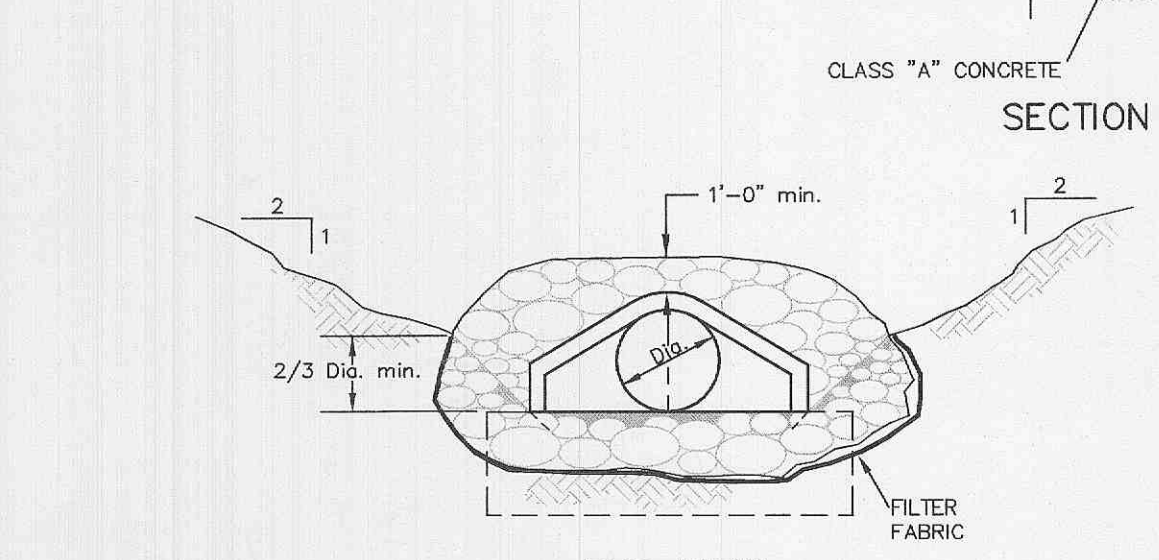
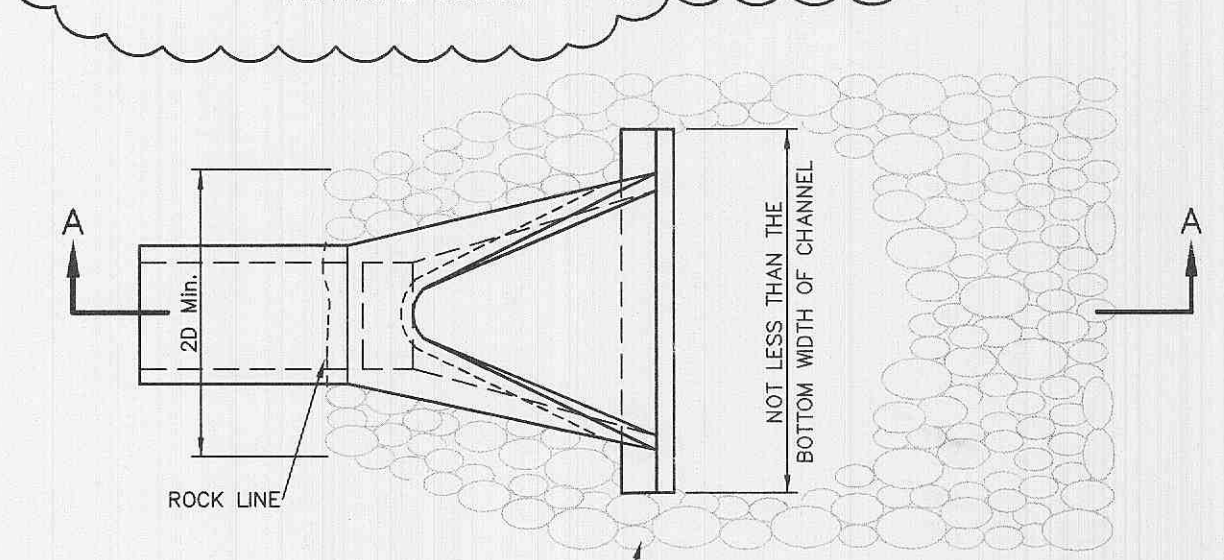
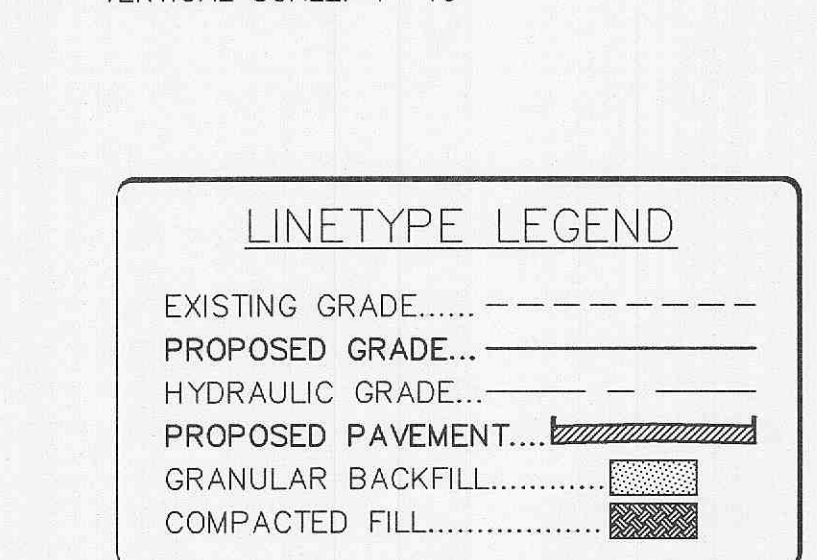
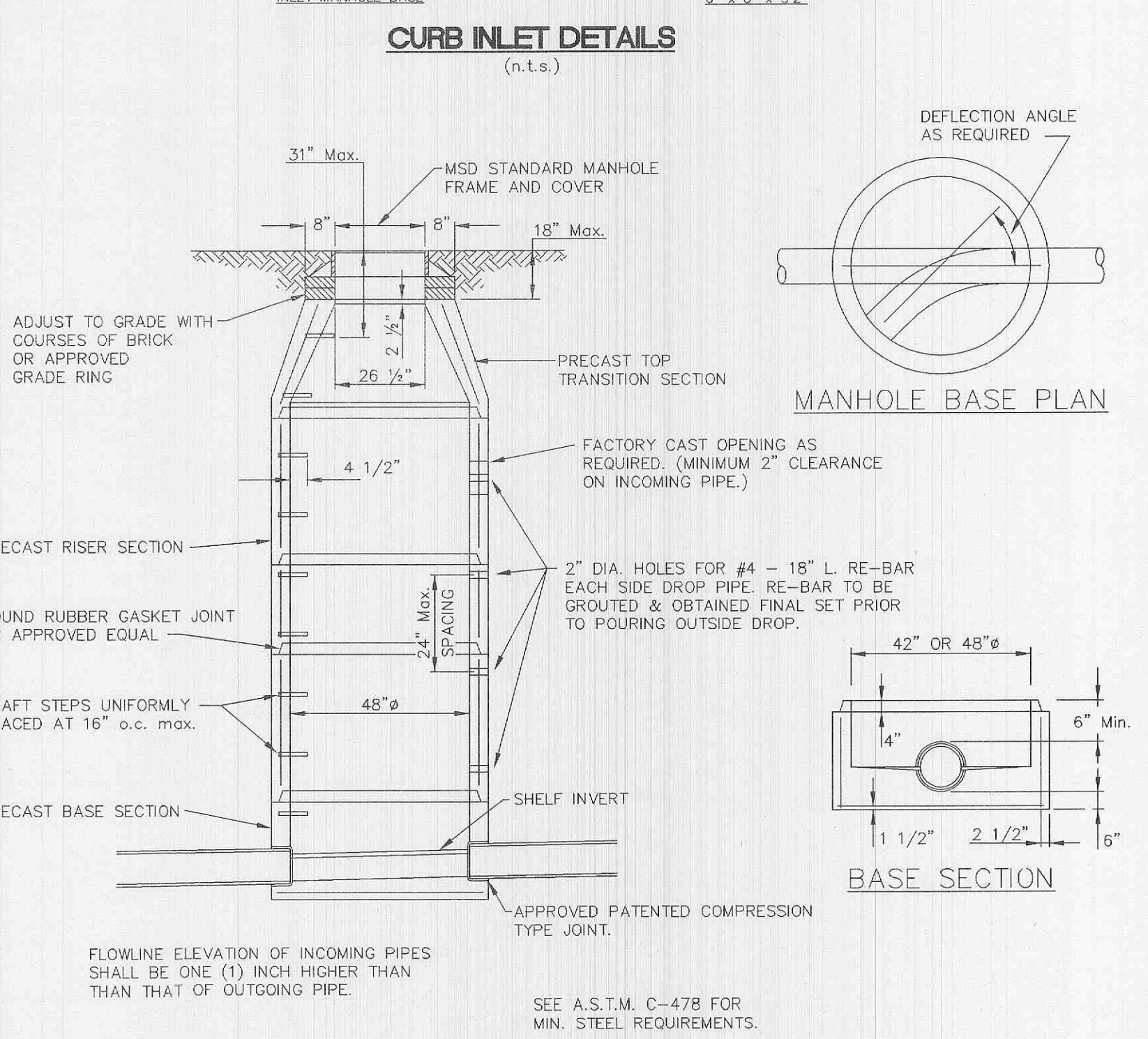
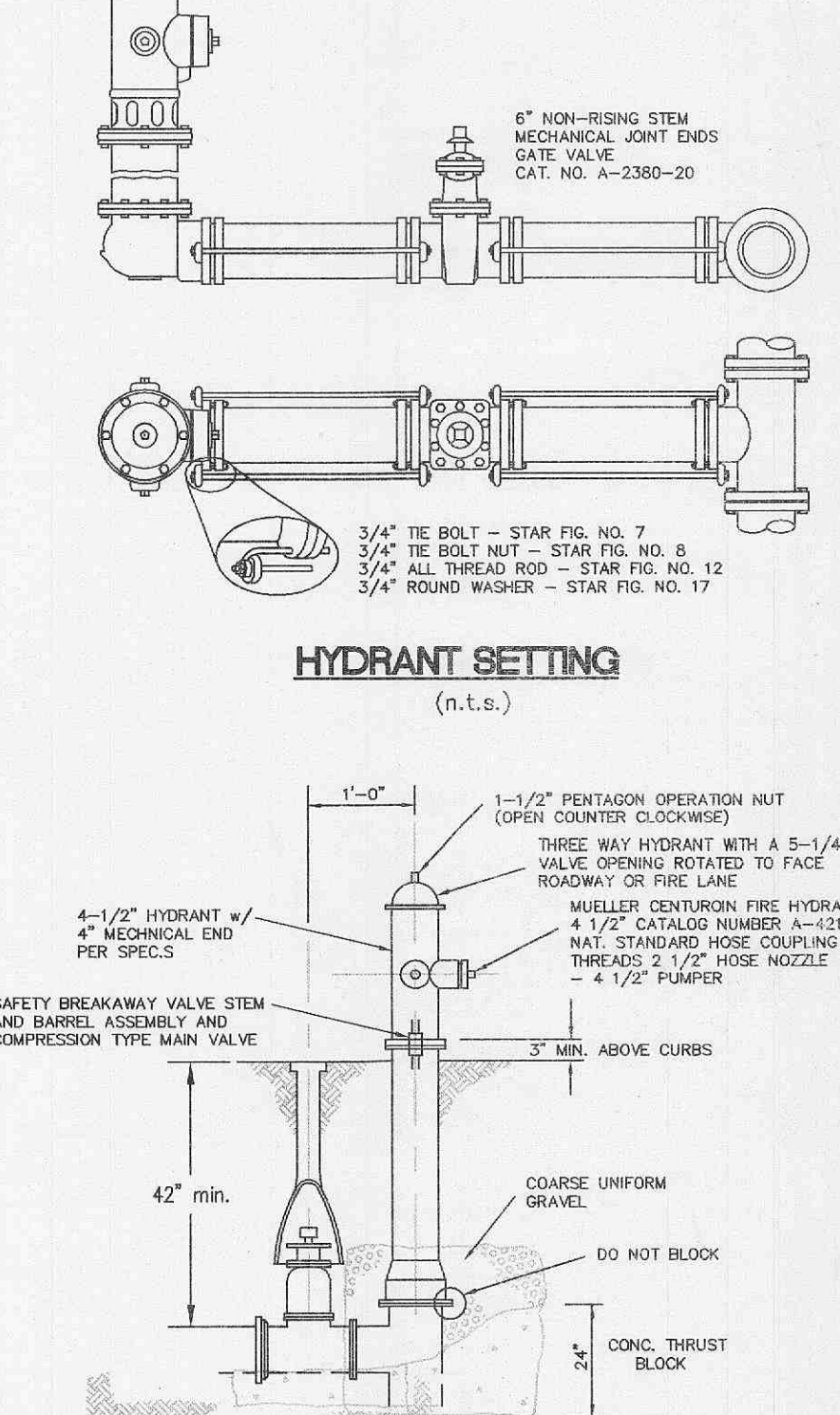
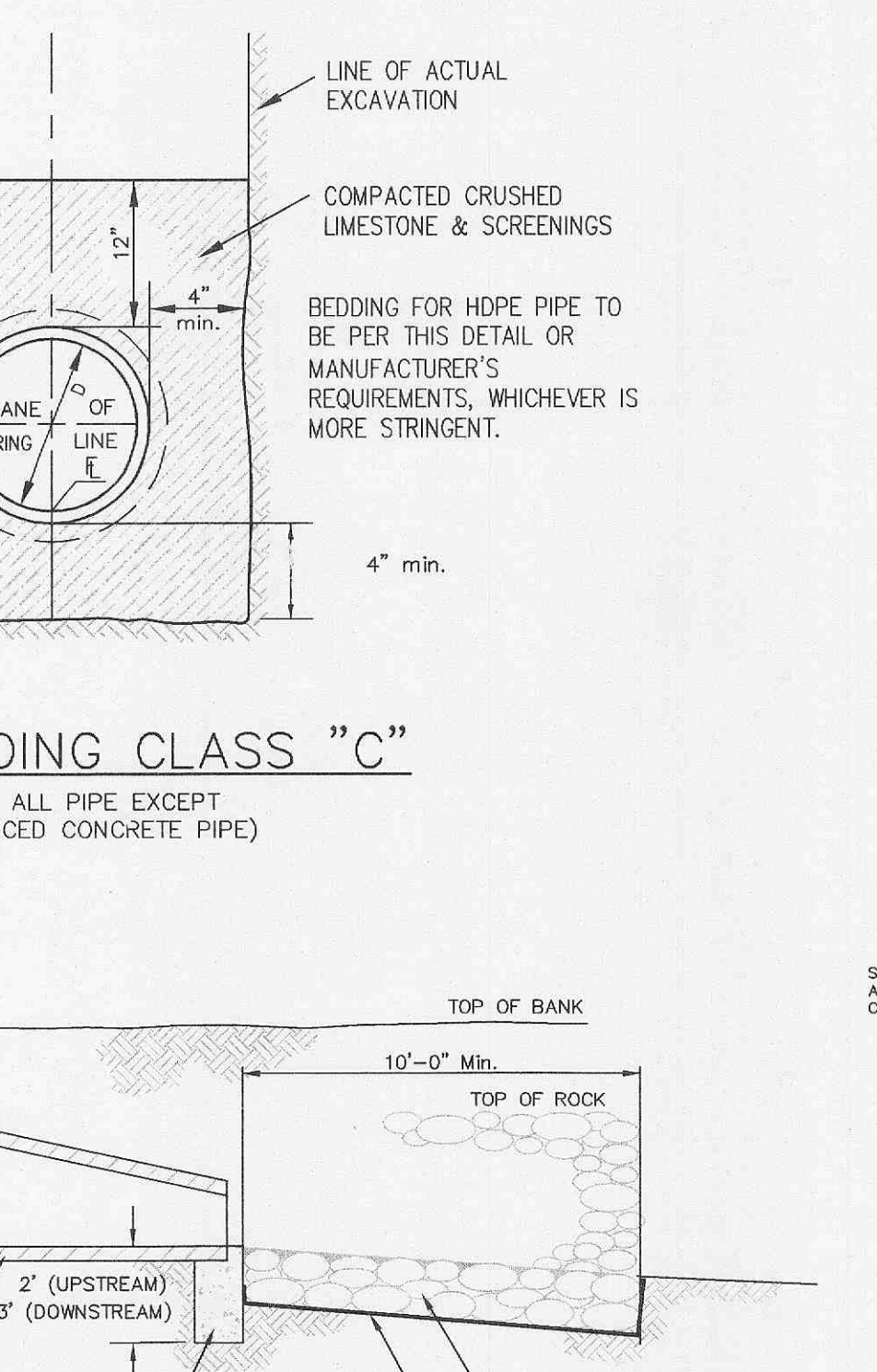
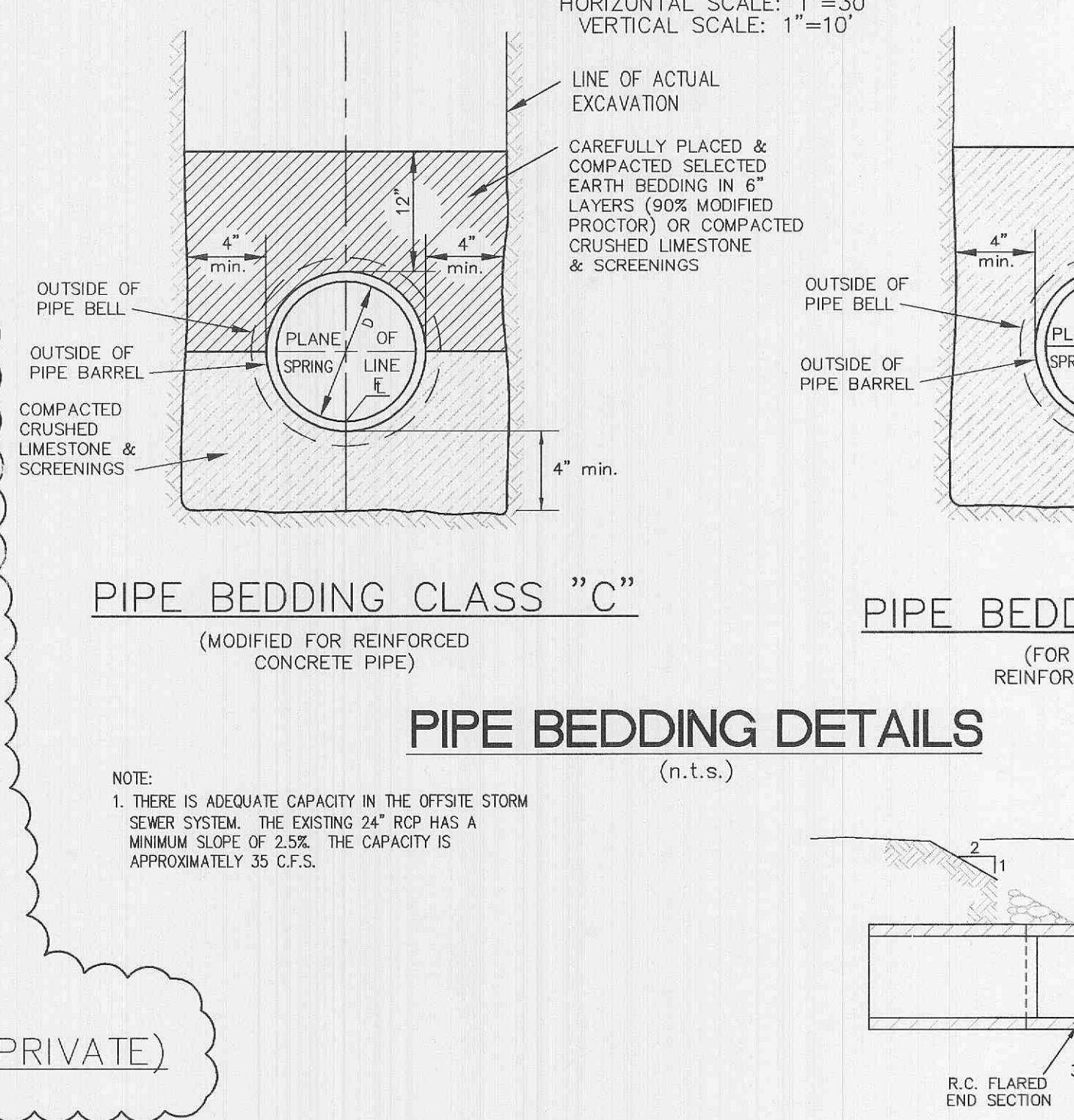
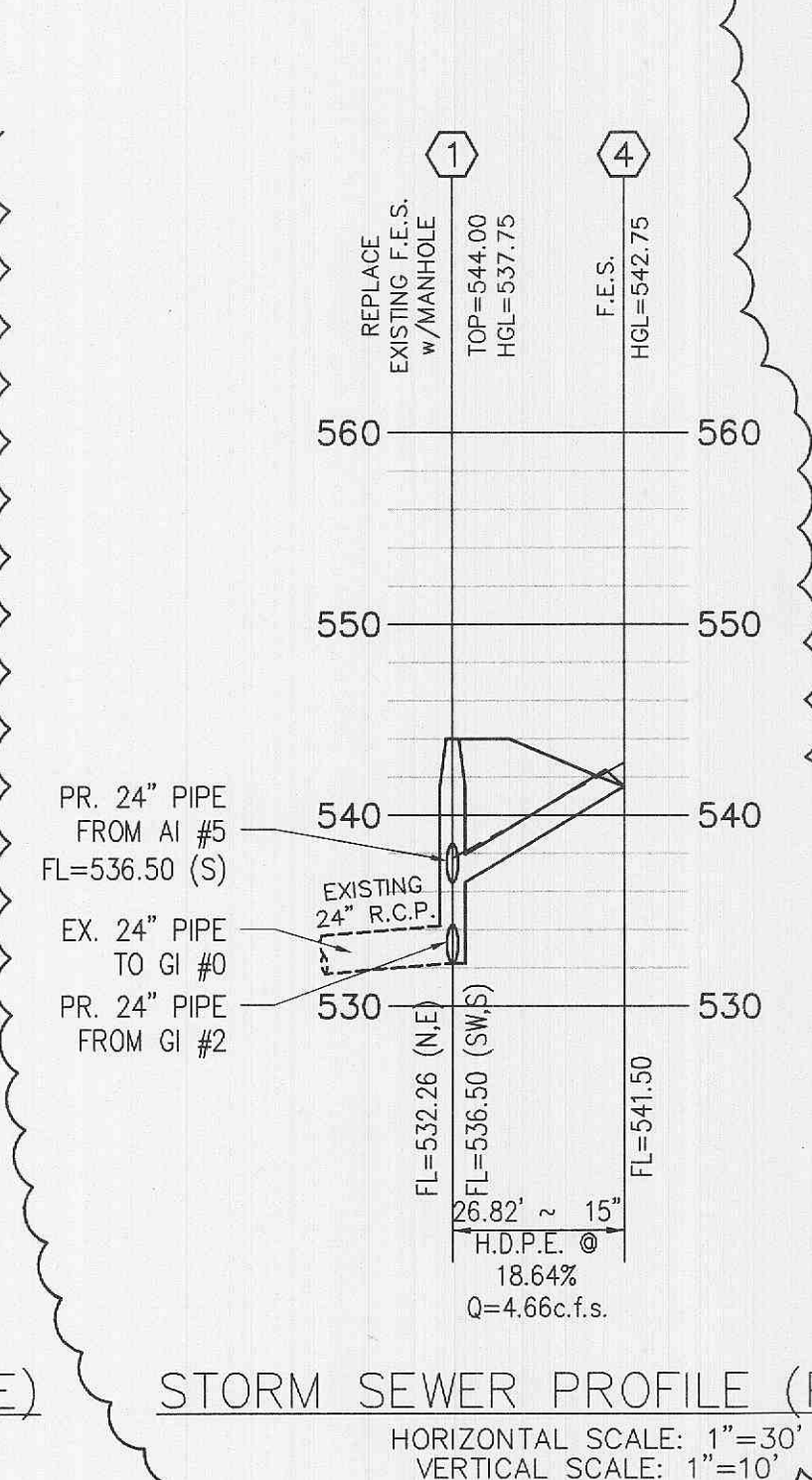
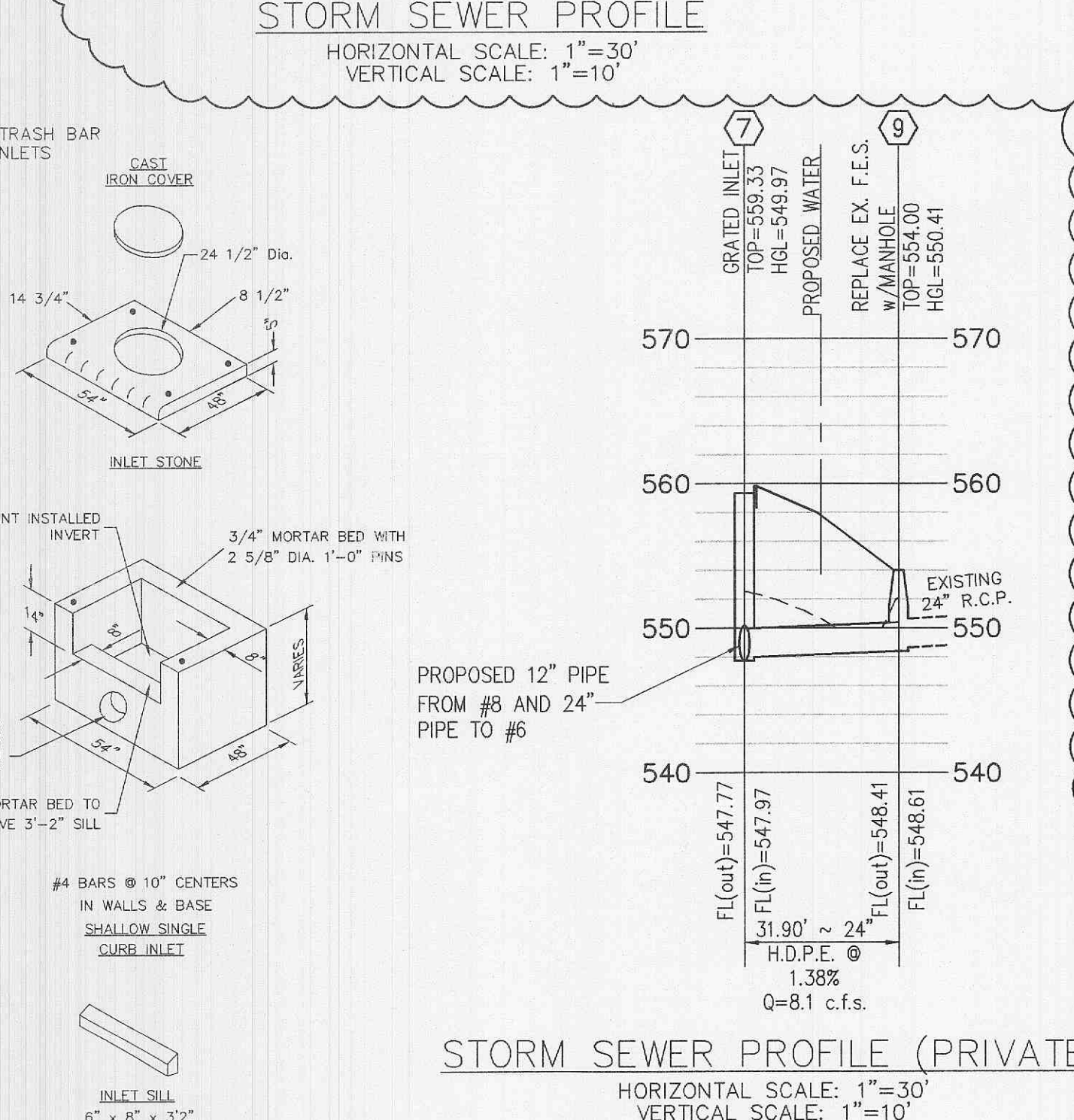
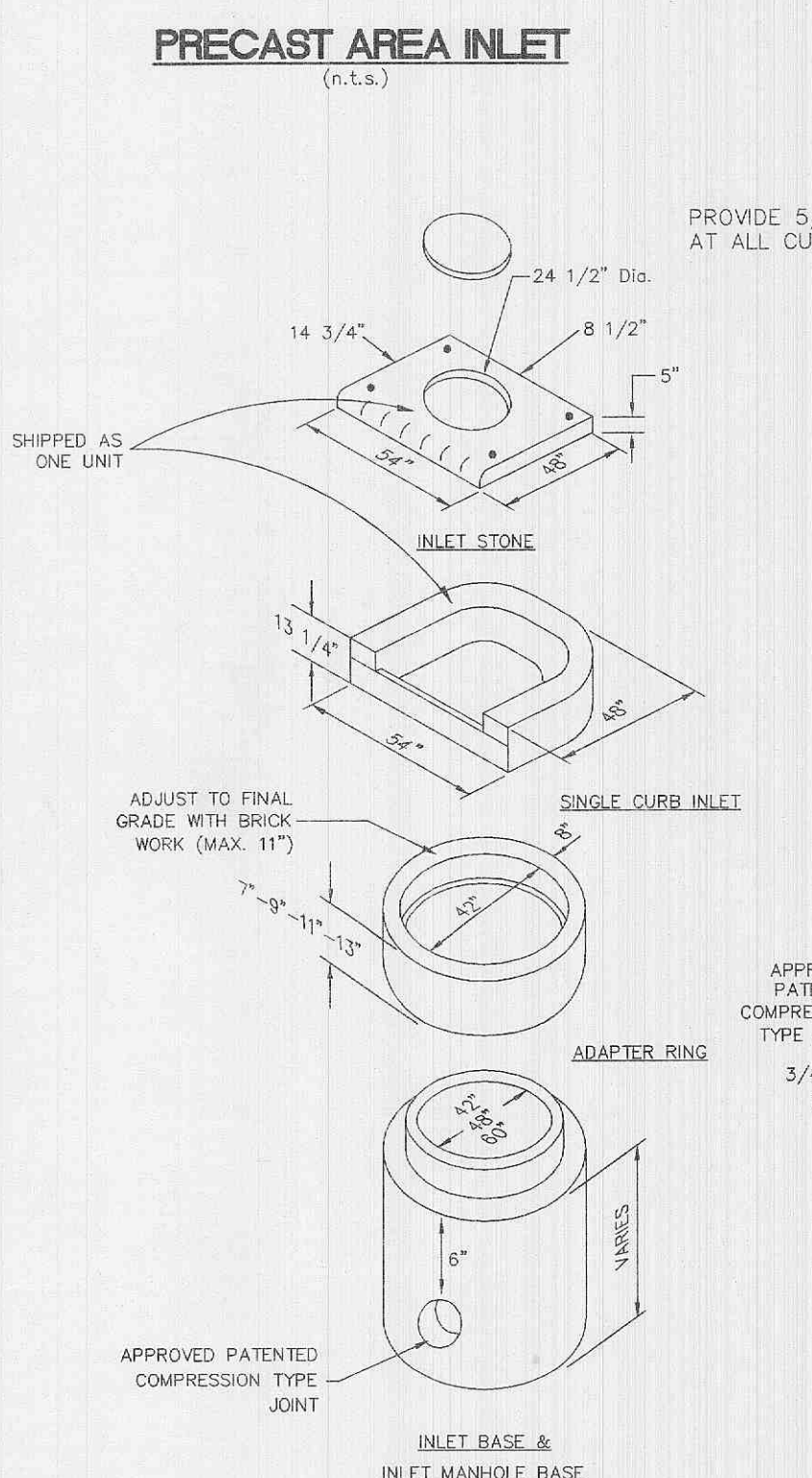


STORM SEWER PROFILE (PRIVATE)
HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=10'



FIRE HYDRANT NOTES

- TO BE USED AT INTAKE AND DISCHARGE END OF PIPE. GRADE OF ROCK BLANKET TO BE ADJUSTED ACCORDINGLY.
- ROUTED ROCK BLANKET REQUIRED.

FIRE HYDRANT DETAIL
SCALE = N.T.S.

HYDRAULIC CALCULATION SHEET (SEE DRAINAGE AREA MAP SHEET C12 FOR P.L. AND Q (inflow)) FOR EACH STRUCTURE

Project name: **POINTE AT WINGHAVEN** Calculated By: **DGF**
 Project number: **204-3385** Checked By: **CAM**
 Storm: **15yr-20min.** Date: **11-03-05**

Structure Number	LINE		FLOW LINE ELEVATIONS		Length (ft)	Flowing Grade (ft)	Pipe Size (in.)	Full Flow Cap. (cfs)	Total (Q) (cfs)	Mean Full Flow Vel. (ft/s)	Bend Coef.	Velocity Head (ft)	Q _v (%)	Pipe Coef. (n)	HEAD LOSS			Hydraulic Elevations			Structure TOP Elevation	Free Board	Structure Number		
	Upper	Lower	Upper	Lower											H _f	Junction	Bend	Total	Upper	Lower				H.E. + H _f	
7	7	7	548.41	547.97	31.30	0.0138	24	26.64	8.10	2.38	0	0.10	0.84	0.013	0.00	0.00	0.00	550.41	550.01	549.97	550.41	554.00	3.59	9	
8	8	7	556.41	547.99	145.19	0.0580	15	8.60	2.91	3.71	0	0.21	0.62	0.013	0.00	0.00	0.00	557.41	550.74	549.77	557.41	563.45	6.04	8	
7	7	6	547.77	546.30	104.37	0.0150	24	27.82	14.38	4.58	DROP	0.33	4.68	0.013	0.42	0.00	0.00	549.77	548.62	548.20	549.77	559.33	9.56	7	
6	6	5	546.00	540.54	218.29	0.0250	24	35.87	14.38	4.58	DROP	0.33	4.68	0.013	0.88	0.00	0.00	548.00	543.42	542.54	548.00	558.72	10.72	6	
5	5	1	540.34	536.50	97.81	0.0393	24	44.94	14.38	4.58	DROP	0.33	4.68	0.013	0.40	0.00	0.00	542.34	538.90	538.50	542.34	546.42	4.08	5	
4	4	1	541.50	536.50	26.82	0.1864	15	27.97	4.66	3.80	0	0.22	1.04	0.013	0.14	0.00	0.00	542.75	538.64	537.75	542.75	547.50	FES	4	
1	1	1	532.26	532.26																					1
3	3	2	538.75	534.67	44.00	0.0927	24	69.07	14.80	4.71	0	0.34	5.10	0.013	0.19	0.00	0.00	540.75	537.66	537.47	540.75	546.67	3.20	2	
2	2	1	534.67	532.26	27.70	0.0870	24	66.91	17.63	5.61	0.06	0.49	8.62	0.013	0.17	0.27	0.02	536.67	537.18	537.01	537.47	544.00	6.99	1	
1	1	0	532.26	530.97	24.89	0.0518	24	51.64	36.67	11.67	0.52 DROP	2.12	77.58	0.013	0.65	2.30	0.25	2.75	534.26	533.91	533.71	544.00	544.00	6.99	1
0	0	0	530.97	529.46	55.82	0.0271	24	37.31	37.71	12.00	0	2.24	84.37	0.013	1.55	0.24	0.00	0.24	533.97	533.01	533.25	537.21	3.06	0	
00	00	00	529.46																						00

FORMULAS:
 MEAN FULL FLOW VELOCITY: $V = Q_{full} / A_{pipe}$
 FRICTION LOSS (H_f): $H_f = 2.47 n^2 (L/V^{1.48})$
 VELOCITY HEAD: $V_h = V^2 / 2g$
 JUNCTION LOSSES (JUNC.): $[Q_{out} V_{h,out} - \sum (Q_{in} V_{h,in})] / 1.33 Q_{out}$
 BEND LOSSES (BEND): $(V_h V_b) \times \text{ANGLE COEFFICIENT}$
 Note: 1. IF MORE THAN ONE INCOMING LINE, CALCULATE EACH BEND LOSS AND ADD TOGETHER.
 2. NO STRUCTURE LOSSES TO BE CALCULATED AT A DROP.
 3. IF $Q_{in} V_{h,in} > Q_{out} V_{h,out}$, NO JUNCTION LOSSES TO BE CALCULATED.

SEWER PROFILES, DETAILS, AND HYDRAULICS

THE POINTE AT WINGHAVEN

P&Z NOS: 9831.52.01

11/07/05

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DRWN BY: J.P.P. DATE: 2/04/05
 CHECKED BY: G.M.S. DATE: 2/04/05
 DATE: 2/04/05 JOB NUMBER: 204-3385
 SHEET: C7 of 13