

LAGUNA RESTORATION

Earthwork

Conceptual Level Cost Estimate

ITEM NO.	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	COST
1	Mobilization, SWPPP, & Construction Staking (*8%)	L.S.	1	\$552,000.00	\$552,000.00
2	404/401 Permits (*0.2%)	L.S.	1	\$14,000.00	\$14,000.00
3	Site Preparation (Burning, Clearing and Grubbing)	ACRE	1,000	\$2,000.00	\$2,000,000.00 (5)
4	Cut Primary and Secondary River Channels	C.Y.	854,000	\$8.00	\$6,832,000.00 (1)
5	Strip Levee Footprint of Vegetation	C.Y.	18,800	\$2.00	\$37,600.00 (2)
6	Grade New Roads/Re-Grade Existing Roads	L.F.	15,850	\$1.90	\$30,115.00 (3)
Subtotal Construction Items =					\$9,465,715.00
25% Engineering Services and Conceptual Stage Contingency =					\$2,366,428.75
Total Construction Items =					\$11,832,143.75

(* Approximate % of Construction Subtotal, not including site preparation)

Present Value Life Cycle Costs (50 year Life Cycle, yearly interest rate of 5%):					
6	Operation & Maintenance	EA.	1	\$438,142.21	\$438,142.21
Subtotal Lifecycle Items =					\$438,142.21
20% Conceptual Stage Contingency =					\$87,628.44
Total Lifecycle Items =					\$525,770.65

TOTAL = \$12,357,914.40

Notes:

- (1) Unit Price per estimate from Rick Hurworth 2003 YEW = \$7.00/CY, assume 15% Increase since 2003, assume saturated conditions (special equipment req'd - amphibious excavator/dredge), assume placement of cut material in compacted levees and upland areas assumed to be incidental to cut costs.
- (2) Average Bid (2003-2007) = \$1.30/CY (+15% Increase to 2009, +30% Davis Bacon Increase) = \$1.94/CY. Re-spreading of all stripped material in designated fill areas is considered incidental to stripping activities
- (3) Average Bid (2003-2007) = \$1.25/CY (+15% Increase to 2009, +30% Davis Bacon Increase) = \$1.87/CY
- (4) Assume 4 weeks of levee/road maintenance per/year, 1-Large Tractor & Operator (I.E. Case Magnum/Steiger) w/Mowing and Earthwork (scraper) implements, \$150/hr
- (5) Per FPC project data

LIFE CYCLE COSTS CALCULATIONS (PRESENT VALUE)

Yearly Interest Rate (APR) =	0.05	
Life Cycle =	50 Years	
Maintenance - Mow, Weed Management, Levee Repair =	\$24,000 for 8.25 Miles	(4)
	of Levee/Roads	
TOTAL Yearly O & M Cost =	\$24,000	
Life Cycle O & M =	\$438,142	

LAGUNA RESTORATION

Water Delivery Pipeline

Conceptual Level Cost Estimate

ITEM NO.	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	COST
1	Mobilization, SWPPP, & Construction Staking (*8%)	L.S.	1	\$56,000.00	\$56,000.00
2	Supply 48" DR 32.5 HDPE Pipe	L.F.	2725	\$110.00	\$299,750.00 (1)
3	Install 48" DR 32.5 HDPE Pipe	L.F.	2725	\$27.00	\$73,575.00 (2)
4	Trench & Backfill 48" DR 32.5 HDPE Pipe	C.Y.	6459	\$4.26	\$27,516.44 (3)(4)
5	Construct a New Intake for the Pipeline Near the Mittry Lake Pipeline Intake	L.S.	1	\$15,000.00	\$15,000.00 (5)
6	De-watering During Intake Construction	DAY	8	\$184.00	\$1,472.00 (6)
7	Temporary Cofferdam During Intake Construction	L.S.	1	\$30,000.00	\$30,000.00
8	Supply and Install 48" Red Valve Megaflex Manual Pinch Valve Near Intake	EA.	1	\$100,000.00	\$100,000.00 (7)
9	Supply and Install 2" Combination Air Release Valve Near Intake	EA.	3	\$5,000.00	\$15,000.00 (8)
10	Supply and Install Flow Measurement Instrumentation	L.S.	1	\$60,000.00	\$60,000.00 (9)
11	Supply and install fittings for 48" HDPE pipe	L.S.	1	\$20,000.00	\$20,000.00
12	Supply and install "valve house"	L.S.	1	\$30,000.00	\$30,000.00
13	Construct a Concrete Outlet Headwall and apron	C.Y.	5	\$850.00	\$4,250.00 (12)(11)
14	De-watering During Inverted Siphon & Outlet Structure Construction	DAY	25	\$184.00	\$4,600.00 (6)
15	Temporary Cofferdam During Inverted Siphon & Outlet Structure Construction	L.S.	1	\$15,000.00	\$15,000.00
16	Rip-Rap at the Pipeline Outlet	C.Y.	10	\$100.00	\$1,000.00 (13)(14)
17	Road S-24 Pavement Sawcut and Replace	S.Y.	36	\$42.00	\$1,512.00 (3)(15)
Subtotal Construction Items =					\$754,675.44
25% Engineering Services and Conceptual Stage Contingency =					\$188,668.86
Total Construction Items =					\$943,344.31

Present Value Life Cycle Costs (50 year Life Cycle, yearly interest rate of 5%):					
18	Operation & Maintenance	EA.	1	\$19,168.72	\$19,168.72
19	Replacement Costs	EA.	1	\$29,530.28	\$29,530.28
Subtotal Lifecycle Items =					\$48,699.00
20% Conceptual Stage Contingency =					\$9,739.80
Total Lifecycle Items =					\$58,438.80

(* Approximate % of Construction Subtotal)

TOTAL = \$1,001,783.10

Notes:

- (1) Unit cost per ISCO Industries material quote (4-29-09) "2300 L.F. of 48" DR 32.5 HDPE IPS Pipe - \$80.37/ft – Delivered to Yuma AZ – Total - \$184,851.00; Yuma AZ Sales Tax** @ 5.6%** - \$10,351.66; Estimated total for pipe and tax - \$195,202.66" Assume 4-45" bends at Siphon - \$10,000/EA. Assumed 5% increase in price to 2010.
- (2) Unit cost per ISCO Industries material quote (4-29-09). "ISCO Technician - \$720/day; Per Diem - \$120/day; Tech Travel - \$1200/roundtrip; Machine - \$1400/day; Estimated Freight on Equipment - \$3400; Approx welds for 48" pipe per 8-10/hr day – 6 to 10 welds. Estimated average days to weld 5-8 days. ISCO technician will be responsible for welding HDPE only. Contractor will be responsible for the excavating, installation, etc." Installation of the pipe after welding is complete would be undertaken by an approximate B-35A crew (RSMEANS 2007 - \$4649.52/day).
- (3) Quantity assumes minimum cover of 3' over pipe, trench width of 8', bedding depth of 1'
- (4) Unit Cost per RSMEANS 2007-31 23 16.13 6250
- (5) Assume new intake hole will need to be cut in existing concrete wall, adjacent to Mittry Lake Intake, and 48" pipe will need to be installed and concreted into place. Assume 3 skilled workers at \$473.20/day (RSMEANS 2007) - 8 days, and \$3600 in misc equipment and materials (A site visit will be required to determine how to configure, design, and cost out the intake as part of Task 3 and 4).
- (6) Unit Cost per RSMEANS 2007-31 23 19.20 0650
- (7) Unit cost per Red Valve material quote (5-06-09) "48" is a series 52HRY Mega flex with a 16:1 gear opt and 50 psi working pressure. The cost is \$84,000.00" Assumed 5% increase in price to 2010. Assume additional fittings, concrete pad, install - \$11,800
- (8) Unit Cost per "Ft. Tuthill / Pullium / Ponderosa Trails Waterline Base Bid Schedule Compilation" 2-5-09
- (9) Assumed value. Flow measurement method/instrumentation to be determined. Coordinate efforts with USBR (check what flow measurement method is being used for the Mittry Lake Inlet Canal).
- (10) Quantity assumes saturated soil conditions below the Gila Wasteway Canal and no water in the ~250' long inverted siphon (typical during maintenance). See P:\2008\08181\XLS\TASK 2\BuoyancyCales08181.xls for buoyancy calculations.
- (11) Unit cost per average: \$1500/CY (DU#CA-390-5 Cunningham 2006); \$500/CY (SWI#04443 3'x6' Box Culvert); \$700/CY (SWI#07058 CTM Estimate); \$700/CY (COP#ST89310073-1 Concrete Class "S", f'c=4500 psi)
- (12) Quantity assumes USBR Type 2 103-D-1290 concrete transition
- (13) Quantity assumes rip-rap extends 2.5x the normal water depth (6) - per USBR "Design of Small Canal Structures", by 10.5' wide (Apron width), by 1.5' deep
- (14) Unit Cost per "McMillan Mesa Village" Bid Schedule 2007
- (15) Per 2007 City of Flagstaff Price List
- (16) (ESTIMATED) - Assume \$75/hr labor rate (once a year - 6 hrs per occurrence)
- (17) (ESTIMATED) - Assume \$75/hr labor rate (once a year - 8 hrs per occurrence)

LIFE CYCLE COSTS CALCULATIONS (PRESENT VALUE)

Yearly Interest Rate (APR) =	0.05	
Life Cycle =	50 Years	
Operation - Close Pinch Valve During Maintenance =	\$450	(16)
Operation - Re-calibrate Pinch Valve to obtain proper flowrate =	\$600	(17)
Replace - Pinch Valve @ 25 Years =	\$100,000	
TOTAL Yearly O & M Cost =	\$1,050	
Life Cycle O & M =	\$19,169	
TOTAL Replacement Costs @ 25 years =	\$100,000	
Life Cycle Replacement @ 25 years =	\$29,530	

LAGUNA RESTORATION

Water Control Structures

Conceptual Level Cost Estimate

ITEM NO.	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	COST	
1	Mobilization, SWPPP, & Construction Staking (*8%)	L.S.	1	\$45,000.00	\$45,000.00	
2	Construct and install Overshot Gate and Culvert	EA.	3	\$170,100.00	\$510,300.00	(13)
2A	Construct Cast-in-Place Box Culvert - 10' Span x 10' High x 40' Long	C.Y.	192	\$850.00	\$163,200.00	(2)(3)
2B	Construct Cast-in-Place Overshot Gate Bay - 10' Span x 10' High x 10' Long	C.Y.	24	\$850.00	\$20,400.00	(4)(3)
2C	Construct Cast-in-Place Inlet Wing-Walls - 10' High, 2:1 Fill Slopes	C.Y.	69	\$850.00	\$58,650.00	(5)(3)
2D	Construct Cast-in-Place Outlet Wing-Walls & Apron - 10' High, 2:1 Fill Slopes	C.Y.	93	\$850.00	\$79,050.00	(6)(3)
2E	Supply & Install 10' Wide x 8' High Overshot Gate and Appurtenances	EA.	3	\$63,000.00	\$189,000.00	(7)
3	Rip-Rap Inlet and Outlet	C.Y.	120	\$100.00	\$12,000.00	(8)
4	Maintenance Grating	L.F.	36	\$750.00	\$27,000.00	(9)
5	De-watering During Structure Construction	DAY	75	\$184.00	\$13,800.00	(10)
Subtotal Construction Items =					\$608,100.00	
25% Engineering Services and Conceptual Stage Contingency =					\$152,025.00	
Total Construction Items =					\$760,125.00	
Present Value Life Cycle Costs (50 year Life Cycle, yearly interest rate of 5%):						
6	Operation & Maintenance	EA.	3	\$68,460	\$205,379.16	(11)
7	Replacement Costs	EA.	3	\$295	\$885.91	(12)
Subtotal Lifecycle Items =					\$206,265.07	
20% Conceptual Stage Contingency =					\$41,253.01	
Total Lifecycle Items =					\$247,518.08	

(* Approximate % of Construction Subtotal)

TOTAL = \$1,007,643.08

Notes:

- (1) Cost includes 3 complete water control structures (1-from upper to middle unit, 1-from upper unit to old river channel, and 1-from middle to lower unit).
- (2) Quantities calculated using dimensions from ADOT "Structures Sections, Standard Drawings, 1992" Standard B-02.10, Table I.
- (3) Unit cost per average: \$1500/CY (Cunningham (2006); \$500/CY (SWI#04443 3'x6' Box Culvert); \$700/CY (SWI#07058 CTM Estimate); \$700/CY (COP#ST89310073-1 Concrete Class "S", Fc=4500 psi)
- (4) Quantities calculated using dimensions from ADOT "Structures Sections, Standard Drawings, 1992" Standard B-02.10, Table I (no top for the box culvert to approximate an overshot structure bay).
- (5) Quantities per ADOT "Structures Sections, Standard Drawings, 1992" Standard B-05.10
- (6) Quantities per ADOT "Structures Sections, Standard Drawings, 1992" Standard B-05.10 and B-06.20
- (7) Unit cost per Fresno Valves Cost Estimate (2006): 9.5Wx7H fabricated steel overshot gate including side seals, hinge sill, anchors, self contained hoist deck, including gear box, drums, cross shafts and stainless steel cables and manual hand crank. F.O.B Alturas,CA = \$43,803.00/EA. Purchase gas powered hoist actuator if possible (\$3500) and Aluminum rubbing plates (\$3500). Assume 10% increase in cost by summer 2010. Cunningham (2006) had install overshot gates @ 3500/EA. Assume increase in cost due to larger gate size.
- (8) Unit Cost per "McMillan Mesa Village" Bid Schedule 2007
- (9) Unit Cost per Cunningham (2006) had supply and install maintenance platforms at \$720/LF of 36" platform.
- (10) Unit Cost per RSMEANS 2007-31 23 19.20 0650
- (11) (ESTIMATED) - Assume \$75/hr labor rate - Adjust Overshot Gates twice a month based on seasonal habitat needs (2hrs per adjustment), grease hoist once a year (2 hours per)
- (12) (ESTIMATED) - Replace gaskets at 25 years - \$1000/Gasket/Overshot
- (13) Unit price is derived from the sum of items 2A-2E.

LIFE CYCLE COSTS CALCULATIONS (PRESENT VALUE)

Yearly Interest Rate (APR) =	0.05
Life Cycle =	50 Years
Operation - Adjust Overshot Gate Base on Seasonal Habitat Needs =	\$3,600
Maintenance - Grease Overshot Lifts=	\$150
Replace - Overshot Gaskets @ 25 Years =	\$1,000
TOTAL Yearly O & M Cost =	\$3,750
Life Cycle O & M =	\$68,460
TOTAL Replacement Costs @ 25 years =	\$1,000
Life Cycle Replacement @ 25 years =	\$295

LAGUNA RESTORATION
Mitry Lake Inlet Canal Feed Structure
Conceptual Level Cost Estimate

ITEM NO.	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	COST
1	Mobilization, SWPPP, & Construction Staking (*8%)	L.S.	1	\$6,000.00	\$6,000.00
2	Construct Cast-in-Place Box Culvert - 5' Span x 5' High x 40' Long	C.Y.	32	\$850.00	\$27,200.00 (1)
3	Construct Cast-in-Place Overshot Gate Bay - 5' Span x 5' High x 10' Long	C.Y.	4	\$850.00	\$3,400.00 (1)
4	Construct Cast-in-Place Inlet Wing-Walls - 5' High, 2:1 Fill Slopes	C.Y.	12	\$850.00	\$10,200.00 (1)
5	Construct Cast-in-Place Outlet Wing-Walls & Apron - 5' High, 2:1 Fill Slopes	C.Y.	16	\$850.00	\$13,600.00 (1)
6	Supply & Install 5' Wide x 4' High Overshot Gate and Appurtenances	E.A.	1	\$10,500.00	\$10,500.00 (13)
7	Rip-Rap Inlet and Outlet	C.Y.	20	\$100.00	\$2,000.00 (8)
8	Maintenance Grating	L.F.	6	\$750.00	\$4,500.00 (9)
9	De-watering During Structure Construction	DAY	15	\$184.00	\$2,760.00 (10)
Subtotal Construction Items =					\$80,160.00
25% Engineering Services and Conceptual Stage Contingency =					\$20,040.00
Total Construction Items =					\$100,200.00

Present Value Life Cycle Costs (50 year Life Cycle, yearly interest rate of 5%):					
10	Operation & Maintenance	E.A.	1	\$68,460	\$68,459.72 (11)
11	Replacement Costs	E.A.	1	\$295	\$295.30 (12)
Subtotal Lifecycle Items =					\$68,755.02
20% Conceptual Stage Contingency =					\$13,751.00
Total Lifecycle Items =					\$82,506.03

TOTAL = \$182,706.03

Notes:

- (1) Cost includes one complete water control structure from upper unit to the Mitry Lake Inlet Canal.
- (8) Unit Cost per "McMillan Mesa Village" Bid Schedule 2007
- (9) Unit Cost per Cunningham (2006) had supply and install maintenance platforms at \$720/LF of 36" platform.
- (10) Unit Cost per RSMEANS 2007-31 23 19.20 0650
- (11) (ESTIMATED) - Assume \$75/hr labor rate - Adjust Overshot Gates twice a month based on seasonal habitat needs (2hrs per adjustment), grease hoist once a year (2 hours per)
- (12) (ESTIMATED) - Replace gaskets at 25 years - \$1000/Gasket/Overshot
- (13) Estimated to be half of the cost of one of the larger gates.

LIFE CYCLE COSTS CALCULATIONS (PRESENT VALUE) - OVERSHOT

Yearly Interest Rate (APR) =	0.05
Life Cycle =	50 Years
Operation - Adjust Overshot Gate Base on Seasonal Habitat Needs =	\$3,600
Maintenance - Grease Overshot Lifts =	\$150
Replace - Overshot Gaskets @ 25 Years =	\$1,000
TOTAL Yearly O & M Cost =	\$3,750
Life Cycle O & M =	\$68,460
TOTAL Replacement Costs @ 25 years =	\$1,000
Life Cycle Replacement @ 25 years =	\$295

LAGUNA RESTORATION
Revegetation
Conceptual Level Cost Estimate

ITEM NO.	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	COST
Deep Marsh Revegetation (harvested and planted)					
1	Plugs, Harvested, 5' O.C. @ 1742 Plants/Acre	ACRE	164	\$3,338.50	\$547,514.00
Transitional Zone Revegetation (harvested and planted)					
2	Plugs, Harvested, 5' O.C. @ 1742 Plants/Acre	ACRE	170	\$3,338.50	\$567,545.00
3	Disking/Seeding, 20lbs/Acre, Various Understory	ACRE	170	\$170.00	\$28,900.00
Cottonwood /Willow Revegetation					
4	Liners, 5-12' O.C. @ 1742 Plants/Acre	ACRE	313	\$2,198.90	\$688,255.70
5	Plugs, Harvested, 5' O.C. @ 1742 Plants/Acre	ACRE	313	\$3,338.50	\$1,044,950.50
6	Disking/Seeding, 20lbs/Acre, Various Understory	ACRE	313	\$170.00	\$53,210.00
Mesquite No Irrigation					
7	Mesquite, 1 Gallon Deep Pots, 30' O.C. @ 50 Plants/Acre	ACRE	108	\$972.00	\$104,976.00
8	Plugs, Harvested, 5' O.C. @ 1742 Plants/Acre	ACRE	54	\$3,338.50	\$180,279.00
9	Disking/Seeding, 20lbs/Acre, Various Understory	ACRE	108	\$170.00	\$18,360.00
Mesquite, With Irrigation					
10	Mesquite, 1 Gallon Deep Pots, 30' O.C. @ 50 Plants/Acre	ACRE	184	\$1,972.00	\$362,848.00
11	Plugs, Harvested, 12' O.C. @ 302 Plants/Acre	ACRE	184	\$1,000.00	\$184,000.00
12	Disking/Seeding, 20lbs/Acre, Various Understory	ACRE	184	\$170.00	\$31,280.00
Subtotal Revegetation Items =					\$3,812,118.20

Present Value Life Cycle Costs (5 year Life Cycle, yearly interest rate of 5%):					
13	Operation & Maintenance	L.S.	1	\$2,595,608	\$2,595,607.85
Subtotal Lifecycle Items =					\$2,595,607.85

TOTAL = \$6,407,726.05

Notes:

- (1) Planting costs do not include site clearing or finish grading
- (2) Flood irrigation costs are for controlled ag fields not using channel structures
- (3) Flood irrigation occurs Once/ month Oct-March and Twice/month April-Sept
- (4) Weed maintenance will vary greatly depending on existing site conditions
- (5) Drip irrigation using pumps, poly tube and emitters
- (6) Marsh plants harvested within four miles of site
- (7) Gas is \$2.50/gallon
- (8) Honey mesquite per acre one gallon cost includes drip irrigation system but no pump
- (9) All plug/pole revegetation planted into water table
- (10) Operate pump and drip irrigation system, 184 acres, \$65.00/month/acre
- (11) Operate WCS and flood irrigation system, \$3,000/month
- (12) Intensive weed maintenance, 939 acres, ~\$37.00/month/acre

LIFE CYCLE COSTS (PRESENT VALUE)

Yearly Interest Rate (APR) =	0.05	
Life Cycle =	5 Years	
Operation - Drip Irrigation =	\$143,520	(10)
Operation - Flood Irrigate w/WCS =	\$36,000	(11)
Maintenance - Intensive Weed Maintenance =	\$420,000	(12)
TOTAL Yearly O & M Cost =	\$599,520	
Life Cycle O & M =	\$2,595,608	

Planting/Harvesting Numbers

Restoration Types	People	Plants Per Hour	Size Crew	Total Plants Per Hour	Total Plants Per 8 hr day
Marsh Revegetation					
Harvest					
Three Square 4" Plugs	1	30	6	180	1440
Bulrush/Cattail 4" Plugs	1	25	6	150	1200
Inland Salt Grass, 3" Plugs	1	35	6	210	1680
Plant					
Three Square 4" Plugs	1	30	6	180	1440
Bulrush/Cattail 4" Plugs	1	25	6	150	1200
Inland Salt Grass, 3" Plugs	1	35	6	210	1680
Cottonwood /Willow Revegetation					
Harvest					
Sandbar Willow, Poles, .25"-2" Dia. 10' Long	1	35	6	210	1680
Goodding's Willow, Poles, 7' Long, 2"+ Dia	1	15	6	90	720
Cottonwood, Poles, 7' Long, 2"+ Dia	1	15	6	90	720
Plant					
Sandbar Willow, Clusters, 3-6' Poles, 7' O.C.	3	20	6	40	320
Sandbar Willow, Vertical Bundles, 3-8' Poles, 10' O.C.	2	10	6	60	480
Sandbar Willow Liners, 5' O.C. (tractor planter)	1	537	10	5370	42960
Goodding's Willow, Poles, 7' Long, 12' O.C.	2	30	6	180	1440
Goodding's Willow, 1 Gallon, 12' O.C.	1	10	6	60	480
Goodding's Willow, Liners 5' O.C. (tractor planter)	1	537	10	5370	42960
Cottonwood, Poles, 7' Long, 12' O.C.	2	30	6	180	1440
Cottonwood, 1 Gallon, 12' O.C.	1	10	6	60	480
Cottonwood, Liners, 5' O.C. (tractor planter)	1	537	10	5370	42960
Mesquite/Uplands					
Planting					
Mesquite, 1 Gallon Deep Pots, 18' O.C.	1	10	6	60	480
Mesquite, Liners, 18' O.C. (tractor planter)	1	537	10	5370	42960

Assumptions

1. Harvest areas are accessible by road with dense mature stands of the described material
2. Vehicles can get within 20 yards harvest areas
3. Planting areas are ready for planting (graded, cleared, irrigation installed)

Marsh Plantings, Per Acre, 1742 Plugs/Acre

Item	Item/Hours	Rate	Total
Construction Crews			
Construction manager/Foreman	0.5	\$ 75.00	\$ 37.50
Crew Leader	24	\$ 40.00	\$ 960.00
Laborer	24	\$ 15.00	\$ 360.00
Laborer	24	\$ 15.00	\$ 360.00
Laborer	24	\$ 15.00	\$ 360.00
Laborer	24	\$ 15.00	\$ 360.00
Laborer	24	\$ 15.00	\$ 360.00
Mileage	100	\$ 0.51	\$ 51.00
Equipment			
Misc (Hog wire, twine, field equip)	Lump	\$ 50.00	\$ 50.00
ATV/Trailer	1	\$ 60.00	\$ 60.00
Riparian Seed Mix and plants (lbs)	1	\$ 170.00	\$ 170.00
2 Trucks and trailer(4x4 large bed and trailer) 5wks \$300/week	2	\$ 80.00	\$ 160.00
Project Admin and Coordination	0.5	\$ 100.00	\$ 50.00
Total Harvesting/Planting Cost Per acre			\$ 3,338.50

Goodding Willow Liners, Per Acre, 1742 Plants/Acre

Item	Item/Hours	Rate	Total
Construction Crews			
Construction manager/Foreman	0.5	\$ 75.00	\$ 37.50
Crew Leader	2	\$ 15.00	\$ 30.00
Laborer	2	\$ 15.00	\$ 30.00
Laborer	2	\$ 15.00	\$ 30.00
Laborer	2	\$ 15.00	\$ 30.00
Laborer	2	\$ 15.00	\$ 30.00
Laborer	2	\$ 15.00	\$ 30.00
Laborer	2	\$ 15.00	\$ 30.00
Laborer	2	\$ 15.00	\$ 30.00
Laborer	2	\$ 15.00	\$ 30.00
Laborer	2	\$ 15.00	\$ 30.00
Laborer	2	\$ 15.00	\$ 30.00
Mileage	40	\$ 0.51	\$ 20.40
Equipment/Plants			
Liners Delivered	1742	\$ 0.50	\$ 871.00
Misc (Hog wire, twine, field equip)	Lump	\$ 50.00	\$ 50.00
Riparian Seed Mix and plants (lbs)	1	\$ 170.00	\$ 170.00
Tractor and Planter 1 day	1	\$ 700.00	\$ 700.00
Project Admin and Coordination			
	0.5	\$ 100.00	\$ 50.00
Total Harvesting/Planting Cost Per acre			\$ 2,198.90

Planting Liners include 4 people planting on tractor, 4 on ground finishing, 1 tractor driver
 One day= 20 acres planted with 34,000 trees

Mesquite Drip, 1 Gallon 50 Plants/Acre

Item	Item/Hours	Rate	Total
Construction Crews			
Construction manager/Foreman	0.5	\$ 75.00	\$ 37.50
Crew Leader	4	\$ 40.00	\$ 160.00
Laborer	4	\$ 15.00	\$ 60.00
Laborer	4	\$ 15.00	\$ 60.00
Laborer	4	\$ 15.00	\$ 60.00
Laborer	4	\$ 15.00	\$ 60.00
Laborer	4	\$ 15.00	\$ 60.00
Mileage	20	\$ 0.51	\$ 10.20
Equipment/Plants			
1 Gallon delivered	50	\$ 2.50	\$ 125.00
Tubex	50	\$ 1.40	\$ 70.00
Irrigation system (no pump)	1	\$ 500.00	\$ 500.00
Misc (Hog wire, twine, field equip)	Lump	\$ 50.00	\$ 50.00
Riparian Seed Mix and plants (lbs)	1	\$ 170.00	\$ 170.00
Tractor and Planter 1 day	1	\$ 500.00	\$ 500.00
Project Admin and Coordination	0.5	\$ 100.00	\$ 50.00
Total Harvesting/Planting Cost Per acre			\$ 1,972.70

Mesquite No irrigation, 1 Gallon 50 Plants/Acre

Item	Item/Hours	Rate	Total
Construction Crews			
Construction manager/Foreman	0.5	\$ 75.00	\$ 37.50
Crew Leader	4	\$ 40.00	\$ 160.00
Laborer	4	\$ 15.00	\$ 60.00
Laborer	4	\$ 15.00	\$ 60.00
Laborer	4	\$ 15.00	\$ 60.00
Laborer	4	\$ 15.00	\$ 60.00
Laborer	4	\$ 15.00	\$ 60.00
Mileage	20	\$ 0.51	\$ 10.20
Equipment/Plants			
1 Gallon delivered	50	\$ 2.50	\$ 125.00
Tubex	50	\$ 1.40	\$ 70.00
Misc (Hog wire, twine, field equip)	Lump	\$ 50.00	\$ 50.00
Riparian Seed Mix and plants (lbs)	1	\$ 170.00	\$ 170.00
Project Admin and Coordination			
	0.5	\$ 100.00	\$ 50.00
Total Harvesting/Planting Cost Per acre			\$ 972.70