University of New Mexico
UNM Digital Repository

Native American Water Rights Settlement Project | Native American Water Rights Settlement Project (NAWRS)

8-8-2013

Taos Pueblo Indian Water Rights Settlement Agreement

Taos Pueblo

New Mexico

United States

Taos Valley Acequia Assn & its 54 Member Acequias

Town of Taos

See next page for additional authors

Follow this and additional works at: http://digitalrepository.unm.edu/nawrs

Part of the Indian and Aboriginal Law Commons

Preferred Citation
Taos Pueblo Water Right Agreement (2012)

This Settlement agreement is brought to you for free and open access by the Native American Water Rights Settlement Project (NAWRS) at UNM Digital Repository. It has been accepted for inclusion in Native American Water Rights Settlement Project by an authorized administrator of UNM Digital Repository. For more information, please contact amywinter@unm.edu.

Authors
Taos Pueblo, New Mexico, United States, Taos Valley Acequia Assn & its 54 Member Acequias, Town of Taos, El Prado Water & Sanitation District, and 12 Taos Area Mutual Domestic Water Consumers' Assns.

This settlement agreement is available at UNM Digital Repository: http://digitalrepository.unm.edu/nawrs/83

ABEYTA WATER RIGHTS ADJUDICATION:

SETTLEMENT AGREEMENT AMONG THE UNITED STATES OF AMERICA, TAOS PUEBLO, THE STATE OF NEW MEXICO, THE TAOS VALLEY ACEQUIA ASSOCIATION AND ITS 55 MEMBER ACEQUIAS, THE TOWN OF TAOS, EL PRADO WATER AND SANITATION DISTRICT, AND THE 12 TAOS AREA MUTUAL DOMESTIC WATER CONSUMERS' ASSOCIATIONS

Dated December 12, 2012

TABLE OF CONTENTS

1. PARTIES TO THIS SETTLEMENT AGREEMENT. 1

1.1. EPWSD 1
1.2. Acequias 1
1.3. MDWCAs 1
1.4. State 1
1.5. Pueblo 2
1.6. TVAA 2
1.7. Town 2
1.8. United States 2

2. DEFINITIONS. 2

2.1. AFY 2
2.2. Aboriginal Priority Date 2
2.3. Acequia 2
2.4. Adjudication 2
2.5. Arroyo Seco Abajo 3
2.6. Arroyo Seco Arriba 3
2.7. Attachment 3
2.8. Buffalo Pasture 3
2.9. Buffalo Pasture Depletions 3
2.10. Buffalo Pasture Recharge Project 3
2.11. CIR 3
2.12. El Prado 4
2.13. Enforcement Date 4
2.14. FDR 4
2.15. Forbear, Forbearance 4
2.16. Future Groundwater Diversions 4
2.17. GPM 4
2.18. HIA Right 4
2.19. Historically Irrigated Acreage 5
2.20. Impair, Impairment 5
2.21. Lawful Irrigation or Stock Uses 5
2.22. Market, Marketing, Marketing Agreement 5
2.23. Mutual-Benefit Projects 5
2.24. Mutual-Benefit Projects Parties 5
2.25. Parciante 5
2.26. Partial Final Decree 6
2.27. Party, Parties 6

2.28. Pre-Basin Groundwater Right 6
2.29. PDR 6
2.30. Pueblo Lands 6
2.31. San Juan-Chama Project 6
2.32. Secretary 6
2.33. Settlement Act 7
2.34. Settlement Model 7
2.35. State Engineer 7
2.36. Stream Segment, Stream Segments 7
2.37. Subfile Order 9
2.38. Taos Pueblo Water Use Survey 9
2.39. Taos Valley 9
2.40. Taos Valley Stream System 9
2.41. Taos Valley Tributaries 9
2.42. Temporary Storage for Irrigation Use 10
2.43. Tributary Depletions 10
2.44. Water Rights Owning Parties 10
3. MUTUAL BENEFITS AND CONSIDERATION 10
3.1. IN GENERAL. 10
3.2. BUFFALO PASTURE PROTECTIONS. 10
3.3. SAN JUAN-CHAMA PROJECT WATER. 11
3.4. RIO GRANDE SEGMENT DEPLETIONS 11
3.5. MITIGATION WELL SYSTEM. 11
3.6. ARROYO SECO ARRIBA PROJECT. 12
3.7. WAIVER OF OBJECTIONS TO PARTIAL FINAL DECREE. 12
3.8. WAIVER OF *INTER SE* CHALLENGES. 12
3.9. WAIVER OF CHALLENGES TO DOMESTIC WELLS 12
3.10. WAIVER OF ADMINISTRATIVE PROTESTS. 12
4. ENFORCEABILITY; PARTIES BOUND. 13
4.1. CONDITIONS PRECEDENT. 13
4.2. PROCEDURE FOR ENTRY OF PARTIAL FINAL DECREE. 13
4.3. ENFORCEABILITY OF SETTLEMENT AGREEMENT. 13
4.4. EXPIRATION DATE. 14
5. TAOS PUEBLO WATER RIGHTS. 14
5.1. SURFACE WATER. 14
5.2. GROUNDWATER. 21
5.3. BUFFALO PASTURE. 25
5.4. SAN JUAN-CHAMA PROJECT REPAYMENT CONTRACT. 26
5.5. GENERAL PROVISIONS 26
6. MUTUAL-BENEFIT PROJECTS 29
6.1. TAOS VALLEY ACEQUIA ASSOCIATION 29

6.2. TOWN OF TAOS. 31
6.3. EL PRADO WATER AND SANITATION DISTRICT. 36
6.4. TAOS AREA MUTUAL DOMESTIC WATER CONSUMER ASSOCIATIONS. 41
6.5. GENERAL. 43
7. OFFSET OF SURFACE WATER DEPLETION EFFECTS AND MITIGATION OF IMPAIRMENT TO GROUNDWATER RIGHTS. 48
7.1. OFFSETS AND MITIGATION. 48
7.2. SETTLEMENT MODEL. 49
7.3. OFFSETS OF SURFACE WATER DEPLETION EFFECTS. 51
8. SURFACE WATER SHARING. 62
8.1. SURFACE WATER PRIORITY. 62
8.2. WATER SHARING. 63
8.3. PUEBLO USE OF CERTAIN DITCHES. 68
8.4. ACEQUIA ACCESS TO PUEBLO LANDS. 71
8.5. ACEQUIA SPRINGS CLAIMS. 71
8.6. INITIAL PUEBLO SURFACE WATER ACQUISITIONS. 73
9. THE TAOS PUEBLO WATER DEVELOPMENT FUND. 74
9.1. ESTABLISHMENT. 74
9.2. MANAGEMENT OF FUND. 74
9.3. INVESTMENT OF FUND. 74
9.4. AVAILABILITY OF AMOUNTS FROM FUND. 75
9.5. EXPENDITURES AND WITHDRAWAL. 75
9.6. AMOUNTS AVAILABLE ON APPROPRIATION. 76
9.7. NO PER CAPITA DISTRIBUTIONS. 77
10. MUTUAL-BENEFIT PROJECTS FUNDING. 77
10.1. IN GENERAL. 77
10.2. PROJECT FUNDING TOTALS. 81
10.3. EARLY STATE FUNDING FOR MUTUAL-BENEFIT PROJECTS. 81
10.4. NON-FEDERAL COST-SHARE ACCOUNTING. 81
10.5. PROCESS FOR PROVIDING FINANCAL ASSISTANCE. 82
11. ADMINISTRATION. 82
11.1. PUEBLO WATER CODE. 82
11.2. GENERAL GROUNDWATER PROVISIONS. 85
11.3. GENERAL SURFACE WATER PROVISIONS. 89
11.4. DATA COLLECTION AND SHARING. 89
12. WAIVERS AND RELEASES OF CLAIMS. 91
12.1. PUEBLO AND UNITED STATES CLAIMS. 91
12.2. PUEBLO CLAIMS. 91
12.3. RESERVATION OF RIGHTS AND RETENTION OF CLAIMS. 91
12.4. EFFECT OF SETTLEMENT AGREEMENT AND SETTLEMENT ACT 91
12.5. EFFECTIVENESS OF WAIVERS. 92

13. GENERAL PROVISIONS. 92
13.1. CONSISTENCY WITH SETTLEMENT ACT. 92
13.2. REGIONAL WATER PLANNING 92
13.3. PROJECT MODIFICATION OR FAILURE. 92
13.4. DISCLAIMER. 93
13.5. EVIDENTIARY EFFECT OF NEGOTIATIONS. 93
13.6. AUTHORSHIP. 93
13.7. AUTHORIZATION TO EXECUTE. 93
13.8. EFFECT OF EXECUTION. 93
13.9. NO INDUCEMENTS. 94
13.10. ADVICE OF COUNSEL. 94
13.11. CONTINGENT ON APPROPRIATION OF FUNDS. 94
13.12. OFFICIALS NOT TO BENEFIT. 94
13.13. COUNTERPARTS. 94
13.14. INTERPRETATION AND ENFORCEMENT. 95
13.15. GOVERNING LAW 95
13.16. SUCCESSORS AND ASSIGNS. 95
13.17. INTEGRATION. 96
14. TERM. 96
15. SIGNATURES 96

LIST OF ATTACHMENTS

1	Buffalo Pasture Boundary and Buffalo Pasture Recharge Area
2	Taos Pueblo Lands Map
3	Documentation of OSE Taos Area Calibrated Groundwater Flow Model T17.0 and T17sup.M7
4	Taos Valley Map
5	Proposed Partial Final Judgment and Decree on the Water Rights of Taos Pueblo
6	Acequia Springs Claims List
7	Taos Pueblo Water Use Survey (as supplemented)
8	Town Permitted Water Rights List
9	State-Town Letter Re: Bataan Well
10	Map Showing Settlement Model Grid and Certain Wells
11	State-EPWSD Letter Re: RG-40450 et al.
12	July 28, 2006 letter from State to MDWCAs
13	Taos Pueblo Land Access Permit Form
14	Acequia del Medio del Prado Point of Diversion Map
15	Acequia Madre de la Loma del Ranchito de Abajo Aerial Photo Map
16	Waiver and Release of Claims by Taos Pueblo and the United States
17	Waiver and Release of Claims by Taos Pueblo Against the United States

This Settlement Agreement, dated December 12, 2012, is made among the Parties set forth in **Article** 1 and memorializes the agreement of the Parties to set aside their different positions on legal and factual issues, including, but not limited to, matters of history, aboriginal and relative priority of water rights claims, and quantification of water right claims for the following purposes: (a) to avoid the cost and uncertainty of litigation; (b) to provide finality with respect to the quantification of Taos Pueblo's water rights; (c) to provide an opportunity for non-Pueblo irrigators in the Taos Valley to preserve their Acequias and for other non-Pueblo water rights owners to protect, develop, and maintain their water uses while establishing a means by which the Pueblo may put its decreed right to beneficial use; (d) to restore, preserve, and protect the Taos Pueblo Buffalo Pasture; and (e) to foster cooperation among all Taos Valley residents regarding the allocation and use of water supplies.

NOW, THEREFORE, the Parties agree and bind themselves as follows:

1. PARTIES TO THIS SETTLEMENT AGREEMENT.

1.1.**EPWSD**

El Prado Water and Sanitation District ("EPWSD"), that water and sanitation district duly organized and operated pursuant to NMSA 1978, § 73-21-1, *et seq.*, which has its place of operation in the vicinity of El Prado, New Mexico, and is a political subdivision of the State.

1.2.**Acequias**

Fifty-five (55) individual Acequias, signatory hereto, which are political subdivisions of the State and members of the TVAA that represent and bind their respective Parciantes on common issues, in accordance with applicable law, including, but not limited to, water sharing with other Parties, protection from priority administration and calls, and waivers of protests to the permit applications and actions described in this Settlement Agreement. Such waivers of protests relate only to Parciantes' surface water rights and not to their groundwater rights, if any.

1.3.**MDWCAs**

Mutual Domestic Water Consumers Associations ("MDWCAs"), which are those twelve (12) individual associations signatory hereto and incorporated pursuant to the Sanitary Projects Act, NMSA 1978, § 3-29-1, *et seq.*, or its predecessor statutes, and are political subdivisions of the State.

1.4.**State**

State of New Mexico ("State").

1.5.**Pueblo**

Taos Pueblo ("Pueblo"), that federally recognized and sovereign Indian tribe located in the Taos Valley of New Mexico.

1.6.**TVAA**

Taos Valley Acequia Association ("TVAA") is that New Mexico non-profit corporation which represents itself and the fifty-five (55) community Acequias signatory to this Settlement Agreement.

1.7.**Town**

Town of Taos ("Town"), that municipality located in Taos County and duly incorporated and operated pursuant to NMSA 1978, § 3-1-1, *et seq.*, and its ordinances.

1.8.**United States**

The United States of America, acting solely in its capacity as trustee for the Pueblo ("United States"). References to the United States of America acting in a different capacity are specified in particular contexts of this Settlement Agreement.

2. DEFINITIONS.

2.1.**AFY**

"AFY" means acre-feet of water per year or per annum.

2.2.**Aboriginal Priority Date**

"Aboriginal Priority Date" means the time immemorial water right priority that, under federal law, arises from Pueblo aboriginal occupancy and use.

2.3.**Acequia**

"Acequia" means a community ditch association, as defined by and operated pursuant to NMSA 1978, §§ 73-2-1 *et seq.* and 73-3-1 *et seq.* and which is a signatory to this Settlement Agreement.

2.4.**Adjudication**

"Adjudication" means the general adjudication of water rights entitled *State of New Mexico ex rel. State Engineer v. Abeyta* and *State of New Mexico ex rel. State Engineer v. Arellano,* Civil

Nos. 69cv07896-BB and 69cv07939-BB (consolidated), now pending in the United States District Court for the District of New Mexico.

2.5. **Arroyo Seco Abajo**

"Arroyo Seco Abajo," as used in **Article** 8, means that community the lands of which are irrigated by the Upper Manuel Andres Trujillo Ditch, the Lower Manuel Andres Trujillo Ditch, and the Juan Manuel Lucero Ditch.

2.6. **Arroyo Seco Arriba**

"Arroyo Seco Arriba," as used in **Article 8**, means that community the lands of which are irrigated by the Acequia Madre del Rio Lucero y del Arroyo Seco.

2.7. **Attachment**

"Attachment" means those referenced documents attached to and included with this Settlement Agreement.

2.8. **Buffalo Pasture**

"Buffalo Pasture" means that natural wetland, generally depicted in **Attachment 1**, which has cultural and religious significance to the Pueblo and is more fully defined in **Article 5.3.1**.

2.9. **Buffalo Pasture Depletions**

"Buffalo Pasture Depletions" means those surface water depletion effects that the Settlement Model simulates as resulting from Future Groundwater Diversions and occurring in model Stream Segments Buffalo Pasture East and Buffalo Pasture West.

2.10. **Buffalo Pasture Recharge Project**

"Buffalo Pasture Recharge Project" means the project described and identified in **Articles 5.3.3** and **7.3.1** of this Settlement Agreement and in the general location indicated in **Attachment 1**.

2.11. **CIR**

"CIR" means Consumptive Irrigation Requirement, defined as the quantity of irrigation water, exclusive of effective rainfall, that is consumptively used by plants or is evaporated from the soil surface in a specific period of time. It may be calculated numerically by subtracting effective rainfall from consumptive use.

2.12. **El Prado**

"El Prado," as used in **Article** 8, means that community the lands of which are irrigated by the Acequia Madre del Prado, and shall not mean EPWSD.

2.13. **Enforcement Date**

"Enforcement Date" means the date upon which the Secretary publishes the notice required by section 509(f)(1) of the Settlement Act.

2.14. **FDR**

"FDR" means Farm Delivery Requirement, defined as the quantity of water, exclusive of effective rainfall, that must be delivered to the farm headgate to satisfy the CIR of crops grown on the farm in a specific period of time. It may be calculated numerically by dividing the CIR by the on-farm irrigation efficiency.

2.15. **Forbear, Forbearance**

"Forbear" or "Forbearance" means to restrain, or the exercise of restraint, from asserting a water right's Aboriginal Priority Date.

2.16. **Future Groundwater Diversions**

"Future Groundwater Diversions" means those groundwater diversions permitted or otherwise lawfully commenced after May 30, 2006 and all EPWSD groundwater diversions, notwithstanding the date of their permitting, but shall not include the Town's groundwater diversions from its In-Town Well Field up to the diversion ceiling set forth in **Article 6.2.2.1**.

2.17. **GPM**

"GPM" means gallons per minute.

2.18. **HIA Right**

"HIA Right" means the Pueblo's right to irrigate Historically Irrigated Acreage as described in **Article 5.1.1.1.**

2.19. **Historically Irrigated Acreage**

"Historically Irrigated Acreage" means those five thousand seven hundred twelve and seventy-eight hundredths (5,712.78) acres identified in the Taos Pueblo Water Use Survey, the irrigation of which forms the basis for the Pueblo's HIA Right.

2.20. **Impair, Impairment**

"Impair" or "Impairment" has the meaning developed under New Mexico water law.

2.21. **Lawful Irrigation or Stock Uses**

"Lawful Irrigation or Stock Uses" means the actual and lawful use of surface waters for irrigation, livestock, and domestic uses, including amounts for conveyance from a stream diversion, within the parameters of a Subfile Order or other order of the Court in the Adjudication.

2.22. **Market, Marketing, Marketing Agreement**

"Market," "Marketing," or "Marketing Agreement" as used in **Article** 5 means the assignment, exchange, lease, option to lease, contract, subcontract, or other temporary disposition of the water rights secured to the Pueblo under this Settlement Agreement and the Partial Final Decree.

2.23. **Mutual-Benefit Projects**

"Mutual-Benefit Projects" means the projects described and identified in **Articles** 6 and **10.1** of this Settlement Agreement.

2.24. **Mutual-Benefit Projects Parties**

"Mutual-Benefit Projects Parties" means the Town, EPWSD, the Acequia Madre del Rio Lucero y del Arroyo Seco, the Acequia Madre del Prado, the Acequia del Monte, the Acequia Madre del Rio Chiquito, the Upper Ranchitos MDWCA, the Upper Arroyo Hondo MDWCA, the Llano Quemado MDWCA and the Pueblo.

2.25. **Parciante**

"Parciante" means an individual member of an Acequia.

2.26. **Partial Final Decree**

"Partial Final Decree" means the Decree (entitled "Partial Final Judgment and Decree") entered in the Adjudication, for the resolution of the Pueblo's water right claims and which is substantially in the form agreed to by the Parties and attached to this Settlement Agreement as **Attachment 5**.

2.27. **Party, Parties**

"Party" or "Parties" means one or more of those parties identified in **Article** 1 of this Settlement Agreement.

2.28. **Pre-Basin Groundwater Right**

"Pre-Basin Groundwater Right" means a state law based right to divert and use groundwater with a priority date earlier than the State Engineer's Declaration of Underground Water Basin in the area that includes the groundwater right's point of diversion.

2.29. **PDR**

"PDR" means Project Diversion Requirement, defined as the quantity of water, exclusive of effective rainfall, that must be diverted from an off-farm source of water to satisfy the FDR and any adjudicated livestock or domestic uses in a specific period of time. It may be calculated numerically by dividing the FDR and any adjudicated livestock or domestic uses by the off-farm conveyance efficiency.

2.30. **Pueblo Lands**

"Pueblo Lands" means those lands located within the Taos Valley to which the Pueblo, or the United States in its capacity as trustee for the Pueblo, holds title subject to federal law limitations on alienation. Such lands include Tracts A, B, and C, the Pueblo's land grant, the Blue Lake Wilderness Area, and the Tenorio and Karavas Tracts and are generally depicted in **Attachment 2**.

2.31. **San Juan-Chama Project**

"San Juan-Chama Project" means the Project authorized by section 8 of the Act of June 13, 1962 (76 Stat. 96 and 97), and the Act of April 11, 1956 (70 Stat. 105).

2.32. **Secretary**

"Secretary" means the Secretary of the Interior.

2.33. **Settlement Act**

"Settlement Act" means the Taos Pueblo Indian Water Rights Settlement Act, Pub. L. No. 111-291, tit. V, §§ 501-513, 124 Stat. 3064, 3122-34 (2010).

2.34. **Settlement Model**

"Settlement Model" means the New Mexico Office of the State Engineer numerical groundwater flow model Version T17.0 and T17sup.M7, as documented in **Attachment 3**, or any later version produced in accordance with **Article 7.2.2**.

2.35. **State Engineer**

"State Engineer" means the New Mexico State Engineer.

2.36. **Stream Segment, Stream Segments**

"Stream Segment" or "Stream Segments" means one or more of the stream segments for which depletions are simulated in the Settlement Model, as shown on **Attachment 10** and further identified as follows [Reference to specific Settlement Model cells is by row and column number as follows: (row, column).]:

2.36.1. "Upper Rio Hondo" shall mean the reach of the Rio Hondo starting with Settlement Model cell (5,42) and ending with Settlement Model cell (5,23), that is numbered Segment 1 in **Attachment 10**.

2.36.2. "Arroyo Seco" or "Rio Seco" shall mean the entire Arroyo Seco upstream of the confluence of the Arroyo Seco with the Rio Pueblo de Taos, that is numbered Segment 2 in **Attachment 10**.

2.36.3. "Upper Rio Lucero" shall mean the reach of the Rio Lucero upstream of the Buffalo Pasture, that is numbered Segment 3 in **Attachment 10**.

2.36.4. "Buffalo Pasture West" shall mean the western half of the Buffalo Pasture, that is numbered Segment 4 in **Attachment 10**.

2.36.5. "Buffalo Pasture East" shall mean the eastern half of the Buffalo Pasture, that is numbered Segment 5 in **Attachment 10**.

2.36.6. "Lower Rio Lucero" shall mean the reach of the Rio Lucero downstream of Buffalo Pasture and upstream of the confluence of the Rio Lucero with the Rio Pueblo de Taos, that is numbered Segment 6 in **Attachment 10**.

2.36.7. "Rio Pueblo de Taos A" shall mean the reach of the Rio Pueblo de Taos upstream of the confluence of the Rio Pueblo de Taos with the Rio Lucero, that is numbered Segment 7 in **Attachment 10**.

2.36.8. "Rio Fernando" shall mean the reach of the Rio Fernando de Taos upstream of the confluence of the Rio Fernando de Taos with the Rio Pueblo de Taos, that is numbered Segment 8 in **Attachment 10**.

2.36.9. "Rio Pueblo de Taos B" shall mean the reach of the Rio Pueblo de Taos downstream of the confluence of the Rio Pueblo de Taos with the Rio Lucero and upstream of the confluence with the Rio Fernando de Taos, that is numbered Segment 9 in **Attachment 10**.

2.36.10. "Rio Pueblo de Taos C" shall mean the reach of the Rio Pueblo de Taos downstream of the confluence of the Rio Pueblo de Taos with the Rio Fernando de Taos and upstream of the confluence of the Rio Pueblo de Taos with the Rio Grande del Rancho, that is numbered Segment 10 in **Attachment 10**.

2.36.11. "Rio Chiquito" shall mean the reach of the Rio Chiquito upstream of the confluence of the Rio Chiquito and the Rio Grande del Rancho, that is numbered Segment 11 in **Attachment 10**.

2.36.12. "Upper Rio Grande del Rancho" shall mean the reach of the Rio Grande del Rancho upstream of the confluence of the Rio Grande del Rancho and the Rio Chiquito, that is numbered Segment 12 in **Attachment 10**.

2.36.13. "Lower Rio Grande del Rancho" shall mean the reach of the Rio Grande del Rancho downstream of the confluence of the Rio Grande del Rancho with the Rio Chiquito, and upstream of the confluence of the Rio Grande del Rancho with the Rio Pueblo de Taos, that is numbered Segment 13 in **Attachment 10**.

2.36.14. "Rio Pueblo de Taos D" shall mean the reach of the Rio Pueblo de Taos starting with Settlement Model cell (46,27) and ending with Settlement Model cell (46,23), that is numbered Segment 14 in **Attachment 10**.

2.36.15. "Rio Pueblo de Taos E" shall mean the reach of the Rio Pueblo de Taos starting with Settlement Model cell (46,22) and ending with Settlement Model cell (60,5), that is numbered Segment 15 in **Attachment 10**.

2.36.16. "Lower Rio Hondo" shall mean the reach of the Rio Hondo starting with Settlement Model cell (5,22) and ending with Settlement Model cell (6,10), that is numbered Segment 16 in **Attachment 10**.

2.36.17. "Rio Grande Segment" shall mean the model cells that denote the Rio Grande Mainstem in Attachment 10, starting with Settlement Model cell (1,11) and ending with Settlement Model cell (60,4), that are numbered Segment 17 in **Attachment 10**. "Rio Grande," not followed by "Segment," refers more generally to the mainstem of this river in New Mexico, including but not limited to its course in the Taos area.

2.37. **Subfile Order**

"Subfile Order" means any order entered by the Court in this Adjudication that determines a water right or element thereof as between the State and a water right claimant with respect to water right claims that were filed with the Court prior to May 30, 2006.

2.38. **Taos Pueblo Water Use Survey**

"Taos Pueblo Water Use Survey" means the *Taos Pueblo Water Use Survey: Inventory of Water Uses on Taos Pueblo Indian Lands* (July 1997), authored by Edward L. Gonzales and Christopher Banet, which was filed with Court in 1997, as supplemented by the *2011 Supplement to Taos Pueblo Water Use Survey: Inventory of Water Uses on Taos Pueblo Indian Lands* (August 2011), authored by Christopher Banet. The entire Taos Pueblo Water Use Survey is included in **Attachment 7.**

2.39. **Taos Valley**

"Taos Valley" means the geographic area depicted in **Attachment 4**.

2.40. **Taos Valley Stream System**

"Taos Valley Stream System" means all surface or groundwater on or beneath the geographic area depicted in **Attachment 4**, which waters do not include the Rio Grande.

2.41. **Taos Valley Tributaries**

"Taos Valley Tributaries" means all Settlement Model Stream Segments except Rio Grande Segment, Buffalo Pasture East, and Buffalo Pasture West.

2.42. **Temporary Storage for Irrigation Use**

"Temporary Storage for Irrigation Use" means the storage of no more than five (5) AFY of a non-Indian irrigation surface water right, which irrigation right has been adjudicated by Subfile Order, for no more than thirty (30) days and where use of such stored water is limited to irrigation purposes.

2.43. **Tributary Depletions**

"Tributary Depletions" means surface water depletion effects calculated to occur in Stream Segments other than Buffalo Pasture East, Buffalo Pasture West, and Rio Grande Segment.

2.44. **Water Rights Owning Parties**

"Water Rights Owning Parties" means the Pueblo, the United States, the Town, EPWSD, TVAA and the fifty-five (55) individual Acequias, and the twelve (12) MDWCAs.

3. MUTUAL BENEFITS AND CONSIDERATION.

3.1. IN GENERAL.

The Parties shall be entitled to the benefits secured to them under this Settlement Agreement. The Parties have entered into this Settlement Agreement in consideration of the inherent mutual benefits, including, but not limited to:

3.1.1. avoiding the cost, uncertainty, and harm to relationships that would result from protracted litigation;

3.1.2. ensuring that the waters of the Taos Valley Stream System are managed for their present and future well-being; and

3.1.3. protecting the waters of the Taos Valley Stream System for cultural, irrigation, livestock, municipal, industrial, commercial, and domestic uses as well as enhancement of the natural environment.

3.2. BUFFALO PASTURE PROTECTIONS.

Restoration, preservation, and protection of the Buffalo Pasture have been central negotiation goals. Out of respect for the Buffalo Pasture's cultural and religious importance to the Pueblo and in the spirit of cooperation, the Parties have agreed to projects and other measures that, among other things, are intended to accomplish these goals:

3.2.1. the Pueblo's development and implementation of the Buffalo Pasture Recharge Project, as described in **Article 7.3.1,** to restore and maintain surface and subsurface water levels within the Buffalo Pasture;

3.2.2. the limitation of groundwater diversions and consumption from certain existing Town and EPWSD municipal wells as described in **Article** 6; and

3.2.3. moving the Town's and EPWSD's development of future municipal water supply wells to areas located farther from the Buffalo Pasture, as described in **Article** 6, to allow for necessary increases in groundwater production without increasing adverse effects on the Buffalo Pasture.

3.3. SAN JUAN-CHAMA PROJECT WATER.

The San Juan-Chama Project contracts to be issued under Section 508 of the Settlement Act are fundamental to resolving the Pueblo's water rights claims and providing an essential source of supply for municipal, commercial, and industrial uses in the Taos Valley.

3.4. RIO GRANDE SEGMENT DEPLETIONS.

Rio Grande Compact compliance and minimization of this Settlement Agreement's effects on water users outside the Taos Valley have been central negotiation goals. Several projects and other measures provided for herein and developed by compromise of the Parties' various positions as set forth in this Settlement Agreement are intended to accomplish those goals.

3.5. MITIGATION WELL SYSTEM.

The Parties recognize the mutual benefits to be achieved by using the Mitigation Well System, which is described in **Article 7.3.3.1**, to offset the surface water depletion effects resulting from Future Groundwater Diversions. These benefits include:

3.5.1. limiting future reliance on acquisition and retirement of water rights from Acequias to preserve those systems;

3.5.2. facilitating Pueblo acquisition of water rights, consistent with **Articles 5** and **8.6** and Section 505 of the Settlement Act, by reducing competition therefore; and

3.5.3. providing a means for critically needed and sustainable groundwater development in the Taos Valley.

3.6. ARROYO SECO ARRIBA PROJECT.

The construction and operation of either the Arroyo Seco Arriba Aquifer Storage and Recovery ("ASR") Project described in **Article 6.1.1.1** or the surface storage project described in **Article 6.1.1.2** provide a mutual benefit to the Pueblo and the Acequias by finally resolving allocation of the Rio Lucero.

3.7. WAIVER OF OBJECTIONS TO PARTIAL FINAL DECREE.

The Parties waive any right to object and shall, in good faith, seek to deter objections by others to the entry of a Partial Final Decree that defines the Pueblo's water rights consistent with **Attachment 5**.

3.8. WAIVER OF *INTER SE* CHALLENGES.

The Water Rights Owning Parties agree to recognize one another's water rights, as those rights are described in this Settlement Agreement or in any Subfile Order entered in the Adjudication. The Water Rights Owning Parties agree to waive their rights to file and shall abstain from filing, during the *inter se* phase or otherwise in the Adjudication, any objection to the water rights of any other Water Rights Owning Party, the water rights of individual Parciantes of the fifty-five (55) Acequias, or an Acequia as those rights are described in Subfile Orders. Nothing herein shall preclude one Acequia from challenging *inter se* the water rights of another Acequia's Parciantes. Further, the Water Rights Owning Parties agree to waive their rights to file and shall abstain from filing, during the *inter se* phase or otherwise in the Adjudication, any objection to any Court order which recognizes any of the following: (1) subject to the agreement in **Article 8.5**, Acequia diversions of surface water from springs not to exceed those claims submitted to the State as itemized in **Attachment 6**; (2) inter- and intra-Acequia water-sharing customs; or (3) Lawful Irrigation or Stock Uses.

3.9. WAIVER OF CHALLENGES TO DOMESTIC WELLS.

The Water Rights Owning Parties further agree to waive their rights to and shall abstain from filing *inter se* challenges to: (a) any domestic well right existing as of May 30, 2006 and which is permitted under NMSA 1978, § 72-12-1.1 or its predecessor statutes; and (b) any Pre-Basin Groundwater Right in the Taos Valley if claimed or used for domestic uses, livestock watering, or non-commercial irrigation of up to one (1) acre.

3.10. WAIVER OF ADMINISTRATIVE PROTESTS.

As provided in **Article 6.5.1**, the Water Rights Owning Parties waive protests or objections to certain projects and water right transfers that are necessary for this Settlement Agreement.

4. ENFORCEABILITY; PARTIES BOUND.

4.1. CONDITIONS PRECEDENT.

This Settlement Agreement shall become enforceable and the releases and waivers set forth in **Article 12** shall become effective as of the date that the Secretary publishes the notice required by Section 509(f)(1) of the Settlement Act and that the conditions precedent set forth therein have been fulfilled.

4.2. PROCEDURE FOR ENTRY OF PARTIAL FINAL DECREE.

The Parties have filed a joint motion requesting that the Adjudication court enter an order approving procedures for providing notice of the proposed Partial Final Decree and this Settlement Agreement, and an opportunity to object and be heard, to all known and unknown claimants of water rights within the Taos Valley Stream System whether or not they have been joined as parties to the Adjudication. After the Court approves the procedure and the Settlement Agreement has been executed by the Parties and the Secretary, the Parties will file a Joint Motion for Entry of Partial Final Decree and Approval of the Settlement Agreement and request therein that the Court hear and decide all objections to the Partial Final Decree and the Settlement Agreement but defer entry of the Partial Final Decree until the Parties notify the Court that the conditions specified in Sections 509(f)(2)(D) through 509(f)(2)(F) of the Settlement Act have been satisfied. After the Parties file their joint motion for entry, the United States and the State will provide notice to all known and unknown claimants in the manner directed by the Court. Nothing herein precludes any Party from seeking inclusion of additional provisions in the Partial Final Decree, so long as such provisions are not inconsistent with the Settlement Act, this Settlement Agreement, or **Attachment 5**. Enforcement of the Partial Final Decree shall be subject to the terms and conditions of the Settlement Act, including Section 509(g), (h) and (j).

4.3. ENFORCEABILITY OF SETTLEMENT AGREEMENT.

The Parties shall be bound by all provisions of this Settlement Agreement, and this Settlement Agreement shall become enforceable and the waivers and releases executed pursuant to section 510 of the Settlement Act and the limited waiver of sovereign immunity set forth in section 511(a) of the Settlement Act shall become effective, as of the date that all conditions precedent set forth in **Article 4.1** have been fulfilled and the Secretary publishes the notice required by section 509(f)(1) of the Settlement Act.

4.4. **EXPIRATION DATE.**

4.4.1. IN GENERAL. If all of the conditions precedent set forth in **Article 4.1** and in section 509(f)(2) of the Settlement Act have not been fulfilled by the Expiration Date of March 31, 2017 specified by Section 509(h)(1) of the Settlement Act, or the Expiration Date as it may be extended pursuant to Section 509(j), this Settlement Agreement shall be null and void, the waivers and releases executed pursuant to section 510 of the Settlement Act and the sovereign immunity waivers in section 511(a) of the Settlement Act shall not become effective, and any unexpended Federal or State governmental funds, together with any income earned thereon, and title to any property acquired or constructed with expended Federal or State funds, shall be returned to the appropriating entity, unless otherwise agreed to by the Parties in writing and approved by Congress or the New Mexico Legislature, whichever is appropriate depending on the source of funding.

4.4.2. EXCEPTIONS.

4.4.2.1. Pursuant to section 509(h)(2), except as provided in section 509(i) of the Settlement Act, and notwithstanding any other provision of law or subsection 4.4.1, title to any property acquired or constructed with expended Federal funds made available under section 505(f) of the Settlement Act shall be retained by the Pueblo; and

4.4.2.2. Notwithstanding subsection 4.4.1, two hundred fifty thousand dollars ($250,000) that was appropriated by the 2005 New Mexico Legislature for water rights for EPWSD shall not have to be returned to the State.

5. TAOS PUEBLO WATER RIGHTS.

5.1. **SURFACE WATER.**

5.1.1. HISTORICALLY IRRIGATED ACREAGE RIGHT.

5.1.1.1. Subject to the other provisions of this Settlement Agreement, the Pueblo shall be entitled to divert and consume the surface waters of the Taos Valley Stream System to irrigate the five thousand seven hundred twelve and seventy-eight hundredths (5,712.78) acres shown on the Taos Pueblo Water Use Survey. Such right shall have an Aboriginal Priority Date. In exercising this right, the Pueblo shall be entitled to:

5.1.1.1.1. divert a combined total amount of water not to exceed that amount sufficient to irrigate the 5,712.78 acres, or twenty-two thousand five hundred eight and thirty-five hundredths (22,508.35) AFY, whichever is less; and

5.1.1.1.2. consume a combined total amount of water not to exceed that amount consumed by the irrigation of the 5,712.78 acres, or seven thousand eight hundred eighty-three and sixty-four hundredths (7,883.64) AFY, whichever is less.

5.1.1.2. FORBEARANCE. To avoid the disruption that the Pueblo's immediately exercising its full Historically Irrigated Acreage Right ("HIA Right") would cause to non-Indian irrigation in the Taos Valley and in consideration for this Settlement Agreement, the Pueblo shall forbear from the immediate full exercise of its HIA Right.

5.1.1.2.1. INITIAL FORBEARANCE. The Pueblo shall initially limit the exercise of its HIA Right to the irrigation of the two thousand three hundred twenty-two and forty-five hundredths (2,322.45) acres of recently irrigated acreage, which are those lands, allocated by ditch, identified in Table 1 below and consisting of seven hundred five and forty-nine hundredths (705.49) acres irrigated from the Rio Pueblo de Taos and one thousand six hundred sixteen and ninety-six hundredths (1,616.96) acres irrigated from the Rio Lucero, as of May 30, 2006. Any increase in the Pueblo's exercise of its HIA Right above this initial amount shall be in accordance with **Article 5.1.1.2.2**.

Table 1		
Ditch	***Stream***	***Acreage***
"C"	Rio Pueblo de Taos	26.48
1908	Rio Lucero	280.34
Acequia de los Lovatos	Rio Pueblo de Taos	33.30
Acequia Madre del Medio	Rio Lucero	45.82
Acequia Madre de la Loma del Ranchito de Abajo	Rio Lucero	88.02
Acequia Madre del Prado	Rio Lucero	14.37
Acequia Madre del Pueblo	Rio Pueblo de Taos	93.60
Beeline	Rio Lucero	206.44
Buried Roots	Rio Pueblo de Taos	86.09
Cicada Nose	Rio Pueblo de Taos	29.04
Cortez y Cisneros	Rio Lucero	1.17
Deer Jaw	Rio Pueblo de Taos	80.26
Elk Horn	Rio Pueblo de Taos	8.42
Grouse (to Buffalo Pasture)	Rio Pueblo de Taos/Rio Lucero	55.20

Table 1		
Ditch	*Stream*	*Acreage*
Grouse	Rio Lucero	173.51
Indian	Rio Lucero	164.34
McClure	Rio Pueblo de Taos	11.40
Mirabal	Rio Pueblo de Taos	17.14
No. Trash Pile	Rio Pueblo de Taos	29.83
Phia-No	Rio Pueblo de Taos	74.30
Pottery	Rio Pueblo de Taos	57.52
Pull Leaf	Rio Pueblo de Taos	82.06
So. La Loma Lateral	Rio Lucero	4.26
So. Trash Pile	Rio Pueblo de Taos	38.58
Summer Spring Creek	Rio Lucero	12.59
Tenorio	Rio Lucero	598.50
Ventura Mirabal	Rio Pueblo de Taos	9.87

5.1.1.2.2. INCREASES IN PUEBLO EXERCISE OF ITS HIA RIGHT.

5.1.1.2.2.1. Consistent with **Article 8**, the Pueblo's obligation to forbear shall be reduced, and the Pueblo may increase the exercise of its HIA Right to the full amount of that right, only as non-Indian irrigation surface water rights in the Taos Valley are reduced by any of the following:

5.1.1.2.2.1.1. the acquisition by the Pueblo of a non-Indian irrigation surface water right, which right has been adjudicated by Subfile Order, and the retirement of the acquired water right by the Pueblo filing with the State Engineer a Certificate of Retirement declaring the change in ownership of the acquired water right and stating that the Pueblo thereby irrevocably abandons the acquired water right, which shall be described in the Certificate of Retirement with particularity;

5.1.1.2.2.1.2. a change in the point of diversion of a non-Indian irrigation surface water right, which right has been adjudicated by Subfile Order, to a point of diversion outside of the Taos Valley and the subsequent curtailment of diversions at the move-to location as the result of the exercise and enforcement of the Pueblo's Aboriginal Priority Date;

5.1.1.2.2.1.3. a change in the purpose of use of a non-Indian irrigation surface water right, which right has been adjudicated by Subfile Order, to a non-irrigation use of surface water (excepting those

changes to surface water uses for stock ponds or Temporary Storage for Irrigation Use) and the subsequent curtailment of diversions at the move-to location as the result of the exercise and enforcement of the Pueblo's Aboriginal Priority Date; or

5.1.1.2.2.1.4. the forfeiture or abandonment of a non-Indian irrigation surface water right under state law.

5.1.1.2.2.2. Upon the satisfaction of any of the conditions of **Articles 5.1.1.2.2.1.1** through **5.1.1.2.2.1.4**, the Pueblo shall have the right to increase the exercise of its HIA Right, on an acre-for-acre basis, by the reduction in the number of acres irrigated by the subject non-Indian irrigation surface water right. Any reduction in acreage irrigated by non-Indian surface water rights as the result of the satisfaction of any of the conditions of **Articles 5.1.1.2.2.1.1** through **5.1.1.2.2.1.4** does not make surface water available in the Taos Valley for new appropriation.

5.1.1.2.2.3. The Pueblo shall increase the exercise of its HIA Right on lands served by surface water diversions from a tributary within the Taos Valley Stream System only as non-Indian irrigation surface water rights served by surface water diversions from that particular tributary are reduced. Tributaries within that system include the Rio Hondo, Arroyo Seco, Rio Lucero, Rio Pueblo de Taos, Rio Fernando, Rio Chiquito, and Rio Grande del Rancho.

5.1.1.2.3. INITIAL PUEBLO SURFACE WATER ACQUISITIONS. Consistent with **Article 8.6**, the Pueblo will seek to acquire and retire six hundred seventy-seven and fifty-three hundredths (677.53) acres of non-Indian irrigation surface water rights by the Enforcement Date.

5.1.1.2.4. CHANGE IN PLACE OF USE FOR CERTAIN HIA RIGHT ACRES. The Pueblo has developed livestock impoundment rights on approximately twelve and ninety-three hundredths (12.93) acres of lands that also have an aboriginal HIA Right. Prior to the Pueblo's exercise of any portion of its HIA Right, which exercise shall be subject to **Article 5.1.1.2.2**, that the Taos Pueblo Water Use Survey indicates is on a parcel of land that also has a livestock impoundment right, the Pueblo shall change the place of use for that portion of its HIA Right to a new location.

5.1.2. LIVESTOCK IMPOUNDMENT RIGHT. The Pueblo shall have the right to fill and maintain fifty and twenty hundredths (50.20) acres of surface water impoundments for stock watering purposes, as those features are depicted on the Taos Pueblo Water Use Survey. Such right entitles the Pueblo to divert seventy-seven and fifty-one hundredths (77.51) AFY (*see* Table 2) and consume one hundred fourteen and thirty-five hundredths (114.35) AFY (*see* Tables 2 and 3).

5.1.2.1. DITCH-FED IMPOUNDMENTS. Of the Pueblo's Livestock Impoundment Right, it will have the right to fill and maintain seventeen and fifty-three hundredths (17.53) acres of stock ponds fed by ditches, as those impoundments are identified below in Table 2. The Inventory Numbers specified in Table 2 correlate to the identifications provided in the Taos Pueblo Water Use Survey. Pre-1935 priorities have been determined, in the absence of documentary evidence to the contrary, on the basis that the Pueblo was prepared to present supporting evidence that these impoundments were in existence prior to the dates specified.

Table 2

Inventory No.	*Source*	*Ditch*	*Depletion (AFY)*	*Diversion (AFY)*	*Area (ac.)*	*Priority*
P-001	Rio Lucero	Tenorio	0.47	0.67	0.15	1989
P-002	Rio Lucero	Tenorio	0.27	0.39	0.06	1989
P-003	Rio Lucero	Tenorio	0.19	0.27	0.01	1991
P-004	Rio Lucero	Tenorio	0.47	0.67	0.14	1815
P-005	Rio Lucero	Tenorio	1.87	2.67	0.77	1815
P-006	Rio Lucero	Tenorio	0.35	0.50	0.03	1958
P-007	Rio Lucero	Tenorio	0.67	0.96	0.23	1989
P-008	Rio Lucero	Tenorio	0.57	0.81	0.17	1989
P-009	Rio Lucero	Tenorio	0.77	1.10	0.28	1815
P-010	Rio Lucero	Tenorio	0.87	1.24	0.30	1815
P-011	Rio Lucero	Tenorio	0.37	0.53	0.08	1815
P-012	Rio Lucero	Tenorio	0.57	0.81	0.17	1815
P-013	Rio Lucero	Tenorio	0.77	1.10	0.25	1989
P-014	Rio Lucero	Tenorio	1.27	1.80	0.47	1989
P-015	Rio Lucero	Tenorio	0.47	0.67	0.13	1815
P-016	Rio Lucero	Tenorio	0.77	1.10	0.25	1815
P-017	Rio Lucero	Tenorio	0.22	0.31	0.02	1815
P-018	Rio Lucero	Tenorio	1.27	1.81	0.50	1991
P-019	Rio Lucero	Tenorio	0.19	0.27	0.01	1815
P-020	Rio Lucero	Tenorio	0.27	0.39	0.05	1815
P-021	Rio Lucero	Tenorio	0.19	0.27	0.01	1815
P-022	Rio Lucero	Tenorio	0.57	0.81	0.19	1815
P-023	Rio Lucero	Tenorio	1.37	1.96	0.55	1815
P-024	Rio Lucero	Tenorio	0.67	0.96	0.20	1815
P-025	Rio Lucero	Tenorio	0.22	0.31	0.02	1815
P-026	Rio Lucero	Tenorio	0.19	0.27	0.01	1958
P-027	Rio Lucero	Tenorio	1.37	1.96	0.52	1815

Table 2						
Inventory No.	*Source*	*Ditch*	*Depletion (AFY)*	*Diversion (AFY)*	*Area (ac.)*	*Priority*
P-029	Rio Lucero	Tenorio	0.47	0.67	0.15	1815
P-030	Rio Lucero	Tenorio	0.19	0.27	0.01	1815
P-031	Rio Lucero	Tenorio	1.67	2.39	0.65	1815
P-032	Rio Lucero	Tenorio	1.77	2.53	0.69	1815
P-033	Rio Lucero	Tenorio	0.22	0.31	0.02	1815
P-034	Rio Lucero	Tenorio	0.47	0.67	0.13	1815
P-035	Rio Lucero	Tenorio	0.27	0.39	0.06	1815
P-036	Rio Lucero	Tenorio	0.37	0.53	0.08	1989
P-037	Rio Lucero	Tenorio	0.77	1.10	0.25	1815
P-039	Arroyo Seco	Lower Manuel Andres Trujillo	1.15	1.64	0.40	1941
P-047	Rio Lucero	Tenorio	1.37	1.96	0.55	1815
P-048	Rio Lucero	Beeline	0.30	0.43	0.02	1958
P-049	Rio Lucero	Tenorio	0.67	0.96	0.23	1815
P-050	Rio Lucero	Beeline	0.27	0.39	0.01	1730
P-051	Rio Lucero	Beeline	0.27	0.39	0.01	1958
P-080	Rio Pueblo	Hail Creek	2.47	3.53	1.01	1730
P-081	Rio Pueblo	B Ditch	5.65	8.07	2.41	1730
P-082	Rio Pueblo	Mirabal	3.27	4.67	1.38	1730
P-083	Rio Pueblo	Mirabal	1.17	1.67	0.46	1730
P-084	Rio Pueblo	B Ditch	0.22	0.31	0.02	1730
P-085	Rio Pueblo	Phia-No	0.19	0.27	0.01	1991
P-086	Rio Lucero	Tenorio	0.27	0.39	0.03	1989
P-087	Rio Lucero	Tenorio	0.37	0.53	0.07	1815
P-088	Rio Lucero	Tenorio	0.22	0.31	0.02	1815
P-089	Rio Pueblo	Phia-No	0.19	0.27	0.01	1989
P-090	Rio Pueblo	Phia-No	0.19	0.27	0.01	1991
P-091	Rio Pueblo	Acequia Madre del Pueblo	3.27	4.67	1.38	Same as Acequia
P-115	Rio Lucero	Tenorio	0.27	0.39	0.03	1958
P-116	Rio Lucero	Beeline	0.22	0.31	0.02	1730
P-117	Rio Lucero	Tenorio	0.27	0.39	0.03	1989
P-119	Rio Lucero	Tenorio	0.30	0.43	0.02	1815
P-120	Rio Lucero	Tenorio	0.22	0.31	0.02	1815
P-121	Rio Lucero	Tenorio	0.87	1.24	0.29	1815
P-122	Rio Lucero	Tenorio	0.27	0.39	0.06	1989
P-123	Rio Lucero	Tenorio	0.27	0.39	0.06	1815
P-124	Rio Lucero	Tenorio	1.37	1.96	0.52	1815
P-125	Rio Lucero	Tenorio	0.37	0.53	0.09	1815
P-126	Rio Lucero	Tenorio	0.37	0.53	0.09	1815
P-127	Rio Lucero	Tenorio	0.67	0.96	0.23	1989
P-128	Rio Lucero	Tenorio	0.22	0.31	0.02	1815
P-129	Rio Lucero	Indian/1908	0.27	0.39	0.01	1730
P-130	Rio Lucero	Tenorio	0.19	0.27	0.01	1991
P-132	Rio Lucero	Tenorio	0.57	0.81	0.16	1815
P-135	Rio Lucero	Tenorio	0.19	0.27	0.01	1989
P-136	Rio Lucero	Tenorio	0.19	0.27	0.01	1958
P-137	Rio Lucero	Tenorio	0.27	0.39	0.03	1989

Table 2						
Inventory No.	*Source*	*Ditch*	*Depletion (AFY)*	*Diversion (AFY)*	*Area (ac.)*	*Priority*
P-138	Rio Lucero	Beeline	0.30	0.43	0.02	1730
P-139	Rio Pueblo de Taos	Phia-No	0.19	0.27	0.01	1989
P-140	Rio Lucero	Tenorio	0.27	0.39	0.03	1958
P-141	Rio Pueblo de Taos	Acequia Madre Del Pueblo	0.27	0.39	0.06	Same as Acequia
P-142	Rio Lucero	Tenorio	0.22	0.31	0.02	1815
P-143	Rio Lucero	Tenorio	0.19	0.27	0.01	1815
P-144	Rio Lucero	Tenorio	0.19	0.27	0.01	1815
P-157	Rio Hondo	Cuchilla	0.30	0.43	0.02	1829
Totals	--	--	***54.26***	***77.51***	***17.53***	--

5.1.2.2. IMPOUNDMENTS NOT FED BY DITCHES. Of the Pueblo's Livestock Impoundment Right, it will have the right to fill and maintain in their present locations those thirty-two and sixty-seven hundredths (32.67) acres of stock water impoundments identified below in Table 3. The Inventory Numbers specified in Table 3 correlate to the identifications provided in the Taos Pueblo Water Use Survey. None of the impoundments identified in Table 3 will be subject to priority administration, nor will they be transferable to any surface water point of diversion away from the impoundment's associated arroyo or drainage within Pueblo Lands or to any groundwater point of diversion.

Table 3		
Inventory No.	*Area (ac.)*	*Depletion (AFY)*
R-028	0.02	0.28
R-038	0.23	0.55
R-040	1.77	2.95
R-041	0.52	1.05
R-042	1.62	2.65
R-043	2.75	4.35
R-044	0.23	0.55
R-045	0.40	0.85
R-046	0.34	0.75
R-052	0.10	0.45
R-053	0.21	0.55
R-054	0.29	0.65
R-055	0.90	1.65
R-056	1.03	1.75
R-057	1.72	2.85
R-058	3.67	5.75
R-059	0.51	1.05
R-060	0.69	1.25
R-061	3.10	4.95

Table 3		
Inventory No.	*Area (ac.)*	*Depletion (AFY)*
R-062	0.63	1.15
R-063	0.46	0.95
R-065	0.20	0.55
R-066	0.44	0.95
R-067	0.45	0.95
R-068	0.23	0.55
R-069	1.09	1.85
R-070	0.52	1.05
R-071	0.86	1.55
R-072	0.06	0.35
R-073	0.24	0.65
R-074	0.17	0.55
R-075	0.11	0.45
R-076	0.06	0.35
R-079	0.52	1.05
R-092	0.02	0.26
R-093	0.18	0.35
R-094	0.79	0.45
R-095	0.51	0.45
R-096	0.02	0.26
R-131	0.46	0.95
R-133	0.06	0.35
R-134	0.42	0.85
R-150	2.40	3.85
Buffalo Pasture Pond-03	0.24	0.79
Buffalo Pasture Pond-04	0.11	0.50
Buffalo Pasture Pond-05	0.27	0.86
Pit Tank-01	0.17	0.51
Pit Tank-02	0.53	1.05
Pit Tank-03	0.35	0.78
Totals	***32.67***	***60.09***

5.1.3. CHANGE OF POINT OF DIVERSION OF SURFACE WATER RIGHT. Subject to this Settlement Agreement and applicable law, the Pueblo may change the point of diversion for any portion of its HIA Right available for exercise pursuant to **Article 5.1.1.2.2** or its stock pond right described in **Article 5.1.2.1** to a groundwater point of diversion.

5.2. **GROUNDWATER.**

5.2.1. MUNICIPAL, DOMESTIC, AND INDUSTRIAL WELLS. The Pueblo shall have the right to divert and consume three hundred (300) AFY of groundwater for municipal, domestic, and industrial uses as follows:

5.2.1.1. POINTS OF DIVERSION. This groundwater right is currently diverted in the quantities and at the locations shown in Table 4 below. The Inventory Numbers specified in the table set forth below correlate to the identifications provided in the Taos Pueblo Water Use Survey.

Table 4		
Inventory No.	***Field Name***	***Depletion (AFY)***
W-011	Spider Road (W) Community Well	50 (supp. to W-012, W-147, & W-150)
W-012	Spider Road (E) Community Well	50 (supp. to W-011, W-147, & W-150)
W-147	#2	50 (supp. to W-011, W-12, & W-150)
W-150	#1	50 (supp. to W-011, W-012, & W-147)
W-004	Taos Pueblo Forest Service Well	3
W-005	Pueblo War Chief Complex	3
W-091	Children's Art Center	3
W-149	Community Fire Station, Jail	3
W-161	Taos Elementary School	3
W-173	Pow-Wow Well – BIA4	3
W-178	War Chief's Office	3
W-205	Tribal Administration Building	3
Individual domestic wells	Various	76

5.2.1.2. PRIORITY. This groundwater right shall have an Aboriginal Priority Date.

5.2.2. LIVESTOCK WELLS. The Pueblo shall have the right to divert and consume fourteen and seventy-two hundredths (14.72) AFY of groundwater for stock watering purposes from the groundwater points of diversion and with the priorities identified below in Table 5. The Inventory Numbers specified in the table set forth below correlate to the identifications provided in the Taos Pueblo Water Use Survey.

Table 5				
Inventory No.	***Field Name***	***Gen. Location***	***Priority***	***Depletion (AFY)***
W-045	Carpio Bernal	Farm (near village)	1960	0.21
W-047	Frank Mirabal	Farm (near village)	1960	0.21
W-072	Cesario Gomez	Farm (near village)	1960	0.21
W-106	John D. Concha	Farm (near village)	1960	0.21
W-154	Frank Marcus	Farm (near village)	1960	0.21
W-163	RWP-3	Tract B	1958	0.86

Table 5				
Inventory No.	*Field Name*	*Gen. Location*	*Priority*	*Depletion (AFY)*
W-164	RWP-4	Tract B	1960	0.86
W-165	RWP-2	Tract A	1956	3.63
W-166	RWP-1	Tract A	1946	3.63
W-167	RWP-5	Tract A	1963	3.63
W-169	RWP-6/BIA-3	Grant (south)	1972	0.85
W-174	Paul Bernal	Farm (near village)	1960	0.21
Total	--	--	--	*14.72*

5.2.3. ADDITIONAL GROUNDWATER RIGHT. The Pueblo shall have the right to divert and consume one thousand three hundred (1,300) AFY of groundwater. This right shall have an Aboriginal Priority Date.

5.2.3.1. DEVELOPMENT PARAMETERS. No permit shall be required for the Pueblo's development and use of this water right. This right shall be developed in accordance with the following parameters:

5.2.3.1.1. EXISTING OR NEW WELLS. Up to one thousand sixty (1,060) AFY of groundwater diversions from the following wells or any well constructed to replace one of the following wells, provided that any such replacement well is constructed: (a) within two hundred (200) feet of the original well; and (b) subject to the same depth or aquifer specification, if any, as the original well:

5.2.3.1.1.1. Up to one hundred fifty (150) AFY from Settlement Model layers six (6) and seven (7) at Well BIA5 (W-171), which well is located in Tract A and is presently screened between 740 and 990 feet below ground level;

5.2.3.1.1.2. Up to one hundred fifty (150) AFY from Settlement Model layers six (6) and seven (7) at Well BOR6 (W-229), which well is located in Tract B and is presently screened between 1,335 and 1,775 feet below ground level;

5.2.3.1.1.3. Up to one hundred fifty (150) AFY from Settlement Model layers six (6) and seven (7) at Well K3 (W-227), which well is located in the Karavas Tract and is presently screened between 900 and 1,800 feet below ground level;

5.2.3.1.1.4. Up to one hundred (100) AFY from a new well constructed within the Karavas Tract, which well production shall not be limited to any particular Settlement Model layer;

5.2.3.1.1.5. Up to one hundred fifty (150) AFY from Settlement Model layer six (6) and seven (7) at Well BOR5 (W-228), which well is located on the Pueblo Grant and is presently screened between 1,338 and 1,738 feet below ground level;

5.2.3.1.1.6. A cumulative total of up to sixty (60) AFY from the two (2) Hail Creek Wells (W-223 and W-224) subject to the specific provisions of **Article 11.2.2.2.3.3**; and

5.2.3.1.1.7. A cumulative total of up to three hundred (300) AFY from: (a) the Pueblo's existing municipal supply wells (*i.e.*, W-011, W-012, W-147, and W-150); or (b) new wells that are located within the Pueblo's Grant or Tenorio Tract, but no nearer than one-quarter (¼) mile to any boundary of those tracts.

5.2.3.1.2. RIO GRANDE CORRIDOR WELLS. Any portion of the one thousand three hundred (1,300) AFY of diversions not developed at those wells identified in **Article 5.2.3.1.1** may be diverted from no more than four (4) wells located within that corridor shown on **Attachment 10** that is no less than one (1) mile and no more than three (3) miles from the Rio Grande and which produce groundwater from Settlement Model layers six (6) and seven (7). Each well shall divert not more than three hundred fifty (350) AFY of the one thousand three hundred (1,300) AFY provided for in this **Article 5.2.3**, and no more than one (1) such well shall be located in Tract B for purposes of these diversions.

5.2.3.2. WELL SPACING.

5.2.3.2.1. Any new well constructed pursuant to **Article 5.2.3.1.1**, including any replacement well, shall not:

5.2.3.2.1.1. be located within a one and one-quarter (1¼) mile radius of EPWSD's Las Colonias Well or a one (1) mile radius of EPWSD's El Torreon Well; or

5.2.3.2.1.2. divert more than one hundred and fifty (150) AFY of the one thousand three hundred (1,300) AFY of water provided for in **Article**

5.2.3 from a well located within: (a) that zone lying between a one and one-quarter (1¼) mile radius and a one and one-half (1½) mile radius of EPWSD's Las Colonias Well; or (b) that zone lying between a one (1) mile radius and a one and one-quarter (1¼) mile radius of EPWSD's El Torreon Well.

5.2.3.2.2. The well spacing provisions of this **Article 5.2.3.2** apply only to the Pueblo's development of wells for purposes of diverting the groundwater right provided for in **Article 5.2.3**.

5.2.3.2.3. The location of any new well constructed pursuant to **Article 5.2.3.1.1** shall be subject to **Article 11.2.2**.

5.2.3.3. MITIGATION OF EFFECTS. The Pueblo shall have no obligation to offset surface water depletion effects on the Rio Grande resulting from its diversion of the one thousand three hundred (1,300) AFY provided for in **Article 5.2.3**. It shall, however, have an obligation to offset Tributary Depletions resulting from such diversions and to mitigate Impairment as provided for in **Article 7** and shall offset such effects by use of the Mitigation Well System or use of a portion of its exercisable HIA Right in accordance with **Article 7.3.3.2**.

5.3. **BUFFALO PASTURE.**

5.3.1. IN GENERAL. The Buffalo Pasture is the natural wetland located to the north and west of the Pueblo's traditional village area, as generally depicted in **Attachment 1**. This wetland is a critical Pueblo cultural resource on which its members have relied since time immemorial and which it continues to use for cultural and traditional purposes.

5.3.2. BUFFALO PASTURE PROTECTIONS. Restoration, preservation, and protection of the Buffalo Pasture are important goals of this Settlement Agreement, and several projects and other measures set forth in this Settlement Agreement are intended to accomplish those goals.

5.3.3. BUFFALO PASTURE RECHARGE PROJECT. The Buffalo Pasture Recharge Project and other mitigation provisions set forth in **Article 7.3.1** are material consideration for this Settlement Agreement, and the Buffalo Pasture Recharge Project shall serve as the preferred means for mitigating the Parties' Buffalo Pasture Depletions.

5.3.4. PUEBLO RIO GRANDE DEPLETION CREDIT. The Pueblo shall be entitled to deplete one hundred (100) AFY of surface waters from the Rio Grande without any offset or mitigation responsibility. Such credit shall be useable only to offset the Pueblo's shifted surface water depletion effects described in **Article 7.3.1.4**.

5.4. SAN JUAN-CHAMA PROJECT REPAYMENT CONTRACT.

In consideration for the Pueblo's compromise of its water right claims in this Adjudication, to satisfy its present and future needs, and to provide resources necessary to support the Pueblo as a self-governing and sovereign Indian tribe, and as provided by section 508(b)(1)(A) of the Settlement Act, the Secretary shall enter into a repayment contract with the Pueblo that entitles the Pueblo to delivery of two thousand two hundred fifteen (2,215) AFY of San Juan-Chama Project water.

5.5. GENERAL PROVISIONS.

5.5.1. MARKETING.

5.5.1.1. PUEBLO WATER RIGHTS.—Subject to the approval of the Secretary in accordance with section 506(e) of the Settlement Act, the Pueblo may Market water rights secured to it under this Settlement Agreement and the Partial Final Decree, provided that such Marketing is in accordance with this **Article 5.5.1** and section 506 of the Settlement Act.

5.5.1.2. PUEBLO CONTRACT RIGHTS TO SAN JUAN-CHAMA PROJECT WATER.—Subject to the approval of the Secretary in accordance with subsection 506(e) of the Settlement Act, the Pueblo may subcontract water made available to the Pueblo under the contract authorized under section 508(b)(1)(A) of the Settlement Act to third parties to supply water for use within or without the Taos Valley, provided that the delivery obligations under such subcontract are not inconsistent with the Secretary's existing San Juan-Chama Project obligations and such subcontract is in accordance with this **Article 5.5.1** and section 506 of the Settlement Act.

5.5.1.3. LIMITATION.

5.5.1.3.1. IN GENERAL.—Diversion or use of water off Pueblo Lands pursuant to Pueblo water rights or Pueblo contract rights to San Juan-Chama Project water shall be subject to and not inconsistent with the same requirements and conditions of state law, any applicable federal law, and any applicable interstate compact as apply to the exercise of water rights or

contract rights to San Juan-Chama Project water held by non-federal, non-Indian entities, including all applicable State Engineer permitting and reporting requirements.

5.5.1.3.2. EFFECT ON WATER RIGHTS.—Such diversion or use off Pueblo Lands under **Article 5.5.1.3.1** shall not Impair water rights or increase surface water depletions within the Taos Valley.

5.5.1.3.3. PUEBLO ACQUIRED STATE LAW WATER RIGHTS. —The Pueblo's Marketing of any state law based water right (*i.e.*, any Pueblo acquired, state law based water right that is not retired in accordance with **Article 5.1.1.2.2.1.1**) shall carry with it its state law requirements and conditions.

5.5.1.4. MAXIMUM TERM.

5.5.1.4.1. IN GENERAL.—The maximum term of any water use lease or subcontract, including all renewals, shall not exceed 99 years in duration.

5.5.1.4.2. ALIENATION OF RIGHTS.—The Pueblo shall not permanently alienate any rights it has under this Settlement Agreement, the Partial Final Decree, and the Settlement Act.

5.5.1.5. APPROVAL OF SECRETARY.—The Secretary shall approve or disapprove any lease or subcontract submitted by the Pueblo for approval within a reasonable period of time after submission, provided that no Secretarial approval shall be required for any water use lease for less than 10 AFY with a term of less than 7 years, including all renewals.

5.5.1.6. NO FORFEITURE OR ABANDONMENT.—The nonuse by a lessee or subcontractor of the Pueblo of any right to which the Pueblo is entitled under the Partial Final Decree shall in no event result in a forfeiture, abandonment, relinquishment, or other loss of all or any part of those rights.

5.5.1.7. NO PREEMPTION.

5.5.1.7.1. IN GENERAL.—The approval authority of the Secretary provided under **Article 5.5.1.5** shall not amend, construe, supersede, or preempt any state or federal law, interstate compact, or international treaty that pertains to the Colorado River, the Rio Grande, or any of their tributaries, including

the appropriation, use, development, storage, regulation, allocation, conservation, exportation, or quantity of those waters.

5.5.1.7.2. APPLICABLE LAW.—The provisions of section 2116 of the Revised Statutes (25 U.S.C. 177) shall not apply to any water made available under this Settlement Agreement.

5.5.1.8. NO PREJUDICE.—Nothing in this Settlement Agreement shall be construed to establish, address, prejudice, or prevent any party from litigating whether or to what extent any applicable state law, federal law, or interstate compact does or does not permit, govern, or apply to the use of the Pueblo's water outside of New Mexico.

5.5.2. WATER USES. Regardless of the means used for quantifying the Pueblo's water rights the Pueblo may devote such rights to any use. Such uses and any changes in points of diversion, place or purpose of use, shall be subject to this Settlement Agreement, including but not limited to the provisions of **Article 11.1.4**, and applicable law.

5.5.3. INSTREAM FLOWS. Subject to the other provisions of this Settlement Agreement, the Pueblo shall be entitled to change the place and purpose of use and point of diversion of any portion of its HIA Right available for exercise pursuant to **Article 5.1.1.2.2** or stock pond right described in **Article 5.1.2.1** to the maintenance of instream flows on Pueblo Lands to meet its traditional and cultural needs. Such instream flows shall not Impair the water rights of any Party.

5.5.4. LIMITS ON ALIENATION. Pursuant to section 504(a) of the Settlement Act, those rights to which the Pueblo is entitled under the Partial Final Decree shall be held in trust by the United States on behalf of the Pueblo and shall not be subject to forfeiture, abandonment, or permanent alienation. Any state law based water right acquired by the Pueblo, or the United States on the Pueblo's behalf, and not retired in accordance with **Article 5.1.1.2.2.1** shall retain its state law requirements and conditions.

5.5.5. NO EFFECT ON NATURAL PONDS AND LAKES. Subject to the Act to Amend Section 4 of the Act of May 31, 1933, 84 Stat. 1437 (Dec. 15, 1970), nothing in this Settlement Agreement shall be construed as authorizing any human diversion or consumption of waters from or affecting any natural ponds or lakes within the Blue Lake Wilderness Area or as limiting the Pueblo's lawful activities therein.

5.5.6. EMERGENCY GROUNDWATER PRODUCTION. Notwithstanding other provisions of this **Article 5**, the Water Right Owning Parties recognize the Pueblo's right to groundwater production from its wells as may be necessary in the event of fire or other emergency that poses a threat to the public health, safety, or welfare.

6. MUTUAL-BENEFIT PROJECTS.

6.1. TAOS VALLEY ACEQUIA ASSOCIATION.

6.1.1. ARROYO SECO ARRIBA PROJECT. As part of the resolution of a longstanding dispute involving allocation of the Rio Lucero, the Parties agree that the Acequia Madre del Rio Lucero y del Arroyo Seco shall receive an additional one hundred (100) AFY of depletion through water rights transfers pursuant to **Article 6.1.2**, and the Parties further agree that one of the projects described in **Article 6.1.1.1** or **6.1.1.2** will be developed for purposes of storing and using such water rights. All Acequia diversions for purposes of either of these projects shall be accounted as part of Arroyo Seco Arriba's 18.3% share of the Rio Lucero, which share shall be adjusted over time in accordance with **Article 8.2.1.2**. The Pueblo and the Acequia Madre del Rio Lucero y del Arroyo Seco agree that the operation of either project described in this **Article 6.1.1** shall not compromise the Acequia's right to its share of the Rio Lucero as provided in **Article 8.2.1.1** or the Pueblo's interest in and rights to the protection of the Buffalo Pasture.

6.1.1.1. AQUIFER STORAGE AND RECOVERY PROJECT. The Arroyo Seco Arriba Aquifer Storage and Recovery ("ASR") Project shall be constructed to deliver water rights purchased pursuant to **Article 6.1.2**. The community of Arroyo Seco Arriba, through the Acequia Madre del Rio Lucero y del Arroyo Seco, shall apply to the State Engineer for a permit for wells to store and recover the surface flows of the Rio Lucero in the amount necessary to provide the one hundred (100) AFY of depletion, with a diversion not to exceed two hundred sixty (260) AFY, acquired pursuant to **Article 6.1.2** for irrigation use during the irrigation season. These two 1,000 foot deep wells with approximately a 10 ¾ inch casing and an expected 330 GPM combined pumping capacity will be at the approximate locations as shown on **Attachment 10**. The project includes design, site purchases, permitting, NEPA compliance, diversion structure, lift pumps, wells, well pumps, pipelines, and the pipeline through the Taos Pueblo Tenorio Tract described below. Diversions from such wells shall be limited to six (6) months of each year, from May 1 to November 1. The Acequia Madre del Rio Lucero y del Arroyo Seco shall own, operate, and maintain these ASR Project wells. To eliminate conveyance losses, flows of the Acequia Madre del Rio Lucero y del Arroyo

Seco ditch will be conveyed through a 6,500 foot long pipeline through the Taos Pueblo Tenorio Tract, with a capacity of 44.8 cubic feet per second, from the Rio Lucero diversion to the vicinity of the ASR project.

6.1.1.2. SURFACE STORAGE PROJECT. As an alternative to the ASR Project described in **Article 6.1.1.1** and subject to all applicable water rights acquisition, transfer, and permitting requirements, the Parties agree that the one hundred (100) AFY of additional depletions or two hundred sixty (260) AFY of diversions may be diverted and stored in one or more surface reservoirs off Pueblo Lands. The project includes design, site purchases, permitting, NEPA compliance, construction of surface storage reservoirs, necessary infrastructure to connect the storage reservoirs to the Acequia Madre del Rio Lucero y del Arroyo Seco, and the pipeline through the Taos Pueblo Tenorio Tract described below. The ASR Project is the preferred project which will be pursued unless it is determined that it is not feasible. To eliminate conveyance losses, flows of the Acequia Madre del Rio Lucero y del Arroyo Seco ditch will be conveyed through a 6,500 foot long pipeline through the Taos Pueblo Tenorio Tract, with a capacity of 44.8 cubic feet per second, from the Rio Lucero diversion to the Acequia Madre del Rio Lucero y del Arroyo Seco diversion at the Arroyo Seco stream.

6.1.2. WATER RIGHTS ACQUISITION. Subject to the dollar limit in **Article 10.1.3.2**, the State shall provide funds to the Acequia Madre del Rio Lucero y del Arroyo Seco as necessary for: (a) acquisition of up to one hundred (100) AFY of consumptive use water rights from the Rio Grande or its tributaries; (b) all administrative, technical, and legal costs and fees associated with such acquisition; (c) all administrative, technical, and legal costs and fees associated with transferring those water rights; and (d) all necessary permits. Such water rights shall be for use in the ASR Project specified in **Article 6.1.1.1** or the Surface Storage Project specified in **Article 6.1.1.2**. The one hundred (100) AFY of consumptive use water rights may be acquired and transferred in one or multiple transactions, and the Acequia Madre del Rio Lucero y del Arroyo Seco intends to acquire these water rights on the Rio Grande and will acquire such water rights on the tributaries only if such rights are not available on the Rio Grande.

6.1.3. OPERATION, MAINTENANCE, AND REPLACEMENT SINKING FUND. Non-Federal funds shall be made available to the Acequia Madre del Rio Lucero y del Arroyo Seco to establish a sinking fund to provide for future operation, maintenance, and replacement of the ASR Project.

6.1.4. ACEQUIA MADRE DEL PRADO STREAM GAGE. To assist in the implementation of this Settlement Agreement and the water sharing provisions of **Article 8**, a stream gage shall be installed on the Rio Lucero at the diversion of the Acequia Madre del Prado.

6.1.5. FUTURE FUNDING. Nothing herein shall be construed as prohibiting future applications by Acequias for funding to acquire additional water rights or infrastructure sufficient to meet future needs.

6.2.**TOWN OF TAOS.**

6.2.1. CURRENT DIVERSIONS. The Water Rights Owning Parties agree that the Town has the right to operate and maintain in perpetuity its existing groundwater and surface water diversions, as currently permitted by the State Engineer, for municipal, domestic, irrigation, and industrial purposes with a total diversion amount of one thousand eight hundred fifty six and fifty-two hundredths (1,856.52) AFY and a consumptive use right of one thousand four hundred sixty-four and fifty-two hundredths (1,464.52) AFY. A table showing the quantity and distribution of the Town's permitted water rights is included herewith as **Attachment 8**. The Water Rights Owning Parties further agree that no additional surface water depletion offsets shall be required so long as the Town complies with its permits.

6.2.2. IN-TOWN WELL FIELD PRODUCTION. "In-Town Well Field" shall mean the Town's current municipal supply wells, which are permitted by the State Engineer as RG-7339, RG-7339-S, RG-7339-S-2, RG-7339-S-3, RG-7339-S-4, RG-7339-S-5, RG-7339-S-6, RG-17178, and RG-36130, or their replacements.

6.2.2.1. DIVERSION CEILING. The Town shall divert no more than one thousand one hundred (1,100) AFY from its In-Town Well Field, which total shall include:

6.2.2.1.1. the nine hundred seventeen and twenty-eight hundredths (917.28) AFY currently permitted to the In-Town Well Field;

6.2.2.1.2. the twenty-nine and thirteen hundredths (29.13) AFY currently permitted to the existing Kit Carson well (RG-17178);

6.2.2.1.3. the one hundred twenty-eight and fifteen hundredths (128.15) AFY of pending transfers referenced in **Article 6.2.3**; and

6.2.2.1.4. additional amounts, including any domestic well or footprint transfers, up to the diversion ceiling.

6.2.2.2. FUTURE DOMESTIC WELL TRANSFERS. To the extent such transfers are lawful and feasible and if the Settlement Model shows that such transfers would reduce net drawdown effects on the Buffalo Pasture, the Pueblo and the Town will discuss the possibility of future transfers of water rights associated with domestic wells to the Town's Jack Denver Well (RG-7339-S-3).

6.2.2.3. PUMPING CONFIGURATION. The Town shall continue to pump the In-Town Well Field as those wells are permitted by the State Engineer, subject to the terms and conditions of this Settlement Agreement and consistent with its obligations to provide for public health, safety, and welfare. Prior to submitting any application to change the permitted amount of groundwater diversions from any well within the In-Town Well Field, the Town shall notify the Pueblo, TVAA, and EPWSD in writing and consult with the Pueblo as to the effects such changes may have on the Buffalo Pasture and the Pueblo's water rights.

6.2.3. PENDING TRANSFERS. Within thirty (30) days of the execution of this Settlement Agreement by the Parties and the Secretary, and subject to **Article 7.3.1.5.2**, the Water Rights Owning Parties shall withdraw their protests, if any, to the Town's applications pending before the State Engineer for changes in points of diversion of the consumptive use of one hundred twenty-eight and fifteen hundredths (128.15) AFY to within the In-Town Well Field (excluding the Howell and Mitchell Wells), and shall refrain from filing any additional protests to such transfers. Any surface water depletion effects or Impairment from transferred production shall be offset and mitigated in accordance with applicable permit conditions.

6.2.4. PUMPING AND THE BUFFALO PASTURE. The Town recognizes the Buffalo Pasture's cultural and religious importance to the Pueblo. Therefore, consistent with **Article 3** and in the spirit of cooperation, the Town agrees to the following measures which are intended, among other things, to limit diversions and consumption from Town wells that are within the immediate vicinity of the Buffalo Pasture in exchange for construction of a Future Water Supply Well Field located further away from the Buffalo Pasture than the Town's In-Town Well Field. Such Future Water Supply Well Field will allow for increases in Town groundwater production while minimizing any increase in effects on the Buffalo Pasture:

6.2.4.1. HOWELL WELL (RG-40450/RG-7339-S-5). As of May 30, 2006, the Town shall cease all groundwater diversions from the Howell Well and such well shall not be used for any groundwater diversions and consumption, except in the event of fire or other emergency, consistent with **Article 6.5.4**, or for routine maintenance. Because the Howell Well is connected to EPWSD's existing infrastructure, the Town shall consult with EPWSD before any such emergency use. The Town shall inform the Pueblo of the use in a timely written communication directed to the Governor.

6.2.4.2. BATAAN WELL. The Town shall apply to the State Engineer for a permit to transfer the seventy (70) AFY of consumptive use water rights presently permitted to the Howell Well to a replacement well ("Bataan Well") to be located in Kit Carson Park but which shall be constructed no nearer to Pueblo Lands than the Town's existing Kit Carson Well. Any such transferred production shall be offset and mitigated in accordance with applicable permit conditions. The State Engineer has sent a letter to the Town, included as **Attachment 9**, regarding use of the Glover-Balmer hydrologic model in the transfer evaluation. The Water Rights Owning Parties shall not protest any application for action that is consistent with the terms of that letter. The planning, permitting, NEPA compliance, design, engineering and construction of this well will include water lines, booster pump, lift stations, appropriate housing, arsenic treatment facilities, primary electrical lines, the purchase of land, and any other equipment and appurtenances required for arsenic treatment and water distribution from this well to the Town's municipal distribution system. Pumping from this well shall be from model layers 4 and 5 or below.

6.2.4.3. MITCHELL WELL (RG-7339-S-6). As of May 30, 2006, the Town shall cease all groundwater diversions from the Mitchell Well for purposes of the Town's municipal drinking water system. The Town may divert no more than ten (10) AFY from the Mitchell Well for non-potable water purposes, such as road construction, or routine maintenance. The Town may also use the Mitchell Well in the event of fire or other emergency, consistent with **Article 6.5.4**.

6.2.4.4. REPAYMENT OF RIO LUCERO OVER-DIVERSIONS. The Water Rights Owning Parties support the Town's repayment of its past Rio Lucero over-diversions in accordance with the following plan:

6.2.4.4.1. The Town shall continue to make no groundwater diversions from its Howell Well (RG-40450/RG-7339S-5) until such time as the Rio Lucero

surface water depletions that resulted from its previous over-diversions from that well are repaid.

6.2.4.4.2. To expedite such repayment, the Town may transfer forty-two (42) AFY of the one hundred twenty-eight and fifteen hundredths (128.15) AFY of water rights transfers now pending before the State Engineer, as described in **Article 6.2.3**, to the Howell Well subject to an express condition that such transferred amount shall be used solely for accumulating surface water depletion credit on the Rio Lucero and shall not be diverted from the Howell Well.

6.2.4.4.3. Once its Rio Lucero over-diversions are repaid, the Town may apply for the appropriate State Engineer permit to transfer any existing excess Rio Lucero water rights from the Howell Well and the In-Town Well Field to one or more of the wells in the Future Water Supply Well Field or the Taos Regional Airport Well. Such transferred Rio Lucero water rights shall serve to offset Rio Lucero depletion effects that the Settlement Model shows as resulting from the Town's Future Groundwater Diversions and shall be used in lieu of the use of the Mitigation Well System as otherwise would be required by **Article 7.3.3.1**.

6.2.5. FUTURE WATER SUPPLY WELL FIELD. To provide groundwater production capacity necessary to satisfy the Town's growing service obligations in a manner that will minimize effects on the Buffalo Pasture, the Town shall apply for appropriate State Engineer permits for four (4) deep wells farther from the Buffalo Pasture than the Town's current In-Town Well Field. While the Water Rights Owning Parties have agreed to certain waivers of protests, this Settlement Agreement does not impose any diversion or consumptive use limitations on these four new wells. The four deep water supply wells are identified as (1) the Rio Pueblo well; (2) the National Guard well; (3) the Camino del Medio well; and (4) the Klauer well, and will be located as shown in **Attachment 10**. The planning, permitting, NEPA compliance, design, engineering and construction of these water supply wells will include water lines, booster pumps, lift stations, appropriate housing, arsenic treatment facilities, primary electrical lines, the purchase of land, and any other equipment and appurtenances required for arsenic treatment and water distribution from these wells to the Town's municipal distribution system, except that construction of the Camino del Medio well shall not be included because that well has already been constructed. Interconnection of the Camino del Medio well to the Town's municipal water system is included. The offset of any surface water depletion effects which result from Future Groundwater Diversions from these wells shall be in accordance with **Article 7**. Pumping from these wells

shall be from model layers 6 and 7 except that up to twenty percent (20%) of the screen in the Rio Pueblo well may be in model layer 5.

6.2.6. TAOS REGIONAL AIRPORT WELL. The Town may file an application with the State Engineer for a well to be located at the Taos Regional Airport which shall divert not more than fifty (50) AFY. The Town shall seek no state or federal funding through this Settlement Agreement for its Taos Regional Airport Well. The offset of surface water depletion effects that result from such diversions shall be in accordance with **Article 7**.

6.2.7. DIVERSIONS FROM MIDWAY AND RIO GRANDE WELLS. The Town is authorized under this Settlement Agreement to apply to the State Engineer to divert a combined total of up to one hundred (100) AFY from the Midway and Rio Grande Wells that will be owned by EPWSD. A May 17, 2006 Bilateral Agreement between EPWSD and the Town sets forth their agreement in whole on this issue. The offset of surface water depletion effects that result from such diversions shall be in accordance with **Article 7**.

6.2.8. REPLACEMENT PRODUCTION CAPACITY. The Town's existing In-Town Well Field has potential capacity to produce two thousand six hundred (2,600) GPM for a continuous 96-hour period. The Town has agreed to limit production from its existing In-Town Well Field to one thousand one hundred (1,100) AFY (equivalent to 1,100 GPM sixty (60) percent of the time) for the benefit of the Buffalo Pasture. The Water Rights Owning Parties agree that the Town may replace its production capacity of one thousand five hundred (1,500) GPM with the Future Water Supply Well Field and the Taos Regional Airport Well. If the Future Water Supply Well Field and the Taos Regional Airport Well do not produce at least one thousand five hundred (1,500) GPM, combined for a continuous 96-hour period, the Water Rights Owning Parties agree to assist the Town in obtaining additional funding outside of this Settlement Agreement to provide replacement capacity. Nothing in this Article is intended to affect the Town's water rights or constitute a waiver not expressly stated in **Article 6.5.1**.

6.2.9. PUEBLO-TOWN MARKETING. Recognizing the benefit that could be achieved through a cooperative Marketing relationship, the Pueblo shall give the Town the first and timely written notification when it has water available for Marketing and to negotiate, in good faith, toward terms acceptable to both parties as to the possible lease or subcontract of such waters to the Town. Nothing herein shall be construed as limiting the Pueblo's ability to Market its waters to the extent to which it is entitled under the Settlement Act and **Article 5.5.1**.

6.2.10. SAN JUAN-CHAMA PROJECT WATER SERVICE CONTRACT CONVERSION. The Secretary has converted the Town's existing San Juan-Chama Project water service contract (Contract No. 2-07-53-X0552) for four hundred (400) AFY pursuant to 43 USC § 485h(c)(2) to a repayment contract pursuant to 43 USC § 485h(c)(1).

6.2.11. NEW SAN JUAN-CHAMA PROJECT REPAYMENT CONTRACT. In consideration for the Town's compromises in curtailing diversions from its existing wells and to provide for the public health, safety, and welfare, and as provided by section 508(b)(1)(B) of the Settlement Act the Secretary shall enter into a repayment contract with the Town that entitles the Town to delivery of three hundred sixty six (366) AFY of San Juan-Chama Project water.

6.2.12. FUTURE FUNDING. Nothing herein shall be construed as prohibiting the Town from pursuing future applications for funding to acquire additional water rights and infrastructure sufficient to meet its future needs.

6.3. EL PRADO WATER AND SANITATION DISTRICT.

6.3.1. PUMPING AND THE BUFFALO PASTURE. EPWSD recognizes the Buffalo Pasture's cultural and religious importance to the Pueblo. Therefore, consistent with **Article 3** of this Settlement Agreement, out of respect for this sensitive resource, and in the spirit of cooperation, EPWSD agrees to the following measures which are intended to limit groundwater diversions and consumption from EPWSD's three (3) existing wells that are located within the immediate vicinity of the Buffalo Pasture in exchange for funding construction of two (2) new wells to be located farther away from the Buffalo Pasture and acquisition of water rights consistent with **Articles 6.3.1.7** and **6.3.1.8**. These two new wells will allow EPWSD to provide groundwater for municipal, commercial, industrial, domestic, and mitigation purposes while minimizing any increase in effects on the Buffalo Pasture:

6.3.1.1. OVERLAND SHEEPSKIN WELL (RG-40450-S). The Overland Sheepskin Well, which is depicted in **Attachment 10**, is EPWSD's well that has the most immediate hydrologic effect on the Buffalo Pasture. Accordingly, it will be phased out of use. When the Rio Grande Well has been drilled and completed, the necessary infrastructure has been constructed to connect the Rio Grande and El Torreon Wells to EPWSD's existing system, and the State Engineer has issued all permits necessary for EPWSD to: (a) divert and consume one hundred-fifty (150) AFY from the El Torreon Well, which diversions shall not exceed the diversion schedule set forth in the May 30, 2006

Bilateral Agreement between EPWSD and the Pueblo, as amended; (b) divert and consume two hundred (200) AFY from the Rio Grande Well; and (c) offset all surface water depletion effects resulting from groundwater diversions set forth in the foregoing Subparts (a) and (b) of this **Article 6.3.1.1** and to mitigate any groundwater Impairment, then EPWSD shall limit diversions and consumption from the Overland Sheepskin Well to no more than two (2) AFY for the purpose of exercising and maintaining it for emergency purposes as set forth in **Article 6.5.4**. When the Overland Sheepskin Well, as presently drilled, is no longer capable of producing water, it shall go out of production and be plugged according to any applicable State Engineer rules and regulations or, alternatively, all equipment may be removed and the well may be used for monitoring. Until then, EPWSD reserves the right to maintain and repair the well, including replacing pumps, riser or column pipes, valves, chlorination equipment, wiring, electrical control equipment, and any other appurtenances necessary to keep the well operable.

6.3.1.2. EL TORREON WELL (RG-74803-Expl.). Because the El Torreon Well, as depicted on **Attachment 10**, is located in the immediate vicinity of the Buffalo Pasture, and consistent with the goals of restoring, preserving, and protecting the Buffalo Pasture, diversions from that well will be limited to substantially less than its production capacity. Accordingly, when either the Rio Grande or Midway Well has been drilled and completed, the necessary infrastructure has been constructed to connect either of those wells to EPWSD's existing system, and the State Engineer has issued all permits necessary for EPWSD to: (a) divert and consume two hundred (200) AFY from the Rio Grande Well or divert and consume one hundred fifty (150) AFY from the Midway Well; (b) divert and consume one hundred fifty (150) AFY from the El Torreon Well; and (c) offset all surface water depletion effects resulting from groundwater diversions set forth in the foregoing Subparts (a) and (b) of this **Article 6.3.1.2** and to mitigate any groundwater Impairment, then EPWSD shall limit diversions and consumption from the El Torreon Well to no more than one hundred fifty (150) AFY, which diversions shall not exceed the diversion schedule set forth in the Bilateral Agreement between EPWSD and the Pueblo.

6.3.1.3. LAS COLONIAS WELL (RG-40450-S-2). If production from the Las Colonias Well, as depicted in **Attachment 10**, is limited and additional pumping is moved closer to the Rio Grande, there will be reduced depletion effects on the Buffalo Pasture. Accordingly, diversions from this well will be limited to less than its production capacity. EPWSD shall file an application to increase its water rights in the Las Colonias Well from thirteen and five-tenths

(13.5) AFY to seventy-five (75) AFY. Any permit to increase water rights shall not authorize the Impairment of existing surface or groundwater rights. EPWSD shall limit its diversions and consumption from the Las Colonias Well to no more than seventy-five (75) AFY when the Midway Well has been drilled and completed, the necessary infrastructure has been constructed to connect that well to EPWSD's existing system, and the State Engineer has issued all permits necessary for EPWSD to: (a) divert and consume one hundred-fifty (150) AFY from the Midway Well; (b) divert and consume seventy-five (75) AFY from the Las Colonias Well; and (c) offset all surface water depletion effects resulting from groundwater diversions set forth in the foregoing Subparts (a) and (b) of this **Article 6.3.1.3** and to mitigate any groundwater Impairment.

6.3.1.4. RIO GRANDE WELL. To provide groundwater production capacity necessary to satisfy EPWSD's growing municipal, commercial, industrial, domestic, and mitigation obligations in a manner that will minimize effects on the Buffalo Pasture and to provide alternative production capacity in light of the groundwater diversion limits imposed on the El Torreon, Las Colonias, and Sheepskin Wells, EPWSD shall file an application with the State Engineer to divert and consume groundwater from a new well ("Rio Grande Well") located farther away from the Buffalo Pasture than the existing Sheepskin, Las Colonias, and El Torreon Wells and within two and one-half (2½) miles of the Rio Grande near the U.S. Highway 64 corridor to the Rio Grande Bridge. Specifically, the Rio Grande Well will be located within the model cell identified by row and column as (23, 13) in **Attachment 10**. The planning, permitting, NEPA compliance, design, and construction of the Rio Grande Well will include the well (pumping from layer 6 or below), pump, pump appurtenances, water lines, booster pumps and appropriate housing, lift stations, arsenic treatment facilities (where necessary), storage facilities, primary electrical lines, the purchase of land, and any other equipment and appurtenances required for arsenic treatment and water distribution from the Rio Grande Well to connect to EPWSD's municipal distribution system. While the Water Rights Owning Parties have agreed to certain waivers of protests described in **Article 6.5.1**, this Settlement Agreement does not impose any diversion or consumptive use limitations on the Rio Grande Well. Because the Rio Grande Well has not yet been drilled and its production capabilities are unknown, EPWSD may apply to the State Engineer for a permit to drill replacement or supplemental wells within a two (2) mile radius of the Rio Grande Well if the Rio Grande Well does not produce at least one thousand (1,000) GPM for a continuous ninety-six (96) hour period to replace a portion of EPWSD's production capacity limited by this Settlement Agreement,

notwithstanding the two and one-half (2½) mile limitation set forth immediately above. Under no circumstances will the Rio Grande Well, its replacement well, or wells supplemental thereto be located closer to Las Colonias than where the present Taos Landfill Road intersects U.S. Highway 64, as depicted in **Attachment 10**.

6.3.1.5. MIDWAY WELL. To provide groundwater production capacity necessary to satisfy EPWSD's growing municipal, commercial, industrial, domestic, and mitigation obligations in a manner that will minimize effects on the Buffalo Pasture and to provide alternative production capacity in light of the groundwater production limits imposed on the El Torreon, Las Colonias, and Sheepskin Wells, EPWSD shall file an application with the State Engineer to divert and consume groundwater from a new well ("Midway Well") located farther away from the Buffalo Pasture than EPWSD's existing wells and one and one-half (1½) miles west of the existing Las Colonias Well. Specifically the Midway Well will be within the model cells identified by row and column as cells (24,21), (24,22), (25,21), (25,22), and (25,23)in **Attachment 10**. The planning, permitting, NEPA compliance, design, and construction of the Midway Well will include the well (pumping from layers 5, 6, or below), pump, pump appurtenances, water lines, booster pumps and appropriate housing, lift stations, arsenic treatment facilities (where necessary), storage facilities, primary electrical lines, the purchase of land, and any other equipment and appurtenances required for arsenic treatment and water distribution from the Midway Well to connect to EPWSD's municipal distribution system. While the Water Rights Owning Parties have agreed to certain waivers of protests as described in **Article 6.5.1**, this Settlement Agreement does not impose any diversion or consumptive use limitations on the Midway Well. Because the Midway Well has not yet been drilled and its production capabilities are unknown, EPWSD may apply to the State Engineer for a permit to drill replacement or supplemental wells within a one (1) mile radius of the Midway Well if the Midway Well does not produce at least five hundred seventy-five (575) GPM for a continuous ninety-six (96) hour period to replace a portion of EPWSD's production capacity limited by this Settlement Agreement. Under no circumstances will the Midway Well, its replacement well, or wells supplemental thereto be located within one and one-half (1½) miles of EPWSD's existing Las Colonias Well or within one-half (½) mile of the Town's Airport Well.

6.3.1.6. REPLACEMENT PRODUCTION CAPACITY. EPWSD's existing wells have the potential capacity to produce one thousand eight hundred (1,800) GPM for a continuous ninety-six (96) hour period. Because EPWSD has agreed

to limit production from its existing wells to the average annual equivalent of two hundred twenty-five (225) GPM for the benefit of the Buffalo Pasture, EPWSD is seeking replacement capacity of one thousand five hundred seventy-five (1,575) GPM with the Rio Grande and Midway Wells. If the Rio Grande and Midway Wells do not produce at least one thousand five hundred seventy-five (1,575) GPM combined for a continuous ninety-six (96) hour period, the Water Rights Owning Parties agree to assist EPWSD in obtaining additional funding outside of this Settlement Agreement to provide replacement capacity. Nothing in this Article is intended to affect EPWSD's water rights or constitute a waiver not expressly stated in **Article 6.5.1**.

6.3.1.7. SAN JUAN-CHAMA PROJECT REPAYMENT CONTRACT. In consideration for EPWSD's compromises in curtailing diversions from its existing wells and to provide for the public health, safety, and welfare, and as provided by section 508(b)(1)(C) of the Settlement Act the Secretary shall enter into a repayment contract with EPWSD that entitles EPWSD to delivery of forty (40) AFY of San Juan-Chama Project water.

6.3.1.8. WATER RIGHTS ACQUISITION. Subject to the dollar limit in **Article 10.1.2.2**, the State shall provide funds to EPWSD as necessary for: (a) acquisition of up to one hundred (100) AFY of consumptive use water rights from the Rio Grande or its tributaries, exclusive of water rights acquired with money appropriated by the 2005 New Mexico Legislature; (b) all administrative, technical, and legal costs and fees associated with such acquisition, inclusive of such costs and fees for water rights acquired with money appropriated by the 2005 New Mexico Legislature; (c) all administrative, technical, and legal costs and fees associated with transferring those water rights; and (d) all necessary permits. The one hundred (100) AFY of consumptive use water rights may be acquired and transferred in one or multiple transactions. EPWSD intends to acquire these water rights on the Rio Grande and will acquire such water rights on the tributaries only if the Mitigation Well System described at **Article 7.3.3.1** does not adequately mitigate EPWSD's tributary impacts.

6.3.2. TREATMENT OF CLAIMED PAST OVER-DIVERSIONS. The State Engineer has sent a letter to EPWSD, included as **Attachment 11** regarding methods acceptable to the State Engineer to pay back claimed over-diversions by EPWSD from permitted wells. The Water Rights Owning Parties shall not protest any payback action or application for such action that is consistent with the terms of that letter.

6.3.3. FUTURE FUNDING. Nothing herein shall be construed as prohibiting future EPWSD applications for funding to acquire additional water rights and infrastructure sufficient to meet its future needs.

6.4. TAOS AREA MUTUAL DOMESTIC WATER CONSUMER ASSOCIATIONS.

6.4.1. CURRENT DIVERSIONS. The Water Right Owning Parties agree that the twelve MDWCAs have the right to operate and maintain in perpetuity their existing groundwater diversions as described in and subject to their respective Subfile Orders and State Engineer permits, set forth in Table 6 below, for community domestic water supply purposes. With respect to those current diversions, the Water Rights Owning Parties further agree that no additional surface water depletion offsets shall be required so long as the MDWCAs comply with their respective permits. Any MDWCA diversions in excess of current diversions shall be subject to all mitigation and offset requirements under **Article 7**.

Table 6	
MDWCA	***Current Diversions***
Arroyo Seco MDWCA	120.00 AFY
Cañon MDWCA	58.34 AFY
El Salto MDWCA	25.66 AFY
Llano Quemado MDWCA	58.31 AFY
Lower Arroyo Hondo MDWA	24.30 AFY
Lower Des Montes MDWCA	23.02 AFY
Ranchos de Taos MDWCA	105.00 AFY
Talpa MDWCA	64.48 AFY
Upper Arroyo Hondo MDWA	26.60 AFY
Upper Des Montes MDWCA	17.76 AFY
Upper Ranchitos MDWCA	18.15 AFY
Valdez MDWCA	11.50 AFY
Total	**553.12 AFY**

6.4.2. CONSENT ORDERS. Validly executed Consent Orders finally adjudicating the water rights of the twelve (12) MDWCAs have been filed in the Adjudication. The adjudicated amounts for each of the 12 MDWCAs are as set forth in Table 7 below:

Table 7	
MDWCA	***Adjudicated Amount***
Arroyo Seco MDWCA	120.00 AFY
Cañon MDWCA	58.34 AFY
El Salto MDWCA	16.33 AFY
Llano Quemado MDWCA	42.11 AFY
Lower Arroyo Hondo MDWA	24.30 AFY
Lower Des Montes MDWCA	21.59 AFY
Ranchos de Taos MDWCA	105.00 AFY

Table 7	
MDWCA	***Adjudicated Amount***
Talpa MDWCA	64.48 AFY
Upper Arroyo Hondo MDWA	26.60 AFY
Upper Des Montes MDWCA	9.07 AFY
Upper Ranchitos MDWCA	18.15 AFY
Valdez MDWCA	11.50 AFY
Total	**517.47 AFY**

6.4.3. DIVERSIONS PURSUANT TO PERMIT. The letter from the State Engineer attached to this Settlement Agreement as **Attachment 12** describes certain previously issued permits and diversion amounts, which amounts equal thirty-five and sixty-five hundredths (35.65) AFY for El Salto, Llano Quemado, Lower Des Montes, and Upper Des Montes. These permitted diversions are separate from the adjudicated water rights described in **Article 6.4.2**.

6.4.4. WATER RIGHTS ACQUISITION. Subject to the dollar limit in **Article 10.1.4.1**, the State shall provide funds to the eleven (11) water rights acquiring MDWCAs listed in Table 8 below (those with non-zero entries in the column labeled "Water Rights to Be Acquired") as necessary for: (a) acquisition of up to one hundred forty-five (145) AFY of consumptive use water rights from the Rio Grande or its tributaries; (b) all administrative, technical, and legal costs and fees associated with such acquisition; (c) all administrative, technical, and legal costs and fees associated with transferring those water rights; and (d) all necessary permits. The allocation of water rights acquired with these funds shall be as described in Table 8 below. In the event that this funding is insufficient to acquire the full one hundred forty-five (145) AFY of consumptive use water rights, allocation of the acquired water rights shall be *pro rata* among the same said eleven (11) MDWCAs according to Table 8 below. The one hundred forty-five (145) AFY may be acquired and transferred in one or multiple transactions. The MDWCAs intend to acquire these water rights on the Rio Grande and will acquire such water rights on the tributaries only if the Mitigation Well System described in **Article 7.3.3.1** does not adequately mitigate MDWCA tributary impacts.

Table 8	
MDWCA	***Water Rights to be Acquired***
Arroyo Seco MDWCA	0.00 AFY
Cañon MDWCA	21.81 AFY
El Salto MDWCA	14.24 AFY
Llano Quemado MDWCA	40.39 AFY
Lower Arroyo Hondo MDWA	4.75 AFY
Lower Des Montes MDWCA	8.13 AFY

Table 8	
MDWCA	***Water Rights to be Acquired***
Ranchos de Taos MDWCA	3.50 AFY
Talpa MDWCA	28.62 AFY
Upper Arroyo Hondo MDWA	2.02 AFY
Upper Des Montes MDWCA	11.64 AFY
Upper Ranchitos MDWCA	7.40 AFY
Valdez MDWCA	2.50 AFY
Total	**145.00 AFY**

6.4.5. FUTURE FUNDING. Nothing herein shall be construed as prohibiting future MDWCA applications for funding to acquire additional water rights or infrastructure sufficient to meet their future needs.

6.5. **GENERAL.**

6.5.1. PERMITTING WAIVERS. Because the infrastructure and projects identified in **Articles 6** and **7** are for the mutual benefit of the Parties and are consideration for this Settlement Agreement, the Water Rights Owning Parties agree to the following waivers of protests, objections, or opposition in any manner.

6.5.1.1. CONSTRUCTION AND OPERATION PERMITS. The Water Rights Owning Parties shall waive any and all protests, objections, or opposition in any manner to the issuance of permits that are consistent with this Settlement Agreement and that are necessary for the construction and operation of the projects identified in this **Article 6.5.1**, including any required New Mexico Environment Department permits.

6.5.1.2. WATER RIGHTS PERMITS. The Water Rights Owning Parties shall not oppose, interfere with, delay, or deny any application or proposal to transfer water rights, and shall waive any and all protests, objections, or opposition in any manner to applications filed with the State Engineer for permits that are consistent with this Settlement Agreement and that are necessary for the following water rights actions:

6.5.1.2.1. TOWN ACTIONS.

6.5.1.2.1.1. An application or applications to divert and consume up to eight hundred (800) AFY from the Town's Future Water Supply Well Field, so long as tributary surface water depletion effects are offset by the Buffalo Pasture Recharge Project, the Mitigation Well System, and

transfers to offset Rio Lucero depletion effects as provided in **Article 6.2.4.4.3**, and so long as Rio Grande effects are offset, all as provided in this Settlement Agreement;

6.5.1.2.1.2. The change in point of diversion for up to seventy (70) AFY of consumptive-use water rights from the Howell Well (RG-40450/RG-7339-S-5) to the Bataan Well, so long as surface water depletion effects are offset and any Impairment of existing water rights is mitigated; and

6.5.1.2.1.3. An application or applications to divert and consume from the Town's In-Town Well Field up to the one thousand one hundred (1,100) AFY diversion ceiling described in **Article 6.2.2.1**, so long as surface water depletion effects are offset and any Impairment of existing groundwater rights is mitigated.

6.5.1.2.1.4. An application or applications to change the point of diversion of any existing excess Rio Lucero water rights on its Howell Well or In-Town Well Field to one or more of the wells in its Future Water Supply Well Field or the Taos Regional Airport Well, so long as surface water depletion effects are offset and any Impairment of existing groundwater rights is mitigated.

6.5.1.2.2. EPWSD ACTIONS.

6.5.1.2.2.1. An application or applications to divert and consume up to two hundred (200) AFY from the Rio Grande Well;

6.5.1.2.2.2. An application or applications to divert and consume up to one hundred fifty (150) AFY from the Midway Well;

6.5.1.2.2.3. An application or applications to divert and consume up to one hundred fifty (150) AFY from the El Torreon Well;

6.5.1.2.2.4. An application or applications to divert and consume up to seventy-five (75) AFY from the Las Colonias Well;

6.5.1.2.2.5. An application or applications to divert and consume up to thirty (30) AFY from the Sheepskin Well, which shall then be phased out of use in accordance with **Article 6.3.1.1**; and

6.5.1.2.2.6. An application or applications to offset all surface water depletion effects resulting from groundwater diversions set forth in **Articles 6.5.1.2.2.1** through **6.5.1.2.2.6** and to mitigate any groundwater Impairment.

6.5.1.2.3. ACEQUIA ACTIONS.

6.5.1.2.3.1. An application or applications to change the place, purpose of use, and point of diversion of up to one hundred (100) AFY of consumptive-use water rights to be diverted for the Arroyo Seco Arriba Project, so long as diversions are allowed only in accordance with **Article 6.1.1**. The Pueblo's waiver of protest relating to the ASR Project is conditioned on the Settlement Model's showing that its operation will cause no Buffalo Pasture Depletions. In the event the Settlement Model shows such depletions the Pueblo and TVAA shall negotiate a resolution.

6.5.1.2.3.2. An application or applications to change the place, purpose of use, and point of diversion of up to twenty (20) AFY of consumptive use water rights for irrigation or livestock use storage by the Upper and Lower Manuel Andreas Trujillo ditches.

6.5.1.2.4. MDWCA ACTIONS. Applications to divert and consume up to one hundred forty-five (145) AFY of consumptive use water rights for eleven (11) Mutual Domestic Water Consumer Associations, as described in Table 8 in **Article 6.4.4**, so long as surface water depletion effects are offset and any Impairment of existing groundwater rights is mitigated.

6.5.1.2.5. JOINT ACTIONS. The use of the Mitigation Well System to offset Taos Valley Tributary surface water depletion effects resulting from groundwater diversions specified in **Article 7.3.3.1.5** and **7.3.3.1.10**.

6.5.1.2.6. GENERAL ACTIONS. Upon the execution of an agreement to allocate additional capacity in the Mitigation Well System as set forth in **Article 7.3.3.1.11**, any application or applications to divert and consume groundwater over and above the quantities set forth in **Article 7.3.3.1.10** as long as such application or applications are consistent with such agreement to allocate additional capacity and the Buffalo Pasture Recharge Project and the Mitigation Well System are specified as the means for offsetting surface water depletion effects.

6.5.1.3. GENERAL LIMITATION ON WAIVER. The waivers set forth above extend only as far as the subject applications are in accordance with the terms of this Settlement Agreement.

6.5.1.4. PUBLIC WELFARE AND CONSERVATION OF WATER. The Water Rights Owning Parties agree that implementation of the projects identified in **Articles 6** and **7.3.3.1** will promote the public welfare and not be contrary to the conservation of water within the State.

6.5.1.5. ADMINISTRATIVE DISCRETION. Nothing herein shall be construed as limiting administrative discretion in acting on any application within the scope of this **Article 6.5.1**.

6.5.2. FOOTPRINT QUANTITY TRANSFERS. Subject to the other provisions of this Settlement Agreement, the Water Rights Owning Parties shall waive protests to any future transfer of surface water rights from the footprint of any structure permanently affixed to the ground to a mutual domestic water consumer association, a water and sanitation district, the Town, or other provider of municipal water service. Such waivers shall only apply to those transfers for purposes of the transferor's connection to the transferee's water distribution system. Such waivers shall only apply to transfers of no more than thirty-eight hundredths (0.38) AFY per footprint.

6.5.3. REPLACEMENT, SUPPLEMENTAL, OR DEEPENED WELLS. Unless otherwise specifically provided in this Article, nothing in this Settlement Agreement shall be construed as limiting or preventing any Party from applying to the State Engineer for a permit or permits to replace, supplement, or deepen any well provided for in this **Article 6**.

6.5.3.1. RIO GRANDE AND MIDWAY WELLS. No Water Rights Owning Party will protest any EPWSD application to replace, supplement, or deepen its proposed Rio Grande or Midway Wells with a well or wells proposed to be located within one thousand (1,000) feet of the then-existing Rio Grande and Midway Well locations and in a manner otherwise consistent with **Articles 6.3.1.4**, **6.3.1.5**, and **11.2.2**.

6.5.3.2. EL TORREON WELL. No Water Rights Owning Party shall protest any EPWSD application to replace, supplement, or deepen its El Torreon Well with a well proposed to be located within one thousand (1,000) feet of the present well location. The El Torreon Well shall under no circumstances be

replaced or supplemented in a manner that would increase Buffalo Pasture Depletions as simulated by the Settlement Model.

6.5.3.3. LAS COLONIAS WELL. No Water Rights Owning Party shall protest any EPWSD application to replace, supplement, or deepen its Las Colonias Well with a well proposed to be located within one thousand (1,000) feet of the present well location. The Las Colonias Well shall, under no circumstances, be replaced or supplemented in a manner that would increase its surface water depletion effects on the Arroyo Seco or cause groundwater Impairment as simulated by the Settlement Model.

6.5.3.4. EXISTING TOWN WELLS. No Water Rights Owning Party shall protest any Town application to replace, supplement, or deepen any of its existing wells (except the Howell or Mitchell Wells) unless the Settlement Model shows such replacement, supplemental, or deepened well would increase Buffalo Pasture Depletions. Such replacement or supplemental wells shall be drilled within one hundred (100) feet of the present well locations and in a manner otherwise consistent with **Article 11.2.2**.

6.5.3.5. BATAAN WELL. No Water Rights Owning Party shall protest any Town application to replace, supplement, or deepen its Bataan Well specified in **Articles 6.2.4.2** unless the Settlement Model shows such replacement, supplemental, or deepened well would increase Buffalo Pasture Depletions or surface water depletions on the Rio Fernando de Taos or Rio Pueblo de Taos. Such replacement or supplemental well shall be drilled within one hundred (100) feet of the future well location and in a manner otherwise consistent with **Article 11.2.2**.

6.5.3.6. TOWN'S FUTURE WATER SUPPLY WELL FIELD. No Water Rights Owning Party shall protest any Town application to replace, supplement, or deepen any of its four new future water supply wells unless the Settlement Model shows such replacement, supplemental, or deepened well would increase Buffalo Pasture Depletions or surface water depletion effects that the Settlement Model simulates for the following Stream Segments: Upper Rio Grande del Rancho, Lower Rio Grande del Rancho, Rio Pueblo de Taos C, Rio Pueblo de Taos D, and Rio Pueblo de Taos E. Such replacement or supplemental wells shall be drilled within one thousand (1,000) feet of the present well locations and in a manner otherwise consistent with **Article 11.2.2**.

6.5.3.7. MITIGATION WELLS. No Water Rights Owning Party shall protest any application to replace, supplement, or deepen any of the five (5) wells that

comprise the Mitigation Well System described in **Articles 7.3.3.1.9.1** through **7.3.3.1.9.5**. Unless otherwise agreed pursuant to **Article 7.3.3.1.9**, replacement, supplemental, or deepened wells shall be drilled within two hundred (200) feet of the then-existing well location and otherwise shall be located in a manner that will not increase Buffalo Pasture Depletions as simulated by the Settlement Model.

6.5.3.8. ARROYO SECO ARRIBA ASR WELLS. No Water Rights Owning Party shall protest any application by the Acequia Madre del Rio Lucero y del Arroyo Seco to replace, supplement, or deepen the Arroyo Seco Arriba ASR Project with a well proposed to be located within two hundred (200) feet of the proposed well locations as depicted on **Attachment 10** unless the Settlement Model shows such replacement, supplemental, or deepened well would cause Buffalo Pasture Depletions.

6.5.3.9. EXISTING MDWCA WELLS. No Water Rights Owning Party shall protest any MDWCA application to replace, supplement, or deepen any MDWCA well existing as of May 30, 2006 with a well proposed to be located within two hundred (200) feet of the well location unless the Settlement Model shows such replacement, supplemental, or deepened well would increase Buffalo Pasture Depletions.

6.5.4. EMERGENCY GROUNDWATER PRODUCTION. Notwithstanding other provisions of this **Article 6**, the Water Rights Owning Parties recognize the right of the Town, EPWSD, and the MDWCAs to groundwater diversions from their wells as may be necessary in the event of fire or other emergency that poses a threat to the public health, safety, or welfare.

7. OFFSET OF SURFACE WATER DEPLETION EFFECTS AND MITIGATION OF IMPAIRMENT TO GROUNDWATER RIGHTS.

7.1. OFFSETS AND MITIGATION.

The surface waters of the Taos Valley are fully appropriated. Therefore, unless specifically set forth to the contrary herein, the Parties must offset their surface water depletion effects on the Buffalo Pasture, Rio Grande Segment, and Taos Valley Tributaries that result from their Future Groundwater Diversions. In addition, the Parties must mitigate any Impairment of existing groundwater rights that result from their Future Groundwater Diversions. Each Party's annual surface water depletion effects and groundwater effects that result from their Future Groundwater Diversions shall be calculated using the Settlement Model. The Parties will not be

liable or obligated for any instream flow protection so long as they offset their surface water depletion effects resulting from their Future Groundwater Diversions as set forth in **Article 7**.

7.2.**SETTLEMENT MODEL.**

A properly calibrated numerical groundwater flow model that reasonably reflects the hydrogeology of an area can be an appropriate tool for calculating surface water depletions and groundwater level changes from past and proposed groundwater diversions. The State Engineer, in cooperation with the other Parties, has developed such a model for the Taos Valley. This Settlement Model, which is fully documented in **Attachment 3**, represents the Taos Valley Stream System and can be used to calculate the surface water depletion effects on the Rio Grande Segment, Taos Valley Tributaries, and the Buffalo Pasture that have been or will be caused by any Taos Valley groundwater diversions. It can also be used to simulate groundwater level declines associated with those groundwater diversions. The Settlement Model has been reviewed by all Parties and has been accepted by them for purposes of this Settlement Agreement.

7.2.1. USE OF SETTLEMENT MODEL. The annual surface water depletion effects of each Party's Future Groundwater Diversions shall be simulated with the Settlement Model using the Party's actual annual diversion amounts and actual well locations. Surface water depletion offsets required under this Settlement Agreement shall be calculated using a superposition application of the Settlement Model in which the simulated effects on evapotranspiration caused by Future Groundwater Diversions have been distributed to the Taos Valley Tributaries and 35% of the tributary offsets required on the Rio Pueblo de Taos Stream Segments A through D and on the Upper and Lower Rio Lucero Stream Segments shall be offset by use of the Buffalo Pasture Recharge Project.

7.2.2. PROCEDURE TO UPDATE SETTLEMENT MODEL. The following procedures shall control any updates of the Settlement Model.

7.2.2.1. NOTICE OF PROPOSED UPDATE. If any Party seeks to update the Settlement Model, they shall notify all Parties in writing that they are invoking this Settlement Model update procedure.

7.2.2.2. INFORMATION. The Party proposing the update shall provide the following to all Parties:

7.2.2.2.1. a written description of and justification for the proposed update, and

7.2.2.2.2. the modified model input files.

7.2.2.3. COMMENTS AND OBJECTIONS. All Parties will have ninety (90) days to evaluate the materials supporting the proposed update, request and evaluate additional materials if necessary, and submit written comments and objections to the proposing Party and the other Parties. If no response is received from a Party within this time period, it will be assumed that the proposed update is acceptable to that Party.

7.2.2.4. PROCESS AFTER COMMENT PERIOD. Following the 90-day comment period:

7.2.2.4.1. If no objections are raised, the State Engineer shall approve the proposed update to the Settlement Model. Upon the State Engineer's approval of the proposed update, the State Engineer shall provide to all Parties copies of the amended model and the associated model documentation.

7.2.2.4.2. If objections are raised, the Party proposing the update shall attempt to address these objections to the satisfaction of all Parties. If necessary, a revised proposed model with documentation shall be distributed to all Parties, and a second round of comments shall be solicited, subject to the same time limit established in **Article 7.2.2.3**.

7.2.2.5. TECHNICAL COMMITTEE. In the event comments and objections cannot be resolved during a second round of comments, a technical committee composed of experts designated by each Party that chooses to participate ("Technical Committee") shall be convened to address the unresolved comments and objections.

7.2.2.5.1. The Technical Committee shall have sixty (60) days to resolve all comments and objections using a process agreeable to all members. The results of the Technical Committee's deliberations shall be summarized in a written report. If the Technical Committee is unable to reach consensus on all objections and comments to the proposed update, then the Committee's report shall indicate the areas of disagreement and afford all Parties the opportunity to explain why their objections or comments have not been resolved.

7.2.2.5.2. At the conclusion of the Technical Committee's deliberations, the Committee's report and recommendation regarding the proposed update shall be submitted to the State Engineer for action. All Parties shall be afforded the opportunity to fully present their positions to the State

Engineer. The State Engineer shall approve the proposed update if: (a) there is unanimous agreement among the Technical Committee, or (b) adoption of the proposed update would significantly enhance the utility of the Settlement Model in the administration of water rights, including the determination of Impairment to existing water rights and the determination of offsets necessary to prevent Impairment. Upon the State Engineer's approval of the proposed update, the State Engineer shall provide to all Parties copies of the amended model and the associated model documentation.

7.2.3. PERIODIC REVIEW OF SETTLEMENT MODEL. No less than five (5) years after the Enforcement Date or the date of approval of any update to the Settlement Model, the State Engineer shall notify the Water Rights Owning Parties that a Technical Committee, as described in **Article 7.2.2.5**, shall convene to consider whether the Settlement Model should be updated. The Technical Committee's written report and recommendation shall be forwarded to the State Engineer consistent with **Article 7.2.2.5.2**.

7.3. OFFSETS OF SURFACE WATER DEPLETION EFFECTS.

The methods identified in **Articles 7.3.1**, **7.3.2**, and **7.3.3** are intended to offset surface water depletion effects as required by **Article 7.1**.

7.3.1. BUFFALO PASTURE MITIGATION. The Buffalo Pasture is an important Pueblo cultural resource. However, because of the location of wells in the Taos Valley, the Buffalo Pasture is affected by groundwater diversions, and due to the nature of the Buffalo Pasture, existing State Engineer permitting requirements cannot offset effectively the Buffalo Pasture Depletions resulting from groundwater diversions made from points of diversion located outside of Pueblo Lands. Furthermore, the Mitigation Well System described in **Article 7.3.3.1** is neither designed nor intended to deliver waters to the Buffalo Pasture. The Parties, therefore, agree to the following mechanisms to offset Buffalo Pasture Depletions and achieve the goals identified in **Article 5.3.2**.

7.3.1.1. BUFFALO PASTURE RECHARGE PROJECT. The Pueblo shall design, construct, and operate the Buffalo Pasture Recharge Project to offset surface water depletion effects on the Buffalo Pasture and to ensure that the goals of restoring, preserving, and protecting this resource are achieved.

7.3.1.2. DIVERSION OF RECHARGE WATERS. The Pueblo may divert surface waters from the Rio Pueblo de Taos in an amount not to exceed one

thousand (1,000) AFY from October 1 through March 15 of the following year for purposes of the Buffalo Pasture Recharge Project. Such diversions shall be measured and shall not be made in a manner detrimental to downstream surface water rights. Such diversion shall not constitute a water right, is independent of the Pueblo's water rights described in **Article** 5, and shall be subject to the provisions of **Article 7.3.1.4**.

7.3.1.3. RECHARGE FACILITIES. Recharge waters shall be diverted into recharge facilities for purposes of restoring and maintaining the surface and shallow groundwater systems on which the Buffalo Pasture depends. The recharge facilities will include a series of recharge ponds, a water distribution network consisting of ditches and pipelines, and a monitoring system.

7.3.1.4. BUFFALO PASTURE RECHARGE PROJECT; OFFSET OF DEPLETION EFFECTS. Each Water Rights Owning Party shall provide offsets on the Rio Grande equal to 100% of its portion of Buffalo Pasture Depletions that is offset by the Buffalo Pasture Recharge Project. In addition, to offset the effects of changes in the timing of surface flows, that Water Rights Owning Party shall provide offsets on the Rio Grande equal to 11.1% of its portion of Buffalo Pasture Depletions that is offset by the Buffalo Pasture Recharge Project. Subject to the Rio Grande depletion credit provided for in **Article 5.3.4**, the Pueblo shall provide offsets to the Rio Grande equal to 11.1% of any diversions made into the Buffalo Pasture Recharge Project in excess of what is required to offset all Buffalo Pasture Depletions. Any evapotranspiration depletions associated with any Pueblo expansion of the Buffalo Pasture shall be offset by the Pueblo on the Rio Grande or, in the alternative, in any other manner consistent with an intergovernmental agreement approved by the State and the Pueblo. The sources of offsets, timing of offsets, and legal control of the sources of offsets set forth in this **Article 7.3.1.4** shall be accomplished as set forth in **Articles 7.3.2.3, 7.3.2.4,** and **7.3.2.5**.

7.3.1.5. BUFFALO PASTURE MITIGATION IN LIEU OF RECHARGE PROJECT.

7.3.1.5.1. EPWSD MITIGATION. For any period of time during which the Buffalo Pasture Recharge Project: (a) is not operational; or (b) fails to offset Buffalo Pasture Depletions as agreed between EPWSD and the Pueblo, and provided that the El Torreon Well is operational, has water rights, and is connected to EPWSD's water supply system, EPWSD shall provide a quantity of water to the Pueblo in an amount equal to the quantity

of water that the Settlement Model simulates as the Buffalo Pasture Depletions resulting from EPWSD's actual groundwater diversions. All deliveries of water to the Pueblo pursuant to this Article shall be made in a mutually agreed upon time, place, and manner. If necessary to provide efficient delivery, EPWSD and the Pueblo shall work together to obtain funding for infrastructure related to such deliveries.

7.3.1.5.2. TOWN MITIGATION. Notwithstanding the waivers of protest in **Article 6.5.1.2.1.3**, if by September 30, 2017 the Buffalo Pasture Recharge Project cannot offset or otherwise mitigate Buffalo Pasture Depletions resulting from the future increases in Taos Valley groundwater production, the Town shall be obligated under **Article 7.1** to offset Buffalo Pasture surface water depletion effects that the Settlement Model simulates as resulting from diversions of groundwater from the In-Town Well Field in excess of nine hundred forty-two and thirteen hundredths (942.13) AFY. Upon agreement with the Pueblo, the Town may offset those depletions by one or more methods as follows: (a) reconfiguring diversions within the In-Town Well Field to reduce surface water depletion effects on the Buffalo Pasture; (b) transferring water rights from the In-Town Well Field to the Town's Future Water Supply Well Field in order to reduce surface water depletion effects on the Buffalo Pasture and reducing the diversion ceiling specified at **Article 6.2.2.1** by an amount equal to the transferred amount; (c) providing a quantity of water to the Pueblo equal to such surface water depletion effects on the Buffalo Pasture; or (d) any other mutually acceptable means for reducing the Town's hydrologic effects on the Buffalo Pasture.

7.3.1.6. BUFFALO PASTURE RECHARGE PROJECT COSTS. The design, construction, operation, maintenance, and replacement of the Buffalo Pasture Recharge Project shall be funded through the Taos Pueblo Water Development Fund provided for in **Article** 9 and section 505 of the Settlement Act. All of the Parties agree to support the Pueblo's acquisition of sufficient funding for the design, construction, and operation of the Buffalo Pasture Recharge Project.

7.3.1.7. INTERGOVERNMENTAL COOPERATION. The Pueblo, the United States, and the State shall consult and cooperate and, to the extent feasible, coordinate technical resources for the development and improvement of mechanisms to restore, preserve, and protect the Buffalo Pasture.

7.3.2. RIO GRANDE OFFSETS. Offsets to depletions on the Rio Grande required by **Article 7.1** shall be accomplished as provided in this **Article 7.3.2**.

7.3.2.1. OFFSET OF DIRECT EFFECTS. For each Water Rights Owning Party's surface water depletion effects that result from its Future Groundwater Diversions as simulated by the Settlement Model in the Stream Segments of the Settlement Model that are:

7.3.2.1.1. designated as Rio Grande or Rio Pueblo de Taos E, that Water Rights Owning Party shall provide offsets to the Rio Grande equal to 100% of their effects; and

7.3.2.1.2. designated as Lower Rio Hondo, that Water Rights Owning Party shall provide offsets to the Rio Grande or the Lower Rio Hondo equal to 100% of their effects.

7.3.2.2. OFFSET OF DEPLETION EFFECTS SHIFTED TO THE RIO GRANDE SEGMENT. The intended effect of using the Buffalo Pasture Recharge Project and the Mitigation Well System will be to offset surface water depletion effects on the Buffalo Pasture and Taos Valley Tributaries, respectively, as well as additional effects resulting from the withdrawal of groundwater for mitigation purposes, and to shift depletion effects to the Rio Grande Segment. One effect of the ASR Project will also be to shift depletion effects to the Rio Grande Segment. The Town, EPWSD, MDWCAs, and Pueblo shall each be responsible for offsetting their proportionate share of those shifted surface water depletion effects, which effects may vary annually depending on the quantity and location of groundwater actually diverted. The ASR Project shall not be operated to cause depletions greater than one hundred (100) AFY. The Rio Grande Segment depletions that will result from the ASR Project shall be offset by acquisition of one hundred (100) AFY in accordance with **Article 6.1.2**. The offset of surface water depletion effects shifted to the Rio Grande Segment by the Buffalo Pasture Recharge Project shall be accomplished as set forth in **Article 7.3.1** and offset of surface water depletion effects shifted to the Rio Grande Segment by the Mitigation Well System and ASR Project shall be accomplished as set forth in **Article 7.3.3**.

7.3.2.3. SOURCES OF OFFSETS. For all Rio Grande Segment depletion effects required to be offset by **Article 7.1**, offsets may be made by:

7.3.2.3.1. change of point of diversion of Rio Grande water rights;

7.3.2.3.2. delivery of San Juan-Chama Project or other imported water into the Rio Grande at or above the confluence of the Rio Chama and the Rio Grande; or

7.3.2.3.3. delivery of water into the Rio Grande or a tributary pursuant to any other method approved by the State Engineer.

7.3.2.4. TIMING OF OFFSETS. For all Rio Grande Segment offsets required by **Article 7.1**, offsets for each calendar year shall be provided in full not later than May 15 of the following year.

7.3.2.5. LEGAL CONTROL OF SOURCES OF OFFSETS. With respect to Future Groundwater Diversions, a Water Rights Owning Party shall have legal control of sources of offsets in an amount not less than its total reasonably anticipated annual diversions prior to commencing those diversions. Nothing in this **Article 7.3.2.5** shall affect the obligation of any Party to provide offsets in the full amounts required by **Article 7.1**.

7.3.3. TAOS VALLEY TRIBUTARY OFFSETS.

7.3.3.1. MITIGATION WELL SYSTEM.

7.3.3.1.1. IN GENERAL. A system of mitigation wells shall be the preferred method for providing offsets for the Water Rights Owning Parties' Tributary Depletions resulting from Future Groundwater Diversions. These wells will balance the interests of supporting continued acequia irrigation and allowing for flexibility in the delivery of municipal water. The Town, EPWSD, and MDWCAs agree to use the Mitigation Well System to offset at least fifty (50) percent of their Tributary Depletions resulting from all of their respective Future Groundwater Diversions. This commitment is not intended to impose undue burdens upon the Town, EPWSD, or the MDWCAs in connection with the permitting of transfers linked to use of the Mitigation Well System, while at the same time limiting the acquisition of acequia water rights for offset purposes.

7.3.3.1.2. EXCLUSION OF CERTAIN WATER RIGHTS FROM 50% CALCULATION.

7.3.3.1.2.1. With respect to EPWSD, the following shall be excluded from the 50% calculation referenced in **Article 7.3.3.1.1**: (a) existing permitted water rights; and (b) water rights owned but not permitted, up to 23 AFY on the Rio Lucero and 2 AFY on the Rio Pueblo. The water rights that are excluded under (a) and (b) above are those that exist as of January 1, 2006.

7.3.3.1.2.2. Footprint transfers to the Town, EPWSD, or the MDWCAs pursuant to **Article 6.5.2** shall be counted toward the 50% calculation unless they are the subject of a protest by a non-Party, in which case they shall not count toward the 50%.

7.3.3.1.3. AGREEMENT TO RESOLVE UNDUE PERMITTING BURDEN. In light of uncertainty related to permitting requirements that may be imposed in the future by the State Engineer in connection with footprint transfers pursuant to **Article 6.5.2**, the Town, EPWSD, MDWCAs, and TVAA agree that, in the event such requirements appear to the Town, EPWSD, or the MDWCAs to impose undue burdens, they will jointly address and resolve concerns related to future footprint transfers and the 50% calculation. This agreement includes a commitment to use mediation in the event the Town, EPWSD, the MDWCAs, and TVAA are unable to reach a mutually acceptable resolution within 90 days of such concerns being brought to their attention.

7.3.3.1.4. NO IMPAIRMENT OF EXISTING RIGHTS. No transfer of water rights shall Impair existing water rights.

7.3.3.1.5. Five (5) wells shall be developed, completed, and equipped with pumps, necessary appurtenances, and connections to Acequias, tributary streams, and MDWCAs. The wells would be located as shown in **Attachment 10** and pursuant to **Article 7.3.3.1.9**. The project includes design, planning, permitting, site purchase, NEPA clearance, wells, pumps, pump appurtenances, pipelines, appropriate housing, electrical lines, and arsenic treatment if required for the wells listed below.

Well	Operator
A – Rio Hondo	Upper Arroyo Hondo MDWCA
B – Rio Lucero/Rio Pueblo de Taos	Upper Ranchitos MDWCA
C – Rio Fernando de Taos	Town of Taos
D – Rio Grande del Rancho	Llano Quemado MDWCA
E – Rio Chiquito	Acequia Madre del Rio Chiquito

These wells, all of which will be located outside of Pueblo Lands, shall divert from model layer 5 or below and shall be operated to offset Tributary Depletions resulting from those Future Groundwater Diversions described in **Article 7.3.3.1.10**.

7.3.3.1.6. The Acequia Madre del Rio Lucero y del Arroyo Seco shall operate the ASR wells described in **Article 6.1.1** in part as a mitigation well to offset Arroyo Seco surface water depletion effects resulting from those Future Groundwater Diversions described in **Article 7.3.3.1.10**.

7.3.3.1.7. BENEFIT OF SYSTEM. It is the Parties' intent that the development and use of this Mitigation Well System shall provide the following benefits:

7.3.3.1.7.1. avoid diminishment of non-Indian irrigation that would otherwise result from acquisition and transfer or retirement of surface water rights required to offset Tributary Depletions resulting from Future Groundwater Diversions described in **Article 7.3.3.1.10**;

7.3.3.1.7.2. provide supplemental capacity to the three (3) MDWCAs identified in **Article 7.3.3.1.9**, as permitted by the State Engineer and subject to use of such wells for mitigation purposes;

7.3.3.1.7.3. provide for deeper MDWCA wells to protect the groundwater system, including that which affects the Buffalo Pasture; and

7.3.3.1.7.4. shift the Tributary Depletions of Future Groundwater Diversions to the Rio Grande Segment, for which offset acquisition and transaction costs are expected to be lower.

7.3.3.1.8. MDWCA, ACEQUIA, AND TOWN INTEREST IN MITIGATION WELLS. The three (3) MDWCAs identified in **Articles 7.3.3.1.9.1, 7.3.3.1.9.4,** and **7.3.3.1.9.5** shall own, operate, and maintain their respective mitigation wells, and each may use its well as permitted by the State Engineer to supplement its existing water rights, subject to the use of those wells for mitigation purposes described above. The Acequia Madre del Rio Chiquito and Acequia del Monte shall jointly own, operate, and maintain their mitigation well described in **Article 7.3.3.1.9.2**. The Town shall own, operate, and maintain the mitigation well described in **Article 7.3.3.1.9.3** and may use such well for up to four (4) AFY of additional capacity.

7.3.3.1.9. MITIGATION WELL LOCATIONS AND BENEFITTED STREAM SEGMENTS. The Water Rights Owning Parties shall work together on planning the final location, design, and construction of the mitigation wells and any replacement, supplemental, or deepened mitigation wells. The mitigation wells and their points of discharge to the streams shall be generally located as follows and shall be operated to benefit the Settlement Model Stream Segments described below:

7.3.3.1.9.1. The Rio Grande del Rancho Well shall be located as depicted on **Attachment 10** and connected to the Llano Quemado MDWCA. This well shall deliver water to the Llano Quemado MDWCA system and discharge to the Rio Grande del Rancho above the Acequia Abajo de la Loma diversion from that stream via a new pipeline estimated to be 7,000 feet long and in a manner that offsets the surface water depletion effects modeled in the Upper Rio Grande del Rancho and Lower Rio Grande del Rancho Stream Segments.

7.3.3.1.9.2. The Rio Chiquito Well shall be located as depicted on **Attachment 10**. This well shall deliver water to the Rio Chiquito above the Acequia Madre del Rio Chiquito diversion from that stream via a pipeline estimated to be 4,000 feet long and in a manner that offsets the surface water depletion effects modeled in the Rio Chiquito Stream Segment.

7.3.3.1.9.3. The Rio Fernando de Taos Well shall be located as depicted on **Attachment 10**. This well shall deliver water via pipeline to the Rio Fernando at a location near the well and in a manner that offsets the surface water depletion effects modeled in the Rio Fernando Stream Segment.

7.3.3.1.9.4. The Rio Lucero/Rio Pueblo de Taos Well shall be located as depicted on **Attachment 10** and connected to the Upper Ranchitos MDWCA. This well shall deliver water to the Rio Pueblo de Taos near the crossing of Ranchitos Road via a new pipeline, estimated to be 6,000 feet long, and in a manner that offsets the surface water depletion effects modeled in the following Stream Segments: Rio Pueblo de Taos A through D. This well shall also deliver water to the Rio Lucero near the crossing of Millicent Rogers Road via the same pipeline stated above and in a manner that offsets the surface water depletion effects modeled in the Lower Rio Lucero Stream Segment.

7.3.3.1.9.5. The Rio Hondo Well shall be located as depicted on **Attachment 10** and connected to the Upper Arroyo Hondo MDWCA. This well shall deliver water to the Rio Hondo at a point just above the diversions of the Acequia Atalaya and Acequia Madre del Llano from that stream via a pipeline estimated to be 3,000 feet long and in a manner that offsets the surface water depletion effects modeled in the Upper Rio Hondo Stream Segment.

7.3.3.1.9.6. The ASR Project wells shall be located as depicted on **Attachment 10** and shall deliver water via pipeline to the Arroyo Seco near the point where the Acequia Madre del Rio Lucero y del Arroyo Seco crosses the Arroyo Seco and in a manner that offsets the surface water depletion effects modeled in the Arroyo Seco Stream Segment.

7.3.3.1.10. INITIAL ALLOCATION OF CAPACITY. The Water Rights Owning Parties agree to an initial allocation of capacity in the Mitigation Well System to offset the ultimate Tributary Depletions resulting from the following amounts of Future Groundwater Diversions:

7.3.3.1.10.1. the Town's diversions of up to eight hundred (800) AFY from its Future Water Supply Well Field;

7.3.3.1.10.2. EPWSD's diversions of up to five hundred seventy-five (575) AFY;

7.3.3.1.10.3. the Pueblo's diversions of up to two thousand (2,000) AFY; and

7.3.3.1.10.4. the MDWCAs' diversions of up to one hundred forty-five (145) AFY.

7.3.3.1.11. ADDITIONAL CAPACITY.

7.3.3.1.11.1. USE FOR SUPPLEMENTAL OR ADDITIONAL CAPACITY. Any capacity in the five (5) Mitigation Well System wells identified in **Article 7.3.3.1.9.1** through **7.3.3.1.9.5** that exceeds what is necessary to offset the ultimate Tributary Depletions resulting from the Future Groundwater Diversions identified at **Article 7.3.3.1.10** shall be available as supplemental production capacity for the owner-MDWCA or as up to four (4) AFY of additional capacity for the Town on the Rio Fernando de Taos Well identified in **Article 7.3.3.1.9.3**.

7.3.3.1.11.2. ALLOCATION OF ADDITIONAL CAPACITY. If there is diversion capacity over and above what is required to fulfill the parties' requirements in **Articles 7.3.3.1.10** and **7.3.3.1.11.1**, such capacity shall be allocated for use in offsetting additional Tributary Depletions by written agreement among the Pueblo, the Town, EPWSD, the MDWCAs that use the Mitigation Well System for surface water depletion offset purposes and the affected Acequias.

7.3.3.1.11.3. UNUSED ALLOCATED CAPACITY. Capacity in each well that has been allocated to a Water Rights Owning Party pursuant to **Article 7.3.3.1.10** but has not been used shall not be subject to an agreement for allocation of additional capacity pursuant to **Article 7.3.3.1.11.2**, but such unused capacity shall instead remain reserved and can be used by the Water Rights Owning Party that received the initial allocation of capacity.

7.3.3.1.12. MITIGATION WELL SYSTEM; OFFSET OF DEPLETION EFFECTS. For each Water Rights Owning Party's Tributary Depletions for which the Mitigation Well System is used to offset surface water depletion effects, that Water Rights Owning Party shall comply with **Article 7.3.2.2** by providing directly on the Rio Grande offsets equal to 100% of the Tributary Depletions plus 33% of that Party's total Mitigation Well System diversions. The sources of offsets, the timing of offsets, and the legal control of the sources of the offsets required by this **Article 7.3.3.1.12** shall be accomplished as set forth in **Articles 7.3.2.3, 7.3.2.4,** and **7.3.2.5**.

7.3.3.1.13. TIMING OF MITIGATION WELL SYSTEM USE. The Mitigation Well System shall provide water during the irrigation season to maintain Acequias' surface water supplies that would otherwise be depleted by groundwater development. Subject to the other provisions of this Article and any applicable State Engineer permit requirements, the timing and use of the Mitigation Well System on each tributary stream shall be determined on or before June 1 of each year by majority vote of the commissions of the Acequias within that tributary stream having points of diversion located downstream of the mitigation well point of delivery to the stream. The commissioners of the Acequias benefited by each mitigation well, including the ASR Project wells, shall appoint one person to consult with the system operator for the respective mitigation well owner concerning actual operation of the well. Deliveries of offsets of the previous year's Tributary Depletions from the Mitigation Well System shall be made

annually unless the State Engineer approves a different schedule. In the event Acequias on a tributary stream are unable to agree on operation of any mitigation well, the State Engineer shall determine timing and use of that mitigation well for that calendar year.

7.3.3.1.14. EPWSD ARROYO SECO MITIGATION. EPWSD agrees to the following measures in lieu of utilizing the Mitigation Well System to offset its surface water depletion effects on the Arroyo Seco. Subject to the other provisions of this Article and any applicable State Engineer permit requirements, EPWSD shall divert that quantity of water that the Settlement Model simulates that EPWSD has depleted the Arroyo Seco and transport it to the Arroyo Seco at a point where it intersects with U.S. Highway 64 in Las Colonias for use by the Lower Manuel Andres Trujillo Ditch. The Lower Manuel Andres Trujillo Ditch shall request and EPWSD shall deliver the annual offset in a period of time not to exceed one (1) month. In addition, the Lower Manuel Andres Trujillo Ditch may postpone delivery of water for one year and receive that postponed delivery in the following year, in which case EPWSD shall deliver two (2) years of offset water during a period of time not to exceed two (2) months.

7.3.3.1.15. OPERATION, MAINTENANCE, AND REPLACEMENT COSTS.

7.3.3.1.15.1. SINKING FUND. Operation, maintenance, and replacement costs shall be paid out of a sinking fund established pursuant to **Article 10.1.5.2**.

7.3.3.1.15.2. COSTS REVIEW AND RECOMMENDATIONS. The Water Rights Owning Parties using a particular mitigation well shall have the right to annually review records relating to the operation and maintenance of that well to ensure a safe and efficient operation. The Water Rights Owning Parties shall also have the right to make written recommendations to the operator of a mitigation well copied to all Mitigation Well System users, for more cost effective and efficient operations and maintenance, consistent with the operating practices recommended by the American Waterworks Association. If a Water Rights Owning Party has made written recommendations concerning system operation and maintenance that have not been implemented by the well operator in a timely manner, then that Party shall not be responsible for costs incurred because of operator negligence.

7.3.3.1.15.3. COOPERATIVE AGREEMENTS. The Water Rights Owning Parties shall execute, as appropriate, any cooperative agreement or agreements that may be necessary with respect to operation, maintenance, and replacement costs associated with the delivery of offsets by the Mitigation Well System.

7.3.3.1.16. APPLICATIONS TO STATE ENGINEER. The Pueblo, Town, EPWSD, the Llano Quemado, Upper Arroyo Hondo, Upper Ranchitos Mutual Domestic Water Users Associations, Acequia Madre del Rio Lucero y del Arroyo Seco, Acequia Madre del Rio Chiquito, and Acequia del Monte shall cooperate in the preparation and filing of respective applications to the State Engineer for the necessary permits to divert groundwater for mitigation of Tributary Depletions as described in **Article 7.3.3.1**, as a supplemental source of supply for each of the applicant MDWCAs, and to operate the ASR Project as a mitigation well.

7.3.3.1.17. PROPORTIONAL RESPONSIBILITY. In the event that operation of any mitigation well results in Impairment to the water rights of any non-Party, the Party or Parties that benefit from operation of the well shall assume responsibility for mitigating such Impairment in proportion to their use of the well for mitigation or supplemental domestic purposes.

7.3.3.1.18. RESERVED TO WATER RIGHTS OWNING PARTIES. The Mitigation Well System is reserved for use by the Water Rights Owning Parties only.

7.3.3.2. PUEBLO HIA OFFSETS. For those Tributary Depletions which the Pueblo desires to offset by use of the Pueblo's HIA Right, the Pueblo shall change the point of diversion of a portion of its HIA Right available for exercise pursuant to **Article 5.1.1.2** to the groundwater point of diversion of the well causing the depletion effects. The amount of the offset shall be equal to the amount of the consumptive use of the HIA Right transferred to the well as limited by the historically available surface water supply or supplies on which that portion of the HIA Right relied.

8. SURFACE WATER SHARING.

8.1. SURFACE WATER PRIORITY.

In general, to avoid the disruption to non-Indian irrigation in the Taos Valley that would result from the Pueblo's immediately putting its full HIA Right to use, the Pueblo agrees to forbear

from making priority calls against non-Indian surface water rights as long as those rights are used within the Taos Valley Stream System pursuant to a Subfile Order for Lawful Irrigation or Stock Uses. The Water Rights Owning Parties therefore agree that the surface water rights of the Pueblo, the Acequias, and their Parciantes shall be administered solely in accordance with this **Article 8** and shall not be subject to priority administration. The Pueblo, TVAA, Acequias, and Parciantes may enforce the provisions of this **Article 8** and, likewise, be subject to actions properly taken to enforce the provisions of this **Article 8.**

8.2.**WATER SHARING.**

The waters of the Rio Lucero and the Rio Pueblo de Taos shall be shared as follows:

8.2.1. RIO LUCERO.

8.2.1.1. RIO LUCERO WATER SHARING. The waters of the Rio Lucero shall be shared consistent with the 1893 Rio Lucero decree as modified by this **Article 8**:

Taos Pueblo	46.7%
El Prado	35%
Arroyo Seco Arriba	18.3%
Arroyo Seco Abajo	surplus flows.

Taos Pueblo's share shall be adjusted over time in accordance with **Article 8.2.1.2**, along with the shares of El Prado and Arroyo Seco Arriba. Arroyo Seco Arriba shall have an irrigation storage project, as described in **Article 6.1.1**, to manage its share of the Rio Lucero. Arroyo Seco Abajo's share shall be calculated in accordance with **Article 8.2.1.1.3**. Diversions of all the shares shall not exceed the PDR of the acequia necessary to serve those acres under Lawful Irrigation or Stock Uses.

8.2.1.1.1. ALLOCATION AND MEASUREMENT OF SHARES. The percentage shares set forth in **Article 8.2.1.1** shall be allocated at U.S.G.S. Gage No. 08271000 located at the mouth of the Rio Lucero canyon based on stream flow measured at that gage, and the Pueblo and the Acequias shall bear the burden of their own losses resulting from use of points of diversion downstream from the gage.

8.2.1.1.2. DIVERSIONS OF SHARES.

8.2.1.1.2.1. EXISTING PUEBLO DIVERSIONS. The Pueblo share may be taken, in whole or in part, at the Indian, Tenorio, Beeline, Grouse/Rock Bridge, or 1908 ditch diversions.

8.2.1.1.2.2. EXISTING EL PRADO DIVERSION. The El Prado share shall continue to be taken from the Rio Lucero at the diversion of the Acequia Madre del Prado.

8.2.1.1.2.3. EXISTING ARROYO SECO ARRIBA DIVERSION. The Arroyo Seco Arriba share shall continue to be taken from the Rio Lucero at the diversion of the Acequia Madre del Rio Lucero y del Arroyo Seco.

8.2.1.1.2.4. EXISTING ARROYO SECO ABAJO DIVERSIONS. The Arroyo Seco Abajo share shall continue to be taken from the Rio Lucero at:

8.2.1.1.2.4.1. the diversion of the Acequia Madre del Rio Lucero y del Arroyo Seco for the Upper Manuel Andres Trujillo Ditch and the Lower Manuel Andres Trujillo Ditch, and

8.2.1.1.2.4.2. the diversion of the Juan Manuel Lucero Ditch.

8.2.1.1.3. ARROYO SECO ABAJO SHARE. The Arroyo Seco Abajo community retains its right to surplus flows in the Rio Lucero.

8.2.1.1.3.1. DETERMINATION OF SURPLUS. For purposes of this **Article 8.2.1.1.3**, a surplus shall exist when the surface flows of the Rio Lucero are greater than what is necessary to serve the PDR associated with the Pueblo's, Arroyo Seco Arriba's, and El Prado's Rio Lucero water rights. As of May 30, 2006, determinations of PDR shall be based on the following acreages, which amounts shall be adjusted in accordance with **Article 8.2.1.2**:

Taos Pueblo	one thousand six hundred sixteen and ninety-six hundredths (1,616.96) acres of irrigated Pueblo Lands and eleven and fifteen hundredths (11.15) acres of livestock impoundments;

El Prado	nine hundred fifty-one and one tenth (951.1) acres of irrigated non-Indian lands plus fourteen and thirty-seven hundredths (14.37) acres of irrigated Pueblo Lands and one and thirty-eight hundredths (1.38) acres of livestock impoundments;
Arroyo Seco Arriba	one thousand three hundred seventy-six and five tenths (1,376.5) acres of irrigated non-Indian lands, which amount includes stockponds; and
Arroyo Seco Abajo	one thousand eighty-four and twenty hundredths (1,084.20) acres of irrigated non-Indian lands.

For purposes of determining a surplus, the PDR for the Pueblo's Rio Lucero water rights shall be increased, on an acre-for-acre basis, by the amount of the reduction in non-Indian irrigation, in accordance with **Article 5.1.1.2**, from the Acequias identified in **Article 8.2.1.1.2.4**. Such increase in the Pueblo's PDR on these grounds shall not cause an adjustment to the Rio Lucero shares described in **Article 8.2.1.1**.

8.2.1.1.3.2. DIVERSION OF SURPLUS. Surpluses determined under this **Article 8.2.1.1.3** shall be left in the Rio Lucero to be available for diversion at the points of diversion identified in **Article 8.2.1.1.2.4** to satisfy the PDR associated with the Acequias identified in that Article.

8.2.1.1.3.3. SURPLUSES IN EXCESS OF ARROYO SECO ABAJO'S USES. For purposes of satisfying its HIA Right, the Pueblo shall be entitled to increase its diversions from the Rio Lucero equal to an amount that such surplus exceeds the PDR for the Acequias identified in **Article 8.2.1.1.2.4**.

8.2.1.1.4. PUEBLO USES. Any portion of the Pueblo's share that is allowed to flow downstream for any lawful purpose shall not be available for non-Indian diversions at the Acequia Madre del Lucero y del Arroyo Seco, Juan Manuel Lucero ditch, or the Acequia Madre del Prado.

8.2.1.2. SHARING ADJUSTMENTS. The Pueblo's percentage share of the Rio Lucero, as specified in this Article, shall be increased and the El Prado or Arroyo Seco Arriba percentage share shall be reduced by the amount of the reduction of non-Indian surface water rights within the El Prado or Arroyo Seco Arriba systems that results from those circumstances identified in **Article 5.1.1.2** that occur within those two acequia systems. The PDR for those acequias in each community identified above shall be adjusted as irrigated acreage is reduced or increased.

8.2.1.3. ADJUSTMENT CALCULATIONS. For purposes of calculating **Article 8.2.1.2** sharing adjustments, 1% of the surface flows of the Rio Lucero shall equal:

8.2.1.3.1. ACEQUIA MADRE DEL PRADO. Twenty-seven and fifty-eight hundredths (27.58) acres (965.47 acres divided by 35), of which nine hundred fifty-one and one tenth (951.1) acres are non-Indian lands and fourteen and thirty-seven hundredths (14.37) acres are Pueblo Lands, all of which are presently served by the Acequia Madre del Prado; or

8.2.1.3.2. ACEQUIA MADRE DEL RIO LUCERO Y DEL ARROYO SECO. Seventy-five and two tenths (75.2) acres (1,376.5 acres divided by 18.3) of non-Indian land served by the Acequia Madre del Rio Lucero y del Arroyo Seco pursuant to the Consent Order entered in the Adjudication on March 14, 2005. The one thousand three hundred seventy-six and five tenths (1,376.5) acres used for purposes of this Article excludes those acres served by the Temporales ditch which do not use waters from the Rio Lucero.

8.2.1.4. TIMING OF SHARING ADJUSTMENTS. **Article 8.2.1.2** sharing adjustments shall be calculated and made annually between January 1 and March 1.

8.2.1.5. PROTECTION OF ARROYO SECO ABAJO SURPLUS. Consistent with the 1893 Rio Lucero decree as modified by this **Article** 8, no Party shall take any action to prevent surplus water from reaching Arroyo Seco Abajo up to the PDR for those Acequias identified in **Article 8.2.1.1.2.4**. Nothing herein shall preclude the Pueblo, Arroyo Seco Arriba, or El Prado from taking its full allocation of water as determined under **Articles 8.2.1.1** and **8.2.1.2**.

8.2.2. RIO PUEBLO DE TAOS.

8.2.2.1. RIO PUEBLO DE TAOS SHORTAGE SHARING. In times of shortage, the waters of the Rio Pueblo de Taos shall be divided consistent with the 1893 sharing agreement as modified by this **Article** 8, entitling the Pueblo to four and one half (4½) days of the surface flows and the Acequia Madre del Pueblo to two and one half (2½) days of the surface flows. Such division notwithstanding, diversions into the Acequia Madre del Pueblo shall not exceed the PDR of the Acequia necessary to serve those acres for Lawful Irrigation or Stock Uses.

8.2.2.2. PUEBLO AND ACEQUIA CONSULTATIONS. On or about July 1 of each year, the Pueblo and the Acequia Madre del Pueblo shall meet and determine when to implement the water sharing provisions of this **Article** for that irrigation season. Nothing herein precludes the Pueblo and the Acequia Madre del Pueblo from meeting earlier than July 1 for those purposes.

8.2.2.3. DETERMINATION OF SHORTAGE; SHORTAGE ALLOCATION PERIODS. A shortage shall exist on the Rio Pueblo when its flow is insufficient to provide the PDR for the Lawful Irrigation or Stock Uses for the Pueblo and the Acequia Madre del Pueblo. In times of shortage and consistent with **Article 8.2.2.4**, the Pueblo will cease diversions upstream from the Acequia Madre del Pueblo during the two and one-half (2½) day period of each week that the shortage exists. Regardless of the Acequia Madre del Pueblo's project delivery requirement, the Pueblo may use two (2) cubic-feet per second flow during those days for purposes of stockwatering and domestic uses.

8.2.2.4. ADJUSTMENTS IN UPSTREAM DIVERSIONS DURING SHORTAGE PERIODS. In the event that, during the Acequia Madre del Pueblo's two and one-half (2½) day shortage allocation period, flows at the diversion point of the Acequia Madre del Pueblo are in excess of the PDR of the acequia necessary to serve those acres for Lawful Irrigation or Stock Uses, the Pueblo may increase its upstream diversions equal to the amount of the excess.

8.2.2.5. PUEBLO IRRIGATION FROM THE ACEQUIA MADRE DEL PUEBLO. The Pueblo shall have the right to irrigate those lands identified in Table 1 as served by the Acequia Madre del Pueblo during the Pueblo's four and one-half (4½) day shortage allocation period. Within the non-Indian two and one-half (2½) day shortage allocation period and on an acre-for-acre basis, the Pueblo may irrigate additional Historically Irrigated Acreage from the Acequia Madre del Pueblo by the amount of the reduction of non-Indian irrigation within the Acequia Madre del Pueblo that results from those

circumstances identified in **Article 5.1.1.2**. Pueblo irrigation from the Acequia Madre del Pueblo during the two and one-half (2½) day shortage allocation period shall be in accordance with the acequia's rotation schedule applicable to the formerly irrigated non-Indian lands.

8.2.3. OTHER TAOS VALLEY TRIBUTARIES. With respect to those tributaries on which no sharing arrangement is in effect as between the Pueblo and any Acequia and consistent with **Article 5.1.1.2**, the Pueblo shall forbear from making priority calls against non-Indian surface water rights so long as those rights are used for Lawful Irrigation or Stock Uses.

8.3. PUEBLO USE OF CERTAIN DITCHES.

The Pueblo, TVAA, Acequias, and their respective member Parciantes make the following agreements with respect to those acequia systems that serve both Pueblo and non-Indian lands. Nothing in this **Article 8.3** shall be construed as prohibiting or limiting the Pueblo's right to irrigate any of its Historically Irrigated Acreage in a manner consistent with this Settlement Agreement.

8.3.1. IDENTIFICATION OF DITCHES AND PUEBLO ACREAGES. The Pueblo has the following quantity of Historically Irrigated Acres associated with the following ditches:

8.3.1.1. forty-five and eighty-two hundredths (45.82) acres from the Acequia del Medio;

8.3.1.2. one hundred eight and five hundredths (108.05) acres from the Acequia Madre de la Loma del Ranchito de Abajo;

8.3.1.3. one hundred sixteen and eighty hundredths (116.80) acres from the Acequia Madre del Prado;

8.3.1.4. twenty-six and sixty-five hundredths (26.65) acres from the Cortez y Sisneros ditch;

8.3.1.5. fourteen and forty-six hundredths (14.46) acres from the South Loma lateral;

8.3.1.6. forty-six and fifty-six hundredths (46.56) acres from the Acequia de los Lovatos;

8.3.1.7. twenty-one hundredths (0.21) acres from the Acequia de los Archuletas;

8.3.1.8. one hundred sixty-two and sixty-five hundredths (162.65) acres from the Acequia Madre del Pueblo; and

8.3.1.9. fifty-four and ninety-five hundredths (54.95) acres from the McClure ditch.

8.3.2. INCREASES IN PUEBLO IRRIGATION. Consistent with **Article 5.1.1.2.2**, the Pueblo may increase its irrigation from the initial amount specified in Table 1 to the total Historically Irrigated Acreage identified above and associated with each ditch.

8.3.3. COOPERATION ON MAINTENANCE, REPAIR, AND WATER DELIVERIES. The Pueblo and the mayordomos and commissioners on those Acequias identified in **Article 8.3.1** shall cooperate in the maintenance, repair, and scheduling of water deliveries with respect to those Acequias. Nothing herein shall be construed as a limitation or a change to the rights or powers to which either party may be entitled under applicable law.

8.3.4. PUEBLO TRANSFERS FROM CERTAIN DITCHES. Upon the Enforcement Date and in accordance with this Settlement Agreement, the Pueblo shall transfer to new points of diversion, not on the below identified ditches, those portions of its HIA Right that are identified in the Taos Pueblo Water Use Survey as appurtenant to the following acres:

8.3.4.1. ninety-seven and ninety-five hundredths (97.95) acres and the stockpond (P-157) associated with the Cuchilla ditch;

8.3.4.2. nine (9.00) acres associated with the Upper Manuel Andres Trujillo ditch; and

8.3.4.3. forty-one and fifty hundredths (41.50) acres associated with the Juan Manuel Lucero ditch.

8.3.5. CONCHO DITCH. The Pueblo shall be entitled to irrigate annually up to twenty (20) acres of land identified in the Taos Pueblo Water Use Survey which are served by the Concho Ditch, notwithstanding the provisions of **Article 5.1.1.2**. Increases in Pueblo irrigation from the Concho Ditch shall be in accordance with that **Article 5.1.1.2**. All Pueblo irrigation from this ditch shall be in accordance with and included in, without discrimination, the irrigation rotation and allocation schedule of the Acequia Madre del Rio Lucero y del Arroyo Seco.

8.3.6. ACEQUIA MADRE DEL PRADO. The Acequia Madre del Prado and the Pueblo shall reestablish the ditch so that it is able to serve the Karavas Tract and reconnect with the Acequia del Medio del Prado. The ditch shall be further restored through the Karavas Tract, so that tail waters will be drained to the Acequia Madre de la Loma del Ranchito de Abajo. The Acequia is responsible for specifying the location of the reestablished ditch with respect to non-Pueblo lands. The Pueblo shall pay 60% of costs associated with equipment, materials, and labor for the reconstruction and the Acequia shall pay 40% of those costs. The Pueblo shall contribute annually to future ditch maintenance and repair by providing labor or payment. Such contribution shall be in proportion to its acreage irrigated under the ditch and calculated at the same rate that would apply to non-Indian ditch users. Pueblo irrigation from this ditch shall be in accordance with this Settlement Agreement and included in, without discrimination, the irrigation rotation schedule of the Acequia Madre del Prado. This provision resolves all outstanding issues between the Pueblo and the Acequia regarding ditch maintenance and repairs.

8.3.7. LOWER MANUEL ANDRES TRUJILLO DITCH.

8.3.7.1. P-039 STOCK IMPOUNDMENT. The Pueblo, the Upper Manuel Andres Trujillo Ditch, and Lower Manuel Andres Trujillo Ditch shall coordinate with respect to water deliveries from those Acequias to P-039, a Pueblo livestock impoundment located in Tract B. The Pueblo shall use its own water, including water provided for under **Articles 8.2.1.1** and **8.2.1.1.3.3**, for purposes of that impoundment and contribute annual labor or payment toward ditch maintenance and repair in proportion to its acreage under the Lower Manuel Andres Trujillo Ditch. Further, in cooperation with the Acequia, the Pueblo will build a permanent headgate on the Lower Manuel Andres Trujillo Ditch for purposes of delivering water from the Acequia to P-039. The Acequia will not protest or otherwise object to the Pueblo's use of a Tract B livestock well for purposes of serving P-039.

8.3.7.2. STORAGE. The Water Rights Owning Parties will not oppose off-Pueblo storage of up to twenty (20) AFY for the use by owners of water rights on either the Upper or Lower Manuel Andres Trujillo Ditches, which storage project shall be funded outside of this Settlement Agreement unless made a part of the Surface Storage Project provided for in **Article 6.1.2**. Such storage facility shall not be operated in a manner that interferes with deliveries of Pueblo water to P-039.

8.4. ACEQUIA ACCESS TO PUEBLO LANDS.

The Pueblo recognizes the legitimate need for the Acequias to access their ditch systems within Pueblo Lands and the Acequias recognize the Pueblo's legitimate need to protect its lands. In accordance therewith, non-Indian acequia officials shall obtain and abide by Pueblo land access permits for purposes of access for operation, maintenance, and repair of acequia irrigation systems. The Pueblo Governor's Office shall issue such permits in accordance with the Pueblo Code and shall not unreasonably condition such permits for Acequia use that is consistent with this Article. A copy of a standard form land access permit application is included herewith, as **Attachment 13**, as an example of the appropriate form.

8.5. ACEQUIA SPRINGS CLAIMS.

The Acequias have filed with the Court springs claims that are within the subject matter of the Adjudication. With respect to those claims, the TVAA, the Acequias, and the Pueblo make the following agreement:

8.5.1. SPRINGS ARISING OUTSIDE OF PUEBLO LANDS. The Pueblo waives any right to file an *inter se* objection to any order entered in the Adjudication regarding an Acequia claim to a spring that arises outside of Pueblo Lands. However, such order shall not serve as a basis for precluding the Pueblo from the non-consumptive use of the affected spring for aboriginal or historic cultural purposes. Any right established by such an order and which pertains to an acequia that irrigates both Pueblo and non-Indian lands shall go to the benefit of both the Pueblo and the non-Indian irrigators.

8.5.2. SPRINGS ARISING WITHIN PUEBLO LANDS.

8.5.2.1. EL AGUITA SPRINGS. With regard to the claim of the Acequia Madre del Rio Lucero y del Arroyo Seco to the right to receive water from the El Aguita Springs, that claim shall be withdrawn upon enactment of the settlement legislation in consideration of the construction of the pipeline, which is a component of the Arroyo Seco Arriba ASR Project or alternative project described in **Articles 6.1.1.1** and **6.1.1.2**.

8.5.2.2. BUFFALO PASTURE DISCHARGES. The Pueblo and the Acequia Medio del Prado jointly affirm a shared interest in protecting the waters of the Buffalo Pasture and in the maintenance of the points of diversion identified below.

8.5.2.2.1. POINTS OF DIVERSION. The point of diversion for the Acequia del Medio del Prado from the Rio Lucero is x=701,180 and y=1,977,160 NM State Plane Coordinate System, Central Zone, NAD 1927, as shown in **Attachment 14**. The Acequia also has a point of diversion from Unnamed Watercourse 1 at x=701,436 and y=1,977,185 NM State Plane Coordinate System, Central Zone, NAD 1927, as also shown in **Attachment 14**, which unnamed watercourse collects waters discharged from certain springs arising on Pueblo Lands. These points of diversion are located on Pueblo Lands and benefit both Pueblo and non-Pueblo uses.

8.5.2.2.2. MAINTENANCE AND REPAIR PERMITS. The Acequia shall comply with **Article 8.4** with respect to Pueblo land access permits for purposes of maintenance and repair of these points of diversion.

8.5.2.2.3. PUEBLO-ACEQUIA DEL MEDIO DEL PRADO COOPERATION. Consistent with **Article 8.3.6**, the Acequia del Medio del Prado and the Pueblo shall work together to reestablish the ditch and to restore its connection to the Acequia Madre del Prado. The Pueblo shall pay 60% of costs associated with equipment, materials, and labor for the reconstruction and the Acequia shall pay 40% of those costs. The Acequia and the Pueblo agree that Pueblo irrigation of its lands under this ditch shall be in accordance with this Settlement Agreement and included in, without discrimination, the irrigation rotation schedule of the Acequia del Medio del Prado, and the Pueblo shall contribute to ditch maintenance and repair by providing annual labor or payment in proportion to its acreage under the ditch. The Acequia shall support the Pueblo's legal position and shall not oppose it in any necessary legal action to reestablish the connection between the Acequia del Medio and the Acequia Madre del Prado.

8.5.2.2.4. RETENTION OF PUEBLO PARTICIPATION IN *INTER SE* PROCEEDINGS. The Pueblo retains its right to participate in any *inter se* proceedings on the Acequia del Medio del Prado's springs claims to the extent necessary to ensure that the agreement in this **Article 8.5.2.2** is included in any Subfile Order on the Acequia's rights.

8.5.2.3. KARAVAS TRACT SPRINGS.

8.5.2.3.1. POINTS OF DIVERSION. The Acequia Madre de la Loma del Ranchito de Abajo diverts water into its acequia and such waters are

naturally discharged from springs arising on Pueblo Lands, as shown in **Attachment 15**. Such springs benefit both Pueblo and non-Pueblo uses.

8.5.2.3.2. RETENTION OF PUEBLO PARTICIPATION IN *INTER SE* PROCEEDINGS. The Pueblo retains its right to participate in any *inter se* proceedings on the Acequia Madre de la Loma del Ranchito de Abajo's springs claims to the extent necessary to ensure that the agreement in this **Article 8.5.2.3** is included in any Subfile Order on the Acequia's rights.

8.6. INITIAL PUEBLO SURFACE WATER ACQUISITIONS.

8.6.1. PUEBLO-TVAA COOPERATION AS TO INITIAL ACQUISITIONS. As a goal of this settlement and in accordance with **Article 5.1.1.2**, the Pueblo will seek to expand the exercise of its HIA Right to an amount at least sufficient to irrigate three thousand (3,000) acres as of the Enforcement Date. TVAA shall work with the Pueblo toward the initial goal of three thousand (3,000) acres of irrigation waters on the following basis:

8.6.1.1. TVAA shall inform acequia commissioners and mayordomos of the terms of this Settlement Agreement in order to facilitate the necessary Pueblo acquisition of surface water rights from within the Taos Valley; and

8.6.1.2. TVAA and acequia commissioners and mayordomos shall notify and share with the Pueblo information as to water rights available for possible purchase by the Pueblo for purpose of this Settlement Agreement.

8.6.2. NON-APPLICATION OF CERTAIN LAWS. The Pueblo, TVAA, and Acequias agree that, pursuant to subsection (E) of NMSA 1978, § 72-5-24.1 (2003), the other provisions of that statute do not and shall not apply with respect to Pueblo acquisition, transfer, and retirement of surface water rights under this Settlement Agreement.

8.6.3. NO LIMITATION ON ACQUISITIONS. Nothing herein shall be construed as limiting the Pueblo's ability to acquire and retire non-Indian surface water rights in an amount sufficient to allow the full exercise of the Pueblo's HIA Right, as that right is defined in **Article 5.1.1**.

9. THE TAOS PUEBLO WATER DEVELOPMENT FUND.

9.1. ESTABLISHMENT.

Section 505 of the Settlement Act established in the Treasury of the United States a fund to be known as the ''Taos Pueblo Water Development Fund'' (referred to in this Article as the ''Fund'') to be used to pay or reimburse costs incurred by the Pueblo for—

9.1.1. acquiring water rights;

9.1.2. planning, permitting, designing, engineering, constructing, reconstructing, replacing, rehabilitating, operating, or repairing water production, treatment or delivery infrastructure;

9.1.3. on-farm improvements, or wastewater infrastructure;

9.1.4. restoring, preserving and protecting the Buffalo Pasture, including planning, permitting, designing, engineering, constructing, operating, managing and replacing the Buffalo Pasture Recharge Project;

9.1.5. administering the Pueblo's water rights acquisition program and water management and administration system; and

9.1.6. watershed protection and enhancement, support of agriculture, water-related Pueblo community welfare and economic development, and costs related to the negotiation, authorization, and implementation of this Settlement Agreement.

9.2. MANAGEMENT OF FUND.

Section 505(b) of the Settlement Act requires the Secretary to manage the Fund, invest amounts in the Fund, and make monies available from the Fund for distribution to the Pueblo consistent with the American Indian Trust Fund Management Reform Act of 1994 (25 U.S.C. 4001 et seq.) (hereinafter, ''Trust Fund Reform Act''), this title, and the Settlement Agreement.

9.3. INVESTMENT OF FUND.

Section 505(c) of the Settlement Act provides that, upon the Enforcement Date, the Secretary shall invest amounts in the Fund in accordance with—

9.3.1. the Act of April 1, 1880 (21 Stat. 70, ch. 41, 25 U.S.C.161);

9.3.2. the first section of the Act of June 24, 1938 (52 Stat. 1037, ch. 648, 25 U.S.C. 162a); and

9.3.3. the American Indian Trust Fund Management Reform Act of 1994 (25 U.S.C. 4001 et seq.).

9.4. AVAILABILITY OF AMOUNTS FROM FUND.

Section 505(d) of the Settlement Act provides that, upon the Enforcement Date, all monies deposited in the Fund pursuant to section 509(c)(1) of the Settlement Act or made available from other authorized sources shall be available to the Pueblo for expenditure or withdrawal after the requirements of Section 505(e) of the Settlement Act have been met.

9.5. EXPENDITURES AND WITHDRAWAL.

9.5.1. TRIBAL MANAGEMENT PLAN.

9.5.1.1. IN GENERAL. Pursuant to Section 505(e)(1)(A) of the Settlement Act, the Pueblo may withdraw all or part of the Fund on approval by the Secretary of a tribal management plan as described in the Trust Fund Reform Act.

9.5.1.2. REQUIREMENTS. Section 505(e)(1)(B) of the Settlement Act provides that in addition to the requirements under the Trust Fund Reform Act, the tribal management plan shall require that the Pueblo spend any funds in accordance with the purposes described in Section 505(a) of the Settlement Act.

9.5.2. ENFORCEMENT. Section 505(e)(2) provides that the Secretary may take judicial or administrative action to enforce the requirement that monies withdrawn from the Fund are used for the purposes specified in Section 505(a) of the Settlement Act.

9.5.3. LIABILITY. Section 505(e)(3) of the Settlement Act provides that if the Pueblo exercises the right to withdraw monies from the Fund, neither the Secretary nor the Secretary of the Treasury shall retain any liability for the expenditure or investment of the monies withdrawn.

9.5.4. EXPENDITURE PLAN.

9.5.4.1. IN GENERAL. Section 505(e)(4)(A) of the Settlement Act requires the Pueblo to submit to the Secretary for approval an expenditure plan for any portions of the funds made available under the Settlement Act that the Pueblo does not withdraw under Section 505(e)(1)(A) of the Settlement Act.

9.5.4.2. DESCRIPTION. Section 505(e)(4)(B) of the Settlement Act requires the expenditure plan to describe the manner in which, and the purposes for which, amounts remaining in the Fund will be used.

9.5.4.3. APPROVAL. Section 505(e)(4)(C) of the Settlement Act provides that, on receipt of an expenditure plan under Section 505(e)(4)(A) of the Settlement Act, the Secretary shall approve the plan if the Secretary determines that the plan is reasonable and consistent with the Settlement Act.

9.5.5. ANNUAL REPORT. Section 505(e)(5) of the Settlement Act requires the Pueblo to submit to the Secretary an annual report that describes all expenditures from the Fund during the year covered by the report.

9.6. AMOUNTS AVAILABLE ON APPROPRIATION.

Section 505(f) of the Settlement Act provides that, notwithstanding Section 505(d) of the Settlement Act, $15,000,000 of the monies deposited in the Fund—

9.6.1. shall be available upon appropriation or availability of the funds from other authorized sources for the Pueblo's acquisition of water rights pursuant to **Article 5.1.1.2.3** of this Settlement Agreement, the Buffalo Pasture Recharge Project, implementation of the Pueblo's water rights acquisition program and water management and administration system, the design, planning, engineering, permitting or construction of water or wastewater infrastructure eligible for funding under Section 505(a) of the Settlement Act, or costs related to the negotiation, authorization, and implementation of this Settlement Agreement, provided that such funds may be expended prior to the Enforcement Date only for activities which are determined by the Secretary to be more cost effective when implemented as early as possible; and

9.6.2. shall be distributed by the Secretary to the Pueblo on receipt by the Secretary from the Pueblo of a written notice and a Tribal Council resolution that describes the purposes under Section 505(f)(1) of the Settlement Act for which the monies will be used after a cost-effectiveness determination by the Secretary has been made as described in Section 505(f)(1) of the Settlement Act. Pursuant to Section 505(f)(2) of the Settlement Act, the Secretary is required to make the determination described in Section 505(f)(1) of the Settlement Act within a reasonable period of time after receipt of the notice and resolution.

9.7. **NO PER CAPITA DISTRIBUTIONS.**

Section 505(g) of the Settlement Act provides that no portion of the Fund shall be distributed on a per capita basis to members of the Pueblo.

10. MUTUAL-BENEFIT PROJECTS FUNDING.

10.1. **IN GENERAL.**

The Parties agree that funding for the Mutual-Benefit Projects, which are described in detail in **Article 6**, is an essential component of this Settlement Agreement. Pursuant to Section 509(c)(2) of the Settlement Act, the federal financial assistance to be provided to plan, permit, design, and construct the Mutual-Benefit Projects, inclusive of any required federal and state grant administration costs and NEPA compliance costs, will total 75%of the total cost, but not to exceed $36,000,000, and will be provided in the form of grants on a nonreimbursable basis. Pursuant to Section 507(b)(2) of the Settlement Act, the non-federal State share of the cost of planning, permitting, designing and constructing the Mutual-Benefit Projects, inclusive of any required federal and state grant administration costs and NEPA compliance costs, is to be 25 % of the total cost, but not to exceed $12,000,000, and may be in the form of in-kind contributions subject to the terms of the Settlement Act. Nothing herein is intended to limit the ability of any party to seek other sources of funding for Mutual-Benefit Projects; however, any such additional funding is not the subject of the provisions of this **Article 10**.

10.1.1. KLAUER, NATIONAL GUARD, CAMINO DEL MEDIO, RIO PUEBLO, AND BATAAN WELLS. The Town agrees not to seek or accept grant funding pursuant to Section 507(a) of the Settlement Act in an amount exceeding $12,616,584 and a matching 25 % non-federal State contribution exceeding $4,205,528 to plan, permit design, engineer, and construct those wells and infrastructure specified in **Articles 6.2.4.2** and **6.2.5**.

10.1.2. RIO GRANDE AND MIDWAY WELLS.

10.1.2.1. WELL CONSTRUCTION. EPWSD agrees not to seek or accept grant funding pursuant to Section 507(a) of the Settlement Act in an amount exceeding $11,658,767 and a matching 25 % non-federal State contribution exceeding $3,886,255 to plan, permit, design, engineer, and construct those wells and infrastructure specified in **Articles 6.3.1.4** and **6.3.1.5**.

10.1.2.2. WATER RIGHTS ACQUISITION. The State shall provide up to two million dollars ($2,000,000) to the Local Government Division of the New Mexico Department of Finance and Administration on behalf of EPWSD as

necessary for water rights acquisition specified in **Article 6.3.1.8**, inclusive of the two hundred fifty thousand dollars ($250,000) that was appropriated by the 2005 New Mexico Legislature.

10.1.3. ARROYO SECO ARRIBA PROJECT.

10.1.3.1. CONSTRUCTION. The Acequia Madre del Rio Lucero y del Arroyo Seco and the State, acting through the New Mexico Department of Finance and Administration Local Government Division on behalf of the Acequia, agree not to seek or accept grant funding pursuant to Section 507(a) of the Settlement Act in an amount exceeding $6,103,470 and a matching 25 percent non-federal State contribution in an amount exceeding $2,034,490 to plan, permit, design, engineer and construct those wells and infrastructure and Acequia Madre pipeline specified in **Article 6.1.1.1** or surface water storage and Acequia Madre pipeline specified in **Article 6.1.1.2**.

10.1.3.2. WATER RIGHTS ACQUISITION. The State shall provide up to two million dollars ($2,000,000) to the Local Government Division of the New Mexico Department of Finance and Administration on behalf of the Acequia Madre del Rio Lucero y del Arroyo Seco as necessary for water rights acquisition specified in **Article 6.1.2** and on behalf of the Upper and Lower Manuel Andres Trujillo Ditches as necessary for water rights acquisition for purposes of storage described at **Article 8.3.7.2**.

10.1.3.3. OPERATION, MAINTENANCE, AND REPLACEMENT SINKING FUND. The State shall provide up to $121,000 to the Local Government Division of the New Mexico Department of Finance and Administration on behalf of the Acequia Madre del Rio Lucero y del Arroyo Seco to establish a sinking fund for the Arroyo Seco Arriba Project, as specified in **Article 6.1.3**.

10.1.4. MUTUAL DOMESTIC WATER CONSUMER ASSOCIATIONS.

10.1.4.1. WATER RIGHTS ACQUISITION. The State shall provide up to two million nine hundred thousand dollars ($2,900,000) to the Local Government Division of the New Mexico Department of Finance and Administration on behalf of the eleven (11) Taos-area MDWCAs as necessary for water rights acquisition specified in **Article 6.4.4**.

10.1.5. MITIGATION WELL SYSTEM.

10.1.5.1. WELL CONSTRUCTION. Funding to plan, permit, design, engineer, and construct the Mitigation Well System shall be as set forth below:

10.1.5.1.1. The Llano Quemado MDWCA and the State, acting through the New Mexico Department of Finance and Administration Local Government Division on behalf of the MDWCA, agree not to seek or accept grant funding pursuant to Section 507(a) of the Settlement Act in an amount exceeding $1,321,344 and a matching 25 % non-federal State contribution in an amount exceeding $440,448 to plan, permit, design, engineer, and construct the well and infrastructure specified in **Article 7.3.3.1.9.1**.

10.1.5.1.2. The Acequia Madre del Rio Chiquito, the Acequia del Monte and the State, acting through the New Mexico Department of Finance and Administration Local Government Division on behalf of the Acequias, agree not to seek or accept grant funding pursuant to Section 507(a) of the Settlement Act in an amount exceeding $884,489 and a matching 25 % non-federal State contribution in an amount exceeding $294,830 to plan, permit, design, engineer, and construct the well and infrastructure specified in **Article 7.3.3.1.9.2**.

10.1.5.1.3. The Town agrees not to seek or accept grant funding pursuant to Section 507(a) of the Settlement Act in the amount exceeding $949,163 and a matching 25 % non-federal State contribution exceeding $316,388 to plan, permit, design, engineer, and construct the well and infrastructure specified in **Article 7.3.3.1.9.3**.

10.1.5.1.4. The Upper Ranchitos MDWCA and the State, acting through the New Mexico Department of Finance and Administration Local Government Division on behalf of the MDWCA, agree not to seek or accept grant funding pursuant to Section 507(a) of the Settlement Act in an amount exceeding $1,459,655 and a matching 25 % non-federal State contribution in an amount exceeding $486,552 to plan, permit, design, engineer, and construct the well and infrastructure specified in **Article 7.3.3.1.9.4**.

10.1.5.1.5. The Upper Arroyo Hondo MDWCA and the State, acting through the New Mexico Department of Finance and Administration Local Government Division on behalf of the MDWCA, agree not to seek or accept grant funding pursuant to Section 507(a) of the Settlement Act in an amount exceeding $998,335 and a matching 25 % non-federal State

contribution in an amount exceeding $332,778 to plan, permit, design, engineer, and construct the well and infrastructure specified in **Article 7.3.3.1.9.5**.

10.1.5.2. OPERATION, MAINTENANCE, AND REPLACEMENT SINKING FUND. Non-federal funding in the amount of $1,033,997 shall be made available to the Local Government Division of the New Mexico Department of Finance and Administration on behalf of the non-Indian Water Rights Owning Parties (other than the United States) to establish a sinking fund specified in **Article 7.3.3.1.15.1**. In the event that the State cost share of the total cost to plan, design, permit, and construct the Mutual-Benefit Projects is less than $12,000,000, the State shall make an additional contribution to this sinking fund in the amount of such savings, but not to exceed $1,179,585. In the event that the fund is inadequate to cover such costs, the non-Indian Water Rights Owning Parties (other than the United States) will jointly seek alternative funding. Notwithstanding the availability of funding, each Water Rights Owning Party will be responsible only for its proportionate share of the operation, maintenance, and replacement costs relating to its actual use of the Mitigation Well System for purposes of offsetting surface water depletion effects resulting from Future Groundwater Diversions or supplemental diversions.

10.1.6. ACEQUIA MADRE DEL PRADO STREAM GAGE. The Acequia Madre del Prado and the State, acting through the New Mexico Department of Finance and Administration Local Government Division on behalf of the Acequia, agree not to seek or accept grant funding pursuant to Section 507(a) of the Settlement Act in an amount exceeding $8,193 and a matching 25 % non-federal State contribution in an amount exceeding $2,731 to install a stream gage on the Rio Lucero at the diversion for the Acequia Madre del Prado specified in **Article 6.1.4**.

10.1.7. MODIFICATION BY AGREEMENT. Notwithstanding any other provision of this Settlement Agreement, the Mutual-Benefit Projects Parties may by unanimous consent agree that any one or more of them may seek and accept funding pursuant to Section 507(a) of the Settlement Act exceeding the amounts set forth in **Articles 10.1.1, 10.1.2.1, 10.1.3.1, 10.1.5.1** or **10.1.6** (the "Construction Funding Articles"). In the event that any of the Mutual-Benefit Projects costs would exceed the maximum grant funding request specified for that project in the Construction Funding Articles, then the Mutual-Benefit Projects Parties, the United States, and the State will cooperate to make funding allocation adjustments. No Mutual-Benefit Projects Party whose Mutual-Benefit Project is fully constructed and operational shall withhold agreement for another Mutual-Benefit Projects Party to seek grant

funding pursuant to Section 507(a) in an amount more than that specified in the applicable provisions of the Construction Funding Articles. For purposes of this **Article 10.1.7** only, each Mitigation Well to be constructed pursuant to **Article 10.1.5.1** shall be considered to be a project of any Party named in **Article 7.3.3.1.10** in addition to the Party who shall own and operate the well pursuant to **Articles 7.3.3.1.6** and **7.3.3.1.8**.

10.2. **PROJECT FUNDING TOTALS.**

10.2.1. WATER RIGHTS ACQUISITION FUNDING. Total water rights acquisition funding specified in **Articles 10.1.2.2, 10.1.3.2**, and **10.1.4.1** is up to six million nine hundred thousand dollars ($6,900,000). The State shall contribute 100% of this funding.

10.2.2. OPERATIONS, MAINTENANCE, AND REPLACEMENT FUNDING. Total operations, maintenance, and replacement funding for Mutual-Benefit Projects specified in **Articles 10.1.3.3** and **10.1.5.2** is $1,154,997. The United States shall not be obligated to pay any portion of these costs.

10.2.3. CONSTRUCTION FUNDING. Total Mutual-Benefit Projects planning, design, and construction funding specified in **Articles 10.1.1**, **10.1.2.1**, **10.1.3.1**, **10.1.5.1**, and **10.1.6** is forty-eight million dollars ($48,000,000).

10.2.4. COST SHARE. Cost-sharing for Mutual-Benefit Projects shall be as provided by Section 507(b) of the Settlement Act.

10.3. **EARLY STATE FUNDING FOR MUTUAL-BENEFIT PROJECTS.**

Prior to the Enforcement Date, the State shall make settlement funds available *pro rata* on the same schedule that the United States makes settlement funds available. The State and the other Parties recognize the desirability of making State funds available for water rights acquisitions, as provided in this Article, ahead of any schedule by which the United States makes settlement funds available, and the non-federal Parties shall request that the New Mexico Legislature make such funds available as expeditiously as possible.

10.4. **NON-FEDERAL COST-SHARE ACCOUNTING.**

Any funds that the State makes available after January 1, 2005, to the non-Pueblo Parties identified in **Article 10.1** for purposes of the acquisition of water rights or for any of the settlement-related projects and associated costs, as set forth in **Article 10.1**, shall be deemed to be in satisfaction of the State's obligations under this Settlement Agreement.

10.5. PROCESS FOR PROVIDING FINANCAL ASSISTANCE

The Parties agree that funding to plan, permit, design, engineer, and construct the Mutual-Benefit Projects pursuant to this **Article 10** and the Settlement Act will be provided in accordance with applicable federal and state financial assistance laws, regulations, and procedures. In collaboration with the Mutual-Benefit Projects Parties, the State and the Secretary, acting through the Bureau of Reclamation shall, within a reasonable amount of time, negotiate and enter into one or more memoranda of understanding and other appropriate instruments which will describe the process to be followed for providing financial assistance and to effect the transfer of funds to plan, permit, design, engineer, and construct the Mutual-Benefit Projects. The memoranda of understanding and other appropriate instruments will identify the parties, define roles and responsibilities in the financial assistance process, establish the framework for planning, permitting, designing, engineering and construction funds to flow between the parties, and set associated time frames.

11. ADMINISTRATION.

11.1. PUEBLO WATER CODE.

The Pueblo agrees that any exercise by it of administrative authority, regardless of the source from which such authority arises, over water rights secured to it under this Settlement Agreement and the Partial Final Decree shall comply with this Settlement Agreement and the Pueblo Water Code.

11.1.1. PROMULGATION. Not later than twenty-four (24) months after the Enforcement Date, the Pueblo shall enact a Pueblo Water Code. Such Code shall be consistent with this Settlement Agreement and include the provisions of this **Article 11.1**.

11.1.2. PUEBLO PERMIT ACTIONS.

11.1.2.1. PERMIT APPLICATIONS. Unless otherwise provided in this Settlement Agreement, a Pueblo permit shall be required for any change in point of diversion or place or purpose of use of a Pueblo water right secured under this Settlement Agreement and the Partial Final Decree that is within the Pueblo's administrative authority.

11.1.2.2. ADMINISTRATIVE DECISION. Any Pueblo decision on a permit application shall be made in accordance with the procedural and substantive standards of the Pueblo Water Code. Prior to the promulgation and approval of the Pueblo Water Code as provided in **Article 11.1.1**, any Pueblo decision on a

permit application shall be made in accordance with the procedural and substantive standards of **Articles 11.1.3.1** through **11.1.3.5** and **11.1.4.1** through **11.1.4.4**.

11.1.3. PROCEDURAL STANDARDS. The Pueblo agrees that the Pueblo Water Code shall provide for the following:

11.1.3.1. NOTICE.

11.1.3.1.1. PUBLIC NOTICE. Subject to **Article 11.1.3.1.2**, the Pueblo shall publish Public Notice in the Taos News or another newspaper of general circulation within the Taos Valley within thirty (30) days of receiving a complete permit application. Such notice will appear at least once per week for three (3) consecutive weeks. Such notice shall include quantity of water, the point of diversion, and place and purpose of use at both move-from and move-to locations encompassed by the proposed action.

11.1.3.1.2. NON-PUBLIC NOTICE ACTIONS. Public Notice shall not be required for the following types of permit applications:

11.1.3.1.2.1. to divert or deplete less than three (3) AFY for stock watering or domestic uses;

11.1.3.1.2.2. to transfer a water right to an in-stream flow, Buffalo Pasture recharge, or ceremonial use; or

11.1.3.1.2.3. that the Settlement Model shows as having no groundwater drawdown effect or surface water depletion effect outside of Pueblo Lands.

11.1.3.1.3. RECORDS OF NON-PUBLIC NOTICE ACTIONS. For Non-Public Notice Actions described in **Article 11.1.3.1.2**, the Pueblo shall compile and retain records of those actions by January 31 and July 31 of each year. Upon a Party's request, the Pueblo shall grant reasonable access to such records. The requesting Party shall pay any reasonable associated document reproduction costs.

11.1.3.2. STANDING. The Pueblo shall recognize the standing of any owner of water rights in the Taos Valley who objects that a permit action Impaired or would Impair his or her surface water or groundwater right.

11.1.3.3. PROTEST. Persons with standing may:

11.1.3.3.1. within ten (10) days of the last date of publication of Public Notice in accordance with **Article 11.1.3.1.1** or within forty-five (45) days of the compilation of records in accordance with **Article 11.1.3.1.2**, submit to the Pueblo a written protest of a permit application or permit action;

11.1.3.3.2. participate as a protestant in Pueblo administrative proceedings to argue that the permit application or permit action Impaired or would Impair his or her water right; and

11.1.3.3.3. be represented by legal counsel, at his or her own expense, in Pueblo administrative proceedings.

11.1.3.4. HEARING. Pueblo administrative decisions will be based on a hearing at which protestants will be entitled to present evidence and cross-examine witnesses.

11.1.3.5. REVIEW. Upon exhaustion of Pueblo remedies, any person who participated as a protestant in a Pueblo administrative proceeding may challenge *de novo* the final Pueblo decision by pursuing judicial action to enforce or interpret this Settlement Agreement in accordance with **Article 13.14**.

11.1.4. SUBSTANTIVE STANDARDS. The Pueblo Water Code shall provide for the following:

11.1.4.1. rules for the management, regulation, and control of Pueblo water resources and which, at a minimum, establish conditions, limitations, and permit requirements related to the exercise of Pueblo water rights within Pueblo Lands;

11.1.4.2. a requirement that offsets be made for surface water depletion effects resulting from permit actions except as otherwise provided in this Settlement Agreement;

11.1.4.3. a requirement that: (a) approval of any proposed permit action will not Impair existing surface water or groundwater rights; and (b) Impairment of non-Indian rights will be determined based on state law standards; and

11.1.4.4. a requirement that the Pueblo will use the Settlement Model in making any administrative assessments of surface and groundwater effects.

11.1.5. AVAILABILITY OF PUEBLO WATER CODE. A copy of the Pueblo Water Code, including updates thereto, shall be made available to the federal district court, the United States Department of Justice (Environment and Natural Resources Division), the State Engineer, and the Town of Taos Public Library. A single photocopy of the Pueblo Water Code, including updates thereto, shall be provided to each Party upon request. Copies may be reviewed by interested persons at the Pueblo, and additional copies shall be made available at cost.

11.2. GENERAL GROUNDWATER PROVISIONS.

11.2.1. GROUNDWATER PRIORITY. The Water Rights Owning Parties agree that groundwater rights owned by a Party shall not be subject to priority enforcement through either an administrative, judicial, or other legal proceeding as among the Parties. Nothing in this Article shall be construed to limit the authority of the State Engineer to administer groundwater rights by priority on the Rio Grande, or in the Taos Valley Stream System, for the protection of water rights outside such stream system, for the enforcement of **Article 5.1.1.2.2.1.2**, or to ensure compliance with the Rio Grande Compact.

11.2.2. WELL SPACING AND DIVERSION LIMITS.

11.2.2.1. PUEBLO-TOWN WELL SPACING AND DIVERSION LIMITS.

11.2.2.1.1. DIVERSION LIMIT ZONES. Subject to the provisions of the June 2012 Bilateral Agreement between Taos Pueblo and the Town of Taos, the following reciprocal limits apply to: (a) the Town's groundwater diversions from wells within those zones centered on any of the Pueblo's existing Bureau of Reclamation, Bureau of Indian Affairs, or municipal system wells; and (b) the Pueblo's groundwater diversions from wells within those zones centered on any well that is part of the Town's In-Town Well Field or presently proposed for its Future Water Supply Well Field. For purposes of the diversion limit zones set forth below, all wells identified in this **Article 11.2.2.1.1** shall be considered "Protected Wells":

11.2.2.1.1.1. ZONE ONE. No diversions within a (¼) mile radius of a Protected Well;

11.2.2.1.1.2. ZONE TWO. No more than seventy-five (75) AFY of diversions within that zone lying between a one-quarter (¼) mile radius and a one-half (½) mile radius of a Protected Well;

11.2.2.1.1.3. ZONE THREE. No more than one hundred fifty (150) AFY of diversions, inclusive of those diversions allowable under **Article 11.2.2.1.1.2**, within that zone lying between a one-half (½) mile radius and a three-quarter (¾) mile radius of a Protected Well; and

11.2.2.1.1.4. ZONE FOUR. No more than three hundred fifty (350) AFY of diversions, inclusive of those diversions allowable under **Articles 11.2.2.1.1.2** and **11.2.2.1.1.3**, within that zone lying between a three-quarter (¾) mile and a one (1) mile radius of a Protected Well.

11.2.2.1.2. GENERAL SET-OFFS. The Town shall not construct any well as part of its Future Water Supply Well Field within one quarter (¼) mile of any Pueblo Lands, and the Pueblo shall not construct any new well within a one half (½) mile radius of any well that is part of the Town's Future Water Supply Well Field.

11.2.2.2. EPWSD WELL SPACING AND DIVERSION LIMITS.

11.2.2.2.1. EPWSD DEVELOPMENT ZONE. Unless a specific exception is set forth below, no Party, other than EPWSD, shall construct any new well within that zone that lies between the Pueblo's Tracts A and B and which is depicted on **Attachment 10** ("EPWSD Development Zone").

11.2.2.2.2. COORDINATION ZONE. Subject to the limitation set forth in **Article 11.2.2.2.6**, EPWSD and the Pueblo shall consult with one another with respect to any well that either Party intends to construct within one-quarter (¼) mile of the Tract A or Tract B boundaries that mark the southwest and northeast boundaries, respectively, of the EPWSD Development Zone.

11.2.2.2.3. EL TORREON WELL. There will be no groundwater diversions by any Party within one (1) mile of EPWSD's El Torreon Well, with the following exceptions related to the Pueblo and the Town:

11.2.2.2.3.1. The Pueblo shall not construct any new wells within one-half (½) mile of the El Torreon Well.

11.2.2.2.3.2. The Pueblo may divert up to sixty (60) AFY from within that zone lying within a three-quarter (¾) mile radius to the east and a one (1) mile radius to the west of EPWSD's El Torreon Well as set forth on **Attachment 10**.

11.2.2.2.3.3. If the Pueblo replaces, supplements, or deepens either or both of its two (2) Hail Creek wells, it will do so at a location or locations: (a) no closer to EPWSD's El Torreon Well than the existing wells; and (b) no closer than two hundred (200) feet from the existing wells. Diversions from the two (2) Hail Creek wells, including any replacement, supplemental, or deepened wells, shall be subject to the diversion limitation set forth in **Article 11.2.2.2.3.2**.

11.2.2.2.3.4. No limitation under this **Article 11.2.2.2** shall apply with respect to Pueblo groundwater diversions or construction of new wells outside of that zone defined by a three-quarter (¾) mile radius to the east and a one (1) mile radius to the west centered on the El Torreon Well.

11.2.2.2.3.5. No limitation under this **Article 11.2.2.2** shall apply with respect to Town groundwater diversions from the Mitchell well pursuant to **Article 6.2.4.3** or from wells permitted by the State Engineer as RG-7339-S-2 pursuant to **Articles 6.2.1** and **6.2.2**.

11.2.2.2.4. LAS COLONIAS WELL. No Party shall construct a new well within a one (1) mile radius of EPWSD's Las Colonias Well. The Pueblo's BOR 4 and 6 and BIA 10 and 11 presently exist and shall not be considered "new" wells.

11.2.2.2.5. MIDWAY WELL. No Party shall construct a new well within a one (1) mile radius of EPWSD's Midway Well or, prior to the actual construction of that well, its proposed location. The Pueblo's BOR 4 and 6 and BIA 10 and 11 presently exist and shall not be considered "new" wells.

11.2.2.2.6. RIO GRANDE WELL. No Party shall construct a new well within a one (1) mile radius of EPWSD's Rio Grande Well or, prior to the actual construction of that well, its proposed location, with the following exceptions related to the Pueblo:

11.2.2.2.6.1. EPWSD shall construct the Rio Grande Well no closer than two thousand two hundred fifty-four (2,254) feet from the Pueblo's Tract A boundary, and the Pueblo shall not construct any wells within a four thousand eight hundred ninety-four (4,894) foot radius of the Rio Grande Well's proposed location or, once that well has been constructed, its actual location.

11.2.2.2.6.2. The Pueblo shall divert no more than three hundred fifty (350) AFY within that zone that lies between a four thousand eight hundred ninety-four (4,894) foot radius and a two (2) mile radius of the Rio Grande Well's proposed location or, once that well has been constructed, its actual location.

11.2.2.2.6.3. THE TOWN'S TAOS REGIONAL AIRPORT WELL. The Town's existing Airport Well that is located at the Taos Regional Airport as depicted in **Attachment 10** will be limited to no more than fifty (50) AFY of groundwater diversion as further set forth in **Article 6.2.6**.

11.2.2.2.7. THE TOWN'S REGIONAL LANDFILL WELLS. The Town has one existing domestic well and existing water level monitoring wells at the Taos Regional Landfill. The Town may replace the monitoring wells as required by the New Mexico Environment Department.

11.2.2.3. WAIVERS. The Pueblo, the Town, and EPWSD may waive or modify any of the provisions of this **Article 11.2.2** if, based on the satisfactory exchange of hydrologic data, the potentially affected Party executes a written and dated document that expressly states the waiver, its scope, and the reason therefor.

11.2.2.4. PLANNING COORDINATION. To the greatest extent possible, the Parties will coordinate and share hydrologic information with respect to the planned location of future wells in the Taos Valley.

11.2.3. GROUNDWATER DEVELOPMENT INFRASTRUCTURE. As a result of EPWSD's limiting its groundwater production capacity from existing wells and replacing a portion of that lost capacity farther away from the Buffalo Pasture, it will be necessary for EPWSD to construct new infrastructure to connect the wells providing the replacement production capacity to its existing water delivery system. Subject to the conditions set forth in the May 30, 2006 Bilateral Agreement between EPWSD and the Pueblo, as amended, and existing Acequia easements, the Water Rights Owning Parties shall not protest or otherwise object to EPWSD's constructing all necessary infrastructure required to connect its Rio Grande, Midway, and El Torreon Wells to its existing water supply system, including pipelines, well houses, and water storage tanks. This **Article 11.2.3** does not affect existing property rights. EPWSD agrees to obtain all easements and rights of way in accordance with New Mexico law.

11.3. GENERAL SURFACE WATER PROVISIONS.

11.3.1. UNIFORM IRRIGATION REQUIREMENTS. Prior to the entry of a Partial Final Decree on the Pueblo's water rights, the Parties shall jointly move the Court to adopt the following values to be used for adjudication of all Pueblo and non-Indian water rights in the Taos Valley Stream System.

11.3.1.1. CONSUMPTIVE IRRIGATION REQUIREMENT. The CIR shall be one and thirty-eight hundredths (1.38) AFY per acre.

11.3.1.2. FARM DELIVERY REQUIREMENT. The FDR shall be two and seventy-six hundredths (2.76) AFY per acre (50% on-farm efficiency).

11.3.1.3. PROJECT DIVERSION REQUIREMENT. The PDR shall be three and ninety-four hundredths (3.94) AFY per acre (70% ditch efficiency), unless a different efficiency can be shown for a specific ditch on a case-by-case basis.

11.3.2. SURFACE-TO-GROUNDWATER TRANSFERS. With respect to non-Indian Water Rights Owning Parties, surface water to groundwater transfers shall be made in accordance with state law. With respect to Pueblo surface water to groundwater transfers, the quantity of water which may be diverted from a well or wells will be limited to the consumptive use of the lands from which the surface transfer is being made as limited by the historically available surface water supply or supplies on which that portion of the HIA Right relied. Surface water diversions shall cease for any water right or portion thereof that is changed to a groundwater point of diversion. Such reductions in diversions shall not be a basis for any conclusion that surface waters have been made available for appropriation by other parties. Reductions in diversions required under this Article shall be made consistent with **Article 7**.

11.4. DATA COLLECTION AND SHARING.

11.4.1. GROUNDWATER.

11.4.1.1. GROUNDWATER DIVERSION DATA. For purposes of enforcing the provisions of this Settlement Agreement, the Water Rights Owning Parties shall install and maintain totalizing meters or other appropriate measuring devices on all wells diverting more than three (3) AFY, collect and compile diversion data, and make such data available to the other Parties upon reasonable request and payment of reasonable costs.

11.4.1.2. GROUNDWATER LEVEL MEASUREMENTS. The Water Rights Owning Parties shall measure the groundwater levels in each of their respective wells two (2) times each year, the first time being within five (5) days of April 15 and the second time being within five (5) days of October 15. The Water Rights Owning Parties shall maintain records of daily diversions for fifteen (15) days prior to their water level measurements and the length of time the well was off before the measurement. Unless otherwise agreed to by the Water Rights Owning Parties, no data shall be required to be collected for those wells diverting ten (10) AFY or less. Data required pursuant to this **Article 11.4.1.2** shall be collected, compiled, and made available to the other Parties upon reasonable request and payment of reasonable costs.

11.4.2. SURFACE WATER. To the extent stream flows or diversions are required to be measured under this Settlement Agreement, such data shall be collected, compiled, and made available to the other Parties upon reasonable request and payment of reasonable costs.

11.4.3. COMPREHENSIVE MONITORING PROGRAM.

11.4.3.1. The Water Rights Owning Parties shall continue negotiations, outside of this Settlement Agreement, on the design and implementation of a comprehensive surface and groundwater monitoring system for the collection of data for the improvement of the understanding of Taos Valley hydrology. Important principles include but are not limited to:

11.4.3.1.1. identifying or creating a network of wells that effectively covers the Taos Valley to monitor water levels in different levels of the aquifers, including the shallow aquifer;

11.4.3.1.2. measuring groundwater levels at least twice a year, before the beginning of the irrigation season and after it ends;

11.4.3.1.3. regularly measuring groundwater diversions; and

11.4.3.1.4. making the data available to all Parties.

11.4.3.2. When the Parties agree upon a comprehensive monitoring program as set forth in **Article 11.4.3.1**, it shall replace the requirements of **Articles 11.4.1** and **11.4.2**.

12. WAIVERS AND RELEASES OF CLAIMS.

12.1. PUEBLO AND UNITED STATES CLAIMS.

In return for recognition of the Pueblo's water rights and other benefits, including but not limited to the commitments by non-Pueblo Parties, as set forth in this Settlement Agreement and the Settlement Act, the Pueblo, on behalf of itself and its members, and the United States, acting in its capacity as trustee for the Pueblo, shall execute the waiver and release authorized by Section 510(a) of the Settlement Act and included as **Attachment 16** to this Settlement Agreement.

12.2. PUEBLO CLAIMS.

The Pueblo, on behalf of itself and its members, shall execute the waiver and release authorized by Section 510(b) of the Settlement Act and included as **Attachment 17** to this Settlement Agreement.

12.3. RESERVATION OF RIGHTS AND RETENTION OF CLAIMS.

The waivers and releases described in **Articles 12.1** and **12.2** notwithstanding, the Pueblo on behalf of itself and its members and the United States acting in its capacity as trustee for the Pueblo shall retain all rights, remedies, privileges, immunities, powers, and claims not specifically waived and released pursuant to the Settlement Act and the Settlement Agreement, as described in Section 510(c) of the Settlement Act, and in **Attachments 16** and **17**.

12.4. EFFECT OF SETTLEMENT AGREEMENT AND SETTLEMENT ACT

Nothing in the Settlement Agreement or the Settlement Act—

12.4.1. affects the ability of the United States of America acting in its sovereign capacity to take actions authorized by law, including but not limited to any laws relating to health, safety, or the environment, including but not limited to the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.), the Safe Drinking Water Act (42 U.S.C. 300f et seq.), the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 et seq.), the Solid Waste Disposal Act (42 U.S.C. 6901 et seq.), and the regulations implementing such Acts;

12.4.2. affects the ability of the United States of America to take actions acting in its capacity as trustee for any other Indian tribe or allottee;

12.4.3. confers jurisdiction on any state court to (A) interpret federal law regarding health, safety, or the environment or determine the duties of the United States or

other parties pursuant to such federal law; or (B) conduct judicial review of federal agency action; or

12.4.4. waives any claim of a member of the Pueblo in an individual capacity that does not derive from a right of the Pueblo.

12.5. EFFECTIVENESS OF WAIVERS.

Nothing in this Article acknowledges the existence or validity of any claims that are being waived and released. The waivers referenced in this Article shall become effective on the Enforcement Date and are subject to the terms of the Settlement Act, including Sections 509(g) and (h) and 510.

13. GENERAL PROVISIONS.

13.1. CONSISTENCY WITH SETTLEMENT ACT.

In the event any provision of this Settlement Agreement is held to be inconsistent with the Settlement Act, the Parties agree that the terms of the Settlement Act shall control and that all other provisions of this Settlement Agreement, insofar as consistent with the Settlement Act, shall remain effective and binding.

13.2. REGIONAL WATER PLANNING.

The negotiations leading to this Settlement Agreement have provided the opportunity to discuss the non-federal Parties' common interests in, and the mutual benefits of, regional water planning and supply, improved efficiencies, water quality, and water conservation measures. If studies of these benefits are sought, such studies will not be included or funded as a component of this Settlement Agreement.

13.3. PROJECT MODIFICATION OR FAILURE.

If, after the Enforcement Date, any of the projects or other measures set forth in **Articles 5.2.3.1, 6, 7.3.1,** or **7.3.3** fail, are determined to be infeasible, do not receive necessary permits, or for any other reason fail to meet the objectives of the Parties as reflected in the terms of this Settlement Agreement, the Parties shall reconvene and negotiate in an attempt to agree on modified or alternative projects or measures that are otherwise consistent with this Settlement Agreement and secure to the Parties the benefits of their bargain, including the permit exemptions and the waiver of protests, objections, or opposition in any manner to any applicable permits that are consistent with the Settlement Agreement and that are necessary for the construction and operation of the modified or alternative projects or measures contained in this Settlement Agreement. In addition, if, after the Enforcement Date, EPWSD, TVAA, or the MDWCAs receive funding from

the State that is not adequate to acquire and transfer the water rights set forth in **Articles 6.1.2, 6.3.1.8,** and **6.4.4**, the Water Rights Owning Parties shall reconvene and negotiate in an attempt to obtain funding sufficient to complete the acquisition and transfer of those water rights. The Mitigation Well System is an integral part of this Settlement Agreement. If it fails or is not used as the means of providing surface water offsets required by the Water Rights Owning Parties' Future Groundwater Diversions as set forth in **Article 7.3.3.1.10**, then a critical part of the Settlement Agreement which all Parties have bargained for will be removed. Under such circumstances, the Water Rights Owning Parties shall reconvene and negotiate terms and provisions which will provide mutually acceptable alternative solutions.

13.4. DISCLAIMER.

Nothing in this Settlement Agreement shall be construed as establishing any standard to be used for the quantification of federal reserved rights, aboriginal claims, or any other Indian claims to water rights or lands in any judicial or administrative forum or proceeding.

13.5. EVIDENTIARY EFFECT OF NEGOTIATIONS.

The Parties have developed this Settlement Agreement through good faith negotiation for the purpose of resolving legal disputes, including pending litigation. No conduct, statements, offers, or compromises made in the course thereof shall be construed as admissions against interest or be used in any legal forum or proceeding.

13.6. AUTHORSHIP.

This Settlement Agreement reflects the joint drafting efforts of all Parties. In the event that any dispute, disagreement, or controversy arises regarding this Settlement Agreement, the Parties shall be considered joint authors and no provision shall be interpreted against any Party because of authorship.

13.7. AUTHORIZATION TO EXECUTE.

Each Party represents and warrants that it is authorized to execute this Settlement Agreement on behalf of the respective Parties hereto and does so freely and voluntarily.

13.8. EFFECT OF EXECUTION.

Execution of this Settlement Agreement by all institutional entities signifies that all provisions of this Settlement Agreement have been approved by those entities' respective governing bodies and that those entities bind themselves to the obligations and benefits of this Settlement Agreement.

13.9. **NO INDUCEMENTS.**

Each Party acknowledges and represents that in executing this Settlement Agreement it has not relied on any inducements, promises, or representations made by the other Parties that are not reflected in this Settlement Agreement, except to the extent that such Party is also a party to the May 30, 2006 Bilateral Agreement between the Pueblo and TVAA, the May 30, 2006 Bilateral Agreement between the Pueblo and EPWSD, as amended, the May 17, 2006 Bilateral Agreement between EPWSD and the Town, the May 17, 2006 Bilateral Agreement between the Acequia Madre del Prado and the Town, or the June 2012 Bilateral Agreement between Taos Pueblo and the Town of Taos. Any inducements, promises or representations made in one of these separate agreements are applicable only to the parties to that agreement.

13.10. **ADVICE OF COUNSEL.**

Each Party warrants and represents that, in executing this Settlement Agreement, it has relied upon legal advice from counsel of its choice; that the terms of this Settlement Agreement have been read, and its consequences have been completely explained to it by counsel; and that it fully understands the terms of this Settlement Agreement.

13.11. **CONTINGENT ON APPROPRIATION OF FUNDS.**

The expenditure or advance of any money or the performance of any obligation by the United States or the State of New Mexico under this Settlement Agreement is contingent upon appropriation of funds therefor. In the event Congress fails to appropriate funds the United States shall not accrue liability under this Settlement Agreement. In the event the New Mexico Legislature fails to appropriate funds the State of New Mexico shall not accrue liability under this Settlement Agreement.

13.12. **OFFICIALS NOT TO BENEFIT.**

No member of or delegate to Congress shall be admitted to any share or part of this Settlement Agreement or to any benefit that may arise here from. This restriction shall not be construed to extend to this Settlement Agreement if made with a corporation or company for its general benefit.

13.13. **COUNTERPARTS.**

This Settlement Agreement may be signed in counterparts by one or more of the Parties, and those counterparts, when taken together, shall have the same force and effect as if a single, original document had been signed by all the Parties.

13.14. INTERPRETATION AND ENFORCEMENT.

Subject to Section 511 of the Settlement Act:

13.14.1. ACTIONS. Actions to enforce or interpret this Settlement Agreement or the Settlement Act may be brought in a court of competent jurisdiction over the subject matter.

13.14.2. SUBJECT MATTER JURISDICTION NOT AFFECTED. Nothing in this Settlement Agreement shall be deemed as conferring, restricting, enlarging, or determining the subject matter jurisdiction of any court, including the jurisdiction of the court that enters the Partial Final Decree adjudicating the Pueblo's water rights.

13.14.3. CONSENT TO SUIT.

13.14.3.1. Section 511(a) of the Settlement Act specifies the extent to which the sovereign immunities of the United States and of the Pueblo are waived for purposes of enforcement or interpretation of this Settlement Agreement or the Settlement Act.

13.14.3.2. Upon the Enforcement Date the State agrees to waive its sovereign immunity to any suit in a court of competent jurisdiction over the subject matter for purposes of enforcement or interpretation of this Settlement Agreement or the Settlement Act. However, no waiver of sovereign immunity shall be made for any action against the State that seeks money damages.

13.14.4. REGULATORY AUTHORITY NOT AFFECTED. Nothing in this Settlement Agreement shall be deemed to determine or limit any authority of the State or the Pueblo to regulate or administer waters or water rights now or in the future.

13.15. GOVERNING LAW.

This Settlement Agreement shall be construed in accordance with applicable law.

13.16. SUCCESSORS AND ASSIGNS.

This Settlement Agreement shall, unless otherwise indicated, be binding on and inure to the benefit of the Parties and their respective successors and assigns.

13.17. **INTEGRATION.**

This Settlement Agreement incorporates all Attachments included herewith and sets forth the entire agreement of the Parties with respect to the subject matter hereof. This Settlement Agreement may be amended only by written agreement executed by all of the Parties and approved by the Court.

14. TERM.

The Parties agree that the term of this Settlement Agreement shall be perpetual.

15. SIGNATURES.

UNITED STATES OF AMERICA

Ken Salazar

Date: 12/20/2012

Ken Salazar
Secretary
U.S. Department of the Interior

TAOS PUEBLO

Laureano B. Romero, Governor

Benito M. Sandoval, War Chief

Gilbert Suazo, Sr., Lt. Governor

Albert A. Archuleta, Lt. War Chief

Attest:

Patrick J. Romero, Tribal Secretary

Harold Lefthand, War Chief Secretary

Taos Tribal Council:

Ernesto C. Luhan, Tribal Council Secretary

Paul T. Martinez, Cacique

Nelson J. Cordova, Councilman

James Lujan, Sr., Councilman

Ruben A. Romero, Councilman

Edwin Concha, Councilman

Robert Espinosa, Councilman

Bernard Lujan, Councilman

Luis Romero, Councilman

STATE OF NEW MEXICO

By: _____
Susana Martinez, Governor

By: _____
Gary K. King, Attorney General

By: _____
Scott Verhines, State Engineer

Date: 1/24/13

TOWN OF TAOS

By: _____
Darren M. Cordova, Mayor

Date: 12-19-12

EL PRADO WATER AND SANITATION DISTRICT

By: _____
Telesfor R. Gonzales, Chairman

Date: _____

TOWN OF TAOS

By: _____
Darren M. Cordova, Mayor

Date: _____

EL PRADO WATER AND SANITATION DISTRICT

By: Telesfor R. Gonzales
Telesfor R. Gonzales, Chairman

Date: 12/18/12

TAOS VALLEY ACEQUIA ASSOCIATION

By: Palemon A. Martinez
Palemon A. Martinez, President

Date: Dec. 19, 2012

ACEQUIA DE LA ATALAYA

By: Richard McCracken
Its commissioner

Date: 12/20/2012

ACEQUIA DE LA PLAZA

By: Peter Mendez
Its commissioner

Date: 12/20/12

ACEQUIA MADRE DEL LLANO

By: Fernando Martinez
Its commissioner

Date: 12/21/2012

CAÑONCITO NORTH DITCH

By: Herbert Garcia
Its Commissioner, Herbert Garcia

Date: 12-19-12

CAÑONCITO SOUTH DITCH

By: Herbert Garcia
Its Commissioner, Herbert Garcia
12-19-12
Date: Commissioner

DES MONTES DITCH

By: Dennis B Johnson
Its Commissioner, Dennis Johnson

Date: 12/19/12

REBALSE DITCH

By: Dean Archuleta
Its Commissioner, Dean Archuleta

Date: 12/19/12

ACEQUIA ABAJO LA LOMA

By: Adelaido Tobay Romero
Its Commissioner

Date: 12/19/12

ACEQUIA DE PONCE DE LEON

By: [signature]
Its COMMISSIONER

Date: 12/20/12

ACEQUIA DEL ANTONIO MARIA GRAHAM

By: Arthur Coca
Its Commissioner

Date: 12/20/12

ACEQUIA DEL FINADO FRANCISCO MARTINEZ

By: Bennie Mondragón
Its Commissioner

Date: 12/19/12

ACEQUIA DEL MONTE

By: Gael Minton
Its Commissioner

Date: 12.19.12

ACEQUIA DEL TIO GERBACIO

By: Mario Barela
Its Commissioner

Date: 12-20-12

ACEQUIA EN MEDIO LOS RIOS

By: Carpio O. Tafoya
Its Commissioner

Date: 12-19-12

ACEQUIA EN MEDIO/MATT HART

By: Manuel P. Trujillo
Its Comissioner

Date: 12-20-12

ACEQUIA JAROSO

By: Tobias A. Martinez
Its Commissioner, Tobias A. Martinez

Date: 12-19-12

ACEQUIA MADRE DEL RIO CHIQUITO

By: Aaron Romero
Its Commissioner, Aaron Romero

Date: 12/19/12

ACEQUIA MADRE DEL RIO GRANDE

By: Tobias A. Martinez
Its Commissioner, Tobias A. Martinez

Date: 12-19-12

ACEQUIA SAUCITO

By: Joe L. Mondragon
Its Commissioner, Joe L. Mondragon

Date: Dec. 19, 2012

EMILIO CHAVEZ DITCH

By: _____
Its COMMISSIONER
Date: 12/20/12

LOS CORDOVAS ACEQUIA NO. 1

By: Tomas Chavez Tomas Chavez
Its Commissioner
Date: 12/20/12

LOS CORDOVAS ACEQUIA NO. 2

By: _____
Its Commissioner - Acting mayordomo
Date: 12-20-2012

TALPA RESERVOIR DITCH

By: Arthur Coca
Its Chairman
Date: 12/20/2012

ACEQUIA MADRE DE LA LOMA DEL RANCHITO DE ABAJO

By: Leroy Graham
Its Commissioner, Leroy Graham

Date: 12/19/12

ACEQUIA DEL MEDIO DEL PRADO

By: Lesley L Green
Its Commissioner

Date: 12-19-12

ACEQUIA MADRE DEL PRADO

By: Telesforo R. Gonzales
Its Commissioner

Date: 12/20/12

MCCLURE DITCH

By: Kevin D Schmidt
Its Commissioner

Date: 12/20/12

PACHECO COMMUNITY DITCH ASSOCIATION

By: John P. Mera
Its ~~JM/12th~~ Commissioner
Date: 12/21/12

ACEQUIA DE SAN FRANCISCO DE PAUDA

By:
Its COMMISSIONER
Date: DEC 19, 2012

SPRING DITCH

By:
Its
Date:

LA ACEQUIA DE LOS LOVATOS

By:
Its COMMISSIONER
Date: 12.20.2012

EL MOLINO DITCH (EAST)

By: Josepha A. Cruz
Its Commissioner

Date: December 20, 2012

ACEQUIA DE LOS MOLINOS A/K/A EL MOLINO DITCH (WEST)

By: Stephen C. Campos
Its Commissioner

Date: December 19, 2012

CORTEZ Y CISNEROS DITCH

By: Carl Rosenberg
Its Commissioner, Carl Rosenburg

Date: 12/19/12

ACEQUIA MADRE DEL SUR DEL CANON

By: Miguel A. Santisteban
Its Commissioner, Miguel A. Santisteban

Date: 12/20/12

VIGIL Y ROMO DITCH

By: Epifanio O. Medina
Its Commissioner

Date: 12/20/12

ACEQUIA LA LOMA ABAJO

By: Nick Romero
Its Commissioner, Nick Romero

Date: 12/19/12

ANDERSON ACEQUIA

By: David R. Shoemaker
Its Commissioner, David R. Shoemaker

Date: 12/19/12

LOWER ARROYO SECO DITCH

By:
Its 12/21/12 commissioner, Shantal Goodwin

Date: 12/21/12

ACEQUIA DE LOS OJITOS (LATERAL OF ACEQUIA MADRE DE LA LOMA DEL RANCHITO DE ABAJO)

By: Leroy Graham
Its Commissioner, Leroy Graham
Date: 12/19/12

ACEQUIA DE LOS ALAMITOS (RIO FERNANDEZ)

By: Leroy Graham
Its Commissioner, Leroy Graham
Date: 12/19/12

ACEQUIA DE JOSE VENITO MARTINEZ

By:
Its Commissioner
Date: 12/20/12

DAN ARCHULETA DITCH

By: Lilly Fernandez
Its Commissioner, Lilly Fernandez
Date: 12/20/12

ACEQUIA DE LOS ALAMITOS (RIO PUEBLO)

By: Patricia Jaramillo
Its Commissioner

Date: 12.20.2012

UPPER MANUEL ANDRES TRUJILLO COMMUNITY DITCH ASSOCIATION

By: Phillip Castonc
Its Commissioner

Date: 12-19-12

ACEQUIA DEL LA OTRA BANDA

By: Mark A. Schuetz
Its Commissioner

Date: 12/19/12

ACEQUIA DE LOS SANCHEZ

By: Eugene A Sanchez
Its PRESIDENT

Date: 12/20/12

ACEQUIA MADRE DEL RIO LUCERO Y DEL ARROYO SECO

By: Nathaniel E. Garcia
Its _____

Date: 12-18-12

JUAN MANUEL LUCERO COMMUNITY DITCH ASSOCIATION

By: Felix Santistevan
Its Commissioner

Date: 12/19/12

ACEQUIA MADRE DEL PUEBLO

By: Nick Romero
Its Commissioner, Nick Romero

Date: 12/19/12

LOWER MANUEL ANDRES TRUJILLO COMMUNITY DITCH ASSOCIATION

By: Felix Santistevan
Its 12/19/12

Date: Commissioner

ACEQUIA MADRE DEL NORTE DEL CANON

By: Nick Romero
Its Commissioner, Nick Romero

Date: 12/19/12

RANDALL RESERVOIR ACEQUIA ASSOCIATION

By: Wilma Cordova
Its Commissioner

Date: 12/19/2012

ACEQUIA DE LOS PRANDOS

By: Solomon A. Martinez
Its Chairman

Date: Dec. 19, 2012

ACEQUIA DE SAN ANTONIO

By: Elias Espinoza
Its Commissioner

Date: 12 - 19 - 2012

ARROYO SECO MUTUAL DOMESTIC WATER CONSUMERS ASSOCIATION

By: _____ DIANA BOYD
Its PRES POINT

Date: 12/20/2

CAÑON MUTUAL DOMESTIC WATER CONSUMERS ASSOCIATION

By: _____
Its agent Board Member

Date: 12/20/12

EL SALTO MUTUAL DOMESTIC WATER CONSUMERS ASSOCIATION

By: _____
Its President

Date: 12/20/2012

LLANO QUEMADO MUTUAL DOMESTIC WATER CONSUMERS ASSOCIATION

By: Andrew D. Chavez
Its President

Date: 12-21-12

LOWER ARROYO HONDO MUTUAL DOMESTIC WATER CONSUMERS ASSOCIATION

By: Isabelle T. Rendon
Its President

Date: 12-21-12

LOWER DES MONTES MUTUAL DOMESTIC WATER CONSUMERS ASSOCIATION

By: Mike Martinez
Its President

Date: 12-20-12

RANCHOS DE TAOS MUTUAL DOMESTIC WATER CONSUMERS ASSOCIATION

By: Leroy Pacheco
Its Pres.

Date: 12-12-2012

TALPA MUTUAL DOMESTIC WATER CONSUMERS ASSOCIATION

By: Raul E. Vigil
Its Vice President

Date: 12-20-12

UPPER ARROYO HONDO MUTUAL DOMESTIC WATER CONSUMERS ASSOCIATION

By: Fernando G Mares
Its President
Date: 12/20/2012

UPPER DES MONTES MUTUAL DOMESTIC WATER CONSUMERS ASSOCIATION

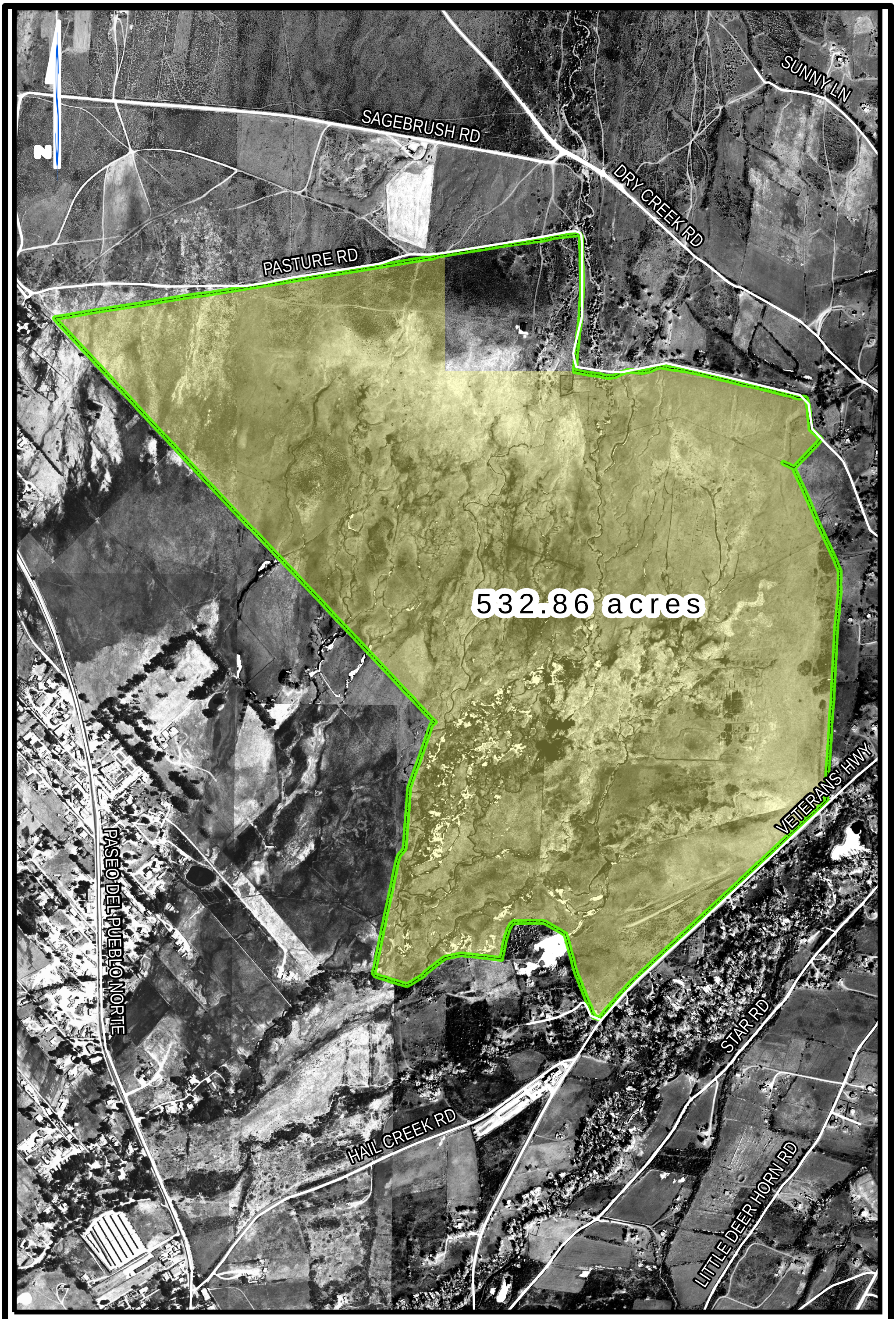
By: Otto Romero
Its President
Date: 12/20/2012

UPPER RANCHITOS MUTUAL DOMESTIC WATER CONSUMERS ASSOCIATION

By: Leonard Trujillo
Its President
Date: 12/21/12

VALDEZ MUTUAL DOMESTIC WATER CONSUMERS ASSOCIATION

By: Elias Espinoza
Its President
Date: 12-20-2012



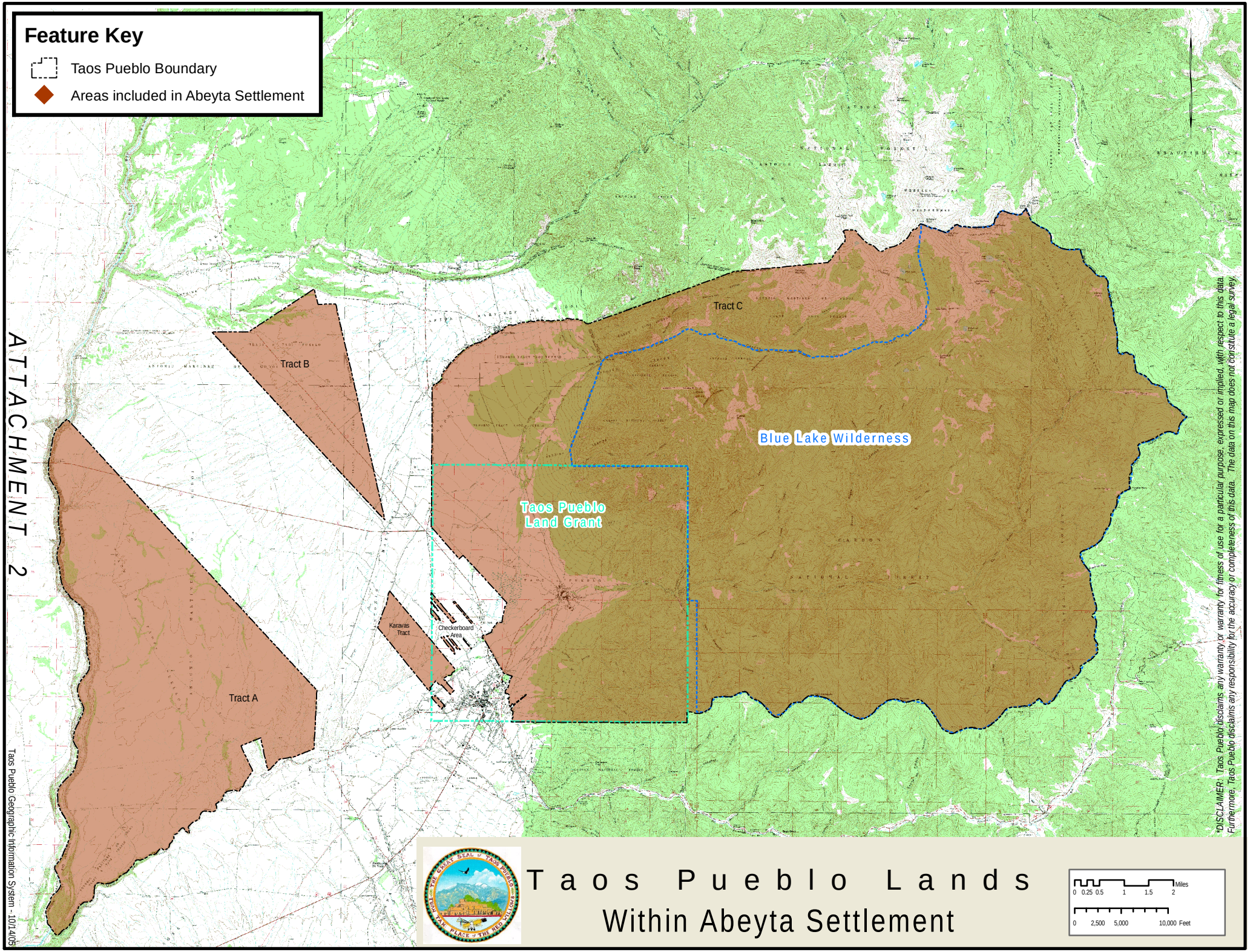
Taos Pueblo

Buffalo Pasture Recharge Area

Buffalo Pasture Boundary

Buffalo Recharge Area (07/19/05)

Taos Pueblo Geographic Information System - July 2005


Feature Key
Taos Pueblo Boundary
Areas included in Abeyta Settlement
Tract A
Tract B
Tract C
Karavas Tract
Checkerboard Area
Taos Pueblo Land Grant
Blue Lake Wilderness
ATTACHMENT 2
Taos Pueblo Geographic Information System - 10/14/05
*DISCLAIMER: Taos Pueblo disclaims any warranty or warranty for fitness of use for a particular purpose, expressed or implied, with respect to this data. Furthermore, Taos Pueblo disclaims any responsibility for the accuracy or completeness of this data. The data on this map does not constitute a legal survey.
Taos Pueblo Lands
Within Abeyta Settlement
Miles
0 0.25 0.5 1 1.5 2
0 2,500 5,000 10,000 Feet

Attachment 3 to the

SETTLEMENT AGREEMENT AMONG THE UNITED STATES OF AMERICA, TAOS PUEBLO, THE STATE OF NEW MEXICO, THE TAOS VALLEY ACEQUIA ASSOCIATION AND ITS 55 MEMBER ACEQUIAS, THE TOWN OF TAOS, EL PRADO WATER AND SANITATION DISTRICT, AND THE 12 TAOS AREA MUTUAL DOMESTIC WATER CONSUMERS' ASSOCIATIONS

Part I: Documentation of OSE Taos Area Calibrated Groundwater Flow Model T17.0, January 11, 2006, by Peggy Barroll, PhD and Peter Burck, CGWP, NMOSE. 37 pages, plus Appendices A, B and C.

Part II: Development of the T17sup.M7 Superposition Version of the Taos Area Groundwater Model, and Water Rights Administration under the Taos (Abeyta) Settlement; April 16, 2012. by Peggy Barroll, PhD, NM OSE. 17 pages, plus Appendices A, B, C, D and E.

Attachment 3
Part I

Documentation of OSE Taos Area Calibrated Groundwater Flow Model T17.0,
January 11, 2006,
by Peggy Barroll, PhD and Peter Burck, CGWP, NMOSE.
37 pages, plux Appendices A, B and C.

DOCUMENTATION OF OSE TAOS AREA CALIBRATED GROUNDWATER FLOW MODEL T17.0 1/11/2006

by

Peggy Barroll, Ph.D. and Peter Burck, CGWP
New Mexico Office of the State Engineer

with

Taos Area Hydrogeologic Framework Discussion and Attachment
by
Paul Drakos, Jay Lazarus, Mustafa Chudnoff and Meghan Hodgins of Glorieta Geoscience Inc.

Prepared by the
New Mexico Office of the State Engineer
Water Resource Allocation Program
Technical Services Division

TABLE OF CONTENTS

Page

Executive Summary …….. 1

1 Introduction ……. 1

1.1 Project Overview ……..…. 1

1.2 Code and Software …… 4

1.3 Modeled Area ……..… 4

1.4 Conceptual Model ……..… 4

1.5 Stream-Aquifer Interaction …….. 6

1.6 Hydrogeology ……. 7

2 Groundwater Model Design and Input Parameters ……... 9

2.1 Model Temporal Discretization …… 9

2.2 Model Structure ……. 9

2.3 Areal Recharge and Mountain Front Recharge …… 11

2.4 Irrigation Return Flows …… 12

2.5 Surface Water Features ……... 13

2.6 Evapotranspiration ……. 14

2.7 Groundwater Diversions …… 15

2.8 Hydraulic Properties ……... 16

3 Model Calibration ……. 18

3.1 Calibration Overview …….. 18

3.2 Calibration Targets ……. 18

3.3 Calibration Results ……. 19

4 Summary and Conclusions…… 22

5 References…… 23

Figures …….…… 28-37

Appendix A: Water Level Data for Calibration

Appendix B: Distribution of Hydraulic Properties, Stresses and Calibration Results

Appendix C: Hydrologic Characteristic of Basin-Fill Aquifers in the Southern San Luis Basin, New Mexico by Paul Drakos, Jay Lazarus, Bill White, Chris Banet, Meghan Hodgins, Jim Riesterer and John Sandoval, 2004.

Appendix D: CD with T17.0 Model Input Files: Calibrated Model and Future Projection Input Files.

LIST OF FIGURES

Figures follow text: pages 28-37

Figure 1 Location map

Figure 2 Observed water-level contour map (after Spiegel and Couse, 1969; and Purtymun, 1969), with new exploration wells posted.

Figure 3 Model grid and selected model boundary features superimposed on base map.

Figure 4 Model grid, selected model features with information on upper-most active model layer, and stream reach identifiers.

Figure 5 Schematic cross section of the Taos Valley showing geological layers represented in the Taos Groundwater model.

Figure 6 Cross-section, to scale, but with vertical exaggeration, showing model layers with topography and water table superimposed.

Figure 7 Enlarged cross-section, to scale, but with vertical exaggeration, showing model layers with topography and water table superimposed. Enlarged to show uppermost layers in more detail.

Figure 8 Calibration Results for Taos Groundwater Model: All head observations plotted vs. simulated heads. A perfect model would have all points landing on the 1:1 line (shown).

Figure 9 Calibration Results for Taos Groundwater Model: Frequency Distribution of Residuals: Residual = observed head minus simulated head.

Figure 10 Diagram of Model Grid with Vertical Hydrologic Gradient Sites.

LIST OF TABLES

Table		Page
Table 1	Participating Member of Taos Technical Committee	2
Table 2	Model Layer Descriptions……	10
Table 3	Transmissivity and Storage Values from Pumping Tests ……	17
Table 4	Model Calibration Statistics……	20
Table 5	Vertical Head Differences between Shallow and Deep Wells: Observed and Simulated…….	21
Table 6	Model Water Budget……	22

EXECUTIVE SUMMARY

A calibrated groundwater model has been developed for the Taos Valley. This model is the result of several years of collaboration between the NM Office of the State Engineer, the U.S. Bureau of Reclamation, and other professional hydrologists with considerable experience in the Taos Valley, representing the Parties to the Abeyta Adjudication Settlement negotiations. The model was developed in response to 1) a need for a tool to evaluate the effects of groundwater development proposed during Adjudication Settlement Negotiations, especially groundwater diversions from deep levels of the aquifer system, and 2) a need for a tool to administer the wells subject to the Settlement Agreement.

Given the hydrogeologic complexity of the Taos area, this groundwater flow model does a relatively good job matching observed water levels, the discharge from the springs at Buffalo Pasture, and the observed large downward vertical gradients. Simulation of the large vertical gradients constrains model vertical anisotropy, and allows the model to simulate the interaction between the deep and shallow aquifer systems with reasonable reliability. The model was designed, in part, to evaluate the hydrologic effects of wells proposed under the Taos Adjudication settlement, and it is recommended that the model be used in evaluating the hydrologic impacts of those wells. Determination of how and whether the model should be applied to the hydrologic evaluation of other wells should be made on a case-by-case basis.

1. INTRODUCTION

1.1 Project Overview

At the request of the Parties to the Abeyta Adjudication Settlement negotiations, the New Mexico Office of the State Engineer (OSE) Hydrology Bureau developed a regional, 7-layer, groundwater flow model of the Taos Valley, New Mexico using the USGS groundwater flow simulator MODFLOW-2000. The OSE developed the model with input from members of the Taos Technical Committee. (Table 1) The Taos Technical Committee is comprised of geohydrologists representing the major parties involved in Taos Settlement negotiations (*State of New Mexico ex rel. State Engineer v.*

Abeyta and *State of New Mexico ex rel. State Engineer v. Arellano,* Civil Nos. 7896-BB and 7939-BB (consolidated) ("Abeyta")). Numerous model versions were generated during this process. This report documents the version released in 2004 as version T17.0, which was adopted by the Parties to the settlement negotiations for the purpose of evaluating hydrologic aspects of the Settlement Agreement.

Table 1 Participating Members of Taos Technical Committee

Names	From	Party Represented
Peggy Barroll Peter Burck	NM Office of the State Engineer (OSE)	State of New Mexico
Robert Talbot Tom Bellinger	US Bureau of Reclamation (USBOR)	United States
Lee Wilson Roger Miller	Lee Wilson and Associates	Taos Pueblo
Mustafa Chudnoff Jay Lazarus Meghan Hodgins Paul Drakos	Glorieta Geoscience	Town of Taos
John Shomaker	John Shomaker and Associates, Inc.	Taos Valley Acequia Association
Maryann Wasiolek Michael Spinks	Hydroscience Associates Inc.	El Prado Water and Sanitation District
Chris Banet Bill White John Sandoval	US Bureau of Indian Affairs (USBIA)	Taos Pueblo

This model incorporates results from recent hydrogeologic investigations, including a recent Town of Taos/Taos Pueblo cooperative deep drilling and hydrologic testing project sponsored by the USBOR. The geologic and hydrogeologic framework and aquifer coefficients used in the model are presented in Drakos et al. (2004c), which summarizes and interprets results from the deep drilling program and other Taos Valley geologic and hydrologic investigations. The Drakos Report is presented in Appendix C of this report. The model also incorporates the most recent geologic/hydrologic mapping by the New Mexico Bureau of Geology and Mineral Resources. Water level data collected by many agencies and consultants were used as calibration targets, including new data from the deep drilling project that allowed quantification of the large vertical hydraulic gradients present in the valley.

The model simulates groundwater flow in about 3000 feet of alluvial and volcanic materials. Geologic strata represented in the model include Quaternary alluvial fan

deposits, Tertiary Servilleta basalt flows, and Tertiary Santa Fe Group sediments. Key hydrologic processes are simulated, including natural recharge, irrigation seepage, evapotranspiration, and the interaction between groundwater and surface water features including the Rio Grande, its tributaries, and Buffalo Pasture springs.

The groundwater model is designed to calculate the effects of groundwater diversions on aquifer water levels and depletion to the Rio Grande, its tributaries and springs, including the Buffalo Pasture springs on Taos Pueblo. The tributaries supply water for irrigation to Taos Pueblo and to members of the Taos Valley Acequia Association. The Buffalo Pasture springs have great cultural significance to Taos Pueblo, and the Pueblo places a high value on protecting these springs.

The groundwater model can be and has been used to evaluate scenarios in settlement negotiations in the on-going Abeyta water rights adjudication. In addition, it is anticipated that the model will form the basis of an administrative tool that will be used, as appropriate on a case-by-case basis, to administer water rights and evaluate the hydrologic impacts of proposed groundwater diversions, especially deep groundwater diversion such as the wells proposed in the Taos Settlement Agreement as of October 2005. (It may be preferable to use other methods to evaluate the effects of shallow wells).

The model was run in steady state mode using long-term average stress inputs, and calibrated to the measured water levels from area wells and groundwater discharge estimated to occur to the Rio Grande and Buffalo Pasture. The calibrated model simulates observed heads and groundwater discharges reasonably well, and captures major groundwater features such as large downward vertical gradients, thus allowing the interaction of the shallow and deep aquifer systems to be well simulated. Transient calibration runs were made using historical metered and estimated groundwater diversions. These transient runs gave reasonable results, but groundwater development in the area has so far been very limited, and the available data do not show any significant aquifer response to groundwater development.

This model was developed in conjunction with a surface water model of the Taos Valley that was produced by the USBOR. The development of the surface water model assisted in the development of some groundwater model input parameters, such as irrigation return flow and evapotranspiration by riparian and wetlands vegetation.

However, now that these basic inputs have been developed, no other data from the surface water model are required in order to evaluate groundwater diversions. The groundwater model can be run independently of the surface water model in the evaluation of development alternatives.

1.2 Code and Software

The model was constructed using the modular three-dimensional finite-difference groundwater flow code developed by the United States Geological Survey (USGS) commonly known as MODFLOW (McDonald and Harbaugh, 1988, and Harbaugh and McDonald, 1996). MODFLOW-2000 was used in this application (Harbaugh et al., 2000; Hill et al., 2000). The model uses days (d) for the time unit, and the length units are in feet (ft). Thus, head measurements are given in feet above mean sea level (amsl), transmissivity values are in feet squared per day (ft^2/d), and flow values are reported in cubic feet per day (ft^3/d).

1.3 Modeled Area

This model simulates the alluvial/volcanic aquifer system within the Taos Valley in Northern New Mexico (Figure 1). A detailed description of the model structure is presented in Section 2.2. The model is bounded by the mountain-front of the Sangre de Cristo Mountains on the east, the Rio Grande on the west, and the Rio Hondo on the north. The southern boundary is defined by the foothills of the Picuris Mountains and the confluence of the Rio Grande and Rio Pueblo de Taos (Figure 2). The model area includes the areas in and near the Town of Taos, Taos Pueblo, and surrounding communities (e.g., Ranchos de Taos, Los Cordovas, Cañon, Talpa, El Prado, Arroyo Seco, and Arroyo Hondo). The model grid is shown in Figure 3 and 4.

1.4 Conceptual Model

The Taos Valley surface water system (Figure 2) consists of the Rio Grande and a number of tributaries that rise in the Sangre de Cristo Mountains and discharge into the Rio Grande. These tributaries include, from north to south, the Rio Hondo, Arroyo Seco, Rio Lucero, Rio Pueblo de Taos, Rio Fernando, Rio Chiquito and Rio Grande del

Rancho. The Rio Grande is deeply incised into the Servilleta basalts at the bottom of the Taos Gorge, and the tributaries generally become more deeply incised close to their confluence with the Rio Grande.

Recharge enters the Taos groundwater system from 1) precipitation in the Sangre de Cristo Mountains, 2) seepage of tributary flow, 3) local precipitation, and 4) return flow and seepage from surface water irrigation. In general, groundwater in the shallow combined Servilleta/alluvial aquifer system flows in a southwesterly direction from the Sangre de Cristo mountain-front, subsequently discharging into the Rio Grande (Drakos et al. 2004c Figure 5). Based on limited data available from 12 deep wells (Drakos et al 2004c Figure 6), groundwater in the deeper alluvial aquifer, below the Servilleta basalts, appears to flow from east to west. Water leaves the aquifer via discharge to surface water features, pumping, and evapotranspiration. There may be some underflow components to and from adjacent basins, but these are not well quantified, and have been neglected in the current analysis. A schematic cross-section of the Taos Valley showing geologic layers represented in the model is presented in Figure 5.

The model area includes a shallow unconfined alluvial aquifer system in the eastern part of the Taos Valley, underlain by layers of Servilleta basalt that extend westward to the Rio Grande. Below the Servilleta basalts, a deep aquifer system consisting of older Santa Fe Group basin fill deposits extends to depths greater than 3000 feet. Large downward gradients are observed between the shallow and deep systems, reflecting the drainage of groundwater from the shallow aquifer system downward into the deep aquifer. Within the deep system itself, piezometer data from the deep drilling project indicates moderate vertical gradients, mostly downward, but data from two sites indicates modest upward gradients (Drakos et al., 2004c).

Groundwater development in the Taos Valley has been minor. On the order 2,500 acre-feet per year (AF/yr) of groundwater is diverted from wells, and the available water level data do not shown any significant or regional drawdown in response to this diversion. The few wells for which more than one water level is available do not show any systematic response to regional pumping, but rather, water level variations appear to reflect seasonal changes in conditions (USBIA wells near the Buffalo Pasture), or the difference in recharge between wet and dry years.

A number of springs discharge groundwater in the upper Taos Valley (within a few miles of the mountain front, where the water table is relatively shallow). The most significant of these are associated with the Buffalo Pasture on Taos Pueblo. Much of the spring discharge in the Taos valley appears to represent reappearing surface water that had seeped into the ground upstream of the springs, from streams, acequias or applied irrigation water.

Evapotranspiration from phreatophytic vegetation and wetlands consumes water in some parts of Taos Valley, most significantly in the vicinity of the Buffalo Pasture. Evapotranspiration along the edges of streams probably intercepts infiltrating surface water before it could reach the regional water table, whereas wetlands farther away from streams are assumed to directly deplete shallow groundwater.

1.5 Stream-Aquifer Interaction

The Rio Grande gains water throughout the river reach downstream of the Rio Hondo to the confluence of the Rio Grande and the Rio Pueblo de Taos, and acts as a drain to the groundwater system. Gains from groundwater seepage to the Rio Grande include subsurface gains along the riverbed and gains from springs in the canyon walls. Seepage studies and evaluation of gage data indicate that this reach gains about 20 to 25 cubic feet per second from groundwater (cfs) (Tetra Tech, 2003). The Rio Grande in this reach also gains water from surface inflows from the Rio Hondo and the Rio Pueblo de Taos.

The tributary streams in the Taos area vary in how well they are connected to the groundwater system. The upper Rio Pueblo de Taos, near Taos Pueblo, is known to gain water from the groundwater system, as do various sub-reaches of the Rio Pueblo and Rio Lucero (USBOR, 2002). These reaches are clearly connected to the shallow groundwater system, and groundwater pumping could intercept water that otherwise would have discharged into these reaches. Other tributary reaches are unlikely to be well connected to the groundwater system. Except in its uppermost reaches at or near the mountain front, Arroyo Seco is a losing stream that is often dry, with lengthy reaches perched well above the water table. As a result, the connection between Arroyo Seco and the groundwater system is limited. Similarly, Rio Lucero above the Buffalo Pasture

is a losing stream that appears to be perched well above the water table; therefore groundwater pumping would not affect surface water flow in that reach. There are fewer observational data available for other tributary reaches such as the Rio Fernando, Rio Grande del Rancho and Rio Chiquito. It is assumed in the model that t these streams are connected to the groundwater system.

The Buffalo Pasture itself is a large wetland located in and around the lower Rio Lucero, upstream from its confluence with the Rio Pueblo de Taos. The Buffalo Pasture is fed by the discharge of groundwater at numerous springs. Total groundwater discharge from the Buffalo Pasture appears to vary, and measurements and estimates of this discharge range from 2 to 15 cfs. In 2001, the total discharge measured from several large springs in the Buffalo Pasture totaled 7.41 cfs (USBOR, 2001). It is likely that much of the groundwater discharge from the Buffalo Pasture originated as seepage from the Rio Lucero and upstream acequias and also from mountain front recharge. The location of the springs may be geologically controlled: a low-permeability sedimentary unit may occur close to the surface under the Buffalo Pasture, forcing groundwater to the surface (Chris Banet, USBIA, personal communication, 8/22/2003).

1.6 Hydrogeology

The Taos region is known to have at least four discrete groundwater zones or layers within 2500 feet below land surface. Figure 5 is a schematic cross section of the model area. There appear to be at least two water-bearing zones within the alluvial fan sediments above the Pliocene Servilleta basalt, one at depths approximately from 5 to 200 feet and another at depths approximately from 400 to 750 feet. Water in the fan sediments is sometimes perched and may be widespread across the eastern part of the valley as a result of historic irrigation practices. A third water-producing interval is located between the Upper and Middle Servilleta basalts and is informally referred to as the Aqua Azul Aquifer (Drakos, 2004a). The thickness of the entire Servilleta Formation (including interbedded sediments) ranges from 0 to 650 ft (Dungan et al., 1984). The sediments below the Servilleta are correlated with Miocene Santa Fe Group clays, silts, sands and gravels exposed in outcrop near Pilar, NM. These materials are rift fill sediments (Galusha and Blick, 1971) and consist of moderate to poorly sorted sands

with clasts of intermediate volcanic rock, quartzite, and other metamorphic rocks (Bauer and Kelson, 1998).

Groundwater generally flows from recharge areas near the Sangre de Cristo Mountains westward toward the Rio Grande. In the eastern part of the Valley, the water table is well above the Servilleta basalts in shallow alluvial deposits only tens of feet below the surface. Farther west the water table is 150 ft or deeper within the Servilleta basalts and interbedded sediments.

These geologic units are crosscut by numerous faults, generally associated with the development of the Rio Grande Rift. The faults generally trend north-south, and step down toward the west. Pumping test data from wells near these faults (part of the recent USBOR drilling program) indicate that some faults act as a partial barrier to the flow of groundwater (Drakos et al., 2004c).

The Sangre de Cristo mountain block east of the Taos Valley has significantly different lithologic and hydrologic properties than the shallow alluvial or deeper basin fill aquifers. The mountain block is comprised of Paleozoic sedimentary rocks, Oligocene intrusives, and Precambrian granites. Groundwater flow within the mountain block is assumed to be small, and its effects are simulated in the model by a mountain front recharge term. To the north and south, the valley is constricted by the mountains and foothills. There may be some subsurface hydrologic connection between the Taos Valley and other valleys along the Rio Grande to the north and south, but these connections are poorly understood and not quantified. West of the Rio Grande, data are sparse and the hydrology is relatively poorly understood.

2. GROUNDWATER MODEL DESIGN AND INPUT PARAMETERS

2.1 Model Temporal Discretization

The model was first run in steady-state mode using long-term averages of natural recharge and irrigation related return flow, and long-term average surface inflows to tributary streams. A 40-year transient run followed, in which the average recharge and stream-inflows from the steady-state run were continued, with the addition of increasing historically metered and estimated groundwater diversions.

Relatively little groundwater development has occurred in the Taos Valley and a trend of declining water levels in response to groundwater development has not been observed. Therefore the most important and reliable part of the calibration is the steady-state run. The transient run was made to confirm that simulated water levels remained relatively stable, and are consistent with historically observed water levels.

2.2 Model Structure

As shown in Figures 3 and 4, the model grid encompasses a 225-square mile area from the Rio Grande on the west, to the Taos range of the Sangre de Cristo Mountains on the east, and from the Rio Hondo on the north, to the confluence of the Rio Grande with the Rio Pueblo de Taos on the south. The model area measures 15 miles by 15 miles and has 60 rows, 60 columns, and 7 layers. Rows and columns are evenly spaced and measure 1,320 feet (1/4 of a mile) on each side. The southwest corner of the model grid is tied to the southwest corner of Section 2 of Township 24 North, Range 11 East, New Mexico Coordinate System. The grid is oriented north-south and east-west.

Figures 3 and 4 show the extent of the hydrologically active model cells, and some of the model boundary conditions. Model cells located in the mountain areas to the east and the area west of the Rio Grande are inactive. The lateral boundaries of the model are all specified flux and no-flow boundaries. These boundaries were not simulated as head-dependent-flux boundaries because of the lack of hydrologic information about how, or even whether, the Taos Valley aquifers extend continuously

beyond the boundaries here defined, and therefore it was decided that groundwater flow across those boundaries should be strictly limited.

Figure 5 depicts a schematic geologic cross section of the model area. Layer descriptions and nominal thickness are given in Table 2. Figures 6 and 7 show a cross section of the model grid itself, with the observed water table superimposed. The total model thickness is more than 3,000 feet. Land surface elevations range from about 6,100 feet amsl in the southwest to just under 8,000 feet in the northeast. Upper layers thin and pinch out toward the west (Figure 5, 6 and 7). Consequently, rivers and streams cut down from higher to lower layers as they flow west. Figure 4 shows a plan view of the model, with the uppermost active layers of the model designated by color.

TABLE 2. MODEL LAYER DESCRIPTIONS

LAYER	GEOLOGIC DESCRIPTION	THICKNESSES (ft)
1, 2	Youngest alluvial fan deposits derived from Sangre de Cristo Mountains. .	20, 30
3	Youngest alluvial fan deposits derived from Sangre de Cristo Mountains. (Northern Basin: Reworked alluvial fan materials)	50 (up to 700)
4	Reworked alluvial fan materials and other basin fill deposits including poorly to well sorted silts, sands, and gravels	<100 to 550
5	Pliocene Servilleta basalt flows and interbedded sediments	400
6, 7	Miocene Santa Fe Group sediments composed of fluvial, eolian, and lacustrine clays, silts, sands, and gravels	500, 1700

For reasons of model stability, the model simulates all layers as “Type 0” layers, in which transmissivity does not change as aquifer water levels change. MODFLOW-2000 requires input of aquifer storativity, and for the parts of Taos model layers that are unconfined, storativity values are set so that appropriate unconfined storages are calculated. The assumption of constant transmissivity layers is acceptable since historical drawdowns have been very small, and anticipated drawdowns in the shallow unconfined system are anticipated to remain small.

Geologic deposits simulated include Quaternary alluvial fan materials derived from the Taos Range of the Sangre de Cristo Mountains (Layers 1 through 4), Pliocene Servilleta basalt flows and interbedded sediments (Layer 5), and Miocene Santa Fe

Group sediments consisting of clay, silt, sand, and gravel of fluvial, aeolian, and lacustrine origin (Layer 6 and 7).

Several mapped faults are represented using the MODFLOW horizontal flow barrier (HFB) package. These faults – Los Cordovas, Town Yard, and other unnamed faults – generally trend north and are typically down to the west. Two types of faults, out of numerous mapped faults, were explicitly simulated with the MODFLOW HFB package: 1) faults for which water level and pumping test data suggest a hydrologic influence (Drakos, et al, 2004c) and 2) a number of other representative major faults. The faults were simulated as less transmissive than the surrounding aquifer material, thereby slowing the east-west flow of groundwater in the deeper layers.

2.3 Areal Recharge and Mountain Front Recharge

Areal recharge is estimated at 4% of the average annual precipitation (12.55 inches per year, Garrabrant, 1993) or 0.5 inches. Areal recharge is simulated with the MODFLOW recharge package and is distributed uniformly over the uppermost active cells in model layers 1 through 4, where the water table is within ~200 feet of the surface. The total amount of areal recharge applied is 1,820 acre-feet per year.

Mountain front recharge of about 5,310 acre-feet per year is applied along the mountain front on the eastern and part of the southern boundary (see diagram in Appendix B), through the MODFLOW WEL package, which applies specified flux stresses to the groundwater system. The amount of mountain front recharge was originally based on discussions with the Taos Technical Committee and water budget calculation for the area (Keller and Blisner, 1995), and modified during calibration to improve the agreement between simulated and observed water levels and groundwater discharge. The final amount of mountain front recharge (5,310 acre-feet per year) is equal to about 1.3% of the estimated average annual precipitation over the mountainous part of the watershed, which is not inconsistent with results obtained by the USGS using chloride mass balance methods for other watersheds in the Sandia (0.7% to 15 %) and Sangre de Cristo (3% to 6%) Mountains (Anderholm 2001 and 1994), although it is on the low side. In comparison, surface water runoff represents about 23% of the estimated mean annual precipitation in the mountainous part of the

watershed. The distribution of mountain front recharge in the model area was originally based on a water budget study by Mike Johnson (2003) and modified during calibration. Mountain front recharge is applied in model layers 1 through 4, at rates decreasing with depth, to represent both infiltration of streamflow at the mountain-front, and smaller amounts of deeper flow from the mountain-block.

2.4 Irrigation Return Flows

Irrigation return flows consist of recharge from acequia/ditch/lateral seepage and on-farm deep percolation. The amount and distribution of the return flow referred to as "groundwater accretions" was derived from the U.S. Bureau of Reclamation's Taos Valley surface water model (Bellinger, 2003). Groundwater accretions represent a fraction of the surface water diverted for irrigation of about 12,000 acres of land (Bellinger, 2003). The surface water model calculates groundwater accretions on a seasonal basis for a variety of surface water reaches. These reaches were correlated with zones of cells in the groundwater model corresponding to the locations of the conveyances and irrigated lands. A long-term average of the groundwater accretions from the surface water model was applied to the groundwater model, on a zone-by-zone basis (see diagram in Appendix B).

Groundwater accretions include only the part of irrigation return flows that actually recharge the regional aquifer. Groundwater accretions do not include excess irrigation water that remains on the surface or that only seeps into the shallow subsurface and quickly reappears as surface water. Such water is treated in the surface water model as being available to downstream irrigators. The groundwater accretion components were applied in zones defined using Geographic Information System (GIS) coverage identifying irrigated lands. Specified flux cells in the MODFLOW WEL package were used to simulate this process. Groundwater accretions account for a total of about 11,910 AFY, reflecting about 1 AFY of deep percolation to the aquifer per acre of irrigated land resulting from both canal seepage and on-farm return flows.

2.5 Surface Water Features

Eight river reaches are simulated in the model:

- Rio Grande
- Rio Hondo
- Arroyo Seco
- Rio Lucero
- Rio Pueblo de Taos
- Rio Fernando de Taos
- Rio Chiquito, and
- Rio Grande del Rancho.

The Rio Grande is simulated using the RIV package of MODFLOW, and the tributaries are simulated using the STR package. The RIV package simulates head-dependent flux to and from the groundwater from a simple surface water body. The STR package is a more complex version of RIV that allows for some accounting of the amount of surface water in the tributaries, and allows the tributaries to go dry when all the surface water is lost. Long-term average annual stream flow values derived from USGS stream gage measurements are applied to the upper end of the tributary STR cells. Since the Rio Grande is perennial and gaining in this reach, it was decided that it was not necessary to use the more complex STR package to simulate the Rio Grande.

The model is designed such that the various reaches incise more deeply into the model from east to west. That is, the upper (eastern) portions of the tributaries are simulated by cells in layers 1 through 3, farther west these tributaries drop into layers 4 and 5, and the Rio Grande itself is in layers 5 and 6.

The Buffalo Pasture springs cover a roughly 600-acre marshy area on both sides of the Rio Lucero. These springs are represented as cells in two reaches of the Rio Lucero using MODFLOW STR package.

Input elevations associated with all STR and RIV cells were determined from USGS Digital Elevation Model data and from topographic maps. Conductances for tributary STR cells were initially set assuming a vertical hydraulic conductance of about 1 ft/d, and modified slightly during calibration. Final conductance values for most of the tributary reaches ranged from 10,000 to 50,000 ft^2/d. The conductances of cells

representing the heart of the Buffalo Pasture were much higher in order to represent the large area of groundwater discharge, and to simulate the observed spring discharge. The final conductance value for cells in the heart of the Buffalo Pasture was 500,000 ft^2/d. The RIV cells representing the Rio Grande were also given large conductances (550,000 ft^2/d), representing the high degree of hydrologic connection that exists between the Rio Grande and the geologic units which discharge into it.

2.6 Evapotranspiration

Non-crop evapotranspiration (ET) is simulated with the MODFLOW ET package. The ET package was applied to all of the uppermost active cells of the model, but an extinction depth of 6 feet was specified, which meant that ET was only active in a limited part of the model. In most cells, a maximum evaporation rate of 2.2 feet per year was specified based on calculation of CIR for phreatophytes made by Brian Wilson of the OSE (Wilson and Smith, 2004). In cells containing stream reaches, the maximum ET rate is reduced to one-fifth of that in other cells. This reduction is made in stream cells to account for the fact that much of the water consumed by stream-side vegetation is probably intercepted surface water, a physical process which is accounted for in the water budget of the USBOR surface water model.

Total ET from the groundwater model is simulated to be about 5,370 acre-feet per year, which is a reasonable value consistent with other estimates of non-crop evapotranspiration, but not well constrained by observational measurements. A comparison of spatial locations of model cells experiencing ET with GIS coverage of soggy soils/wet meadows (from the National Resources Conservation Service Soil Survey Geographic Database, SSURGO) shows relatively good agreement between the two[1].

[1] The best available information regarding locations where ET actually occurs in the field is reportedly the SSURGO data, which shows the spatial distribution of soils that developed under anoxic conditions because of perennial or seasonal high water levels, and also soils that occur in association with hydric conditions on the loosely defined valley floors (Roger Miller, personal communication, 7/29/2003).

2.7 Groundwater Diversions

Groundwater diversions from a variety of water users are represented (see diagrams in Appendix B). The model includes the following groundwater diversions (with recent diversion amounts):

1) Town of Taos municipal wells (currently about 840 acre-feet per year),
2) El Prado Water and Sanitation District (64 acre-feet per year),
3) about one dozen mutual domestic water users associations (about 400 acre-feet per year)
4) approximately 1,900 individual private domestic wells (pumping 560 acre-feet per year),
5) multiple household domestic wells (pumping 300 acre-feet per year), and
6) commercial sanitary wells using 190 acre-feet per year.

Wells were identified from OSE records and by data provided by Taos Technical Committee members.

Metered diversions were available for public water supply wells. Diversions for other wells were estimated at 0.25 AFY per well for domestic wells serving single dwellings, 3.0 AFY per well for domestic wells serving multiple dwellings, and 3.0 AFY for wells listed in OSE records as “Sanitary” type wells.

2.8 Hydraulic Properties

The model defines zones of hydraulic conductivity (K), which are then multiplied by layer thicknesses (b) to generate transmissivity. Model hydraulic conductivities were in part defined based upon the results of 46 aquifer tests (Drakos et al. 2004c, Tables 1, 2, 3, 4, 5; Table 3 this report), and in part based on available lithologic data. Adjustments were made to both K values in zones and the boundaries between zones during calibration, while keeping model values consistent with the magnitude and trends of the available well test data. Transmissivity (T) values from aquifer tests in the shallow system range from 250 to 6,000 ft^2/d although no values are available for the shallowest stream-channel sediments. Transmissivity in the lower aquifer system tends to be lower, ranging from 100 to 1,600 ft^2/d.

The final hydraulic conductivities in the calibrated model produce T values that are consistent in trend and magnitude with the aquifer test values (see diagrams in Appendix B). Model hydraulic conductivities in the shallow system range from 1.0 to 90.0 ft/d, yielding T values in the range from 500 to 10,000 ft^2/d. A very low K and T are given to cells within Buffalo Pasture, representing low permeability "Marsh" sediments, and the underlying Blueberry Hill deposit, which are thought to force groundwater to discharge in this area (verbal communication, Chris Banet, US BIA). Model hydraulic conductivities for the deeper layers (6 and 7) are systematically lower, ranging from 0.1 to 3.0 ft/d, yielding T values of around 200 to 400 ft^2/d in the central part of the Taos Valley, and T values between 1,000 and 2,500 ft^2/d for the western and southern parts of the deep system. The higher values of T in the western part of layers 6 and 7 are consistent with an aquifer test from the River View Acres well of 1250 ft^2/d, near the Rio Grande, but are otherwise poorly constrained by well test data.

There are few pumping tests with observation wells in the shallow aquifer in the Taos area. Therefore, storage values for the Taos model were based on standard hydrologic texts (Freeze and Cherry, 1979) and other alluvial aquifer models in New Mexico (McAda and Barroll, 2002; McAda and Wasiolek, 1988). For reasons of stability, the model simulates all layers as "Type 0", in which a specific storage value is multiplied by the layer thickness. Specific storage was set so as to generate the appropriate unconfined storage coefficient (0.15) for areas that are not confined. That is, specific storage for each cell is set equal to 0.15 divided by the saturated thickness of the cell. For parts of the model that are confined, the specific storage is set at 2×10^{-6} per foot, which is consistent with the theoretical storage due to the compressibility of water with adjustment for aquifer compressibility, and consistent with other water resource groundwater models of alluvial basins (McAda and Barroll, 2002).

There is evidence that the vertical anisotropy (the ratio of horizontal hydraulic conductivity to vertical) is large. This evidence includes the presence of 1) large observed vertical hydraulic gradients (up to 50 feet of head decline per 100 feet of increasing depth), and 2) horizontal low permeability beds, including thick horizontal basalt layers. Model anisotropy was determined during calibration, in order to accurately simulate the observed vertical gradients, and ranges from 25:1 near the edges of certain alluvial layers, to 1400:1 in the basalt layer.

Table 3 Transmissivity and Storage Values from Pumping Tests			
Well Name	**Screened Depth**	**Transmissivity (ft^2/d)**	**Storage (unitless)**
Arroyo Park	Shallow	495 – 561	0.00053
Baird Joint Venture	Shallow	1150 – 2308	0.001
Barranca del Pueblo	Shallow	454 – 882	
BOR 2A	Shallow	230	
Buffalo Pasture	Shallow	2000 – 6300	0.003 – 0.1
Cameron	Shallow	414 – 588	
Ceja de Colonias	Shallow	235 – 282	
Cielo Azul	Shallow	390	
Clinic	Shallow	900	
Colonias Point	Shallow	976 – 1497	
Cooper	Shallow	187 – 401	
Don's	Shallow	810	
Hail Creek Deep	Shallow	5000	0.0063
Howell Well	Shallow	4278 – 7753	
Kit Carson	Shallow	1069 – 1764	
La Fontana	Shallow	2807 – 4679	
La Percha	Shallow	481 – 976	
Riverbend	Shallow	1600	0.000085
River View Acres	Shallow	1250	
San Juan-Chama	Shallow	400 – 468	0.00025 – 0.00027
Ski & Tennis Ranch	Shallow	35 – 504	
TP-2 Taos North	Shallow	930	
Tract A PW2	Shallow	175	
El Prado	Shallow+Deep	3000	
Airport Deep	Deep	est. 250	
BOR 1 (RG-73095)	Deep	520 – 1400	
BOR 2B	Deep	260 – 290	
BOR 2C	Deep	370 – 1470	
BOR 3 (RG-74545-EX)	Deep	450 – 710	0.0005
BOR 4	Deep	121 – 334	
BOR 5	Deep	110 – 119	
BOR 6	Deep	270 – 800	
BOR 7	Deep	109	
Karavas 2 (Screen 2)	Deep	90 – 200	0.0014 – 0.019
Karavas 3	Deep	100 – 210	
Mariposa	Deep	530	
National Guard Domestic	Deep	760	
Rio Pueblo 2000	Deep	280 – 700	
Rio Pueblo 2500	Deep	115 – 140	
Taos Yard	Deep	400	
Tract A PW	Deep	300	
Tract B PW	Deep	600	0.0002
Tract B PW2	Deep	220	
Tract B Tip – BIA 10	Deep	275	0.001
Tract B Tip – BIA 11	Deep	310	
UNM Taos	Deep	176 – 706	

3. MODEL CALIBRATION

3.1 Calibration Overview

The model was started under steady-state conditions, which represented conditions before substantial groundwater pumping, followed by a transient historical period simulation of 40 years during which historical groundwater diversions were applied. The model was calibrated to observed water level data, estimated discharge from the Buffalo Pasture springs and discharge to the Rio Grande. Calibration was done using trial-and-error methods.

Little change in model water levels or discharges was simulated to occur during the transient simulation in most areas of the model, which is consistent with the available observational data. Observed well hydrographs show only climatically induced variability, and not any trend indicative of groundwater development. Therefore, no attempt was made to simulate the observed well hydrographs; instead the simulated change in water levels over the transient period was checked to ensure that unreasonably large values had not been simulated.

3.2 Calibration Targets

Water level data used to calibrate the model were obtained from various sources including:

- U.S. Geological Survey (USGS) Ground-Water Site Inventory (GWSI)
- Office of the State Engineer well records (including WATERS database)
- Bauer et al. (1999)
- Garrabrant (1993)
- Glorieta Geoscience, Inc. reports
- Lee Wilson and Associates, Inc. report (1978)
- Taos Pueblo well inventory
- Purtymun (1969)

These water level data are tabulated in Appendix A.

The range of water levels is similar to the range in land surface elevation in the model, from about 6,100 feet amsl at the Rio Grande to nearly 8,000 feet amsl near the mountain front. There is considerable scatter in the observed water level data, in part because of issues of hydrogeologic complexity and the presence of large hydrologic

gradients, but also in part because of variable data quality. The recent USBOR drilling program provides high quality data from a number of piezometer nests, allowing quantification of the vertical gradient. Calibration was performed so as to match both individual water levels and to match the overall large downward vertical gradient between the shallow and deep aquifer systems. No attempt was made to simulate the much smaller observed upward gradient within the deep aquifer, which is assumed to be associated with a local geologic structure (Drakos et al., 2004c).

Additional calibration targets included groundwater discharge to the Rio Grande within the reach simulated by the model (estimated at about 1 cfs per mile or 20 cfs), the estimated discharge from the Buffalo Pasture (estimated at various times between 2 and 15 cfs), and the general distribution of gaining and losing reaches on the tributaries, including some seepage loss data from the Rio Lucero and Rio Pueblo de Taos.

For convenience, water level targets and the discharge target for the Buffalo Pasture were including in MODFLOW-2000 observation package input files. MODFLOW-2000 automatically provided output on how well these targets were matched, which simplified evaluation of trial-and-error calibration runs.

3.3 Calibration Results

Trial-and-error calibration resulted in a model whose hydraulic properties are relatively consistent with observed values, and that simulates observed water levels, vertical gradients and groundwater discharges adequately. The distribution of hydraulic properties in the calibrated model is provided Appendix B in diagram form. The match of simulated and observed water levels (also provided in Appendix B) is generally good, but shows considerable scatter, which is expected considering the large amount of scatter in the available water level data. In general, the shallow system is simulated more closely than the deep system. Model calibration statistics are given in Table 4. 50% of simulated water levels are within 20 feet of observed values, and 82% are within 50 feet, which is acceptable given the scatter in the data and the large range of observed water levels across the model area (1267 feet). Most large residuals are associated with wells at the edge of the basin, or wells of suspect location or screening (we did not attempt to eliminate such outliers). Figure 8 shows observed vs. modeled water level elevations, and Figure 9 is a chart of the distribution of residuals. The

residual is the difference between the observed head and the model simulated heads at the same locations (observed head minus model-simulated head). Ideally, for a perfect model, all residuals would be zero. Figures 8 and 9 show a reasonable distribution of residuals for a regional model of this complex system. Residuals are mostly of reasonable size, and their distribution is centered on zero.

The fact that the upper model layers pinch out to the west as the water table cuts down through the geologic section causes some anomalous conditions at the limits of these layers. In the layers 1, 2 and 3 this is treated by increasing the vertical conductance at the western edge of the pinching layer, thus allowing water from an upper layer to flow westward, in accordance with the hydrologic gradient, into the next layer. This creates minor anomalies in simulated heads, especially near the western edge of layer 4 where simulated heads drop precipitously, creating more of a “step” than can be observed in field data. However, observed data are sparse in this area, west of Arroyo Seco, where the water table drops hundreds of feet below land surface as the shallow aquifer system gives way to a deeper hydrologic system. What data there are suggest that the shallow hydrologic system represented by model layers 1-4 may not be in direct connection with the deeper hydrologic system represented in layers 5, 6 and 7 in this area. Without more detailed local data it probably would not be worthwhile attempting to improve the simulation of this area.

TABLE 4. Model Calibration Statistics

PARAMETER	ALL LAYERS
Number of Observations	354
Residual Mean (feet)	0.95
Residual Standard Deviation (feet)	44.5
Sum of Squared Residuals (feet squared)	695,424
Absolute Residual Mean (feet)	30.0
Minimum Residual (feet)	-143
Maximum Residual (feet)	229
Observed Head Range (feet)	1267
Minimum Observed Head (feet)	6452
Maximum Observed Head (feet)	7719
Std. Deviation/Head Range	3.5 %
Percent of Residuals within 100’	96 %
Percent of Residuals within 50’	82 %
Percent of Residuals within 30’	67 %
Percent of Residuals within 20’	51 %
Percent of Residuals within 10’	30 %

This model closely simulates the large vertical gradients observed between the shallow (layers 1-4) and deep (layers 5-7) aquifer system in the Taos Valley. Observed difference in water level between deep and shallow wells and /or piezometers at the same location range from 100 to over 400 feet (the deeper well having the lower water level), and this phenomenon was well simulated by the model (see Table 5). These well-quantified downward vertical gradients constrained model vertical anisotropy, which in many models is a highly uncertain and unconstrained parameter because of the lack of definitive calibration data from multi-level piezometers.

TABLE 5. Vertical Head Difference Between Shallow and Deep Wells and Corresponding Model Layers. All Gradients Listed Reflect Lower Heads at Deeper Depths

WELL	OBSERVED (feet)	SIMULATED (feet)
BOR 1/ National Guard	62	104
BOR 2 and 3	218	212
BOR 4 and 6	424	405
BOR 5	132	104
BOR 7	253	260
Cielo Azul	208	217
Grumpy	137 (?)	473
Karavas 2 and 3	255	260
L25/L27	41	46
Rio Pueblo 2500	131	117

The groundwater model also adequately simulates observed groundwater discharge targets. Analysis of recorded flows in the Rio Grande from the confluence of the Rio Grande and Rio Hondo to the Taos Junction stream gage shows a gain of about 20 - 25 cfs (or about 1 cfs per mile). The model simulates approximately 21 cfs discharge from groundwater in this reach. At the Buffalo Pasture, modeled discharge from groundwater is about 5 cfs or 3,800 acre-feet per year, compared with 2 to15 cfs range of observed discharge (which may contain a direct surface water return component not simulated here in the model).

In addition, other qualitative flow and discharge targets were simulated successfully. These targets include large observed losses from the upper reach of the Rio Lucero and gains to the upper reach of the Rio Pueblo de Taos. Arroyo Seco was

also correctly simulated to have large losses, and as going dry over an extended reach. The water budget from the calibrated model at the end of the transient run is provided in Table 6. The difference between total recharge and total discharge is less than 0.05%, and is well within acceptable limits.

TABLE 6. Groundwater Model Water Budget, End of Simulation (Present-Day Conditions)

Recharge	AF/Y	Discharge	AF/Y
Areal Recharge from Precipitation	1,820	Discharge at Buffalo Pasture Springs	3,960
Mountain Front Recharge	5,310	Evapotranspiration	5,350
Irrigation Seepage	11,910	Groundwater Pumping	2,540
Tributary Recharge (to aquifer)	18,810	Discharge to Tributaries	11,420
Water Released from Aquifer Storage	370	Discharge to Rio Grande	14,940
Total Recharge	38,220	Total Discharge	38,210

4. SUMMARY, CONCLUSIONS, DISCUSSION

The T17.0 model is the result of several years of collaboration between the OSE, and the US Bureau of Reclamation with input from other professional hydrologists with considerable experience in the Taos Valley representing the Parties to the Abeyta Adjudication Settlement negotiations. The model was developed in response to 1) a need for a tool to evaluate the effects of groundwater development proposed during Adjudication Settlement Negotiations, especially groundwater diversions from deep levels of the aquifer system, and 2) a need for a tool to administer the wells subject to the Settlement Agreement. New hydrologic data became available from a deep-drilling program funded by the U.S. Bureau of Reclamation, which was integral to the development of a regional model of the Taos Valley that provides reasonable and reliable results when simulating deep-aquifer pumping.

Given the hydrogeologic complexity of the Taos area, this groundwater flow model does a relatively good job matching observed water levels, the discharge from the springs at Buffalo Pasture, and the observed large downward vertical gradients. Simulation of the large vertical gradients constrains model vertical anisotropy, and allows the model to simulate the interaction between the deep and shallow aquifer systems with reasonable reliability. This model provides reasonable and useful

predictions of the impacts of proposed wells. The model was designed, in part, to evaluate the hydrologic effects of wells proposed under the Taos Adjudication settlement, and it is recommended that the model be used in evaluating the hydrologic impacts of those wells. Determination of how and whether the model should be applied the hydrologic evaluation of other wells should be made on a case-by-case basis.

5. REFERENCES

Anderholm, S.K., 1994, Groundwater Recharge near Santa Fe, North-central New Mexico. USGS Water-Resources Investigation Report 94-4078.

Anderholm, S.K., 2001, Mountain-front Recharge Along the Eastern Side of the Middle Rio Grande Basin, Central New Mexico: USGS Water-Resources Investigations Report 00-4010.

Banet, C., USBIA, personal communication, 8/22/2003

Bauer, P.W., Johnson, P.S., and Kelson, K.I., 1999, Geology and Hydrology of the Southern Taos Valley, Taos County, New Mexico, New Mexico Bureau of Mines and Mineral Resources, Socorro, NM.

Bauer, P., and Kelson, K., 1998, Geology of Ranchos de Taos Quadrangle, Taos County, New Mexico: New Mexico Bureau of Mines and Mineral Resources Open-file Digital Geologic Map OF-DGM 33.

Bellinger, T.R., 2003. Taos Valley Surface Water Hydrologic Model Development and Baseline Results. Draft USBOR Technical Report, Denver Technical Center.

Burck, P., Barroll, P., Core, A. and Rappuhn, D., 2004,. Taos Regional Groundwater Flow Model. New Mexico Geological Society Guidebook, 55th Field Conference, Geology of the Taos Region, p 433-439.

Drakos, P., Lazarus, J., Riesterer, J., White, B., Banet, C., Hodgins, M., and Sandoval, J., 2004a. Subsurface Stratigraphy in the Southern San Luis Basin, New Mexico. New Mexico Geological Society Guidebook, 55th Field Conference, Geology of the Taos Region, p 374-382.

Drakos, P., Sims, K., Riesterer, J., Blusztajn, J., Lazarus, J., 2004b. Chemical and Isotopic Constraints on Source-Waters and Connectivity of Basin-Fill Aquifers in the Southern San Luis Basin, New Mexico. New Mexico Geological Society Guidebook, 55th Field Conference, Geology of the Taos Region, p 405-414.

Drakos, P., Lazarus, J., White, B., Banet, C., Hodgins, M., Riesterer, J., and Sandoval, J., 2004c. Hydrologic Characteristics of Basin-Fill Aquifers in the Southern San Luis Basin, New Mexico. New Mexico Geological Society Guidebook, 55th Field Conference, Geology of the Taos Region, p 391-404.

Dungan, M. A., Muehlberger, W.R., Leininger, L., Peterson, C., McMillan, N.J., Gunn, G., Lindstron, M., and Haskin, L., 1984. Volcanic and sedimentary stratigraphy of the Rio Grande gorge and the late Cenozoic geologic evolution of the southern San Luis Valley, in New Mexico Geological Society Guidebook 35th Field Conference, Rio Grande Rift: Northern New Mexico, p. 157-170.

Freeze, R.A. and Cherry, J.A., 1979. Groundwater. Prentice-Hall, Inc., Englewood Cliffs, N.J. 604 p.

Galusha, T., and Blick, J., 1971, Stratigraphy of the Santa Fe Group, New Mexico: Bulletin of the American Museum of Natural History, v. 144, Article 1.

Garrabrant, L.A., 1993, Water Resources of Taos County, New Mexico, U.S. Geological Survey Water-Resources Investigations Report 93-4107, Albuquerque, NM.

Glorieta Geoscience, Inc., June, 1991, Geohydrology of the Pinones de Taos, Taos County, New Mexico, Consultant Report prepared for Stephen Natelson and Fred Fair, OSE file copy.

Glorieta Geoscience, Inc., March, 1995, Town of Taos San Juan/Chama Diversion Project Phase 2, Volume 1, Production Well and Observation Well Installation, Testing, and Determination of Aquifer Coefficients, Consultant Report prepared for the Town of Taos and Lawrence Ortega & Associates, OSE file copy.

Glorieta Geoscience, Inc., August, 1997, Pumping Test Analysis, Arroyo Seco School Well, Taos County, New Mexico, Consultant Report prepared by Paul Drakos for Fennell Drilling Co., OSE file copy.

Glorieta Geoscience, Inc., 2000, Drilling and Testing Report, Bureau of Reclamation 2000-Feet Deep Nested Piezometer/Exploratory Well (BOR #1), Taos, NM, Consultant Report prepared by Paul Drakos and Meghan Hodgins for the Town of Taos.

Glorieta Geoscience, Inc., 2002, Drilling and Testing Report, Bureau of Reclamation 2000-Feet Deep Nested Piezometer/Exploratory Well (BOR #2), and 2100-Feet Deep Production Well (BOR #3) Paseo del Cañon West Site, Taos, NM, Consultant Report prepared by Paul Drakos and Meghan Hodgins for the Town of Taos.

Harbaugh, A.W and M.G. McDonald, 1996, User's Documentation of MODFLOW-96, an update to the U.S. Geological Survey Modular Finite-Difference Ground-Water Flow Model, U.S. Geological Survey Open-File Report 96-485, Reston, VA.

Harbaugh, A.W., Banta, E.R., Hill, M.C., and McDonald, M.G., 2000, MODFLOW-2000, the U.S. Geological Survey modular ground-water model -- User guide to modularization concepts and the Ground-Water Flow Process: U.S. Geological Survey Open-File Report 00-92, 121 p.

Hill, M.C., Banta, E.R., Harbaugh, A.W., and Anderman, E.R., 2000, MODFLOW-2000, the U.S. Geological Survey modular ground-water model -- User guide to the Observation, Sensitivity, and Parameter-Estimation Processes and three post-processing programs, U.S. Geological Survey Open-File Report 00-184, 210 p.

Johnson, M., 2003. "Taos Groundwater Model Recharge Study." Internal OSE Draft Memorandum dated June 30, 2003.

Keller and Bliesner, 1995, Taos Valley Water Balance (1958 – 1988). 1 page table.

McAda D.P., and Barroll, P., 2002. Simulation of Groundwater Flow in the Middle Rio Grande Basin between Cochiti and San Acacia, New Mexico. U.S. Geological Survey Water-Resources Investigations Report 02-4200.

McAda D.P. and Wasiolek, M., 1988; Simulation of the Regional Geohydrology of the Tesuque Aquifer System near Santa Fe, New Mexico. U.S. Geological Survey Water-Resources Investigations Report 87-4056.

McDonald, M.G. and A.W. Harbaugh, 1988, A Modular Three-Dimensional Finite-Difference Ground-Water Flow Model, Techniques of Water Resources Investigations of the United States Geological Survey, Book 6, Chapter A1, USGPO, Washington, D.C.

Miller, R. Personal Communication, 7/29/2003.

New Mexico Office of the State Engineer, 2000, Well Records stored in the Water Administration Technical Engineering Resource System (WATERS) Database.

Purtymun, W.D., 1969, General ground-water conditions in Taos Pueblo, Tenorio Tract, and Taos Pueblo Tracts A and B, Taos County, New Mexico. US Department of the Interior, Geological Survey, Albuquerque, NM.

Spiegel, Z. and Couse, I.W., 1969, Availability of groundwater for supplemental irrigation and municipal-industrial uses in the Taos Unit of the U.S. Bureau of Reclamation San-Juan Chama Project, Taos County, New Mexico. New Mexico State Engineer, Open-File Report, 22 p.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Soil Survey Geographic (SSURGO) Database for *Taos County and Parts of Rio Arriba and Mora Counties, New Mexico.* Available URL: "http://soildatamart.nrcs.usda.gov" Accessed 2003.

Taos Federal Negotiation Team, undated, Hydrology and Water Management in the Taos Basin: A Guide for Decision-Makers. (Informally known as the Taos Data Book). Prepared in cooperation with Taos Pueblo, New Mexico State Engineer Office, Taos Valley Acequia Association, Town of Taos, New Mexico.

Taos Pueblo Well Inventory, 2000. Provided by Chris Banet of the U.S. Bureau of Indian Affairs.

Tetra Tech, 2003. Rio Grande Seepage Final Study Report, Taos Box Canyon, Report. Prepared for the U.S. Bureau of Reclamation USBR Contract No. 00-CA-30-0027, Delivery Order 00-C5-40-0027, Dated April 2003.

USBIA, 2001, U.S. Bureau of Indian Affairs, Site Completion Report for Subsurface Drilling, Sampling, and Testing of BOR #5 at West Deep Site, Taos Pueblo, Taos County, New Mexico. Prepared by USBIA, Southwest Regional Office (SWRO), Branch of Water Rights, Geohydrology Section. Prepared for Proposal for Technical Studies Conducted to Assist Settlement Discussions in the NM v. Abeyta, Drilling Program, Pueblo Portion, October 2001.

USBIA, 2003, U.S. Bureau of Indian Affairs, BOR 4 Site Completion Report for the Pueblo Portion at Taos Pueblo, Taos County, New Mexico. Prepared by USBIA, Southwest Regional Office (SWRO), Branch of Water Rights, Geohydrology Section. Prepared for Proposal for Technical Studies Conducted to Assist Settlement Discussions in the NM v. Abeyta, Drilling Program, Pueblo Portion, March 2003.

USBIA, 2003, U.S. Bureau of Indian Affairs, BOR 5 Site Completion Report for the Pueblo Portion at Taos Pueblo, Taos County, New Mexico. Prepared by USBIA, Southwest Regional Office (SWRO), Branch of Water Rights, Geohydrology Section. Prepared for Proposal for Technical Studies Conducted to Assist Settlement Discussions in the NM v. Abeyta, Drilling Program, Pueblo Portion, March 2003.

USBIA, 2003, U.S. Bureau of Indian Affairs, BOR 6 Site Completion Report for the Pueblo Portion at Taos Pueblo, Taos County, New Mexico. Prepared by USBIA, Southwest Regional Office (SWRO), Branch of Water Rights, Geohydrology Section. Prepared for Proposal for Technical Studies Conducted to Assist Settlement Discussions in the NM v. Abeyta, Drilling Program, Pueblo Portion, March 2003.

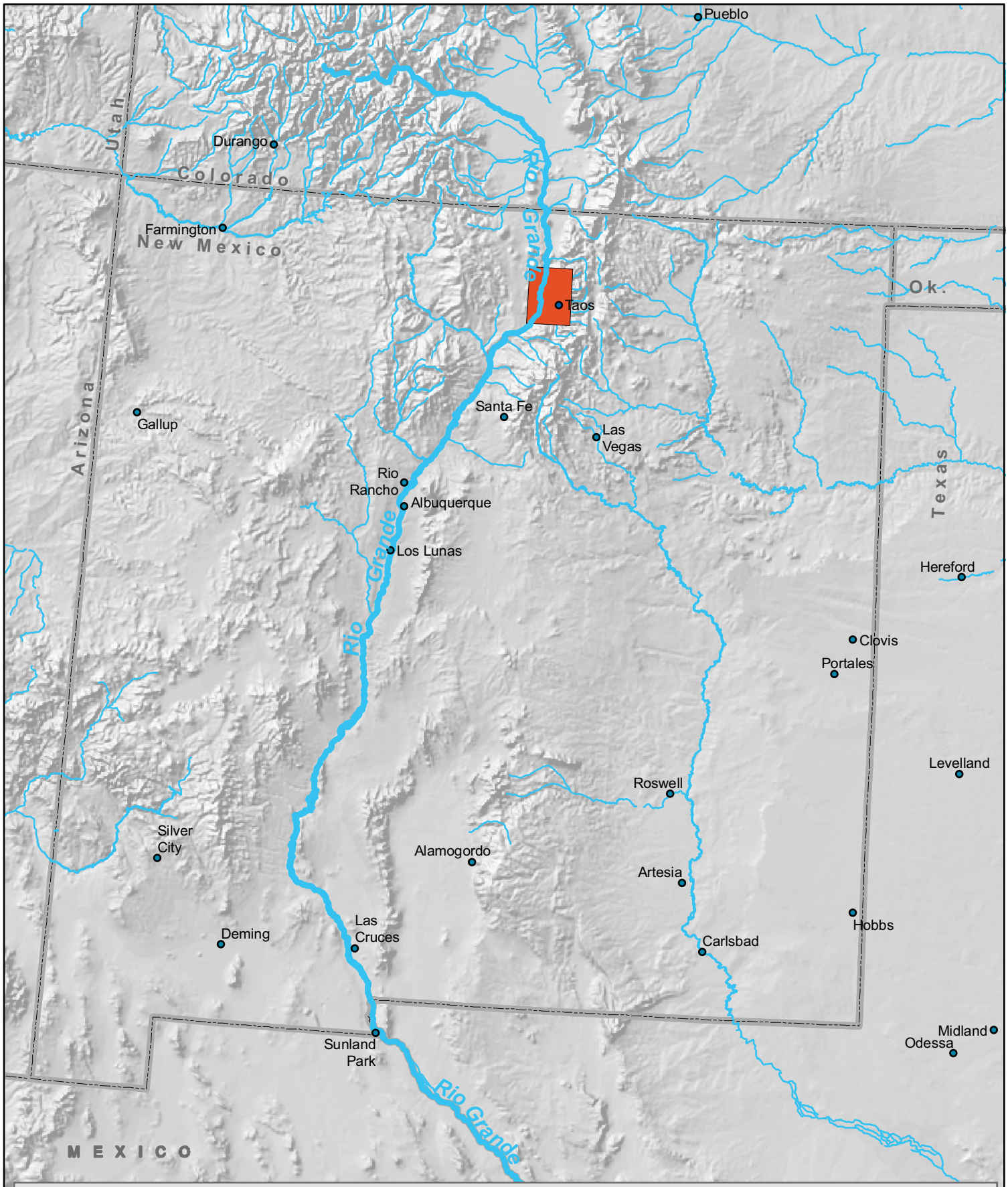
USBIA, 2003, U.S. Bureau of Indian Affairs, BOR 7 Site Completion Report for the Pueblo Portion at Taos Pueblo, Taos County, New Mexico. Prepared by USBIA, Southwest Regional Office (SWRO), Branch of Water Rights, Geohydrology Section. Prepared for Proposal for Technical Studies Conducted to Assist Settlement Discussions in the NM v. Abeyta, Drilling Program, Pueblo Portion, March 2003.

USBOR, 2002. Summary of Discharge Measurements Performed on Taos Valley Streams and Canals in 1983, 1989, 2000, and 2001. Denver Technical Center, February 2002.

USGS, 2000, United States Geological Survey Ground-Water Site Inventory (USGS GWSI).

Wilson, B.C. and M. Smith, 2004, Taos Pueblo and Rio Pueblo de Taos drainage basin, Taos County, New Mexico; Quantification of Irrigation Water Requirements. OSE Memorandum dated 2/13/2004.

Wilson, L., Anderson, S.T., Jenkins, D.N., and Lovato, P., 1978, Water availability and water quality, Taos County, New Mexico: Consultant report prepared for the Taos County Board of Commissioners by Lee Wilson and Associates, Inc., Santa Fe, New Mexico.



Taos Model Location

0 12.5 25 50 75 100 Miles

Office of the State Engineer
Interstate Stream Commission

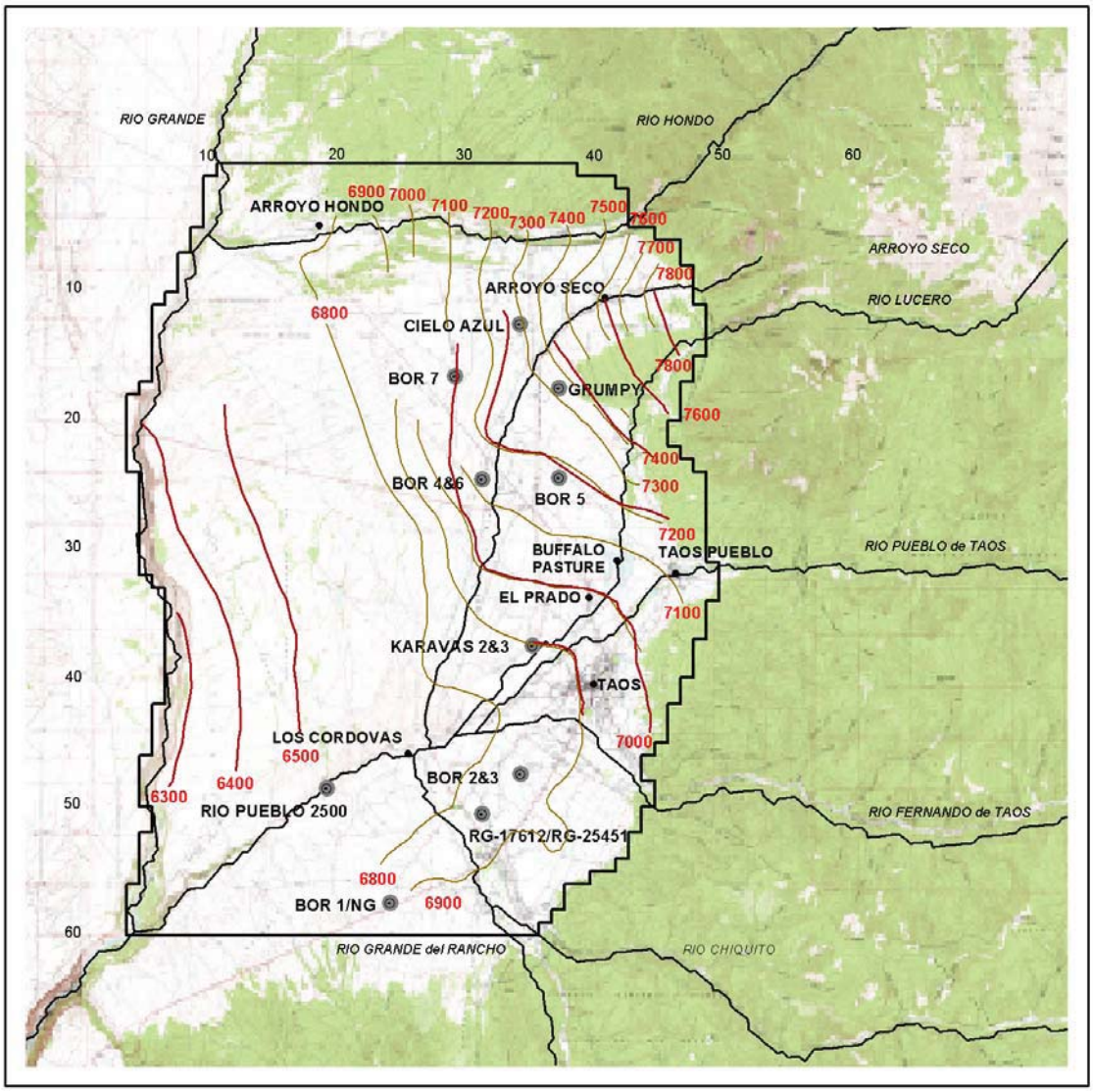


Figure 2. Observed Water Level Contour Map, contour elevations given in feet amsl (after Spiegel and Couse, 1969; and Purtymun, 1969). Also shown: locations of key wells.

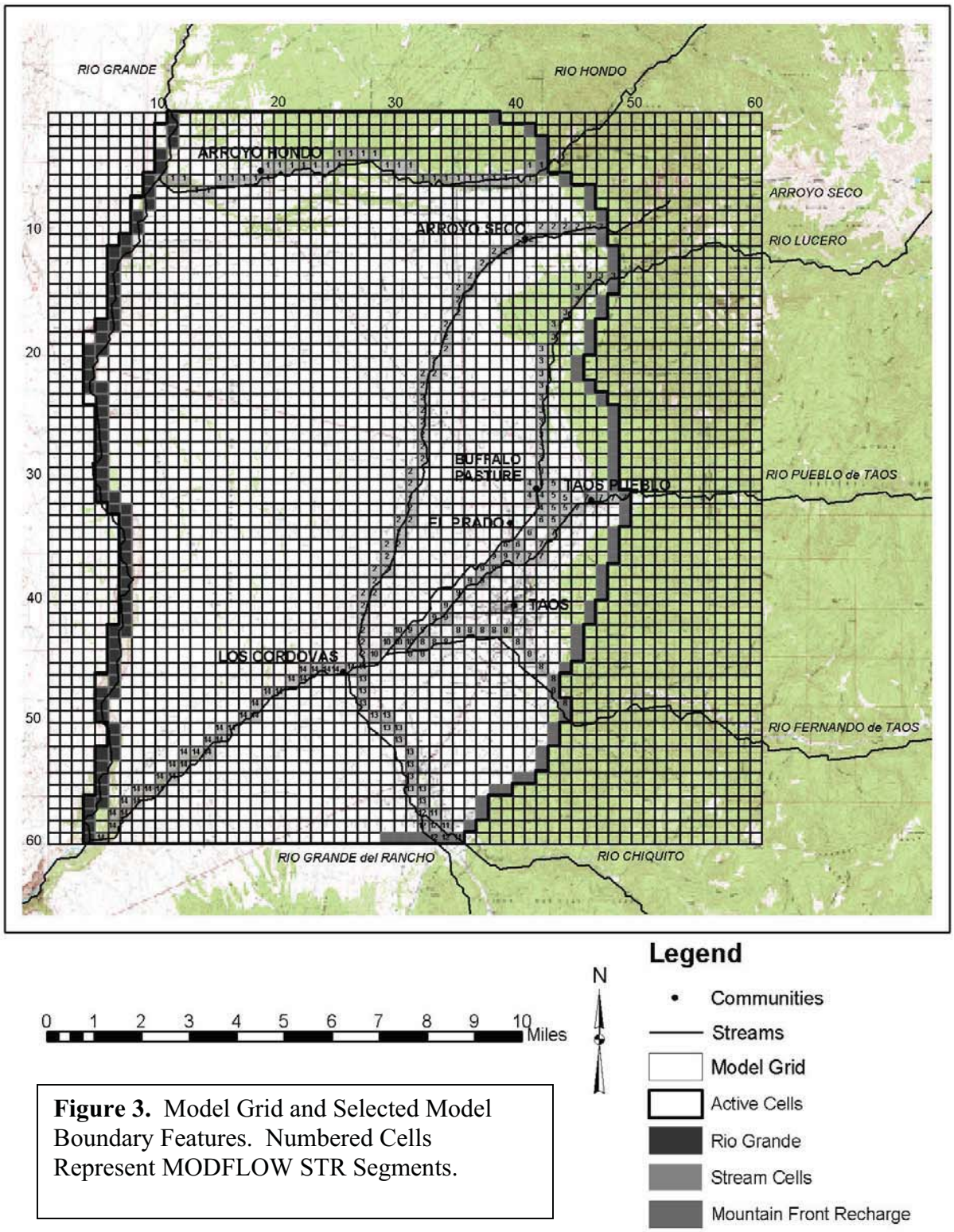


Figure 3. Model Grid and Selected Model Boundary Features. Numbered Cells Represent MODFLOW STR Segments.

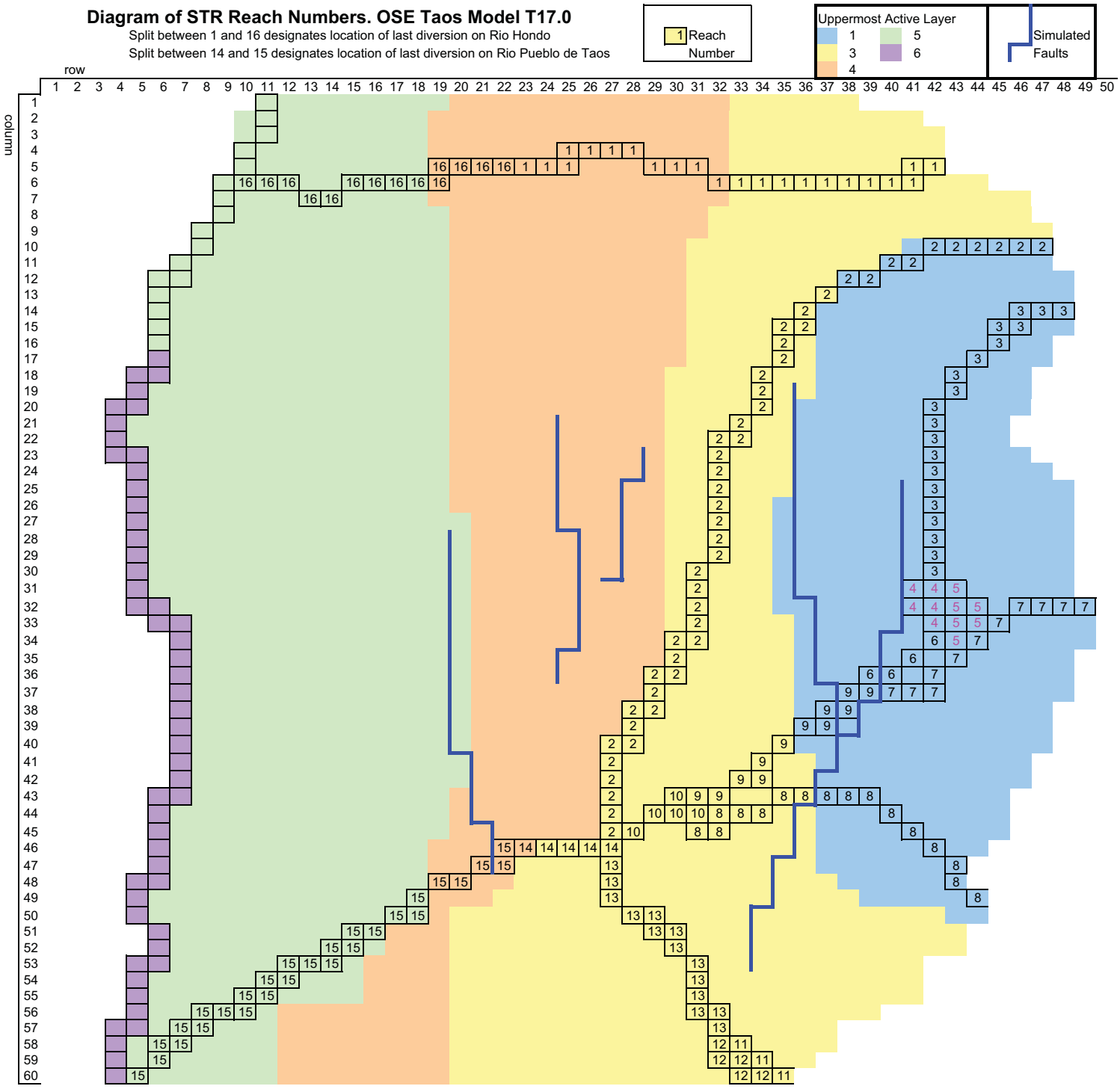


Diagram of STR Reach Numbers. OSE Taos Model T17.0
Split between 1 and 16 designates location of last diversion on Rio Hondo
Split between 14 and 15 designates location of last diversion on Rio Pueblo de Taos
1 Reach Number
Uppermost Active Layer
1
3
4
5
6
Simulated Faults
row
column

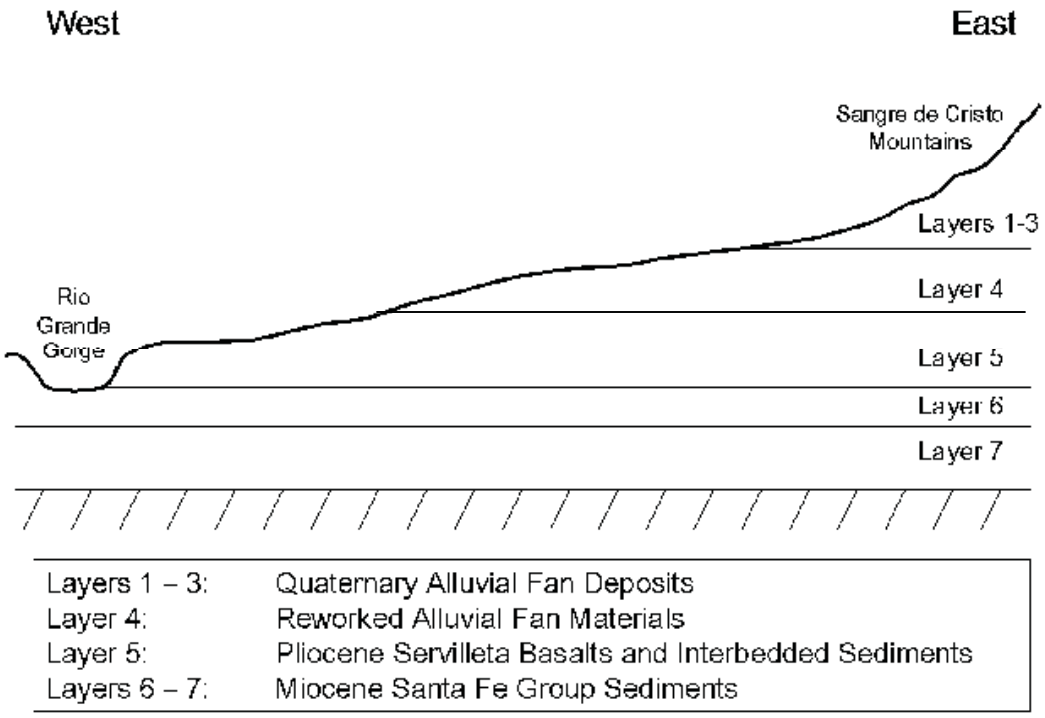
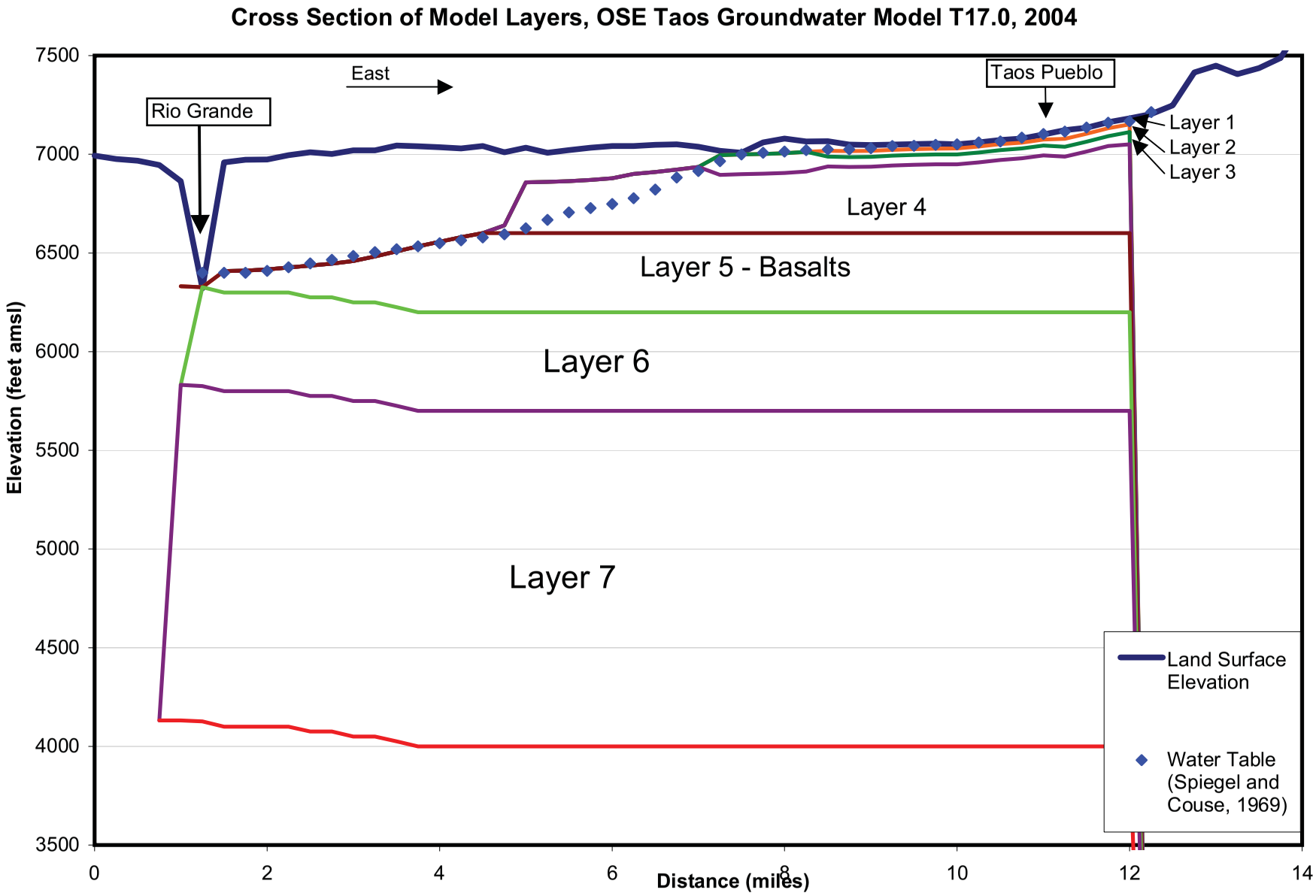
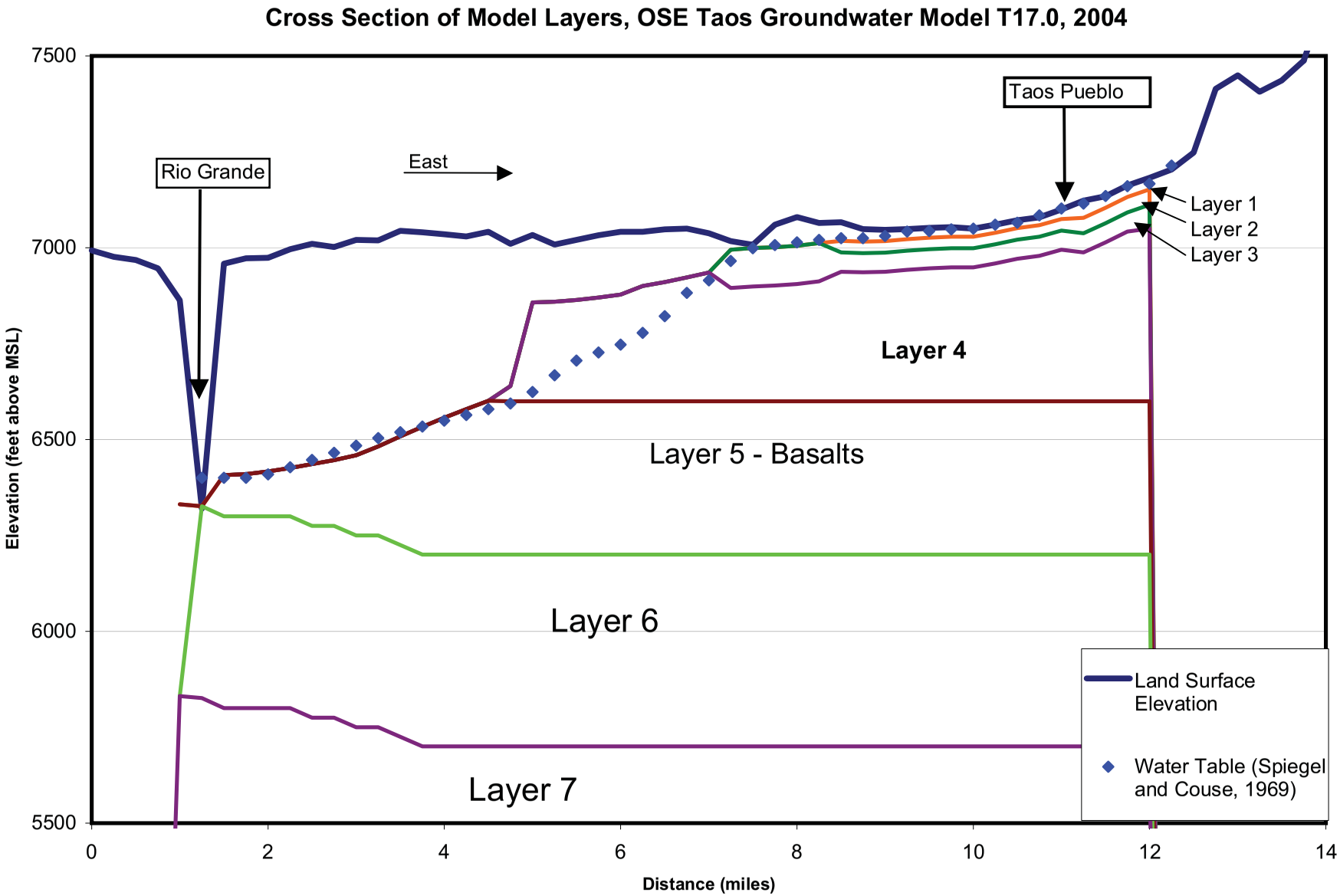
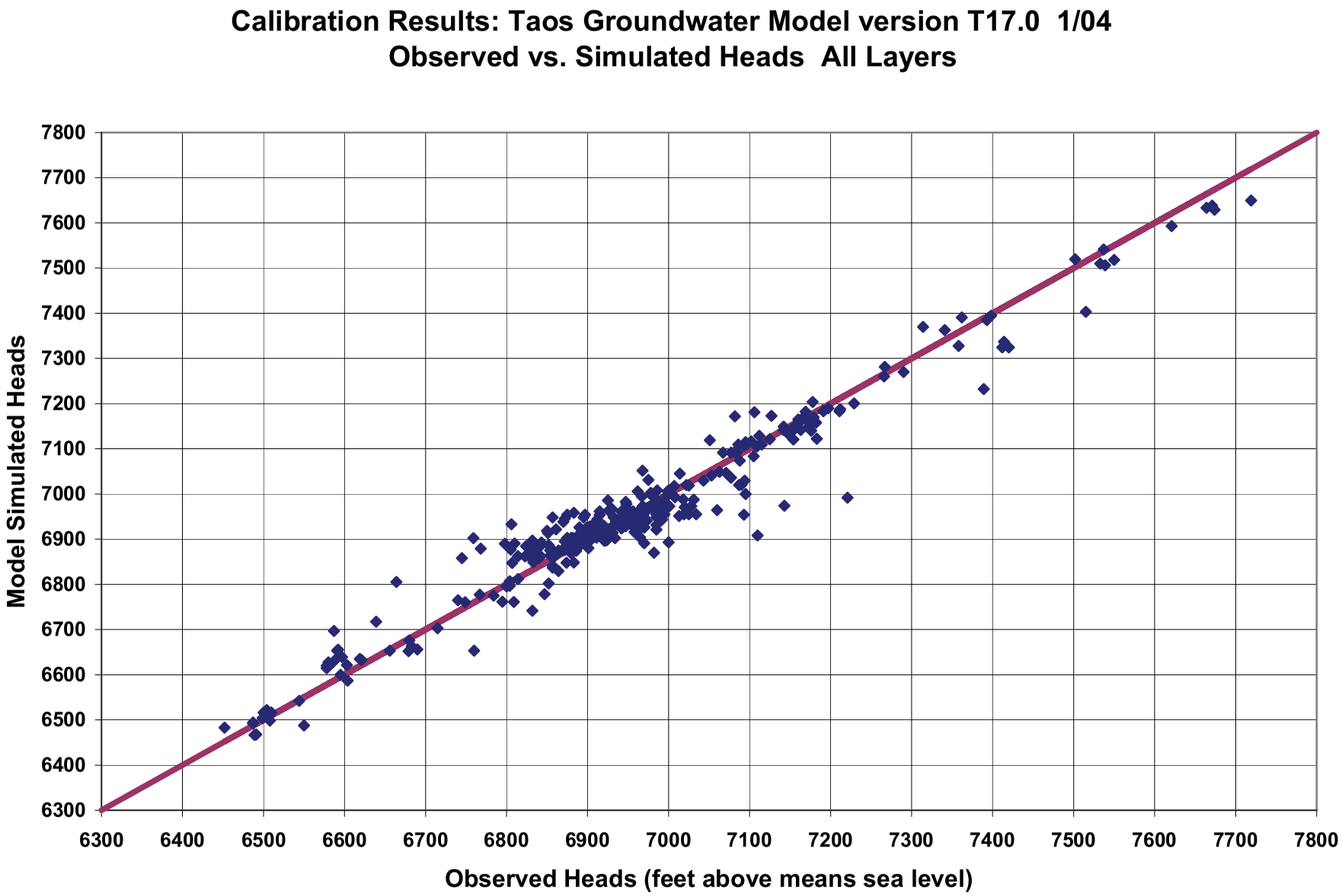
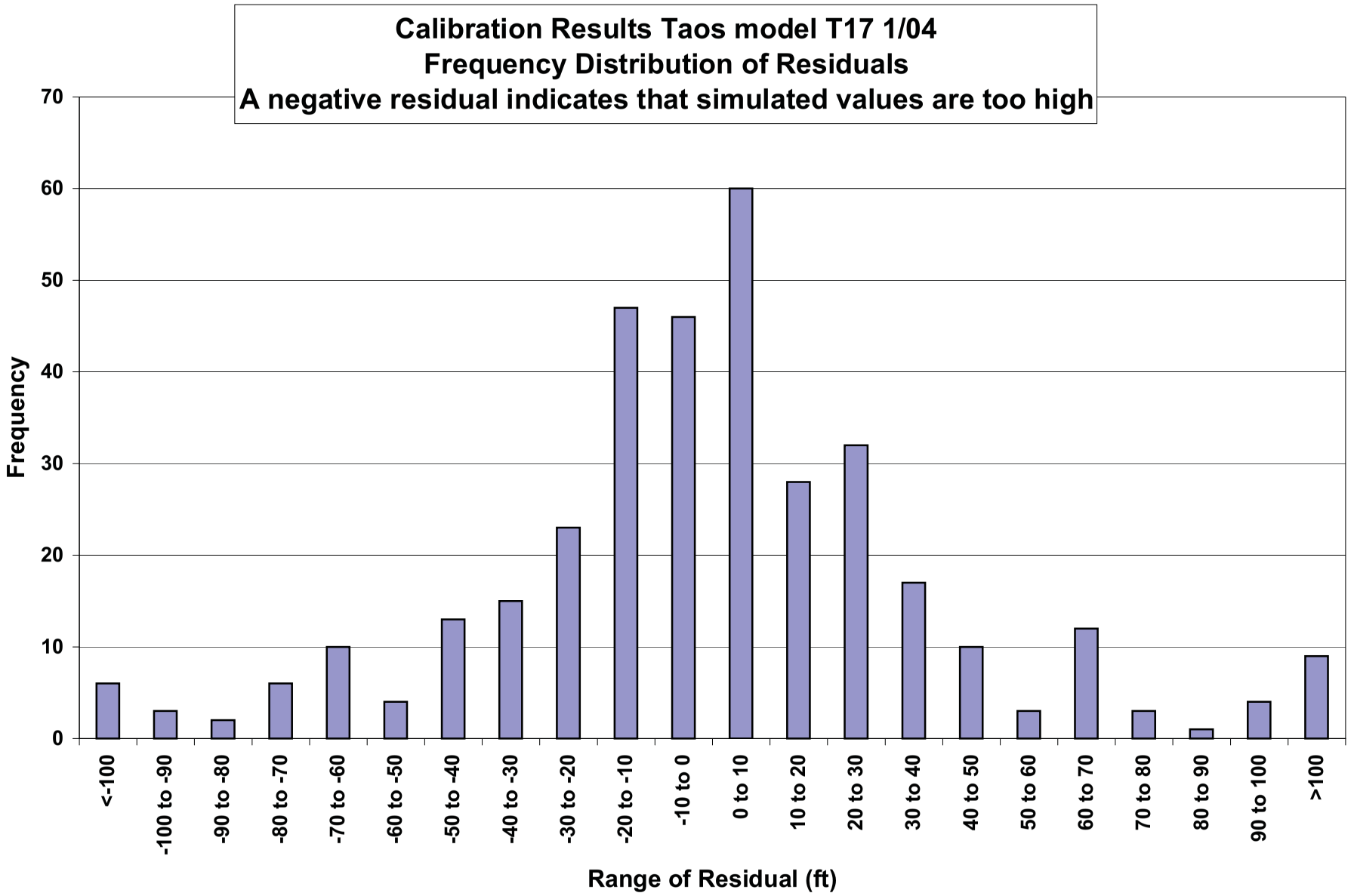


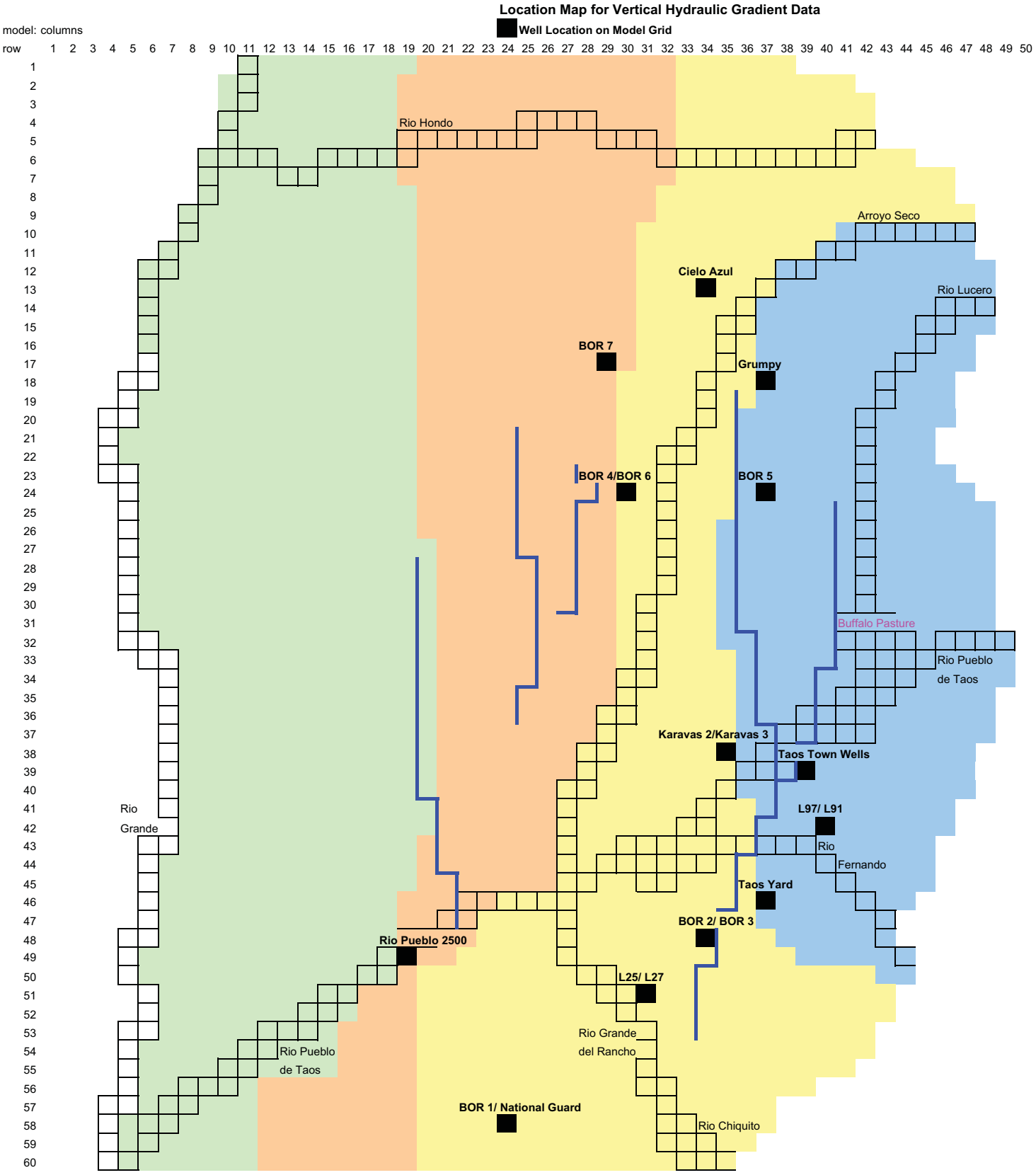
Figure 5. Schematic Cross-Section of the Taos Valley Showing Geologic Layers Represented in the Taos Regional Groundwater Model. Layer Thickness information provided in Table 2.


Cross Section of Model Layers, OSE Taos Groundwater Model T17.0, 2004
East
Rio Grande
Taos Pueblo
Layer 1
Layer 2
Layer 3
Layer 4
Layer 5 - Basalts
Layer 6
Layer 7
Land Surface Elevation
Water Table (Spiegel and Couse, 1969)
Elevation (feet amsl)
Distance (miles)
7500
7000
6500
6000
5500
5000
4500
4000
3500
0
2
4
6
8
10
12
14


Cross Section of Model Layers, OSE Taos Groundwater Model T17.0, 2004
7500
7000
6500
6000
5500
Elevation (feet above MSL)
0
2
4
6
8
10
12
14
Distance (miles)
Rio Grande
East
Taos Pueblo
Layer 1
Layer 2
Layer 3
Layer 4
Layer 5 - Basalts
Layer 6
Layer 7
Land Surface Elevation
Water Table (Spiegel and Couse, 1969)


Calibration Results: Taos Groundwater Model version T17.0 1/04
Observed vs. Simulated Heads All Layers
Model Simulated Heads
7800
7700
7600
7500
7400
7300
7200
7100
7000
6900
6800
6700
6600
6500
6400
6300
6300 6400 6500 6600 6700 6800 6900 7000 7100 7200 7300 7400 7500 7600 7700 7800
Observed Heads (feet above means sea level)


Calibration Results Taos model T17 1/04
Frequency Distribution of Residuals
A negative residual indicates that simulated values are too high
Frequency
0
10
20
30
40
50
60
70
<-100
-100 to -90
-90 to -80
-80 to -70
-70 to -60
-60 to -50
-50 to -40
-40 to -30
-30 to -20
-20 to -10
-10 to 0
0 to 10
10 to 20
20 to 30
30 to 40
40 to 50
50 to 60
60 to 70
70 to 80
80 to 90
90 to 100
>100
Range of Residual (ft)


Location Map for Vertical Hydraulic Gradient Data
Well Location on Model Grid
model: columns
row
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60
Rio Hondo
Arroyo Seco
Cielo Azul
Rio Lucero
BOR 7
Grumpy
BOR 4/BOR 6
BOR 5
Buffalo Pasture
Rio Pueblo
de Taos
Karavas 2/Karavas 3
Taos Town Wells
L97/ L91
Rio
Fernando
Rio
Grande
Taos Yard
BOR 2/ BOR 3
Rio Pueblo 2500
L25/ L27
Rio Grande
del Rancho
Rio Pueblo
de Taos
BOR 1/ National Guard
Rio Chiquito

APPENDIX A

Water Level Data Used for Calibration of Taos Groundwater Model T17.0

Water level data compiled by OSE personnel from a variety of sources:

- U.S. Geological Survey (USGS) Ground-Water Site Inventory (GWSI) (Source ID: A##)
- Office of the State Engineer Well Records (including WATERS database) (Source ID: D##)
- Bauer et al. (1999) (Source ID: B##)
- Garrabrant (1993) (Source ID: G##)
- Glorieta Geoscience, Inc. Reports (Source ID: GG##)
- Lee Wilson and Associates, Inc. Report (1978) (Source ID: L##)
- Taos Pueblo Well Inventory (Source ID: P##)
- Purtymun (1969) (Source ID: Y##)

Well locations for many wells were derived from PLSS or other data using GIS techniques.

Row, column and offset values designated in red were adjusted to place observation at the center of cells located at edge of active model domain, in order to permit MODFLOW-2000 to calculate residuals.

Row, column and offset values designated in blue were estimated based on available PLSS data.

Water Level Data Used as Targets for the Taos Groundwater Model													
Well ID			Well Location		Model Coordinates					Elevation/Depth data in feet			
Well ID	Source ID	MODFLOW Target ID	X UTM NAD83	Y UTM NAD83	Model Layer	Row	Col	Row offset	Col offset	Ground Surface Elevation	Depth to Water	Water Level Elevation	Total Depth
OW-9 Shallow	**P40**	P40	449210	4037410	1	21	41	-0.23	0.24	7460	40	7420	41
OW-9 Deep	**P39**	P39	449210	4037410	1	21	41	-0.23	0.24	7460	48	7412	65
West Well - BIA-19	**P21**	BIA19	447320	4036100	1	24	37	0.03	-0.45	7242	45	7197	76
Acequia Well - BIA 12	**P13**	BIA12	448270	4035010	1	27	39	-0.27	-0.09	7198	34	7164	65
OW-1	**P29**	P29	448750	4035010	1	27	40	-0.27	0.10	7207	38	7169	58
OW-8	**P38**	OW8	449750	4034610	1	28	43	-0.27	-0.41	7215	36	7179	37
MW-2	**P30**	P30	449150	4033970	1	29	41	0.32	0.10	7122	10	7112	32
RG-27258	**L194**	L194	447335	4033615	1	30	37	0.20	-0.41	7093	5	7088	40
MW-4	**P32**	P32	449220	4033650	1	30	41	0.11	0.27	7110	16	7094	26
MW-3	**P31**	P31	449350	4033660	1	30	42	0.09	-0.41	7110	15	7095	35
OW-5-shal	**P34**	OW5S	449540	4033380	1	31	42	-0.21	0.06	7093	10	7083	37
OW-5-deep	**P33**	OW5D	449540	4033380	1	31	42	-0.21	0.06	7093	16	7077	115
OW-6-shal	**P36**	OW6S	449540	4033410	1	31	42	-0.29	0.06	7096	12	7084	40
OW-6-deep	**P35**	OW6D	449540	4033410	1	31	42	-0.29	0.06	7096	14	7082	58
OW-7	**P37**	OW7	449530	4033390	1	31	42	-0.24	0.04	7095	11	7084	40
RG-26362	**L202**	L202	451203	4033134	1	31	46	0.40	0.20	7145	20	7125	49
RG-3465	**L197**	L197	447856	4032491	1	33	38	0.00	-0.12	7032	7	7025	30
RG-3464	**L198**	L198	447836	4032515	1	33	38	-0.06	-0.17	7030	8	7022	45
RG-24896	**L41, Archuleta**	L41	451187	4032324	1	33	46	0.41	0.16	7105	12	7093	48
RG-66996	**D474**	D474	448285	4031620	1	35	39	0.16	-0.06	6983	15	6968	50
Hail Creek Shallow - BIA 22	**P24**	P24	448745	4031161	1	36	40	0.30	0.09	6965	9	6956	25
BIA	**Y5**	Y5	449665	4031279	1	36	42	0.01	0.38	7010	2	7008	4
RG-27625	**L81**	L81	449384	4030144	1	39	42	-0.17	-0.32	7006	20	6986	50
Antonio Romero	**Y11**	Y11	449550	4029945	1	39	42	0.32	0.09	7035	70	6965	85
RG-2045	**L69**	L69	449019	4029517	1	40	41	0.39	-0.23	6997	5	6992	33
RG-12570	**L99**	L99	447860	4029005	1	42	38	-0.34	-0.11	6930	8	6922	42
RG-371	**L90**	L90	448237	4028608	1	43	39	-0.35	-0.17	6913	20	6893	52
RG-5407	**L97**	L97	448642	4028639	1	43	40	-0.43	-0.17	6936	43	6893	80
RG-19455	**L87**	L87	449174	4028091	1	44	41	-0.07	0.15	6966	6	6960	25
RG-5422	**L122**	L122	448110	4027186	1	46	39	0.18	-0.49	6963	52	6911	90
RG-17896	**L191**	L191	446915	4034794	2	27	36	0.27	-0.46	7162	8	7154	75
South Well Shallow - BIA 16	**P18**	P18	450290	4034730	2	27	44	0.43	-0.07	7200	73	7127	116
RG-55393	**D401**	D401	446781	4034595	2	28	35	-0.23	0.21	7143	46	7097	100
RG-3370	**L192**	L192	446930	4033170	2	31	36	0.31	-0.42	7075	12	7063	53
RG-29506	**L199**	L199	448134	4032832	2	32	39	0.15	-0.43	7056	3	7053	64
RG-26306	**L42**	L42	450988	4032157	2	34	46	-0.18	-0.34	7093	10	7083	56
RG-16042	**L49**	L49	448487	4031602	2	35	39	0.21	0.45	6990	8	6982	60
RG-23218	**L51**	L51	448495	4031554	2	35	39	0.32	0.47	6982	12	6970	70
RG-27741	**L46**	L46	448554	4031574	2	35	40	0.28	-0.38	6987	7	6980	50
RG-5773	**L45**	L45	448531	4031546	2	35	40	0.34	-0.44	6982	12	6970	56
RG-23874	**L52**	L52	448523	4031582	2	35	40	0.26	-0.46	6988	20	6968	62
RG-27591	**L57**	L57	447347	4031204	2	36	37	0.19	-0.38	6957	12	6945	80
RG-22108	**L56**	L56	447359	4031189	2	36	37	0.23	-0.36	6955	20	6935	60

Table A1

Water Level Data Used as Targets for the Taos Groundwater Model													
Well ID			Well Location		Model Coordinates					Elevation/Depth data in feet			
Well ID	Source ID	MODFLOW Target ID	X UTM NAD83	Y UTM NAD83	Model Layer	Row	Col	Row offset	Col offset	Ground Surface Elevation	Depth to Water	Water Level Elevation	Total Depth
RG-27623	L68	L68	448928	4030418	2	38	41	0.15	-0.46	6967	5	6962	71
Ann Barlow	Y8	Y8	449919	4030519	2	38	43	-0.10	0.01	6990	9	6981	75
RG-20387	L77	L77	448189	4030132	2	39	39	-0.14	-0.29	6936	8	6928	64
RG-15856	L71	L71	448503	4029997	2	39	39	0.19	0.49	6943	6	6937	65
RG-15659	L70	L70	448527	4029974	2	39	40	0.25	-0.45	6942	6	6936	62
362459105340701	A2/G12	A2	449022	4030082	2	39	41	-0.02	-0.22	6980	17	6963	80
RG-8633	L82	L82	450095	4030013	2	39	43	0.15	0.44	7071	40	7031	94
RG-27284	L80	L80	450119	4029993	2	39	44	0.20	-0.50	7073	55	7018	110
RG-70142	D553	D553	447312	4029484	2	40	37	0.00	0.00	6890	18	6872	75
RG-15786	L83	L83	449916	4029815	2	40	43	-0.35	0.00	7073	45	7028	85
RG-65827	D576	D576	449065	4028349	2	43	41	0.29	-0.12	6958	15	6943	60
RG-56131	D584	D584	449307	4028209	2	44	41	-0.36	0.49	6972	18	6954	82
RG-3419	L121	L121	447967	4027524	2	45	38	0.34	0.15	6932	50	6882	100
RG-2950	L93	L93	448249	4027782	2	45	39	-0.30	-0.14	6932	44	6888	100
RG-60855	D617	D617	449482	4027643	2	45	42	0.05	-0.08	6981	24	6957	75
RG-22432	D621	D621	449451	4027552	2	45	42	0.27	-0.16	6979	30	6949	71
RG-22701	L114	L114	447375	4027111	2	46	37	0.00	0.00	6931	50	6881	98
RG-9794	L123	L123	448078	4027202	2	46	38	0.14	0.43	6959	40	6919	100
RG-36010	D628	D628	448047	4027372	2	46	38	-0.28	0.35	6953	50	6903	105
RG-32196	D116	D116	448581	4042739	3	8	40	-0.48	-0.32	7693	160	7533	300
RG-60877	D119	D119	448642	4042708	3	8	40	-0.40	-0.17	7697	195	7502	300
RG-69484	D128	D128	448732	4042584	3	8	40	-0.09	0.06	7697	160	7537	320
RG-20938	L168	L168	449305	4041850	3	10	41	-0.27	0.48	7678	14	7664	50
363207105340701	A3/G19	G19	449425	4041584	3	10	42	0.39	-0.22	7681	7	7674	204
RG-67419	D229	D229	449572	4041568	3	10	42	0.44	0.14	7701	30	7671	160
RG-6410	L166	L166	448376	4041381	3	11	39	-0.10	0.17	7595	45	7550	85
RG-66201	D240	D240	449022	4041484	3	11	41	-0.36	-0.22	7639	18	7621	280
RG-7146	L169	L169	447042	4041040	3	12	36	-0.25	-0.14	7517	155	7362	221
RG-24453	L170	L170	446950	4041139	3	12	36	-0.50	-0.37	7523	130	7393	157
RG-67170	D270	D270	448619	4040971	3	12	40	-0.08	-0.22	7579	40	7539	160
RG-6207	L162	L162	450218	4041139	3	12	44	-0.50	-0.25	7776	57	7719	95
RG-65614	Cielo Azul GG3	GG3	446417	4040360	3	13	34	0.44	0.30	7450	136	7314	353
RG-10344	L171	L171	447038	4040647	3	13	36	-0.28	-0.15	7494	96	7398	375
North Well - BIA 18	P20	BIA18	448430	4039800	3	15	39	-0.17	0.31	7550	35	7515	160
RG-20608	L178	L178	447062	4039122	3	17	36	-0.49	-0.10	7401	60	7341	115
Grumpy Well Shallow - BIA 25	P27	BIA25	447440	4038540	3	18	37	-0.04	-0.15	7398	40	7358	213
Mid-Point Well - BIA 17	P19	BIA17	448840	4038340	3	18	40	0.46	0.32	7500	86	7414	470
RG-17874	L180	L180	446919	4037982	3	19	36	0.35	-0.45	7327	60	7267	125
RG-54924	D316	D316	446840	4037733	3	20	35	-0.03	0.35	7326	60	7266	145
RG-10638	L179	L179	446216	4037272	3	21	34	0.11	-0.20	7257	79	7178	129
RG-64366	D325	D325	446464	4036915	3	22	34	0.00	0.42	7254	42	7212	140
RG-68541	D326	D326	446433	4036855	3	22	34	0.15	0.34	7251	60	7191	125
RG-1828X	L185	L185	446537	4036775	3	22	35	0.35	-0.40	7247	36	7211	135

Water Level Data Used as Targets for the Taos Groundwater Model													
Well ID			Well Location		Model Coordinates					Elevation/Depth data in feet			
Well ID	Source ID	MODFLOW Target ID	X UTM NAD83	Y UTM NAD83	Model Layer	Row	Col	Row offset	Col offset	Ground Surface Elevation	Depth to Water	Water Level Elevation	Total Depth
OW-10	P41	P41	448450	4036980	3	22	39	-0.16	0.36	7373	83	7290	127
RG-70900	D337	D337	446367	4036521	3	23	34	-0.02	0.18	7233	62	7171	125
RG-7239	L181	L181	446633	4036339	3	23	35	0.43	-0.16	7228	63	7165	115
RG-1828-S	L186	L186	446585	4036335	3	23	35	0.44	-0.28	7225	55	7170	300
RG-1828-REPLACE	L187	L187	446613	4036323	3	23	35	0.47	-0.21	7225	65	7160	152
RG-9359	L183	L183	446990	4036390	3	23	36	0.00	0.00	7252	23	7229	85
RG-60457	D356	D356	446209	4036065	3	24	34	0.11	-0.21	7203	40	7163	101
RG-59485	D354	D354	446561	4036198	3	24	35	-0.22	-0.34	7222	40	7182	110
RG-69579	D357	D357	446514	4036062	3	24	35	0.12	-0.46	7216	60	7156	125
RG-1828	L184	L184	446537	4035973	3	24	35	0.34	-0.40	7226	53	7173	160
RG-59283	D363	D363	444986	4035777	3	25	31	-0.17	-0.25	7194	143	7051	203
RG-56560	D364	D364	446297	4035760	3	25	34	-0.13	0.00	7188	40	7148	112
RG-55401	D365	D365	446510	4035757	3	25	35	-0.12	-0.47	7216	40	7176	120
RG-1822	L182	L182	446720	4035787	3	25	35	-0.20	0.06	7202	60	7142	104
RG-1828-A-S/RG-28097-X	D359/D360	D359	446889	4035877	3	25	35	-0.42	0.48	7222	45	7177	275
362759105354801	A19/G20	A19	446541	4035644	3	25	35	0.16	-0.39	7205	53	7152	280
Ski & Tennis Ranch	GG4	GG4	446353	4035424	3	26	34	-0.29	0.14	7228	45	7183	150
RG-25008	L188	L188	447316	4035183	3	26	37	0.30	-0.46	7192	50	7142	115
RG-62300	Colonias Point GG2	GG2	444914	4034924	3	27	31	-0.05	-0.43	7160	55	7105	127
RG-7955	L190	L190	446930	4034774	3	27	36	0.32	-0.42	7157	55	7102	104
Acequia Well - BIA 13	P14	P14	448270	4035040	3	27	39	-0.34	-0.09	7201	44	7157	195
South Well Deep - BIA 16	P17	P17	450290	4034730	3	27	44	0.43	-0.07	7200	118	7082	138
RG-3255 CLW	L189	L189	446736	4034591	3	28	35	-0.22	0.10	7151	42	7109	201
RG-55314	D424	D424	445603	4033940	3	29	32	0.39	0.28	7054	86	6968	140
RG-64970	D425	D425	445707	4033786	3	30	33	-0.22	-0.46	7061	47	7014	90
RG-27234	L196	L196	449039	4033730	3	30	41	-0.08	-0.18	7131	16	7115	75 to 12
362636105365801	A29/G18	A29	444782	4033097	3	31	30	0.49	0.24	7038	60	6978	120
RG-16891	L193	L193	446911	4033198	3	31	36	0.24	-0.47	7086	15	7071	100
RG-52261	D448	D448	445739	4032720	3	32	33	0.43	-0.38	7067	100	6967	170
RG-17490	L195	L195	447343	4032821	3	32	37	0.18	-0.39	7035	60	6975	110
RG-25253	L44	L44	448423	4032316	3	33	39	0.43	0.29	7024	38	6986	102
Taos Pueblo Comm. Bldg.	Y12	Y12	451034	4032524	3	33	46	-0.09	-0.22	7090	23	7067	105
RG-21832	D459	D459	448507	4032288	3	34	39	-0.50	0.50	7024	24	7000	108
BIA	Y1	Y1	451443	4032106	3	34	47	-0.05	-0.20	7125	39	7086	138
BIA	Y2	Y2	451595	4032044	3	34	47	0.00	0.00	7130	35	7095	240
RG-5150	L54	L54	446827	4031689	3	35	35	-0.01	0.32	7034	62	6972	120
RG-33999	D473	D473	446868	4031638	3	35	35	0.12	0.42	7035	73	6962	120
RG-5977	L55	L55	446958	4031609	3	35	36	0.00	0.00	7023	51	6972	105
RG-24577	L58	L58	446938	4031625	3	35	36	0.15	-0.40	7026	80	6946	130
RG-20048 362553105345501	A15/G10	A15	447836	4031753	3	35	38	-0.17	-0.17	6996	21	6975	131
RG-60299	Ceja de Colonias	D490	445278	4031232	3	36	31	0.12	0.47	7007	92	6915	188
Hail Creek Deep - BIA 21	P23	P23	448745	4031171	3	36	40	0.28	0.09	6965	23	6942	180
RG-18437	D493	D493	448888	4031155	3	36	40	0.32	0.44	6975	30	6945	105

Table A1

Water Level Data Used as Targets for the Taos Groundwater Model													
Well ID			Well Location		Model Coordinates					Elevation/Depth data in feet			
Well ID	Source ID	MODFLOW Target ID	X UTM NAD83	Y UTM NAD83	Model Layer	Row	Col	Row offset	Col offset	Ground Surface Elevation	Depth to Water	Water Level Elevation	Total Depth
Don's OW	P28	P28	449410	4031180	3	36	42	0.25	-0.26	7000	8	6992	NA
RG-7339-S-5	Howell Taos 6 GG15	Taos6	448420	4030917	3	37	39	-0.09	0.28	6960	12	6948	500
362531105343201	A8/G11	A8	448553	4030763	3	37	40	0.29	-0.39	6952	7	6945	500
RG-52040	Chatwin	chat			3	38	30	0.00	0.00	6958	120	6838	161
Karavas 1	P44	K1	446700	4030590	3	38	35	-0.28	0.01	6923	34	6889	100
Karavas 2 screen 7	P49	K2-7	446690	4030630	3	38	35	-0.38	-0.02	6925	34	6891	206
Taos Cerro Project; OP-TP-1A	L76	L76	448185	4030486	3	38	39	-0.02	-0.30	6925	5	6920	507
RG-65955	D520	D520	448819	4030546	3	38	40	-0.17	0.27	6959	15	6944	110
RG-25613	L84	L84	449690	4030406	3	38	42	0.18	0.44	7010	30	6980	105
RG-7339-S2 / 362453105341401	A4/G13/Taos 3	Taos3	448891	4029895	3	39	40	0.45	0.45	6950	38	6912	330
Clinic Well - BIA 1	P1	P1	449770	4029980	3	39	43	0.24	-0.36	7040	92	6948	400
RG-12138/Upper Ranchitos MD	L59	L59	447181	4029283	3	40	36	0.00	0.00	6886	5	6881	100
RG-7339 / 362438105342901	A10, Town Well 1	Taos1	448576	4029599	3	40	40	0.18	-0.33	6950	38	6912	204
RG-7339-S / 362436105342001	A7/G14	Taos2	448598	4029605	3	40	40	0.17	-0.28	6970	38	6932	204
Niche Well - BIA 23	P25	BIA23	449310	4029600	3	40	41	0.18	0.49	7025	93	6932	225
Clinic Well - BIA 1	P1	BIA1	450017	4029743	3	40	43	-0.17	0.25	7090	92	6998	400
Tribal Well RWP-6, BIA 3	P3	BIA3	450530	4029850	3	40	45	-0.44	-0.47	7160	180	6980	235
RG-59900	Cooper GG1	GG1	443864	4029117	3	41	28	0.38	-0.04	6910	96	6814	190
RG-17178	Kit Carson	KC	448912	4029241	3	41	41	0.07	-0.50	6870	64	6806	270
RG-7339-S4	Taos #5 L95/B33	Taos5	448581	4029040	3	42	40	-0.43	-0.32	6935	16	6919	330
362407105372801	A31/G5	A31	444006	4028511	3	43	28	-0.11	0.31	6885	118	6767	225
RG-482	L91	L91	448574	4028548	3	43	40	-0.20	-0.34	6931	80	6851	125
RG-21836	L88	L88	449182	4028298	3	43	41	0.42	0.17	6959	25	6934	100
RG-59005	Arroyo Park GG9 D58	D583	443639	4028237	3	44	27	-0.43	0.40	6900	105	6795	262
RG-13308	L100	L100	448860	4027996	3	44	40	0.17	0.38	6947	48	6899	150
RG-20081; Taos Cerro Project; DH-T6	L85	DH-T6	449714	4027976	3	44	42	0.22	0.50	7013	40	6973	500
RG-65553	D596	D596	449609	4028037	3	44	42	0.07	0.24	6988	50	6938	140
RG-15111	L124	L124	447776	4027540	3	45	38	0.30	-0.32	6915	72	6843	160
RG-58140	D623	D623	447896	4027481	3	45	38	0.45	-0.02	6929	50	6879	158
RG-5673	L98	L98	448277	4027794	3	45	39	-0.33	-0.08	6933	20	6913	100
RG-19174	L86	L86	448689	4027849	3	45	40	-0.47	-0.05	6941	80	6861	120
RG-57939	D625	D625	449206	4027464	3	45	41	0.49	0.23	6986	76	6910	138
RG-18884	L131	L131	449559	4027540	3	45	42	0.30	0.11	6987	25	6962	97
Owner Record	B55	B55	450424	4027664	3	45	44	-0.01	0.26	7105	160	6945	190
RG-54136	B22	B22	450688	4027457	3	45	45	0.00	0.00	7185	165	7020	240
RG-22567	L113	L113	447570	4027357	3	46	37	-0.24	0.17	6912	60	6852	110
RG-53513	D626	D626	447408	4027457	3	46	37	0.00	0.00	6900	76	6824	120
RG-67772	D630	D630	447589	4027332	3	46	37	-0.18	0.22	6915	72	6843	150
RG-20042	L118	L118	449035	4027452	3	46	41	-0.48	-0.19	6975	60	6915	125
RG-62756	D634	D634	450056	4027209	3	46	43	0.00	0.00	7046	80	6966	160
RG-38702	B21	B21	450378	4027030	3	46	44	0.00	0.00	7105	80	7025	165
RG-28826	D648	D648	450118	4026839	3	46	44	0.00	0.00	7089	70	7019	115
RG-66366	D662	D662	450141	4026690	3	46	44	0.00	0.00	7124	90	7034	147

Table A1

Water Level Data Used as Targets for the Taos Groundwater Model													
Well ID			Well Location		Model Coordinates					Elevation/Depth data in feet			
Well ID	Source ID	MODFLOW Target ID	X UTM NAD83	Y UTM NAD83	Model Layer	Row	Col	Row offset	Col offset	Ground Surface Elevation	Depth to Water	Water Level Elevation	Total Depth
Driller	B49	B49	450425	4026883	3	46	44	0.00	0.00	7165	175	6990	180
RG-30390	B15	B15	450449	4026943	3	46	44	0.00	0.00	7155	160	6995	185
RG-45997	B13	B13	450346	4026894	3	46	44	0.00	0.00	7135	150	6985	200
RG-25988	L116	L116	446859	4026817	3	47	35	0.10	0.40	6906	46	6860	108
RG-25876	L111	L111	446899	4026829	3	47	35	0.07	0.50	6909	54	6855	104
RG-23347	L115	L115	446883	4026785	3	47	35	0.18	0.46	6906	52	6854	63
RG-20232	L119	L119	448439	4026809	3	47	39	0.12	0.33	6975	60	6915	102
RG-17991	L125	L125	448479	4026817	3	47	39	0.10	0.43	6976	80	6896	229
RG-20533	L132	L132	449892	4026866	3	47	43	-0.02	-0.06	7046	93	6953	183
RG-69217	D674	D674	444561	4026488	3	48	30	-0.08	-0.31	6816	16	6800	100
362304105365001	A27/G7	A27	444940	4026564	3	48	31	-0.27	-0.37	6820	16	6804	80
BOR2-a	BOR2-A	BOR2A	446240	4026553	3	48	34	-0.25	-0.14	6868	61	6807	291
RG-17671	L112	L112	447531	4026649	3	48	37	-0.48	0.07	6946	60	6886	104
RG-48434X	D673	D673	448371	4026499	3	48	39	-0.11	0.16	6995	80	6915	180
RG-402	L120	L120	448768	4026369	3	48	40	0.21	0.15	7018	60	6958	109
RG-64464	D686	D686	449130	4026276	3	48	41	0.44	0.04	7047	105	6942	170
RG-65512	D679	D679	449192	4026367	3	48	41	0.22	0.20	7037	120	6917	200
RG-64863	D687	D687	449282	4026274	3	48	41	0.45	0.42	7043	140	6903	290
RG-23095	L133	L133	449686	4026404	3	48	42	0.12	0.43	7050	155	6895	225
RG-60383	B56	B56	449737	4026393	3	48	43	0.15	-0.45	7060	47	7013	140
RG-19145	L117	L117	449307	4025903	3	49	41	0.37	0.49	7090	105	6985	170
RG-68110	D693	D693	448976	4026187	3	49	41	-0.34	-0.34	7046	137	6909	195
RG-17601	L24	L24	445072	4025740	3	50	31	-0.22	-0.04	6879	15	6864	38
362228105364301	A26/G8	A26	445107	4025454	3	50	31	0.49	0.05	6884	27	6857	43
RG-15897	L138	L138	446277	4025833	3	50	34	-0.46	-0.05	6890	50	6840	105
RG-66029	D714	D714	446259	4025765	3	50	34	-0.29	-0.09	6890	51	6839	105
RG-58151	D713	D713	446472	4025793	3	50	34	-0.36	0.44	6890	76	6814	120
RG-27644	L142	L142	446502	4025628	3	50	35	0.05	-0.49	6896	70	6826	100
RG-52979	D744	D744	441497	4025156	3	51	22	0.23	0.07	6810	70	6740	145
RG-5846	L28	L28	443658	4025107	3	51	27	0.35	0.44	6862	10	6852	75
RG-25451	L27	L27	445278	4025092	3	51	31	0.38	0.47	6893	60	6833	110
RG-17617	L25	L25	445259	4025126	3	51	31	0.30	0.42	6889	15	6874	60
RG-23836	L26	L26	445386	4025246	3	51	32	0.00	-0.26	6901	18	6883	52
RG-55097	D750	D750	446676	4025089	3	51	35	0.39	-0.05	6929	95	6834	140
RG-63984	D746	D746	446921	4025147	3	51	36	0.25	-0.44	6937	65	6872	147
RG-20378	L141	L141	446910	4025220	3	51	36	0.07	-0.47	6929	60	6869	120
RG-18720	L143	L143	446939	4025197	3	51	36	0.12	-0.40	6932	60	6872	123
RG-25455	L144	L144	446999	4025089	3	51	36	0.39	-0.25	6939	59	6880	120
362208105360701	B67/A21/G15	A21	446000	4024832	3	52	33	0.03	0.27	6950	70	6880	181
GGI	B9	B9	446390	4024785	3	52	34	0.15	0.24	6945	59	6886	202
RG-54531	D779	D779	446154	4024730	3	52	34	0.29	-0.35	6939	80	6859	150
RG-65670	D776	D776	446367	4024758	3	52	34	0.22	0.18	6940	58	6882	202
RG-65589	La Fontana D773	D773	446307	4024789	3	52	34	0.14	0.03	6937	57	6880	242

Water Level Data Used as Targets for the Taos Groundwater Model													
Well ID			Well Location		Model Coordinates					Elevation/Depth data in feet			
Well ID	Source ID	MODFLOW Target ID	X UTM NAD83	Y UTM NAD83	Model Layer	Row	Col	Row offset	Col offset	Ground Surface Elevation	Depth to Water	Water Level Elevation	Total Depth
RG-67905	D774	D774	446484	4024787	3	52	34	0.14	0.47	6936	82	6854	300
RG-1756 / Ranchos de Taos MD	L137	L137	446464	4024793	3	52	34	0.13	0.42	6936	80	6856	188
RG-16262	L139	L139	446674	4025025	3	52	35	-0.45	-0.06	6927	63	6864	127
RG-62383	D765	D765	447039	4024871	3	52	36	-0.06	-0.15	6961	60	6901	120
RG-66716	D759	D759	447131	4024931	3	52	36	-0.21	0.08	6957	82	6875	150
RG-56278	D754	D754	447102	4025023	3	52	36	-0.44	0.01	6949	70	6879	160
RG-18040	L140	L140	447164	4024890	3	52	36	-0.11	0.16	6963	80	6883	125
RG-58626	B28	B28	449818	4025037	3	52	43	-0.48	-0.24	7240	147	7093	283
RG-63321	B29	B29	449825	4024562	3	52	43	0.00	0.00	7270	210	7060	260
RG-62726	D789	D789	446516	4024482	3	53	35	-0.10	-0.45	6952	71	6881	160
RG-54323	B54	B54	448790	4024299	3	53	40	0.36	0.20	7155	260	6895	325
RG-56772	B53	B53	449130	4024634	3	53	41	-0.48	0.05	7165	285	6880	375
Driller	B42	B42	449708	4024548	3	53	42	0.00	0.00	7245	275	6970	405
RG-55251	B51	B51	449443	4024472	3	53	42	-0.07	-0.18	7230	360	6870	440
RG-50637	B50	B50	449548	4024502	3	53	42	0.00	0.00	7237	380	6857	490
RG-56279	B38	B38	449682	4024344	3	53	42	0.00	0.00	7275	290	6985	360
RG-60396	B3	B3	446696	4023938	3	54	35	0.25	0.00	7005	35	6970	160
RG-53672	D827	D827	448767	4024148	3	54	40	-0.27	0.14	7164	290	6874	380
RG-68369	B2	B2	449288	4023996	3	54	41	0.00	0.00	7250	320	6930	440
RG-57377	D839	D839	449100	4023961	3	54	41	0.00	0.00	7221	290	6931	375
RG-52124	B62	B62	449585	4024240	3	54	42	0.00	0.00	7275	400	6875	490
RG-17243	L39	L39	445127	4023558	3	55	31	0.20	0.10	6878	80	6798	110
362127105361801	A22/G9	A22	445718	4023570	3	55	33	0.17	-0.43	6950	29	6921	54
RG-68646	B59	B59	448755	4023740	3	55	40	-0.25	0.11	7150	300	6850	450
RG-18848	L40	L40	445340	4023344	3	56	32	-0.27	-0.37	6894	135	6759	175
RG-27221	L145	L145	446860	4023299	3	56	35	-0.16	0.40	7034	100	6934	146
RG-21162	L148	L148	447818	4023116	3	56	38	0.00	0.00	7117	170	6947	200
RG-54111	D907	D907	448054	4023212	3	56	38	0.00	0.00	7140	227	6913	330
Owner	B46	B46	448475	4023064	3	56	39	0.00	0.00	7240	350	6890	400
RG-55292	D920	D920	448327	4023087	3	56	39	0.00	0.00	7206	240	6966	333
RG-17344	L32	L32	440974	4022870	3	57	21	-0.09	-0.22	6927	80	6847	125
RG-58553	B8	B8	445961	4022633	3	57	33	0.50	0.17	6970	61	6909	82
RG-22677	L35	L35	445816	4022809	3	57	33	0.06	-0.19	6943	35	6908	95
RG-61534	D948	D948	446189	4022779	3	57	34	0.13	-0.26	7034	78	6956	160
RG-64995	D958	D958	446307	4022473	3	58	34	-0.10	0.03	7054	105	6949	165
362045105354801	A18/G3/B66?	A18	446458	4022271	3	58	34	0.40	0.40	7065	120	6945	300
Driller	B40	B40	446181	4022345	3	58	34	0.21	-0.28	7045	130	6915	160
RG-63128	D967	D967	446396	4022289	3	58	34	0.35	0.25	7062	120	6942	160
RG-67581	D966	D966	446396	4022289	3	58	34	0.35	0.25	7062	147	6915	190
RG-54514	B12	B12	447181	4022245	3	58	36	0.00	0.00	7115	147	6968	210
RG-3894-S / Llano Quemado MD	B58	B58	444842	4021947	3	59	30	0.20	0.39	7055	94	6961	244
RG-65037	D983	D983	445126	4021848	3	59	31	0.45	0.09	7023	140	6883	220
RG-7462	L10	L10	446409	4021978	3	59	34	0.13	0.28	7068	80	6988	130

Table A1

Water Level Data Used as Targets for the Taos Groundwater Model													
Well ID			Well Location		Model Coordinates					Elevation/Depth data in feet			
Well ID	Source ID	MODFLOW Target ID	X UTM NAD83	Y UTM NAD83	Model Layer	Row	Col	Row offset	Col offset	Ground Surface Elevation	Depth to Water	Water Level Elevation	Total Depth
RG-6539	L9	L9	446428	4021936	3	59	34	0.23	0.33	7065	140	6925	200
362029105364301	A25/G2	A25	445084	4021787	3	60	31	-0.40	-0.01	7039	109	6930	165
RG-4995	L6	L6	445080	4021732	3	60	31	-0.26	-0.02	7042	94	6948	112
	D987	D987	446542	4021800	3	60	35	-0.43	-0.39			6998	
RG-56388	D1001	D1001	446629	4021433	3	60	35	0.48	-0.17	7049	87	6962	135
RG-61059CLW & RG-61059	D996/D997	D996	446630	4021524	3	60	35	0.25	-0.17	7059	60	6999	252
RG-54501	D76	D76	440879	4043296	4	6	21	0.14	-0.46	6853	30	6823	82
RG-38199	D87	D87	440816	4043144	4	7	20	-0.48	0.38	6856	25	6831	30
RG-7609 CLW / Upper Arroyo Hondo M	L206	L206	442154	4042513	4	8	24	0.09	-0.29	7101	175	6926	230
RG-61808	D156	D156	442510	4042208	4	9	25	-0.16	-0.41	7217	270	6947	388
RG-16107 / Lower Des Montes MD	L207	L207	447165	4042076	4	9	36	0.17	0.16			7389	
RG-70152	D279/W_1358	D279	446417	4040360	4	13	34	0.44	0.30	7453	347	7106	850
Tract B Tip Well - BIA 10	P11	BIA10	444970	4035880	4	25	31	-0.43	-0.29	7190	100	7090	608
Tract B Tip Well - BIA 11	P12	BIA11	444960	4035870	4	25	31	-0.40	-0.32	7187	100	7087	760
BOR 4	BOR 4-S	BOR4S	445020	4035680	4	25	31	0.07	-0.17	7188	181	7007	900
RG-71635	D388	D388	443605	4035033	4	27	27	-0.32	0.31	7149	252	6897	360
RG-65302	D384	D384	443454	4035065	4	27	27	-0.40	-0.06	7152	280	6872	360
TP-2 Taos North	BOR	tp2			4	27	33	0.00	0.00	7115	21	7094	500
RG-20045	A28/G16	A28	444867	4034699	4	28	30	-0.49	0.45	7152	57	7095	500
RG-73285	Cameron	CAM			4	28	34	0.00	0.00	7150	107	7043	350
Buffalo Pasture Well - BIA 2	P2	P2	449550	4033390	4	31	42	-0.24	0.09	7095	18	7077	700
Don's Well - BIA 14	P15	BIA14	449420	4031200	4	36	42	0.20	-0.23	7000	-1	7001	613
Taos Cerro Project; OH-TP-1B	L48	L48	448443	4030883	4	37	39	-0.01	0.34	6956	5	6951	507
Karavas 2 screen 6	P48	K2-6	446690	4030610	4	38	35	-0.33	-0.02	6925	16	6909	348
RG-63808	La Percha GG11	GG11	446021	4030196	4	39	33	-0.30	0.32	6990	105	6885	360
Tract A PW2 - BIA 15	P16	BIA15	442420	4028400	4	43	24	0.16	0.37	6925	116	6809	225
RG-7339-S3; Taos #4	L94	Taos4	448038	4028399	4	43	38	0.17	0.33	6905	15	6890	300
RG-7339X-S?	B32	B32	448096	4028182	4	44	38	-0.29	0.48	6905	15	6890	300
RG-55738	B16	B16	450751	4027469	4	45	45	0.00	0.00	7165	180	6985	360
RG-47694	B23	B23	450599	4027477	4	45	45	0.00	0.00	7155	200	6955	382
RG-51093	B47	B47	450452	4027370	4	46	44	0.00	0.00	7140	170	6970	229
RG-50762X	B48	B48	450515	4027440	4	46	44	0.00	0.00	7145	175	6970	235
RG-70014	D657	D657	448526	4026741	4	47	40	0.29	-0.46	6987	105	6882	250
RG-23015	L29 Sewage treatmen	Sew	440350	4025505	4	50	19	0.36	0.22	6767	52	6715	130
RG-66288	B10	B10	449670	4025430	4	51	42	-0.45	0.39	7190	80	7110	365
RG-55279	B6	B6	449448	4025279	4	51	42	-0.08	-0.16	7170	250	6920	325
RG-59381	D751	D751	449663	4025081	4	51	42	0.41	0.37	7211	290	6921	360
RG-47720	B7	B7	449581	4024847	4	52	42	-0.01	0.17	7225	320	6905	404
RG-67517	B4	B4	449710	4024972	4	52	42	-0.32	0.49	7235	360	6875	460
Driller	B39	B39	449433	4024704	4	52	42	0.35	-0.20	7202	370	6832	410
RG-65604	D770	D770	449415	4024810	4	52	42	0.09	-0.25	7194	270	6924	380
Driller	B52	B52	449761	4024702	4	52	43	0.00	0.00	7265	300	6965	650
RG-73095 / BOR 1 Shallow	BOR1 Shallow GG13	BOR1S	442124	4022604	4	58	24	-0.43	-0.37	6960	211	6749	460

Water Level Data Used as Targets for the Taos Groundwater Model													
Well ID			Well Location		Model Coordinates					Elevation/Depth data in feet			
Well ID	Source ID	MODFLOW Target ID	X UTM NAD83	Y UTM NAD83	Model Layer	Row	Col	Row offset	Col offset	Ground Surface Elevation	Depth to Water	Water Level Elevation	Total Depth
RG-67964	B1	D965	446032	4022355	4	58	33	0.19	0.34	7045	235	6810	480
RG-54314	D980	D980	445021	4022002	4	59	31	0.07	-0.17	7023	255	6768	410
RG-55985	B19	B19	447214	4021743	4	59	36	0.00	0.00	7125	125	7000	280
River View Acres	test well	RVA	12E Sec 6 SW 1/4		5	7	10	0.00	0.00	6955	456	6499	510
RG-68808	D176/W_1302	D176	437159	4041988	5	9	11	0.39	0.29	6854	350	6504	455
RG-62458	Mariposa Ranch GG7	MAR	443925	4042037	5	9	28	0.27	0.11	7330	585	6745	800
RG-57312	D263/W_1283	D263	436432	4041160	5	11	9	0.45	0.49	6867	380	6487	410
RG-70236	D288/W_1331	D288	436509	4040001	5	14	10	0.33	-0.32	6957	470	6487	570
RG-53410	D291/W_1357	D291	440803	4039792	5	15	20	-0.15	0.35	7137	550	6587	815
RG-62152	D303/W_1334	D303	437484	4038845	5	17	12	0.20	0.10	7001	493	6508	580
Tract B OW - BIA 7 shallow	P8	BIA7s	444350	4039090	5	17	29	-0.41	0.17	7312	485	6827	590
Tract B PW2 - BIA 9	P10	BIA9	444340	4039090	5	17	29	-0.41	0.14	7312	470	6842	575
Grumpy Well - BIA 24	P26	BIA24	447450	4038550	5	18	37	-0.06	-0.13	7398	177	7221	1000
RG-64059	D318/W_1336	D318	438942	4037333	5	21	16	-0.04	-0.28	7046	502	6544	590
RG-68728	D328/W_1342	D328	441678	4036795	5	22	23	0.30	-0.48	7164	525	6639	640
RG-4066	L150	L150	437171	4036327	5	23	11	0.46	0.32	6989	498	6491	561
West Deep Well - BIA 20	P22	BIA20	447330	4036110	5	24	37	0.00	-0.43	7242	99	7143	1000
RG-75635	Taos Landfill	TL	442398	4033819	5	30	24	-0.31	0.31	7152	320	6832	510
RG-74803-EXP	El Prado Wtr & San	ELPR			5	34	40	0.00	0.00	6970	24	6946	1125
Karavas 2 screen 5	P47	K2-5	446690	4030610	5	38	35	-0.33	-0.02	6925	23	6902	508
Taos Yard Exploratory Deep	GG17/B61	TY	447560	4027036	5	47	37	-0.45	0.14	6920	115	6805	1020
RG-35518	A33/G6 Exploratory	A33	440130	4026244	5	49	19	-0.48	-0.32	6640	37	6603	530
RG-37303 / RG-60885-EX	Taos SJC GG10	SJC	440453	4026098	5	49	19	-0.11	0.48	6650	29	6621	180
Special OSE file	L30	L30	440409	4025107	5	51	19	0.35	0.37	6735	116	6619	136
RG-68034	Riverbend	RIVB	438869	4024581	5	53	16	-0.34	-0.46	6725	121	6604	215
RG-50140	BJV1 GG5	GG5	441231	4023483	5	55	21	0.38	0.41	6841	158	6683	240
RG-65392 EXP	Barranca del Pueblo	BAR			5	56	11	0.00	0.00	6685	233	6452	320
RG-59563-EX	UNM/Taos GG6	UNM	441599	4022601	5	58	22	-0.42	0.33	6990	310	6680	1200
Tract B OW - BIA 7 Deep	P7	BIA7d	444350	4039090	6	17	29	-0.41	0.17	7312	720	6592	1020
Tract B PW - BIA 8	P9	BIA8	444320	4039080	6	17	29	-0.38	0.09	7310	719	6591	1005
BOR 5	BOR 5	BOR5	447380	4035900	6	25	37	-0.48	-0.30	7247	265	6982	1830
Taos Airport	deep	TA	439404	4034694	6	28	17	-0.48	-0.13	7050	500	6550	1720
Karavas 2 screen 2	P46	K2-2	446690	4030610	6	38	35	-0.33	-0.02	6925	261	6664	1117
Tract A OW - BIA 5	P5	BIA5	442420	4028390	6	43	24	0.19	0.37	6780	200	6580	1000
Tract A PW - BIA 6	P6	BIA6	442400	4028390	6	43	24	0.19	0.32	6785	200	6585	1000
RG-73668	BOR 2B intermediate	BOR2B	446240	4026553	6	48	34	-0.25	-0.14	6868	84	6784	1050
Rio Pueblo 2000	upper	RP2Ku	440375	4026027	6	49	19	0.06	0.29	6660	171	6489	1175
RG-72824	Nat Guard Domestic	NG	442209	4022626	6	58	24	-0.48	-0.16	6960	270	6690	1430
RG-73095	BOR1 deep	BOR1	442124	4022604	6	58	24	-0.43	-0.37	6960	281	6679	2003
BOR 7	BOR 7	BOR7	444280	4038930	7	17	29	-0.01	-0.01	7315	720	6595	3000
BOR 6	BOR 6	BOR6	444798	4036007	7	24	30	0.26	0.28	7188	610	6578	2000
BOR 4	BOR 4-D	BOR4D	445020	4035680	7	25	31	0.07	-0.17	7188	610	6578	1800
Karavas 2 screen 1	P45	K2-1	446690	4030610	7	38	35	-0.33	-0.02	6925	165	6760	1942

Table A1

Water Level Data Used as Targets for the Taos Groundwater Model													
Well ID			Well Location		Model Coordinates					Elevation/Depth data in feet			
Well ID	Source ID	MODFLOW Target ID	X UTM NAD83	Y UTM NAD83	Model Layer	Row	Col	Row offset	Col offset	Ground Surface Elevation	Depth to Water	Water Level Elevation	Total Depth
Karavas 3	**P50**	K3	446690	4030610	7	38	35	-0.33	-0.02	6927	271	6656	1800
RG-73668	**BOR 2C deep**	BOR2C	446240	4026553	7	48	34	-0.25	-0.14	6868	271	6597	2024
BOR 3	**BOR 3**	BOR3	446247	4026541	7	48	34	-0.22	-0.12	6868	276	6592	2110
Rio Pueblo 2000	**deep**	RP2Kd	440375	4026027	7	49	19	0.06	0.29	6660	151	6509	2000
Rio Pueblo 2000	**middle**	RP2Km	440375	4026027	7	49	19	0.06	0.29	6660	160	6500	1360
RG-74167	**Rio Pueblo 2500**	RP25K	440360	4026053	7	49	19	0.00	0.25	6665	155	6510	2500

APPENDIX B

Distribution of Hydraulic Properties, Stresses and Calibration Residuals for Taos Groundwater Model T17.0

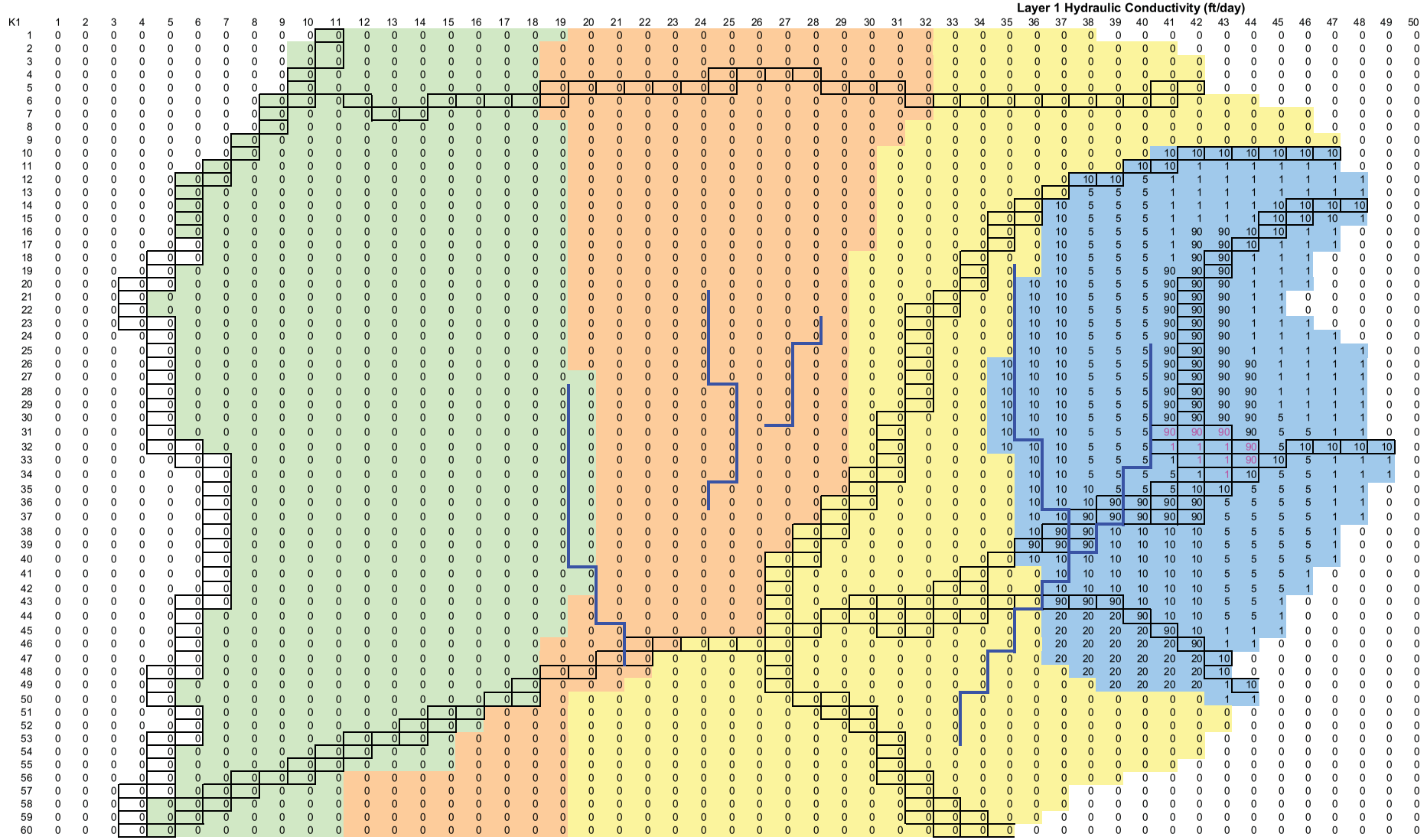
This Appendix contains the following model information:

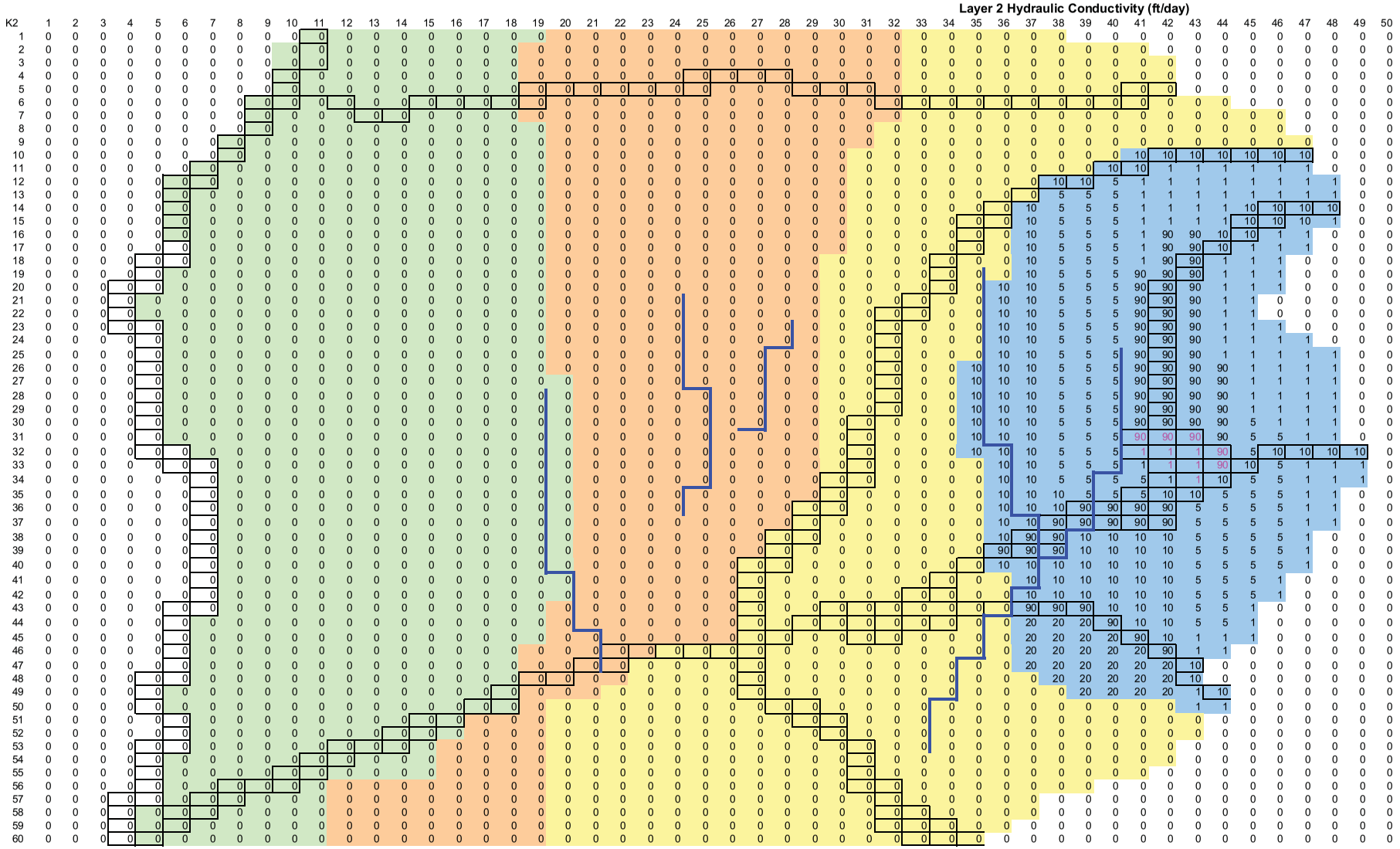
1) Hydraulic Conductivity (K) Diagrams, Layers 1 through 7
2) Transmissivity (T) Diagrams, Layers 1 through 7
3) Distribution of Irrigation Return Flow (Groundwater Accretions from Irrigation)
4) Distribution of Mountain-Front Recharge
5) Table Summarizing Well Pumping Simulated in Model
6) Distribution of Municipal, Domestic and Sanitary Pumping Diagrams
7) Calibration Residuals Diagrams, Layers 1 through 7

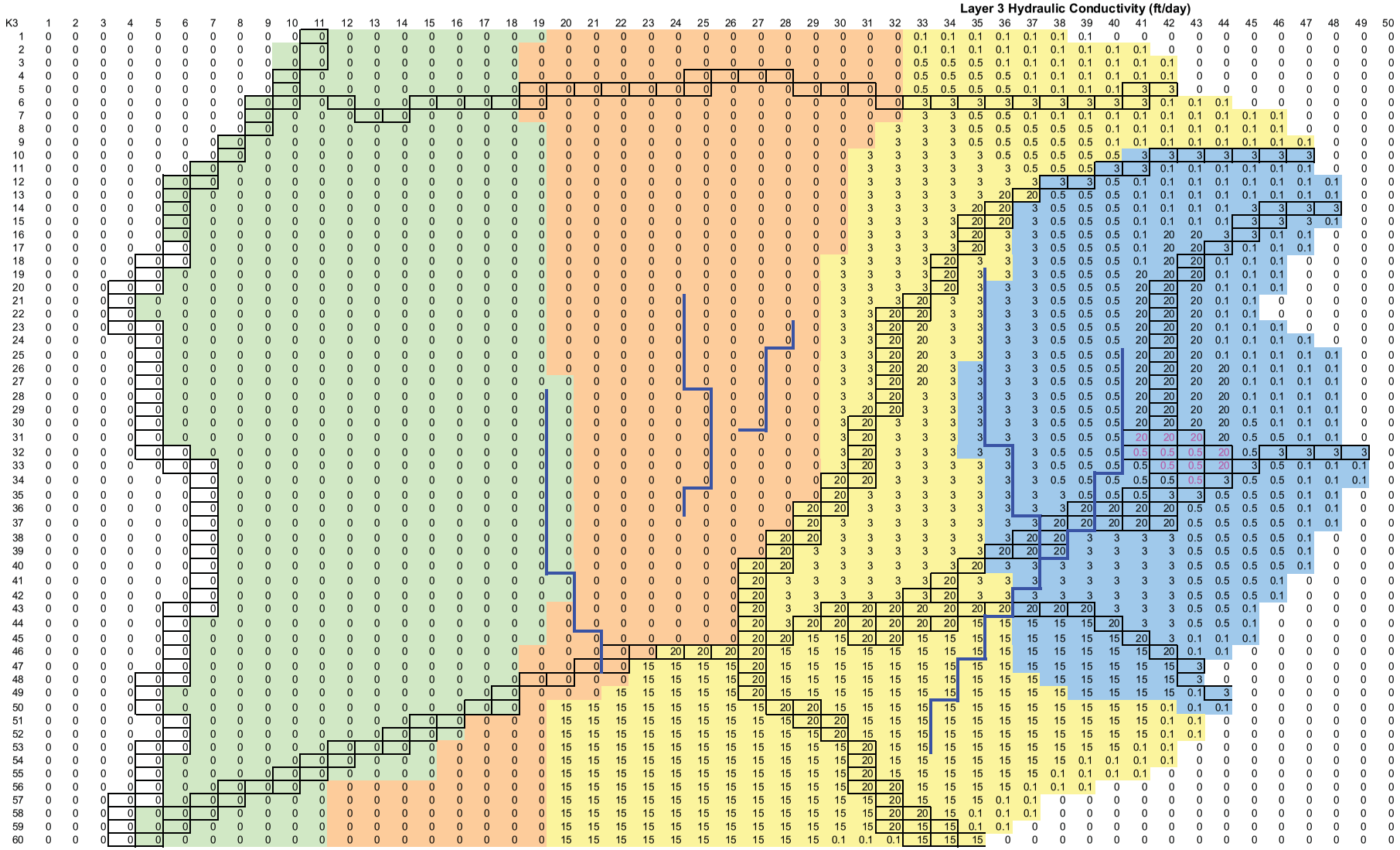
All diagrams were generate using Microsoft Excel for illustrative purposes, and are not to scale, and generally have some horizontal exaggeration. Model cells are actually squares: ¼ mile by ¼ mile. Row values are listed along the left hand side, and column values are listed along the top of each diagram.

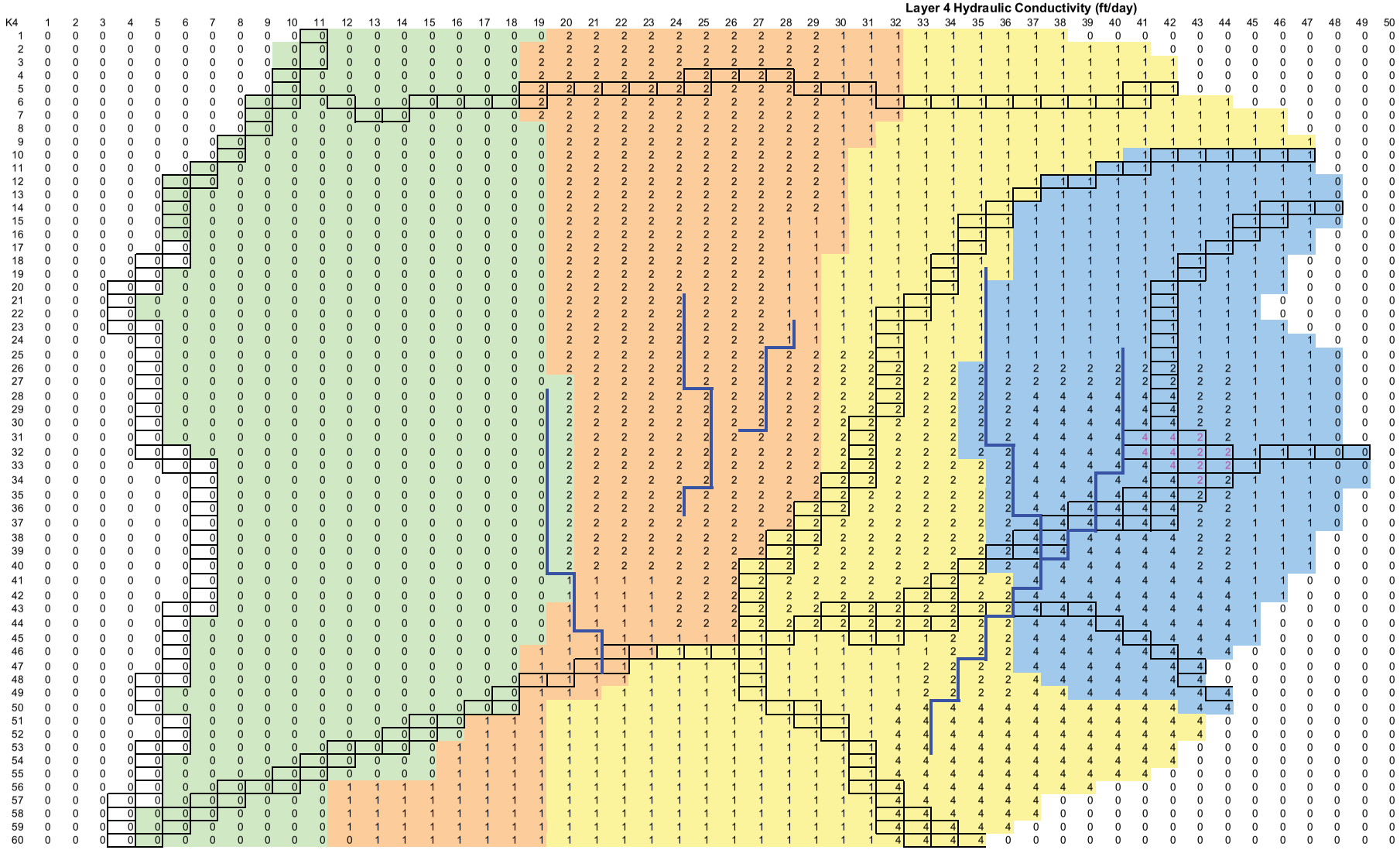
These diagrams include a few basic model features. RIV and STR cells that represent the Rio Grande and its tributaries are designated by bordered cells. The Buffalo Pasture is denoted by bordered STR cells with pink font within. The background colors of the cells indicate which layer contains the uppermost active cell at each x, y location for the model as a whole.

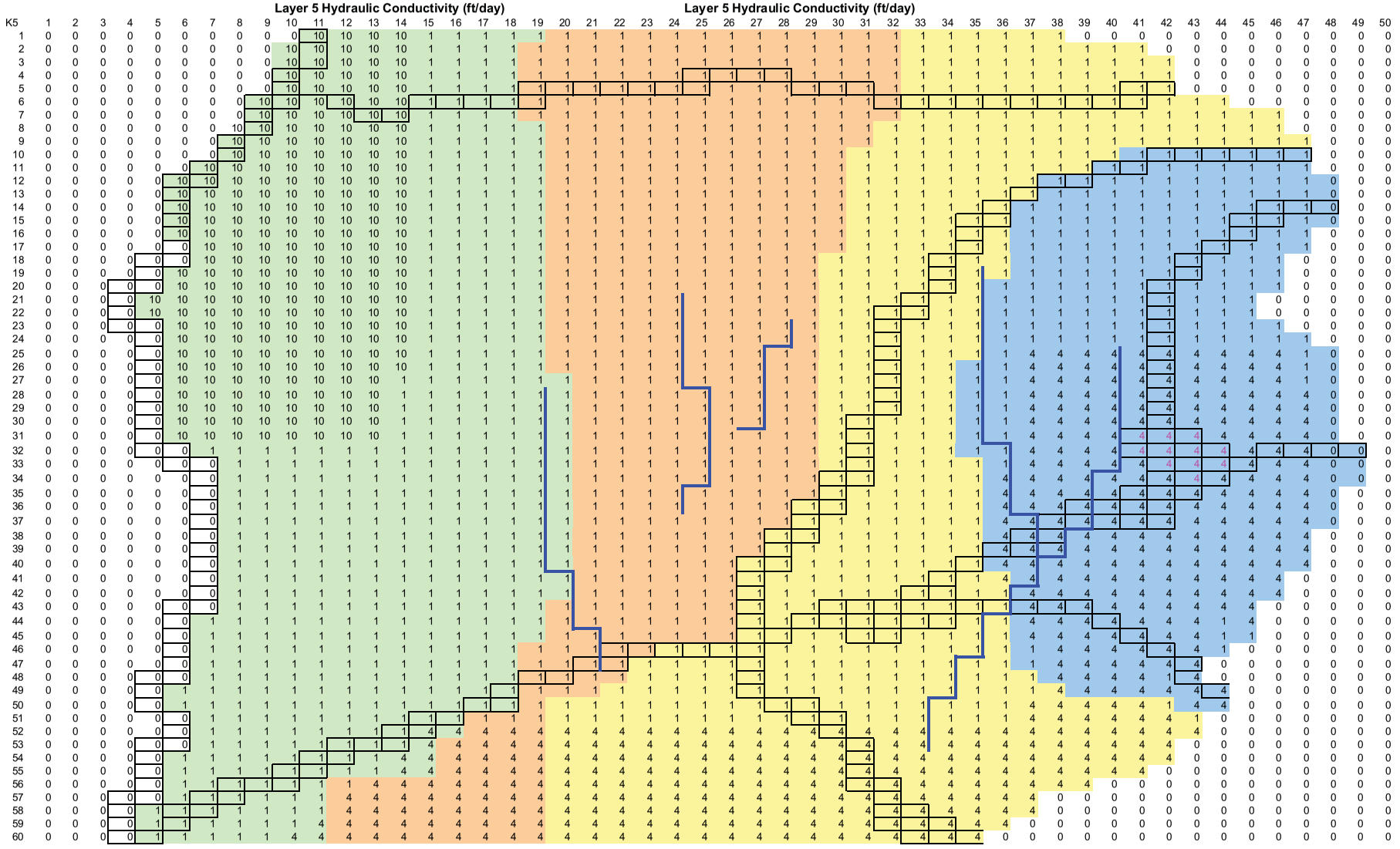
- Light Blue Cells: the uppermost active cells are in layer 1.
- Yellow Cells: the uppermost active cells are in layer 3 (layers 1 and 2 are not active in these locations)
- Orange Cells: The uppermost active cells are in layer 4 (layers 1, 2 and 3 are not active in these locations)
- Green Cells: The uppermost active cells are in layer 5 (layers 1, 2, 3 and 4 are not active in these locations)
- White cells: Only the white cells representing the Rio Grande, which are the bordered white cells along the left hand side of the active model grid, are active. These cells are in layer 6.


Layer 1 Hydraulic Conductivity (ft/day)


Layer 2 Hydraulic Conductivity (ft/day)


Layer 3 Hydraulic Conductivity (ft/day)

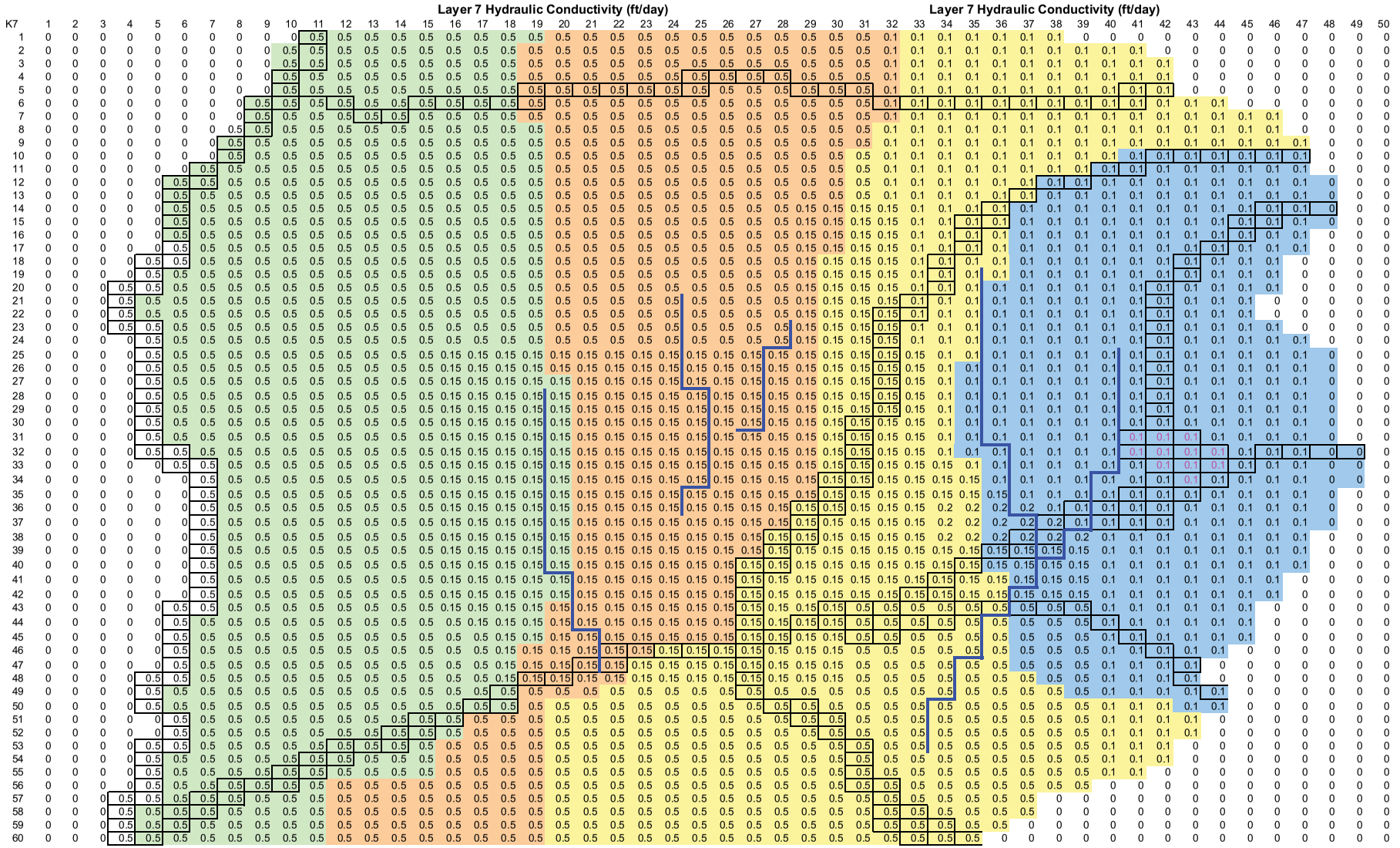

Layer 4 Hydraulic Conductivity (ft/day)


Layer 5 Hydraulic Conductivity (ft/day)
Layer 5 Hydraulic Conductivity (ft/day)

Layer 6 Hydraulic Conductivity (ft/day)

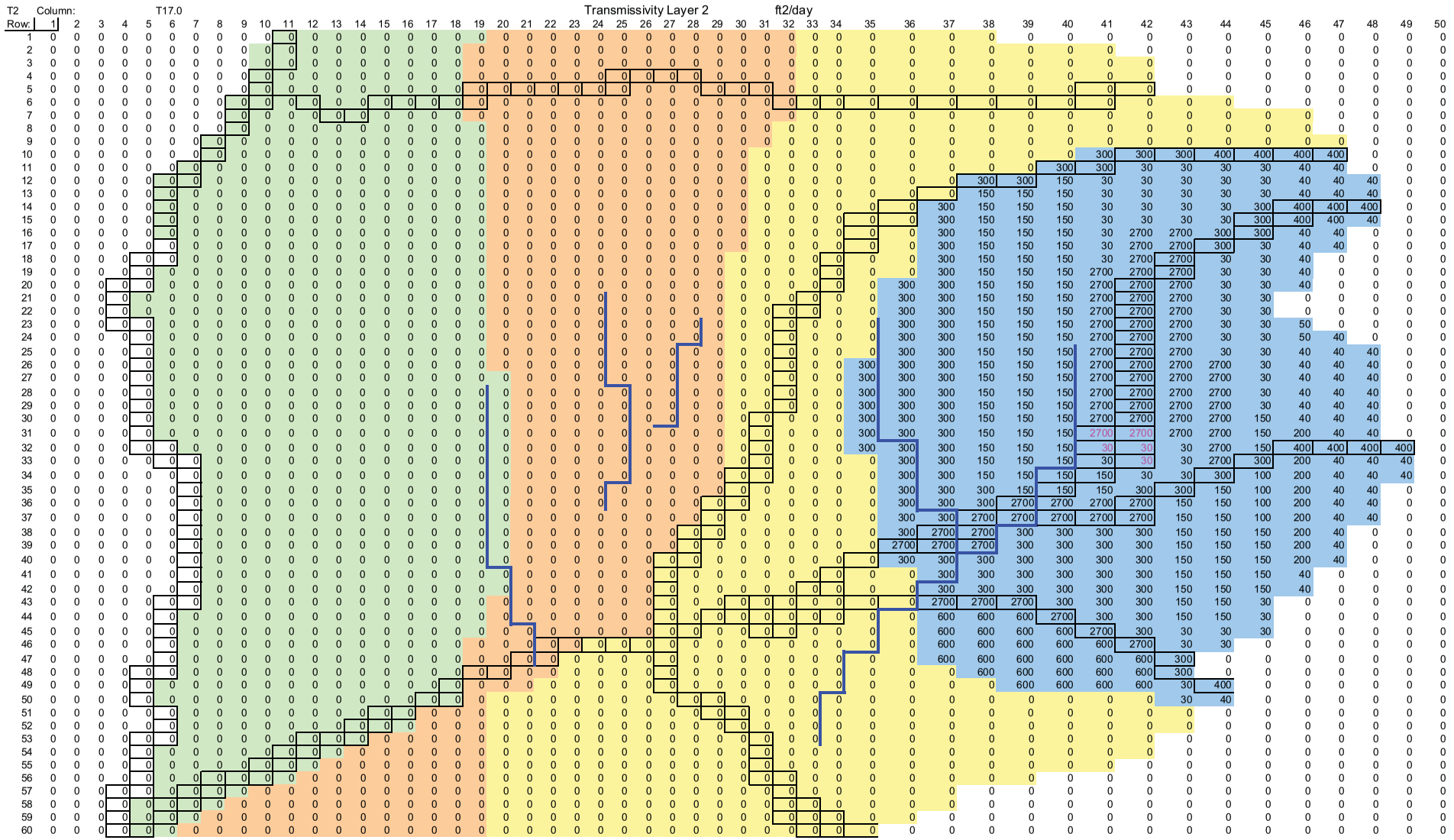
Layer 6 Hydraulic Conductivity (ft/day)

K6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
1	0	0	0	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0	0
8	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0
9	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
10	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0
11	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0
12	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0
13	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0
14	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0
15	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0
16	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0
17	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0
18	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
19	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
20	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
21	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0
22	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0
23	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
24	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
25	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
26	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
27	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
28	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
29	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
30	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
31	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
32	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
33	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
34	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
35	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
36	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
37	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
38	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
39	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
40	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0	0	0
41	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0	0	0
42	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0
43	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0
44	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0
45	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0
46	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0
47	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0
48	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0
49	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
50	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
51	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
52	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
53	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
54	0	0	0	0	3	3	3	3	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
55	0	0	0	0	3	3	3	3	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
56	0	0	0	0	3	3	3	3	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
57	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
58	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
59	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
60	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0


Layer 7 Hydraulic Conductivity (ft/day)
Layer 7 Hydraulic Conductivity (ft/day)

T1 Column: T17.0 Transmissivity Layer 1 ft2/day

Row	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	200	200	300	300	300	300	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	200	20	20	20	20	30	30	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	200	100	20	20	20	20	20	30	30	30	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	100	100	20	20	20	20	30	30	30	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	100	100	100	20	20	20	20	200	300	300	300	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	100	100	100	20	20	20	20	200	300	300	30	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	100	100	100	100	20	1800	1800	200	200	30	30	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	100	100	100	100	20	1800	1800	200	20	30	30	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	100	100	100	100	20	1800	1800	20	20	30	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	100	100	100	1800	1800	1800	20	20	30	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	200	100	100	100	1800	1800	1800	20	20	30	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	200	100	100	100	1800	1800	1800	20	20	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	200	100	100	100	1800	1800	1800	20	20	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	200	100	100	100	1800	1800	1800	20	20	20	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	200	100	100	100	1800	1800	1800	20	20	20	30	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	200	100	100	100	1800	1800	1800	20	20	30	30	30	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	200	200	100	100	100	1800	1800	1800	1800	20	30	30	30	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	200	200	100	100	100	1800	1800	1800	1800	20	30	30	30	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	200	200	100	100	100	1800	1800	1800	1800	20	30	30	30	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	200	200	100	100	100	1800	1800	1800	1800	20	30	30	30	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	200	200	100	100	100	1800	1800	1800	1800	100	30	30	30	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	200	200	100	100	100	1800	1800	1800	1800	100	150	30	30	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	200	200	100	100	100	20	20	20	1800	100	300	300	300	300	0	0	0
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	200	100	100	100	20	20	20	1800	200	150	30	30	30	0	0	0
34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	200	100	100	100	100	20	20	200	150	150	30	30	30	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	200	200	100	100	100	200	200	100	150	150	30	30	0	0	0	0
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	200	200	1800	1800	1800	1800	100	100	150	150	30	30	0	0	0	0
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	200	1800	1800	1800	1800	1800	100	100	150	150	30	30	0	0	0	0
38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	1800	1800	200	200	200	200	100	100	100	150	30	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1800	1800	1800	200	200	200	200	100	100	100	150	30	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	200	200	200	200	200	200	100	100	100	150	30	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	200	200	200	200	200	100	100	100	30	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	200	200	200	200	200	100	100	100	30	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1800	1800	1800	200	200	200	100	100	20	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	400	400	400	1800	200	200	100	100	20	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	400	400	400	400	1800	200	20	20	20	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	400	400	400	400	400	1800	20	20	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	400	400	400	400	400	400	200	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	400	400	400	400	400	200	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	400	400	400	400	20	300	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	30	0	0	0	0	0	0	0
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0


T2 Column: T17.0
Transmissivity Layer 2 ft2/day
Row:

T3 Column: T17.0 Transmissivity Layer 3 ft2/day

Row	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	19	28	45	-266	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	18	25	32	35	45	63	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	75	67	17	22	27	33	40	52	68	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	75	69	86	21	25	30	36	43	55	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	75	75	90	21	25	29	33	1119	1181	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	450	505	476	577	669	761	829	955	1055	43	59	70	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	586	625	90	101	22	25	28	33	39	48	58	68	75	86	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	847	703	720	99	104	109	113	138	35	42	49	57	66	74	84	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	843	703	572	99	104	109	113	142	38	46	51	57	65	73	80	86	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	819	832	696	568	594	104	110	115	150	213	1329	1453	1575	1737	1976	2228	2387	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	810	820	686	559	587	622	111	119	158	1205	1274	45	50	58	65	70	77	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	793	803	671	545	575	609	665	612	647	148	36	41	46	53	61	66	71	76	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	769	780	650	526	557	3918	4146	95	103	118	29	36	43	50	59	63	69	74	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	738	751	624	506	3550	3714	458	85	93	99	25	32	39	49	1751	1886	2066	2231	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	701	714	589	477	3392	3562	432	78	85	90	22	29	34	44	1735	1788	1918	71	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	656	670	546	300	3138	498	401	73	79	84	22	5650	5912	1107	1510	53	61	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	602	619	495	300	2900	455	366	67	74	80	21	5384	5602	1083	42	48	57	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	650	536	563	300	2000	300	409	329	62	71	79	20	4924	5140	31	37	43	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	619	487	300	300	2000	300	300	290	57	68	83	3886	4310	4570	26	33	39	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	577	436	300	300	2000	300	150	238	51	63	79	3626	3916	3960	23	30	37	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	531	384	300	2000	300	300	150	190	43	55	70	3240	3464	3438	20	27	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	487	489	2000	2000	300	300	150	150	25	46	60	2784	2978	2922	17	22	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	446	451	2000	2000	300	300	150	150	25	25	48	2276	2454	2380	13	16	5	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	553	410	2000	2000	300	300	150	150	25	25	25	1000	1890	1000	5	5	5	5	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	508	367	2000	2000	300	300	150	150	25	25	25	1000	1000	1000	5	5	5	5	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	461	300	2000	2000	300	150	150	150	25	25	25	1000	1000	1000	1000	5	5	5	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	407	300	2000	2000	300	150	150	150	25	25	25	1000	1000	1000	1000	5	5	5	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	499	300	2000	300	300	150	150	150	25	25	25	1000	1000	1000	1000	5	5	5	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	439	2954	2000	300	300	150	150	150	25	25	25	1000	1000	1000	1000	5	5	5	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	300	2000	300	300	300	150	150	150	25	25	25	1000	1000	1000	1000	25	5	5	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	300	2000	300	300	300	150	150	150	25	25	25	1000	1000	1000	1000	25	25	5	5	0
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	300	2000	300	300	300	150	150	150	25	25	25	25	25	25	1000	25	150	150	150	150
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	300	2000	300	300	300	300	150	150	25	25	25	25	25	25	1000	150	25	5	5	5
34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2000	2000	300	300	300	300	150	150	25	25	25	25	25	25	150	25	25	5	5	5
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2000	300	300	300	300	300	150	150	150	25	25	25	150	150	25	25	25	5	5	0
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2000	2000	300	300	300	300	300	150	150	150	1000	1000	1000	1000	25	25	25	25	5	5	0
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2000	300	300	300	300	300	300	150	150	1000	1000	1000	1000	1000	25	25	25	25	5	5	0
38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2000	2000	300	300	300	300	300	300	150	1000	1000	150	150	150	150	25	25	25	25	5	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2000	300	300	300	300	300	300	300	1000	1000	1000	150	150	150	150	25	25	25	25	5	0	0	0
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1000	2000	300	300	300	300	300	300	2000	150	150	150	150	150	150	150	25	25	25	25	5	0	0	0
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1000	300	300	300	300	300	300	2000	300	300	150	150	150	150	150	150	25	25	25	5	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1000	300	300	300	300	300	300	2000	300	300	150	150	150	150	150	150	25	25	25	5	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1000	300	300	2000	2000	2000	2000	2000	2000	1000	1000	1000	150	150	150	25	25	5	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1000	300	2000	2000	2000	2000	2000	2000	1500	1500	750	750	750	1000	150	150	25	25	5	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1000	2000	1500	1500	2000	2000	1500	1500	1500	1500	750	750	750	750	1000	150	5	5	5	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1000	1000	1000	1000	1500	1500	1500	1500	1500	1500	750	750	750	750	750	1000	5	5	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1000	1500	1500	1500	1500	1500	1500	1500	1500	1500	750	750	750	750	750	750	150	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1000	1500	1500	1500	1500	1500	1500	1500	1500	1500	750	750	750	750	750	150	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1000	1500	1500	1500	1500	1500	1500	1500	1500	1500	750	750	750	750	5	150	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1500	1500	1500	1500	1500	1500	2000	2000	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	10	5	5	0	0	0	0	0	0	0	0	0	0
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1500	1500	1500	1500	1500	1500	1500	1500	1500	2000	2000	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	10	10	0	0	0	0	0	0	0	0	0
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	2000	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	10	10	0	0	0	0	0	0	0	0	0
53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	2000	1500	1500	1500	1500	1500	1500	1500	1500	1500	10	10	0	0	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	2000	1500	1500	1500	1500	1500	1500	1500	10	10	10	10	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	2000	1500	1500	1500	1500	1500	1500	10	10	10	10	0	0	0	0	0	0	0	0	0	0
56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	2000	1500	1500	1500	1500	1500	10	10	10	10	0	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	2000	1500	1500	1500	10	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	2000	2000	1500	10	10	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	2000	1500	1500	10	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	10	10	10	1500	1500	1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

T4 Column: T17.0 Transmissivity Layer 4 ft2/day

Row:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	221	293	324	361	401	441	478	510	538	560	302	335	365	337	355	389	400	400	400	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	232	255	284	319	359	402	445	484	517	544	567	305	338	368	337	355	386	400	400	400	450	450	450	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	216	237	269	309	354	403	453	495	530	558	580	313	346	374	340	356	450	450	450	450	450	450	450	500	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	181	206	244	293	344	400	469	515	551	579	597	326	410	434	395	411	450	450	450	450	450	450	500	500	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	113	154	197	267	327	375	446	495	535	570	711	397	433	446	399	417	450	450	450	450	450	500	500	500	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	88	178	235	296	345	390	540	582	620	654	689	379	421	457	400	400	450	450	450	450	500	500	500	500	450	450	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	141	237	380	417	453	491	532	571	606	639	670	367	410	541	450	450	500	500	500	500	500	500	500	500	450	550	500	500	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	384	403	428	457	490	525	559	592	624	654	359	451	400	450	450	500	500	500	500	500	500	550	550	500	500	500	500	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	406	416	435	460	488	519	550	581	611	640	400	444	400	450	500	500	500	500	500	500	500	550	550	500	500	500	500	500	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	414	423	439	460	486	513	542	571	600	728	395	400	400	450	500	500	500	500	500	500	500	550	550	500	500	500	500	500	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	418	426	440	460	483	508	535	563	691	718	390	400	450	500	550	550	550	550	550	550	550	550	550	500	550	550	550	550	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	420	427	440	458	480	603	628	655	682	709	386	450	450	500	550	550	550	550	550	550	550	550	550	550	550	550	550	550	550	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	471	527	539	556	575	598	622	647	675	703	432	450	450	500	550	550	550	550	550	550	550	550	550	550	550	550	550	550	550	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	470	526	537	552	571	592	615	690	718	797	429	450	450	500	550	550	550	550	550	550	550	550	550	550	550	550	550	550	550	550	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	517	523	533	548	566	586	657	679	379	398	428	450	450	500	550	550	550	550	550	550	550	550	550	550	550	550	550	550	550	550	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	514	519	529	543	560	629	650	720	375	395	425	450	450	500	595	550	550	550	550	550	550	550	550	550	550	550	550	550	550	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	509	515	575	538	605	623	693	713	372	392	422	500	450	500	576	550	550	550	550	550	550	550	550	550	550	550	550	550	550	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	505	510	570	583	599	667	687	707	369	390	400	500	450	547	553	572	550	550	550	550	550	550	550	550	550	550	550	550	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	550	555	564	577	593	662	681	701	366	437	450	500	520	530	540	552	572	550	550	550	550	550	550	550	550	550	550	550	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	595	599	608	620	636	657	676	696	363	433	450	500	500	509	528	535	559	550	550	550	550	550	550	550	550	550	550	550	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	589	594	602	613	626	656	672	691	360	430	450	550	529	482	503	517	545	550	550	550	550	550	550	550	550	550	550	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	584	588	596	606	618	652	667	685	357	428	500	500	513	468	481	498	528	546	567	550	550	550	550	550	550	550	550	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	578	582	590	600	612	647	662	679	353	427	500	500	502	455	465	481	510	526	546	569	550	550	550	550	550	550	678	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	573	577	584	594	606	641	657	674	351	426	450	500	490	442	450	465	491	506	524	545	569	586	550	590	592	612	624	667	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	569	572	579	588	600	636	652	669	714	847	900	1000	476	428	435	449	470	484	499	518	539	558	565	559	548	568	581	627	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	566	567	573	583	595	630	647	664	712	843	900	1014	923	828	836	861	891	919	948	979	1018	1055	1067	1047	1014	524	541	591	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	113	562	567	577	589	623	641	660	708	836	800	879	792	804	806	830	851	874	898	925	961	996	1008	993	980	500	513	563	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	117	556	561	570	582	598	637	655	702	829	700	836	753	766	770	793	810	1659	1700	1746	1806	1871	1898	940	935	474	484	532	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	116	548	553	562	575	590	631	649	697	722	600	600	718	722	731	754	769	1572	1605	1640	1690	1750	1770	885	884	440	449	495	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	113	540	545	554	566	581	624	643	685	710	656	661	677	682	692	715	729	1488	1516	1544	1588	1643	1667	834	833	409	406	451	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	110	530	535	544	557	572	616	636	666	693	620	625	632	642	652	675	688	1405	1430	1454	1490	1522	1536	782	795	400	382	414	0	0	0
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	107	519	524	533	546	561	604	624	649	675	581	588	593	603	613	639	645	1323	1344	1364	1382	1394	1434	741	758	390	380	413	0	0	0
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	103	507	512	521	534	550	590	609	631	654	538	552	556	565	573	581	603	1237	1256	1274	1307	1297	1358	710	741	381	366	400	0	0	0
34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	494	499	508	521	539	572	590	611	633	499	519	521	528	535	544	561	1147	1159	1174	1185	1211	1242	685	713	370	357	394	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	95	480	484	492	503	528	549	569	589	611	467	480	484	490	498	505	518	1054	1058	1071	1092	1178	1228	640	669	351	344	388	0	0	0
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	91	464	469	477	487	512	529	547	566	404	430	437	445	453	460	466	474	977	983	1003	1056	1107	1179	622	646	334	326	371	0	0	0
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	86	448	453	460	472	489	506	524	543	377	393	400	407	415	421	426	428	884	930	973	1034	1080	1126	594	625	322	311	359	0	0	0
38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	82	432	436	544	454	468	483	498	322	345	353	361	369	377	384	387	398	826	882	948	1018	1059	1089	568	597	310	300	351	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	76	414	418	425	433	444	458	473	298	312	317	323	331	338	338	344	355	782	880	966	1009	1044	1070	552	578	301	291	342	0	0	0
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	69	396	400	405	410	419	431	351	272	274	278	284	290	289	298	316	360	771	845	934	986	1024	1054	542	563	292	286	337	0	0	0
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	183	186	189	383	389	401	322	235	235	237	242	249	256	283	306	339	758	824	888	943	989	1024	1059	1095	282	287	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	163	167	172	352	352	370	286	191	192	188	199	215	230	257	295	317	732	782	838	902	956	996	1034	1068	277	284	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	124	140	148	156	325	333	344	248	152	152	155	170	195	224	249	279	302	722	767	811	870	928	974	1011	1040	286	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	112	120	129	138	296	310	321	212	117	123	124	165	195	221	244	273	318	737	776	824	872	908	953	999	1030	290	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	95	100	105	113	122	139	147	92	46	56	70	85	97	111	251	280	324	740	777	821	868	905	927	1008	1074	302	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64	73	76	71	79	45	46	64	76	44	54	74	89	103	117	261	288	327	739	773	814	854	895	925	1012	1138	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	58	56	66	73	67	72	81	89	53	69	84	98	111	247	269	305	329	735	768	804	840	876	923	1006	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	43	84	100	34	36	40	47	101	64	80	94	106	118	258	278	310	331	704	767	795	826	858	906	1003	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	86	104	40	41	45	50	58	113	77	92	103	114	125	268	286	314	331	698	733	788	811	837	866	1061	1288	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90	32	26	40	45	51	58	67	77	87	100	111	121	524	557	606	636	664	692	720	746	768	788	804	1060	1230	0	0	0	0	0	0
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	89	35	38	43	49	56	64	74	85	98	110	119	128	553	581	622	644	666	688	709	729	748	764	777	786	0	0	0	0	0	0	0
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	83	37	40	45	52	60	69	79	91	104	116	126	138	580	602	634	652	669	687	704	720	736	750	764	779	0	0	0	0	0	0	0
53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	80	38	42	48	55	63	73	84	96	110	123	137	151	608	622	646	659	674	690	704	717	730	743	756	0	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	77	40	43	49	57	66	76	88	101	115	130	145	156	632	644	658	670	681	695	707	718	730	740	752	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72	40	45	51	59	68	79	92	105	120	135	151	162	660	666	674	683	692	702	713	722	736	742	0	0	0	0	0	0	0	0	0
56	0	0	0	0	0	0	0	0	0	0	0	0	26	34	49	67	87	111	137	165	142	146	152	161	170	182	195	209	224	240	256	268	1092	1092	1094	1099	1105	1114	1124	1130	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0	0	0	15	27	42	61	80	104	130	158	142	146	153	162	172	184	197	211	227	243	258	271	1115	1121	1118	1117	1120	1128	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	2	15	28	50	74	99	126	154	143	147	153	162	173	185	199	214	230	246	262	276	1140	1152	1148	1140	1136	1137	0	0	0	0	0	0	0	0	0	0	0	0
59	0	0	0	0	0	0	0	0	0	0	0	0	0	19	44	69	95	123	152	143	147	154	163	174	186	200	216	233	251	267	281	1156	1169	1177	1168	1156	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	15	41	67	94	121	151	143	147	154	163	174	186	201	217	236	258	275	288	1174	1187	1191	1193	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

T5 Column: T17.0 Transmissivity Layer 5 ft2/day

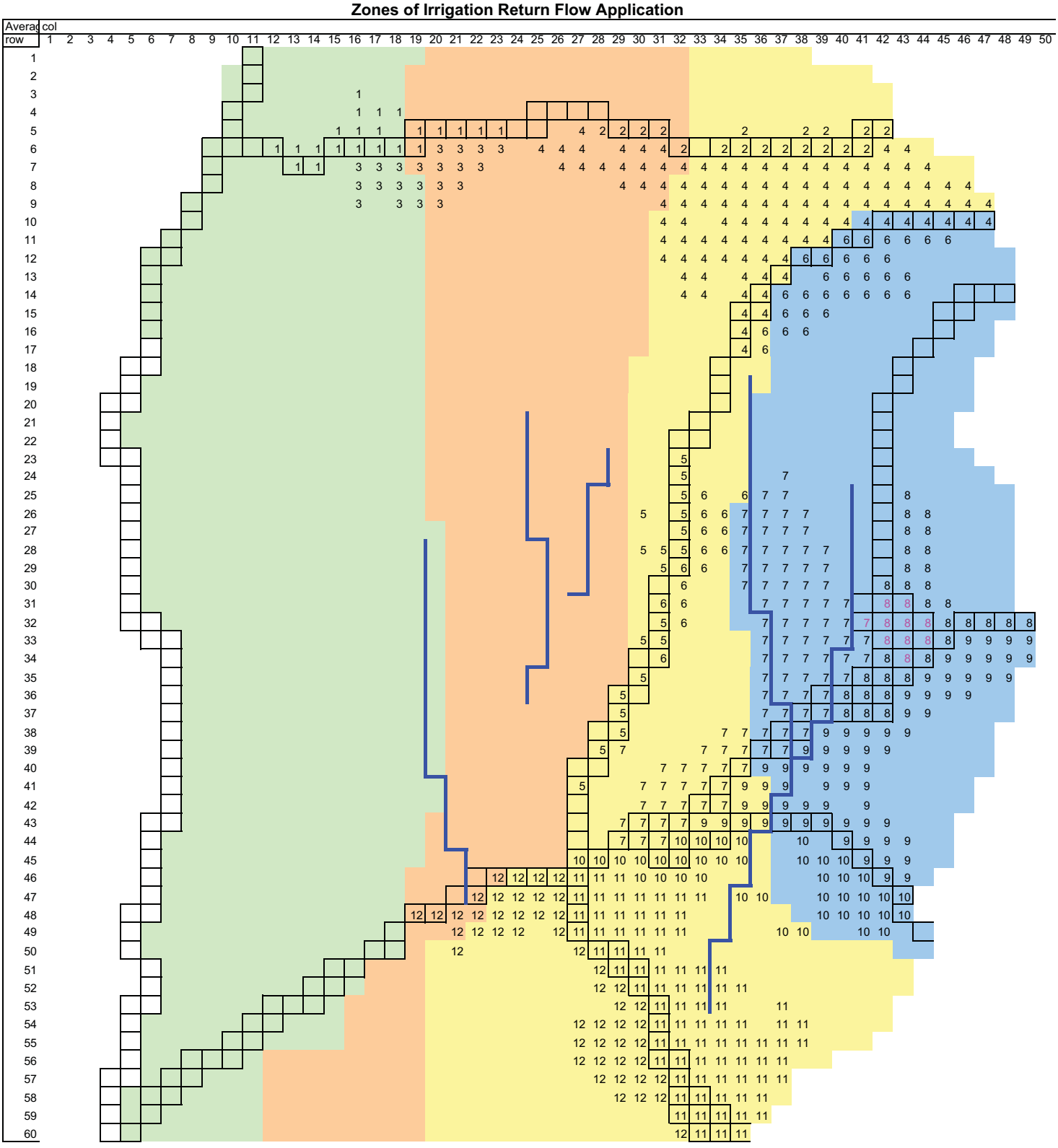
Row:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1	0	0	0	0	0	0	0	0	0	0	930	1108	1245	1344	165	234	267	296	321	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	883	880	1106	1254	1356	191	235	270	299	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	856	841	1121	1276	1626	194	241	275	327	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	810	995	1182	1562	1656	199	248	307	333	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	781	1073	1488	1600	1943	232	283	317	340	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	740	982	1667	1791	1882	1975	247	301	334	353	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	500	500	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	552	991	1660	1779	1895	1983	233	284	317	340	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	500	400	450	450	0	0	0
8	0	0	0	0	0	0	0	0	660	661	980	1647	1756	1851	1930	224	273	356	380	399	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	450	450	450	450	0	0	0
9	0	0	0	0	0	0	0	0	620	799	1000	1638	1732	1815	1886	217	263	345	371	392	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	450	450	450	450	450	0	0
10	0	0	0	0	0	0	0	0	581	834	1007	1626	1709	1784	1848	212	303	334	361	384	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	450	450	450	450	450	0	0
11	0	0	0	0	0	0	540	696	868	1009	1611	1686	1754	1814	207	295	326	353	378	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	450	400	400	400	0	0
12	0	0	0	0	0	480	500	725	880	1001	1591	1661	1725	1782	251	288	320	347	373	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0
13	0	0	0	0	0	450	595	753	886	1488	1565	1634	1697	2249	247	283	314	342	368	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0
14	0	0	0	0	0	430	612	756	877	1469	1539	1606	1667	2217	243	279	310	338	364	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0
15	0	0	0	0	0	400	606	747	858	1444	1511	1575	1633	2184	240	275	306	335	386	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0
16	0	0	0	0	0	300	603	740	1337	1412	1480	1544	2099	2147	236	272	303	357	382	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0
17	0	0	0	0	0	0	652	733	1314	1381	1447	1510	2065	2112	233	269	300	354	379	400	400	400	400	400	400	400	400	400	400	400	400	400	350	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0
18	0	0	0	0	0	0	641	708	1284	1348	1415	1974	2027	2075	230	266	322	350	400	400	400	400	400	400	400	400	400	400	400	400	400	350	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0
19	0	0	0	0	0	0	514	589	669	1246	1311	1378	1938	1990	2038	226	263	320	347	398	400	400	400	400	400	400	400	400	400	400	350	350	350	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0
20	0	0	0	0	0	0	482	553	1131	1202	1270	1337	1898	1950	2000	223	285	317	370	395	400	400	400	400	400	400	400	400	400	400	350	350	350	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0
21	0	0	0	0	336	418	508	1093	1160	1231	1795	1854	1910	1961	220	282	314	367	393	400	400	400	400	400	400	400	400	400	400	400	350	350	350	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0	0
22	0	0	0	0	314	373	463	1049	1116	1187	1754	1811	1868	1923	241	278	311	365	415	400	400	400	400	400	400	400	400	400	400	400	350	350	350	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0	0
23	0	0	0	0	0	340	414	1001	1069	1139	1708	1767	1826	1882	237	276	333	362	413	400	400	400	400	400	400	400	400	400	400	400	350	350	350	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0	0
24	0	0	0	0	0	302	872	946	1022	1592	1657	1720	1783	1842	234	273	331	385	411	400	400	400	400	400	400	400	400	400	400	400	350	350	350	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0
25	0	0	0	0	0	248	827	895	974	1546	1609	1674	1740	2056	231	296	329	383	409	400	400	400	400	400	400	400	400	400	400	350	350	350	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	400	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	712	770	842	923	1497	1560	1624	1693	2031	231	296	328	381	407	400	400	400	400	400	400	400	400	400	400	350	350	350	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	400	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	671	721	793	872	1448	1510	1571	1874	205	262	296	351	378	429	400	400	400	400	400	400	400	400	400	400	350	350	350	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	400	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	625	675	751	1329	1399	1465	1524	1827	203	263	295	349	400	423	400	400	400	400	400	400	400	400	400	400	350	350	350	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	581	632	710	1291	1361	1433	2491	1792	226	262	319	347	397	420	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	545	602	1179	1254	1330	1407	2472	1774	225	262	318	370	395	417	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	529	1087	1153	1230	1311	1640	1711	1776	228	288	318	369	393	415	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	207	109	117	127	162	174	213	238	291	343	368	391	414	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
33	0	0	0	0	0	0	0	99	108	146	161	202	220	267	292	342	367	390	412	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
34	0	0	0	0	0	0	0	92	102	142	159	202	222	269	318	342	365	388	410	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
35	0	0	0	0	0	0	0	86	123	139	182	202	247	269	317	341	364	387	409	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
36	0	0	0	0	0	0	0	82	119	136	181	201	247	293	316	339	362	385	407	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
37	0	0	0	0	0	0	0	105	117	159	179	224	245	292	314	338	361	383	405	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
38	0	0	0	0	0	0	0	103	115	158	177	223	269	290	312	336	359	381	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
39	0	0	0	0	0	0	0	102	139	156	201	221	267	288	311	335	358	380	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
40	0	0	0	0	0	0	0	101	138	155	200	245	266	287	310	334	357	379	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
41	0	0	0	0	0	0	0	127	138	180	199	244	265	286	309	333	356	378	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
42	0	0	0	0	0	0	0	127	138	180	224	244	265	286	309	333	356	378	399	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
43	0	0	0	0	0	0	0	152	163	180	224	244	265	287	310	333	356	378	399	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
44	0	0	0	0	0	0	111	148	163	206	225	245	267	289	312	334	357	379	399	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
45	0	0	0	0	0	0	138	148	163	207	227	248	270	292	315	337	360	381	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
46	0	0	0	0	0	0	139	149	191	209	230	252	275	297	320	342	364	385	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
47	0	0	0	0	0	0	140	151	193	213	235	258	281	304	327	349	371	392	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
48	0	0	0	0	0	0	140	178	196	218	241	265	289	313	337	359	381	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
49	0	0	0	0	0	126	139	181	201	224	249	274	299	324	348	371	394	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
50	0	0	0	0	0	127	167	185	206	231	258	285	312	338	363	384	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
51	0	0	0	0	0	0	176	191	213	240	269	298	326	355	383	397	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
52	0	0	0	0	0	0	180	195	220	249	281	313	341	372	1531	1558	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
53	0	0	0	0	0	0	180	199	226	259	294	332	355	370	1504	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
54	0	0	0	0	0	151	172	200	231	267	305	328	342	1418	1467	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
55	0	0	0	0	0	146	169	202	236	274	290	310	327	1376	1430	1555	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
56	0	0	0	0	0	135	162	211	238	255	278	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
57	0	0	0	0	0	0	111	140	188	221	346	369	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
58	0	0	0	0	0	63	119	102	174	311	336	359	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600

| T6 | Column: | | | | | | | T17.0 | | | | | | | | | | | Transmissivity Layer 6 | | | | | | | | | | | ft2/day | | | | | | | | | | |

T7 Column: T17.0 Transmissivity Layer 7 ft2/day

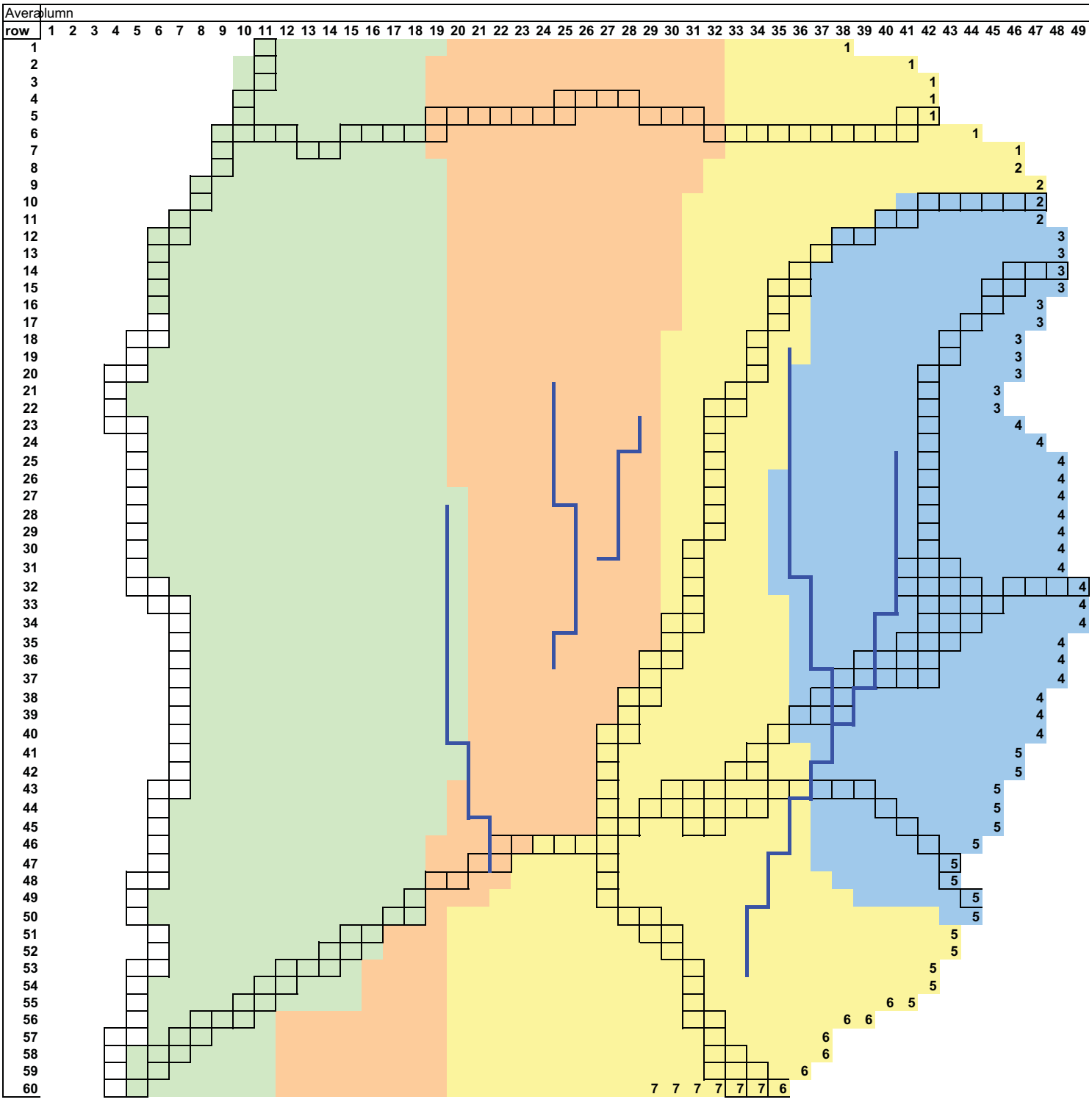
Row:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1	0	0	0	0	0	0	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	170	170	170	170	170	170	170	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	170	170	170	170	170	170	170	170	170	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	170	170	170	170	170	170	170	170	170	170	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	170	170	170	170	170	170	170	170	170	170	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	170	170	170	170	170	170	170	170	170	170	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	170	170	170	170	170	170	170	170	170	170	170	170	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0	0	0	0
8	0	0	0	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0	0	0	0
9	0	0	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0	0	0
10	0	0	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0	0	0
11	0	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0	0	0
12	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0	0
13	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0	0
14	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0
15	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0
16	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0
17	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0
18	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0	0
19	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0	0
20	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0	0
21	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0	0
22	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0	0
23	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0	0
24	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0	0
25	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0	0
26	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0	0
27	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0	0
28	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0	0
29	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0	0
30	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0	0
31	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0	0
32	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0	0
33	0	0	0	0	0	850	850	850	850	850	850	850	850	850	850	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0	0
34	0	0	0	0	0	0	850	850	850	850	850	850	850	850	850	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	170	170	170	170	170	170	170	170	170	170	170	170	170	170	0	0
35	0	0	0	0	0	0	850	850	850	850	850	850	850	850	850	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	170	170	170	170	170	170	170	170	170	170	170	170	0	0
36	0	0	0	0	0	0	850	850	850	850	850	850	850	850	850	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	0	0
37	0	0	0	0	0	0	850	850	850	850	850	850	850	850	850	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	0	0
38	0	0	0	0	0	0	850	850	850	850	850	850	850	850	850	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	0	0
39	0	0	0	0	0	0	850	850	850	850	850	850	850	850	850	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	0	0
40	0	0	0	0	0	0	850	850	850	850	850	850	850	850	850	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	0	0
41	0	0	0	0	0	0	850	850	850	850	850	850	850	850	850	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	0	0
42	0	0	0	0	0	0	850	850	850	850	850	850	850	850	850	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	0	0
43	0	0	0	0	0	850	850	850	850	850	850	850	850	850	850	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	0	0
44	0	0	0	0	0	850	850	850	850	850	850	850	850	850	850	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	0	0
45	0	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	0	0
46	0	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	0	0
47	0	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	0	0
48	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	0	0
49	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	0	0
50	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	0	0
51	0	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	0	0
52	0	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	0	0
53	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	0	0
54	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	0	0
55	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	0	0
56	0	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	0	0
57	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	0	0
58	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	0	0
59	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	0	0
60	0	0	0	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Zones of Irrigation Return Flow Application



Application of Irrigation Return Flows to Groundwater		
Zone Number	Zonal Application Rate (AF/yr)	Location Description of Zone
1	338	A - NW of Rio Hondo
2	169	B - NE of Rio Hondo
3	334	C - SW of Rio Hondo
4	1720	D - BTW RH & AS
5	319	E - West Side of AS
6	424	F - South Side of AS
7	2115	G - Btw AS & RL
8	1483	H - Btw RL & RPdT
9	1516	I - Btw RPdT & RFdT
10	647	J - South Side of RFdT
11	1668	K - East Side of RGdR & RC
12	1159	L - West Side of RGdR
13	14	M - North Side of RPdT

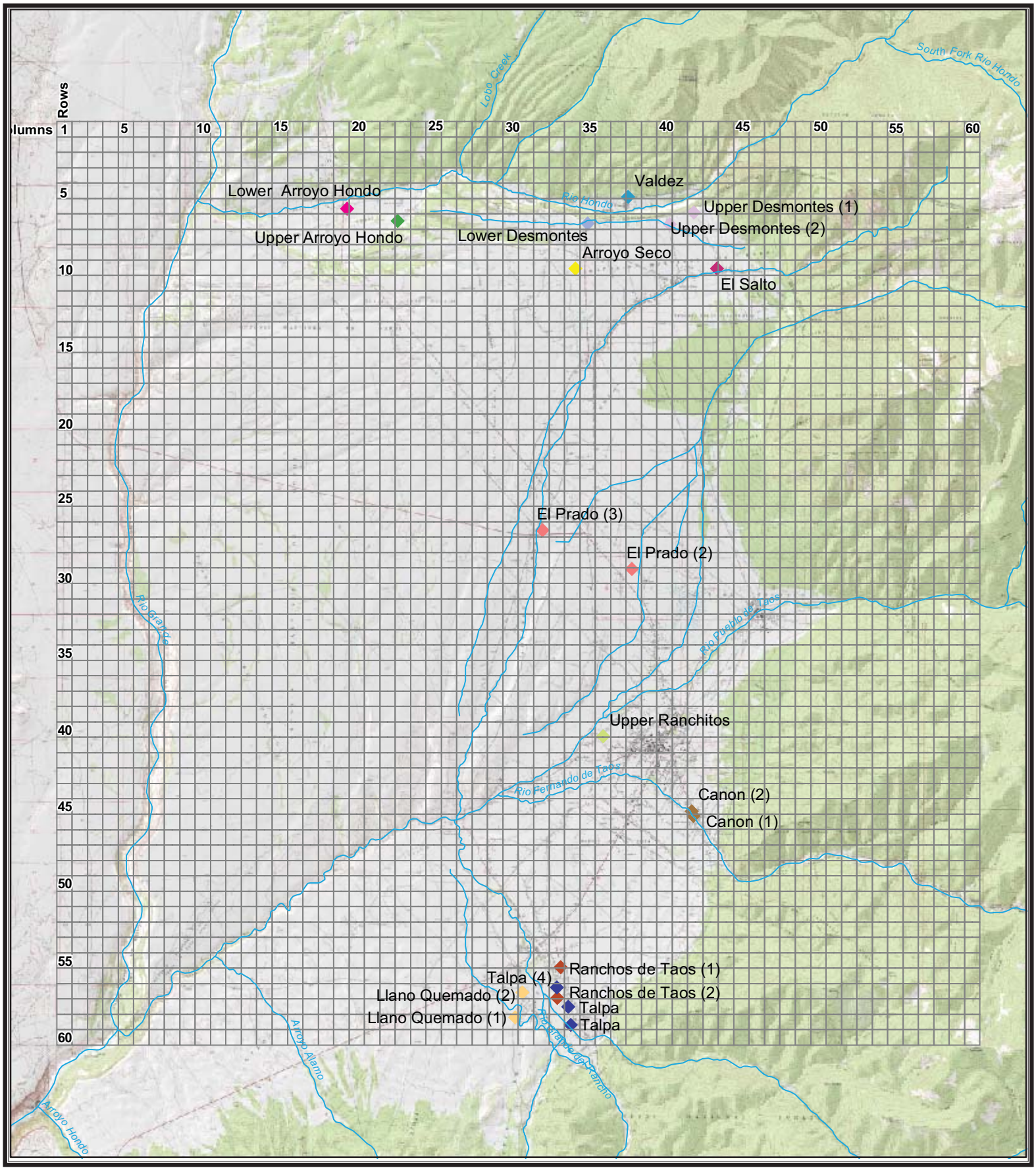
Diagram of Mountain Front Recharge Distribution T17.0



Mountain Front Recharge Distribution	
Zone Number	Zonal Recharge Rate (AF/yr)
1	1260
2	630
3	1080
4	1440
5	270
6	180
7	450

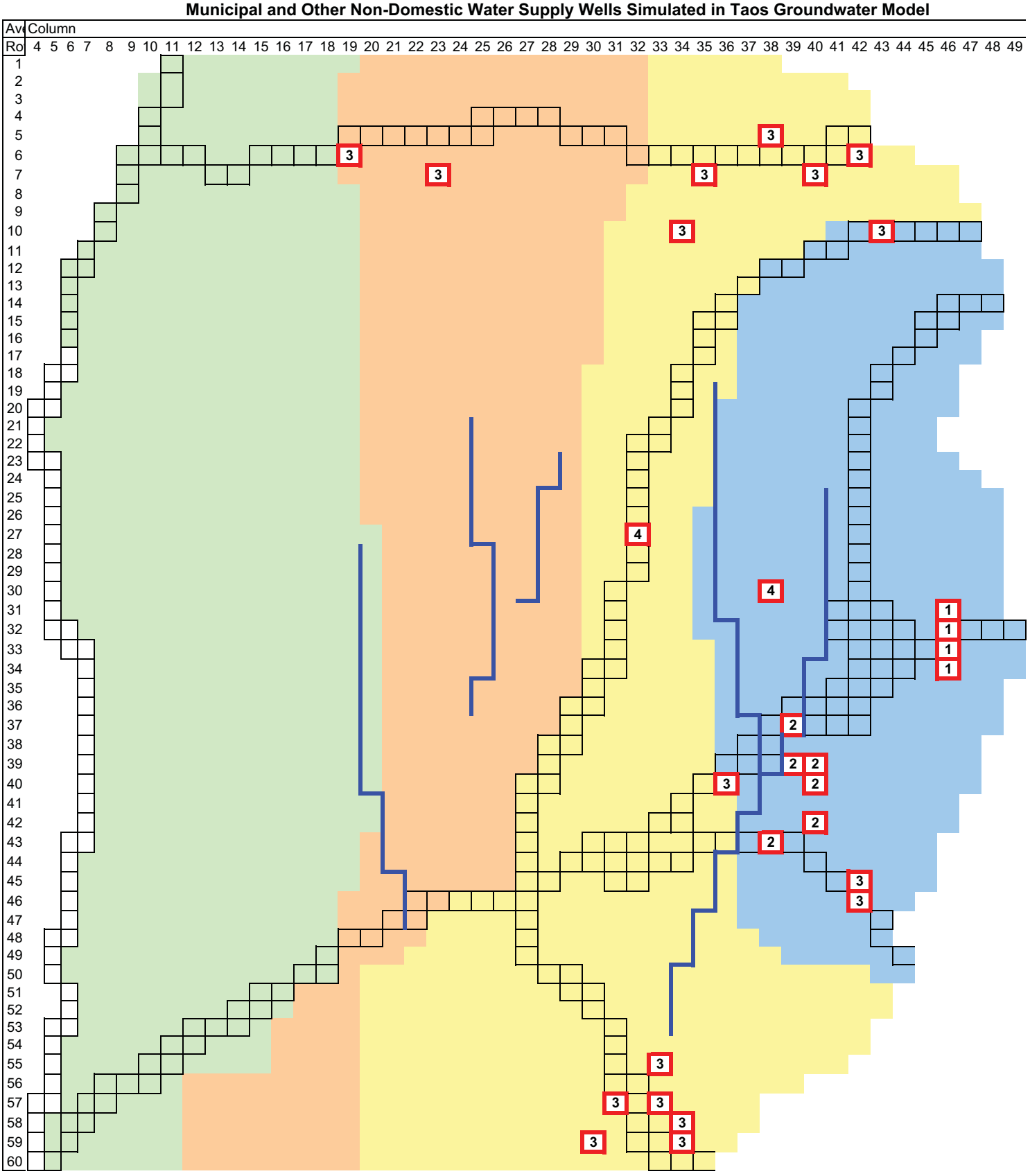
Well Pumping Input into Calibration Run of T17.0 Model (AF/yr)								
Stress Period:	Taos Pueblo*	Town of Taos	El Prado	Other Mutual Domestic Wells	Domestic Well*	Multiple Dwelling Domestic Wells*	Sanitary Wells*	Total
1964-1973	100	510	0	137	563	299	189	1608
1974-1983	200	680	0	183	563	299	189	1924
1984-1993	200	837	37	370	563	299	189	2305
1994-2003	200	838	64	395	563	299	189	2358

*** Estimated Diversions**



Taos Mutual Domestic Wells and El Prado WSD Wells

Municipal and Other Non-Domestic Water Supply Wells Simulated in Taos Groundwater Model

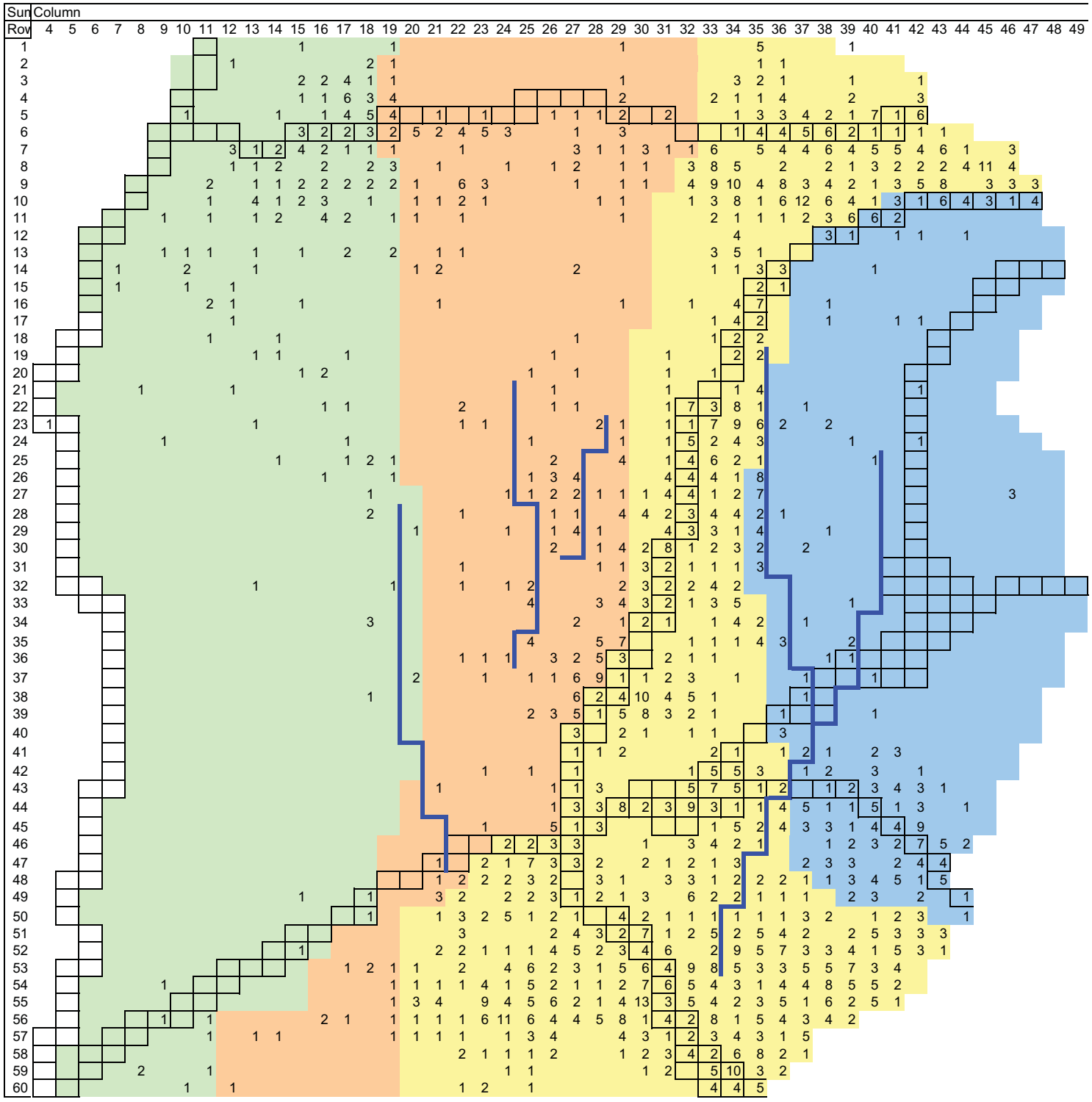


Designation	Wells
1	Taos Pueblo (estimated, generalized pumping location)
2	Town of Taos
3	El Prado Water & Sanitation District
4	Mutual Domestic Associations

Distribution of Domestic Wells and Sanitary Type Wells Simulated in Taos Groundwater Model

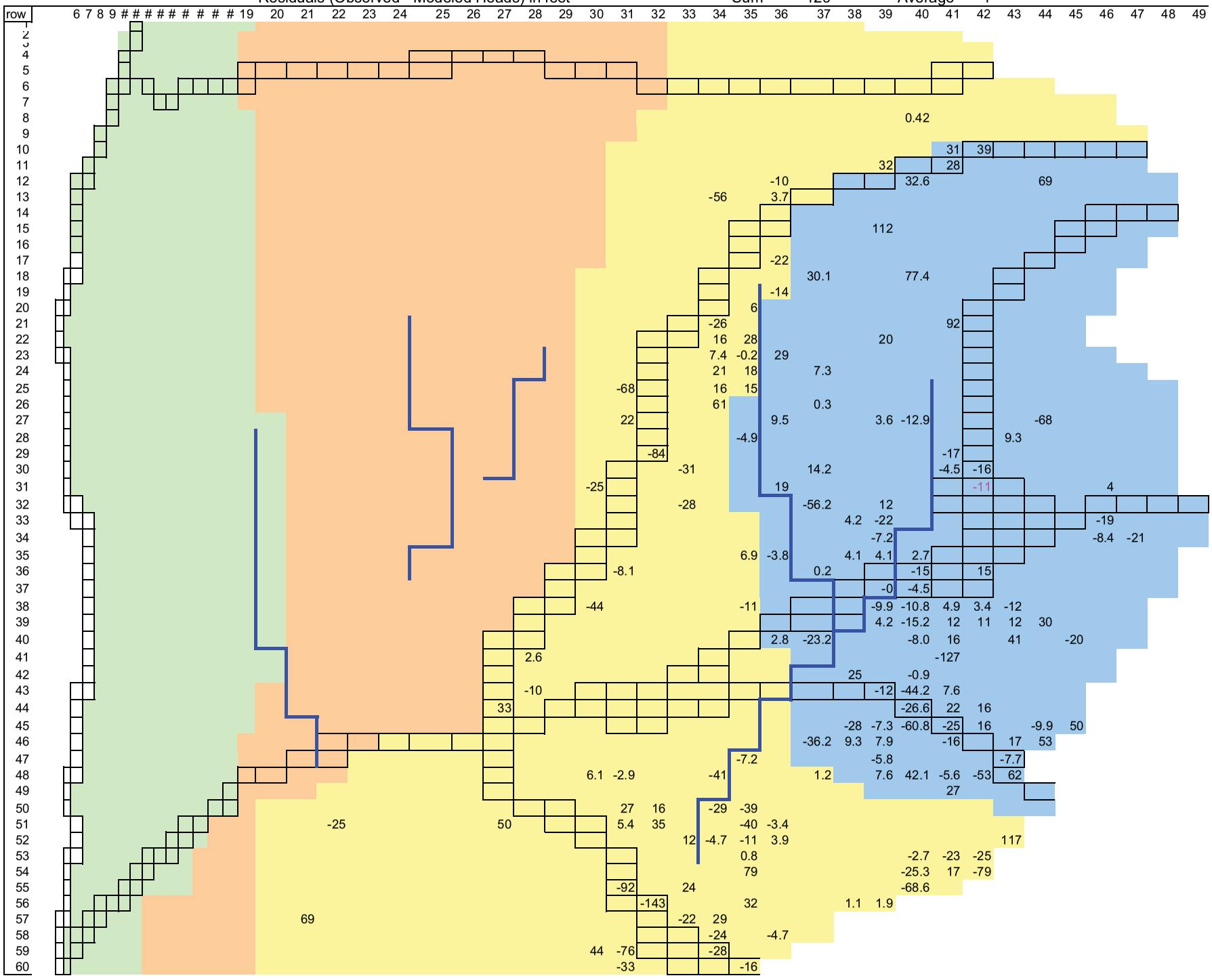
Includes wells listed in OSE files as Domestic, Multiple (Domestic well serving multiple dwelling) and Sanitary

Numbers shown represents the number of these types of wells that occur in the model cells



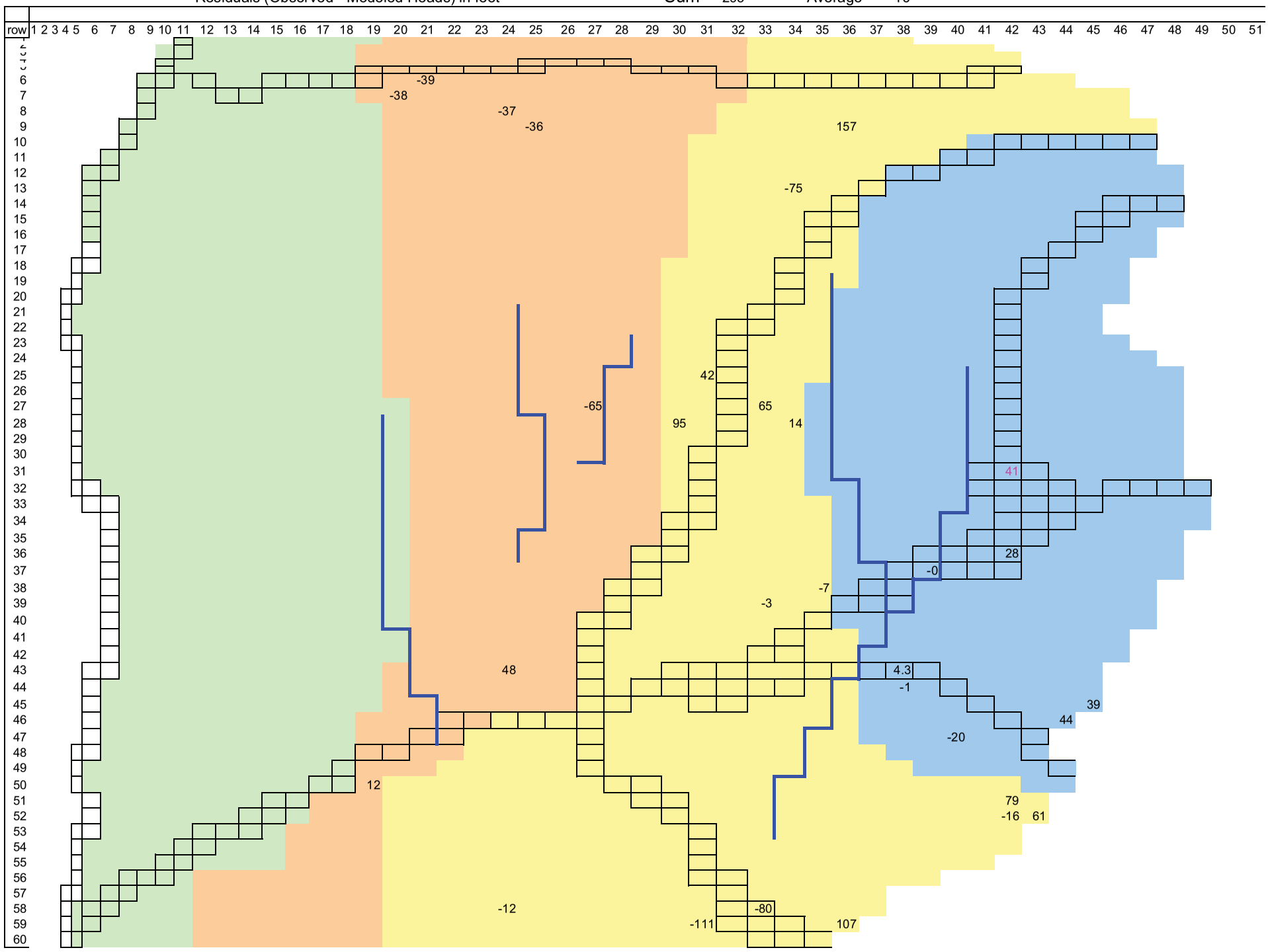
T-17 Calibration Results Layers 1, 2 and 3

Residuals (Observed - Modeled Heads) in feet Sum -129 Average -1



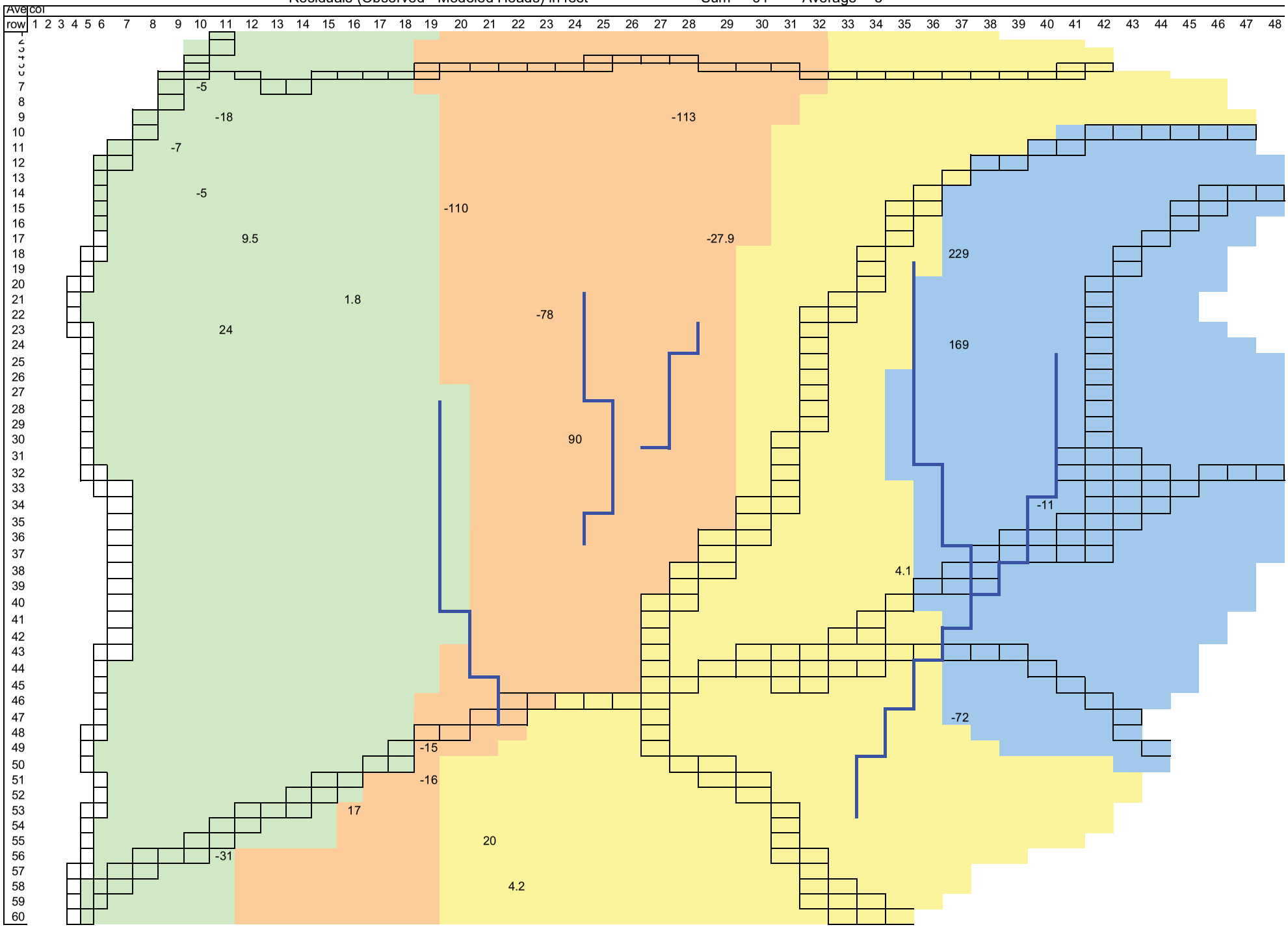
T-17 Calibration Results Layer 4

Residuals (Observed - Modeled Heads) in feet Sum 295 Average 10



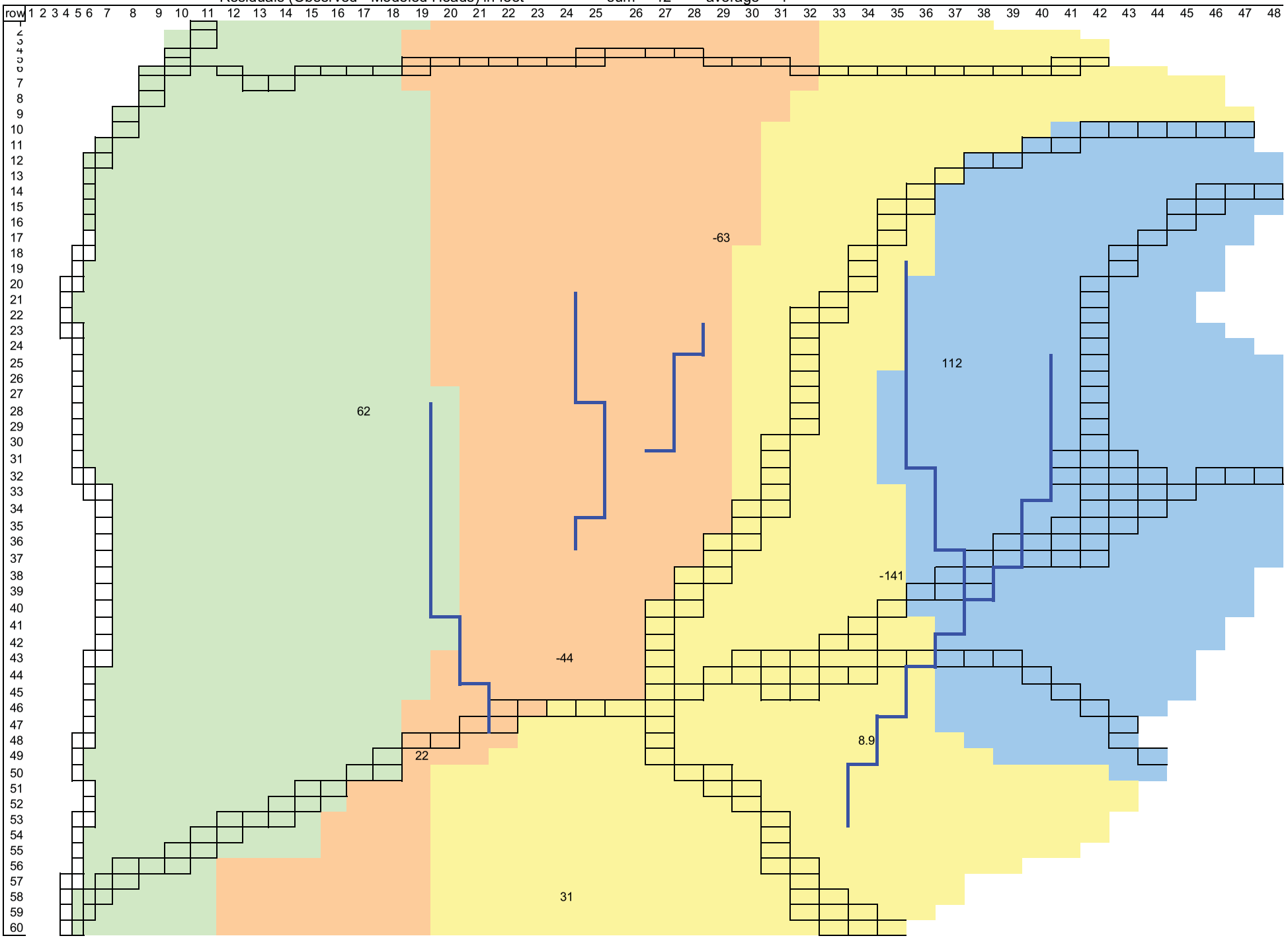
T-17 Calibration Results Layer 5

Residuals (Observed - Modeled Heads) in feet Sum 61 Average 3



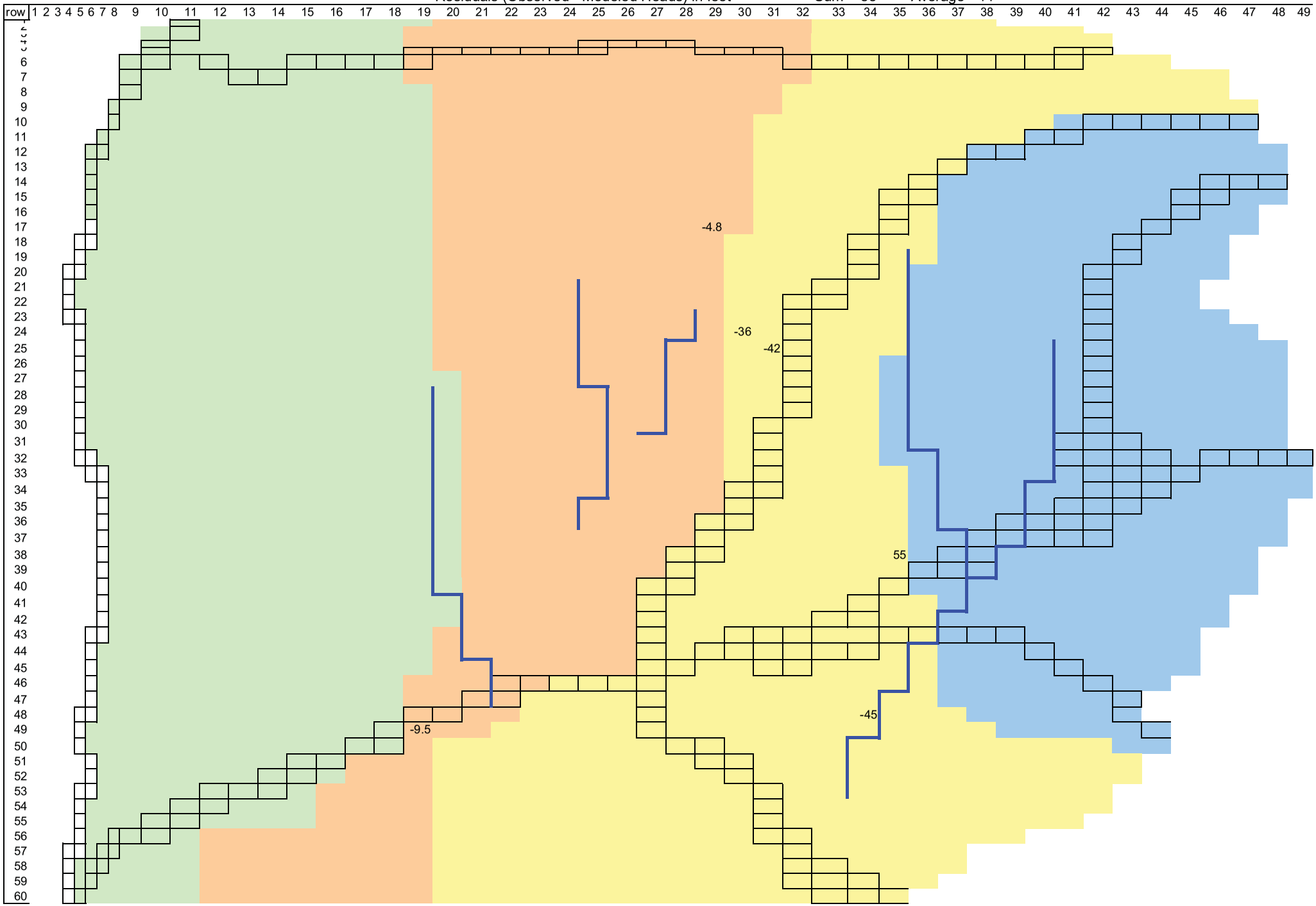
T-17 Calibration Results Layer 6

Residuals (Observed - Modeled Heads) in feet sum -12 average -1



T-17 Calibration Results Layer 7

Residuals (Observed - Modeled Heads) in feet Sum -83 Average -14



Appendix C

Detailed hydrogeologic background report:

Hydrologic Characteristics of Basin-fill Aquifers in the Southern San Luis Basin, New Mexico

By Paul Drakos, Jay Lazarus, Bill White, Chris Banet, Meghan Hodgins, Jim Riesterer and John Sandoval.

New Mexico Geological Society Guidebook, 55th Field Conference, Geology of the Taos Region, 2004, p. 391-404.

HYDROLOGIC CHARACTERISTICS OF BASIN-FILL AQUIFERS IN THE SOUTHERN SAN LUIS BASIN, NEW MEXICO

PAUL DRAKOS[1], JAY LAZARUS[1], BILL WHITE[2], CHRIS BANET[2], MEGHAN HODGINS[1], JIM RIESTERER[1], AND JOHN SANDOVAL[2]
[1]Glorieta Geoscience Inc. (GGI), PO Box 5727, Santa Fe, NM 87502
[2]US Bureau of Indian Affairs (BIA), Southwest Regional Office, 615 First St., Albuquerque, NM 87102

Abstract.—The Town of Taos and Taos Pueblo conducted a joint deep drilling program to evaluate the productivity and water quality of the Tertiary basin-fill aquifer system underlying the Servilleta Formation. Testing results from a series of municipal, exploratory, subdivision, and domestic wells are also used to characterize hydrologic properties (T, K, K', and S), and the effect of faults on groundwater flow in shallow and deep basin fill aquifers. The shallow unconfined to leaky-confined alluvial aquifer includes alluvial deposits and the underlying Servilleta Formation (Agua Azul aquifer facies). The deep leaky-confined to confined aquifer includes Tertiary age rift-fill sediments below the Servilleta Formation and is subdivided into the Chama-El Rito and Ojo Caliente aquifer facies. Although faults typically do not act as impermeable boundaries in the shallow alluvial aquifer and groundwater flow in the shallow aquifer is not significantly affected by faults, the Seco fault and several of the Los Cordovas faults act as impermeable boundaries in the deep basin fill aquifer. However, other Los Cordovas faults apparently do not affect groundwater flow in the deep aquifer, suggesting variable cementation along fault planes at depth. The Town Yard fault appears to be a zone of enhanced permeability in the shallow alluvial aquifer, and does not act as an impermeable boundary in the deep basin fill aquifer. Intrabasin faults such as the Seco fault that exhibit significant offset likely cause some compartmentalization of the deep aquifer system.

INTRODUCTION

The Town of Taos, Taos Pueblo, and adjacent communities are situated primarily within the Rio Pueblo de Taos and Rio Hondo drainage basins. The Rio Pueblo de Taos basin includes the following streams from north to south; Arroyo Seco, Rio Lucero, Rio Pueblo de Taos, Rio Fernando de Taos, and Rio Grande del Rancho (Figs. 1 and 3). Northern tributaries to Rio Pueblo de Taos drain Precambrian granite and gneiss, and Tertiary granite, whereas southern tributaries drain Paleozoic sandstone, shale, and limestone (Kelson and Wells, 1989). The area of this study includes the region between the Sangre de Cristo mountain front on the east and the Rio Grande on the west, the Rio Hondo on the north and the Rio Grande-Rio Pueblo de Taos confluence on the south (Fig. 1).

The majority of the historic water supply for municipal, domestic, livestock, and sanitary purposes for the Town of Taos, Taos Pueblo, and adjacent communities has been derived from the

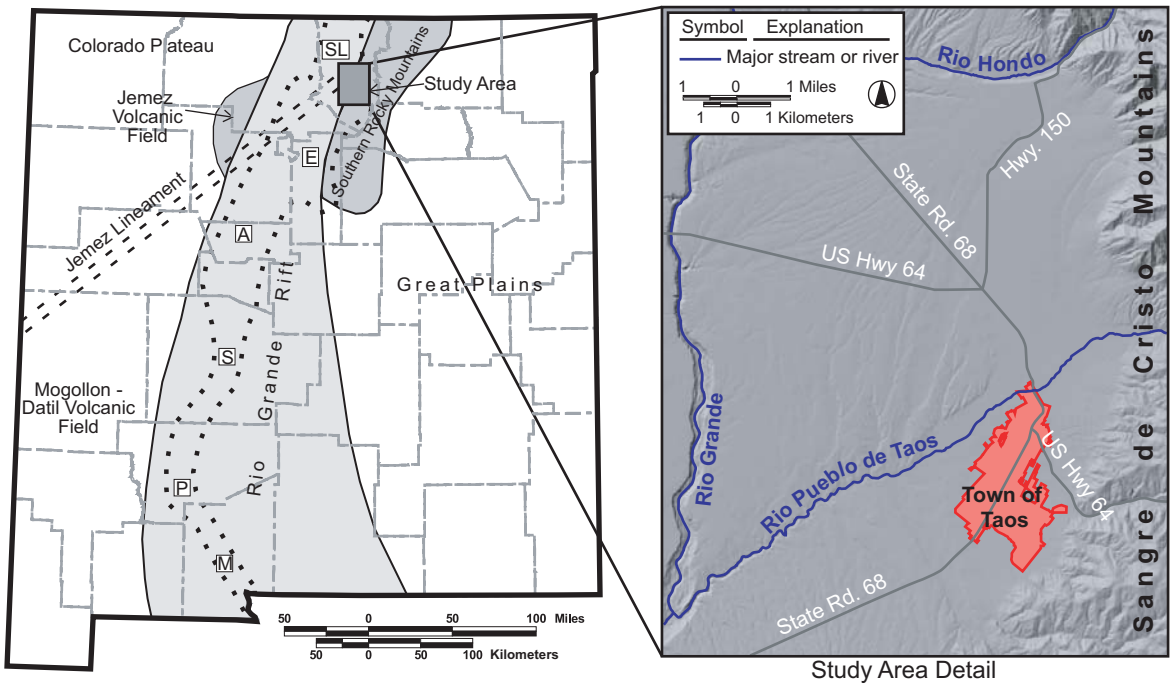


FIGURE 1. Location map – schematic map of New Mexico showing study area and the approximate limits of various physiographic provinces and geographic features. Major basins in the Rio Grande rift from north to south are: SL=San Luis, E = Española, A = Albuquerque, S = Socorro, P = Palomas, M = Mimbres. (state map modified from Sanford et al., 1995 and Keller and Cather, 1994).

shallow stream-connected alluvial aquifer system. In an effort to minimize stream depletion effects resulting from new groundwater development, the Town of Taos and Taos Pueblo, with funding from the U.S. Bureau of Reclamation (BOR), conducted a deep drilling program to evaluate the productivity and water quality of the Tertiary basin-fill aquifer system underlying the Servilleta Formation. The results of this drilling program, in conjunction with data collected from shallow basin fill and alluvial wells and additional deep exploratory wells, allow for a preliminary evaluation of aquifer characteristics, vertical connectivity of the shallow and deep aquifer systems, and the effect of faults on groundwater flow in the basin-fill aquifer system.

METHODOLOGY

A series of exploratory wells were drilled and tested during the deep drilling program and previous investigations to characterize the basin fill aquifer system. Data from 45 pumping tests are used to determine aquifer characteristics and boundary effects, in particular to determine the effect (if any) of faults on groundwater flow. Well nests and nested piezometers were installed in several locations and pumping tests were configured to: 1) measure transmissivity (T) and storage coefficient (S); 2) evaluate downward or upward leakage between aquifers induced by pumping stresses, and; 3) where possible, to calculate vertical hydraulic conductivity (K'). Water-level data collected from wells in the different aquifers using electronic sounders, steel tapes, and transducers are used to construct potentiometric surface maps of the aquifers and are used to determine upward or downward vertical gradients at point locations.

STRATIGRAPHIC UNITS

From oldest to youngest, the units underlying the basin discussed in this study are: 1) Pennsylvanian Alamitos Formation, 2) Tertiary Picuris Formation, 3) Tertiary Santa Fe Group, 4) Tertiary Servilleta Formation, and 5) Quaternary Alluvium. Galusha and Blick (1971) subdivided the Santa Fe Group into the Tesuque Formation and the overlying Chamita Formation. The Tesuque Formation is further subdivided into the Chama-El Rito Member and the overlying Ojo Caliente Sandstone Member (Fig. 2; Galusha and Blick, 1971). Although extending this Santa Fe Group stratigraphic nomenclature into the southern San Luis Basin may be problematic, it is used as an initial framework for this investigation.

DESCRIPTION OF THE SHALLOW AQUIFER SYSTEM

Two major aquifer systems are identified in the Taos area: 1) A shallow aquifer that includes the Servilleta Formation and overlying alluvial deposits and, 2) A deeper aquifer associated with Tertiary age rift-fill sediments (Fig. 2). The lower Servilleta basalt and underlying Chamita Formation may act as a transition zone and/or boundary between the shallow and deep aquifers, although there are not currently enough data points in this interval to definitively support or refute this hypothesis.

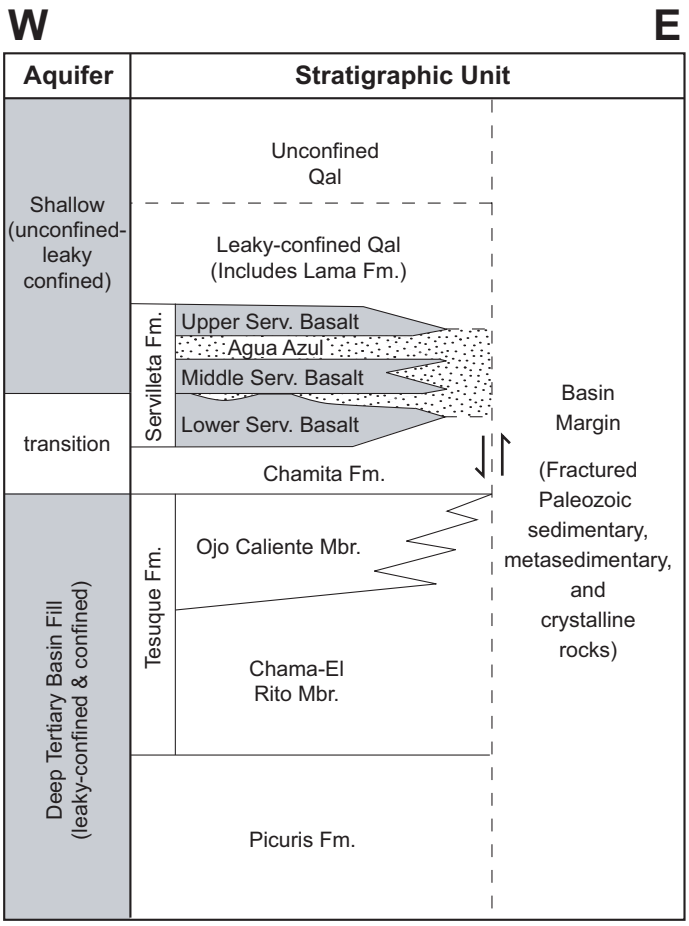


FIGURE 2. Taos Valley geohydrologic framework

The shallow aquifer system generally includes unconsolidated alluvial fan and axial-fluvial deposits overlying and interbedded with the Servilleta basalt flows. The shallow aquifer is subdivided on the basis of lithology and pumping test analyses into: 1) unconfined alluvium; 2) leaky-confined alluvium, and; 3) the Servilleta Formation (Fig. 2). Several wells in the study area are completed into shallow aquifers in fractured Paleozoic sedimentary formations and fractured Precambrian crystalline rocks along the Sangre de Cristo mountain front. These aquifers discharge to alluvium and/or the Servilleta Formation and are therefore part of the shallow alluvial-aquifer flow system. The shallow alluvial aquifer has a maximum thickness of 1500 ft (457 m) or more in the graben formed by the down-to-the-west Town Yard fault and the down-to-the-east Seco fault (Drakos et al., this volume), and pinches out in the western part of the study area where the alluvium is unsaturated at the Taos Airport domestic well (Fig. 4).

Hydrologic Characteristics of the Shallow Aquifer

Aquifer testing data are available for the shallow aquifer from 32 pumping tests at locations throughout the study area (Fig. 4; Table 1). Pumping tests were run for times ranging from 350 to 12,960 minutes (min) at discharge (Q) ranging from 18 to 440 gallons per minute (gpm) (Table 1).

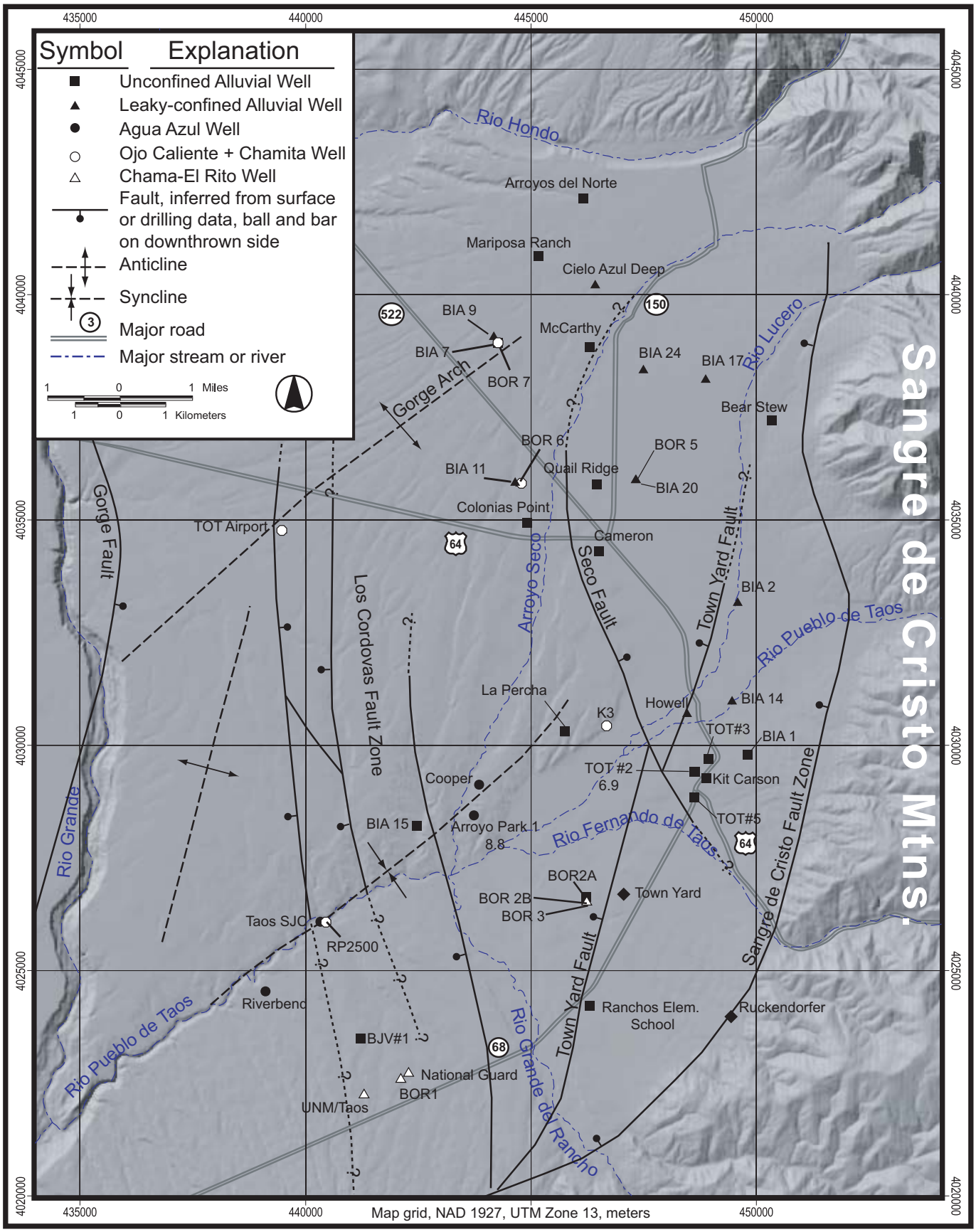


FIGURE 3. Map of study area with pumping test well locations

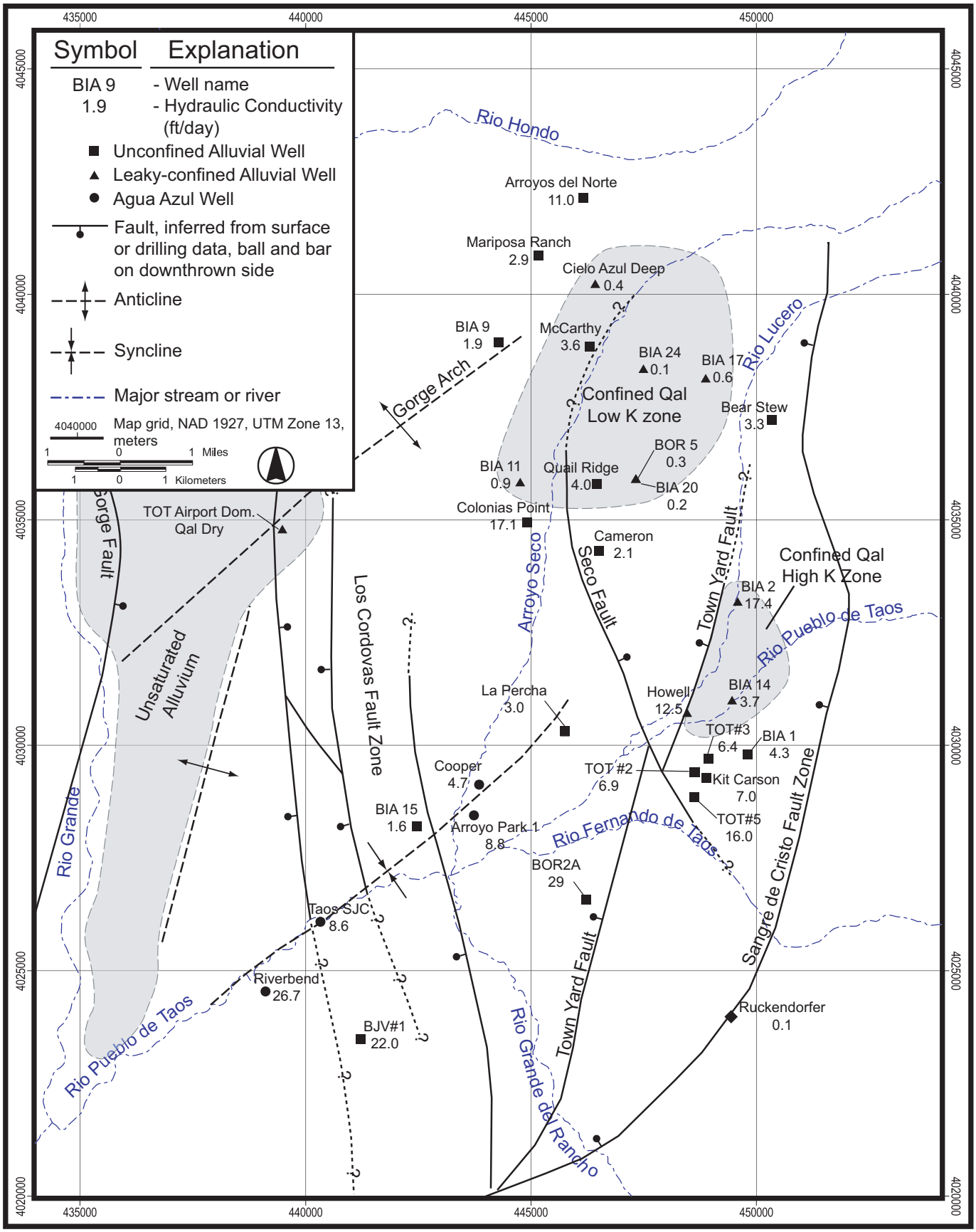


FIGURE 4. Map of shallow aquifer wells with K values from pumping tests

Unconfined alluvium

Pumping tests on 18 unconfined alluvial wells exhibit hydraulic conductivity (K) values ranging from 1.8 to 22 ft/day (mean = 6.8 ft/day, ± (1σ) 5.9 ft/day). No clear pattern is observed in geographic distribution of K in the unconfined alluvial aquifer (Fig. 4). The K value calculated at a given location is likely controlled by local facies changes (e.g. better sorted axial fluvial deposits yield higher K values than less well sorted overbank or fan deposits) and well design (e.g. whether the well was drilled and screened to sufficient depth to encounter a productive zone). Pumping tests were not run long enough to observe delayed yield and allow for a calculation of specific yield (S_y), but storativity (S) ranged from 10^{-4} to 10^{-2}. Possible recharge boundaries were observed in the TOT#3 and TOT#1 tests, and, although data are somewhat ambiguous, an impermeable boundary may be indicated in the BJV#1 test (Table 1). The possible recharge boundary observed in the TOT#3 and TOT#1 tests is likely a result of leakage into the shallow aquifer from the nearby Rio Pueblo de Taos and Rio Lucero.

Leaky-confined alluvium

Pumping tests on nine leaky-confined alluvial wells exhibit K values ranging from 0.1 to 17.4 ft/day, and fall into two distinct populations and geographic groupings. Low-K (mean K = 0.4 ft/day) northern wells correspond to older Blueberry Hill mudflow or weathered fan deposits underlying the large Rio Hondo alluvial fan at the northern portion of the study area. High-K (mean K = 11.4 ft/day) values observed in southern wells correspond to young (?), less-weathered deposits underlying the small Rio Pueblo de Taos fan (Fig. 4). The Howell well and BIA 2 (Buffalo Pasture) wells, which both exhibit high K values of 12 to 17 ft/day, lie along the northern trace (approximately located) of the Town Yard fault (Fig. 4). This segment of the fault may be a high-permeability zone or may be coincident with high-permeability Rio Lucero and/or ancestral Rio Hondo or Rio Pueblo de Taos channel fill deposits. The Town Yard fault may have been a control on stream channel location during aggradation of paleo-Rio Pueblo de Taos or paleo-Rio Hondo deposits. The Town Yard fault projects into the present day Rio Lucero drainage, and the "Seco fault" projects into the Arroyo Seco drainage (Fig. 4).

Servilleta Formation (Agua Azul aquifer)

Aquifer testing data are available for the Servilleta Formation from five pumping tests (Fig. 4, Table 2). All wells tested are completed into the "Agua Azul" aquifer between the upper and middle basalt flow members and are located along the Rio Pueblo de Taos and Arroyo Seco drainages (Fig. 4). Pumping test duration ranged from 2,880 to 5,760 min at Q ranging from 8 to 120 gpm (Table 2). Agua Azul wells exhibit K ranging from 4.7 to 26.7 ft/day (mean K = 12.0 ± 8.6 ft/day). Because the five wells tested in the "Agua Azul" aquifer are relatively close to one another (Fig. 4), determining the geographic distribution of K is not possible. Storativity values range around 10^{-4}.

TABLE 1. Aquifer testing data from unconfined and confined/leaky confined alluvial wells, southern San Luis basin. DTW = depth to water; Q = discharge; T = transmissivity; b = aquifer thickness; K = hydraulic conductivity. Well locations included in Appendix A.

Well Name	TD (ft)	Static DTW (ft)	Test length (min)	Q (gpm)	T (ft^2/day)	b (ft)	K (ft/day)	Storage coefficient	Boundaries observed	Source	Comments
Unconfined alluvium											
Colonias Point	127	55	2880	36	1,200	70	17.1	n.a.	none	GGI	well pumped at maximum Q of existing pump
Quail Ridge	150	45	2880	22	400	100	4.0	1.2×10^{-2}	none	GGI	calculations from obs. well data, r = 35 ft
TOT #1	182	43	400	125	830	140	5.9	5.2×10^{-4}	none/	GGI	calculations from obs. well data, r = 50 ft
McCarthy	193	84	2880	18	400	110	3.6	n.a.	none	GGI	
TOT #2	204	42	355	205	760	110	6.9	8.6×10^{-4}	none	GGI	calculations from obs. well data, r = 50 ft
BIA 15	225	116	1600	41	150	95	1.6	2.5×10^{-2}	none	BIA	observation well data, r = 21 ft
BJV#1	240	158	5760	68	1,980	90	22.0	1.0×10^{-3}	none/ imperm?	GGI	Theis curve is very poor fit; obs well data suggest impermeable boundary
Kit Carson	270	64	480	100	1,400	200	7.0	n.a.	none	GGI	
BOR 2A	291	61	250	45	230	80	2.9	n.a.	none	GGI	
TOT #3	312	60	350	180	960	150	6.4	n.a.	none/	GGI	T calculated from obs. well data, r = 18 ft
TOT#5	330	14	1720	370	3,700	230	16.1	n.a.	none	GGI	
Bear Stew	339	46	1300	33	968	290	3.3	n.a.	recharge?	BIA	
Cameron	350	107	2880	50	500	240	2.1	n.a.	none	GGI	
La Percha	360	105	2880	69	700	235	3.0	n.a.	none	GGI	
BIA 1	400	92	1440	180	825	190	4.3	n.a.	none	BIA	T = avg of Pump & Rec semilog plots
BIA 9	575	470	1400	18.5	230	120	1.9	3.0×10^{-4}	none	BIA	T calculated from obs. well data, r = 23.1 ft
Mariposa Ranch	781	585	2880	31-49	580	200	2.9	n.a.	none	GGI	well dev. during pumping; T from rec data
Arroyos del Norte	800	659	2880	55	1,100	100	11.0	n.a.	none	GGI	
Confined or leaky-confined alluvium											
Southern wells											
Howell	500	13	12960	440	5,000	400	12.5	6.3×10^{-3}	leaky/recharge	GGI	T and S calculated from obs. well data, r = 485 ft; k' = 0.2 ft/day
BIA 14	613	-1	2800	70	810	220	3.7	n.a.	none	BIA	
BIA 2	700	18	1440	300	5,700	440	17.4	6×10^{-3}	leaky/recharge	BIA	S calculated from obs. well data, r = 47 ft
Northern wells											
BIA 17	470	86	1440	19	230	385	0.6	n.a.	leaky/recharge	BIA	
BIA 11	760	100	2800	70	310	330	0.9	1×10^{-3}	none	BIA	S calculated from obs. well data (30'screen), r = 147 ft;
Cielo Azul deep	850	339	2880	20	40	100	0.4	n.a.	none	BIA	no drawdown observed in adjacent shallow well during test
BIA 24/ Grumpy	1000	177	944	25	32	400	0.1	n.a.	none	BIA	Blueberry Hill Fm?
BIA 20/ West	1018	111	1120	50	120	600	0.2	n.a.	none	BIA	Blueberry Hill Fm?
BOR 5	1763	265	5760	40	110	400	0.3	n.a.	none	BIA	Blueberry Hill Fm?

Groundwater Flow Direction in the Shallow Aquifer System

A composite alluvial and Agua Azul (Servilleta) potentiometric surface map representing the shallow alluvial aquifer was constructed from water levels measured to the nearest 0.01 ft from wells that could be assigned to a specific aquifer. In the northeast part of the study area, a downward vertical gradient was observed in the alluvial aquifer, with up to 200+ ft (60+ m) head difference in adjacent wells (e.g. well nests Cielo Azul shallow and deep, BIA20/BOR5, Mariposa shallow/deep; Fig. 5). Where strong downward vertical gradients are observed, the shallower water level was used for construction of the potentiometric surface map. Water levels from Agua Azul wells were included with the alluvial well data, because the Agua Azul aquifer interfingers with the alluvium near the mountain front and in the southern part of the study area, and water levels in the Agua Azul are similar to those measured in the unconfined alluvium.

In addition to groundwater elevations measured in wells throughout the study area, streambed elevation data are incorporated into the construction of the potentiometric surface map. Streambed elevations were determined from USGS 7.5' quadrangles and added as elevation control points to the base map. Equipotential lines are contoured so that groundwater elevation is less than or approximately equal to streambed elevation. Equipotential lines lie consistently lower than streambed elevation along the lower Rio Pueblo de Taos and the Arroyo Seco, indicating a disconnection between surface water and groundwater in those areas.

Groundwater flow direction in the composite Alluvial plus Aqua Azul (Servilleta) aquifer system is from northeast to southwest and east to west (Fig. 5). A broad groundwater trough is observed north of Rio Pueblo de Taos and west of Rio Lucero (Fig. 5). At its northern end the trough axis projects into the Rio Hondo drainage (Fig. 5), and the trough lies along the eastern side of the large Rio Hondo fan north of Rio Pueblo de Taos. This trough may correspond to an area of high-permeability fluvial deposits associated with the ancestral Rio Hondo, and is coincident with a structural low (Lipman, 1978, p. 42) or Rio Pueblo de Taos syncline of Machette and Personius (1984) and Dungan et al. (1984), suggesting a structural control on the location of the ancestral Rio Hondo drainage. However, the location of the river has been restricted to near its present course since stream incision occurred in response to rapid cutting of the Rio Grande gorge ca. 0.6 to 0.3 Ma ago (Wells et al.,1987; Kelson and Wells, 1987). Since that time, the Rio Hondo has been an entrenched stream flowing very close to its present location (Kelson and Wells, 1987, Kelson and Wells, 1989). Other high transmissivity zones associated with axial stream deposits have been identified along the Rio Grande del Rancho (within the Miranda graben) and along the Rio Fernando (Spiegel and Couse, 1969; Bauer et al., 1999). A groundwater high is observed in the vicinity of the lower Arroyo Seco drainage on the west side of the Town of Taos, corresponding to the area between the Gorge arch and the Rio Pueblo de Taos syncline (Fig. 5). The composite Alluvial plus Servilleta aquifer system becomes unsaturated in the western part of the study area, indicating this upper aquifer is discharging to surface water where it is stream connected and/or leaking into the deeper basin-fill aquifer. The steepening gradient in the vicinity of the Los Cordovas faults suggests that the faults are an area of downward leakage through which the shallow aquifer may be recharging the deep aquifer system.

Equipotential lines are deflected downstream along most of the Arroyo Seco and the upper Rio Lucero, indicating that these are losing streams west of the mountain front (Fig. 5). Based on equipotential lines, the upper Rio Hondo is a gaining reach, whereas the lower Rio Hondo is a losing reach. Equipotential lines are generally deflected upstream along the Rio Pueblo de Taos, lower Rio Lucero, and Rio Fernando de Taos, indicating that these streams are gaining reaches (Fig. 5).

In January and June 2000, personnel from the BIA, GGI, and the BOR measured flows in Taos valley rivers (Rio Hondo, Arroyo Seco, Rio Lucero, Rio Fernando de Taos, Rio Pueblo de Taos, Rio Grande del Rancho). Flows were measured in January and June to determine seasonal variations in stream loss or gain. Acequia diversions from and return flows to each river were also measured and accounted for in the flow data to allow for a determination of gaining or losing reaches (see Smith, 2001 and 2002, unpubl. BOR reports, for results of this study). Figure 5 summarizes the results of the January, 2001 stream gaging, showing losing, gaining, and no net change reaches of the major stream systems. In general, results of stream gaging correlate well with gaining and losing reaches derived from construction of the potentiometric surface map described above. However, two significant differences are observed between the gaging data and the potentiometric surface map: 1) gaging data show the upper reaches of the Rio Hondo as losing reaches, while the equipotential lines suggest it is a gaining reach, and 2) gaging data indicate the upper reach of the Rio Lucero is gaining, while the potentiometric surface map suggests it is a losing reach (Fig. 5). These differences may be a result of the groundwater elevation representing long-term

TABLE 2. Aquifer testing data from Servilleta Formation sediments and fractured basalt (Agua Azul) wells, southern San Luis Basin. Well locations included in Appendix A.

Well Name	TD (ft)	Static DTW (ft)	Test length (min)	Q (gpm)	T (ft^2/day)	b (ft)	K (ft/day)	Storage coefficient	Boundaries observed	Source	Comments
Cooper	180	96	2880	31	280	60	4.7	n.a.	none	GGI	
Arroyo Park	262	105	2880	48	530	60	8.8	$5.3 \times 10^{-}$	none	GGI	S calc from obs well, r = 2000 ft
Taos SJC	180	29	5760	120	430	50	8.6	2.5×10^{-4}	none	GGI	calculations from observatin well data, r = 25 ft;k' = 0.02 ft/day
Barranca del Pueblo		233	2880	7.5-12	670	60	11.2	n.a.	none	RE/SPEC	b is unknown; 60 ft used as default aquifer thickness
Riverbend	215	121	2880	54	1,600	60	26.7	8.5×10^{-5}	none	GGI	

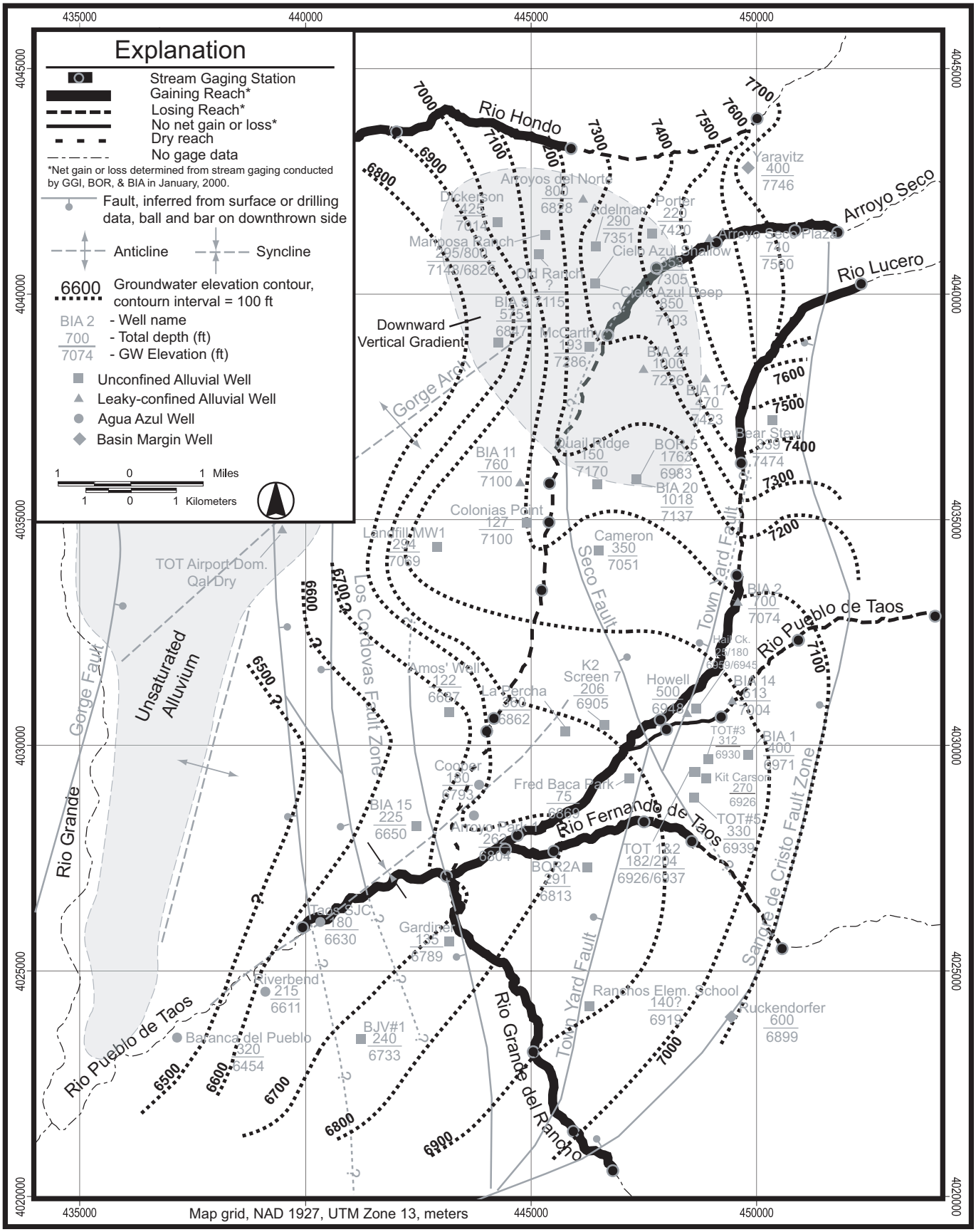


FIGURE 5. Shallow aquifer potentiometric surface map, gaining and losing stream reaches

conditions, while the gaging data are a snapshot of conditions at a particular time. It is also possible that some surface diversions from, or additions to, the rivers may not have been accounted for or may have been variable during the gaging study.

Effect of Faults on the Shallow Aquifer

Unconfined and leaky-confined alluvium

Twenty-seven pumping tests have been conducted on alluvial wells, nine of which were conducted on wells completed into the leaky-confined alluvial aquifer facies, and five of which were additional tests conducted on Agua Azul (Servilleta) wells. Of these tests, data from only one well near the southern portion of the study area (BJV#1) suggest impermeable boundary effects (Table 1). Pumping test data from numerous other wells located in close proximity (< approximately 0.5 mi or 0.8 km) to faults do not show impermeable boundary effects (Fig. 4; Table 1). As examples, the Howell, BIA2, and possibly Bear Stew wells are located along the Town Yard Fault; Quail Ridge, Cameron, and TOT#5 are located along the Seco fault; and BIA 15 is located near one of the Los Cordovas faults. Data from the BJV#1 test is suggestive of an impermeable boundary, which may correspond to a southern extension of the western Los Cordovas fault (Fig. 3). The down-to-the-west Los Cordovas fault would likely juxtapose a thick clay against the underlying relatively thin water-producing sandy gravel described in the BJV#1 well log (Lazarus, unpubl. GGI report for BJV properties, 1989). In contrast, data from three wells located along the northern segment of the Town Yard fault (Howell, BIA 2, and Bear Stew wells) indicate leakage or recharge boundaries, suggesting that the northern segment of the Town Yard fault may be a zone of enhanced permeability. Alternatively, as discussed above, the northern Town Yard fault may be coincident with an area of deposition of high-permeability axial channel deposits.

Based on the well density used to construct the potentiometric surface map and the 100-ft contour interval utilized, equipotential lines in the unconfined and leaky-confined alluvial aquifers are not strongly affected by the major faults in the basin (Fig. 5). This is consistent with the aquifer testing data, which indicate that, except in rare cases, intrabasin faults do not act as barriers to groundwater flow in the shallow alluvial aquifer. In some cases, such as the northern segment of the Town Yard fault, intrabasin faults may act as zones of enhanced permeability in the alluvium.

Servilleta Formation (Agua Azul aquifer facies)

Neither recharge nor impermeable boundaries were observed in any of the five tests for which data are available (Table 2). This is an unexpected result, given the relatively thin producing interval (50-60 ft thick [15-20 m]) aquifer and the proximity of Agua Azul wells to several of the Los Cordovas faults, in particular the proximity of the Taos SJC well to the western Los Cordovas fault strand (Fig. 4).

Aquifer Anisotropy/Vertical Hydraulic Conductivity

Alluvium

Data on vertical hydraulic conductivity (K') and aquifer anisotropy are available from one location in the shallow aquifer system. The Howell well pumping test configuration included observation wells completed in both the deep leaky-confined and shallow stream-connected unconfined alluvial aquifers (Hail Creek shallow/deep; Fig. 5). Based on the Hantush-Jacob (1955) leaky-confined aquifer solution, a K' of 0.2 ft/day was calculated. Based on the Howell well pumping test, horizontal K is approximately 60 times vertical K.

Servilleta Formation (Agua Azul)

Data on K' and aquifer anisotropy are available from one location in the Servilleta Formation. The Taos SJC well pumping test configuration included observation wells completed in both the Agua Azul and the overlying shallow stream-connected unconfined alluvial aquifer (GGI, unpubl. consulting report to the Town of Taos, 1997). Based on the Hantush-Jacob (1955) leaky-confined aquifer solution, a K' of 0.02 ft/day through the USB was calculated. Horizontal K is approximately 430 times vertical K at that location.

DEEP TERTIARY BASIN FILL AQUIFER

The deep Tertiary basin fill aquifer includes generally weakly to moderately cemented eolian, alluvial fan, fluvial, and volcaniclastic deposits that underlie the Servilleta Formation. The deep Tertiary basin fill aquifer includes the Chamita Formation, the Ojo Caliente Sandstone Member of Tesuque Formation, the Chama-El Rito Member of Tesuque Formation, and the Lower Picuris Formation (Fig. 2). Pumping test data are available for the Ojo Caliente Sandstone Member of Tesuque Formation, the Chama-El Rito Member of Tesuque Formation, but are not available from wells completed solely in the Chamita or Picuris Formation.

The Tertiary basin fill aquifer exhibits confined or leaky-confined characteristics in the central and eastern part of the study area, but is likely unconfined in the western part of the study area along the Rio Grande. A deep fractured crystalline rock aquifer at or near the Sangre de Cristo mountain front may discharge to the deep basin fill aquifer system, but no wells are known to be completed into this zone. The Chamita Formation and the overlying Servilleta Formation, while not extensively studied, may represent a transition zone between the shallow and deep aquifer systems (Fig. 2). The deep aquifer is, where investigated thus far, greater than 2000 ft thick. However, the Taos graben, within which the study area lies, has a depth of approximately 5 km (16,000 ft) (Cordell, 1978; Bauer and Kelson, this volume), so further investigations may show the deep aquifer to be significantly thicker than is presently known.

Hydrologic Characteristics of the Deep Aquifer

Ojo Caliente Sandstone Member of Tesuque Formation

Aquifer testing data are available from five wells completed entirely or predominantly in the Ojo Caliente Sandstone Member of the Tesuque Formation (Fig. 6). Three of the tests were multiple-well pumping tests (Table 3). Wells completed into the Ojo Caliente range in depth from 1720 to 2991 ft (524 to 912 m; Table 3), and exhibit pressure head (height of water column above the screened interval in a well) ranging from 500 ft (150 m) in the Airport well to greater than 1700 ft (500 m) in BOR7. Pumping test durations ranged from 1,361 to 11,965 min at Q ranging from 57 to 400 gpm (Table 3). Ojo Caliente wells exhibit K ranging from 0.2 to 0.8 ft/day (mean K = 0.4 ± 0.25 ft/day). Hydraulic conductivity in the Ojo Caliente is relatively consistent throughout the area and does not show variability relative to geographic location (Fig. 6). S values range from 1 x 10^{-3} to 2 x 10^{-2} (Table 3).

Chama-El Rito Member of Tesuque Formation

Aquifer testing data are available from five wells completed entirely or predominantly into the Chama-El Rito Member of the Tesuque Formation, three of which are multiple-well tests (Fig. 6; Table 4). Wells completed into the Chama-El Rito Member range from 1200 ft (365 m) to 2109 ft (643 m) in depth (Table 4), and exhibit pressure head ranging from 590 ft (180 m) at UNM/Taos to greater than 1300 ft (400 m) (BOR3). Pumping tests were run for times ranging from 2,737 to 15,840 min at Q ranging from 60 to 500 gpm (Table 4). Chama-El Rito wells exhibit K ranging from 0.6 to 3.4 ft/day (mean K = 1.8 ± 1.0 ft/day). Aquifer testing data for the Chama-El Rito Member are only available for the southern part of the study area so the geographic distribution of K throughout the basin is unknown. An S of 5 x 10^{-4} was calculated from the BOR3/BOR2 pumping test. All Chama-El Rito wells exhibited a confined or leaky-confined response during pumping tests. These data, in conjunction with the large pressure head observed in Chama-El Rito wells, indicates that the portion of the Chama-El Rito Member investigated thus far is a confined or leaky-confined aquifer.

Groundwater Flow Direction in the Deep Tertiary Aquifer System

Water level data from deep wells in the basin were used to construct a preliminary potentiometric surface map of the deep basin fill aquifer. These limited data suggest that groundwater flow direction in the deep aquifer is generally from east to west, at a relatively shallow gradient of approximately 0.004 ft/ft (Fig. 6). The shallow alluvial aquifer system has a much steeper gradient (measured north of and parallel to the Rio Pueblo de Taos) of approximately 0.02 ft/ft. Although the head in the shallow aquifer system is much higher in the eastern part of the study area along the Sangre de Cristo mountain front, the potentiometric surfaces in the shallow and deep aquifers project toward one another in the western part of the study area. Head in the shallow alluvial aquifer is approximately from 100 to 200 ft higher than the head in the deep aquifer just east of where the shallow aquifer becomes unsaturated, suggesting the shallow aquifer discharges to the deep aquifer system in this general area.

Vertical gradients in the deep aquifer are observed at several well nests in the study area. Downward gradients are observed in the deep basin fill aquifer at well nests BOR4/BOR6, BOR7/BIA9, BOR1/NGDOM, and BOR2/BOR3, whereas upward gradients are observed at RP2500/RP2000 and K2/K3. Both well nests with upward gradients (BOR2/BOR3 and K2/K3) are located along the approximate trace of the Rio Pueblo de Taos syncline (Fig. 6; Lipman, 1978). These data suggest recharge to the deep aquifer at or near the basin margin migrates downdip within the syncline resulting in an upward pressure head along the fold axis.

Effect of Faults on Groundwater Flow

Ojo Caliente Sandstone Member of Tesuque Formation

Impermeable boundary effects were observed in K2/K3, RP 2500/RP2000, and BOR6/BOR4 pumping tests (Table 3). K3/K2 and BOR6/BOR4 are located within approximately 0.5 mi (0.8 km) of the Seco Fault (Fig. 6). The Servilleta Formation is offset approximately 950 ft across the down-to-the-east Seco fault (Drakos et al, 2001). The Seco fault is interpreted as the

TABLE 3. Aquifer testing data from wells completed in Ojo Caliente Sandstone Member of Tesuque Formation, southern San Luis Basin. Well locations included in Appendix A.

Well Name	TD (ft)	Static DTW (ft)	Test length (min)	Q (gpm)	T (ft^2/day)	b (ft)	K (ft/day)	Storage coefficient	Boundaries observed	Source	Comments
K3 - K2	1796	271	10,000	400	200 (early) 90 (late)	960	0.2	1 x 10^{-3} to 2 x 10^{-2}	impermeable	BIA	calculations from obs well, r = 65 ft; no drawdown observed in overlying aquifer
RP2500/ RP2000	2500	152	11,965	400	250 (early) 60 (late)	1,200	0.2	1.4 x 10^{-3}	impermeable	GGI	calculations from obs well, r = 95 ft; no drawdown observed in overlying aquifer
Airport	1720	500	2,760	57	250	685	0.4	n.a.	none	GGI	well developed during test; T is suspect
BOR6/ BOR4	2020	610	10,059	365	640	810	0.8	7 x 10^{-3}	impermeable	BIA	T and S calc from BOR4 late obs well late time data; r = 103 ft
BOR7	2991	732	1,361	70	110	480	0.2	n.a.	none	BIA	

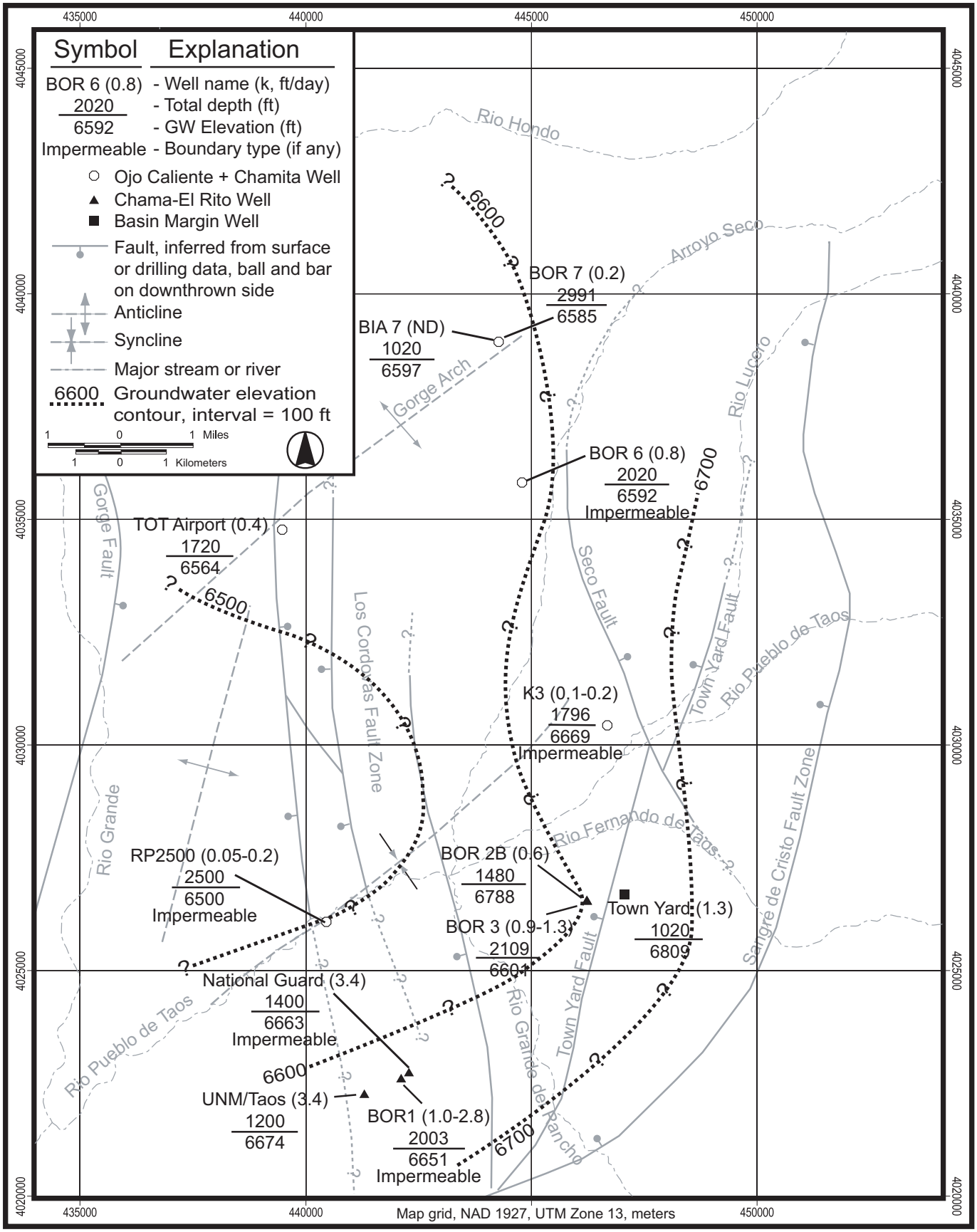


FIGURE 6. Potentiometric surface map and K values for deep basin-fill aquifer

TABLE 4. Aquifer testing data from wells completed in Chama-El Rito Member of Tesuque Formation, southern San Luis Basin. Well locations included in Appendix A.

Well Name	TD (ft)	Static DTW (ft)	Test length (min)	Q (gpm)	T (ft^2/day)	b (ft)	K (ft/day)	Storage coefficient	Boundaries observed	Source	Comments
UNM/Taos	1200	310	2737	60	670	200	3.4			GGI	possibly Chamita Fm?
NGDOM	1400	266	5,760	140	760	400	1.9	n.a.	impermeable	GGI	ddn observed in adjacent deep well (BOR1); no ddn in shallow completion
BOR1	2003	281	5,760	240	1400 (early) 520 (late)	510	1.9	n.a.	impermeable	GGI	early-time k = 2.8 ft/day; late time k = 1.0 ft/day; drawdown observed in adjacent shallow well (NGDOM)
BOR2B	1480	83	2,880	67	280	480	0.6	n.a.	none	GGI	no ddn in overlying or underlying aquifers
BOR3	2109	274	15,840	500	710 (early) 450 (late)	530	1.1	5×10^{-4}	none/possible facies change	GGI	early-time k = 1.3 ft/day; late time k = 0.9 ft/day; no drawdown observed in overlying aquifers

impermeable boundary observed in the K3 and BOR6 pumping tests. RP2500 is located between two of the Los Cordovas faults; one or both of which likely act as impermeable boundaries. As discussed above, similar impermeable boundary effects were not observed in the 180-ft deep Taos SJC well, located adjacent to RP2500. These data suggest that either 1) the Los Cordovas fault(s) near RP2500 exhibit much greater offset with depth, or 2) that impermeable boundary effects are offset by leakage into the shallow aquifer, but are not offset by leakage at depth. The Ojo Caliente has an apparent thickness of > 1200 ft (370 m) at RP2500 (Drakos and Hodgins, unpubl. GGI report for the Town of Taos, 2001), so either the fault plane is a very low-permeability zone, or offset at depth is significant.

Impermeable boundary effects were not observed in the Airport well and BOR7 pumping tests. Both tests were run for much shorter duration (less than 3000 min) at lower discharge than were the three Ojo Caliente tests discussed above (10,000 min or more; Table 3). The BOR7 test was likely not run long enough to observe the Seco fault as a possible boundary; however, from the very close proximity of the Airport well to the western Los Cordovas fault (Fig. 6) it is likely that the cone of depression would have intersected the fault plane during the pumping test. One possible explanation for the absence of an impermeable boundary is that offset on the western Los Cordovas fault is dying out to the north, and Ojo Caliente sediments are juxtaposed against one another across the fault.

Chama-El Rito Member of Tesuque Formation

Impermeable boundary effects were observed in one pumping test conducted in the Chama-El Rito Member of the Tesuque Formation (BOR1/NGDOM pumping tests; Table 4). The impermeable boundary observed in the BOR1/NGDOM pumping tests is likely the southern extension of one of the Los Cordovas faults. The possibility that the Los Cordovas faults extend south of the Rio Pueblo de Taos is suggested by Bauer and Kelson (this volume). Impermeable boundary effects are not observed in the UNM/Taos pumping test, suggesting that the impermeable boundary observed in the BOR1/NGDOM pumping tests are related to faults in the eastern rather than the western portion of the Los Cordovas fault zone (Fig. 6). The southern extension of the trace of the eastern Los Cordovas fault shown in Figures 4-6 is coincident with a fault interpreted from geophysical data from Reynolds (unpubl. consulting report to BIA, 1989).

A series of pumping tests were conducted on the BOR2/BOR3 well nest, located in relatively close proximity to the Town Yard fault (Fig. 6). Test data from BOR2B and BOR2C indicate that the Town Yard fault does not act as an impermeable boundary at this location. Test data from BOR3 were indicative of a weak negative boundary, suggesting a facies change from coarser-grained to finer-grained deposits at some distance from the well (Drakos, Hodgins, Lazarus, and Riesterer, unpubl. GGI report for the Town of Taos, 2002). The Town Yard fault may act as a recharge zone, where the buried Paleozoic sedimentary rock aquifer is in hydrologic communication with rift-filling sediments.

Aquifer Compartmentalization

Several of the intrabasin faults act as hydrologic boundaries, and result in some compartmentalization of the deep basin-fill aquifer. The Seco fault acts as an impermeable boundary, and may act to separate a northeast deeper aquifer system that has been recharged by modern to Holocene precipitation separated from a southwest deep aquifer system that has been recharged by older, possibly Pleistocene precipitation (Drakos et al., this volume). Data from high-precision temperature logs also indicates compartmentalization of the deep basin fill aquifer (Reiter and Sandoval, this volume). Some Los Cordovas fault splays act as impermeable boundaries (e.g. the eastern Los Cordovas fault near BOR1 and one or both of Los Cordovas faults near RP2500), whereas other faults do not appear to affect groundwater flow in the deep aquifer (e.g. the western Los Cordovas fault near the Airport well and near UNM/Taos). This may indicate variable cementation along the fault plane and/or variable offset along Los Cordovas fault strands.

Aquifer Anisotropy/Vertical Hydraulic Conductivity

Ojo Caliente Sandstone Member of Tesuque Formation

The RP2500/RP2000 and K3/K2 pumping test configurations included observation wells completed in both the Ojo Caliente

and the overlying Agua Azul (Servilleta) aquifers. Drawdown was not observed in the overlying Agua Azul aquifer during 400 gpm, 10,000 to 12,000 min pumping tests. Without additional piezometers in the Chamita Formation sediments that overlie the Ojo Caliente, and with the presence of strong negative boundary effects observed in the pumping test data, K' in the Ojo Caliente-Chamita Formation aquifer system cannot be evaluated. During the time frame of the pumping tests, no connection was observed between the shallow (Agua Azul) and deep (Ojo Caliente) aquifers.

Chama-El Rito Member of Tesuque Formation

The BOR1/NGDOM and BOR2/BOR3 pumping test configurations included observation wells completed in both the producing interval and water-bearing zones in the overlying Tertiary deposits and shallow alluvial aquifers. Drawdown was not observed in the overlying shallow alluvium during any of the five tests conducted on BOR1, NGDOM, BOR2B, BOR2C, or BOR3 (Table 4). Hydrologic communication was observed between BOR1 and NGDOM during pumping tests on each well, indicating leakage between different producing intervals within the Chama-El Rito aquifer at that location. However, it is notable that no drawdown was observed in BOR2B (bottom of screened interval = 1480 ft) during the 15,840 min (11 day), 500 gpm pumping test on BOR3 (top of screened interval = 1604 ft). BOR3/BOR2 test data indicate that clay beds with very low K' are present within the Chama-El Rito Member at some locations. These preliminary data do not allow for a direct calculation of K' but show that K' likely varies significantly throughout the Chama-El Rito aquifer system. During the time frame of the pumping tests, no connection was observed between the Agua Azul or shallow alluvial aquifers and the Chama-El Rito aquifer.

BASIN MARGIN AQUIFER

Hydrologic Characteristics of the Basin Margin Aquifer

Wells completed into fractured sedimentary and crystalline rock aquifers, while not utilized extensively for municipal use, are utilized for individual domestic and small community water systems. Where fractured, these aquifers are productive but likely are limited in areal extent and are subject to dewatering of the fracture system. In the southern part of the study area, the basin margin aquifer has a moderate to high gradient of 0.1 to 0.7 ft/ft to the northwest (Bauer et al., 1999). Water table elevation contours from Bauer et al. (1999, Plate 1) indicate that the basin margin aquifer discharges to the shallow basin fill aquifer.

Limited aquifer testing data are available from three wells completed into fractured Paleozoic sedimentary rocks or fractured crystalline rocks, two of which are located in basin margin settings (Figure 5; Table 5). Well depths range from 400 to 1200 ft (120 to 365 m) in depth, and include the Town Yard well, drilled into the Paleozoic Alamitos Formation underlying the Tertiary sediments in the southeast part of the study area (Fig. 4, Table 5). Pumping tests were run for times ranging from 435 to 2880 min at Q ranging from 8 to 48 gpm (Table 5). Based on these limited test results, the fractured sedimentary rock and crystalline rock aquifers exhibit hydraulic conductivity (K) ranging from 0.1 to 2.8 ft/day. Data on S are not available. Head in the Ruckendorfer and Yaravitz wells is at a similar elevation to the head in the shallow alluvial aquifer (Fig. 5), indicating that these basin margin wells are discharging to the shallow alluvial aquifer

CONCLUSIONS

Two major aquifer systems are present in the Taos area. The shallow aquifer includes the Servilleta Formation and overlying alluvial deposits. The deeper aquifer includes Tertiary age rift-fill sediments below the Servilleta Formation. The shallow aquifer system includes unconsolidated alluvial fan and axial fluvial deposits overlying and interbedded with and including the Servilleta basalts and is subdivided into: 1) unconfined alluvium; 2) leaky-confined alluvium, and; 3) the Servilleta Formation. The deep Tertiary basin-fill aquifer includes the Chamita Formation, the Ojo Caliente Sandstone Member of the Tesuque Formation, the Chama-El Rito Member of the Tesuque Formation, and the Picuris Formation.

Hydraulic conductivity in the shallow unconfined alluvial aquifer ranges from 6.8 ± 5.9 ft/day for the unconfined alluvial facies to 12.0 ± 8.6 ft/day for the Agua Azul aquifer facies. The deep leaky-confined alluvial wells exhibit K values ranging from 0.1 to 17.4 ft/day, and fall into two distinct populations and geographic groupings. The low-K (mean K = 0.4 ft/day) deep aquifer facies corresponds to older Blueberry Hill mudflows or weathered fan deposits underlying the large Rio Hondo alluvial fan in the northern portion of the study area. The high-K (mean K = 11.4 ft/day) deep alluvial aquifer facies corresponds to young (?), less-weathered deposits underlying the small Rio Pueblo de Taos fan. A K' of 0.2 ft/day was calculated from a single test in the alluvial aquifer, and a K' of 0.02 ft/day through the USB was calculated from a single Agua Azul test. Storativity of the alluvial aquifer ranges from 10^{-4} to 10^{-2}.

The deep basin-fill aquifer system is subdivided into the Chama-El Rito and Ojo Caliente facies. Ojo Caliente wells exhibit K of 0.4 ± 0.25 ft/day. S values for Ojo Caliente wells

TABLE 5. Aquifer testing data from basin margin wells, southern San Luis Basin. Well locations included in Appendix A.

Well Name	TD (ft)	Static DTW (ft)	Test length (min)	Q (gpm)	ft2/day	b (ft)	T (ft^2/day)	Storage coefficient	Boundaries observed	Source	Comments
Yaravitz	400	93	2880	31	310	110	2.8	n.a.	none	GGI	fractured amphibolite/granite along fault
Town Yard	1020	115	435	48	400	300	1.3	n.a.	none	GGI	open hole test; preliminary data for Pz
Ruckendorfer	600	391	2880	8	20	170	0.1	n.a.	impermeable?	GGI	poor curve match; Pz sandstone aquifer

range from 10^{-3} to 10^{-2}. Chama-El Rito wells exhibit a K of 1.8 ± 1.0 ft/day. An S of 5 x 10^{-4} was calculated from the BOR3/BOR2 pumping test.

Faults typically do not act as impermeable boundaries in the shallow alluvial aquifer. However, the Seco fault and several of the Los Cordovas faults act as impermeable boundaries in deep basin-fill aquifer. The Town Yard fault is a zone of enhanced permeability or is coincident with a high-permeability zone in the shallow alluvial aquifer, and does not act as an impermeable boundary in the deep basin fill aquifer. Intrabasin faults with significant offset, such as the Seco fault, result in compartmentalization of the aquifer.

Groundwater flow direction in the composite Alluvial plus Servilleta aquifer system is from northeast to southwest and from east to west at 0.02 ft/ft. A broad groundwater trough is observed whose axis is north of Rio Pueblo de Taos and west of Rio Lucero This trough may correspond to an area of high-permeability fluvial deposits associated with the ancestral Rio Hondo, whose course was controlled by the Rio Pueblo de Taos syncline. An area exhibiting a downward vertical gradient in the shallow aquifer is observed between the Rio Hondo and Rio Lucero in the northern part of the study area. The limited available data suggest that groundwater flow direction in the deep aquifer is generally from east to west, at a relatively shallow gradient of approximately 0.004 ft/ft. Downward gradients are observed in the deep basin-fill aquifer except at the Rio Pueblo de Taos syncline, where upward gradients are observed at RP2500/RP2000 and K2/K3.

ACKNOWLEDGMENTS

The authors would like to acknowledge contributions to this effort by the following individuals or agencies. Gustavo Cordova and Tomás Benavidez from the Town of Taos and Nelson Cordova and Gil Suazo of Taos Pueblo provided impetus and support for the design and implementation of the deep drilling program and promoted an open exchange of technical data. The US Bureau of Reclamation provided funding under the direction of John Peterson for the deep drilling and testing program. Mark Lesh of Glorieta Geoscience, Inc. produced the figures, and Mustafa Chudnoff provided helpful review comments. Dr. Paul Bauer and Keith Kelson provided helpful discussions on the aquifer analogs. Dr. John Shomaker, Dr. John Hawley, and Dr. Brian Brister provided critical reviews of the manuscript.

REFERENCES

Bauer, P., Johnson, P. and Kelson, K., 1999, Geology and hydrogeology of the southern Taos Valley, Taos County, New Mexico: Final Technical Report, New Mexico Bureau of Mines and Mineral Resources, 56 p. plus plates.

Bauer, P.W., and Kelson, K., 2004, Cenozoic structural development of the Taos area, New Mexico, *in* New Mexico Geological Society, 55th Field Conference Guidebook, p. 129-146.

Cordell, L., 1978, Regional geophysical setting of the Rio Grande rift: Geological Society of America Bulletin 89, p. 1073-1090.

Drakos, P., Hodgins, M., Lazarus, J., and Riesterer, J., 2001, Subsurface stratigraphy and Stratigraphic correlations from Taos deep drilling and groundwater exploration program (abs): New Mexico Geological Society Proceedings Volume, 2001 Annual Spring Meeting, p. 40.

Drakos, P., Lazarus, J., Riesterer, J., White, B., Banet C., Hodgins, M., and Sandoval, J., 2004, Subsurface stratigraphy in the southern San Luis Basin, New Mexico *in* New Mexico Geological Society, 55th Field Conference Guidebook, p. 374-382.

Dungan, M.A., Muehlberger, W.R., Leininger, L., Peterson, C., McMillan, N.J., Gunn, G., Lindstrom, M., and Haskin, L., 1984, Volcanic and sedimentary stratigraphy of the Rio Grande gorge and the late Cenozoic geologic evolution of the southern San Luis Valley, in New Mexico Geological Society Guidebook 35th Field Conference, Rio Grande Rift: Northern New Mexico, p. 157-170.

Galusha, T., and Blick, J., 1971, Stratigraphy of the Santa Fe Group, New Mexico: Bulletin of the American Museum of Natural History, v. 144, Article 1.

Hantush, M.S., and Jacob, C.E., 1955, Non-steady radial flow in an infinite leaky aquifer, Am.Geophys. Union Trans., vol., 36, p. 95-100.

Keller, G.R., and Cather, S.M., 1994, Introduction, *in* Keller, G.R., and Cather, S.M., *eds.*, Basins of the Rio Grande Rift: Structure, Stratigraphy, and Tectonic Setting, Geological Society of America Special Paper 291, 1994, p. 1-3.

Kelson, K.I., and S.G. Wells, 1987, Present-day fluvial hydrology and long-term tributary adjustmens, northern New Mexico, *in* Menges, C., ed, Quaternary Tectonics, Landform Evolution, Soil Chronologies and Glacial Deposits – Northern Rio Grande Rift of New Mexico: Friends of the Pleistocene – Rocky Mountain Cell fieldtrip guidebook p. 95-109.

Kelson, K.I., and S.G. Wells, 1989, Geologic Influences on Fluvial Hydrology and Bedload Transport in Small Mountainous Watersheds, Northern New Mexico, USA; Earth Surface Processes and Landforms, vol. 14, p. 671-690.

Lipman, P.W., 1978, Antonito, Colorado, to Rio Grande gorge, New Mexico, in Hawley, J.W., Guidebook to Rio Grande rift in New Mexico and Colorado: New Mexico Bureau of Mines and Mineral Resources Circular 163, p. 36-42.

Machette, M., and Personius, S., 1984, Map of Quaternary and Pliocene faults in the eastern part of the Aztec 1° by 2° Quadrangle and the western part of the Raton 1° by 2° Quadrangle, northern New Mexico, USGS Miscellaneous Field Studies Map MF-1465-B, scale 1:250,000.

Reiter, M., and Sandoval, J., 2004, Subsurface temperature logs in the vicinity of Taos, New Mexico, *in* New Mexico Geological Society, 55th Field Conference, p. 415-419.

Sanford, A.R., Balch, R.S., and Lin, K.W., 1995, A Seismic Anomaly in the Rio Grande Rift Near Socorro, New Mexico, New Mexico Institute of Mining and Technology Geophysics Open File Report 78, 18 p.

Spiegel, Z., and Couse, J.W., 1969, Availability of ground water for supplemental irrigation and municipal-industrial uses in the Taos Unit of the U.S. Bureau of Reclamation San Juan-Chama Project, Taos County, New Mexico: New Mexico State Engineer, Open-File Report, 22 p.

Wells, S.G., Kelson, K.I., and Menges, C.M., 1987, Quaternary evolution of fluvial systems in the northern Rio Grande Rift New Mexico and Colorado: Implications for entrenchment and integration of drainage systems, *in* Menges, C., ed, Quaternary Tectonics, Landform Evolution, Soil Chronologies and Glacial Deposits – Northern Rio Grande Rift of New Mexico: Friends of the Pleistocene – Rocky Mountain Cell fieldtrip guidebook p. 55-69.

APPENDIX A

WELL LOCATIONS FOR TAOS AREA WELLS CITED IN THIS STUDY

	UTM NAD 27, zone 13, m.			UTM NAD 27, zone 13, m.	
WELL NAME	Easting	Northing	WELL NAME	Easting	Northing
Abeyta Well	448752	4024118	Howell	448470	4030712
Arroyo Hondo	452696	4046154	K2 - K3	446688	4030429
Arroyo Park	443740	4028440	Kit Carson	448900	4029260
Arroyo Seco	448745	4041260	La Percha	445760	4030300
Arroyos del Norte	446162	4042084	Landfill MW1	442758	4034011
Baranca del Pueblo	437160	4023520	Lerman	441824	4032655
Bear Stew	450352	4037199	Mariposa Ranch	445180	4040820
BIA 11	444775	4035824	McCarthy	446307	4038831
BIA 13	448320	4034830	Mesa Encantada	442346	4024531
BIA 13	449820	4029780	NGDOM	442290	4022740
BIA 14	449470	4030990	OW-6	449590	4033200
BIA 15	442470	4028200	Pettit Well	447925	4023423
BIA 17	448890	4038130	Porter	447769	4041305
BIA 2	449600	4033180	Quail Ridge	446472	4035777
BIA 20	447335	4035901	Ranchos Elem. Sch	446316	4023297
BIA 24	447500	4038340	R. Fernando de Taos	450851	4025541
BIA 9	444280	4038930	R.G. del Rancho	447172	4020228
BJV #1	441230	4023480	Rio Lucero	448028	4030617
BOR 1	442124	4022604	R. Pueblo de Taos	448731	4030516
BOR 4 Deep	444766	4035805	Riverbend	439120	4024530
BOR 6 #1	444797	4035805	Rose Gardiner	443027	4024817
BOR 6 #2	444797	4035805	RP 2000 Deep	440380	4026000
BOR2A	446247	4026541	RP 2500	440462	4026069
BOR2B/2C	446240	4026553	Ruckendorfer	449460	4023920
BOR3	446247	4026541	Taos SJC	440340	4026080
BOR5	447345	4035906	TOT #1	448626	4029394
BOR7	444280	4038930	TOT #2	448648	4029400
Cameron	446529	4034294	TOT #3	448941	4029690
Cielo Azul	446420	4040260	TOT #5	448631	4028835
Cielo Azul Deep	446400	4040250	Town Taos Airport	439480	4034760
Colonias Point	444910	4034920	Town Yard	447060	4026680
Cooper	443860	4029120	UNM/Taos	441310	4022260
Fred Baca Park	447225	4028617	Vista del Valle	443681	4023916
Hank Saxe	440507	4020477	Yaravitz	449826	4042805

Attachment 3
Part II

Development of the T17sup.M7 Superposition Version of the Taos Area Groundwater Model
and Water Rights Administration under the Taos (Abeyta) Settlement,
April 16, 2012,
by Peggy Barroll, PhD, NM OSE.
17 pages, plus Appendices A, B, C, D and E.

Development of the T17sup.M7 Superposition Version of the OSE Taos Area Groundwater Model and Water Rights Administration under the Taos (Abeyta) Settlement

April 16, 2012

by
Peggy Barroll, PhD

Prepared by the
New Mexico Office of the State Engineer
Water Resource Allocation Program
Hydrology Bureau

Overview

The T17 Taos Groundwater Model is a calibrated groundwater model that was developed by a Technical Committee as part of the Taos Adjudication Settlement process[1]. The model was finalized in 2006, and this model was accepted as the Settlement Model, for use in water rights administration under the 2006 Draft Taos Settlement (i.e.: Draft Settlement Agreement Among The United States Of America, Taos Pueblo, The State Of New Mexico, The Taos Valley Acequia Association And Its 55 Member Acequias, The Town Of Taos, El Prado Water And Sanitation District, and the 12 Taos Area Mutual Domestic Water Consumers' Associations.) The T17 model (or Settlement Model) is documented in Part 1 of Attachment 3 of the to the 2006 Draft Taos Settlement Agreement.

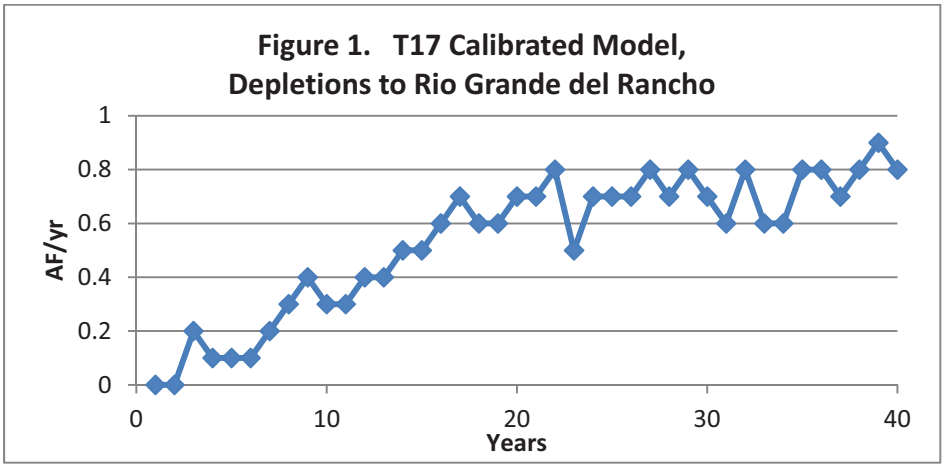
. This memo describes the development of the T17sup.M7 Taos superposition version of the Settlement Model for administrative purposes. Also presented are comparisons of results from the two different model versions: the T17 calibrated model version, and the T17sup.M7 superposition model version. Results for hypothetical future pumping scenarios as simulated by the two model versions, are compared; and also individual response functions. In addition, this memo outlines the application of this superposition version to water rights administration under the final Taos Settlement Agreement agreed to by the parties in 2012.

General Discussion of Groundwater Models in Administration

The Office of the State Engineer (OSE) commonly uses groundwater models to calculate stream depletions associated with groundwater pumping. In some cases a fully calibrated model is developed for a basin, and the OSE may want to use results from this model for administration. However, there are a number of issues that arise in the direct use of a calibrated model for calculating stream impacts. Firstly, there are practical concerns in that to determine the incremental effect of a stress, it is necessary to run the model twice (with and without the stress of interest) and take the difference between the two runs. Each step introduces

[1] Peggy Barroll and Peter Burck, 2006. Documentation of OSE Taos Area Calibrated Groundwater Flow Model T17.0, NMOSE Hydrology Bureau Report 06-04.

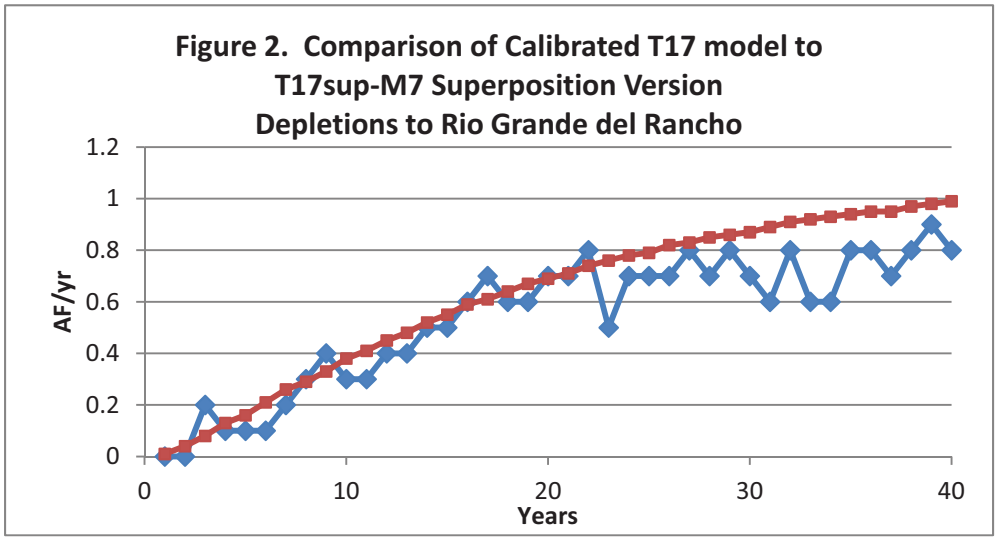
more opportunity for error, or for disagreement in exactly how to perform the model runs. Secondly, model results may vary depending on what background stresses are applied. Thirdly, results may be irregular due to model artifacts associated with the boundary conditions used to simulate streams, or because small stresses may fall within the "noise level" of the water budget terms of the fully calibrated model.[2] Figure 1 (below) illustrates this problem. The graph shows the depletions calculated to the STR cells in the calibrated model version representing Rio Grande del Rancho caused by a test well pumping 10 AF/yr stress.



This problem has frequently been encountered in water resource modeling at the OSE, and one resolution of this problem has been to develop a superposition version of the model that eliminates background stresses (such as recharge and groundwater diversions, which are eliminated from a superposition model unless the effect of those stresses is being specifically tested). Figure 2 (below) shows in red the stream depletions calculated for the same stress using a superposition

[2] For additional discussion of the advantages of superposition models for water resource modeling, see Leake, S. A. (2011), Capture—Rates and Directions of Groundwater Flow Don't Matter!. Ground Water, 49: 456–458. Additional discussion of groundwater modeling, and the use calibrated and superposition models can be found in Reilly, T.E. and Harbaugh, A.W. (2004) Guidelines for Evaluating Ground-Water Flow Models. U.S. Geological Survey Scientific Investigations Report 2004-5038.

version of T17 (which will be more fully described in the following sections).



The superposition version of the model yields comparable, but much more stable stream depletions.

An additional issue associated with the calibrated version of the Settlement Model is the simulation of changes in evapotranspiration (ET). In effect, the calibrated model simulates some of the impacts of pumping as reductions in ET. Such model predictions of salvaged ET are highly uncertain, and it is contrary to conservation to administer water rights based upon the possibility of salvaged ET. The superposition version of a model can eliminate these effects, thus resulting in a calculation in which all pumping impacts are eventually felt on the streams. Such a calculation is conservative with respect to protecting water resources, because it reduces the chance that we have underestimated the magnitude of stream depletions.

The Taos Technical Committee has agreed to the use of a Superposition Application of the Settlement Model, which includes the condition that part of the depletions simulated by the superposition model version on the Rio Lucero and Rio Pueblo de Taos shall be mitigated by means of the Buffalo Pasture Recharge Project.

Theory of Superposition

The theory of superposition is founded on model linearity. For a completely linear model, the presence or absence of background recharge or background pumping would not influence or change the drawdowns or surface water effects that are calculated to result from a proposed pumping stress. While not absolutely linear, the Taos groundwater system behaves linearly to a large extent because the water table drawdowns that have been historically observed, or simulated in future scenarios, are small compared to the saturated thicknesses of the aquifers. No significant change in relative aquifer thickness and corresponding transmissivity is anticipated to occur in typical pumping stresses expected to occur as a result of implementation of the Taos Settlement. However, there are some non-linear features of the model, such as the Stream (STR), River (RIV) and Evapotranspiration (ET) packages, which are "piece-wise" linear[3]. Hydrologic effects to these features change in character after the water table drops below a certain point. This conversion to superposition attempts to address these piece-wise linear features in a reasonable yet conservative fashion as described below.

Conversion of Calibrated Model Version to Superposition: Development of the T17sup.M7 Superposition Version

In conversion to superposition, modeled hydraulic conductivities, transmissivities and aquifer storage from the calibrated model version are maintained and fixed, all "background" recharges and pumping are removed, all observation packages are removed, ET is removed, STR and RIV packages are converted to General Head Boundary (GHB) package, and initial heads and boundary condition heads are set to 0.0.

The GHB package replaces the STR and RIV package in the simulation of the Rio Grande and its tributaries, including Buffalo Pasture. GHB, like RIV and STR, is a head dependent boundary, in which changes in stream seepage are calculated based on changes in groundwater levels. The GHB package is simpler,

[3] Piece-wise linear boundary conditions in a groundwater model provide linear results over discrete intervals of groundwater level, not over the entire possible range of groundwater levels.

avoiding problems related to background stream seepage (GHB does not require a river stage to be specified), and is completely linear, avoiding the problem of piece-wise linearity producing variable results. When converting the STR cells into GHB cells, those STR cells that the calibrated model simulated as "disconnected" from the groundwater were eliminated (that is, cells for which the simulated water table is sufficiently deep so that groundwater pumping would not influence stream leakage from those cells, or for which the surface flow was zero). Some cells that represent frequently dry reaches of Rio Seco (or Arroyo Seco) are given reduced conductances to represent the fact that stream impact to the cells is limited by the availability of surface water. In addition, the conductances of other GHB cells were also reduced in order to better match the spatial distribution of tributary depletions simulated by the calibrated model version.

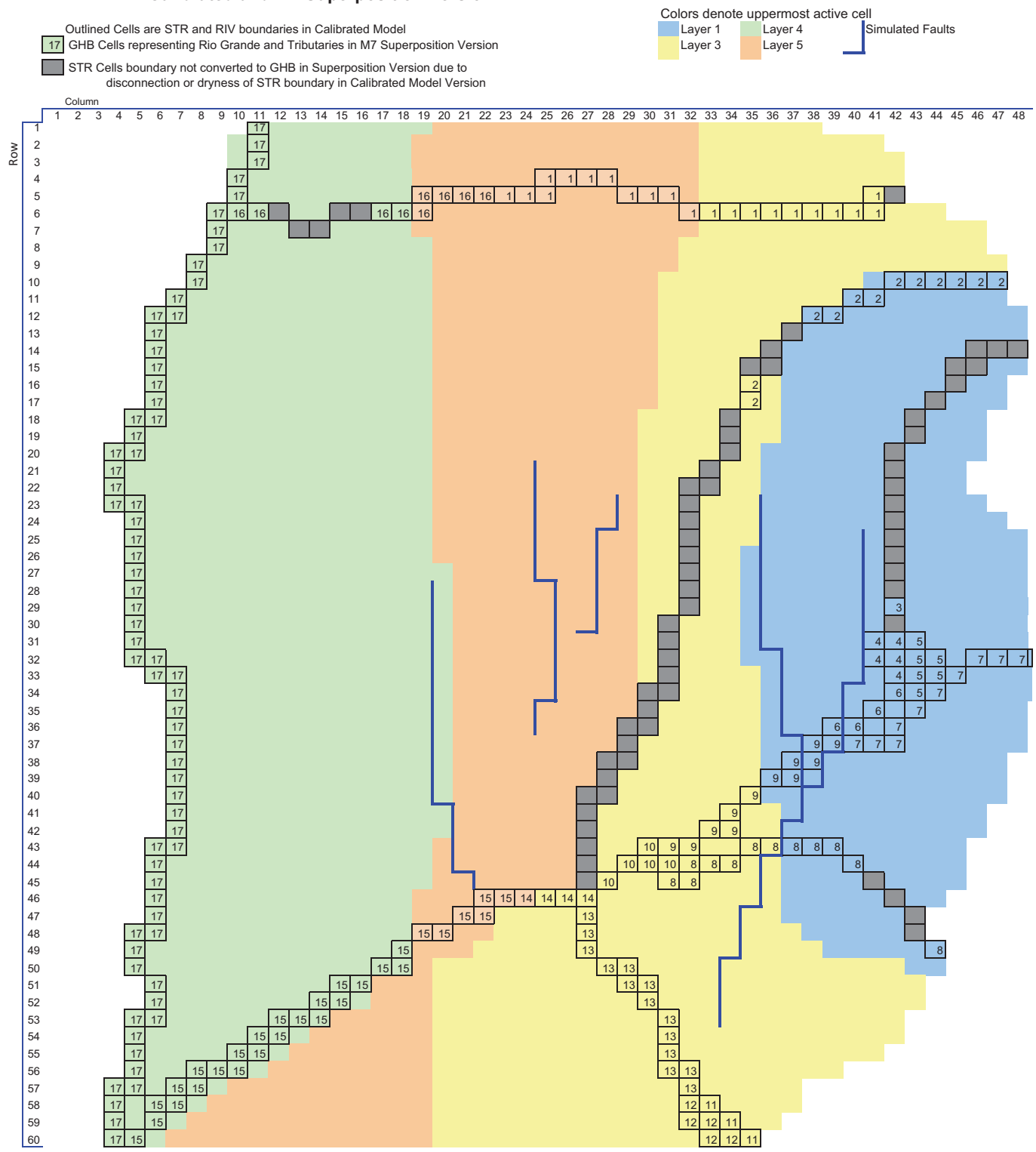
Since ET has been removed, the effects of aquifer stresses that resulted in changes in ET in the calibrated model version will now show up as changes to the GHB fluxes in the superposition version, predominantly as additional depletions on the tributaries.

Summary Description of Model Conversion

Steps of Conversion Process:

1) Compare calibrated model simulated water table elevation with streambed elevation in STR package. If water table is significantly deeper than streambed over more than three adjacent cells, assume disconnection and eliminate these from incorporation into the GHB package (see Figure 3 for resulting GHB distribution). Take the rest of the STR cells, and put in GHB package with a Bhead elevation of 0.0, maintaining conductance values. Put reach numbers in "comment" column.
2) Take cells from RIV package and convert to GHB, Boundary Head elevation = 0.0, append to bottom of GHB cells created from STR cells, give them reach number 17.
3) Eliminate ET package
4) Basic (BAS) package: Hinit=0

Figure 3: Diagram of Rio Grande and Tributaries in Taos Settlement Model Calibrated and M7 Superposition Version



Segment Number	Segment Name	Mitigation System
1	Upper Rio Hondo	Mitigation Well A
2	Rio Seco	ASR well acting as Mitigation well
3	Upper Rio Lucero	Mitigation Well B
4	Buffalo Pasture West	Buffalo Pastures Recharge Project
5	Buffalo Pasture East	Buffalo Pastures Recharge Project
6	Lower Rio Lucero	Mitigation Well B
7	Rio Pueblo de Taos A	Mitigation Well B
8	Rio Fernando	Mitigation Well C
9	Rio Pueblo de Taos B	Mitigation Well B
10	Rio Pueblo de Taos C	Mitigation Well B
11	Rio Chiquito	Mitigation Well E
12	Upper Rio Grande del Rancho	Mitigation Well D
13	Lower Rio Grande del Rancho	Mitigation Well D
14	Rio Pueblo de Taos D	Mitigation Well B
15	Rio Pueblo de Taos E	No Mitigation, Offset on Rio Grande
16	Lower Rio Hondo	No Mitigation, Offset on Rio Grande
17	Rio Grande	No Mitigation, Offset on Rio Grande

5) DIS package: reassign layer top and bottom elevations :[top 1 = 0.0], [bot 1 = 0.0 - thick1], etc.
6) Layer Property Flow (LPF) package: no change
7) Zone (ZON) and Multiplier (MUL) packages: no change
8) Omit observation packages
9) Omit Recharge (RCH) package
10) Well (WEL) package: wells eliminated representing mountain front recharge, and background groundwater diversions. WEL package now used only for test stresses.
11) Make comparable runs of calibrated model version and superposition model, and adjust GHB conductances from cells representing parts of the Rio Fernando, Rio Lucero and Rio Seco to better match the spatial distribution of tributary depletions calculated by the calibrated model version.

The resulting superposition version is referred to as the T17sup.M7. Printouts of key model files are provided in Appendix D.

Testing of Superposition Version

Results from the T17sup.M7 were compared with results from the calibrated version (T17.0), to ensure that the superposition version of the model provides comparable results. Two tests are documented here, which are referred to in this document as the Settlement Pumping Scenarios[4] for El Prado and for the Town of Taos. These scenarios simulate the "Future Groundwater Diversions" described in the Taos Settlement, increasing the diversions with time from current levels, and were developed for demonstrative purposes only. These Settlement Scenarios do not define or restrict how the Town of Taos or El Prado will actually develop their water rights and pumping schedules. These runs are more fully documented in Appendix A and Appendix B.

[4] Settlement Pumping Scenario is not a defined term in the Settlement, it used in this Attachment in order to designate specific model runs that were done for demonstrative purposes.

For the calibrated model version, numerous background stresses (natural recharge, irrigation return flow, municipal pumping, etc.) were still present, and the model was run twice: 1) with only background stresses (including current groundwater pumping levels), and 2) with the same background stresses and the addition of Settlement pumping. The net effect of the test stress was determined by subtracting the results of those two runs.

Comparisons were made using depletion results from the superposition and calibrated model versions calculated at 40 years time, which are shown in Tables 1 and 2 below. (Note: no administrative adjustments to the depletions for Rio Lucero or Rio Pueblo de Taos have been applied to the results in these Tables). The depletions calculated to the Rio Grande mainstem in the superposition version were extremely close to those calculated for the calibrated model version: within 1%.

Table 1. El Prado Settlement Pumping Scenario
Simulated Depletions in acre-feet per year, at 40 years
See Appendix A for more details

40 years	Superposition	Calibrated
1 Upper Rio Hondo	4.43	3.50
2 Rio Seco	0.89	1.50
3 Upper Rio Lucero	1.94	3.20
4 Buffalo Pasture West	8.93	4.70
5 Buffalo Pasture East	5.85	4.50
6 Lower Rio Lucero	8.19	5.80
7 R P de Taos A	10.16	6.20
8 Rio Fernando	5.75	6.60
9 R P de Taos B	16.85	8.50
10 R P de Taos C	1.77	0.70
11 Rio Chiquito	0.57	0.50
12 Upper R G del Rancho	0.47	0.40
13 Lower R G del Rancho	3.77	2.60
14 R P de Taos D	0.34	0.20
15 R P de Taos E	1.95	1.90
16 Lower Rio Hondo	7.84	6.30
Rio Grande Mainstem	82.62	83.00

Table 2. Town of Taos Settlement Pumping Scenario Simulated Depletions in acre-feet per year, at 40 years See Appendix B for more details		
40 years	Superposition	Calibrated
1 Upper Rio Hondo	2.99	2.4
2 Rio Seco	0.39	1.5
3 Upper Rio Lucero	0.9	1.5
4 Buffalo Pasture West	4.02	2.4
5 Buffalo Pasture East	3.17	1.2
6 Lower Rio Lucero	5.18	5.5
7 R P de Taos A	13.76	8.4
8 Rio Fernando	22.44	27.1
9 R P de Taos B	24.02	12.2
10 R P de Taos C	5.4	2.2
11 Rio Chiquito	7.33	7.8
12 Upper R G del Rancho	8.6	8.5
13 Lower R G del Rancho	49.35	41.4
14 R P de Taos D	2.93	2
15 R P de Taos E	57.09	55.4
16 Lower Rio Hondo	6.6	5.4
Rio Grande Mainstem	169.4	169.8

The simulated depletions to surface water flows in the tributaries in the superposition version were, on the whole, systematically greater than those calculated by the calibrated model version. This was the anticipated result of eliminating ET from the superposition model. Salvaged ET calculated by the calibrated model largely came from changes in the water budget near the tributaries, and appears in superposition results as an increase in the surface water depletions to those tributaries.

A comparison of the simulated stream depletions is shown in Figures 4 through 7, below.

FIgure 4. Calibrated Model Version T17: Surface Water Depletions and "Salvaged ET"
El Prado Settlement Scenario

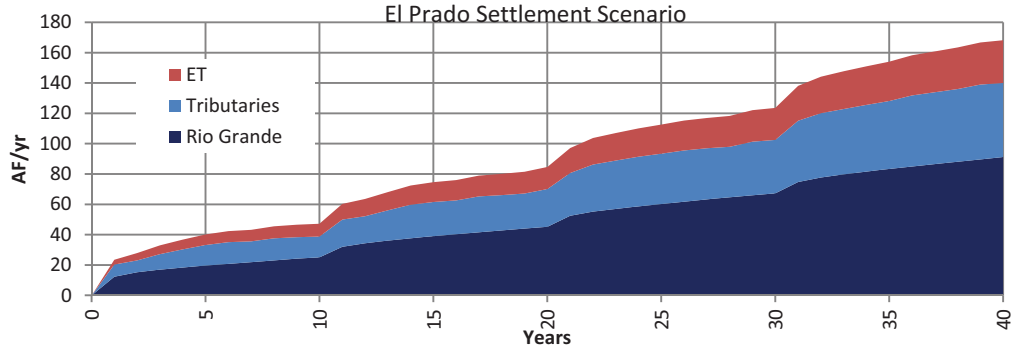


Figure 5. Superposition Version T17sup.M7: Surface Water Depletions
El Prado Settlement Scenario

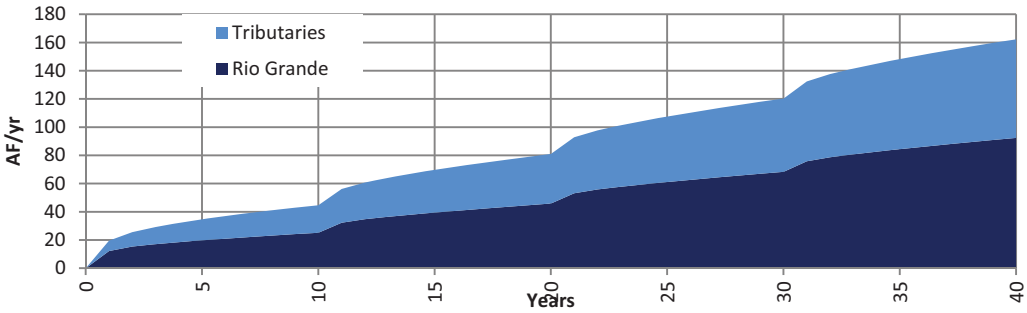


Figure 6. Calibrated Model Version T17: Depletions to Surface Water and "Salvaged ET"
Town of Taos Settlement Scenario

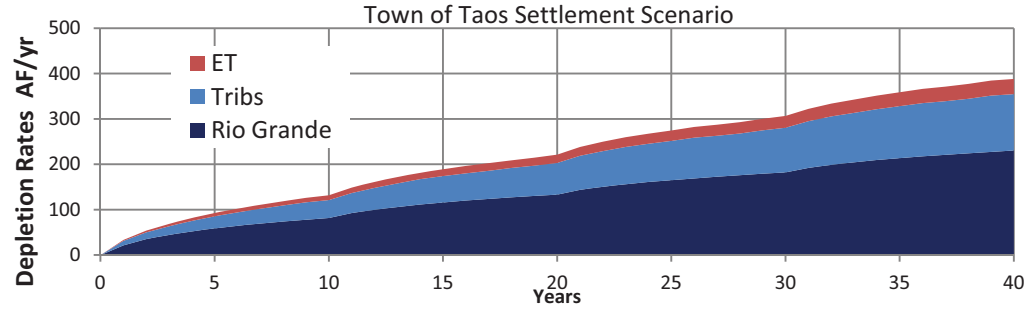
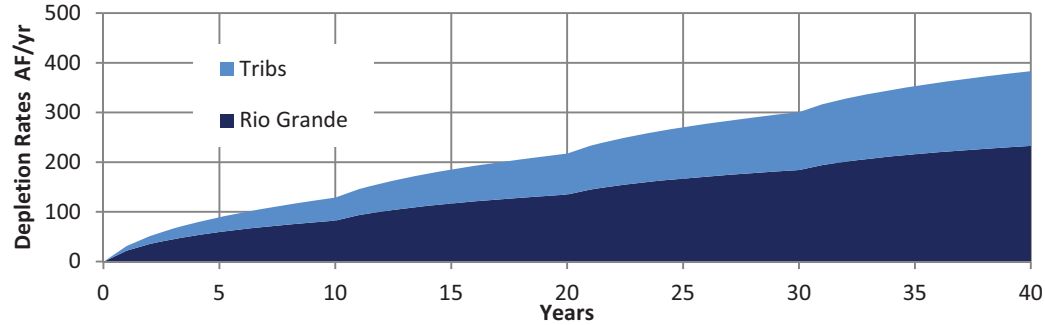


Figure 7. Superposition Version T17sup.M7: Surface Water Depletions
Town of Taos Settlement Scenarios



The surface water depletions in the superposition version were approximately equal to the sum of the surface water depletions and the salvaged ET simulated by the calibrated version. At 40 years time, the difference between surface water depletions calculated by the superposition version of the model and the combined surface water and salvaged ET calculated by the calibrated version was 3% for the El Prado run and 1% for the Town of Taos run.

The groundwater drawdowns simulated by the superposition version were also comparable to those calculated using the calibrated model version. Discrepancies were generally much less than 1 foot, except in layer 7 (the layer in which the pumping stress was situated). In layer 7 the maximum discrepancy was about 2 feet out of about 50 feet of simulated drawdown. In general, the superposition version tended to simulate slightly higher drawdowns than the calibrated model. Other spot tests of the superposition version produced similar results.

Mitigation System Administration under the Taos Settlement

Under the Taos Settlement, tributary depletions caused by groundwater pumping may be offset using mainstem Rio Grande water rights, provided that the tributary depletions are addressed through mitigation systems (for more detail, see Article 7 of the Taos Settlement). Mitigation systems include 5 Mitigation Wells (MWA, MWB, MWC, MWD and MWE), an aquifer storage and recovery (ASR) well that will also be used as a Mitigation Well, and the Buffalo Pastures Recharge Project (BPRP). Model simulated tributary depletions will be used to calculate constraints for mitigation system operations, and the Rio Grande offsets associated with mitigation system operation.

The model simulated depletions for tributary stream segments will be lumped according to the mitigation system associated with those segments as defined in the Taos Settlement and described below in Table 4. Note that under the Taos Settlement, depletions simulated on segments Lower Rio Hondo and the Rio Pueblo de Taos E, downstream of current irrigation diversions, are to be offset with mainstem Rio Grande water rights, and further mitigation is not required.

Table 4. Taos Tributary Segments Associated with Each Mitigation System

	Mitigation System	Location	Segments Aggregated
1	Mitigation Well A (MWA)	Rio Hondo	Upper Rio Hondo
2	Mitigation Well B (MWB)	Rio Pueblo de Taos/Rio Lucero	Rio Pueblo de Taos A, B, C and D; Upper Rio Lucero and Lower Rio Lucero
3	Mitigation Well C (MWC)	Rio Fernando	Rio Fernando
4	Mitigation Well D (MWD)	Rio Grande del Rancho	Upper Rio Grande Del Rancho and Lower Rio Grande del Rancho
5	Mitigation Well E (MWE)	Rio Chiquito	Rio Chiquito
6	ASR Well	Rio Seco	Rio Seco
7	Buffalo Pastures Recharge Project (BPRP)	Buffalo Pastures	Buffalo Pastures East and West

Tributary depletion rates calculated using the calibrated and superposition versions of the model at 40 years time have been aggregated by mitigation system in Figures 8 and 9 below, for the El Prado and Town of Taos Settlement Pumping.

Figure 8. Tributary Depletion Rates Aggregated by Mitigation System
No Reassignment
El Prado Settlement Scenario, 40 years

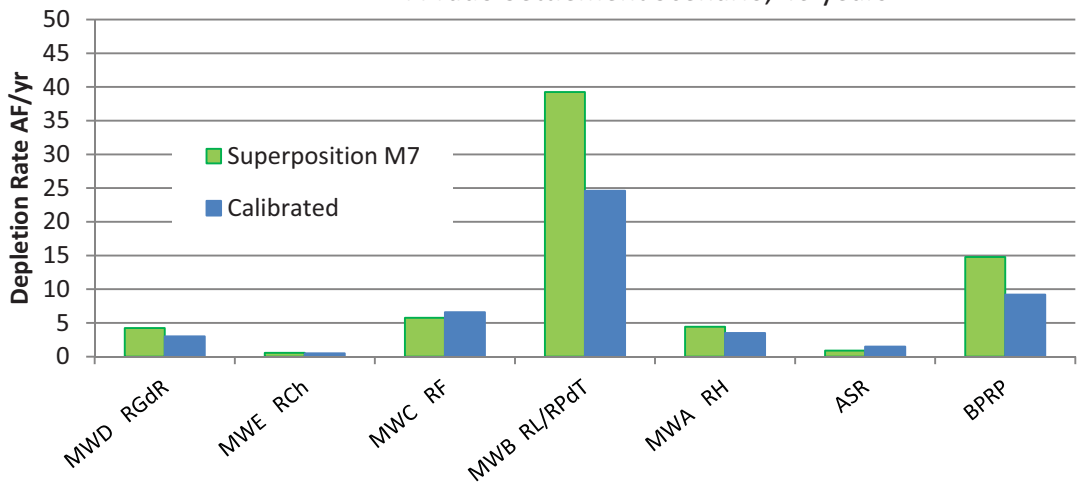
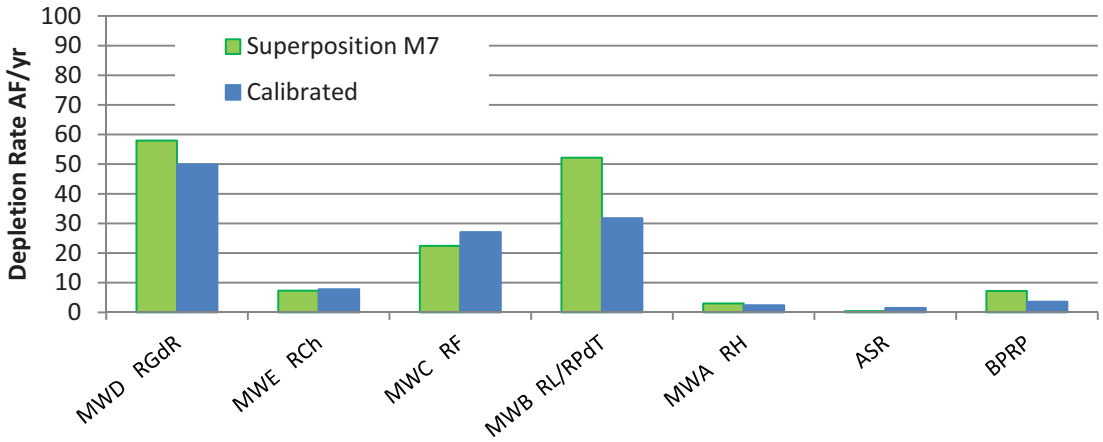


Figure 9. Tributary Depletion Rates Aggregated by Mitigation System
No Reassignment
Town of Taos Settlement Scenario, 40 years

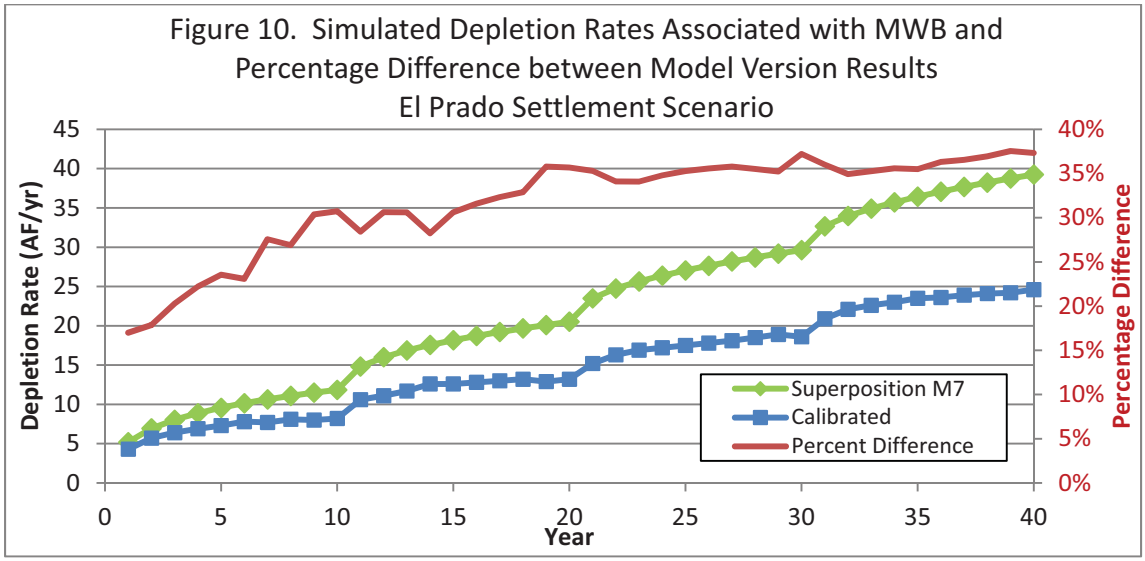


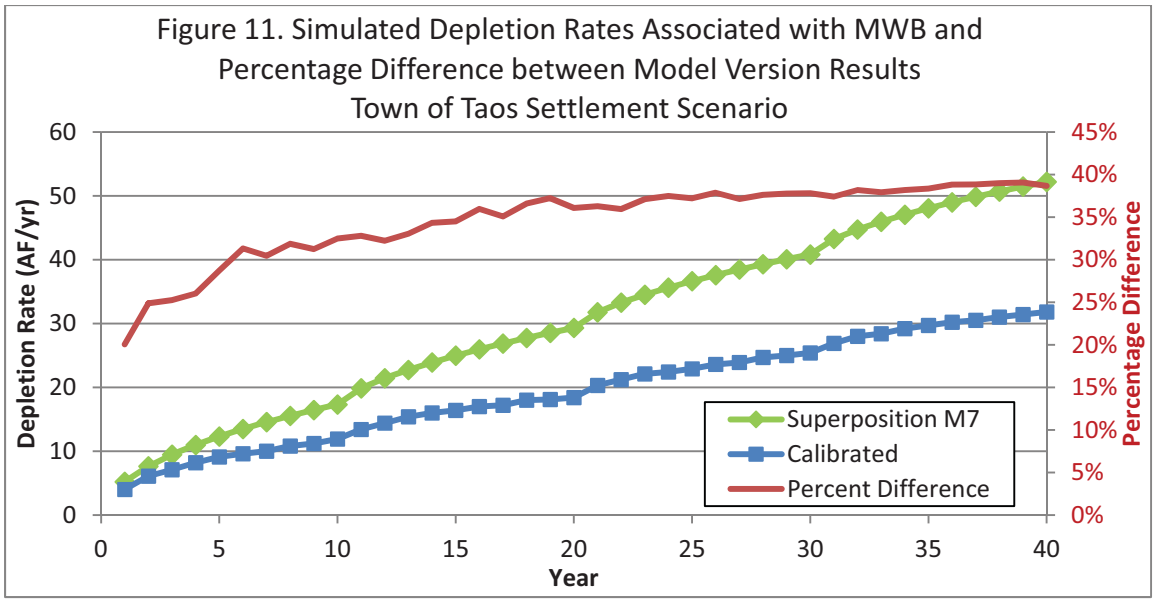
In both cases, the largest difference between depletions simulated by the calibrated model and the superposition version are for Mitigation Well B (MWB) - Rio Pueblo de Taos/Rio Lucero. This difference corresponds to “salvaged” ET in the calibrated model runs occurring in the vicinity of the Rio Lucero and Rio Pueblo

de Taos. The Taos Technical Committee has agreed that the additional amount of depletions requiring mitigation on the Rio Pueblo de Taos and Rio Lucero (i.e., those associated with MWB) that are simulated by superposition version shall be reassigned for mitigation by means of the Buffalo Pasture Recharge Project. (By "additional", the Technical Committee means the amount by which the depletions calculated by the superposition version exceed those of the calibrated version.)

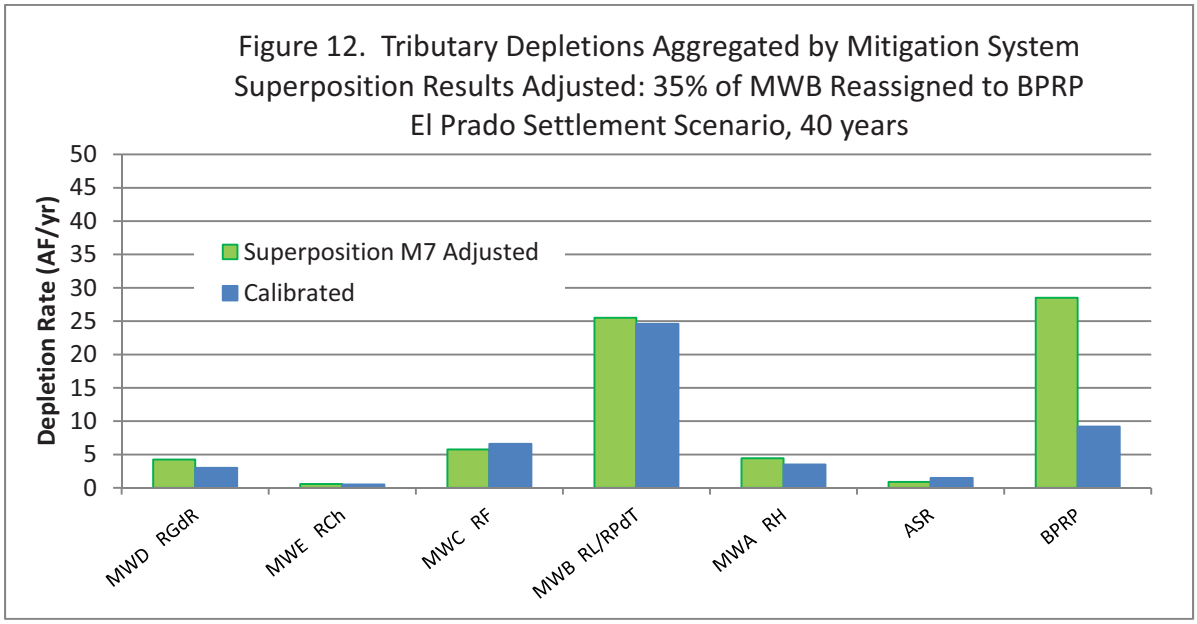
The amount by which the MWB depletions from superposition version exceed those from the calibrated version varies with time. Figure 10 and 11 below show this variation, along with the percentage difference relative to the superposition depletions. In general, the depletions simulated for MWB by the calibrated model version are about 30 to 40 % lower than those simulated by the superposition version.

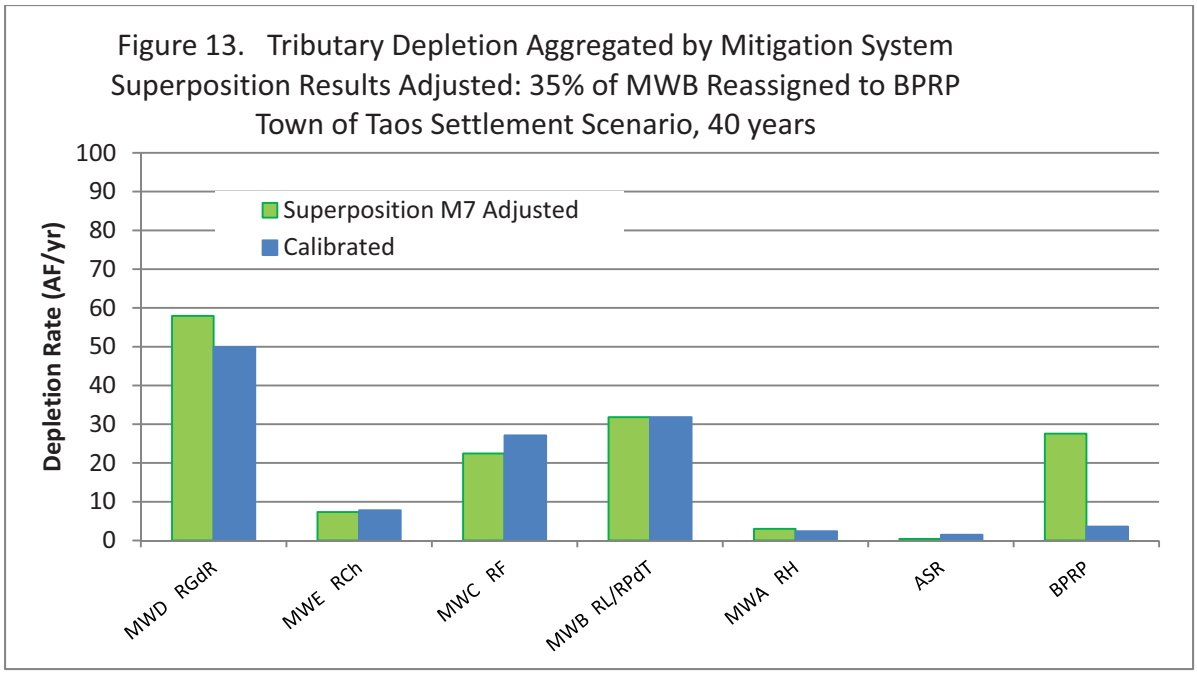
Figure 10. Simulated Depletion Rates Associated with MWB and Percentage Difference between Model Version Results
El Prado Settlement Scenario





These results indicate that it would be reasonable to reassign 35% of the depletions simulated to occur on the Rio Pueblo de Taos and Rio Lucero to mitigation using the Buffalo Pastures Recharge Project. Figures 12 and 13 show the resulting depletion rates by mitigation system after application of this 35% reassignment factor.





Response Functions

Administration of offsets and mitigation under the Taos Settlement involves annual model calculations made using actual pumping amounts. To facilitate this process, and reduce the opportunity for error and for variable results, the Taos Technical Committee has agreed that the OSE will calculate depletions using response functions created using the T17sup.M7 superposition version of the Settlement Model (with 35% reassignment from MWB to BPRP as described above).

Response functions have been calculated using the T17sup.M7 Taos superposition version for a number of the existing and proposed Settlement well locations for El Prado and the Town of Taos. This process is described in Appendix C.

In order to use response functions for administration, a response function, R(t), will be calculated for each well using a test stress of 100 AF/yr. The depletions resulting from pumping a well Q acre feet per year can be calculated by scaling (multiplying) R(t) by Q/100. The depletions resulting from pumping that well at rates that vary from year to year can be determined by adding and subtracting scaled versions of R(t), incorporating time lags.

Appendix C describes the development of such response functions for Settlement wells given the locations, depths and construction described by the Taos Settlement, with additional detail provided by El Prado and the Town of Taos. Some of these wells have not yet been drilled. In actual administration, response functions must be determined by runs of the T17sup.M7 model based on the actual location, depth and construction of each well.

Offset of Mitigation System Operations

Under the Taos Settlement, the hydrologic effects of the operations of the Mitigation Systems will require offsets on the Rio Grande. The methodology for determining - those offsets has been agreed to in the Taos Settlement. Pumping of Mitigation Wells for mitigation purposes requires offset on the Rio Grande equal to 33.3% of the mitigation pumping. Operations of the Buffalo Pasture Recharge Project to mitigate depletions on Buffalo Pastures shall require offset on the Rio Grande equal to 11.1% of those depletions (this will include the depletions reassigned from MW B to Buffalo Pastures Recharge Project, described above.) Responsibility for these offsets shall rest with the Party or Parties whose groundwater development is being mitigated. This accounting is discussed in detail in Appendix E.

Conclusion

The T17sup.M7 superposition version of the Settlement Model is a reasonable and useful representation of the Settlement Model. The superposition version produces stable results that are comparable to the results of the calibrated model version. The reduction in ET simulated by the calibrated model version appears as additional tributary depletions in the superposition version.

The Taos Technical Committee has agreed that Superposition Application of the Settlement Model, in which response functions generated from the T17sup.M7 Taos Superposition Version, with a 35% administrative adjustment of depletions associated with Mitigation Well B, which are reassigned to the BPRP, should be used for administration of water rights under the Taos Settlement.

Appendix A

El Prado Settlement Scenario: Description of Taos Model Test Runs

Calibrated model difference run compared with Superposition T17sup.M7 version

Peggy Barroll, NMOSE, Hydrology Bureau

February 2012

Purpose: To show the difference between Calibrated Model results and Superposition model version results.

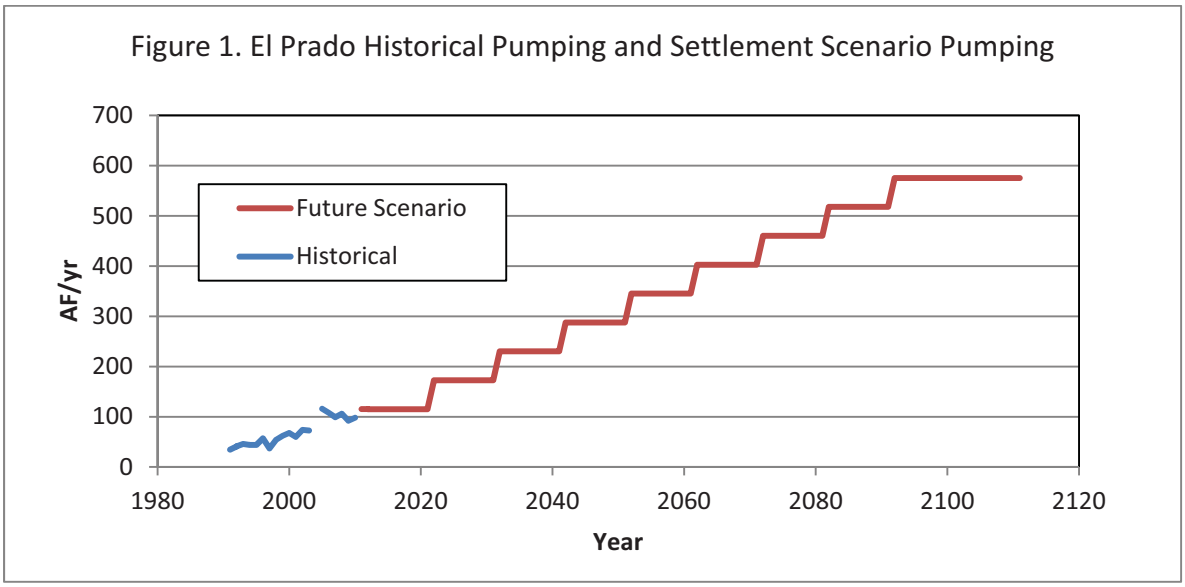
These runs have been made with the T17sup.M7 version of the Superposition model, in which the distribution of tributary depletions is generally consistent with the distribution of stream depletions and salvaged ET in the Calibrated model.

Note: Surface water depletions are split so that "Rio Grande Mainstem Depletions" include the depletions to the Lower Rio Hondo and Rio Pueblo de Taos E, while depletions to these segments are not included in "Tributary Depletions."

Pumping Scenario

The simulation ramps up El Prado pumping from 115 AF/yr to 575 AF/yr over 80 years (El Prado currently diverts about 100 AF/yr). This level of pumping increase is generally consistent with the historical increase in El Prado diversions (Figure 1). The future pumping distribution for El Prado shown in red in Figure 1 shall herein be referred to as the El Prado Settlement Scenario. This Scenario was developed for demonstrative purposes only, and does not define or restrict how El Prado will actually develop their water rights and pumping schedules.

Figure 1. El Prado Historical Pumping and Settlement Scenario Pumping



The Superposition T17sup.M7 version was run with the pumping for El Prado shown in Figure 1, starting in year 0. Depletions were extracted for the Rio Grande mainstem segments, and tributary and Buffalo Pasture segments.

The Calibrated model was run twice for a difference calculation. The runs were:

1) A Baseline run
2) An Action run

Both runs start at predevelopment and include the calibration period. At the end of the calibration period, the model runs diverge to simulate different futures. The Baseline run keeps pumping constant into the future set equal to the pumping in the last stress period of the calibration. The Action run has the same future pumping as the Baseline run, with the addition of the El Prado Settlement Scenario pumping, as shown in Figure 1. Stream package outputs from the Baseline and Action runs were subtracted to calculate the net effect of the El Prado Settlement Scenario.

Results from the Superposition run were compared with the difference results from the future period of the Calibrated model runs. Since the calibration period is 40 years in length, results from year 40 of the Superposition run are comparable to year 80 of the Calibrated model runs.

Model Results at 40 year

Under the Settlement Scenario, at 40 years time, El Prado's diversion has increased to 288 AF/yr.

Calibrated Model Difference Run results:

Depletions to Stream and RIV cells total 140 AF/yr

91 AF/yr from the Rio Grande Mainstem

49 AF/yr total from the Tributaries and Buffalo Pastures.

In addition 28 AF/yr of "salvaged ET" are simulated.

Superposition Version Total Surface Water depletions calculated using the Superposition depletions total 162 AF/yr. Of this total 91 AF/yr are from the Rio Grande Mainstem, 70 AF total from Tributaries and Buffalo Pastures.

More comprehensive results are shown below. Figure 2 shows the depletions and "Salvaged ET" from the Calibrated Difference run. Figure 3 shows the depletions calculated by the Superposition version. Figure 4 compares the depletions to the tributary and Buffalo Pasture stream cells (in all reaches above the last diversions) from the Calibrated Difference run and Superposition run.

Figure 2. T17 Calibrated Model Simulated Depletions to Surface Water and "Salvaged ET" ("Tributaries" in this chart include Buffalo Pastures)
El Prado Settlement Scenario

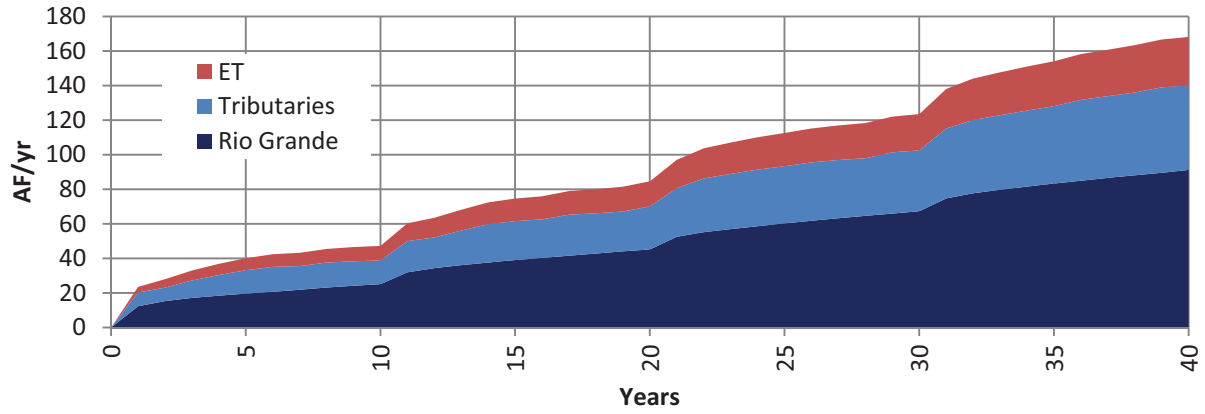
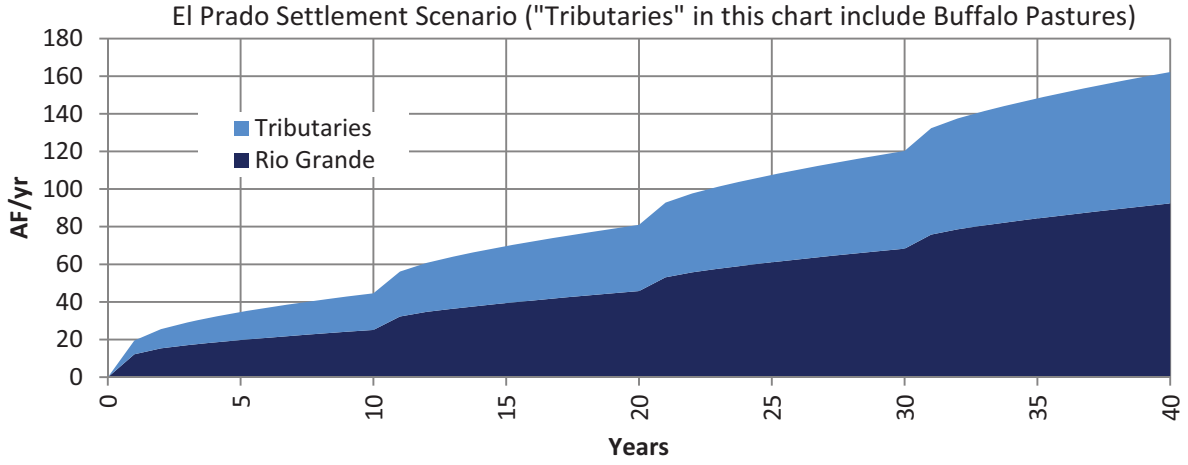
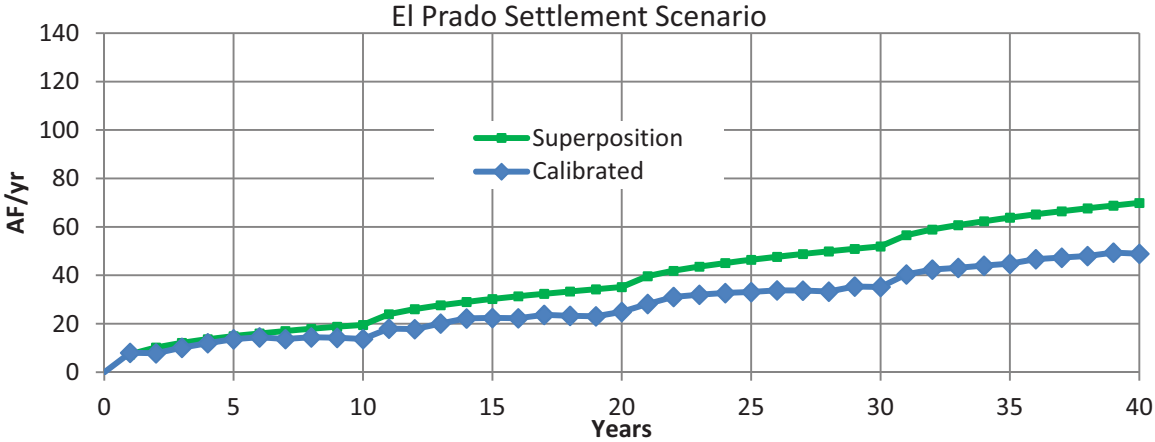


Figure 3. Superposition Version T17sup.M7 Simulated Surface Water Depletions
El Prado Settlement Scenario ("Tributaries" in this chart include Buffalo Pastures)



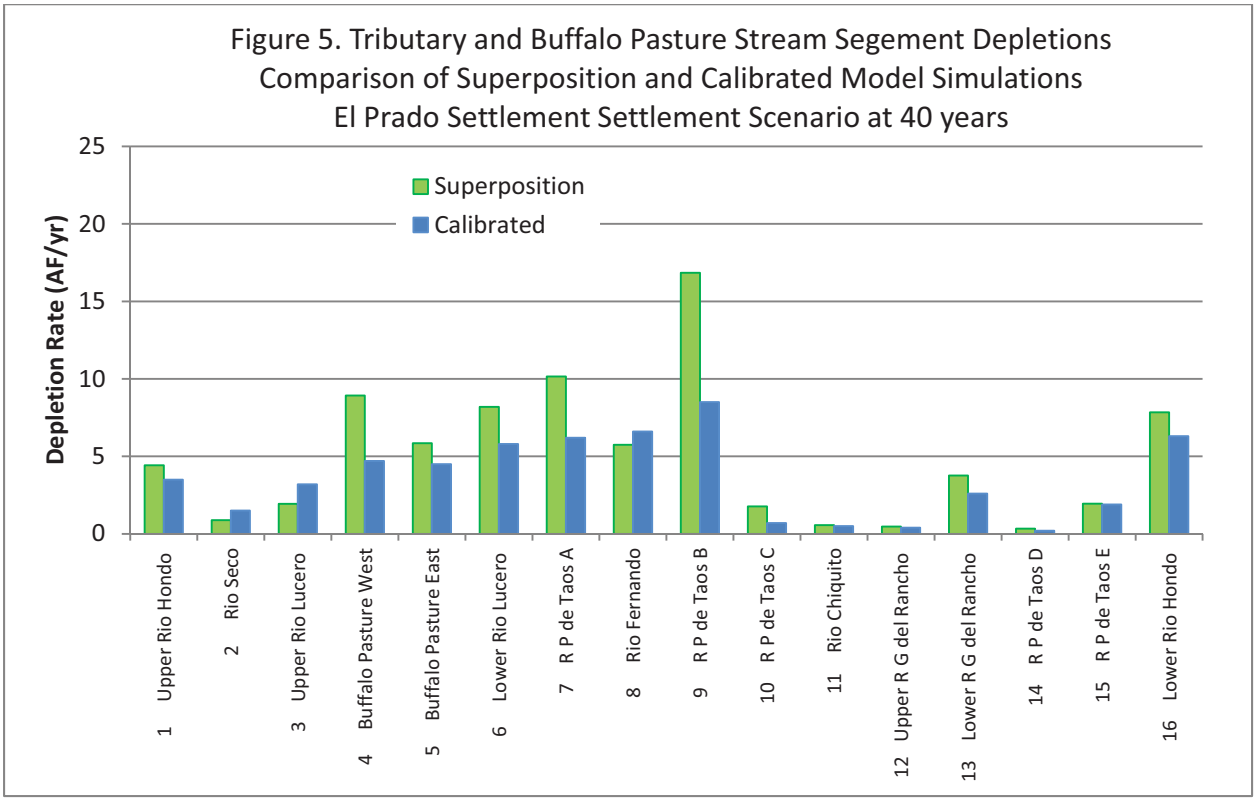
Rio Grande Mainstem depletions are almost identical between the two model versions, but Tributary depletions are higher in the Superposition version: 21 AF/yr higher at 40 years time.

Figure 4. Tributary and Buffalo Pasture Depletions.
Comparison of Superposition and Calibrated Model Simulations
El Prado Settlement Scenario



The Calibration model run, however, predicts 28 AF/yr of "Salvaged ET", which effectively dampens and reduces the tributary and Buffalo Pasture depletions simulated by the Calibrated model.

The distribution of depletions among the tributary and Buffalo Pasture stream segments by both model versions is shown below in Figure 5



Appendix B

Town of Taos Settlement Scenario: Description of Taos Model Test Runs

Calibrated Model Difference run compared with Superposition T17sup.M7 version

Peggy Barroll, NMOSE, Hydrology Bureau

February 2012

Purpose: To show the difference between Calibrated Model results and Superposition model version results.

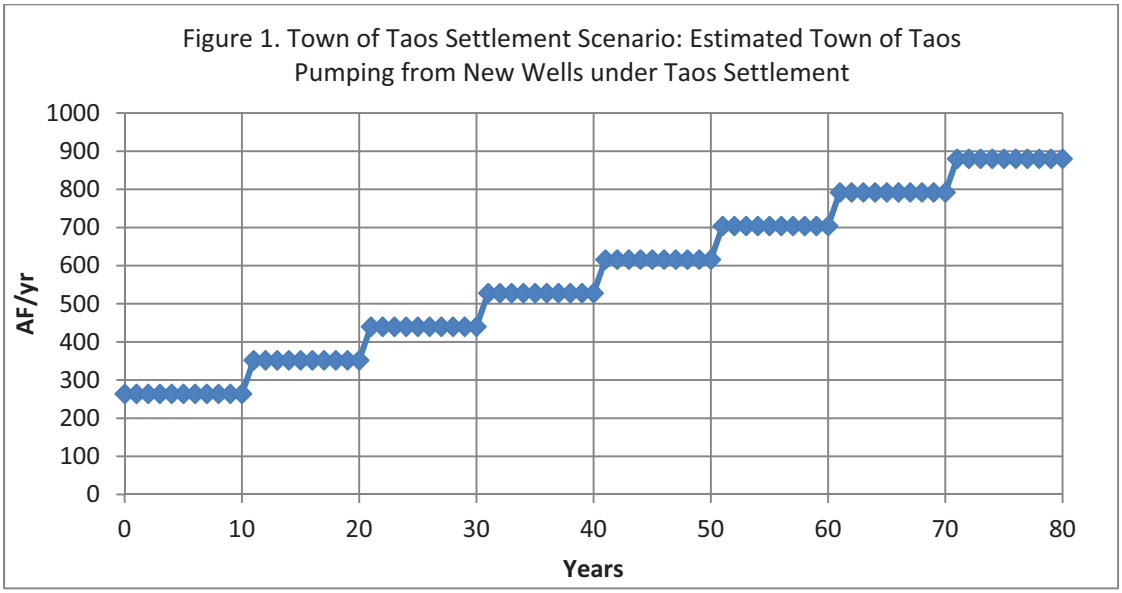
These runs have been made with the T17sup.M7 version of the Superposition model, in which the distribution of tributary and Buffalo Pasture depletions is generally consistent with the distribution of stream depletions and salvaged ET in the Calibrated model.

Note: Surface water depletions are split so that "Rio Grande Mainstem Depletions" include depletions to the Lower Rio Hondo and Rio Pueblo de Taos E, while depletions to these segments are not included in "Tributary Depletions".

Pumping Scenario

The scenario simulates the Town of Taos pumping from the Future Water Supply Well field and the Bataan well described in the Taos Settlement. The well locations and spatial pumping distribution used is the same that was simulated in the test runs for the Taos Settlement negotiations. The pumping in this analysis is ramped up as shown in Figure 1, starting at 264 AF/yr in the first year to 880 AF/yr over 70 years, and this is herein referred to as the Town of Taos Settlement Scenario. The effects of pumping from existing Town well field are not analyzed here. This Scenario was developed for demonstrative purposes only, and does not define or restrict how the Town of Taos will actually develop their water rights and pumping schedules.

Figure 1. Town of Taos Settlement Scenario: Estimated Town of Taos Pumping from New Wells under Taos Settlement



The Superposition T17sup.M7 Version was run with the Town of Taos Settlement Scenario, starting in year 0. Depletions were extracted for the Rio Grande mainstem segments, and tributary and Buffalo Pasture segments.

The Calibrated model was run twice for a difference calculation. The runs were:

1) A Baseline run
2) An Action run

Both runs start at predevelopment and include the calibration period. At the end of the calibration period, the model runs diverge to simulate different futures. The Baseline run keeps pumping constant into the future set equal to the pumping in the last stress period of the calibration. The Action run has the same future pumping as the Baseline run, with the addition of the Town of Taos new well pumping ramped, as shown in Figure 1. Stream package outputs from the Baseline and Action runs were subtracted to calculate the net effect of the Town of Taos Settlement Scenario.

Results from the Superposition run were compared with the difference results from the future period of the Calibrated model runs. Since the calibration period is 40 years in length, results from year 40 of the Superposition run are comparable to year 80 of the Calibrated model runs.

Model Results at 40 year

At 40 years time, the Town of Taos' diversion from the new proposed wells is simulated to be 600 AF/yr.

Calibrated Model Difference Run results:

Depletions to Stream and RIV cells total 355 AF/yr

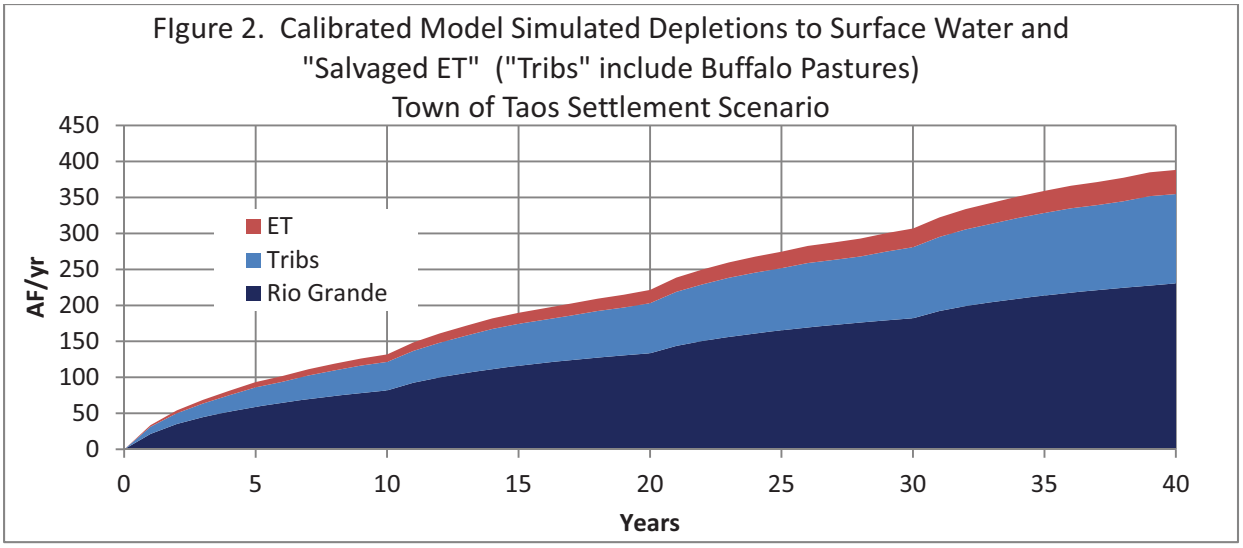
231 AF/yr from the Rio Grande Mainstem

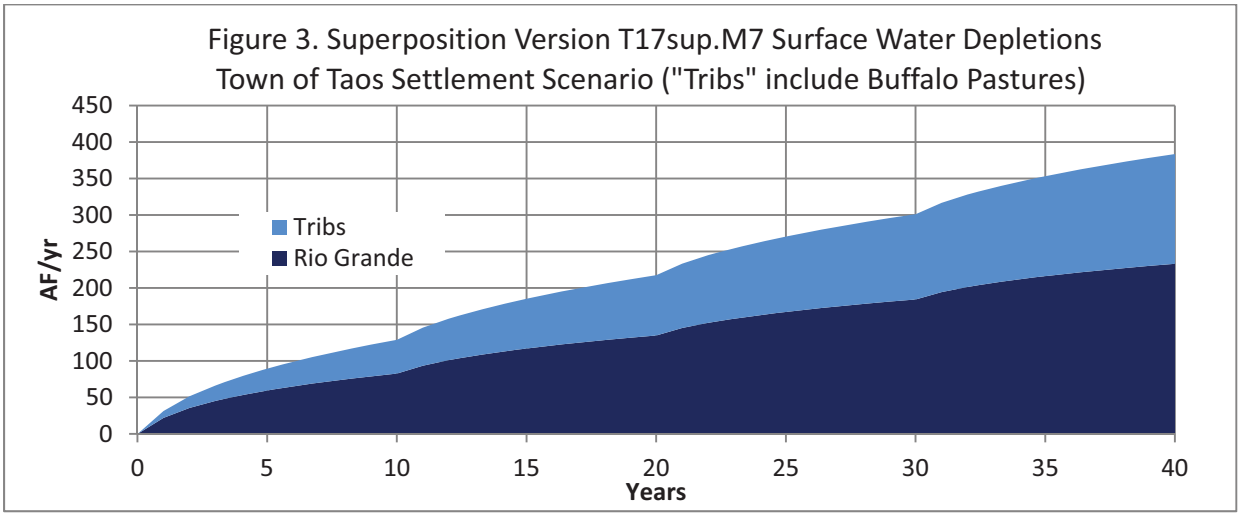
124 AF/yr total from the Tributaries and Buffalo Pastures.

In addition 34 AF/yr of "salvaged ET" are simulated.

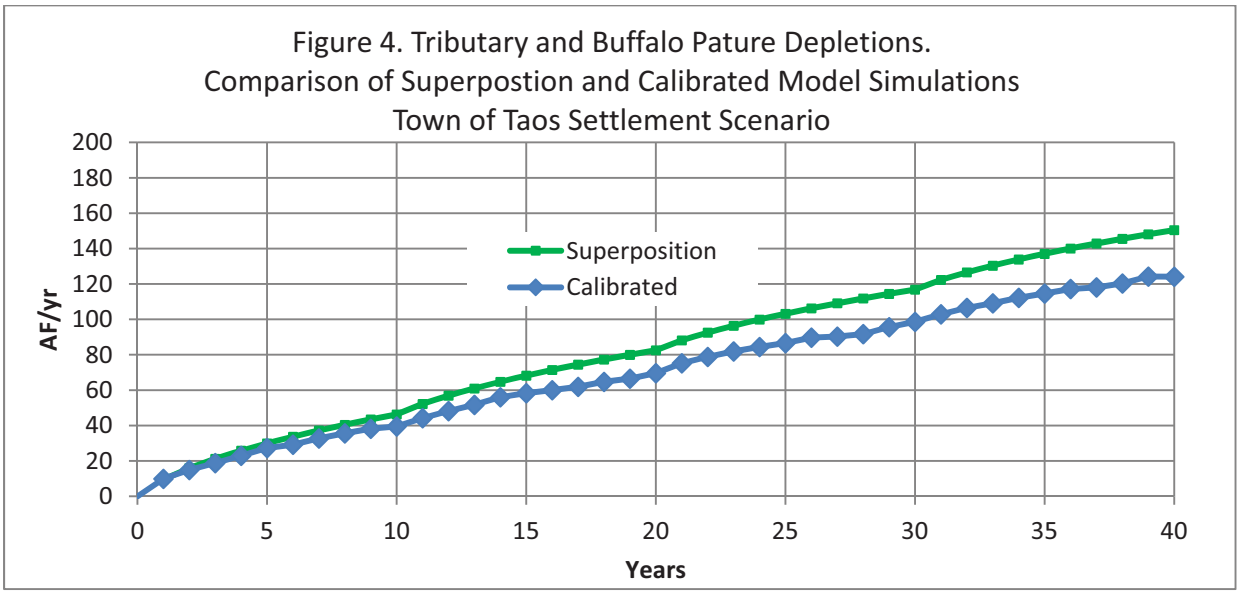
Superposition Version Total Surface Water depletions calculated using the Superposition depletions total 384 AF/yr. Of this total 233 AF/yr are from the Rio Grande Mainstem, 151 AF total from Tributaries and Buffalo Pasture.

More comprehensive results are shown below. Figure 2 shows the depletions and "Salvaged ET" from the Calibrated Difference run. Figure 3 shows the depletions calculated by the Superposition version. Figure 4 compares the depletions to the tributary and Buffalo Pasture stream cells (in all reaches above the last diversions) from the Calibrated Difference run and Superposition run.



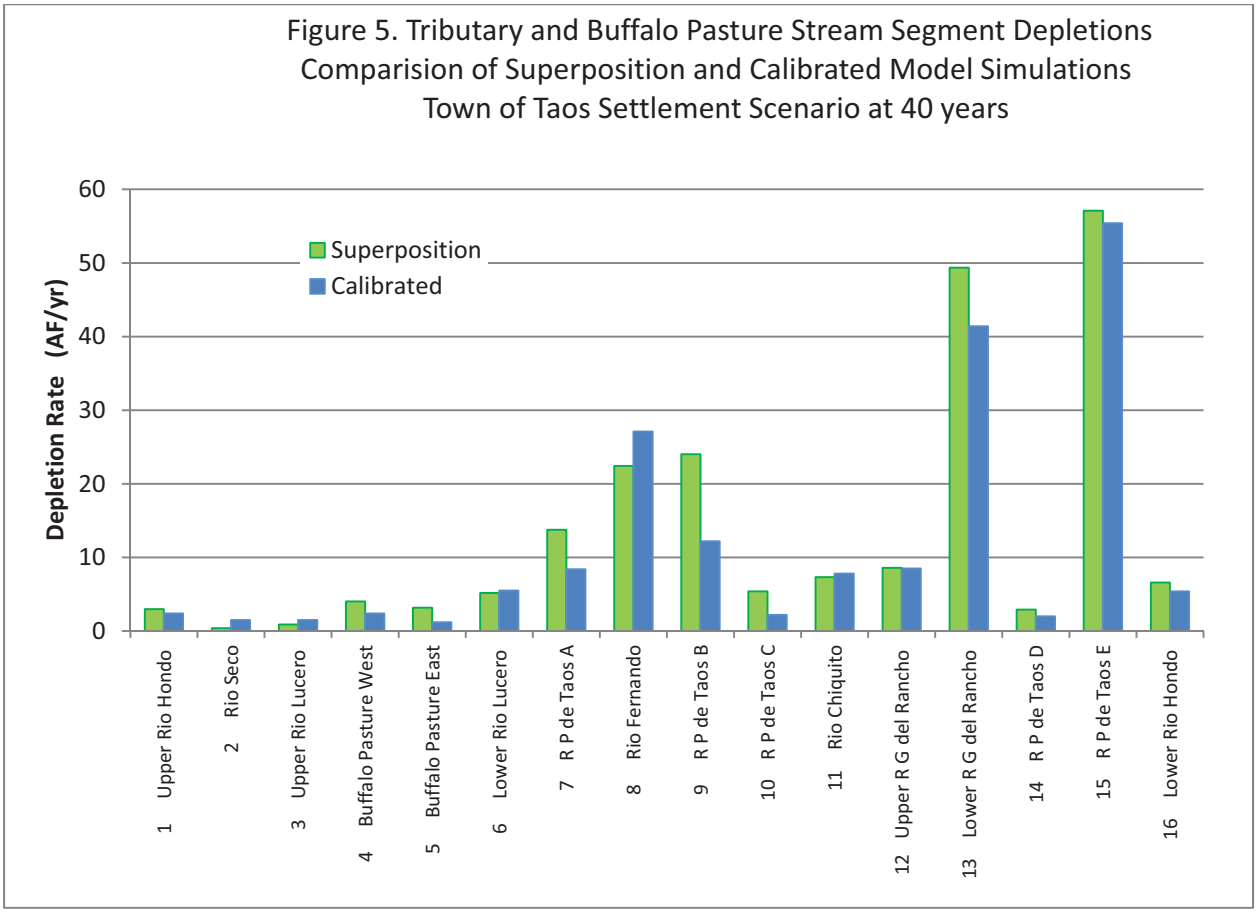


Rio Grande Mainstem depletions are almost identical between the two model versions, but tributary and Buffalo Pasture depletions are higher in the Superposition version: 26 AF/yr higher at 40 years time.



The Calibrated model run, however, predicts 34 AF/yr of "Salvaged ET", which effectively dampens and reduces the tributary and Buffalo Pasture depletions simulated by the Calibrated model.

The distribution of depletions among the tributary and Buffalo Pasture stream segments by both model versions is shown below in Figure 5



Appendix C

Development of Trial Response Functions for the Taos Settlement Model, T17sup.M7 Superposition Version

Peggy Barroll, NMOSE, Hydrology Bureau

3/2012

This document describes response functions developed by OSE Staff for well sites associated with the Taos Settlement for El Prado and the Town of Taos. Response functions developed using the T17sup.M7 Superposition version of the T17 Taos groundwater model were generated, and these are compared with model runs using the fully calibrated version of the T17 model.

The development of response functions for Settlement wells was based on the locations, depths and construction described by the Taos Settlement, with additional detail provided by El Prado and the Town of Taos. Some of these wells have not yet been drilled. In actual administration, response functions must be determined by runs of the T17sup.M7 model based on the actual location, depth and construction of each well. The response functions in this report were developed for illustrative purposes only.

Each response function was generated for a 100 AF/yr stress at each well site. If a well is anticipated to produce water from more than one model layer, the 100 AF/yr was distributed among the layers as shown below in Tables 1 and 2. The layer distribution for El Prado wells is based on information provided by El Prado in 2004. The layer distribution for the Town of Taos wells was provided by DBS&A.

Table 1. Town of Taos Well Test Sites for Response Function Generation
Locations and Layer Distribution Provided by DBS&A 1/23/2012

Layer	Row	Column	Pumping Distribution by Layer	Well ID	Response Function ID
7	49	19	100%	Rio Pueblo (RP3000)	ToT-RF1r
6	57	24	3%	National Guard (Taos NG DOM)	ToT -RF2r
7	57	24	97%		
7	47	34	100%	Camino del Medio (BOR3)	ToT -RF3r
4	40	41	68%	Bataan Well	ToT -RF5
5	40	41	32%		
6	57	20	1.7%	Taos No 3 Deep –Klauer	ToT –RF6r
7	57	20	98.3%		
4	43	38	78.4%	Mitigation Well C, Rio F,	ToT –RF7
5	43	38	21.6%		

Table 2. El Prado Well Test Sites for Response Function Generation Locations and Layer Distribution based on 2004 Technical Analysis of Full Settlement					
Layer	Row	Column	Pumping Distribution by Layer	Well ID	Response Function ID
4	35	40	59.5%	El Torreon	ELP-RF1
5	35	40	40.2%		
6	35	40	0.3%		
3	27	32	20%	Las Colonias	ELP-RF2
4	27	32	80%		
6	24	15	100%	Rio Grande	ELP-RF3
5	25	21	60%	Midway	ELP-RF4
6	25	21	40%		

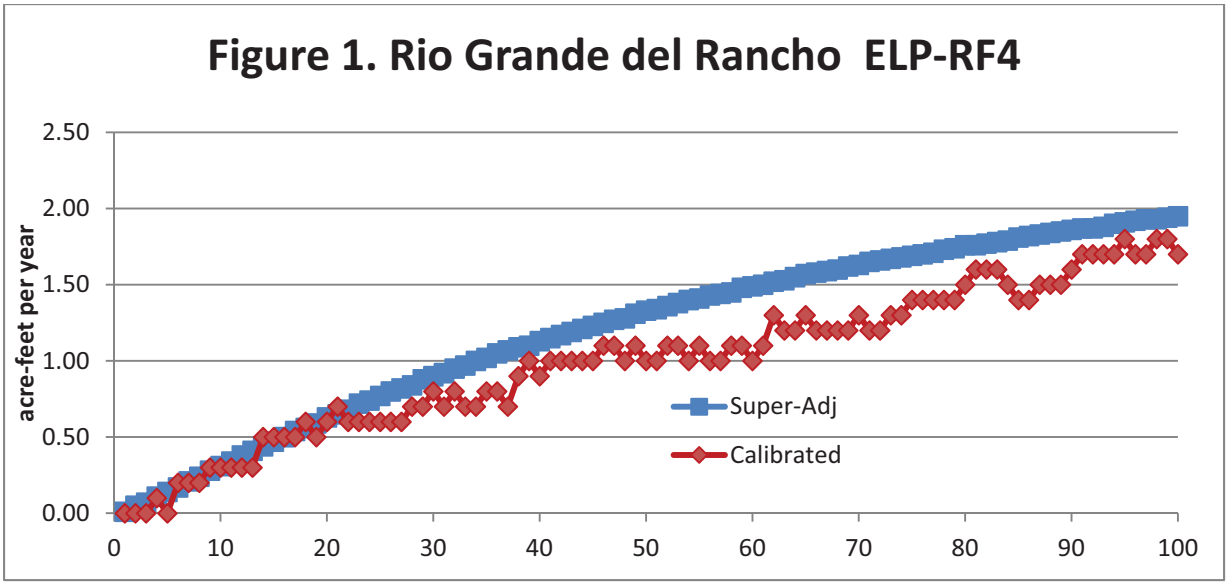
The Superposition model runs were 100 years long, with the test stress simulated as beginning at time zero, and held constant at 100 AF/yr. Depletions were extracted from the model output file for the Rio Grande mainstem and for the tributary reaches, including Buffalo Pastures.

A Baseline Run
An Action Run for each test well site.

Both calibrated model runs start with predevelopment conditions and include the calibration period. At the end of the calibration period, the model runs diverge to simulate different futures. The Baseline Run keeps pumping constant into the future, set equal to the pumping in the last stress period of the calibration. The Action Run has the same future pumping as the Baseline run, with the addition of the test well pumping at 100 AF/yr. Stream package outputs from the Baseline and Action runs were subtracted to calculate the net effect of the test well pumping.

Response Function Results:

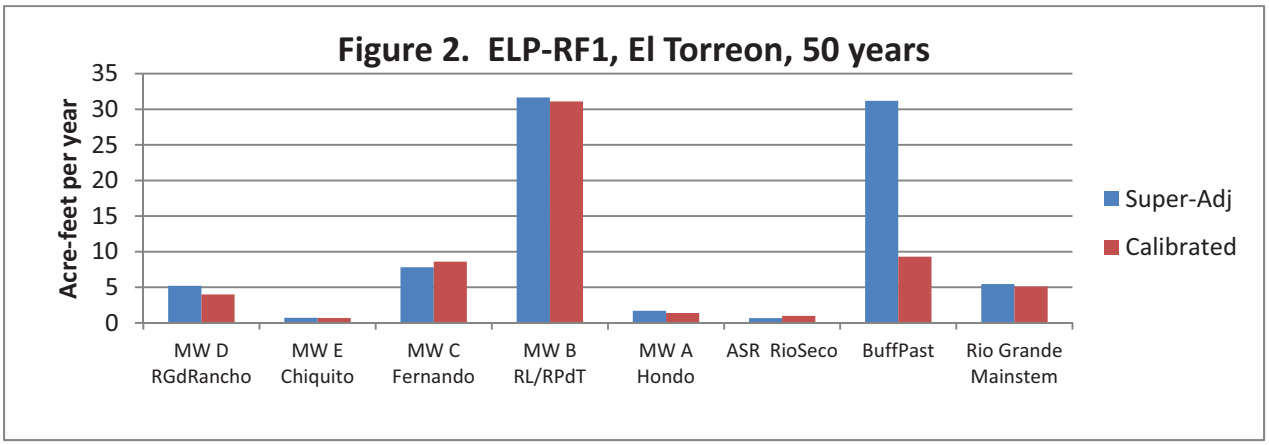
The result of these model runs is a number of curves for each test well site; one curve for each tributary reach of interested. In this case, the MODFLOW tributary segments have been lumped by Mitigation Well or Mitigation System. Figure 1, below, is a sample response function showing the effect that El Prado's Midway well has on the Rio Grande del Rancho.

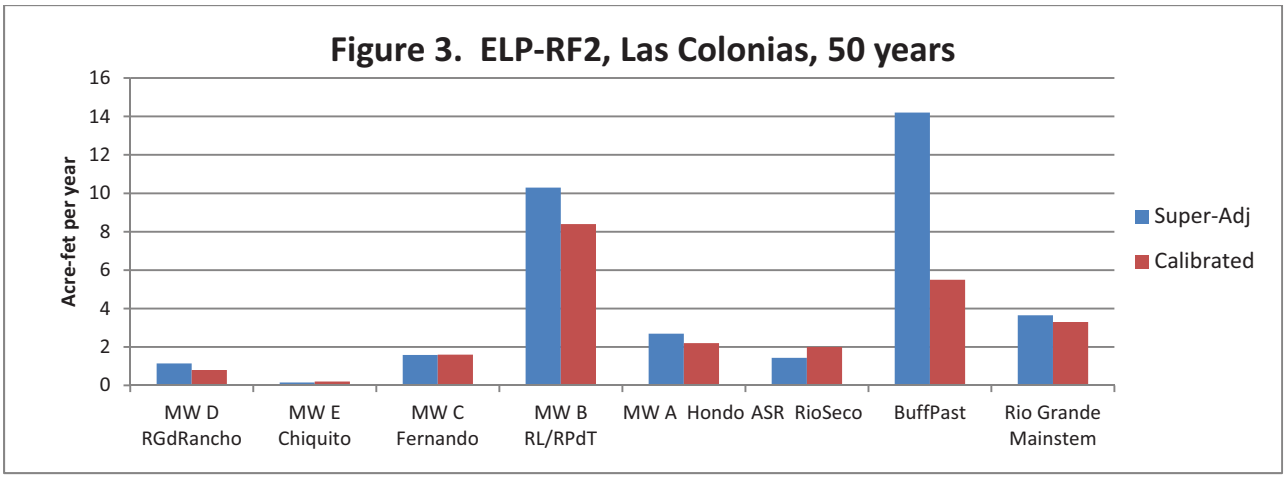


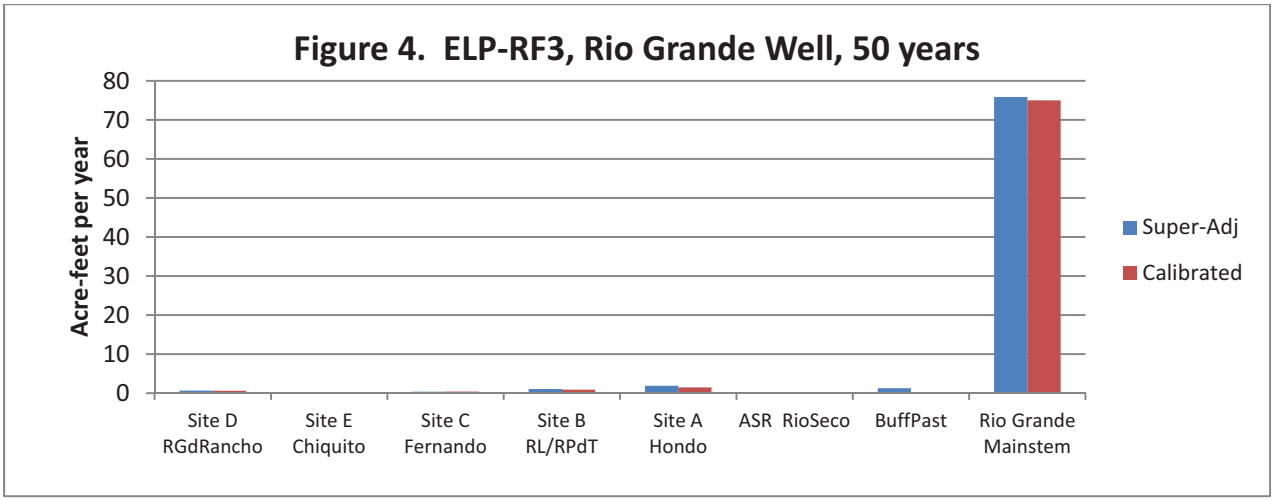
Summary of Response Function Magnitudes at 50 years.

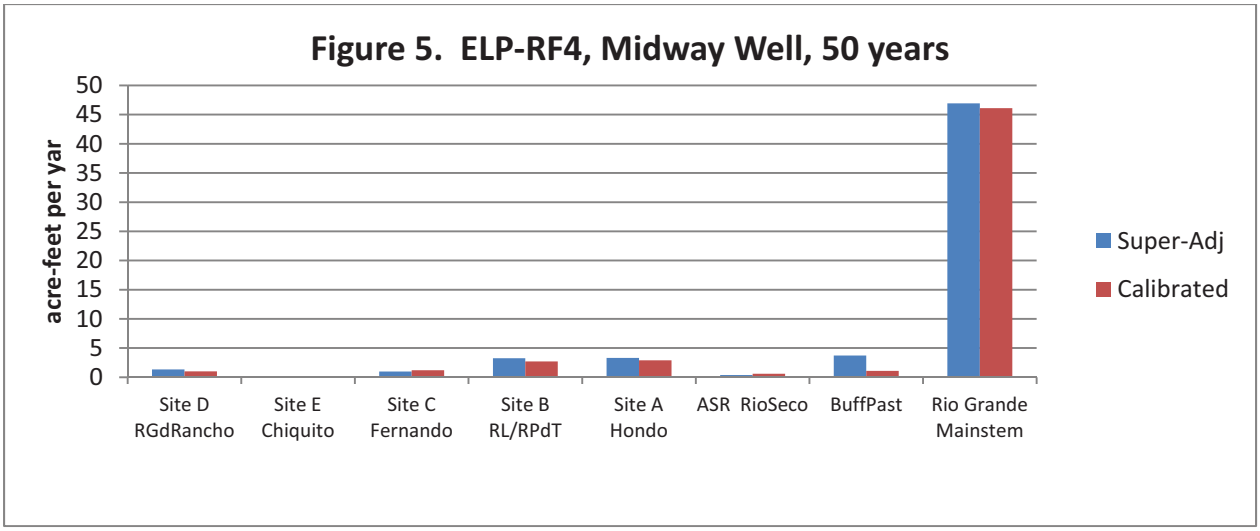
The next 4 plots show the 50 year response for each El Prado pumping site, as simulated by the Calibrated model version and the Superposition model T17sup.M7 version. Depletions have been summed by Mitigation well or Mitigation System. The results of the Superposition version have also been adjusted so that the depletions simulated to the Rio Lucero/Rio Pueblo de Taos site (B) have been reduced by 35%, and that that amount of depletion has been reassigned to the Buffalo Pastures site.

El Prado Pumping Well Sites:

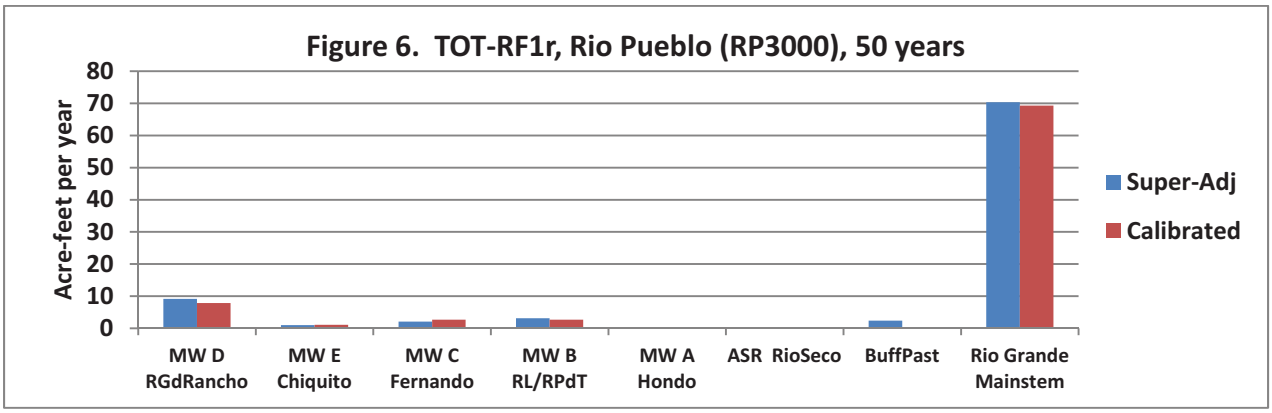


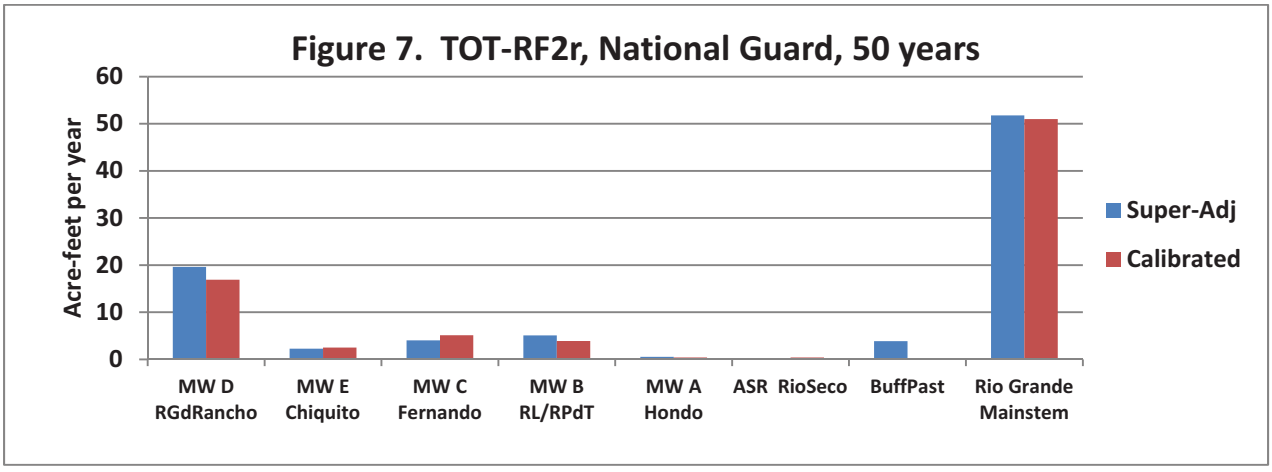






Town of Taos Well Sites





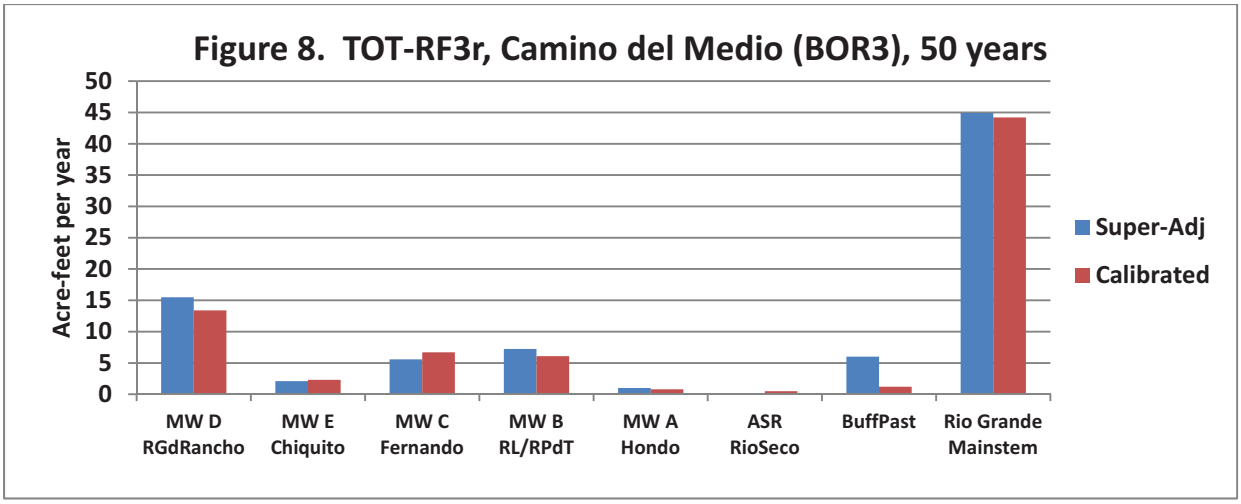


Figure 8. TOT-RF3r, Camino del Medio (BOR3), 50 years
Acre-feet per year
50
45
40
35
30
25
20
15
10
5
0
MW D RGdRancho
MW E Chiquito
MW C Fernando
MW B RL/RPdT
MW A Hondo
ASR RioSeco
BuffPast
Rio Grande Mainstem
Super-Adj
Calibrated

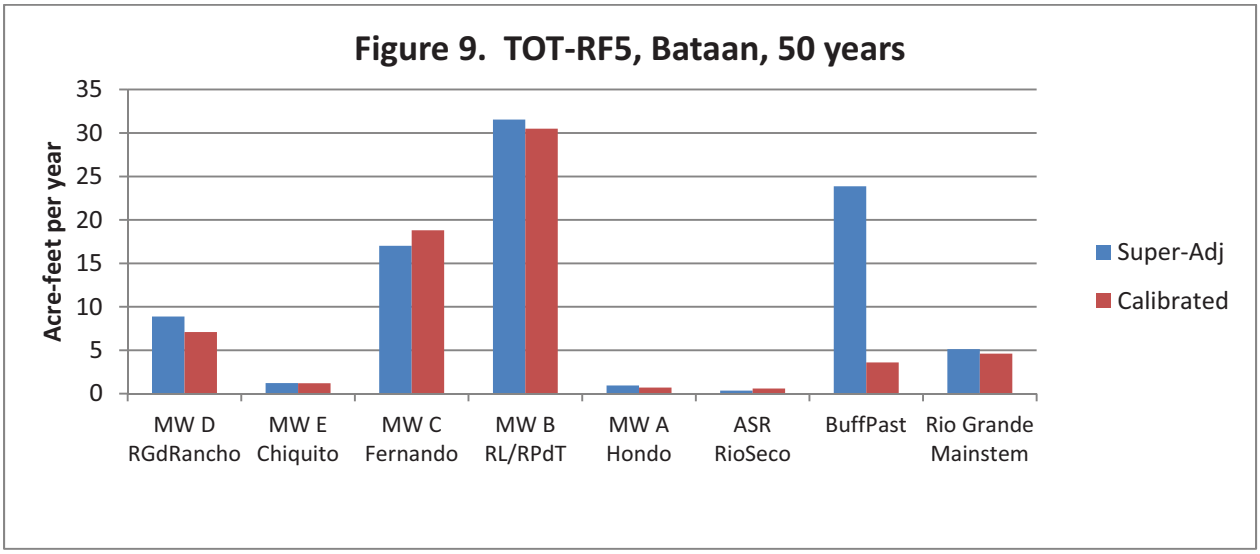


Figure 9. TOT-RF5, Bataan, 50 years
Acre-feet per year
35
30
25
20
15
10
5
0
MW D RGdRancho
MW E Chiquito
MW C Fernando
MW B RL/RPdT
MW A Hondo
ASR RioSeco
BuffPast
Rio Grande Mainstem
Super-Adj
Calibrated

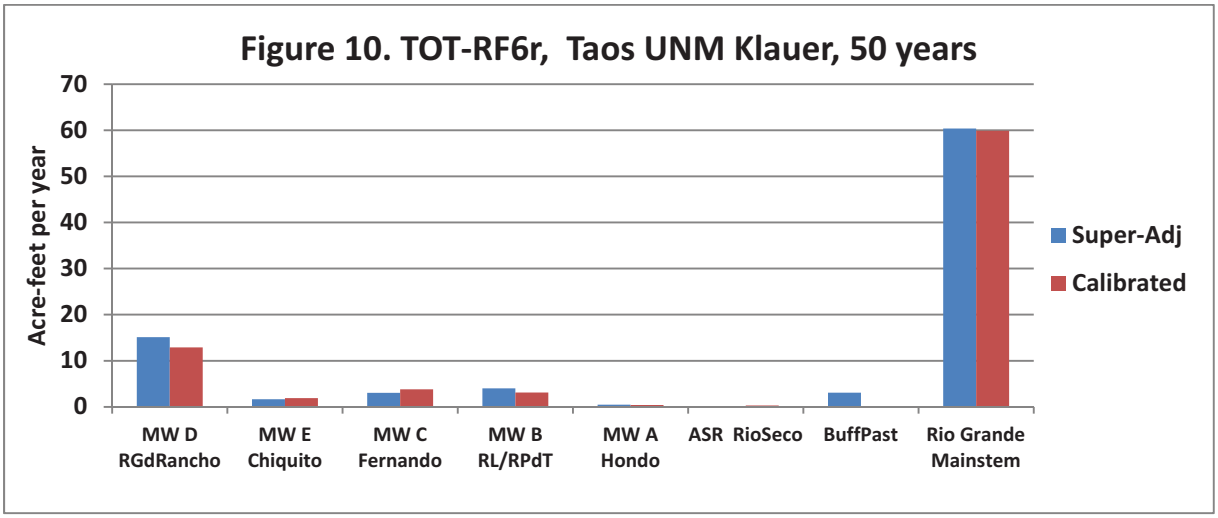
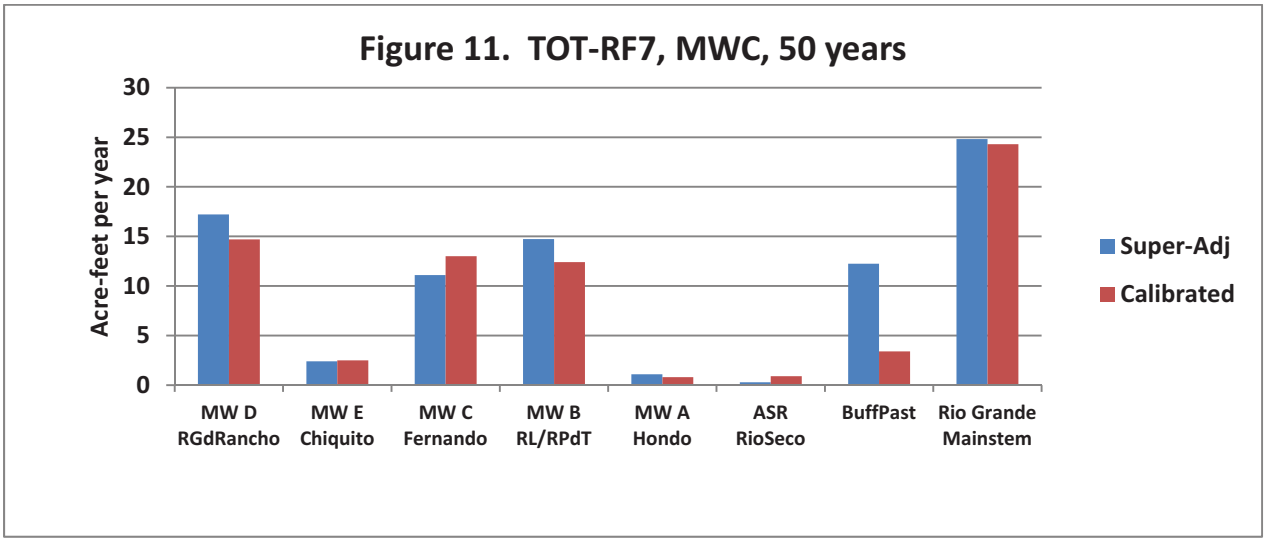
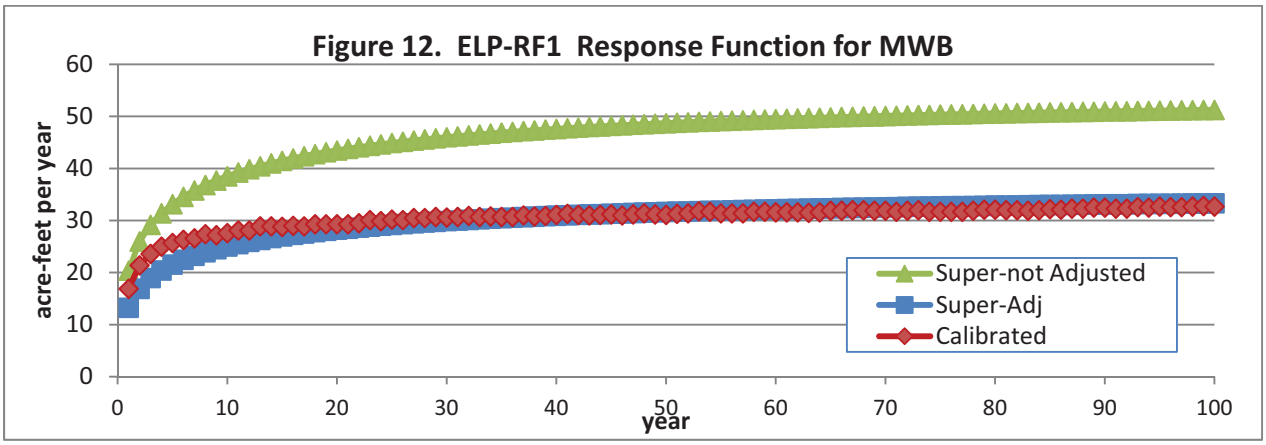


Figure 10. TOT-RF6r, Taos UNM Klauer, 50 years
Acre-feet per year
70
60
50
40
30
20
10
0
MW D RGdRancho
MW E Chiquito
MW C Fernando
MW B RL/RPdT
MW A Hondo
ASR RioSeco
BuffPast
Rio Grande Mainstem
Super-Adj
Calibrated



Each column in these plots is the 50 year point on a corresponding response function curve.

Under the reassignment procedure for Rio Lucero/Rio Pueblo de Taos depletions that is to be used administratively under the Taos Settlement, then the individual response functions for MW B and Buffalo Pasture need to be adjusted. The following figures show some examples of how this works for some of the El Prado and Town of Taos well sites. The first two charts below show the response function for the effect of pumping the El Torreon well on the Rio Pueblo de Taos/Rio Lucero system and on Buffalo Pastures. The red curve shows the calibrated model results, the green curve shows the unadjusted Superposition model results, and the blue curve is the adjusted superposition model result, in which the approximate portion of the depletion which relates to salvaged ET is reassigned from the Rio Pueblo de Taos/Rio Lucero system to Buffalo Pasture.



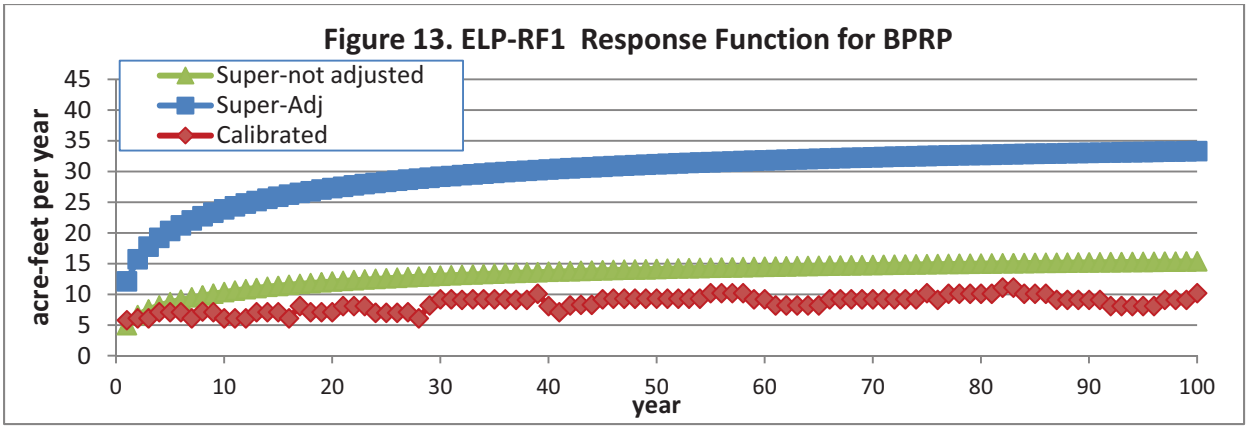


Figure 13. ELP-RF1 Response Function for BPRP
Super-not adjusted
Super-Adj
Calibrated
acre-feet per year
year
0
5
10
15
20
25
30
35
40
45
0
10
20
30
40
50
60
70
80
90
100

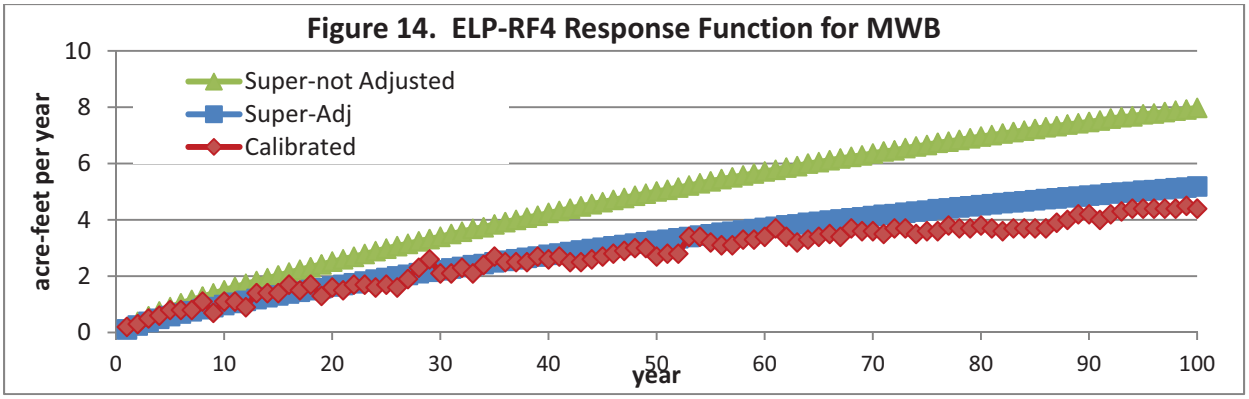


Figure 14. ELP-RF4 Response Function for MWB
Super-not Adjusted
Super-Adj
Calibrated
acre-feet per year
year
0
2
4
6
8
10
0
10
20
30
40
50
60
70
80
90
100

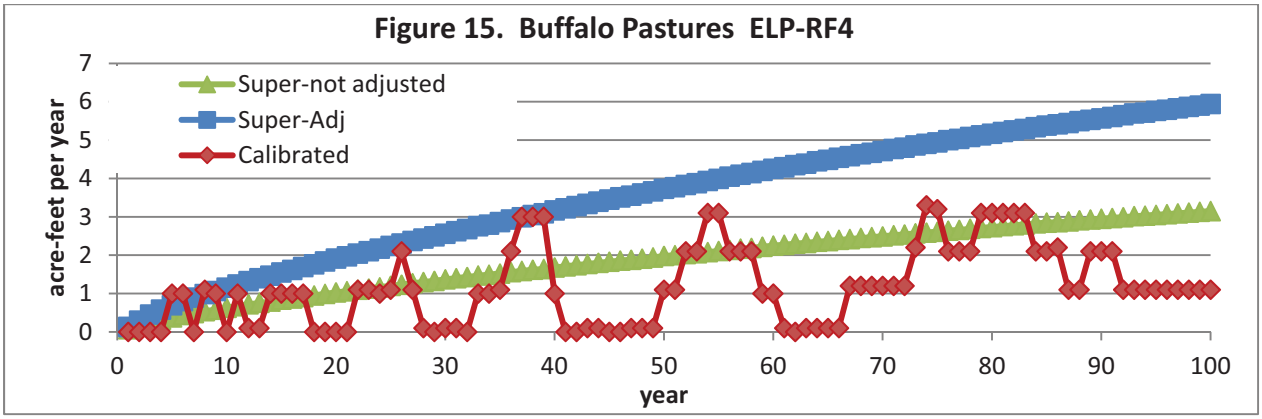


Figure 15. Buffalo Pastures ELP-RF4
Super-not adjusted
Super-Adj
Calibrated
acre-feet per year
year
0
1
2
3
4
5
6
7
0
10
20
30
40
50
60
70
80
90
100

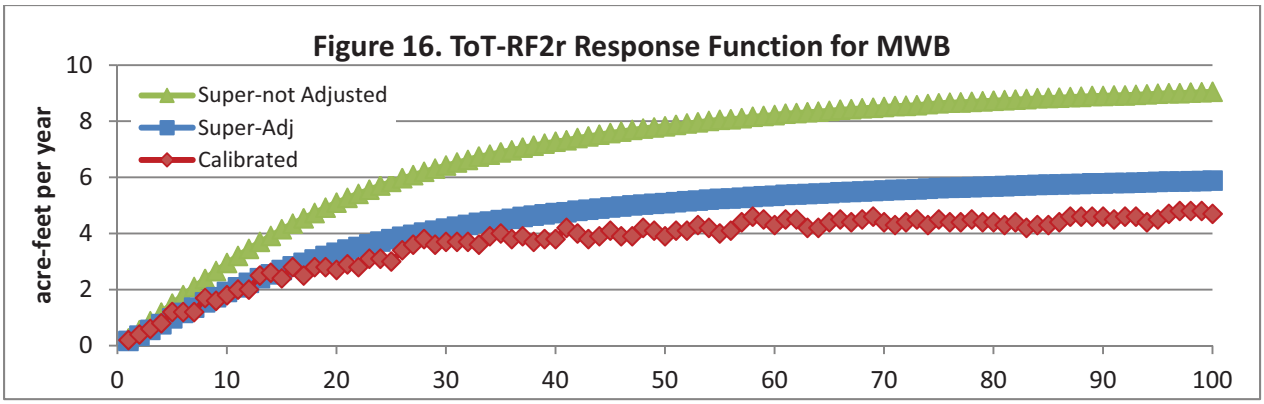


Figure 16. ToT-RF2r Response Function for MWB
Super-not Adjusted
Super-Adj
Calibrated
acre-feet per year
0
2
4
6
8
10
0
10
20
30
40
50
60
70
80
90
100

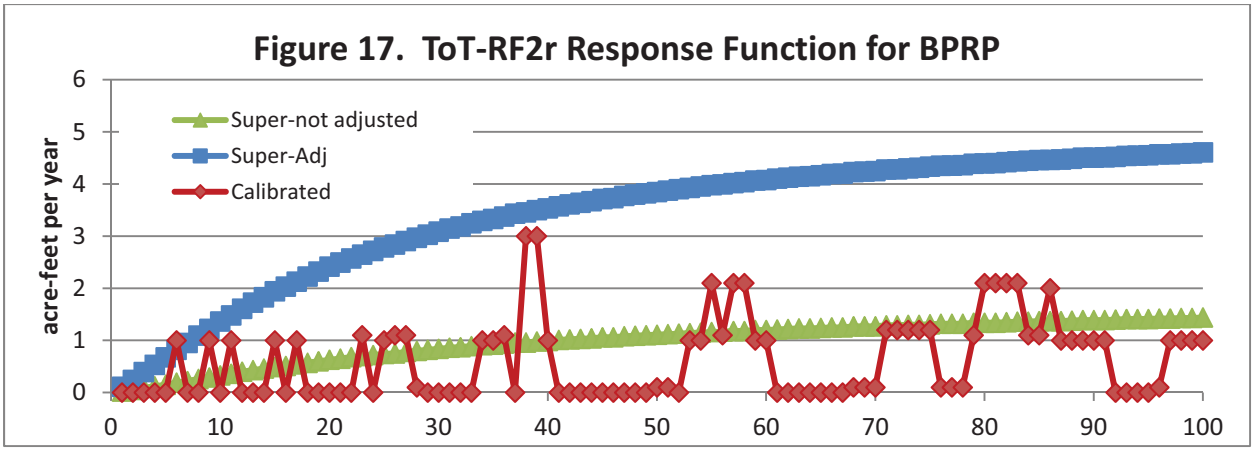


Figure 17. ToT-RF2r Response Function for BPRP
acre-feet per year
Super-not adjusted
Super-Adj
Calibrated
0
1
2
3
4
5
6
0
10
20
30
40
50
60
70
80
90
100

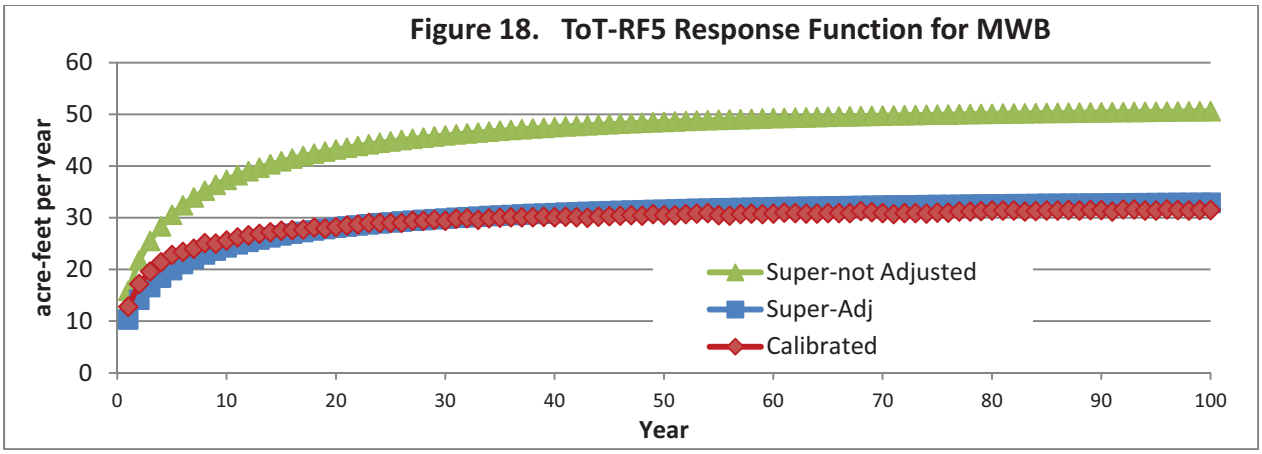


Figure 18. ToT-RF5 Response Function for MWB
acre-feet per year
Super-not Adjusted
Super-Adj
Calibrated
0
10
20
30
40
50
60
0
10
20
30
40
50
60
70
80
90
100
Year

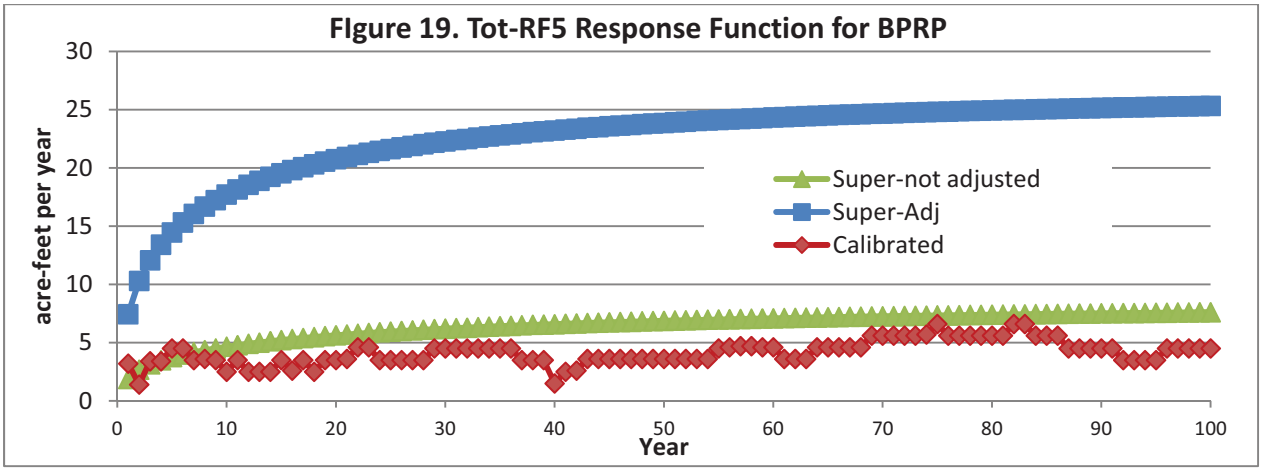


FIgure 19. Tot-RF5 Response Function for BPRP
acre-feet per year
Super-not adjusted
Super-Adj
Calibrated
0
5
10
15
20
25
30
0
10
20
30
40
50
60
70
80
90
100
Year

Appendix D

Selected Input Files for T17sup.M7 Superposition

Version of Taos Area Calibrated Model T17.0

1) BS6 Package
2) DIS Package
3) GHB Package
4) LPF Package

T17sup.bs6 M7 Taos Superposition Version

```
#TAOS 7/15/03 Modflow 2000

open/close  arrays/ibo1.prn   1  (60i3)   4    #ibound arrays
open/close  arrays/ibo2.prn   1  (60i3)   4
open/close  arrays/ibo3.prn   1  (60i3)   4
open/close  arrays/ibo4.prn   1  (60i3)   4
open/close  arrays/ibo5.prn   1  (60i3)   4
open/close  arrays/ibo6.prn   1  (60i3)   4
open/close  arrays/ibo6.prn   1  (60i3)   4
0.00
constant 0.0
constant 0.0
constant 0.0
constant 0.0
constant 0.0
constant 0.0
constant 0.0
```

T17sup.dis

```
#MODFLOW2000 DIS file for taos model   7 layers
         7        60        60        10         4         1         0
0  0  0  0  0  0  0  0
CONSTANT  1320.000
CONSTANT  1320.000
constant  0.0
OPEN/CLOSE arrays/supbot1.arr  1.0  (60F8.2)   3
OPEN/CLOSE arrays/supbot2.arr  1.0  (60F8.2)   3
OPEN/CLOSE arrays/supbot3.arr  1.0  (60F8.2)   3
OPEN/CLOSE arrays/supbot4.arr  1.0  (60F8.2)   3
OPEN/CLOSE arrays/supbot5.arr  1.0  (60F8.2)   3
OPEN/CLOSE arrays/supbot6.arr  1.0  (60F8.2)   3
OPEN/CLOSE arrays/supbot7.arr  1.0  (60F8.2)   3
 3652.5000        10    1.0000        TR         !first 10 years
 3652.5000        10    1.0000        TR         !10-20 years
 3652.5000        10    1.0000        TR         !20-30 years
 3652.5000        10    1.0000        TR         !30-40 years
 3652.5000        10    1.0000        TR         !40-50 years
 3652.5000        10    1.0000        TR         !50-60 years
 3652.5000        10    1.0000        TR         !60-70 years
 3652.5000        10    1.0000        TR         !70-80 years
 3652.5000        10    1.0000        TR         !80-90 years
 3652.5000        10    1.0000        TR         !90-100 years
```

T17sup.ghb M7 Taos Superposition Version

```
# M7 version GHB file representing tributaries in superposition version of Taos T17 model
       224        -1
       224                                          Mitig.#   STR Reach  Segment Name
         3         5        42         0   30000.0         1         1     Upper Rio Hondo
         3         5        41         0   30000.0         1         1     Upper Rio Hondo
         3         6        41         0   30000.0         1         1     Upper Rio Hondo
         3         6        40         0   30000.0         1         1     Upper Rio Hondo
         3         6        39         0   30000.0         1         1     Upper Rio Hondo
         3         6        38         0   30000.0         1         1     Upper Rio Hondo
         3         6        37         0   30000.0         1         1     Upper Rio Hondo
         3         6        36         0   30000.0         1         1     Upper Rio Hondo
         3         6        35         0   30000.0         1         1     Upper Rio Hondo
         3         6        34         0   30000.0         1         1     Upper Rio Hondo
         3         6        33         0   30000.0         1         1     Upper Rio Hondo
         4         6        32         0   20000.0         1         1     Upper Rio Hondo
         4         5        31         0   20000.0         1         1     Upper Rio Hondo
         4         5        30         0   20000.0         1         1     Upper Rio Hondo
         4         5        29         0   20000.0         1         1     Upper Rio Hondo
         4         4        28         0   20000.0         1         1     Upper Rio Hondo
         4         4        27         0   20000.0         1         1     Upper Rio Hondo
         4         4        26         0   20000.0         1         1     Upper Rio Hondo
         4         4        25         0   20000.0         1         1     Upper Rio Hondo
         4         5        25         0   20000.0         1         1     Upper Rio Hondo
         4         5        24         0   20000.0         1         1     Upper Rio Hondo
         4         5        23         0   20000.0         1         1     Upper Rio Hondo
         4         5        22         0   20000.0         8        16     Lower Rio Hondo
         4         5        21         0   20000.0         8        16     Lower Rio Hondo
         4         5        20         0   20000.0         8        16     Lower Rio Hondo
         4         5        19         0   20000.0         8        16     Lower Rio Hondo
         4         6        19         0   20000.0         8        16     Lower Rio Hondo
         5         6        18         0   20000.0         8        16     Lower Rio Hondo
         5         6        17         0   20000.0         8        16     Lower Rio Hondo
         5         6        11         0   20000.0         8        16     Lower Rio Hondo
         5         6        10         0   20000.0         8        16     Lower Rio Hondo
         1        10        47         0     200.0         6         2      Rio Seco
         1        10        46         0     200.0         6         2      Rio Seco
         1        10        45         0     200.0         6         2      Rio Seco
         1        10        44         0     200.0         6         2      Rio Seco
         1        10        43         0     200.0         6         2      Rio Seco
         1        10        42         0     200.0         6         2      Rio Seco
         1        11        41         0     200.0         6         2      Rio Seco
         1        11        40         0     200.0         6         2      Rio Seco
         1        12        39         0     200.0         6         2      Rio Seco
         1        12        38         0     200.0         6         2      Rio Seco
         3        16        35         0     200.0         6         2      Rio Seco
         3        17        35         0     100.0         6         2      Rio Seco
         1        29        42         0    3000.0         7         3      Upper Rio Lucero
         1        31        42         0  500000.0         7         4      Buffalo Pastures West
         1        31        41         0  500000.0         7         4      Buffalo Pastures West
         1        32        42         0   10000.0         7         4      Buffalo Pastures West
         1        32        41         0   10000.0         7         4      Buffalo Pastures West
         1        33        42         0   10000.0         7         4      Buffalo Pastures West
         1        31        43         0  500000.0         7         5      Buffalo Pastures East
         1        32        44         0  500000.0         7         5      Buffalo Pastures East
         1        32        43         0   10000.0         7         5      Buffalo Pastures East
         1        33        44         0  500000.0         7         5      Buffalo Pastures East
         1        33        43         0   10000.0         7         5      Buffalo Pastures East
         1        34        43         0   10000.0         7         5      Buffalo Pastures East
         1        34        42         0   10000.0         2         6       Lower Rio Lucero
         1        35        41         0   50000.0         2         6       Lower Rio Lucero
         1        36        40         0   50000.0         2         6       Lower Rio Lucero
         1        36        39         0   50000.0         2         6       Lower Rio Lucero
         1        32        49         0   50000.0         2         7      Rio Pueblo de Taos A
```

```
1       32      48      0   50000.0     2       7    Rio Pueblo de Taos A
1       32      47      0   50000.0     2       7    Rio Pueblo de Taos A
1       32      46      0   50000.0     2       7    Rio Pueblo de Taos A
1       33      45      0   50000.0     2       7    Rio Pueblo de Taos A
1       34      44      0   20000.0     2       7    Rio Pueblo de Taos A
1       35      43      0   20000.0     2       7    Rio Pueblo de Taos A
1       36      42      0   20000.0     2       7    Rio Pueblo de Taos A
1       37      42      0   20000.0     2       7    Rio Pueblo de Taos A
1       37      41      0   20000.0     2       7    Rio Pueblo de Taos A
1       37      40      0   20000.0     2       7    Rio Pueblo de Taos A
1       49      44      0    1000.0     3       8     Rio Fernando
1       44      40      0    1000.0     3       8     Rio Fernando
1       43      39      0    1000.0     3       8     Rio Fernando
1       43      38      0    1000.0     3       8     Rio Fernando
1       43      37      0    1000.0     3       8     Rio Fernando
3       43      36      0    1000.0     3       8     Rio Fernando
3       43      35      0    1000.0     3       8     Rio Fernando
3       44      34      0    1000.0     3       8     Rio Fernando
3       44      33      0    1000.0     3       8     Rio Fernando
3       44      32      0    1000.0     3       8     Rio Fernando
3       45      32      0    1000.0     3       8     Rio Fernando
3       45      31      0    1000.0     3       8     Rio Fernando
1       37      39      0   20000.0     2       9    Rio Pueblo de Taos B
1       37      38      0   20000.0     2       9    Rio Pueblo de Taos B
1       38      38      0   20000.0     2       9    Rio Pueblo de Taos B
1       38      37      0   20000.0     2       9    Rio Pueblo de Taos B
1       39      37      0   20000.0     2       9    Rio Pueblo de Taos B
1       39      36      0   20000.0     2       9    Rio Pueblo de Taos B
3       40      35      0   20000.0     2       9    Rio Pueblo de Taos B
3       41      34      0   20000.0     2       9    Rio Pueblo de Taos B
3       42      34      0   20000.0     2       9    Rio Pueblo de Taos B
3       42      33      0   20000.0     2       9    Rio Pueblo de Taos B
3       43      32      0   20000.0     2       9    Rio Pueblo de Taos B
3       43      31      0   20000.0     2       9    Rio Pueblo de Taos B
3       44      31      0   20000.0     2      10    Rio Pueblo de Taos C
3       43      30      0   20000.0     2      10    Rio Pueblo de Taos C
3       44      30      0   20000.0     2      10    Rio Pueblo de Taos C
3       44      29      0   20000.0     2      10    Rio Pueblo de Taos C
3       45      28      0   20000.0     2      10    Rio Pueblo de Taos C
3       60      35      0   30000.0     5      11     Rio Chiquito
3       59      34      0   30000.0     5      11     Rio Chiquito
3       58      33      0   30000.0     5      11     Rio Chiquito
3       60      34      0   30000.0     4      12   Upper Rio Grande del Rancho
3       60      33      0   30000.0     4      12   Upper Rio Grande del Rancho
3       59      33      0   30000.0     4      12   Upper Rio Grande del Rancho
3       59      32      0   30000.0     4      12   Upper Rio Grande del Rancho
3       58      32      0   30000.0     4      12   Upper Rio Grande del Rancho
3       57      32      0   20000.0     4      13   Lower Rio Grande del Rancho
3       56      32      0   20000.0     4      13   Lower Rio Grande del Rancho
3       56      31      0   20000.0     4      13   Lower Rio Grande del Rancho
3       55      31      0   20000.0     4      13   Lower Rio Grande del Rancho
3       54      31      0   20000.0     4      13   Lower Rio Grande del Rancho
3       53      31      0   20000.0     4      13   Lower Rio Grande del Rancho
3       52      30      0   20000.0     4      13   Lower Rio Grande del Rancho
3       51      30      0   20000.0     4      13   Lower Rio Grande del Rancho
3       51      29      0   20000.0     4      13   Lower Rio Grande del Rancho
3       50      29      0   20000.0     4      13   Lower Rio Grande del Rancho
3       50      28      0   20000.0     4      13   Lower Rio Grande del Rancho
3       49      27      0   20000.0     4      13   Lower Rio Grande del Rancho
3       48      27      0   20000.0     4      13   Lower Rio Grande del Rancho
3       47      27      0   20000.0     4      13   Lower Rio Grande del Rancho
3       46      27      0   20000.0     2      14    Rio Pueblo de Taos D
3       46      26      0   20000.0     2      14    Rio Pueblo de Taos D
```

3	46	25	0	20000.0	2	14	Rio Pueblo de Taos D
3	46	24	0	20000.0	2	14	Rio Pueblo de Taos D
4	46	23	0	20000.0	2	14	Rio Pueblo de Taos D
4	46	22	0	20000.0	8	15	Rio Pueblo de Taos E
4	47	22	0	20000.0	8	15	Rio Pueblo de Taos E
4	47	21	0	20000.0	8	15	Rio Pueblo de Taos E
4	48	20	0	20000.0	8	15	Rio Pueblo de Taos E
4	48	19	0	20000.0	8	15	Rio Pueblo de Taos E
5	49	18	0	20000.0	8	15	Rio Pueblo de Taos E
5	50	18	0	20000.0	8	15	Rio Pueblo de Taos E
5	50	17	0	20000.0	8	15	Rio Pueblo de Taos E
5	51	16	0	20000.0	8	15	Rio Pueblo de Taos E
5	51	15	0	20000.0	8	15	Rio Pueblo de Taos E
5	52	15	0	20000.0	8	15	Rio Pueblo de Taos E
5	52	14	0	20000.0	8	15	Rio Pueblo de Taos E
5	53	14	0	20000.0	8	15	Rio Pueblo de Taos E
5	53	13	0	20000.0	8	15	Rio Pueblo de Taos E
5	53	12	0	20000.0	8	15	Rio Pueblo de Taos E
5	54	12	0	20000.0	8	15	Rio Pueblo de Taos E
5	54	11	0	20000.0	8	15	Rio Pueblo de Taos E
5	55	11	0	20000.0	8	15	Rio Pueblo de Taos E
5	55	10	0	20000.0	8	15	Rio Pueblo de Taos E
5	56	10	0	20000.0	8	15	Rio Pueblo de Taos E
5	56	9	0	20000.0	8	15	Rio Pueblo de Taos E
5	56	8	0	20000.0	8	15	Rio Pueblo de Taos E
5	57	8	0	20000.0	8	15	Rio Pueblo de Taos E
5	57	7	0	20000.0	8	15	Rio Pueblo de Taos E
5	58	7	0	20000.0	8	15	Rio Pueblo de Taos E
5	58	6	0	20000.0	8	15	Rio Pueblo de Taos E
5	59	6	0	20000.0	8	15	Rio Pueblo de Taos E
5	60	5	0	20000.0	8	15	Rio Pueblo de Taos E
5	1	11	0	550000.0	8	20	Rio Grande
5	2	11	0	550000.0	8	20	Rio Grande
5	3	11	0	550000.0	8	20	Rio Grande
5	4	10	0	550000.0	8	20	Rio Grande
5	5	10	0	550000.0	8	20	Rio Grande
5	6	9	0	550000.0	8	20	Rio Grande
5	7	9	0	550000.0	8	20	Rio Grande
5	8	9	0	550000.0	8	20	Rio Grande
5	9	8	0	550000.0	8	20	Rio Grande
5	10	8	0	550000.0	8	20	Rio Grande
5	11	7	0	550000.0	8	20	Rio Grande
5	12	7	0	550000.0	8	20	Rio Grande
5	12	6	0	550000.0	8	20	Rio Grande
5	13	6	0	550000.0	8	20	Rio Grande
5	14	6	0	550000.0	8	20	Rio Grande
5	15	6	0	550000.0	8	20	Rio Grande
5	16	6	0	550000.0	8	20	Rio Grande
6	17	6	0	550000.0	8	20	Rio Grande
6	18	6	0	550000.0	8	20	Rio Grande
6	18	5	0	550000.0	8	20	Rio Grande
6	19	5	0	550000.0	8	20	Rio Grande
6	20	5	0	550000.0	8	20	Rio Grande
6	20	4	0	550000.0	8	20	Rio Grande
6	21	4	0	550000.0	8	20	Rio Grande
6	22	4	0	550000.0	8	20	Rio Grande
6	23	4	0	550000.0	8	20	Rio Grande
6	23	5	0	550000.0	8	20	Rio Grande
6	24	5	0	550000.0	8	20	Rio Grande
6	25	5	0	550000.0	8	20	Rio Grande
6	26	5	0	550000.0	8	20	Rio Grande
6	27	5	0	550000.0	8	20	Rio Grande
6	28	5	0	550000.0	8	20	Rio Grande

T17sup.ghb M7 Taos Superposition Version

```
 6        29        5        0  550000.0        8        20        Rio Grande
 6        30        5        0  550000.0        8        20        Rio Grande
 6        31        5        0  550000.0        8        20        Rio Grande
 6        32        5        0  550000.0        8        20        Rio Grande
 6        32        6        0  550000.0        8        20        Rio Grande
 6        33        6        0  550000.0        8        20        Rio Grande
 6        33        7        0  550000.0        8        20        Rio Grande
 6        34        7        0  550000.0        8        20        Rio Grande
 6        35        7        0  550000.0        8        20        Rio Grande
 6        36        7        0  550000.0        8        20        Rio Grande
 6        37        7        0  550000.0        8        20        Rio Grande
 6        38        7        0  550000.0        8        20        Rio Grande
 6        39        7        0  550000.0        8        20        Rio Grande
 6        40        7        0  550000.0        8        20        Rio Grande
 6        41        7        0  550000.0        8        20        Rio Grande
 6        42        7        0  550000.0        8        20        Rio Grande
 6        43        7        0  550000.0        8        20        Rio Grande
 6        43        6        0  550000.0        8        20        Rio Grande
 6        44        6        0  550000.0        8        20        Rio Grande
 6        45        6        0  550000.0        8        20        Rio Grande
 6        46        6        0  550000.0        8        20        Rio Grande
 6        47        6        0  550000.0        8        20        Rio Grande
 6        48        6        0  550000.0        8        20        Rio Grande
 6        48        5        0  550000.0        8        20        Rio Grande
 6        49        5        0  550000.0        8        20        Rio Grande
 6        50        5        0  550000.0        8        20        Rio Grande
 6        51        6        0  550000.0        8        20        Rio Grande
 6        52        6        0  550000.0        8        20        Rio Grande
 6        53        6        0  550000.0        8        20        Rio Grande
 6        53        5        0  550000.0        8        20        Rio Grande
 6        54        5        0  550000.0        8        20        Rio Grande
 6        55        5        0  550000.0        8        20        Rio Grande
 6        56        5        0  550000.0        8        20        Rio Grande
 6        57        5        0  550000.0        8        20        Rio Grande
 6        57        4        0  550000.0        8        20        Rio Grande
 6        58        4        0  550000.0        8        20        Rio Grande
 6        59        4        0  550000.0        8        20        Rio Grande
 6        60        4        0  550000.0        8        20        Rio Grande
-1
-1
-1
-1
-1
-1
-1
-1
-1
-1
-1
```

```
       0     -999.   55
  0  0  0  0  0  0  0               lay type  (0=conf)
  0  0  0  0  0  0  0                harmonic mean
  1  1  1  1  1  1  1        CHANI  (no horizontal anisotropy)
  1  1  1  1  1  1  1           LAYVKA  vert anisotropy = Kv/Kh (not
vcont)
  0  0  0  0  0  0  0         laywet: no rewetting
T1a     HK       1.0       1
  1     NONE    K1ZONE    11
T1b     HK       1.0       1
  1     NONE    K1ZONE    2
T1c     HK       10.0      1
  1     NONE    K1ZONE    9
T1d     HK       90.0      1
  1     NONE    K1ZONE    12
T1e     HK       20.0      1
  1     NONE    K1ZONE    13
T1f     HK       5.0       1
  1     NONE    K1ZONE    14
T2a     HK       1.0       1
  2     NONE    K2ZONE    11
T2b     HK       1.0       1
  2     NONE    K2ZONE    2
T2c     HK       10.0      1
  2     NONE    K2ZONE    9
T2d     HK       90.0      1
  2     NONE    K2ZONE    12
T2e     HK       20.0      1
  2     NONE    K2ZONE    13
T2f     HK       5.0       1
  2     NONE    K1ZONE    14
T3a     HK       0.5       1
  3     NONE    K3ZONE    11
T3b     HK       0.1       1
  3     NONE    K3ZONE    2
T3c     HK       3.0       1
  3     NONE    K3ZONE    9
T3d     HK       20.0      1
  3     NONE    K3ZONE    12
T3e     HK       15.0      1
  3     NONE    K3ZONE    13
T3f     HK       0.5       1
  3     NONE    K3ZONE    14
T4a     HK       1.        1
  4     NONE    K4ZONE    7
T4b     HK       2.0       1
  4     NONE    K4ZONE    8
T4c     HK       4.0       1
  4     NONE    K4ZONE    9
T4d     HK       1.0       1
  4     NONE    K4ZONE    10
T4e     HK       1.0       1
  4     NONE    K4ZONE    11
T5a     HK       1.0       1
```

```
  5     NONE    K5ZONE    5
T5b     HK       10.0      1
  5     NONE    K5ZONE    6
T5c     HK       1.0       1
  5     NONE    K5ZONE    12
T5d     HK       4.0       1
  5     NONE    K5ZONE    11
T6a     HK       0.3       1
  6     NONE    K6ZONE    1
T6b     HK       3.0       1
  6     NONE    K6ZONE    2
T6c     HK       0.2       1
  6     NONE    K6ZONE    3
T6d     HK       0.5       1
  6     NONE    K6ZONE    13
T6e     HK       0.1      1
  6     NONE    K6ZONE    4    15
T6f     HK       0.5      1
  6     NONE    K6ZONE    12
T7a     HK       0.15     1
  7     NONE    K6ZONE    1
T7b     HK       0.5      1
  7     NONE    K6ZONE    2
T7c     HK       0.2      1
  7     NONE    K6ZONE    3
T7d     HK       0.5      1
  7     NONE    K6ZONE   13
T7e     HK       0.1      1
  7     NONE    K6ZONE   4    15
T7f     HK       0.5      1
  7     NONE    K6ZONE   12
aniv1   VANI    200.      1
  1     NONE    anz1      1
aniv1a  VANI    25.       1
  1     NONE    anz1      2
aniv2   VANI    200.      1
  2     NONE    anz2      1
aniv2a  VANI    50.       1
  2     NONE    anz2      2
aniv3   VANI    200.      1
  3     NONE    anz3      2    4
aniv3s   VANI    100.     1
  3     NONE    anz3      1    3
aniv4   VANI    500.      1
  4     NONE    anz3      1    2    4
aniv4s   VANI    400.     1
  4     NONE    anz3      3
aniv5   VANI    1400.     1
  5     NONE    anz6      1    2    4
aniv5nb  VANI   400.      1
  5     NONE    anz6      3
aniv6   VANI    300.      1
  6     NONE    anz6      1    4
aniv6a  VANI    400.      1
```

```
  6     NONE    anz6     2
aniv6nb  VANI  100.      1
  6     NONE    anz6     3
aniv7   VANI    300.     1
  7     NONE    ALL
Syequiv   SS   .15       5
1       SMULT1    ALL
3       SMULT3    S3ZONE   3
4       SMULT4    S4ZONE   4
5       SMULT5    S5ZONE   5
6       SMULT6    S6ZONE   6
SSconf   SS     2E-6   6
2       NONE     ALL
3       NONE     S3ZONE     1
4       NONE     S4ZONE     3  1
5       NONE     S5ZONE     4  3  1
6       NONE     S6ZONE     5  4  3  1
7       NONE     ALL
 3           only print codes - Ks                LAYER 1
 3           only print codes - Horiz anisotropy
 3           only print codes -  Kh/Kv
 0           only print codes -  Ss
 3           only print codes - Ks                LAYER 2
 3           only print codes - Horiz anisotropy
 3           only print codes -  Kh/Kv
 0           only print codes -  Ss
 3           only print codes - Ks                LAYER 3
 3           only print codes - Horiz anisotropy
 3           only print codes -  Kh/Kv
 0           only print codes -  Ss
 3           only print codes - Ks                LAYER 4
 3           only print codes - Horiz anisotropy
 3           only print codes -  Kh/Kv
 0           only print codes -  Ss
 3           only print codes - Ks                LAYER 5
 3           only print codes - Horiz anisotropy
 3           only print codes -  Kh/Kv
 0           only print codes -  Ss
 3           only print codes - Ks                LAYER 6
 3           only print codes - Horiz anisotropy
 3           only print codes -  Kh/Kv
 0           only print codes -  Ss
 3           only print codes - Ks                LAYER 7
 3           only print codes - Horiz anisotropy
 3           only print codes -  Kh/Kv
 0           only print codes -  Ss
```

Appendix E

Treatment of Tributary Depletions, Buffalo Pasture Depletions, and Rio Grande Depletions under the Taos Settlement Agreement

The Settlement Agreement provides for different approaches to offset the three types of surface water depletions projected to result from future groundwater diversions of the Parties.

1. Tributary Depletions will occur on the streams of the Taos Valley which are relied upon by the Pueblo and Acequias. The Mitigation Well system will help to reduce the need for the acquisition and retirement of water rights from the Acequias and, as stated in Section 3.5.1 of the Settlement Agreement, the Parties recognize the mutual benefits to be achieved by use of the Mitigation Well System.
2. The Buffalo Pasture, an important Pueblo cultural resource, will experience depletions from groundwater pumping. As stated in Section 7.3.1 of the Settlement Agreement, "due to the nature of the Buffalo Pasture, existing State Engineer permitting requirements cannot offset effectively the Buffalo Pasture Depletions" and further "the Mitigation Well System is neither designed nor intended to deliver waters to the Buffalo Pasture". The Buffalo Pasture Recharge Project will provide a means of protecting this cultural resource.
3. Depletions on the Rio Grande can be offset, at least in part, by San Juan Chama Project Water provided for in the Settlement. SJCP contracts are characterized as a consideration for actions by the Parties. Mainstem offsets (including new and prior SJCP contracts, retirement of Rio Grande water rights, or discharge of return flows) are the preferred means of offset because they do not reduce availability or use of water in the Taos Valley.

One effect of allowing the Parties to mitigate Tributary Depletions by Mitigation Wells and Buffalo Pasture Depletions by the Buffalo Pasture Recharge Project is to shift the offset requirements on tributaries and the pasture to the Rio Grande. In addition, a portion of certain Tributary Depletions can be reassigned to the Buffalo Pasture for mitigation there. Whether by Mitigation Wells or the Recharge Project, this has the practical effect of shifting the depletions and the offset requirements to the Rio Grande. In addition, there are Rio Grande impacts from the operation of the mitigation projects themselves that also must be offset. The result is several components of Rio Grande offsets.

1) Offsets for the depletions from future diversions that occur directly on the Rio Grande and on the Lower Rio Hondo and Rio Pueblo de Taos E, as calculated by the Settlement Model (Article 7.3.2.1).
2) Offsets for the Tributary Depletions that are calculated by the Settlement Model, but then shifted to the Rio Grande (Article 7.3.2.2) if the Tributary Depletions are offset by the Mitigation Wells.
3) Offsets for the Depletions to Buffalo Pasture that are calculated by the Settlement Model, but then shifted to the Rio Grande (Article 7.3.2.2) if the Depletions to the Buffalo Pasture are offset by the Buffalo Pasture Recharge Project.
4) Offsets for the Depletions to Buffalo Pasture that result when a portion of the Tributary Depletions on Rio Lucero and Rio Pueblo de Taos are reassigned to the Buffalo Pasture if the reassigned Depletions to the Buffalo Pasture are then offset by the Buffalo Pasture Recharge Project.

5) Extra offsets for those depletions that result from the operation of the Mitigation Wells (equal to an additional 33% of a party's share of Mitigation pumping, see Article 7.3.3.1.12) and Buffalo Pasture Recharge Project (equal to an additional 11.1% of its portion of Buffalo Pasture Depletions that is offset by the Buffalo Pasture Recharge Project, see 7.3.1.4).

In effect, item 5 means that a party must provide offsets on the Rio Grande equal to 133% of its Mitigation Well pumping and 111% of its Buffalo Pasture depletions. For Rio Pueblo de Taos and Rio Lucero the Mitigation Well pumping is required to mitigate 65% of the Tributary Depletion and the Buffalo Pasture Recharge Project provides the remaining 35%. This is in addition to offsets for the direct depletions on the Rio Grande, Lower Rio Hondo and Rio Pueblo de Taos E.

The discussion below aims to illustrate how offsets are shifted to the Rio Grande by means of the mitigation projects. They reflect hypothetical scenarios that do not define or restrict how any Party will actually develop and implement their water rights and pumping scenarios. The results discussed below have not been adopted for administrative purposes and no example should be considered binding on any party. Calculations of actual depletions and corresponding offset requirements will be conducted at such time as permit applications are subject to administrative review.

Calculations of depletions

The calibrated version of the settlement model produces a water balance in which the amount of water pumped in a future diversion is balanced by a combination of three sources: lowering of the water table (reduction of water in storage), reduction in streamflow (less groundwater seeping to streams or discharging at springs), and reduction in water lost through evapotranspiration or ET (wetlands shrink).

In the superposition version of the model, the reduction in streamflow and the reduction in ET are effectively combined into a single water depletion quantity. The table below illustrates the difference between the two models. The illustration is provided for EPWSD and the Town of Taos because model runs have been made specific to a ramped up pumping schedule for these parties; future diversions by the Pueblo will have similar impacts but these have not been simulated as part of a particular scenario. The illustration is provided for Rio Lucero and Rio Pueblo de Taos because these are the streams where depletions can be reassigned to the Buffalo Pasture. The illustration is provided for Rio Hondo as just one example of the many other tributaries. All quantities below are in acre-feet per year.

Table 1. Difference in Tributary Depletions Calculated by Calibrated and Superposition Versions of Taos Groundwater Model for hypothetical pumping scenarios

Entity that pumps	Tributary	Calibrated Model Tributary Depletion	Superposition Model Tributary Depletion	Difference
EPWSD	Rio Hondo	3.5	4.4	0.9
EPWSD	Rio Pueblo de Taos and Rio Lucero	24.6	39.3	14.7
Town	Rio Hondo	2.4	3.0	0.6
Town	Rio Pueblo de Taos and Rio Lucero	31.8	52.2	20.4

Note on table. These model results are presented for illustrative purposes and for such purposes assume pumping as described in Attachment 3, Part II, Appendix A, in which the El Prado's future diversions in 40 years reach 288 AFY; and in Attachment 3, Part II, Appendix B, in which the Town of Taos's future diversions in 40 years reach 528 AFY. The increased depletion number in the last column above is approximately the amount of ET salvage calculated in the calibrated model. Note that in addition to the effects above, for this example the Superposition model simulates 82.6 AFY of direct impacts to the Rio Grande for EPWSD, and 169.4 AFY for the Town, both of which would need to be offset.

Effect of providing tributary offsets using mitigation wells

Tributary Depletions decrease the supply of water available to acequias and the amount of non-irrigation season flows to the Rio Grande. Offset of Tributary Depletions can be shifted to the Rio Grande, provided that the lost supply to the acequias is provided through mitigation well pumping. Pumping of mitigation wells will cause additional depletions on the Rio Grande. The Settlement Agreement specifies these depletions will be calculated as 33% of Mitigation well pumping. The table below illustrates the offsets that result if all Tributary Depletions are made up by mitigation wells (no transfer of water rights). These offsets are in addition to the offsets to the direct Rio Grande depletions quantified in the note to Table 1.

Table 2. Rio Grande Offsets required for Tributary Depletions and Mitigation Well Pumping for hypothetical pumping scenarios

Entity that pumps	Tributary	Mitigation Well	Tributary depletions shifted to Rio Grande	33% additional mitigation-related offset required on Rio Grande	Total Rio Grande offset requirement (sum of 2 columns to left)
EPWSD	Rio Hondo	Well A	4.4	1.4	5.8
EPWSD	Rio Pueblo de Taos and Rio Lucero	Well B	39.3	13.0	52.3
Town	Rio Hondo	Well A	3.0	1.0	4.0
Town	Rio Pueblo de Taos and Rio Lucero	Well B	52.2	17.2	69.5

Note on table. For the Rio Pueblo de Taos and Rio Lucero, there is a further adjustment discussed below, e.g. assignment of some of the Tributary Depletions to the Buffalo Pasture.

Effects of providing direct Buffalo Pasture offsets through the Buffalo Pasture Recharge Project

Response functions provided in Attachment 3, Part II, Appendix C, have been developed to show the amount of Buffalo Pasture depletions that are the direct result of future groundwater diversions. The agreement provides that the Pueblo will offset these impacts through the Buffalo Pasture Recharge Project, and that the Project itself will cause an additional depletion of the Rio Grande equal to 11.1% of the depletions thus offset. Use of the Buffalo Pasture Recharge Project for mitigation effectively shifts the Buffalo Pasture depletions to the Rio Grande. Each party is responsible for providing the Rio Grande offsets that equal their depletions on the Buffalo Pasture, plus an additional 11.1% that results from operation of the Buffalo Pasture Recharge Project. For the scenarios used in Tables 1 and 2, those requirements are as follows.

Table 3. Rio Grande offsets required for Buffalo Pasture Depletions for hypothetical pumping scenarios					
Entity that pumps	Tributary	Calculated depletion of Buffalo Pasture	Buffalo Pasture depletions shifted to Rio Grande	11.1% additional mitigation-related offset required on Rio Grande	Total Rio Grande offset requirement (sum of 2 columns to left)
EPWSD	Rio Pueblo de Taos and Rio Lucero	14.8	14.8	1.6	16.4
Town	Rio Pueblo de Taos and Rio Lucero	7.2	7.2	0.8	8.0

Note on table. This assumes the Buffalo Pasture Recharge Project is successful.

Effects of providing tributary offsets through the Buffalo Pasture Recharge Project

Under the administrative system established by the Abeyta Settlement Agreement, the stream depletions on the Rio Lucero and Rio Pueblo de Taos would be treated differently, compared to all other tributaries. For the latter (Rio Hondo, Arroyo Seco, Rio Fernando, Rio Chiquito, Rio Grande del Rancho), mitigation-related offsets on the Rio Grande would still be equal to the shift of 100% of the depletions plus the extra 33% related to operation of the Mitigation Wells.

For depletions calculated on the Rio Lucero and Rio Pueblo de Taos, there would be reassignment of 35% of such depletions to the Buffalo Pasture. These reassigned depletions then become Buffalo Pasture Depletions which would be mitigated by the Buffalo Pasture Recharge Project. The remaining 65% of the depletions on Rio Lucero and Rio Pueblo de Taos would need to be made up by the Mitigation Wells, and the Mitigation Well pumping would still be subject to a mitigation-related offset requirement of 33% on the Rio Grande. The Party responsible for the reassigned impact would have an obligation to provide Rio Grande mitigation-related offsets equal to 11.1% of that reassigned depletions. The table below illustrates the effect of reassignment.

Table 4. Rio Grande Mitigation Offsets Required as Calculated by Superposition Model Version with Reassignment of 35% of Depletions for Rio Pueblo de Taos and Rio Lucero, for hypothetical pumping scenarios						
Entity that pumps	Stream	Table 2 Total Tributary Depletion	Table 2 Depletion reassigned to Buffalo Pasture (35%)	Revised Rio Grande Mitigation-related offset after reassignment	New Rio Grande offset required due to Buffalo Pasture Recharge Project	Total Rio Grande offset (Shifted Tributary and Buffalo Pasture depletions plus Mitigation-related offset terms)
EPWSD	Rio Pueblo de Taos/Rio Lucero (Mitigation Well B)	39.3 (original) 25.5 (after reassignment)	13.8	8.5 (33% of 25.5)	1.5 (11.1% of 13.8 AFY)	(=25.5+8.5+13.8+1.5) 49.3
Town	Rio Pueblo de Taos/Rio Lucero (Mitigation Well B)	52.2 (original) 33.9 (after reassignment)	18.3	11.2 (33% of 33.9)	2.0 (11.1% of 18.3 AFY)	(=33.9+11.2+18.3+2.0) 65.4

Summary of shifts and reassignments

Table 5 shows all components of the total Rio Grande offsets required for Tributary Depletions and Buffalo Pasture Depletions, assuming 35% of Rio Lucero and Rio Pueblo de Taos Tributary Depletions are reassigned to the Buffalo Pasture, that the remaining 65% of Rio Lucero and Rio Pueblo de Taos Tributary Depletions are mitigated by the Mitigation Wells, and 100% of depletions on all other tributaries are mitigated by Mitigation Wells.

Table 5. Tributary and Buffalo Pasture Depletions, Reassignment, and Mitigation-Related Offsets for hypothetical pumping scenarios

Entity that pumps	Stream	Rio Grande offset from shift of Tributary depletions (after reassignment)	Rio Grande offset from operation of mitigation wells	Offset from shift of Buffalo Pasture Depletions	Offset from operation of Buffalo Pasture Project	Total Rio Grande offset (sum of all 4 terms to the left)
EPWSD	Rio Hondo	4.4	1.5			5.9
EPWSD	Arroyo Seco	0.9	0.3			1.2
EPWSD	Rio Lucero	6.6	2.2	3.5	0.4	12.7
EPWSD	Rio Pueblo	18.9	6.2	10.2	1.1	36.5
EPWSD	Rio Fernando	5.8	1.9			7.6
EPWSD	Rio Chiquito	0.6	0.2			0.8
EPWSD	Rio Grande del Rancho	4.2	1.4			5.6
EPWSD	Buffalo Pasture			14.8	1.6	16.4
Town	Rio Hondo	3.0	1.0			4.0
Town	Arroyo Seco	0.4	0.1			0.5
Town	Rio Lucero	4.0	1.3	2.1	0.2	7.6
Town	Rio Pueblo	30.0	9.9	16.1	1.8	57.8
Town	Rio Fernando	22.4	7.4			29.8
Town	Rio Chiquito	7.3	2.4			9.7
Town	Rio Grande del Rancho	58.0	19.1			77.1
Town	Buffalo Pasture			7.2	0.8	8.0

Note to Table. These values are specific to the assumed pumping schedules described in the Note to Table 1. The sum of the Rio Grande offsets related to Tributary and Buffalo Pasture depletions is 86.7 acre-feet for EPWSD, and 194.5 acre-feet for the Town.

Total Rio Grande offsets

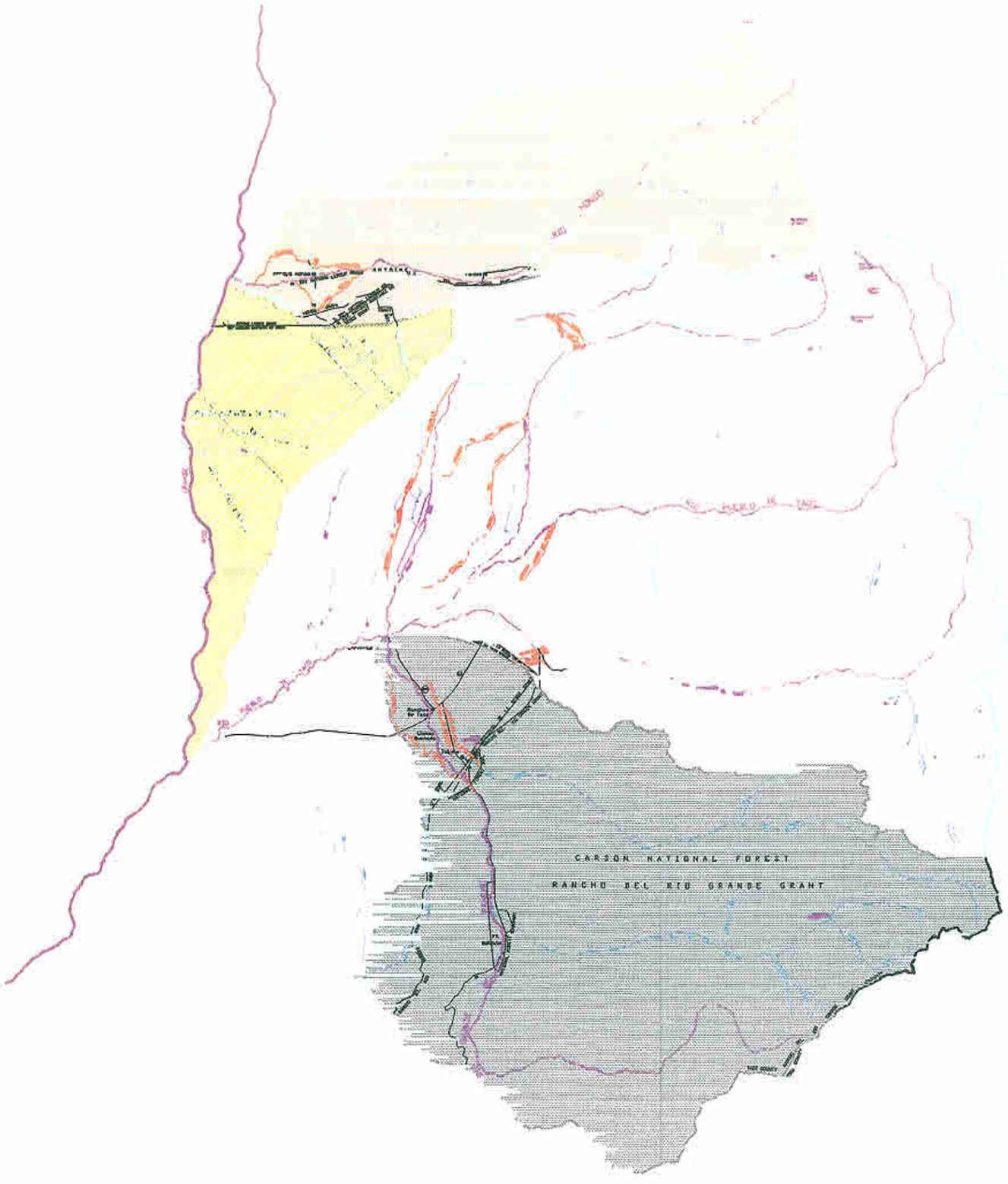
For EPWSD, assuming the specified hypothetical pumping schedule, the illustrative Rio Grande Offset requirement would be:

- Direct effect on Rio Grande (note to Table 1): 82.6
- Sum of shifts and reassignments (Table 5): 86.7
- TOTAL: 169.4

For the Town, assuming the specified hypothetical pumping schedule, the illustrative Rio Grande Offset requirement would be:

- Direct effect on Rio Grande (note to Table 1): 169.4
- Sum of shifts and reassignments (Table 5): 194.5
- TOTAL: 365.0

TAOS
ADJUDICATION



IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW MEXICO

STATE OF NEW MEXICO on the Relation of the State Engineer, Plaintiff, v. EDUARDO ABEYTA, et al., CELSO ARELLANO, et al., Defendants,	)	No. CV 69-7896 BB & No. CV 69-7939 BB (Consolidated) (Rio Pueblo de Taos and Rio Hondo Stream Systems)

PARTIAL FINAL JUDGMENT AND DECREE
ON THE WATER RIGHTS OF TAOS PUEBLO

THIS MATTER comes before the Court pursuant to the Joint Motion for Entry of Proposed Partial Final Judgment and Decree on the Water Rights of Taos Pueblo ("Joint Motion"), submitted on ____ __, 20__ (No. ____), by Taos Pueblo ("Pueblo"), the United States, the State of New Mexico *ex rel*. State Engineer ("the State"), the Town of Taos, the Taos Valley Acequia Association, the El Prado Water and Sanitation District, and the Twelve (12) Taos-area Mutual Domestic Water Consumer Associations (collectively, "the Parties"). The Court, having considered the Joint Motion, the July 1997 Taos Pueblo Water Use Survey, as amended and supplemented in 2011 and attached hereto as "Exhibit A," and the Parties' settlement agreement, including all attachments thereto, attached hereto as "Exhibit B," all objections filed regarding the Joint Motion and all attached Exhibits, and being otherwise fully advised in the premises, FINDS:

1. The Court has jurisdiction over the subject matter and the parties in this cause.

2. This cause is a consolidated general adjudication of all rights to divert, impound, or use the public surface and underground waters of the Rio Pueblo de Taos and Rio Hondo stream systems, pursuant to NMSA 1978, §§ 72-4-13 through -19.

3. All rights of the Pueblo to divert, impound, or use the public surface and underground waters within the Rio Pueblo de Taos and Rio Hondo stream systems are decreed in this Partial Final Judgment and Decree.

4. The proposed judgment and decree is the product of the Parties' negotiated settlement.

5. Notice of the deadline for filing and serving objections to the water rights of the Pueblo described in this Partial Final Judgment and Decree was served on all parties to this case and on all potential water rights claimants, known and unknown. All water right owners in the Rio Pueblo de Taos and Rio Hondo stream systems have been provided a full and fair opportunity to review the relevant documents and to be heard on any objections prior to the Court's decision on whether to approve the Settlement Agreement and enter the proposed Partial Final Decree.

6. The Joint Motion is well taken and should be granted.

7. The rights of the Pueblo adjudicated in this Partial Final Judgment and Decree may in the future be subject to general *inter se* proceedings involving all adjudicated water rights of the Rio Grande stream system and its tributaries.

8. There is no just reason for delay in the entry of this Partial Final Judgment and Decree as a final judgment pursuant to Fed. R. Civ. P. 54 (b).

IT IS THEREFORE ORDERED, ADJUDGED, AND DECREED that:

1. APPROVAL OF SETTLEMENT AGREEMENT. Upon consideration of the Joint Motion, Exhibits A and B, and for good cause shown, the Court approves the Parties' settlement agreement, which is attached hereto as "Exhibit B" and which is incorporated into this Partial Final Judgment and Decree by reference, including all attachments thereto, as if fully set forth herein.

2. CONTRACT RIGHTS TO WATER. The Pueblo has a contract right to the annual diversion and depletion of Two Thousand Two Hundred and Fifteen (2,215) acre-feet from the San Juan-Chama Project, to be delivered at the existing outlet works at Heron reservoir unless otherwise agreed under the terms of the Contract dated __, between the Secretary of the Interior and the Pueblo and required by Congress in Section 508(b)(1) of the Taos Pueblo Indian Water Rights Settlement Act, Pub. L. No. 111-291, tit. V, 124 Stat. 3064, 3122-34 (2010) ("Settlement Act"). Nothing herein is intended to confer jurisdiction on this Court over any action to enforce or challenge said contract or over any action for breach thereof.

3. HISTORIC AND EXISTING USE WATER RIGHTS. The Pueblo has an aboriginal water right, unless otherwise specified herein, for all of its historic and existing water uses, which are described in this Partial Final Judgment and Decree. Regardless of the means used for quantifying the Pueblo's water rights under this Partial Final Judgment and Decree or Exhibits A and B, the Pueblo may devote such rights to any use. Such uses and any changes in points of diversion, place or purpose of use, shall be subject to the requirements of Exhibit B and applicable law.

A. HISTORICALLY IRRIGATED ACREAGE USE. Subject to the provisions of Exhibit B, the Pueblo has the right to divert and consume the waters of the Rio Pueblo de Taos and Rio Hondo stream systems to irrigate the Five Thousand Seven Hundred

Twelve and Seventy-Eight Hundredths (5,712.78) acres of land identified and described in Exhibit A. Such right has an aboriginal priority date, and entitles the Pueblo to divert from streams in the Rio Pueblo de Taos and Rio Hondo stream systems annually a combined total amount of water not to exceed that amount sufficient to irrigate the 5,712.78 acres, or Twenty-Two Thousand Five Hundred Eight and Thirty-Five Hundredths (22,508.35) acre-feet, whichever is less, and to consume annually a combined total amount of water not to exceed that amount consumed by the irrigation of the 5,712.78 acres, or Seven Thousand Eight Hundred Eighty-Three and Sixty-Four Hundredths (7,883.64) acre-feet, whichever is less.

B. MUNICIPAL, DOMESTIC, AND INDUSTRIAL USE. For municipal, domestic, and industrial use, the Pueblo has the right to divert and consume annually Three Hundred (300.00) acre-feet of groundwater. The individual wells currently exercising this right are identified, located and described in Exhibits A and B.

C. LIVESTOCK USE.

(1) LIVESTOCK IMPOUNDMENT RIGHT. The Pueblo has the right to fill and maintain Fifty and Twenty Hundredths (50.20) acres of surface water impoundments for stock watering purposes, as those features are depicted in Exhibit A. Such right entitles the Pueblo to divert annually Seventy Seven and Fifty-One Hundredths (77.51) acre-feet and consume annually One Hundred Fourteen and Thirty-Five Hundredths (114.35) acre-feet at the places identified in Exhibit A. The specific priority, diversion, if any, and consumption amounts for each impoundment are described in Exhibit B, Article 5.1.2. All impoundments identified in Exhibit B, Article 5.1.2.1 shall have the priority therein described, and all impoundments identified in Exhibit B, Article 5.1.2.2 shall not be subject to priority administration.

(2) LIVESTOCK WELL RIGHT. The Pueblo has the right to divert and consume annually Fourteen and Seventy-Two Hundredths (14.72) acre-feet of groundwater for stock watering purposes. The locations of individual stock wells are identified and described in Exhibit A. The specific diversion and consumption amounts and the priority date for each well are described in Exhibit B, Article 5.2.2.

4. ADDITIONAL GROUNDWATER RIGHT. Subject to the provisions of Exhibit B, the Pueblo has the right to divert and consume annually One Thousand Three Hundred (1,300.00) acre-feet of groundwater. Such right has an aboriginal priority date.

5. DISCLAIMERS. This Partial Final Judgment and Decree does not resolve any issue that may exist as to whether the State Engineer of New Mexico or the Pueblo has, or should have, jurisdiction to administer or regulate water rights. This Partial Final Judgment and Decree does not confer jurisdiction on, or limit the authority of, the State Engineer of New Mexico to administer or regulate the use of water or water rights within the Rio Pueblo de Taos and Rio Hondo stream systems, as provided by law; nor does this Partial Final Judgment and Decree confer jurisdiction on, or limit the authority of, the Pueblo to administer or regulate the use of water or water rights within the Rio Pueblo de Taos and Rio Hondo stream systems, as provided by law. Because the description of the Pueblo's water rights adjudicated to it hereby is based upon a negotiated settlement, the procedures and methods used to quantify and describe the Pueblo's water rights herein shall not be binding under the law of the case doctrine upon any other water right claimant, the State, or the United States in the adjudication of other water rights in this case, and should not be relied upon as precedent under the *stare decisis* doctrine in any other water right adjudication suit. Nothing in this Partial Final Judgment and Decree shall be construed as establishing any standard to be used for the quantification of Federal reserved water

rights, aboriginal claims, or any other Indian claims to water or water impoundment structures in any judicial or administrative proceeding.

6. RECORDS OF WATER USE. The Pueblo shall maintain records and perform calculations of its actual diversions and depletions of Rio Pueblo de Taos and Rio Hondo waters, and on or before June 1 of each year, the Pueblo shall prepare and submit to the Secretary of the Interior a report of its records and calculations of those diversions and depletions for the previous calendar year, who shall then provide a copy of this report to the Office of the State Engineer and the Taos County Clerk.

7. CHANGE OF USE. Changes in point of diversion or purpose or place of use of a water right from a location within Pueblo lands to a location outside of said lands shall be in accordance with State law; *provided*, that the Pueblo may later change the point of diversion or purpose or place of use of the water right to which the Pueblo retains an ownership interest back to a place of use within Pueblo lands without reduction in the amounts of water adjudicated in this Partial Final Judgment and Decree.

8. RIGHTS HELD IN TRUST. Pursuant to Section 504(a) of the Settlement Act, the rights to which the Pueblo is entitled under this Decree shall be held in trust by the United States on behalf of the Pueblo and shall not be subject to forfeiture, abandonment, or permanent alienation.

9. CONCLUSIONS.

A. The Pueblo has no right to divert and use the public waters of the Rio Pueblo de Taos and Rio Hondo stream systems except as set forth in this Partial Final Judgment and Decree, Exhibits A and B, and other orders entered by this Court in this cause.

B. The Pueblo, and the Pueblo's successors, representatives, lessees, and assigns, are permanently enjoined from any diversion, impoundment, or use of the public waters of the Rio Pueblo de Taos and Rio Hondo stream systems, except in strict accordance with this Partial Final Judgment and Decree, Exhibits A and B, and other orders entered by this Court in this cause.

10. ENTRY AND MODIFICATION OF DECREE. The Court expressly determines that there is no just reason for delay and directs the entry of this Partial Final Judgment and Decree as a final judgment pursuant to Fed. R. Civ. P. 54(b). This Partial Final Judgment and Decree may be modified only pursuant to Rule 60(b).

_____
United States District Judge

List of Acequia and Springs that provide water to them as filed in the Abeyta/Arellano adjudication

Acequias:	Springs:
Acequia Jose Venito Martinez	Acequia Jose Venito Martinez Springs
Cortez y Sisneros Ditch	Sisneros Springs
Acequia Madre del Prado	Tomas Springs
Acequia de la Plaza	Medina Spring and other unnamed springs
Acequia de Tio Gerbacio	Rivera Springs and Martinez Spring
Acequia Jaroso	Acequia Jaroso Springs
Spring Ditch	Spring Ditch Springs
Acequia de San Francisco de Pauda	Acequia de San Francisco de Pauda Springs
Acequia Madre del Rio Lucero y del Arroyo Seco	La Morada Springs, Arroyo Seco Springs, and El Aguita Spring
Acequia de los Lovatos	Malaria Ditch Springs, Spring Ditch Springs, Ojitos de Hatchery, and Ojitos de la Posta
Acequia Madre de la Loma	Ojitos de los Trujillos, Hortalizas Lateral Springs, and Karavas Springs
Acequia de los Ojitos	Ojitos de los Trujillos and other unnamed springs
Pacheco Community Ditch	Spring Ditch Springs, Ojitos de Hatchery, Ojitos de la Posta, and Ojitos de los Mares
Acequia de la Otra Banda	McCarthy Springs and other unnamed springs
Acequia Madre de las Cienegas	McCarthy Springs and other unnamed springs
Acequia del Medio del Prado	Acequia del Medio del Prado Springs and Buffalo Pasture Springs

TAOS PUEBLO WATER USE SURVEY

Inventory of Water Uses
on
Taos Pueblo Indian Lands

To supplement and correct
the
Taos Pueblo Water Use Survey
Inventory of Water Uses on Taos Pueblo Indian Lands
by Edward L. Gonzales, Gonzales and Associates, Santa Fe, New Mexico
and Christopher Banet, Albuquerque Area Office, US Bureau of Indian Affairs, July 1997.

Christopher Banet
Southwest Regional Office
US Bureau of Indian Affairs
Albuquerque, NM

August 2011

2011 Supplement to TAOS PUEBLO WATER USE SURVEY Inventory of Water Uses on Taos Pueblo Indian Lands

This supplements and corrects information on water features listed in:

Taos Pueblo Water Use Survey
Inventory of Water Uses on Taos Pueblo Indian Lands
by Edward L. Gonzales, Gonzales and Associates, Santa Fe, New Mexico
and Christopher Banet, Albuquerque Area Office, US Bureau of Indian Affairs, July 1997.

Seven impoundments and three wells, all located on Taos Pueblo lands are described.

Consistent with the 1997 Water Use Survey, each impoundment is identified by:

- Inventory number
- Field Name
- Location of place of use
- Water source
- Ditch, where applicable
- Surface area, acres
- Location of point of diversion
- Purpose of use

Likewise, each of the three wells is identified by:

- Inventory number
- Field name
- Purpose of use
- Location of point of diversion
- Location of place of use

Impoundments

Numbering of impoundments is kept consistent with and continues from with those in the 1997 survey cited above. Tables 2011S-1 and 2011S-2 provide data for the seven impoundments. The 1997 use of a “P” as part of the inventory number indicates constructed ponds filled by supply ditches diverting from streams. The 1997 use of an “R” as part of the inventory number indicates constructed reservoirs filled by surface runoff from natural watercourses in which they are built. These indicators continue to apply. Purpose of use for impoundments R-151, R-152, R-153, R-154, R-155 and R-156 is livestock and wildlife watering. The purpose of use for impoundment P-157 is livestock and household use. Impoundments R-151, R-152, R-153, R-154, R-155 and R-156 are not listed in the 1997 survey and therefore with respect to those impoundments their information is supplementary. Impoundment P-157 was incorrectly identified in the 1997 survey as W-183, therefore this corrects the 1997 survey with respect to W-183, which is not in fact a

well. Easting and Northing location coordinates[1] for R-151, R-152, R-153, R-154, R-155 and R-156 were determined by Global Positioning System. Areas for impoundments R-151, R-152, R-153, R-154, R-155 and R-156 were determined by Global Positioning System. For P-157, coordinates, location and accuracy identified in the 1997 survey for W-183 and for the Cuchilla Ditch point of diversion are duplicated herein. The area for P-157 was determined by certain parties to NM v Abeyta[2] the general stream adjudication of the Rio Pueblo de Taos. The total number of impoundments identified including this supplement along with the amount from the 1997 survey is 157.

Attached maps 2011S-1, 2011S-2 and 2011S-3 provide a location representation of the seven impoundments.

Table 2011S-1. Water Impoundments – Locations

Inventory Number	Field Name	Impoundment Location and Place of Use					
		Location in US Public Land Surveys				UTM Coordinates, meters	
						Zone 13N, NAD 1927	
		Quadrant	*Section*	*Township*	*Range*	*Easting*	*Northing*
R-151	Buffalo Pasture Pond-03	part of SE1/4, NW 1/4, SW 1/4	33	26N	13E	449,423	4,032,458
R-152	Buffalo Pasture Pond-04	part of NE1/4, SW 1/4, SW 1/4	33	26N	13E	449,480	4,032,662
R-153	Buffalo Pasture Pond-05	part of SE1/4, SW 1/4, SW 1/4	33	26N	13E	449,464	4,032,789
R-154	Pit Tank-01	part of SW1/4, SW 1/4, NE 1/4	3	25N	13E	451,644	4,031,716
R-155	Pit Tank-02	part of NE1/4, NE 1/4, SW 1/4	3	25N	13E	451,420	4,031,563
R-156	Pit Tank-03	part of NW1/4, NE 1/4, SW1/4	3	25N	13E	451,235	4,031,376
P-157	Hidden Pond	part of NW1/4, NE 1/4, SE1/4	14	26N	12E	444,300	4,038,130

1 For R-151, R-152, R-153, R-154, R-155 and R-156, Easting and Northing locations are considered accurate to within 5 meters of the actual location of the feature they describe.

2 See section 5.1.2.1 "Ditch-Fed Impoundments" and Table 2 of the Settlement Agreement dated March 31, 2006, between and among—the Taos Pueblo; the State of New Mexico; the Taos Valley Acequia Association and its 55 member ditches; the Town of Taos; the El Prado Water and Sanitation District; and 12 Taos Area Mutual Domestic Water Consumers Associations

Table 2011S-2. Water Impoundments - Data					
Inventory Number	Water Source	Ditch, where applicable	Surface Area, acres	Point of Diversion	
				UTM Coordinates, meters	
				Zone 13N, NAD 1927	
				Easting	*Northing*
R-151	Rio Lucero		0.24	449,423	4,032,458
R-152	Rio Lucero		0.11	449,480	4,032,662
R-153	Rio Lucero		0.27	449,464	4,032,789
R-154	unnamed tributary of the Rio Pueblo de Taos		0.17	451,644	4,031,716
R-155	unnamed tributary of the Rio Pueblo de Taos		0.53	451,420	4,031,563
R-156	unnamed tributary of the Rio Pueblo de Taos		0.35	451,235	4,031,376
P-157	Rio Hondo	Cuchilla Ditch	0.02	450,060	4,043,830

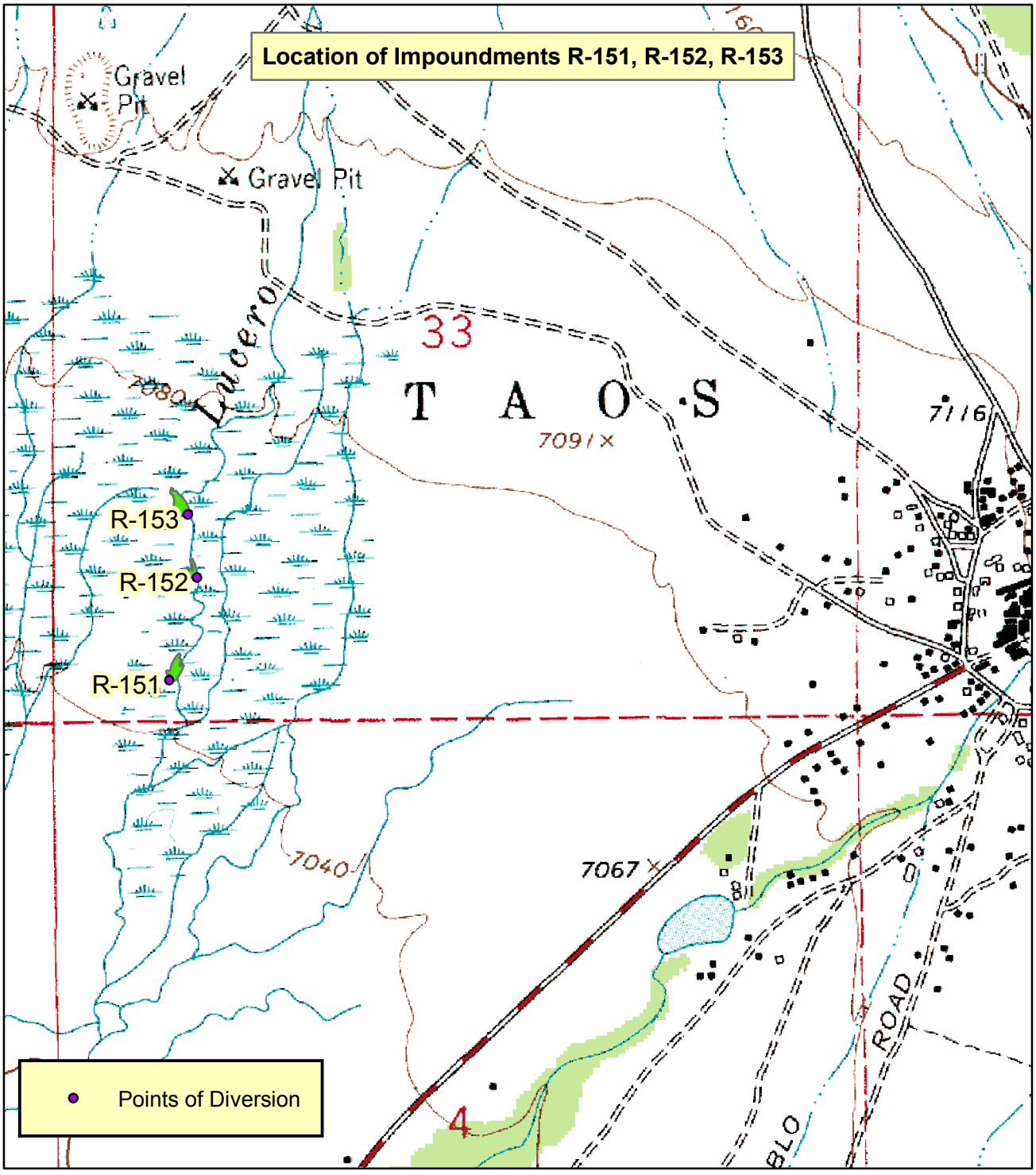
Wells

Numbering of wells is kept consistent with and continues from those in the 1997 Survey. Table 2011S-7 provides data for three wells. Easting and Northing locations[3] were determined by Global Positioning System. Place of use for these wells is the immediate vicinity of the well location. With the removal of W-183 from the inventory, the current total of wells numbers 227. The 1997 survey identified 225 wells (inventory number W-188 was not used). With the subtraction of W-183 and addition of W-227, W-228 and W-229, the total is 227 wells. Attached map 2011S-4 provides a location representation of the three wells.

Table 2011S-7. Wells – Locations and Other Data								
Inventory Number	Field Name	Well Use	Well Location and Place of Use					
			UTM Coordinates, meters		Location in US Public Land Surveys			
			Zone 13N, NAD 1927					
			Easting	*Northing*	*Quadrant*	*Section*	*Township*	*Range*
W-227	K-3	Exploratory	446,735	4,030,439	Within the SE 1/4, NE 1/4, NW 1/4	7	25N	13E
W-228	BOR-5	Exploratory	447,396	4,035,903	Within the NW 1/4, SE 1/4, SE 1/4	19	26N	13E
W-229	BOR-6	Exploratory	444,848	4,035,803	Within the SW 1/4, SE 1/4, SW1/4	18	26N	13E

3 Easting and Northing locations are considered accurate to within 5 meters of the actual location of the feature they describe.

Map 2011S-1



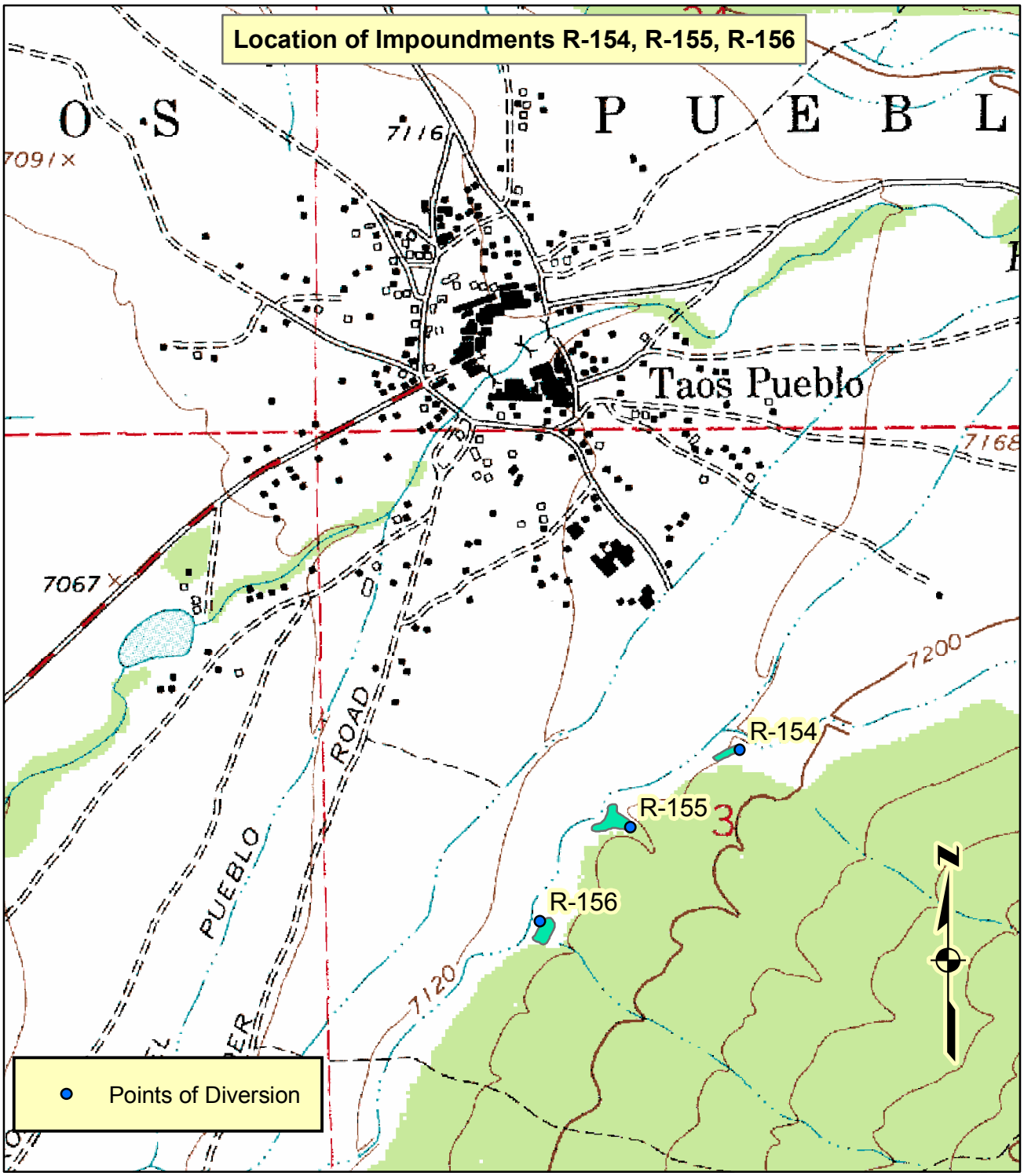
Base map is excerpt of USGS 7.5-minute quadrangle Taos, NM

0 375 750 1,500 2,250 3,000 Feet

1:12,000

Supplement to TAOS PUEBLO WATER USE SURVEY, Inventory of Water Uses on Taos Pueblo Lands
Christopher Banet, Bureau of Indian Affairs, August 2011

Map 2011S-2



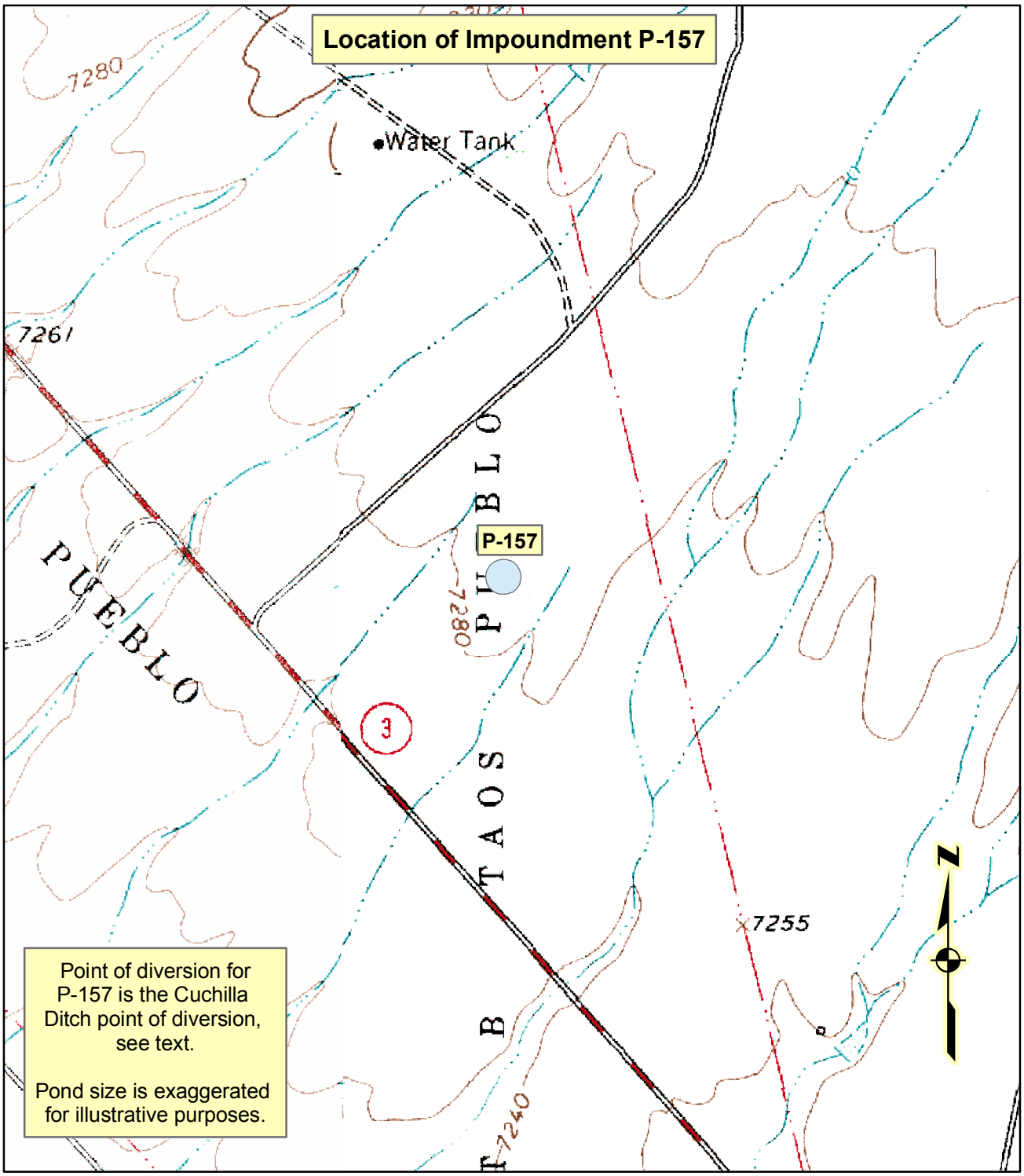
Base map is excerpt of USGS 7.5-minute quadrangle Taos, NM

0 375 750 1,500 2,250 3,000 Feet

1:12,000

Supplement to TAOS PUEBLO WATER USE SURVEY, Inventory of Water Uses on Taos Pueblo Lands
Christopher Banet, Bureau of Indian Affairs, August 2011

Map 2011S-3



Base map is excerpts of USGS 7.5-minute quadrangles Los Cordovas, NM and Taos, NM

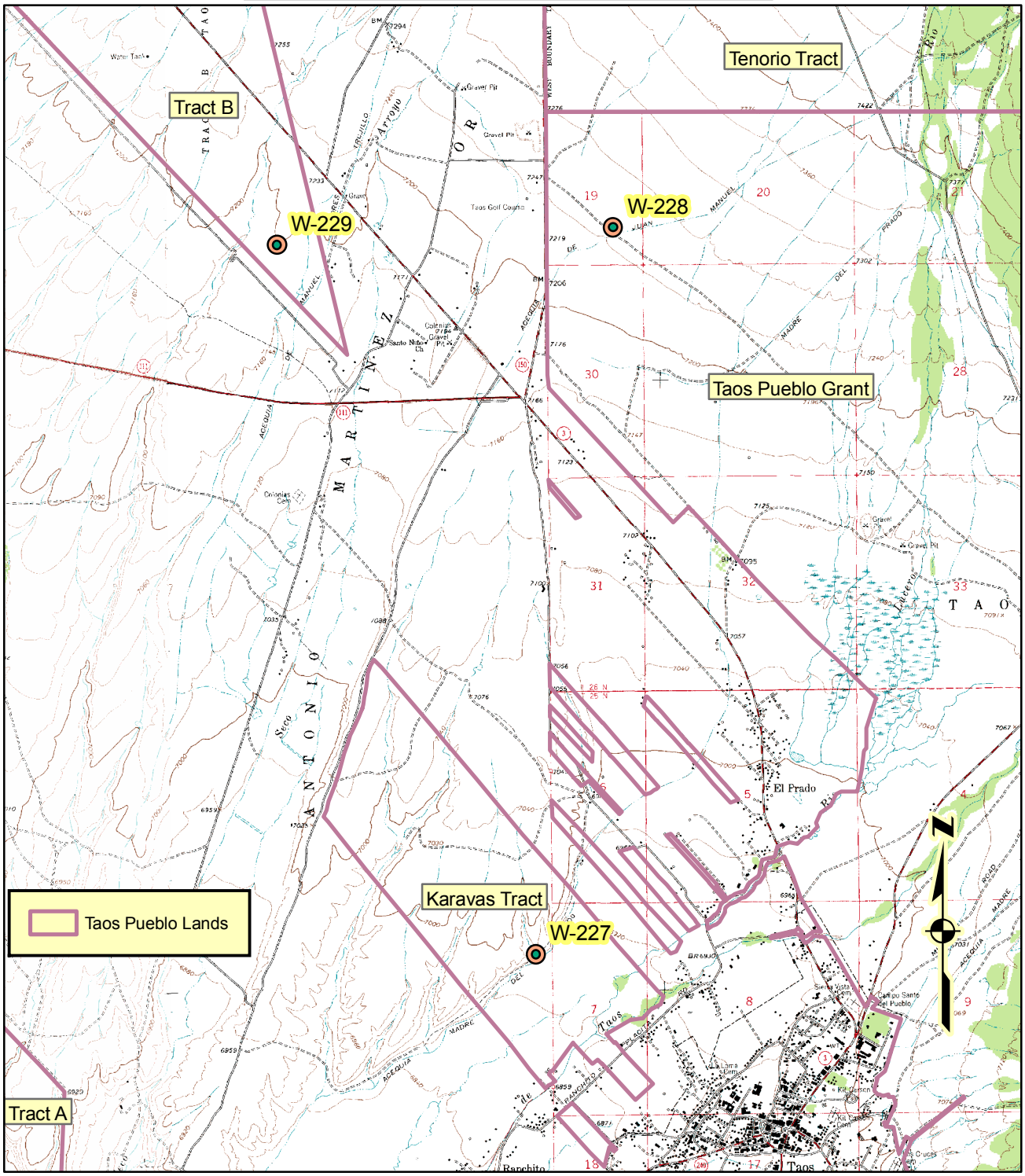
0 500 1,000 2,000 3,000 4,000 Feet

1:12,000

Supplement to TAOS PUEBLO WATER USE SURVEY, Inventory of Water Uses on Taos Pueblo Lands
Christopher Banet, Bureau of Indian Affairs, August 2011

Map 2011S-4

Location of Wells W-227, W-228 and W-229



Base map is excerpts of USGS 7.5-minute quadrangles Los Cordovas, NM, Arroyo Seco, NM, Arroyo Hondo, NM and Taos, NM

0 1,875 3,750 7,500 11,250 15,000 Feet

1:45,000

Supplement to TAOS PUEBLO WATER USE SURVEY, Inventory of Water Uses on Taos Pueblo Lands
Christopher Banet, Bureau of Indian Affairs, August 2011

TAOS PUEBLO WATER USE SURVEY

Inventory of Water Uses
on
Taos Pueblo Indian Lands

by

Edward L. Gonzales
Gonzales and Associates
Santa Fe, New Mexico

and

Christopher Banet
Albuquerque Area Office
US Bureau of Indian Affairs

July 1997

Taos Pueblo 1997 Water Use Survey

This water use, or hydrographic, survey is an inventory of water uses on lands of the Pueblo of Taos, located in north central New Mexico. Undertaken on behalf of the Taos Pueblo it is meant to assist in quantifying their water rights, in connection with the stream adjudications of the Rio Pueblo de Taos and the Rio Hondo. The survey identifies past as well as current uses of surface and ground water on Taos Pueblo Indian lands. This survey supersedes versions of the Bureau of Indian Affairs (BIA) Taos Pueblo Hydrographic Surveys done in 1989 and 1990.

Uses described herein are irrigation of fields for farming, livestock and wildlife watering, recreation, ceremonial purposes, household supply, municipal supply, ground water recharge and aquifer characterization. Each use of water is identified by a point of diversion and a place of use.

Note that a sector of land draining directly into the Rio Grande, which is located in between the watersheds of the Rio Hondo and the Rio Pueblo de Taos, sometimes referred to as the "Triangular Area" is included in the consolidated adjudication of the Rio Hondo and Rio Pueblo de Taos. Uses within this sector are included in this survey.

Surface Water

Surface water uses are accomplished by diversion into impoundments and by irrigation of farmed fields. To better define these uses, the stream adjudication areas are divided into the subwatersheds of Arroyo Seco, Rio Lucero, Rio Fernando de Taos, Rio Grande (Triangular Area), Rio Hondo, and the Rio Pueblo de Taos.

Impoundment of Water

One hundred and fifty sites were inventoried where water is impounded, either naturally or by built structures. These sites have been utilized by the Taos Pueblo people for watering of livestock and wildlife, ceremonial purposes, recreation, and for ground water recharge. Each site, except for those in the high mountains, was visited by a technician and measured for the surface area associated with its spillway elevation. Surface area of high mountain impoundments was estimated by photo interpretation. All sites were codified into three types: natural lakes filled by mountain streams; constructed ponds filled by supply ditches diverting from streams; and constructed reservoirs filled by surface runoff from natural watercourses in which they are built. Accordingly, the letters "L", "P", and "R" were assigned as part of the inventory number of each site, to identify it as a lake - "L" - (fed by a mountain stream), a pond - "P" - (fed by a supply ditch), or reservoir - "R" - (fed by surface runoff). The Table Appendix contains three tables listing attributes of the water impoundments. Table 1 lists the location, which is the place of use for diverted water, of each impoundment. The locations are described by Universal Transverse Mercator (UTM) coordinates (Zone 13) and by the US system of rectangular surveys with reference to the New Mexico Principal Meridian[1]. Table 2 lists pertinent data for each impoundment - surface area, water source (by subwatershed), and if applicable, the ditch which serves the impoundment (ponds only). The impoundment locations are drafted onto two map sheets entitled Lake, Pond, Spring, Reservoir & Well Locations which are in the Map Appendix[2].

---

[1]Universal Transverse Mercator (UTM) coordinates are accurate to within 150 meters of the actual location of the described feature. In places where the US system of rectangular surveys is incomplete, section, township and range lines have been projected by Bureau of Indian Affairs to determine locations.

[2]Maps in the Map Appendix prepared and drafted by Daniel Candelaria of the Bureau of Indian Affairs and Edward L. Gonzales.

Taos Pueblo 1997 Water Use Survey

Irrigation of Fields

Identification of fields which have been irrigated was made by several methods. Twentieth century irrigation was identified by field investigation, photo interpretation[3] and examination of records of the Bureau of Indian Affairs[4]. Irrigation which took place on Taos Pueblo lands prior to the 20th century was identified by archeological means[5].

Twentieth Century Irrigation

Findings are delineated on 21 map sheets (with one index sheet) included in the Map Appendix. Map sheets are numbered TP-1 through TP-16, SEO-9, SEO-11 through SEO-13 and SEO-15. With the exception of map sheets TP-15 and TP-16, the base information on the map sheets was prepared by the New Mexico State Engineer Office. Locations of fields and the Taos Pueblo land boundaries are drafted onto the base. US Geological Survey quadrangles are the base for map sheets TP-15 and TP-16. Map sheets are entitled Rio Pueblo de Taos, Hydrographic Survey, 1989 and are annotated Revised: July 1997. They are printed at a scale of 1 inch equals 300 feet (map sheets TP-15 and TP-16 are printed at 1 inch equals 1000 feet). Lands identified fall into three categories. The first category - "IRRIGATED LANDS - identified by aerial photo interpretation" refers to lands for which photo interpretation was the primary means of identification. Lands in this category were also identified by field investigation and examination of previous inventories of irrigated land[6]. These lands are distinguished by a pattern of parallel diagonal lines.

The second category of irrigated land - "IRRIGATED LANDS - identified in Pueblo Lands Board information" refers to land identified by the Pueblo Lands Board and placed into types considered to be irrigated. The Pueblo Lands Board had certain lands appraised during 1926 and 1927[7]. These appraisals placed land into various types. Land types termed "garden", "cultivated", "meadow", "alfalfa", "uncultivated", "pasture" and "orchard" were considered to describe lands which were irrigated during or prior to the time of appraisal. Land types of "arid" and "desert" were considered to describe lands not irrigated. Any lands which are now part of Taos Pueblo lands, and which were also the subject of Pueblo Land Board appraisals, and which fell into one of the types considered irrigated, are identified on the map sheets. They are distinguished by dark shading. These first two categories of irrigated lands are not mutually exclusive.

---

[3] Field identification by photo interpretation and field investigation is the result of work done by Edward L. Gonzales, under contract to US Department of Justice. The results of his work are described in this report.

[4] Examination of Bureau of Indian Affairs records and subsequent identification of irrigated areas was conducted by Edward L. Gonzales, and Christopher Banet of the Bureau of Indian Affairs.

[5] Irrigated lands identified by archeological means are described briefly in this report, and derive from personal communication with the authors of a work in progress *Archaeological Analysis of Prehistoric and Early Historic Irrigation in the Taos Valley*, Sally Greiser and T. Weber Greiser, Historical Research Associates, Missoula, MT to be completed November 1, 1997.

[6] Two surveys of irrigated land were used: *Taos Pueblo Lands, Individual Agricultural Holdings*, Department of Agriculture Soil Conservation Service, Rio Grande District, Albuquerque, NM, 24 sheets, circa 1937; and *Rio Pueblo de Taos Hydrographic Survey*, New Mexico State Engineer Office, Santa Fe, NM, Two Volumes, 29 sheets plus three key sheets, 1969.

[7] Report of Appraisers to the Members of the Pueblo Lands Board, Alphonse Dockweiler and Chas. Kaune, January 1927; on file at Bureau of Indian Affairs, Albuquerque Area Office.

The third category of irrigated land is for an area of land called the sacred pasture. The sacred pasture is a unique area of Taos Pueblo land and is exclusive of the other two categories of irrigated land (described above). It is an area which is irrigated with surface water, but is dependent on the presence of near surface ground water. Details of the irrigation practices and benefits of the sacred pasture follow in a separate section. Sacred pasture irrigation is distinguished on the map sheets by intersecting diagonal lines. The extent of the sacred pasture is shown on Map sheets TP-10 and TP-12, occupying 444.70 acres.

All twentieth century irrigated land identified is divided into tracts with associated acreage shown on the map sheets. Tracts are the place of use for diverted waters. Acreage was determined by planimetry unless Pueblo Lands Board information was available. When Pueblo Lands Board acreage was available and applicable, it was used, since it was the result of a cadastral survey[8].

The major ditch supplying water to each irrigated tract has been identified and tracts supplied by a common ditch were grouped. In this way total Indian acreage supplied by each ditch as well as by each stream can be calculated. These figures are shown in Tables 4 and 5 (see Table Appendix). Table 6 (Table Appendix) contains the coordinates of the points of diversion for each major ditch[9]. UTM grid tics have been drafted onto the map sheets, and are not part of the original map control. Worksheets for each map sheet are supplied at the end of the Table Appendix. These provide additional details on individual irrigated tracts. Total twentieth century irrigated lands is 5,712.78 acres.

Irrigation Prior to the Twentieth Century

Nine thousand, two hundred and twenty acres have been identified by archeological means as irrigated prior to the twentieth century. The portion of this acreage that is not also identified as twentieth century irrigation amounts to 5,220 acres.

Ground Water

Ground water uses are from wells and springs.

Wells

Two-hundred and twenty-five wells have been identified on Taos Pueblo lands. Each well was visited. Uses of water diverted from wells are and livestock and wildlife watering, household, municipal, and aquifer characterization. Aquifer characterization wells are divided between exploratory and observation wells. Table 7 (Table Appendix) identifies the location, which is also the point of diversion and place of use, for each well inventoried. The use for each well is also indicated in Table 7. Well locations are drafted onto two map sheets entitled Lake, Pond, Spring, Reservoir & Well Locations which are in the Map Appendix. Table 8 (Table Appendix) lists well locations and uses and is sorted by use.

Springs

---

[8] *Pueblo Lands Board Plat, showing Private Claims within the Taos Pueblo Grant*, circa 1917; on file at Bureau of Indian Affairs, Albuquerque Area Office and *Supplemental Plat Showing Private Claims in Section 32 within the Taos Pueblo Grant* e.g., US General Land Office, Washington D.C., series of plats numbered 1 through 21C, first series circa 1917, second series circa 1932.

[9] Universal Transverse Mercator (UTM) coordinates are accurate to within 150 meters of the actual location of the described feature.

Twenty-six springs were identified on Pueblo lands, all associated with the sacred pasture area. These springs contribute to a near surface water table in the sacred pasture. They also maintain flow in the Rio Lucero. Four ditches diverting from the Rio Lucero - Acequia Madre del Medio, Acequia Madre de la Loma, South la Loma Lateral, and the Cortez & Sisneros ditch - divert from points downstream of some or all of these springs. Certain Taos Pueblo irrigated tracts are served by these ditches (see Table 5). In addition, the Taos Pueblo people have various ceremonial uses of the springs and their waters. Table 9 (Table Appendix) lists the locations of the springs. The place of use for spring water is the sacred pasture area, and at the irrigated tracts mentioned above. Spring locations are drafted onto the two map sheets entitled Lake, Pond, Spring, Reservoir & Well Locations which are in the Map Appendix. Note that the number of springs in the sacred pasture actually exceeds twenty-six. The twenty-six described herein are the points at which the greatest quantities of water issue. Other springs and seeps are located throughout the pasture.

Sacred Pasture

The sacred pasture is an area where water issues from the earth, providing surface and ground water flows which proceed into the Taos valley. A large contiguous area, it is situated near the end of several ditches which divert from the Rio Lucero and Rio Pueblo de Taos. It supports a wide variety of habitats (aquatic and terrestrial). It is a naturally wet area, but one whose character has been molded by human manipulation of water. Many of the plants in the sacred pasture are phreatophytes. They require the presence of a near surface (0 to 8 feet below ground level) water table for survival. The water table in the sacred pasture is maintained by the springs in the pasture and the local and regional ground water systems, as tempered by the water management practices at Taos Pueblo. When the Rio Lucero has sufficient flow, it advances into and through the sacred pasture. A strong interrelationship between ground water and surface water characterizes the pasture.

The proximity of the water table to the surface allows for the management of a root zone water table through a system of surface water application and open drains. Open surface drains have been constructed in certain parcels within the sacred pasture. Through the operation of the various ditches and drains, the water table can be manipulated in a way which supports the various native plant communities. Thus irrigation of the sacred pasture is accomplished by a combination of subsurface irrigation and surface irrigation methods. The Beeline and Grouse ditches serve the pasture. Tailwaters of several other ditches, including the North Trash Pile and Indian ditch mingle with those of the Grouse ditch before it serves the sacred pasture area. Water is applied at the perimeter of the sacred pasture. The presence of the ground water, in limiting downward movement of applied water, allows for an increase in the water table level by surface application of water.

The management of water at the sacred pasture, and the habitats thus supported, provide for the pasturage of a tribal buffalo herd and other livestock. A great variety of wildlife and plant life is also supported. Several species of wildlife and plants from the sacred pasture, as well as certain of the livestock, are used by the Taos Pueblo people for traditional ceremonial and religious purposes. In addition, the pasture itself is considered sacred and is used for these same purposes.

Taos Pueblo 1997 Water Use Survey

Table Appendix

Tables 1 through 8

Table 1 Water Impoundments - Locations

Table 2 Water Impoundments - Data

Table 3 Water Impoundments - Sorted

Table 4 Irrigated Lands - By Map Sheet

Table 5 Irrigated Land - by Water Source

Table 6 Irrigated Lands Diversion Points

Table 7 Wells - Locations

Table 8 Wells - By Use

Table 9 Springs

Table 1
Taos Pueblo 1997 Water Use Survey
Water Impoundments - Locations

Inventory Number	Field Name	Impoundment Location and Place of Use					
		Location in US Public Land Surveys				UTM Coordinates Zone 13	
		Quadrant	*Section*	*Township*	*Range*	*Easting*	*Northing*
P-001	GOMEZ POND	part of NE 1/4, SW 1/4, SW 1/4	18	26N	13E	447,590	4,037,600
P-002	JOE LUJAN	part of NE 1/4, SW 1/4, SE 1/4	17	26N	13E	446,950	4,037,520
P-003	JOHN A. MIRABAL	part of NE 1/4, SE 1/4, SE 1/4	18	26N	13E	447,270	4,037,530
P-004	LUIS BERNAL 1	part of SE 1/4, SW 1/4, SE 1/4	7	26N	13E	446,940	4,038,990
P-005	LUIS BERNAL 2	part of SW 1/4, NE 1/4, SE 1/4	7	26N	13E	447,000	4,039,250
P-006	POND 1	part of NE 1/4, NW 1/4, NW 1/4	33	26N	13E	449,970	4,033,710
P-007	LUIS BERNAL 3	part of SW 1/4, SW 1/4, SW 1/4	8	26N	13E	447,140	4,039,140
P-008	CEASARIO GOMEZ 1	part of NE 1/4, SW 1/4, SW 1/4	8	26N	13E	447,260	4,039,140
P-009	JOHN RAINER 1	part of SW 1/4, SE 1/4, NE 1/4	5	26N	13E	448,950	4,040,870
P-010	JOHN RAINER 2	part of NW 1/4, NE 1/4, SE 1/4	5	26N	13E	448,940	4,040,720
P-011	JOHN RAINER 3	part of NE 1/4, NE 1/4, SE 1/4	5	26N	13E	449,090	4,040,730
P-012	JOHN RAINER 4	part of SW 1/4, NW 1/4, SW 1/4	4	26N	13E	449,240	4,040,600
P-013	JOHN RAINER 5	part of SE 1/4, SW 1/4, NW 1/4	4	26N	13E	449,730	4,041,080
P-014	JOHN RAINER 6	part of NE 1/4, SW 1/4, NW 1/4	4	26N	13E	449,580	4,041,250
P-015	JOHN RAINER 7	part of NW 1/4, SW 1/4, NW 1/4	4	26N	13E	449,430	4,041,240
P-016	JOHN RAINER 8	part of SW 1/4, NW 1/4, SW 1/4	4	26N	13E	449,250	4,041,000
P-017	CEASARIO GOMEZ 2	part of NW 1/4, SW 1/4, NW 1/4	8	26N	13E	447,550	4,039,560
P-018	POND 2	part of NW 1/4, SW 1/4, SW 1/4	6	26N	13E	447,890	4,039,220
P-019	EDNA MIRABAL	part of NE 1/4, SE 1/4, NE 1/4	7	26N	13E	447,450	4,039,550
P-020	CEASARIO GOMEZ 3	part of SW 1/4, SW 1/4, NW 1/4	8	26N	13E	447,540	4,039,370
P-021	JUAN G. LUJAN 1	part of SW 1/4, NE 1/4, SW 1/4	8	26N	13E	447,640	4,039,170
P-022	JUAN G. LUJAN 2	part of NW 1/4, SE 1/4, NW 1/4	8	26N	13E	447,820	4,039,540
P-023	JOHN RAINER 9	part of NE 1/4, SW 1/4, NW 1/4	8	26N	13E	447,750	4,039,750
P-024	RAPHEAL REYNA 1	part of NW 1/4, SE 1/4, NW 1/4	8	26N	13E	448,200	4,039,630
P-025	RAPHEAL REYNA 2	part of NW 1/4, SE 1/4, NW 1/4	8	26N	13E	448,180	4,039,530
P-026	RAPHEAL REYNA 3	part of NE 1/4, SE 1/4, SW 1/4	8	26N	13E	448,410	4,039,300
P-027	JIMMY CORDOVA 1	part of NE 1/4, SE 1/4, NW 1/4	4	26N	13E	450,340	4,041,360
R-028	TRACT "B" RESERVOIR 1	part of SE 1/4, SE 1/4, NE 1/4	14	26N	12E	444,210	4,038,040
P-029	IGNACIO SUAZO OR FRED ROMERO	part of NE 1/4, SW 1/4, NE 1/4	4	26N	13E	450,510	4,041,170
P-030	POND 3	part of SE 1/4, SW 1/4, NE 1/4	4	26N	13E	450,730	4,041,050
P-031	ELESEO COUNCHO 1	part of SW 1/4, NE 1/4, NW 1/4	3	26N	13E	451,400	4,041,360
P-032	ELESEO COUNCHO 2	part of NE 1/4, SW 1/4, SW 1/4	3	26N	13E	451,170	4,040,400
P-033	JIMMY CORDOVA 2	part of SE 1/4, NW 1/4, NE 1/4	4	26N	13E	450,540	4,041,320
P-034	JIMMY CORDOVA 3	part of SW 1/4, NE 1/4, NE 1/4	4	26N	13E	450,800	4,041,260
P-035	JIMMY CORDOVA 4	part of SE 1/4, SW 1/4, NE 1/4	4	26N	13E	450,740	4,040,980
P-036	JIMMY CORDOVA 5	part of NE 1/4, SE 1/4, NE 1/4	4	26N	13E	450,840	4,040,950
P-037	ELESEO COUNCHO 3	part of SW 1/4, SE 1/4, NW 1/4	3	26N	13E	451,370	4,040,890
R-038	TRACT "B" RESERVOIR 2	part of SE 1/4, NE 1/4, SE 1/4	3	26N	12E	441,730	4,040,790
P-039	TRACT "B" RESERVOIR 3	part of NE 1/4, NE 1/4, NW 1/4	25	26N	12E	445,040	4,035,410
R-040	TRACT "A" RESERVOIR 1	part of NW 1/4, NW 1/4, NE 1/4	30	26N	12E	436,990	4,035,590
R-041	TRACT "A" RESERVOIR 2	part of NE 1/4, NE 1/4, SE 1/4	16	25N	12E	440,820	4,028,320

Table 1
Taos Pueblo 1997 Water Use Survey
Water Impoundments - Locations

Inventory Number	Field Name	Impoundment Location and Place of Use					
		Location in US Public Land Surveys				UTM Coordinates Zone 13	
		Quadrant	*Section*	*Township*	*Range*	*Easting*	*Northing*
R-042	TRACT "A" RESERVOIR 3	part of SW 1/4, SE 1/4, NE 1/4	4	25N	12E	440,680	4,031,630
R-043	TRACT "A" RESERVOIR 4	part of SE 1/4, SW 1/4, SE 1/4	16	25N	12E	440,430	4,027,720
R-044	TRACT "A" RESERVOIR 5	part of SE 1/4, SE 1/4, SW 1/4	16	25N	12E	439,970	4,027,730
R-045	TRACT "A" RESERVOIR 6	part of SW 1/4, SE 1/4, SW 1/4	16	25N	12E	439,860	4,027,550
R-046	TRACT "A" RESERVOIR 7	part of NE 1/4, NE 1/4, NW 1/4	16	25N	12E	441,710	4,027,550
P-047	JOHN RAINER 10	part of SW 1/4, NE 1/4, SW 1/4	4	26N	13E	449,830	4,040,140
P-048	POND 4	part of NE 1/4, NW 1/4, SE 1/4	29	26N	13E	448,710	4,034,580
P-049	FRANK J. LUJAN	part of NW 1/4, NE 1/4, NW 1/4	9	26N	13E	449,570	4,040,040
P-050	VINCENTE LUJAN 1	part of NE 1/4, SW 1/4, SW 1/4	29	26N	13E	447,670	4,034,290
P-051	VINCENTE LUJAN 2	part of NE 1/4, SW 1/4, SW 1/4	29	26N	13E	447,670	4,034,300
R-052	TRACT "B" RESERVOIR 4	part of SE 1/4, SE 1/4, SE 1/4	11	26N	12E	443,690	4,040,930
R-053	TRACT "B" RESERVOIR 5	part of SW 1/4, NW 1/4, SW 1/4	2	26N	12E	441,900	4,040,840
R-054	TRACT "B" RESERVOIR 6	part of NE 1/4, NW 1/4, SW 1/4	14	26N	12E	443,090	4,037,950
R-055	TRACT "A" RESERVOIR 8	part of NW 1/4, NW 1/4, SW 1/4	14	25N	13E	442,550	4,028,240
R-056	TRACT "A" RESERVOIR 9	part of SE 1/4, SE 1/4, SE 1/4	15	25N	12E	442,480	4,027,640
R-057	TRACT "A" RESERVOIR 10	part of NW 1/4, SW 1/4, SE 1/4	20	25N	12E	438,650	4,026,320
R-058	TRACT "A" RESERVOIR 11	part of SW 1/4, SW 1/4, NE 1/4	20	25N	12E	438,700	4,026,750
R-059	TRACT "A" RESERVOIR 12	part of NE 1/4, NE 1/4, SE 1/4	10	25N	12E	442,490	4,029,800
R-060	TRACT "A" RESERVOIR 13	part of SE 1/4, SE 1/4, NE 1/4	10	25N	12E	442,390	4,030,010
R-061	TRACT "A" RESERVOIR 14	part of NE 1/4, SW 1/4, SE 1/4	7	25N	12E	437,150	4,029,510
R-062	TRIBAL RESERVOIR 1	part of NW 1/4, SE 1/4, NW 1/4	16	25N	13E	449,920	4,028,640
R-063	TRIBAL RESERVOIR 2	part of NE 1/4, NE 1/4, NW 1/4	16	25N	13E	449,910	4,029,080
L-064	LAKE 1	part of SE 1/4, SW 1/4, NW 1/4	9	26N	14E	458,880	4,039,210
R-065	GEORGE MIRABAL RESERVOIR	part of SE 1/4, SW 1/4, SW 1/4	5	26N	13E	451,160	4,037,310
R-066	PAUL BERNAL RESERERVOIR	part of NW 1/4, SW 1/4, NE 1/4	10	26N	13E	451,730	4,039,560
R-067	TRIBAL RESERVOIR 3	part of SW 1/4, NE 1/4, NE 1/4	9	25N	13E	450,370	4,030,430
R-068	TRIBAL RESERVOIR 4	part of SW 1/4, NE 1/4, NE 1/4	9	25N	13E	450,450	4,030,520
R-069	TRIBAL RESERVOIR 5	part of NE 1/4, NE 1/4, NE 1/4	9	25N	13E	450,750	4,030,680
R-070	BOBBY LUJAN'S RESERVOIR	part of SW 1/4, SW 1/4, NE 1/4	9	25N	13E	450,090	4,030,150

Table 1
Taos Pueblo 1997 Water Use Survey
Water Impoundments - Locations

Inventory Number	Field Name	Impoundment Location and Place of Use					
		Location in US Public Land Surveys				UTM Coordinates Zone 13	
		Quadrant	*Section*	*Township*	*Range*	*Easting*	*Northing*
R-071	TRIBAL RESERVOIR 6	part of SE 1/4, NW 1/4, SE 1/4	9	25N	13E	450,000	4,029,590
R-072	RESERVOIR	part of SE 1/4, SE 1/4, SW 1/4	9	25N	13E	449,880	4,029,260
R-073	TRIBAL RESERVOIR 7	part of NE 1/4, SE 1/4, SW 1/4	9	25N	13E	449,880	4,029,420
R-074	TRIBAL RESERVOIR 8	part of SE 1/4, SE 1/4, SW 1/4	9	25N	13E	449,970	4,029,300
R-075	TRIBAL RESERVOIR 9	part of NE 1/4, NW 1/4, NW 1/4	33	26N	13E	449,610	4,033,800
R-076	TRIBAL RESERVOIR 10	part of SW 1/4, NW 1/4, NW 1/4	33	25N	13E	449,480	4,033,800
L-077	LAKE 2	part of SE 1/4, NW 1/4, NW 1/4	11	26N	14E	462,230	4,039,760
L-078	LAKE 3	part of NW 1/4, SW 1/4, NW 1/4	5	26N	15E	466,010	4,041,180
R-079	TRIBAL RESERVOIR 11	part of NE 1/4, SW 1/4, NW 1/4	33	26N	13E	449,540	4,033,450
P-080	JIM MIRABAL 1	part of SE 1/4, NE 1/4, NE 1/4	4	25N	13E	449,850	4,031,380
P-081	JIM MIRABAL 2	part of SW 1/4, NE 1/4, NE 1/4	4	25N	13E	450,400	4,031,930
P-082	JIM MIRABAL 3	part of SE 1/4, NE 1/4, SW 1/4	4	25N	13E	449,900	4,031,350
P-083	JIM MIRABAL 4	part of SW 1/4, NE 1/4, SW 1/4	4	25N	13E	449,870	4,031,280
P-084	BENNIE D. MONDRAGON	part of SW 1/4, SW 1/4, NE 1/4	4	25N	13E	450,160	4,031,730
P-085	POND 5	part of NE 1/4, NW 1/4, SE 1/4	4	25N	13E	450,320	4,031,410
P-086	RAPHEAL REYNA 4	part of SW 1/4, NE 1/4, NW 1/4	8	26N	13E	448,210	4,039,800
P-087	RAPHEAL REYNA 5	part of SE 1/4, NE 1/4, NW 1/4	8	26N	13E	448,400	4,039,680
P-088	PAUL BERNAL POND	part of NE 1/4, SW 1/4, SE 1/4	5	26N	13E	448,650	4,040,290
P-089	GILBERT SUAZO 1	part of NE 1/4, SW 1/4, SE 1/4	4	25N	12E	450,120	4,031,070
P-090	GILBERT SUAZO 2	part of NE 1/4, SW 1/4, SE 1/4	4	25N	12E	450,230	4,031,150
P-091	TRIBAL POND	part of NE 1/4, NW 1/4, NW 1/4	9	25N	12E	449,550	4,030,780
R-092	LA JUNTA CREEK POND A	part of NW 1/4, SE 1/4, SW 1/4	4	25N	15E	467,870	4,030,680
R-093	LA JUNTA CREEK POND B	part of NE 1/4, SE 1/4, SE 1/4	5	25N	14E	467,230	4,030,760
R-094	LA JUNTA CREEK POND C	part of SE 1/4, NE 1/4, SW 1/4	5	25N	15E	466,500	4,030,950
R-095	DEER CREEK POND A	part of NE 1/4, SW 1/4, SW 1/4	6	25N	15E	465,330	4,030,690
R-096	DEER CREEK POND B	part of SE 1/4, NW 1/4, NW 1/4	7	25N	15E	465,210	4,030,280
L-097	BLUE LAKE	part of NW 1/4, SW 1/4, SW 1/4	30	27N	15E	465,200	4,043,490
L-098	STAR LAKE	part of SW 1/4, SW 1/4, NW 1/4	31	27N	15E	465,100	4,042,370
L-099	WATERBIRD LAKE	part of SW 1/4, NW 1/4, NE 1/4	1	26N	14E	464,340	4,041,210
L-100	BEAR LAKE	part of SW 1/4, NE 1/4, NW 1/4	35	27N	14E	462,280	4,043,010
L-101	LAKE 4	part of NE 1/4, NW 1/4, NE 1/4	11	26N	14E	462,830	4,039,970
L-102	NEXT LAKE (LAKE AGAIN)	part of NW 1/4, NE 1/4, NW 1/4	11	26N	14E	462,400	4,039,840
L-103	LAKE 5	part of SE 1/4, SE 1/4, SW 1/4	26	27N	14E	462,450	4,043,250
L-104	LAKE 6	part of NW 1/4, NE 1/4, SW 1/4	27	27N	14E	460,720	4,043,940
L-105	LAKE 7	part of SE 1/4, NE 1/4, SW 1/4	27	27N	14E	460,810	4,043,770
L-106	LAKE 8	part of SE 1/4, NW 1/4, SW 1/4	26	27N	14E	462,130	4,043,610

Table 1
Taos Pueblo 1997 Water Use Survey
Water Impoundments - Locations

Inventory Number	Field Name	Impoundment Location and Place of Use					
		Location in US Public Land Surveys				UTM Coordinates Zone 13	
		Quadrant	*Section*	*Township*	*Range*	*Easting*	*Northing*
L-107	LAKE 9	part of NE 1/4, SW 1/4, SW 1/4	26	27N	14E	462,160	4,043,500
L-108	LAKE 10	part of SW 1/4, SW 1/4, SE 1/4	36	27N	14E	464,250	4,041,730
L-109	LAKE 11	part of SE 1/4, SE 1/4, SW 1/4	36	27N	14E	464,190	4,041,690
L-110	LAKE 12	part of SW 1/4, SW 1/4, NW 1/4	6	26N	15E	465,100	4,040,820
L-111	LAKE 13	part of NE 1/4, SE 1/4, NW 1/4	11	26N	14E	462,440	4,039,470
L-112	LAKE 14	part of NE 1/4, SE 1/4, NW 1/4	30	27N	15E	465,780	4,044,350
L-113	LAKE 15	part of SE 1/4, SE 1/4, SE 1/4	27	27N	14E	461,770	4,043,340
L-114	LAKE 16	part of NW 1/4, SE 1/4, SW 1/4	30	27N	15E	465,390	4,043,460
P-115	POND 6	part of SE 1/4, NW 1/4, NE 1/4	8	26N	13E	448,600	4,039,690
P-116	POND 7	part of SW 1/4, SW 1/4, SW 1/4	29	26N	13E	447,760	4,034,020
P-117	STOCK POND 1	part of NE 1/4, NW 1/4, NE 1/4	18	26N	13E	447,090	4,038,710
L-118	LAKE 17	part of NE 1/4, NE 1/4, SE 1/4	21	26N	15E	468,920	4,035,980
P-119	POND 8	part of NE 1/4, NE 1/4, NW 1/4	9	26N	13E	449,880	4,040,010
P-120	POND 9	part of NW 1/4, SE 1/4, SW 1/4	3	26N	13E	451,500	4,040,360
P-121	POND 10	part of SW 1/4, NE 1/4, SW 1/4	3	26N	13E	451,500	4,040,450
P-122	STOCK POND 2	part of SW 1/4, NE 1/4, SE 1/4	4	26N	13E	450,600	4,040,520
P-123	HAROLD CORDOVA STOCK POND	part of SE 1/4, NW 1/4, NE 1/4	4	26N	13E	450,180	4,041,280
P-124	STOCK POND 3	part of NE 1/4, SW 1/4, NE 1/4	4	26N	13E	450,650	4,040,980
P-125	JIMMY CORDOVA STOCK POND 1	part of SW 1/4, SE 1/4, NW 1/4	4	26N	13E	449,770	4,040,820
P-126	JIMMY CORDOVA STOCK POND 2	part of NE 1/4, NE 1/4, SW 1/4	4	26N	13E	449,770	4,040,640
P-127	POND 11	part of SE 1/4, SW 1/4, NE 1/4	3	26N	13E	452,050	4,040,840
P-128	CESARIO GOMEZ STOCK POND	part of NW 1/4, NW 1/4, NW 1/4	8	26N	13E	447,610	4,039,800
P-129	STOCK POND 4	part of SW 1/4, NW 1/4, NE 1/4	30	26N	13E	446,940	4,035,130
P-130	JIMMY CORDOVA STOCK POND 3	part of SW 1/4, SE 1/4, NW 1/4	4	26N	13E	449,780	4,040,920
R-131	TRACT "A" RESERVOIOR	part of NE 1/4, NE 1/4, NE 1/4	15	25N	12E	442,600	4,029,150
P-132	STOCK POND 5	part of NW 1/4, NW 1/4, SW 1/4	3	26N	13E	450,990	4,040,720
R-133	TRACT "B" RESERVOIR 7	part of SE 1/4, NW 1/4, SE 1/4	2	26N	12E	443,690	4,040,930
R-134	TRACT "B" RESERVOIR 8	part of NE 1/4, SE 1/4, NW 1/4	4	26N	12E	442,950	4,039,850
P-135	POND 12	part of NE 1/4, NW 1/4, NE 1/4	18	26N	13E	447,080	4,038,620
P-136	TOM LUCERO	part of SW 1/4, NE 1/4, NE 1/4	8	26N	13E	448,850	4,039,840
P-137	POND 13	part of NW 1/4, SE 1/4, NE 1/4	18	26N	13E	447,300	4,038,370
P-138	POND 14	part of SE 1/4, NE 1/4, SW 1/4	29	26N	13E	448,270	4,034,340
P-139	POND 15	part of NW 1/4, SW 1/4, SE 1/4	4	25N	13E	450,080	4,031,040
P-140	JIMMY LUJAN STOCK POND 1	part of NE 1/4, NW 1/4, NE 1/4	8	26N	13E	448,660	4,039,850
P-141	POND 16	part of SE 1/4, SE 1/4, SW 1/4	4	25N	13E	449,890	4,030,850
P-142	JIMMY CORDOVA STOCK POND 4	part of SW 1/4, SE 1/4, NW 1/4	4	26N	13E	449,820	4,040,820
P-143	JIMMY CORDOVA STOCK POND 5	part of NE 1/4, SW 1/4, NE 1/4	4	26N	13E	450,380	4,041,250

Table 1
Taos Pueblo 1997 Water Use Survey
Water Impoundments - Locations

Inventory Number	Field Name	Impoundment Location and Place of Use					
		Location in US Public Land Surveys				UTM Coordinates Zone 13	
		Quadrant	*Section*	*Township*	*Range*	*Easting*	*Northing*
P-144	JIMMY LUJAN STOCK POND 2	part of SE 1/4, SE 1/4, SW 1/4	3	26N	13E	451,440	4,040,160
L-145	LAKE 18	part of NW 1/4, SE 1/4, NW 1/4	33	26N	15E	468,390	4,033,440
L-146	LAKE 19	part of NE 1/4, SW 1/4, SW 1/4	26	27N	14E	462,070	4,043,570
L-147	LAKE 20	part of SW 1/4, NW 1/4, SE 1/4	26	27N	14E	462,610	4,043,700
L-148	LAKE 21	part of SE 1/4, SW 1/4, NW 1/4	35	27N	14E	462,120	4,042,610
L-149	LAKE 22	part of SE 1/4, SW 1/4, NE 1/4	10	26N	14E	461,330	4,039,260
R-150	FLOOD CONTROL RESERVOIR	part of SW 1/4, SE 1/4, NW 1/4	16	25N	13E	449,600	4,028,510

Table 2
Taos Pueblo 1997 Water Use Survey
Water Impoundments - Data

Inventory Number	Water Source	Ditch, where applicable	Surface Area, acres	Point of Diversion	
				UTM Coordinates	
				Zone 13	
				Easting	*Northing*
P-001	Rio Lucero	Tenorio	0.15	452,450	4,040,200
P-002	Rio Lucero	Tenorio	0.06	452,450	4,040,200
P-003	Rio Lucero	Tenorio	0.01	452,450	4,040,200
P-004	Rio Lucero	Tenorio	0.14	452,450	4,040,200
P-005	Rio Lucero	Tenorio	0.77	452,450	4,040,200
P-006	Rio Lucero	Beeline	0.03	449,820	4,036,250
P-007	Rio Lucero	Tenorio	0.23	452,450	4,040,200
P-008	Rio Lucero	Tenorio	0.17	452,450	4,040,200
P-009	Rio Lucero	Tenorio	0.28	452,450	4,040,200
P-010	Rio Lucero	Tenorio	0.30	452,450	4,040,200
P-011	Rio Lucero	Tenorio	0.08	452,450	4,040,200
P-012	Rio Lucero	Tenorio	0.17	452,450	4,040,200
P-013	Rio Lucero	Tenorio	0.25	452,450	4,040,200
P-014	Rio Lucero	Tenorio	0.47	452,450	4,040,200
P-015	Rio Lucero	Tenorio	0.13	452,450	4,040,200
P-016	Rio Lucero	Tenorio	0.25	452,450	4,040,200
P-017	Rio Lucero	Tenorio	0.02	452,450	4,040,200
P-018	Rio Lucero	Tenorio	0.50	452,450	4,040,200
P-019	Rio Lucero	Tenorio	0.01	452,450	4,040,200
P-020	Rio Lucero	Tenorio	0.05	452,450	4,040,200
P-021	Rio Lucero	Tenorio	0.01	452,450	4,040,200
P-022	Rio Lucero	Tenorio	0.19	452,450	4,040,200
P-023	Rio Lucero	Tenorio	0.55	452,450	4,040,200
P-024	Rio Lucero	Tenorio	0.20	452,450	4,040,200
P-025	Rio Lucero	Tenorio	0.02	452,450	4,040,200
P-026	Rio Lucero	Tenorio	0.01	452,450	4,040,200
P-027	Rio Lucero	Tenorio	0.52	452,450	4,040,200
R-028	Tributary of Rio Pueblo de Taos		0.02	444,210	4,038,040
P-029	Rio Lucero	Tenorio	0.15	452,450	4,040,200
P-030	Rio Lucero	Tenorio	0.01	452,450	4,040,200
P-031	Rio Lucero	Tenorio	0.65	452,450	4,040,200
P-032	Rio Lucero	Tenorio	0.69	452,450	4,040,200
P-033	Rio Lucero	Tenorio	0.02	452,450	4,040,200
P-034	Rio Lucero	Tenorio	0.13	452,450	4,040,200
P-035	Rio Lucero	Tenorio	0.06	452,450	4,040,200
P-036	Rio Lucero	Tenorio	0.08	452,450	4,040,200
P-037	Rio Lucero	Tenorio	0.25	452,450	4,040,200
R-038	Tributary of Rio Grande		0.23	441,730	4,040,790
P-039	Arroyo Seco	Arroyo Seco del Rio Lucero	0.40	452,390	4,040,150
R-040	Tributary of Rio Grande		1.77	436,990	4,035,590
R-041	Tributary of Rio Pueblo de Taos		0.52	440,820	4,028,320

Table 2
Taos Pueblo 1997 Water Use Survey
Water Impoundments - Data

Inventory Number	Water Source	Ditch, where applicable	Surface Area, acres	Point of Diversion	
				UTM Coordinates	
				Zone 13	
				Easting	*Northing*
R-042	Tributary of Rio Pueblo de Taos		1.62	440,680	4,031,630
R-043	Tributary of Rio Pueblo de Taos		2.75	440,430	4,027,720
R-044	Tributary of Rio Pueblo de Taos		0.23	439,970	4,027,730
R-045	Tributary of Rio Pueblo de Taos		0.40	439,860	4,027,550
R-046	Tributary of Rio Pueblo de Taos		0.34	441,710	4,027,550
P-047	Rio Lucero	Tenorio	0.55	452,450	4,040,200
P-048	Rio Lucero	Beeline	0.02	449,820	4,036,250
P-049	Rio Lucero	Tenorio	0.23	452,450	4,040,200
P-050	Rio Lucero	Beeline	0.01	449,820	4,036,250
P-051	Rio Lucero	Beeline	0.01	449,820	4,036,250
R-052	Tributary of Rio Grande		0.10	443,690	4,040,930
R-053	Tributary of Rio Grande		0.21	441,900	4,040,840
R-054	Tributary of Rio Grande		0.29	443,090	4,037,950
R-055	Tributary of Rio Pueblo de Taos		0.90	442,550	4,028,240
R-056	Tributary of Rio Pueblo de Taos		1.03	442,480	4,027,640
R-057	Tributary of Rio Pueblo de Taos		1.72	438,650	4,026,320
R-058	Tributary of Rio Pueblo de Taos		3.67	438,700	4,026,750
R-059	Tributary of Rio Pueblo de Taos		0.51	442,490	4,029,800
R-060	Tributary of Rio Pueblo de Taos		0.69	442,390	4,030,010
R-061	Tributary of Rio Grande		3.10	437,150	4,029,510
R-062	Tributary of Rio Fernando de Taos		0.63	449,920	4,028,640
R-063	Tributary of Rio Fernando de Taos		0.46	449,910	4,029,080
L-064	Tributary of Rio Pueblo de Taos		0.09	458,880	4,039,210
R-065	Tributary of Rio Lucero		0.20	451,160	4,037,310
R-066	Tributary of Rio Lucero		0.44	451,730	4,039,560
R-067	Tributary of Rio Pueblo de Taos		0.45	450,370	4,030,430
R-068	Tributary of Rio Pueblo de Taos		0.23	450,450	4,030,520
R-069	Tributary of Rio Pueblo de Taos		1.09	450,750	4,030,680

Table 2
Taos Pueblo 1997 Water Use Survey
Water Impoundments - Data

Inventory Number	Water Source	Ditch, where applicable	Surface Area, acres	Point of Diversion	
				UTM Coordinates	
				Zone 13	
				Easting	*Northing*
R-070	Tributary of Rio Pueblo de Taos		0.52	450,090	4,030,150
R-071	Tributary of Rio Fernando de Taos		0.86	450,000	4,029,590
R-072	Tributary of Rio Fernando de Taos		0.06	449,880	4,029,260
R-073	Tributary of Rio Fernando de Taos		0.24	449,880	4,029,420
R-074	Tributary of Rio Fernando de Taos		0.17	449,970	4,029,300
R-075	Tributary of Rio Lucero		0.11	449,610	4,033,800
R-076	Tributary of Rio Lucero		0.06	449,480	4,033,800
L-077	Tributary of Rio Pueblo de Taos		0.17	462,230	4,039,760
L-078	Tributary of Rio Pueblo de Taos		0.10	466,010	4,041,180
R-079	Tributary of Rio Lucero		0.52	449,540	4,033,450
P-080	Rio Pueblo de Taos	McClure A/K/A Hail Creek	1.01	450,100	4,031,530
P-081	Rio Pueblo de Taos	B Ditch	2.41	451,100	4,032,440
P-082	Rio Pueblo de Taos	McClure A/K/A Hail Creek	1.38	450,100	4,031,530
P-083	Rio Pueblo de Taos	McClure A/K/A Hail Creek	0.46	450,100	4,031,530
P-084	Rio Pueblo de Taos	B Ditch	0.02	451,100	4,032,440
P-085	Rio Pueblo de Taos	Phia-No	0.01	451,040	4,032,350
P-086	Rio Lucero	Tenorio	0.03	452,450	4,040,200
P-087	Rio Lucero	Tenorio	0.07	452,450	4,040,200
P-088	Rio Lucero	Tenorio	0.02	452,450	4,040,200
P-089	Rio Pueblo de Taos	Phia-No	0.01	451,040	4,032,350
P-090	Rio Pueblo de Taos	Phia-No	0.01	451,040	4,032,350
P-091	Rio Pueblo de Taos	Acequia Madre Del Pueblo	1.38	450,300	4,031,720
R-092	Tributary of Rio Pueblo de Taos		0.02	467,870	4,030,680
R-093	Tributary of Rio Pueblo de Taos		0.18	467,230	4,030,760
R-094	Tributary of Rio Pueblo de Taos		0.79	466,500	4,030,950
R-095	Tributary of Rio Pueblo de		0.51	465,330	4,030,690
R-096	Tributary of Rio Pueblo de		0.02	465,210	4,030,280
L-097	Tributary of Rio Pueblo de Taos		10.56	465,200	4,043,490

Table 2
Taos Pueblo 1997 Water Use Survey
Water Impoundments - Data

Inventory Number	Water Source	Ditch, where applicable	Surface Area, acres	Point of Diversion	
				UTM Coordinates	
				Zone 13	
				Easting	*Northing*
L-098	Tributary of Rio Pueblo de Taos		2.98	465,100	4,042,370
L-099	Tributary of Rio Pueblo de Taos		4.59	464,340	4,041,210
L-100	Tributary of Rio Lucero		5.96	462,280	4,043,010
L-101	Tributary of Rio Pueblo de Taos		0.92	462,830	4,039,970
L-102	Tributary of Rio Pueblo de Taos		4.13	462,400	4,039,840
L-103	Tributary of Rio Lucero		1.60	462,450	4,043,250
L-104	Tributary of Rio Lucero		2.98	460,720	4,043,940
L-105	Tributary of Rio Lucero		0.69	460,810	4,043,770
L-106	Tributary of Rio Lucero		0.46	462,130	4,043,610
L-107	Tributary of Rio Lucero		0.46	462,160	4,043,500
L-108	Tributary of Rio Pueblo de Taos		0.34	464,250	4,041,730
L-109	Tributary of Rio Pueblo de Taos		0.34	464,190	4,041,690
L-110	Tributary of Rio Pueblo de Taos		0.46	465,100	4,040,820
L-111	Tributary of Rio Pueblo de Taos		0.69	462,440	4,039,470
L-112	Tributary of Rio Pueblo de Taos		0.46	465,780	4,044,350
L-113	Tributary of Rio Lucero		0.34	461,770	4,043,340
L-114	Tributary of Rio Pueblo de Taos		0.92	465,390	4,043,460
P-115	Rio Lucero	Tenorio	0.03	452,450	4,040,200
P-116	Rio Lucero	Beeline	0.02	449,820	4,036,250
P-117	Rio Lucero	Tenorio	0.03	452,450	4,040,200
L-118	Tributary of Rio Pueblo de Taos		0.02	468,920	4,035,980
P-119	Rio Lucero	Tenorio	0.02	452,450	4,040,200
P-120	Rio Lucero	Tenorio	0.02	452,450	4,040,200
P-121	Rio Lucero	Tenorio	0.29	452,450	4,040,200
P-122	Rio Lucero	Tenorio	0.06	452,450	4,040,200
P-123	Rio Lucero	Tenorio	0.06	452,450	4,040,200
P-124	Rio Lucero	Tenorio	0.52	452,450	4,040,200
P-125	Rio Lucero	Tenorio	0.09	452,450	4,040,200
P-126	Rio Lucero	Tenorio	0.09	452,450	4,040,200
P-127	Rio Lucero	Tenorio	0.23	452,450	4,040,200
P-128	Rio Lucero	Tenorio	0.02	452,450	4,040,200
P-129	Rio Lucero	Indian/1908	0.01	449,750	4,037,210
P-130	Rio Lucero	Tenorio	0.01	452,450	4,040,200

Table 2
Taos Pueblo 1997 Water Use Survey
Water Impoundments - Data

Inventory Number	Water Source	Ditch, where applicable	Surface Area, acres	Point of Diversion	
				UTM Coordinates	
				Zone 13	
				Easting	*Northing*
R-131	Tributary of Rio Pueblo de Taos		0.46	442,600	4,029,150
P-132	Rio Lucero	Tenorio	0.16	452,450	4,040,200
R-133	Tributary of Rio Grande		0.06	443,690	4,040,930
R-134	Tributary of Rio Grande		0.42	442,950	4,039,850
P-135	Rio Lucero	Tenorio	0.01	452,450	4,040,200
P-136	Rio Lucero	Tenorio	0.01	452,450	4,040,200
P-137	Rio Lucero	Tenorio	0.03	452,450	4,040,200
P-138	Rio Lucero	Beeline	0.02	449,820	4,036,250
P-139	Rio Pueblo de Taos	Phia-No	0.01	451,040	4,032,350
P-140	Rio Lucero	Tenorio	0.03	452,450	4,040,200
P-141	Rio Pueblo de Taos	Acequia Madre Del Pueblo	0.06	450,300	4,031,720
P-142	Rio Lucero	Tenorio	0.02	452,450	4,040,200
P-143	Rio Lucero	Tenorio	0.01	452,450	4,040,200
P-144	Rio Lucero	Tenorio	0.01	452,450	4,040,200
L-145	Tributary of Rio Pueblo de Taos		0.25	468,390	4,033,440
L-146	Tributary of Rio Lucero		0.20	462,070	4,043,570
L-147	Tributary of Rio Lucero		0.15	462,610	4,043,700
L-148	Tributary of Rio Lucero		0.20	462,120	4,042,610
L-149	Tributary of Rio Pueblo de Taos		0.15	461,330	4,039,260
R-150	Tributary of Rio Fernando de Taos		2.40	449,600	4,028,510

Table 3
Taos Pueblo 1997 Water Use Survey
Water Impoundments - Sorted

Inventory Number	Water Source	Ditch, where applicable	Surface Area, acres	Point of Diversion	
				UTM Coordinates	
				Zone 13	
				Easting	*Northing*
LAKES					
L-064	Tributary of Rio Pueblo de Taos		0.09	458,880	4,039,210
L-077	Tributary of Rio Pueblo de Taos		0.17	462,230	4,039,760
L-078	Tributary of Rio Pueblo de Taos		0.10	466,010	4,041,180
L-097	Tributary of Rio Pueblo de Taos		10.56	465,200	4,043,490
L-098	Tributary of Rio Pueblo de Taos		2.98	465,100	4,042,370
L-099	Tributary of Rio Pueblo de Taos		4.59	464,340	4,041,210
L-100	Tributary of Rio Lucero		5.96	462,280	4,043,010
L-101	Tributary of Rio Pueblo de Taos		0.92	462,830	4,039,970
L-102	Tributary of Rio Pueblo de Taos		4.13	462,400	4,039,840
L-103	Tributary of Rio Lucero		1.60	462,450	4,043,250
L-104	Tributary of Rio Lucero		2.98	460,720	4,043,940
L-105	Tributary of Rio Lucero		0.69	460,810	4,043,770
L-106	Tributary of Rio Lucero		0.46	462,130	4,043,610
L-107	Tributary of Rio Lucero		0.46	462,160	4,043,500
L-108	Tributary of Rio Pueblo de Taos		0.34	464,250	4,041,730
L-109	Tributary of Rio Pueblo de Taos		0.34	464,190	4,041,690
L-110	Tributary of Rio Pueblo de Taos		0.46	465,100	4,040,820
L-111	Tributary of Rio Pueblo de Taos		0.69	462,440	4,039,470
L-112	Tributary of Rio Pueblo de Taos		0.46	465,780	4,044,350
L-113	Tributary of Rio Lucero		0.34	461,770	4,043,340
L-114	Tributary of Rio Pueblo de Taos		0.92	465,390	4,043,460
L-118	Tributary of Rio Pueblo de Taos		0.02	468,920	4,035,980
L-145	Tributary of Rio Pueblo de Taos		0.25	468,390	4,033,440
L-146	Tributary of Rio Lucero		0.20	462,070	4,043,570
L-147	Tributary of Rio Lucero		0.15	462,610	4,043,700
L-148	Tributary of Rio Lucero		0.20	462,120	4,042,610
L-149	Tributary of Rio Pueblo de Taos		0.15	461,330	4,039,260

Table 3
Taos Pueblo 1997 Water Use Survey
Water Impoundments - Sorted

Inventory Number	Water Source	Ditch, where applicable	Surface Area, acres	Point of Diversion	
				UTM Coordinates	
				Zone 13	
				Easting	*Northing*
LAKES					
L-064	Tributary of Rio Pueblo de Taos		0.09	458,880	4,039,210
L-077	Tributary of Rio Pueblo de Taos		0.17	462,230	4,039,760
L-078	Tributary of Rio Pueblo de Taos		0.10	466,010	4,041,180
L-097	Tributary of Rio Pueblo de Taos		10.56	465,200	4,043,490
L-098	Tributary of Rio Pueblo de Taos		2.98	465,100	4,042,370
L-099	Tributary of Rio Pueblo de Taos		4.59	464,340	4,041,210
L-100	Tributary of Rio Lucero		5.96	462,280	4,043,010
L-101	Tributary of Rio Pueblo de Taos		0.92	462,830	4,039,970
L-102	Tributary of Rio Pueblo de Taos		4.13	462,400	4,039,840
L-103	Tributary of Rio Lucero		1.60	462,450	4,043,250
L-104	Tributary of Rio Lucero		2.98	460,720	4,043,940
L-105	Tributary of Rio Lucero		0.69	460,810	4,043,770
L-106	Tributary of Rio Lucero		0.46	462,130	4,043,610
L-107	Tributary of Rio Lucero		0.46	462,160	4,043,500
L-108	Tributary of Rio Pueblo de Taos		0.34	464,250	4,041,730
L-109	Tributary of Rio Pueblo de Taos		0.34	464,190	4,041,690
L-110	Tributary of Rio Pueblo de Taos		0.46	465,100	4,040,820
L-111	Tributary of Rio Pueblo de Taos		0.69	462,440	4,039,470
L-112	Tributary of Rio Pueblo de Taos		0.46	465,780	4,044,350
L-113	Tributary of Rio Lucero		0.34	461,770	4,043,340
L-114	Tributary of Rio Pueblo de Taos		0.92	465,390	4,043,460
L-118	Tributary of Rio Pueblo de Taos		0.02	468,920	4,035,980
L-145	Tributary of Rio Pueblo de Taos		0.25	468,390	4,033,440
L-146	Tributary of Rio Lucero		0.20	462,070	4,043,570
L-147	Tributary of Rio Lucero		0.15	462,610	4,043,700
L-148	Tributary of Rio Lucero		0.20	462,120	4,042,610
L-149	Tributary of Rio Pueblo de Taos		0.15	461,330	4,039,260

Table 3
Taos Pueblo 1997 Water Use Survey
Water Impoundments - Sorted

Inventory Number	Water Source	Ditch, where applicable	Surface Area, acres	Point of Diversion	
				UTM Coordinates	
				Zone 13	
				Easting	*Northing*
PONDS					
P-001	Rio Lucero	Tenorio	0.15	452,450	4,040,200
P-002	Rio Lucero	Tenorio	0.06	452,450	4,040,200
P-003	Rio Lucero	Tenorio	0.01	452,450	4,040,200
P-004	Rio Lucero	Tenorio	0.14	452,450	4,040,200
P-005	Rio Lucero	Tenorio	0.77	452,450	4,040,200
P-006	Rio Lucero	Beeline	0.03	449,820	4,036,250
P-007	Rio Lucero	Tenorio	0.23	452,450	4,040,200
P-008	Rio Lucero	Tenorio	0.17	452,450	4,040,200
P-009	Rio Lucero	Tenorio	0.28	452,450	4,040,200
P-010	Rio Lucero	Tenorio	0.30	452,450	4,040,200
P-011	Rio Lucero	Tenorio	0.08	452,450	4,040,200
P-012	Rio Lucero	Tenorio	0.17	452,450	4,040,200
P-013	Rio Lucero	Tenorio	0.25	452,450	4,040,200
P-014	Rio Lucero	Tenorio	0.47	452,450	4,040,200
P-015	Rio Lucero	Tenorio	0.13	452,450	4,040,200
P-016	Rio Lucero	Tenorio	0.25	452,450	4,040,200
P-017	Rio Lucero	Tenorio	0.02	452,450	4,040,200
P-018	Rio Lucero	Tenorio	0.50	452,450	4,040,200
P-019	Rio Lucero	Tenorio	0.01	452,450	4,040,200
P-020	Rio Lucero	Tenorio	0.05	452,450	4,040,200
P-021	Rio Lucero	Tenorio	0.01	452,450	4,040,200
P-022	Rio Lucero	Tenorio	0.19	452,450	4,040,200
P-023	Rio Lucero	Tenorio	0.55	452,450	4,040,200
P-024	Rio Lucero	Tenorio	0.20	452,450	4,040,200
P-025	Rio Lucero	Tenorio	0.02	452,450	4,040,200
P-026	Rio Lucero	Tenorio	0.01	452,450	4,040,200
P-027	Rio Lucero	Tenorio	0.52	452,450	4,040,200
P-029	Rio Lucero	Tenorio	0.15	452,450	4,040,200
P-030	Rio Lucero	Tenorio	0.01	452,450	4,040,200
P-031	Rio Lucero	Tenorio	0.65	452,450	4,040,200
P-032	Rio Lucero	Tenorio	0.69	452,450	4,040,200
P-033	Rio Lucero	Tenorio	0.02	452,450	4,040,200
P-034	Rio Lucero	Tenorio	0.13	452,450	4,040,200
P-035	Rio Lucero	Tenorio	0.06	452,450	4,040,200
P-036	Rio Lucero	Tenorio	0.08	452,450	4,040,200
P-037	Rio Lucero	Tenorio	0.25	452,450	4,040,200
P-039	Arroyo Seco	Arroyo Seco del Rio Lucero	0.40	452,390	4,040,150
P-047	Rio Lucero	Tenorio	0.55	452,450	4,040,200
P-048	Rio Lucero	Beeline	0.02	449,820	4,036,250
P-049	Rio Lucero	Tenorio	0.23	452,450	4,040,200
P-050	Rio Lucero	Beeline	0.01	449,820	4,036,250
P-051	Rio Lucero	Beeline	0.01	449,820	4,036,250

Table 3
Taos Pueblo 1997 Water Use Survey
Water Impoundments - Sorted

Inventory Number	Water Source	Ditch, where applicable	Surface Area, acres	Point of Diversion	
				UTM Coordinates	
				Zone 13	
				Easting	*Northing*
P-080	Rio Pueblo de Taos	McClure A/K/A Hail Creek	1.01	450,100	4,031,530
P-081	Rio Pueblo de Taos	B Ditch	2.41	451,100	4,032,440
P-082	Rio Pueblo de Taos	McClure A/K/A Hail Creek	1.38	450,100	4,031,530
P-083	Rio Pueblo de Taos	McClure A/K/A Hail Creek	0.46	450,100	4,031,530
P-084	Rio Pueblo de Taos	B Ditch	0.02	451,100	4,032,440
P-085	Rio Pueblo de Taos	Phia-No	0.01	451,040	4,032,350
P-086	Rio Lucero	Tenorio	0.03	452,450	4,040,200
P-087	Rio Lucero	Tenorio	0.07	452,450	4,040,200
P-088	Rio Lucero	Tenorio	0.02	452,450	4,040,200
P-089	Rio Pueblo de Taos	Phia-No	0.01	451,040	4,032,350
P-090	Rio Pueblo de Taos	Phia-No	0.01	451,040	4,032,350
P-091	Rio Pueblo de Taos	Acequia Madre Del Pueblo	1.38	450,300	4,031,720
P-115	Rio Lucero	Tenorio	0.03	452,450	4,040,200
P-116	Rio Lucero	Beeline	0.02	449,820	4,036,250
P-117	Rio Lucero	Tenorio	0.03	452,450	4,040,200
P-119	Rio Lucero	Tenorio	0.02	452,450	4,040,200
P-120	Rio Lucero	Tenorio	0.02	452,450	4,040,200
P-121	Rio Lucero	Tenorio	0.29	452,450	4,040,200
P-122	Rio Lucero	Tenorio	0.06	452,450	4,040,200
P-123	Rio Lucero	Tenorio	0.06	452,450	4,040,200
P-124	Rio Lucero	Tenorio	0.52	452,450	4,040,200
P-125	Rio Lucero	Tenorio	0.09	452,450	4,040,200
P-126	Rio Lucero	Tenorio	0.09	452,450	4,040,200
P-127	Rio Lucero	Tenorio	0.23	452,450	4,040,200
P-128	Rio Lucero	Tenorio	0.02	452,450	4,040,200
P-129	Rio Lucero	Indian/1908	0.01	449,750	4,037,210
P-130	Rio Lucero	Tenorio	0.01	452,450	4,040,200
P-132	Rio Lucero	Tenorio	0.16	452,450	4,040,200
P-135	Rio Lucero	Tenorio	0.01	452,450	4,040,200
P-136	Rio Lucero	Tenorio	0.01	452,450	4,040,200
P-137	Rio Lucero	Tenorio	0.03	452,450	4,040,200
P-138	Rio Lucero	Beeline	0.02	449,820	4,036,250
P-139	Rio Pueblo de Taos	Phia-No	0.01	451,040	4,032,350
P-140	Rio Lucero	Tenorio	0.03	452,450	4,040,200
P-141	Rio Pueblo de Taos	Acequia Madre Del Pueblo	0.06	450,300	4,031,720
P-142	Rio Lucero	Tenorio	0.02	452,450	4,040,200
P-143	Rio Lucero	Tenorio	0.01	452,450	4,040,200
P-144	Rio Lucero	Tenorio	0.01	452,450	4,040,200

Table 3
Taos Pueblo 1997 Water Use Survey
Water Impoundments - Sorted

Inventory Number	Water Source	Ditch, where applicable	Surface Area, acres	Point of Diversion	
				UTM Coordinates	
				Zone 13	
				Easting	*Northing*
RESERVOIRS					
R-028	Tributary of Rio Pueblo de Taos		0.02	444,210	4,038,040
R-038	Tributary of Rio Grande		0.23	441,730	4,040,790
R-040	Tributary of Rio Grande		1.77	436,990	4,035,590
R-041	Tributary of Rio Pueblo de Taos		0.52	440,820	4,028,320
R-042	Tributary of Rio Pueblo de Taos		1.62	440,680	4,031,630
R-043	Tributary of Rio Pueblo de Taos		2.75	440,430	4,027,720
R-044	Tributary of Rio Pueblo de Taos		0.23	439,970	4,027,730
R-045	Tributary of Rio Pueblo de Taos		0.40	439,860	4,027,550
R-046	Tributary of Rio Pueblo de Taos		0.34	441,710	4,027,550
R-052	Tributary of Rio Grande		0.10	443,690	4,040,930
R-053	Tributary of Rio Grande		0.21	441,900	4,040,840
R-054	Tributary of Rio Grande		0.29	443,090	4,037,950
R-055	Tributary of Rio Pueblo de Taos		0.90	442,550	4,028,240
R-056	Tributary of Rio Pueblo de Taos		1.03	442,480	4,027,640
R-057	Tributary of Rio Pueblo de Taos		1.72	438,650	4,026,320
R-058	Tributary of Rio Pueblo de Taos		3.67	438,700	4,026,750
R-059	Tributary of Rio Pueblo de Taos		0.51	442,490	4,029,800
R-060	Tributary of Rio Pueblo de Taos		0.69	442,390	4,030,010
R-061	Tributary of Rio Grande		3.10	437,150	4,029,510
R-062	Tributary of Rio Fernando de Taos		0.63	449,920	4,028,640
R-063	Tributary of Rio Fernando de Taos		0.46	449,910	4,029,080
R-065	Tributary of Rio Lucero		0.20	451,160	4,037,310
R-066	Tributary of Rio Lucero		0.44	451,730	4,039,560
R-067	Tributary of Rio Pueblo de Taos		0.45	450,370	4,030,430
R-068	Tributary of Rio Pueblo de Taos		0.23	450,450	4,030,520
R-069	Tributary of Rio Pueblo de Taos		1.09	450,750	4,030,680

Table 3
Taos Pueblo 1997 Water Use Survey
Water Impoundments - Sorted

Inventory Number	Water Source	Ditch, where applicable	Surface Area, acres	Point of Diversion	
				UTM Coordinates	
				Zone 13	
				Easting	*Northing*
R-070	Tributary of Rio Pueblo de Taos		0.52	450,090	4,030,150
R-071	Tributary of Rio Fernando de Taos		0.86	450,000	4,029,590
R-072	Tributary of Rio Fernando de Taos		0.06	449,880	4,029,260
R-073	Tributary of Rio Fernando de Taos		0.24	449,880	4,029,420
R-074	Tributary of Rio Fernando de Taos		0.17	449,970	4,029,300
R-075	Tributary of Rio Lucero		0.11	449,610	4,033,800
R-076	Tributary of Rio Lucero		0.06	449,480	4,033,800
R-079	Tributary of Rio Lucero		0.52	449,540	4,033,450
R-092	Tributary of Rio Pueblo de Taos		0.02	467,870	4,030,680
R-093	Tributary of Rio Pueblo de Taos		0.18	467,230	4,030,760
R-094	Tributary of Rio Pueblo de Taos		0.79	466,500	4,030,950
R-095	Tributary of Rio Pueblo de Taos		0.51	465,330	4,030,690
R-096	Tributary of Rio Pueblo de Taos		0.02	465,210	4,030,280
R-131	Tributary of Rio Pueblo de Taos		0.46	442,600	4,029,150
R-133	Tributary of Rio Grande		0.06	443,690	4,040,930
R-134	Tributary of Rio Grande		0.42	442,950	4,039,850
R-150	Tributary of Rio Fernando de Taos		2.40	449,600	4,028,510

Table 4
Taos Pueblo 1997 Water Use Survey
Irrigated Lands - By Map Sheet

Map Sheet	*Water Source*	*Diversion/Ditch*	*Acres by ditch*	*Acres by Map Sheet*
TP-1	Rio Lucero	Tenorio	567.10	
	Arroyo Seco	Concho	41.65	608.75
TP-2	Rio Lucero	Tenorio	490.85	490.85
TP-3	Rio Lucero	Indian	118.85	118.85
TP-4	Rio Lucero	Tenorio	275.00	275.00
TP-5	Rio Lucero	Indian	122.25	
	Rio Lucero	1908	45.25	167.50
TP-6	Rio Lucero	Tenorio	91.95	
	Rio Lucero	1908	157.35	
	Rio Lucero	Juan Manuel Lucero	1.30	250.60
TP-7	Rio Lucero	1908	45.45	
	Rio Lucero	Grouse	144.70	
	Rio Lucero	Beeline	48.60	
	Rio Lucero	Tributary of Rio Lucero	2.30	241.05
TP-8	Rio Lucero	Beeline	79.85	
	Rio Lucero	1908	305.35	385.20
TP-9	Rio Lucero	Grouse	194.20	
	Rio Lucero	1908	204.40	
	Rio Lucero	Beeline	12.00	410.60
TP-10	Rio Lucero	Beeline	445.10	
	Rio Lucero	Beeline to sacred pasture	14.20	459.30
TP-11	Rio Pueblo de Taos	Cicada Nose	50.95	
	Rio Pueblo de Taos	Elk Horn	22.50	
	Rio Pueblo de Taos	Deer Jaw	117.10	
	Rio Pueblo de Taos	Pottery	53.65	
	Rio Pueblo de Taos	North Trash Pile	7.85	
	Rio Pueblo de Taos	Buried Roots	35.00	
	Rio Pueblo de Taos	Pull Leaf	56.55	
	Rio Pueblo de Taos	Romero	1.25	344.85
TP-12	Rio Lucero	Grouse	31.95	
	Rio Lucero/Rio Pueblo	Grouse to sacred pasture	347.70	
	Rio Lucero	Beeline to sacred pasture	82.80	
	Rio Lucero	Beeline	22.45	
	Rio Lucero	Indian	6.25	
	Rio Pueblo de Taos	Pottery	20.65	
	Rio Pueblo de Taos	North Trash Pile	59.10	
	Rio Pueblo de Taos	C Ditch	49.75	

Table 4
Taos Pueblo 1997 Water Use Survey
Irrigated Lands - By Map Sheet

Map Sheet	*Water Source*	*Diversion/Ditch*	*Acres by ditch*	*Acres by Map Sheet*
TP-12	Rio Pueblo de Taos	Ventura Mirabal	11.40	
	Rio Pueblo de Taos	Serafin Martinez	0.95	
	Rio Pueblo de Taos	B-Ditch	13.05	
	Rio Pueblo de Taos	Phia-No	46.75	
	Rio Pueblo de Taos	South Trash Pile	29.20	
	Rio Pueblo de Taos	Buried Roots	63.65	
	Rio Pueblo de Taos	Pull Leaf	21.90	
	Rio Pueblo de Taos	School Infiltration Line	1.30	808.85
TP-13	Rio Pueblo de Taos	Acequia Madre del Pueblo	161.05	
	Rio Pueblo de Taos	Phia-No	68.90	
	Rio Pueblo de Taos	South Trash Pile	76.50	
	Rio Pueblo de Taos	Buried Roots	50.55	
	Rio Pueblo de Taos	Pull Leaf	41.70	
	Rio Pueblo de Taos	B-Ditch	5.20	
	Rio Pueblo de Taos	McClure	54.85	
	Rio Pueblo de Taos	Mirabal	65.40	
	Rio Lucero	Summer Spring Creek	70.00	594.15
TP-14	Rio Pueblo de Taos	South Trash Pile	21.40	
	Rio Pueblo de Taos	Acequia Madre del Pueblo	1.60	23.00
TP-15	Rio Hondo	Cuchilla	59.30	59.30
TP-16	Rio Hondo	Cuchilla	38.65	
	Rio Lucero/Arroyo Seco	Manuel Andres Trujillo	9.00	47.65
SEO-9	Rio Lucero	Juan Manuel Lucero	40.20	40.20
SEO-11	Rio Lucero	Acequia Madre del Prado	1.73	1.73
SEO-12	Rio Lucero	Acequia Madre del Prado	41.87	41.87
SEO-13	Rio Lucero	Acequia Madre del Prado	85.63	
	Rio Lucero	Acequia Madre del Medio	45.82	
	Rio Lucero	Cortez & Sisneros	1.40	
	Rio Pueblo de Taos	McClure	0.10	
	Rio Pueblo de Taos	Acequia de los Archuletas	0.21	133.16
SEO-15	Rio Lucero	Acequia Madre del Prado	16.00	
	Rio Lucero	Acequia Madre de la Loma	108.05	
	Rio Lucero	South la Loma Lateral	14.46	
	Rio Lucero	Cortez & Sisneros	25.25	
	Rio Pueblo de Taos	Acequia de los Lovatos	46.56	210.32
Total			5712.78	5712.78

Table 5
Taos Pueblo 1997 Water Use Survey
Irrigated Lands - By Water Source

Water Source	*Diversion/Ditch*	*Acres by Ditch*	*Acres by Stream*
Rio Hondo	Cuchilla	97.95	97.95
Arroyo Seco	Concho	41.65	41.65
Rio Lucero/Arroyo Seco	Manuel Andres Trujillo	9.00	9.00
Rio Lucero	1908	757.80	
	Acequia Madre de la Loma	108.05	
	Acequia Madre del Medio	45.82	
	Acequia Madre del Prado	145.23	
	Beeline	608.00	
	Beeline to sacred pasture	97.00	
	Cortez & Sisneros	26.65	
	Grouse	370.85	
	Indian	247.35	
	Juan Manuel Lucero	41.50	
	South la Loma Lateral	14.46	
	Summer Spring Creek	70.00	
	Tenorio	1424.90	
	Tributary of Rio Lucero	2.30	3959.91
Rio Lucero/Rio Pueblo	Grouse to sacred pasture	347.70	347.70
Rio Pueblo de Taos	Acequia de los Archuletas	0.21	
	Acequia de los Lovatos	46.56	
	Acequia Madre del Pueblo	162.65	
	B-Ditch	18.25	
	Buried Roots	149.20	
	C Ditch	49.75	
	Cicada Nose	50.95	
	Deer Jaw	117.10	
	Elk Horn	22.50	
	McClure	54.95	
	Mirabal	65.40	
	North Trash Pile	66.95	
	Phia-No	115.65	
	Pottery	74.30	
	Pull Leaf	120.15	
	Romero	1.25	
	School Infiltration Line	1.30	
	Serafin Martinez	0.95	
	South Trash Pile	127.10	
	Ventura Mirabal	11.40	1256.57
Total		5712.78	5712.78

Table 6
Taos Pueblo 1997 Water Use Survey
Irrigated Lands Diversion Points

Water Source	Name of Diversion and Ditch	Point of Diversion	
		UTM Coordinates	
		Easting	*Northing*
Arroyo Seco	Concho	451,990	4,041,350
Rio Hondo	Cuchilla	450,060	4,043,830
Rio Lucero	1908	452,450	4,040,200
Rio Lucero	Acequia Madre de la Loma	447,530	4,030,370
Rio Lucero	Acequia Madre del Prado	449,820	4,036,250
Rio Lucero	Acequiq Madre del Medio	449,260	4,031,810
Rio Lucero	Beeline	449,820	4,036,250
Rio Lucero	Cortez & Sisneros	448,070	4,030,600
Rio Lucero	Grouse	449,870	4,035,840
Rio Lucero	Indian	452,450	4,040,200
Rio Lucero	Juan Manuel Lucero	450,050	4,038,100
Rio Lucero	South la Loma Lateral	447,120	4,029,890
Rio Lucero	Summer Spring Creek	449,780	4,031,790
Rio Lucero	Tenorio	452,450	4,040,200
Tributary of Rio Lucero	Water Silt	452,000	4,034,900
Rio Lucero/Arroyo Seco	Manuel Andres Trujillo	452,390	4,040,150
Rio Pueblo de Taos	Acequia de los Archuletas	449,000	4,030,490
Rio Pueblo de Taos	Acequia de los Lovatos	447,600	4,029,990
Rio Pueblo de Taos	Acequia Madre del Pueblo	450,300	4,031,720
Rio Pueblo de Taos	B Ditch	451,100	4,032,440
Rio Pueblo de Taos	Buried Roots	452,580	4,032,700
Rio Pueblo de Taos	C Ditch	451,130	4,032,470
Rio Pueblo de Taos	Cicada Nose	454,410	4,032,730
Rio Pueblo de Taos	Deer Jaw	453,500	4,032,790
Rio Pueblo de Taos	Elk Horn	454,080	4,032,860
Rio Pueblo de Taos	McClure	450,100	4,031,530
Rio Pueblo de Taos	Mirabal	450,100	4,031,530
Rio Pueblo de Taos	North Trash Pile	452,240	4,032,790
Rio Pueblo de Taos	Phia-No	451,040	4,032,350
Rio Pueblo de Taos	Pottery	452,920	4,032,800
Rio Pueblo de Taos	Pull Leaf	453,100	4,032,760
Rio Pueblo de Taos	School Infiltration Line	453,640	4,032,800
Rio Pueblo de Taos	Serafin Martinez	451,130	4,032,470
Rio Pueblo de Taos	South Trash Pile	452,010	4,032,810
Rio Pueblo de Taos	Ventura Mirabal	451,080	4,032,410
Tributary of Rio Pueblo de Taos	Romero	461,000	4,032,950

Table 7
Taos Pueblo 1997 Water Use Survey
Wells - Locations

Inventory Number	Field Name	Well Use	Well Location and Place of Use					
			UTM Coordinates		Location in US Public Land Surveys			
			Zone 13					
			Easting	*Northing*	*Quadrant*	*Section*	*Township*	*Range*
W-001	Carmen & Bob Histia	Household	449,550	4,029,830	within the NE1/4, NW1/4, SW1/4	9	25N	13E
W-002	Tony B. Romero	Household	449,610	4,029,780	within the NW1/4, NE1/4, SW1/4	9	25N	13E
W-003	Alfred Lujan	Household	449,740	4,029,770	within the SW1/4, NE1/4, SW1/4	9	25N	13E
W-004	Taos Pueblo Forest Service	Municipal	449,940	4,029,920	within the NE1/4, NE1/4, SW1/4	9	25N	13E
W-005	Pueblo Warchief Complex	Municipal	449,920	4,029,880	within the NE1/4, NE1/4, SW1/4	9	25N	13E
W-006	John Machorse	Household	449,800	4,030,040	within the NW1/4, NE1/4, SW1/4	9	25N	13E
W-007	Andy Lujan	Household	449,820	4,030,230	within the SE1/4, SE1/4, NW1/4	9	25N	13E
W-008	Lupe Romero & Paul Romero	Household	449,920	4,030,220	within the SE1/4, SE1/4, NW1/4	9	25N	13E
W-009	Arthur & Judy Lujan	Household	450,050	4,030,330	within the SE1/4, SE1/4, NW1/4	9	25N	13E
W-010	Bobby Lujan	Household	450,260	4,030,270	within the NE1/4, SW1/4, NE1/4	9	25N	13E
W-011	Spider Rd.(W) Community Well	Municipal	450,210	4,030,440	within the NW1/4, SW1/4, NE1/4	9	25N	13E
W-012	Spider Rd.(E) Community Well	Municipal	450,320	4,030,520	within the SW1/4, NW1/4, NE1/4	9	25N	13E
W-013	Ruben Romero	Household	450,620	4,030,940	within the SW1/4, SE1/4, SE1/4	4	25N	13E
W-014	David Gomez	Household	450,490	4,031,000	within the NW1/4, SE1/4, SE1/4	4	25N	13E
W-015	Cruz Concha	Household	450,880	4,031,340	within the SW1/4, NW1/4, SW1/4	3	25N	13E
W-016	Rose G. Romancito	Household	450,870	4,031,840	within the SW1/4, SW1/4, NW1/4	3	25N	13E
W-017	Onesimo Cordova	Household	450,910	4,031,980	within the NW1/4, SW1/4, NW1/4	3	25N	13E
W-018	John B. Archuleta	Household	451,050	4,031,650	within the SE1/4, SW1/4, NW1/4	3	25N	13E
W-019	John Cruz Romero	Household	451,120	4,031,720	within the SE1/4, SW1/4, NW1/4	3	25N	13E
W-020	Henry Gomez	Household	451,060	4,031,790	within the NE1/4, SW1/4, NW1/4	3	25N	13E
W-021	Greg Pahoma	Household	450,880	4,031,880	within the NW1/4, SW1/4, NW1/4	3	25N	13E
W-022	Gary Lujan	Household	450,960	4,031,910	within the NW1/4, SW1/4, NW1/4	3	25N	13E
W-023	George Tanita Keybone	Household	451,010	4,031,980	within the NW1/4, SW1/4, NW1/4	3	25N	13E
W-024	Kathy Romero	Household	450,980	4,031,980	within the SE1/4, NW1/4, NW1/4	3	25N	13E
W-025	John Romero	Household	451,100	4,032,040	within the SE1/4, NW1/4, NW1/4	3	25N	13E
W-026	Sam Archuleta	Household	451,220	4,032,040	within the SE1/4, NW1/4, NW1/4	3	25N	13E
W-027	Delfino Coucha	Household	451,160	4,031,970	within the SE1/4, NW1/4, NW1/4	3	25N	13E
W-028	Christine C. Romero	Household	451,250	4,032,190	within the SW1/4, NE1/4, NW1/4	3	25N	13E
W-029	Christine C. Romero	Household	451,250	4,032,180	within the SW1/4, NE1/4, NW1/4	3	25N	13E
W-030	John Sandoval	Household	451,050	4,032,220	within the NE1/4, NW1/4, NW1/4	3	25N	13E
W-031	Phillip Sandoval	Household	451,120	4,032,190	within the SE1/4, NW1/4, NW1/4	3	25N	13E
W-032	Louis Sandoval	Household	451,090	4,032,100	within the SE1/4, NW1/4, NW1/4	3	25N	13E

Table 7
Taos Pueblo 1997 Water Use Survey
Wells - Locations

Inventory Number	Field Name	Well Use	Well Location and Place of Use					
			UTM Coordinates		Location in US Public Land Surveys			
			Zone 13					
			Easting	*Northing*	*Quadrant*	*Section*	*Township*	*Range*
W-033	Virginia Romero	Household	450,870	4,032,100	within the SW1/4, NW1/4, NW1/4	3	25N	13E
W-034	James Lujan	Household	450,860	4,032,030	within the SW1/4, NW1/4, NW1/4	3	25N	13E
W-035	Tom Lucero	Household	450,690	4,032,060	within the SE1/4, NE1/4, NE1/4	4	25N	13E
W-036	Vince Lujan	Household	450,840	4,031,960	within the SW1/4, NW1/4, NW1/4	3	25N	13E
W-037	Mary Jane Martinez	Household	450,810	4,031,860	within the NW1/4, SW1/4, NW1/4	3	25N	13E
W-038	Esther Romero	Household	450,760	4,031,850	within the NE1/4, SE1/4, NE1/4	4	25N	13E
W-039	Tony Gomez Jr.	Household	450,480	4,031,670	within the NE1/4, SE1/4, NE1/4	4	25N	13E
W-040	John Rainer	Household	449,460	4,029,970	within the NE1/4, NW1/4, SW1/4	9	25N	13E
W-041	Joseph Sunhawk Sandoval	Household	449,210	4,030,100	within the SW1/4, SW1/4, NW1/4	9	25N	13E
W-042	Jerome Sandoval	Household	449,270	4,030,120	within the SW1/4, SW1/4, NW1/4	9	25N	13E
W-043	Isabelle Reyna	Household	449,280	4,030,180	within the NW1/4, SW1/4, NW1/4	9	25N	13E
W-044	Charlie Tsoodle	Household	449,280	4,030,240	within the SW1/4, NW1/4, NW1/4	9	25N	13E
W-045	Carpio Bernal	Livestock	449,320	4,030,340	within the NW1/4, SW1/4, NW1/4	9	25N	13E
W-046	Ann Barlow	Household	449,310	4,030,480	within the NW1/4, SW1/4, NW1/4	9	25N	13E
W-047	Frank Mirabal	Livestock	449,380	4,030,610	within the NW1/4, NW1/4, NW1/4	9	25N	13E
W-048	Don Espinosa	Household	449,430	4,030,950	within the SE1/4, SW1/4, SW1/4	4	25N	13E
W-049	Stanley Espinosa	Household	449,360	4,030,860	within the SW1/4, SW1/4, SW1/4	4	25N	13E
W-050	Angelino Romero	Household	449,880	4,030,920	within the NE1/4, SE1/4, SW1/4	4	25N	13E
W-051	Tony Reyna	Household	449,510	4,030,590	within the NE1/4, NW1/4, NW1/4	4	25N	13E
W-052	Anita Romero	Household	450,050	4,031,170	within the NW1/4, SW1/4, SE1/4	4	25N	13E
W-053	Joe Lewis Mirabal	Household	450,370	4,031,600	within the SE1/4, NW1/4, SE1/4	4	25N	13E
W-054	Rufina & Kathy Gomez	Household	450,490	4,031,860	within the NW1/4, SE1/4, NE1/4	4	25N	13E
W-055	Gilbert Gomez	Household	450,660	4,031,940	within the NW1/4, SE1/4, NE1/4	4	25N	13E
W-056	Ignacia R. Concha	Household	451,310	4,032,330	within the NW1/4, NE1/4, NW1/4	3	25N	13E
W-057	David Lucero	Household	451,470	4,032,150	within the SE1/4, NE1/4, NW1/4	3	25N	13E
W-058	Joseph Ortiz	Household	451,500	4,032,160	within the NE1/4, NE1/4, NW1/4	3	25N	13E
W-059	Benny L Martinez	Household	451,500	4,032,180	within the NE1/4, NE1/4, NW1/4	3	25N	13E
W-060	Ruben Romero, #2	Household	451,450	4,032,510	within the SE1/4, SE1/4, SW1/4	3	25N	13E
W-061	Benito Romero	Household	451,700	4,032,430	within the NE1/4, NE1/4, NW1/4	34	26N	13E
W-062	John Lujan	Household	451,330	4,032,350	within the SE1/4, SE1/4, SW1/4	34	26N	13E
W-063	Helbert Lujan	Household	451,470	4,032,400	within the SE1/4, SE1/4, SW1/4	34	26N	13E
W-064	Anita Lujan	Household	451,350	4,032,520	within the SW1/4, SE1/4, SW1/4	34	26N	13E
W-065	Veronica Young	Household	451,320	4,032,540	within the SW1/4, SE1/4, SW1/4	34	26N	13E

Table 7
Taos Pueblo 1997 Water Use Survey
Wells - Locations

Inventory Number	Field Name	Well Use	Well Location and Place of Use					
			UTM Coordinates Zone 13		Location in US Public Land Surveys			
			Easting	*Northing*	*Quadrant*	*Section*	*Township*	*Range*
W-066	Tony Reyna, #2	Household	451,310	4,032,550	within the NW1/4, SE1/4, SW1/4	34	26N	13E
W-067	Marcelino Suazo	Household	451,520	4,032,560	within the NE1/4, SE1/4, SW1/4	34	26N	13E
W-068	Albert C. Martinez	Household	451,600	4,032,500	within the SW1/4, SW1/4, SE1/4	34	26N	13E
W-069	Chris Lujan	Household	451,620	4,032,430	within the SW1/4, SW1/4, SE1/4	34	26N	13E
W-070	Harold Cordova	Household	450,120	4,041,330	within the SW1/4, NE1/4, NE1/4	4	26N	13E
W-071	Juan G. Lujan	Household	447,760	4,039,600	within the NE1/4, SE1/4, NW1/4	8	26N	13E
W-072	Cesario Gomez	Livestock	447,540	4,039,780	within the NE1/4, SW1/4, NW1/4	8	26N	13E
W-073	Alejandro R. Lujan	Household	446,950	4,037,800	within the NE1/4, NW1/4, SE1/4	18	26N	13E
W-074	Joseph Lujan	Household	447,040	4,037,360	within the SE1/4, SW1/4, SE1/4	18	26N	13E
W-075	Lorencita Lujan	Household	446,930	4,035,670	within the SW1/4, SW1/4, SE1/4	19	26N	13E
W-076	Luis Romero	Household	447,170	4,035,680	within the SE1/4, SW1/4, SW1/4	19	26N	13E
W-077	Anthony Lujan	Household	447,530	4,035,590	within the SE1/4, SE1/4, SE1/4	19	26N	13E
W-078	John Romero, #2	Household	446,910	4,035,280	within the SW1/4, NW1/4, NE1/4	30	26N	13E
W-079	Ethel Holmes	Household	448,090	4,033,690	within the SW1/4, NE1/4, NW1/4	32	26N	13E
W-080	Vincent Mondragon	Household	446,890	4,035,240	within the SW1/4, NW1/4, NE1/4	30	26N	13E
W-081	Clyde Romero	Household	446,920	4,035,180	within the SW1/4, NW1/4, NE1/4	30	26N	13E
W-082	Joseph Martinez	Household	447,190	4,035,300	within the SW1/4, NE1/4, NE1/4	30	26N	13E
W-083	Patricia Murphy	Household	448,200	4,033,900	within the SE1/4, NE1/4, NW1/4	32	26N	13E
W-084	Alfred Montoya	Household	448,370	4,034,190	within the NE1/4, NW1/4, NE1/4	32	26N	13E
W-085	Rapheal Reyna	Household	448,540	4,034,130	within the NE1/4, NW1/4, NE1/4	32	26N	13E
W-086	Joe Councha	Household	448,670	4,034,600	within the SW1/4, NE1/4, SE1/4	29	26N	13E
W-087	John A. Mirabal	Household	448,880	4,030,770	within the SW1/4, SE1/4, SE1/4	5	25N	13E
W-088	Peter Mcdonald	Household	448,910	4,030,690	within the NW1/4, NE1/4, NE1/4	8	25N	13E
W-089	Joe Paul Councho	Household	449,660	4,031,540	within the NW1/4, SE1/4, NW1/4	4	25N	13E
W-090	Senida Zamora	Household	449,870	4,031,520	within the NE1/4, NE1/4, SW1/4	4	25N	13E
W-091	Children'S Art Center	Municipal	450,460	4,032,180	within the NW1/4, NE1/4, NE1/4	4	25N	13E
W-092	Nelson C0Rdova	Household	450,490	4,032,250	within the NW1/4, NE1/4, NE1/4	4	25N	13E
W-093	Pat Trujillo & Son	Household	450,680	4,032,260	within the NE1/4, NE1/4, NE1/4	4	25N	13E
W-094	Adam Trujillo & Grandson	Household	450,710	4,032,280	within the NE1/4, NE1/4, NE1/4	4	25N	13E
W-095	Crusita Lujan	Household	450,740	4,032,290	within the NE1/4, NE1/4, NE1/4	4	25N	13E
W-096	Raysita Cordova	Household	450,750	4,032,370	within the NE1/4, NE1/4, NE1/4	4	25N	13E
W-097	Ethel Townsend	Household	450,690	4,032,340	within the NE1/4, NE1/4, NE1/4	4	25N	13E
W-098	Robert And Charlotte Garcia	Household	450,790	4,032,330	within the NE1/4, NE1/4, NE1/4	4	25N	13E

Table 7
Taos Pueblo 1997 Water Use Survey
Wells - Locations

Inventory Number	Field Name	Well Use	Well Location and Place of Use					
			UTM Coordinates		Location in US Public Land Surveys			
			Zone 13					
			Easting	*Northing*	*Quadrant*	*Section*	*Township*	*Range*
W-099	Lorenzo & Henrietta Romero	Household	450,810	4,032,420	within the SE1/4, SE1/4, SE1/4	33	26N	13E
W-100	Christine Romero	Household	450,940	4,032,470	within the SW1/4, SW1/4, SW1/4	34	26N	13E
W-101	Cruz J. Romero	Household	450,930	4,032,460	within the SW1/4, SW1/4, SW1/4	34	26N	13E
W-102	Frank L. Lujan	Household	450,840	4,032,360	within the NW1/4, NW1/4, NW1/4	3	25N	13E
W-103	Frank J. Lujan	Household	450,850	4,032,360	within the NW1/4, NW1/4, NW1/4	3	25N	13E
W-104	Abe Trujillo	Household	450,930	4,032,410	within the SW1/4, SW1/4, SW1/4	34	26N	13E
W-105	Margaret Trujillo	Household	450,960	4,032,420	within the SW1/4, SW1/4, SW1/4	34	26N	13E
W-106	John D. Councha	Livestock	450,980	4,032,470	within the SW1/4, SW1/4, SW1/4	34	26N	13E
W-107	John D. Councha, #2	Household	450,980	4,032,480	within the SW1/4, SW1/4, SW1/4	34	26N	13E
W-108	William Appa	Household	451,010	4,032,430	within the SE1/4, SW1/4, SW1/4	34	26N	13E
W-109	Telisfore Reyna	Household	450,970	4,032,530	within the SW1/4, SW1/4, SW1/4	34	26N	13E
W-110	Frank Mirabal, #2	Household	450,990	4,032,520	within the SE1/4, SW1/4, SW1/4	34	26N	13E
W-111	Leandro Bernal	Household	450,940	4,032,510	within the SW1/4, SW1/4, SW1/4	34	26N	13E
W-112	Jose Guadalupe Romero	Household	450,940	4,032,560	within the NW1/4, SW1/4, SW1/4	34	26N	13E
W-113	Richard Archuleta	Household	450,770	4,032,630	within the NW1/4, SW1/4, SW1/4	34	26N	13E
W-114	Santanita Romero	Household	450,740	4,032,600	within the SW1/4, SW1/4, SW1/4	34	26N	13E
W-115	Mary Sandoval	Household	450,770	4,032,680	within the NW1/4, SW1/4, SW1/4	34	26N	13E
W-116	Jerry Archuleta	Household	450,730	4,032,690	within the NW1/4, SW1/4, SW1/4	34	26N	13E
W-117	Cruz Zamora	Household	450,690	4,032,690	within the NE1/4, SE1/4, SE1/4	33	26N	13E
W-118	Ralph Sauzo	Household	450,490	4,032,550	within the SW1/4, SE1/4, SE1/4	33	26N	13E
W-119	Tony Romero	Household	450,600	4,032,750	within the NE1/4, SE1/4, SE1/4	33	26N	13E
W-120	Phillip Martinez	Household	450,460	4,032,920	within the NE1/4, SE1/4, SE1/4	33	26N	13E
W-121	Avilino Martinez	Household	450,430	4,033,020	within the SW1/4, NE1/4, SE1/4	33	26N	13E
W-122	Mary Martinez	Household	450,550	4,033,060	within the NE1/4, NE1/4, SE1/4	33	26N	13E
W-123	Clarence Maribal	Household	450,600	4,033,040	within the NE1/4, NE1/4, SE1/4	33	26N	13E
W-124	Fred C. Lujan	Household	450,700	4,033,080	within the NE1/4, NE1/4, SE1/4	33	26N	13E
W-125	Santana Romero	Household	450,820	4,032,970	within the SW1/4, NW1/4, SW1/4	34	26N	13E
W-126	Luis Bernal	Household	450,840	4,032,830	within the SW1/4, NW1/4, SW1/4	34	26N	13E
W-127	Benito Romero, #2	Household	450,680	4,032,950	within the SE1/4, NE1/4, SE1/4	33	26N	13E
W-128	Mrs. Ceasario Lujan	Household	450,790	4,032,790	within the SE1/4, NE1/4, SE1/4	33	26N	13E
W-129	Michael Reyes Mirabal	Household	450,830	4,032,800	within the SW1/4, NW1/4, SW1/4	34	26N	13E
W-130	Juanita C. Mirabal	Household	450,920	4,032,770	within the SW1/4, NW1/4, SW1/4	34	26N	13E

Table 7
Taos Pueblo 1997 Water Use Survey
Wells - Locations

Inventory Number	Field Name	Well Use	Well Location and Place of Use					
			UTM Coordinates		Location in US Public Land Surveys			
			Zone 13					
			Easting	*Northing*	*Quadrant*	*Section*	*Township*	*Range*
W-131	Juanita C. Mirabal, #2	Household	450,920	4,032,790	within the SW1/4, NW1/4, SW1/4	34	26N	13E
W-132	Tanita Hervier	Household	450,980	4,032,780	within the NW1/4, SW1/4, SW1/4	34	26N	13E
W-133	John & Alvina Montoya	Household	450,900	4,032,720	within the NW1/4, SW1/4, SW1/4	34	26N	13E
W-134	Joe A. Montoya	Household	450,920	4,032,720	within the NW1/4, SW1/4, SW1/4	34	26N	13E
W-135	Mickey & Ramona Reyna	Household	450,950	4,032,630	within the NW1/4, SW1/4, SW1/4	34	26N	13E
W-136	Tina & Ben H. Romero	Household	451,050	4,032,790	within the NE1/4, SW1/4, SW1/4	34	26N	13E
W-137	Rose Pahuma & Anita Gaia	Household	451,020	4,032,830	within the SE1/4, NW1/4, SW1/4	34	26N	13E
W-138	Frank Romero	Household	451,050	4,032,830	within the SE1/4, NW1/4, SW1/4	34	26N	13E
W-139	Tom Lujan	Household	451,070	4,032,830	within the SE1/4, NW1/4, SW1/4	34	26N	13E
W-140	Eleelo & Josephine Concha	Household	451,120	4,032,870	within the SE1/4, NW1/4, SW1/4	34	26N	13E
W-141	Isidro Mirabal	Household	450,980	4,033,010	within the NW1/4, NW1/4, SW1/4	34	26N	13E
W-142	Henry Nelson Lujan	Household	451,040	4,033,200	within the NE1/4, NW1/4, SW1/4	34	26N	13E
W-143	Lupita Concha	Household	450,760	4,033,350	within the SE1/4, SE1/4, NE1/4	33	26N	13E
W-144	Jerry O. Lujan	Household	450,580	4,033,620	within the NE1/4, SE1/4, NE1/4	33	26N	13E
W-145	Louis & Isabelle Martinez	Household	450,780	4,033,680	within the NE1/4, SW1/4, NW1/4	34	26N	13E
W-146	Tony Duran	Household	450,770	4,033,820	within the NW1/4, SW1/4, NW1/4	34	26N	13E
W-147	Community Well #2	Municipal	450,670	4,033,780	within the NE1/4, SE1/4, NE1/4	33	26N	13E
W-148	Sam M. Concha	Household	450,850	4,033,820	within the SW1/4, NW1/4, NW1/4	34	26N	13E
W-149	Community Fire Station,Jail	Municipal	451,050	4,032,960	within the SE1/4, NW1/4, SW1/4	34	26N	13E
W-150	Community Well #1	Municipal	451,020	4,032,850	within the SE1/4, NW1/4, SW1/4	34	26N	13E
W-151	Paul J. Bernal	Household	451,090	4,033,080	within the NE1/4, NW1/4, SW1/4	34	26N	13E
W-152	Julie Montoya	Household	451,110	4,032,820	within the SE1/4, NW1/4, SW1/4	34	26N	13E
W-153	Joe C. Concha	Household	451,110	4,032,840	within the SE1/4, NW1/4, SW1/4	34	26N	13E
W-154	Frank Marqus	Livestock	451,110	4,032,870	within the SE1/4, NW1/4, SW1/4	34	26N	13E
W-155	Laureano Romero	Household	451,210	4,033,040	within the NW1/4, NE1/4, SW1/4	34	26N	13E
W-156	Crucita Mirabal	Household	451,260	4,033,030	within the NW1/4, NE1/4, SW1/4	34	26N	13E
W-157	Patricia Hampton	Household	451,220	4,032,830	within the SW1/4, NE1/4, SW1/4	34	26N	13E
W-158	Jerry Lujan	Household	451,170	4,032,720	within the NE1/4, SW1/4, SW1/4	34	26N	13E
W-159	Juan G. Lujan, #2	Household	451,210	4,032,710	within the NW1/4, SE1/4, SW1/4	34	26N	13E
W-160	Howard Mondragon	Household	451,460	4,032,900	within the SE1/4, NE1/4, SW1/4	34	26N	13E

Table 7
Taos Pueblo 1997 Water Use Survey
Wells - Locations

Inventory Number	Field Name	Well Use	Well Location and Place of Use					
			UTM Coordinates		Location in US Public Land Surveys			
			Zone 13					
			Easting	*Northing*	*Quadrant*	*Section*	*Township*	*Range*
W-161	Taos Elementary School	Municipal	451,310	4,032,170	within the SW1/4, NE1/4, NW1/4	3	25N	13E
W-162	Jimmy Lujan	Household	450,700	4,032,400	within the SW1/4, SW1/4, SW1/4	34	26N	13E
W-163	Tract "B" Well, RWP-3	Livestock	442,600	4,039,400	within the NE1/4, NE1/4, NE1/4	10	26N	12E
W-164	Tract "B" Well, RWP-4	Livestock	443,910	4,040,000	within the SW1/4, NE1/4, NE1/4	11	26N	12E
W-165	Tract "A" Well, RWP-2	Livestock	438,540	4,033,510	within the NW1/4, SE1/4, NW1/4	31	26N	12E
W-166	Tract "A" Well, RWP-1	Livestock	439,560	4,029,190	within the NE1/4, NW1/4, NW1/4	16	25N	12E
W-167	Tract A Well, RWP-5	Livestock	436,720	4,026,870	within the SW1/4, SE1/4, NW1/4	19	25N	12E
W-168	Clinic Well - BIA 1	Exploratory	449,820	4,029,780	within the NE1/4, NE1/4, SW1/4	9	25N	13E
W-169	Tribal Well, RWP-6, BIA 3	Livestock	450,580	4,029,640	within the SE1/4, NW1/4, SW1/4	10	25N	13E
W-170	Buffalo Pasture Well - BIA 2	Exploratory	449,600	4,033,180	within the SW1/4, SW1/4, NW1/4	33	26N	13E
W-171	Tract A OW - BIA 5	Exploratory	442,470	4,028,190	within the NE1/4, NE1/4, SE1/4	15	25N	13E
W-172	Tract A PW - BIA 6	Exploratory	442,450	4,028,190	within the NE1/4, NE1/4, SE1/4	15	25N	13E
W-173	Pow-Wow Well - BIA 4	Municipal	448,450	4,033,400	within the SW1/4, SW1/4, NE1/4	32	26N	13E
W-174	Paul Bernal	Livestock	451,070	4,033,070	within the SE1/4, NW1/4, SW1/4	34	26N	13E
W-175	Cesario Lujan	Household	449,440	4,039,960	within the SW1/4, NW1/4, NW1/4	9	26N	13E
W-176	Mrs. Frank Archuleta	Household	451,180	4,032,160	within the SW1/4, NE1/4, NW1/4	3	25N	13E
W-177	Ralph Lucero	Household	451,190	4,032,440	within the SE1/4, SW1/4, SW1/4	4	26N	13E
W-178	War Chiefs Office	Municipal	451,000	4,032,510	within the SW1/4, SW1/4, SW1/4	34	26N	13E
W-179	Behind Hospital	Household	451,430	4,032,010	within the SE1/4, NE1/4, NW1/4	3	25N	13E
W-180	Rosarita Romero	Household	451,680	4,032,490	within the SW1/4, SW1/4, SE1/4	34	26N	13E
W-181	Tract B PW - BIA 8	Exploratory	444,290	4,038,910	within the SE1/4, SE1/4, SE1/4	11	26N	12E
W-182	Tract B OW - BIA 7	Exploratory	444,280	4,038,950	within the SE1/4, SE1/4, SE1/4	11	26N	12E
W-183	Tract "B" Well	Livestock	444,300	4,038,130	within the NE1/4, NE1/4, SE1/4	14	26N	12E
W-184	Tract B PW#2 - BIA 9	Exploratory	444,280	4,038,930	within the SE1/4, SE1/4, SE1/4	11	26N	12E
W-185	Tract A PW#2 - BIA 15	Exploratory	442,470	4,028,200	within the NE1/4, NE1/4, SE1/4	15	25N	12E
W-186	Tract B Tip Well - BIA 11	Exploratory	445,010	4,035,670	within the SE1/4, SE1/4, SW1/4	24	26N	12E
W-187	Tract B Tip Well - BIA 10	Exploratory	445,020	4,035,680	within the SE1/4, SE1/4, SW1/4	24	26N	12E
W-189	Observation Well OW-5	Observation	449,590	4,033,170	within the SE1/4, SW1/4, NW1/4	33	26N	13E

Table 7
Taos Pueblo 1997 Water Use Survey
Wells - Locations

Inventory Number	Field Name	Well Use	Well Location and Place of Use					
			UTM Coordinates		Location in US Public Land Surveys			
			Zone 13					
			Easting	*Northing*	*Quadrant*	*Section*	*Township*	*Range*
W-190	Observation Well OW-7	Observation	449,580	4,033,160	within the SE1/4, SW1/4, NW1/4	33	26N	13E
W-191	Observation Well OW-6	Observation	449,590	4,033,200	within the SE1/4, SW1/4, NW1/4	33	26N	13E
W-192	Observation Well MW-3	Observation	449,400	4,033,450	within the NW1/4, SW1/4, NW1/4	33	26N	13E
W-193	Observation Well MW-4	Observation	449,270	4,033,440	within the NW1/4, SW1/4, NW1/4	33	26N	13E
W-194	Observation Well OW-8	Observation	449,800	4,034,400	within the SE1/4, NE1/4, SW1/4	28	26N	13E
W-195	Observation Well OW-1	Observation	448,800	4,034,800	within the NE1/4, NE1/4, SE1/4	29	26N	13E
W-196	Acequia Well - BIA 12	Exploratory	448,320	4,034,800	within the SW1/4, SE1/4, NW1/4	29	26N	13E
W-197	Acequia Well - BIA 13	Exploratory	448,320	4,034,830	within the SW1/4, SE1/4, NW1/4	29	26N	13E
W-198	Observation Well OW-10	Observation	448,500	4,036,770	within the NW1/4, SE1/4, NE1/4	20	26N	13E
W-199	Observation Well OW-9	Observation	449,260	4,037,200	within the SE1/4, NW1/4, NW1/4	21	26N	13E
W-200	Observation Well OW-11	Observation	449,600	4,037,610	within the SE1/4, SE1/4, NW1/4	16	26N	13E
W-201	Observation Well OW-12	Observation	450,480	4,036,780	within the SW1/4, SE1/4, SE1/4	9	26N	13E
W-202	Don'S Well - BIA 14	Exploratory	449,470	4,030,990	within the NE1/4, SW1/4, SW1/4	4	25N	13E
W-203	Don'S Observation Well	Observation	449,460	4,030,970	within the NE1/4, SW1/4, SW1/4	4	25N	13E
W-204	Observation Well MW-2	Observation	449,200	4,033,760	within the SW1/4, NW1/4, NW1/4	33	26N	13E
W-205	Tribal Admin. Bldg.	Municipal	449,350	4,030,080	within the SW1/4, SW1/4, SW1/4	9	25N	13E
W-206	David Gomez	Household	450,940	4,032,080	within the NW1/4, SW1/4, NW1/4	3	25N	13E
W-207	Henry Lujan	Household	450,970	4,032,490	within the SW1/4, SW1/4, SW1/4	34	26N	13E
W-208	Esther Toya	Household	450,700	4,032,620	within the SE1/4, SE1/4, SE1/4	33	26N	13E
W-209	Leonard Lujan	Household	450,690	4,032,590	within the SE1/4, SE1/4, SE1/4	33	26N	13E
W-210	Tony Bernal	Household	449,270	4,030,400	within the NW1/4, SW1/4, NW1/4	9	25N	13E
W-211	Rafaelita Montoya	Household	450,970	4,032,120	within the SW1/4, NW1/4, NW1/4	3	25N	13E
W-212	Cesario Gomez	Household	450,630	4,031,910	within the NW1/4, SE1/4, NE1/4	4	26N	13E
W-213	Helen Romero	Household	447,290	4,035,780	within the SW1/4, SE1/4, SE1/4	19	26N	13E
W-214	Roy Bernal	Household	447,170	4,036,680	within the NW1/4, NE1/4, NE1/4	18	26N	13E
W-215	Lewis Bernal	Household	447,000	4,039,080	within the NE1/4, SW1/4, SE1/4	7	26N	13E
W-216	Karavas Tract Deep Well - K2	Exploratory	446,740	4,030,410	within the SE1/4, NE1/4, NW1/4	7	26N	13E

Table 7
Taos Pueblo 1997 Water Use Survey
Wells - Locations

Inventory Number	Field Name	Well Use	Well Location and Place of Use					
			UTM Coordinates		Location in US Public Land Surveys			
			Zone 13					
			Easting	*Northing*	*Quadrant*	*Section*	*Township*	*Range*
W-217	Karavas Tract Water Well - K1	Exploratory	446,750	4,030,390	within the SE1/4, NE1/4, NW1/4	7	26N	13E
W-218	South Well - BIA 16	Exploratory	450,340	4,034,520	within the SE1/4, NW1/4, SE1/4	26	26N	13E
W-219	Mid-Point Well - BIA 17	Exploratory	448,890	4,036,130	within the SW1/4, SE1/4, NE1/4	17	26N	13E
W-220	North Well - BIA 18	Exploratory	448,460	4,039,590	within the NW1/4, SW1/4, NE1/4	8	26N	13E
W-221	West Well - BIA 19	Exploratory	447,370	4,035,890	within the NW1/4, SE1/4, SE1/4	19	26N	13E
W-222	West Deep Well - BIA 20	Exploratory	447,380	4,035,900	within the NE1/4, SE1/4, SE1/4	19	26N	13E
W-223	Hall Creek Deep - BIA 21	Exploratory	448,690	4,030,980	within the NE1/4, SW1/4, SE1/4	5	25N	13E
W-224	Hall Creek Shallow - BIA 22	Exploratory	448,690	4,030,970	within the SE1/4, SW1/4, SE1/4	5	25N	13E
W-225	Niche Well - BIA 23	Exploratory	449,360	4,029,400	within the NW1/4, SW1/4, SW1/4	9	25N	13E
W-226	Grumpy Well - BIA 24	Exploratory	447,500	4,036,340	within the NE1/4, SE1/4, NE1/4	18	26N	13E

Table 8
Taos Pueblo 1997 Water Use Survey
Wells - By Use

Inventory Number	Well Use	Well Location and Place of Use					
		UTM Coordinates		Location in US Public Land Surveys			
		Zone 13					
		Easting	*Northing*	*Quadrant*	*Section*	*Township*	*Range*
W-001	Household	449,550	4,029,830	within the NE1/4, NW1/4, SW1/4	9	25N	13E
W-002	Household	449,610	4,029,780	within the NW1/4, NE1/4, SW1/4	9	25N	13E
W-003	Household	449,740	4,029,770	within the SW1/4, NE1/4, SW1/4	9	25N	13E
W-006	Household	449,800	4,030,040	within the NW1/4, NE1/4, SW1/4	9	25N	13E
W-007	Household	449,820	4,030,230	within the SE1/4, SE1/4, NW1/4	9	25N	13E
W-008	Household	449,920	4,030,220	within the SE1/4, SE1/4, NW1/4	9	25N	13E
W-009	Household	450,050	4,030,330	within the SE1/4, SE1/4, NW1/4	9	25N	13E
W-010	Household	450,260	4,030,270	within the NE1/4, SW1/4, NE1/4	9	25N	13E
W-013	Household	450,620	4,030,940	within the SW1/4, SE1/4, SE1/4	4	25N	13E
W-014	Household	450,490	4,031,000	within the NW1/4, SE1/4, SE1/4	4	25N	13E
W-015	Household	450,880	4,031,340	within the SW1/4, NW1/4, SW1/4	3	25N	13E
W-016	Household	450,870	4,031,840	within the SW1/4, SW1/4, NW1/4	3	25N	13E
W-017	Household	450,910	4,031,980	within the NW1/4, SW1/4, NW1/4	3	25N	13E
W-018	Household	451,050	4,031,650	within the SE1/4, SW1/4, NW1/4	3	25N	13E
W-019	Household	451,120	4,031,720	within the SE1/4, SW1/4, NW1/4	3	25N	13E
W-020	Household	451,060	4,031,790	within the NE1/4, SW1/4, NW1/4	3	25N	13E
W-021	Household	450,880	4,031,880	within the NW1/4, SW1/4, NW1/4	3	25N	13E
W-022	Household	450,960	4,031,910	within the NW1/4, SW1/4, NW1/4	3	25N	13E
W-023	Household	451,010	4,031,980	within the NW1/4, SW1/4, NW1/4	3	25N	13E
W-024	Household	450,980	4,031,980	within the SE1/4, NW1/4, NW1/4	3	25N	13E
W-025	Household	451,100	4,032,040	within the SE1/4, NW1/4, NW1/4	3	25N	13E
W-026	Household	451,220	4,032,040	within the SE1/4, NW1/4, NW1/4	3	25N	13E
W-027	Household	451,160	4,031,970	within the SE1/4, NW1/4, NW1/4	3	25N	13E
W-028	Household	451,250	4,032,190	within the SW1/4, NE1/4, NW1/4	3	25N	13E
W-029	Household	451,250	4,032,180	within the SW1/4, NE1/4, NW1/4	3	25N	13E
W-030	Household	451,050	4,032,220	within the NE1/4, NW1/4, NW1/4	3	25N	13E
W-031	Household	451,120	4,032,190	within the SE1/4, NW1/4, NW1/4	3	25N	13E
W-032	Household	451,090	4,032,100	within the SE1/4, NW1/4, NW1/4	3	25N	13E
W-033	Household	450,870	4,032,100	within the SW1/4, NW1/4, NW1/4	3	25N	13E
W-034	Household	450,860	4,032,030	within the SW1/4, NW1/4, NW1/4	3	25N	13E
W-035	Household	450,690	4,032,060	within the SE1/4, NE1/4, NE1/4	4	25N	13E
W-036	Household	450,840	4,031,960	within the SW1/4, NW1/4, NW1/4	3	25N	13E
W-037	Household	450,810	4,031,860	within the NW1/4, SW1/4, NW1/4	3	25N	13E
W-038	Household	450,760	4,031,850	within the NE1/4, SE1/4, NE1/4	4	25N	13E
W-039	Household	450,480	4,031,670	within the NE1/4, SE1/4, NE1/4	4	25N	13E

Table 8
Taos Pueblo 1997 Water Use Survey
Wells - By Use

Inventory Number	Well Use	Well Location and Place of Use					
		UTM Coordinates Zone 13		Location in US Public Land Surveys			
		Easting	*Northing*	*Quadrant*	*Section*	*Township*	*Range*
W-040	Household	449,460	4,029,970	within the NE1/4, NW1/4, SW1/4	9	25N	13E
W-041	Household	449,210	4,030,100	within the SW1/4, SW1/4, NW1/4	9	25N	13E
W-042	Household	449,270	4,030,120	within the SW1/4, SW1/4, NW1/4	9	25N	13E
W-043	Household	449,280	4,030,180	within the NW1/4, SW1/4, NW1/4	9	25N	13E
W-044	Household	449,280	4,030,240	within the SW1/4, NW1/4, NW1/4	9	25N	13E
W-046	Household	449,310	4,030,480	within the NW1/4, SW1/4, NW1/4	9	25N	13E
W-048	Household	449,430	4,030,950	within the SE1/4, SW1/4, SW1/4	4	25N	13E
W-049	Household	449,360	4,030,860	within the SW1/4, SW1/4, SW1/4	4	25N	13E
W-050	Household	449,880	4,030,920	within the NE1/4, SE1/4, SW1/4	4	25N	13E
W-051	Household	449,510	4,030,590	within the NE1/4, NW1/4, NW1/4	4	25N	13E
W-052	Household	450,050	4,031,170	within the NW1/4, SW1/4, SE1/4	4	25N	13E
W-053	Household	450,370	4,031,600	within the SE1/4, NW1/4, SE1/4	4	25N	13E
W-054	Household	450,490	4,031,860	within the NW1/4, SE1/4, NE1/4	4	25N	13E
W-055	Household	450,660	4,031,940	within the NW1/4, SE1/4, NE1/4	4	25N	13E
W-056	Household	451,310	4,032,330	within the NW1/4, NE1/4, NW1/4	3	25N	13E
W-057	Household	451,470	4,032,150	within the SE1/4, NE1/4, NW1/4	3	25N	13E
W-058	Household	451,500	4,032,160	within the NE1/4, NE1/4, NW1/4	3	25N	13E
W-059	Household	451,500	4,032,180	within the NE1/4, NE1/4, NW1/4	3	25N	13E
W-060	Household	451,450	4,032,510	within the SE1/4, SE1/4, SW1/4	3	25N	13E
W-061	Household	451,700	4,032,430	within the NE1/4, NE1/4, NW1/4	34	26N	13E
W-062	Household	451,330	4,032,350	within the SE1/4, SE1/4, SW1/4	34	26N	13E
W-063	Household	451,470	4,032,400	within the SE1/4, SE1/4, SW1/4	34	26N	13E
W-064	Household	451,350	4,032,520	within the SW1/4, SE1/4, SW1/4	34	26N	13E
W-065	Household	451,320	4,032,540	within the SW1/4, SE1/4, SW1/4	34	26N	13E
W-066	Household	451,310	4,032,550	within the NW1/4, SE1/4, SW1/4	34	26N	13E
W-067	Household	451,520	4,032,560	within the NE1/4, SE1/4, SW1/4	34	26N	13E
W-068	Household	451,600	4,032,500	within the SW1/4, SW1/4, SE1/4	34	26N	13E
W-069	Household	451,620	4,032,430	within the SW1/4, SW1/4, SE1/4	34	26N	13E
W-070	Household	450,120	4,041,330	within the SW1/4, NE1/4, NE1/4	4	26N	13E
W-071	Household	447,760	4,039,600	within the NE1/4, SE1/4, NW1/4	8	26N	13E
W-073	Household	446,950	4,037,800	within the NE1/4, NW1/4, SE1/4	18	26N	13E
W-074	Household	447,040	4,037,360	within the SE1/4, SW1/4, SE1/4	18	26N	13E
W-075	Household	446,930	4,035,670	within the SW1/4, SW1/4, SE1/4	19	26N	13E
W-076	Household	447,170	4,035,680	within the SE1/4, SW1/4, SW1/4	19	26N	13E
W-077	Household	447,530	4,035,590	within the SE1/4, SE1/4, SE1/4	19	26N	13E

Table 8
Taos Pueblo 1997 Water Use Survey
Wells - By Use

Inventory Number	Well Use	Well Location and Place of Use					
		UTM Coordinates Zone 13		Location in US Public Land Surveys			
		Easting	*Northing*	*Quadrant*	*Section*	*Township*	*Range*
W-078	Household	446,910	4,035,280	within the SW1/4, NW1/4, NE1/4	30	26N	13E
W-079	Household	448,090	4,033,690	within the SW1/4, NE1/4, NW1/4	32	26N	13E
W-080	Household	446,890	4,035,240	within the SW1/4, NW1/4, NE1/4	30	26N	13E
W-081	Household	446,920	4,035,180	within the SW1/4, NW1/4, NE1/4	30	26N	13E
W-082	Household	447,190	4,035,300	within the SW1/4, NE1/4, NE1/4	30	26N	13E
W-083	Household	448,200	4,033,900	within the SE1/4, NE1/4, NW1/4	32	26N	13E
W-084	Household	448,370	4,034,190	within the NE1/4, NW1/4, NE1/4	32	26N	13E
W-085	Household	448,540	4,034,130	within the NE1/4, NW1/4, NE1/4	32	26N	13E
W-086	Household	448,670	4,034,600	within the SW1/4, NE1/4, SE1/4	29	26N	13E
W-087	Household	448,880	4,030,770	within the SW1/4, SE1/4, SE1/4	5	25N	13E
W-088	Household	448,910	4,030,690	within the NW1/4, NE1/4, NE1/4	8	25N	13E
W-089	Household	449,660	4,031,540	within the NW1/4, SE1/4, NW1/4	4	25N	13E
W-090	Household	449,870	4,031,520	within the NE1/4, NE1/4, SW1/4	4	25N	13E
W-092	Household	450,490	4,032,250	within the NW1/4, NE1/4, NE1/4	4	25N	13E
W-093	Household	450,680	4,032,260	within the NE1/4, NE1/4, NE1/4	4	25N	13E
W-094	Household	450,710	4,032,280	within the NE1/4, NE1/4, NE1/4	4	25N	13E
W-095	Household	450,740	4,032,290	within the NE1/4, NE1/4, NE1/4	4	25N	13E
W-096	Household	450,750	4,032,370	within the NE1/4, NE1/4, NE1/4	4	25N	13E
W-097	Household	450,690	4,032,340	within the NE1/4, NE1/4, NE1/4	4	25N	13E
W-098	Household	450,790	4,032,330	within the NE1/4, NE1/4, NE1/4	4	25N	13E
W-099	Household	450,810	4,032,420	within the SE1/4, SE1/4, SE1/4	33	26N	13E
W-100	Household	450,940	4,032,470	within the SW1/4, SW1/4, SW1/4	34	26N	13E
W-101	Household	450,930	4,032,460	within the SW1/4, SW1/4, SW1/4	34	26N	13E
W-102	Household	450,840	4,032,360	within the NW1/4, NW1/4, NW1/4	3	25N	13E
W-103	Household	450,850	4,032,360	within the NW1/4, NW1/4, NW1/4	3	25N	13E
W-104	Household	450,930	4,032,410	within the SW1/4, SW1/4, SW1/4	34	26N	13E
W-105	Household	450,960	4,032,420	within the SW1/4, SW1/4, SW1/4	34	26N	13E
W-107	Household	450,980	4,032,480	within the SW1/4, SW1/4, SW1/4	34	26N	13E
W-108	Household	451,010	4,032,430	within the SE1/4, SW1/4, SW1/4	34	26N	13E
W-109	Household	450,970	4,032,530	within the SW1/4, SW1/4, SW1/4	34	26N	13E
W-110	Household	450,990	4,032,520	within the SE1/4, SW1/4, SW1/4	34	26N	13E
W-111	Household	450,940	4,032,510	within the SW1/4, SW1/4, SW1/4	34	26N	13E
W-112	Household	450,940	4,032,560	within the NW1/4, SW1/4, SW1/4	34	26N	13E
W-113	Household	450,770	4,032,630	within the NW1/4, SW1/4, SW1/4	34	26N	13E
W-114	Household	450,740	4,032,600	within the SW1/4, SW1/4, SW1/4	34	26N	13E

Table 8
Taos Pueblo 1997 Water Use Survey
Wells - By Use

Inventory Number	Well Use	Well Location and Place of Use					
		UTM Coordinates		Location in US Public Land Surveys			
		Zone 13					
		Easting	*Northing*	*Quadrant*	*Section*	*Township*	*Range*
W-115	Household	450,770	4,032,680	within the NW1/4, SW1/4, SW1/4	34	26N	13E
W-116	Household	450,730	4,032,690	within the NW1/4, SW1/4, SW1/4	34	26N	13E
W-117	Household	450,690	4,032,690	within the NE1/4, SE1/4, SE1/4	33	26N	13E
W-118	Household	450,490	4,032,550	within the SW1/4, SE1/4, SE1/4	33	26N	13E
W-119	Household	450,600	4,032,750	within the NE1/4, SE1/4, SE1/4	33	26N	13E
W-120	Household	450,460	4,032,920	within the NE1/4, SE1/4, SE1/4	33	26N	13E
W-121	Household	450,430	4,033,020	within the SW1/4, NE1/4, SE1/4	33	26N	13E
W-122	Household	450,550	4,033,060	within the NE1/4, NE1/4, SE1/4	33	26N	13E
W-123	Household	450,600	4,033,040	within the NE1/4, NE1/4, SE1/4	33	26N	13E
W-124	Household	450,700	4,033,080	within the NE1/4, NE1/4, SE1/4	33	26N	13E
W-125	Household	450,820	4,032,970	within the SW1/4, NW1/4, SW1/4	34	26N	13E
W-126	Household	450,840	4,032,830	within the SW1/4, NW1/4, SW1/4	34	26N	13E
W-127	Household	450,680	4,032,950	within the SE1/4, NE1/4, SE1/4	33	26N	13E
W-128	Household	450,790	4,032,790	within the SE1/4, NE1/4, SE1/4	33	26N	13E
W-129	Household	450,830	4,032,800	within the SW1/4, NW1/4, SW1/4	34	26N	13E
W-130	Household	450,920	4,032,770	within the SW1/4, NW1/4, SW1/4	34	26N	13E
W-131	Household	450,920	4,032,790	within the SW1/4, NW1/4, SW1/4	34	26N	13E
W-132	Household	450,980	4,032,780	within the NW1/4, SW1/4, SW1/4	34	26N	13E
W-133	Household	450,900	4,032,720	within the NW1/4, SW1/4, SW1/4	34	26N	13E
W-134	Household	450,920	4,032,720	within the NW1/4, SW1/4, SW1/4	34	26N	13E
W-135	Household	450,950	4,032,630	within the NW1/4, SW1/4, SW1/4	34	26N	13E
W-136	Household	451,050	4,032,790	within the NE1/4, SW1/4, SW1/4	34	26N	13E
W-137	Household	451,020	4,032,830	within the SE1/4, NW1/4, SW1/4	34	26N	13E
W-138	Household	451,050	4,032,830	within the SE1/4, NW1/4, SW1/4	34	26N	13E
W-139	Household	451,070	4,032,830	within the SE1/4, NW1/4, SW1/4	34	26N	13E
W-140	Household	451,120	4,032,870	within the SE1/4, NW1/4, SW1/4	34	26N	13E
W-141	Household	450,980	4,033,010	within the NW1/4, NW1/4, SW1/4	34	26N	13E
W-142	Household	451,040	4,033,200	within the NE1/4, NW1/4, SW1/4	34	26N	13E
W-143	Household	450,760	4,033,350	within the SE1/4, SE1/4, NE1/4	33	26N	13E
W-144	Household	450,580	4,033,620	within the NE1/4, SE1/4, NE1/4	33	26N	13E
W-145	Household	450,780	4,033,680	within the NE1/4, SW1/4, NW1/4	34	26N	13E
W-146	Household	450,770	4,033,820	within the NW1/4, SW1/4, NW1/4	34	26N	13E
W-148	Household	450,850	4,033,820	within the SW1/4, NW1/4, NW1/4	34	26N	13E
W-151	Household	451,090	4,033,080	within the NE1/4, NW1/4, SW1/4	34	26N	13E
W-152	Household	451,110	4,032,820	within the SE1/4, NW1/4, SW1/4	34	26N	13E

Table 8
Taos Pueblo 1997 Water Use Survey
Wells - By Use

Inventory Number	Well Use	Well Location and Place of Use					
		UTM Coordinates		Location in US Public Land Surveys			
		Zone 13					
		Easting	*Northing*	*Quadrant*	*Section*	*Township*	*Range*
W-153	Household	451,110	4,032,840	within the SE1/4, NW1/4, SW1/4	34	26N	13E
W-155	Household	451,210	4,033,040	within the NW1/4, NE1/4, SW1/4	34	26N	13E
W-156	Household	451,260	4,033,030	within the NW1/4, NE1/4, SW1/4	34	26N	13E
W-157	Household	451,220	4,032,830	within the SW1/4, NE1/4, SW1/4	34	26N	13E
W-158	Household	451,170	4,032,720	within the NE1/4, SW1/4, SW1/4	34	26N	13E
W-159	Household	451,210	4,032,710	within the NW1/4, SE1/4, SW1/4	34	26N	13E
W-160	Household	451,460	4,032,900	within the SE1/4, NE1/4, SW1/4	34	26N	13E
W-162	Household	450,700	4,032,400	within the SW1/4, SW1/4, SW1/4	34	26N	13E
W-175	Household	449,440	4,039,960	within the SW1/4, NW1/4, NW1/4	9	26N	13E
W-176	Household	451,180	4,032,160	within the SW1/4, NE1/4, NW1/4	3	25N	13E
W-177	Household	451,190	4,032,440	within the SE1/4, SW1/4, SW1/4	4	26N	13E
W-179	Household	451,430	4,032,010	within the SE1/4, NE1/4, NW1/4	3	25N	13E
W-180	Household	451,680	4,032,490	within the SW1/4, SW1/4, SE1/4	34	26N	13E
W-206	Household	450,940	4,032,080	within the NW1/4, SW1/4, NW1/4	3	25N	13E
W-207	Household	450,970	4,032,490	within the SW1/4, SW1/4, SW1/4	34	26N	13E
W-208	Household	450,700	4,032,620	within the SE1/4, SE1/4, SE1/4	33	26N	13E
W-209	Household	450,690	4,032,590	within the SE1/4, SE1/4, SE1/4	33	26N	13E
W-210	Household	449,270	4,030,400	within the NW1/4, SW1/4, NW1/4	9	25N	13E
W-211	Household	450,970	4,032,120	within the SW1/4, NW1/4, NW1/4	3	25N	13E
W-212	Household	450,630	4,031,910	within the NW1/4, SE1/4, NE1/4	4	25N	13E
W-213	Household	447,290	4,035,780	within the SW1/4, SE1/4, SE1/4	19	26N	13E
W-214	Household	447,170	4,038,680	within the NW1/4, NE1/4, NE1/4	18	26N	13E
W-215	Household	447,000	4,039,080	within the NE1/4, SW1/4, SE1/4	7	26N	13E
W-168	Exploratory	449,820	4,029,780	within the NE1/4, NE1/4, SW1/4	9	25N	13E
W-170	Exploratory	449,600	4,033,180	within the SW1/4, SW1/4, NW1/4	33	26N	13E
W-171	Exploratory	442,470	4,028,190	within the NE1/4, NE1/4, SE1/4	15	25N	13E
W-172	Exploratory	442,450	4,028,190	within the NE1/4, NE1/4, SE1/4	15	25N	13E
W-181	Exploratory	444,290	4,038,910	within the SE1/4, SE1/4, SE1/4	11	26N	12E
W-182	Exploratory	444,280	4,038,950	within the SE1/4, SE1/4, SE1/4	11	26N	12E
W-184	Exploratory	444,280	4,038,930	within the SE1/4, SE1/4, SE1/4	11	26N	12E
W-185	Exploratory	442,470	4,028,200	within the NE1/4, NE1/4, SE1/4	15	25N	12E
W-186	Exploratory	445,010	4,035,670	within the SE1/4, SE1/4, SW1/4	24	26N	12E
W-187	Exploratory	445,020	4,035,680	within the SE1/4, SE1/4, SW1/4	24	26N	12E
W-196	Exploratory	448,320	4,034,800	within the SW1/4, SE1/4, NW1/4	29	26N	13E
W-197	Exploratory	448,320	4,034,830	within the SW1/4, SE1/4, NW1/4	29	26N	13E

Table 8
Taos Pueblo 1997 Water Use Survey
Wells - By Use

Inventory Number	Well Use	Well Location and Place of Use					
		UTM Coordinates		Location in US Public Land Surveys			
		Zone 13					
		Easting	*Northing*	*Quadrant*	*Section*	*Township*	*Range*
W-202	Exploratory	449,470	4,030,990	within the NE1/4, SW1/4, SW1/4	4	25N	13E
W-216	Exploratory	446,740	4,030,410	within the SE1/4, NE1/4, NW1/4	7	25N	13E
W-217	Exploratory	446,750	4,030,390	within the SE1/4, NE1/4, NW1/4	7	25N	13E
W-218	Exploratory	450,340	4,034,520	within the SE1/4, NW1/4, SE1/4	26	26N	13E
W-219	Exploratory	448,890	4,038,130	within the SW1/4, SE1/4, NE1/4	17	26N	13E
W-220	Exploratory	448,480	4,039,590	within the NW1/4, SW1/4, NE1/4	8	26N	13E
W-221	Exploratory	447,370	4,035,890	within the NW1/4, SE1/4, SE1/4	19	26N	13E
W-222	Exploratory	447,380	4,035,900	within the NE1/4, SE1/4, SE1/4	19	26N	13E
W-223	Exploratory	448,690	4,030,980	within the NE1/4, SW1/4, SE1/4	5	25N	13E
W-224	Exploratory	448,690	4,030,970	within the SE1/4, SW1/4, SE1/4	5	25N	13E
W-225	Exploratory	449,360	4,029,400	within the NW1/4, SW1/4, SW1/4	9	25N	13E
W-226	Exploratory	447,500	4,038,340	within the NE1/4, SE1/4, NE1/4	18	26N	13E
W-045	Livestock	449,320	4,030,340	within the NW1/4, SW1/4, NW1/4	9	25N	13E
W-047	Livestock	449,380	4,030,610	within the NW1/4, NW1/4, NW1/4	9	25N	13E
W-072	Livestock	447,540	4,039,780	within the NE1/4, SW1/4, NW1/4	8	26N	13E
W-106	Livestock	450,980	4,032,470	within the SW1/4, SW1/4, SW1/4	34	26N	13E
W-154	Livestock	451,110	4,032,870	within the SE1/4, NW1/4, SW1/4	34	26N	13E
W-163	Livestock	442,600	4,039,400	within the NE1/4, NE1/4, NE1/4	10	26N	12E
W-164	Livestock	443,910	4,040,000	within the SW1/4, NE1/4, NE1/4	11	26N	12E
W-165	Livestock	436,540	4,033,510	within the NW1/4, SE1/4, NW1/4	31	26N	12E
W-166	Livestock	439,560	4,029,190	within the NE1/4, NW1/4, NW1/4	16	25N	12E
W-167	Livestock	436,720	4,026,870	within the SW1/4, SE1/4, NW1/4	19	25N	12E
W-169	Livestock	450,580	4,029,640	within the SE1/4, NW1/4, SW1/4	10	25N	13E
W-174	Livestock	451,070	4,033,070	within the SE1/4, NW1/4, SW1/4	34	26N	13E
W-183	Livestock	444,300	4,038,130	within the NE1/4, NE1/4, SE1/4	14	26N	12E
W-004	Municipal	449,940	4,029,920	within the NE1/4, NE1/4, SW1/4	9	25N	13E
W-005	Municipal	449,920	4,029,880	within the NE1/4, NE1/4, SW1/4	9	25N	13E
W-011	Municipal	450,210	4,030,440	within the NW1/4, SW1/4, NE1/4	9	25N	13E
W-012	Municipal	450,320	4,030,520	within the SW1/4, NW1/4, NE1/4	9	25N	13E
W-091	Municipal	450,460	4,032,180	within the NW1/4, NE1/4, NE1/4	4	25N	13E
W-147	Municipal	450,670	4,033,780	within the NE1/4, SE1/4, NE1/4	33	26N	13E
W-149	Municipal	451,050	4,032,960	within the SE1/4, NW1/4, SW1/4	34	26N	13E
W-150	Municipal	451,020	4,032,850	within the SE1/4, NW1/4, SW1/4	34	26N	13E
W-161	Municipal	451,310	4,032,170	within the SW1/4, NE1/4, NW1/4	3	25N	13E
W-173	Municipal	448,450	4,033,400	within the SW1/4, SW1/4, NE1/4	32	26N	13E

Table 8
Taos Pueblo 1997 Water Use Survey
Wells - By Use

Inventory Number	Well Use	Well Location and Place of Use					
		UTM Coordinates		Location in US Public Land Surveys			
		Zone 13					
		Easting	*Northing*	*Quadrant*	*Section*	*Township*	*Range*
W-178	Municipal	451,000	4,032,510	within the SW1/4, SW1/4, SW1/4	34	26N	13E
W-205	Municipal	449,350	4,030,060	within the SW1/4, SW1/4, SW1/4	9	25N	13E
W-189	Observation	449,590	4,033,170	within the SE1/4, SW1/4, NW1/4	33	26N	13E
W-190	Observation	449,580	4,033,180	within the SE1/4, SW1/4, NW1/4	33	26N	13E
W-191	Observation	449,590	4,033,200	within the SE1/4, SW1/4, NW1/4	33	26N	13E
W-192	Observation	449,400	4,033,450	within the NW1/4, SW1/4, NW1/4	33	26N	13E
W-193	Observation	449,270	4,033,440	within the NW1/4, SW1/4, NW1/4	33	26N	13E
W-194	Observation	449,800	4,034,400	within the SE1/4, NE1/4, SW1/4	28	26N	13E
W-195	Observation	448,800	4,034,800	within the NE1/4, NE1/4, SE1/4	29	26N	13E
W-198	Observation	448,500	4,036,770	within the NW1/4, SE1/4, NE1/4	20	26N	13E
W-199	Observation	449,260	4,037,200	within the SE1/4, NW1/4, NW1/4	21	26N	13E
W-200	Observation	449,600	4,037,610	within the SE1/4, SE1/4, NW1/4	16	26N	13E
W-201	Observation	450,480	4,038,780	within the SW1/4, SE1/4, SE1/4	9	26N	13E
W-203	Observation	449,460	4,030,970	within the NE1/4, SW1/4, SW1/4	4	25N	13E
W-204	Observation	449,200	4,033,760	within the SW1/4, NW1/4, NW1/4	33	26N	13E

Table 9
Taos Pueblo 1997 Water Use Survey
Springs - Locations

Inventory Number	Field Name	Spring Location				UTM Coordinates	
		Location in US Public Land Surveys				Zone 13	
		Quadrant	*Section*	*Township*	*Range*	*Easting*	*Northing*
S-1	Sacred Pasture Spring	within the NE 1/4, NW 1/4, SE 1/4	33	26N	13E	450,210	4,033,060
S-2	Sacred Pasture Spring	within the SW 1/4, NW 1/4, SE 1/4	33	26N	13E	450,120	4,032,870
S-3	Sacred Pasture Spring	within the NE 1/4, SW 1/4, SE 1/4	33	26N	13E	450,240	4,032,780
S-4	Sacred Pasture Spring	within the NE 1/4, SW 1/4, SE 1/4	33	26N	13E	450,270	4,032,750
S-5	Sacred Pasture Spring	within the NW 1/4, SE 1/4, SE 1/4	33	26N	13E	450,320	4,032,660
S-6	Sacred Pasture Spring	within the SE 1/4, SW 1/4, SE 1/4	33	26N	13E	450,290	4,032,520
S-7	Pumpkin Seed Spring	within the SE 1/4, SW 1/4, SE 1/4	33	26N	13E	450,240	4,032,430
S-8	Sacred Pasture Spring	within the NE 1/4, NW 1/4, NE 1/4	4	25N	13E	450,240	4,032,270
S-9	Sacred Pasture Spring	within the NW 1/4, NW 1/4, NE 1/4	4	25N	13E	450,170	4,032,180
S-10	Sacred Pasture Spring	within the SE 1/4, NW 1/4, NE 1/4	4	25N	13E	450,230	4,032,080
S-11	Sacred Pasture Spring	within the NW 1/4, NW 1/4, NE 1/4	4	25N	13E	450,060	4,032,290
S-12	Sacred Pasture Spring	within the SE 1/4, SW 1/4, SE 1/4	33	26N	13E	450,140	4,032,430
S-13	Sacred Pasture Spring	within the SW 1/4, SW 1/4, SE 1/4	33	26N	13E	450,080	4,032,530
S-14	Sacred Pasture Spring	within the SW 1/4, SW 1/4, SE 1/4	33	26N	13E	449,930	4,032,490
S-15	Sacred Pasture Spring	within the NW 1/4, NE 1/4, NW 1/4	4	26N	13E	449,700	4,032,230
S-16	Sacred Pasture Spring	within the NE 1/4, NW 1/4, SW 1/4	33	26N	13E	449,570	4,033,030
S-17	Sacred Pasture Spring	within the NE 1/4, NW 1/4, SW 1/4	33	26N	13E	449,540	4,033,070
S-18	Sacred Pasture Spring	within the NE 1/4, NW 1/4, SW 1/4	33	26N	13E	449,500	4,033,070
S-19	Sacred Pasture Spring	within the NW 1/4, NW 1/4, SW 1/4	33	26N	13E	449,350	4,033,130
S-20	Sacred Pasture Spring	within the NW 1/4, NW 1/4, SW 1/4	33	26N	13E	449,260	4,033,100
S-21	Sacred Pasture Spring	within the SW 1/4, SW 1/4, NW 1/4	33	26N	13E	449,250	4,033,230
S-22	Sacred Pasture Spring	within the NE 1/4, NE 1/4, SW 1/4	33	26N	13E	449,840	4,033,160
S-23	Sacred Pasture Spring	within the NE 1/4, NE 1/4, SE 1/4	32	26N	13E	449,050	4,033,180
S-24	Sacred Pasture Spring	within the NE 1/4, NE 1/4, SE 1/4	32	26N	13E	448,890	4,033,170
S-25	East Lucero Channel Spring	within the NE 1/4, NE 1/4, SW 1/4	33	26N	13E	449,790	4,033,090
S-26	West Lucero Channel Spring	within the SW 1/4, NE 1/4, SW 1/4	33	26N	13E	449,630	4,033,030

Taos Pueblo Irrigated Lands							
Map Sheet	Tract No.	Tract acreage	Stream	Ditch	Land Status	ID Method	Summed by Ditch
TP-1	1	17.2	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	2	1.9	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	3	2.3	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	4	3.8	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	5	7.2	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	6	8.45	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	7	1.6	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	8	1.3	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	9	11.5	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	10	5.4	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	11	3.3	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	12	2.15	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	13	11	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	14	9.25	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	15	5.25	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	16	10.9	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	17	5.6	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	18	4	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	19	3.7	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	20	1.4	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	21	1	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	22	5.35	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	23	1.7	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	24	7.9	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	25	3.85	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	26	10	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	27	2.9	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	28	7.35	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	29	3.25	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	30	3	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	31	4.95	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	32	2.7	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	33	2.8	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	34	4.8	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	35	1.1	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	36	6.25	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	37	1.85	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	38	15.9	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	39	5.35	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	40	1.1	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	41	7	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	42	2.65	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	43	41.9	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	44	2	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	45	0.5	Rio Lucero	Tenorio	Tenorio Tract	Photo	

TP-1	46	1	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	47	4.7	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	48	45.75	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	49	6.25	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	50	12.7	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	51	1	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	53	0.8	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	54	0.7	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	56	8.65	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	57	21	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	58	7.85	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	59	2.7	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	60	3.75	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	61	1.05	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	62	12.2	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	63	11	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	64	1.1	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	65	8.1	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	66	6.1	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	67	7.3	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	68	2.3	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	69	5.05	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	70	13.95	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	71	4.2	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	72	11.85	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	73	10.5	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	74	18.15	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	75	6.9	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	76	3.5	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	77	7.65	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	78	8.2	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	79	2.5	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	80	20.6	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	81	7.3	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	82	1.35	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	83	0.7	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	84	0.45	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	85	1.1	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	86	1.1	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	87	0.25	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	88	0.5	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	89	1.65	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	90	0.25	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	91	0.2	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	92	0.2	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	93	0.1	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	94	2.25	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	95	5.05	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-1	96	0.75	Rio Lucero	Tenorio	Tenorio Tract	Photo	Total Tenorio Ditch
TP-1	97	0.5	Rio Lucero	Tenorio	Tenorio Tract	Photo	567.1
TP-1	98	7.35	Arroyo Seco	Concho	Tenorio Tract	Photo	

TP-1	99	7	Arroyo Seco	Concho	Tenorio Tract	Photo	
TP-1	100	4.9	Arroyo Seco	Concho	Tenorio Tract	Photo	
TP-1	101	11.9	Arroyo Seco	Concho	Tenorio Tract	Photo	Total Concho Ditch
TP-1	102	10.5	Arroyo Seco	Concho	Tenorio Tract	Photo	41.65
		608.75					608.75
Note: Tracts 52 and 55 are actually ponds and not included in the total							

Taos Pueblo Irrigated Lands							
Map Sheet	Tract No.	Tract acreage	Stream	Ditch	Land Status	ID Method	Summed by Ditch
TP-2	1	1.1	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	2	1.9	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	3	3	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	4	3.55	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	5	3.75	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	6	1.3	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	7	4	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	8	3.25	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	9	4	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	10	1	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	11	2	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	13	3.5	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	14	8.65	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	16	16.1	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	17	3.15	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	18	2.35	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	19	2.65	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	20	3.25	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	21	6.05	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	22	7.75	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	23	6.35	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	24	6.15	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	25	9.9	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	26	0.75	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	27	1.6	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	28	10.95	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	29	3.65	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	30	8.65	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	31	4	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	32	3.4	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	33	10	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	34	7.95	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	35	5.95	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	36	11.7	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	37	7.65	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	38	4.2	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	39	6.5	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	40	6.55	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	41	8.35	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	42	1.65	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	43	17.9	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	44	5.05	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	45	10	Rio Lucero	Tenorio	Tenorio Tract	Photo	

TP-2	46	3.4	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	47	3.25	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	48	1.1	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	49	4.5	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	50	0.75	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	51	3.4	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	52	10.75	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	53	2	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	54	3.8	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	55	7.5	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	56	11.3	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	57	11.3	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	58	5	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	59	5.75	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	60	11.45	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	61	2.05	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	62	2.65	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	63	3.9	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	64	2.9	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	65	9.8	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	66	2.05	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	67	8.8	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	68	8.3	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	69	25.7	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	70	4.6	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	71	7.4	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	72	7.9	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	73	6.15	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	74	3.9	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	75	5.75	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	76	1.25	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	77	1.75	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	78	8.5	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	79	5.15	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	80	5.75	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	81	4.1	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	82	1.45	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	83	7.35	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	84	0.2	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	85	3.5	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	86	0.5	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	87	6.35	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	88	5.05	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	90	6.5	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	91	0.6	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	92	4.25	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-2	93	0.2	Rio Lucero	Tenorio	Tenorio Tract	Photo	Total Tenorio Ditch
TP-2	94	0.15	Rio Lucero	Tenorio	Tenorio Tract	Photo	490.85
		490.85					
Note: Tracts 12, 15 and 89 are actually ponds and not included in the total							

Taos Pueblo Irrigated Lands							
Map Sheet	Tract No.	Tract	Stream	Ditch	Land Status	ID Method	Summed by Ditch
TP-3	1	2.75	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-3	2	3.7	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-3	3	21.75	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-3	4	5.2	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-3	5	6.2	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-3	6	8.65	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-3	7	10.8	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-3	8	5.5	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-3	9	8.05	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-3	10	2.5	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-3	11	6.7	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-3	12	7.65	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-3	13	2.75	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-3	14	9.4	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-3	15	6.25	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-3	16	1	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-3	17	5.6	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-3	18	0.8	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-3	19	2.3	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-3	20	0.8	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-3	21	0.25	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-3	22	0.25	Rio Lucero	Indian	Tenorio Tract	Photo	Total Indian Ditch
							118.85
		118.85					

Taos Pueblo Irrigated Lands							
Map Sheet	Tract No.	Tract acreage	Stream	Ditch	Land Status	ID Method	Summed by Ditch
TP-4	1	8.5	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	2	10.9	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	3	3.5	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	4	15.15	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	5	17.5	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	6	16.4	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	7	9.3	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	8	4.3	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	9	4.5	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	10	4.65	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	11	4.5	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	12	7.35	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	13	16	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	14	16.5	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	15	20.9	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	16	16.4	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	17	22.7	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	18	12.5	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	19	4.75	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	20	3.2	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	21	2.6	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	22	2.9	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	23	5.9	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	24	5.95	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	25	2.4	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	26	9	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	27	16.1	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	28	7.75	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	29	0.4	Rio Lucero	Tenorio	Tenorio Tract	Photo	
TP-4	30	1.2	Rio Lucero	Tenorio	Tenorio Tract	Photo	Total Tenorio Ditch
TP-4	31	1.3	Rio Lucero	Tenorio	Tenorio Tract	Photo	275
		275					

Taos Pueblo Irrigated Lands							
Map Sheet	Tract No.	Tract acreage	Stream	Ditch	Land Status	ID Method	Summed by Ditch
TP-5	1	6.65	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-5	2	1.5	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-5	3	4.75	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-5	4	3.45	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-5	5	0.8	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-5	6	0.35	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-5	7	4.65	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-5	8	2.6	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-5	9	17.5	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-5	10	1	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-5	11	6.2	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-5	12	5.9	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-5	13	2.9	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-5	14	3.1	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-5	15	0.75	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-5	16	6.1	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-5	17	1.5	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-5	18	5.65	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-5	19	3.95	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-5	21	1.4	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-5	23	11.65	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-5	24	4.6	Rio Lucero	Indian	Tenorio Tract	Photo	
TP-5	25	3	Rio Lucero	Indian	Grant	Photo	
TP-5	26	3.65	Rio Lucero	Indian	Grant	Photo	
TP-5	27	1.9	Rio Lucero	Indian	Grant	Photo	
TP-5	28	1.5	Rio Lucero	Indian	Grant	Photo	
TP-5	29	9.1	Rio Lucero	Indian	Grant	Photo	
TP-5	30	0.55	Rio Lucero	Indian	Grant	Photo	Total Indian Ditch
TP-5	31	5.6	Rio Lucero	Indian	Grant	Photo	122.25
TP-5	32	0.9	Rio Lucero	1908	Tenorio Tract	Photo	
TP-5	33	0.4	Rio Lucero	1908	Tenorio Tract	Photo	
TP-5	34	0.75	Rio Lucero	1908	Tenorio Tract	Photo	
TP-5	35	1.05	Rio Lucero	1908	Tenorio Tract	Photo	
TP-5	36	1.85	Rio Lucero	1908	Tenorio Tract	Photo	
TP-5	37	2.35	Rio Lucero	1908	Tenorio Tract	Photo	
TP-5	38	2	Rio Lucero	1908	Tenorio Tract	Photo	
TP-5	39	5.8	Rio Lucero	1908	Tenorio Tract	Photo	
TP-5	40	0.85	Rio Lucero	1908	Tenorio Tract	Photo	
TP-5	41	1.6	Rio Lucero	1908	Grant	Photo	
TP-5	42	1.7	Rio Lucero	1908	Grant	Photo	
TP-5	43	3.15	Rio Lucero	1908	Grant	Photo	
TP-5	44	0.45	Rio Lucero	1908	Grant	Photo	
TP-5	45	0.2	Rio Lucero	1908	Grant	Photo	
TP-5	46	0.35	Rio Lucero	1908	Grant	Photo	
TP-5	47	3.35	Rio Lucero	1908	Grant	Photo	

TP-5	48	4.15	Rio Lucero	1908	Grant	Photo	
TP-5	49	0.65	Rio Lucero	1908	Grant	Photo	
TP-5	50	1.55	Rio Lucero	1908	Grant	Photo	
TP-5	51	4.8	Rio Lucero	1908	Grant	Photo	
TP-5	52	5.4	Rio Lucero	1908	Grant	Photo	
TP-5	53	0.1	Rio Lucero	1908	Grant	Photo	
TP-5	54	0.4	Rio Lucero	1908	Grant	Photo	
TP-5	55	0.6	Rio Lucero	1908	Grant	Photo	Total 1908 Ditch
TP-5	56	0.85	Rio Lucero	1908	Grant	Photo	45.25
		167.5					167.5
Note: There is not a tract 20, nor is there a tract 22							

Taos Pueblo Irrigated Lands							
Map Sheet	Tract No.	Tract acreage	Stream	Ditch	Land Status	ID Method	Summed by Ditch
TP-6	1	9.7	Rio Lucero	Tenorio	Tenorio	Photo	
TP-6	2	26.4	Rio Lucero	Tenorio	Tenorio	Photo	
TP-6	3	8.1	Rio Lucero	Tenorio	Tenorio	Photo	
TP-6	4	21.6	Rio Lucero	Tenorio	Tenorio	Photo	
TP-6	5	16.2	Rio Lucero	Tenorio	Tenorio	Photo	
TP-6	6	1.6	Rio Lucero	Tenorio	Tenorio	Photo	
TP-6	7	1.2	Rio Lucero	Tenorio	Grant	Photo	
TP-6	8	5.65	Rio Lucero	Tenorio	Grant	Photo	
TP-6	9	1.4	Rio Lucero	Tenorio	Grant	Photo	Total Tenorio
TP-6	10	0.1	Rio Lucero	Tenorio	Grant	Photo	91.95
TP-6	11	1.3	Rio Lucero	1908	Grant	Photo	
TP-6	12	6.3	Rio Lucero	1908	Grant	Photo	
TP-6	13	6.6	Rio Lucero	1908	Grant	Photo	
TP-6	14	7.1	Rio Lucero	1908	Grant	Photo	
TP-6	15	3.05	Rio Lucero	1908	Grant	Photo	
TP-6	16	4	Rio Lucero	1908	Grant	Photo	
TP-6	17	5	Rio Lucero	1908	Grant	Photo	
TP-6	18	2.9	Rio Lucero	1908	Grant	Photo	
TP-6	19	8.25	Rio Lucero	1908	Grant	Photo	
TP-6	20	0.9	Rio Lucero	1908	Grant	Photo	
TP-6	21	0.45	Rio Lucero	1908	Grant	Photo	
TP-6	22	6.25	Rio Lucero	1908	Grant	Photo	
TP-6	23	1.45	Rio Lucero	1908	Grant	Photo	
TP-6	24	4.95	Rio Lucero	1908	Grant	Photo	
TP-6	25	4.9	Rio Lucero	1908	Grant	Photo	
TP-6	26	1.85	Rio Lucero	1908	Grant	Photo	
TP-6	27	21.5	Rio Lucero	1908	Grant	Photo	
TP-6	28	0.35	Rio Lucero	1908	Grant	Photo	
TP-6	29	3.55	Rio Lucero	1908	Grant	Photo	
TP-6	30	0.55	Rio Lucero	1908	Grant	Photo	
TP-6	31	1.4	Rio Lucero	1908	Grant	Photo	
TP-6	32	1.6	Rio Lucero	1908	Grant	Photo	
TP-6	33	1.45	Rio Lucero	1908	Grant	Photo	
TP-6	34	7.45	Rio Lucero	1908	Grant	Photo	
TP-6	35	2.6	Rio Lucero	1908	Grant	Photo	
TP-6	36	10.25	Rio Lucero	1908	Grant	Photo	
TP-6	37	0.4	Rio Lucero	1908	Grant	Photo	
TP-6	38	0.65	Rio Lucero	1908	Grant	Photo	
TP-6	39	0.4	Rio Lucero	1908	Grant	Photo	
TP-6	40	0.55	Rio Lucero	1908	Grant	Photo	
TP-6	41	2.1	Rio Lucero	1908	Grant	Photo	
TP-6	42	2.1	Rio Lucero	1908	Grant	Photo	
TP-6	43	1.1	Rio Lucero	1908	Grant	Photo	
TP-6	44	16.15	Rio Lucero	1908	Grant	Photo	

TP-6	45	11.5	Rio Lucero	1908	Grant	Photo	
TP-6	46	1.15	Rio Lucero	1908	Grant	Photo	Total 1908
TP-6	47	5.3	Rio Lucero	1908	Grant	Photo	157.35
TP-6	48	1.3	Rio Lucero	Juan Manuel	Grant	Photo	Total Juan Manuel
							1.3
		250.6					
							250.6

Taos Pueblo Irrigated Lands							
Map Sheet	Tract No.	Tract acreage	Stream	Ditch	Land Status	ID Method	Summed by Ditch
TP-7	1	2.05	Rio Lucero	1908	Grant	Photo	
TP-7	2	3.9	Rio Lucero	1908	Grant	Photo	
TP-7	3	5.05	Rio Lucero	1908	Grant	Photo	
TP-7	4	7.4	Rio Lucero	1908	Grant	Photo	
TP-7	5	2.5	Rio Lucero	1908	Grant	Photo	
TP-7	6	1.45	Rio Lucero	1908	Grant	Photo	
TP-7	7	4.8	Rio Lucero	1908	Grant	Photo	
TP-7	8	7.9	Rio Lucero	1908	Grant	Photo	
TP-7	9	7.15	Rio Lucero	1908	Grant	Photo	Total 1908 Ditch
TP-7	10	3.25	Rio Lucero	1908	Grant	Photo	45.45
TP-7	11	4.45	Rio Lucero	Grouse	Grant	Photo	
TP-7	12	10.45	Rio Lucero	Grouse	Grant	Photo	
TP-7	13	4	Rio Lucero	Grouse	Grant	Photo	
TP-7	14	13.1	Rio Lucero	Grouse	Grant	Photo	
TP-7	15	0.6	Rio Lucero	Grouse	Grant	Photo	
TP-7	16	14.4	Rio Lucero	Grouse	Grant	Photo	
TP-7	17	2.6	Rio Lucero	Grouse	Grant	Photo	
TP-7	18	2.5	Rio Lucero	Grouse	Grant	Photo	
TP-7	19	2.75	Rio Lucero	Grouse	Grant	Photo	
TP-7	20	3.5	Rio Lucero	Grouse	Grant	Photo	
TP-7	21	11.65	Rio Lucero	Grouse	Grant	Photo	
TP-7	22	10.9	Rio Lucero	Grouse	Grant	Photo	
TP-7	23	16.15	Rio Lucero	Grouse	Grant	Photo	
TP-7	24	5.9	Rio Lucero	Grouse	Grant	Photo	
TP-7	25	4.15	Rio Lucero	Grouse	Grant	Photo	
TP-7	26	6.35	Rio Lucero	Grouse	Grant	Photo	
TP-7	27	17.6	Rio Lucero	Grouse	Grant	Photo	
TP-7	28	1.8	Rio Lucero	Grouse	Grant	Photo	
TP-7	29	1.7	Rio Lucero	Grouse	Grant	Photo	
TP-7	30	1.2	Rio Lucero	Grouse	Grant	Photo	
TP-7	31	0.5	Rio Lucero	Grouse	Grant	Photo	
TP-7	32	0.2	Rio Lucero	Grouse	Grant	Photo	
TP-7	33	0.4	Rio Lucero	Grouse	Grant	Photo	
TP-7	34	1.05	Rio Lucero	Grouse	Grant	Photo	
TP-7	35	1.3	Rio Lucero	Grouse	Grant	Photo	Total Grouse Ditch
TP-7	36	5.5	Rio Lucero	Grouse	Grant	Photo	144.7
TP-7	37	4.4	Rio Lucero	Beeline	Grant	Photo	
TP-7	38	13.9	Rio Lucero	Beeline	Grant	Photo	
TP-7	39	3.35	Rio Lucero	Beeline	Grant	Photo	
TP-7	40	1.95	Rio Lucero	Beeline	Grant	Photo	
TP-7	41	0.75	Rio Lucero	Beeline	Grant	Photo	
TP-7	42	1.45	Rio Lucero	Beeline	Grant	Photo	

TP-7	43	8.35	Rio Lucero	Beeline	Grant	Photo	
TP-7	44	2.2	Rio Lucero	Beeline	Grant	Photo	
TP-7	45	0.75	Rio Lucero	Beeline	Grant	Photo	
TP-7	46	0.75	Rio Lucero	Beeline	Grant	Photo	
TP-7	47	0.55	Rio Lucero	Beeline	Grant	Photo	
TP-7	48	0.65	Rio Lucero	Beeline	Grant	Photo	
TP-7	49	2.75	Rio Lucero	Beeline	Grant	Photo	
TP-7	50	4.65	Rio Lucero	Beeline	Grant	Photo	
TP-7	51	1.9	Rio Lucero	Beeline	Grant	Photo	Total Beeline Ditch
TP-7	52	0.25	Rio Lucero	Beeline	Grant	Photo	48.6
TP-7	53	2.3	Rio Lucero	Tributary of Rio Lucero	Grant	Photo	Total TORL
							2.3
		241.05					
							241.05

Map TP-8 Worksheet

Taos Pueblo Irrigated Lands							
Map Sheet	Tract No.	Tract acreage	Stream	Ditch	Land Status	ID Method	Summed by Ditch
TP-8	1	8.75	Rio Lucero	Beeline	Grant	Photo	
TP-8	2	1.9	Rio Lucero	Beeline	Grant	Photo	
TP-8	3	1.9	Rio Lucero	Beeline	Grant	Photo	
TP-8	4	0.3	Rio Lucero	Beeline	Grant	Photo	
TP-8	5	0.5	Rio Lucero	Beeline	Grant	Photo	
TP-8	6	1.2	Rio Lucero	Beeline	Grant	Photo	
TP-8	7	5.4	Rio Lucero	Beeline	Grant	Photo	
TP-8	8	0.95	Rio Lucero	Beeline	Grant	Photo	
TP-8	9	0.9	Rio Lucero	Beeline	Grant	Photo	
TP-8	10	0.65	Rio Lucero	Beeline	Grant	Photo	
TP-8	11	0.85	Rio Lucero	Beeline	Grant	Photo	
TP-8	12	2.9	Rio Lucero	Beeline	Grant	Photo	
TP-8	13	1.35	Rio Lucero	Beeline	Grant	Photo	
TP-8	14	2.6	Rio Lucero	Beeline	Grant	Photo	
TP-8	15	21.15	Rio Lucero	Beeline	Grant	Photo	
TP-8	16	0.6	Rio Lucero	Beeline	Grant	Photo	
TP-8	17	1.3	Rio Lucero	Beeline	Grant	Photo	
TP-8	18	5.55	Rio Lucero	Beeline	Grant	Photo	
TP-8	19	1.45	Rio Lucero	Beeline	Grant	Photo	
TP-8	20	13.4	Rio Lucero	Beeline	Grant	Photo	
TP-8	21	3.25	Rio Lucero	Beeline	Grant	Photo	Total Beeline Ditch
TP-8	22	3	Rio Lucero	Beeline	Grant	Photo	79.85
TP-8	23	1.55	Rio Lucero	1908	Grant	Photo	
TP-8	24	0.4	Rio Lucero	1908	Grant	Photo	
TP-8	25	2.25	Rio Lucero	1908	Grant	Photo	
TP-8	26	8	Rio Lucero	1908	Grant	Photo	
TP-8	27	1.3	Rio Lucero	1908	Grant	Photo	
TP-8	28	7.2	Rio Lucero	1908	Grant	Photo	
TP-8	29	6.25	Rio Lucero	1908	Grant	Photo	
TP-8	30	2.35	Rio Lucero	1908	Grant	Photo	
TP-8	31	6.9	Rio Lucero	1908	Grant	Photo	
TP-8	32	9.25	Rio Lucero	1908	Grant	Photo	
TP-8	33	9.2	Rio Lucero	1908	Grant	Photo	
TP-8	34	6.4	Rio Lucero	1908	Grant	Photo	
TP-8	35	7.6	Rio Lucero	1908	Grant	Photo	
TP-8	36	4.85	Rio Lucero	1908	Grant	Photo	
TP-8	37	1.8	Rio Lucero	1908	Grant	Photo	
TP-8	38	7.5	Rio Lucero	1908	Grant	Photo	
TP-8	39	11.1	Rio Lucero	1908	Grant	Photo	
TP-8	40	14.2	Rio Lucero	1908	Grant	Photo	
TP-8	41	7.5	Rio Lucero	1908	Grant	Photo	
TP-8	42	7.8	Rio Lucero	1908	Grant	Photo	
TP-8	43	5.75	Rio Lucero	1908	Grant	Photo	
TP-8	44	5.75	Rio Lucero	1908	Grant	Photo	

TP-8	45	9.25	Rio Lucero	1908	Grant	Photo	
TP-8	46	10.2	Rio Lucero	1908	Grant	Photo	
TP-8	47	6	Rio Lucero	1908	Grant	Photo	
TP-8	48	8.9	Rio Lucero	1908	Grant	Photo	
TP-8	49	11.6	Rio Lucero	1908	Grant	Photo	
TP-8	50	7.85	Rio Lucero	1908	Grant	Photo	
TP-8	51	2.35	Rio Lucero	1908	Grant	Photo	
TP-8	52	4.85	Rio Lucero	1908	Grant	Photo	
TP-8	53	10	Rio Lucero	1908	Grant	Photo	
TP-8	54	18.4	Rio Lucero	1908	Grant	Photo	
TP-8	55	21.75	Rio Lucero	1908	Grant	Photo	
TP-8	56	20.6	Rio Lucero	1908	Grant	Photo	
TP-8	57	0.4	Rio Lucero	1908	Grant	Photo	
TP-8	58	17.55	Rio Lucero	1908	Grant	Photo	
TP-8	59	4.05	Rio Lucero	1908	Grant	Photo	
TP-8	60	0.45	Rio Lucero	1908	Grant	Photo	
TP-8	61	1.3	Rio Lucero	1908	Grant	Photo	
TP-8	62	3.75	Rio Lucero	1908	Grant	Photo	
TP-8	63	2.2	Rio Lucero	1908	Grant	Photo	
TP-8	64	0.25	Rio Lucero	1908	Grant	Photo	
TP-8	65	6.35	Rio Lucero	1908	Grant	Photo	
TP-8	66	1.85	Rio Lucero	1908	Grant	Photo	Total 1908 Ditch
TP-8	67	0.55	Rio Lucero	1908	Grant	Photo	305.35
		385.2					385.2

Taos Pueblo Irrigated Lands							
Map Sheet	Tract No.	Tract acreage	Stream	Ditch	Land Status	ID Method	Summed by Ditch
TP-9	1	11.3	Rio Lucero	Grouse	Grant	Photo	
TP-9	2	17.25	Rio Lucero	Grouse	Grant	Photo	
TP-9	3	9	Rio Lucero	Grouse	Grant	Photo	
TP-9	4	6.35	Rio Lucero	Grouse	Grant	Photo	
TP-9	5	8.7	Rio Lucero	Grouse	Grant	Photo	
TP-9	6	4	Rio Lucero	Grouse	Grant	Photo	
TP-9	7	4.45	Rio Lucero	Grouse	Grant	Photo	
TP-9	8	12.5	Rio Lucero	Grouse	Grant	Photo	
TP-9	9	9	Rio Lucero	Grouse	Grant	Photo	
TP-9	10	4.85	Rio Lucero	Grouse	Grant	Photo	
TP-9	11	9.6	Rio Lucero	Grouse	Grant	Photo	
TP-9	12	6.65	Rio Lucero	Grouse	Grant	Photo	
TP-9	13	3.55	Rio Lucero	Grouse	Grant	Photo	
TP-9	14	2	Rio Lucero	Grouse	Grant	Photo	
TP-9	15	7.1	Rio Lucero	Grouse	Grant	Photo	
TP-9	16	3.35	Rio Lucero	Grouse	Grant	Photo	
TP-9	17	4.05	Rio Lucero	Grouse	Grant	Photo	
TP-9	18	4.7	Rio Lucero	Grouse	Grant	Photo	
TP-9	19	4.5	Rio Lucero	Grouse	Grant	Photo	
TP-9	20	1	Rio Lucero	Grouse	Grant	Photo	
TP-9	21	5.75	Rio Lucero	Grouse	Grant	Photo	
TP-9	22	10.1	Rio Lucero	Grouse	Grant	Photo	
TP-9	23	11.4	Rio Lucero	Grouse	Grant	Photo	
TP-9	24	4.8	Rio Lucero	Grouse	Grant	Photo	
TP-9	25	8.2	Rio Lucero	Grouse	Grant	Photo	
TP-9	26	5.65	Rio Lucero	Grouse	Grant	Photo	
TP-9	27	4	Rio Lucero	Grouse	Grant	Photo	
TP-9	28	2.45	Rio Lucero	Grouse	Grant	Photo	
TP-9	29	6.25	Rio Lucero	Grouse	Grant	Photo	Total Grouse Ditch
TP-9	30	1.7	Rio Lucero	Grouse	Grant	Photo	194.2
TP-9	31	4.65	Rio Lucero	1908	Grant	Photo	
TP-9	32	2.9	Rio Lucero	1908	Grant	Photo	
TP-9	33	5.3	Rio Lucero	1908	Grant	Photo	
TP-9	34	6.8	Rio Lucero	1908	Grant	Photo	
TP-9	35	5.2	Rio Lucero	1908	Grant	Photo	
TP-9	36	4.5	Rio Lucero	1908	Grant	Photo	
TP-9	37	3.2	Rio Lucero	1908	Grant	Photo	
TP-9	38	6.9	Rio Lucero	1908	Grant	Photo	
TP-9	39	11.9	Rio Lucero	1908	Grant	Photo	
TP-9	40	3.4	Rio Lucero	1908	Grant	Photo	
TP-9	41	9.85	Rio Lucero	1908	Grant	Photo	
TP-9	42	7.4	Rio Lucero	1908	Grant	Photo	
TP-9	43	11.8	Rio Lucero	1908	Grant	Photo	
TP-9	44	11.8	Rio Lucero	1908	Grant	Photo	

TP-9	45	3.65	Rio Lucero	1908	Grant	Photo	
TP-9	46	4.05	Rio Lucero	1908	Grant	Photo	
TP-9	47	12.3	Rio Lucero	1908	Grant	Photo	
TP-9	48	4.1	Rio Lucero	1908	Grant	Photo	
TP-9	49	12.55	Rio Lucero	1908	Grant	Photo	
TP-9	50	8	Rio Lucero	1908	Grant	Photo	
TP-9	51	9.35	Rio Lucero	1908	Grant	Photo	
TP-9	52	12.65	Rio Lucero	1908	Grant	Photo	
TP-9	53	11.6	Rio Lucero	1908	Grant	Photo	
TP-9	54	9.25	Rio Lucero	1908	Grant	Photo	
TP-9	55	2.15	Rio Lucero	1908	Grant	Photo	
TP-9	56	9.25	Rio Lucero	1908	Grant	Photo	
TP-9	57	7.9	Rio Lucero	1908	Grant	Photo	Total 1908 Ditch
TP-9	58	2	Rio Lucero	1908	Grant	Photo	204.4
TP-9	59	2.1	Rio Lucero	Beeline	Grant	Photo	
TP-9	60	2.4	Rio Lucero	Beeline	Grant	Photo	
TP-9	61	0.4	Rio Lucero	Beeline	Grant	Photo	
TP-9	62	0.45	Rio Lucero	Beeline	Grant	Photo	
TP-9	63	0.4	Rio Lucero	Beeline	Grant	Photo	
TP-9	64	5.05	Rio Lucero	Beeline	Grant	Photo	
TP-9	65	0.8	Rio Lucero	Beeline	Grant	Photo	Total Beeline Ditch
TP-9	66	0.4	Rio Lucero	Beeline	Grant	Photo	12
		410.6					410.6

Taos Pueblo Irrigated Lands							
Map Sheet	Tract No.	Tract acreage	Stream	Ditch	Land Status	ID Method	Summed by Ditch
TP-10	1	14.7	Rio Lucero	Beeline	Grant	Photo	
TP-10	2	0.45	Rio Lucero	Beeline	Grant	Photo	
TP-10	3	5.4	Rio Lucero	Beeline	Grant	Photo	
TP-10	4	5.65	Rio Lucero	Beeline	Grant	Photo	
TP-10	5	8.35	Rio Lucero	Beeline	Grant	Photo	
TP-10	6	12.45	Rio Lucero	Beeline	Grant	Photo	
TP-10	7	9.3	Rio Lucero	Beeline	Grant	Photo	
TP-10	8	16.7	Rio Lucero	Beeline	Grant	Photo	
TP-10	9	6.85	Rio Lucero	Beeline	Grant	Photo	
TP-10	10	8.5	Rio Lucero	Beeline	Grant	Photo	
TP-10	11	3.7	Rio Lucero	Beeline	Grant	Photo	
TP-10	12	17.3	Rio Lucero	Beeline	Grant	Photo	
TP-10	13	2.3	Rio Lucero	Beeline	Grant	Photo	
TP-10	14	2.6	Rio Lucero	Beeline	Grant	Photo	
TP-10	15	51.9	Rio Lucero	Beeline	Grant	Photo	
TP-10	16	11.7	Rio Lucero	Beeline	Grant	Photo	
TP-10	17	3.35	Rio Lucero	Beeline	Grant	Photo	
TP-10	18	1.5	Rio Lucero	Beeline	Grant	Photo	
TP-10	19	1.5	Rio Lucero	Beeline	Grant	Photo	
TP-10	20	5.65	Rio Lucero	Beeline	Grant	Photo	
TP-10	21	4.55	Rio Lucero	Beeline	Grant	Photo	
TP-10	22	21.7	Rio Lucero	Beeline	Grant	Photo	
TP-10	23	15.4	Rio Lucero	Beeline	Grant	Photo	
TP-10	24	2	Rio Lucero	Beeline	Grant	Photo	
TP-10	25	1.7	Rio Lucero	Beeline	Grant	Photo	
TP-10	26	3.5	Rio Lucero	Beeline	Grant	Photo	
TP-10	27	7	Rio Lucero	Beeline	Grant	Photo	
TP-10	28	7.45	Rio Lucero	Beeline	Grant	Photo	
TP-10	29	7.1	Rio Lucero	Beeline	Grant	Photo	
TP-10	30	7.5	Rio Lucero	Beeline	Grant	Photo	
TP-10	31	5.8	Rio Lucero	Beeline	Grant	Photo	
TP-10	32	4	Rio Lucero	Beeline	Grant	Photo	
TP-10	33	5.3	Rio Lucero	Beeline	Grant	Photo	
TP-10	34	6.8	Rio Lucero	Beeline	Grant	Photo	
TP-10	35	4.5	Rio Lucero	Beeline	Grant	Photo	
TP-10	36	3.7	Rio Lucero	Beeline	Grant	Photo	
TP-10	37	2.65	Rio Lucero	Beeline	Grant	Photo	
TP-10	38	9.7	Rio Lucero	Beeline	Grant	Photo	
TP-10	39	10.1	Rio Lucero	Beeline	Grant	Photo	
TP-10	40	6.85	Rio Lucero	Beeline	Grant	Photo	
TP-10	41	9.9	Rio Lucero	Beeline	Grant	Photo	
TP-10	42	6.9	Rio Lucero	Beeline	Grant	Photo	
TP-10	43	12.9	Rio Lucero	Beeline	Grant	Photo	
TP-10	44	16	Rio Lucero	Beeline	Grant	Photo	

TP-10	45	1.35	Rio Lucero	Beeline	Grant	Photo	
TP-10	46	4.15	Rio Lucero	Beeline	Grant	Photo	
TP-10	47	7	Rio Lucero	Beeline	Grant	Photo	
TP-10	48	1.25	Rio Lucero	Beeline	Grant	Photo	
TP-10	49	10.45	Rio Lucero	Beeline	Grant	Photo	
TP-10	50	1.3	Rio Lucero	Beeline	Grant	Photo	
TP-10	51	1.7	Rio Lucero	Beeline	Grant	Photo	
TP-10	52	3.15	Rio Lucero	Beeline	Grant	Photo	
TP-10	53	1.05	Rio Lucero	Beeline	Grant	Photo	
TP-10	54	1.1	Rio Lucero	Beeline	Grant	Photo	
TP-10	55	10.6	Rio Lucero	Beeline	Grant	Photo	
TP-10	56	6.25	Rio Lucero	Beeline	Grant	Photo	
TP-10	57	17.25	Rio Lucero	Beeline	Grant	Photo	
TP-10	58	3.45	Rio Lucero	Beeline	Grant	Photo	
TP-10	59	0.35	Rio Lucero	Beeline	Grant	Photo	
TP-10	60	1.85	Rio Lucero	Beeline	Grant	Photo	
TP-10	61	8	Rio Lucero	Beeline S	Grant	Photo	Total Beeline Ditch
TP-10	62	6.2	Rio Lucero	Beeline S	Grant	Photo	459.3
		459.3					459.3

Map TP-11 Worksheet

Taos Pueblo Irrigated Lands							
Map Sheet	Tract No.	Tract acreage	Stream	Ditch	Land Status	ID Method	Summed by Ditch
TP-11	1	1.4	Rio Pueblo	Cicada Nose	Grant	Photo	
TP-11	2	0.5	Rio Pueblo	Cicada Nose	Grant	Photo	
TP-11	3	1.75	Rio Pueblo	Cicada Nose	Grant	Photo	
TP-11	4	1.1	Rio Pueblo	Cicada Nose	Grant	Photo	
TP-11	5	1.8	Rio Pueblo	Cicada Nose	Grant	Photo	
TP-11	6	4.35	Rio Pueblo	Cicada Nose	Grant	Photo	
TP-11	7	2	Rio Pueblo	Cicada Nose	Grant	Photo	
TP-11	8	3.45	Rio Pueblo	Cicada Nose	Grant	Photo	
TP-11	9	4.1	Rio Pueblo	Cicada Nose	Grant	Photo	
TP-11	10	2.2	Rio Pueblo	Cicada Nose	Grant	Photo	
TP-11	11	3.1	Rio Pueblo	Cicada Nose	Grant	Photo	
TP-11	12	4	Rio Pueblo	Cicada Nose	Grant	Photo	
TP-11	13	3.6	Rio Pueblo	Cicada Nose	Grant	Photo	
TP-11	14	4.75	Rio Pueblo	Cicada Nose	Grant	Photo	
TP-11	15	3.2	Rio Pueblo	Cicada Nose	Grant	Photo	
TP-11	16	1.85	Rio Pueblo	Cicada Nose	Grant	Photo	
TP-11	17	5.15	Rio Pueblo	Cicada Nose	Grant	Photo	
TP-11	18	1.8	Rio Pueblo	Cicada Nose	Grant	Photo	Total Cicada NoseDitch
TP-11	19	0.85	Rio Pueblo	Cicada Nose	Grant	Photo	50.95
TP-11	20	3.65	Rio Pueblo	Pottery	Grant	Photo	
TP-11	21	0.8	Rio Pueblo	Pottery	Grant	Photo	
TP-11	22	0.5	Rio Pueblo	Pottery	Grant	Photo	
TP-11	23	1.3	Rio Pueblo	Pottery	Grant	Photo	
TP-11	24	1.45	Rio Pueblo	Pottery	Grant	Photo	
TP-11	25	1.6	Rio Pueblo	Pottery	Grant	Photo	
TP-11	26	0.8	Rio Pueblo	Pottery	Grant	Photo	
TP-11	27	1.05	Rio Pueblo	Pottery	Grant	Photo	
TP-11	28	1	Rio Pueblo	Pottery	Grant	Photo	
TP-11	29	1.6	Rio Pueblo	Pottery	Grant	Photo	
TP-11	30	2	Rio Pueblo	Pottery	Grant	Photo	
TP-11	31	3.65	Rio Pueblo	Pottery	Grant	Photo	
TP-11	32	3.4	Rio Pueblo	Pottery	Grant	Photo	
TP-11	33	1.65	Rio Pueblo	Pottery	Grant	Photo	
TP-11	34	2.7	Rio Pueblo	Pottery	Grant	Photo	
TP-11	35	2	Rio Pueblo	Pottery	Grant	Photo	
TP-11	36	1.35	Rio Pueblo	Pottery	Grant	Photo	
TP-11	37	5.6	Rio Pueblo	Pottery	Grant	Photo	
TP-11	38	2	Rio Pueblo	Pottery	Grant	Photo	
TP-11	39	2.25	Rio Pueblo	Pottery	Grant	Photo	
TP-11	40	1	Rio Pueblo	Pottery	Grant	Photo	
TP-11	41	2.5	Rio Pueblo	Pottery	Grant	Photo	
TP-11	42	2.6	Rio Pueblo	Pottery	Grant	Photo	
TP-11	43	2.6	Rio Pueblo	Pottery	Grant	Photo	
TP-11	44	1.6	Rio Pueblo	Pottery	Grant	Photo	

TP-11	45	2	Rio Pueblo	Pottery	Grant	Photo	Total Pottery Ditch
TP-12	142	1	Rio Pueblo	Pottery	Grant	Photo	53.65
TP-11	46	1.8	Rio Pueblo	North trash Pile	Grant	Photo	
TP-11	47	0.5	Rio Pueblo	North trash Pile	Grant	Photo	
TP-11	48	1.65	Rio Pueblo	North trash Pile	Grant	Photo	
TP-11	49	1.3	Rio Pueblo	North trash Pile	Grant	Photo	
TP-11	50	1.6	Rio Pueblo	North trash Pile	Grant	Photo	Total North Trash Pile
TP-11	51	1	Rio Pueblo	North trash Pile	Grant	Photo	7.85
TP-11	52	1.7	Rio Pueblo	Buried Roots	Grant	Photo	
TP-11	53	4.25	Rio Pueblo	Buried Roots	Grant	Photo	
TP-11	54	5.35	Rio Pueblo	Buried Roots	Grant	Photo	
TP-11	55	3.5	Rio Pueblo	Buried Roots	Grant	Photo	
TP-11	56	1	Rio Pueblo	Buried Roots	Grant	Photo	
TP-11	57	1	Rio Pueblo	Buried Roots	Grant	Photo	
TP-11	58	2.25	Rio Pueblo	Buried Roots	Grant	Photo	
TP-11	59	3.8	Rio Pueblo	Buried Roots	Grant	Photo	
TP-11	60	3.75	Rio Pueblo	Buried Roots	Grant	Photo	
TP-11	61	1.8	Rio Pueblo	Buried Roots	Grant	Photo	
TP-11	62	2.45	Rio Pueblo	Buried Roots	Grant	Photo	
TP-11	63	1.85	Rio Pueblo	Buried Roots	Grant	Photo	
TP-11	64	1.6	Rio Pueblo	Buried Roots	Grant	Photo	Total Buried Roots Ditch
TP-11	65	0.7	Rio Pueblo	Buried Roots	Grant	Photo	35
TP-11	66	1.35	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-11	67	3.25	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-11	68	1.6	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-11	69	1.9	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-11	70	3.55	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-11	71	5.4	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-11	72	2.9	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-11	73	2	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-11	74	5.4	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-11	75	2.4	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-11	76	2.9	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-11	77	1.35	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-11	78	1.1	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-11	79	1.2	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-11	80	2	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-11	81	3.3	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-11	82	2.8	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-11	83	2.1	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-11	84	3	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-11	85	1.5	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-11	86	1.5	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-11	87	1.1	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-11	88	1.25	Rio Pueblo	Pull Leaf	Grant	Photo	Total Pull Leaf Ditch
TP-11	89	1.7	Rio Pueblo	Pull Leaf	Grant	Photo	56.55
TP-11	90	0.7	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	91	2.65	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	92	1.4	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	93	3.35	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	94	1.8	Rio Pueblo	Deer Jaw	Grant	Photo	

TP-11	95	3.15	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	96	4.9	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	97	3	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	98	4.6	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	99	2.4	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	100	7.3	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	101	3.7	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	102	7.9	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	103	6.25	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	104	3.6	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	105	4.6	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	106	5.5	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	107	1.6	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	108	2.25	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	109	1.65	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	110	2.5	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	111	4.8	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	112	2.55	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	113	3.6	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	114	1.5	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	115	1.9	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	116	1.25	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	117	3.1	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	118	2.1	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	119	3.5	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	120	2	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	121	4.4	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	122	2.4	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	123	2.65	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	124	2	Rio Pueblo	Deer Jaw	Grant	Photo	
TP-11	125	2	Rio Pueblo	Deer Jaw	Grant	Photo	Total Deer Jaw Ditch
TP-11	126	2.55	Rio Pueblo	Deer Jaw	Grant	Photo	117.1
TP-11	127	0.8	Rio Pueblo	Elk Horn	Grant	Photo	
TP-11	128	1.25	Rio Pueblo	Elk Horn	Grant	Photo	
TP-11	129	0.85	Rio Pueblo	Elk Horn	Grant	Photo	
TP-11	130	1.7	Rio Pueblo	Elk Horn	Grant	Photo	
TP-11	131	1.2	Rio Pueblo	Elk Horn	Grant	Photo	
TP-11	132	2.75	Rio Pueblo	Elk Horn	Grant	Photo	
TP-11	133	1.1	Rio Pueblo	Elk Horn	Grant	Photo	
TP-11	134	1.6	Rio Pueblo	Elk Horn	Grant	Photo	
TP-11	135	1.4	Rio Pueblo	Elk Horn	Grant	Photo	
TP-11	136	0.5	Rio Pueblo	Elk Horn	Grant	Photo	
TP-11	137	1.4	Rio Pueblo	Elk Horn	Grant	Photo	
TP-11	138	1.75	Rio Pueblo	Elk Horn	Grant	Photo	
TP-11	139	1.8	Rio Pueblo	Elk Horn	Grant	Photo	Total Elk Horn Ditch
TP-11	140	4.4	Rio Pueblo	Elk Horn	Grant	Photo	22.5
TP-11	141	1.25	Tributary of Rio Pueblo	Romero	Blue La	Photo	Total Romero Ditch
							1.25
		344.85					344.85

Taos Pueblo Irrigated Lands							
Map Sheet	Tract No.	Tract acreage	Stream	Ditch	Land Status	ID Method	Summed by Ditch
TP-12	1	82.8	Rio Lucero	Beeline SP	Grant	Photo	Total Beeline
TP-12	2	22.45	Rio Lucero	Beeline	Grant	Photo	105.25
TP-12	143	2.2	Rio Lucero	Grouse SP	Grant	Photo	
TP-12	144	24	Rio Lucero	Grouse SP	Grant	Photo	
TP-12	145	13.2	Rio Lucero	Grouse SP	Grant	Photo	
TP-12	146	67	Rio Lucero	Grouse SP	Grant	Photo	
TP-12	147	23.4	Rio Lucero	Grouse SP	Grant	Photo	
TP-12	148	47	Rio Lucero	Grouse SP	Grant	Photo	
TP-12	149	115	Rio Lucero	Grouse SP	Grant	Photo	
TP-12	150	1.8	Rio Lucero	Grouse SP	Grant	Photo	
TP-12	151	8.4	Rio Lucero	Grouse SP	Grant	Photo	
TP-12	152	17.9	Rio Lucero	Grouse SP	Grant	Photo	
TP-12	153	13.5	Rio Lucero	Grouse SP	Grant	Photo	
TP-12	154	9.4	Rio Lucero	Grouse SP	Grant	Photo	Total Grouse SP
TP-12	155	4.9	Rio Lucero	Grouse SP	Grant	Photo	347.7
TP-12	3	3.05	Rio Lucero	Grouse	Grant	Photo	
TP-12	4	2.1	Rio Lucero	Grouse	Grant	Photo	
TP-12	5	4.35	Rio Lucero	Grouse	Grant	Photo	
TP-12	6	1.8	Rio Lucero	Grouse	Grant	Photo	
TP-12	7	0.8	Rio Lucero	Grouse	Grant	Photo	
TP-12	8	1.8	Rio Lucero	Grouse	Grant	Photo	
TP-12	9	0.8	Rio Lucero	Grouse	Grant	Photo	Total Grouse
TP-12	16	17.25	Rio Lucero	Grouse	Grant	Photo	31.95
TP-12	10	2.4	Rio Lucero	Indian	Grant	Photo	
TP-12	11	0.5	Rio Lucero	Indian	Grant	Photo	
TP-12	12	0.55	Rio Lucero	Indian	Grant	Photo	
TP-12	13	0.4	Rio Lucero	Indian	Grant	Photo	
TP-12	14	1.6	Rio Lucero	Indian	Grant	Photo	Total Indian
TP-12	15	0.8	Rio Lucero	Indian	Grant	Photo	6.25
TP-12	17	2.3	Rio Pueblo	Pottery	Grant	Photo	
TP-12	18	2	Rio Pueblo	Pottery	Grant	Photo	
TP-12	19	1.8	Rio Pueblo	Pottery	Grant	Photo	
TP-12	20	2.25	Rio Pueblo	Pottery	Grant	Photo	
TP-12	21	2.9	Rio Pueblo	Pottery	Grant	Photo	
TP-12	22	1.55	Rio Pueblo	Pottery	Grant	Photo	
TP-12	23	2.5	Rio Pueblo	Pottery	Grant	Photo	
TP-12	24	1.2	Rio Pueblo	Pottery	Grant	Photo	
TP-12	25	1	Rio Pueblo	Pottery	Grant	Photo	
TP-12	26	1.95	Rio Pueblo	Pottery	Grant	Photo	Total Pottery
TP-12	27	1.2	Rio Pueblo	Pottery	Grant	Photo	20.65
TP-12	28	0.9	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	29	0.8	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	30	0.25	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	31	2.65	Rio Pueblo	North Trash Pile	Grant	Photo	

TP-12	32	1.55	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	33	2	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	34	3.55	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	35	1	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	36	1.8	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	37	0.4	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	38	3	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	39	1	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	40	0.4	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	41	2	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	42	1.7	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	43	2	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	44	0.5	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	45	5.75	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	46	5	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	47	3.1	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	48	1	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	49	1.5	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	50	0.1	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	51	0.55	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	52	2	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	53	3.1	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	54	2.7	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	55	2	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	56	1.9	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	57	2.1	Rio Pueblo	North Trash Pile	Grant	Photo	
TP-12	58	1.55	Rio Pueblo	North Trash Pile	Grant	Photo	Total North Trash Pile
TP-12	59	1.25	Rio Pueblo	North Trash Pile	Grant	Photo	59.1
TP-12	60	0.3	Rio Pueblo	"C" Ditch	Grant	Photo	
TP-12	61	6.75	Rio Pueblo	"C" Ditch	Grant	Photo	
TP-12	62	2	Rio Pueblo	"C" Ditch	Grant	Photo	
TP-12	63	0.4	Rio Pueblo	"C" Ditch	Grant	Photo	
TP-12	64	3.1	Rio Pueblo	"C" Ditch	Grant	Photo	
TP-12	65	6.4	Rio Pueblo	"C" Ditch	Grant	Photo	
TP-12	66	4	Rio Pueblo	"C" Ditch	Grant	Photo	
TP-12	67	1.4	Rio Pueblo	"C" Ditch	Grant	Photo	
TP-12	68	2.5	Rio Pueblo	"C" Ditch	Grant	Photo	
TP-12	69	4.3	Rio Pueblo	"C" Ditch	Grant	Photo	
TP-12	70	3	Rio Pueblo	"C" Ditch	Grant	Photo	
TP-12	71	3.4	Rio Pueblo	"C" Ditch	Grant	Photo	
TP-12	72	2.7	Rio Pueblo	"C" Ditch	Grant	Photo	
TP-12	73	1.5	Rio Pueblo	"C" Ditch	Grant	Photo	
TP-12	74	0.9	Rio Pueblo	"C" Ditch	Grant	Photo	
TP-12	75	1.1	Rio Pueblo	"C" Ditch	Grant	Photo	
TP-12	76	2.2	Rio Pueblo	"C" Ditch	Grant	Photo	Total "C"
TP-12	77	3.8	Rio Pueblo	"C" Ditch	Grant	Photo	49.75
TP-12	78	11.4	Rio Pueblo	Ventura Mirabal	Grant	Photo	Total Ventura Mirabal
							11.4
TP-12	79	0.1	Rio Pueblo	Serafin Martinez	Grant	Photo	Total Serafin Martinez
TP-12	80	0.85	Rio Pueblo	Serafin Martinez	Grant	Photo	0.95
TP-12	81	3	Rio Pueblo	"B" Ditch	Grant	Photo	Total "B"

TP-12	82	10.05	Rio Pueblo	"B" Ditch	Grant	Photo	13.05
TP-12	83	3.4	Rio Pueblo	Phia-No	Grant	Photo	
TP-12	84	3.85	Rio Pueblo	Phia-No	Grant	Photo	
TP-12	85	2.7	Rio Pueblo	Phia-No	Grant	Photo	
TP-12	86	7.3	Rio Pueblo	Phia-No	Grant	Photo	
TP-12	87	4.25	Rio Pueblo	Phia-No	Grant	Photo	
TP-12	88	3.7	Rio Pueblo	Phia-No	Grant	Photo	
TP-12	89	2.6	Rio Pueblo	Phia-No	Grant	Photo	
TP-12	90	6.4	Rio Pueblo	Phia-No	Grant	Photo	
TP-12	91	3.75	Rio Pueblo	Phia-No	Grant	Photo	
TP-12	92	5	Rio Pueblo	Phia-No	Grant	Photo	
TP-12	93	1.6	Rio Pueblo	Phia-No	Grant	Photo	Total Phia-No
TP-12	94	2.2	Rio Pueblo	Phia-No	Grant	Photo	46.75
TP-12	95	0.75	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-12	96	2.35	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-12	97	0.2	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-12	98	1.9	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-12	99	0.35	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-12	100	0.7	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-12	101	1.1	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-12	102	0.6	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-12	103	1.6	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-12	104	1.15	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-12	105	3	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-12	106	0.75	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-12	107	1.5	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-12	108	5.85	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-12	109	1.5	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-12	110	1.95	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-12	111	2	Rio Pueblo	South Trash Pile	Grant	Photo	Total South Trash Pile
TP-12	112	1.95	Rio Pueblo	South Trash Pile	Grant	Photo	29.2
TP-12	113	2.6	Rio Pueblo	Buried Roots	Grant	Photo	
TP-12	114	2.7	Rio Pueblo	Buried Roots	Grant	Photo	
TP-12	115	1.7	Rio Pueblo	Buried Roots	Grant	Photo	
TP-12	116	1.8	Rio Pueblo	Buried Roots	Grant	Photo	
TP-12	117	5.6	Rio Pueblo	Buried Roots	Grant	Photo	
TP-12	118	3.05	Rio Pueblo	Buried Roots	Grant	Photo	
TP-12	119	1.5	Rio Pueblo	Buried Roots	Grant	Photo	
TP-12	120	3.55	Rio Pueblo	Buried Roots	Grant	Photo	
TP-12	121	2	Rio Pueblo	Buried Roots	Grant	Photo	
TP-12	122	3.85	Rio Pueblo	Buried Roots	Grant	Photo	
TP-12	123	2.3	Rio Pueblo	Buried Roots	Grant	Photo	
TP-12	124	1.55	Rio Pueblo	Buried Roots	Grant	Photo	
TP-12	125	2.5	Rio Pueblo	Buried Roots	Grant	Photo	
TP-12	126	3.25	Rio Pueblo	Buried Roots	Grant	Photo	
TP-12	127	1.9	Rio Pueblo	Buried Roots	Grant	Photo	
TP-12	128	2.1	Rio Pueblo	Buried Roots	Grant	Photo	
TP-12	129	2.25	Rio Pueblo	Buried Roots	Grant	Photo	
TP-12	130	1.8	Rio Pueblo	Buried Roots	Grant	Photo	
TP-12	131	2	Rio Pueblo	Buried Roots	Grant	Photo	
TP-12	132	4.25	Rio Pueblo	Buried Roots	Grant	Photo	

TP-12	133	3.2	Rio Pueblo	Buried Roots	Grant	Photo	
TP-12	134	4.5	Rio Pueblo	Buried Roots	Grant	Photo	Total Buried Roots
TP-12	135	3.7	Rio Pueblo	Buried Roots	Grant	Photo	63.65
TP-12	136	4	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-12	137	5.3	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-12	138	2.7	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-12	139	2.1	Rio Pueblo	Pull Leaf	Grant	Photo	Total Pull Leaf
TP-12	140	4	Rio Pueblo	Pull Leaf	Grant	Photo	21.9
TP-12	141	3.8	Rio Pueblo	Pull Leaf	Grant	Photo	Total Infiltration Line
TP-12	142	1.3	Rio Pueblo	Inliftration Line	Grant	Photo	1.3
		808.85					808.85

Taos Pueblo Irrigated Lands							
Map Sheet	Tract No.	Tract acreage	Stream	Ditch	Land Status	ID Method	Summed by Ditch
TP-13	1	2.9	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-13	2	3.4	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-13	3	1.85	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-13	4	3.4	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-13	5	2.6	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-13	6	4.1	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-13	7	1.75	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-13	8	2.15	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-13	9	1.2	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-13	10	3.45	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-13	11	4.1	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-13	12	1.55	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-13	13	2.65	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-13	14	2.3	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-13	15	2.65	Rio Pueblo	Pull Leaf	Grant	Photo	
TP-13	16	0.55	Rio Pueblo	Pull Leaf	Grant	Photo	Total Pull Leaf Ditch
TP-13	17	1.1	Rio Pueblo	Pull Leaf	Grant	Photo	41.7
TP-13	18	1.55	Rio Pueblo	Buried Roots	Grant	Photo	
TP-13	19	2.85	Rio Pueblo	Buried Roots	Grant	Photo	
TP-13	20	6.35	Rio Pueblo	Buried Roots	Grant	Photo	
TP-13	21	1.35	Rio Pueblo	Buried Roots	Grant	Photo	
TP-13	22	2.3	Rio Pueblo	Buried Roots	Grant	Photo	
TP-13	23	3.75	Rio Pueblo	Buried Roots	Grant	Photo	
TP-13	24	1.7	Rio Pueblo	Buried Roots	Grant	Photo	
TP-13	25	3	Rio Pueblo	Buried Roots	Grant	Photo	
TP-13	26	1.85	Rio Pueblo	Buried Roots	Grant	Photo	
TP-13	27	1.85	Rio Pueblo	Buried Roots	Grant	Photo	
TP-13	28	1.75	Rio Pueblo	Buried Roots	Grant	Photo	
TP-13	29	3.6	Rio Pueblo	Buried Roots	Grant	Photo	
TP-13	30	1.7	Rio Pueblo	Buried Roots	Grant	Photo	
TP-13	31	1.7	Rio Pueblo	Buried Roots	Grant	Photo	
TP-13	32	1.2	Rio Pueblo	Buried Roots	Grant	Photo	
TP-13	33	1.9	Rio Pueblo	Buried Roots	Grant	Photo	
TP-13	34	1.85	Rio Pueblo	Buried Roots	Grant	Photo	
TP-13	35	2.65	Rio Pueblo	Buried Roots	Grant	Photo	
TP-13	36	1.65	Rio Pueblo	Buried Roots	Grant	Photo	
TP-13	37	1.25	Rio Pueblo	Buried Roots	Grant	Photo	
TP-13	38	3.25	Rio Pueblo	Buried Roots	Grant	Photo	Total Buried Roots Ditch
TP-13	39	1.5	Rio Pueblo	Buried Roots	Grant	Photo	50.55
TP-13	40	3.4	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-13	41	3.15	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-13	42	2.35	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-13	43	3.55	Rio Pueblo	South Trash Pile	Grant	Photo	

TP-13	44	3.6	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-13	45	3.6	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-13	46	7.7	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-13	47	3.05	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-13	48	2.7	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-13	49	2.65	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-13	50	4.1	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-13	51	3.8	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-13	52	2.2	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-13	53	3.4	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-13	54	2.45	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-13	55	1.25	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-13	56	1.8	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-13	57	3.65	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-13	58	3.35	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-13	59	3.6	Rio Pueblo	South Trash Pile	Grant	Photo	Total South Trash Pile
TP-13	60	11.15	Rio Pueblo	South Trash Pile	Grant	Photo	76.5
TP-13	61	3.25	Rio Pueblo	Phia-No	Grant	Photo	
TP-13	62	3.6	Rio Pueblo	Phia-No	Grant	Photo	
TP-13	63	5.75	Rio Pueblo	Phia-No	Grant	Photo	
TP-13	64	5.5	Rio Pueblo	Phia-No	Grant	Photo	
TP-13	65	1.9	Rio Pueblo	Phia-No	Grant	Photo	
TP-13	66	4.85	Rio Pueblo	Phia-No	Grant	Photo	
TP-13	67	4.1	Rio Pueblo	Phia-No	Grant	Photo	
TP-13	68	3.3	Rio Pueblo	Phia-No	Grant	Photo	
TP-13	69	3	Rio Pueblo	Phia-No	Grant	Photo	
TP-13	70	3.9	Rio Pueblo	Phia-No	Grant	Photo	
TP-13	71	2.3	Rio Pueblo	Phia-No	Grant	Photo	
TP-13	72	2.8	Rio Pueblo	Phia-No	Grant	Photo	
TP-13	73	6.5	Rio Pueblo	Phia-No	Grant	Photo	
TP-13	74	3.5	Rio Pueblo	Phia-No	Grant	Photo	
TP-13	75	1.75	Rio Pueblo	Phia-No	Grant	Photo	
TP-13	76	1.75	Rio Pueblo	Phia-No	Grant	Photo	
TP-13	77	3.2	Rio Pueblo	Phia-No	Grant	Photo	
TP-13	78	3.4	Rio Pueblo	Phia-No	Grant	Photo	
TP-13	79	3.45	Rio Pueblo	Phia-No	Grant	Photo	Total Phia-No Ditch
TP-13	80	1.1	Rio Pueblo	Phia-No	Grant	Photo	68.9
TP-13	81	3.85	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	82	5.35	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	83	3.85	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	84	0.7	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	85	1.5	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	86	1.3	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	87	1.2	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	88	1	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	89	3.3	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	90	3	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	91	2.55	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	92	3.1	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	93	3.25	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	94	1.25	Rio Pueblo	Acequia Madre	Grant	Photo	

TP-13	95	1.9	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	96	2.15	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	97	1.3	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	98	3.45	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	99	5.35	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	100	3	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	101	2.55	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	102	2.2	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	103	1.6	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	104	1	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	105	2	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	106	1.5	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	107	3.1	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	108	6.85	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	109	4.15	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	110	2.75	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	111	7.65	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	112	3	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	113	2.75	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	114	4.3	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	115	2.95	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	116	3	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	117	3.65	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	118	1	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	119	4.2	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	120	3.3	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	121	4.15	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	122	2.6	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	123	2.2	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	124	4.65	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	125	1.9	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	126	4.25	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	127	4.9	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	128	3	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	129	3.7	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	130	7.7	Rio Pueblo	Acequia Madre	Grant	Photo	
TP-13	188	2	Rio Pueblo	Acequia Madre	Grant	Photo	Total Acequia Madre
TP-13	189	4.15	Rio Pueblo	Acequia Madre	Grant	Photo	161.05
TP-13	131	12.2	Rio Pueblo	Mirabal	Grant	Photo	
TP-13	132	2.35	Rio Pueblo	Mirabal	Grant	Photo	
TP-13	133	4.2	Rio Pueblo	Mirabal	Grant	Photo	
TP-13	134	2	Rio Pueblo	Mirabal	Grant	Photo	
TP-13	135	3	Rio Pueblo	Mirabal	Grant	Photo	
TP-13	136	4.1	Rio Pueblo	Mirabal	Grant	Photo	
TP-13	137	2.5	Rio Pueblo	Mirabal	Grant	Photo	
TP-13	138	3.9	Rio Pueblo	Mirabal	Grant	Photo	
TP-13	139	1.1	Rio Pueblo	Mirabal	Grant	Photo	
TP-13	140	2.6	Rio Pueblo	Mirabal	Grant	Photo	
TP-13	141	6.25	Rio Pueblo	Mirabal	Grant	Photo	
TP-13	142	3.7	Rio Pueblo	Mirabal	Grant	Photo	
TP-13	143	1.15	Rio Pueblo	Mirabal	Grant	Photo	

TP-13	144	3.8	Rio Pueblo	Mirabal	Grant	Photo	
TP-13	145	2.45	Rio Pueblo	Mirabal	Grant	Photo	
TP-13	146	4.6	Rio Pueblo	Mirabal	Grant	Photo	Total Mirabal Ditch
TP-13	147	5.5	Rio Pueblo	Mirabal	Grant	Photo	65.4
TP-13	148	11.8	Rio Pueblo	McClure	Grant	Photo	
TP-13	149	2.4	Rio Pueblo	McClure	Grant	Photo	
TP-13	150	2.45	Rio Pueblo	McClure	Grant	Photo	
TP-13	151	2.75	Rio Pueblo	McClure	Grant	Photo	
TP-13	152	2.9	Rio Pueblo	McClure	Grant	Photo	
TP-13	153	6.65	Rio Pueblo	McClure	Grant	Photo	
TP-13	154	2	Rio Pueblo	McClure	Grant	Photo	
TP-13	155	2.25	Rio Pueblo	McClure	Grant	Photo	
TP-13	156	3.2	Rio Pueblo	McClure	Grant	Photo	
TP-13	157	6.15	Rio Pueblo	McClure	Grant	Photo	
TP-13	158	3.35	Rio Pueblo	McClure	Grant	Photo	
TP-13	159	4.2	Rio Pueblo	McClure	Grant	Photo	
TP-13	160	2.1	Rio Pueblo	McClure	Grant	Photo	Total McClure Ditch
TP-13	161	2.65	Rio Pueblo	McClure	Grant	Photo	54.85
TP-13	162	1.4	Rio Lucero	Summer Spring Creek	Grant	Photo	
TP-13	163	3.8	Rio Lucero	Summer Spring Creek	Grant	Photo	
TP-13	164	1.3	Rio Lucero	Summer Spring Creek	Grant	Photo	
TP-13	165	2.55	Rio Lucero	Summer Spring Creek	Grant	Photo	
TP-13	166	5	Rio Lucero	Summer Spring Creek	Grant	Photo	
TP-13	167	1.8	Rio Lucero	Summer Spring Creek	Grant	Photo	
TP-13	168	2.8	Rio Lucero	Summer Spring Creek	Grant	Photo	
TP-13	169	3	Rio Lucero	Summer Spring Creek	Grant	Photo	
TP-13	170	4.25	Rio Lucero	Summer Spring Creek	Grant	Photo	
TP-13	171	6.9	Rio Lucero	Summer Spring Creek	Grant	Photo	
TP-13	172	5.2	Rio Lucero	Summer Spring Creek	Grant	Photo	
TP-13	173	5.75	Rio Lucero	Summer Spring Creek	Grant	Photo	
TP-13	174	2.1	Rio Lucero	Summer Spring Creek	Grant	Photo	
TP-13	175	2.7	Rio Lucero	Summer Spring Creek	Grant	Photo	
TP-13	176	3.1	Rio Lucero	Summer Spring Creek	Grant	Photo	
TP-13	177	2.25	Rio Lucero	Summer Spring Creek	Grant	Photo	
TP-13	178	2.5	Rio Lucero	Summer Spring Creek	Grant	Photo	
TP-13	179	2.55	Rio Lucero	Summer Spring Creek	Grant	Photo	
TP-13	180	2	Rio Lucero	Summer Spring Creek	Grant	Photo	
TP-13	181	3.2	Rio Lucero	Summer Spring Creek	Grant	Photo	
TP-13	182	2.8	Rio Lucero	Summer Spring Creek	Grant	Photo	
TP-13	183	2.75	Rio Lucero	Summer Spring Creek	Grant	Photo	
TP-13	184	0.15	Rio Lucero	Summer Spring Creek	Grant	Photo	Total Summer Spring Creek
TP-13	185	0.15	Rio Lucero	Summer Spring Creek	Grant	Photo	70
TP-13	186	4.1	Rio Pueblo	"B"	Grant	Photo	Total "B" Ditch
TP-13	187	1.1	Rio Pueblo	"B"	Grant	Photo	5.2
		594.15					594.15

Map TP-14 Worksheet

Taos Pueblo Irrigated Lands							
Map Sheet	Tract No.	Tract acreage	Stream	Ditch	Land Status	ID Method	Summed by Ditch
TP-14	1	7.4	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-14	2	7	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-14	3	0.75	Rio Pueblo	South Trash Pile	Grant	Photo	
TP-14	4	4.5	Rio Pueblo	South Trash Pile	Grant	Photo	Total South Trash Pile
TP-14	5	1.75	Rio Pueblo	South Trash Pile	Grant	Photo	21.4
TP-15	6	0.35	Rio Pueblo	Acequia Madre del Pueblo	Grant	Photo	
TP-16	7	0.6	Rio Pueblo	Acequia Madre del Pueblo	Grant	Photo	
TP-17	8	0.1	Rio Pueblo	Acequia Madre del Pueblo	Grant	Photo	
TP-18	9	0.15	Rio Pueblo	Acequia Madre del Pueblo	Grant	Photo	
TP-19	10	0.4	Rio Pueblo	Acequia Madre del Pueblo	Grant	Photo	1.6
		23					23

Map TP-15 Worksheet

Taos Pueblo Irrigated Lands							
Map Sheet	Tract No.	Tract acreage	Stream	Ditch	Land Status	ID Method	Summed by Ditch
TP-15	1	1.8	Rio Hondo	Cuchilla	Tract "B"	Photo	
TP-15	2	15	Rio Hondo	Cuchilla	Tract "B"	Photo	
TP-15	3	2.5	Rio Hondo	Cuchilla	Tract "B"	Photo	
TP-15	4	25	Rio Hondo	Cuchilla	Tract "B"	Photo	Total Cuchilla Ditch
TP-15	5	15	Rio Hondo	Cuchilla	Tract "B"	Photo	59.3
		59.3					

Taos Pueblo Irrigated Lands							
Map Sheet	Tract No.	Tract acreage	Stream	Ditch	Land Status	ID Method	Summed by Ditch
TP-16	1	1.8	Rio Hondo	Cuchilla	Tract "B"	Photo	Total Cuchilla Ditch
TP-16	2	36.85	Rio Hondo	Cuchilla	Tract "B"	Photo	38.65
TP-16	3	8	Arroyo Sec	Acequia	Tract "B"	Photo	Total Acequia de Manuel Andres Trujillo
TP-16	4	1	Arroyo Sec	Acequia	Tract "B"	Photo	9
		47.65					47.65

Map SEO-11 Worksheet

Taos Pueblo Irrigated Lands							
Map Sheet	Tract No.	Tract acreage	Stream	Ditch	Land Status	ID Method	Summed by Ditch
SEO-11	1	1.73	Rio Lucero	Acequia Madre del Prado	Grant	PLB	Total Acequia Madre del Prado
		1.73					1.73

Map SEO-9 Worksheet

Taos Pueblo Irrigated Lands							
Map Sheet	Tract No.	Tract acreage	Stream	Ditch	Land Status	ID Method	Summed by Ditch
SEO-9	1	40.2	Rio Lucero	Juan Manuel Lucero	Karavas	Photo	Total Juan Manuel Lucero Ditch
		40.2					40.2

Map SEO-12 Worksheet

Taos Pueblo Irrigated Lands							
Map Sheet	Tract No.	Tract acreage	Stream	Ditch	Land Status	ID Method	Summed by Ditch
SEO-12	1	16.46	Rio Lucero	Acequia Madre del Prado	Grant	PLB/Photo	
SEO-12	2	17.8	Rio Lucero	Acequia Madre del Prado	Grant	PLB/Photo	
SEO-12	3	2.26	Rio Lucero	Acequia Madre del Prado	Grant	PLB	
SEO-12	4	4.1	Rio Lucero	Acequia Madre del Prado	Grant	Photo	Total Acequia Madre del Prado
SEO-12	5	1.25	Rio Lucero	Acequia Madre del Prado	Grant	Photo	41.87
		41.87					

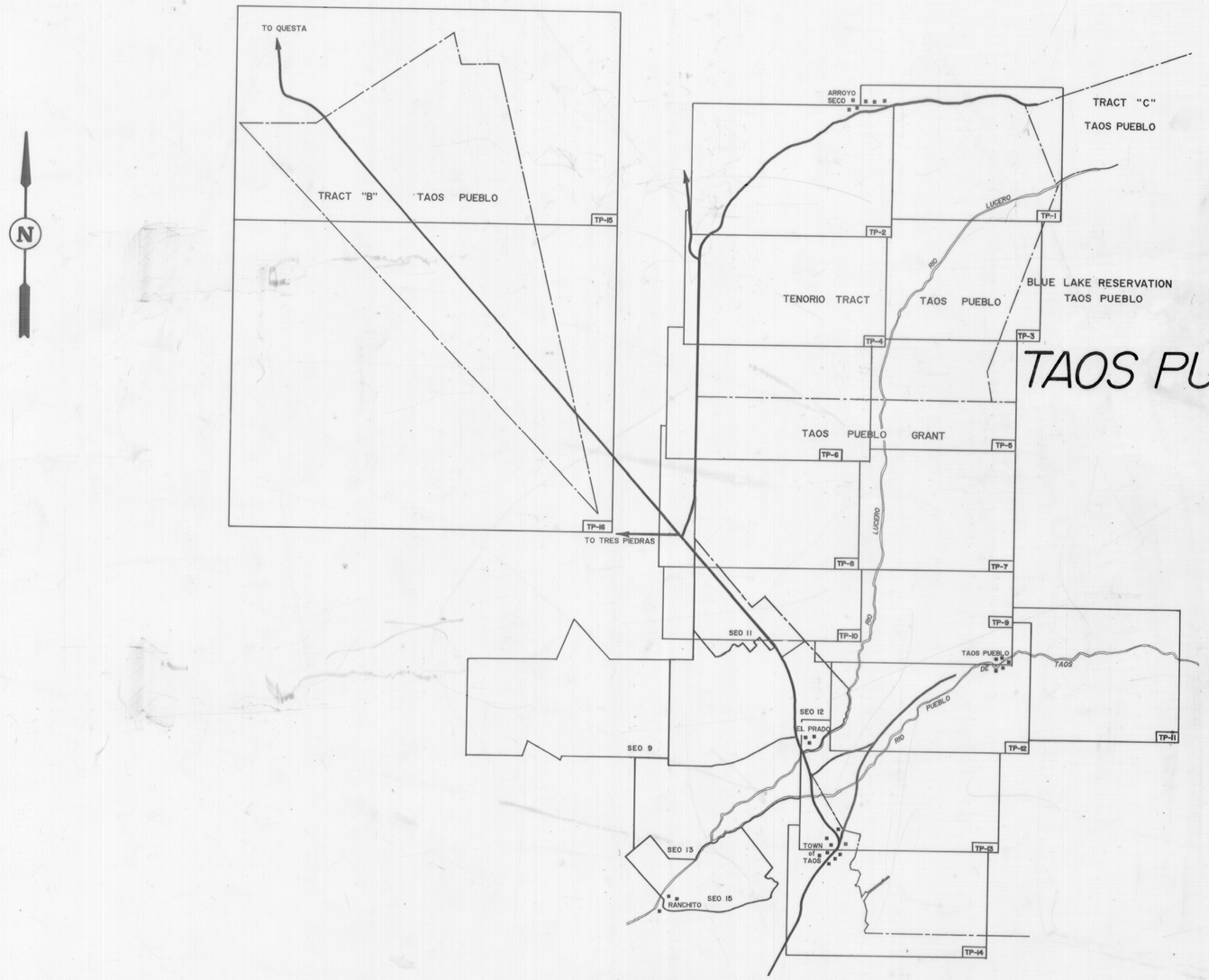
Map SEO-13 Worksheet

Taos Pueblo Irrigated Lands							
Map Sheet	Tract No.	Tract acreage	Stream	Ditch	Land Status	ID Method	Summed by Ditch
SEO-13	8	0.06	Rio Pueblo de Taos	Acequia de los Archuletas	Grant	PLB	Total de los Archuletas
SEO-13	9	0.15	Rio Pueblo de Taos	Acequia de los Archuletas	Grant	PLB	0.21
SEO-13	1	5.65	Rio Lucero	Acequia Madre del Medio	Grant	PLB	
SEO-13	2	18.93	Rio Lucero	Acequia Madre del Medio	Grant	PLB	
SEO-13	6	0.67	Rio Lucero	Acequia Madre del Medio	Grant	PLB	
SEO-13	7	0.17	Rio Lucero	Acequia Madre del Medio	Grant	PLB	Total Madre del Medio
SEO-13	3b	20.4	Rio Lucero	Acequia Madre del Medio	Grant	PLB	45.82
SEO-13	4	17.43	Rio Lucero	Acequia Madre del Prado	Karavas/G	PLB	
SEO-13	5	53.3	Rio Lucero	Acequia Madre del Prado	Karavas/G	PLB	
SEO-13	3a	14.6	Rio Lucero	Acequia Madre del Prado	Grant	PLB	Total Madre del Prado
SEO-13	10	0.3	Rio Lucero	Acequia Madre del Prado	Karavas	Photo	85.63
SEO-13	3c	1	Rio Lucero	Cortez and Sisneros	Grant	PLB	Cortez and Sisneros
SEO-13	11	0.4	Rio Lucero	Cortez and Sisneros	Grant	Photo	1.4
SEO-14	12	0.1	Rio Pueblo	McClure	Grant	Photo	Total McClure
							0.1
		133.16					133.16

Map SEO-15 Worksheet

Taos Pueblo Irrigated Lands							
Map Sheet	Tract No.	Tract acreage	Stream	Ditch	Land Status	ID Method	Summed by Ditch
							Total Prado
SEO-15	1	16	Rio Lucero	Acequia Madre del Prado	Karavas	Photo	16
SEO-15	2	42.2	Rio Lucero	Acequia Madre de la Loma	Karavas	Photo	
SEO-15	3	14.2	Rio Lucero	Acequia Madre de la Loma	Karavas	Photo	
SEO-15	4	49.65	Rio Lucero	Acequia Madre de la Loma	Karavas/G	PLB	Total la Loma
SEO-15	5	2	Rio Lucero	Acequia Madre de la Loma	Karavas/G	PLB	108.05
SEO-15	6	2.25	Rio Lucero	South la Loma Lateral	Karavas/G	PLB	
SEO-15	7	2.6	Rio Lucero	South la Loma Lateral	Karavas/G	PLB	
SEO-15	8	2.5	Rio Lucero	South la Loma Lateral	Karavas/G	PLB	
SEO-15	9	0.01	Rio Lucero	South la Loma Lateral	Karavas/G	PLB	Total South la Loma
SEO-15	10	7.1	Rio Lucero	South la Loma Lateral	Karavas	Photo	14.46
SEO-15	11	25.25	Rio Lucero	Cortez and Sisneros	Karavas/G	PLB	Total C & S
							25.25
SEO-15	12	27	Rio Pueblo	Acequia de los Lovatos	Grant	PLB	Total Lovatos
SEO-15	13	19.56	Rio Pueblo	Acequia de los Lovatos	Grant	PLB	46.56
							210.32
		210.32					

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
ALBUQUERQUE AREA



INDEX TO MAP SHEETS

1989 RIO PUEBLO DE TAOS HYDROGRAPHIC SURVEY

REVISED FOR

TAOS PUEBLO WATER USE SURVEY

JULY 1997

LEGEND - Applicable to individual survey map sheets

- Grouped irrigated tracts boundary
- Individual irrigated tract boundary
- Diversion
- Ditch
- Arroyo
- Road
- Tract Number

Section Corners and State Plane Coordinate 5000 feet Grid Tics (central zone) appear within mapped areas. Universal Transverse Mercator Grid (Zone 13) appears on map sheet margins.

LOCATION MAP

TR-4910-P5-G-MAPS
NM vs ABEYTA

450000m. E.

451

452

4041000m. N.

4040

4040000mJ

MATCH LINE TO TP-2

MATCH LINE TO SHEET TP-3

SOUTH BOUNDARY ANTONIO MARTINEZ OR GODOI GRANT

NORTH BOUNDARY TENORIO TRACT TAOS PUEBLO

ARROYO SECO

ARROYO SECO CONCHO DITCH

TENORIO DITCH

LATERAL NO. 5

LATERAL NO. 2A

ACEQUIA MADRE DEL RIO LUCERO DEL ARROYO SECO

RIO LUCERO DEL ARROYO SECO

RIO LUCERO PIPELINE DITCH

A/K/A TENORIO DITCH

TAOS INDIAN DITCH

RIO LUCERO

R.13E.
T.26N.
3 | 2
10 | 11
T.26N.
R.13E.

2,005,000

705,000

770,000

EL 7956

RES. 0.35 Ac.

RES. 0.10 Ac.

1 17.20 Ac.
2 1.90 Ac.
3 2.30 Ac.
4 3.80 Ac.
5 7.20 Ac.
6 8.45 Ac.
7 1.60 Ac.
8 1.30 Ac.
9 11.50 Ac.
10 5.40 Ac.
11 3.30 Ac.
12 2.25 Ac.
13 11.00 Ac.
14 9.25 Ac.
15 5.25 Ac.
16 10.90 Ac.
17 5.60 Ac.
18 4.00 Ac.
19 3.70 Ac.
20 1.40 Ac.
21 1.00 Ac.
22 5.35 Ac.
23 1.70 Ac.
24 7.90 Ac.
25 3.85 Ac.
26 10.00 Ac.
27 2.90 Ac.
28 7.38 Ac.
29 3.25 Ac.
30 3.00 Ac.
31 4.95 Ac.
32 2.70 Ac.
33 2.80 Ac.
34 4.80 Ac.
35 1.10 Ac.
36 6.25 Ac.
37 1.85 Ac.
38 15.90 Ac.
39 5.35 Ac.
40 1.10 Ac.
41 7.00 Ac.
42 2.65 Ac.
43 41.90 Ac.
44 2.00 Ac.
45 0.50 Ac.
46 1.00 Ac.
47 4.70 Ac.
48 45.75 Ac.
49 6.25 Ac.
50 12.70 Ac.
51 1.00 Ac.
52 RES. 0.10 Ac.
53 0.80 Ac.
54 0.70 Ac.
55 RES. 0.35 Ac.
56 8.65 Ac.
57 2.00 Ac.
58 7.85 Ac.
59 2.70 Ac.
60 3.75 Ac.
61 1.05 Ac.
62 12.20 Ac.
63 11.00 Ac.
64 1.10 Ac.
65 8.10 Ac.
66 6.10 Ac.
67 7.30 Ac.
68 2.30 Ac.
69 5.05 Ac.
70 13.95 Ac.
71 4.20 Ac.
72 11.85 Ac.
73 10.50 Ac.
74 18.15 Ac.
75 6.90 Ac.
76 3.50 Ac.
77 7.65 Ac.
78 6.20 Ac.
79 2.50 Ac.
80 20.60 Ac.
81 7.30 Ac.
82 1.35 Ac.
83 0.70 Ac.
84 0.45 Ac.
85 1.10 Ac.
86 1.10 Ac.
87 0.25 Ac.
88 1.65 Ac.
89 1.65 Ac.
90 0.25 Ac.
91 0.20 Ac.
92 0.20 Ac.
93 0.10 Ac.
94 2.25 Ac.
95 5.05 Ac.
96 0.75 Ac.
97 0.50 Ac.
98 7.35 Ac.
99 7.00 Ac.
100 4.90 Ac.
101 11.90 Ac.
102 10.50 Ac.

TENORIO TRACT TAOS PUEBLO

TAOS PUEBLO IRRIGATED LANDS

IRRIGATED LANDS - identified by aerial photo interpretation

IRRIGATED LANDS - identified in Pueblo Lands Board information

SACRED PASTURE LANDS

REVISED: JULY 1997

300' 150' 0 300' 600' 900'

Scale: 1" = 300'

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
ALBUQUERQUE AREA OFFICE
ALBUQUERQUE, NEW MEXICO

1989 RIO PUEBLO DE TAOS HYDROGRAPHIC SURVEY
revised for

TAOS PUEBLO 1997 WATER USE SURVEY

STEREOCOMPILATION OF BASE MAP BY THE NEW MEXICO STATE ENGINEER OFFICE HYDROGRAPHIC SURVEY SECTION 1969

SHEET NO. TP-1

450

451

452000m. E.

447000m. E.

448

449

341000m.N.

4041

4040

4040000m.N.

R.13E.

T.26N.

6 | 5

7 | 8

T.26N.

R.13E.

695,000

2,005,000

700,000

2,005,000

R.13E.

5 | 4

8 | 9

T.26N.

R.13E.

SOUTH BOUNDARY ANTONIO MARTINEZ OR 4000 GRANT

NORTH BOUNDARY TENORIO TRACT T.26N. R.13E.

ARROYO SECO

TENORIO DITCH

LATERAL NO. 5 TENORIO DITCH

LATERAL NO. 2A TENORIO DITCH

RIO LUCERO PIPELINE DITCH A/K/A TENORIO DITCH

RIO LUCERO PIPELINE DITCH

MATCH LINE TO SHEET TP-1

MATCH LINE TO SHEET TP-4

1 1.10 Ac.
2 1.90 Ac.
3 3.00 Ac.
4 3.55 Ac.
5 3.75 Ac.
6 1.30 Ac.
7 4.00 Ac.
8 3.25 Ac.
9 4.00 Ac.
10 1.00 Ac.
11 2.00 Ac.
12 RES. 0.35 Ac.
13 3.50 Ac.
14 6.62 Ac.
15 RES. 0.70 Ac.
16 16.10 Ac.
17 3.15 Ac.
18 2.35 Ac.
19 2.62 Ac.
20 3.25 Ac.
21 6.05 Ac.
22 7.75 Ac.
23 6.35 Ac.
24 6.15 Ac.
25 9.90 Ac.
26 0.75 Ac.
27 1.60 Ac.
28 10.95 Ac.
29 3.65 Ac.
30 6.65 Ac.
31 4.00 Ac.
32 3.40 Ac.
33 10.00 Ac.
34 7.95 Ac.
35 5.95 Ac.
36 11.70 Ac.
37 7.65 Ac.
38 4.20 Ac.
39 6.50 Ac.
40 6.55 Ac.
41 8.35 Ac.
42 1.65 Ac.
43 17.90 Ac.
44 3.05 Ac.
45 10.00 Ac.
46 3.40 Ac.
47 3.25 Ac.
48 4.60 Ac.
49 4.50 Ac.
50 0.75 Ac.
51 3.40 Ac.
52 10.75 Ac.
53 2.00 Ac.
54 3.80 Ac.
55 7.50 Ac.
56 11.30 Ac.
57 11.30 Ac.
58 5.00 Ac.
59 5.75 Ac.
60 11.45 Ac.
61 2.04 Ac.
62 2.65 Ac.
63 3.90 Ac.
64 2.90 Ac.
65 9.80 Ac.
66 2.05 Ac.
67 8.80 Ac.
68 8.30 Ac.
69 25.70 Ac.
70 4.60 Ac.
71 7.40 Ac.
72 7.90 Ac.
73 6.15 Ac.
74 3.90 Ac.
75 5.75 Ac.
76 1.25 Ac.
77 1.75 Ac.
78 6.50 Ac.
79 5.15 Ac.
80 5.75 Ac.
81 4.10 Ac.
82 1.45 Ac.
83 7.35 Ac.
84 0.90 Ac.
85 0.10 Ac.
86 0.50 Ac.
87 6.35 Ac.
88 2.15 Ac.
89 0.10 Ac.
90 6.50 Ac.
91 0.60 Ac.
92 4.25 Ac.
93 0.20 Ac.
94 5.05 Ac.
95 3.50 Ac.
96 2.45 Ac.
97 2.60 Ac.
98 0.85 Ac.
99 3.15 Ac.

TENORIO TRACT

TAOS PUEBLO

N

300' 150' 0 300' 600' 900'

Scale: 1" = 300'

TAOS PUEBLO IRRIGATED LANDS

IRRIGATED LANDS - identified by aerial photo interpretation

IRRIGATED LANDS - identified in Pueblo Lands Board information

SACRED PASTURE LANDS

REVISED: JULY 1997

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
ALBUQUERQUE AREA OFFICE
ALBUQUERQUE, NEW MEXICO

1989 RIO PUEBLO DE TAOS HYDROGRAPHIC SURVEY
revised for

TAOS PUEBLO 1997 WATER USE SURVEY

STEREOCOMPILATION OF BASE MAP BY THE
NEW MEXICO STATE ENGINEER OFFICE
HYDROGRAPHIC SURVEY SECTION 1969

SHEET NO. TP-2

450000m. E.

451

452

TENORIO TRACT

TAOS PUEBLO

MATCH LINE TO SHEET TP-1

RIO LUCERO

TAOS INDIAN DITCH

1 2.75 Ac.
2 3.70 Ac.
3 21.75 Ac.
4 3.20 Ac.
5 6.20 Ac.
6 8.65 Ac.
7 10.80 Ac.
8 .50 Ac.
9 8.05 Ac.
10 2.50 Ac.
11 6.70 Ac.
12 7.65 Ac.
13 2.75 Ac.
14 9.40 Ac.
15 6.25 Ac.
16 1.00 Ac.
17 5.60 Ac.
18 0.80 Ac.
19 2.30 Ac.
20 80 Ac.
21 .25 Ac.
22 .25 Ac.

El. 7820

El 7609

R.13E.
T.26N. 8 9 T.26N.
17 16
R.13E.

R.13E.
26N. 8 10 T.26N.
16 15
R.13E.

705,000

2,000,000

N

705,000

2,000,000

1039000m.N.

4039

4038

4038000m.N.

JUAN MANUEL LUCERO COMMUNITY DITCH
A/K/A ARROYO SECO ABAJO DITCH

RIO LUCERO

MATCH LINE TO TP-5

TAOS INDIAN DITCH

TAOS INDIAN DITCH

300' 150' 0 300' 600' 900'

Scale: 1" = 300'

TAOS PUEBLO IRRIGATED LANDS

IRRIGATED LANDS - identified by aerial photo interpretation

IRRIGATED LANDS - identified in Pueblo Lands Board information

SACRED PASTURE LANDS

REVISED: JULY 1997

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
ALBUQUERQUE AREA OFFICE
ALBUQUERQUE, NEW MEXICO

1989 RIO PUEBLO DE TAOS HYDROGRAPHIC SURVEY
revised for

TAOS PUEBLO 1997 WATER USE SURVEY

STEREOCOMPILATION OF BASE MAP BY THE NEW MEXICO STATE ENGINEER OFFICE HYDROGRAPHIC SURVEY SECTION 1989

SHEET NO. TP-3

450

451

452000m. E.

447000m. E.

448

449

4039

4039000m.N.

RIO LUCERO PIPELINE DITCH A/K/A TENORIO DITCH

MATCH LINE TO TP-2

BOUNDARY

1.20 Ac. (31)

TAOS PUEBLO TRACT

TENORIO

1.20 Ac. (30)

0.40 Ac. (2)

ARROYO SECO

LOWER ARROYO SECO DITCH

(150)

(230)

(150)

(1) 8.50 Ac.

(2) 10.90 Ac.

(3) 3.50 Ac.

(4) 15.15 Ac.

(5) 17.50 Ac.

(6) 16.40 Ac.

(7) 9.30 Ac.

(8) 4.30 Ac.

(9) 4.50 Ac.

(10) 4.65 Ac.

(11) 4.50 Ac.

(13) 16.00 Ac.

7.35 Ac.

(15) 20.90 Ac.

(16) 16.40 Ac.

(14) 16.50 Ac.

(17) 22.70 Ac.

(28) 7.75 Ac.

R.13E.

T.26N. — 7 | 8 — T.26N.

18 | 17

R.13E.

(18) 12.50 Ac.

(19) 4.75 Ac.

(20) 3.20 Ac.

(21) 2.60 Ac.

(23) 5.90 Ac.

(24) 5.95 Ac.

(22) 2.90 Ac.

25 2.40 Ac.

(26) 9.00 Ac.

(27) 16.10 Ac.

RIO LUCERO PIPELINE DITCH A/K/A TENORIO DITCH

NATIONAL MONUMENT OF SOCIAL GRANT

TENORIO TRACT TAOS PUEBLO BOUNDARY

el. 7493

R.13E.

T.26N. — 8 | 9 — T.26N.

17 | 16

R.13E.

N

TAOS PUEBLO IRRIGATED LANDS

IRRIGATED LANDS - identified by aerial photo interpretation

IRRIGATED LANDS - identified in Pueblo Lands Board information

SACRED PASTURE LANDS

300' 60 0 300' 600' 900'

Scale: 1" = 300'

4038000mN

4038

MATCH LINE TO TP-6

448

4490000m. E.

REVISED: JULY 1997

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
ALBUQUERQUE AREA OFFICE
ALBUQUERQUE, NEW MEXICO

1989 RIO PUEBLO DE TAOS HYDROGRAPHIC SURVEY
revised for

TAOS PUEBLO 1997 WATER USE SURVEY

STEREOCOMPILATION OF BASE MAP BY THE NEW MEXICO STATE ENGINEER OFFICE HYDROGRAPHIC SURVEY SECTION 1969

SHEET NO. TP-4

449000m. E.

450

451

4038000m. N.

4037

4037000m. N.

4036

449

450

451000m. E.

MATCH LINE TO TP-3

MATCH LINE TO TP-1

TENORIO TRACT TAOS PUEBLO

TAOS PUEBLO GRANT

SOUTH BOUNDARY TENORIO TRACT TAOS PUEBLO
NORTH BOUNDARY TAOS PUEBLO GRANT

R.13E.
T.26N. 17 16 T.26N.
20 21
R.13E.

1,995,000

705,000

700,000

1908 DITCH SPLIT

RIO LUCERO

A/K/A ARROYO SECO ABAJO DITCH

1908 DITCH

TIN DITCH A/K/A WHITEROCK DITCH

TAOS INDIAN DITCH

JOE BERNAL DITCH

JUAN MANUEL LUCERO COMMUNITY DITCH

ACEQUIA MADRE DEL RANCHO BEELINE DITCH

GATO A/K/A CORN HUSK CANYON

RITO del

RES. 0.30 Ac.
El. 7720

Flume

1 6.65 Ac.	2 1.50 Ac.	3 4.75 Ac.	4 3.45 Ac.
5 0.80 Ac.	6 0.35 Ac.	7 4.65 Ac.	8 12.60 Ac.
9 17.50 Ac.	10 1.00 Ac.	11 6.20 Ac.	12 5.90 Ac.
13 2.90 Ac.	14 3.10 Ac.	15 0.75 Ac.	16 6.10 Ac.
17 1.50 Ac.	18 5.65 Ac.	19 3.95 Ac.	20 4.60 Ac.
21 1.40 Ac.	22 11.65 Ac.	23 3.00 Ac.	24 3.65 Ac.
25 1.90 Ac.	26 0.35 Ac.	27 0.55 Ac.	28 1.50 Ac.
29 9.10 Ac.	30 5.60 Ac.	31 4.85 Ac.	32 2.90 Ac.
33 1.40 Ac.	34 0.75 Ac.	35 1.05 Ac.	36 1.85 Ac.
37 2.35 Ac.	38 2.00 Ac.	39 5.80 Ac.	40 0.85 Ac.
41 1.60 Ac.	42 1.70 Ac.	43 3.8 Ac.	44 0.45 Ac.
45 0.20 Ac.	46 0.35 Ac.	47 3.35 Ac.	48 4.85 Ac.
49 0.65 Ac.	50 1.55 Ac.	51 4.80 Ac.	52 5.40 Ac.
53 0.10 Ac.	54 0.40 Ac.	55 0.60 Ac.	56 0.85 Ac.

300' 150' 0 300' 600' 900'

Scale: 1" = 300'

TAOS PUEBLO IRRIGATED LANDS

IRRIGATED LANDS - identified by aerial photo interpretation

IRRIGATED LANDS - identified in Pueblo Lands Board information

SACRED PASTURE LANDS

REVISED: JULY 1997

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
ALBUQUERQUE AREA OFFICE
ALBUQUERQUE, NEW MEXICO

1989 RIO PUEBLO DE TAOS HYDROGRAPHIC SURVEY
revised for

TAOS PUEBLO 1997 WATER USE SURVEY

STEREOCOMPILATION OF BASE MAP BY THE
NEW MEXICO STATE ENGINEER OFFICE
HYDROGRAPHIC SURVEY SECTION 1969

SHEET NO. TP-5

MATCH LINE TO TP-4

448

449

TAOS PUEBLO IRRIGATED LANDS

IRRIGATED LANDS - identified by aerial photo interpretation

IRRIGATED LANDS - identified in Pueblo Lands Board information

SACRED PASTURE LANDS

700,000

1,995,000

R.13E.

T.26N.

18 17 19 20

T.26N.

R.13E.

17 16 20 21

T.26N.

R.13E.

1 9.70 Ac.
2 26.40 Ac.
3 8.10 Ac.
4 21.60 Ac.
5 16.20 Ac.
6 1.60 Ac.
7 1.20 Ac.
8 5.65 Ac.
9 1.40 Ac.
10 0.10 Ac.
11 1.30 Ac.
12 6.30 Ac.
13 6.60 Ac.
14 7.10 Ac.
15 3.05 Ac.
16 4.00 Ac.
17 5.00 Ac.
18 2.90 Ac.
19 8.25 Ac.
20 0.90 Ac.
21 0.45 Ac.
22 6.85 Ac.
23 1.45 Ac.
24 4.95 Ac.
25 4.90 Ac.
26 1.85 Ac.
27 21.50 Ac.
28 0.35 Ac.
29 3.55 Ac.
30 0.55 Ac.
31 1.40 Ac.
32 1.60 Ac.
33 1.45 Ac.
34 7.45 Ac.
35 2.60 Ac.
36 10.25 Ac.
37 0.40 Ac.
38 0.65 Ac.
39 0.40 Ac.
40 0.55 Ac.
41 2.10 Ac.
42 2.10 Ac.
43 1.10 Ac.
44 16.15 Ac.
45 11.50 Ac.
46 1.15 Ac.
47 5.30 Ac.
48 1.30 Ac.

TENORIO TRACT

TAOS PUEBLO

TAOS PUEBLO GRANT

WEST BOUNDARY TENORIO TRACT TAOS PUEBLO

WEST BOUNDARY TAOS PUEBLO GRANT

SOUTH BOUNDARY TENORIO TRACT TAOS PUEBLO
NORTH BOUNDARY TAOS PUEBLO GRANT

ARROYO SECO ABAJO DITCH

ACEQUIA

COMMUNITY DITCH

1908 DITCH

JUAN MANUEL LUCERO

LATERAL FROM 1908 DITCH

MATCH LINE TO TP-5

MATCH LINE TO TP-8

Flume

300' 150' 0 300' 600' 900'

Scale: 1" = 300'

4037

4036000mN

4036

4036000mE

447

448

449000m. E.

REVISED: JULY 1997

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
ALBUQUERQUE AREA OFFICE
ALBUQUERQUE, NEW MEXICO

1989 RIO PUEBLO DE TAOS HYDROGRAPHIC SURVEY
revised for

TAOS PUEBLO 1997 WATER USE SURVEY

STEREOCOMPILATION OF BASE MAP BY THE
NEW MEXICO STATE ENGINEER OFFICE
HYDROGRAPHIC SURVEY SECTION 1969

SHEET NO. TP-6

449000m. E.

450

451

4036000m. N.

4035

4035000m. N.

449

450

451000m. E.

1908 DITCH

Flume

RIO LUCERO

MATCH LINE TO TP-5

WHITEROCK DITCH

TINAJA DITCH

ACEQUIA MADRE DEL PRADO

BEELINE DITCH

LATERAL FROM BEELINE DITCH

MATCH LINE TO TP-8

LATERAL ROCK BRIDGE DITCH

GROUSE DITCH

ROCK BRIDGE DITCH

MOUNTAIN WOOD DITCH

MATCH LINE TO TP-9

WATER SILT CANYON

GATO CANYON

x El. 7469

700,000

1,990,000

705,000

1,990,000

R.13E.

T.26N. 20 21 T.26N.

29 28

R.13E.

R.13E.

T.26N. 21 22 T.26N.

28 27

R.13E.

TAOS PUEBLO GRANT

TAOS PUEBLO GRANT

1	2.05 Ac.	27	17.60 Ac.
2	3.90 Ac.	28	1.80 Ac.
3	5.05 Ac.	29	1.70 Ac.
4	7.40 Ac.	30	1.20 Ac.
5	2.50 Ac.	31	0.50 Ac.
6	1.45 Ac.	32	0.50 Ac.
7	4.80 Ac.	33	0.40 Ac.
8	7.90 Ac.	34	1.20 Ac.
9	7.15 Ac.	35	1.30 Ac.
10	3.25 Ac.	36	3.50 Ac.
11	4.40 Ac.	37	14.40 Ac.
12	10.45 Ac.	38	13.90 Ac.
13	4.00 Ac.	39	3.35 Ac.
14	13.10 Ac.	40	1.95 Ac.
15	0.60 Ac.	41	0.75 Ac.
16	14.40 Ac.	42	1.45 Ac.
17	2.60 Ac.	43	6.35 Ac.
18	2.50 Ac.	44	2.20 Ac.
19	2.75 Ac.	45	0.75 Ac.
20	3.50 Ac.	46	7.5 Ac.
21	11.65 Ac.	47	0.55 Ac.
22	10.90 Ac.	48	0.65
23	16.15 Ac.	49	2.75 Ac.
24	3.90 Ac.	50	4.65 Ac.
25	4.8 Ac.	51	1.90 Ac.
26	6.35 Ac.	52	0.25 Ac.
		53	2.30 Ac.
		54	0.25 Ac.

N

TAOS PUEBLO IRRIGATED LANDS

IRRIGATED LANDS - identified by aerial photo interpretation

IRRIGATED LANDS - identified in Pueblo Lands Board information

SACRED PASTURE LANDS

300' 150' 0 300' 600' 900'

Scale: 1" = 300'

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
ALBUQUERQUE AREA OFFICE
ALBUQUERQUE, NEW MEXICO

1989 RIO PUEBLO DE TAOS HYDROGRAPHIC SURVEY
revised for

TAOS PUEBLO 1997 WATER USE SURVEY

STEREOCOMPILATION OF BASE MAP BY THE NEW MEXICO STATE ENGINEER OFFICE HYDROGRAPHIC SURVEY SECTION 1969

SHEET NO. TP-7

REVISED: JULY 1997

447000m. E.

448

449

4036

TAOS PUEBLO GRANT

TAOS PUEBLO NEW PURCHASE

TAOS PUEBLO GRANT

WEST BOUNDARY TAOS PUEBLO GRANT

1908 DITCH

JUAN MANUEL LUCERO COMMUNITY DITCH A/K/A ARROYO SECO ABAJO DITCH

ARROYO SECO ABAJO A/K/A JUAN MANUEL LUCERO COMMUNITY DITCH

MATCH LINE TO TP-9

LATERAL FROM 1908 DITCH

LATERAL FROM BEELINE DITCH

ACEQUIA MADRE DEL PRADO (TANKE LATERAL)

TAOS PUEBLO BOUNDARY

MATCH LINE TO TP-10

MATCH LINE TO TP-7

FLUME

R.13E.

T.26N.

19 | 20

30 | 29

20 | 21

29 | 28

1,990,000

700,000

4035000m. N.

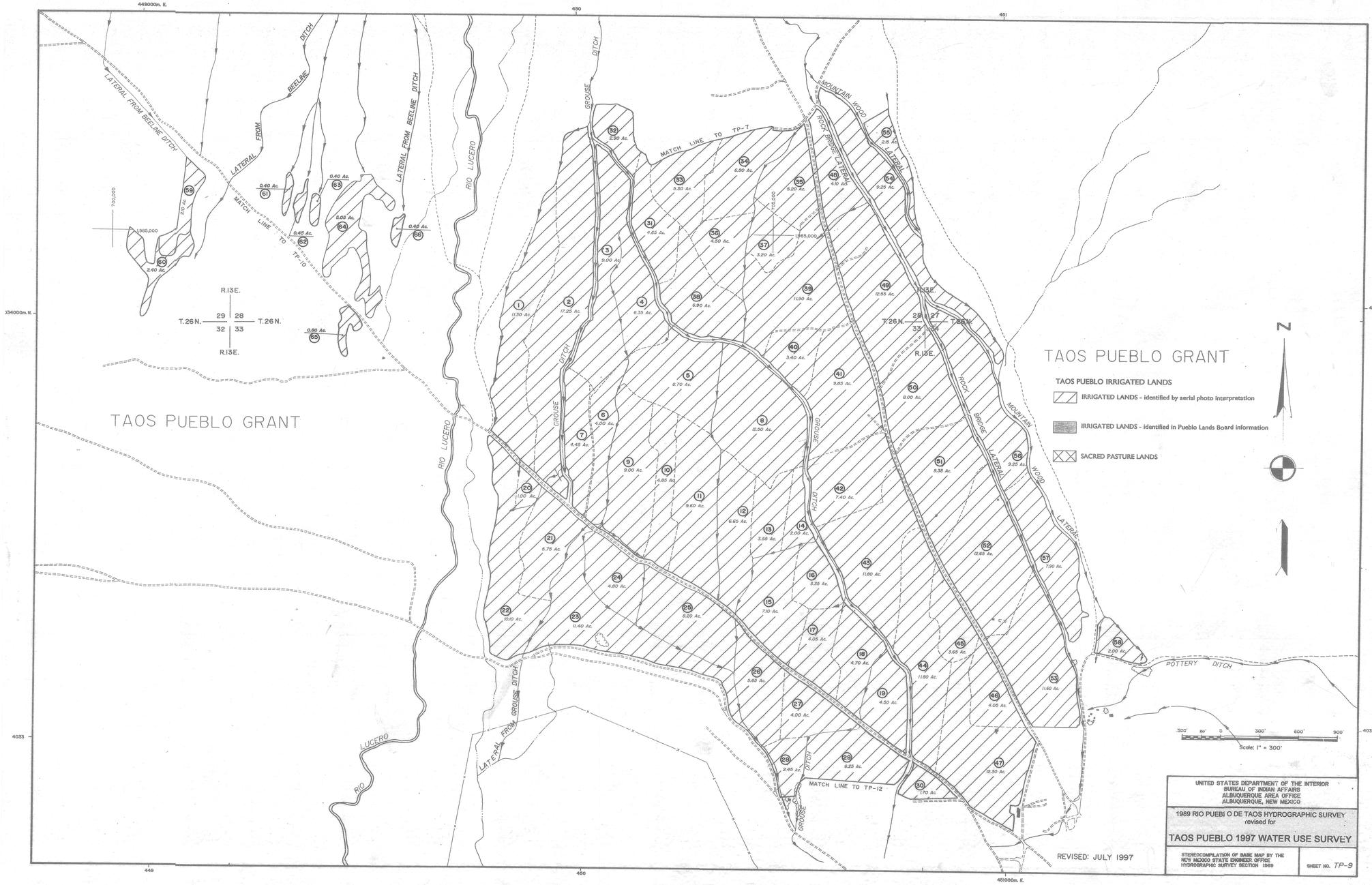
4035000m.

522

150

64

| | | |


449000m. E.
450
451
4034000m. N.
4033
4033000m. N.
449
450
451000m. E.
TAOS PUEBLO GRANT
TAOS PUEBLO GRANT
TAOS PUEBLO IRRIGATED LANDS
IRRIGATED LANDS - identified by aerial photo interpretation
IRRIGATED LANDS - identified in Pueblo Lands Board information
SACRED PASTURE LANDS
N
R.13E.
T.26N.
29
28
32
33
T.26N.
R.13E.
27
34
R.13E.
T.26N.
T.25N.
MATCH LINE TO TP-7
MATCH LINE TO TP-10
MATCH LINE TO TP-12
RIO LUCERO
GROUSE DITCH
ROCK BRIDGE LATERAL
MOUNTAIN WOOD LATERAL
LATERAL FROM BEELINE DITCH
LATERAL FROM GROUSE DITCH
POTTERY DITCH
750,000
985,000
Scale: 1" = 300'
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
ALBUQUERQUE AREA OFFICE
ALBUQUERQUE, NEW MEXICO
1989 RIO PUEBLO DE TAOS HYDROGRAPHIC SURVEY
revised for
TAOS PUEBLO 1997 WATER USE SURVEY
REVISED: JULY 1997
STEREOCOMPILATION OF BASE MAP BY THE NEW MEXICO STATE ENGINEER OFFICE HYDROGRAPHIC SURVEY SECTION 1969
SHEET NO. TP-9

TAOS PUEBLO GRANT

447000m. E. 448 449

4035.

1075000m.N.

4034

4034000m.N.

TAOS PUEBLO IRRIGATED LANDS

- IRRIGATED LANDS - identified by aerial photo interpretation
- IRRIGATED LANDS - identified in Pueblo Lands Board information
- SACRED PASTURE LANDS

MATCH LINE TO TP-8

ACEQUIA MADRE DEL PRADO (TANKE LATERAL)

ACEQUIA MADRE DEL PRADO

BEELINE DITCH

LATERAL FROM BEELINE DITCH

LATERAL FROM BEELINE DITCH

MATCH LINE TO SEO SHEET 11

ACEQUIA MADRE DEL PRADO (TANKE LATERAL)

MATCH LINE TO TP-9

TAOS PUEBLO BOUNDARY

ACEQUIA MADRE DEL PRADO (RIVERA LATERAL)

ACEQUIA MADRE DEL PRADO (VAROSO LATERAL)

ACEQUIA MADRE DEL PRADO

LATERAL FROM BEELINE DITCH

LATERAL FROM BEELINE DITCH

1,985,000

700,000

980,000

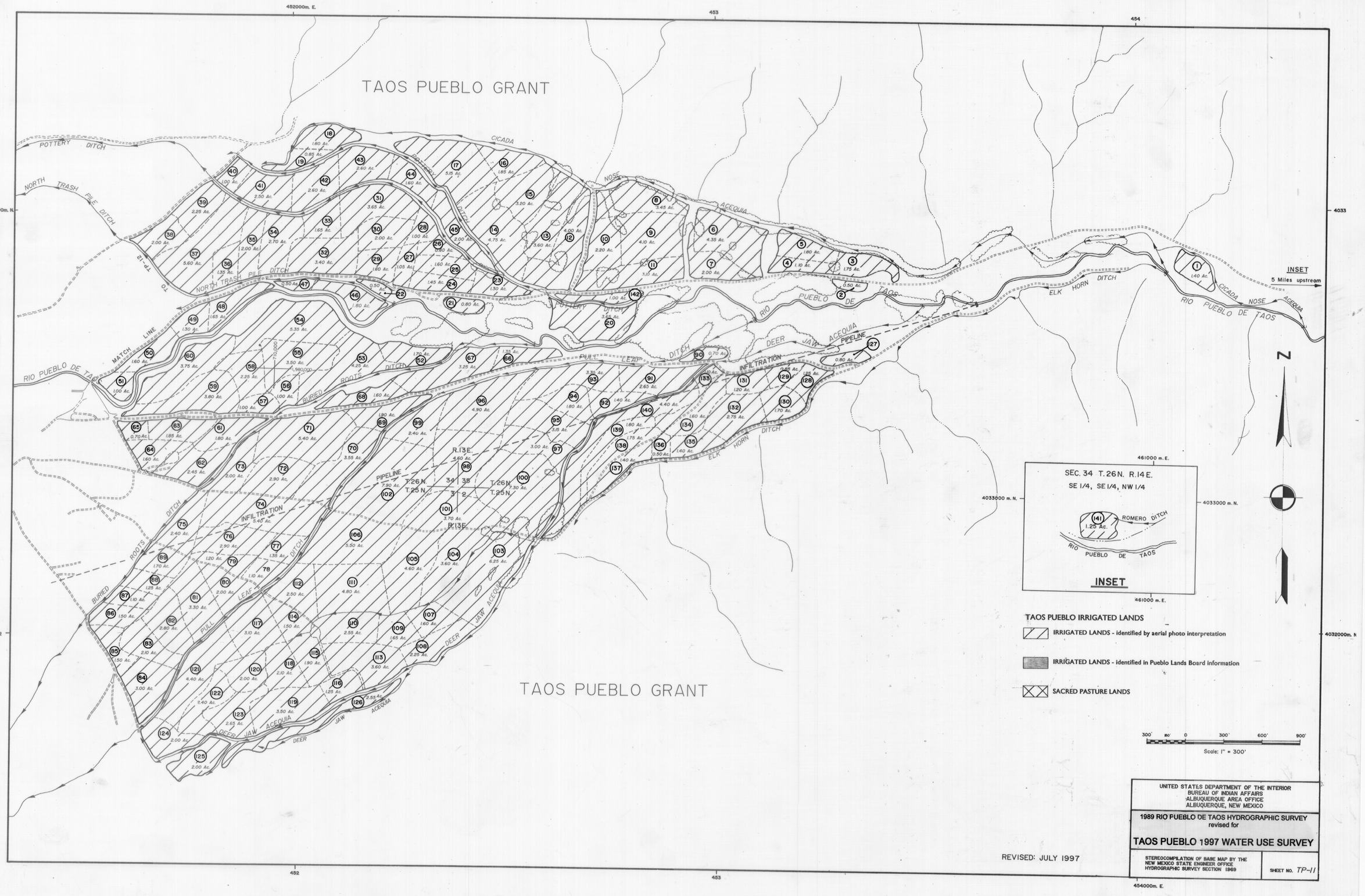
R.13E. T.26N. 29 30 31 32 28 33

R.13E. T.26N.

R.13E.

TAOS PUEBLO GRANT

| | | |


452000m. E.
453
454
4033000m. N.
4033
4032
4032000m. N
TAOS PUEBLO GRANT
TAOS PUEBLO GRANT
POTTERY DITCH
NORTH TRASH PILE DITCH
CICADA NOSE ACEQUIA
RIO PUEBLO DE TAOS
ELK HORN DITCH
INSET
5 Miles upstream
MATCH LINE
TO TP-12
BURIED ROOTS DITCH
PULL LEAF DITCH
DEER JAW ACEQUIA
PIPELINE
INFILTRATION
R.13E.
T.26N
T.25N
N
461000 m. E.
SEC. 34 T.26N. R.14E.
SE 1/4, SE 1/4, NW 1/4
ROMERO DITCH
INSET
TAOS PUEBLO IRRIGATED LANDS
IRRIGATED LANDS - identified by aerial photo interpretation
IRRIGATED LANDS - identified in Pueblo Lands Board information
SACRED PASTURE LANDS
300' 150' 0 300' 600' 900'
Scale: 1" = 300'
REVISED: JULY 1997
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
ALBUQUERQUE AREA OFFICE
ALBUQUERQUE, NEW MEXICO
1989 RIO PUEBLO DE TAOS HYDROGRAPHIC SURVEY
revised for
TAOS PUEBLO 1997 WATER USE SURVEY
STEREOCOMPILATION OF BASE MAP BY THE
NEW MEXICO STATE ENGINEER OFFICE
HYDROGRAPHIC SURVEY SECTION 1969
SHEET NO. TP-11

450000m. E.

451

452

4033000m. N.

4032

MATCH LINE TO TP-10

MATCH LINE TO TP-9

TAOS PUEBLO IRRIGATED LANDS

IRRIGATED LANDS - identified by aerial photo interpretation

IRRIGATED LANDS - identified in Pueblo Lands Board information

SACRED PASTURE LANDS

TAOS PUEBLO GRANT

TAOS PUEBLO BOUNDARY SHEET 12

MATCH LINE TO TP-13

MATCH LINE TO TP-11

MATCH LINE TO TP-12

1,980,000

710,000

R.13E.

R.12E.

T.26N.

T.25N.

33 34 5 4

RIO PUEBLO DE TAOS

RIO LUCERO

GROUSE DITCH

NORTH TRASH PILE DITCH

SOUTH TRASH PILE DITCH

POTTERY DITCH

TAOS PUEBLO DITCH

BURIED ROOTS DITCH

PULL LEAF DITCH

DEER JAW ACEQUIA

McCLURE DITCH

ACEQUIA MADRE DEL PUEBLO

SARAFIN MARTINEZ DITCH

VENTURA MIRABAL DITCH

PHIL-NO DITCH

INFILTRATION PIPELINE

RES. 3.50 Ac.

300' 150' 0 300' 600' 900'

Scale: 1" = 300'

REVISED: JULY 1997

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
ALBUQUERQUE AREA OFFICE
ALBUQUERQUE, NEW MEXICO

1989 RIO PUEBLO DE TAOS HYDROGRAPHIC SURVEY
revised for

TAOS PUEBLO 1997 WATER USE SURVEY

STEREOCOMPILATION OF BASE MAP BY THE
NEW MEXICO STATE ENGINEER OFFICE
HYDROGRAPHIC SURVEY SECTION 1969

SHEET NO: TP-12

449000m. E.

450

451

4031000m. N.

4030

4030000m. N.

449

450

451000m. E.

TAOS PUEBLO GRANT

TAOS PUEBLO GRANT

MATCH LINE TO TP-12

MATCH LINE TO SEO SHEET 13

MATCH LINE TO TP-14

TAOS PUEBLO BOUNDARY

RIO PUEBLO DE TAOS

McClure Ditch AKA HAK CREEK

MERABAL ACEQUIA AKA HAK CREEK

ACEQUIA MADRE DEL PUEBLO

SUMMER SPRING CREEK DITCH

SUNHAWK DITCH

SOUTH TRASH PILE DITCH

MILLER DITCH

PUMMO DITCH

BURIED LEAF DITCH

ROOTS DITCH

SPIDER ROAD

LORENZO ARROYO

Acequia Abajo Lomo

McClure Ditch

HAK CREEK

T.25N.

R.13E.

T.25N.

R.13E.

T.25N.

R.13E.

T.25N.

R.13E.

TAOS PUEBLO IRRIGATED LANDS

IRRIGATED LANDS - identified by aerial photo interpretation

IRRIGATED LANDS - identified in Pueblo Lands Board information

SACRED PASTURE LANDS

300' 150' 0 300' 600' 900'

Scale: 1" = 300'

REVISED: JULY 1997

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
ALBUQUERQUE AREA OFFICE
ALBUQUERQUE, NEW MEXICO

1989 RIO PUEBLO DE TAOS HYDROGRAPHIC SURVEY
revised for

TAOS PUEBLO 1997 WATER USE SURVEY

STEREOCOMPILATION OF BASE MAP BY THE NEW MEXICO STATE ENGINEER OFFICE HYDROGRAPHIC SURVEY SECTION 1969

SHEET NO. TP-13

449000m. E.

450

451

4030

4029000m. N

TAOS PUEBLO GRANT

700,000

1,970,000

705,000

1,970,000

MATCH LINE TO TR-13

ACEQUIA MADRE DEL PUEBLO

LOMA CHIQUITA DITCH

0.35 Ac. ⑥

0.60 Ac. ⑦

TAOS PUEBLO BOUNDARY

① 7.40 Ac.

② 7.00 Ac.

SOUTH - TRASH PILE DITCH

0.10 Ac. ⑧

③ 0.75 Ac.

④ 4.50 Ac.

⑤ 1.75 Ac.

R.13E.

T.25N. 8 9 T.25N. / 17 16

R.13E.

El. 7025

0.15 Ac. ⑨

BOUNDARY

0.40 Ac. ⑩

PUEBLO DEL flume

ACEQUIA MADRE

TAOS

SOUTH BOUNDARY TAOS PUEBLO GRANT

R.13E.

T.25N. 9 10 T.25N. / 16 15

R.13E.

N

4029000m. N

129000m.N.

449

450

451000m. E.

TAOS PUEBLO IRRIGATED LANDS

IRRIGATED LANDS - identified by aerial photo interpretation

IRRIGATED LANDS - identified in Pueblo Lands Board information

SACRED PASTURE LANDS

300' 150' 0 300' 600' 900'

Scale: 1" = 300'

REVISED: JULY 1997

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
ALBUQUERQUE AREA OFFICE
ALBUQUERQUE, NEW MEXICO

1989 RIO PUEBLO DE TAOS HYDROGRAPHIC SURVEY
revised for

TAOS PUEBLO 1997 WATER USE SURVEY

STEREOCOMPILATION OF BASE MAP BY THE NEW MEXICO STATE ENGINEER OFFICE HYDROGRAPHIC SURVEY SECTION 1969

SHEET NO. TP-14

439000m. E. 440 441 442 443 444 445 446

4045000m. E. 4044 4043 4042 4041 4040

HONDO

ARROYO

Rael Cem.

BM 7012

Arroyo Hondo

Hondo

Gaging Sta

LEROUX

ANTOINE

ACEQUIA DE ATALAYA

GRANT

Rio

Lady of Sorrows Ch

Gallina

Creek

PIPELINE

LLANO

DITCH

SOUTH BOUNDARY

ARROYO HONDO

CUCHILLA DITCH

ACEQUIA DEL LLANO LATERAL

MARIPOSA LATERAL

TRACT B BOUNDARY

TRACT B TAOS PUEBLO

BM 6939

BM 7292

Water Tank

Arroyo

R.12E.

T.26N. 3 2 / 10 11 T.26N.

R.12E.

1.8 Ac. ① 15.0 Ac. ② 2.5 Ac. ③ 25.0 Ac. ④ 15.0 Ac. ⑤

IO MARTINEZ OR GODOI

MATCH LINE TO TP-16

TAOS PUEBLO IRRIGATED LANDS

IRRIGATED LANDS - identified by aerial photo interpretation

IRRIGATED LANDS - identified in Pueblo Lands Board information

SACRED PASTURE LANDS

REVISED: JULY 1997

4041000m. N.

1000 500 0 1000 2000 3000

Scale: 1" = 1000'

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
ALBUQUERQUE AREA OFFICE
ALBUQUERQUE, NEW MEXICO

1989 RIO PUEBLO DE TAOS HYDROGRAPHIC SURVEY
revised for

TAOS PUEBLO 1997 WATER USE SURVEY

SHEET NO. TP-15

MATCH LINE TO TP-15

439000m. E.

4039000m. N.

R.12E. T.26N. 10 11 15 14 R.12E. T.26N.

R.12E. T.26N. 14 13 23 24 R.12E. T.26N.

TRACT B TAOS PUEBLO

TRACT B TAOS PUEBLO

18 Ac. ①

36.85 Ac. ②

PUEBLO

DITCH LATERAL

CUCHILLA MARIPASO

Water Tank

Water Tank

Water Tank

Well

Seco

BM 7294

Gravel Pit

Gravel Pit

Arroyo

TENAHILLO

8.0 Ac. ③

ANDRES

Gravel

Taos Golf Course

MANUEL

10 Ac. ④

Colonias Gravel Pit

Santo Niño Ch

ACEQUIA

Colonias Cem

ACEQUIA

GODOI

ORTIZ

MARTINEZ

TAOS PUEBLO IRRIGATED LANDS

IRRIGATED LANDS - identified by aerial photo interpretation

IRRIGATED LANDS - identified in Pueblo Lands Board information

SACRED PASTURE LANDS

4034000m. N.

1000 500 0 1000 2000 3000

Scale: 1" = 1000'

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
ALBUQUERQUE AREA OFFICE
ALBUQUERQUE, NEW MEXICO

1989 RIO PUEBLO DE TAOS HYDROGRAPHIC SURVEY
Updated for

TAOS PUEBLO WATER USE SURVEY

SHEET NO. TP-16

REVISED: JULY 1997

439 440 441 442 443 444 445 446000m. E.

444000m. E.

445

446

4033

13000m. N.

4032

4032000m. N.

444

445

446000m. E.

TAOS PUEBLO IRRIGATED LANDS

IRRIGATED LANDS - identified by aerial photo interpretation

IRRIGATED LANDS - identified in Pueblo Lands Board information

SACRED PASTURE LANDS

MATCH LINE SHEET NO. 8

MATCH LINE SHEET NO. 10

SEE SEO SHEET 12

Tr 2 (F) 10.8 ac

Tr 2A (F) 11.0 ac.

Tr 3 (F) 13.9 ac

Tr 4 (F) 35.6 ac.

Tr 4 (A) 27.8 ac.

Tr 4 (A) 22 ac.

Tr 4 (F) 5.0 ac.

Tr 5 (F) 3.2 ac.

Tr 6 (IN) 14.1 ac.

Tr 7 (IN) 10.5 ac.

Tr 7A (IN) 8.4 ac.

Tr 8 (IN) 11.5 ac.

Tr B (F) 5.7 ac.

Res. 1.3 ac.

NO SEO FILE NO.

1 40.20 Ac.

KARAVAS TRACT

TAOS PUEBLO LAND

Manuel Anders Trujillo Ditch

Lucero Community Ditch

From Juan Manuel Lateral

Juan Manuel Lucero Community Ditch

ARROYO SECO

1,980,000

685,000

690,000

R.12E. R.13E.

T.26N. 36 31 T.26N.

T.26N. 1 6 T.25N.

R.12E. R.13E.

N

300' 0 300' 600' 900'

Scale: 1" = 300'

STEREOCOMPILATION OF PLANIMETRY FROM PHOTOS RGDI-95-96

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
ALBUQUERQUE AREA OFFICE
ALBUQUERQUE, NEW MEXICO

1989 RIO PUEBLO DE TAOS HYDROGRAPHIC SURVEY
revised for

TAOS PUEBLO 1997 WATER USE SURVEY

STEREOCOMPILATION OF BASE MAP BY THE NEW MEXICO STATE ENGINEER OFFICE HYDROGRAPHIC SURVEY SECTION 1969

SEO SHEET NO. 9

REVISED: JULY 1997

447000 m. E.

448

449

TO TRES PIEDRAS

MATCH LINE SHEET No. 7

Juan Manuel Lucero Community Ditch

ANTONIO MARTINEZ

OR GODOI GRANT

EAST BOUNDARY ANTONIO MARTINEZ OR GODOI GRANT

WEST BOUNDARY TAOS PUEBLO GRANT

MATCH LINE

Lateral

Tanks

TO TP-10

Taos Pueblo land

695,000

1,985,000

SEO FILE NO. 057,01873, 01874, 01881 & 01881-A

Prado

El

Rivera

Lateral

R.13E.

T.26N.

30 | 29

31 | 32

T.26N.

R.13E.

IRRIGATION WELL

TAOS PUEBLO GRANT

Del

Madre

Vargas

Acequia

Lateral

Rivera

Lateral

Vargas

Lateral

Ciruelo

Lateral

Acequia Madre Del El Prado

Ciruelo

Lateral

MATCH LINE SHEET NO. 12

SEO

1.73 Ac.

Tr. 1 11 ac.

N/A 1.0 ac.

11.0 ac.

0.2 ac.

0.4 ac.

1.9 ac.

10 ac.

Tr. 3 2.2 ac.

0.6 ac.

Tr. 4

Tr. 2 33.0 ac.

6.4 ac.

Tr. 5 4.5 ac.

Tr. 7 6.7 ac.

Tr. 6 11.6 ac.

1.1 ac.

2.0 ac.

1.2 ac.

0.8 ac.

Tr. 9 3.0 ac.

1.1 ac.

2.6 ac.

5.6 ac.

Tr. 21 1.1 ac.

Tr. 22 0.4 ac.

Tr. 2 16.8 ac.

3.0 ac.

Tr. 23 1.4 ac.

Tr. 10 24.6 ac.

Tr. 23A 1.0 ac.

0.4 ac.

1.7 ac.

Tr. 11 9.8 ac.

Tr. 23B 3.4 ac.

Tr. 23C 2.0 ac.

Tr. 12 17.2 ac.

Tr. 13 11.1 ac.

Tr. 14 10.4 ac.

Tr. 15 3.6 ac.

Tr. 16 9.2 ac.

Tr. 18 2.1 ac.

Tr. 24 1.2 ac.

Tr. 25 0.4 ac.

Tr. 26 1.2 ac.

Tr. 28 0.4 ac.

Tr. 28A 2.2 ac.

Tr. 28B 2.2 ac.

Tr. 28C 0.6 ac.

Tr. 28D 0.4 ac.

Tr. 28E 0.4 ac.

Tr. 29 5.8 ac.

Tr. 29A 2.0 ac.

Tr. 30 1.6 ac.

Tr. 30A 1.6 ac.

Tr. 27 21.2 ac.

Tr. 27A

Tr. 17 7.5 ac.

Tr. 20 15.8 ac.

Tr. 19 1.2 ac.

Tr. 18 18.0 ac.

0.7 ac.

0.8 ac.

0.6 ac.

1.8 ac.

0.5 ac.

0.7 ac.

5.1 ac.

14.3 ac.

11.5 ac.

0.5 ac.

TAOS PUEBLO IRRIGATED LANDS

IRRIGATED LANDS - identified by aerial photo interpretation

IRRIGATED LANDS - identified in Pueblo Lands Board information

SACRED PASTURE LANDS

300' 150' 0 300' 600' 900'

Scale: 1" = 300'

N

4034

4033

4033000 m. N.

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
ALBUQUERQUE AREA OFFICE
ALBUQUERQUE, NEW MEXICO

1989 RIO PUEBLO DE TAOS HYDROGRAPHIC SURVEY
revised for

TAOS PUEBLO 1997 WATER USE SURVEY

STEREOCOMPILATION OF BASE MAP BY THE NEW MEXICO STATE ENGINEER OFFICE HYDROGRAPHIC SURVEY SECTION 1969

SEO SHEET NO. 11

REVISED: JULY 1997

447

448

449000 m. E.

447000 m. E.

448

449

4033000 m. N.

4033

4032000 m. N

4032

447

448

T 449000 m. E.

ANTONIO MARTINEZ OR GODOI GRANT

EAST BOUNDRY ANTONIO MARTINEZ OR GODOI GRANT
WEST BOUNDRY TAOS PUEBLO

SEE SEO SHEET 9

TO SEO SHEET 13

MATCH LINE SHEET NO. 11

MATCH LINE TO TP-12

MATCH LINE TO TP-13

TAOS PUEBLO

BOUNDARY

TAOS PUEBLO BOUNDARY

Acequia Madre Del Pueblo Lateral

RIO LUCERO

LUCERO

Gallegos Lateral

Lateral

Tonke Lateral

Larrenaga Lateral

Acequia Madre Del Prado

Acequia Madre Del Medio

Acequia Madre Del Medio Del Prado

Taos Pueblo land

Land retired to RG 12567

Rights transfered to tract 12.46 (Fishing ponds.)

SEO FILE NO. 01873 & 01874

SEO FILE NO. 057 & 01930

DAN ARCHULETA DITCH NO SEO FILE NO

695,000

700,000

1,980,000

1,980,100

1,975,000

R.13E.

T.26N.
T.25N.

31 | 32
6 | 5

17.8 Ac.

16.46 Ac.

12.46 Ac.

4.10 Ac.

TAOS PUEBLO IRRIGATED LANDS

IRRIGATED LANDS - identified by aerial photo interpretation

IRRIGATED LANDS - identified in Pueblo Lands Board information

SACRED PASTURE LANDS

N

300' 150' 0 300' 600' 900'

Scale: 1" = 300'

REVISED: JULY 1997

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
ALBUQUERQUE AREA OFFICE
ALBUQUERQUE, NEW MEXICO

1989 RIO PUEBLO DE TAOS HYDROGRAPHIC SURVEY
revised for

TAOS PUEBLO 1997 WATER USE SURVEY

STEREOCOMPILATION OF BASE MAP BY THE NEW MEXICO STATE ENGINEER OFFICE HYDROGRAPHIC SURVEY SECTION 1369

SEO
SHEET NO. 12

447000 m. E. 448 449

ANTONIO MARTINEZ OR GODOI GRANT

EAST BOUNDARY ANTONIO MARTINEZ OR GODOI GRANT
WEST BOUNDARY ACEQUIA GRANDE TRACT

TAOS PUEBLO GRANT

KARAVAS TRACT

Rights transfered to commercial well RG 12567

SEO SHEET 12 MATCH LINE

TAOS PUEBLO NO LINE TO LUCERO BOUNDARY SEO SHEET 12

MATCH LINE SEO SHEET 15

Prado Del Madre Acequia

Medio Del Madre Acequia

Lomo De Acequia Madre

Tr. 1 5.3 Ac.

3A 14.6 Ac.

4 17.43 Ac.

3B 20.4 Ac.

5 53.30 Ac. TAOS PUEBLO LAND

10 .30 Ac.

SEO FILE NO. 01876

SEO FILE NO. 01876

South Loma Ditch

Taos Pueblo Land See Map Sheet 15

Taos Pueblo land

Taos Pueblo Land

Taos Pueblo land

Tr. 22 3.2 ac.

Tr. 23 3.7 ac.

Tr. 25 14.5 ac.

36.00 Ac.

Taos Pueblo land

18.93 Ac. 2

Tr. 26 7.8 5.2 ac.

Tr. 27 47.0 ac.

R.13E.

T.25N.

T.25N.

R13E

Tr. 21 7.2 ac.

Tr. 18B 0.7 ac.

Tr. 18 1.2 ac.

Tr. 17 1.3 ac.

Tr. 19 0.5 ac.

Tr. 20 0.5 ac.

Tr. 18A 0.6 ac.

Tr. 18B 0.4 ac.

Tr. 15 4.0 ac.

Tr. 16 9.2 ac.

7.5 ac.

1.7 ac.

1.5 ac.

0.65 Ac. 1

Tr. 21B 3.3 ac.

Tr. 21A 5.7 ac.

Tr. 21C 1.4 ac.

0.65 Ac. 6

Taos Pueblo Tr. 23A

Tr. 12 8.8 ac.

1.6 ac.

1.3 ac.

Tr. 13 1.8 ac.

Tr. 14 1.2 ac.

Tr. 2 2.0 ac.

Tr. 3 10.2 ac.

Tr. 3A 0.7 ac.

Tr. 3B 0.9 ac.

Tr. 5 5.2 ac.

Tr. 4 0.0 ac.

1.5 ac.

0.10 Ac. 12

NO SEO FILE NO

Tr. 38A 1.8 ac.

Tr. 38 2.7 ac.

Tr. 39 1.8 ac.

Tr. 40 0.7 ac.

Tr. 41 0.3 ac.

Tr. 42 0.3 ac.

Tr. 43 0.3 ac.

Tr. 44 0.3 ac.

Tr. 45 1.4 ac.

Tr. 46 3.4 ac.

Tr. 47 17.3 ac.

5.5 ac.

Tr. 48 2.0 ac.

Tr. 47 9.9 ac.

Tr. 28 7.2 ac.

1.0 Ac. 30

Tr. 29 1.3 ac.

Tr. 30 3.5 ac.

Tr. 34 5.8 ac.

Tr. 33 5.6 ac.

Tr. 31 1.0 ac.

Tr. 32 0.7 ac.

0.40 Ac. 11

0.17 Ac. 7

NO SEO FILE NO. .17

0.06 Ac. 8

0.15 Ac. 9

Tr. 37 0.2 ac.

Tr. 41A 0.3 ac.

Tr. 43A 0.3 ac.

Tr. 44A 0.3 ac.

Tr. 45A 0.2 ac.

Tr. 46A 0.3 ac.

Tr. 47A 0.3 ac.

Tr. 48A 0.3 ac.

Tr. 49A 0.3 ac.

Tr. 50A 0.3 ac.

Tr. 51A 0.3 ac.

Tr. 52A 0.3 ac.

Tr. 53A 0.3 ac.

Tr. 54A 0.3 ac.

Tr. 55A 0.3 ac.

Tr.

446000m. E.

447

448

4030

4029

4028000m. N.

1,970,000

690,000

635,000

TAOS PUEBLO GRANT

KARAVAS TRACT

ANTONIO MARTINEZ OR GODOI GRANT

GIJOSA GRANT

TAOS PUEBLO GRANT

SEO FILE NO 01876

SEO FILE NO 0935

SEO MATCH LINE SHEET NO. 13

MATCH LINE SHEET NO. 14

MATCH LINE SHEET NO. 16

MATCH LINE SHEET

Taos Pueblo Land

See Map Sheet 13

La Acequia De Los Lovatos

Acequia Madre del Prado

Acequia Madre De La Loma

Lucero

Rio Pueblo de Taos

South Loma Lateral Ditch

Malinos

Sanchez Ditch

Drainage Ditch

Pacheco Community Ditch

Loma Lateral

Lateral

Ditch

Long

R.13E.

T.25N.

T.24N.

EAST BOUNDARY ANTONIO MARTINEZ OR GODOI GRANT

WEST BOUNDARY TAOS PUEBLO GRANT

EAST BOUNDARY WEST BOUNDARY TAOS PUEBLO GRANT

NO SEO FILE NO

x EL 6840

16.00 Ac. (1)

42.20 Ac. (2)

14.20 Ac. (3)

44.87 Ac. (4)

2.00 Ac. (5)

2.00 Ac. (6)

2.00 Ac. (7)

2.00 Ac. (8)

7.10 Ac. (10)

2.01 Ac. (9)

25.23 Ac. (11)

27.00 Ac. (12)

19.56 Ac. (13)

TAOS PUEBLO IRRIGATED LANDS

IRRIGATED LANDS - identified by aerial photo interpretation

IRRIGATED LANDS - identified in Pueblo Lands Board information

SACRED PASTURE LANDS

300' 150' 0 300' 600' 900'

Scale: 1" = 300'

REVISED: JULY 1997

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
ALBUQUERQUE AREA OFFICE
ALBUQUERQUE, NEW MEXICO

1989 RIO PUEBLO DE TAOS HYDROGRAPHIC SURVEY
revised for

TAOS PUEBLO 1997 WATER USE SURVEY

STEREOCOMPILATION OF BASE MAP BY THE NEW MEXICO STATE ENGINEER OFFICE HYDROGRAPHIC SURVEY SECTION 1969

SEO SHEET NO. 15

SEE MAP SHEET 2 OF 2

LOCATION MAP

LEGEND

WELL ● W-002
RESERVOIR ⊳ R-060
LAKE ⊳ L-100
POND ⊳ P-120
PUEBLO LANDS BOUNDARY
SPRING Q S-23

REVISED
JULY 1997

3000' 0 3000' 6000' 9000'
SCALE

TAOS PUEBLO WATER USE SURVEY

LAKE, POND, SPRING, RESERVOIR, & WELL LOCATIONS

TR-4910-P5-G-MAPS
NM vs ABEYTA

ALBUQUERQUE AREA OFFICE
BRANCH OF WATER RIGHTS

MAP SHEET 1 OF 2

DATE: JULY 1997

TAOS PUEBLO WATER USE SURVEY

LAKE, POND, SPRING, RESERVOIR, & WELL LOCATIONS

TR-4910-P5-G-MAPS
NM vs ABEYTA

ALBUQUERQUE AREA OFFICE BRANCH OF WATER RIGHTS	MAP SHEET 2 OF 2	DATE: JULY 1997

REVISED
JULY 1997

LEGEND

WELL	W-002
RESERVOIR	R-060
LAKE	L-100
POND	P-120
TAOS PUEBLO BOUNDARY	
SPRING	S-01

LOCATION MAP

SCALE 500' 0 500' 1000' 1500'

Attachment 8

Town of Taos Permitted Water Rights

Permitted Water Rights Summary		
Water Right Category	Diversion Amount (acre-feet/year)	Consumptive Use (acre-feet/year)
Town Wells Vested (RG-7339)	607	607
Town Wells Permitted (RG-7339)	310.28	310.28
San Juan-Chama Project Allocation* (RG-37303 & 3769)	784	392
Permitted (RG-37303 & 3769)	98	98
Subtotal Municipal System	1799.28	1407.28
Miscellaneous Permits	57.243	57.243
Total Rights	1856.52	1464.52

*Contract allocation is reduced by 2% conveyance loss factor

Permitted Wells under OSE PermitRG-7339	
Permit No.	Common Name
RG-7339	Pump House
RG-7339-S	City Hall
RG-7339-S-2	Post Office
RG-7339-S-3	Jack Denver
RG-7339-S-4	Sierra Sports
RG-7339-S-5	Howell
RG-7339-S-6	Mitchell

Existing San Juan-Chama Project Points of Diversion		
NMOSE Permit	Common	Permitted Diversion (Acre-Feet)
3769	Infiltration Gallery	76 ac-ft
RG-37303	San Juan-Chama	779.3 ac-ft
RG-37303-S	Airport Site Well	36 ac-ft
RG-37303-S-2	RP3000	779.3 ac-ft
RG-37303-S-3	RP2500	779.3 ac-ft
RG-3703 into RG-72824	National Guard	2.35 ac-ft

Miscellaneous Town Wells and Water Rights			
Common Name	Permit No.	Permitted Diversion (ac-ft)	Use
Kit Carson Park	RG-17178 02326 (sf 14.7)	3.0 26.13	Drinking sanitary @ park Irrigation of 10.45 ac. @ park
Fred Baca Park	RG-36130	3.0	Drinking, sanitary @ park
WWTP well	RG-22042 0609-A (sf 2.39)	3.0 4.963	Drinking, sanitary @ WWTP Municipal use
WWTP Caretaker	RG-23015	3.0	Domestic use @ WWTP caretaker's house
Airport well	RG-16227	3.0	Drinking, sanitary @ airport terminal
National Guard	RG-72824	3.0	Drinking, sanitary @ NG armory facility
		2.65	Required tributary offsets
Landfill well	RG-73559	3.0	Drinking, sanitary, irrigation @ landfill
		2.5	Construction and dust suppression
Total		57.243	

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER
Santa Fe

John R. D'Antonio, Jr., P.E.
State Engineer

BATAAN MEMORIAL BUILDING, ROOM 102
SANTA FE, NM 87504-5102
(505) 827-6120
Fax: (505) 827-6682

July 6, 2011

Honorable Darren Cordova, Mayor
Town of Taos
400 Camino de la Placita
Taos, NM 87571

Re: File RG-7339 thru RG-7339-S-6 and proposed Bataan Well

Dear Mayor Cordova:

Under file RG-7339, the Town of Taos (Town) may divert up to 917.28 acre-feet of water per annum from wells RG-7339 thru RG-7339-S-6. Calculated surface water impacts resulting from this diversion are based on each individual well's distance from the two streams immediately adjacent to that well. Pursuant to Article 6.2.4.2 of the *Abeyta* Water Rights Adjudication Settlement Agreement (03-31-06), should the Town, file an application for a replacement for well RG-7339-S-5 (Howell well), to be located in Kit Carson Park and supplemental to this existing water right (i.e., the proposed Bataan well), evaluation of and action on that application by this office would be based on the same administrative method employed for existing diversions under this file number. Depletion effects would be proportionally assigned to the two closest streams immediately adjacent to the proposed well based on the well's distance from these two streams.

Please contact me if you have any questions regarding this matter.

Sincerely,

Mary Young
Water Rights Division

c: File
Linda Gordan, District VI Supervisor
Arianne Singer, Special Assistant Attorney General

N

COLUMNS

ROWS

A1. Upper Arroyo Hondo MDWCA

A2. Upper Arroyo Hondo MDWCA

ASR

Taos Pueblo
Tract B

1-mile to 3-mile
corridor
from Rio Grande

Taos Pueblo
Tract A

Rio Grande

Midway

intersection of Taos Landfill Road
and U.S. Highway 64

Airport

BOR-5

BOR-6

Las Colonias

EPWSD tank site

eastern boundary of EPWSD development zone

Sheepskin

Torreon

K-3

Bataan

B. Upper Ranchitos MDWCA

C. Town of Taos

BIA-5

Camino del Medio

Rio Pueblo

Klauer

National Guard

D. Llano Quemado MDWCA

E. Acequia Madre del Rio Chiquito

Explanation

- Acequia
- 8 — Stream segment, with number
- 17 — Rio Grande segment within model

Model cells in which wells are or may be located

- Town of Taos existing or future well
- El Prado WSD existing or future well
- Taos Pueblo existing or future well
- Acequia mitigation well, with operator

May 17, 2012

0 2,500 5,000 10,000 15,000 Feet

model grid,
OSE T17.0 model

Attachment No. 10

Map showing settlement model grid and certain wells.

JOHN SHOMAKER & ASSOCIATES, INC.

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER
Santa Fe

John R. D'Antonio, Jr., P.E.
State Engineer

BATAAN MEMORIAL BUILDING, ROOM 102
SANTA FE, NM 87504-5102
(505) 827-6120
Fax: (505) 827-6682

July 20, 2011

El Prado Water and Sanitation District
c/o James C. Brockmann, Esq.
Stein & Brockmann, P.A.
P.O. Box 5250
Santa Fe, NM 87502-5250

Re: File No. RG-40450

Dear Mr. Brockmann:

According to the records of the Office of the State Engineer/Water Rights Division (OSE), through the end of 2010, El Prado Water and Sanitation District (the District) has accrued an over diversion balance of 778.82 acre-feet of water. The District's pre-settlement permits recognize that diversions from well RG-40450-S deplete the Rio Lucero, and that diversions from well RG-40450-S-2 deplete the Arroyo Seco and the Rio Lucero proportionally at 97% and 3% respectively. Of the District's over-diversions through 2010, 131.62 acre-feet are debited against well RG-40450-S and 647.20 acre-feet are debited against diversions from well RG-40450-S-2.

OSE policy requires repayment of all over-diversions. Methods of re-payment acceptable to this office are as follows:

1. Purchase or lease and retirement of water rights on the Arroyo Seco and Rio Lucero in quantities sufficient to offset the described depletions. Water rights so retired must be formally transferred to the District's wells through application and permit. Any water right transferred and left unexercised would be available on an annual basis as credit toward repayment of the District's over-diversion balance. This option may be pursued as a temporary change in point of diversion and place and purpose of use with water rights reverting to the original place and purpose of use at the expiration of specified term.
2. Purchase or lease and retirement of water rights on the Rio Grande sufficient to offset the total over diversion amount. Rio Grande water rights must be formally transferred to the District's wells, and then not exercised in order to obtain credit toward repayment. This option may also be pursued as a temporary change in

point of diversion and place and purpose of use with water rights to reverting to original place and purpose of use at the expiration of a specified term.

3. A combination of the above two transfer options with the total repayment credit dependent on the quantities of water rights transferred and then left unexercised.
4. An additional payback option is possible through use of San Juan Chama Project water owned by or available through lease to the District. Use of San Juan Chama Project water as an offset for surface depletions must be by an approved OSE permit for such use.

Any additional over-diversion by the District must be repaid in accordance with these options and in a manner acceptable to the OSE. Please feel to contact me if further discussion of this matter is needed.

Sincerely,

Mary Young
Water Rights Division

c: Linda Gordan, District VI Supervisor
Arianne Singer, Special Assistant Attorney General

STATE OF NEW MEXICO

OFFICE OF THE STATE ENGINEER

Santa Fe

John R. D'Antonio Jr., P.E.
State Engineer

BATAAN MEMORIAL BUILDING, ROOM 102
SANTA FE, NEW MEXICO 87504-5102
(505) 827-6120
FAX: (505) 827-6682

July 28, 2006

Mr. Hamilton Brown, President
El Salto MDWCA
P.O. Box 399
Arroyo Seco, NM 87514

Mr. Andrew Chavez, President
Llano Quemado MDWCA
P.O. Box 16
Ranchos de Taos, NM 87557

Mr. Epimenio Montoya, President
Lower Des Montes MDWCA
HCR 74, Box 24503
El Prado, NM 87529

Mr. Dan Romero, President of the Board
Upper Des Montes Mutual Domestic Water Consumers Associations
P.O. Box
Arroyo Seco, NM 87514

Re: Files No. RG-3894, RG-8387, RG-16107, and RG-24252

Dear Gentlemen:

At your request, a review of the above referenced Taos area mutual domestic water association files was performed by staff of the Office of the State Engineer/Water Rights Division. This review found the following permits approved under these file numbers:

1. RG-3894—Llano Quemado Mutual Domestic Water Consumers Association: Permit No. 0609, 0992, & RG-3894 et al., approved September 26, 1991, for diversion of up to 16.2 acre-feet of water per annum from wells RG-3894 and RG-3894-S.

2. RG-8387—Upper Des Montes Mutual Domestic Water Consumers Association: Permit No. 01743 Amended & RG-8387, approved May 15, 1979, for diversion

of 2.45 acre-feet of water per annum, and Permit No. 057, 01743, 01749 & RG-8387 & RG-8387-S, approved September 3, 1987, for diversion of 6.24 acre-feet of water per annum from wells RG-8387 and RG-8387-S.

3. RG-16107—Lower Des Montes Mutual Domestic Water Consumers Association: Permit No. RG-16107, approved January 23, 1969, for diversion of 1.43 acre-feet of water per annum from well RG-16107.

4. RG-24252—El Salto MDWCA: Permit No. RG-24252, approved December 16, 1988, for diversion of 2.19 acre-feet of water per annum from well RG-24252, and Permit No. 0932 (Subfile 7.4 & 7.38) & 02498 (Subfile 1.6A) into RG-24252 and RG-24252-S, approved February 10, 1995, for transfer of 7.14 acre-feet of water per annum from wells RG-24252 and RG-24252-S.

The total combined diversion described by the above permits is 35.65 acre-feet of water per annum. These quantities are permitted separate from , and are addition to any water rights adjudicated by the United States District Court for the respective mutual domestic water consumers associations.

Please contact me if you have any questions on this matter.

Sincerely,

Mary Young
Water Rights Division

c: Linda Gordan, District VI Supervisor
Mary Humphrey, Attorney for MDWCAs

TAOS PUEBLO

Governor's Office

P.O. Box 1846 • Taos, New Mexico 87571 • (505) 758-9593 • Fax (505) 758-4604

IRRIGATION WORKS LIMITED ACCESS PERMIT
(SEASONAL)

This Permit authorizes the Permitees identified herein to enter Taos Pueblo lands for the purpose of inspection and maintenance of the (specify ditch) _____ and associated facilities, during daylight hours for the period from: _____ to _____, 20__. For work other than normal inspection and maintenance, a Special Work Permit will be required.

Work to be done under this Permit:

_____

_____

_____

_____

Permitees:

Mayordomo: _____

Asst. Mayordomo: _____

Commissioner: _____

Commissioner: _____

Other: _____

Specific conditions:

A copy of this Permit shall be in the possession of the Permitees at all times while they are within the Pueblo's boundaries.

The Permitees agree to comply with Taos Pueblo laws while within the Pueblo's boundaries pursuant to this Permit.

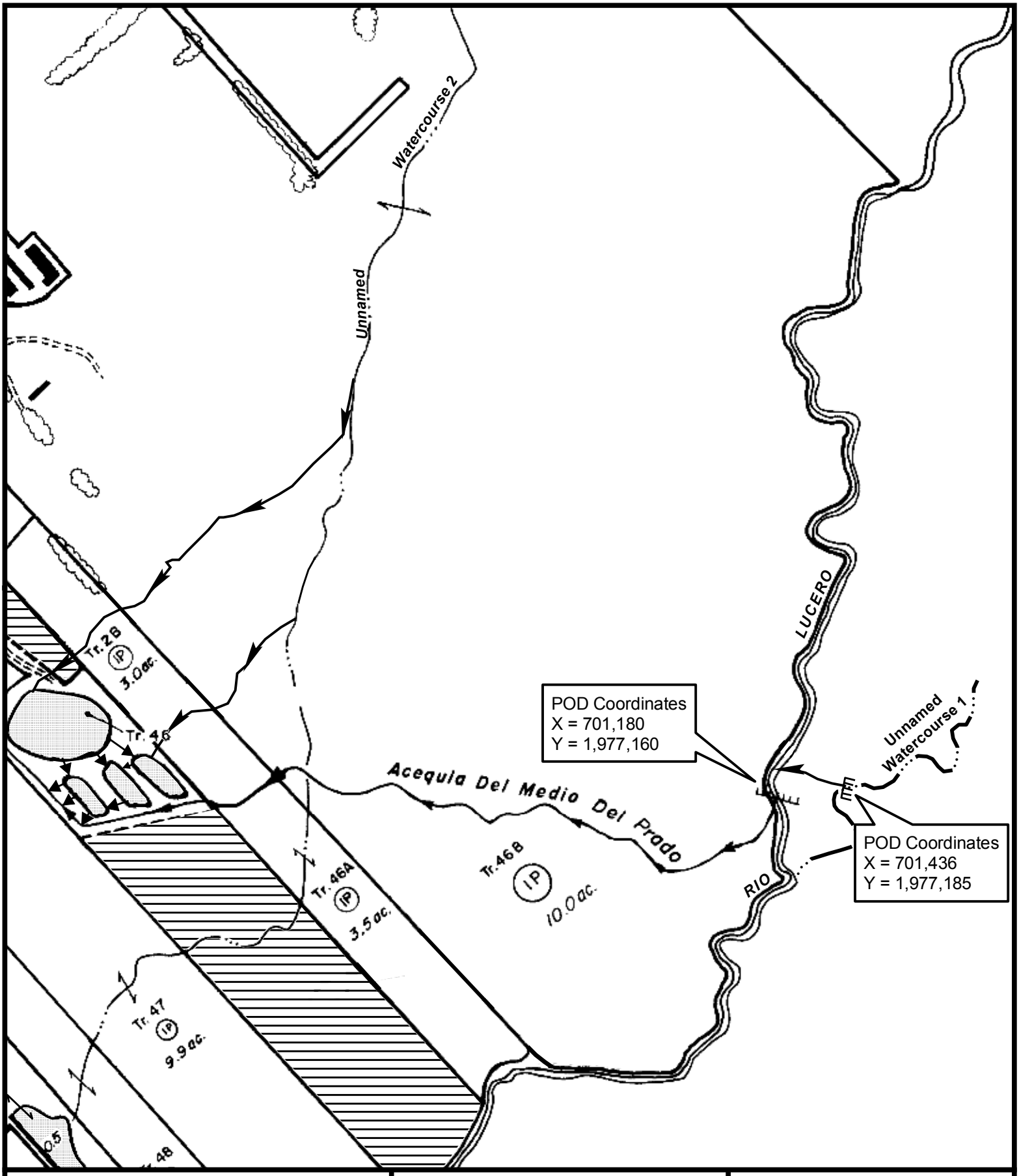
The Taos Pueblo Governor's Office reserves the right to revoke the access privileges granted to any Permitee(s) if the Governor's Office deems the presence of such Permitee(s) to be a threat to the health and/or safety of tribal members, community, or property.

In the event of a genuine emergency outside of daylight hours, the Permitees may be allowed special access upon notification to and approval from the Pueblo Governor.

_____ _____

Taos Pueblo Governor Date

505-758-9593



Legend

Point of Diverson

Ditch

Map based on Map 12 of the Rio Pueblo de Taos Hydrographic Survey

N

Scale 1"=300'

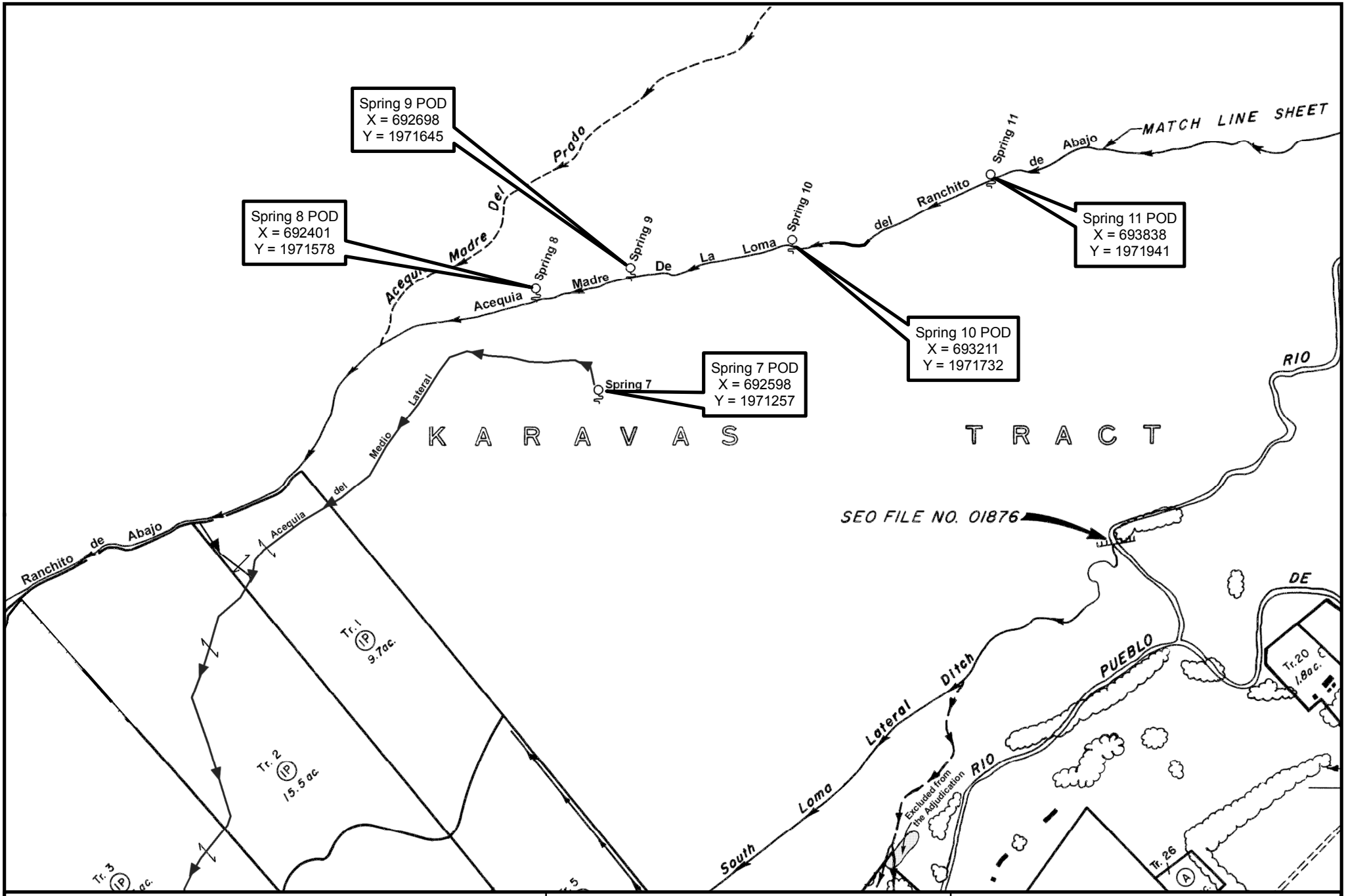
State of New Mexico

Office of the State Engineer

John R. D'Antonio Jr., PE, State Engineer

Rio Pueblo De Taos Hydrographic Survey
Rio Pueblo De Taos Section

On Pueblo Points of Diversion for the Acequia Del Medio Del Prado



Based on Map Sheet 15 of the
Rio Pueblo de Taos Hydrographic Survey

N

Scale 1"=400'

0 200 400 800 Feet

STATE OF NEW MEXICO
Office of the State Engineer
John R. D'Antonio Jr., P.E., State Engineer

Rio Pueblo de Taos & Rio Hondo Adjudication

RIO PUEBLO DE TAOS SECTION

On Pueblo Points of Diversion for the Acequia Madre de la Loma del Ranchito de Abajo

WAIVER AND RELEASE OF CLAIMS BY TAOS PUEBLO AND THE UNITED STATES

In return for recognition of Taos Pueblo's water rights and other benefits, including but not limited to the commitments by non-Pueblo parties, as set forth in the Taos Pueblo Indian Water Rights Settlement Act, Pub. L. No. 111-291, tit. V, §§ 501-513, 124 Stat. 3064, 3122-34 (2010) ("Settlement Act") and the Settlement Agreement, as defined in section 503(10) of the Settlement Act, and subject to the terms of the Settlement Act, the Taos Pueblo, on behalf of itself and its members ("Pueblo"), and the United States of America acting in its capacity as trustee for the Pueblo ("United States"), hereby waive and release the following claims against the parties to *State of New Mexico ex rel. State Engineer v. Abeyta* and *State of New Mexico ex rel. State Engineer v. Arellano,* Civil Nos. 69cv07896-BB and 69cv07939-BB (consolidated) (D.N.M.)("the Abeyta Adjudication"):

(1) all claims for water rights in the Taos Valley, as defined in Section 503(12) of the Settlement Act, that the Pueblo, or the United States acting in its capacity as trustee for the Pueblo, asserted, or could have asserted, in any proceeding, including but not limited to the Abeyta Adjudication, up to and including the Enforcement Date, as defined by section 509(g) of the Settlement Act, except to the extent that such rights are recognized in the Settlement Agreement or the Settlement Act;

(2) all claims for water rights, whether for consumptive or nonconsumptive use, in the Rio Grande mainstream or its tributaries that the Pueblo, or the United States acting in its capacity as trustee for the Pueblo, asserted or could assert in any water rights adjudication proceedings except those claims based on Pueblo or United States ownership of lands or water rights acquired after the Enforcement Date, provided that nothing in this paragraph shall prevent the Pueblo or the United States from fully participating in the *inter se* phase of any such water rights adjudication proceedings;

(3) all claims for damages, losses or injuries to water rights or claims of interference with, diversion or taking of water (including but not limited to claims for injury to lands resulting from such damages, losses, injuries, interference with, diversion, or taking) in the Rio Grande mainstream or its tributaries or for lands within the Taos Valley that accrued at any time up to and including the Enforcement Date; and

(4) all claims against the State of New Mexico, its agencies, or employees relating to the negotiation or the adoption of the Settlement Agreement.

Notwithstanding the foregoing waivers and releases, the Pueblo on behalf of itself and its members and the United States acting in its capacity as trustee for the Pueblo retain:

(1) all claims for enforcement of the Settlement Agreement, the Final Decree entered in the Abeyta Adjudication including the Partial Final Decree as defined by section 503(4) of the Settlement Act, the San Juan-Chama Project contract between the Pueblo and the United States, or the Settlement Act;

(2) all claims against persons other than the Parties to the Settlement Agreement for damages, losses or injuries to water rights or claims of interference with, diversion or taking of water rights (including but not limited to claims for injury to lands resulting from such damages, losses, injuries, interference with, diversion, or taking of water rights) within the Taos Valley arising out of activities occurring outside the Taos Valley or the Taos Valley Stream System;

(3) all rights to use and protect water rights acquired after the date of enactment of the Settlement Act;

(4) all rights to use and protect water rights acquired pursuant to State law, to the extent not inconsistent with the Partial Final Decree and the Settlement Agreement (including water rights for the land the Pueblo owns in Questa, New Mexico);

(5) all claims relating to activities affecting the quality of water including but not limited to any claims the Pueblo might have under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 et seq.) (including but not limited to claims for damages to natural resources), the Safe Drinking Water Act (42 U.S.C. 300f et seq.), the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.), and the regulations implementing those Acts;

(6) all claims relating to damages, losses, or injuries to land or natural resources not due to loss of water or water rights (including but not limited to hunting, fishing, gathering, or cultural rights); and

(7) all rights, remedies, privileges, immunities, powers, and claims not specifically waived and released pursuant to the Settlement Act and the Settlement Agreement.

Nothing in the Settlement Agreement or the foregoing waivers and releases:

(1) affects the ability of the United States of America acting in its sovereign capacity to take actions authorized by law, including but not limited to any laws relating to health, safety, or the environment, including but not limited to the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.), the Safe Drinking Water Act (42 U.S.C. 300f et seq.), the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 et seq.), the Solid Waste Disposal Act (42 U.S.C. 6901 et seq.), and the regulations implementing such Acts;

(2) affects the ability of the United States of America to take actions acting in its capacity as trustee for any other Indian tribe or allottee;

(3) confers jurisdiction on any State court to (A) interpret Federal law regarding health, safety, or the environment or determine the duties of the United States or other parties pursuant to such Federal law; or (B) conduct judicial review of Federal agency action; or

(4) waives any claim of a member of the Pueblo in an individual capacity that does not derive from a right of the Pueblo.

UNITED STATES OF AMERICA

By: Ken Salazar Date: 12-20-2012
Ken Salazar
Secretary
U.S. Department of the Interior

TAOS PUEBLO Date: 12-18-12

Laureano B. Romero, Governor

Benito M. Sandoval, War Chief

Gilbert Suazo, Sr., Lt. Governor

Albert A. Archuleta, Lt. War Chief

Attest:

Patrick J. Romero, Tribal Secretary

Harold Lefthand, War Chief Secretary

Taos Tribal Council:

Ernesto C. Luhan, Tribal Council Secretary

Paul T. Martinez, Cacique

Nelson J. Cordova, Councilman

James Lujan, Sr., Councilman

Ruben A. Romero, Councilman

Edwin Concha, Councilman

Robert Espinosa, Councilman

Bernard Lujan, Councilman

Luis Romero, Councilman

WAIVER AND RELEASE OF CLAIMS BY TAOS PUEBLO AGAINST THE UNITED STATES

In return for recognition of Taos Pueblo's water rights and other benefits, including but not limited to the commitments set forth in the Taos Pueblo Indian Water Rights Settlement Act, Pub. L. No. 111-291, tit. V, §§ 501-513, 124 Stat. 3064, 3122-34 (2010) ("Settlement Act") and the Settlement Agreement, as defined in section 503(10) of the Settlement Act, and subject to the terms of the Settlement Act, the Taos Pueblo on behalf of itself and its members ("Pueblo") hereby waives and releases the following claims against the United States of America ("United States"):

(1) all claims against the United States, its agencies, or employees relating to claims for water rights in or water of the Taos Valley, as defined in Section 503(12) of the Settlement Act, that the United States acting in its capacity as trustee for the Pueblo asserted, or could have asserted, in any proceeding, including but not limited to in *State of New Mexico ex rel. State Engineer v. Abeyta* and *State of New Mexico ex rel. State Engineer v. Arellano,* Civil Nos. 69cv07896-BB and 69cv07939-BB (consolidated) (D.N.M.)("the Abeyta Adjudication");

(2) all claims against the United States, its agencies, or employees relating to damages, losses, or injuries to water, water rights, land, or natural resources due to loss of water or water rights (including but not limited to damages, losses or injuries to hunting, fishing, gathering, or cultural rights due to loss of water or water rights, claims relating to interference with, diversion or taking of water or water rights, or claims relating to failure to protect, acquire, replace, or develop water, water rights or water infrastructure) in the Rio Grande mainstream or its tributaries or within the Taos Valley that first accrued at any time up to and including the Enforcement Date, as defined by section 509(g) of the Settlement Act;

(3) all claims against the United States, its agencies, or employees for an accounting of funds appropriated by the Act of March 4, 1929 (45 Stat. 1562), the Act of March 4, 1931 (46 Stat. 1552), the Act of June 22, 1936 (49 Stat. 1757), the Act of August 9, 1937 (50 Stat. 564), and the Act of May 9, 1938 (52 Stat. 291), as authorized by the Pueblo Lands Act of June 7, 1924 (43 Stat. 636), and the Pueblo Lands Act of May 31, 1933 (48 Stat. 108), and for breach of trust relating to funds for water replacement appropriated by said Acts that first accrued before the date of enactment of the Settlement Act;

(4) all claims against the United States, its agencies, or employees relating to the pending litigation of claims relating to the Pueblo's water rights in the Abeyta Adjudication; and

(5) all claims against the United States, its agencies, or employees relating to the negotiation, execution or the adoption of the Settlement Agreement, exhibits thereto, the Final Decree to be entered in the Abeyta Adjudication, or the Settlement Act.

Notwithstanding the foregoing waivers and releases, the Pueblo on behalf of itself and its members retains:

(1) all claims for enforcement of the Settlement Agreement, the Final Decree entered in the

Abeyta Adjudication including the Partial Final Decree as defined by section 503(4) of the Settlement Act, the San Juan-Chama Project contract between the Pueblo and the United States, or the Settlement Act;

(2) all claims against persons other than the Parties to the Settlement Agreement for damages, losses or injuries to water rights or claims of interference with, diversion or taking of water rights (including but not limited to claims for injury to lands resulting from such damages, losses, injuries, interference with, diversion, or taking of water rights) within the Taos Valley arising out of activities occurring outside the Taos Valley or the Taos Valley Stream System;

(3) all rights to use and protect water rights acquired after the date of enactment of the Settlement Act;

(4) all rights to use and protect water rights acquired pursuant to State law, to the extent not inconsistent with the Partial Final Decree and the Settlement Agreement (including water rights for the land the Pueblo owns in Questa, New Mexico);

(5) all claims relating to activities affecting the quality of water including but not limited to any claims the Pueblo might have under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 et seq.) (including but not limited to claims for damages to natural resources), the Safe Drinking Water Act (42 U.S.C. 300f et seq.), the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.), and the regulations implementing those Acts;

(6) all claims relating to damages, losses, or injuries to land or natural resources not due to loss of water or water rights (including but not limited to hunting, fishing, gathering, or cultural rights); and

(7) all rights, remedies, privileges, immunities, powers, and claims not specifically waived and released pursuant to the Settlement Act and the Settlement Agreement.

Nothing in the Settlement Agreement or the foregoing waivers and releases:

(1) confers jurisdiction on any State court to –

> (A) interpret Federal law regarding health, safety, or the environment or determine the duties of the United States or other parties pursuant to such Federal law; or
>
> (B) conduct judicial review of Federal agency action; or

(2) waives any claim of a member of the Pueblo in an individual capacity that does not derive from a right of the Pueblo.

TAOS PUEBLO

Date: DECEMBER 18, 2012

Laureano B. Romero, Governor

Benito M. Sandoval, War Chief

Gilbert Suazo, Sr., Lt. Governor

Albert A. Archuleta, Lt. War Chief

Attest:

Patrick J. Romero, Tribal Secretary

Harold Lefthand, War Chief Secretary

Taos Tribal Council:

Ernesto C. Luhan, Tribal Council Secretary

Paul T. Martinez, Cacique

Nelson J. Cordova, Councilman

James Lujan, Sr., Councilman

Ruben A. Romero, Councilman

Edwin Concha, Councilman

Robert Espinosa, Councilman

Bernard Lujan, Councilman

Luis Romero, Councilman