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BISHOP-BROGDEN ASSOCIATES, INC.

PRELIMINARY TECHNICAL REPORT SUPPORTING

MCKINLEY DITCH CHANGE OF USE OF COLORADO WATER TRUST SHARES

Prepared for

Colorado Water Trust

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MCKINLEY DITCH CHANGE OF
USE OF COLORADO WATER TRUST SHARES

SECTION 1 -PROJECT OVERVIEW

The Colorado Water Trust ("Trust" or "CWT") is a private, non-profit organization formed in 2001 that engages in and supports voluntary efforts to restore and protect streamflows in Colorado to sustain healthy aquatic ecosystems. The Trust proposes to change the use of a portion of the McKinley Ditch water rights to allow for both irrigation and instream flow uses in the Cimarron and Little Cimarron Rivers in the Gunnison River drainage. Pursuant to state law, the Colorado Water Conservation Board ("CWCB") is the only entity authorized to hold water rights for instream flow use to preserve and/or improve the natural environment. Under this proposal, the Trust will coordinate with CWCB on any use of the McKinley Ditch water rights for instream use.

The McKinley Ditch diverts from the Little Cimarron River, a tributary of the Cimarron and Gunnison Rivers, in District 62 of Division 4. In 2008, the Trust was contacted by Mr. Shepardson, a local landowner, offering to sell his 18.75 percent undivided interest in water rights decreed to the McKinley Ditch. In 2010, the Trust partnered with Western Rivers Conservancy ("WRC") to purchase Mr. Shepardson's shares in the McKinley Ditch water rights as well as the land historically irrigated by the water rights. WRC purchased the land and water rights from Montrose Bank in 2012, and in January 2014, the Trust purchased the water rights from WRC. The Trust intends to convey a permanent contractual interest in its McKinley shares ("CWT McKinley Shares") to CWCB for instream flows to preserve and/or improve the natural environment of the Cimarron and Little Cimarron Rivers.

The change of use described in this report is for McKinley Ditch water that was historically used on the former Shepardson Property, now owned by WRC ("WRC Property"), located on the border of Gunnison and Montrose Counties. The WRC Property historically received 1.5 of the total 8 shares in the McKinley Ditch, or 18.75 percent. The Trust proposes a change of use of the water rights associated with the CWT McKinley Shares for continued irrigation of the WRC

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Property, as well as instream flow use by CWCB in the Cimarron and Little Cimarron Rivers in cooperation with the CWCB.

A map of the McKinley Ditch and the lands historically irrigated under the ditch is shown in Figure 1. The ditch historically diverted water from the Little Cimarron River and carried the water approximately two miles to irrigate approximately 950 acres of pasture grass. The McKinley Ditch water rights have a total decreed diversion rate of 31.0 cubic feet per second (cfs) from four separately decreed water rights with appropriation dates ranging from 1886 to 1912. The McKinley Ditch diverts from the Little Cimarron River in the Northwest Quarter of the Northwest Quarter of Section 12, Township 47 North, Range 6 West of the New Mexico Principal Meridian. Historically, 1.5 shares of the total 8 shares under the McKinley Ditch have been used for irrigation of approximately 195 acres on the WRC Property.

This report describes the historical use analysis that was completed for the use of the CWT McKinley Shares on the WRC Property. Monthly depletion and return flow factors were developed from the analysis that identify the historical pattern of depletions and return flows to the stream system. This report also describes the future uses and operation of the water rights, including for instream flow use. Finally, the report presents the terms and conditions necessary to change the use of the water rights without injuring other water rights.

SECTION 2 - WATER RIGHTS TO BE CHANGED

The McKinley Ditch diverts water from the east side of the Little Cimarron River, which is tributary to the Cimarron River and the Gunnison River, in District 62 of Water Division 4. The McKinley Ditch irrigates lands to the east of the Little Cimarron River in Montrose and Gunnison Counties, including the WRC Property. A general location map showing the WRC Property and the McKinley Ditch with respect to the Little Cimarron River is shown in Figure 2. The McKinley Ditch has various decreed water rights totaling 31.0 cfs, with absolute appropriation dates ranging from 1886 to 1912, as summarized in Section 3.1.3 below. The decree in Case No. 05CW132 granted a correction in the legal description of the McKinley ditch headgate location. The McKinley Ditch water rights were changed in Case No. 12CW052 which

recognized the historical practice of applying all water right priorities to all lands under the McKinley Ditch. The CWT proposes to change the portion of the McKinley Ditch that irrigates the WRC Property located in Sections 26 and 35 of Township 48 North, Range 6 West of the New Mexico Principal Meridian.

SECTION 3 - HISTORICAL USE ANALYSES

A parcel-specific historical use analysis was conducted for the WRC Property irrigated by the McKinley Ditch. The historical use analysis of the CWT McKinley Shares was completed to determine the net effect, in terms of depletions and accretions (return flows), that the historical use had on the stream system. Historical use analyses allow for the development of terms and conditions which can be applied to the changed uses to identify the pattern of historical depletions and return flows, prevent expansion of use, and protect other water rights in the basin.

To determine the historical consumptive use attributable to the CWT McKinley Shares used on the WRC Property, a pro-rata approach was used, based upon a 1948 agreement among the shareholders in the ditch as confirmed by the decree in Case No. 12CW052 (attached as Appendix F).

3.1   Historical Consumptive Use

In order to determine the historical consumptive use (HCU) associated with the WRC Property irrigated under the McKinley Ditch, an HCU Analysis was performed using the StateCU computer model. StateCU is the HCU model developed by the State Engineer's Office (SEO) and is available online through the Colorado Decision Support System (CDSS). The model uses historical farming practices, cropping information and climate data to calculate the crop irrigation requirement (CIR) on a monthly time-step. In addition, the model uses the historical diversion records and available water capacity of the soils to determine how much of the CIR was met in each month of the study period. CIR can be calculated in StateCU using several methods. For this analysis, the Modified Blaney-Criddle analysis using an elevation adjustment was used. The inputs and results of the StateCU analysis of historical consumptive use are

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discussed below. The results are also provided in Appendix A of this report.

3.1.1 Study Period

The study period used for the HCU analysis was 1974 through 2013. The selection of the study period was based on the availability of McKinley Ditch diversion data and represents both wet and dry year conditions. This forty (40) year study period is of adequate length to determine the HCU and return flows from the land on the WRC Property and is representative of the historical use of the water rights, including a range of wet, average and dry years.

3.1.2 Elevation

Calculation of the CIR within the HCU analysis takes into consideration elevation and latitude. The approximate elevation of the centroid of the WRC Property was determined to be 7,440 feet above sea level and the approximate latitude was determined to be 38.38ºN. The elevation adjustment was used with the Modified Blaney-Criddle method of calculating the CIR. The elevation adjustment corrects for lower mean temperatures occurring at higher elevations with a certain level of solar radiation (for example, mean daily temperatures do not reflect how a crop reacts to warmer daytime temperatures and cooler nights at higher elevations). The elevation adjustment is applied to the potential consumptive use estimate determined in the Modified Blaney-Criddle calculations.

3.1.3 McKinley Ditch Diversions

The McKinley Ditch has various decreed water rights totaling 31.0 cfs, with absolute appropriation dates ranging from 1886 to 1912, as summarized in the table below.

McKinley Ditch Water Rights

Case No.	Stream Priority	Amount (cfs)	Approp. Date	Adjud. Type	Adjud. Date	Acreage (acres)	CWT Share
CA1319	56	12.17	9/1/1886	Original	3/28/1904	467	2.2819
CA1745	125	3.125	5/10/1905	Suppl.	5/8/1913	200	0.5859
	128	3.125	5/10/1906	Suppl.	5/8/1913		0.5859
CA4742	285	12.58	5/1/1912	Suppl.	4/21/1941	280	2.359
Total		31.0				947	5.8125

The total diversions to the McKinley Ditch for irrigation during the 1974 through 2013 study period are shown in Table 1. The total average annual diversions to the McKinley Ditch were approximately 4,691 ac-ft (ac-ft) during the study period. In 1986, there was no record of diversion data, however the current irrigator, Ray Wilson confirmed water had been run on the property in that year. The diversions in 1986 were assumed to be equal to the average monthly diversions. To determine the amount of diversions available to the WRC Property, the total diversions were pro-rated by the ratio of 1.5/8 shares (18.75 percent) to determine the diversions attributable to the CWT McKinley Share portion of these diversions. The pro-rata historical diversions attributable to the CWT McKinley Shares are summarized on Table 2 and are equal to an average of 879.6 ac-ft per year.

3.1.4   Call Record Analysis

In order to determine the diversions that were in priority, a call analysis was performed to determine how often the McKinley Ditch was called out by downstream calls on the Little Cimarron, Big Cimarron and Gunnison Rivers. Call records were only available from 2002 to the present. During this period, there were a total of 14 calls placed, 8 of which affected the McKinley Ditch. The calls affecting the Little Cimarron River are summarized in the table below.

Call Record Data Affecting the Little Cimarron River

Start Date	End Date	Water Source	Structure Name	Approp. Date	Admin. Number	Decreed Amount (cfs)
4/18/2002 0:00	10/1/2002 10:00	Gunnison River	Gunnison Tunnel and S Canal	6/1/1901	20393.1875	1,175.00
7/10/2003 12:00	9/8/2003 8:00	Gunnison River	Gunnison Tunnel and S Canal	6/1/1901	20393.1875	1,175.00
7/8/2004 0:00	8/9/2004 0:00	Little Cimarron	Collier Ditch	9/01/1889	14489	4.95
7/8/2004 10:00	8/9/2004 12:00	Little Cimarron	Collier Ditch	9/01/1889	14489	4.95
8/9/2004 0:00	9/25/2004 9:00	Little Cimarron	McKinley Ditch	9/01/1886	13393	12.17
7/18/2005 8:00	10/31/2005 8:00	Little Cimarron	Collier Ditch	3/28/1905	20393.20175	3.50
9/7/2006 12:00	9/22/2006 8:00	Little Cimarron	Butte & Butte Extension Ditch	5/11/1906	23138.20584	19.17
7/6/2010 16:15	8/7/2010 12:00	Little Cimarron	McKinley Ditch	9/01/1886	13393	12.17
7/22/2010 8:00	8/24/2010 14:00	Little Cimarron	Collier Ditch	9/01/1889	14489	4.95
8/19/2011 11:00	10/31/2011 23:59	Little Cimarron	Collier Ditch	3/28/1905	20393.20175	3.5
6/12/2012 8:00	10/31/2012 8:00	Little Cimarron	Collier Ditch	9/01/1889	14489	4.95

There were no senior downstream calls that completely called out the McKinley Ditch water rights during the study period. Diversions used in the HCU analysis were limited to those diversions taken in priority, up to the decreed flow rate. During the study period, there were times when the McKinley Ditch was limited to only 12.17 cfs (2.28 cfs to the WRC Property) through its most senior water right, based on the call at the time. The total diversions through the McKinley Ditch that are attributable to the WRC Property, limited to the in-priority diversions and to the decreed flow rates, when in priority are shown in Table 3 (and in Table A-1). The average annual in-priority diversion of the CWT McKinley Shares for the study period was approximately 857 ac-ft.

Luke Reschke, the District 62 Water Commissioner, was interviewed to ensure that the call records were accurate and to further understand the historical and potential future calls on the McKinley Ditch. The Rives Ditch No. 2 is the only senior water right downstream on the Little Cimarron River that could call out all of the McKinley Ditch priorities. It is located on the Little Cimarron River below the confluence with Stumpy Creek and above the confluence with the Cimarron River. Mr. Reschke indicated that the Rives Ditch No. 2 water right is small (0.61 cfs), and is always satisfied by return flows from either Stumpy Creek or the Little Cimarron. The diversion structures on the Little Cimarron River are shown in Figure 3, attached.

The Collier Ditch, which is also located downstream of the McKinley Ditch can call out all of the McKinley Ditch water rights except for the 1886 McKinley Ditch priority. It is the only dry-up point on the Little Cimarron River below the McKinley Ditch. The Collier Ditch headgate is located downstream of the McKinley Ditch headgate, but upstream of the location where historical return flows from the WRC Property historically accrued to the Little Cimarron River.

3.1.5   Ditch Loss

Due to the relatively short distance of the ditch, a value of 10 percent was used to account for ditch loss in the historical consumptive use analysis. This assumption is reasonable based on observations made during field visits.

3.1.6   Ditch-Wide Farm Headgate Deliveries

From the diversion analysis, the in-priority river headgate diversions attributable to the WRC Property were calculated as described above. To determine the farm headgate deliveries, the in-priority river headgate diversions (in Table A-1) were reduced by the 10 percent ditch loss. The average annual farm headgate deliveries to the WRC Property during the study period were equal to 771.5 ac-ft per year, as summarized in Table A-2.

3.1.7   Irrigated Acreage

The original decrees for the McKinley Ditch water rights indicate specific acreages irrigated under the water rights of the McKinley Ditch as a whole. The 1st Decree water right for 12.17 cfs was decreed for 467 acres of land under the McKinley Ditch. The 2nd Decree water rights, totaling 6.25 cfs, were decreed for an additional 200 acres of land under the McKinley Ditch. The 3rd Decree water right, equal to 12.58 cfs, was decreed for an additional 280 acres of land under the McKinley Ditch, as well as for supplemental irrigation of the previously decreed 667 acres. However, as discussed above, the McKinley Ditch water rights were further changed in Case No. 12CW052, which recognized the historical practice (based upon a 1948 agreement among the ditch owners) of applying all water right priorities to all lands underneath the McKinley Ditch. The decree in Case No. 12CW052 recognizes the historical practice but limits the acreage irrigated by each McKinley Ditch Priority by share owner to prevent an expansion of use during times of call. According to Paragraph 9f of the decree, irrigation of the WRC Property is limited to the following acreages under each ditch priority.

WRC Property Acres Irrigated by each McKinley Ditch Priority

Priority 56	Priority 125	Priority 128	Priority 285	Total Acres Irrigated
87.5625	22.5	22.5	45	177.5625

However, pursuant to paragraph 18 of the decree in Case No. 12CW052, the ditch owners may use water diverted through the McKinley Ditch "to irrigate acreage in addition to the acreages specified in paragraph 9(f), above, at such times that there is no valid call for the water from downstream of the McKinley Ditch headgate." Therefore, our HCU analysis limits the consumptive use (by month) attributable to irrigation of the WRC Property to the consumptive use associated with the irrigated acreage decreed in Case No. 12CW052 only during times of a call. During times of no call, the consumptive use attributable to the actual historical irrigated acreage (194.5 acres as described in Section 3.1.7.1 below) was used. This was accomplished by completing one StateCU model run using the actually irrigated acreage of 194.5 acres for the entire study period and one StateCU model run using an irrigated acreage of 87.5625 acres for the entire study period. An irrigated acreage of 87.5625 acres was used to reflect the Case No. 12CW052 decree limited acreage when only the senior McKinley Ditch water right (Priority 56)

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was in priority due to the fact that during the study period, the calls resulted only in all of the water rights being in priority or only the senior water right being in priority. No "intermediate" calls when some of the junior water rights might have been in priority (and when a different irrigated acreage would have been the limit) were experienced.

3.1.7.1 – Actual WRC Property Irrigated Acreage

Several sources were used to determine the irrigated acreage for the WRC Property under the McKinley Ditch. To determine the actual irrigated acreage, aerial imagery and infrared imagery were obtained and examined to accurately determine the irrigated acreage over the study period. Imagery was available for 1976, 1984, 1989, 1993, 1999, 2005, and 2009. The current irrigator, Ray Wilson, was also interviewed regarding historically irrigated lands. Mr. Wilson reviewed an aerial photograph and indicated that the area shown in Figure 4 is currently irrigated. Mr. Wilson also indicated that the irrigated acreage has not changed since at least the 1960s when he helped farm the land.

The historically irrigated acreage determined from conversations with the irrigator and the aerial photographs was determined to be 194.5 irrigated acres for all years where aerial photography was available. The aerial photographs and the irrigated acreage are shown in the mapping included in Appendix B for each year listed above.

In addition to aerial photography and discussions with the irrigator, the CDSS records of irrigated acreage were reviewed. The GIS spatial coverage indicates that the entire area of the WRC Property is irrigated by the McKinley Ditch. For purposes of this HCU analysis, we relied upon the aerial photography and discussions with the current irrigator for the determination of the irrigated acreage on the WRC Property.

3.1.8   Climate Data

To determine the CIR, climate data is required, including the average temperature, total precipitation, and frost dates. The StateCU model incorporates data from stations under the

National Oceanic and Atmospheric Administration (NOAA) climate data set. The NOAA Cimarron weather station (ID: 1609) is nearest to the WRC Property (approximately 4.2 miles northwest of the property) and is the best representation for climate data for the area. The period of record for the Cimarron station is from 1950 to the present. Missing temperature and precipitation data for the study period were filled with average values. Precipitation data were missing for the period of February 2011 through June 2012 as well as in 3 other months throughout the study period. Only six monthly values for temperature were missing for the entire study period.

3.1.9   Crop Mix

Crop mix data was obtained from information available on the CDSS and conversations with current irrigator, Ray Wilson. The listed use for the lands irrigated under the McKinley Ditch from the CDSS, including the WRC Property, is pasture grass. Mr. Wilson indicated that pasture grass has been the only crop grown on the property since at least the 1960s. For the StateCU model, GRASS_PASTURE.TR21 was selected for 100 percent of the irrigated land. The elevation adjustment was applied to the crop coefficients to determine the CIR, as discussed above. The average annual CIR calculated in the StateCU analysis was 1.51 ac-ft per acre. Table A-3 shows the historical crop irrigation requirement in ac-ft for irrigation of 194.5 acres on the WRC Property from 1974 to 2013, averaging 294.0 ac-ft per year. As noted above, during times of call, the irrigated area was reduced to 87.5625 acres; however the CIR remained the same on an ac-ft per acre basis as shown in Table A-10.

3.1.10 Irrigation Method and Efficiency

The CDSS records indicate that the WRC Property is flood-irrigated. This was confirmed by the current irrigator. The maximum irrigation efficiency used for the model was 55 percent. After accounting for ditch loss and irrigation efficiency, the water available for the crops on land irrigated on the WRC Property is shown in Table A-4. The average annual water available to the crop is 424.3 ac-ft.

3.1.11 Soil Moisture Capacity

Soil moisture capacity (known as available water capacity in the StateCU model) was determined through an analysis of the underlying soils in the area. The soil survey is not yet available as a published document for the WRC Property area. However, the Shavano Conservation District provided digital mapping and soil information from the *Ridgway Area, Colorado, Parts of Delta, Gunnison, Montrose, and Ouray Counties* unpublished soil survey for the USDA, Natural Resources Conservation Service (NRCS). According to the Ridgway Area Soil Survey there are two main soils underlying both the McKinley Ditch irrigated acreage as a whole and the WRC Property; 986 Mudcap and Slicktop. The 988 Jannsen and Jarvie soils are also present but make up only 1.3 percent of the soils underlying the WRC Property. The soil mapping in the area is presented in Appendix C.

Available water capacity at various depths for these soils was determined from the data provided with the Ridgway Area Soil Survey. A weighted average value was calculated for each soil to a depth of 40 inches, the approximate average rooting depth of pasture grass.[1] The two values were then weighted using the percentage of each soil present to determine a final value. Table C-1 in Appendix C shows available water capacity for each soil type for different depths, the weighted average values, and the overall average used. The available water capacity used in the model is 0.12 feet/feet.

3.1.12 Summary of Historical Consumptive Use

As described above, the historical consumptive use was determined on a parcel-specific basis for the WRC Property. During the study period, the McKinley Ditch diverted approximately 4,691 ac-ft per year on average from the river headgate of which 857.2 ac-ft per year on average were attributable to the in-priority use for irrigation of the WRC Property shown in Table A-1. After a 10 percent ditch loss, this amounts to an average of 771.5 ac-ft of farm headgate deliveries, shown in Table A-2. The Modified Blaney-Criddle analysis shows an average crop irrigation

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[1] The average rooting depth was used so as to conservatively limit the available water capacity in the soil to the average rooting depth, not maximum rooting depth.

requirement of 1.51 ac-ft per acre per year, summarized in Tables A-3 and A-10. Accounting for the water holding capacity of the soil and the water available to the crops, the total consumptive use on the WRC Property was determined.

The consumptive use analysis was performed separately for the 194.5 acres and 87.5625 acres irrigated by the various decrees for the McKinley Ditch water rights as described above, assuming that the diversions and farm headgate deliveries remained the same in either case. The average annual historical consumptive use on 194.5 acres and 87.5625 acres was 287.6 and 132.4 ac-ft, respectively (as summarized in Tables A-5 and A-12, respectively). In order to determine the consumptive use associated with irrigation of the Western Rivers Conservancy acreage that was in priority, the two StateCU model runs described above in Section 3.1.7 were reviewed jointly on a monthly basis. If there was a free river condition for the entire month, the consumptive use associated with irrigation of the actual historically irrigated acreage (194.5 acres) was used. Conversely, if the junior McKinley Ditch water rights were called out for the entire month, the consumptive use associated with the irrigation of only 87.5625 acres was used. In the event that a call came on during the middle of the month, the consumptive use was pro-rated based upon the percentage of the month during which the WRC Property could have fully irrigated or would have been limited to 87.5625 acres. Table A-15 summarizes the percent of each month that the McKinley Ditch junior water rights were in priority. The average annual in-priority consumptive use was 272.9 ac-ft per year, shown on Table A-16.

3.2 Return Flow Analysis

The return flows were determined in the StateCU model and are equal to the water that is applied to the fields but not consumed by the crop or held in the SMR. The return flows from the WRC Property were classified as either surface runoff, which reached the stream within a few days after the delivery, or deep percolation (ground water return flow) which migrated back to the stream over a delayed period of time after the delivery occurred. The classification of return flows between surface runoff and ground water return flow was determined based upon an analysis of the topography, and soil and geologic conditions in the area, visits to the property

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during the irrigation season, interviews with Mr. Wilson, and past experience classifying return flows.

3.2.1   *Quantification and Location of Return Flows*

The division of return flows used in the water budget was 60 percent surface return flows and 40 percent ground water return flows, based on the close proximity of the property to the river and the soil and geologic conditions on the property. There are significant return flows from the deliveries of water to the land, with the soil moisture reservoir remaining full most months of the water budget analysis, indicating greater amounts to surface runoff. The surface return flows are shown for the irrigation of 194.5 acres and 87.5625 acres in Tables A-6 and A-13, respectively. The total in-priority surface return flows attributable to irrigation on the WRC Property were calculated the same way as the in-priority consumptive use. In other words, the surface return flows attributable to irrigation in a month during which there was no call are equal to the surface return flows attributable to the irrigation of the full 194.5 acres during that month. Conversely, if only the senior McKinley Ditch water right was in priority (and therefore only 87.5625 acres were allowed to be irrigated), then the in-priority surface water return flow for that month would be equal to the surface return flow attributable to the irrigation of 87.5625 acres. The in-priority surface return flows are summarized in Table A-17 and average 298.7 ac-ft per year. The ground water return flows (or deep percolation) are calculated in the same manner and are summarized for the 194.5 acre and the 87.5625 acre analyses in Tables A-7 and A-14, respectively. The total in-priority WRC Property ground water return flows are summarized in Table A-18 and average 199.1 ac-ft per year.

The return flows accrue to the Little Cimarron River upstream of the Perrin Ditch headgate. The full farm headgate delivery of the CWT shares is absent from the river until this point. The Perrin Ditch has historically been the most upstream headgate that benefited from return flows from the property.

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3.2.2   Lagging of Return Flows

The in-priority ground water return flows attributable to the WRC Property, summarized in Table A-18, were lagged using a Glover analysis for an alluvial aquifer, within the IDS AWAS program. To determine the steady state lagging of the return flows, it was assumed that the return flow pattern repeated prior to the beginning of the study period. Lagging of return flows on the WRC Property were lagged from the centroid of the property. Aquifer parameters were developed for the centroid in order to lag the deep percolation return flows. The transmissivity used in the Glover analysis was based on well completion reports available in the area, for those wells shown on Figure 5. The transmissivity was calculated from the available well data to be 7,125 gallons per day per foot. The specific yield of the aquifer was assumed to be 0.2, which is a commonly used value for alluvial aquifers.

The ground water return flows for the WRC Property were lagged using a distance to the river of 1,950 feet and a width of the aquifer of 3,600 feet. The width of the alluvial aquifer was determined from the soil conditions and geological properties in the area. The centroid used to lag the return flows on the WRC Property is shown in Figure 4. Despite the proximity to the river, the low transmissivity of the alluvial materials attenuates the return flows to the river resulting in slightly higher ground water return flows in the winter than during the irrigation season. The historical in-priority ground water return flows attributable to the WRC Property are summarized on Table A-19 and are equal to an average of 199.1 ac-ft per year.

3.2.3   Total Depletions and Return Flow Factors

The total depletions associated with the in-priority historical irrigation of the WRC Property are summarized in Table A-20. The depletions are determined from the WRC Property's pro-rata farm headgate delivery less surface water runoff less lagged ground water return flows. The total credit during the period May through October is 376.8 ac-ft, with winter return flows equal to 103.1 ac-ft. The total depletion is 273.7 ac-ft per year on average.

SECTION 4 - GROUND WATER CONDITIONS

From the review of the unpublished Ridgway Area Soil Survey, some of the soils underlying the WRC Property have the potential for a high water table during portions of the irrigation season. The Mudcap and Slicktop soils that underlie the WRC Property, as shown in Appendix C, may have a high water table at times. Discussions with Dave Dearstyne, the Soil Survey Project Leader with the NRCS in the Montrose Soil Survey Project Office, clarified that the high water table was influenced predominantly by irrigation practices during the irrigation season.

In addition, the current irrigator indicated that there is, at times, a high water table on portions of the property. As a preliminary effort to determine the actual depth to water table on the property, field visits were conducted in September 2011 to determine actual depths to water table. The only areas in which a high water table was encountered were the North, Northeast corner of the property indicated on Figure 6. During field visits to the property, bore holes were dug by hand on the property to assist in determining the depth to water on the property. The presence of a layer of cobbles approximately 3 feet below the ground surface made boring difficult. The bore holes were dug until the layer of cobbles made further boring impossible.

No water was encountered in bore holes other than Borehole numbers 1 and 6. The table below shows the bore hole information gathered. A depth to water table of 3 feet was found in Bore Hole 6 in the northeast part of the WRC Property. A depth to water was found in Borehole 1 at a depth of 1.8 feet. The shallow water depths observed are not believed to be representative of the groundwater table due to heavy rain throughout the day of the site visit. In addition, Borehole 1 was located in close proximity to the drainage in a low-lying area of the property. The depth to water table measurement in Borehole 1was made on the first field visit on September 6, and the depth to water table measurement in Borehole 2was made on the second field visit on September 22. Water was running in the ditch during the time of both field visits.

WRC Property Depth to Water

Bore Hole ID	Total Depth of Bore Hole (ft)	DTW (ft)	Field Visit
1	-	1.8	1st
2	2.8	-	1st
3	2.6	-	1st
4	3	-	1st
5	4.2	-	1st
6	4.5	3	2nd
7	3.7	-	2nd

-    Indicates no water table observed in bore hole

The irrigator stated that the soil tends to drain water quickly, especially in the northwest section of the property. He says he has a hard time keeping the soil wet during irrigation season. This may further indicate that the natural water table under much of the property is greater than depth to water measured in Boreholes 1 and 6. To further evaluate the potential for a natural water table, not induced by irrigation, that may provide a portion of the water demands for the pasture grass, we recommend that a series of piezometers be installed on the property and that ground water levels be taken periodically throughout the spring, summer and fall months.

In terms of the potential impact on the historical consumptive use, this analysis assumes that there will be no on-going influence of naturally high ground water underneath the WRC Property. In the event that the ground water monitoring program described above indicates areas of naturally high ground water conditions under the historically irrigated area, revisions to the historical consumptive use attributable to the CWT portion of the McKinley Ditch may be appropriate. Specifically, a naturally occurring water table close to the surface may reduce the HCU from the irrigation with the CWT McKinley shares, and thus reduce the instream flow benefit downstream of WRC Property. In addition, a high water table may result in changes to the soil moisture reservoir contents used in this analysis.

The McKinley Ditch as a whole and the WRC Property are typically water long; therefore water supplied to the pasture grass was typically adequate to provide the full CIR. In addition, the water available to the crop is limited to that available from irrigation water applied either in that month or as carryover from excess water applied in the previous month that is held in the SMR.

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In other cases of partial sub-irrigation, full credit for historical consumptive use from the irrigation is allowed provided that the future use of groundwater has been eliminated from the WRC Property

SECTION 5 - PROPOSED CHANGE OF USE AND FUTURE USES

The CWT proposes to change their pro-rata portion of the McKinley Ditch water rights to include instream flow uses by CWCB. In addition to continued irrigation of the WRC Property, the CWT (with the CWCB) may leave the water historically diverted to the WRC Property in the Cimarron and Little Cimarron Rivers to restore and enhance stream flows for all or a portion of the year.

5.1   Future Use

The CWT and CWCB propose to continue the historical irrigation of the WRC Property, leave the water historically delivered to the WRC Property in the Little Cimarron and Cimarron Rivers to restore or enhance flows or a combination of these uses. Specifically, the CWT and CWCB may operate the CWT McKinley Ditch water rights under any one of the following annual scenarios:

1. Continued irrigation of the entire WRC Property as occurred historically for the entire historical irrigation season (April through November).
2. Irrigation of the entire WRC Property through the month of July, and bypass to the Cimarron and Little Cimarron Rivers the CWT McKinley Shares for instream flow benefits beginning in August.
3. Irrigation of the WRC Property through the month of June, and bypasses to the rivers for instream flow benefits beginning in July.
4. Full dry-up of the WRC Property for a single season and bypass all of the CWT McKinley Ditch shares to the rivers for instream flow benefits.

These four scenarios would allow the CWT to optimize the use of the McKinley Ditch water right for both instream use by the CWCB and for continued irrigation of the WRC Property. The CWT, in cooperation with the CWCB will select which of these scenarios is appropriate for any given year, with preference given to the partial year irrigation scenarios. The CWT does not plan to combine any of these scenarios in any one irrigation season. The decision regarding which operational scenario is implemented will be at the discretion of CWCB and CWT, and may be based on the following information: anticipated hydrologic conditions for the upcoming year (dry, wet, or average), land management issues, unique or pressing situations that require specific water availability, or any other information CWT and CWCB deem relevant. The hydrologic conditions for the upcoming year could be determined, for example, by analyzing snowpack in the basin by April 1 of each year, assessing cumulative streamflow at the Cimarron River stream gage by June 1 of each year, or by reviewing the Colorado River Basin Forecast Center's (CRBFC) forecasts of water supply during the runoff period. The CRBFC has a forecast node located at Crystal Reservoir which is located just downstream of the confluence of the Gunnison River and the Cimarron River and includes the forecasted supply in the Cimarron River basin. CRBFC water supply forecasts are provided on a monthly basis from January until June.

The two partial-year irrigation scenarios would allow for continued irrigation during the early part of the irrigation season when streamflows are typically high due to snowmelt runoff. Then, as streamflows begin to decline, the CWT McKinley Shares would be bypassed to enhance streamflows and provide instream flow benefits. Streamflows would also benefit under this scenario from the lagged irrigation ground water return flows from the irrigation during the beginning of the irrigation season.

Instream flow use of the CWT McKinley Shares by CWCB includes leaving the headgate diversion less ditch loss attributable to the CWT McKinley Shares in the river to the point where the historical return flows returned to the Little Cimarron River (Reach 1). Downstream of the return flow accretion point (Reach 2), the historical consumptive use portion will remain in the river for instream flow and other downstream uses, with historical return flows available to other water rights historically reliant on the return flows.

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As described in Section 3 above, a historical consumptive use analysis was performed using the StateCU model to understand the historical depletions to the Cimarron and Little Cimarron Rivers associated with the historical irrigation of the WRC Property. The same methodology was used to determine what the changes to the consumptive use and return flows would be if the WRC Property had been irrigated for only a portion of each irrigation season over the same 40-year study period. In the partial-year analyses, all of the model inputs and assumptions (i.e. irrigated acreage, climate, soil type) were the same as the full irrigation analysis except for the diversions. In addition, the pro-rata approach to determining the consumptive use attributable to the irrigated acreage that was in-priority in any given month was used. The partial irrigation year scenario results are described below. We note that under a full dry-up scenario, the result of not irrigating the WRC Property will simply result in the reverse effect of the full irrigation (historical) condition.

5.1.1 Irrigation through July

In the future, the CWT and CWCB may choose to irrigate the entire WRC Property through the month of July, and bypass the CWT portion of the McKinley Ditch water rights to the Little Cimarron River for instream flow benefits beginning in August. In order to understand the effect of doing so, the StateCU model was run assuming that diversions of the WRC Property portion of the McKinley Ditch diversions are equal to zero beginning in August of each year. The results of this analysis are presented in Appendix D. As shown in Table D-1, the total in-priority diversions of the McKinley Ditch attributable to the WRC Property would be equal to an average of 552.6 ac-ft per year compared to an average diversion equal to 857.2 ac-ft per year under the historical condition (see Table A-1). As a result, the water available to the crop would also be reduced to 273.5 ac-ft per year on average in the irrigation through July scenario (see Tables D-4 and D-11) versus an average of 424.3 ac-ft per year historically (see Table A-4).

Because the crop irrigation requirement remains the same in either scenario but the water supply is cut back, the total consumptive use is reduced in the irrigation through July scenario (229.6 ac-ft per year on average for 194.5 acres of irrigation, per Table D-5) when compared to the historical condition (287.6 ac-ft per year on average for 194.5 acres of irrigation as shown in Table A-5). As shown in Table D-20 the total average in-priority depletions under the irrigation

through July scenario are equal to 222.7 ac-ft per year compared to an average in-priority depletion of 273.7 ac-ft per year under historical operations (see Table A-20). In the irrigation through July scenario, the total credit is 307.4 ac-ft from May through July and non-irrigation season return flows are equal to 84.7 ac-ft from August through April.

5.1.2   Irrigation through June

Alternatively, the CWT and CWCB may choose to irrigate the entire WRC Property through the month of June in some years, and bypass the CWT portion of the McKinley Ditch water rights to the Little Cimarron River for instream flow benefits beginning in July. In order to understand the effect of doing so, the StateCU model was run assuming that diversions of the WRC Property portion of the McKinley Ditch diversions are equal to zero beginning in July of each year. The results of this analysis are presented in Appendix E. As shown in Table E-1, the total in-priority diversions of the McKinley Ditch attributable to the WRC Property would be equal to an average of 345.9 ac-ft per year compared to an average diversion equal to 857.2 ac-ft per year under the historical condition (see Table A-1). As a result, the water available to the crop would also be reduced to 171.2 ac-ft per year on average in the irrigation through June scenario (see Tables E-4 and E-11) versus an average of 424.3 ac-ft per year historically (see Table A-4).

Because the crop irrigation requirement remains the same in either scenario but the water supply is cut back, the total consumptive use is reduced in the irrigation through June scenario (153.6 ac-ft per year on average for 194.5 acres of irrigation, per Table E-5) when compared to the historical condition (287.6 ac-ft per year on average for 194.5 acres of irrigation as shown in Table A-5). As shown in Table E-20 the total average in-priority depletions under the irrigation through June scenario are equal to 150.2 ac-ft per year compared to an average in-priority depletion of 273.7 ac-ft per year under historical operations (see Table A-20). In the irrigation through June scenario, the total credit is 204.3 ac-ft from May through June and non-irrigation season return flows are equal to 54.2 ac-ft from July through April.

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5.2 Instream Flow Uses

In order to leave water in the Little Cimarron River for instream flow purposes, various operational considerations may be implemented by the CWT and CWCB to ensure the future use of the water rights does not injure other water users.

5.2.1 Historical Ditch Loss

To replicate historical ditch losses in the McKinley Ditch, 10 percent of the diversions attributable to the CWT share of the water rights will be left in the Ditch regardless of the irrigation scenario. This will ensure other users on the McKinley Ditch are not injured due to the change of use contemplated by the CWT.

5.2.2 Effects of Various Dry-Up Scenarios on Little Cimarron River Instream Flows

Instream flow use of the CWT McKinley Shares includes leaving the headgate diversion less ditch loss attributable to the CWT McKinley Shares in the river to the point where the historical return flows returned to the Little Cimarron River (Reach 1). Downstream of the return flow accretion point (Reach 2), the historical consumptive use portion will remain in the river. The magnitude of the effect to the river will depend on which operational scenario is put in place in a given year.

In Reach 1, the river is affected only by the amount of water diverted at the McKinley Ditch headgate for irrigation at the WRC Property in a given year. Table 4 and Figure 7 show the average effects to Reach 1 Little Cimarron River under the various operational scenarios. Under historical irrigation the river was depleted during the irrigation season from April through November due to the diversion of irrigation water. If less water is diverted under either of the partial irrigation scenarios or in a complete dry-up scenario, the negative effect to the river in Reach 1 will be reduced compared to the historical condition in that year. As shown in Table 4, the effects to the Little Cimarron River range from a 771.5 ac-ft depletion under historical irrigation operations to a benefit of 771.5 ac-ft if the land is not irrigated at all.

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In Reach 2, the effect to the river is equal to the inverse of the depletion under each irrigation scenario. Table 5 and Figure 8 show the average effects to Reach 2 of the Little Cimarron River under the various operational scenarios. If the WRC Property is irrigated for the entire season as it was historically, the river is depleted by the amount of consumptive use from May through October, or in the amount of 376.8 ac-ft on average. However, during the period November through April lagged return flows benefit the stream in the amount of 103.1 ac-ft on average. If the WRC Property is irrigated through July, a depletion due to consumptive use occurs from May through July in the amount of 307.4 ac-ft on average. An accretion to the river occurs in the following summer months due to the fact that the water being bypassed at the headgate is greater than the water that is still being consumed by the plant through the utilization of the SMR. During the non-irrigation months following an irrigation through July scenario, lagged return flows accrue to the river as they do in the full irrigation season but are less than the full irrigation historical accretions because less water was originally applied to the fields.

While the total irrigation season depletion under the irrigation through July scenario is less than under the historical irrigation scenario, it is important to note that a partial irrigation year or a full dry-up year may result in slightly increased irrigation depletions the following year. This occurs due to the fact that in a partial irrigation scenario, the crop continues to consume water from the SMR after the deliveries cease. As a result, the SMR is drawn down considerably in the partial irrigation scenarios by the end of the irrigation season. During the next irrigation season, deliveries to the property are used not only to satisfy immediate crop demand but also to refill the SMR, thereby increasing the depletive effect to the river. For example, as shown in Table 5, the effect to the river in June under the historical irrigation scenario is a negative 116.3 ac-ft on average compared to a negative 136.9 ac-ft average effect under the irrigation through July scenario. This increase in irrigation season depletions, in a year following a partial or full dry-up year, may injure a downstream calling water right below the point of return flow depletions on the Little Cimarron. Historically, the only downstream calls during the historical April through November irrigation season were from the Gunnison Tunnel during the very dry years of 2002 and 2003. In the future, the CWT will need to replace the increased depletions to such a downstream water right during times of call. The CWT may be able to provide this increased

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return flow obligation to the Gunnison Tunnel with a long-term lease of water from Blue Mesa Reservoir.

As shown in Table 5, the effect of irrigating only through June is similar to that of the irrigation through July scenario. If no irrigation occurs in a given year, the average effect to the river is equal and opposite to the average effect of historical irrigation. As such, the river receives an increase in streamflow during the historical irrigation season due to the bypassing of ditch headgate diversions that would otherwise be removed from the river. During the historical non-irrigation season, there is a negative effect to the river due to the lack of lagged irrigation return flows.

5.2.3   Bypass of Ditch Headgates

In order to leave water in the Little Cimarron River for instream flow purposes, several ditch headgates will need to be modified to ensure the water associated with this change of use remains in the river. Figure 3 shows the location of the ditches along the Little Cimarron River.

5.2.3.1 McKinley Ditch

The McKinley Ditch headgate is currently operated by damming up the Little Cimarron River with a temporary earthen dam to back water into the ditch. The water then flows down the ditch to a flow control structure where diversions are controlled by the headgate for the down-ditch uses, and any unneeded water is returned back to the river. The river remains dry for approximately 30 feet below the earthen dam. A new diversion structure for the McKinley Ditch headgate may be installed to ensure the CWT McKinley Shares can be left in the river and measured to the satisfaction of the Water Commissioner. The full amount of the farm headgate diversion attributable to the WRC Property's pro-rata share of the McKinley Ditch water rights can be left in the river at the McKinley Ditch Headgate. In order to protect other McKinley Ditch shareholders, the historical ditch loss component of 10 percent of the CWT share entitlements will need to remain in the ditch under any of the future uses.

Operational or structural changes to the headgate and/or splitter boxes will be required to allow for leaving the CWT McKinley Shares portion of the deliveries in the river and measuring devices will be installed. The CWT and CWCB will work with the Colorado Division of Water Resources ("DWR") and the other McKinley Ditch shareholders to ensure the CWT McKinley Shares left in the river are measured to the satisfaction of the Water Commissioner and the other McKinley Ditch shareholders.

5.2.3.2 Collier Ditch

The Collier Ditch is the first ditch downstream of the McKinley Ditch, and is the only other ditch besides the McKinley Ditch that effectively sweeps the river, causing a dry-up point downstream of its headgate. The Collier Ditch headgate structures include an approximately 3 foot concrete dam across the Little Cimarron River that sweeps the water into the ditch on the west bank of the Little Cimarron River where it passes through a headgate and 4 foot Parshall flume where flow in the ditch is measured. The concrete dam includes removable wooden boards for bypassing water to the Little Cimarron. The dam has the ability to bypass water, but not to measure the amount bypassed.

Additional measurement devices will be required to adequately measure the water bypassed past this structure. The full amount of the farm headgate diversion attributable to the WRC Property's pro-rata share of the McKinley Ditch water rights can be left in the river at this point, as the Collier Ditch is located upstream of the location of return flows from the WRC Property. The CWT and CWCB will work with the DWR, the other McKinley Ditch shareholders, and the Collier Ditch shareholders to ensure the CWT McKinley Shares left in the river are measured to the satisfaction of the Water Commissioner, the other McKinley Ditch shareholders and the Collier Ditch shareholders.

5.2.3.3 Other Ditches

There are several ditch that divert from the Little Cimarron River downstream of the Collier Ditch; the Perrin Ditch, the Bruton No. 2 Ditch and the Rives Ditch. According to the District 62 Water Commissioner, Luke Reschke, none of the diversion structures dry up the entire river, and should not pose a problem to leaving water in the river from bypasses of the CWT's McKinley Ditch water. The return flows from the WRC Property were historically available to these ditches for diversion, however all consumptive use associated with the change of use can be bypassed past these structures. However, if any of these ditches result in 'sweeping' the river in the future, then the CWT and the CWCB may need to work with the DWR and the other ditch owners to ensure the CWT McKinley Shares left in the river are administered to the satisfaction of the Water Commissioner

Instream flow use of the McKinley Shares by CWCB is expected to terminate at the confluence of the Cimarron and Gunnison Rivers. However, CWT plans to reserve the right to potentially sell, lease or otherwise contract for the beneficial use of the historical consumptive use of the Water Rights as fully consumable water downstream of the Instream Flow Reaches. Such downstream use would occur pursuant to 37-92-102(3), C.R.S., and be subject to terms and conditions necessary to prevent injury to vested water rights or decreed conditional water rights in a future water court proceeding.

5.2.4   Replacement of Return Flows

As with any change of use case, the replacement of the historical irrigation return flows on the Little Cimarron River may be required in order to prevent injury to other water users. The historical irrigation return flow quantities are shown on Table 6. Specifically, the replacement of the historical irrigation return flows may be required under any future partial-year or full-year dry-up scenario whenever there is a downstream calling water right. Under either of the partial-year irrigation scenarios, the return flows from the active irrigation may be used as a credit towards matching the historical irrigation return flows. If the CWT McKinley Shares are used

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for a full-season of continued irrigation, then the return flows shall occur as they have historically.

5.2.4.1 Irrigation Season Return Flows

The potential requirement to replicate the historical irrigation season return flows depends upon the future operations scenario selected by the CWT and CWCB. If the CWT and CWCB elect to dry-up the WRC Property completely for one year and bypass all of the McKinley Ditch water to the Little Cimarron River, all of the historical irrigation season return flows will be included in the bypassed water, and no additional replacement water would be required.

If the CWT and CWCB elect to irrigate the WRC Property for all or part of the irrigation season, the amount of return flows that may need to be replaced to the river to a downstream calling water right will depend upon the irrigation scenario the prior year. Under historical irrigation, because the McKinley Ditch is considered 'water-long' nearly all the time, the soil moisture reservoir (SMR, or the water holding capacity of the soil through the root zone of the crops being irrigated) was nearly full year-round. In the event that the WRC Property was fully or partially dried-up the prior year, the CIR will be met by the water in the SMR, resulting in the SMR being nearly empty at the beginning of the next season. The irrigation deliveries the following season will then need to meet the CIR and refill the SMR. This causes an increase in depletions during the early summer months, compared to the historical average use as shown in the bottom two rows of Table 5. Therefore, if the WRC Property was partially or fully dried-up the prior year, and the CWT delivers water for a full or partial season of irrigation, a downstream calling water right may be injured by the increase in depletions compared to the historical condition caused by the refilling of the SMR.

Based on the call records, there have only been two years of an administrative call from a downstream water right during the irrigation season; the Gunnison Tunnel during the very dry years of 2002 and 2003. In the future, the CWT will need to replace the

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increased depletions to such a downstream water right during times of call. The CWT may be able to provide this increased return flow obligation to the Gunnison Tunnel with a long-term lease of water from Blue Mesa Reservoir

5.2.4.2 Winter Return Flows

There are three other water rights located downstream of the McKinley Ditch that are decreed for use during the winter: a CWCB minimum in-stream flow water right decreed on the Cimarron River from the confluence of the Little Cimarron with the Cimarron River, downstream (3.8 miles) to the confluence of the Cimarron River with the Gunnison River, the Crystal Reservoir water right which is located on the mainstem of the Gunnison River below the confluence with the Cimarron River, and the Gunnison Tunnel and S. Canal. The CWCB in-stream flow right was decreed on October 16, 1984, in Case No. 4-84CW398 for 16 cfs. None of the water rights downstream of the McKinley ditch have historically placed a call during the non-irrigation season.

The decrease in stream flow due to a reduction in lagged non-irrigation season return flow ranges from 0.12 cfs in the irrigation through July scenario to 0.22 cfs in February of the irrigation through June scenario. At this time, it is anticipated that the CWT will be able to reach an agreement with the CWCB allowing the winter return flows to go unreplaced against a CWCB call, as an offset for the instream flow benefits during the summer and fall months.

If it becomes necessary for the CWT to replace winter return flows in time, the return flow factors developed above and shown in Table 6 will be used. The winter return flow factors would be multiplied by the previous irrigation year's total farm headgate deliveries to determine the return flow portion of the farm headgate delivery during each month of the winter. One option to replace return flows below the confluence of the Cimarron and Gunnison Rivers would be a long-term Blue Mesa Reservoir lease. Other options for replacement to this water right may be possible upon discussion with the stakeholders. If replacement is required on the Little Cimarron River, some of the

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historical diversions associated with the change of use could be stored nearby or recharged on the WRC Property for later replacement of winter return flows.

5.3 Volumetric Limits

In order to ensure other water rights are not injured, the portion of the McKinley Ditch water rights changed by the CWT will be subject to volumetric limits in the future once they are used for instream flow purposes. The total diversions under the CWT McKinley Shares of the McKinley Ditch water rights will be limited to a 10-year cumulative volumetric limit of 11,065 ac-ft.

In addition, diversions under the water rights will be limited to an annual maximum volumetric limit equal to 1,404 ac-ft.

We recommend the measurement of the farm headgate delivery portion of the CWT shares of the McKinley Ditch water rights. The associated river headgate diversion associated with the CWT shares will be equal to the farm headgate delivery divided by 90 percent. This accounts for the 10 percent ditch loss to remain in the ditch. The diversions listed above will be applied to the river headgate diversion associated with the CWT shares.

5.4 Measuring and Accounting

In order to document water uses for continuing irrigation and bypasses for instream flow purposes, and to comply with the terms and conditions proposed for this case, the CWT will need to provide additional measurements and accounting. Specifically, CWT will need to record, on a frequency as required by the Water Commissioner, the total river headgate diversion of the McKinley Ditch and any bypasses at or near the headgate for instream flow use. Future diversions for continuing irrigation will be measured as the CWT's pro-rata portion of the river headgate diversions. The water bypassed to the Little Cimarron River may need to be administered past the Collier Ditch during times that the Collier Ditch is 'sweeping' the river

and/or placing an administrative call. During these times, the CWT may need to measure the water bypassing the Collier Ditch to ensure the instream flow benefit downstream.

The measurements will be incorporated into water accounting forms that will be submitted on a monthly basis or as otherwise approved by the Water Commissioner. The measuring and accounting only needs to be performed during the historical irrigation season of April through November, as CWT anticipates that it will be able to reach an agreement with the CWCB allowing the winter return flows to go unreplaced against a CWCB call, as an offset for the instream flow benefits during the summer and fall months.

SECTION 6 - TERMS AND CONDITIONS

The following terms and conditions for future use of the McKinley Ditch water rights for future uses should include the following to ensure no injury to other water rights.

1.   Diversions for irrigation or instream flow use of the CWT pro-rata share of the McKinley Ditch will be limited to periods when the McKinley Ditch water rights are in priority. Furthermore, diversions under the McKinley Ditch water rights for irrigation will be limited to the historical irrigation season of April through November. Diversions under the McKinley Ditch water rights for instream flow purposes will be limited to the historical depletion season of May through October.

2.   The diversion of the CWT pro-rata share of the McKinley Ditch for continued irrigation shall be limited to 194.5 acres during periods of no valid downstream call. During periods of a valid downstream call, the continued irrigation shall be limited to the acres determined in Case No. 12CW052 based on the seniority of the downstream calling water right as shown in the table below.

Priority	Irrigated Acreage Limit
56	87.5626 acres
125	22.5 acres
128	22.5 acres
285	45.0 acres
Total	177.5624 acres

3. All future diversions for continued irrigation or bypass of diversions to the stream of the CWT McKinley Shares of the McKinley Ditch water rights will be subject to the following limits:

    a. A maximum instantaneous flow rate corresponding to the pro-rata portion of the decree priorities for the McKinley Ditch then in priority.

    b. A single year maximum volume of 1,404 ac-ft.

    c. A cumulative volumetric limit of 11,065 ac-ft in any 10-year period.

4. The CWT shall only use its pro-rata portion of all of the McKinley Ditch water right priorities for continued irrigation or all for instream flow uses, and will not split the uses by priority. The CWT shall apply the pro-rata portion of the McKinley Ditch water rights to continued irrigation or to instream flow uses for whole-month increments. Once the water rights are removed from irrigation in any one year, the rights shall continue to be bypassed for instream flow purposes for the remainder of that irrigation year.

5. The CWT will provide a thirty (30) day notice to the Division Engineer's Office and any objector requesting such notice of the intent to terminate irrigation for the remainder of the year and bypass 90% of the pro-rata portion of the McKinley Ditch water rights for instream flow use. The remaining 10% shall remain in the McKinley Ditch to protect other shareholders from increased ditch losses.

6. In Reach 1 (between the McKinley Ditch headgate and the point of historical return flows), the historical deliveries of the CWT McKinley Shares were not available for diversion by the Collier Ditch. Therefore, bypasses of the deliveries attributable to the CWT McKinley Shares for instream flow use shall be administered past the Collier Ditch headgate.

7. In Reach 2 (below the point of historical return flows), to the extent it is necessary for future bypasses, the net depletion credits for instream flow use will be determined by

multiplying the farm headgate delivery, or the amount that would have been delivered to the WRC Property absent any bypasses, by the monthly depletion factors shown in Table 6.

8. Historical return flow obligations during the historical irrigation season will be satisfied by leaving an amount of flow in the stream equal to the farm headgate delivery, multiplied by the return flow factor in Table 6. Such return flows shall only be required to be maintained during times that water is WRC Property being used for instream flow purposes and there is a downstream call from any water right senior to the date of the application in this case.

9. Historically there has been no winter call on the Little Cimarron water rights. The CWCB instream flow reach is the only water right that could potentially require replacement of the McKinley Ditch return flows in the winter above the confluence of the Gunnison River. Crystal Reservoir and the Gunnison Tunnel and S Canal are the only water rights that could potentially require replacement of winter return flows below the confluence of the Cimarron and Gunnison Rivers. If necessary, historical return flow obligations during the non-irrigation season will be determined by multiplying the monthly return flow factors in Table 10 by the previous irrigation season's farm headgate delivery for each water right. The winter return flows will be replaced to a downstream calling right, unless that calling right is the CWCB minimum instream flow right, and the CWT has entered into an agreement with the CWCB that such replacement is unnecessary. If a call occurs in the future downstream of the confluence of the Cimarron and Gunnison Rivers, water may be obtained from the Blue Mesa Reservoir on the Gunnison River for replacement of winter return flows below the confluence.

10. During months that the CWT McKinley Shares of the McKinley Ditch water rights are being bypassed to the stream for instream flow use, the WRC Property will be dried up and not irrigated except by sources other than the water rights to be changed described in this report.

11. CWT shall measure the following for inclusion in the water accounting as required by the Water Commissioner or Division Engineer; McKinley Ditch river diversions, bypasses of the CWT's pro-rata ownership for instream flow use and any water being administered past the Collier Ditch headgate during times that it is placing an administrative call. The

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CWT shall provide accounting as described above on a monthly basis during the historical irrigation season of April through November, or as otherwise allowed by the Water Commissioner.

SECTION 7 - NON-INJURY

If the terms and conditions, dry-up provisions and other operational items discussed above are adhered to it is our opinion that there will not be injury to other water users based on the change of use of the CWT McKinley Shares for instream flow purposes.

LIST OF DOCUMENTS AND INFORMATION RELIED UPON

1. Water Court Decrees in Case Nos. CA1319, CA1745, and CA4742, Division 4.

2. Agreement among McKinley Ditch shareholders dated 1948.

3. USGS topographic maps.

4. GIS data available from the Colorado Decision Support System and Colorado Division of Water Resources.

5. Property information, titles, deeds and GIS data obtained from the Gunnison County Clerk and Recorder's Office.

6. Property information, titles, deeds and GIS data obtained from the Montrose County Clerk and Recorder's Office.

7. *Ridgway Area, Colorado, Parts of Delta, Gunnison, Montrose, and Ouray Counties* unpublished soil survey for the USDA, Natural Resources Conservation Service (NRCS) and GIS data (provided by NRCS personnel).

8. Gunnison River and tributary call records maintained by the Colorado State Engineer's Office, available from CDSS.

9. Water rights tabulation for Water Division 4, maintained by the Colorado State Engineer's Office, available from CDSS.

10. Water Court Decree, Case No. W-7936-75, Division 1.

11. Information and data from field visits to the WRC Property on September 6, 2011, and September 22, 2011.

12. Information obtained in interviews with Ray Wilson.

13. Information obtained in interviews with current District 62 Water Commissioner, Luke Reschke.

14. Information obtained in interviews with previous Water Commissioner and Division Engineer's Office current employee, Scott King.

15. Information obtained from McKinley Ditch shareholders and McKinley Ditch attorney.

16. Information obtained in interviews with Dave Dearstyne, the Soil Survey Project Leader with the NRCS in the Montrose Soil Survey Project Office.

17. Aerial photographs dated September 1, 1976; September 5, 1984; July 3, 1989; September 3, 1993; September 6, 1999; August 28 and 30, 2005; and July 16, 2009.

18. Diversion records maintained and compiled by the Colorado State Engineer's Office, available from CDSS.

19. Irrigation Water Requirements, Technical Release No. 21, United States Department of Agriculture, Soil Conservation Service, April 1967.

20. Climatological data from the Cimarron, Colorado, weather station.

21. Various other Gunnison River water court decrees.

22. Information obtained from well construction reports for permit numbers 232323, 62003F, 163884, and 54412F.

23. Water Court Decree, Case No. 12CW52, Division 4.

24. Colorado River Basin Forecast Center website (http://www.cbrfc.noaa.gov/)

25. Water Court Decree, Case No. 4-84CW398, Division 4.

26. Water Court Decree, Case No. 05CW132, Division 4.

FIGURES

R06W

Little Cimarron River

Collier Ditch

Stumpy Creek

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McKinley Ditch

MONTROSE COUNTY

GUNNISON COUNTY

T48N

T47N

Butte Ditch

Rabbit Creek

N

0   750   1,500
Feet

BBA
water consultants
BISHOP-BROGDEN ASSOCIATES, INC.
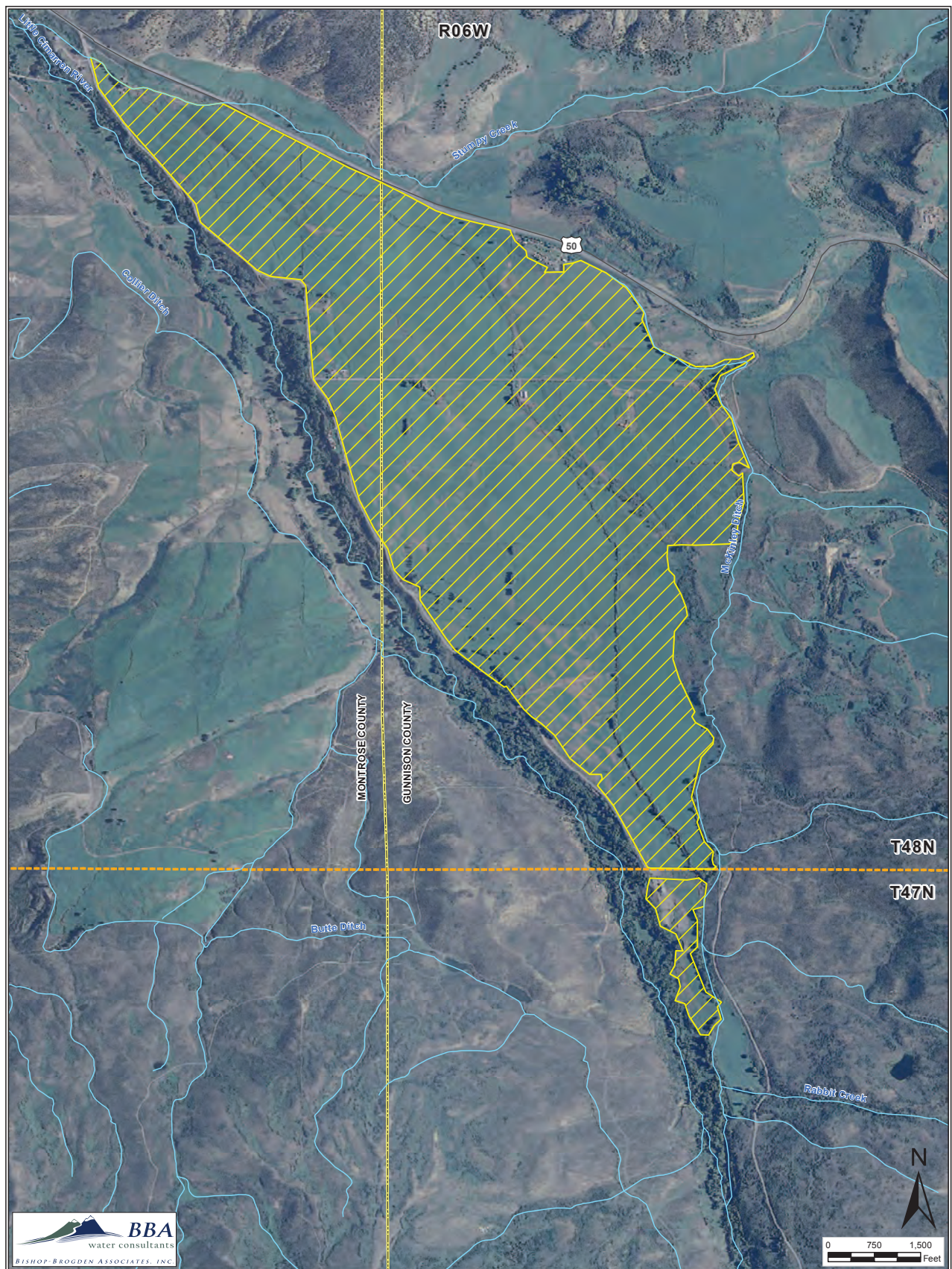
Legend

- Stream/Ditch
- Irrigated Area
- Township & Range
- County Boundary

Figure 1
McKinley Ditch
Approx. Irrigated Area

Date: May 04, 2012
Photo Date: July 16, 2009
Job No. 0906.01

Overview Map

C o l o r a d o

Main Map

Figure 2
Western Rivers Conservancy Property Boundary Map

Date: 6/9/2014
Job No. 0906.01

Overview Map

Colorado

Main Map
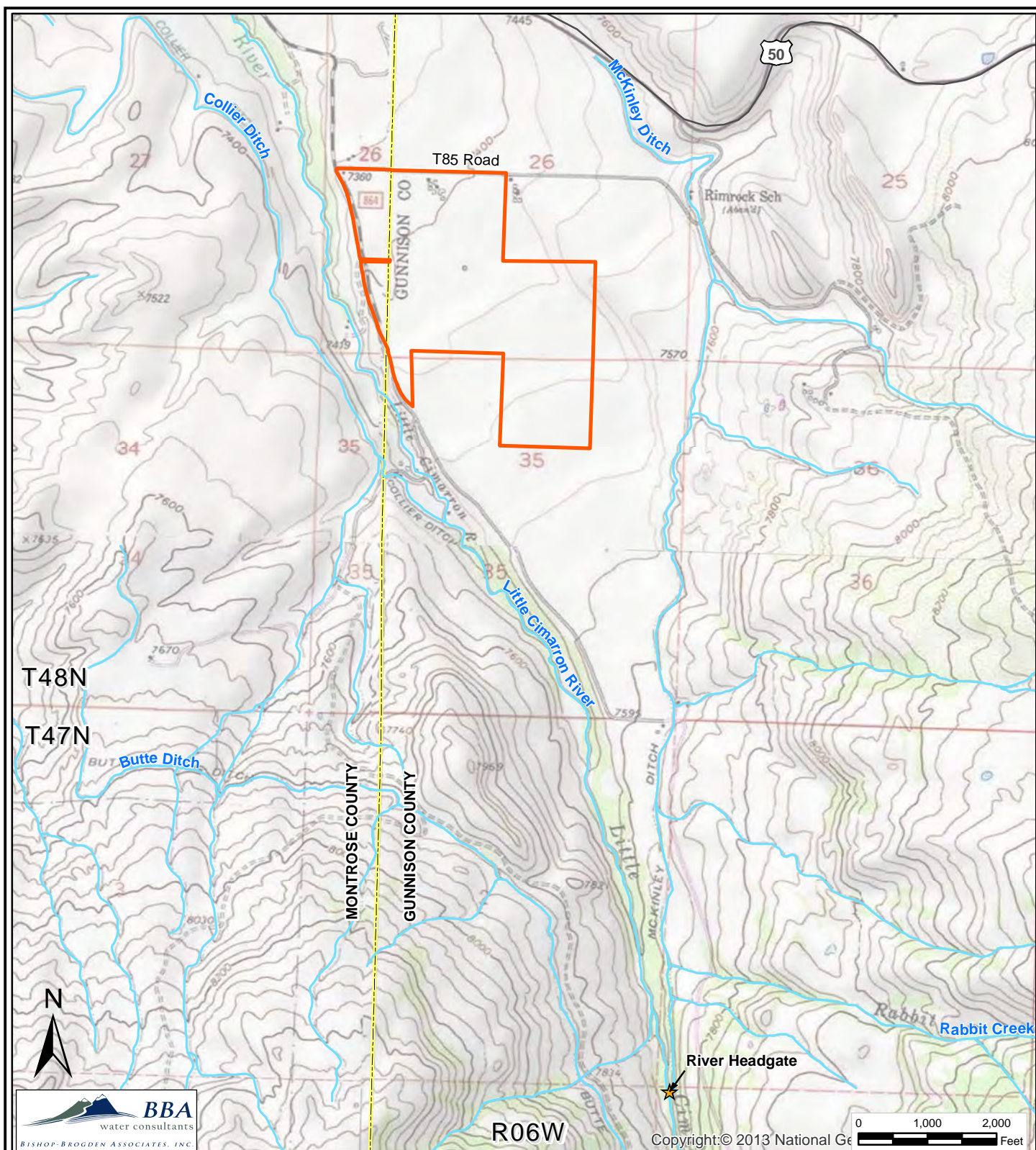
Legend

★ Headgate
— Stream/Ditch
☐ Property Boundary (Approx.)
☐ County Boundary

BBA
water consultants
BISHOP-BROGDEN ASSOCIATES, INC.

0   1,000   2,000   Feet

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T85 Road

River Headgate

Rimrock Sch

Collier Ditch

Collier River

McKinley Ditch

Little Cimarron River

Butte Ditch

Rabbit Creek

MONTROSE COUNTY

GUNNISON COUNTY

GUNNISON CO

T48N

T47N

R06W

N

R06W R05W

92

Gunnison River

Round Corral Creek

6 5 4 3 2 1 6 5 4

Cimarron River

7 8 9 10 11 12 8 9

Stumpy Creek

Cimarron Ditch

18 17 16 15 14 13 17 16

RIVES DITCH NO 2

19 20 21 22 23 24 20 21

50

BRUTON DITCH NO 2

Collier Ditch

PERRIN DITCH

Little Cimarron Creek

30 29 28 27 26 25 29 28

McKinley Ditch

Big Blue Ditch

32 33 34 35 36 32 33

COLLIER DITCH

Veo Creek

Veo Ditch

T48N
T47N

5 4 3 2 1 5 4

Rabbit Creek

8 9 10 11 12 8 9

McKINLEY DITCH

VANDERBURG D

N

BUTTE & BUTTE EX DITCH

14 13

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BISHOP-BROGDEN ASSOCIATES, INC.

0   3,000   6,000
Feet

Legend
■ Diversion Structures
— Stream/Ditch
— McKinley Ditch (East Lateral)
— McKinley Ditch (West Lateral)
☐ Property Boundary (Approx.)
☐ Section Boundary
☐ County Boundary

Figure 3
Diversion Structures on the
Little Cimarron & Cimarron Rivers
Below the
Butte and Butte Extension Ditch

Date: May 04, 2012
Photo Date: July 16, 2009
Job No. 0906.01

Overview Map

C o l o r a d o

Main Map

Legend

- ⊙ Property Centroid
- ▬▬ McKinley Ditch (East Lateral)
- ▬▬ McKinley Ditch (West Lateral)
- ▨ Irrigated Area (Approx.)
- ▭ Property Boundary (Approx.)
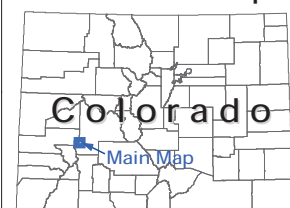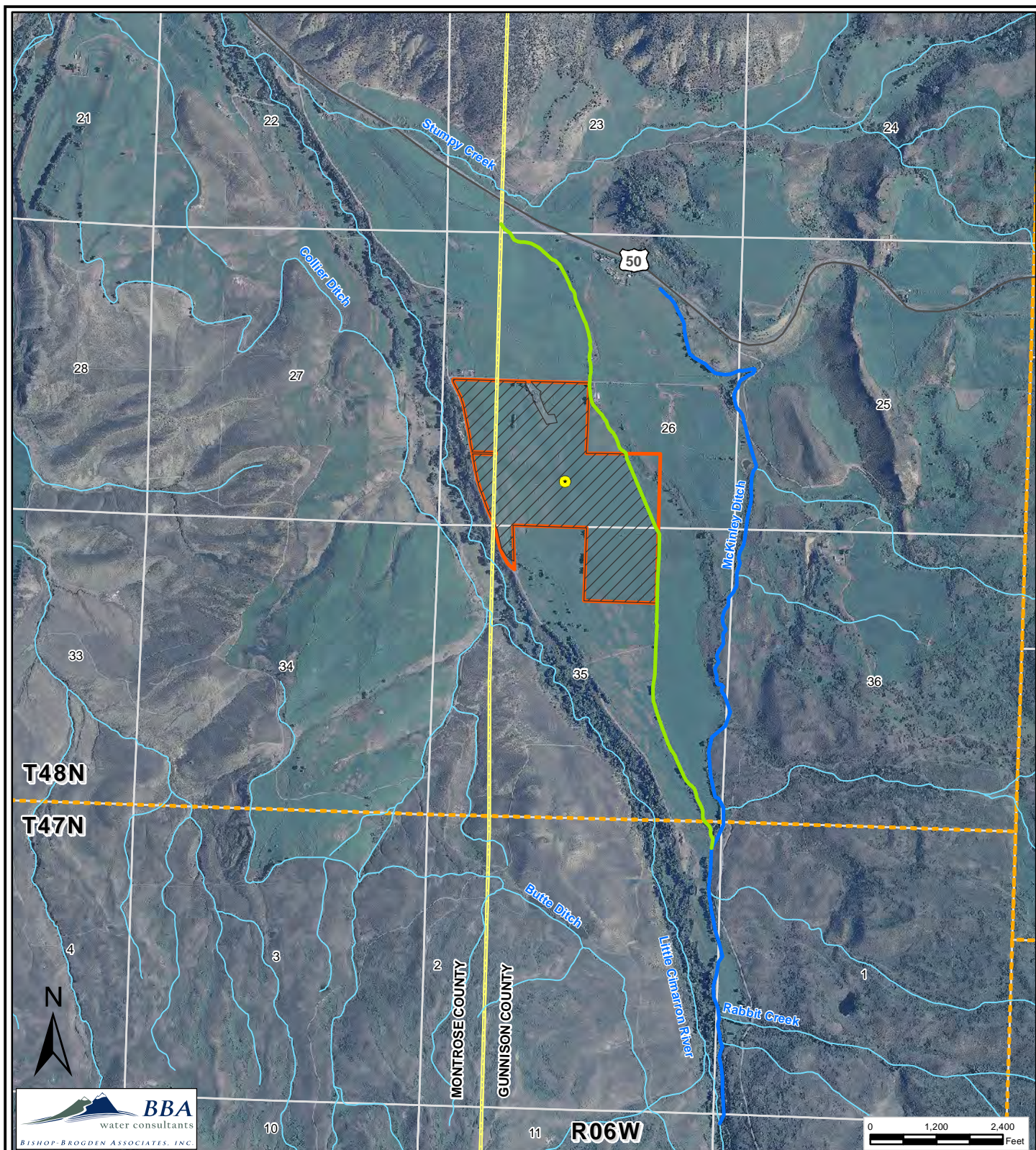
Figure 4
Western Rivers
Conservancy Property
Irrigated Area Map

Date: 6/10/2014
Photo Date: 7/16/2009
Job No. 0906.01

Overview Map

C o l o r a d o

Main Map

R06W

54412 F
62003 F
163884

Little Cimarron Creek

Collier Ditch

Stumpy Creek

US 50

MONTROSE COUNTY
GUNNISON COUNTY

232323

McKinley Ditch

T48N
T47N

N

River Headgate

BBA
water consultants
BISHOP-BROGDEN ASSOCIATES, INC.

0   1,000   2,000
Feet

Figure 5
Transmissivity Data Points
Date: May 23, 2014
Photo Date: July 16, 2009
Job No. 0906.01
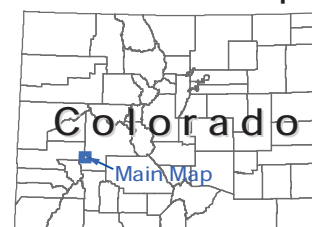
Overview Map

Colorado

Main Map
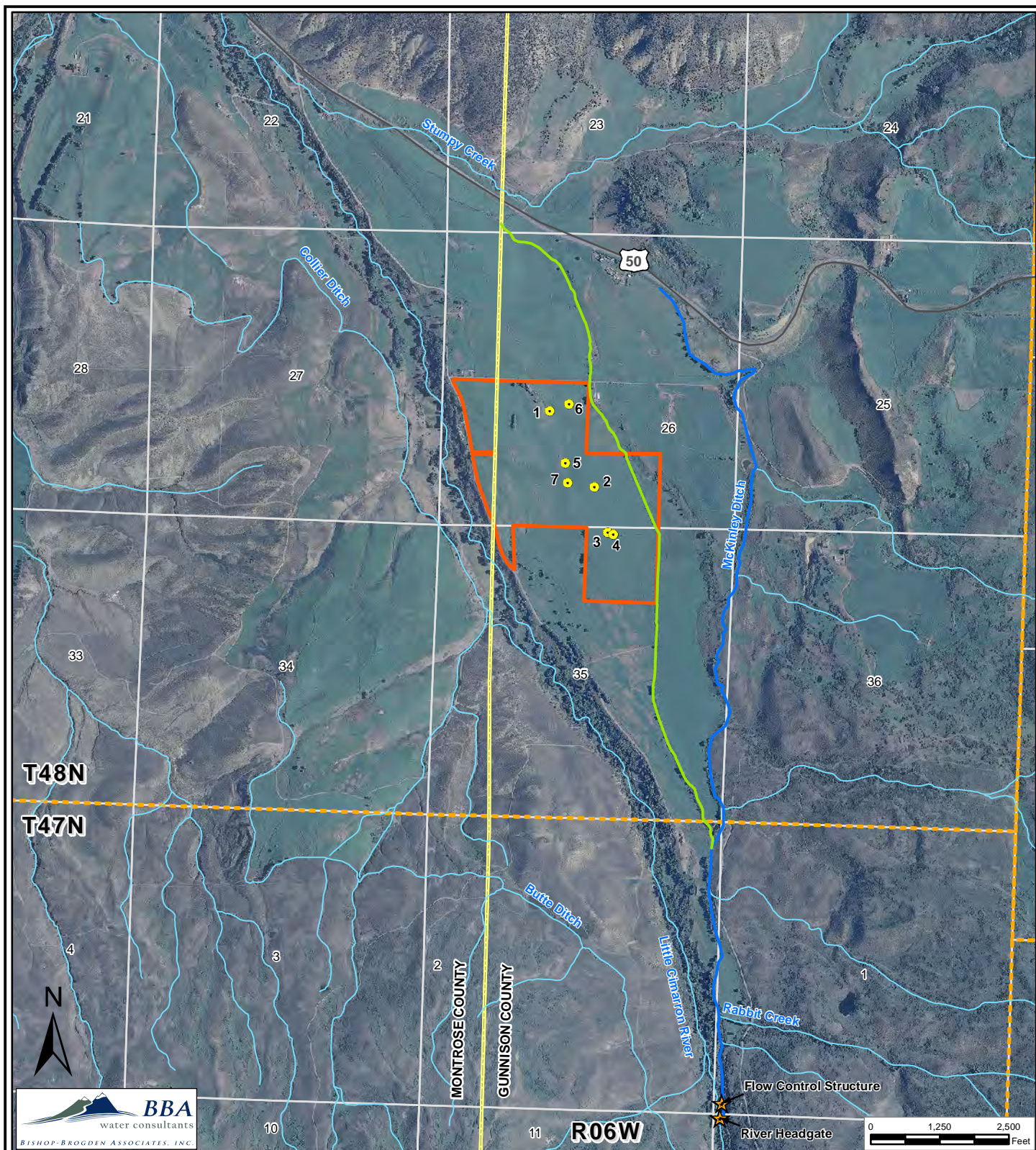
Legend

- ⊙ Bore Hole
- ★ Diversion Structure
- —— McKinley Ditch (East Lateral)
- —— McKinley Ditch (West Lateral)
- ▭ Property Boundary (Approx.)

Figure 6
Western Rivers
Conservancy Property
Field Visit Information

Date: 6/10/2014
Photo Date: July 16, 2009
Job No. 0906.01

Overview Map

Colorado

Main Map
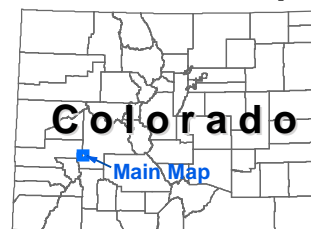
Figure 7
McKinley Ditch-Western Rivers Conservancy Property
Average Effect to Little Cimarron River
Reach 1 (McKinley Ditch Headgate to Point of Historical Return Flow)
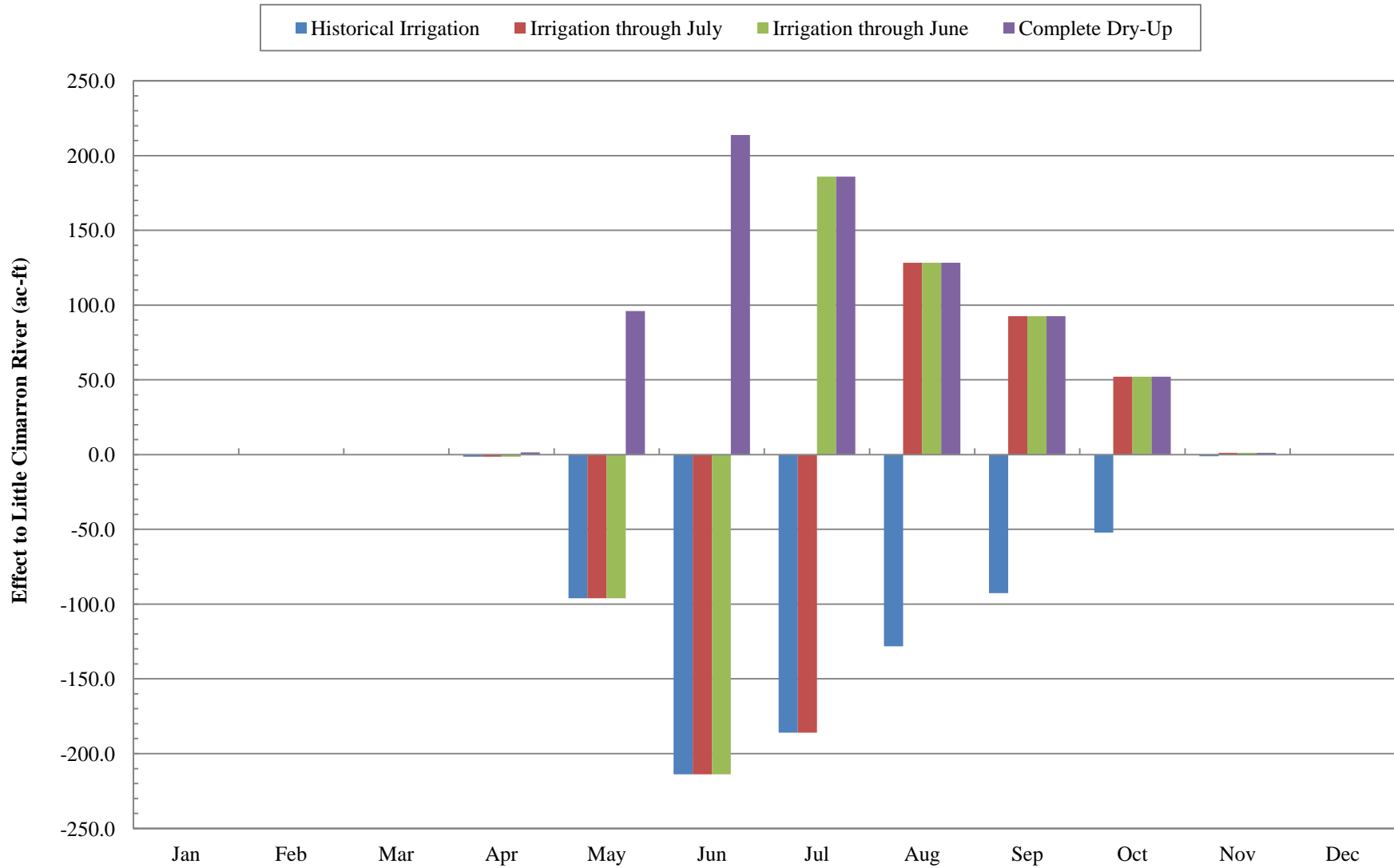
Figure 8
McKinley Ditch-Western Rivers Conservancy Property
Average Effect to Little Cimarron River
Reach 2 (BelowPoint of Historical Return Flow)
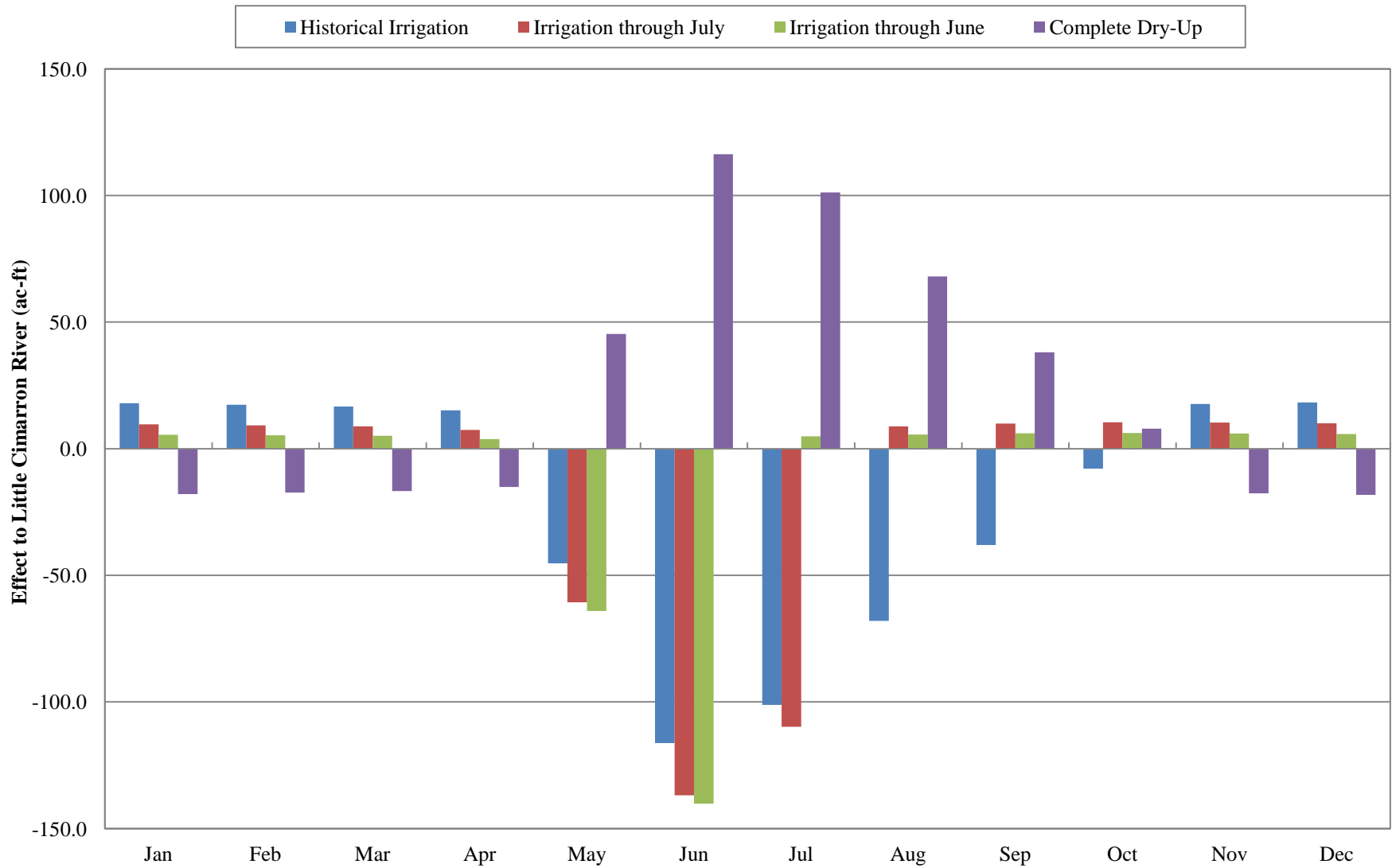
TABLES

Table 1
McKinley Ditch
Total Diversions for Irrigation
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	1,107.8	1,943.8	1,562.0	989.3	928.3	135.9	0	0	6,667.0
1975	0	0	0	0	0	1,060.8	1,705.4	993.7	525.6	446.3	0	0	4,731.8
1976	0	0	0	0	1,081.4	1,855.4	1,211.7	719.4	642.7	0	0	0	5,510.6
1977	0	0	0	190.4	1,085.0	1,309.1	790.6	707.1	520.7	408.6	0	0	5,011.5
1978	0	0	0	0	777.5	1,904.2	1,544.2	1,066.1	650.0	416.5	0	0	6,358.5
1979	0	0	0	0	0	1,868.5	2,027.1	964.4	697.4	376.9	0	0	5,934.2
1980	0	0	0	0	126.9	1,745.5	1,363.3	836.6	508.6	446.3	0	0	5,027.2
1981	0	0	0	42.2	1,434.9	1,472.7	750.2	765.6	561.3	488.9	0	0	5,515.9
1982	0	0	0	0	444.3	1,939.9	1,830.8	1,504.5	944.1	709.1	0	0	7,372.7
1983	0	0	0	0	0	2,142.2	2,056.9	1,740.5	1,160.3	857.9	0	0	7,957.8
1984	0	0	0	0	171.4	1,713.7	1,517.4	1,727.0	1,256.5	0	0	0	6,386.1
1985	0	0	0	0	28.8	1,702.8	2,166.8	676.8	720.0	380.9	0	0	5,676.1
1986	0	0	0	8.5	582.1	1,311.8	1,149.9	770.2	552.9	309.3	6.5	0	4,691.3
1987	0	0	0	0	0	1,682.0	1,154.4	744.0	678.8	449.3	0	0	4,708.4
1988	0	0	0	0	1,108.8	2,160.0	1,968.6	717.0	261.8	148.8	0	0	6,365.1
1989	0	0	0	0	766.1	745.8	772.3	583.0	4.8	0	0	0	2,872.0
1990	0	0	0	0	857.9	1,049.9	734.1	670.0	360.5	96.9	0	0	3,769.3
1991	0	0	0	0	1,246.4	1,022.6	851.0	442.8	0	0	0	0	3,562.8
1992	0	0	0	0	460.4	1,134.5	885.4	536.8	114.9	46.8	0	0	3,178.7
1993	0	0	0	0	773.2	832.9	863.6	690.5	236.4	11.9	0	0	3,408.4
1994	0	0	0	0	735.3	885.6	783.8	434.3	365.4	101.9	0	0	3,306.2
1995	0	0	0	0	494.6	1,253.9	894.2	792.4	136.5	0	0	0	3,571.6
1996	0	0	0	24.9	663.5	859.2	788.0	530.0	289.5	0	0	0	3,155.0
1997	0	0	0	0	261.8	769.2	708.1	186.6	41.7	0	0	0	1,967.4
1998	0	0	0	0	95.4	654.4	847.3	736.6	315.7	50.1	0	0	2,699.4
1999	0	0	0	0	513.9	786.5	497.7	117.6	477.1	200.3	0	0	2,593.0
2000	0	0	0	0	936.8	871.1	526.0	493.2	402.0	50.9	0	0	3,279.9
2001	0	0	0	0	95.2	923.5	834.2	439.6	425.5	404.2	0	0	3,122.1
2002	0	0	0	0	1,208.0	1,015.9	439.6	441.2	352.6	187.4	0	0	3,644.9
2003	0	0	0	0	582.6	1,483.3	1,174.4	687.3	1,106.8	1,143.7	0	0	6,178.1
2004	0	0	0	0	204.0	624.0	915.8	771.6	619.1	276.3	0	0	3,410.7
2005	0	0	0	0	463.6	1,318.8	1,208.1	760.1	726.8	737.7	0	0	5,215.1
2006	0	0	0	0	886.1	1,549.5	940.8	878.3	516.0	0	0	0	4,770.7
2007	0	0	0	41.0	686.0	1,428.1	1,461.8	593.9	845.6	307.9	0	0	5,364.4
2008	0	0	0	0	171.4	923.7	1,551.9	871.9	640.7	562.7	252.5	0	4,974.9
2009	0	0	0	0	677.1	1,407.7	1,361.5	1,277.0	607.0	610.7	0	0	5,940.9
2010	0	0	0	0	257.9	1,492.2	946.2	874.2	608.4	425.5	0	0	4,604.4
2011	0	0	0	0	223.1	1,415.2	1,533.2	796.3	741.9	518.0	0	0	5,227.8
2012	0	0	0	32.7	1,344.4	1,012.7	954.9	662.2	637.5	525.8	0	0	5,170.2
2013	0	0	0	0	732.3	1,199.4	723.2	619.6	936.2	539.5	0	0	4,750.3
Min	0	0	0	0	0	624.0	439.6	117.6	0	0	0	0	1,967.4
Max	0	0	0	190.4	1,434.9	2,160.0	2,166.8	1,740.5	1,256.5	1,143.7	252.5	0	7,957.8
Avg	0	0	0	8.5	582.1	1,311.8	1,149.9	770.2	552.9	309.3	6.5	0	4,691.3

Notes: Daily diversion records (for irrigation only) acquired from the Colorado Decision Support System (CDSS).
Data missing in 1986 filled with monthly average values from study period.

BBA water consultants *BISHOP-BROGDEN ASSOCIATES, INC.*

Table 2
McKinley Ditch - Colorado Water Trust Shares
Total Diversions for Irrigation
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	207.7	364.5	292.9	185.5	174.1	25.5	0	0	1,250.1
1975	0	0	0	0	0	198.9	319.8	186.3	98.6	83.7	0	0	887.2
1976	0	0	0	0	202.8	347.9	227.2	134.9	120.5	0	0	0	1,033.2
1977	0	0	0	35.7	203.4	245.5	148.2	132.6	97.6	76.6	0	0	939.7
1978	0	0	0	0	145.8	357.0	289.5	199.9	121.9	78.1	0	0	1,192.2
1979	0	0	0	0	0	350.3	380.1	180.8	130.8	70.7	0	0	1,112.7
1980	0	0	0	0	23.8	327.3	255.6	156.9	95.4	83.7	0	0	942.6
1981	0	0	0	7.9	269.0	276.1	140.7	143.6	105.2	91.7	0	0	1,034.2
1982	0	0	0	0	83.3	363.7	343.3	282.1	177.0	133.0	0	0	1,382.4
1983	0	0	0	0	0	401.7	385.7	326.3	217.6	160.8	0	0	1,492.1
1984	0	0	0	0	32.1	321.3	284.5	323.8	235.6	0	0	0	1,197.4
1985	0	0	0	0	5.4	319.3	406.3	126.9	135.0	71.4	0	0	1,064.3
1986	0	0	0	1.6	109.2	246.0	215.6	144.4	103.7	58.0	1.2	0	879.6
1987	0	0	0	0	0	315.4	216.4	139.5	127.3	84.2	0	0	882.8
1988	0	0	0	0	207.9	405.0	369.1	134.4	49.1	27.9	0	0	1,193.4
1989	0	0	0	0	143.6	139.8	144.8	109.3	0.9	0	0	0	538.5
1990	0	0	0	0	160.9	196.9	137.6	125.6	67.6	18.2	0	0	706.7
1991	0	0	0	0	233.7	191.7	159.6	83.0	0	0	0	0	668.0
1992	0	0	0	0	86.3	212.7	166.0	100.6	21.5	8.8	0	0	596.0
1993	0	0	0	0	145.0	156.2	161.9	129.5	44.3	2.2	0	0	639.1
1994	0	0	0	0	137.9	166.0	147.0	81.4	68.5	19.1	0	0	619.9
1995	0	0	0	0	92.7	235.1	167.7	148.6	25.6	0	0	0	669.7
1996	0	0	0	4.7	124.4	161.1	147.7	99.4	54.3	0	0	0	591.6
1997	0	0	0	0	49.1	144.2	132.8	35.0	7.8	0	0	0	368.9
1998	0	0	0	0	17.9	122.7	158.9	138.1	59.2	9.4	0	0	506.1
1999	0	0	0	0	96.4	147.5	93.3	22.0	89.5	37.6	0	0	486.2
2000	0	0	0	0	175.6	163.3	98.6	92.5	75.4	9.5	0	0	615.0
2001	0	0	0	0	17.9	173.2	156.4	82.4	79.8	75.8	0	0	585.4
2002	0	0	0	0	226.5	190.5	82.4	82.7	66.1	35.1	0	0	683.4
2003	0	0	0	0	109.2	278.1	220.2	128.9	207.5	214.4	0	0	1,158.4
2004	0	0	0	0	38.2	117.0	171.7	144.7	116.1	51.8	0	0	639.5
2005	0	0	0	0	86.9	247.3	226.5	142.5	136.3	138.3	0	0	977.8
2006	0	0	0	0	166.1	290.5	176.4	164.7	96.8	0	0	0	894.5
2007	0	0	0	7.7	128.6	267.8	274.1	111.4	158.6	57.7	0	0	1,005.8
2008	0	0	0	0	32.1	173.2	291.0	163.5	120.1	105.5	47.4	0	932.8
2009	0	0	0	0	127.0	263.9	255.3	239.4	113.8	114.5	0	0	1,113.9
2010	0	0	0	0	48.3	279.8	177.4	163.9	114.1	79.8	0	0	863.3
2011	0	0	0	0	41.8	265.4	287.5	149.3	139.1	97.1	0	0	980.2
2012	0	0	0	6.1	252.1	189.9	179.0	124.2	119.5	98.6	0	0	969.4
2013	0	0	0	0	137.3	224.9	135.6	116.2	175.5	101.2	0	0	890.7
Min	0	0	0	0	0	117.0	82.4	22.0	0	0	0	0	368.9
Max	0	0	0	35.7	269.0	405.0	406.3	326.3	235.6	214.4	47.4	0	1,492.1
Avg	0	0	0	1.6	109.2	246.0	215.6	144.4	103.7	58.0	1.2	0	879.6

Notes: Equal to 1.5 of 8 shares (18.75% pro-rata shares) of the total diversions under the McKinley Ditch in Table 1.

Table 3
McKinley Ditch - Western Rivers Conservancy Property
Total In-Priority Diversions
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	206.2	345.9	274.3	185.5	174.1	25.5	0	0	1211.4
1975	0	0	0	0	0	198.9	319.8	186.3	98.6	83.7	0	0	887.2
1976	0	0	0	0	202.8	343.8	225.2	134.9	120.5	0	0	0	1027.1
1977	0	0	0	35.7	203.4	245.5	148.2	132.6	97.6	76.6	0	0	939.7
1978	0	0	0	0	145.8	345.9	286.2	199.9	121.9	78.1	0	0	1177.7
1979	0	0	0	0	0	311.3	340.7	180.8	130.8	70.7	0	0	1034.2
1980	0	0	0	0	23.8	317.6	255.6	156.9	95.4	83.7	0	0	932.9
1981	0	0	0	7.9	269.0	269.8	140.7	143.6	105.3	91.7	0	0	1027.9
1982	0	0	0	0	83.3	342.5	332.9	282.1	177.0	133.0	0	0	1350.8
1983	0	0	0	0	0	345.9	357.4	322.4	217.6	160.9	0	0	1404.1
1984	0	0	0	0	32.1	321.3	284.5	311.5	235.6	0	0	0	1185.1
1985	0	0	0	0	5.4	290.6	357.4	125.2	135.0	71.4	0	0	985.1
1986	0	0	0	1.6	106.8	237.6	206.7	142.6	102.9	58.0	1.2	0	857.2
1987	0	0	0	0	0	308.3	213.5	139.5	127.3	84.2	0	0	872.8
1988	0	0	0	0	202.7	345.9	320.8	134.4	49.1	27.9	0	0	1080.8
1989	0	0	0	0	143.6	139.8	144.8	109.3	0.9	0	0	0	538.5
1990	0	0	0	0	160.9	196.9	137.6	125.6	67.6	18.2	0	0	706.7
1991	0	0	0	0	233.7	191.7	159.6	83.0	0	0	0	0	668.0
1992	0	0	0	0	86.3	212.7	166.0	100.6	21.5	8.8	0	0	596.0
1993	0	0	0	0	145.0	156.2	161.9	129.5	44.3	2.2	0	0	639.1
1994	0	0	0	0	137.9	166.0	147.0	81.4	68.5	19.1	0	0	619.9
1995	0	0	0	0	92.7	235.1	167.7	148.6	25.6	0	0	0	669.7
1996	0	0	0	4.7	124.4	161.1	147.7	99.4	54.3	0	0	0	591.6
1997	0	0	0	0	49.1	144.2	132.8	35.0	7.8	0	0	0	368.9
1998	0	0	0	0	17.9	122.7	158.9	138.1	59.2	9.4	0	0	506.1
1999	0	0	0	0	96.4	147.5	93.3	22.0	89.5	37.6	0	0	486.2
2000	0	0	0	0	175.6	163.3	98.6	92.5	75.4	9.5	0	0	615.0
2001	0	0	0	0	17.9	173.2	156.4	82.4	79.8	75.8	0	0	585.4
2002	0	0	0	0	140.3	128.3	82.4	82.7	66.1	35.1	0	0	535.1
2003	0	0	0	0	109.2	278.1	163.5	109.0	190.8	214.4	0	0	1065.1
2004	0	0	0	0	38.2	117.0	151.6	135.1	116.1	51.8	0	0	609.8
2005	0	0	0	0	86.9	247.3	224.8	140.3	135.8	137.8	0	0	972.9
2006	0	0	0	0	166.1	290.5	176.4	164.7	88.1	0	0	0	885.8
2007	0	0	0	7.7	128.6	267.8	274.1	111.4	158.6	57.7	0	0	1005.8
2008	0	0	0	0	32.1	173.2	291.0	163.5	120.1	105.5	47.4	0	932.8
2009	0	0	0	0	127.0	263.9	255.3	239.4	113.8	114.5	0	0	1113.9
2010	0	0	0	0	48.3	279.8	150.7	143.8	114.1	79.8	0	0	816.5
2011	0	0	0	0	41.8	265.4	287.5	146.1	134.5	97.1	0	0	972.4
2012	0	0	0	6.1	252.1	184.9	137.8	124.2	119.5	98.6	0	0	923.2
2013	0	0	0	0	137.3	224.9	135.6	116.2	175.5	101.2	0	0	890.7
Min	0	0	0	0	0	117.0	82.4	22.0	0	0	0	0	368.9
Max	0	0	0	35.7	269.0	345.9	357.4	322.4	235.6	214.4	47.4	0	1404.1
Avg	0	0	0	1.6	106.8	237.6	206.7	142.6	102.9	58.0	1.2	0	857.2

Notes: Daily diversion records (for irrigation only) acquired from the Colorado Decision Support System (CDSS).
Daily diversions are limited to the McKinley Ditch water rights priority on each day.

The Colorado Water Trust portion of the McKinley Ditch (which is used to irrigate the Western Rivers Conservancy Property) is 18.75% (1.5 shares of 8 total shares). Therefore, the diversions attributable to the Western Rivers Conservancy Property are equal to 18.75% of the total ditch diversions. Data missing in 1986 filled with monthly average values from study period.

Table 4
McKinley Ditch-Western Rivers Conservancy Property
Average Effect to Little Cimarron River
Reach 1 (McKinley Ditch Headgate to Point of Historical Return Flow)
(all values in ac-ft)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Historical Irrigation	0.0	0.0	0.0	-1.4	-96.1	-213.8	-186.0	-128.3	-92.6	-52.2	-1.1	0.0	-771.5
Irrigation through July	0.0	0.0	0.0	-1.4	-96.1	-213.8	-186.0	128.3	92.6	52.2	1.1	0.0	-223.1
Irrigation through June	0.0	0.0	0.0	-1.4	-96.1	-213.8	186.0	128.3	92.6	52.2	1.1	0.0	148.8
Complete Dry-Up	0.0	0.0	0.0	1.4	96.1	213.8	186.0	128.3	92.6	52.2	1.1	0.0	771.5

Note: The effect to the Little Cimarron River in Reach 1 is equal to the inverse of the average historical farm headgate deliveries under each irrigation scenario for months of irrigation based upon Tables A-2, B-2, and C-2 for historical irrigation, irrigation through July, and irrigation through June, respectively. The effect to the river under various dry-up scenarios is equal to the inverse of the effect under historical irrigation during the months of dry-up. Negative values represent a depletion to the river and positive values represent an accretion to the river.

Table 5
McKinley Ditch-Western Rivers Conservancy Property
Average Effect to Little Cimarron River
Reach 2 (Below Point of Historical Return Flow)
(all values in ac-ft)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Historical Irrigation	18.0	17.4	16.7	15.1	-45.3	-116.3	-101.2	-68.0	-38.1	-7.9	17.7	18.3	-273.7
Irrigation through July	9.6	9.2	8.8	7.4	-60.7	-136.9	-109.9	8.9	9.9	10.4	10.4	10.1	-222.7
Irrigation through June	5.5	5.3	5.1	3.8	-64.1	-140.2	4.9	5.6	6.1	6.2	6.0	5.8	-150.2
Complete Dry-Up	-18.0	-17.4	-16.7	-15.1	45.3	116.3	101.2	68.0	38.1	7.9	-17.7	-18.3	273.7
*Difference between Historical Irrigation and Irrigation through July**	-8.3	-8.1	-7.9	-7.7	-15.4	-20.6	-8.6	76.9	48.0	18.3	-7.3	-8.2	51.0
*Difference between Historical Irrigation and Irrigation through June**	-12.4	-12.1	-11.6	-11.3	-18.8	-23.9	106.1	73.6	44.2	14.0	-11.6	-12.5	123.6

Note: The effect to the Little Cimarron River in Reach 2 is equal to the inverse of the average depletion under each irrigation scenario based upon Tables A-20, B-20, and C-20 for historical irrigation, irrigation through July, and irrigation through June, respectively. The effect to the river under complete dry-up is equal to the inverse of the effect under historical irrigation. Negative values represent a depletion to the river and positive values represent an accretion to the river.

*The difference between the historical irrigation scenario and the partial irrigation scenarios (irrigation through July or irrigation through June) is equal to the average effect of the partial irrigation scenario less the average effect of historical irrigation. Negative values indicate that the partial irrigation scenario is more depletive to the streamflow than the historical scenario. Positive values indicate that the partial irrigation scenario benefits the streamflow.

Table 6
McKinley Ditch-Western Rivers Conservancy Property
Return Flow and Depletion Factors

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
(1) Average Historical Farm Headgate Deliveries (ac-ft)	0.0	0.0	0.0	1.4	96.1	213.8	186.0	128.3	92.6	52.2	1.1	0.0	771.5
(2) Average Historical Depletions (ac-ft)	-18.0	-17.4	-16.7	-15.1	45.3	116.3	101.2	68.0	38.1	7.9	-17.7	-18.3	273.7
(3) Average Historical Return Flows (ac-ft)	18.0	17.4	16.7	16.6	50.8	97.5	84.8	60.3	54.5	44.3	18.7	18.3	497.8
(4) Depletion Factors					0.47	0.54	0.54	0.53	0.41	0.15			
(5) Return Flow Factors	-0.02	-0.02	-0.02	-0.02	0.53	0.46	0.46	0.47	0.59	0.85	-0.02	-0.02	

Notes

(1) Equal to Table A-2.

(2) Equal to Table A-20.

(4) Equal to (2) divided by (1) for May through October.

(5) Equal to 1 minus (4) for May through October. Equal to (2) divided by the total average annual farm headgate delivery in (1) for November through April.

Appendix A

StateCU Analysis Results – Historical Irrigation

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	206.2	345.9	274.3	185.5	174.1	25.5	0	0	1211.4
1975	0	0	0	0	0	198.9	319.8	186.3	98.6	83.7	0	0	887.2
1976	0	0	0	0	202.8	343.8	225.2	134.9	120.5	0	0	0	1027.1
1977	0	0	0	35.7	203.4	245.5	148.2	132.6	97.6	76.6	0	0	939.7
1978	0	0	0	0	145.8	345.9	286.2	199.9	121.9	78.1	0	0	1177.7
1979	0	0	0	0	0	311.3	340.7	180.8	130.8	70.7	0	0	1034.2
1980	0	0	0	0	23.8	317.6	255.6	156.9	95.4	83.7	0	0	932.9
1981	0	0	0	7.9	269.0	269.8	140.7	143.6	105.3	91.7	0	0	1027.9
1982	0	0	0	0	83.3	342.5	332.9	282.1	177.0	133.0	0	0	1350.8
1983	0	0	0	0	0	345.9	357.4	322.4	217.6	160.9	0	0	1404.1
1984	0	0	0	0	32.1	321.3	284.5	311.5	235.6	0	0	0	1185.1
1985	0	0	0	0	5.4	290.6	357.4	125.2	135.0	71.4	0	0	985.1
1986	0	0	0	1.6	106.8	237.6	206.7	142.6	102.9	58.0	1.2	0	857.2
1987	0	0	0	0	0	308.3	213.5	139.5	127.3	84.2	0	0	872.8
1988	0	0	0	0	202.7	345.9	320.8	134.4	49.1	27.9	0	0	1080.8
1989	0	0	0	0	143.6	139.8	144.8	109.3	0.9	0	0	0	538.5
1990	0	0	0	0	160.9	196.9	137.6	125.6	67.6	18.2	0	0	706.7
1991	0	0	0	0	233.7	191.7	159.6	83.0	0	0	0	0	668.0
1992	0	0	0	0	86.3	212.7	166.0	100.6	21.5	8.8	0	0	596.0
1993	0	0	0	0	145.0	156.2	161.9	129.5	44.3	2.2	0	0	639.1
1994	0	0	0	0	137.9	166.0	147.0	81.4	68.5	19.1	0	0	619.9
1995	0	0	0	0	92.7	235.1	167.7	148.6	25.6	0	0	0	669.7
1996	0	0	0	4.7	124.4	161.1	147.7	99.4	54.3	0	0	0	591.6
1997	0	0	0	0	49.1	144.2	132.8	35.0	7.8	0	0	0	368.9
1998	0	0	0	0	17.9	122.7	158.9	138.1	59.2	9.4	0	0	506.1
1999	0	0	0	0	96.4	147.5	93.3	22.0	89.5	37.6	0	0	486.2
2000	0	0	0	0	175.6	163.3	98.6	92.5	75.4	9.5	0	0	615.0
2001	0	0	0	0	17.9	173.2	156.4	82.4	79.8	75.8	0	0	585.4
2002	0	0	0	0	140.3	128.3	82.4	82.7	66.1	35.1	0	0	535.1
2003	0	0	0	0	109.2	278.1	163.5	109.0	190.8	214.4	0	0	1065.1
2004	0	0	0	0	38.2	117.0	151.6	135.1	116.1	51.8	0	0	609.8
2005	0	0	0	0	86.9	247.3	224.8	140.3	135.8	137.8	0	0	972.9
2006	0	0	0	0	166.1	290.5	176.4	164.7	88.1	0	0	0	885.8
2007	0	0	0	7.7	128.6	267.8	274.1	111.4	158.6	57.7	0	0	1005.8
2008	0	0	0	0	32.1	173.2	291.0	163.5	120.1	105.5	47.4	0	932.8
2009	0	0	0	0	127.0	263.9	255.3	239.4	113.8	114.5	0	0	1113.9
2010	0	0	0	0	48.3	279.8	150.7	143.8	114.1	79.8	0	0	816.5
2011	0	0	0	0	41.8	265.4	287.5	146.1	134.5	97.1	0	0	972.4
2012	0	0	0	6.1	252.1	184.9	137.8	124.2	119.5	98.6	0	0	923.2
2013	0	0	0	0	137.3	224.9	135.6	116.2	175.5	101.2	0	0	890.7
Min	0	0	0	0	0	117.0	82.4	22.0	0	0	0	0	368.9
Max	0	0	0	35.7	269.0	345.9	357.4	322.4	235.6	214.4	47.4	0	1404.1
Avg	0	0	0	1.6	106.8	237.6	206.7	142.6	102.9	58.0	1.2	0	857.2

Notes: Daily diversion records (for irrigation only) acquired from the Colorado Decision Support System (CDSS).

Daily diversions are limited to the McKinley Ditch water rights priority on each day.

The Colorado Water Trust portion of the McKinley Ditch (which is used to irrigate the Western Rivers Conservancy Property) is 18.75% (1.5 shares of 8 total shares). Therefore, the diversions attributable to the Western Rivers Conservancy Property are equal to 18.75% of the total ditch diversions. Data missing in 1986 filled with monthly average values from study period.

Table A-2
McKinley Ditch - Western Rivers Conservancy Property
Farm Headgate Deliveries
Historical Irrigation - 194.5 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	185.6	311.3	246.9	166.9	156.6	22.9	0	0	1090.3
1975	0	0	0	0	0	179.0	287.8	167.7	88.7	75.3	0	0	798.5
1976	0	0	0	0	182.5	309.4	202.6	121.4	108.4	0	0	0	924.4
1977	0	0	0	32.1	183.1	220.9	133.4	119.3	87.9	69.0	0	0	845.7
1978	0	0	0	0	131.2	311.3	257.6	179.9	109.7	70.3	0	0	1059.9
1979	0	0	0	0	0	280.2	306.6	162.7	117.7	63.6	0	0	930.8
1980	0	0	0	0	21.4	285.8	230.1	141.2	85.8	75.3	0	0	839.6
1981	0	0	0	7.1	242.1	242.8	126.6	129.2	94.7	82.5	0	0	925.1
1982	0	0	0	0	75.0	308.3	299.6	253.9	159.3	119.7	0	0	1215.7
1983	0	0	0	0	0	311.3	321.7	290.2	195.8	144.8	0	0	1263.7
1984	0	0	0	0	28.9	289.2	256.1	280.4	212.0	0	0	0	1066.6
1985	0	0	0	0	4.9	261.6	321.7	112.7	121.5	64.3	0	0	886.6
1986	0	0	0	1.4	96.1	213.8	186.0	128.3	92.6	52.2	1.1	0	771.5
1987	0	0	0	0	0	277.5	192.1	125.6	114.5	75.8	0	0	785.5
1988	0	0	0	0	182.4	311.3	288.7	121.0	44.2	25.1	0	0	972.7
1989	0	0	0	0	129.3	125.9	130.3	98.4	0.8	0	0	0	484.7
1990	0	0	0	0	144.8	177.2	123.9	113.1	60.8	16.3	0	0	636.1
1991	0	0	0	0	210.3	172.6	143.6	74.7	0	0	0	0	601.2
1992	0	0	0	0	77.7	191.5	149.4	90.6	19.4	7.9	0	0	536.4
1993	0	0	0	0	130.5	140.6	145.7	116.5	39.9	2.0	0	0	575.2
1994	0	0	0	0	124.1	149.4	132.3	73.3	61.7	17.2	0	0	557.9
1995	0	0	0	0	83.5	211.6	150.9	133.7	23.0	0	0	0	602.7
1996	0	0	0	4.2	112.0	145.0	133.0	89.4	48.8	0	0	0	532.4
1997	0	0	0	0	44.2	129.8	119.5	31.5	7.0	0	0	0	332.0
1998	0	0	0	0	16.1	110.4	143.0	124.3	53.3	8.5	0	0	455.5
1999	0	0	0	0	86.7	132.7	84.0	19.8	80.5	33.8	0	0	437.6
2000	0	0	0	0	158.1	147.0	88.8	83.2	67.8	8.6	0	0	553.5
2001	0	0	0	0	16.1	155.8	140.8	74.2	71.8	68.2	0	0	526.9
2002	0	0	0	0	126.3	115.5	74.2	74.5	59.5	31.6	0	0	481.5
2003	0	0	0	0	98.3	250.3	147.2	98.1	171.7	193.0	0	0	958.6
2004	0	0	0	0	34.4	105.3	136.4	121.6	104.5	46.6	0	0	548.9
2005	0	0	0	0	78.2	222.6	202.3	126.3	122.2	124.0	0	0	875.6
2006	0	0	0	0	149.5	261.5	158.8	148.2	79.3	0	0	0	797.2
2007	0	0	0	6.9	115.8	241.0	246.7	100.2	142.7	52.0	0	0	905.3
2008	0	0	0	0	28.9	155.9	261.9	147.1	108.1	95.0	42.6	0	839.5
2009	0	0	0	0	114.3	237.5	229.7	215.5	102.4	103.1	0	0	1002.5
2010	0	0	0	0	43.5	251.8	135.6	129.4	102.7	71.8	0	0	734.9
2011	0	0	0	0	37.7	238.8	258.7	131.5	121.1	87.4	0	0	875.2
2012	0	0	0	5.5	226.9	166.4	124.0	111.7	107.6	88.7	0	0	830.9
2013	0	0	0	0	123.6	202.4	122.0	104.6	158.0	91.0	0	0	801.6
Min	0	0	0	0	0	105.3	74.2	19.8	0	0	0	0	332.0
Max	0	0	0	32.1	242.1	311.3	321.7	290.2	212.0	193.0	42.6	0	1263.7
Avg	0	0	0	1.4	96.1	213.8	186.0	128.3	92.6	52.2	1.1	0	771.5

Notes: Equal to the total in-priority diversion in Table A-1, less 10% ditch loss.

Table A-3
McKinley Ditch - Western Rives Conservancy Property
Crop Irrigation Requirements
Historical Irrigation - 194.5 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0.6	55.3	75.3	81.2	62.6	35.5	5.9	0	0	316.5
1975	0	0	0	0	11.4	55.5	87.9	69.4	43.2	1.1	0	0	268.5
1976	0	0	0	0	36.3	65.3	82.4	50.8	35.0	4.8	0	0	274.5
1977	0	0	0	0	32.6	72.9	63.1	73.3	36.5	6.3	0	0	284.7
1978	0	0	0	0	31.4	72.6	74.7	79.5	49.6	5.1	0	0	312.8
1979	0	0	0	0	28.8	48.4	65.7	56.5	55.1	10.6	0	0	265.2
1980	0	0	0	0	21.2	75.0	83.1	78.8	45.8	4.8	0	0	308.7
1981	0	0	0	16.1	40.6	71.4	57.5	56.2	35.3	5.6	0	0	282.5
1982	0	0	0	0	34.6	66.5	80.9	69.1	16.4	4.2	0	0	271.6
1983	0	0	0	0	11.8	65.2	63.2	70.0	51.3	15.3	0	0	276.7
1984	0	0	0	2.3	52.5	47.9	86.1	69.1	41.0	3.1	0	0	301.9
1985	0	0	0	0.7	29.1	72.8	77.3	72.6	5.5	6.1	0	0	264.0
1986	0	0	0	3.4	33.7	68.3	73.2	63.1	24.6	5.5	0	0	271.9
1987	0	0	0	7.9	23.5	67.7	76.3	61.2	42.9	7.7	0	0	287.1
1988	0	0	0	6.2	40.1	79.8	85.0	60.8	31.7	14.2	0	0	317.8
1989	0	0	0	20.4	53.1	68.9	76.0	64.4	42.0	8.2	0	0	333.1
1990	0	0	0	0	38.1	77.0	77.2	68.6	28.8	5.7	0	0	295.4
1991	0	0	0	0	42.6	64.5	77.1	73.8	29.3	6.6	0	0	293.9
1992	0	0	0	24.4	16.1	67.6	58.8	53.5	46.5	12.4	0	0	279.3
1993	0	0	0	5.4	31.9	59.6	87.2	55.4	42.5	4.1	0	0	286.1
1994	0	0	0	9.3	49.5	71.5	97.9	70.3	30.6	8.6	0	0	337.8
1995	0	0	0	0.9	37.3	36.7	56.0	81.0	25.1	10.3	0	0	247.4
1996	0	0	0	9.2	53.3	69.2	92.9	89.0	13.4	3.8	0	0	330.8
1997	0	0	0	1.1	25.6	49.6	80.6	53.9	38.0	2.9	0	0	251.7
1998	0	0	0	0.4	41.3	65.1	94.7	67.9	45.7	3.5	0	0	318.5
1999	0	0	0	0	20.7	47.9	80.2	54.0	33.0	11.6	0	0	247.4
2000	0	0	0	19.9	42.5	72.9	83.7	78.6	34.9	9.3	0	0	341.9
2001	0	0	0	11.6	39.0	55.9	70.5	47.7	45.9	10.2	0	0	280.8
2002	0	0	0	16.7	49.0	80.8	89.7	54.4	9.8	2.1	0	0	302.5
2003	0	0	0	7.0	48.3	63.8	96.8	73.5	26.6	14.5	0	0	330.4
2004	0	0	0	0.5	50.4	71.0	85.3	65.3	26.5	9.5	0	0	308.3
2005	0	0	0	5.7	53.4	60.7	99.0	73.1	30.1	9.7	0	0	331.6
2006	0	0	0	16.4	47.6	71.7	71.2	60.0	12.0	0	0	0	278.9
2007	0	0	0	9.6	41.8	74.1	74.7	70.4	20.2	9.0	0	0	299.8
2008	0	0	0	0	29.7	63.8	82.3	81.6	36.8	8.6	0	0	302.8
2009	0	0	0	2.9	29.9	57.5	83.5	71.7	45.3	3.9	0	0	294.7
2010	0	0	0	2.8	41.8	73.8	98.5	54.8	40.2	8.5	0	0	320.4
2011	0	0	0	0	30.5	61.9	80.9	69.1	33.4	7.0	0	0	282.9
2012	0	0	0	14.0	39.9	65.3	58.0	58.9	33.3	11.5	0	0	280.9
2013	0	0	0	0	41.0	76.3	69.9	62.3	23.8	6.4	0	0	279.8
Avg	0	0	0	5.4	36.9	65.8	79.0	66.2	33.6	7.2	0	0	294.0
Avg/Ac	0	0	0	0.0	0.2	0.3	0.4	0.3	0.2	0.0	0	0	1.51

Notes: The crop irrigation requirement (CIR) was determined using StateCU.
   194.5 acres of pasture grass were modeled, based on TR21 crop coefficients and an adjustment made for elevation.

Table A-4
McKinley Ditch - Western Rivers Conservancy Property
Water Available to Crop
Historical Irrigation - 194.5 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	102.1	171.2	135.8	91.8	86.2	12.6	0	0	599.6
1975	0	0	0	0	0	98.5	158.3	92.2	48.8	41.4	0	0	439.2
1976	0	0	0	0	100.4	170.2	111.5	66.8	59.6	0	0	0	508.4
1977	0	0	0	17.7	100.7	121.5	73.4	65.6	48.3	37.9	0	0	465.1
1978	0	0	0	0	72.2	171.2	141.7	99.0	60.3	38.7	0	0	583.0
1979	0	0	0	0	0	154.1	168.6	89.5	64.7	35.0	0	0	511.9
1980	0	0	0	0	11.8	157.2	126.5	77.7	47.2	41.4	0	0	461.8
1981	0	0	0	3.9	133.2	133.6	69.6	71.1	52.1	45.4	0	0	508.8
1982	0	0	0	0	41.2	169.6	164.8	139.6	87.6	65.8	0	0	668.6
1983	0	0	0	0	0	171.2	176.9	159.6	107.7	79.6	0	0	695.0
1984	0	0	0	0	15.9	159.1	140.8	154.2	116.6	0	0	0	586.6
1985	0	0	0	0	2.7	143.9	176.9	62.0	66.8	35.4	0	0	487.6
1986	0	0	0	0.8	52.9	117.6	102.3	70.6	50.9	28.7	0.6	0	424.3
1987	0	0	0	0	0	152.6	105.7	69.1	63.0	41.7	0	0	432.0
1988	0	0	0	0	100.3	171.2	158.8	66.6	24.3	13.8	0	0	535.0
1989	0	0	0	0	71.1	69.2	71.7	54.1	0.4	0	0	0	266.6
1990	0	0	0	0	79.6	97.4	68.1	62.2	33.5	9.0	0	0	349.8
1991	0	0	0	0	115.7	94.9	79.0	41.1	0	0	0	0	330.7
1992	0	0	0	0	42.7	105.3	82.2	49.8	10.7	4.3	0	0	295.0
1993	0	0	0	0	71.8	77.3	80.2	64.1	21.9	1.1	0	0	316.3
1994	0	0	0	0	68.2	82.2	72.7	40.3	33.9	9.5	0	0	306.9
1995	0	0	0	0	45.9	116.4	83.0	73.5	12.7	0	0	0	331.5
1996	0	0	0	2.3	61.6	79.7	73.1	49.2	26.9	0	0	0	292.8
1997	0	0	0	0	24.3	71.4	65.7	17.3	3.9	0	0	0	182.6
1998	0	0	0	0	8.9	60.7	78.6	68.4	29.3	4.7	0	0	250.5
1999	0	0	0	0	47.7	73.0	46.2	10.9	44.3	18.6	0	0	240.7
2000	0	0	0	0	86.9	80.8	48.8	45.8	37.3	4.7	0	0	304.4
2001	0	0	0	0	8.8	85.7	77.4	40.8	39.5	37.5	0	0	289.8
2002	0	0	0	0	69.5	63.5	40.8	41.0	32.7	17.4	0	0	264.9
2003	0	0	0	0	54.1	137.7	80.9	54.0	94.4	106.1	0	0	527.2
2004	0	0	0	0	18.9	57.9	75.0	66.9	57.5	25.6	0	0	301.9
2005	0	0	0	0	43.0	122.4	111.3	69.5	67.2	68.2	0	0	481.6
2006	0	0	0	0	82.2	143.8	87.3	81.5	43.6	0	0	0	438.5
2007	0	0	0	3.8	63.7	132.5	135.7	55.1	78.5	28.6	0	0	497.9
2008	0	0	0	0	15.9	85.7	144.0	80.9	59.5	52.2	23.4	0	461.7
2009	0	0	0	0	62.8	130.7	126.4	118.5	56.3	56.7	0	0	551.4
2010	0	0	0	0	23.9	138.5	74.6	71.2	56.5	39.5	0	0	404.2
2011	0	0	0	0	20.7	131.4	142.3	72.3	66.6	48.1	0	0	481.3
2012	0	0	0	3.0	124.8	91.5	68.2	61.5	59.2	48.8	0	0	457.0
2013	0	0	0	0	68.0	111.3	67.1	57.5	86.9	50.1	0	0	440.9
Min	0	0	0	0	0	57.9	40.8	10.9	0	0	0	0	182.6
Max	0	0	0	17.7	133.2	171.2	176.9	159.6	116.6	106.1	23.4	0	695.0
Avg	0	0	0	0.8	52.9	117.6	102.3	70.6	50.9	28.7	0.6	0	424.3

Notes: Equal to the farm headgate delivery in Table A-2, multiplied by **55%** to account for application efficiency.

Table A-5
McKinley Ditch - Western Rivers Conservancy Property
Consumptive Use
Historical Irrigation - 194.5 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0.6	55.3	75.3	81.2	62.6	35.5	5.9	0	0	316.5
1975	0	0	0	0	11.4	55.5	87.9	69.4	43.2	1.1	0	0	268.5
1976	0	0	0	0	36.3	65.3	82.4	50.8	35.0	4.8	0	0	274.5
1977	0	0	0	0	32.6	72.9	63.1	73.3	36.5	6.3	0	0	284.7
1978	0	0	0	0	31.4	72.6	74.7	79.5	49.6	5.1	0	0	312.8
1979	0	0	0	0	28.8	48.4	65.7	56.5	55.1	10.6	0	0	265.2
1980	0	0	0	0	21.2	75.0	83.1	78.8	45.8	4.8	0	0	308.7
1981	0	0	0	16.1	40.6	71.4	57.5	56.2	35.3	5.6	0	0	282.5
1982	0	0	0	0	34.6	66.5	80.9	69.1	16.4	4.2	0	0	271.6
1983	0	0	0	0	11.8	65.2	63.2	70.0	51.3	15.3	0	0	276.7
1984	0	0	0	2.3	52.5	47.9	86.1	69.1	41.0	3.1	0	0	301.9
1985	0	0	0	0.7	29.1	72.8	77.3	72.6	5.5	6.1	0	0	264.0
1986	0	0	0	3.4	33.7	68.3	73.2	63.1	24.6	5.5	0	0	271.9
1987	0	0	0	7.9	23.5	67.7	76.3	61.2	42.9	7.7	0	0	287.1
1988	0	0	0	6.2	40.1	79.8	85.0	60.8	31.7	14.2	0	0	317.8
1989	0	0	0	20.4	53.1	68.9	76.0	64.4	42.0	8.2	0	0	333.1
1990	0	0	0	0	38.1	77.0	77.2	68.6	28.8	5.7	0	0	295.4
1991	0	0	0	0	42.6	64.5	77.1	73.8	29.3	6.6	0	0	293.9
1992	0	0	0	8.4	16.1	67.6	58.8	53.5	46.5	12.4	0	0	263.3
1993	0	0	0	5.4	31.9	59.6	87.2	55.4	42.5	4.1	0	0	286.1
1994	0	0	0	9.3	49.5	71.5	97.9	70.3	30.6	8.6	0	0	337.8
1995	0	0	0	0.9	37.3	36.7	56.0	81.0	25.1	10.3	0	0	247.4
1996	0	0	0	9.2	53.3	69.2	92.9	88.3	13.4	3.8	0	0	330.0
1997	0	0	0	1.1	25.6	49.6	80.6	31.4	3.9	0	0	0	192.2
1998	0	0	0	0	8.9	60.7	78.6	67.9	29.7	3.5	0	0	249.3
1999	0	0	0	0	20.7	47.9	80.2	30.2	33.0	11.6	0	0	223.6
2000	0	0	0	18.3	42.5	72.9	83.7	63.2	34.9	7.1	0	0	322.7
2001	0	0	0	0	8.8	55.9	70.5	47.7	45.9	10.2	0	0	239.1
2002	0	0	0	16.7	49.0	80.8	77.9	41.0	9.8	2.1	0	0	277.3
2003	0	0	0	7.0	48.3	63.8	96.8	73.5	26.6	14.5	0	0	330.4
2004	0	0	0	0.5	50.4	71.0	85.3	65.3	26.5	9.5	0	0	308.3
2005	0	0	0	5.7	53.4	60.7	99.0	73.1	30.1	9.7	0	0	331.6
2006	0	0	0	16.4	47.6	71.7	71.2	60.0	12.0	0	0	0	278.9
2007	0	0	0	9.6	41.8	74.1	74.7	70.4	20.2	9.0	0	0	299.8
2008	0	0	0	0	29.7	63.8	82.3	81.6	36.8	8.6	0	0	302.8
2009	0	0	0	2.9	29.9	57.5	83.5	71.7	45.3	3.9	0	0	294.7
2010	0	0	0	2.8	41.8	73.8	98.5	54.8	40.2	8.5	0	0	320.4
2011	0	0	0	0	30.5	61.9	80.9	69.1	33.4	7.0	0	0	282.9
2012	0	0	0	14.0	39.9	65.3	58.0	58.9	33.3	11.5	0	0	280.9
2013	0	0	0	0	41.0	76.3	69.9	62.3	23.8	6.4	0	0	279.8
Min	0	0	0	0	8.8	36.7	56.0	30.2	3.9	0	0	0	192.2
Max	0	0	0	20.4	55.3	80.8	99.0	88.3	55.1	15.3	0	0	337.8
Avg	0	0	0	4.6	35.4	65.7	78.3	64.3	32.3	7.1	0	0	287.6

Notes: Equal to the consumptive use, calculated in the StateCU model. Consumptive use includes water used directly to meet the crop irrigation requirement and water used to fill the soil moisture reservoir for later crop use.

Table A-6
McKinley Ditch - Western Rivers Conservancy Property
Surface Water Return Flow
Historical Irrigation - 194.5 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	77.8	141.6	99.4	62.6	72.7	10.2	0	0	464.2
1975	0	0	0	0	0	67.3	119.9	59.0	27.3	44.5	0	0	318.0
1976	0	0	0	0	87.7	146.5	72.2	42.3	44.1	0	0	0	392.8
1977	0	0	0	16.4	90.3	88.8	42.2	32.2	26.2	37.6	0	0	333.8
1978	0	0	0	0	59.9	143.2	109.7	60.2	36.1	39.1	0	0	448.3
1979	0	0	0	0	0	121.8	144.5	63.8	37.5	31.8	0	0	399.4
1980	0	0	0	0	5.8	120.9	88.2	38.1	23.3	42.3	0	0	318.6
1981	0	0	0	1.9	113.6	102.9	41.4	43.8	35.7	46.2	0	0	385.5
1982	0	0	0	0	24.2	145.1	131.2	110.9	85.8	69.3	0	0	566.4
1983	0	0	0	0	0	140.6	155.1	132.1	86.7	77.7	0	0	592.2
1984	0	0	0	0	7.8	121.5	102.0	126.8	102.6	0	0	0	460.7
1985	0	0	0	0	1.3	95.1	146.6	30.4	63.3	34.9	0	0	371.7
1986	0	0	0	0.4	35.9	87.3	67.7	39.1	40.8	28.0	0.7	0	299.8
1987	0	0	0	0	0	107.1	69.5	38.6	43.0	40.9	0	0	299.0
1988	0	0	0	0	81.7	138.9	122.2	36.1	11.9	6.8	0	0	397.6
1989	0	0	0	0	34.9	34.0	35.2	26.6	0.2	0	0	0	130.9
1990	0	0	0	0	39.1	47.8	33.4	30.5	16.4	4.4	0	0	171.7
1991	0	0	0	0	88.7	64.8	39.9	20.2	0	0	0	0	213.6
1992	0	0	0	0	21.0	51.7	46.7	24.5	5.2	2.1	0	0	151.2
1993	0	0	0	0	35.2	40.7	39.3	32.4	10.8	0.5	0	0	159.0
1994	0	0	0	0	33.5	40.4	35.7	19.8	16.6	4.6	0	0	150.6
1995	0	0	0	0	22.5	76.9	56.9	36.1	6.2	0	0	0	198.7
1996	0	0	0	1.1	30.2	39.1	35.9	24.1	13.2	0	0	0	143.7
1997	0	0	0	0	11.9	35.0	32.3	8.5	1.9	0	0	0	89.6
1998	0	0	0	0	4.3	29.8	38.6	33.6	14.4	2.3	0	0	123.0
1999	0	0	0	0	23.4	35.8	22.7	5.4	21.7	9.1	0	0	118.1
2000	0	0	0	0	42.7	39.7	24.0	22.5	18.3	2.3	0	0	149.4
2001	0	0	0	0	4.3	42.1	38.0	20.0	19.4	18.4	0	0	142.3
2002	0	0	0	0	34.1	31.2	20.0	20.1	16.1	8.5	0	0	130.0
2003	0	0	0	0	26.5	87.9	39.7	26.5	65.9	107.1	0	0	353.6
2004	0	0	0	0	9.3	28.4	36.8	32.8	28.2	12.6	0	0	148.2
2005	0	0	0	0	21.1	83.6	62.0	34.1	53.1	68.6	0	0	322.5
2006	0	0	0	0	51.3	113.9	52.5	52.9	40.4	0	0	0	311.0
2007	0	0	0	1.9	40.9	100.1	103.2	27.1	64.4	25.8	0	0	363.3
2008	0	0	0	0	7.8	47.0	107.7	39.7	42.4	51.8	25.6	0	322.0
2009	0	0	0	0	48.9	108.0	87.8	86.3	34.3	59.5	0	0	424.7
2010	0	0	0	0	11.7	94.4	36.6	34.9	33.0	38.0	0	0	248.7
2011	0	0	0	0	10.2	100.3	106.7	37.4	52.6	48.2	0	0	355.4
2012	0	0	0	1.5	105.6	60.7	39.6	31.7	44.6	46.3	0	0	330.0
2013	0	0	0	0	49.5	75.6	33.0	28.2	76.0	50.8	0	0	313.1
Min	0	0	0	0	0	28.4	20.0	5.4	0	0	0	0	89.6
Max	0	0	0	16.4	113.6	146.5	155.1	132.1	102.6	107.1	25.6	0	592.2
Avg	0	0	0	0.6	34.9	81.9	67.9	41.8	35.8	26.8	0.7	0	290.3

Notes: Equal to the total return flow calculated in the StateCU model, multiplied by 60% (60% of all return flows from the lands irrigated on the Western Rivers Conservancy Property returned back to the river through surface runoff).

Table A-7
McKinley Ditch - Western Rivers Conservancy Property
Deep Percolation
Historical Irrigation - 194.5 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	51.9	94.4	66.2	41.7	48.4	6.8	0	0	309.5
1975	0	0	0	0	0	44.8	79.9	39.3	18.2	29.7	0	0	212.0
1976	0	0	0	0	58.5	97.7	48.1	28.2	29.4	0	0	0	261.9
1977	0	0	0	11.0	60.2	59.2	28.1	21.5	17.5	25.1	0	0	222.5
1978	0	0	0	0	39.9	95.5	73.1	40.2	24.1	26.1	0	0	298.9
1979	0	0	0	0	0	81.2	96.3	42.5	25.0	21.2	0	0	266.2
1980	0	0	0	0	3.9	80.6	58.8	25.4	15.6	28.2	0	0	212.4
1981	0	0	0	1.3	75.8	68.6	27.6	29.2	23.8	30.8	0	0	257.0
1982	0	0	0	0	16.2	96.7	87.5	73.9	57.2	46.2	0	0	377.6
1983	0	0	0	0	0	93.7	103.4	88.1	57.8	51.8	0	0	394.8
1984	0	0	0	0	5.2	81.0	68.0	84.5	68.4	0	0	0	307.1
1985	0	0	0	0	0.9	63.4	97.7	20.3	42.2	23.3	0	0	247.8
1986	0	0	0	0.3	23.9	58.2	45.1	26.1	27.2	18.7	0.4	0	199.8
1987	0	0	0	0	0	71.4	46.3	25.8	28.7	27.3	0	0	199.4
1988	0	0	0	0	54.4	92.6	81.5	24.1	8.0	4.5	0	0	265.1
1989	0	0	0	0	23.3	22.7	23.5	17.7	0.1	0	0	0	87.2
1990	0	0	0	0	26.1	31.9	22.3	20.4	11.0	2.9	0	0	114.5
1991	0	0	0	0	59.1	43.2	26.6	13.5	0	0	0	0	142.4
1992	0	0	0	0	14.0	34.5	31.2	16.3	3.5	1.4	0	0	100.8
1993	0	0	0	0	23.5	27.1	26.2	21.6	7.2	0.4	0	0	106.0
1994	0	0	0	0	22.3	26.9	23.8	13.2	11.1	3.1	0	0	100.4
1995	0	0	0	0	15.0	51.3	37.9	24.1	4.1	0	0	0	132.5
1996	0	0	0	0.8	20.2	26.1	23.9	16.1	8.8	0	0	0	95.8
1997	0	0	0	0	8.0	23.4	21.5	5.7	1.3	0	0	0	59.8
1998	0	0	0	0	2.9	19.9	25.7	22.4	9.6	1.5	0	0	82.0
1999	0	0	0	0	15.6	23.9	15.1	3.6	14.5	6.1	0	0	78.8
2000	0	0	0	0	28.5	26.5	16.0	15.0	12.2	1.5	0	0	99.6
2001	0	0	0	0	2.9	28.1	25.3	13.4	12.9	12.3	0	0	94.8
2002	0	0	0	0	22.7	20.8	13.4	13.4	10.7	5.7	0	0	86.7
2003	0	0	0	0	17.7	58.6	26.5	17.7	43.9	71.4	0	0	235.8
2004	0	0	0	0	6.2	19.0	24.6	21.9	18.8	8.4	0	0	98.8
2005	0	0	0	0	14.1	55.7	41.3	22.7	35.4	45.7	0	0	215.0
2006	0	0	0	0	34.2	75.9	35.0	35.3	26.9	0	0	0	207.3
2007	0	0	0	1.2	27.3	66.7	68.8	18.0	42.9	17.2	0	0	242.2
2008	0	0	0	0	5.2	31.3	71.8	26.5	28.2	34.5	17.0	0	214.7
2009	0	0	0	0	32.6	72.0	58.5	57.5	22.9	39.7	0	0	283.1
2010	0	0	0	0	7.8	62.9	24.4	23.3	22.0	25.3	0	0	165.8
2011	0	0	0	0	6.8	66.8	71.1	25.0	35.1	32.2	0	0	236.9
2012	0	0	0	1.0	70.4	40.4	26.4	21.1	29.7	30.9	0	0	220.0
2013	0	0	0	0	33.0	50.4	22.0	18.8	50.6	33.8	0	0	208.7
Min	0	0	0	0	0	19.0	13.4	3.6	0	0	0	0	59.8
Max	0	0	0	11.0	75.8	97.7	103.4	88.1	68.4	71.4	17.0	0	394.8
Avg	0	0	0	0.4	23.2	54.6	45.3	27.9	23.9	17.8	0.4	0	193.5

Notes: Equal to the total return flow calculated in the StateCU model, multiplied by 40% (40% of all return flows from the lands irrigated on the Western Rivers Conservancy Property returned back to the river through deep percolation).

Table A-8
McKinley Ditch - Western Rivers Conservancy Property
Total In-Priority Diversions
Historical Irrigation - 87.5625 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	206.2	345.9	274.3	185.5	174.1	25.5	0	0	1211.4
1975	0	0	0	0	0	198.9	319.8	186.3	98.6	83.7	0	0	887.2
1976	0	0	0	0	202.8	343.8	225.2	134.9	120.5	0	0	0	1027.1
1977	0	0	0	35.7	203.4	245.5	148.2	132.6	97.6	76.6	0	0	939.7
1978	0	0	0	0	145.8	345.9	286.2	199.9	121.9	78.1	0	0	1177.7
1979	0	0	0	0	0	311.3	340.7	180.8	130.8	70.7	0	0	1034.2
1980	0	0	0	0	23.8	317.6	255.6	156.9	95.4	83.7	0	0	932.9
1981	0	0	0	7.9	269.0	269.8	140.7	143.6	105.3	91.7	0	0	1027.9
1982	0	0	0	0	83.3	342.5	332.9	282.1	177.0	133.0	0	0	1350.8
1983	0	0	0	0	0	345.9	357.4	322.4	217.6	160.9	0	0	1404.1
1984	0	0	0	0	32.1	321.3	284.5	311.5	235.6	0	0	0	1185.1
1985	0	0	0	0	5.4	290.6	357.4	125.2	135.0	71.4	0	0	985.1
1986	0	0	0	1.6	106.8	237.6	206.7	142.6	102.9	58.0	1.2	0	857.2
1987	0	0	0	0	0	308.3	213.5	139.5	127.3	84.2	0	0	872.8
1988	0	0	0	0	202.7	345.9	320.8	134.4	49.1	27.9	0	0	1080.8
1989	0	0	0	0	143.6	139.8	144.8	109.3	0.9	0	0	0	538.5
1990	0	0	0	0	160.9	196.9	137.6	125.6	67.6	18.2	0	0	706.7
1991	0	0	0	0	233.7	191.7	159.6	83.0	0	0	0	0	668.0
1992	0	0	0	0	86.3	212.7	166.0	100.6	21.5	8.8	0	0	596.0
1993	0	0	0	0	145.0	156.2	161.9	129.5	44.3	2.2	0	0	639.1
1994	0	0	0	0	137.9	166.0	147.0	81.4	68.5	19.1	0	0	619.9
1995	0	0	0	0	92.7	235.1	167.7	148.6	25.6	0	0	0	669.7
1996	0	0	0	4.7	124.4	161.1	147.7	99.4	54.3	0	0	0	591.6
1997	0	0	0	0	49.1	144.2	132.8	35.0	7.8	0	0	0	368.9
1998	0	0	0	0	17.9	122.7	158.9	138.1	59.2	9.4	0	0	506.1
1999	0	0	0	0	96.4	147.5	93.3	22.0	89.5	37.6	0	0	486.2
2000	0	0	0	0	175.6	163.3	98.6	92.5	75.4	9.5	0	0	615.0
2001	0	0	0	0	17.9	173.2	156.4	82.4	79.8	75.8	0	0	585.4
2002	0	0	0	0	140.3	128.3	82.4	82.7	66.1	35.1	0	0	535.1
2003	0	0	0	0	109.2	278.1	163.5	109.0	190.8	214.4	0	0	1065.1
2004	0	0	0	0	38.2	117.0	151.6	135.1	116.1	51.8	0	0	609.8
2005	0	0	0	0	86.9	247.3	224.8	140.3	135.8	137.8	0	0	972.9
2006	0	0	0	0	166.1	290.5	176.4	164.7	88.1	0	0	0	885.8
2007	0	0	0	7.7	128.6	267.8	274.1	111.4	158.6	57.7	0	0	1005.8
2008	0	0	0	0	32.1	173.2	291.0	163.5	120.1	105.5	47.4	0	932.8
2009	0	0	0	0	127.0	263.9	255.3	239.4	113.8	114.5	0	0	1113.9
2010	0	0	0	0	48.3	279.8	150.7	143.8	114.1	79.8	0	0	816.5
2011	0	0	0	0	41.8	265.4	287.5	146.1	134.5	97.1	0	0	972.4
2012	0	0	0	6.1	252.1	184.9	137.8	124.2	119.5	98.6	0	0	923.2
2013	0	0	0	0	137.3	224.9	135.6	116.2	175.5	101.2	0	0	890.7
Min	0	0	0	0	0	117.0	82.4	22.0	0	0	0	0	368.9
Max	0	0	0	35.7	269.0	345.9	357.4	322.4	235.6	214.4	47.4	0	1404.1
Avg	0	0	0	1.6	106.8	237.6	206.7	142.6	102.9	58.0	1.2	0	857.2

Notes: Daily diversion records (for irrigation only) acquired from the Colorado Decision Support System (CDSS).
Daily diversions are limited to the McKinley Ditch water rights priority on each day.

The Colorado Water Trust portion of the McKinley Ditch (which is used to irrigate the Western Rivers Conservancy Property) is 18.75% (1.5 shares of 8 total shares). Therefore, the diversions attributable to the Western Rivers Conservancy Property are equal to 18.75% of the total ditch diversions. Data missing in 1986 filled with monthly average values from study period.

Table A-9
McKinley Ditch - Western Rivers Conservancy Property
Farm Headgate Deliveries
Historical Irrigation - 87.5625 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	185.6	311.3	246.9	166.9	156.6	22.9	0	0	1090.3
1975	0	0	0	0	0	179.0	287.8	167.7	88.7	75.3	0	0	798.5
1976	0	0	0	0	182.5	309.4	202.6	121.4	108.4	0	0	0	924.4
1977	0	0	0	32.1	183.1	220.9	133.4	119.3	87.9	69.0	0	0	845.7
1978	0	0	0	0	131.2	311.3	257.6	179.9	109.7	70.3	0	0	1059.9
1979	0	0	0	0	0	280.2	306.6	162.7	117.7	63.6	0	0	930.8
1980	0	0	0	0	21.4	285.8	230.1	141.2	85.8	75.3	0	0	839.6
1981	0	0	0	7.1	242.1	242.8	126.6	129.2	94.7	82.5	0	0	925.1
1982	0	0	0	0	75.0	308.3	299.6	253.9	159.3	119.7	0	0	1215.7
1983	0	0	0	0	0	311.3	321.7	290.2	195.8	144.8	0	0	1263.7
1984	0	0	0	0	28.9	289.2	256.1	280.4	212.0	0	0	0	1066.6
1985	0	0	0	0	4.9	261.6	321.7	112.7	121.5	64.3	0	0	886.6
1986	0	0	0	1.4	96.1	213.8	186.0	128.3	92.6	52.2	1.1	0	771.5
1987	0	0	0	0	0	277.5	192.1	125.6	114.5	75.8	0	0	785.5
1988	0	0	0	0	182.4	311.3	288.7	121.0	44.2	25.1	0	0	972.7
1989	0	0	0	0	129.3	125.9	130.3	98.4	0.8	0	0	0	484.7
1990	0	0	0	0	144.8	177.2	123.9	113.1	60.8	16.3	0	0	636.1
1991	0	0	0	0	210.3	172.6	143.6	74.7	0	0	0	0	601.2
1992	0	0	0	0	77.7	191.5	149.4	90.6	19.4	7.9	0	0	536.4
1993	0	0	0	0	130.5	140.6	145.7	116.5	39.9	2.0	0	0	575.2
1994	0	0	0	0	124.1	149.4	132.3	73.3	61.7	17.2	0	0	557.9
1995	0	0	0	0	83.5	211.6	150.9	133.7	23.0	0	0	0	602.7
1996	0	0	0	4.2	112.0	145.0	133.0	89.4	48.8	0	0	0	532.4
1997	0	0	0	0	44.2	129.8	119.5	31.5	7.0	0	0	0	332.0
1998	0	0	0	0	16.1	110.4	143.0	124.3	53.3	8.5	0	0	455.5
1999	0	0	0	0	86.7	132.7	84.0	19.8	80.5	33.8	0	0	437.6
2000	0	0	0	0	158.1	147.0	88.8	83.2	67.8	8.6	0	0	553.5
2001	0	0	0	0	16.1	155.8	140.8	74.2	71.8	68.2	0	0	526.9
2002	0	0	0	0	126.3	115.5	74.2	74.5	59.5	31.6	0	0	481.5
2003	0	0	0	0	98.3	250.3	147.2	98.1	171.7	193.0	0	0	958.6
2004	0	0	0	0	34.4	105.3	136.4	121.6	104.5	46.6	0	0	548.9
2005	0	0	0	0	78.2	222.6	202.3	126.3	122.2	124.0	0	0	875.6
2006	0	0	0	0	149.5	261.5	158.8	148.2	79.3	0	0	0	797.2
2007	0	0	0	6.9	115.8	241.0	246.7	100.2	142.7	52.0	0	0	905.3
2008	0	0	0	0	28.9	155.9	261.9	147.1	108.1	95.0	42.6	0	839.5
2009	0	0	0	0	114.3	237.5	229.7	215.5	102.4	103.1	0	0	1002.5
2010	0	0	0	0	43.5	251.8	135.6	129.4	102.7	71.8	0	0	734.9
2011	0	0	0	0	37.7	238.8	258.7	131.5	121.1	87.4	0	0	875.2
2012	0	0	0	5.5	226.9	166.4	124.0	111.7	107.6	88.7	0	0	830.9
2013	0	0	0	0	123.6	202.4	122.0	104.6	158.0	91.0	0	0	801.6
Min	0	0	0	0	0	105.3	74.2	19.8	0	0	0	0	332.0
Max	0	0	0	32.1	242.1	311.3	321.7	290.2	212.0	193.0	42.6	0	1263.7
Avg	0	0	0	1.4	96.1	213.8	186.0	128.3	92.6	52.2	1.1	0	771.5

Notes: Equal to the total in-priority diversion in Table A-8, less 10% ditch loss.

Table A-10
McKinley Ditch - Western Rivers Conservancy Property
Crop Irrigation Requirements
Historical Irrigation - 87.5625 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0.3	24.9	33.9	36.6	28.2	16.0	2.7	0	0	142.5
1975	0	0	0	0	5.1	25.0	39.6	31.2	19.5	0.5	0	0	120.9
1976	0	0	0	0	16.3	29.4	37.1	22.9	15.8	2.1	0	0	123.6
1977	0	0	0	0	14.7	32.8	28.4	33.0	16.4	2.8	0	0	128.2
1978	0	0	0	0	14.1	32.7	33.6	35.8	22.3	2.3	0	0	140.8
1979	0	0	0	0	13.0	21.8	29.6	25.4	24.8	4.8	0	0	119.4
1980	0	0	0	0	9.6	33.8	37.4	35.5	20.6	2.2	0	0	139.0
1981	0	0	0	7.3	18.3	32.1	25.9	25.3	15.9	2.5	0	0	127.2
1982	0	0	0	0	15.6	29.9	36.4	31.1	7.4	1.9	0	0	122.3
1983	0	0	0	0	5.3	29.3	28.4	31.5	23.1	6.9	0	0	124.6
1984	0	0	0	1.0	23.6	21.6	38.8	31.1	18.4	1.4	0	0	135.9
1985	0	0	0	0.3	13.1	32.8	34.8	32.7	2.5	2.7	0	0	118.9
1986	0	0	0	1.5	15.2	30.8	32.9	28.4	11.1	2.5	0	0	122.4
1987	0	0	0	3.5	10.6	30.5	34.4	27.5	19.3	3.5	0	0	129.2
1988	0	0	0	2.8	18.0	35.9	38.2	27.4	14.3	6.4	0	0	143.1
1989	0	0	0	9.2	23.9	31.0	34.2	29.0	18.9	3.7	0	0	149.9
1990	0	0	0	0	17.1	34.7	34.8	30.9	13.0	2.6	0	0	133.0
1991	0	0	0	0	19.2	29.0	34.7	33.2	13.2	3.0	0	0	132.3
1992	0	0	0	11.0	7.3	30.4	26.5	24.1	20.9	5.6	0	0	125.7
1993	0	0	0	2.4	14.4	26.8	39.2	25.0	19.1	1.8	0	0	128.8
1994	0	0	0	4.2	22.3	32.2	44.1	31.6	13.8	3.9	0	0	152.1
1995	0	0	0	0.4	16.8	16.5	25.2	36.5	11.3	4.6	0	0	111.4
1996	0	0	0	4.1	24.0	31.1	41.8	40.1	6.1	1.7	0	0	148.9
1997	0	0	0	0.5	11.5	22.3	36.3	24.2	17.1	1.3	0	0	113.3
1998	0	0	0	0.2	18.6	29.3	42.6	30.6	20.6	1.6	0	0	143.4
1999	0	0	0	0	9.3	21.6	36.1	24.3	14.9	5.2	0	0	111.4
2000	0	0	0	8.9	19.1	32.8	37.7	35.4	15.7	4.2	0	0	153.9
2001	0	0	0	5.2	17.6	25.2	31.8	21.5	20.7	4.6	0	0	126.4
2002	0	0	0	7.5	22.0	36.4	40.4	24.5	4.4	1.0	0	0	136.2
2003	0	0	0	3.1	21.7	28.7	43.6	33.1	12.0	6.5	0	0	148.7
2004	0	0	0	0.2	22.7	31.9	38.4	29.4	11.9	4.3	0	0	138.8
2005	0	0	0	2.5	24.1	27.3	44.6	32.9	13.6	4.4	0	0	149.3
2006	0	0	0	7.4	21.4	32.3	32.1	27.0	5.4	0	0	0	125.6
2007	0	0	0	4.3	18.8	33.4	33.6	31.7	9.1	4.1	0	0	135.0
2008	0	0	0	0	13.4	28.7	37.1	36.7	16.6	3.9	0	0	136.3
2009	0	0	0	1.3	13.5	25.9	37.6	32.3	20.4	1.8	0	0	132.7
2010	0	0	0	1.2	18.8	33.2	44.4	24.7	18.1	3.8	0	0	144.3
2011	0	0	0	0	13.8	27.9	36.4	31.1	15.1	3.2	0	0	127.4
2012	0	0	0	6.3	18.0	29.4	26.1	26.5	15.0	5.2	0	0	126.5
2013	0	0	0	0	18.5	34.4	31.5	28.0	10.7	2.9	0	0	126.0
Avg	0	0	0	2.4	16.6	29.6	35.6	29.8	15.1	3.2	0	0	132.4
Avg/Ac	0	0	0	0.0	0.2	0.3	0.4	0.3	0.2	0.0	0	0	1.51

Notes: The crop irrigation requirement (CIR) was determined using StateCU.

87.5625 acres of pasture grass were modeled, based on TR21 crop coefficients and an adjustment made for elevation.

Table A-11
McKinley Ditch - Western Rivers Conservancy Property
Water Available to Crop
Historical Irrigation - 87.5625 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	102.1	171.2	135.8	91.8	86.2	12.6	0	0	599.6
1975	0	0	0	0	0	98.5	158.3	92.2	48.8	41.4	0	0	439.2
1976	0	0	0	0	100.4	170.2	111.5	66.8	59.6	0	0	0	508.4
1977	0	0	0	17.7	100.7	121.5	73.4	65.6	48.3	37.9	0	0	465.1
1978	0	0	0	0	72.2	171.2	141.7	99.0	60.3	38.7	0	0	583.0
1979	0	0	0	0	0	154.1	168.6	89.5	64.7	35.0	0	0	511.9
1980	0	0	0	0	11.8	157.2	126.5	77.7	47.2	41.4	0	0	461.8
1981	0	0	0	3.9	133.2	133.6	69.6	71.1	52.1	45.4	0	0	508.8
1982	0	0	0	0	41.2	169.6	164.8	139.6	87.6	65.8	0	0	668.6
1983	0	0	0	0	0	171.2	176.9	159.6	107.7	79.6	0	0	695.0
1984	0	0	0	0	15.9	159.1	140.8	154.2	116.6	0	0	0	586.6
1985	0	0	0	0	2.7	143.9	176.9	62.0	66.8	35.4	0	0	487.6
1986	0	0	0	0.8	52.9	117.6	102.3	70.6	50.9	28.7	0.6	0	424.3
1987	0	0	0	0	0	152.6	105.7	69.1	63.0	41.7	0	0	432.0
1988	0	0	0	0	100.3	171.2	158.8	66.6	24.3	13.8	0	0	535.0
1989	0	0	0	0	71.1	69.2	71.7	54.1	0.4	0	0	0	266.6
1990	0	0	0	0	79.6	97.4	68.1	62.2	33.5	9.0	0	0	349.8
1991	0	0	0	0	115.7	94.9	79.0	41.1	0	0	0	0	330.7
1992	0	0	0	0	42.7	105.3	82.2	49.8	10.7	4.3	0	0	295.0
1993	0	0	0	0	71.8	77.3	80.2	64.1	21.9	1.1	0	0	316.3
1994	0	0	0	0	68.2	82.2	72.7	40.3	33.9	9.5	0	0	306.9
1995	0	0	0	0	45.9	116.4	83.0	73.5	12.7	0	0	0	331.5
1996	0	0	0	2.3	61.6	79.7	73.1	49.2	26.9	0	0	0	292.8
1997	0	0	0	0	24.3	71.4	65.7	17.3	3.9	0	0	0	182.6
1998	0	0	0	0	8.9	60.7	78.6	68.4	29.3	4.7	0	0	250.5
1999	0	0	0	0	47.7	73.0	46.2	10.9	44.3	18.6	0	0	240.7
2000	0	0	0	0	86.9	80.8	48.8	45.8	37.3	4.7	0	0	304.4
2001	0	0	0	0	8.8	85.7	77.4	40.8	39.5	37.5	0	0	289.8
2002	0	0	0	0	69.5	63.5	40.8	41.0	32.7	17.4	0	0	264.9
2003	0	0	0	0	54.1	137.7	80.9	54.0	94.4	106.1	0	0	527.2
2004	0	0	0	0	18.9	57.9	75.0	66.9	57.5	25.6	0	0	301.9
2005	0	0	0	0	43.0	122.4	111.3	69.5	67.2	68.2	0	0	481.6
2006	0	0	0	0	82.2	143.8	87.3	81.5	43.6	0	0	0	438.5
2007	0	0	0	3.8	63.7	132.5	135.7	55.1	78.5	28.6	0	0	497.9
2008	0	0	0	0	15.9	85.7	144.0	80.9	59.5	52.2	23.4	0	461.7
2009	0	0	0	0	62.8	130.7	126.4	118.5	56.3	56.7	0	0	551.4
2010	0	0	0	0	23.9	138.5	74.6	71.2	56.5	39.5	0	0	404.2
2011	0	0	0	0	20.7	131.4	142.3	72.3	66.6	48.1	0	0	481.3
2012	0	0	0	3.0	124.8	91.5	68.2	61.5	59.2	48.8	0	0	457.0
2013	0	0	0	0	68.0	111.3	67.1	57.5	86.9	50.1	0	0	440.9
Min	0	0	0	0	0	57.9	40.8	10.9	0	0	0	0	182.6
Max	0	0	0	17.7	133.2	171.2	176.9	159.6	116.6	106.1	23.4	0	695.0
Avg	0	0	0	0.8	52.9	117.6	102.3	70.6	50.9	28.7	0.6	0	424.3

Notes: Equal to the farm headgate delivery in Table A-9, multiplied by **55%** to account for application efficiency.

BBA
water consultants *BISHOP-BROGDEN ASSOCIATES, INC.*

Table A-12
McKinley Ditch - Western Rivers Conservancy Property
Consumptive Use
Historical Irrigation - 87.5625 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0.3	24.9	33.9	36.6	28.2	16.0	2.7	0	0	142.5
1975	0	0	0	0	5.1	25.0	39.6	31.2	19.5	0.5	0	0	120.9
1976	0	0	0	0	16.3	29.4	37.1	22.9	15.8	2.1	0	0	123.6
1977	0	0	0	0	14.7	32.8	28.4	33.0	16.4	2.8	0	0	128.2
1978	0	0	0	0	14.1	32.7	33.6	35.8	22.3	2.3	0	0	140.8
1979	0	0	0	0	13.0	21.8	29.6	25.4	24.8	4.8	0	0	119.4
1980	0	0	0	0	9.6	33.8	37.4	35.5	20.6	2.2	0	0	139.0
1981	0	0	0	7.3	18.3	32.1	25.9	25.3	15.9	2.5	0	0	127.2
1982	0	0	0	0	15.6	29.9	36.4	31.1	7.4	1.9	0	0	122.3
1983	0	0	0	0	5.3	29.3	28.4	31.5	23.1	6.9	0	0	124.6
1984	0	0	0	1.0	23.6	21.6	38.8	31.1	18.4	1.4	0	0	135.9
1985	0	0	0	0.3	13.1	32.8	34.8	32.7	2.5	2.7	0	0	118.9
1986	0	0	0	1.5	15.2	30.8	32.9	28.4	11.1	2.5	0	0	122.4
1987	0	0	0	3.5	10.6	30.5	34.4	27.5	19.3	3.5	0	0	129.2
1988	0	0	0	2.8	18.0	35.9	38.2	27.4	14.3	6.4	0	0	143.1
1989	0	0	0	9.2	23.9	31.0	34.2	29.0	18.9	3.7	0	0	149.9
1990	0	0	0	0	17.1	34.7	34.8	30.9	13.0	2.6	0	0	133.0
1991	0	0	0	0	19.2	29.0	34.7	33.2	13.2	3.0	0	0	132.3
1992	0	0	0	11.0	7.3	30.4	26.5	24.1	20.9	5.6	0	0	125.7
1993	0	0	0	2.4	14.4	26.8	39.2	25.0	19.1	1.8	0	0	128.8
1994	0	0	0	4.2	22.3	32.2	44.1	31.6	13.8	3.9	0	0	152.1
1995	0	0	0	0.4	16.8	16.5	25.2	36.5	11.3	4.6	0	0	111.4
1996	0	0	0	4.1	24.0	31.1	41.8	40.1	6.1	1.7	0	0	148.9
1997	0	0	0	0.5	11.5	22.3	36.3	24.2	17.1	1.3	0	0	113.3
1998	0	0	0	0.2	18.6	29.3	42.6	30.6	20.6	1.6	0	0	143.4
1999	0	0	0	0	9.3	21.6	36.1	24.3	14.9	5.2	0	0	111.4
2000	0	0	0	8.9	19.1	32.8	37.7	35.4	15.7	4.2	0	0	153.9
2001	0	0	0	5.2	17.6	25.2	31.8	21.5	20.7	4.6	0	0	126.4
2002	0	0	0	7.5	22.0	36.4	40.4	24.5	4.4	1.0	0	0	136.2
2003	0	0	0	3.1	21.7	28.7	43.6	33.1	12.0	6.5	0	0	148.7
2004	0	0	0	0.2	22.7	31.9	38.4	29.4	11.9	4.3	0	0	138.8
2005	0	0	0	2.5	24.1	27.3	44.6	32.9	13.6	4.4	0	0	149.3
2006	0	0	0	7.4	21.4	32.3	32.1	27.0	5.4	0	0	0	125.6
2007	0	0	0	4.3	18.8	33.4	33.6	31.7	9.1	4.1	0	0	135.0
2008	0	0	0	0	13.4	28.7	37.1	36.7	16.6	3.9	0	0	136.3
2009	0	0	0	1.3	13.5	25.9	37.6	32.3	20.4	1.8	0	0	132.7
2010	0	0	0	1.2	18.8	33.2	44.4	24.7	18.1	3.8	0	0	144.3
2011	0	0	0	0	13.8	27.9	36.4	31.1	15.1	3.2	0	0	127.4
2012	0	0	0	6.3	18.0	29.4	26.1	26.5	15.0	5.2	0	0	126.5
2013	0	0	0	0	18.5	34.4	31.5	28.0	10.7	2.9	0	0	126.0
Min	0	0	0	0	5.1	16.5	25.2	21.5	2.5	0	0	0	111.4
Max	0	0	0	11.0	24.9	36.4	44.6	40.1	24.8	6.9	0	0	153.9
Avg	0	0	0	2.4	16.6	29.6	35.6	29.8	15.1	3.2	0	0	132.4

Notes: Equal to the consumptive use, calculated in the StateCU model. Consumptive use includes water used directly to meet the crop irrigation requirement and water used to fill the soil moisture reservoir for later crop use.

Table A-13
McKinley Ditch - Western Rivers Conservancy Property
Surface Water Return Flow
Historical Irrigation - 87.5625 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	96.3	166.4	126.2	83.2	84.4	12.2	0	0	568.7
1975	0	0	0	0	0	89.3	148.9	81.9	41.5	44.9	0	0	406.6
1976	0	0	0	0	99.7	168.0	99.3	59.1	55.6	0	0	0	481.8
1977	0	0	0	18.0	101.1	112.8	63.0	51.8	42.9	39.7	0	0	429.2
1978	0	0	0	0	70.2	167.2	134.4	86.5	52.4	40.8	0	0	551.5
1979	0	0	0	0	0	147.2	166.2	82.4	55.7	35.3	0	0	486.8
1980	0	0	0	0	7.1	151.3	115.6	63.4	39.1	43.9	0	0	420.4
1981	0	0	0	1.9	132.3	126.4	60.4	62.4	47.3	48.0	0	0	478.8
1982	0	0	0	0	35.6	167.0	157.9	133.7	91.2	70.7	0	0	656.0
1983	0	0	0	0	0	166.0	175.9	155.2	103.6	82.7	0	0	683.5
1984	0	0	0	0	7.8	155.3	130.4	149.6	116.2	0	0	0	559.3
1985	0	0	0	0	1.3	130.0	172.1	48.0	71.4	36.9	0	0	459.8
1986	0	0	0	0.4	48.1	109.8	91.8	59.9	48.9	29.8	0.7	0	389.5
1987	0	0	0	0	0	139.7	94.7	58.8	57.1	43.4	0	0	393.8
1988	0	0	0	0	96.9	165.2	150.3	56.2	17.9	11.2	0	0	497.8
1989	0	0	0	0	57.7	56.9	57.7	41.6	0.2	0	0	0	214.1
1990	0	0	0	0	63.3	85.5	53.5	49.3	28.7	8.3	0	0	288.5
1991	0	0	0	0	114.7	86.1	65.4	24.9	0	0	0	0	291.0
1992	0	0	0	0	26.0	96.6	73.8	39.9	5.2	2.1	0	0	243.6
1993	0	0	0	0	61.3	68.2	63.9	54.9	12.5	0.5	0	0	261.3
1994	0	0	0	0	58.1	70.4	52.9	25.0	28.7	8.0	0	0	243.1
1995	0	0	0	0	39.8	117.0	75.4	58.3	7.0	0	0	0	297.6
1996	0	0	0	1.1	48.9	68.3	54.7	29.6	25.7	0	0	0	228.3
1997	0	0	0	0	18.2	64.5	49.9	8.5	1.9	0	0	0	143.0
1998	0	0	0	0	4.3	29.9	60.2	56.2	19.6	4.1	0	0	174.4
1999	0	0	0	0	46.4	66.7	28.7	5.4	31.3	17.1	0	0	195.7
2000	0	0	0	0	78.0	68.5	30.6	28.7	31.3	2.6	0	0	239.7
2001	0	0	0	0	4.3	70.0	65.4	31.6	30.7	38.2	0	0	240.3
2002	0	0	0	0	58.0	47.5	20.3	30.0	33.1	18.4	0	0	207.2
2003	0	0	0	0	44.0	133.0	62.2	39.0	95.8	111.9	0	0	485.9
2004	0	0	0	0	9.3	41.6	58.8	55.3	55.5	25.4	0	0	246.0
2005	0	0	0	0	31.0	117.1	94.7	56.0	65.2	71.8	0	0	435.8
2006	0	0	0	0	72.4	137.5	76.0	72.7	44.3	0	0	0	403.0
2007	0	0	0	1.9	57.9	124.6	127.8	41.1	80.2	28.7	0	0	462.2
2008	0	0	0	0	9.3	76.3	134.9	66.2	54.9	54.7	25.6	0	421.9
2009	0	0	0	0	59.7	127.0	115.3	109.9	49.2	60.8	0	0	521.9
2010	0	0	0	0	14.1	131.1	54.8	62.9	50.8	40.8	0	0	354.4
2011	0	0	0	0	14.3	126.6	133.4	60.2	63.6	50.5	0	0	448.7
2012	0	0	0	1.5	123.4	82.2	58.7	51.1	55.6	50.1	0	0	422.6
2013	0	0	0	0	63.1	100.8	54.3	45.9	88.4	52.9	0	0	405.4
Min	0	0	0	0	0	29.9	20.3	5.4	0	0	0	0	143.0
Max	0	0	0	18.0	132.3	168.0	175.9	155.2	116.2	111.9	25.6	0	683.5
Avg	0	0	0	0.6	46.9	108.9	90.3	59.4	47.1	29.7	0.7	0	383.5

Notes: Equal to the total return flow calculated in the StateCU model, multiplied by 60% (60% of all return flows from the lands irrigated on the Western
Rivers Conservancy Property returned back to the river through surface runoff).

Table A-14
McKinley Ditch - Western Rivers Conservancy Property
Deep Percolation
Historical Irrigation - 87.5625 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	64.2	111.0	84.1	55.5	56.3	8.1	0	0	379.1
1975	0	0	0	0	0	59.6	99.3	54.6	27.7	29.9	0	0	271.0
1976	0	0	0	0	66.5	112.0	66.2	39.4	37.1	0	0	0	321.2
1977	0	0	0	12.0	67.4	75.2	42.0	34.5	28.6	26.4	0	0	286.2
1978	0	0	0	0	46.8	111.4	89.6	57.6	35.0	27.2	0	0	367.6
1979	0	0	0	0	0	98.2	110.8	54.9	37.1	23.5	0	0	324.6
1980	0	0	0	0	4.7	100.8	77.1	42.3	26.1	29.3	0	0	280.3
1981	0	0	0	1.3	88.2	84.3	40.3	41.6	31.5	32.0	0	0	319.2
1982	0	0	0	0	23.8	111.3	105.3	89.1	60.8	47.1	0	0	437.4
1983	0	0	0	0	0	110.7	117.3	103.5	69.1	55.2	0	0	455.7
1984	0	0	0	0	5.2	103.6	86.9	99.7	77.4	0	0	0	372.8
1985	0	0	0	0	0.9	86.7	114.7	32.0	47.6	24.6	0	0	306.5
1986	0	0	0	0.3	32.1	73.2	61.2	39.9	32.6	19.9	0.4	0	259.6
1987	0	0	0	0	0	93.2	63.1	39.2	38.1	28.9	0	0	262.5
1988	0	0	0	0	64.6	110.1	100.2	37.5	12.0	7.5	0	0	331.8
1989	0	0	0	0	38.5	37.9	38.4	27.8	0.1	0	0	0	142.8
1990	0	0	0	0	42.2	57.0	35.6	32.9	19.2	5.5	0	0	192.4
1991	0	0	0	0	76.5	57.4	43.6	16.6	0	0	0	0	194.0
1992	0	0	0	0	17.3	64.4	49.2	26.6	3.5	1.4	0	0	162.4
1993	0	0	0	0	40.9	45.5	42.6	36.6	8.3	0.4	0	0	174.2
1994	0	0	0	0	38.7	46.9	35.3	16.7	19.2	5.3	0	0	162.0
1995	0	0	0	0	26.5	78.0	50.3	38.9	4.7	0	0	0	198.4
1996	0	0	0	0.8	32.6	45.5	36.5	19.7	17.1	0	0	0	152.2
1997	0	0	0	0	12.2	43.0	33.3	5.7	1.3	0	0	0	95.4
1998	0	0	0	0	2.9	19.9	40.1	37.5	13.1	2.8	0	0	116.3
1999	0	0	0	0	31.0	44.5	19.1	3.6	20.9	11.4	0	0	130.5
2000	0	0	0	0	52.0	45.7	20.4	19.1	20.8	1.8	0	0	159.8
2001	0	0	0	0	2.9	46.7	43.6	21.1	20.5	25.4	0	0	160.2
2002	0	0	0	0	38.7	31.6	13.5	20.0	22.0	12.3	0	0	138.1
2003	0	0	0	0	29.4	88.6	41.4	26.0	63.9	74.6	0	0	323.9
2004	0	0	0	0	6.2	27.8	39.2	36.9	37.0	16.9	0	0	164.0
2005	0	0	0	0	20.7	78.1	63.1	37.4	43.5	47.9	0	0	290.5
2006	0	0	0	0	48.3	91.7	50.7	48.5	29.5	0	0	0	268.7
2007	0	0	0	1.2	38.6	83.0	85.2	27.4	53.4	19.2	0	0	308.1
2008	0	0	0	0	6.2	50.9	89.9	44.2	36.6	36.4	17.0	0	281.3
2009	0	0	0	0	39.8	84.7	76.9	73.3	32.8	40.5	0	0	347.9
2010	0	0	0	0	9.4	87.4	36.5	41.9	33.8	27.2	0	0	236.2
2011	0	0	0	0	9.6	84.4	88.9	40.2	42.4	33.7	0	0	299.1
2012	0	0	0	1.0	82.2	54.8	39.2	34.1	37.0	33.4	0	0	281.8
2013	0	0	0	0	42.0	67.2	36.2	30.6	58.9	35.3	0	0	270.3
Min	0	0	0	0	0	19.9	13.5	3.6	0	0	0	0	95.4
Max	0	0	0	12.0	88.2	112.0	117.3	103.5	77.4	74.6	17.0	0	455.7
Avg	0	0	0	0.4	31.2	72.6	60.2	39.6	31.4	19.8	0.4	0	255.7

Notes: Equal to the total return flow calculated in the StateCU model, multiplied by 40% (40% of all return flows from the lands irrigated on the Western Rivers Conservancy Property returned back to the river through deep percolation).

BBA
water consultants *BISHOP-BROGDEN ASSOCIATES, INC.*

Table A-15
McKinley Ditch - Western Rivers Conservancy Property
Percent of Month that the McKinley Ditch Junior Water Rights were In-Priority

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1974	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1975	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1976	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1977	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1978	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1979	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1980	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1981	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1982	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1983	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1984	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1985	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1986	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1987	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1988	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1989	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1990	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1991	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1992	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1993	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1994	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1995	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1996	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1997	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1998	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1999	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2000	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2001	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2002	100%	100%	100%	100%	0%	0%	0%	0%	0%	100%	100%	100%
2003	100%	100%	100%	100%	100%	100%	29.0%	0%	76.7%	100%	100%	100%
2004	100%	100%	100%	100%	100%	100%	22.6%	0%	20.0%	100%	100%	100%
2005	100%	100%	100%	100%	100%	100%	54.8%	0%	0%	100%	100%	100%
2006	100%	100%	100%	100%	100%	100%	100%	100%	50.0%	100%	100%	100%
2007	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2008	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2009	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2010	100%	100%	100%	100%	100%	100%	16.1%	25.8%	100%	100%	100%	100%
2011	100%	100%	100%	100%	100%	100%	100%	58.1%	0%	100%	100%	100%
2012	100%	100%	100%	100%	100%	36.7%	0%	0%	0%	100%	100%	100%
2013	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Min	100%	100%	100%	100%	0%	0%	0%	0%	0%	100%	100%	100%
Max	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Avg	100%	100%	100%	100%	97.5%	95.9%	88.1%	84.6%	86.2%	100%	100%	100%

Notes: Equal to the percent of each month that McKinley Ditch water rights junior to Priority No. 56 (appropriation date 9/1/1886) were in priority based upon call records acquired from the Colorado Decision Support System (CDSS).

Table A-16
McKinley Ditch - Western Rivers Conservancy Property
In-Priority Consumptive Use
Historical Irrigation
(all values in ac-ft)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0.6	55.3	75.3	81.2	62.6	35.5	5.9	0	0	316.5
1975	0	0	0	0	11.4	55.5	87.9	69.4	43.2	1.1	0	0	268.5
1976	0	0	0	0	36.3	65.3	82.4	50.8	35.0	4.8	0	0	274.5
1977	0	0	0	0	32.6	72.9	63.1	73.3	36.5	6.3	0	0	284.7
1978	0	0	0	0	31.4	72.6	74.7	79.5	49.6	5.1	0	0	312.8
1979	0	0	0	0	28.8	48.4	65.7	56.5	55.1	10.6	0	0	265.2
1980	0	0	0	0	21.2	75.0	83.1	78.8	45.8	4.8	0	0	308.7
1981	0	0	0	16.1	40.6	71.4	57.5	56.2	35.3	5.6	0	0	282.5
1982	0	0	0	0	34.6	66.5	80.9	69.1	16.4	4.2	0	0	271.6
1983	0	0	0	0	11.8	65.2	63.2	70.0	51.3	15.3	0	0	276.7
1984	0	0	0	2.3	52.5	47.9	86.1	69.1	41.0	3.1	0	0	301.9
1985	0	0	0	0.7	29.1	72.8	77.3	72.6	5.5	6.1	0	0	264.0
1986	0	0	0	3.4	33.7	68.3	73.2	63.1	24.6	5.5	0	0	271.9
1987	0	0	0	7.9	23.5	67.7	76.3	61.2	42.9	7.7	0	0	287.1
1988	0	0	0	6.2	40.1	79.8	85.0	60.8	31.7	14.2	0	0	317.8
1989	0	0	0	20.4	53.1	68.9	76.0	64.4	42.0	8.2	0	0	333.1
1990	0	0	0	0	38.1	77.0	77.2	68.6	28.8	5.7	0	0	295.4
1991	0	0	0	0	42.6	64.5	77.1	73.8	29.3	6.6	0	0	293.9
1992	0	0	0	8.4	16.1	67.6	58.8	53.5	46.5	12.4	0	0	263.3
1993	0	0	0	5.4	31.9	59.6	87.2	55.4	42.5	4.1	0	0	286.1
1994	0	0	0	9.3	49.5	71.5	97.9	70.3	30.6	8.6	0	0	337.8
1995	0	0	0	0.9	37.3	36.7	56.0	81.0	25.1	10.3	0	0	247.4
1996	0	0	0	9.2	53.3	69.2	92.9	88.3	13.4	3.8	0	0	330.0
1997	0	0	0	1.1	25.6	49.6	80.6	31.4	3.9	0	0	0	192.2
1998	0	0	0	0	8.9	60.7	78.6	67.9	29.7	3.5	0	0	249.3
1999	0	0	0	0	20.7	47.9	80.2	30.2	33.0	11.6	0	0	223.6
2000	0	0	0	18.3	42.5	72.9	83.7	63.2	34.9	7.1	0	0	322.7
2001	0	0	0	0	8.8	55.9	70.5	47.7	45.9	10.2	0	0	239.1
2002	0	0	0	16.7	22.0	36.4	40.4	24.5	4.4	2.1	0	0	146.6
2003	0	0	0	7.0	48.3	63.8	59.0	33.1	23.2	14.5	0	0	248.8
2004	0	0	0	0.5	50.4	71.0	49.0	29.4	14.9	9.5	0	0	224.5
2005	0	0	0	5.7	53.4	60.7	74.4	32.9	13.6	9.7	0	0	250.3
2006	0	0	0	16.4	47.6	71.7	71.2	60.0	8.7	0	0	0	275.6
2007	0	0	0	9.6	41.8	74.1	74.7	70.4	20.2	9.0	0	0	299.8
2008	0	0	0	0	29.7	63.8	82.3	81.6	36.8	8.6	0	0	302.8
2009	0	0	0	2.9	29.9	57.5	83.5	71.7	45.3	3.9	0	0	294.7
2010	0	0	0	2.8	41.8	73.8	53.1	32.4	40.2	8.5	0	0	252.6
2011	0	0	0	0	30.5	61.9	80.9	53.1	15.1	7.0	0	0	248.6
2012	0	0	0	14.0	39.9	42.6	26.1	26.5	15.0	11.5	0	0	175.6
2013	0	0	0	0	41.0	76.3	69.9	62.3	23.8	6.4	0	0	279.8
Min	0	0	0	0	8.8	36.4	26.1	24.5	3.9	0	0	0	146.6
Max	0	0	0	20.4	55.3	79.8	97.9	88.3	55.1	15.3	0	0	337.8
Avg	0	0	0	4.6	34.7	64.0	73.0	59.2	30.4	7.1	0	0	272.9

Notes: The in-priority consumptive use is equal to (Table A-15 multiplied by Table A-5) + (1-Table A-15 multiplied by Table A-12).

Table A-17
McKinley Ditch - Western Rivers Conservancy Property
In-Priority Surface Water Return Flow
Historical Irrigation
(all values in ac-ft)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	77.8	141.6	99.4	62.6	72.7	10.2	0	0	464.2
1975	0	0	0	0	0	67.3	119.9	59.0	27.3	44.5	0	0	318.0
1976	0	0	0	0	87.7	146.5	72.2	42.3	44.1	0	0	0	392.8
1977	0	0	0	16.4	90.3	88.8	42.2	32.2	26.2	37.6	0	0	333.8
1978	0	0	0	0	59.9	143.2	109.7	60.2	36.1	39.1	0	0	448.3
1979	0	0	0	0	0	121.8	144.5	63.8	37.5	31.8	0	0	399.4
1980	0	0	0	0	5.8	120.9	88.2	38.1	23.3	42.3	0	0	318.6
1981	0	0	0	1.9	113.6	102.9	41.4	43.8	35.7	46.2	0	0	385.5
1982	0	0	0	0	24.2	145.1	131.2	110.9	85.8	69.3	0	0	566.4
1983	0	0	0	0	0	140.6	155.1	132.1	86.7	77.7	0	0	592.2
1984	0	0	0	0	7.8	121.5	102.0	126.8	102.6	0	0	0	460.7
1985	0	0	0	0	1.3	95.1	146.6	30.4	63.3	34.9	0	0	371.7
1986	0	0	0	0.4	35.9	87.3	67.7	39.1	40.8	28.0	0.7	0	299.8
1987	0	0	0	0	0	107.1	69.5	38.6	43.0	40.9	0	0	299.0
1988	0	0	0	0	81.7	138.9	122.2	36.1	11.9	6.8	0	0	397.6
1989	0	0	0	0	34.9	34.0	35.2	26.6	0.2	0	0	0	130.9
1990	0	0	0	0	39.1	47.8	33.4	30.5	16.4	4.4	0	0	171.7
1991	0	0	0	0	88.7	64.8	39.9	20.2	0	0	0	0	213.6
1992	0	0	0	0	21.0	51.7	46.7	24.5	5.2	2.1	0	0	151.2
1993	0	0	0	0	35.2	40.7	39.3	32.4	10.8	0.5	0	0	159.0
1994	0	0	0	0	33.5	40.4	35.7	19.8	16.6	4.6	0	0	150.6
1995	0	0	0	0	22.5	76.9	56.9	36.1	6.2	0	0	0	198.7
1996	0	0	0	1.1	30.2	39.1	35.9	24.1	13.2	0	0	0	143.7
1997	0	0	0	0	11.9	35.0	32.3	8.5	1.9	0	0	0	89.6
1998	0	0	0	0	4.3	29.8	38.6	33.6	14.4	2.3	0	0	123.0
1999	0	0	0	0	23.4	35.8	22.7	5.4	21.7	9.1	0	0	118.1
2000	0	0	0	0	42.7	39.7	24.0	22.5	18.3	2.3	0	0	149.4
2001	0	0	0	0	4.3	42.1	38.0	20.0	19.4	18.4	0	0	142.3
2002	0	0	0	0	58.0	47.5	20.3	30.0	33.1	8.5	0	0	197.4
2003	0	0	0	0	26.5	87.9	55.6	39.0	72.9	107.1	0	0	389.1
2004	0	0	0	0	9.3	28.4	53.9	55.3	50.1	12.6	0	0	209.6
2005	0	0	0	0	21.1	83.6	76.8	56.0	65.2	68.6	0	0	371.3
2006	0	0	0	0	51.3	113.9	52.5	52.9	42.3	0	0	0	313.0
2007	0	0	0	1.9	40.9	100.1	103.2	27.1	64.4	25.8	0	0	363.3
2008	0	0	0	0	7.8	47.0	107.7	39.7	42.4	51.8	25.6	0	322.0
2009	0	0	0	0	48.9	108.0	87.8	86.3	34.3	59.5	0	0	424.7
2010	0	0	0	0	11.7	94.4	51.8	55.7	33.0	38.0	0	0	284.6
2011	0	0	0	0	10.2	100.3	106.7	47.0	63.6	48.2	0	0	376.0
2012	0	0	0	1.5	105.6	74.3	58.7	51.1	55.6	46.3	0	0	393.1
2013	0	0	0	0	49.5	75.6	33.0	28.2	76.0	50.8	0	0	313.1
Min	0	0	0	0	0	28.4	20.3	5.4	0	0	0	0	89.6
Max	0	0	0	16.4	113.6	146.5	155.1	132.1	102.6	107.1	25.6	0	592.2
Avg	0	0	0	0.6	35.5	82.7	70.0	44.7	37.9	26.8	0.7	0	298.7

Notes: The in-priority surface water return flow is equal to (Table A-15 multiplied by Table A-6) + (1-Table A-15 multiplied by Table A-13).

Table A-18
McKinley Ditch - Western Rivers Conservancy Property
In-Priority Deep Percolation
Historical Irrigation
(all values in ac-ft)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	51.9	94.4	66.2	41.7	48.4	6.8	0	0	309.5
1975	0	0	0	0	0	44.8	79.9	39.3	18.2	29.7	0	0	212.0
1976	0	0	0	0	58.5	97.7	48.1	28.2	29.4	0	0	0	261.9
1977	0	0	0	11.0	60.2	59.2	28.1	21.5	17.5	25.1	0	0	222.5
1978	0	0	0	0	39.9	95.5	73.1	40.2	24.1	26.1	0	0	298.9
1979	0	0	0	0	0	81.2	96.3	42.5	25.0	21.2	0	0	266.2
1980	0	0	0	0	3.9	80.6	58.8	25.4	15.6	28.2	0	0	212.4
1981	0	0	0	1.3	75.8	68.6	27.6	29.2	23.8	30.8	0	0	257.0
1982	0	0	0	0	16.2	96.7	87.5	73.9	57.2	46.2	0	0	377.6
1983	0	0	0	0	0	93.7	103.4	88.1	57.8	51.8	0	0	394.8
1984	0	0	0	0	5.2	81.0	68.0	84.5	68.4	0	0	0	307.1
1985	0	0	0	0	0.9	63.4	97.7	20.3	42.2	23.3	0	0	247.8
1986	0	0	0	0.3	23.9	58.2	45.1	26.1	27.2	18.7	0.4	0	199.8
1987	0	0	0	0	0	71.4	46.3	25.8	28.7	27.3	0	0	199.4
1988	0	0	0	0	54.4	92.6	81.5	24.1	8.0	4.5	0	0	265.1
1989	0	0	0	0	23.3	22.7	23.5	17.7	0.1	0	0	0	87.2
1990	0	0	0	0	26.1	31.9	22.3	20.4	11.0	2.9	0	0	114.5
1991	0	0	0	0	59.1	43.2	26.6	13.5	0	0	0	0	142.4
1992	0	0	0	0	14.0	34.5	31.2	16.3	3.5	1.4	0	0	100.8
1993	0	0	0	0	23.5	27.1	26.2	21.6	7.2	0.4	0	0	106.0
1994	0	0	0	0	22.3	26.9	23.8	13.2	11.1	3.1	0	0	100.4
1995	0	0	0	0	15.0	51.3	37.9	24.1	4.1	0	0	0	132.5
1996	0	0	0	0.8	20.2	26.1	23.9	16.1	8.8	0	0	0	95.8
1997	0	0	0	0	8.0	23.4	21.5	5.7	1.3	0	0	0	59.8
1998	0	0	0	0	2.9	19.9	25.7	22.4	9.6	1.5	0	0	82.0
1999	0	0	0	0	15.6	23.9	15.1	3.6	14.5	6.1	0	0	78.8
2000	0	0	0	0	28.5	26.5	16.0	15.0	12.2	1.5	0	0	99.6
2001	0	0	0	0	2.9	28.1	25.3	13.4	12.9	12.3	0	0	94.8
2002	0	0	0	0	38.7	31.6	13.5	20.0	22.0	5.7	0	0	131.6
2003	0	0	0	0	17.7	58.6	37.1	26.0	48.6	71.4	0	0	259.4
2004	0	0	0	0	6.2	19.0	35.9	36.9	33.4	8.4	0	0	139.7
2005	0	0	0	0	14.1	55.7	51.2	37.4	43.5	45.7	0	0	247.5
2006	0	0	0	0	34.2	75.9	35.0	35.3	28.2	0	0	0	208.7
2007	0	0	0	1.2	27.3	66.7	68.8	18.0	42.9	17.2	0	0	242.2
2008	0	0	0	0	5.2	31.3	71.8	26.5	28.2	34.5	17.0	0	214.7
2009	0	0	0	0	32.6	72.0	58.5	57.5	22.9	39.7	0	0	283.1
2010	0	0	0	0	7.8	62.9	34.6	37.1	22.0	25.3	0	0	189.7
2011	0	0	0	0	6.8	66.8	71.1	31.3	42.4	32.2	0	0	250.6
2012	0	0	0	1.0	70.4	49.5	39.2	34.1	37.0	30.9	0	0	262.1
2013	0	0	0	0	33.0	50.4	22.0	18.8	50.6	33.8	0	0	208.7
Min	0	0	0	0	0	19.0	13.5	3.6	0	0	0	0	59.8
Max	0	0	0	11.0	75.8	97.7	103.4	88.1	68.4	71.4	17.0	0	394.8
Avg	0	0	0	0.4	23.6	55.1	46.6	29.8	25.2	17.8	0.4	0	199.1

Notes: The in-priority deep percolation is equal to (Table A-15 multiplied by Table A-7) + (1-Table A-15 multiplied by Table A-14).

Table A-19
McKinley Ditch - Western Rivers Conservancy Property
In-Priority Lagged Ground Water Return Flow
Historical Irrigation
(all values in ac-ft)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	20.5	19.9	19.2	18.4	17.7	17.2	17.7	19.3	21.3	22.8	23.7	23.8	241.5
1975	23.3	22.4	21.4	20.4	19.5	18.7	18.2	18.5	19.7	20.9	21.6	21.8	246.4
1976	21.6	20.9	20.1	19.3	18.5	18.0	18.6	20.3	21.9	22.9	23.3	23.0	248.4
1977	22.3	21.4	20.5	19.6	18.8	18.5	19.1	20.2	21.1	21.5	21.6	21.5	245.9
1978	21.1	20.4	19.7	18.9	18.1	17.6	17.9	19.5	21.5	22.9	23.6	23.8	245.1
1979	23.3	22.5	21.6	20.6	19.8	19.0	18.5	19.4	21.3	23.0	23.8	24.0	256.8
1980	23.5	22.7	21.7	20.8	19.9	19.2	18.8	19.6	20.9	21.8	22.1	22.2	253.2
1981	21.8	21.1	20.3	19.5	18.8	18.3	19.1	20.5	21.6	22.2	22.5	22.6	248.3
1982	22.3	21.5	20.7	19.8	19.0	18.4	18.3	19.6	21.8	24.0	25.8	26.8	258.0
1983	26.7	25.9	24.8	23.7	22.6	21.6	21.1	22.0	24.3	26.7	28.6	29.7	297.7
1984	29.6	28.8	27.6	26.3	25.1	24.0	23.4	24.0	25.5	27.4	29.0	29.4	320.3
1985	28.8	27.7	26.6	25.4	24.3	23.4	22.7	23.2	24.8	25.9	26.7	26.9	306.3
1986	26.4	25.6	24.6	23.6	22.7	21.9	21.7	22.3	23.1	23.8	24.1	24.1	283.8
1987	23.6	22.9	22.0	21.2	20.4	19.6	19.2	19.8	20.8	21.6	22.1	22.3	255.7
1988	22.1	21.4	20.6	19.8	19.1	18.5	19.0	20.7	22.8	24.0	24.2	23.7	256.0
1989	22.9	21.9	21.0	20.1	19.3	18.6	18.4	18.5	18.7	18.8	18.5	18.0	234.6
1990	17.4	16.8	16.2	15.7	15.1	14.8	14.8	15.2	15.7	16.1	16.1	15.9	189.9
1991	15.5	15.0	14.4	13.9	13.4	13.2	13.8	14.8	15.6	16.0	15.8	15.3	176.6
1992	14.7	14.2	13.6	13.1	12.6	12.2	12.1	12.5	13.1	13.6	13.6	13.3	158.6
1993	12.9	12.4	12.0	11.5	11.1	10.8	10.9	11.3	11.9	12.4	12.5	12.3	142.2
1994	12.0	11.5	11.1	10.6	10.2	10.0	10.0	10.5	11.0	11.4	11.5	11.4	131.1
1995	11.1	10.7	10.3	9.9	9.5	9.2	9.3	10.1	11.1	11.9	12.1	11.9	127.0
1996	11.5	11.0	10.6	10.1	9.7	9.4	9.5	9.9	10.4	10.8	10.9	10.8	124.6
1997	10.4	10.0	9.6	9.2	8.9	8.6	8.5	8.7	9.1	9.3	9.3	9.0	110.8
1998	8.7	8.4	8.1	7.8	7.5	7.3	7.2	7.4	7.9	8.4	8.7	8.8	96.1
1999	8.5	8.2	7.9	7.6	7.3	7.1	7.1	7.5	7.9	8.1	8.2	8.2	93.6
2000	8.1	7.8	7.5	7.2	6.9	6.8	7.0	7.6	8.1	8.5	8.7	8.7	92.9
2001	8.4	8.1	7.8	7.4	7.1	6.9	6.7	7.1	7.6	8.1	8.4	8.5	92.1
2002	8.5	8.2	7.9	7.6	7.2	7.1	7.5	8.3	8.8	9.3	9.7	9.8	99.9
2003	9.6	9.3	8.9	8.5	8.1	7.8	8.0	8.9	10.1	11.1	12.3	13.7	116.3
2004	14.4	14.2	13.6	13.0	12.3	11.7	11.3	11.3	11.8	12.6	13.3	13.6	153.3
2005	13.4	13.0	12.5	11.9	11.4	11.0	11.0	11.8	13.1	14.3	15.4	16.4	155.2
2006	16.6	16.2	15.5	14.8	14.1	13.6	13.8	15.0	16.2	17.1	17.6	17.6	188.1
2007	17.0	16.3	15.6	14.9	14.3	13.8	14.0	15.1	16.6	17.7	18.5	18.8	192.7
2008	18.5	17.9	17.1	16.4	15.7	15.0	14.6	14.9	15.9	17.0	17.7	18.3	199.1
2009	18.5	18.2	17.6	16.9	16.2	15.6	15.7	16.8	18.4	19.9	20.8	21.3	215.7
2010	21.1	20.5	19.6	18.7	17.9	17.2	16.8	17.4	18.2	19.0	19.5	19.7	225.6
2011	19.4	18.9	18.1	17.4	16.7	16.1	15.8	16.6	18.1	19.4	20.3	20.9	217.7
2012	20.8	20.2	19.4	18.5	17.8	17.3	17.9	19.0	20.0	20.8	21.4	21.8	234.8
2013	21.5	20.9	20.0	19.2	18.4	17.8	17.8	18.3	18.9	19.3	20.0	20.5	232.6
Min	8.1	7.8	7.5	7.2	6.9	6.8	6.7	7.1	7.6	8.1	8.2	8.2	92.1
Max	29.6	28.8	27.6	26.3	25.1	24.0	23.4	24.0	25.5	27.4	29.0	29.7	320.3
Avg	18.0	17.4	16.7	16.0	15.3	14.8	14.8	15.6	16.7	17.6	18.1	18.3	199.1

Notes: The in-priority lagged ground water return flows on the Western Rivers Conservancy Property equal the in-priority deep percolation in Table A-18, lagged according to the Glover analysis within the IDS-AWAS model using the following parameters:

x (ft): 1,950	T (gpd/ft): 7,125
W (ft): 3,600	s: 0

Table A-20
McKinley Ditch - Western Rivers Conservancy Property
In-Priority Total Depletions
Historical Irrigation
(all values in ac-ft)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	-20.5	-19.9	-19.2	-18.4	90.1	152.5	129.8	85.0	62.7	-10.0	-23.7	-23.8	384.5
1975	-23.3	-22.4	-21.4	-20.4	-19.5	93.0	149.7	90.2	41.7	9.9	-21.6	-21.8	234.1
1976	-21.6	-20.9	-20.1	-19.3	76.3	144.9	111.9	58.8	42.4	-22.9	-23.3	-23.0	283.2
1977	-22.3	-21.4	-20.5	-3.9	74.0	113.6	72.1	66.9	40.5	9.9	-21.6	-21.5	266.0
1978	-21.1	-20.4	-19.7	-18.9	53.2	150.5	129.9	100.2	52.1	8.2	-23.6	-23.8	366.5
1979	-23.3	-22.5	-21.6	-20.6	-19.8	139.4	143.6	79.6	58.8	8.8	-23.8	-24.0	274.6
1980	-23.5	-22.7	-21.7	-20.8	-4.3	145.8	123.1	83.5	41.6	11.2	-22.1	-22.2	267.8
1981	-21.8	-21.1	-20.3	-14.3	109.8	121.6	66.1	64.9	37.5	14.2	-22.5	-22.6	291.2
1982	-22.3	-21.5	-20.7	-19.8	31.7	144.9	150.1	123.4	51.7	26.3	-25.8	-26.8	391.3
1983	-26.7	-25.9	-24.8	-23.7	-22.6	149.1	145.5	136.0	84.8	40.4	-28.6	-29.7	373.8
1984	-29.6	-28.8	-27.6	-26.3	-4.0	143.7	130.6	129.6	83.9	-27.4	-29.0	-29.4	285.6
1985	-28.8	-27.7	-26.6	-25.4	-20.8	143.1	152.3	59.0	33.5	3.4	-26.7	-26.9	208.6
1986	-26.4	-25.6	-24.6	-22.6	37.5	104.6	96.6	66.9	28.7	0.4	-23.7	-24.1	187.9
1987	-23.6	-22.9	-22.0	-21.2	-20.4	150.8	103.4	67.1	50.7	13.3	-22.1	-22.3	230.8
1988	-22.1	-21.4	-20.6	-19.8	81.7	153.9	147.4	64.1	9.5	-5.7	-24.2	-23.7	319.0
1989	-22.9	-21.9	-21.0	-20.1	75.1	73.2	76.8	53.4	-18.1	-18.8	-18.5	-18.0	119.2
1990	-17.4	-16.8	-16.2	-15.7	90.5	114.6	75.6	67.3	28.7	-4.1	-16.1	-15.9	274.4
1991	-15.5	-15.0	-14.4	-13.9	108.3	94.6	89.9	39.7	-15.6	-16.0	-15.8	-15.3	211.0
1992	-14.7	-14.2	-13.6	-13.1	44.1	127.6	90.6	53.6	1.0	-7.8	-13.6	-13.3	226.6
1993	-12.9	-12.4	-12.0	-11.5	84.1	89.1	95.5	72.8	17.2	-10.9	-12.5	-12.3	274.0
1994	-12.0	-11.5	-11.1	-10.6	80.3	99.1	86.5	43.0	34.0	1.2	-11.5	-11.4	276.1
1995	-11.1	-10.7	-10.3	-9.9	51.4	125.5	84.7	87.5	5.7	-11.9	-12.1	-11.9	277.0
1996	-11.5	-11.0	-10.6	-7.0	72.0	96.4	87.6	55.4	25.3	-10.8	-10.9	-10.8	264.0
1997	-10.4	-10.0	-9.6	-9.2	23.4	86.2	78.7	14.2	-4.0	-9.3	-9.3	-9.0	131.5
1998	-8.7	-8.4	-8.1	-7.8	4.2	73.3	97.2	83.4	31.0	-2.2	-8.7	-8.8	236.5
1999	-8.5	-8.2	-7.9	-7.6	56.0	89.8	54.2	7.0	50.9	16.6	-8.2	-8.2	225.8
2000	-8.1	-7.8	-7.5	-7.2	108.5	100.5	57.8	53.2	41.4	-2.2	-8.7	-8.7	311.2
2001	-8.4	-8.1	-7.8	-7.4	4.6	106.9	96.0	47.1	44.8	41.7	-8.4	-8.5	292.5
2002	-8.5	-8.2	-7.9	-7.6	61.0	60.9	46.4	36.2	17.6	13.8	-9.7	-9.8	184.3
2003	-9.6	-9.3	-8.9	-8.5	63.7	154.6	83.5	50.2	88.7	74.8	-12.3	-13.7	453.1
2004	-14.4	-14.2	-13.6	-13.0	12.8	65.1	71.2	54.9	42.6	21.4	-13.3	-13.6	186.0
2005	-13.4	-13.0	-12.5	-11.9	45.7	127.9	114.6	58.4	44.0	41.2	-15.4	-16.4	349.1
2006	-16.6	-16.2	-15.5	-14.8	84.1	134.0	92.4	80.3	20.7	-17.1	-17.6	-17.6	296.1
2007	-17.0	-16.3	-15.6	-9.9	60.6	127.1	129.5	58.1	61.7	8.5	-18.5	-18.8	349.3
2008	-18.5	-17.9	-17.1	-16.4	5.4	93.8	139.5	92.5	49.8	26.2	-0.7	-18.3	318.4
2009	-18.5	-18.2	-17.6	-16.9	49.2	113.9	126.2	112.4	49.7	23.7	-20.8	-21.3	362.1
2010	-21.1	-20.5	-19.6	-18.7	13.9	140.2	67.0	56.4	51.5	14.8	-19.5	-19.7	224.7
2011	-19.4	-18.9	-18.1	-17.4	10.8	122.5	136.2	67.9	39.4	19.8	-20.3	-20.9	281.5
2012	-20.8	-20.2	-19.4	-14.5	103.5	74.8	47.4	41.6	32.0	21.6	-21.4	-21.8	203.0
2013	-21.5	-20.9	-20.0	-19.2	55.7	109.0	71.3	58.0	63.1	21.0	-20.0	-20.5	256.0
Min	-29.6	-28.8	-27.6	-26.3	-22.6	60.9	46.4	7.0	-18.1	-27.4	-29.0	-29.7	119.2
Max	-8.1	-7.8	-7.5	-3.9	109.8	154.6	152.3	136.0	88.7	74.8	-0.7	-8.2	453.1
Avg	-18.0	-17.4	-16.7	-15.1	45.3	116.3	101.2	68.0	38.1	7.9	-17.7	-18.3	273.7

Notes: Depletions equal farm headgate deliveries (Table A-2) less in-priority surface runoff (Table A-17) less in-priority lagged ground water return flow (Table A-19). Negative values represent an accretion or return flow to the stream.

BBA
water consultants BISHOP-BROGDEN ASSOCIATES, INC.

Appendix B

Aerial Photography of Western Rivers Property

R06W

Little Cimarron Creek

Stumpy Creek

Collier Ditch

50

205.4 acres

McKinley Ditch

T48N

T47N

N

BBA
water consultants
BISHOP-BROGDEN ASSOCIATES, INC.

0   1,000   2,000
Feet
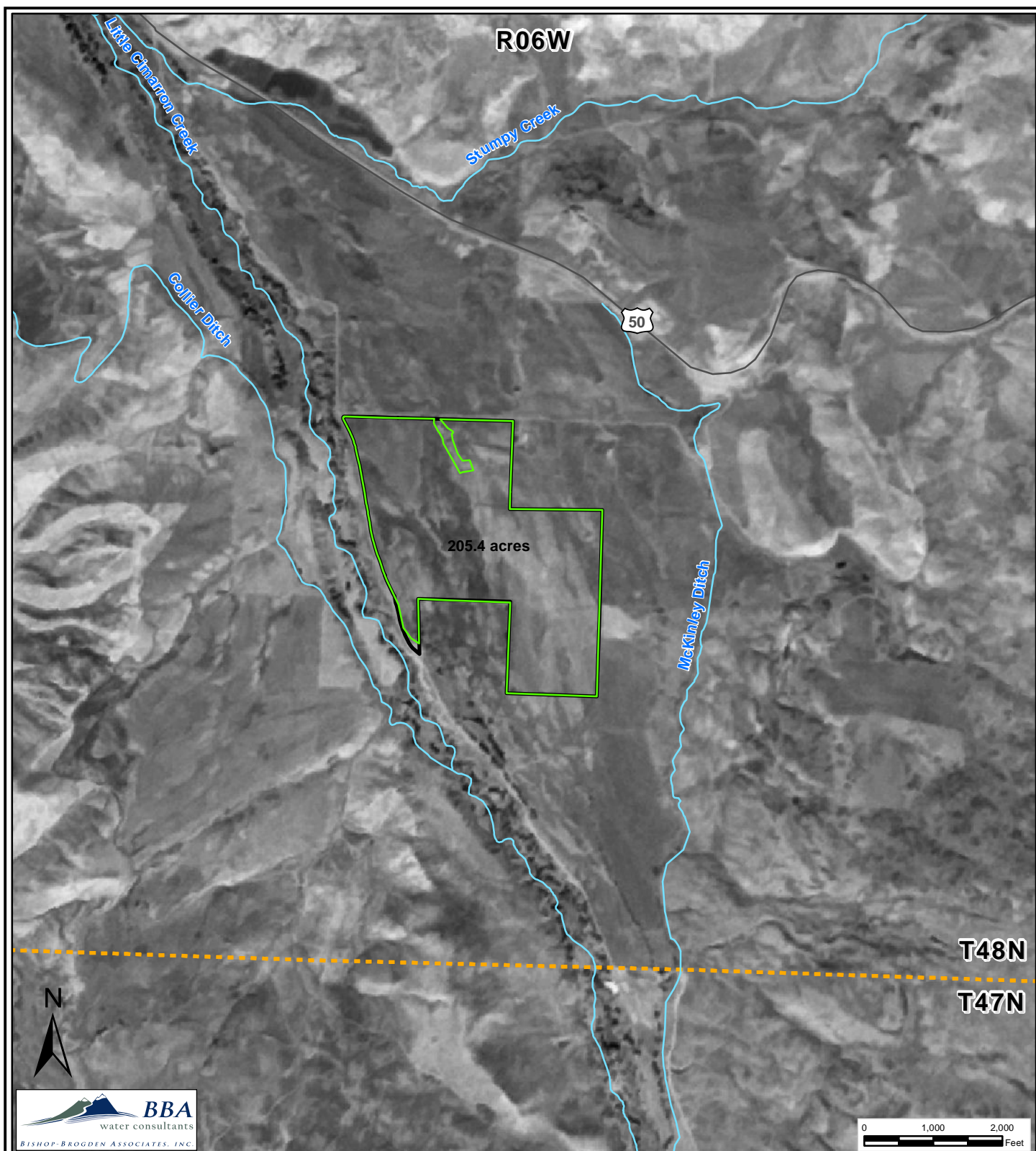
Legend

Stream/Ditch

Irrigated Area - 1976

Property Boundary (Approx.)

Irrigated Area 1976
Location Map

Date: Mar. 11, 2011
Photo Date: Sep. 01, 1976
Job No. 0906.01

Overview Map

Colorado

Main Map

Stumpy Creek

Little Cimarron Creek

Collier Ditch

50

205.4 acres

McKinley Ditch

T48N
T47N

N

R06W **R05W**

0   1,000   2,000
Feet
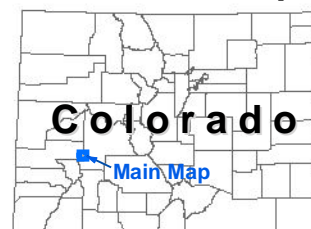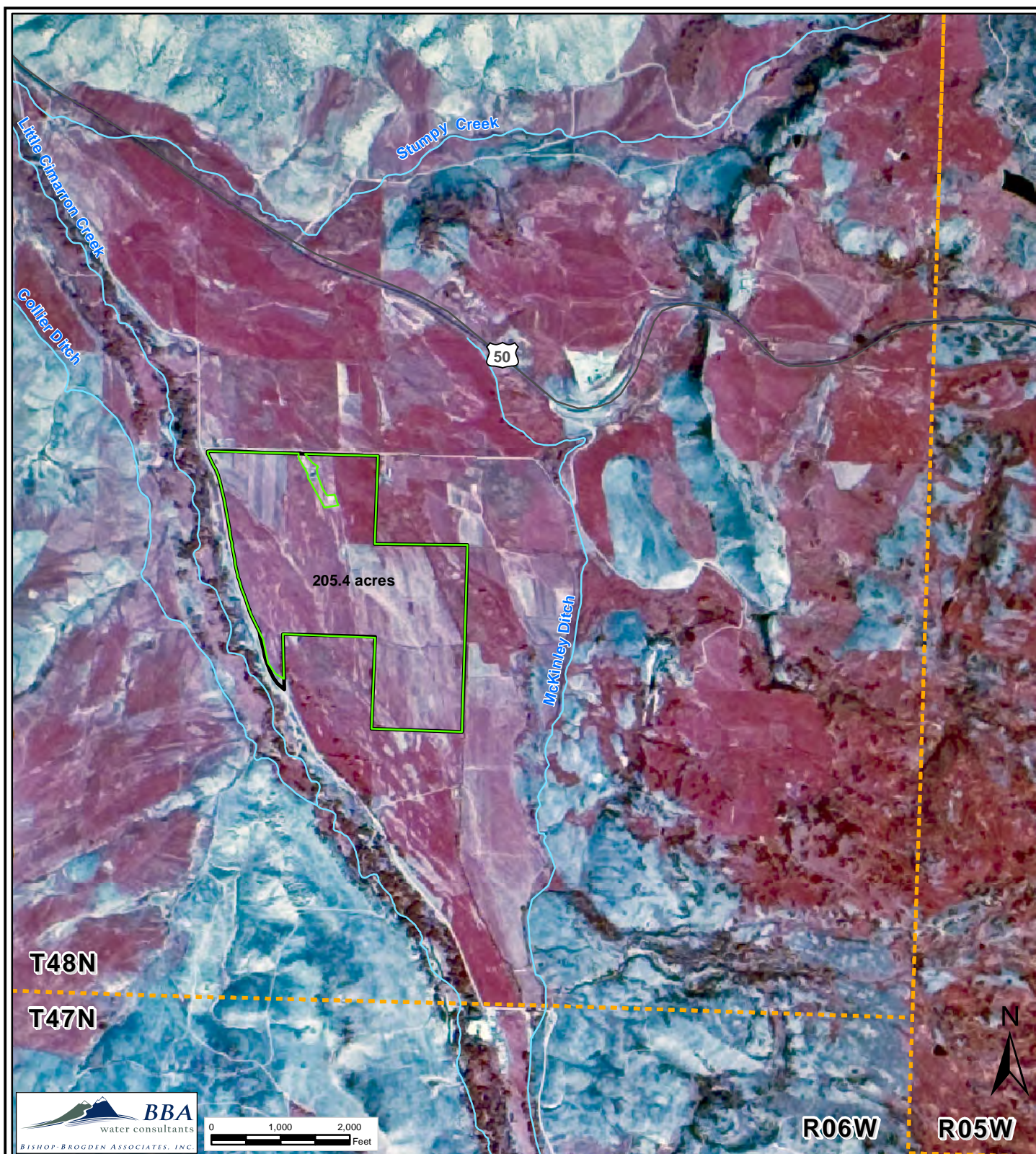
Legend

— Stream/Ditch
□ Irrigated Area - 1984
□ Property Boundary (Approx.)

Irrigated Area 1984
Location Map

Date: Mar. 11, 2011
Photo Date: Sep. 05, 1984
Job No. 0906.01

Overview Map

Colorado

Main Map

R06W

Little Cimarron Creek

Stumpy Creek

Collier Ditch

50

205.4 acres

McKinley Ditch

N

T48N

T47N

BBA
water consultants
BISHOP-BROGDEN ASSOCIATES, INC.

0   1,000   2,000
Feet
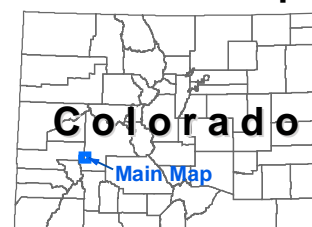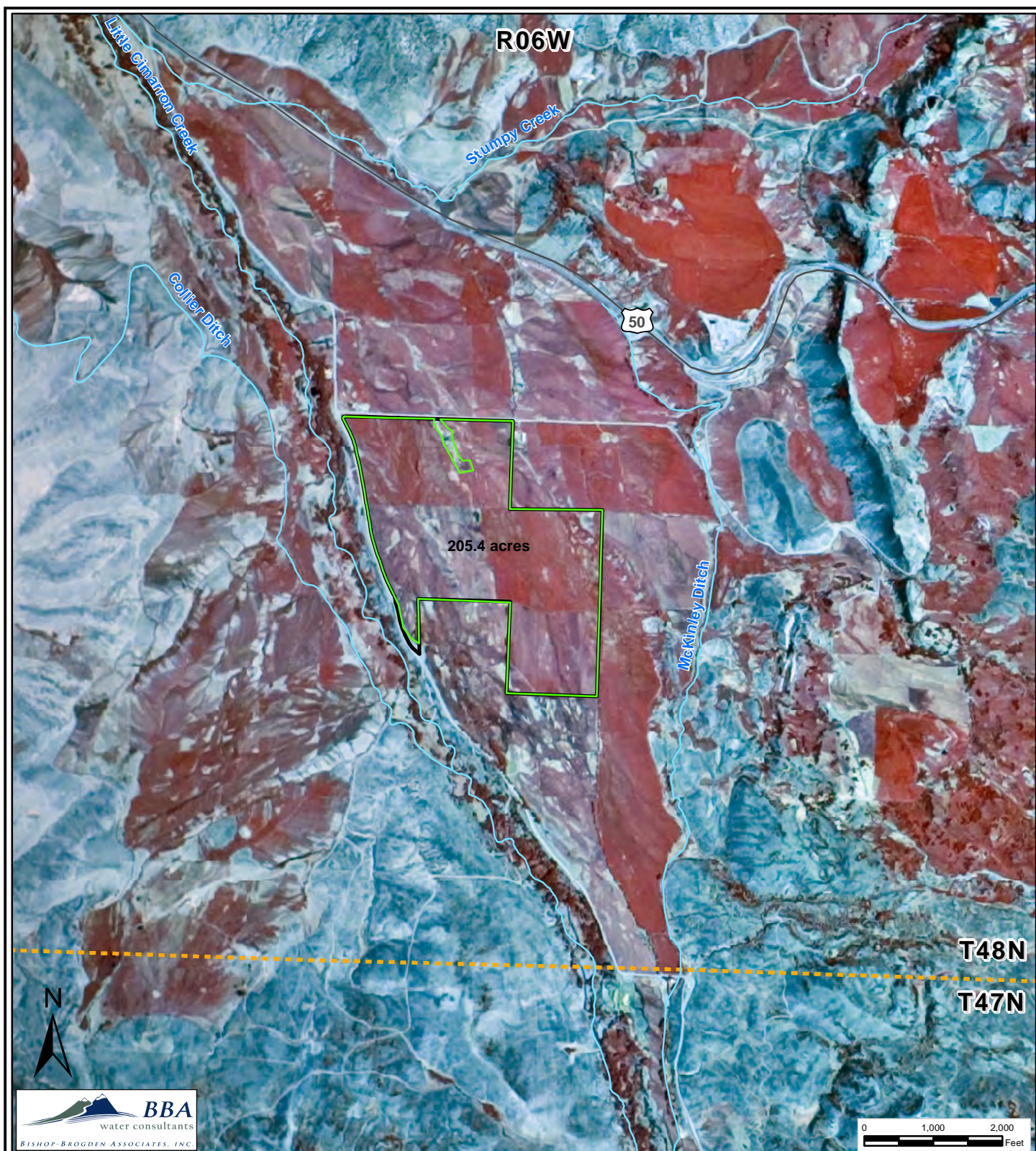
Legend

Stream/Ditch

Irrigated Area - 1989

Property Boundary (Approx.)

Irrigated Area 1989
Location Map

Date: Mar. 11, 2011
Photo Date: July 03, 1989
Job No. 0906.01

Overview Map

C o l o r a d o

Main Map

R06W

Little Cimarron Creek

Stumpy Creek

Collier Ditch

50

205.4 acres

McKinley Ditch

T48N

T47N

N

0   1,000   2,000
Feet
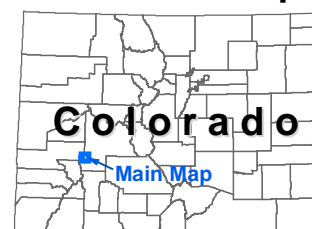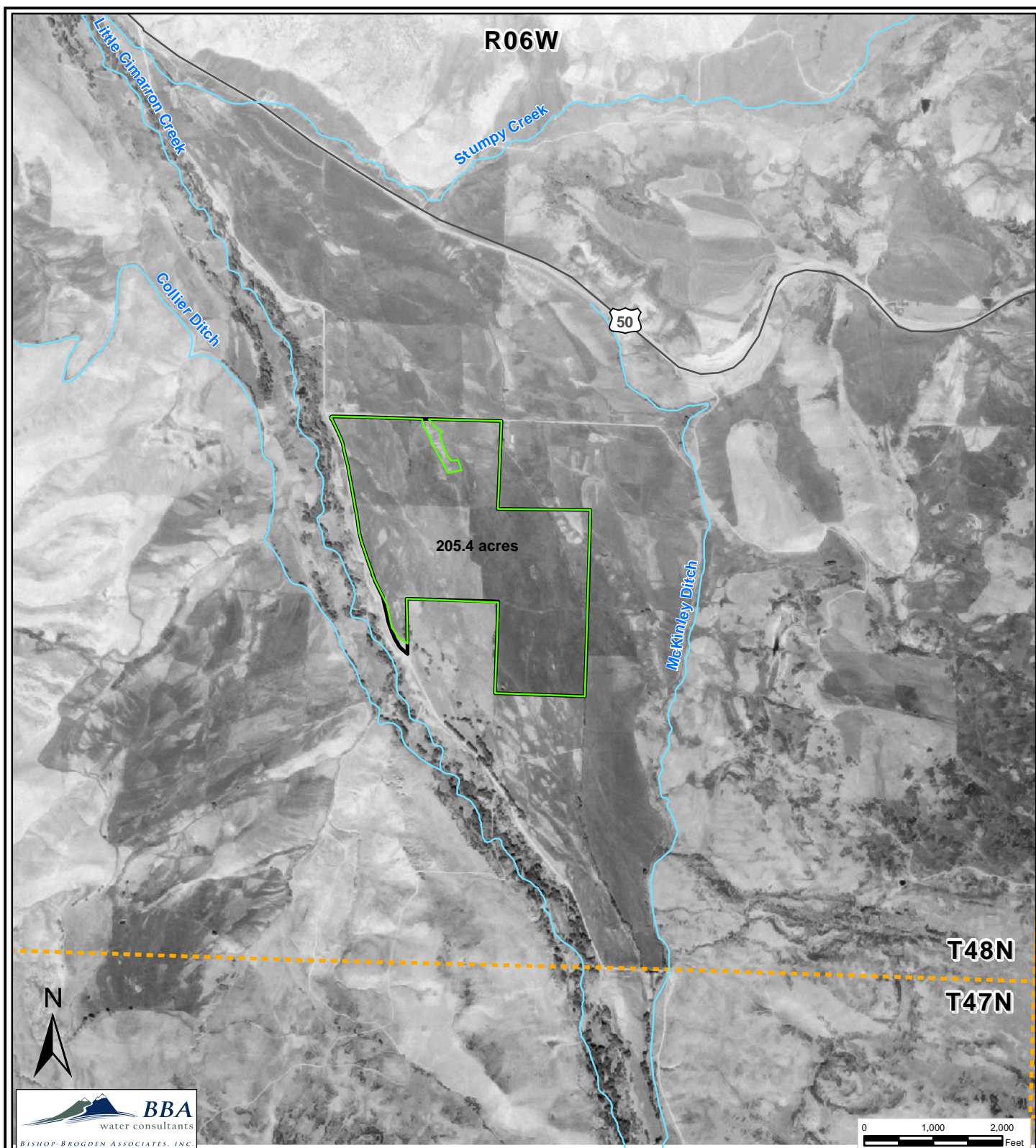
Legend

Stream/Ditch

Irrigated Area - 1993

Property Boundary (Approx.)

Irrigated Area 1993
Location Map

Date: Mar. 11, 2011
Photo Date: Sep. 03, 1993
Job No. 0906.01

Overview Map

C o l o r a d o

Main Map

R06W

Little Cimarron Creek

Stumpy Creek

Collier Ditch

50

McKinley Ditch

205.4 Acres

T48N

T47N

N

0   1,000   2,000
Feet

BBA
water consultants
BISHOP-BROGDEN ASSOCIATES, INC.
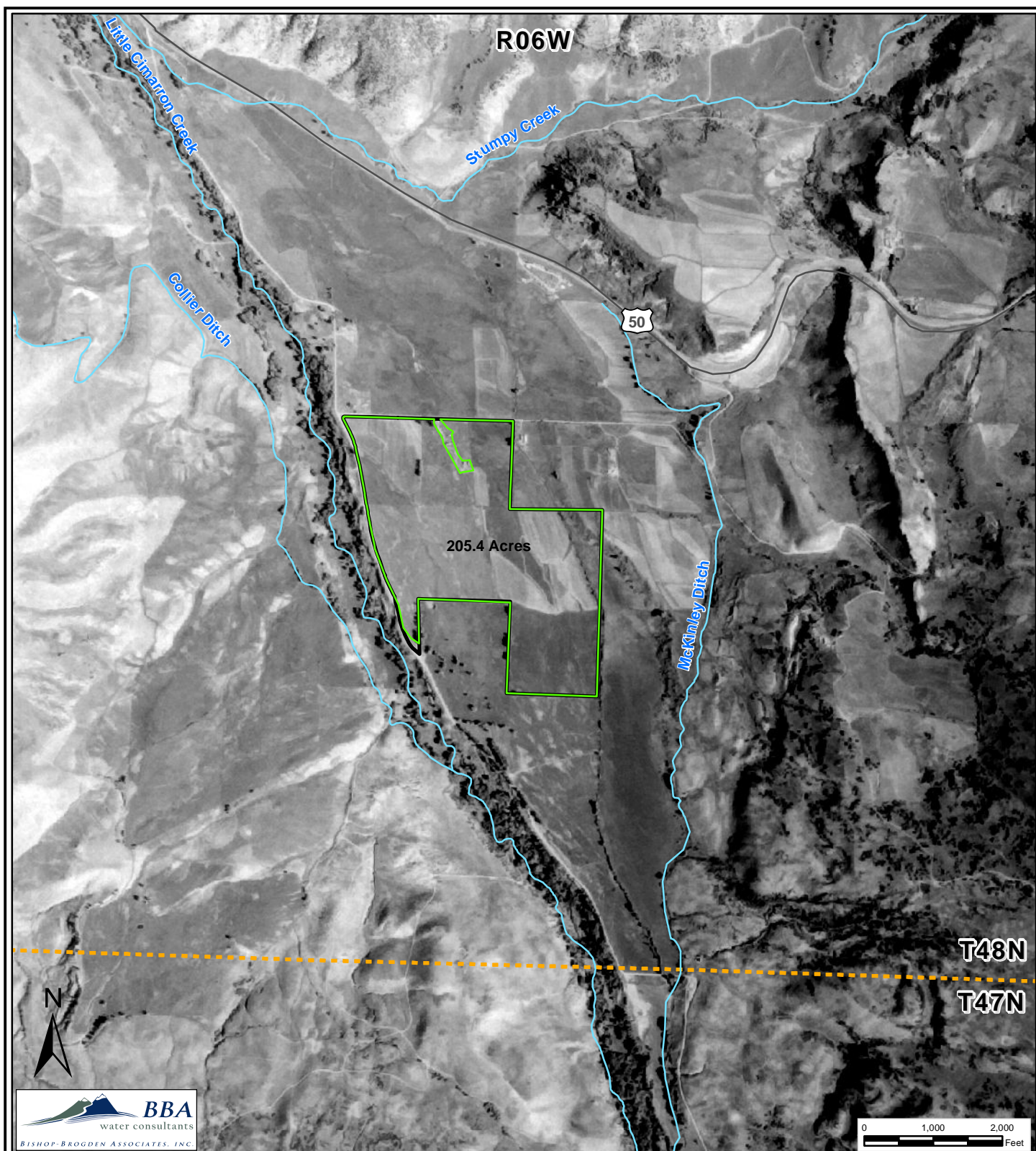
Legend

Stream/Ditch

Irrigated Area - 1999

Property Boundary (Approx.)

Irrigated Area 1999
Location Map

Date: Mar. 11, 2011
Photo Date: Sep. 06, 1999
Job No. 0906.01

Overview Map

C o l o r a d o

Main Map

R06W

Little Cimarron Creek

Stumpy Creek

Collier Ditch

50

203.1 acres

McKinley Ditch

N

T48N

T47N

0   1,000   2,000
Feet

BBA
water consultants
BISHOP-BROGDEN ASSOCIATES, INC.
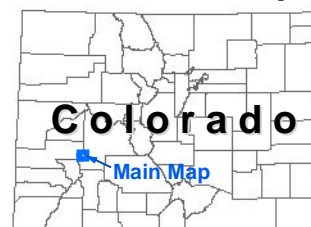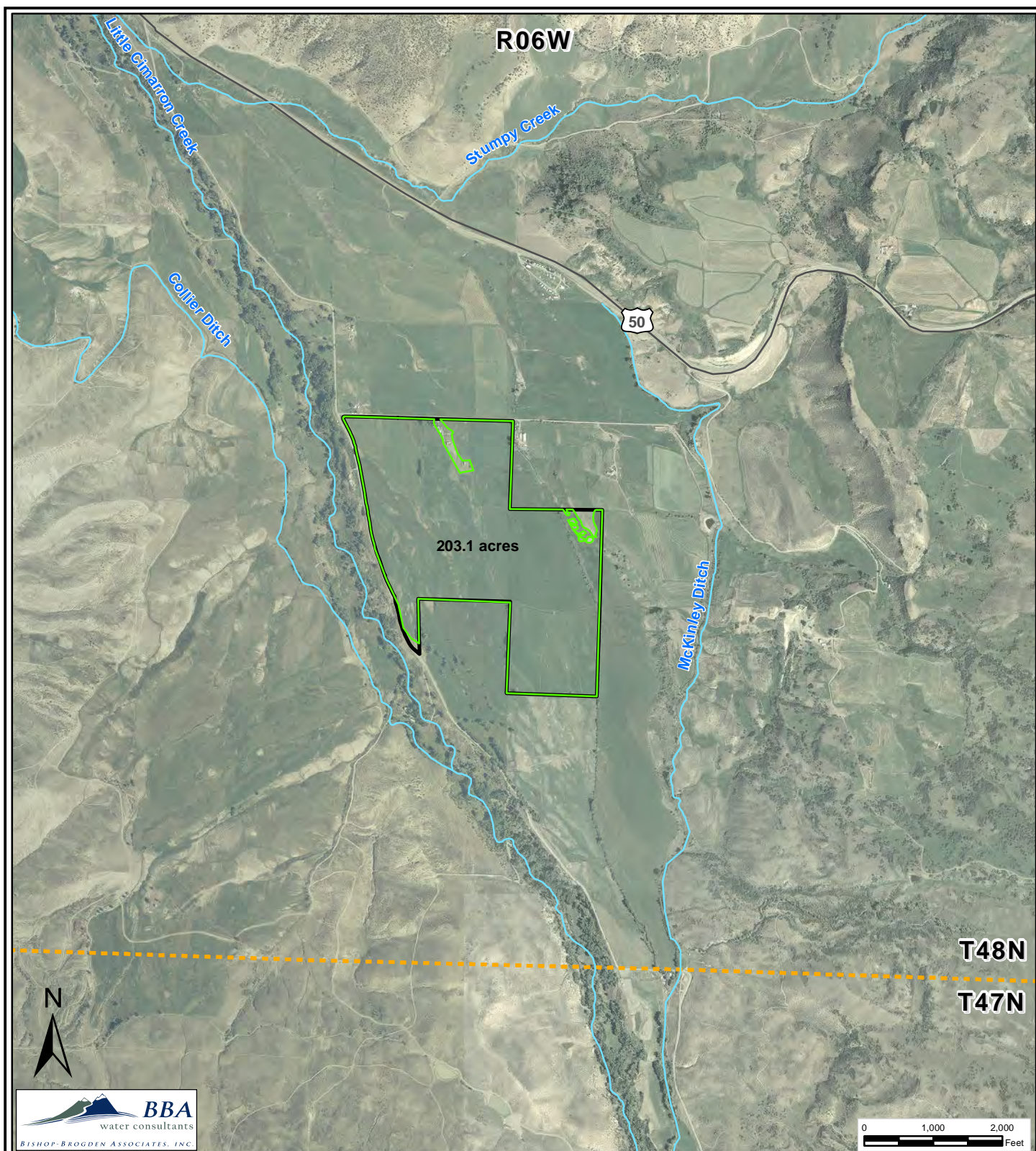
Legend

— Stream/Ditch

— Irrigated Area - 2005

— Property Boundary (Approx.)

Irrigated Area 2005
Location Map

Date: Marc. 11, 2011
Photo Date: Aug. 28 & 30, 2005
Job No. 0906.01

Overview Map

Colorado

Main Map

R06W

Little Cimarron Creek

Stumpy Creek

Collier Ditch

50

McKinley Ditch

205.4 acres

T48N

T47N

N

BBA
water consultants
BISHOP-BROGDEN ASSOCIATES, INC.

0   1,000   2,000
Feet
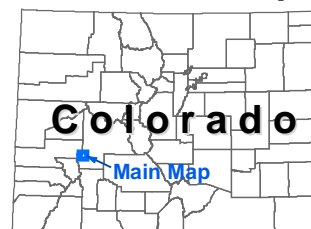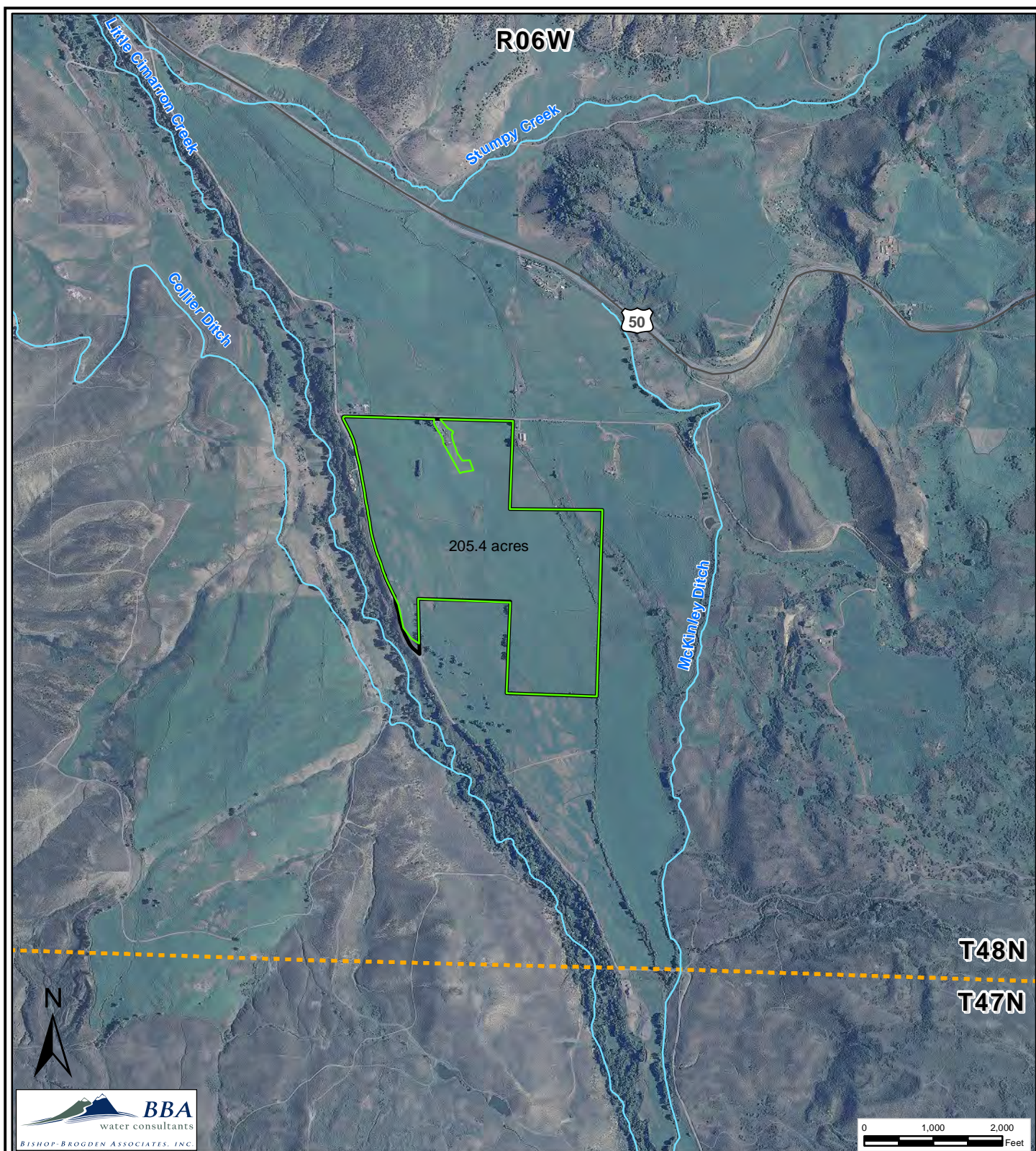
Legend

— Stream/Ditch

▭ Irrigated Area - 2009

▭ Property Boundary (Approx.)

**Irrigated Area 2009
Location Map**

Date: Mar. 11, 2011
Photo Date: July 16, 2009
Job No. 0906.01

Overview Map

C o l o r a d o

Main Map
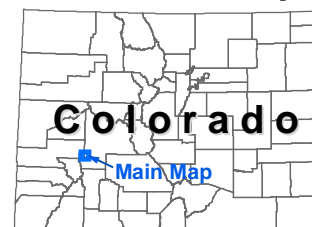
Appendix C

Soil Characteristics

R06W

Little Cimarron Creek

Stumpy Creek

Collier Ditch

McKinley Ditch

MONTROSE COUNTY

GUNNISON COUNTY

50

T48N

T47N

N
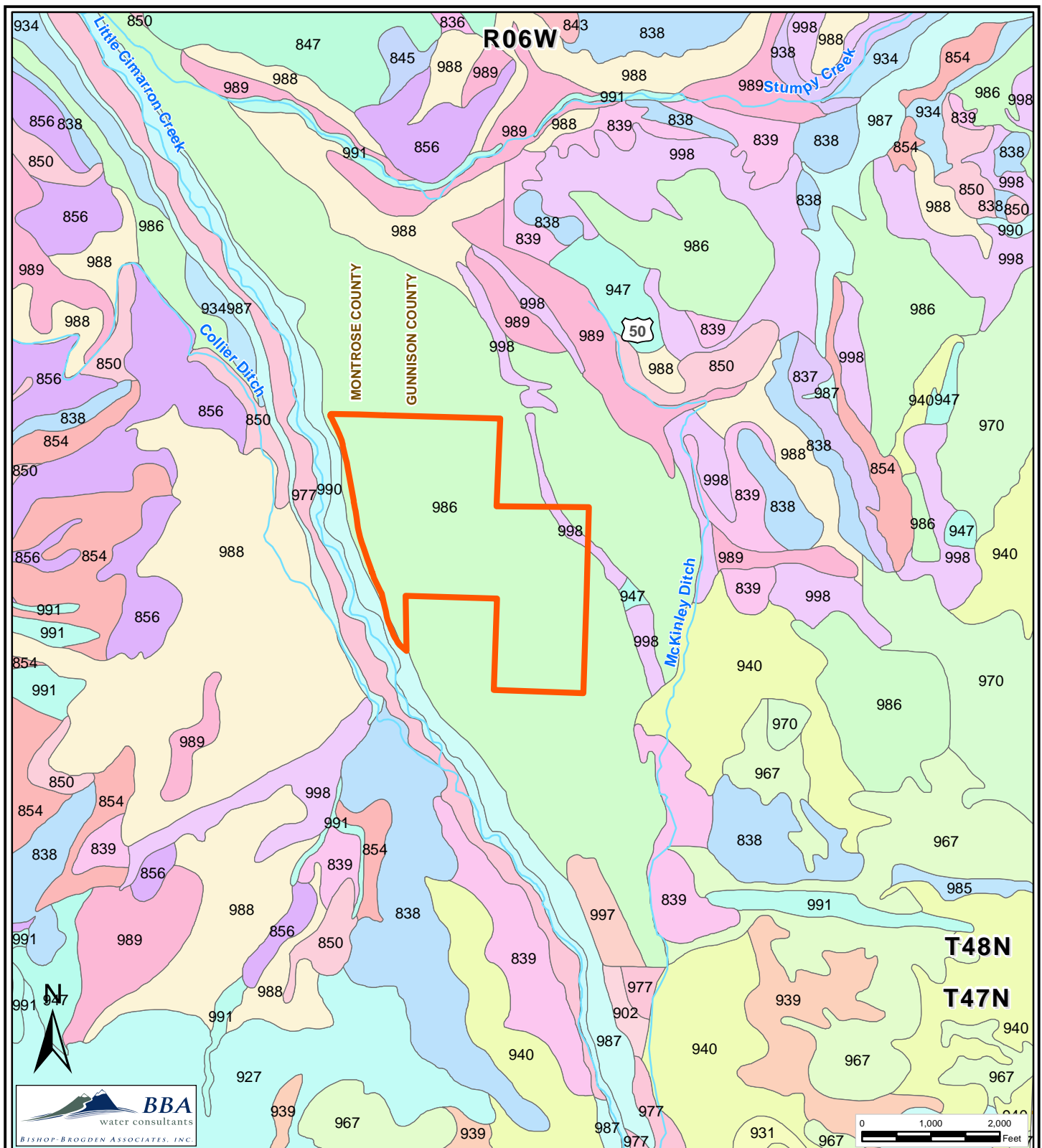
Legend

Stream/Ditch
Property Boundary (Approx.)
Counties

**Property Area
Soils Map**

Date: March 14, 2011
Job No. 0906.01

Overview Map

Colorado

Main Map

BBA
water consultants
BISHOP-BROGDEN ASSOCIATES, INC.

0   1,000   2,000
Feet
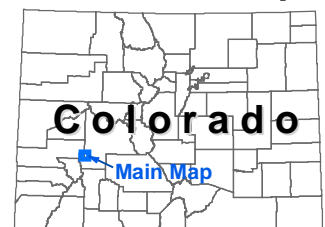
Appendix C TABLE C-1

McKinley Ditch
Colorado Water Trust Shares

Average Available Water Capacities

986 - Mudcap (Percentage of 986 complex: 52.5%)				
Depth (in.)	Min	Max	Average	AWC per layer (in.)
0	-	-	-	-
2	0.11	0.18	0.145	0.29
7	0.09	0.2	0.145	0.73
20	0.07	0.21	0.14	1.82
30	0.06	0.21	0.135	1.35
40	0.02	0.12	0.07	0.70
Wt Avg. (in./in.)				0.12

986 - Slicktop (Percentage of 986 complex: 47.5%)				
Depth (in.)	Min (in./in.)	Max (in./in.)	Average	AWC per layer (in.)
0	-	-	-	-
2	0.2	0.3	0.25	0.50
9	0.13	0.21	0.17	1.19
15	0.07	0.21	0.14	0.84
22	0.02	0.13	0.075	0.53
39	0.02	0.12	0.07	1.19
40	0.01	0.12	0.065	0.07
Wt Avg. (in./in.)				0.11

988 - Jannsen (Percentage of 988 complex: 55%)				
Depth (in.)	Min	Max	Average	AWC per layer (in.)
0	-	-	-	-
4	0.15	0.21	0.18	0.72
11	0.14	0.21	0.175	1.23
24	0.14	0.21	0.175	2.28
32	0.14	0.21	0.175	1.40
40	0.14	0.21	0.175	1.40
Wt Avg. (in./in.)				0.18

988 - Jarvie (Percentage of 988 complex: 45%)				
Depth (in.)	Min	Max	Average	AWC per layer (in.)
0	-	-	-	-
5	0.15	0.21	0.18	0.90
10	0.14	0.21	0.175	0.88
29	0.14	0.21	0.175	3.33
36	0.14	0.21	0.175	1.23
40	0.14	0.21	0.175	0.70
Wt Avg. (in./in.)				0.18

Overall Average:	0.12

Notes: Data collected from USDA NRCS Ridgway Area Soil Survey.

AWC per depth equals the average available water capacity multiplied by the depth of the soil layer.

The weighted average equals the sum of the AWC per depth values divided by 40 inches, the approximate rooting depth of native grass.

Overall Average AWC calculated using weighted average for each soil type, the percentage of each soil type in the complex, and the percentage of land containing each soil complex (98.7% of the property is underlain by the 986 complex and 1.3% of the property is underlain by the 988 complex).

Appendix D

StateCU Analysis Results – Irrigation Through July

Table D-1
McKinley Ditch - Western Rivers Conservancy Property
Total In-Priority Diversions
Irrigation through July - 194.5 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	206.2	345.9	274.3	0	0	0	0	0	826.4
1975	0	0	0	0	0	198.9	319.8	0	0	0	0	0	518.7
1976	0	0	0	0	202.8	343.8	225.2	0	0	0	0	0	771.7
1977	0	0	0	35.7	203.4	245.5	148.2	0	0	0	0	0	632.8
1978	0	0	0	0	145.8	345.9	286.2	0	0	0	0	0	777.8
1979	0	0	0	0	0	311.3	340.7	0	0	0	0	0	652.0
1980	0	0	0	0	23.8	317.6	255.6	0	0	0	0	0	597.0
1981	0	0	0	7.9	269.0	269.8	140.7	0	0	0	0	0	687.4
1982	0	0	0	0	83.3	342.5	332.9	0	0	0	0	0	758.7
1983	0	0	0	0	0	345.9	357.4	0	0	0	0	0	703.3
1984	0	0	0	0	32.1	321.3	284.5	0	0	0	0	0	638.0
1985	0	0	0	0	5.4	290.6	357.4	0	0	0	0	0	653.4
1986	0	0	0	1.6	106.8	237.6	206.7	0	0	0	0	0	552.6
1987	0	0	0	0	0	308.3	213.5	0	0	0	0	0	521.8
1988	0	0	0	0	202.7	345.9	320.8	0	0	0	0	0	869.3
1989	0	0	0	0	143.6	139.8	144.8	0	0	0	0	0	428.3
1990	0	0	0	0	160.9	196.9	137.6	0	0	0	0	0	495.4
1991	0	0	0	0	233.7	191.7	159.6	0	0	0	0	0	585.0
1992	0	0	0	0	86.3	212.7	166.0	0	0	0	0	0	465.1
1993	0	0	0	0	145.0	156.2	161.9	0	0	0	0	0	463.1
1994	0	0	0	0	137.9	166.0	147.0	0	0	0	0	0	450.9
1995	0	0	0	0	92.7	235.1	167.7	0	0	0	0	0	495.5
1996	0	0	0	4.7	124.4	161.1	147.7	0	0	0	0	0	437.9
1997	0	0	0	0	49.1	144.2	132.8	0	0	0	0	0	326.1
1998	0	0	0	0	17.9	122.7	158.9	0	0	0	0	0	299.5
1999	0	0	0	0	96.4	147.5	93.3	0	0	0	0	0	337.1
2000	0	0	0	0	175.6	163.3	98.6	0	0	0	0	0	437.6
2001	0	0	0	0	17.9	173.2	156.4	0	0	0	0	0	347.4
2002	0	0	0	0	140.3	128.3	82.4	0	0	0	0	0	351.1
2003	0	0	0	0	109.2	278.1	163.5	0	0	0	0	0	550.8
2004	0	0	0	0	38.2	117.0	151.6	0	0	0	0	0	306.8
2005	0	0	0	0	86.9	247.3	224.8	0	0	0	0	0	559.0
2006	0	0	0	0	166.1	290.5	176.4	0	0	0	0	0	633.1
2007	0	0	0	7.7	128.6	267.8	274.1	0	0	0	0	0	678.2
2008	0	0	0	0	32.1	173.2	291.0	0	0	0	0	0	496.3
2009	0	0	0	0	127.0	263.9	255.3	0	0	0	0	0	646.2
2010	0	0	0	0	48.3	279.8	150.7	0	0	0	0	0	478.8
2011	0	0	0	0	41.8	265.4	287.5	0	0	0	0	0	594.7
2012	0	0	0	6.1	252.1	184.9	137.8	0	0	0	0	0	580.9
2013	0	0	0	0	137.3	224.9	135.6	0	0	0	0	0	497.8
Min	0	0	0	0	0	117.0	82.4	0	0	0	0	0	299.5
Max	0	0	0	35.7	269.0	345.9	357.4	0	0	0	0	0	869.3
Avg	0	0	0	1.6	106.8	237.6	206.7	0	0	0	0	0	552.6

Notes: Daily diversion records (for irrigation only) acquired from the Colorado Decision Support System (CDSS).
Daily diversions are limited to the McKinley Ditch water rights priority on each day.

The Colorado Water Trust portion of the McKinley Ditch (which is used to irrigate the Western Rivers Conservancy Property) is 18.75% (1.5 shares of 8 total shares). Therefore, the diversions attributable to the Western Rivers Conservancy Property are equal to 18.75% of the total ditch diversions. Data missing in 1986 filled with monthly average values from study period.

Table D-2
McKinley Ditch - Western Rivers Conservancy Property
Farm Headgate Deliveries
Irrigation through July - 194.5 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	185.6	311.3	246.9	0	0	0	0	0	743.7
1975	0	0	0	0	0	179.0	287.8	0	0	0	0	0	466.8
1976	0	0	0	0	182.5	309.4	202.6	0	0	0	0	0	694.5
1977	0	0	0	32.1	183.1	220.9	133.4	0	0	0	0	0	569.6
1978	0	0	0	0	131.2	311.3	257.6	0	0	0	0	0	700.1
1979	0	0	0	0	0	280.2	306.6	0	0	0	0	0	586.8
1980	0	0	0	0	21.4	285.8	230.1	0	0	0	0	0	537.3
1981	0	0	0	7.1	242.1	242.8	126.6	0	0	0	0	0	618.7
1982	0	0	0	0	75.0	308.3	299.6	0	0	0	0	0	682.8
1983	0	0	0	0	0	311.3	321.7	0	0	0	0	0	632.9
1984	0	0	0	0	28.9	289.2	256.1	0	0	0	0	0	574.2
1985	0	0	0	0	4.9	261.6	321.7	0	0	0	0	0	588.1
1986	0	0	0	1.4	96.1	213.8	186.0	0	0	0	0	0	497.3
1987	0	0	0	0	0	277.5	192.1	0	0	0	0	0	469.6
1988	0	0	0	0	182.4	311.3	288.7	0	0	0	0	0	782.4
1989	0	0	0	0	129.3	125.9	130.3	0	0	0	0	0	385.5
1990	0	0	0	0	144.8	177.2	123.9	0	0	0	0	0	445.8
1991	0	0	0	0	210.3	172.6	143.6	0	0	0	0	0	526.5
1992	0	0	0	0	77.7	191.5	149.4	0	0	0	0	0	418.5
1993	0	0	0	0	130.5	140.6	145.7	0	0	0	0	0	416.8
1994	0	0	0	0	124.1	149.4	132.3	0	0	0	0	0	405.8
1995	0	0	0	0	83.5	211.6	150.9	0	0	0	0	0	445.9
1996	0	0	0	4.2	112.0	145.0	133.0	0	0	0	0	0	394.1
1997	0	0	0	0	44.2	129.8	119.5	0	0	0	0	0	293.5
1998	0	0	0	0	16.1	110.4	143.0	0	0	0	0	0	269.5
1999	0	0	0	0	86.7	132.7	84.0	0	0	0	0	0	303.4
2000	0	0	0	0	158.1	147.0	88.8	0	0	0	0	0	393.8
2001	0	0	0	0	16.1	155.8	140.8	0	0	0	0	0	312.7
2002	0	0	0	0	126.3	115.5	74.2	0	0	0	0	0	316.0
2003	0	0	0	0	98.3	250.3	147.2	0	0	0	0	0	495.8
2004	0	0	0	0	34.4	105.3	136.4	0	0	0	0	0	276.1
2005	0	0	0	0	78.2	222.6	202.3	0	0	0	0	0	503.1
2006	0	0	0	0	149.5	261.5	158.8	0	0	0	0	0	569.8
2007	0	0	0	6.9	115.8	241.0	246.7	0	0	0	0	0	610.4
2008	0	0	0	0	28.9	155.9	261.9	0	0	0	0	0	446.7
2009	0	0	0	0	114.3	237.5	229.7	0	0	0	0	0	581.6
2010	0	0	0	0	43.5	251.8	135.6	0	0	0	0	0	431.0
2011	0	0	0	0	37.7	238.8	258.7	0	0	0	0	0	535.2
2012	0	0	0	5.5	226.9	166.4	124.0	0	0	0	0	0	522.8
2013	0	0	0	0	123.6	202.4	122.0	0	0	0	0	0	448.0
Min	0	0	0	0	0	105.3	74.2	0	0	0	0	0	269.5
Max	0	0	0	32.1	242.1	311.3	321.7	0	0	0	0	0	782.4
Avg	0	0	0	1.4	96.1	213.8	186.0	0	0	0	0	0	497.3

Notes: Equal to the total in-priority diversion in Table D-1, less 10% ditch loss.

Table D-3
McKinley Ditch - Western Rivers Conservancy Property
Crop Irrigation Requirements
Irrigation through July - 194.5 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0.6	55.3	75.3	81.2	62.6	35.5	5.9	0	0	316.5
1975	0	0	0	0	11.4	55.5	87.9	69.4	43.2	1.1	0	0	268.5
1976	0	0	0	0	36.3	65.3	82.4	50.8	35.0	4.8	0	0	274.5
1977	0	0	0	0	32.6	72.9	63.1	73.3	36.5	6.3	0	0	284.7
1978	0	0	0	0	31.4	72.6	74.7	79.5	49.6	5.1	0	0	312.8
1979	0	0	0	0	28.8	48.4	65.7	56.5	55.1	10.6	0	0	265.2
1980	0	0	0	0	21.2	75.0	83.1	78.8	45.8	4.8	0	0	308.7
1981	0	0	0	16.1	40.6	71.4	57.5	56.2	35.3	5.6	0	0	282.5
1982	0	0	0	0	34.6	66.5	80.9	69.1	16.4	4.2	0	0	271.6
1983	0	0	0	0	11.8	65.2	63.2	70.0	51.3	15.3	0	0	276.7
1984	0	0	0	2.3	52.5	47.9	86.1	69.1	41.0	3.1	0	0	301.9
1985	0	0	0	0.7	29.1	72.8	77.3	72.6	5.5	6.1	0	0	264.0
1986	0	0	0	3.4	33.7	68.3	73.2	63.1	24.6	5.5	0	0	271.9
1987	0	0	0	7.9	23.5	67.7	76.3	61.2	42.9	7.7	0	0	287.1
1988	0	0	0	6.2	40.1	79.8	85.0	60.8	31.7	14.2	0	0	317.8
1989	0	0	0	20.4	53.1	68.9	76.0	64.4	42.0	8.2	0	0	333.1
1990	0	0	0	0	38.1	77.0	77.2	68.6	28.8	5.7	0	0	295.4
1991	0	0	0	0	42.6	64.5	77.1	73.8	29.3	6.6	0	0	293.9
1992	0	0	0	24.4	16.1	67.6	58.8	53.5	46.5	12.4	0	0	279.3
1993	0	0	0	5.4	31.9	59.6	87.2	55.4	42.5	4.1	0	0	286.1
1994	0	0	0	9.3	49.5	71.5	97.9	70.3	30.6	8.6	0	0	337.8
1995	0	0	0	0.9	37.3	36.7	56.0	81.0	25.1	10.3	0	0	247.4
1996	0	0	0	9.2	53.3	69.2	92.9	89.0	13.4	3.8	0	0	330.8
1997	0	0	0	1.1	25.6	49.6	80.6	53.9	38.0	2.9	0	0	251.7
1998	0	0	0	0.4	41.3	65.1	94.7	67.9	45.7	3.5	0	0	318.5
1999	0	0	0	0	20.7	47.9	80.2	54.0	33.0	11.6	0	0	247.4
2000	0	0	0	19.9	42.5	72.9	83.7	78.6	34.9	9.3	0	0	341.9
2001	0	0	0	11.6	39.0	55.9	70.5	47.7	45.9	10.2	0	0	280.8
2002	0	0	0	16.7	49.0	80.8	89.7	54.4	9.8	2.1	0	0	302.5
2003	0	0	0	7.0	48.3	63.8	96.8	73.5	26.6	14.5	0	0	330.4
2004	0	0	0	0.5	50.4	71.0	85.3	65.3	26.5	9.5	0	0	308.3
2005	0	0	0	5.7	53.4	60.7	99.0	73.1	30.1	9.7	0	0	331.6
2006	0	0	0	16.4	47.6	71.7	71.2	60.0	12.0	0	0	0	278.9
2007	0	0	0	9.6	41.8	74.1	74.7	70.4	20.2	9.0	0	0	299.8
2008	0	0	0	0	29.7	63.8	82.3	81.6	36.8	8.6	0	0	302.8
2009	0	0	0	2.9	29.9	57.5	83.5	71.7	45.3	3.9	0	0	294.7
2010	0	0	0	2.8	41.8	73.8	98.5	54.8	40.2	8.5	0	0	320.4
2011	0	0	0	0	30.5	61.9	80.9	69.1	33.4	7.0	0	0	282.9
2012	0	0	0	14.0	39.9	65.3	58.0	58.9	33.3	11.5	0	0	280.9
2013	0	0	0	0	41.0	76.3	69.9	62.3	23.8	6.4	0	0	279.8
Avg	0	0	0	5.4	36.9	65.8	79.0	66.2	33.6	7.2	0	0	294.0
Avg/Ac	0	0	0	0.0	0.2	0.3	0.4	0.3	0.2	0.0	0	0	1.51

Notes: The crop irrigation requirement (CIR) was determined using StateCU.

194.5 acres of pasture grass were modeled, based on TR21 crop coefficients and an adjustment made for elevation.

Table D-4
McKinley Ditch - Western Rivers Conservancy Property
Water Available to Crop
Irrigation through July - 194.5 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	102.1	171.2	135.8	0	0	0	0	0	409.1
1975	0	0	0	0	0	98.5	158.3	0	0	0	0	0	256.7
1976	0	0	0	0	100.4	170.2	111.5	0	0	0	0	0	382.0
1977	0	0	0	17.7	100.7	121.5	73.4	0	0	0	0	0	313.3
1978	0	0	0	0	72.2	171.2	141.7	0	0	0	0	0	385.0
1979	0	0	0	0	0	154.1	168.6	0	0	0	0	0	322.7
1980	0	0	0	0	11.8	157.2	126.5	0	0	0	0	0	295.5
1981	0	0	0	3.9	133.2	133.6	69.6	0	0	0	0	0	340.3
1982	0	0	0	0	41.2	169.6	164.8	0	0	0	0	0	375.6
1983	0	0	0	0	0	171.2	176.9	0	0	0	0	0	348.1
1984	0	0	0	0	15.9	159.1	140.8	0	0	0	0	0	315.8
1985	0	0	0	0	2.7	143.9	176.9	0	0	0	0	0	323.5
1986	0	0	0	0.8	52.9	117.6	102.3	0	0	0	0	0	273.5
1987	0	0	0	0	0	152.6	105.7	0	0	0	0	0	258.3
1988	0	0	0	0	100.3	171.2	158.8	0	0	0	0	0	430.3
1989	0	0	0	0	71.1	69.2	71.7	0	0	0	0	0	212.0
1990	0	0	0	0	79.6	97.4	68.1	0	0	0	0	0	245.2
1991	0	0	0	0	115.7	94.9	79.0	0	0	0	0	0	289.6
1992	0	0	0	0	42.7	105.3	82.2	0	0	0	0	0	230.2
1993	0	0	0	0	71.8	77.3	80.2	0	0	0	0	0	229.2
1994	0	0	0	0	68.2	82.2	72.7	0	0	0	0	0	223.2
1995	0	0	0	0	45.9	116.4	83.0	0	0	0	0	0	245.3
1996	0	0	0	2.3	61.6	79.7	73.1	0	0	0	0	0	216.8
1997	0	0	0	0	24.3	71.4	65.7	0	0	0	0	0	161.4
1998	0	0	0	0	8.9	60.7	78.6	0	0	0	0	0	148.2
1999	0	0	0	0	47.7	73.0	46.2	0	0	0	0	0	166.9
2000	0	0	0	0	86.9	80.8	48.8	0	0	0	0	0	216.6
2001	0	0	0	0	8.8	85.7	77.4	0	0	0	0	0	172.0
2002	0	0	0	0	69.5	63.5	40.8	0	0	0	0	0	173.8
2003	0	0	0	0	54.1	137.7	80.9	0	0	0	0	0	272.7
2004	0	0	0	0	18.9	57.9	75.0	0	0	0	0	0	151.9
2005	0	0	0	0	43.0	122.4	111.3	0	0	0	0	0	276.7
2006	0	0	0	0	82.2	143.8	87.3	0	0	0	0	0	313.4
2007	0	0	0	3.8	63.7	132.5	135.7	0	0	0	0	0	335.7
2008	0	0	0	0	15.9	85.7	144.0	0	0	0	0	0	245.7
2009	0	0	0	0	62.8	130.7	126.4	0	0	0	0	0	319.9
2010	0	0	0	0	23.9	138.5	74.6	0	0	0	0	0	237.0
2011	0	0	0	0	20.7	131.4	142.3	0	0	0	0	0	294.4
2012	0	0	0	3.0	124.8	91.5	68.2	0	0	0	0	0	287.5
2013	0	0	0	0	68.0	111.3	67.1	0	0	0	0	0	246.4
Min	0	0	0	0	0	57.9	40.8	0	0	0	0	0	148.2
Max	0	0	0	17.7	133.2	171.2	176.9	0	0	0	0	0	430.3
Avg	0	0	0	0.8	52.9	117.6	102.3	0	0	0	0	0	273.5

Notes: Equal to the farm headgate delivery in Table D-2, multiplied by 55% to account for application efficiency.

Table D-5
McKinley Ditch - Western Rivers Conservancy Property
Consumptive Use
Irrigation through July - 194.5 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0.6	55.3	75.3	81.2	62.6	14.4	0	0	0	289.5
1975	0	0	0	0	0	55.5	87.9	69.4	7.6	0	0	0	220.5
1976	0	0	0	0	36.3	65.3	82.4	50.8	26.2	0	0	0	260.9
1977	0	0	0	0	32.6	72.9	63.1	73.3	3.7	0	0	0	245.6
1978	0	0	0	0	31.4	72.6	74.7	77.0	0	0	0	0	255.7
1979	0	0	0	0	0	48.4	65.7	56.5	20.5	0	0	0	191.2
1980	0	0	0	0	11.8	75.0	83.1	77.0	0	0	0	0	246.8
1981	0	0	0	3.9	40.6	71.4	57.5	56.2	20.9	0	0	0	250.4
1982	0	0	0	0	34.6	66.5	80.9	69.1	7.9	0	0	0	259.0
1983	0	0	0	0	0	65.2	63.2	70.0	7.0	0	0	0	205.3
1984	0	0	0	0	15.9	47.9	86.1	69.1	7.9	0	0	0	226.9
1985	0	0	0	0	2.7	72.8	77.3	72.6	4.5	0	0	0	229.9
1986	0	0	0	0.8	33.7	68.3	73.2	63.1	13.9	0	0	0	253.0
1987	0	0	0	0	0	67.7	76.3	61.2	15.9	0	0	0	221.0
1988	0	0	0	0	40.1	79.8	85.0	60.8	16.3	0	0	0	281.9
1989	0	0	0	0	53.1	68.9	76.0	13.9	0	0	0	0	212.0
1990	0	0	0	0	38.1	77.0	77.2	53.0	0	0	0	0	245.2
1991	0	0	0	0	42.6	64.5	77.1	73.8	3.2	0	0	0	261.2
1992	0	0	0	0	16.1	67.6	58.8	53.5	23.6	0	0	0	219.5
1993	0	0	0	0	31.9	59.6	87.2	50.5	0	0	0	0	229.2
1994	0	0	0	0	49.5	71.5	97.9	4.3	0	0	0	0	223.2
1995	0	0	0	0	37.3	36.7	56.0	77.0	0	0	0	0	207.0
1996	0	0	0	2.3	53.3	69.2	92.0	0	0	0	0	0	216.8
1997	0	0	0	0	24.3	49.6	80.6	6.9	0	0	0	0	161.4
1998	0	0	0	0	8.9	60.7	78.6	0	0	0	0	0	148.2
1999	0	0	0	0	20.7	47.9	80.2	18.1	0	0	0	0	166.9
2000	0	0	0	0	42.5	72.9	83.7	17.4	0	0	0	0	216.6
2001	0	0	0	0	8.8	55.9	70.5	36.7	0	0	0	0	172.0
2002	0	0	0	0	49.0	80.8	44.0	0	0	0	0	0	173.8
2003	0	0	0	0	48.3	63.8	96.8	61.2	0	0	0	0	270.1
2004	0	0	0	0	18.9	57.9	75.0	0	0	0	0	0	151.9
2005	0	0	0	0	43.0	60.7	99.0	73.1	1.0	0	0	0	276.7
2006	0	0	0	0	47.6	71.7	71.2	60.0	12.0	0	0	0	262.5
2007	0	0	0	8.8	41.8	74.1	74.7	70.4	6.6	0	0	0	276.5
2008	0	0	0	0	15.9	63.8	82.3	77.0	0	0	0	0	239.0
2009	0	0	0	0	29.9	57.5	83.5	71.7	5.3	0	0	0	247.8
2010	0	0	0	0	23.9	73.8	98.5	40.7	0	0	0	0	237.0
2011	0	0	0	0	20.7	61.9	80.9	69.1	8.0	0	0	0	240.5
2012	0	0	0	3.0	39.9	65.3	58.0	58.9	18.1	0	0	0	243.3
2013	0	0	0	0	41.0	76.3	69.9	59.2	0	0	0	0	246.4
Min	0	0	0	0	0	36.7	44.0	0	0	0	0	0	148.2
Max	0	0	0	8.8	55.3	80.8	99.0	77.0	26.2	0	0	0	289.5
Avg	0	0	0	0.5	29.5	65.4	77.2	50.9	6.1	0	0	0	229.6

Notes: Equal to the consumptive use, calculated in the StateCU model. Consumptive use includes water used directly to meet the crop irrigation requirement and water used to fill the soil moisture reservoir for later crop use.

Table D-6
McKinley Ditch - Western Rivers Conservancy Property
Surface Water Return Flow
Irrigation through July - 194.5 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	77.8	141.6	99.4	0	0	0	0	0	318.8
1975	0	0	0	0	0	48.3	99.4	0	0	0	0	0	147.8
1976	0	0	0	0	49.3	138.7	72.2	0	0	0	0	0	260.2
1977	0	0	0	8.7	54.7	88.8	42.2	0	0	0	0	0	194.4
1978	0	0	0	0	35.4	121.5	109.7	0	0	0	0	0	266.6
1979	0	0	0	0	0	92.8	144.5	0	0	0	0	0	237.3
1980	0	0	0	0	5.8	80.3	88.2	0	0	0	0	0	174.3
1981	0	0	0	1.9	74.7	102.9	41.4	0	0	0	0	0	221.0
1982	0	0	0	0	20.2	102.8	131.2	0	0	0	0	0	254.3
1983	0	0	0	0	0	101.5	155.1	0	0	0	0	0	256.6
1984	0	0	0	0	7.8	98.6	102.0	0	0	0	0	0	208.4
1985	0	0	0	0	1.3	70.6	143.0	0	0	0	0	0	214.9
1986	0	0	0	0.4	25.9	57.7	62.5	0	0	0	0	0	146.6
1987	0	0	0	0	0	79.7	69.5	0	0	0	0	0	149.2
1988	0	0	0	0	49.3	128.8	122.2	0	0	0	0	0	300.3
1989	0	0	0	0	34.9	34.0	35.2	0	0	0	0	0	104.1
1990	0	0	0	0	39.1	47.8	33.4	0	0	0	0	0	120.4
1991	0	0	0	0	56.8	62.4	39.9	0	0	0	0	0	159.2
1992	0	0	0	0	21.0	51.7	46.7	0	0	0	0	0	119.4
1993	0	0	0	0	35.2	37.9	39.3	0	0	0	0	0	112.5
1994	0	0	0	0	33.5	40.4	35.7	0	0	0	0	0	109.6
1995	0	0	0	0	22.5	63.9	56.9	0	0	0	0	0	143.4
1996	0	0	0	1.1	30.2	39.1	35.9	0	0	0	0	0	106.4
1997	0	0	0	0	11.9	35.0	32.3	0	0	0	0	0	79.2
1998	0	0	0	0	4.3	29.8	38.6	0	0	0	0	0	72.8
1999	0	0	0	0	23.4	35.8	22.7	0	0	0	0	0	81.9
2000	0	0	0	0	42.7	39.7	24.0	0	0	0	0	0	106.3
2001	0	0	0	0	4.3	42.1	38.0	0	0	0	0	0	84.4
2002	0	0	0	0	34.1	31.2	20.0	0	0	0	0	0	85.3
2003	0	0	0	0	26.5	69.2	39.7	0	0	0	0	0	135.4
2004	0	0	0	0	9.3	28.4	36.8	0	0	0	0	0	74.6
2005	0	0	0	0	21.1	60.1	54.6	0	0	0	0	0	135.8
2006	0	0	0	0	40.4	88.5	52.5	0	0	0	0	0	181.4
2007	0	0	0	1.9	31.3	67.0	103.2	0	0	0	0	0	203.4
2008	0	0	0	0	7.8	42.1	74.7	0	0	0	0	0	124.6
2009	0	0	0	0	30.8	81.6	87.8	0	0	0	0	0	200.2
2010	0	0	0	0	11.7	68.0	36.6	0	0	0	0	0	116.4
2011	0	0	0	0	10.2	64.5	102.2	0	0	0	0	0	176.8
2012	0	0	0	1.5	66.0	60.7	39.6	0	0	0	0	0	167.7
2013	0	0	0	0	33.4	54.6	33.0	0	0	0	0	0	121.0
Min	0	0	0	0	0	28.4	20.0	0	0	0	0	0	72.8
Max	0	0	0	8.7	77.8	141.6	155.1	0	0	0	0	0	318.8
Avg	0	0	0	0.4	27.1	68.3	66.1	0	0	0	0	0	161.8

Notes: Equal to the total return flow calculated in the StateCU model, multiplied by 60% (60% of all return flows from the lands irrigated on the Western Rivers Conservancy Property returned back to the river through surface runoff).

BBA
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Table D-7
McKinley Ditch - Western Rivers Conservancy Property
Deep Percolation
Irrigation through July - 194.5 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	51.9	94.4	66.2	0	0	0	0	0	212.5
1975	0	0	0	0	0	32.2	66.3	0	0	0	0	0	98.5
1976	0	0	0	0	32.8	92.5	48.1	0	0	0	0	0	173.4
1977	0	0	0	5.8	36.5	59.2	28.1	0	0	0	0	0	129.6
1978	0	0	0	0	23.6	81.0	73.1	0	0	0	0	0	177.7
1979	0	0	0	0	0	61.9	96.3	0	0	0	0	0	158.2
1980	0	0	0	0	3.9	53.5	58.8	0	0	0	0	0	116.2
1981	0	0	0	1.3	49.8	68.6	27.6	0	0	0	0	0	147.3
1982	0	0	0	0	13.5	68.6	87.5	0	0	0	0	0	169.5
1983	0	0	0	0	0	67.6	103.4	0	0	0	0	0	171.0
1984	0	0	0	0	5.2	65.7	68.0	0	0	0	0	0	138.9
1985	0	0	0	0	0.9	47.1	95.3	0	0	0	0	0	143.3
1986	0	0	0	0.3	17.3	38.5	41.7	0	0	0	0	0	97.7
1987	0	0	0	0	0	53.1	46.3	0	0	0	0	0	99.4
1988	0	0	0	0	32.8	85.9	81.5	0	0	0	0	0	200.2
1989	0	0	0	0	23.3	22.7	23.5	0	0	0	0	0	69.4
1990	0	0	0	0	26.1	31.9	22.3	0	0	0	0	0	80.2
1991	0	0	0	0	37.9	41.6	26.6	0	0	0	0	0	106.1
1992	0	0	0	0	14.0	34.5	31.2	0	0	0	0	0	79.6
1993	0	0	0	0	23.5	25.3	26.2	0	0	0	0	0	75.0
1994	0	0	0	0	22.3	26.9	23.8	0	0	0	0	0	73.0
1995	0	0	0	0	15.0	42.6	37.9	0	0	0	0	0	95.6
1996	0	0	0	0.8	20.2	26.1	23.9	0	0	0	0	0	70.9
1997	0	0	0	0	8.0	23.4	21.5	0	0	0	0	0	52.8
1998	0	0	0	0	2.9	19.9	25.7	0	0	0	0	0	48.5
1999	0	0	0	0	15.6	23.9	15.1	0	0	0	0	0	54.6
2000	0	0	0	0	28.5	26.5	16.0	0	0	0	0	0	70.9
2001	0	0	0	0	2.9	28.1	25.3	0	0	0	0	0	56.3
2002	0	0	0	0	22.7	20.8	13.4	0	0	0	0	0	56.9
2003	0	0	0	0	17.7	46.1	26.5	0	0	0	0	0	90.3
2004	0	0	0	0	6.2	19.0	24.6	0	0	0	0	0	49.7
2005	0	0	0	0	14.1	40.1	36.4	0	0	0	0	0	90.6
2006	0	0	0	0	26.9	59.0	35.0	0	0	0	0	0	120.9
2007	0	0	0	1.2	20.8	44.7	68.8	0	0	0	0	0	135.6
2008	0	0	0	0	5.2	28.1	49.8	0	0	0	0	0	83.1
2009	0	0	0	0	20.6	54.4	58.5	0	0	0	0	0	133.5
2010	0	0	0	0	7.8	45.3	24.4	0	0	0	0	0	77.6
2011	0	0	0	0	6.8	43.0	68.1	0	0	0	0	0	117.9
2012	0	0	0	1.0	44.0	40.4	26.4	0	0	0	0	0	111.8
2013	0	0	0	0	22.2	36.4	22.0	0	0	0	0	0	80.6
Min	0	0	0	0	0	19.0	13.4	0	0	0	0	0	48.5
Max	0	0	0	5.8	51.9	94.4	103.4	0	0	0	0	0	212.5
Avg	0	0	0	0.3	18.1	45.5	44.0	0	0	0	0	0	107.9

Notes: Equal to the total return flow calculated in the StateCU model, multiplied by 40% (40% of all return flows from the lands irrigated on the Western
Rivers Conservancy Property returned back to the river through deep percolation).

Table D-8
McKinley Ditch - Western Rivers Conservancy Property
Total In-Priority Diversions
Irrigation through July - 87.5625 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	206.2	345.9	274.3	0	0	0	0	0	826.4
1975	0	0	0	0	0	198.9	319.8	0	0	0	0	0	518.7
1976	0	0	0	0	202.8	343.8	225.2	0	0	0	0	0	771.7
1977	0	0	0	35.7	203.4	245.5	148.2	0	0	0	0	0	632.8
1978	0	0	0	0	145.8	345.9	286.2	0	0	0	0	0	777.8
1979	0	0	0	0	0	311.3	340.7	0	0	0	0	0	652.0
1980	0	0	0	0	23.8	317.6	255.6	0	0	0	0	0	597.0
1981	0	0	0	7.9	269.0	269.8	140.7	0	0	0	0	0	687.4
1982	0	0	0	0	83.3	342.5	332.9	0	0	0	0	0	758.7
1983	0	0	0	0	0	345.9	357.4	0	0	0	0	0	703.3
1984	0	0	0	0	32.1	321.3	284.5	0	0	0	0	0	638.0
1985	0	0	0	0	5.4	290.6	357.4	0	0	0	0	0	653.4
1986	0	0	0	1.6	106.8	237.6	206.7	0	0	0	0	0	552.6
1987	0	0	0	0	0	308.3	213.5	0	0	0	0	0	521.8
1988	0	0	0	0	202.7	345.9	320.8	0	0	0	0	0	869.3
1989	0	0	0	0	143.6	139.8	144.8	0	0	0	0	0	428.3
1990	0	0	0	0	160.9	196.9	137.6	0	0	0	0	0	495.4
1991	0	0	0	0	233.7	191.7	159.6	0	0	0	0	0	585.0
1992	0	0	0	0	86.3	212.7	166.0	0	0	0	0	0	465.1
1993	0	0	0	0	145.0	156.2	161.9	0	0	0	0	0	463.1
1994	0	0	0	0	137.9	166.0	147.0	0	0	0	0	0	450.9
1995	0	0	0	0	92.7	235.1	167.7	0	0	0	0	0	495.5
1996	0	0	0	4.7	124.4	161.1	147.7	0	0	0	0	0	437.9
1997	0	0	0	0	49.1	144.2	132.8	0	0	0	0	0	326.1
1998	0	0	0	0	17.9	122.7	158.9	0	0	0	0	0	299.5
1999	0	0	0	0	96.4	147.5	93.3	0	0	0	0	0	337.1
2000	0	0	0	0	175.6	163.3	98.6	0	0	0	0	0	437.6
2001	0	0	0	0	17.9	173.2	156.4	0	0	0	0	0	347.4
2002	0	0	0	0	140.3	128.3	82.4	0	0	0	0	0	351.1
2003	0	0	0	0	109.2	278.1	163.5	0	0	0	0	0	550.8
2004	0	0	0	0	38.2	117.0	151.6	0	0	0	0	0	306.8
2005	0	0	0	0	86.9	247.3	224.8	0	0	0	0	0	559.0
2006	0	0	0	0	166.1	290.5	176.4	0	0	0	0	0	633.1
2007	0	0	0	7.7	128.6	267.8	274.1	0	0	0	0	0	678.2
2008	0	0	0	0	32.1	173.2	291.0	0	0	0	0	0	496.3
2009	0	0	0	0	127.0	263.9	255.3	0	0	0	0	0	646.2
2010	0	0	0	0	48.3	279.8	150.7	0	0	0	0	0	478.8
2011	0	0	0	0	41.8	265.4	287.5	0	0	0	0	0	594.7
2012	0	0	0	6.1	252.1	184.9	137.8	0	0	0	0	0	580.9
2013	0	0	0	0	137.3	224.9	135.6	0	0	0	0	0	497.8
Min	0	0	0	0	0	117.0	82.4	0	0	0	0	0	299.5
Max	0	0	0	35.7	269.0	345.9	357.4	0	0	0	0	0	869.3
Avg	0	0	0	1.6	106.8	237.6	206.7	0	0	0	0	0	552.6

Notes:　Daily diversion records (for irrigation only) acquired from the Colorado Decision Support System (CDSS).

Daily diversions are limited to the McKinley Ditch water rights priority on each day.

The Colorado Water Trust portion of the McKinley Ditch (which is used to irrigate the Western Rivers Conservancy Property) is 18.75% (1.5 shares of 8 total shares). Therefore, the diversions attributable to the Western Rivers Conservancy Property are equal to 18.75% of the total ditch diversions. Data missing in 1986 filled with monthly average values from study period.

Table D-9
McKinley Ditch - Western Rivers Conservancy Property
Farm Headgate Deliveries
Irrigation through July - 87.5625 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	185.6	311.3	246.9	0	0	0	0	0	743.7
1975	0	0	0	0	0	179.0	287.8	0	0	0	0	0	466.8
1976	0	0	0	0	182.5	309.4	202.6	0	0	0	0	0	694.5
1977	0	0	0	32.1	183.1	220.9	133.4	0	0	0	0	0	569.6
1978	0	0	0	0	131.2	311.3	257.6	0	0	0	0	0	700.1
1979	0	0	0	0	0	280.2	306.6	0	0	0	0	0	586.8
1980	0	0	0	0	21.4	285.8	230.1	0	0	0	0	0	537.3
1981	0	0	0	7.1	242.1	242.8	126.6	0	0	0	0	0	618.7
1982	0	0	0	0	75.0	308.3	299.6	0	0	0	0	0	682.8
1983	0	0	0	0	0	311.3	321.7	0	0	0	0	0	632.9
1984	0	0	0	0	28.9	289.2	256.1	0	0	0	0	0	574.2
1985	0	0	0	0	4.9	261.6	321.7	0	0	0	0	0	588.1
1986	0	0	0	1.4	96.1	213.8	186.0	0	0	0	0	0	497.3
1987	0	0	0	0	0	277.5	192.1	0	0	0	0	0	469.6
1988	0	0	0	0	182.4	311.3	288.7	0	0	0	0	0	782.4
1989	0	0	0	0	129.3	125.9	130.3	0	0	0	0	0	385.5
1990	0	0	0	0	144.8	177.2	123.9	0	0	0	0	0	445.8
1991	0	0	0	0	210.3	172.6	143.6	0	0	0	0	0	526.5
1992	0	0	0	0	77.7	191.5	149.4	0	0	0	0	0	418.5
1993	0	0	0	0	130.5	140.6	145.7	0	0	0	0	0	416.8
1994	0	0	0	0	124.1	149.4	132.3	0	0	0	0	0	405.8
1995	0	0	0	0	83.5	211.6	150.9	0	0	0	0	0	445.9
1996	0	0	0	4.2	112.0	145.0	133.0	0	0	0	0	0	394.1
1997	0	0	0	0	44.2	129.8	119.5	0	0	0	0	0	293.5
1998	0	0	0	0	16.1	110.4	143.0	0	0	0	0	0	269.5
1999	0	0	0	0	86.7	132.7	84.0	0	0	0	0	0	303.4
2000	0	0	0	0	158.1	147.0	88.8	0	0	0	0	0	393.8
2001	0	0	0	0	16.1	155.8	140.8	0	0	0	0	0	312.7
2002	0	0	0	0	126.3	115.5	74.2	0	0	0	0	0	316.0
2003	0	0	0	0	98.3	250.3	147.2	0	0	0	0	0	495.8
2004	0	0	0	0	34.4	105.3	136.4	0	0	0	0	0	276.1
2005	0	0	0	0	78.2	222.6	202.3	0	0	0	0	0	503.1
2006	0	0	0	0	149.5	261.5	158.8	0	0	0	0	0	569.8
2007	0	0	0	6.9	115.8	241.0	246.7	0	0	0	0	0	610.4
2008	0	0	0	0	28.9	155.9	261.9	0	0	0	0	0	446.7
2009	0	0	0	0	114.3	237.5	229.7	0	0	0	0	0	581.6
2010	0	0	0	0	43.5	251.8	135.6	0	0	0	0	0	431.0
2011	0	0	0	0	37.7	238.8	258.7	0	0	0	0	0	535.2
2012	0	0	0	5.5	226.9	166.4	124.0	0	0	0	0	0	522.8
2013	0	0	0	0	123.6	202.4	122.0	0	0	0	0	0	448.0
Min	0	0	0	0	0	105.3	74.2	0	0	0	0	0	269.5
Max	0	0	0	32.1	242.1	311.3	321.7	0	0	0	0	0	782.4
Avg	0	0	0	1.4	96.1	213.8	186.0	0	0	0	0	0	497.3

Notes: Equal to the total in-priority diversion in Table D-8, less 10% ditch loss.

Table D-10
McKinley Ditch - Western Rivers Conservancy Property
Crop Irrigation Requirements
Irrigation through July - 87.5625 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0.3	24.9	33.9	36.6	28.2	16.0	2.7	0	0	142.5
1975	0	0	0	0	5.1	25.0	39.6	31.2	19.5	0.5	0	0	120.9
1976	0	0	0	0	16.3	29.4	37.1	22.9	15.8	2.1	0	0	123.6
1977	0	0	0	0	14.7	32.8	28.4	33.0	16.4	2.8	0	0	128.2
1978	0	0	0	0	14.1	32.7	33.6	35.8	22.3	2.3	0	0	140.8
1979	0	0	0	0	13.0	21.8	29.6	25.4	24.8	4.8	0	0	119.4
1980	0	0	0	0	9.6	33.8	37.4	35.5	20.6	2.2	0	0	139.0
1981	0	0	0	7.3	18.3	32.1	25.9	25.3	15.9	2.5	0	0	127.2
1982	0	0	0	0	15.6	29.9	36.4	31.1	7.4	1.9	0	0	122.3
1983	0	0	0	0	5.3	29.3	28.4	31.5	23.1	6.9	0	0	124.6
1984	0	0	0	1.0	23.6	21.6	38.8	31.1	18.4	1.4	0	0	135.9
1985	0	0	0	0.3	13.1	32.8	34.8	32.7	2.5	2.7	0	0	118.9
1986	0	0	0	1.5	15.2	30.8	32.9	28.4	11.1	2.5	0	0	122.4
1987	0	0	0	3.5	10.6	30.5	34.4	27.5	19.3	3.5	0	0	129.2
1988	0	0	0	2.8	18.0	35.9	38.2	27.4	14.3	6.4	0	0	143.1
1989	0	0	0	9.2	23.9	31.0	34.2	29.0	18.9	3.7	0	0	149.9
1990	0	0	0	0	17.1	34.7	34.8	30.9	13.0	2.6	0	0	133.0
1991	0	0	0	0	19.2	29.0	34.7	33.2	13.2	3.0	0	0	132.3
1992	0	0	0	11.0	7.3	30.4	26.5	24.1	20.9	5.6	0	0	125.7
1993	0	0	0	2.4	14.4	26.8	39.2	25.0	19.1	1.8	0	0	128.8
1994	0	0	0	4.2	22.3	32.2	44.1	31.6	13.8	3.9	0	0	152.1
1995	0	0	0	0.4	16.8	16.5	25.2	36.5	11.3	4.6	0	0	111.4
1996	0	0	0	4.1	24.0	31.1	41.8	40.1	6.1	1.7	0	0	148.9
1997	0	0	0	0.5	11.5	22.3	36.3	24.2	17.1	1.3	0	0	113.3
1998	0	0	0	0.2	18.6	29.3	42.6	30.6	20.6	1.6	0	0	143.4
1999	0	0	0	0	9.3	21.6	36.1	24.3	14.9	5.2	0	0	111.4
2000	0	0	0	8.9	19.1	32.8	37.7	35.4	15.7	4.2	0	0	153.9
2001	0	0	0	5.2	17.6	25.2	31.8	21.5	20.7	4.6	0	0	126.4
2002	0	0	0	7.5	22.0	36.4	40.4	24.5	4.4	1.0	0	0	136.2
2003	0	0	0	3.1	21.7	28.7	43.6	33.1	12.0	6.5	0	0	148.7
2004	0	0	0	0.2	22.7	31.9	38.4	29.4	11.9	4.3	0	0	138.8
2005	0	0	0	2.5	24.1	27.3	44.6	32.9	13.6	4.4	0	0	149.3
2006	0	0	0	7.4	21.4	32.3	32.1	27.0	5.4	0	0	0	125.6
2007	0	0	0	4.3	18.8	33.4	33.6	31.7	9.1	4.1	0	0	135.0
2008	0	0	0	0	13.4	28.7	37.1	36.7	16.6	3.9	0	0	136.3
2009	0	0	0	1.3	13.5	25.9	37.6	32.3	20.4	1.8	0	0	132.7
2010	0	0	0	1.2	18.8	33.2	44.4	24.7	18.1	3.8	0	0	144.3
2011	0	0	0	0	13.8	27.9	36.4	31.1	15.1	3.2	0	0	127.4
2012	0	0	0	6.3	18.0	29.4	26.1	26.5	15.0	5.2	0	0	126.5
2013	0	0	0	0	18.5	34.4	31.5	28.0	10.7	2.9	0	0	126.0
Avg	0	0	0	2.4	16.6	29.6	35.6	29.8	15.1	3.2	0	0	132.4
Avg/Ac	0	0	0	0.0	0.2	0.3	0.4	0.3	0.2	0.0	0	0	1.51

Notes: The crop irrigation requirement (CIR) was determined using StateCU.

87.5625 acres of pasture grass were modeled, based on TR21 crop coefficients and an adjustment made for elevation.

Table D-11
McKinley Ditch - Western Rivers Conservancy Property
Water Available to Crop
Irrigation through July - 87.5625 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	102.1	171.2	135.8	0	0	0	0	0	409.1
1975	0	0	0	0	0	98.5	158.3	0	0	0	0	0	256.7
1976	0	0	0	0	100.4	170.2	111.5	0	0	0	0	0	382.0
1977	0	0	0	17.7	100.7	121.5	73.4	0	0	0	0	0	313.3
1978	0	0	0	0	72.2	171.2	141.7	0	0	0	0	0	385.0
1979	0	0	0	0	0	154.1	168.6	0	0	0	0	0	322.7
1980	0	0	0	0	11.8	157.2	126.5	0	0	0	0	0	295.5
1981	0	0	0	3.9	133.2	133.6	69.6	0	0	0	0	0	340.3
1982	0	0	0	0	41.2	169.6	164.8	0	0	0	0	0	375.6
1983	0	0	0	0	0	171.2	176.9	0	0	0	0	0	348.1
1984	0	0	0	0	15.9	159.1	140.8	0	0	0	0	0	315.8
1985	0	0	0	0	2.7	143.9	176.9	0	0	0	0	0	323.5
1986	0	0	0	0.8	52.9	117.6	102.3	0	0	0	0	0	273.5
1987	0	0	0	0	0	152.6	105.7	0	0	0	0	0	258.3
1988	0	0	0	0	100.3	171.2	158.8	0	0	0	0	0	430.3
1989	0	0	0	0	71.1	69.2	71.7	0	0	0	0	0	212.0
1990	0	0	0	0	79.6	97.4	68.1	0	0	0	0	0	245.2
1991	0	0	0	0	115.7	94.9	79.0	0	0	0	0	0	289.6
1992	0	0	0	0	42.7	105.3	82.2	0	0	0	0	0	230.2
1993	0	0	0	0	71.8	77.3	80.2	0	0	0	0	0	229.2
1994	0	0	0	0	68.2	82.2	72.7	0	0	0	0	0	223.2
1995	0	0	0	0	45.9	116.4	83.0	0	0	0	0	0	245.3
1996	0	0	0	2.3	61.6	79.7	73.1	0	0	0	0	0	216.8
1997	0	0	0	0	24.3	71.4	65.7	0	0	0	0	0	161.4
1998	0	0	0	0	8.9	60.7	78.6	0	0	0	0	0	148.2
1999	0	0	0	0	47.7	73.0	46.2	0	0	0	0	0	166.9
2000	0	0	0	0	86.9	80.8	48.8	0	0	0	0	0	216.6
2001	0	0	0	0	8.8	85.7	77.4	0	0	0	0	0	172.0
2002	0	0	0	0	69.5	63.5	40.8	0	0	0	0	0	173.8
2003	0	0	0	0	54.1	137.7	80.9	0	0	0	0	0	272.7
2004	0	0	0	0	18.9	57.9	75.0	0	0	0	0	0	151.9
2005	0	0	0	0	43.0	122.4	111.3	0	0	0	0	0	276.7
2006	0	0	0	0	82.2	143.8	87.3	0	0	0	0	0	313.4
2007	0	0	0	3.8	63.7	132.5	135.7	0	0	0	0	0	335.7
2008	0	0	0	0	15.9	85.7	144.0	0	0	0	0	0	245.7
2009	0	0	0	0	62.8	130.7	126.4	0	0	0	0	0	319.9
2010	0	0	0	0	23.9	138.5	74.6	0	0	0	0	0	237.0
2011	0	0	0	0	20.7	131.4	142.3	0	0	0	0	0	294.4
2012	0	0	0	3.0	124.8	91.5	68.2	0	0	0	0	0	287.5
2013	0	0	0	0	68.0	111.3	67.1	0	0	0	0	0	246.4
Min	0	0	0	0	0	57.9	40.8	0	0	0	0	0	148.2
Max	0	0	0	17.7	133.2	171.2	176.9	0	0	0	0	0	430.3
Avg	0	0	0	0.8	52.9	117.6	102.3	0	0	0	0	0	273.5

Notes: Equal to the farm headgate delivery in Table D-9, multiplied by 55% to account for application efficiency.

BBA
water consultants *BISHOP-BROGDEN ASSOCIATES, INC.*

Table D-12
McKinley Ditch - Western Rivers Conservancy Property
Consumptive Use
Irrigation through July - 87.5625 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0.3	24.9	33.9	36.6	28.2	6.5	0	0	0	130.3
1975	0	0	0	0	0	25.0	39.6	31.2	3.4	0	0	0	99.3
1976	0	0	0	0	16.3	29.4	37.1	22.9	11.8	0	0	0	117.5
1977	0	0	0	0	14.7	32.8	28.4	33.0	1.7	0	0	0	110.6
1978	0	0	0	0	14.1	32.7	33.6	34.7	0	0	0	0	115.1
1979	0	0	0	0	0	21.8	29.6	25.4	9.2	0	0	0	86.1
1980	0	0	0	0	9.6	33.8	37.4	34.7	0	0	0	0	115.4
1981	0	0	0	3.9	18.3	32.1	25.9	25.3	9.4	0	0	0	114.9
1982	0	0	0	0	15.6	29.9	36.4	31.1	3.6	0	0	0	116.6
1983	0	0	0	0	0	29.3	28.4	31.5	3.2	0	0	0	92.4
1984	0	0	0	0	15.9	21.6	38.8	31.1	3.6	0	0	0	110.9
1985	0	0	0	0	2.7	32.8	34.8	32.7	2.0	0	0	0	104.9
1986	0	0	0	0.8	15.2	30.8	32.9	28.4	6.3	0	0	0	114.3
1987	0	0	0	0	0	30.5	34.4	27.5	7.1	0	0	0	99.5
1988	0	0	0	0	18.0	35.9	38.2	27.4	7.3	0	0	0	126.9
1989	0	0	0	0	23.9	31.0	34.2	29.0	5.7	0	0	0	123.8
1990	0	0	0	0	17.1	34.7	34.8	30.9	3.8	0	0	0	121.2
1991	0	0	0	0	19.2	29.0	34.7	33.2	1.5	0	0	0	117.6
1992	0	0	0	0	7.3	30.4	26.5	24.1	10.6	0	0	0	98.8
1993	0	0	0	0	14.4	26.8	39.2	25.0	9.7	0	0	0	115.1
1994	0	0	0	0	22.3	32.2	44.1	31.6	3.0	0	0	0	133.2
1995	0	0	0	0	16.8	16.5	25.2	34.7	0	0	0	0	93.2
1996	0	0	0	2.3	24.0	31.1	41.8	34.7	0	0	0	0	133.9
1997	0	0	0	0	11.5	22.3	36.3	24.2	10.4	0	0	0	104.8
1998	0	0	0	0	8.9	29.3	42.6	30.6	4.1	0	0	0	115.4
1999	0	0	0	0	9.3	21.6	36.1	24.3	10.4	0	0	0	101.7
2000	0	0	0	0	19.1	32.8	37.7	34.7	0	0	0	0	124.3
2001	0	0	0	0	8.8	25.2	31.8	21.5	13.2	0	0	0	100.4
2002	0	0	0	0	22.0	36.4	40.4	24.5	4.4	1.0	0	0	128.7
2003	0	0	0	3.1	21.7	28.7	43.6	33.1	1.6	0	0	0	131.8
2004	0	0	0	0	18.9	31.9	38.4	29.4	5.3	0	0	0	123.9
2005	0	0	0	0	24.1	27.3	44.6	32.9	1.8	0	0	0	130.6
2006	0	0	0	0	21.4	32.3	32.1	27.0	5.4	0	0	0	118.2
2007	0	0	0	4.3	18.8	33.4	33.6	31.7	3.0	0	0	0	124.8
2008	0	0	0	0	13.4	28.7	37.1	34.7	0	0	0	0	113.8
2009	0	0	0	0	13.5	25.9	37.6	32.3	2.4	0	0	0	111.6
2010	0	0	0	0	18.8	33.2	44.4	24.7	10.0	0	0	0	131.1
2011	0	0	0	0	13.8	27.9	36.4	31.1	3.6	0	0	0	112.7
2012	0	0	0	3.0	18.0	29.4	26.1	26.5	8.2	0	0	0	111.2
2013	0	0	0	0	18.5	34.4	31.5	28.0	6.6	0	0	0	119.0
Min	0	0	0	0	0	16.5	25.2	21.5	0	0	0	0	86.1
Max	0	0	0	4.3	24.9	36.4	44.6	34.7	13.2	1.0	0	0	133.9
Avg	0	0	0	0.4	14.8	29.6	35.6	29.5	5.0	0.0	0	0	114.9

Notes: Equal to the consumptive use, calculated in the StateCU model. Consumptive use includes water used directly to meet the crop irrigation requirement and water used to fill the soil moisture reservoir for later crop use.

Table D-13
McKinley Ditch - Western Rivers Conservancy Property
Surface Water Return Flow
Irrigation through July - 87.5625 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	96.3	166.4	126.2	0	0	0	0	0	388.9
1975	0	0	0	0	0	71.6	148.9	0	0	0	0	0	220.5
1976	0	0	0	0	78.9	168.0	99.3	0	0	0	0	0	346.2
1977	0	0	0	8.7	90.9	112.8	63.0	0	0	0	0	0	275.4
1978	0	0	0	0	49.4	167.2	134.4	0	0	0	0	0	351.0
1979	0	0	0	0	0	134.2	166.2	0	0	0	0	0	300.4
1980	0	0	0	0	5.8	131.8	115.6	0	0	0	0	0	253.2
1981	0	0	0	1.9	113.5	126.4	60.4	0	0	0	0	0	302.3
1982	0	0	0	0	20.2	161.6	157.9	0	0	0	0	0	339.7
1983	0	0	0	0	0	148.4	175.9	0	0	0	0	0	324.3
1984	0	0	0	0	7.8	139.8	130.4	0	0	0	0	0	278.0
1985	0	0	0	0	1.3	116.5	172.1	0	0	0	0	0	289.9
1986	0	0	0	0.4	27.8	109.8	91.8	0	0	0	0	0	229.8
1987	0	0	0	0	0	127.4	94.7	0	0	0	0	0	222.1
1988	0	0	0	0	77.8	165.2	150.3	0	0	0	0	0	393.3
1989	0	0	0	0	42.4	56.9	57.7	0	0	0	0	0	157.0
1990	0	0	0	0	55.8	85.5	53.5	0	0	0	0	0	194.8
1991	0	0	0	0	93.9	86.1	65.4	0	0	0	0	0	245.3
1992	0	0	0	0	21.4	96.6	73.8	0	0	0	0	0	191.8
1993	0	0	0	0	48.9	68.2	63.9	0	0	0	0	0	181.0
1994	0	0	0	0	40.3	70.4	52.9	0	0	0	0	0	163.5
1995	0	0	0	0	22.5	113.7	75.4	0	0	0	0	0	211.7
1996	0	0	0	1.1	32.0	68.3	54.7	0	0	0	0	0	156.1
1997	0	0	0	0	11.9	51.3	49.9	0	0	0	0	0	113.2
1998	0	0	0	0	4.3	29.8	58.3	0	0	0	0	0	92.4
1999	0	0	0	0	25.6	66.7	28.7	0	0	0	0	0	121.0
2000	0	0	0	0	62.6	68.5	30.6	0	0	0	0	0	161.7
2001	0	0	0	0	4.3	57.6	65.4	0	0	0	0	0	127.3
2002	0	0	0	0	41.7	47.5	20.3	0	0	0	0	0	109.5
2003	0	0	0	0	26.5	132.6	62.2	0	0	0	0	0	221.3
2004	0	0	0	0	9.3	28.4	53.6	0	0	0	0	0	91.3
2005	0	0	0	0	21.1	107.7	94.7	0	0	0	0	0	223.5
2006	0	0	0	0	56.1	137.5	76.0	0	0	0	0	0	269.6
2007	0	0	0	1.9	38.4	124.6	127.8	0	0	0	0	0	292.7
2008	0	0	0	0	7.8	57.0	134.9	0	0	0	0	0	199.7
2009	0	0	0	0	39.7	127.0	115.3	0	0	0	0	0	282.0
2010	0	0	0	0	11.7	113.4	54.8	0	0	0	0	0	179.9
2011	0	0	0	0	10.2	109.9	133.4	0	0	0	0	0	253.5
2012	0	0	0	1.5	104.5	82.2	58.7	0	0	0	0	0	247.0
2013	0	0	0	0	42.3	100.8	54.3	0	0	0	0	0	197.4
Min	0	0	0	0	0	28.4	20.3	0	0	0	0	0	91.3
Max	0	0	0	8.7	113.5	168.0	175.9	0	0	0	0	0	393.3
Avg	0	0	0	0.4	36.1	103.4	90.1	0	0	0	0	0	230.0

Notes: Equal to the total return flow calculated in the StateCU model, multiplied by 60% (60% of all return flows from the lands irrigated on the Western Rivers Conservancy Property returned back to the river through surface runoff).

Table D-14
McKinley Ditch - Western Rivers Conservancy Property
Deep Percolation
Irrigation through July - 87.5625 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	64.2	111.0	84.1	0	0	0	0	0	259.2
1975	0	0	0	0	0	47.7	99.3	0	0	0	0	0	147.0
1976	0	0	0	0	52.6	112.0	66.2	0	0	0	0	0	230.8
1977	0	0	0	5.8	60.6	75.2	42.0	0	0	0	0	0	183.6
1978	0	0	0	0	33.0	111.4	89.6	0	0	0	0	0	234.0
1979	0	0	0	0	0	89.5	110.8	0	0	0	0	0	200.3
1980	0	0	0	0	3.9	87.9	77.1	0	0	0	0	0	168.8
1981	0	0	0	1.3	75.7	84.3	40.3	0	0	0	0	0	201.5
1982	0	0	0	0	13.5	107.7	105.3	0	0	0	0	0	226.5
1983	0	0	0	0	0	98.9	117.3	0	0	0	0	0	216.2
1984	0	0	0	0	5.2	93.2	86.9	0	0	0	0	0	185.3
1985	0	0	0	0	0.9	77.6	114.7	0	0	0	0	0	193.3
1986	0	0	0	0.3	18.5	73.2	61.2	0	0	0	0	0	153.2
1987	0	0	0	0	0	84.9	63.1	0	0	0	0	0	148.0
1988	0	0	0	0	51.9	110.1	100.2	0	0	0	0	0	262.2
1989	0	0	0	0	28.3	37.9	38.4	0	0	0	0	0	104.6
1990	0	0	0	0	37.2	57.0	35.6	0	0	0	0	0	129.8
1991	0	0	0	0	62.6	57.4	43.6	0	0	0	0	0	163.6
1992	0	0	0	0	14.3	64.4	49.2	0	0	0	0	0	127.9
1993	0	0	0	0	32.6	45.5	42.6	0	0	0	0	0	120.6
1994	0	0	0	0	26.8	46.9	35.3	0	0	0	0	0	109.0
1995	0	0	0	0	15.0	75.8	50.3	0	0	0	0	0	141.1
1996	0	0	0	0.8	21.3	45.5	36.5	0	0	0	0	0	104.1
1997	0	0	0	0	8.0	34.2	33.3	0	0	0	0	0	75.5
1998	0	0	0	0	2.9	19.9	38.9	0	0	0	0	0	61.6
1999	0	0	0	0	17.1	44.5	19.1	0	0	0	0	0	80.7
2000	0	0	0	0	41.7	45.7	20.4	0	0	0	0	0	107.8
2001	0	0	0	0	2.9	38.4	43.6	0	0	0	0	0	84.9
2002	0	0	0	0	27.8	31.6	13.5	0	0	0	0	0	73.0
2003	0	0	0	0	17.7	88.4	41.4	0	0	0	0	0	147.5
2004	0	0	0	0	6.2	19.0	35.7	0	0	0	0	0	60.9
2005	0	0	0	0	14.1	71.8	63.1	0	0	0	0	0	149.0
2006	0	0	0	0	37.4	91.7	50.7	0	0	0	0	0	179.7
2007	0	0	0	1.2	25.6	83.0	85.2	0	0	0	0	0	195.1
2008	0	0	0	0	5.2	38.0	89.9	0	0	0	0	0	133.2
2009	0	0	0	0	26.5	84.7	76.9	0	0	0	0	0	188.0
2010	0	0	0	0	7.8	75.6	36.5	0	0	0	0	0	119.9
2011	0	0	0	0	6.8	73.3	88.9	0	0	0	0	0	169.0
2012	0	0	0	1.0	69.7	54.8	39.2	0	0	0	0	0	164.6
2013	0	0	0	0	28.2	67.2	36.2	0	0	0	0	0	131.6
Min	0	0	0	0	0	19.0	13.5	0	0	0	0	0	60.9
Max	0	0	0	5.8	75.7	112.0	117.3	0	0	0	0	0	262.2
Avg	0	0	0	0.3	24.1	68.9	60.1	0	0	0	0	0	153.3

Notes: Equal to the total return flow calculated in the StateCU model, multiplied by 40% (40% of all return flows from the lands irrigated on the Western Rivers Conservancy Property returned back to the river through deep percolation).

Table D-15
McKinley Ditch - Western Rivers Conservancy Property
Percent of Month that the McKinley Ditch Junior Water Rights were In-Priority

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1974	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1975	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1976	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1977	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1978	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1979	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1980	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1981	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1982	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1983	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1984	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1985	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1986	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1987	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1988	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1989	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1990	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1991	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1992	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1993	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1994	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1995	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1996	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1997	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1998	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1999	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2000	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2001	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2002	100%	100%	100%	100%	0%	0%	0%	0%	0%	100%	100%	100%
2003	100%	100%	100%	100%	100%	100%	29.0%	0%	76.7%	100%	100%	100%
2004	100%	100%	100%	100%	100%	100%	22.6%	0%	20.0%	100%	100%	100%
2005	100%	100%	100%	100%	100%	100%	54.8%	0%	0%	100%	100%	100%
2006	100%	100%	100%	100%	100%	100%	100%	100%	50.0%	100%	100%	100%
2007	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2008	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2009	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2010	100%	100%	100%	100%	100%	100%	16.1%	25.8%	100%	100%	100%	100%
2011	100%	100%	100%	100%	100%	100%	100%	58.1%	0%	100%	100%	100%
2012	100%	100%	100%	100%	100%	36.7%	0%	0%	0%	100%	100%	100%
2013	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Min	100%	100%	100%	100%	0%	0%	0%	0%	0%	100%	100%	100%
Max	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Avg	100%	100%	100%	100%	97.5%	95.9%	88.1%	84.6%	86.2%	100%	100%	100%

Notes: Equal to the percent of each month that McKinley Ditch water rights junior to Priority No. 56 (appropriation date 9/1/1886) were in
priority based upon call records acquired from the Colorado Decision Support System (CDSS).

Table D-16
McKinley Ditch - Western Rivers Conservancy Property
In-Priority Consumptive Use
Irrigation through July
(all values in ac-ft)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0.6	55.3	75.3	81.2	62.6	14.4	0	0	0	289.5
1975	0	0	0	0	0	55.5	87.9	69.4	7.6	0	0	0	220.5
1976	0	0	0	0	36.3	65.3	82.4	50.8	26.2	0	0	0	260.9
1977	0	0	0	0	32.6	72.9	63.1	73.3	3.7	0	0	0	245.6
1978	0	0	0	0	31.4	72.6	74.7	77.0	0	0	0	0	255.7
1979	0	0	0	0	0	48.4	65.7	56.5	20.5	0	0	0	191.2
1980	0	0	0	0	11.8	75.0	83.1	77.0	0	0	0	0	246.8
1981	0	0	0	3.9	40.6	71.4	57.5	56.2	20.9	0	0	0	250.4
1982	0	0	0	0	34.6	66.5	80.9	69.1	7.9	0	0	0	259.0
1983	0	0	0	0	0	65.2	63.2	70.0	7.0	0	0	0	205.3
1984	0	0	0	0	15.9	47.9	86.1	69.1	7.9	0	0	0	226.9
1985	0	0	0	0	2.7	72.8	77.3	72.6	4.5	0	0	0	229.9
1986	0	0	0	0.8	33.7	68.3	73.2	63.1	13.9	0	0	0	253.0
1987	0	0	0	0	0	67.7	76.3	61.2	15.9	0	0	0	221.0
1988	0	0	0	0	40.1	79.8	85.0	60.8	16.3	0	0	0	281.9
1989	0	0	0	0	53.1	68.9	76.0	13.9	0	0	0	0	212.0
1990	0	0	0	0	38.1	77.0	77.2	53.0	0	0	0	0	245.2
1991	0	0	0	0	42.6	64.5	77.1	73.8	3.2	0	0	0	261.2
1992	0	0	0	0	16.1	67.6	58.8	53.5	23.6	0	0	0	219.5
1993	0	0	0	0	31.9	59.6	87.2	50.5	0	0	0	0	229.2
1994	0	0	0	0	49.5	71.5	97.9	4.3	0	0	0	0	223.2
1995	0	0	0	0	37.3	36.7	56.0	77.0	0	0	0	0	207.0
1996	0	0	0	2.3	53.3	69.2	92.0	0	0	0	0	0	216.8
1997	0	0	0	0	24.3	49.6	80.6	6.9	0	0	0	0	161.4
1998	0	0	0	0	8.9	60.7	78.6	0	0	0	0	0	148.2
1999	0	0	0	0	20.7	47.9	80.2	18.1	0	0	0	0	166.9
2000	0	0	0	0	42.5	72.9	83.7	17.4	0	0	0	0	216.6
2001	0	0	0	0	8.8	55.9	70.5	36.7	0	0	0	0	172.0
2002	0	0	0	0	22.0	36.4	40.4	24.5	4.4	0	0	0	127.7
2003	0	0	0	0	48.3	63.8	59.0	33.1	0.4	0	0	0	204.6
2004	0	0	0	0	18.9	57.9	46.7	29.4	4.2	0	0	0	157.1
2005	0	0	0	0	43.0	60.7	74.4	32.9	1.8	0	0	0	212.8
2006	0	0	0	0	47.6	71.7	71.2	60.0	8.7	0	0	0	259.2
2007	0	0	0	8.8	41.8	74.1	74.7	70.4	6.6	0	0	0	276.5
2008	0	0	0	0	15.9	63.8	82.3	77.0	0	0	0	0	239.0
2009	0	0	0	0	29.9	57.5	83.5	71.7	5.3	0	0	0	247.8
2010	0	0	0	0	23.9	73.8	53.1	28.8	0	0	0	0	179.7
2011	0	0	0	0	20.7	61.9	80.9	53.1	3.6	0	0	0	220.2
2012	0	0	0	3.0	39.9	42.6	26.1	26.5	8.2	0	0	0	146.3
2013	0	0	0	0	41.0	76.3	69.9	59.2	0	0	0	0	246.4
Min	0	0	0	0	0	36.4	26.1	0	0	0	0	0	127.7
Max	0	0	0	8.8	55.3	79.8	97.9	77.0	26.2	0	0	0	289.5
Avg	0	0	0	0.5	28.9	63.7	72.9	49.0	5.9	0	0	0	220.9

Notes: The in-priority consumptive use is equal to (Table D-15 multiplied by Table D-5) + (1-Table D-15 multiplied by Table D-12).

Table D-17
McKinley Ditch - Western Rivers Conservancy Property
In-Priority Surface Water Return Flow
Irrigation through July
(all values in ac-ft)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	77.8	141.6	99.4	0	0	0	0	0	318.8
1975	0	0	0	0	0	48.3	99.4	0	0	0	0	0	147.8
1976	0	0	0	0	49.3	138.7	72.2	0	0	0	0	0	260.2
1977	0	0	0	8.7	54.7	88.8	42.2	0	0	0	0	0	194.4
1978	0	0	0	0	35.4	121.5	109.7	0	0	0	0	0	266.6
1979	0	0	0	0	0	92.8	144.5	0	0	0	0	0	237.3
1980	0	0	0	0	5.8	80.3	88.2	0	0	0	0	0	174.3
1981	0	0	0	1.9	74.7	102.9	41.4	0	0	0	0	0	221.0
1982	0	0	0	0	20.2	102.8	131.2	0	0	0	0	0	254.3
1983	0	0	0	0	0	101.5	155.1	0	0	0	0	0	256.6
1984	0	0	0	0	7.8	98.6	102.0	0	0	0	0	0	208.4
1985	0	0	0	0	1.3	70.6	143.0	0	0	0	0	0	214.9
1986	0	0	0	0.4	25.9	57.7	62.5	0	0	0	0	0	146.6
1987	0	0	0	0	0	79.7	69.5	0	0	0	0	0	149.2
1988	0	0	0	0	49.3	128.8	122.2	0	0	0	0	0	300.3
1989	0	0	0	0	34.9	34.0	35.2	0	0	0	0	0	104.1
1990	0	0	0	0	39.1	47.8	33.4	0	0	0	0	0	120.4
1991	0	0	0	0	56.8	62.4	39.9	0	0	0	0	0	159.2
1992	0	0	0	0	21.0	51.7	46.7	0	0	0	0	0	119.4
1993	0	0	0	0	35.2	37.9	39.3	0	0	0	0	0	112.5
1994	0	0	0	0	33.5	40.4	35.7	0	0	0	0	0	109.6
1995	0	0	0	0	22.5	63.9	56.9	0	0	0	0	0	143.4
1996	0	0	0	1.1	30.2	39.1	35.9	0	0	0	0	0	106.4
1997	0	0	0	0	11.9	35.0	32.3	0	0	0	0	0	79.2
1998	0	0	0	0	4.3	29.8	38.6	0	0	0	0	0	72.8
1999	0	0	0	0	23.4	35.8	22.7	0	0	0	0	0	81.9
2000	0	0	0	0	42.7	39.7	24.0	0	0	0	0	0	106.3
2001	0	0	0	0	4.3	42.1	38.0	0	0	0	0	0	84.4
2002	0	0	0	0	41.7	47.5	20.3	0	0	0	0	0	109.5
2003	0	0	0	0	26.5	69.2	55.6	0	0	0	0	0	151.3
2004	0	0	0	0	9.3	28.4	49.8	0	0	0	0	0	87.5
2005	0	0	0	0	21.1	60.1	72.7	0	0	0	0	0	153.9
2006	0	0	0	0	40.4	88.5	52.5	0	0	0	0	0	181.4
2007	0	0	0	1.9	31.3	67.0	103.2	0	0	0	0	0	203.4
2008	0	0	0	0	7.8	42.1	74.7	0	0	0	0	0	124.6
2009	0	0	0	0	30.8	81.6	87.8	0	0	0	0	0	200.2
2010	0	0	0	0	11.7	68.0	51.8	0	0	0	0	0	131.6
2011	0	0	0	0	10.2	64.5	102.2	0	0	0	0	0	176.8
2012	0	0	0	1.5	66.0	74.3	58.7	0	0	0	0	0	200.5
2013	0	0	0	0	33.4	54.6	33.0	0	0	0	0	0	121.0
Min	0	0	0	0	0	28.4	20.3	0	0	0	0	0	72.8
Max	0	0	0	8.7	77.8	141.6	155.1	0	0	0	0	0	318.8
Avg	0	0	0	0.4	27.3	69.0	68.1	0	0	0	0	0	164.8

Notes: The in-priority surface water return flow is equal to (Table D-15 multiplied by Table D-6) + (1-Table D-15 multiplied by Table D-13).

Table D-18
McKinley Ditch - Western Rivers Conservancy Property
In-Priority Deep Percolation
Irrigation through July
(all values in ac-ft)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	51.9	94.4	66.2	0	0	0	0	0	212.5
1975	0	0	0	0	0	32.2	66.3	0	0	0	0	0	98.5
1976	0	0	0	0	32.8	92.5	48.1	0	0	0	0	0	173.4
1977	0	0	0	5.8	36.5	59.2	28.1	0	0	0	0	0	129.6
1978	0	0	0	0	23.6	81.0	73.1	0	0	0	0	0	177.7
1979	0	0	0	0	0	61.9	96.3	0	0	0	0	0	158.2
1980	0	0	0	0	3.9	53.5	58.8	0	0	0	0	0	116.2
1981	0	0	0	1.3	49.8	68.6	27.6	0	0	0	0	0	147.3
1982	0	0	0	0	13.5	68.6	87.5	0	0	0	0	0	169.5
1983	0	0	0	0	0	67.6	103.4	0	0	0	0	0	171.0
1984	0	0	0	0	5.2	65.7	68.0	0	0	0	0	0	138.9
1985	0	0	0	0	0.9	47.1	95.3	0	0	0	0	0	143.3
1986	0	0	0	0.3	17.3	38.5	41.7	0	0	0	0	0	97.7
1987	0	0	0	0	0	53.1	46.3	0	0	0	0	0	99.4
1988	0	0	0	0	32.8	85.9	81.5	0	0	0	0	0	200.2
1989	0	0	0	0	23.3	22.7	23.5	0	0	0	0	0	69.4
1990	0	0	0	0	26.1	31.9	22.3	0	0	0	0	0	80.2
1991	0	0	0	0	37.9	41.6	26.6	0	0	0	0	0	106.1
1992	0	0	0	0	14.0	34.5	31.2	0	0	0	0	0	79.6
1993	0	0	0	0	23.5	25.3	26.2	0	0	0	0	0	75.0
1994	0	0	0	0	22.3	26.9	23.8	0	0	0	0	0	73.0
1995	0	0	0	0	15.0	42.6	37.9	0	0	0	0	0	95.6
1996	0	0	0	0.8	20.2	26.1	23.9	0	0	0	0	0	70.9
1997	0	0	0	0	8.0	23.4	21.5	0	0	0	0	0	52.8
1998	0	0	0	0	2.9	19.9	25.7	0	0	0	0	0	48.5
1999	0	0	0	0	15.6	23.9	15.1	0	0	0	0	0	54.6
2000	0	0	0	0	28.5	26.5	16.0	0	0	0	0	0	70.9
2001	0	0	0	0	2.9	28.1	25.3	0	0	0	0	0	56.3
2002	0	0	0	0	27.8	31.6	13.5	0	0	0	0	0	73.0
2003	0	0	0	0	17.7	46.1	37.1	0	0	0	0	0	100.9
2004	0	0	0	0	6.2	19.0	33.2	0	0	0	0	0	58.4
2005	0	0	0	0	14.1	40.1	48.5	0	0	0	0	0	102.6
2006	0	0	0	0	26.9	59.0	35.0	0	0	0	0	0	120.9
2007	0	0	0	1.2	20.8	44.7	68.8	0	0	0	0	0	135.6
2008	0	0	0	0	5.2	28.1	49.8	0	0	0	0	0	83.1
2009	0	0	0	0	20.6	54.4	58.5	0	0	0	0	0	133.5
2010	0	0	0	0	7.8	45.3	34.6	0	0	0	0	0	87.7
2011	0	0	0	0	6.8	43.0	68.1	0	0	0	0	0	117.9
2012	0	0	0	1.0	44.0	49.5	39.2	0	0	0	0	0	133.7
2013	0	0	0	0	22.2	36.4	22.0	0	0	0	0	0	80.6
Min	0	0	0	0	0	19.0	13.5	0	0	0	0	0	48.5
Max	0	0	0	5.8	51.9	94.4	103.4	0	0	0	0	0	212.5
Avg	0	0	0	0.3	18.2	46.0	45.4	0	0	0	0	0	109.9

Notes: The in-priority deep percolation is equal to (Table D-15 multiplied by Table D-7) + (1-Table D-15 multiplied by Table D-14).

Table D-19
McKinley Ditch - Western Rivers Conservancy Property
In-Priority Lagged Ground Water Return Flow
Irrigation through July
(all values in ac-ft)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	8.9	8.6	8.2	7.9	7.6	7.6	8.4	10.5	12.6	13.5	13.5	13.1	120.5
1975	12.5	11.8	11.2	10.7	10.2	9.8	9.5	9.9	10.9	11.6	11.6	11.3	131.0
1976	10.8	10.4	9.9	9.5	9.2	9.0	9.5	11.1	12.8	13.5	13.4	13.0	132.3
1977	12.4	11.8	11.3	10.8	10.4	10.2	10.6	11.7	12.7	13.0	12.7	12.3	139.9
1978	11.8	11.3	10.8	10.4	10.0	9.7	10.0	11.4	13.3	14.2	14.2	13.8	140.8
1979	13.2	12.6	12.0	11.5	11.0	10.6	10.4	11.3	13.2	14.3	14.4	14.0	148.5
1980	13.4	12.8	12.3	11.7	11.2	10.8	10.7	11.4	12.6	13.2	13.1	12.7	145.9
1981	12.2	11.7	11.2	10.8	10.4	10.2	10.9	12.3	13.4	13.7	13.5	13.0	143.3
1982	12.5	11.9	11.4	10.9	10.5	10.2	10.3	11.4	13.3	14.3	14.4	14.0	145.1
1983	13.4	12.8	12.2	11.7	11.2	10.8	10.6	11.7	13.7	14.9	15.0	14.6	152.6
1984	14.0	13.4	12.8	12.2	11.7	11.3	11.2	12.1	13.5	14.3	14.2	13.8	154.4
1985	13.3	12.7	12.2	11.7	11.2	10.8	10.6	11.3	13.0	14.0	14.1	13.7	148.5
1986	13.2	12.6	12.1	11.6	11.1	10.8	10.8	11.4	12.2	12.5	12.4	12.0	142.5
1987	11.5	11.1	10.6	10.2	9.8	9.5	9.4	10.0	11.1	11.6	11.5	11.2	127.7
1988	10.8	10.3	9.9	9.5	9.2	9.0	9.5	11.2	13.3	14.3	14.4	13.9	135.3
1989	13.3	12.7	12.1	11.5	11.0	10.7	10.7	11.0	11.4	11.4	11.2	10.8	137.9
1990	10.4	10.0	9.7	9.3	9.0	8.8	9.0	9.6	10.2	10.3	10.2	9.8	116.4
1991	9.5	9.1	8.7	8.4	8.1	8.0	8.4	9.4	10.2	10.5	10.3	9.9	110.5
1992	9.5	9.1	8.8	8.4	8.1	7.8	7.9	8.4	9.1	9.4	9.3	9.0	105.0
1993	8.7	8.3	8.0	7.7	7.4	7.2	7.4	8.0	8.5	8.7	8.6	8.4	97.0
1994	8.0	7.7	7.4	7.1	6.8	6.7	6.9	7.4	8.0	8.2	8.1	7.8	90.3
1995	7.5	7.2	6.9	6.7	6.4	6.2	6.4	7.2	8.1	8.6	8.5	8.3	88.2
1996	7.9	7.6	7.3	7.0	6.7	6.5	6.7	7.2	7.7	7.9	7.8	7.6	87.9
1997	7.3	7.0	6.7	6.4	6.2	6.0	6.0	6.3	6.8	7.0	6.9	6.7	79.1
1998	6.4	6.2	5.9	5.7	5.5	5.3	5.3	5.5	6.0	6.2	6.2	6.0	70.2
1999	5.8	5.6	5.4	5.1	5.0	4.8	5.0	5.4	5.9	6.0	5.9	5.7	65.7
2000	5.5	5.3	5.1	4.9	4.7	4.6	5.0	5.6	6.2	6.4	6.3	6.0	65.5
2001	5.8	5.5	5.3	5.1	4.9	4.7	4.7	5.1	5.6	5.9	5.9	5.7	64.1
2002	5.5	5.3	5.0	4.8	4.7	4.6	5.0	5.7	6.2	6.4	6.3	6.0	65.4
2003	5.8	5.5	5.3	5.1	4.9	4.7	5.0	5.9	6.9	7.4	7.4	7.2	71.1
2004	6.9	6.5	6.2	5.9	5.7	5.5	5.4	5.7	6.3	6.6	6.6	6.4	73.7
2005	6.1	5.9	5.6	5.4	5.2	5.1	5.3	6.0	7.1	7.7	7.8	7.6	74.8
2006	7.2	6.9	6.6	6.3	6.0	5.9	6.3	7.4	8.5	9.0	9.0	8.7	87.6
2007	8.3	7.9	7.5	7.2	6.9	6.7	6.9	7.9	9.3	10.1	10.2	9.9	98.5
2008	9.4	9.0	8.6	8.2	7.8	7.5	7.4	7.8	8.7	9.1	9.1	8.9	101.6
2009	8.5	8.2	7.8	7.5	7.2	7.0	7.3	8.3	9.7	10.5	10.5	10.2	102.8
2010	9.7	9.3	8.9	8.5	8.1	7.8	7.8	8.4	9.3	9.6	9.5	9.3	106.1
2011	8.9	8.5	8.2	7.8	7.5	7.3	7.3	8.0	9.4	10.1	10.2	9.9	103.1
2012	9.5	9.1	8.7	8.3	8.0	7.9	8.4	9.6	10.7	11.1	11.0	10.6	112.9
2013	10.2	9.7	9.3	8.9	8.5	8.2	8.4	9.0	9.6	9.8	9.6	9.3	110.5
Min	5.5	5.3	5.0	4.8	4.7	4.6	4.7	5.1	5.6	5.9	5.9	5.7	64.1
Max	14.0	13.4	12.8	12.2	11.7	11.3	11.2	12.3	13.7	14.9	15.0	14.6	154.4
Avg	9.6	9.2	8.8	8.5	8.1	7.9	8.1	8.9	9.9	10.4	10.4	10.1	109.9

Notes: The in-priority lagged ground water return flows on the Western Rivers Conservancy Property equal the in-priority deep percolation in Table D-18, lagged according to the Glover analysis within the IDS-AWAS model using the following parameters:

x (ft): 1,950	T (gpd/ft): 7,125
W (ft): 3,600	s: 0

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Table D-20
McKinley Ditch - Western Rivers Conservancy Property
In-Priority Total Depletions
Irrigation through July
(all values in ac-ft)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	-8.9	-8.6	-8.2	-7.9	100.2	162.1	139.1	-10.5	-12.6	-13.5	-13.5	-13.1	304.5
1975	-12.5	-11.8	-11.2	-10.7	-10.2	120.9	178.8	-9.9	-10.9	-11.6	-11.6	-11.3	188.0
1976	-10.8	-10.4	-9.9	-9.5	124.0	161.7	121.0	-11.1	-12.8	-13.5	-13.4	-13.0	302.1
1977	-12.4	-11.8	-11.3	12.7	118.0	122.0	80.6	-11.7	-12.7	-13.0	-12.7	-12.3	235.3
1978	-11.8	-11.3	-10.8	-10.4	85.8	180.1	137.9	-11.4	-13.3	-14.2	-14.2	-13.8	292.6
1979	-13.2	-12.6	-12.0	-11.5	-11.0	176.8	151.7	-11.3	-13.2	-14.3	-14.4	-14.0	200.9
1980	-13.4	-12.8	-12.3	-11.7	4.4	194.7	131.2	-11.4	-12.6	-13.2	-13.1	-12.7	217.1
1981	-12.2	-11.7	-11.2	-5.6	157.0	129.7	74.3	-12.3	-13.4	-13.7	-13.5	-13.0	254.4
1982	-12.5	-11.9	-11.4	-10.9	44.2	195.3	158.1	-11.4	-13.3	-14.3	-14.4	-14.0	283.5
1983	-13.4	-12.8	-12.2	-11.7	-11.2	199.0	155.9	-11.7	-13.7	-14.9	-15.0	-14.6	223.8
1984	-14.0	-13.4	-12.8	-12.2	9.4	179.4	142.9	-12.1	-13.5	-14.3	-14.2	-13.8	211.4
1985	-13.3	-12.7	-12.2	-11.7	-7.7	180.2	168.1	-11.3	-13.0	-14.0	-14.1	-13.7	224.7
1986	-13.2	-12.6	-12.1	-10.5	59.0	145.3	112.7	-11.4	-12.2	-12.5	-12.4	-12.0	208.2
1987	-11.5	-11.1	-10.6	-10.2	-9.8	188.3	113.3	-10.0	-11.1	-11.6	-11.5	-11.2	192.8
1988	-10.8	-10.3	-9.9	-9.5	124.0	173.5	157.0	-11.2	-13.3	-14.3	-14.4	-13.9	346.8
1989	-13.3	-12.7	-12.1	-11.5	83.3	81.2	84.5	-11.0	-11.4	-11.4	-11.2	-10.8	143.5
1990	-10.4	-10.0	-9.7	-9.3	96.7	120.6	81.4	-9.6	-10.2	-10.3	-10.2	-9.8	209.1
1991	-9.5	-9.1	-8.7	-8.4	145.4	102.1	95.2	-9.4	-10.2	-10.5	-10.3	-9.9	256.8
1992	-9.5	-9.1	-8.8	-8.4	48.6	131.9	94.8	-8.4	-9.1	-9.4	-9.3	-9.0	194.1
1993	-8.7	-8.3	-8.0	-7.7	87.8	95.4	99.0	-8.0	-8.5	-8.7	-8.6	-8.4	207.2
1994	-8.0	-7.7	-7.4	-7.1	83.7	102.4	89.7	-7.4	-8.0	-8.2	-8.1	-7.8	205.9
1995	-7.5	-7.2	-6.9	-6.7	54.5	141.4	87.6	-7.2	-8.1	-8.6	-8.5	-8.3	214.4
1996	-7.9	-7.6	-7.3	-3.9	75.1	99.3	90.4	-7.2	-7.7	-7.9	-7.8	-7.6	199.8
1997	-7.3	-7.0	-6.7	-6.4	26.1	88.8	81.2	-6.3	-6.8	-7.0	-6.9	-6.7	135.1
1998	-6.4	-6.2	-5.9	-5.7	6.3	75.3	99.1	-5.5	-6.0	-6.2	-6.2	-6.0	126.5
1999	-5.8	-5.6	-5.4	-5.1	58.3	92.0	56.3	-5.4	-5.9	-6.0	-5.9	-5.7	155.8
2000	-5.5	-5.3	-5.1	-4.9	110.7	102.7	59.8	-5.6	-6.2	-6.4	-6.3	-6.0	222.0
2001	-5.8	-5.5	-5.3	-5.1	6.9	109.1	98.1	-5.1	-5.6	-5.9	-5.9	-5.7	164.2
2002	-5.5	-5.3	-5.0	-4.8	79.9	63.4	48.9	-5.7	-6.2	-6.4	-6.3	-6.0	141.0
2003	-5.8	-5.5	-5.3	-5.1	66.9	176.4	86.5	-5.9	-6.9	-7.4	-7.4	-7.2	273.4
2004	-6.9	-6.5	-6.2	-5.9	19.4	71.4	81.2	-5.7	-6.3	-6.6	-6.6	-6.4	114.9
2005	-6.1	-5.9	-5.6	-5.4	51.9	157.4	124.4	-6.0	-7.1	-7.7	-7.8	-7.6	274.4
2006	-7.2	-6.9	-6.6	-6.3	103.2	167.2	100.0	-7.4	-8.5	-9.0	-9.0	-8.7	300.8
2007	-8.3	-7.9	-7.5	-2.1	77.7	167.3	136.6	-7.9	-9.3	-10.1	-10.2	-9.9	308.5
2008	-9.4	-9.0	-8.6	-8.2	13.3	106.3	179.8	-7.8	-8.7	-9.1	-9.1	-8.9	220.5
2009	-8.5	-8.2	-7.8	-7.5	76.2	148.9	134.7	-8.3	-9.7	-10.5	-10.5	-10.2	278.5
2010	-9.7	-9.3	-8.9	-8.5	23.7	176.0	76.0	-8.4	-9.3	-9.6	-9.5	-9.3	193.2
2011	-8.9	-8.5	-8.2	-7.8	20.0	167.1	149.3	-8.0	-9.4	-10.1	-10.2	-9.9	255.3
2012	-9.5	-9.1	-8.7	-4.3	152.9	84.3	56.8	-9.6	-10.7	-11.1	-11.0	-10.6	209.4
2013	-10.2	-9.7	-9.3	-8.9	81.7	139.5	80.7	-9.0	-9.6	-9.8	-9.6	-9.3	216.6
Min	-14.0	-13.4	-12.8	-12.2	-11.2	63.4	48.9	-12.3	-13.7	-14.9	-15.0	-14.6	114.9
Max	-5.5	-5.3	-5.0	12.7	157.0	199.0	179.8	-5.1	-5.6	-5.9	-5.9	-5.7	346.8
Avg	-9.6	-9.2	-8.8	-7.4	60.7	136.9	109.9	-8.9	-9.9	-10.4	-10.4	-10.1	222.7

Notes: Depletions equal farm headgate deliveries (Table D-2) less in-priority surface runoff (Table D-17) less in-priority lagged ground water
return flow (Table D-19). Negative values represent an accretion or return flow to the stream.

Appendix E

State CU Analysis Results – Irrigation Through June

Table E-1
McKinley Ditch - Western Rivers Conservancy Property
Total In-Priority Diversions
Irrigation through June- 194.5 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	206.2	345.9	0	0	0	0	0	0	552.1
1975	0	0	0	0	0	198.9	0	0	0	0	0	0	198.9
1976	0	0	0	0	202.8	343.8	0	0	0	0	0	0	546.6
1977	0	0	0	35.7	203.4	245.5	0	0	0	0	0	0	484.6
1978	0	0	0	0	145.8	345.9	0	0	0	0	0	0	491.7
1979	0	0	0	0	0	311.3	0	0	0	0	0	0	311.3
1980	0	0	0	0	23.8	317.6	0	0	0	0	0	0	341.4
1981	0	0	0	7.9	269.0	269.8	0	0	0	0	0	0	546.8
1982	0	0	0	0	83.3	342.5	0	0	0	0	0	0	425.8
1983	0	0	0	0	0	345.9	0	0	0	0	0	0	345.9
1984	0	0	0	0	32.1	321.3	0	0	0	0	0	0	353.5
1985	0	0	0	0	5.4	290.6	0	0	0	0	0	0	296.0
1986	0	0	0	1.6	106.8	237.6	0	0	0	0	0	0	345.9
1987	0	0	0	0	0	308.3	0	0	0	0	0	0	308.3
1988	0	0	0	0	202.7	345.9	0	0	0	0	0	0	548.6
1989	0	0	0	0	143.6	139.8	0	0	0	0	0	0	283.5
1990	0	0	0	0	160.9	196.9	0	0	0	0	0	0	357.7
1991	0	0	0	0	233.7	191.7	0	0	0	0	0	0	425.4
1992	0	0	0	0	86.3	212.7	0	0	0	0	0	0	299.0
1993	0	0	0	0	145.0	156.2	0	0	0	0	0	0	301.1
1994	0	0	0	0	137.9	166.0	0	0	0	0	0	0	303.9
1995	0	0	0	0	92.7	235.1	0	0	0	0	0	0	327.8
1996	0	0	0	4.7	124.4	161.1	0	0	0	0	0	0	290.2
1997	0	0	0	0	49.1	144.2	0	0	0	0	0	0	193.3
1998	0	0	0	0	17.9	122.7	0	0	0	0	0	0	140.6
1999	0	0	0	0	96.4	147.5	0	0	0	0	0	0	243.8
2000	0	0	0	0	175.6	163.3	0	0	0	0	0	0	339.0
2001	0	0	0	0	17.9	173.2	0	0	0	0	0	0	191.0
2002	0	0	0	0	140.3	128.3	0	0	0	0	0	0	268.6
2003	0	0	0	0	109.2	278.1	0	0	0	0	0	0	387.3
2004	0	0	0	0	38.2	117.0	0	0	0	0	0	0	155.2
2005	0	0	0	0	86.9	247.3	0	0	0	0	0	0	334.2
2006	0	0	0	0	166.1	290.5	0	0	0	0	0	0	456.7
2007	0	0	0	7.7	128.6	267.8	0	0	0	0	0	0	404.1
2008	0	0	0	0	32.1	173.2	0	0	0	0	0	0	205.3
2009	0	0	0	0	127.0	263.9	0	0	0	0	0	0	390.9
2010	0	0	0	0	48.3	279.8	0	0	0	0	0	0	328.1
2011	0	0	0	0	41.8	265.4	0	0	0	0	0	0	307.2
2012	0	0	0	6.1	252.1	184.9	0	0	0	0	0	0	443.1
2013	0	0	0	0	137.3	224.9	0	0	0	0	0	0	362.2
Min	0	0	0	0	0	117.0	0	0	0	0	0	0	140.6
Max	0	0	0	35.7	269.0	345.9	0	0	0	0	0	0	552.1
Avg	0	0	0	1.6	106.8	237.6	0	0	0	0	0	0	345.9

Notes: Daily diversion records (for irrigation only) acquired from the Colorado Decision Support System (CDSS).
Daily diversions are limited to the McKinley Ditch water rights priority on each day.

The Colorado Water Trust portion of the McKinley Ditch (which is used to irrigate the Western Rivers Conservancy Property) is 18.75% (1.5 shares of 8 total shares). Therefore, the diversions attributable to the Western Rivers Conservancy Property are equal to 18.75% of the total ditch diversions. Data missing in 1986 filled with monthly average values from study period.

Table E-2
McKinley Ditch - Western Rivers Conservancy Property
Farm Headgate Deliveries
Irrigation through June- 194.5 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	185.6	311.3	0	0	0	0	0	0	496.9
1975	0	0	0	0	0	179.0	0	0	0	0	0	0	179.0
1976	0	0	0	0	182.5	309.4	0	0	0	0	0	0	491.9
1977	0	0	0	32.1	183.1	220.9	0	0	0	0	0	0	436.1
1978	0	0	0	0	131.2	311.3	0	0	0	0	0	0	442.5
1979	0	0	0	0	0	280.2	0	0	0	0	0	0	280.2
1980	0	0	0	0	21.4	285.8	0	0	0	0	0	0	307.3
1981	0	0	0	7.1	242.1	242.8	0	0	0	0	0	0	492.1
1982	0	0	0	0	75.0	308.3	0	0	0	0	0	0	383.2
1983	0	0	0	0	0	311.3	0	0	0	0	0	0	311.3
1984	0	0	0	0	28.9	289.2	0	0	0	0	0	0	318.1
1985	0	0	0	0	4.9	261.6	0	0	0	0	0	0	266.4
1986	0	0	0	1.4	96.1	213.8	0	0	0	0	0	0	311.3
1987	0	0	0	0	0	277.5	0	0	0	0	0	0	277.5
1988	0	0	0	0	182.4	311.3	0	0	0	0	0	0	493.7
1989	0	0	0	0	129.3	125.9	0	0	0	0	0	0	255.1
1990	0	0	0	0	144.8	177.2	0	0	0	0	0	0	322.0
1991	0	0	0	0	210.3	172.6	0	0	0	0	0	0	382.9
1992	0	0	0	0	77.7	191.5	0	0	0	0	0	0	269.1
1993	0	0	0	0	130.5	140.6	0	0	0	0	0	0	271.0
1994	0	0	0	0	124.1	149.4	0	0	0	0	0	0	273.5
1995	0	0	0	0	83.5	211.6	0	0	0	0	0	0	295.1
1996	0	0	0	4.2	112.0	145.0	0	0	0	0	0	0	261.2
1997	0	0	0	0	44.2	129.8	0	0	0	0	0	0	174.0
1998	0	0	0	0	16.1	110.4	0	0	0	0	0	0	126.5
1999	0	0	0	0	86.7	132.7	0	0	0	0	0	0	219.4
2000	0	0	0	0	158.1	147.0	0	0	0	0	0	0	305.1
2001	0	0	0	0	16.1	155.8	0	0	0	0	0	0	171.9
2002	0	0	0	0	126.3	115.5	0	0	0	0	0	0	241.8
2003	0	0	0	0	98.3	250.3	0	0	0	0	0	0	348.6
2004	0	0	0	0	34.4	105.3	0	0	0	0	0	0	139.7
2005	0	0	0	0	78.2	222.6	0	0	0	0	0	0	300.8
2006	0	0	0	0	149.5	261.5	0	0	0	0	0	0	411.0
2007	0	0	0	6.9	115.8	241.0	0	0	0	0	0	0	363.7
2008	0	0	0	0	28.9	155.9	0	0	0	0	0	0	184.8
2009	0	0	0	0	114.3	237.5	0	0	0	0	0	0	351.8
2010	0	0	0	0	43.5	251.8	0	0	0	0	0	0	295.3
2011	0	0	0	0	37.7	238.8	0	0	0	0	0	0	276.5
2012	0	0	0	5.5	226.9	166.4	0	0	0	0	0	0	398.8
2013	0	0	0	0	123.6	202.4	0	0	0	0	0	0	326.0
Min	0	0	0	0	0	105.3	0	0	0	0	0	0	126.5
Max	0	0	0	32.1	242.1	311.3	0	0	0	0	0	0	496.9
Avg	0	0	0	1.4	96.1	213.8	0	0	0	0	0	0	311.3

Notes: Equal to the total in-priority diversion in Table E-1, less 10% ditch loss.

BBA
water consultants *BISHOP-BROGDEN ASSOCIATES, INC.*

Table E-3
McKinley Ditch - Western Rivers Conservancy Property
Crop Irrigation Requirements
Irrigation through June- 194.5 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0.6	55.3	75.3	81.2	62.6	35.5	5.9	0	0	316.5
1975	0	0	0	0	11.4	55.5	87.9	69.4	43.2	1.1	0	0	268.5
1976	0	0	0	0	36.3	65.3	82.4	50.8	35.0	4.8	0	0	274.5
1977	0	0	0	0	32.6	72.9	63.1	73.3	36.5	6.3	0	0	284.7
1978	0	0	0	0	31.4	72.6	74.7	79.5	49.6	5.1	0	0	312.8
1979	0	0	0	0	28.8	48.4	65.7	56.5	55.1	10.6	0	0	265.2
1980	0	0	0	0	21.2	75.0	83.1	78.8	45.8	4.8	0	0	308.7
1981	0	0	0	16.1	40.6	71.4	57.5	56.2	35.3	5.6	0	0	282.5
1982	0	0	0	0	34.6	66.5	80.9	69.1	16.4	4.2	0	0	271.6
1983	0	0	0	0	11.8	65.2	63.2	70.0	51.3	15.3	0	0	276.7
1984	0	0	0	2.3	52.5	47.9	86.1	69.1	41.0	3.1	0	0	301.9
1985	0	0	0	0.7	29.1	72.8	77.3	72.6	5.5	6.1	0	0	264.0
1986	0	0	0	3.4	33.7	68.3	73.2	63.1	24.6	5.5	0	0	271.9
1987	0	0	0	7.9	23.5	67.7	76.3	61.2	42.9	7.7	0	0	287.1
1988	0	0	0	6.2	40.1	79.8	85.0	60.8	31.7	14.2	0	0	317.8
1989	0	0	0	20.4	53.1	68.9	76.0	64.4	42.0	8.2	0	0	333.1
1990	0	0	0	0	38.1	77.0	77.2	68.6	28.8	5.7	0	0	295.4
1991	0	0	0	0	42.6	64.5	77.1	73.8	29.3	6.6	0	0	293.9
1992	0	0	0	24.4	16.1	67.6	58.8	53.5	46.5	12.4	0	0	279.3
1993	0	0	0	5.4	31.9	59.6	87.2	55.4	42.5	4.1	0	0	286.1
1994	0	0	0	9.3	49.5	71.5	97.9	70.3	30.6	8.6	0	0	337.8
1995	0	0	0	0.9	37.3	36.7	56.0	81.0	25.1	10.3	0	0	247.4
1996	0	0	0	9.2	53.3	69.2	92.9	89.0	13.4	3.8	0	0	330.8
1997	0	0	0	1.1	25.6	49.6	80.6	53.9	38.0	2.9	0	0	251.7
1998	0	0	0	0.4	41.3	65.1	94.7	67.9	45.7	3.5	0	0	318.5
1999	0	0	0	0	20.7	47.9	80.2	54.0	33.0	11.6	0	0	247.4
2000	0	0	0	19.9	42.5	72.9	83.7	78.6	34.9	9.3	0	0	341.9
2001	0	0	0	11.6	39.0	55.9	70.5	47.7	45.9	10.2	0	0	280.8
2002	0	0	0	16.7	49.0	80.8	89.7	54.4	9.8	2.1	0	0	302.5
2003	0	0	0	7.0	48.3	63.8	96.8	73.5	26.6	14.5	0	0	330.4
2004	0	0	0	0.5	50.4	71.0	85.3	65.3	26.5	9.5	0	0	308.3
2005	0	0	0	5.7	53.4	60.7	99.0	73.1	30.1	9.7	0	0	331.6
2006	0	0	0	16.4	47.6	71.7	71.2	60.0	12.0	0	0	0	278.9
2007	0	0	0	9.6	41.8	74.1	74.7	70.4	20.2	9.0	0	0	299.8
2008	0	0	0	0	29.7	63.8	82.3	81.6	36.8	8.6	0	0	302.8
2009	0	0	0	2.9	29.9	57.5	83.5	71.7	45.3	3.9	0	0	294.7
2010	0	0	0	2.8	41.8	73.8	98.5	54.8	40.2	8.5	0	0	320.4
2011	0	0	0	0	30.5	61.9	80.9	69.1	33.4	7.0	0	0	282.9
2012	0	0	0	14.0	39.9	65.3	58.0	58.9	33.3	11.5	0	0	280.9
2013	0	0	0	0	41.0	76.3	69.9	62.3	23.8	6.4	0	0	279.8
Avg	0	0	0	5.4	36.9	65.8	79.0	66.2	33.6	7.2	0	0	294.0
Avg/Ac	0	0	0	0.0	0.2	0.3	0.4	0.3	0.2	0.0	0	0	1.51

Notes: The crop irrigation requirement (CIR) was determined using StateCU.
         194.5 acres of pasture grass were modeled, based on TR21 crop coefficients and an adjustment made for elevation.

Table E-4
McKinley Ditch - Western Rivers Conservancy Property
Water Available to Crop
Irrigation through June- 194.5 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	102.1	171.2	0	0	0	0	0	0	273.3
1975	0	0	0	0	0	98.5	0	0	0	0	0	0	98.5
1976	0	0	0	0	100.4	170.2	0	0	0	0	0	0	270.5
1977	0	0	0	17.7	100.7	121.5	0	0	0	0	0	0	239.9
1978	0	0	0	0	72.2	171.2	0	0	0	0	0	0	243.4
1979	0	0	0	0	0	154.1	0	0	0	0	0	0	154.1
1980	0	0	0	0	11.8	157.2	0	0	0	0	0	0	169.0
1981	0	0	0	3.9	133.2	133.6	0	0	0	0	0	0	270.7
1982	0	0	0	0	41.2	169.6	0	0	0	0	0	0	210.8
1983	0	0	0	0	0	171.2	0	0	0	0	0	0	171.2
1984	0	0	0	0	15.9	159.1	0	0	0	0	0	0	175.0
1985	0	0	0	0	2.7	143.9	0	0	0	0	0	0	146.5
1986	0	0	0	0.8	52.9	117.6	0	0	0	0	0	0	171.2
1987	0	0	0	0	0	152.6	0	0	0	0	0	0	152.6
1988	0	0	0	0	100.3	171.2	0	0	0	0	0	0	271.5
1989	0	0	0	0	71.1	69.2	0	0	0	0	0	0	140.3
1990	0	0	0	0	79.6	97.4	0	0	0	0	0	0	177.1
1991	0	0	0	0	115.7	94.9	0	0	0	0	0	0	210.6
1992	0	0	0	0	42.7	105.3	0	0	0	0	0	0	148.0
1993	0	0	0	0	71.8	77.3	0	0	0	0	0	0	149.1
1994	0	0	0	0	68.2	82.2	0	0	0	0	0	0	150.4
1995	0	0	0	0	45.9	116.4	0	0	0	0	0	0	162.3
1996	0	0	0	2.3	61.6	79.7	0	0	0	0	0	0	143.6
1997	0	0	0	0	24.3	71.4	0	0	0	0	0	0	95.7
1998	0	0	0	0	8.9	60.7	0	0	0	0	0	0	69.6
1999	0	0	0	0	47.7	73.0	0	0	0	0	0	0	120.7
2000	0	0	0	0	86.9	80.8	0	0	0	0	0	0	167.8
2001	0	0	0	0	8.8	85.7	0	0	0	0	0	0	94.6
2002	0	0	0	0	69.5	63.5	0	0	0	0	0	0	133.0
2003	0	0	0	0	54.1	137.7	0	0	0	0	0	0	191.7
2004	0	0	0	0	18.9	57.9	0	0	0	0	0	0	76.8
2005	0	0	0	0	43.0	122.4	0	0	0	0	0	0	165.4
2006	0	0	0	0	82.2	143.8	0	0	0	0	0	0	226.1
2007	0	0	0	3.8	63.7	132.5	0	0	0	0	0	0	200.0
2008	0	0	0	0	15.9	85.7	0	0	0	0	0	0	101.6
2009	0	0	0	0	62.8	130.7	0	0	0	0	0	0	193.5
2010	0	0	0	0	23.9	138.5	0	0	0	0	0	0	162.4
2011	0	0	0	0	20.7	131.4	0	0	0	0	0	0	152.1
2012	0	0	0	3.0	124.8	91.5	0	0	0	0	0	0	219.4
2013	0	0	0	0	68.0	111.3	0	0	0	0	0	0	179.3
Min	0	0	0	0	0	57.9	0	0	0	0	0	0	69.6
Max	0	0	0	17.7	133.2	171.2	0	0	0	0	0	0	273.3
Avg	0	0	0	0.8	52.9	117.6	0	0	0	0	0	0	171.2

Notes: Equal to the farm headgate delivery in Table E-2, multiplied by 55% to account for application efficiency.

Table E-5
McKinley Ditch - Western Rivers Conservancy Property
Consumptive Use
Irrigation through June- 194.5 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0.6	55.3	75.3	77.0	0	0	0	0	0	208.2
1975	0	0	0	0	0	55.5	42.9	0	0	0	0	0	98.5
1976	0	0	0	0	36.3	65.3	77.0	0	0	0	0	0	178.6
1977	0	0	0	0	32.6	72.9	63.1	14.0	0	0	0	0	182.5
1978	0	0	0	0	31.4	72.6	74.7	2.3	0	0	0	0	181.0
1979	0	0	0	0	0	48.4	65.7	11.3	0	0	0	0	125.5
1980	0	0	0	0	11.8	75.0	77.0	0	0	0	0	0	163.8
1981	0	0	0	3.9	40.6	71.4	57.5	19.5	0	0	0	0	192.9
1982	0	0	0	0	34.6	66.5	77.0	0	0	0	0	0	178.1
1983	0	0	0	0	0	65.2	63.2	13.9	0	0	0	0	142.2
1984	0	0	0	0	15.9	47.9	77.0	0	0	0	0	0	140.8
1985	0	0	0	0	2.7	72.8	71.0	0	0	0	0	0	146.5
1986	0	0	0	0.8	33.7	68.3	68.4	0	0	0	0	0	171.2
1987	0	0	0	0	0	67.7	76.3	0.7	0	0	0	0	144.7
1988	0	0	0	0	40.1	79.8	77.0	0	0	0	0	0	196.9
1989	0	0	0	0	53.1	68.9	18.3	0	0	0	0	0	140.3
1990	0	0	0	0	38.1	77.0	62.0	0	0	0	0	0	177.1
1991	0	0	0	0	42.6	64.5	77.0	0	0	0	0	0	184.2
1992	0	0	0	0	16.1	67.6	58.8	5.5	0	0	0	0	148.0
1993	0	0	0	0	31.9	59.6	57.5	0	0	0	0	0	149.1
1994	0	0	0	0	49.5	71.5	29.4	0	0	0	0	0	150.4
1995	0	0	0	0	37.3	36.7	56.0	21.0	0	0	0	0	151.0
1996	0	0	0	2.3	53.3	69.2	18.9	0	0	0	0	0	143.6
1997	0	0	0	0	24.3	49.6	21.8	0	0	0	0	0	95.7
1998	0	0	0	0	8.9	60.7	0	0	0	0	0	0	69.6
1999	0	0	0	0	20.7	47.9	52.1	0	0	0	0	0	120.7
2000	0	0	0	0	42.5	72.9	52.3	0	0	0	0	0	167.8
2001	0	0	0	0	8.8	55.9	29.8	0	0	0	0	0	94.6
2002	0	0	0	0	49.0	80.8	3.2	0	0	0	0	0	133.0
2003	0	0	0	0	48.3	63.8	77.0	0	0	0	0	0	189.1
2004	0	0	0	0	18.9	57.9	0	0	0	0	0	0	76.8
2005	0	0	0	0	43.0	60.7	61.7	0	0	0	0	0	165.4
2006	0	0	0	0	47.6	71.7	71.2	5.8	0	0	0	0	196.3
2007	0	0	0	3.8	41.8	74.1	74.7	2.3	0	0	0	0	196.7
2008	0	0	0	0	15.9	63.8	22.0	0	0	0	0	0	101.6
2009	0	0	0	0	29.9	57.5	77.0	0	0	0	0	0	164.4
2010	0	0	0	0	23.9	73.8	64.7	0	0	0	0	0	162.4
2011	0	0	0	0	20.7	61.9	69.5	0	0	0	0	0	152.1
2012	0	0	0	3.0	39.9	65.3	58.0	19.0	0	0	0	0	185.3
2013	0	0	0	0	41.0	76.3	61.9	0	0	0	0	0	179.3
Min	0	0	0	0	0	36.7	0	0	0	0	0	0	69.6
Max	0	0	0	3.9	55.3	80.8	77.0	21.0	0	0	0	0	208.2
Avg	0	0	0	0.4	29.5	65.4	55.5	2.9	0	0	0	0	153.6

Notes: Equal to the consumptive use, calculated in the StateCU model. Consumptive use includes water used directly to meet the crop irrigation requirement and water used to fill the soil moisture reservoir for later crop use.

Table E-6
McKinley Ditch - Western Rivers Conservancy Property
Surface Water Return Flow
Irrigation through June- 194.5 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	77.8	141.6	0	0	0	0	0	0	219.4
1975	0	0	0	0	0	48.3	0	0	0	0	0	0	48.3
1976	0	0	0	0	49.3	138.7	0	0	0	0	0	0	188.0
1977	0	0	0	8.7	54.7	88.8	0	0	0	0	0	0	152.2
1978	0	0	0	0	35.4	121.5	0	0	0	0	0	0	156.9
1979	0	0	0	0	0	92.8	0	0	0	0	0	0	92.8
1980	0	0	0	0	5.8	80.3	0	0	0	0	0	0	86.1
1981	0	0	0	1.9	74.7	102.9	0	0	0	0	0	0	179.5
1982	0	0	0	0	20.2	102.8	0	0	0	0	0	0	123.1
1983	0	0	0	0	0	101.5	0	0	0	0	0	0	101.5
1984	0	0	0	0	7.8	98.6	0	0	0	0	0	0	106.4
1985	0	0	0	0	1.3	70.6	0	0	0	0	0	0	71.9
1986	0	0	0	0.4	25.9	57.7	0	0	0	0	0	0	84.1
1987	0	0	0	0	0	79.7	0	0	0	0	0	0	79.7
1988	0	0	0	0	49.3	128.8	0	0	0	0	0	0	178.1
1989	0	0	0	0	34.9	34.0	0	0	0	0	0	0	68.9
1990	0	0	0	0	39.1	47.8	0	0	0	0	0	0	86.9
1991	0	0	0	0	56.8	62.4	0	0	0	0	0	0	119.2
1992	0	0	0	0	21.0	51.7	0	0	0	0	0	0	72.7
1993	0	0	0	0	35.2	37.9	0	0	0	0	0	0	73.2
1994	0	0	0	0	33.5	40.4	0	0	0	0	0	0	73.9
1995	0	0	0	0	22.5	63.9	0	0	0	0	0	0	86.4
1996	0	0	0	1.1	30.2	39.1	0	0	0	0	0	0	70.5
1997	0	0	0	0	11.9	35.0	0	0	0	0	0	0	47.0
1998	0	0	0	0	4.3	29.8	0	0	0	0	0	0	34.2
1999	0	0	0	0	23.4	35.8	0	0	0	0	0	0	59.2
2000	0	0	0	0	42.7	39.7	0	0	0	0	0	0	82.4
2001	0	0	0	0	4.3	42.1	0	0	0	0	0	0	46.4
2002	0	0	0	0	34.1	31.2	0	0	0	0	0	0	65.3
2003	0	0	0	0	26.5	69.2	0	0	0	0	0	0	95.7
2004	0	0	0	0	9.3	28.4	0	0	0	0	0	0	37.7
2005	0	0	0	0	21.1	60.1	0	0	0	0	0	0	81.2
2006	0	0	0	0	40.4	88.5	0	0	0	0	0	0	128.8
2007	0	0	0	1.9	31.3	67.0	0	0	0	0	0	0	100.2
2008	0	0	0	0	7.8	42.1	0	0	0	0	0	0	49.9
2009	0	0	0	0	30.8	81.6	0	0	0	0	0	0	112.5
2010	0	0	0	0	11.7	68.0	0	0	0	0	0	0	79.7
2011	0	0	0	0	10.2	64.5	0	0	0	0	0	0	74.6
2012	0	0	0	1.5	66.0	60.7	0	0	0	0	0	0	128.1
2013	0	0	0	0	33.4	54.6	0	0	0	0	0	0	88.0
Min	0	0	0	0	0	28.4	0	0	0	0	0	0	34.2
Max	0	0	0	8.7	77.8	141.6	0	0	0	0	0	0	219.4
Avg	0	0	0	0.4	27.1	68.3	0	0	0	0	0	0	95.8

Notes: Equal to the total return flow calculated in the StateCU model, multiplied by 60% (60% of all return flows from the lands irrigated on the Western Rivers Conservancy Property returned back to the river through surface runoff).

Table E-7
McKinley Ditch - Western Rivers Conservancy Property
Deep Percolation
Irrigation through June- 194.5 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	51.9	94.4	0	0	0	0	0	0	146.3
1975	0	0	0	0	0	32.2	0	0	0	0	0	0	32.2
1976	0	0	0	0	32.8	92.5	0	0	0	0	0	0	125.3
1977	0	0	0	5.8	36.5	59.2	0	0	0	0	0	0	101.4
1978	0	0	0	0	23.6	81.0	0	0	0	0	0	0	104.6
1979	0	0	0	0	0	61.9	0	0	0	0	0	0	61.9
1980	0	0	0	0	3.9	53.5	0	0	0	0	0	0	57.4
1981	0	0	0	1.3	49.8	68.6	0	0	0	0	0	0	119.7
1982	0	0	0	0	13.5	68.6	0	0	0	0	0	0	82.1
1983	0	0	0	0	0	67.6	0	0	0	0	0	0	67.6
1984	0	0	0	0	5.2	65.7	0	0	0	0	0	0	70.9
1985	0	0	0	0	0.9	47.1	0	0	0	0	0	0	48.0
1986	0	0	0	0.3	17.3	38.5	0	0	0	0	0	0	56.0
1987	0	0	0	0	0	53.1	0	0	0	0	0	0	53.1
1988	0	0	0	0	32.8	85.9	0	0	0	0	0	0	118.7
1989	0	0	0	0	23.3	22.7	0	0	0	0	0	0	45.9
1990	0	0	0	0	26.1	31.9	0	0	0	0	0	0	58.0
1991	0	0	0	0	37.9	41.6	0	0	0	0	0	0	79.5
1992	0	0	0	0	14.0	34.5	0	0	0	0	0	0	48.4
1993	0	0	0	0	23.5	25.3	0	0	0	0	0	0	48.8
1994	0	0	0	0	22.3	26.9	0	0	0	0	0	0	49.2
1995	0	0	0	0	15.0	42.6	0	0	0	0	0	0	57.6
1996	0	0	0	0.8	20.2	26.1	0	0	0	0	0	0	47.0
1997	0	0	0	0	8.0	23.4	0	0	0	0	0	0	31.3
1998	0	0	0	0	2.9	19.9	0	0	0	0	0	0	22.8
1999	0	0	0	0	15.6	23.9	0	0	0	0	0	0	39.5
2000	0	0	0	0	28.5	26.5	0	0	0	0	0	0	54.9
2001	0	0	0	0	2.9	28.1	0	0	0	0	0	0	30.9
2002	0	0	0	0	22.7	20.8	0	0	0	0	0	0	43.5
2003	0	0	0	0	17.7	46.1	0	0	0	0	0	0	63.8
2004	0	0	0	0	6.2	19.0	0	0	0	0	0	0	25.2
2005	0	0	0	0	14.1	40.1	0	0	0	0	0	0	54.1
2006	0	0	0	0	26.9	59.0	0	0	0	0	0	0	85.9
2007	0	0	0	1.2	20.8	44.7	0	0	0	0	0	0	66.8
2008	0	0	0	0	5.2	28.1	0	0	0	0	0	0	33.3
2009	0	0	0	0	20.6	54.4	0	0	0	0	0	0	75.0
2010	0	0	0	0	7.8	45.3	0	0	0	0	0	0	53.2
2011	0	0	0	0	6.8	43.0	0	0	0	0	0	0	49.8
2012	0	0	0	1.0	44.0	40.4	0	0	0	0	0	0	85.4
2013	0	0	0	0	22.2	36.4	0	0	0	0	0	0	58.7
Min	0	0	0	0	0	19.0	0	0	0	0	0	0	22.8
Max	0	0	0	5.8	51.9	94.4	0	0	0	0	0	0	146.3
Avg	0	0	0	0.3	18.1	45.5	0	0	0	0	0	0	63.8

Notes: Equal to the total return flow calculated in the StateCU model, multiplied by 40% (40% of all return flows from the lands irrigated on the Western Rivers Conservancy Property returned back to the river through deep percolation).

Table E-8
McKinley Ditch - Western Rivers Conservancy Property
Total In-Priority Diversions
Irrigation through June - 87.5625 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	206.2	345.9	0	0	0	0	0	0	552.1
1975	0	0	0	0	0	198.9	0	0	0	0	0	0	198.9
1976	0	0	0	0	202.8	343.8	0	0	0	0	0	0	546.6
1977	0	0	0	35.7	203.4	245.5	0	0	0	0	0	0	484.6
1978	0	0	0	0	145.8	345.9	0	0	0	0	0	0	491.7
1979	0	0	0	0	0	311.3	0	0	0	0	0	0	311.3
1980	0	0	0	0	23.8	317.6	0	0	0	0	0	0	341.4
1981	0	0	0	7.9	269.0	269.8	0	0	0	0	0	0	546.8
1982	0	0	0	0	83.3	342.5	0	0	0	0	0	0	425.8
1983	0	0	0	0	0	345.9	0	0	0	0	0	0	345.9
1984	0	0	0	0	32.1	321.3	0	0	0	0	0	0	353.5
1985	0	0	0	0	5.4	290.6	0	0	0	0	0	0	296.0
1986	0	0	0	1.6	106.8	237.6	0	0	0	0	0	0	345.9
1987	0	0	0	0	0	308.3	0	0	0	0	0	0	308.3
1988	0	0	0	0	202.7	345.9	0	0	0	0	0	0	548.6
1989	0	0	0	0	143.6	139.8	0	0	0	0	0	0	283.5
1990	0	0	0	0	160.9	196.9	0	0	0	0	0	0	357.7
1991	0	0	0	0	233.7	191.7	0	0	0	0	0	0	425.4
1992	0	0	0	0	86.3	212.7	0	0	0	0	0	0	299.0
1993	0	0	0	0	145.0	156.2	0	0	0	0	0	0	301.1
1994	0	0	0	0	137.9	166.0	0	0	0	0	0	0	303.9
1995	0	0	0	0	92.7	235.1	0	0	0	0	0	0	327.8
1996	0	0	0	4.7	124.4	161.1	0	0	0	0	0	0	290.2
1997	0	0	0	0	49.1	144.2	0	0	0	0	0	0	193.3
1998	0	0	0	0	17.9	122.7	0	0	0	0	0	0	140.6
1999	0	0	0	0	96.4	147.5	0	0	0	0	0	0	243.8
2000	0	0	0	0	175.6	163.3	0	0	0	0	0	0	339.0
2001	0	0	0	0	17.9	173.2	0	0	0	0	0	0	191.0
2002	0	0	0	0	140.3	128.3	0	0	0	0	0	0	268.6
2003	0	0	0	0	109.2	278.1	0	0	0	0	0	0	387.3
2004	0	0	0	0	38.2	117.0	0	0	0	0	0	0	155.2
2005	0	0	0	0	86.9	247.3	0	0	0	0	0	0	334.2
2006	0	0	0	0	166.1	290.5	0	0	0	0	0	0	456.7
2007	0	0	0	7.7	128.6	267.8	0	0	0	0	0	0	404.1
2008	0	0	0	0	32.1	173.2	0	0	0	0	0	0	205.3
2009	0	0	0	0	127.0	263.9	0	0	0	0	0	0	390.9
2010	0	0	0	0	48.3	279.8	0	0	0	0	0	0	328.1
2011	0	0	0	0	41.8	265.4	0	0	0	0	0	0	307.2
2012	0	0	0	6.1	252.1	184.9	0	0	0	0	0	0	443.1
2013	0	0	0	0	137.3	224.9	0	0	0	0	0	0	362.2
Min	0	0	0	0	0	117.0	0	0	0	0	0	0	140.6
Max	0	0	0	35.7	269.0	345.9	0	0	0	0	0	0	552.1
Avg	0	0	0	1.6	106.8	237.6	0	0	0	0	0	0	345.9

Notes: Daily diversion records (for irrigation only) acquired from the Colorado Decision Support System (CDSS).

Daily diversions are limited to the McKinley Ditch water rights priority on each day.

The Colorado Water Trust portion of the McKinley Ditch (which is used to irrigate the Western Rivers Conservancy Property) is 18.75% (1.5 shares of 8 total shares). Therefore, the diversions attributable to the Western Rivers Conservancy Property are equal to 18.75% of the total ditch diversions. Data missing in 1986 filled with monthly average values from study period.

BBA
water consultants   *BISHOP-BROGDEN ASSOCIATES, INC.*

Table E-9
McKinley Ditch - Western Rivers Conservancy Property
Farm Headgate Deliveries
Irrigation through June - 87.5625 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	185.6	311.3	0	0	0	0	0	0	496.9
1975	0	0	0	0	0	179.0	0	0	0	0	0	0	179.0
1976	0	0	0	0	182.5	309.4	0	0	0	0	0	0	491.9
1977	0	0	0	32.1	183.1	220.9	0	0	0	0	0	0	436.1
1978	0	0	0	0	131.2	311.3	0	0	0	0	0	0	442.5
1979	0	0	0	0	0	280.2	0	0	0	0	0	0	280.2
1980	0	0	0	0	21.4	285.8	0	0	0	0	0	0	307.3
1981	0	0	0	7.1	242.1	242.8	0	0	0	0	0	0	492.1
1982	0	0	0	0	75.0	308.3	0	0	0	0	0	0	383.2
1983	0	0	0	0	0	311.3	0	0	0	0	0	0	311.3
1984	0	0	0	0	28.9	289.2	0	0	0	0	0	0	318.1
1985	0	0	0	0	4.9	261.6	0	0	0	0	0	0	266.4
1986	0	0	0	1.4	96.1	213.8	0	0	0	0	0	0	311.3
1987	0	0	0	0	0	277.5	0	0	0	0	0	0	277.5
1988	0	0	0	0	182.4	311.3	0	0	0	0	0	0	493.7
1989	0	0	0	0	129.3	125.9	0	0	0	0	0	0	255.1
1990	0	0	0	0	144.8	177.2	0	0	0	0	0	0	322.0
1991	0	0	0	0	210.3	172.6	0	0	0	0	0	0	382.9
1992	0	0	0	0	77.7	191.5	0	0	0	0	0	0	269.1
1993	0	0	0	0	130.5	140.6	0	0	0	0	0	0	271.0
1994	0	0	0	0	124.1	149.4	0	0	0	0	0	0	273.5
1995	0	0	0	0	83.5	211.6	0	0	0	0	0	0	295.1
1996	0	0	0	4.2	112.0	145.0	0	0	0	0	0	0	261.2
1997	0	0	0	0	44.2	129.8	0	0	0	0	0	0	174.0
1998	0	0	0	0	16.1	110.4	0	0	0	0	0	0	126.5
1999	0	0	0	0	86.7	132.7	0	0	0	0	0	0	219.4
2000	0	0	0	0	158.1	147.0	0	0	0	0	0	0	305.1
2001	0	0	0	0	16.1	155.8	0	0	0	0	0	0	171.9
2002	0	0	0	0	126.3	115.5	0	0	0	0	0	0	241.8
2003	0	0	0	0	98.3	250.3	0	0	0	0	0	0	348.6
2004	0	0	0	0	34.4	105.3	0	0	0	0	0	0	139.7
2005	0	0	0	0	78.2	222.6	0	0	0	0	0	0	300.8
2006	0	0	0	0	149.5	261.5	0	0	0	0	0	0	411.0
2007	0	0	0	6.9	115.8	241.0	0	0	0	0	0	0	363.7
2008	0	0	0	0	28.9	155.9	0	0	0	0	0	0	184.8
2009	0	0	0	0	114.3	237.5	0	0	0	0	0	0	351.8
2010	0	0	0	0	43.5	251.8	0	0	0	0	0	0	295.3
2011	0	0	0	0	37.7	238.8	0	0	0	0	0	0	276.5
2012	0	0	0	5.5	226.9	166.4	0	0	0	0	0	0	398.8
2013	0	0	0	0	123.6	202.4	0	0	0	0	0	0	326.0
Min	0	0	0	0	0	105.3	0	0	0	0	0	0	126.5
Max	0	0	0	32.1	242.1	311.3	0	0	0	0	0	0	496.9
Avg	0	0	0	1.4	96.1	213.8	0	0	0	0	0	0	311.3

Notes: Equal to the total in-priority diversion in Table E-8, less 10% ditch loss.

Table E-10
McKinley Ditch - Western Rivers Conservancy Property
Crop Irrigation Requirements
Irrigation through June - 87.5625 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0.3	24.9	33.9	36.6	28.2	16.0	2.7	0	0	142.5
1975	0	0	0	0	5.1	25.0	39.6	31.2	19.5	0.5	0	0	120.9
1976	0	0	0	0	16.3	29.4	37.1	22.9	15.8	2.1	0	0	123.6
1977	0	0	0	0	14.7	32.8	28.4	33.0	16.4	2.8	0	0	128.2
1978	0	0	0	0	14.1	32.7	33.6	35.8	22.3	2.3	0	0	140.8
1979	0	0	0	0	13.0	21.8	29.6	25.4	24.8	4.8	0	0	119.4
1980	0	0	0	0	9.6	33.8	37.4	35.5	20.6	2.2	0	0	139.0
1981	0	0	0	7.3	18.3	32.1	25.9	25.3	15.9	2.5	0	0	127.2
1982	0	0	0	0	15.6	29.9	36.4	31.1	7.4	1.9	0	0	122.3
1983	0	0	0	0	5.3	29.3	28.4	31.5	23.1	6.9	0	0	124.6
1984	0	0	0	1.0	23.6	21.6	38.8	31.1	18.4	1.4	0	0	135.9
1985	0	0	0	0.3	13.1	32.8	34.8	32.7	2.5	2.7	0	0	118.9
1986	0	0	0	1.5	15.2	30.8	32.9	28.4	11.1	2.5	0	0	122.4
1987	0	0	0	3.5	10.6	30.5	34.4	27.5	19.3	3.5	0	0	129.2
1988	0	0	0	2.8	18.0	35.9	38.2	27.4	14.3	6.4	0	0	143.1
1989	0	0	0	9.2	23.9	31.0	34.2	29.0	18.9	3.7	0	0	149.9
1990	0	0	0	0	17.1	34.7	34.8	30.9	13.0	2.6	0	0	133.0
1991	0	0	0	0	19.2	29.0	34.7	33.2	13.2	3.0	0	0	132.3
1992	0	0	0	11.0	7.3	30.4	26.5	24.1	20.9	5.6	0	0	125.7
1993	0	0	0	2.4	14.4	26.8	39.2	25.0	19.1	1.8	0	0	128.8
1994	0	0	0	4.2	22.3	32.2	44.1	31.6	13.8	3.9	0	0	152.1
1995	0	0	0	0.4	16.8	16.5	25.2	36.5	11.3	4.6	0	0	111.4
1996	0	0	0	4.1	24.0	31.1	41.8	40.1	6.1	1.7	0	0	148.9
1997	0	0	0	0.5	11.5	22.3	36.3	24.2	17.1	1.3	0	0	113.3
1998	0	0	0	0.2	18.6	29.3	42.6	30.6	20.6	1.6	0	0	143.4
1999	0	0	0	0	9.3	21.6	36.1	24.3	14.9	5.2	0	0	111.4
2000	0	0	0	8.9	19.1	32.8	37.7	35.4	15.7	4.2	0	0	153.9
2001	0	0	0	5.2	17.6	25.2	31.8	21.5	20.7	4.6	0	0	126.4
2002	0	0	0	7.5	22.0	36.4	40.4	24.5	4.4	1.0	0	0	136.2
2003	0	0	0	3.1	21.7	28.7	43.6	33.1	12.0	6.5	0	0	148.7
2004	0	0	0	0.2	22.7	31.9	38.4	29.4	11.9	4.3	0	0	138.8
2005	0	0	0	2.5	24.1	27.3	44.6	32.9	13.6	4.4	0	0	149.3
2006	0	0	0	7.4	21.4	32.3	32.1	27.0	5.4	0	0	0	125.6
2007	0	0	0	4.3	18.8	33.4	33.6	31.7	9.1	4.1	0	0	135.0
2008	0	0	0	0	13.4	28.7	37.1	36.7	16.6	3.9	0	0	136.3
2009	0	0	0	1.3	13.5	25.9	37.6	32.3	20.4	1.8	0	0	132.7
2010	0	0	0	1.2	18.8	33.2	44.4	24.7	18.1	3.8	0	0	144.3
2011	0	0	0	0	13.8	27.9	36.4	31.1	15.1	3.2	0	0	127.4
2012	0	0	0	6.3	18.0	29.4	26.1	26.5	15.0	5.2	0	0	126.5
2013	0	0	0	0	18.5	34.4	31.5	28.0	10.7	2.9	0	0	126.0
Avg	0	0	0	2.4	16.6	29.6	35.6	29.8	15.1	3.2	0	0	132.4
Avg/Ac	0	0	0	0.0	0.2	0.3	0.4	0.3	0.2	0.0	0	0	1.51

Notes: The crop irrigation requirement (CIR) was determined using StateCU.

87.5625 acres of pasture grass were modeled, based on TR21 crop coefficients and an adjustment made for elevation.

Table E-11
McKinley Ditch - Western Rivers Conservancy Property
Water Available to Crop
Irrigation through June - 87.5625 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	102.1	171.2	0	0	0	0	0	0	273.3
1975	0	0	0	0	0	98.5	0	0	0	0	0	0	98.5
1976	0	0	0	0	100.4	170.2	0	0	0	0	0	0	270.5
1977	0	0	0	17.7	100.7	121.5	0	0	0	0	0	0	239.9
1978	0	0	0	0	72.2	171.2	0	0	0	0	0	0	243.4
1979	0	0	0	0	0	154.1	0	0	0	0	0	0	154.1
1980	0	0	0	0	11.8	157.2	0	0	0	0	0	0	169.0
1981	0	0	0	3.9	133.2	133.6	0	0	0	0	0	0	270.7
1982	0	0	0	0	41.2	169.6	0	0	0	0	0	0	210.8
1983	0	0	0	0	0	171.2	0	0	0	0	0	0	171.2
1984	0	0	0	0	15.9	159.1	0	0	0	0	0	0	175.0
1985	0	0	0	0	2.7	143.9	0	0	0	0	0	0	146.5
1986	0	0	0	0.8	52.9	117.6	0	0	0	0	0	0	171.2
1987	0	0	0	0	0	152.6	0	0	0	0	0	0	152.6
1988	0	0	0	0	100.3	171.2	0	0	0	0	0	0	271.5
1989	0	0	0	0	71.1	69.2	0	0	0	0	0	0	140.3
1990	0	0	0	0	79.6	97.4	0	0	0	0	0	0	177.1
1991	0	0	0	0	115.7	94.9	0	0	0	0	0	0	210.6
1992	0	0	0	0	42.7	105.3	0	0	0	0	0	0	148.0
1993	0	0	0	0	71.8	77.3	0	0	0	0	0	0	149.1
1994	0	0	0	0	68.2	82.2	0	0	0	0	0	0	150.4
1995	0	0	0	0	45.9	116.4	0	0	0	0	0	0	162.3
1996	0	0	0	2.3	61.6	79.7	0	0	0	0	0	0	143.6
1997	0	0	0	0	24.3	71.4	0	0	0	0	0	0	95.7
1998	0	0	0	0	8.9	60.7	0	0	0	0	0	0	69.6
1999	0	0	0	0	47.7	73.0	0	0	0	0	0	0	120.7
2000	0	0	0	0	86.9	80.8	0	0	0	0	0	0	167.8
2001	0	0	0	0	8.8	85.7	0	0	0	0	0	0	94.6
2002	0	0	0	0	69.5	63.5	0	0	0	0	0	0	133.0
2003	0	0	0	0	54.1	137.7	0	0	0	0	0	0	191.7
2004	0	0	0	0	18.9	57.9	0	0	0	0	0	0	76.8
2005	0	0	0	0	43.0	122.4	0	0	0	0	0	0	165.4
2006	0	0	0	0	82.2	143.8	0	0	0	0	0	0	226.1
2007	0	0	0	3.8	63.7	132.5	0	0	0	0	0	0	200.0
2008	0	0	0	0	15.9	85.7	0	0	0	0	0	0	101.6
2009	0	0	0	0	62.8	130.7	0	0	0	0	0	0	193.5
2010	0	0	0	0	23.9	138.5	0	0	0	0	0	0	162.4
2011	0	0	0	0	20.7	131.4	0	0	0	0	0	0	152.1
2012	0	0	0	3.0	124.8	91.5	0	0	0	0	0	0	219.4
2013	0	0	0	0	68.0	111.3	0	0	0	0	0	0	179.3
Min	0	0	0	0	0	57.9	0	0	0	0	0	0	69.6
Max	0	0	0	17.7	133.2	171.2	0	0	0	0	0	0	273.3
Avg	0	0	0	0.8	52.9	117.6	0	0	0	0	0	0	171.2

Notes: Equal to the farm headgate delivery in Table E-9, multiplied by 55% to account for application efficiency.

Table E-12
McKinley Ditch - Western Rivers Conservancy Property
Consumptive Use
Irrigation through June - 87.5625 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0.3	24.9	33.9	34.7	0	0	0	0	0	93.7
1975	0	0	0	0	0	25.0	34.7	0	0	0	0	0	59.7
1976	0	0	0	0	16.3	29.4	34.7	0	0	0	0	0	80.4
1977	0	0	0	0	14.7	32.8	28.4	6.3	0	0	0	0	82.2
1978	0	0	0	0	14.1	32.7	33.6	1.0	0	0	0	0	81.5
1979	0	0	0	0	0	21.8	29.6	5.1	0	0	0	0	56.5
1980	0	0	0	0	9.6	33.8	34.7	0	0	0	0	0	78.0
1981	0	0	0	3.9	18.3	32.1	25.9	8.8	0	0	0	0	89.0
1982	0	0	0	0	15.6	29.9	34.7	0	0	0	0	0	80.2
1983	0	0	0	0	0	29.3	28.4	6.2	0	0	0	0	64.0
1984	0	0	0	0	15.9	21.6	34.7	0	0	0	0	0	72.1
1985	0	0	0	0	2.7	32.8	34.7	0	0	0	0	0	70.1
1986	0	0	0	0.8	15.2	30.8	32.9	1.7	0	0	0	0	81.4
1987	0	0	0	0	0	30.5	34.4	0.3	0	0	0	0	65.1
1988	0	0	0	0	18.0	35.9	34.7	0	0	0	0	0	88.7
1989	0	0	0	0	23.9	31.0	34.2	0.4	0	0	0	0	89.6
1990	0	0	0	0	17.1	34.7	34.7	0	0	0	0	0	86.5
1991	0	0	0	0	19.2	29.0	34.7	0	0	0	0	0	82.9
1992	0	0	0	0	7.3	30.4	26.5	8.2	0	0	0	0	72.4
1993	0	0	0	0	14.4	26.8	34.7	0	0	0	0	0	75.9
1994	0	0	0	0	22.3	32.2	34.7	0	0	0	0	0	89.1
1995	0	0	0	0	16.8	16.5	25.2	9.5	0	0	0	0	68.0
1996	0	0	0	2.3	24.0	31.1	34.7	0	0	0	0	0	92.1
1997	0	0	0	0	11.5	22.3	34.7	0	0	0	0	0	68.6
1998	0	0	0	0	8.9	29.3	31.4	0	0	0	0	0	69.6
1999	0	0	0	0	9.3	21.6	34.7	0	0	0	0	0	65.6
2000	0	0	0	0	19.1	32.8	34.7	0	0	0	0	0	86.6
2001	0	0	0	0	8.8	25.2	31.8	2.9	0	0	0	0	68.7
2002	0	0	0	0	22.0	36.4	34.7	0	0	0	0	0	93.1
2003	0	0	0	0	21.7	28.7	34.7	0	0	0	0	0	85.1
2004	0	0	0	0	18.9	31.9	26.0	0	0	0	0	0	76.8
2005	0	0	0	0	24.1	27.3	34.7	0	0	0	0	0	86.0
2006	0	0	0	0	21.4	32.3	32.1	2.6	0	0	0	0	88.4
2007	0	0	0	3.8	18.8	33.4	33.6	1.1	0	0	0	0	90.7
2008	0	0	0	0	13.4	28.7	34.7	0	0	0	0	0	76.7
2009	0	0	0	0	13.5	25.9	34.7	0	0	0	0	0	74.0
2010	0	0	0	0	18.8	33.2	34.7	0	0	0	0	0	86.7
2011	0	0	0	0	13.8	27.9	34.7	0	0	0	0	0	76.3
2012	0	0	0	3.0	18.0	29.4	26.1	8.6	0	0	0	0	85.1
2013	0	0	0	0	18.5	34.4	31.5	3.2	0	0	0	0	87.5
Min	0	0	0	0	0	16.5	25.2	0	0	0	0	0	56.5
Max	0	0	0	3.9	24.9	36.4	34.7	9.5	0	0	0	0	93.7
Avg	0	0	0	0.4	14.8	29.6	32.7	1.6	0	0	0	0	79.1

Notes: Equal to the consumptive use, calculated in the StateCU model. Consumptive use includes water used directly to meet the crop irrigation requirement and water used to fill the soil moisture reservoir for later crop use.

Table E-13
McKinley Ditch - Western Rivers Conservancy Property
Surface Water Return Flow
Irrigation through June - 87.5625 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	96.3	166.4	0	0	0	0	0	0	262.7
1975	0	0	0	0	0	71.6	0	0	0	0	0	0	71.6
1976	0	0	0	0	78.9	168.0	0	0	0	0	0	0	246.9
1977	0	0	0	8.7	90.9	112.8	0	0	0	0	0	0	212.4
1978	0	0	0	0	49.4	167.2	0	0	0	0	0	0	216.6
1979	0	0	0	0	0	134.2	0	0	0	0	0	0	134.2
1980	0	0	0	0	5.8	131.8	0	0	0	0	0	0	137.6
1981	0	0	0	1.9	113.5	126.4	0	0	0	0	0	0	241.9
1982	0	0	0	0	20.2	161.6	0	0	0	0	0	0	181.8
1983	0	0	0	0	0	148.4	0	0	0	0	0	0	148.4
1984	0	0	0	0	7.8	139.8	0	0	0	0	0	0	147.6
1985	0	0	0	0	1.3	116.5	0	0	0	0	0	0	117.8
1986	0	0	0	0.4	27.8	109.8	0	0	0	0	0	0	138.0
1987	0	0	0	0	0	127.4	0	0	0	0	0	0	127.4
1988	0	0	0	0	77.8	165.2	0	0	0	0	0	0	243.0
1989	0	0	0	0	42.4	56.9	0	0	0	0	0	0	99.3
1990	0	0	0	0	55.8	85.5	0	0	0	0	0	0	141.3
1991	0	0	0	0	93.9	86.1	0	0	0	0	0	0	180.0
1992	0	0	0	0	21.4	96.6	0	0	0	0	0	0	118.1
1993	0	0	0	0	48.9	68.2	0	0	0	0	0	0	117.1
1994	0	0	0	0	40.3	70.4	0	0	0	0	0	0	110.6
1995	0	0	0	0	22.5	113.7	0	0	0	0	0	0	136.2
1996	0	0	0	1.1	32.0	68.3	0	0	0	0	0	0	101.4
1997	0	0	0	0	11.9	51.3	0	0	0	0	0	0	63.3
1998	0	0	0	0	4.3	29.8	0	0	0	0	0	0	34.2
1999	0	0	0	0	25.6	66.7	0	0	0	0	0	0	92.3
2000	0	0	0	0	62.6	68.5	0	0	0	0	0	0	131.1
2001	0	0	0	0	4.3	57.6	0	0	0	0	0	0	61.9
2002	0	0	0	0	41.7	47.5	0	0	0	0	0	0	89.2
2003	0	0	0	0	26.5	131.5	0	0	0	0	0	0	158.1
2004	0	0	0	0	9.3	28.4	0	0	0	0	0	0	37.7
2005	0	0	0	0	21.1	107.7	0	0	0	0	0	0	128.8
2006	0	0	0	0	56.1	137.5	0	0	0	0	0	0	193.6
2007	0	0	0	1.9	37.4	124.6	0	0	0	0	0	0	163.8
2008	0	0	0	0	7.8	57.0	0	0	0	0	0	0	64.8
2009	0	0	0	0	39.7	127.0	0	0	0	0	0	0	166.7
2010	0	0	0	0	11.7	113.4	0	0	0	0	0	0	125.1
2011	0	0	0	0	10.2	109.9	0	0	0	0	0	0	120.1
2012	0	0	0	1.5	104.5	82.2	0	0	0	0	0	0	188.2
2013	0	0	0	0	42.3	100.8	0	0	0	0	0	0	143.1
Min	0	0	0	0	0	28.4	0	0	0	0	0	0	34.2
Max	0	0	0	8.7	113.5	168.0	0	0	0	0	0	0	262.7
Avg	0	0	0	0.4	36.1	103.4	0	0	0	0	0	0	139.8

Notes: Equal to the total return flow calculated in the StateCU model, multiplied by 60% (60% of all return flows from the lands irrigated on the Western Rivers Conservancy Property returned back to the river through surface runoff).

Table E-14
McKinley Ditch - Western Rivers Conservancy Property
Deep Percolation
Irrigation through June - 87.5625 acres
(all values in acre-feet)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	64.2	111.0	0	0	0	0	0	0	175.1
1975	0	0	0	0	0	47.7	0	0	0	0	0	0	47.7
1976	0	0	0	0	52.6	112.0	0	0	0	0	0	0	164.6
1977	0	0	0	5.8	60.6	75.2	0	0	0	0	0	0	141.6
1978	0	0	0	0	33.0	111.4	0	0	0	0	0	0	144.4
1979	0	0	0	0	0	89.5	0	0	0	0	0	0	89.5
1980	0	0	0	0	3.9	87.9	0	0	0	0	0	0	91.7
1981	0	0	0	1.3	75.7	84.3	0	0	0	0	0	0	161.2
1982	0	0	0	0	13.5	107.7	0	0	0	0	0	0	121.2
1983	0	0	0	0	0	98.9	0	0	0	0	0	0	98.9
1984	0	0	0	0	5.2	93.2	0	0	0	0	0	0	98.4
1985	0	0	0	0	0.9	77.6	0	0	0	0	0	0	78.5
1986	0	0	0	0.3	18.5	73.2	0	0	0	0	0	0	92.0
1987	0	0	0	0	0	84.9	0	0	0	0	0	0	84.9
1988	0	0	0	0	51.9	110.1	0	0	0	0	0	0	162.0
1989	0	0	0	0	28.3	37.9	0	0	0	0	0	0	66.2
1990	0	0	0	0	37.2	57.0	0	0	0	0	0	0	94.2
1991	0	0	0	0	62.6	57.4	0	0	0	0	0	0	120.0
1992	0	0	0	0	14.3	64.4	0	0	0	0	0	0	78.7
1993	0	0	0	0	32.6	45.5	0	0	0	0	0	0	78.1
1994	0	0	0	0	26.8	46.9	0	0	0	0	0	0	73.7
1995	0	0	0	0	15.0	75.8	0	0	0	0	0	0	90.8
1996	0	0	0	0.8	21.3	45.5	0	0	0	0	0	0	67.6
1997	0	0	0	0	8.0	34.2	0	0	0	0	0	0	42.2
1998	0	0	0	0	2.9	19.9	0	0	0	0	0	0	22.8
1999	0	0	0	0	17.1	44.5	0	0	0	0	0	0	61.6
2000	0	0	0	0	41.7	45.7	0	0	0	0	0	0	87.4
2001	0	0	0	0	2.9	38.4	0	0	0	0	0	0	41.3
2002	0	0	0	0	27.8	31.6	0	0	0	0	0	0	59.5
2003	0	0	0	0	17.7	87.7	0	0	0	0	0	0	105.4
2004	0	0	0	0	6.2	19.0	0	0	0	0	0	0	25.2
2005	0	0	0	0	14.1	71.8	0	0	0	0	0	0	85.9
2006	0	0	0	0	37.4	91.7	0	0	0	0	0	0	129.1
2007	0	0	0	1.2	24.9	83.0	0	0	0	0	0	0	109.2
2008	0	0	0	0	5.2	38.0	0	0	0	0	0	0	43.2
2009	0	0	0	0	26.5	84.7	0	0	0	0	0	0	111.1
2010	0	0	0	0	7.8	75.6	0	0	0	0	0	0	83.4
2011	0	0	0	0	6.8	73.3	0	0	0	0	0	0	80.1
2012	0	0	0	1.0	69.7	54.8	0	0	0	0	0	0	125.5
2013	0	0	0	0	28.2	67.2	0	0	0	0	0	0	95.4
Min	0	0	0	0	0	19.0	0	0	0	0	0	0	22.8
Max	0	0	0	5.8	75.7	112.0	0	0	0	0	0	0	175.1
Avg	0	0	0	0.3	24.1	68.9	0	0	0	0	0	0	93.2

Notes: Equal to the total return flow calculated in the StateCU model, multiplied by 40% (40% of all return flows from the lands irrigated on the Western Rivers Conservancy Property returned back to the river through deep percolation).

Table E-15
McKinley Ditch - Western Rivers Conservancy Property
Percent of Month that the McKinley Ditch Junior Water Rights were In-Priority

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1974	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1975	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1976	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1977	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1978	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1979	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1980	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1981	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1982	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1983	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1984	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1985	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1986	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1987	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1988	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1989	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1990	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1991	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1992	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1993	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1994	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1995	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1996	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1997	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1998	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1999	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2000	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2001	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2002	100%	100%	100%	100%	0%	0%	0%	0%	0%	100%	100%	100%
2003	100%	100%	100%	100%	100%	100%	29.0%	0%	76.7%	100%	100%	100%
2004	100%	100%	100%	100%	100%	100%	22.6%	0%	20.0%	100%	100%	100%
2005	100%	100%	100%	100%	100%	100%	54.8%	0%	0%	100%	100%	100%
2006	100%	100%	100%	100%	100%	100%	100%	100%	50.0%	100%	100%	100%
2007	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2008	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2009	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2010	100%	100%	100%	100%	100%	100%	16.1%	25.8%	100%	100%	100%	100%
2011	100%	100%	100%	100%	100%	100%	100%	58.1%	0%	100%	100%	100%
2012	100%	100%	100%	100%	100%	36.7%	0%	0%	0%	100%	100%	100%
2013	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Min	100%	100%	100%	100%	0%	0%	0%	0%	0%	100%	100%	100%
Max	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Avg	100%	100%	100%	100%	97.5%	95.9%	88.1%	84.6%	86.2%	100%	100%	100%

Notes: Equal to the percent of each month that McKinley Ditch water rights junior to Priority No. 56 (appropriation date 9/1/1886) were in
priority based upon call records acquired from the Colorado Decision Support System (CDSS).

Table E-16
McKinley Ditch - Western Rivers Conservancy Portion
In-Priority Consumptive Use
Irrigation through June
(all values in aE-ft)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0.6	55.3	75.3	77.0	0	0	0	0	0	208.2
1975	0	0	0	0	0	55.5	42.9	0	0	0	0	0	98.5
1976	0	0	0	0	36.3	65.3	77.0	0	0	0	0	0	178.6
1977	0	0	0	0	32.6	72.9	63.1	14.0	0	0	0	0	182.5
1978	0	0	0	0	31.4	72.6	74.7	2.3	0	0	0	0	181.0
1979	0	0	0	0	0	48.4	65.7	11.3	0	0	0	0	125.5
1980	0	0	0	0	11.8	75.0	77.0	0	0	0	0	0	163.8
1981	0	0	0	3.9	40.6	71.4	57.5	19.5	0	0	0	0	192.9
1982	0	0	0	0	34.6	66.5	77.0	0	0	0	0	0	178.1
1983	0	0	0	0	0	65.2	63.2	13.9	0	0	0	0	142.2
1984	0	0	0	0	15.9	47.9	77.0	0	0	0	0	0	140.8
1985	0	0	0	0	2.7	72.8	71.0	0	0	0	0	0	146.5
1986	0	0	0	0.8	33.7	68.3	68.4	0	0	0	0	0	171.2
1987	0	0	0	0	0	67.7	76.3	0.7	0	0	0	0	144.7
1988	0	0	0	0	40.1	79.8	77.0	0	0	0	0	0	196.9
1989	0	0	0	0	53.1	68.9	18.3	0	0	0	0	0	140.3
1990	0	0	0	0	38.1	77.0	62.0	0	0	0	0	0	177.1
1991	0	0	0	0	42.6	64.5	77.0	0	0	0	0	0	184.2
1992	0	0	0	0	16.1	67.6	58.8	5.5	0	0	0	0	148.0
1993	0	0	0	0	31.9	59.6	57.5	0	0	0	0	0	149.1
1994	0	0	0	0	49.5	71.5	29.4	0	0	0	0	0	150.4
1995	0	0	0	0	37.3	36.7	56.0	21.0	0	0	0	0	151.0
1996	0	0	0	2.3	53.3	69.2	18.9	0	0	0	0	0	143.6
1997	0	0	0	0	24.3	49.6	21.8	0	0	0	0	0	95.7
1998	0	0	0	0	8.9	60.7	0	0	0	0	0	0	69.6
1999	0	0	0	0	20.7	47.9	52.1	0	0	0	0	0	120.7
2000	0	0	0	0	42.5	72.9	52.3	0	0	0	0	0	167.8
2001	0	0	0	0	8.8	55.9	29.8	0	0	0	0	0	94.6
2002	0	0	0	0	22.0	36.4	34.7	0	0	0	0	0	93.1
2003	0	0	0	0	48.3	63.8	47.0	0	0	0	0	0	159.1
2004	0	0	0	0	18.9	57.9	20.1	0	0	0	0	0	97.0
2005	0	0	0	0	43.0	60.7	49.5	0	0	0	0	0	153.2
2006	0	0	0	0	47.6	71.7	71.2	5.8	0	0	0	0	196.3
2007	0	0	0	3.8	41.8	74.1	74.7	2.3	0	0	0	0	196.7
2008	0	0	0	0	15.9	63.8	22.0	0	0	0	0	0	101.6
2009	0	0	0	0	29.9	57.5	77.0	0	0	0	0	0	164.4
2010	0	0	0	0	23.9	73.8	39.5	0	0	0	0	0	137.3
2011	0	0	0	0	20.7	61.9	69.5	0	0	0	0	0	152.1
2012	0	0	0	3.0	39.9	42.6	26.1	8.6	0	0	0	0	120.2
2013	0	0	0	0	41.0	76.3	61.9	0	0	0	0	0	179.3
Min	0	0	0	0	0	36.4	0	0	0	0	0	0	69.6
Max	0	0	0	3.9	55.3	79.8	77.0	21.0	0	0	0	0	208.2
Avg	0	0	0	0.4	28.9	63.7	54.3	2.6	0	0	0	0	149.8

Notes: The in-priority consumptive use is equal to (Table E-15 multiplied by Table E-5) + (1-Table E-15 multiplied by Table E-12).

Table E-17
McKinley Ditch - Western Rivers Conservancy Portion
In-Priority Surface Water Return Flow
Irrigation through June
(all values in aE-ft)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	77.8	141.6	0	0	0	0	0	0	219.4
1975	0	0	0	0	0	48.3	0	0	0	0	0	0	48.3
1976	0	0	0	0	49.3	138.7	0	0	0	0	0	0	188.0
1977	0	0	0	8.7	54.7	88.8	0	0	0	0	0	0	152.2
1978	0	0	0	0	35.4	121.5	0	0	0	0	0	0	156.9
1979	0	0	0	0	0	92.8	0	0	0	0	0	0	92.8
1980	0	0	0	0	5.8	80.3	0	0	0	0	0	0	86.1
1981	0	0	0	1.9	74.7	102.9	0	0	0	0	0	0	179.5
1982	0	0	0	0	20.2	102.8	0	0	0	0	0	0	123.1
1983	0	0	0	0	0	101.5	0	0	0	0	0	0	101.5
1984	0	0	0	0	7.8	98.6	0	0	0	0	0	0	106.4
1985	0	0	0	0	1.3	70.6	0	0	0	0	0	0	71.9
1986	0	0	0	0.4	25.9	57.7	0	0	0	0	0	0	84.1
1987	0	0	0	0	0	79.7	0	0	0	0	0	0	79.7
1988	0	0	0	0	49.3	128.8	0	0	0	0	0	0	178.1
1989	0	0	0	0	34.9	34.0	0	0	0	0	0	0	68.9
1990	0	0	0	0	39.1	47.8	0	0	0	0	0	0	86.9
1991	0	0	0	0	56.8	62.4	0	0	0	0	0	0	119.2
1992	0	0	0	0	21.0	51.7	0	0	0	0	0	0	72.7
1993	0	0	0	0	35.2	37.9	0	0	0	0	0	0	73.2
1994	0	0	0	0	33.5	40.4	0	0	0	0	0	0	73.9
1995	0	0	0	0	22.5	63.9	0	0	0	0	0	0	86.4
1996	0	0	0	1.1	30.2	39.1	0	0	0	0	0	0	70.5
1997	0	0	0	0	11.9	35.0	0	0	0	0	0	0	47.0
1998	0	0	0	0	4.3	29.8	0	0	0	0	0	0	34.2
1999	0	0	0	0	23.4	35.8	0	0	0	0	0	0	59.2
2000	0	0	0	0	42.7	39.7	0	0	0	0	0	0	82.4
2001	0	0	0	0	4.3	42.1	0	0	0	0	0	0	46.4
2002	0	0	0	0	41.7	47.5	0	0	0	0	0	0	89.2
2003	0	0	0	0	26.5	69.2	0	0	0	0	0	0	95.7
2004	0	0	0	0	9.3	28.4	0	0	0	0	0	0	37.7
2005	0	0	0	0	21.1	60.1	0	0	0	0	0	0	81.2
2006	0	0	0	0	40.4	88.5	0	0	0	0	0	0	128.8
2007	0	0	0	1.9	31.3	67.0	0	0	0	0	0	0	100.2
2008	0	0	0	0	7.8	42.1	0	0	0	0	0	0	49.9
2009	0	0	0	0	30.8	81.6	0	0	0	0	0	0	112.5
2010	0	0	0	0	11.7	68.0	0	0	0	0	0	0	79.7
2011	0	0	0	0	10.2	64.5	0	0	0	0	0	0	74.6
2012	0	0	0	1.5	66.0	74.3	0	0	0	0	0	0	141.8
2013	0	0	0	0	33.4	54.6	0	0	0	0	0	0	88.0
Min	0	0	0	0	0	28.4	0	0	0	0	0	0	34.2
Max	0	0	0	8.7	77.8	141.6	0	0	0	0	0	0	219.4
Avg	0	0	0	0.4	27.3	69.0	0	0	0	0	0	0	96.7

Notes: The in-priority surface water return flow is equal to (Table E-15 multiplied by Table E-6) + (1-Table E-15 multiplied by Table E-13).

Table E-18
McKinley Ditch - Western Rivers Conservancy Portion
In-Priority Deep Percolation
Irrigation through June
(all values in aE-ft)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	0	0	0	0	51.9	94.4	0	0	0	0	0	0	146.3
1975	0	0	0	0	0	32.2	0	0	0	0	0	0	32.2
1976	0	0	0	0	32.8	92.5	0	0	0	0	0	0	125.3
1977	0	0	0	5.8	36.5	59.2	0	0	0	0	0	0	101.4
1978	0	0	0	0	23.6	81.0	0	0	0	0	0	0	104.6
1979	0	0	0	0	0	61.9	0	0	0	0	0	0	61.9
1980	0	0	0	0	3.9	53.5	0	0	0	0	0	0	57.4
1981	0	0	0	1.3	49.8	68.6	0	0	0	0	0	0	119.7
1982	0	0	0	0	13.5	68.6	0	0	0	0	0	0	82.1
1983	0	0	0	0	0	67.6	0	0	0	0	0	0	67.6
1984	0	0	0	0	5.2	65.7	0	0	0	0	0	0	70.9
1985	0	0	0	0	0.9	47.1	0	0	0	0	0	0	48.0
1986	0	0	0	0.3	17.3	38.5	0	0	0	0	0	0	56.0
1987	0	0	0	0	0	53.1	0	0	0	0	0	0	53.1
1988	0	0	0	0	32.8	85.9	0	0	0	0	0	0	118.7
1989	0	0	0	0	23.3	22.7	0	0	0	0	0	0	45.9
1990	0	0	0	0	26.1	31.9	0	0	0	0	0	0	58.0
1991	0	0	0	0	37.9	41.6	0	0	0	0	0	0	79.5
1992	0	0	0	0	14.0	34.5	0	0	0	0	0	0	48.4
1993	0	0	0	0	23.5	25.3	0	0	0	0	0	0	48.8
1994	0	0	0	0	22.3	26.9	0	0	0	0	0	0	49.2
1995	0	0	0	0	15.0	42.6	0	0	0	0	0	0	57.6
1996	0	0	0	0.8	20.2	26.1	0	0	0	0	0	0	47.0
1997	0	0	0	0	8.0	23.4	0	0	0	0	0	0	31.3
1998	0	0	0	0	2.9	19.9	0	0	0	0	0	0	22.8
1999	0	0	0	0	15.6	23.9	0	0	0	0	0	0	39.5
2000	0	0	0	0	28.5	26.5	0	0	0	0	0	0	54.9
2001	0	0	0	0	2.9	28.1	0	0	0	0	0	0	30.9
2002	0	0	0	0	27.8	31.6	0	0	0	0	0	0	59.5
2003	0	0	0	0	17.7	46.1	0	0	0	0	0	0	63.8
2004	0	0	0	0	6.2	19.0	0	0	0	0	0	0	25.2
2005	0	0	0	0	14.1	40.1	0	0	0	0	0	0	54.1
2006	0	0	0	0	26.9	59.0	0	0	0	0	0	0	85.9
2007	0	0	0	1.2	20.8	44.7	0	0	0	0	0	0	66.8
2008	0	0	0	0	5.2	28.1	0	0	0	0	0	0	33.3
2009	0	0	0	0	20.6	54.4	0	0	0	0	0	0	75.0
2010	0	0	0	0	7.8	45.3	0	0	0	0	0	0	53.2
2011	0	0	0	0	6.8	43.0	0	0	0	0	0	0	49.8
2012	0	0	0	1.0	44.0	49.5	0	0	0	0	0	0	94.5
2013	0	0	0	0	22.2	36.4	0	0	0	0	0	0	58.7
Min	0	0	0	0	0	19.0	0	0	0	0	0	0	22.8
Max	0	0	0	5.8	51.9	94.4	0	0	0	0	0	0	146.3
Avg	0	0	0	0.3	18.2	46.0	0	0	0	0	0	0	64.5

Notes: The in-priority deep percolation is equal to (Table E-15 multiplied by Table E-7) + (1-Table E-15 multiplied by Table E-14).

Table E-19
McKinley Ditch - Western Rivers Conservancy Portion
In-Priority Lagged Ground Water Return Flow
Irrigation through June
(all values in aE-ft)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	5.4	5.2	5.0	4.8	4.6	4.7	5.6	7.5	8.7	9.0	8.8	8.4	77.6
1975	7.9	7.5	7.1	6.8	6.5	6.2	6.1	6.4	6.5	6.5	6.3	6.1	80.0
1976	5.9	5.6	5.4	5.2	5.1	5.0	5.7	7.3	8.4	8.7	8.5	8.1	79.1
1977	7.8	7.4	7.0	6.7	6.4	6.4	7.0	8.1	8.8	8.8	8.6	8.2	91.3
1978	7.9	7.5	7.2	6.9	6.6	6.4	6.9	8.1	9.0	9.2	9.0	8.6	93.2
1979	8.2	7.8	7.5	7.2	6.9	6.6	6.6	7.3	7.9	7.9	7.7	7.5	89.3
1980	7.2	6.9	6.6	6.4	6.1	5.9	6.0	6.6	7.1	7.2	7.0	6.8	79.9
1981	6.5	6.2	6.0	5.8	5.6	5.6	6.4	7.9	8.7	8.9	8.6	8.3	84.5
1982	7.9	7.5	7.2	6.8	6.6	6.4	6.6	7.5	8.2	8.3	8.1	7.8	88.9
1983	7.5	7.2	6.9	6.6	6.3	6.1	6.1	6.9	7.6	7.7	7.5	7.2	83.5
1984	6.9	6.7	6.4	6.1	5.9	5.7	5.8	6.7	7.3	7.4	7.3	7.0	79.3
1985	6.7	6.4	6.2	5.9	5.7	5.5	5.5	6.0	6.4	6.5	6.3	6.1	73.3
1986	5.9	5.6	5.4	5.2	5.0	4.9	5.2	5.8	6.2	6.2	6.1	5.8	67.3
1987	5.6	5.4	5.1	4.9	4.8	4.6	4.6	5.3	5.8	5.9	5.7	5.5	63.2
1988	5.3	5.1	4.9	4.7	4.5	4.5	5.1	6.7	7.7	7.9	7.8	7.4	71.6
1989	7.1	6.7	6.4	6.1	5.8	5.7	5.9	6.3	6.5	6.4	6.2	6.0	75.0
1990	5.7	5.5	5.3	5.1	4.9	4.9	5.2	5.8	6.2	6.2	6.0	5.8	66.8
1991	5.6	5.3	5.1	4.9	4.7	4.7	5.3	6.2	6.7	6.8	6.6	6.3	68.2
1992	6.0	5.8	5.5	5.3	5.1	4.9	5.1	5.6	5.9	5.9	5.8	5.6	66.4
1993	5.3	5.1	4.9	4.7	4.6	4.5	4.8	5.3	5.6	5.6	5.4	5.2	61.0
1994	5.0	4.8	4.6	4.4	4.3	4.2	4.5	5.0	5.3	5.3	5.2	5.0	57.5
1995	4.8	4.6	4.4	4.2	4.1	4.0	4.2	4.9	5.4	5.4	5.3	5.1	56.2
1996	4.9	4.7	4.5	4.3	4.1	4.1	4.3	4.8	5.1	5.1	4.9	4.8	55.5
1997	4.6	4.4	4.2	4.0	3.9	3.8	3.8	4.2	4.4	4.4	4.3	4.1	49.9
1998	3.9	3.8	3.6	3.5	3.4	3.3	3.3	3.5	3.7	3.7	3.6	3.5	42.8
1999	3.3	3.2	3.1	3.0	2.9	2.8	3.1	3.5	3.8	3.8	3.7	3.6	39.9
2000	3.4	3.3	3.1	3.0	2.9	2.9	3.3	4.0	4.3	4.4	4.2	4.1	43.0
2001	3.9	3.7	3.5	3.4	3.2	3.1	3.2	3.5	3.8	3.8	3.7	3.6	42.2
2002	3.4	3.3	3.1	3.0	2.9	2.9	3.4	4.1	4.5	4.5	4.4	4.2	43.7
2003	4.0	3.8	3.7	3.5	3.4	3.3	3.6	4.4	4.9	5.0	4.9	4.7	49.2
2004	4.5	4.3	4.1	3.9	3.7	3.6	3.6	3.9	4.0	4.0	3.9	3.7	47.2
2005	3.6	3.5	3.3	3.2	3.1	3.0	3.3	4.0	4.4	4.5	4.4	4.2	44.6
2006	4.1	3.9	3.7	3.5	3.4	3.4	3.9	5.0	5.7	5.8	5.7	5.4	53.4
2007	5.2	4.9	4.7	4.5	4.3	4.2	4.5	5.3	5.8	5.9	5.7	5.5	60.4
2008	5.2	5.0	4.8	4.6	4.4	4.2	4.3	4.6	4.8	4.8	4.7	4.5	55.9
2009	4.4	4.2	4.0	3.9	3.7	3.7	4.1	5.0	5.7	5.8	5.7	5.4	55.6
2010	5.2	4.9	4.7	4.5	4.3	4.2	4.3	4.9	5.4	5.4	5.3	5.1	58.4
2011	4.9	4.7	4.5	4.3	4.1	4.0	4.1	4.7	5.2	5.2	5.1	4.9	55.8
2012	4.7	4.5	4.3	4.1	4.0	4.0	4.7	5.9	6.5	6.6	6.5	6.2	62.2
2013	5.9	5.6	5.3	5.1	4.9	4.8	5.1	5.7	6.1	6.1	5.9	5.7	66.1
Min	3.3	3.2	3.1	3.0	2.9	2.8	3.1	3.5	3.7	3.7	3.6	3.5	39.9
Max	8.2	7.8	7.5	7.2	6.9	6.6	7.0	8.1	9.0	9.2	9.0	8.6	93.2
Avg	5.5	5.3	5.1	4.9	4.7	4.6	4.9	5.6	6.1	6.2	6.0	5.8	64.5

Notes: The in-priority lagged ground water return flows on the Western Rivers Conservancy Property equal the in-priority deep percolation in Table E-18, lagged according to the Glover analysis within the IDS-AWAS model using the following parameters:

x (ft): 1,950	T (gpd/ft): 7,125
W (ft): 3,600	s: 0

Table E-20
McKinley Ditch - Western Rivers Conservancy Portion
In-Priority Total Depletions
Irrigation through June
(all values in aE-ft)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1974	-5.4	-5.2	-5.0	-4.8	103.2	165.0	-5.6	-7.5	-8.7	-9.0	-8.8	-8.4	199.8
1975	-7.9	-7.5	-7.1	-6.8	-6.5	124.4	-6.1	-6.4	-6.5	-6.5	-6.3	-6.1	50.6
1976	-5.9	-5.6	-5.4	-5.2	128.1	165.7	-5.7	-7.3	-8.4	-8.7	-8.5	-8.1	224.8
1977	-7.8	-7.4	-7.0	16.8	122.0	125.7	-7.0	-8.1	-8.8	-8.8	-8.6	-8.2	192.7
1978	-7.9	-7.5	-7.2	-6.9	89.2	183.4	-6.9	-8.1	-9.0	-9.2	-9.0	-8.6	192.4
1979	-8.2	-7.8	-7.5	-7.2	-6.9	180.7	-6.6	-7.3	-7.9	-7.9	-7.7	-7.5	98.1
1980	-7.2	-6.9	-6.6	-6.4	9.5	199.6	-6.0	-6.6	-7.1	-7.2	-7.0	-6.8	141.3
1981	-6.5	-6.2	-6.0	-0.6	161.8	134.4	-6.4	-7.9	-8.7	-8.9	-8.6	-8.3	228.1
1982	-7.9	-7.5	-7.2	-6.8	48.2	199.1	-6.6	-7.5	-8.2	-8.3	-8.1	-7.8	171.3
1983	-7.5	-7.2	-6.9	-6.6	-6.3	203.7	-6.1	-6.9	-7.6	-7.7	-7.5	-7.2	126.3
1984	-6.9	-6.7	-6.4	-6.1	15.2	184.9	-5.8	-6.7	-7.3	-7.4	-7.3	-7.0	132.4
1985	-6.7	-6.4	-6.2	-5.9	-2.2	185.5	-5.5	-6.0	-6.4	-6.5	-6.3	-6.1	121.2
1986	-5.9	-5.6	-5.4	-4.2	65.1	151.2	-5.2	-5.8	-6.2	-6.2	-6.1	-5.8	160.0
1987	-5.6	-5.4	-5.1	-4.9	-4.8	193.2	-4.6	-5.3	-5.8	-5.9	-5.7	-5.5	134.6
1988	-5.3	-5.1	-4.9	-4.7	128.7	178.0	-5.1	-6.7	-7.7	-7.9	-7.8	-7.4	244.0
1989	-7.1	-6.7	-6.4	-6.1	88.6	86.2	-5.9	-6.3	-6.5	-6.4	-6.2	-6.0	111.2
1990	-5.7	-5.5	-5.3	-5.1	100.8	124.5	-5.2	-5.8	-6.2	-6.2	-6.0	-5.8	168.3
1991	-5.6	-5.3	-5.1	-4.9	148.8	105.4	-5.3	-6.2	-6.7	-6.8	-6.6	-6.3	195.4
1992	-6.0	-5.8	-5.5	-5.3	51.6	134.8	-5.1	-5.6	-5.9	-5.9	-5.8	-5.6	130.1
1993	-5.3	-5.1	-4.9	-4.7	90.7	98.1	-4.8	-5.3	-5.6	-5.6	-5.4	-5.2	136.9
1994	-5.0	-4.8	-4.6	-4.4	86.3	104.9	-4.5	-5.0	-5.3	-5.3	-5.2	-5.0	142.2
1995	-4.8	-4.6	-4.4	-4.2	56.9	143.7	-4.2	-4.9	-5.4	-5.4	-5.3	-5.1	152.4
1996	-4.9	-4.7	-4.5	-1.2	77.6	101.8	-4.3	-4.8	-5.1	-5.1	-4.9	-4.8	135.2
1997	-4.6	-4.4	-4.2	-4.0	28.4	91.0	-3.8	-4.2	-4.4	-4.4	-4.3	-4.1	77.1
1998	-3.9	-3.8	-3.6	-3.5	8.4	77.3	-3.3	-3.5	-3.7	-3.7	-3.6	-3.5	49.6
1999	-3.3	-3.2	-3.1	-3.0	60.4	94.0	-3.1	-3.5	-3.8	-3.8	-3.7	-3.6	120.3
2000	-3.4	-3.3	-3.1	-3.0	112.5	104.4	-3.3	-4.0	-4.3	-4.4	-4.2	-4.1	179.7
2001	-3.9	-3.7	-3.5	-3.4	8.5	110.6	-3.2	-3.5	-3.8	-3.8	-3.7	-3.6	83.3
2002	-3.4	-3.3	-3.1	-3.0	81.6	65.1	-3.4	-4.1	-4.5	-4.5	-4.4	-4.2	108.9
2003	-4.0	-3.8	-3.7	-3.5	68.4	177.9	-3.6	-4.4	-4.9	-5.0	-4.9	-4.7	203.7
2004	-4.5	-4.3	-4.1	-3.9	21.4	73.3	-3.6	-3.9	-4.0	-4.0	-3.9	-3.7	54.8
2005	-3.6	-3.5	-3.3	-3.2	54.0	159.4	-3.3	-4.0	-4.4	-4.5	-4.4	-4.2	174.9
2006	-4.1	-3.9	-3.7	-3.5	105.8	169.6	-3.9	-5.0	-5.7	-5.8	-5.7	-5.4	228.8
2007	-5.2	-4.9	-4.7	0.6	80.2	169.8	-4.5	-5.3	-5.8	-5.9	-5.7	-5.5	203.1
2008	-5.2	-5.0	-4.8	-4.6	16.7	109.6	-4.3	-4.6	-4.8	-4.8	-4.7	-4.5	79.0
2009	-4.4	-4.2	-4.0	-3.9	79.7	152.2	-4.1	-5.0	-5.7	-5.8	-5.7	-5.4	183.8
2010	-5.2	-4.9	-4.7	-4.5	27.4	179.6	-4.3	-4.9	-5.4	-5.4	-5.3	-5.1	157.2
2011	-4.9	-4.7	-4.5	-4.3	23.3	170.3	-4.1	-4.7	-5.2	-5.2	-5.1	-4.9	146.0
2012	-4.7	-4.5	-4.3	-0.1	156.9	88.1	-4.7	-5.9	-6.5	-6.6	-6.5	-6.2	194.9
2013	-5.9	-5.6	-5.3	-5.1	85.3	143.0	-5.1	-5.7	-6.1	-6.1	-5.9	-5.7	171.9
Min	-8.2	-7.8	-7.5	-7.2	-6.9	65.1	-7.0	-8.1	-9.0	-9.2	-9.0	-8.6	49.6
Max	-3.3	-3.2	-3.1	16.8	161.8	203.7	-3.1	-3.5	-3.7	-3.7	-3.6	-3.5	244.0
Avg	-5.5	-5.3	-5.1	-3.8	64.1	140.2	-4.9	-5.6	-6.1	-6.2	-6.0	-5.8	150.2

Notes: Depletions equal farm headgate deliveries (Table E-2) less in-priority surface runoff (Table E-17) less in-priority lagged ground water
return flow (Table E-19). Negative values represent an accretion or return flow to the stream.

Appendix F

Decree in Case No. 12CW52

DISTRICT COURT, WATER DIVISION NO. 4, COLORADO 1200 North Grand Ave. Bin A Montrose, CO 81401-3146	EFILED Document CO Montrose County District Court 7th JD Filing Date: Feb 15 2013 01:22PM MST Filing ID: 49562474 Review Clerk: Darleen Cappannokeep
CONCERNING THE APPLICATION FOR WATER RIGHTS OF August Nicolas Family Partnership, LLLP, a Colorado limited liability limited partnership; Larry A. Collins and Lula May Collins; Wayne Maurer and Charles Maurer; R & G Butte Rock Ranch, LLC, a Colorado limited liability company; William R. Sanders and Janice L. Sanders; Lee R. Hawk and Janice M. Hawk; and Western Rivers Conservancy, an Oregon nonprofit public benefit corporation IN GUNNISON AND MONTROSE COUNTIES	▲ COURT USE ONLY ▲
	Case Number: 12CW52 Division: Courtroom:
FINDINGS OF FACT, CONCLUSIONS OF LAW, RULING OF THE REFEREE, AND DECREE	

This matter comes before the Referee upon the Application for a Change of Water Rights (the "Application") of the above –captioned applicants (the "Applicants"). The Referee, having made such investigations as are necessary to determine whether the statements in the Application are true, and having become fully advised with respect to the subject matter of the Application, hereby makes the following findings of fact, conclusions of law, and ruling.

FINDINGS OF FACT

1)   Name, Mailing Address, and Telephone Number of Applicants.

August Nicolas Family Partnership, LLLP 556 6530 Road Montrose, CO 81401 Phone: 970-249-4357	Lee R. Hawk and Janice M. Hawk P.O. Box 126 Cimarron, CO 81220 Phone: 970-249-4115

Larry A. Collins and Lula May Collins 640 County Road 24 P.O. Box 298 Cimarron, CO 81220 Phone: 970-252-9465	R & G Butte Rock Ranch, LLC c/o Mike Richard P.O. Box 182 Cimarron, CO 81220 Phone: 956-763-6912
Wayne Maurer P.O. Box 649 Olathe, CO 81425 Phone: 970-275-0385	Western Rivers Conservancy 71 SW Oak St., Suite 100 Portland, OR 97204 Phone: 503-241-0151
Charles Maurer P.O. Box 1117 Grand Junction, CO 81502 Phone: 970-254-0156	William R. Sanders and Janice L. Sanders 67632 Landfill Road Montrose, CO 81401 Phone: 970-275-1260

2)   The Application was filed on May 31, 2012, and referred to the Water Referee on August 3, 2012.

3)   Notice of the Application was published in the Resume of all applications filed in the District Court in and for Water Division No. 4 during the month of May, 2012. Pursuant to the Court's Orders dated June 1, 2012, the resume notice of the Application was published in the Crested Butte News on June 8, 2012, and in the Montrose Daily Press on June 5, 2012. Proofs of publication were filed with this Court on July 6, 2012, and July 9, 2012, respectively.

4)   The deadline for filing statements of opposition has passed. No statements of opposition were filed. No parties intervened in the case.

5)   The Division Engineer filed its consultation report (the "Consultation Report") with this Court on October 4, 2012, and an amended consultation report (the "Amended Report") on January 3, 2013. The findings of the Consultation Report and the Amended Report have been given due consideration.

6)   MontroseBank, a Colorado corporation, was previously an owner of a portion of the Water Rights (as defined below) that are the subject of the Application, and was originally an Applicant in this case. However, while the Application was pending before the Court, Western Rivers Conservancy acquired MontroseBank's portion of the Water Rights. By Order of the Court dated October 25, 2012, Western Rivers Conservancy was substituted as the real party in interest of the portion of the Water Rights formerly owned by MontroseBank, and MontroseBank was dismissed from the case.

7)   Except as expressly stated to the contrary herein, the facts alleged in the Application are true.

8)   <u>Decreed water rights for which change is sought</u>: All water rights decreed to the McKinley Ditch (the "Water Rights").

        a)   Case Number, Court, and Date of Original and All Relevant Subsequent Decrees:

                i)   Civil Action No. 1319, District Court, Montrose County, March 28, 1904

ii)   Civil Action No. 1745, District Court, Montrose County, May 8, 1913

iii)   Civil Action No. 4742, District Court, Montrose County, April 21, 1941.

iv)   Case No. 05CW132, District Court, Water Division 4, May 30, 2008

b)   Legal description of structure as described in most recent decree (05CW132): A point in the NW1/4NW1/4NW1/4, Section 12, Township 47 North, Range 6 West, N.M.P.M., 58 feet from the north section line and 220 feet from the west section line (easting 282861, northing 4247959, Zone 13, NAD 83).

c)   Decreed source of water: Little Cimarron River, tributary to the Cimarron River, tributary to the Gunnison River

d)   Priorities, appropriation dates, total amount decreed, and amount Applicants intend to change:

McKinley Ditch (all amounts are absolute and are in cfs)			
Priority	Appropriation Date	Total Amount Decreed	Amount Applicants Intend to Change
56	September 1, 1886	12.17	12.17
125	May 10, 1905	3.125	3.125
128	May 10, 1906	3.125	3.125
285	May 1, 1912	12.58	12.58
Total:		31.00	31.00

e)   Decreed use: Irrigation

9)   <u>Description of proposed change</u>: The Applicants seek to change the decreed place of use of the Water Rights to the extent necessary to conform the decreed place of use to the historical place of use of the Water Rights.

a)   <u>Decreed Place of Use</u>.

i)   The Water Rights are cumulatively decreed for the irrigation of approximately 950 acres. *See* Decree, Civil Action No. 4742, District Court, Montrose County (the "CA-4742 Decree").

ii)   The CA-4742 Decree found that the Water Rights were decreed to irrigate the following acreages:

Priority:	56	125 and 128	285
Acres:	467	200	Complete irrigation of 280 acres and supplemental irrigation of 670 acres

iii)   The CA-4742 Decree appears to be in error. Priority Numbers 125 and 128 were decreed for the irrigation of 240 acres, not 200 acres. The Decree of the District Court, Montrose County, entered in Civil Action No. 1745 (the "CA-1745 Decree"), confirmed priority numbers 125 and 128 for 3.125 each (6.25 cfs together). The Findings of the Referee in Civil

Action No. 1745 found that 240 acres of land were irrigated by priority numbers 125 and 128, and that one cubic foot per second of time of water is sufficient to irrigate 38.4 acres of land. Accordingly, the Referee found that the McKinley Ditch was entitled to priority number 125 in the amount of 3.125 cfs, and priority number 128 in the amount of 3.125 cfs. 6.25 cfs multiplied by 38.4 acres per cfs equals 240 acres.

    iv)   Consequently, the correct allocation of acres amongst the various McKinley Ditch priorities is as follows:

Priority:	56	125	128	285
Acres:	467	120	120	Complete irrigation of 240 acres and supplemental irrigation of 710 acres

    b)   Historical Use.

        i)   The Water Rights have historically been used to collectively irrigate approximately 950 acres of land underlying the McKinley Ditch.

        ii)   Historically, by mutual agreement, the owners of the Water Rights have shared the water that is diverted through the McKinley Ditch, with each owner being entitled to a certain percentage of the entire quantity diverted, regardless of which of the individual Water Rights happened to be in priority and regardless of the quantity of water being diverted through the McKinley Ditch at any given time.

        iii)   In 1948, the owners of the Water Rights at that time memorialized the above-described mutual agreement by entering into that certain written agreement dated June 17, 1948, recorded June 19, 1948 in Montrose County at Book 330, Page 232, and recorded July 27, 1948 in Gunnison County at Book 271 Page 447 (the "1948 Agreement"), confirming the historical operation of the McKinley Ditch as described in the preceding paragraph and allocating the Water Rights pro rata amongst the owners of the Water Rights at that time. The Applicants are the successors in interest to the parties to the 1948 Agreement.

        iv)   Because of this arrangement, owners of land that was not originally irrigated by priority number 56 were able to irrigate at least a portion of their lands using water diverted under priority number 56. Similarly, owners of land that was not originally irrigated by priority numbers 125 and 128 were able to irrigate at least a portion of their lands using water diverted under these priorities.

    c)   Applicants seek a change in the decreed place of use of the Water Rights to expressly allow the use of the Water Rights in conformity with the 1948 Agreement. That is, Applicants seek confirmation of the right to use their respective pro rata portion of each individual Water Rights on their respective properties lying underneath the McKinley Ditch. In other words, the change of place of use requested in this case will not result in a change in the decreed place of use of the McKinley Ditch as a whole. However, it will result in a change in the decreed place of use of the individual priorities.

    d)   Applicants are not seeking to change the beneficial use (irrigation) or the amount or timing of diversions.

e)   The Applicants' respective ownership of the right to use the Water Rights is currently as follows:

	Shares	Percentage of Total
Wayne & Charles Maurer	2	25.00%
R & G Butte Rock Ranch	2	25.00%
Larry A. Collins and Lula May Collins	1	12.50%
August Nicolas Family Partnership	1	12.50%
Lee R. Hawk and Janice M. Hawk	1/8	1.56%
William R. Sanders and Janice L. Sanders	3/8	4.69%
Western Rivers Conservancy	1 1/2	18.75%
TOTAL:	8	100.00%

f)   <u>Limitation to prevent expansion of use.</u> In order to prevent the change of water rights requested herein from causing an expansion of use of the Water Rights, the total area irrigated by the McKinley Ditch must be limited to approximately 950 acres, and the total area irrigated by each priority must be limited to those acreages specified in paragraph 9(a)(iv), above. The Applicants have agreed to allocate the decreed acreage pro-rata according to their respective ownership interests, as shown in the following table:

Owner	Acres irrigated by each McKinley Ditch Priority				Total acres irrigated
	Priority 56	Priority 125	Priority 128	Priority 285*	
Wayne & Charles Maurer	116.75	30	30	60	236.75
R&G Butte Rock Ranch	116.75	30	30	60	236.75
Larry A. Collins and Lula May Collins	58.375	15	15	30	118.375
August Nicolas Family Partnership	58.375	15	15	30	118.375
Lee R. Hawk and Janice M. Hawk	7.2852	1.872	1.872	3.744	14.7732
William R. Sanders and Janice L. Sanders	21.9023	5.628	5.628	11.256	44.4143
Western Rivers Conservancy	87.5625	22.5	22.5	45	177.5625
TOTAL	467	120	120	240	947

*In accordance with the CA-4742 Decree, amounts in this column represent the number of acres that can be irrigated entirely by priority number 285. Priority number 285 may also be used for supplemental irrigation of the acres that are irrigated by priority numbers 56, 125, and 128.
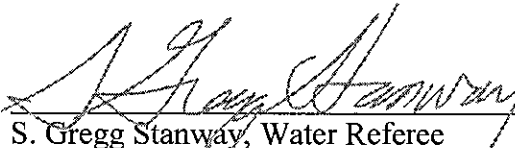
CONCLUSIONS OF LAW

10)   The foregoing findings of fact are hereby incorporated into and made a part of these conclusions of law, as if fully set forth herein at this point.

11)   Timely and adequate notice of this Application was given in the manner required by law. This Court has jurisdiction over the subject matter of this proceeding and over all who have standing to appear as parties, whether they have appeared or not.

12)   "A change of water right…shall be approved if such change…will not injuriously affect the owner of or persons entitled to use water under a vested water right or a decreed conditional water right…If it is determined that the proposed change…as presented in the application and the proposed ruling or decree would cause such injurious effect, the referee or the water judge, as the case may be, shall afford the applicant or any person opposed to the application an opportunity to propose terms or conditions that would prevent such injurious effect." C.R.S. § 37-92-305(3)(a).

13)   The terms and conditions contained in this Ruling are sufficient to prevent the change of water rights requested in this case from causing injury to vested water rights and decreed conditional water rights.

RULING

IT IS HEREBY RULED AND ORDERED:

14)   The foregoing findings of fact and conclusions of law are hereby incorporated into and made a part of this Ruling, as if fully set forth herein at this point.

15)   Subject to the terms and conditions contained herein, the change of water rights requested by the Applicants is hereby APPROVED. Applicants, and their successors interest, shall be allowed to use the Water Rights to irrigate the land owned by Applicants that lies underneath the McKinley Ditch, as shown on the attached Exhibit A.

16)   Applicants, and their successors in interest, shall not use the Water Rights to irrigate more acres than the amounts shown in paragraph 9(f), above.

17)   When there is a valid call for water from downstream of the McKinley Ditch headgate, diversions at the McKinley Ditch shall be limited to the aggregate decreed flow rate of the McKinley Ditch water rights that remain in priority.

18)   Nothing in this Ruling shall be interpreted to prohibit the Applicants from using water diverted through the McKinley Ditch to irrigate acreage in addition to the acreages specified in paragraph 9(f), above, at such times that there is no valid call for water from downstream of the McKinley Ditch headgate.

19)   This ruling shall be filed with the Water Clerk and a copy shall be filed with the State Engineer and Division Engineer, Water Division No. 4.
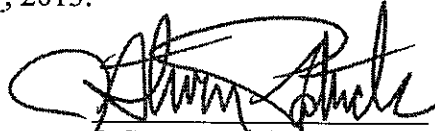
Dated this 17ᵗʰ day of January, 2013.

S. Gregg Stanway, Water Referee

DECREE

No protest was filed in this matter. The foregoing ruling is confirmed and approved, and is made the judgment and decree of this Court.

DONE this _14th_ day of _Feb_____, 2013.
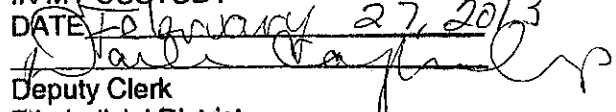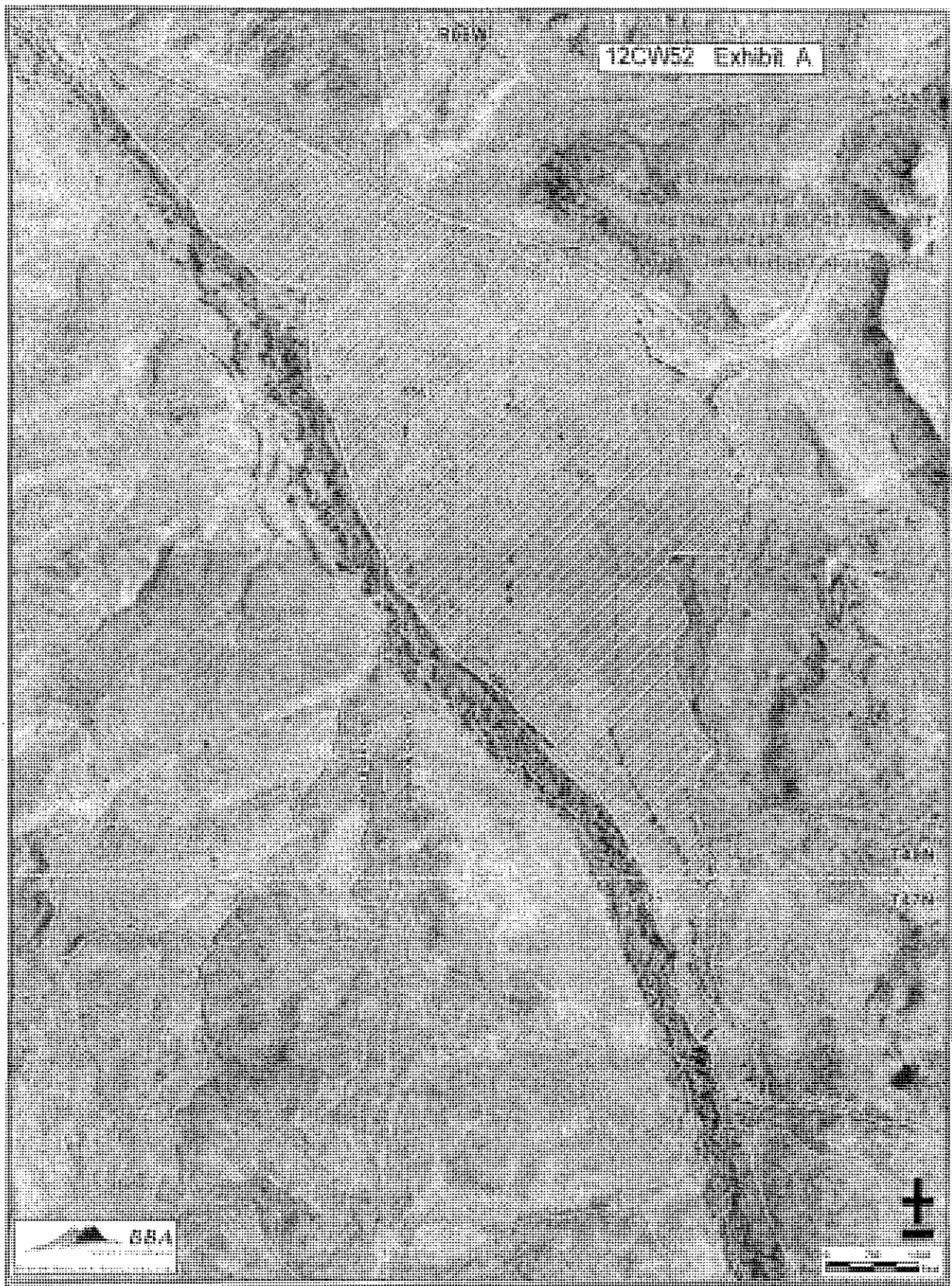
J. Steven Patrick
Water Judge

SEAL
COUNTY AND DISTRICT COURTS
SEVENTH JUDICIAL DISTRICT
COLORADO

CERTIFIED TO BE A FULL, TRUE
AND CORRECT COPY OF ORIGINAL
IN MY CUSTODY
DATE _February 27, 2013_
Deputy Clerk
7th Judicial District

Figure 1
McKinley Ditch
Approx. Irrigated Area

Legend

Overview Map

Colorado