

Appendix 4.1
Project Stabilization Estimate

Description	QTY	UNIT	\$/Unit	OMAG	CAPEX	REMOVAL	ARO	Note
Initial Response								
Response/Site Assessment/Analysis	1	ls	\$ 50,000	\$ 50,000				
			Total	\$ 50,000				
Seal Head Gate								
Plug head gate with oakum	1	ls	\$ 10,000	\$ 10,000				
			Total	\$ 10,000				
Fish Passage								
Repair fish attraction pump & piping				\$ 10,000				
			Contingency (25%)	\$ 2,500				
			Engineering/Project Management/Internal Labor (10%)	\$ 1,000				
			Permitting (5%)	\$ 500				
			Total	\$ 14,000				
Powerhouse Stabilization								
Dewatering and site drainage restoration	1	ls	\$ 30,000	\$ 30,000				
Substation environmental assessment	1	ls	\$ 25,000	\$ 25,000				
			Subtotal	\$ 55,000				
			Contingency (25%)	\$ 13,750				
			Permitting	\$ 3,000				
			Total	\$ 71,750				
Public Access Restoration								
Fabricate and install stairway	1	ls	\$ 30,000		\$ 30,000			
Miscellaneous catwalk modifications	1	ls	\$ 20,000		\$ 20,000			
Establish flowline detour trail	1	ls	\$ 10,000		\$ 10,000			
			Subtotal		\$ 60,000			
			Contingency (25%)		\$ 15,000			
			Engineering/Project Management/Internal Labor (10%)		\$ 6,000			
			Permitting (5%)		\$ 3,000			
			Subtotal		\$ 84,000			
			AFUDC (8.3%)		\$ 6,972			
			CAP SURCHARGE (5.9%)		\$ 4,956			
			Total		\$ 95,928			
Collapsed Steel Flowline Removal								
Mobilization	1	ls	\$ 35,000			\$35,000		See Note 2
Site access	1	ls	\$ 40,000			\$40,000		See Note 3
Maneuver pipe sections to shore	1	ls	\$ 60,000			\$60,000		
Demo and remove steel pipe	170	ft	\$ 240			\$40,800		See Note 1
Remove conc. saddles	6	ea	\$ 300			\$1,800		See Note 1
Install security bulkhead	4	ea	\$ 10,000			\$40,000		
Remove damaged seawall section	1	ls	\$ 20,000			\$20,000		See Note 4
			Subtotal			\$237,600		
			Contingency (25%)			\$59,400		
			Engineering/Project Management/Internal Labor (10%)			\$23,760		
			Permitting (5%)			\$11,880		
			Subtotal			\$332,640		
			AFUDC (8.3%)			\$27,609		
			Total			\$360,249		

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Wood Stave Flowline Removal								
Mobilization	1	ls	\$ 20,000				\$ 20,000	See Note 2
Wood stave pipe (remove)	500	lf	\$ 100				\$ 50,000	See Note 1
Surface restoration	1	ls	\$ 30,000				\$ 30,000	
Install security bulkhead	2	ea	\$ 10,000				\$ 20,000	
			Total				\$ 120,000	
				OMAG	CAPEX	REMOVAL	ARO	TOTAL
TOTAL PROJECT COST				\$ 145,750	\$ 95,928	\$ 360,249	\$ 120,000	\$ 721,927

Note 1: Engineer's and contractor estimate developed prior to SA x 1.5 for reduced economy of scale

Note 2: Mobilization = 20% of total

Note 3: Cut through existing pipe and grade trail to river bank

Note 4: In water work

ARO: Asset Retirement Obligation

Appendix 4.2
Project Reconstruction Estimate

Description	QTY	UNIT	\$/Unit	OMAG	CAPEX	REMOVAL	ARO	Note
Flowline Repair/Replacement								
Repair/Replace Wood Stave Flowline	370	ft	\$ 1,500		\$ 555,000			See Note 1
Miscellaneous wood stave liner/repair	300	ea	\$ 333		\$ 99,900			
Steel flowline mobilization	1	ls	\$ 30,000		\$ 50,000			
Remove and scrap slid flowline section	155	lf	\$ 600		\$ 93,000			
Construct 200' cofferdam and fill eroded foundation area	1,519	cy	\$ 20		\$ 30,370			See Note 2
Dewatering	1	ls	\$ 250,000		\$ 250,000			
Form and pour new collapsed flowline foundations	1	ls	\$ 300,000		\$ 300,000			
Repair upper portion of slid pipe foundations	6	ea	\$ 20,000		\$ 120,000			
New steel flowline (material only)	325	lf	\$ 800		\$ 260,000			
Steel flowline installation	325	lf	\$ 1,000		\$ 325,000			
Remove cofferdam	1333	cy	\$ 10		\$ 13,333			
Contingency (25%)					\$ 524,151			
					Subtotal			
					\$ 2,620,755			
					Engineering/Project Management/Internal Labor/Permitting (25%)			
					\$ 655,189			
					Subtotal			
					\$ 3,275,943			
					AFUDC (8.3%)			
					\$ 271,903			
					CAP SURCHARGE (5.9%)			
					\$ 193,281			
					Loaded Project Total			
					\$ 3,741,127			
Powerhouse Dredging								
Dredge tailrace and connect to new river channel	2,000	CY	\$ 10	\$ 20,000				
				Subtotal				
					\$ 20,000			
Project Stabilization Total								
					\$ 145,750	\$ 95,928	\$ 360,249	\$ 120,000
					OMAG	CAPEX	REMOVAL	ARO
					TOTAL PROJECT COST	\$ 165,750	\$ 3,837,055	\$ 360,249
						\$ 120,000	\$ 4,483,054	

Note 1: Assume new material on existing foundations
 Note 2: Cofferdam required for foundation excavation and placement
 ARO: Asset Retirement Obligation

**Appendix 4.3
Powerdale Decommission Plan**

Item	QTY	UNIT	\$/Unit	OMAG	CAPEX	REMOVAL	ARO	Note
Project Decomission								
Survey	1	LS	\$ 35,000				\$ 35,000	
River Diversion	1	LS	\$ 470,030				\$ 470,030	
River Bypass	1	LS	\$ 380,830				\$ 380,830	
Sediment and Erosion Control	1	LS	\$ 177,909				\$ 177,909	
Dam	1	LS	\$ 1,513,628				\$ 1,513,628	
Intake	1	LS	\$ 446,625				\$ 446,625	
Misc. Structures	1	LS	\$ 35,032				\$ 35,032	
Canal	1	LS	\$ 42,082				\$ 42,082	
Metal Flume	1	LS	\$ 163,793				\$ 163,793	
Sand Settling Basin	1	LS	\$ 319,538				\$ 319,538	
Transition Structure	1	LS	\$ 69,842				\$ 69,842	
Flowline	1	LS	\$ 694,340				\$ 694,340	
Surge Tank	1	LS	\$ 172,555				\$ 172,555	
Powerhouse	1	LS	\$ 891,489				\$ 891,489	
Substation	1	LS	\$ 90,766				\$ 90,766	
Restoration	1	LS	\$ 66,252				\$ 66,252	
Project Decomission Total							\$ 5,534,709	

Project Stabilization				\$ 145,750	\$ 95,928	\$ 360,249	\$ 120,000	
TOTAL PROJECT COST				\$ 145,750	\$ 95,928	\$ 360,249	\$ 5,654,709	\$ 6,256,636

ARO: Asset Retirement Obligation