Salmon Program
State Recovery Projects
Application Project Summary

TITLE: Bear Creek Reach 6 Restoration

NUMBER: 12-1282
TYPE: (Restoration)
STATUS: Preapplication

APPLICANT: Adopt A Stream Foundation

CONTACT: CK Eidem
(425) 316-8592

COSTS:

RCO	$66,000	80 %
Local	$16,000	20 %
Total	$82,000	100 %

SPONSOR MATCH:

Appropriation \ Cash	$3,000
Donated Labor	$3,000
Grant - Other	$10,000

DESCRIPTION:

Adopt A Stream Foundation (AASF) proposes to restore 370 linear feet of Bear Creek located in Friendly Village (18509 NE 95th Street) in the City of Redmond. The proposed project will:
1) convert 0.3 acres of lawn to riparian habitat with 100 new native trees and 500 shrubs,
2) widen the existing channel cross-section to reduce bank eriosion, improve flood capacity, and create space for a seasonal inundated plant community,
3) install large wood to create fish habitat, reduce erosion, and protect existing infrastructure.

AASF is working with the landowners to develop a restoration strategy for the entire property while actively coordinating with the City of Redmond to assure that the work is compatible with future restoration efforts in the reach .

This proposal builds upon AASF's work with private property owners in the Bear Creek reach to restore riparian areas, increase in-channel complexity and add large wood. AASF uses King County's 1994 Bear Creek and Evans Creek Capital Improvement Program Projects report to identify potential projects. In particular, restoration is needed throughout Friendly Village development in downstream end of reach and the equestrian center near the middle of the reach. AASF is currently under contract to scope and design stream restoration for the Friendly Village property owners. Degraded stream habitat conditions are found throughout the property.

LOCATION INFORMATION:

LEAD ENTITY ORG: WRIA 8 LE (King County)

COUNTY:

SCOPE (WORK TYPES):

- Channel reconfiguration and connectivity
- Channel structure placement
- Cultural resources
- Erosion control structures
- Obtain permits
- Planting
- Streambank stabilization

PERMITS ANTICIPATED:

Hydraulics Project Approval [HPA]

LAST UPDATED: May 15, 2012

DATE PRINTED: May 15, 2012

Restoration Cost Estimate Summary

Adopt A Stream Foundation

Bear Creek Reach 6 Restoration

12-1282

Restoration

Salmon State Projects

Category / Work Type	Total Cost	Description
Worksite #1, Friendly Village		
Cultural Resources		
Cultural resources	$0.00	
Instream Habitat Project		
Channel reconfiguration and connectivity	$32,000.00	
Channel structure placement	$15,000.00	
Streambank stabilization	$10,000.00	
Permits		
Obtain permits	$4,500.00	
Riparian Habitat Project		
Planting	$17,500.00	
Upland Habitat And Sediment Project		
Erosion control structures	$3,000.00	
Project Total Costs	**$82,000.00**	

Project Proposal – Bear Creek Floodplain and Riparian Restoration at Friendly Village (Reach 6)

Adopt A Stream Foundation

Please respond to each question individually – do not summarize your answers collectively in essay format. Local citizen and technical advisory groups will use this information to evaluate your project. Limit your response to eight pages.

Submit this proposal as a PRISM attachment titled "Project Proposal."

NOTE: Sponsors of barrier inventory projects should NOT fill out this proposal. They should instead use the Barrier Inventory Project Proposal.

1. Project Overview

   A. Describe the primary goal and objectives of this project. When answering this question please refer to chapter 4 of the *Stream Habitat Restoration Guidelines* online at wdfw.wa.gov/publications/pub.php?id=00043 for a definition of restoration goals and objectives.

The purpose of the project is to improve salmon habitat in the near-term along 350 linear feet of lower Bear Creek, a tributary to the Sammamish River and Lake Washington. The site is located in the City of Redmond, King County Washington. Goals at this site will support Chinook Recovery, they are:

Goal 1: Build a good relationship with landowner; help address flooding and erosion on site where compatible with stream restoration goals
Goal 2: Increase floodplain connectivity
Goal 3: Increase channel complexity
Goal 4: Improve channel stability
Goal 5: Decrease thermal pollution
Goal 6: Compatible with future restoration efforts in Bear Creek Reach 6

Objectives of this project are:

Objective 1: Site project in landowner's primary area of erosion concern (supports goal 1 and 6).
Objective 2: Design project to encourage floodplain connection in area compatible with landowner's existing land use (supports goal 1, 2, 4, and 6).
Objective 3: Grade peninsula to accommodate normal seasonal flooding and provide 10,000 cubic feet of additional flood storage (supports goal 1, 2, 4, and 6).
Objective 4: Add at least three large woody debris structures (minimum nine pieces of wood) anchor wood appropriately for conditions (supports Goals 1, 3, 4, 5, and 6).
Objective 5: Add at least 4 partially buried and anchored wood to peninsula to create additional channel roughness and erosion control during flooding events (supports Goals 3 and 4).

Objective 6: Replace lawn and install .35 acres of native vegetation (supports goals 1, 2, 3, 4, 5, and 6)

B. Describe the location of the project in the watershed, including the name of the water body(ies), upper and lower extent of the project (if only a portion of the watershed is targeted), and whether the project occurs in the near-shore, estuary, main stem, tributary, off channel, or other location.

The proposed project is located in Lower Bear Creek Subarea, Reach 6. This reach is identified in the WRIA 8 Chinook Conservation Plan as a Tier 1-Core Chinook Use.

C. Provide an overview of current project site conditions and the nature, source, and extent of the salmon recovery problem(s) or gap in knowledge that the project will address. Include current and historic factors important to understanding the need for this project. Be specific – avoid general statements. When possible, list your sources of information by citing specific studies, reports, and other documents.

For fish passage design/feasibility studies, concisely describe the passage problem (outfall, velocity, slope, etc.), the current barrier (age, material, shape, and condition), whether it is a complete or partial barrier, and the amount and quality of habitat to be opened if the barrier is corrected.

Projects that include acquisition should refer to the supplemental questions later in this worksheet for further guidance on information to include in their problem statement.

Project site is located in a +55 mobile home park called Friendly Village. Approximately 1,400 linear feet of highly degraded main stem Bear Creek is found on this property. Few native trees and shrubs remain in the riparian area, which is dominated by lawn, landscaping, structures, and pavement. This reach of stream (Reach 6) has been identified in various plans as having:

- **Decreased floodplain connectivity and decreased off-channel habitat because of channel confinement. Due to development the channel is somewhat disconnected from its historic flood plain and is constricted by several road crossings which results in reduced habitat conditions and flooding in developed portions of the property.**
- **Very little large woody debris. Wood is important because it increases channel complexity, contributes to channel stability, develops pools, traps sediment, and reduces water temperature.**
- **Poor coverage of native riparian vegetation. Restoring riparian vegetation will improve channel stability, provide sources of large woody debris that can contribute to creation of pools, and reduce peak water temperatures that favor non-native species.**

A major barrier to restoration here has been resistance from property owners due to lack of trust of

the government and a lack of understanding of stream processes.

D. Provide a detailed description of the proposed project and how it will address the problem described in question 1C. (Proposals that include an assessment or inventory should describe its design and methodology.)

Project will improve stream and riparian habitat conditions for salmon in the near term while more comprehensive solutions to degraded habitat in the reach are developed. The City of Redmond is actively working on comprehensive restoration solution in the reach and is coordinating with other groups that may be working in the reach (e.g. WSDOT). Adopt A Stream will help coordinate with Friendly Village in the future. The plan has been designed to fit seamlessly into several potential reach wide restoration outcomes and to be easily expandable as landowner willingness increases and additional funding becomes available. The site was chosen because it is a high priority for erosion control and flood mitigation for the landowner and it is in need of restoration.

A vital part of this project is to develop trust with the landowner. The project will improve salmon habitat, re-establishing stream processes in targeted locations that will also meet the landowner's goals, which are: erosion control, flood mitigation, and ease of maintenance. The scope of this project is intentionally incremental to develop that trust and help the landowner address his concerns regarding stream restoration techniques. Most importantly it provides time to develop a relationship and to demonstrate the effectiveness of salmon friendly erosion and flood mitigation techniques that should lead to willingness for more comprehensive restoration activities on site.

Widening the channel will restore floodplain connectivity and increase off-channel habitat by reducing channel confinement. By increasing flood storage in this location it may alleviate flooding on other portions of the property, which is a goal of the landowner.

Installing large woody debris will increase channel complexity, which contributes to channel stability and development of pools, trap sediment, and reduce water temperature. By stabilizing the channel: large wood will reduce erosion in targeted locations, stabilizing the bank. Creating pools is good for salmon and is also a goal of the landowner.

Restoring riparian vegetation will improve channel stability, provide sources of woody debris that can contribute to creation of pools, and reduce peak water temperatures that favor non-native species. Project will include a large conifer component that will become the future source of LWD.

Project effectiveness and monitoring will be conducted. Monitoring will include photo points, as built (for wood, plants, and grading) before and after channel cross sections in project reach. More intensive monitoring will be considered, as funds are available.

E. Clearly list and describe all products that will be produced (i.e., project deliverables). If the project will produce a design, please specify the level of design that will be developed (conceptual, preliminary, or final); design deliverables must comply with those described in Appendix D-1, D-2, and D-3.

Design is currently preliminary.
Deliverables:

- **Finalize design with engineer review.**
- **Applicable permits (HPA)**
- **Re-grade peninsula to plan: install coir and erosion control logs.**
- **Replace 15,300 SQFT of lawn with native plants (0.35 acre).**
- **Install 3 LWD structures (minimum of 12 12" diameter by 20' long pieces of wood)**

F. If the project will occur in phases or is part of a larger recovery strategy, describe the goal of the overall strategy, explain individual sequencing steps and which steps are included in this application.

The proposed project will support implementation of a priority habitat restoration action identified in the Lake Washington/Cedar/Sammamish Watershed Chinook Salmon Conservation Plan (N214). At this time it is not a phase of a larger project but will be part of a reach wide effort in Reach 6 of Bear Creek to re-connect floodplains, add wood, and plant native vegetation. The proposed project is also designed to be expandable at this site; there is more area to plant on this parcel and opportunities for LWD.

The project is designed to be implemented quickly benefiting salmon; while more comprehensive efforts are developed by the City of Redmond and others (WSDOT). It is also intended to be incremental in order to build a relationship with the landowner. The City of Redmond is very interested in working with this landowner too and hopes to build on our relationship.

The entire reach is ripe for habitat restoration, the City of Redmond, King County, WSDOT, and private parties all have the intent to restore streams and wetlands on adjacent parcels. The final shape of those efforts is still being developed. We have been in contact with City of Redmond to assure that the proposed restoration project will fit into reach wide efforts they and others are considering. AASF is relying on the fact that the City of Redmond is in contact and coordinating with other agencies especially King County and WSDOT.

G. Has any part of this project previously been reviewed or funded by the SRFB? If yes, please provide the project name and SRFB project number (or year of application if a project number is not available). If the project was withdrawn from funding consideration or was not awarded SRFB funding, please describe how the current proposal differs from the original.

Unknown, AASF has not applied for SRFB at this site.

H. If your proposal includes an assessment or inventory (NOTE: project may extend across a wide area and cover multiple properties):

Project does not include an assessment or inventory.

i. Describe any previous or ongoing assessment or inventory work in your project's geographic area.

ii. Describe how the assessment or inventory addresses the stages and elements in *Guidance on Watershed Assessment for Salmon* (Joint Natural Resources Cabinet, May 2001, www.digitalarchives.wa.gov/governorlocke/gsro/watershed/watershed.pdf).

I. If your proposal includes developing a design:

i. Will the project design be developed by a licensed professional engineer? If your project will not be designed by a professional engineer, please describe the qualifications and experience of your project design team.

Adopt A Stream Foundation (AASF) staff will complete the design and have it reviewed by a licensed professional engineer (The engineer will provide a letter of support/feasibility but does not typically stamp plans they have not drawn). AASF has been designing and building in-stream restoration projects since 1985. This team designed and built almost this exact prescription in 2011 at an upstream location in Bear Creek, which successfully restored riparian vegetation, reduced bank erosion, increased habitat diversity, and increased flood storage. In 2011 this team designed 10 and installed 11 LWD projects in Lake Washington Tributaries at various scales, most in Bear Creek. In 2010 the same team designed 5 and installed 6 LWD projects and in 2009 design/built 14 LWD projects, most in Lake Washington Tributaries.

ii. For final design projects, if you do not intend to apply for permits as part of this project's scope of work, please explain why and when permit applications will be submitted.

Intend to apply for permits as part of the project primarily using matching funds.

iii. For design projects intending to provide no match, verify you meet ALL of the following eligibility criteria. [Answer: n/a, Yes, or No]

1. The project addresses a particular problem at a specific location. (The project cannot include a general reach or watershed assessment to both identify and design a project.)
2. Funding request is $200,000 or less.
3. The project will be completed within 18 months of the SRFB funding meeting. (**Design-only projects will not be eligible for a time extension.**)
4. The project will develop a preliminary design or final project design. See Appendix D-2 and D-3 for design definitions and required deliverables.

J. If your proposal includes a fish passage or screening design:

i. Provide the Priority Index (PI) or Screening Priority Index (SPI) number and describe how it was generated (physical survey, reduced sample full survey, expanded threshold determination, or Washington Department of Fish and Wildlife generated [list source, such as a study or inventory]). Refer to the Department of Fish and Wildlife's *Fish Passage Barrier and Screening Assessment and Prioritization Manual* at wdfw.wa.gov/hab/engineer/fishbarr.htm for guidance.

ii. For fish passage design projects, identify other fish passage barriers downstream or upstream of this project.

2. Salmon Recovery Context

A. Describe the fish resources present at the site and targeted by this project.

Species	Life History Present (egg, juvenile, adult)	Current Population Trend (decline, stable, rising)	ESA Coverage (Y/N)	Life History Target (egg, juvenile, adult)
Chinook	egg, juvenile, adult	Decline	Y	Egg, juvenile, adult
Steelhead	egg, juvenile, adult	Decline	Y	egg, juvenile, adult
Coho	egg, juvenile, adult	Decline	N	egg, juvenile, adult
Sockeye	egg, juvenile, adult	Decline	N	egg, juvenile, adult
Cutthroat	egg, juvenile, adult	Unknown	N	egg, juvenile, adult
Kokanee	egg, juvenile, adult	Decline	N	egg, juvenile, adult

B. Describe how this project fits within your regional recovery plan or local lead entity strategy to restore or protect salmonid habitat in the watershed (i.e., Does the assessment fill a data gap identified as a priority in the lead entity's strategy or regional recovery plan? Does the project address a priority action, occur in a priority area, or target priority fish species?).

The Project will implement a priority action (floodplain reconnection and riparian restoration), benefit a priority species (Chinook), and the project area is located in the Lower Bear Creek Subarea, which is identified as Tier 1 – Core Chinook use in WRIA 8.

Bear Creek Reach 6 is identified in the Chinook Recovery Plan as the fifth highest priority reach in the subarea. The project will directly address several technical priorities for Bear/Cottage Lake Creeks in the WRIA 8 Conservation Strategy including:

- **Protecting and restoring riparian vegetation to improve channel stability, provide sources of large woody debris that can contribute to creation of pools, and reduce peak water temperatures that favor non-native species.**

- **Protecting and restoring floodplain connectivity and increase off-channel habitat by minimizing road crossings, reducing channel confinement, and removing floodplain structures. Protect and increase channel complexity, including large, woody debris, which contribute to channel stability and development of pools, trap sediment, and reduce water temperature.**

The project will mitigate the following Chinook habitat-limiting factors identified in Chapter 3: WRIA 8 Chinook Recovery Plan:

- **Loss of Floodplain Connectivity**
- **Lack of Riparian Vegetation**
- **Disrupted Sediment Processes**
- **Loss of Channel and Shoreline Complexity**

The proposed project will implement portions of project N214 listed in the WRIA 8 Chinook Conservation Plan. The overall technical hypothesis of N214 is to reduce fine sediment inputs, add LWD, restore riparian conditions, and reduce channel confinement. N214 calls out the proposed project area saying that "restoration is [sic] needed throughout Friendly Village".

C. Explain why it is important to do this project now instead of at a later date. Consider its sequence relative to other needs in the watershed and the current level and imminence of risk to habitat in your discussion.

The proposed project is important to complete now because of the immediate need for riparian restoration in this high priority reach and the willingness of the landowner to consider restoration.

Reach 6 of Lower Bear Creek needs trees because it is listed in Ecology's TMDL for Bear Creek as thermally polluted. This reach especially has very little native vegetation to shade and cool the water. This project will add trees and shrubs to 350 linear feet of Bear Creek. Planting trees does not immediately cool the stream but the sooner trees are planted the sooner they can begin to provide cooling benefits.

The landowner is willing to begin restoring the creek. Landowners at this site have been historically resistant to restoration efforts. Beginning a relationship with him and demonstrating stream restoration techniques will create a framework to engage him in more comprehensive restoration efforts in Reach 6.

3. Project Development

A. Describe other approaches and design alternatives that were considered to achieve the project's objectives and why the proposed alternative was selected.

Friendly Village has been identified as high restoration priority in Lower Bear Creek for some time. Project location and scope is the result of discussion with the landowner and the City of Redmond, and the need in the reach for immediate shade and in stream diversity. The project is designed to build trust with the landowner by meeting the landowner's needs and demonstrating

salmon friendly erosion and flooding solutions. The exact location addresses very real landowner concern's about erosion and flooding. The scope and scale of the project is designed to fit in with several long-term restoration outcomes being considered by the City of Redmond. Immediate need for planting along the entire bank at this parcel has been tempered with a consideration of the possibility of future more comprehensive restoration efforts. The design was also influenced by feasibility and AASF's familiarity with the techniques employed. The project is intended to be conservative and not radically alter stream course or hydrology. It should provide a stable planting area to establish native plants tolerant of yearly flooding.

B. Explain how the project's cost estimates were determined. Please include a detailed project cost estimate and attach in PRISM. Clearly label the attachment in PRISM "Cost Estimate."

Cost estimate is based on AASF experience on similar projects.

C. Include a Partner Contribution Form (Appendix J), when required, from each partner outlining the partner's role and contribution to the project. Refer to Section 3 of this manual for information on when a Partner Contribution Form is required.

Friendly Village has paid for survey, design, and will pay for a portion of the permitting. City of Redmond has been instrumental in planning the work and may contribute more as time goes on.

D. List all landowner names. If the proposed project occurs on land not owned by the grant applicant, include a signed Landowner Acknowledgement Form (Appendix K) when applicable, from each landowner acknowledging that his or her property is proposed for SRFB funding consideration. Refer to Section 3 of this manual for information on when a Landowner Acknowledgement Form is required.

Friendly Village of Redmond, Marcus Real Estate Services.

E. Describe your experience managing this type of project.

Adopt A Stream Foundation (AASF) has been managing projects like this since 1985. The project team is currently managing grants from SRFB, DOE, NFWF, and private foundations. The current AASF team has managed and installed 31 in-stream design build restoration projects since 2009.

4. Tasks and Schedule. List and describe the major tasks and schedule you will use to complete the project. Non-capital projects should be completed within two years of funding approval.

Pending funding approval:

- **Complete final design and permitting spring of 2013.**
- **Project implementation during the fish window 2013.**

5. Constraints and Uncertainties. Each project should include an adaptive management approach that provides for contingency planning. State any constraints, uncertainties, possible problems, delays, or unanticipated expenses

that may hinder completion of the project. Explain how you will address these issues as they arise and their likely impact on the project.

Assumes that design will meet approval by engineer with only minor alterations - If major alterations are necessary project will either be scaled back to stay within budget or additional funding will be secured - Not likely to occur.

Assumes that flood damage in 2013 will not force earlier fix or alter conditions beyond minor alterations - If major alterations are necessary project design will adjust which may or may not significantly add to overall cost - If costs do significantly rise and it becomes necessary the project may either be scaled back to stay within budget or additional funding will be secured. - Minor flood damage is likely to occur, major flood damage is somewhat likely to occur.

Assumes project will qualify for Fish Enhancement Hydraulic Project Approval from WDFW and will not need other local or federal permits - Project will be designed not to trigger federal review - If other permits are required project may be delayed and costs will rise - If more permitting is necessary project will either be scaled back to stay within budget or additional funding will be secured. Contingency is not likely to occur.

Project takes a design build approach to LWD structures and planting to allow for flexibility and changes to budget (both increases and decreases) - Project is designed to be scalable - Minor changes to design are likely to occur.

AASF will seek other funding from other grant sources, landowner, and/or City of Redmond, which may allow for unforeseen expenses or expanding the planting area - Additional funding is likely.

OPTION 1 COST ***does not include permitting**

IMPLEMENT AS DESIGNED WITH WOOD

LABOR	QTY	UNIT	PRICE	EXTENDED
Erosion BMPS	2	crew day	1600	3200
Excavation	15	crew day	1600	24000
Planting	5	crew day	1600	8000
Admin	25	hour	35	875
MATERIALS				
Coir	10000	SF	0.22	2200
Coir Stakes	20	PACK	10	200
Rootwads	300	EACH	10	3000
Straw Wattle	400	LF	1.1	440
Potted Plants	560	EACH	6	3360
Livestakes	600	EACH	1	600
Rebar	128	LF	0.85	108.8
Dewatering/BMPs	1	EST	500	500
RENTALS				
Excavator	2	WEEK	600	1200
Diesel	50	GAL	5	250
Bobcat	1	WEEK	300	300
Disposal	1	week	5000	5000
TRAVEL				
Truck	0.51	MILE	500	255
SUBTOTAL				53488.8
SALES TAX @ 9%				4813.992
CONTINGENCY @ 15%				8023.32
TOTAL				**$66,326.11**

iMAP

Legend

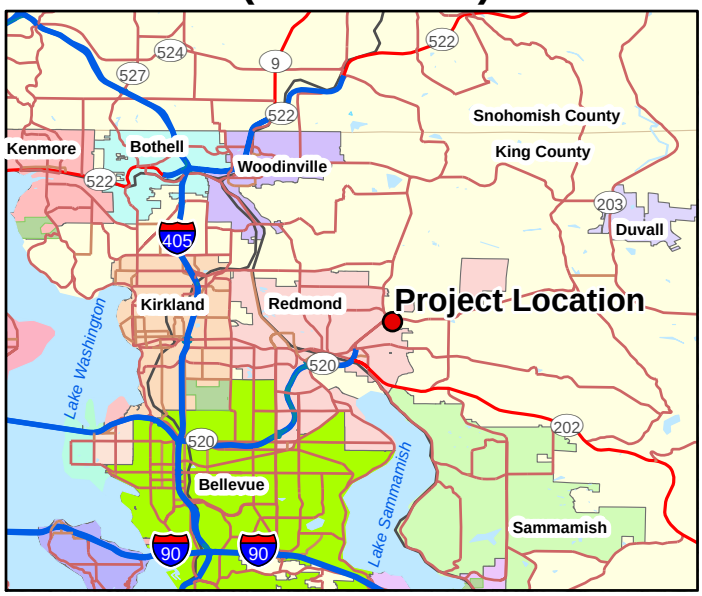
- County Boundary
- Mountain Peaks
- Lakes and Large Rivers
- Streams
- Parcels
- 2009 Color Aerial Photos (6in)
- 2009 Color Aerial Photos (12in)

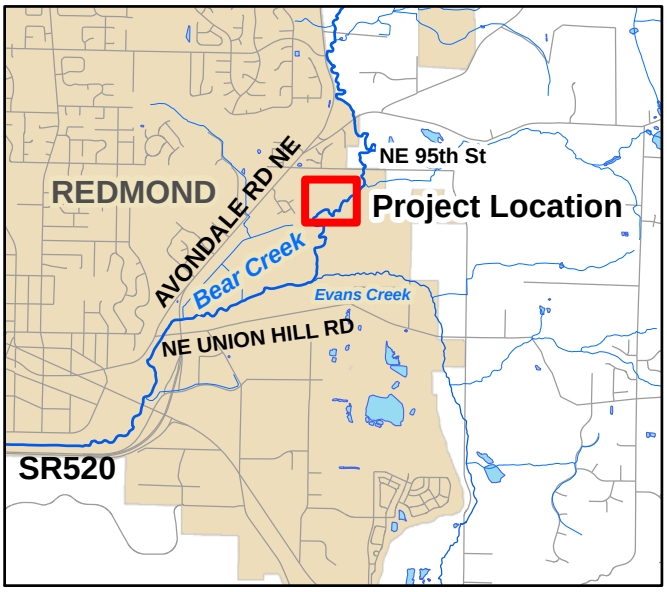
COMMENTS: 12-1282 air photo

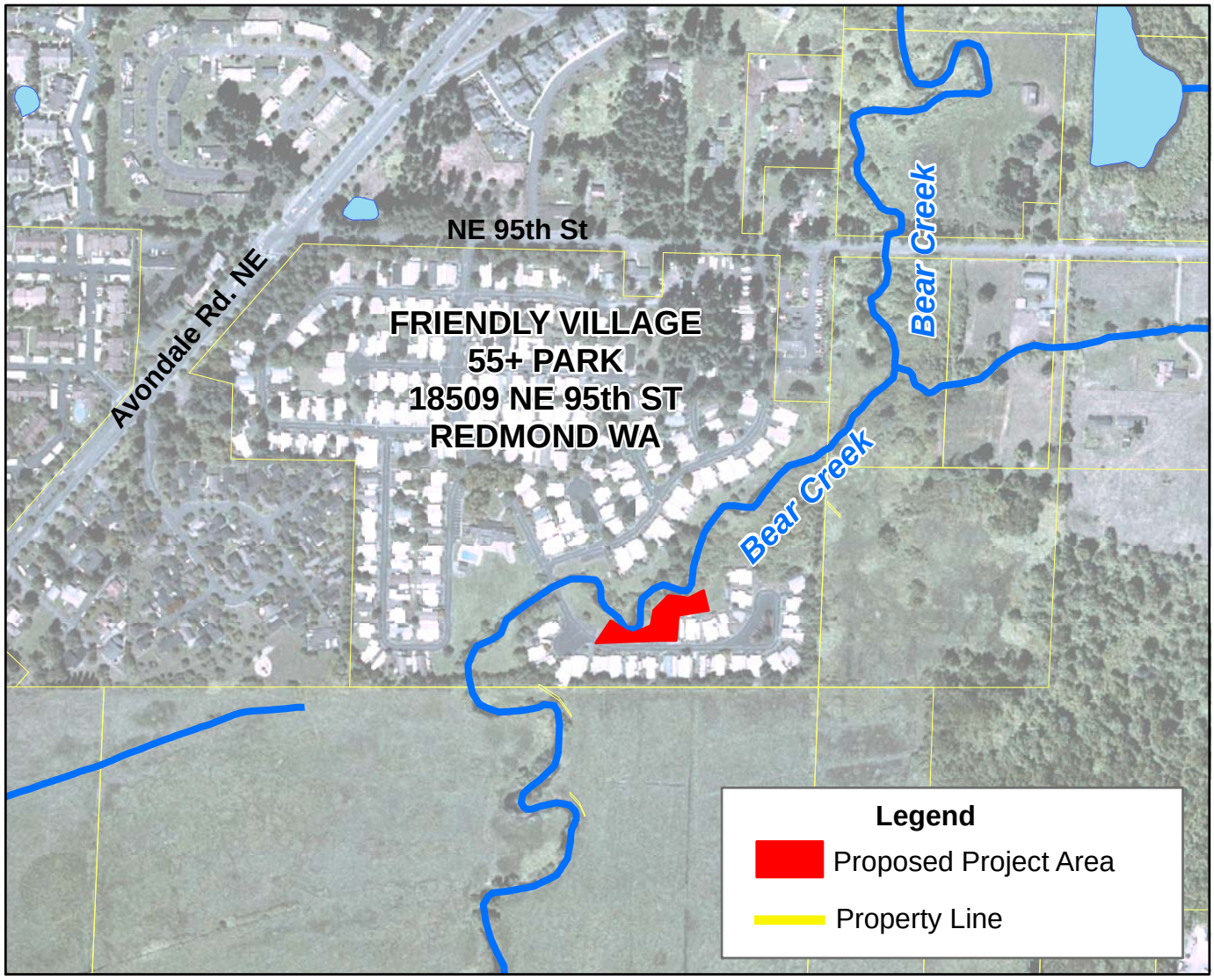
Date: 3/28/2012 Source: King County iMAP - Property Information (http://www.metrokc.gov/GIS/iMAP)

King County

Vicinity Map
N12-1282 SRFB PROPOSAL
(AASF 2012) Bear Creek Reach 6 - Restoration



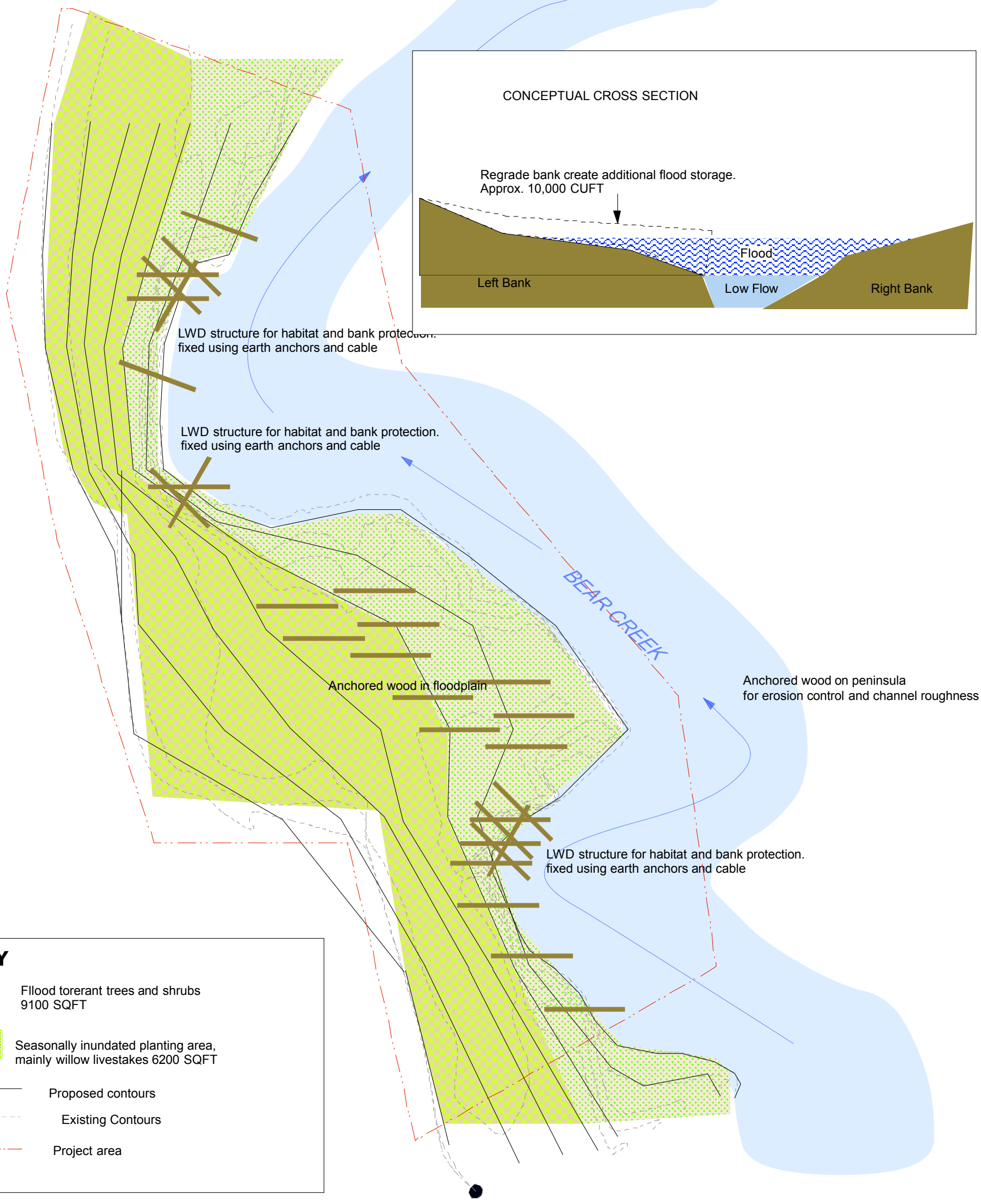




Adopt A Stream Foundation 2012

PRELIMINARY DESIGN

SRFB PROPOSAL
(AASF 2012 BEAR CREEK REACH 6 RESTORATION
12-1282)



KEY

- Fllood torerant trees and shrubs 9100 SQFT
- Seasonally inundated planting area, mainly willow livestakes 6200 SQFT
- Proposed contours
- Existing Contours
- Project area

N

Contour interval 1'
Based on survey January 2012
Relative Benchmark located on pavement

ADOPT A STREAM FOUNDATION

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EVERETT WA 98208
425.316.8592
www.streamkeeper.org

"Teaching people to be stewards of their watersheds."

DATE:	3/28/2012
SCALE:	1:300
DRAWN:	CKE,LB
SHEET:	of 1

PRELIMINARY DESIGN
BEAR CREEK RESTORATION AT
FRIENDLY VILLAGE
12-1282

18425 NE 95th St.
Redmond, WA 98052

AASF # 1201