

# MEMORANDUM

Project No.: 120045-Z32-032-03

June 30, 2021

**To:** Mike Kaputa, Chelan County Natural Resources Department

**From:**



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**William Rice**  
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**Re: Mission Creek Subbasin– Voluntary Stewardship Program Memo**

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## Introduction

The Voluntary Stewardship Program (VSP) is an optional, incentive-based approach to protecting critical areas while promoting agriculture. The Chelan County Natural Resources Department (CCNRD) retained Aspect Consulting, LLC (Aspect) to conduct a preliminary site assessment and identify VSP opportunities and preliminary costs in the Mission Creek basin, inclusive of Brender Creek and Yaksum Creek drainages (see Attachment 1). This effort included a GIS evaluation of property owners and land uses compared to VSP-eligible project types. Specific landowners were not available to meet during the VSP funding window, but these opportunities will help shape future conversations with target property owners.

## Review of Available Information

Aspect reviewed available information regarding the Mission Creek, Brender Creek, and Yaksum Creek drainages as provided by Chelan County staff and obtained from various sources. Available information reviewed included:

- Water rights information, including mapping and certificates of water right.
- Irrigation system infrastructure mapping, surface diversion pumping capacities, irrigation water usage (metering data).
- Cropland information, including crop type and estimated irrigation methods
- Fish passage barrier information
- Topography/contours.

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This information was then screened against key VSP guidelines and project opportunities. The following sections summarize the conceptual project review opportunities. Appendix A provides tables of the full summary of opportunities evaluated.

## ***Riparian Plantings***

Aspect utilized available remote sensing data to provide a desktop review for potential riparian planting projects. An aerial photo review was conducted along each of Mission Creek, Brender Creek, and Yaksum Creek for riparian condition. Imagery from August 2020 (Earthstar Geographics) was available for all 3 creeks. Locations which appeared to have thinning/lack of tree cover or heavy influence from agricultural practices were noted as potential riparian planting locations. Most of these locations represent approximately 200 ft or less of streamline for potential planting. The best potential areas are summarized in Table 1 and shown in Figures 1 thru 5.

**Table 1. Potential Riparian Planting Project Locations**

<b>Owner Name<sup>1</sup></b>	<b>Parcel Nos.</b>	<b>Estimated Linear Feet of Stream<sup>2</sup></b>	<b>Description</b>
Spears Holding, LLC	231801320100 231801320050	1,200	Possible riparian expansion throughout orchard (Separate from other Spears property)
Loeffelbein, Jerry	231906130350	430	Riparian area appears notably narrower/less dense than neighboring parcels
Spears, Marc T.	231905210850	300	Patchy ground surrounding stream (Separate from other Spears property)
Bryan, Gregory & Regina	231908410050	230	Spotty riparian boundary approaching hillside, likely combine effort with neighboring Darnell property
Darnell, Brent A. & Corene L.	231908410060	180	Spotty riparian boundary approaching hillside, likely combine effort with neighboring Bryan property
Hills Walter L Truste	231921000000	4,000	Natural area with thin/patchy riparian buffer

<sup>1</sup> Parcel ownership and related information obtained from Chelan County Assessor, current through June 17, 2021.

<sup>2</sup> Linear stream feet estimated based on delineation using available aerial imagery (July 1, 2017).

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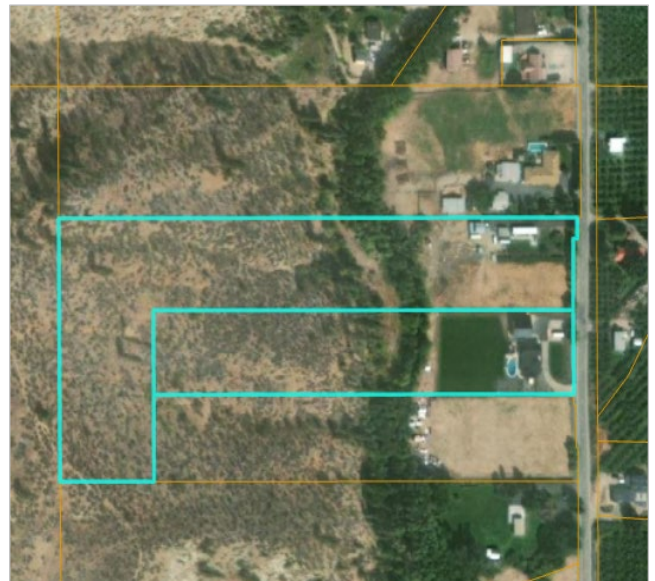
**Figure 1.** Spears Holding, LLC



**Figure 2.** Loeffelbein, Jerry



**Figure 3.** Spears, Marc T.



**Figure 4.** Bryan, Gregory & Regina and  
Darnell, Brent A. & Corene L.

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**Figure 5.** Hills Walter L Truste

***Irrigation Efficiency***

Potential irrigation efficiency projects were determined an overlay analysis of WSDA 2019 cropland data and property ownership. A summary of crop type, irrigation method, property owner, and overall crop acreage was provided to CCNRD for further review of potential willing property owners. An aerial photo review indicated that typically orchards in this basin are already served by efficient irrigation methods (e.g. microspray, high efficiency sprinklers), and therefore Aspect recommends a focus on other large crop properties such as hay and pasture for the most potential irrigation efficiency gains. Properties with 5 acres or more of hay/pasture irrigation were selected for further review and summarized in Table 2. Irrigation water right places of use were also evaluated for potential projects alongside the crop analysis; however, many of the larger places of use cover multiple small properties, increasing the level of difficulty for substantial improvement projects and property owner coordination.

The locations with the greatest irrigation efficiency promise are summarized in Table 2 and shown in Figures 6 thru 13. Estimates of potential water savings for conversion from wheelline or handline to automated systems are in the range of 10 to 35% if implemented.

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**Table 2. Summary of Parcel Ownership, Total Area, and Irrigated Area**

Owner Name <sup>1</sup>	Parcel No.	Total Area (ac)	Irrigated Area <sup>2</sup> (ac)	Crop/Sprinkler Type <sup>3</sup>
Lloyd, Wallace R & Leslie	231802340075	21.75	10.0	Hay/Wheeline
Stoller, Martin	231811420040 231811430030	40.02 20.02 <i>Total = 60.04</i>	5.4 2.4 <i>Total = 7.8</i>	Hay
Holding Trust 10/6/1999	231812320150 231812330100 231812330050 231812340000 231813210000	7.3 1.09 18 40 40 <i>Total 106.39</i>	0.14 0.35 2.54 9.31 3.68 <i>Total: 16.02</i>	Hay/Wheeline, Handline
Newberry, Neva M Etal and Clark, Douglas K & Mandy M	231916310125 231916310150 231916340100 231916310175	1.01 1.05 24.69 5.98 <i>Total: 32.73</i>	0.58 0.62 5.17 2.31 <i>Total: 8.68</i>	Hay/Wheeline, Sprinklers, contiguous property, multiple owners
Potter, Jared & Christine Etal	231916420050 231916310050	44.12 10.01 <i>Total: 54.13</i>	9.38 7.40 <i>Total: 16.78</i>	Hay
Hoffman, Albert E	231916240100	24.82	13.3	Hay
Richmond, Merrick B & Armbrust, Elizabeth A and Di Pietro, Christopher & Condefer, Kelly	231801330040 231801330050	7.19 5.02	5.44 4.55	Hay

<sup>1</sup> Parcel ownership and related information obtained from Chelan County Assessor, current through June 17, 2021.

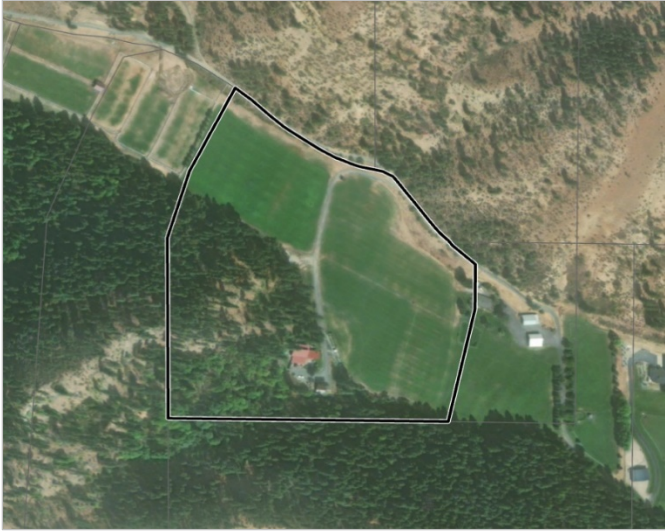
<sup>2</sup> Irrigated area values estimated based on delineation using available aerial imagery (July 1, 2017).

<sup>3</sup> Sprinkler type estimated from aerial imagery (July 1, 2017) when visible cues were available.

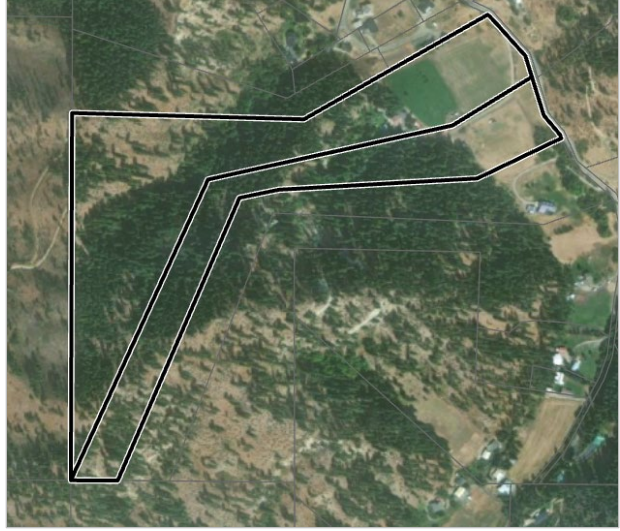


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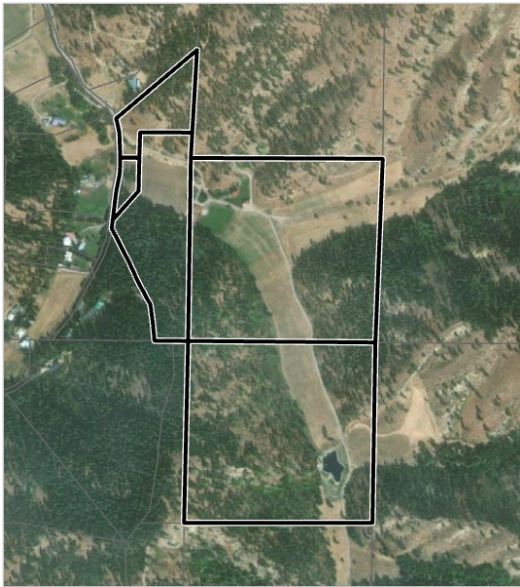
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**Figure 6.** Lloyd, Wallace R & Leslie



**Figure 7.** Stoller, Martin

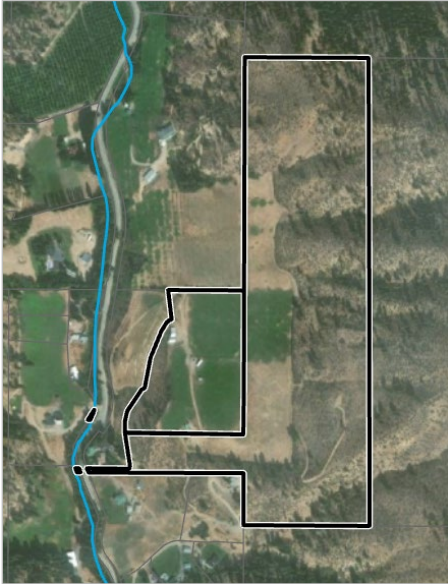


**Figure 8.** Holding Trust 10/6/1999



**Figure 9.**  
Newberry, Neva M Etal  
and Clark, Douglas K & Mandy M

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**Figure 10.** Potter, Jared & Christine Etal



**Figure 11.** Hoffman, Albert E



**Figure 12.** Richmond, Merrick B & Armbrust, Elizabeth A  
and Di Pietro, Christopher & Condefer, Kelly



**Figure 13.** Di Pietro, Christopher & Condefer, Kelly

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## ***Fish Passage***

The Mission Creek basin has approximately 42 known fish passage barriers estimated at 33% passable or less for salmonids. Most of these barriers are dams or diversions being used for irrigation and potentially impacting streamflow and water availability. Using the WDFW fish passage barrier database and the Upper Columbia Salmon Recovery Board (UCSRB) Fish Passage Barrier Removal Prioritization scheme, a list of 10 suggested priority barrier projects are provided below in Table 3 and Figure 14.

**Table 3. Potential Fish Barrier Removal Projects**

<b>Owner Name<sup>1</sup></b>	<b>Parcel No.</b>	<b>WDFW Barrier ID</b>	<b>Description</b>
Reay, Dennis H	231904770218	603691	Dam, Mission Creek
Dolman, James E	231909220400	603688	Dam, Mission Creek
Mc Manus Brothers LLC	231909330300	040217 603664	Culvert, Yaksum Creek Culvert, Yaksum Creek
Newberry, Neva M Etal	231916340100	040221	Culvert, Yaksum Creek
Milne, Gregg L	231920220050	603677	Dam, Mission Creek
Hills, Jonathan D & Julie A	231917210100	603681	Dam, Mission Creek
Dobbins, Michael & Ashlyn	231909220550	603685	Dam, Mission Creek
Miller, Sam A	231932220050	603671	Dam, Mission Creek
Miller, Kameron	231920330050	603672	Dam, Mission Creek

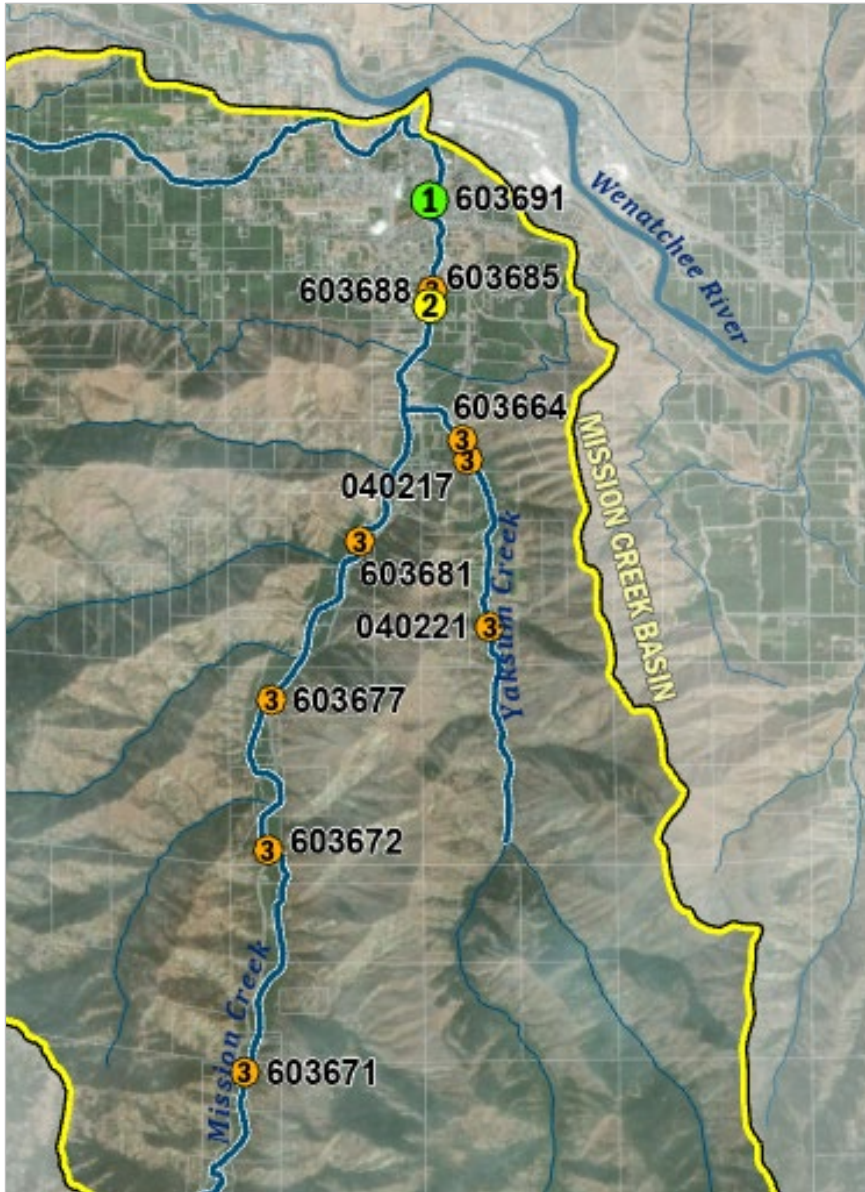
<sup>1</sup> Parcel ownership and related information obtained from Chelan County Assessor, current through June 17, 2021.



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**Figure 14.** Potential fish barrier project locations. Numbered symbols indicate the UCSRB priority tier ranking, tier 1 is being the highest priority.

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## Limitations

Work for this project was performed for Chelan County (Client), and this memorandum was prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. This memorandum does not represent a legal opinion. No other warranty, expressed or implied, is made.

All reports prepared by Aspect Consulting for the Client apply only to the services described in the Agreement(s) with the Client. Any use or reuse by any party other than the Client is at the sole risk of that party, and without liability to Aspect Consulting. Aspect Consulting's original files/reports shall govern in the event of any dispute regarding the content of electronic documents furnished to others.

Attachments: Attachment 1 – Mission Creek Basin Map

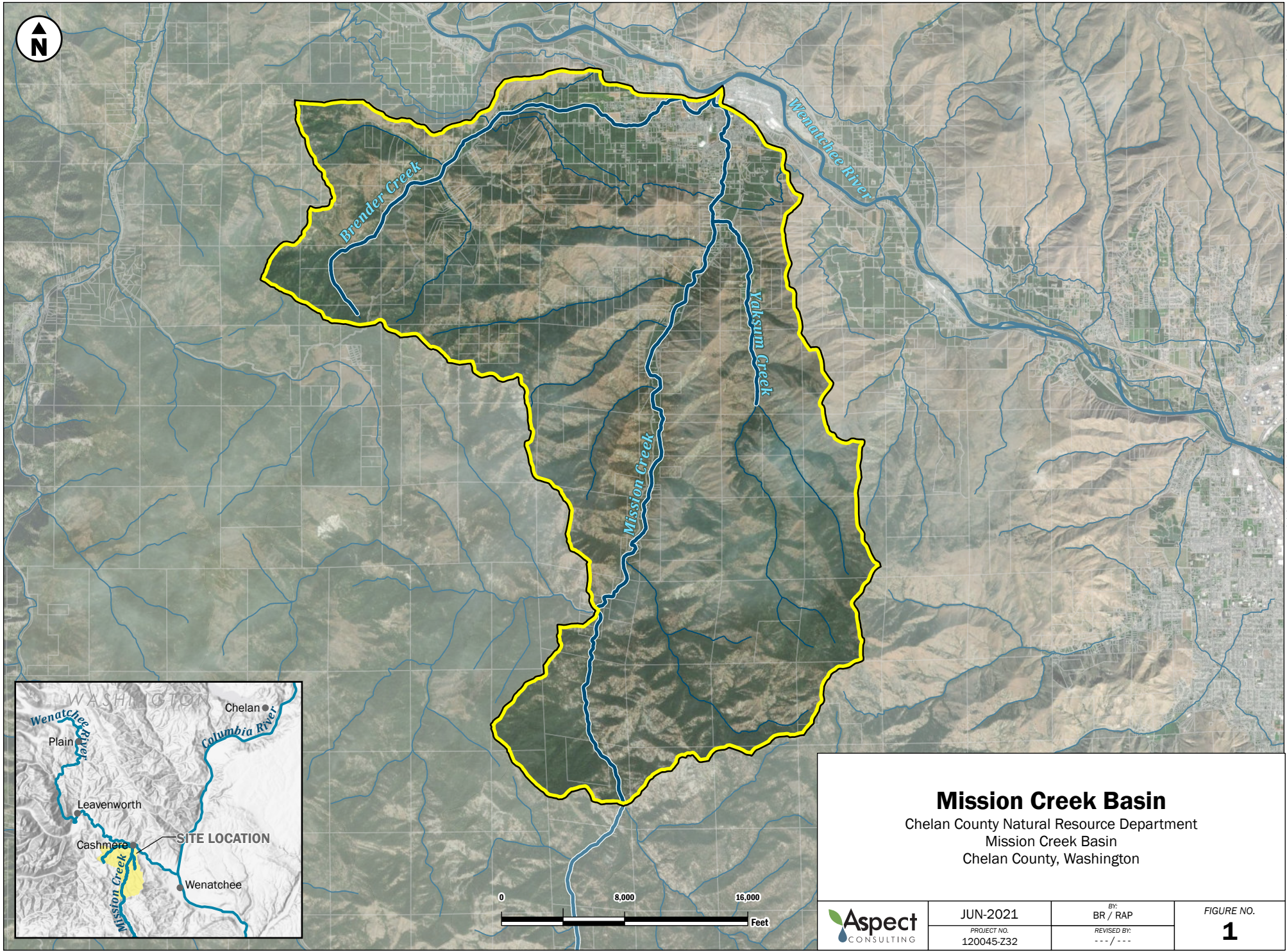
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# **ATTACHMENT 1**

## **Mission Creek Basin Map**







ArcGIS Pro: G:\projects\ChelanCounty\120045\_Z32\_152\_152\_Z32.aprx | 11m Projected Coordinate System | Data Source: 6/28/2021 | Exported: 6/28/2021 11:15 by jppm

**Mission Creek Basin**  
 Chelan County Natural Resource Department  
 Mission Creek Basin  
 Chelan County, Washington



JUN-2021  
 PROJECT NO.  
 120045-Z32

BY:  
 BR / RAP  
 REVISED BY:  
 - - / - -

FIGURE NO.  
**1**