



Resource Engineering, Inc.
 909 Colorado Avenue
 Glenwood Springs, CO 81601
 (970)-945-6777 Voice
 (970)-945-1137 Facsimile

Memorandum

To: BWCD BOARD OF DIRECTORS
From: ERIC MANGEOT *EM*
CC: CHRIS GEIGER
Date: MAY 28, 2019
File: AMENDMENT – CRAWFORD PROPERTIES, LLC (EAGLE CREST NURSERY; CONTRACT 699)

Applicant Name: Crawford Properties, LLC for Eagle Crest Nursery

Type of Use: Domestic Commercial
 Industrial Agricultural

Amount: 9.2 AF 0.033 cfs 15 gpm (Previous Contract Amount = 9.2 AF)

Location: Area A A-4 Area B Inclusion
 County: EAGLE Contiguous:
 BWCD Division: 6

Mid Valley Metro District Notice Required? Yes No

Blue Creek Water Rights Applied? Yes No

02CW77 Umbrella Plan Water Rights Applied? Yes No **Cost:** \$1,200 (already paid)

This amendment is to cover depletions associated with the Eagle Crest Nursery on a 9.301 acre parcel of land owned by Crawford Properties, LLC (Applicant). Agricultural uses for commercial production is the irrigation of 5.1 acres of trees, shrubs, and greenhouse (0.52 irrigated acres). Other commercial uses are serviced by Mid Valley Metropolitan District. The total estimated demand is 11.08 acre-feet (AF) and total depletions are 9.2 AF as estimated by the Applicant's Engineer (SGM) and adjusted by RESOURCE to include reservoir releases and transit losses. A copy of the water requirement table and supporting engineering including delayed depletions from the well is attached. The land (is located in the South 1/2 pf Section 34, Township 7 South, Range 87 West, of the 6th P.M. in Eagle County (Parcel No. 239134408001).

Well diversions are from the Crawford Nursery Well (Permit No. 82068-F) located in the SE1/4 SW1/4 of Section 34, Township 7 South, Range 87 West, of the 6th P.M. at a point 750 feet from the South section line and 2,430 feet from the West section line (UTM NAD83 4362983N, 319490E). Ditch diversions (typically from May 1st through October 31st will be from the Robinson Ditch structure. The headgate of the Robinson Ditch is located in the NE1/4 SE1/4 of Section 11, Township 8 South, Range 87 West, of the 6th P.M. at a point 1,914 from the South section line and 934 feet from the East section line (UTM NAD83 4359863N, 321622E).

Water User :	Crawford Properties, LLC - Eagle Crest Nursery	
Analysis Date :	May 28, 2019	
District Area:	A	
Source Series:	4	
Maximum Demand:	15	0.033 (CFS)
	(GPM)	

**BASALT WATER CONSERVANCY DISTRICT
WATER REQUIREMENTS
(acre feet)
Contract 699 Amendment**

Month	Total Demand		Consumptive Use				(8) Total Depletions	(9) Source of Aug/Replace
	(1) Well Irrigation	(2) Ditch Irrigation	(3) TOTAL	(4) Lagged Well Irrigation	(5) Ditch Irrigation	(6) Lagged GW Return Flows		
January	0.02	0.00	0.02	0.08	0.00	0.00	0.08	GNM
February	0.02	0.00	0.02	0.05	0.00	0.00	0.05	GNM
March	0.02	0.00	0.02	0.03	0.00	0.00	0.03	GNM
April	0.62	0.00	0.62	0.14	0.00	0.00	0.14	GNM
May	0.02	1.17	1.19	0.20	0.88	0.08	1.30	GNM
June	0.02	2.53	2.55	0.11	1.90	0.29	2.35	GNM
July	0.02	3.02	3.04	0.06	2.27	0.51	2.57	GNM
August	0.02	2.03	2.05	0.04	1.53	0.59	1.48	GNM
September	0.02	0.62	0.64	0.02	0.46	0.46	0.17	GNM
October	0.25	0.24	0.49	0.02	0.35	0.23	0.03	GNM
November	0.42	0.00	0.42	0.10	0.00	0.06	0.04	GNM
December	0.02	0.00	0.02	0.14	0.00	0.01	0.13	GNM
TOTALS -->	1.47	9.61	11.08	0.99	7.39	2.23	8.37	

Area A-4
Roaring Fork River
Well Supply (Permit No. 82068-F)
 (Individual Glover by Applicant's Engineer)
Ditch supply (Robinson Ditch)
 (Lagged Return Flows by Applicant's Engineer)

Notes:
 All engineering information from SGM-Inc. (Applicant's Engineer).
 See Table 1 for additional information.
 Column (7) = Column (4) + Column (2) - Column (6). Positive values only.
 Column (8) = Column (7) * 1.10 for Green Mountain Transit Losses

TABLE 1
Crawford - Eagle Crest Nursery
Water Demand and Impacts to Roaring Fork River

Month	Unit IWR Orchard with Cover (AF/acre)		IWR (Consumptive Use)			Water Application Demand (Diversions)			Eagle Crest Well Diversions & Depletions			Robinson Ditch Diversions & Depletions			Total Impact (AF)
	(1)	(2A)	Outdoor Irrigation (AF)	Year-Round Greenhouse Irrigation (AF)	Total (AF)	Outdoor Irrigation (AF)	Year-Round Greenhouse Irrigation (AF)	Total (AF)	Well Diversions (AF)	Well Consumptive Use (AF)	Well Delayed Depletions (AF)	Ditch Diversions (AF)	Ditch Consumptive Use (AF)	Lagged Groundwater Return Flows from Ditch (AF)	
Nov	0.01	0.30	0.02	0.02	0.32	0.40	0.02	0.42	0.42	0.32	0.10	-	-	0.06	0.04
Dec	-	-	0.02	0.02	0.02	-	0.02	0.02	0.02	0.02	0.14	-	-	0.01	0.13
Jan	-	-	0.02	0.02	0.02	-	0.02	0.02	0.02	0.02	0.08	-	-	(0.00)	0.08
Feb	-	-	0.02	0.02	0.02	-	0.02	0.02	0.02	0.02	0.05	-	-	(0.00)	0.05
Mar	-	-	0.02	0.02	0.02	-	0.02	0.02	0.02	0.02	0.03	-	-	-	0.03
Apr	0.07	0.45	0.02	0.02	0.47	0.60	0.02	0.62	0.62	0.47	0.14	-	-	-	0.14
May	0.19	0.88	0.02	0.02	0.90	1.17	0.02	1.19	0.02	0.02	0.20	1.17	0.88	0.08	1.30
Jun	0.41	1.90	0.02	0.02	1.92	2.53	0.02	2.55	0.02	0.02	0.11	2.53	1.90	0.29	2.35
Jul	0.49	2.27	0.02	0.02	2.29	3.02	0.02	3.04	0.02	0.02	0.06	3.02	2.27	0.51	2.57
Aug	0.33	1.53	0.02	0.02	1.55	2.03	0.02	2.05	0.02	0.02	0.04	2.03	1.53	0.59	1.48
Sep	0.10	0.46	0.02	0.02	0.48	0.62	0.02	0.64	0.02	0.02	0.02	0.62	0.46	0.46	0.17
Oct	0.01	0.35	0.02	0.02	0.37	0.47	0.02	0.49	0.25	0.02	0.02	0.24	0.35	0.23	0.03
Annual	1.61	8.13	0.24	0.24	8.37	10.84	0.24	11.08	1.47	0.99	0.99	9.61	7.38	2.23	8.37

Notes:

- (1) Unit Irrigation Water Requirement is based on Modified Blaney-Criddle calculation using a crop of Orchard without Cover, values for April, October, and November were adjusted to match typical Eagle Crest Nursery commercial operations and water use patterns.
- (2A) = (1) * 4.62 acres of irrigation.
- (2B) Consumptive Use for greenhouse irrigation is estimated using pumping records from the Eagle Crest Well during non-irrigation season (when greenhouse is all Eagle Crest Well is being used for). Average well diversions from Nov through Mar is 0.02 AF/month.
- (2C) = (2A) + (2B)
- (3A) = (2A) divided by

75%

 Irrigation Efficiency for outdoor sprinkler irrigation
- (3B) = (2B) divided by

100%

 Irrigation Efficiency for greenhouse irrigation
- (3C) = (3A) + (3B).
- (4A) = (3C) for November through April (Ditch typically operates May - Oct, so all water demands from Nov - April are supplied by the well).
- (4B) = (3B) for May - Oct (Eagle Crest Well is used only to provide water supply for the greenhouse during May - Oct when ditch is running).
- (4C) = (2C) for November through April (Ditch typically operates May - Oct, so all water diversions from Nov - April are from the well).
- (4D) = (2B) for May - Oct (Eagle Crest Well is used only to provide water supply for the greenhouse during May - Oct when ditch is running).
- (4E) = (4B) * Table 1A. Identifies the well lagged impact to the Roaring Fork River with the assumption that all non-consumed water returns to the alluvium.
- (5A) = (3C) - (4A). Ditch typically operates May - Oct.
- (5B) = (2C) - (4B). Ditch typically operates May - Oct.
- (5C) = [(5A) - (5B)] * Table 1A. Identifies the lagged return flows (unconsumed ditch water returned to the Roaring Fork River).
- (6) = (4C) + (5A) - (5C)

TABLE 1A
Lagging Schedule to Roaring Fork River

Current Month	26%
Month 1	41%
Month 2	19%
Month 3	9%
Month 4	4%
TOTAL	100%

Table 1 A: Lagging factors were determined from the Glover Method on the State provided IDS AWAS program using a transmissivity of 300,000 gpd/ft, storativity of 0.25%, distance to stream of 2,500 feet, distance to stream boundary of 4,000 feet. Monthly results were truncated 5 months when 96% of the full impacts were realized and redistributed. The methods and aquifer parameters are consistent with the Crawford Properties recent water court application in Case No. 16CW3177 and based on supporting data in Case No. 93CW319.

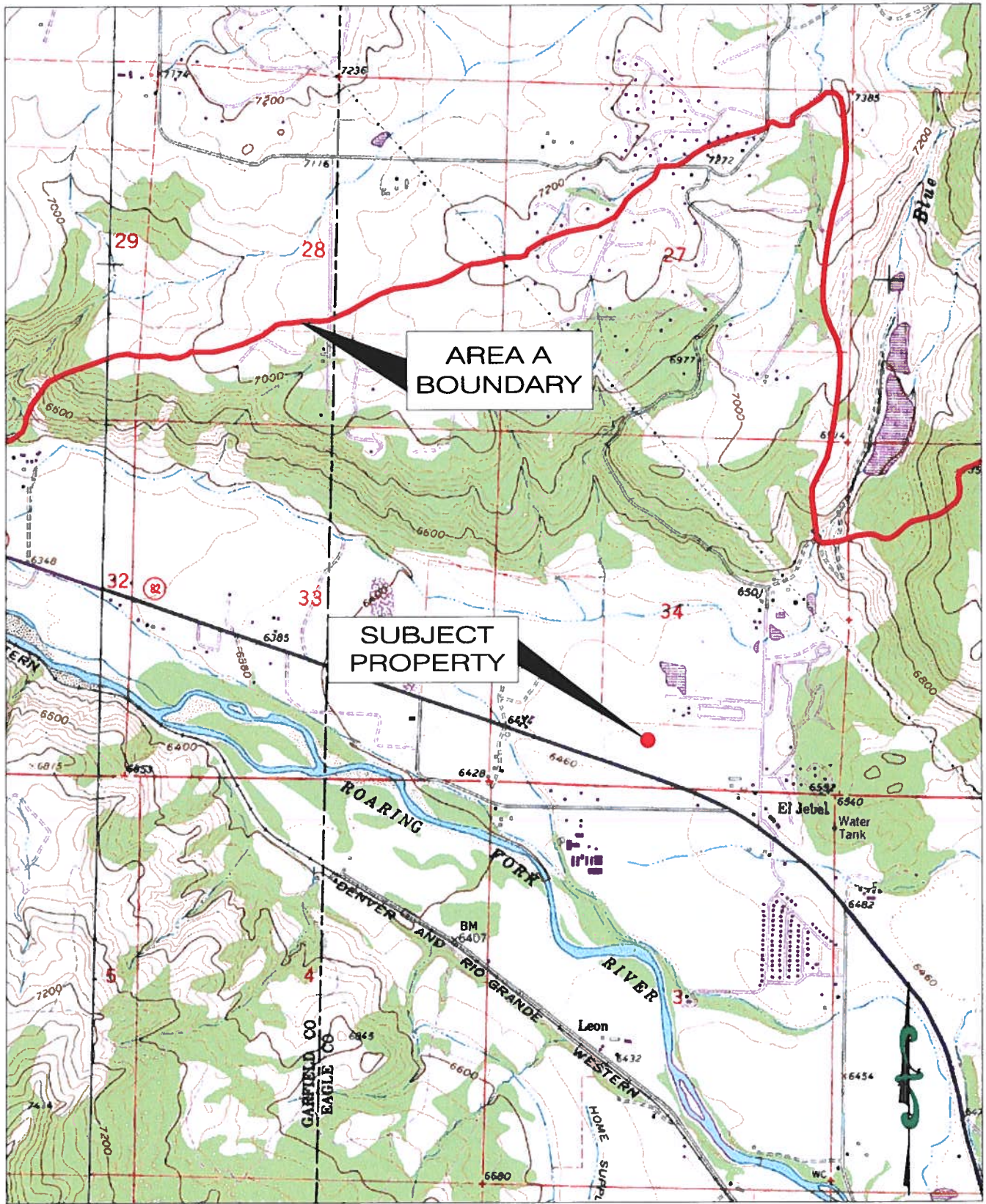


Figure 1: Crawford Properties, LLC
Eagle Crest Nursery Application

File: 033-7.2
Date: 05/28/2019

Basalt Water Conservancy District - Contract 699 Amendment



Scale: 1"=2,000'

RESOURCE
ENGINEERING, INC.

908 Colorado Avenue
Glenwood Springs, CO 81601
(970) 945-8777 Voice 945-1137 Facsimile

**APPLICATION FOR WATER ALLOTMENT CONTRACT
BASALT WATER CONSERVANCY DISTRICT**

1. Applicant(s) Contact Information

- a. Name: Crawford Properties, LLC
- b. Mailing Address: 60 El Jebel Rd. Unit 105
El Jebel, CO 81623
- c. Street Address: 60 El Jebel Rd. Unit 105
El Jebel, CO 81623
- d. Telephone Numbers: (970) 963-2684
- e. Email Address: info@eljebel.co
- f. If Applicant is represented by an Attorney, please provide the Attorney's contact information, including name, address, telephone, and email:

Kevin Patrick, Esq.
229 Midland Avenue
Basalt, CO 81621
patrick@waterlaw.com

- g. Emergency Local Contact Information, including name, address, telephone, and email:

Crawford Properties, LLC
60 El Jebel Rd, Unit 105
El Jebel, CO 81623

- h. Contact Information of property manager, caretaker, irrigator, system operator, or agent who should be provided a copy of this contract, including name, address, telephone, and email:

Crawford Properties, LLC
60 El Jebel Rd, Unit 105
El Jebel, CO 81623

2. Type of land use (development) proposed for water allotment contract (i.e. single family home, subdivision, gravel pit, etc.):

Garden and Plant Nursery

3. Legal description and address of property on which District's water rights and/or contract water will be used (attach map and vesting deed with proof of ownership)*:

See attached Eagle County Property Card

4. Elevation of property: ~6.483 6-7,000 ft., _____ 7-8,000 ft., _____ 8-9,000 ft.

5. Name and legal description of water supply diversion point(s):

a. Name of Diversion Crawford - Nursery Well

Type of Diversion Well (e.g., a well, spring, ditch, pipeline, etc.)

Legal Description: SE Quarter, SW Quarter, Section 34, Township 7 N / (S)
Range 87 E / (W) of the 6th Principal Meridian, at a location 2,430 feet from
the W Section line and 750 feet from the S Section line.

UTM Coordinates (NAD 83):

Northing: 4362983

Easting: 319490

_____ Zone 12 / X Zone 13.

If diversion point is a well, please provide the Well Permit No. TBD 82086-F *EF*

Is the well operational/active? _____ Yes, X No

Is there currently an operating well meter? _____ Yes, X No

b. Name of Diversion Robinson Ditch

Type of Diversion Ditch (e.g., a well, spring, ditch, pipeline, etc.)

Legal Description: NE Quarter, SE Quarter, Section 11, Township 8 N / (S)
Range 87 E / (W) of the 6th Principal Meridian, at a location 1,914 feet from the
S Section line and 934 feet from the E Section line.

UTM Coordinates (NAD 83):

8. Proposed use of water (please check)

- Domestic/Municipal (single family home(s), duplex(s), condominium(s), mobile home(s), apartment). Please complete page four of this application.
- Commercial (hotel, office, warehouse, restaurant, bar, retail). Please complete page five of this application.
- Industrial (gravel pit, manufacturing). Please complete page six of this application.
- Agricultural (crop irrigation, stock watering). Please complete page seven of this application.

Date on which the county or other applicable governmental entities approved the land use for which you seek legal water service: _____. (Note: Copy of the Resolution of other documentation evidencing such approval should be submitted with application.)

Eagle Crest Nursery has been operation at the existing site for over 20 years. The original BWCD contract application was prompted by a need to formalize and augment non-potable water demands for the agricultural operation. This amended application is to re-distribute water demands such that the well can be operated year-round as found in the last year based on a recent well pumping demands.

9. What other water rights are associated with or used on the property?

The historical irrigation rights on the property were quantified and changed in Case No. 93CW319

10. What other uses of water occur on the property?

Potable water service provider for the property recently changed to Mid Valley Metro District.

Please complete this page if you selected agricultural use on Page 3, No. 8.

AGRICULTURAL WATER USE

Irrigation

Type of crop(s) (pasture, alfalfa, beans, etc.) and irrigation system:

Crop: <u>Trees & Shrubs</u>	Acres: <u>5.1</u>	Sprinkler: <u>100%</u>	Flood: _____
Crop: _____	Acres: _____	Sprinkler: _____	Flood: _____
Crop: _____	Acres: _____	Sprinkler: _____	Flood: _____
Crop: _____	Acres: _____	Sprinkler: _____	Flood: _____

Stock Watering (cattle, horses, etc.) N/A

Number of animals:

Months of use:

Other agricultural uses not listed:

Well usage will be year-round with a base monthly demand of 0.02 AF/month and peak usage in the shoulder season months of April and November when the Robinson Ditch isn't running. The Robinson Ditch will be utilized throughout the irrigation season typically until October 31. The water demand and consumptive use schedule is attached.

TABLE 1
Crawford - Eagle Crest Nursery
Water Demand and Impacts to Roaring Fork River

Month	Unit IWR Orchard with Cover (AF/acre)		IWR (Consumptive Use)			Water Application Demand (Diversions)			Eagle Crest Well Diversions & Depletions			Robinson Ditch Diversions & Depletions			Total Impact (AF)
	(1)	(2A)	Outdoor Irrigation (AF)	Year-Round Greenhouse Irrigation (AF)	Total (2C)	Outdoor Irrigation (AF)	Year-Round Greenhouse Irrigation (AF)	Total (3C)	Well Diversions (AF)	Well Consumptive Use (AF)	Well Delayed Depletions (AF)	Ditch Diversions (AF)	Ditch Consumptive Use (AF)	Lagged Groundwater Return Flows from Ditch (AF)	
Nov	0.01	0.30	0.02	0.02	0.32	0.40	0.02	0.42	0.42	0.32	0.10	-	-	0.06	0.04
Dec	-	0.02	0.02	0.02	0.02	-	0.02	0.02	0.02	0.02	0.14	-	-	0.01	0.13
Jan	-	0.02	0.02	0.02	0.02	-	0.02	0.02	0.02	0.02	0.08	-	-	(0.00)	0.08
Feb	-	0.02	0.02	0.02	0.02	-	0.02	0.02	0.02	0.02	0.05	-	-	(0.00)	0.05
Mar	-	0.02	0.02	0.02	0.02	-	0.02	0.02	0.02	0.02	0.03	-	-	-	0.03
Apr	0.07	0.45	0.02	0.02	0.47	0.60	0.02	0.62	0.62	0.47	0.14	-	-	-	0.14
May	0.19	0.88	0.02	0.02	0.90	1.17	0.02	1.19	0.02	0.02	0.20	1.17	0.88	0.08	1.30
Jun	0.41	1.90	0.02	0.02	1.92	2.53	0.02	2.55	0.02	0.02	0.11	2.53	1.90	0.29	2.35
Jul	0.49	2.27	0.02	0.02	2.29	3.02	0.02	3.04	0.02	0.02	0.06	3.02	2.27	0.51	2.57
Aug	0.33	1.53	0.02	0.02	1.55	2.03	0.02	2.05	0.02	0.02	0.04	2.03	1.53	0.59	1.48
Sep	0.10	0.46	0.02	0.02	0.48	0.62	0.02	0.64	0.02	0.02	0.02	0.62	0.46	0.46	0.17
Oct	0.01	0.35	0.02	0.02	0.37	0.47	0.02	0.49	0.25	0.02	0.02	0.24	0.35	0.23	0.03
Annual	1.61	8.13	0.24	0.24	8.37	10.84	0.24	11.08	1.47	0.99	0.99	9.61	7.38	2.23	8.37

Notes:

(1) Unit Irrigation Water Requirement is based on Modified Blaney-Criddle calculation using a crop of Orchard without Cover, values for April, October, and November were adjusted to match typical Eagle Crest Nursery commercial operations and water use patterns.

(2A) = (1) * 4.62 acres of irrigation.

(2B) Consumptive Use for greenhouse irrigation is estimated using pumping records from the Eagle Crest Well during non-irrigation season (when greenhouse is all Eagle Crest Well is being used for). Average well diversions from Nov through Mar is 0.02 AF/month.

(2C) = (2A) + (2B)

(3A) = (2A) divided by 75%

(3B) = (2B) divided by 100%

(3C) = (3A) + (3B)

(4A) = (3C) for November through April (Ditch typically operates May - Oct, so all water demands from Nov - April are supplied by the well).

(4B) = (3C) for May - Oct (Eagle Crest Well is used only to provide water supply for the greenhouse during May - Oct when ditch is running).

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(4D) = (2B) for May - Oct (Eagle Crest Well is used only to provide water supply for the greenhouse during May - Oct when ditch is running).

(4E) = (4B) * Table 1A. Identifies the well lagged impact to the Roaring Fork River with the assumption that all non-consumed water returns to the alluvium.

(5A) = (3C) - (4A). Ditch typically operates May - Oct.

(5B) = (2C) - (4B). Ditch typically operates May - Oct.

(5C) = [(5A) - (5B)] * Table 1A. Identifies the lagged return flows (unconsumed ditch water returned to the Roaring Fork River).

(6) = (4C) + (5A) - (5C)

TABLE 1A

Lagging Schedule to Roaring Fork River

Current Month	26%
Month 1	41%
Month 2	19%
Month 3	9%
Month 4	4%
Total	100%

Table 1 A: Lagging factors were determined from the Glover Method on the State provided IDS AWAS program using a transmissivity of 300,000 gpd/ft, storativity of 0.25%, distance to stream of 2,500 feet, distance to stream boundary of 4,000 feet. Monthly results were truncated 5 months when 96% of the full impacts were realized and redistributed. The methods and aquifer parameters are consistent with the Crawford Properties recent water court application in Case No. 16CW3177 and based on supporting data in Case No. 93CW319.



ORIGINAL PERMIT APPLICANT(S)

CRAWFORD PROPERTIES LLC

APPROVED WELL LOCATION

Water Division: 5 Water District: 38
 Designated Basin: N/A
 Management District: N/A
 County: EAGLE
 Parcel Name: CRAWFORD REESE PARCEL TYPE A MINOR
 Lot: 1 Block: Filing:
 Physical Address: 400 GILLESPIE DRIVE CARBONDALE, CO 81623

SE 1/4 SW 1/4 Section 34 Township 7.0 S Range 87.0 W Sixth P.M.

UTM COORDINATES (Meters, Zone:13, NAD83)

Easting: 319493.0 Northing: 4362969.0

PERMIT TO CONSTRUCT A NEW WELL

ISSUANCE OF THIS PERMIT DOES NOT CONFER A WATER RIGHT
CONDITIONS OF APPROVAL

- 1) This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of this permit does not ensure that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.
- 2) The construction of this well shall be in compliance with the Water Well Construction Rules 2 CCR 402-2, unless approval of a variance has been granted by the State Board of Examiners of Water Well Construction and Pump Installation Contractors in accordance with Rule 18.
- 3) Approved pursuant to CRS 37-90-137(2) on the condition that this well is operated as an alternate point of diversion to the Basalt Conduit (if applicable per decree) and in accordance with one or more of the augmentation plans approved by the Div. 5 Water Court for the Basalt Water Conservancy District in Case Nos. 87CW0155, 93CW0319, 98CW0026/98CW0089, 01CW0305, & 02CW0077 (and Case No. 10CW0047 if in Area A-3 as described in decree), or operating pursuant to an approved substitute water supply plan. If this well is not operated in accordance with the terms of said decree(s) or SWSP, it will be subject to administration including orders to cease diverting water. This well is known as Eagle Crest Nursery Well (BWCD contract #699).
- 4) The use of ground water from this well is limited to the irrigation of not more than 5.1 acres (222,156 square feet) of agricultural commercial production of landscape products, trees and shrubs.
- 5) The pumping rate of this well shall not exceed 15 GPM.
- 6) The annual withdrawal of ground water from this well shall not exceed 10.59 acre-foot.
- 7) The owner shall mark the well in a conspicuous location with well permit number(s), name of the aquifer, and court case number(s) as appropriate. The owner shall take necessary means and precautions to preserve these markings.
- 8) This well shall be constructed not more than 200 feet from the location specified on this permit and this well shall be constructed more than 600 feet from any existing well, completed in the same aquifer, that is not owned by the applicant.
- 9) A totalizing flow meter must be installed on this well and maintained in good working order. Permanent records of all diversions must be maintained by the well owner (recorded at least annually) and submitted to the Division Engineer upon request.

NOTE: Parcel Identification Number (PIN): 19-2391-344-08-001

NOTE: Assessor Tax Schedule Number: R063084

NOTE: This permit will expire on the expiration date unless the well is constructed and a pump is installed by that date. A Well Construction and Yield Estimate Report (GWS-31) and Pump Installation and Production Equipment Test Report (GWS-32) must be submitted to the Division of Water Resources to verify the well has been constructed and the pump has been installed. A one-time extension of the expiration date may be available. Contact the DWR for additional information or refer to the extension request form (GWS-64) available at: <http://www.water.state.co.us>