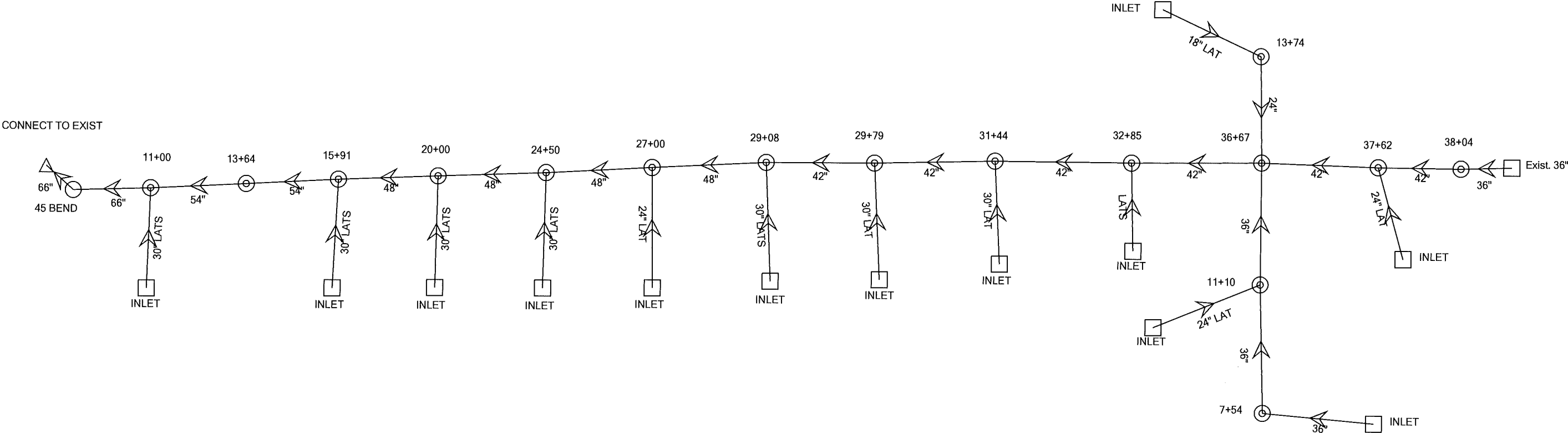


Scenario: Base



## Calculation Detailed Summary

Element Details		
ID	13	Notes
Label	Base Calculation Options	

Hydraulic Summary			
Flow Profile Method	Backwater Analysis	Average Velocity Method	Actual Uniform Flow Velocity
Number of Flow Profile Steps	5	Minimum Structure Headloss	0.00 ft
Hydraulic Grade Convergence Test	0.001 ft	Minimum Time of Concentration	5.000 min

Inlets			
Neglect Side Flow?	False	Active Components for Combination Inlets In Sag	Grate and Curb
Neglect Gutter Cross Slope For Side Flow?	True	Active Components for Combination Inlets on Grade	Grate and Curb

HEC-22			
Elevations Considered Equal Within	0.50 ft	Depressed Unsubmerged	1.000
Consider Non-Piped Plunging Flow	False	Half Bench Submerged	0.950
Flat Submerged	1.000	Half Bench Unsubmerged	0.150
Flat Unsubmerged	1.000	Full Bench Submerged	0.750
Depressed Submerged	1.000	Full Bench Unsubmerged	0.070

AASHTO			
Expansion, Ke	0.350	Shaping Adjustment, Cs	0.500
Contraction, Kc	0.250	Non-Piped Flow Adjustment, Cn	1.300

### Bend Angle vs. Bend Loss Curve

Bend Angle (degrees)	Bend Loss Coefficient, Kb
0.00	0.000
15.00	0.190
30.00	0.350
45.00	0.470
60.00	0.560
75.00	0.640
90.00	0.700

Generic Structure Loss	
Governing Upstream Pipe Selection Method	Pipe with Maximum QV

## Calculation Detailed Summary

### Catchment Summary

Label	Area (acres)	Time of Concentration (min)	Rational C	Catchment CA (acres)	Catchment Intensity (in/h)	Catchment Rational Flow (ft <sup>3</sup> /s)
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### Conduit Summary

Label	Conduit Description	Conduit Shape	Branch ID	Subnetwork Outfall	Flow (Link) (ft <sup>3</sup> /s)	Velocity (Average) (ft/s)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Depth (In Link) (ft)	Depth (Out Link) (ft)
54"	Circular Pipe - 54.0 in	Circular Pipe	1	CONNECT TO EXIST	225.23	14.16	5,234.62	5,231.15	5.05	8.22
54"	Circular Pipe - 54.0 in	Circular Pipe	1	CONNECT TO EXIST	225.23	21.75	5,239.36	5,236.50	4.18	6.93
48"	Circular Pipe - 48.0 in	Circular Pipe	2	CONNECT TO EXIST	205.13	21.86	5,250.95	5,241.83	3.86	6.65
48"	Circular Pipe - 48.0 in	Circular Pipe	3	CONNECT TO EXIST	185.33	21.40	5,263.93	5,253.45	3.80	6.36
48"	Circular Pipe - 48.0 in	Circular Pipe	4	CONNECT TO EXIST	165.23	21.30	5,271.44	5,265.93	3.70	5.80
48"	Circular Pipe - 48.0 in	Circular Pipe	5	CONNECT TO EXIST	159.93	20.21	5,277.05	5,273.08	3.67	5.34
42"	Circular Pipe - 42.0 in	Circular Pipe	6	CONNECT TO EXIST	153.33	15.94	5,280.93	5,279.26	5.01	5.74
42"	Circular Pipe - 42.0 in	Circular Pipe	7	CONNECT TO EXIST	142.93	14.86	5,286.50	5,283.17	6.40	7.25
42"	Circular Pipe - 42.0 in	Circular Pipe	8	CONNECT TO EXIST	135.73	14.11	5,290.84	5,288.51	7.40	8.41
42"	Circular Pipe - 42.0 in	Circular Pipe	9	CONNECT TO EXIST	133.63	13.89	5,298.31	5,292.70	5.80	9.26
42"	Circular Pipe - 42.0 in	Circular Pipe	12	CONNECT TO EXIST	71.40	23.17	5,301.59	5,300.27	2.65	7.76
24"	Circular Pipe - 24.0 in	Circular Pipe	11	CONNECT TO EXIST	1.33	0.42	5,300.27	5,300.27	4.16	5.16
36"	Circular Pipe - 36.0 in	Circular Pipe	9	CONNECT TO EXIST	60.90	8.62	5,301.64	5,300.27	5.54	5.51
36"	Circular Pipe - 36.0 in	Circular Pipe	10	CONNECT TO EXIST	57.50	8.13	5,304.95	5,302.31	6.51	6.21
30" LATS	Circular Pipe - 30.0 in	Circular Pipe	14	CONNECT TO EXIST	26.80	5.46	5,231.40	5,231.15	3.81	5.05
66"	Circular Pipe - 66.0 in	Circular Pipe	1	CONNECT TO EXIST	252.03	10.61	5,229.29	5,228.97	6.36	7.58
66"	Circular Pipe - 66.0 in	Circular Pipe	1	CONNECT TO EXIST	252.03	10.61	5,228.73	5,228.62	7.34	7.62
30" LATS	Circular Pipe - 30.0 in	Circular Pipe	1	CONNECT TO EXIST	20.10	4.09	5,241.86	5,241.83	3.04	3.31
30" LATS	Circular Pipe - 30.0 in	Circular Pipe	2	CONNECT TO EXIST	19.80	11.46	5,253.30	5,253.45	1.51	1.95
30" LATS	Circular Pipe - 30.0 in	Circular Pipe	3	CONNECT TO EXIST	20.10	11.06	5,265.93	5,265.93	2.26	2.52
24" LAT	Circular Pipe - 24.0 in	Circular Pipe	4	CONNECT TO EXIST	5.30	8.16	5,273.06	5,273.08	1.42	1.74

## Calculation Detailed Summary

### Conduit Summary

Label	Conduit Description	Conduit Shape	Branch ID	Subnetwork Outfall	Flow (Link) (ft <sup>3</sup> /s)	Velocity (Average) (ft/s)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Depth (In Link) (ft)	Depth (Out Link) (ft)
30" LATS	Circular Pipe - 30.0 in	Circular Pipe	5	CONNECT TO EXIST	6.60	6.94	5,279.25	5,279.26	1.74	1.92
30" LAT	Circular Pipe - 30.0 in	Circular Pipe	6	CONNECT TO EXIST	10.40	2.12	5,283.21	5,283.17	4.62	5.55
30" LAT	Circular Pipe - 30.0 in	Circular Pipe	7	CONNECT TO EXIST	7.20	1.47	5,288.53	5,288.51	4.74	5.76
LATS	Circular Pipe - 24.0 in	Circular Pipe	8	CONNECT TO EXIST	2.10	4.18	5,292.68	5,292.70	0.80	1.33
18" LAT	Circular Pipe - 18.0 in	Circular Pipe	11	CONNECT TO EXIST	1.33	5.16	5,303.37	5,302.86	0.43	0.31
24" LAT	Circular Pipe - 30.0 in	Circular Pipe	13	CONNECT TO EXIST	1.40	5.09	5,304.60	5,303.96	0.38	0.26
36"	Circular Pipe - 36.0 in	Circular Pipe	10	CONNECT TO EXIST	57.50	8.13	5,306.65	5,306.26	6.96	7.82
24" LAT	Circular Pipe - 24.0 in	Circular Pipe	9	CONNECT TO EXIST	3.40	8.49	5,302.30	5,302.31	1.34	2.52
42"	Circular Pipe - 42.0 in	Circular Pipe	12	CONNECT TO EXIST	70.00	22.06	5,304.08	5,302.23	2.62	3.29
36"	Circular Pipe - 36.0 in	Circular Pipe	12	CONNECT TO EXIST	70.00	38.39	5,305.00	5,304.98	3.00	3.52

### Node Summary

Label	Element Type	Subnetwork Outfall	Flow (Total Surface) (ft <sup>3</sup> /s)	Flow (Total Out) (ft <sup>3</sup> /s)	Elevation (Ground) (ft)	Elevation (Invert) (ft)	Energy Grade Line (In Node) (ft)	Energy Grade Line (Out Node) (ft)
11+00	Manhole	CONNECT TO EXIST	0.00	252.03	5,232.13	5,222.93	5,234.26	5,231.04
13+64	Manhole	CONNECT TO EXIST	0.00	225.23	5,239.53	5,229.57	5,239.61	5,237.74
15+91	Manhole	CONNECT TO EXIST	0.00	225.23	5,245.59	5,235.18	5,242.09	5,242.68
20+00	Manhole	CONNECT TO EXIST	0.00	205.13	5,257.36	5,247.09	5,253.81	5,255.18
24+50	Manhole	CONNECT TO EXIST	0.00	185.33	5,269.23	5,260.13	5,266.19	5,267.44
27+00	Manhole	CONNECT TO EXIST	0.00	165.23	5,277.60	5,267.74	5,273.13	5,274.32
29+08	Manhole	CONNECT TO EXIST	0.00	159.93	5,283.61	5,273.38	5,279.30	5,279.78
29+79	Manhole	CONNECT TO EXIST	0.00	153.33	5,284.75	5,275.92	5,283.24	5,284.87
31+44	Manhole	CONNECT TO EXIST	0.00	142.93	5,290.09	5,280.10	5,288.55	5,289.93
32+85	Manhole	CONNECT TO EXIST	0.00	135.73	5,295.64	5,283.44	5,292.71	5,293.94
36+67	Manhole	CONNECT TO EXIST	0.00	133.63	5,307.77	5,292.51	5,301.42	5,301.31
37+62	Manhole	CONNECT TO EXIST	0.00	71.40	5,310.02	5,298.94	5,303.09	5,302.89
13+74	Manhole	CONNECT TO EXIST	0.00	1.33	5,306.27	5,296.11	5,300.66	5,300.28
11+10	Manhole	CONNECT TO EXIST	0.00	60.90	5,306.00	5,296.10	5,302.33	5,302.79
7+54	Manhole	CONNECT TO EXIST	0.00	57.50	5,308.52	5,298.44	5,307.29	5,305.98
INLET	Catch Basin	CONNECT TO EXIST	26.80	26.80	5,232.00	5,227.59	5,232.02	5,231.87
45 BEND	Transition	CONNECT TO EXIST	0.00	252.03	5,229.40	5,221.39	5,230.72	5,230.48
INLET	Catch Basin	CONNECT TO EXIST	20.10	20.10	5,245.00	5,238.82	5,242.20	5,242.12
INLET	Catch Basin	CONNECT TO EXIST	19.80	19.80	5,257.00	5,251.79	5,254.14	5,253.93
INLET	Catch Basin	CONNECT TO EXIST	20.10	20.10	5,269.00	5,263.67	5,266.31	5,266.22
INLET	Catch Basin	CONNECT TO EXIST	5.30	5.30	5,276.00	5,271.64	5,273.16	5,273.14

### Calculation Detailed Summary

#### Node Summary

Label	Element Type	Subnetwork Outfall	Flow (Total Surface) (ft <sup>3</sup> /s)	Flow (Total Out) (ft <sup>3</sup> /s)	Elevation (Ground) (ft)	Elevation (Invert) (ft)	Energy Grade Line (In Node) (ft)	Energy Grade Line (Out Node) (ft)
INLET	Catch Basin	CONNECT TO EXIST	6.60	6.60	5,282.00	5,277.51	5,279.32	5,279.30
INLET	Catch Basin	CONNECT TO EXIST	10.40	10.40	5,284.00	5,278.58	5,283.30	5,283.27
INLET	Catch Basin	CONNECT TO EXIST	7.20	7.20	5,290.00	5,283.79	5,288.57	5,288.56
INLET	Catch Basin	CONNECT TO EXIST	2.10	2.10	5,296.88	5,291.88	5,292.75	5,292.73
INLET	Catch Basin	CONNECT TO EXIST	1.33	1.33	5,306.25	5,302.94	5,303.58	5,303.53
INLET	Catch Basin	CONNECT TO EXIST	1.40	1.40	5,310.32	5,304.22	5,304.78	5,304.74
INLET	Catch Basin	CONNECT TO EXIST	57.50	57.50	5,310.69	5,299.69	5,308.01	5,307.68
INLET	Catch Basin	CONNECT TO EXIST	3.40	3.40	5,306.34	5,300.96	5,302.35	5,302.33
38+04	Manhole	CONNECT TO EXIST	0.00	70.00	5,311.08	5,301.46	5,306.50	5,305.36
Exist. 36"	Catch Basin	CONNECT TO EXIST	70.00	70.00	5,311.00	5,302.00	5,307.02	5,306.52

#### Inlet Summary

Label	Inlet Type	Catalog Inlet Type	Catalog Inlet	Flow (Total Intercepted) (ft <sup>3</sup> /s)	Flow (Total Bypassed) (ft <sup>3</sup> /s)	Bypass Target	Capture Efficiency (Calculated) (%)	Gutter Depth (in)	Gutter Spread (ft)
INLET	(N/A)	(N/A)	(N/A)	0.00	0.00	(N/A)	100.0	0.0	0.0
INLET	(N/A)	(N/A)	(N/A)	0.00	0.00	(N/A)	100.0	0.0	0.0
INLET	(N/A)	(N/A)	(N/A)	0.00	0.00	(N/A)	100.0	0.0	0.0
INLET	(N/A)	(N/A)	(N/A)	0.00	0.00	(N/A)	100.0	0.0	0.0
INLET	(N/A)	(N/A)	(N/A)	0.00	0.00	(N/A)	100.0	0.0	0.0
INLET	(N/A)	(N/A)	(N/A)	0.00	0.00	(N/A)	100.0	0.0	0.0
INLET	(N/A)	(N/A)	(N/A)	0.00	0.00	(N/A)	100.0	0.0	0.0
INLET	(N/A)	(N/A)	(N/A)	0.00	0.00	(N/A)	100.0	0.0	0.0
INLET	(N/A)	(N/A)	(N/A)	0.00	0.00	(N/A)	100.0	0.0	0.0
INLET	(N/A)	(N/A)	(N/A)	0.00	0.00	(N/A)	100.0	0.0	0.0
INLET	(N/A)	(N/A)	(N/A)	0.00	0.00	(N/A)	100.0	0.0	0.0
INLET	(N/A)	(N/A)	(N/A)	0.00	0.00	(N/A)	100.0	0.0	0.0
INLET	(N/A)	(N/A)	(N/A)	0.00	0.00	(N/A)	100.0	0.0	0.0
INLET	(N/A)	(N/A)	(N/A)	0.00	0.00	(N/A)	100.0	0.0	0.0
Exist. 36"	(N/A)	(N/A)	(N/A)	0.00	0.00	(N/A)	100.0	0.0	0.0