

Beaver Creek Barrier #1

12 E. Fish Passage Program: Barrier Evaluation Form - Single Culvert at Crossing

Location Information

Project Name: Beaver Creek Passage Program		IAC/SRFB Project #: 06-2248	Date of Visit: Summer 2006
Old FPA #:	New FPA #:		HPA #:
GPS Location: Set the GPS Datum to WGS84 and format to decimal degrees (not degrees, minutes, seconds)		Latitude:	Longitude:
¼ Section: SW	Section: 6	Township: 26N	Range: 18 <input checked="" type="checkbox"/> East <input type="checkbox"/> West
County: Chelan County		Parcel #: 261806440000	
Stream Name: Beaver Creek		WRIA #: 45	
Tributary To: Wenatchee River		Stream #:	
Driving Directions: From Leavenworth take the Chumstick Hwy to the town of Plain. At the intersection north of Plain, turn right onto the Chiwawa Loop Road. Proceed approximately 1.7 miles to a private driveway intersection. Project site is located on private drive going to large red barn. Beaver Creek barrier #1 at RM 1.9			

Landowner Information

Landowner Name: Youth Dynamics			Landowner Agent: Paul		
Mailing Address: 19537 Chiwawa Loop Road			Mailing Address:		
City: Leavenworth	State: WA	Zip: 98826	City:	State:	Zip:
Phone: (509) 763-3161	Fax: ()		Phone: ()	Fax: ()	
Cell: ()	Email:		Cell: ()	Email:	

Evaluator Information

Evaluator Name: Harza/BioAnalysts		Affiliation:	
Mailing Address: 2353 130th Avenue NE			
City: Bellevue		State:	Zip:
Phone: 425-602-4000	Fax: 425-602-4020	Cell:	Email:

Barrier Information (measurements in meters)

Is the stream fish-bearing? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown		Species, if known: steelhead, bull trout and coho	
Is this culvert a fish passage barrier? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> Level B needed			
Shape: round	Material: corrugated steel	Span/Diam: 0.93 m	Rise: 0.93 m
Water depth in culvert: 24 cm		Outfall drop: 24 cm	
Length: 1.3	Culvert slope(%): 1.3% <input type="checkbox"/> Laser level <input checked="" type="checkbox"/> Transit <input type="checkbox"/> Other (describe)		
Streambed material throughout culvert: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown		Apron: <input type="checkbox"/> None <input type="checkbox"/> Upstream <input type="checkbox"/> Downstream <input type="checkbox"/> Both	
Road width: 2.7m	Road fill at DS end: <2m	Plunge pool: Length to tailout: 4.15 m OHW width: 2.65 m Max depth: 0.83 m	
Bankfull width (outside of culvert influence): 2.65 m		Culvert span/bankfull width ratio: 0.35	
Problem with culvert: <input checked="" type="checkbox"/> Outfall drop <input checked="" type="checkbox"/> Slope <input type="checkbox"/> Velocity <input type="checkbox"/> Depth		Percent passability: <input checked="" type="checkbox"/> 0% <input type="checkbox"/> 33% <input type="checkbox"/> 67% <input type="checkbox"/> 100%	
Will this culvert be entered into the WDFW-FPDSI (formerly SSHEAR) database? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, Site ID #:			

Comments:

Attachments

☒ Photos ☐ Level A Assessment ☒ Site Map ☒ Other ☐ Additional Comments

Fish Passage Program: Expanded Barrier Evaluation Form

Project Information

Project Name: Beaver Creek Passage Program (Barrier #1) **IAC/SRFB Project #:** 06-2248 **Date:** 2006

Evaluator Information

Evaluator Name: Harza/BioAnalysts **Affiliation:** Consultant to County

Mailing Address: 2353 130th Avenue NE

City: Bellevue **State:** WA **Zip:** 98005

Phone: 425-602-4000 **Cell:** **FAX:** 425-602-4020 **Email:**

Watershed Information

Basin area (square miles above culvert): 9.89 sq mi **Amount of habitat available upstream:** 161(m)

Stream flow: ☒ Perennial ☐ Intermittent ☐ Unknown **Source of information:** USGS topographic map

Has a barrier inventory been conducted in the watershed? ☒ Yes ☐ No If yes, list source and date completed:

Are there downstream barriers? ☒ Yes ☐ No If yes, describe. List source; use separate sheet if necessary:

Are there upstream barriers? ☒ Yes ☐ No If yes, describe. List source; use separate sheet if necessary:

Has the stream been walked? ☒ Yes ☐ No If yes, information source:

Has a WDFW Priority Index number been calculated for this barrier? ☐ Yes ☒ No If yes, PI#:

Fish Species/Use

Species present at site: ☒ Bull trout/Dolly ☐ Chinook ☐ Chum ☒ Coho ☐ Cutthroat
☒ Resident Trout ☐ Sockeye ☒ Steelhead ☐ Pink ☐ Brook/Brown

Information source: See Beaver Creek Passage Program Project Report for more details.

Current fish use downstream from barrier (include source of information): See Beaver Creek Passage Program Project Report.

Current fish use upstream from barrier (include source of information): None

What species and life history stages might use the habitat made accessible by the project? Steelhead and rainbow trout (adult and juvenile), coho (adult and juvenile), bull trout (juvenile)

Provide a qualitative description (canopy and instream cover, channel stability and complexity, spawning gravel quality and quantity, human alterations) of the habitat that will be made available by barrier correction, if available. Include source of information:

Fish Passage Program: Correction Analysis Form

Site Information (measurements in meters)

Project Name: Beaver Creek Passage Project (Culvert #1)	IAC/SRFB Project #: 06-2248	Date: 2006
Bankfull Width (outside of influence from the culvert): 2.65 m	Utilities Crossing: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown	
Road Fill at Downstream End: <2m	Road Width: 2.7m	
Road Description/condition (mainline, spur road, driveway/access): private drive at Chiwawa Loop Road.		

Evaluator Information

Evaluator Name: Harza/BioAnalysts		Affiliation: Consultant to Chelan County	
Mailing Address: 2353 130th Avenue NE			
City: Bellevue		State: WA	Zip: 98005
Phone: 425-602-4000	Cell:	FAX: 425-602-4020	Email:

Upstream Habitat/Channel Description

Channel Slope (outside of culvert influence): %	Regrade Potential (streambed US – streambed DS, in feet):
Dominant Substrate: <input type="checkbox"/> sand (<.20") <input checked="" type="checkbox"/> gravel (.20"–3") <input type="checkbox"/> cobble (3"-12") <input type="checkbox"/> boulder (>12") <input type="checkbox"/> bedrock	
Additional upstream information, habitat description, other site conditions or concerns, including potential regrade impacts relative to channel stability and habitat:	

Downstream Habitat/Channel Description

Channel Slope: % (outside of culvert influence)	
Additional downstream information, habitat description, other site conditions or concerns:	

Correction Options and Preferred Alternative

<p><i>Options to consider – Provide up to three site-appropriate correction alternatives.</i></p> <p>Option 1: Replace existing culvert with modular bridge</p> <p>Option 2: Replace existing culvert with Super-Cor box culvert</p> <p>Option 3: Retro-fit existing culvert</p>
<p><i>Preferred alternative - Provide a one or two paragraph recommendation for this site. Include any site-specific concerns that will need to be addressed during design and construction: Replace existing culvert with modular bridge</i></p>

Cost Estimates

Rough cost estimate* - Attach detailed cost breakdown using the appropriate cost estimate template, provided separately.

- Option 1: \$96,595
- Option 2: \$131,892
- Option 3: \$39,874

* This is a rough approximation of project costs; actual costs may vary depending on specifications identified during final project design.

12b. Beaver Creek Barrier #1 Alternative In-Stream Passage Cost Estimates

IN-STREAM PASSAGE includes those items that affect or provide fish migration up and downstream to include road crossings (bridges and culverts), barriers (dams, log jams), fishways (ladders, chutes, pools), and log and rock weirs.

Alternative 1					
Replace existing culvert with Modular Bridge					
Item	Unit	Qty.	Total Cost	Description Needed	Description (60 characters max.)
Bridge	Each	1	37,000	Length/width	30x16
Carcass placement	Linear ft			Describe	
Culvert improvements	Each			Describe	
Dam removal	Each			Describe	
Debris removal	Each			Optional	
Diversion dam	Each			Size/material	
Fishway	Each	1	3,400	Length/width	120ft./24ft.
Log control (weir)	Each			Optional	
Mobilization	Lump sum		2,000	Optional	Transport equipment
Permits	Lump sum		7,000	Optional	Design coordination
Rock control (weir)	Each	4	6,000	Optional	Grade control structures
Roughened channel	Linear ft	120	3,000	Describe	New streambed
Signage	Each		1,200	Describe	Construction signing
Site maintenance	Lump sum		1,000	Describe	Dust abatement
Traffic control	Lump sum		1,200	Describe	Flaggers as necessary
Utility crossing	Lump sum		1,000	Describe	Future utility extension
Water management	Lump sum		5,000	Describe	Stream diversion
Work site restoration	Acres	.5	1,000	Describe	Re-vegetation
Sales Tax			5,504		
Sub-Total			74,304		
Architecture, Engineering, & Admin. (30% of Sub-Total)			22,291		
TOTAL COST			96,595		
Match			31,000		
TOTAL COST			127,595		

Alternative 2					
Replace existing culvert with Super-Cor box culvert					
Item	Unit	Qty.	Total Cost	Description Needed	Description (60 characters max.)
Super-Cor Bottomless Arch	Each	1	42,800	Length/width	35x20
Carcass placement	Linear ft			Describe	
Culvert improvements	Each			Describe	
Dam removal	Each			Describe	
Debris removal	Each			Optional	
Diversion dam	Each			Size/material	
Fishway	Each	1	3,400	Length/width	120ft./24ft.
Log control (weir)	Each			Optional	
Mobilization	Lump sum		2,000	Optional	Transport equipment
Permits	Lump sum		7,000	Optional	Design coordination
Rock control (weir)	Each	4	6,000	Optional	Grade control structures
Roughened channel	Linear ft	120	3,000	Describe	New streambed
Signage	Each		1,200	Describe	Construction signing
Site maintenance	Lump sum		1,000	Describe	Dust abatement
Traffic control	Lump sum		1,200	Describe	Flaggers as necessary
Utility crossing	Lump sum		1,000	Describe	Future utility extension
Water management	Lump sum		5,000	Describe	Stream diversion
Work site restoration	Acres	1	2,000	Describe	Re-vegetation
Sales Tax			7515		
Sub-Total			101,455		
Architecture, Engineering, & Admin. (30% of Sub-Total)			30,436		
SRFB Request			131,892		
Match			31,000		
TOTAL COST			162,892		

Purchase of equipment is not an allowable cost.

Alternative 3 Retrofit existing culvert					
Item	Unit	Qty.	Total Cost	Description Needed	Description (60 characters max.)
Retro-fit existing culverts	Each	1		Length/width	
Carcass placement	Linear ft			Describe	
Culvert improvements	Each			Describe	
Dam removal	Each			Describe	
Debris removal	Each			Optional	
Diversion dam	Each			Size/material	
Fishway	Each	1	3,400	Length/width	120ft./24ft.
Log control (weir)	Each			Optional	
Mobilization	Lump sum		2,000	Optional	Transport equipment
Permits	Lump sum		7,000	Optional	Design coordination
Rock control (weir)	Each	4	6,000	Optional	Grade control structures
Roughened channel	Linear ft	120	3,000	Describe	New streambed
Signage	Each		1,200	Describe	Construction signing
Site maintenance	Lump sum		2,200	Describe	Dust abatement
Utility crossing	Lump sum		1,000	Describe	Future utility extension
Water management	Lump sum		5,000	Describe	Stream diversion
Work site restoration	Acres	1	2,000	Describe	Re-vegetation
Sales Tax			272		
Sub-Total			30,672		
Architecture, Engineering, & Admin. (30% of Sub-Total)			9,202		
SRFB Request			39,874		
Match			31,000		
TOTAL COST			70,874		

This alternative would require a hydraulic analysis before this option could be considered.

Beaver Creek Barrier #2

12 E. Fish Passage Program: Barrier Evaluation Form - Single Culvert at Crossing

Location Information

Project Name: Beaver Creek Passage Project (Culvert #2)		IAC/SRFB Project #: 06-2248	Date of Visit: 2006
Old FPA #:	New FPA #:		HPA #:
GPS Location: Set the GPS Datum to WGS84 and format to decimal degrees (not degrees, minutes, seconds)		Latitude:	Longitude:
¼ Section: SW	Section: 5	Township: 26N	Range: 18 <input checked="" type="checkbox"/> East <input type="checkbox"/> West
County: Chelan County		Parcel #:	
Stream Name: Beaver Creek		WRIA #: 45	
Tributary To: Wenatchee River		Stream #:	
Driving Directions: From Leavenworth take the Chumstick Hwy 7.2 miles and turn Left onto Camp 12/Primitive Park road for 3.2 miles and continue right on Camp12/Primitive Park Rd. for another 2.4 miles. Stay straight to go onto Chiwawa Loop Road for 1.1 miles and turn Right onto the Alpine Boys Ranch/Youth Dynamics property where the first culvert Beaver Creek barrier #1 at RM 2.0			

Landowner Information

Landowner Name: Robert and Ruth Renberg			Landowner Agent:		
Mailing Address: 19651 Chiwawa Loop Road			Mailing Address:		
City: Leavenworth	State: WA	Zip: 98826	City:	State:	Zip:
Phone: ()	Fax: ()		Phone: ()	Fax: ()	
Cell: ()	Email:		Cell: ()	Email:	

Evaluator Information

Evaluator Name: Harza/BioAnalysts		Affiliation: Consultant to Chelan County			
Mailing Address: 2353 130th Avenue NE					
City: Bellevue		State: WA		Zip: 98005	
Phone: 425-602-4000	Fax: 425-602-4020	Cell:	Email:		

Barrier Information (measurements in meters)

Is the stream fish-bearing? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown		Species, if known: steelhead, bull trout and coho			
Is this culvert a fish passage barrier? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> Level B needed					
Shape: round	Material: smooth steel	Span/Diam: 1.18 m	Rise: 1.18 m	Water depth in culvert: 16 cm	Outfall drop: 32 cm
Length: 6.5 m	Culvert slope(%): 4.6% <input type="checkbox"/> Laser level <input checked="" type="checkbox"/> Transit <input type="checkbox"/> Other (describe)				
Streambed material throughout culvert: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown			Apron: <input type="checkbox"/> None <input type="checkbox"/> Upstream <input type="checkbox"/> Downstream <input type="checkbox"/> Both		
Road width: 2.4m	Road fill at DS end: <2m	Plunge pool: Length to tailout: 3.12 m OHW width: 3.5m Max depth: 0.87 m			
Bankfull width (outside of culvert influence): 3.75 m			Culvert span/bankfull width ratio: 0.31		
Problem with culvert: <input checked="" type="checkbox"/> Outfall drop <input type="checkbox"/> Slope <input checked="" type="checkbox"/> Velocity <input type="checkbox"/> Depth			Percent passability: <input checked="" type="checkbox"/> 0% <input type="checkbox"/> 33% <input type="checkbox"/> 67% <input type="checkbox"/> 100%		
Will this culvert be entered into the WDFW-FPDSI (formerly SSHEAR) database? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, Site ID #:					
Comments:					

Attachments

☒ Photos ☐ Level A Assessment ☒ Site Map ☒ Other ☐ Additional Comments

Fish Passage Program: Expanded Barrier Evaluation Form

Project Information

Project Name: Beaver Creek Passage Project (Culvert #2) **IAC/SRFB Project #:** 06-2248 **Date:** 2006

Evaluator Information

Evaluator Name: Harza/BioAnalysts **Affiliation:** Consultant to Chelan County

Mailing Address: 2353 130th Avenue NE

City: Bellevue **State:** WA **Zip:** 98005

Phone: 425-602-4000 **Cell:** **FAX:** 425-602-4020 **Email:**

Watershed Information

Basin area (square miles above culvert): 8.8 sq mi **Amount of habitat available upstream:** 806(m)

Stream flow: ☒ Perennial ☐ Intermittent ☐ Unknown **Source of information:** USGS topographic map

Has a barrier inventory been conducted in the watershed? ☒ Yes ☐ No **If yes, list source and date completed:**

Are there downstream barriers? ☒ Yes ☐ No **If yes, describe. List source; use separate sheet if necessary:**

Are there upstream barriers? ☒ Yes ☐ No **If yes, describe. List source; use separate sheet if necessary:**

Has the stream been walked? ☒ Yes ☐ No **If yes, information source:**

Has a WDFW Priority Index number been calculated for this barrier? ☒ Yes ☐ No **If yes, PI#:** 21.7

Fish Species/Use

Species present at site:

<input type="checkbox"/> Bull trout/Dolly	<input type="checkbox"/> Chinook	<input type="checkbox"/> Chum	<input type="checkbox"/> Coho	<input type="checkbox"/> Cutthroat
<input type="checkbox"/> Resident Trout	<input type="checkbox"/> Sockeye	<input type="checkbox"/> Steelhead	<input type="checkbox"/> Pink	<input type="checkbox"/> Brook/Brown

Information source: Fish have not been found past Culvert #1. See the Beaver Creek Passage Project Report for details.

Current fish use downstream from barrier (include source of information): See the Beaver Creek Passage Project Report for details.

Current fish use upstream from barrier (include source of information): See the Beaver Creek Passage Project Report for details.

What species and life history stages might use the habitat made accessible by the project? Steelhead and rainbow trout (adults and juveniles), coho (adults and juveniles) and bull trout (juveniles)

Provide a qualitative description (canopy and instream cover, channel stability and complexity, spawning gravel quality and quantity, human alterations) of the habitat that will be made available by barrier correction, if available. Include source of information:

Fish Passage Program: Correction Analysis Form

Site Information (measurements in meters)

Project Name: Beaver Creek Passage Program (Culvert #2)	IAC/SRFB Project #: 06-2248	Date: 2006
Bankfull Width (outside of influence from the culvert): 3.75 m	Utilities Crossing: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown	
Road Fill at Downstream End: <2m	Road Width: 3.7m	
Road Description/condition (mainline, spur road, driveway/access): Private drive off Chiwawa Loop Road		

Evaluator Information

Evaluator Name: Harza/BioAnalysts		Affiliation: Consultant to Chelan County	
Mailing Address: 2353 130th Avenue NE			
City: Bellevue		State: WA	Zip: 98005
Phone: 425-602-4000	Cell:	FAX: 425-602-4020	Email:

Upstream Habitat/Channel Description

Channel Slope (outside of culvert influence): %	Regrade Potential (streambed US – streambed DS, in feet):
Dominant Substrate: <input type="checkbox"/> sand (<.20") <input type="checkbox"/> gravel (.20"–3") <input type="checkbox"/> cobble (3"-12") <input type="checkbox"/> boulder (>12") <input type="checkbox"/> bedrock	
Additional upstream information, habitat description, other site conditions or concerns, including potential regrade impacts relative to channel stability and habitat:	

Downstream Habitat/Channel Description

Channel Slope: % (outside of culvert influence)	Additional downstream information, habitat description, other site conditions or concerns:
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Correction Options and Preferred Alternative

<p><i>Options to consider – Provide up to three site-appropriate correction alternatives.</i></p> <p>Option 1: Replace existing culvert with modular bridge</p> <p>Option 2: Replace existing culvert with Super-Cor box culvert</p> <p>Option 3: Retro-fit existing culvert</p>
<p><i>Preferred alternative - Provide a one or two paragraph recommendation for this site. Include any site-specific concerns that will need to be addressed during design and construction: Replace existing culvert with modular bridge</i></p>

Cost Estimates

Rough cost estimate* - Attach detailed cost breakdown using the appropriate cost estimate template, provided separately.

- Option 1: \$97,999
- Option 2: \$131,892
- Option 3: \$39,874

* This is a rough approximation of project costs; actual costs may vary depending on specifications identified during final project design.

12b. Beaver #2 Alternative In-Stream Passage Cost Estimate

IN-STREAM PASSAGE includes those items that affect or provide fish migration up and downstream to include road crossings (bridges and culverts), barriers (dams, log jams), fishways (ladders, chutes, pools), and log and rock weirs.

Alternative 1 Replace existing culvert with Modular Bridge

Item	Unit	Qty.	Total Cost	Description Needed	Description (60 characters max.)
Bridge	Each	1	37,000	Length/width	30x16
Carcass placement	Linear ft			Describe	
Culvert improvements	Each			Describe	
Dam removal	Each	1	1,000	Describe	Remove existing wooden dam
Debris removal	Each			Optional	
Diversion dam	Each			Size/material	
Fishway	Each	1	3,400	Length/width	120ft./24ft.
Log control (weir)	Each			Optional	
Mobilization	Lump sum		2,000	Optional	Transport equipment
Permits	Lump sum		7,000	Optional	Design coordination
Rock control (weir)	Each	4	6,000	Optional	Grade control structures
Roughened channel	Linear ft	120	3,000	Describe	New streambed
Signage	Each		1,200	Describe	Construction signing
Site maintenance	Lump sum		1,000	Describe	Dust abatement
Traffic control	Lump sum		1,200	Describe	Flaggers as necessary
Utility crossing	Lump sum		1,000	Describe	Future utility extension
Water management	Lump sum		5,000	Describe	Stream diversion
Work site restoration	Acres	.5	1,000	Describe	Re-vegetation
Sales Tax			5,584		
Sub-Total			75,384		
Architecture, Engineering, & Admin. (30% of Sub-Total)			22,615		
SRFB Request			97,999		
Match			31,000		
TOTAL COST			128,999		

Purchase of equipment is not an allowable cost.

Alternative 2					
Replace existing culvert with Super-Cor box culvert					
Item	Unit	Qty.	Total Cost	Description Needed	Description (60 characters max.)
Super-Cor Bottomless Arch	Each	1	42,800	Length/width	35x20
Carcass placement	Linear ft			Describe	
Culvert improvements	Each			Describe	
Dam removal	Each			Describe	
Debris removal	Each			Optional	
Diversion dam	Each			Size/material	
Fishway	Each	1	3,400	Length/width	120ft./24ft.
Log control (weir)	Each			Optional	
Mobilization	Lump sum		2,000	Optional	Transport equipment
Permits	Lump sum		7,000	Optional	Design coordination
Rock control (weir)	Each	4	6,000	Optional	Grade control structures
Roughened channel	Linear ft	120	3,000	Describe	New streambed
Signage	Each		1,200	Describe	Construction signing
Site maintenance	Lump sum		1,000	Describe	Dust abatement
Traffic control	Lump sum		1,200	Describe	Flaggers as necessary
Utility crossing	Lump sum		1,000	Describe	Future utility extension
Water management	Lump sum		5,000	Describe	Stream diversion
Work site restoration	Acres	1	2,000	Describe	Re-vegetation
Sales Tax			7515		
Sub-Total			101,455		
Architecture, Engineering, & Admin. (30% of Sub-Total)			30,436		
SRFB Request			131,892		
Match			31,000		
TOTAL COST			162,892		

Purchase of equipment is not an allowable cost.

Alternative 3 Retrofit existing culvert					
Item	Unit	Qty.	Total Cost	Description Needed	Description (60 characters max.)
Retro-fit existing culverts	Each	1		Length/width	
Carcass placement	Linear ft			Describe	
Culvert improvements	Each			Describe	
Dam removal	Each			Describe	
Debris removal	Each			Optional	
Diversion dam	Each			Size/material	
Fishway	Each	1	3,400	Length/width	120ft./24ft.
Log control (weir)	Each			Optional	
Mobilization	Lump sum		2,000	Optional	Transport equipment
Permits	Lump sum		7,000	Optional	Design coordination
Rock control (weir)	Each	4	6,000	Optional	Grade control structures
Roughened channel	Linear ft	120	3,000	Describe	New streambed
Signage	Each		1,200	Describe	Construction signing
Site maintenance	Lump sum		2,200	Describe	Dust abatement
Utility crossing	Lump sum		1,000	Describe	Future utility extension
Water management	Lump sum		5,000	Describe	Stream diversion
Work site restoration	Acres	1	2,000	Describe	Re-vegetation
Sales Tax			272		
Sub-Total			30,672		
Architecture, Engineering, & Admin. (30% of Sub-Total)			9,202		
SRFB Request			39,874		
Match			31,000		
TOTAL COST			70,874		

This alternative would require a hydraulic analysis before this option could be considered.

Beaver Creek Barrier #3

12 E. Fish Passage Program: Barrier Evaluation Form - Single Culvert at Crossing		
Location Information		
Project Name: Beaver Creek Passage Program (Culvert #3)		IAC/SRFB Project #: 06-2248
		Date of Visit: 2006
Old FPA #:	New FPA #:	HPA #:

GPS Location: Set the GPS Datum to WGS84 and format to decimal degrees (not degrees, minutes, seconds)		Latitude:		Longitude:	
¼ Section: SW	Section: 5	Township: 26N	Range: 18 <input checked="" type="checkbox"/> East <input type="checkbox"/> West		
County: Chelan County		Parcel #: 261805300100			
Stream Name: Beaver Creek		WRIA #: 45			
Tributary To: Wenatchee River		Stream #:			
Driving Directions: From Leavenworth take the Chumstick Hwy 7.2 miles and turn Left onto Camp 12/Primitive Park road for 3.2 miles and continue right on Camp12/Primitive Park Rd. for another 2.4 miles. Stay straight to go onto Chiwawa Loop Road for 1.1 miles and turn Right onto the Alpine Boys Ranch/Youth Dynamics property where the first culvert Beaver Creek barrier #1 at RM 2.5					
Landowner Information					
Landowner Name: Brian Webber			Landowner Agent:		
Mailing Address: 18515 80th Avenue NE			Mailing Address:		
City: Kenmore	State: WA	Zip: 98028	City:	State:	Zip:
Phone: ()	Fax: ()	Phone: ()	Fax: ()		
Cell: ()	Email:	Cell: ()	Email:		
Evaluator Information					
Evaluator Name: Harza/BioAnalysts			Affiliation: Consultant to Chelan County		
Mailing Address: 2353 130th Avenue NE					
City: Bellevue			State: WA	Zip: 98005	
Phone: 425-602-4000	Fax:	Cell: 425-602-4020	Email:		
Barrier Information (measurements in meters)					
Is the stream fish-bearing? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown			Species, if known: steelhead, coho and bull trout		
Is this culvert a fish passage barrier? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> Level B needed					
Shape: round	Material: corrugated steel	Span/Diam: 1.12 m	Rise: 1.12 m	Water depth in culvert: 34 cm	Outfall drop: 0
Length: 6.4 m	Culvert slope(%): 0.9% <input type="checkbox"/> Laser level <input checked="" type="checkbox"/> Transit <input type="checkbox"/> Other (describe)				
Streambed material throughout culvert: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown			Apron: <input type="checkbox"/> None <input type="checkbox"/> Upstream <input type="checkbox"/> Downstream <input type="checkbox"/> Both		
Road width: 3.6m	Road fill at DS end: <	Plunge pool: Length to tailout: 0 OHW width: 0 Max depth: 0			
Bankfull width (outside of culvert influence): 2.74m			Culvert span/bankfull width ratio: 0		
Problem with culvert: <input type="checkbox"/> Outfall drop <input checked="" type="checkbox"/> Slope <input checked="" type="checkbox"/> Velocity <input type="checkbox"/> Depth			Percent passability: <input checked="" type="checkbox"/> 0% <input type="checkbox"/> 33% <input type="checkbox"/> 67% <input type="checkbox"/> 100%		
Will this culvert be entered into the WDFW-FPDSI (formerly SSHEAR) database? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, Site ID #:					
Comments:					
Attachments					
<input checked="" type="checkbox"/> Photos <input type="checkbox"/> Level A Assessment <input checked="" type="checkbox"/> Site Map <input checked="" type="checkbox"/> Other <input type="checkbox"/> Additional Comments					

Fish Passage Program: Expanded Barrier Evaluation Form

Project Information

Project Name: *Beaver Creek Passage Program (Culvert #3)* **IAC/SRFB Project #:** *06-2248* **Date:** *2006*

Evaluator Information

Evaluator Name: **Harza/BioAnalysts** Affiliation: **Consultant to County**

Mailing Address: **2353 130th Avenue NE**

City: **Bellevue** State: **WA** Zip: **98005**

Phone: **425-602-4000** Cell: FAX: **425-602-4020** Email:

Watershed Information

Basin area (square miles above culvert): **8 sq mi** Amount of habitat available upstream: **3854(m)**

Stream flow: ☒ Perennial ☐ Intermittent ☐ Unknown Source of information: **USGS topographic map**

Has a barrier inventory been conducted in the watershed? ☒ Yes ☐ No If yes, list source and date completed:

Are there downstream barriers? ☒ Yes ☐ No If yes, describe. List source; use separate sheet if necessary:

Are there upstream barriers? ☐ Yes ☒ No If yes, describe. List source; use separate sheet if necessary:

Has the stream been walked? ☒ Yes ☐ No If yes, information source:

Has a WDFW Priority Index number been calculated for this barrier? ☐ Yes ☒ No If yes, PI#:

Fish Species/Use

Species present at site: ☐ Bull trout/Dolly ☐ Chinook ☐ Chum ☐ Coho ☐ Cutthroat
☐ Resident Trout ☐ Sockeye ☐ Steelhead ☐ Pink ☐ Brook/Brown

Information source: **See Beaver Creek Passage Program Project Report for more details.**

Current fish use downstream from barrier (include source of information): No fish beyond Culvert #1. **See Beaver Creek Passage Program Project Report for more details.**

Current fish use upstream from barrier (include source of information): **See Beaver Creek Passage Program Project Report for more details.**

What species and life history stages might use the habitat made accessible by the project? **Steelhead and rainbow trout (adults and juveniles), coho (adults and juveniles) and bull trout (juveniles)**

Provide a qualitative description (canopy and instream cover, channel stability and complexity, spawning gravel quality and quantity, human alterations) of the habitat that will be made available by barrier correction, if available. Include source of information:

Fish Passage Program: Correction Analysis Form

Site Information (measurements in meters)

Project Name: Beaver Creek Passage Program (Culvert #3)	IAC/SRFB Project #: 06-2248	Date: 2006
Bankfull Width (outside of influence from the culvert): 2.74	Utilities Crossing: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown	
Road Fill at Downstream End: <2m	2.7m	
Road Description/condition (mainline, spur road, driveway/access): Private drive off Chiwawa Loop Road.		

Evaluator Information

Evaluator Name: Harza/BioAnalysts		Affiliation: Consultant to County	
Mailing Address: 2353 130th Avenue NE			
City: Bellevue		State: WA	Zip: 98005
Phone: 425-602-4000	Cell:	FAX: 425-602-4020	Email:

Upstream Habitat/Channel Description

Channel Slope (outside of culvert influence): %	Regrade Potential (streambed US – streambed DS, in feet):
Dominant Substrate: <input type="checkbox"/> sand (<.20") <input type="checkbox"/> gravel (.20"–3") <input type="checkbox"/> cobble (3"-12") <input type="checkbox"/> boulder (>12") <input type="checkbox"/> bedrock	
Additional upstream information, habitat description, other site conditions or concerns, including potential regrade impacts relative to channel stability and habitat:	

Downstream Habitat/Channel Description

Channel Slope: % (outside of culvert influence)	
Additional downstream information, habitat description, other site conditions or concerns:	

Correction Options and Preferred Alternative

<p><i>Options to consider – Provide up to three site-appropriate correction alternatives.</i></p> <p>Option 1: Replace existing culvert with modular bridge</p> <p>Option 2: Replace existing culvert with Super-Cor box culvert</p> <p>Option 3: Retro-fit existing culvert</p>
<p><i>Preferred alternative - Provide a one or two paragraph recommendation for this site. Include any site-specific concerns that will need to be addressed during design and construction: Replace existing culvert with modular bridge</i></p>

Cost Estimates

Rough cost estimate* - Attach detailed cost breakdown using the appropriate cost estimate template, provided separately.

- Option 1: \$99,965
- Option 2: \$131,892
- Option 3: \$39,874

* This is a rough approximation of project costs; actual costs may vary depending on specifications identified during final project design.

12b. Beaver #3 Alternative In-Stream Passage Cost Estimates

IN-STREAM PASSAGE includes those items that affect or provide fish migration up and downstream to include road crossings (bridges and culverts), barriers (dams, log jams), fishways (ladders, chutes, pools), and log and rock weirs.

Alternative 1					
Replace existing culvert with Modular Bridge					
Item	Unit	Qty.	Total Cost	Description Needed	Description (60 characters max.)
Bridge	Each	1	37,000	Length/width	30x16
Carcass placement	Linear ft			Describe	
Culvert improvements	Each			Describe	
Dam removal	Each			Describe	
Debris removal	Each			Optional	
Diversion dam	Each			Size/material	
Fishway	Each	1	3,400	Length/width	120ft./24ft.
Log control (weir)	Each			Optional	
Mobilization	Lump sum		2,000	Optional	Transport equipment
Permits	Lump sum		7,000	Optional	Design coordination
Rock control (weir)	Each	6	9,000	Optional	Grade control structures
Roughened channel	Linear ft	120	3,000	Describe	New streambed
Signage	Each		1,000	Describe	Construction signing
Site maintenance	Lump sum		1,000	Describe	Dust abatement
Traffic control	Lump sum		1,000	Describe	Flaggers as necessary
Utility crossing	Lump sum		1,000	Describe	Future utility extension
Water management	Lump sum		5,000	Describe	Stream diversion
Work site restoration	Acres	.5	1,000	Describe	Re-vegetation
Sales Tax			5,659		
Sub-Total			76,896		
Architecture, Engineering, & Admin. (30% of Sub-Total)			23,069		
SRFB Request			99,965		
Match			31,000		
TOTAL COST			130,965		

Purchase of equipment is not an allowable cost.

Alternative 2 Replace existing culvert with Super-Cor box culvert					
Item	Unit	Qty.	Total Cost	Description Needed	Description (60 characters max.)
Super-Cor Bottomless Arch	Each	1	42,800	Length/width	35x20
Carcass placement	Linear ft			Describe	
Culvert improvements	Each			Describe	
Dam removal	Each			Describe	
Debris removal	Each			Optional	
Diversion dam	Each			Size/material	
Fishway	Each	1	3,400	Length/width	120ft./24ft.
Log control (weir)	Each			Optional	
Mobilization	Lump sum		2,000	Optional	Transport equipment
Permits	Lump sum		7,000	Optional	Design coordination
Rock control (weir)	Each	4	6,000	Optional	Grade control structures
Roughened channel	Linear ft	120	3,000	Describe	New streambed
Signage	Each		1,200	Describe	Construction signing
Site maintenance	Lump sum		1,000	Describe	Dust abatement
Traffic control	Lump sum		1,200	Describe	Flaggers as necessary
Utility crossing	Lump sum		1,000	Describe	Future utility extension
Water management	Lump sum		5,000	Describe	Stream diversion
Work site restoration	Acres	1	2,000	Describe	Re-vegetation
Sales Tax			7515		
Sub-Total			101,455		
Architecture, Engineering, & Admin. (30% of Sub-Total)			30,436		
SRFB Request			131,892		
Match			31,000		
TOTAL COST			162,892		

Purchase of equipment is not an allowable cost.

Alternative 3 Retrofit existing culvert					
Item	Unit	Qty.	Total Cost	Description Needed	Description (60 characters max.)
Retro-fit existing culverts	Each	1		Length/width	
Carcass placement	Linear ft			Describe	
Culvert improvements	Each			Describe	
Dam removal	Each			Describe	
Debris removal	Each			Optional	
Diversion dam	Each			Size/material	
Fishway	Each	1	3,400	Length/width	120ft./24ft.
Log control (weir)	Each			Optional	
Mobilization	Lump sum		2,000	Optional	Transport equipment
Permits	Lump sum		7,000	Optional	Design coordination
Rock control (weir)	Each	4	6,000	Optional	Grade control structures
Roughened channel	Linear ft	120	3,000	Describe	New streambed
Signage	Each		1,200	Describe	Construction signing
Site maintenance	Lump sum		2,200	Describe	Dust abatement
Utility crossing	Lump sum		1,000	Describe	Future utility extension
Water management	Lump sum		5,000	Describe	Stream diversion
Work site restoration	Acres	1	2,000	Describe	Re-vegetation
Sales Tax			272		
Sub-Total			30,672		
Architecture, Engineering, & Admin. (30% of Sub-Total)			9,202		
SRFB Request			39,874		
Match			31,000		
TOTAL COST			70,874		

This alternative would require a hydraulic analysis before this option could be considered.