

Memorandum

To: Transfer Files 5044, 5045 and 5046

From: Jeff Peppersack

Re: Petition to Alter or Amend Transfers – Picabo Livestock Co.

Date: June 26, 2007

This memo is a review of the Petition to Alter or Amend Water Rights Transfers filed by Picabo Livestock Co. on February 23, 2007. The petition seeks to change the place of use and total acreage authorized for irrigation under Transfers 5044, 5045 and 5046 (and presumably subsequent approvals) to reflect the historical acreage of 2852.8 acres instead of 2711.3 acres currently authorized under the approvals issued March 20, 1998. The petition indicates that calculations made at the time of transfer review were based on Farm Service Administration (FSA) aerial photos and performed by manual calculations per 40-acre tract. The petition also indicates that a review of the historical place of use using more recently available Geographic Information System (GIS) technology resulted in the determination of additional acres.

The transfers involved ground water rights based on three licenses issued by the Department in early to mid 1960's and multiple surface water rights based primarily on decrees issued in the early 1900's and one license issued in 1923. All the rights are pending in the Snake River Basin Adjudication (SRBA).

At the time of the initial transfer review, SRBA recommendations had not been completed. The decreed rights involved in the transfers did not include a well-defined place of use for irrigation. In addition, accomplished transfers and partial forfeiture or enlargement associated with all the rights may have altered, decreased or increased the place of use prior to 1987. The Department has typically relied on 1987 imagery as a basis for SRBA recommendations. Other imagery could be useful to see how changes may have occurred over time.

The Department has used GIS technology to determine irrigated acreages and other measurements for about the past decade. Prior to that time, other technology was used including planimeters and dot-counters with a reasonable degree of accuracy. The method used for counting acres may not be as important as the availability of good imagery and the interpretation of irrigated areas by the reviewer. Irrigation near riparian areas can be difficult to interpret from imagery (or even in the field), especially in areas where surface flooding is prevalent and irrigated boundaries are not well defined. Since irrigation methods and practices change over time, historical imagery is the best resource available to determine irrigated acreage at a given time.

This review utilized imagery from 1964, 1977, 1987 and 2004 to determine historical irrigation use in the area identified in the transfers. In addition, 1992 and 2006 imagery was used to help clarify field boundaries for the 1987 and 2004 determinations. The 1964 imagery was used to review the place of use authorized for the three ground water licenses issued in the early 1960's. Note that the license files indicate that the surface water was used at the same place of use. The 1977, 1987 and 2004 imagery was used to review the place of use prior to and after the transfers were issued (1998).

GIS shapefiles were created for irrigated areas based on the imagery (see attached for illustration). Roads, canals, and riparian or marshy areas were excluded from the irrigated areas if determined to be significant.

1964 Imagery Review

License 37-2617 (ground water) was originally permitted for 186 acres and amended first to 309 acres and then to 340 acres. License 37-2620 (ground water) was originally permitted for 123 acres and amended first to 309 acres and then to 340 acres. The amendments apparently allowed an enlargement without advancing the priority dates. The two licenses described the same 340 acres, so the apparent enlargement was limited to 31 acres. The licenses were both issued in 1961 for 340 acres.

License 37-2627 (ground water) was originally permitted for 2327 acres and amended to 2647 acres. The license was issued in 1965 for 2559 acres. The apparent enlargement was 232 acres. The 2559 acres did not overlap the 340 acres authorized under licenses 37-2617 and 37-2620. The total licensed area under the three ground water licenses was 2899 acres.

Review of the place of use associated with the ground water licenses was based on 1964 imagery (black and white imagery) and limited to the permitted and licensed quarter-quarters. The field exam maps and notes were used as guidance in some areas for determining the irrigated vs. non-irrigated areas. Other areas were determined based on review and interpretation of the imagery. Using GIS technology, the area determined to be irrigated based on 1964 imagery was 2366.8 acres. It was clear from the field exam maps that the recommended and licensed acres included much of the riparian areas along Silver Creek and the other marshy areas adjacent to the irrigated fields. The licenses would likely have been issued for less acres if GIS technology and good imagery were available at the time of licensing.

The one surface water license (37-2405) was issued in 1923 for 2216 acres in the same general place of use. The license file for 37-2405 indicates that the decreed surface water rights were also used at the place of use. The 1964 imagery provides a historical comparison for the ground water and surface water used at that time. It should be noted, however, that the three ground water licenses and the one surface water license did not cover all the land subject to the transfers in 1998.

1977 Imagery Review

Using GIS technology, the area determined to be irrigated based on 1977 imagery was 2648.2 acres. This includes 62.7 acres that were transferred away (transfer 5045) in 1998. Subtracting the 62.7 acres gives a total of 2585.5 acres. This review indicates that the historical irrigation of 2585.5 acres is less than the 2711.3 authorized under the transfer approvals. Note that the 1977 imagery used was dark and somewhat difficult to interpret.

1987 Imagery Review

The petition indicates that the extent of irrigation in the place of use had not historically changed since the late 1930's. However, affidavits from the owners indicate that, "Picabo Livestock Company converted from gravity irrigation of the property to sprinklers prior to 1987. As a result, certain

additional areas of property in the 40-acre tracts, including knobs and ridges, that were previously not capable of being irrigated with gravity irrigation, became part of the ranch property irrigated acreage.”

Using GIS technology, the area determined to be irrigated based on 1987 imagery was 2745.3 acres. This includes 62.7 acres that were transferred away (transfer 5045) in 1998. Subtracting the 62.7 acres gives a total of 2682.6 acres. This review indicates that the historical irrigation of 2682.6 acres is less than the 2711.3 authorized under the transfer approvals.

2004 Imagery Review

Transfers filed in 2000 to modify the PPU associated with transfers 5044, 5045 and 5046 included a GIS analysis of the PPU boundary completed by Brockway Engineering. The GIS analysis used 2000 imagery as the base. The transfers were approved in 2004. The 2000 GIS analysis is apparently the basis for the petition. Note that the Department did not have immediate access to the 2000 imagery. Imagery from 2004 was used to determine recent irrigation in the PPU for comparison purposes.

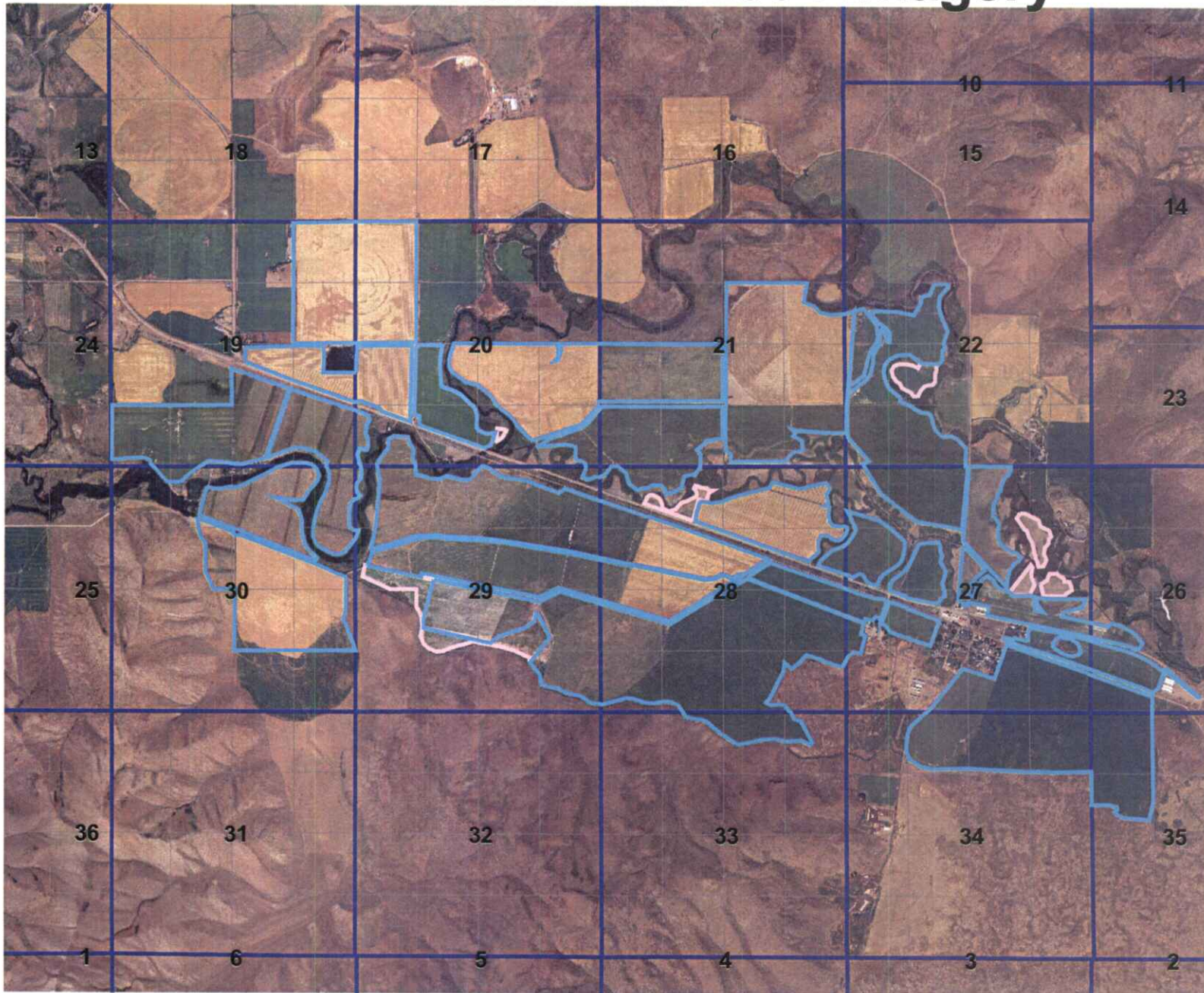
Using GIS technology, the area determined to be irrigated based on 2004 imagery was 2759.5 acres. This includes 62.7 acres that were transferred away (transfer 5045) in 1998. Subtracting the 62.7 acres gives a total of 2696.8 acres. This review indicates that the current irrigation of 2696.8 acres is less than the 2711.3 authorized under the transfer approvals.

Conclusions

The transfers issued in 1998 were intended to cover the historical place of use for all the ground water and surface water rights in a common place of use. The applications indicated that, “Fewer acres will be irrigated than are authorized under all applicable surface and ground water rights. Place of use is being changed to correspond to actual irrigation.” The application proposed that the resultant PPU should be 2711.3 acres and was advertised as such. The applicant used a consultant to determine the irrigated acreage. Although GIS technology was not used, 1987 imagery and other acceptable means were available to determine irrigated acreage.

This review indicates that the estimates used to determine total historical acreage in preparation for the 1998 transfers were reasonable. Multiple reviewers may interpret the imagery differently, but the results of this review do not show that an alteration of the transfer approvals is warranted. Differences in interpretation should not be characterized as errors warranting correction of the 1998 transfers. In addition, Brockway Engineering used 2000 imagery as the basis for comparison. Changes to the total irrigated acreage made since 1987 could not be recognized.

Irrigated Lands Associated with Transfers Based on 2004 Imagery



2696.8 acres
62.7 transfer

2759.5 total

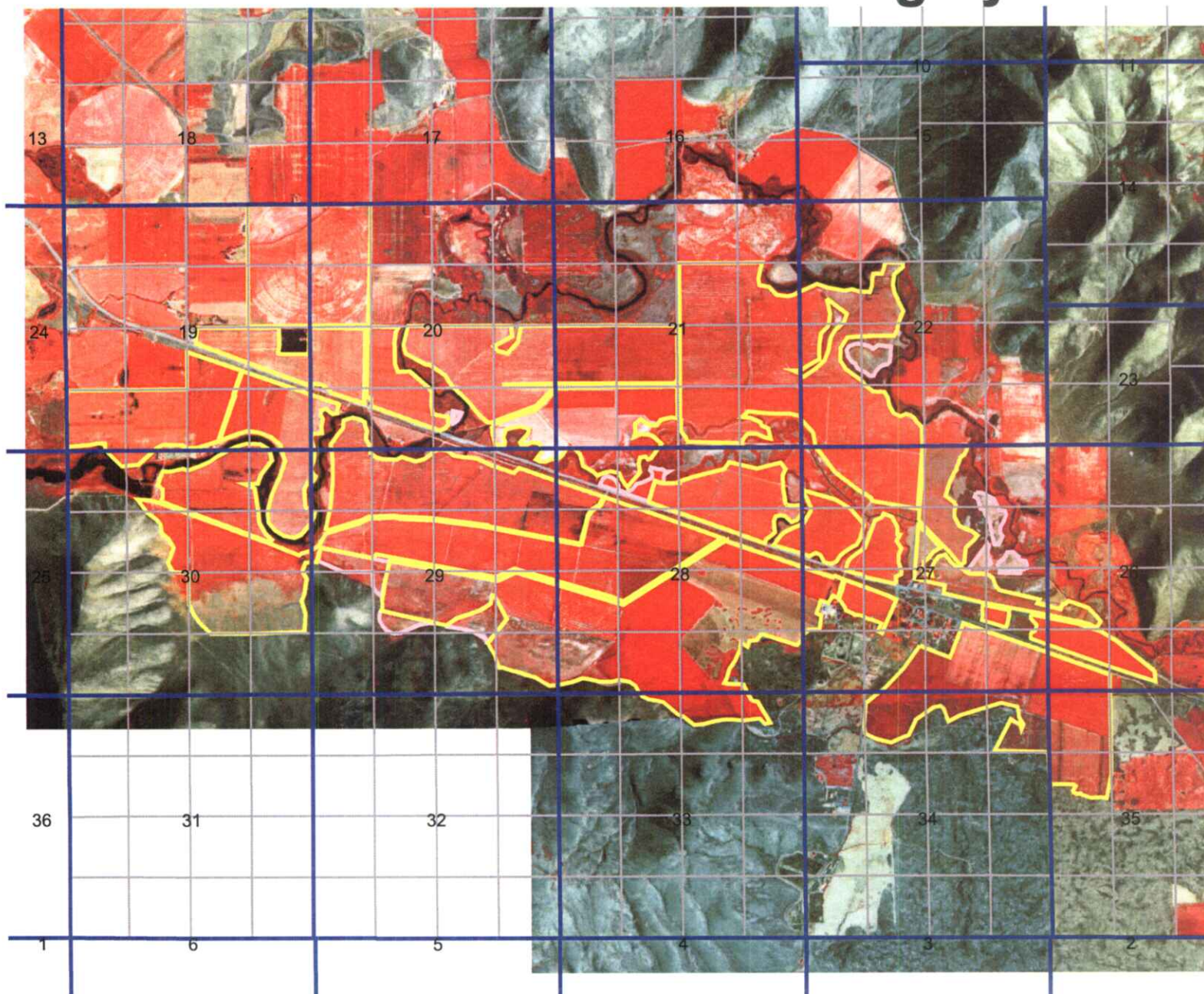
LEGEND

- 2004 Place of Use
- Transfer Out in 1998
- Sections
- Section QQ's



1 0 1 2 Miles

Irrigated Lands Associated with Transfers Based on 1987 Imagery



2682.6 acres
62.7 transfer

2745.3 total

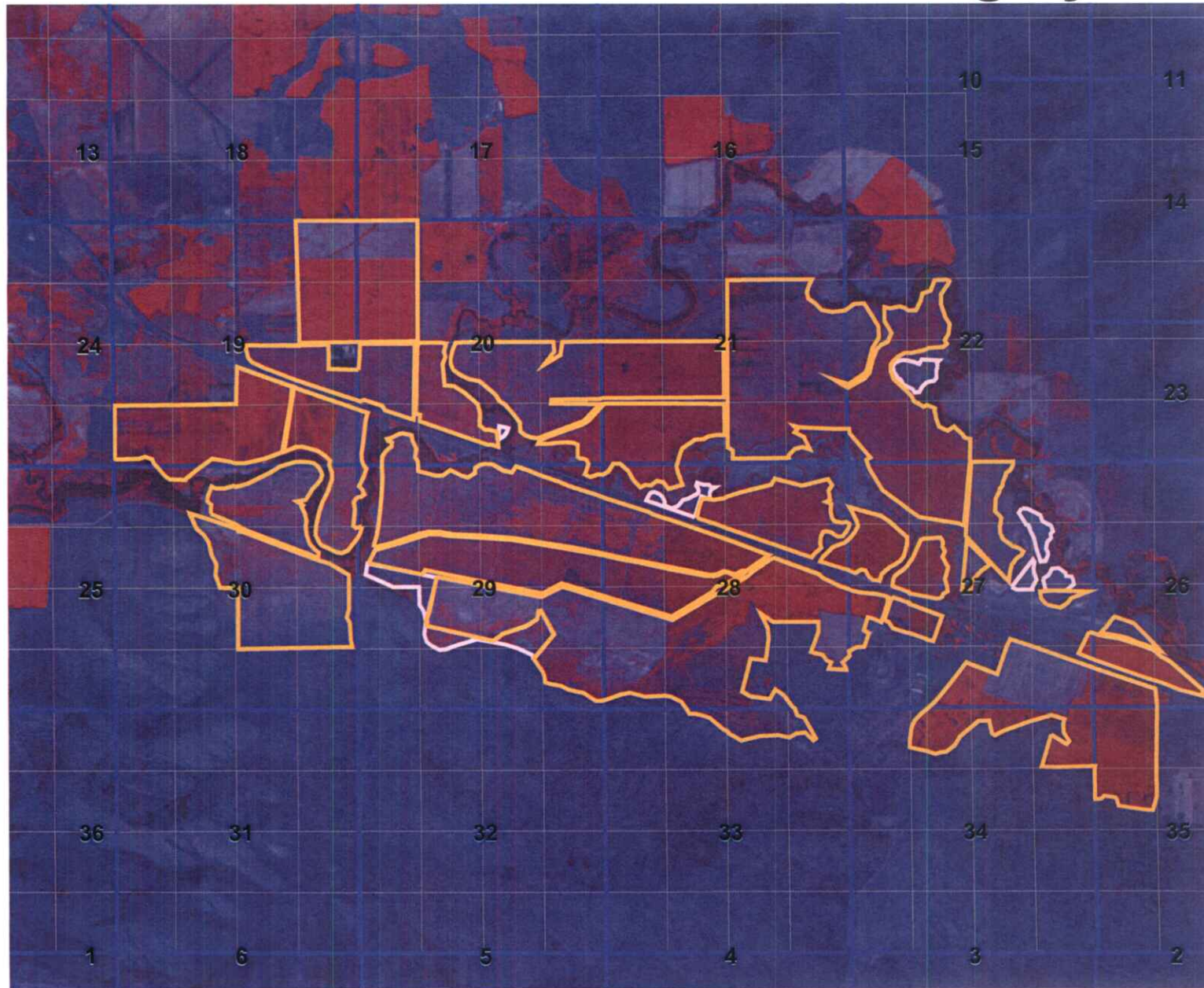
LEGEND

- 1987 Place of Use
- Transferred Out in 1998
- Sections
- Section QQ's



1 0 1 2 Miles

Irrigated Lands Associated with Transfers Based on 1977 Imagery



2585.5 acres
62.7 transfer

2648.2 total

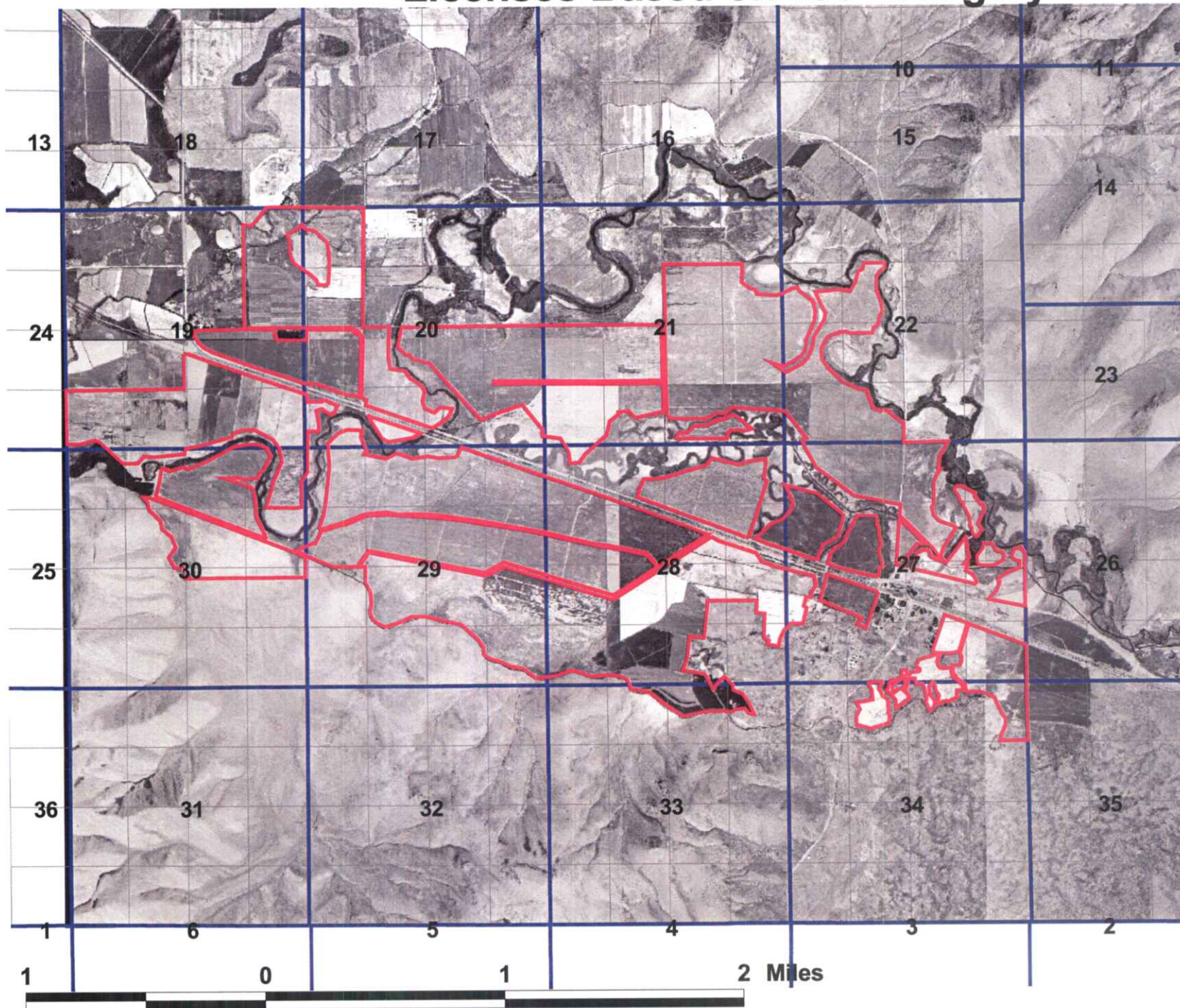
LEGEND

- 1977 Place of Use
- Transferred Out in 1998
- Sections
- Section QQ's



1 0 1 2 Miles

Irrigated Lands Associated with Ground Water Licenses Based on 1964 Imagery



2366.8 ac.

LEGEND

- 1964 Place of Use
- Sections
- Section QQ's

