



## King County

### Water and Land Resources Division

Department of Natural Resources and Parks

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January 8, 2019

TO: Note to File

VIA: Wendy Kara, P.E., Project Manager, Capital Services Unit (CSU), Stormwater Services Section (SWSS)

FR: Jon Polka, E.I.T, Project Engineer, CSU, SWSS

RE: Country Creek and Cabbage Creek Analysis and Public Engagement Summary  
Project Number 1132673 WLSWCDF Country Cabbage Sediment

This memo documents the planning effort completed to site a sediment facility for Country Creek and Cabbage Creeks, which are tributary to May Creek.

### **Background**

May Creek Tributary 0292 (Country Creek) and Tributary 0293 (Cabbage Creek) drain the Highland area north of May Valley and combine just below SE May Valley Road to form Lower Country Creek. Lower Country Creek flows into May Creek main stem in the northeast quarter of Section 12, Township 23, Range 5 East, Willamette Meridian in King County, Washington. Cabbage Creek was artificially channelized to enter Country Creek (Foster Wheeler Environmental Corporation, 1995). Figure 1 shows a vicinity map of the study area.

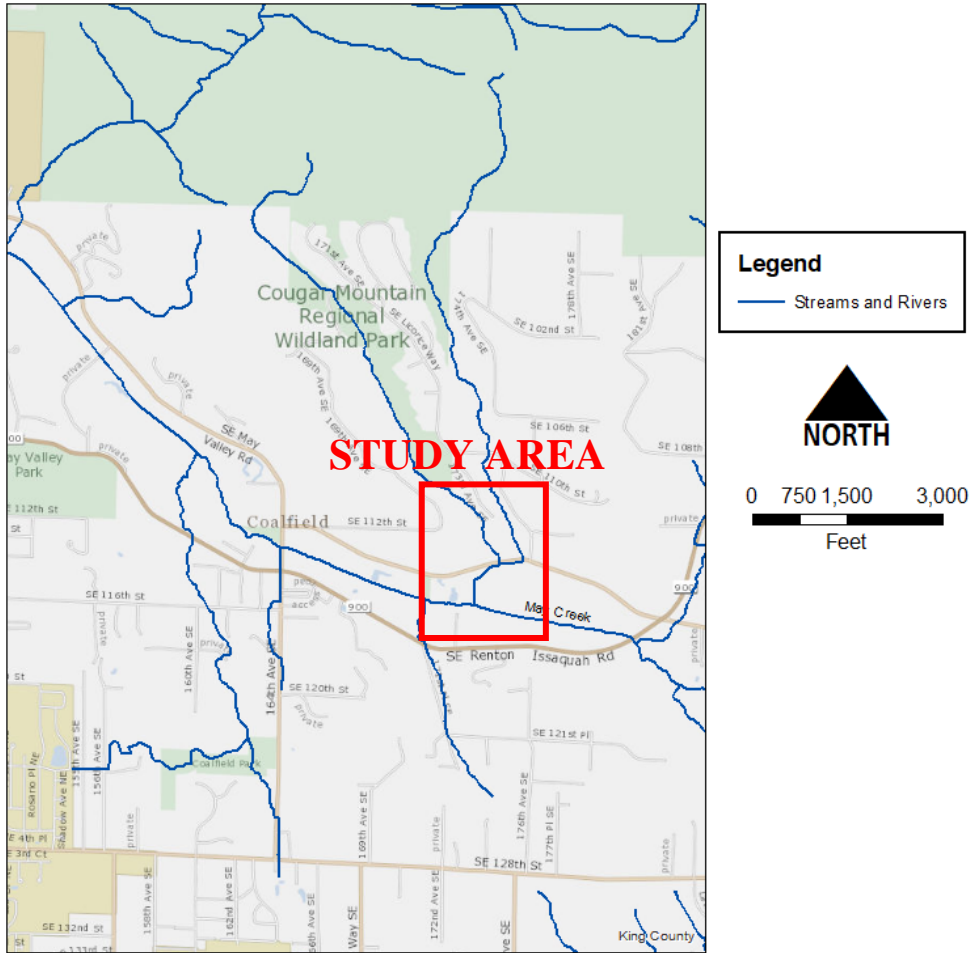


Figure 1: Vicinity Map

Country and Cabbage Creeks form an alluvial fan where the streams meet the valley floor of May Valley. Alluvial fans are characterized by sediment dropping out at grade breaks where the stream loses the capacity to transport sediment carried from upstream.

The purpose of this project is to site a sediment facility near where these streams flow into May Creek. The purpose of the sediment facility would be to reduce the sediment load entering May Creek, which has a history of flooding due to bed aggradation and decreased channel capacity. This work was funded by the King County Flood Control District (FCD).

Figure 2 shows the known sensitive areas based on King County iMap data. The alluvial fan is noted as a landslide hazard area with an accompanying 50-foot buffer. Note that wetlands are also present at and adjacent to May Creek and its 100 year floodplain. As defined in the Sensitive Areas Ordinance (SAO), Country and Cabbage Creeks are unclassified, which means that further study is necessary for classification. Lower Country Creek is defined as a 2S stream, which means that it flows year-round during years of normal rainfall or with salmon present.

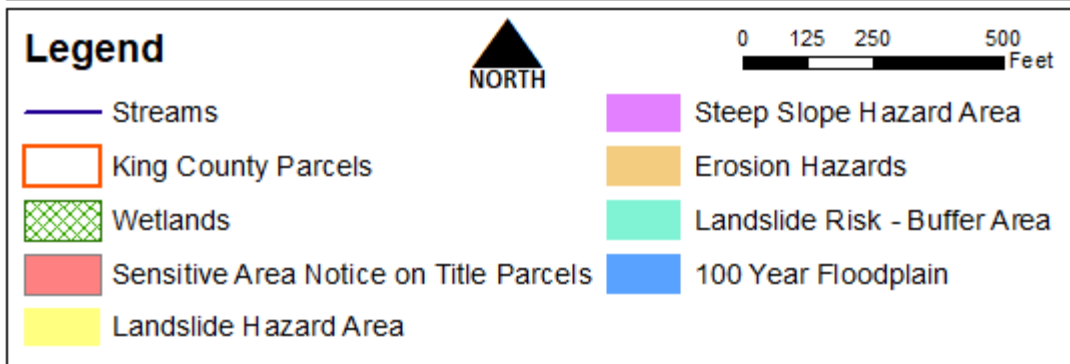
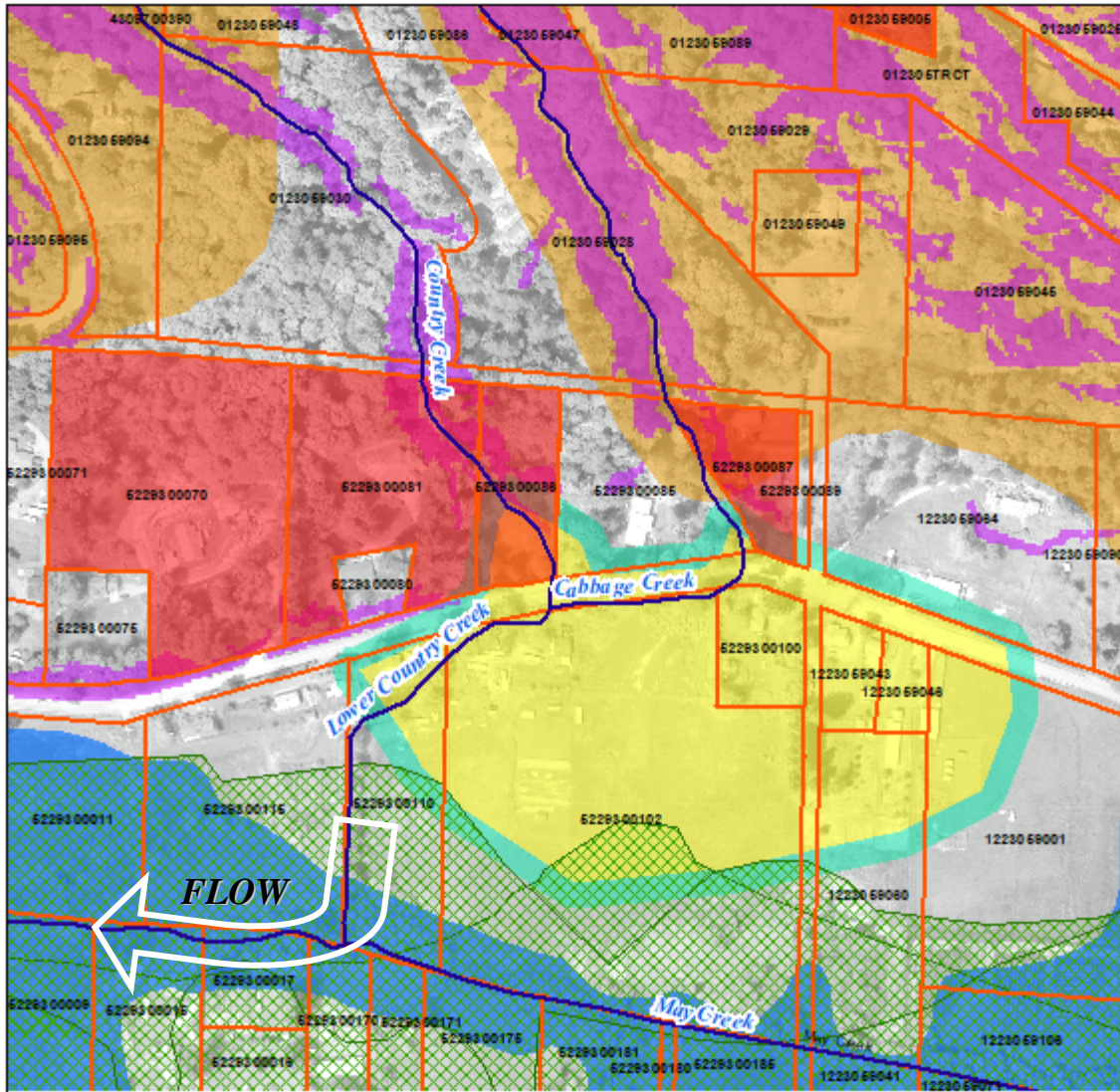


Figure 2: Known Sensitive Areas. Note the Landslide Hazard Area maps the alluvial fan.

### Public Outreach & Site Visits

A desktop review of the study area was conducted to find potential properties to site a sediment facility. Properties along the valley floor and slightly up the valley wall were considered due to the grade break in this area. Ten properties were considered and letters were sent to respective property owners. The letters explained that King County Water and Land Resources is exploring the possibility of siting a sediment facility along County and/or Cabbage Creeks and wants to determine whether

property owners have an interest in the possibility of either selling all or a portion of their property or selling King County a permanent easement.

Of the ten parcels under consideration, property owners of three of the parcels responded either through mail or phone. The owners of parcel numbers 012305-9030, 012305-9028, and 522930-0085 responded to the initial inquiry. Parcels -9030 and -9028 were ruled out after a site visit because the stream is very steep at these locations and also because access for equipment would be too challenging. Parcel -0085 was considered, but coordination with their neighboring property to the east (parcel number 522930-0087) would be required because the stream is located on the border of the two parcels. Additionally, site access would be much easier from the parcel -0087.

After the initial round of letters and site visits, numerous attempts were made to talk with additional property owners in person by knocking on their front doors and leaving letters if there was no response. SWS staff were able to talk with an additional five property owners during this second attempt, which led to varying degrees of subsequent correspondence. Table 1 presents a summary of the outreach efforts along with specific advantages and challenges associated with siting a sediment facility on each of the ten properties.

Table 1: Summary of Outreach Efforts

<b>Parcel ID Number</b>	<b>Outreach Summary</b>	<b>Location Advantages and Challenges</b>
012305- <u>9030</u>	Letter sent and returned; staff met property owner on site	Site access would be challenging; stream is still steep downstream; not a natural deposition zone
012305- <u>9028</u>	Letter sent and returned; staff met property owner on site	Site access would be challenging; stream is still steep downstream; not a natural deposition zone
522930- <u>0081</u>	Letter sent, but no response	Site topography suggests the stream is too steep on this parcel.
522930- <u>0086</u>	Letter sent and not returned; staff talked to property owner while visiting the general area;	Property owner is not interested in selling property and there is limited space to access the Country Creek at this location. Property owner had negative experience with the County during the replacement of Country Creek culvert underneath SE May Valley Road.
522930- <u>0085</u>	Letter sent and returned; staff met property owner on site	Stream borders the neighboring property (-0087) so their cooperation is required. Site access would also be easier from parcel number 0087. There is a possibility that the culvert underneath SE May Valley Road at this location could be replaced in the future, making this location somewhat less effective for a sediment facility.

<b>Parcel ID Number</b>	<b>Outreach Summary</b>	<b>Location Advantages and Challenges</b>
522930- <u>0087</u>	Letter sent, but no response; staff left a letter on the door during a site visit and discussed the project numerous times with tenant via email, phone, and a site visit.	Tenant agreed to facilitate conversation with property owner, but responsiveness has been intermittent at best. The potential for replacing the SE May Valley Road culvert immediately downstream may make this site less attractive for a permanent sediment facility.
522930- <u>0115</u>	Letter sent; staff visited the site and briefly spoke with property owner	This location appears to be downstream of the main deposition area of both creeks.
522930- <u>0110</u>	Letter sent; staff visited the site and spoke with property owner on two occasions	It is not entirely clear if the property owner is interested in selling an easement or their property. They seemed hesitant to work with the County initially due to past experiences with the culvert that flows Cabbage Creek underneath SE May Valley Road. The location of the stream is likely too close to structures for setting up a permanent sediment facility. Additionally, deposition for Cabbage Creek appears to be occurring further upstream.
522930- <u>0102</u>	Letter sent, but no response; staff visited the site and spoke with property owner on two occasions and over the phone once or twice	Property owner seems interested in possibility of selling their property to the County. Cabbage Creek appears to deposit sediment along the SE May Valley Road ditch (south side) upstream of its confluence with Country Creek. The confluence of the two creeks could be accessed from this property's driveway.
522930- <u>0100</u>	Letter sent, but no response; staff knocked on door numerous times with no response.	The NW corner of this parcel could be useful for accessing the stream.

Figure 3 shows the ten parcels that were considered along with their potential for siting a sediment facility, based on a number of factors.

- The low potential (red) parcels were ruled out because:
  - Difficult site access and/or not in a depositional part of the creek (-9030, -9028, -0115),
  - Inability to make contact with property owners (-0081, -0100), or
  - Lack of property owner interest/willingness (-0086).
- The medium potential (yellow) parcels indicate potential interest from property owners, but specific site challenges exist.
- The green parcel (-0102) represents a medium-high potential due to property owner interest as well as being in a location where sediment deposition would occur in the creeks.

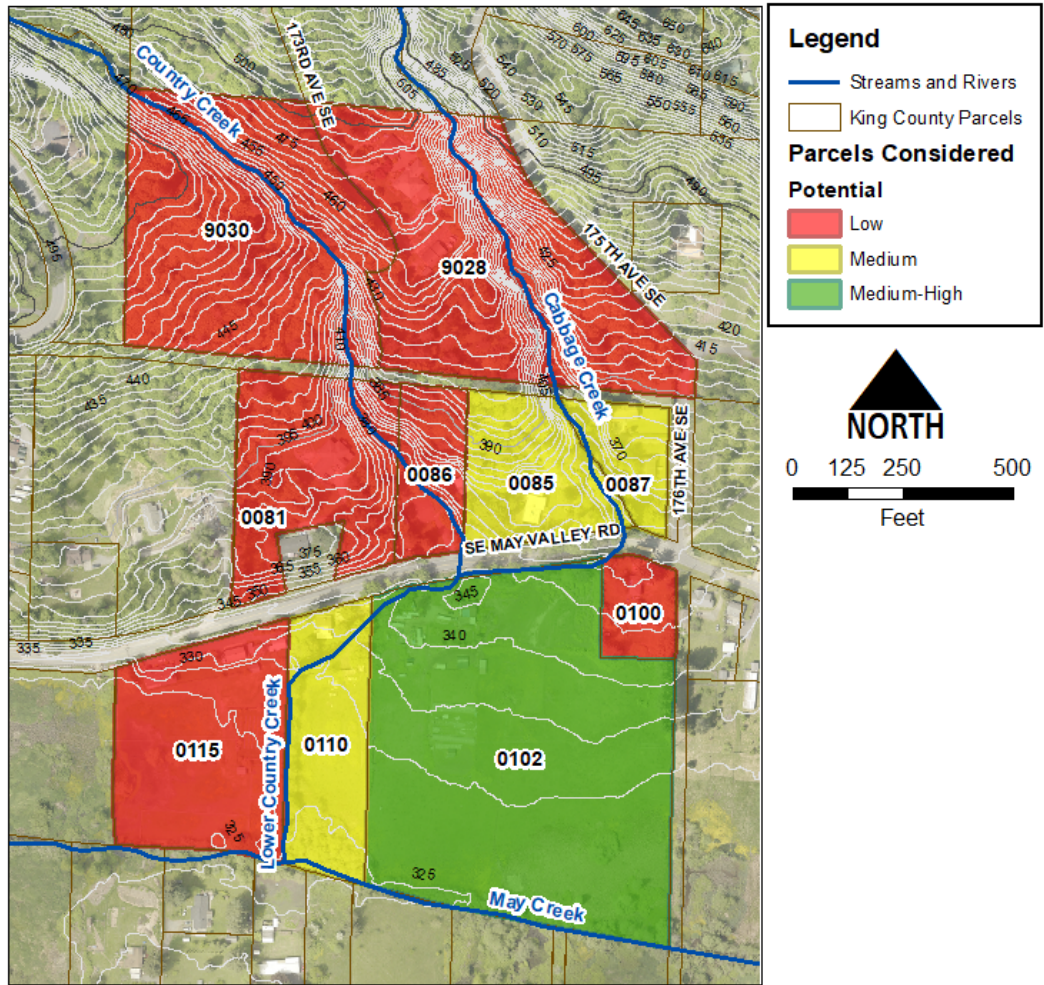


Figure 3: Parcels considered for sediment facility siting; minor parcel ID shown

### Potential Alternatives

Four bedload sediment management alternatives were developed for this project and they are presented below. Alternatives A and B can be temporary efforts while a permanent facility is pursued or they can be standalone efforts to be adaptively managed. Alternatives C and D are permanent solutions that would require acquisition and more substantial design, permitting, and construction efforts. These alternatives are not mutually exclusive. Figure 4 shows the approximate locations of Alternatives A through D.

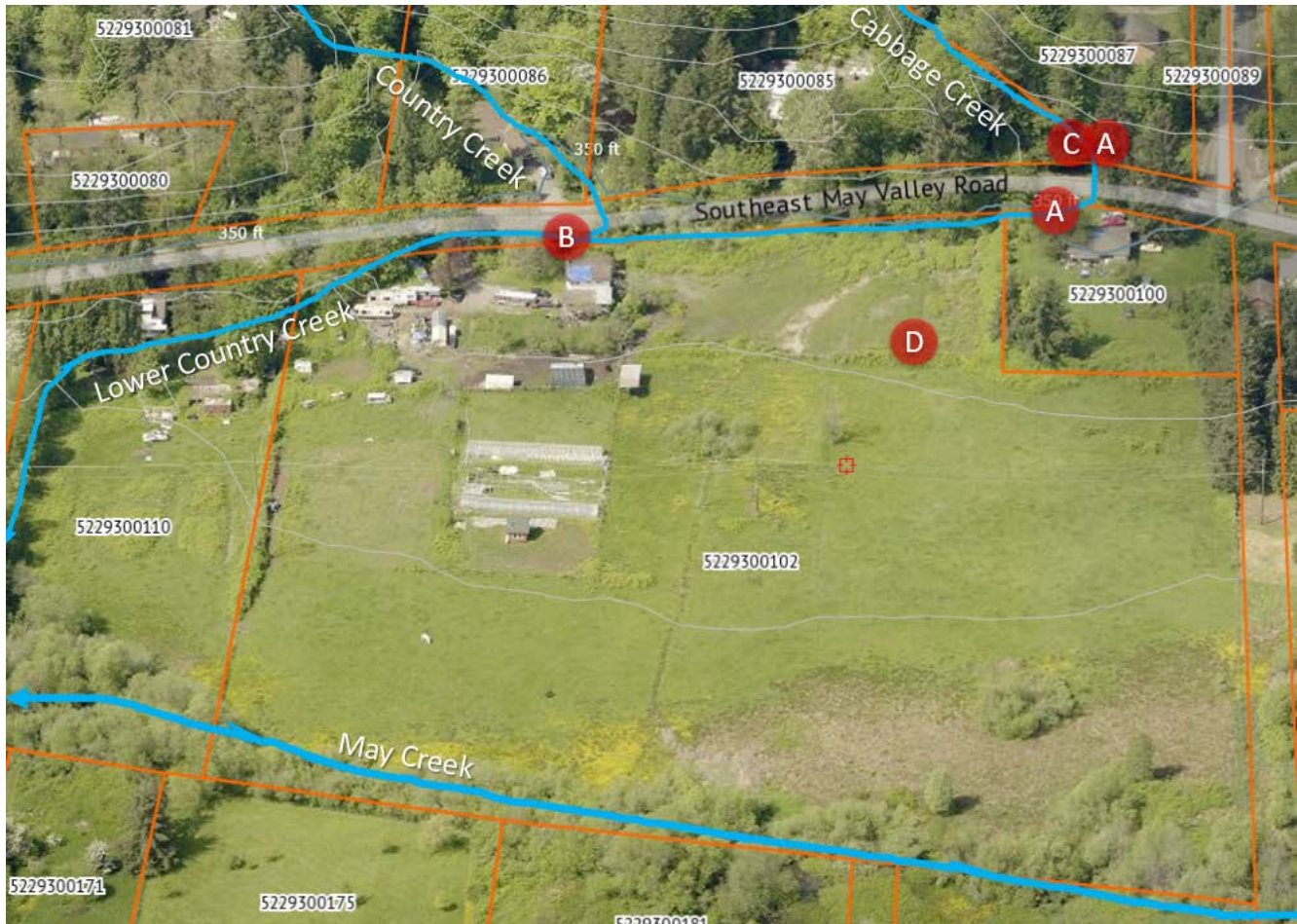


Figure 4: Approximate locations of proposed alternatives

Alternative A – Targeted excavation near Cabbage Creek road culvert

This alternative would utilize King County Road Maintenance crews to remove sediment upstream and downstream of the culvert that conveys Cabbage Creek underneath SE May Valley Road. Advantages of this approach include relatively low capital costs and no need for property acquisition or drainage easements. A disadvantage is that this approach only targets Cabbage Creek, and does nothing for sediment loads from Country Creek. Targeted excavation would need to be repeated in the future as more sediment deposits.

It is unclear how difficult this alternative would be to permit. Roads has a five year clearing and grading permit from King County Division of Permitting<sup>1</sup>, but this is for excavating near culverts when roadway flooding is an issue. That would not necessarily be the case here as this targeted excavation would be done to reduce downstream impacts from sediment deposition in May Creek. Roads currently obtains a Hydraulic Project Approval (HPA) from the Washington State Department of Fish and Wildlife (WDFW) for each specific instance of work done at/near their culverts. Lastly, obtaining a federal permit from the Army Corps of Engineers would likely take six months to more than a year.

<sup>1</sup> Recently, known as King County Department of Permitting and Environmental Review (DPER). Currently, a reorganization is underway where DPER will change to the Permitting Division within the newly created Department of Local Services (DLS). The DLS is scheduled to begin operations on January 1, 2019.

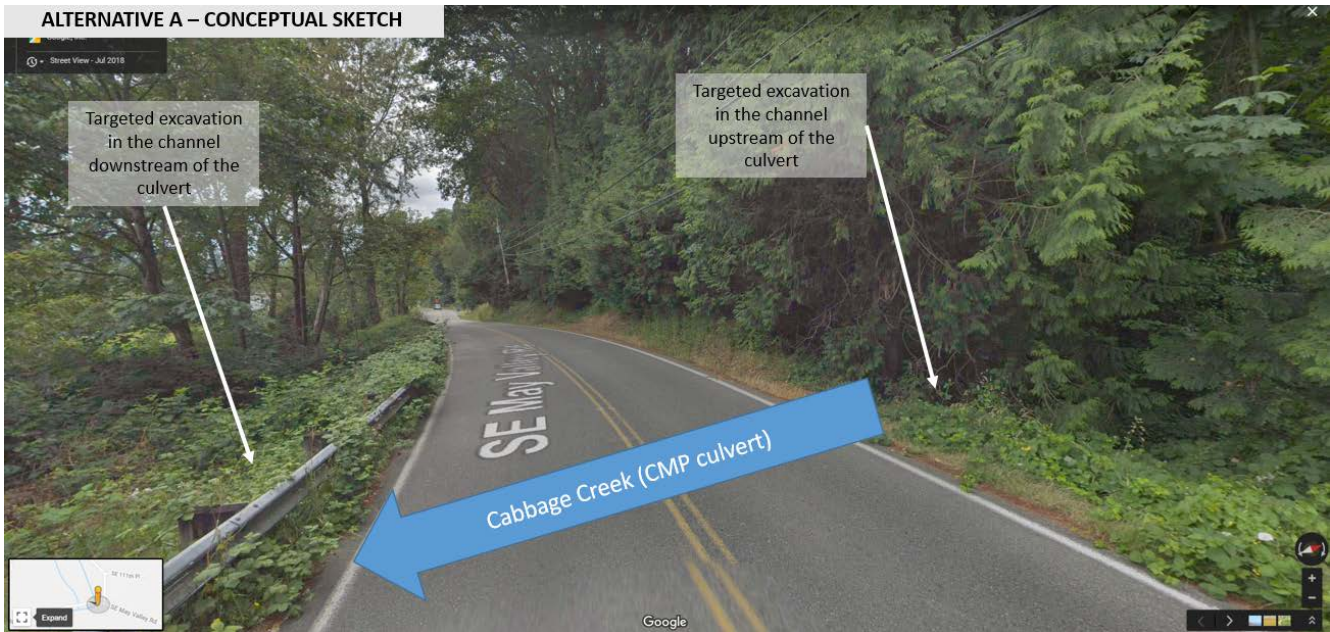
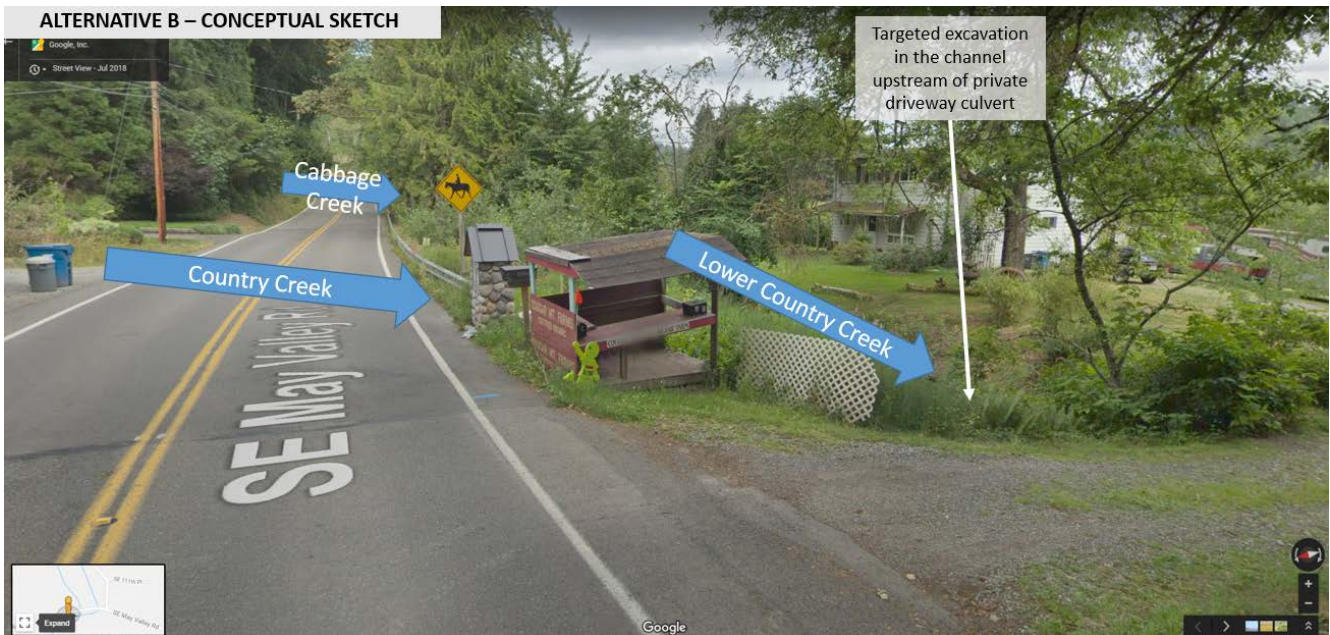


Figure 5: Alternative A – Targeted Excavation Near the Cabbage Creek Culvert

Alternative B – Targeted excavation immediately downstream of the confluence

This alternative would utilize King County Road Maintenance crews to remove sediment immediately upstream of the private driveway culvert for the house at 17407 SE May Valley Road. The two creeks join in the roadside ditch above this culvert. Advantages of this approach include relatively low capital costs and targeting sediment loads from both creeks. Property owner permission for site access would likely be required. Permitting challenges and timelines would largely be similar to those described with Alternative A.



Alternative C – Permanent sediment facility upstream of Cabbage Creek road culvert

This alternative would install an inline sediment facility upstream of the SE May Valley Road culvert that flows Cabbage Creek. Site access would likely come from parcel -0087 and a drainage easement or purchase of a piece of the property would be required. Advantages of this alternative include

relatively easy site access and the potential for more storage in the stream channel than with Alternatives A and B. One potential disadvantage is if the culvert is replaced in the future, it will likely be much larger (potentially a stream simulation size box culvert) which may not be conducive to a sediment facility at this location. Communication with the property owner at -0087 has been challenging so it is unclear how much interest there is for a sediment facility at this location. Permitting would be similar to Alternatives A and B, but might be even more challenging since there is not the possibility of using an existing permit from King County Permitting Division.

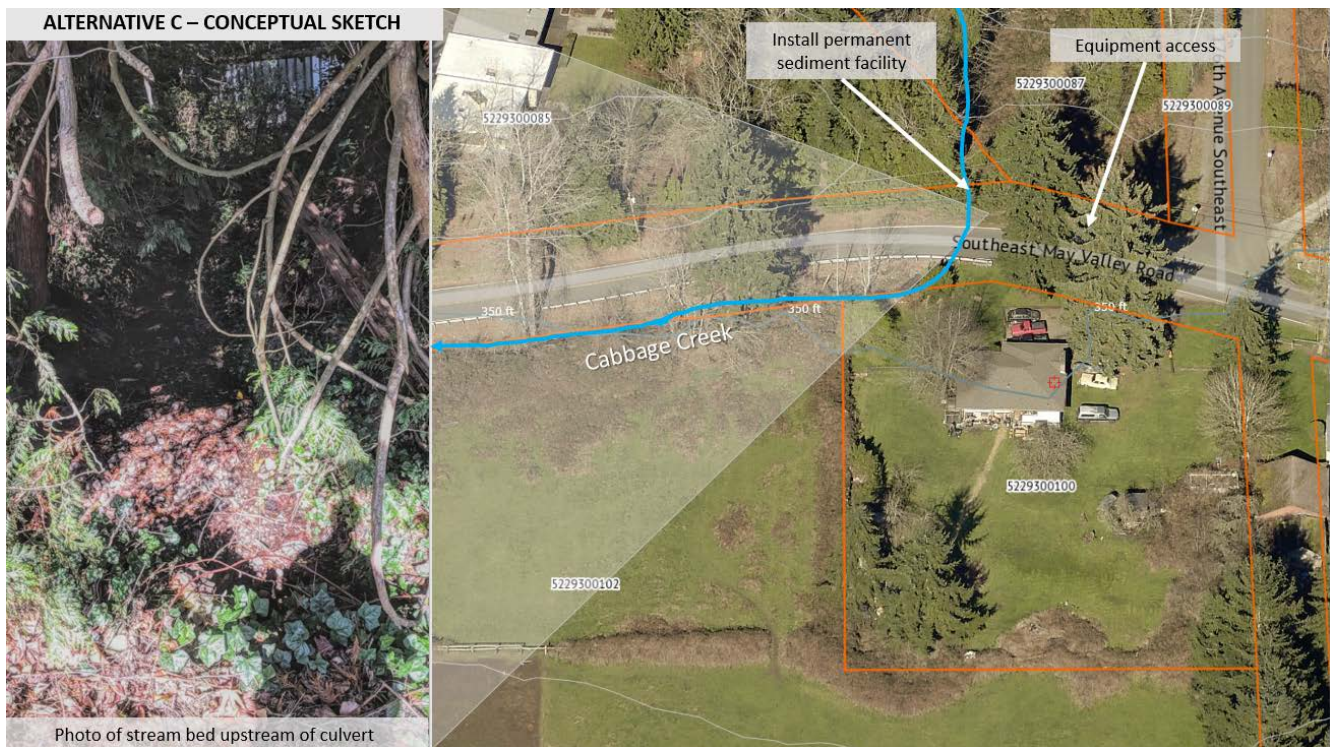


Figure 6: Alternative C Conceptual Sketch

#### Alternative D – Channel realignment/restoration on parcel -0102 for Cabbage Creek

This alternative would restore Cabbage Creek, which has been modified to join with Country Creek in the roadside ditch and allow it to flow to May Creek through parcel -0102. This alternative would require either a drainage easement, partial property purchase, or full property purchase. The homeowner has indicated a willingness to sell his property and there is evidence of sediment deposition from Cabbage Creek in the roadside ditch at this location. It is unclear how challenging permitting will be for this alternative. Incorporating restoration elements for the stream as well as any potential wetlands *could* make permitting easier. There is significant potential for restoration activities at this location. However, permitting would still be mostly similar to Alternative 3 and could take multiple years.

Purchasing the entire parcel of -0102 could allow re-establishment of Cabbage Creek and provide more area for the creek's alluvial fan. Figure 7 shows the historical alignment of both Country and Cabbage Creeks based in 1907-1908 timber cruise<sup>2</sup> records. Both creeks appear to have flowed across parcel -0102.

<sup>2</sup> Between 1907 and 1967, King County Assessor's Office undertook forest surveys (also called timber cruises) to locate and estimate the quantity and taxable value of timber in a given section of land. These records also provide valuable information on other natural resources in surveyed areas, such as stream alignment at the time of survey.

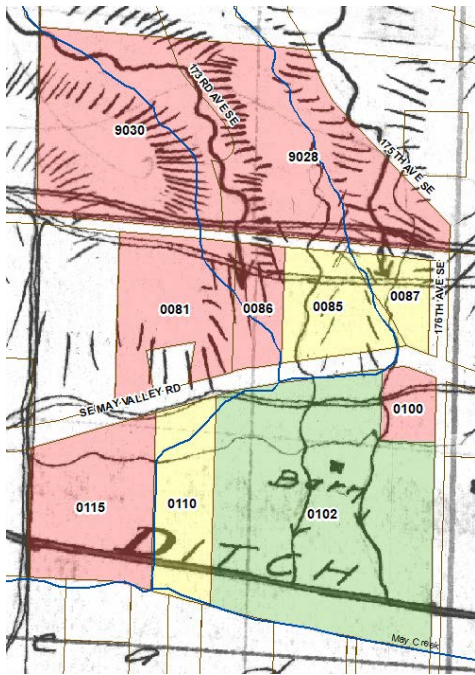


Figure 7: Alignment of Country and Cabbage Creeks based on the 1907-1908 Timber Cruise Records

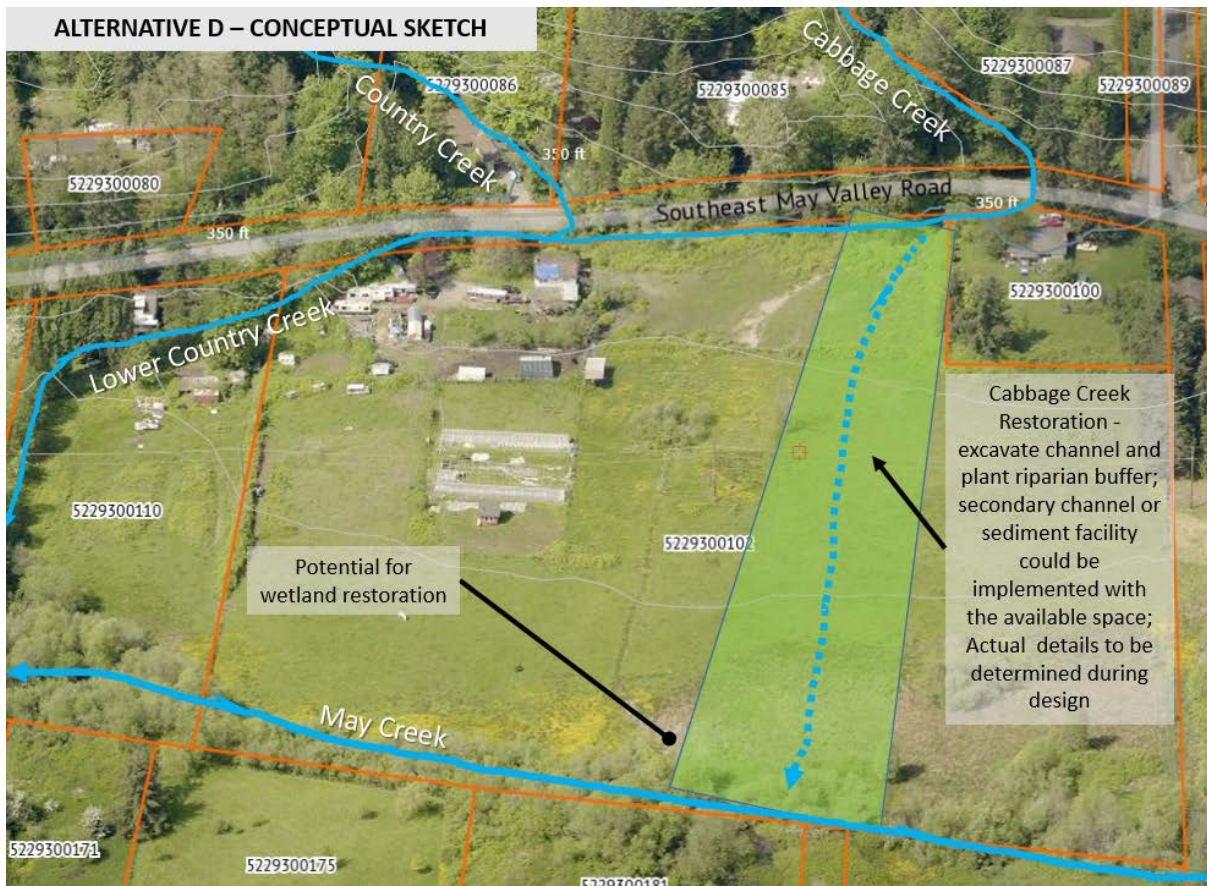


Figure 8: Conceptual sketch for Alternative D

### **Conclusion/Recommendation**

Based on public outreach, property owner interest, and field visits, a phased approach is recommended. In the short term, pursue Alternatives A and B as one project, which will require coordination with King County Roads Services Division. For a long term solution, proceed with feasibility and/or pre-design as well as property acquisition for Alternative D. Since appraisals take several months and the owner seems interested in selling soon, this process should be initiated as soon as possible.

### **References**

- Foster Wheeler Environmental Corporation. (1995). *May Creek Current and Future Conditions Report*. Seattle: King County Surface Water Management Division and City of Renton Surface Water Utility.
- GeoEngineers, Inc. (2008). *May Creek Drainage and Restoration Plan*. Seattle: King County Water and Land Resources Division and Mid-Puget Sound Fisheries Enhancement Group.

cc: Lorraine Lai, P.E., Supervising Engineer, SWSS