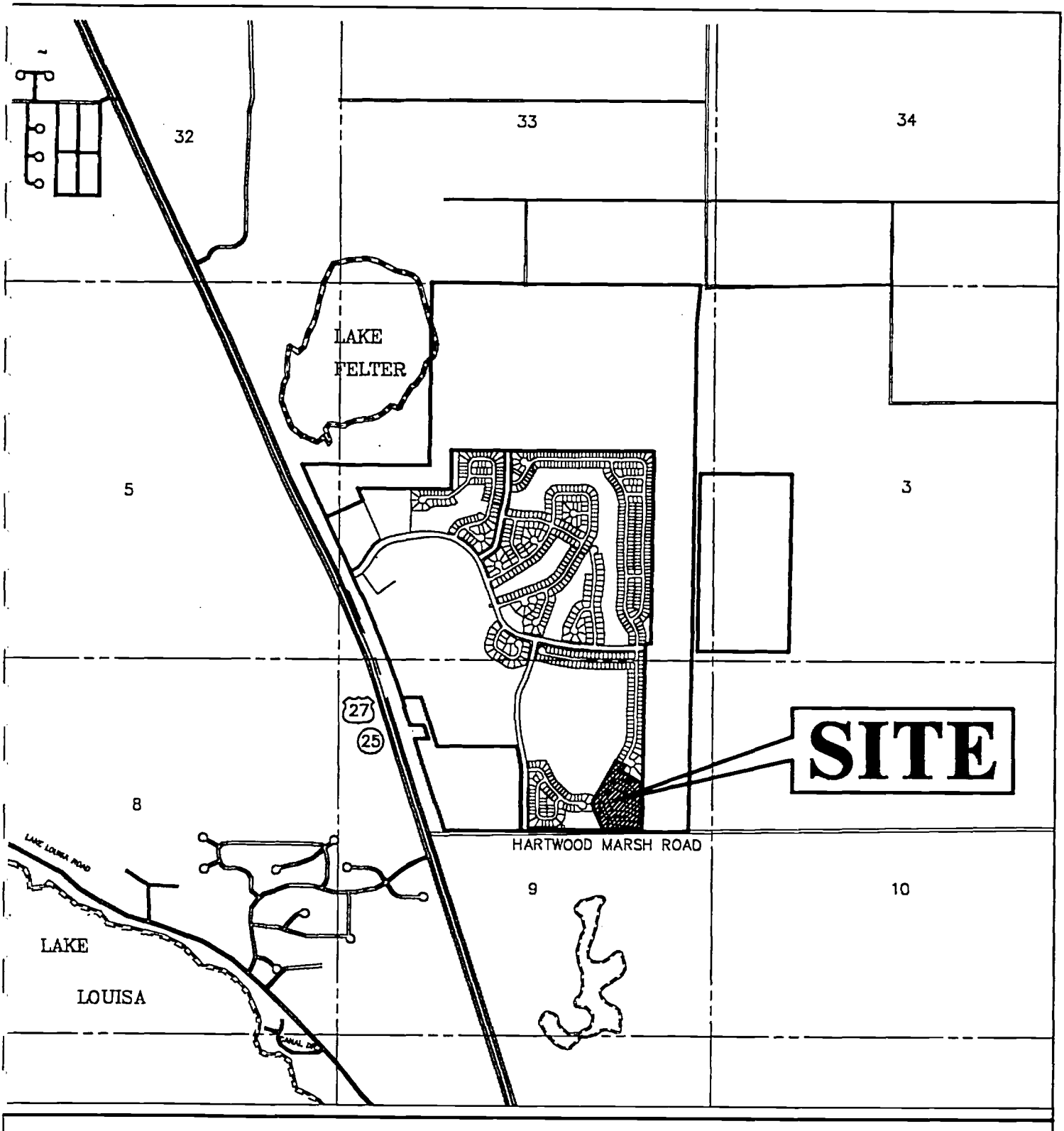
FARNER, BARLEY & ASSOCIATES, INC.
350 North Sinclair Avenue
Tavares, Florida 32778

By: _____
Duane K. Booth, P.E.

Date: DEC 23 1997



LAKE FELTER
Lake Felter
Water Tank
Orange Mountain
SITE
HARTWOOD MARSH ROAD
LAKE LOUISA
Scale: 1" = 2000'
SCALE IN FEET
LOUISA



Scale: 1"= 2000'

2000 0 2000 4000

SCALE IN FEET

VICINITY MAP

WELLINGTON PHASE III @ KINGS RIDGE
PROJECT SUMMARY

Sutherland consists of 46 lots, approximately 1,855 linear feet of road with the associated stormwater collection and conveyance system. This project lies within the Kings Ridge Planned Unit Development for which a master stormwater plan has been previously permitted and constructed as part of Kings Ridge Phase IV to which a St. Johns individual permit was issued. Permit No. 4-069-0326M-ERP. The developed site condition summary shows that the actual curve number to date including this project is lower than the curve numbers assumed for build-out within these stormwater calculations permitted under the above referenced project.

WELLINGTON PHASE III @ KINGS RIDGE
46 LOTS
DEVELOPED SITE CONDITION

Project Area	=	12.12 Ac.
Impervious Area	=	4.50 Ac. (37.10%)
CN	=	37.10 % x 98 (Impervious)
	=	62.90 % x 39 (Grass Good Condition 'A' Soils)
Weighted CN	=	61
Basin CN (3-D)	=	31.33% x 98 (Impervious)
	=	68.67% x 39 (Pervious)
	=	57 Basin CN 100% Complete
Basin CN (3-C)	=	30.65% x 98 (Impervious)
	=	69.35% x 39 (Pervious)
	=	67 Basin CN 100% Complete

Project within Previously Permitted Basin

3-D

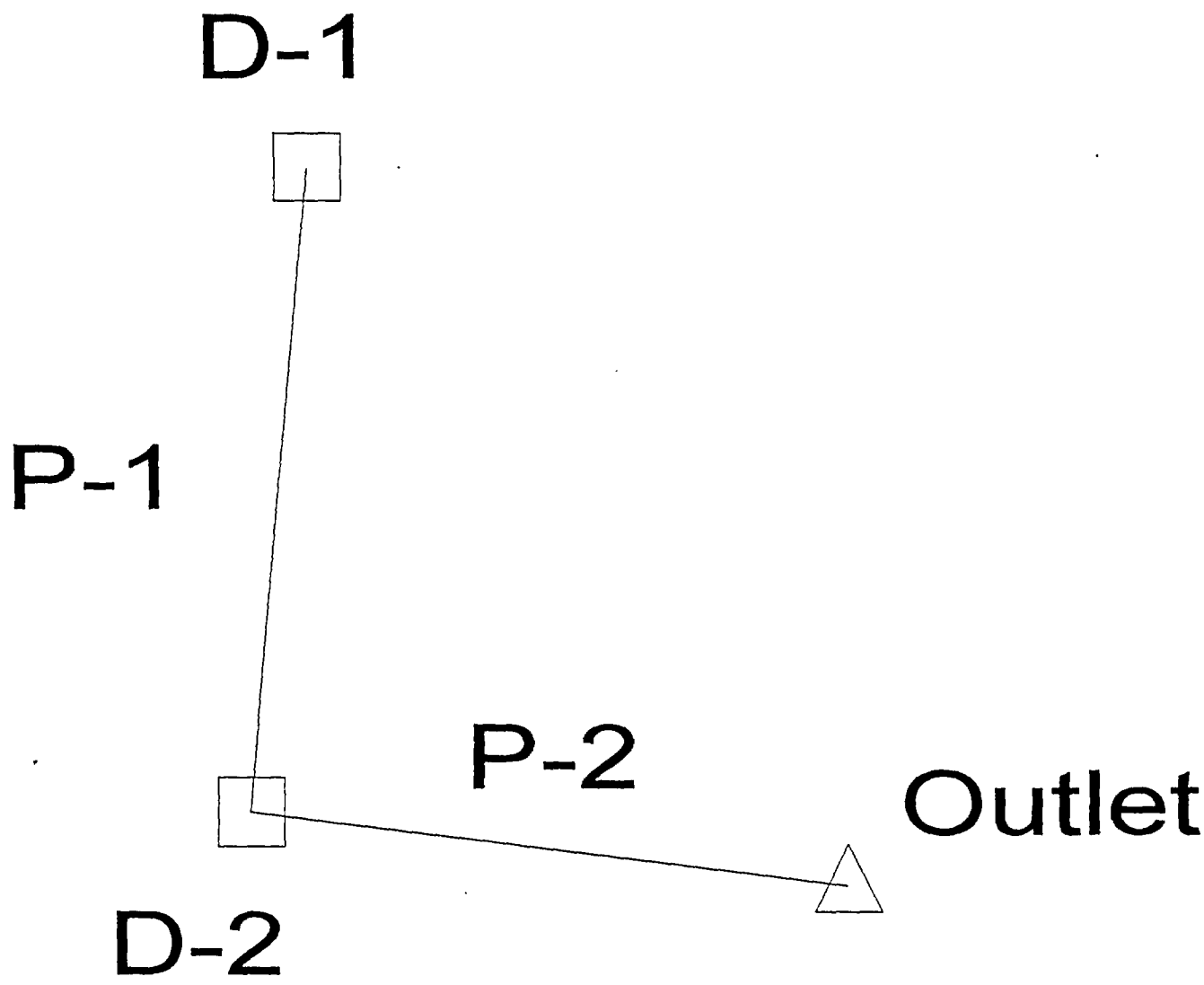
3-C

BASIN SUMMARY

BASIN	AREA (Ac)	CN (Permitted)	CN (Actual) including this page	BASIN STATUS
3-D	21.21	79	57	100% Complete
3-C	8.3	80	67	100% Complete

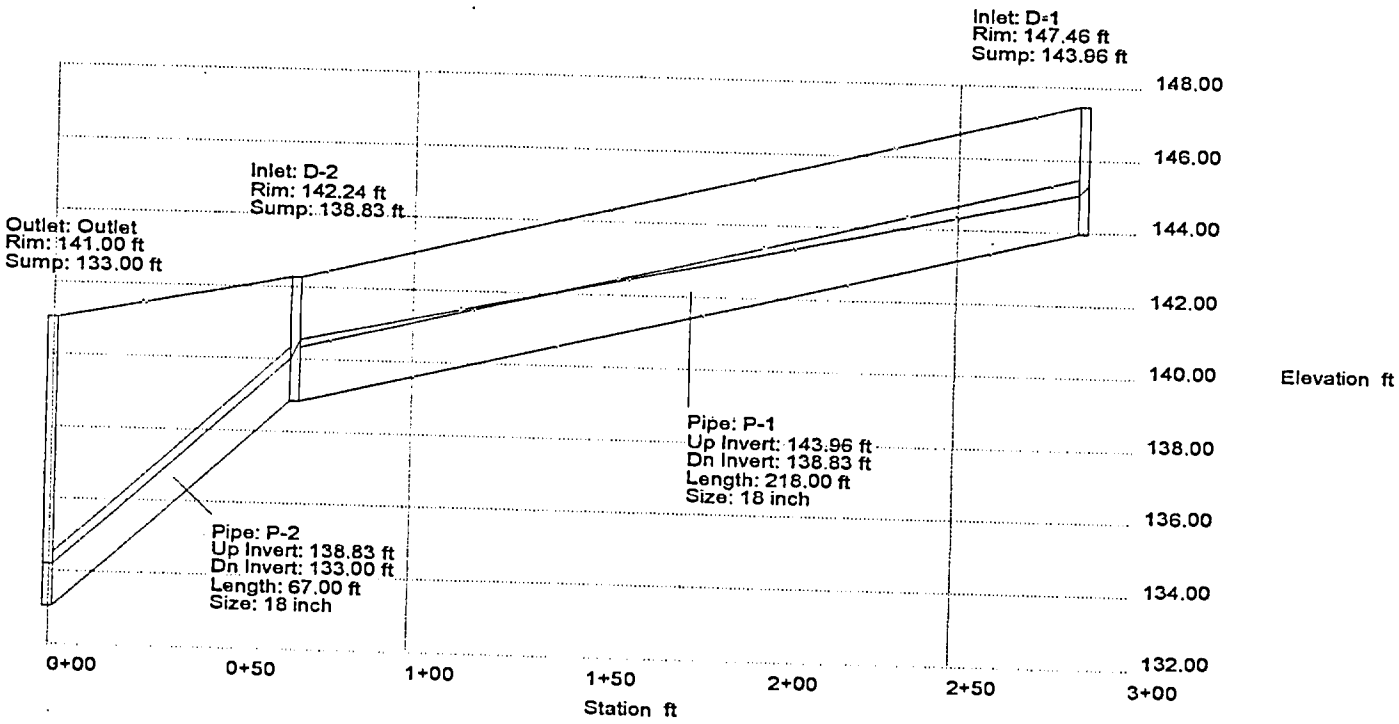
STORMWATER TABULATIONS

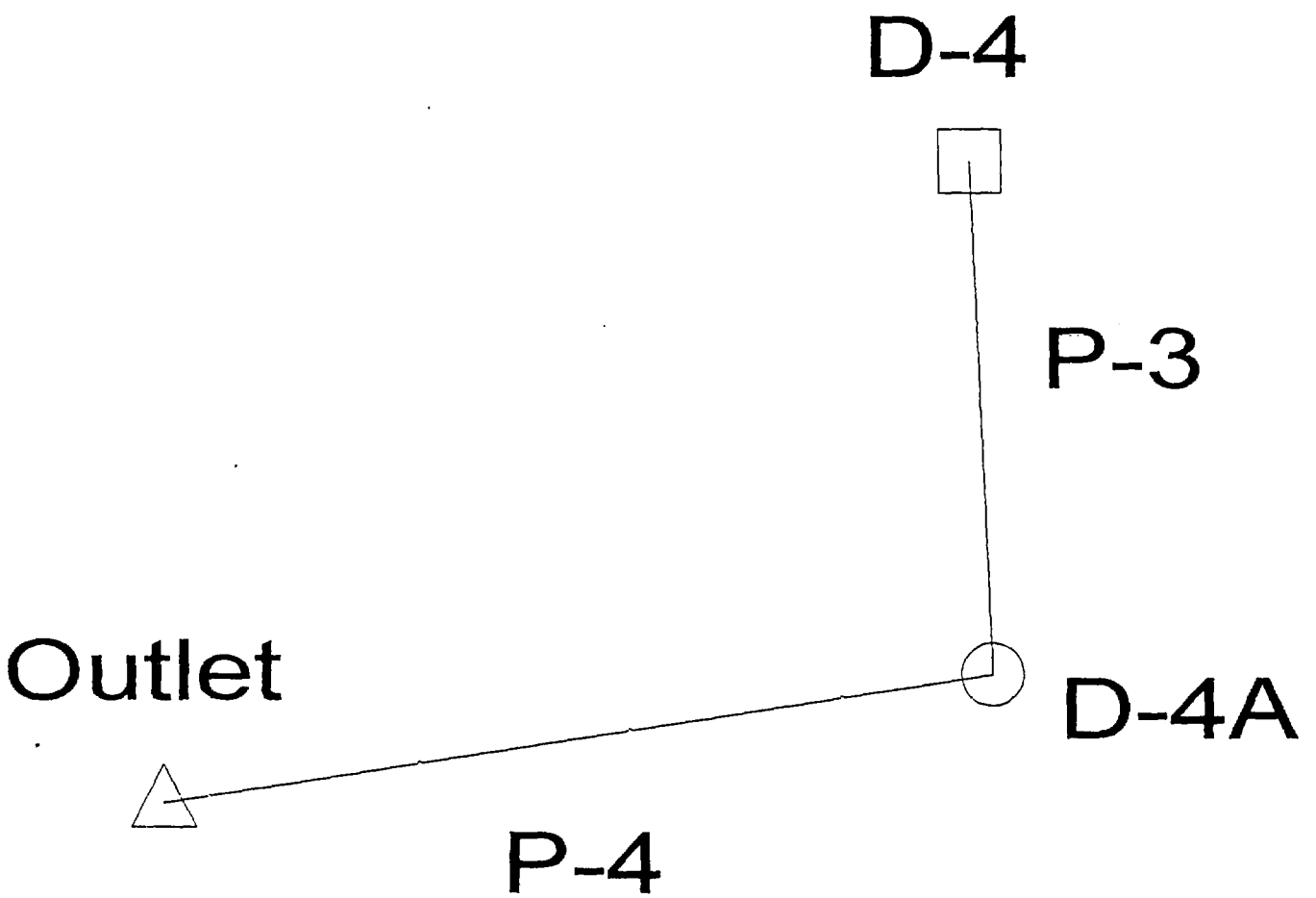
Structures D-1 through D-10 can be found on the following pages.


D-1
P-1
P-2
Outlet
D-2

DOT Report

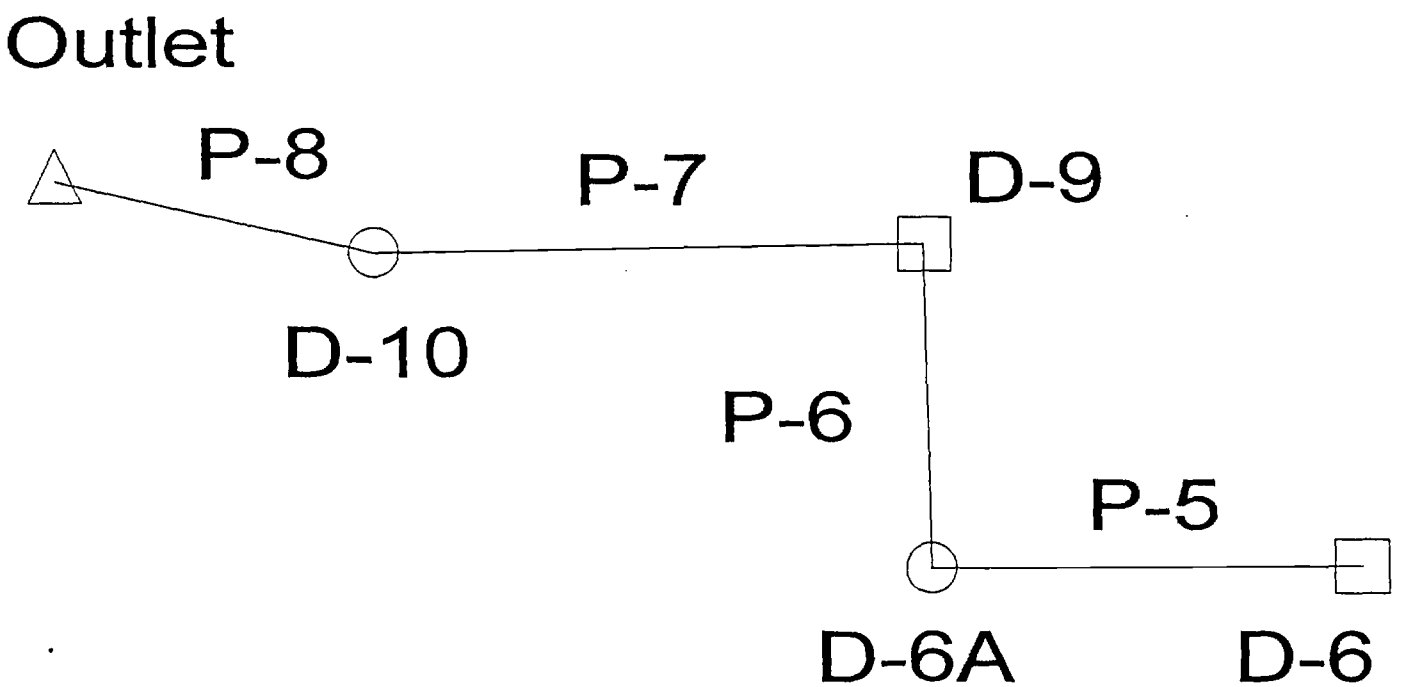
Pipe	-Node- Upstream Downstream	Inlet Area (acres)	Inlet CA (acres)	Total CA (acres)	-Ground- Upstream Downstream (ft)	-HGL- Upstream Downstream (ft)	-Slope- Energy Constructed (ft/ft)	-Section- Discharge Capacity (cfs)	-Section- Shape Size	Length (ft)	Average Velocity (ft/s)	Description
P-1	D-1	2.39	1.14	1.14	147.46	145.02	0.021562	7.43	Circular	218.00	4.90	
	D-2				142.24	140.53	0.023532	16.11	18 inch			
P-2	D-2	0.63	0.36	1.50	142.24	140.03	0.087015	9.58	Circular	67.00	6.35	
	Outlet				141.00	134.20	0.087015	30.98	18 inch			


Inlet: D-1
Rim: 147.46 ft
Sump: 143.96 ft
Inlet: D-2
Rim: 142.24 ft
Sump: 138.83 ft
Outlet: Outlet
Rim: 141.00 ft
Sump: 133.00 ft
Pipe: P-1
Up Invert: 143.96 ft
Dn Invert: 138.83 ft
Length: 218.00 ft
Size: 18 inch
Pipe: P-2
Up Invert: 138.83 ft
Dn Invert: 133.00 ft
Length: 67.00 ft
Size: 18 inch
148.00
146.00
144.00
142.00
140.00
138.00
136.00
134.00
132.00
Elevation ft
0+00
0+50
1+00
1+50
2+00
2+50
3+00
Station ft


D-4
P-3
Outlet
D-4A
P-4

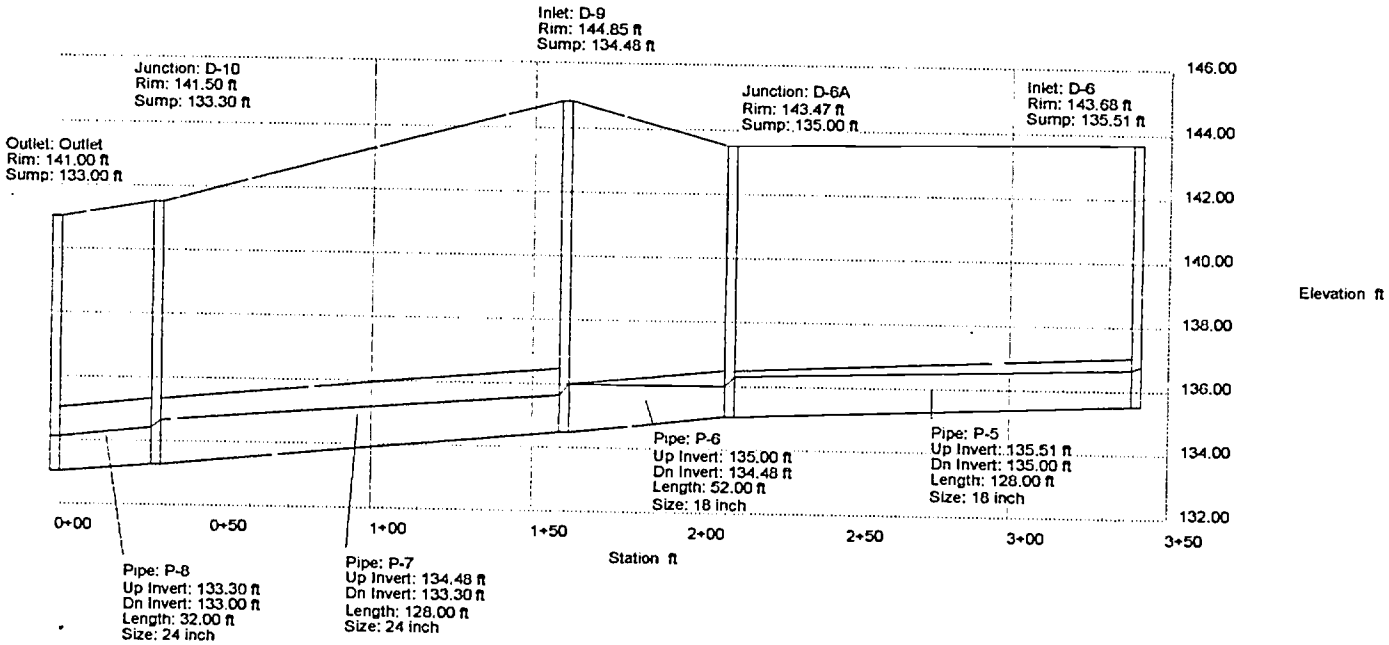
DOT Report

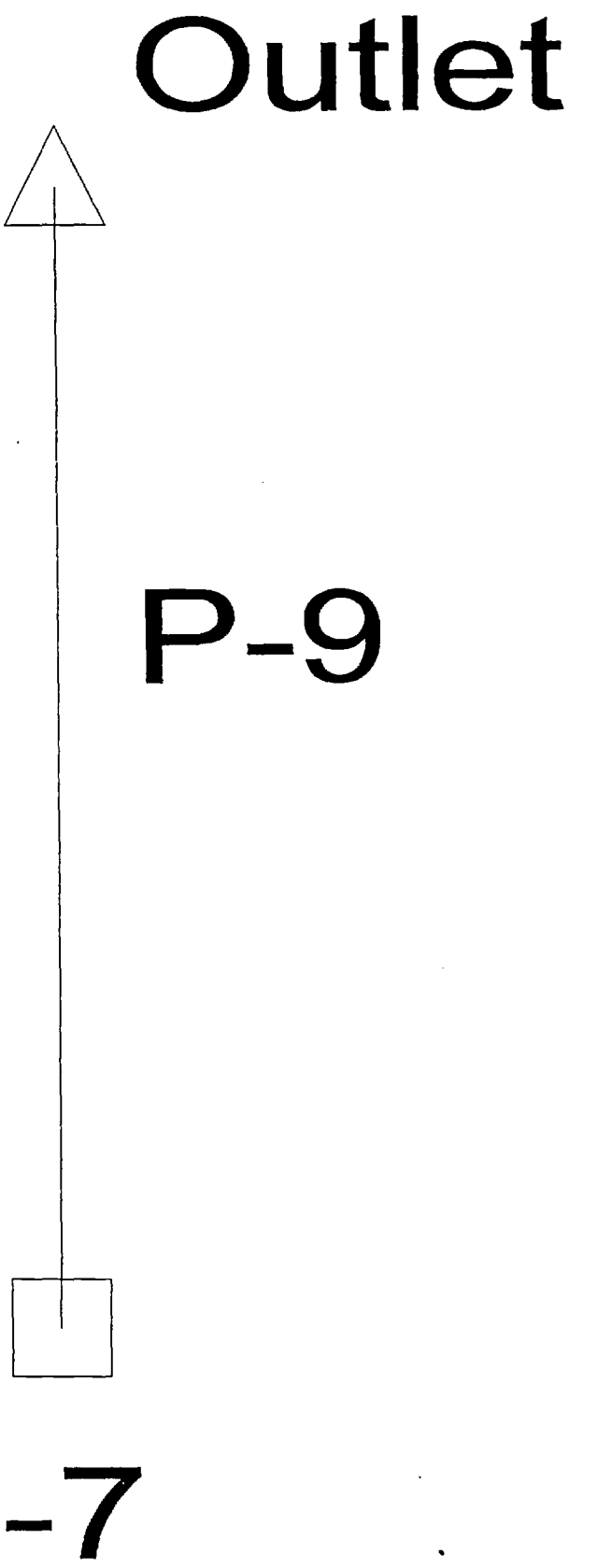
Pipe	-Node- Upstream Downstream	Inlet Area (acres)	Inlet CA (acres)	Total CA (acres)	-Ground- Upstream Downstream (ft)	-HGL- Upstream Downstream (ft)	-Slope- Energy Constructed (ft/ft)	-Section- Discharge Capacity (cfs)	-Section- Shape Size	Length (ft)	Average Velocity (ft/s)	Description
P-3	D-4	1.42	0.81	0.81	138.23	135.34	0.032025	5.28	Circular	65.00	4.21	
	D-4A				138.52	133.42	0.033846	19.32	18 inch			
P-4	D-4A	N/A	N/A	0.81	138.52	133.13	0.093590	5.25	Circular	195.00	4.85	
	Outlet				122.00	114.88	0.093590	32.13	18 inch			


Outlet
P-8
P-7
D-9
D-10
P-6
P-5
D-6A
D-6

DOT Report

Pipe	-Node- Upstream Downstream	Inlet Area (acres)	Inlet CA (acres)	Total CA (acres)	-Ground- Upstream Downstream (ft)	-HGL- Upstream Downstream (ft)	-Slope- Energy Constructed (ft/ft)	-Section- Discharge Capacity (cfs)	-Section- Shape Size	Length (ft)	Average Velocity (ft/s)	Description
P-5	D-6	1.58	0.91	0.91	143.68	136.66	0.003343	5.93	Circular	128.00	3.90	
	D-6A				143.47	136.28	0.003984	6.63	18 inch			
P-6	D-6A	N/A	N/A	0.91	143.47	136.01	0.003211	5.85	Circular	52.00	3.97	
	D-9				144.85	136.00	0.010000	10.50	18 inch			
P-7	D-9	1.68	0.70	1.60	144.85	135.63	0.008711	10.27	Circular	128.00	4.98	
	D-10				141.50	134.67	0.009219	21.72	24 inch			
P-8	D-10	N/A	N/A	1.60	141.50	134.44	0.009375	10.15	Circular	32.00	5.46	
	Outlet				141.00	134.14	0.009375	21.90	24 inch			


Inlet: D-9
Rim: 144.85 ft
Sump: 134.48 ft
Junction: D-10
Rim: 141.50 ft
Sump: 133.30 ft
Junction: D-6A
Rim: 143.47 ft
Sump: 135.00 ft
Inlet: D-6
Rim: 143.68 ft
Sump: 135.51 ft
Outlet: Outlet
Rim: 141.00 ft
Sump: 133.00 ft
146.00
144.00
142.00
140.00
138.00
136.00
134.00
132.00
Elevation ft
Pipe: P-6
Up Invert: 135.00 ft
Dn Invert: 134.48 ft
Length: 52.00 ft
Size: 18 inch
Pipe: P-5
Up Invert: 135.51 ft
Dn Invert: 135.00 ft
Length: 128.00 ft
Size: 18 inch
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
Station ft
Pipe: P-8
Up Invert: 133.30 ft
Dn Invert: 133.00 ft
Length: 32.00 ft
Size: 24 inch
Pipe: P-7
Up Invert: 134.48 ft
Dn Invert: 133.30 ft
Length: 128.00 ft
Size: 24 inch

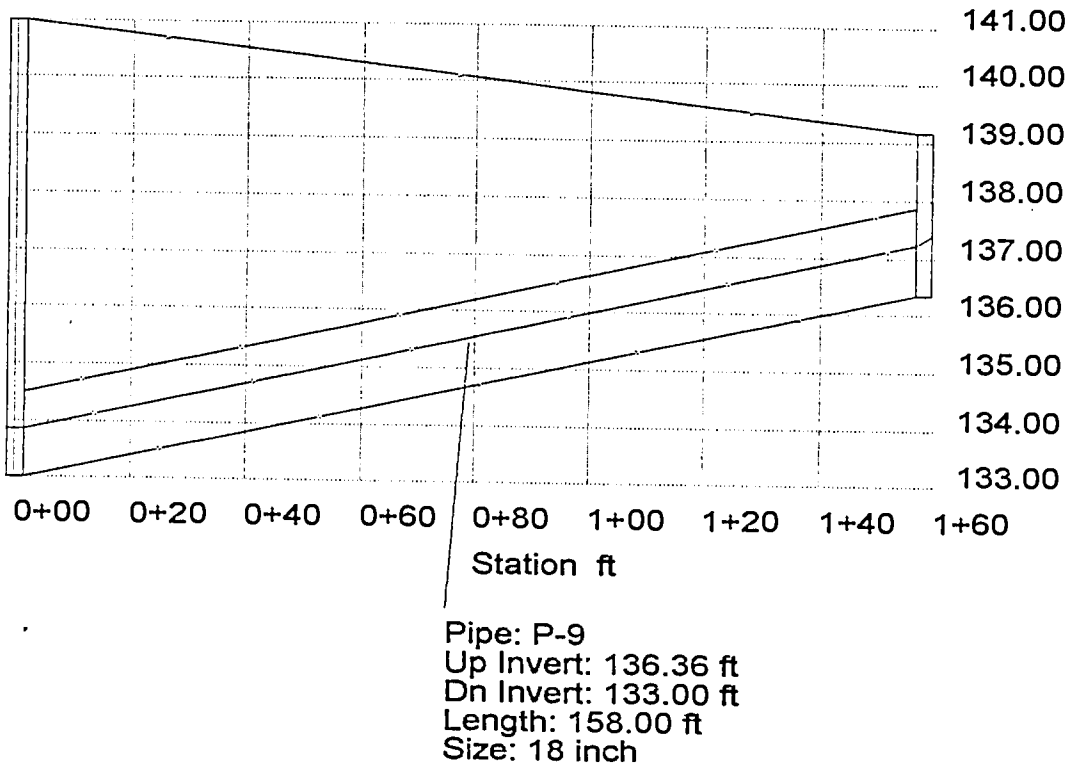

Outlet
P-9
D-7

DOT Report

Pipe	-Node- Upstream Downstream	Inlet Area (acres)	Inlet CA (acres)	Total CA (acres)	-Ground- Upstream Downstream (ft)	-HGL- Upstream Downstream (ft)	-Slope- Energy Constructed (ft/ft)	-Section- Discharge Capacity (cfs)	-Section- Shape Size	Length (ft)	Average Velocity (ft/s)	Description
P-9	D-7	1.39	0.74	0.74	139.17	137.21	0.021266	4.85	Circular	158.00	4.72	
	Outlet				141.00	133.85	0.021266	15.32	18 inch			

Outlet: Outlet
Rim: 141.00 ft
Sump: 133.00 ft

Inlet: D-7
Rim: 139.17 ft
Sump: 136.36 ft



Pipe: P-9
Up Invert: 136.36 ft
Dn Invert: 133.00 ft
Length: 158.00 ft
Size: 18 inch

INLET SPREAD CALCULATIONS

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Project : WELLINGTON PHASE III

Sta 30+02 INPUT
Intens.= 6.20 C1=0.48 A1= 2.39 Qadd = 0.0 Slope1= 0.0300 Gutter= 0.01 Area =12.00
CB ID = D1 C2=0.00 A2= 0.00 Qrunoff= 7.2 Slope2= 0.0200 a = 0.50 Perim =14.00
Grt P-1-7/8 C3=0.00 A3= 0.00 Grade = 0.0302 Slope3= 0.0200 W = 3.00 Length= 4.00

OUTPUT
Flowby= 0.0 Qtotal= 7.2 Qint= 6.5 Flowby dn= 0.7 Depth=0.20 Spread= 10.15 Veloc= 4.18

Sta 32+21 INPUT
Intens.= 6.20 C1=0.57 A1= 0.63 Qadd = 0.0 Slope1= 0.0300 Gutter= 0.01 Area =12.00
CB ID = D2 C2=0.00 A2= 0.00 Qrunoff= 2.2 Slope2= 0.0200 a = 0.50 Perim =14.00
Grt P-1-7/8 C3=0.00 A3= 0.00 Grade = 0.0234 Slope3= 0.0200 W = 4.00 Length= 3.00

OUTPUT
Flowby= 0.7 Qtotal= 2.9 Qint= 2.9 Flowby dn= 0.0 Depth=0.15 Spread= 7.60 Veloc= 3.04

INPUT
End of this reach of Catch Basins
Flowby dn flows to Catch Basin D4

OUTPUT
Flowby dn= 0.0

Sta 11+30 INPUT
Intens.= 6.20 C1=0.58 A1= 1.58 Qadd = 0.0 Slope1= 0.0300 Gutter= 0.01 Area =12.00
CB ID = D6 C2=0.00 A2= 0.00 Qrunoff= 5.7 Slope2= 0.0200 a = 0.50 Perim =14.00
Grt P-1-7/8 C3=0.00 A3= 0.00 Grade = 0.0040 Slope3= 0.0200 W = 4.00 Length= 3.00

OUTPUT
Flowby= 0.0 Qtotal= 5.7 Qint= 5.2 Flowby dn= 0.5 Depth=0.27 Spread= 13.65 Veloc= 1.84

INPUT
End of this reach of Catch Basins
Flowby dn flows to Catch Basin D7

OUTPUT
Flowby dn= 0.5

Sta 41+17 INPUT
Intens.= 6.20 C1=0.42 A1= 1.68 Qadd = 0.0 Slope1= 0.0300 Gutter= 0.01 Area =12.00
CB ID = D9 C2=0.00 A2= 0.00 Qrunoff= 4.4 Slope2= 0.0200 a = 0.50 Perim =14.00
Grt P-1-7/8 C3=0.00 A3= 0.00 Grade = 0.0287 Slope3= 0.0200 W = 4.00 Length= 3.00

OUTPUT
Flowby= 0.0 Qtotal= 4.4 Qint= 4.3 Flowby dn= 0.1 Depth=0.17 Spread= 8.55 Veloc= 3.62

Sta 37+42 INPUT
Intens.= 6.20 C1=0.53 A1= 1.39 Qadd = 0.0 Slope1= 0.0300 Gutter= 0.01 Area =12.00
CB ID = D7 C2=0.00 A2= 0.00 Qrunoff= 4.6 Slope2= 0.0200 a = 0.50 Perim =14.00
Grt P-1-7/8 C3=0.00 A3= 0.00 Grade = 0.0040 Slope3= 0.0200 W = 4.00 Length= 3.00

OUTPUT
Flowby= 0.7 Qtotal= 5.3 Qint= 4.8 Flowby dn= 0.5 Depth=0.26 Spread= 13.25 Veloc= 1.82

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Project : WELLINGTON PHASE III

Sta 34+91

INPUT

Intens.=	6.20	C1=0.57	A1= 1.42	Qadd	= 0.0	Slope1=	0.0300	Gutter= 0.01	Area =12.00
CB ID	= D4	C2=0.00	A2= 0.00	Qrunoff=	5.1	Slope2=	0.0200	a = 0.50	Perim =14.00
Grt	P-1-7/8	C3=0.00	A3= 0.00	Grade	= 0.0000	Slope3=	0.0200	W = 4.00	Length= 3.00

OUTPUT

Flowby= 0.5 Qtotal= 5.5 Qint= 5.5 Flowby dn= 0.0 Depth=0.30 Spread= 15.02 Veloc= 0.00

CRITERIA

Runoff computed by Rational Method Manning's n Gutter=0.016 Manning's n Pavement=0.022
Clogging Factors in Sag Location:
----- Curb Opening= 1.25 Grate= 1.25 Slotted Drain= 1.25 Comb-Curb= 1.25 Comb-Grate= 1.25
Clogging Factors on Continuous Grade:
----- Curb Opening= 1.25 Grate= 1.25 Slotted Drain= 1.25 Comb-Curb= 1.25 Comb-Grate= 1.25

Prepared by: Date:12/16/97 Time:16:33:23 Checked by: Date: