Review of Technical Information on Proposed Aamodt Water Project

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Introduction

The Aamodt Settlement, which was ratified in early May 2006, includes an agreement to develop a future potable water supply for four Pueblos (Pojoaque, Tesuque, Nambe, and San Ildefonso) and non-Pueblo residents in northern Santa Fe County. In effect, the Pueblos agree that a new regional water supply project will settle their water rights claims for Rio Grande basin water, subject to the State of New Mexico and the United States providing for acquisition of the necessary surface water rights and financing of the project infrastructure. Non-Pueblo (or Santa Fe County) residents agree to limit pumping from their domestic wells, metering of pumping, and certain other provisions. The Aamodt Settlement also provides the basis for how the various parties will share up to 4,000 acre-feet per year (ac-ft/yr) of surface water (2,500 ac-ft/yr for the Pueblos, 1,500 ac-ft/yr for Santa Fe County). At this time, all the sources of the 4,000 ac-ft/yr supply have not been identified.

In April 2004, the U.S. Bureau of Reclamation (Reclamation) completed the "Aamodt Settlement Study Report" (SSR), which examined various alternatives and estimated costs for a regional water system to serve both Pueblo and non-Pueblo residents. The SSR, which includes 27 technical appendices (see summary in Attachment A), evaluated four alternative water system configurations in some detail.

Proposed Aamodt Regional Water System

Alternative 2 was identified as the proposed (or preferred) project. An overview of the proposed Alternative 2 facilities is provided in Figure 1. The project consists of a surface water diversion on the east bank of the Rio Grande above Otowi, a conventional water treatment plant (WTP) on San Ildefonso land near the river, a polyvinyl chloride (PVC) trunk transmission line and pump stations to serve up to 20 pressure zones spread throughout the Pojoaque River basin, and a number of water storage tanks and distribution piping within the various pressure zones. The proposed system also includes up to seven deep wells (five of which are preliminarily located in Figure 1) to be used as a

supplemental supply during drought. A hydraulic schematic of Alternative 2 facilities is provided in Attachment B.

Alternative 2 also could include a raw water transmission line (the so called "red pipe") to deliver water to the Pojoaque area. Several irrigation improvements on the Pojoaque River also may be part of Alternative 2. Another option within Alternative 2 could involve a subsurface (rather than surface) diversion from the Rio Grande. Additional evaluation of a subsurface diversion option could proceed if the Aamodt parties agree to do so, including obtaining permission from the San Ildefonso Pueblo for hydrogeologic testing work. Following publication of the SSR in April 2004, changes in the original Aamodt Settlement agreement and concerns about the estimated costs of the regional project prompted Reclamation and their primary engineering consultant, ASCG, Inc., to update Alternative 2.

Cost Sharing and Integration Agreement

A Cost Sharing and Integration Agreement (CSIA), currently under negotiation among the Aamodt parties, will define how the regional project will be paid for and shared, operated, and maintained. The technical basis for the CSIA is the SSR, the updated engineering work mentioned above, and the present evaluation. Essentially, the CSIA will specify the details of the diversion, treatment, and delivery facilities; identify who will have operational responsibility for the project; and how capital and operation, maintenance, and replacement (OM&R) costs will be shared amongst the parties.

The CSIA negotiations involve attorneys representing the four pueblos, the City of Santa Fe, Santa Fe County, and several others representing "non-Pueblo defendants" (i.e., non-Indian citizens in several areas of Santa Fe County). Presumably, Pueblo residents will have their share of the project paid by the United States, whereas the non-Pueblo residents of Santa Fe County will pay for the capital costs involved in "upsizing" the Pueblo system to meet County demands and for the County share of annual OM&R costs. Some of the non-Pueblo costs, particularly a portion of the capital costs for "upsizing" could be paid by the State of New Mexico.

Under the final terms of the Settlement Agreement, non-Pueblo residents are not required to connect to the regional system (i.e., rather than connect, those with domestic wells can chose to stay on their wells, with specified restrictions and conditions). New residents, however, are required to connect to the regional Aamodt system as soon as distribution lines are available. This has caused uncertainty by Santa Fe County relative to the CSIA as to how to forecast future water demands; when and how much to upsize shared project infrastructure; how to phase future improvements to minimize County costs and risks; how to integrate with Pueblo systems (e.g., storage, pump stations) so as not to duplicate facilities; and how to pay for and cost share in the overall project, including both capital and OM&R costs.

These concerns prompted Santa Fe County to hire CH2M HILL to provide engineering services.

N

SAN ILDEFONSO PUEBLO

POJOAQUE PUEBLO

NAMBE PUEBLO AND TRUST LANDS

TESUQUE PUEBLO AND TRUST LANDS

Rio Grande

STATE HWY 4

Pojoaque River

Rio Nambe

Rio Tesuque

US HWY 84

Rio Chupadero

Big Creek

Paimito

San Ildefonso Pueblo

El Rancho

Jaconita

Jacona

Pojoaque

Nambe

Nambe Pueblo

Totavi

Otowi

Diversion & Water Treatment Plant

Cuyamungue

En Medio

Rio En Medio

Chupadero

Tesuque Pueblo

Rancho Encantado

Las Dos

Tesuque

Santa Fe

Legend

- Wells (5 of 7)
- Storage Tanks
- Cities
- Trunkline
- Cuyumungue
- Jacona
- Lower Camel Rock
- Nambe
- Pojoaque
- San Ildefonso
- Tesuque Pueblo
- Tesuque Village
- Upper Bishop's Lodge
- Upper Pojoaque
- Upper Tesuque Village

0 0.5 1 2 3 4 5 Miles

Figure 1. Overview Map of Proposed Aamodt Regional Water System, Alternative 2

Purpose and Scope

On March 15, 2006, an initial meeting was held in Santa Fe between CH2M HILL, County Water Resources Director Stephen Wust, and John Utton of Sheehan, Sheehan & Stelzner P.A., legal counsel to the County on water issues. At the meeting, the scope and budget for CH2M HILL services were discussed. Several subsequent meetings were held in March, April, and May with Reclamation, Peter Chestnut, attorney for San Ildefonso, Stephen Wust, and John Utton to obtain background information and provide guidance on the Aamodt project and County needs for the CSIA. Also, discussions were held with Reclamation (Steve Bowser) and engineers with ASCG (Charles Leder, Jon Ertsgaard, Jim Swetnam) to determine the extent of unpublished new work, including cost updates involved in the SSR estimates. This updated information was provided to CH2M HILL during the last several weeks of May and early June 2006.

Based on the meetings, discussions, and information provided, this technical memorandum (TM) is intended to fulfill the data review services in Task 1 of CH2M HILL's contract with Sheehan, Sheehan & Stelzner and Santa Fe County (County). Task 1 involves a review of the 2004 SSR and other pertinent data (primarily the SSR updates completed by ASCG and Reclamation) and is intended to form the background for evaluation of the County's participation in the CSIA. Of particular importance are the following items:

- An assessment of the adequacy of the SSR engineering evaluation including the layout of proposed diversion, treatment, pumping, conveyance, and distribution systems relative to County needs
- An independent evaluation of cost estimates for Aamodt project alternatives included in the SSR and recent updates by Reclamation, ASCG, and other consultants
- Identification of additional information needs and/or unresolved issues important to final resolution of County participation in the CSIA

The review of the SSR and recently updated engineering information was conducted by CH2M HILL engineering and hydrology staff in Albuquerque and Colorado Springs. Existing cost estimates prepared by Reclamation, ASCG, and other consultants under Reclamation guidance were preliminarily evaluated using CH2M HILL's Parametric Cost Estimating System (CPES) tool (see Attachment C for a description and for a summary of CPES estimates actually produced for this study).

Engineering Adequacy

The comments summarized below relate to the Alternative 2 Aamodt water system configuration as identified in the May 2004 SSR, updated in 2005 for final Settlement agreement conditions. There are a total of three reaches, 12 service areas and 20 pressure zones that define the "Main Distribution System." Reach 1 extends east from San Ildefonso Pueblo to Pojoaque Pueblo along State Highway 4; Reach 2 extends east from Pojoaque Pueblo to Nambe Pueblo along State Highway 4; and Reach 3 extends south from Pojoaque Pueblo to the City of Santa Fe boundary south of the Opera along Highways 84/285.

The 12 service areas are supplied from 12 proposed ground-level water storage tanks that provide gravity service to one, two, or three pressure zones within a particular area. The various pressure zones are configured based on topography and the geographic distribution of the communities being served. The main transmission (or trunk line) system, comprised of lines as large as 24 inches in the reach nearest the Rio Grande, supplies water to each of the 12 service areas. Within several of the service areas, pressure reducing valves, and in some cases internal booster pumps, provide water to residents in low- or high-lying zones.

Project Water Demands

The Settlement Agreement recently signed by the Aamodt parties is based on a total water demand of up to 4,000 ac-ft/yr, with 2,500 ac-ft/yr for the Pueblos and 1,500 ac-ft/yr for non-Pueblo use. It is unclear how the nonpotable ("red pipe") water of up to 500 ac-ft/yr will be accounted for apportionment purposes between Pueblo and non-Pueblo users or whether the "red pipe" will even be constructed as part of the project. Our understanding is that the ultimate peak diversion rate for water going to the WTP and the projected peak day rate pumped up the main potable water transmission line will be approximately 6.0 million gallons per day (mgd).

Distribution of Water Demands and Population

The water demands within each service area and pressure zone are based on projected future (through 2040) resident populations and commercial hookups, and estimated peak day requirements. There are a number of difficulties involved with estimating the future growth rates in each service area, including:

- the mixed nature of Pueblo and non-Pueblo residents;
- uncertainties in future economic conditions and the extent of commercial development, and;
- unknowns about how many non-Pueblo residents will actually hook up to the Aamodt system given that the Settlement does not require existing residents on their own wells to do so.

In Appendix 13 of the SSR (Table 11), ASCG made population and water demand estimates within each service area of future populations through 2040 and apportioned as to Pueblo and non-Pueblo share. Population was projected to increase from about 11,300 in 2000 to 22,400 in 2040 (an average growth rate of 1.75 percent per year). The residential water demands were based on an assumed rate of 102 gallons per capita per day (gpcd) – about 2,600 ac-ft/yr, plus an estimate for commercial demand in 2040 of about 420 ac-ft/yr. It was determined that distribution line sizes, and to a large extent water tank sizes, in each service area were dictated by fire flow rather than domestic water demands. Fire flow requirements in most areas were 1,000 gallons per minute (gpm), up to 2,000 gpm in areas with sizeable commercial buildings.

Sizing and Layout of Aamodt Water System

A hydraulic summary of the proposed Aamodt water system (main trunk line and distribution systems), including peak flow rates, pumps, pressure reducing valves, tank sizes, and elevation profiles of pipes and major facilities is provided in Attachment B and Appendix 17 of the SSR. Appendices 13 and 16 of the SSR provide further details.

CH2M HILL's preliminary evaluation suggests that the overall layout and sizing of the main trunk line and distribution systems are, with several possible exceptions, consistent with forecasted peak water demands, fire flow needs, and standard water supply engineering practice. Pipes follow major highways and roadways where possible, thus minimizing the need for new rights-of-way. Selection of pipe sizes, tank sizes, pumping capacities, etc., appear reasonable based on stated hydraulic assumptions, peak flow and fire flow needs, and given the information available. However, many details, including valving, pump characteristics, possible conflicts with other utilities, availability of property for major facilities (particularly the WTP, river diversion facility, and water tank/pump stations) are still of concern.

Although the hydraulic modeling prepared on the trunk line and distribution system by ASCG and Reclamation appear to be adequate at this stage of design, the overall system has not been "hydraulically optimized" to ensure the most efficient life-cycle costs (which include capital and operation, maintenance and replacement [OM&R] costs) for various system options. For example, the presently proposed system would utilize PVC pipe and relatively low lifts (pressure) between pump stations. As pointed out in the SSR, it may be that using more expensive ductile iron pipe with higher pressure ratings could lead to fewer pump stations and overall reductions in life-cycle costs. Additional hydraulic modeling of the trunk line system with final peak flow rates is warranted to confirm final pipe sizes and other system characteristics.

Each of the above, and several other issues, should be addressed and resolved in subsequent engineering planning and design work, before a final Aamodt system with optimal costs can be defined in detail.

Water Treatment Plant

The current concept for the water treatment plant (WTP) is provided in Appendix 15 of the SSR, *Water Treatment Plant Design Components and Cost Estimates*, May 14, 2003, U.S. Bureau of Reclamation. A summary of CH2M HILL's comments on the proposed treatment processes are provided below:

- Raw water presedimentation ponds for coarse turbidity and sand removal: good idea; sediment and turbidity control of Rio Grande water is critical.
- Sulfuric acid addition for coagulant pH depression, alum coagulant addition for particle/colloid destabilization via rapid mixing, and flocculation for particle agglomeration: good concept.
- Pressure membrane filtration for floc particle separation and positive protozoan cyst removal: questionable whether putting flocculated water directly on a pressure membrane filter (or even a submerged/vacuum membrane filter) is a good idea without a pilot study to confirm performance.

- Ultraviolet (UV) disinfection: could be expensive and unnecessary; if river water has high Cryptosporidium counts, then UV may be justified. Need data to confirm.
- Chlorine gas for virus inactivation: gas raises some safety issues; many utilities now prefer to use sodium hypochlorite.
- Ammonia addition for formation of a chloramine residual in the transmission-distribution system to control disinfectant byproduct formation: good idea.
- Sodium hydroxide addition for final pH adjustment and corrosion control in distribution system: good idea.
- Membrane filtration backwash with wastewater polishing pond and recycle of decant to head of plant: this is a low-cost approach and a good idea.

In summary, CH2M HILL suggests that a more a more formal process evaluation and supporting treatability testing be undertaken to determine the "best" and least cost treatment processes for this plant. Considerable new data are available from pilot and treatability work recently completed on the Buckman Diversion project located only a few miles downstream of Otowi.

River Diversion Facilities

An evaluation of river diversion alternatives was prepared by Boyle Engineering Corporation, and is included as Appendix 14 of the SSR, *Aamodt Settlement Study Diversion Options for the U.S. Bureau of Reclamation, September 2003 (Revised March 2004).* The Boyle evaluation is considered conceptual in that design details were not elaborated; rather, a screened, side-channel facility similar to that planned at the time for the Buckman Diversion was assumed. The diversion facilities were assumed to be located on the Rio Grande in the vicinity of Otowi Bridge on San Ildefonso land. Besides the direct surface diversion, Boyle also considered three subsurface options -- Ranney-type collector wells, an infiltration gallery system located on the river banks, and a series of shallow alluvial wells close to the river. The latter was intended to provide up to 0.89 mgd to the proposed raw water or "red pipe"system. The direct diversion, Ranney, and infiltration systems were assumed to require a capacity of about 5.6 mgd for conveyance to the WTP.

Based on the evaluation by Boyle Engineering, yields were roughly estimated for each diversion option. A series of Ranney-type wells spaced a minimum of 1,500 feet apart would yield 0.86 mgd per well. An infiltration gallery located 100 feet from the riverbank was estimated to yield 1.94 mgd for a 1-mile-long gallery trenched on one side of the river and 2.59 mgd from two 1- mile-long infiltration galleries trenched on each side of the river. A direct surface diversion consisting of multiple screens could yield 3.88 mgd per screen. Boyle's yield estimates for the subsurface options were tempered by the fact that they were extrapolated from one investigation done at the location of a pilot Ranney-type well at San Ildefonso. A much more detailed hydrogeologic investigation and testing of the river alluvium upstream of Otowi is needed to better determine the extent of subsurface facilities needed to divert the required Aamodt water supply.

Boyle's evaluation of the various options included a preliminary cost estimate for capital and O&M, with the direct surface diversion appearing to be the least cost alternative. For

this reason and because of the uncertainties about the capacity and viability of a subsurface diversion system including concerns about the potential for long-term clogging, CH2M HILL understands that the preferred option for the Aamodt water project is a direct surface diversion.

The engineering and cost estimate work completed to date on the various diversion options is quite preliminary and will need considerably more attention in subsequent design stages. The ongoing design work on the 20-mgd Buckman Diversion facility located a few miles downstream of Otowi could be valuable in this effort.

Deep Wells

The proposed Aamodt water system will rely primarily on use of Rio Grande water. However, it is recognized that during times of drought or inoperability of the river diversion, treatment, or conveyance systems, a supplemental water supply will be needed. That supply is assumed to be deep wells developed in the Tesuque formation of the Pojoaque basin. Overall groundwater conditions in the Aamodt project area and general locations of the 12 service areas believed suitable for deep well development were described in Appendix 18 of the SSR. Appendix 18 was based on an evaluation done by ASCG and John Shomaker and Associates. That work has evolved into a plan to construct up to seven deep wells, five of which would meet Pueblo demand and two for non-Pueblo demand.

Preliminary plans to develop dedicated injection wells for recharge of treated water during periods of low demand, or to make the proposed deep supply wells "dual purpose" for an aquifer storage and recovery (ASR) program, appear to have been postponed because of costs and difficulties related to permitting, OM&R, and other technical considerations.

The exact locations for the proposed deep supply wells have not been determined and considerable planning and design work is needed to do so; and a final decision needs to be made regarding whether ASR injection wells are to be included in the overall project.

Cost Estimates

Estimates for capital and OM&R costs for a number of Aamodt project configurations were evaluated in some detail in the SSR. Appendices 13 through 16, 18, 23, and 24 (see Attachment A) included fairly detailed estimates for diversion, water treatment, main trunk line conveyance, deep wells, and distribution systems. These estimates, originally done in 2003, were updated in various forms in SSR Appendices 23 and 24 to reflect April 2005 costs and several changes in the Aamodt Settlement agreement. More recent updates by Reclamation and ASCG were completed in 2006 (not published) to reflect further changes in facility plans (see Attachment D).

As mentioned and described previously, it appears that Alternative 2 with a surface diversion system, seven deep wells, and no "red pipe" for untreated water, will be the preferred Aamodt system. With most of the project facilities in Alternative 2 identified, two major concerns relative to project costs were addressed in this TM. The first relates to the need for an updated analysis of estimated costs as a check against those estimates developed in the SSR by Reclamation, ASCG, and Boyle Engineering. The second relates to the allocation of costs between the Pueblo and non-Pueblo parties. Indeed a major purpose

of the ongoing CSIA negotiations is a fair allocation of costs to Pueblo and non-Pueblo parties – both capital and OM&R costs.

Capital Costs Estimates

CH2M HILL's review of the SSR and recent updates relied on existing descriptions and quantities for facilities in Alternative 2 in the various cited documents. Discussions with Reclamation and ASCG led to several clarifications and produced updates not previously published in the SSR documents or in previous updates. This new information, most of which is provided in Attachment D, was input to CPES and a new estimate of Aamodt project construction costs produced and detailed in Attachment C. Results are summarized in Table 1 for comparison to the updated estimates produced by Reclamation, ASCG, and Boyle. In general, the estimates are consistent and reasonably close.

TABLE 1
Summary Cost Comparison of CH2M HILL CPES and Reclamation Estimates for Capital Construction and Engineering Costs
Aamodt Regional Water System, Alternative 2

Facility	CH2M HILL CPES (May 2006)			Reclamation (Spring 2005), Escalated [a]		
	Pueblo Only	Non-Pueblo	Combined	Pueblo Only	Non-Pueblo	Combined
Diversion	$1,847,000	$462,000	$2,309,000	$1,847,000	$462,000	$2,309,000
WTP	$11,557,000	$2,889,000	$14,446,000	$11,025,000	$2,697,000	$13,722,000
Trunk Line	$22,629,000	$5,657,000	$28,286,000	$21,886,000	$5,471,000	$27,357,000
Distribution [b]	$18,599,000	$25,026,000	$43,625,000	$19,925,000	$21,083,000	$41,008,000
Water Meters + Connections [c]	$7,758,000	$14,363,000	$22,121,000	$7,758,000	$14,363,000	$22,121,000
Wells [d]	$7,560,000	$3,024,000	$10,584,000	$9,192,000	$5,325,000	$14,517,000
Field Cost Total	$69,950,000	$51,421,000	$121,371,000	$71,633,000	$49,401,000	$121,034,000
Engineering Design, Construction Services, Surveying, Geotechnical, Administrative, Legal @ 30%	$20,985,000	$15,426,000	$36,411,000	$21,490,000	$14,820,000	$36,310,000
Total Construction Cost	$90,935,000	$66,847,000	$157,782,000	$93,123,000	$64,221,000	$157,344,000

[a] Reclamation 2005 estimate increased by 8% to reflect construction cost increases through spring 2006.

[b] Distribution total includes all proposed service areas. Apportionment and number of water meters not well defined.

[c] Water meter cost estimate based on Aamodt Settlement report population projection for 2040 assuming 2.3 people per meter; assumes $1,500 pipe cost per connection, plus the markup for field and contract costs resulting in $2,268 per connection.

[d] Plans for wells are not well defined. CH2M HILL assumed $1 million per well plus piping allowance.

Note: Detailed estimates available in CH2M HILL files. Field costs include 5% for mobilization, 20% for unlisted items, and a 20% contingency.

The estimates are provided in May 2006 dollars and in the form of Pueblo, Non-Pueblo, and Combined categories. The Pueblo and Non-Pueblo breakouts were based on several approaches as follows:

- For the 12 service areas (or distribution systems), 2006 updates by ASCG were used to estimate the facilities required for a Pueblo-only system and those added facilities or upsized facilities needed to serve both Pueblo and non-Pueblo residents and commercial facilities. The 2040 populations and water demands, plus fire flow requirements previously estimated in the SSR Appendix 13, were used as the basis for the distribution facilities. As indicated in Table 1, there are still questions concerning the thousands of residential water meters and their apportionment to Pueblo and non-Pueblo users. Attempts to resolve the apportionment of meters and service connections have not yet been entirely successful – more work is needed.

- For the diversion, WTP, and trunk line facilities, it was assumed that 80 percent of the capital costs will be attributable to a Pueblo-only system. This is generally in keeping with the economies of scale attributable to construction. In other words, even though the total water supply to the non-Pueblo residents may be on the order of 38 percent (1,500/4,000 ac-ft/yr share) of the total supply, the upsizing of pipeline, pump stations, and water treatment facilities to meet non-Pueblo demand is incremental (i.e., on top of the Pueblo-only cost). For example, in several areas the trunk line diameter to provide service to non-Pueblo users might have to be increased from 20-inch to 24-inch-diameter pipe. This would not cause an incremental increase in pipe material and construction cost of 38 percent, but rather only 15 to 20 percent.

The resulting capital cost comparison of CPES to Reclamation estimates in Table 1 is quite close – the "Combined" Aamodt system for the CH2M HILL CPES estimate is $157.8 million vs. $157.3 million for the updated Reclamation estimate. It should be noted that certain costs in the spring 2005 Reclamation estimate shown in Attachment D were "backed out" for purposes of Table 1 – for example, the costs for the proposed "red pipe" and those for injection wells. CH2M HILL has reviewed the 2005 Reclamation estimates to ensure that all such "backed out" costs have been properly accounted for. The non-Pueblo CH2M HILL CPES estimate was $66.8 million vs. Reclamation's $64.2 million estimate. The Reclamation estimate was changed slightly from that original estimate to include the CH2M HILL estimate for water meters and meter connections as a separate item, rather than including it as part of the distribution system cost.

A review of the layout for the non-Pueblo portion of Alternative 2 suggests that not building the new distribution systems for the high-lying, southerly "tail end" of the Aamodt system in the Upper Tesuque Village, Bishops Lodge, and Opera areas (Figure 1) could reduce non-Pueblo capital costs by approximately $7 to $8 million. Other cost savings for the non-Pueblo portion could be realized by phasing of the WTP, pump stations, and other facilities until later years so as to match actual peak water demands,

The capital cost estimates summarized in Table 1, with the possible exception of the trunk line system, which is probably at a 10 percent design stage, should be considered no better

than "Level 4." A Level 4 estimate has the following description based on the Association for Advancement of Cost Engineering International:

> ***A Class 4 estimate*** *is prepared based on information wherein preliminary engineering is from 1 to 5 percent complete. Detailed strategic planning, business development, project screening, alternative scheme analysis, confirmation of economic and/or technical feasibility, and preliminary budget approval are needed to proceed. Examples of estimating methods used would include equipment and or system process factors, scale-up factors, and parametric and modeling techniques. The typical expected accuracy range for this class estimate is –15 to –30 percent on the low side and +20 to +50 percent on the high side.*

OM&R Cost Estimates

Reliable estimates of annual OM&R costs and their apportionment to Pueblo and non-Pueblo users are not possible at this stage of project definition. In the SSR and subsequent updates, Reclamation made several "ballpark estimates" of OM&R costs (see Attachment D) based on the relative projected future water demands, pumping costs to the various service areas, labor estimates, assumed replacement schedules for pumps, phasing of water treatment, etc. In April 2006, Reclamation provided a summary to the Aamodt parties that suggested that the 40-year present worth (November 2005 dollars) could be about $68 million, with about $29 million attributable to non-Pueblo users and $39 million to Pueblo users. Because of the many uncertainties in the factors described above, CH2M HILL was not able to make an independent OM&R estimate that could be considered any more reliable than the Reclamation estimate.

For an assumed water supply split of 1,500/4,000 ac-ft/yr applied to the Reclamation estimate of $68 million and a 4 percent discount rate over 40 years, the annual OM&R charges for non-Pueblo users would be about $1.3 million. In actual practice, phasing of the project, changes in population or hookup rates, addition of administrative fees for water utility operation, use of ratios other than 1,500/4,000, etc., could cause wide variation in annual OM&R costs. Accordingly, it may be prudent for the County to seek to establish an OM&R "escrow fund" (perhaps $10 million) to cover possible shortfalls or unexpected costs, particularly during the first decade of the project.

The fixed portion of OM&R based on typical engineering "rules of thumb" for large water projects might be on the order of 1 to 1.5 percent of the field cost shown in Table 1, or $1.2 to $1.8 million, with perhaps $0.5 to $0.8 million as the County share. The latter is little more than an educated guess at this point.

Conclusions and Recommendations

CH2M HILL reviewed the technical information, including engineering and cost estimates developed by Reclamation and several consultants for the proposed Aamodt regional water system, Alternative 2. A summary of major findings and conclusions is provided below:

1. With several exceptions noted below, the engineering planning and design work done for the SSR by Reclamation and other consultants in identifying and specifying the

proposed (or preferred) configuration of the Aamodt water system (Alternative 2) is considered to be technically adequate for purposes of the CSIA.

2. The diversion structure, deep wells, and in the number and apportionment of water meters within distribution systems in several of the 12 service areas, require more investigation to allow improved capital and OM&R cost estimates; and a better apportionment of those costs to Pueblo and non-Pueblo users.

3. While the preliminary work on the WTP appears reasonable, final specification of treatment processes should be based on a treatability evaluation of Rio Grande water, perhaps using much of the information developed for the Buckman Diversion project located just downstream of the proposed Aamodt diversion facility.

4. Certain aspects of the proposed trunk line system could be optimized in subsequent engineering work. This could ensure the most efficient and least costly system layout and selection of materials. For example, the tradeoffs between use of higher pressure class ductile iron and fewer pumping stations could be examined versus the presently proposed use of PVC pipe, relatively low pressures, and more pump stations.

5. Application of CH2M HILL's CPES cost estimating guide to the material and construction quantities identified in the SSR was used to provide a check against estimates developed and updated in 2005 by Reclamation and other consultants. Comparison of results suggests that the SSR and updated cost estimates are reasonable – again with the several exceptions noted in item 2 above.

6. A preliminary estimate of total construction cost for Aamodt Alternative 2 is about $158 million with the non-Pueblo (County) portion roughly apportioned at $62 to $67 million (all figures in May 2006 dollars). This estimate does not include the "red pipe" or injection wells, but does include seven deep wells for supplemental water supply (two assumed for non-Pueblo share). The estimate also includes $14 million for water meters and service connections.

7. OM&R costs (fixed and variable) and their apportionment between Pueblo and non-Pueblo users are virtually impossible to estimate reliably at present. Reclamation's rough estimate of the 40-year present worth for OM&R, based on multiple assumptions, was $68 million. Approximately $29 million was estimated as the County share. On an annual basis at 4 percent, this would equate to about $1.3 million for the County. A more reliable estimate of OM&R costs and their apportionment to various users will require consensus on the 'hookup" rate of users, nature of the proposed regional water utility and number of employees, additional hydraulic modeling and optimization, and a number of other issues.

Attachment A.
Technical Appendices

Attachment A
Technical Appendices,
2003 Aamodt Settlement Study Report

Appendix 1. Aamodt History - Judge Leslie C. Smith's *Proposed Findings and Recommended Disposition*, Background Section. February, 2003.

Appendix 2. *Aamodt Appraisal Study*, U.S. Bureau of Reclamation. February, 2001.

Appendix 3. *Aamodt Pre-Feasibility Study*, ASCG, Inc. July, 2001.

Appendix 4. Aamodt Contact List.

Appendix 5. *New Mexico Drought Monitoring Workgroup Monthly Report.* August, 2003.

Appendix 6. Aamodt Reference List.

Appendix 7. *Legal Water Exchange Description*, John Utton, Sheehan, Sheehan & Stelzner P.A. August 2003.

Appendix 8. *Hydrologic Impacts from Future Pueblo Development Scenarios*, Balleau Groundwater, Inc. July 2001.

Appendix 9. *Hydrologic Impacts in Pojoaque River Basin from Future Growth of Non-Pueblo Use*, Balleau Groundwater, Inc. June 2002.

Appendix 10. *Breakdown of Hydrologic Impacts in Pojoaque River Basin due to Out-of-Basin and In-Basin Water Use*, Balleau Groundwater, Inc. July 2003.

Appendix 11. *Hydrologic Impacts of Future Reduced Groundwater Use and Increased Surface-Water Use by the Santa Fe Area*, Balleau Groundwater, Inc. August 2003.

Appendix 12. Santa Fe County Digital Aerial Photography and LiDaR Contour Data Metadata.

Appendix 13. *Aamodt Settlement Study Final Report for Task 4 - Distribution System Design*, ASCG, Inc. August 2003.

Appendix 14. *Aamodt Settlement Study - Diversion Options*, Boyle Engineering Corporation. September 2003.

Appendix 15. *Water Treatment Plant - Design Components and Cost Estimates*, U.S. Bureau of Reclamation. May 2003.

Appendix 16. *Aamodt Settlement Study Water Transmission Trunkline – Pre-Design Level Design and Cost Estimate*, U.S. Bureau of Reclamation. September 2003.

Appendix 17. *Final Report for Task 5 - Distribution Network Model*, ASCG, Inc. September 2003.

Appendix 18. *Final Report for Task 3 - Deep Well/Well Field Investigation and Integration*, ASCG, Inc. July 2003.

Appendix 19. *Final Report for Task 6 – Other System Considerations*, ASCG, Inc. September 2003.

Appendix 20. *Cultural Resources Evaluation of Alternatives Considered for the Santa Fe-Pojoaque Regional Water System*, SWA. September 2003.

Appendix 21. *Reconnaissance Level Evaluation - Environmental Justice and Indian Trust Assets - of Alternatives Considered for the Santa Fe-Pojoaque Regional Water System*, Louis Berger Group Inc. March 2003.

Appendix 22. *Reconnaissance Level Evaluation - Biology - of Alternatives Considered for the Santa Fe-Pojoaque Regional Water System*, Louis Berger Group, Inc. March 2003.

Appendix 23. Cost Estimates for Construction and Related Equipment, Materials, and Services, U.S. Bureau of Reclamation. April 2003.

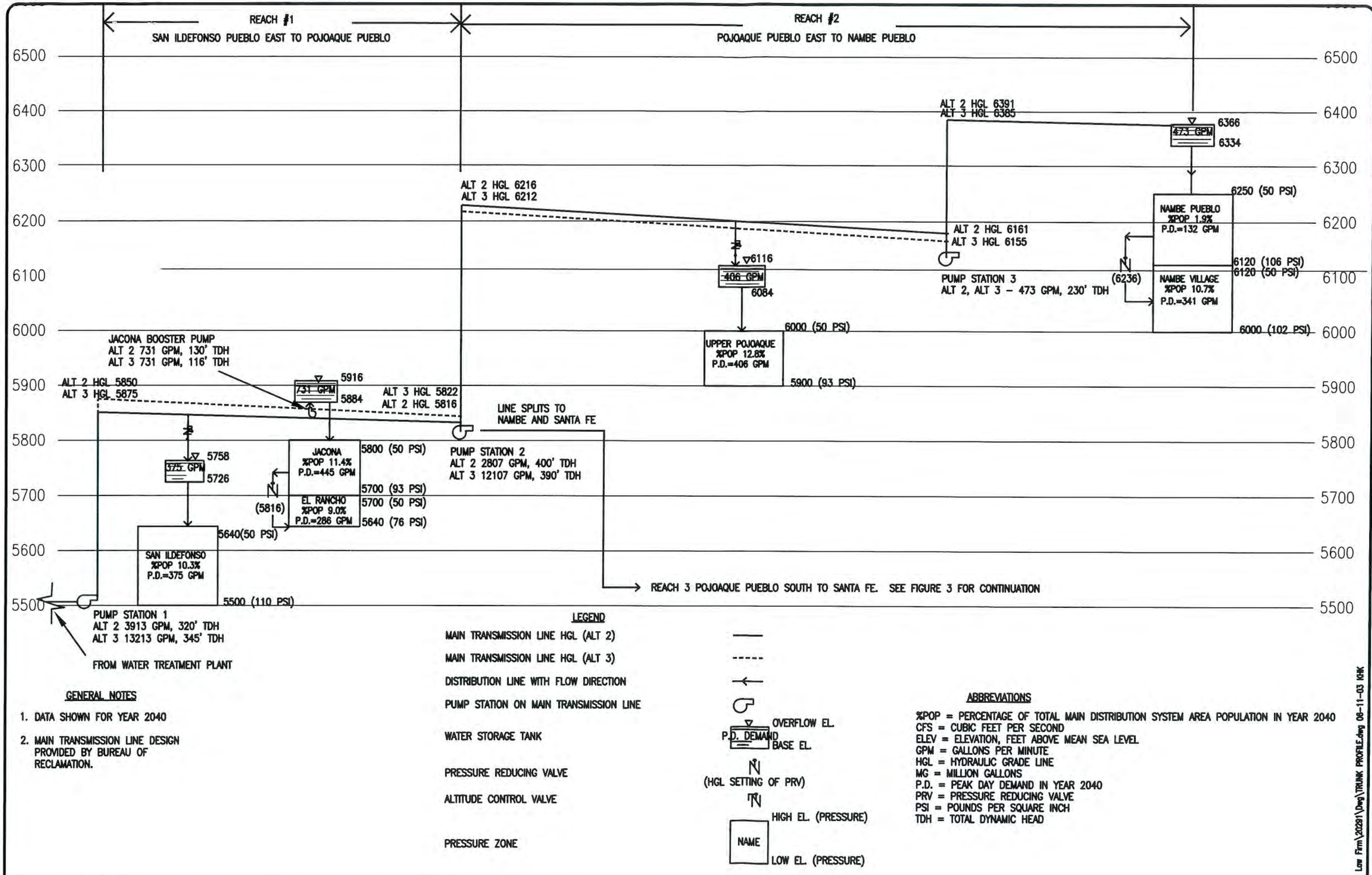
Appendix 24. Cost Comparison Spreadsheet, U.S. Bureau of Reclamation. September 2003.

Appendix 25. *Water for an Aamodt Settlement: Summary of Cost Estimates and Potential Acquisition Strategies*, Bonnie G. Colby, Ph.D., Water Resources Economics Consultant. March 2003.

Appendix 26. *Water Options Paper*, U.S. Bureau of Reclamation. April 2003.

Appendix 27. *Re-Appropriate Water Above Otowi Gage in Combination with Water Rights Firming*, John Utton, Sheehan, Sheehan & Stelzner, P.A. August 2003.

Attachment B.
Hydraulic Schematics of Proposed Alternative 2, Aamodt Regional Water System



GENERAL NOTES

1. DATA SHOWN FOR YEAR 2040
2. MAIN TRANSMISSION LINE DESIGN PROVIDED BY BUREAU OF RECLAMATION.

LEGEND

- MAIN TRANSMISSION LINE HGL (ALT 2)
- MAIN TRANSMISSION LINE HGL (ALT 3)
- DISTRIBUTION LINE WITH FLOW DIRECTION
- PUMP STATION ON MAIN TRANSMISSION LINE
- WATER STORAGE TANK (OVERFLOW EL. / P.D. DEMAND / BASE EL.)
- PRESSURE REDUCING VALVE (HGL SETTING OF PRV)
- ALTITUDE CONTROL VALVE
- PRESSURE ZONE (NAME / HIGH EL. (PRESSURE) / LOW EL. (PRESSURE))

ABBREVIATIONS

%POP = PERCENTAGE OF TOTAL MAIN DISTRIBUTION SYSTEM AREA POPULATION IN YEAR 2040
CFS = CUBIC FEET PER SECOND
ELEV = ELEVATION, FEET ABOVE MEAN SEA LEVEL
GPM = GALLONS PER MINUTE
HGL = HYDRAULIC GRADE LINE
MG = MILLION GALLONS
P.D. = PEAK DAY DEMAND IN YEAR 2040
PRV = PRESSURE REDUCING VALVE
PSI = POUNDS PER SQUARE INCH
TDH = TOTAL DYNAMIC HEAD

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NORTHERN PUEBLOS TRIBUTARY WATER RIGHTS ASSOCIATION

AAMODT FEASIBILITY STUDY

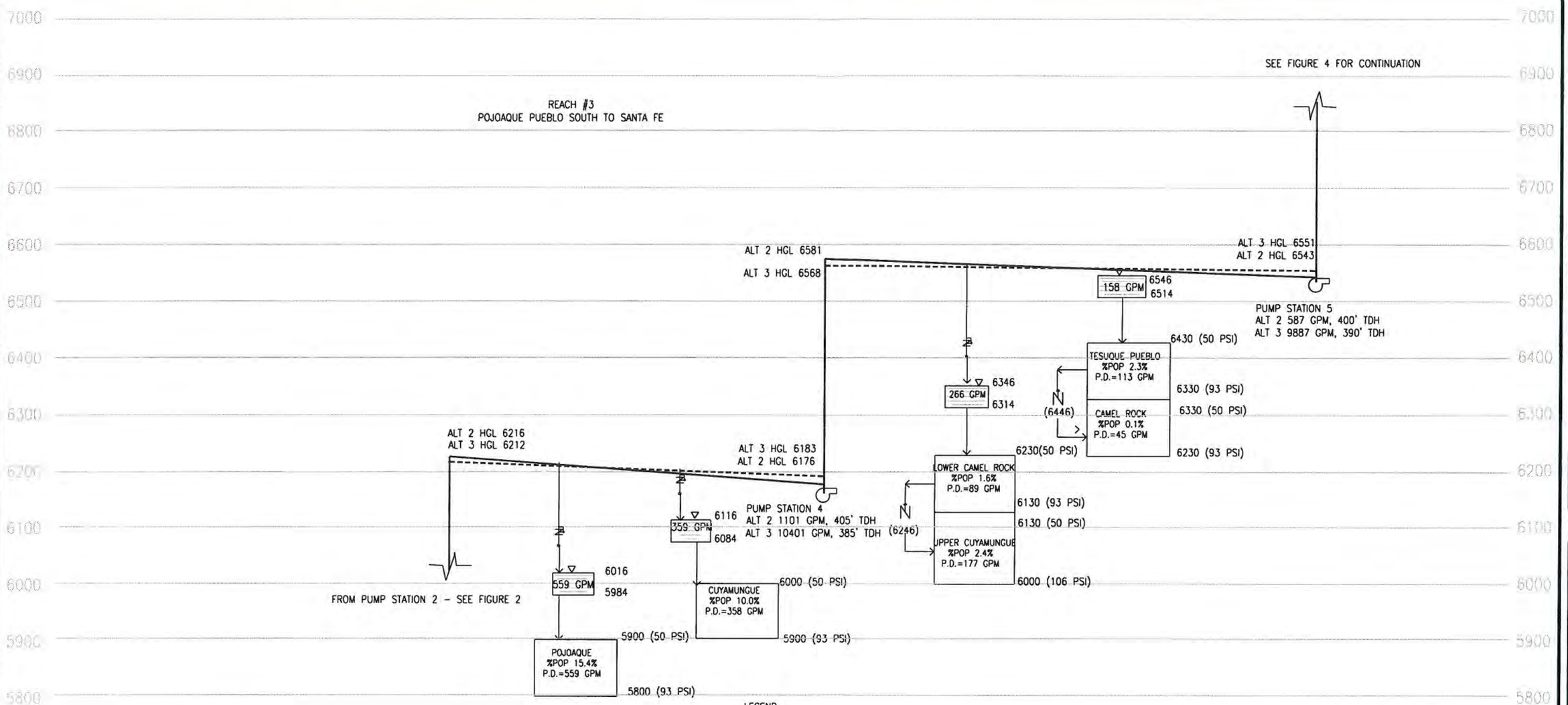
HYDRAULIC SCHEMATIC, REACH 1 AND 2

REVISIONS	
NUMBER	DATE

JOB NO.	20291
DATE	09/03/03
DRAWN BY	JRS
CHECKED BY	CSL

FIGURE 2

J:\Chestnut Law Firm\20291\Dwg\TRUNK PROFILE.dwg 08-11-03 KHK



LEGEND

- MAIN TRANSMISSION LINE HGL (ALT 2)
- MAIN TRANSMISSION LINE HGL (ALT 3)
- DISTRIBUTION LINE WITH FLOW DIRECTION
- PUMP STATION ON MAIN TRANSMISSION LINE
- WATER STORAGE TANK (OVERFLOW EL. / P.D. DEMAND / BASE EL.)
- PRESSURE REDUCING VALVE (HGL SETTING OF PRV)
- ALTITUDE CONTROL VALVE
- PRESSURE ZONE (HIGH EL. (PRESSURE) / NAME / LOW EL. (PRESSURE))

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AAMODT FEASIBILITY STUDY

HYDRAULIC SCHEMATIC, REACH 3 - NORTH END

REVISIONS	
NUMBER:	DATE:

JOB NO:	20291
DATE:	09/23/03
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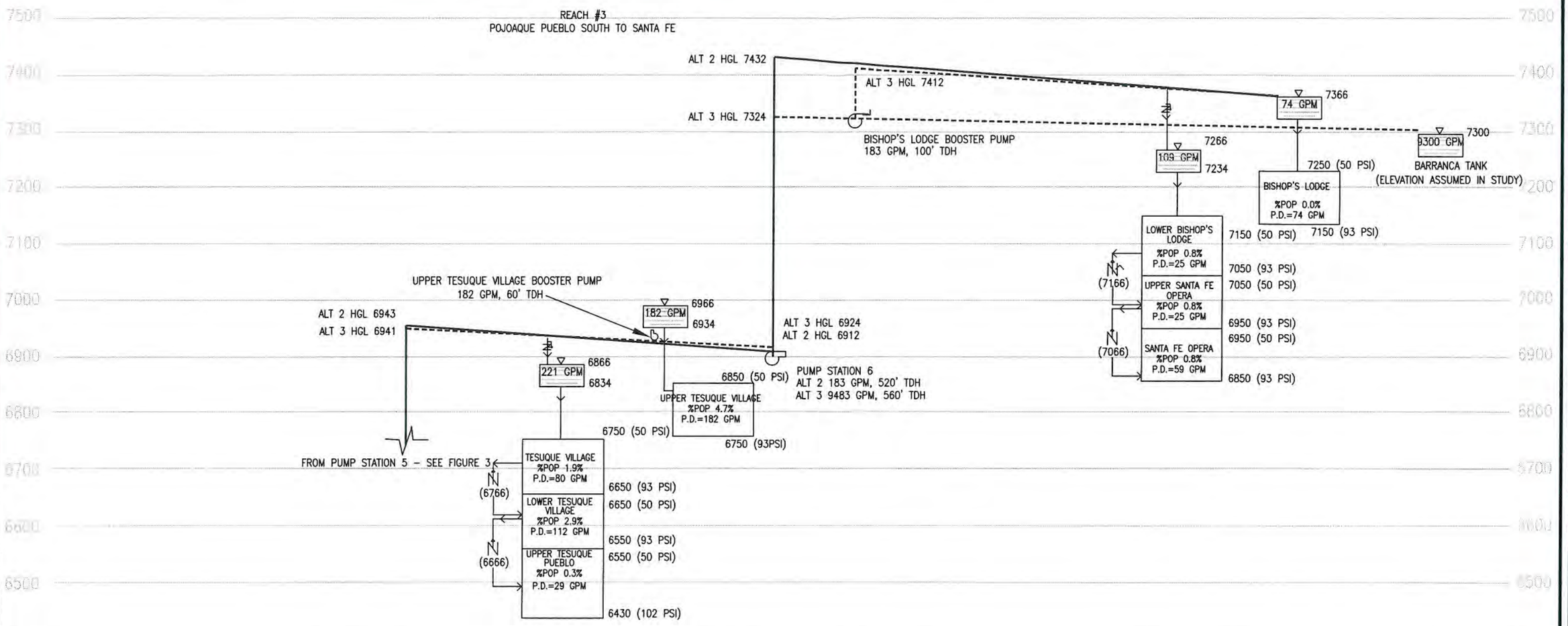
FIGURE 3



LEGEND

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- MAIN TRANSMISSION LINE HGL (ALT 3)
- DISTRIBUTION LINE WITH FLOW DIRECTION
- PUMP STATION ON MAIN TRANSMISSION LINE
- WATER STORAGE TANK
- PRESSURE REDUCING VALVE
- ALTITUDE CONTROL VALVE
- PRESSURE ZONE

OVERFLOW EL.
P.D. DEMAND
BASE EL.
(HGL SETTING OF PRV)
HIGH EL. (PRESSURE)
NAME
LOW EL. (PRESSURE)

GENERAL NOTES

1. DATA SHOWN FOR YEAR 2040
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AAMODT FEASIBILITY STUDY

HYDRAULIC SCHEMATIC, REACH 3 - SOUTH END

REVISIONS

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JOB NO:	20291
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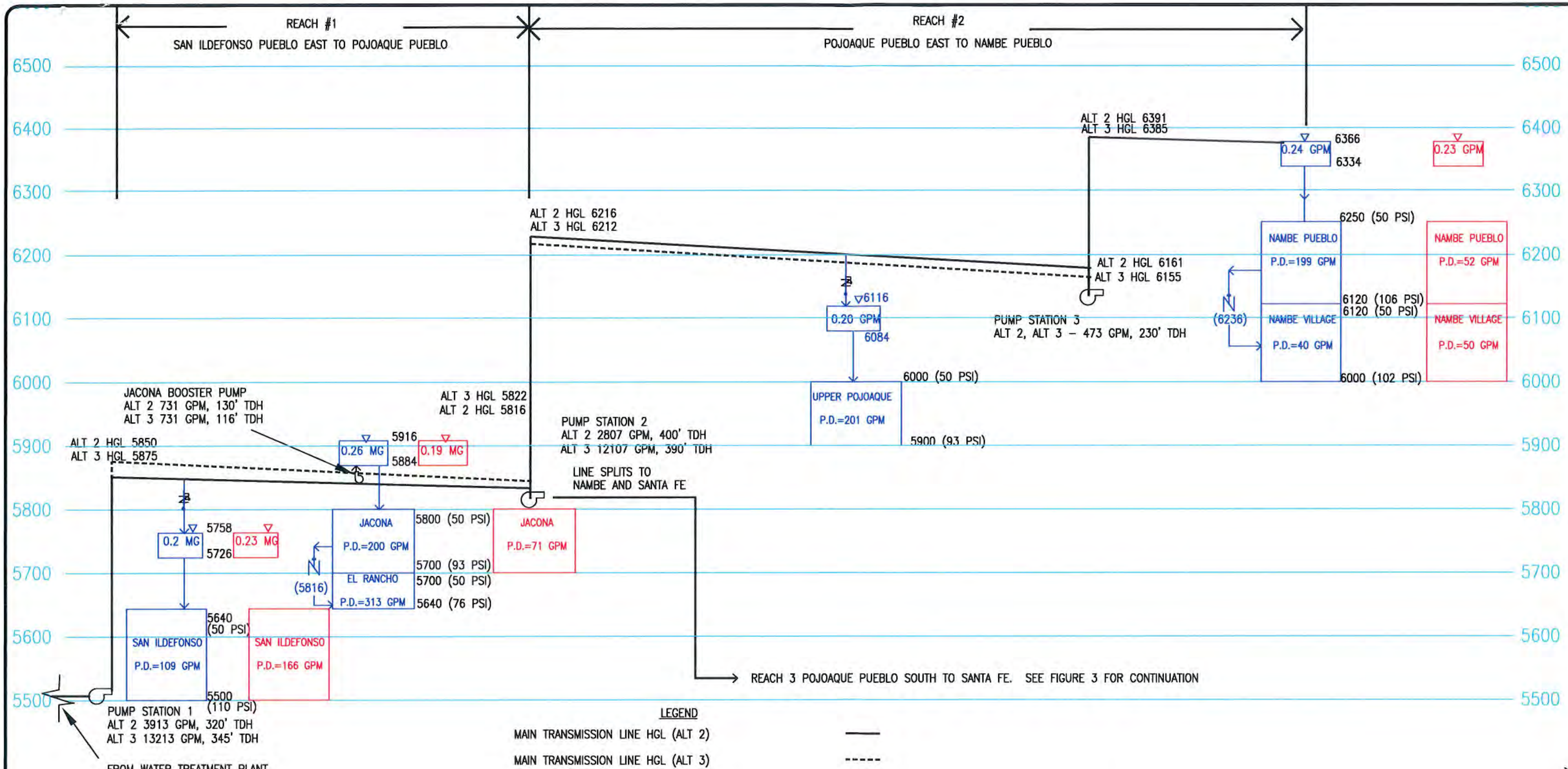
FIGURE 4



LEGEND

MAIN TRANSMISSION LINE HGL (ALT 2)

MAIN TRANSMISSION LINE HGL (ALT 3)

DISTRIBUTION LINE WITH FLOW DIRECTION

PUMP STATION ON MAIN TRANSMISSION LINE

WATER STORAGE TANK — OVERFLOW EL. / CAPACITY (MG) / BASE EL.

PRESSURE REDUCING VALVE — (HGL SETTING OF PRV)

ALTITUDE CONTROL VALVE

PRESSURE ZONE — NAME (NON INDIAN) / NAME (INDIAN) — HIGH EL. (PRESSURE) / LOW EL. (PRESSURE)

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AAMODT BALLPARK ESTIMATE

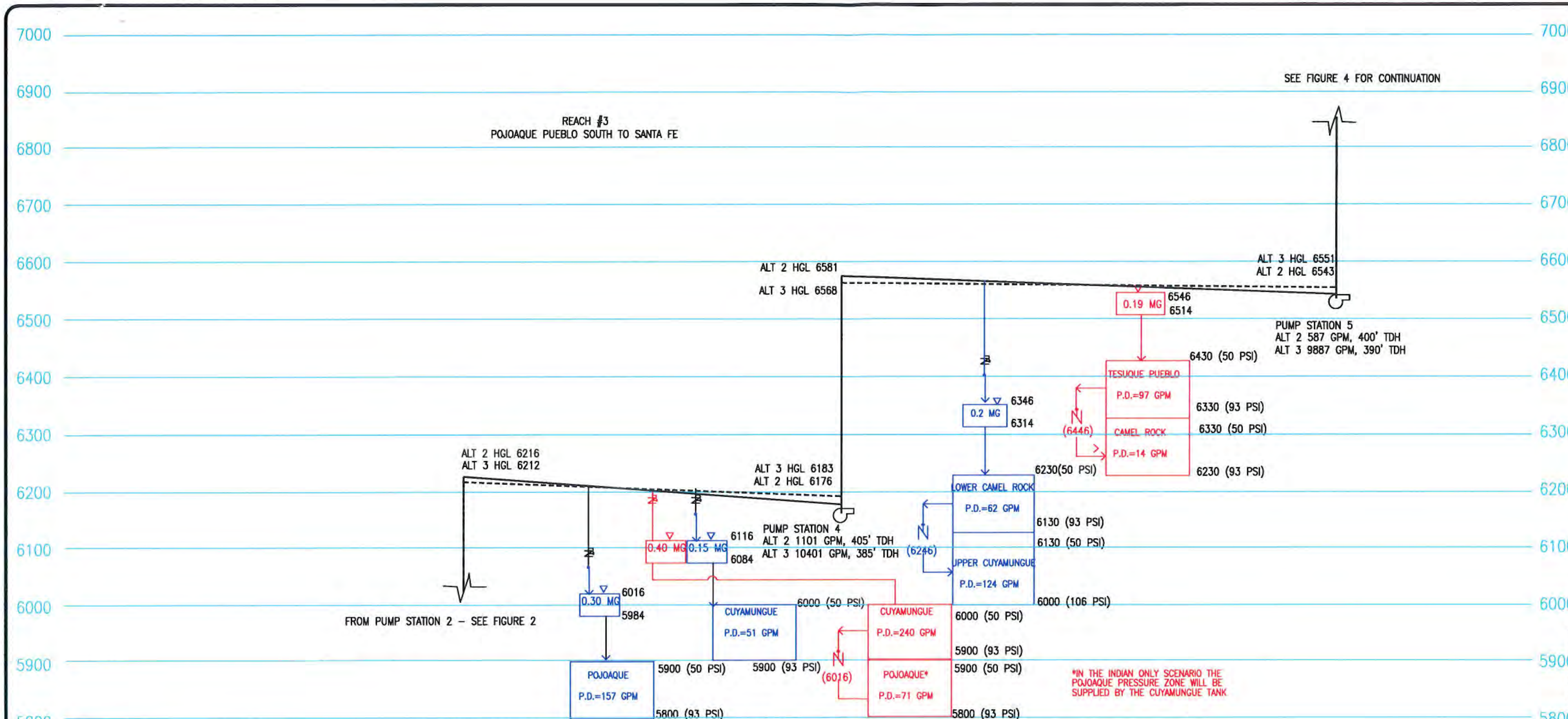
HYDRAULIC SCHEMATIC, REACH 1 AND 2

REVISIONS

NUMBER:	DATE:

JOB NO:	20291
DATE:	09/03/03
DRAWN BY:	JRS
CHECKED BY:	CSL

FIGURE 1



LEGEND

MAIN TRANSMISSION LINE HGL (ALT 2)	———
MAIN TRANSMISSION LINE HGL (ALT 3)	- - - -
DISTRIBUTION LINE WITH FLOW DIRECTION	←
PUMP STATION ON MAIN TRANSMISSION LINE	
WATER STORAGE TANK	OVERFLOW EL. / CAPACITY (MG) / BASE EL.
PRESSURE REDUCING VALVE	(HGL SETTING OF PRV)
ALTITUDE CONTROL VALVE	
PRESSURE ZONE	NAME (NON INDIAN) / NAME (INDIAN) — HIGH EL. (PRESSURE) / LOW EL. (PRESSURE)

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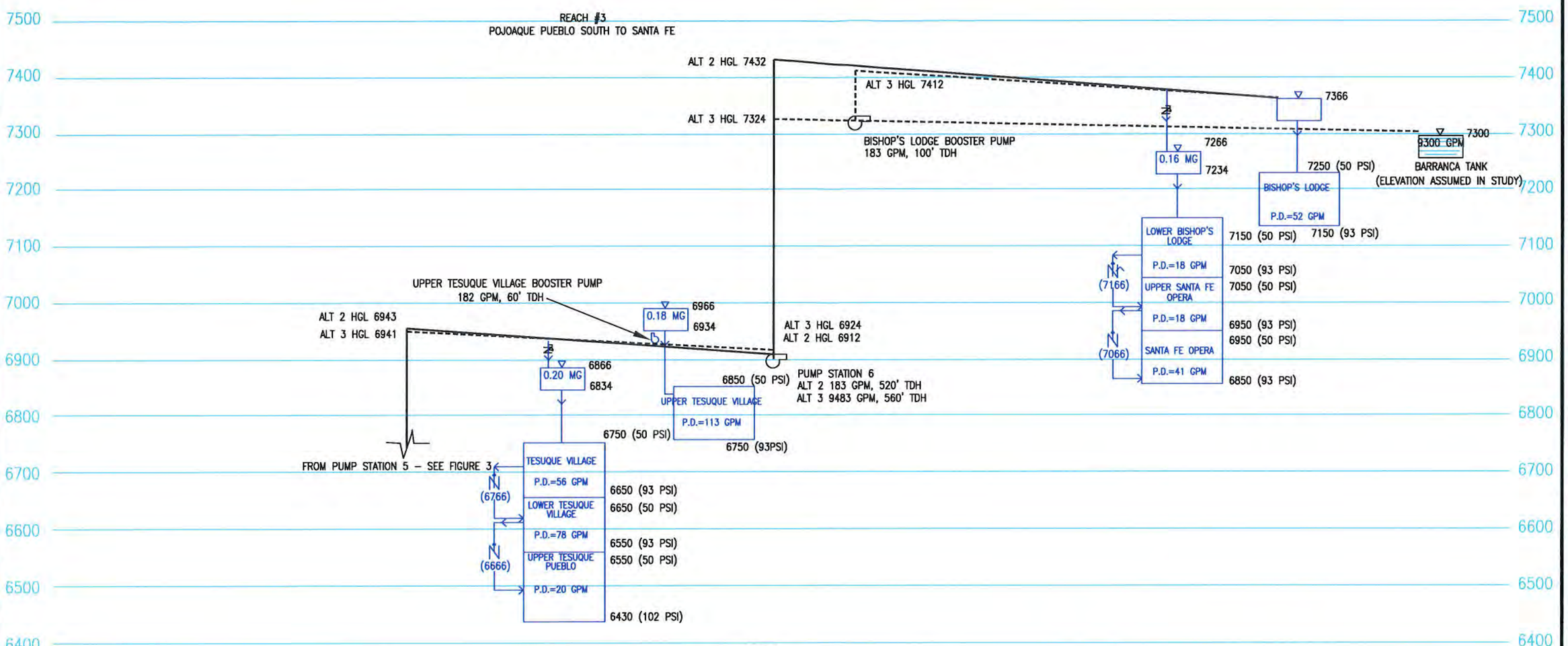
AAMODT BALLPARK ESTIMATE

HYDRAULIC SCHEMATIC, REACH 3 - NORTH END

REVISIONS	
NUMBER:	DATE:

JOB NO:	20291
DATE:	09/23/03
DRAWN BY:	JRS
CHECKED BY:	CSL

FIGURE 2



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AAMODT BALLPARK ESTIMATE

HYDRAULIC SCHEMATIC, REACH 3 – SOUTH END

REVISIONS

NUMBER:	DATE:

JOB NO:	20291
DATE:	09/23/03
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FIGURE 3

Attachment C.
CPES Description and Detailed Cost Estimates

Attachment C.
CPES Description

Water infrastructure component construction unit-cost curves were generated using CH2M HILL's Parametric Cost Estimating System (CPES). CPES is a proprietary cost estimating tool composed of a group of Microsoft Excel spreadsheets each representing a specific water infrastructure component model. The CPES cost models are based on actual CH2M HILL designed and constructed facilities with flexibility to receive project-specific conceptual design criteria inputs. These inputs size the facility and allow quantity takeoff calculations for earthwork, reinforced steel concrete, masonry, metals, woods and plastics, doors and windows, equipment, instrumentation and controls, mechanical, and electrical model components. RS Means unit costs serve as the unit cost basis for construction materials. Actual budgetary equipment costs serve as the unit cost basis for equipment.

Where allowances for items such as sitework, instrumentation and controls, electrical, unlisted items, etc. were used in CPES, every effort was made to make them equivalent with those allowances or actual estimates contained in the Reclamation or ASCG estimates.

Combined Systems - Cost Estimate for WTP

CH2M HILL Parametric Cost Estimating System (CPES)

WTP DESIGN & CONSTRUCTION COST MODULE

Use Mass Balance file | Browse

Import information from this Mass Balance file | Copy to SELECTIVE CPES Inputs | Copy to ALL CPES Inputs

Click for CPES QA/QC | To Concrete Wall Thickness Help | To Major Equipment List

Project Name:	Aamodt
Project Number:	0
Project Manager:	0
Estimator:	McEwen
Project Description:	5.9-MGD Influent Capacity
Project Location (City):	Default
Project Location (State):	0
Project Location (Country):	0
Construction Start Date:	Jan-06
Construction Duration (months):	12
Mid-Point of Construction:	Jul-06

Print Summary | Print Details | To Cost Summary Matrix

This Report is for INTERNAL Distributi

This Report is for EXTERNAL Distribut

Item	Is This Facility Included in Project? (Yes or No)	SCOPE OF PROJECT	Cost
1	No	Raw Water Screening & Pump Station	$0
2	Yes	Raw Water Presedimentation / Storage Ponds	$402,211
2	Yes	Wastewater Polishing Ponds	$160,141
3	Yes	Rapid Mixing	$214,945
4	Yes	Flocculation (To RM-FS Variables Sheet)	$257,775
5		Sedimentation	
	No	Lamella Clarifier	$0
	No	Actiflo	$0
	No	Super Pulsator	$0
	No	Circular Clarifier	$0
	No	DensaDeg Clarifier	$0
	No	DAF	$0
6		Filtration (To FILTSYS Variables Sheet)	
	No	Conventional Filter	$0
	No	GAC Filter	$0
	No	Horizontal Pressure Filter	$0
	No	Vertical Pressure Filter	$0

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	A	B	C	D	E
44					
45	7		Disinfection		
46		No	Ozone	To OZSYS Variables Sheet	$0
47		Yes	UV Disinfection		$825,855
48		Yes	Chlorine Gas		$629,218
49		No	Chlorine Dioxide		$0
50		No	On-Site Sodium Hypochlorite Generation		$0
51		No	Oxidant / Disinfection Contactor		$0
52					
53	8		Clearwell		
54		Yes	Concrete Tank #1		$146,357
55		No	Concrete Tank #2		$0
56		No	Steel Tank #1		$0
57		No	Steel Tank #2		$0
58					
59	9	Yes	High Service Pump Station		$676,964
60					
61	10		Chemical Feed / Storage		
62		Yes	Liquid	To LIQCHEMSYS Variables Sheet	$680,015
63		No	Dry		$0
64		No	Carbon Dioxide Solution Feed System (Recarbonation)		$0
65					
66	11		Solids Handling	To Solids Handling Variables Sheet	
67		No	Combination Wastewater Surge Basin & Floating Tube Decanter Clarification (Large System >= 5 MGD)		$0
68		No	Combination Wastewater Surge Basin & Floating Tube Decanter Clarification (Small System < 5 MGD)		$0
69		No	Sludge Drying Beds		$0
70		No	Gravity Thickener		$0
71		No	Centrifuge Solids Dewatering		$0
72		No	Belt Filter Press		$0
73		No	Deskins Solids Dewatering System		$0
74					
75	12		Other Technologies		
76			Membrane Filtration:		
77		No	Pall Micro Filtration - Small Systems: .5 - 5 mgd		$0
78		Yes	Pall Micro Filtration - Large Systems: Greater Than 5 mgd		$3,260,453
79		No	Zenon 500c Ultra Filtration		$0
80		No	Zenon 1000 Ultra Filtration		$0
81		No	Reverse Osmosis / Nanofiltration		$0
82		No	Ion Exchange		$0
83		No	Air Stripper		$0
84		Yes	WW Polishing Pond Recycle Pump Station		$322,501
85		No	In-Plant Pumping Station #2		$0
86		No	Granular Media Filter Backwash Supply Pump Station		$0
87		No	Flow Splitting Structure		$0
88		No	Package WTP		$0
89		No	O & M Building		$0
90		No	Demolition		$0
91		No	Yard Piping		$0
92		No	User Defined Facility 1		$0
93		No	User Defined Facility 2		$0
94		No	User Defined Facility 3		$0
95					
96	SUBTOTAL - PROJECT COST				$7,576,436
97					

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	A	B	C	D	E
98	***ADDITIONAL PROJECT COSTS:***				
99	***Demolition***		**0%**		**$0**
100	***Overall Sitework***		**5%**		**$378,822**
101	***Plant Computer System***		**5%**		**$378,822**
102	***Yard Electrical***		**5%**		**$378,822**
103	***Yard Piping***		**5%**		**$378,822**
104	***0***		**0%**		**$0**
105	***0***		**0%**		**$0**
106	***0***		**0%**		**$0**
107	***SUBTOTAL with Additional Project Costs***				**$9,091,723**
108					
109	***CONTRACTOR MARKUPS:***				
110	***Overhead***		**10%**	**$9,091,723**	**$909,172**
111	***Subtotal***				**$10,000,895**
112	***Profit***		**7%**	**$10,000,895**	**$700,063**
113	***Subtotal***				**$10,700,958**
114	***Mob/Bonds/Insurance***		**8%**	**$10,700,958**	**$856,077**
115	***Subtotal***				**$11,557,034**
116	***Contingency***		**25%**	**$11,557,034**	**$2,889,259**
117	***SUBTOTAL with Markups***				**$14,446,293**
118					
119	***ESCALATION (to Mid-Point of Construction):***		**0.00%**	**$14,446,293**	**$0**
120	***SUBTOTAL with Escalation***				**$14,446,293**
121					
122	***LOCATION ADJUSTMENT FACTOR***		**100.00%**	**$14,446,293**	**$14,446,293**
123	***SUBTOTAL - with Local Adjustment Factor***				**$14,446,293**
124					
125	***RED FLAGS:***				
126	***1***	***Rock Excavation***			
127	***2***	***Pile Foundations***			
128	***3***	***Seismic Foundations***			
129	***4***	***Dewatering Conditions***			
130	***5***	***Wetlands Mitigation***			
131	***6***	***Weather Impacts***			
132	***7***	***Depth of Structures***			
133	***8***	***Local Building Code Restrictions***			
134	***9***	***Coatings or Finishes***			
135	***10***	***Building or Architectural Considerations***			
136	***11***	***Client Material Preferences***			
137	***12***	***Client Equipment Preferences***			
138	***13***	***Piping Galleries, Piping Trenches, Piping Racks***			
139	***14***	***Yard Piping Complexity***			
140	***15***	***Existing Site Utilities (New, Retrofit, and Complexity)***			
141	***16***	***I & C Automation (New or Retrofit)***			
142	***17***	***Electrical Feed (New or Retrofit)***			
143	***18***	***Electrical Distribution***			
144	***19***	***Shoring***			
145	***20***	***Contamination***			
146	***21***	***User Defined Red Flag 1***			
147	***22***	***User Defined Red Flag 2***			
148	***23***	***User Defined Red Flag 3***			
149	***24***	***User Defined Red Flag 4***			
150	***25***	***User Defined Red Flag 5***			
151	***26***	***User Defined Red Flag 6***			
152	***27***	***User Defined Red Flag 7***			
153	***TOTAL - RED FLAGS***				**$0**

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	A	B	C	D	E
154					
155	***SUBTOTAL - CONSTRUCTION COST with Red Flags***				**$14,446,293**
156					
157	***Did a CH2M HILL Professional Estimator Review This Cost Estimate?***			**Yes**	
158	***If Yes, by whom?***			**McEwen**	
159	***MAXIMUM CONSTRUCTION COST***				**$14,446,293**
160					
161	***NON-CONSTRUCTION COSTS:***				
162	***Permitting***		**2%**	**$14,446,293**	**$288,926**
163	***Engineering***		**8%**	**$14,446,293**	**$1,155,703**
164	***SDC***		**8%**	**$14,446,293**	**$1,155,703**
165	***Commissioning & Startup***		**1%**	**$14,446,293**	**$144,463**
166	***Land ROW***		**1%**	**$14,446,293**	**$144,463**
167	***Legal/Admin***		**1%**	**$14,446,293**	**$144,463**
168	***0***		**0%**	**$14,446,293**	**$0**
169	***SUBTOTAL - Non-Construction Costs***				**$3,033,721**
170					
171	***TOTAL - CAPITAL COST***				**$17,480,014**
172					
173	***Currency Conversion of TOTAL CAPITAL COST:***				
174		***Currency***	***Unit of Measure***	***Conversion Rate***	***Converted Amount***
175		**None**	**U.S.Dollar**	**1**	**17,480,014**

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Combined Systems - Cost Estimate for Trunk Line

CH2M HILL Parametric Cost Estimating System (CPES)

CONVEYANCE MODULE

Project Name:	Aamodt Pump Stations, Transmission Main,
Project Number:	0
Project Manager:	0
Estimator:	McEwen
Project Description:	0
Project Location (City):	0
Project Location (State):	0
Project Location (Country):	0
Construction Start Date:	Jan-01
Construction Duration (months):	12
Mid-Point of Construction:	Jul-01

To Sketch of P

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Roundup to the nearest: $100

Item	Is this Item Included in the Project? (Yes or No)	DESCRIPTION	Cost
Pipe Segment 1	Yes	4" Transmission Main	$203,900
Pipe Segment 2	Yes	8" Transmission Main	$91,300
Pipe Segment 3	Yes	10" Transmission Main	$619,800
Pipe Segment 4	Yes	12" Transmission Main	$2,285,600
Pipe Segment 5	Yes	18" Transmission Main	$1,091,800
Pipe Segment 6	Yes	24" Transmission Main	$3,130,600
Pipe Segment 7	No	Segment 7 Description	$0
Pipe Segment 8	No	Segment 8 Description	$0
Pipe Segment 9	No	Segment 9 Description	$0
Pipe Segment 10	No	Segment 10 Description	$0
Trenchless Technology	No	Trenchless Technology	$0
Reservoir #1	Yes	PS Upstream of Bifurcation Forebay	$203,600
Reservoir #2	Yes	PS to Nambe Pueblo Forebay	$120,300
Reservoir #3	Yes	PS at Lower Camel Rock Forebay	$120,300
Reservoir #4	Yes	PS at Lower Tesuque Village Forebay	$118,776
Reservoir #5	Yes	PS at Lower Bishop Lodge Forebay	$117,985
Reservoir #1	No	75	$0
Reservoir #2	No	75	$0
Reservoir #3	No	75	$0
Reservoir #4	No	75	$0
Reservoir #5	Yes	75	$0
Pump Station #1	Yes	Jacona Booster PS	$316,500
Pump Station #2	Yes	PS Upstream of Bifurcation	$1,696,400
Pump Station #3	Yes	PS to Nambe Pueblo	$474,900
Pump Station #4	Yes	PS at Lower Camel Rock	$905,307
Pump Station #5	Yes	PS at Lower Tesuque Village	$585,315
Pump Station #6	Yes	PS at Upper Tesuque Village	$72,638
Pump Station #7	Yes	PS at Lower Bishop's Lodge	$316,708

SUBTOTAL - PROJECT COST			$12,471,729
ADDITIONAL PROJECT COSTS:			
Sitework	5%		$623,600
Site I&C	5%		$623,600
Site Electrical	15%		$1,870,800

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	A	B	C	D	E
53	***Yard Piping***		**5%**		**$623,600**
54	***Unlisted Items***		**20%**		**$2,494,400**
55	***0***		**0%**		**$0**
56	***0***		**0%**		**$0**
57	***0***		**0%**		**$0**
58	***SUBTOTAL with Additional Project Costs***				**$18,707,729**
59					
60	***CONTRACTOR MARKUPS:***				
61	***Overhead***		**10%**	**$18,707,729**	**$1,870,773**
62	***Subtotal***				**$20,578,502**
63	***Profit***		**7%**	**$20,578,502**	**$1,440,495**
64	***Subtotal***				**$22,018,997**
65	***Mob/Bonds/Insurance***		**3%**	**$22,018,997**	**$660,570**
66	***Subtotal***				**$22,679,567**
67	***Contingency***		**20%**	**$22,679,567**	**$4,535,913**
68	***SUBTOTAL with Markups***				**$27,215,480**
69					
70	***ESCALATION (to Mid-Point of Construction):***		**0.00%**	**$27,215,480**	**$0**
71	***SUBTOTAL with Escalation***				**$27,215,480**
72					
73	***LOCATION ADJUSTMENT FACTOR***		**100.00%**	**$27,215,480**	**$27,215,480**
74	***SUBTOTAL - with Local Adjustment Factor***				**$27,215,480**
75					
76	***Did a CH2M HILL Professional Estimator Review This Cost Estimate?***			**Yes**	
77	***If Yes, by whom?***			**McEwen**	
78	***MAXIMUM CONSTRUCTION COST***				**$27,215,480**
79					
80	***NON-CONSTRUCTION COSTS:***				
81	***Permitting***		**0%**	**$27,215,480**	**$0**
82	***Engineering***		**30%**	**$27,215,480**	**$8,164,644**
83	***SDC***		**0%**	**$27,215,480**	**$0**
84	***Commissioning & Startup***		**0%**	**$27,215,480**	**$0**
85	***Land ROW***		**0%**	**$27,215,480**	**$0**
86	***Legal/Admin***		**0%**	**$27,215,480**	**$0**
87	***0***		**0%**	**$27,215,480**	**$0**
88	***SUBTOTAL - Non-Construction Costs***				**$8,164,644**
89					
90	***TOTAL - CAPITAL COST***				**$35,380,124**
91					
92	***Currency Conversion of TOTAL CAPITAL COST:***				
93		***Currency***	***Unit of Measure***	***Conversion Rate***	***Converted Amount***
94		**None**	**U.S.Dollar**	**1**	**35,380,124**
95					
96	*Note: Unless otherwise stated, this order of magnitude cost opinion does not include any costs associated with the potential discovery of hazardous materials. The cost opinion shown has been prepared for guidance in project evaluation from the information available at the time of preparation. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule and other variable factors. As a result, the final project costs will vary from the cost presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.*				

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Combined Systems - Cost Estimates for Distribution Systems

SUMMARY OF TOTAL COST ESTIMATES FOR PROPOSED AAMODT REGIONAL WATER DISTRIBUTION SERVICE AREAS, PUEBLO ONLY AND COMBINED PUEBLO / COUNTY

Water Distribution System		CH2M HILL - CPES (May 2006)		ASCG (Spring 2005)	
		Pueblo Only	Combined	Pueblo Only	Combined
San Ildefonso					
	Subtotal	$2,652,900	$3,647,500	$2,302,100	$3,132,900
	Contract Cost	$3,342,654	$4,595,850	$2,900,646	$3,947,454
	Field Cost	$4,011,185	$5,515,020	$3,480,775	$4,736,945
		$4,011,185	**$5,515,020**	**$3,480,775**	**$4,736,945**
Jacona-El Rancho					
	Subtotal	$563,700	$3,932,300	$537,100	$3,577,700
	Contract Cost	$710,262	$4,954,698	$676,746	$4,507,902
	Field Cost	$852,314	$5,945,638	$812,095	$5,409,482
		$852,314	**$5,945,638**	**$812,095**	**$5,409,482**
Pojoaque					
	Subtotal	$3,032,100	$3,712,800	$3,108,700	$3,216,300
	Contract Cost	$3,820,446	$4,678,128	$3,916,962	$4,052,538
	Field Cost	$4,584,535	$5,613,754	$4,700,354	$4,863,046
		$4,584,535	**$5,613,754**	**$4,700,354**	**$4,863,046**
Upper Pojoaque					
	Subtotal		$2,452,300		$2,116,400
	Contract Cost		$3,089,898		$2,666,664
	Field Cost		$3,707,878		$3,199,997
			$3,707,878		**$3,199,997**
Nambe Pueblo/Village					
	Subtotal	$2,462,100	$3,609,900	$2,411,100	$3,110,300
	Contract Cost	$3,102,246	$4,548,474	$3,037,986	$3,918,978
	Field Cost	$3,722,695	$5,458,169	$3,645,583	$4,702,774
		$3,722,695	**$5,458,169**	**$3,645,583**	**$4,702,774**
Cuyamungue					
	Subtotal		$2,746,100		$2,551,800
	Contract Cost		$3,460,086		$3,215,268
	Field Cost		$4,152,103		$3,858,322
			$4,152,103		**$3,858,322**
Lower Camel R. and Upper Cuyumun					
	Subtotal		$2,016,400		$1,611,900
	Contract Cost		$2,540,664		$2,030,994
	Field Cost		$3,048,797		$2,437,193
			$3,048,797		**$2,437,193**
Tesuque and Camel Rock					
	Subtotal	$3,590,400	$2,041,800	$3,842,600	$1,796,300
	Contract Cost	$4,523,904	$2,572,668	$4,841,676	$2,263,338
	Field Cost	$5,428,685	$3,087,202	$5,810,011	$2,716,006
		$5,428,685	**$3,087,202**	**$5,810,011**	**$2,716,006**
Lower Tesuque Village & Upper Pueblo					
	Subtotal		$2,133,200		$1,818,700
	Contract Cost		$2,687,832		$2,291,562
	Field Cost		$3,225,398		$2,749,874
			$3,225,398		**$2,749,874**
Pueblo-Only Subtotal =		**$18,599,414**	**$39,753,958**	**$18,448,819**	**$34,673,638**
				Value scaled up 1.08: $19,924,725	**$37,447,529**
Upper Tesuque Village					
	Subtotal		$1,385,700		$1,290,800
	Contract Cost		$1,745,982		$1,626,408
	Field Cost		$2,095,178		$1,951,690
			$2,095,178		**$1,951,690**
Lower Bishops, Upper Opera, Opera					
	Subtotal		$1,038,500		$771,700
	Contract Cost		$1,308,510		$972,342
	Field Cost		$1,570,212		$1,166,810
			$1,570,212		**$1,166,810**
Bishops Lodge					
	Subtotal		$136,000		$118,000
	Contract Cost		$171,360		$148,680
	Field Cost		$205,632		$178,416
			$205,632		**$178,416**
Grand Total =		**$18,599,414**	**$43,624,980**	**$18,448,819**	**$37,970,554**
				Value scaled up 1.08: $19,924,725	**$41,008,198**

Notes:
Values derived from the subtotal cost inclusive of the following markups:
Mobilization = 5%
Unlisted Items = 20%
Contract Costs = Subtotal + Subtotal (Mobilization + Unlisted Items)
Contingencies = 20%
Field Costs = Contract Costs + Contract Costs (Contingencies)

CH2M HILL Parametric Cost Estimating System (CPES)

CONVEYANCE MODULE

Project Name:	Aamodt Settlement Water Supply Evaluation
Project Number:	344539.SF.01
Project Manager:	Greg Gates
Estimator:	Brewer
Project Description:	Combined-San Ildefonso Water Distribution System
Project Location (City):	0
Project Location (State):	0
Project Location (Country):	0
Construction Start Date:	Jan-01
Construction Duration (months):	12
Mid-Point of Construction:	Jul-01

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Roundup to the nearest: $100

Item	Is this Item Included in the Project? (Yes or No)	DESCRIPTION	Cost
Pipe Segment 1	No	4" Distribution Main	$0
Pipe Segment 2	Yes	6" Distribution Main	$1,007,000
Pipe Segment 3	Yes	8" Distribution Main	$778,900
Pipe Segment 4	Yes	10" Distribution Main	$646,200
Pipe Segment 5	Yes	12" Distribution Main	$737,400
Pipe Segment 6	No	14" Distribution Main	$0
Pipe Segment 7	Yes	Misc. Expenses	$227,400
Pipe Segment 8	No	18" Distribution Main	$0
Pipe Segment 9	No	20" Distribution Main	$0
Pipe Segment 10	No	24" Distribution Main	$0
Trenchless Technology	No	Trenchless Technology	$0
Storage Tank #1	Yes	400,000-gallon Water Storage Tank	$250,600
Storage Tank #2	No		$0
Storage Tank #3	No		$0
Storage Tank #4	No		$0
Storage Tank #5	No		$0
Well #1	No		$0
Well #2	No		$0
Well #3	No		$0
Well #4	No		$0
Well #5	No		$0
Pump Station #1	No		$0
Pump Station #2	No		$0
Pump Station #3	No		$0
Pump Station #4	No		$0
Pump Station #5	No		$0
SUBTOTAL - PROJECT COST			$3,647,500

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	A	B	C	D	E
46	***ADDITIONAL PROJECT COSTS:***				
47	***Sitework***		**0%**		**$0**
48	***Site I&C***		**0%**		**$0**
49	***Site Electrical***		**0%**		**$0**
50	***Yard Piping***		**0%**		**$0**
51	***(none)***		**0%**		**$0**
52	***0***		**0%**		**$0**
53	***0***		**0%**		**$0**
54	***0***		**0%**		**$0**
55	***SUBTOTAL with Additional Project Costs***				**$3,647,500**
56					
57	***CONTRACTOR MARKUPS:***				
58	***Overhead***		**10%**	**$3,647,500**	**$364,750**
59	***Subtotal***				**$4,012,250**
60	***Profit***		**7%**	**$4,012,250**	**$280,858**
61	***Subtotal***				**$4,293,108**
62	***Mob/Bonds/Insurance***		**3%**	**$4,293,108**	**$128,793**
63	***Subtotal***				**$4,421,901**
64	***Contingency***		**20%**	**$4,421,901**	**$884,380**
65	***SUBTOTAL with Markups***				**$5,306,281**
66					
67	***ESCALATION (to Mid-Point of Construction):***		**0.00%**	**$5,306,281**	**$0**
68	***SUBTOTAL with Escalation***				**$5,306,281**
69					
70	***LOCATION ADJUSTMENT FACTOR***		**100.00%**	**$5,306,281**	**$5,306,281**
71	***SUBTOTAL - with Local Adjustment Factor***				**$5,306,281**
72					
73	***Did a CH2M HILL Professional Estimator Review This Cost Estimate?***			**Yes**	
74	***If Yes, by whom?***			**McEwen**	
75	***MAXIMUM CONSTRUCTION COST***				**$5,306,281**
76					
77	***NON-CONSTRUCTION COSTS:***				
78	***Permitting***		**0%**	**$5,306,281**	**$0**
79	***Engineering***		**30%**	**$5,306,281**	**$1,591,884**
80	***SDC***		**0%**	**$5,306,281**	**$0**
81	***Commissioning & Startup***		**0%**	**$5,306,281**	**$0**
82	***Land ROW***		**0%**	**$5,306,281**	**$0**
83	***Legal/Admin***		**0%**	**$5,306,281**	**$0**
84	***0***		**0%**	**$5,306,281**	**$0**
85	***SUBTOTAL - Non-Construction Costs***				**$1,591,884**
86					
87	***TOTAL - CAPITAL COST***				**$6,898,165**
88					
89	***Currency Conversion of TOTAL CAPITAL COST:***				
90		***Currency***	***Unit of Measure***	***Conversion Rate***	***Converted Amount***
91		**None**	**U.S.Dollar**	**1**	**6,898,165**
92					
93	*Note: Unless otherwise stated, this order of magnitude cost opinion does not include any costs associated with the potential discovery of hazardous materials. The cost opinion shown has been prepared for guidance in project evaluation from the information available at the time of preparation. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule and other variable factors. As a result, the final project costs will vary from the cost presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.*				

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CH2M HILL Parametric Cost Estimating System (CPES)

CONVEYANCE MODULE

Project Name:	Aamodt Settlement Water Supply Evaluation
Project Number:	344539.SF.01
Project Manager:	Greg Gates
Estimator:	Brewer
Project Description:	Combined-Jacona & El Rancho (RPZ) Water Distribution System
Project Location (City):	0
Project Location (State):	0
Project Location (Country):	0
Construction Start Date:	Jan-01
Construction Duration (months):	12
Mid-Point of Construction:	Jul-01

To Sketch of Pi

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Roundup to the nearest: $100

Item	Is this Item Included in the Project? (Yes or No)	DESCRIPTION	Cost
Pipe Segment 1	No	4" Distribution Main	$0
Pipe Segment 2	Yes	6" Distribution Main	$1,171,400
Pipe Segment 3	Yes	8" Distribution Main	$1,024,200
Pipe Segment 4	Yes	10" Distribution Main	$545,900
Pipe Segment 5	Yes	12" Distribution Main	$200,700
Pipe Segment 6	Yes	14" Distribution Main	$186,800
Pipe Segment 7	Yes	Misc. Expenses	$446,500
Pipe Segment 8	No	18" Distribution Main	$0
Pipe Segment 9	No	20" Distribution Main	$0
Pipe Segment 10	No	24" Distribution Main	$0
Trenchless Technology	No	Trenchless Technology	$0
Storage Tank #1	Yes	700,000-gallon Water Storage Tank	$356,800
Storage Tank #2	No		$0
Storage Tank #3	No		$0
Storage Tank #4	No		$0
Storage Tank #5	No		$0
Well #1	No		$0
Well #2	No		$0
Well #3	No		$0
Well #4	No		$0
Well #5	No		$0
Pump Station #1	No		$0
Pump Station #2	No		$0
Pump Station #3	No		$0
Pump Station #4	No		$0
Pump Station #5	No		$0
SUBTOTAL - PROJECT COST			$3,932,300

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	A	B	C	D	E
46	***ADDITIONAL PROJECT COSTS:***				
47	***Sitework***		**0%**		**$0**
48	***Site I&C***		**0%**		**$0**
49	***Site Electrical***		**0%**		**$0**
50	***Yard Piping***		**0%**		**$0**
51	***(none)***		**0%**		**$0**
52	***0***		**0%**		**$0**
53	***0***		**0%**		**$0**
54	***0***		**0%**		**$0**
55	***SUBTOTAL with Additional Project Costs***				**$3,932,300**
56					
57	***CONTRACTOR MARKUPS:***				
58	***Overhead***		**10%**	**$3,932,300**	**$393,230**
59	***Subtotal***				**$4,325,530**
60	***Profit***		**7%**	**$4,325,530**	**$302,787**
61	***Subtotal***				**$4,628,317**
62	***Mob/Bonds/Insurance***		**3%**	**$4,628,317**	**$138,850**
63	***Subtotal***				**$4,767,167**
64	***Contingency***		**20%**	**$4,767,167**	**$953,433**
65	***SUBTOTAL with Markups***				**$5,720,600**
66					
67	***ESCALATION (to Mid-Point of Construction):***		**0.00%**	**$5,720,600**	**$0**
68	***SUBTOTAL with Escalation***				**$5,720,600**
69					
70	***LOCATION ADJUSTMENT FACTOR***		**100.00%**	**$5,720,600**	**$5,720,600**
71	***SUBTOTAL - with Local Adjustment Factor***				**$5,720,600**
72					
73	***Did a CH2M HILL Professional Estimator Review This Cost Estimate?***			**Yes**	
74	***If Yes, by whom?***			**McEwen**	
75	***MAXIMUM CONSTRUCTION COST***				**$5,720,600**
76					
77	***NON-CONSTRUCTION COSTS:***				
78	***Permitting***		**0%**	**$5,720,600**	**$0**
79	***Engineering***		**30%**	**$5,720,600**	**$1,716,180**
80	***SDC***		**0%**	**$5,720,600**	**$0**
81	***Commissioning & Startup***		**0%**	**$5,720,600**	**$0**
82	***Land ROW***		**0%**	**$5,720,600**	**$0**
83	***Legal/Admin***		**0%**	**$5,720,600**	**$0**
84	***0***		**0%**	**$5,720,600**	**$0**
85	***SUBTOTAL - Non-Construction Costs***				**$1,716,180**
86					
87	***TOTAL - CAPITAL COST***				**$7,436,780**
88					
89	***Currency Conversion of TOTAL CAPITAL COST:***				
90		***Currency***	***Unit of Measure***	***Conversion Rate***	***Converted Amount***
91		**None**	**U.S.Dollar**	**1**	**7,436,780**
92					
93	*Note: Unless otherwise stated, this order of magnitude cost opinion does not include any costs associated with the potential discovery of hazardous materials. The cost opinion shown has been prepared for guidance in project evaluation from the information available at the time of preparation. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule and other variable factors. As a result, the final project costs will vary from the cost presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.*				

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CH2M HILL Parametric Cost Estimating System (CPES)

CONVEYANCE MODULE

Project Name:	Aamodt Settlement Water Supply Evaluation
Project Number:	344539.SF.01
Project Manager:	Greg Gates
Estimator:	Brewer
Project Description:	Combined-Pojoaque Water Distribution System
Project Location (City):	0
Project Location (State):	0
Project Location (Country):	0
Construction Start Date:	Jan-01
Construction Duration (months):	12
Mid-Point of Construction:	Jul-01

To Sketch of Pi

To Conveyance

Click for CPE

Roundup to the nearest: $100

Item	Is this Item Included in the Project? (Yes or No)	DESCRIPTION	Cost
Pipe Segment 1	No	4" Distribution Main	$0
Pipe Segment 2	Yes	6" Distribution Main	$527,600
Pipe Segment 3	Yes	8" Distribution Main	$770,800
Pipe Segment 4	Yes	10" Distribution Main	$1,255,100
Pipe Segment 5	Yes	12" Distribution Main	$621,700
Pipe Segment 6	Yes	14" Distribution Main	$33,200
Pipe Segment 7	Yes	Misc. Expenses	$194,900
Pipe Segment 8	No	18" Distribution Main	$0
Pipe Segment 9	No	20" Distribution Main	$0
Pipe Segment 10	No	24" Distribution Main	$0
Trenchless Technology	No	Trenchless Technology	$0
Storage Tank #1	Yes	510,000-gallon Water Storage Tank	$309,500
Storage Tank #2	No		$0
Storage Tank #3	No		$0
Storage Tank #4	No		$0
Storage Tank #5	No		$0
Well #1	No		$0
Well #2	No		$0
Well #3	No		$0
Well #4	No		$0
Well #5	No		$0
Pump Station #1	No		$0
Pump Station #2	No		$0
Pump Station #3	No		$0
Pump Station #4	No		$0
Pump Station #5	No		$0
SUBTOTAL - PROJECT COST			$3,712,800

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	A	B	C	D	E
46	***ADDITIONAL PROJECT COSTS:***				
47	***Sitework***		**0%**		**$0**
48	***Site I&C***		**0%**		**$0**
49	***Site Electrical***		**0%**		**$0**
50	***Yard Piping***		**0%**		**$0**
51	***(none)***		**0%**		**$0**
52	***0***		**0%**		**$0**
53	***0***		**0%**		**$0**
54	***0***		**0%**		**$0**
55	***SUBTOTAL with Additional Project Costs***				**$3,712,800**
56					
57	***CONTRACTOR MARKUPS:***				
58	***Overhead***		**10%**	**$3,712,800**	**$371,280**
59	***Subtotal***				**$4,084,080**
60	***Profit***		**7%**	**$4,084,080**	**$285,886**
61	***Subtotal***				**$4,369,966**
62	***Mob/Bonds/Insurance***		**3%**	**$4,369,966**	**$131,099**
63	***Subtotal***				**$4,501,065**
64	***Contingency***		**20%**	**$4,501,065**	**$900,213**
65	***SUBTOTAL with Markups***				**$5,401,277**
66					
67	***ESCALATION (to Mid-Point of Construction):***		**0.00%**	**$5,401,277**	**$0**
68	***SUBTOTAL with Escalation***				**$5,401,277**
69					
70	***LOCATION ADJUSTMENT FACTOR***		**100.00%**	**$5,401,277**	**$5,401,277**
71	***SUBTOTAL - with Local Adjustment Factor***				**$5,401,277**
72					
73	***Did a CH2M HILL Professional Estimator Review This Cost Estimate?***			**Yes**	
74	***If Yes, by whom?***			**McEwen**	
75	***MAXIMUM CONSTRUCTION COST***				**$5,401,277**
76					
77	***NON-CONSTRUCTION COSTS:***				
78	***Permitting***		**0%**	**$5,401,277**	**$0**
79	***Engineering***		**30%**	**$5,401,277**	**$1,620,383**
80	***SDC***		**0%**	**$5,401,277**	**$0**
81	***Commissioning & Startup***		**0%**	**$5,401,277**	**$0**
82	***Land ROW***		**0%**	**$5,401,277**	**$0**
83	***Legal/Admin***		**0%**	**$5,401,277**	**$0**
84	***0***		**0%**	**$5,401,277**	**$0**
85	***SUBTOTAL - Non-Construction Costs***				**$1,620,383**
86					
87	***TOTAL - CAPITAL COST***				**$7,021,661**
88					
89	***Currency Conversion of TOTAL CAPITAL COST:***				
90		***Currency***	***Unit of Measure***	***Conversion Rate***	***Converted Amount***
91		**None**	**U.S.Dollar**	**1**	**7,021,661**
92					
93	*Note: Unless otherwise stated, this order of magnitude cost opinion does not include any costs associated with the potential discovery of hazardous materials. The cost opinion shown has been prepared for guidance in project evaluation from the information available at the time of preparation. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule and other variable factors. As a result, the final project costs will vary from the cost presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.*				

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CH2M HILL Parametric Cost Estimating System (CPES)

CONVEYANCE MODULE

Project Name:	Aamodt Settlement Water Supply Evaluation
Project Number:	344539.SF.01
Project Manager:	Greg Gates
Estimator:	Brewer
Project Description:	Combined-Upper Pojoaque Water Distribution System
Project Location (City):	0
Project Location (State):	0
Project Location (Country):	0
Construction Start Date:	Jan-01
Construction Duration (months):	12
Mid-Point of Construction:	Jul-01

To Sketch of P

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Roundup to the nearest: $100

Item	Is this Item Included in the Project? (Yes or No)	DESCRIPTION	Cost
Pipe Segment 1	No	4" Distribution Main	$0
Pipe Segment 2	Yes	6" Distribution Main	$446,200
Pipe Segment 3	Yes	8" Distribution Main	$526,400
Pipe Segment 4	Yes	10" Distribution Main	$499,700
Pipe Segment 5	Yes	12" Distribution Main	$457,200
Pipe Segment 6	No	14" Distribution Main	$0
Pipe Segment 7	Yes	Misc. Expenses	$228,200
Pipe Segment 8	No	18" Distribution Main	$0
Pipe Segment 9	No	20" Distribution Main	$0
Pipe Segment 10	No	24" Distribution Main	$0
Trenchless Technology	No	Trenchless Technology	$0
Storage Tank #1	Yes	450,000-gallon Water Storage Tank	$294,600
Storage Tank #2	No		$0
Storage Tank #3	No		$0
Storage Tank #4	No		$0
Storage Tank #5	No		$0
Well #1	No		$0
Well #2	No		$0
Well #3	No		$0
Well #4	No		$0
Well #5	No		$0
Pump Station #1	No		$0
Pump Station #2	No		$0
Pump Station #3	No		$0
Pump Station #4	No		$0
Pump Station #5	No		$0
SUBTOTAL - PROJECT COST			$2,452,300

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	A	B	C	D	E
46	***ADDITIONAL PROJECT COSTS:***				
47	***Sitework***		**0%**		**$0**
48	***Site I&C***		**0%**		**$0**
49	***Site Electrical***		**0%**		**$0**
50	***Yard Piping***		**0%**		**$0**
51	***(none)***		**0%**		**$0**
52	***0***		**0%**		**$0**
53	***0***		**0%**		**$0**
54	***0***		**0%**		**$0**
55	***SUBTOTAL with Additional Project Costs***				**$2,452,300**
56					
57	***CONTRACTOR MARKUPS:***				
58	***Overhead***		**10%**	**$2,452,300**	**$245,230**
59	***Subtotal***				**$2,697,530**
60	***Profit***		**7%**	**$2,697,530**	**$188,827**
61	***Subtotal***				**$2,886,357**
62	***Mob/Bonds/Insurance***		**3%**	**$2,886,357**	**$86,591**
63	***Subtotal***				**$2,972,948**
64	***Contingency***		**20%**	**$2,972,948**	**$594,590**
65	***SUBTOTAL with Markups***				**$3,567,537**
66					
67	***ESCALATION (to Mid-Point of Construction):***		**0.00%**	**$3,567,537**	**$0**
68	***SUBTOTAL with Escalation***				**$3,567,537**
69					
70	***LOCATION ADJUSTMENT FACTOR***		**100.00%**	**$3,567,537**	**$3,567,537**
71	***SUBTOTAL - with Local Adjustment Factor***				**$3,567,537**
72					
73	***Did a CH2M HILL Professional Estimator Review This Cost Estimate?***			**Yes**	
74	***If Yes, by whom?***			**McEwen**	
75	***MAXIMUM CONSTRUCTION COST***				**$3,567,537**
76					
77	***NON-CONSTRUCTION COSTS:***				
78	***Permitting***		**0%**	**$3,567,537**	**$0**
79	***Engineering***		**30%**	**$3,567,537**	**$1,070,261**
80	***SDC***		**0%**	**$3,567,537**	**$0**
81	***Commissioning & Startup***		**0%**	**$3,567,537**	**$0**
82	***Land ROW***		**0%**	**$3,567,537**	**$0**
83	***Legal/Admin***		**0%**	**$3,567,537**	**$0**
84	***0***		**0%**	**$3,567,537**	**$0**
85	***SUBTOTAL - Non-Construction Costs***				**$1,070,261**
86					
87	***TOTAL - CAPITAL COST***				**$4,637,799**
88					
89	***Currency Conversion of TOTAL CAPITAL COST:***				
90		***Currency***	***Unit of Measure***	***Conversion Rate***	***Converted Amount***
91		**None**	**U.S.Dollar**	**1**	**4,637,799**
92					
93	*Note: Unless otherwise stated, this order of magnitude cost opinion does not include any costs associated with the potential discovery of hazardous materials. The cost opinion shown has been prepared for guidance in project evaluation from the information available at the time of preparation. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule and other variable factors. As a result, the final project costs will vary from the cost presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.*				

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CH2M HILL Parametric Cost Estimating System (CPES)

CONVEYANCE MODULE

Project Name:	Aamodt Settlement Water Supply Evaluation
Project Number:	344539.SF.01
Project Manager:	Greg Gates
Estimator:	Brewer
Project Description:	Combined-Nambe Pueblo & Nambe Village (RPZ) Water Distribution System
Project Location (City):	0
Project Location (State):	0
Project Location (Country):	0
Construction Start Date:	Jan-01
Construction Duration (months):	12
Mid-Point of Construction:	Jul-01

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Roundup to the nearest: $100

Item	Is this Item Included in the Project? (Yes or No)	DESCRIPTION	Cost
Pipe Segment 1	No	4" Distribution Main	$0
Pipe Segment 2	Yes	6" Distribution Main	$1,566,500
Pipe Segment 3	Yes	8" Distribution Main	$1,198,100
Pipe Segment 4	Yes	10" Distribution Main	$87,700
Pipe Segment 5	Yes	12" Distribution Main	$209,200
Pipe Segment 6	No	14" Distribution Main	$0
Pipe Segment 7	Yes	Misc. Expenses	$247,600
Pipe Segment 8	No	18" Distribution Main	$0
Pipe Segment 9	No	20" Distribution Main	$0
Pipe Segment 10	No	24" Distribution Main	$0
Trenchless Technology	No	Trenchless Technology	$0
Storage Tank #1	Yes	475,000-gallon Water Storage Tank	$300,800
Storage Tank #2	No		$0
Storage Tank #3	No		$0
Storage Tank #4	No		$0
Storage Tank #5	No		$0
Well #1	No		$0
Well #2	No		$0
Well #3	No		$0
Well #4	No		$0
Well #5	No		$0
Pump Station #1	No		$0
Pump Station #2	No		$0
Pump Station #3	No		$0
Pump Station #4	No		$0
Pump Station #5	No		$0
SUBTOTAL - PROJECT COST			$3,609,900

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	A	B	C	D	E
46	***ADDITIONAL PROJECT COSTS:***				
47	***Sitework***		**0%**		**$0**
48	***Site I&C***		**0%**		**$0**
49	***Site Electrical***		**0%**		**$0**
50	***Yard Piping***		**0%**		**$0**
51	***(none)***		**0%**		**$0**
52	***0***		**0%**		**$0**
53	***0***		**0%**		**$0**
54	***0***		**0%**		**$0**
55	***SUBTOTAL with Additional Project Costs***				**$3,609,900**
56					
57	***CONTRACTOR MARKUPS:***				
58	***Overhead***		**10%**	**$3,609,900**	**$360,990**
59	***Subtotal***				**$3,970,890**
60	***Profit***		**7%**	**$3,970,890**	**$277,962**
61	***Subtotal***				**$4,248,852**
62	***Mob/Bonds/Insurance***		**3%**	**$4,248,852**	**$127,466**
63	***Subtotal***				**$4,376,318**
64	***Contingency***		**20%**	**$4,376,318**	**$875,264**
65	***SUBTOTAL with Markups***				**$5,251,581**
66					
67	***ESCALATION (to Mid-Point of Construction):***		**0.00%**	**$5,251,581**	**$0**
68	***SUBTOTAL with Escalation***				**$5,251,581**
69					
70	***LOCATION ADJUSTMENT FACTOR***		**100.00%**	**$5,251,581**	**$5,251,581**
71	***SUBTOTAL - with Local Adjustment Factor***				**$5,251,581**
72					
73	***Did a CH2M HILL Professional Estimator Review This Cost Estimate?***			**Yes**	
74	***If Yes, by whom?***			**McEwen**	
75	***MAXIMUM CONSTRUCTION COST***				**$5,251,581**
76					
77	***NON-CONSTRUCTION COSTS:***				
78	***Permitting***		**0%**	**$5,251,581**	**$0**
79	***Engineering***		**30%**	**$5,251,581**	**$1,575,474**
80	***SDC***		**0%**	**$5,251,581**	**$0**
81	***Commissioning & Startup***		**0%**	**$5,251,581**	**$0**
82	***Land ROW***		**0%**	**$5,251,581**	**$0**
83	***Legal/Admin***		**0%**	**$5,251,581**	**$0**
84	***0***		**0%**	**$5,251,581**	**$0**
85	***SUBTOTAL - Non-Construction Costs***				**$1,575,474**
86					
87	***TOTAL - CAPITAL COST***				**$6,827,056**
88					
89	***Currency Conversion of TOTAL CAPITAL COST:***				
90		***Currency***	***Unit of Measure***	***Conversion Rate***	***Converted Amount***
91		**None**	**U.S.Dollar**	**1**	**6,827,056**
92					
93	*Note: Unless otherwise stated, this order of magnitude cost opinion does not include any costs associated with the potential discovery of hazardous materials. The cost opinion shown has been prepared for guidance in project evaluation from the information available at the time of preparation. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule and other variable factors. As a result, the final project costs will vary from the cost presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.*				

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CH2M HILL Parametric Cost Estimating System (CPES)

CONVEYANCE MODULE

Project Name:	Aamodt Settlement Water Supply Evaluation
Project Number:	344539.SF.01
Project Manager:	Greg Gates
Estimator:	Brewer
Project Description:	Combined-Cuyamungue Water Distribution System
Project Location (City):	0
Project Location (State):	0
Project Location (Country):	0
Construction Start Date:	Jan-01
Construction Duration (months):	12
Mid-Point of Construction:	Jul-01

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Roundup to the nearest: $100

Item	Is this Item Included in the Project? (Yes or No)	DESCRIPTION	Cost
Pipe Segment 1	No	4" Distribution Main	$0
Pipe Segment 2	Yes	6" Distribution Main	$558,300
Pipe Segment 3	Yes	8" Distribution Main	$362,300
Pipe Segment 4	No	10" Distribution Main	$0
Pipe Segment 5	Yes	12" Distribution Main	$1,290,800
Pipe Segment 6	No	14" Distribution Main	$0
Pipe Segment 7	Yes	Misc. Expenses	$233,900
Pipe Segment 8	No	18" Distribution Main	$0
Pipe Segment 9	No	20" Distribution Main	$0
Pipe Segment 10	No	24" Distribution Main	$0
Trenchless Technology	No	Trenchless Technology	$0
Storage Tank #1	Yes	475,000-gallon Water Storage Tank	$300,800
Storage Tank #2	No		$0
Storage Tank #3	No		$0
Storage Tank #4	No		$0
Storage Tank #5	No		$0
Well #1	No		$0
Well #2	No		$0
Well #3	No		$0
Well #4	No		$0
Well #5	No		$0
Pump Station #1	No		$0
Pump Station #2	No		$0
Pump Station #3	No		$0
Pump Station #4	No		$0
Pump Station #5	No		$0
SUBTOTAL - PROJECT COST			$2,746,100

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	A	B	C	D	E
46	***ADDITIONAL PROJECT COSTS:***				
47	***Sitework***		**0%**		**$0**
48	***Site I&C***		**0%**		**$0**
49	***Site Electrical***		**0%**		**$0**
50	***Yard Piping***		**0%**		**$0**
51	***(none)***		**0%**		**$0**
52	***0***		**0%**		**$0**
53	***0***		**0%**		**$0**
54	***0***		**0%**		**$0**
55	***SUBTOTAL with Additional Project Costs***				**$2,746,100**
56					
57	***CONTRACTOR MARKUPS:***				
58	***Overhead***		**10%**	**$2,746,100**	**$274,610**
59	***Subtotal***				**$3,020,710**
60	***Profit***		**7%**	**$3,020,710**	**$211,450**
61	***Subtotal***				**$3,232,160**
62	***Mob/Bonds/Insurance***		**3%**	**$3,232,160**	**$96,965**
63	***Subtotal***				**$3,329,124**
64	***Contingency***		**20%**	**$3,329,124**	**$665,825**
65	***SUBTOTAL with Markups***				**$3,994,949**
66					
67	***ESCALATION (to Mid-Point of Construction):***		**0.00%**	**$3,994,949**	**$0**
68	***SUBTOTAL with Escalation***				**$3,994,949**
69					
70	***LOCATION ADJUSTMENT FACTOR***		**100.00%**	**$3,994,949**	**$3,994,949**
71	***SUBTOTAL - with Local Adjustment Factor***				**$3,994,949**
72					
73	***Did a CH2M HILL Professional Estimator Review This Cost Estimate?***			**Yes**	
74	***If Yes, by whom?***			**McEwen**	
75	***MAXIMUM CONSTRUCTION COST***				**$3,994,949**
76					
77	***NON-CONSTRUCTION COSTS:***				
78	***Permitting***		**0%**	**$3,994,949**	**$0**
79	***Engineering***		**30%**	**$3,994,949**	**$1,198,485**
80	***SDC***		**0%**	**$3,994,949**	**$0**
81	***Commissioning & Startup***		**0%**	**$3,994,949**	**$0**
82	***Land ROW***		**0%**	**$3,994,949**	**$0**
83	***Legal/Admin***		**0%**	**$3,994,949**	**$0**
84	***0***		**0%**	**$3,994,949**	**$0**
85	***SUBTOTAL - Non-Construction Costs***				**$1,198,485**
86					
87	***TOTAL - CAPITAL COST***				**$5,193,434**
88					
89	***Currency Conversion of TOTAL CAPITAL COST:***				
90		***Currency***	***Unit of Measure***	***Conversion Rate***	***Converted Amount***
91		**None**	**U.S.Dollar**	**1**	**5,193,434**
92					
93	*Note : Unless otherwise stated, this order of magnitude cost opinion does not include any costs associated with the potential discovery of hazardous materials. The cost opinion shown has been prepared for guidance in project evaluation from the information available at the time of preparation. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule and other variable factors. As a result, the final project costs will vary from the cost presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.*				

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CH2M HILL Parametric Cost Estimating System (CPES)

CONVEYANCE MODULE

Project Name:	Aamodt Settlement Water Supply Evaluation
Project Number:	344539.SF.01
Project Manager:	Greg Gates
Estimator:	Brewer
Project Description:	Combined-Lower Camel Rock & Upper Cuyamungue (RPZ) Water Distribution System
Project Location (City):	0
Project Location (State):	0
Project Location (Country):	0
Construction Start Date:	Jan-01
Construction Duration (months):	12
Mid-Point of Construction:	Jul-01

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Roundup to the nearest: $100

Item	Is this Item Included in the Project? (Yes or No)	DESCRIPTION	Cost
Pipe Segment 1	No	4" Distribution Main	$0
Pipe Segment 2	Yes	6" Distribution Main	$236,200
Pipe Segment 3	Yes	8" Distribution Main	$698,400
Pipe Segment 4	Yes	10" Distribution Main	$76,900
Pipe Segment 5	Yes	12" Distribution Main	$670,000
Pipe Segment 6	No	14" Distribution Main	$0
Pipe Segment 7	Yes	Misc. Expenses	$34,100
Pipe Segment 8	No	18" Distribution Main	$0
Pipe Segment 9	No	20" Distribution Main	$0
Pipe Segment 10	No	24" Distribution Main	$0
Trenchless Technology	No	Trenchless Technology	$0
Storage Tank #1	Yes	475,000-gallon Water Storage Tank	$300,800
Storage Tank #2	No		$0
Storage Tank #3	No		$0
Storage Tank #4	No		$0
Storage Tank #5	No		$0
Well #1	No		$0
Well #2	No		$0
Well #3	No		$0
Well #4	No		$0
Well #5	No		$0
Pump Station #1	No		$0
Pump Station #2	No		$0
Pump Station #3	No		$0
Pump Station #4	No		$0
Pump Station #5	No		$0
SUBTOTAL - PROJECT COST			$2,016,400

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	A	B	C	D	E
46	***ADDITIONAL PROJECT COSTS:***				
47	***Sitework***		**0%**		**$0**
48	***Site I&C***		**0%**		**$0**
49	***Site Electrical***		**0%**		**$0**
50	***Yard Piping***		**0%**		**$0**
51	***(none)***		**0%**		**$0**
52	***0***		**0%**		**$0**
53	***0***		**0%**		**$0**
54	***0***		**0%**		**$0**
55	***SUBTOTAL with Additional Project Costs***				**$2,016,400**
56					
57	***CONTRACTOR MARKUPS:***				
58	***Overhead***		**10%**	**$2,016,400**	**$201,640**
59	***Subtotal***				**$2,218,040**
60	***Profit***		**7%**	**$2,218,040**	**$155,263**
61	***Subtotal***				**$2,373,303**
62	***Mob/Bonds/Insurance***		**3%**	**$2,373,303**	**$71,199**
63	***Subtotal***				**$2,444,502**
64	***Contingency***		**20%**	**$2,444,502**	**$488,900**
65	***SUBTOTAL with Markups***				**$2,933,402**
66					
67	***ESCALATION (to Mid-Point of Construction):***		**0.00%**	**$2,933,402**	**$0**
68	***SUBTOTAL with Escalation***				**$2,933,402**
69					
70	***LOCATION ADJUSTMENT FACTOR***		**100.00%**	**$2,933,402**	**$2,933,402**
71	***SUBTOTAL - with Local Adjustment Factor***				**$2,933,402**
72					
73	***Did a CH2M HILL Professional Estimator Review This Cost Estimate?***			**Yes**	
74	***If Yes, by whom?***			**McEwen**	
75	***MAXIMUM CONSTRUCTION COST***				**$2,933,402**
76					
77	***NON-CONSTRUCTION COSTS:***				
78	***Permitting***		**0%**	**$2,933,402**	**$0**
79	***Engineering***		**30%**	**$2,933,402**	**$880,021**
80	***SDC***		**0%**	**$2,933,402**	**$0**
81	***Commissioning & Startup***		**0%**	**$2,933,402**	**$0**
82	***Land ROW***		**0%**	**$2,933,402**	**$0**
83	***Legal/Admin***		**0%**	**$2,933,402**	**$0**
84	***0***		**0%**	**$2,933,402**	**$0**
85	***SUBTOTAL - Non-Construction Costs***				**$880,021**
86					
87	***TOTAL - CAPITAL COST***				**$3,813,423**
88					
89	***Currency Conversion of TOTAL CAPITAL COST:***				
90		***Currency***	***Unit of Measure***	***Conversion Rate***	***Converted Amount***
91		**None**	**U.S.Dollar**	**1**	**3,813,423**
92					
93	*Note: Unless otherwise stated, this order of magnitude cost opinion does not include any costs associated with the potential discovery of hazardous materials. The cost opinion shown has been prepared for guidance in project evaluation from the information available at the time of preparation. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule and other variable factors. As a result, the final project costs will vary from the cost presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.*				

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CH2M HILL Parametric Cost Estimating System (CPES)

CONVEYANCE MODULE

Project Name:	Aamodt Settlement Water Supply Evaluation
Project Number:	344539.SF.01
Project Manager:	Greg Gates
Estimator:	Brewer
Project Description:	Combined-Tesuque Pueblo & Camel Rock (RPZ) Water Distribution System
Project Location (City):	0
Project Location (State):	0
Project Location (Country):	0
Construction Start Date:	Jan-01
Construction Duration (months):	12
Mid-Point of Construction:	Jul-01

To Sketch of P

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Roundup to the nearest: $100

Item	Is this Item Included in the Project? (Yes or No)	DESCRIPTION	Cost
Pipe Segment 1	No	4" Distribution Main	$0
Pipe Segment 2	Yes	6" Distribution Main	$417,800
Pipe Segment 3	Yes	8" Distribution Main	$245,800
Pipe Segment 4	Yes	10" Distribution Main	$33,400
Pipe Segment 5	Yes	12" Distribution Main	$896,200
Pipe Segment 6	No	14" Distribution Main	$0
Pipe Segment 7	Yes	Misc. Expenses	$147,800
Pipe Segment 8	No	18" Distribution Main	$0
Pipe Segment 9	No	20" Distribution Main	$0
Pipe Segment 10	No	24" Distribution Main	$0
Trenchless Technology	No	Trenchless Technology	$0
Storage Tank #1	Yes	475,000-gallon Water Storage Tank	$300,800
Storage Tank #2	No		$0
Storage Tank #3	No		$0
Storage Tank #4	No		$0
Storage Tank #5	No		$0
Well #1	No		$0
Well #2	No		$0
Well #3	No		$0
Well #4	No		$0
Well #5	No		$0
Pump Station #1	No		$0
Pump Station #2	No		$0
Pump Station #3	No		$0
Pump Station #4	No		$0
Pump Station #5	No		$0
SUBTOTAL - PROJECT COST			$2,041,800

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	A	B	C	D	E
46	***ADDITIONAL PROJECT COSTS:***				
47	***Sitework***		**0%**		**$0**
48	***Site I&C***		**0%**		**$0**
49	***Site Electrical***		**0%**		**$0**
50	***Yard Piping***		**0%**		**$0**
51	***(none)***		**0%**		**$0**
52	***0***		**0%**		**$0**
53	***0***		**0%**		**$0**
54	***0***		**0%**		**$0**
55	***SUBTOTAL with Additional Project Costs***				**$2,041,800**
56					
57	***CONTRACTOR MARKUPS:***				
58	***Overhead***		**10%**	**$2,041,800**	**$204,180**
59	***Subtotal***				**$2,245,980**
60	***Profit***		**7%**	**$2,245,980**	**$157,219**
61	***Subtotal***				**$2,403,199**
62	***Mob/Bonds/Insurance***		**3%**	**$2,403,199**	**$72,096**
63	***Subtotal***				**$2,475,295**
64	***Contingency***		**20%**	**$2,475,295**	**$495,059**
65	***SUBTOTAL with Markups***				**$2,970,353**
66					
67	***ESCALATION (to Mid-Point of Construction):***		**0.00%**	**$2,970,353**	**$0**
68	***SUBTOTAL with Escalation***				**$2,970,353**
69					
70	***LOCATION ADJUSTMENT FACTOR***		**100.00%**	**$2,970,353**	**$2,970,353**
71	***SUBTOTAL - with Local Adjustment Factor***				**$2,970,353**
72					
73	***Did a CH2M HILL Professional Estimator Review This Cost Estimate?***			**Yes**	
74	***If Yes, by whom?***			**McEwen**	
75	***MAXIMUM CONSTRUCTION COST***				**$2,970,353**
76					
77	***NON-CONSTRUCTION COSTS:***				
78	***Permitting***		**0%**	**$2,970,353**	**$0**
79	***Engineering***		**30%**	**$2,970,353**	**$891,106**
80	***SDC***		**0%**	**$2,970,353**	**$0**
81	***Commissioning & Startup***		**0%**	**$2,970,353**	**$0**
82	***Land ROW***		**0%**	**$2,970,353**	**$0**
83	***Legal/Admin***		**0%**	**$2,970,353**	**$0**
84	***0***		**0%**	**$2,970,353**	**$0**
85	***SUBTOTAL - Non-Construction Costs***				**$891,106**
86					
87	***TOTAL - CAPITAL COST***				**$3,861,460**
88					
89	***Currency Conversion of TOTAL CAPITAL COST:***				
90		***Currency***	***Unit of Measure***	***Conversion Rate***	***Converted Amount***
91		**None**	**U.S.Dollar**	**1**	**3,861,460**
92					
93	*Note : Unless otherwise stated, this order of magnitude cost opinion does not include any costs associated with the potential discovery of hazardous materials. The cost opinion shown has been prepared for guidance in project evaluation from the information available at the time of preparation. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule and other variable factors. As a result, the final project costs will vary from the cost presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.*				

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C H2M HILL P arametric Cost E stimating S ystem (CPES)

CONVEYANCE MODULE

Project Name:	Aamodt Settlement Water Supply Evaluation
Project Number:	344539.SF.01
Project Manager:	Greg Gates
Estimator:	Brewer
Project Description:	Combined-Village (RPZ) and Upper Tesuque Pueblo (RPZ) Water Distribution System
Project Location (City):	0
Project Location (State):	0
Project Location (Country):	0
Construction Start Date:	Jan-01
Construction Duration (months):	12
Mid-Point of Construction:	Jul-01

To Sketch of Pi

To Conveyance

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Roundup to the nearest: $100

Item	Is this Item Included in the Project? (Yes or No)	DESCRIPTION	Cost
Pipe Segment 1	No	4" Distribution Main	$0
Pipe Segment 2	Yes	6" Distribution Main	$596,500
Pipe Segment 3	Yes	8" Distribution Main	$201,700
Pipe Segment 4	No	10" Distribution Main	$0
Pipe Segment 5	Yes	12" Distribution Main	$909,600
Pipe Segment 6	No	14" Distribution Main	$0
Pipe Segment 7	Yes	Misc. Expenses	$124,600
Pipe Segment 8	No	18" Distribution Main	$0
Pipe Segment 9	No	20" Distribution Main	$0
Pipe Segment 10	No	24" Distribution Main	$0
Trenchless Technology	No	Trenchless Technology	$0
Storage Tank #1	Yes	475,000-gallon Water Storage Tank	$300,800
Storage Tank #2	No		$0
Storage Tank #3	No		$0
Storage Tank #4	No		$0
Storage Tank #5	No		$0
Well #1	No		$0
Well #2	No		$0
Well #3	No		$0
Well #4	No		$0
Well #5	No		$0
Pump Station #1	No		$0
Pump Station #2	No		$0
Pump Station #3	No		$0
Pump Station #4	No		$0
Pump Station #5	No		$0
SUBTOTAL - PROJECT COST			$2,133,200

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	A	B	C	D	E
46	**ADDITIONAL PROJECT COSTS:**				
47	Sitework		0%		$0
48	Site I&C		0%		$0
49	Site Electrical		0%		$0
50	Yard Piping		0%		$0
51	(none)		0%		$0
52	0		0%		$0
53	0		0%		$0
54	0		0%		$0
55	**SUBTOTAL with Additional Project Costs**				$2,133,200
56					
57	**CONTRACTOR MARKUPS:**				
58	Overhead		10%	$2,133,200	$213,320
59	Subtotal				$2,346,520
60	Profit		7%	$2,346,520	$164,256
61	Subtotal				$2,510,776
62	Mob/Bonds/Insurance		3%	$2,510,776	$75,323
63	Subtotal				$2,586,100
64	Contingency		20%	$2,586,100	$517,220
65	**SUBTOTAL with Markups**				$3,103,320
66					
67	**ESCALATION (to Mid-Point of Construction):**		0.00%	$3,103,320	$0
68	**SUBTOTAL with Escalation**				$3,103,320
69					
70	**LOCATION ADJUSTMENT FACTOR**		100.00%	$3,103,320	$3,103,320
71	**SUBTOTAL - with Local Adjustment Factor**				$3,103,320
72					
73	**Did a CH2M HILL Professional Estimator Review This Cost Estimate?**			Yes	
74	**If Yes, by whom?**			McEwen	
75	**MAXIMUM CONSTRUCTION COST**				$3,103,320
76					
77	**NON-CONSTRUCTION COSTS:**				
78	Permitting		0%	$3,103,320	$0
79	Engineering		30%	$3,103,320	$930,996
80	SDC		0%	$3,103,320	$0
81	Commissioning & Startup		0%	$3,103,320	$0
82	Land ROW		0%	$3,103,320	$0
83	Legal/Admin		0%	$3,103,320	$0
84	0		0%	$3,103,320	$0
85	**SUBTOTAL - Non-Construction Costs**				$930,996
86					
87	**TOTAL - CAPITAL COST**				$4,034,316
88					
89	**Currency Conversion of TOTAL CAPITAL COST:**				
90		Currency	Unit of Measure	Conversion Rate	Converted Amount
91		None	U.S.Dollar	1	4,034,316
92					
93	*Note: Unless otherwise stated, this order of magnitude cost opinion does not include any costs associated with the potential discovery of hazardous materials. The cost opinion shown has been prepared for guidance in project evaluation from the information available at the time of preparation. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule and other variable factors. As a result, the final project costs will vary from the cost presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.*				

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CH2M HILL Parametric Cost Estimating System (CPES)

CONVEYANCE MODULE

Project Name:	Aamodt Settlement Water Supply Evaluation
Project Number:	344539.SF.01
Project Manager:	Greg Gates
Estimator:	Brewer
Project Description:	Combined-Upper Tesuque Village Water Distribution System
Project Location (City):	0
Project Location (State):	0
Project Location (Country):	0
Construction Start Date:	Jan-01
Construction Duration (months):	12
Mid-Point of Construction:	Jul-01

To Sketch of Pi

To Conveyance

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Roundup to the nearest: $100

Item	Is this Item Included in the Project? (Yes or No)	DESCRIPTION	Cost
Pipe Segment 1	Yes	4" Distribution Main	$107,000
Pipe Segment 2	Yes	6" Distribution Main	$485,800
Pipe Segment 3	Yes	8" Distribution Main	$426,900
Pipe Segment 4	Yes	10" Distribution Main	$4,600
Pipe Segment 5	Yes	12" Distribution Main	$123,200
Pipe Segment 6	No	14" Distribution Main	$0
Pipe Segment 7	Yes	Misc. Expenses	$8,300
Pipe Segment 8	No	18" Distribution Main	$0
Pipe Segment 9	No	20" Distribution Main	$0
Pipe Segment 10	No	24" Distribution Main	$0
Trenchless Technology	No	Trenchless Technology	$0
Storage Tank #1	Yes	190,000-gallon Water Storage Tank	$229,900
Storage Tank #2	No		$0
Storage Tank #3	No		$0
Storage Tank #4	No		$0
Storage Tank #5	No		$0
Well #1	No		$0
Well #2	No		$0
Well #3	No		$0
Well #4	No		$0
Well #5	No		$0
Pump Station #1	No		$0
Pump Station #2	No		$0
Pump Station #3	No		$0
Pump Station #4	No		$0
Pump Station #5	No		$0
SUBTOTAL - PROJECT COST			$1,385,700

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	A	B	C	D	E
46	***ADDITIONAL PROJECT COSTS:***				
47	***Sitework***		**0%**		**$0**
48	***Site I&C***		**0%**		**$0**
49	***Site Electrical***		**0%**		**$0**
50	***Yard Piping***		**0%**		**$0**
51	***(none)***		**0%**		**$0**
52	***0***		**0%**		**$0**
53	***0***		**0%**		**$0**
54	***0***		**0%**		**$0**
55	***SUBTOTAL with Additional Project Costs***				**$1,385,700**
56					
57	***CONTRACTOR MARKUPS:***				
58	***Overhead***		**10%**	**$1,385,700**	**$138,570**
59	***Subtotal***				**$1,524,270**
60	***Profit***		**7%**	**$1,524,270**	**$106,699**
61	***Subtotal***				**$1,630,969**
62	***Mob/Bonds/Insurance***		**3%**	**$1,630,969**	**$48,929**
63	***Subtotal***				**$1,679,898**
64	***Contingency***		**20%**	**$1,679,898**	**$335,980**
65	***SUBTOTAL with Markups***				**$2,015,878**
66					
67	***ESCALATION (to Mid-Point of Construction):***		**0.00%**	**$2,015,878**	**$0**
68	***SUBTOTAL with Escalation***				**$2,015,878**
69					
70	***LOCATION ADJUSTMENT FACTOR***		**100.00%**	**$2,015,878**	**$2,015,878**
71	***SUBTOTAL - with Local Adjustment Factor***				**$2,015,878**
72					
73	***Did a CH2M HILL Professional Estimator Review This Cost Estimate?***			**Yes**	
74	***If Yes, by whom?***			**McEwen**	
75	***MAXIMUM CONSTRUCTION COST***				**$2,015,878**
76					
77	***NON-CONSTRUCTION COSTS:***				
78	***Permitting***		**0%**	**$2,015,878**	**$0**
79	***Engineering***		**30%**	**$2,015,878**	**$604,763**
80	***SDC***		**0%**	**$2,015,878**	**$0**
81	***Commissioning & Startup***		**0%**	**$2,015,878**	**$0**
82	***Land ROW***		**0%**	**$2,015,878**	**$0**
83	***Legal/Admin***		**0%**	**$2,015,878**	**$0**
84	***0***		**0%**	**$2,015,878**	**$0**
85	***SUBTOTAL - Non-Construction Costs***				**$604,763**
86					
87	***TOTAL - CAPITAL COST***				**$2,620,641**
88					
89	***Currency Conversion of TOTAL CAPITAL COST:***				
90		***Currency***	***Unit of Measure***	***Conversion Rate***	***Converted Amount***
91		**None**	**U.S.Dollar**	**1**	**2,620,641**
92					

Note: Unless otherwise stated, this order of magnitude cost opinion does not include any costs associated with the potential discovery of hazardous materials. The cost opinion shown has been prepared for guidance in project evaluation from the information available at the time of preparation. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule and other variable factors. As a result, the final project costs will vary from the cost presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.

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C H2M HILL P arametric Cost E stimating S ystem (CPES)

CONVEYANCE MODULE

Project Name:	Aamodt Settlement Water Supply Evaluation
Project Number:	344539.SF.01
Project Manager:	Greg Gates
Estimator:	Brewer
Project Description:	Combined-Lower Bishop's Lodge, Upper Santa Fe Opera (RPZ) & Santa Fe Opera Water Distribution System
Project Location (City):	0
Project Location (State):	0
Project Location (Country):	0
Construction Start Date:	Jan-01
Construction Duration (months):	12
Mid-Point of Construction:	Jul-01

To Sketch of Pi

To Conveyance

Click for CPE

Roundup to the nearest: $100

Item	Is this Item Included in the Project? (Yes or No)	DESCRIPTION	Cost
Pipe Segment 1	No	4" Distribution Main	$0
Pipe Segment 2	Yes	6" Distribution Main	$179,900
Pipe Segment 3	Yes	8" Distribution Main	$352,900
Pipe Segment 4	Yes	10" Distribution Main	$83,000
Pipe Segment 5	No	12" Distribution Main	$0
Pipe Segment 6	No	14" Distribution Main	$0
Pipe Segment 7	Yes	Misc. Expenses	$200,300
Pipe Segment 8	No	18" Distribution Main	$0
Pipe Segment 9	No	20" Distribution Main	$0
Pipe Segment 10	No	24" Distribution Main	$0
Trenchless Technology	No	Trenchless Technology	$0
Storage Tank #1	Yes	160,000-gallon Water Storage Tank	$222,400
Storage Tank #2	No		$0
Storage Tank #3	No		$0
Storage Tank #4	No		$0
Storage Tank #5	No		$0
Well #1	No		$0
Well #2	No		$0
Well #3	No		$0
Well #4	No		$0
Well #5	No		$0
Pump Station #1	No		$0
Pump Station #2	No		$0
Pump Station #3	No		$0
Pump Station #4	No		$0
Pump Station #5	No		$0
SUBTOTAL - PROJECT COST			$1,038,500

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	A	B	C	D	E
46	***ADDITIONAL PROJECT COSTS:***				
47	***Sitework***		**0%**		**$0**
48	***Site I&C***		**0%**		**$0**
49	***Site Electrical***		**0%**		**$0**
50	***Yard Piping***		**0%**		**$0**
51	***(none)***		**0%**		**$0**
52	***0***		**0%**		**$0**
53	***0***		**0%**		**$0**
54	***0***		**0%**		**$0**
55	***SUBTOTAL with Additional Project Costs***				**$1,038,500**
56					
57	***CONTRACTOR MARKUPS:***				
58	***Overhead***		**10%**	**$1,038,500**	**$103,850**
59	***Subtotal***				**$1,142,350**
60	***Profit***		**7%**	**$1,142,350**	**$79,965**
61	***Subtotal***				**$1,222,315**
62	***Mob/Bonds/Insurance***		**3%**	**$1,222,315**	**$36,669**
63	***Subtotal***				**$1,258,984**
64	***Contingency***		**20%**	**$1,258,984**	**$251,797**
65	***SUBTOTAL with Markups***				**$1,510,781**
66					
67	***ESCALATION (to Mid-Point of Construction):***		**0.00%**	**$1,510,781**	**$0**
68	***SUBTOTAL with Escalation***				**$1,510,781**
69					
70	***LOCATION ADJUSTMENT FACTOR***		**100.00%**	**$1,510,781**	**$1,510,781**
71	***SUBTOTAL - with Local Adjustment Factor***				**$1,510,781**
72					
73	***Did a CH2M HILL Professional Estimator Review This Cost Estimate?***			**Yes**	
74	***If Yes, by whom?***			**McEwen**	
75	***MAXIMUM CONSTRUCTION COST***				**$1,510,781**
76					
77	***NON-CONSTRUCTION COSTS:***				
78	***Permitting***		**0%**	**$1,510,781**	**$0**
79	***Engineering***		**30%**	**$1,510,781**	**$453,234**
80	***SDC***		**0%**	**$1,510,781**	**$0**
81	***Commissioning & Startup***		**0%**	**$1,510,781**	**$0**
82	***Land ROW***		**0%**	**$1,510,781**	**$0**
83	***Legal/Admin***		**0%**	**$1,510,781**	**$0**
84	***0***		**0%**	**$1,510,781**	**$0**
85	***SUBTOTAL - Non-Construction Costs***				**$453,234**
86					
87	***TOTAL - CAPITAL COST***				**$1,964,015**
88					
89	***Currency Conversion of TOTAL CAPITAL COST:***				

90	***Currency***	***Unit of Measure***	***Conversion Rate***	***Converted Amount***
91	**None**	**U.S.Dollar**	**1**	**1,964,015**

92

93 *Note : Unless otherwise stated, this order of magnitude cost opinion does not include any costs associated with the potential discovery of hazardous materials. The cost opinion shown has been prepared for guidance in project evaluation from the information available at the time of preparation. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule and other variable factors. As a result, the final project costs will vary from the cost presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.*

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	A	B	C	D	E
46	***ADDITIONAL PROJECT COSTS:***				
47	***Sitework***		**0%**		**$0**
48	***Site I&C***		**0%**		**$0**
49	***Site Electrical***		**0%**		**$0**
50	***Yard Piping***		**0%**		**$0**
51	***(none)***		**0%**		**$0**
52	***0***		**0%**		**$0**
53	***0***		**0%**		**$0**
54	***0***		**0%**		**$0**
55	***SUBTOTAL with Additional Project Costs***				**$136,000**
56					
57	***CONTRACTOR MARKUPS:***				
58	***Overhead***		**10%**	**$136,000**	**$13,600**
59	***Subtotal***				**$149,600**
60	***Profit***		**7%**	**$149,600**	**$10,472**
61	***Subtotal***				**$160,072**
62	***Mob/Bonds/Insurance***		**3%**	**$160,072**	**$4,802**
63	***Subtotal***				**$164,874**
64	***Contingency***		**20%**	**$164,874**	**$32,975**
65	***SUBTOTAL with Markups***				**$197,849**
66					
67	***ESCALATION (to Mid-Point of Construction):***		**0.00%**	**$197,849**	**$0**
68	***SUBTOTAL with Escalation***				**$197,849**
69					
70	***LOCATION ADJUSTMENT FACTOR***		**100.00%**	**$197,849**	**$197,849**
71	***SUBTOTAL - with Local Adjustment Factor***				**$197,849**
72					
73	***Did a CH2M HILL Professional Estimator Review This Cost Estimate?***			**Yes**	
74	***If Yes, by whom?***			**McEwen**	
75	***MAXIMUM CONSTRUCTION COST***				**$197,849**
76					
77	***NON-CONSTRUCTION COSTS:***				
78	***Permitting***		**0%**	**$197,849**	**$0**
79	***Engineering***		**30%**	**$197,849**	**$59,355**
80	***SDC***		**0%**	**$197,849**	**$0**
81	***Commissioning & Startup***		**0%**	**$197,849**	**$0**
82	***Land ROW***		**0%**	**$197,849**	**$0**
83	***Legal/Admin***		**0%**	**$197,849**	**$0**
84	***0***		**0%**	**$197,849**	**$0**
85	***SUBTOTAL - Non-Construction Costs***				**$59,355**
86					
87	***TOTAL - CAPITAL COST***				**$257,204**
88					
89	***Currency Conversion of TOTAL CAPITAL COST:***				
90		***Currency***	***Unit of Measure***	***Conversion Rate***	***Converted Amount***
91		**None**	**U.S.Dollar**	**1**	**257,204**
92					

Note: Unless otherwise stated, this order of magnitude cost opinion does not include any costs associated with the potential discovery of hazardous materials. The cost opinion shown has been prepared for guidance in project evaluation from the information available at the time of preparation. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule and other variable factors. As a result, the final project costs will vary from the cost presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.

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CH2M HILL Parametric Cost Estimating System (CPES)

CONVEYANCE MODULE

Project Name:	Aamodt Settlement Water Supply Evaluation
Project Number:	344539.SF.01
Project Manager:	Greg Gates
Estimator:	Brewer
Project Description:	Combined-Bishop's Lodge Water Distribution System
Project Location (City):	0
Project Location (State):	0
Project Location (Country):	0
Construction Start Date:	Jan-01
Construction Duration (months):	12
Mid-Point of Construction:	Jul-01

To Sketch of Pi

To Conveyance

Click for CPE

Roundup to the nearest: $100

Item	Is this Item Included in the Project? (Yes or No)	DESCRIPTION	Cost
Pipe Segment 1	No	4" Distribution Main	$0
Pipe Segment 2	Yes	6" Distribution Main	$131,600
Pipe Segment 3	No	8" Distribution Main	$0
Pipe Segment 4	No	10" Distribution Main	$0
Pipe Segment 5	No	12" Distribution Main	$0
Pipe Segment 6	No	14" Distribution Main	$0
Pipe Segment 7	Yes	Misc. Expenses	$4,400
Pipe Segment 8	No	18" Distribution Main	$0
Pipe Segment 9	No	20" Distribution Main	$0
Pipe Segment 10	No	24" Distribution Main	$0
Trenchless Technology	No	Trenchless Technology	$0
Storage Tank #1	No	Existing Water Storage Tank	$0
Storage Tank #2	No		$0
Storage Tank #3	No		$0
Storage Tank #4	No		$0
Storage Tank #5	No		$0
Well #1	No		$0
Well #2	No		$0
Well #3	No		$0
Well #4	No		$0
Well #5	No		$0
Pump Station #1	No		$0
Pump Station #2	No		$0
Pump Station #3	No		$0
Pump Station #4	No		$0
Pump Station #5	No		$0
SUBTOTAL - PROJECT COST			$136,000

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Pueblo-Only Systems - Cost Estimates for Distribution Systems

CH2M HILL Parametric Cost Estimating System (CPES)

CONVEYANCE MODULE

Project Name:	Aamodt Settlement Water Supply Evaluation
Project Number:	344539.SF.01
Project Manager:	Greg Gates
Estimator:	Brewer
Project Description:	Indian Only-San Ildefonso Water Distribution System
Project Location (City):	0
Project Location (State):	0
Project Location (Country):	0
Construction Start Date:	Jan-01
Construction Duration (months):	12
Mid-Point of Construction:	Jul-01

To Sketch of Pi

To Conveyance

Click for CPE

Roundup to the nearest: $100

Item	Is this Item Included in the Project? (Yes or No)	DESCRIPTION	Cost
Pipe Segment 1	No	4" Distribution Main	$0
Pipe Segment 2	Yes	6" Distribution Main	$910,000
Pipe Segment 3	Yes	8" Distribution Main	$661,600
Pipe Segment 4	No	10" Distribution Main	$0
Pipe Segment 5	Yes	12" Distribution Main	$621,500
Pipe Segment 6	No	14" Distribution Main	$0
Pipe Segment 7	Yes	Misc. Expenses	$227,400
Pipe Segment 8	No	18" Distribution Main	$0
Pipe Segment 9	No	20" Distribution Main	$0
Pipe Segment 10	No	24" Distribution Main	$0
Trenchless Technology	No	Trenchless Technology	$0
Storage Tank #1	Yes	200,000-gallon Water Storage Tank	$232,400
Storage Tank #2	No		$0
Storage Tank #3	No		$0
Storage Tank #4	No		$0
Storage Tank #5	No		$0
Well #1	No		$0
Well #2	No		$0
Well #3	No		$0
Well #4	No		$0
Well #5	No		$0
Pump Station #1	No		$0
Pump Station #2	No		$0
Pump Station #3	No		$0
Pump Station #4	No		$0
Pump Station #5	No		$0
SUBTOTAL - PROJECT COST			$2,652,900

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	A	B	C	D	E
46	***ADDITIONAL PROJECT COSTS:***				
47	***Sitework***		**0%**		**$0**
48	***Site I&C***		**0%**		**$0**
49	***Site Electrical***		**0%**		**$0**
50	***Yard Piping***		**0%**		**$0**
51	***(none)***		**0%**		**$0**
52	***0***		**0%**		**$0**
53	***0***		**0%**		**$0**
54	***0***		**0%**		**$0**
55	***SUBTOTAL with Additional Project Costs***				**$2,652,900**
56					
57	***CONTRACTOR MARKUPS:***				
58	***Overhead***		**10%**	**$2,652,900**	**$265,290**
59	***Subtotal***				**$2,918,190**
60	***Profit***		**7%**	**$2,918,190**	**$204,273**
61	***Subtotal***				**$3,122,463**
62	***Mob/Bonds/Insurance***		**3%**	**$3,122,463**	**$93,674**
63	***Subtotal***				**$3,216,137**
64	***Contingency***		**20%**	**$3,216,137**	**$643,227**
65	***SUBTOTAL with Markups***				**$3,859,365**
66					
67	***ESCALATION (to Mid-Point of Construction):***		**0.00%**	**$3,859,365**	**$0**
68	***SUBTOTAL with Escalation***				**$3,859,365**
69					
70	***LOCATION ADJUSTMENT FACTOR***		**100.00%**	**$3,859,365**	**$3,859,365**
71	***SUBTOTAL - with Local Adjustment Factor***				**$3,859,365**
72					
73	***Did a CH2M HILL Professional Estimator Review This Cost Estimate?***			**Yes**	
74	***If Yes, by whom?***			**McEwen**	
75	***MAXIMUM CONSTRUCTION COST***				**$3,859,365**
76					
77	***NON-CONSTRUCTION COSTS:***				
78	***Permitting***		**0%**	**$3,859,365**	**$0**
79	***Engineering***		**30%**	**$3,859,365**	**$1,157,809**
80	***SDC***		**0%**	**$3,859,365**	**$0**
81	***Commissioning & Startup***		**0%**	**$3,859,365**	**$0**
82	***Land ROW***		**0%**	**$3,859,365**	**$0**
83	***Legal/Admin***		**0%**	**$3,859,365**	**$0**
84	***0***		**0%**	**$3,859,365**	**$0**
85	***SUBTOTAL - Non-Construction Costs***				**$1,157,809**
86					
87	***TOTAL - CAPITAL COST***				**$5,017,174**
88					
89	***Currency Conversion of TOTAL CAPITAL COST:***				
90		***Currency***	***Unit of Measure***	***Conversion Rate***	***Converted Amount***
91		**None**	**U.S.Dollar**	**1**	**5,017,174**
92					
93	*Note: Unless otherwise stated, this order of magnitude cost opinion does not include any costs associated with the potential discovery of hazardous materials. The cost opinion shown has been prepared for guidance in project evaluation from the information available at the time of preparation. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule and other variable factors. As a result, the final project costs will vary from the cost presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.*				

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CH2M HILL Parametric Cost Estimating System (CPES)

CONVEYANCE MODULE

Project Name:	Aamodt Settlement Water Supply Evaluation
Project Number:	344539.SF.01
Project Manager:	Greg Gates
Estimator:	Brewer
Project Description:	Combined-Jacona & El Rancho (RPZ) Water Distribution System
Project Location (City):	0
Project Location (State):	0
Project Location (Country):	0
Construction Start Date:	Jan-01
Construction Duration (months):	12
Mid-Point of Construction:	Jul-01

To Sketch of Pi

To Conveyance

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Roundup to the nearest: $100

Item	Is this Item Included in the Project? (Yes or No)	DESCRIPTION	Cost
Pipe Segment 1	No	4" Distribution Main	$0
Pipe Segment 2	Yes	6" Distribution Main	$0
Pipe Segment 3	Yes	8" Distribution Main	$18,300
Pipe Segment 4	Yes	10" Distribution Main	$284,600
Pipe Segment 5	Yes	12" Distribution Main	$0
Pipe Segment 6	Yes	14" Distribution Main	$0
Pipe Segment 7	Yes	Misc. Expenses	$40,900
Pipe Segment 8	No	18" Distribution Main	$0
Pipe Segment 9	No	20" Distribution Main	$0
Pipe Segment 10	No	24" Distribution Main	$0
Trenchless Technology	No	Trenchless Technology	$0
Storage Tank #1	Yes	150,000-gallon Water Storage Tank	$219,900
Storage Tank #2	No		$0
Storage Tank #3	No		$0
Storage Tank #4	No		$0
Storage Tank #5	No		$0
Well #1	No		$0
Well #2	No		$0
Well #3	No		$0
Well #4	No		$0
Well #5	No		$0
Pump Station #1	No		$0
Pump Station #2	No		$0
Pump Station #3	No		$0
Pump Station #4	No		$0
Pump Station #5	No		$0
SUBTOTAL - PROJECT COST			$563,700

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	A	B	C	D	E
46	***ADDITIONAL PROJECT COSTS:***				
47	***Sitework***		**0%**		**$0**
48	***Site I&C***		**0%**		**$0**
49	***Site Electrical***		**0%**		**$0**
50	***Yard Piping***		**0%**		**$0**
51	***(none)***		**0%**		**$0**
52	***0***		**0%**		**$0**
53	***0***		**0%**		**$0**
54	***0***		**0%**		**$0**
55	***SUBTOTAL with Additional Project Costs***				**$563,700**
56					
57	***CONTRACTOR MARKUPS:***				
58	***Overhead***		**10%**	**$563,700**	**$56,370**
59	***Subtotal***				**$620,070**
60	***Profit***		**7%**	**$620,070**	**$43,405**
61	***Subtotal***				**$663,475**
62	***Mob/Bonds/Insurance***		**3%**	**$663,475**	**$19,904**
63	***Subtotal***				**$683,379**
64	***Contingency***		**20%**	**$683,379**	**$136,676**
65	***SUBTOTAL with Markups***				**$820,055**
66					
67	***ESCALATION (to Mid-Point of Construction):***		**0.00%**	**$820,055**	**$0**
68	***SUBTOTAL with Escalation***				**$820,055**
69					
70	***LOCATION ADJUSTMENT FACTOR***		**100.00%**	**$820,055**	**$820,055**
71	***SUBTOTAL - with Local Adjustment Factor***				**$820,055**
72					
73	***Did a CH2M HILL Professional Estimator Review This Cost Estimate?***			**Yes**	
74	***If Yes, by whom?***			**McEwen**	
75	***MAXIMUM CONSTRUCTION COST***				**$820,055**
76					
77	***NON-CONSTRUCTION COSTS:***				
78	***Permitting***		**0%**	**$820,055**	**$0**
79	***Engineering***		**30%**	**$820,055**	**$246,016**
80	***SDC***		**0%**	**$820,055**	**$0**
81	***Commissioning & Startup***		**0%**	**$820,055**	**$0**
82	***Land ROW***		**0%**	**$820,055**	**$0**
83	***Legal/Admin***		**0%**	**$820,055**	**$0**
84	***0***		**0%**	**$820,055**	**$0**
85	***SUBTOTAL - Non-Construction Costs***				**$246,016**
86					
87	***TOTAL - CAPITAL COST***				**$1,066,071**
88					
89	***Currency Conversion of TOTAL CAPITAL COST:***				
90		***Currency***	***Unit of Measure***	***Conversion Rate***	***Converted Amount***
91		**None**	**U.S.Dollar**	**1**	**1,066,071**
92					
93	*Note : Unless otherwise stated, this order of magnitude cost opinion does not include any costs associated with the potential discovery of hazardous materials. The cost opinion shown has been prepared for guidance in project evaluation from the information available at the time of preparation. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule and other variable factors. As a result, the final project costs will vary from the cost presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.*				

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CH2M HILL Parametric Cost Estimating System (CPES)

CONVEYANCE MODULE

Project Name:	Aamodt Settlement Water Supply Evaluation
Project Number:	344539.SF.01
Project Manager:	Greg Gates
Estimator:	Brewer
Project Description:	Indian Only-Pojoaque Water Distribution System
Project Location (City):	0
Project Location (State):	0
Project Location (Country):	0
Construction Start Date:	Jan-01
Construction Duration (months):	12
Mid-Point of Construction:	Jul-01

To Sketch of Pi

To Conveyance

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Roundup to the nearest: $100

Item	Is this Item Included in the Project? (Yes or No)	DESCRIPTION	Cost
Pipe Segment 1	No	4" Distribution Main	$0
Pipe Segment 2	Yes	6" Distribution Main	$629,700
Pipe Segment 3	Yes	8" Distribution Main	$424,400
Pipe Segment 4	Yes	10" Distribution Main	$111,100
Pipe Segment 5	Yes	12" Distribution Main	$1,196,500
Pipe Segment 6	Yes	14" Distribution Main	$304,800
Pipe Segment 7	Yes	Misc. Expenses	$93,400
Pipe Segment 8	No	18" Distribution Main	$0
Pipe Segment 9	No	20" Distribution Main	$0
Pipe Segment 10	No	24" Distribution Main	$0
Trenchless Technology	No	Trenchless Technology	$0
Storage Tank #1	Yes	360,000-gallon Water Storage Tank	$272,200
Storage Tank #2	No		$0
Storage Tank #3	No		$0
Storage Tank #4	No		$0
Storage Tank #5	No		$0
Well #1	No		$0
Well #2	No		$0
Well #3	No		$0
Well #4	No		$0
Well #5	No		$0
Pump Station #1	No		$0
Pump Station #2	No		$0
Pump Station #3	No		$0
Pump Station #4	No		$0
Pump Station #5	No		$0
SUBTOTAL - PROJECT COST			$3,032,100

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	A	B	C	D	E
46	***ADDITIONAL PROJECT COSTS:***				
47	***Sitework***		**0%**		**$0**
48	***Site I&C***		**0%**		**$0**
49	***Site Electrical***		**0%**		**$0**
50	***Yard Piping***		**0%**		**$0**
51	***(none)***		**0%**		**$0**
52	***0***		**0%**		**$0**
53	***0***		**0%**		**$0**
54	***0***		**0%**		**$0**
55	***SUBTOTAL with Additional Project Costs***				**$3,032,100**
56					
57	***CONTRACTOR MARKUPS:***				
58	***Overhead***		**10%**	**$3,032,100**	**$303,210**
59	***Subtotal***				**$3,335,310**
60	***Profit***		**7%**	**$3,335,310**	**$233,472**
61	***Subtotal***				**$3,568,782**
62	***Mob/Bonds/Insurance***		**3%**	**$3,568,782**	**$107,063**
63	***Subtotal***				**$3,675,845**
64	***Contingency***		**20%**	**$3,675,845**	**$735,169**
65	***SUBTOTAL with Markups***				**$4,411,014**
66					
67	***ESCALATION (to Mid-Point of Construction):***		**0.00%**	**$4,411,014**	**$0**
68	***SUBTOTAL with Escalation***				**$4,411,014**
69					
70	***LOCATION ADJUSTMENT FACTOR***		**100.00%**	**$4,411,014**	**$4,411,014**
71	***SUBTOTAL - with Local Adjustment Factor***				**$4,411,014**
72					
73	***Did a CH2M HILL Professional Estimator Review This Cost Estimate?***			**Yes**	
74	***If Yes, by whom?***			**McEwen**	
75	***MAXIMUM CONSTRUCTION COST***				**$4,411,014**
76					
77	***NON-CONSTRUCTION COSTS:***				
78	***Permitting***		**0%**	**$4,411,014**	**$0**
79	***Engineering***		**30%**	**$4,411,014**	**$1,323,304**
80	***SDC***		**0%**	**$4,411,014**	**$0**
81	***Commissioning & Startup***		**0%**	**$4,411,014**	**$0**
82	***Land ROW***		**0%**	**$4,411,014**	**$0**
83	***Legal/Admin***		**0%**	**$4,411,014**	**$0**
84	***0***		**0%**	**$4,411,014**	**$0**
85	***SUBTOTAL - Non-Construction Costs***				**$1,323,304**
86					
87	***TOTAL - CAPITAL COST***				**$5,734,318**
88					
89	***Currency Conversion of TOTAL CAPITAL COST:***				
90		***Currency***	***Unit of Measure***	***Conversion Rate***	***Converted Amount***
91		**None**	**U.S.Dollar**	**1**	**5,734,318**
92					
93	*Note : Unless otherwise stated, this order of magnitude cost opinion does not include any costs associated with the potential discovery of hazardous materials. The cost opinion shown has been prepared for guidance in project evaluation from the information available at the time of preparation. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule and other variable factors. As a result, the final project costs will vary from the cost presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.*				

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CH2M HILL Parametric Cost Estimating System (CPES)

CONVEYANCE MODULE

Project Name:	Aamodt Settlement Water Supply Evaluation
Project Number:	344539.SF.01
Project Manager:	Greg Gates
Estimator:	Brewer
Project Description:	Indian Only-Nambe Pueblo & Nambe Village (RPZ) Water Distribution System
Project Location (City):	0
Project Location (State):	0
Project Location (Country):	0
Construction Start Date:	Jan-01
Construction Duration (months):	12
Mid-Point of Construction:	Jul-01

To Sketch of Pi

To Conveyance

Click for CPE

Roundup to the nearest: $100

Item	Is this Item Included in the Project? (Yes or No)	DESCRIPTION	Cost
Pipe Segment 1	No	4" Distribution Main	$0
Pipe Segment 2	Yes	6" Distribution Main	$1,023,700
Pipe Segment 3	Yes	8" Distribution Main	$421,800
Pipe Segment 4	Yes	10" Distribution Main	$289,900
Pipe Segment 5	Yes	12" Distribution Main	$209,200
Pipe Segment 6	No	14" Distribution Main	$0
Pipe Segment 7	Yes	Misc. Expenses	$276,400
Pipe Segment 8	No	18" Distribution Main	$0
Pipe Segment 9	No	20" Distribution Main	$0
Pipe Segment 10	No	24" Distribution Main	$0
Trenchless Technology	No	Trenchless Technology	$0
Storage Tank #1	Yes	235,000-gallon Water Storage Tank	$241,100
Storage Tank #2	No		$0
Storage Tank #3	No		$0
Storage Tank #4	No		$0
Storage Tank #5	No		$0
Well #1	No		$0
Well #2	No		$0
Well #3	No		$0
Well #4	No		$0
Well #5	No		$0
Pump Station #1	No		$0
Pump Station #2	No		$0
Pump Station #3	No		$0
Pump Station #4	No		$0
Pump Station #5	No		$0
SUBTOTAL - PROJECT COST			$2,462,100

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	A	B	C	D	E
46	***ADDITIONAL PROJECT COSTS:***				
47	***Sitework***		**0%**		**$0**
48	***Site I&C***		**0%**		**$0**
49	***Site Electrical***		**0%**		**$0**
50	***Yard Piping***		**0%**		**$0**
51	***(none)***		**0%**		**$0**
52	***0***		**0%**		**$0**
53	***0***		**0%**		**$0**
54	***0***		**0%**		**$0**
55	***SUBTOTAL with Additional Project Costs***				**$2,462,100**
56					
57	***CONTRACTOR MARKUPS:***				
58	***Overhead***		**10%**	**$2,462,100**	**$246,210**
59	***Subtotal***				**$2,708,310**
60	***Profit***		**7%**	**$2,708,310**	**$189,582**
61	***Subtotal***				**$2,897,892**
62	***Mob/Bonds/Insurance***		**3%**	**$2,897,892**	**$86,937**
63	***Subtotal***				**$2,984,828**
64	***Contingency***		**20%**	**$2,984,828**	**$596,966**
65	***SUBTOTAL with Markups***				**$3,581,794**
66					
67	***ESCALATION (to Mid-Point of Construction):***		**0.00%**	**$3,581,794**	**$0**
68	***SUBTOTAL with Escalation***				**$3,581,794**
69					
70	***LOCATION ADJUSTMENT FACTOR***		**100.00%**	**$3,581,794**	**$3,581,794**
71	***SUBTOTAL - with Local Adjustment Factor***				**$3,581,794**
72					
73	***Did a CH2M HILL Professional Estimator Review This Cost Estimate?***			**Yes**	
74	***If Yes, by whom?***			**McEwen**	
75	***MAXIMUM CONSTRUCTION COST***				**$3,581,794**
76					
77	***NON-CONSTRUCTION COSTS:***				
78	***Permitting***		**0%**	**$3,581,794**	**$0**
79	***Engineering***		**30%**	**$3,581,794**	**$1,074,538**
80	***SDC***		**0%**	**$3,581,794**	**$0**
81	***Commissioning & Startup***		**0%**	**$3,581,794**	**$0**
82	***Land ROW***		**0%**	**$3,581,794**	**$0**
83	***Legal/Admin***		**0%**	**$3,581,794**	**$0**
84	***0***		**0%**	**$3,581,794**	**$0**
85	***SUBTOTAL - Non-Construction Costs***				**$1,074,538**
86					
87	***TOTAL - CAPITAL COST***				**$4,656,332**
88					
89	***Currency Conversion of TOTAL CAPITAL COST:***				
90		***Currency***	***Unit of Measure***	***Conversion Rate***	***Converted Amount***
91		**None**	**U.S.Dollar**	**1**	**4,656,332**
92					
93	*Note : Unless otherwise stated, this order of magnitude cost opinion does not include any costs associated with the potential discovery of hazardous materials. The cost opinion shown has been prepared for guidance in project evaluation from the information available at the time of preparation. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule and other variable factors. As a result, the final project costs will vary from the cost presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.*				

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CH2M HILL Parametric Cost Estimating System (CPES)

CONVEYANCE MODULE

Project Name:	Aamodt Settlement Water Supply Evaluation
Project Number:	344539.SF.01
Project Manager:	Greg Gates
Estimator:	Brewer
Project Description:	Indian Only-Tesuque Pueblo & Camel Rock (RPZ) Water Distribution System
Project Location (City):	0
Project Location (State):	0
Project Location (Country):	0
Construction Start Date:	Jan-01
Construction Duration (months):	12
Mid-Point of Construction:	Jul-01

To Sketch of Pi

To Conveyance

Click for CPE

Roundup to the nearest: $100

Item	Is this Item Included in the Project? (Yes or No)	DESCRIPTION	Cost
Pipe Segment 1	No	4" Distribution Main	$0
Pipe Segment 2	Yes	6" Distribution Main	$1,084,800
Pipe Segment 3	Yes	8" Distribution Main	$322,300
Pipe Segment 4	Yes	10" Distribution Main	$187,600
Pipe Segment 5	Yes	12" Distribution Main	$930,900
Pipe Segment 6	No	14" Distribution Main	$0
Pipe Segment 7	Yes	Misc. Expenses	$216,000
Pipe Segment 8	No	18" Distribution Main	$0
Pipe Segment 9	No	20" Distribution Main	$0
Pipe Segment 10	No	24" Distribution Main	$0
Trenchless Technology	No	Trenchless Technology	$0
Storage Tank #1	Yes	200,000-gallon Water Storage Tank	$433,200
Storage Tank #2	Yes	240,000-gallon Water Storage Tank (Fire including pump)	$415,600
Storage Tank #3	No		$0
Storage Tank #4	No		$0
Storage Tank #5	No		$0
Well #1	No		$0
Well #2	No		$0
Well #3	No		$0
Well #4	No		$0
Well #5	No		$0
Pump Station #1	No	Fire Pump	$0
Pump Station #2	No		$0
Pump Station #3	No		$0
Pump Station #4	No		$0
Pump Station #5	No		$0
SUBTOTAL - PROJECT COST			$3,590,400

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	A	B	C	D	E
46	***ADDITIONAL PROJECT COSTS:***				
47	***Sitework***		**0%**		**$0**
48	***Site I&C***		**0%**		**$0**
49	***Site Electrical***		**0%**		**$0**
50	***Yard Piping***		**0%**		**$0**
51	***(none)***		**0%**		**$0**
52	***0***		**0%**		**$0**
53	***0***		**0%**		**$0**
54	***0***		**0%**		**$0**
55	***SUBTOTAL with Additional Project Costs***				**$3,590,400**
56					
57	***CONTRACTOR MARKUPS:***				
58	***Overhead***		**10%**	**$3,590,400**	**$359,040**
59	***Subtotal***				**$3,949,440**
60	***Profit***		**7%**	**$3,949,440**	**$276,461**
61	***Subtotal***				**$4,225,901**
62	***Mob/Bonds/Insurance***		**3%**	**$4,225,901**	**$126,777**
63	***Subtotal***				**$4,352,678**
64	***Contingency***		**20%**	**$4,352,678**	**$870,536**
65	***SUBTOTAL with Markups***				**$5,223,213**
66					
67	***ESCALATION (to Mid-Point of Construction):***		**0.00%**	**$5,223,213**	**$0**
68	***SUBTOTAL with Escalation***				**$5,223,213**
69					
70	***LOCATION ADJUSTMENT FACTOR***		**100.00%**	**$5,223,213**	**$5,223,213**
71	***SUBTOTAL - with Local Adjustment Factor***				**$5,223,213**
72					
73	***Did a CH2M HILL Professional Estimator Review This Cost Estimate?***			**Yes**	
74	***If Yes, by whom?***			**McEwen**	
75	***MAXIMUM CONSTRUCTION COST***				**$5,223,213**
76					
77	***NON-CONSTRUCTION COSTS:***				
78	***Permitting***		**0%**	**$5,223,213**	**$0**
79	***Engineering***		**30%**	**$5,223,213**	**$1,566,964**
80	***SDC***		**0%**	**$5,223,213**	**$0**
81	***Commissioning & Startup***		**0%**	**$5,223,213**	**$0**
82	***Land ROW***		**0%**	**$5,223,213**	**$0**
83	***Legal/Admin***		**0%**	**$5,223,213**	**$0**
84	***0***		**0%**	**$5,223,213**	**$0**
85	***SUBTOTAL - Non-Construction Costs***				**$1,566,964**
86					
87	***TOTAL - CAPITAL COST***				**$6,790,177**
88					
89	***Currency Conversion of TOTAL CAPITAL COST:***				
90		***Currency***	***Unit of Measure***	***Conversion Rate***	***Converted Amount***
91		**None**	**U.S.Dollar**	**1**	**6,790,177**
92					
93	*Note : Unless otherwise stated, this order of magnitude cost opinion does not include any costs associated with the potential discovery of hazardous materials. The cost opinion shown has been prepared for guidance in project evaluation from the information available at the time of preparation. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule and other variable factors. As a result, the final project costs will vary from the cost presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.*				

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