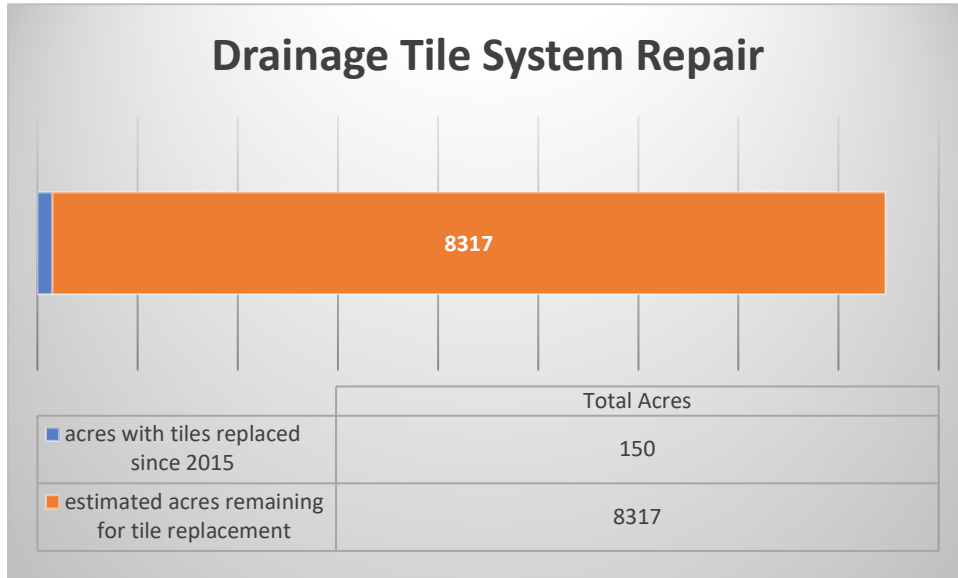


## 1.1.2: Drain Tiles

### Current Condition

### Desired Condition by 2048

**Figure 3. Drainage Tile System Repair**



SVWID has capacity and funds to identify, inventory, assess, repair, and replace non-functional drain tile systems in the APD, ensuring all existing systems effectively redirect water out of agricultural fields. Water control structures are installed wherever drain tiles are present to allow for more efficient use of water and regulate flows into waterways.

#### Timeline

- 2024: Develop educational materials for best management practices for water control structures.
- 2025: Explore options for farmer (rather than landowner) initiated drainage tile repair.
- 2026: Identify funding mechanisms to support SVWID and partner operating capacity and budget for drainage tile projects. Secure funding and service provider to own and maintain drainage tile installation equipment.
- 2028: Develop comprehensive inventory and assessment of drainage tiles on private land in the APD.
- 2029-2048: Implement drain tile repair and replacement projects at rate of 1-2 per year at an average of 35 acres total.

While a comprehensive inventory of subsurface drainage tiles, does not exist for the Snoqualmie Valley APD, historical records and maps of tile systems (held primarily by landowners) are available for some properties. We estimate that the 8,467 farmable acres (which does not include the 201 farmable acres of “farm infrastructure” buildings or farm access roads) in the SVAPD likely had tiles installed at one point. Since the SVWID replaced drain tiles on 150 acres through 7 projects since 2015, tile conditions on approximately 8,317 farmable acres in the SVAPD remain to be assessed and tiles potentially replaced.

Repair and replacement project costs vary greatly based on the complexity and extent of the project. With currently available tools, tile replacement costs about \$10/foot, which can be cost prohibitive. For example, recent repair of a drainage tile system spanning 50 acres of farmland cost roughly \$100,000.

### Background

### Service Providers

### Priority

Subsurface drain tile systems were originally installed between the 1930’s to 1970’s on nearly every farm field in the APD to improve a property’s drainage by directing water out of farm fields to ditches or water bodies thereby extending seasonal productivity. While they are a good option to improve drainage on a farm property and provide an overall benefit to drainage of the APD, they do not significantly affect sub-basin scale drainage.

Over time, these systems require repair or replacement to effectively re-direct water. While federal regulations make the installation of new drainage tiles complicated and cost prohibitive, replacing, supplementing, improving, and maintaining existing systems can be exempt from federal permits on a case-by-case basis. A WDFW floodplain development permit is needed for all tile repair projects in the floodplain.

In many cases, maintenance of the receiving waterway, such as dredging through ADAP, is required to allow proper drainage from the tile system outflow before drainage tile

- Lead:
- Snoqualmie Valley Watershed Improvement District (SVWID)
- Partners:
- King Conservation District

**MEDIUM /HIGH**

maintenance can begin. Water control structures are installed whenever possible when repairing tile systems, which allows farmers/landowners to regulate the amount of water flowing in and out of the field throughout the year. Active management of tile systems and water control structures can also benefit water quality and fish habitat. Data indicate that drainage tiles can reduce sediment transport and correspondingly reduce phosphorus and nitrate discharge to streams.<sup>1</sup> Tiling can be described as a conservation practice or as ecosystem services serving to filter nutrients and pesticides while improved drainage contributes to improved soil health.<sup>2</sup>

SVWID focuses work in sub-basins with the greatest drainage need. Drainage tile replacement projects within the priority sub-basins are identified through outreach to farmers, direct requests from farmers, and referrals from the King County ADAP program. King Conservation District provides support with initial watercourse maintenance.

### Strategies

- Secure multi-benefit partnerships and long-term funding to increase SVWID and partner program capacity, allowing for expanded drainage tile repair projects in the APD.
- Secure long-term funding for service providers to purchase equipment for drainage tile installation.
- Explore options for King County water quality cost share funding for water control structures.
- Research, test, and implement innovative practices for improving subsurface drainage.
- Continue testing the capping of drain tiles as a BMP solution for dryland farming and as a method for keeping moisture in soils longer.
- Provide education and outreach to farmers on multi-benefit approaches to managing water flow through water control structures including retaining groundwater.

<sup>1</sup> Vermont Agency of Agriculture, Food and Markets and Vermont Agency of Natural Resources, "Vermont Subsurface Agricultural Tile Drainage Report" January 31, 2017.[\[LINK\]](#). Page 9; accessed 3/22/23. Report Prepared for the Vermont General Assembly in Accordance with 2015 Act 64, Section 5.

<sup>2</sup> United States Department of Agriculture Natural Resources Conservation Service, "Conservation Practice Standard: Drainage Water Management, CODE 554" January 2021, NRCS, WA. [\[LINK\]](#).