Attachment 4

Eagle Canyon Fish Passage Improvements; Alternative Class 4 Estimate Narrative **(SRD, 2016b)**

(Page intentionally left blank)

1 Early Contractor Involvement (ECI) Request

As requested by Michael Love & Associates, SR Diversified is responding to a request to provide additional Early Contractor Involvement (ECI) support for the removal of two fish passage barriers on North Battle Creek, upstream and downstream of PG&E Eagle Canyon Diversion Dam near Manton, California. As with the engineer's memorandums, the two locations will be described as Upper Barrier and Lower Barrier. This additional support is to develop three alternative Class 4 estimates as part of Phase 1.

This narrative can be supplemented further by the previously prepared "Alternative Analysis Constructability Review Memorandum, Rev 3" as prepared by Chris Cornell. As identified in the previously prepared alternative analysis memorandum, the three options to achieve access to support removal of the fish passage barriers are; (1) helicopter, (2) large crane, and (3) yarder. Per Michael Love & Associates' request, we have developed **Class 4** estimates based on boulder information provided by Michael Love & Associates, as well as our experience previously working in North Battle Creek/Eagle Canyon. For an overview and understanding of the various AACE estimate classifications, please see the table below.

	Primary	***Secondary Characteristic***		
ESTIMATE CLASS	**MATURITY LEVEL OF PROJECT DEFINITION DELIVERABLES** Expressed as % of	**END USAGE** Typical purpose of estimate	**METHODOLOGY** Typical estimating method	**EXPECTED ACCURACY RANGE** Typical variation in low and high ranges
Class 5	0% to 2%	Concept screening	Capacity factored, parametric models, judgment, or analogy	L: -20% to -50% H: +30% to +100%
Class 4	1% to 15%	Study or feasibility	Equipment factored or parametric models	L: -15% to -30% H: +20% to 50%
Class 3	10% to 40%	Budget authorization or control	Semi-detailed unit costs with assembly level line items	L: -10% to -20% H: +10% to 30%
Class 2	30% to 75%	Control or bid/tender	Detailed unit cost with forced detailed take-off	L: -5% to -15% H: +5% to +20%
Class 1	65% to 100%	Check estimate or bid/tender	Detailed unit cost with detailed take-off	L: -3% to -10% H: +3% to +15%

1.1 Generic Cost Information/Estimate Approach

Rather than adding random costs for consumables, we have used 5% of the labor direct costs for this calculation under Construction Materials M&S. These costs cover a variety of miscellaneous supplies and consumables, such as personal protective equipment, cleaning supplies, safety supplies, power tools, hand tools, cutting wheels, etc.

Each scenario was estimated as a stand-alone project, which included site-specific mobilization/demobilization costs as well as work activity descriptions particular to each location.

Important to note, we have included a separate cost item to install cofferdams and provide stream flow bypasses at each site. This item would need to be an add-on cost to all three of the options estimated, if required.

All scenarios include Stormwater Pollution Prevent Program (SWPPP) and water quality type Best Management Practice (BMP) installations, as well as some clearing and grubbing, where required. We have included costs in our estimates to hydroseed areas of ground disturbance for erosion control and environmental restoration. The cost per acre was developed using subcontractor quotes based on setting up their equipment a maximum distance of 500 feet from the area of application.

Each scenario assumes a light rock scaling of the hillsides above the barriers for rock fall mitigation, as required to provide worker safety. We have also included $7,500 for Geologist recommendation/inspection time as part of the rock fall mitigation effort.

All scenarios assume the use of hand-held rock drills to line drill holes approximately one-foot apart and mechanically split the larger boulders into approximately 1.5 cubic yard boulders weighing approximately 7,000 pounds or less. This size was chosen based on the table of boulder information provided by Michael Love & Associates. The table shows a 1.5 cubic yard boulder should weigh on the order of 3.3 to 3.4 tons, or 6,600 to 6,800 pounds. Although the helicopter, large crane, and yarder used in our estimates are sized to lift 8,000 pounds, it is prudent to have some factor of safety. Based on the dimensions of the boulders provided, along with the 1.5 cubic yard target size and line drilling approximately one-foot apart, a quantity of drilled-feet was estimated for each boulder. It should be noted that some of the boulders included for removal are already smaller than 1.5 cubic yards and/or 7,000 pounds. It was assumed these smaller boulders would not need to be drilled and split into smaller sizes.

All scenarios assume some survey work is required; not only for construction layout and boulder identification, but also for recording as-built conditions after the work is complete.

For boulder off-haul trucking, all scenarios assume a one-hour round trip cycle time. In our experience we have found that rock boulders can have some value, particularly to plants that can process boulders into aggregates. Therefore, we have not included any disposal fees.

Permit conditions can have significant cost impacts depending on resource agency perceptions and objectives. We have included costs for water quality testing, however, additional cost impacts could arise based on permit conditions.

1.2 Indirect Cost Estimate Details and Assumptions

For this Class 4 estimate, indirect costs have been factored in using a 20% mark up on the direct costs. A considerable amount of the “Indirect Costs” includes fuel, as well as Contractor Project Management. Fuel is one of the highest contributors that does not appear as a line item on the direct cost spreadsheets.

Besides Contractor Project Management and fuel, the indirect costs typically include the following items:

- Pre-Mobilization/Demobilization Preparation and Procurement activities at the Contractor's Headquarters
- Miscellaneous freight
- Overtime premium
- Travel and subsistence for staff and crew
- Office trailers, office supplies, and generator rentals
- Cargo van storage containers
- Cell phones and satellite communications
- Laydown area general dumpster rentals/fees
- Portable toilets and wash stations
- Contractor quality control management
- Escalation
- Main office overheads

1.3 Estimated Cost Summary Table

Below is a summary table of the estimated costs based on the available information. As mentioned above, we have included a separate cost item to install cofferdams and provide stream flow bypasses (one at the Lower Barrier and one at the Upper Barrier). This cost item would need to be an add-on cost to all three of the options estimated, if required. The details of the estimated costs in the table are included in ***Appendix A.***

COST ITEM	DESCRIPTION	SRD ITEM COSTS WITH MARKUPS FROM GREEN SHEETS	SRD ITEM COSTS WITH 20% INDIRECTS & OVERHEADS
1	Remove Boulders via Helicopter and Rock Splitting	**1,999,723**	**2,399,668**
2	Remove Boulders via Cranes and Rock Splitting	**2,062,947**	**2,475,537**
3	Remove Boulders via Yarder and Rock Splitting	**1,859,500**	**2,231,400**
4	Add-on for Cofferdams and Streamflow Bypasses	**780,903**	**937,083**

Note, the SR Diversified estimated costs do not include contingency. The range of accuracy for a Class 4 AACE estimate is -30% to +50%. Although not included in our estimated costs, at this phase we recommend a minimum of 25% contingency added to our estimates. However, Michael Love & Associates and/or California Department of Fish and Wildlife (CDFW) may want to apply a different amount.

1.4 Scenario Scope of Work Descriptions and Assumptions

Below are summaries of the option-specific scope of work assumptions included in the estimated costs for the various scenarios. To minimize redundancy, we will not repetitively describe generic cost information and assumptions described above in ***Section 1.1 Generic Cost Information/Estimate Approach.***

Option 1 – Remove Boulders via Helicopter

The advantage of the helicopter option is that there is some flexibility as to where to stage a landing zone (LZ). Another advantage is that vegetation impact and removal should be fairly limited to the local Lower Barrier and Upper Barrier removal sites. This option has the least amount of ground disturbing activities, and as such, requires the least amount of erosion control BMP's (silt fence, wattles, etc.) and exclusionary fencing.

For this option we included placing aggregate base rock on the dirt road from the staging area south of the creek to the paved road (Long Road) to the south. This was assumed to not only provide winter access during the clearing and grubbing activities, but also help with dust control during the summer.

Option 2 – Remove Boulders via Large Crane

For the Lower Barrier, we included the cost for using a Manitowoc 300-ton lattice boom rough terrain crane operating from a crane pad located on the south side of the rim. Our previous Eagle Canyon Diversion Fish Ladder and Fish Screen project was successfully performed and supported with this same crane setup.

It was assumed the horizontal distances from top of rim to the Upper Barrier site are too great, even for a large crane. For the Upper Barrier, we included the additional costs of clearing and grubbing, excavation, and restoration of a temporary access road from the north side of the rim to a crane pad adjacent to the Upper Barrier site that would accommodate a 100-ton rough terrain crane with a 100-foot working radius. These additional costs to accommodate the smaller crane are significant and substantially contributed to this option being highest estimated cost. ***However, if a crane pad could be established on the north rim to within a 275-foot radius, where the Manitowoc 300-ton crane could service the Upper Barrier, we believe this option could decrease by approximately $100,000 and compete better with the yarder and helicopter options***.

Based on the assumptions used, we have included placing aggregate base rock on the dirt road from Long Road to the staging area south of the creek to service the Lower Barrier; as well as placing base rock on the dirt road and new temporary crane access road on the north side of the creek to Battle Creek Bottom Road (to the north) to service the Upper Barrier.

Because this option includes the most ground disturbing activities, it also involves the most erosion control BMP's and exclusionary fencing. Based on permit conditions from previous projects in the area, vegetation removal was only allowed from early September through the end of January. This required two mobilizations, with the first for vegetation and tree removal, and the second for beginning work in late spring/early summer, after spring runoff flows subsided sufficiently to maintain water control and perform the work in the creek. As such, rather than mobilizing and

setting up the cranes for vegetation removal within the Lower Barrier and Upper Barrier sites, we have included costs using a smaller helicopter (Bell 407) with a rated sling load of 2,500 pounds at sea level.

Option 3 – Remove Boulders via Yarder

For this option, we assumed a little more time would be required to remove trees from the Barrier sites along the hillsides to where the yarder would be set up. We also assumed there would be less erosion control BMP's required than the large crane option, but more than the helicopter option.

We have included two mobilizations for the yarder. The first for vegetation and tree removal, and the second for the actual fish passage improvements. If a smaller helicopter were to be used for vegetation and tree removal, the costs for this option would increase.

Also included in this option is the installation of rock anchors in support of the yarder operations. We have assumed three anchors on the yarder side of the canyon for yarder stability, and two anchors on the opposite side of the canyon for anchoring the skyline, for a total of 5 anchors at each barrier site. One disadvantage of using the yarder is its limited ability to work laterally once the yarder alignment is established and anchored. Additional anchors on the canyon rims, or supplemental winch type equipment, may be required to support working more laterally at the barrier sites with the yarder.

Although this option appears to be the most cost effective, the costs for this option are more likely to increase than decrease. As we developed the cost estimates for each of the three options, it became apparent the amount of time required to drill and split the boulders was much longer than the time required to actually remove the boulders from the creek. As such, equipment standby needed to be considered for both the crane and yarder options. In discussing a standby rate with Robinson Enterprises, a company that owns several yarders, they explained the equipment generates a significant amount of logging revenue for them during a good portion of the year. Because this is a Class 4 estimate, we quickly settled on a standby rate of 50% of the operated rate; however, due to the significant amount of standby time required, we could see this standby rate increasing.

Cost Item 4 – Add-on for Cofferdams and Stream Flow Bypasses

As previously mentioned, we have included this separate cost item to install cofferdams and provide stream flow bypasses at each site. This item would need to be an add-on cost to all three of the options estimated, if required.

We previously installed cofferdams and stream flow bypasses for the North Battle Creek Feeder Diversion and Eagle Canyon Diversion Fish Ladders and Fish Screen project. For this Class 4 estimate, rather than detail estimated costs, we assumed the cost to install, maintain, and remove the cofferdams and stream flow bypasses for this Eagle Canyon Fish Passage Improvements project would be similar in magnitude to the previous projects.

Exclusions

As we developed the estimated costs, we attempted to track items or exclusions that were not included. The major items are shown below.

- Contingency
- Design engineering (we have included minimal general construction engineering)
- SWPPP Plan development by a Qualified SWPPP Developer (QSD) and inspections by a Qualified SWPPP Practitioner (QSP).
- Additional dust control beyond placing base rock on the dirt roads (i.e. water truck)
- Roadway bridge Improvements for mobilization of large cranes/loads, if required
- Security
- Traffic control
- Permit fees
- Rental or purchase of lands for construction use
- Fish rescues by qualified biologists
- Removal or management of any hazardous wastes
- Restoration of riparian areas with special plantings

Summary

As shown in ***Section 1.3 Estimated Cost Summary Table*** above, the yarder option appears to be the least expensive. However, as previously mentioned, this option has the most potential to increase in cost due to the likelihood of the standby rate used for the yarder to escalate, and the disadvantage of limited lateral movement. When adding the cofferdams and stream flow bypasses to each of the three options, the variances in estimated costs between any two options is less than 8%. With this in mind, and understanding these are Class 4 estimates, at this time it is difficult to completely rule out any one option.

The table below summarizes the advantages and disadvantages of each option.

Option	Advantages	Disadvantages	Other
Helicopter	• Limited vegetation removal and ground disturbing activities	• More expensive than yarder option	• Could be most expensive (see crane notes)
Large Crane	• Flexibility of both lateral and vertical movements	• Most expensive primarily due to temporary access road to accommodate smaller crane at Upper Barrier site	• Potential to be less expensive than helicopter option if a crane pad could be established on north bluff within 275' radius to UBS
Yarder	• Currently estimated to be least expensive option	• Estimated costs has most potential to increase • Limited in lateral working movement	

At the present time, we believe it would be prudent to keep all three options open. As the project design develops and additional information becomes available, certain options may become more obvious while others may become more apparent to eliminate.

Should Michael Love & Associates want any further information regarding this Class 4 estimate, please feel free to contact us.

SR Diversified, LLC



Steve Platt

Green Sheet

PROJECT NAME: Eagle Canyon Fish Passage Class 4 Alternative Estimates

Cost Item No.	Description	Qty	Unit	Labor U.C.	Labor Totals	Materials U.C.	Materials Totals	Constr. Materials M & S U.C.	Constr. Materials M & S Totals	Sub-Contractor U.C.	Sub-Contractor Totals	SRC Equipment U.C.	SRC Equipment Totals	O/S Rental EQ U.C.	O/S Rental EQ Totals	Other / (per diem) U.C.	Other / (per diem) Totals	Total U.C.	Total Totals
1	**Remove Boulders via Helicopter and Rock Splitting**	1	LS																
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Mobilization / Demobilization:				$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Mobe Men and Equip	40	hr	481.73	$ 19,269		$ -		$ -		$ -	26.60	$ 1,064	329.96	$ 13,198		$ -		$ 33,532
	Safety and Environmental Training	40	hr	481.73	$ 19,269		$ -		$ -		$ -	26.60	$ 1,064	329.96	$ 13,198		$ -		$ 33,532
	Setup Office Trailer, Generator, Cargo Van, Etc.	32	hr	481.73	$ 15,415		$ -		$ -		$ -	26.60	$ 851	329.96	$ 10,559		$ -		$ 26,825
	Remove Office Trailer, Generator, Cargo Van, Etc.	32	hr	481.73	$ 15,415		$ -		$ -		$ -	26.60	$ 851	329.96	$ 10,559		$ -		$ 26,825
	Demobe Men and Equip	40	hr	481.73	$ 19,269		$ -		$ -		$ -	26.60	$ 1,064	329.96	$ 13,198		$ -		$ 33,532
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Site Prep:				$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Install BMP's (Silt Fence, Wattles, etc.)	2,500	lf	2.33	$ 5,826		$ -		$ -		$ -	0.27	$ 665		$ -		$ -		$ 6,491
	Install Exclusionary Fencing	2,500	lf	2.33	$ 5,826		$ -		$ -		$ -	0.27	$ 665		$ -		$ -		$ 6,491
	Develop Laydown Area (2 acres)	10	hr	481.73	$ 4,817		$ -		$ -		$ -	26.60	$ 266	329.96	$ 3,300		$ -		$ 8,383
	Rock Access Rd (Creek to Long Rd. South) 5000 lf	2,500	tn	3.14	$ 7,840		$ -		$ -		$ -	0.24	$ 605	2.66	$ 6,657		$ -		$ 15,102
	Improve Foot Access to LBS & UBS	1,550	lf	17.59	$ 27,264		$ -		$ -		$ -	1.33	$ 2,062		$ -		$ -		$ 29,325
	Hand Clear & Grub @ LBS & UBS	30	hr	372.46	$ 11,174		$ -		$ -		$ -	26.60	$ 798		$ -		$ -		$ 11,972
	Rock Fall Mitigation at LBS & UBS	40	hr	351.79	$ 14,072		$ -		$ -		$ -	26.60	$ 1,064		$ -		$ -		$ 15,136
	Construct Work Platforms along Creek	32	hr	406.91	$ 13,021		$ -		$ -		$ -	26.60	$ 851		$ -		$ -		$ 13,872
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Lower Barrier Site (LBS):				$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Scaffold up + down for Worker Safety	20	hr	406.91	$ 8,138		$ -		$ -		$ -	26.60	$ 532		$ -		$ -		$ 8,670
	Drill & Split Large Rock into approx. 1.5 CY boulders	2,257	drill-ft	28.44	$ 64,184		$ -		$ -		$ -	1.48	$ 3,335	1.32	$ 2,984		$ -		$ 70,504
	Drill & Install boulder lifting pins (Assume 3 per boulder)	372	ea	30.28	$ 11,262		$ -		$ -		$ -	2.66	$ 990	1.19	$ 443		$ -		$ 12,695
	Fly out boulders support crew to landing area (112 + 10%)	124	ea	37.25	$ 4,619		$ -		$ -		$ -	2.66	$ 330		$ -		$ -		$ 4,948
	Load boulders into trucks	187	cy	5.11	$ 956		$ -		$ -		$ -	0.74	$ 138	6.36	$ 1,189		$ -		$ 2,283
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Upper Barrier Site (UBS):				$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Scaffold up + down for Worker Safety	40	hr	406.91	$ 16,276		$ -		$ -		$ -	26.60	$ 1,064		$ -		$ -		$ 17,340
	Drill & Split Large Rock into approx. 1.5 CY boulders	9,672	drill-ft	28.44	$ 275,050		$ -		$ -		$ -	1.48	$ 14,293	1.32	$ 12,789		$ -		$ 302,132
	Drill & Install boulder lifting pins (Assume 3 per boulder)	1,710	ea	30.28	$ 51,770		$ -		$ -		$ -	2.66	$ 4,549	1.19	$ 2,035		$ -		$ 58,354
	Fly out boulders support crew to landing area (518 + 10%)	570	ea	37.25	$ 21,230		$ -		$ -		$ -	2.66	$ 1,516		$ -		$ -		$ 22,746
	Load boulders into trucks	716	cy	5.11	$ 3,661		$ -		$ -		$ -	0.74	$ 529	6.36	$ 4,552		$ -		$ 8,742
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Materials / M&S:				$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Fire Tools	3	sets		$ -		$ -	700	$ 2,258		$ -		$ -		$ -		$ -		$ 2,258
	Secondary Containment for Generators, Compressors, etc	4	ea		$ -		$ -	450	$ 1,935		$ -		$ -		$ -		$ -		$ 1,935
	SWPP/BMP Mat'ls	2,500	lf		$ -		$ -	4.00	$ 10,750		$ -		$ -		$ -		$ -		$ 10,750
	Exclusionary Fencing	2,500	lf		$ -		$ -	1.00	$ 2,688		$ -		$ -		$ -		$ -		$ 2,688
	Buy / Haul AB for Access Roads	2,500	tn		$ -	25.00	$ 67,188		$ -		$ -		$ -		$ -		$ -		$ 67,188
	Work Platforms Mat'ls	2	ea		$ -		$ -	2,500	$ 5,375		$ -		$ -		$ -		$ -		$ 5,375
	Scaffold Mat'ls	1	ls		$ -		$ -	5,000	$ 5,375		$ -		$ -		$ -		$ -		$ 5,375
	Rock Drills	6	ea		$ -		$ -	2,000	$ 12,900		$ -		$ -		$ -		$ -		$ 12,900
	Drill Steel	24	ea		$ -		$ -	150	$ 3,870		$ -		$ -		$ -		$ -		$ 3,870
	Drill Bits	100	ea		$ -		$ -	25	$ 2,688		$ -		$ -		$ -		$ -		$ 2,688
	Darta Rock Splitters	6	ea		$ -		$ -	20,000	$ 129,000		$ -		$ -		$ -		$ -		$ 129,000
	Rock lifting pins	2,100	ea		$ -		$ -	20	$ 45,150		$ -		$ -		$ -		$ -		$ 45,150
	Misc Rigging	1	ls		$ -		$ -	10,000	$ 10,750		$ -		$ -		$ -		$ -		$ 10,750
	Rock Fall Mitigation	1	ls		$ -		$ -	5,000	$ 5,375		$ -		$ -		$ -		$ -		$ 5,375
	M&S @ 5% of Labor	1	ls		$ -		$ -	$ 31,781	$ 34,165		$ -		$ -		$ -		$ -		$ 34,165
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Subcontractor / Other Costs:				$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Surveying	10	day		$ -		$ -		$ -	2,500	$ 25,000		$ -		$ -		$ -		$ 25,000
	Misc Engineering	1	ls		$ -		$ -		$ -	10,000	$ 10,000		$ -		$ -		$ -		$ 10,000
	Geologist Rock Fall Mitigation Recommendation/Inspection	1	ls		$ -		$ -		$ -	7,500	$ 7,500		$ -		$ -		$ -		$ 7,500

Page 1 of 5

Green Sheet

PROJECT NAME: Eagle Canyon Fish Passage Class 4 Alternative Estimates

Cost Item No.	Description	Qty	Unit	Labor U.C.	Labor Totals	Materials U.C.	Materials Totals	Constr. Materials M & S U.C.	Constr. Materials M & S Totals	Sub-Contractor U.C.	Sub-Contractor Totals	SRC Equipment U.C.	SRC Equipment Totals	O/S Rental EQ U.C.	O/S Rental EQ Totals	Other / (per diem) U.C.	Other / (per diem) Totals	Total U.C.	Total Totals
	Develop Water Quality Testing Plan & Final Report	1	ls		$ -		$ -		$ -	5,000	$ 5,000		$ -		$ -		$ -		$ 5,000
	Perform Water Quality Testing	26	wks		$ -		$ -		$ -	3,000	$ 78,000		$ -		$ -		$ -		$ 78,000
	PJ Helicopter Service:				$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Mobe Bell 407 for Clear & Grub (Assume 4 ea)	4	ea		$ -		$ -		$ -	2,100.00	$ 8,400		$ -		$ -		$ -		$ 8,400
	Mobe Service Truck + Driver for Bell 407	4	ea		$ -		$ -		$ -	137.00	$ 548		$ -		$ -		$ -		$ 548
	Service Truck Driver for Bell 407	32	hr		$ -		$ -		$ -	38.00	$ 1,216		$ -		$ -		$ -		$ 1,216
	Fly out Trees/Vegetation	4	hr		$ -		$ -		$ -	2,100.00	$ 8,400		$ -		$ -		$ -		$ 8,400
	Fly in Scaffold & Work Platform Mat'ls	3	hr		$ -		$ -		$ -	2,100.00	$ 6,300		$ -		$ -		$ -		$ 6,300
	Fly out Scaffold & Work Platform Mat'ls	3	hr		$ -		$ -		$ -	2,100.00	$ 6,300		$ -		$ -		$ -		$ 6,300
	Mobe UH-60A Utility Hawk (Assume 10 ea)	10	ea		$ -		$ -		$ -	3,200.00	$ 32,000		$ -		$ -		$ -		$ 32,000
	Mobe Service Truck + Driver for UH-60A Utility Hawk	10	ea		$ -		$ -		$ -	137.00	$ 1,370		$ -		$ -		$ -		$ 1,370
	Service Truck Driver for UH-60A Utility Hawk	100	hr		$ -		$ -		$ -	38.00	$ 3,800		$ -		$ -		$ -		$ 3,800
	Fly out Boulders w/ UH-60A Utility Hawk	70	hr		$ -		$ -		$ -	6,400.00	$ 448,000		$ -		$ -		$ -		$ 448,000
	Chip Trees / Vegetation	1	ls		$ -		$ -		$ -	10,000	$ 10,000		$ -		$ -		$ -		$ 10,000
	Trucking to Dispose Boulders (Assume 1-hr roundtrip)	2,044	tn		$ -		$ -		$ -	7.00	$ 14,308		$ -		$ -		$ -		$ 14,308
	Hydroseed	2	ac		$ -		$ -		$ -	4,000	$ 8,000		$ -		$ -		$ -		$ 8,000
	Miscellaneous Debris Dumpster Loads	6	ea		$ -		$ -		$ -		$ -		$ -		$ -	1,000	$ 6,000		$ 6,000
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Subtotal Bid Item Lump Sum			$ 635,625		$ 67,188		$ 272,277		$ 674,142		$ 39,145		$ 94,661		$ 6,000		$ 1,789,038	
	Mark-up			**15%**	**95,344**	**10%**	**6,719**	**10%**	**27,228**	**10%**	**67,414**	**10%**	**3,915**	**10%**	**9,466**	**10%**	**600**	**11.8%**	$ 210,685
	Item Totals				**730,969**		**73,906**		**299,505**		**741,556**		**43,060**		**104,127**		**6,600**		**1,999,723**
2	**Remove Boulders via Cranes and Rock Splitting**	1	LS																
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Mobilization / Demobilization:				$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Mobe Men and Equip	40	hr	481.73	$ 19,269		$ -		$ -		$ -	26.60	$ 1,064	329.96	$ 13,198		$ -		$ 33,532
	Safety and Environmental Training	40	hr	481.73	$ 19,269		$ -		$ -		$ -	26.60	$ 1,064	329.96	$ 13,198		$ -		$ 33,532
	Setup Office Trailer, Generator, Cargo Van, Etc.	32	hr	481.73	$ 15,415		$ -		$ -		$ -	26.60	$ 851	329.96	$ 10,559		$ -		$ 26,825
	Remove Office Trailer, Generator, Cargo Van, Etc.	32	hr	481.73	$ 15,415		$ -		$ -		$ -	26.60	$ 851	329.96	$ 10,559		$ -		$ 26,825
	Demobe Men and Equip	40	hr	481.73	$ 19,269		$ -		$ -		$ -	26.60	$ 1,064	329.96	$ 13,198		$ -		$ 33,532
	Mobe/Assemble + Disassemble/Demobe Manitowoc 300 Ton Crane	1	ea		$ -		$ -		$ -		$ -		$ -		$ -	54,000	$ 54,000		$ 54,000
	Mobe 110 Ton RT Crane In + Out	1	ea		$ -		$ -		$ -		$ -		$ -		$ -	12,600	$ 12,600		$ 12,600
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Site Prep:				$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Install BMP's (Silt Fence, Wattles, etc.)	4,500	lf	2.33	$ 10,487		$ -		$ -		$ -	0.27	$ 1,197		$ -		$ -		$ 11,684
	Install Exclusionary Fencing	4,500	lf	2.33	$ 10,487		$ -		$ -		$ -	0.27	$ 1,197		$ -		$ -		$ 11,684
	Develop Laydown Area (3 acres)	15	hr	481.73	$ 7,226		$ -		$ -		$ -	26.60	$ 399	329.96	$ 4,949		$ -		$ 12,574
	Clear & Grub Access Rd to UBS	30	hr	481.73	$ 14,452		$ -		$ -		$ -	26.60	$ 798	329.96	$ 9,899		$ -		$ 25,149
	Construct Access Rd to UBS	1,000	lf	39.27	$ 39,272		$ -		$ -		$ -	1.77	$ 1,773	39.99	$ 39,993		$ -		$ 81,039
	Restore Access Rd to UBS at Completion	1,000	lf	39.27	$ 39,272		$ -		$ -		$ -	1.77	$ 1,773	39.99	$ 39,993		$ -		$ 81,039
	Rock Access Rd (Creek to Long Rd. South) 5000 lf	2,500	tn	3.14	$ 7,840		$ -		$ -		$ -	0.24	$ 605	2.66	$ 6,657		$ -		$ 15,102
	Rock Access Rd (UBS to BC Bottom Rd. North) 5500 lf	2,570	tn	3.14	$ 8,060		$ -		$ -		$ -	0.24	$ 621	2.66	$ 6,843		$ -		$ 15,524
	Improve Foot Access to LBS & UBS	1,550	lf	17.59	$ 27,264		$ -		$ -		$ -	1.33	$ 2,062		$ -		$ -		$ 29,325
	Hand Clear & Grub @ LBS & UBS	30	hr	372.46	$ 11,174		$ -		$ -		$ -	26.60	$ 798		$ -		$ -		$ 11,972
	Rock Fall Mitigation at LBS & UBS	40	hr	351.79	$ 14,072		$ -		$ -		$ -	26.60	$ 1,064		$ -		$ -		$ 15,136
	Construct Work Platforms along Creek	32	hr	406.91	$ 13,021		$ -		$ -		$ -	26.60	$ 851		$ -		$ -		$ 13,872
	Build Crane Pads	2	ea	2002.20	$ 4,004		$ -		$ -		$ -	106.40	$ 213	1745.36	$ 3,491		$ -		$ 7,708
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Lower Barrier Site (LBS):				$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Scaffold up + down for Worker Safety	20	hr	406.91	$ 8,138		$ -		$ -		$ -	26.60	$ 532		$ -		$ -		$ 8,670
	Drill & Split Large Rock into approx. 1.5 CY boulders	2,257	drill-ft	28.44	$ 64,184		$ -		$ -		$ -	1.48	$ 3,335	1.32	$ 2,984		$ -		$ 70,504
	Drill & Install boulder lifting pins (Assume 3 per boulder)	372	ea	30.28	$ 11,262		$ -		$ -		$ -	2.66	$ 990	1.19	$ 443		$ -		$ 12,695
	Fly out boulders support crew to landing area (112 + 10%)	124	ea	37.25	$ 4,619		$ -		$ -		$ -	2.66	$ 330		$ -		$ -		$ 4,948
	Load boulders into trucks	187	cy	5.11	$ 956		$ -		$ -		$ -	0.74	$ 138	6.36	$ 1,189		$ -		$ 2,283
216 hrs	Manitowoc 300 Ton Crane Rent (1 month + 1 weeks)	1	ls		$ -		$ -		$ -		$ -		$ -	50,000	$ 50,000		$ -		$ 50,000
	Manitowoc 300 Ton Crane Oper Crew + Fuel	40	hr	259.68	$ 10,387		$ -		$ -		$ -		$ -	56.25	$ 2,250		$ -		$ 12,637

Page 2 of 5

Green Sheet

PROJECT NAME: Eagle Canyon Fish Passage Class 4 Alternative Estimates

Cost Item No.	Description	Qty	Unit	Labor U.C.	Labor Totals	Materials U.C.	Materials Totals	Constr. Materials M & S U.C.	Constr. Materials M & S Totals	Sub-Contractor U.C.	Sub-Contractor Totals	SRC Equipment U.C.	SRC Equipment Totals	O/S Rental EQ U.C.	O/S Rental EQ Totals	Other / (per diem) U.C.	Other / (per diem) Totals	Total U.C.	Total Totals
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Upper Barrier Site (UBS):				$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Scaffold up + down for Worker Safety	40	hr	406.91	$ 16,276		$ -		$ -		$ -	26.60	$ 1,064		$ -		$ -		$ 17,340
	Drill & Split Large Rock into approx. 1.5 CY boulders	9,672	drill-ft	28.44	$ 275,050		$ -		$ -		$ -	1.48	$ 14,293	1.32	$ 12,789		$ -		$ 302,132
	Drill & Install boulder lifting pins (Assume 3 per boulder)	1,710	ea	30.28	$ 51,770		$ -		$ -		$ -	2.66	$ 4,549	1.19	$ 2,035		$ -		$ 58,354
	Fly out boulders support crew to landing area (518 + 10%)	570	ea	37.25	$ 21,230		$ -		$ -		$ -	2.66	$ 1,516		$ -		$ -		$ 22,746
	Load boulders into trucks	716	cy	5.11	$ 3,661		$ -		$ -		$ -	0.74	$ 529	6.36	$ 4,552		$ -		$ 8,742
640 hrs	100 Ton Crane Rent	4	mo		$ -		$ -		$ -		$ -		$ -	16,800	$ 67,200		$ -		$ 67,200
	100 Ton Crane Oper Crew + Fuel	88	hr	163.14	$ 14,356		$ -		$ -		$ -		$ -	30.00	$ 2,640		$ -		$ 16,996
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Materials / M&S:				$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Fire Tools	3	sets		$ -		$ -	700	$ 2,258		$ -		$ -		$ -		$ -		$ 2,258
	Secondary Containment for Generators, Compressors, etc	4	ea		$ -		$ -	450	$ 1,935		$ -		$ -		$ -		$ -		$ 1,935
	SWPP/BMP Mat'ls	4,500	lf		$ -		$ -	4.00	$ 19,350		$ -		$ -		$ -		$ -		$ 19,350
	Exclusionary Fencing	4,500	lf		$ -		$ -	1.00	$ 4,838		$ -		$ -		$ -		$ -		$ 4,838
	Buy / Haul AB for Access Roads	5,070	tn		$ -	25.00	$ 136,256		$ -		$ -		$ -		$ -		$ -		$ 136,256
	Work Platforms Mat'ls	2	ea		$ -		$ -	2,500	$ 5,375		$ -		$ -		$ -		$ -		$ 5,375
	Scaffold Mat'ls	1	ls		$ -		$ -	5,000	$ 5,375		$ -		$ -		$ -		$ -		$ 5,375
	Rock Drills	6	ea		$ -		$ -	2,000	$ 12,900		$ -		$ -		$ -		$ -		$ 12,900
	Drill Steel	24	ea		$ -		$ -	150	$ 3,870		$ -		$ -		$ -		$ -		$ 3,870
	Drill Bits	100	ea		$ -		$ -	25	$ 2,688		$ -		$ -		$ -		$ -		$ 2,688
	Darta Rock Splitters	6	ea		$ -		$ -	20,000	$ 129,000		$ -		$ -		$ -		$ -		$ 129,000
	Rock lifting pins	2,100	ea		$ -		$ -	20	$ 45,150		$ -		$ -		$ -		$ -		$ 45,150
	Misc Rigging	1	ls		$ -		$ -	10,000	$ 10,750		$ -		$ -		$ -		$ -		$ 10,750
	Rock Fall Mitigation	1	ls		$ -		$ -	5,000	$ 5,375		$ -		$ -		$ -		$ -		$ 5,375
	M&S @ 5% of Labor	1	ls		$ -		$ -	$ 38,858	$ 41,772		$ -		$ -		$ -		$ -		$ 41,772
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Subcontractor / Other Costs:				$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Surveying	10	day		$ -		$ -		$ -	2,500	$ 25,000		$ -		$ -		$ -		$ 25,000
	Misc Engineering	1	ls		$ -		$ -		$ -	10,000	$ 10,000		$ -		$ -		$ -		$ 10,000
	Geologist Rock Fall Mitigation Recommendation/Inspection	1	ls		$ -		$ -		$ -	7,500	$ 7,500		$ -		$ -		$ -		$ 7,500
	Develop Water Quality Testing Plan & Final Report	1	ls		$ -		$ -		$ -	5,000	$ 5,000		$ -		$ -		$ -		$ 5,000
	Perform Water Quality Testing	26	wks		$ -		$ -		$ -	3,000	$ 78,000		$ -		$ -		$ -		$ 78,000
	PJ Helicopter Service:				$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Mobe Bell 407 for Clear & Grub (Assume 2 ea)	2	ea		$ -		$ -		$ -	2,100.00	$ 4,200		$ -		$ -		$ -		$ 4,200
	Mobe Service Truck + Driver for Bell 407	2	ea		$ -		$ -		$ -	137.00	$ 274		$ -		$ -		$ -		$ 274
	Service Truck Driver for Bell 407	16	hr		$ -		$ -		$ -	38.00	$ 608		$ -		$ -		$ -		$ 608
	Fly out Trees/Vegetation	4	hr		$ -		$ -		$ -	2,100.00	$ 8,400		$ -		$ -		$ -		$ 8,400
	Chip Trees / Vegetation	1	ls		$ -		$ -		$ -	30,000	$ 30,000		$ -		$ -		$ -		$ 30,000
	Trucking to Dispose Boulders (Assume 1-hr roundtrip)	2,044	tn		$ -		$ -		$ -	7.00	$ 14,308		$ -		$ -		$ -		$ 14,308
	Hydroseed	4	ac		$ -		$ -		$ -	4,000	$ 16,000		$ -		$ -		$ -		$ 16,000
	Miscellaneous Debris Dumpster Loads	6	ea		$ -		$ -		$ -		$ -		$ -		$ -	1,000	$ 6,000		$ 6,000
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Subtotal Bid Item Lump Sum			$ 777,159		$ 136,256		$ 280,635		$ 199,290		$ 45,521		$ 318,620		$ 72,600		$ 1,840,081	
	Mark-up			**15%**	**116,574**	**10%**	**13,626**	**10%**	**29,063**	**10%**	**19,929**	**10%**	**4,552**	**10%**	**31,862**	**10%**	**7,260**	**12.1%**	$ 222,866
	Item Totals				**893,733**		**149,882**		**319,698**		**219,219**		**50,074**		**350,482**		**79,860**		**2,062,947**
3	**Remove Boulders via Yarder and Rock Splitting**	**1**	**LS**																
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Mobilization / Demobilization:				$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Mobe Men and Equip	40	hr	481.73	$ 19,269		$ -		$ -		$ -	26.60	$ 1,064	329.96	$ 13,198		$ -		$ 33,532
	Safety and Environmental Training	40	hr	481.73	$ 19,269		$ -		$ -		$ -	26.60	$ 1,064	329.96	$ 13,198		$ -		$ 33,532
	Setup Office Trailer, Generator, Cargo Van, Etc.	32	hr	481.73	$ 15,415		$ -		$ -		$ -	26.60	$ 851	329.96	$ 10,559		$ -		$ 26,825
	Remove Office Trailer, Generator, Cargo Van, Etc.	32	hr	481.73	$ 15,415		$ -		$ -		$ -	26.60	$ 851	329.96	$ 10,559		$ -		$ 26,825
	Demobe Men and Equip	40	hr	481.73	$ 19,269		$ -		$ -		$ -	26.60	$ 1,064	329.96	$ 13,198		$ -		$ 33,532

Page 3 of 5

Green Sheet

PROJECT NAME: Eagle Canyon Fish Passage Class 4 Alternative Estimates

Cost Item No.	Description	Qty	Unit	Labor U.C.	Labor Totals	Materials U.C.	Materials Totals	Constr. Materials M & S U.C.	Constr. Materials M & S Totals	Sub-Contractor U.C.	Sub-Contractor Totals	SRC Equipment U.C.	SRC Equipment Totals	O/S Rental EQ U.C.	O/S Rental EQ Totals	Other / (per diem) U.C.	Other / (per diem) Totals	Total U.C.	Total Totals
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Site Prep:				$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Install BMP's (Silt Fence, Wattles, etc,)	3,500	lf	2.33	$ 8,156		$ -		$ -		$ -	0.27	$ 931		$ -		$ -		$ 9,087
	Install Exclusionary Fencing	3,500	lf	2.33	$ 8,156		$ -		$ -		$ -	0.27	$ 931		$ -		$ -		$ 9,087
	Develop Laydown Area (2 acres)	10	hr	481.73	$ 4,817		$ -		$ -		$ -	26.60	$ 266	329.96	$ 3,300		$ -		$ 8,383
	Clear Canyon Slopes for Yarder Alignments	60	hr	372.46	$ 22,348		$ -		$ -		$ -	26.60	$ 1,596		$ -		$ -		$ 23,944
	Rock Access Rd (Creek to Long Rd. South) 5000 lf	2,500	tn	3.14	$ 7,840		$ -		$ -		$ -	0.24	$ 605	2.66	$ 6,657		$ -		$ 15,102
	Rock Access Rd (UBS to BC Bottom Rd. North) 5500 lf	2,570	tn	3.14	$ 8,060		$ -		$ -		$ -	0.24	$ 621	2.66	$ 6,843		$ -		$ 15,524
	Improve Foot Access to LBS & UBS	1,550	lf	17.59	$ 27,264		$ -		$ -		$ -	1.33	$ 2,062		$ -		$ -		$ 29,325
	Hand Clear & Grub @ LBS & UBS	30	hr	372.46	$ 11,174		$ -		$ -		$ -	26.60	$ 798		$ -		$ -		$ 11,972
	Rock Fall Mitigation at LBS & UBS	40	hr	351.79	$ 14,072		$ -		$ -		$ -	26.60	$ 1,064		$ -		$ -		$ 15,136
	Construct Work Platforms along Creek	32	hr	406.91	$ 13,021		$ -		$ -		$ -	26.60	$ 851		$ -		$ -		$ 13,872
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Lower Barrier Site (LBS):				$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Scaffold up + down for Worker Safety	20	hr	406.91	$ 8,138		$ -		$ -		$ -	26.60	$ 532		$ -		$ -		$ 8,670
	Drill & Split Large Rock into approx. 1.5 CY boulders	2,257	drill-ft	28.44	$ 64,184		$ -		$ -		$ -	1.48	$ 3,335	1.32	$ 2,984		$ -		$ 70,504
	Drill & Install boulder lifting pins (Assume 3 per boulder)	372	ea	30.28	$ 11,262		$ -		$ -		$ -	2.66	$ 990	1.19	$ 443		$ -		$ 12,695
	Fly out boulders support crew to landing area (112 + 10%)	124	ea	37.25	$ 4,619		$ -		$ -		$ -	2.66	$ 330		$ -		$ -		$ 4,948
	Load boulders into trucks	187	cy	5.11	$ 956		$ -		$ -		$ -	0.74	$ 138	6.36	$ 1,189		$ -		$ 2,283
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Upper Barrier Site (UBS):				$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Scaffold up + down for Worker Safety	40	hr	406.91	$ 16,276		$ -		$ -		$ -	26.60	$ 1,064		$ -		$ -		$ 17,340
	Drill & Split Large Rock into approx. 1.5 CY boulders	9,672	drill-ft	28.44	$ 275,050		$ -		$ -		$ -	1.48	$ 14,293	1.32	$ 12,789		$ -		$ 302,132
	Drill & Install boulder lifting pins (Assume 3 per boulder)	1,710	ea	30.28	$ 51,770		$ -		$ -		$ -	2.66	$ 4,549	1.19	$ 2,035		$ -		$ 58,354
	Fly out boulders support crew to landing area (518 + 10%)	570	ea	37.25	$ 21,230		$ -		$ -		$ -	2.66	$ 1,516		$ -		$ -		$ 22,746
	Load boulders into trucks	716	cy	5.11	$ 3,661		$ -		$ -		$ -	0.74	$ 529	6.36	$ 4,552		$ -		$ 8,742
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Materials / M&S:				$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Fire Tools	3	sets		$ -		$ -	700	$ 2,258		$ -		$ -		$ -		$ -		$ 2,258
	Secondary Containment for Generators, Compressors, etc	4	ea		$ -		$ -	450	$ 1,935		$ -		$ -		$ -		$ -		$ 1,935
	SWPP/BMP Mat'ls	3,500	lf		$ -		$ -	4.00	$ 15,050		$ -		$ -		$ -		$ -		$ 15,050
	Exclusionary Fencing	3,500	lf		$ -		$ -	1.00	$ 3,763		$ -		$ -		$ -		$ -		$ 3,763
	Buy / Haul AB for Access Roads	5,070	tn		$ -	25.00	$ 136,256		$ -		$ -		$ -		$ -		$ -		$ 136,256
	Work Platforms Mat'ls	2	ea		$ -		$ -	2,500	$ 5,375		$ -		$ -		$ -		$ -		$ 5,375
	Scaffold Mat'ls	1	ls		$ -		$ -	5,000	$ 5,375		$ -		$ -		$ -		$ -		$ 5,375
	Rock Drills	6	ea		$ -		$ -	2,000	$ 12,900		$ -		$ -		$ -		$ -		$ 12,900
	Drill Steel	24	ea		$ -		$ -	150	$ 3,870		$ -		$ -		$ -		$ -		$ 3,870
	Drill Bits	100	ea		$ -		$ -	25	$ 2,688		$ -		$ -		$ -		$ -		$ 2,688
	Darta Rock Splitters	6	ea		$ -		$ -	20,000	$ 129,000		$ -		$ -		$ -		$ -		$ 129,000
	Rock lifting pins	2,100	ea		$ -		$ -	20	$ 45,150		$ -		$ -		$ -		$ -		$ 45,150
	Misc Rigging	1	ls		$ -		$ -	10,000	$ 10,750		$ -		$ -		$ -		$ -		$ 10,750
	Rock Fall Mitigation	1	ls		$ -		$ -	5,000	$ 5,375		$ -		$ -		$ -		$ -		$ 5,375
	M&S @ 5% of Labor	1	ls		$ -		$ -	$ 33,535	$ 36,050		$ -		$ -		$ -		$ -		$ 36,050
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Subcontractor / Other Costs:				$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Surveying	10	day		$ -		$ -		$ -	2,500	$ 25,000		$ -		$ -		$ -		$ 25,000
	Misc Engineering	1	ls		$ -		$ -		$ -	10,000	$ 10,000		$ -		$ -		$ -		$ 10,000
	Geologist Rock Fall Mitigation Recommendation/Inspection	1	ls		$ -		$ -		$ -	7,500	$ 7,500		$ -		$ -		$ -		$ 7,500
	Develop Water Quality Testing Plan & Final Report	1	ls		$ -		$ -		$ -	5,000	$ 5,000		$ -		$ -		$ -		$ 5,000
	Perform Water Quality Testing	26	wks		$ -		$ -		$ -	3,000	$ 78,000		$ -		$ -		$ -		$ 78,000
	Rock Anchors for Yarder (assume 3 @ Yarder + 2 @ skyline) x 2	10	ea		$ -		$ -		$ -	5,000.00	$ 50,000		$ -		$ -		$ -		$ 50,000
	Yarder Service:				$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Mobe Yarder In + Out	2	ea		$ -		$ -		$ -	15,000.00	$ 30,000		$ -		$ -		$ -		$ 30,000
	Setup Rig Lines and carriage	4	ea		$ -		$ -		$ -	7,500.00	$ 30,000		$ -		$ -		$ -		$ 30,000
	Yarder out Trees/Vegetation	60	hr		$ -		$ -		$ -	287.50	$ 17,250		$ -		$ -		$ -		$ 17,250

Page 4 of 5

Green Sheet

PROJECT NAME: Eagle Canyon Fish Passage Class 4 Alternative Estimates

Cost Item No.	Description	Qty	Unit	Labor		Materials		Constr. Materials M & S		Sub-Contractor		SRC Equipment		O/S Rental EQ		Other / (per diem)		Total	
				U.C.	Totals	U.C.	Totals	U.C.	Totals	U.C.	Totals	U.C.	Totals	U.C.	Totals	U.C.	Totals	U.C.	Totals
	Yarder in Scaffold & Work Platform Mat'ls	2	hr		$ -		$ -		$ -	287.50	$ 575		$ -		$ -		$ -		$ 575
	Yarder out Scaffold & Work Platform Mat'ls	2	hr		$ -		$ -		$ -	287.50	$ 575		$ -		$ -		$ -		$ 575
	Yarder out Boulders	70	hr		$ -		$ -		$ -	287.50	$ 20,125		$ -		$ -		$ -		$ 20,125
	Yarder Standby (Assumed at 50% of Oper. Rate)	85	day		$ -		$ -		$ -	1,150.00	$ 97,750		$ -		$ -		$ -		$ 97,750
	Chip Trees / Vegetation	1	ls		$ -		$ -		$ -	30,000	$ 30,000		$ -		$ -		$ -		$ 30,000
	Trucking to Dispose Boulders (Assume 1-hr roundtrip)	2,044	tn		$ -		$ -		$ -	7.00	$ 14,308		$ -		$ -		$ -		$ 14,308
	Hydroseed	2	ac		$ -		$ -		$ -	4,000	$ 8,000		$ -		$ -		$ -		$ 8,000
	Miscellaneous Debris Dumpster Loads	6	ea		$ -		$ -		$ -		$ -		$ -		$ -	1,000	$ 6,000		$ 6,000
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Subtotal Bid Item Lump Sum			$ 670,693		$ 136,256		$ 279,537		$ 424,083		$ 41,895		$ 101,504		$ 6,000		$ 1,659,969	
	Mark-up			15%	100,604	10%	13,626	10%	27,954	10%	42,408	10%	4,189	10%	10,150	10%	600	12.0%	$ 199,532
	Item Totals				771,297		149,882		307,491		466,491		46,084		111,654		6,600		1,859,500
4	**Add-on for Cofferdams and Streamflow Bypasses**	1	LS																
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Battle Creek & Eagle Canyon Stream Flow Bypass	1	ls	300,000	$ 300,000		$ -	245,000	$ 263,375	20,000	$ 20,000	2,900	$ 2,900	110,000	$ 110,000		$ -		$ 696,275
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
					$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
	Subtotal Bid Item Lump Sum			$ 300,000		$ -		$ 263,375		$ 20,000		$ 2,900		$ 110,000		$ -		$ 696,275	
	Mark-up			15%	45,000	10%		10%	26,338	10%	2,000	10%	290	10%	11,000	10%		12.2%	$ 84,628
	Item Totals				345,000		-		289,713		22,000		3,190		121,000		-		780,903

Page 5 of 5

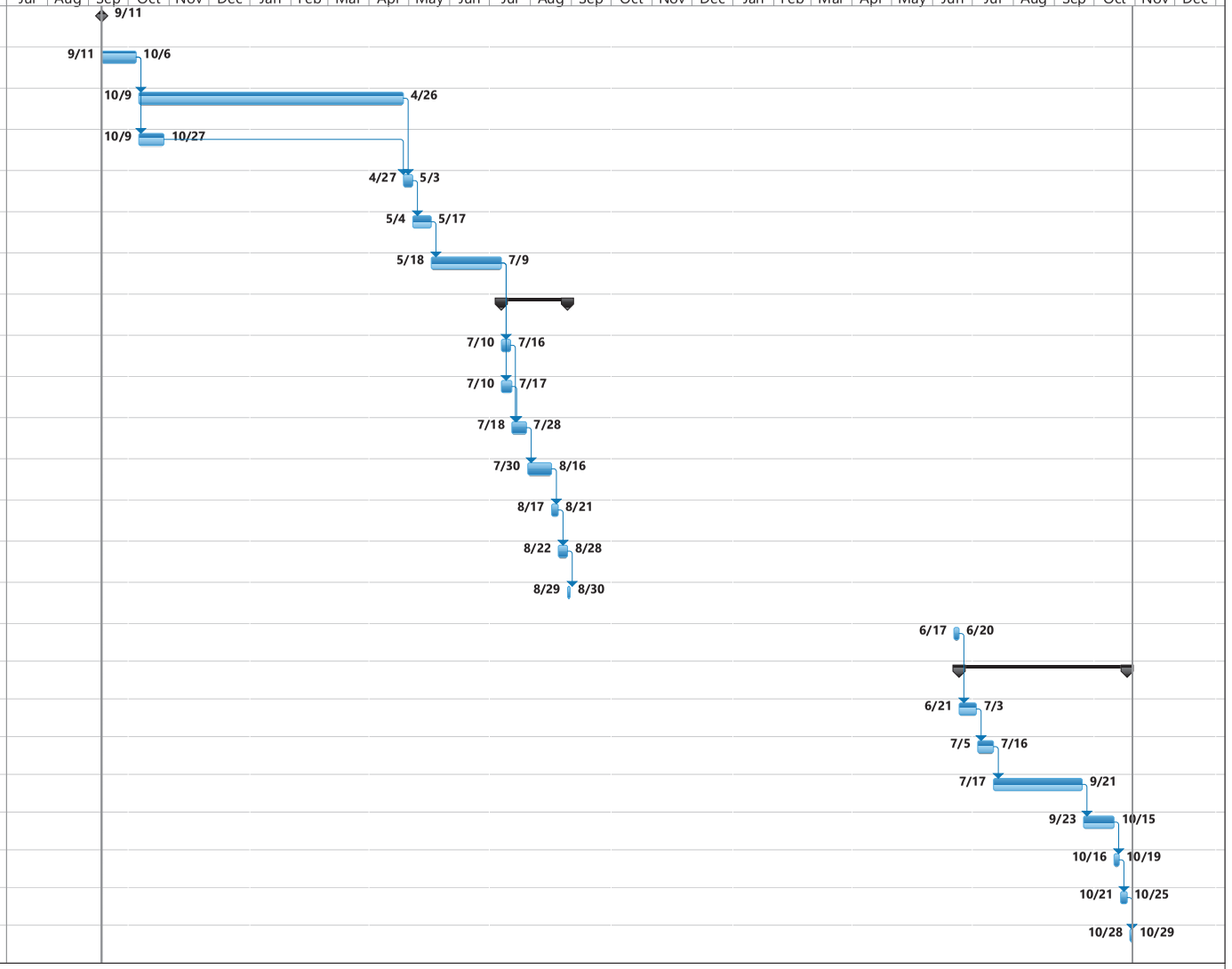
Attachment 5

Eagle Canyon Fish Passage Improvement Project
Construction Schedule

(Page intentionally left blank)

Seasons 1 & 2

ID	Task Name	Start	Finish
1	Estimated NTP	Mon 9/11/17	Mon 9/11/17
2	Tree Removal Submittals	Mon 9/11/17	Fri 10/6/17
3	Submittals / Planning / Procurement	Mon 10/9/17	Thu 4/26/18
4	Tree / Vegetation Removal	Mon 10/9/17	Fri 10/27/17
5	Season 1 Mobilization	Fri 4/27/18	Thu 5/3/18
6	Crane Pads / Rock Access Roads	Fri 5/4/18	Thu 5/17/18
7	Rock Fall Mitigation	Fri 5/18/18	Mon 7/9/18
8	**Lower Barrier Site (LBS)**	**Tue 7/10/18**	**Tue 8/28/18**
9	Foot Access from Flume to Ground	Tue 7/10/18	Mon 7/16/18
10	Improve Foot Access/Build Work Deck	Tue 7/10/18	Tue 7/17/18
11	Install Clear Water Diversion	Wed 7/18/18	Sat 7/28/18
12	Boulder Removal	Mon 7/30/18	Thu 8/16/18
13	Remove Clear Water Diversion	Fri 8/17/18	Tue 8/21/18
14	Site Restoration	Wed 8/22/18	Tue 8/28/18
15	**Season 1 Demobilization**	**Wed 8/29/18**	**Thu 8/30/18**
16	**Season 2 Mobilization**	**Mon 6/17/19**	**Thu 6/20/19**
17	**Upper Barrier Site (UBS)**	**Fri 6/21/19**	**Fri 10/25/19**
18	Improve Foot Access/Build Work Deck	Fri 6/21/19	Wed 7/3/19
19	Install Clear Water Diversion	Fri 7/5/19	Tue 7/16/19
20	Boulder Removal	Wed 7/17/19	Sat 9/21/19
21	Regrade Channel	Mon 9/23/19	Tue 10/15/19
22	Remove Clear Water Diversion	Wed 10/16/19	Sat 10/19/19
23	Site Restoration	Mon 10/21/19	Fri 10/25/19
24	**Season 2 Demobilization**	**Mon 10/28/19**	**Tue 10/29/19**



Project: Eagle Canyon Fish Passage Improvement Project
Date: Fri 2/17/17

Task Milestone Summary