



April 14, 2026

Mr. Ken Torres, P.E.
Town of Castle Rock
100 North Wilcox Street
Castle Rock, CO 80104

Subject: Utility Compliance Letter-Crystal Valley Ranch Filing 18 (CVR 18), Tract C SDP22-0057

Dear Ken:

The purpose of this letter is to verify the proposed land plan in CVR 18, Tract C, complies with the most current approved master planning documents.

The utilities for CVR 18, Tract C, were previously studied in the *Final Utility Report for Crystal Valley Ranch, Filing No. 18*, prepared by WSB, approved February 13, 2020 (herein referred to as the “2/13/20 report”). In this report, the Tract C portion of the site was assumed to have 30,000 square feet (SF) of commercial space. The plan for Tract C has been modified. The site development plan (SDP) for Tract C now calls for 28 duplex units, a single family home and a commercial building.

This change in landuse will result in an increase water demand to the site and wastewater flows from the site. The sections below summarize these changes. Relevant supporting calculations are included along with this letter.

Water Supply System

An existing 18-inch water main runs along the western periphery of the site in Loop Road and along the northern periphery of the site in Crystal Valley Parkway. 8-inch diameter water main existing in the previously constructed areas of Filing 18. This project will tie into this 8-inch system and into the 18-inch water main in Loop Road. This development is within the red pressure zone.

Calculations were prepared in accordance with the *Town of Castle Rock Water System Design 2018 Criteria Manual*. The calculations attached to this letter indicate that the new land plan increases the average daily demand (ADD) by 4,595 gpd from the 2/13/20 report.

The 2/13/20 report estimates ADD for all of Filing 18 to be 42,000 gpd. Calculations in this report increase this demand 4,595 gpd for a total Filing 18 demand of 46,595 gpd ($42,000 \text{ gpd} + 4,595 \text{ gpd} = 46,595 \text{ gpd}$). The *Final Utility System Analysis for Loop Road*, Manhard Consulting, January 2004, (herein referred to as “2004 report”), which serves as the master utility system analysis for the CVR PD, indicates a total planned demand of 56,980 gpd for PA 7 (PA 7 is the same area as CVR Filing 18). Therefore, the proposed overall Filing 18 demand of 46,595 gpd is less than the 2004 report planned demand of 56,980 gpd. Relevant excerpts from the 2/13/20 report and 2004 report are attached.

Fire flows are assumed to be the same as the 2/13/20 report with a required flowrate of 1,500 gpm for 1-hour. This flowrate will be modified as needed after the review of this document by the fire department.

Water storage calculations are included along with this letter in accordance with the criteria manual.

A WaterCAD water distribution system model was developed based upon the 2/13/20 report model to

evaluate system flow and pressure with the increased Tract C demands. WaterCAD calculations included along with this letter indicate that system pressures and flow characteristics required by the criteria manual are met.

Sanitary Sewer System

Sanitary flow from this site will discharge through existing infrastructure constructed with Crystal Valley Ranch Filing 18 (8-inch pipe). From existing Filing 18 flows discharge into a main located in Crystal Valley Parkway. The site is located within the Sellars Lift Station Basin.

Calculations were prepared in accordance with the Town of Castle Rock Wastewater Collection Design 2018 Criteria Manual. The calculations indicate that the new land plan increases the average daily flow (ADF) by 11.4875 SFEs or 2,297 gpd.

The 2/13/20 report estimates the ADF for all of Filing 18 to be 105 SFEs. Calculations in this report increase the ADF for Filing 18 to 116.4875 SFEs (105 SFEs + 11.4875 SFEs = 116.4875 SFEs). The *Utility Report Addendum for Crystal Valley Ranch*, prepared by Legacy Engineering, 2007 (herein referred to as the “2007 report”) indicates that Filing 18 (or PA 7, same extents) was master planned for 141 SFEs. Therefore, the proposed overall Filing 18 ADF of 116.4875 SFEs is less than the master planned ADF of 141 SFEs. Relevant excerpts from the 2007 report are attached.

Conclusion

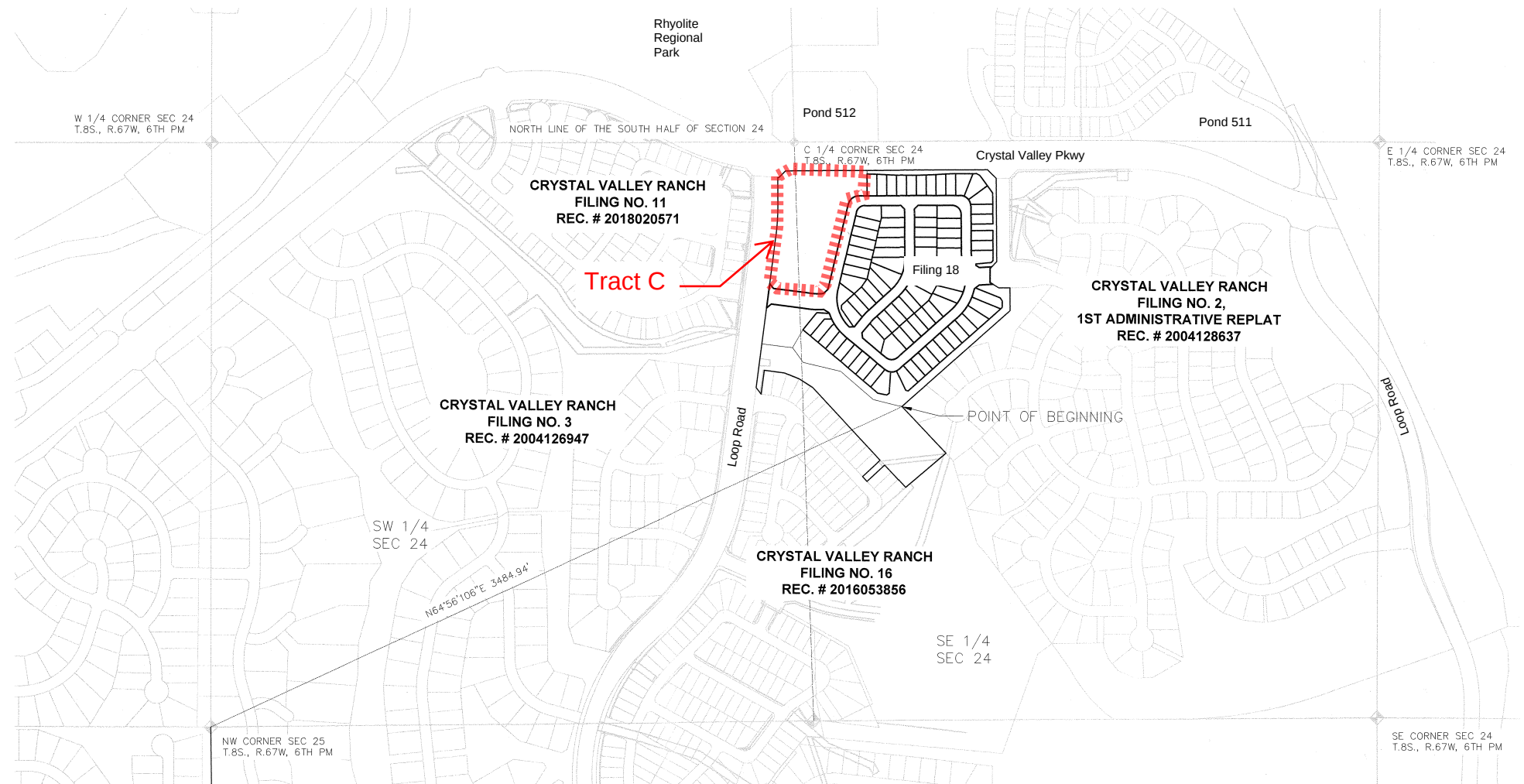
This letter, along with the attached calculations and documentation, indicates that the water supply system and wastewater collection system for the proposed CVR 18, Tract C, development complies with the latest approved master planning documents. Easement or tracts necessary for utilities will be provided at the time of either platting or at final design/construction documents, in accordance with Town standards. The proposed development of the water and wastewater infrastructure needed to serve this site is the responsibility of the developer/owner.

Please contact me if there are any questions or if you require additional information.

Sincerely,
EMK Consultants, Inc.

David J. Ott, P.E.
Project Manager

cc:



CRYSTAL VALLEY RANCH FILING 18, TRACT C - SITE LOCATION MAP

(NTS)



Water Demand Calculations

CVR 18 - Tract C, Final Utility Report - Approved 2/13/20

Lots/Area	Average Daily Demand (gpd)	Maximum Day Demand (gpd)	Peak Hour Demand (gpd)
30,000 SF Commercial	6000	15000	33000

CVR 18 - Tract C, Proposed with revised land plan

Lots/Area	Average Daily Demand (ADD) (gpd)	Maximum Day Demand (MDD) MDD = ADD x 2.5 (gpd)	Peak Hour Demand (PHD) PHD = ADD x 5.5 (gpd)
Commercial Bldg (Restaurants)	6171	15428	33941
Townhouse - Crawl	2904	7260	15972
Townhouse - Garden	960	2400	5280
Single Family Lot - Lot 17	160	400	880
3/4" Irrigation Meter	400	1000	2200

Change from 2/13/20 Approved

4595

11488

25273

Land Use	Typical ADD/Unit	Typical SFEs/Unit
Single Family Residential and Duplexes	400 gpd/dwelling unit	1.00/dwelling unit
Multi-Family Residential (Townhomes and	260 gpd/dwelling unit	0.65/dwelling unit
Retail/Offices	0.2 gpd/SF	0.0005/SF
Hotels/Motels	75 gpd/room	0.19/room
Restaurants	3.0 gpd/SF	0.0075/SF
Car Washes	5,000 gpd/facility	12.5/facility
Industrial / Other Commercial	1,200 gpd/acre	3.0/acre
Institutional	800 gpd/acre	2.0/acre
Rates for Typical Douglas County School Sizes:		
Elementary (10 ac, 675 students)	3,375 gpd/school	8.44/school
Middle (25 ac, 850 students)	8,500 gpd/school	21.25/school
High (50 ac, 1,700 students)	17,000 gpd/school	42.50/school
Rates for Alternate School Sizes:		
Elementary – Domestic	5 gpd/student	0.013/student
Middle – Domestic	10 gpd/student	0.025/student
High – Domestic	10 gpd/student	0.025/student
Elementary Schools – Irrigation	3,000 gpd/total acreage	7.5/total acreage
Middle Schools – Irrigation	5,250 gpd/total acreage	13.1/total acreage
High Schools – Irrigation	4,400 gpd/total acreage	11.0/total acreage
Churches	600 gpd/church	1.5/church
Gym/Fitness Center	0.5 gpd/SF	0.00125 SFE/SF
Irrigated Land (Sports Fields and School Sites Excluded)	3,750 gpd/ irrigated acre	9.38/acre

Notes:

(1) All tabulated ADD rates include irrigation demands with the exception of multi-family residential, car washes, gyms/fitness centers, and schools.

Peaking factors are not applied to irrigation ADD demands. Max Day Demand and Peak Hour Demand are calculated by multiplying the ADD demand by the demand factors. If the site's irrigation demands are calculated using the table in section 4.4.1, the irrigation ADD is added to the calculated MDD and PHD, computed as follows:

Approved SFE Breakdown per Kauffman Homes coordination with Adriana Alfaro w/ TOCR

Total SFE Breakdown	Square feet	# of Units	Proposed SFE	Proposed Total
Commercial building	2057	1	0.0075	15.4275
Townhouse - Crawl	2000	22	0.33	7.26
Townhouse - garden	2868	6	0.4	2.4
Single family home - Lot 17	2592	1	0.4	0.4
3/4" irrigation meter		1	1	1
Total		29		26.4875

Kauffman Homes

SDP22-0057 – Water Bank Deduction Summary

4/7/26

In order to acquire water rights for Crystal Valley – Filing 17 – Tract C, Kauffman Homes needs to establish exactly how much water the project will require. To establish this amount, we decided to use the 2025 Water Demand Calculator established by the Town of Castle Rock, and historic data from our developments in Castle Rock, CO. This gives us a more accurate demand valuation that is in line with the Town's demand calculations. We will have four different product types on our site.

- Commercial – Restaurant
- Crawlspace Townhouse
- Garden Level Townhouse
- Single Family home

Below you will find the proposed water demand for the site based on the Town of Castle Rock 2025 Water Demand Calculator. One factor in the demand calculator that is assumed is the Highest Zone GPM. We used (1) GPM for these numbers. We found this to be above the average Highest Zone GPM on similarly sized lots. When using the Town's Water Demand Calculator and the assumed Highest Zone GPM, we concluded with what we believe is an accurate amount of water the site will demand.

- Commercial Building – 15.43 SFE
- Crawlspace Townhouse – 7.26 SFE
- Garden Level Townhouse – 2.4 SFE
- Single Family Home – 0.4 SFE
- ¾" Irrigation meter – 1 SFE
- **Total : 26.487 SFE = 26.5 SFE**

Total SFE Breakdown				
	Square Feet	# of Units	Proposed SFE	Proposed Total
Commercial building	2057	1	0.0075	15.4275
Townhouse - Crawl	2000	22	0.33	7.26
Townhouse - garden	2868	6	0.4	2.4
Single family home - Lot 17	2592	1	0.4	0.4
3/4" irrigation meter		1	1	1
Total		29		26.4875

Date:
 Permit Number:
 Development Name:
 Model Name/permit : **GG_Townhouse_Crawl**
 Address:
 FRONT AND BACKYARD LS AND
 IRR BY BUILDER: Select One



RESIDENTIAL WATER FIXTURE UNIT CALCULATIONS		
FIXTURE:	Quantity	GPM/Each
Bathtub (no Shower)		5.5
Bidet		2.0
Combinatin Bath/Shower	1	5.5
Faucet, Lavatory	4	1.5
Shower, per head (no Bathtub)	1	2.0
Water Closet, 0.8 GPF Gravity Tank (Maximum) Note tank fill rate is 3 gpm	3	3.0
Dishwasher	1	1.3
Faucet, Kitchen Sink	1	2.2
Clothes Washer	1	3.5
Faucet, Laundry		2.0
Faucet, Bar Sink		1.5
Hose Bib	1	5.8
Fixture 1		3.0
Fixture 2		0.0
(DO NOT WRITE BELOW THIS LINE) TOTALS :		13
Peak Demand Estimate (Based on WDC results) =	9.0	GPM
Highest Irrigation Zone GPM flow =	1.00	GPM
TOTAL GPM =	10.00	GPM
Water Meter size, to be filled in by the Castle Rock Water Department =	3/4 in.	
SFE EQUIVALENT =	0.33	
Total turf area installed (as shown on attached landscape plan) =		Sq.Ft.
Total planting area installed (as shown on attached landscape plan) =		Sq.Ft.
Actual irrigated area installed (as shown on attached landscape plan) =		Sq.Ft.
Maximum calculated irrigable area (as shown on attached landscape plan) =		Sq.Ft.

Date:
 Permit Number:
 Development Name:
 Model Name/permit : **200-Basement**
 Address: Filing 18 - Tract C - Lot 17 - Example
 FRONT AND BACKYARD LS AND IRR
 BY BUILDER: Select One



RESIDENTIAL WATER FIXTURE UNIT CALCULATIONS		
FIXTURE:	Quantity	GPM/Each
Bathtub (no Shower)		5.5
Bidet		2.0
Combinatin Bath/Shower	2	5.5
Faucet, Lavatory	4	1.5
Shower, per head (no Bathtub)	1	2.0
Water Closet,0.8 GPF Gravity Tank (Maximum) Note tank fill rate is 3 gpm	3	3.0
Dishwasher	1	1.3
Faucet, Kitchen Sink	1	2.2
Clothes Washer	1	3.5
Faucet, Laundry		2.0
Faucet, Bar Sink		1.5
Hose Bib	1	5.8
Fixture 1		3.0
Fixture 2		0.0
(DO NOT WRITE BELOW THIS LINE) TOTALS :		14
Peak Demand Estimate (Based on WDC results) =	11.0	GPM
Highest Irrigation Zone GPM flow =	1.00	GPM
TOTAL GPM =	12.00	GPM
Water Meter size, to be filled in by the Castle Rock Water Department =	3/4 in.	
SFE EQUIVALENT =	0.40	
Total turf area installed (as shown on attached landscape plan)=		Sq.Ft.
Total planting area installed (as shown on attached landscape plan)=		Sq.Ft.
Actual irrigated area installed (as shown on attached landscape plan) =		Sq.Ft.
Maximum calculated irrigable area (as shown on attached landscape plan) =		Sq.Ft.

Date:
 Permit Number:
 Development Name:
 Model Name/permit : **GG_Garden**
 Address:
 FRONT AND BACKYARD LS AND
 IRR BY BUILDER: Select One



RESIDENTIAL WATER FIXTURE UNIT CALCULATIONS		
FIXTURE:	Quantity	GPM/Each
Bathtub (no Shower)		5.5
Bidet		2.0
Combinatin Bath/Shower	2	5.5
Faucet, Lavatory	5	1.5
Shower, per head (no Bathtub)	1	2.0
Water Closet,0.8 GPF Gravity Tank (Maximum) Note tank fill rate is 3 gpm	4	3.0
Dishwasher	1	1.3
Faucet, Kitchen Sink	1	2.2
Clothes Washer	1	3.5
Faucet, Laundry		2.0
Faucet, Bar Sink		1.5
Hose Bib	1	5.8
Fixture 1		3.0
Fixture 2		0.0
(DO NOT WRITE BELOW THIS LINE) TOTALS :		16
Peak Demand Estimate (Based on WDC results) =	11.0	GPM
Highest Irrigation Zone GPM flow =	1.00	GPM
TOTAL GPM =	12.00	GPM
Water Meter size, to be filled in by the Castle Rock Water Department =	3/4 in.	
SFE EQUIVALENT =	0.40	
Total turf area installed (as shown on attached landscape plan)=		Sq.Ft.
Total planting area installed (as shown on attached landscape plan)=		Sq.Ft.
Actual irrigated area installed (as shown on attached landscape plan) =		Sq.Ft.
Maximum calculated irrigable area (as shown on attached landscape plan) =		Sq.Ft.

Water Storage Calculations

Required storage for new development only	(gpm)	(gpd)	(MG)
Total Max Day Demand (gpm)	8.0	11488	0.0115
Required Fire Flow (gpm, 1,500 gpm for 60 min)	1500	90000	0.0900
Required Storage		101488	0.1015
Required Storage without Fire Flow		11488	0.0115

4.4.2 Storage Requirements

The required storage volume associated with a particular development shall be computed as follows:

$$\text{Storage Volume (MG)} = \text{Maximum Day Demand (MG)} + \text{Fire Flow (MG)}$$

Example Calculation:

Based on an assumed 1500 gpm two-hour fire and an MDD rate of 75 gpm, the storage requirement would be:

$$\begin{aligned}
 &75 \text{ gpm} \times 60 \text{ min/hr} \times 24 \text{ hrs} = 108,000 \text{ gallons} \\
 &+ 1500 \text{ gpm} \times 60 \text{ min/hr} \times 2 \text{ hrs} = 180,000 \text{ gallons} \\
 &\text{Total required storage} = 288,000 \text{ gallons (0.288 MG)}
 \end{aligned}$$

Based on the computed storage volume, Castle Rock Water will evaluate whether the development is compatible with the location and magnitude of the existing and master-planned storage volume within the pressure zone, or if additional storage must be considered to provide the appropriate level of service to the development. Due to hydraulic constraints and limitations within the service area, fire storage within the pressure zone may need to be duplicated as determined by Castle Rock Water.

Wastewater Flow Calculations

CVR 18 - Tract C, Final Utility Report - Approved 2/13/20

Lots/Area	Average Daily Flow
30,000 SF Commercial	15 SFEs

CVR 18 - Tract C, Proposed with revised land plan

Lots/Area	Average Daily Flow
See water demand tabulation	26.4875 SFEs

Change from 2/13/20 Approved

+11.4875 SFEs

+2,297 gpd

4.4.1.1 Wastewater System Average Daily Flow (ADF)

Land Use	Typical ADF/Unit	Typical SFEs/Unit
Single Family Residential and Duplexes	200 gpd/dwelling unit	1.00/dwelling unit
Multi-Family Residential (Townhomes and Condos)	130 gpd/dwelling unit	0.65/dwelling unit
Retail/Offices	0.1 gpd/SF	0.0005/SF
Hotels/Motels	75 gpd/room	0.375/room
Restaurants	1.5 gpd/SF	0.0075/SF
Car Washes	5,000 gpd/acre	25.0/acre
Industrial/Other Commercial	600 gpd/acre	3.0/acre
Institutional	400 gpd/acre	2.0/acre
Churches	300 gpd/church	1.5/church
Gym/Fitness Center	0.5 gpd/SF	0.00125 SFE/SF
Irrigated Land	0 gpd/acre	0.0/acre
<u>Rates for Typical Douglas County School Sizes:</u>		
Elementary (10 ac, 675 Students)	3,375 gpd/school	16.88/school
Middle (25 ac, 850 students)	8,500 gpd/school	42.50/school
High (50 ac, 1700 students)	17,000 gpd/school	85.00/school
<u>Rates for Alternate School Sizes:</u>		
Elementary	5 gpd/student	0.025/student
Middle	10 gpd/student	0.050/student
High	10 gpd/student	0.050/student

FINAL UTILITY REPORT EXCERPTS

FINAL UTILITY REPORT

FOR

CRYSTAL VALLEY RANCH, FILING NO. 18

Castle Rock, Colorado

CD19-0034

Job. No. CVR18

June 28, 2019

Revised August 16, 2019

Revised October 18, 2019

Revised November 22, 2019

Approved February 13, 2020

Prepared For

CRYSTAL VALLEY RANCH DEVELOPMENT CO.

1175 East Crystal Valley Parkway

Castle Rock, Colorado 80104

(303) 814-6862

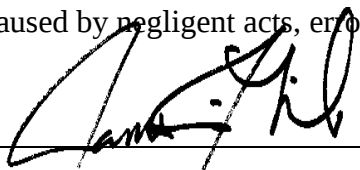
Attn: Gregory W. Brown

Prepared by

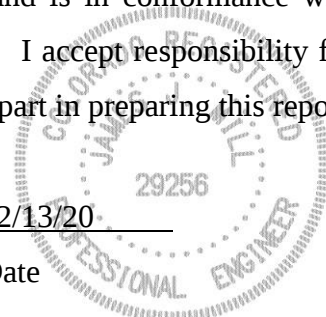


ENGINEER'S STATEMENT:

The enclosed Utility Report (Utility Report for Crystal Valley Ranch Filing No. 18), and exhibits (for the Utility Report) were prepared by me, or under my direct supervision, and are correct to the best of my knowledge and belief. Said Utility Report has been prepared in accordance with applicable Town of Castle Rock criteria and is in conformance with the master utility plans for water and sewer in the affected area. I accept responsibility for any liability caused by negligent acts, errors, or omissions on my part in preparing this report.



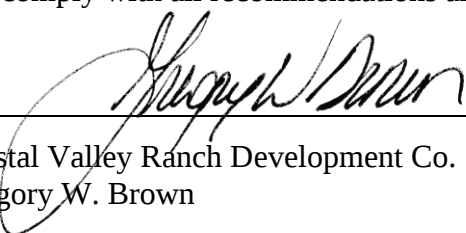
Legacy Engineering, Inc.
James J. Mill, P.E. (Colorado PE #29256)


2/13/20

Date

OWNER/DEVELOPER'S STATEMENT

As Owner/Developer of land(s) identified within this report; I agree to proceed, implement and comply with all recommendations and requirements outlined herein.



Crystal Valley Ranch Development Co.
Gregory W. Brown

2/13/20

Date

TOWN OF CASTLE ROCK APPROVALS:

Engineering Vision

TOWN OF
CASTLE ROCK
COLORADO

DEVELOPMENT SERVICES
APPROVED
by Larry Hearold
on 02/14/2020

Development Services Director
Approved CD19-0034 Final Util Rpt.pdf
Record Document on File

Date

WATER DEMANDS

Zone	Lots / Area	Average Day Demand	Maximum Day Demand	Peak Hour Demand
RED	90 sfe	25.00 gpm	62.50 gpm	137.50 gpm
RED	Residential	36,000 gpd	90,000 gpd	198,000 gpd
RED		0.036 Mgd	0.090 Mgd	0.198 Mgd
RED		0.056 cfs	0.139 cfs	0.306 cfs
RED	30,000 SF	4.17 gpm	10.42 gpm	22.92 gpm
RED	Commercial	6,000 gpd	15,000 gpd	33,000 gpd
RED		0.006 Mgd	0.015 Mgd	0.033 Mgd
RED		0.009 cfs	0.023 cfs	0.051 cfs

Residential Avg Day Demand 400 gpd/sfe = 0.28 gpm/sfe
Commercial Avg Day Demand 0.2 gpd/SF = 0.00014 gpm/SF
Maximum Day Demand Avg Day x 2.50 = 1,000 gpd/sfe
Peak Hour Demand Avg Day x 5.50 = 1.53 gpm/sfe

Irrigation Demands

Low Hydrozone Irrigation Demand 1.140 ac X 3.67 in/yr = 113,608 gal/yr
Moderate Hydrozone Irrigation Demand 0.275 ac X 10.00 in/yr = 74,674 gal/yr
High Hydrozone Irrigation Demand 0.257 ac X 14.80 in/yr = 103,284 gal/yr
Total Annual Irrigation Demand = 291,566 gal/yr
Peak Month Irrigation Demand = 79,177 gal/mo
Irrigation ADD per ToCR WCM 4.4.1 1.672 ac 3,750 gpd/ac = 6,270 gpd

FINAL UTILITY REPORT DEMAND CALCS

WATER STORAGE

Total Max. Day Demand:	77 gpm	111,270 gpd	0.111 MG
Required Fire Flow:	1,000 gpm	60,000 gal/1hr	0.060 MG
Required Storage:		171,270 gal	0.171 MG
Required Storage: (w/o FF)		111,270 gal	0.111 MG

Max. Day Demand = Avg. Day Demand X Maximum Day Factor + Irrigation ADD

Storage Volume = Maximum Day Demand + Fire Flow

FINAL UTILITY REPORT STORAGE CALCS

Water Storage

2007 UTILITY REPORT ADDENDUM EXCERPTS

UTILITY REPORT ADDENDUM FOR CRYSTAL VALLEY RANCH

Castle Rock, Colorado

Saturday, February 12, 2005
Revised: Monday, April 22, 2005
Revised: Monday, November 20, 2006
Revised: Saturday, February 17, 2007
Revised: Monday, May 21, 2007

Job. No. 12990

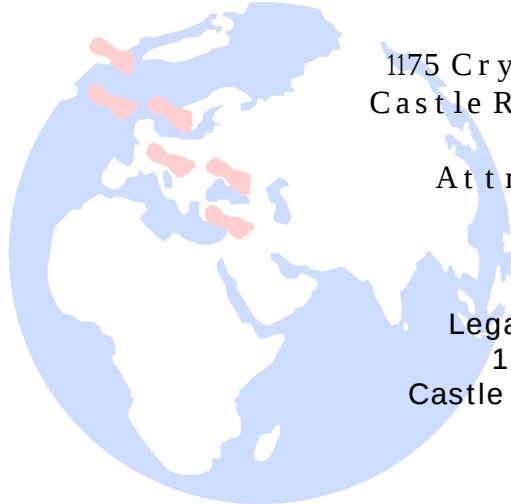
Prepared For

CRYSTAL VALLEY RANCH DEVELOPMENT CO.

1175 Crystal Valley Parkway
Castle Rock, Colorado 80104
(303) 814-6862
Attn: Gregory Brown

Prepared by

Legacy Engineering, Inc.
1626 Thatch Circle
Castle Rock, Colorado 80109
(720) 200-4577



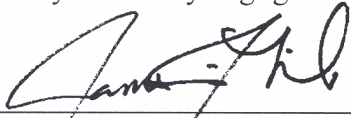
**UTILITY REPORT ADDENDUM
FOR
CRYSTAL VALLEY RANCH**

Castle Rock, Colorado

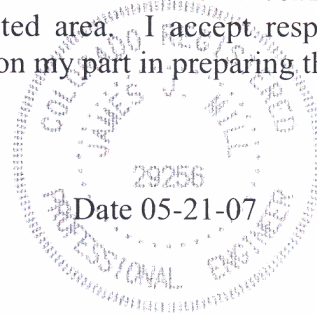
Revised: Monday, May 21, 2007

ENGINEER'S STATEMENT:

The enclosed Utility report addendum (Utility Report Addendum For Crystal Valley Ranch), and exhibits (for the Utility Report) were prepared by me, or under my direct supervision, and are correct to the best of my knowledge and belief. Said utility report addendum has been prepared in accordance with applicable Town of Castle Rock criteria and is in conformance with the master plans for water and wastewater in the affected area. I accept responsibility for any liability caused by negligent acts, errors or omissions on my part in preparing this report.

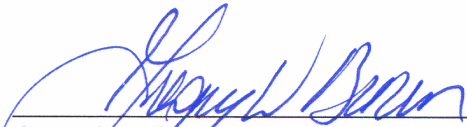


Legacy Engineering, Inc..
James J. Mill, P.E. (Colorado PE #29256)



OWNER/DEVELOPER'S STATEMENT

As Owner/Developer of land(s) identified within this report; I agree to proceed, implement and comply with all recommendations and requirements outlined herein.



Crystal Valley Ranch Development Co.
Gregory Brown. (VP/ General Manager)

5/23/07
Date

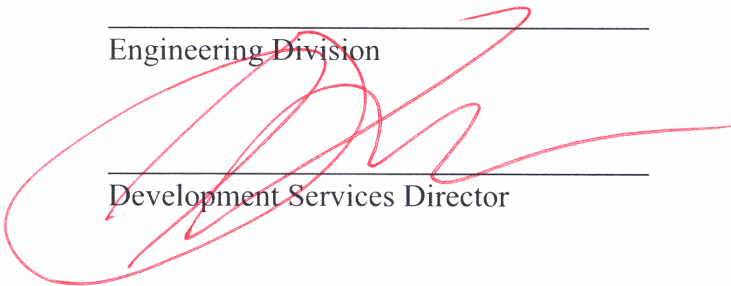
TOWN OF CASTLE ROCK APPROVALS:

Engineering Division

ACCEPTED

Date

P. Clark



Development Services Director

DATE 7/2/07

Crystal Valley Ranch - Sanitary Sewer Calculations

11/17/06 4:20 PM

Design Point

Notes

Sewer Run

PA5 (CVR#3)
PA4 <MF>
PA15(E) (N part is CVR#8)
North School(s)/Park
PA3 <MF>
PA6 <MF>
PA7 <MF>
PA7 <Commercial>
PA19 (now part of PA3)
South School/Park
PA14 (CVR#5B)
PA13 (CVR#5A)
PA17
PA16 (16A is CVR#9-north)
PA12
PA11 (11A is CVR#9-south)
PA10 (lumped into PA9 now)
PA9
Rec Center (CVR#3)
PA8 (CVR2)

Tributary SFE's
Typical Usage:
Average Day (gpd)
Average Day (gpm)
Average Day (cfs)
Peaking Factor (Denver)
Max Day (gpd)
Max Day (MGD)
Max Day (gpm)
Max Day (cfs)
I & I (10% of Ave Day {CR})
Max Day + I & I
Depth of flow in Pipe
Manning's "n"
Manning's Conversion "k"
Pipe Slope
Pipe Diameter (inches)
Pipe Diameter (feet)
Pipe Area
Pipe Perimeter
Wetted Perimeter
Wetted Area
Theta
Hydraulic Radius (Rh)
Computed Flow Velocity
Computed Flow in Pipe
Correct Depth check
Flow area check
Depth of Max Capacity (94%)
Max Capacity Theta
Max Capacity Wetted Perimeter
Max Capacity Wetted Area
Max Capacity Hyd Radius (Rh)
Max Capacity Velocity
Max Pipe Capacity
80% of Max Pipe Capacity
Flow % of Max Pipe Capacity

In CVR Pkwy
from PA 7

In CVR Pkwy
In CVR Pkwy

South stub to
EX-SMH-I
E-SMH-I TO
EX-SMH-H
E-SMH-H TO
EX-SMH-G
E-SMH-I
EX-SMH-I
E-SMH-C TO
EX-SMH-B
E-SMH-B TO
EX-SMH-A
North Stub to
E-SMH-A
E-SMH-A TO
EX-SMH-AA
E-SMH-AA to Lift
Station
E-SMH-AA to Lift
Station
E-SMH-AA to Lift
Station
E-SMH-AA to Lift
Station

364 SFE
200 gpd/SFE
72880 gpd
51 gpm
0.11 cfs
5.00
364400 gpd
0.364 MGD
253 gpm
0.56 cfs
0.01 cfs
0.58 cfs
0.36 ft
0.011
1.49
0.0050 ft/ft
8 in
0.67 ft
0.35 sf
2.09 ft
1.10 ft
0.19 sf
3.30 radians
0.17 ft
2.99 fps
0.58 cfs
YES
OK
0.63 ft
5.28 radians
1.76 ft
0.34 sf
0.19 ft
3.20 fps
1.09 cfs
0.87 cfs
53%

In CVR Pkwy
In CVR Pkwy

52 SFE
189 SFE
73 SFE
162 SFE
81 SFE
111 SFE
30 SFE
0 SFE
27 SFE
115 SFE

840 SFE
200 gpd/SFE
167908 gpd
117 gpm
0.26 cfs
4.74
796487 gpd
0.796 MGD
553 gpm
1.23 cfs
0.03 cfs
1.26 cfs
0.30 ft
0.011
1.49
0.0322 ft/ft
10 in
0.83 ft
0.55 sf
2.62 ft
1.06 ft
0.17 sf
2.55 radians
0.16 ft
7.26 fps
1.26 cfs
YES
OK
0.78 ft
5.28 radians
2.20 ft
0.53 sf
0.24 ft
9.43 fps
5.01 cfs
4.01 cfs
25%

In CVR Pkwy
In CVR Pkwy

52 SFE
189 SFE
73 SFE
162 SFE
81 SFE
111 SFE
30 SFE
0 SFE
27 SFE
115 SFE

840 SFE
200 gpd/SFE
167908 gpd
117 gpm
0.26 cfs
4.74
796487 gpd
0.796 MGD
553 gpm
1.23 cfs
0.03 cfs
1.26 cfs
0.31 ft
0.011
1.49
0.0350 ft/ft
10 in
0.83 ft
0.55 sf
2.62 ft
1.05 ft
0.17 sf
2.52 radians
0.16 ft
7.48 fps
1.26 cfs
YES
OK
0.78 ft
5.28 radians
2.20 ft
0.53 sf
0.24 ft
9.83 fps
5.23 cfs
4.18 cfs
24%

In CVR Pkwy
In CVR Pkwy

52 SFE
189 SFE
73 SFE
162 SFE
81 SFE
111 SFE
30 SFE
0 SFE
27 SFE
115 SFE

840 SFE
200 gpd/SFE
167908 gpd
117 gpm
0.26 cfs
4.74
796487 gpd
0.796 MGD
553 gpm
1.23 cfs
0.03 cfs
1.26 cfs
0.47 ft
0.011
1.49
0.0262 ft/ft
10 in
0.83 ft
0.55 sf
2.62 ft
1.10 ft
0.19 sf
2.64 radians
0.17 ft
6.73 fps
1.26 cfs
YES
OK
0.78 ft
5.28 radians
2.20 ft
0.53 sf
0.24 ft
8.51 fps
5.25 cfs
3.62 cfs
28%

In CVR Pkwy
In CVR Pkwy

52 SFE
189 SFE
73 SFE
162 SFE
81 SFE
111 SFE
30 SFE
0 SFE
27 SFE
115 SFE

840 SFE
200 gpd/SFE
167908 gpd
117 gpm
0.26 cfs
4.74
796487 gpd
0.796 MGD
553 gpm
1.23 cfs
0.03 cfs
1.26 cfs
0.41 ft
0.011
1.49
0.0065 ft/ft
10 in
0.83 ft
0.55 sf
2.62 ft
1.41 ft
0.31 sf
3.12 radians
0.21 ft
4.67 fps
1.26 cfs
YES
OK
0.78 ft
5.28 radians
2.20 ft
0.53 sf
0.24 ft
4.24 fps
2.25 cfs
1.80 cfs
56%

In CVR Pkwy
In CVR Pkwy

52 SFE
189 SFE
73 SFE
162 SFE
81 SFE
111 SFE
30 SFE
0 SFE
27 SFE
115 SFE

840 SFE
200 gpd/SFE
167908 gpd
117 gpm
0.26 cfs
4.74
796487 gpd
0.796 MGD
553 gpm
1.23 cfs
0.03 cfs
1.26 cfs
0.43 ft
0.011
1.49
0.0097 ft/ft
10 in
0.83 ft
0.55 sf
2.62 ft
1.30 ft
0.27 sf
3.23 radians
0.21 ft
4.38 fps
1.26 cfs
YES
OK
0.78 ft
5.28 radians
2.20 ft
0.53 sf
0.24 ft
5.18 fps
2.53 cfs
2.20 cfs
46%

In CVR Pkwy
In CVR Pkwy

52 SFE
189 SFE
73 SFE
162 SFE
81 SFE
111 SFE
30 SFE
0 SFE
27 SFE
115 SFE

840 SFE
200 gpd/SFE
167908 gpd
117 gpm
0.26 cfs
4.74
796487 gpd
0.796 MGD
553 gpm
1.23 cfs
0.03 cfs
1.26 cfs
0.43 ft
0.011
1.49
0.0082 ft/ft
10 in
0.83 ft
0.55 sf
2.62 ft
1.34 ft
0.29 sf
2.77 radians
0.18 ft
6.03 fps
1.26 cfs
YES
OK
0.78 ft
5.28 radians
2.20 ft
0.53 sf
0.24 ft
7.32 fps
3.89 cfs
3.11 cfs
50%

In CVR Pkwy
In CVR Pkwy

52 SFE
189 SFE
73 SFE
162 SFE
81 SFE
111 SFE
30 SFE
0 SFE
27 SFE
115 SFE

840 SFE
200 gpd/SFE
167908 gpd
117 gpm
0.26 cfs
4.74
796487 gpd
0.796 MGD
553 gpm
1.23 cfs
0.03 cfs
1.26 cfs
0.43 ft
0.011
1.49
0.0194 ft/ft
10 in
0.83 ft
0.55 sf
2.62 ft
1.15 ft
0.21 sf
2.22 radians
0.18 ft
2.16 fps
0.17 cfs
YES
OK
0.63 ft
5.28 radians
1.76 ft
0.34 sf
0.19 ft
3.20 fps
1.09 cfs
0.87 cfs
32%

In CVR Pkwy
In CVR Pkwy

52 SFE
189 SFE
73 SFE
162 SFE
81 SFE
111 SFE
30 SFE
0 SFE
27 SFE
115 SFE

840 SFE
200 gpd/SFE
167908 gpd
117 gpm
0.26 cfs
4.74
796487 gpd
0.796 MGD
553 gpm
1.23 cfs
0.03 cfs
1.26 cfs
0.43 ft
0.011
1.49
0.0050 ft/ft
8 in
0.67 ft
0.35 sf
2.09 ft
1.15 ft
0.08 sf
3.73 radians
0.11 ft
7.17 fps
3.83 cfs
YES
OK
0.94 ft
5.28 radians
2.64 ft
0.77 sf
0.29 ft
7.22 fps
5.53 cfs
4.42 cfs
69%

In CVR Pkwy
In CVR Pkwy

52 SFE
189 SFE
73 SFE
162 SFE
81 SFE
111 SFE
30 SFE
0 SFE
27 SFE
115 SFE

840 SFE
200 gpd/SFE
167908 gpd
117 gpm
0.26 cfs
4.74
796487 gpd
0.796 MGD
553 gpm
1.23 cfs
0.03 cfs
1.26 cfs
0.64 ft
0.011
1.49
0.0148 ft/ft
12 in
1.00 ft
0.79 sf
3.14 ft
1.86 ft
5.06 radians
0.29 ft
5.11 fps
3.83 cfs
YES
OK
0.9382 ft
5.28 radians
2.64 ft
0.77 sf
0.29 ft
5.04 fps
3.85 cfs
3.08 cfs
99.48%

In CVR Pkwy
In CVR Pkwy

52 SFE
189 SFE
73 SFE
162 SFE
81 SFE
111 SFE
30 SFE
0 SFE
27 SFE
115 SFE

840 SFE
200 gpd/SFE
167908 gpd
117 gpm
0.26 cfs
4.74
796487 gpd
0.796 MGD
553 gpm
1.23 cfs
0.03 cfs
1.26 cfs
0.64 ft
0.011
1.49
0.0072 ft/ft
12 in
1.00 ft
0.79 sf
3.14 ft
2.53 ft
4.03 radians
0.30 ft
5.13 fps
3.83 cfs
YES
OK
0.94 ft
5.28 radians
2.64 ft
0.77 sf
0.29 ft
5.04 fps
3.85 cfs
3.08 cfs
80%

In CVR Pkwy
In CVR Pkwy

52 SFE
189 SFE
73 SFE
162 SFE
81 SFE
111 SFE
30 SFE
0 SFE
27 SFE
115 SFE

840 SFE
200 gpd/SFE
167908 gpd
117 gpm
0.26 cfs
4.74
796487 gpd
0.796 MGD
553 gpm
1.23 cfs
0.03 cfs
1.26 cfs
0.72 ft
0.011
1.49
0.0072 ft/ft
12 in
1.00 ft
0.79 sf
3.14 ft
2.20 ft
4.39 radians
0.30 ft
5.20 fps
3.47 cfs
YES
OK
0.94 ft
5.28 radians
2.64 ft
0.77 sf
0.29 ft
5.04 fps
3.85 cfs
3.08 cfs
90%

In CVR Pkwy
In CVR Pkwy

52 SFE
189 SFE
73 SFE
162 SFE
81 SFE
111 SFE
30 SFE
0 SFE
27 SFE
115 SFE

840 SFE
200 gpd/SFE
167908 gpd
117 gpm
0.26 cfs
4.74
796487 gpd
0.796 MGD
553 gpm
1.23 cfs
0.03 cfs
1.26 cfs
0.88 ft
0.011
1.49
0.0035 ft/ft
15 in
1.25 ft
1.23 sf
3.93 ft
2.49 ft
3.99 radians
0.37 ft
4.14 fps
3.83 cfs
YES
OK
1.17 ft
5.28 radians
3.30 ft
1.20 sf
4.07 fps
4.87 cfs
3.90 cfs
79%

CVR18 = 105 sfe

Now 116.4875 SFEs
vs 141 SFEs planned
for.

1215

Final Utility System Analysis Report for Loop Road

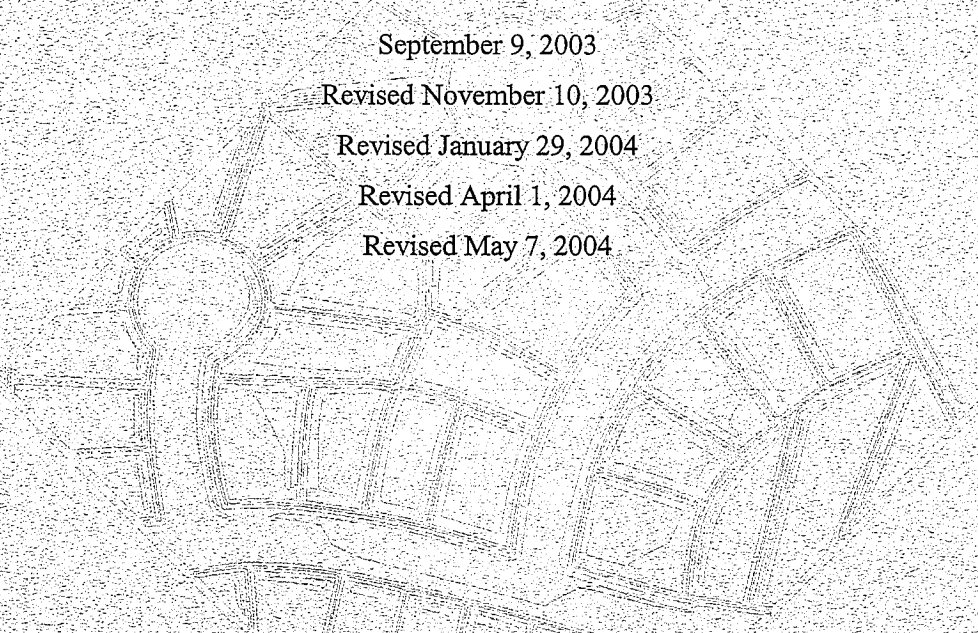
September 9, 2003

Revised November 10, 2003

Revised January 29, 2004

Revised April 1, 2004

Revised May 7, 2004



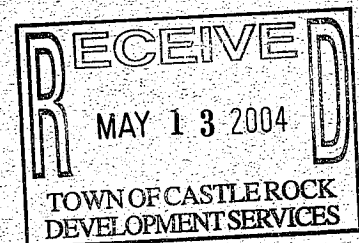
Prepared for:

Crystal Valley Ranch Development Company
823 South Perry Street, Suite 210
Castle Rock, CO 80104
Contact: Byron Glenn
(303) 814-6862

Prepared by:

Manhard Consulting, Ltd.
8232 Park Meadows Drive
Littleton, Colorado 80124
Contact: Guy Britt
(303) 708-0500

APPROVED



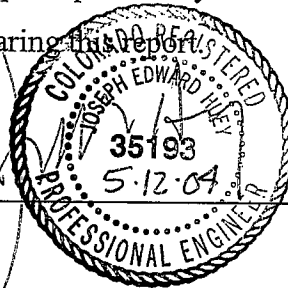
M A N H A R D C O N S U L T I N G , L T D .

Final Utility System Analysis Report for Loop Road

ENGINEER'S STATEMENT

The enclosed Final utility report and exhibits were prepared by me or under my direct supervision, and are correct to the best of my knowledge and belief. Said utility report has been prepared in accordance with applicable Town of Castle Rock criteria and is in conformance with the Master Plan of Utility for the affected area. I accept responsibility for any liability caused by negligent acts, errors or omissions on my part in preparing this report.

Joseph E. Huey, P.E.
Registered Professional Engineer
State of Colorado No.35193



OWNER / DEVELOPER'S STATEMENT

As Owner / Developer of land(s) identified within this report, I agree to proceed, implement, and comply with all recommendations and requirements outlined herein.

Crystal Valley Ranch Development Company

By: Byron Glenn
Byron Glenn

6/10/04
Date

APPROVED

**Final Utility System Analysis Report
for
Loop Road**

TOWN OF CASTLE ROCK APPROVALS

Don Margrett
Engineering Division

**Approved
Development Services**

JUN 10 2004

Town of Castle Rock
Development Services Director

6/10/04
Date

Date

APPROVED

WATER DEMAND
CRYSTAL VALLEY RANCH
8/5/03, Rev. 11/10/03, Rev. 4/1/04

Development Type	Filing No.	Development Area	Area (ac.)	Pressure Zone	Development Type	Average Day Demand	Number of DUs/Acres	SFE	Total Ave Demand (gpd)	Total Ave Demand (gpm)
Single Family	3	P.A. 1	31.20	Red	R-SF	400	62	1.00	24,800	17.22
		P.A. 5	16.00	Red	R-SF	400	52	1.00	20,800	14.44
		P.A. 8	73.90	Red	R-SF	400	215	1.00	86,000	59.72
	2	P.A. 11	60.80	Red	R-SF	400	243	1.00	97,200	67.50
		P.A. 12	34.70	Red	R-SF	400	139	1.00	55,600	38.61
		P.A. 13	145.00	Green	R-SF	400	389	1.00	155,600	108.06
		P.A. 14	22.70	Green	R-SF	400	67	1.00	26,800	18.61
	1	P.A. 15 (E)	207.30	Green	R-SF	400	518	1.00	207,200	143.89
		P.A. 15 (W) (Portion w/ CVR#1)	60.00	Green	R-SF	400	60	1.00	24,000	16.67
		P.A. 15 (W) (Remainder)	21.80	Green	R-SF	400	22	1.00	8,800	6.11
		P.A. 16	34.90	Red	R-SF	400	105	1.00	42,000	29.17
	1	P.A. 18	72.80	Red	R-SF	400	150	1.00	60,000	41.67
		Sub-Total Water Demand							808,800	561.67
Multi-Family	P.A. 3	5.20	Red	R-MF	260	83	0.65	21,580	14.99	
	P.A. 4	20.20	Red	R-MF	260	323	0.65	83,980	58.32	
	P.A. 6	9.60	Red	R-MF	260	154	0.65	40,040	27.81	
	P.A. 7	10.80	Red	R-MF	260	173	0.65	44,980	31.24	
	Sub-Total Water Demand							180,580	132.35	
	P.A. 9	28.30	Red	R-TH	400	226	1.00	90,400	62.78	
	P.A. 10	30.70	Red	R-TH	400	246	1.00	98,400	68.33	
	P.A. 17	15.00	Red	R-TH	400	120	1.00	48,000	33.33	
	Sub-Total Water Demand							236,800	164.44	
	Commercial	P.A. 2	40.00	Grey	Commercial	400	40	3.00	48,000	33.33
P.A. 7		10.00	Red	Commercial	400	10	3.00	12,000	8.33	
P.L.D. Fire Station		1.00	Red	Fire Station	400	1	2.00	800	0.56	
Recreation Center		9.30	Red	Commercial	400	1	3.00	11,160	7.75	
Sub-Total Water Demand								71,960	49.97	
Schools	P.L.D. School (55 ac. North)									
	10 acre Elementary School	10.00	Red	School	400	1	46.88	18,752	13.02	
	25 acre Mid School	25.00	Red	School	400	1	114.76	45,904	31.88	
	19 acre Park	19.00	Red	Park	400	19	5.00	38,000	26.39	
	P.L.D. School (30 ac. South)									
	10 acre Elementary School	10.00	Green	School	400	1	46.88	18,752	13.02	
	Park	20.40	Green	Park	400	20.4	5.00	40,800	28.33	
	Sub-Total Water Demand							162,208	112.64	
Parks/Open Space	P.L.D. Parks	45.60	Red	Park	400	45.6	5.00	91,200	63.33	
	Out Parcel	40.00	N/A	Out Parcel	0	N/A	0.00	0	0.00	
	O.S.D.	83.50	N/A	Open Space	0	N/A	0.00	0	0.00	
	O.S.D.	23.20	N/A	Flood Plain	0	N/A	0.00	0	0.00	
	R.O.W. (16.1acre Irrigated)	35.30	Red	Arterial Rd.	400	16.1	5.00	32,200	22.36	
	R.O.W. (1.5 acre Irrigated)	13.50	Red	Loop Rd.	400	1.5	5.00	3,000	2.08	
	R.O.W. (3.1 acre Irrigated)	16.80	Green	Loop & Access Rd.	400	3.1	5.00	6,200	4.31	
	Sub-Total Water Demand							132,600	92.08	
	Heckendorf Property	Off-Site Development	N/A	Red	R-SF	400	230	1.00	92,000	63.89
Lantems Property	Off-Site Development	N/A	Red	R-SF	400	350	1.00	140,000	97.22	
Lantems Property	Off-Site Development	N/A	Green	R-SF	400	156	1.00	62,400	43.33	

Max Day Factor 2.65 Total Average Day Demand (GPD) (GPM) 1,897,348 1,317.6

Peak Hour Factor 4.5 Total Average Day Demand (MGD) 1.90

NOTE: PA's w/ a filing no. are the designed density
PA's w/out a filing no. are the zoned density

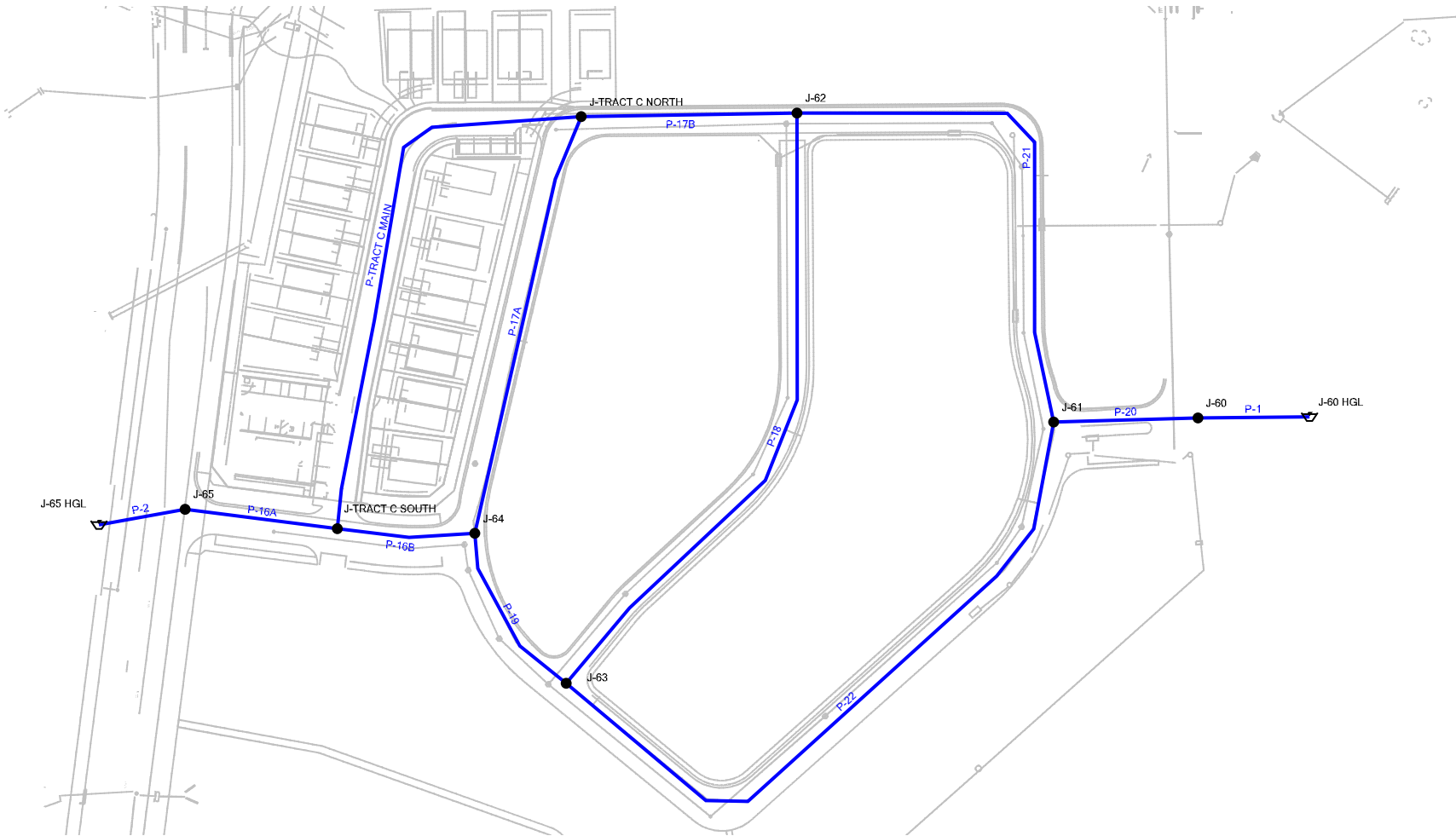
Max Day Demand (MGD) 5.03

Peak Hour Demand (MGD) 8.54

PA 7 (Filing 18)Planned demand from the 2004 study

APPROVED

CVR 18 WATERCAD SCHEMATIC



Scenario: Zero Demand - Tanks 20% Full
Current Time Step: 0.000 h
FlexTable: Pipe Table

Label	Length (ft)	Diameter (in)	Hazen- Williams C	Flow (gpm)	Headloss Gradient (ft/ft)	Velocity (ft/s)
P-1	10	8.0	120.0	0	0.000	0.00
P-2	10	18.0	120.0	0	0.000	0.00
P-16A	169	8.0	120.0	0	0.000	0.00
P-16B	152	8.0	120.0	0	0.000	0.00
P-17A	474	8.0	120.0	0	0.000	0.00
P-17B	237	8.0	120.0	0	0.000	0.00
P-18	723	8.0	120.0	0	0.000	0.00
P-19	201	8.0	120.0	0	0.000	0.00
P-20	159	8.0	120.0	0	0.000	0.00
P-21	584	8.0	120.0	0	0.000	0.00
P-22	801	8.0	120.0	0	0.000	0.00
P-TRACT C MAIN	628	8.0	120.0	0	0.000	0.00

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Scenario: Zero Demand - Tanks 20% Full
Current Time Step: 0.000 h
FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-60	6,453.00	0	6,662.00	90
J-61	6,455.00	0	6,662.00	90
J-62	6,464.00	0	6,662.00	86
J-63	6,485.00	0	6,662.00	77
J-64	6,490.00	0	6,662.00	74
J-65	6,495.00	0	6,662.00	72
J-TRACT C NORTH	6,468.00	0	6,662.00	84
J-TRACT C SOUTH	6,488.00	0	6,662.00	75

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Scenario: Zero Demand - Tanks 100% Full
Current Time Step: 0.000 h
FlexTable: Pipe Table

Label	Length (ft)	Diameter (in)	Hazen- Williams C	Flow (gpm)	Headloss Gradient (ft/ft)	Velocity (ft/s)
P-1	10	8.0	120.0	0	0.000	0.00
P-2	10	18.0	120.0	0	0.000	0.00
P-16A	169	8.0	120.0	0	0.000	0.00
P-16B	152	8.0	120.0	0	0.000	0.00
P-17A	474	8.0	120.0	0	0.000	0.00
P-17B	237	8.0	120.0	0	0.000	0.00
P-18	723	8.0	120.0	0	0.000	0.00
P-19	201	8.0	120.0	0	0.000	0.00
P-20	159	8.0	120.0	0	0.000	0.00
P-21	584	8.0	120.0	0	0.000	0.00
P-22	801	8.0	120.0	0	0.000	0.00
P-TRACT C MAIN	628	8.0	120.0	0	0.000	0.00

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Scenario: Zero Demand - Tanks 100% Full
Current Time Step: 0.000 h
FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-60	6,453.00	0	6,680.00	98
J-61	6,455.00	0	6,680.00	97
J-62	6,464.00	0	6,680.00	93
J-63	6,485.00	0	6,680.00	84
J-64	6,490.00	0	6,680.00	82
J-65	6,495.00	0	6,680.00	80
J-TRACT C NORTH	6,468.00	0	6,680.00	92
J-TRACT C SOUTH	6,488.00	0	6,680.00	83

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Scenario: Max Day + FF w/ P-16A out of service
Current Time Step: 0.000 h
FlexTable: Pipe Table

Label	Length (ft)	Diameter (in)	Hazen- Williams C	Flow (gpm)	Headloss Gradient (ft/ft)	Velocity (ft/s)
P-1	10	8.0	120.0	1,581	0.049	10.09
P-2	10	18.0	120.0	0	0.000	0.00
P-16A	169	0.0	120.0	0	0.143	0.27
P-16B	152	8.0	120.0	-1,011	0.022	6.45
P-17A	474	8.0	120.0	200	0.001	1.28
P-17B	237	8.0	120.0	708	0.011	4.52
P-18	723	8.0	120.0	112	0.000	0.72
P-19	201	8.0	120.0	-811	0.014	5.17
P-20	159	8.0	120.0	-1,581	0.049	10.09
P-21	584	8.0	120.0	851	0.016	5.43
P-22	801	8.0	120.0	-729	0.012	4.66
P-TRACT C MAIN	628	8.0	120.0	-508	0.006	3.24

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Scenario: Max Day + FF w/ P-16A out of service
Current Time Step: 0.000 h
FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-60	6,453.00	0	6,661.01	90
J-61	6,455.00	0	6,653.16	86
J-62	6,464.00	31	6,643.96	78
J-63	6,485.00	31	6,643.70	69
J-64	6,490.00	0	6,640.81	65
J-65	6,495.00	0	6,661.60	72
J-TRACT C NORTH	6,468.00	0	6,641.32	75
J-TRACT C SOUTH	6,488.00	1,518	6,637.53	65

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Scenario: Peak Hour
Current Time Step: 0.000 h
FlexTable: Pipe Table

Label	Length (ft)	Diameter (in)	Hazen- Williams C	Flow (gpm)	Headloss Gradient (ft/ft)	Velocity (ft/s)
P-1	10	8.0	120.0	-52	0.000	0.33
P-2	10	18.0	120.0	230	0.000	0.29
P-16A	169	8.0	120.0	230	0.001	1.47
P-16B	152	8.0	120.0	126	0.000	0.81
P-17A	474	8.0	120.0	-24	0.000	0.15
P-17B	237	8.0	120.0	-87	0.000	0.56
P-18	723	8.0	120.0	-9	0.000	0.06
P-19	201	8.0	120.0	102	0.000	0.65
P-20	159	8.0	120.0	52	0.000	0.33
P-21	584	8.0	120.0	-27	0.000	0.17
P-22	801	8.0	120.0	25	0.000	0.16
P-TRACT C MAIN	628	8.0	120.0	63	0.000	0.40

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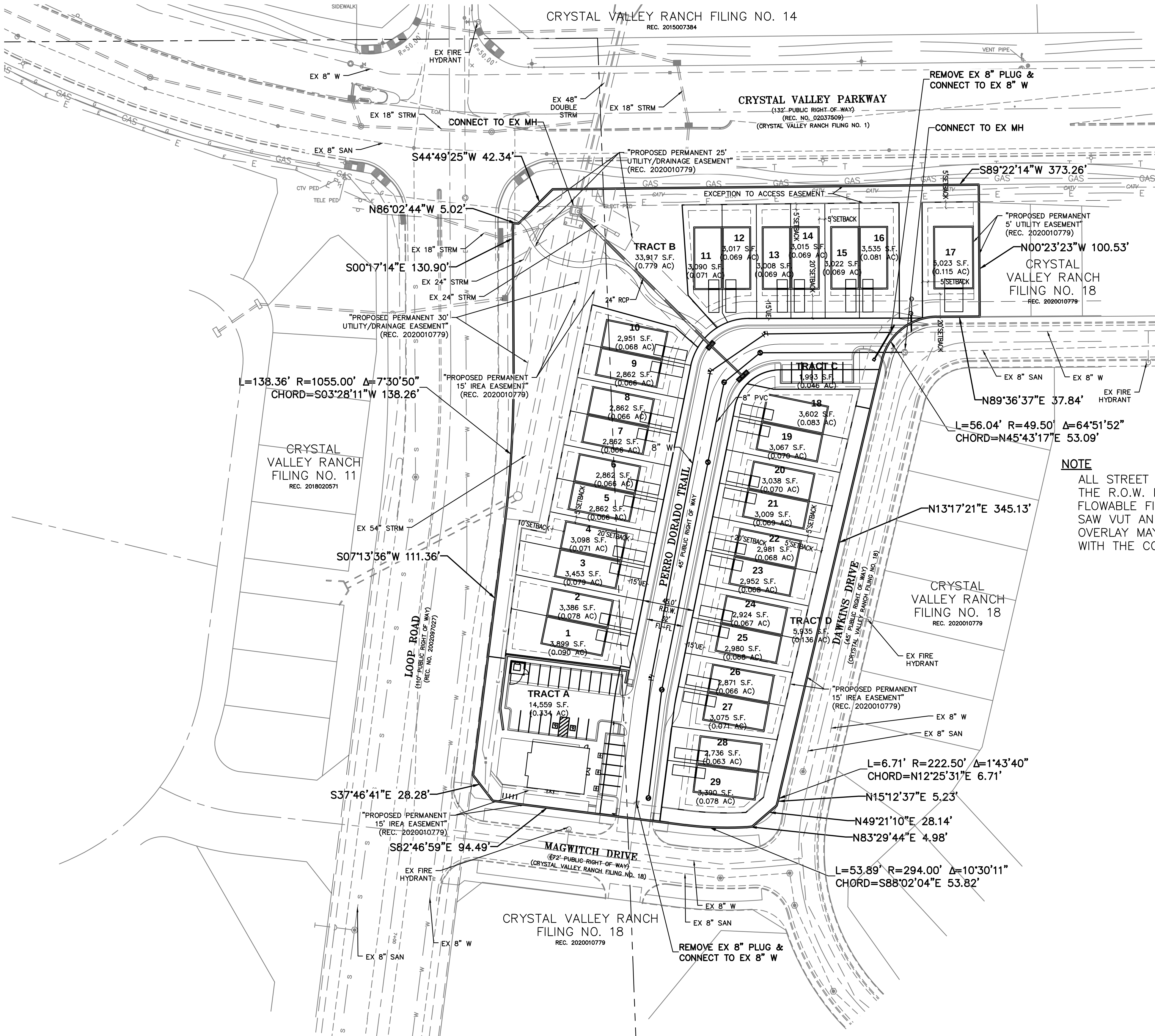
Scenario: Peak Hour
Current Time Step: 0.000 h
FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-60	6,453.00	0	6,660.10	90
J-61	6,455.00	0	6,660.12	89
J-62	6,464.00	69	6,660.13	85
J-63	6,485.00	69	6,660.13	76
J-64	6,490.00	0	6,660.20	74
J-65	6,495.00	0	6,660.50	72
J-TRACT C NORTH	6,468.00	0	6,660.19	83
J-TRACT C SOUTH	6,488.00	41	6,660.27	75

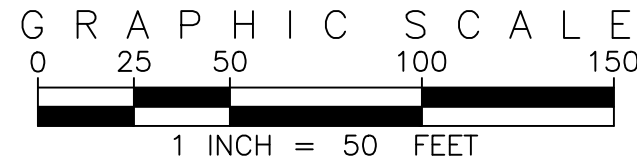
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SITE DEVELOPMENT PLAN (SDP 22-0057)
CRYSTAL VALLEY RANCH
FILING NO. 18 - TRACT C

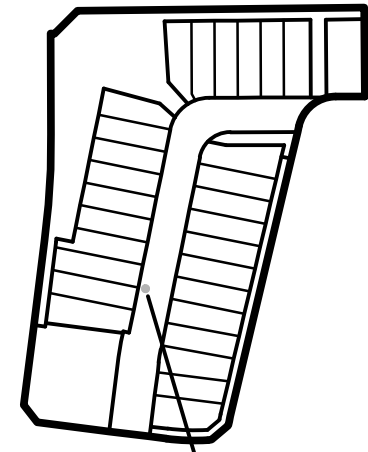
TRACT C, CRYSTAL VALLEY RANCH FILING 18 PLAT TOWN OF CASTLE ROCK, COUNTY OF DOUGLAS, STATE OF COLORADO
LYING WITHIN THE SOUTH HALF OF SECTION 24, TOWNSHIP 8 SOUTH, RANGE 67 WEST OF THE 6TH PRINCIPAL MERIDIAN



NOTE
ALL STREET CUTS FOR UTILITY WITHIN THE R.O.W. MUST BE BACKFILLED WITH FLOWABLE FILL. PERIMETER SHALL BE SAW VUT AND EDGE MILLED, A MILL AND OVERLAY MAY BE REQUIRED, COORDINATE WITH THE CONSTRUCTION INSPECTOR



KEY MAP
SCALE 1"=250'



THIS SHEET

LEGEND

- SECTION/ALIQUOT LINE
- BOUNDARY LINE
- RIGHT-OF-WAY LINE
- CENTER/RANGE LINE
- LOT/PARCEL LINE
- EASEMENT LINE
- SETBACK LINE
- PROPOSED CURB & GUTTER
- SIDEWALK
- SIGHT TRIANGLE
- BUILDING FOOTPRINT
- STOP SIGN
- RAMP
- PARKING SPACE LINE
- RETAINING WALL
- BIKE PARKING
- STORM INLET

UTILITIES LEGEND

- PROPOSED STORM SEWER, INLET, MANHOLE, & FLARED END SECTION
- EXISTING STORM SEWER, INLET, MANHOLE, & FLARED END SECTION
- PROPOSED SANITARY SEWER & MANHOLE
- EXISTING SANITARY SEWER & MANHOLE
- PROPOSED WATER MAIN, FIRE HYDRANT, TEE, VALVE, & REDUCER
- EXISTING WATER MAIN, FIRE HYDRANT, VALVE, & REDUCER
- PROPOSED BEND W/THRUST BLOCK, CHECK VALVE, & PLUG W/ BLOWOFF
- EXISTING BEND W/THRUST BLOCK, CHECK VALVE, & PLUG W/ BLOWOFF
- 3/4" IRRIGATION TAP AND METER

NOTES

- This site is located within the Town of Castle Rock RED water pressure zone.
- All proposed easements must be recorded prior to issuance of construction permits.
- All utility easements for water and wastewater lines shall be for the exclusive use of the Town so that access and maintenance may be performed.
- The minimum separation between waterlines, sanitary sewer and storm sewer lines is 10 feet.
- The minimum separation between water service lines is 5 feet.
- Any tie-in, crossing or lowering of Town critical infrastructure will require a Time and Materials Permit (TMU) with fees required prior to construction.

OWNER:
Pinnacle View
Development, LLC

16810 Avenue of the Fountains,
Fountain Hills, AZ 85269

ENGINEER / SURVEYOR:
EMK Consultants, Inc.

7006 S. Alton Way, Bldg. F
Centennial, CO 80112
Office: 303-694-1520 x107



PLANNER / LANDSCAPE:
henry
design
group
Landscape Architecture • Planning • Entertainments
1001 Wazee Street Suite 1-C, Denver, Colorado 80202
303.446.2808 • henydesigngroup.com

ARCHITECT:
EVstudio
5335 W. 48th Ave. Suite 300
Denver, CO 80212
Office: 303-470-7242

IRRIGATION:
Aracet
IRRIGATION
DESIGN
7714 W. Jefferson Ave.
Lakewood, CO 80235
Office: 303-986-2175

CALL UNCC
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METRO DENVER AREA
UTILITY NOTIFICATION CENTER OF COLORADO

CRYSTAL VALLEY RANCH
FILING 18 - TRACT C
Castle Rock, Colorado
Site Development Plan

DRAWN BY: JDS
CHECK BY: GAW
ISSUE DATE: 11/7/2025
REVISIONS:
STAMPED:
REVISED:

OVERALL UTILITY
PLAN

SHEET TITLE
4 OF 10

SHEET NUMBER

CRYSTAL VALLEY RANCH
FILING 18 - TRACT C
SITE DEVELOPMENT PLAN
PROJECT NO. SDP22-0057



Complete and sign this PCWRA/CRW-interceptor acknowledgement form, to verify the determination for a oil/grease interceptor and include it in the Utility Report

Commercial Business Building Permit Grease Interceptor Requirement

All Commercial Business Building Permits for new business and construction of new buildings, remodels, or tenant improvement permits will be required to comply with Town Code 13.05, Grease Interceptors Required. Applicant will be required to submit an Industry Information Questionnaire through the Plum Creek Water Reclamation Authority (PCWRA) to verify if the business will require an oil/grease interceptor. Please go to PCWRA website at:

<https://www.pcwracolorado.org/commercial-businesses>

CONSTRUCTION DRAWINGS

Please note PCWRA requires all new commercial buildings to provide a stub-out for a separate waste line for future interceptor installation, if not proposed with the project. All drainage fixtures and grease waste lines that are tied to the oil/grease must be shown in the construction drawings as well as the location of the oil/grease interceptor.

ACKNOWLEDGEMENT

The applicant must sign and date this form to acknowledge that the applicant has read and understands the Town's Code requirement regarding Grease Interceptors, PCWRA's requirement to complete an Industry Information Questionnaire and Food Service Application, and the Town's requirement that a letter from PCWRA must be provided with the Town of Castle Rock Building Permit. This signed form is required to be included in the Utility Report with the Predevelopment Plan (PDP), Site Development Plan (SDP) and Construction Document (CD) submittals.

CRYSTAL VALLEY RANCH - FILING NO. 18 - TRACT C

Name of Project

N/A

Address of property, if known

Signature

3/10/2026

Date