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JN 25213

**Valentine Avenue Development Water Analysis
8100 Valentine Avenue, Sebastopol CA**

Dear Rob,

The proposed project on 8100 Valentine Avenue has been assessed for total domestic water demand in gallons per minute (GPM) for the 39 residential unit development based upon the assumption that each will have 4 bedrooms and 3 bathrooms. A 6" water main is proposed with 1.5" water laterals and 1" water meters to individual lots containing two residential units each.

Calculations

Peak Water demand for the residential units was estimated using the Hunter's Curve. Using Table 6-5 and Chart A-2 from the California Plumbing Code (CPC), water supply fixture units (WSFU) were assigned to each fixture as shown in **Table 1: Fixture Count**. The total WSFU for this development of 39 residential units is **1,248 WSFU**. Using the Hunter's Curve, the approximate total load is **220 GPM** and each lateral will service 2 residential units with an approximate load of **30 GPM**, per the CPC.

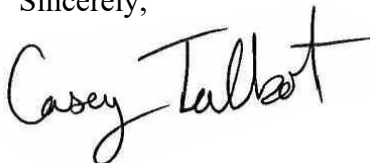
Table 1: Fixture Count

Fixture Type	Count per home	WSFU Value	Total WSFU per home
Water Closet	3	2.5	7.5
Lavatory Faucet	3	1.0	3.0
Bathtub/Shower	3	4.0	12.0
Kitchen Faucet	1	1.5	1.5
Dishwasher	1	1.5	1.5
Clothes Washer	1	4.0	4.0
Hose Bibb	1	2.5	2.5
Total Per Residence:			32.0 WSFU

Conclusion

Based on the calculations, this project will service **220 GPM** of domestic water demand for the entire site and **30 GPM** to each lot. The 6" water main can safely handle the proposed water demand within recommended velocity limits. The 1.5" schedule 40 PVC laterals will provide a peak velocity of **4.66 ft/s** and a typical 1" meter can support up to 50 GPM. The system is proposing to loop the water service, thereby reducing overall pressure loss within the system.

Sincerely,



Casey R. Talbot, P.E.
Associate Principal
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Inch	mm
1/2	15
3/4	20
1	25

TABLE 6-5**WATER SUPPLY FIXTURE UNITS (WSFU) AND MINIMUM FIXTURE BRANCH PIPE SIZES³**

APPLIANCES, APPURTENANCES OR FIXTURES ²	MINIMUM FIXTURE BRANCH PIPE SIZE ^{1,4}	PRIVATE	PUBLIC	ASSEMBLY ⁶
Bathtub or Combination Bath/Shower (fill)	1/2	4.0	4.0	
3/4" Bathtub Fill Valve	3/4	10.0	10.0	
Bidet	1/2	1.0		
Clothes washer	1/2	4.0	4.0	
Dental Unit, cuspidor	1/2		1.0	
Dishwasher	1/2	1.5	1.5	
Drinking Fountain or Water Cooler	1/2	0.5	0.5	0.75
Hose Bibb	1/2	2.5	2.5	
Hose Bibb, each additional ⁸	1/2	1.0	1.0	
Lavatory	1/2	1.0	1.0	1.0
Lawn Sprinkler, each head ⁵		1.0	1.0	
Mobile Home, each (minimum) ⁹		12.0		
Sinks				
Bar	1/2	1.0	2.0	
Clinic Faucet	1/2		3.0	
Clinic Flushometer Valve with or without faucet	1		8.0	
Kitchen	1/2	1.5	1.5	
Laundry	1/2	1.5	1.5	
Service or Mop Basin	1/2	1.5	3.0	
Washup, each set of faucets	1/2		2.0	
Shower, per head	1/2	2.0	2.0	
Urinal, 1.0 GPF Flushometer Valve	3/4	See Footnote ⁷		
Urinal, greater than 1.0 GPF Flushometer Valve	3/4	See Footnote ⁷		
Urinal, flush tank	1/2	2.0	2.0	3.0
Wash Fountain, circular spray	3/4		4.0	
Water Closet, 1.6 GPF Gravity Tank	1/2	2.5	2.5	3.5
Water Closet, 1.6 GPF Flushometer Tank	1/2	2.5	2.5	3.5
Water Closet, 1.6 GPF Flushometer Valve	1	See Footnote ⁷		
Water Closet, greater than 1.6 GPF Gravity Tank	1/2	3.0	5.5	7.0
Water Closet, greater than 1.6 GPF Flushometer Valve	1	See Footnote ⁷		

Notes:

¹ Size of the cold branch pipe, or both the hot and cold branch pipes.

² Appliances, Appurtenances or Fixtures not included in this Table may be sized by reference to fixtures having a similar flow rate and frequency of use.

³ The listed fixture unit values represent their load on their cold water service. The separate cold water and hot water fixture unit value for fixtures having both hot and cold water connections may each be taken as three-quarter (3/4) of the listed total value of the fixture.

⁴ The listed minimum supply branch pipe sizes for individual fixtures are the nominal (I.D.) pipe size.

⁵ For fixtures or supply connections likely to impose continuous flow demands, determine the required flow in gallons per minute (GPM), and add it separately to the demand (in GPM) for the distribution system or portions thereof.

⁶ Assembly [Public Use (See Table 4-1)].

⁷ When sizing flushometer systems, see Section 610.10.

⁸ Reduced fixture unit loading for additional hose bibbs is to be used only when sizing total building demand and for pipe sizing when more than one (1) hose bibb is supplied by a segment of water-distributing pipe. The fixture branch to each hose bibb shall be sized on the basis of two and one-half (2.5) fixture units.

⁹ **[HCD 2]** For water supply fixture unit values related to mobilehome parks in all parts of the State of California, see California Code of Regulations, Title 25, Division 1, Chapter 2, Article 5, Section 1278. For water supply fixture unit values related to special occupancy parks in all parts of the State of California, see California Code of Regulations, Title 25, Division 1, Chapter 2.2, Article 5, Section 2278.

CHART A-2
ESTIMATE CURVES FOR DEMAND LOAD

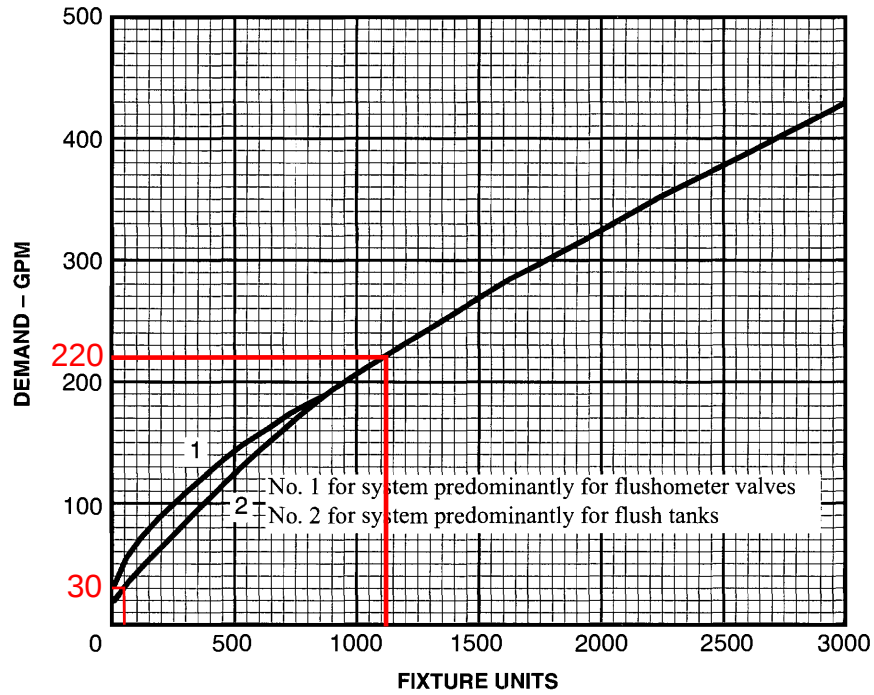


CHART A-2 (Metric)
ESTIMATE CURVES FOR DEMAND LOAD

