



Environment One Corporation

**Pressure Sewer Preliminary  
Cost and Design Analysis  
For  
Holden Pine Tree LLC  
Holden, MA**

**Prepared For:**

**Places Associates**

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**Prepared By: Henry Albro**

**August 18, 2021**

**Holden Pine Tree LLC  
Holden, MA**

**Prepared by :** Henry Albro

**On:** August 18, 2021

**Notes :**

4 home connection to terminal gravity manhole

**<<<< END OF NOTES >>>>**

# PRELIMINARY PRESSURE SEWER - PIPE SIZING AND BRANCH ANALYSIS

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Zone Number	Connects to Zone	Number of Pumps in Zone	Accum Pumps in Zone	Gals/day per Pump	Max Flow Per Pump (gpm)	Max Sim Ops	Max Flow (GPM)	Pipe Size (inches)	Max Velocity (FPS)	Length of Main this Zone	Friction Loss Factor (ft/100 ft)	Friction Loss This Zone	Accum Friction Loss (feet)	Max Main Elevation	Minimum Pump Elevation	Static Head (feet)	Total Dynamic Head (ft)
This spreadsheet was calculated using pipe diameters for: SDR21PVC										Friction loss calculations were based on a Constant for inside roughness "C" of: 150							
1.00	1.00	4	4	300	14.76	3	44.29	2.00	3.92	100.00	2.66	2.66	2.66	820.00	818.00	2.00	4.66

# PRELIMINARY PRESSURE SEWER - ACCUMULATED RETENTION TIME (HR)

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Zone Number	Connects to Zone	Accumulated Total of Pumps this Zone	Pipe Size (inches)	Gallons per 100 lineal feet	Length of Zone	Capacity of Zone	Average Daily Flow	Average Fluid Changes per Day	Average Retention Time (Hr)	Accumulated Retention Time (Hr)
This spreadsheet was calculated using pipe diameters for: SDR21PVC							Gals per Day per Dwelling		300	
1.00	1.00	4	2.00	18.84	100.00	18.84	1,200	63.69	0.38	0.38

**Budgetary Low Pressure Sewer System Costs**

**Holden Pine Tree LLC  
Holden, MA**

	<u>Quantity</u>	<u>Description</u>	<u>Unit Cost</u>	<u>Installation</u>	<u>Sub Total</u>
<b>Valves</b>	4	Corp Stop	\$150.00	0.00	\$600.00
	1	Clean Out	\$4,500.00	0.00	\$4,500.00
					<b><u>\$5,100.00</u></b>
<b>Pumps</b>	4	Lateral (Boundary) Kits	\$320.00	0.00	\$1,280.00
	4	Lateral (Boundary) Installation	\$500.00	0.00	\$2,000.00
	4	DH071-93 With Bal-Last	\$5,530.00	0.00	\$22,120.00
					<b><u>\$25,400.00</u></b>
<b>Piping</b>	100	2.00" Pipe	\$45.00	0.00	\$4,500.00
					<b><u>\$4,500.00</u></b>

<b>Number of Connections</b>	<b><u>4</u></b>		
<b>Total Per Connection</b>	<b><u>\$7,625.00</u></b>	<b>Total (w/o other)</b>	<b><u>\$30,500.00</u></b>
<b>Grand Total Per Connection</b>	<b><u>\$8,750.00</u></b>	<b>Grand Total (including other)</b>	<b><u>\$35,000.00</u></b>

Note: The System Costs above are based on piping sized for, and Grinder Pumps manufactured by Environment One Corporation.