DRAINAGE PLAN

SOUTHERN RIDGE 2ND ADDITION

TO

WICHITA, SEDGWICK COUNTY, KANSAS

Baughman Company, P.A.

DRAINAGE PLAN
SOUTHERN RIDGE 2ND ADDITION
TO
WICHITA, SEDGWICK COUNTY, KANSAS

Prepared By

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June 30, 2004

Narrative

This report provides information and supporting documentation to support the "Drainage Plan" for the property located in the Northeast Quarter of Section 6, T-28-S, R-1-W in Sedgwick County, Kansas.

The "Drainage Plan" being submitted herein in intended to serve as a guide for the design of detention facilities, parking lots, and storm water sewer improvements to the proposed developments. Modifications to structures, pipes, etc. may be made as necessary during the final design in order to obtain the most economical design and construction possible.

This project is a continuation of the overall Southern Ridge development. The downstream pond and the associated outlet pipe have already been constructed with the first phase of development. The proposed upper pond will not be constructed until a future phase. However the upper pond has been analyzed in order to determine the tailwater conditions that will be present for the stormwater sewers that will discharge into the pond.

This drainage plan also will utilize the future drainage improvements that are proposed within the Pawnee right-of-way. Three small stormwater sewer systems will utilize the increased depth, based on an assumed underground drainage system that is probable with the future improvements.

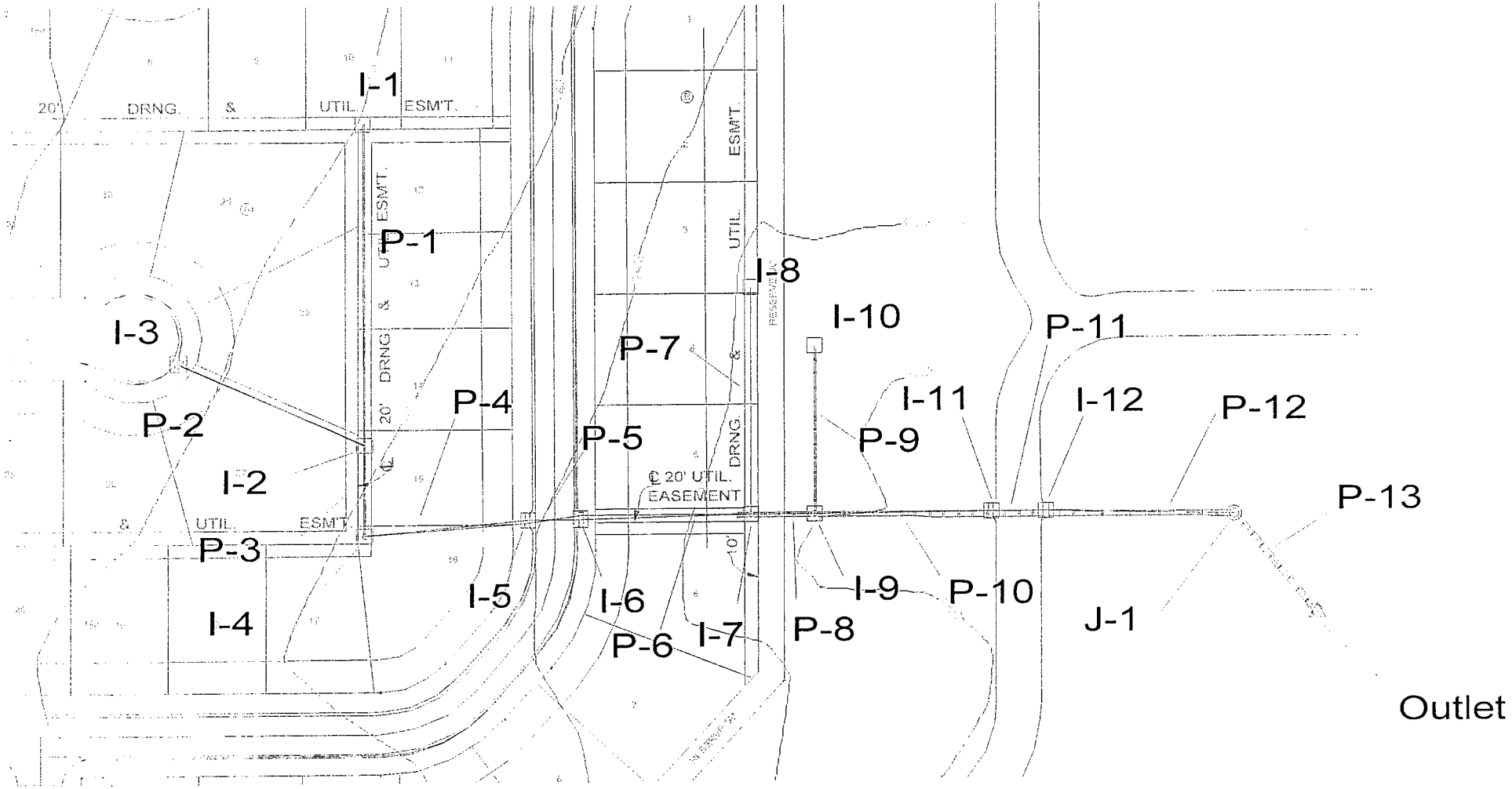
The stormwater sewer improvements have been developed in conjunction with an overall subdivision-grading plan. The pipe networks have been sized to accommodate the minor rainfall event (2-yr return period), and overland passage has been allowed for the conveyance of a major event (100-yr return period). Although alterations may be made to the stormwater sewer network, modifications may also require the adjustment of the intended site grading.

Included with this report are copies of the hydraulic calculations for the stormwater sewer networks, the subdivision grading plan for Southern Ridge 2nd Addition and the "Drainage Plan".

Stormwater Sewer Calculations

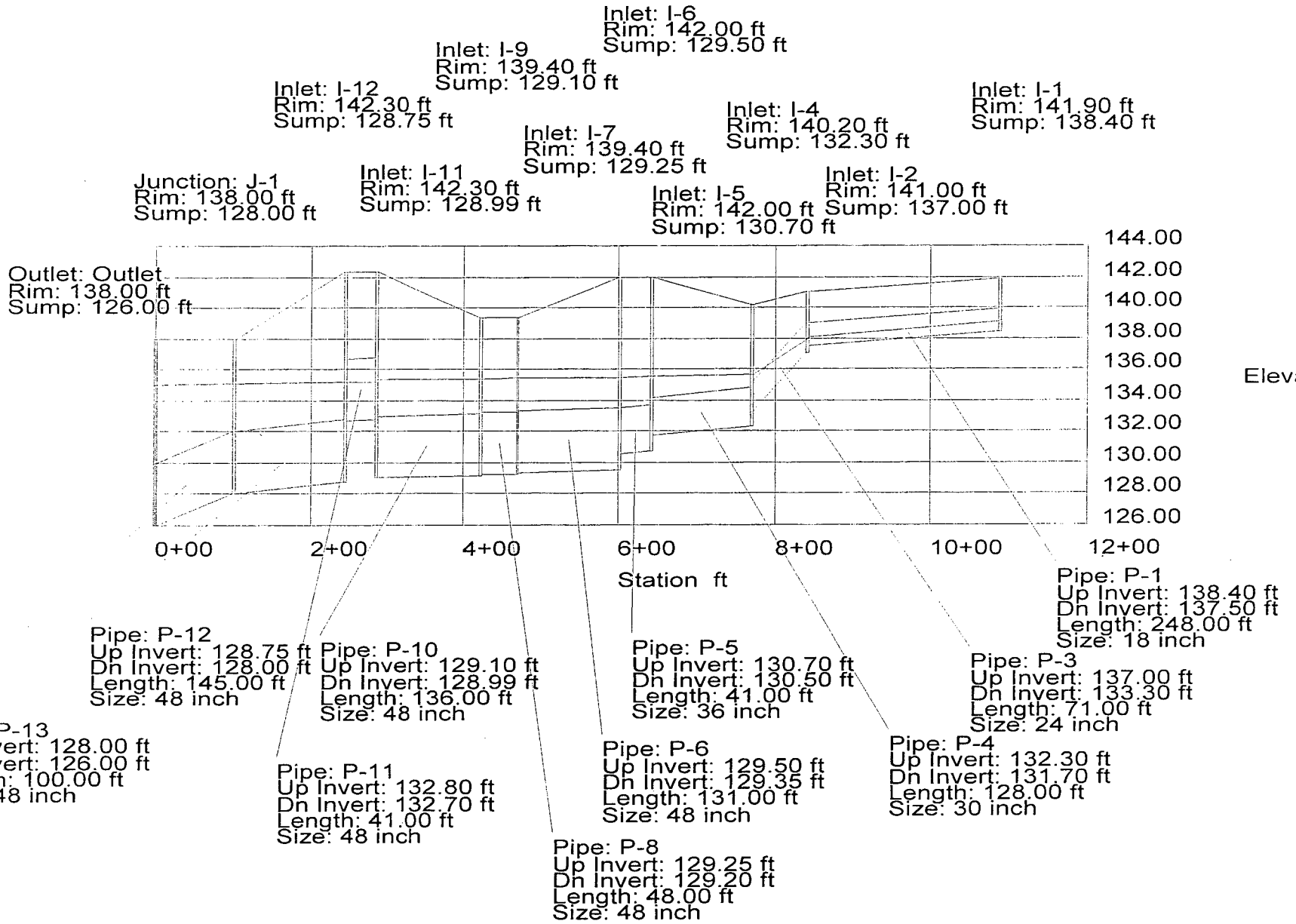
StormCad Analysis

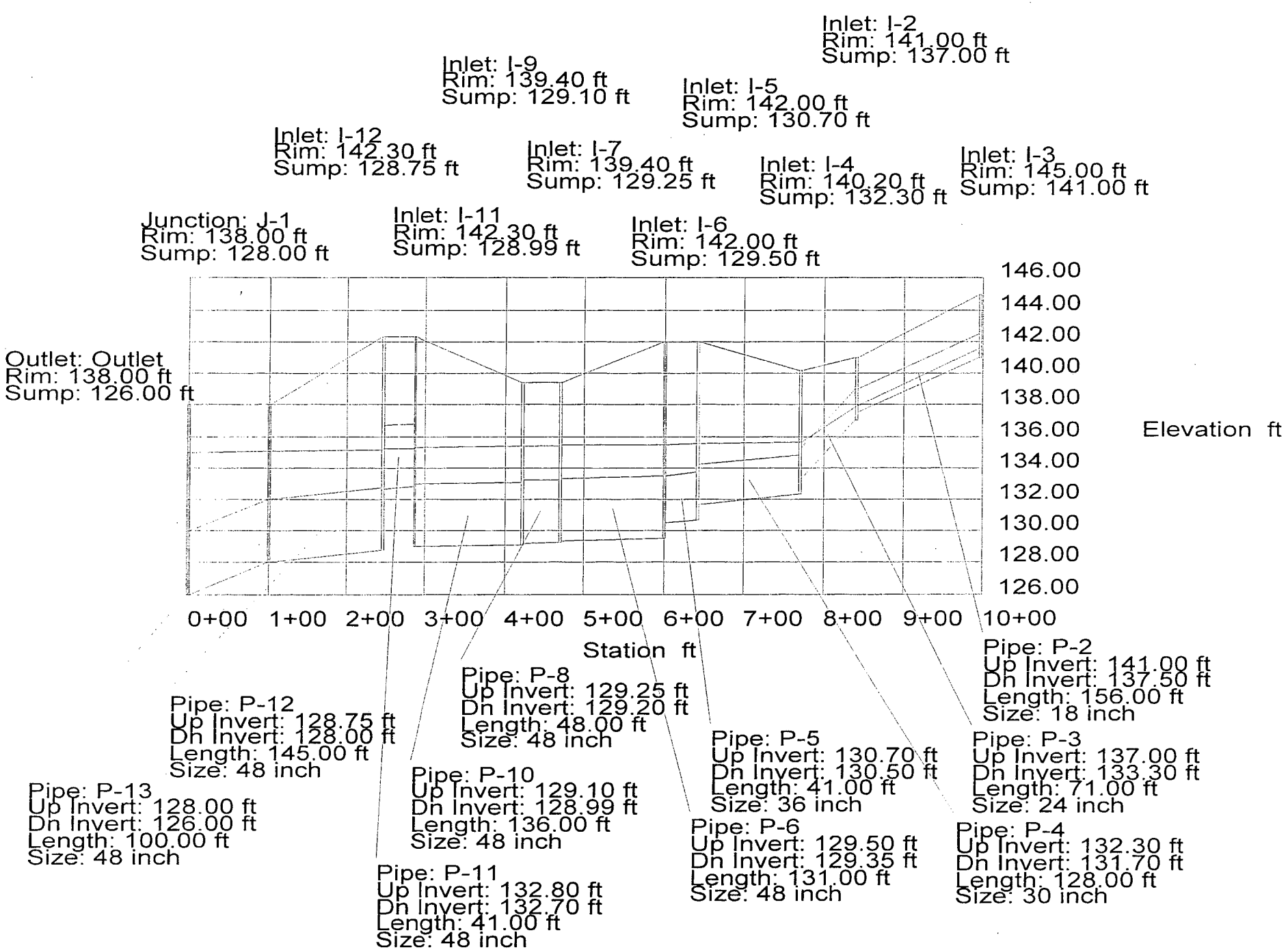
System #1


I-1
P-1
I-3
P-2
I-2
P-3
I-4
P-4
I-5
P-5
I-6
P-6
I-7
I-8
P-7
P-8
I-9
I-10
P-9
P-10
I-11
P-11
I-12
P-12
P-13
J-1
Outlet
20' DRNG. & UTIL. ESM'T.
20' UTIL. EASEMENT

System Report

Pipe	Additional Flow (cfs)	Total Upstream Added (cfs)	Structure Discharge (cfs)	-Node- Upstream Downstream	-Section- Shape Size	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	-Ground- Upstream Downstream (ft)	-HGL- Upstream Downstream (ft)	-Slope- Energy Constructed (ft/ft)	-Section- Discharge Capacity (cfs)	Length (ft)
P-9	1.60	0.00	1.60	I-10	Circular	132.80	131.85	138.70	135.48	0.000614	1.60	131.00
				I-9	15 inch			139.40	135.40	0.007252	5.50	
P-7	1.40	0.00	1.40	I-8	Circular	135.50	131.70	139.60	135.97	0.003827	1.40	177.00
				I-7	15 inch			139.40	135.44	0.021469	9.46	
P-2	2.60	0.00	2.60	I-3	Circular	141.00	137.50	145.00	141.61	0.020863	2.60	156.00
				I-2	18 inch			141.00	137.91	0.022436	15.73	
P-1	2.50	0.00	2.50	I-1	Circular	138.40	137.50	141.90	139.06	0.003665	2.50	248.00
				I-2	18 inch			141.00	138.10	0.003629	6.33	
P-3	0.90	5.10	6.00	I-2	Circular	137.00	133.30	141.00	137.87	0.035107	6.00	71.00
				I-4	24 inch			140.20	135.65	0.052113	51.64	
P-4	3.20	6.00	9.20	I-4	Circular	132.30	131.70	140.20	135.62	0.000503	9.20	128.00
				I-5	30 inch			142.00	135.55	0.004688	28.08	
P-5	6.50	9.20	15.70	I-5	Circular	130.70	130.50	142.00	135.52	0.000554	15.70	41.00
				I-6	36 inch			142.00	135.49	0.004878	46.58	
P-6	5.30	15.70	21.00	I-6	Circular	129.50	129.35	142.00	135.47	0.000214	21.00	131.00
				I-7	48 inch			139.40	135.44	0.001145	48.60	
P-8	0.90	22.40	23.30	I-7	Circular	129.25	129.20	139.40	135.42	0.000263	23.30	48.00
				I-9	48 inch			139.40	135.40	0.001042	46.36	
P-10	1.20	24.90	26.10	I-9	Circular	129.10	128.99	139.40	135.37	0.000330	26.10	136.00
				I-11	48 inch			142.30	135.33	0.000809	40.85	
P-11	3.20	26.10	29.30	I-11	Circular	132.80	132.70	142.30	135.22	0.000859	29.30	41.00
				I-12	48 inch			142.30	135.20	0.002439	70.94	
P-12	1.10	29.30	30.40	I-12	Circular	128.75	128.00	142.30	135.16	0.000448	30.40	145.00
				J-1	48 inch			138.00	135.09	0.005172	103.30	
P-13	N/A	30.40	30.40	J-1	Circular	128.00	126.00	138.00	135.04	0.000448	30.40	100.00
				Outlet	48 inch			138.00	135.00	0.020000	203.13	


Inlet: I-6
Rim: 142.00 ft
Sump: 129.50 ft
Inlet: I-9
Rim: 139.40 ft
Sump: 129.10 ft
Inlet: I-12
Rim: 142.30 ft
Sump: 128.75 ft
Inlet: I-7
Rim: 139.40 ft
Sump: 129.25 ft
Inlet: I-4
Rim: 140.20 ft
Sump: 132.30 ft
Inlet: I-1
Rim: 141.90 ft
Sump: 138.40 ft
Junction: J-1
Rim: 138.00 ft
Sump: 128.00 ft
Inlet: I-11
Rim: 142.30 ft
Sump: 128.99 ft
Inlet: I-5
Rim: 142.00 ft
Sump: 130.70 ft
Inlet: I-2
Rim: 141.00 ft
Sump: 137.00 ft
Outlet: Outlet
Rim: 138.00 ft
Sump: 126.00 ft
144.00
142.00
140.00
138.00
136.00
134.00
132.00
130.00
128.00
126.00
Elevation ft
0+00
2+00
4+00
6+00
8+00
10+00
12+00
Station ft
Pipe: P-1
Up Invert: 138.40 ft
Dn Invert: 137.50 ft
Length: 248.00 ft
Size: 18 inch
Pipe: P-12
Up Invert: 128.75 ft
Dn Invert: 128.00 ft
Length: 145.00 ft
Size: 48 inch
Pipe: P-10
Up Invert: 129.10 ft
Dn Invert: 128.99 ft
Length: 136.00 ft
Size: 48 inch
Pipe: P-5
Up Invert: 130.70 ft
Dn Invert: 130.50 ft
Length: 41.00 ft
Size: 36 inch
Pipe: P-3
Up Invert: 137.00 ft
Dn Invert: 133.30 ft
Length: 71.00 ft
Size: 24 inch
Pipe: P-13
Up Invert: 128.00 ft
Dn Invert: 126.00 ft
Length: 100.00 ft
Size: 48 inch
Pipe: P-11
Up Invert: 132.80 ft
Dn Invert: 132.70 ft
Length: 41.00 ft
Size: 48 inch
Pipe: P-6
Up Invert: 129.50 ft
Dn Invert: 129.35 ft
Length: 131.00 ft
Size: 48 inch
Pipe: P-4
Up Invert: 132.30 ft
Dn Invert: 131.70 ft
Length: 128.00 ft
Size: 30 inch
Pipe: P-8
Up Invert: 129.25 ft
Dn Invert: 129.20 ft
Length: 48.00 ft
Size: 48 inch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Rim: 141.00 ft
Sump: 137.00 ft
Inlet: I-9
Rim: 139.40 ft
Sump: 129.10 ft
Inlet: I-5
Rim: 142.00 ft
Sump: 130.70 ft
Inlet: I-12
Rim: 142.30 ft
Sump: 128.75 ft
Inlet: I-7
Rim: 139.40 ft
Sump: 129.25 ft
Inlet: I-4
Rim: 140.20 ft
Sump: 132.30 ft
Inlet: I-3
Rim: 145.00 ft
Sump: 141.00 ft
Junction: J-1
Rim: 138.00 ft
Sump: 128.00 ft
Inlet: I-11
Rim: 142.30 ft
Sump: 128.99 ft
Inlet: I-6
Rim: 142.00 ft
Sump: 129.50 ft
Outlet: Outlet
Rim: 138.00 ft
Sump: 126.00 ft
146.00
144.00
142.00
140.00
138.00
136.00
134.00
132.00
130.00
128.00
126.00
Elevation ft
0+00
1+00
2+00
3+00
4+00
5+00
6+00
7+00
8+00
9+00
10+00
Station ft
Pipe: P-2
Up Invert: 141.00 ft
Dn Invert: 137.50 ft
Length: 156.00 ft
Size: 18 inch
Pipe: P-8
Up Invert: 129.25 ft
Dn Invert: 129.20 ft
Length: 48.00 ft
Size: 48 inch
Pipe: P-12
Up Invert: 128.75 ft
Dn Invert: 128.00 ft
Length: 145.00 ft
Size: 48 inch
Pipe: P-5
Up Invert: 130.70 ft
Dn Invert: 130.50 ft
Length: 41.00 ft
Size: 36 inch
Pipe: P-3
Up Invert: 137.00 ft
Dn Invert: 133.30 ft
Length: 71.00 ft
Size: 24 inch
Pipe: P-13
Up Invert: 128.00 ft
Dn Invert: 126.00 ft
Length: 100.00 ft
Size: 48 inch
Pipe: P-10
Up Invert: 129.10 ft
Dn Invert: 128.99 ft
Length: 136.00 ft
Size: 48 inch
Pipe: P-6
Up Invert: 129.50 ft
Dn Invert: 129.35 ft
Length: 131.00 ft
Size: 48 inch
Pipe: P-4
Up Invert: 132.30 ft
Dn Invert: 131.70 ft
Length: 128.00 ft
Size: 30 inch
Pipe: P-11
Up Invert: 132.80 ft
Dn Invert: 132.70 ft
Length: 41.00 ft
Size: 48 inch

Inlet: I-12
Rim: 142.30 ft
Sump: 128.75 ft

Inlet: I-9
Rim: 139.40 ft
Sump: 129.10 ft

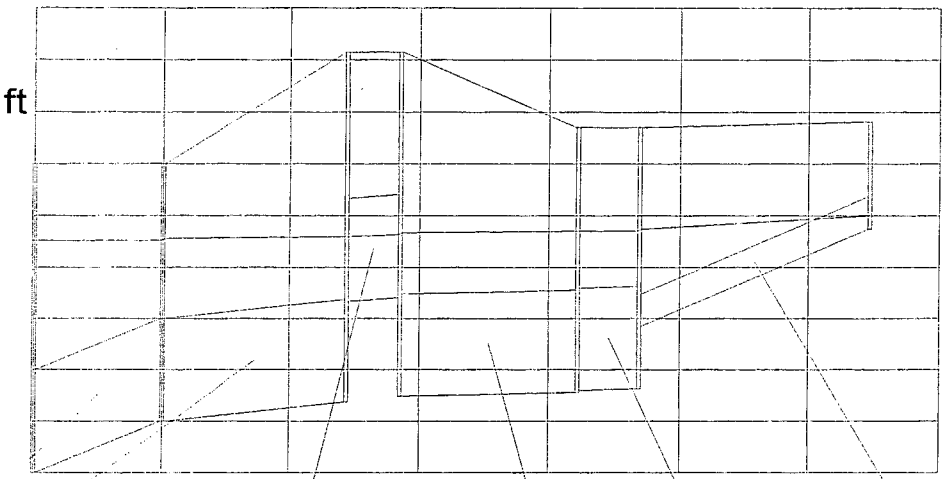
Inlet: I-8
Rim: 139.60 ft
Sump: 135.50 ft

Junction: J-1
Rim: 138.00 ft
Sump: 128.00 ft

Inlet: I-11
Rim: 142.30 ft
Sump: 128.99 ft

Inlet: I-7
Rim: 139.40 ft
Sump: 129.25 ft

Outlet: Outlet
Rim: 138.00 ft
Sump: 126.00 ft



Pipe: P-12
Up Invert: 128.75 ft
Dn Invert: 128.00 ft
Length: 145.00 ft
Size: 48 inch

Pipe: P-13
Up Invert: 128.00 ft
Dn Invert: 126.00 ft
Length: 100.00 ft
Size: 48 inch

Pipe: P-11
Up Invert: 132.80 ft
Dn Invert: 132.70 ft
Length: 41.00 ft
Size: 48 inch

Pipe: P-10
Up Invert: 129.10 ft
Dn Invert: 128.99 ft
Length: 136.00 ft
Size: 48 inch

Pipe: P-8
Up Invert: 129.25 ft
Dn Invert: 129.20 ft
Length: 48.00 ft
Size: 48 inch

Pipe: P-7
Up Invert: 135.50 ft
Dn Invert: 131.70 ft
Length: 177.00 ft
Size: 15 inch

Inlet: I-12
Rim: 142.30 ft
Sump: 128.75 ft

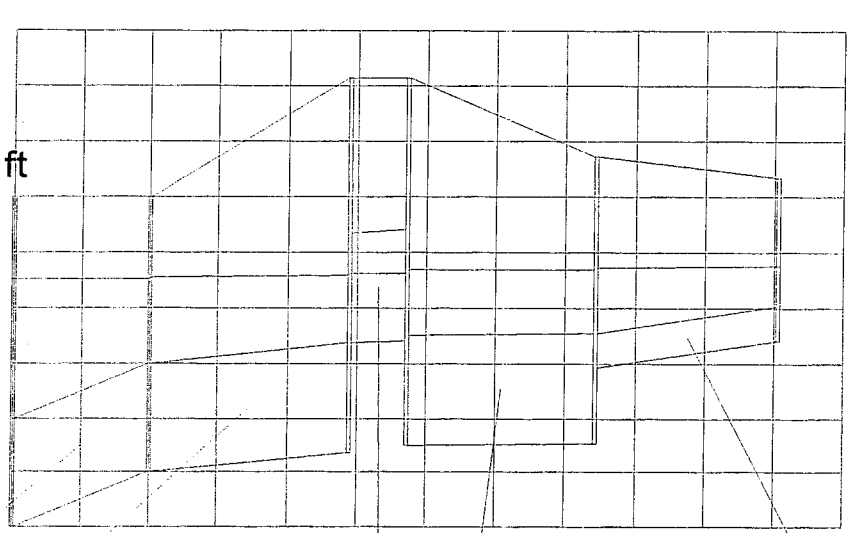
Inlet: I-9
Rim: 139.40 ft
Sump: 129.10 ft

Junction: J-1
Rim: 138.00 ft
Sump: 128.00 ft

Inlet: I-11
Rim: 142.30 ft
Sump: 128.99 ft

Inlet: I-10
Rim: 138.70 ft
Sump: 132.80 ft

Outlet: Outlet
Rim: 138.00 ft
Sump: 126.00 ft



Pipe: P-12
Up Invert: 128.75 ft
Dn Invert: 128.00 ft
Length: 145.00 ft
Size: 48 inch

Pipe: P-10
Up Invert: 129.10 ft
Dn Invert: 128.99 ft
Length: 136.00 ft
Size: 48 inch

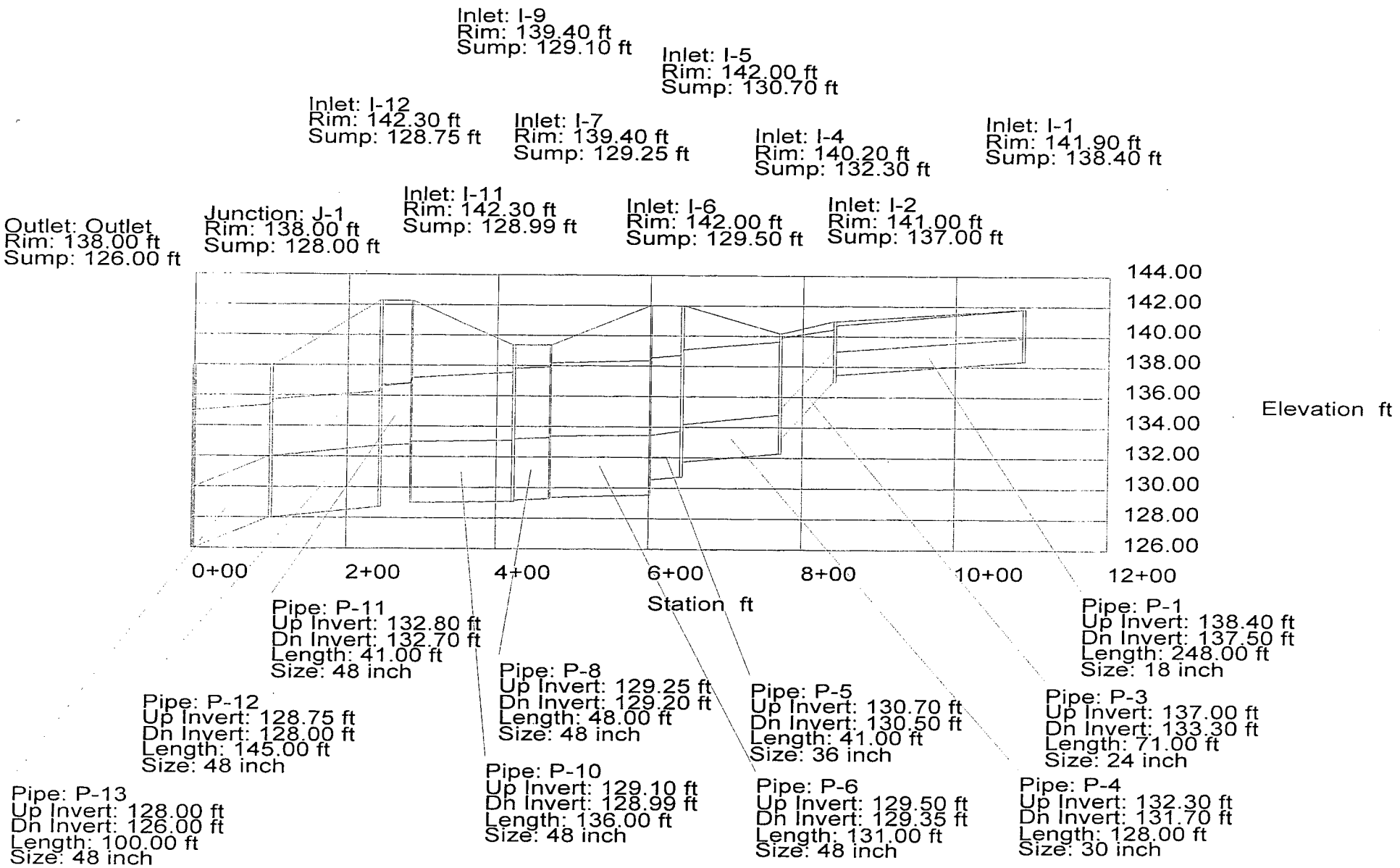
Pipe: P-9
Up Invert: 132.80 ft
Dn Invert: 131.85 ft
Length: 131.00 ft
Size: 15 inch

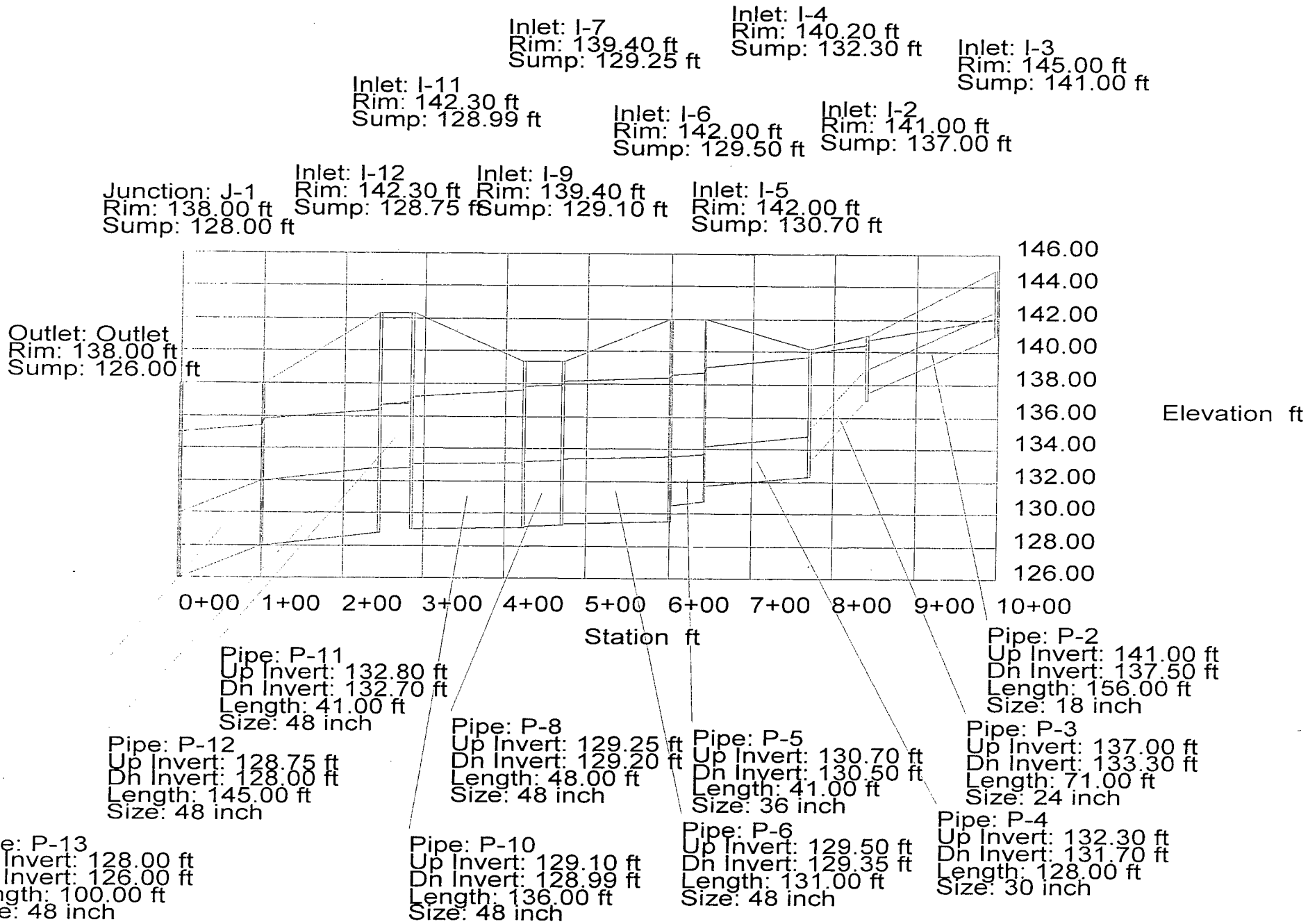
Pipe: P-13
Up Invert: 128.00 ft
Dn Invert: 126.00 ft
Length: 100.00 ft
Size: 48 inch

Pipe: P-11
Up Invert: 132.80 ft
Dn Invert: 132.70 ft
Length: 41.00 ft
Size: 48 inch

System Report

Pipe	Additional Flow (cfs)	Total Upstream Added (cfs)	Structure Discharge (cfs)	-Node- Upstream Downstream	-Section- Shape Size	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	-Ground- Upstream Downstream (ft)	-HGL- Upstream Downstream (ft)	-Slope- Energy Constructed (ft/ft)	-Section- Discharge Capacity (cfs)	Length (ft)
P-9	4.40	0.00	4.40	I-10	Circular	132.80	131.85	138.70	138.46	0.004640	4.40	131.00
				I-9	15 inch			139.40	137.85	0.007252	5.50	
P-7	4.00	0.00	4.00	I-8	Circular	135.50	131.70	139.60	138.86	0.003835	4.00	177.00
				I-7	15 inch			139.40	138.18	0.021469	9.46	
P-2	7.40	0.00	7.40	I-3	Circular	141.00	137.50	145.00	142.05	0.009540	7.40	156.00
				I-2	18 inch			141.00	140.78	0.022436	15.73	
P-1	6.90	0.00	6.90	I-1	Circular	138.40	137.50	141.90	141.85	0.004315	6.90	248.00
				I-2	18 inch			141.00	140.78	0.003629	6.33	
P-3	5.20	14.30	19.50	I-2	Circular	137.00	133.30	141.00	140.48	0.007431	19.50	71.00
				I-4	24 inch			140.20	139.95	0.052113	51.64	
P-4	8.90	19.50	28.40	I-4	Circular	132.30	131.70	140.20	139.69	0.004795	28.40	128.00
				I-5	30 inch			142.00	139.08	0.004688	28.08	
P-5	16.00	28.40	44.40	I-5	Circular	130.70	130.50	142.00	138.77	0.004432	44.40	41.00
				I-6	36 inch			142.00	138.59	0.004878	46.58	
P-6	16.00	44.40	60.40	I-6	Circular	129.50	129.35	142.00	138.41	0.001768	60.40	131.00
				I-7	48 inch			139.40	138.18	0.001145	48.60	
P-8	2.50	64.40	66.90	I-7	Circular	129.25	129.20	139.40	137.96	0.002169	66.90	48.00
				I-9	48 inch			139.40	137.85	0.001042	46.36	
P-10	3.50	71.30	74.80	I-9	Circular	129.10	128.99	139.40	137.58	0.002712	74.80	136.00
				I-11	48 inch			142.30	137.21	0.000809	40.85	
P-11	8.90	74.80	83.70	I-11	Circular	132.80	132.70	142.30	136.86	0.003396	83.70	41.00
				I-12	48 inch			142.30	136.72	0.002439	70.94	
P-12	5.40	83.70	89.10	I-12	Circular	128.75	128.00	142.30	136.33	0.003848	89.10	145.00
				J-1	48 inch			138.00	135.78	0.005172	103.30	
P-13	N/A	89.10	89.10	J-1	Circular	128.00	126.00	138.00	135.38	0.003848	89.10	100.00
				Outlet	48 inch			138.00	135.00	0.020000	203.13	


Inlet: I-9
Rim: 139.40 ft
Sump: 129.10 ft
Inlet: I-5
Rim: 142.00 ft
Sump: 130.70 ft
Inlet: I-12
Rim: 142.30 ft
Sump: 128.75 ft
Inlet: I-7
Rim: 139.40 ft
Sump: 129.25 ft
Inlet: I-4
Rim: 140.20 ft
Sump: 132.30 ft
Inlet: I-1
Rim: 141.90 ft
Sump: 138.40 ft
Inlet: I-11
Rim: 142.30 ft
Sump: 128.99 ft
Outlet: Outlet
Rim: 138.00 ft
Sump: 126.00 ft
Junction: J-1
Rim: 138.00 ft
Sump: 128.00 ft
Inlet: I-6
Rim: 142.00 ft
Sump: 129.50 ft
Inlet: I-2
Rim: 141.00 ft
Sump: 137.00 ft
144.00
142.00
140.00
138.00
136.00
134.00
132.00
130.00
128.00
126.00
Elevation ft
0+00
2+00
4+00
6+00
8+00
10+00
12+00
Station ft
Pipe: P-11
Up Invert: 132.80 ft
Dn Invert: 132.70 ft
Length: 41.00 ft
Size: 48 inch
Pipe: P-8
Up Invert: 129.25 ft
Dn Invert: 129.20 ft
Length: 48.00 ft
Size: 48 inch
Pipe: P-5
Up Invert: 130.70 ft
Dn Invert: 130.50 ft
Length: 41.00 ft
Size: 36 inch
Pipe: P-1
Up Invert: 138.40 ft
Dn Invert: 137.50 ft
Length: 248.00 ft
Size: 18 inch
Pipe: P-12
Up Invert: 128.75 ft
Dn Invert: 128.00 ft
Length: 145.00 ft
Size: 48 inch
Pipe: P-3
Up Invert: 137.00 ft
Dn Invert: 133.30 ft
Length: 71.00 ft
Size: 24 inch
Pipe: P-13
Up Invert: 128.00 ft
Dn Invert: 126.00 ft
Length: 100.00 ft
Size: 48 inch
Pipe: P-10
Up Invert: 129.10 ft
Dn Invert: 128.99 ft
Length: 136.00 ft
Size: 48 inch
Pipe: P-6
Up Invert: 129.50 ft
Dn Invert: 129.35 ft
Length: 131.00 ft
Size: 48 inch
Pipe: P-4
Up Invert: 132.30 ft
Dn Invert: 131.70 ft
Length: 128.00 ft
Size: 30 inch



Inlet: I-12
Rim: 142.30 ft
Sump: 128.75 ft

Inlet: I-9
Rim: 139.40 ft
Sump: 129.10 ft

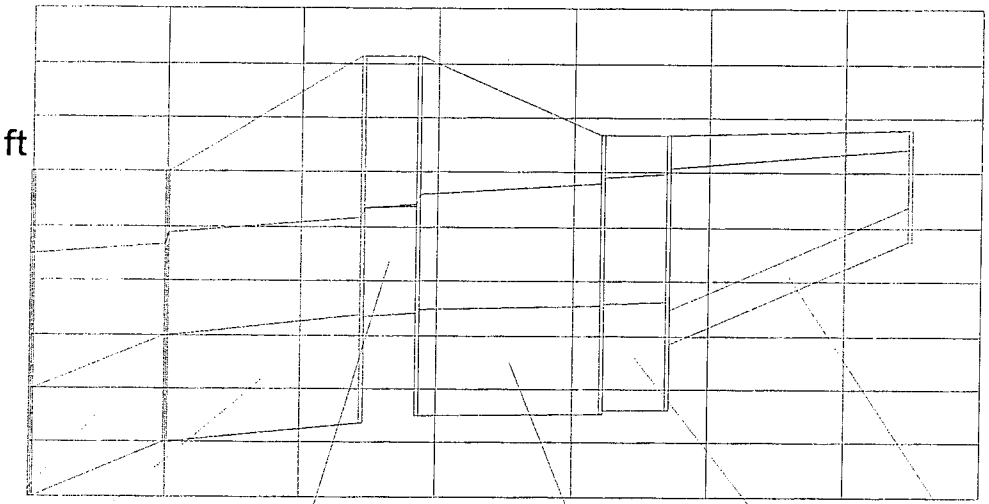
Inlet: I-8
Rim: 139.60 ft
Sump: 135.50 ft

Inlet: I-7
Rim: 139.40 ft
Sump: 129.25 ft

Inlet: I-11
Rim: 142.30 ft
Sump: 128.99 ft

Junction: J-1
Rim: 138.00 ft
Sump: 128.00 ft

Outlet: Outlet
Rim: 138.00 ft
Sump: 126.00 ft



Pipe: P-7
Up Invert: 135.50 ft
Dn Invert: 131.70 ft
Length: 177.00 ft
Size: 15 inch

Pipe: P-12
Up Invert: 128.75 ft
Dn Invert: 128.00 ft
Length: 145.00 ft
Size: 48 inch

Pipe: P-11
Up Invert: 132.80 ft
Dn Invert: 132.70 ft
Length: 41.00 ft
Size: 48 inch

Pipe: P-8
Up Invert: 129.25 ft
Dn Invert: 129.20 ft
Length: 48.00 ft
Size: 48 inch

Pipe: P-13
Up Invert: 128.00 ft
Dn Invert: 126.00 ft
Length: 100.00 ft
Size: 48 inch

Pipe: P-10
Up Invert: 129.10 ft
Dn Invert: 128.99 ft
Length: 136.00 ft
Size: 48 inch

Inlet: I-12
Rim: 142.30 ft
Sump: 128.75 ft

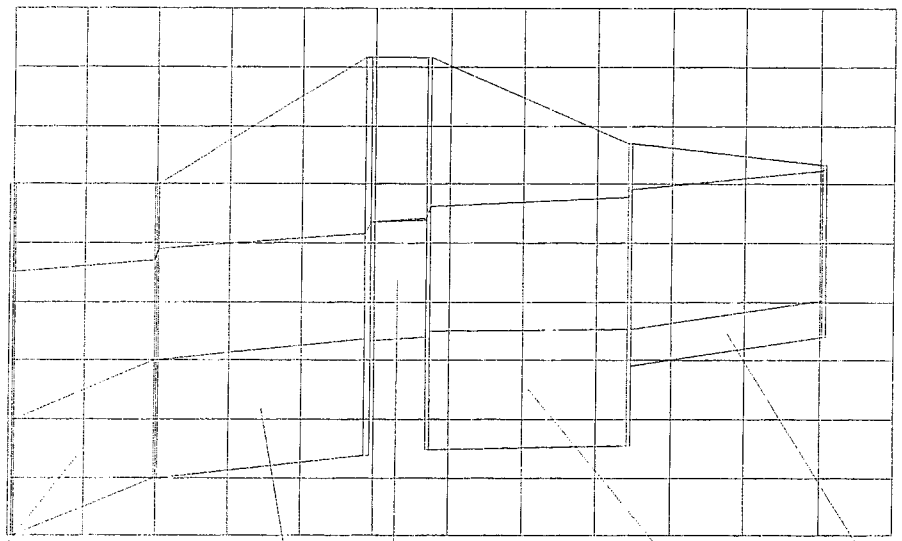
Inlet: I-9
Rim: 139.40 ft
Sump: 129.10 ft

Inlet: I-10
Rim: 138.70 ft
Sump: 132.80 ft

Inlet: I-11
Rim: 142.30 ft
Sump: 128.99 ft

Junction: J-1
Rim: 138.00 ft
Sump: 128.00 ft

Outlet: Outlet
Rim: 138.00 ft
Sump: 126.00 ft



Pipe: P-13
Up Invert: 128.00 ft
Dn Invert: 126.00 ft
Length: 100.00 ft
Size: 48 inch

Pipe: P-11
Up Invert: 132.80 ft
Dn Invert: 132.70 ft
Length: 41.00 ft
Size: 48 inch

Pipe: P-9
Up Invert: 132.80 ft
Dn Invert: 131.85 ft
Length: 131.00 ft
Size: 15 inch

Pipe: P-12
Up Invert: 128.75 ft
Dn Invert: 128.00 ft
Length: 145.00 ft
Size: 48 inch

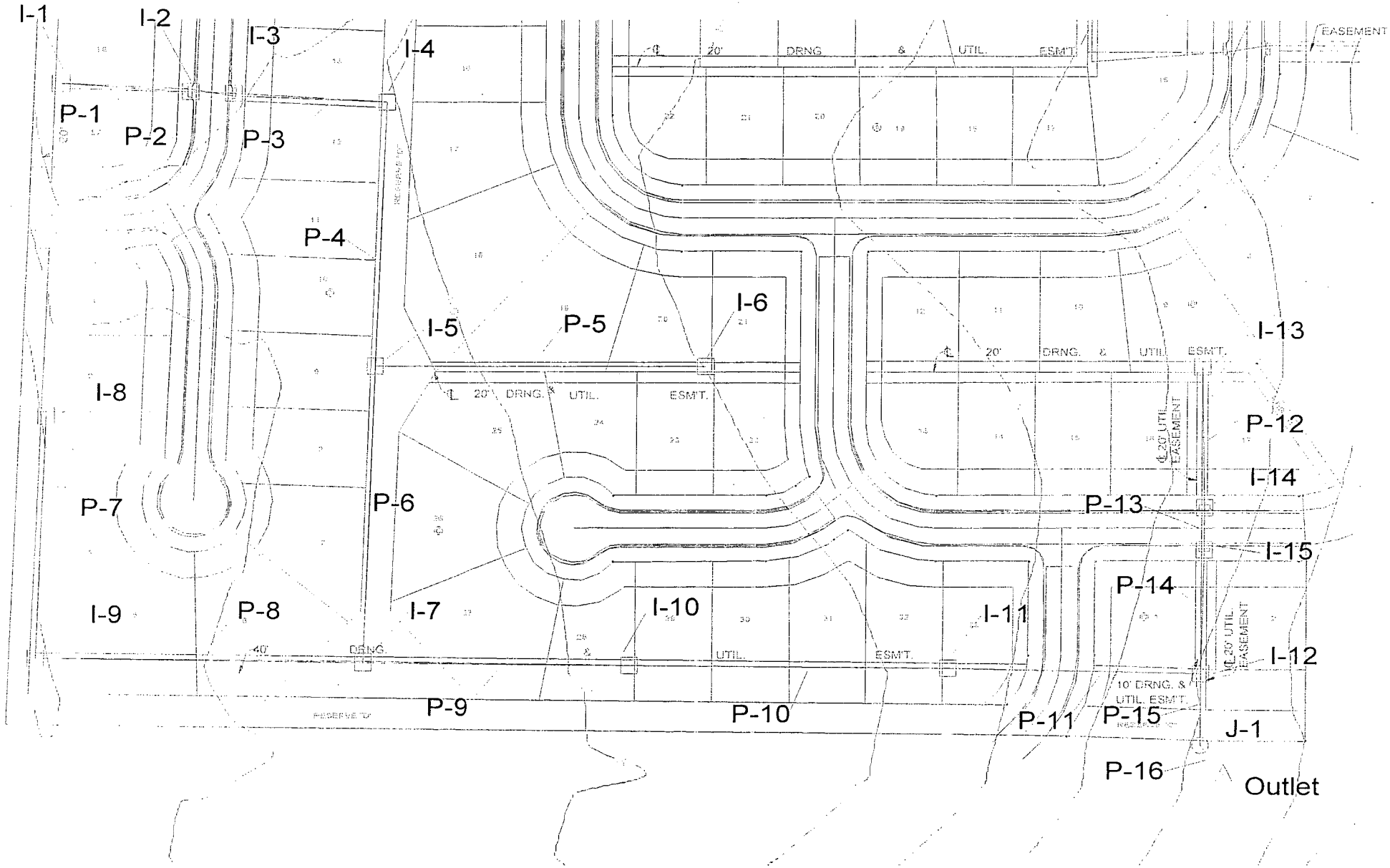
Pipe: P-10
Up Invert: 129.10 ft
Dn Invert: 128.99 ft
Length: 136.00 ft
Size: 48 inch

Baughman Company, P.A.
37 Brookside Road Waterbury, CT 06708 USA (203) 755-1666

Stormwater Sewer Calculations

StormCad Analysis

System #2



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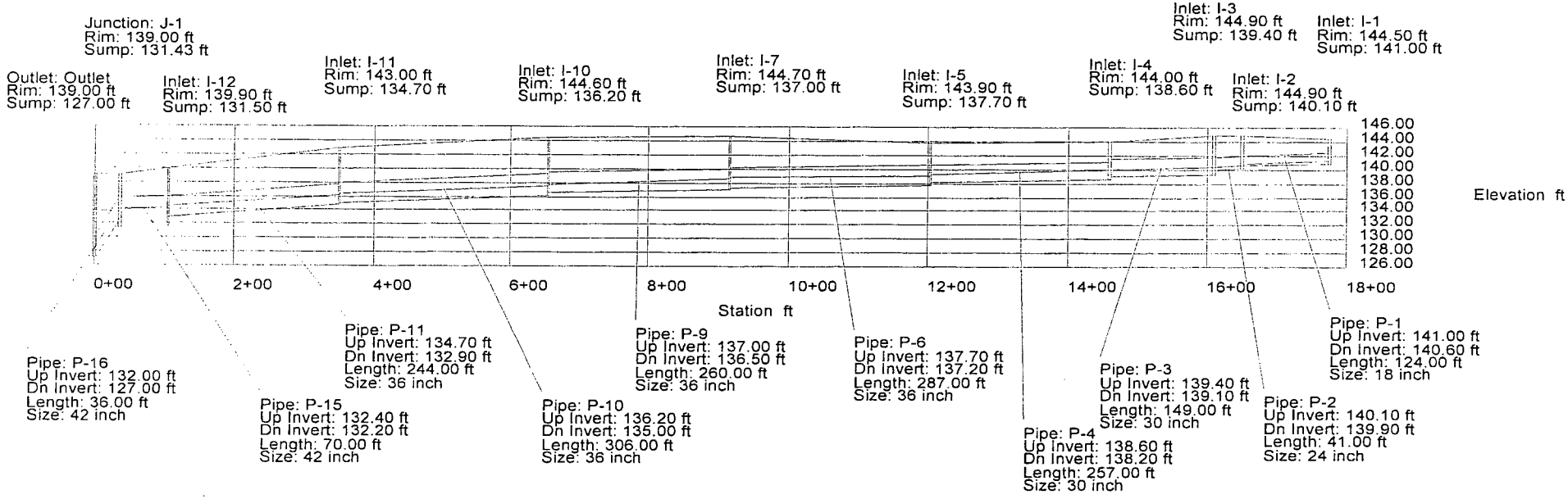
Baughman Company, P.A.

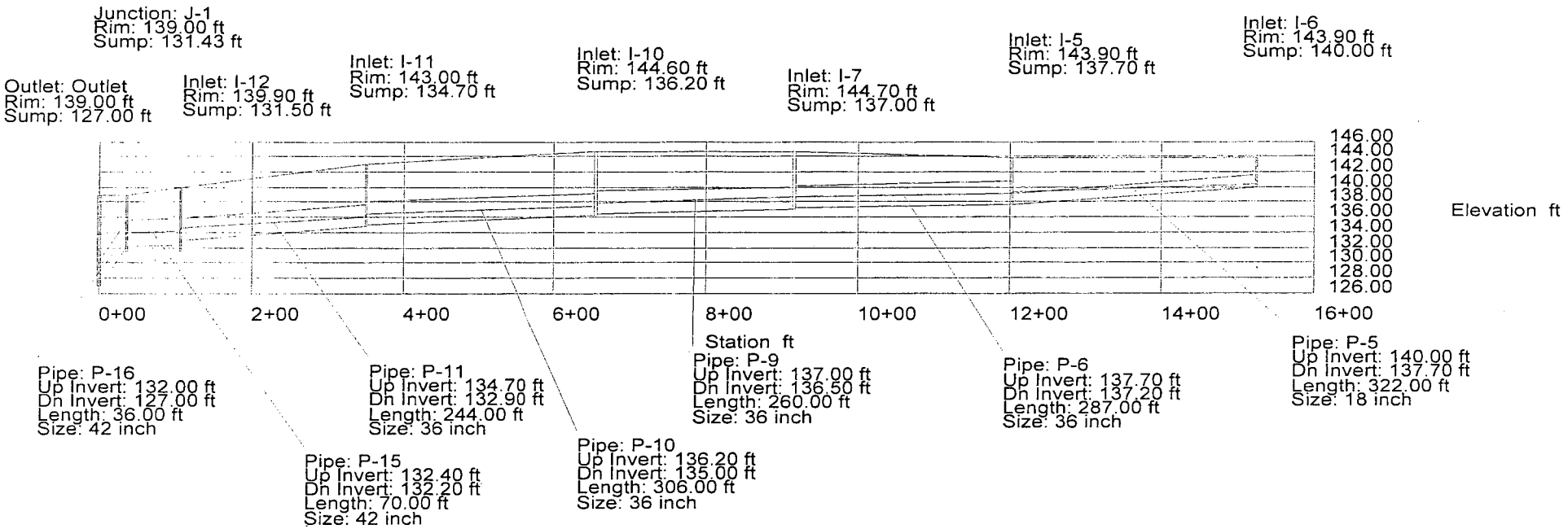
37 Brookside Road Waterbury, CT 06708 USA (203) 755-1666

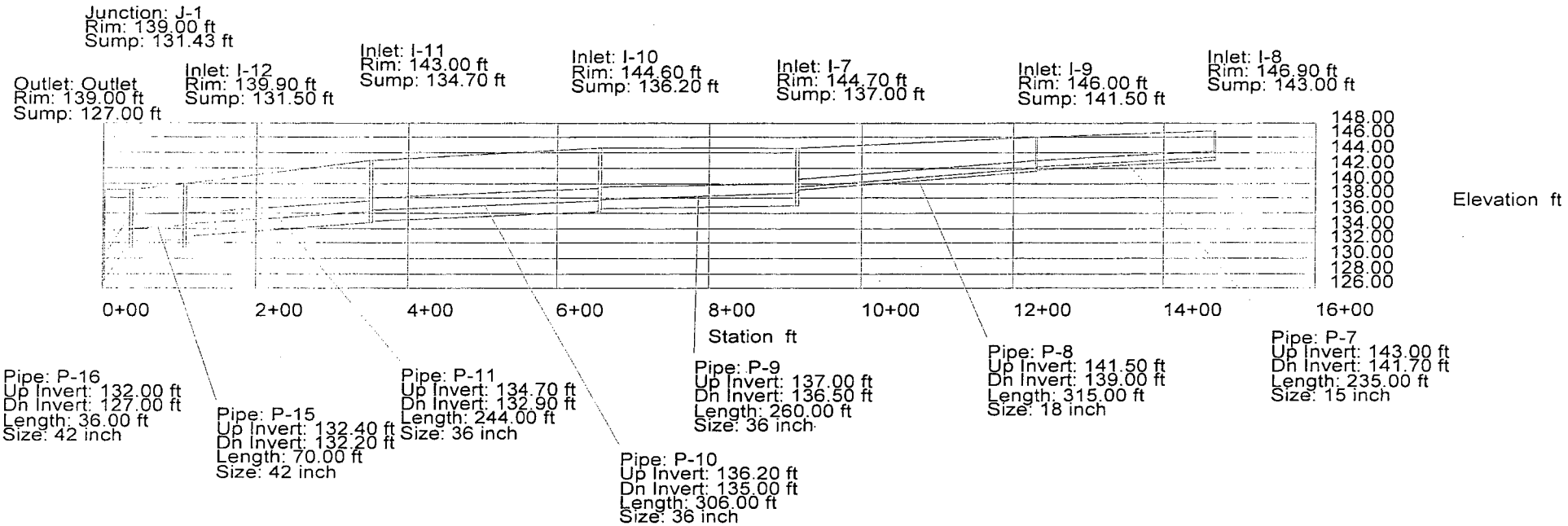
Project Engineer: Baughman Company, P.A.
StormCAD v1.0

System Report

Pipe	Additional Flow (cfs)	Total Upstream Added (cfs)	Structure Discharge (cfs)	-Node- Upstream Downstream	-Section- Shape Size	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	-Ground- Upstream Downstream (ft)	-HGL- Upstream Downstream (ft)	-Slope- Energy Constructed (ft/ft)	-Section- Discharge Capacity (cfs)	Length (ft)
P-12	3.90	0.00	3.90	I-13	Circular	135.20	134.80	138.80	136.11	0.003278	3.90	136.00
				I-14	18 inch			142.10	135.56	0.002941	5.70	
P-13	1.80	3.90	5.70	I-14	Circular	134.30	133.80	142.10	135.14	0.012182	5.70	41.00
				I-15	24 inch			142.10	134.66	0.012195	24.98	
P-14	4.60	5.70	10.30	I-15	Circular	133.30	132.90	142.10	134.55	0.001189	10.30	122.00
				I-12	36 inch			139.90	134.51	0.003279	38.19	
P-7	0.90	0.00	0.90	I-8	Circular	143.00	141.70	146.90	143.37	0.005519	0.90	235.00
				I-9	15 inch			146.00	142.10	0.005532	4.80	
P-8	0.90	0.90	1.80	I-9	Circular	141.50	139.00	146.00	142.01	0.007884	1.80	315.00
				I-7	18 inch			144.70	139.45	0.007937	9.36	
P-5	1.10	0.00	1.10	I-6	Circular	140.00	137.70	143.90	140.39	0.003894	1.10	322.00
				I-5	18 inch			143.90	139.27	0.007143	8.88	
P-1	0.50	0.00	0.50	I-1	Circular	141.00	140.60	144.50	141.29	0.003277	0.50	124.00
				I-2	18 inch			144.90	140.86	0.003226	5.97	
P-2	2.10	0.50	2.60	I-2	Circular	140.10	139.90	144.90	140.66	0.004547	2.60	41.00
				I-3	24 inch			144.90	140.53	0.004878	15.80	
P-3	4.10	2.60	6.70	I-3	Circular	139.40	139.10	144.90	140.44	0.002343	6.70	149.00
				I-4	30 inch			144.00	140.00	0.002013	18.40	
P-4	2.30	6.70	9.00	I-4	Circular	138.60	138.20	144.00	139.91	0.001984	9.00	257.00
				I-5	30 inch			143.90	139.27	0.001556	16.18	
P-6	2.80	10.10	12.90	I-5	Circular	137.70	137.20	143.90	139.16	0.001484	12.90	287.00
				I-7	36 inch			144.70	138.77	0.001742	27.84	
P-9	2.30	14.70	17.00	I-7	Circular	137.00	136.50	144.70	138.63	0.002302	17.00	260.00
				I-10	36 inch			144.60	137.82	0.001923	29.25	
P-10	0.70	17.00	17.70	I-10	Circular	136.20	135.00	144.60	137.56	0.003922	17.70	306.00
				I-11	36 inch			143.00	136.36	0.003922	41.77	
P-11	1.10	17.70	18.80	I-11	Circular	134.70	132.90	143.00	136.09	0.007163	18.80	244.00
				I-12	36 inch			139.90	134.51	0.007377	57.28	
P-15	0.70	29.10	29.80	I-12	Circular	132.40	132.20	139.90	134.25	0.002991	29.80	70.00
				J-1	42 inch			139.00	134.01	0.002857	53.78	
P-16	N/A	29.80	29.80	J-1	Circular	132.00	127.00	139.00	133.69	0.010915	29.80	36.00
				Outlet	42 inch			139.00	133.80	0.138889	374.93	




Junction: J-1
Rim: 139.00 ft
Sump: 131.43 ft
Outlet: Outlet
Rim: 139.00 ft
Sump: 127.00 ft
Inlet: I-12
Rim: 139.90 ft
Sump: 131.50 ft
Inlet: I-11
Rim: 143.00 ft
Sump: 134.70 ft
Inlet: I-10
Rim: 144.60 ft
Sump: 136.20 ft
Inlet: I-7
Rim: 144.70 ft
Sump: 137.00 ft
Inlet: I-5
Rim: 143.90 ft
Sump: 137.70 ft
Inlet: I-6
Rim: 143.90 ft
Sump: 140.00 ft
146.00
144.00
142.00
140.00
138.00
136.00
134.00
132.00
130.00
128.00
126.00
Elevation ft
0+00
2+00
4+00
6+00
8+00
10+00
12+00
14+00
16+00
Station ft
Pipe: P-16
Up Invert: 132.00 ft
Dn Invert: 127.00 ft
Length: 36.00 ft
Size: 42 inch
Pipe: P-15
Up Invert: 132.40 ft
Dn Invert: 132.20 ft
Length: 70.00 ft
Size: 42 inch
Pipe: P-11
Up Invert: 134.70 ft
Dn Invert: 132.90 ft
Length: 244.00 ft
Size: 36 inch
Pipe: P-10
Up Invert: 136.20 ft
Dn Invert: 135.00 ft
Length: 306.00 ft
Size: 36 inch
Pipe: P-9
Up Invert: 137.00 ft
Dn Invert: 136.50 ft
Length: 260.00 ft
Size: 36 inch
Pipe: P-6
Up Invert: 137.70 ft
Dn Invert: 137.20 ft
Length: 287.00 ft
Size: 36 inch
Pipe: P-5
Up Invert: 140.00 ft
Dn Invert: 137.70 ft
Length: 322.00 ft
Size: 18 inch


Junction: J-1
Rim: 139.00 ft
Sump: 131.43 ft
Outlet: Outlet
Rim: 139.00 ft
Sump: 127.00 ft
Inlet: I-12
Rim: 139.90 ft
Sump: 131.50 ft
Inlet: I-11
Rim: 143.00 ft
Sump: 134.70 ft
Inlet: I-10
Rim: 144.60 ft
Sump: 136.20 ft
Inlet: I-7
Rim: 144.70 ft
Sump: 137.00 ft
Inlet: I-9
Rim: 146.00 ft
Sump: 141.50 ft
Inlet: I-8
Rim: 146.90 ft
Sump: 143.00 ft
148.00
146.00
144.00
142.00
140.00
138.00
136.00
134.00
132.00
130.00
128.00
126.00
Elevation ft
0+00
2+00
4+00
6+00
8+00
10+00
12+00
14+00
16+00
Station ft
Pipe: P-16
Up Invert: 132.00 ft
Dn Invert: 127.00 ft
Length: 36.00 ft
Size: 42 inch
Pipe: P-15
Up Invert: 132.40 ft
Dn Invert: 132.20 ft
Length: 70.00 ft
Size: 42 inch
Pipe: P-11
Up Invert: 134.70 ft
Dn Invert: 132.90 ft
Length: 244.00 ft
Size: 36 inch
Pipe: P-10
Up Invert: 136.20 ft
Dn Invert: 135.00 ft
Length: 306.00 ft
Size: 36 inch
Pipe: P-9
Up Invert: 137.00 ft
Dn Invert: 136.50 ft
Length: 260.00 ft
Size: 36 inch
Pipe: P-8
Up Invert: 141.50 ft
Dn Invert: 139.00 ft
Length: 315.00 ft
Size: 18 inch
Pipe: P-7
Up Invert: 143.00 ft
Dn Invert: 141.70 ft
Length: 235.00 ft
Size: 15 inch

Inlet: I-15
Rim: 142.10 ft
Sump: 133.30 ft

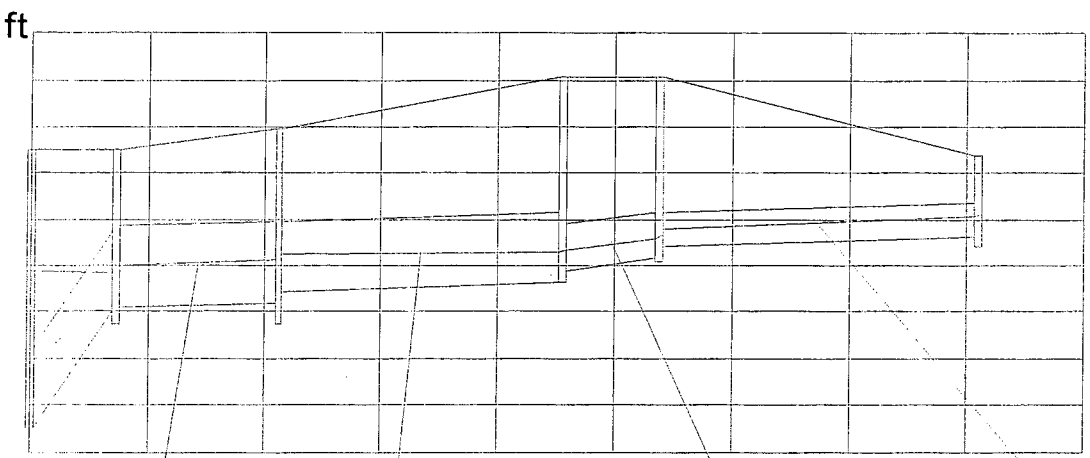
Junction: J-1
Rim: 139.00 ft
Sump: 131.43 ft

Inlet: I-13
Rim: 138.80 ft
Sump: 134.80 ft

Inlet: I-14
Rim: 142.10 ft
Sump: 134.16 ft

Inlet: I-12
Rim: 139.90 ft
Sump: 131.50 ft

Outlet: Outlet
Rim: 139.00 ft
Sump: 127.00 ft



Pipe: P-12
Up Invert: 135.20 ft
Dn Invert: 134.80 ft
Length: 136.00 ft
Size: 18 inch

Pipe: P-16
Up Invert: 132.00 ft
Dn Invert: 127.00 ft
Length: 36.00 ft
Size: 42 inch

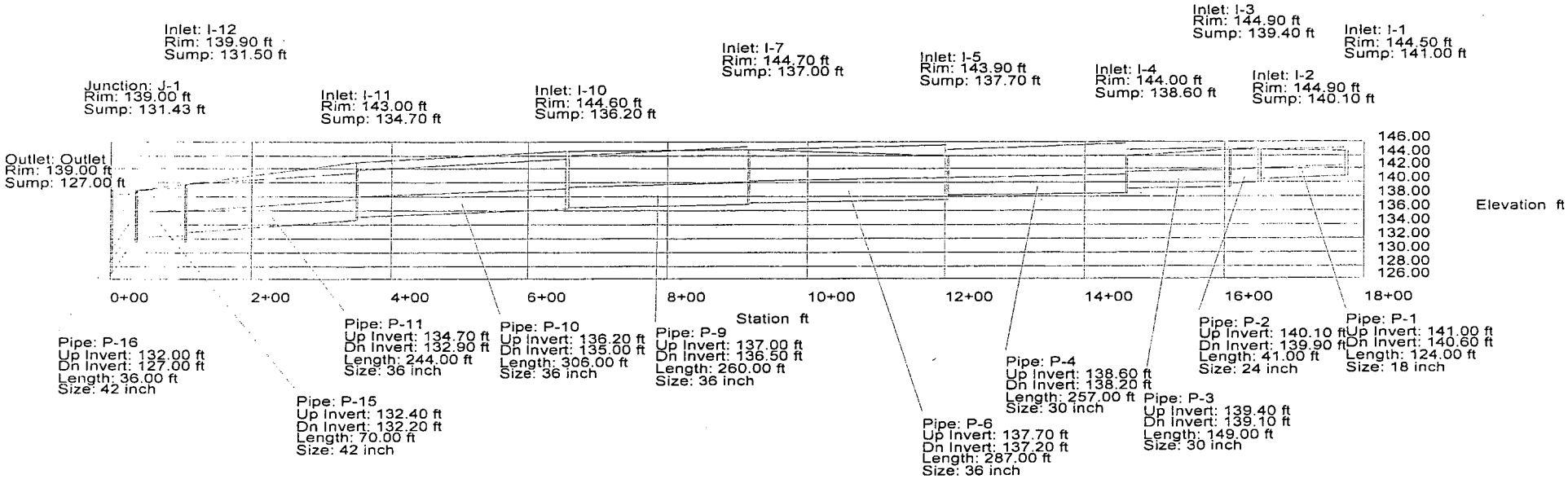
Pipe: P-14
Up Invert: 133.30 ft
Dn Invert: 132.90 ft
Length: 122.00 ft
Size: 36 inch

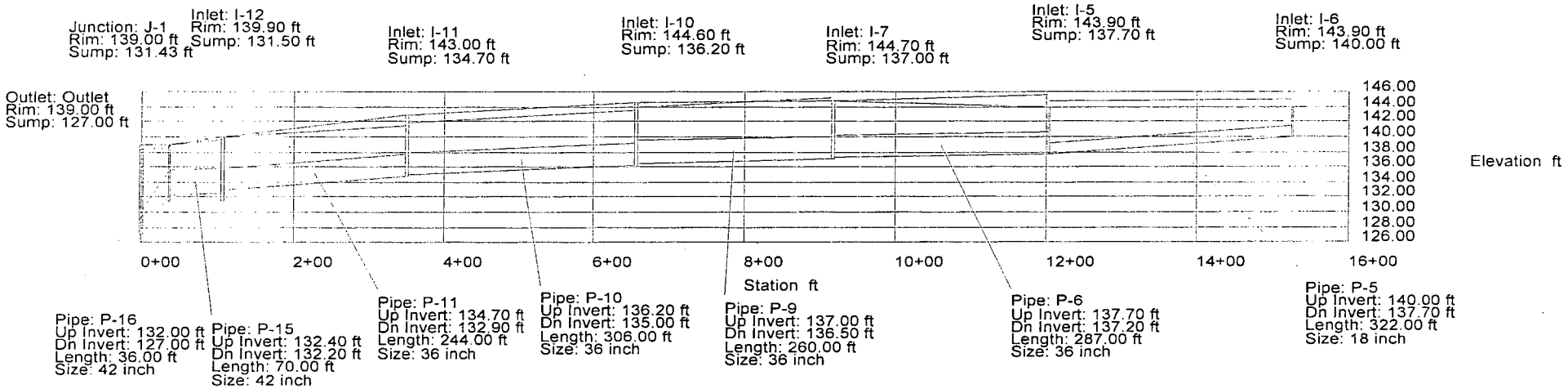
Pipe: P-13
Up Invert: 134.30 ft
Dn Invert: 133.80 ft
Length: 41.00 ft
Size: 24 inch

Pipe: P-15
Up Invert: 132.40 ft
Dn Invert: 132.20 ft
Length: 70.00 ft
Size: 42 inch

System Report

Pipe	Additional Flow (cfs)	Total Upstream Added (cfs)	Structure Discharge (cfs)	-Node- Upstream Downstream	-Section- Shape Size	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	-Ground- Upstream Downstream (ft)	-HGL- Upstream Downstream (ft)	-Slope- Energy Constructed (ft/ft)	-Section- Discharge Capacity (cfs)	Length (ft)
P-12	10.90	0.00	10.90	I-13	Circular	135.20	134.80	138.80	142.11	0.010769	10.90	136.00
				I-14	18 inch			142.10	140.65	0.002941	5.70	
P-13	4.90	10.90	15.80	I-14	Circular	134.30	133.80	142.10	140.45	0.004878	15.80	41.00
				I-15	24 inch			142.10	140.25	0.012195	24.98	
P-14	12.80	15.80	28.60	I-15	Circular	133.30	132.90	142.10	140.12	0.001839	28.60	122.00
				I-12	36 inch			139.90	139.90	0.003279	38.19	
P-7	2.50	0.00	2.50	I-8	Circular	143.00	141.70	146.90	145.83	0.001498	2.50	235.00
				I-9	15 inch			146.00	145.48	0.005532	4.80	
P-8	2.50	2.50	5.00	I-9	Circular	141.50	139.00	146.00	145.41	0.002266	5.00	315.00
				I-7	18 inch			144.70	144.70	0.007937	9.36	
P-5	3.00	0.00	3.00	I-6	Circular	140.00	137.70	143.90	144.96	0.000816	3.00	322.00
				I-5	18 inch			143.90	144.70	0.007143	8.88	
P-1	1.50	0.00	1.50	I-1	Circular	141.00	140.60	144.50	144.93	0.000204	1.50	124.00
				I-2	18 inch			144.90	144.90	0.003226	5.97	
P-2	5.90	1.50	7.40	I-2	Circular	140.10	139.90	144.90	144.94	0.001070	7.40	41.00
				I-3	24 inch			144.90	144.90	0.004878	15.80	
P-3	11.40	7.40	18.80	I-3	Circular	139.40	139.10	144.90	145.01	0.002101	18.80	149.00
				I-4	30 inch			144.00	144.70	0.002013	18.40	
P-4	6.40	18.80	25.20	I-4	Circular	138.60	138.20	144.00	145.67	0.003775	25.20	257.00
				I-5	30 inch			143.90	144.70	0.001556	16.18	
P-6	7.90	28.20	36.10	I-5	Circular	137.70	137.20	143.90	145.54	0.002930	36.10	287.00
				I-7	36 inch			144.70	144.70	0.001742	27.84	
P-9	6.40	41.10	47.50	I-7	Circular	137.00	136.50	144.70	145.23	0.005072	47.50	260.00
				I-10	36 inch			144.60	143.91	0.001923	29.25	
P-10	2.00	47.50	49.50	I-10	Circular	136.20	135.00	144.60	143.53	0.005508	49.50	306.00
				I-11	36 inch			143.00	141.84	0.003922	41.77	
P-11	3.00	49.50	52.50	I-11	Circular	134.70	132.90	143.00	141.41	0.006196	52.50	244.00
				I-12	36 inch			139.90	139.90	0.007377	57.28	
P-15	2.00	81.10	83.10	I-12	Circular	132.40	132.20	139.90	139.48	0.006823	83.10	70.00
				J-1	42 inch			139.00	139.00	0.002857	53.78	
P-16	N/A	83.10	83.10	J-1	Circular	132.00	127.00	139.00	138.60	0.006823	83.10	36.00
				Outlet	42 inch			139.00	138.35	0.138889	374.93	





Baughman Company, P.A.
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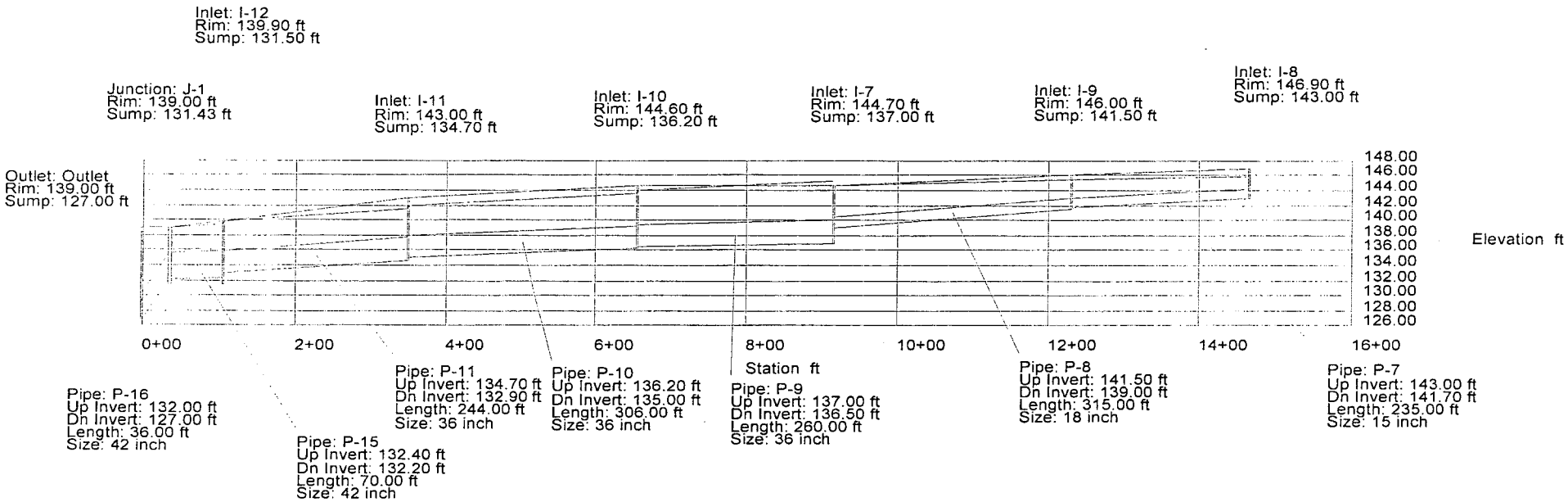

Inlet: I-12
Rim: 139.90 ft
Sump: 131.50 ft
Junction: J-1
Rim: 139.00 ft
Sump: 131.43 ft
Inlet: I-11
Rim: 143.00 ft
Sump: 134.70 ft
Inlet: I-10
Rim: 144.60 ft
Sump: 136.20 ft
Inlet: I-7
Rim: 144.70 ft
Sump: 137.00 ft
Inlet: I-9
Rim: 146.00 ft
Sump: 141.50 ft
Inlet: I-8
Rim: 146.90 ft
Sump: 143.00 ft
Outlet: Outlet
Rim: 139.00 ft
Sump: 127.00 ft
148.00
146.00
144.00
142.00
140.00
138.00
136.00
134.00
132.00
130.00
128.00
126.00
Elevation ft
0+00
2+00
4+00
6+00
8+00
10+00
12+00
14+00
16+00
Station ft
Pipe: P-16
Up Invert: 132.00 ft
Dn Invert: 127.00 ft
Length: 36.00 ft
Size: 42 inch
Pipe: P-15
Up Invert: 132.40 ft
Dn Invert: 132.20 ft
Length: 70.00 ft
Size: 42 inch
Pipe: P-11
Up Invert: 134.70 ft
Dn Invert: 132.90 ft
Length: 244.00 ft
Size: 36 inch
Pipe: P-10
Up Invert: 136.20 ft
Dn Invert: 135.00 ft
Length: 306.00 ft
Size: 36 inch
Pipe: P-9
Up Invert: 137.00 ft
Dn Invert: 136.50 ft
Length: 260.00 ft
Size: 36 inch
Pipe: P-8
Up Invert: 141.50 ft
Dn Invert: 139.00 ft
Length: 315.00 ft
Size: 18 inch
Pipe: P-7
Up Invert: 143.00 ft
Dn Invert: 141.70 ft
Length: 235.00 ft
Size: 15 inch

Inlet: I-15
Rim: 142.10 ft
Sump: 133.30 ft

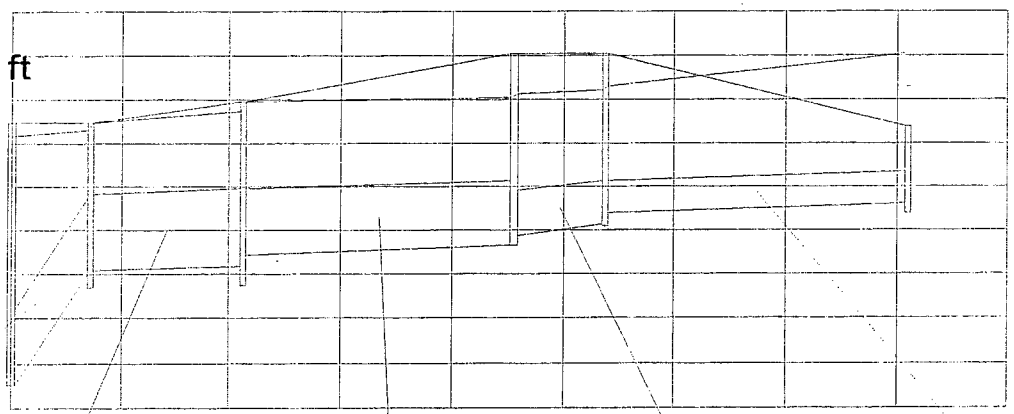
Inlet: I-13
Rim: 138.80 ft
Sump: 134.80 ft

Junction: J-1
Rim: 139.00 ft
Sump: 131.43 ft

Inlet: I-14
Rim: 142.10 ft
Sump: 134.16 ft

Inlet: I-12
Rim: 139.90 ft
Sump: 131.50 ft

Outlet: Outlet
Rim: 139.00 ft
Sump: 127.00 ft



Pipe: P-12
Up Invert: 135.20 ft
Dn Invert: 134.80 ft
Length: 136.00 ft
Size: 18 inch

Pipe: P-15
Up Invert: 132.40 ft
Dn Invert: 132.20 ft
Length: 70.00 ft
Size: 42 inch

Pipe: P-14
Up Invert: 133.30 ft
Dn Invert: 132.90 ft
Length: 122.00 ft
Size: 36 inch

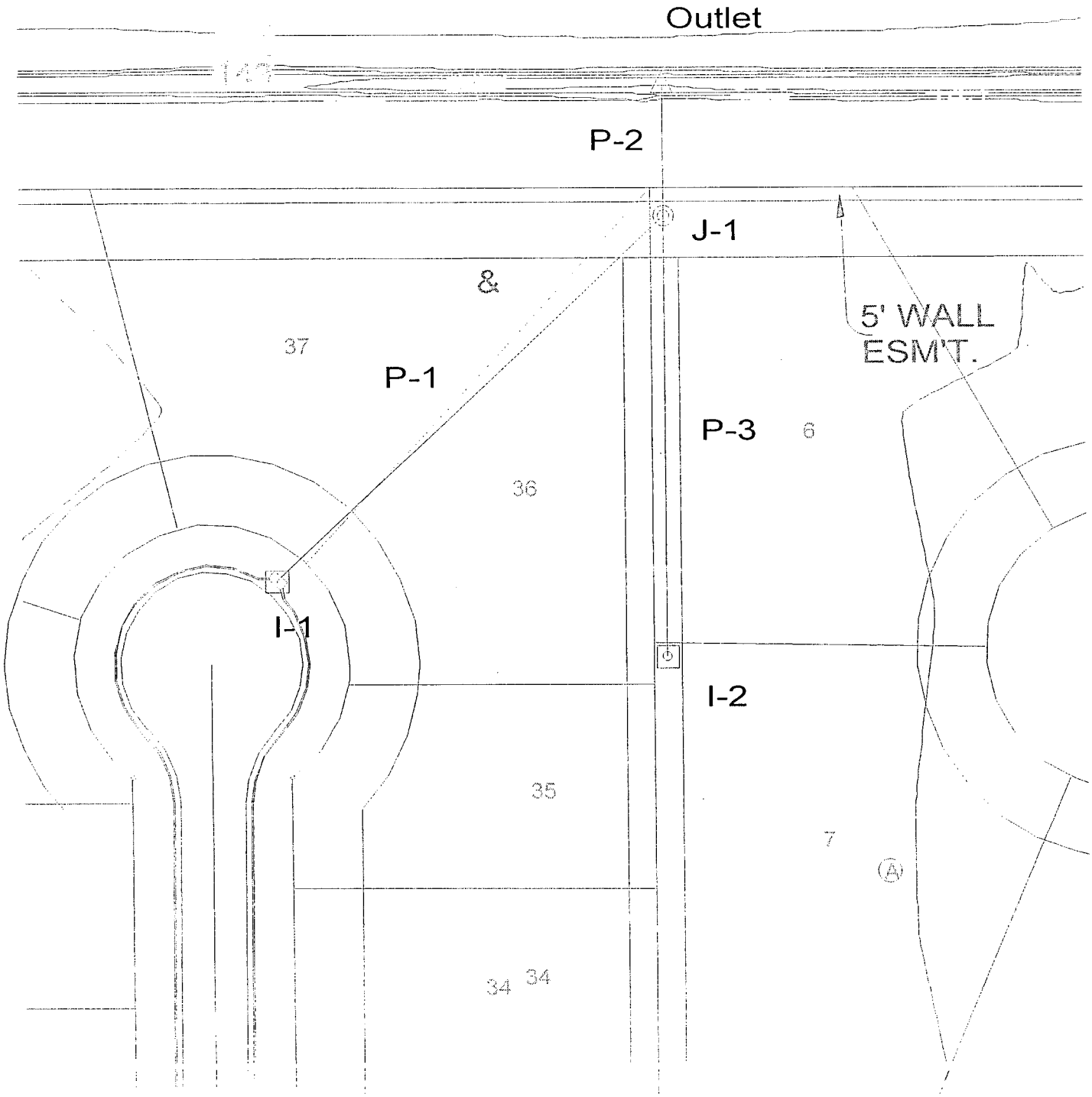
Pipe: P-16
Up Invert: 132.00 ft
Dn Invert: 127.00 ft
Length: 36.00 ft
Size: 42 inch

Pipe: P-13
Up Invert: 134.30 ft
Dn Invert: 133.80 ft
Length: 41.00 ft
Size: 24 inch

Stormwater Sewer Calculations

StormCad Analysis

System #3



Baughman Company, P.A.
37 Brookside Road Waterbury, CT 06708 USA (203) 755-1666

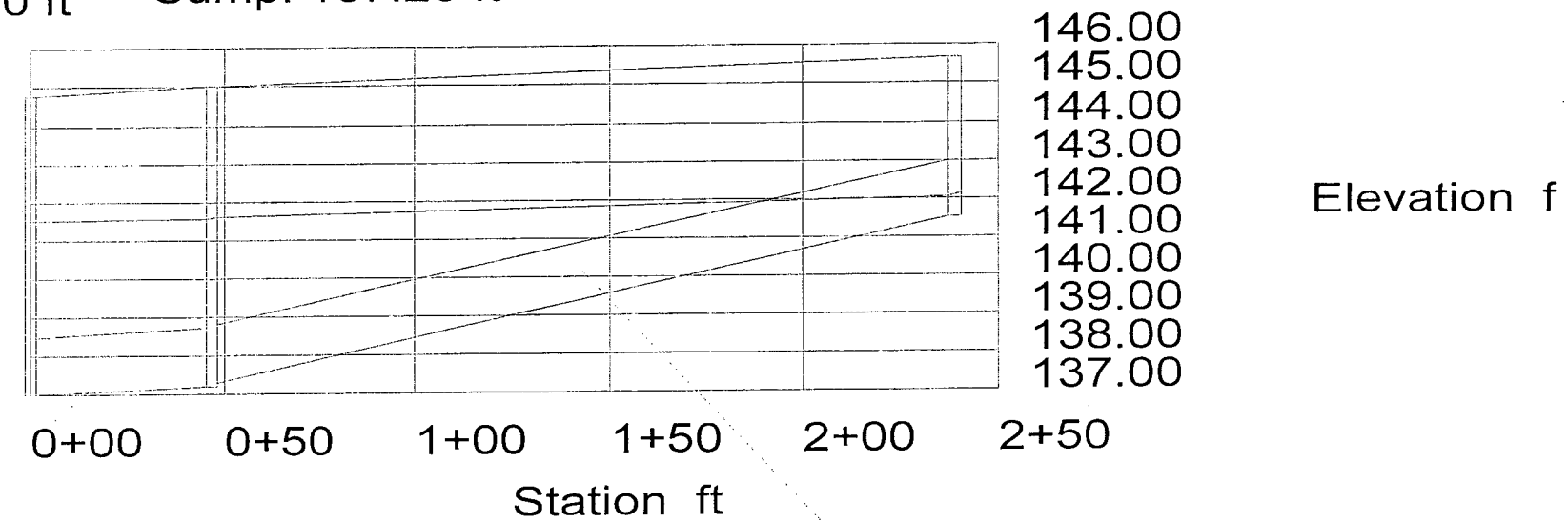
System Report

Pipe	Additional Flow (cfs)	Total Upstream Added (cfs)	Structure Discharge (cfs)	-Node- Upstream Downstream	-Section- Shape Size	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	-Ground- Upstream Downstream (ft)	-HGL- Upstream Downstream (ft)	-Slope- Energy Constructed (ft/ft)	-Section- Discharge Capacity (cfs)	Length (ft)
P-3	2.10	0.00	2.10	I-2	Circular	140.00	137.30	143.70	141.68	0.000400	2.10	157.00
				J-1	18 inch			145.00	141.62	0.017197	13.77	
P-1	2.10	0.00	2.10	I-1	Circular	141.50	137.30	145.70	142.05	0.003165	2.10	192.00
				J-1	18 inch			145.00	141.62	0.021875	15.54	
P-2	N/A	4.20	4.20	J-1	Circular	137.20	137.00	145.00	141.58	0.001599	4.20	47.00
				Outlet	18 inch			144.80	141.50	0.004255	6.85	

Inlet: I-1
Rim: 145.70 ft
Sump: 141.50 ft

Outlet: Outlet
Rim: 144.80 ft
Sump: 137.00 ft

Junction: J-1
Rim: 145.00 ft
Sump: 137.20 ft



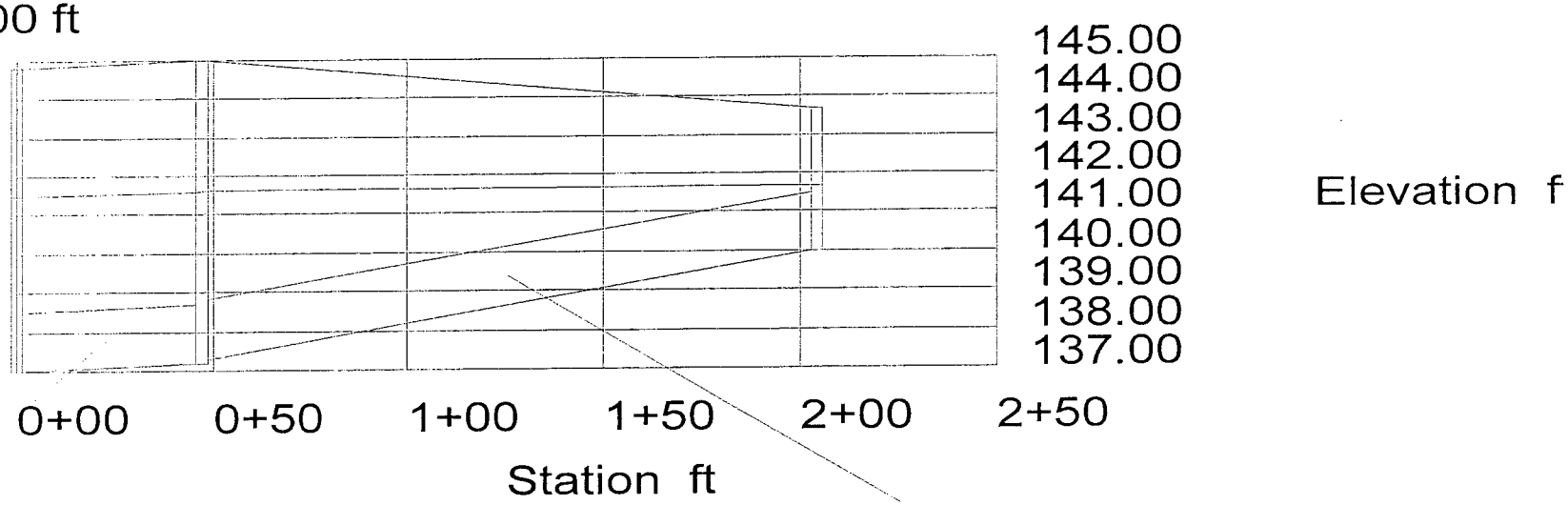
Pipe: P-1
Up Invert: 141.50 ft
Dn Invert: 137.30 ft
Length: 192.00 ft
Size: 18 inch

Pipe: P-2
Up Invert: 137.20 ft
Dn Invert: 137.00 ft
Length: 47.00 ft
Size: 18 inch

Junction: J-1
Rim: 145.00 ft
Sump: 137.20 ft

Inlet: I-2
Rim: 143.70 ft
Sump: 140.00 ft

Outlet: Outlet
Rim: 144.80 ft
Sump: 137.00 ft



Pipe: P-2
Up Invert: 137.20 ft
Dn Invert: 137.00 ft
Length: 47.00 ft
Size: 18 inch

Pipe: P-3
Up Invert: 140.00 ft
Dn Invert: 137.30 ft
Length: 157.00 ft
Size: 18 inch

System Report

Pipe	Additional Flow (cfs)	Total Upstream Added (cfs)	Structure Discharge (cfs)	-Node- Upstream Downstream	-Section- Shape Size	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	-Ground- Upstream Downstream (ft)	-HGL- Upstream Downstream (ft)	-Slope- Energy Constructed (ft/ft)	-Section- Discharge Capacity (cfs)	Length (ft)
P-3	5.90	0.00	5.90	I-2	Circular	140.00	137.30	143.70	142.93	0.003155	5.90	157.00
				J-1	18 inch			145.00	142.44	0.017197	13.77	
P-1	5.90	0.00	5.90	I-1	Circular	141.50	137.30	145.70	143.05	0.003155	5.90	192.00
				J-1	18 inch			145.00	142.44	0.021875	15.54	
P-2	N/A	11.80	11.80	J-1	Circular	137.20	137.00	145.00	142.09	0.012620	11.80	47.00
				Outlet	18 inch			144.80	141.50	0.004255	6.85	

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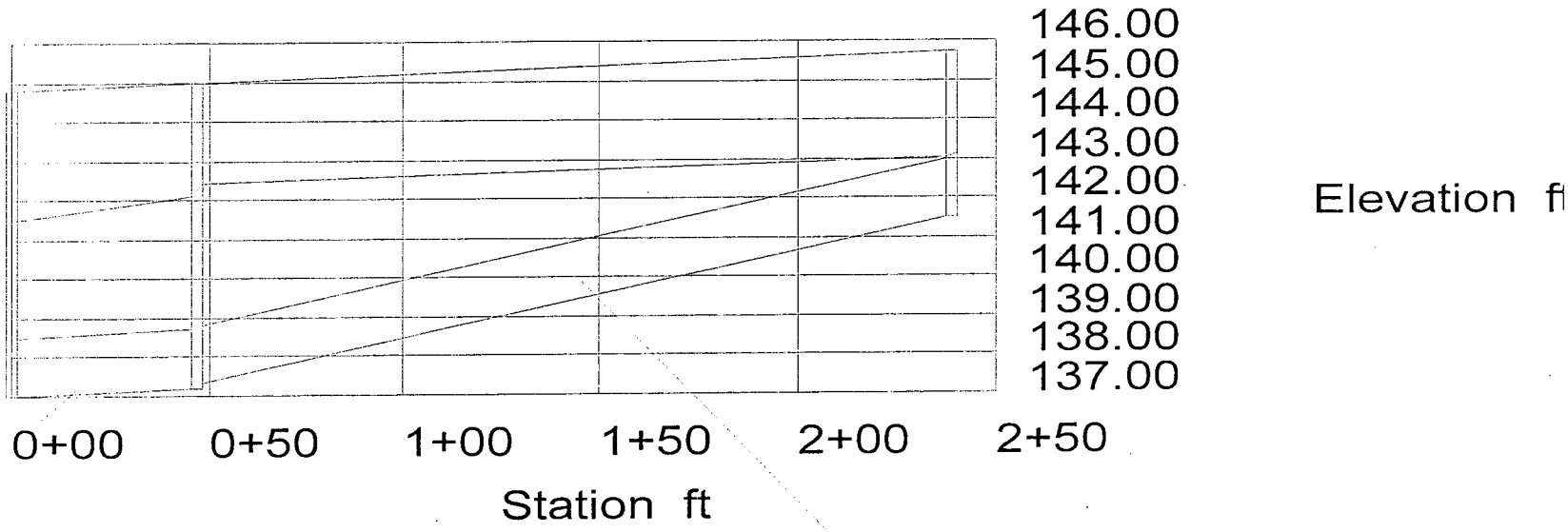
Junction: J-1
Rim: 145.00 ft
Sump: 137.20 ft

Inlet: I-1
Rim: 145.70 ft
Sump: 141.50 ft

Outlet: Outlet
Rim: 144.80 ft
Sump: 137.00 ft



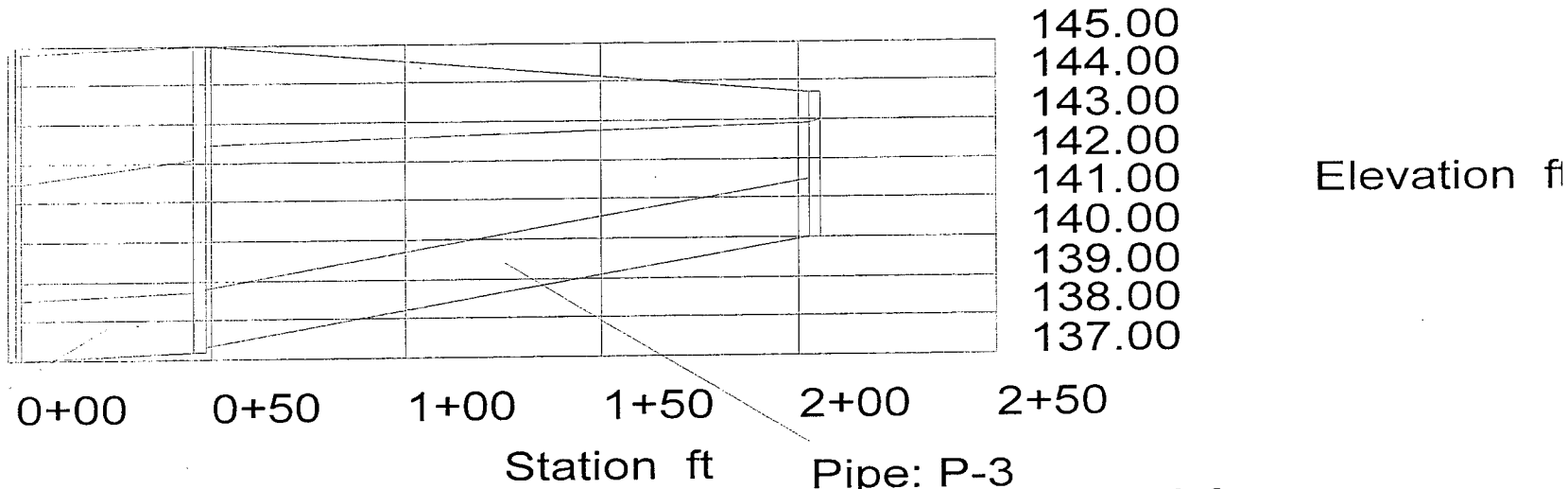
Pipe: P-2
Up Invert: 137.20 ft
Dn Invert: 137.00 ft
Length: 47.00 ft
Size: 18 inch

Pipe: P-1
Up Invert: 141.50 ft
Dn Invert: 137.30 ft
Length: 192.00 ft
Size: 18 inch

Junction: J-1
Rim: 145.00 ft
Sump: 137.20 ft

Inlet: I-2
Rim: 143.70 ft
Sump: 140.00 ft

Outlet: Outlet
Rim: 144.80 ft
Sump: 137.00 ft



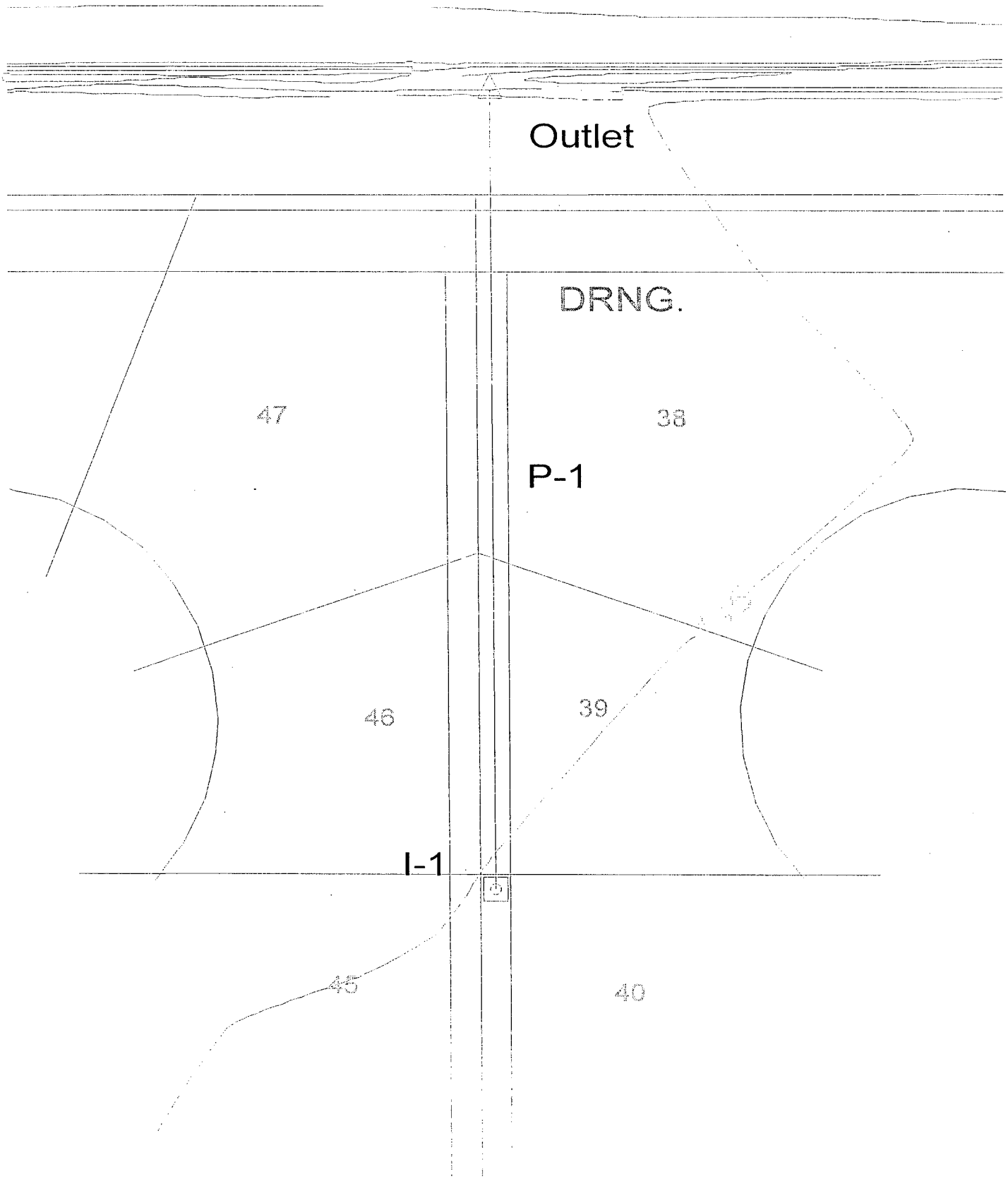
Pipe: P-3
Up Invert: 140.00 ft
Dn Invert: 137.30 ft
Length: 157.00 ft
Size: 18 inch

Pipe: P-2
Up Invert: 137.20 ft
Dn Invert: 137.00 ft
Length: 47.00 ft
Size: 18 inch

Stormwater Sewer Calculations

StormCad Analysis

System #4


Outlet
DRNG.
47
38
P-1
46
39
I-1
45
40

System Report

Pipe	Additional Flow (cfs)	Total Upstream Added (cfs)	Structure Discharge (cfs)	-Node- Upstream Downstream	-Section- Shape Size	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	-Ground- Upstream Downstream (ft)	-HGL- Upstream Downstream (ft)	-Slope- Energy Constructed (ft/ft)	-Section- Discharge Capacity (cfs)	Length (ft)
P-1	2.30	0.00	2.30	I-1	Circular	139.00	137.50	143.30	141.92	0.000479	2.30	259.00
				Outlet	18 inch			144.80	141.80	0.005792	7.99	

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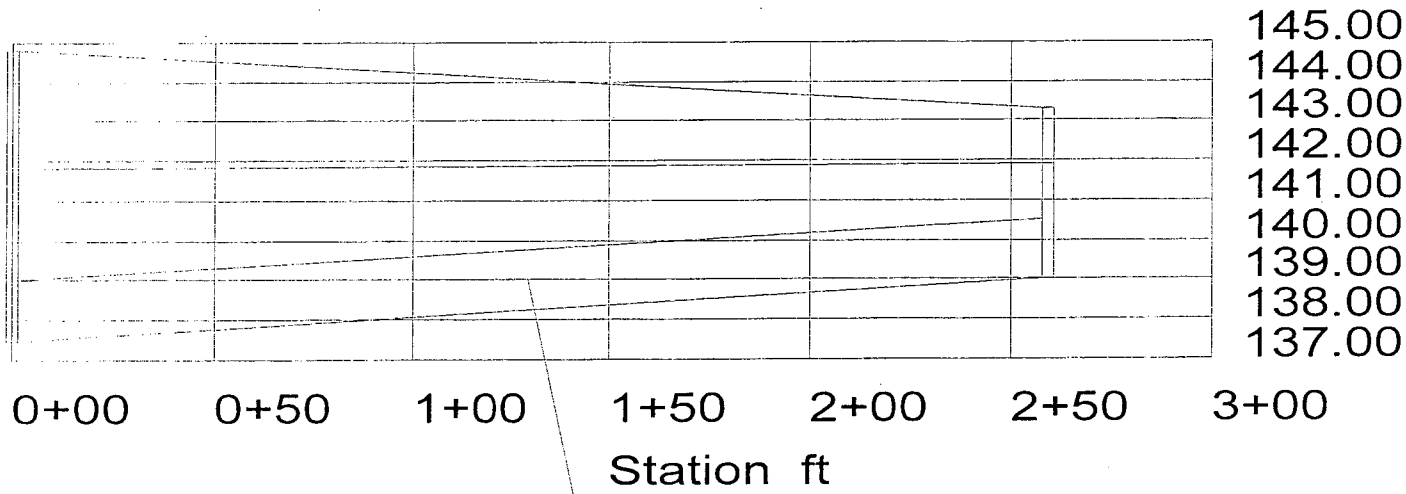
Outlet: Outlet
Rim: 144.80 ft
Sump: 137.50 ft

Inlet: I-1
Rim: 143.30 ft
Sump: 139.00 ft



Pipe: P-1
Up Invert: 139.00 ft
Dn Invert: 137.50 ft
Length: 259.00 ft
Size: 18 inch

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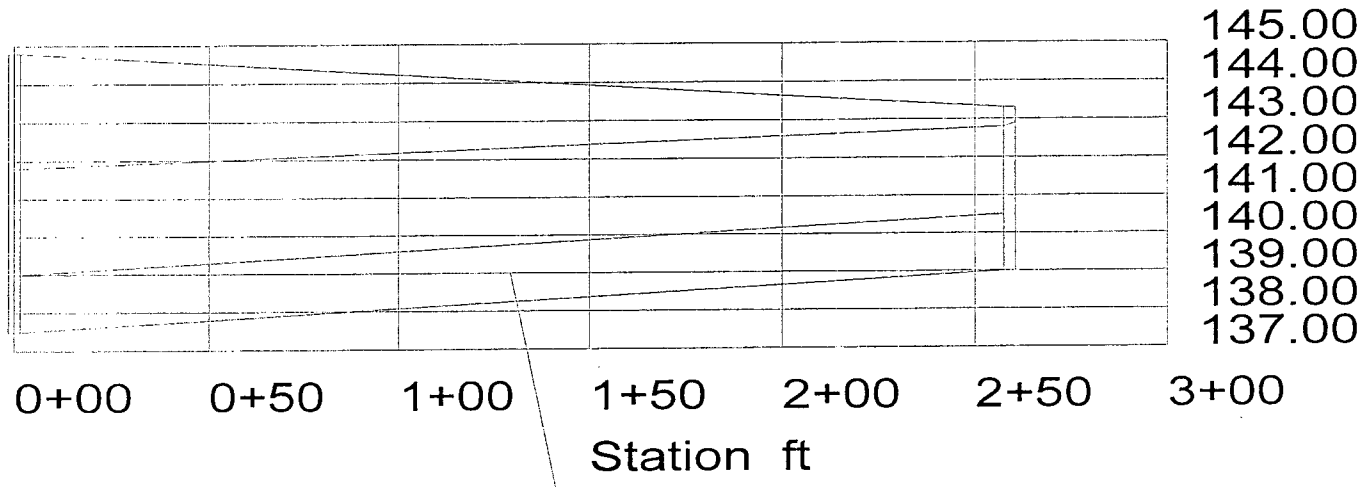
37 Brookside Road Waterbury, CT 06708 USA (203) 755-1666

System Report

Pipe	Additional Flow (cfs)	Total Upstream Added (cfs)	Structure Discharge (cfs)	-Node- Upstream Downstream	-Section- Shape Size	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	-Ground- Upstream Downstream (ft)	-HGL- Upstream Downstream (ft)	-Slope- Energy Constructed (ft/ft)	-Section- Discharge Capacity (cfs)	Length (ft)
P-1	6.40	0.00	6.40	I-1	Circular	139.00	137.50	143.30	142.76	0.003713	6.40	259.00
				Outlet	18 inch			144.80	141.80	0.005792	7.99	

Outlet: Outlet
Rim: 144.80 ft
Sump: 137.50 ft

Inlet: I-1
Rim: 143.30 ft
Sump: 139.00 ft

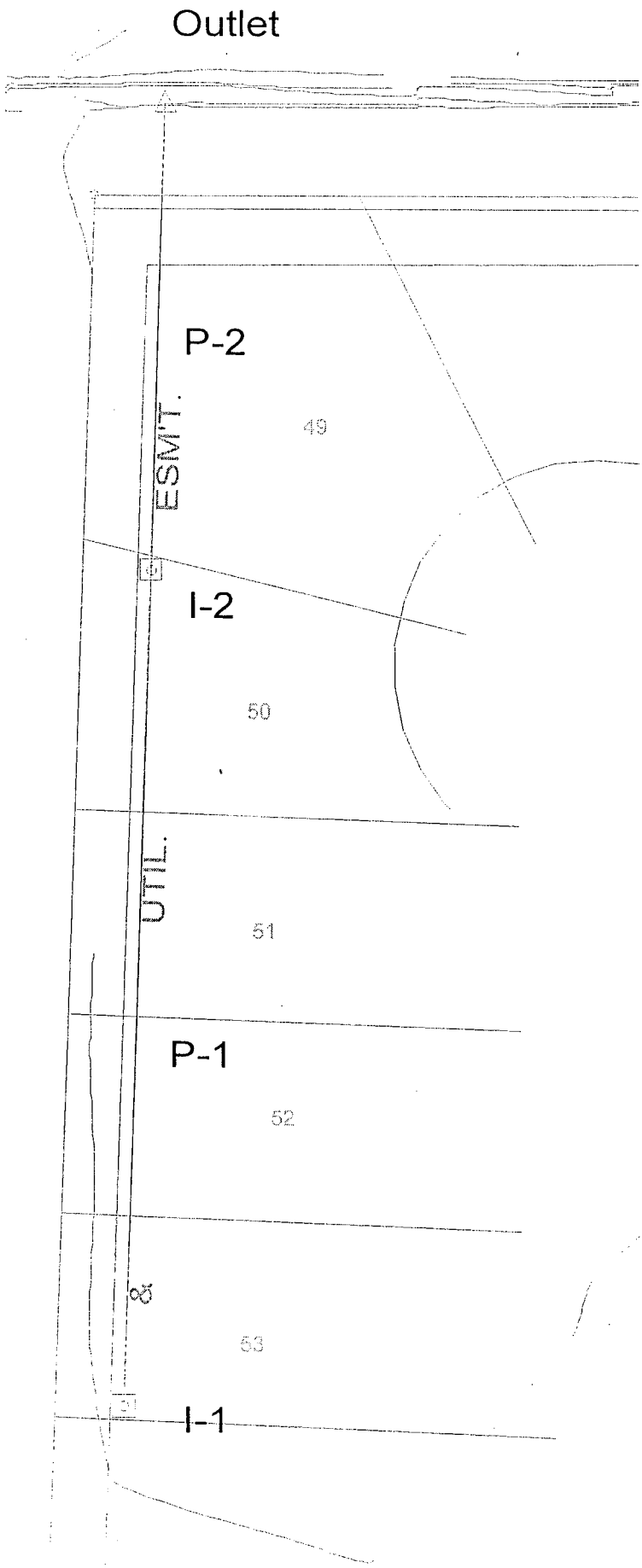


Pipe: P-1
Up Invert: 139.00 ft
Dn Invert: 137.50 ft
Length: 259.00 ft
Size: 18 inch

Stormwater Sewer Calculations

StormCad Analysis

System #5



Baughman Company, P.A.
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System Report

Pipe	Additional Flow (cfs)	Total Upstream Added (cfs)	Structure Discharge (cfs)	-Node- Upstream Downstream	-Section- Shape Size	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	-Ground- Upstream Downstream (ft)	-HGL- Upstream Downstream (ft)	-Slope- Energy Constructed (ft/ft)	-Section- Discharge Capacity (cfs)	Length (ft)
P-1	1.40	0.00	1.40	I-1	Circular	139.70	138.70	143.60	142.17	0.000178	1.40	305.00
				I-2	18 inch			143.30	142.11	0.003279	6.01	
P-2	1.10	1.40	2.50	I-2	Circular	138.60	138.00	143.30	142.10	0.000566	2.50	169.00
				Outlet	18 inch			144.20	142.00	0.003550	6.26	

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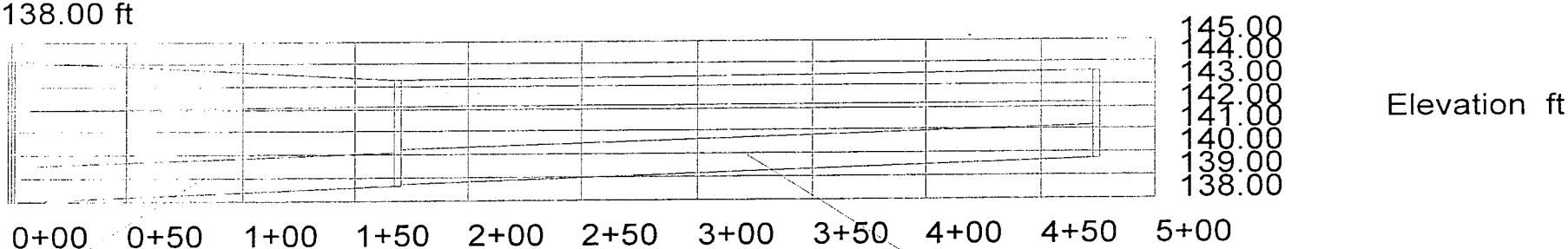
Inlet: I-1
Rim: 143.60 ft
Sump: 139.70 ft

Inlet: I-2
Rim: 143.30 ft
Sump: 138.60 ft

Outlet: Outlet
Rim: 144.20 ft
Sump: 138.00 ft



Pipe: P-2
Up Invert: 138.60 ft
Dn Invert: 138.00 ft
Length: 169.00 ft
Size: 18 inch

Pipe: P-1
Up Invert: 139.70 ft
Dn Invert: 138.70 ft
Length: 305.00 ft
Size: 18 inch

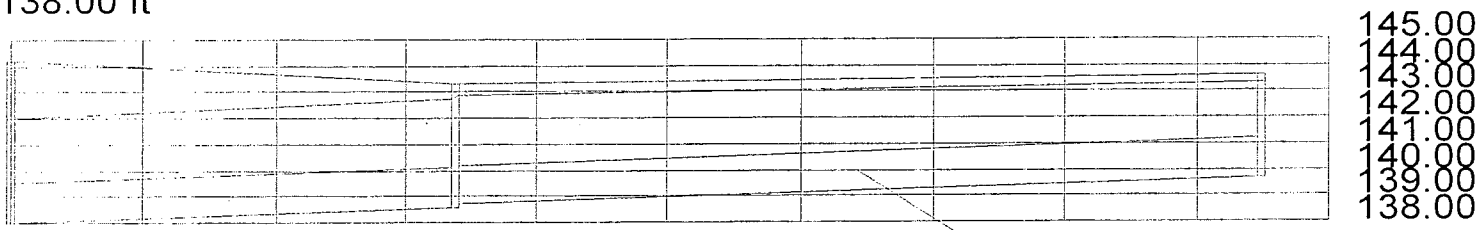
System Report

Pipe	Additional Flow (cfs)	Total Upstream Added (cfs)	Structure Discharge (cfs)	-Node- Upstream Downstream	-Section- Shape Size	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	-Ground- Upstream Downstream (ft)	-HGL- Upstream Downstream (ft)	-Slope- Energy Constructed (ft/ft)	-Section- Discharge Capacity (cfs)	Length (ft)
P-1	4.00	0.00	4.00	I-1	Circular	139.70	138.70	143.60	143.31	0.001450	4.00	305.00
				I-2	18 inch			143.30	142.87	0.003279	6.01	
P-2	3.00	4.00	7.00	I-2	Circular	138.60	138.00	143.30	142.75	0.004441	7.00	169.00
				Outlet	18 inch			144.20	142.00	0.003550	6.26	

Outlet: Outlet
Rim: 144.20 ft
Sump: 138.00 ft

Inlet: I-2
Rim: 143.30 ft
Sump: 138.60 ft

Inlet: I-1
Rim: 143.60 ft
Sump: 139.70 ft



Pipe: P-2
Up Invert: 138.60 ft
Dn Invert: 138.00 ft
Length: 169.00 ft
Size: 18 inch

Pipe: P-1
Up Invert: 139.70 ft
Dn Invert: 138.70 ft
Length: 305.00 ft
Size: 18 inch

Pond Pack Pond Routing

Table of Contents

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MASTER DESIGN STORM SUMMARY

Default Network Design Storm File, ID WICHITA.RNQ COW25100

Return Event	Total Depth in	Rainfall Type	RNF File	RNF ID
2-yr	3.6000	Synthetic Curve	SCSTYPES	TypeII 24hr
5-yr	4.5600	Synthetic Curve	SCSTYPES	TypeII 24hr
100-yr	7.6800	Synthetic Curve	SCSTYPES	TypeII 24hr

ICPM CALCULATION TOLERANCES

Target Convergence=	.000	cfs +/-
Max. Iterations =	35	loops
ICPM Time Step =	.0500	hrs
Output Time Step =	.0500	hrs
ICPM Ending Time =	35.0000	hrs

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Storage Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond ac-ft
BAALMAN	AREA	2	1.632		12.0500	23.73		
BAALMAN	AREA	5	2.353		12.0500	34.07		
BAALMAN	AREA	100	4.862		12.0500	68.61		
LOWER	POND	2	27.140		12.0500	203.31		
LOWER	POND	5	38.516		12.0500	291.31		
LOWER	POND	100	77.599		12.0500	548.63		
LOWER	OUT POND	2	24.425		14.0500	28.59	133.51	10.031
LOWER	OUT POND	5	35.600		14.2500	44.20	134.33	13.627
LOWER	OUT POND	100	73.935		15.4000	78.19	137.34	28.199
*MAIZE_RD	E-Q	2	65.997		13.4500	146.42	132.18	
*MAIZE_RD	E-Q	5	95.625		13.4500	216.11	132.84	
*MAIZE_RD	E-Q	100	198.379		13.4000	422.42	134.42	

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Storage Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond ac-ft
NORTH	AREA	2	6.380		12.2500	53.33		
NORTH	AREA	5	8.922		12.2500	74.56		
NORTH	AREA	100	17.564		12.2500	144.37		
OFFSITE_S	AREA	2	4.534		12.6500	23.63		
OFFSITE_S	AREA	5	6.484		12.6500	34.07		
OFFSITE_S	AREA	100	13.236		12.6500	69.21		
SITE_N	AREA	2	12.758		12.0500	184.37		
SITE_N	AREA	5	17.842		12.0500	255.10		
SITE_N	AREA	100	35.126		12.0500	485.80		
SITE_S	AREA	2	11.045		12.0500	160.03		
SITE_S	AREA	5	15.560		12.0500	223.39		
SITE_S	AREA	100	31.001		12.0500	431.17		
UPPER	POND	2	15.579		12.0500	168.07		
UPPER	POND	5	22.045		12.0500	235.67		
UPPER	POND	100	44.237		12.0500	458.37		
UPPER	OUT POND	2	14.382		12.4000	37.85	133.78	6.049
UPPER	OUT POND	5	20.675		12.1500	49.98	134.81	8.774
UPPER	OUT POND	100	42.473		12.9500	64.86	138.35	19.818
WEST	AREA	2	33.560		13.4500	108.85		
WEST	AREA	5	48.751		13.4500	160.03		
WEST	AREA	100	102.018		13.4500	335.43		
WOODBOX	JCT	2	39.940		13.4500	117.10		
WOODBOX	JCT	5	57.672		13.4500	171.11		
WOODBOX	JCT	100	119.582		13.4000	355.85		

File.... C:\HAESTAD\PPKW\RAINFALL\WICHITA.RNQ
Title...

JOB TITLE NOT SPECIFIED
Click Project Summary on the File Menu to enter title

DESIGN STORMS SUMMARY

Design Storm File,ID = WICHITA.RNQ COW25100

Storm Tag Name = 2-yr

Data Type, File, ID = Synthetic Storm SCSTYPES.RNF TypeII 24hr
Storm Frequency = 2 yr
Total Rainfall Depth= 3.6000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 5-yr

Data Type, File, ID = Synthetic Storm SCSTYPES.RNF TypeII 24hr
Storm Frequency = 5 yr
Total Rainfall Depth= 4.5600 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 100-yr

Data Type, File, ID = Synthetic Storm SCSTYPES.RNF TypeII 24hr
Storm Frequency = 100 yr
Total Rainfall Depth= 7.6800 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration = 24.0000 hrs Rain Depth = 3.6000 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SOUTHERN RIDGE 2ND\PONDPACK\
HYG File - ID = SOUTHERN.HYG - BAALMAN 2-yr
Tc = .2500 hrs
Drainage Area = 10.500 acres Runoff CN= 82

==========

Computational Time Increment	=	.03333 hrs
Computed Peak Time	=	12.0333 hrs
Computed Peak Flow	=	23.84 cfs
Time Increment for HYG File	=	.0500 hrs
Peak Time, Interpolated Output	=	12.0500 hrs
Peak Flow, Interpolated Output	=	23.73 cfs

==========

DRAINAGE AREA

ID:None Selected
CN = 82
Area = 10.500 acres
S = 2.1951 in
0.2S = .4390 in

Cumulative Runoff

1.8655 in
1.632 ac-ft

HYG Volume... 1.632 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .25000 hrs (ID: None Selected)
Computational Incr, Tm = .03333 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak,	qp =	47.59 cfs
Unit peak time	Tp =	.16667 hrs
Unit receding limb,	Tr =	.66667 hrs
Total unit time,	Tb =	.83333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 5 year storm
Duration = 24.0000 hrs Rain Depth = 4.5600 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SOUTHERN RIDGE 2ND\PONDPACK\
HYG File - ID = SOUTHERN.HYG - BAALMAN 5-yr
Tc = .2500 hrs
Drainage Area = 10.500 acres Runoff CN= 82

==========
Computational Time Increment = .03333 hrs
Computed Peak Time = 12.0333 hrs
Computed Peak Flow = 34.33 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.0500 hrs
Peak Flow, Interpolated Output = 34.07 cfs
==========

DRAINAGE AREA

ID:None Selected
CN = 82
Area = 10.500 acres
S = 2.1951 in
0.2S = .4390 in

Cumulative Runoff

2.6888 in
2.353 ac-ft

HYG Volume... 2.353 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .25000 hrs (ID: None Selected)
Computational Incr, Tm = .03333 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 47.59 cfs
Unit peak time Tp = .16667 hrs
Unit receding limb, Tr = .66667 hrs
Total unit time, Tb = .83333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration = 24.0000 hrs Rain Depth = 7.6800 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SOUTHERN RIDGE 2ND\PONDPACK\
HYG File - ID = SOUTHERN.HYG - BAALMAN 100-yr
Tc = .2500 hrs
Drainage Area = 10.500 acres Runoff CN= 82

==========
Computational Time Increment = .03333 hrs
Computed Peak Time = 12.0333 hrs
Computed Peak Flow = 69.46 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.0500 hrs
Peak Flow, Interpolated Output = 68.61 cfs
==========

DRAINAGE AREA

ID:None Selected
CN = 82
Area = 10.500 acres
S = 2.1951 in
0.2S = .4390 in

Cumulative Runoff

5.5565 in
4.862 ac-ft

HYG Volume... 4.862 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .25000 hrs (ID: None Selected)
Computational Incr, Tm = .03333 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 47.59 cfs
Unit peak time Tp = .16667 hrs
Unit receding limb, Tr = .66667 hrs
Total unit time, Tb = .83333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration = 24.0000 hrs Rain Depth = 3.6000 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SOUTHERN RIDGE 2ND\PONDPACK\
HYG File - ID = SOUTHERN.HYG - NORTH 2-yr
Tc = .6700 hrs
Drainage Area = 35.000 acres Runoff CN= 86

==========
Computational Time Increment = .08933 hrs
Computed Peak Time = 12.2387 hrs
Computed Peak Flow = 53.34 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.2500 hrs
Peak Flow, Interpolated Output = 53.33 cfs
==========

DRAINAGE AREA

ID:None Selected
CN = 86
Area = 35.000 acres
S = 1.6279 in
0.2S = .3256 in

Cumulative Runoff

2.1871 in
6.379 ac-ft

HYG Volume... 6.380 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .67000 hrs (ID: None Selected)
Computational Incr, Tm = .08933 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 59.19 cfs
Unit peak time Tp = .44667 hrs
Unit receding limb, Tr = 1.78667 hrs
Total unit time, Tb = 2.23333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 5 year storm
Duration = 24.0000 hrs Rain Depth = 4.5600 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SOUTHERN RIDGE 2ND\PONDPACK\
HYG File - ID = SOUTHERN.HYG - NORTH 5-yr
Tc = .6700 hrs
Drainage Area = 35.000 acres Runoff CN= 86

==========
Computational Time Increment = .08933 hrs
Computed Peak Time = 12.2387 hrs
Computed Peak Flow = 74.63 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.2500 hrs
Peak Flow, Interpolated Output = 74.56 cfs
==========

DRAINAGE AREA

ID:None Selected
CN = 86
Area = 35.000 acres
S = 1.6279 in
0.2S = .3256 in

Cumulative Runoff

3.0586 in
8.921 ac-ft

HYG Volume... 8.922 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .67000 hrs (ID: None Selected)
Computational Incr, Tm = .08933 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 59.19 cfs
Unit peak time Tp = .44667 hrs
Unit receding limb, Tr = 1.78667 hrs
Total unit time, Tb = 2.23333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration = 24.0000 hrs Rain Depth = 7.6800 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SOUTHERN RIDGE 2ND\PONDPACK\
HYG File - ID = SOUTHERN.HYG - NORTH 100-yr
Tc = .6700 hrs
Drainage Area = 35.000 acres Runoff CN= 86

==========

Computational Time Increment	=	.08933 hrs
Computed Peak Time	=	12.2387 hrs
Computed Peak Flow	=	144.67 cfs
Time Increment for HYG File	=	.0500 hrs
Peak Time, Interpolated Output	=	12.2500 hrs
Peak Flow, Interpolated Output	=	144.37 cfs

==========

DRAINAGE AREA

ID:None Selected
CN = 86
Area = 35.000 acres
S = 1.6279 in
0.2S = .3256 in

Cumulative Runoff

6.0215 in
17.563 ac-ft

HYG Volume... 17.564 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .67000 hrs (ID: None Selected)
Computational Incr, Tm = .08933 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak,	qp =	59.19 cfs
Unit peak time	Tp =	.44667 hrs
Unit receding limb,	Tr =	1.78667 hrs
Total unit time,	Tb =	2.23333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration = 24.0000 hrs Rain Depth = 3.6000 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SOUTHERN RIDGE 2ND\PONDPACK\
HYG File - ID = SOUTHERN.HYG - OFFSITE_S 2-yr
Tc = 1.3000 hrs
Drainage Area = 28.000 acres Runoff CN= 83

==========

Computational Time Increment	=	.17333 hrs
Computed Peak Time	=	12.6533 hrs
Computed Peak Flow	=	23.67 cfs
Time Increment for HYG File	=	.0500 hrs
Peak Time, Interpolated Output	=	12.6500 hrs
Peak Flow, Interpolated Output	=	23.63 cfs

==========

DRAINAGE AREA

ID:None Selected
CN = 83
Area = 28.000 acres
S = 2.0482 in
0.2S = .4096 in

Cumulative Runoff

1.9430 in
4.534 ac-ft

HYG Volume... 4.534 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = 1.30000 hrs (ID: None Selected)
Computational Incr, Tm = .17333 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak,	qp =	24.40 cfs
Unit peak time	Tp =	.86667 hrs
Unit receding limb,	Tr =	3.46667 hrs
Total unit time,	Tb =	4.33333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 5 year storm
Duration = 24.0000 hrs Rain Depth = 4.5600 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SOUTHERN RIDGE 2ND\PONDPACK\
HYG File - ID = SOUTHERN.HYG - OFFSITE_S 5-yr
Tc = 1.3000 hrs
Drainage Area = 28.000 acres Runoff CN= 83

==========
Computational Time Increment = .17333 hrs
Computed Peak Time = 12.6533 hrs
Computed Peak Flow = 34.12 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.6500 hrs
Peak Flow, Interpolated Output = 34.07 cfs
==========

DRAINAGE AREA

ID:None Selected
CN = 83
Area = 28.000 acres
S = 2.0482 in
0.2S = .4096 in

Cumulative Runoff

2.7790 in
6.484 ac-ft

HYG Volume... 6.484 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = 1.30000 hrs (ID: None Selected)
Computational Incr, Tm = .17333 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 24.40 cfs
Unit peak time Tp = .86667 hrs
Unit receding limb, Tr = 3.46667 hrs
Total unit time, Tb = 4.33333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration = 24.0000 hrs Rain Depth = 7.6800 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SOUTHERN RIDGE 2ND\PONDPACK\
HYG File - ID = SOUTHERN.HYG - OFFSITE_S 100-yr
Tc = 1.3000 hrs
Drainage Area = 28.000 acres Runoff CN= 83

==========
Computational Time Increment = .17333 hrs
Computed Peak Time = 12.6533 hrs
Computed Peak Flow = 69.30 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.6500 hrs
Peak Flow, Interpolated Output = 69.21 cfs
==========

DRAINAGE AREA

ID:None Selected
CN = 83
Area = 28.000 acres
S = 2.0482 in
0.2S = .4096 in

Cumulative Runoff

5.6724 in
13.236 ac-ft

HYG Volume... 13.236 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = 1.30000 hrs (ID: None Selected)
Computational Incr, Tm = .17333 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 24.40 cfs
Unit peak time Tp = .86667 hrs
Unit receding limb, Tr = 3.46667 hrs
Total unit time, Tb = 4.33333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration = 24.0000 hrs Rain Depth = 3.6000 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SOUTHERN RIDGE 2ND\PONDPACK\
HYG File - ID = SOUTHERN.HYG - SITE_N 2-yr
Tc = .2500 hrs
Drainage Area = 70.000 acres Runoff CN= 86

==========

Computational Time Increment	=	.03333 hrs
Computed Peak Time	=	12.0333 hrs
Computed Peak Flow	=	185.91 cfs
Time Increment for HYG File	=	.0500 hrs
Peak Time, Interpolated Output	=	12.0500 hrs
Peak Flow, Interpolated Output	=	184.37 cfs

==========

DRAINAGE AREA

ID:None Selected
CN = 86
Area = 70.000 acres
S = 1.6279 in
0.2S = .3256 in

Cumulative Runoff

2.1871 in
12.758 ac-ft

HYG Volume... 12.758 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .25000 hrs (ID: None Selected)
Computational Incr, Tm = .03333 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak,	qp =	317.25 cfs
Unit peak time	Tp =	.16667 hrs
Unit receding limb,	Tr =	.66667 hrs
Total unit time,	Tb =	.83333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 5 year storm
Duration = 24.0000 hrs Rain Depth = 4.5600 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SOUTHERN RIDGE 2ND\PONDPACK\
HYG File - ID = SOUTHERN.HYG - SITE_N 5-yr
Tc = .2500 hrs
Drainage Area = 70.000 acres Runoff CN= 86

==========

Computational Time Increment	=	.03333 hrs
Computed Peak Time	=	12.0333 hrs
Computed Peak Flow	=	257.81 cfs
Time Increment for HYG File	=	.0500 hrs
Peak Time, Interpolated Output	=	12.0500 hrs
Peak Flow, Interpolated Output	=	255.10 cfs

==========

DRAINAGE AREA

ID:None Selected
CN = 86
Area = 70.000 acres
S = 1.6279 in
0.2S = .3256 in

Cumulative Runoff

3.0586 in
17.842 ac-ft

HYG Volume... 17.842 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .25000 hrs (ID: None Selected)
Computational Incr, Tm = .03333 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak,	qp =	317.25 cfs
Unit peak time	Tp =	.16667 hrs
Unit receding limb,	Tr =	.66667 hrs
Total unit time,	Tb =	.83333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration = 24.0000 hrs Rain Depth = 7.6800 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SOUTHERN RIDGE 2ND\PONDPACK\
HYG File - ID = SOUTHERN.HYG - SITE_N 100-yr
Tc = .2500 hrs
Drainage Area = 70.000 acres Runoff CN= 86

==========

Computational Time Increment	=	.03333 hrs
Computed Peak Time	=	12.0333 hrs
Computed Peak Flow	=	492.66 cfs
Time Increment for HYG File	=	.0500 hrs
Peak Time, Interpolated Output	=	12.0500 hrs
Peak Flow, Interpolated Output	=	485.80 cfs

==========

DRAINAGE AREA

ID:None Selected
CN = 86
Area = 70.000 acres
S = 1.6279 in
0.2S = .3256 in

Cumulative Runoff

6.0215 in
35.126 ac-ft

HYG Volume... 35.126 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .25000 hrs (ID: None Selected)
Computational Incr, Tm = .03333 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak,	qp =	317.25 cfs
Unit peak time	Tp =	.16667 hrs
Unit receding limb,	Tr =	.66667 hrs
Total unit time,	Tb =	.83333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration = 24.0000 hrs Rain Depth = 3.6000 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SOUTHERN RIDGE 2ND\PONDPACK\
HYG File - ID = SOUTHERN.HYG - SITE_S 2-yr
Tc = .2500 hrs
Drainage Area = 63.000 acres Runoff CN= 85

==========
Computational Time Increment = .03333 hrs
Computed Peak Time = 12.0333 hrs
Computed Peak Flow = 161.22 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.0500 hrs
Peak Flow, Interpolated Output = 160.03 cfs
==========

DRAINAGE AREA

ID:None Selected
CN = 85
Area = 63.000 acres
S = 1.7647 in
0.2S = .3529 in

Cumulative Runoff

2.1037 in
11.045 ac-ft

HYG Volume... 11.045 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .25000 hrs (ID: None Selected)
Computational Incr, Tm = .03333 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 285.53 cfs
Unit peak time Tp = .16667 hrs
Unit receding limb, Tr = .66667 hrs
Total unit time, Tb = .83333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 5 year storm
Duration = 24.0000 hrs Rain Depth = 4.5600 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SOUTHERN RIDGE 2ND\PONDPACK\
HYG File - ID = SOUTHERN.HYG - SITE_S 5-yr
Tc = .2500 hrs
Drainage Area = 63.000 acres Runoff CN= 85

==========
Computational Time Increment = .03333 hrs
Computed Peak Time = 12.0333 hrs
Computed Peak Flow = 225.61 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.0500 hrs
Peak Flow, Interpolated Output = 223.39 cfs
==========

DRAINAGE AREA

ID:None Selected
CN = 85
Area = 63.000 acres
S = 1.7647 in
0.2S = .3529 in

Cumulative Runoff

2.9638 in
15.560 ac-ft

HYG Volume... 15.560 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .25000 hrs (ID: None Selected)
Computational Incr, Tm = .03333 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 285.53 cfs
Unit peak time Tp = .16667 hrs
Unit receding limb, Tr = .66667 hrs
Total unit time, Tb = .83333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration = 24.0000 hrs Rain Depth = 7.6800 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SOUTHERN RIDGE 2ND\PONDPACK\
HYG File - ID = SOUTHERN.HYG - SITE_S 100-yr
Tc = .2500 hrs
Drainage Area = 63.000 acres Runoff CN= 85

==========

Computational Time Increment	=	.03333 hrs
Computed Peak Time	=	12.0333 hrs
Computed Peak Flow	=	437.08 cfs
Time Increment for HYG File	=	.0500 hrs
Peak Time, Interpolated Output	=	12.0500 hrs
Peak Flow, Interpolated Output	=	431.17 cfs

==========

DRAINAGE AREA

ID:None Selected
CN = 85
Area = 63.000 acres
S = 1.7647 in
0.2S = .3529 in

Cumulative Runoff

5.9049 in
31.001 ac-ft

HYG Volume... 31.001 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .25000 hrs (ID: None Selected)
Computational Incr, Tm = .03333 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak,	qp =	285.53 cfs
Unit peak time	Tp =	.16667 hrs
Unit receding limb,	Tr =	.66667 hrs
Total unit time,	Tb =	.83333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration = 24.0000 hrs Rain Depth = 3.6000 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SOUTHERN RIDGE 2ND\PONDPACK\
HYG File - ID = SOUTHERN.HYG - WEST 2-yr
Tc = 2.4000 hrs
Drainage Area = 225.000 acres Runoff CN= 81

==========
Computational Time Increment = .32000 hrs
Computed Peak Time = 13.4400 hrs
Computed Peak Flow = 108.99 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 13.4500 hrs
Peak Flow, Interpolated Output = 108.85 cfs
==========

DRAINAGE AREA

ID:None Selected
CN = 81
Area = 225.000 acres
S = 2.3457 in
0.2S = .4691 in

Cumulative Runoff

1.7899 in
33.560 ac-ft

HYG Volume... 33.560 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = 2.40000 hrs (ID: None Selected)
Computational Incr, Tm = .32000 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 106.22 cfs
Unit peak time Tp = 1.60000 hrs
Unit receding limb, Tr = 6.40000 hrs
Total unit time, Tb = 8.00000 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 5 year storm
Duration = 24.0000 hrs Rain Depth = 4.5600 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SOUTHERN RIDGE 2ND\PONDPACK\
HYG File - ID = SOUTHERN.HYG - WEST 5-yr
Tc = 2.4000 hrs
Drainage Area = 225.000 acres Runoff CN= 81

==========

Computational Time Increment	=	.32000 hrs
Computed Peak Time	=	13.4400 hrs
Computed Peak Flow	=	160.28 cfs
Time Increment for HYG File	=	.0500 hrs
Peak Time, Interpolated Output	=	13.4500 hrs
Peak Flow, Interpolated Output	=	160.03 cfs

==========

DRAINAGE AREA

ID:None Selected
CN = 81
Area = 225.000 acres
S = 2.3457 in
0.2S = .4691 in

Cumulative Runoff

2.6000 in
48.750 ac-ft

HYG Volume... 48.751 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = 2.40000 hrs (ID: None Selected)
Computational Incr, Tm = .32000 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak,	qp =	106.22 cfs
Unit peak time	Tp =	1.60000 hrs
Unit receding limb,	Tr =	6.40000 hrs
Total unit time,	Tb =	8.00000 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration = 24.0000 hrs Rain Depth = 7.6800 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SOUTHERN RIDGE 2ND\PONDPACK\
HYG File - ID = SOUTHERN.HYG - WEST 100-yr
Tc = 2.4000 hrs
Drainage Area = 225.000 acres Runoff CN= 81

==========
Computational Time Increment = .32000 hrs
Computed Peak Time = 13.4400 hrs
Computed Peak Flow = 336.09 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 13.4500 hrs
Peak Flow, Interpolated Output = 335.43 cfs
==========

DRAINAGE AREA

ID:None Selected
CN = 81
Area = 225.000 acres
S = 2.3457 in
0.2S = .4691 in

Cumulative Runoff

5.4409 in
102.018 ac-ft

HYG Volume... 102.018 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = 2.40000 hrs (ID: None Selected)
Computational Incr, Tm = .32000 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 106.22 cfs
Unit peak time Tp = 1.60000 hrs
Unit receding limb, Tr = 6.40000 hrs
Total unit time, Tb = 8.00000 hrs

ICPM HYDROGRAPH...
HYG file = F:\HYDRO\PROJECTS\SOUTHERN RIDGE 2ND\PONDPACK\SOUTHERN.HYG
HYG ID = LOWER IN
HYG Tag = 5-yr

Peak Discharge =	291.31 cfs
Time to Peak =	12.0500 hrs
HYG Volume =	38.516 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0500 hrs
Time on left represents time for first value in each row.

Time hrs					
.0000	.00	.00	.00	.00	.00
.2500	.00	.00	.00	.00	.00
.5000	.00	.00	.00	.00	.00
.7500	.00	.00	.00	.00	.00
1.0000	.00	.00	.00	.00	.00
1.2500	.00	.00	.00	.00	.00
1.5000	.00	.00	.00	.00	.00
1.7500	.00	.00	.00	.00	.00
2.0000	.00	.00	.00	.00	.00
2.2500	.00	.00	.00	.00	.00
2.5000	.00	.00	.00	.00	.00
2.7500	.00	.00	.00	.00	.00
3.0000	.00	.00	.00	.00	.00
3.2500	.00	.00	.00	.00	.00
3.5000	.00	.00	.00	.00	.00
3.7500	.00	.00	.00	.00	.00
4.0000	.00	.00	.00	.00	.00
4.2500	.00	.00	.00	.00	.00
4.5000	.00	.00	.00	.00	.00
4.7500	.00	.00	.00	.00	.00
5.0000	.00	.00	.00	.00	.00
5.2500	.00	.00	.00	.00	.00
5.5000	.00	.00	.00	.00	.00
5.7500	.04	.06	.00	.01	.02
6.0000	.16	.19	.08	.11	.13
6.2500	.30	.33	.21	.24	.27
6.5000	.46	.49	.36	.40	.43
6.7500	.63	.67	.53	.56	.60
7.0000	.81	.85	.70	.74	.78
7.2500	1.01	1.05	.89	.93	.97
7.5000	1.22	1.26	1.09	1.13	1.18
7.7500	1.44	1.49	1.31	1.35	1.40
8.0000	1.68	1.73	1.53	1.58	1.63
			1.78	1.84	1.90

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0500 hrs
Time on left represents time for first value in each row.

Time hrs					
8.2500	1.98	2.05	2.14	2.22	2.31
8.5000	2.40	2.50	2.60	2.70	2.80
8.7500	2.91	3.02	3.13	3.25	3.36
9.0000	3.48	3.61	3.72	3.84	3.94
9.2500	4.04	4.13	4.22	4.30	4.39
9.5000	4.47	4.55	4.65	4.76	4.88
9.7500	5.03	5.20	5.37	5.55	5.75
10.0000	5.94	6.15	6.36	6.59	6.84
10.2500	7.10	7.37	7.66	7.95	8.26
10.5000	8.57	8.89	9.21	9.57	9.96
10.7500	10.39	10.84	11.32	11.81	12.33
11.0000	12.86	13.43	14.05	14.78	15.61
11.2500	16.58	17.62	18.76	19.95	21.21
11.5000	22.37	24.40	28.39	36.52	49.10
11.7500	68.85	94.08	129.68	177.69	232.08
12.0000	276.80	291.31	276.21	234.79	188.15
12.2500	152.13	126.16	109.92	99.03	91.87
12.5000	85.90	80.66	76.32	71.88	68.27
12.7500	65.68	63.77	62.36	61.16	60.07
13.0000	59.04	58.02	57.01	55.99	54.99
13.2500	54.00	53.01	52.00	50.98	49.94
13.5000	48.90	47.84	46.82	45.82	44.86
13.7500	43.93	43.03	42.16	41.33	40.52
14.0000	39.74	39.00	38.30	37.67	37.10
14.2500	36.60	36.15	35.76	35.40	35.07
14.5000	34.78	34.50	34.24	34.00	33.78
14.7500	33.57	33.38	32.97	32.45	31.97
15.0000	31.53	31.12	30.73	30.37	30.02
15.2500	29.69	29.37	29.07	28.77	28.48
15.5000	28.20	27.93	27.65	27.38	27.12
15.7500	26.85	26.59	26.15	25.77	25.43
16.0000	25.12	24.85	24.62	24.42	24.26
16.2500	24.12	24.02	23.93	23.86	23.80
16.5000	23.75	23.71	23.67	23.65	23.62
16.7500	23.50	23.24	22.98	22.75	22.53
17.0000	22.32	22.13	21.94	21.76	21.58
17.2500	21.41	21.25	21.09	20.93	20.77
17.5000	20.62	20.47	20.32	20.18	20.03
17.7500	19.89	19.75	19.60	19.47	19.33
18.0000	19.19	19.05	18.92	18.75	18.49
18.2500	18.26	18.07	17.91	17.76	17.63
18.5000	17.52	17.42	17.33	17.25	17.18
18.7500	17.11	17.05	16.99	16.94	16.89
19.0000	16.84	16.79	16.70	16.61	16.51
19.2500	16.41	16.30	16.20	16.09	15.97
19.5000	15.86	15.75	15.64	15.52	15.41
19.7500	15.29	15.18	15.06	14.95	14.83

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0500 hrs
Time on left represents time for first value in each row.

Time hrs					
20.0000	14.72	14.60	14.49	14.38	14.28
20.2500	14.19	14.10	14.02	13.93	13.85
20.5000	13.77	13.69	13.62	13.54	13.46
20.7500	13.39	13.32	13.24	13.17	13.10
21.0000	13.03	12.96	12.89	12.82	12.76
21.2500	12.69	12.62	12.48	12.29	12.13
21.5000	11.98	11.86	11.76	11.67	11.59
21.7500	11.52	11.46	11.40	11.36	11.32
22.0000	11.28	11.25	11.22	11.19	11.17
22.2500	11.15	11.13	11.11	11.09	11.08
22.5000	11.07	11.08	11.09	11.08	11.08
22.7500	11.06	11.05	11.03	11.00	10.98
23.0000	10.95	10.93	10.90	10.87	10.84
23.2500	10.81	10.77	10.74	10.71	10.67
23.5000	10.64	10.61	10.57	10.54	10.50
23.7500	10.47	10.44	10.40	10.37	10.33
24.0000	10.30	10.13	9.68	8.91	8.11
24.2500	7.50	7.08	6.80	6.60	6.45
24.5000	6.33	6.23	6.14	6.05	5.97
24.7500	5.90	5.82	5.75	5.67	5.60
25.0000	5.53	5.46	5.38	5.31	5.24
25.2500	5.17	5.10	5.04	4.97	4.91
25.5000	4.85	4.79	4.61	4.40	4.22
25.7500	4.05	3.90	3.77	3.65	3.54
26.0000	3.44	3.36	3.28	3.21	3.15
26.2500	3.10	3.05	3.01	3.00	3.04
26.5000	3.06	3.09	3.11	3.12	3.14
26.7500	3.15	3.15	3.16	3.16	3.16
27.0000	3.16	3.16	3.16	3.15	3.15
27.2500	3.14	3.13	3.12	3.11	3.10
27.5000	3.09	3.08	3.07	3.06	3.05
27.7500	3.03	3.02	3.01	3.00	2.98
28.0000	2.97	2.96	2.94	2.93	2.91
28.2500	2.90	2.88	2.87	2.86	2.84
28.5000	2.83	2.81	2.80	2.78	2.77
28.7500	2.75	2.74	2.72	2.71	2.69
29.0000	2.68	2.66	2.65	2.63	2.62
29.2500	2.60	2.59	2.57	2.56	2.55
29.5000	2.53	2.52	2.50	2.49	2.48
29.7500	2.46	2.45	2.43	2.42	2.41
30.0000	2.39	2.38	2.37	2.35	2.34
30.2500	2.33	2.31	2.30	2.29	2.27
30.5000	2.26	2.25	2.23	2.22	2.21
30.7500	2.20	2.18	2.10	2.04	1.98
31.0000	1.92	1.86	1.81	1.76	1.72
31.2500	1.67	1.63	1.59	1.56	1.52
31.5000	1.49	1.46	1.43	1.40	1.37

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0500 hrs
Time on left represents time for first value in each row.

Time hrs					
31.7500	1.35	1.32	1.30	1.28	1.25
32.0000	1.23	1.22	1.20	1.18	1.16
32.2500	1.15	1.13	1.12	1.11	1.12
32.5000	1.14	1.15	1.17	1.18	1.20
32.7500	1.21	1.22	1.23	1.24	1.25
33.0000	1.26	1.27	1.28	1.29	1.30
33.2500	1.31	1.31	1.32	1.33	1.33
33.5000	1.34	1.34	1.35	1.35	1.36
33.7500	1.36	1.36	1.37	1.37	1.37
34.0000	1.37	1.38	1.38	1.38	1.38
34.2500	1.38	1.38	1.38	1.38	1.38
34.5000	1.38	1.38	1.38	1.38	1.38
34.7500	1.38	1.38	1.38	1.38	1.38
35.0000	1.38				

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Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
131.00	-----	3.7000	.0000	.000	.000
132.00	-----	3.9000	11.3987	3.800	3.800
133.00	-----	4.2000	12.1472	4.049	7.849
134.00	-----	4.4000	12.8988	4.300	12.148
135.00	-----	4.6000	13.4989	4.500	16.648
136.00	-----	4.9000	14.2476	4.749	21.397
137.00	-----	5.1000	14.9990	5.000	26.397
138.00	-----	5.4000	15.7479	5.249	31.646

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
131.25	-----	2.1000	.0000	.000	.000
132.00	-----	2.3000	6.5977	1.649	1.649
133.00	-----	2.5000	7.1979	2.399	4.049
134.00	-----	2.6000	7.6495	2.550	6.599
135.00	-----	2.8000	8.0981	2.699	9.298
136.00	-----	3.0000	8.6983	2.899	12.197
137.00	-----	3.2000	9.2984	3.099	15.297
138.00	-----	3.4000	9.8985	3.299	18.596
139.00	-----	3.6000	10.4986	3.500	22.096
140.00	-----	3.8000	11.0987	3.700	25.795
141.00	-----	4.0000	11.6987	3.900	29.695
142.00	-----	4.3000	12.4473	4.149	33.844

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

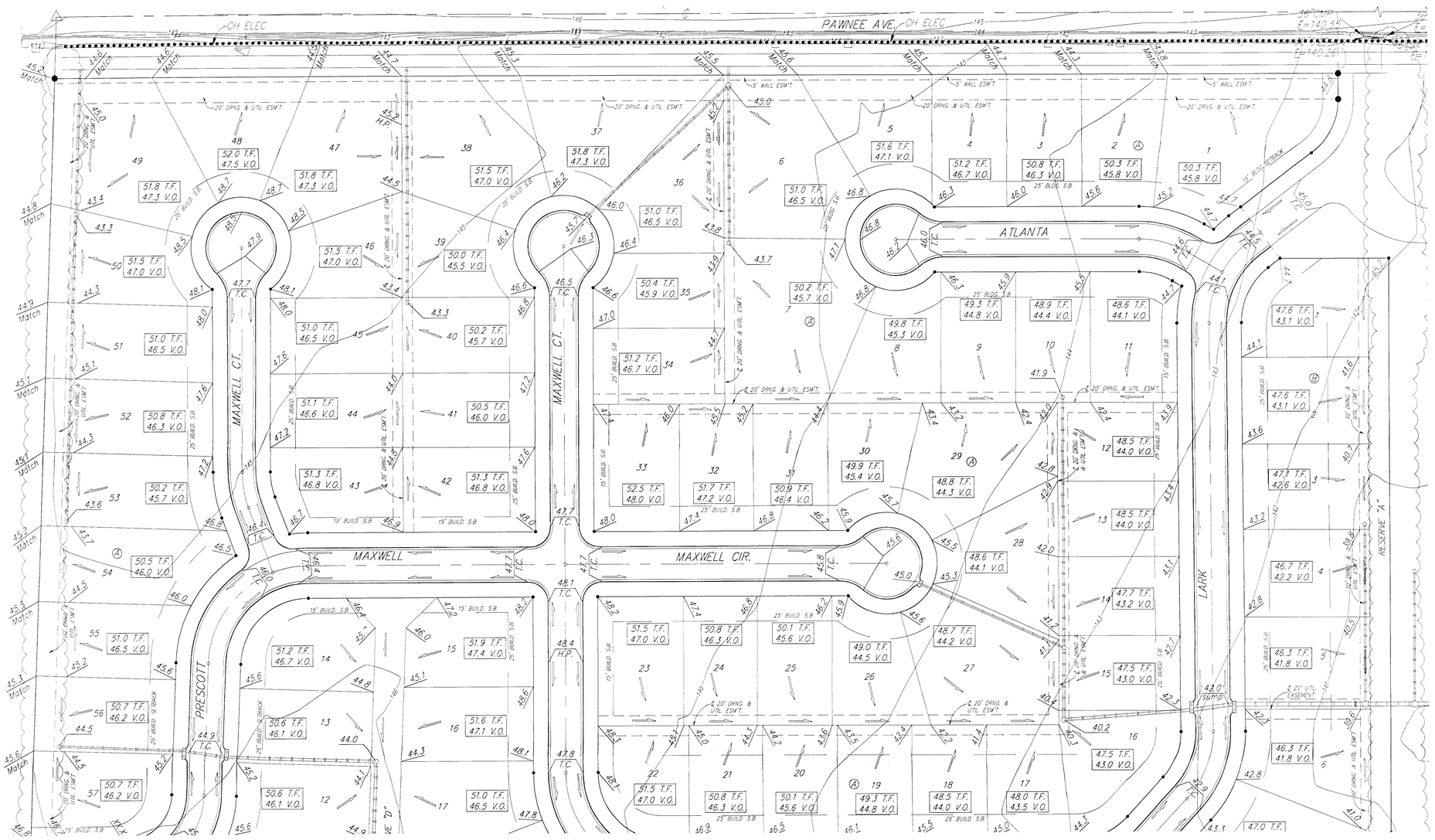
Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

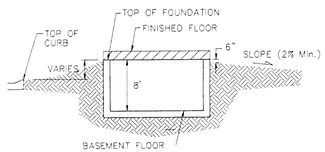
where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

Index of Starting Page Numbers for ID Names

Drainage Plan

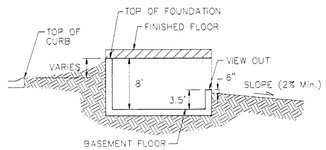
Subdivision-Grading Plan





TYPICAL NON-VIEW OUT DETAIL

NO SCALE



TYPICAL VIEW OUT DETAIL

NO SCALE

NOTES:

Proposed Top of Foundation Elevations Are Shown On Plans. Contractor to Set Finished Floor Elevations.

All Street Elevations Shown on Plans Are for Top of Curb (Full-Height).

This Grading Plan is Designed with View-Outs and Walk-Outs. WalkOuts. Elevations Shown as XX.X V.O. depict View-Out Structures.

Lot dimensions have been ommited on this plan, refer to the recorded plat for this information.

PRELIMINARY PLAN NOT FOR CONSTRUCTION

Baughman

SOUTHERN RIDGE 2ND ADDITION
SUBDIVISION GRADING PLAN

Baughman Company, P.A. 315 Ella St. Wichita, KS 67211 P 316.262.7271 F 316.262.0149
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

PROJECT NUMBER	DESIGN BLG	DRAWN BLG
REVISIONS:	APPROVED	DATE 06-30-04
	SCALE none	
	SHEET	1 OF 2

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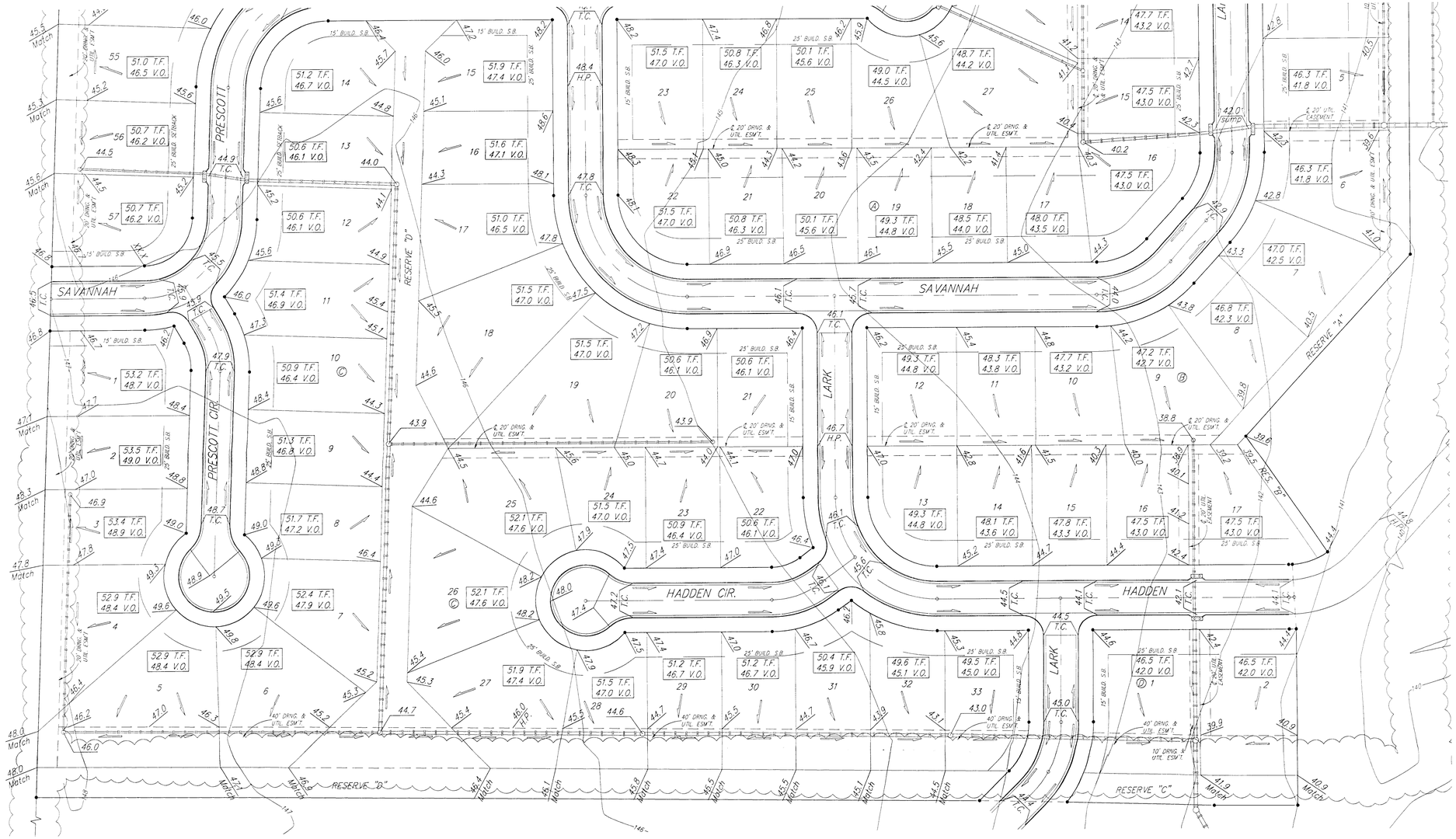
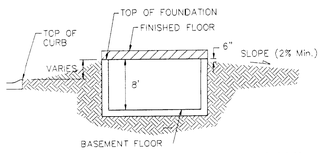
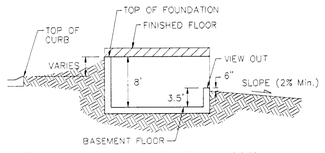




TYPICAL NON-VIEW OUT DETAIL

NO SCALE



TYPICAL VIEW OUT DETAIL

NO SCALE

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Baughman

SOUTHERN RIDGE 2ND ADDITION

SUBDIVISION GRADING PLAN

Baughman Company, P.A. 315 Ella St. Wichita, KS 67211 P 316.262.7271 F 316.262.0149
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

PROJECT NUMBER	DESIGN	DRAWN
	BLG	BLG
REVISIONS:	APPROVED	DATE
		06-30-04
	SCALE	
	noted	
	SHEET	
	2 OF 2	

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