



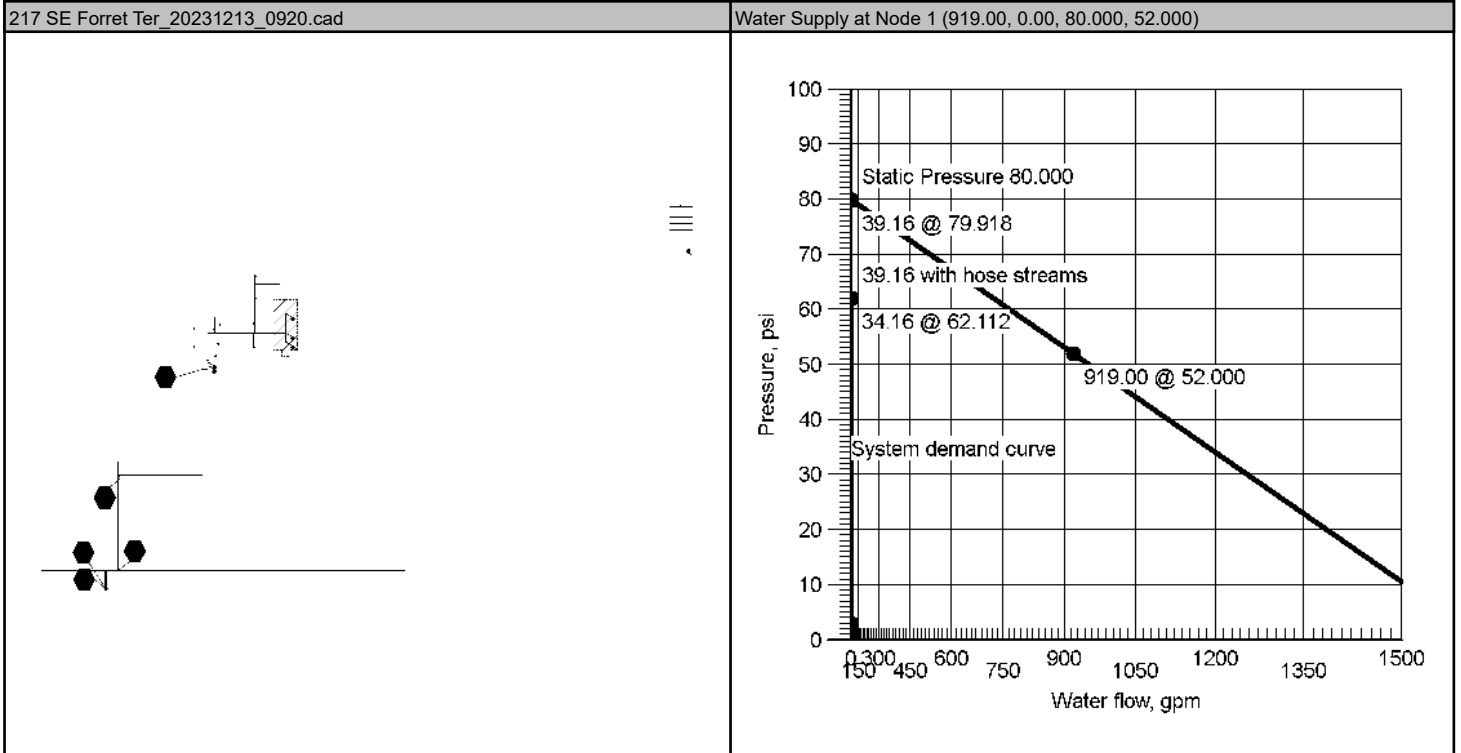
Hydraulic Overview

Job Number: 20231009 217 SE Fore
Report Description: Residential (RA02)

Job		
Job Number	20231009 217 SE Fore	
Designer	R. MALLARD	
Job Name:	FOREST TER GROUP HOME	Phone 352.737.1738
Address 1	217 SE FOREST TER	FAX
Address 2	LAKE CITY, FL 32025	State Certification/License Number 802680-0001-2006
Address 3		AHJ COLUMBIA COUNTY
		Job Site/Building

System		
Density	0.05 gpm/ft ²	
Area of Application	900 ft ² (Actual 250 ft ²)	
Most Demanding Sprinkler Data	4.9 K-Factor 17.00 at 12.037	
Hose Streams	5.00	
Coverage Per Sprinkler	130 ft ²	Number Of Sprinklers Calculated 2
		Number Of Nozzles Calculated 0
System Pressure Demand	62.112	
System Flow Demand	34.16	
Total Demand	39.16 @ 62.112	
Pressure Result	+17.806 (22.3%)	

Supplies						Check Point Gauges			
Node	Name	Flow(gpm)	Hose Flow(gpm)	Static(psi)	Residual(psi)	Identifier	Pressure(psi)	K-Factor(K)	Flow(gpm)
1	Water Supply	919.00	5.00	80.000	52.000	BOR (38)	33.388	5.91	34.16





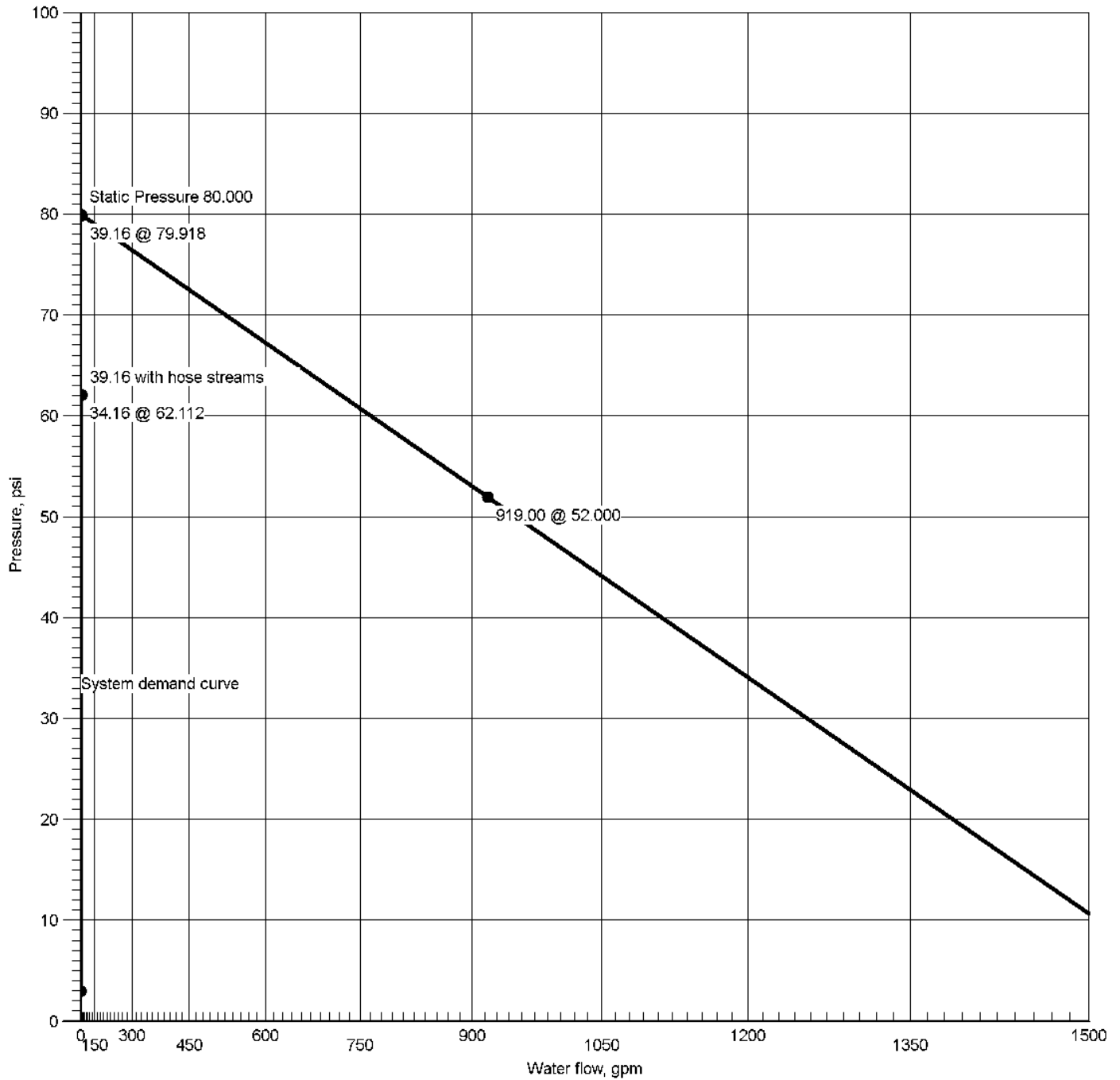
Hydraulic Summary

Job Number: 20231009 217 SE Fore
Report Description: Residential (RA02)

Job											
Job Number 20231009 217 SE Fore					Designer R. MALLARD						
Job Name: FOREST TER GROUP HOME					State Certification/License Number 802680-0001-2006						
Address 1 217 SE FOREST TER					AHJ COLUMBIA COUNTY						
Address 2 LAKE CITY, FL 32025					Job Site/Building						
Address 3					Drawing Name 217 SE Forret Ter_20231213_0920.cad						
System					Remote Area(s)						
Most Demanding Sprinkler Data 4.9 K-Factor 17.00 at 12.037					Occupancy Residential			Job Suffix			
Hose Allowance At Source 5.00					Density 0.05 gpm/ft²			Area of Application 900 ft² (Actual 250 ft²)			
Additional Hose Supplies <u>Node</u> <u>Flow(gpm)</u>					Number Of Sprinklers Calculated 2		Number Of Nozzles Calculated 0		Coverage Per Sprinkler 130 ft²		
					AutoPeak Results: Pressure For Remote Area(s) Adjacent To Most Remote Area						
Total Hose Streams 5.00											
System Flow Demand 34.16		Total Water Required (Including Hose Allowance) 39.16									
Maximum Pressure Unbalance In Loops 0.000											
Maximum Velocity Above Ground 12.35 between nodes 40 and 41											
Maximum Velocity Under Ground 0.35 between nodes 7 and 4											
Volume capacity of Wet Pipes 311.76 gal		Volume capacity of Dry Pipes									
Supplies											
Node	Name	Hose Flow (gpm)	Static (psi)	Residual (psi)	@	Flow (gpm)	Available (psi)	@	Total Demand (gpm)	Required (psi)	Safety Margin (psi)
1	Water Supply	5.00	80.000	52.000		919.00	79.918		39.16	62.112	17.806
Contractor											
Contractor Number 21		Contact Name Ryan Mallard				Contact Title Project Manager					
Name of Contractor: Gator Fire Equipment Company				Phone 352-373-1738				Extension 115			
Address 1 1032 S Main St				FAX							
Address 2 Gainesville, FL 32601				E-mail rmallard@gatorfire.net							
Address 3				Web-Site							



Water Supply at Node 1



Hydraulic Graph

Water Supply at Node 1

Static: Pressure
80.000

Residual: Pressure
52.000 @ 919.00

Available Flow @ 20 PSI:
987.71

Available Pressure at System Demand
79.918 @ 39.16

Required Pressure at System Demand
62.112 @ 34.16

Required Pressure at System Demand (Including Hose Allowance at Source)
62.112 @ 39.16



Summary Of Outflowing Devices

Job Number: 20231009 217 SE Fore
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Device		Actual Flow (gpm)	Minimum Flow (gpm)	K-Factor (K)	Pressure (psi)			
➡ Sprinkler	104	17.00	17.00	4.9	12.037			
Sprinkler	110	17.16	17.00	4.9	12.261			

➡ Most Demanding Sprinkler Data



Hydraulic Analysis

Job Number: 20231009 217 SE Fore
Report Description: Residential (RA02)

Pipe Type	Diameter	Flow	Velocity	HWC	Friction Loss		Length	Pressure
Downstream	Elevation	Discharge	K-Factor	Pt	Pn	Fittings	Eq. Length	Summary
Upstream							Total Length	
Route 1								
DR	1.1010	17.00	5.73	150		0.050373	9'-4"	Pf 1.074
104	8'-0½"	17.00	4.9	12.037		Sprinkler,	12'-0"	Pe -0.270
27	8'-8"			12.841		E(7'-0"), T(5'-0")	21'-4"	Pv
BL	1.1010	34.16	11.51	150		0.183159	54'-0"	Pf 14.101
27	8'-8"	17.16		12.841		Flow (q) from Route 2	23'-0"	Pe 2.619
41	2'-7½"			29.560		10Tr(1'-0"), T(5'-0"), E(7'-0"), 2f(-0.000), U(1'-0")	77'-0"	Pv
CM	1.0630	34.16	12.35	150		0.217327	0'-4"	Pf 1.820
41	2'-7½"			29.560			8'-0½"	Pe 0.140
40	2'-3½"			31.521		sCV(8'-0½")	8'-4½"	Pv
CM	1.1010	34.16	11.51	150		0.183159	1'-1½"	Pf 1.302
40	2'-3½"			31.521			6'-0"	Pe 0.565
38	1'-0"			33.388		f(-0.000), Tr(1'-0"), E(5'-0"), BOR	7'-1½"	Pv
CM	1.1010	34.16	11.51	150		0.183159	10'-0½"	Pf 4.771
38	1'-0"			33.388			16'-0"	Pe 2.168
56	-4'-0"			40.327		3E(5'-0"), U(1'-0")	26'-0½"	Pv
CM	1.3940	34.16	7.18	150		0.058046	90'-11"	Pf 6.379
56	-4'-0"			40.327			19'-0"	Pe -2.168
84	1'-0"			44.538		3E(6'-0"), Tr(1'-0")	109'-11"	Pv
CM	1.3680	34.16	7.46	150		0.063620	1'-7½"	Pf 5.103
84	1'-0"			44.538				Pe
86	1'-0"			49.641		BFP(-5.000)	1'-7½"	Pv
CM	1.3940	34.16	7.18	150		0.058046	5'-3½"	Pf 1.062
86	1'-0"			49.641			13'-0"	Pe 2.168
77	-4'-0"			52.871		2E(6'-0"), b(1'-0")	18'-3½"	Pv
CM	1.1010	34.16	11.51	150		0.183159	39'-5"	Pf 11.405
77	-4'-0"			52.871			5'-0"	Pe
4	-4'-0"			64.276		WMV(-3.273), T(5'-0")	44'-5"	Pv
UG	6.2800	34.16	0.35	140		0.000043	13'-7"	Pf 0.004
4	-4'-0"			64.276			74'-1"	Pe
7	-4'-0"			64.280		T(47'-3½"), GV(4'-8½"), E(22'-1")	87'-7½"	Pv
FR	6.3570	34.16	0.35	120		0.000054	5'-0"	Pf 0.000
7	-4'-0"			64.280				Pe -2.168
1	1'-0"			62.112		Water Supply	5'-0"	Pv
		5.00				Hose Allowance At Source		
1		39.16						

Route 2								
DR	1.1010	17.16	5.78	150		0.051242	4'-7"	Pf 0.849
110	8'-0½"	17.16	4.9	12.261		Sprinkler,	12'-0"	Pe -0.270
27	8'-8"			12.841		E(7'-0"), T(5'-0")	16'-7"	Pv

Equivalent Pipe Lengths of Valves and Fittings (C=120 only)				C Value Multiplier			
$\left(\frac{\text{Actual Inside Diameter}}{\text{Schedule 40 Steel Pipe Inside Diameter}} \right)^{4.87} = \text{Factor}$				Value Of C	100	130	140
				Multiplying Factor	0.713	1.16	1.33
							150
							1.51



Hydraulic Analysis

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Pipe Type	Diameter	Flow	Velocity	HWC	Friction Loss		Length	Pressure
Downstream	Elevation	Discharge	K-Factor	Pt	Pn	Fittings	Eq. Length	Summary
Upstream							Total Length	

Pipe Type Legend	Units Legend		Fittings Legend	
AO Arm-Over	Diameter	Inch	ALV Alarm Valve	
BL Branch Line	Elevation	Foot	AngV Angle Valve	
CM Cross Main	Flow	gpm	b Bushing	
DN Drain	Discharge	gpm	BaV Ball Valve	
DR Drop	Velocity	fps	BFP Backflow Preventer	
DY Dynamic	Pressure	psi	BV Butterfly Valve	
FM Feed Main	Length	Foot	C Cross Flow Turn 90°	
FR Feed Riser	Friction Loss	psi/Foot	cplg Coupling	
MS Miscellaneous	HWC	Hazen-Williams Constant	Cr Cross Run	
OR Outrigger	Pt	Total pressure at a point in a pipe	CV Check Valve	
RN Riser Nipple	Pn	Normal pressure at a point in a pipe	DeV Deluge Valve	
SN Swing Nipple	Pf	Pressure loss due to friction between points	DPV Dry Pipe Valve	
SP Sprig	Pe	Pressure due to elevation difference between indicated points	E 90° Elbow	
ST Stand Pipe	Pv	Velocity pressure at a point in a pipe	EE 45° Elbow	
UG Underground			Ee1 11¼° Elbow	
			Ee2 22½° Elbow	
			f Flow Device	
			fd Flex Drop	
			FDC Fire Department Connection	
			fE 90° FireLock(TM) Elbow	
			fEE 45° FireLock(TM) Elbow	
			flg Flange	
			FN Floating Node	
			fT FireLock(TM) Tee	
			g Gauge	
			GloV Globe Valve	
			GV Gate Valve	
			Ho Hose	
			Hose Hose	
			HV Hose Valve	
			Hyd Hydrant	
			LtE Long Turn Elbow	
			mecT Mechanical Tee	
			Noz Nozzle	
			P1 Pump In	
			P2 Pump Out	
			PIV Post Indicating Valve	
			PO Pipe Outlet	
			PrV Pressure Relief Valve	
			PRV Pressure Reducing Valve	
			red Reducer/Adapter	
			S Supply	
			sCV Swing Check Valve	
			SFx Seismic Flex	
			Spr Sprinkler	
			St Strainer	
			T Tee Flow Turn 90°	
			Tr Tee Run	
			U Union	
			WirF Wirsbo	
			WMV Water Meter Valve	
			Z Cap	

**Job**

FOREST TER GROUP HOME
217 SE FOREST TER
LAKE CITY, FL 32025

Design Basis

Occupancy:	Residential
Total Sprinklers:	15
Number Of Sprinklers Calculated:	2
Number Of Nozzles Calculated:	0
K-Factor:	4.9
Orifice Size:	0
Design Density:	0.05 gpm/ft ²
Average Density:	0.14 gpm/ft ²
Area of Application:	900 ft ² (Actual 250 ft ²)

Demand At Base Of Riser (BOR (38))

Total Demand Flow(gpm):	34.16
Pressure(psi):	33.388

Water Supply Information At Time Of Design

Static Pressure(psi):	80.000
Residual Pressure(psi):	52.000
Supply Flow(gpm):	919.00
Total Demand Flow(gpm):	39.16
Total Demand Pressure(psi):	62.112