

**Wright Water Engineers, Inc.**

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December 1, 2004  
DRAFT

**Via Fax: 970.259.9136**

Mr. Tom Gorton  
Tom Gorton Construction  
211 Rock Point Drive, Apartment 107  
Durango, Colorado 81301

Re: Engineering Report for the Abling & Cash Ditch Change Case

Dear Tom:

Wright Water Engineers, Inc. (WWE) is pleased to provide you with the subject report. WWE understands that you would like to change the point of diversion and use for the water rights that you own in the Abling & Cash Ditch, which is located on the Florida River. The Abling & Cash Ditch has two priorities of water, F4 and F15, which are decreed for irrigation use. Your share is 0.4048 cubic feet per second (cfs) and 0.2510 cfs, respectively.

If the original point of diversion is changed to the Edgemont Metropolitan District point of diversion downstream, existing and historically irrigated land will need to be dried up. WWE understands that you would like to change these water rights for municipal water supply at the Edgemont Highlands Development, which you currently are developing. WWE also understands that the changed water rights would be conveyed to the Edgemont Metropolitan District so that water can be diverted in priority to provide a potable water supply to your development for up to 700 units (**Tom Gorton to confirm**).

## BACKGROUND

Edgemont Ranch (Ranch) is a master-planned community located approximately 4 miles northeast of Durango, Colorado, along County Road 240. The community is located on the divide between the Animas River drainage and the Florida River drainage at an elevation ranging from 7,140 feet (Florida River) to 7,900 feet (northwest corner). Units 1 through 3, including the scenic easement, encompass 1,160 acres in Section 12, T35N, R9W, N.M.P.M. and Sections 7, 8, 17, and 18, T35N, R8W, N.M.P.M. Average annual precipitation is approximately 19.04 inches (1.59 feet), the net evaporation is approximately 2.38 feet per year, and the average annual temperature is approximately 42.2°F. The consumptive use (CU) at the Ranch was decreed as 1.61 acre-feet (AF) per acre in the Edgemont Ranch Augmentation Plan in Case No. 83CW19.

Approximately 230 of the 244 units in Unit 1 have been built at the Ranch, and a total of 1,133 units are proposed in Unit 2 (Case No. 83CW19). The existing units are located south of County

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Road 240 in Sections 7, 12, and 18, as noted above, and are referred to as Unit 1. These 230 existing units are composed of about 86 single-family units and 144 multi-family units.

Unit 2 subdivision is proposed for a total of 700 units. Unit 2 consists of approximately 50 percent single-family units, 50 percent multi-family units, 198.8 acres of open space, and potential commercial space. Unit 2 would be partially supplied by water rights from the Abling & Cash (F-4 and F-15) water rights. The legal supply associated with in-priority Abling & Cash water rights has been estimated at a maximum of 35.31 AF of CU per year as shown in Table 1.

### **CASE NOS. 95CW45 AND 85CW39**

WWE reviewed Case Nos. 95CW45 and 85CW39 in which portions of the Abling & Cash water rights were changed. Both cases used similar engineering assumptions, and WWE's calculations for the subject change case are in general accordance with those assumptions.

Case No. 85CW39 changed 0.01 cfs of F-4 and .00062 cfs of F-15 Abling & Cash water rights for use as augmentation water for an existing well. The case claims that the Abling & Cash water rights historically has been used over 36 acres, and 0.54 acres of land located in the area now known as Florida River Estates has been dried up as a result of development.

Case No. 95CW45 changed 0.0736 cfs of F-4 and 0.0464 cfs of F-15 Abling & Cash water rights to an alternate point of diversion in the S&S Ditch (Ogden-Shimmer Ditch, Structure ID No. 1284). The case claims that the Abling & Cash water rights historically have been used over 40 acres and 4 acres of land were dried up as a result of the Case. Based on notes from Ken Beegles, Division 7 Engineer, WWE believes the dried-up lands are associated with the Roundtree and/or Thompson parcels delineated in Figure 1.

Both cases assumed 97 percent of the F-4 water right and 3 percent of the F-15 water right can be considered a firm supply during dry years. Using these percentages to calculate a weighted average, the Ranch's firm yield for the 0.4048 cfs of F-4 and 0.2510 cfs of F-15 water rights is 0.4002 cfs. The duty of water in both cases was approximately 54.8 acres per cfs of dry-up, which equates to 21.93 acres of dry-up for the Ranch's 0.4002 cfs.

### **HISTORICALLY IRRIGATED ACREAGE**

WWE researched the historically irrigated lands to determine the available dry-up acreage associated with the Ranch's Abling & Cash water rights. WWE acquired aerial photographs from 1963, 1993, and 2001 to evaluate the total historically irrigated lands. Based on the 1965 aerial photograph, WWE estimates that the total historically irrigated lands are 43.1 acres. The 43.1 acres are shown in cross-hatch on the 2001 aerial photograph depicted in Figure 1.

Four historical estimates of the irrigated acreage associated with the Abling & Cash Ditch F-4 and F-15 water rights were found by WWE. Case No. CA1751 decreed 65 acres of irrigation for

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the Abling & Cash F-4 and F-15 water rights. Based on historic documents from the Division of Water Resources Division 7 office case files for 85CW39 and 95CW45, WWE believes the Division 7 Engineer estimated the historic acreage at 51 acres. Case Nos. 85CW39 and 95CW45 estimate the irrigated acreage at 36 acres and 40 acres, respectively.

### **Historic Use of the Abling & Cash Shares**

It is possible that all or a portion of your deeded Abling & Cash water rights were used on the lands shown in Figure 1 but no records or persons are available to confirm the historic usage with the exception of the 1965 photograph obtained at the Division of Water Resources, Division 7 office. The lands in the 1965 aerial photograph irrigated by the Abling & Cash Ditch have been estimated by WWE based on research, experience and observations during a site visit on September 27, 2004.

Based on conversations with the current and former water commissioners, Tom Fiddler and Harold Baxstrom, and the Ranch Manager of El Dorado Ranch, WWE believes that El Dorado Ranch used your deeded Abling & Cash water rights from 1998 to 2001. Diversion records and daily call record summaries for those years indicate your Abling & Cash deeded water rights were taken in the Prescott Southside Ditch (ID No. 1015) in 1998 and 2000.

### **CONSUMPTIVE USE CREDITS**

The CU credits associated with the Ranch's Abling & Cash water rights is dependent on the number of acres that will be dried up. Assuming the Ranch dries up 21.93 acres, the CU credits will equal 21.93 acres x 1.61 AF/acre or 35.31 AF of CU. The CU estimate is shown in Table 2 and monthly CU credit is shown in Table 3.

### **ABLING & CASH WATER RIGHT ALLOCATION**

WWE estimated the number of acres currently irrigated by Abling & Cash shareholders. The irrigated acres for each shareholder are shown in Column (4), Table 4 and total 38.39 acres. WWE also estimated the number of decreed irrigable acres for each shareholder. The decreed irrigable acres are shown in Column (5), Table 4 and total 35.91 acres. The difference between the actual number of irrigated acres and the decreed irrigable acres equals the acreage available for dry-up (shown in Column (6), Table 4). The acreage available for dry up totals 31.19 acres.

### **CONCLUSION**

The Ranch's firm yield for the 0.4048 cfs of F-4 and 0.2510 cfs of F-15 water rights is 0.4002 cfs. Based on aerial photograph analysis, the historic irrigated acreage associated with the Abling & Cash Ditch is 43.1 acres of which 31.19 is available for dry up. The Ranch requires 21.93 acres of dry up for full credit of its Abling & Cash water rights.

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Very truly yours,

WRIGHT WATER ENGINEERS, INC.

By \_\_\_\_\_  
Eric A. Bikis, P.G.  
Project Manager

\_\_\_\_\_  
Shane A. Sigle, M.S.  
Project Engineer

Attachments:

- Figure 1: Edgemont Ranch Abling & Cash Water Rights
- Table 1: Water Rights
- Table 2: Consumptive Use
- Table 3: Monthly CU Credit and Maximum Supply
- Table 4: Water Right Allocation

Cc: Geoffrey Craig

**Table 1**  
**Water Rights**  
**Edgemont Ranch**

Water Right (priority)	C.U. Credit for Historic Irrigation (acre-feet)	Amount (cfs)	Firm Yield (cfs)	Use	Adjudication Date	Appropriation Date	Administration Number
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Abling & Cash (F-4)	34.65	0.4048	0.3927	Irr	11/8/1923	6/01/1878	10379
Abling & Cash (F-15)	0.66	0.2510	0.0075	Irr	11/8/1923	5/15/1883	12188
<b>Total</b>	<b>35.31</b>	<b>0.6558</b>	<b>0.4002</b>				

**Column Notes:**

- 1) Equals 0.3927 cfs (97 percent of F-4 water right) x 54.8 acres per cfs (85CW39 and 95CW45) x 1.61 acre feet per acre ( Case No. 83CW19) and 0.0075 cfs (3 percent of F-15 water right) x 54.8 acres per cfs x 1.61 acre-feet per acre for the Abling & Cash ditch water rights deeded to Tom Gorton Family Partnership, LLLP.
- 2) Equals water rights for the Abling & Cash ditch deeded to Tom Gorton Family Partnership, LLLP.
- 3) Equals 97 percent of the F-4 Abling & Cash Water Right and 3 percent of the F-15 Abling & Cash Water Right.
- 4) From Case No. CA1751, Irr = irrigation.
- 5) From Division of Water Resources water rights tabulation.
- 6) From Division of Water Resources water rights tabulation.
- 7) From Division of Water Resources water rights tabulation.

**TABLE 2**  
**Consumptive Use**  
**Edgemont Ranch**

Month	Durango, CO Consumptive Use (Acre-Feet per Acre) (1)	Pagosa Springs, CO Consumptive Use (Acre-Feet per Acre) (2)	Edgemont Ranch, CO Consumptive Use (Acre-Feet per Acre) (3)	Monthly Distribution of Edgemont Ranch Consumptive Use (%) (4)
January	0.00	0.00	0.00	0%
February	0.00	0.00	0.00	0%
March	0.00	0.00	0.00	0%
April	0.13	0.00	0.11	0%
May	0.33	0.00	0.26	17%
June	0.45	0.42	0.36	24%
July	0.47	0.45	0.37	25%
August	0.36	0.33	0.28	19%
September	0.28	0.33	0.23	15%
October	0.00	0.00	0.00	0%
November	0.00	0.00	0.00	0%
December	0.00	0.00	0.00	0%
<b>Total</b>	<b>2.02</b>	<b>1.53</b>	<b>1.61</b>	<b>100%</b>

**Column Notes:**

Column 1: Consumptive Use Based on SCS TR-21, Pochop Modification, Elevation 6550 ft.

Column 2: Consumptive Use Based on SCS TR-21, Pochop Modification, Elevation 7238 ft.

Column 3: Consumptive Use Based on SCS TR-21, Pochop Modification. Elevation 7500 ft. Based on Durango C.U. distribution. Edgemont values equal 1.61/2.02 x Durango monthly C.U. C.U. of 1.61 taken from the Edgemont Ranch Augmentation. Plan decreed in Case No. 83CW19.

Column 4: Monthly distribution of C.U. for Edgemont Ranch. C.U. for April redistributed over irrigation season.

**Table 3**  
**Monthly C.U. Credit and Maximum Supply**  
**(All values given in acre-feet unless indicated otherwise)**  
**Edgemont Ranch**

Month	Abling & Cash (F-4 and F-15) C.U. Credit	Maximum Supply when In-Priority	
		AF	cfs
	(1)	(2)	(3)
May	6.17	24.61	0.40
June	8.45	23.81	0.40
July	8.72	24.61	0.40
August	6.66	24.61	0.40
September	5.31	23.81	0.40
October	0.00	24.61	0.40
<b>Total</b>	<b>35.31</b>	<b>146.05</b>	<b>1.60</b>

**Column Notes:**

- 1) 35.31 af x percent consumptive use for a given month shown in Table 2 assuming all C.U. occurs May-Oct.
- 2) Equals maximum diversion rate in cubic feet per second (cfs) of the Abling & Cash water rights x 1.9835 acre-feet per day per cfs x number of days in the month. Maximum diversion rate for the Abling & Cash water rights 0.40 cfs. The diversion dates are assumed to be May through October.
- 3) Equals maximum diversion rate in cubic feet per second.

**Table 4**  
**Abling & Cash Water Right Allocation**  
**Edgemont Ranch**

Name (1)	Abling & Cash Ownership (cfs)		Irrigated Acreage (acres) (4)	Irrigated Acreage as per 85CW45 & 85CW39 (acres) (5)	Acreage Available for Dry-Up (acres) (6)
	F-4 (2)	F-15 (3)			
Gorton					
Spraker <sup>(2)</sup>	0.4048	0.2510	(1)	21.93	(1)
Server	0.0184	0.0388	1.91	1.19	(3)
Vogel	0.0513	0.0226	0.00	2.76	0.00
Koster	0.0248	0.0157	0.82	1.34	0.00
Bell	0.0268	0.0169	3.16	1.45	1.71
Villers	0.0303	0.0191	1.42	1.64	0.00
Roundtree	0.0200		3.46	1.08	2.40
Thompson			5.83	(4)	9.89
Florida River Estates			1.89	(4)	1.89
85CW39 (Blue Spruce Lodge Owners)	0.0100	0.0082	19.80		19.80
85CW45 (Sam Brown III)	0.0736	0.0464		0.54	-0.54
<b>Total</b>	<b>0.6600</b>	<b>0.4166</b>	<b>38.39</b>	<b>35.81</b>	<b>31.19</b>

**Column Notes:**

- 1) All parties with conveyed water rights or irrigated acreage associated with the Abling & Cash Ditch.
- 2) Abling & Cash F-4 water right ownership based on November 4, 2004 memorandum from Geoffrey Craig, Esq.
- 3) Abling & Cash F-15 water rights ownership based on November 4, 2004 memorandum from Geoffrey Craig, Esq.
- 4) Existing irrigated acreage associated with the parcels shown in Figure 2 for all parties in Column (1) except Florida River Estates. Existing irrigated acreage estimated by WWWE using the 2001 digital aerial photograph shown in Figure 2. Irrigated acreage from the 1986 aerial photograph shown in Figure 2 totals 43.1 acres and is shown in teal cross-hatch. Florida River Estates has been partially developed and does not currently irrigate with water from the Abling & Cash Ditch. Florida River Estates appears to be irrigated in the 1986 aerial photograph held by the Division of Water Resources, Division 7 field office. The sum of Column (4) equals 38.39 acres. The difference between the 38.39 acres shown in Column (4) and the 43.1 acres in the 1986 aerial photograph can be explained by the development and building sites shown in Figure 2, which are not included in the irrigated acreage sum.
- 5) Abling & Cash shares are determined based on duty of water used to determine dry-up acreage in Case Nos. 85CW45 and 85CW39. Both cases assumed 97 percent consumptive use for Abling & Cash F-4 shares and 3 percent consumptive use for F-15 shares. Based on the two cases, the duty of water equals 54.8 acres per cubic foot per second (cfs) of water.
- 6) Acreage potentially available for dry-up. Negative values indicate acreage already dried up.

**Footnotes**

- 1) Water used in conjunction with the Prescott South Side Ditch (ID No. 1015) on 40.6 acres of irrigated land from 1998-2001. Irrigated acreage owned by El Dorado, LLC.
- 2) Water rights totals based on the November 4, 2004 memorandum from Geoffrey Craig, Esq. The total water rights equal 0.0184 cfs of F-4 Priority water and 0.0162 cfs + 0.02255 cfs = 0.03875 cfs Priority F-15 water.
- 3) May vary depending on Case No. 04CW70.
- 4) Based on handwritten notes from Ken Beagles to Harold Baxstrom, WWWE believes the 4 acres dried up in Case No. 85CW45 were associated with the Roundtree property and/or the Thompson property.