Part 606 – Exhibits

Subpart B – Development of Watershed Project Plans

606.21 Summary and Comparison of Alternative Plans

	Item or Concern	Alternative 1 (Future Without Project)	Alternative 2 (NED) (Recommended)*	Alternative 3	Alternative 4	Alternative 5
	Measures to address: - Flooding - Recreation - Rural water supply (RWS)	- Continued periodic flood damage recovery actions including: - sediment and debris removal - stream channel stabilization. - structure repair - Residence will continue to travel outside the county for recreation. - Drill 68 new water wells.	- Relocation of 23 structures. - Acquisition and restoration of 268 acres of floodplain easements. - Development of 3.0 miles of stream. - Construction of 16 miles of water supply pipeline.	Relocation of 9 structures. Flood proofing of 14 structures Development of 1.8 miles of stream. Construction of 16 miles of water supply pipeline.	Construct 1 multipurpose flood, recreation & RWS structure Conservation plans on ≥27,840 watershed acres.	Construct 1 multipurpose flood, recreation, & RWS structure Conservation plans on ≥27,840 watershed acres. Construct 4 grade stabilization structures Apply land treatment on 1,900 acres.
Installation Cost	NRCS Contribution - SLO Contribution - Total	$0 $0 $0	$2,702,000 $1,547,392 $42,493,92	$760,000 $1,187,392 $1,947,392	$7,320,000 $4,110,000 $11,430,000	$8,060,000 $4,330,000 $12,390,000
NED Account	Avg. Annual Cost Installation O, M, & R Total	$0 $0 $0	$198,695 $150,000 $348,695	$91,057 $7,000 $98,057	$534,450 $360,000 $894,450	$579,338 $370,000 $949,338
	Annual Benefits	-----	$700,000	$5,400	$1,207,000	$1,213,000
5.	Annual Costs	-----	$351,305	$98,057	$894,450	$949,338
	Annual Net Benefits	-----	$351,305	-$(92,657)	$312,550	$263,662
	Annual Remaining	$644,000$	$216,000	$447,000	$354,000	$354,000

	Flood Damage					
Environmental Quality (EQ) Account	Soil Erosion - Upland	Surface and rill erosion > "T" on 22,570 ac.	Surface and rill erosion > "T" on 22,570 ac.	Surface and rill erosion > "T" on 22,570 ac.	Reduced surface and rill erosion ≤ "T" on 29,031 acres	Reduced surface and rill erosion ≤ "T" on 31,466 acres
	- Stream bank	Stream bank scour and mast wasting (15,000 tons/yr.)	Stabilized stream bank reduced erosion rate to (4,200 tons/yr)	Stabilized stream bank reduced erosion rate (9,500 tons/yr)	Stabilized erosion on 0.5 miles of stream bank (3,600 tons/yr)	Stabilized erosion on 1.8 miles of stream bank (2,200 tons/yr)
	Sedimentation	Sediment aggradation in stream channel (12,000 cy/yr.)	Sediment aggradation in stream channel (0 cy/yr.)	Sediment aggradation in stream channel (0 cy/yr.)	Sediment aggradation in stream channel (0 cy/yr.)	Sediment aggradation in stream channel (0 cy/yr.)
	Prime Farmland	Loss of 12 ac/yr from stream bank erosion	Loss of 0 ac/yr from stream bank erosion	Loss of 0 ac/yr from stream bank erosion	Loss of 42 acres in footprint of structure/ gain of 66 acres downstream (net +22 acres)	Loss of 42 acres in footprint of structure/ gain of 66 acres downstream (net +22 acres)
	Water Potable water supply forecast	25 years	100+ years	100+ years	100+ years	100+ years
	Surface- Quality	3 miles of stream 303d listed for temp.	0 miles of stream 303d listed for temp	1.2 miles of stream 303d listed for temp	0 miles of stream 303d listed for temp	0 miles of stream 303d listed for temp
	Surface- Quantity	No Change	+200 ac/ft	+25 ac/ft	+296 ac/ft	+296 ac/ft
	Ground water- Quantity	-1.2 million ac/ft/yr	+2,800 ac/ft/yr	No effect	+1,300 ac/ft/yr	+1,700 ac/ft/yr
	Waters of US	Dredge 4.4 miles/yr	Improve 5.2 miles of stream	Improve 2.8 miles of stream	Convert .6 miles of perennial stream to Dam, spillway, and lake	Convert .6 miles of perennial stream to Dam, spillway, and lake
	Floodplain Mgt.	No Change Degrade 22 ac/yr	Restore function to 268 No structures impacting floodplain	Restore function to 48 acres (14 flood proofed structures within 100 yr floodplain)	Reduce extent of 100 yr floodplain (10 structures remain in floodplain)	Reduce extent of 100 yr floodplain (10 structures remain in floodplain)

	Wetlands	of Palustrine wetland, by debris removal activities	Restore 94 acres Palustrine wetland	Restore 47 acres Palustrine wetland	Convert 19 acres of Palustrine wetland to Dam, spillway, and lake/ create 9.2 acres Lacustrine wetland	Convert 19 acres of Palustrine wetland to Dam, spillway, and lake/ create 9.2 acres Lacustrine wetland
	AIR	N/A	N/A	N/A	Increase in PM-10 emissions during construction period	Increase in PM-10 emissions during construction period
11.	Plants Invasive Species	Increase of 3 ac/yr encroachment of Reed Canary grass	Decrease of 42 acres in areal extent of Reed Canary grass	Decrease of 33 acres in areal extent of Reed Canary grass	Decrease of 61 acres in areal extent of Reed Canary grass	Decrease of 84 acres in areal extent of Reed Canary grass
	Riparian Areas	Degrade 27 ac/yr by debris removal activities	Restore 268 acres	10 ac/yr degraded via debris removal activities	Convert 36 acres riparian area to Dam, spillway, and lake	Convert 36 acres riparian area to Dam, spillway, and lake and 7 acres lost from grade stabilization structure construction
12.	Animals Fish Habitat	No change	3.0 miles stream fishery improved	1.8 miles stream fishery improved	.6 miles stream fishery destroyed 35 acres warm water fishery created	.6 miles stream fishery destroyed 35 acres warm water fishery created
	Wildlife Habitat	WHEG score = 0.3	WHEG score = 0.9	WHEG score = 0.7	WHEG score = 05	WHEG score = 0.6
	E&T Species	Potential to annually adversely affect 27 acres of Wilson's warbler habitat	No effect- actions implemented outside of April 1 to July 15 nesting season	No effect- actions implemented outside of April 1 to July 15 nesting season	No effect- actions implemented outside of April 1 to July 15 nesting season	No effect- actions implemented outside of April 1 to July 15 nesting season

13.

	Flood Damages	Flood damage occurs on 2,540 acres impacting 23 structures at a cost of $644,000/ yr.	Reduce flood damages by 66% on 2,540 ac and structural damages to zero	Reduce flood damages by 30% on 2,540 ac. and structural damages to zero	Reduce flood damages by 45% on 2,540 ac. and structural damages to zero	Reduce flood damages by 45% on 2,540 ac. and structural damages to zero
14.	Historic, Cultural, and Scientific Resources	2 NRHP sites jeopardized	2 NRHP sites protected	2 NRHP sites protected	2 NRHP sites protected	2 NRHP sites protected
15.	Potable Water Supply	Approximately 1,200 homes without adequate potable water supply	Adequate water supply to 1200 existing homes and sufficient for projected future domestic and industrial needs	Adequate water supply to 1200 existing homes and sufficient for projected future domestic and industrial needs	Adequate water supply to 1200 existing homes	Adequate water supply to 1200 existing homes
16.	Public Health and Safety	Risk to loss of life, property, and infrastructure damage w/ 25 yr storm.	Risk to loss of life, property, and infrastructure damage protected ≥100 yr storm.	Risk to loss of life, property, and infrastructure damage protected ≥100 yr storm.	Risk to loss of life, property, and infrastructure damage protected ≥100 yr storm.	Risk to loss of life, property, and infrastructure damage protected ≥100 yr storm.
	Recreation	There is an unmet need of 750,000 annual water based recreational days in the watershed	332,400 opportunities for water based recreation are provided annually	287,500 opportunities for water based recreation are provided annually	398,800 opportunities for water based recreation are provided annually	398,800 opportunities for water based recreation are provided annually
Other Social Effects (OSE) Account	Visual Resource	Visual richness impaired due to sediment and debris in stream, as well as destruction from food events	Visual richness enhanced by restoration of floodplain and stream, No impact to scenic vista	Visual richness enhanced by restoration of stream, No impact to scenic vista	Visual richness enhanced by permanent water bodies as unique features in this landscape and slight impairment to scenic 1,353 ac. vista	Visual richness enhanced by permanent water bodies as unique features in this landscape and slight impairment to scenic 1,353 ac. vista
	Tribal, religious, sacred, or cultural site	Tribal cultural use of fishery continues to be impacted by sediments in stream	Tribal cultural use of fishery enhanced by 3.0 miles of stream fishery improvement	Tribal cultural use of fishery enhanced by 1.8 miles of stream fishery improvement	Tribal cultural use of fishery adversely affected by .6 miles of stream fishery destroyed	Tribal cultural use of fishery adversely affected by .6 miles of stream fishery destroyed
Regional Economic Develop-ment (RED)	Local jobs during construction		36	13	114	124

Account						
	Annual jobs from recreation		36	36	36	36
	Beneficial effect Annualized					
	Region	---	$499,013	($66,421)	$3,529,660	$3,481,794
	Rest of Nation	---	0	0	0	0
	Adverse effect Annualized					
	Region	---	$108,852	($17,314)	$167,822	$167,536
	Rest of Nation	---	($327,328)	($107,358)	$1,980,388	$1,891,921

28. **Notes**: In this example:

Interest rates – All alternatives evaluated at 5 5/8 percent discount rate
Period of analysis – All plans evaluated over 100 years
Price levels – Current 2005 price levels except current normalized (Oct. 2005, WRC) used for crop and pasture