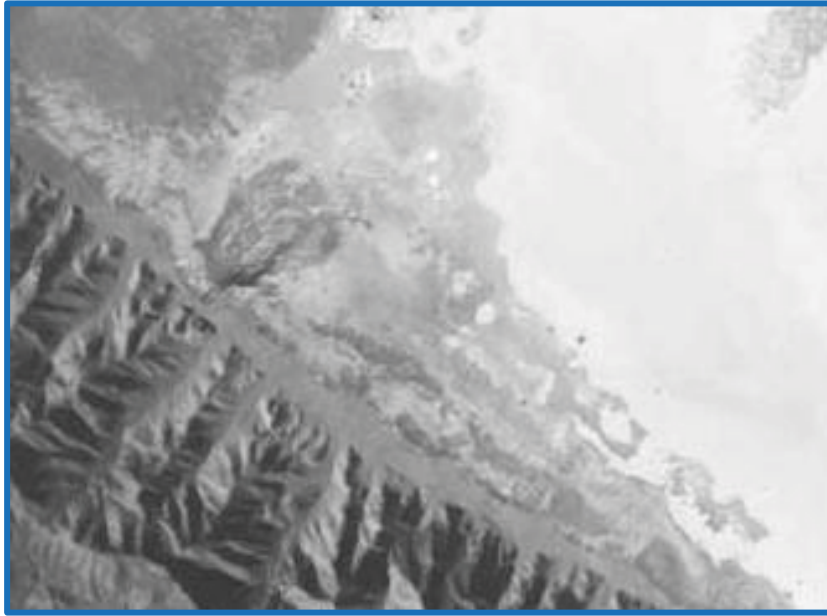


VENT_278

VENT_278

Analysis of the Water Rights Held by Daniel Venturacci, Diamond Valley
Nevada, Hydrographic Basin #153
Applications 82570 through 82753 and the
Thompson, Cox, Rock, Willow and Mau Ranches
and their associated Vested Rights Claims



Prepared by:



George M. Thiel, P.E., S.W.R.S
Principal Engineer

March 16, 2013

Introduction:

In the following pages I have attempted to analyze the discharge area of the northern part of diamond valley. Both the Shipley Springs on the west side of the basin and Thompson Springs located on the east side of the basin are located within Township 23 North. Characteristically the area of discharge exceeds the patented property ownership of the discharge area. In the mid nineteenth century the area was first settled by pioneers who set up residence in the area utilizing the discharge of the springs as the basis for commercial operations for the emigrants heading to California during the California Gold Rush period. Emigrants relied upon the Thompson Springs as a rest stop along their arduous trek west. Diamond Springs also known as Taft and Thompson Springs was also a Pony Express station that was first constructed in late 1859 and state in operation during 1860 and finally died out with the establishment of the telegraph line. Provided in this report are photographs depicting the telegraph station that was located on the Cox Ranch just north of the Thompson Springs. In order to understand the setting of the property I have analyzed the USGS reports to understand the hydrology of the basin, to not include this issue in this analysis I would be remiss in truly understanding the circumstances that caused the demise of this ranch. Although it is true that the appropriate procedures with the office of the State Engineer recognizes that the cessation of natural discharge is what allows for groundwater appropriations normal conditions in a basin normally do not affect water rights associated with viable ranching operations that relied on the groundwater discharge area where vesting of use has occurred. In this instance it is well documented that there has been a cause and effect associated with the significant groundwater depletion within the Diamond Valley Groundwater Basin.

In order to identify the area of vested use it is essential to look as far back in the past that records exist as to the use of the springs, seeps and high groundwater zones that was used for ranching activities of various parties that developed ranches that developed the discharge sources. The task is to assimilate data essential to form an opinion that is substantive enough to determine historical conditions in order to facilitate the loss of the spring rights and implement the mitigating underground source of supply. If I was to rely solely on the fact that this was an unimproved meadow area the consumptive use would have been predicated upon a discharge equal to, perhaps, the consumptive use rate of 1.5 acre feet per acre with the assumption that this land was only used for grazing. According to the Crofut Oral History farmers and ranchers planted various cultures that improved the culture by the planting of Red Top Fescue, Timothy and Alfalfa seeds to improve the forage crop. Until the winter of 1889 the grass within the discharge area was used for grazing livestock. The winter conditions were so severe that most of the livestock in the area died off and it was soon realized that in order to survive in these harsh conditions it would be necessary to change the operation of the ranches into farms by fencing off fields and cutting hay for winter use. This was the biggest change to the ranching activity at this time.

What is necessary to understand is that the Thompson Ranch relied upon more than the two large springs that discharged onto the properties owned by the Thompson Family and their predecessors. A vast amount of springs covered all of the properties under their ownership that created the viable ranching operation. If someone reviewing the use of water on the property was to only use the flow rate of the springs for the quantification of the discharge area the estimate would have been deficient by approximately 50%. To truly recognize the characteristics of the properties it is necessary to realize that the ranch consisted of many spring sources, seeps and groundwater discharges within the region. Mr. Milton Thompson, a resident of the springs since 1948, estimated that there were over two hundred springs in this area that he had found over his life time. Some of those springs are discussed by Mr. Crofut, a descendant of the Cox family, that lived and operated

ranches in the area. His recounting of his experiences are provided in excerpt in this report for validation of the historic use of the property.

By reviewing the aerial photograph of 1950, 1953, 1954, 1967 and 1973 it is an easy task to recognize these source that existed at the time and also realitively simple to ascertain the limits of the discharge are within the improvements inacted by the property owners. I also had the opportunity to investigate this area in the early 1980's as well as on January 7, 2013 in order to ground truth the investigation. During my site visit in January of this year I had the opportunity to visit the site with Mr. Thompson that has a vivid memory of the use of the land as it existed when he was a child. He was able to point out the various springs and the dry remnants that exist now.

Perhaps the best example of the reasoning accounting for the over appropriation of the groundwater basin can be better surmized by the oral history of a former State Engineer:

“In some cases, the Desert Land entrymen, after making a number of applications, would then fade away. As a result of this practice (after I left the office), the State Engineer in connection with King River Valley in Humboldt County issued a great number of permits, much more than the safe yield of the valley would handle. This was done on the assumption that at least fifty percent of the people would go broke before they got anything done, and those who remained would not overuse the ground water resources.” Oral History, University of Nevada Reno, Hugh A. Shamberger, page 36, fourth paragraph.

“However, the State Engineer has relieved the situation somewhat in the late years. That is, in many of these areas that were covered with Desert Land entries, he closed the valleys under the 1939 Ground Water Act, which meant that before any drilling could be done a permit would have to be issued.” Oral History, University of Nevada Reno, Hugh A. Shamberger, page 36, fourth paragraph, continuing onto page 37.

“I would say that nine out of ten people who obtained a Desert Land entry failed in trying to develop these desert lands.” Oral History, University of Nevada Reno, Hugh A. Shamberger, page 37, fifth paragraph.

“As I mentioned earlier, the outstanding successes in the development of desert land occurred in the Quinn River Valley. There the people who came in from Idaho were actually farmers. In the King River Valley, which lies also in Humboldt Valley, that was backed by a big company. In other valleys, such as Diamond Valley and Reese River Valley, some very fine development work is being done. But whether these will ultimately be successful, I don't know. The short growing season has played havoc with some of the crops. Generally, I would say that the Quinn River Valley, the King River Valley, upper Reese River Valley and Diamond Valley have been the most successful valleys in which desert land development has been done. (There may be some other isolated valleys, but I have been out of touch with what is going on, so couldn't probably give up to date information.)” Oral History, University of Nevada Reno, Hugh A. Shamberger, page 38, first paragraph.

“I have often mentioned the fact that the Ground Water Act of 1939, with the amendments subsequent to that time, was a good law. Actually it is one of the best laws in the western United States, but nevertheless, it should be amended and brought up to, date.” Oral History, University of Nevada Reno, Hugh A. Shamberger, page 38, third paragraph.

“Under this '39 Act, the State Engineer was not supposed to grant permits to appropriate water in excess of the average annual replenishment to the valley. Now in the Las Vegas

Valley this was done purposely. The people were allowed to over-appropriate in order to develop the area so that they would have enough taxable property to support the bond issue to bring water in from Lake Mead. In many of the valleys of the state, there was no supplemental water available. If the area was over-pumped appreciably, the ground water table would keep going down and down, and eventually might make pumping prohibitive for irrigation purposes.” Oral History, University of Nevada Reno, Hugh A. Shamberger, page 38, fourth paragraph.

“Following these facts, it is my opinion that the Ground Water Act should be amended so that a program of orderly over-development could be undertaken with the idea in mind of taking out of storage a certain amount of water over a period of thirty or forty years. I think it is a mistake to try to visualize the situation that may exist thirty to forty years from now, because by that time, no doubt, economics of pumping would be such that a person could pump water from a much greater depth for irrigation purposes than they can now.” Oral History, University of Nevada Reno, Hugh A. Shamberger, page 38, sixth paragraph

Mr. Shamberger began working in the office of the State Engineer in 1935. Mr. Shamberger, in his term of state employment was a State Engineer and then was appointed director of the Department of Conservation and Natural Resources in 1957.

In my employment at the Nevada Division of Water Resources in 1980 Desert Land Entries were being filed in the hundreds, with very few of those entries allowed due to the lack of water resources within the groundwater basins. After I left state employment I was able to gain the land and water rights for a ranching operation from Idaho that is still in production today.

The persuasive opinion of the office of the State Engineer, at the time, was predicated upon the success rate of the Desert Land Entry (DLE) program. The success rate was small and therefore the probability of the basin being over appropriated was relatively small. During the time of granting the water rights for the DLE's it was assumed that it was reasonable to over appropriate the groundwater resource as, through attrition, the basin would not be over drafted, this was to prove not to be the case in Diamond Valley.

I reserve the right to supplement this record prior or during any future action of the State Engineer in any administrative proceeding pertaining thereto.

AFFECT:

Taft (Thompson) Springs in Eureka County, Diamond Valley has been virtually dry for the past 10 years. This is primarily caused by the Office of the State Engineer issuing groundwater rights in the basin that have overdrafted the groundwater reservoir and changed the gradient of flow from the area of discharge. The effect has been so dramatic that the decrease in flow was noticed to have occurred in the early 60's. In 50 years the springs, meadows and the agricultural enterprises associated with these springs have completely disappeared. The USGS has recognized a direct correlation to the reduction of flow within my clients properties and others and this matter is well documented.

The premise of the function of the State Engineers office is based upon a time right priority system whereas a junior water right owner cannot divert his water rights to the detriment of senior water right holder. The issue at hand is that this has occurred? The second question is how will the situation be remedied? Based upon photographic evidence and field truthing in the area of

discharge (Spring sources and the meadows) extensive subsidence has occurred that would prevent the springs from returning even if the State Engineer were to cancel those permits that were issued within the groundwater basin. Based upon the over pumpage and the depletion of the groundwater reservoir many years would be required to cure the situation even if all groundwater rights were cancelled and the water returned to the source. Assuming the average annual pumping that occurred within the groundwater basin was approximately 90,000 acre feet over the past 40 years this would equate to over 3, 600, 000 acre feet being depleted in the groundwater zone. Equating this depletion to the availability of recharge over the same period this would represent a net reduction of the groundwater reservoir by over 2,400,000 acre feet. Based upon the amount of inflow into the basin it would take 80 years for the basin to return to the groundwater levels that existed in the early 1970's.

In this analysis filed in support of the vested right claims it is essential to understand the extent of the vested water rights that existed at the time of applying water to beneficial use. It is also important to understand the conditions that exist that caused the springs to go dry and these springs were substantial.

It is the intent of Mr. Venturacci, Mr. Thompson and other senior water right owners in the basin to seek upon the broad discretionary powers of the State Engineer to seek remedy. The persuasive argument in this case is that the State Engineer caused the problem and now it is the responsibility of the State Engineer to fix the problem and restore the water rights of the most senior water right holders within Diamond Valley.

Analysis:

The following analysis is used to substantiate the claims of vested rights held by Mr. Daniel Venturacci and Mr. Milton Thompson located within Basin 153, Eureka County, Nevada. Based upon the review of the many documents published by the USGS and as discussed therein the spring sources within the valley have suffered a drastic depletion in yield, to the extent where the springs discharging to the properties no longer receive any water to irrigate the lands that were once predominant on the eastern side of the Basin. These properties were first occupied in 1858, which is well documented in the photographic and oral history provided within this document. The use of this water occurred for a period of over one hundred years until the establishment and development of the extensive irrigation within the southern end of the basin.

Based upon pumpage inventories prepared by the office of the State Engineer the extensive pumping exceeds the perennial yield of the groundwater basin:

- 2011- 96,791 acre feet
- 2010- 97,536 acre feet
- 2009- 97,539 acre feet
- 2008- 95,738 acre feet
- 2007- 96,609.8 acre feet

Total water rights according to the basin summary illustrate a total of 133,842.11 acre feet from all sources with the predominant appropriations for irrigation at 115,706.16 acre feet. Listed on the report is the perennial yeild of 30,000 acre feet as referenced in USGS Bulletin 35. The perennial yield within the basin is divided into two areas within the groundwater basin:

- North Diamond Subarea-9,000 acre feet
- South Diamond Subarea-12,000 acre feet
- Subsurface inflow from Garden Valley- 9,000 acre feet

In actuality the perennial yield within the groundwater basin is equal to 21,000 acre feet. Predicated upon development of water within Garden Valley the basin interflow may or may not be available for replenishment within Diamond Valley dependent on the future of groundwater development within that region, be it mining or other beneficial use.

Bulletin 35 was written in 1968 some 18 years after the groundwater development began in the southern portion of the groundwater basin. In the analytical process, by observation, the groundwater withdrawal in the southern part of the basin must rely upon the basin interflow and the recharge occurring in the entire groundwater basin and must rely upon the withdrawal of water in storage. The declining pumping levels, some over 120 feet, will continue to decline as the recharge cannot keep up with the depletion. Ground subsidence has also been witnessed on the Thompson Ranch due to the collapsing of the spring discharge areas and cracks appearing within the property as provided in Exhibit 3 from the hearing of 8-9-82.

According to Table 8 of the report the evapotranspiration from spring discharge areas covered 6,000 acres with a total applied acre footage of 9,900 acre feet. The table states that the primary use of a portion of the spring discharge was for Meadowgrass, hay, and some salt grass which was assigned a duty of 1.5 acre feet per acre, whereas the State Engineer assigns 3.1 acre feet per acre for Highly Managed Pasture Grass and 2.5 acre feet per acre for low managed pasture grass. Grass Hay is assigned a consumptive use of 3.0 acre feet per acre. As provided in the oral history and the photographs provided by Milton Thompson it can be readily seen that the spring discharge areas were planted with Timothy, Red Top Fescur, Alfalfa and other grasses to enhance the forage, the fields were cultivated and the hay was used to feed livestock on the ranches as well as sold commercially to other users including those within the Town of Eureka.

On page 31, Table 9 of the report the USGS relied on 3 flow measurements of the Thompson Spring source, and did not take into account the subirrigation occurring along the fault line on the east side of the valley that created many spring sources (according to Milton Thompson over 200 spring sources were found on the Thompson ranch and according to the oral interviews and the transcript of Mr. Andrew Crofut, haying occurred all along this area and a multitude of springs and subirrigation was occurring).

The measured discharge by the USGS was estimated at an average of 2.17 cfs reported upon only for two years, one measurement in 1965 and two measurements in 1966 and yet other data existed within the files of the USGS as reported by Harrill that illustrate spring discharges equal to and average of 3.07 cfs for 1983. The low flow was measured in 11-15-1990 equal to 54 gpm. Mr. James Harrill, USGS, in his memo to file reported that the Manse Spring in Pahrump Valley acted in the same manner as Thompson Springs, in his opinion there is a direct correlation to groundwater pumping and the depletion of the spring discharge.

One fact helps substantiate this evidence that is derived from the GLO Survey of 1879 which recognized a significantly larger discharge occurring from the springs as can be seen by reviewing the document provided in this report. Based upon this evidence and by observation of the aerial maps it can be readily recognized that at the time of the vesting of the water rights that spring discharges within the meadow area cannot be entirely quantified by the measurement of the two

Thompson Springs and that in order to do a proper accounting it is necessary to take into consideration the place of use of the spring discharge areas and calculate the water demand based upon the place of use predicated upon current conditions and the need to irrigate the property into some semblance of the historical use.

In the following pages you must note that the following facts are provided:

1. The springs have been depleted by the extensive development of agricultural development in the southern end of the Valley;
2. The groundwater gradient has been changed from the natural flow condition of groundwater movement from the southern end of the basin to the northern end of the basin;
3. The extent of spring discharge area exceeds the limits of the properties held by Thompson and Venturacci;
4. The groundwater table continues to decline and has declined dramatically over a period of time;
5. The home ranch, where the two major springs originated, and as observed in the 1879 GLO survey covered more property then currently under ownership by Venturacci;
6. The establishment of human occupation of the ranch occurred in 1858 or earlier (this route was the southern branch of the Overland Trail to California, later recognized as the Simpson Route for immigrating parties from the west) during the gold rush of 1850. The occupation of this property was further established by the construction of a pony express station in 1860 of which remnants still exist today. This property is well document as to the diversion of the water to a beneficial use;
7. The establishment of this property demonstrates the most senior water right in the groundwater basin has been affected by Junior water right holders in violation of the frame work of Nevada Law.

USGS Investigations:

Reconnaissance Report 6, USGS:



Photograph 3. Main spring pool at Thompson Ranch. Note portable pumping plant used to supply field of alfalfa in left middle distance. Alfalfa is irrigated by sprinkler system.

Report 6-USGS, 1961



Same pond as provided above looking south-no water is evident (January 7, 2013)



Lower Thompson Spring-Excavated to present level January 7, 2013

Page 18 Report 6-USGS Report:

The water table in the valley fill generally is within a few feet of the land surface in the area of the playa and its immediate vicinity. Numerous small gravity springs and seeps marginal to the playa testify to the shallow depth to water in this area. Springs also occur along the lower edge of the alluvial apron, principally in Tps. 23 and 24 N. on the west and east sides of the valley. Most of the larger springs, such as Shipley Hot Spring and the main spring at Thompson Ranch, have artesian heads. (See photographs 2 and 3). That artesian conditions are operative in these areas is further supported by the flowing wells on the Romano Ranch. Discharge from the artesian springs and upward leakage in the vicinity has resulted in a shallow water table in the meadow areas down-gradient from the springs.

Page 21:

It was noted, however, that the ground-water discharge on the west side of the valley in Tps. 23 and 24 N. appeared to be relatively large, considering the relatively limited drainage area westward to the topographic divide of the Sulphur Springs Range. Recharge in this part of Diamond Valley in part may be supplied from areas beyond the topographic divide; that is, from the upper part of the drainage area of Garden Valley. However, there are no data to confirm this and at best it can be only a hypothesis until a more detailed investigation can be made.

Table 5. -- Estimated average annual ground-water recharge from precipitation in Diamond Valley

(1) Precipitation zone (inches)	(2) Approximate acreage of zone	(3) Estimated average annual precipitation	(4) Percent recharge	(5) Approximate recharge (acre-feet) (2x3x4÷100)
20+	3,000	1.75	25	1,300
15-20	17,000	1.46	15	3,700
12-15	63,000	1.12	7	4,900
8-12	245,000	.83	3	6,400
8-	127,000	.58	--	----
Total				(16,300)
		Rounded		16,000

Estimated Average Annual Discharge

Ground water is ultimately discharged from Diamond Valley by transpiration of water-loving vegetation (phyreatophytes) and by evaporation from soil and free-water surfaces. Discharge by springs eventually is discharged from the valley by the above processes. Thus, an estimate of natural discharge of ground water may be made by evaluating the amount of water that is evaporated and transpired.

Table 6 on Page 22 reports that there is 5,600 acres of "Meadow and Pasture", with an approximate discharge rate of 8,900 acre feet per annum. 4,600 acre feet is assumed to have an annual groundwater use of about 1.25 acre feet per acre and 1,000 acres at an annual rate of 3.0 acre feet/acre.

In USGS Bulletin 35, Table 8, Page 29 estimates Spring Discharge areas of approximately 6000 acres with an approximate discharge of 9,900 acre feet per annum (note that the USGS assumes that it is 4,500 acres at 1.25 acre feet per acre and 1,000 acres of meadow at 3.0 acre feet per acre, which is in direct contrast with the consumptive use figures provided by the office of the State Engineer associated with the Consumptive User by Crop type).

Discussion on Perennial Yield Page 23:

lation, especially if the water is used for irrigation. Ground water discharged by wells usually would be offset eventually by a reduction of the natural discharge. In practice, however, it is difficult for well discharge to reduce fully the natural discharge, except when the water table can be lowered quickly to a level that eliminates both ground-water outflow and evapotranspiration in the areas of natural discharge. The numerous pertinent factors are so complex that, in

Page 30, 2nd paragraph:

In the North Diamond subarea there is one fairly large spring on the east side of the valley at Thompson Ranch, sec. 3, T. 23 N., R. 54 E. There, water flows from bedrock outcrops mapped as klippe of western facies rocks of Crdovician(?) age by Larsen and Riva (1963). The water is warm, and the spring is considered to be in a fault-controlled area of discharge of moderately deeply circulating ground water. Other small seepage areas are common along the east side of the sub-area. The western margin of the subarea is characterized by a number of pond springs at altitudes of approximately 5,800 feet. All the springs discharge warm water and all are in alluvial material near the bases of alluvial fans or pediments.

The source of spring discharge in this area, as described above, is from deeply circulating groundwater. Also note the fact that the author notes other "*small seepage areas common the eastside of the sub-area*".

Page 24 Movement of Groundwater:

Movement

Ground water in general moves from areas of recharge to areas of discharge.

From the areas of recharge in the mountains the ground water moves slowly (perhaps on the general order of a few feet or a few tens of feet a year) toward the area of discharge which surrounds the playa in Diamond Valley.

Figure 2 shows generalized water-level contours of the ground water in the principal area of recent development south of the playa. It will be noted that the altitude of the contours decrease northward which indicates general movement toward the playa area. The northward swing of the contours on the east side indicates movement of ground water from the Diamond Mountains. Control is meager on the west side, but there is a suggestion of some movement of ground water from the mountains on the west side of the valley also. Pumping during

It should be noted that changes in the groundwater contours were already being indicated by USGS on Page 24 of the periods of 1960-61 (last paragraph). For purposes of this discussion the following exhibit is provided:

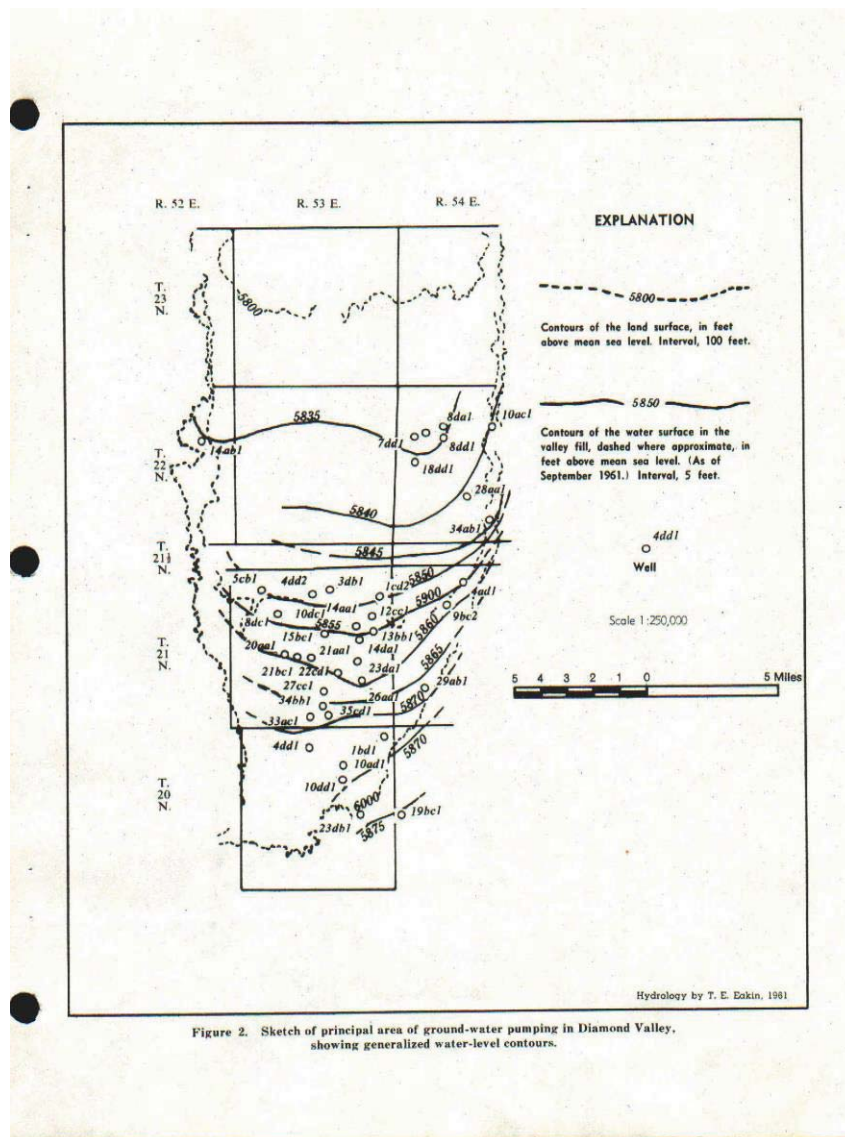


Figure 2. Sketch of principal area of ground-water pumping in Diamond Valley, showing generalized water-level contours.

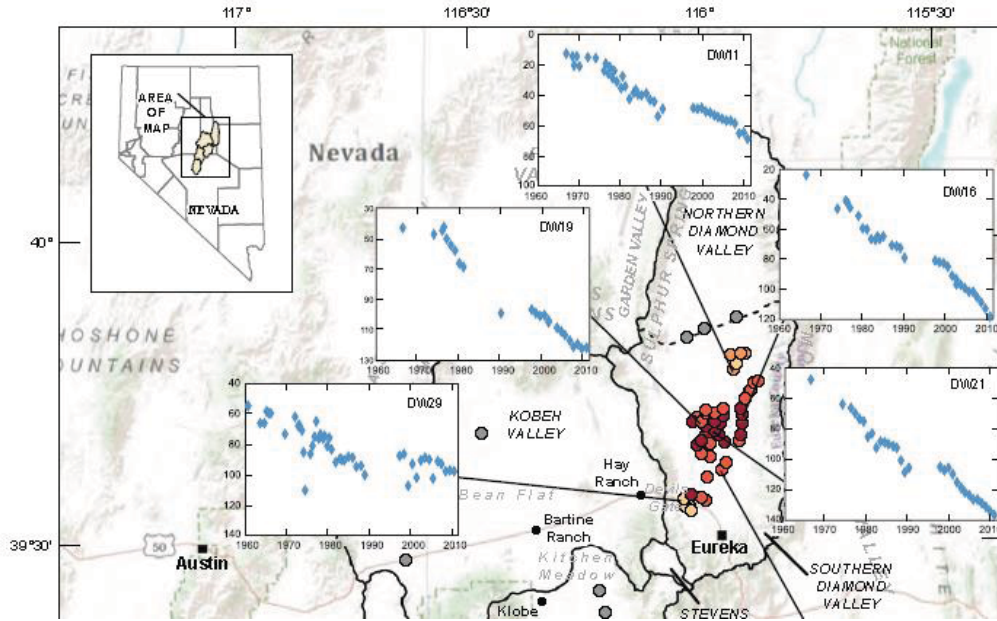
The report illustrates the beginning of declines commencing in 1947 through 1961, some levels have dropped 12 feet during this time period (see Figure 3).

Page 28:

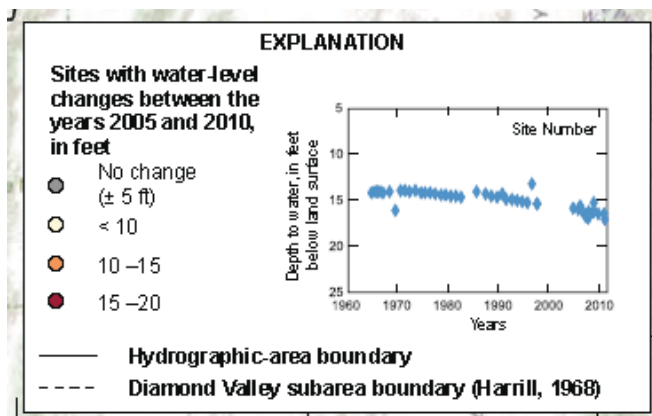
Development

Prior to about 1940, development of ground water in Diamond Valley largely involved the utilization of spring discharge for the production of hay from meadows and pasture land. The larger springs so used are located on ranches near the east and west sides of Diamond Valley principally in Tps. 23 and 24 N.

USGS REPORT, Data Network, Collection, and Analysis in the Diamond Valley Flow System, Open File Report 2011-1089, Central Nevada, Figure 3, water level changes from 2005-2010:



Legend Bottom right hand corner of Figure 3:



USGS has provided another report illustrating the pumping development within Diamond Valley although the amount of duty applied does not represent the permitted nor consumptive use by crop, this is found in Table 1 of Open-File Report 95-107, USGS, “**Irrigated Croplands, Estimated Pumpage, and Water-Level Changes in Diamond Valley, Eureka and Elko Counties, Nevada, through 1990**”, 1995:

Table 1. Estimated irrigated acreage and estimated pumpage in Diamond Valley, Nevada, 1950-90

[Data for 1950-65 from Harrill (1968, tables 16 and 17, p. 48, 49); data for 1966-69 and 1975-89 from files of Nevada Division of Water Resources, Carson City; data for 1990 based on field inventories by U.S. Geological Survey; --, data not available]

Year	Number of wells visited	Number of active wells	Irrigated cropland (acres)				Total irrigated acreage	Pumpage (acre-feet)
			Alfalfa	Grain	Pasture	Other		
1950	--	--	--	--	--	--	300	
1951	--	--	--	--	--	--	600	
1952	--	--	--	--	--	--	800	
1953	--	--	--	--	--	--	800	
1954	--	--	--	--	--	--	800	
1955	--	--	--	--	--	--	1,000	
1956	--	--	--	--	--	--	1,000	
1957	--	--	--	--	--	--	1,200	
1958	--	--	--	--	--	--	1,200	
1959	--	--	--	--	--	--	1,800	
1960	--	--	--	--	--	--	2,400	
1961	--	--	70	2,900	--	220	3,200	6,100
1962	--	--	300	3,000	--	2,300	5,600	11,000
1963	--	--	400	3,740	--	700	4,800	9,700
1964	--	--	985	4,710	--	41	5,740	12,000
1965	281	70-75	2,130	5,450	--	19	7,600	16,000
1966	--	74	--	--	--	--	13,000	22,400
1967	--	--	--	--	--	--	9,500	19,400
1968	--	--	--	--	--	--	9,000	18,200
1969	--	--	--	--	--	--	--	22,900
1970-74:			No data available					
1975	228	125	10,700	5,250	0	1,860	17,800	53,400
1976	232	137	10,800	6,760	0	1,190	18,700	56,200
1977	233	143	12,800	6,650	515	0	19,800	53,000
1978	233	164	14,800	5,800	0	1,260	21,900	59,800
1979	234	172	15,800	5,910	0	830	22,600	61,800
1980	240	187	17,400	5,130	0	545	23,100	64,000
1981	238	183	20,700	4,090	0	485	25,300	71,700
1982	242	180	22,300	2,580	0	445	25,300	73,300
1983	243	188	22,000	2,580	0	240	24,800	71,900
1984	248	189	24,300	2,400	0	100	26,800	78,100
1985	248	189	24,300	2,400	0	100	26,800	78,100
1986	249	174	21,100	2,860	126	100	24,200	69,600
1987	249	166	20,100	2,210	660	0	23,000	66,000
1988	249	163	20,200	1,060	0	295	21,600	63,400
1989	239	168	19,800	2,660	0	1,070	23,500	66,700
1990	291	158	19,900	2,010	150	135	22,200	64,400

It should be noted that the quantification of the consumptive use by crop type does not reflect the duty of 3.2 acre feet per acre but is more representative of approximately 2.9 acre feet per acre when comparing the last column which is the estimate of Pumpage, without actual pumping data being applied through meters or other calibrated evidence. In comparison with the Pumpage inventories compiled by the office of the State Engineer the amount of acreage has not changed dramatically from the acreage provided in the table above with actual data illustrating over 90,000 acre feet being pumped each year. Assuming that most of the crops being grown in Diamond Valley is Alfalfa the consumptive use of the crop is 3.2 acre feet per acre out of a total duty of 4.0 acre feet

per acre. By using the consumptive use number the actual net groundwater withdrawal would be 80% of the applied duty. Using 1990 as an example the net groundwater withdrawal would be 71,040 acre feet, a number 6,640 acre feet higher than estimated by the USGS.

From Page 8 of the report Figure 3 is provided illustrating a graphical presentation of the Pumpage within the Diamond Valley Hydrographic Basin:

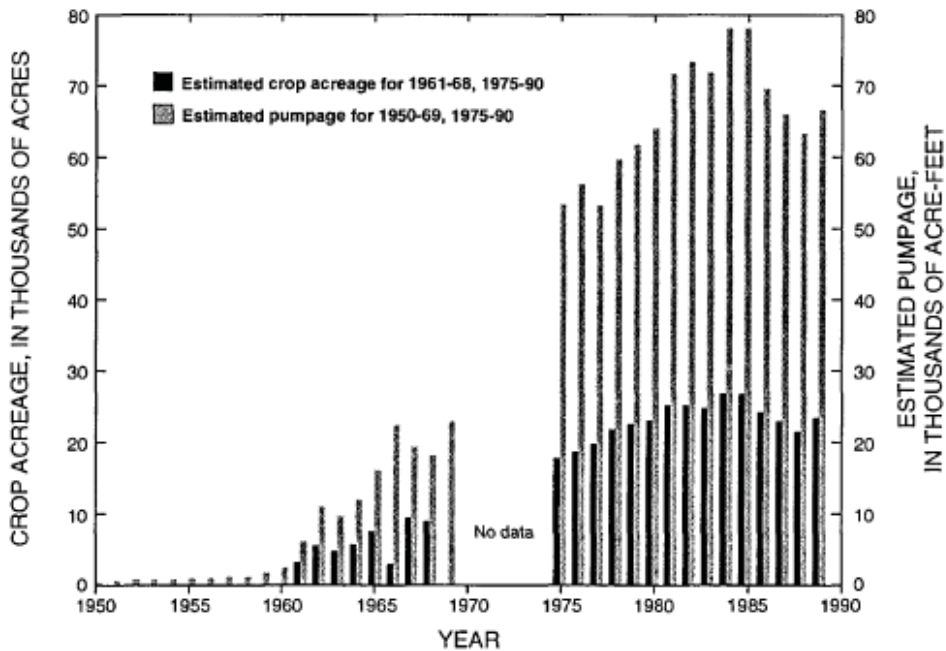


Figure 3. Estimated crop acreage and estimated pumpage in Diamond Valley, Nev., 1950-90.

The following Figure (Figure 3) is from the USGS, *“Hydrologic Framework and Ground Water in Basin-Fill Deposits of the Diamond Valley Flow System”*, Central Nevada, Scientific Investigations Report 2006-5249. Figure 3 of this report is represents the ground water surface profile flowing from the South to the Northerly end of the Basin; the contour elevations are based upon groundwater levels for 1950:

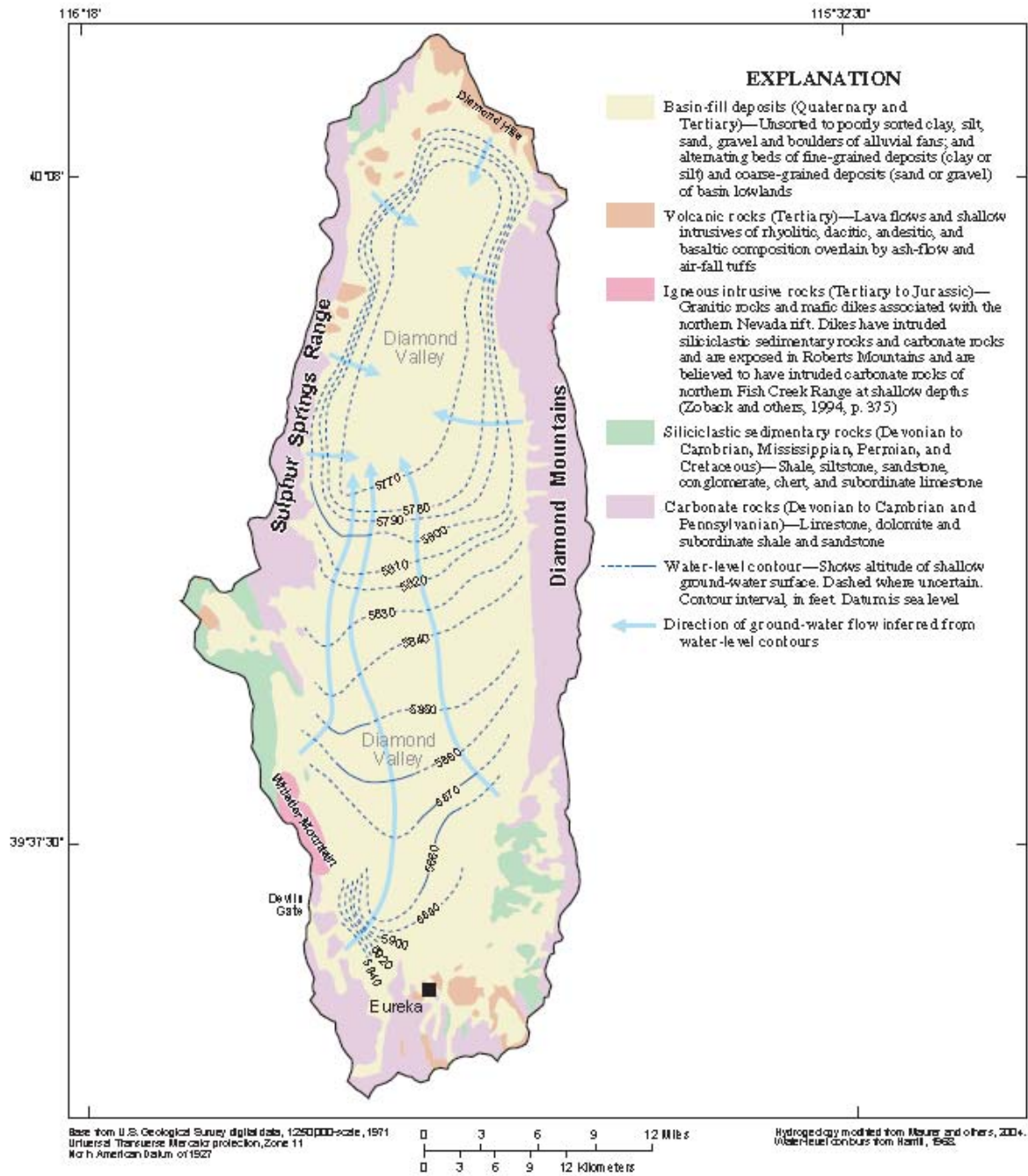


Figure 3. Hydrogeology and ground-water levels in Diamond Valley, central Nevada, 1950.

Section 18 of this report states the following:

“Prior to irrigation development in the 1960s, ground-water flow in Diamond Valley was from valley margins toward the valley axis and then northward to a large discharge area at the north end of the valley. During the last 40 years, however, ground-water levels in southern Diamond Valley have declined as much as 90 ft as a result of pumping for irrigation. In this part of Diamond Valley, flow is from the valley margins toward the irrigated area. In northern Diamond Valley, flow is still northward to the large discharge area.

Subsurface flow through mountain ranges is indicated in two parts of the study area. Subsurface inflow from Garden Valley (outside the study area) through the Sulphur Springs Range to Diamond Valley was identified in previous studies. Potential subsurface outflow from southeastern Antelope Valley through the Fish Creek Range to Little Smoky Valley (outside the study area) was identified as part of this study. In both cases, the flow is thought to be through carbonate rocks.

Water levels in the Diamond Valley flow system have changed over time as a result of pumpage for irrigation, municipal, domestic, and mining uses and as a result of annual and long-term variations in precipitation. Most pumpage has been for irrigation in southern Diamond Valley where the irrigated area expanded from 3,200 acres in 1961 to 22,200 acres in 1990. Except for scattered stock wells, the ground-water resources of Monitor, Antelope, Kobeh, and northern Diamond Valleys are largely undeveloped.

Measured water levels in the basin-fill aquifer of southern Diamond Valley have declined over an area about 10 mi wide and 20 mi long since the 1960s when pumping began. Declines have been as much as 90 ft in the southern part of the area, and have been less than 10 ft in northernmost parts of the area.”

Water-Table Levels and Gradients, Nevada, 1947–2004, Prepared in Cooperation with the State of Nevada Department of Conservation and Natural Resources Division of Environmental Protection U.S. Geological Survey Scientific Investigations Report 2006-5100

6 Water-Table Levels and Gradients, Nevada, 1947–2004

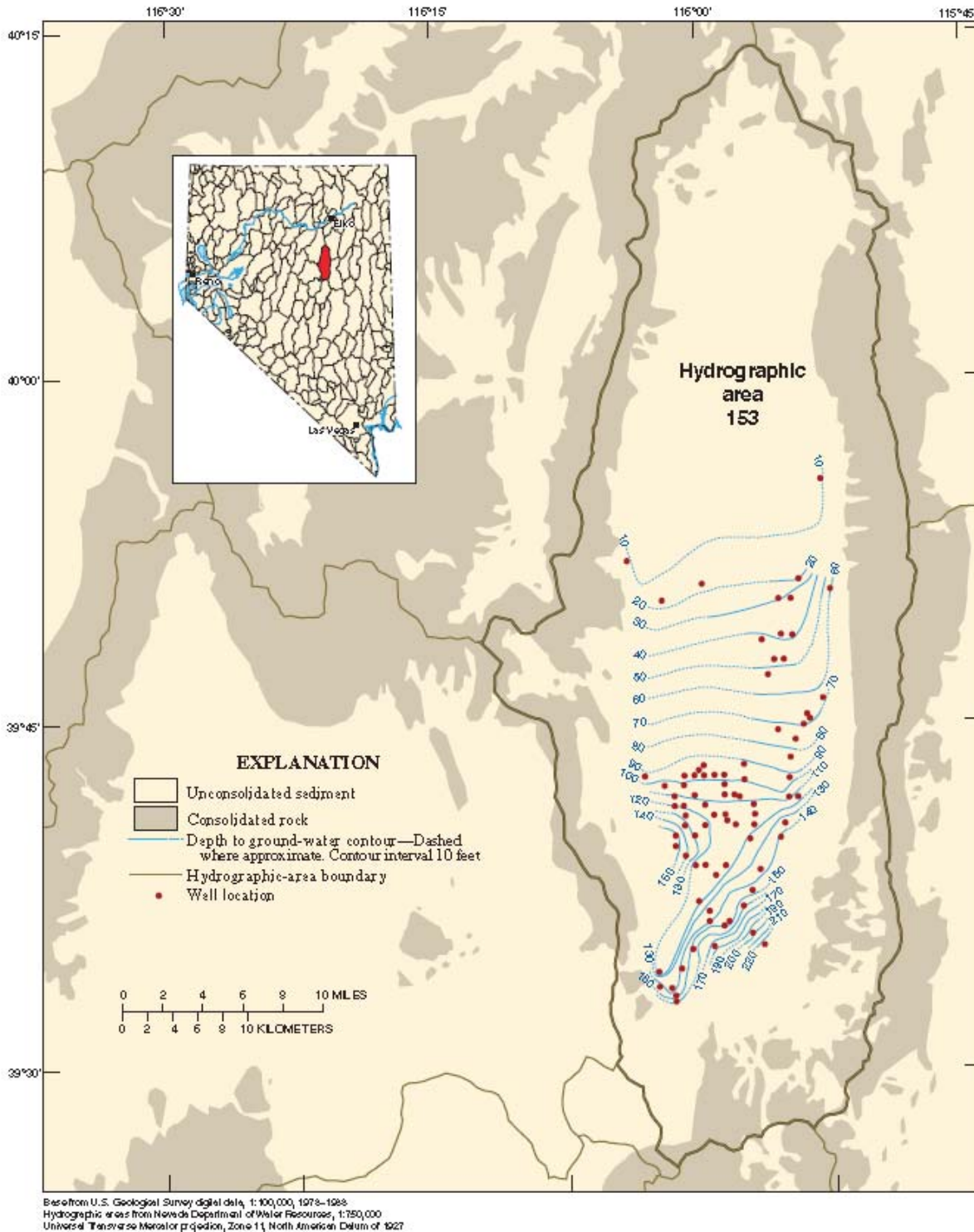


Figure 2. Depth to water in spring 2001 in the Diamond Valley hydrographic area (153), Nevada.

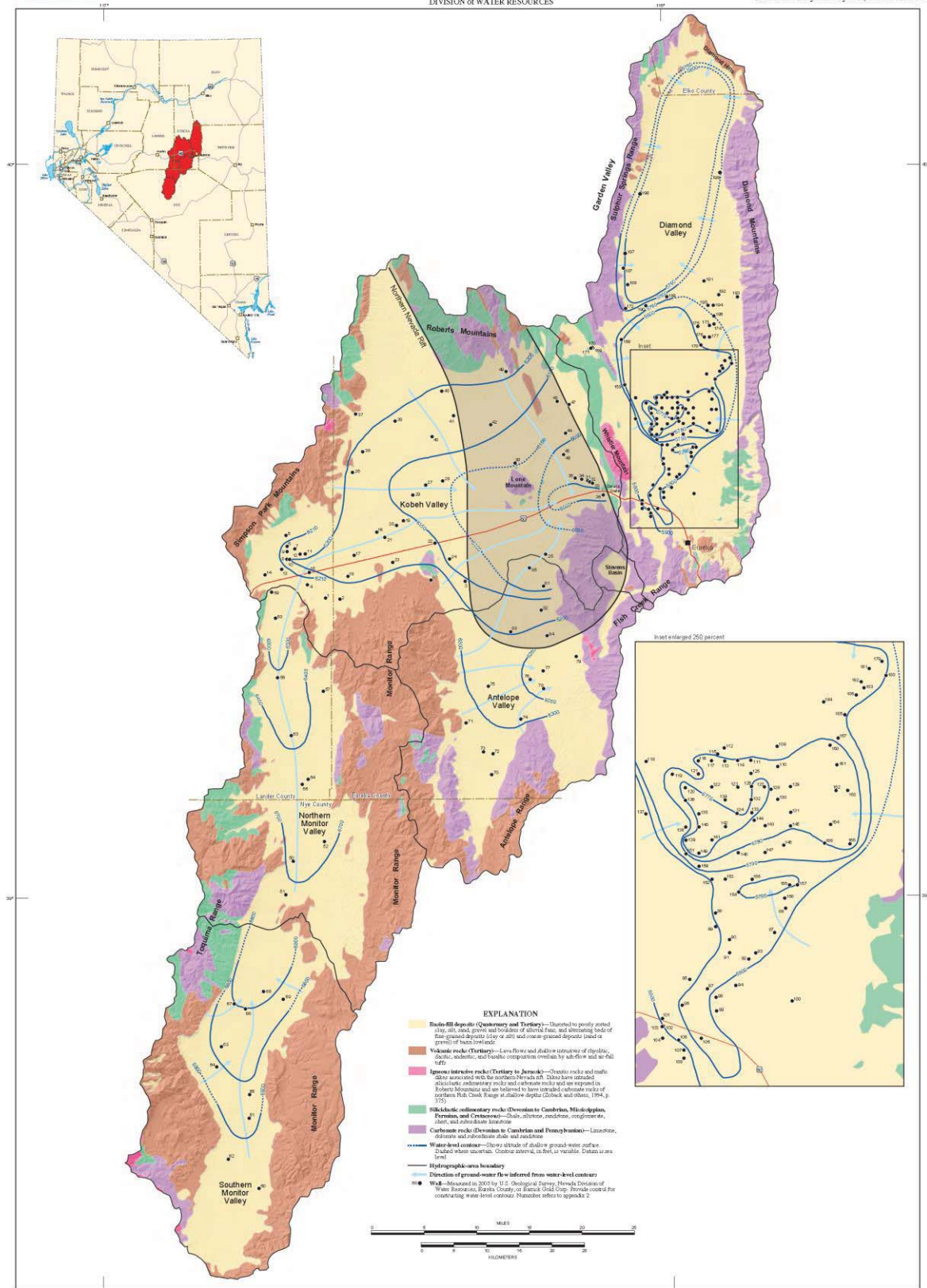
The next figure is from the USGS Report, Scientific Investigation Report 2006-5249 prepared in cooperation with Eureka County, Nye County and the State of Nevada Department of Conservation

and Natural Resources. The result of comparing Figure 3, with Figure 2 with Plate one would result in explaining what has occurred within the Diamond Valley Hydrographic Basin. Figure 3 illustrates the groundwater contours indicating a direction of flow from the South end of the Basin to the North end of the Basin; this is also explained in the Report 6-USGS, 1961, as prepared for in Cooperation with the office of the State Engineer and in Figure 2 copied for review in this analysis.

The over pumping of the perennial yield has created a reversal of the groundwater gradient toward the areas of declines created by the agricultural production in the southern end of the basin to the extent where the areas of discharge in the northern part of the basin have declined or disappeared completely.

Pumping of a groundwater basin results in the decline of natural discharge areas, which is a normal premise under Nevada Water Law and development of groundwater resources. Inherently Senior water right holders anticipate some minor impacts to their rights from junior water right holders development of their water source, such as minor reductions in spring discharge or reasonable lowering of the static groundwater table. However, pumping beyond the perennial yield results in the groundwater mining and unsustainable groundwater depletion, ground subsidence and other deleterious impacts. The historic extent of the discharge area of the springs allowed for a reasonable reduction in flow from junior water right development. Indeed, as in the 1960's and 1970's when the spring flows were witnessing reductions, the senior water right holders were still observing flows from the springs with the less severe conditions that now exist and were still able to cultivate their property to a great extent. (It should be acknowledged that the property held by Venturacci et al, represents only a minor portion of the extent of the spring and groundwater discharge area. As evidenced in the aerial photographs the actual evidence of groundwater discharge extend far beyond the property boundaries.) Prolonged withdrawals and further development of the groundwater resource resulted in the junior water right holders to mine the groundwater resource to the extent that the groundwater gradient was reversed, ground subsidence occurred and the springs were completely depleted thereby resulting in the most senior water right holder in the basin being denied any beneficial use of their water, There is overwhelming evidence supplied in this report and the extensive documentation of this basin by the United States Geological Survey and others.

It is time for the State Engineer and the existing water right holders to ameliorate this condition and take measures to restore the use of the property held by Daniel Venturacci to the extent of the vested use of the property. The other methods of restoration and resolution of the groundwater mining impacts are held in the competent hands of the state engineer and the water junior water right holders in the Diamond Valley Basin.



Scale from U.S. Geological Survey digital data, 1:250,000 scale.
Digital data were from Nevada Division of Water Resources 1:250,000
Scale and from U.S. Geological Survey 20 m digital elevation model
Downloaded from the National Geospatial Data Archive, June 11, 2003. Accessed online 11/18/07.

**Hydrogeologic Framework and Ground-Water Levels in Basin-Fill
Deposits of the Diamond Valley Flow System, Central Nevada**

By
Mary L. Tumbusch and Russell W. Plume
2006

Hydrogeology modified from Moore and others, 2004.
Arrows show flow direction and speed determined
from USGS GSP Analysis Program, 2005.

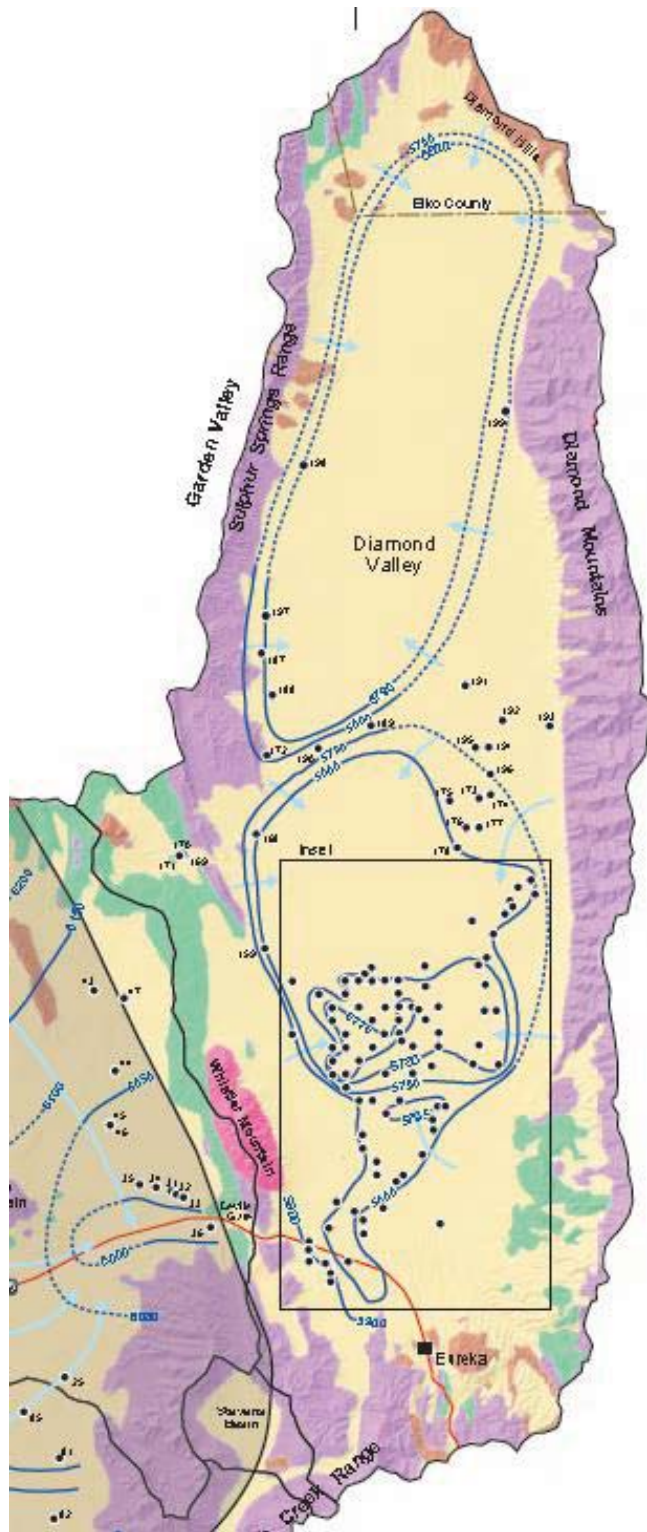
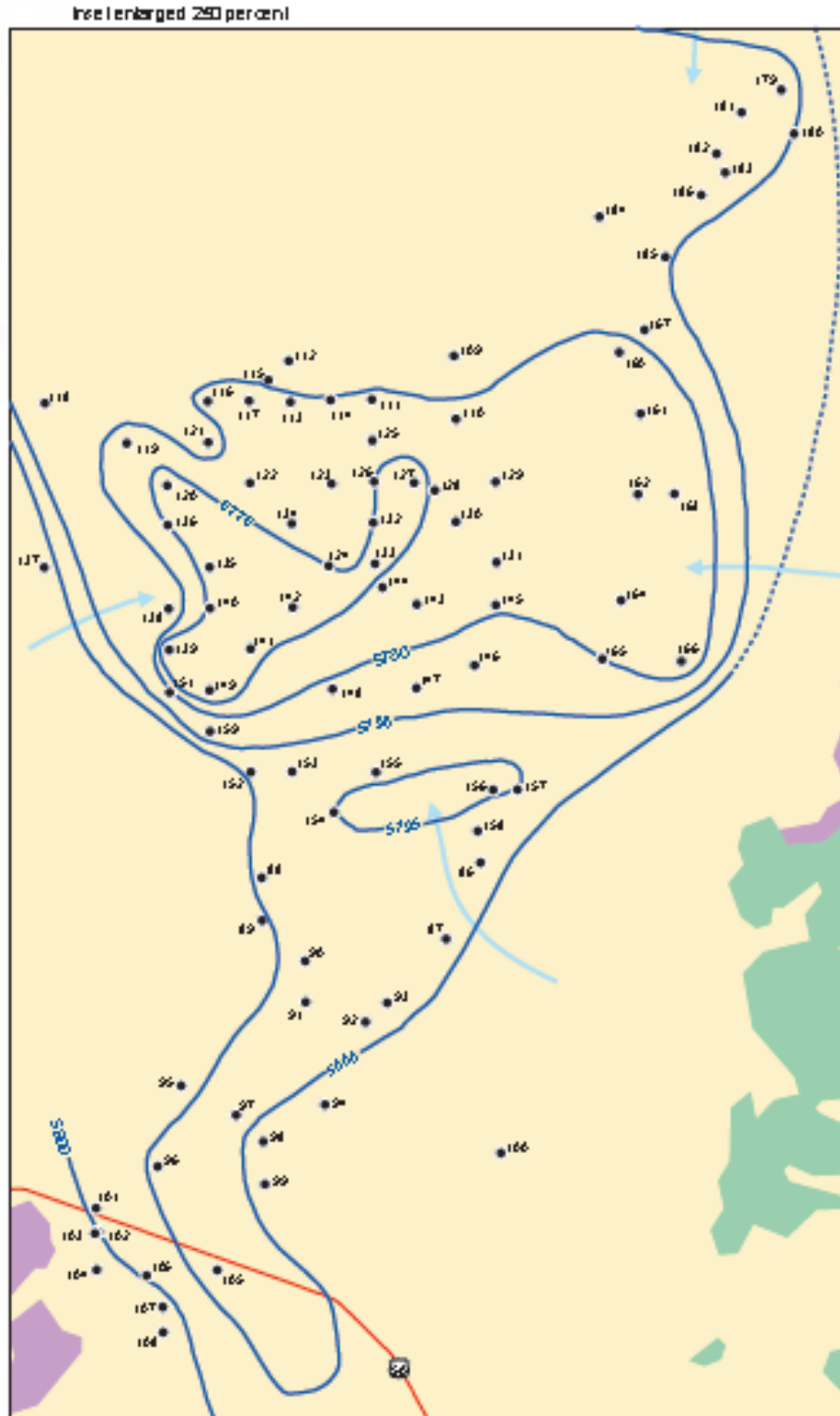


Plate 1-Enlargement of the Diamond Valley Basin #153



Enlargement of the Area of Concentration

Historical References of Priority of Use:

Review:

As provided and referenced in the various USGS reports are the areas of discharge developed prior to 1879 and as early as 1858 as it relates to Thompson (Taft) Springs located in the northern end of the basin, east of the southern end of the playa. By reviewing the aerial photographs from 1950, 1953, 1954, 1967 and 1973 there were numerous springs and seeps that provided natural meadows for haying and for the grazing of livestock. Further evidence of use in this area is indicated by reviewing the Historical records available from the written and oral histories of the basin about and from the people that settled within the area. Later in this report additional documentation will be provided for further evidence of vested use. In review, it is important to recognize that the spring discharges associated with the major spring sources were only a minor part of the source of supply of water used by and relied upon by the ranchers and farmers. Multiple springs are found including seeps within the referenced aerial photographs. Photographs taken illustrating the use of water on the Thompson Ranch are depicted in the following pages including the eventual decline of the springs, seeps and sub-irrigation. Some of the photos provide a record of the use of this property and indicates the vesting of the water rights on the subject lands from the earliest known reference of 1858, further documentation of the emigrant trails through the area and the commercial development of the properties is provided. The property along the eastern side of the basin provided a resting point for the migrating pioneers as well as the livestock that pulled the wagons through their arduous journey to the gold fields in California, thus indicating the first known occupation and use of the lands during the 1849 California gold rush. The California Gold Rush lasted from 1848 through 1855 and began on January 24, 1848 when Gold was discovered by James Marshall at Sutter's Mill in Coloma, California.

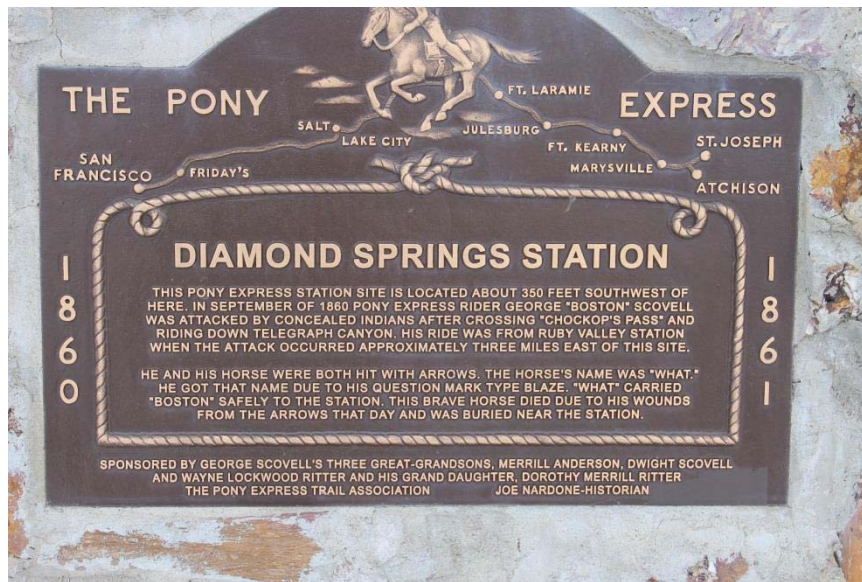
Captain J.H. Simpson passed through Diamond Valley on May 20, 1859 and made the following observations:

"Six and eight tenths miles farther brings us to a large spring, in marsh, where we water. Plenty of grass about it, though not of best quality. This valley is in some portions argillaceous and in some arenaceous. The latter glitter with small crystals of quartz, of very pure character's which we amuse ourselves in picking up, and facetiously call California diamonds."

At the Thompson Ranch, now owned by Daniel Venturacci and his wife, is the old pony express station referred to as Diamond Springs Station, the following picture was taken across from the old Pony Express Station, which still stands today:



Monument located east of Thompson Springs



Monument Detail



Picture Taken at the Ranch By George M. Thiel, the stone building on the right is the Pony Express Station

The following description of the station is provided by “The Pony Express in Nevada”, 1976. Compiled by the Nevada Bureau of Land Management, Published by Harrah’s:

“[Sir Richard Burton](#) visited Diamond Springs on October 9, 1860. He said:

"The station is named Diamond Springs, from an eye of warm, but sweet and beautifully clear water bubbling up from the earth. A little below it drains off in a deep rushy ditch, with a gravel bottom containing equal parts of comminuted shells; we found it an agreeable and opportune bath. . .

"The station folks were Mormons, but not particularly civil; they afterwards had to fly before the savages - which perhaps they will be pleased to consider a 'judgment' upon them."

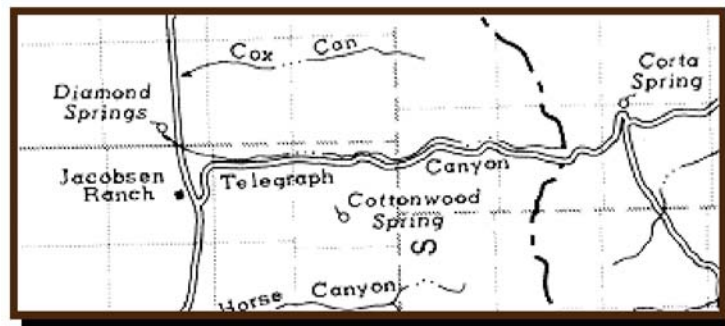
In the Nevada State Journal of January 3, 1960, Edna B. Patterson had the following to say about Diamond Springs:

"One of the few Pony Express Stations still standing is at Diamond Springs, Eureka County, though gone is the part of the cabin that housed the old telegraph line office. Belying the jewel-like name of this desolate country, but echoing the name of the prospector, Jack Diamond, who came to the area in quest of riches, and finding none soon left the country. He left behind him only his name to designate Diamond Springs, Diamond Valley and the Diamond Range of mountains.

"In 1859, with the advent of the Pony Express, a new cabin was built at the spring site as a change station on the Pony Express route. Materials of the area were used in building stations. This one was made of limestone slabs compacted with mud and roofed with split cedar trunks which were covered with dirt. The gables and part of the fireplace chimney were made of adobe brick. This one room structure had the convenience of a stone fireplace which provided the only heat and cooking facilities.

"The change ponies were kept in two corrals of cedar posts planted in the ground in stockade fashion and joined to a small open shelter of the same cedar post and dirt roofed construction. Ponies were kept in readiness for approaching galloping hoofs from Jacob's Well or Sulphur Springs. William Frances Cox, station master for the Pony Express at Diamond Springs, in two minutes' time would shift the leather mochila, or pouches containing the mail, from the incoming horse and would transfer it to the waiting, saddled pony, and the new horse and incoming rider thundered off again into the distance.

"When the Overland Telegraph tapped the end of the Pony Express, William Cox stayed on at Diamond Springs and became a telegraph operator and maintenance man for the Overland Telegraph Company. He was responsible for repairs of the line as far east as Cherry Creek and as far west as Robert's Creek Station. He taught his wife to send and receive messages. When he was out on the line, she became the telegraph operator."



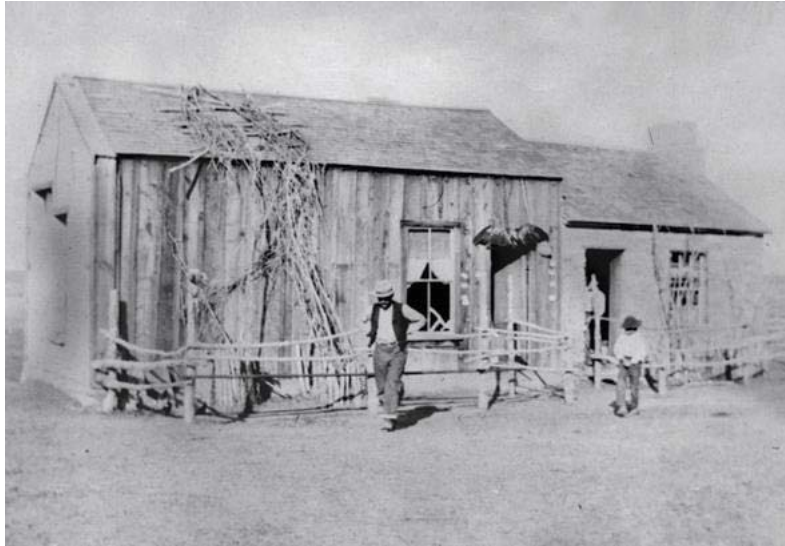
Today the site of the old Pony Express station sits on private land owned by Olive Thompson. The limestone slab section of the original Pony Express station that Edna Patterson spoke of in her narrative is still partially standing among large cottonwoods at the mouth of Telegraph Canyon. Diamond Springs, overgrown with cat tail and salt grass, is

located in the meadow nearby. There is another stone dugout among the trees, but no one knows how long it has been there. The structures are visible from the country road on the west side of the Diamond Mountains. There is a brass Pony Express centennial plaque mounted in a stone and concrete monument near the ranch house just one mile south of the actual station site.

As published by the “Pony Express National Historic Trail, National Trails System, White Buffalo Nation, Inc., National Park Service, Bureau of Land Management is the following:

Diamond Springs Station:

Telegraph station, ca 1866; one mile North of Pony Express Station Site:



“Warm, but sweet and beautifully clear water bubbling up from the earth” describes the water at Diamond Springs in 1860 — a perfect place to refresh pony and rider.

- *53¼ miles back to Dry Creek Station*
- *Remnants of the telegraph station exist near the mouth of Telegraph Canyon*
- *A stone and concrete marker with bronze plaques stands 350 feet east of the station site”*

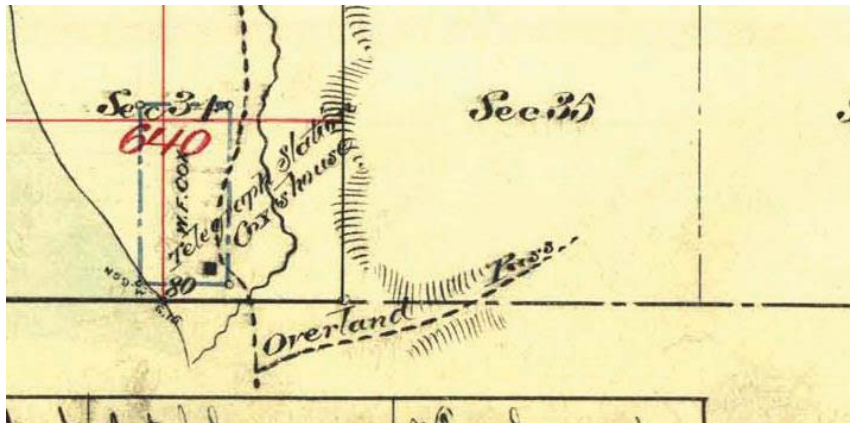
A remnant of the telegraph station is still found on the property per the attached photo taken on a field investigation by George Thiel on January 7, 2013. The telegraph lines are in the foreground with the remnants of the Telegraph Station seen beyond the derelict truck in the foreground, this is the same partial structure observed in the photograph above with a date of 1866 known as Cox Station (Cox Ranch):



View looking SW of the remnant of the telegraph station/Cox Ranch:

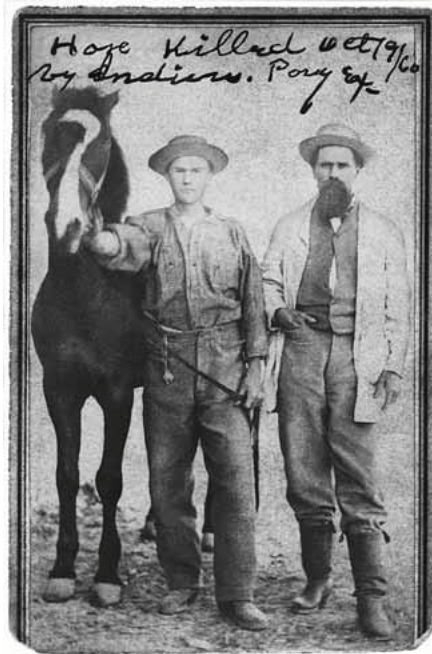


Based upon a survey done in 1879 by the Government Land Office the following is a depiction of this same structure per the following:



The route through this area was established as an emigrant trail and was better known as the “Simpson Route”, this was one of the routes established in 1859 by Captain JH Simpson. This trail was used by emigrants from December of 1858 forward and was documented by Simpson. This route is also known as the Southern Route of the Overland Trail.

Well documented is the story of one of the Pony Express Riders that was wounded in an Indian attack, his horse’s name is “What” due to the markings on its’ forehead, this horse is buried near the old Pony Express Station. Scovell carried two arrows in his leg and his horse was pieced with eleven more.



With regard to the historical use of the ranch the following is offered illustrating the property prior to the proliferation of the State of Nevada’s issuance of permits for irrigation use in the southern half of Diamond Valley, the source of this information was predicated upon a report prepared by Milton Thompson, longtime resident of the property, in 1992:



Picture taken in January 1985 providing an overview of the property looking north to the ranch and beyond.

In Mr. Thompson's report a document is referred to in the following excerpt. This document, which is the transcribed oral history of this property, will be discussed further in this report. For orientation the following has been copied and pasted:

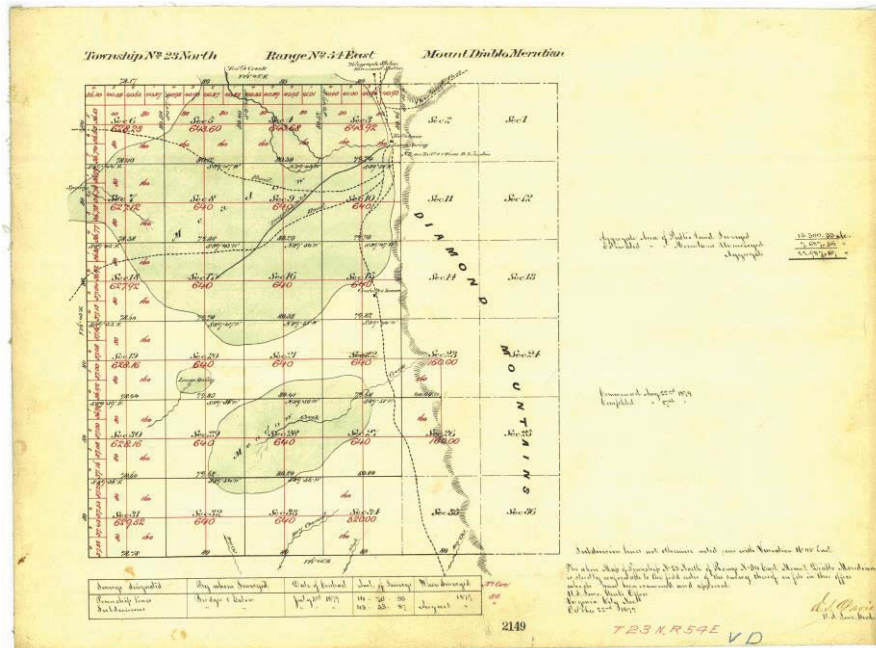
The Box Springs Ranch is located six and one half miles north of the home ranch or Diamond Springs at the western foot of the mountain in the upper right corner on the skyline. This was the home of Andrew Crofut who wrote a history of the three families on these three ranches. The Jacobsens at Diamond Springs, the Coxes on the Cox Ranch and the Crofuts-Dibbles on the Box Springs Ranch. This history can be found in the Special Collections Section of the Noble H. Getchell Library on the University of Nevada Reno campus and in the Nevada State Library in Carson City, Nevada. Several other copies are owned by various family members throughout Nevada and California.

On page 16 of the report prepared by Mr. Thompson is the following photograph:



Diamond Springs, July 1985, west-southwest. Desert Land Entry Act farms can be seen upper left. The Overland Trail, Pony Express and Stage Route can be seen entering the picture lower right corner then curves west in the brush above the left side of the trees left. The first transcontinental telegraph line crossed behind the lone tree then curved west around the meadow and paralleled the Overland Trail.

As can be seen by this photograph of the property the discharge from the spring is waning in contrast to the extent of meadow area exhibited in the 1879 GLO plat:



By observation the extent of the spring discharge was extensively greater than the POU of the Home Ranch and flowed north to the Cox Ranch. As reported by Mr. Thompson the number of springs in the area were over two hundred, not including the area subbed by groundwater discharge to the meadow from seeps within. The following photo is provided by Mr. Thompson illustrating the spring flow on March 10, 1982:



This photo was taken in 1961 by Joyce Thompson Aiazzi of the South Branch of Diamond Springs:



This is a similar perspective provided in 1992, note that by this time all but a minor amount of water was discharging from the source:



In further contrast is the photo taken on January 7, 2013 by George M. Thiel, P.E., upon a field investigation prepared by him on that day:



The photo is in an excavated area approximately 10' below the ground surface elevation to the west. A sump pump is located in the spring providing marginal domestic service to the residence occupied by Mr. Thompson. This photo is in sharp contrast to the photos depicted in the previous frames.

This is a photo provided by Mr. Thompson illustrating the same spring in 1971 into the reservoir that stored the spring water; note the ripples from the flow from the spring to the reservoir:



The next photo is of the same area in 1982:



1992:



A panoramic view taken in 1992 exhibits the lack of culture caused by the depletion of flow from the spring, it should be noted that all of the groundwater discharge of the area is no longer evident:



This is in stark contrast to the following photos taken from May of 1983 at which time Mr. Thompson was trying to irrigate the property that had already seen a reduction of flow from the spring sources in the area:



Further West down gradient from the photo provided above:

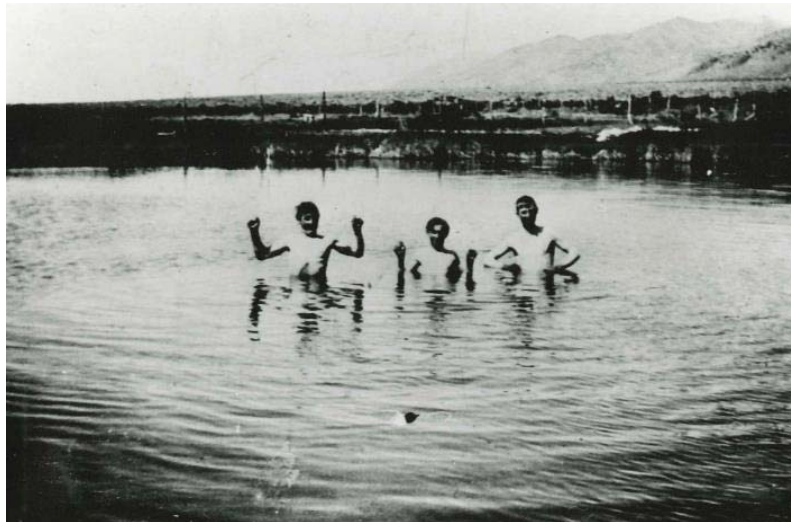


Photo by Olive Thompson 1946:



Note the extent of the grasses looking west toward the playa.

The previous photos all were of the Thompson Home Ranch, the following photograph is a picture of the Box Springs taken of the Crofut boys around the turn of the 20th century, and one of the boys is the person responsible for providing the oral history of the ranches in the area that will be used later in this report. In the field investigation by George Thiel, P.E., in January of 2013 no evidence was found of these springs on the subject property:

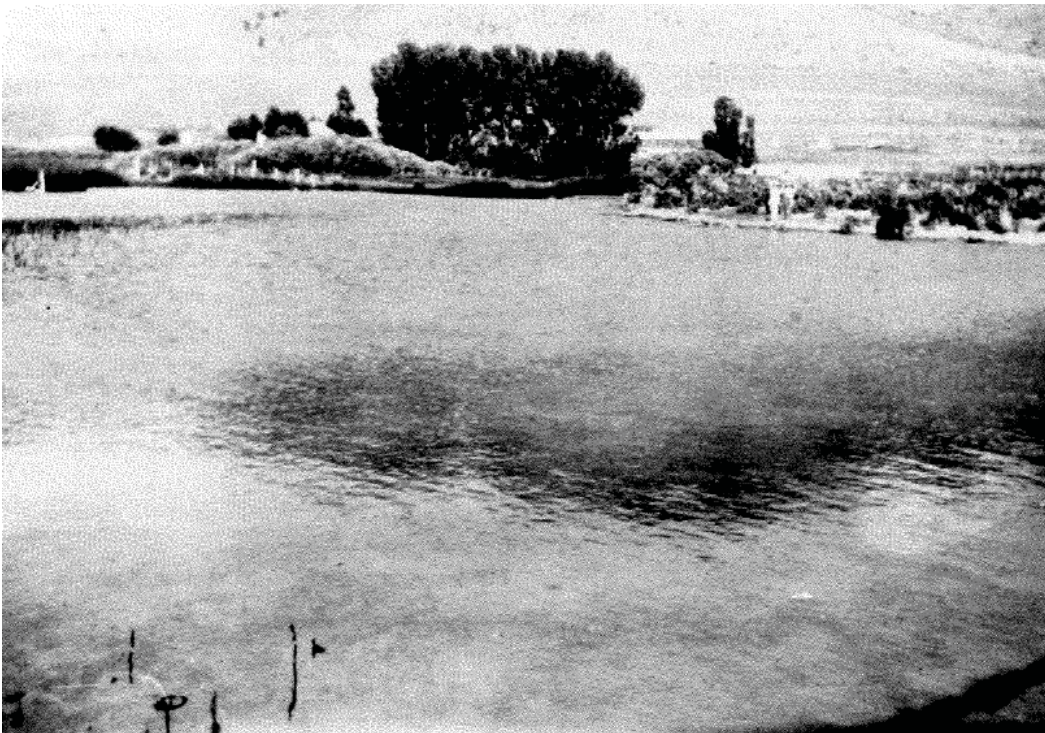


From left to right are Andrew, Isaac, and Will. Andrew owned Box Springs Ranch and provided the history of the three ranches. Photo courtesy of the Special Collections Section at UNR, Noble H. Getchell Library.

This is the same location of the picture taken by Mr. Thompson in November of 1992:



On the Thompson ranch the most northerly main spring is shown in the following picture. According to Mr. Thompson the picture was taken around 1920 by Katrina Jacobsen Gardener and represents “the natural channel” about 100 yards west of the point where the flow from the two springs converged into one stream. In order to gain perspective as to the size of the photo there are two sisters standing on the right bank of the pond:



The levee or “dike” controlling the storage of the water was built in the 1870’s by the Taft family, an early owner of the ranch property.

This picture was taken in 1968 or 1969 on the Cox Ranch; note the extent of culture still evident in the foreground. According to Mr. Thompson the grass lands continued to dry up based upon the continuing development of the groundwater rights in the southern half of the basin:

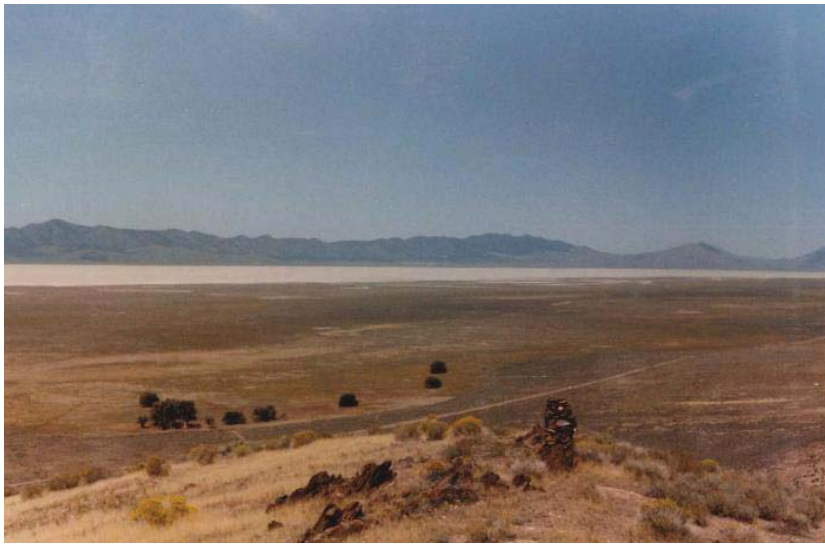


By 1982 the fields have all but disappeared;



and been replaced with Rabbit and Sage Brush.

On October 6, 1991 the following photograph was taken at a different view of the same area, the cottonwood trees are all that remain:



In the field investigation completed this year the cottonwood trees were found lying on the property with no evidence of culture existing within the area.

Another photo provided in 1992 is depicted below of the Cox Ranch near the Cottonwood trees as seen in the foreground of the photo above:



These photos are in stark contrast to the photo provided below within the same area as taken in 1968:



Diamond Springs, April 1961, during this time Mr. Thompson was leveling ground and improving the fields surrounding the ranch to re-establish different crop types, such as alfalfa and grains. The bare areas in the foreground illustrate the area where drag lines were used to level and clear the fields for the establishment of the new crop:



1971 or 1972:



Hay being freighted to the Town of Eureka, circa 1900, pony express building is in the upper corner right:



USGS Flow measurements of the springs:

OCAL WELL NUMBER	SITE-ID	NAME OF SPRING	DATE DISCHARGE MEASURED	DISCHARGE (GPM)	SOURCE OF DISCHARGE DATA	METHOD DISCHARGE MEASURED
N23 E54 03080 1	395415115524301	THOMPSON RANCH SPRING	09-21-1965	1800.	S	C
			04-01-1966	900.	S	C
			10-19-1966	900.	S	C
			10-03-1981	34.	S	V
			03-10-1982	130.	S	E
			05-25-1982	700.	Z	C
			06-04-1982	800.	Z	C
			07-02-1982	600.	Z	C
			07-29-1982	500.	Z	C
			08-09-1982	220.	Z	C
			07-06-1983	1100.	S	C
			08-03-1983	1300.	S	C
			11-08-1983	1300.	S	C
			06-12-1984	1900.	S	C
			11-19-1984	1400.	S	C
			01-18-1985	1500.	S	C
			05-27-1985	1500.	S	C
			11-03-1985	1100.	S	C
			02-05-1986	1000.	S	C
			02-09-1987	800.	S	C
			08-10-1987	320.	S	C
			02-22-1988	280.	S	C
			03-13-1989	220.	S	C
			04-02-1990	150.	S	V
			11-15-1990	54.	S	F
			03-08-1991	400.	S	Z
			06-04-1991	140.	S	F

The flow measurements were only taken on part of the spring discharge and did not account for the entire discharge from all of the springs nor quantify the amount of water that sub-irrigated the entire properties subject of the vested right filings for Mr. Venturacci and Mr. Thompson.

James Harrill, with the USGS, reported that the variability of flow “*can be correlated with the seasonal variation in pumping. In Bulletin 35, the same type of fluctuation was noted in the hydrograph for well 21/53-22cd (figure 13). Also Manse Spring in Pahrump had similar seasonal fluctuations that correlated with pumping.*” In a memorandum to the record dated March 15, 1982 it should be noted that Mr. Harrill remarked that the discharge of the Thompson Ranch springs has decreased markedly and the purpose of his field trip was to note the changes that were occurring.

Spring flow from Thompson (Taft) Spring has ranged from 975 gpm (1965/66 average) to 1,900 gpm (2.17 cfs to 4.23 cfs) from a period of 1965 to 1984, by 1990 Montgomery et al reported that the spring ceased to flow. Persons knowledgeable about the source have acknowledged that the flows prior to the pumping in Diamond Valley were in far in excess of the measured high discharge of 4.23 cfs (1900 gpm) which would coincide with Harrill’s thoughts about the correlation of the Manse Spring in Pahrump Valley and the commencement of pumping in the 1950’s. Unfortunately no flow records exist for all of the springs and discharges associated with the Thompson (now Venturacci/Thompson) properties lying in the northern portion of Diamond Valley. Until issues began to arise with regard to the over pumping in Diamond Valley no attempt was made to analyze this area. It should be noted here that in the Diamond Valley EIS for the Mt Hope Mine project an illustration was provided illustrating ground subsidence that has occurred within this hydrographic reason which further adds to the over appropriation impacts associated with an excessive groundwater withdrawal.

Oral History by Andrew Crofut:

In the following pages I have had the opportunity to review an oral history of the ranching life of one of the historic ranch owners on one of the properties subject of this analysis. Earlier in this analysis I provided a picture of the Crofut boys swimming in the now defunct Box Springs Pond and the brothers were identified. Andrew Crofut is the Interviewee in this narrative. Mr. Crofut was born on the Box Springs (Mau) Ranch in 1889. At the time of his oral history he was 80 years old.

The oral history is referenced per the following:

**Andrew D. Crofut, “Diamond Valley Dust”, Interviewee: Andrew D. Crofut, Interviewed: 1969
Published: 1970, Interviewer: Mary Ellen Glass, UNOHP Catalog #036.**

Andrew Crofut was born in 1889 and grew up on the ranch north of the Thompson (Home) ranch. His personal knowledge of the property and the accounting of the historical record are essential in understanding the historical water use on the subject land.

“The ranch, established by Isaac F. Crofut, with Andrew “Dan” Dibble carrying on after the former’s death, supported cattle and horse raising operations, along with an adjunct hay business.” Introduction page i.

The oral history is based upon 20 interviews conducted with Mr. Crofut in 1969.

“Isaac Crofut’s life as maintenance man from Ruby Valley to Austin led him by Diamond Station which was on the west side of the Diamond Range in central Nevada, which was the Old Overland Route of the Pony Express and also, the Overland Stages before that day. That gives you a little brief history of my father’s and stepfather’s background.” Page 5, Paragraph 3

*“Now, on my maternal side of the family, I’ll give you a brief outline also. It was probably about the year of 1864 that one Phillip Clark and his young friend, Joe Studer by name, left Iowa City for a trip to California to investigate the gold fields of that notable state. They rode on horseback, each riding a horse and had one pack animal which they led. This animal carried their bed and food supplies on the trip west. Now one of the stops they made was at Diamond Station on the west side of the Diamond Range. And they liked the place and laid over for a few days to rest their animals and then went on to California.”
Page 5, paragraph 5, Chapter 1*

*“Diamond Station had big springs; there were three large springs. The water ran out from the springs and down over the land which made meadowland down below. It was quite a captivating place, after having traveled across the desert lands for such a distance: never knew for sure whether they rented the place, leased it, or whether they bought the place, but I doubt very much that they bought it because they weren’t financially able to buy it. Anyway, they made it their home for several years.”
Page 5, 8th paragraph, Chapter 1*

From a perspective of time frame the observation appears to have been made in 1874.
Page 8, last paragraph, Page 9 first paragraph:

“About the year of 1875, William Francis Cox, who was a graduate of Columbia University in New York and also telegraph operator, was sent out to take charge as operator of this station. And he lived at the station, but there’s no doubt that he was also over to Diamond Station a great part of the time. So he met and married Lila Celia Dix in the year 1878, he the operator and Lila Celia Dix the one who had come to visit her sister at the time that the happy event was to transpire. To them were born George in 1879, Minnie in 1881, and Ollie in 1888.”

Mr. Cox was the Uncle of Mr. Crofut.

In 1881 Isaac Crofut bought a place at Box Springs which is seven miles north of the Diamond Station. The property was bought from Nels Ouderkirke who owned the property for a number of years which was used for ranching operations:

“It was made like a stockade. It had been homesteaded land and consisted of about a hundred acres of meadow and pastureland. There was also a spring just below the house. At this place, we children were all born—Fred in 1882, Grace in '85, I in '89, and Ferris in '90.” 2nd paragraph page 10.

According to Crofut the winter of 1889 was quite severe that resulted in most of the livestock herd in the valley dying off due to the harsh conditions. It was this event that resulted in the fencing of the land and cultivation of pastures for winter feed for the livestock, page 14, and second paragraph:

“All the ranchers of that valley decided that they would fence. So they began to fence more land and to irrigate it and to cut hay in preparation for any hard winter that might come.”

Page 27, last paragraph:

“As I have told you before, our place was the Box Springs ranch and the name Box Springs came from the fact that the original owners, perhaps before Nels Ouderkirke, had put a box, a wooden box, in the spring which was perhaps three hundred feet below the house, to the west of the house. That’s where the water bubbled and gurgled up out. It was a cold spring, and lovely water. The box was put in there, no doubt, to keep the horses and other animals from trampling in the spring and filling it up. A great many springs were filled up that way, by animals coming to water and getting so close and gradually trampling the soil and sod into the spring itself and cutting off the flow of water.”

Page 34, first paragraph:

“I have said that below the spring was where we had the garden. And the water was dammed up by a dam which had been put across below the spring to provide water for irrigating the garden and also for allowing it to run below for stock in the field.”

Page 40, fourth paragraph:

“In our-valley, we usually cut only two crops of alfalfa. As I said, after we had fenced a part of the new meadowland, we put some of the upper land, which was gravelly and had good drainage, into alfalfa. And that yielded two crops. Usually, one crop was cut right after the Fourth of July, and the other one in late September or early October.”

Page 40, last paragraph:

“Beside the natural wild grass that we had at home and the alfalfa that would be put in, there was also a patch of rye grass at Davis, which was about three miles farther north from our place. This was not fenced. And it was down near the flat and was watered by water that came out of Davis Canyon, and spread out naturally over that low place there before it finally flowed over onto the flat.”

Page 41:

“Also, when I was about the age of ten, I started doing all the raking there at home. And after I’d finished at home, why, I thought I should go out and rake for some of the

neighbors, but Father Dibble said I was too young to do that. So I had to be satisfied with raking the hay at home.”

“I raked all the hay into windrows. Then Father Dibble and Fred took the pitchfork and piled the windrows into what we called cocks, piled them in by hand so that they would be easy to pitch onto the wagon. That was a considerable amount of work, but it made a nice job. Then when the hay was thoroughly cured after a few days, it settled in the cocks and was easy to load onto the wagon.”

Page 45, 2nd paragraph:

Then they’d go from field to field, and usually a haying period was perhaps a month or so, depending on the amount of hay that had to be put up. It usually started right after the Fourth of July, ended up perhaps in August sometime.”

Page 46:

“Did we call this grass by any particular name, or just wild grass? It was wild redtop. Of course, there’s timothy. We had timothy in our fields. Father always, whenever he sowed anything, he’d sow a mixture of timothy and redtop, which made a wonderful all-around hay for all kinds of stock.”

Page 47:

“I went over to Nels Toft ’s and did some baling over there, or helped with the baling. After we’d baled up a stack of hay, we hauled it to Eureka. Jorgen Jacobsen, my brother-in-law, and I did the hauling, as well as most of the baling. Pete [Gaetane] helped. Jorgen helped with two or three trips, and then I took the team myself and drive several trips myself alone, using eight or ten horses. don’t pretend to be a teamster, but I herded them along and managed to get the hay to town all right, excepting the last trip.”

Page 159:

Each one of the boys had in turn come out to the Nels Toft place during the summer to work during the haying time and sometimes longer.

Page 160:

“I worked there also during 1910 and ’11 at Nels Toft ’s. Will Johnson being there, we got to be very, very friendly. Every night after we came from the hay fields, we would make a beeline for the old pond. It was quite a good pond for swimming, off north of the house.”

Page 164:

“Always up in Diamond Valley, we were lucky to get two good crops of alfalfa and then let the third crop grow for feed for milk cows, as pasturage.”

Crofute discussed the method of irrigation in Diamond Valley in Comparison to irrigation practises at Stillwater (Fallon):

“They irrigated there differently from anything that we had ever seen before. In Diamond, we always irrigated by the trench method, whereas here, they irrigated in check system, flooding of the ground.”

Page 167:

“We built a new alfalfa field, cleared off the land above the old road and put in several acres of new alfalfa. And it came out and was doing fine; it was rich sagebrush soil. In fact, it was some of the soil where big brush that I mentioned north of the house used to stand. Wherever there’s a big sagebrush, why, we know that’s always fertile soil. Well, this big brush patch that I mentioned was part of the alfalfa field that we put into alfalfa. It did to our place so it would have fall all the way and still not be too steep so it wouldn’t wash and fill up.”

Page 168:

“Of course, it wasn’t too heavy a rail, either, a narrow-gauge rail, a full-length rail. We hooked two horses onto each end, used four horses to drag the rail around. We went one way on it, and then would go back the other way. And that way, it tore out practically all the brush; there were a few little brush that remained. We went around and pulled up the stumps, or grubbed them out, and planted it to wheat, first, the first year. Oh, it came up beautiful! It was a beautiful stand of wheat, irrigated from the water from Davis Canyon. It was up to a height of about six or eight inches, maybe a foot high when late spring came, and also the rabbits. We didn’t grow any more wheat or grain there. After that, we just tried to let it grow into wild grass. We sowed Johnson grass; we heard that Johnson grass was such a wonderful grass; it would take over, provide forage and feed. But it proved that Johnson grass didn’t grow in that climate. It was too cold. Johnson grass apparently thrived in a warmer climate. We wanted pastureland, but it eventually built up with native grasses and provided hay”.

Page 169:

“We always had some horses, or horses that we were breaking or in the process of taming. Remember one day (in fact, Handle reminded me of it the other day), one of the horses that we had taken from the ranges, I had him tied up in the stable while I went to a field to work—about two miles; we called it the “point field”—just south of our place. There was a spring right there at the southeast corner of the point field where the cattle would come in to water. And there was good grass inside, and, of course, the outside—the grass outside the fence was pretty well eaten off from so many stock. But inside the fence, the grass grew high so the cattle would reach through as far as they could and eat the grass that was available inside by sticking their heads through the fence.”

Page 293

“The sale of the ranch in Diamond Valley consisted of our place and the Cox place, as well as the old Diamond Springs ranch, which gave range right to quite a large area of country, all through the north end of Diamond Valley, and was quite a good piece of property.”

FINDINGS AND CONCLUSIONS:

In order to determine the extent of the meadows, cultivated areas and extent of human involvement to place the water to beneficial use I have relied upon the following items:

1. Previous vested use filings on all of the properties;
2. Historical records concerning the development of the property and use of the property;
 - a. US GLO Plat of 1879;
 - b. History research of the Simpson Route of the Overland Trail;
 - c. Reference documentation of the establishment of the Pony Express;
 - d. Oral History as prepared in oral interviews with Andrew Crofut;
 - e. Historical references as researched on the internet and other sources for review;
 - f. Interviews with Milton Thompson on the investigation of the property on January 7, 2013.
3. Aerial photographs of the area from 1950, 1953, 1954, 1967, and 1973.
4. Ground Truthing investigation in 1980 while working for the office of the State Engineer and a field investigation of January 7, 2013.

I have compiled in the previous sections evidence of the discharge area and through interpretation of the aerial photographs I have been able to determine the areal extent of the spring discharge area. In order to determine the areas that were under direct cultivation I used localized fencing, locations of ditches in order to determine the extent of the property being cultivated for hay production and controlled grazing. As provided in the Crofut document it was determined that the “wild hay” was improved by the addition of Red Top Fescue and Timothy Grasses. The area, where water was diverted and well drained was suitable for Alfalfa production and those areas are provided in the proof maps.

On the following pages I have provided the aerial maps representing the work completed on the project regarding the review of the aerial photographs. The proof maps substantiate the results of the investigation.

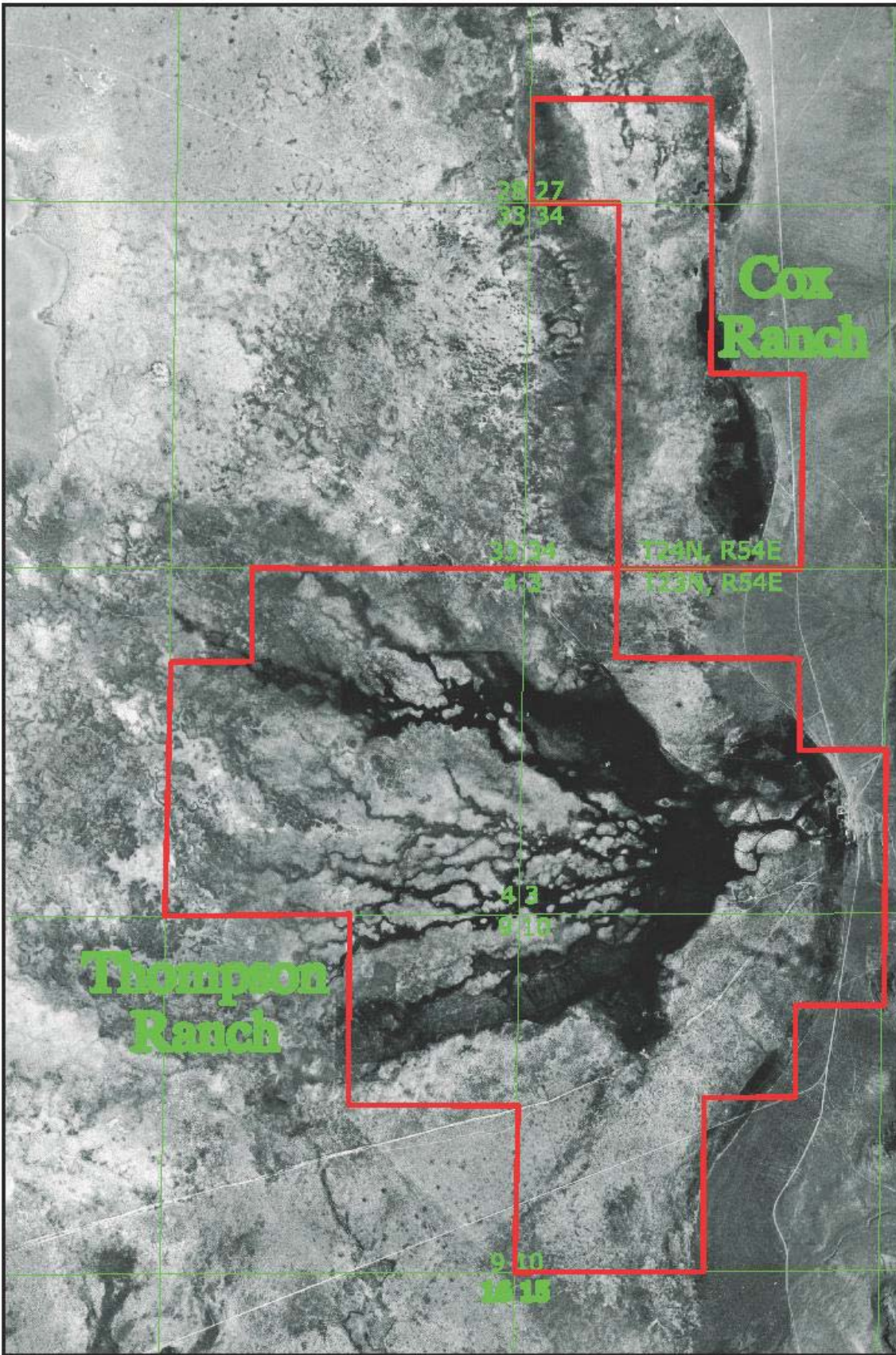
1950 aerials are not complete, coverage was limited to the Thompson and Cox Ranch- No date is referenced on the photographs.

1953 - September 29, 1953

1967 - May 20, 1967

1973 - September 27, 1973

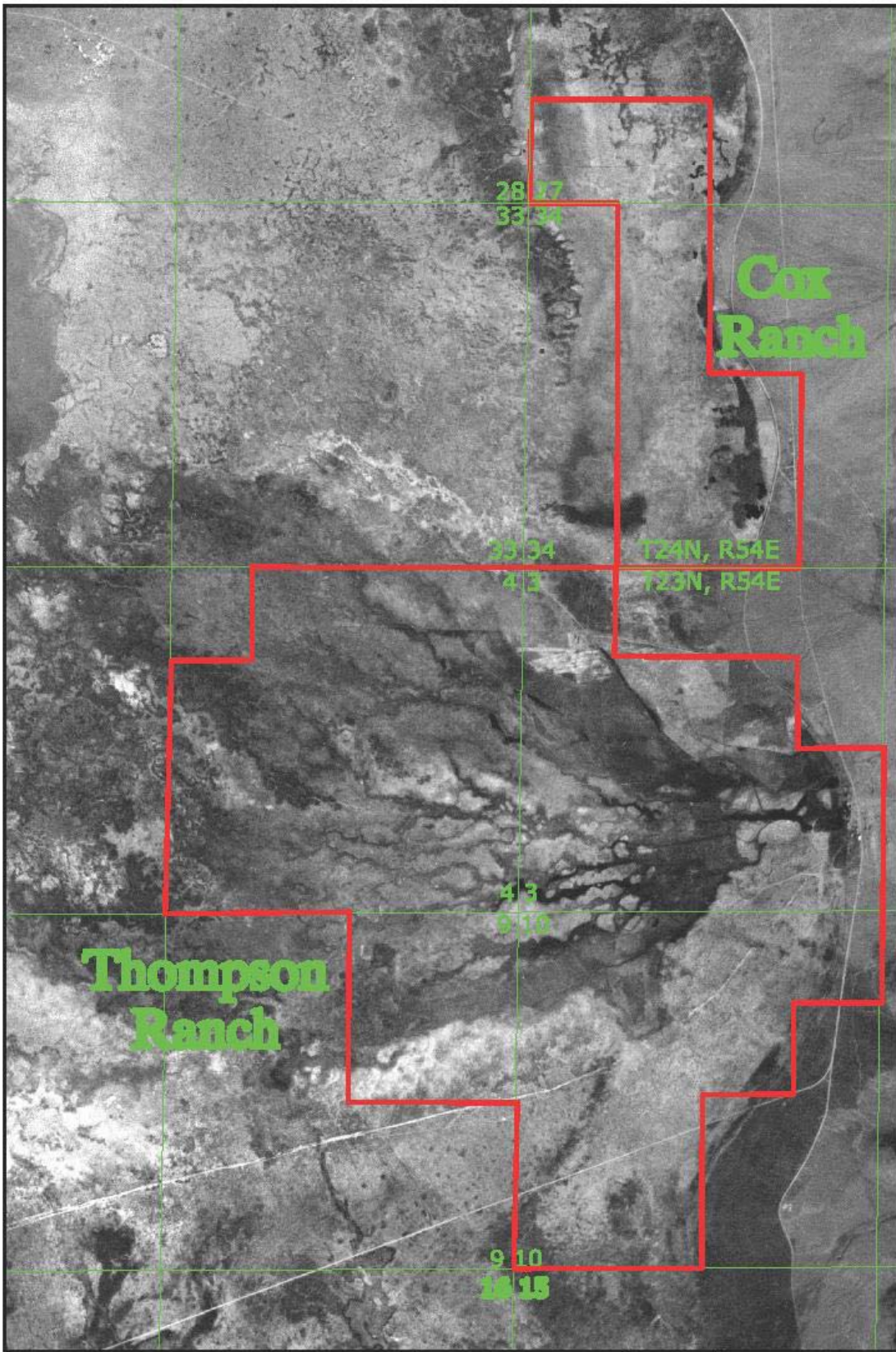
The May, 1967 photos give the best evidence of discharge due to the time of the year the photos are provided, by late September the end of the period of cultivation has ceased due to the high altitude and northerly location of the Diamond Valley Region. The location of the Thompson Spring discharge area is at approximately 5900’.



Aerial Overlay 1950
 Port. Townships 23-24 North, Range 54 East -
 Thompson Ranch and Cox Ranch Parcels

Note: This map is for display purposes only and does not represent a survey. Use for any other purpose is prohibited.

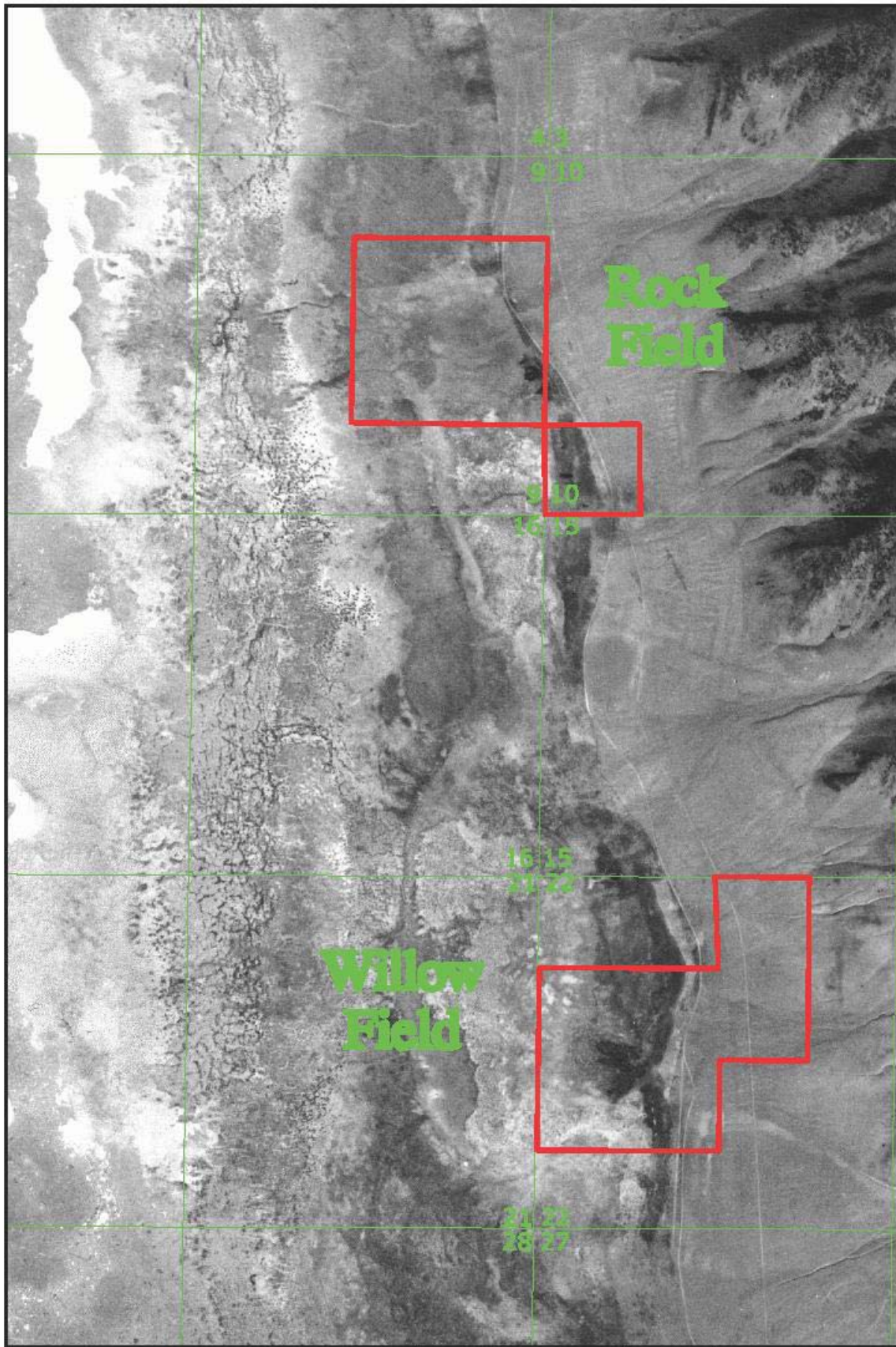




Aerial Overlay 1953/1954
 Port. Townships 23-24 North, Range 54 East -
 Thompson Ranch and Cox Ranch Parcels

Note: This map is for display purposes only and does not represent a survey. Use for any other purpose is prohibited.

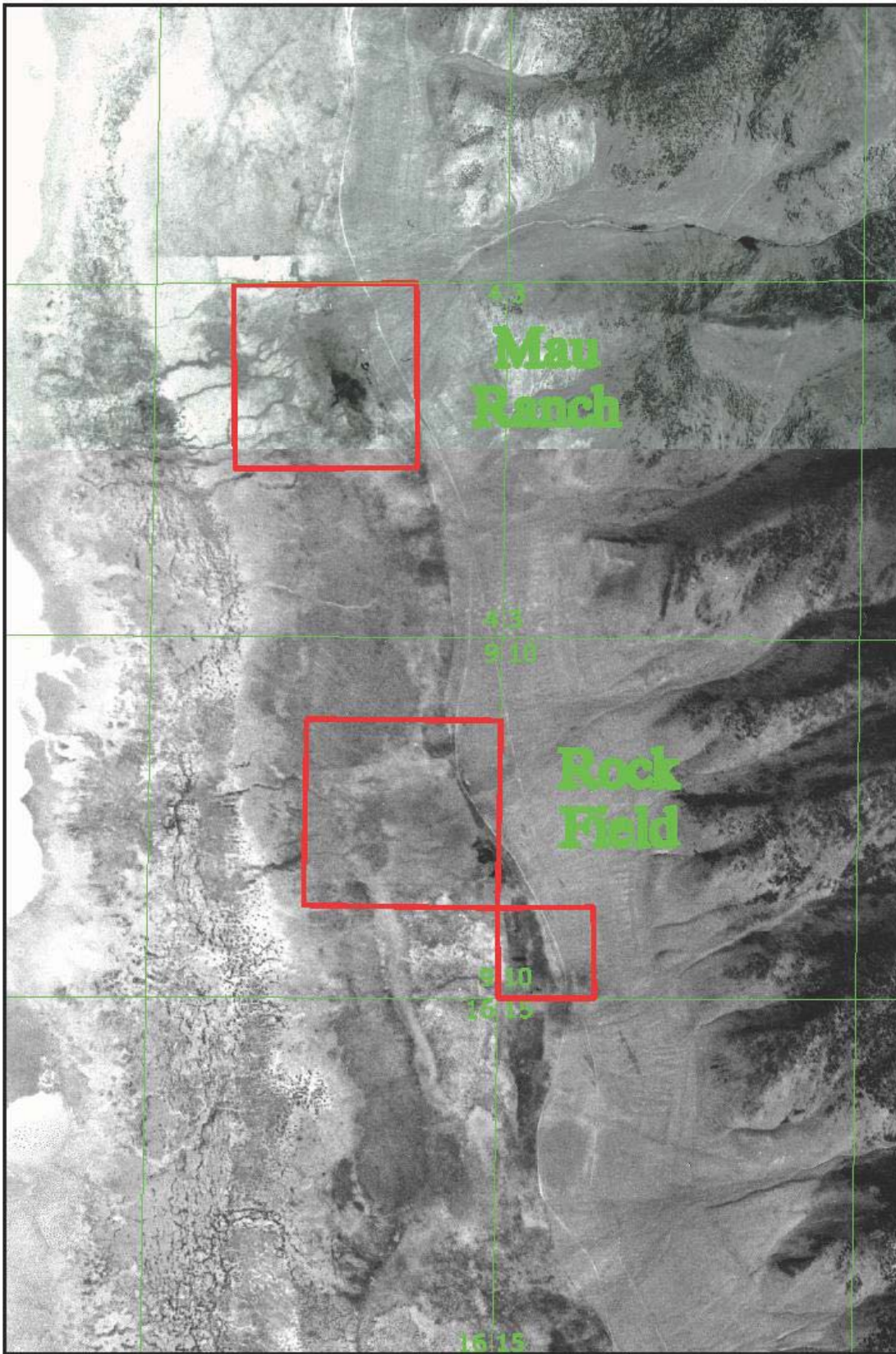




Aerial Overlay 1953/1954
Port. Townships 23 North, Range 54 East -
Willow Field and Rock Field Parcels

Note: This map is for display purposes only and does not represent a survey. Use for any other purpose is prohibited.

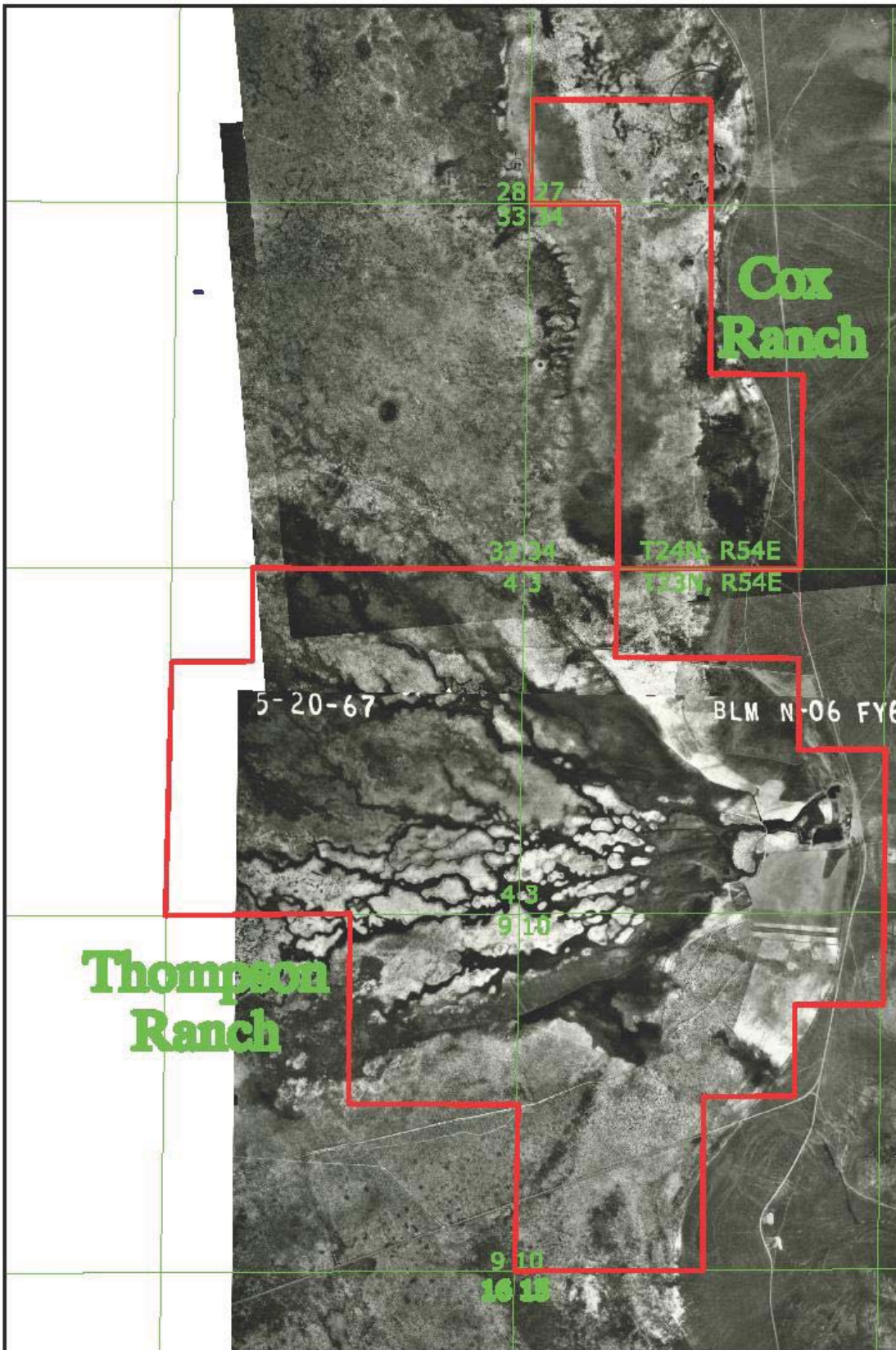




Aerial Overlay 1953/1954
Port. Townships 23 North, Range 54 East -
Mau Ranch and Rock Field Parcels

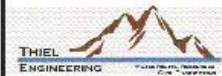
Note: This map is for display purposes only and does not represent a survey. Use for any other purpose is prohibited.





Aerial Overlay 1967
 Fort. Townships 23-24 North, Range 54 East -
 Thompson Ranch and Cox Ranch Parcels

Note: This map is for display purposes only and does not represent a survey. Use for any other purpose is prohibited.





Aerial Overlay 1967
Port. Townships 23 North, Range 54 East -
Willow Field and Rock Field Parcels

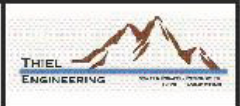
Note: This map is for display purposes only and does not represent a survey. Use for any other purpose is prohibited.

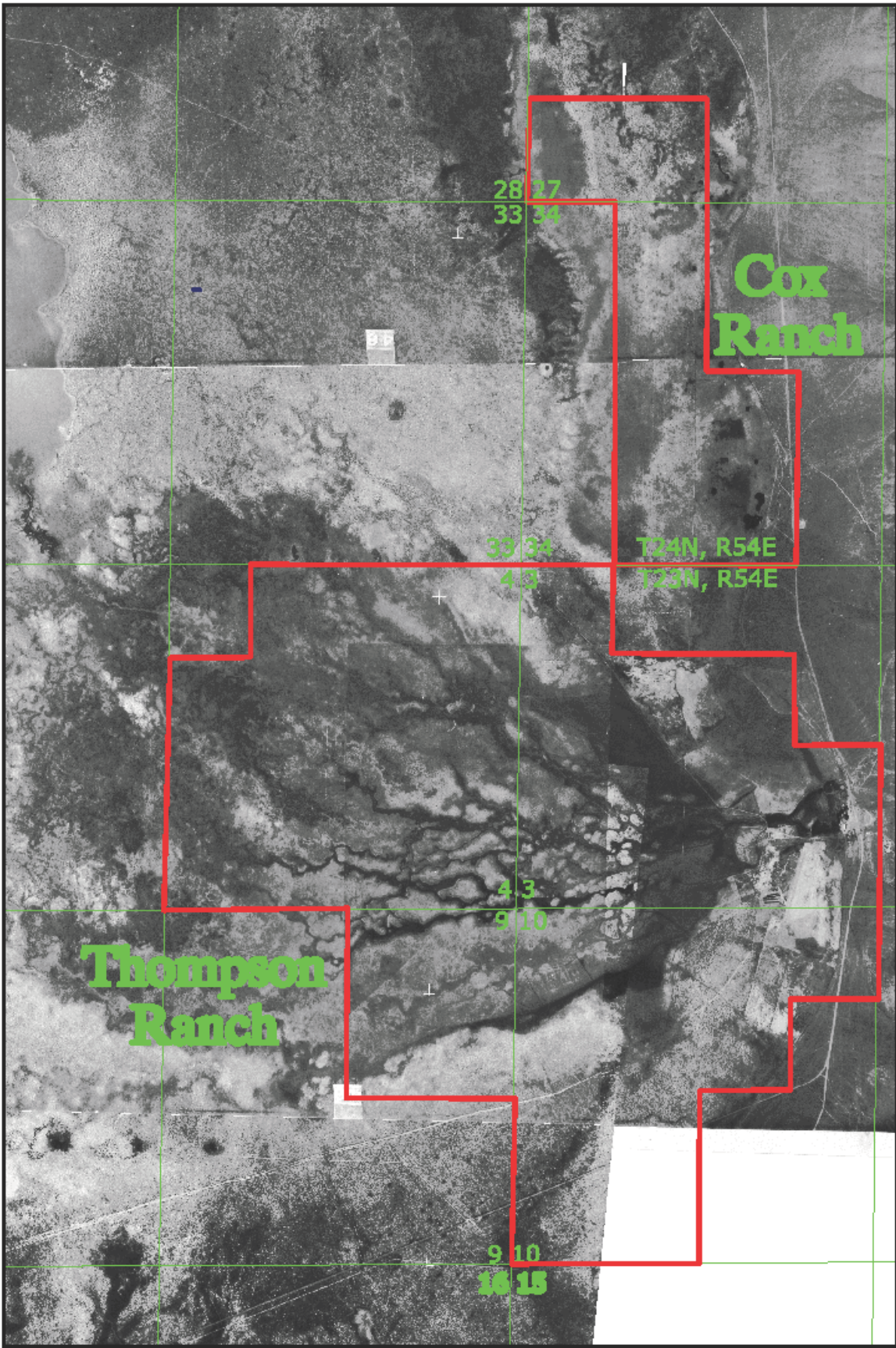




Aerial Overlay 1967
 Port. Townships 23 North, Range 54 East -
 Mau Ranch and Rock Field Parcels

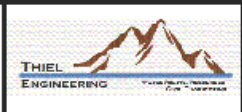
Note: This map is for display purposes only and does not represent a survey. Use for any other purpose is prohibited.





Aerial Overlay 1973
 Port. Townships 23-24 North, Range 54 East -
 Thompson Ranch and Cox Ranch Parcels

Note: This map is for display purposes only and does not represent a survey. Use for any other purpose is prohibited.





Aerial Overlay 1973
Port. Townships 23 North, Range 54 East -
Willow Field and Rock Field Parcels

Note: This map is for display purposes only and does not represent a survey. Use for any other purpose is prohibited.

