

Tyler's Landing Commercial Addition
Wichita, Sedgewick County, Kansas

June 1, 2004

DRAINAGE PLAN





Tyler's Landing Commercial Addition
Wichita, Sedgwick County, Kansas

June 1, 2004

DRAINAGE PLAN

NARRATIVE

This report provides information and supporting documentation to support the "Drainage Plan" for the property located in the Northeast Quarter of Section 33, T-26-S, R-1-W in Sedgwick County, Kansas.

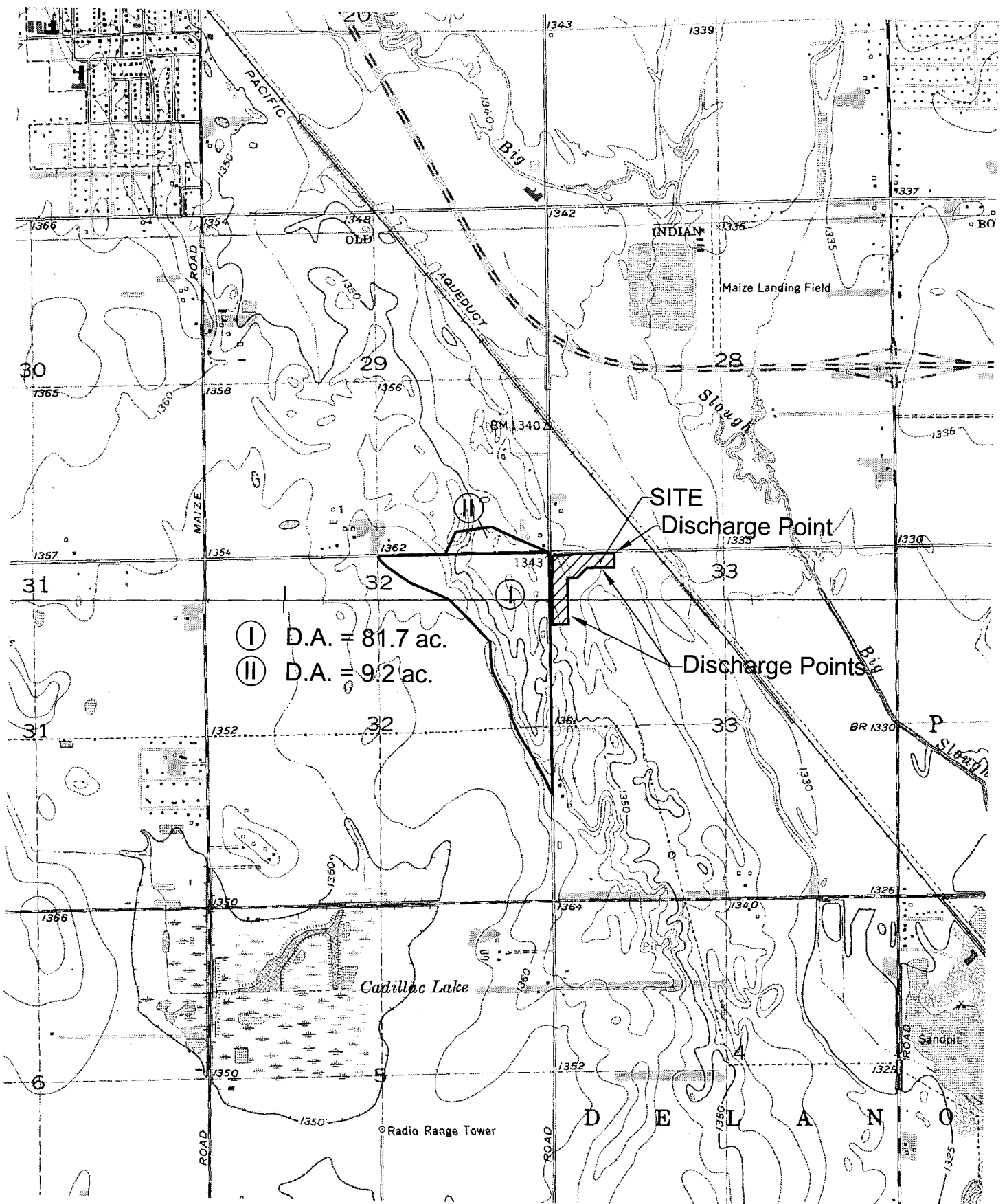
The "Drainage Plan" being submitted herein is intended to serve as a guide for the design of storm water sewer improvements to the proposed development. Modifications to structures, pipes, etc. may be made as necessary during the final design in order to obtain the most economical design and construction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

The storm water sewer system within this proposed development has been designed to convey the 5-yr rainfall event during all conditions. Calculations have also been performed to check the design during the 100-yr event. Line one of the system will not have the capacity to flush the one hundred-year storm event in the pipe under complete developed conditions. This will require lots one through four to detain their stormwater runoff to pre-developed conditions. Calculations have been prepared using Haestad Method's StormCad for the five-year and one-hundred year event. An additional run was performed for the one-hundred year event that artificially raised the tops of the inlets to see the entire hydraulic grade line. This run has no consideration for storage or overflow break points. Line two was sized to flush the five-year storm and convey the one-hundred year storm with no more than two feet of water ponding above the inlet grates on the upper end of the system.

The following is the storage volume required for Lots 1-4, Blk. A:

Lots	D.A.	Q100 (PRE)	Q100 (DEV)	ST. VOL. (ac-ft)
1	1.52	6.8	10.2	0.158
2	1.18	5.3	7.9	0.121
3	1.18	5.3	7.9	0.121
4	1.12	5.0	7.5	0.116

The individual siteplans developed for lots 1-4 shall be designed to incorporate the above required storage volume at the time of construction. The front half of lots 4-7 will discharge into a proposed stormwater system that is under design with the 37th Street widening project.



(I) D.A. = 81.7 ac.
 (II) D.A. = 9.2 ac.

SITE
 Discharge Point

Discharge Points

LOCATION MAP:

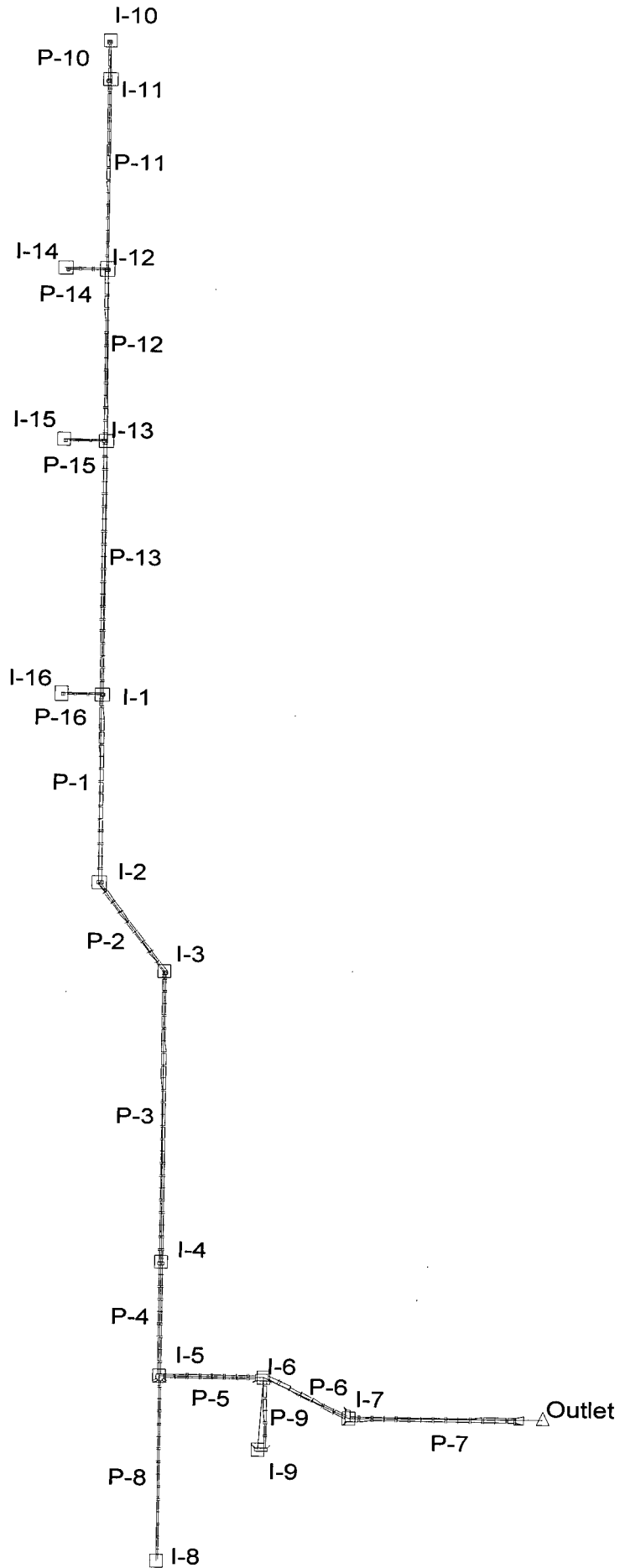
Tyler's Landing Commercial Addition
 WICHITA, SEDGWICK COUNTY, KANSAS

MAIZE & WEST WICHITA USGS QUADRANGLES



1"=2000'

BAUGHMAN COMPANY P.A.
 ENGINEERING, SURVEYING, & PLANNING
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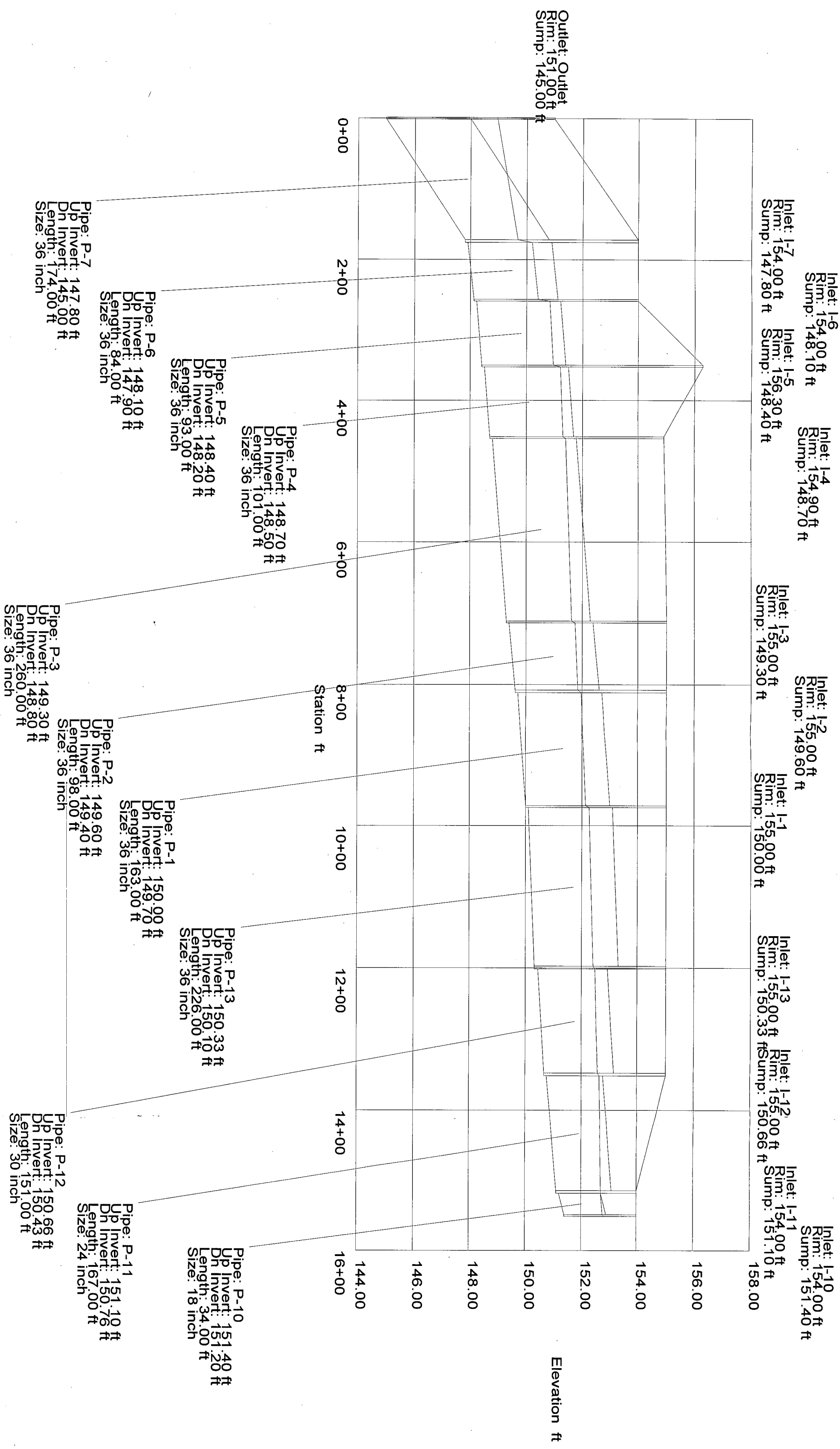


The Node Report

Node	Inlet Area (acres)	Weighted Roughness Coefficient	Inlet TC (min)	System Intensity (in/hr)	Additional Flow (cfs)	Discharge (cfs)	Ground Elevation (ft)	HGL In (ft)	HGL Out (ft)
I-9	2.53	0.46	15.00	4.56	0.00	5.35	154.00	150.90	150.88
I-8	0.91	0.46	15.00	4.56	0.00	1.92	155.50	152.16	152.05
I-16	1.52	0.85	15.00	4.56	0.00	5.94	154.00	152.48	152.39
I-15	1.18	0.85	15.00	4.56	0.00	4.61	154.00	152.62	152.57
I-14	1.18	0.85	15.00	4.56	0.00	4.61	154.00	152.76	152.70
I-10	1.12	0.85	15.00	4.56	0.00	4.38	154.00	152.82	152.77
I-11	0.33	0.46	15.00	4.53	0.00	5.04	154.00	152.72	152.70
I-12	0.22	0.46	15.00	4.33	0.00	9.64	155.00	152.63	152.57
I-13	0.33	0.46	15.00	4.21	0.00	14.28	155.00	152.49	152.41
I-1	0.42	0.46	15.00	4.07	0.00	19.89	155.00	152.28	152.13
I-2	0.70	0.46	15.00	3.99	0.00	20.81	155.00	151.97	151.85
I-3	0.57	0.46	15.00	3.95	0.00	21.62	155.00	151.76	151.63
I-4	0.69	0.46	15.00	3.83	0.00	22.21	154.90	151.39	151.30
I-5	1.90	0.46	15.00	3.79	0.00	26.90	156.30	151.21	150.97
I-6	0.68	0.46	15.00	3.76	0.00	32.28	154.00	150.84	150.42
I-7	0.99	0.46	15.00	3.74	0.00	33.82	154.00	150.17	149.69
Outlet	N/A	N/A	N/A	3.70	N/A	N/A	151.00	148.94	148.94

The Pipe Report

Pipe	Upstream Node	Downstream Node	Discharge (cfs)	Constructed Slope (ft/ft)	Length (ft)	Section Size	Roughness	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Upstream Ground Elevation (ft)	Downstream Ground Elevation (ft)	Upstream HGL (ft)	Downstream HGL (ft)
P-9	I-9	I-6	11.47	0.007937	63.00	24 inch	0.013	148.70	148.20	154.00	154.00	154.16	154.00
P-8	I-8	I-5	4.12	0.018519	162.00	15 inch	0.013	151.50	148.50	155.50	156.30	156.13	155.47
P-16	I-16	I-1	10.28	0.005405	37.00	18 inch	0.013	150.30	150.10	154.00	155.00	155.82	155.47
P-15	I-15	I-13	7.98	0.004359	39.00	18 inch	0.013	150.60	150.43	154.00	155.00	155.69	155.47
P-14	I-14	I-12	7.98	0.006316	38.00	18 inch	0.013	151.00	150.76	154.00	155.00	155.69	155.47
P-10	I-10	I-11	7.57	0.005882	34.00	18 inch	0.013	151.40	151.20	154.00	154.00	155.64	155.47
P-11	I-11	I-12	9.04	0.002036	167.00	24 inch	0.013	151.10	150.76	154.00	155.00	155.73	155.47
P-12	I-12	I-13	17.53	0.001523	151.00	30 inch	0.013	150.66	150.43	155.00	155.00	155.74	155.47
P-13	I-13	I-1	26.26	0.001027	224.00	36 inch	0.013	150.33	150.10	155.00	155.00	155.81	155.47
P-1	I-1	I-2	37.00	0.001818	165.00	36 inch	0.013	150.00	149.70	155.00	155.00	155.98	155.47
P-2	I-2	I-3	39.47	0.002041	98.00	36 inch	0.013	149.60	149.40	155.00	155.00	155.81	155.47
P-3	I-3	I-4	41.56	0.001923	260.00	36 inch	0.013	149.30	148.80	155.00	154.90	156.48	155.47
P-4	I-4	I-5	43.67	0.001980	101.00	36 inch	0.013	148.70	148.50	154.90	156.30	155.90	155.47
P-5	I-5	I-6	54.77	0.002151	93.00	36 inch	0.013	148.40	148.20	156.30	154.00	154.63	154.00
P-6	I-6	I-7	67.46	0.002381	84.00	36 inch	0.013	148.10	147.90	154.00	154.00	152.73	151.87
P-7	I-7	Outlet	71.21	0.016092	174.00	36 inch	0.013	147.80	145.00	154.00	151.00	150.92	148.94



Project Title: TYLER'S LANDING ADDITION
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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 V10
 Page 1 of 1

The Node Report

Node	Inlet Area (acres)	Weighted Roughness Coefficient	Inlet TC (min)	System Intensity (in/hr)	Additional Flow (cfs)	Discharge (cfs)	Ground Elevation (ft)	HGL In (ft)	HGL Out (ft)
I-9	2.53	0.61	15.00	7.37	0.00	11.47	154.00	154.00	154.00
I-8	0.91	0.61	15.00	7.37	0.00	4.12	155.50	155.50	155.50
I-16	1.52	0.91	15.00	7.37	0.00	10.28	154.00	155.47	155.47
I-15	1.18	0.91	15.00	7.37	0.00	7.98	154.00	155.47	155.47
I-14	1.18	0.91	15.00	7.37	0.00	7.98	154.00	155.47	155.47
I-10	1.12	0.91	15.00	7.37	0.00	7.57	154.00	155.47	155.47
I-11	0.33	0.61	15.00	7.34	0.00	9.04	154.00	155.47	155.47
I-12	0.22	0.61	15.00	7.16	0.00	17.53	155.00	155.47	155.47
I-13	0.33	0.61	15.00	7.04	0.00	26.26	155.00	155.47	155.47
I-1	0.42	0.61	15.00	6.87	0.00	37.00	155.00	155.47	155.47
I-2	0.70	0.61	15.00	6.79	0.00	39.47	155.00	155.47	155.47
I-3	0.57	0.61	15.00	6.74	0.00	41.56	155.00	155.47	155.47
I-4	0.69	0.61	15.00	6.63	0.00	43.67	154.90	155.47	155.47
I-5	1.90	0.61	15.00	6.58	0.00	54.77	156.30	155.47	154.63
I-6	0.68	0.61	15.00	6.55	0.00	67.46	154.00	154.00	152.73
I-7	0.99	0.61	15.00	6.53	0.00	71.21	154.00	151.87	150.92
Outlet	N/A	N/A	N/A	6.49	N/A	N/A	151.00	148.94	148.94

Project Title: TYLER'S LANDING ADDITION

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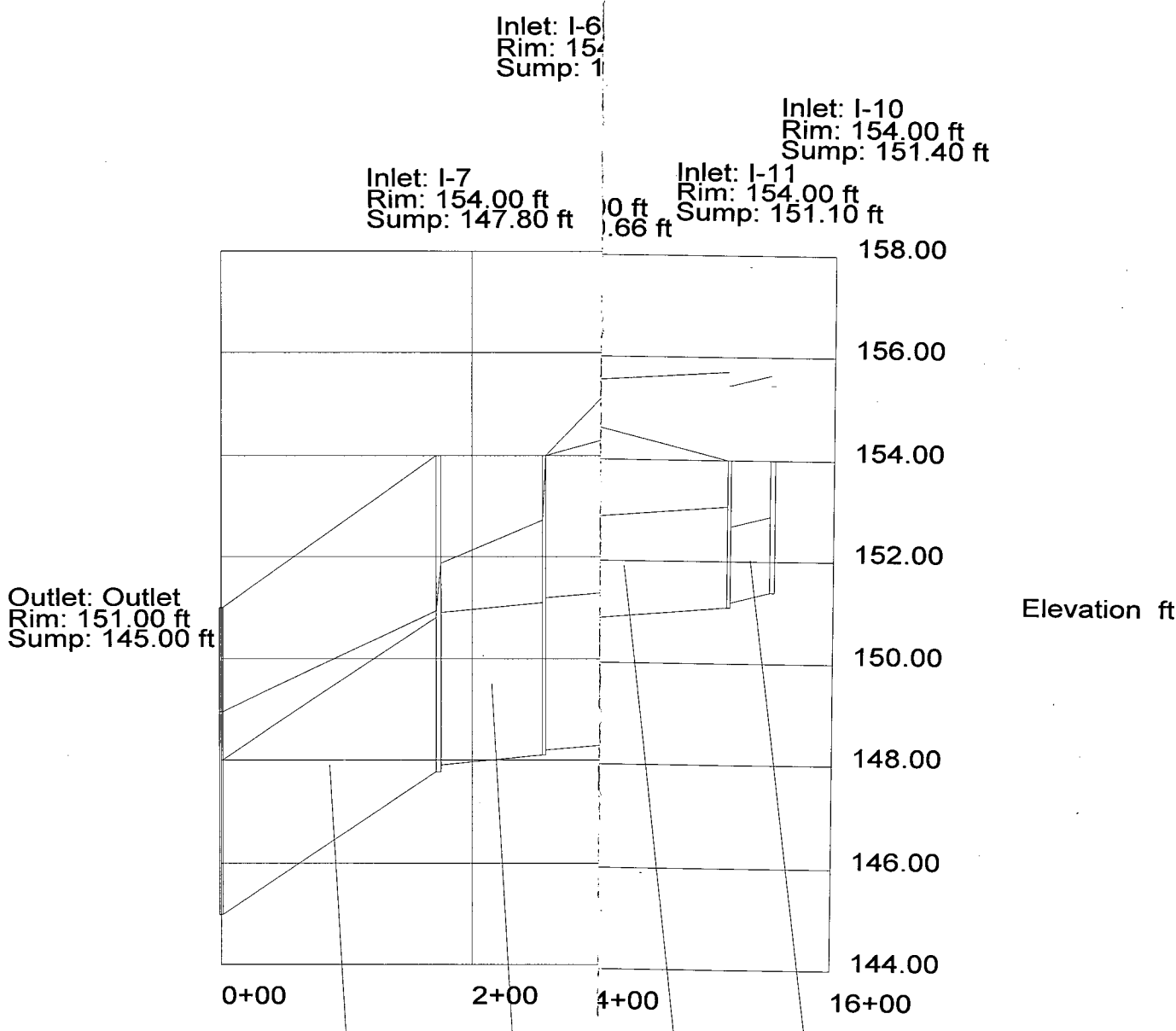
37 Brookside Road Waterbury, CT 06708 USA (203) 755-1666

Project Engineer: Baughman Company, P.A.

StormCAD v1.0
Page 1 of 1

The Pipe Report

Pipe	Upstream Node	Downstream Node	Discharge (cfs)	Constructed Pipe Size (ft/ft)	Length (ft)	Section Size	Roughness	Upstream Elevation (ft)	Downstream Elevation (ft)	Upstream Elevation (ft)	Downstream Elevation (ft)	Upstream HICL (ft)	Downstream HICL (ft)
P-9	I-9	I-6	5.35	0.007937	63.00	24 inch	0.013	148.70	148.20	154.00	154.00	150.88	150.84
P-8	I-8	I-5	1.92	0.018519	162.00	15 inch	0.013	151.50	148.50	155.30	155.30	152.05	151.21
P-16	I-16	I-1	5.94	0.005714	35.00	18 inch	0.013	150.30	150.10	154.00	155.00	152.39	152.28
P-15	I-15	I-13	4.61	0.004250	40.00	18 inch	0.013	150.60	150.43	154.00	155.00	152.57	152.49
P-14	I-14	I-12	4.61	0.006316	38.00	18 inch	0.013	151.00	150.76	154.00	155.00	152.70	152.63
P-10	I-10	I-11	4.38	0.005882	34.00	18 inch	0.013	151.40	151.20	154.00	154.00	152.72	152.72
P-11	I-11	I-12	5.04	0.002036	167.00	24 inch	0.013	151.10	150.76	154.00	155.00	152.70	152.63
P-12	I-12	I-13	9.64	0.001523	151.00	30 inch	0.013	150.66	150.43	155.00	155.00	152.57	152.49
P-13	I-13	I-1	14.28	0.001018	226.00	36 inch	0.013	150.33	150.10	155.00	155.00	152.41	152.28
P-1	I-1	I-2	19.89	0.001840	163.00	36 inch	0.013	150.00	149.70	155.00	155.00	152.13	151.97
P-2	I-2	I-3	20.81	0.002041	98.00	36 inch	0.013	149.60	149.40	155.00	155.00	151.76	151.76
P-3	I-3	I-4	21.62	0.001923	260.00	36 inch	0.013	149.30	148.80	155.00	154.90	151.63	151.39
P-4	I-4	I-5	22.21	0.001980	101.00	36 inch	0.013	148.70	148.50	154.90	156.30	151.30	151.21
P-5	I-5	I-6	26.90	0.002151	93.00	36 inch	0.013	148.40	148.20	156.30	154.00	150.97	150.84
P-6	I-6	I-7	32.28	0.002381	84.00	36 inch	0.013	148.10	147.90	154.00	154.00	150.17	150.17
P-7	I-7	Outlet	33.82	0.016092	174.00	36 inch	0.013	147.80	145.00	154.00	151.00	149.69	148.94



Inlet: I-6
Rim: 154.00 ft
Sump: 147.80 ft

Inlet: I-7
Rim: 154.00 ft
Sump: 147.80 ft

Inlet: I-10
Rim: 154.00 ft
Sump: 151.40 ft

Inlet: I-11
Rim: 154.00 ft
Sump: 151.10 ft

Outlet: Outlet
Rim: 151.00 ft
Sump: 145.00 ft

Elevation ft

0+00 2+00 4+00 16+00

Pipe: P-10
Up Invert: 151.40 ft
Dn Invert: 151.20 ft
Length: 34.00 ft
Size: 18 inch

Pipe: P-11
Up Invert: 151.10 ft
Dn Invert: 150.76 ft
Length: 167.00 ft
Size: 24 inch

P-12
Up Invert: 150.66 ft
Dn Invert: 150.43 ft
Length: 151.00 ft
Size: 30 inch

Pipe:
Up Invert:
Dn Invert:
Length:
Size:

Pipe: P-7
Up Invert: 147.80 ft
Dn Invert: 145.00 ft
Length: 174.00 ft
Size: 36 inch

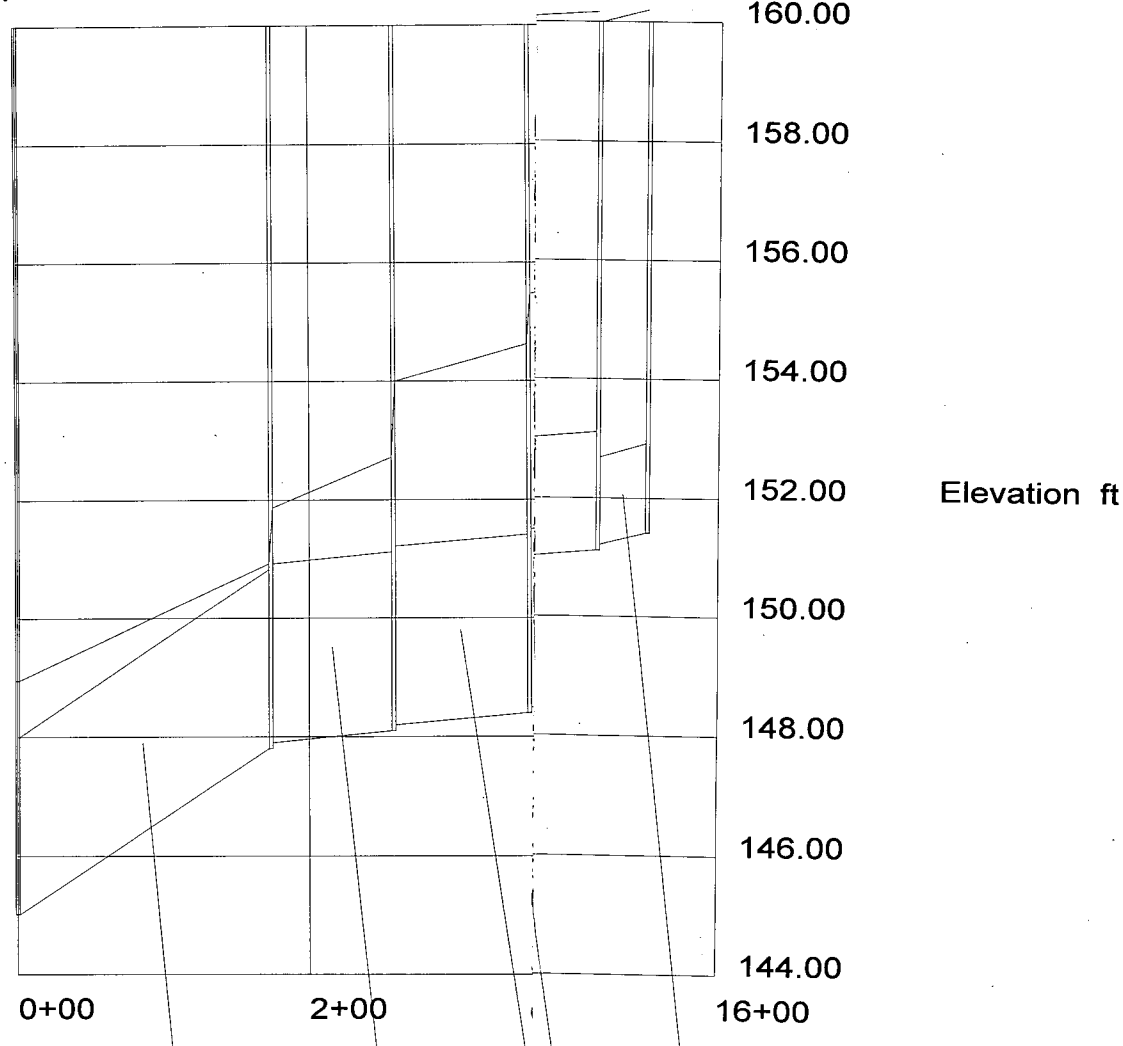
Inlet: I-7
 Rim: 160.00 ft
 Sump: 147.80 ft

Inlet: I-6
 Rim: 160.00 ft
 Sump: 148.10 ft

Inlet: I-10
 Rim: 160.00 ft
 Sump: 151.40 ft

Inlet: I-11
 Rim: 160.00 ft
 Sump: 151.10 ft

Outlet: Outlet
 Rim: 160.00 ft
 Sump: 145.00 ft



Pipe: P-10
 Up Invert: 151.40 ft
 Dn Invert: 151.20 ft
 Length: 34.00 ft
 Size: 18 inch

Pipe: P-11
 Up Invert: 151.10 ft
 Dn Invert: 150.76 ft
 Length: 167.00 ft
 Size: 24 inch

Pipe: P-
 Up Inve
 Dn Inve
 Length: 150.66 ft
 Size: 36 inch

Pipe: P-7
 Up Invert: 147.80 ft
 Dn Invert: 145.00 ft
 Length: 174.00 ft
 Size: 36 inch

Project Title: TYLER'S LANDING ADDITION
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Project Engineer: Baughman Company, P.A.
 StormCAD v1.0
 Page 1 of 1

The Node Report

Node	Inlet Area (acres)	Weighted Roughness Coefficient	Inlet TC (min)	System Intensity (in/hr)	Additional Flow (cfs)	Discharge (cfs)	Ground Elevation (ft)	HGL In (ft)	HGL Out (ft)
I-9	2.53	0.61	15.00	7.37	0.00	11.47	160.00	152.80	152.70
I-8	0.91	0.61	15.00	7.37	0.00	4.12	160.00	154.19	154.11
I-16	1.52	0.61	15.00	7.37	0.00	6.89	160.00	155.55	155.44
I-15	1.18	0.61	15.00	7.37	0.00	5.35	160.00	155.70	155.63
I-14	1.18	0.61	15.00	7.37	0.00	5.35	160.00	155.90	155.83
I-10	1.12	0.61	15.00	7.37	0.00	5.08	160.00	156.05	155.99
I-11	0.33	0.61	15.00	7.33	0.00	6.54	160.00	155.91	155.87
I-12	0.22	0.61	15.00	7.08	0.00	12.41	160.00	155.73	155.66
I-13	0.33	0.61	15.00	6.92	0.00	18.54	160.00	155.52	155.45
I-1	0.42	0.61	15.00	6.89	0.00	25.91	160.00	155.28	155.13
I-2	0.70	0.61	15.00	6.57	0.00	28.30	160.00	154.88	154.73
I-3	0.57	0.61	15.00	6.51	0.00	30.32	160.00	154.56	154.38
I-4	0.69	0.61	15.00	6.37	0.00	32.37	160.00	153.85	153.68
I-5	1.90	0.61	15.00	6.33	0.00	43.06	160.00	153.45	152.93
I-6	0.68	0.61	15.00	6.29	0.00	55.26	160.00	152.54	151.68
I-7	0.99	0.61	15.00	6.27	0.00	58.87	160.00	151.11	150.28
Outlet	N/A	N/A	N/A	6.23	N/A	N/A	160.00	148.94	148.94

Project Title: TYLER'S LANDING ADDITION
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The Pipe Report

Pipe	Upstream Node	Downstream Node	Discharge (cfs)	Constructed Slope (ft/ft)	Length (ft)	Section Size	Roughness	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Upstream Ground Elevation (ft)	Downstream Ground Elevation (ft)	Upstream HGL (ft)	Downstream HGL (ft)
P-9	I-9	I-6	11.47	0.007937	63.00	24 inch	0.013	148.70	148.20	160.00	160.00	152.70	152.54
P-8	I-8	I-5	4.12	0.018519	162.00	15 inch	0.013	151.50	148.50	160.00	160.00	154.11	153.45
P-16	I-16	I-1	6.89	0.005405	37.00	18 inch	0.013	150.30	150.10	160.00	160.00	155.44	155.28
P-15	I-15	I-13	5.35	0.004359	39.00	18 inch	0.013	150.60	150.43	160.00	160.00	155.63	155.52
P-14	I-14	I-12	5.35	0.005316	38.00	18 inch	0.013	151.00	150.76	160.00	160.00	155.83	155.73
P-10	I-10	I-11	5.08	0.005682	34.00	18 inch	0.013	151.40	151.20	160.00	160.00	155.99	155.91
P-11	I-11	I-12	6.54	0.002036	167.00	24 inch	0.013	151.10	150.76	160.00	160.00	155.87	155.73
P-12	I-12	I-13	12.41	0.001523	151.00	30 inch	0.013	150.66	150.43	160.00	160.00	155.66	155.52
P-13	I-13	I-1	18.54	0.001027	224.00	36 inch	0.013	150.33	150.10	160.00	160.00	155.45	155.28
P-1	I-1	I-2	25.91	0.001818	165.00	36 inch	0.013	150.00	149.70	160.00	160.00	155.13	154.88
P-2	I-2	I-3	28.30	0.002041	98.00	36 inch	0.013	149.60	149.40	160.00	160.00	154.73	154.56
P-3	I-3	I-4	30.32	0.001923	260.00	36 inch	0.013	149.30	148.80	160.00	160.00	154.38	153.85
P-4	I-4	I-5	32.37	0.001980	101.00	36 inch	0.013	148.70	148.50	160.00	160.00	153.68	153.45
P-5	I-5	I-6	43.06	0.002151	93.00	36 inch	0.013	148.40	148.20	160.00	160.00	152.93	152.64
P-6	I-6	I-7	55.26	0.002381	84.00	36 inch	0.013	148.10	147.90	160.00	160.00	151.68	151.11
P-7	I-7	Outlet	58.87	0.016092	174.00	36 inch	0.013	147.80	145.00	160.00	160.00	150.28	148.94

Project Title: TYLERS LANDING ADDITION
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 Project Engineer: Baughman Company, P.A.
 StormCAD v1.0
 Page 1 of 1

Outlet: Outlet
Rim: 160.00 ft
Sump: 145.00 ft

Inlet: I-5
Rim: 160.00 ft
Sump: 148.40 ft

Inlet: I-6
Rim: 160.00 ft
Sump: 148.10 ft

Inlet: I-7
Rim: 160.00 ft
Sump: 147.80 ft

Inlet: I-4
Rim: 160.00 ft
Sump: 148.70 ft

Inlet: I-3
Rim: 160.00 ft
Sump: 149.30 ft

Inlet: I-2
Rim: 160.00 ft
Sump: 149.60 ft

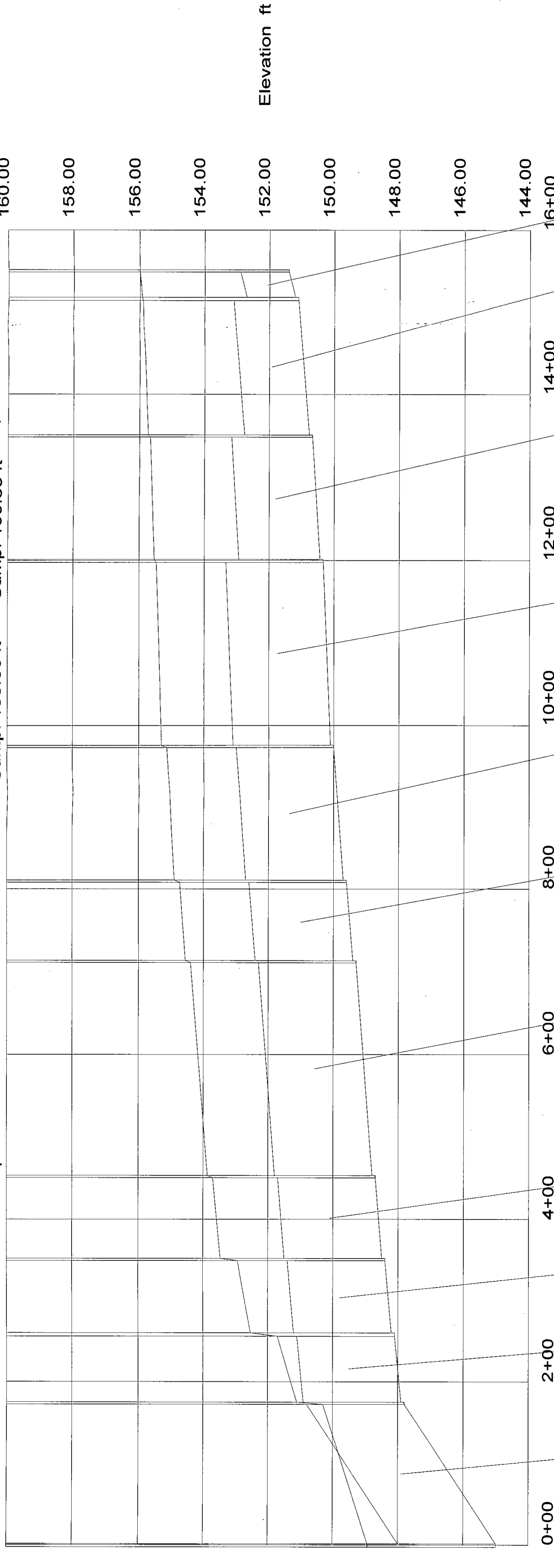
Inlet: I-1
Rim: 160.00 ft
Sump: 150.00 ft

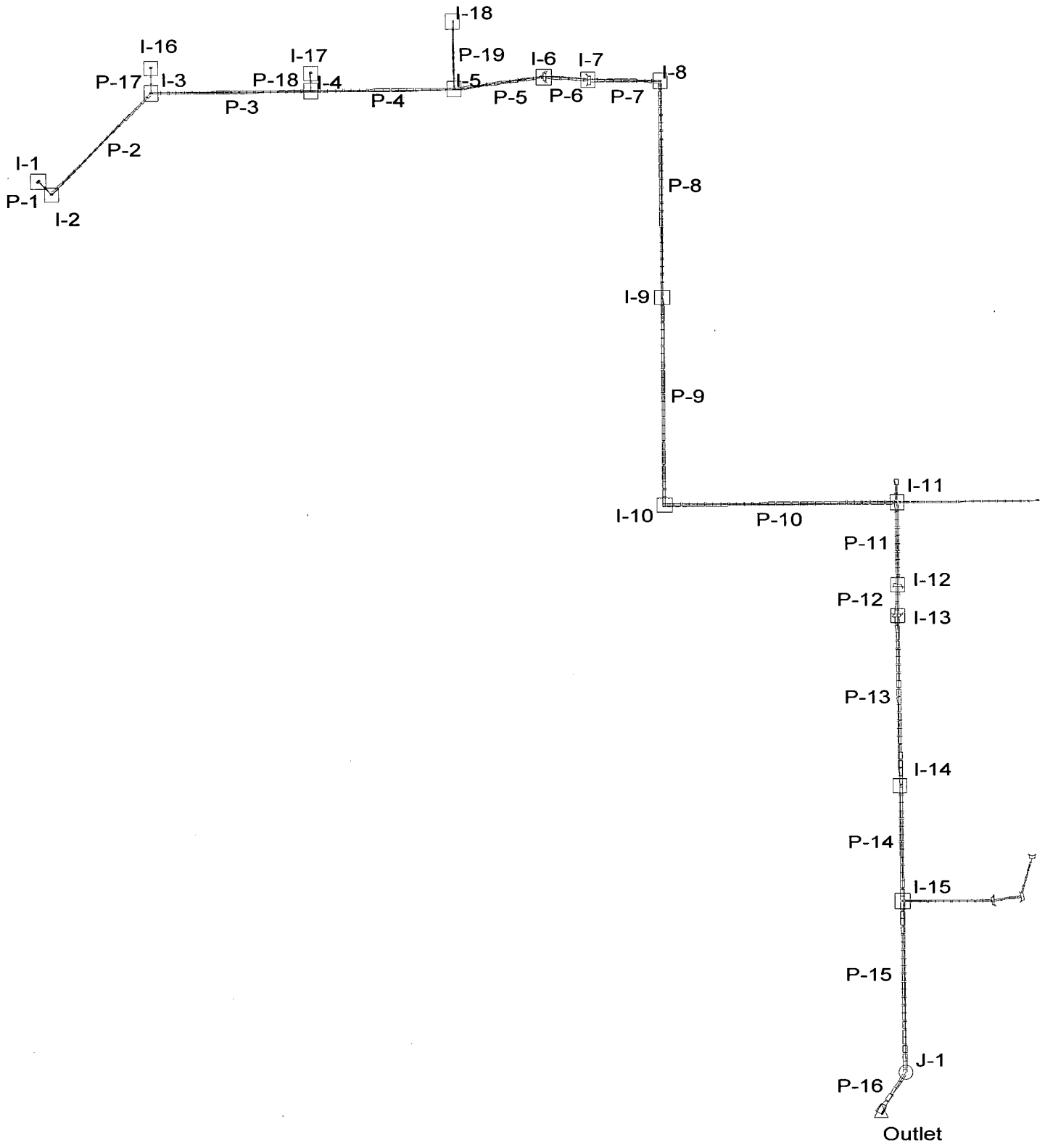
Inlet: I-13
Rim: 160.00 ft
Sump: 150.33 ft

Inlet: I-12
Rim: 160.00 ft
Sump: 150.66 ft

Inlet: I-11
Rim: 160.00 ft
Sump: 151.10 ft

Inlet: I-10
Rim: 160.00 ft
Sump: 151.40 ft



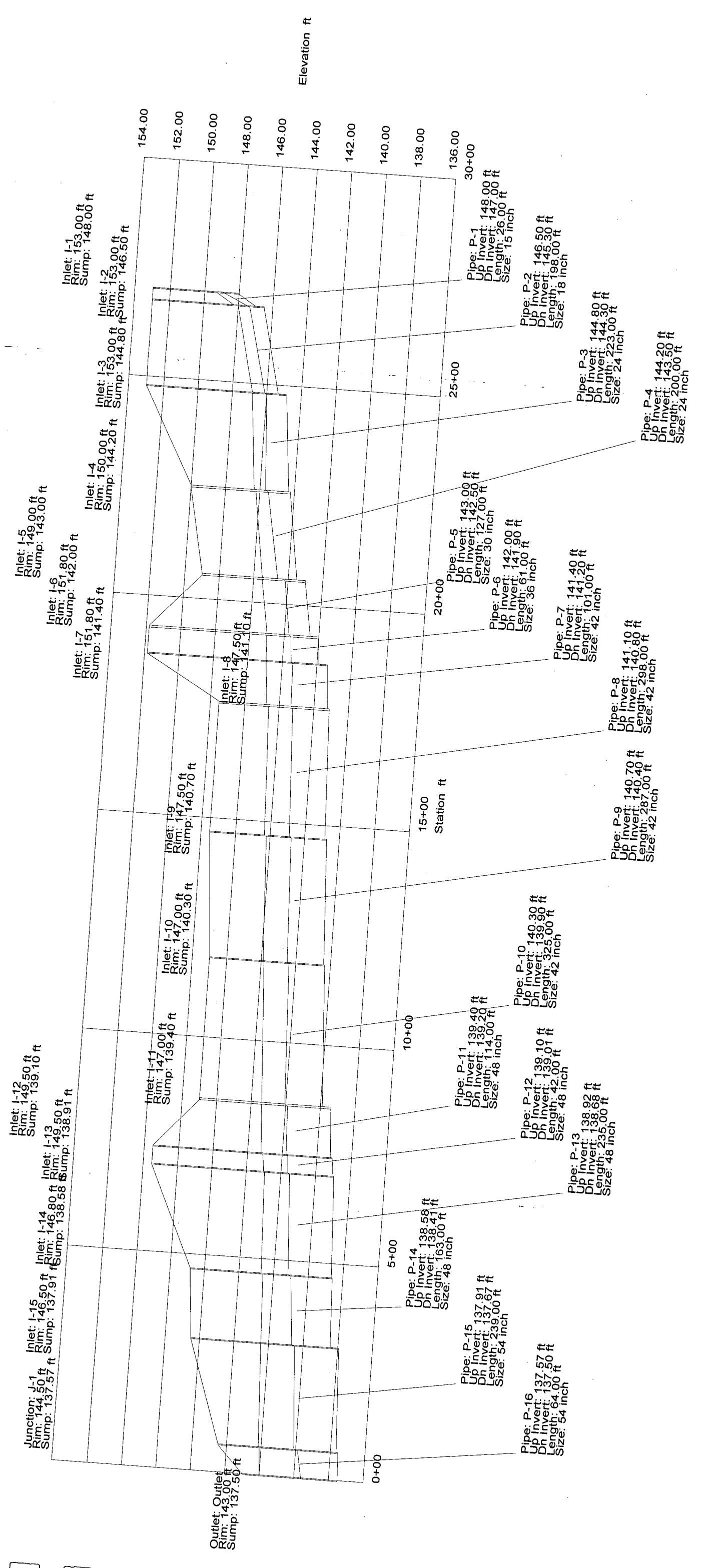


The Node Report

Node	Inlet Area (acres)	Weighted Roughness Coefficient	Inlet TC (min)	System Intensity (in/hr)	Additional Flow (cfs)	Discharge (cfs)	Ground Elevation (ft)	HGL In (ft)	HGL Out (ft)
I-18	0.23	0.61	15.00	7.37	0.00	1.04	148.50	148.55	148.55
I-17	0.53	0.91	15.00	7.37	0.00	3.58	150.00	150.00	150.00
I-16	0.53	0.91	15.00	7.37	0.00	3.58	153.00	150.98	150.91
I-1	0.99	0.91	15.00	7.37	0.00	6.69	153.00	152.76	152.53
I-2	0.38	0.61	15.00	7.35	0.00	8.40	153.00	152.25	152.07
I-3	0.17	0.61	15.00	7.22	0.00	12.51	153.00	150.81	150.68
I-4	0.46	0.61	15.00	7.05	0.00	17.64	150.00	150.00	149.77
I-5	0.53	0.61	15.00	6.95	0.00	20.64	149.00	148.55	148.42
I-6	2.30	0.61	15.00	6.87	0.00	30.12	151.80	148.10	147.95
I-7	2.96	0.61	15.00	6.83	0.00	42.39	151.80	147.83	147.68
I-8	0.40	0.61	15.00	6.77	0.00	43.67	147.50	147.50	147.50
I-9	0.50	0.61	15.00	6.60	0.00	44.61	147.50	147.50	147.50
I-10	0.64	0.61	15.00	6.45	0.00	46.14	147.00	147.00	147.00
I-11	10.34	0.63	15.00	6.30	0.00	86.43	147.00	146.77	146.40
I-12	1.19	0.61	15.00	6.27	0.00	90.53	149.50	145.99	145.58
I-13	0.23	0.61	15.00	6.25	0.00	91.23	149.50	145.42	145.01
I-14	0.95	0.61	15.00	6.18	0.00	93.82	146.80	144.06	143.63
I-15	5.12	0.61	15.00	6.14	0.00	112.41	146.50	142.93	142.54
J-1	N/A	N/A	N/A	6.07	N/A	111.20	144.50	141.75	141.25
Outlet	N/A	N/A	N/A	6.05	N/A	N/A	143.00	139.60	139.60

The Pipe Report

Pipe	Upstream Node	Downstream Node	Discharge (cfs)	Constructed Slope (ft/ft)	Length (ft)	Section Size	Roughness	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Upstream Ground Elevation (ft)	Downstream Ground Elevation (ft)	Upstream HGL (ft)	Downstream HGL (ft)
P-19	I-18	I-5	0.49	0.010638	94.00	12 inch	0.013	145.00	144.00	148.50	149.00	145.29	144.34
P-18	I-17	I-4	2.07	0.010000	25.00	15 inch	0.013	145.20	144.95	150.00	150.00	145.77	145.62
P-17	I-16	I-3	2.07	0.012857	35.00	15 inch	0.013	146.00	145.55	153.00	153.00	146.57	146.01
P-1	I-1	I-2	3.87	0.038462	26.00	15 inch	0.013	148.00	147.00	153.00	153.00	148.80	147.51
P-2	I-2	I-3	4.66	0.006061	198.00	18 inch	0.013	146.50	145.30	153.00	153.00	147.33	146.11
P-3	I-3	I-4	6.95	0.002242	223.00	24 inch	0.013	144.80	144.30	153.00	150.00	146.00	145.62
P-4	I-4	I-5	9.62	0.003500	200.00	24 inch	0.013	144.20	143.50	150.00	149.00	145.46	144.61
P-5	I-5	I-6	10.95	0.003937	127.00	30 inch	0.013	143.00	142.50	149.00	151.80	144.14	143.72
P-6	I-6	I-7	15.31	0.001639	61.00	36 inch	0.013	142.00	141.90	151.80	151.80	143.59	143.48
P-7	I-7	I-8	20.95	0.001980	101.00	42 inch	0.013	141.40	141.20	151.80	147.50	143.37	143.29
P-8	I-8	I-9	21.48	0.001007	298.00	42 inch	0.013	141.10	140.80	147.50	147.50	143.19	142.88
P-9	I-9	I-10	21.69	0.001045	287.00	42 inch	0.013	140.70	140.40	147.50	147.00	142.78	142.47
P-10	I-10	I-11	22.15	0.001231	325.00	42 inch	0.013	140.30	139.90	147.00	147.00	142.36	142.02
P-11	I-11	I-12	34.31	0.001754	114.00	48 inch	0.013	139.40	139.20	147.00	149.50	141.89	141.79
P-12	I-12	I-13	36.01	0.002143	42.00	48 inch	0.013	139.10	139.01	149.50	149.50	141.65	141.61
P-13	I-13	I-14	36.27	0.001021	235.00	48 inch	0.013	138.92	138.68	149.50	146.80	141.47	141.17
P-14	I-14	I-15	37.16	0.001043	163.00	48 inch	0.013	138.58	138.41	146.80	146.50	141.00	140.68
P-15	I-15	J-1	45.19	0.001004	239.00	54 inch	0.013	137.91	137.67	146.50	144.50	140.51	140.09
P-16	J-1	Outlet	44.47	0.001094	64.00	54 inch	0.013	137.57	137.50	144.50	143.00	139.85	139.60



Project Title: Tyler's Landing Commercial Addition
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The Node Report

Node	Inlet Area (acres)	Weighted Roughness Coefficient	Inlet TC (min)	System Intensity (in/hr)	Additional Flow (cfs)	Discharge (cfs)	Ground Elevation (ft)	HGL In (ft)	HGL Out (ft)
I-18	0.23	0.61	15.00	7.37	0.00	1.04	148.50	148.55	148.55
I-17	0.53	0.91	15.00	7.37	0.00	3.58	150.00	150.00	150.00
I-16	0.53	0.91	15.00	7.37	0.00	3.58	153.00	150.98	150.91
I-1	0.99	0.91	15.00	7.37	0.00	6.69	153.00	152.76	152.53
I-2	0.38	0.61	15.00	7.35	0.00	8.40	153.00	152.25	152.07
I-3	0.17	0.61	15.00	7.22	0.00	12.51	153.00	150.81	150.68
I-4	0.46	0.61	15.00	7.05	0.00	17.64	150.00	150.00	149.77
I-5	0.53	0.61	15.00	6.95	0.00	20.64	149.00	148.55	148.42
I-6	2.30	0.61	15.00	6.87	0.00	30.12	151.80	148.10	147.95
I-7	2.96	0.61	15.00	6.83	0.00	42.39	151.80	147.83	147.68
I-8	0.40	0.61	15.00	6.77	0.00	43.67	147.50	147.50	147.50
I-9	0.50	0.61	15.00	6.60	0.00	44.61	147.50	147.50	147.50
I-10	0.64	0.61	15.00	6.45	0.00	46.14	147.00	147.00	147.00
I-11	10.34	0.63	15.00	6.30	0.00	86.43	147.00	146.77	146.40
I-12	1.19	0.61	15.00	6.27	0.00	90.53	149.50	145.99	145.58
I-13	0.23	0.61	15.00	6.25	0.00	91.23	149.50	145.42	145.01
I-14	0.95	0.61	15.00	6.18	0.00	93.82	146.80	144.06	143.63
I-15	5.12	0.61	15.00	6.14	0.00	112.41	146.50	142.93	142.54
J-1	N/A	N/A	N/A	6.07	N/A	111.20	144.50	141.75	141.25
Outlet	N/A	N/A	N/A	6.05	N/A	N/A	143.00	139.60	139.60

The Pipe Report

Pipe	Upstream Node	Downstream Node	Discharge (cfs)	Constructed Slope (ft/ft)	Length (ft)	Section Size	Roughness	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Upstream Ground Elevation (ft)	Downstream Ground Elevation (ft)	Upstream HGL (ft)	Downstream HGL (ft)
P-19	I-18	I-5	1.04	0.010638	94.00	12 inch	0.013	145.00	144.00	148.50	149.00	148.63	148.55
P-18	I-17	I-4	3.58	0.010000	25.00	15 inch	0.013	145.20	144.95	150.00	150.00	150.08	150.00
P-17	I-16	I-3	3.58	0.012857	35.00	15 inch	0.013	146.00	145.55	153.00	153.00	150.91	150.81
P-1	I-1	I-2	6.69	0.038462	26.00	15 inch	0.013	148.00	147.00	153.00	153.00	152.53	152.25
P-2	I-2	I-3	8.40	0.006061	198.00	18 inch	0.013	146.50	145.30	153.00	153.00	152.07	150.81
P-3	I-3	I-4	12.51	0.002242	223.00	24 inch	0.013	144.80	144.30	153.00	150.00	150.68	150.00
P-4	I-4	I-5	17.64	0.003500	200.00	24 inch	0.013	144.20	143.50	150.00	149.00	149.77	148.55
P-5	I-5	I-6	20.64	0.003937	127.00	30 inch	0.013	143.00	142.50	149.00	151.80	148.42	148.10
P-6	I-6	I-7	30.12	0.001639	61.00	36 inch	0.013	142.00	141.90	151.80	151.80	147.95	147.83
P-7	I-7	I-8	42.39	0.001980	101.00	42 inch	0.013	141.40	141.20	151.80	147.50	147.68	147.50
P-8	I-8	I-9	43.67	0.001007	298.00	42 inch	0.013	141.10	140.80	147.50	147.50	148.06	147.50
P-9	I-9	I-10	44.61	0.001045	287.00	42 inch	0.013	140.70	140.40	147.50	147.00	147.56	147.00
P-10	I-10	I-11	46.14	0.001231	325.00	42 inch	0.013	140.30	139.90	147.00	147.00	147.45	146.77
P-11	I-11	I-12	86.43	0.001754	114.00	48 inch	0.013	139.40	139.20	147.00	149.50	146.40	145.99
P-12	I-12	I-13	90.53	0.002143	42.00	48 inch	0.013	139.10	139.01	149.50	149.50	145.58	145.42
P-13	I-13	I-14	91.23	0.001021	235.00	48 inch	0.013	138.92	138.68	149.50	146.80	145.01	144.06
P-14	I-14	I-15	93.82	0.001043	163.00	48 inch	0.013	138.58	138.41	146.80	146.50	143.63	142.93
P-15	I-15	J-1	112.41	0.001004	239.00	54 inch	0.013	137.91	137.67	146.50	144.50	142.54	141.75
P-16	J-1	Outlet	111.20	0.001094	64.00	54 inch	0.013	137.57	137.50	144.50	143.00	141.25	140.60

Inlet: I-6
Rim: 151.80 ft
Sump: 142.00 ft

Inlet: I-7
Rim: 151.80 ft
Sump: 141.40 ft

Inlet: I-8
Rim: 149.00 ft
Sump: 143.00 ft

Inlet: I-9
Rim: 150.00 ft
Sump: 144.20 ft

Inlet: I-10
Rim: 147.00 ft
Sump: 140.70 ft

Inlet: I-11
Rim: 147.00 ft
Sump: 140.30 ft

Inlet: I-12
Rim: 149.50 ft
Sump: 139.10 ft

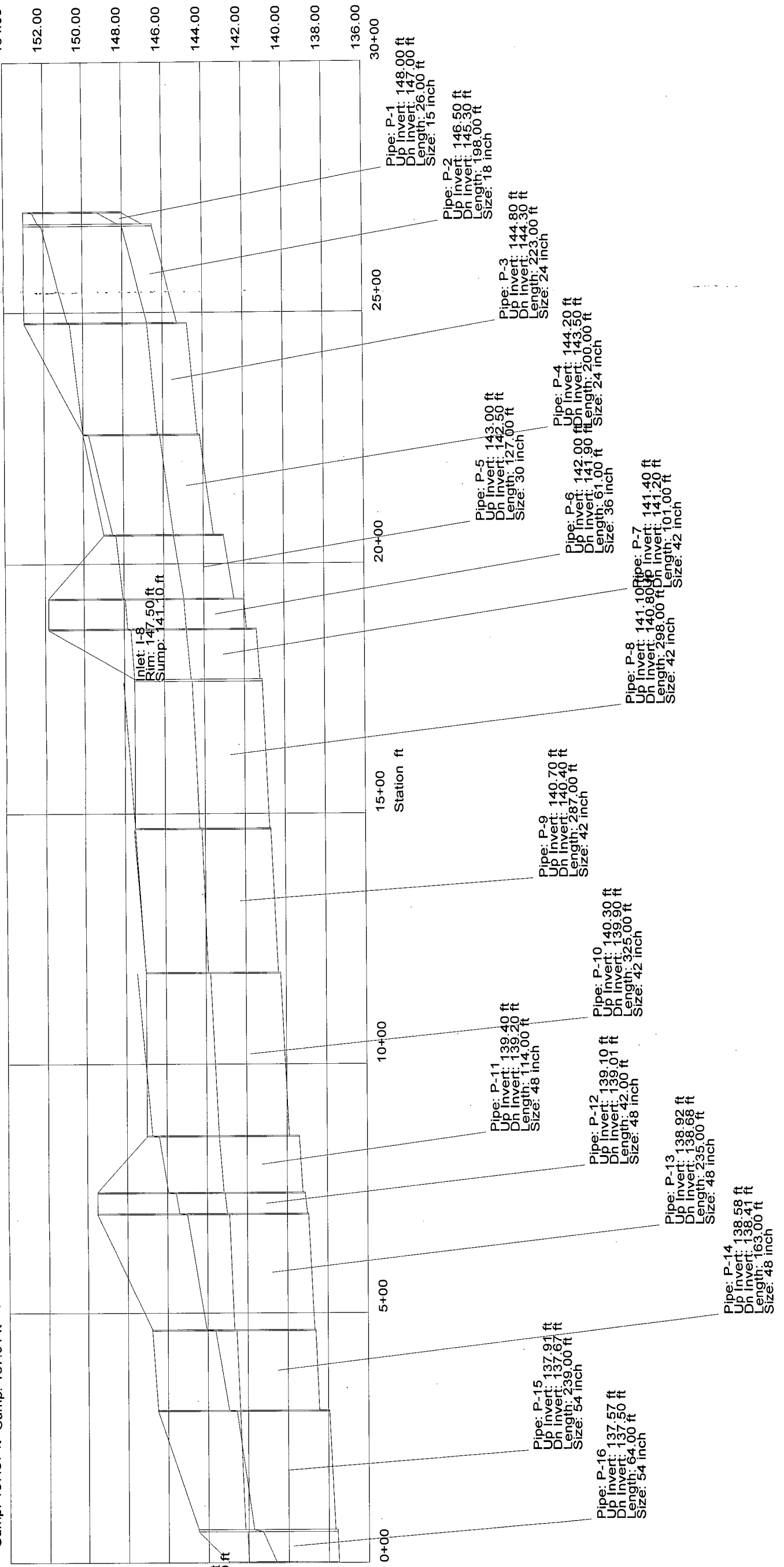
Inlet: I-13
Rim: 146.50 ft
Sump: 138.91 ft

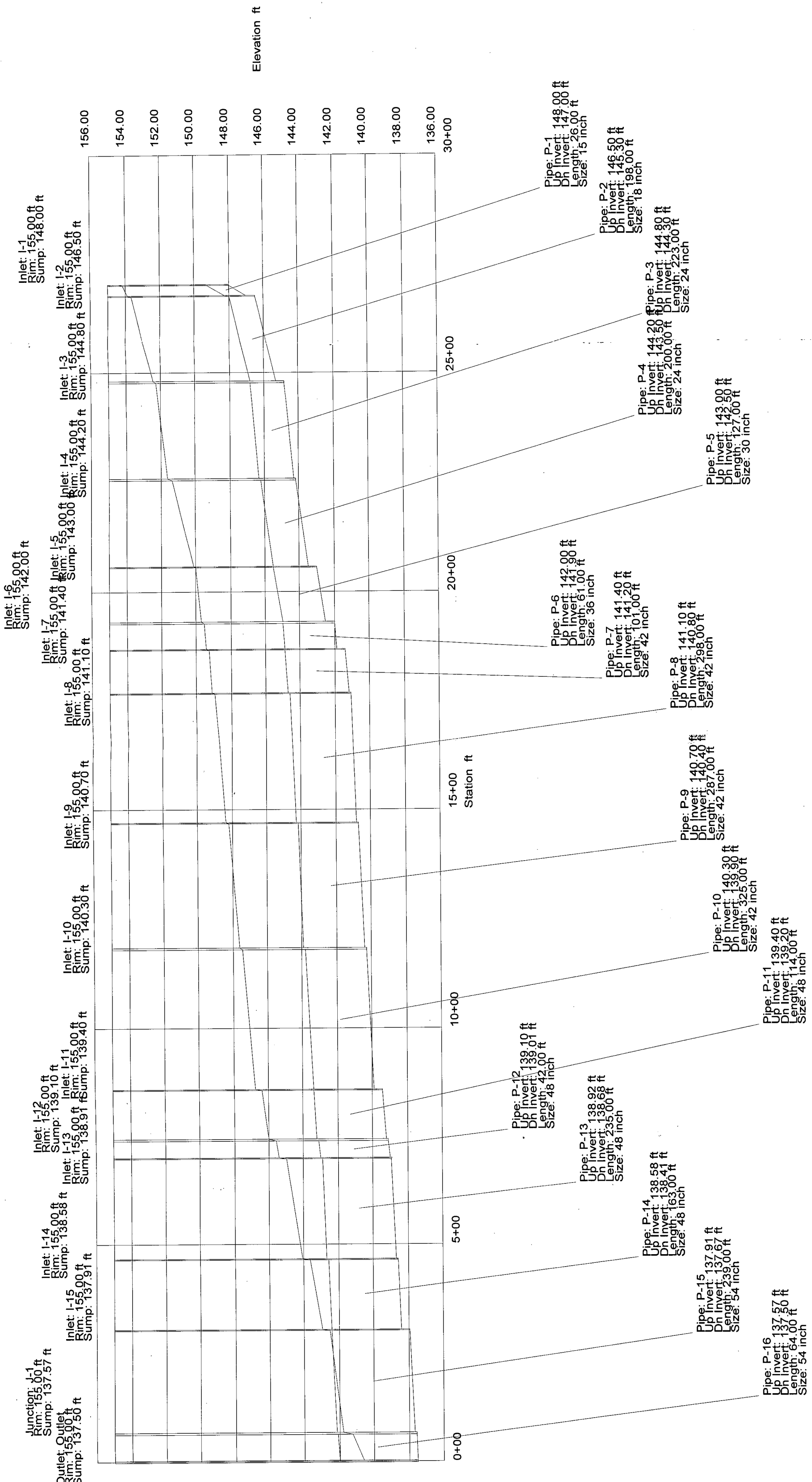
Inlet: I-14
Rim: 146.50 ft
Sump: 138.58 ft

Inlet: I-15
Rim: 137.91 ft
Sump: 137.91 ft

Junction: J-1
Rim: 144.50 ft
Sump: 137.57 ft

Outlet: Outlet
Rim: 137.50 ft
Sump: 137.50 ft





Junction: 0+00
 Inlet: 155.00 ft
 Rim: 137.57 ft
 Sump: 137.57 ft
 Outlet: 137.50 ft
 Rim: 155.00 ft
 Sump: 137.50 ft

Inlet: I-14
 Rim: 155.00 ft
 Sump: 138.98 ft
 Inlet: I-15
 Rim: 155.00 ft
 Sump: 138.91 ft
 Inlet: I-1
 Rim: 155.00 ft
 Sump: 148.00 ft
 Inlet: I-2
 Rim: 155.00 ft
 Sump: 146.50 ft
 Inlet: I-3
 Rim: 155.00 ft
 Sump: 144.80 ft
 Inlet: I-4
 Rim: 155.00 ft
 Sump: 144.20 ft
 Inlet: I-5
 Rim: 155.00 ft
 Sump: 143.00 ft
 Inlet: I-6
 Rim: 155.00 ft
 Sump: 142.00 ft
 Inlet: I-7
 Rim: 155.00 ft
 Sump: 141.40 ft
 Inlet: I-8
 Rim: 155.00 ft
 Sump: 141.10 ft
 Inlet: I-9
 Rim: 155.00 ft
 Sump: 140.70 ft
 Inlet: I-10
 Rim: 155.00 ft
 Sump: 140.30 ft
 Inlet: I-11
 Rim: 155.00 ft
 Sump: 139.40 ft
 Inlet: I-12
 Rim: 155.00 ft
 Sump: 139.10 ft
 Inlet: I-13
 Rim: 155.00 ft
 Sump: 138.40 ft

Pipe: P-1
 Up Invert: 149.00 ft
 Dn Invert: 146.50 ft
 Length: 26.00 ft
 Size: 15 inch

Pipe: P-2
 Up Invert: 145.30 ft
 Dn Invert: 144.30 ft
 Length: 18.00 ft
 Size: 18 inch

Pipe: P-3
 Up Invert: 144.80 ft
 Dn Invert: 144.30 ft
 Length: 14.00 ft
 Size: 24 inch

Pipe: P-4
 Up Invert: 143.50 ft
 Dn Invert: 143.00 ft
 Length: 200.00 ft
 Size: 24 inch

Pipe: P-5
 Up Invert: 143.00 ft
 Dn Invert: 142.50 ft
 Length: 14.00 ft
 Size: 30 inch

Pipe: P-6
 Up Invert: 142.00 ft
 Dn Invert: 141.90 ft
 Length: 61.00 ft
 Size: 36 inch

Pipe: P-7
 Up Invert: 141.40 ft
 Dn Invert: 141.00 ft
 Length: 10.00 ft
 Size: 42 inch

Pipe: P-8
 Up Invert: 141.10 ft
 Dn Invert: 140.60 ft
 Length: 24.00 ft
 Size: 42 inch

Pipe: P-9
 Up Invert: 140.70 ft
 Dn Invert: 137.00 ft
 Length: 37.00 ft
 Size: 42 inch

Pipe: P-10
 Up Invert: 138.30 ft
 Dn Invert: 137.00 ft
 Length: 32.50 ft
 Size: 42 inch

Pipe: P-11
 Up Invert: 139.40 ft
 Dn Invert: 139.00 ft
 Length: 14.00 ft
 Size: 48 inch

Pipe: P-12
 Up Invert: 139.10 ft
 Dn Invert: 138.01 ft
 Length: 12.00 ft
 Size: 48 inch

Pipe: P-13
 Up Invert: 138.98 ft
 Dn Invert: 135.00 ft
 Length: 235.00 ft
 Size: 48 inch

Pipe: P-14
 Up Invert: 138.98 ft
 Dn Invert: 133.00 ft
 Length: 63.00 ft
 Size: 48 inch

Pipe: P-15
 Up Invert: 137.91 ft
 Dn Invert: 137.67 ft
 Length: 239.00 ft
 Size: 54 inch

Pipe: P-16
 Up Invert: 137.57 ft
 Dn Invert: 137.00 ft
 Length: 64.00 ft
 Size: 54 inch