Loan Feasibility Study

For

Alpha Hay Farm, LLC, Irrigated Land Purchase

Sponsored By Special Improvement District No. 3 of the Rio Grande Water Conservation District, acting by and through its Water Activity Enterprise

October 2022

Executive Summary

Subdistrict No. 3 in Conejos County has executed a Lease and Option to Purchase contract for two fields under center pivot irrigation from Alpha Hay Farm, LLC. The land is located just north of the town of Antonito, Colorado. The reason for the purchase is to obtain a secure source of water to be used as a remedy for injurious stream depletions caused by groundwater withdrawals from Subdistrict No. 3 Wells and assist in the recovery and maintenance of the region's confined aquifer. In addition to the surface rights, the irrigated acres also include historical groundwater use.

Subdistrict No. 3 is requesting a loan in the amount of $2,554,107 to: purchase land and appurtenant water rights; construct a pipeline and/or augmentation stations; and, install measurement devices and/or other structures needed to return groundwater and surface water to the Conejos River for the replacement of injurious stream depletions.

Subdistrict No. 3 will assess its members an annual Groundwater Withdrawal Fee (per ac-ft.) in an amount sufficient enough to cover both the loan and interest payments and the operation and maintenance costs for the project. Subdistrict No. 3 is required to prepare and approve an annual budget. The Board of Managers will set the annual Groundwater Withdrawal Fee rate during the budget process at a rate sufficient to cover the loan payments, any operation and maintenance costs for the project, and to cover all additional operating costs necessary to operate the Subdistrict No. 3 Annual Replacement Plan.

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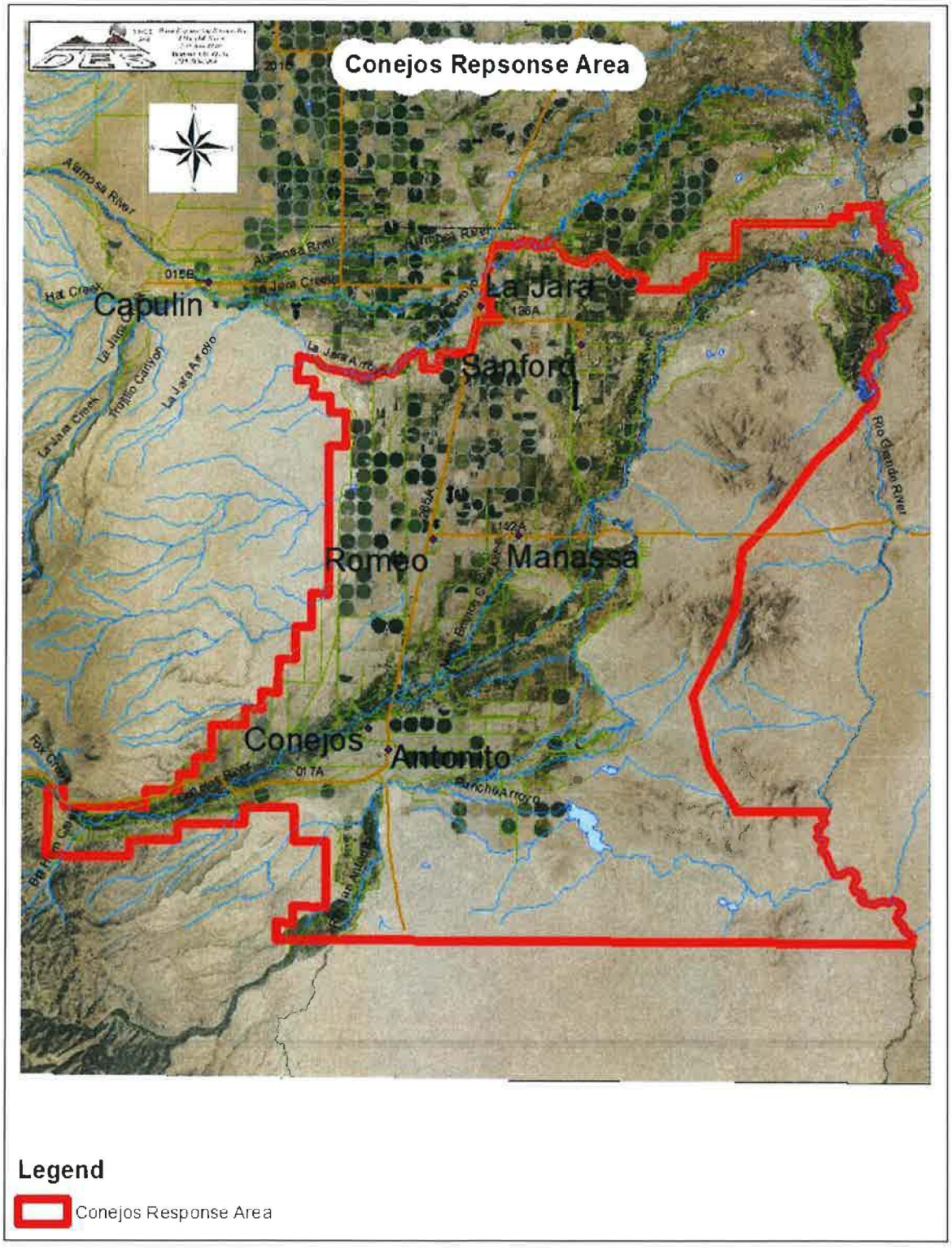
1.0 Introduction

1.1 Purpose of the Alpha Hay Farm, LLC, Irrigated Land Purchase

Members of Special Improvement District No. 3 of the Rio Grande Water Conservation District ("Subdistrict No. 3") are landowners within the boundaries of Subdistrict No. 3 who rely upon groundwater for all or part of their commercial, municipal, industrial and/or irrigated agricultural practices within the area defined by the Rio Grande Decision Support System Groundwater Model ("RGDSS Groundwater Model") as the Conejos Response Area and the Rules Governing the Withdrawal of Groundwater in Water Division 3, District Court, Water Division No. 3, Case No. 15CW3024 ("Groundwater Rules"). Figure 1 below shows a map of the Conejos Response Area. The RGDSS Groundwater Model has calculated stream depletions occurring to surface water streams caused by wells withdrawing water from the groundwater system within the Conejos Response Area that may cause injury to senior surface water rights and/or unreasonably interfere with the state's ability to fulfill its obligations under the Rio Grande Compact, codified in section 37-66-101, C.R.S. In order to require the remedy of the injury or interference, the State Engineer promulgated Groundwater Rules that have a direct impact on the future use of groundwater within the Conejos Response Area. Under the Groundwater Rules, non-exempt wells can continue groundwater withdrawals if they have either: an individual Plan for Augmentation, an approved Substitute Water Supply Plan, or their well is included in a subdistrict's Groundwater Management Plan and Annual Replacement Plan (ARP). Subdistrict No. 3's ARP must demonstrate a sufficient source of replacement supplies available to replace injurious stream depletions resulting from Subdistrict No. 3 Well groundwater withdrawals.

The lands for which this loan is being sought are for sale by Alpha Hay Farm, LLC, ("Alpha Hay Farm"). The water rights and historical consumptive use ("HCU") tied to these lands can be changed through water court to allow augmentation for the replacement of injurious depletions caused by Subdistrict No. 3 wells on the Conejos River and the Rio Grande. The HCU analysis performed on these subject lands indicate the average annual yield of these water rights is 522.91 ac-ft. Subdistrict No. 3 is seeking a $2,554,107 loan from the CWCB Water Project Loan Program to fund the purchase of two Alpha Hay Farm, LLC, fields and the appurtenant water rights. Subdistrict No. 3 intends to use these water rights to replace a portion of its injurious stream depletions occurring to the Conejos River and the Rio Grande. Funding for the purchase of land and water rights from Alpha Hay Farm, LLC, will allow Subdistrict No. 3 to continue operation of its Groundwater Management Plan and Annual Replacement Plans which permits Subdistrict No. 3 Wells to continue to operate.

Figure 1 – Conejos Response Area



Subdistrict No. 3 plans to purchase two fields currently irrigated under center pivot sprinklers from Alpha Hay Farm, LLC. One of these two fields has been historically irrigated by only surface water and the second one has been historically irrigated with surface water and an existing groundwater well. Historically, the center pivot sprinkler on this second field has been irrigated by surface water from a pump pond and any irrigation shortfall has been made up with the well. The purpose for the purchase is to secure a source of water which can be used to remedy injurious stream depletions from Subdistrict No. 3 Wells and to help in the efforts to recover the region's confined aquifer.

The intent is to dry-up the currently irrigated acreage on these two fields and use the HCU to remedy injurious stream depletions owed to the Conejos River and the Rio Grande which are caused by the groundwater withdrawals from Subdistrict No. 3 Wells. The return flow portion of the historical irrigation use (both surface water & groundwater) will be returned to the system to ensure the water rights of downstream users are not injured.

1.2 Project Sponsor – Subdistrict No. 3

The Rio Grande Water Conservation District ("District") was created by the Colorado General Assembly and formed in 1967 by a vote of the people residing within its boundaries. The District was created to protect, enhance, and develop water resources in the Rio Grande Basin. The District encompasses a five-county region, which includes Alamosa, Rio Grande, Conejos and portions of Saguache and Mineral Counties within the Rio Grande Basin, including the Closed Basin. The District is a body corporate and a political subdivision. In order to accomplish its mission, the District is authorized to levy an ad valorem tax on all real property located within the District and collect fees assessments and surcharges. In addition, the District is also authorized to contract with Federal, State and local agencies, and individuals. Under section 37-48-108 C.R.S., the District is authorized to form Special Improvement Districts (subdistricts), which address specific needs and purposes for groups of water users in the District.

Beginning in the early 2000's, the District began the process of forming subdistricts to address the needs of water users in various regions of the District and aid them in complying with the pending Groundwater Rules.

Special Improvement District No. 3 was established by the Conejos County District Court on January 27, 2017, in Case 2016CV30021. The overall purpose of this subdistrict is to provide a community-oriented water management alternative to individual augmentation plans or state-imposed regulations limiting the use of wells in Water Division No. 3. That is, to provide a mechanism through which a group of well users in the Conejos Response Area can work collaboratively to develop and implement a system of self-regulation using economic-based incentives and other management tools that promote responsible groundwater management and that remedies the injury to senior surface water rights that result from groundwater use from Subdistrict No. 3 Wells. Subdistrict No. 3 currently consists of 166 wells that withdraw an average of 30,000 ac-ft. of groundwater annually. There are additional well owners within the Conejos Response Area who have stated their intent to contract with Subdistrict No. 3 to remedy their injurious stream depletions.

To fund their operations, Subdistrict No. 3 assesses Annual Service and User Fees by special assessments placed on their members and contract holders' property taxes. The fees assessed by Subdistrict No. 3 are a per-well Administrative Fee and a per ac-ft. Groundwater Withdrawal Fee. A portion of the per ac-ft. Groundwater Withdrawal Fee will be used to fund repayment of the Alpha Hay Farm, LLC, Irrigated Land Purchase. In 2021, the Groundwater Withdrawal Fee was assessed at $21.45 per ac-ft. applied through sprinkler irrigation and $15.65 per ac-ft. applied through flood irrigation. Subdistrict No. 3 Wells used for purposes other than irrigation are assessed at different rates based on the consumptive uses of those wells, also known as "other" Subdistrict No. 3 Wells.

1.3 Project Area

The Project Area is located in the South-Central portion of the San Luis Valley, specifically, Northeast of the town of Antonito, CO and South of the Conejos River in Conejos County. The economy in this area is predominately controlled by the agricultural sector. Some of the other economic sectors include forestry, tourism, and mining.

The San Luis Valley is a large intermountain basin covering approximately 3,200 square miles of land in southern Colorado and northern New Mexico. The valley is bordered by the Sangre de Cristo Mountains to the east and northeast, the San Juan and La Garita Mountains to the west and northwest, and the Taos Plateau to the south, creating one of the largest intermountain valleys in the world. Snowmelt from the mountains around the valley is responsible for most of the area's stream flow in the associated watershed, including the Rio Grande and Conejos Rivers. Approximately 56 percent of the valley is in private ownership. The remaining acres are protected and managed by the U.S. Fish and Wildlife Service, U.S. Forest Service, Bureau of Land Management, National Park Service, and State of Colorado. Most of the private land and wetland habitat occurs on the valley floor.

1.4 Land Use

Land use in Subdistrict No. 3 is predominately irrigated agriculture, with a small amount of municipal, fish culture and commercial use. The main crops grown in Subdistrict No. 3 are grass hay, grass pasture, alfalfa and grain crops. Subdistrict No. 3 Wells withdraw an average of 30,000 ac-ft. annually, with approximately 60 percent of withdrawals used for sprinkler irrigation, 10 percent for flood irrigation, and 30 percent for other uses.

2.0 Water Demands and Water Rights Included in the Alpha Hay Farm, LLC, Irrigated Land Purchase

2.1 Water Supply Demands

The water supply demands are determined by the RGDSS Groundwater Model and the Conejos Response Area Response Functions. These tools are used to calculate Subdistrict No. 3's depletions to the Conejos River and the Rio Grande on a monthly basis. The magnitude of Subdistrict No. 3's depletions to the Conejos River varies from approximately 140 ac-ft./month to 340 ac-ft./month. The magnitude of Subdistrict No. 3's depletions to the Rio Grande varies from approximately 25 ac-ft./month to 50 ac-ft./month. The Response Function evaluates three unique stream flow conditions for the Conejos River: flows less than 125,000 ac-ft. (Dry Years); flows between 125,000 and 194,999 ac-ft. (Average Years);

and flows of 195,000 ac-ft. and more (Wet Years). Table 1 shows the depletions for the current ARP Year which is considered an Average Year based on the projected April-September streamflow of 161,00 ac-ft.

Table 1 – Subdistrict No. 3 Replacement Needs

	Conejos Response Area Total												
	2022								2023				
Stream Reach	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Conejos above Seledonia/Garcia	60.6	75.7	75.1	65.1	57.1	57.1	50.5	47.7	34.5	29.2	31.2	32.3	616.2
Conejos below Seledonia/Garcia	141.4	182.5	241.2	276.1	271.9	248.8	196.7	172.0	150.6	123.3	126.3	112.3	2,243.1
Rio Grande Del Norte-Excelsior	5.6	5.3	5.3	5.1	5.0	5.3	5.4	5.7	5.7	5.2	5.6	5.4	64.5
Rio Grande Excelsior-Chicago	8.0	7.3	7.2	6.5	6.4	6.8	6.8	7.6	7.8	7.4	8.3	7.7	87.8
Rio Grande Chicago-State Line	31.9	28.5	23.5	12.3	16.1	25.8	33.2	32.1	28.9	25.9	30.4	27.4	316.2

Table 1: Projected Subdistrict No. 3 stream depletions by month and reach for the Conejos River from 2022 Approved ARP

2.2 Water Rights Included in the Alpha Hay Farm, LLC, Irrigated Land Purchase

Fields 11 & 12 have the following surface rights associated with them.

- Heads Mill Irrigation Ditch WDID No. 2200554
  - Priority No. 2 – 45 CFS
    - 30 CFS is taken at the Manassa No. 3 Ditch during certain river priorities and not part of the HCU analysis
    - Of the 15 CFS left, Alpha Hay Farm, LLC, owns 5.25 CFS or 35% of which 2.35 cfs were historically used to irrigate Fields 11 & 12

- J.F Chacon No. 2 WDID No. 2200561 with 100% of the below priorities, drawn from the Heads Mill and Irrigation Ditch:
  - Priority No. 44 -7.54 CFS
  - Priority No. 49 -4.54 CFS
  - Priority No. 97 -2 CFS
  - Priority No. 142 -2 CFS

All of the surface water rights are on the Conejos River.

The existing well (WDID No. 2205123) was decreed to pump 2,500 gallons per minute from the confined aquifer on the 14th of August 1973. This well is piped directly to the center pivot sprinkler on Field 12 and can only legally irrigate Field 12.

The well permit is included in Attachment 1.

3.0 Project Description

3.1 Purpose and Background of the Alpha Hay Farm, LLC, Irrigated Land Purchase

The groundwater wells within Subdistrict No. 3 have been replacing all their injurious depletions since May 1st, 2019. Subdistrict No. 3 owes injurious depletions to the Conejos River, Alamosa River, and the Rio Grande. To-date Subdistrict No. 3 has been able to replace all injurious depletions on these rivers through forbearance agreements and other temporary replacement sources. Subdistrict No. 3 continues to seek reliable replacement sources to remedy injurious depletions on the Alamosa River, Conejos River and the Rio Grande. Subdistrict No. 3 has worked with the community to find replacement sources to remedy depletions on the Conejos River, Alamosa River and the Rio Grande. The community has worked very well with the Subdistrict to provide temporary replacement sources to allow Subdistrict No. 3 time to secure more permanent or long-term replacement sources. The long-term goal of Subdistrict No. 3 is to secure permanent replacement sources. The following alternatives have been considered to remedy injurious depletions on the Conejos River and the Rio Grande.

3.2 Analysis of Alternatives

3.2.1 Alternative 1 – Purchase Irrigated Lands from Alpha Hay Farm, LLC

This alternative would include purchasing the irrigated lands and appurtenant water rights, installing the infrastructure needed to get a portion of the water back to the Conejos River and the Rio Grande, and, if needed, provide a recharge area for on-farm return flows.

Purchase Irrigated Lands

The two fields Subdistrict No. 3 will be purchasing are designated as Fields 11 & 12. Field 11 is located in the NE1/4 of Sec. 20, T. 33N., R.9E., N.M.P.M. and is irrigated solely with surface water. Field 12 is located in the NW1/4 of Sec 21 and overlaps into the SW1/4 of Sec. 16, T. 33N., R.9E., N.M.P.M. and is irrigated with both surface water and groundwater. Attachment 2 is a map showing the approximate property boundary of the irrigated lands Subdistrict No. 3 will be purchasing.

Augmentation Station

An existing ditch will be used to carry the HCU portion of the water supply from the northwest corner of the purchased lands back to the Conejos River. It is anticipated that a part of the operation requirement that will come with an SWSP approval and/or Change of Water Right will be to measure the amount of water returning to the Conejos River. Therefore, a Parshall flume and recorder will be placed at the beginning of this existing ditch and at the end of the ditch before the water discharges into the Conejos River. Part of the augmentation station may include a flow meter on the augmentation pipeline to record on-

farm return flows. An erosion control structure will be needed at the end of the existing ditch where it discharges to the Conejos River.

Augmentation Pipeline

As stated above, Field 12 has a groundwater well which was used to provide a portion of the historical water supply for irrigation of this field. If the HCU credit provided by the well is to be used to replace injurious depletions on the Conejos River and the Rio Grande, the well will have to be piped directly to a nearby ditch located at the northwest corner of the property. The existing ditch will then carry the water to the Conejos River. 5,000 feet of 18-inch pipe will be installed from the existing well to the existing ditch for this purpose.

Recharge Facility for On-Farm Return Flows

Another portion of the operation requirement that is anticipated with the SWSP approval and/or Change of Water Right is to recharge the return flow portion of the historic water supply near the area that it had been applied for irrigation. This will ensure no injury to downstream water users by replicating the historical return flows patterns which occurred when the area was being irrigated. Along the northerly edge of the property, between the two fields, there is an existing pond which was used to pump surface water supplies to the two center pivot sprinklers. This pond could easily be turned into a recharge facility to mimic historical on-farm return flows. The bottom of the pond is likely sealed, to some extent, so some dirt work would be needed to scarify or even excavate a shallow portion of the pond so the water would percolate into the ground. An erosion control structure will be placed where the existing ditch discharges into the pond.

The advantages to this alternative would be to provide a permanent source of water to replace injurious depletions to the Conejos River and the Rio Grande. This project does not provide enough permanent water to cover all the required depletions on the Conejos River and the Rio Grande caused by groundwater withdrawals from wells within Subdistrict No. 3 so other replacement sources will still be needed. This purchase does however help Subdistrict No. 3 move towards its goal of acquiring permanent replacement solutions.

Another advantage to this alternative is the location of the property in respect to the Conejos River. This property is irrigated by senior surface water rights with the headgates being located on the main stem of the Conejos River above Highway 285. There are times when the Conejos River dries up below Highway 285 and then becomes live again further downstream. When this occurs, the Subdistrict's depletion requirements are split into upper and lower reaches on the Conejos River. The property location and the location of the headgate would permit Subdistrict No. 3 to repay depletions to the lower reach of the Conejos River and the Rio Grande even when the Conejos River is dried up below Highway 285.

The only disadvantage of this alternative is the greater up-front cost Subdistrict No. 3 Members will have to incur.

3.2.2 Alternative 2- Continue to Operate with Temporary Replacement Sources

Temporary replacement sources Subdistrict No. 3 has used to-date have been temporarily changed water rights as a part of the SWSP process or multiple Forbearance Agreements with water rights on the Conejos River and the Rio Grande.

The community has been willing to work with Subdistrict No. 3 to find temporary replacement sources to this point therefore Subdistrict No. 3 has been able to operate successfully under multiple approved ARPs but Subdistrict No. 3 needs to acquire permanent replacement sources. It is understood by Subdistrict No. 3 some of these temporary replacement sources have been made available to get the Subdistrict started and keep the agricultural lands operating but these sources may not be available in the future or not available at a cost the Subdistrict Members can afford. For this reason, this alternative is not a preferred alternative.

3.2.3 Alternative 3- No Action

No action would result in approximately 166 commercial, municipal, industrial and irrigation wells being shut off throughout the Conejos Response Area. The economic impact would be devastating to the area therefore, this is not a preferred alternative.

4.0 Engineering Analysis for the Preferred Alternative-Alternative 1

4.1 Source of Water for the Project

The sources of water for the project are both surface water and a groundwater source which have historically irrigated acres under center pivot sprinklers. The irrigation under the center pivots will cease, acres will be dried up, and the HCU will then be used to remedy injurious depletions from Subdistrict No. 3 Wells. The crops grown in the past on the irrigated ground being dried up for this project have been a rotation between alfalfa and small grains for the last 40 plus years.

An HCU analysis for this project was completed by Davis Engineering Service, Inc. and the results are summarized in the table below:

Table 1-Data from the HCU Analysis

Field Names	Field 11 & 12
Area Irrigated (acres)	236
Surface Water Yearly CU (acre-ft)	433.91
Ground Water Yearly CU (acre-ft)	89
Total Yearly CU (acre-ft)	522.91

The total annual amount of 522.91 ac-ft. of HCU is expected to be available to remedy injurious depletions to the Conejos River and the Rio Grande. The HCU analysis prepared by Davis Engineering Services, Inc. is included as Attachment 3.

4.2 Hydrologic Evaluation

There is only one well which is a part of this project. The well is identified as WDID No. 2205123. As per the DWR well completion report, the well was initially drilled to 300' in 1947 and then later deepened to 430' in 1969. The well was tested to yield a constant 2,500 GPM in a 72-hour test. At the time the static water level was measured at 80 ft. below ground level.

5.0 Project Cost

The estimated project cost for the Alpha Hay Farm, LLC, Irrigated Land Purchase is $2,767,589. The detailed estimated cost for the project is shown in Table 2 below. The overview of the calculation of the splitting of the purchase price for the land and water rights between Subdistrict No. 3 and the Trinchera Subdistrict is shown in Attachment 4.

The total purchase price of $4,600,000 for the land and water rights will be shared between Subdistrict No. 3 and the Trinchera Subdistrict. The appraised value of the land and water is $400,000 less than this purchase price. Subdistrict No. 3 and the Trinchera Subdistrict have agreed to each pay a share of this amount based on the split between the Subdistricts of the total purchase price calculated in Attachment 4. Subdistrict No. 3 will fund their portion of the $400,000 through a cash payment from the Subdistrict directly to Alpha Hay Farms in the amount of $196,080. Subdistrict No. 3 is not seeking a reimbursement for this cash payment amount in this loan request.

Table 2 – Alpha Hay Farm, LLC, Irrigated Land Purchase Project Cost Estimate

Item	Units	Quantity	Unit Cost	Total Cost
Purchase of Irrigated Lands	l.s.	1	$2,187,210	$2,187,210
Augmentation Station	l.s.	1	$25,000	$25,000
Augmentation Pipe 18' PVC Pipe	l.f.	5,000	$60	$300,000
Recharge Facility Work	l.s.	1	$10,000	$10,000
Pond Updates	ea.	1	$5,000	$5,000
Erosion Control Structures	ea.	2	$5,000	$10,000
			Total Construction Cost (TCC)	$2,537,210
			Legal and Engineering Costs @ 3% TCC	$76,116
			Contingency @ 5% TCC	$126,861
			Total Project Cost	$2,740,187
			Total Project Costs with 1% Origination Fee	$2,767,589

6.0 Permitting, Change of Water Rights

The water rights described above have been historically used for irrigation on the lands described above. These lands will be dried up to provide HCU to be changed to an augmentation use for the replacement of injurious depletions.

Subdistrict No. 3's plan is to temporarily change the water rights from an irrigation use to an augmentation use through the SWSP process for up to five years pursuant to C.R.S. § 37-92-308(5) to allow Subdistrict No. 3 to use the HCU as a replacement source for the Conejos River and the Rio Grande in the 2023 ARP and in future ARPs. Subdistrict No. 3 will also seek to permanently change the water rights to an augmentation use through a water court case.

7.0 Implementation Schedule

Subdistrict No. 3 will close on the property on or before June 23, 2023, under the current Lease and Option to Purchase with Alpha Hay Farm, LLC. Construction of all project infrastructure should start on this project as soon after the closing date as possible. The project should have bid documents including construction plans completed within 45 days of the closing. The project will be bid immediately after that and a contractor will be selected. The Contractor will be selected not only on cost but also on availability and schedule to complete the project. Infrastructure associated with the project should be completely installed under a timeline which would allow Subdistrict No. 3 to begin replacing depletions with the purchased water rights under the 2023 ARP.

8.0 Institutional Considerations

Subdistrict No. 3 does not anticipate it will be required to obtain any permits or permissions from any state or county agency to complete the infrastructure portions of this project. The ditch to be used to return the HCU to the Conejos River currently exists within an existing right-of-way through the adjacent property. All other construction will take place on Subdistrict No. 3 property. Subdistrict No. 3 will obtain any necessary permits if the need arises.

As mentioned previously, the water rights involved in this project will need to be changed either through an SWSP or through a water court case to allow for their use as a source of remedy for injurious stream depletions.

9.0 Social and Environmental Impacts of the Project

The environmental impacts of installing a pipeline itself are very minimal. The increased flows in the Conejos River should have a positive impact on wildlife in the area. The river depletions caused by groundwater withdrawals will be mitigated as well.

The social impacts for the area will be positive. The project will replace depletions to the Conejos River. Diversions on the Conejos River should benefit from this project. Care will need to be taken to avoid damaging downstream water users on the ditch, but if properly implemented it should not be an issue.

10.0 Financial Feasibility

10.1 Financial Repayment

Subdistrict No. 3 is applying for a loan in the amount of $2,554,107 from the Colorado Water Conservation Board Water Project Loan Program with a 30-year repayment period and an interest rate of not more than 2%. Subdistrict No. 3 currently consists of 166 wells that withdraw an average of 30,000 ac-ft. of water. Subdistrict No. 3 assesses a Groundwater Withdrawal Fee on each ac-ft. withdrawn from Subdistrict No. 3 Wells based on the previous five-year average. Subdistrict No. 3 will fund the Alpha Hay Farm, LLC, Irrigated Land Purchase through its Groundwater Withdrawal Fees. In 2021, the assessed Groundwater Withdrawal Fees were $21.45 per ac-ft. of groundwater applied through sprinkler irrigation and $15.65 per ac-ft. of groundwater applied through flood irrigation. The total Groundwater Withdrawal Fees assessed in 2021 were $475,415. Subdistrict No. 3 is currently sustainable under the Groundwater Rules and it is anticipated that groundwater withdrawals will continue to fluctuate year to year, near historic values. The Schedule of Revenue and Expenditures is included as Attachment 5.

10.2 Credit Worthiness

Subdistrict No. 3 is entitled to raise funds by assessment of reasonable Annual Service and User Fees to carry out the goals and overall objectives set forth in the Plan of Water Management. Subdistrict No. 3 intends to finance its costs by raising sufficient revenue, in a fair and equitable manner, through the imposition of Annual Service and User Fees. Annual Service and User Fees will consist of two components, an annual Administrative Fee and an annual Groundwater Withdrawal Fee. Each component will be evaluated annually, and if appropriate, will be adjusted by the Board of Managers as required by the Plan of Water Management and in response to the demands of the ARP. The total annual Groundwater Withdrawal Fee must be limited to the amount shown by specific items in the ensuing annual budget as required to provide sufficient revenue for the Subdistrict's operations, including: protection of senior surface water rights; funds to support a portfolio of water and/or a fund to assure the remedy of Post-Plan Injurious Stream Depletions; permanent retirement and/or annual fallowing of lands; establishment of a reasonable reserve fund; achievement and maintenance of a Sustainable Water Supply; and, any necessary infrastructure improvements.

As a subdistrict of the Rio Grande Water Conservation District, Subdistrict No. 3's finances are included in those of the District. Copies of the last three years of the District's Annual Audit Reports are included with the loan application.

11.0 Conclusions and Recommendations

1. The Alpha Hay Farm, LLC, Irrigated Land Purchase will allow Subdistrict No. 3 to remedy a portion of their injurious stream depletions owed to senior surface water users on the Conejos River and the Rio Grande caused by groundwater withdrawals from Subdistrict No. 3 Wells. A change of water right would allow the water rights to be used for augmentation and will result in a total of ±523 ac-ft. for the replacement of injurious stream depletions based on the HCU analysis of the irrigated areas.
2. This water will become a permanent augmentation source for Subdistrict No. 3 and assist with their long-term goals.

3. Subdistrict No. 3 has the legal ability to budget and assess an amount sufficient to cover the annual payment required for this loan through their annual Groundwater Withdrawal Fee.

Attachment 1

DWR Well Permit for Existing Well (WDID No. 2205123)

1870

259
3-22
Use 6
Registered

STATE OF COLORADO
DIVISION OF WATER RESOURCES
OFFICE OF THE STATE ENGINEER

East

RECEIVED
JUN 27 1969
GROUND WATER SECT.
COLORADO
STATE ENGINEER

MAP AND STATEMENT FOR WATER WELL FILING

PERMIT NUMBER 10550 -F

STATE OF COLORADO)
SS
COUNTY OF Conejos)

Know all men by these presents: That the undersigned

Peter S. Middlemist Jr,

claimant(s), whose address is Antonitox Box 545,

City Antonito, Colo, 81120, states:

Claimant(s) is (are) the owner(s) of the well described hereon; the total number of acres of land to be irrigated from this well is 160; work was commenced on this well by actual construction 14 day of May, 19 69; the yield to be used from said well is 2500 (gpm), for which claim is hereby made for irrigation purposes; that the average annual amount of water to be diverted is 360 acre-feet; and that the aforementioned statements are made and this map and statement are filed in compliance with the law.

X Peter S. Middlemist Jr
Claimant(s)

Subscribed before me on this 26th day of June, 1969.

My commission expires 2/23/70

Notary Public

WELL DATA

Date Completed May 30 1969

Static Water Level 80'

Total Depth (not known) 430

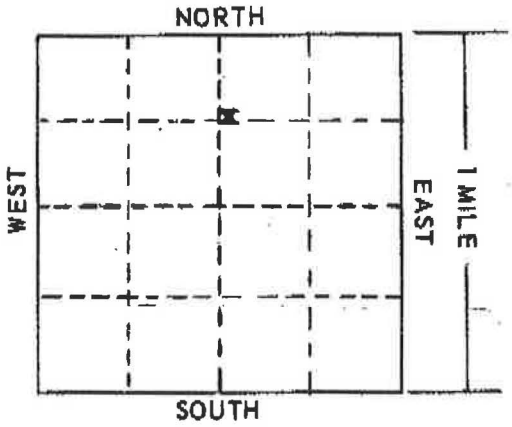
WELL LOCATION

Conejos County

NW ¼ of NE ¼, sec. 21

T. 33 N R. 9 E, NM P.M.

INDICATE WELL LOCATION ON DIAGRAM



WELL SHALL BE LOCATED WITH REFERENCE TO GOVERNMENT SURVEY CORNERS OR MONUMENTS, OR SECTION LINES BY DISTANCE AND BEARING.

1240 E ft. from NW ¼ section line.
(North or South)

1260 S ft. from NW ¼ section line.
(East or West)

Ground Water Basin

Water Management District

Domestic wells may be located by the following:

LOT , BLOCK

SUBDIVISION

FILING #

ACCEPTED FOR FILING IN THE OFFICE OF THE STATE ENGINEER OF COLORADO ON THIS DAY OF , 19 .

State Engineer

FORM TO BE MADE OUT IN QUADRUPLICATE: WHITE FORM MUST BE AN ORIGINAL COPY ON BOTH SIDES AND SIGNED.

WHITE copy & GREEN copy must be filed with the State Engineer within 30 days after well is completed. PINK copy is for the Owner & YELLOW copy is for the Driller.

WELL LOG

From	To	Type of Material	Water Loc.
0	3	topsoil	
3	113	boulders & gravel	
113	122	lava	
122	126	clay	
126	145	cement clay&gravel	
[illegible]	[illegible]		
245	249	lava	
249	253	clay	
253	260	clay& gravel	
260	300	lava- drilled 19/47 By me	
300	430	broken lava & larg boulders	

Use additional paper if necessary to complete log.

WELL DATA

Type Drilling Cable tool

HOLE DIAMETER:

24 in. from 0 ft. to 80 ft.

20 in. from 80 ft. to 300 ft.

15 in. from 300 ft. to 430 ft.

CASING RECORD

Cemented from _____

Plain Casing

Size 20 kind new from 0 ft. to 80 ft.

Size 14 kind new from 0 ft. to 280 ft.
280 to 430 open hole

Size __, kind ____ from ____ ft. to ____ ft.

Perforated Casing

Size 14, kind new from 80 ft. to 280 ft.

Size __, kind ____ from ____ ft. to ____ ft.

Size __, kind ____ from ____ ft. to ____ ft.

TEST DATA

Date Tested June 2/19/69

Type of Pump turbin

Length of Test 72 hrs

Constant Yield 2500 GPM

Drawdown not known

WELL DRILLERS STATEMENT

I drilled this well from 0-300 in 19/47. well was not tested at that time.

being duly sworn, deposes and says: he is the driller of the well hereon described; he has read the statement made hereon; knows the content thereof, and the same is true of his own knowledge.

x H.A. Dewey

License No. 33

State of Colorado, County of Rio Grande) ss

Subscribed and sworn to before me this 21 day of June, 1969

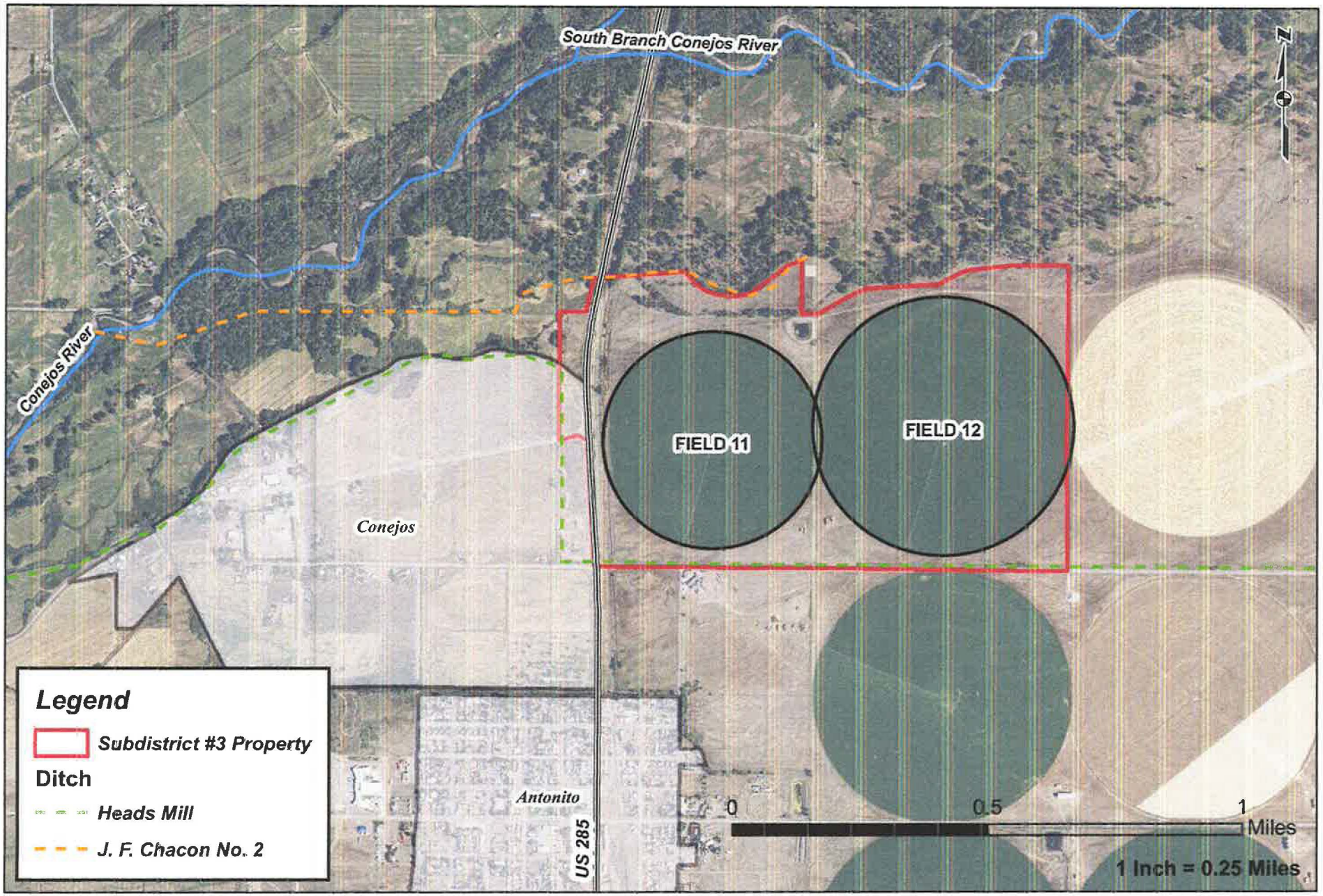
My Commission expires _____, 19____

Mildred C Smith
Notary Public

Attachment 2

Approximate Property Boundary of Irrigated Lands being Purchased

Subdistrict #3 Property Detail



Attachment 3

Historical Consumptive Use Analysis prepared by Davis Engineering Services, Inc.

SINCE 1948 DAVIS ENGINEERING SERVICE, INC.

Conejos Subdistrict

Historical Consumptive Use Analysis for a portion of Alpha Farms Property

Prepared April 19, 2022
by
Davis Engineering Service, Inc.
P.O. Box 1840, 1314 11th Street
Alamosa, Colorado 81101
Phone No. (719) 589-3004

Clinton M. Phillips
Professional Engineer
Colorado Certificate No. 51205

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Attachments

Attachment 1 – Map Showing Lands to be Dried Up
Attachment 2 – Water Supply Maps
Attachment 3 – Historical Diversion Records for Ditch
Attachment 4 – Yearly Irrigated Land Maps
Attachment 5 – State CU IWR
Attachment 6 – Detailed CU Calculation
Attachment 7 – Map of Recharge Areas
Attachment 8 – Return Flow Information

Introduction

This historical consumptive use (HCU) analysis report is prepared for a portion of Alpha Farms property located in Conejos County (Property). The study period used for the HCU analysis was a total of 42 years covering the time period of 1978 through 2020. The analysis was completed with the aid of StateCU program and aerial images from GIS and Google Earth. This analysis shows the historical consumptive use credit yield from the Property. With this information, an informed decision can be made to potentially dry up the land to aid in aquifer restoration and replacing injurious depletions to the river.

Lands to be Dried Up

The total area to be dried up is listed by field number in the table below.

Table 1 – Dry-up Areas

Field Number	Dry-up Area
11	90 Acres
12	131 Acres
13	130 Acres
14	131 Acres

The Field 11 is located in portions of the NE1/4 of Sec. 20, T. 33N., R.9E., N.M.P.M. Fields 12 & 13 are located in the N1/2 of Sec. 21, T.33N., R.9E, N.M.P.M. Field 14 is located in the NW1/4 of Sec. 22, T.33N., R.9E, N.M.P.M. A map of the required dry-up area within the Property is included as Attachment 1.

Water Supply

The water supply for the four fields are listed below:

Fields 11 & 12

- Well WDID No. 2205123 piped directly to Field 12
- J.F Chacon No. 2 WDID No. 2200561 (own 100% of the priorities listed below)
  - Priority No. 44 - 7.54 CFS
  - Priority No. 49 - 4.54 CFS
  - Priority No. 97 - 2 CFS
  - Priority No. 142 - 2 CFS
  - All of the above priorities are diverted in the Heads Mill & Irrigation Ditch

Fields 13 & 14

- J.F. Chacon No. 3 WDID No. 2200562
  - Priority No. 38 - 18.31 CFS (own 6.155 CFS or 33.6%)

The Heads Mill Irrigation Ditch can be used on all four fields (11, 12, 13, &14). Information for the Heads Mills & Irrigation Ditch is included below:

- Heads Mill Irrigation Ditch WDID No. 2200554
  - Priority No. 2 - 45 CFS
    - 30 CFS is taken at the Manassa No. 3 Ditch during certain river priorities and not part of the HCU analysis
    - Of the 15 CFS left Alpha owns 5.25 CFS or 35%

The water supply and ditch service areas maps are included in Attachment 2.

Surface Water Diversions

The historical diversion records (1970 to 2020) for the Heads Mill & Irrigation Ditch, J.F. Chacon No. 2, and J.F. Chacon No. 3 are included in Attachment 3. The annual average diversions for all three surface water sources are shown in Table 2, below.

Table 2 – Annual Average Surface Water Diversions

Ditch Name	Annual Average Diversions (Acre-Feet)
Heads Mill Irrigation Ditch	9,848
J.F. Chacon No.2	528
J.F. Chacon No.3	1,177

Groundwater Withdrawals

The historical groundwater withdrawals from 2009 to 2020 for the well (WDID 2205123) on Field 12 are shown in Table 3, below. The date of first beneficial use for this well is 5/14/1969.

Table 3 – Annual Groundwater Withdrawals

Well WDID 2205123	
Year	Pumping (acre-feet)
2009	0.00
2010	110.10
2011	94.00
2012	420.00
2013	181.14
2014	74.30
2015	35.33
2016	15.43
2017	0.32

2018	168.16
2019	0.00
2020	227.90
Avg.	**110.56**

Cropping & Irrigated Areas

To find the different crop types and irrigated acres on the property, RGDSS and Google Earth data was used within the time period of 1978 through 2020. The crops grown are show in maps included as Attachment 4. Table 4, below, summaries the cropping and irrigated acreage used in this analysis.

Table 4 – Cropping & Irrigated Acres Summary

	F11		F12		F13		F14	
Year	Irrigated Acres	Crop Type	Irrigated Acres	Crop Type	Irrigated Acres	Crop Type	Irrigated Acres	Crop Type
1978	116	Alfalfa	138	Small Grain	134	Alfalfa	127	Alfalfa
1985	112	Small Grain	135	Alfalfa	138	Small Grain	63	Alfalfa
1987	108	Alfalfa	134	Alfalfa	132	Small Grain	133	Alfalfa
1988	109	Alfalfa	134	Alfalfa	138	Alfalfa	136	Alfalfa
1998	97	Alfalfa	169	Alfalfa	176	Alfalfa	138	Alfalfa
2002	95	Small Grain	166	Alfalfa	173	Alfalfa	136	Alfalfa
2005	97	Alfalfa	169	Alfalfa	176	Alfalfa	138	Alfalfa
2009	49	New Alfalfa	143	Alfalfa	137	Alfalfa	134	Alfalfa
2010	97	Alfalfa	143	Small Grain	137	Small Grain	134	Alfalfa
2011	97	Alfalfa	143	New Alfalfa	137	New Alfalfa	134	Alfalfa
2012	97	Alfalfa	143	Alfalfa	137	Alfalfa	134	Small Grain
2013	0	Fallow	132	Alfalfa	130	Alfalfa	132	New Alfalfa
2014	97	New Alfalfa	143	Alfalfa	137	Alfalfa	134	Alfalfa
2015	97	Alfalfa	143	Alfalfa	137	Alfalfa	134	Alfalfa
2016	89	Alfalfa	130	Alfalfa	125	Alfalfa	127	Alfalfa
2017	97	Alfalfa	143	Alfalfa	137	Alfalfa	134	Alfalfa
2018	97	Alfalfa	144	Alfalfa	137	Alfalfa	134	Alfalfa
2019	97	Alfalfa	144	Alfalfa	137	Alfalfa	0	Fallow
2020	97	Alfalfa	144	Alfalfa	137	Small Grain	134	Small Grain
Avg	**92**		**144**		**142**		**123**	

If cropping data or aerial photos were not available for a year, then interpolation between two known years was used to estimate cropping and acreage. Table 5, below, summarizes the years where interpolated data was used to estimate cropping and irrigated acreage.

Table 5 – Summary of Interpolated Data used for Cropping & Irrigated Acreage

	F11 & F12					F13 & F14			
	New Alfalfa	Alfalfa	Small Grain	Total Acres		New Alfalfa	Alfalfa	Small Grain	Total Acres
1979	0.00%	47.08%	52.92%	252.94	1979	0.00%	90.18%	9.82%	252.54
1980	0.00%	48.34%	51.66%	251.86	1980	0.00%	80.37%	19.63%	244.00
1981	0.00%	49.61%	50.39%	250.79	1981	0.00%	70.55%	29.45%	235.47
1982	0.00%	50.88%	49.12%	249.71	1982	0.00%	60.73%	39.27%	226.93
1983	0.00%	52.14%	47.86%	248.64	1983	0.00%	50.91%	49.09%	218.40
1984	0.00%	53.41%	46.59%	247.56	1984	0.00%	41.10%	58.90%	209.86
1986	0.00%	77.34%	22.66%	243.87	1986	0.00%	40.73%	59.27%	246.49
1989	0.00%	100.00%	0.00%	245.36	1989	0.00%	100.00%	0.00%	277.89
1990	0.00%	100.00%	0.00%	247.64	1990	0.00%	100.00%	0.00%	281.93
1991	0.00%	100.00%	0.00%	249.91	1991	0.00%	100.00%	0.00%	285.98
1992	0.00%	100.00%	0.00%	252.19	1992	0.00%	100.00%	0.00%	290.02
1993	0.00%	100.00%	0.00%	254.47	1993	0.00%	100.00%	0.00%	294.06
1994	0.00%	100.00%	0.00%	256.75	1994	0.00%	100.00%	0.00%	298.10
1995	0.00%	100.00%	0.00%	259.03	1995	0.00%	100.00%	0.00%	302.14
1996	0.00%	100.00%	0.00%	261.30	1996	0.00%	100.00%	0.00%	306.19
1997	0.00%	100.00%	0.00%	263.58	1997	0.00%	100.00%	0.00%	310.23
1999	0.00%	90.91%	9.10%	264.63	1999	0.00%	100.00%	0.00%	313.01
2000	0.00%	81.81%	18.19%	263.40	2000	0.00%	100.00%	0.00%	311.75
2001	0.00%	72.72%	27.29%	262.17	2001	0.00%	100.00%	0.00%	310.48
2003	0.00%	75.75%	24.25%	237.95	2003	0.00%	100.00%	0.00%	249.78
2004	0.00%	87.87%	12.13%	214.95	2004	0.00%	100.00%	0.00%	190.34
2006	6.35%	93.65%	0.00%	191.78	2006	0.00%	100.00%	0.00%	150.77
2007	12.71%	87.30%	0.00%	191.60	2007	0.00%	100.00%	0.00%	170.64
2008	19.06%	80.94%	0.00%	191.42	2008	0.00%	100.00%	0.00%	190.51

HCU Calculation

StateCU was used to develop an Irrigation Water Requirement (IWR) for each crop described in the Attachment 2. StateCU uses the modified Blaney-Criddle method to estimate historical consumptive use based on input data such as water supply, cropping, and climate data. The Climate Station used in this analysis was Manassa, CO USC00055322. If information was not available at the Manassa Climate Station then the Alamosa San Luis Valley Regional Airport, CO USW00023061 was used. The results of the StateCU IWR output can be found in Attachment 5. Small grains designation was used for the following crops: Oats or Oat Hay, Grain, and Barley.

The yearly crop consumptive use (CU) for each field was calculated by taking the monthly irrigation water requirement from StateCU and multiplying it by the total irrigated acres for that year once the ditch loss and irrigation efficiency was deducted. The estimated crop irrigation efficiency is 83% for sprinkler irrigation. The irrigated area has been sprinkler irrigated for the entire study period. During the transit from the river, ditch losses accrued to the shallow aquifer/river which is estimated at 36%. The HCU analysis was split into two groups. Fields 11 and 12 were analyzed together because they share common water right sources. Similarly, Fields 13 and 14 were analyzed together because they share common water right sources. Detailed consumptive use calculations are included as Attachment

6. Tables 6 and 7, below, summarize the calculated surface water consumptive use for the land in the study period.

Table 6 – Monthly Surface Water Consumptive Use Credit for F11 & F12

Monthly Crop CU for (ac-ft)								
Year	April	May	June	July	August	September	October	Total
1978	11.02	38.47	136.74	0.00	0.00	0.00	0.00	186.22
1979	8.89	62.48	129.20	145.59	58.95	0.00	0.00	405.12
1980	4.46	51.47	158.59	157.57	116.61	41.19	0.00	529.89
1981	22.32	81.45	161.53	113.41	25.98	34.63	14.20	453.53
1982	6.99	47.03	121.93	141.96	93.43	21.49	11.01	443.85
1983	0.00	42.21	102.50	165.82	118.31	53.73	16.21	498.78
1984	0.00	94.78	130.72	138.14	86.32	40.31	3.86	494.13
1985	7.97	82.76	151.53	110.47	87.48	12.80	7.75	460.77
1986	8.02	76.14	139.27	107.13	83.87	37.41	7.86	459.70
1987	14.48	95.29	167.27	143.95	35.05	2.93	0.00	458.97
1988	18.23	90.95	155.57	123.57	121.54	43.66	0.00	553.52
1989	17.99	134.13	151.51	140.67	123.82	0.00	26.38	594.50
1990	15.27	85.44	182.22	116.60	114.53	0.00	28.48	542.54
1991	18.74	109.75	157.65	127.66	107.67	72.06	0.00	593.54
1992	16.67	123.78	146.48	116.43	72.08	77.97	37.83	591.25
1993	10.65	130.42	164.56	151.41	80.58	66.37	19.72	623.71
1994	22.68	103.56	190.64	132.65	124.10	59.91	0.00	633.53
1995	9.28	82.24	143.11	128.22	143.11	60.66	36.70	603.32
1996	27.87	173.11	108.49	133.70	115.09	23.14	20.69	602.09
1997	15.16	118.39	117.51	145.63	134.21	62.60	32.73	626.22
1998	16.30	136.13	172.96	125.75	132.74	79.67	8.26	671.81
1999	0.00	79.37	5.63	86.52	0.00	52.25	34.68	258.44
2000	8.58	10.68	158.62	109.02	5.82	0.00	16.12	308.83
2001	19.77	105.88	183.94	113.43	91.90	19.22	0.00	534.14
2002	15.19	0.00	0.00	0.00	0.00	0.00	0.00	15.19
2003	23.27	63.63	0.00	106.44	0.00	53.81	0.00	247.15
2004	0.00	100.11	99.59	108.98	48.58	45.04	16.37	418.66
2005	15.04	97.42	130.21	124.29	88.62	63.51	16.48	535.56
2006	17.36	97.13	133.13	80.39	79.83	44.11	7.35	459.30
2007	14.91	71.51	120.28	87.19	112.26	46.31	32.73	485.19
2008	13.94	68.69	115.94	93.64	87.42	60.14	25.36	465.12
2009	6.66	81.07	80.98	108.53	91.48	3.91	8.45	381.07
2010	8.77	75.08	165.09	128.84	101.01	34.58	0.00	513.38
2011	8.42	43.49	127.35	0.00	0.00	0.00	28.18	207.45
2012	15.99	114.92	0.00	0.00	0.00	51.84	38.57	221.32
2013	11.91	67.06	0.00	0.00	0.00	22.17	12.13	113.27
2014	13.08	66.21	36.46	116.98	49.67	0.00	0.00	282.40
2015	18.59	75.95	148.55	115.31	0.00	0.00	14.22	372.61
2016	7.13	83.38	71.60	115.49	83.01	62.90	0.00	423.51
2017	16.19	88.94	0.00	96.73	98.94	53.16	34.38	388.34
2018	23.38	132.31	0.00	0.00	0.00	0.00	0.00	155.69
2019	14.99	78.74	149.69	149.29	132.51	79.34	6.21	610.78
2020	25.38	128.31	51.36	0.00	0.00	28.10	0.40	233.55
Average	**13.29**	**85.81**	**113.22**	**102.50**	**70.85**	**35.14**	**13.10**	**433.91**

Table 7 – Monthly Surface Water Consumptive Use Credit for F13 & F14

Monthly Crop CU for (ac-ft)								
Year	April	May	June	July	August	September	October	Total
1978	22.41	75.49	157.51	99.57	0.00	0.00	0.00	354.98
1979	16.05	96.76	143.06	141.64	107.00	0.00	0.00	504.50
1980	7.19	72.53	166.93	143.86	122.48	66.91	0.00	579.89
1981	23.09	84.73	152.57	110.10	58.84	46.24	18.97	494.53
1982	7.58	49.15	113.88	127.29	88.06	23.31	11.94	421.22
1983	0.00	36.37	89.49	146.25	103.71	46.38	13.90	436.11
1984	0.00	71.54	108.21	119.25	71.95	26.34	2.52	399.81
1985	3.73	56.76	121.06	90.82	57.68	5.98	3.62	339.66
1986	4.27	57.93	138.21	114.98	73.72	19.91	4.18	413.20
1987	7.96	68.34	170.64	156.06	99.18	37.26	0.00	539.44
1988	20.54	102.47	175.26	139.21	136.93	65.50	0.00	639.90
1989	20.38	151.91	171.60	159.32	145.20	69.51	29.87	747.80
1990	17.39	97.27	207.45	132.74	130.39	53.84	32.42	671.50
1991	21.45	125.59	180.41	146.09	123.21	82.46	18.07	697.27
1992	33.11	142.35	168.45	133.89	82.90	89.66	43.50	693.87
1993	22.54	150.71	190.16	174.97	93.12	76.70	22.79	730.98
1994	26.33	120.23	221.34	154.02	144.08	69.56	21.39	756.95
1995	10.83	95.93	166.93	149.56	166.93	70.75	42.80	703.73
1996	32.66	202.85	198.26	156.67	160.49	68.13	24.24	843.30
1997	17.84	139.34	188.21	171.40	157.96	73.68	38.52	786.95
1998	19.27	160.91	204.46	148.65	156.91	99.35	9.76	799.32
1999	0.00	101.99	196.67	174.24	25.22	81.90	45.13	625.16
2000	10.91	191.99	212.51	167.31	158.73	48.38	29.10	818.93
2001	29.24	148.51	223.29	171.28	143.34	111.26	37.76	864.67
2002	34.53	71.95	25.78	24.38	0.00	0.00	0.00	156.63
2003	24.77	143.62	151.95	164.44	137.38	58.07	36.88	717.11
2004	0.00	111.35	122.93	97.23	102.47	57.74	16.50	508.21
2005	10.25	66.43	88.79	81.49	60.43	43.31	11.24	361.94
2006	14.57	81.54	108.18	63.20	77.90	34.68	5.78	385.85
2007	15.22	72.95	114.61	77.64	99.97	41.24	29.15	450.77
2008	17.15	84.46	127.64	93.19	87.00	59.85	25.24	494.53
2009	12.67	154.27	145.45	154.04	129.84	69.22	11.99	677.47
2010	11.84	91.34	187.94	142.60	118.59	47.68	5.38	605.37
2011	11.61	59.97	152.09	171.74	158.57	70.57	31.49	656.04
2012	15.46	103.88	156.54	134.27	58.30	33.67	22.10	524.24
2013	11.71	65.90	165.95	56.72	71.91	43.92	24.03	440.13
2014	24.88	125.99	191.37	138.21	133.68	61.88	9.00	685.01
2015	21.04	85.96	182.32	135.49	80.61	32.27	37.78	575.46
2016	8.17	95.49	188.46	161.24	95.07	83.76	14.93	647.11
2017	18.32	100.66	197.70	109.48	138.43	60.17	38.91	663.67
2018	26.47	149.74	162.74	37.73	0.00	0.00	0.00	376.67
2019	8.59	45.13	85.79	85.56	75.94	45.47	8.02	354.48
2020	7.01	68.76	161.51	70.50	17.24	0.00	0.00	325.03
Average	**15.56**	**101.89**	**157.77**	**126.24**	**98.87**	**50.62**	**18.11**	**569.06**

F12 also includes a groundwater source as a part of the legal water supply for this land. So, it was assumed during the HCU analysis the surface water was used first to filled available irrigation water requirement on F12. Then if irrigation water requirement was still available on F12, it was assumed the groundwater supply filled the remaining availability. Since meter readings for groundwater withdrawals are only collected annually, this analysis reports the groundwater HCU annually. Tables 8, below, summarizes the calculated groundwater consumptive use for F12 in the study period.

Table 8 – Annual Groundwater Consumptive Use Credit for F12

Year	Total Groundwater HCU (ac-ft)	Year	Total Groundwater HCU (ac-ft)
1978	292	1999	315
1979	85	2000	349
1980	12	2001	104
1981	18	2002	349
1982	0	2003	349
1983	0	2004	124
1984	8	2005	83
1985	0	2006	19
1986	0	2007	0
1987	177	2008	0
1988	55	2009	0
1989	82	2010	91
1990	56	2011	78
1991	26	2012	349
1992	12	2013	150
1993	9	2014	62
1994	19	2015	29
1995	0	2016	13
1996	117	2017	0
1997	42	2018	140
1998	36	2019	0
		2020	189
		Avg.	**89**

Return Flows

Tables 9, 10, 11, and 12, below, show the surface water return flows percentages and the daily allocation of the surface water for the property evaluated in this report. The tables include three portions of the surface water return flows, ditch loss, and consumptive use credit.

Table 9 – Surface Water Supply Return Flows for F11 & F12

	April	May	June	July	August	September	October
On-Farm Return Flows (%)	53.89%	40.39%	35.16%	31.60%	32.79%	29.88%	48.34%
Ditch Loss (%)	36.00%	36.00%	36.00%	36.00%	36.00%	36.00%	36.00%
Consumptive Use (%)	10.11%	23.61%	28.84%	32.40%	31.21%	34.12%	15.66%

Table 10 – Daily Allocation of Surface Water Supply for F11 & F12

	April	May	June	July	August	September	October
On-Farm Return Flows (cfs)	1.19	2.39	2.32	1.63	1.21	0.52	0.66
Ditch Loss (cfs)	0.80	2.13	2.37	1.85	1.33	0.62	0.49
Consumptive Use (cfs)	0.22	1.40	1.90	1.67	1.19	0.59	0.21

Table 11 – Surface Water Supply Return Flows for F13 & F14

	April	May	June	July	August	September	October
On-Farm Return Flows (%)	56.40%	45.03%	30.45%	30.92%	30.40%	28.17%	45.96%
Ditch Loss (%)	36.00%	36.00%	36.00%	36.00%	36.00%	36.00%	36.00%
Consumptive Use (%)	7.60%	18.97%	33.55%	33.08%	33.60%	35.83%	18.04%

Table 12 – Daily Allocation of Surface Water Supply for F13 & F14

	April	May	June	July	August	September	October
On-Farm Return Flows (cfs)	1.94	3.93	2.41	1.92	1.45	0.67	0.75
Ditch Loss (cfs)	1.24	3.14	2.85	2.23	1.72	0.85	0.59
Consumptive Use (cfs)	0.26	1.66	2.65	2.05	1.66	0.85	0.29

The centroid of the irrigated area for F11 & F12 is approximately 4,000 feet away from the Conejos River. The centroid of the irrigated area for F13 & F14 is approximately 6,000 feet away from the Conejos River. It is proposed that the return flow and the ditch loss portions of the daily allocation be left in the ditch, then the return flow portions be run in the farm laterals and recharged to replicate the historical return flows. Both groups of fields have supply ponds that used to feed the center pivot sprinklers. These ponds will be used to rechargethe on-farm return flows for each group of fields and allow the water to return to the Conejos River. Attachment 7 includes a map which shows the recharge ponds which will be used.

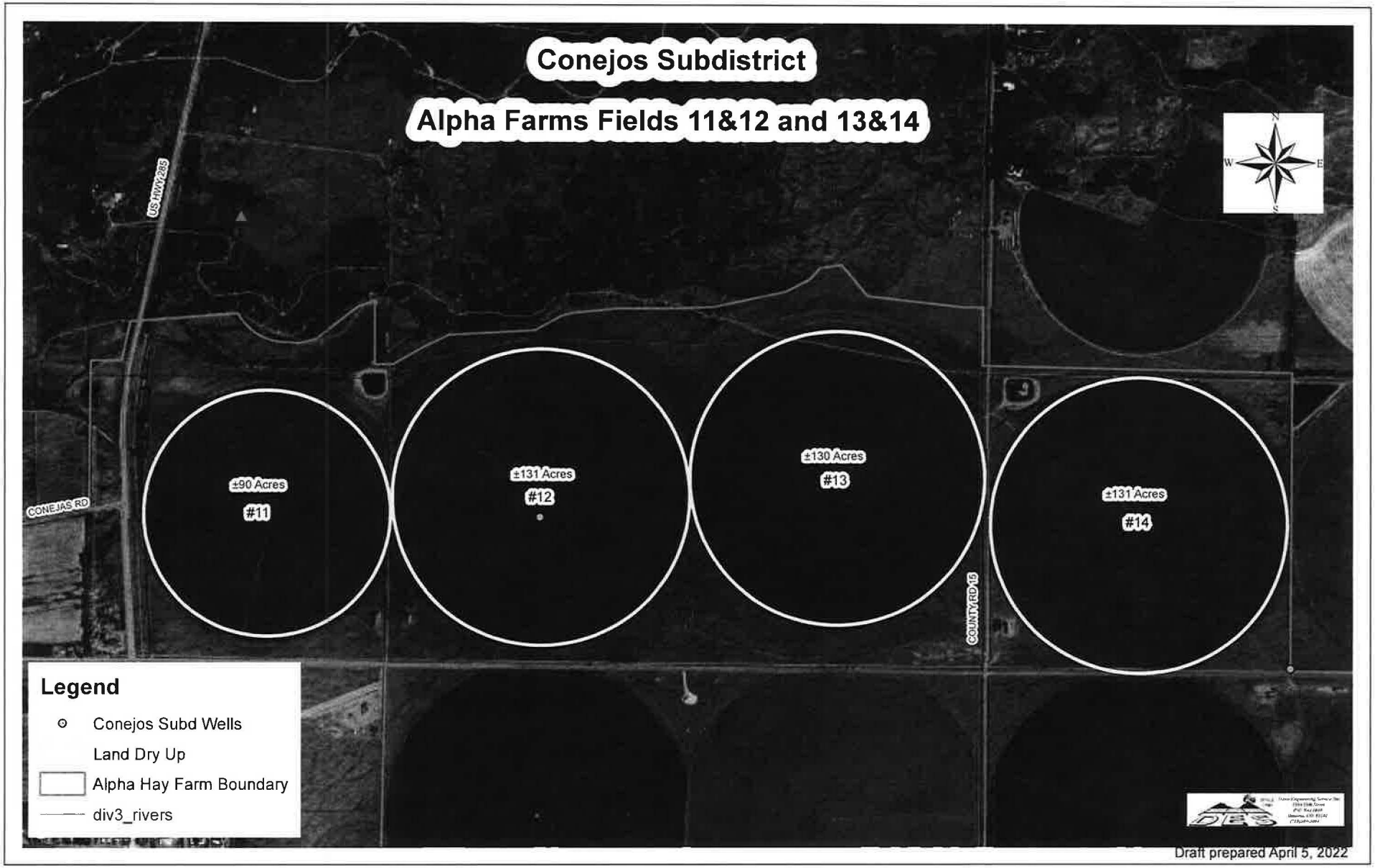
Detailed return flow information for each ditch is included in Attachment 8 including monthly returns flows, monthly ditch loss, and total monthly farm headgate diversions. Under this operation there will be no injury to other water rights.

Conclusion

Surface Water consumptive use credits can be created for each group of fields, per the daily allocation tables (10 & 12), for the water right when it is in priority and able to divert water. The estimated annual average historical surface water consumptive use for F11 & F12 is ±434 ac-ft. In addition to surface water consumptive use credits for F11 & F12, F12 also generates groundwater consumptive use credits. The estimated annual average historical groundwater consumptive use for F12 is ±89 ac-ft. The estimated annual average historical surface water consumptive use for F13 & F14 is ±569 ac-ft.

Attachment 1

Map Showing Land to be Dried Up


Conejos Subdistrict
Alpha Farms Fields 11&12 and 13&14
US HWY 285
CONEJAS RD
COUNTY RD 15
±90 Acres
#11
±131 Acres
#12
±130 Acres
#13
±131 Acres
#14
N
W
E
S
Legend
Conejos Subd Wells
Land Dry Up
Alpha Hay Farm Boundary
div3_rivers
Draft prepared April 5, 2022

Attachment 4

Overview of Agreement Between Subdistrict No. 3 and Trinchera Subdistrict for Valuation of Property

AGRO ENGINEERING, INC.
"COMPREHENSIVE AGRICULTURAL AND WATER RESOURCE CONSULTING"

0210 Road 2 South, Alamosa, CO 81101 ♦ Phone:(719) 852-4957 ♦ Fax:(719) 852-5146

August 22, 2022

Trinchera Subdistrict Board of Directors and Subdistrict 3 Board of Directors,

The following is an overview of the Alpha Farms purchase division of lands, water rights, and purchase price agreed upon to date.

The Alpha Farms purchase consists of the 716.27 acres with a legal description of: SE1/4 17-33-9 (LESS 32A) S1/2 16-33-9(LESS 351.73A R#94-2687)TNA 96 M/L NE1/4 21-33- 9 TNA 160 NW1/4 21-33-9 TNA 160 NW1/4 22-33-9 TNA 160 FR NE1/4 20- 33-9 TNA 140 (LESS ROW DES B234 P406)(ALSO:DITCH EASEMENTS DES R#2502-1176).

It includes 4 fields designated 11 through 14 (See Figure 1).

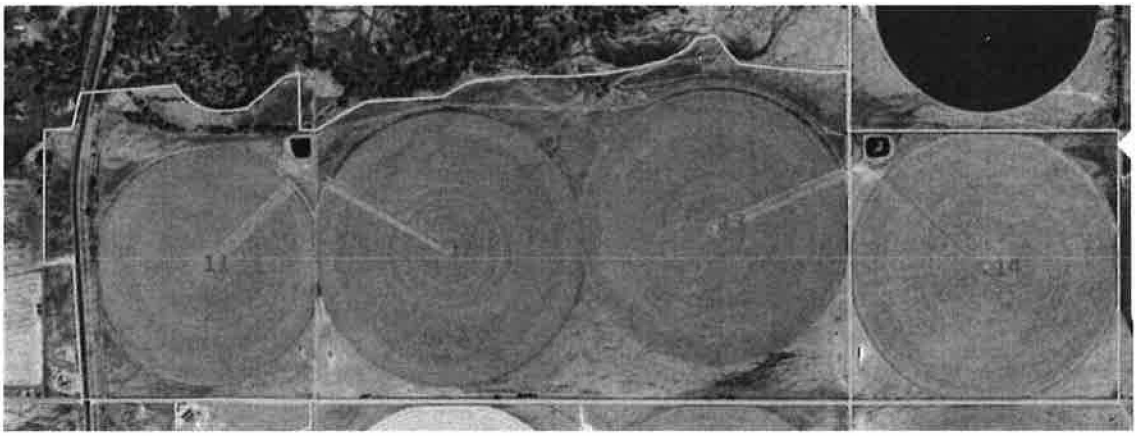


Figure 1. Alpha Farms Fields 11, 12, 13, & 14

The Field 11 is located in the NE1/4 of Sec. 20, T. 33N., R.9E., N.M.P.M. Field 12 is located in the NW1/4 of Sec 21 and overlaps in to the SW1/4 of Sec. 16, T. 33N., R.9E., N.M.P.M. Field 13 is located in the NE1/4 of Sec 21 and overlaps in to the SE1/4 of Sec. 16, T. 33N., R.9E., N.M.P.M.. Field 14 is located in the NW1/4 of Sec. 22, T.33N., R.9E, N.M.P.M.

The water supply for the fields is as follows:
Fields 11 & 12

- Well WDID No. 2205123 piped directly to Field 12

- J.F Chacon No. 2 WDID No. 2200561 (own 100% of the priorities listed below)
    - Priority No. 44 - 7.54 CFS
    - Priority No. 49 - 4.54 CFS
    - Priority No. 97 - 2 CFS
    - Priority No. 142 - 2 CFS
    - All of the above priorities are diverted in the Heads Mill & Irrigation Ditch

Fields 13 & 14

- J.F. Chacon No. 3 WDID No. 2200562
    - Priority No. 38 - 18.31 CFS (own 6.155 CFS or 33.6%)

The Heads Mill Irrigation Ditch can be used on all four fields (11, 12, 13, &14). Information for the Heads Mills & Irrigation Ditch is included below:

- Heads Mill Irrigation Ditch WDID No. 2200554
    - Priority No. 2 - 45 CFS
        - 30 CFS is taken at the Manassa No. 3 Ditch during certain river priorities and not part of the HCU analysis
        - Of the 15 CFS left Alpha owns 5.25 CFS or 35%

All of the surface water rights are on the Conejos River.

Subdistrict 3 wishes to purchase fields 11 & 12 and Trinchera Subdistrict wishes to purchase fields 13 & 14. Historic Consumptive use analysis by Clinton Phillips of Davis Engineering breaks out the average consumptive use by the parcels is presented in Table 1.

Table 1. Average Irrigated Acreage and Consumptive Use

	Fields 11 & 12	Fields 13 & 14
Area Irrigated (acres)	236	265
Surface Water CU (acre-ft)	433.91	569.06
Ground Water CU (acre-ft)	89	0
Total CU (acre-ft)	522.91	569.06

Alpha Farms has agreed to a total purchase price of $4,600,000 for all four fields. To equitably value each Subdistrict's purchase it was agreed upon that surface water consumptive use would be valued equally between all fields regardless of the source and that ground water consumptive use would be valued at half of the value of surface water consumptive use. The difference in value of groundwater considers that using ground water for replacement of depletions requires pumping the water, a pipeline, and causes depletions from that pumping as calculated by the response function for Subdistrict 3. Preliminary consumptive use estimates at the time of the contract signing differed slightly from the values presented above. At the time of the contract signing the estimated values for Fields 11 and 12 were at 443.5 acre-ft surface water consumptive use and 102 acre-ft of ground water consumptive use, while fields

13 and 14 had 545.5 acre-ft of consumptive use. To calculate the price per acre-ft the following equation was solved.

Total Price = $SWCU_{11\&12}$ * SWPrice + $GWCU_{11\&12}$ * ½SWPrice + $SWCU_{12\&14}$ * SWPrice

$4,600,000 = 443.5 acre-ft * SWPrice + 102 acre-ft * ½SWPrice + 545.5 * SWPrice

Solving for SWPrice = $4423.08/acre-ft and GWPrice = ½ SWPrice = $2211.54

Using these values Trinchera Subdistrict's Purchase amount for fields 13 and 14 is $2,412,790. Subdistrict 3's purchase price for fields 11 and 12 is $2,187,210. This reaches the total purchase price of $4,600,000 for the four fields agreed to by Alpha Farms.

Respectfully,

Jason Lorenz, P.E.
Agro Engineering Inc.

Attachment 5
Schedule of Projected Revenue and Expenditures