



January 8, 2021

Mr. Ed Houle  
HPRH Properties, LLC  
14160 Gleneagle Drive  
Colorado Springs, CO 80921  
Email: [edhoule52@msn.com](mailto:edhoule52@msn.com)

**RE: Preliminary Utility Report Corvallis  
Fountain, Colorado**

The purpose of this Preliminary Utility Report is to provide a summary of utility and water resources planning issues impacting the proposed Corvallis Development. This report identifies water and wastewater demands, service plans, fire flow issues, and infrastructure requirements for the proposed development. The report is intended to fulfill the "Preliminary Utility Plan" requirements for an Overall Development Plan (ODP) submittal to the City of Fountain.

### **Water System**

Corvallis development is part of the City of Fountain, but lies within the Widefield Water and Sanitation District (WWSD), specifically in Pressure Zone 5. This plot of land was previously studied in the Draft Technical Memorandum "Pressure Zone 5 Future Demands – Singer Development, City of Fountain," by JDS-Hydro, dated February 18, 2020, which modeled the Singer/Lacy concept development along with the surrounding area's buildout demands to identify impacts on existing WWSD Pressure Zone 5. For the purpose of that study, 1150 single family equivalents were assumed for the Singer/Lacy Development. In addition to supporting this demand and surrounding area buildout demands, the City of Fountain requested a maximum demand of 1800 gpm to be supplied by WWSD system at their connection near the Mesa Ridge Parkway and South Marksheffel Road intersection.

The Corvallis PUD Rezoning and Overall Development Plan Amendment prepared by Matrix Design Group, dated January 2021, identifies a total of 26-acres of regional commercial; 9-acres of village commercial; 12-acre school site; 157-acres of mixed-density residential; 45-acres of open space; and 26-acres of dedicated ROW. The attached Master Utility Exhibit A contains a breakout of each of these residential and commercial areas with its associated single-family equivalent (SFE) units, for the minimum, average, and maximum range of density per acre. The commercial development and school site are assumed as 4 DU/acre. For this development scenario, the SFE units for the average density per acre is estimated at 1530 SFE, which is slightly above the 1150 SFE units modeled in the study described above. Therefore the model was rerun with the estimated 1378 SFE units.

Preliminary water demand projections have been developed for the Corvallis development based on the flow factor data used in the Singer Development memorandum: Annual Water: 0.35 AF/SFE; Average Daily Flow: 0.22 GPM/SFE; Maximum Daily Flow: 0.47 GPM/SFE; Peak Hour Flow: 0.70 GPM/SFE.

### **Corvallis Water Demand Summary**

Single Family Equivalents: 1530  
Annual Water: 535.50 AF  
Average Daily Flow: 484,704 GPD  
Max Daily Flow: 1,035,504 GPD  
Peak Hour Flow: 1,071 GPM

The water system plan for the Corvallis development consists of proposed 12" watermains traversing through the site in both the east-west and north-south directions and a proposed 8-inch watermain in Fontaine Boulevard. Connections of these mains will be made to the existing WWSD system at the 16" water distribution main at Marksheffel Road, and at the 24" water main in Spring Glen Drive and Autumn Glen Avenue. A proposed 8" watermain will run in Fontaine connecting the existing systems near Peaceful Valley Estates (west) and Cottonwood Grove Filing No. 2 (east). A PRV will be required at the northwestern connection in order to connect Pressure Zone 4 to Pressure Zone 5. A network of new 8" water distribution mains will loop internally throughout the development providing service taps to each lot. Owners/Builders will purchase water taps from the WWSD at time of building permit.

This entire system will be within Pressure Zone 5. Based on the revised water system model using the 1530 SFE units, with the system internal looping improvements described above, the system pressures are adequate to support the proposed Corvallis Development. In addition, the primary 24-inch Transmission line (with the looped tie-ins described previously) was planned for this load and is capable of handling the Corvallis Development without any upgrades.

### **Fire Flow Requirement**

Based on the water model with 1530 SFE units, internal loops will be required throughout the site in order to provide the required 3500 GPM fire flow demand throughout the pressure zone. The water system plan includes proposed 12" watermains traversing through the site in both the east-west and north-south directions and a proposed 8-inch watermain in Fontaine Boulevard, with connections to the WWSD existing mains around the site. With these improvements, compliance with fire demands throughout the pressure zone can be achieved. Fire hydrants will be installed to a maximum 500 feet spacing separation with a maximum distance from any point on street or road frontage to a hydrant of 250 feet.

### **Wastewater System**

The Corvallis development is also within the WWSD boundary for wastewater. The wastewater system plan for the Corvallis development will direct flows west of the internal ridge in the site to an existing WWSD 12" sanitary main that will connect to the sanitary system at the Glen at Widefield residential development to the south. A portion of this existing WWSD 12" sewer main will be rerouted around a proposed detention pond to its future connection at the Glen at

Widefield. Flows to the east of the ridge will be directed to an existing 24" sanitary sewer main at the Marksheffel Road/Lorson Boulevard intersection near the southeast corner of the site. Throughout the development, new 8" collection mains will be installed generally down the centerline of local streets, providing service taps to each lot. Owners/Builders will purchase taps from WWSD at time of application for sanitary sewer service permit issuance.

Preliminary wastewater flow projections have been developed based on a unit flow factor of 250 gallons per day (gpd) per single-family equivalent (SFE) units and a peaking factor of 2.5 for peak hour flows.

The Corvallis PUD Rezoning and Overall Development Plan Amendment prepared by Matrix Design Group, dated January 2021, identifies a total of 1530 single-family unit equivalents. The projected wastewater flows are summarized as follows:

***Corvallis Wastewater Flow Summary***

Single Family Equivalents: 1530  
Average Daily Flow: 382,500 GPD  
Peak Hour Flow: 664 GPM

The attached Master Utility Exhibit A contains a breakout of each of these residential and commercial areas with its associated wastewater demands and proposed pipe capacities. In all locations, the pipe capacity exceeded the demands associated with the 1530 SFE units utilizing 8" or 12" diameter pipes at 1.04% minimum slope. Therefore, the Corvallis projected flow rates are within the pipe capacities and it is anticipated 8" or 12" sewer pipe will be utilized within the neighborhood development.

**Electric, Gas and Communications**

The Corvallis project is part of the City of Fountain, but lies within Mountain View Electric service area. Some coordination between Mountain View Electric and Fountain Electric may be necessary if Fountain Electric requires services to be brought up to the project area. There are overhead lines in Fontaine Boulevard to the north and also along the west property line. Underground electric service is provided to the adjacent residential neighborhoods to the south and east of the property. Electric service will be provided by extending underground electric throughout the Corvallis development for residential and commercial services.

Gas service to the proposed development will be provided by Black Hills Energy through the extension of existing gas main infrastructure. An existing gas easement with 2 gas mains runs north-south through the property which will remain.

Multiple service providers are available in the area to provide telephone service to the Corvallis development. Service will be provided underground from the nearby area.

## **Summary**

The proposed Corvallis development will connect to the Widefield Water and Sanitation District (WWSD) for water and sanitary service. WWSD has adequate water supply and treatment capacity to serve the development.

Conceptual utility improvements for the Corvallis project are depicted in the attached Master Utility Exhibit A. Water and wastewater improvements will be designed and constructed in accordance with the Standards and Specifications of the Widefield Water Service District (WWSD) and will be dedicated to WWSD upon satisfactory completion and acceptance.

Electric service will be provided by Mountain View Electric or Fountain Electric, gas by Black Hills Energy, and telephone by multiple providers.

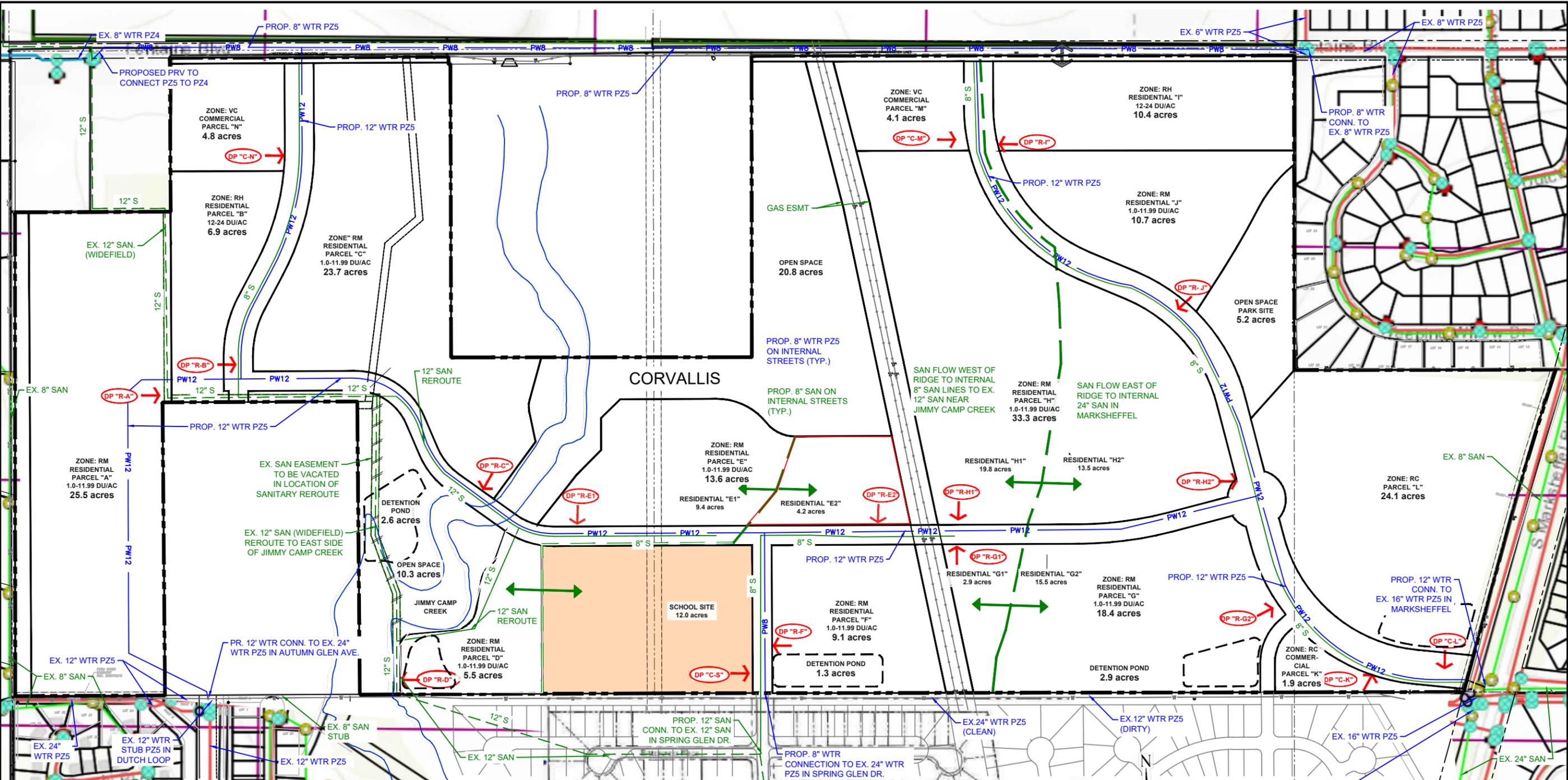
Please feel free to contact me directly if you have any questions regarding this preliminary utility report or its findings.

## **Matrix Design Group**

A handwritten signature in cursive script that reads "Colleen Monahan".

Colleen Monahan, PE  
Associate of Development Services

S:\20.1105.02\_Singer Ranch\100 Dwg\106 Working\Concept Utility- REV2-2020.01.07.dwg, 1/8/2021 11:17:27 AM, DWG To PDF.pd3



BASIN ID	PARCEL	AREA (ACRES)	WATER DEMAND												WASTEWATER DEMAND											
			DWELLING UNIT PER ACRE RANGE PER ZONING			SINGLE FAMILY EQUIVALENT (SFE) (DU/ACRE * AREA)			MAX DAILY FLOW (GPD) (0.7 GPM/SFE)			PEAK HOUR FLOW (GPM) (0.7 GPM/SFE)			AVE. DAILY DEMAND (GPD) (2.0 GPD/SFE)			PEAK HOUR FLOW (GPM) (2.5 PEAK FACTOR)			PIPE DIA. (INCH)	PIPE SLOPE (%)	ACCU. AVE FLOW (GPM)	PIPE 70% CAPACITY (GPM)		
			MIN	AVE	MAX	MIN	AVE	MAX	MIN	AVE	MAX	MIN	AVE	MAX	MIN	AVE	MAX									
RESIDENTIAL	DP "R-A"	25.50	1.00	6.50	11.99	26	166	305	17,358	112,093	206,928	18	116	224	6,375	41,206	75,456	12	1.04	72	547					
RESIDENTIAL	DP "R-B"	6.90	12.00	18.00	24.00	83	124	166	16,030	84,058	112,078	58	87	118	20,700	31,050	41,400	36	1.04	62	547					
RESIDENTIAL	DP "R-C"	23.70	1.00	6.50	11.99	24	154	284	16,040	104,181	192,322	17	108	199	5,925	38,483	71,041	10	67	123	1,04	201	1,614			
RESIDENTIAL	DP "R-D"	5.90	1.00	6.50	11.99	6	36	66	3,722	24,177	44,632	4	23	46	1,375	8,931	16,486	2	16	29	1.04	243	1,614			
RESIDENTIAL	DP "R-E"	9.40	1.00	6.50	11.99	9	61	113	6,362	41,321	76,279	7	43	79	2,350	15,263	28,177	4	26	49	1.04	26	547			
RESIDENTIAL	DP "R-F"	4.20	1.00	6.50	11.99	4	27	50	2,843	18,462	34,062	3	19	35	1,050	6,802	12,590	2	12	22	1.04	76	547			
RESIDENTIAL	DP "R-G"	9.10	1.00	6.50	11.99	9	59	109	6,159	40,002	73,845	6	41	76	2,275	14,776	27,277	4	26	47	1.04	101	547			
RESIDENTIAL	DP "R-H"	2.90	1.00	6.50	11.99	3	19	35	1,963	12,748	23,533	2	13	24	725	4,709	8,693	1	8	15	1.04	8	547			
RESIDENTIAL	DP "R-I"	19.80	1.00	6.50	11.99	20	129	237	13,401	87,037	160,874	14	90	168	4,950	32,150	59,351	9	56	103	1.04	56	547			
RESIDENTIAL	DP "R-J"	4.20	1.00	6.50	11.99	4	27	50	2,843	18,462	34,062	3	19	35	1,050	6,802	12,590	2	12	22	1.04	76	547			
RESIDENTIAL	DP "R-K"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-L"	24.10	1.00	6.50	11.99	24	161	291	10,490	68,155	125,790	11	70	130	3,975	25,168	46,461	7	44	81	1.04	234	547			
RESIDENTIAL	DP "R-M"	13.50	1.00	6.50	11.99	14	88	162	9,137	59,344	109,550	9	61	113	3,375	21,921	40,466	6	38	70	1.04	210	547			
RESIDENTIAL	DP "R-N"	10.40	12.00	18.00	24.00	125	187	250	84,465	126,697	168,929	87	131	175	31,200	46,800	62,400	54	81	108	1.04	81	547			
RESIDENTIAL	DP "R-O"	10.70	1.00	6.50	11.99	11	193	328	7,242	130,352	86,829	7	135	90	2,675	48,150	32,073	5	34	56	1.04	172	547			
RESIDENTIAL	DP "R-P"	1.90	1.00	6.50	11.99	2	12	23	614	4,000	7,344	1	6	11	360	2,400	4,500	1	6	11	1.04	237	547			
RESIDENTIAL	DP "R-Q"	24.10	1.00	6.50	11.99	24	161	291	10,490	68,155	125,790	11	70	130	3,975	25,168	46,461	7	44	81	1.04	234	547			
RESIDENTIAL	DP "R-R"	4.10	1.00	6.50	11.99	4	27	50	2,843	18,462	34,062	3	19	35	1,050	6,802	12,590	2	12	22	1.04	76	547			
RESIDENTIAL	DP "R-S"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-T"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-U"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-V"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-W"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-X"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-Y"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-Z"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-AA"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-AB"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-AC"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-AD"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-AE"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-AF"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-AG"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-AH"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-AI"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-AJ"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-AK"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-AL"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-AM"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-AN"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-AO"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-AP"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-AQ"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-AR"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-AS"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-AT"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-AU"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-AV"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-AW"	12.00	1.00	6.50	11.99	12	81	151	5,044	32,944	60,828	10	67	123	3,900	25,200	46,400	8	54	98	1.04	81	547			
RESIDENTIAL	DP "R-AX"	12.00	1.00	6.50	11.99	12	81																			