



**US Army Corps of Engineers
Los Angeles District**

**Santa Cruz River, Paseo de las Iglesias
Pima County, Arizona**

Feasibility Study AFB Report

APPENDIX J

BASIS OF COST ESTIMATES

September 2003

U.S. ARMY CORPS OF ENGINEERS, LOS ANGELES DISTRICT
PLANNING DIVISION, WATER RESOURCES BRANCH
P.O. BOX 532711
LOS ANGELES, CALIFORNIA 90053-2325

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PLAN FORMULATION BASIS OF COST ESTIMATES
PASEO DE LAS IGLESIAS
FEASIBILITY REPORT

PIMA COUNTY
TUCSON, ARIZONA

JULY 2004

The purpose of this Basis of Cost Estimate is to document the sources of data and assumptions used in developing the study cost estimates for the alternatives formulated in the Paseo de las Iglesias Feasibility Study.

Where possible, unit cost information was established from actual cost data provided by manufacturers. Additional historical data were derived from similar projects.

A. CONSTRUCTION COSTS

The basis for each estimated quantity item and unit cost is as follows:

1. Site Preparation/Planting: All alternatives make use, to varying degrees, of the basic dry-land restoration practices of water harvesting, soil patterning, mulch and fertilizer amendment, surface grading. As alternative water budgets are increased, less use is made of these measures. All measures, however, are applied for xeroriparian plantings. Less effort is expended on modifying micro-topography for mesoriparian planting as the digging of planting pits and placement of coarse debris to facilitate capture and retention of precipitation is reduced. This trend is continued for hydroriparian plantings. Similarly, planting cost are higher for alternatives with smaller water budgets as more mature plants are used in drier planting schemes to enhance survival rates. The costs listed below include both site preparation and planting. Costs were not added for riverbottom planting on the expectation that seeding will occur naturally. Details supporting the costs identified below can be found in Attachment B.

a. Xeroriparian Areas

- (1) Riverbottom - \$6,367/acre
- (2) Mesquite - \$18,364/acre
- (3) Shrubscrub - \$18,920/acre

b. Mesoriparian Areas

- (1) Riverbottom - \$6,367/acre
- (2) Cottonwood-willow - \$14,750/acre
- (3) Mesquite - \$15,306/acre
- (4) Shrubscrub - \$18,403/acre

c. Hydroriparian Areas

- (1) Riverbottom - \$6,367/acre
- (2) Cottonwood-willow - \$10,413
- (3) Mesquite - \$10,970
- (4) Shrubscrub - \$14,504

2. Subsurface Water Harvesting Basins: These features would involve excavating to a depth of approximately four feet, placing a liner membrane, and filling the excavated area with layers of appropriately sized gravel covered with granular fill.

a. Tributary Confluence – Two costs were developed for tributary basins. Deeper basins were envisioned for xeroriparian plans than for meso- and hydroriparian alternatives. Xeroriparian basin costs were increased by 40% to allow for the increase in size. In addition to components described above, tributary basins included costs for excavating and placing concrete on the downgrade side of the basin. Details supporting the costs identified below can be found in Attachment B.

(1) Xeroriparian Basin - \$140,000/acre

(2) Meso/Hydroriparian Basin - \$100,000/acre

b. Grade Control Basin – \$108,000/acre

3. Bank Treatments: Reaches of steep natural banks are modified by cutting back into the overbank to create more stable slopes. Three variations were applied as a function of the amount of land available in the overbank. Where available land is not a constraint, banks are graded to a 5-to-1 horizontal-to-vertical slope (5:1 H:V) and then vegetated. Where there is not enough land to create a 5:1 slope but sufficient space exists to create slopes between 5:1 and 2:1 the banks will be laid back to the minimum slope that can be fit into the available space. These slopes will also be vegetated however; a geotextile layer will be installed before planting to increase slope stability. In areas where insufficient space exists to accommodate 2:1 slopes, placement of rip rap or soil cement may be necessary for bank protection. Such applications will be decided on a case-by-case basis. The following unit costs were used for computing costs of vegetated banks:

a. Vegetated Bank Unit Costs –

(1) Excavation - \$3.75/cubic yard

(2) Geotextile - \$1.00/square yard

(3) Geogrid - \$3.50/square yard

(4) Labor - \$6,000/acre

(5) Haul Fill - \$9.00/cubic yard

(6) Finish Grading - \$0.10/square foot

b. Soil Cement – Stabilized non-vegetated banks were estimated at \$350.00/linear foot.

5. Perennial Flow Channel: The existing low flow channel would require grading to create a new low flow channel averaging six feet in width and one-half foot in depth. The soil comprising the bed of the new low flow channel would be amended to accelerate formation of a near surface aquitard below the streambed. This feature will help direct infiltration losses from the perennial flow laterally toward restored habitat areas to be created on either side of the channel. Grading would also create depressional areas on each side of the low flow channel approximately ten feet in width where soil saturation conditions resulting from lateral percolation would support emergent marsh communities. A cost of \$80.00 per linear foot was applied to a channel length of 39,500 feet and a lump sum of \$400,000 was added for hauling. This resulted in an estimated cost of \$3,560,000 for the perennial flow channel.

6. Irrigation: Irrigation system costs were projected by first estimating the cost of a main line running through the project, adding an estimate for feeder lines running off the main and then installing subsurface drip irrigation to planted areas. Temporary irrigation was estimated based on

either using center pivot system or gated pipe system, depending upon the site conditions. Details supporting the costs below can be found in Attachment B.

- a. Main Irrigation Line - \$4,000,000/L.S.
- b. Primary Distribution from Main - \$7,509,350/L.S.
- c. Secondary Distribution to plants - \$1,000/acre
- d. Temporary Irrigation - \$400/acre or \$50/acre

7. Diversion: The low flow diversion would be accomplished by placing a diversion structure in the New West Branch channel to pond low flows and placing culvert storm water pipes through the bank to the newly excavated reach of channel between the NWB bank and remaining OWB channel. The cost of this feature was estimated at \$158,000. Details supporting this cost can be found in Attachment B.

8. Contingency: A 25% contingency was added, in accordance with Corps of Engineers regulations for feasibility study construction cost estimates.

9. Planning, Engineering & Design (PED) and Engineering During Construction

(EDC): The PED and EDC were 10% and 1%, respectively.

10. Supervision & Administration (S&A): A 6.5% S&A cost was taken on the construction cost. This percentage is required by the Corps of Engineers regulations.

B. OPERATION AND MAINTENANCE COSTS

The wetland areas will be designed to closely approximate a natural riparian ecosystem and should be self-sustaining as long as sufficient amounts of water are provided. However, as in any man-made controlled system, maintenance will be required. Over time, some restored vegetated areas will require periodic pruning to reduce impacts on channel flow conveyance. The assumed maintenance schedule for the various features is shown in the table below:

1. Invasive Control: \$59/acre as recommended by Parks & Recreation, Pima County.

2. Biological Survey/Vegetation Management:

- Qualitative Survey - Assume one biologist reviews site one day per month and writes report. Total cost = 16hr/month or 192hr/year at \$30/hr or \$5,760/year

- Quantitative Survey – Assume 2 biologists sample for 2 weeks, twice a year and writes report. Total cost = 320hr/year at \$30/hr or \$9,600/year

- Vegetation Management – Assume 2 labors for 1 day, twice a year and \$200 per day equipment. Total cost = \$360/acre/year

3. Irrigation System Regular Maintenance:

- Assumed 1% of system cost per year for irrigation main and primary distribution systems.

4. Paved Trail Maintenance: Approximately 1,000 tons every five years at @ 36.50/ton.

5. Comfrot Station Maintenance: Crew of 2 laborers @ \$160/day, 1.5 times/week, and \$75 materials.

4. Periodic O&M: Assumed that features in the active channel or on the terraces above the active channel but between the banks would be replaced at full cost in year 25 and 40.

Attachment A
Alternative Cost Details

ALTERNATIVE COST SUMMARY

		1A	1B	2	3A	3B	3C	3D	3E	4A	4B	4C	4D	4E	4F
Construction Costs		\$34,957,246	\$39,745,057	\$28,191,262	\$9,806,378	\$35,384,625	\$9,075,675	\$34,012,721	\$39,926,981	\$24,308,004	\$24,259,102	\$40,104,369	\$34,573,054	\$45,159,929	\$43,258,505
Real Estate Costs		\$14,740,828	\$14,740,828	\$14,687,660	\$2,379,268	\$14,687,660	\$2,432,436	\$14,740,828	\$14,740,828	\$2,286,224	\$4,785,120	\$14,873,748	\$4,638,908	\$14,342,068	\$14,342,068
Contingency	25%	\$12,424,518	\$13,621,471	\$10,719,731	\$3,046,412	\$12,518,071	\$2,877,028	\$12,188,387	\$13,666,952	\$6,648,557	\$7,261,056	\$13,744,529	\$9,802,990	\$14,875,499	\$14,400,143
Planning, Survey, Engineering and Design	10%	\$3,495,725	\$3,974,506	\$2,819,126	\$980,638	\$3,538,462	\$907,567	\$3,401,272	\$3,992,698	\$2,430,800	\$2,425,910	\$4,010,437	\$3,457,305	\$4,515,993	\$4,325,850
Engineering During Construction	1%	\$349,572	\$397,451	\$281,913	\$98,064	\$353,846	\$90,757	\$340,127	\$399,270	\$243,080	\$242,591	\$401,044	\$345,731	\$451,599	\$432,585
Supervision and Administration	6.5%	\$2,272,221	\$2,583,429	\$1,832,432	\$637,415	\$2,300,001	\$589,919	\$2,210,827	\$2,595,254	\$1,580,020	\$1,576,842	\$2,606,784	\$2,247,249	\$2,935,395	\$2,811,803
Adaptive Management	3%	\$1,048,717	\$1,192,352	\$845,738	\$294,191	\$1,061,539	\$272,270	\$1,020,382	\$1,197,809	\$729,240	\$727,773	\$1,203,131	\$1,037,192	\$1,354,798	\$1,297,755
Total First Costs		\$69,288,827	\$76,255,092	\$59,377,862	\$17,242,365	\$69,844,204	\$16,245,652	\$67,914,545	\$76,519,793	\$38,225,926	\$41,278,394	\$76,944,042	\$56,102,428	\$83,635,282	\$80,868,710
IDC		\$3,765,634	\$4,144,229	\$3,227,004	\$937,069	\$3,795,817	\$882,901	\$3,690,946	\$4,158,615	\$2,077,461	\$2,243,353	\$4,181,671	\$3,048,994	\$4,545,320	\$4,394,965
Gross Investment		\$73,054,462	\$80,399,322	\$62,604,865	\$18,179,435	\$73,640,021	\$17,128,553	\$71,605,491	\$80,678,407	\$40,303,387	\$43,521,747	\$81,125,713	\$59,151,422	\$88,180,602	\$85,263,675
Average Annual Cost		\$4,394,110	\$4,835,892	\$3,765,583	\$1,093,464	\$4,429,331	\$1,030,255	\$4,306,957	\$4,852,678	\$2,424,185	\$2,617,764	\$4,879,583	\$3,557,864	\$5,303,923	\$5,128,475
O&M															
Annual O&M (Including Water)		\$549,915	\$550,619	\$87,495	\$97,737	\$152,371	\$528,826	\$583,460	\$559,016	\$887,500	\$847,357	\$942,252	\$1,007,112	\$1,074,122	\$1,308,294
Periodic O&M		\$343,948	\$338,131	\$341,023	\$135,173	\$341,023	\$107,578	\$313,427	\$307,610	\$308,886	\$428,928	\$434,745	\$350,315	\$356,132	\$350,315
Total O&M		\$893,863	\$888,749	\$428,518	\$232,910	\$493,394	\$636,403	\$896,887	\$866,625	\$1,196,386	\$1,276,285	\$1,376,997	\$1,357,426	\$1,430,254	\$1,658,608
Total Average Annual Cost		\$5,287,973	\$5,724,641	\$4,194,101	\$1,326,375	\$4,922,724	\$1,666,659	\$5,203,844	\$5,719,304	\$3,620,570	\$3,894,049	\$6,256,580	\$4,915,291	\$6,734,177	\$6,787,083

Thu 29 Jul 2004
Eff. Date 07/19/04

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT PASE01: Paseo de las Iglesias Feas Study - Los Reals Road to Congress Road
PASEO DE LAS IGLESIAS Feasibility Study Estimate

TIME 10:24:49
TITLE PAGE 1

Paseo de las Iglesias Feas Study
Los Reals Road to Congress Road
Santa Cruz River, City of
Tucson, Pima County, Arizona

Designed By: DMA, Inc.
Estimated By: US Army Corps Of Engineers

Prepared By: Phillip Eng
USACE, Los Angeles District

Preparation Date: 07/19/04
Effective Date of Pricing: 07/19/04
Est Construction Time: 360 Days

Sales Tax: 0.00%

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Release 1.2c

LABOR ID: AZ0401 EQUIP ID: NAT99C

Currency in DOLLARS

CREW ID: NAT01A UPB ID: UP01EA

Thu 29 Jul 2004
Eff. Date 07/19/04
PROJECT NOTES

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT PASE01: Paseo de las Iglesias Feas Study - Los Reals Road to Congress Road
PASEO DE LAS IGLESIAS Feasibility Study Estimate

TIME 10:24:49
TITLE PAGE 2

This project is located in eastern Pima County, Arizona. The study area extends along the Santa Cruz River between Congress Street downstream to Los Reals Road upstream for a total length of approximately 7.5 miles. The study area varies from 0.5 miles to 1.6 miles wide and encompasses approximately 5005 acres.

 01.001. Historic Floodplain QUANTITY UOM CREW ID OUTPUT MANHRS LABOR EQUIPMNT MATERIAL OTHER TOTAL COST UNIT COST

01. IRRIGATION PLANTING

01.001. Historic Floodplain

Excavate furrows for flood irrigation, assume furrows on 8' centers, slope not greater than 0.5%, for max. 600 lf distance, 65 acres of existing mesquite will not be disturbed, 15 acres of road (9.5 paved, 4.4 compacted earth, 1.1 gravel) will not be planted. Furrows will be seeded but not subject to other planting activities.

01.001.001. Fencing for Erosion Control

656 acres = 28,575,360 sf
 Square root of 28,575,360 = 5346 lf
 5346 lf x 4 = 21,384 LF (perimeter)

AF GC <01534 0010 > Fencing, 11 ga, chain link, 5' high	21384 LF	ALABCLAB2	12.50	0.16 3,421	3.28 70,043	0.00 0	3.58 76,555	0.00 0	6.86 146,598	6.86
TOTAL Fencing for Erosion Control	656.00 ACR			3,421	70,043	0	76,555	0	146,598	223.47

01.001.002. Clearing & Grubbing, Debris

-- Removal, etc.

AF GC <02109 0420 > Clear & grub, burning, incinerator, light	656.00 ACR	UOEHB40A	0.28	14.23 9,338	396.38 260,028	308.04 202,076	0.00 0	0.00 0	704.43 462,104	704.43
TOTAL Clearing & Grubbing, Debris	328.00 ACR			9,338	260,028	202,076	0	0	462,104	1408.85

01.001.003. Site Preparation

01.001.003.01. Ripping, discing to prepare (cont'd) surface.

RSM GC <02238 0010 > Ripping, trap rock, soft, 200 HP dozer, ideal conditions	5900.00 CY	CODTB10B	88.75	0.02 100	0.48 2,821	0.74 4,383	0.00 0	0.00 0	1.22 7,203	1.22
Assume 10 cy/acre										
TOTAL Ripping, discing to prepare	590.00 ACR			100	2,821	4,383	0	0	7,203	12.21

01.001.003.02. Regrade to req'd slopes, flatten (cont'd) balance cut material onsite.

MIL GC <02224 7020 > Excavating, bulk, dozer, 300 HP, large area, open site, rough grade	2950.00 CY	CODTB10M	300.00	0.01 15	0.14 417	0.33 980	0.00 0	0.00 0	0.47 1,397	0.47
Assume 10 cy/acre										

01.001. Historic Floodplain		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST				
TOTAL Regrade to req'd slopes, flatten		295.00	ACR			15	417	980	0	0	1,397	4.74				
01.001.003.03. Regrade Surface, scraper-grader (cont'd) balance, max depth 36"																
MIL GC <02226	3110 >	Excavation, bulk, 9 cycle/hr, push loaded self prop scraper, 16 BCY			14455	CY	CODSB33D	112.50	0.02	0.46	1.18	0.00	0.00	1.64	23,777	1.64
TOTAL Regrade Surface, scraper-grader		1445500	CY			231	6,694	17,083	0	0	23,777	0.02				
TOTAL Site Preparation		1.00	EA			346	9,932	22,445	0	0	32,377	32377.16				
01.001.004. Excavation																
CIV GC <02224	2500 >	Excavating, bulk, light matl, 150' push, dozer, open site, 90 HP			176990	CY	CODTB10W	38.75	0.04	1.10	0.77	0.00	0.00	1.86	330,051	1.86
TOTAL Excavation		176990	CY			6,850	193,822	136,229	0	0	330,051	1.86				
01.001.005. Compaction (tractor wheel, one (COFCB10G) (cont'd) pass. Assume the roller speed is 7 mph.																
MIL GC <02220	5900 >	Compaction of backfill, structural, SP roller, 6" lift			529173	CY	COFCB10F	117.50	0.01	0.36	0.40	0.00	0.00	0.76	400,637	0.76
		656 acres = 28,575,360 sf x 6" = 529,173 cy														
MIL GC <	>	Equip. Operators, Medium			96.37	HR	B-EQOPRMED	1.00	1.00	32.20	0.00	0.00	0.00	32.20	3,103	32.20
MIL GC <	>	Laborers, (Semi-Skilled)			48.19	HR	B-LABORER	1.00	1.00	20.47	0.00	0.00	0.00	20.47	986	20.47
GEN GC <	>	ROLLER, VIB, SD, SP 13.0T (11.8MT), 84"(2.1M)W,SHEEPS FOOT			96.37	HR	R45Z5580	1.00	0.00	0.00	54.79	0.00	0.00	54.79	5,280	54.79
TOTAL Compaction (tractor wheel, one		3561940	LF			6,918	195,174	214,833	0	0	410,007	0.12				

01.001. Historic Floodplain		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
01.001.006. Trenching for Water Supply Pipes												
MIL GC <02228 0200 >	Excavate trench, light soil, 4'-6' D, 1 CY gradall	17050	CY	COFGB12K	96.00	355	10,675	11,159	0	0	21,834	1.28
						0.02	0.63	0.65	0.00	0.00	1.28	
TOTAL Trenching for Water Supply Pipes		17050	CY			355	10,675	11,159	0	0	21,834	1.28
01.001.007. Pipe bedding, crushed stone												
M MIL GC <02704 0300 >	Drainage, drainage matl, 3/4" gravel fill in trench	13110	CY	CODLB6	32.50	1,210	28,942	6,100	615,383	0	650,425	49.61
						0.09	2.21	0.47	46.94	0.00	49.61	
TOTAL Pipe bedding, crushed stone		13110	CY			1,210	28,942	6,100	615,383	0	650,425	49.61
01.001.008. Install gated 12" PVC pipe for (cont'd) furrow flooding												
B MIL GC <02667 4560 >	Piping, water dist, PVC, class 150, SDR 18, AWWA C900, 12"	114720	LF	ULABB20A	50.00	9,178	285,481	0	329,246	137,664	752,391	6.56
						0.08	2.49	0.00	2.87	1.20	6.56	
M=\$2.87/lf, Delivery = \$1.20/lf See Kim Gavigan's e-mail dated 07/20/04.												
TOTAL Install gated 12" PVC pipe for		114720	LF			9,178	285,481	0	329,246	137,664	752,391	6.56
01.001.009. Install "U" outlet tubes with (cont'd) fittings, one per furrow.												
M MIL GC <02667 4430 >	Piping, water dist, 3/4", PVC, press pipe, CL200, SDR 21 coupling	5940.00	EA	ULABB20A	14.25	1,667	51,866	0	832	0	52,698	8.87
						0.28	8.73	0.00	0.14	0.00	8.87	
This cost item is for "U" outlet tubes. To be used for furrows, and there are 5940 furrows, each furrow requires 600 lf of tubes, then, 5940 x 600 = 3,564,000 lf 3564000 / 50' per coil = 71,280 71,280 ea x \$4.50(*) = \$320,760 \$320,760 / 5940 = \$54.00/ea												
(* Ryan Herco Products, (800) 848-1141, www.tygon.com, Tygon UV Resistant Tubing Formulation R3400, AAE00046, ID = 5/8, OD=7/8)												

01.001. Historic Floodplain		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
TOTAL Install "U" outlet tubes with		5940.00	EA			1,667	51,866	0	832	0	52,698	8.87
01.001.010. Backfill pipe trench, side cast (cont'd) surplus cut on site.												
MIL GC <	> Backfill, trench, dozer, no compaction, 200 HP	4590.00	CY	CODTB10B	284.38	0.01 24	0.15 685	0.23 1,064	0.00 0	0.00 0	0.38 1,749	0.38
TOTAL Backfill pipe trench, side cast		4590.00	CY			24	685	1,064	0	0	1,749	0.38
01.001.011. Planting & Seeding												
01.001.011.01. Mulching, hay, 1" deep, power (cont'd) mulcher, large												
Productivity is quoted from Means Crew B65. Material cost = \$19.15/MSF x 43.56 MSF/acr = \$834.17/acr (See Eldon Kraft's spreadsheet attachment e-mailed on 07/14/04)												
M MIL GC <	> Outside Laborer	367.11	HR	X-LABORER	1.00	1.00 367	20.47 7,515	0.00 0	0.09 33	0.00 0	20.56 7,548	20.56
MIL GC <	> Outside Truck Driver, Light	367.11	HR	X-TRKDVRLT	1.00	1.00 367	25.38 9,317	0.00 0	0.00 0	0.00 0	25.38 9,317	25.38
EP GC <	> TRK,HWY, 21,000 GVW, 4X2, 2 AXLE	367.11	HR	T50FO009	1.00	0.00 0	0.00 0	15.53 5,701	0.00 0	0.00 0	15.53 5,701	15.53
GEN GC <	> HYDROMULCHER, 3,000 GAL(11,356L) TRK MTD (W/ 56,000GVW TRK)	367.11	HR	L15Z3880	1.00	0.00 0	0.00 0	29.04 10,662	0.00 0	0.00 0	29.04 10,662	29.04
USR GC <	> Material cost	558.00	ACR	N/A	0.00	0.00 0	0.00 0	0.00 0	834.17 465,467	0.00 0	834.17 465,467	834.17
TOTAL Mulching, hay, 1" deep, power		558.00	ACR			734	16,833	16,363	465,500	0	498,695	893.72
01.001.011.02. Crimping, Tilling topsoil, (cont'd) 20 HP tractor, disk harrow, 6" deep												
EP GC <	> ROTARY HOE, 80" WIDE ROTERRA (ADD 40 HP PTO TRACTOR)	2232.00	HR	T10LE001	1.00	0.00 0	0.00 0	1.29 2,879	0.00 0	0.00 0	1.29 2,879	1.29
MAP GC <	> TRACTOR,WH,FARM, 40- 59HP, 2X4	2232.00	HR	T25JD005	1.00	0.00 0	0.00 0	7.67 17,112	0.00 0	0.00 0	7.67 17,112	7.67
MIL GC <	> Outside Equip. Operator, Light	2232.00	HR	X-EQOPRLT	1.00	1.00 2,232	30.80 68,754	0.00 0	0.00 0	0.00 0	30.80 68,754	30.80

01.001. Historic Floodplain		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
TOTAL Crimping, Tilling topsoil,		558.00	ACR			2,232	68,754	19,991	0	0	88,745	159.04
01.001.011.03. Seeding, athletic fld mix,												
M RSM GC <02932 0010 >	Seeding, athletic field mix, 8#/MSFpush spreader	27138	MSF	ALABCLAB1	1.00	27,138	555,558	0	1286884	0	1,842,442	67.89
623 acres = 27,137,880 sf = 27,138 MSF												
TOTAL Seeding, athletic fld mix,		623.00	ACR			27,138	555,558	0	1286884	0	1,842,442	2957.37
01.001.011.04. Place Coarse Woody debris/rocks												
M MIL GC <	> Outside Laborer (4)	17856	HR	X-LABORER	1.00	17,856	365,541	0	0	0	365,541	20.47
USR GC <	> Material and equipment	558.00	ACR	N/A	0.00	0	0	27,900	27,900	0	55,800	100.00
TOTAL Place Coarse Woody debris/rocks		558.00	ACR			17,856	365,541	27,900	27,900	0	421,341	755.09
01.001.011.05. Plant Mesquite/Shrub mix using (cont'd) 5 gallon plants.												
USR GC <	> Planting of 5-gallon plants See bid result of Rio Salado Ph 1A	250729	EA		0.00	0	0	0	0	3760935	3,760,935	15.00
TOTAL Plant Mesquite/Shrub mix using		250729	EA			0	0	0	0	3760935	3,760,935	15.00
TOTAL Planting & Seeding		558.00	ACR			47,960	1006686	64,254	1780284	3760935	6,612,158	11849.75
TOTAL Historic Floodplain		1.00	EA			87,267	2113333	658,160	2802300	3898599	9,472,392	9472392

01.005. Graded Slope		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
01.005. Graded Slope Grade steep banks to 5:1 slope (20%), install 8" PVC leach field pipe for subsurface irrigation, pipes 10' c-c.												
01.005.001. Fencing for Erosion Control 102 acr = 4,443,120 sf Square root of 4,443,120 = 2108 lf 2108 lf x 4 = 8,432 lf (perimeter)												
AF GC <01534 0010 >	Fencing, 11 ga, chain link, 5' high	8432.00	LF	ALABCLAB2	12.50	0.16 1,349	3.28 27,619	0.00 0	3.58 30,187	0.00 0	6.86 57,806	6.86
TOTAL Fencing for Erosion Control		102.00	ACR			1,349	27,619	0	30,187	0	57,806	566.72
01.005.002. Clearing & Grubbing, debris (cont'd) removal, etc.												
AF GC <02109 0420 >	Clear & grub, burning, incinerator, light	51.00	ACR	UOEHB40A	0.28	14.23 726	396.38 20,216	308.04 15,710	0.00 0	0.00 0	704.43 35,926	704.43
TOTAL Clearing & Grubbing, debris		51.00	ACR			726	20,216	15,710	0	0	35,926	704.43
01.005.003. Excavation, strl, mach excav. (cont'd) sand/loam, 2 cy bkt												
MIL GC <02228 0372 >	Excavate trench, mdm soil, 6'-10' D, 2 CY excavator	1213390	CY	CODEB12C	256.50	0.01 9,464	0.23 284,297	0.28 341,812	0.00 0	0.00 0	0.52 626,109	0.52
TOTAL Excavation, strl, mach excav.		1213390	CY			9,464	284,297	341,812	0	0	626,109	0.52
01.005.004. Excavation, steep slopes, 5:1												
01.005.004.01. Hauling, no loading, 16.5 cy (cont'd) dump trailer, 10 mile RT												
MIL GC <02234 1115 >	Hauling, hwy haulers, 16.5 CY, 6 mi round trip @ 40 MPH (2.1 cyc/hr)	1213390	CY	CTDHB34C	35.00	0.03 34,703	0.75 905,674	1.44 1753227	0.00 0	0.00 0	2.19 2,658,902	2.19
TOTAL Hauling, no loading, 16.5 cy		1213390	CY			34,703	905,674	1753227	0	0	2,658,902	2.19
01.005.004.02. Fill, spread dumped material, (cont'd) by dozer, no compaction												
MIL GC <02215 1215 >	Backfill, trench, dozer, no compaction, 200 HP	1213390	CY	CODTB10B	284.38	0.01 6,431	0.15 181,038	0.23 281,264	0.00 0	0.00 0	0.38 462,302	0.38

01.005. Graded Slope		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
TOTAL Fill, spread dumped material,		1213390	CY			6,431	181,038	281,264	0	0	462,302	0.38
01.005.004.03. Compaction, sheepfoot/wobbly (cont'd) whl rlr, 12" lifts, 2 passes												
AF GC <02220 5660 >	Compaction, riding, 8" lifts, 2 passes, sheepsfoot/wobbly wheel roller	1213390	CY	COFCB32F	600.00	6,067	159,318	189,046	0.00	0.00	348,364	0.29
TOTAL Compaction, sheepfoot/wobbly		1213390	CY			6,067	159,318	189,046	0	0	348,364	0.29
TOTAL Excavation, steep slopes, 5:1		1213390	CY			47,201	1246030	2223537	0	0	3,469,567	2.86
01.005.005. Fine grading to 20% slope, (cont'd) for irregular areas, adverse cond.												
MIL GC <02226 4100 >	Excavation, bulk, fine grade, 3 passes w/grader	5324.00	CSY	COFGB11L	2.00	5,324	140,210	93,995	0.00	0.00	234,205	43.99
110 acre = 5324 CSY												
TOTAL Fine grading to 20% slope,		110.00	ACR			5,324	140,210	93,995	0	0	234,205	2129.14
01.005.006. Header Pipe Laying												
01.005.006.01. Excavate header trench, 12" dep. (con't) by 18", 1-1/2 CY hoe												
MIL GC <02228 0340 >	Excavate trench, lt soil, 6'-10' D, 1.5 CY excavator	2540.00	CY	CODEB12B	242.50	21	630	615	0.00	0.00	1,245	0.49
TOTAL Excavate header trench, 12" dep.		2540.00	CY			21	630	615	0	0	1,245	0.49
01.005.006.02. Header Trench bedding, 3/4" (con't) gravel pipe support												
M MIL GC <02244 1510 >	Base course, crushed stone, 3/4" max size, compacted, 12"D, large areas	1020.00	CY	COFGB36C	54.38	94	2,705	3,850	16,320	0.00	22,875	22.43
TOTAL Header Trench bedding, 3/4"		1020.00	CY			94	2,705	3,850	16,320	0	22,875	22.43

01.005. Graded Slope		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
01.005.006.03. Install medium diam. PVC Header (cont'd) pipe (8")												
M MIL GC <02667 4060 >	Piping, water dist, 8", PVC, press pipe, class 200, SDR 21	7620.00	LF	ULABB20A	40.00	0.10 762	3.11 23,704	0.00 0	9.46 72,085	0.00 0	12.57 95,789	12.57
TOTAL Install medium diam. PVC Header		7620.00	LF			762	23,704	0	72,085	0	95,789	12.57
01.005.006.04. Backfill trench, FE loader, (cont') whl mtd., 1CY bkt, min haul												
MIL GC <02215 1220 >	Backfill, trench, front-end loader, 40 - 60 HP, no compaction	1020.00	CY	CODFB10N	50.00	0.03 31	0.85 866	0.74 759	0.00 0	0.00 0	1.59 1,624	1.59
TOTAL Backfill trench, FE loader,		1020.00	CY			31	866	759	0	0	1,624	1.59
01.005.006.05. Hauling, surplus cut mat'l, (cont't) no loading, 10 mile RT												
AF GC <02234 0555 >	Hauling, hwy haulers, 12 CY, 12 mile round trip @ base wide rate	1530.00	CY	COEIB34B	20.00	0.05 77	1.31 1,998	2.40 3,666	0.00 0	0.00 0	3.70 5,665	3.70
TOTAL Hauling, surplus cut mat'l,		1530.00	CY			77	1,998	3,666	0	0	5,665	3.70
TOTAL Header Pipe Laying		7620.00	LF			984	29,902	8,890	88,405	0	127,198	16.69
01.005.007. 8" PVC Leach Pipe Laying												
01.005.007.01. Excavate trench, 12" depth by (cont'd) 36", 1-1/2" CY backhoe												
MIL GC <02228 0340 >	Excavate trench, lt soil, 6'-10' D, 1.5 CY excavator	99020	CY	CODEB12B	242.50	0.01 812	0.25 24,547	0.24 23,973	0.00 0	0.00 0	0.49 48,520	0.49
TOTAL Excavate trench, 12" depth by		99020	CY			812	24,547	23,973	0	0	48,520	0.49
01.005.007.02. Install low perm geotextile in (cont'd) trench as pipe bedding												
M CIV GC <02250 2130 >	Geotextile fabric, 60 mil thick, non-woven polypropylene	148700	SY	ULABA2	187.50	0.02 2,379	0.35 51,703	0.10 14,662	0.61 90,707	0.00 0	1.06 157,072	1.06
TOTAL Install low perm geotextile in		148700	SY			2,379	51,703	14,662	90,707	0	157,072	1.06

01.005. Graded Slope		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST	
01.005.007.03. Install 8" PVC leach pipe for (cont'd) subsurface irrigation													
B MIL GC	<02667 4060 >	Piping, water dist, 8", PVC, press pipe, class 200, SDR 21	445590	LF	ULABB20A	50.00	35,647	1108851	0	623,826	133,677	1,866,354	4.19
						Productivity = 50lf/hr M=\$1.40/lf, Delivery = \$0.30/lf (See Gavigan's e-mail dated 07/20/04)							
TOTAL Install 8" PVC leach pipe for		445590 LF				35,647	1108851	0	623,826	133,677	1,866,354	4.19	
01.005.007.04. Install leach pipe filter "sock" A call was made to Crumpler Plastic Pipe, Inc. www.cpp-pipe.com, (800) 334-5071 on 05/27/04 for a price quotation of "Silt Guard Filter Sock", part #0820020b, Farm Slots Sock, 20' lengths. "Emilee" quoted that the material cost is \$1.21/lf, and the freight is about \$1,770 to \$2,100. A truckload can be 5000'. From their plant in North Carolina to Phoenix, AZ is about 1,000 mile in distance. Assume a medium freight cost of \$2,000 per truckload, then, the cost per linear foot of the pipe filter sock is: \$1.21 + (\$2,000 / 5000') = \$1.61/lf or transportation cost is \$0.40/lf													
USR GC	<	> Leach Pipe Filter Sock	445590	LF		0.00	0	0	0	539,164	178,236	717,400	1.61
TOTAL Install leach pipe filter "sock"		445590 LF				0	0	0	539,164	178,236	717,400	1.61	
01.005.007.05. Install pipe fittings as needed There is a total of 44560 pipe fittings for this cost item. Let's use Elbows = 50% x 44560 = 22,280 ea Tees = 30% x 44560 = 13,368 ea Couplings = 10% x 44560 = 4,456 ea Reducers = 10% x 44560 = 4,456 ea													
TOTAL Install pipe fittings as needed						0	12,000	0	15,000	0	27,000		
01.005.007.06. Backfill trench, FE loader, whl (cont'd) mtd, 1 CY bkt, min haul													
MIL GC	<02215 1220 >	Backfill, trench, front-end loader, 40 - 60 HP, no compaction	93380	CY	CODFB10N	50.00	2,801	79,252	69,465	0	0	148,717	1.59
TOTAL Backfill trench, FE loader, whl		93380 CY				2,801	79,252	69,465	0	0	148,717	1.59	

01.005. Graded Slope		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST	
01.005.007.07. Hauling, surplus cut matl, no (cont'd) loading, 10 mile RT													
AF	GC <02234 0555 >	Hauling, hwy haulers, 12 CY, 12 mile round trip @ base wide rate	5790.00	CY	COEIB34B	20.00	0.05 290	1.31 7,563	2.40 13,875	0.00 0	0.00 0	3.70 21,438	3.70
TOTAL Hauling, surplus cut matl, no		5790.00	CY				290	7,563	13,875	0	0	21,438	3.70
TOTAL 8" PVC Leach Pipe Laying		445590	LF				41,929	1283915	121,975	1268697	311,913	2,986,500	6.70
01.005.008. Planting & Seeding													
01.005.008.01. Mulch, hay, 1" deep, power (cont'd) mulcher, large													
M	MIL GC <	> Outside Laborer	67.11	HR	X-LABORER	1.00	1.00 67	20.47 1,374	0.00 0	0.09 6	0.00 0	20.56 1,380	20.56
MIL	GC <	> Outside Truck Driver, Light	67.11	HR	X-TRKDVRLT	1.00	1.00 67	25.38 1,703	0.00 0	0.00 0	0.00 0	25.38 1,703	25.38
EP	GC <	> TRK,HWY, 21,000 GVW, 4X2, 2 AXLE	67.11	HR	T50FO009	1.00	0.00 0	0.00 0	15.53 1,042	0.00 0	0.00 0	15.53 1,042	15.53
GEN	GC <	> HYDROMULCHER, 3,000 GAL(11,356L) TRK MTD (W/ 56,000GVW TRK)	67.11	HR	L15Z3880	1.00	0.00 0	0.00 0	29.04 1,949	0.00 0	0.00 0	29.04 1,949	29.04
USR	GC <	> Material cost	102.00	ACR	N/A	0.00	0.00 0	0.00 0	0.00 0	834.17 85,085	0.00 0	834.17 85,085	834.17
TOTAL Mulch, hay, 1" deep, power		102.00	ACR				134	3,077	2,991	85,091	0	91,159	893.72
01.005.008.02. Crimping, tilling topsoil (cont'd) 20 HP tractor, disk harrow, 6" deep													
EP	GC <	> ROTARY HOE, 80" WIDE ROTERRA (ADD 40 HP PTO TRACTOR)	408.00	HR	T10LE001	1.00	0.00 0	0.00 0	1.29 526	0.00 0	0.00 0	1.29 526	1.29
MAP	GC <	> TRACTOR,WH,FARM, 40- 59HP, 2X4	408.00	HR	T25JD005	1.00	0.00 0	0.00 0	7.67 3,128	0.00 0	0.00 0	7.67 3,128	7.67
MIL	GC <	> Outside Equip. Operator, Light	408.00	HR	X-EQOPRLT	1.00	1.00 408	30.80 12,568	0.00 0	0.00 0	0.00 0	30.80 12,568	30.80
TOTAL Crimping, tilling topsoil		102.00	ACR				408	12,568	3,654	0	0	16,222	159.04

01.005. Graded Slope		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
01.005.008.03. Seeding, athletic fld mix,												
M RSM GC <02932 0010 >	Seeding, athletic field mix, 8#/MSFpush spreader	4443.12	MSF	ALABCLABL	1.00	4,443	90,958	0	210,693	0	301,651	67.89
102 acres = 4,443.12 msf												
TOTAL Seeding, athletic fld mix,		102.00	ACR			4,443	90,958	0	210,693	0	301,651	2957.36
01.005.008.04. Place Coarse Woody debris/rocks												
M MIL GC <	> Outside Laborer (4)	3264.00	HR	X-LABORER	1.00	3,264	66,819	0	0	0	66,819	20.47
USR GC <	> Material and equipment	102.00	ACR	N/A	0.00	0	0	5,100	5,100	0	10,200	100.00
TOTAL Place Coarse Woody debris/rocks		102.00	ACR			3,264	66,819	5,100	5,100	0	77,019	755.09
01.005.008.05. Plant Mesquite/Shrub mix using (cont'd) 5 gallon plants												
USR GC <	> Planting of 5-gallon plants See bid result of Rio Salado Ph 1A	45675	EA		0.00	0	0	0	0	685,125	685,125	15.00
TOTAL Plant Mesquite/Shrub mix using		45675	EA			0	0	0	0	685,125	685,125	15.00
TOTAL Planting & Seeding		102.00	ACR			8,249	173,422	11,745	300,884	685,125	1,171,176	11482.12
TOTAL Graded Slope		1.00	EA			115,227	3205611	2817665	1688173	997,038	8,708,487	8708487

01.010. Natural Slope		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST				
01.010. Natural Slope Install 8" PVC leach field pipe for subsurface irrigation on natural slopes, pipes set at 10' c-c																
01.010.001. Fencing for Erosion Control																
AF	GC	<01534	0010	> Fencing, 11 ga, chain link, 5' high	3542.00	LF	ALABCLAB2	12.50	0.16 567	3.28 11,602	0.00 0	3.58 12,680	0.00 0	6.86 24,282	6.86	
18 acres = 784,080 sf Perimeter = 3542 lf																
TOTAL Fencing for Erosion Control		18.00	ACR					567	11,602	0	12,680	0	24,282	1349.01		
01.010.002. Clearing and Grubbing, debris (cont'd) removal, etc.																
AF	GC	<02109	0420	> Clear & grub, burning, incinerator, light	13.00	ACR	UOEHB40A	0.28	14.23 185	396.38 5,153	308.04 4,005	0.00 0	0.00 0	704.43 9,158	704.43	
TOTAL Clearing and Grubbing, debris		13.00	ACR					185	5,153	4,005	0	0	9,158	704.43		
01.010.003. Header Trenching																
01.010.003.01. Excavate header trench, 12" dep. (cont'd) by 18", 1-1/2 CY hoe																
MIL	GC	<02228	0340	> Excavate trench, lt soil, 6'-10' D, 1.5 CY excavator	86.00	CY	CODEB12B	242.50	0.01 1	0.25 21	0.24 21	0.00 0	0.00 0	0.49 42	0.49	
TOTAL Excavate header trench, 12" dep.		86.00	CY					1	21	21	0	0	42	0.49		
01.010.003.02. Header Trench bedding, 3/4" (cont'd) gravel pipe support																
M	MIL	GC	<02244	1510	> Base course, crushed stone, 3/4" max size, compacted, 12"D, large areas	35.00	CY	COFGB36C	54.38	0.09 3	2.65 93	3.77 132	16.00 560	0.00 0	22.43 785	22.43
TOTAL Header Trench bedding, 3/4"		35.00	CY					3	93	132	560	0	785	22.43		
01.010.003.03. Install med. diam. PVC Header (cont'd) pipe (8" ?)																
M	MIL	GC	<02667	4060	> Piping, water dist, 8", PVC, press pipe, class 200, SDR 21	1520.00	LF	ULABB20A	40.00	0.10 152	3.11 4,728	0.00 0	9.46 14,379	0.00 0	12.57 19,107	12.57

01.010. Natural Slope	QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
TOTAL Install med. diam. PVC Header	1520.00	LF			152	4,728	0	14,379	0	19,107	12.57
01.010.003.04. Backfill trench, FE loader, (cont'd) whl mtd. 1cy bkt, min haul											
MIL GC <02215 1220 > Backfill, trench, front-end loader, 40 - 60 HP, no compaction	35.00	CY	CODFB10N	50.00	0.03 1	0.85 30	0.74 26	0.00 0	0.00 0	1.59 56	1.59
TOTAL Backfill trench, FE loader,	35.00	CY			1	30	26	0	0	56	1.59
01.010.003.05. Hauling, surplus cut matl, no (cont'd) loading, 10 mile RT											
AF GC <02234 0555 > Hauling, hwy haulers, 12 CY, 12 mile round trip @ base wide rate	52.00	CY	COEIB34B	20.00	0.05 3	1.31 68	2.40 125	0.00 0	0.00 0	3.70 193	3.70
TOTAL Hauling, surplus cut matl, no	52.00	CY			3	68	125	0	0	193	3.70
TOTAL Header Trenching	1520.00	LF			160	4,940	304	14,939	0	20,183	13.28
01.010.004. 8" PVC Leach Pipe Laying											
01.010.004.01. Excavate trench, 12" depth by (cont'd) 36", 1-1/2" CY backhoe											
MIL GC <02228 0340 > Excavate trench, 1t soil, 6'-10' D, 1.5 CY excavator	16780	CY	CODEB12B	242.50	0.01 138	0.25 4,160	0.24 4,062	0.00 0	0.00 0	0.49 8,222	0.49
TOTAL Excavate trench, 12" depth by	16780	CY			138	4,160	4,062	0	0	8,222	0.49
01.010.004.02. Install low perm geotextile in (cont'd) trench as pipe bedding											
M CIV GC <02250 2130 > Geotextile fabric, 60 mil thick, non-woven polypropylene	25200	SY	ULABA2	187.50	0.02 403	0.35 8,762	0.10 2,485	0.61 15,372	0.00 0	1.06 26,619	1.06
TOTAL Install low perm geotextile in	25200	SY			403	8,762	2,485	15,372	0	26,619	1.06
01.010.004.03. Install 8" PVC leach pipe for (cont'd) subsurface irrigation											
B MIL GC <02667 4060 > Piping, water dist, 8", PVC, press pipe, class 200, SDR 21	75510	LF	ULABB20A	50.00	0.08 6,041	2.49 187,907	0.00 0	1.40 105,714	0.30 22,653	4.19 316,274	4.19

01.010. Natural Slope		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
TOTAL Install 8" PVC leach pipe for		75510	LF			6,041	187,907	0	105,714	22,653	316,274	4.19
01.010.004.04. Install leach pipe filter "sock"												
USR GC <	> Leach Pipe Filter Sock	75510	LF		0.00	0	0	0	91,367	30,204	121,571	1.61
TOTAL Install leach pipe filter "sock"		75510	LF			0	0	0	91,367	30,204	121,571	1.61
01.010.004.05. Install pipe fittings as needed Total count = 7,560 ea												
TOTAL Install pipe fittings as needed						0	12,000	0	8,000	0	20,000	
01.010.004.06. Backfill trench, FE loader, whl (cont'd) mtd, 1 CY bkt, min haul												
MIL GC <02215 1220 >	Backfill, trench, front-end loader, 40 - 60 HP, no compaction	15830	CY	CODFB10N	50.00	0.03 475	0.85 13,435	0.74 11,776	0.00 0	0.00 0	1.59 25,211	1.59
TOTAL Backfill trench, FE loader, whl		15830	CY			475	13,435	11,776	0	0	25,211	1.59
01.010.004.07. Hauling, surplus cut matl, no (cont'd) loading, 10 mile RT												
AF GC <02234 0555 >	Hauling, hwy haulers, 12 CY, 12 mile round trip @ base wide rate	990.00	CY	COEIB34B	20.00	0.05 50	1.31 1,293	2.40 2,372	0.00 0	0.00 0	3.70 3,666	3.70
TOTAL Hauling, surplus cut matl, no		990.00	CY			50	1,293	2,372	0	0	3,666	3.70
TOTAL 8" PVC Leach Pipe Laying		75510	LF			7,106	227,556	20,696	220,453	52,857	521,562	6.91
01.010.005. Planting & Seeding												
01.010.005.01. Mulch, hay, 1" deep, power (cont'd) mulcher, large												
M MIL GC <	> Outside Laborer	11.84	HR	X-LABORER	1.00	1.00 12	20.47 242	0.00 0	0.09 1	0.00 0	20.56 243	20.56
MIL GC <	> Outside Truck Driver, Light	11.84	HR	X-TRKDVRLT	1.00	1.00 12	25.38 301	0.00 0	0.00 0	0.00 0	25.38 301	25.38
EP GC <	> TRK,HWY, 21,000 GVW, 4X2, 2 AXLE	11.84	HR	T50F0009	1.00	0.00 0	0.00 0	15.53 184	0.00 0	0.00 0	15.53 184	15.53

01.010. Natural Slope		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
GEN GC <	> HYDROMULCHER, 3,000 GAL(11,356L) TRK MTD (W/ 56,000GVW TRK)	11.84	HR	L15Z3880	1.00	0.00 0	0.00 0	29.04 344	0.00 0	0.00 0	29.04 344	29.04 29.04
USR GC <	> Material cost	18.00	ACR	N/A	0.00	0.00 0	0.00 0	0.00 0	834.17 15,015	0.00 0	834.17 15,015	834.17 834.17
TOTAL Mulch, hay, 1" deep, power		18.00	ACR			24	543	528	15,016	0	16,087	893.72
01.010.005.02. Crimping, tilling topsoil (cont'd) 20 HP tractor, disk harrow, 6" deep												
EP GC <	> ROTARY HOE, 80" WIDE ROTERRA (ADD 40 HP PTO TRACTOR)	72.00	HR	T10LE001	1.00	0.00 0	0.00 0	1.29 93	0.00 0	0.00 0	1.29 93	1.29 1.29
MAP GC <	> TRACTOR,WH,FARM, 40- 59HP, 2X4	72.00	HR	T25JD005	1.00	0.00 0	0.00 0	7.67 552	0.00 0	0.00 0	7.67 552	7.67 7.67
MIL GC <	> Outside Equip. Operator, Light	72.00	HR	X-EQOPRLT	1.00	1.00 72	30.80 2,218	0.00 0	0.00 0	0.00 0	30.80 2,218	30.80 30.80
TOTAL Crimping, tilling topsoil		18.00	ACR			72	2,218	645	0	0	2,863	159.04
01.010.005.03. Seeding, athletic fld mix,												
M RSM GC <	> 02932 0010 Seeding, athletic field mix, 8#/MSFpush spreader	784.08	MSF	ALABCLABL1	1.00	1.00 784	20.47 16,051	0.00 0	47.42 37,181	0.00 0	67.89 53,232	67.89 67.89
18 acres = 784.08 msf												
TOTAL Seeding, athletic fld mix,		18.00	ACR			784	16,051	0	37,181	0	53,232	2957.36
01.010.005.04. Place Coarse Woody debris/rocks												
M MIL GC <	> Outside Laborer (4)	576.00	HR	X-LABORER	1.00	1.00 576	20.47 11,792	0.00 0	0.00 0	0.00 0	20.47 11,792	20.47 20.47
USR GC <	> Material and equipment	18.00	ACR	N/A	0.00	0.00 0	0.00 0	50.00 900	50.00 900	0.00 0	100.00 1,800	100.00 100.00
TOTAL Place Coarse Woody debris/rocks		18.00	ACR			576	11,792	900	900	0	13,592	755.09

Thu 29 Jul 2004
 Eff. Date 07/19/04
 DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
 PROJECT PASE01: Paseo de las Iglesias Feas Study - Los Reals Road to Congress Road
 PASEO DE LAS IGLESIAS Feasibility Study Estimate
 01. IRRIGATION PLANTING

TIME 10:24:49
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01.010. Natural Slope		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST

01.010.005.05. Plant Mesquite/Shrub mix using (cont'd) 5 gallon plants												
USR GC <	>	Planting of 5-gallon plants				0.00	0.00	0.00	0.00	15.00	15.00	
		See bid result of Rio Salado Ph	7740.00	EA	0.00	0	0	0	0	116,100	116,100	15.00
		1A										
TOTAL Plant Mesquite/Shrub mix using		7740.00	EA			0	0	0	0	116,100	116,100	15.00

TOTAL Planting & Seeding		18.00	ACR			1,456	30,604	2,073	53,097	116,100	201,874	11215.21

TOTAL Natural Slope		1.00	EA			9,473	279,855	27,076	301,170	168,957	777,058	777058.43

 01.015. Second Bench QUANTITY UOM CREW ID OUTPUT MANHRS LABOR EQUIPMNT MATERIAL OTHER TOTAL COST UNIT COST

01.015. Second Bench
 Install 8"PVC leach field pipe for subsurface irrigation on the second
 bench riparian features; pipes set at 10' c-c

01.015.001. Fencing for Erosion Control

AF GC <01534 0010 >	Fencing, 11 ga, chain link, 5' high	9296.00 LF	ALABCLAB2	12.50	0.16 1,487	3.28 30,449	0.00 0	3.58 33,280	0.00 0	6.86 63,729	6.86
	124 acres = 5,401,440 sf Perimeter = 9296 lf										
	TOTAL Fencing for Erosion Control	124.00 ACR			1,487	30,449	0	33,280	0	63,729	513.94

01.015.002. Clearing and Grubbing, debris
 (cont't) removal, etc.

AF GC <02109 0420 >	Clear & grub, burning, incinerator, light	93.00 ACR	UOEHB40A	0.28	14.23 1,324	396.38 36,864	308.04 28,648	0.00 0	0.00 0	704.43 65,512	704.43
	TOTAL Clearing and Grubbing, debris	93.00 ACR			1,324	36,864	28,648	0	0	65,512	704.43

01.015.003. Header Trenching

01.015.003.01. Excavate header trench, 12" dep.
 (cont'd) by 18", 1-1/2 CY hoe

MIL GC <02228 0340 >	Excavate trench, lt soil, 6'-10' D, 1.5 CY excavator	500.00 CY	CODEB12B	242.50	0.01 4	0.25 124	0.24 121	0.00 0	0.00 0	0.49 245	0.49
	TOTAL Excavate header trench, 12" dep.	500.00 CY			4	124	121	0	0	245	0.49

01.015.003.02. Header Trench bedding, 3/4"
 (cont'd) gravel pipe support

M MIL GC <02244 1510 >	Base course, crushed stone, 3/4" max size, compacted, 12"D, large areas	200.00 CY	COFGB36C	54.38	0.09 18	2.65 530	3.77 755	16.00 3,200	0.00 0	22.43 4,485	22.43
	TOTAL Header Trench bedding, 3/4"	200.00 CY			18	530	755	3,200	0	4,485	22.43

01.015.003.03. Install med. diam. PVC Header
 (cont'd) pipe

M MIL GC <02667 4060 >	Piping, water dist, 8", PVC, press pipe, class 200, SDR 21	8080.00 LF	ULABB20A	40.00	0.10 808	3.11 25,134	0.00 0	9.46 76,437	0.00 0	12.57 101,571	12.57
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01.015. Second Bench	QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
TOTAL Install med. diam. PVC Header	8080.00	LF			808	25,134	0	76,437	0	101,571	12.57
01.015.003.04. Backfill trench, FE loader, (cont'd) whl mtd. 1cy bkt, min haul											
MIL GC <02215 1220 > Backfill, trench, front-end loader, 40 - 60 HP, no compaction	200.00	CY	CODFB10N	50.00	0.03 6	0.85 170	0.74 149	0.00 0	0.00 0	1.59 319	1.59
TOTAL Backfill trench, FE loader,	200.00	CY			6	170	149	0	0	319	1.59
01.015.003.05. Hauling, surplus cut matl, no (cont'd) loading, 10 mile RT											
AF GC <02234 0555 > Hauling, hwy haulers, 12 CY, 12 mile round trip @ base wide rate	300.00	CY	COEIB34B	20.00	0.05 15	1.31 392	2.40 719	0.00 0	0.00 0	3.70 1,111	3.70
TOTAL Hauling, surplus cut matl, no	300.00	CY			15	392	719	0	0	1,111	3.70
TOTAL Header Trenching	8080.00	LF			852	26,350	1,744	79,637	0	107,731	13.33
01.015.004. 8" PVC Leach Pipe Laying											
01.015.004.01. Excavate trench, 12" depth by (cont'd) 36", 1-1/2" CY backhoe											
MIL GC <02228 0340 > Excavate trench, 1t soil, 6'-10' D, 1.5 CY excavator	121260	CY	CODEB12B	242.50	0.01 994	0.25 30,060	0.24 29,357	0.00 0	0.00 0	0.49 59,417	0.49
TOTAL Excavate trench, 12" depth by	121260	CY			994	30,060	29,357	0	0	59,417	0.49
01.015.004.03. Install 8" PVC leach pipe for (cont'd) subsurface irrigation											
B MIL GC <02667 4060 > Piping, water dist, 8", PVC, press pipe, class 200, SDR 21	545686	LF	ULABB20A	50.00	0.08 43,655	2.49 1357940	0.00 0	1.40 763,960	0.30 163,706	4.19 2,285,606	4.19
TOTAL Install 8" PVC leach pipe for	545686	LF			43,655	1357940	0	763,960	163,706	2,285,606	4.19
01.015.004.04. Install leach pipe filter "sock"											
USR GC < > Leach Pipe Filter Sock	545680	LF		0.00	0.00 0	0.00 0	0.00 0	1.21 660,273	0.40 218,272	1.61 878,545	1.61

01.015. Second Bench		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST	
TOTAL Install leach pipe filter "sock"		545680	LF			0	0	0	660,273	218,272	878,545	1.61	
01.015.004.05. Install pipe fittings as needed													
Total count = 54,570 ea													
TOTAL Install pipe fittings as needed						0	15,000	0	10,000	0	25,000		
01.015.004.06. Backfill trench, FE loader, whl													
(cont'd) mtd, 1 CY bkt, min haul													
MIL GC	<02215 1220 >	Backfill, trench, front-end loader, 40 - 60 HP, no compaction	114360	CY	CODFB10N	50.00	3,431	97,057	85,072	0	0	182,130	1.59
TOTAL Backfill trench, FE loader, whl			114360	CY			3,431	97,057	85,072	0	0	182,130	1.59
01.015.004.07. Hauling, surplus cut matl, no													
(cont'd) loading, 10 mile RT													
AF GC	<02234 0555 >	Hauling, hwy haulers, 12 CY, 12 mile round trip @ base wide rate	7090.00	CY	COEIB34B	20.00	355	9,261	16,990	0	0	26,251	3.70
TOTAL Hauling, surplus cut matl, no			7090.00	CY			355	9,261	16,990	0	0	26,251	3.70
TOTAL 8" PVC Leach Pipe Laying			545686	LF			48,435	1509318	131,420	1434233	381,978	3,456,949	6.34
01.015.005. Planting & Seeding													
01.015.005.01. Mulch, hay, 1" deep, power													
(cont'd) mulcher, large													
M MIL GC	<	> Outside Laborer	82.24	HR	X-LABORER	1.00	82	1,684	0	7	0	1,691	20.56
MIL GC	<	> Outside Truck Driver, Light	82.24	HR	X-TRKDVRLT	1.00	82	2,087	0	0	0	2,087	25.38
EP GC	<	> TRK,HWY, 21,000 GVW, 4X2, 2 AXLE	82.24	HR	T50F0009	1.00	0	0	1,277	0	0	1,277	15.53
GEN GC	<	> HYDROMULCHER, 3,000 GAL(11,356L) TRK MTD (W/ 56,000GVW TRK)	82.24	HR	L15Z3880	1.00	0	0	2,388	0	0	2,388	29.04
USR GC	<	> Material cost	125.00	ACR	N/A	0.00	0	0	0	104,271	0	104,271	834.17

01.015. Second Bench		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
TOTAL Mulch, hay, 1" deep, power		125.00	ACR			164	3,771	3,666	104,279	0	111,715	893.72
01.015.005.02. Crimping, tilling topsoil (cont'd) 20 HP tractor, disk harrow, 6" deep												
EP GC <	> ROTARY HOE, 80" WIDE ROTERRA (ADD 40 HP PTO TRACTOR)	500.00	HR	T10LE001	1.00	0.00 0	0.00 0	1.29 645	0.00 0	0.00 0	1.29 645	1.29
MAP GC <	> TRACTOR,WH,FARM, 40- 59HP, 2X4	500.00	HR	T25JD005	1.00	0.00 0	0.00 0	7.67 3,833	0.00 0	0.00 0	7.67 3,833	7.67
MIL GC <	> Outside Equip. Operator, Light	500.00	HR	X-EQOPRLT	1.00	1.00 500	30.80 15,402	0.00 0	0.00 0	0.00 0	30.80 15,402	30.80
TOTAL Crimping, tilling topsoil		125.00	ACR			500	15,402	4,478	0	0	19,880	159.04
01.015.005.03. Seeding, athletic fld mix,												
M RSM GC <	> Seeding, athletic field mix, 8#/MSFpush spreader	5445.00	MSF	ALABCLABL	1.00	1.00 5,445	20.47 111,468	0.00 0	47.42 258,202	0.00 0	67.89 369,670	67.89
125 acres = 5,445 msf												
TOTAL Seeding, athletic fld mix,		125.00	ACR			5,445	111,468	0	258,202	0	369,670	2957.36
01.015.005.04. Place Coarse Woody debris/rocks												
M MIL GC <	> Outside Laborer (4)	4000.00	HR	X-LABORER	1.00	1.00 4,000	20.47 81,886	0.00 0	0.21 840	0.00 0	20.68 82,726	20.68
USR GC <	> Material and equipment	125.00	ACR	N/A	0.00	0.00 0	0.00 0	50.00 6,250	50.00 6,250	0.00 0	100.00 12,500	100.00
TOTAL Place Coarse Woody debris/rocks		125.00	ACR			4,000	81,886	6,250	7,090	0	95,226	761.81
01.015.005.05. Plant Mesquite/Shrub mix using (cont'd) 5 gallon plants												
USR GC <	> Planting of 5-gallon plants See bid result of Rio Salado Ph 1A	55935	EA		0.00	0.00 0	0.00 0	0.00 0	0.00 0	15.00 839,025	15.00 839,025	15.00
TOTAL Plant Mesquite/Shrub mix using		55935	EA			0	0	0	0	839,025	839,025	15.00

Thu 29 Jul 2004
 Eff. Date 07/19/04
 DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
 PROJECT PASE01: Paseo de las Iglesias Feas Study - Los Reals Road to Congress Road
 PASEO DE LAS IGLESIAS Feasibility Study Estimate
 01. IRRIGATION PLANTING

TIME 10:24:49
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01.015. Second Bench	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
TOTAL Planting & Seeding	125.00	ACR			10,109	212,527	14,394	369,571	839,025	1,435,516	11484.13
TOTAL Second Bench	1.00	EA			62,207	1815508	176,205	1916720	1221003	5,129,437	5129437

 01.020. First Bench QUANTITY UOM CREW ID OUTPUT MANHRS LABOR EQUIPMNT MATERIAL OTHER TOTAL COST UNIT COST

01.020. First Bench
 Install long reach (150') sprinkler heads at elevation above 25-year flood,
 connect to header main via small diam. pipes

01.020.001. Excavate pipe trench, 18" depth
 (cont'd) ditch-witch w/ backhoe

AF GC <02230 0450 >	Excavate utility trench, 36" deep, 6" wide, 12HP, chain trencher	1.00 LF	CODBB53	56.25	0.02 0	0.55 1	0.10 0	0.00 0	0.00 0	0.65 1	0.65
TOTAL Excavate pipe trench, 18" depth				1.00 LF	0	1	0	0	0	1	0.65

01.020.002. Pipe Laying

01.020.002.01. Install small diam pressure pipe
 (cont'd) for sprinkler irrigation

M MIL GC <02667 4030 >	Piping, water dist, 3", PVC, press pipe, class 200, SDR 21	31000 LF	ULABB20A	65.00	0.06 1,907	1.91 59,343	0.00 0	1.72 53,320	0.00 0	3.63 112,663	3.63
TOTAL Install small diam pressure pipe				31000 LF	1,907	59,343	0	53,320	0	112,663	3.63

01.020.002.02. Install small diam pipe fittings
 (cont'd) as needed

M MIL GC <02667 4210 >	Piping, water dist, 90 deg, 3", PVC, press pipe, CL200, SDR 21 elbow	500.00 EA	ULABB20A	5.75	0.70 348	21.64 10,820	0.00 0	11.87 5,935	0.00 0	33.51 16,755	33.51
Quantity assumed.											
M MIL GC <02667 4390 >	Piping, water dist, 3", PVC, press pipe, CL200, SDR 21 tee	1500.00 EA	ULABB20A	3.75	1.07 1,600	33.18 49,771	0.00 0	16.25 24,375	0.00 0	49.43 74,146	49.43
Quantity assumed											
M MIL GC <02667 4480 >	Piping, water dist, 3", PVC, press pipe, CL200, SDR 21 coupling	1100.00 EA	ULABB20A	5.75	0.70 765	21.64 23,803	0.00 0	6.48 7,128	0.00 0	28.12 30,931	28.12
Quantity assumed											
TOTAL Install small diam pipe fittings				3100.00 EA	2,713	84,394	0	37,438	0	121,832	39.30

01.020. First Bench	QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST

01.020.002.03. Install long reach (150') sprin- (cont'd) kler heads											
Should the UOM be "EA" ?											
M MIL GC <02810 1284 > Sprinkler,39'-99',30-100 PSI, pop-up full cir,w/plstc cs,met cov, coml	190.00	EA	USKCSKWK2	3.13	0.64 122	14.94 2,839	0.00 0	102.53 19,481	0.00 0	117.47 22,320	117.47
TOTAL Install long reach (150') sprin-	190.00	LF			122	2,839	0	19,481	0	22,320	117.47

01.020.002.04. Install pipe thrust blocks at (con't) fittings and bends											
TOTAL Install pipe thrust blocks at	238.00	EA			0	0	0	0	11,900	11,900	50.00
TOTAL Pipe Laying	31000	LF			4,741	146,576	0	110,239	11,900	268,715	8.67

01.020.003. Backfill pipe trench, compact											
MIL GC <02215 1220 > Backfill, trench, front-end loader, 40 - 60 HP, no compaction	31000	CY	CODFB10N	50.00	0.03 930	0.85 26,310	0.74 23,061	0.00 0	0.00 0	1.59 49,371	1.59
TOTAL Backfill pipe trench, compact	31000	LF			930	26,310	23,061	0	0	49,371	1.59

01.020.004. Install control valves for sprin (cont'd) kler groups or individuals											
M MIL GC <02810 1310 > Sprinkler irr sys, plstc, 1", 5-30 GPM, 15-125 PSI, elec rmt cntrl v	90.00	EA	USKCSKWK2	2.25	0.89 80	20.75 1,868	0.00 0	23.25 2,093	0.00 0	44.00 3,960	44.00
TOTAL Install control valves for sprin	90.00	EA			80	1,868	0	2,093	0	3,960	44.00

01.020.005. Install Programmable Logic (cont'd) Controllers, remote access, etc.											
TOTAL Install Programmable Logic	1.00	EA			0	0	0	0	500,000	500,000	500000.00

01.020.006. Rough grade & scarify subsoil (cont'd) to receive topsoil, common earth, 200HP dozer											
New quantity = 89 acres = 3,876,840 sf = 4,308 CSY (07/20/04) 125 acres = 5,445,000 sf = 6,050 CSY											
MIL GC <02224 7000 > Excavating, bulk, dozer, open site, rough grade	4307.60	CSY	CODTB11R	3.00	0.50 2,154	14.15 60,931	21.98 94,663	0.00 0	0.00 0	36.12 155,594	36.12

01.020. First Bench		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
TOTAL Rough grade & scarify subsoil		89.00	ACR			2,154	60,931	94,663	0	0	155,594	1748.25
01.020.007. Planting & seeding												
01.020.007.01. Mulch, hay, 1" deep, power (cont'd) mulcher, large												
M MIL GC <	> Outside Laborer	58.55	HR	X-LABORER	1.00	59	1,199	0	5	0	1,204	20.56
MIL GC <	> Outside Truck Driver, Light	58.55	HR	X-TRKDVRLT	1.00	59	1,486	0	0	0	1,486	25.38
EP GC <	> TRK,HWY, 21,000 GVW, 4X2, 2 AXLE	58.55	HR	T50FO009	1.00	0	0	909	0	0	909	15.53
GEN GC <	> HYDROMULCHER, 3,000 GAL(11,356L) TRK MTD (W/ 56,000GVW TRK)	58.55	HR	L15Z3880	1.00	0	0	1,701	0	0	1,701	29.04
USR GC <	> Material cost	89.00	ACR	N/A	0.00	0	0	0	74,241	0	74,241	834.17
TOTAL Mulch, hay, 1" deep, power		89.00	ACR			117	2,685	2,610	74,246	0	79,541	893.72
01.020.007.02. Crimping, tilling topsoil (cont'd) 20 HP tractor, disk harrow, 6" deep												
EP GC <	> ROTARY HOE, 80" WIDE ROTERRA (ADD 40 HP PTO TRACTOR)	356.00	HR	T10LE001	1.00	0	0	459	0	0	459	1.29
MAP GC <	> TRACTOR,WH,FARM, 40- 59HP, 2X4	356.00	HR	T25JD005	1.00	0	0	2,729	0	0	2,729	7.67
MIL GC <	> Outside Equip. Operator, Light	356.00	HR	X-EQOPRLT	1.00	356	10,966	0	0	0	10,966	30.80
TOTAL Crimping, tilling topsoil		89.00	ACR			356	10,966	3,189	0	0	14,155	159.04
01.020.007.03. Seeding, athletic fld mix,												
M RSM GC <02932 0010 >	Seeding, athletic field mix, 8#/MSFpush spreader	3876.84	MSF	ALABCLAB1	1.00	3,877	79,365	0	183,840	0	263,205	67.89
125 acres = 5,445 msf												
TOTAL Seeding, athletic fld mix,		89.00	ACR			3,877	79,365	0	183,840	0	263,205	2957.36

01.020. First Bench		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
01.020.007.04. Place Coarse Woody debris/rocks												
M MIL GC <	> Outside Laborer (4)					1.00	20.47	0.00	0.21	0.00	20.68	
		712.00	HR	X-LABORER	1.00	712	14,576	0	150	0	14,725	20.68
USR GC <	> Material and equipment					0.00	0.00	50.00	50.00	0.00	100.00	
		89.00	ACR	N/A	0.00	0	0	4,450	4,450	0	8,900	100.00
TOTAL Place Coarse Woody debris/rocks		89.00	ACR			712	14,576	4,450	4,600	0	23,625	265.45
01.020.007.05. Plant Mesquite/Shrub mix using (cont'd) 5 gallon plants												
USR GC <	> Planting of 5-gallon plants See bid result of Rio Salado Ph 1A	55935	EA		0.00	0	0	0	0	839,025	839,025	15.00
TOTAL Plant Mesquite/Shrub mix using		55935	EA			0	0	0	0	839,025	839,025	15.00
TOTAL Planting & seeding		89.00	ACR			5,062	107,592	10,248	262,686	839,025	1,219,551	13702.82
TOTAL First Bench		1.00	EA			12,967	343,277	127,972	375,017	1350925	2,197,191	2197191
TOTAL IRRIGATION PLANTING		1.00	EA			287,141	7757585	3807079	7083380	7636522	26,284,565	26284565

05.001. Tributary Infiltration Basins		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST				
05. BASINS PLANTING																
05.001. Tributary Infiltration Basins																
Construct infiltration basins at tributary (wash) outlets into SCR																
total basins = 8, depth = 4', side slopes at 4%																
05.001.001. Fencing for Erosion Control																
18 acres = 784,080 sf																
Square root of 784,080 sf = 885.5 lf																
885.5 x 4 = 3542 lf (perimeter)																
AF	GC	<01534	0010	> Fencing, 11 ga, chain link, 5' high	3542.00	LF	ALABCLAB2	12.50	0.16	3.28	0.00	3.58	0.00	6.86	24,282	6.86
TOTAL Fencing for Erosion Control					18.00	ACR		567	11,602	0	12,680	0	24,282	1349.01		
05.001.002. Clearing and Grubbing, debris (cont't) removal, etc.																
AF	GC	<02109	0420	> Clear & grub, burning, incinerator, light	13.00	ACR	UOEHB40A	0.28	14.23	396.38	308.04	0.00	0.00	704.43	9,158	704.43
TOTAL Clearing and Grubbing, debris					13.00	ACR		185	5,153	4,005	0	0	9,158	704.43		
05.001.003. Excavate, mach exc., sand & grav (cont'd) 2CY bkt																
05.001.003.01. Stockpile useable cut matl, (cont'd) assume 25% total cut																
MIL	GC	<02241	0020	> Loam or topsoil, 200' haul, 6" deep, 200 HP dozer, remove/pile on site	830.00	CY	CODTB10B	108.13	0.01	0.39	0.61	0.00	0.00	1.00	832	1.00
TOTAL Stockpile useable cut matl,					830.00	CY		12	326	506	0	0	832	1.00		
05.001.003.02. Hauling, surplus cut matl, no (cont'd) loading, 10 mile RT																
AF	GC	<02234	0555	> Hauling, hwy haulers, 12 CY, 12 mile round trip @ base wide rate	2490.00	CY	COEIB34B	20.00	0.05	1.31	2.40	0.00	0.00	3.70	9,219	3.70
TOTAL Hauling, surplus cut matl, no					2490.00	CY		125	3,252	5,967	0	0	9,219	3.70		

05.001. Tributary Infiltration Basins		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST	
05.001.003.03. Fill, spread cut matl at dump (cont'd) site, no compaction													
AF GC	<02240 0030 >	Fill, spread cut mat'l w/dozer at dump site, no compaction	2490.00	CY	CODTB10B	125.00	0.01 30	0.34 845	0.53 1,313	0.00 0	0.00 0	0.87 2,159	0.87
TOTAL Fill, spread cut matl at dump		2490.00	CY			30	845	1,313	0	0	2,159	0.87	
05.001.003.04. Compaction at dump site, hl rlr, (cont'd) 12" lifts, 2 passes													
AF GC	<02220 5660 >	Compaction, riding, 8" lifts, 2 passes, sheepsfoot/wobbly wheel roller	2490.00	CY	COFCB32F	600.00	0.01 12	0.13 327	0.16 388	0.00 0	0.00 0	0.29 715	0.29
TOTAL Compaction at dump site, hl rlr,		2490.00	CY			12	327	388	0	0	715	0.29	
05.001.003.05. Compact Basin subgrade, existing (cont'd) earth, 2 passes 90%													
MIL GC	<02239 0230 >	Spread & compact, slope > 1 in 4, shape embankment, by hand	86160	SY	ULABB2	50.00	0.10 8,616	2.07 178,110	0.00 0	0.00 0	0.00 0	2.07 178,110	2.07
TOTAL Compact Basin subgrade, existing		86160	SY			50.00	8,616	178,110	0	0	178,110	2.07	
TOTAL Excavate, mach exc., sand & grav		8300.00	CY			8,794	182,860	8,174	0	0	191,035	23.02	
05.001.004. Backfilling 840 cy x 4 (different layers) = 3,360 cy													
05.001.004.01. Fill, bottom layer, clean sand, 12" depth													
M USR GC	<	Clean Sand See Means Construction Cost Data 2004, 04060-750-0200, Total Unit Cost is about \$17.75/cy	840.00	CY	N/A	0.00	0.00 0	0.00 0	0.00 0	0.00 0	17.75 14,910	17.75 14,910	17.75
TOTAL Fill, bottom layer, clean sand,		840.00	CY			0	0	0	0	14,910	14,910	17.75	

05.001. Tributary Infiltration Basins		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
05.001.004.02. Fill, middle layer, No. 57 blue-stone (or equiv)												
USR GC <	> Bluestone					0.00	0.00	0.00	0.00	1.00	1.00	
	See Means Construction Cost	840.00	CY		0.00	0	0	0	0	840	840	1.00
	Data 2004, 04850-100-0500											
	Total Unit Cost is about											
	\$1.00/cy											
TOTAL Fill, middle layer, No. 57 blue-		840.00	CY			0	0	0	0	840	840	1.00
05.001.004.03. Fill, middle layer, No. 2 gravel												
USR GC <	> Bank-run Gravel					0.00	0.00	0.00	0.00	25.00	25.00	
	See Means Construction Cost	840.00	CY		0.00	0	0	0	0	21,000	21,000	25.00
	Data 2004, 02060-150-0100 and											
	0900, including 5 mile haul											
TOTAL Fill, middle layer, No. 2 gravel		840.00	CY			0	0	0	0	21,000	21,000	25.00
05.001.004.04. Fill, top layer, mix of native topsoil plus amendments												
USR GC <	> Native Topsoil, weed free					0.00	0.00	0.00	0.00	30.00	30.00	
	See Means Construction Cost	840.00	CY		0.00	0	0	0	0	25,200	25,200	30.00
	Data 2004, 02055-150-0800											
	and-0900, including 5 mile haul											
TOTAL Fill, top layer, mix of native		840.00	CY			0	0	0	0	25,200	25,200	30.00
TOTAL Backfilling		3360.00	CY			0	0	0	0	61,950	61,950	18.44
05.001.005. Planting & Seeding												
05.001.005.01. Mulch, hay, 1" deep, power (cont'd) mulcher, large												
M MIL GC <	> Outside Laborer					1.00	1.00	20.47	0.00	0.09	0.00	20.56
		11.84	HR	X-LABORER	1.00	12	242	0	1	0	243	20.56
MIL GC <	> Outside Truck Driver, Light					1.00	1.00	25.38	0.00	0.00	0.00	25.38
		11.84	HR	X-TRKDVRLT	1.00	12	301	0	0	0	301	25.38
EP GC <	> TRK,HWY, 21,000 GVW, 4X2, 2 AXLE					1.00	0.00	0.00	15.53	0.00	0.00	15.53
		11.84	HR	T50FO009	1.00	0	0	184	0	0	184	15.53

05.001. Tributary Infiltration Basins		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
GEN GC <	> HYDROMULCHER, 3,000 GAL(11,356L) TRK MTD (W/ 56,000GVW TRK)	11.84	HR	L15Z3880	1.00	0.00 0	0.00 0	29.04 344	0.00 0	0.00 0	29.04 344	29.04 29.04
USR GC <	> Material cost	18.00	ACR	N/A	0.00	0.00 0	0.00 0	0.00 0	834.17 15,015	0.00 0	834.17 15,015	834.17 834.17
TOTAL Mulch, hay, 1" deep, power		18.00	ACR			24	543	528	15,016	0	16,087	893.72
05.001.005.02. Crimping, tilling topsoil (cont'd) 20 HP tractor, disk harrow, 6" deep												
EP GC <	> ROTARY HOE, 80" WIDE ROTERRA (ADD 40 HP PTO TRACTOR)	72.00	HR	T10LE001	1.00	0.00 0	0.00 0	1.29 93	0.00 0	0.00 0	1.29 93	1.29 1.29
MAP GC <	> TRACTOR,WH,FARM, 40- 59HP, 2X4	72.00	HR	T25JD005	1.00	0.00 0	0.00 0	7.67 552	0.00 0	0.00 0	7.67 552	7.67 7.67
MIL GC <	> Outside Equip. Operator, Light	72.00	HR	X-EQOPRLT	1.00	1.00 72	30.80 2,218	0.00 0	0.00 0	0.00 0	30.80 2,218	30.80 30.80
TOTAL Crimping, tilling topsoil		18.00	ACR			72	2,218	645	0	0	2,863	159.04
05.001.005.03. Seeding, athletic fld mix,												
M RSM GC <	> 02932 0010 Seeding, athletic field mix, 8#/MSFpush spreader	784.08	MSF	ALABCLABL	1.00	1.00 784	20.47 16,051	0.00 0	47.42 37,181	0.00 0	67.89 53,232	67.89 67.89
125 acres = 5,445 msf												
TOTAL Seeding, athletic fld mix,		18.00	ACR			784	16,051	0	37,181	0	53,232	2957.36
05.001.005.04. Plant Mesquite/Shrub mix using (cont'd) 5 gallon plants												
USR GC <	> Planting of 5-gallon plants See bid result of Rio Salado Ph 1A	3204.00	EA		0.00	0.00 0	0.00 0	0.00 0	0.00 0	15.00 48,060	15.00 48,060	15.00 15.00
TOTAL Plant Mesquite/Shrub mix using		3204.00	EA			0	0	0	0	48,060	48,060	15.00
TOTAL Planting & Seeding		18.00	ACR			880	18,812	1,173	52,197	48,060	120,242	6680.12
TOTAL Tributary Infiltration Basins		1.00	EA			10,426	218,428	13,352	64,878	110,010	406,667	406666.57

05.005. Grade Control Infiltration Basin		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST	
05.005. Grade Control Infiltration Basin Construct infiltration basins immediately upstream of existing grade control structure, total basins = 6, depth = 4', side slopes at 4%													
05.005.001. Fencing for Erosion Control 6 acres = 261,360 sf Square root of 261,360 = 511 lf 511 lf x 4 = 2,044 lf (perimeter)													
AF	GC <01534 0010 >	Fencing, 11 ga, chain link, 5' high	2044.00	LF	ALABCLAB2	12.50	0.16 327	3.28 6,695	0.00 0	3.58 7,318	0.00 0	6.86 14,013	6.86
TOTAL Fencing for Erosion Control		6.00 ACR					327	6,695	0	7,318	0	14,013	2335.44
05.005.002. Clearing and Grubbing, debris removal, etc.													
AF	GC <02109 0420 >	Clear & grub, burning, incinerator, light	5.00	ACR	UOEHB40A	0.28	14.23 71	396.38 1,982	308.04 1,540	0.00 0	0.00 0	704.43 3,522	704.43
TOTAL Clearing and Grubbing, debris		5.00 ACR					71	1,982	1,540	0	0	3,522	704.43
05.005.003. Excavating, mach exc, sand & gr 2 cy bkt													
05.005.003.01. Stockpile useable cut mat'l assume 25% total cut													
MIL	GC <02241 0020 >	Loam or topsoil, 200' haul, 6" deep, 200 HP dozer, remove/pile on site	280.00	CY	CODTB10B	108.13	0.01 4	0.39 110	0.61 171	0.00 0	0.00 0	1.00 281	1.00
TOTAL Stockpile useable cut mat'l		280.00 CY					4	110	171	0	0	281	1.00
05.005.003.02. Hauling, surplus cut mat'l, no loading, 10 mile RT													
AF	GC <02234 0555 >	Hauling, hwy haulers, 12 CY, 12 mile round trip @ base wide rate	840.00	CY	COEIB34B	20.00	0.05 42	1.31 1,097	2.40 2,013	0.00 0	0.00 0	3.70 3,110	3.70
TOTAL Hauling, surplus cut mat'l, no		840.00 CY					42	1,097	2,013	0	0	3,110	3.70

05.005. Grade Control Infiltration Basin		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST	
05.005.003.03. Fill, spread cut mat'l at dump site, no compaction													
AF GC	<02240 0030 >	Fill, spread cut mat'l w/dozer at dump site, no compaction	840.00	CY	CODTB10B	125.00	0.01 10	0.34 285	0.53 443	0.00 0	0.00 0	0.87 728	0.87
TOTAL Fill, spread cut mat'l at dump		840.00	CY				10	285	443	0	0	728	0.87
TOTAL Excavating, mach exc, sand & gr		1120.00	CY				56	1,492	2,627	0	0	4,119	3.68
05.005.004. Compaction at dump site, hl rlr 12" lifts, 2 passes													
AF GC	<02220 5660 >	Compaction, riding, 8" lifts, 2 passes, sheepsfoot/wobbly wheel roller	840.00	CY	COFCB32F	600.00	0.01 4	0.13 110	0.16 131	0.00 0	0.00 0	0.29 241	0.29
TOTAL Compaction at dump site, hl rlr		840.00	CY				4	110	131	0	0	241	0.29
05.005.005. Compact basin subgrade, existing earth, 2 passes 90%													
MIL GC	<02239 0230 >	Spread & compact, slope > 1 in 4, shape enbankment, by hand	29040	SY	ULABB2	50.00	0.10 2,904	2.07 60,031	0.00 0	0.00 0	0.00 0	2.07 60,031	2.07
TOTAL Compact basin subgrade, existing		29040	CY				2,904	60,031	0	0	0	60,031	2.07
05.005.006. Backfilling See unit cost development at "Tributary Infiltration Basins"													
290 cy x 4 (different layers) = 1,160 cy													
TOTAL Backfilling		1160.00	CY				0	0	0	0	21,390	21,390	18.44
05.005.007. Planting & Seeding													
05.005.007.01. Mulch, hay, 1" deep, power (cont'd) mulcher, large													
M MIL GC	<	> Outside Laborer	3.95	HR	X-LABORER	1.00	1.00 4	20.47 81	0.00 0	0.09 0	0.00 0	20.56 81	20.56
MIL GC	<	> Outside Truck Driver, Light	3.95	HR	X-TRKDVRLT	1.00	1.00 4	25.38 100	0.00 0	0.00 0	0.00 0	25.38 100	25.38
EP GC	<	> TRK,HWY, 21,000 GVW, 4X2, 2 AXLE	3.95	HR	T50F0009	1.00	0.00 0	0.00 0	15.53 61	0.00 0	0.00 0	15.53 61	15.53

05.005. Grade Control Infiltration Basin		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
GEN GC <	> HYDROMULCHER, 3,000 GAL(11,356L) TRK MTD (W/ 56,000GVW TRK)	3.95	HR	L15Z3880	1.00	0.00 0	0.00 0	29.04 115	0.00 0	0.00 0	29.04 115	29.04 29.04
USR GC <	> Material cost	6.00	ACR	N/A	0.00	0.00 0	0.00 0	0.00 0	834.17 5,005	0.00 0	834.17 5,005	834.17 834.17
TOTAL Mulch, hay, 1" deep, power		6.00	ACR			8	181	176	5,005	0	5,362	893.72
05.005.007.02. Crimping, tilling topsoil (cont'd) 20 HP tractor, disk harrow, 6" deep												
EP GC <	> ROTARY HOE, 80" WIDE ROTERRA (ADD 40 HP PTO TRACTOR)	24.00	HR	T10LE001	1.00	0.00 0	0.00 0	1.29 31	0.00 0	0.00 0	1.29 31	1.29 1.29
MAP GC <	> TRACTOR,WH,FARM, 40- 59HP, 2X4	24.00	HR	T25JD005	1.00	0.00 0	0.00 0	7.67 184	0.00 0	0.00 0	7.67 184	7.67 7.67
MIL GC <	> Outside Equip. Operator, Light	24.00	HR	X-EQOPRLT	1.00	1.00 24	30.80 739	0.00 0	0.00 0	0.00 0	30.80 739	30.80 30.80
TOTAL Crimping, tilling topsoil		6.00	ACR			24	739	215	0	0	954	159.04
05.005.007.03. Seeding, athletic fld mix,												
M RSM GC <02932 0010 >	Seeding, athletic field mix, 8#/MSFpush spreader	261.36	MSF	ALABCLABL	1.00	1.00 261	20.47 5,350	0.00 0	47.42 12,394	0.00 0	67.89 17,744	67.89 67.89
125 acres = 5,445 msf												
TOTAL Seeding, athletic fld mix,		6.00	ACR			261	5,350	0	12,394	0	17,744	2957.36
TOTAL Planting & Seeding		6.00	ACR			293	6,271	391	17,399	0	24,061	4010.12
TOTAL Grade Control Infiltration Basin		1.00	EA			3,656	76,582	4,689	24,717	21,390	127,378	127377.54
TOTAL BASINS PLANTING		1.00	EA			14,082	295,009	18,040	89,594	131,400	534,044	534044.10

 10.001. Hardened Slopes QUANTITY UOM CREW ID OUTPUT MANHRS LABOR EQUIPMNT MATERIAL OTHER TOTAL COST UNIT COST

10. HARDENED BANKS

Construct Soil Cement slopes on vertical sections of SCR banks. Typ
 application = 8' wide, 30' height (19' +10')

10.001. Hardened Slopes

10.001.001. Fencing for Erosion Control

3.5 acres = 152,460 sf
 Square root of 152,460 sf = 390 lf
 390 lf x 4 = 1,560 lf (perimeter)

AF GC <01534 0010 > Fencing, 11 ga, chain link, 5' high	1560.00 LF	ALABCLAB2	12.50	0.16 250	3.28 5,110	0.00 0	3.58 5,585	0.00 0	6.86 10,695	6.86
TOTAL Fencing for Erosion Control	3.50 ACR			250	5,110	0	5,585	0	10,695	3055.59

10.001.002. Clearing and Grubbing, debris
removal

AF GC <02109 0420 > Clear & grub, burning, incinerator, light	0.90 ACR	UOEHB40A	0.28	14.23 13	396.38 357	308.04 277	0.00 0	0.00 0	704.43 634	704.43
TOTAL Clearing and Grubbing, debris	0.90 ACR			13	357	277	0	0	634	704.43

10.001.003. Excavating, prepare slope &
subgrade, 1:1 slope

10.001.003.01. Stockpile subgrade cut matl for
backfill

MIL GC <02241 0020 > Loam or topsoil, 200' haul, 6" deep, 200 HP dozer, remove/pile on site	28200 CY	CODTB10B	108.13	0.01 392	0.39 11,069	0.61 17,194	0.00 0	0.00 0	1.00 28,262	1.00
TOTAL Stockpile subgrade cut matl for	28200 CY			392	11,069	17,194	0	0	28,262	1.00

10.001.003.02. Hauling, no loading, 16.5 cy
dump trailer, 10 mile RT

MIL GC <02234 1115 > Hauling, hwy haulers, 16.5 CY, 6 mi round trip @ 40 MPH (2.1 cyc/hr)	18800 CY	CTDHB34C	35.00	0.03 538	0.75 14,032	1.44 27,164	0.00 0	0.00 0	2.19 41,196	2.19
TOTAL Hauling, no loading, 16.5 cy	18800 CY			538	14,032	27,164	0	0	41,196	2.19
TOTAL Excavating, prepare slope &	47000 CY			930	25,101	44,358	0	0	69,458	1.48

10.001. Hardened Slopes		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST

10.001.004. Fill, spread dumped mat'l, by dozer, no compaction												
10.001.004.01. Compaction, sheepfoot/wobbly whl rlr, 12" lifts, 2 passes												
AF GC <02220 5660 >	Compaction, riding, 8" lifts, 2 passes, sheepsfoot/wobbly wheel roller	18800	CY	COFCB32F	600.00	0.01 94	0.13 2,468	0.16 2,929	0.00 0	0.00 0	0.29 5,397	0.29
TOTAL Compaction, sheepfoot/wobbly		18800	CY			94	2,468	2,929	0	0	5,397	0.29

10.001.004.02. Fine grade to 1:1 slope, for irregular areas, adverse cond.												
MIL GC <02226 4100 >	Excavation, bulk, fine grade, 3 passes w/grader	149.00	CSY	COFGB11L	2.00	1.00 149	26.34 3,924	17.66 2,631	0.00 0	0.00 0	43.99 6,555	43.99
TOTAL Fine grade to 1:1 slope, for		14900	SY			149	3,924	2,631	0	0	6,555	0.44
TOTAL Fill, spread dumped mat'l, by		18800	CY			243	6,392	5,560	0	0	11,952	0.64

10.001.005. Soil Cement application, 8" lifts at 8' width, 750 PSI												
TOTAL Soil Cement application,		61100	CY			0	733,200	611,000	1038700	0	2,382,900	39.00

10.001.006. Backfill and Compaction												
10.001.006.01. Backfill subgrade with cut matl												
MIL GC <02215 1220 >	Backfill, trench, front-end loader, 40 - 60 HP, no compaction	28200	CY	CODFB10N	50.00	0.03 846	0.85 23,933	0.74 20,978	0.00 0	0.00 0	1.59 44,911	1.59
TOTAL Backfill subgrade with cut matl		28200	CY			846	23,933	20,978	0	0	44,911	1.59

10.001.006.02. Compaction, sheepfoot/wobbly whl rlr, 12" lifts, 2 passes												
AF GC <02220 5660 >	Compaction, riding, 8" lifts, 2 passes, sheepsfoot/wobbly wheel roller	28200	CY	COFCB32F	600.00	0.01 141	0.13 3,703	0.16 4,394	0.00 0	0.00 0	0.29 8,096	0.29
TOTAL Compaction, sheepfoot/wobbly whl		28200	CY			141	3,703	4,394	0	0	8,096	0.29

Thu 29 Jul 2004
 Eff. Date 07/19/04
 DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
 PROJECT PASE01: Paseo de las Iglesias Feas Study - Los Reals Road to Congress Road
 PASEO DE LAS IGLESIAS Feasibility Study Estimate
 10. HARDENED BANKS

TIME 10:24:49
 DETAIL PAGE 35

10.001. Hardened Slopes	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
TOTAL Backfill and Compaction	28200	CY			987	27,636	25,372	0	0	53,008	1.88
TOTAL Hardened Slopes	1.00	EA			2,422	797,796	686,566	1044285	0	2,528,647	2528647
TOTAL HARDENED BANKS	1.00	EA			2,422	797,796	686,566	1044285	0	2,528,647	2528647

 15.001. Irrigation Piping QUANTITY UOM CREW ID OUTPUT MANHRS LABOR EQUIPMNT MATERIAL OTHER TOTAL COST UNIT COST

15. PIPING

Install various sized piping for irrigation distribution throughout project area. Install fording culverts in historic floodplain

15.001. Irrigation Piping

15.001.001. Trenching for Delivery Pipe

15.001.001.01. Delivery pipe trench bedding,
 3/4" gravel pipe support

M MIL GC <02704 0300 > Drainage, drainage matl, 3/4" gravel fill in trench	1260.00 CY	CODLB6	32.50	0.09 116	2.21 2,782	0.47 586	46.94 59,144	0.00 0	49.61 62,512	49.61
TOTAL Delivery pipe trench bedding,	1260.00 CY			116	2,782	586	59,144	0	62,512	49.61

15.001.001.02. Delivery piping, large dia. say
 12" PVC

M MIL GC <02667 4560 > Piping, water dist, PVC, class 150, SDR 18, AWWA C900, 12"	10440 LF	ULABB20A	23.25	0.17 1,796	5.35 55,872	0.00 0	14.05 146,682	0.00 0	19.40 202,554	19.40
TOTAL Delivery piping, large dia. say	10440 LF			1,796	55,872	0	146,682	0	202,554	19.40

15.001.001.03. Backfill delivery pipe trench,
 FE loader, whl mtd 1 CY bkt

M MIL GC <02215 2460 > Backfill, sand bedding trenches, front-end loader, 1.5 CY	1260.00 CY	CODFB10N	47.50	0.03 40	0.89 1,126	0.78 987	15.46 19,480	0.00 0	17.14 21,592	17.14
TOTAL Backfill delivery pipe trench,	1260.00 CY			40	1,126	987	19,480	0	21,592	17.14

15.001.001.04. Hauling, Delivery pipe surplus
 cut matl, no loading, 10 mile RT

MIL GC <02234 1115 > Hauling, hwy haulers, 16.5 CY, 6 mi round trip @ 40 MPH (2.1 cyc/hr)	1880.00 CY	CTDHB34C	35.00	0.03 54	0.75 1,403	1.44 2,716	0.00 0	0.00 0	2.19 4,120	2.19
TOTAL Hauling, Delivery pipe surplus	1880.00 CY			54	1,403	2,716	0	0	4,120	2.19
TOTAL Trenching for Delivery Pipe	3130.00 CY			2,006	61,182	4,289	225,306	0	290,778	92.90

-----		QUANTY	UOM	CREW	ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST	-----
15.001. Irrigation Piping														
15.001.002. Trenching for Main Pipe														
15.001.002.01. Main pipe trench bedding, 3/4" gravel pipe support														
M MIL GC <02704 0300 >	Drainage, drainage matl, 3/4" gravel fill in trench	8400.00	CY	CODLB6		32.50	775	18,544	3,909	394,296	0	416,748	49.61	
							0.09	2.21	0.47	46.94	0.00	49.61		
	TOTAL Main pipe trench bedding,	8400.00	CY				775	18,544	3,909	394,296	0	416,748	49.61	
15.001.002.02. Main piping, large dia. say 12" PVC														
M MIL GC <02667 4560 >	Piping, water dist, PVC, class 150, SDR 18, AWWA C900, 12"	69970	LF	ULABB20A		23.25	12,035	374,458	0	983,079	0	1,357,537	19.40	
							0.17	5.35	0.00	14.05	0.00	19.40		
	TOTAL Main piping, large dia. say	69970	LF				12,035	374,458	0	983,079	0	1,357,537	19.40	
15.001.002.03. Backfill Main pipe trench, FE loader, whl mtd 1 CY bkt														
M MIL GC <02215 2460 >	Backfill, sand bedding trenches, front-end loader, 1.5 CY	8400.00	CY	CODFB10N		47.50	265	7,505	6,577	129,864	0	143,946	17.14	
							0.03	0.89	0.78	15.46	0.00	17.14		
	TOTAL Backfill Main pipe trench,	8400.00	CY				265	7,505	6,577	129,864	0	143,946	17.14	
15.001.002.04. Hauling, Main pipe surplus cut matl, no loading, 10 mile RT														
MIL GC <02234 1115 >	Hauling, hwy haulers, 16.5 CY, 6 mi round trip @ 40 MPH (2.1 cyc/hr)	12600	CY	CTDHB34C		35.00	360	9,405	18,206	0	0	27,610	2.19	
							0.03	0.75	1.44	0.00	0.00	2.19		
	TOTAL Hauling, Main pipe surplus	12600	CY				360	9,405	18,206	0	0	27,610	2.19	
	TOTAL Trenching for Main Pipe	21000	CY				13,436	409,911	28,691	1507239	0	1,945,841	92.66	
15.001.003. Trenching for Sub-main Pipe														
15.001.003.01. Sub-main pipe trench bedding, 3/4" gravel pipe support														
M MIL GC <02704 0300 >	Drainage, drainage matl, 3/4" gravel fill in trench	3370.00	CY	CODLB6		32.50	311	7,440	1,568	158,188	0	167,195	49.61	
							0.09	2.21	0.47	46.94	0.00	49.61		
	TOTAL Sub-main pipe trench bedding,	3370.00	CY				311	7,440	1,568	158,188	0	167,195	49.61	

-----		QUANTY	UOM	CREW	ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST	-----
15.001. Irrigation Piping														
15.001.003.02. Sub-main piping, large dia. say 8" PVC														
M MIL GC <02667 4540 >	Piping, water dist, PVC, class 150, SDR 18, AWWA C900, 8"	28010	LF	ULABB20A		33.00	0.12 3,395	3.77 105,612	0.00 0	6.24 174,782	0.00 0	10.01 280,394	10.01	
TOTAL Sub-main piping, large dia. say		28010	LF				3,395	105,612	0	174,782	0	280,394	10.01	
15.001.003.03. Backfill Sub-main pipe trench, FE loader, whl mtd 1 CY bkt														
M MIL GC <02215 2460 >	Backfill, sand bedding trenches, front-end loader, 1.5 CY	3370.00	CY	CODFB10N		47.50	0.03 106	0.89 3,011	0.78 2,639	15.46 52,100	0.00 0	17.14 57,750	17.14	
TOTAL Backfill Sub-main pipe trench,		3370.00	CY				106	3,011	2,639	52,100	0	57,750	17.14	
15.001.003.04. Hauling, Sub-main pipe surplus cut matl, no loading, 10 mile RT														
MIL GC <02234 1115 >	Hauling, hwy haulers, 16.5 CY, 6 mi round trip @ 40 MPH (2.1 cyc/hr)	5050.00	CY	CTDHB34C		35.00	0.03 144	0.75 3,769	1.44 7,297	0.00 0	0.00 0	2.19 11,066	2.19	
TOTAL Hauling, Sub-main pipe surplus		5050.00	CY				144	3,769	7,297	0	0	11,066	2.19	
TOTAL Trenching for Sub-main Pipe		8420.00	CY				3,957	119,831	11,504	385,070	0	516,405	61.33	
15.001.004. Trenching for Culvert CMP														
15.001.004.01. Culvert trench bedding, 3/4" gravel pipe support														
M MIL GC <02704 0300 >	Drainage, drainage matl, 3/4" gravel fill in trench	4200.00	CY	CODLB6		32.50	0.09 388	2.21 9,272	0.47 1,954	46.94 197,148	0.00 0	49.61 208,374	49.61	
TOTAL Culvert trench bedding,		4200.00	CY				388	9,272	1,954	197,148	0	208,374	49.61	
15.001.004.02. Install 24" dia. CMP Culvert for truck traffic														
M MIL GC <02764 3200 >	Piping, corr stl, 18" equiv, 21" x 15",16 ga, plain oval arch culv	23600	LF	CLABB14		21.88	0.27 6,473	6.13 144,741	0.69 16,317	11.84 279,424	0.00 0	18.66 440,482	18.66	
TOTAL Install 24" dia. CMP Culvert for		23600	LF				6,473	144,741	16,317	279,424	0	440,482	18.66	

15.001. Irrigation Piping	QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST

15.001.004.03. Backfill trench, FE Loader, whl mtd 1 CY bkt											
M MIL GC <02215 2460 > Backfill, sand bedding trenches, front-end loader, 1.5 CY	4200.00	CY	CODFB10N	47.50	0.03 133	0.89 3,752	0.78 3,289	15.46 64,932	0.00 0	17.14 71,973	17.14
TOTAL Backfill trench, FE Loader,	4200.00	CY			133	3,752	3,289	64,932	0	71,973	17.14
15.001.004.04. Hauling, Sub-main pipe surplus cut matl, no loading, 10 mile RT											
MIL GC <02234 1115 > Hauling, hwy haulers, 16.5 CY, 6 mi round trip @ 40 MPH (2.1 cyc/hr)	6300.00	CY	CTDHB34C	35.00	0.03 180	0.75 4,702	1.44 9,103	0.00 0	0.00 0	2.19 13,805	2.19
TOTAL Hauling, Sub-main pipe surplus	6300.00	CY			180	4,702	9,103	0	0	13,805	2.19
TOTAL Trenching for Culvert CMP	10500	CY			7,174	162,468	30,663	541,504	0	734,634	69.97
TOTAL Irrigation Piping	1.00	EA			26,572	753,393	75,147	2659119	0	3,487,659	3487659
TOTAL PIPING	1.00	EA			26,572	753,393	75,147	2659119	0	3,487,659	3487659

20.001. Compacted Earth Maintenance Road		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST			
20. ROADS & BRIDGES															
20.001. Compacted Earth Maintenance Road															
Construct gravel trails at various locations throughout project area, 10 foot width															
20.001.001. Clearing & Grubbing, debris removal, etc.															
AF	GC	<02109	0420	> Clear & grub, burning, incinerator, light	8.30	ACR	UOEHB40A	0.28	14.23 118	396.38 3,290	308.04 2,557	0.00 0	0.00 0	704.43 5,847	704.43
TOTAL Clearing & Grubbing, debris		8.30	ACR						118	3,290	2,557	0	0	5,847	704.43
20.001.002. Site Preparation															
20.001.002.01. Ripping, discing to prepare surface															
RSM	GC	<02238	0010	> Ripping, trap rock, soft, 200 HP dozer, ideal conditions	83.00	CY	CODTB10B	88.75	0.02 1	0.48 40	0.74 62	0.00 0	0.00 0	1.22 101	1.22
Assume 10 cy/acre															
TOTAL Ripping, discing to prepare		8.30	ACR						1	40	62	0	0	101	12.21
20.001.002.02. Regrade, flatten, balance cut matl. Onsite, 50% of area															
MIL	GC	<02224	7020	> Excavating, bulk, dozer, 300 HP, large area, open site, rough grade	2020.00	CY	CODTB10M	300.00	0.01 10	0.14 286	0.33 671	0.00 0	0.00 0	0.47 956	0.47
TOTAL Regrade, flatten, balance cut		2020.00	CY						10	286	671	0	0	956	0.47
20.001.002.03. Compaction, riding, sheepfoot/wobbly whl, 2 passes															
AF	GC	<02220	5660	> Compaction, riding, 8" lifts, 2 passes, sheepsfoot/wobbly wheel roller	40260	CY	COFCB32F	600.00	0.01 201	0.13 5,286	0.16 6,273	0.00 0	0.00 0	0.29 11,559	0.29
TOTAL Compaction, riding, sheepfoot/wobbly whl, 2 passes		40260	SY						201	5,286	6,273	0	0	11,559	0.29
TOTAL Site Preparation		8.30	ACR						213	5,611	7,005	0	0	12,616	1520.05
TOTAL Compacted Earth Maintenance Road		8.30	ACR						331	8,901	9,562	0	0	18,463	2224.48

20.002. Paved Maintenance Roads		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST			
20.002. Paved Maintenance Roads Construct paved trails at various locations throughout project area, 15 ft width, 52,087 lf, 781,305 sf, 18 acres.															
20.002.001. Clearing & Grubbing, debris removal, etc.															
AF	GC	<02109	0420	> Clear & grub, burning, incinerator, light	9.00	ACR	UOEHB40A	0.28	14.23 128	396.38 3,567	308.04 2,772	0.00 0	0.00 0	704.43 6,340	704.43
TOTAL Clearing & Grubbing, debris		9.00	ACR						128	3,567	2,772	0	0	6,340	704.43
20.002.002. Site Preparation															
20.002.002.01. Ripping, discing to prepare surface															
RSM	GC	<02238	0010	> Ripping, trap rock, soft, 200 HP dozer, ideal conditions	180.00	CY	CODTB10B	88.75	0.02 3	0.48 86	0.74 134	0.00 0	0.00 0	1.22 220	1.22
Assume 10 cy/acre															
TOTAL Ripping, discing to prepare		18.00	ACR						3	86	134	0	0	220	12.21
20.002.002.02. Regrade, flatten, balance cut matl. Onsite, 25% of area															
MIL	GC	<02224	7020	> Excavating, bulk, dozer, 300 HP, large area, open site, rough grade	21880	CY	CODTB10M	300.00	0.01 109	0.14 3,094	0.33 7,266	0.00 0	0.00 0	0.47 10,360	0.47
TOTAL Regrade, flatten, balance cut		21880	CY						109	3,094	7,266	0	0	10,360	0.47
20.002.002.03. Compaction, riding, sheepfoot/wobbly whl, 2 passes															
AF	GC	<02220	5660	> Compaction, riding, 8" lifts, 2 passes, sheepsfoot/wobbly wheel roller	86820	CY	COFCB32F	600.00	0.01 434	0.13 11,399	0.16 13,527	0.00 0	0.00 0	0.29 24,926	0.29
TOTAL Compaction, riding, sheepfoot/wobbly whl, 2 passes		86820	SY						434	11,399	13,527	0	0	24,926	0.29

20.002. Paved Maintenance Roads		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
20.002.002.04. Asphalt Concrete Paving, (cont'd.) Base course, 4" thick, and 2" topping												
M MIL GC <02505 0813 >	Asphaltic conc pavement, highway, binder course, 4" thick	17363	TON	COKCB25	106.25	1,797	42,713	23,029	467,759	0	533,501	30.73
	Assume 45 sf/ton (See Means Construction Cost Data, 2004, 02740-310-0200, and -0813)											
	781,310 sf / 45 sf/ton = 17,363 tons											
M MIL GC <02505 0854 >	Asphaltic conc pavement, highway, wearing course, 2" thick	9528.00	TON	COKCB25B	100.00	1,143	27,971	17,860	283,267	0	329,099	34.54
	Assume 82 sf/ton (See Means Construction Cost Data, 2004, 02740-310-0380 and -0852)											
	Then, 781,310 sf / 82 sf/ton = 9,528 ton											
USR GC <	> Seal Oil (or Sealcoating) 781,310 sf = 86,812 sy	86812	SY	N/A	0.00	0	8,681	9,549	38,197	0	56,428	0.65
	See Means Construction Cost Data, 2004: 02785-250-0012 for pricing.											
	M=\$0.44/sy, L=\$0.10/sy, E=\$0.11/sy											
USR GC <	> Asphalt Surface Treatment See Means Construction Cost Data, 2004: 02785-250-1910 for pricing.	86812	SY	N/A	0.00	0	16,494	12,154	59,900	0	88,548	1.02
	M=\$0.69/sy, L=\$0.19/sy, E=\$0.14/sy											
TOTAL Asphalt Concrete Paving,		781310	SF			2,940	95,860	62,592	849,124	0	1,007,576	1.29
TOTAL Site Preparation		18.00	ACR			3,487	110,439	83,518	849,124	0	1,043,082	57948.99
TOTAL Paved Maintenance Roads		18.00	ACR			3,615	114,007	86,291	849,124	0	1,049,422	58301.20

20.003. Gravel Maintenance Road		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST	
20.003. Gravel Maintenance Road Construct gravel trails at various locations throughout project area, 10 ft width, 3" thickness, 35,575 lf, 355,750 sf, 8.2 acres.													
20.003.001. Clearing & Grubbing, debris removal, etc.													
AF	GC <02109 0420 >	Clear & grub, burning, incinerator, light	4.10	ACR	UOEHB40A	0.28	14.23 58	396.38 1,625	308.04 1,263	0.00 0	0.00 0	704.43 2,888	704.43
TOTAL Clearing & Grubbing, debris			4.10	ACR			58	1,625	1,263	0	0	2,888	704.43
20.003.002. Site Preparation													
20.003.002.01. Ripping, discing to prepare surface													
RSM	GC <02238 0010 >	Ripping, trap rock, soft, 200 HP dozer, ideal conditions	82.00	CY	CODTB10B	88.75	0.02 1	0.48 39	0.74 61	0.00 0	0.00 0	1.22 100	1.22
Assume 10 cy/acre													
TOTAL Ripping, discing to prepare			8.20	ACR			1	39	61	0	0	100	12.21
20.003.002.02. Regrade, flatten, balance cut matl. Onsite, 25% of area													
MIL	GC <02224 7020 >	Excavating, bulk, dozer, 300 HP, large area, open site, rough grade	1980.00	CY	CODTB10M	300.00	0.01 10	0.14 280	0.33 658	0.00 0	0.00 0	0.47 938	0.47
TOTAL Regrade, flatten, balance cut			1980.00	CY			10	280	658	0	0	938	0.47
20.003.002.03. Compaction, riding, sheepfoot/wobbly whl, 2 passes													
AF	GC <02220 5660 >	Compaction, riding, 8" lifts, 2 passes, sheepsfoot/wobbly wheel roller	39530	CY	COFCB32F	600.00	0.01 198	0.13 5,190	0.16 6,159	0.00 0	0.00 0	0.29 11,349	0.29
TOTAL Compaction, riding, sheepfoot/wobbly whl, 2 passes			39530	SY			198	5,190	6,159	0	0	11,349	0.29

Thu 29 Jul 2004
 Eff. Date 07/19/04
 DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
 PROJECT PASE01: Paseo de las Iglesias Feas Study - Los Reals Road to Congress Road
 PASEO DE LAS IGLESIAS Feasibility Study Estimate
 20. ROADS & BRIDGES

TIME 10:24:49
 DETAIL PAGE 44

20.003. Gravel Maintenance Road		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
20.003.002.04. Gravel course, crushed 3/4" stone, compacted, 3" deep												
B RSM GC <02244 0050 >	Base course, crushed 3/4" stone, compacted, 3"D, large areas	39530	SY	COFGB36C	452.17	439	12,606	17,943	102,778	0	133,327	3.37
For material and equipment cost, see Means Construction Cost Data, 2004: 02720-200-0050												
TOTAL Gravel course, crushed 3/4"		39530	SY			439	12,606	17,943	102,778	0	133,327	3.37
TOTAL Site Preparation		8.20	ACR			648	18,116	24,820	102,778	0	145,713	17769.94
TOTAL Gravel Maintenance Road		8.20	ACR			706	19,741	26,083	102,778	0	148,602	18122.15

 20.005. Bridges QUANTITY UOM CREW ID OUTPUT MANHRS LABOR EQUIPMNT MATERIAL OTHER TOTAL COST UNIT COST

20.005. Bridges

Pedestrian and maintenance bridges as site amenities, abutments to be CIP reinforced concrete

20.005.001. Fencing for Erosion Control
 9 acres = 392,040 sf
 Square root of 392,040 sf = 626 lf
 626 lf x 4 = 2,504 lf (perimeter)

AF GC <01534 0010 > Fencing, 11 ga, chain link, 5' high	2504.00 LF	ALABCLAB2	12.50	0.16 401	3.28 8,202	0.00 0	3.58 8,964	0.00 0	6.86 17,166	6.86
TOTAL Fencing for Erosion Control	9.00 ACR			401	8,202	0	8,964	0	17,166	1907.35

20.005.002. Clearing and Grubbing, debris removal, etc.

AF GC <02109 0420 > Clear & grub, burning, incinerator, light	7.00 ACR	UOEHB40A	0.28	14.23 100	396.38 2,775	308.04 2,156	0.00 0	0.00 0	704.43 4,931	704.43
TOTAL Clearing and Grubbing, debris	7.00 ACR			100	2,775	2,156	0	0	4,931	704.43

20.005.003. Excavating, structural, sand/loam, 2CY bkt

20.005.003.01. Hauling, no loading, 16.5 cy dump trailer, 10 mile RT

MIL GC <02234 1115 > Hauling, hwy haulers, 16.5 CY, 6 mi round trip @ 40 MPH (2.1 cyc/hr)	3366.00 CY	CTDHB34C	35.00	0.03 96	0.75 2,512	1.44 4,864	0.00 0	0.00 0	2.19 7,376	2.19
TOTAL Hauling, no loading, 16.5 cy	3366.00 CY			96	2,512	4,864	0	0	7,376	2.19

20.005.003.02. Fill, spread dumped matl, by dozer, no compaction

RSM GC <02216 2000 > Backfill, strl, sand & gravel, no compct, 75 HP dozer, 50' haul	3366.00 CY	CODTB10L	137.50	0.01 37	0.31 1,039	0.20 674	0.00 0	0.00 0	0.51 1,713	0.51
TOTAL Fill, spread dumped matl, by	3366.00 CY			37	1,039	674	0	0	1,713	0.51

20.005. Bridges		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST	
20.005.003.03. Compaction, sheepfoot/wobbly whl rlr, 12" lifts, 2 passes													
AF GC	<02220 5660 >	Compaction, riding, 8" lifts, 2 passes, sheepsfoot/wobbly wheel roller	3060.00	CY	COFCB32F	600.00	0.01 15	0.13 402	0.16 477	0.00 0	0.00 0	0.29 879	0.29
TOTAL Compaction, sheepfoot/wobbly		3060.00	CY				15	402	477	0	0	879	0.29
TOTAL Excavating, structural, sand/		3060.00	CY				148	3,953	6,014	0	0	9,967	3.26
20.005.004. Cast in Place reinforced concret This is for bridge abutment construction.													
There are 18 abutments, and the dimensions of the abutment are: 25' (L) x 12' (W) x 15' (H)													
Assume 105 lb/cy for reinforcing steel quantity calculation. Then, 3060 cy x 105 lb/cy = 321,300 lbs.													
M MIL GC	<03330 3600 >	Concrete in place,dir chute, 500psi, incl forms,reinf, flexural on grade	3060.00	CY	ULABC8A	18.75	0.32 979	7.79 23,838	0.00 0	52.20 159,732	0.00 0	59.99 183,570	59.99
M MIL GC	<03217 0700 >	Reinforcing in place, walls, #3 to #7	161.00	TON	SIWRRODM4	0.38	10.67 1,717	424.44 68,335	0.00 0	580.01 93,382	0.00 0	1004.45 161,717	1004.45
321,300 lbs = 161 tons													
M CIV GC	<03138 2100 >	Forms in place, 12" w, plywood, 3 use, interior beam, beams & girders	6750.00	SF	ACARC2	45.50	0.13 890	3.91 26,417	0.00 0	1.36 9,180	0.00 0	5.27 35,597	5.27
18 abutments x 25' (L) x 15' (H) = 6,750 SF													
TOTAL Cast in Place reinforced concret		3060.00	CY				3,587	118,590	0	262,294	0	380,884	124.47
20.005.005. Finished grading, tie in, stabl.													
MIL GC	<02512 1100 >	Fine grade, for slab on grade, machine	43560	SY	COFGB11L	130.00	0.02 671	0.41 17,651	0.27 11,831	0.00 0	0.00 0	0.68 29,481	0.68
TOTAL Finished grading, tie in, stabl.		9.00	ACR				671	17,651	11,831	0	0	29,481	3275.71

 20.005. Bridges QUANTITY UOM CREW ID OUTPUT MANHRS LABOR EQUIPMNT MATERIAL OTHER TOTAL COST UNIT COST

20.005.006. Prefab Bridges

20.005.006.01. Prefab Bridges (9 ea)

(07/23/04)

Quote of delivered price is obtained from Steadfast Bridges Company in Alabama.

Width = 10' (wide enough for a service truck to pass by)
 Spans = 48' (\$25,345), 56' (\$29,857), 74' (\$41,373), 68' (\$38,610), 101' (\$77,759), 104' (\$78,235), 136' (\$127,242), 148' (\$142,795), 74' (\$41,373)

Total delivered cost = \$602,589 (to Phoenix, AZ area)
 Assume 10% as delivery, then, M=\$542,330, O=\$60,259

Total square foot of all the bridges = 8,090 SF

(07/27/04)

Another quote from Excel Bridge Co. (www.excelbridge.com, Kenneth Longino, (562) 944-0701, 12001 Shoemaker Avenue, Santa Fe Springs, CA):

All widths = 12'
 Spans = 48' (\$40,320), 74' (2 ea) (\$62,160/ea), 68' (\$57,120), 101' (\$100,600), 136' (\$153,500), 56' (\$47,040), 104' (\$101,107), 79' (\$66,360), 148' (\$173,300)

Plus taxes, and F.O.B. Phoenix, AZ.
 TOTAL Prefab Bridges (9 ea)

0 0 0 542,330 60,259 602,589

20.005.006.02. Unloading and Erection

Code	Description	QTY	UOM	Crew ID	Output	Manhrs	Labor	Equipmt	Material	Other	Total Cost	Unit Cost
MIL GC <	> Outside Steel Worker	161.80	HR	X-STRSTEEL	1.00	162	7,108	0.00	0.00	0.00	7,108	43.93
MIL GC <	> Outside Steel Worker (4)	647.20	HR	X-STRSTEEL	1.00	647	27,783	0.00	0.00	0.00	27,783	42.93
MIL GC <	> Outside Equip. Operator, Heavy (for the crane)	161.80	HR	X-EQOPRHVY	1.00	162	5,425	0.00	0.00	0.00	5,425	33.53
MIL GC <	> Outside Equip. Oiler	161.80	HR	X-EQOPROIL	1.00	162	4,300	0.00	0.00	0.00	4,300	26.58
EP GC <	> CRANE, HYD, S/P, RT, 4WD, 100T/88'BM, W/HOOK & BALL	161.80	HR	C75GV016	1.00	0	0	156.85	0.00	0.00	25,379	156.85
MIL GC <	> Outside Laborer (2 for loading)	323.60	HR	X-LABORER	1.00	324	6,948	0.00	0.00	0.00	6,948	21.47

Thu 29 Jul 2004
 Eff. Date 07/19/04
 DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
 PROJECT PASE01: Paseo de las Iglesias Feas Study - Los Reals Road to Congress Road
 PASEO DE LAS IGLESIAS Feasibility Study Estimate
 20. ROADS & BRIDGES

TIME 10:24:49
 DETAIL PAGE 48

20.005. Bridges		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
MIL GC <	> Outside Equip. Operator, Medium (for loader)	161.80	HR	X-EQOPRMED	1.00	162	5,372	0	0	0	5,372	33.20
EP GC <	> LDR,BH,WH, 1.25CY FE BKT, 24" DIP, EXTENDAHOE	161.80	HR	L50CS006	1.00	0	0	3,738	0	0	3,738	23.10
TOTAL Unloading and Erection		8090.00	SF			1,618	56,936	29,117	0	0	86,053	10.64
TOTAL Prefab Bridges		9.00	EA			1,618	56,936	29,117	542,330	60,259	688,642	76515.81
TOTAL Bridges		1.00	EA			6,524	208,106	49,119	813,588	60,259	1,131,072	1131072
TOTAL ROADS & BRIDGES		1.00	EA			11,176	350,755	171,054	1765490	60,259	2,347,558	2347558

 25.001. Let Down Structures QUANTITY UOM CREW ID OUTPUT MANHRS LABOR EQUIPMNT MATERIAL OTHER TOTAL COST UNIT COST

25. LET DOWN STRUCTURES

Construct let down pipes to stabilize gullies in historic floodplain. Use
 30" dia CMP with wingwalls, backfill gully

25.001. Let Down Structures

25.001.001. Fencing for Erosion Control

2.5 acres = 108,900 sf
 Square root of 108,900 sf = 330 lf
 330 lf x 4 = 1,320 lf (perimeter)

AF GC <01534 0010 > Fencing, 11 ga, chain link, 5' high	1320.00 LF	ALABCLAB2	12.50	0.16 211	3.28 4,324	0.00 0	3.58 4,726	0.00 0	6.86 9,049	6.86
TOTAL Fencing for Erosion Control	2.50 ACR			211	4,324	0	4,726	0	9,049	3619.70

25.001.002. Clearing & Grubbing, debris
removal, etc.

AF GC <02109 0420 > Clear & grub, burning, incinerator, light	1.90 ACR	UOEHB40A	0.28	14.23 27	396.38 753	308.04 585	0.00 0	0.00 0	704.43 1,338	704.43
TOTAL Clearing & Grubbing, debris	1.90 ACR			27	753	585	0	0	1,338	704.43

25.001.003. Prep (excav) slope to receive
let down pipe, assume 100 cy per acre.

See "Hardened Slopes" for unit cost quote. TOTAL Prep (excav) slope to receive	500.00 CY			0	0	0	0	750	750	1.50
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25.001.004. 30" Pipe Laying

25.001.004.01. Install pipe bedding, gravel,
24" by 24"

M MIL GC <02704 0300 > Drainage, drainage matl, 3/4" gravel fill in trench	150.00 CY	CODLB6	32.50	0.09 14	2.21 331	0.47 70	46.94 7,041	0.00 0	49.61 7,442	49.61
TOTAL Install pipe bedding, gravel,	150.00 CY			14	331	70	7,041	0	7,442	49.61

25.001.004.02. Install 30" dia CMP, 200 lf per
location

M MIL GC <02764 2160 > Piping, storm drain, 30" dia, 20'L, 14ga, CMP, bitum ctd w/paved invert	1000.00 LF	CLABB13	15.00	0.47 467	10.90 10,898	6.31 6,312	22.11 22,110	0.00 0	39.32 39,320	39.32
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25.001. Let Down Structures													
TOTAL Install 30" dia CMP, 200 lf per		1000.00	LF			467	10,898	6,312	22,110	0	39,320	39.32	
25.001.004.03. Install wingwall deflectors on mitred pipe ends, 2 per pipe													
Cost assumed. See Eldon Kraft's e-mail dated 05/21/04													
TOTAL Install wingwall deflectors on		10.00	EA			0	0	0	0	30,000	30,000	3000.00	
TOTAL 30" Pipe Laying		1000.00	LF			481	11,229	6,381	29,151	30,000	76,761	76.76	
25.001.005. Backfilling & Compaction													
25.001.005.01. Hauling, no loading, 16.5 cy dump trailer, 10 mile RT													
MIL GC <02234 1115 > Hauling, hwy haulers, 16.5 CY, 6 mi round trip @ 40 MPH (2.1 cyc/hr)		30000	CY	CTDHB34C	35.00	0.03 858	0.75 22,392	1.44 43,347	0.00 0	0.00 0	2.19 65,739	2.19	
TOTAL Hauling, no loading, 16.5 cy		30000	CY			858	22,392	43,347	0	0	65,739	2.19	
25.001.005.02. Fill, spread dumped matl, by dozer, no compaction													
See "Hardened Slope" for cost quote.													
TOTAL Fill, spread dumped matl, by		30000	CY			0	0	0	0	19,500	19,500	0.65	
25.001.005.03. Compaction, sheepfoot/wobbly whl rlr, 12" lifts, 2 passes													
AF GC <02220 5660 > Compaction, riding, 8" lifts, 2 passes, sheepsfoot/wobbly wheel roller		30000	CY	COFCB32F	600.00	0.01 150	0.13 3,939	0.16 4,674	0.00 0	0.00 0	0.29 8,613	0.29	
TOTAL Compaction, sheepfoot/wobbly		30000	CY			150	3,939	4,674	0	0	8,613	0.29	
25.001.005.04. Fine grade filled area, for irregular areas, adverse cond.													
See "Hardened Slope" for cost quote.													
TOTAL Fine grade filled area, for		2.50	ACR			0	0	0	0	5,445	5,445	2178.00	
TOTAL Backfilling & Compaction		30000	CY			1,008	26,331	48,021	0	24,945	99,297	3.31	

25.001. Let Down Structures		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
25.001.006. Planting and Seeding												
25.001.006.01. Mulching, hay, 1" deep, power (cont'd) mulcher, large												
Productivity is quoted from Means Crew B65. Material cost = \$19.15/MSF x 43.56 MSF/acr = \$834.17/acr												
M MIL GC <	> Outside Laborer					1.00	20.47	0.00	0.09	0.00	20.56	
		1.38	HR	X-LABORER	1.00	1	28	0	0	0	28	20.56
MIL GC <	> Outside Truck Driver, Light					1.00	25.38	0.00	0.00	0.00	25.38	
		1.38	HR	X-TRKDVRLT	1.00	1	35	0	0	0	35	25.38
EP GC <	> TRK,HWY, 21,000 GVW, 4X2, 2 AXLE					0.00	0.00	15.53	0.00	0.00	15.53	
		1.38	HR	T50FO009	1.00	0	0	21	0	0	21	15.53
GEN GC <	> HYDROMULCHER, 3,000 GAL(11,356L) TRK MTD (W/ 56,000GVW TRK)					0.00	0.00	29.04	0.00	0.00	29.04	
		1.38	HR	L15Z3880	1.00	0	0	40	0	0	40	29.04
USR GC <	> Material cost					0.00	0.00	0.00	834.17	0.00	834.17	
		2.10	ACR	N/A	0.00	0	0	0	1,752	0	1,752	834.17
TOTAL Mulching, hay, 1" deep, power		2.10	ACR			3	63	62	1,752	0	1,877	893.72
25.001.006.02. Crimping, tilling topsoil (cont'd) 20 HP tractor, disk harrow, 6" deep												
EP GC <	> ROTARY HOE, 80" WIDE ROTERRA (ADD 40 HP PTO TRACTOR)					0.00	0.00	1.29	0.00	0.00	1.29	
		8.40	HR	T10LE001	1.00	0	0	11	0	0	11	1.29
MAP GC <	> TRACTOR,WH,FARM, 40- 59HP, 2X4					0.00	0.00	7.67	0.00	0.00	7.67	
		8.40	HR	T25JD005	1.00	0	0	64	0	0	64	7.67
MIL GC <	> Outside Equip. Operator, Light					1.00	30.80	0.00	0.00	0.00	30.80	
		8.40	HR	X-EQOPRLT	1.00	8	259	0	0	0	259	30.80
TOTAL Crimping, tilling topsoil		2.10	ACR			8	259	75	0	0	334	159.04
25.001.006.03. Seeding, athletic fld mix,												
M RSM GC <02932 0010 >	Seeding, athletic field mix, 8#/MSFpush spreader	104.54	MSF	ALABCLABL1	1.00	1.00	20.47	0.00	47.42	0.00	67.89	
						105	2,140	0	4,957	0	7,098	67.89
125 acres = 5,445 msf												
TOTAL Seeding, athletic fld mix,		2.40	ACR			105	2,140	0	4,957	0	7,098	2957.36

25.001. Let Down Structures		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
25.001.006.04. Place Coarse Woody debris/rocks												
M MIL GC <	> Outside Laborer (4)					1.00	20.47	0.00	0.00	0.00	20.47	
		67.20	HR	X-LABORER	1.00	67	1,376	0	0	0	1,376	20.47
USR GC <	> Material and equipment					0.00	0.00	50.00	50.00	0.00	100.00	
		2.10	ACR	N/A	0.00	0	0	105	105	0	210	100.00
TOTAL Place Coarse Woody debris/rocks		2.10	ACR			67	1,376	105	105	0	1,586	755.09
25.001.006.05. Plant Mesquite/Shrub mix using (cont'd) 5 gallon plants												
USR GC <	> Planting of 5-gallon plants See bid result of Rio Salado Ph 1A	1125.00	EA		0.00	0	0	0	0	16,875	16,875	15.00
TOTAL Plant Mesquite/Shrub mix using		1125.00	EA			0	0	0	0	16,875	16,875	15.00
TOTAL Planting and Seeding		2.10	ACR			183	3,838	242	6,814	16,875	27,769	13223.40
TOTAL Let Down Structures		1.00	EA			1,910	46,475	55,230	40,691	72,570	214,965	214965.25
TOTAL LET DOWN STRUCTURES		1.00	EA			1,910	46,475	55,230	40,691	72,570	214,965	214965.25

 30.001. Parking Areas QUANTITY UOM CREW ID OUTPUT MANHRS LABOR EQUIPMNT MATERIAL OTHER TOTAL COST UNIT COST

30. RECREATION FEATURES

30.001. Parking Areas

Construct parking areas at various locations throughout project area with a total capacity of 60-80 spaces

30.001.001. Fencing for Erosion Control
 1.8 acres = 78,408 sf
 Square root of 78,408 sf = 280 lf
 280 x 4 = 1,120 lf (perimeter)

AF GC <01534 0010 > Fencing, 11 ga, chain link, 5' high	1120.00 LF	ALABCLAB2	12.50	0.16 179	3.28 3,669	0.00 0	3.58 4,010	0.00 0	6.86 7,678	6.86
TOTAL Fencing for Erosion Control	1.80 ACR			179	3,669	0	4,010	0	7,678	4265.64

30.001.002. Clearing & Grubbing, debris removal, etc.

AF GC <02109 0420 > Clear & grub, burning, incinerator, light	1.90 ACR	UOEHB40A	0.28	14.23 27	396.38 753	308.04 585	0.00 0	0.00 0	704.43 1,338	704.43
TOTAL Clearing & Grubbing, debris	1.80 ACR			27	753	585	0	0	1,338	743.56

30.001.003. Site Preparation

30.001.003.01. Ripping, discing to prepare surface

RSM GC <02238 0010 > Ripping, trap rock, soft, 200 HP dozer, ideal conditions	18.00 CY	CODTB10B	88.75	0.02 0	0.48 9	0.74 13	0.00 0	0.00 0	1.22 22	1.22
Assume 10 cy/acre										
TOTAL Ripping, discing to prepare	1.80 ACR			0	9	13	0	0	22	12.21

30.001.003.02. Regrade to req'd slopes, flatten balance cut matl onsite

MIL GC <02224 7020 > Excavating, bulk, dozer, 300 HP, large area, open site, rough grade	18.00 CY	CODTB10M	300.00	0.01 0	0.14 3	0.33 6	0.00 0	0.00 0	0.47 9	0.47
Assume 10 cy/acre										
TOTAL Regrade to req'd slopes, flatten	1.80 ACR			0	3	6	0	0	9	4.73

30.001. Parking Areas	QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST

30.001.003.03. Regrade surface, scraper-grader, balance, max depth 36"											
MIL GC <02226 3100 > Excavation, bulk, 9 cycle/hr, push loaded self prop scraper, 9 BCY	4410.00	CY	CODSB33F	66.25	120	3,468	5,920	0	0	9,388	2.13
TOTAL Regrade surface, scraper-grader, 4410.00 CY					120	3,468	5,920	0	0	9,388	2.13

30.001.003.04. Compaction, riding, sheepfoot or wobbly whl, 2 passes											
AF GC <02220 5660 > Compaction, riding, 8" lifts, 2 passes, sheepsfoot/wobbly wheel roller	8810.00	CY	COFCB32F	600.00	44	1,157	1,373	0	0	2,529	0.29
TOTAL Compaction, riding, sheepfoot	8810.00	SY			44	1,157	1,373	0	0	2,529	0.29

30.001.003.05. Fine grade, grade subgrade for base course, roadways											
MIL GC <02512 0020 > Fine grade, for roadway, base or levelling course	8.81	MSY	COFGB11L	0.17	104	2,730	1,830	0	0	4,559	517.53
TOTAL Fine grade, grade subgrade for	8810.00	SY			104	2,730	1,830	0	0	4,559	0.52
TOTAL Site Preparation	1.80	ACR			268	7,365	9,142	0	0	16,507	9170.74

30.001.004. Asphalt Paving, 6" stone base, 2" base course, 1" topping											
See Means Construction Cost Data 2004, 02740-315-0020 for cost quote. TOTAL Asphalt Paving, 6" stone base,	79280	SF			0	11,892	14,270	103,064	0	129,226	1.63

30.001.005. Lines on pavement, parking stall paint, white, 4" wide											
TOTAL Lines on pavement, parking stall					0	0	0	0	1,500	1,500	

30.001.006. Parking Lot Amenities, lighting, curbs, drainage, etc.											
TOTAL Parking Lot Amenities, lighting,					0	0	0	0	10,000	10,000	
TOTAL Parking Areas	1.80	ACR			474	23,679	23,998	107,074	11,500	166,250	92361.27

30.005. Decomposed Granite Trails		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST			
30.005. Decomposed Granite Trails															
Construct DG trail at various locations throughout project area, 10 foot width															
30.005.001. Clearing & Grubbing, debris removal, etc.															
AF	GC	<02109	0420	> Clear & grub, burning, incinerator, light	2.00	ACR	UOEHB40A	0.28	14.23 28	396.38 793	308.04 616	0.00 0	0.00 0	704.43 1,409	704.43
TOTAL Clearing & Grubbing, debris		2.00	ACR						28	793	616	0	0	1,409	704.43
30.005.002. Site Preparation															
30.005.002.01. Ripping, discing to prepare surface															
RSM	GC	<02238	0010	> Ripping, trap rock, soft, 200 HP dozer, ideal conditions	20.00	CY	CODTB10B	88.75	0.02 0	0.48 10	0.74 15	0.00 0	0.00 0	1.22 24	1.22
Assume 10 cy/acre															
TOTAL Ripping, discing to prepare		2.00	ACR						0	10	15	0	0	24	12.21
30.005.002.02. Regrade, flatten, balance cut matl. Onsite, 50% of area															
MIL	GC	<02224	7020	> Excavating, bulk, dozer, 300 HP, large area, open site, rough grade	1540.00	CY	CODTB10M	300.00	0.01 8	0.14 218	0.33 511	0.00 0	0.00 0	0.47 729	0.47
TOTAL Regrade, flatten, balance cut		1540.00	CY						8	218	511	0	0	729	0.47
30.005.002.03. Compaction, riding, sheepfoot/wobbly whl, 2 passes															
AF	GC	<02220	5660	> Compaction, riding, 8" lifts, 2 passes, sheepsfoot/wobbly wheel roller	30640	CY	COFCB32F	600.00	0.01 153	0.13 4,023	0.16 4,774	0.00 0	0.00 0	0.29 8,797	0.29
TOTAL Compaction, riding, sheepfoot/		30640	SY						153	4,023	4,774	0	0	8,797	0.29
TOTAL Site Preparation		2.00	ACR						161	4,250	5,300	0	0	9,550	4775.18

30.005. Decomposed Granite Trails		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
30.005.003. Decomposed Granite course, crushed 3/4" stone, compacted, 3" deep												
In one sq ft, the volume is about 0.25 cf. Then, we need 275740 sf x 0.25 cf = 68,935 cf = 2,553 cy. Using the conversion factor of 1.50 ton/cy for the DG, then we get 3,830 tons.												
Per material cost quotation from Flamingo Sand and Gravel, (800) 777-6299, the total cost including tax and delivery is about \$30/ton for Az area.												
TOTAL Material and Delivery		3830.00	TON			0	0	0	0	114,900	114,900	30.00
30.005.003.02. Spread and Compaction												
EP GC <	> GRADER,MOTOR, ARTIC, CAT 12-H					0.00	0.00	38.17	0.00	0.00	38.17	
		38.30	HR	G15CA003	1.00	0	0	1,462	0	0	1,462	38.17
EP GC <	> ROLLER,STATIC,DD,S/P,10T, 50"W					0.00	0.00	19.08	0.00	0.00	19.08	
		38.30	HR	R30HY005	1.00	0	0	731	0	0	731	19.08
EP GC <	> TRK,HWY, 8,600GVW,4X2, 3/4T-PKUP					0.00	0.00	10.23	0.00	0.00	10.23	
		38.30	HR	T50GM006	1.00	0	0	392	0	0	392	10.23
MIL GC <	> Outside Equip. Operator, Medium (grader)					1.00	32.20	0.00	0.00	0.00	32.20	
		38.30	HR	X-EQOPRMED	1.00	38	1,233	0	0	0	1,233	32.20
MIL GC <	> Outside Equip. Operator, Medium (roller)					1.00	32.20	0.00	0.00	0.00	32.20	
		38.30	HR	X-EQOPRMED	1.00	38	1,233	0	0	0	1,233	32.20
MIL GC <	> Outside Laborer					1.00	20.47	0.00	0.00	0.00	20.47	
		38.30	HR	X-LABORER	1.00	38	784	0	0	0	784	20.47
MIL GC <	> Outside Equip. Operator, Medium					1.00	33.20	0.00	0.00	0.00	33.20	
		38.30	HR	X-EQOPRMED	1.00	38	1,272	0	0	0	1,272	33.20
TOTAL Spread and Compaction		3830.00	TON			153	4,522	2,584	0	0	7,106	1.86
TOTAL Decomposed Granite course,		275740	SF			153	4,522	2,584	0	114,900	122,006	0.44
30.005.004. Trail amenities, ADA ramps, sign markings, etc.												
TOTAL Trail amenities, ADA ramps, sign						0	0	0	0	10,000	10,000	
TOTAL Decomposed Granite Trails		1.00	EA			343	9,565	8,501	0	124,900	142,966	142965.66

30.010. Other Recreation Features	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST

30.010. Other Recreation Features											
Additions to Paved Maintenance Road/DG Trail alignment to facilitate recreation use.											
30.010.001. Paved Trail amenities, curb splice, ADA ramps, signs, markings											
TOTAL Paved Trail amenities, curb	1.00	EA			0	0	0	0	10,000	10,000	10000.00
TOTAL Comfort Stations	3.00	EA			0	0	0	0	300,000	300,000	100000.00
TOTAL Rest Stops	5.00	EA			0	0	0	0	15,000	15,000	3000.00
30.010.004. Concrete Benches											
M MIL GC <02871 0100 > Benches, park, precast conc, w/back, wood rails, 8' long	21.00	EA	ALABCLAB2	0.50	4.00 84	81.89 1,720	0.00 0	621.41 13,050	0.00 0	703.30 14,769	703.30
TOTAL Concrete Benches	21.00	EA			84	1,720	0	13,050	0	14,769	703.30
30.010.005. Signage											
M MIL GC <02842 0590 > Signs, reflectorized w/post, 12" x 18", guide & directional signs	21.00	EA	ALABCLAB1	2.00	0.50 11	10.24 215	0.00 0	16.80 353	0.00 0	27.04 568	27.04
TOTAL Signage	21.00	EA			11	215	0	353	0	568	27.04
TOTAL Other Recreation Features	1.00	EA			95	1,935	0	13,402	325,000	340,337	340336.98
TOTAL RECREATION FEATURES	1.00	EA			912	35,178	32,498	120,476	461,400	649,553	649552.93
TOTAL Paseo de las Iglesias Feas Study	1.00	EA			344,214	10036191	4845615	12803035	8362151	36,046,991	36046991

Thu 29 Jul 2004
Eff. Date 07/19/04

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT PASE01: Paseo de las Iglesias Feas Study - Los Reals Road to Congress Road
PASEO DE LAS IGLESIAS Feasibility Study Estimate
** PROJECT INDIRECT SUMMARY - Scope **

TIME 10:24:49

SUMMARY PAGE 1

	QUANTITY	UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST		
01	1.00	EA	26,284,565	2,628,457	2,313,042	3,122,606	170,857	34,519,527	34519527		
05	1.00	EA	534,044	53,404	46,996	63,444	3,471	701,360	701360.26		
10	1.00	EA	2,528,647	252,865	222,521	300,403	16,437	3,320,872	3320872		
15	1.00	EA	3,487,659	348,766	306,914	414,334	22,671	4,580,343	4580343		
20	1.00	EA	2,347,558	234,756	206,585	278,890	15,260	3,083,049	3083049		
25	1.00	EA	214,965	21,497	18,917	25,538	1,397	282,314	282313.93		
30	1.00	EA	649,553	64,955	57,161	77,167	4,222	853,058	853058.04		
TOTAL Paseo de las Iglesias Feas Study			1.00	EA	36,046,991	3,604,699	3,172,135	4,282,383	234,315	47,340,524	47340524

	QUANTITY	UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST
01 IRRIGATION PLANTING									
01.001	1.00	EA	9,472,392	947,239	833,571	1,125,320	61,573	12,440,095	12440095
01.005	1.00	EA	8,708,487	870,849	766,347	1,034,568	56,608	11,436,859	11436859
01.010	1.00	EA	777,058	77,706	68,381	92,315	5,051	1,020,511	1020511
01.015	1.00	EA	5,129,437	512,944	451,390	609,377	33,343	6,736,490	6736490
01.020	1.00	EA	2,197,191	219,719	193,353	261,026	14,282	2,885,572	2885572
TOTAL IRRIGATION PLANTING	1.00	EA	26,284,565	2,628,457	2,313,042	3,122,606	170,857	34,519,527	34519527
05 BASINS PLANTING									
05.001	1.00	EA	406,667	40,667	35,787	48,312	2,643	534,075	534075.31
05.005	1.00	EA	127,378	12,738	11,209	15,132	828	167,285	167284.95
TOTAL BASINS PLANTING	1.00	EA	534,044	53,404	46,996	63,444	3,471	701,360	701360.26
10 HARDENED BANKS									
10.001	1.00	EA	2,528,647	252,865	222,521	300,403	16,437	3,320,872	3320872
TOTAL HARDENED BANKS	1.00	EA	2,528,647	252,865	222,521	300,403	16,437	3,320,872	3320872
15 PIPING									
15.001	1.00	EA	3,487,659	348,766	306,914	414,334	22,671	4,580,343	4580343
TOTAL PIPING	1.00	EA	3,487,659	348,766	306,914	414,334	22,671	4,580,343	4580343
20 ROADS & BRIDGES									
20.001	8.30	ACR	18,463	1,846	1,625	2,193	120	24,248	2921.41
20.002	18.00	ACR	1,049,422	104,942	92,349	124,671	6,822	1,378,206	76566.98
20.003	8.20	ACR	148,602	14,860	13,077	17,654	966	195,159	23799.83
20.005	1.00	EA	1,131,072	113,107	99,534	134,371	7,352	1,485,437	1485437
TOTAL ROADS & BRIDGES	1.00	EA	2,347,558	234,756	206,585	278,890	15,260	3,083,049	3083049
25 LET DOWN STRUCTURES									
25.001	1.00	EA	214,965	21,497	18,917	25,538	1,397	282,314	282313.93
TOTAL LET DOWN STRUCTURES	1.00	EA	214,965	21,497	18,917	25,538	1,397	282,314	282313.93

Thu 29 Jul 2004
Eff. Date 07/19/04

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT PASE01: Paseo de las Iglesias Feas Study - Los Reals Road to Congress Road
PASEO DE LAS IGLESIAS Feasibility Study Estimate
** PROJECT INDIRECT SUMMARY - Facility **

TIME 10:24:49

SUMMARY PAGE 3

		QUANTITY	UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST

30 RECREATION FEATURES										
30.001	Parking Areas	1.80	ACR	166,250	16,625	14,630	19,751	1,081	218,337	121298.09
30.005	Decomposed Granite Trails	1.00	EA	142,966	14,297	12,581	16,984	929	187,757	187756.84
30.010	Other Recreation Features	1.00	EA	340,337	34,034	29,950	40,432	2,212	446,965	446964.64
TOTAL RECREATION FEATURES		1.00	EA	649,553	64,955	57,161	77,167	4,222	853,058	853058.04
TOTAL Paseo de las Iglesias Feas Study		1.00	EA	36,046,991	3,604,699	3,172,135	4,282,383	234,315	47,340,524	47340524

	QUANTITY	UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST	
01 IRRIGATION PLANTING										
01.001 Historic Floodplain										
01.001.001	Fencing for Erosion Control	656.00	ACR	146,598	14,660	12,901	17,416	953	192,527	293.49
01.001.002	Clearing & Grubbing, Debris	328.00	ACR	462,104	46,210	40,665	54,898	3,004	606,881	1850.25
01.001.003 Site Preparation										
01.001.003.01	Ripping, discing to prepare	590.00	ACR	7,203	720	634	856	47	9,460	16.03
01.001.003.02	Regrade to req'd slopes, flatten	295.00	ACR	1,397	140	123	166	9	1,834	6.22
01.001.003.03	Regrade Surface, scraper-grader	1445500	CY	23,777	2,378	2,092	2,825	155	31,226	0.02
	TOTAL Site Preparation	1.00	EA	32,377	3,238	2,849	3,846	210	42,521	42520.94
01.001.004	Excavation	176990.00	CY	330,051	33,005	29,044	39,210	2,145	433,456	2.45
01.001.005	Compaction (tractor wheel, one	3561940	LF	410,007	41,001	36,081	48,709	2,665	538,462	0.15
01.001.006	Trenching for Water Supply Pipes	17050.00	CY	21,834	2,183	1,921	2,594	142	28,675	1.68
01.001.007	Pipe bedding, crushed stone	13110.00	CY	650,425	65,043	57,237	77,271	4,228	854,203	65.16
01.001.008	Install gated 12" PVC pipe for	114720.00	LF	752,391	75,239	66,210	89,384	4,891	988,115	8.61
01.001.009	Install "U" outlet tubes with	5940.00	EA	52,698	5,270	4,637	6,261	343	69,208	11.65
01.001.010	Backfill pipe trench, side cast	4590.00	CY	1,749	175	154	208	11	2,297	0.50
01.001.011 Planting & Seeding										
01.001.011.01	Mulching, hay, 1" deep, power	558.00	ACR	498,695	49,870	43,885	59,245	3,242	654,937	1173.72
01.001.011.02	Crimping, Tilling topsoil,	558.00	ACR	88,745	8,874	7,810	10,543	577	116,549	208.87
01.001.011.03	Seeding, athletic fld mix,	623.00	ACR	1,842,442	184,244	162,135	218,882	11,976	2,419,680	3883.92
01.001.011.04	Place Coarse Woody debris/rocks	558.00	ACR	421,341	42,134	37,078	50,055	2,739	553,347	991.66
01.001.011.05	Plant Mesquite/Shrub mix using	250729.00	EA	3,760,935	376,094	330,962	446,799	24,447	4,939,237	19.70
	TOTAL Planting & Seeding	558.00	ACR	6,612,158	661,216	581,870	785,524	42,981	8,683,749	15562.27
	TOTAL Historic Floodplain	1.00	EA	9,472,392	947,239	833,571	1,125,320	61,573	12,440,095	12440095
01.005 Graded Slope										
01.005.001	Fencing for Erosion Control	102.00	ACR	57,806	5,781	5,087	6,867	376	75,916	744.28
01.005.002	Clearing & Grubbing, debris	51.00	ACR	35,926	3,593	3,161	4,268	234	47,181	925.12
01.005.003	Excavation, str1, mach excav.	1213390	CY	626,109	62,611	55,098	74,382	4,070	822,269	0.68
01.005.004 Excavation, steep slopes, 5:1										
01.005.004.01	Hauling, no loading, 16.5 cy	1213390	CY	2,658,902	265,890	233,983	315,877	17,284	3,491,936	2.88
01.005.004.02	Fill, spread dumped material,	1213390	CY	462,302	46,230	40,683	54,921	3,005	607,141	0.50
01.005.004.03	Compaction, sheepfoot/wobbly	1213390	CY	348,364	34,836	30,656	41,386	2,264	457,507	0.38
	TOTAL Excavation, steep slopes, 5:1	1213390	CY	3,469,567	346,957	305,322	412,185	22,553	4,556,584	3.76

		QUANTITY UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST
01.005.005	Fine grading to 20% slope,	110.00 ACR	234,205	23,420	20,610	27,824	1,522	307,581	2796.19
01.005.006	Header Pipe Laying								
01.005.006.01	Excavate header trench, 12" dep.	2540.00 CY	1,245	124	110	148	8	1,635	0.64
01.005.006.02	Header Trench bedding, 3/4"	1020.00 CY	22,875	2,287	2,013	2,718	149	30,042	29.45
01.005.006.03	Install medium diam. PVC Header	7620.00 LF	95,789	9,579	8,429	11,380	623	125,799	16.51
01.005.006.04	Backfill trench, FE loader,	1020.00 CY	1,624	162	143	193	11	2,133	2.09
01.005.006.05	Hauling, surplus cut mat'l,	1530.00 CY	5,665	566	499	673	37	7,440	4.86
	TOTAL Header Pipe Laying	7620.00 LF	127,198	12,720	11,193	15,111	827	167,049	21.92
01.005.007	8" PVC Leach Pipe Laying								
01.005.007.01	Excavate trench, 12" depth by	99020.00 CY	48,520	4,852	4,270	5,764	315	63,721	0.64
01.005.007.02	Install low perm geotextile in	148700.00 SY	157,072	15,707	13,822	18,660	1,021	206,282	1.39
01.005.007.03	Install 8" PVC leach pipe for	445590.00 LF	1,866,354	186,635	164,239	221,723	12,132	2,451,083	5.50
01.005.007.04	Install leach pipe filter "sock"	445590.00 LF	717,400	71,740	63,131	85,227	4,663	942,161	2.11
01.005.007.05	Install pipe fittings as needed		27,000	2,700	2,376	3,208	176	35,459	
01.005.007.06	Backfill trench, FE loader, whl	93380.00 CY	148,717	14,872	13,087	17,668	967	195,310	2.09
01.005.007.07	Hauling, surplus cut mat'l, no	5790.00 CY	21,438	2,144	1,887	2,547	139	28,155	4.86
	TOTAL 8" PVC Leach Pipe Laying	445590.00 LF	2,986,500	298,650	262,812	354,796	19,413	3,922,172	8.80
01.005.008	Planting & Seeding								
01.005.008.01	Mulch, hay, 1" deep, power	102.00 ACR	91,159	9,116	8,022	10,830	593	119,720	1173.72
01.005.008.02	Crimping, tilling topsoil	102.00 ACR	16,222	1,622	1,428	1,927	105	21,305	208.87
01.005.008.03	Seeding, athletic fld mix,	102.00 ACR	301,651	30,165	26,545	35,836	1,961	396,158	3883.90
01.005.008.04	Place Coarse Woody debris/rocks	102.00 ACR	77,019	7,702	6,778	9,150	501	101,149	991.66
01.005.008.05	Plant Mesquite/Shrub mix using	45675.00 EA	685,125	68,513	60,291	81,393	4,453	899,775	19.70
	TOTAL Planting & Seeding	102.00 ACR	1,171,176	117,118	103,064	139,136	7,613	1,538,106	15079.47
	TOTAL Graded Slope	1.00 EA	8,708,487	870,849	766,347	1,034,568	56,608	11,436,859	11436859
01.010	Natural Slope								
01.010.001	Fencing for Erosion Control	18.00 ACR	24,282	2,428	2,137	2,885	158	31,890	1771.66
01.010.002	Clearing and Grubbing, debris	13.00 ACR	9,158	916	806	1,088	60	12,027	925.12
01.010.003	Header Trenching								
01.010.003.01	Excavate header trench, 12" dep.	86.00 CY	42	4	4	5	0	55	0.64
01.010.003.02	Header Trench bedding, 3/4"	35.00 CY	785	78	69	93	5	1,031	29.45
01.010.003.03	Install med. diam. PVC Header	1520.00 LF	19,107	1,911	1,681	2,270	124	25,094	16.51
01.010.003.04	Backfill trench, FE loader,	35.00 CY	56	6	5	7	0	73	2.09

		QUANTITY UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST
01.010.003.05	Hauling, surplus cut matl, no	52.00 CY	193	19	17	23	1	253	4.86
TOTAL Header Trenching		1520.00 LF	20,183	2,018	1,776	2,398	131	26,506	17.44
01.010.004 8" PVC Leach Pipe Laying									
01.010.004.01	Excavate trench, 12" depth by	16780.00 CY	8,222	822	724	977	53	10,798	0.64
01.010.004.02	Install low perm geotextile in	25200.00 SY	26,619	2,662	2,342	3,162	173	34,958	1.39
01.010.004.03	Install 8" PVC leach pipe for	75510.00 LF	316,274	31,627	27,832	37,573	2,056	415,362	5.50
01.010.004.04	Install leach pipe filter "sock"	75510.00 LF	121,571	12,157	10,698	14,443	790	159,659	2.11
01.010.004.05	Install pipe fittings as needed	20000.00	20,000	2,000	1,760	2,376	130	26,266	
01.010.004.06	Backfill trench, FE loader, whl	15830.00 CY	25,211	2,521	2,219	2,995	164	33,109	2.09
01.010.004.07	Hauling, surplus cut matl, no	990.00 CY	3,666	367	323	435	24	4,814	4.86
TOTAL 8" PVC Leach Pipe Laying		75510.00 LF	521,562	52,156	45,897	61,962	3,390	684,968	9.07
01.010.005 Planting & Seeding									
01.010.005.01	Mulch, hay, 1" deep, power	18.00 ACR	16,087	1,609	1,416	1,911	105	21,127	1173.72
01.010.005.02	Crimping, tilling topsoil	18.00 ACR	2,863	286	252	340	19	3,760	208.87
01.010.005.03	Seeding, athletic fld mix,	18.00 ACR	53,232	5,323	4,684	6,324	346	69,910	3883.90
01.010.005.04	Place Coarse Woody debris/rocks	18.00 ACR	13,592	1,359	1,196	1,615	88	17,850	991.66
01.010.005.05	Plant Mesquite/Shrub mix using	7740.00 EA	116,100	11,610	10,217	13,793	755	152,474	19.70
TOTAL Planting & Seeding		18.00 ACR	201,874	20,187	17,765	23,983	1,312	265,121	14728.94
TOTAL Natural Slope		1.00 EA	777,058	77,706	68,381	92,315	5,051	1,020,511	1020511
01.015 Second Bench									
01.015.001	Fencing for Erosion Control	124.00 ACR	63,729	6,373	5,608	7,571	414	83,695	674.96
01.015.002	Clearing and Grubbing, debris	93.00 ACR	65,512	6,551	5,765	7,783	426	86,036	925.12
01.015.003 Header Trenching									
01.015.003.01	Excavate header trench, 12" dep.	500.00 CY	245	25	22	29	2	322	0.64
01.015.003.02	Header Trench bedding, 3/4"	200.00 CY	4,485	449	395	533	29	5,891	29.45
01.015.003.03	Install med. diam. PVC Header	8080.00 LF	101,571	10,157	8,938	12,067	660	133,394	16.51
01.015.003.04	Backfill trench, FE loader,	200.00 CY	319	32	28	38	2	418	2.09
01.015.003.05	Hauling, surplus cut matl, no	300.00 CY	1,111	111	98	132	7	1,459	4.86
TOTAL Header Trenching		8080.00 LF	107,731	10,773	9,480	12,798	700	141,483	17.51
01.015.004 8" PVC Leach Pipe Laying									
01.015.004.01	Excavate trench, 12" depth by	121260.00 CY	59,417	5,942	5,229	7,059	386	78,033	0.64
01.015.004.03	Install 8" PVC leach pipe for	545686.00 LF	2,285,606	228,561	201,133	271,530	14,857	3,001,687	5.50

	QUANTITY	UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST	
01.015.004.04	Install leach pipe filter "sock"	545680.00	LF	878,545	87,854	77,312	104,371	5,711	1,153,793	2.11
01.015.004.05	Install pipe fittings as needed			25,000	2,500	2,200	2,970	163	32,833	
01.015.004.06	Backfill trench, FE loader, whl	114360.00	CY	182,130	18,213	16,027	21,637	1,184	239,191	2.09
01.015.004.07	Hauling, surplus cut matl, no	7090.00	CY	26,251	2,625	2,310	3,119	171	34,476	4.86
TOTAL 8" PVC Leach Pipe Laying		545686.00	LF	3,456,949	345,695	304,212	410,686	22,471	4,540,012	8.32
01.015.005 Planting & Seeding										
01.015.005.01	Mulch, hay, 1" deep, power	125.00	ACR	111,715	11,171	9,831	13,272	726	146,715	1173.72
01.015.005.02	Crimping, tilling topsoil	125.00	ACR	19,880	1,988	1,749	2,362	129	26,109	208.87
01.015.005.03	Seeding, athletic fld mix,	125.00	ACR	369,670	36,967	32,531	43,917	2,403	485,487	3883.90
01.015.005.04	Place Coarse Woody debris/rocks	125.00	ACR	95,226	9,523	8,380	11,313	619	125,061	1000.49
01.015.005.05	Plant Mesquite/Shrub mix using	55935.00	EA	839,025	83,903	73,834	99,676	5,454	1,101,892	19.70
TOTAL Planting & Seeding		125.00	ACR	1,435,516	143,552	126,325	170,539	9,331	1,885,264	15082.11
TOTAL Second Bench		1.00	EA	5,129,437	512,944	451,390	609,377	33,343	6,736,490	6736490
01.020 First Bench										
01.020.001	Excavate pipe trench, 18" depth	1.00	LF	1	0	0	0	0	1	0.85
TOTAL Excavate pipe trench, 18" depth		1.00	LF	1	0	0	0	0	1	0.85
01.020.002 Pipe Laying										
01.020.002.01	Install small diam pressure pipe	31000.00	LF	112,663	11,266	9,914	13,384	732	147,961	4.77
01.020.002.02	Install small diam pipe fittings	3100.00	EA	121,832	12,183	10,721	14,474	792	160,002	51.61
01.020.002.03	Install long reach (150') sprin-	190.00	LF	22,320	2,232	1,964	2,652	145	29,313	154.28
01.020.002.04	Install pipe thrust blocks at	238.00	EA	11,900	1,190	1,047	1,414	77	15,628	65.67
TOTAL Pipe Laying		31000.00	LF	268,715	26,871	23,647	31,923	1,747	352,903	11.38
01.020.003	Backfill pipe trench, compact	31000.00	LF	49,371	4,937	4,345	5,865	321	64,838	2.09
01.020.004	Install control valves for sprin	90.00	EA	3,960	396	349	470	26	5,201	57.79
01.020.005	Install Programmable Logic	1.00	EA	500,000	50,000	44,000	59,400	3,250	656,650	656650.14
01.020.006	Rough grade & scarify subsoil	89.00	ACR	155,594	15,559	13,692	18,485	1,011	204,342	2295.97
01.020.007 Planting & seeding										
01.020.007.01	Mulch, hay, 1" deep, power	89.00	ACR	79,541	7,954	7,000	9,449	517	104,461	1173.72
01.020.007.02	Crimping, tilling topsoil	89.00	ACR	14,155	1,415	1,246	1,682	92	18,589	208.87
01.020.007.03	Seeding, athletic fld mix,	89.00	ACR	263,205	26,320	23,162	31,269	1,711	345,667	3883.90
01.020.007.04	Place Coarse Woody debris/rocks	89.00	ACR	23,625	2,363	2,079	2,807	154	31,027	348.62
01.020.007.05	Plant Mesquite/Shrub mix using	55935.00	EA	839,025	83,903	73,834	99,676	5,454	1,101,892	19.70

	QUANTITY	UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST
TOTAL Planting & seeding	89.00	ACR	1,219,551	121,955	107,320	144,883	7,927	1,601,636	17995.91
TOTAL First Bench	1.00	EA	2,197,191	219,719	193,353	261,026	14,282	2,885,572	2885572
TOTAL IRRIGATION PLANTING	1.00	EA	26,284,565	2,628,457	2,313,042	3,122,606	170,857	34,519,527	34519527
05 BASINS PLANTING									
05.001 Tributary Infiltration Basins									
05.001.001 Fencing for Erosion Control	18.00	ACR	24,282	2,428	2,137	2,885	158	31,890	1771.66
05.001.002 Clearing and Grubbing, debris	13.00	ACR	9,158	916	806	1,088	60	12,027	925.12
05.001.003 Excavate, mach exc., sand & grav									
05.001.003.01 Stockpile useable cut matl,	830.00	CY	832	83	73	99	5	1,092	1.32
05.001.003.02 Hauling, surplus cut matl, no	2490.00	CY	9,219	922	811	1,095	60	12,108	4.86
05.001.003.03 Fill, spread cut matl at dump	2490.00	CY	2,159	216	190	256	14	2,835	1.14
05.001.003.04 Compaction at dump site, hl rlr,	2490.00	CY	715	71	63	85	5	939	0.38
05.001.003.05 Compact Basin subgrade, existing	86160.00	SY	178,110	17,811	15,674	21,159	1,158	233,912	2.71
TOTAL Excavate, mach exc., sand & grav	83000.00	CY	191,035	19,103	16,811	22,695	1,242	250,886	30.23
05.001.004 Backfilling									
05.001.004.01 Fill, bottom layer, clean sand,	840.00	CY	14,910	1,491	1,312	1,771	97	19,581	23.31
05.001.004.02 Fill, middle layer, No. 57 blue-	840.00	CY	840	84	74	100	5	1,103	1.31
05.001.004.03 Fill, middle layer, No. 2 gravel	840.00	CY	21,000	2,100	1,848	2,495	137	27,579	32.83
05.001.004.04 Fill, top layer, mix of native	840.00	CY	25,200	2,520	2,218	2,994	164	33,095	39.40
TOTAL Backfilling	3360.00	CY	61,950	6,195	5,452	7,360	403	81,359	24.21
05.001.005 Planting & Seeding									
05.001.005.01 Mulch, hay, 1" deep, power	18.00	ACR	16,087	1,609	1,416	1,911	105	21,127	1173.72
05.001.005.02 Crimping, tilling topsoil	18.00	ACR	2,863	286	252	340	19	3,760	208.87
05.001.005.03 Seeding, athletic fld mix,	18.00	ACR	53,232	5,323	4,684	6,324	346	69,910	3883.90
05.001.005.04 Plant Mesquite/Shrub mix using	3204.00	EA	48,060	4,806	4,229	5,710	312	63,117	19.70
TOTAL Planting & Seeding	18.00	ACR	120,242	12,024	10,581	14,285	782	157,914	8773.00
TOTAL Tributary Infiltration Basins	1.00	EA	406,667	40,667	35,787	48,312	2,643	534,075	534075.31
05.005 Grade Control Infiltration Basin									
05.005.001 Fencing for Erosion Control	6.00	ACR	14,013	1,401	1,233	1,665	91	18,403	3067.13
05.005.002 Clearing and Grubbing, debris	5.00	ACR	3,522	352	310	418	23	4,626	925.12

	QUANTITY	UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST		

05.005.003	Excavating, mach exc, sand & gr										
05.005.003.01	280.00	CY	281	28	25	33	2	369	1.32		
05.005.003.02	840.00	CY	3,110	311	274	369	20	4,085	4.86		
05.005.003.03	840.00	CY	728	73	64	87	5	956	1.14		

	TOTAL	Excavating, mach exc, sand & gr	1120.00	CY	4,119	412	362	489	27	5,409	4.83
05.005.004	Compaction at dump site, hl rlr										
05.005.005	Compact basin subgrade, existing										
05.005.006	Backfilling										
05.005.007	Planting & Seeding										
05.005.007.01	6.00	ACR	5,362	536	472	637	35	7,042	1173.72		
05.005.007.02	6.00	ACR	954	95	84	113	6	1,253	208.87		
05.005.007.03	6.00	ACR	17,744	1,774	1,561	2,108	115	23,303	3883.90		

	TOTAL	Planting & Seeding	6.00	ACR	24,061	2,406	2,117	2,858	156	31,599	5266.49

	TOTAL	Grade Control Infiltration Basin	1.00	EA	127,378	12,738	11,209	15,132	828	167,285	167284.95

	TOTAL	BASINS PLANTING	1.00	EA	534,044	53,404	46,996	63,444	3,471	701,360	701360.26

10	HARDENED BANKS										
10.001	Hardened Slopes										
10.001.001	Fencing for Erosion Control										
10.001.002	Clearing and Grubbing, debris										
10.001.003	Excavating, prepare slope &										
10.001.003.01	Stockpile subgrade cut matl for										
10.001.003.02	Hauling, no loading, 16.5 cy										

	TOTAL	Excavating, prepare slope &	47000.00	CY	69,458	6,946	6,112	8,252	451	91,220	1.94
10.001.004	Fill, spread dumped mat'l, by										
10.001.004.01	Compaction, sheepfoot/wobbly										
10.001.004.02	Fine grade to 1:1 slope, for										

	TOTAL	Fill, spread dumped mat'l, by	18800.00	CY	11,952	1,195	1,052	1,420	78	15,697	0.83
10.001.005	Soil Cement application,										
10.001.006	Backfill and Compaction										

		QUANTITY UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST
10.001.006.01	Backfill subgrade with cut matl	28200.00 CY	44,911	4,491	3,952	5,335	292	58,982	2.09
10.001.006.02	Compaction, sheepfoot/wobbly whl	28200.00 CY	8,096	810	712	962	53	10,633	0.38
TOTAL Backfill and Compaction		28200.00 CY	53,008	5,301	4,665	6,297	345	69,615	2.47
TOTAL Hardened Slopes		1.00 EA	2,528,647	252,865	222,521	300,403	16,437	3,320,872	3320872
TOTAL HARDENED BANKS		1.00 EA	2,528,647	252,865	222,521	300,403	16,437	3,320,872	3320872
15 PIPING									
15.001 Irrigation Piping									
15.001.001 Trenching for Delivery Pipe									
15.001.001.01	Delivery pipe trench bedding,	1260.00 CY	62,512	6,251	5,501	7,426	406	82,097	65.16
15.001.001.02	Delivery piping, large dia. say	10440.00 LF	202,554	20,255	17,825	24,063	1,317	266,014	25.48
15.001.001.03	Backfill delivery pipe trench,	1260.00 CY	21,592	2,159	1,900	2,565	140	28,357	22.51
15.001.001.04	Hauling, Delivery pipe surplus	1880.00 CY	4,120	412	363	489	27	5,410	2.88
TOTAL Trenching for Delivery Pipe		3130.00 CY	290,778	29,078	25,588	34,544	1,890	381,878	122.01
15.001.002 Trenching for Main Pipe									
15.001.002.01	Main pipe trench bedding,	8400.00 CY	416,748	41,675	36,674	49,510	2,709	547,316	65.16
15.001.002.02	Main piping, large dia. say	69970.00 LF	1,357,537	135,754	119,463	161,275	8,824	1,782,854	25.48
15.001.002.03	Backfill Main pipe trench,	8400.00 CY	143,946	14,395	12,667	17,101	936	189,044	22.51
15.001.002.04	Hauling, Main pipe surplus	12600.00 CY	27,610	2,761	2,430	3,280	179	36,261	2.88
TOTAL Trenching for Main Pipe		21000.00 CY	1,945,841	194,584	171,234	231,166	12,649	2,555,474	121.69
15.001.003 Trenching for Sub-main Pipe									
15.001.003.01	Sub-main pipe trench bedding,	3370.00 CY	167,195	16,720	14,713	19,863	1,087	219,578	65.16
15.001.003.02	Sub-main piping, large dia. say	28010.00 LF	280,394	28,039	24,675	33,311	1,823	368,242	13.15
15.001.003.03	Backfill Sub-main pipe trench,	3370.00 CY	57,750	5,775	5,082	6,861	375	75,843	22.51
15.001.003.04	Hauling, Sub-main pipe surplus	5050.00 CY	11,066	1,107	974	1,315	72	14,533	2.88
TOTAL Trenching for Sub-main Pipe		8420.00 CY	516,405	51,641	45,444	61,349	3,357	678,195	80.55
15.001.004 Trenching for Culvert CMP									
15.001.004.01	Culvert trench bedding,	4200.00 CY	208,374	20,837	18,337	24,755	1,354	273,658	65.16
15.001.004.02	Install 24" dia. CMP Culvert for	23600.00 LF	440,482	44,048	38,762	52,329	2,863	578,485	24.51
15.001.004.03	Backfill trench, FE Loader,	4200.00 CY	71,973	7,197	6,334	8,550	468	94,522	22.51
15.001.004.04	Hauling, Sub-main pipe surplus	6300.00 CY	13,805	1,381	1,215	1,640	90	18,130	2.88

	QUANTITY	UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST
TOTAL Trenching for Culvert CMP	10500.00	CY	734,634	73,463	64,648	87,275	4,775	964,796	91.89
TOTAL Irrigation Piping	1.00	EA	3,487,659	348,766	306,914	414,334	22,671	4,580,343	4580343
TOTAL PIPING	1.00	EA	3,487,659	348,766	306,914	414,334	22,671	4,580,343	4580343
20 ROADS & BRIDGES									
20.001 Compacted Earth Maintenance Road									
20.001.001 Clearing & Grubbing, debris	8.30	ACR	5,847	585	515	695	38	7,679	925.12
TOTAL Clearing & Grubbing, debris	8.30	ACR	5,847	585	515	695	38	7,679	925.12
20.001.002 Site Preparation									
20.001.002.01 Ripping, discing to prepare	8.30	ACR	101	10	9	12	1	133	16.03
20.001.002.02 Regrade, flatten, balance cut	2020.00	CY	956	96	84	114	6	1,256	0.62
20.001.002.03 Compaction, riding, sheepfoot/	40260.00	SY	11,559	1,156	1,017	1,373	75	15,180	0.38
TOTAL Site Preparation	8.30	ACR	12,616	1,262	1,110	1,499	82	16,569	1996.29
TOTAL Compacted Earth Maintenance Road	8.30	ACR	18,463	1,846	1,625	2,193	120	24,248	2921.41
20.002 Paved Maintenance Roads									
20.002.001 Clearing & Grubbing, debris	9.00	ACR	6,340	634	558	753	41	8,326	925.12
TOTAL Clearing & Grubbing, debris	9.00	ACR	6,340	634	558	753	41	8,326	925.12
20.002.002 Site Preparation									
20.002.002.01 Ripping, discing to prepare	18.00	ACR	220	22	19	26	1	289	16.03
20.002.002.02 Regrade, flatten, balance cut	21880.00	CY	10,360	1,036	912	1,231	67	13,606	0.62
20.002.002.03 Compaction, riding, sheepfoot/	86820.00	SY	24,926	2,493	2,193	2,961	162	32,735	0.38
20.002.002.04 Asphalt Concrete Paving,	781310.00	SF	1,007,576	100,758	88,667	119,700	6,550	1,323,250	1.69
TOTAL Site Preparation	18.00	ACR	1,043,082	104,308	91,791	123,918	6,780	1,369,880	76104.42
TOTAL Paved Maintenance Roads	18.00	ACR	1,049,422	104,942	92,349	124,671	6,822	1,378,206	76566.98
20.003 Gravel Maintenance Road									
20.003.001 Clearing & Grubbing, debris	4.10	ACR	2,888	289	254	343	19	3,793	925.12
TOTAL Clearing & Grubbing, debris	4.10	ACR	2,888	289	254	343	19	3,793	925.12

	QUANTITY	UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST

20.003.002	Site Preparation								
20.003.002.01	8.20	ACR	100	10	9	12	1	131	16.03
20.003.002.02	1980.00	CY	938	94	83	111	6	1,231	0.62
20.003.002.03	39530.00	SY	11,349	1,135	999	1,348	74	14,905	0.38
20.003.002.04	39530.00	SY	133,327	13,333	11,733	15,839	867	175,098	4.43

TOTAL Site Preparation	8.20	ACR	145,713	14,571	12,823	17,311	947	191,366	23337.26

TOTAL Gravel Maintenance Road	8.20	ACR	148,602	14,860	13,077	17,654	966	195,159	23799.83

20.005	Bridges								
20.005.001	9.00	ACR	17,166	1,717	1,511	2,039	112	22,544	2504.93
20.005.002	7.00	ACR	4,931	493	434	586	32	6,476	925.12
20.005.003	Excavating, structural, sand/								
20.005.003.01	3366.00	CY	7,376	738	649	876	48	9,687	2.88
20.005.003.02	3366.00	CY	1,713	171	151	203	11	2,249	0.67
20.005.003.03	3060.00	CY	879	88	77	104	6	1,154	0.38

TOTAL Excavating, structural, sand/	3060.00	CY	9,967	997	877	1,184	65	13,090	4.28
20.005.004	3060.00	CY	380,884	38,088	33,518	45,249	2,476	500,215	163.47
20.005.005	9.00	ACR	29,481	2,948	2,594	3,502	192	38,718	4301.99
20.005.006	Prefab Bridges								
20.005.006.01	Prefab Bridges (9 ea)								
20.005.006.02	8090.00	SF	86,053	8,605	7,573	10,223	559	113,014	13.97

TOTAL Prefab Bridges	9.00	EA	688,642	68,864	60,601	81,811	4,476	904,394	100488.23

TOTAL Bridges	1.00	EA	1,131,072	113,107	99,534	134,371	7,352	1,485,437	1485437

TOTAL ROADS & BRIDGES	1.00	EA	2,347,558	234,756	206,585	278,890	15,260	3,083,049	3083049

25	LET DOWN STRUCTURES								
25.001	Let Down Structures								
25.001.001	2.50	ACR	9,049	905	796	1,075	59	11,884	4753.76
25.001.002	1.90	ACR	1,338	134	118	159	9	1,758	925.12
25.001.003	500.00	CY	750	75	66	89	5	985	1.97
25.001.004	30" Pipe Laying								
25.001.004.01	150.00	CY	7,442	744	655	884	48	9,773	65.16

		QUANTITY UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST
25.001.004.02	Install 30" dia CMP, 200 lf per	1000.00 LF	39,320	3,932	3,460	4,671	256	51,638	51.64
25.001.004.03	Install wingwall deflectors on	10.00 EA	30,000	3,000	2,640	3,564	195	39,399	3939.90
TOTAL 30" Pipe Laying		1000.00 LF	76,761	7,676	6,755	9,119	499	100,811	100.81
25.001.005 Backfilling & Compaction									
25.001.005.01	Hauling, no loading, 16.5 cy	30000.00 CY	65,739	6,574	5,785	7,810	427	86,335	2.88
25.001.005.02	Fill, spread dumped matl, by	30000.00 CY	19,500	1,950	1,716	2,317	127	25,609	0.85
25.001.005.03	Compaction, sheepfoot/wobbly	30000.00 CY	8,613	861	758	1,023	56	11,311	0.38
25.001.005.04	Fine grade filled area, for	2.50 ACR	5,445	545	479	647	35	7,151	2860.37
TOTAL Backfilling & Compaction		30000.00 CY	99,297	9,930	8,738	11,796	645	130,407	4.35
25.001.006 Planting and Seeding									
25.001.006.01	Mulching, hay, 1" deep, power	2.10 ACR	1,877	188	165	223	12	2,465	1173.72
25.001.006.02	Crimping, tilling topsoil	2.10 ACR	334	33	29	40	2	439	208.87
25.001.006.03	Seeding, athletic fld mix,	2.40 ACR	7,098	710	625	843	46	9,321	3883.90
25.001.006.04	Place Coarse Woody debris/rocks	2.10 ACR	1,586	159	140	188	10	2,082	991.66
25.001.006.05	Plant Mesquite/Shrub mix using	1125.00 EA	16,875	1,688	1,485	2,005	110	22,162	19.70
TOTAL Planting and Seeding		2.10 ACR	27,769	2,777	2,444	3,299	181	36,469	17366.30
TOTAL Let Down Structures		1.00 EA	214,965	21,497	18,917	25,538	1,397	282,314	282313.93
TOTAL LET DOWN STRUCTURES		1.00 EA	214,965	21,497	18,917	25,538	1,397	282,314	282313.93
30 RECREATION FEATURES									
30.001 Parking Areas									
30.001.001	Fencing for Erosion Control	1.80 ACR	7,678	768	676	912	50	10,084	5602.07
30.001.002	Clearing & Grubbing, debris	1.80 ACR	1,338	134	118	159	9	1,758	976.52
30.001.003 Site Preparation									
30.001.003.01	Ripping, discing to prepare	1.80 ACR	22	2	2	3	0	29	16.03
30.001.003.02	Regrade to req'd slopes, flatten	1.80 ACR	9	1	1	1	0	11	6.22
30.001.003.03	Regrade surface, scraper-grader,	4410.00 CY	9,388	939	826	1,115	61	12,329	2.80
30.001.003.04	Compaction, riding, sheepfoot	8810.00 SY	2,529	253	223	300	16	3,322	0.38
30.001.003.05	Fine grade, grade subgrade for	8810.00 SY	4,559	456	401	542	30	5,988	0.68
TOTAL Site Preparation		1.80 ACR	16,507	1,651	1,453	1,961	107	21,679	12043.93
30.001.004	Asphalt Paving, 6" stone base,	79280.00 SF	129,226	12,923	11,372	15,352	840	169,713	2.14
30.001.005	Lines on pavement, parking stall		1,500	150	132	178	10	1,970	

	QUANTITY	UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST
30.001.006			10,000	1,000	880	1,188	65	13,133	

TOTAL Parking Areas	1.80	ACR	166,250	16,625	14,630	19,751	1,081	218,337	121298.09
30.005 Decomposed Granite Trails									
30.005.001			1,409	141	124	167	9	1,850	925.12

TOTAL Clearing & Grubbing, debris	2.00	ACR	1,409	141	124	167	9	1,850	925.12
30.005.002 Site Preparation									
30.005.002.01	2.00	ACR	24	2	2	3	0	32	16.03
30.005.002.02	1540.00	CY	729	73	64	87	5	958	0.62
30.005.002.03	30640.00	SY	8,797	880	774	1,045	57	11,553	0.38

TOTAL Site Preparation	2.00	ACR	9,550	955	840	1,135	62	12,542	6271.24
30.005.003 Decomposed Granite course,									
30.005.003.01	3830.00	TON	114,900	11,490	10,111	13,650	747	150,898	39.40
30.005.003.02	3830.00	TON	7,106	711	625	844	46	9,333	2.44

TOTAL Decomposed Granite course,	275740.00	SF	122,006	12,201	10,737	14,494	793	160,231	0.58
30.005.004 Trail amenities, ADA ramps, sign									
			10,000	1,000	880	1,188	65	13,133	

TOTAL Decomposed Granite Trails	1.00	EA	142,966	14,297	12,581	16,984	929	187,757	187756.84
30.010 Other Recreation Features									
30.010.001	1.00	EA	10,000	1,000	880	1,188	65	13,133	13133.00
30.010.002	3.00	EA	300,000	30,000	26,400	35,640	1,950	393,990	131330.03
30.010.003	5.00	EA	15,000	1,500	1,320	1,782	98	19,700	3939.90
30.010.004	21.00	EA	14,769	1,477	1,300	1,755	96	19,396	923.64
30.010.005	21.00	EA	568	57	50	67	4	746	35.51

TOTAL Other Recreation Features	1.00	EA	340,337	34,034	29,950	40,432	2,212	446,965	446964.64

TOTAL RECREATION FEATURES	1.00	EA	649,553	64,955	57,161	77,167	4,222	853,058	853058.04

TOTAL Paseo de las Iglesias Feas Study	1.00	EA	36,046,991	3,604,699	3,172,135	4,282,383	234,315	47,340,524	47340524

Thu 29 Jul 2004
 Eff. Date 07/19/04

Tri-Service Automated Cost Engineering System (TRACES)
 PROJECT PASE01: Paseo de las Iglesias Feas Study - Los Reals Road to Congress Road
 PASEO DE LAS IGLESIAS Feasibility Study Estimate
 ** PROJECT DIRECT SUMMARY - Scope **

TIME 10:24:49

SUMMARY PAGE 15

	QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST		
01 IRRIGATION PLANTING	1.00	EA	287,141	7757585	3807079	7083380	7636522	26,284,565	26284565		
05 BASINS PLANTING	1.00	EA	14,082	295,009	18,040	89,594	131,400	534,044	534044.10		
10 HARDENED BANKS	1.00	EA	2,422	797,796	686,566	1044285	0	2,528,647	2528647		
15 PIPING	1.00	EA	26,572	753,393	75,147	2659119	0	3,487,659	3487659		
20 ROADS & BRIDGES	1.00	EA	11,176	350,755	171,054	1765490	60,259	2,347,558	2347558		
25 LET DOWN STRUCTURES	1.00	EA	1,910	46,475	55,230	40,691	72,570	214,965	214965.25		
30 RECREATION FEATURES	1.00	EA	912	35,178	32,498	120,476	461,400	649,553	649552.93		
TOTAL Paseo de las Iglesias Feas Study			1.00	EA	344,214	10036191	4845615	12803035	8362151	36,046,991	36046991
OVERHEAD								3,604,699			
SUBTOTAL								39,651,691			
HOME OFC								3,172,135			
SUBTOTAL								42,823,826			
PROFIT								4,282,383			
SUBTOTAL								47,106,208			
BOND								234,315			
TOTAL INCL INDIRECTS								47,340,524			

		QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST

01 IRRIGATION PLANTING										
01.001	Historic Floodplain	1.00	EA	87,267	2113333	658,160	2802300	3898599	9,472,392	9472392
01.005	Graded Slope	1.00	EA	115,227	3205611	2817665	1688173	997,038	8,708,487	8708487
01.010	Natural Slope	1.00	EA	9,473	279,855	27,076	301,170	168,957	777,058	777058.43
01.015	Second Bench	1.00	EA	62,207	1815508	176,205	1916720	1221003	5,129,437	5129437
01.020	First Bench	1.00	EA	12,967	343,277	127,972	375,017	1350925	2,197,191	2197191
TOTAL IRRIGATION PLANTING		1.00	EA	287,141	7757585	3807079	7083380	7636522	26,284,565	26284565

05 BASINS PLANTING										
05.001	Tributary Infiltration Basins	1.00	EA	10,426	218,428	13,352	64,878	110,010	406,667	406666.57
05.005	Grade Control Infiltration Basin	1.00	EA	3,656	76,582	4,689	24,717	21,390	127,378	127377.54
TOTAL BASINS PLANTING		1.00	EA	14,082	295,009	18,040	89,594	131,400	534,044	534044.10

10 HARDENED BANKS										
10.001	Hardened Slopes	1.00	EA	2,422	797,796	686,566	1044285	0	2,528,647	2528647
TOTAL HARDENED BANKS		1.00	EA	2,422	797,796	686,566	1044285	0	2,528,647	2528647

15 PIPING										
15.001	Irrigation Piping	1.00	EA	26,572	753,393	75,147	2659119	0	3,487,659	3487659
TOTAL PIPING		1.00	EA	26,572	753,393	75,147	2659119	0	3,487,659	3487659

20 ROADS & BRIDGES										
20.001	Compacted Earth Maintenance Road	8.30	ACR	331	8,901	9,562	0	0	18,463	2224.48
20.002	Paved Maintenance Roads	18.00	ACR	3,615	114,007	86,291	849,124	0	1,049,422	58301.20
20.003	Gravel Maintenance Road	8.20	ACR	706	19,741	26,083	102,778	0	148,602	18122.15
20.005	Bridges	1.00	EA	6,524	208,106	49,119	813,588	60,259	1,131,072	1131072
TOTAL ROADS & BRIDGES		1.00	EA	11,176	350,755	171,054	1765490	60,259	2,347,558	2347558

25 LET DOWN STRUCTURES										
25.001	Let Down Structures	1.00	EA	1,910	46,475	55,230	40,691	72,570	214,965	214965.25
TOTAL LET DOWN STRUCTURES		1.00	EA	1,910	46,475	55,230	40,691	72,570	214,965	214965.25

Thu 29 Jul 2004
 Eff. Date 07/19/04

Tri-Service Automated Cost Engineering System (TRACES)
 PROJECT PASE01: Paseo de las Iglesias Feas Study - Los Reals Road to Congress Road
 PASEO DE LAS IGLESIAS Feasibility Study Estimate
 ** PROJECT DIRECT SUMMARY - Facility **

TIME 10:24:49

SUMMARY PAGE 17

	QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST

30 RECREATION FEATURES									
30.001 Parking Areas	1.80	ACR	474	23,679	23,998	107,074	11,500	166,250	92361.27
30.005 Decomposed Granite Trails	1.00	EA	343	9,565	8,501	0	124,900	142,966	142965.66
30.010 Other Recreation Features	1.00	EA	95	1,935	0	13,402	325,000	340,337	340336.98
TOTAL RECREATION FEATURES	1.00	EA	912	35,178	32,498	120,476	461,400	649,553	649552.93
TOTAL Paseo de las Iglesias Feas Study	1.00	EA	344,214	10036191	4845615	12803035	8362151	36,046,991	36046991
OVERHEAD								3,604,699	
SUBTOTAL								39,651,691	
HOME OFC								3,172,135	
SUBTOTAL								42,823,826	
PROFIT								4,282,383	
SUBTOTAL								47,106,208	
BOND								234,315	
TOTAL INCL INDIRECTS								47,340,524	

		QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
01 IRRIGATION PLANTING										
01.001 Historic Floodplain										
01.001.001	Fencing for Erosion Control	656.00	ACR	3,421	70,043	0	76,555	0	146,598	223.47
01.001.002	Clearing & Grubbing, Debris	328.00	ACR	9,338	260,028	202,076	0	0	462,104	1408.85
01.001.003 Site Preparation										
01.001.003.01	Ripping, discing to prepare	590.00	ACR	100	2,821	4,383	0	0	7,203	12.21
01.001.003.02	Regrade to req'd slopes, flatten	295.00	ACR	15	417	980	0	0	1,397	4.74
01.001.003.03	Regrade Surface, scraper-grader	1445500	CY	231	6,694	17,083	0	0	23,777	0.02
TOTAL Site Preparation		1.00	EA	346	9,932	22,445	0	0	32,377	32377.16
01.001.004	Excavation	176990.00	CY	6,850	193,822	136,229	0	0	330,051	1.86
01.001.005	Compaction (tractor wheel, one	3561940	LF	6,918	195,174	214,833	0	0	410,007	0.12
01.001.006	Trenching for Water Supply Pipes	17050.00	CY	355	10,675	11,159	0	0	21,834	1.28
01.001.007	Pipe bedding, crushed stone	13110.00	CY	1,210	28,942	6,100	615,383	0	650,425	49.61
01.001.008	Install gated 12" PVC pipe for	114720.00	LF	9,178	285,481	0	329,246	137,664	752,391	6.56
01.001.009	Install "U" outlet tubes with	5940.00	EA	1,667	51,866	0	832	0	52,698	8.87
01.001.010	Backfill pipe trench, side cast	4590.00	CY	24	685	1,064	0	0	1,749	0.38
01.001.011 Planting & Seeding										
01.001.011.01	Mulching, hay, 1" deep, power	558.00	ACR	734	16,833	16,363	465,500	0	498,695	893.72
01.001.011.02	Crimping, Tilling topsoil,	558.00	ACR	2,232	68,754	19,991	0	0	88,745	159.04
01.001.011.03	Seeding, athletic fld mix,	623.00	ACR	27,138	555,558	0	1286884	0	1,842,442	2957.37
01.001.011.04	Place Coarse Woody debris/rocks	558.00	ACR	17,856	365,541	27,900	27,900	0	421,341	755.09
01.001.011.05	Plant Mesquite/Shrub mix using	250729.00	EA	0	0	0	0	3760935	3,760,935	15.00
TOTAL Planting & Seeding		558.00	ACR	47,960	1006686	64,254	1780284	3760935	6,612,158	11849.75
TOTAL Historic Floodplain		1.00	EA	87,267	2113333	658,160	2802300	3898599	9,472,392	9472392
01.005 Graded Slope										
01.005.001	Fencing for Erosion Control	102.00	ACR	1,349	27,619	0	30,187	0	57,806	566.72
01.005.002	Clearing & Grubbing, debris	51.00	ACR	726	20,216	15,710	0	0	35,926	704.43
01.005.003	Excavation, strl, mach excav.	1213390	CY	9,464	284,297	341,812	0	0	626,109	0.52
01.005.004 Excavation, steep slopes, 5:1										
01.005.004.01	Hauling, no loading, 16.5 cy	1213390	CY	34,703	905,674	1753227	0	0	2,658,902	2.19
01.005.004.02	Fill, spread dumped material,	1213390	CY	6,431	181,038	281,264	0	0	462,302	0.38
01.005.004.03	Compaction, sheepfoot/wobbly	1213390	CY	6,067	159,318	189,046	0	0	348,364	0.29
TOTAL Excavation, steep slopes, 5:1		1213390	CY	47,201	1246030	2223537	0	0	3,469,567	2.86

	QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST		
01.005.005	110.00	ACR	5,324	140,210	93,995	0	0	234,205	2129.14		
01.005.006 Header Pipe Laying											
01.005.006.01	2540.00	CY	21	630	615	0	0	1,245	0.49		
01.005.006.02	1020.00	CY	94	2,705	3,850	16,320	0	22,875	22.43		
01.005.006.03	7620.00	LF	762	23,704	0	72,085	0	95,789	12.57		
01.005.006.04	1020.00	CY	31	866	759	0	0	1,624	1.59		
01.005.006.05	1530.00	CY	77	1,998	3,666	0	0	5,665	3.70		
TOTAL Header Pipe Laying			7620.00	LF	984	29,902	8,890	88,405	0	127,198	16.69
01.005.007 8" PVC Leach Pipe Laying											
01.005.007.01	99020.00	CY	812	24,547	23,973	0	0	48,520	0.49		
01.005.007.02	148700.00	SY	2,379	51,703	14,662	90,707	0	157,072	1.06		
01.005.007.03	445590.00	LF	35,647	1108851	0	623,826	133,677	1,866,354	4.19		
01.005.007.04	445590.00	LF	0	0	0	539,164	178,236	717,400	1.61		
01.005.007.05			0	12,000	0	15,000	0	27,000			
01.005.007.06	93380.00	CY	2,801	79,252	69,465	0	0	148,717	1.59		
01.005.007.07	5790.00	CY	290	7,563	13,875	0	0	21,438	3.70		
TOTAL 8" PVC Leach Pipe Laying			445590.00	LF	41,929	1283915	121,975	1268697	311,913	2,986,500	6.70
01.005.008 Planting & Seeding											
01.005.008.01	102.00	ACR	134	3,077	2,991	85,091	0	91,159	893.72		
01.005.008.02	102.00	ACR	408	12,568	3,654	0	0	16,222	159.04		
01.005.008.03	102.00	ACR	4,443	90,958	0	210,693	0	301,651	2957.36		
01.005.008.04	102.00	ACR	3,264	66,819	5,100	5,100	0	77,019	755.09		
01.005.008.05	45675.00	EA	0	0	0	0	685,125	685,125	15.00		
TOTAL Planting & Seeding			102.00	ACR	8,249	173,422	11,745	300,884	685,125	1,171,176	11482.12
TOTAL Graded Slope			1.00	EA	115,227	3205611	2817665	1688173	997,038	8,708,487	8708487
01.010 Natural Slope											
01.010.001	18.00	ACR	567	11,602	0	12,680	0	24,282	1349.01		
01.010.002	13.00	ACR	185	5,153	4,005	0	0	9,158	704.43		
01.010.003 Header Trenching											
01.010.003.01	86.00	CY	1	21	21	0	0	42	0.49		
01.010.003.02	35.00	CY	3	93	132	560	0	785	22.43		
01.010.003.03	1520.00	LF	152	4,728	0	14,379	0	19,107	12.57		
01.010.003.04	35.00	CY	1	30	26	0	0	56	1.59		

	QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
01.010.003.05 Hauling, surplus cut matl, no	52.00	CY	3	68	125	0	0	193	3.70
TOTAL Header Trenching	1520.00	LF	160	4,940	304	14,939	0	20,183	13.28
01.010.004 8" PVC Leach Pipe Laying									
01.010.004.01 Excavate trench, 12" depth by	16780.00	CY	138	4,160	4,062	0	0	8,222	0.49
01.010.004.02 Install low perm geotextile in	25200.00	SY	403	8,762	2,485	15,372	0	26,619	1.06
01.010.004.03 Install 8" PVC leach pipe for	75510.00	LF	6,041	187,907	0	105,714	22,653	316,274	4.19
01.010.004.04 Install leach pipe filter "sock"	75510.00	LF	0	0	0	91,367	30,204	121,571	1.61
01.010.004.05 Install pipe fittings as needed	0		0	12,000	0	8,000	0	20,000	
01.010.004.06 Backfill trench, FE loader, whl	15830.00	CY	475	13,435	11,776	0	0	25,211	1.59
01.010.004.07 Hauling, surplus cut matl, no	990.00	CY	50	1,293	2,372	0	0	3,666	3.70
TOTAL 8" PVC Leach Pipe Laying	75510.00	LF	7,106	227,556	20,696	220,453	52,857	521,562	6.91
01.010.005 Planting & Seeding									
01.010.005.01 Mulch, hay, 1" deep, power	18.00	ACR	24	543	528	15,016	0	16,087	893.72
01.010.005.02 Crimping, tilling topsoil	18.00	ACR	72	2,218	645	0	0	2,863	159.04
01.010.005.03 Seeding, athletic fld mix,	18.00	ACR	784	16,051	0	37,181	0	53,232	2957.36
01.010.005.04 Place Coarse Woody debris/rocks	18.00	ACR	576	11,792	900	900	0	13,592	755.09
01.010.005.05 Plant Mesquite/Shrub mix using	7740.00	EA	0	0	0	0	116,100	116,100	15.00
TOTAL Planting & Seeding	18.00	ACR	1,456	30,604	2,073	53,097	116,100	201,874	11215.21
TOTAL Natural Slope	1.00	EA	9,473	279,855	27,076	301,170	168,957	777,058	777058.43
01.015 Second Bench									
01.015.001 Fencing for Erosion Control	124.00	ACR	1,487	30,449	0	33,280	0	63,729	513.94
01.015.002 Clearing and Grubbing, debris	93.00	ACR	1,324	36,864	28,648	0	0	65,512	704.43
01.015.003 Header Trenching									
01.015.003.01 Excavate header trench, 12" dep.	500.00	CY	4	124	121	0	0	245	0.49
01.015.003.02 Header Trench bedding, 3/4"	200.00	CY	18	530	755	3,200	0	4,485	22.43
01.015.003.03 Install med. diam. PVC Header	8080.00	LF	808	25,134	0	76,437	0	101,571	12.57
01.015.003.04 Backfill trench, FE loader,	200.00	CY	6	170	149	0	0	319	1.59
01.015.003.05 Hauling, surplus cut matl, no	300.00	CY	15	392	719	0	0	1,111	3.70
TOTAL Header Trenching	8080.00	LF	852	26,350	1,744	79,637	0	107,731	13.33
01.015.004 8" PVC Leach Pipe Laying									
01.015.004.01 Excavate trench, 12" depth by	121260.00	CY	994	30,060	29,357	0	0	59,417	0.49
01.015.004.03 Install 8" PVC leach pipe for	545686.00	LF	43,655	1357940	0	763,960	163,706	2,285,606	4.19

	QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
01.015.004.04	545680.00	LF	0	0	0	660,273	218,272	878,545	1.61
01.015.004.05			0	15,000	0	10,000	0	25,000	
01.015.004.06	114360.00	CY	3,431	97,057	85,072	0	0	182,130	1.59
01.015.004.07	7090.00	CY	355	9,261	16,990	0	0	26,251	3.70
TOTAL 8" PVC Leach Pipe Laying	545686.00	LF	48,435	1509318	131,420	1434233	381,978	3,456,949	6.34
01.015.005 Planting & Seeding									
01.015.005.01	125.00	ACR	164	3,771	3,666	104,279	0	111,715	893.72
01.015.005.02	125.00	ACR	500	15,402	4,478	0	0	19,880	159.04
01.015.005.03	125.00	ACR	5,445	111,468	0	258,202	0	369,670	2957.36
01.015.005.04	125.00	ACR	4,000	81,886	6,250	7,090	0	95,226	761.81
01.015.005.05	55935.00	EA	0	0	0	0	839,025	839,025	15.00
TOTAL Planting & Seeding	125.00	ACR	10,109	212,527	14,394	369,571	839,025	1,435,516	11484.13
TOTAL Second Bench	1.00	EA	62,207	1815508	176,205	1916720	1221003	5,129,437	5129437
01.020 First Bench									
01.020.001	1.00	LF	0	1	0	0	0	1	0.65
TOTAL Excavate pipe trench, 18" depth	1.00	LF	0	1	0	0	0	1	0.65
01.020.002 Pipe Laying									
01.020.002.01	31000.00	LF	1,907	59,343	0	53,320	0	112,663	3.63
01.020.002.02	3100.00	EA	2,713	84,394	0	37,438	0	121,832	39.30
01.020.002.03	190.00	LF	122	2,839	0	19,481	0	22,320	117.47
01.020.002.04	238.00	EA	0	0	0	0	11,900	11,900	50.00
TOTAL Pipe Laying	31000.00	LF	4,741	146,576	0	110,239	11,900	268,715	8.67
01.020.003	31000.00	LF	930	26,310	23,061	0	0	49,371	1.59
01.020.004	90.00	EA	80	1,868	0	2,093	0	3,960	44.00
01.020.005	1.00	EA	0	0	0	0	500,000	500,000	500000.00
01.020.006	89.00	ACR	2,154	60,931	94,663	0	0	155,594	1748.25
01.020.007 Planting & seeding									
01.020.007.01	89.00	ACR	117	2,685	2,610	74,246	0	79,541	893.72
01.020.007.02	89.00	ACR	356	10,966	3,189	0	0	14,155	159.04
01.020.007.03	89.00	ACR	3,877	79,365	0	183,840	0	263,205	2957.36
01.020.007.04	89.00	ACR	712	14,576	4,450	4,600	0	23,625	265.45
01.020.007.05	55935.00	EA	0	0	0	0	839,025	839,025	15.00

	QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
TOTAL Planting & seeding	89.00	ACR	5,062	107,592	10,248	262,686	839,025	1,219,551	13702.82
TOTAL First Bench	1.00	EA	12,967	343,277	127,972	375,017	1350925	2,197,191	2197191
TOTAL IRRIGATION PLANTING	1.00	EA	287,141	7757585	3807079	7083380	7636522	26,284,565	26284565
05 BASINS PLANTING									
05.001 Tributary Infiltration Basins									
05.001.001 Fencing for Erosion Control	18.00	ACR	567	11,602	0	12,680	0	24,282	1349.01
05.001.002 Clearing and Grubbing, debris	13.00	ACR	185	5,153	4,005	0	0	9,158	704.43
05.001.003 Excavate, mach exc., sand & grav									
05.001.003.01 Stockpile useable cut matl,	830.00	CY	12	326	506	0	0	832	1.00
05.001.003.02 Hauling, surplus cut matl, no	2490.00	CY	125	3,252	5,967	0	0	9,219	3.70
05.001.003.03 Fill, spread cut matl at dump	2490.00	CY	30	845	1,313	0	0	2,159	0.87
05.001.003.04 Compaction at dump site, hl rlr,	2490.00	CY	12	327	388	0	0	715	0.29
05.001.003.05 Compact Basin subgrade, existing	86160.00	SY	8,616	178,110	0	0	0	178,110	2.07
TOTAL Excavate, mach exc., sand & grav	8300.00	CY	8,794	182,860	8,174	0	0	191,035	23.02
05.001.004 Backfilling									
05.001.004.01 Fill, bottom layer, clean sand,	840.00	CY	0	0	0	0	14,910	14,910	17.75
05.001.004.02 Fill, middle layer, No. 57 blue-	840.00	CY	0	0	0	0	840	840	1.00
05.001.004.03 Fill, middle layer, No. 2 gravel	840.00	CY	0	0	0	0	21,000	21,000	25.00
05.001.004.04 Fill, top layer, mix of native	840.00	CY	0	0	0	0	25,200	25,200	30.00
TOTAL Backfilling	3360.00	CY	0	0	0	0	61,950	61,950	18.44
05.001.005 Planting & Seeding									
05.001.005.01 Mulch, hay, 1" deep, power	18.00	ACR	24	543	528	15,016	0	16,087	893.72
05.001.005.02 Crimping, tilling topsoil	18.00	ACR	72	2,218	645	0	0	2,863	159.04
05.001.005.03 Seeding, athletic fld mix,	18.00	ACR	784	16,051	0	37,181	0	53,232	2957.36
05.001.005.04 Plant Mesquite/Shrub mix using	3204.00	EA	0	0	0	0	48,060	48,060	15.00
TOTAL Planting & Seeding	18.00	ACR	880	18,812	1,173	52,197	48,060	120,242	6680.12
TOTAL Tributary Infiltration Basins	1.00	EA	10,426	218,428	13,352	64,878	110,010	406,667	406666.57
05.005 Grade Control Infiltration Basin									
05.005.001 Fencing for Erosion Control	6.00	ACR	327	6,695	0	7,318	0	14,013	2335.44
05.005.002 Clearing and Grubbing, debris	5.00	ACR	71	1,982	1,540	0	0	3,522	704.43

	QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST

05.005.003	Excavating, mach exc, sand & gr								
05.005.003.01	280.00	CY	4	110	171	0	0	281	1.00
05.005.003.02	840.00	CY	42	1,097	2,013	0	0	3,110	3.70
05.005.003.03	840.00	CY	10	285	443	0	0	728	0.87

TOTAL	1120.00	CY	56	1,492	2,627	0	0	4,119	3.68
05.005.004	Compaction at dump site, hl rlr								
05.005.005	29040.00	CY	2,904	60,031	0	0	0	60,031	2.07
05.005.006	1160.00	CY	0	0	0	0	21,390	21,390	18.44
05.005.007	Planting & Seeding								
05.005.007.01	6.00	ACR	8	181	176	5,005	0	5,362	893.72
05.005.007.02	6.00	ACR	24	739	215	0	0	954	159.04
05.005.007.03	6.00	ACR	261	5,350	0	12,394	0	17,744	2957.36

TOTAL	6.00	ACR	293	6,271	391	17,399	0	24,061	4010.12

TOTAL	1.00	EA	3,656	76,582	4,689	24,717	21,390	127,378	127377.54

TOTAL	1.00	EA	14,082	295,009	18,040	89,594	131,400	534,044	534044.10

10 HARDENED BANKS									
10.001 Hardened Slopes									
10.001.001	3.50	ACR	250	5,110	0	5,585	0	10,695	3055.59
10.001.002	0.90	ACR	13	357	277	0	0	634	704.43
10.001.003	Excavating, prepare slope &								
10.001.003.01	28200.00	CY	392	11,069	17,194	0	0	28,262	1.00
10.001.003.02	18800.00	CY	538	14,032	27,164	0	0	41,196	2.19

TOTAL	47000.00	CY	930	25,101	44,358	0	0	69,458	1.48
10.001.004	Fill, spread dumped mat'l, by								
10.001.004.01	18800.00	CY	94	2,468	2,929	0	0	5,397	0.29
10.001.004.02	14900.00	SY	149	3,924	2,631	0	0	6,555	0.44

TOTAL	18800.00	CY	243	6,392	5,560	0	0	11,952	0.64
10.001.005	61100.00	CY	0	733,200	611,000	1038700	0	2,382,900	39.00
10.001.006	Backfill and Compaction								

	QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
10.001.006.01	28200.00	CY	846	23,933	20,978	0	0	44,911	1.59
10.001.006.02	28200.00	CY	141	3,703	4,394	0	0	8,096	0.29
TOTAL Backfill and Compaction	28200.00	CY	987	27,636	25,372	0	0	53,008	1.88
TOTAL Hardened Slopes	1.00	EA	2,422	797,796	686,566	1044285	0	2,528,647	2528647
TOTAL HARDENED BANKS	1.00	EA	2,422	797,796	686,566	1044285	0	2,528,647	2528647
15 PIPING									
15.001 Irrigation Piping									
15.001.001 Trenching for Delivery Pipe									
15.001.001.01	1260.00	CY	116	2,782	586	59,144	0	62,512	49.61
15.001.001.02	10440.00	LF	1,796	55,872	0	146,682	0	202,554	19.40
15.001.001.03	1260.00	CY	40	1,126	987	19,480	0	21,592	17.14
15.001.001.04	1880.00	CY	54	1,403	2,716	0	0	4,120	2.19
TOTAL Trenching for Delivery Pipe	3130.00	CY	2,006	61,182	4,289	225,306	0	290,778	92.90
15.001.002 Trenching for Main Pipe									
15.001.002.01	8400.00	CY	775	18,544	3,909	394,296	0	416,748	49.61
15.001.002.02	69970.00	LF	12,035	374,458	0	983,079	0	1,357,537	19.40
15.001.002.03	8400.00	CY	265	7,505	6,577	129,864	0	143,946	17.14
15.001.002.04	12600.00	CY	360	9,405	18,206	0	0	27,610	2.19
TOTAL Trenching for Main Pipe	21000.00	CY	13,436	409,911	28,691	1507239	0	1,945,841	92.66
15.001.003 Trenching for Sub-main Pipe									
15.001.003.01	3370.00	CY	311	7,440	1,568	158,188	0	167,195	49.61
15.001.003.02	28010.00	LF	3,395	105,612	0	174,782	0	280,394	10.01
15.001.003.03	3370.00	CY	106	3,011	2,639	52,100	0	57,750	17.14
15.001.003.04	5050.00	CY	144	3,769	7,297	0	0	11,066	2.19
TOTAL Trenching for Sub-main Pipe	8420.00	CY	3,957	119,831	11,504	385,070	0	516,405	61.33
15.001.004 Trenching for Culvert CMP									
15.001.004.01	4200.00	CY	388	9,272	1,954	197,148	0	208,374	49.61
15.001.004.02	23600.00	LF	6,473	144,741	16,317	279,424	0	440,482	18.66
15.001.004.03	4200.00	CY	133	3,752	3,289	64,932	0	71,973	17.14
15.001.004.04	6300.00	CY	180	4,702	9,103	0	0	13,805	2.19

	QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
TOTAL Trenching for Culvert CMP	10500.00	CY	7,174	162,468	30,663	541,504	0	734,634	69.97
TOTAL Irrigation Piping	1.00	EA	26,572	753,393	75,147	2659119	0	3,487,659	3487659
TOTAL PIPING	1.00	EA	26,572	753,393	75,147	2659119	0	3,487,659	3487659
20 ROADS & BRIDGES									
20.001 Compacted Earth Maintenance Road									
20.001.001 Clearing & Grubbing, debris	8.30	ACR	118	3,290	2,557	0	0	5,847	704.43
TOTAL Clearing & Grubbing, debris	8.30	ACR	118	3,290	2,557	0	0	5,847	704.43
20.001.002 Site Preparation									
20.001.002.01 Ripping, discing to prepare	8.30	ACR	1	40	62	0	0	101	12.21
20.001.002.02 Regrade, flatten, balance cut	2020.00	CY	10	286	671	0	0	956	0.47
20.001.002.03 Compaction, riding, sheepfoot/	40260.00	SY	201	5,286	6,273	0	0	11,559	0.29
TOTAL Site Preparation	8.30	ACR	213	5,611	7,005	0	0	12,616	1520.05
TOTAL Compacted Earth Maintenance Road	8.30	ACR	331	8,901	9,562	0	0	18,463	2224.48
20.002 Paved Maintenance Roads									
20.002.001 Clearing & Grubbing, debris	9.00	ACR	128	3,567	2,772	0	0	6,340	704.43
TOTAL Clearing & Grubbing, debris	9.00	ACR	128	3,567	2,772	0	0	6,340	704.43
20.002.002 Site Preparation									
20.002.002.01 Ripping, discing to prepare	18.00	ACR	3	86	134	0	0	220	12.21
20.002.002.02 Regrade, flatten, balance cut	21880.00	CY	109	3,094	7,266	0	0	10,360	0.47
20.002.002.03 Compaction, riding, sheepfoot/	86820.00	SY	434	11,399	13,527	0	0	24,926	0.29
20.002.002.04 Asphalt Concrete Paving,	781310.00	SF	2,940	95,860	62,592	849,124	0	1,007,576	1.29
TOTAL Site Preparation	18.00	ACR	3,487	110,439	83,518	849,124	0	1,043,082	57948.99
TOTAL Paved Maintenance Roads	18.00	ACR	3,615	114,007	86,291	849,124	0	1,049,422	58301.20
20.003 Gravel Maintenance Road									
20.003.001 Clearing & Grubbing, debris	4.10	ACR	58	1,625	1,263	0	0	2,888	704.43
TOTAL Clearing & Grubbing, debris	4.10	ACR	58	1,625	1,263	0	0	2,888	704.43

		QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST

20.003.002 Site Preparation										
20.003.002.01	Ripping, discing to prepare	8.20	ACR	1	39	61	0	0	100	12.21
20.003.002.02	Regrade, flatten, balance cut	1980.00	CY	10	280	658	0	0	938	0.47
20.003.002.03	Compaction, riding, sheepfoot/	39530.00	SY	198	5,190	6,159	0	0	11,349	0.29
20.003.002.04	Gravel course, crushed 3/4"	39530.00	SY	439	12,606	17,943	102,778	0	133,327	3.37
TOTAL Site Preparation		8.20	ACR	648	18,116	24,820	102,778	0	145,713	17769.94
TOTAL Gravel Maintenance Road		8.20	ACR	706	19,741	26,083	102,778	0	148,602	18122.15

20.005 Bridges										
20.005.001	Fencing for Erosion Control	9.00	ACR	401	8,202	0	8,964	0	17,166	1907.35
20.005.002	Clearing and Grubbing, debris	7.00	ACR	100	2,775	2,156	0	0	4,931	704.43
20.005.003 Excavating, structural, sand/										
20.005.003.01	Hauling, no loading, 16.5 cy	3366.00	CY	96	2,512	4,864	0	0	7,376	2.19
20.005.003.02	Fill, spread dumped matl, by	3366.00	CY	37	1,039	674	0	0	1,713	0.51
20.005.003.03	Compaction, sheepfoot/wobbly	3060.00	CY	15	402	477	0	0	879	0.29
TOTAL Excavating, structural, sand/		3060.00	CY	148	3,953	6,014	0	0	9,967	3.26
20.005.004	Cast in Place reinforced concret	3060.00	CY	3,587	118,590	0	262,294	0	380,884	124.47
20.005.005	Finished grading, tie in, stabl.	9.00	ACR	671	17,651	11,831	0	0	29,481	3275.71
20.005.006 Prefab Bridges										
20.005.006.01	Prefab Bridges (9 ea)			0	0	0	542,330	60,259	602,589	
20.005.006.02	Unloading and Erection	8090.00	SF	1,618	56,936	29,117	0	0	86,053	10.64
TOTAL Prefab Bridges		9.00	EA	1,618	56,936	29,117	542,330	60,259	688,642	76515.81
TOTAL Bridges		1.00	EA	6,524	208,106	49,119	813,588	60,259	1,131,072	1131072
TOTAL ROADS & BRIDGES		1.00	EA	11,176	350,755	171,054	1765490	60,259	2,347,558	2347558

25 LET DOWN STRUCTURES										
25.001 Let Down Structures										
25.001.001	Fencing for Erosion Control	2.50	ACR	211	4,324	0	4,726	0	9,049	3619.70
25.001.002	Clearing & Grubbing, debris	1.90	ACR	27	753	585	0	0	1,338	704.43
25.001.003	Prep (excav) slope to receive	500.00	CY	0	0	0	0	750	750	1.50
25.001.004 30" Pipe Laying										
25.001.004.01	Install pipe bedding, gravel,	150.00	CY	14	331	70	7,041	0	7,442	49.61

	QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
25.001.004.02	1000.00	LF	467	10,898	6,312	22,110	0	39,320	39.32
25.001.004.03	10.00	EA	0	0	0	0	30,000	30,000	3000.00
TOTAL 30" Pipe Laying			481	11,229	6,381	29,151	30,000	76,761	76.76
25.001.005 Backfilling & Compaction									
25.001.005.01	30000.00	CY	858	22,392	43,347	0	0	65,739	2.19
25.001.005.02	30000.00	CY	0	0	0	0	19,500	19,500	0.65
25.001.005.03	30000.00	CY	150	3,939	4,674	0	0	8,613	0.29
25.001.005.04	2.50	ACR	0	0	0	0	5,445	5,445	2178.00
TOTAL Backfilling & Compaction			1,008	26,331	48,021	0	24,945	99,297	3.31
25.001.006 Planting and Seeding									
25.001.006.01	2.10	ACR	3	63	62	1,752	0	1,877	893.72
25.001.006.02	2.10	ACR	8	259	75	0	0	334	159.04
25.001.006.03	2.40	ACR	105	2,140	0	4,957	0	7,098	2957.36
25.001.006.04	2.10	ACR	67	1,376	105	105	0	1,586	755.09
25.001.006.05	1125.00	EA	0	0	0	0	16,875	16,875	15.00
TOTAL Planting and Seeding			183	3,838	242	6,814	16,875	27,769	13223.40
TOTAL Let Down Structures			1.00	1,910	46,475	55,230	40,691	72,570	214,965.25
TOTAL LET DOWN STRUCTURES			1.00	1,910	46,475	55,230	40,691	72,570	214,965.25
30 RECREATION FEATURES									
30.001 Parking Areas									
30.001.001	1.80	ACR	179	3,669	0	4,010	0	7,678	4265.64
30.001.002	1.80	ACR	27	753	585	0	0	1,338	743.56
30.001.003 Site Preparation									
30.001.003.01	1.80	ACR	0	9	13	0	0	22	12.21
30.001.003.02	1.80	ACR	0	3	6	0	0	9	4.73
30.001.003.03	4410.00	CY	120	3,468	5,920	0	0	9,388	2.13
30.001.003.04	8810.00	SY	44	1,157	1,373	0	0	2,529	0.29
30.001.003.05	8810.00	SY	104	2,730	1,830	0	0	4,559	0.52
TOTAL Site Preparation			268	7,365	9,142	0	0	16,507	9170.74
30.001.004	79280.00	SF	0	11,892	14,270	103,064	0	129,226	1.63
30.001.005			0	0	0	0	1,500	1,500	

	QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
30.001.006			0	0	0	0	10,000	10,000	
TOTAL Parking Areas	1.80	ACR	474	23,679	23,998	107,074	11,500	166,250	92361.27
30.005 Decomposed Granite Trails									
30.005.001			28	793	616	0	0	1,409	704.43
TOTAL Clearing & Grubbing, debris	2.00	ACR	28	793	616	0	0	1,409	704.43
30.005.002 Site Preparation									
30.005.002.01			0	10	15	0	0	24	12.21
30.005.002.02			8	218	511	0	0	729	0.47
30.005.002.03			153	4,023	4,774	0	0	8,797	0.29
TOTAL Site Preparation	2.00	ACR	161	4,250	5,300	0	0	9,550	4775.18
30.005.003 Decomposed Granite course,									
30.005.003.01			0	0	0	0	114,900	114,900	30.00
30.005.003.02			153	4,522	2,584	0	0	7,106	1.86
TOTAL Decomposed Granite course,	275740.00	SF	153	4,522	2,584	0	114,900	122,006	0.44
30.005.004			0	0	0	0	10,000	10,000	
TOTAL Decomposed Granite Trails	1.00	EA	343	9,565	8,501	0	124,900	142,966	142965.66
30.010 Other Recreation Features									
30.010.001			0	0	0	0	10,000	10,000	10000.00
30.010.002			0	0	0	0	300,000	300,000	100000.00
30.010.003			0	0	0	0	15,000	15,000	3000.00
30.010.004			84	1,720	0	13,050	0	14,769	703.30
30.010.005			11	215	0	353	0	568	27.04
TOTAL Other Recreation Features	1.00	EA	95	1,935	0	13,402	325,000	340,337	340336.98
TOTAL RECREATION FEATURES	1.00	EA	912	35,178	32,498	120,476	461,400	649,553	649552.93
TOTAL Paseo de las Iglesias Feas Study	1.00	EA	344,214	10036191	4845615	12803035	8362151	36,046,991	36046991
OVERHEAD								3,604,699	
SUBTOTAL								39,651,691	
HOME OFC								3,172,135	

Thu 29 Jul 2004
Eff. Date 07/19/04

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT PASE01: Paseo de las Iglesias Feas Study - Los Reals Road to Congress Road
PASEO DE LAS IGLESIAS Feasibility Study Estimate
** PROJECT DIRECT SUMMARY - Subsystem **

TIME 10:24:49

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	QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST

SUBTOTAL								42,823,826	
PROFIT								4,282,383	

SUBTOTAL								47,106,208	
BOND								234,315	

TOTAL INCL INDIRECTS								47,340,524	

Thu 29 Jul 2004
Eff. Date 07/19/04
ERROR REPORT

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT PASE01: Paseo de las Iglesias Feas Study - Los Reals Road to Congress Road
PASEO DE LAS IGLESIAS Feasibility Study Estimate

TIME 10:24:49
ERROR PAGE 1

No errors detected...

* * * END OF ERROR REPORT * * *

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