



2022 Sewer System Plan



CROSS VALLEY WATER DISTRICT 2022 SEWER SYSTEM PLAN UPDATE

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Commissioners for Public Review
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PROJECT CERTIFICATION

The technical material and data contained in this report was prepared by PACE Engineers, Inc., under the supervision of the below listed individuals. Those responsible staff members who are registered professional engineers are licensed in the State of Washington.



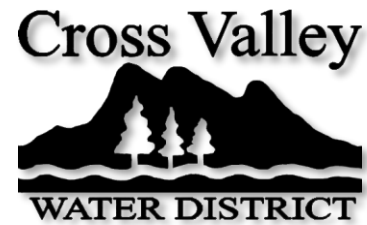
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EXECUTIVE SUMMARY

This Comprehensive Sewer System Plan for Cross Valley Water District has been prepared in accordance with the requirements of the State of Washington Department of Ecology (DOE) and Snohomish County. Cross Valley Water, as a provider of public domestic water and sewer services to residents in unincorporated Snohomish County located just north of the King / Snohomish County line, below the City of Snohomish on the north, and from the Snohomish and Snoqualmie Rivers on the east to 51st Avenue SE on the west. Sanitary sewer service is currently provided and limited to the industrial area in the southwestern corner of the District and is within the current Urban Growth Area (UGA) of Snohomish County. This Plan is updates and supersedes previous sewer system plans for the District and will remain in effect for ten years following the date of written approval.

Cross Valley has grown from the small Cross Valley Water Association (incorporated in 1964) to a public water and sewer district with a designated sewer service area of nearly 7,500 acres, of which only approximately 1,000 acres are within the UGA and therefore are allowed to be served by sewers. In 1998, Cross Valley completed construction of sewers in this area, and today approximately 113 connections utilize the sewer system in place. As described in Section 2 of this Plan, the District's corporate boundary is significantly larger than its Designated Sewer Service Area. The area just south and west of Lowell-Larimer Road, although within Cross Valley's Corporate Area is currently served by Silver Lake Water and Sewer District, and an agreement is in place to continue serving for the foreseeable future. Taking over service in this area is not anticipated in the next 20 years but contemplated in Section 6 of this Plan.

Land Uses are not expected to change significantly although infill development is expected, especially within the UGA. Sewer service is currently limited to the Maltby Industrial Area located within the Snohomish County UGA. A particularly challenging part of this Plan was to analyze the system as if the UGA boundary were to expand. Although this Plan is intended to address the capital needs of the District's sewer service area over a 20-year period, sewer mains often last more than 50 years. While UGA changes are rare and are generally avoided the greatest extent possible, and while Snohomish County has no plans at this time to change the existing boundary, there remains a designated Rural/Urban Transition Area (RUTA) that the District has elected to study as part of this Plan in order to allow for the flexibility of sewer main oversizing. By doing so, the District can avoid costly replacement of potentially undersized facilities that may still be in excellent, serviceable condition.

This Plan outlines provision of sewer service to the sewer service area designated inside the UGA and RUTA areas, although the required improvements to extend service to new customers will be the responsibility of future developers.

The primary objectives in developing this document were as follows:

- Determine the adequacy of the existing sanitary sewer system to meet the current and projected needs of the customers of the District located within the UGA in accordance with all applicable state, federal and local regulations governing the provision of sanitary sewer service;
- Analyze the sanitary sewer system and identify potential deficiencies and recommended improvements;
- Identification of opportunities to protect public health and safety, and the environment, through asset management of existing facilities and potential expansion of the system into unsewered properties within the existing UGA;
- Examine the impacts on the collection system as though the UGA may one day include the Rural/Urban Transition Area designated for the adjacent properties around the existing UGA boundary; and,
- Development a ten year capital improvements plan to serve as a guideline for renewal and replacement and future development of the sewer system.

Population and employment forecasting by Snohomish County and the Puget Sound Regional Council have been considered in determining growth patterns. The District currently provides 113 service connections, and existing customers have contractually purchased a maximum allowable discharge into the sewer system.

An estimated \$18.3 million (2022 dollars) in improvements is recommended for the sanitary sewer system based on the existing UGA, while potentially \$17 million (2022 dollars) would be required to also accommodate the RUTA. Annual expenses related to miscellaneous system monitoring, maintenance and repairs are estimated at \$5,000. A comprehensive review of the District's Sewer Rates and General Facilities Charges was performed in conjunction with development of this Plan, and adjustments were made to minimize the impacts of the CIP on rate payers. Cross Valley intends to continue applying for financial assistance through low interest loans and grants as they become available and will periodically review its rates going forward.

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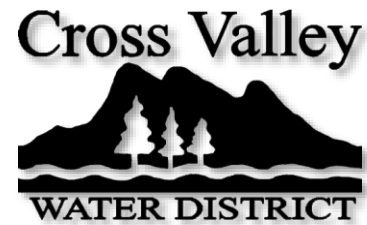
GLOSSARY

Aquifer	A porous, water bearing geologic formation. Generally restricted to materials capable of yielding an appreciable supply of water.
AWWD	Alderwood Water and Wastewater District.
Average Dry Weather Flow (ADWF)	ADWF is the flow for an average day during the dry weather months of May through October, and represents the baseline of sewage flow for the service area. The ADWF includes sewage discharges plus the average amount of groundwater infiltration (base GWI) which occurs throughout the dry season. In the absence of actual data, 100 gallons per capita per day is often used to predict the ADWF for a new service area. Peaking factors for existing flows are derived on the basis of ADWF.
Average Wet Weather Flow (AWWF)	AWWF is the flow for an average day during the wet weather months of November through April. The AWWF includes sewage discharges, groundwater infiltration and stormwater inflow which occurs throughout the wet season.
Brightwater	A Wastewater Treatment Plant was under constructed in 2010 by King County Wastewater Treatment Division at the intersection of SR-522 and SR-9.
Combined Sewer	A sewer which receives both wastewater and storm or surface water.
Commercial Wastewater	Wastewater generated in predominantly business or commercial areas, including both sanitary wastes and wastes from the commercial activities. Typically, commercial wastewater includes, but is not limited to, wastes from restaurants, laundromats, and service stations.
CVWD	Cross Valley Water District. (also, "Cross Valley" or "The District")
Denitrification	Removal of nitrogen from wastewater by convection of nitrate into nitrogen gas under anoxic conditions.
DOH	State of Washington Department of Health.
Domestic Wastewater	Wastewater principally derived from the sanitary conveniences of residences or produced by normal residential activities.
Dry Weather Flow	Wastewater flow during periods of little or no rainfall; in the Puget Sound area, this typically occurs during the months May through October. Rates of flow exhibit hourly, daily, and seasonal variations. A certain amount of infiltration may also be present.

Dry Well	The dry compartment in a pumping station, near or below pumping level where the pumps and/or motors and controls are located.
Ecology	State of Washington Department of Ecology.
EPA	Environmental Protection Agency.
ESA	Endangered Species Act
FAZ	Forecast Analysis Zone. Produced by the Puget Sound Regional Council.
Forcemain	A sewer pipeline that flows full under pressure, discharging from a pump station (as opposed to an inverted siphon).
fps	Feet per second.
GMA	State of Washington Growth Management Act.
gpac	Gallons per acre per day.
gpcd	Gallons per capita per day.
gpd	Gallons per day.
gpm	Gallons per minute.
gpd/sf	Gallons per day per square foot.
Hydrogen Sulfide	A potentially toxic and lethal gas (chemical symbol H ₂ S) produced in sewers and digesters by anaerobic decomposition. Detectable in low (<0.0001 percent) concentrations by its characteristic "rotten egg" odor, it deadens the sense of smell in higher concentrations or after prolonged exposure.
Infiltration	The quantity of groundwater that leaks into the wastewater collection system from the surrounding soil. Common points of entry include broken pipes and defective joints in the pipe or in walls of manholes. Infiltration may result from defective sewers being located below the groundwater table or from saturation of the soil by rain or irrigation water. Infiltration is divided into two categories: Groundwater Related Infiltration (GWI) which occurs throughout the year, and Rainfall Dependent Infiltration (Rain GWI) which occurs during and shortly after storm events as a result of temporarily raising the groundwater table.
Inflow	Rainwater which enters the collection system through roof drain connections, catch basin connections, and holes in the tops of manhole covers in flooded streets. Inflow is generally distinguished from infiltration by the rapidity with which inflow begins and ends after a period of rainfall.
Interceptor	A sewer that receives flow from a number of main or trunk sewers, forcemains, etc.

Inverted Siphon	Inverted Siphon is defined as a sewer that dips below the hydraulic grade line to avoid an obstruction such as a creek or a canyon.
KCWTD	King County Wastewater Treatment Division. (previously known as and sometimes referred to as "King County Metro" or "Metro").
Lateral	A sewer that has no other common sewers discharging into it.
Main	Any pipe that conveys flow through the system.
mgd	Million gallons per day.
NMFS	National Marine Fisheries Service
mg/l	Milligrams per liter. See also "ppm."
Nitrification	The process of converting organic and ammonia nitrogen into nitrate nitrogen by nitrifying autotrophic bacteria.
Nitrogen	An essential nutrient that is often present in wastewater as ammonia, nitrate, nitrite, and organic nitrogen. The concentrations of each form and the sum, total nitrogen, are expressed as mg/l elemental nitrogen. Also present in some ground water as nitrate and in some polluted ground water in other forms.
Peak Day Flow (PDF)	The maximum flow received over a calendar day, usually occurring during the wet weather.
Peak Design Flow/Peak Hour Flow (PHF)	The largest estimated flow sustained over a 60 minute period in the design year of the wastewater facility.
Peak Month Flow (PMF)	The largest estimated flow rate sustained over a calendar month.
pH	A measure of the hydrogen ion concentration in a solution, expressed as the logarithm (base ten) of the reciprocal of the hydrogen ion concentration in gram moles per liter. On the pH scale (0 14), a value of 7 at 25°C represents a neutral condition. Decreasing values, below 7, indicate increasing acidity; increasing values, above 7, indicate increasing alkalinity.
Phosphorus	An essential chemical element and nutrient for all life forms. Occurs in orthophosphate, pyrophosphate, tripolyphosphate, and organic phosphate forms. Each of these forms is expressed as mg/l elemental phosphorus.
ppd	Pounds per day.
ppm	Parts per million.
psi	Pounds per square inch
PSRC	Puget Sound Regional Council.
Revised Code of Washington (RCW)	Compilation of laws passed by the State legislature.
ROW	Right of Way

RUTA	Rural/Urban Transition Area
SEPA	State Environmental Policy Act.
Sewerage	A complete system of piping, pumps, basins, tanks, unit processes, and appurtenances for the collection, transporting, treating, and discharging of wastewater. Term is declining in use, generally being replaced by sewer system or wastewater facilities.
SLWSD	Silver Lake Water and Sewer District.
TAZ	Transportation Analysis Zone.
Trunk	A sewer that receives flow from one or more sewer mains. See "Main".
UGA	Urban Growth Area.
ULID	Utility local improvement district
Washington Administrative Code (WAC)	Document which consists of regulations adopted by the State to carry out the RCW.
Wastewater	Water carried wastes from residences, businesses, institutions, and industrial establishments, together with such ground and storm waters as may be present.
Wastewater Treatment Plant (WWTP)	A water pollution control facility engineered and constructed to remove pollutants from wastewater. Also referred to as a sewage treatment plant.
Wet Weather Flow	Wastewater flow during or following periods of moderate to heavy rainfall; in the Puget Sound area, this typically occurs during the months November through April. Infiltration and inflow may increase the wet weather flow to a rate many times greater than the dry weather flow, and unless provided for in sewerage design, can produce hydraulic overloads resulting in wastewater overflows to streets or water courses.
Wet Well	The compartment in a pump station where wastewater flow is collected and from which the pumps intake wastewater to be discharged into a force main.
WSDOT	Washington State Department of Transportation.



CHAPTER 1

INTRODUCTION

1.1 OVERVIEW

This document compiles and summarizes the results and conclusions of planning and engineering analysis undertaken by PACE Engineers, Inc., in developing this Sewer System Plan for Cross Valley Water District. This Plan supersedes and updates the District's 2009 Sewer System Plan and has been prepared in accordance with the requirements of the State Department of Ecology (Ecology) and the jurisdictions within which the District operates. Plan sections include the following information: identification and description of the characteristics of the District's service area; description of the existing sanitary sewer system; minimum design criteria adopted by the District; identification of system needs; recommendations for system improvements; and a schedule and financing plan for upgrading and/or extending the sanitary sewer system to accommodate the existing and projected population and land use for the area.

1.2 AUTHORIZATION

Recognizing the need to update the District's 2009 Sewer System Plan, the Cross Valley Water District's Board of Commissioners authorized PACE Engineers, Inc., to prepare this document in accordance with all applicable requirements and regulations.

1.3 PURPOSE AND OBJECTIVES OF THE PLAN

The purpose of this update is to produce a comprehensive sewer system plan that provides for the orderly expansion and improvement of the District's sanitary sewer system facilities within its service area. This Plan has been developed to provide a long-range planning tool for day-to-day use and decision-making regarding system development and capital expenditures. It provides the basis for sanitary sewer system rates and charges. This has been accomplished through a comprehensive and detailed planning process that included the following activities:

- Identify the sewer system policies of Cross Valley Water District.
- Establish the District's current and projected sanitary sewer service area boundary with consideration of topography and natural drainage area, land use classifications, growth management planning, and the service areas of neighboring sewer service providers.
- Identify current and projected sewer service area population and flows.
- Incorporate other relevant data and reports concerning the District's sanitary sewer system.
- Ensure the Plan is consistent with the Comprehensive Plans of the jurisdictions within which the District provides service.

- Develop updated computerized mapping of the District's sewer system.
- Establish minimum design criteria for system development.
- Provide a detailed study of the existing sewer system and determine the short and long-range requirements for expansion and improvements to the system.
- Coordinate provision of sewer service with adjacent sewer utilities.
- Develop recommendations for system upgrades and/or expansion based on current projections of future population and anticipated growth patterns.
- Prepare a Capital Facilities Plan for sewer system improvements within the District.
- Prepare preliminary opinions of probable costs and tentative schedules for needed improvements.
- Develop a financial plan for implementation of the Capital Facilities Plan.
- Comply with requirements of the State Environmental Policy Act (SEPA) and other regulations governing adoption of Sanitary Sewer Plans.

1.4 LOCATION

Cross Valley Water District is in south Snohomish County. As shown on Figure 1-1, its boundaries extend from approximately the City of Snohomish on the north, to the King/Snohomish County line on the south, and from the Snohomish and Snoqualmie Rivers on the east to 51st Avenue SE on the west. Sanitary sewer service is limited to the industrial area in the southwestern most corner of the District and is within the current Urban Growth Area (UGA) of Snohomish County. The District recognizes its responsibility to consider the entire corporate area of the District in its long-range planning and accommodate changes in land use designations that could result in the need for sanitary sewer service.

1.5 AUTHORIZATION AND CONDUCT OF BUSINESS

Cross Valley Water District is authorized by the State of Washington RCW (Revised Code of Washington) Title 57 - Water and Sewer Districts) to operate a public water and sewer system. The District operates under a Board of Commissioners system, whereby three Commissioners are elected by the residents within the District's corporate boundary. Resolutions and motions adopted by the Board make and establish the policies that govern the operation of the District.

Day-to-day operations and implementation of direction from the Board of Commissioners is the responsibility of the District's General Manager. The District employs both full-time and seasonal employees that include the finance manager, office staff, field staff, water plant operators and water quality monitoring specialists, cross-connection control specialists and the operation and maintenance manager. Engineering, legal counsel, and financial services for the District are provided by outside consultants selected by the Board of Commissioners. These consultants report to the General Manager and may attend District Board meetings as required to update and advise the Commissioners on pending and ongoing matters.

1.6 DISTRICT HISTORY

Cross Valley Water Association was formed in 1964 as a private, nonprofit corporation to provide water service to an area in south Snohomish County. The initial water system was

completed in 1966 and served 234 connections. By 1989, the system had grown to almost 3,500 water connections – larger than most systems in Snohomish County.

At that time, it was felt that there were many advantages to changing from a nonprofit water association to a water district. A petition requesting formation of the Cross Valley Water District, prepared in accordance with RCW 57.04.030, executed by 25 percent of the qualified electors within the boundaries of the Cross Valley Water Association, was submitted to and approved by the Snohomish County Board of Commissioners. The District formation issue was placed on the ballot for the primary election in September 1989. This election was successful, and the Cross Valley Water District was formed.

In October 1989, the District received a request from owners representing properties located within the Maltby Industrial Area (MIA). The letter requested that the District acquire the necessary authorization to provide sanitary sewer services to the MIA. In response to the request, the Cross Valley Water District Board of Commissioners adopted Resolution No. 1990-4-2 in April 1990. The resolution authorized the District to apply for approval to provide sewer service to a portion of the District.

In August 1990, Cross Valley Water District, in accordance with Washington Administrative Code (WAC) 248-91 and WAC 372-52, applied for a “Certificate of Sewer Necessity and Approval to Establish and Operate a Sewer System” to the State of Washington Departments of Health and Ecology. In June 1991, the DOH (Department of Health) issued a letter approving a “certification of necessity to establish, maintain, construct, and operate a sewer system” within the service area.

In July 1991 the Washington State Department of (Ecology) issued Order Number DE91WQ-N197 which granted approval and certification of necessity to Cross Valley Water District to establish, maintain, construct, and operate a sewerage system within the service area. Construction of the first sewer collection system occurred in 1997/1998, with the first connections to the system occurring shortly thereafter. The District served approximately 7,000 water and 113 sewer connections in 2021.

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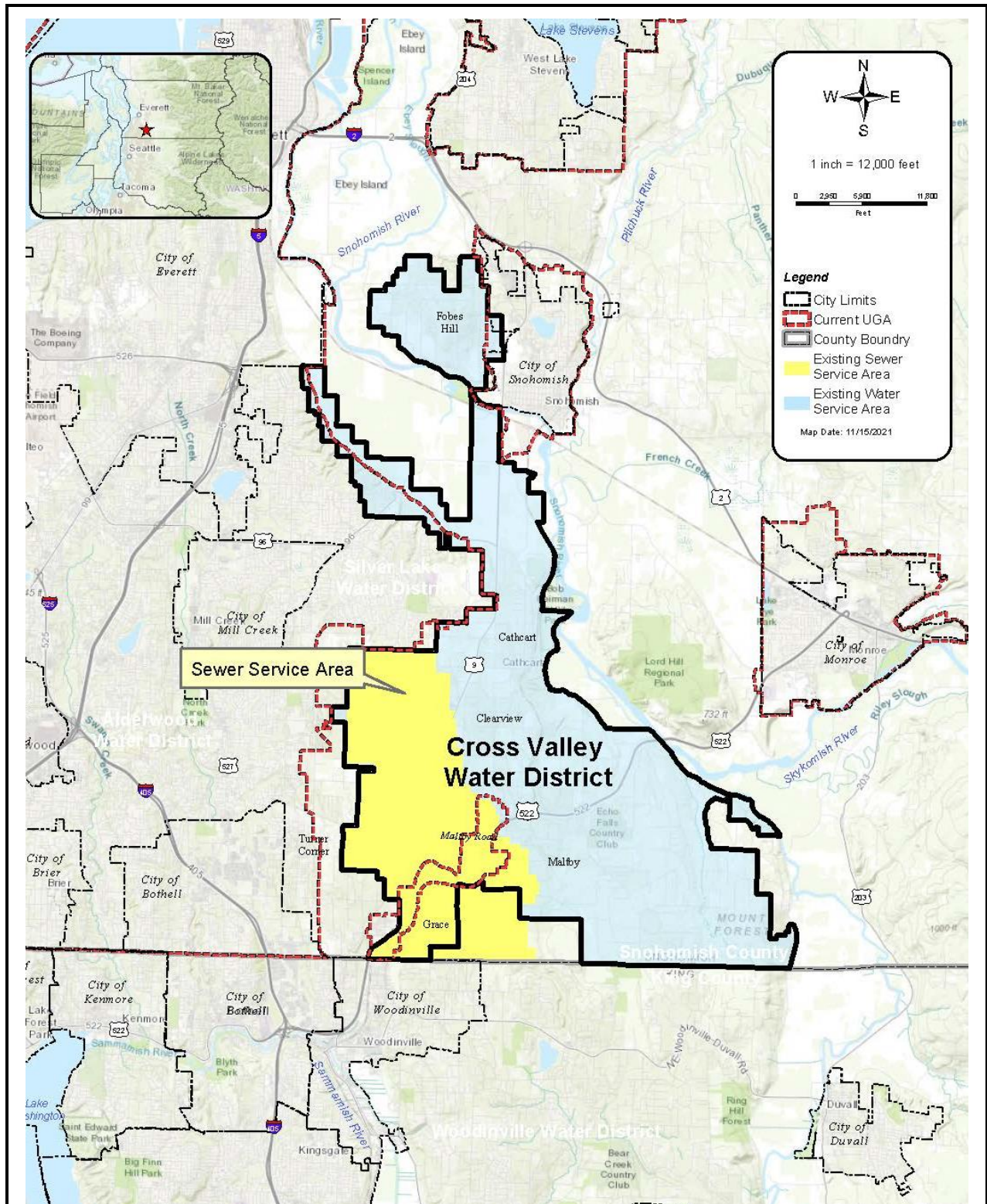


Figure 1: Vicinity Map

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1.7 RULES AND REGULATIONS

1.7.1 Federal Regulations

1.7.1.1. Clean Water Act

The Clean Water Act puts forth regulations and requirements for restoration and maintenance of the integrity of the nation's waters in terms of physical, chemical, and biological characteristics and security considerations. The U.S. Environmental Protection Agency is the primary administrator of the Clean Water Act, but has delegated many aspects of administration of the Act to Ecology. With respect to disposal of sewage collected by the District, the District relies on the King County Wastewater Treatment Division to provide sewage treatment and disposal services and to conform to all laws and regulations applicable to such services.

1.7.1.2. Endangered Species Act

The Endangered Species Act (ESA) will impact both water and sewer system operations of the District because of the listing of the Puget Sound Chinook Salmon and Bull Trout as "threatened species". A "4 (d) rule" has been adopted by the National Marine Fisheries Service (NMFS) Best Management Practices (BMPs), resulting from adoption of the "4(d) rule" supplement the District's existing operations and maintenance activities and programs.

1.7.1.3. Capacity Management Operations and Maintenance Programs

Capacity Management Operations and Maintenance (CMOM) is a program (not a regulation) developed by the United States Environmental Protection Agency (EPA) with a goal of reducing preventable sanitary sewer overflows (SSOs) through the development and implementation of appropriate capacity, management, operations, and maintenance practices. Under the provisions of the Federal Clean Water Act, SSOs from wastewater collection systems are prohibited. Cross Valley Water District operates in a manner to avoid all SSOs.

1.7.2 State of Washington Requirements

1.7.2.1. Washington Administrative Code

The rules and regulations governing the operation of public sewer systems are part of the WAC and were adopted pursuant to the provisions of the RCW 43.20.050 for the protection of public health. The rules and regulations set forth in WAC 246 provide the minimum standards for design, construction, operation, and maintenance of public sewer systems.

1.7.2.2. Revised Code of Washington

As mentioned previously, operation of the District is accomplished in accordance with the requirements of Title 57 of the RCW, which outlines the authorized actions, requirements, and responsibilities of public water and sewer districts.

1.7.2.3. Growth Management Act

The Growth Management Act (GMA) has a direct impact on utility system planning in that it requires a complete inventory of existing utility system facilities and a comprehensive effort towards determining the capacity of utility systems to support anticipated growth. Although most growth management activities are the responsibility of counties and cities, data and information from special purpose districts is required for these agencies to make informed decisions on growth and the ability of the systems to support future development. A primary outcome of the Growth Management Act is the establishment of a UGA boundary. Areas within the UGA are expected to accommodate urban densities along with urban levels of service. As discussed below, portions of the District are within the UGA boundary for Snohomish County and as such, planning efforts are based on anticipated land use, density, and level of service.

1.7.2.4. State of Washington Auditor

Regulations related to accounting practices for municipalities such as Cross Valley Water District, are implemented and monitored by the State of Washington Auditor. Government Accounting Standards Bureau Statement 34 (GASB 34) includes a requirement that the District report all infrastructure assets.

1.7.2.5. State Environmental Policy Act

The State Environmental Policy Act (SEPA) review is generally required for all District projects other than regular renewal and replacement projects involving pipe sizes of less than ten inches in diameter. SEPA requirements and exemptions are detailed in WAC Chapter 197-11 and adopted District environmental policies are in place to ensure that environmental concerns associated with construction are adequately addressed. Initiation of the SEPA process can be at the District's direction or as required for various permits.

1.7.2.6. Department of Ecology

This document has been prepared in accordance with the recommendations set forth by Ecology's "Criteria for Sewage Works Design" (Revised August 2008), which incorporates the policies, guidelines, and practices of Ecology and identifies the minimum engineering requirements for design, construction, and operation of a public sanitary sewer system.

Ecology administers a variety of regulatory requirements that have a direct impact on operation of public sanitary sewer collection systems including the following:

- Surface water quality regulations as put forth in WAC 173-201A
- State Environmental Policy Act, WAC 197-11
- Contract document review as authorized by WAC 173-240
- Shoreline Management Act administration in accordance with WAC 173-27

1.7.2.7. Snohomish County Requirements

Because the District operates within unincorporated Snohomish County, it is subject to rules and regulations established by the County and must utilize County planning data in developing growth projections. Specifically, the land use element of the Snohomish County Comprehensive Plan has a direct impact on the District and its planning efforts. Snohomish County Code Section 30.29 (General Policy Plan) has been utilized in the development of this document. The District operates within the terms of a Snohomish County Franchise. All work performed in Snohomish County right-of-way is subject to the requirements of the most recent edition of the Snohomish County Road Standards.

Land Use Planning by Snohomish County in accordance with the GMA has resulted in establishing the UGA for the County. The UGA establishes the area within which urban densities are anticipated and for which urban levels of service must be provided. Conversely, the area outside of the UGA is expected to remain rural in nature and receive a level of service commensurate with its rural character. The County's "General Planning Policies" and subsequent planning efforts have had a significant impact on how the District plans for projected growth.

1.7.2.8. City Requirements

A small portion of the District's sewer service area lies within the Potential Annexation Area (PAA) of the City of Woodinville. Once the area within the PAA has been annexed by the City, the District will continue to provide sanitary sewer service to existing and new development.

1.8 INTERLOCAL AGREEMENTS

The District currently maintains an interlocal agreement with Alderwood Water and Wastewater District. In addition, there is a service area agreement with Silver Lake Water and Sewer District to provide sanitary service to the Lowell-Larimer Area of the District. This agreement was originally signed in 2001 and updated in a 2009 Amendment. Wastewater treatment and disposal is provided by contract with King County. These agreements and a copy of the Snohomish County Franchise (2019) are included in Appendix B. From time to time, it may be necessary for the District to negotiate additional interlocal service agreements with neighboring purveyors to meet the specific needs of a developing property or area.

1.9 RELATIONSHIP TO OTHER PLANS AND POLICIES

Information from the following plans and policies was used in the development of this Plan:

- Sewer System Plan, PACE Engineers, Inc., 2009
- Comprehensive Sewer System Plan, ST Engineering, Inc., November 1998
- Snohomish County Comprehensive Plan, December 30, 2005
- Snohomish County General Planning Policies
- King County Wastewater Services Plan, September 2007 (2006 Annual Review)

- King County Regional Infiltration and Inflow Control Program Reports and Data, 2001-2003

1.10 RELATIONSHIP TO OTHER AGENCIES AND REGIONAL ACTIVITIES

By actively participating in various national organizations and regional activities, the District's Board of Commissioners, management team, and staff can better implement changes that are beneficial to its customers and ensure regulatory compliance. These organizations are key resources for educational and professional development and participation has resulted in the District staying at the forefront of technological advancements and compliance. A summary of key organizational involvement is provided in the following paragraphs.

1.10.1 King County Wastewater Treatment Division (KCWWTD)

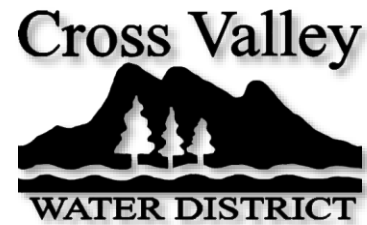
King County provides wastewater treatment services to approximately 34 local agencies (18 cities, 15 sewer districts, and the Muckleshoot Tribe). King County has been seeking to change and extend the wastewater treatment services contract with the District and other sewer utilities for several years. The contract was originally signed with the Municipality of Metropolitan Seattle (Metro) in 1965 and was subsequently amended. Metro developed the regional sewer facilities used by Seattle and many of the sewer utilities in King County. Metro was an independent agency governed by the representatives of local governments in King County (referred to as the component agencies). In 1992 King County took over Metro, and the component agencies lost their voice in the governance of the regional wastewater treatment system. It is widely recognized that the original sewer services contract with Metro, as amended, no longer serve the needs of the County or the agencies that use its services. The District has joined with several other utilities to prepare a new sewer services contract with the County and continues to pursue negotiation of a regional bilateral sewerage service contract that meets the needs of Cross Valley Water District and King County.

1.10.2 KCWWTD, Regional Inflow and Infiltration (I&I) Study

Rehabilitation of sewer systems and reduction of I&I is less expensive than building larger treatment plants. The purpose of the initial study was to identify opportunities for reducing I&I into sanitary sewers to create additional treatment capacity in the County's sewage treatment plants. Several projects for evaluating various I&I reduction techniques were implemented because of this study, which was adopted by the Metro King County Council in May 2006. Currently, KCWWTD is developing new program measures to reduce I&I, especially in private side sewers (service laterals).

1.10.3 Washington Association of Sewer and Water Districts (WASWD)

This is a statewide association whose members are water and sewer special purpose districts and consultants. They have pooled their efforts to represent the industry before local and state government, educate the public, and provide commissioner, employee, and management education to enable an overall increase of productivity, reliability, and accountability in utility service.



CHAPTER 2

BASIC PLANNING DATA

2.1 OVERVIEW

This section of the Plan provides a general description of the District's current and potential future service areas, and identifies the primary physical, land use and demographic characteristics of these areas. This information has been utilized to identify existing and future land use scenarios and to forecast future population and employment growth. Information from these projections will form the basis for the flow projections and system analyses contained in subsequent sections of the Plan.

2.2 PLANNING AND SERVICE AREAS

2.2.1 Sewer Service Area

The District's corporate boundary, as shown on Figure 2-1, encompasses approximately 40 square miles in south Snohomish County. Its boundaries extend from approximately the City of Snohomish on the north side, to the King/Snohomish County line on the south, and from the Snohomish and Snoqualmie Rivers on the east, to 51st Avenue SE on the west. Adjacent sewer purveyors are shown on Figure 2-1. The District's current sewer service area includes portions of the Little Bear Creek and Cottage Lake Basins that fall within the District's corporate boundary. The existing Cross Valley sewer system is located within the Maltby UGA (see Figure 2-1 and Figure 4-1). Other jurisdictions that provide sewer service within these drainage basins include Alderwood Water and Wastewater District, and Silver Lake Water and Sewer District. Additional information about the major drainage basins within the Corporate area is provided in Chapter 4 and illustrated on Figure 4-6.

For purposes of this Plan, the sewer planning area includes existing and urban areas within its corporate boundary, as designated by Snohomish County. Figure 2-1 shows the current adopted urban growth boundary and the District's corporate boundary.

The sewer service area is defined as the area of current and proposed sewer service and is consistent with the areas eligible for sewer service based on defined UGA boundaries. The boundaries of the current UGA and potential future sewer service areas, designated as the Rural/Urban Transition Area (RUTA) are shown in Chapter 7 (see Figure 7-1). Currently there is one urban area within the District's corporate boundary that is not within its approved sewer service area but is being served by sanitary sewers. This area, is referred to as the Lowell-Larimer Area, and is currently served by the Silver Lake Water and Sewer

District on an interim basis in accordance with the terms of a March 2010 Interlocal Agreement. A copy of that agreement is provided in Appendix B.

The District's wastewater collection and transmission system provides service to customers in the southeast portion of the District located within unincorporated Snohomish County. Sewer service is limited to areas within the UGA and the future sewer service area will consist of the existing urban areas of the District as well as any future extensions of the UGA. The District plans to serve all such UGA modifications and special circumstance requests within the planning area, except where service is currently provided by other utility systems.

2.3 DISTRICT POLICIES

The study area for this plan includes the existing and projected sewer service area of Cross Valley Water District, which is in south Snohomish County. The District currently provides sewer service within the Little Bear Creek and Cottage Lake Drainage Basins. Both basins are located within the District's corporate boundary. Provision of sewer service to these areas was accomplished through Ecology approval of a "Certificate of Necessity". A second approval may be necessary to provide sewer service within the remaining portions of its corporate boundary as appropriate to serve future urban development. The District recognizes that service will not be extended past the current UGA unless necessary to protection of health and safety and a specific determination of a health emergency or approval is granted. Interlocal agreements with neighboring utility service providers, Snohomish County, and King County (current treatment provider at Brightwater), or with other providers of treatment may be required. These interlocal agreements will occur as necessary to address engineering and regulatory considerations of sewer collection, conveyance, and ultimate treatment.

2.3.1 General Policies

The following general policies apply to overall operation of the District's sewer utility:

It is Cross Valley Water District's policy to serve all customers within its sewer service area as described in paragraph 2.3.2.1 below. New development or redevelopment within the District is required to pay all costs associated with extension of service, including the costs of increased wastewater conveyance, including offsite improvements and treatment costs that may be associated with that development.

Developers are required to extend facilities to the furthest boundary of their property for future extension by others.

2.3.2 Sewer Service Area Policies

Cross Valley's operations and policies regarding the sanitary sewer system are for the purpose of providing a well-planned wastewater collection system that is environmentally sound and adequately protects the public health and welfare, the environment, groundwater resources and surface water resources.

2.3.2.1 Sewer Service Policy

Cross Valley Water District intends to provide sanitary sewer service to areas within the UGA as designated by Snohomish County. Service is generally limited to areas within the current UGA and future extensions thereof, except as may be allowed by the Growth Management Act (GMA) exemptions such as in instances where onsite septic tanks have failed, and provision of public sewer service is determined the most appropriate solution.

2.3.2.2 Water Conservation and Reuse

The District recognizes that water conservation is a critical component to reducing the inflow into the treatment plant and therefore alleviating treatment capacity issues. Under the Municipal Water Law (MWL) enacted in 2003, the District and other large public water providers in the State of Washington were required to place greater emphasis on ensuring efficient use of water, per Department of Ecology (DOE) determinations of beneficial use, in exchange for certainty of water rights and greater flexibility to plan for future demand. On January 22, 2007, the Water Use Efficiency (WUE) rule became effective, directing DOE to adopt and enforce a regulatory WUE program.

In the development of its WUE Program, the District evaluated nine conservation measures for cost effectiveness, though only required to evaluate six. This proactive approach to WUE is congruous with the District's longstanding support for the goals of regional water conservation and commitment to promoting efficient use through reductions in average household/business water consumption within its boundaries.

Water reuse is under consideration throughout the regional wastewater treatment service area of the King County Wastewater Treatment Division. Opened in 2011, Cross Valley houses the Brightwater regional treatment plant in the Maltby industrial area, located within the District's southwest service area. The District remains open to potential partnerships and opportunities for water reuse within its service area and was designated in December of 2005 as the purveyor of any reclaimed water within Cross Valley service area through a mitigation agreement with the County. The District recognizes that actual use of reclaimed water will require careful coordination of specific environmental conditions and customer needs in terms of quality, quantity, and price.

2.3.3 Infiltration and Inflow

Cross Valley strives to reduce I&I into the sewer system to maximize capacity in existing facilities and reduce the quantity of flow requiring treatment and disposal at regional facilities. These efforts reduce overall system operation/maintenance and replacement costs and minimize environmental degradation. I&I has not been a concern for Cross Valley because the entire system was constructed by the District in 1999 using polyvinyl chloride (PVC) pipe and to District Standards and remains in very good condition. Infiltration is not likely because of its relatively young age. Cross Valley recognizes that there is a possibility that inflow may be occurring; however, there are no known or visible illegal connections of storm drains and/or sump pumps in the area. The District has recently installed flowmeters

and review of the data further suggests that I&I is not a significant issue. Information about the District's flow monitoring and I&I findings is provided in Chapter 6.

2.4 GENERAL CHARACTERISTICS OF THE SERVICE AREAS

2.4.1 Topography

In general, the District is located on the southeastern edge of the Intercity Plateau, which is an upland area extending from Everett southwards and bounded by the Snoqualmie and Snohomish Rivers on the east. The area is characterized by smooth hills generally 400 to 500 feet about mean sea level. Several valleys trending north-south traverse the upland area, including the Little Bear Creek and Sammamish River Valleys, Bear Creek Valley, Paradise Valley and the Snohomish and Snoqualmie River Valleys. Steep escarpments along the eastern and western boundaries are the result of glacial erosion and continued erosion caused by Little Bear Creek to the west and the Snohomish and Snoqualmie Rivers to the east. The south service area ranges in elevation from approximately 10 to 30 feet along the Snohomish and Snoqualmie Rivers to a maximum elevation of 620 feet in the area around Clearview.

2.4.2 Surface Water Features

There are numerous surface water resources in the District's corporate boundary. The Snohomish and Snoqualmie Rivers lie just to the east of the service area, while Little Bear Creek flows along the western boundary of the service area. There are also several lakes in the area south of State Route (SR) 522, including Devil's (Lost) Lake, Echo Lake and various small lakes and wetlands. Crystal Lake lies just south of the service area, in Snohomish County, and Paradise Lake, Cottage Lake and Lake Leota are further south in King County. Shadow Lake and the Batts, and Hanson Sloughs are located along the eastern boundary of the service area north of Cathcart.

2.4.3 Water System Facilities and Groundwater Wells

Cross Valley owns and operates seven wells located within the designated sewer service area that provide potable water for residents and businesses within the District's designated water service area. They also maintain a water treatment facility, pump stations and miles of distribution pipes. The one transmission main in the vicinity is provided by Clearview Water Supply Association and is located at the north end of the sewer service area.

In addition to these public wells, there are dozens of private wells located throughout the District's sewer service area. The location of all these existing private and public wells, or other sources of water supply, and distribution structures are taken into account when locating wastewater facilities. Cross Valley Water District's existing sanitary sewer system consists of one lift station, approximately seven miles of collection system mains, and three discharge connections to King County. Additional sewer facilities could be added with the transfer of the collection system within the Lowell-Larimer area of the District's corporate boundary. There are no conflict or potential conflict of these wastewater facilities with

current private and public water system facilities. A map has been produced and is located in Appendix L that includes the water and wastewater facilities.

2.4.4 Soils

Soils in this area of south Snohomish County are generally of the Alderwood soil series. These are moderately deep and were formed on glacial till. Surface layers are gravelly loam overlying weakly cemented hardpan, with depth to hardpan generally 20 to 40 inches. Other soil types in the area include Everett, Indianola, and Norma soils, which are found in areas with surface exposures of outwash deposits. The Everett soils are characterized by sand and gravel, located on terraces and outwash plains, and are the result of glacial striation.

As recorded in the 1990 Certificate of Sewer Necessity, many of these soils:

...impose considerable limitations on the use of...septic systems. Alderwood soils have 'severe' limitations due to the cemented till hardpan and seasonal...high water tables perched in the thin soil layer atop the hardpan. Wet or surface depression soils ...are also severely limited by slow percolation of septic tank effluent and ponding (USDA 1983). The sandy character of [outwash] soils contribute to rapid permeability that provides poor filtering. When groundwater tables are found within a few feet of septic tank drainfields in these soils, or if these soils occur in areas with steep slopes, contamination is possible. In Everett soils... limitations for septic systems are described as slight to severe, depending on site slope.

According to the 1998 Sewer System Comprehensive Plan prepared by ST Engineering, the Soil Conservation Service (SCS) would classify most of these soils as having severe restrictive limitations for use as septic system absorption fields. The 1998 Comprehensive Plan further quotes the SCS that, 'If the density of housing is moderate to high, community sewage systems are needed to prevent contamination of water supplies because of seepage from onsite sewage disposal systems.

The Alderwood sandy soils predominating in this area are characterized as a Type 4 soil as defined in WAC 246-272-11001. According to Table VII found in WAC 246-272-20501, Type 4 soils require a minimum lot size of 18,000 square feet to provide the minimum land area for an onsite sewage disposal (septic) system. The minimum lot size allowed in the UGA of Snohomish County is 9600 square feet. Designated densities in the rural sections of unincorporated Snohomish County of one dwelling unit per five acres would allow for septic systems even with the minimum lot size restrictions due to poor soils.

2.4.5 Climate and Rainfall

Climate conditions in the Cross Valley Water District area are typical of the marine climate of the Puget Sound region. Marine climates are characterized by mild summers and wet winters. The average annual precipitation for the area is approximately 56.5 inches, with 84 percent of the precipitation occurring from October through May. The average annual temperature in the area is approximately 49 degrees Fahrenheit, which represent a range from approximately 37 degrees Fahrenheit to approximately 62 degrees Fahrenheit.

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2.4.6 Economy

The overall character of the service area is rural residential in nature. No significant industries or businesses exist within the sewer service area other than the MIA.

2.4.7 Transportation

The major transportation corridors in the District include SR 9, which travels generally north-south to north through the District and SR 522 which crosses the southern end of the District from the southwest corner to the northeast boundary.

2.5 LAND USE AND ZONING

Cross Valley Water District land use and zoning is under the jurisdiction of Snohomish County. The District encompasses a primarily rural area of south-central Snohomish County. Much of the service area is developed at rural densities and is characterized by wooded lots, pasture, and small hobby farms. There are three unincorporated areas with more dense settlement and commercial and/or industrial activity (Clearview, Maltby and Cathcart) as well as commercial development along the Route 9 corridor. There are also some areas of residential development at densities slightly higher than the prevailing rural density. These are predominantly in the vicinity of Route 9 and surrounding some of the lakes in the southern portion of the District.

Snohomish County zoning (see Figure 2-2 at the end of this Section) for the Cross Valley corporate area is predominantly rural residential allowing one dwelling unit per five acres (Rural 5). There are also some areas where residential development is allowed at slightly higher densities, due to development patterns that predated the GMA.

Exceptions to the predominantly rural residential land use within the District's corporate area include the Maltby UGA, which is zoned for industrial and urban commercial uses, and the Clearview Limited Area of More Intensive Rural Development (LAMIRD) which allows rural business uses. The location of the UGA is critical in utility system planning because it provides a boundary within which higher densities are anticipated and an "urban" level of service is to be provided. Conversely, areas outside of the UGA are expected to be developed at lower densities and receive the appropriate level of public services.

2.6 POPULATION AND EMPLOYMENT

To effectively assess the future sewer system needs of the District, it is necessary to project future population and employment for the potential future service area. The population and employment projections are obtained by analyzing past demographic trends and by utilizing the planning data developed and provided by the Puget Sound Regional Council (PSRC).

PSRC's projections were developed in 2014 and show projected growth in population and employment anticipated to occur within the District's Sewer Service Area located inside the existing UGA and in the adjacent RUTA through the year 2040. The RUTA was identified in the 2009 Sewer Plan and represents the potential and most probable additional sewer service area. The RUTA is shown in Figure 7-1.

2.6.1 Service Area Population and Employment

Projected sewer service area population and employment figures are summarized in Table 2-1. As indicated, the potential sewer service area population within the UGA is projected to reach 160 by the year 2040. Addition of the RUTA is projected to add an additional 1,734 persons by 2040. Employment growth within the same area and timeframe is expected to reach nearly 5,408 jobs (UGA) plus 310 jobs RUTA. Additional sewer system growth associated with the RUTA is dependent on changes of the UGA boundary which, in turn, must be approved and administered by Snohomish County Council.

TABLE 2-1: POPULATION AND EMPLOYMENT						
AREA	2014	2020	2025	2030	2035	2040
Population						
UGA	170	125	144	153	158	160
RUTA	1,295	1,300	1,305	1,341	1,469	1,734
Total	1,465	1,425	1,449	1,494	1,627	1,894
Employment						
UGA	4,052	4,456	4,620	4,733	5,067	5,408
RUTA	386	310	314	300	294	310
Total	4,438	4,766	4,934	5,033	5,361	5,718

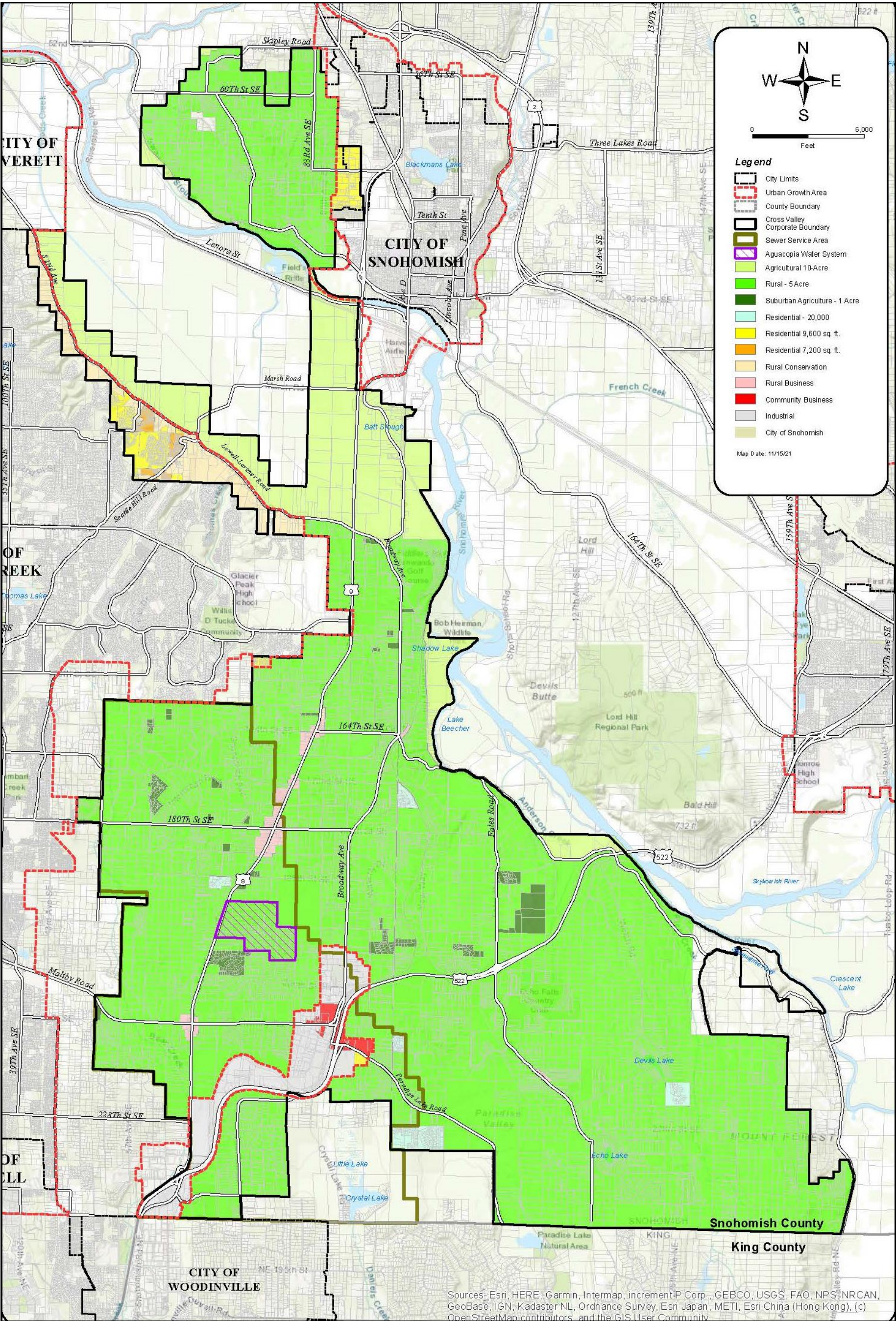
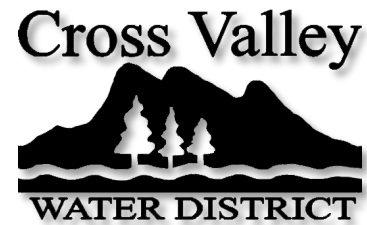


Figure 2-2: Zoning Map

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CHAPTER 3

WASTEWATER FLOW ESTIMATES

3.1 INTRODUCTION

Wastewater flows consist of a combination of domestic flow and inflow and infiltration (I&I). Domestic flow is generated by single family residential, commercial, and light industrial customers to the District. I&I refers to all water entering the system other than domestic flow. District planning to date for both existing and projected future conditions has been based on estimated loadings, or flows.

3.2 INFILTRATION AND INFLOW (I&I)

I&I are significant elements of any sanitary sewer system analysis and are particularly critical in wet weather climates, such as the Pacific Northwest. I&I can cause overloading, or surcharging of the sanitary sewer system, compromise system capacity, result in unnecessary treatment costs, and in extreme cases, pose the risk of environmental damage. Infiltration occurs because of groundwater entering the wastewater system through joints and cracks in pipes and manholes. Inflow is the water that enters the sanitary sewer system directly. As an example, inflow might occur due to excessive groundwater flows or illegal connections from outside of right-of-way limits (i.e., area, roof, or footing drains). The volume of infiltration is mainly influenced by age and condition of the system, soil conditions, previous construction techniques, and the amount of rainfall. Infiltration is also affected by system proximity to larger bodies of water and by tidal influences near low-lying shores, which influence groundwater fluxes.

3.3 WASTEWATER FLOWS

Current and historical wastewater flows typically provide the basis for sewer system modeling and analysis. However, much of the wastewater flows for the District have been contractually established by prior Utility Local Improvement District (ULID) agreements. As such, the system is obligated to provide ample space for flow established by contract with individual landowners, and Table 3-1 shows the total allocated flows for the system based on the current UGA and ultimate buildout conditions associated with expansion of the UGA to include the RUTA. These wastewater flows are based on the allocations established based on zoning, as described in Table 3-2.

TABLE 3-1: ESTIMATED FLOWS BASED ON CAPACITY AGREEMENTS

Condition	EXISTING UGA CONNECTIONS		ADDITION UGA AREA AND RUTA		Total Peak Flow (gpm)
	Peak Flow (gpm)	I&I (gpm)	Peak Flow	I&I (gpm)	
Existing UGA	1,174	278	N/A	N/A	1,452
Buildout Scenario	1,174	278	3,066	548	5,066

Note: Detailed Buildout Flow Projections in the system are provided in Appendix F, Parts 2 and 3

It should be noted that although this planning process utilizes the most current census data available, wastewater flows can be extremely vulnerable to influences such as weather patterns and the effectiveness of water conservation programs. Seasonal variations in flow and peaking factors are also influenced by the types of connections.

3.4 INDUSTRIAL WASTE PERMITTEES

The following customers are currently discharging industrial waste into Cross Valley's Sewer System and maintain a permit with the King County Wastewater Treatment Division to do so.

Company Name	Authorization/Permit Number
ABODA	11666-01
Bobby Welford Trucking and Demolition	50250-01
Dutchie Labs, LLC	400302-01
JP Trodden Distilling, LLC	400470-01
Pacific Topsoils, Inc.	4258-02
Primus International – University Swaging Division	7848-04
Spectrum Glass Company	10617-03

*King County Data as of December 2018

3.5 PROJECTED/ALLOCATED WASTEWATER FLOWS

Sewage flow projections have been established by the prior District Comprehensive Sewer Plan in accordance with the flows allocated to each industrial, commercial, and residential property under the terms and conditions within the ULID formed to construct the original sewer system. The flow projections also incorporate future land use and zoning to establish maximum projected wastewater flows. Table 3-2 presents the flow parameters established per the aforementioned criteria.

TABLE 3-2: ALLOCATED FLOWS

FLOW TYPE	PROJECTED FLOW RATE	PEAKING FACTOR
Infiltration/Inflow	800 gpad	NA
Light Industrial	1800 gpad	2.5
Heavy Industrial	1800 gpad	2.5
General Commercial	1800 gpad	2.5
Planned Commercial Bus.	1800 gpad	2.5
Planned Industrial Park (PIP)	1800 gpad	2.5
Industrial Park	1800 gpad	2.5
R-5	85 gpcd	2.5
R-9600	85 gpcd	2.5
Notes: gpad = Gallons per acre per day gpcd = Gallons per capita per day Infiltration and Inflow is not subject to a peaking factor.		

These flows assume that no changes will occur in the direction of flow or its ultimate destination and disposal. For consistency, the flow parameters listed in Table 3-2 were also utilized in the sewer capacity analysis for those properties added with the expansion of the UGA (prior to completion of the 2009 Sewer Plan). Moreover, as a means of developing a conservative design basis, the projections incorporated the maximum projected I&I rates. Detailed information regarding projected flows and the sewer system analysis are provided in Appendix F - Sewer Capacity Analysis.

The flow projections for those properties zoned as residential are based on an average household size of 2.6, as verified by Puget Sound Regional Council (PSRC) Data and U.S. census information. Flow from nonresidential property is estimated at 1,800 gallons per acre per day. I&I is assumed to be 800 gallons per acre per day regardless of zoning. A peaking factor of 2.5 is used to estimate peak flows. This peaking factor is used for area-wide flow projections only.

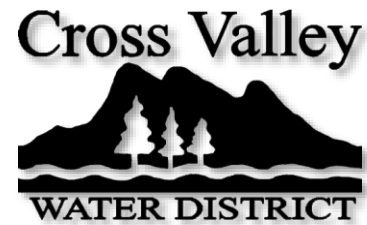
Because flow rates have been allocated per each industrial, commercial, and residential property under the terms and conditions within the ULID, the established flow rates must be used for establishing the district's obligations for providing service. Actual wastewater flows are currently well below the allocated capacity. The District can provide the full capacity allocated to any customer that desires to utilize it.

Any reduction/deduction of flow rates allocated to a specific ULID participant can only occur if the ULID participant agrees to revise their original allocated sewer flow rate. Review of empirical water use data, readings from installed sewer flow meters, or estimated reduction in flow due to conservation, may be an initial step to support the revision of the allocated flow rate of 1,800 gallons per acre per day for those ULID participants. Further discussion describing the

alternatives for amending assigned flow rates, are discussed in Chapter 6 of this Plan. Allocated flows are currently used as a basis for evaluating and establishing discharge limits and costs associated with new developments, or redevelopment of existing sewer-serviced properties.

3.6 MEASURED WASTEWATER FLOWS

A flow analysis based on flow monitoring and other data is included in Chapter 6. Measured flow provides a better insight into actual utilization of existing sewer capacity, and helps estimate remaining sewer capacity to accommodate additional service connections prior to a major capacity related improvement project.



CHAPTER 4

EXISTING COLLECTION SYSTEM

4.1 GENERAL

Cross Valley Water District's existing sanitary sewer system consists of one lift station, approximately seven miles of collection system mains, and three discharge connections to King County. Additional sewer facilities could be added with the transfer of the collection system within the Lowell-Larimer area of the District's corporate boundary, but currently serviced by Silver Lake Water and Sewer District. Chapter 6 of this plan discusses the existing collection system within the Lowell-Larimer area which could be transferred to the District with the expansion of the sewer service boundary. The existing District facilities are shown on Figure 4-1, and in detail in Figures 4-2 through 4-5. Drainage basins are identified in Figure 4-6.

4.2 KING COUNTY WASTEWATER TREATMENT DIVISION

Cross Valley Water District relies on the King County Wastewater Treatment Division (KCWWTD) regional wastewater conveyance and treatment system for treatment and disposal of all flows from the District's Maltby UGA customers. KCWWTD owns and operates an extensive regional sewer collection and treatment system, which provides for the transport, treatment, and disposal of sewage generated throughout the greater Seattle and Eastside areas.

4.2.1 Connection to KCWWTD Facilities

Previously, KCWWTD facilities collected all flows from the District in a 30-inch diameter main at a manhole just south of the intersection of SR 522 and the Snohomish-King County line. However, with the construction of the Brightwater Wastewater Treatment Plant (Brightwater WWTP) and ensuing agreements, King County has since taken over ownership of all existing downstream District sewer facilities south of approximately 224th Street South, except for sewer mains located adjacent to the Burlington Northern Railroad (BNRR) right-of-way, just east of SR 522. The District is provided with four manhole connection points to KCWWTD facilities at the locations noted below. The manhole numbers refer to the Cross Valley Water District (CVWD) manhole immediately upstream of the King County manhole receiving flow from CVWD; the location information is descriptive and approximate.

- ◆ MH-00004 South end of District, just east of SR-522
- ◆ MH-00108 Just east of the Northeast corner of Brightwater WWTP
- ◆ MH-00107 Approximately 1,000 feet northeast of the northeast corner of Brightwater WWTP

- ♦ MH-00237 South end of District, between SR-522 and Snohomish Woodinville Road (behind Costco)

4.2.2 Brightwater Wastewater Treatment Plant

King County's Brightwater WWTP was under construction at the time of publication of the 2009 Sewer Plan. Brightwater WWTP became fully operational in 2012. The facility covers 114 acres in the southern part of the Maltby UGA and has a current average wet-weather capacity of 36 million gallons per day (MGD). All District wastewater from the Maltby UGA and potential future expansion areas is, or will be, tributary to the Brightwater WWTP.

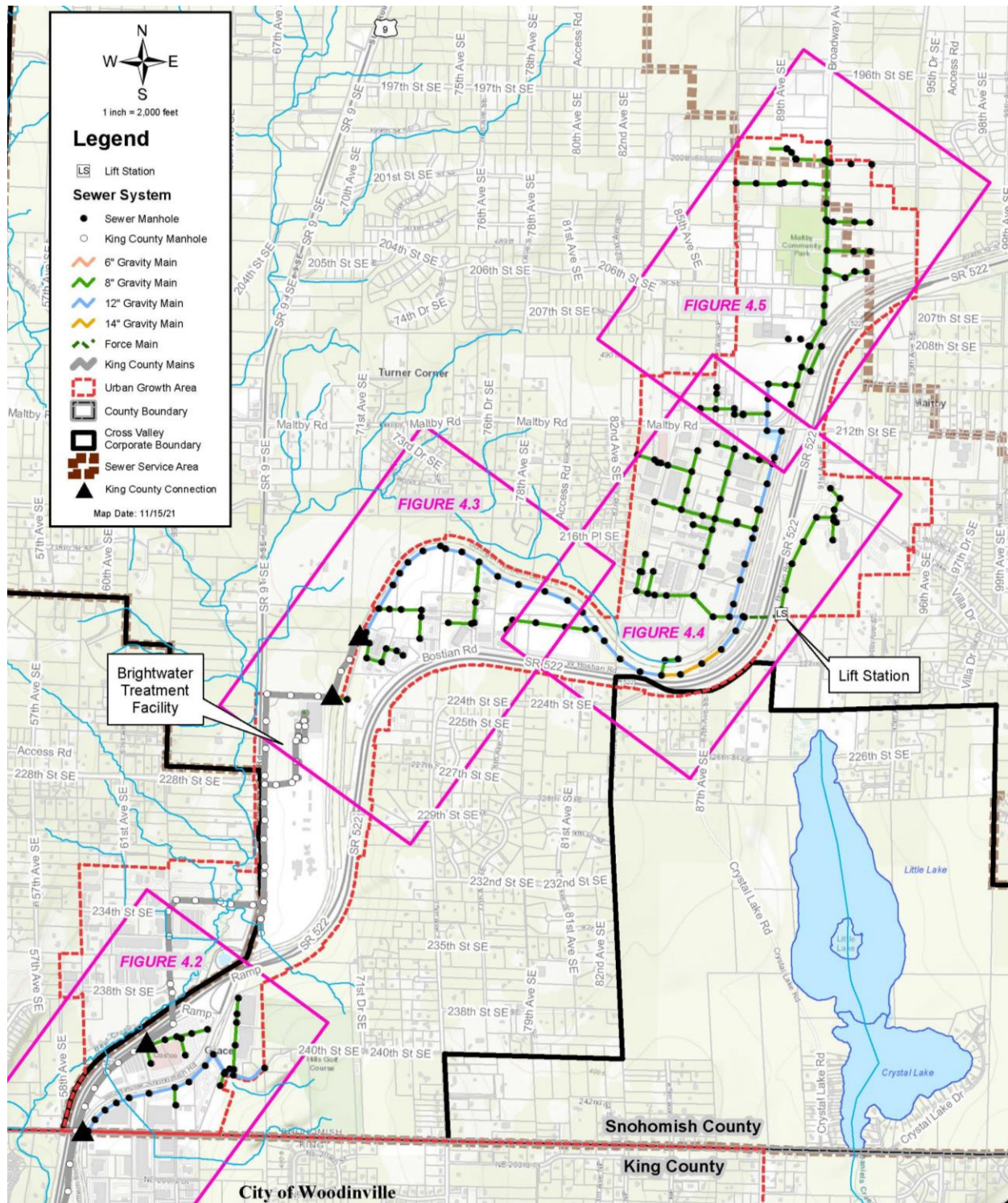


Figure 4-1: Existing Sewer System Map

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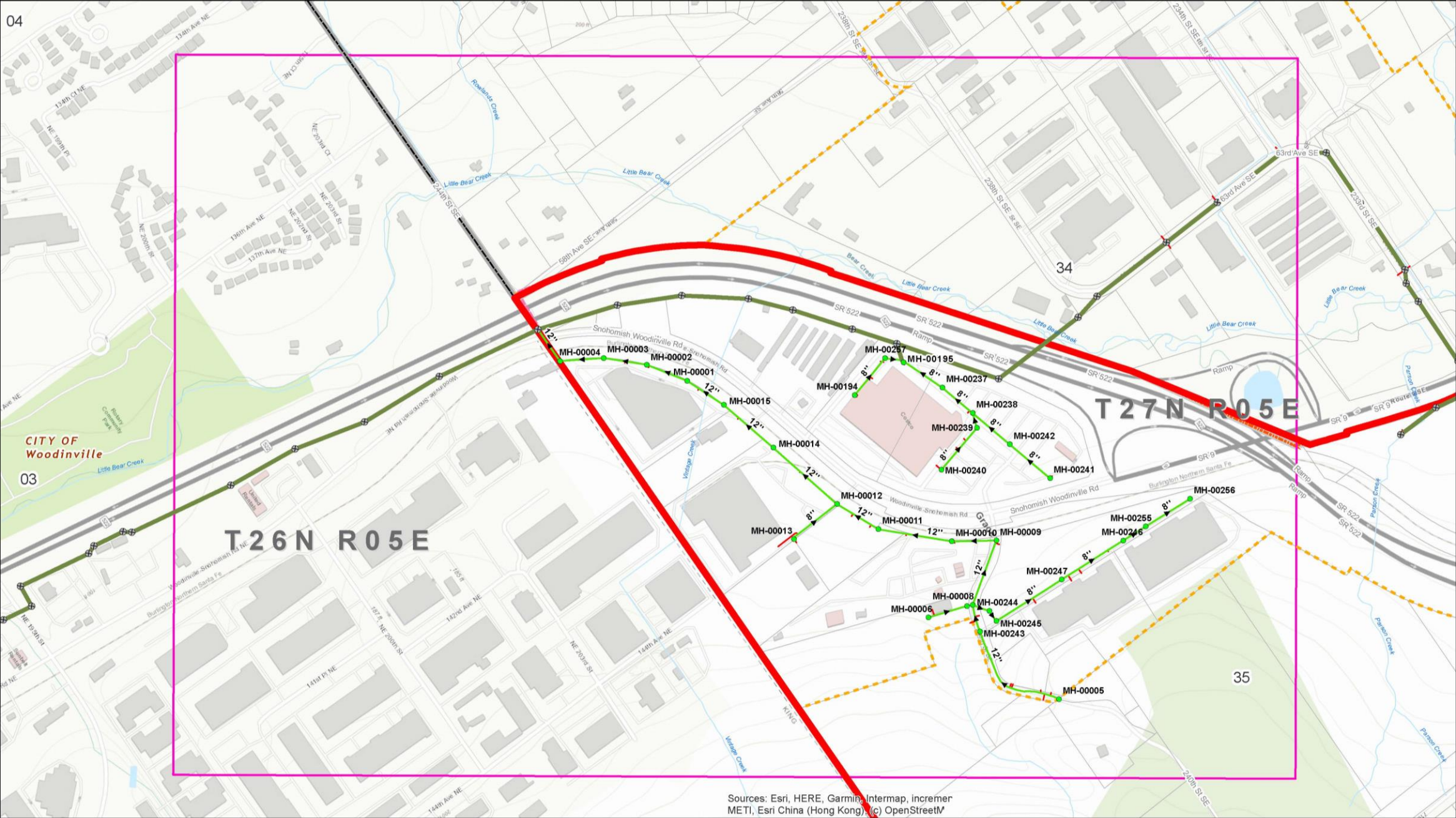


Figure 4-2: Sewer System Detail 1

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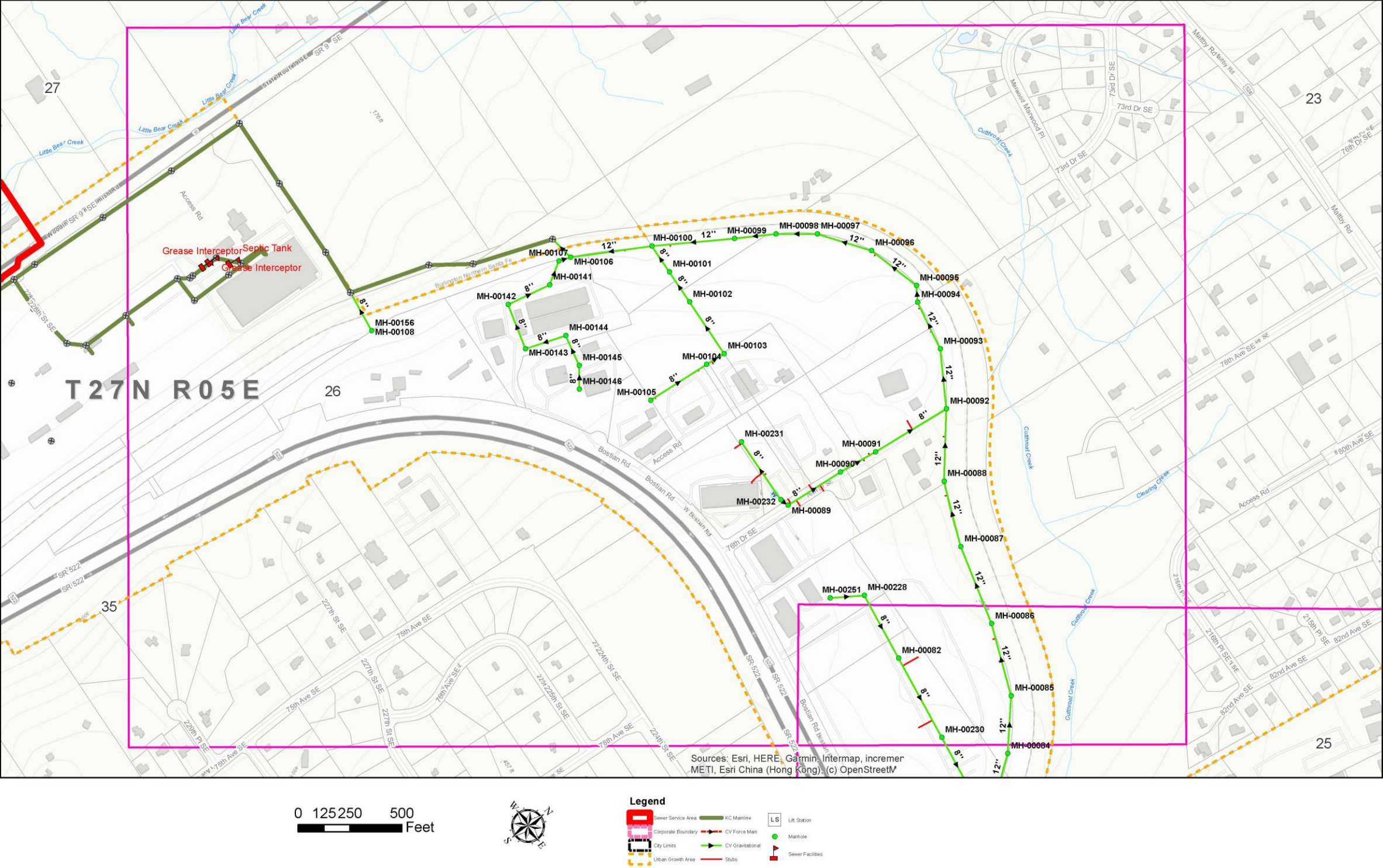


Figure 4-3: Sewer System Detail 2

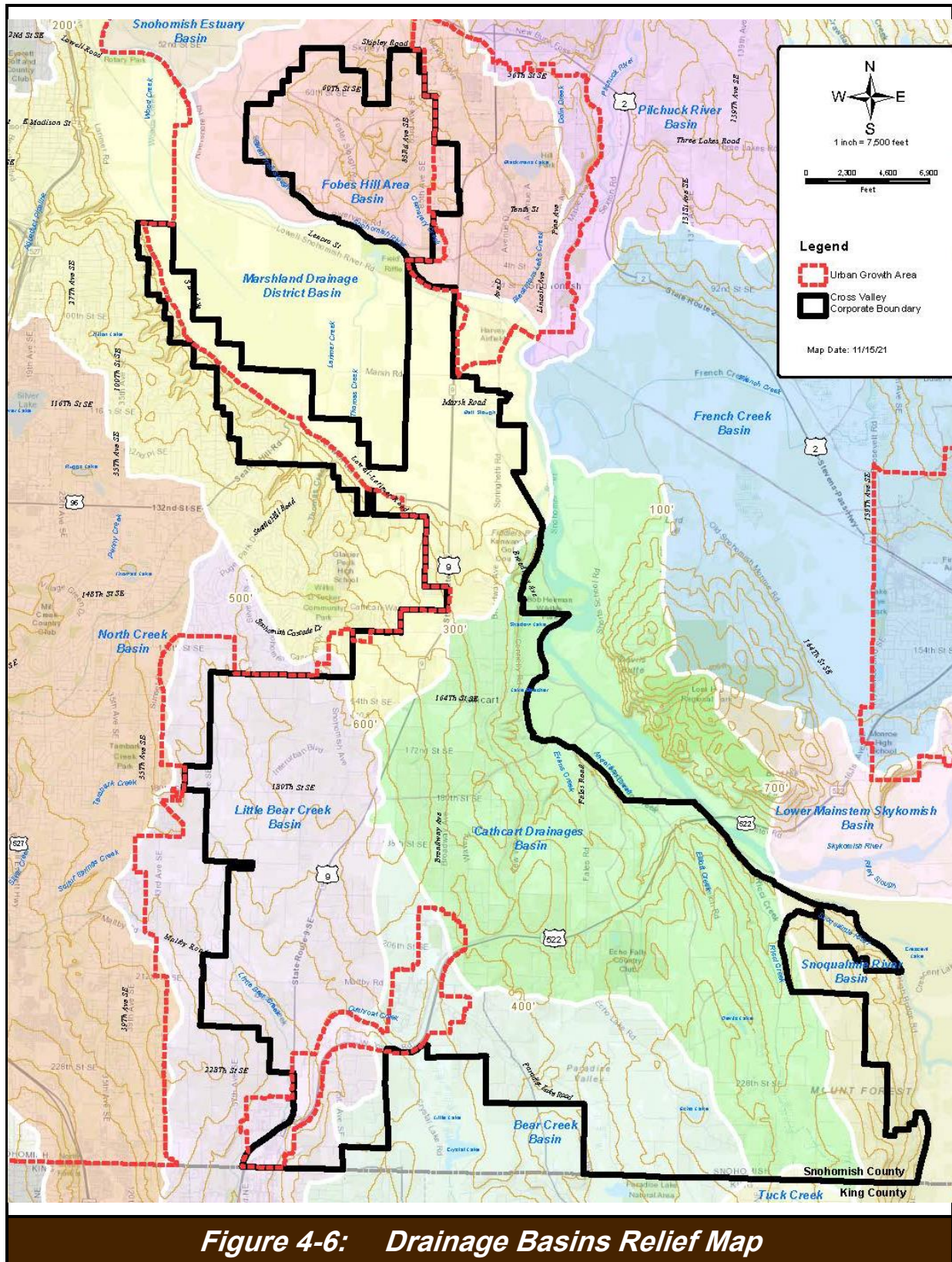
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4.3 COLLECTION SYSTEM

Cross Valley Water District currently maintains approximately 7.6 miles of 8-inch or larger sewer mains, approximately 500 feet of forcemain, and one lift station. Collection facilities within the Lowell-Larimer area of the District are serviced by Silver Lake Water and Sewer District, as described further in Section 7 of this Plan. There are 113 direct service connections on the system in year 2020. Some of the District's most significant connections in terms of flows to the system include Costco, and the many light industrial and other businesses within the Maltby UGA.

The District's existing collection system is predominantly of PVC pipe; other materials include high density polyethylene (HDPE) and ductile iron (DI). Table 4-1 presents the approximate lengths of different type and size pipes within the system. The District's existing system also includes approximately 170 manholes.

TABLE 4-1: COLLECTION SYSTEM INVENTORY	
SIZE OF PIPE	LINEAL FEET OF PIPE
4-inch DI	535 Forcemain
8-inch PVC	16,979
8-inch C900 PVC	4,600
8-inch HDPE	849
8-inch DI	2,704
12-inch PVC	6,461
12-inch C900 PVC	6,358
12-inch HDPE	658
14-inch PVC	984
Total	40,128

4.4 LIFT STATIONS

Cross Valley Water District serves properties with conventional gravity sewers. Currently, there is one area that is lower in elevation and requires a sewer lift station to pump wastewater via a forcemain to a discharge point at a higher elevation where it joins the gravity system that ultimately discharges to King County's system. The District currently operates and maintains one sewer lift station as described below and in Table 4-2.

4.4.1 Lift Station No. 1

Lift Station No. 1 is a wet well/dry well station. Sewage is collected in a 60-inch diameter wet well manhole and conveyed to a 12-foot diameter dry well manhole which houses the

pumps, controls, and electrical equipment. Lift Station No. 1, located at 21931 Bostian Road, was constructed in 1999 to serve the properties which petitioned for the formation of ULID) No. 7. The Lift Station primarily serves the Hidden River Middle School but may receive future flows from properties within the current and future expansion of the UGA boundary. The station and forcemain were sized for future flows of up to 200 gallons per minute (gpm) and has a diesel-powered 50-kilowatt permanent onsite generator for emergency power. The site is chain link fenced topped with 3-strand barbed wire.

TABLE 4-2: SEWER LIFT STATION NO. 1

NAME	TYPE	BUILT/ REBUILT	PUMP MAKE	GPM AT HEAD	PUMP HP	RPM VOLTS/PHASE	CONTROLS	FORCEMAIN
Lift Station No. 1	Wet Well/ Dry Well	1999/2018	Cornell 4NHA (2 pumps)	150 gpm at 72 feet	7.5 (per pump)	1200 460/3	Bubbler system	4-inch Diameter

4.5 DRAINAGE BASINS

Cross Valley Water District was granted approval to provide sewer service within that portion of its corporate boundary located in parts of the Bear Creek, Little Bear Creek, Cathcart, and Marshland Drainage Basins. Within these drainage basins, the District currently provides sewer service solely to the MIA, as this remains the only area that has been designated as an UGA by Snohomish County. Most drainage basins, including areas within the above-mentioned drainage basins, currently lie outside the UGA boundary and are therefore not permitted to have public sewer service. The District anticipates that sewer service will be provided as necessary and as available if the properties are added to the UGA.

With the proposed expansion of the sanitary sewer system to the extent of the District's corporate boundary, as detailed in Chapter 2 of this plan and in accordance with the UGA/GMA, the amended sanitary sewer service area will encompass six drainage basins as shown in Figure 4-6. Most of the basins are geographically inconsistent with commonly described physical features, such as roadways, neighborhoods, etc. However, the characteristics of the Bear Creek, Little Bear Creek, Cathcart, Marshland, Snohomish River, and Fobes Hill Area Drainage Basins, along with very general boundary descriptions, are set forth below.

4.5.1 Bear Creek Drainage Basin

The Bear Creek Drainage Basin is located within the District's corporate boundary. It is irregularly shaped and bounded by approximately 80th Avenue Southeast on the west, Echo Lake Road to the east and continuing in a northwesterly direction to 80th Avenue Southeast to the north boundary, and the District's boundary to the south. The basin is roughly 9,000 acres in size and includes a variety of land uses such as rural residential housing, light industrial, and commercial use. The eastern portion of the MIA, where public sewer service is available, is located within this drainage basin.

4.5.2 Little Bear Creek Drainage Basin

The Little Bear Drainage Basin is approximately 10,000 total acres in size and is in the southwestern portion of the District. The western portion of the MIA is located within this drainage basin. The portion within the corporate boundary is roughly bounded by the District's boundary on the north, south and west, and 80th Avenue Southeast on the east. Primary land use consists mostly of rural residential housing, light industrial use within the MIA, and commercial use within the MIA and along SR 9. Public sewer service is available in the Little Bear Creek Drainage Basin for those properties located within the MIA and/or the UGA.

4.5.3 Cathcart Drainage Basin

The Cathcart Drainage Basin is approximately 12,500 acres in size, is irregular in shape, and is best described as the area located in the southeast corner of the District. This area consists mostly of rural residential and agricultural use. In addition, a small area within the northern portion of the MIA, which can be served with public sewer, is located within this drainage basin.

4.5.4 Marshland Drainage Basin

The Marshland Drainage Basin is in the central and northwest portion of the District. Land use within this basin consists mostly of rural residential and agricultural production. However, a portion of this basin is within the UGA and is referred to as the Lowell-Larimer Service Area. Public sewer service is currently provided by Silver Lake Water and Sewer District in the portions of the Lowell-Larimer Service Area which are within the UGA. Land use within the Lowell-Larimer Service Area consists mostly of more dense residential use such as subdivisions and plats. The total size of this basin is approximately 15,000 acres.

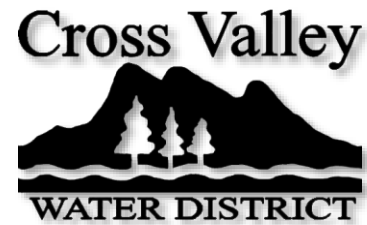
4.5.5 Snohomish River Drainage Basin

The small portion of the Snohomish River Drainage Basin located within the District boundary is in the southeast corner of the District, east of the Cathcart Drainage Basin. Land use for this drainage basin consists entirely of rural residential properties.

4.5.6 Fobes Hill Drainage Basin

The Fobes Hill Drainage Basin is approximately 7,000 total acres in size and is in the northern portion of the District. The portion within the corporate boundary is roughly bounded by Skipley Road to the north, the Snoqualmie River to the south and west, and the City of Snohomish to the east. Land uses consist almost entirely of rural residential.

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CHAPTER 5

MINIMUM DESIGN CRITERIA

5.1 INTRODUCTION

This Chapter of the Plan provides the minimum design criteria for existing and future collection system facilities within Cross Valley Water District. The District lies entirely within unincorporated Snohomish County, and thus the jurisdictional requirements of the County must be met in addition to standards set by Ecology. The minimum design criteria address issues related to I&I, projected flows, peaking factors, and various system facilities for the planning areas described in Chapters 4 and 7 of this Plan. State Ecology guidelines, along with the District's guidelines and standard specifications, establish minimum design requirements for extensions, upgrades, and additions to the District's sanitary sewer system. All sanitary sewer facilities within the District shall be designed in accordance with good engineering practices to suit the actual conditions at the project location by a professional engineer approved by the District and licensed in the State of Washington.

5.2 STATE GUIDANCE

The "Criteria for Sewage Works Design", published by (Ecology, Revised August 2008) in cooperation with the DOH and the EPA, provides guidelines, standards and minimum requirements for sanitary sewer systems operating within the State of Washington.

5.3 REFERENCE DATUM

The datum used for planning of facilities in this study and for District design work is based on NAVD 88 (vertical datum) and NAD 83/91 (horizontal datum).

5.4 GENERAL DESIGN CRITERIA

5.4.1 Design Period

The District's planning period to evaluate both present and future conditions shall encompass 25 years for mechanical and 50 years for collection facilities with more detailed information on evaluation timelines and useful life contained in Table 5-1 below. The Ecology design criteria recommend the following factors, which affect these facilities:

- ♦ Sanitary sewer facilities shall be designed with sufficient capacity to carry peak hourly flows from the tributary area at ultimate developed conditions unless more stringent criteria has been established by the District.

- ♦ Sewer systems shall be designed and constructed to District standards to attain full containment of sanitary wastes and minimizing infiltration and inflow.
- ♦ Lift stations should be designed to full buildout under current zoning and cover any potential buildout areas.
- ♦ Trunk and interceptor mains should be evaluated for economics, function, land use, erosion, sizing, solids deposition, pipe corrosion, odor, population, and comparative costs.

5.4.2 Useful Life

Useful life of various components of the District's system infrastructure will be set for the initial evaluation of the system. Service life expectations will be refined in the future based on actual condition investigation. In general, the initial useful life for District components is as shown in Table 5-1.

TABLE 5-1: PROJECTED SEWER INFRASTRUCTURE USEFUL LIFE		
Component	Increased Monitoring	Useful Life for Planning
Pipes		
Ductile Iron – Mortar Lined	40 Years	60 Years
Ductile Iron – Epoxy Lined	40 Years	60 Years
HDPE	50 Years	75 Years
PVC – Gravity	50 Years	75 Years
PVC – Forcemain	50 Years	75 Years
Manholes		
Concrete	35 Years	50 Years
Lift Station Wetwell	25 Years	40 Years
Equipment		
Electrical Gear	15 Years	20 Years
Mechanical Pumps/Motors	15 Years	20 Years
Instrumentation	7 Years	10 Years

5.4.3 Planning

- ♦ Initial system construction and additions should conform to the comprehensive plan.
- ♦ Phased development is permitted where full development will take several years.

5.5 FLOW RATES

Sanitary sewer system flows are composed of residential, industrial, and commercial sewage, groundwater infiltration, and stormwater inflow. Peak volumes, from all sewage sources, must be accommodated in design and construction for all components of the sewer system. Table 5-2 (portion of data gathered from Ecology Criteria for Sewage Works Design, Revised August 2008) provides a guide regarding estimated quantities of flow for various land uses within the District. Flows for specific land uses should be based on purchased/allocated capacity for each individual ULID participant, actual water consumption data and/or DOH design criteria.

Table 5-2 reflects planning estimates that have been retained from the 2009 Sewer Plan and reflect daily flows without inclusion of an inflow and infiltration allowance (see Section 5.5.2 for the I&I allowance).

TABLE 5-2: ESTIMATED FLOW RATES BY LAND USE	
LAND USE	AVERAGE DAILY FLOW
Single Family Residential	85 gallons/capita/day (2.6 persons per unit)
Multi-Family Residential	75 gallons/capita/day (2.2 persons per unit)
Retail / Commercial	35 gallons/employee/day
Industrial	75 gallons/employee/day
Institutional	35 gallons/employee/day
School	10-16 gallons/person/day
ULID Participant (Agreement Allocation)	1800 gallons/acre/day

5.5.1 Peaking Factors

Sanitary sewers and associated collection facilities shall be designed to carry peak hour flows. A specific minimum peaking factor for laterals, local sewers, trunks, and interceptors is 2.5 or as specified by the District. This peaking factor is used as a multiplier to determine peak flows and is based on the previous sewer comprehensive plan. If the peaking factor set by the District differs from Ecology requirements, then the more stringent factor is required. Ecology currently requires a peaking factor of not less than 2.5.

5.5.2 Inflow and Infiltration (I&I)

Infiltration is the volume of water that enters sewer systems from groundwater sources by means of porous, cracked, or defective pipe joints. Inflow is the volume of water that contributes to the overall sewer system via illegal connections, manhole covers, footing drains, swampy areas, and roof/area drains. I&I units are commonly expressed in gallons per acre per day (gpad) and with varying values depending on connection, material, and construction conditions. I&I values are determined on a case-by-case basis and verified by pump station and flow monitoring data. A specified I&I allocation of 800 gpad, as established in the previous comprehensive plan, is used in the system analysis presented in Chapter 6 of this Plan for estimating contributions from new service connections.

5.6 COLLECTION FACILITIES

Collection facilities should be designed for ultimate development from the tributary areas and are based on the design factors provided in the Table 5-2 and wastewater flows discussed in Chapter 5 of this Plan. In addition, the District's construction and design standards shall be observed for all new sewer systems within the District's Sewer Service area boundary.

5.6.1 Gravity Sewers

Gravity sewers are to be utilized whenever possible and designs should consider at least the following:

- ♦ Peak sewage flows from residential, commercial, and industrial sources
- ♦ Infiltration and inflow
- ♦ Topography
- ♦ Soil conditions
- ♦ Flow impacts from upstream lift station(s) - if applicable
- ♦ Maintenance
- ♦ Surface conditions
- ♦ Flow from any existing combined system
- ♦ Potential surcharge to downstream sewers
- ♦ The minimum velocity of sewers shall be 2.0 feet per second (fps). Future pump station design is to be decided only with approval from the District and shall follow the District construction and design standards.

5.6.2 Trunks and Interceptors

Trunks and interceptor sewer mains must be designed to carry ultimate development peak flows from the tributary area and are based on Table 5-2

5.6.3 Side Sewers

Side sewers shall be at least 6 inches in diameter and designed for the ultimate development of the parcel being served; and shall be installed at a minimum slope of 2 percent. No joint sewer service stub connections are allowed without District approval.

5.6.4 Alternative Systems

Low pressure sewers, inverted siphons and other alternative methods of wastewater collection may be allowed at the sole discretion of the District and only when no other feasible and cost-effective alternatives exist.

Low pressure sewers or vacuum collection systems may be allowed in areas where the size of the area to be served is not sufficient to warrant the expense of a pump station, or where physical limitations make it impractical to otherwise serve an area. Minimum pipe sizes and system configurations shall be calculated on a case-by-case basis to provide a minimum velocity of 2 fps.

Inverted siphons may be required to accommodate severe grade changes and will only be allowed when no other feasible alternative exists. Minimum pipe size for inverted siphons is 6 inches in diameter with a minimum flow velocity of 3 fps. Siphons must be equipped with

at least two barrels with air relief valves as well as adequate facilities for cleaning and maintaining the siphon.

5.6.5 Combined Sewers

Combined sanitary and storm sewers are not permitted within the District.

5.6.6 Overflows

No overflows or new overflow structures will be permitted.

5.7 PIPE SLOPE, SIZING, AND MATERIAL

The minimum pipe sizes, material specifications, system configurations and crossings with other utilities shall be reviewed on a case-by-case basis by the District and in accordance with District construction standards.

5.7.1 Pipe Slope

All sewers shall be designed per Table 5-3 (assuming full flow) and as shown, the minimum slope requirement throughout the District is 0.5%. At the end of a run, the minimum slope must be at least 1%. This is due to the increased water use efficiency in new home appliances that have reduced flows and doesn't provide enough flow to flush out the end runs. Oversizing sewers with respect to capacity in order to allow the use of flatter slopes should be avoided as this may result in operational capacities below the sedimentation velocity (2 fps).

TABLE 5-3: MINIMUM SLOPE REQUIREMENTS

SEWER MAIN SIZE (INCHES)	MINIMUM SLOPE (FEET PER 100 FEET)
8	0.50
10	0.50
12	0.50
16	0.50
<p>Note(s): Minimum requirements from Ecology Criteria for Sewage Works Design (August 2008)</p> <ul style="list-style-type: none">• Sewer shall be laid with uniform slope between manholes.• Sewers on a 20 percent slope or greater shall be anchored securely with concrete anchors or shall be restrained with joint pipe.• Suggested minimum anchorage spacing is as follows:<ul style="list-style-type: none">• Not over 36 feet center to center on grades of 20 percent and up to 35 percent.• Not over 24 feet center to center on grades of 35 percent and up to 50 percent.• Not over 16 feet center to center on grades of 50 percent and more.• Sewers with slopes more than 40 percent or with a velocity greater than 15 fps at any structure shall be equipped with energy dissipaters. Any such device shall be approved by the District on a case-by-case basis.• Last runs must have a minimum slope of 1%.	

5.7.2 Gravity Sewer Pipe Sizing - Less than 8-Inch

No sewer shall be less than eight inches in diameter except that, in special cases, 6-inch diameter sewer lines may be accepted and approved by the District and if the 6-inch lines meet the following criteria per Ecology manual Section C1-4.1.

5.7.3 Pipe Materials

A roughness coefficient ("n") of 0.013 shall be used in Manning's formula for the design of sewer facilities, regardless of type of pipe, except inverted siphons, where a roughness value of 0.015 can be used. Downsizing of sewer lines, or the installation of a smaller diameter line downstream of a larger diameter line, will not be allowed unless otherwise approved by the District. Sewer materials shall conform to District standards.

DI pipe and fittings shall conform to (American Supply Association (ASA) and AWWA specifications and the latest revisions thereof, and be manufactured in the United States. Use of Class 52 (iron grade to be a minimum of 60-42-10) pipe shall be used with lower grades requiring District approval. DI fittings shall be provided with an interior coating/lining of polyethylene meeting the requirements of ASTM D1248 or Protecto 401™ ceramic epoxy, 40 mil minimum thickness. A bituminous coating shall be applied to the fitting's exterior.

PVC sewer pipe shall meet or exceed the ASTM recommended specifications D3034-73, current revisions, and all installations shall be in strict compliance with the manufacturer's direction. One year or older manufacturer date shall not be allowed. Spigot insertion reference mark is required, and joint gaskets shall be fabricated from a compound of which the basic polymer shall be a synthetic rubber meeting the requirements of ASTM 1869, latest revisions.

5.7.4 Sewer Locations

Sewer trunks and interceptors shall be maintained within the street right-of-way. In the event sewer mains must be outside of ROW boundaries, then easements shall be provided and pre-approved by the District.

During design and construction of the sanitary mains, the minimum depth of cover is 72 inches per District standards, unless otherwise shown on the drawings and approved by the District. Gravity sewers shall be designed and constructed with straight alignment between manholes. The trench shall be kept clear of standing water to provide a clean, dry, joint seal. Pumping equipment shall be provided to keep the trench dry and clear. The trench shall be cut out six inches below invert of the pipe and kept clear of roots, boulders, and other obstructions. Compaction is to be provided per the modified proctor test ASTM D1557.

Crossings with water mains shall maintain a minimum of 18-inches of vertical separation between sanitary sewers and water pipes with water passing above the sanitary sewer pipe. Sewer joints are required to fall equidistant from any water crossing and, in some cases, when separation cannot be maintained, it may be necessary to encase the water and sewer service in pipe approved by the District. No concrete will be allowed unless specifically directed and approved by the District.

5.7.5 Manholes

Concrete manholes shall be provided with a precast base made with at a minimum of 3,000 pounds per square inch (psi) structural concrete. Manholes shall be core drilled for all connections and have steps in accordance with the District's most current Standard Details. The general District requirements for manholes are listed below:

- ◆ Within public ROW) grade adjustment is to be not less than 4 inches, nor more than 16 inches between the top of the cone or slab and the top of the manhole frame.
- ◆ Channels to be brought together with well-rounded junctions.
- ◆ Channels and manholes shall conform accurately to the sewer grade (Ecology requirement).
- ◆ The maximum allowable drop in elevation across the manhole shall be one foot.
- ◆ Channels are to be poured after inlet and outlet pipes have been placed and firmly grouted.
- ◆ Rough, uneven surfaces will not be permitted.
- ◆ Channels shall be constructed to allow the installation and use of a mechanical plug of the appropriate size.
- ◆ The concrete shelf shall be warped evenly and sloped 3/8 inch per foot to drain to the channel.
- ◆ Cut-in manholes shall be exempt from the inlet drop requirement.
- ◆ Manholes at the downstream end of force mains shall, at a minimum, be coated with Tnemec 120 vinyl ester, Quantum polymorphic resin or approved equal, under the direction of the product representative. As an alternative, a GU liner material base may be used.
- ◆ All manholes are required to have locking lids.

5.7.6 Lift Stations

At a minimum, all lift stations shall provide duplex pumps, each sized for the entire design flow at maximum development conditions. Lift stations may have to be customized depending on the size of the station and pumping requirements. Sewer pump stations shall be located as far as practical from present or proposed full buildout residential developments. Vehicles, vactor trucks, or other tanker trucks access is required to the pump station. Site design and lot size requirements, must be considered to allow for ease of access and operations and maintenance concerns. Odor control, noise control, and station architectural design must be considered in the locating and design of sewer lift stations.

Design standards should follow the detailed guidelines provided by the current District construction standards manual. Operational components must be located at elevations above the 100-year flood elevation or shall be adequately protected. If pump stations are located below the 100-year flood elevation, with District approval, the pumps must be able to operate under 100-year flood conditions.

Pump station peaking factors are used to arrive at peak hourly flows from average day flows. The peaking factor shall not be less than 2.5. Pump cycle ratios must be appropriate to provide a margin of safety against pump overheating and subsequent wet well flooding. Except in the case of grinder pumps, pumps shall be capable of passing solids of at least 3-inches in diameter and suction/discharge openings shall be 4-inches in diameter. Controls must be designed and approved by the District prior to installation. Alternation of pumps during use is required with the pump run times and actual wastewater flow measurements being recorded for District use.

Site water service with a required backflow prevention device, emergency power, and alarm system to monitor the following are required: intrusion, power failure, wet dry well; high wet well; low wet well; smoke; operator in trouble; pump failure; and line failure. Testing of the circuitry and power and phase monitoring, is required for verification prior to operation. SCADA controls must be inspected and meet current standards of communication prior to operation.

5.7.7 Cross-Connection Control

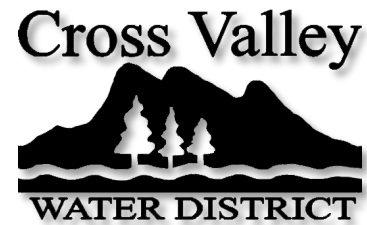
Protection of public water supplies is an important health concern related to the design of sanitary sewer facilities. There shall be no physical connection between a public or private potable water supply system and a sanitary sewer system which would permit the passage of the cross-connection with the potable water supply system.

5.7.8 Standard Plans and Details

Cross Valley Water District maintains standard plans and details that are reviewed and updated periodically. These standards address construction requirements for such things as: the installation of gravity mains, force mains, manholes and cleanouts, lift stations, and system maintenance. A copy of the Cross Valley Water District's standards is on file at the District office and website. The District uses the current version of the American Public Works Association (APWA)/Washington State Department of Transportation (WSDOT) specifications and corresponding APWA specifications.

5.7.9 CCTV Requirements

Developers proposing projects within the Cross Valley Water District service area must provide a CCTV recordings of the sewer lines in the near vicinity downstream of their project. These recordings must be provided prior to construction and permits being issued.



CHAPTER 6

SEWER SYSTEM ANALYSIS

6.1 INTRODUCTION

In this Chapter the existing collection system facilities will be evaluated regarding recent sewage flows and anticipated ultimate flows. Furthermore, recommendations will be developed for providing sewer service to areas within the District's corporate boundary that are currently served by adjacent purveyors along with unsewered areas of the District. The impacts of these future flows and facilities on the existing sanitary sewer system will be examined. A summary of the recommended collection system improvements is provided throughout this Chapter and a complete Capital Facilities Plan is provided in Chapter 7 of this Plan.

The recommendations outlined in this Chapter are based on general assumptions regarding the timing and location of anticipated development. To the extent possible, the land use, population, and flow projections which drive the improvement recommendations are based on specific development proposals outlined in the previous District sewer comprehensive plan as well as approved comprehensive planning documents by others. In some cases, however, they are based on more general information regarding potential densities based on existing zoning. The recommendations of this Plan are therefore conceptual, and the precise location and size of the facilities recommended herein will be determined by engineering design at the time of development in accordance with the design and construction standards described in this Plan.

6.2 GOALS AND OBJECTIVES

A variety of goals and objectives were established prior to the development of the recommendations for collection system improvements and are summarized as follows:

- Analyze the existing sewer system capacity with the addition of future connections as permitted by expansion of the UGA.
- Evaluate the future needs of the District based on the information provided by the previous sewer comprehensive plan, appropriate land use jurisdictions, and regional population and employment data projections as identified and discussed in Chapter 2.
- Expand the sewer service area to the Corporate Boundary of the District such that the District is authorized to provide sewer service concurrent with any future expansion of the Urban Growth Area (UGA).

- Analyze the existing system and future system needs and incorporate District staff knowledge as well as accepted engineering practices and the minimum design criteria outlined in Chapter 5.
- Develop practical and cost-effective collection system alternatives and improvement recommendations which will provide for an efficient and reliable means of sanitary sewer operation to serve the existing and future needs of the District's customers.
- Maximize gravity sewer service insofar as feasible and cost effective.
- Develop system strategies and improvement recommendations which are consistent with the protection of health, safety, and welfare of the population, and minimize impacts to the environment.
- Identify recommended improvements to meet the District's needs at ultimate development.
- Identify "non-project" related recommendations which will improve the overall efficiency of the wastewater collection system.

6.3 EXISTING COLLECTION SYSTEM ANALYSIS

The existing collection system was evaluated based of considerations of prior sewer Comprehensive Plan computations of potential hydraulic loadings as well as current effects to estimate actual sewer flows.

6.3.1 Prior Capacity Analysis

A pipe capacity analysis of the collection system was performed in the 1998 Sewer Comprehensive Plan. The pipe capacity analyses consisted of conveyance calculations in an Excel spreadsheet format. The analyses showed that the existing sewer system had sufficient capacity (based on the estimated flow projections) to serve those properties within the sewer service inside the UGA; however, portions of the system were undersized when considering the addition of potential future connections due to the expansion of the UGA, added flows from development of properties under Public Use Exemptions (PUE), and any properties which propose to discharge wastewater at a rate which exceeds the planned discharge rates.

As part of the 2009 Sewer Plan, the prior conveyance calculations were first verified for accuracy. A separate conveyance calculation was then performed using the Manning equation for pipes flowing at 100 percent full capacity.

The conveyance calculations presented in the 1998 analysis were confirmed to be accurate, with the 2009 capacity analysis just slightly more conservative.

The 2009 capacity analysis was also updated to include "added" properties which were not previously within the UGA and currently connected to the system, facilities outside the sewer service boundary which were connected to the sewer system under a Public Use Exemption, and properties rezoned/ designated to an alternative land use. Properties that

were previously anticipated to be connected to the sewer system, but ultimately were not included within the current UGA boundary, or those determined not to be a viable developable lot, or an unlikely future service connection for any reason, we've removed from the capacity analysis.

For consistency with the 1998 comprehensive plan analysis, a peaking factor of 2.5 was applied in the 2009 Plan to the average flows to determine the maximum flows generated by the customers. The estimated I&I of 800 gpad was added to the projected peak flows to arrive at peak flows under wet weather conditions. Flow rates for industrial and commercial zoned parcels were established at 1,800 gpad. Flows from residential zoned parcels were established at 85 gpcd and based on 2.6 persons per household.

Capacity conveyance calculations from the 2009 Plan are presented in Appendix F, Part 2. **Note that manhole numbers were recently changed. Appendix F reflects the old numbering system, but Appendix F also includes tables that facilitate identifying manholes by either number.** The Appendix F, Part 2 analysis showed that the addition of flows from the Hidden River Middle School, which had been added since the 1998 comprehensive plan, may overload a handful of sewer mains during ultimate wet weather conditions based on the allocated flow allowances. Specifically, those sewer mains which were calculated as overcapacity are identified in Table 6-1 below:

Table 6-1: Sewer Mains Exceeding Current Capacity		
MANHOLE TO MANHOLE ¹	CAPACITY (GPM)	PERCENT EXCEEDED
00072-00073 (D104 - D103)	812	5%
00092-00093 (C72 – C71)	1,017	6%
00093-00094 (C71 – C70)	1,007	10%
00095-00096 (C69 – C68)	1,116	2%
00096-00097 (C68 – C67)	1,116	2%
00099-00100 (C66 – C-65)	1,026	12%
000100-00106 (C65 – C64)	999	21%
<i>Note: 1. New manhole numbering with old manhole numbering in parenthesis</i>		

Generally, the pipes listed above have limited capacity due to their minimal slope. In addition, as a conservative analysis, flows to the system from the school were modeled at 1,800 gpad. This flow rate was established for the school since the parcel is zoned as an industrial park. Even though it is unlikely that the existing school parcel will be converted to an industrial use, the projected flow was modeled for overall system analysis consistency.

The 2009 Plan also considered properties within the UGA that met the following criteria:

- ♦ Within the UGA at the time of the previous comprehensive plan update but did not participate in the ULID agreement and which are currently unsewered.

- ♦ Included in the UGA since the 1998 comprehensive plan due to the expansion of the UGA but were still unsewered in 2009.
- ♦ Rezoned since the 1998 comprehensive plan and now can be developed but which were still unsewered in 2009.

With the addition of all properties within the UGA, numerous sewer mains may surcharge under projected ultimate wet weather conditions based on the allocated flows and calculated results.

These results were consistent with the 1998 comprehensive plan capacity analysis. The sewer mains which were computed to be over capacity due to the flows from the addition of the above bulleted properties are shown in Table 6-2.

Table 6-2: Added Properties – Sewer Mains Exceeding Capacity

MANHOLE TO MANHOLE	CAPACITY (GPM)	PROJECTED FLOW (GPM)	EXCEEDED CAPACITY (GPM)	PERCENT EXCEEDED
00117-00118 (D126 - D125)	376	437	71	19%
00119-00121 (D124 - D123)	399	459	60	15%
00121-00123 (D123 – D122)	398	459	61	15%
00115-00016 (D122 – D121)	392	468	76	19%
00016-00017 (D121 – D120)	411	470	59	14%
00017-00018 (D120 – D119)	436	469	33	8%
00048-00049 (D111 – D110)	809	923	114	14%
00049-00058 (D110 – D109)	797	965	168	21%
00056-00071 (D107 – D106)	968	986	18	2%
00071-00055 (D106 – D105)	1,030	1,109	79	8%
00055-00072 (D105 – D104)	877	1,374	497	57%
00072-00073 (D104 – D103)	812	1,482	670	83%
00073-00074 (D103 – D102)	997	1,384	387	39%
00074-00071 (D102 – D101)	910	1,386	476	52%
00071-00078 (D101 – D100)	1,016	1,386	370	36%
00078-00079 (D100 – C81)	1,035	1,429	394	38%
00079-00080 (C81 – C80)	990	1,433	443	45%
00080-00081 (C80 – C79)	1,027	1,442	415	40%
00083-00084 (C78 – C77)	1,292	1,461	169	13%
00084-00085 (C77 – C76)	1,188	1,460	272	23%
00086-00087 (C75 – C74)	1,379	1,523	144	10%
00088-00092 (C73 – C72)	1,518	1,568	50	3%
00092-00093 (C72 – C71)	1,017	1,613	596	59%
00093-00094 (C71 – C70)	1,007	1,638	631	63%
00095-00096 (C69 – C68)	1,116	1,672	556	50%
00096-00097 (C68 – C67)	1,116	1,672	556	50%
00097-00098 (C67 – C66A)	1,258	1,672	414	33%
00099-00100 (C66 – C65)	1,026	1,677	651	63%
00100-00106 (C65 – C64)	999	1,739	740	74%

Sewer lines located along 91st Avenue Southeast 00117-00018 (D126 to D119) were previously under capacity; however, due to the rezoning of a property from protected “urban reserve” to developable “industrial park”, flow from approximately 42 acres was added. The property is used as recreational ballfields, which have minimal wastewater discharge to the sewer system; however, to ensure a conservative and consistent analysis, projected wastewater flows for an industrial park were modeled.

The overloaded sewer mains from manholes 00048-00058 (D111 to D109) can be attributed to minimal slopes. Generally, sewer lines originally identified in the 1998 comprehensive plan as exceeding capacity were shown to be even further overloaded with the addition of the properties described above.

6.3.2 Current Capacity Analysis

The current sewer comprehensive planning project started in 2019. At that time, there were no actual flow measurements available. Water usage data was available, but how well it reflected actual wastewater discharges was not known. Inflow and infiltration (I&I) quantities were also unknown. The District had plans to install flowmeters but had not yet obtained and installed them. There were some delays associated with the installation, but flow data was eventually obtained for the period of November 2020 to June 2021. The current capacity analysis considers this data as well as lift station runtimes and historical water usage in the District. In general, actual flows are considerably lower than the spreadsheet models predict. This is also consistent with District observations of flows in the system at various times and under various conditions.

6.3.2.1 Hydraulic Models

The system’s trunk sewer was modelled using EPA SWMM software. The model has 49 nodes (manholes) and 48 pipes. The lift station was not modelled; instead, flows were applied as an input to the system at 42 nodes (MH -00114 to MH-00106). Actual flow data was not available, so flow allocations from the 2009 Sewer Plan were used to distribute flows to each node. Pipe diameters in the model reflect internal dimensions of the pipe based on the material. A conservative frictional coefficient of 0.013 was used. The model does not include allowances for capacity reducing effects of material build up or deposition on the pipe wall, or of structural damage to the pipe wall, since system age and staff reports regarding observed system condition do not suggest these are significant factors. Results were comparable to the spreadsheet models utilized in the 2009 Sewer Plan (see Appendix F for the 2009 spreadsheet computations). Capacity of the main trunk line is approximately 1,000 gpm at the terminus. There are several locations (see Table 6-1) where capacity is limited due to the shallow grade of the existing pipe. Computed maximum flow for the service area is 1,024 gpm (customer contributions) plus 182 gpm (I&I). The computations suggest a need for additional capacity; however, actual flows are known to be considerably lower in magnitude.

6.3.2.2 Water Usage

CVWD provided sewer usage data for 2017, 2018, and January – June 2019 (see Appendix G). The sewer usage data are based on metered water usage. This is a common approach for estimating wastewater contributions. Recent average sewer usage in the District is approximately 50 gpm on an annual average daily basis, and an estimated 125 gpm for a peak hourly flow based on the District's peaking factor of 2.5 (see Table 6-3). The usage figures do not include I&I; nevertheless, as estimates for sewer flow, the figures are likely high because they do not factor in water that is utilized by the customer but not returned to the sewer. Sewer capacity utilization based on the water usage data is approximately 10 percent of the existing system's capacity.

Table 6-3: Recent CVWD Average Sewer (Water) Usage

	2017	2018	2019 ¹
Total (cubic feet)	3,121,988	3,371,559	1,648,061
Average (gpd)	63,979	69,094	67,548
Average (gpm)	44.4	48.0	46.9
Peak (gpm x 2.5 peak factor)	111.1	120.0	117.3
¹ . Partial Year (January - June)			

Water usage for the area tributary to the lift station is shown in Table 6-4. Average usage for the periods indicated is 2.4 gpm and 2.6 gpm respectively. Given the nature of the customers and patterns of usage associated with each, it is likely that usage is much more variable than the data suggest.

Table 6-4: Lift Station Tributary Area Water Usage

Account Number	Customer	2019 Usage (cubic feet)	
		Jan-Feb	May-Jun
7511	Middle School (Portables)	419	425
4433	Middle School	3,474	4,449
7800	Car Wash	19,353	21,356
4242	Gas Station (Shell)	2,094	1,895
4069	Gas Station (Chevron)	1,575	1,894
	Total (cubic feet)	26,915	30,019
	Average (gpd)	3,412	3,806
	Average (gpm)	2.4	2.6
	Peak (gpm x 2.5 peak factor)	5.9	6.6
	Peak (gpm x 4.0 peak factor)	9.5	10.6

6.3.2.3 Lift station

The installed firm capacity of the lift station is 150 gpm. CVWD provided pump run time records for each pump for January 2016 – August 2019. A summary of the data is shown in Table 6-5. Run time data for 2019 indicates an average of 1,867 gpd, approximately half of the metered water usage for the area (Table 6-4). Recent run times average less than 15 minutes per day. Force main capacity is 200 gpm (at 5 fps) and the lift station itself was also designed for a future expansion to 200 gpm.

Table 6-5: Lift Station Run Time Analysis				
(PUMP #1 AND PUMP #2 COMBINED)				
	2016	2017	2018	2019¹
<i>Annual</i>				
Hours	32.2	42.8	76.2	50.4
Starts	1,170	1,613	2,566	1,860
Minutes/Start	1.7	1.6	1.8	1.6
<i>Average Day</i>				
Minutes	5.3	7.0	12.5	12.4
Starts	3.2	4.4	7.0	7.7
Minutes/Start	1.7	1.6	1.8	1.6
<i>Maximum Month</i>				
Hours	3.6	5.7	8.8	8.3
Starts	113	198	311	292
Minutes/Start	1.9	1.7	1.7	1.7
<i>Computed Flow² for Tributary Area</i>				
Average Day (gpd)	794	1,055	1,879	1,867
Average Day (gpm)	0.6	0.7	1.3	1.3
Peak (gpm x 2.5 peak factor)	1.4	1.8	3.3	3.2
Peak (gpm x 4.0 peak factor)	2.2	2.9	5.2	5.2
¹ Partial Year (January - August)				
² Based on a 150 gpm pumping rate.				

6.3.2.4 Flow Monitoring

CVWD installed two flow meters in April 2020, but operability was delayed until November due to an issue with a modem and 5G connectivity. The meters are Hach FL900 and were installed in MH-00056 (D107) and MH-00029 (D113). The District later coordinated with King County to install a flow meter (same make and model) on the County's sewer, two manholes downstream of the discharge from CVWD. Meters were fully operational from November 2020 to June 13, 2021.

Precipitation data was initially obtained for Bothell and Mill Creek; and later from King County's Brightwater WWTP. There was general agreement, but Brightwater data was selected because of the proximity to the CVWD sewer system and the length and completeness of the record. Brightwater precipitation data is provided in Appendix H for a ten-year period (January 2010 – October 2020).

Flow data from the three meters is shown in Appendix I. There are some inconsistencies in the data showing the upstream CVWD meters at times having much higher average daily flows than the King County (Brightwater) meter. The District indicated that the meters were selected based on their reported reliability and ease of use; nevertheless, the meter O&M manual includes some provisions for troubleshooting that may warrant a review. Note that, to the extent that there is a problem, it could also extend to the King County meter. The King County meter is at the terminus of the trunk line and will therefore be used here for this initial flow analysis. Flow meter data for the King County meter and Brightwater rain gauge are shown in Table 6-6.

Table 6-6: King County Flow and (Brightwater) Rainfall Data								
MONTH	RAINFALL TOTAL (INCHES)	MAX. DAY (INCHES)	FLOW					
			AVERAGE DAY		MAXIMUM DAY		PEAK HOUR	
			(GPD)	(GPM)	(GPD)	(GPM)	(GPD)	(GPM)
Nov. 2020	6.22	0.72	39,000	26.90	66,000	45.70	124,000	86.24
Dec. 2020	6.36	2.08	38,000	26.62	127,000	87.98	323,000	224.50
Jan. 2021	8.24	1.27	59,000	41.10	155,000	107.66	235,000	163.17
Feb. 2021	4.76	0.92	53,000	36.55	85,000	59.00	305,000	212.14
Mar. 2021	3.16	0.50	31,000	21.85	44,000	30.37	98,000	68.15
Apr. 2021	1.23	0.44	22,000	15.61	35,000	24.18	82,000	56.65
May 2021	1.32	0.30	22,000	15.27	40,000	27.59	101,000	69.99
Jun. 2021	2.43	0.82	26,000	18.02	42,000	29.38	85,000	59.23
¹ June 1 - 13 (partial monthly record).								

Table 6-6 data tracks well with rainfall and shows seasonal I&I influences. Estimated base wastewater flow in the trunk line is approximately 15-20 gpm. I&I varies according to rainfall and ground water levels. December 21, 2020 maximum day rainfall (2.08 inches) correlates with the highest flow measured (224.60 gpm) during the peak hour, of which approximately 200 gpm can be attributed to I&I. This is less than the Table 3-1 estimated I&I of 278 gpm for the existing system. This suggests that the collection system currently is reasonably tight and functioning within the design allowances.

6.3.2.5 Current Capacity Utilization

Results of the water usage analysis, lift station pump run time analysis, and flow monitoring, while varying in accuracy and reliability, nevertheless, are consistent in

establishing that the District is currently utilizing only a small fraction of the sewer capacity available.

6.3.3 Current Collection System Condition

A site visit was conducted on August 29, 2019, that involved eight manholes and the lift station. Photos taken during the site visit are included on Photo Plates 6-1, 6-2, and 6-3. Findings are summarized below:

MH-00004 (B28). Corrosion on manhole casting but overall condition of the manhole is good. Higher than anticipated flow. The flow was greenish yellow in color suggesting anti-freeze may have been present in the flow stream. (See Photo Plate 6-1.)

MH-00108 (C87). (Did not visit – staff reported that it is not connected to the system.)

MH-00106 (C64). Corrosion on manhole casting but overall condition of the manhole is good. Accumulations of paper on manhole bench and a milky color in the wastewater flow. Staff report periodically using jetted water to remove accumulated paper. (See Photo Plate 6-1.)

MH-00054. (Lift Station force main discharge manhole.) Light corrosion on casting but overall condition of the manhole is good. No flow at time of visit, and no odor noted. (See Photo Plate 6-1.)

MH-00070 (D136). Light corrosion on casting but overall condition of the manhole is good. Clean bench and sides, no accumulations noted. (See Photo Plate 6-2.)

MH-00048 (D111). Good condition overall and generally clean with no debris or off odor. Some grease and paper were noted in and near the flow. The manhole is located in a brushy location – staff had to cut away brush and weeds in order to access the lid. The manhole is low relative to a nearby storm water intake; consequently, some potential for I&I related issues. (See Photo Plate 6-1.)

MH-00021 (D118). Corrosion on manhole casting but overall condition of the manhole is good. Some spalling concrete near the top of the manhole. Some debris on the benches and grease buildup. (See Photo Plate 6-2.)

MH-00119. (D124) Good condition in general with some spalling concrete near the top of the manhole. Some debris on the benches. (See Photo Plate 6-2.)

Lift Station. Overall good condition. The original pumps were rebuilt in 2018. (See Photo Plate 6-3.)

CVWD staff provided photos and information on manholes associated with the sewer located north of Snohomish Woodinville Road that primarily serves the Costco complex. The manholes are generally in good condition. Flows tend to be very low with some debris and accumulated toilet paper and other materials. The manholes in this area require frequent flushing.

CVWD staff are not aware of significant problems with the condition of the District's sewer system; and the 2019 site visit, while limited, did not find anything to suggest problems with the system's condition. Staff address minor problems, like spalling concrete seals near the top of some manholes, and the need for periodic flushing, as O&M tasks.

The lift station has aging electrical and controls that should be upgraded (see Section 6.4.2.3).

Nothing was noted during the site visit that suggests a capacity issue or concern with either the collection system or the lift station.

PHOTO PLATE 6 – 1: SITE VISIT AUGUST 29, 2019



MH – 00004 (B28)



MH – 00106 (C64)



MH - 00054



MH – 00048 (D111)

PHOTO PLATE 6-2: SITE VISIT AUGUST 29, 2019



MH-00070 (D136)



MH-00021 (D118)



MH-00070 (D136)



MH-00119 (D124)

PHOTO PLATE 6 – 3: SITE VISIT AUGUST 29, 2019



Lift Station



Lift Station



Lift Station (Interior)



Lift Station Emergency Generator

6.3.4 Existing System Analysis Summary

In general, the system is in good condition with no near-term capacity concerns. Capital improvements needs are minimal and primarily associated with upgrades to the lift station (see Section 6.4.2.3). O&M needs are ongoing and include monitoring/inspections, cleaning, lift station maintenance, and minor repairs (manhole seals for example).

6.4 Future Capacity Analysis

6.4.1 Growth Projection Summary

Growth, in terms of population and employment is discussed in Section 2.6. Most of the potential growth is associated with expansion of the District's service area as represented by the identified Rural/Urban Transition Area (RUTA). Average annual growth rate for year 2020 to year 2030 is 0.47 percent for population and 0.55 percent for employment, based on PSRC data. The population projection for year 2030 to year 2040 is significantly higher at 2.4 percent per year.

The growth figures are based on current PSRC forecasts which in turn are based on their 2014 data. More recently, the District is seeing increased interest in residential developments and perceives a growing trend toward changes in the types of businesses locating or redeveloping in the area that will likely result in higher wastewater discharges on a per acre basis. In winter 2020-2021, two major residential townhome developments were reviewed by the District to establish flow allocations and costs to connect. One with 85 units and one with 360 units. At 2.6 persons per household, this represents a potential population increase 1,157 persons. The 2020 population of the UGA and RUTA is 1,425 persons, so the increase from the two developments alone would represent an 80 percent population increase. This greatly exceeds the PSRC projections and highlights the uncertainty with the potential growth rate for the area.

For the 85-unit development, the change in flow allocation for the property was based on the difference between the proposed residential use and the commercial use anticipated in the original ULID allocation, resulting in a net increase of 19.3 gpm. The 360-unit development is on property with no prior ULID allocation, therefore the calculated impact represents an increase of 147.56 gpm to the sewer system. These developments are within the current UGA and not dependent on Snohomish County modifying the borders to include the RUTA. Residential wastewater flows may represent approximately 90 percent of a customer's non-irrigation water consumption. This is significantly higher than the current estimated wastewater contribution of 30-50 percent of water usage associated with the UGA industrial and commercial customers.

There are pollution concerns about impacts from septic systems on creeks in the Maltby area; as a result, Snohomish County is considering expanding the UGA to allow expansion of the sewer system. The County will be updating their Comprehensive Plan in 2023, so changes, with implications for expanding the District's service area and infrastructure, could

occur in the near-term. In summary, the District's sewer service area is likely to experience growth in excess of the official area forecasts.

6.4.2 Preliminary Improvement Needs Assessment

6.4.2.1 Design Basis

Minimum design criteria are discussed in Chapter 5. Current capacity and condition of the existing CVWD sewer system is adequate for anticipated UGA growth and changes in customer composition, for the indeterminate future. The possible exception is the lift station's capacity in the event of extensive residential development in its tributary area.

6.4.2.2 Future Trunk Main Improvements

The 2009 Sewer System Plan included a plan and sizing for a future trunk main replacement with increased capacity to accommodate expansion to include the RUTA. The sizing of the proposed sewer has been retained in this plan since it is based on the computed flow allocations for the combined UGA and RUTA. Refinements to the sizing are likely in design, based on potential boundary and zoning changes and associated flow allocations, and hydraulic modelling and flow routing. The replacement project and updated costs are included in Chapter 7.

6.4.2.3 Future Lift Station Improvements

The existing lift station is well maintained, and the pumps have been recently rebuilt. Capacity of the lift station and force main is more than adequate for current conditions; however, as previously noted, extensive development in the tributary UGA area has been recently proposed for the near-term, possibly necessitating a capacity upgrade of the lift station and force main. Pump technology has improved in recent years, and it may be possible to substantially increase capacity without expanding the building or wet well; however, if capacity exceeds 200 gpm, the force main will also need to be evaluated for replacement.

A study is recommended to evaluate upgrades needed at the lift station. This should be completed after Snohomish County completes their Comprehensive Plan update and proposed development in the area becomes more probable. The study needs to include consideration of electrical and control upgrades for near-term replacement consistent with long-term capacity and facility upgrade needs.

6.4.2.4 Future Capacity Improvement Implementation

Future capacity improvement implementation will be guided by increases in utilization of existing capacity and actions by Snohomish County that may result in expansion of the District's sewer service area.

Theoretical increases in capacity requirements will be with associated with new connections and redevelopment of existing properties with higher sewer service

requirements. While these considerations will affect sizing of the capacity upgrades, implementation will be dependent on the actual utilization of available capacity. Flow monitoring is recommended to better characterize actual flow conditions and capacity utilization (see Section 6.4.3.1).

Expansion of the sewer system to accommodate possible changes in the Snohomish County Comprehensive Plan may require an upgrade and replacement of the existing trunk sewer line; however, based on actual capacity utilization as determined by ongoing flow monitoring, implementation of the trunk main improvements may be deferred until warranted. Implementation may take two or more years between the awareness of the need and the final construction and operation of the new infrastructure; consequently, implementation should be initiated, or at least reconsidered, when system capacity reaches approximately 80 percent during peak flow events.

6.4.3 Additional Recommendations

6.4.3.1 Flow Monitoring

Three recommended flow meter locations are shown on Figure 7-1. The intent is to measure flow near the terminus of the lines. This will require relocation of the District's two meters and acquisition of a new meter. Data should be downloaded and saved at least monthly. Rain data should be obtained from King County for the Brightwater rain gauge. A monthly inspection of the installed meters is also recommended. The meter manual includes discussion of periodic maintenance needs and troubleshooting; these should be reviewed and used as a guide for the periodic inspections. The frequency of inspections can be reduced if the meters are generally found to be nonproblematic. Reviewing graphs of the data can help with evaluating performance and determining if there are any issues that need to be addressed.

Hach also manufactures a portable flowmeter that can be used for spot flow measurements in manholes. Spot measurements are not very useful for characterizing daily or peak flows in parts of the sewer system; however, they can be useful in determining the relative occurrence of I&I when used as part of a night-time flow mapping effort. Spot measurements can be obtained at many manholes based on a plan to characterize the relative contributions of I&I in various parts of the system. Areas that appear to be high in I&I relative to other areas (on an inch of pipe diameter per mile per day basis), may warrant additional flow mapping to better locate the sources. This work is not needed unless there is an indication that I&I is excessive. The work is conducted in the middle of the night on the assumption that wastewater discharges will be minimal; consequently, any industrial discharges from facilities operating through the night should be identified and considered during the evaluation.

6.4.3.2 Cleaning and TV Inspection

Cleaning and TV inspection is also recommended. The District cleans the sewer system on a regular basis in accordance with their understanding of the problem areas and

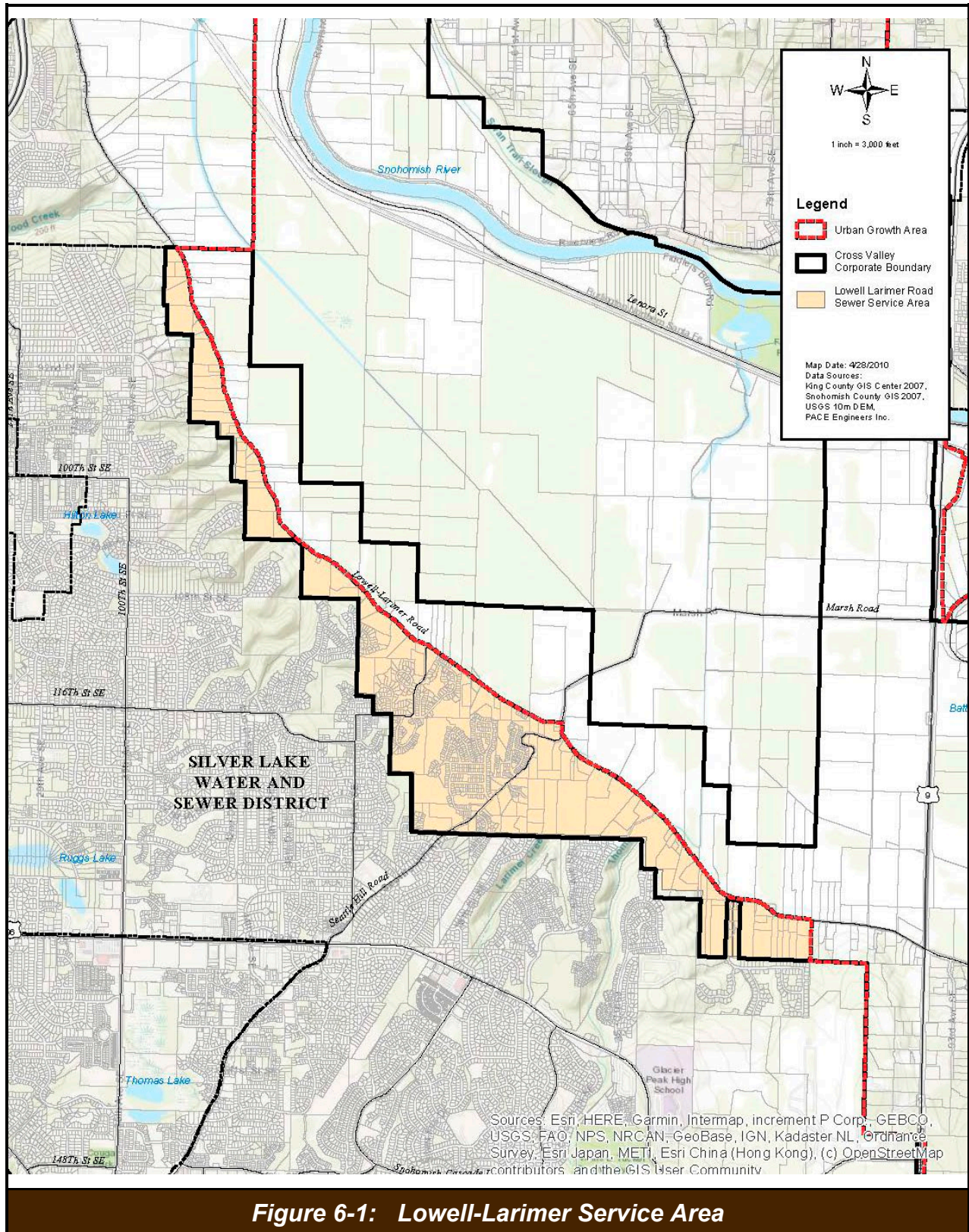
requirements. TV inspections are useful in periodically monitoring the sewers condition. Sewers should also be cleaned prior to televising. Current District sewer capacity utilization is low even when I&I is included; therefore, the best time to conduct a TV inspection is when the groundwater is high. Defects will be more visible if groundwater is leaking into the pipe. A rotating head on the camera will allow inspection of service laterals which are often a major source of I&I.

6.5 Lowell-Larimer Sewer Service Area

The Lowell-Larimer area is in the northwest section of the District within the corporate boundary but is currently served by Silver Lake Water and Sewer District since the Cross Valley Water District has no sewer collection facilities in the area. Since a portion of the Lowell-Larimer area, specifically the area southwest of Lowell-Larimer Road (see Figure 6-1), is within the UGA, sewer service can be provided to this portion of the District. Sewer service has already been established in many parts of this area, and because zoning for this area is almost exclusively residential, many more potential subdivisions are anticipated. Currently there are 693 single-family residential connections, one multifamily with two units and one multifamily with 11 units. Development in the area is active with steady, near-term growth anticipated.

In 1994, the District entered an interlocal agreement with Silver Lake Water and Sewer District to provide sewer service to the Lowell-Larimer Road area. The interlocal agreement has since been updated in 2001 and 2010 and is included in Appendix B.

With the expansion of the District's sewer service area to its corporate boundary, the sewer system within the Lowell-Larimer portion of the District could possibly be transferred from Silver Lake Water and Sewer District to Cross Valley Water District. After the potential transfer of ownership of the sewer system within the Lowell-Larimer service area, the District would be responsible for the billing, operation, maintenance, etc., of the facilities. Due to topography and UGA boundary constraints, wastewater from the District's Lowell – Larimer area will still need to be conveyed to Silver Lake Water and Sewer District in accordance with a revised interlocal agreement. Silver Lake Water and Sewer District will continue to be responsible for transmission of sewer flows downstream from Cross Valley Water District's point of connection(s) and ultimate discharge at the City of Everett's regional treatment facilities.



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6.5.1 Lowell-Larimer Existing Collection System

If the Lowell Larimer sewer service area is transferred to Cross Valley Water District, the District would be responsible for the existing sewer mains and appurtenances because of the transfer of ownership. By doing so, the District would inherit the existing direct service connections, in addition to all the existing 8-inch diameter sewer mains, manholes, and pump stations that provide collection and conveyance from these connections.

6.5.2 Lowell-Larimer Existing Lift Stations

There are currently two lift stations located within the Lowell-Larimer area which would be transferred to the District. They are currently identified as Lowell-Larimer Lift Station No. 1 and Lowell-Larimer Lift Station No. 2. The two lift stations are necessary to pump wastewater uphill along Lowell-Larimer Road to the Waldenwood Lift Station located within the Silver Lake Water and Sewer District. Table 6-7 below provides some of the specifications for the two pump stations.

Lowell Larimer Lift Station No. 1 is located just to the west of Lowell-Larimer Road and approximately 109th Street SE. The lift station currently collects flows from Lowell-Larimer Lift Station No. 1, Larimer Highlands subdivision, and Cascade East subdivision and pumps uphill on Lowell-Larimer road to discharge at the Waldenwood Lift Station, located in the Silver Lake Water and Sewer District. The lift station is equipped with an auxiliary power supply (backup generator) for emergency situations. The station is currently in design for a comprehensive rehabilitation project.

Lowell Larimer Lift Station No. 2 is located just west of the Lowell-Larimer Road at approximately 114th Street Southeast. The lift station currently collects flows from the Outlook Ridge subdivision and pumps uphill on Lowell-Larimer Road and discharges in a manhole just upstream of Lift Station No. 1. This lift station is also equipped with an auxiliary power supply for emergency situations.

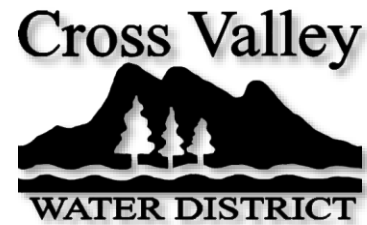
Table 6-7: Sewer Lift Stations

NAME	TYPE	BUILT/ REBUILT	PUMP MAKE	GPM @ HEAD	PUMP HP	RPM VOLTS/ PHASE	CONTROLS	FORCE MAIN
Lowell – Larimer Lift Station No. 1	Vacuum Lift	2002	Smith and Loveless 4D4B	1,100 gpm @ 170 ft	75	1760/ 460/3	Bubbler System	8" DI & 8" HDPE
Lowell – Larimer Lift Station No. 2	Vacuum Lift	2003	Smith and Loveless 4C3B (2 pumps)	665 gpm @ 40 ft	15	1200 460/3	Bubbler System	8" Ductile Iron

6.5.3 Lowell-Larimer Proposed Improvements

The existing sewer mains, lift stations, and associated sewer system appurtenances were designed for current and future planned development within the Lowell-Larimer area. Silver Lake Water and Sewer District has previously performed analyses for existing and future build-out conditions, and sized sewer transmission mains and the lift stations accordingly.

Since this area is within the UGA, future development is ongoing, but the effect on the existing sewer facilities cannot be determined until the time of design when the feasibility, magnitude, and specific parameters of each individual project are determined. Thus, any future development will be reviewed and analyzed on an individual basis to determine infrastructure needs.



CHAPTER 7

CAPITAL IMPROVEMENTS PLAN

7.1 INTRODUCTION

The Capital Improvement Plan (CIP) identifies which improvements are necessary to maintain integrity of the sewer system for current and projected future customers. The District's sewer system is still relatively new (approximately 23 years old) and only a few major capital improvements financed by the District are anticipated in the current planning period. However, the District does conceptually and practically plan for unexpected population growth in its service area. Additional connections to the existing sewer systems which are allowed but not planned for, may eventually overload the existing sewer system. Monitoring the system will be required to determine when the existing lines are reaching capacity, thereby, allowing the District to identify and plan for upsizing facilities or to evaluate alternative solutions as discussed in Chapter 6 – Sewer System Analysis.

This Section provides an overall CIP for Cross Valley Water District that outlines the recommended collection system improvements as detailed in Chapter 6 of this Plan. The CIP is presented in Table 7-2 and provides a summary of recommended projects, preliminary opinions of project costs (OPCs), and recommended scheduling and financing recommendations for each project. A more detailed breakdown of the OPCs is included in Appendix J.

7.2 PROJECT RECOMMENDATIONS

The projects recommended in Table 7-2 are the result of the analysis and recommendations detailed in Chapter 6 (Sewer System Analysis). Projects are shown on Figure 7-1. Although the recommended project descriptions are concise, in some cases the magnitude of the project may not be specifically identified without additional analysis and monitoring. The projects outlined have been displayed on Figure 7-1 in conceptual terms, and it is important to note that further analysis and actual design of the improvements could significantly impact the cost of the project from the given OPC. Prior to the initiation of the projects outlined in the CIP, specific design criteria should be reviewed, and the OPCs should be updated to reflect current conditions.

Recommended projects include:

Project 1. Replacing the District's trunk sewer to increase capacity of the system to accommodate expansion of the District's service area to include the rural urban transition area (RUTA) and potential increases in flows due to other considerations noted in Chapter 6. Sizing should be reconsidered prior to design based on actual RUTA additions, changes in zoning and customer characteristics that result in higher sewage contributions per acre, and accumulated flow monitoring data.

Project 2. The lift station evaluation study will determine both long-term infrastructure needs to address potential capacity increases associated with proposed development and potential expansion of the UGA, and near-term needs to address electrical and control upgrades.

Project 3. Upgrades to the lift station were identified in the 2009 Sewer Plan. Costs have been carried over and adjusted according to the Engineering News Record Construction Cost Index. Scope and cost of the improvements will be re-evaluated as part of Project 2 above.

Project 4. This is a budget allowance for manhole rehabilitation work.

Project 5. Includes purchasing/installing a new flow meter and relocating the District's existing two flow meters.

Project 6. This is a budget allowance (\$5,000 per year) related to collection and review/analysis of flow meter data.

Project 7. A ten-year update of the Sewer Plan.

7.3 OPINIONS OF PROBABLE COSTS (OPC)

Preliminary construction OPCs were developed based on industry standards, engineering experience, documented costs of recent and similar construction work, and the January 2022 Engineering News Record (ENR) construction cost index. Recommended improvement costs include construction costs, sales tax (9.2 percent), project engineering (15 percent), legal and administrative services (10 percent) and a contingency factor (15 percent). These costs are all subject to change and the total construction costs will be affected if any one of them change. Tax and percentages are subject to change based on current amounts increasing the overall cost. Other factors affecting OPCs include the complexity of the project and the known, Capitol Improvement Costs, and unknown constraints that may be associated with the final construction of facilities.

Obtaining other agencies planning costs per foot and considering the depth of the trench, and the varying sewer main size, a planning level cost estimate is determined. The cost estimates for increased diameter are shown below in Table 7-1. This can also be found in more detailed CIP costs located in Appendix J.

TABLE 7-1: COSTS PER LINEAR FEET	
DIAMETER OF SEWER MAIN	COST PER LF
12"	\$642
14"	\$657
16"	\$656
18"	\$718

21"	\$755
24"	\$831
27"	\$907

7.4 PROJECT SCHEDULING

Recommended project scheduling has been developed for the projects included in the CIP, Table 7-2. The projects have been prioritized according to the needs determined by a combination of engineering analysis performed in this planning process, the District's existing Capital Improvements Plan, and/or information provided by District staff. Although a detailed ten-year improvement schedule has been developed, scheduled projects identified beyond that are more generally defined.

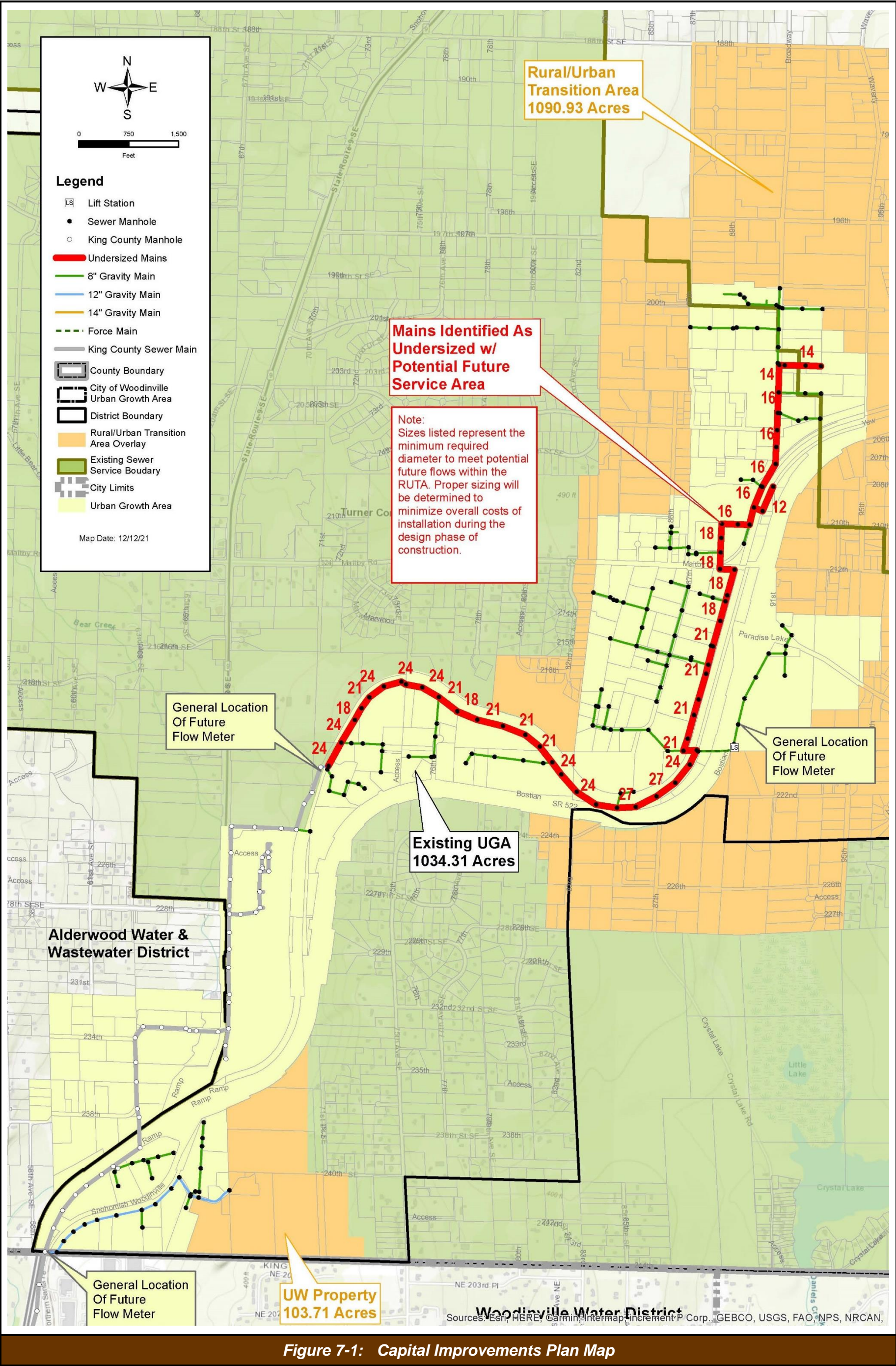
It is recommended that this CIP be reviewed annually to confirm the actual construction program for the year, allow the possibility to construct projects in conjunction with transportation improvement projects scheduled by Snohomish County and the State Department of Transportation, and ensure that the existing sewer system can support any additional future expansion of the UGA.

Project 1 of the CIP in Table 7-2 reflects the issue of the RUTA and possible UGA expansion. Because sewer mains are expected to last 50 years and beyond, Cross Valley may wish to minimize future potential upgrades by oversizing pipes as development occurs. Project 1 represents the cost of oversizing replacement pipes to accommodate flows from the RUTA area. Monitoring flow data will aid in the process for identifying I&I that may exceed the assumed 1,800 gallons per acre per day (gpad) used for modeling the capacity of the system. The CIP includes the purchase and installation of an additional flowmeter and relocation at the District's two existing flowmeters (See Figure 7-1 for approximate locations). An estimated \$5,000 annual budget for monitoring through the budget period of 2022-2026.

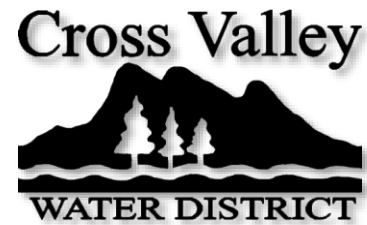
Although this Plan includes an update (in ten years) in the CIP, it is important that the District staff review project priorities as additional studies and analyses are performed, and that the District's CIP be adjusted accordingly.

TABLE 7-2: CAPITAL IMPROVEMENT PLAN			
PROJECT		OPINION OF PROBABLE COST ¹	PROJECT SCHEDULE ²
1.	Trunk Sewer Capacity Improvements	\$17,000,000	2026-2031
2.	Lift Station Evaluation Study	\$50,000	2024
3.	Lift Station Upgrades	\$1,100,000	2025-2031
4.	Manhole Rehabilitation	\$20,000	2025-2026 ³
5.	New Flowmeters (2)	\$60,000	2022
6.	Capacity and I&I Monitoring	\$30,000	2022-2026 ⁴

7.	Sewer Plan Update	\$100,000	2031
CIP Total:		\$18,360,000	
¹ OPCs reflect January 2022 dollars and include construction, engineering, surveying, construction observation, taxes, administration, etc. ² Scheduling is preliminary and subject to considerations discussed in Chapter 6. ³ Budget \$10,000 per year. ⁴ Budget \$5,000 per year.			



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CHAPTER 8

OPERATIONS AND MAINTENANCE

8.1 GENERAL DISTRICT INFORMATION

8.1.1 District Office Address and Telephone Number

Cross Valley Water District
8802 180th Street SE
Snohomish, Washington 98296-4804
Telephone: 360.668.6766
Fax: 360.668.9634

8.1.2 District Organization and Management

Cross Valley Water District is authorized under RCW Title 57 to operate and maintain a public sewer utility system. The District operates under a commissioner system wherein three local citizens are elected as commissioners by the resident citizens inside the District's Corporate Area. By resolutions, the Board of Commissioners makes and establishes policies that govern the operation of the District. The District holds its regular public meetings on the first and third Tuesday of each month.

The overall responsibility of day-to-day operation of the District falls under the authority of the District's Manager who reports directly to the Board of Commissioners. Engineering, legal, and financial counsel for the District are provided by outside consultants approved by the Board of Commissioners. These consultants report to and coordinate with the District Manager and/or other staff and directed.

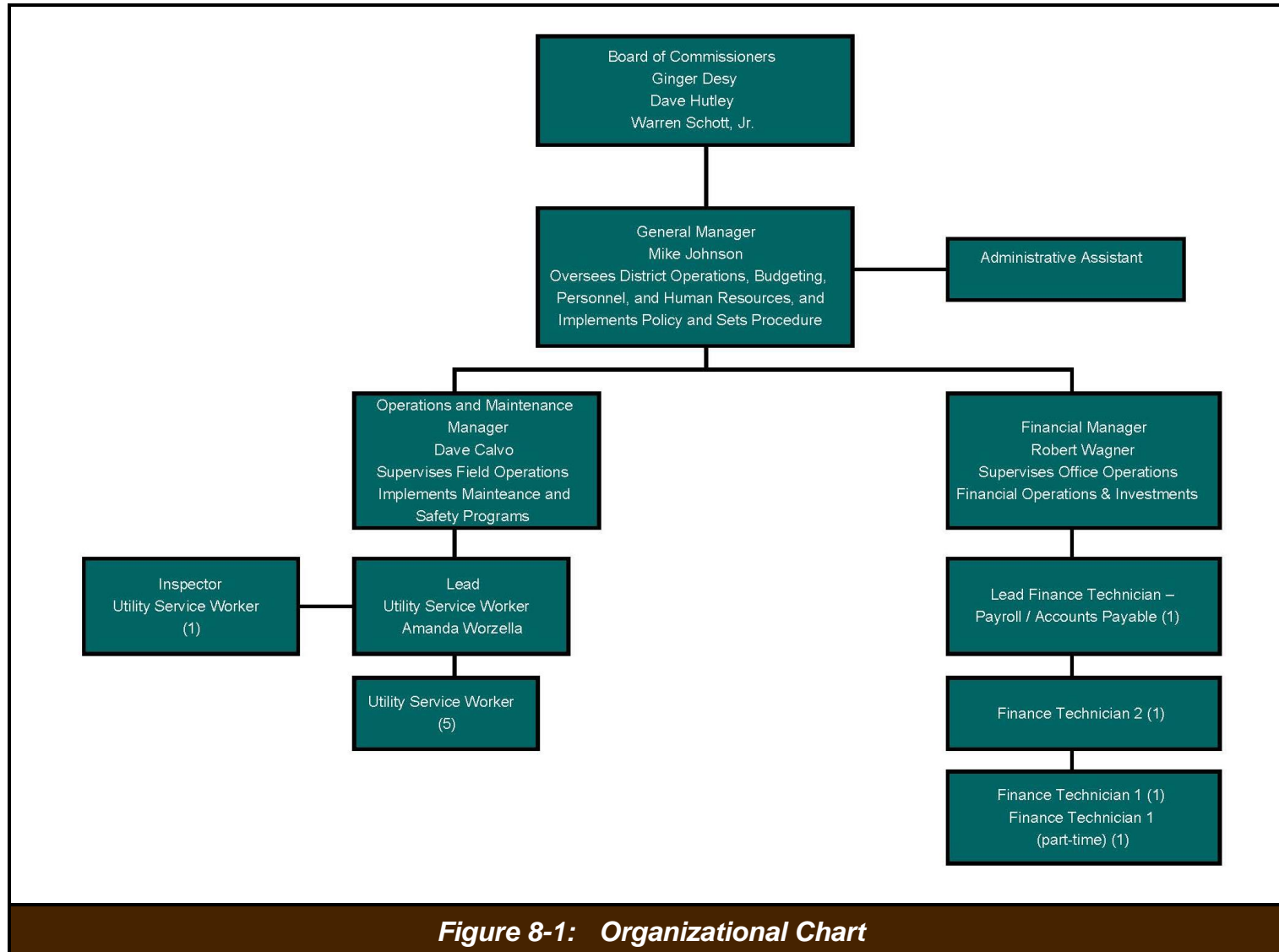
In June 2015, the District began to use Code Publishing to house all resolutions, standards, codes and other administrative documents. All documents and information can be retrieved from <https://www.codepublishing.com/WA/CrossValleyWaterDistrict/>.

8.1.3 Personnel Certification

The District encourages operations personnel to obtain applicable state certification and supports membership in professional organizations as well as the attendance of personnel at appropriate safety and technical seminars and conferences. Table 8-1 indicates the current certifications held by District staff. Figure 8-1 presents the organization chart for the District.

TABLE 8-1: EMPLOYEE CERTIFICATION

EMPLOYEE	JOB TITLE	CERTIFICATION LEVEL
Mike Johnson	General Manager	Water Distribution Manager 4
Dave Calvo	Operations and Maintenance Manager	Water Distribution Manager 3, Water Distribution Specialist, Cross Connection Control Specialist
Amanda Worzella	Lead Utility Service Worker	Water Distribution Manager 1, Water Distribution Specialist, Cross Connection Control Specialist
Ryan Marshall	Utility Service Worker 2	Water Distribution Manager 1. Water Treatment Plant Operator 2, Cross Connection Control Specialist



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8.2 ROUTINE OPERATION AND MAINTENANCE

Routine operations involve the activities required to ensure that facilities are functioning efficiently and meeting requirements as well as containing sewer system flows. Routine maintenance includes making daily rounds to visually check system facilities on a regular basis, monitoring manholes for surcharging during storm events, side sewer and main line repairs, exercising pumps, and responding to customer inquiries, as necessary. Additionally, preventative maintenance, such as regularly servicing pumps and motors, and inspecting and maintaining manholes is required to ensure adequate overall operation and maintenance of the system. District staff are also responsible for new construction inspection, especially for developer extension projects.

The District maintains a small works roster of Contractors that can assist when District personnel are not available or when the project costs exceed the statutory limits.

The District is also a member of the “One Call System” for which the District has a 24 hour to and from response time. This system, which was established by the major utilities providers in the Puget Sound region, provides coordination and assistance for preventing damage to existing facilities during maintenance work or new construction.

Gravity mains, force-mains and manholes are inspected and repaired annually. Weekly lift station inspections include testing mechanical and electrical components, degreasing and cleaning.

In addition to the routine operation and maintenance, the District repairs all facilities on an as-needed basis.

8.3 EMERGENCY RESPONSE PLAN

In the event of an emergency condition during normal business hours, emergency response is coordinated by the District’s Manager. In the event of an emergency after hours, the District employs a 24-hour answering service which contacts on-call District personnel to ensure a prompt District response is made. The District’s general emergency call-up list is included in the Emergency Response Plan on file at the District office.

The Cross Valley Emergency Response Plan covers anticipated emergency conditions and is based on a 2021 Risk and Resiliency Assessment. Due to the sensitive nature of much of the information contained in the Risk and Resiliency Assessment, Hazard Mitigation and Emergency Response plans, these documents are kept secure in the District office. District Commissioners and personnel maintain copies of the documents as appropriate.

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CHAPTER 9 FINANCIAL ANALYSIS

9.1 INTRODUCTION

This chapter summarizes the financial history of the sewer utility, describes the financial policies, capital funding sources and provides a financing plan for the capital improvements along with the impact on rates and connection charges. This chapter has been prepared by Katy Isaksen & Associates.

9.2 FINANCIAL VIABILITY

Financial viability is the ability for the sewer system to meet its financial needs to operate, meet debt obligations, repair/replace/improve the system components, and maintain reserves, as necessary. Financial viability is very important to make sure the sewer utility remains in a position to provide safe and reliable sewer service for years into the future. The District has shown its commitment to financial viability with recent rate studies, established capital reserves to save for planned improvements, annual funding for system replacement, a volume-based rate structure where the charges increase as usage increases, and typically adopting multi-year rate increases. The District has adopted two-year rates, 2022 and 2023, based on the planned operations and improvements recommended in this draft GSP. Next, the District will be updating connection charges to be sure they are in line with the capital improvement program.

9.3 SUMMARY FINANCIAL HISTORY

Cross Valley provides sewer service in a small portion of the District. The sewer utility is self-supporting and is budgeted and accounted for separately from the water utility. The District has a firm policy that the sewer customers should not be subsidized by water customers. Each year during budget preparation, the District reviews the financial outlook to ensure that sewer revenue is meeting the necessary sewer expenditures. Table 9-1 shows the recent summary financial history of the sewer utility, with estimated 2021 figures. The bottom line is that sewer revenue has exceeded the expenditures, with the excess being held in reserves for emergencies and future improvements.

Table 9-1: Sewer Financial History

Summary Financial History	2018	2019	2020	Est. 2021
Sewer Revenue				
Metered sewer service	60,321	67,266	72,366	76,000
KC Treatment pass-thru consumption	220,880	234,568	222,978	246,000
Silver Lake administration fee	24,893	26,431	27,801	28,000
Side sewer permit	1,295	1,295	450	300
Reimbursement (Inspection)	-	3,650	-	-
Miscellaneous	94	125	95,540	2,700
Interest income-investments	137,843	142,794	87,715	20,000
Sewer capacity charge	756,346	74,424	-	-
Total Sewer Revenue	\$ 1,201,672	\$ 550,553	\$ 506,850	\$ 373,000
Sewer Operating Expenditures				
Sewer Labor & Benefits	13,415	12,646	20,486	25,600
Sewer Mains	5,628	156	1,772	1,596
Sewer Lift Stations	6,411	2,437	4,098	2,296
KC Treatment Sewer Charges	172,600	231,999	227,702	246,000
Sewer Operations	16,375	18,116	241	620
Customer Records (allocated)	4,398	5,924	5,984	5,984
General & Administrative (allocated)	23,907	34,905	35,648	35,648
Other General & Administrative	(100)	1,456	647	5,100
Total Sewer Operating Expenditures	\$ 242,634	\$ 307,639	\$ 296,578	\$ 322,844
Annual Increase/(Use) of Reserves	\$ 959,038	\$ 242,914	\$ 210,272	\$ 50,156

Operating revenue has been sufficient to fund the operating expense each year. Total sewer revenue ranged from \$375,000 to \$1.2 million, including sewer capacity charges collected from new/re-development and the sale of fixed assets. This revenue provides approximately \$375,000 for operating expense and between \$50,000-\$950,000 for reserves and capital improvements each year. The result has been an increase in reserves for system replacement and future improvements.

Sewer service is limited to properties within the Urban Growth Area specified by Snohomish County. Cross Valley provides sewer collection service to the Maltby Urban Growth Area with sewage treatment provided by King County. The sewer system was constructed and funded by a Utility Local Improvement District (ULID) in which the property owners paid for the system through special assessments. Sewer ULID No. 5 was finalized in 1997.

The District bills the customers for both collection and treatment services, although these are accounted for in separate revenue lines. The Metered Sewer Service Sales refers to the District rate for sewer collection services. The King County Treatment Pass Thru Consumption refers to the King County charges for sewage treatment services.

The Silver Lake administration fee of 5% is charged to customers in the Silver Lake area which receives sewer service through an interlocal agreement with Silver Lake Water and Sewer District.

The King County Brightwater treatment plant is within the District's sewer service area. King County purchased the necessary portion of the sewer system and has made payment to the District.

The District acts as its own treasurer and manages its cash investments as one entity. As of December 31, 2020, the total unrestricted cash & investments was \$19,882,000. Sewer's share was approximately \$4.8 million as shown in Table 9-2. After a cash flow/emergency reserve of \$323,000 is set aside, equal to one year of operations + debt service (no sewer debt), there was about \$4.5 million available for sewer capital improvements.

Table 9-2: Sewer Cash & Investments		
Sewer Balance	Amount	Comments
Beginning Sewer Balance	\$ 4,849,000	as of Dec. 31, 2020
Less: Cash Flow / Emergency Reserve	\$ (323,000)	1-year operations + debt
Total 2020 Sewer Balance Available	\$ 4,526,000	for capital improvements

9.4 OUTSTANDING DEBT

The facilities of the sewer system were funded by Utility Local Improvement District (ULID) bonds. The properties within the ULID boundaries paid special assessments to make the debt service payments. All sewer ULID bonds have been retired. There is no outstanding debt for the sewer utility.

9.5 FUNDING PRIORITIES

Sewer service charges, or bi-monthly rates, are the primary source of revenue for sewer maintenance, operations and administration. For costs that are not specific to sewer, an allocation is made between water and sewer to ensure that sewer customers meet their obligations. Typically, the allocation is related to number of customers. In addition, the Silver Lake administration fee supports the billing, collection, and administration.

There are two types of pass-thru activities in the sewer utility: King County and Silver Lake. King County bills the District based on a quarterly average while the District bills its customers on actual water usage every other month. This results in differences between the revenue and expense in each year. Silver Lake is a dollar for dollar pass-thru, with the District retaining the sewer administration fee.

Any surplus annual sewer funds are identified as sewer and held in reserve for system replacement and capacity expansion.

The primary sewer facilities have been funded by the property owners through Utility Local Improvement Districts (ULID). All new sewer connections will pay their fair share of the cost of the general facilities and provide any local facilities necessary to connect into the system.

However, if the property paid the ULID No. 5 assessment and is developing within the design criteria, there may not be further charges. If local facilities are already in place, they may contribute their fair share of local as well. Funds collected for capital facilities will be set into the reserve for future capital improvements.

The District prepares an annual budget to ensure that planned expenditures do not exceed planned revenue. District rates are adjusted as necessary. King County and Silver Lake rates are passed-thru to customers.

The target emergency reserve is equal to one year of operating expense plus a year of debt service (there is currently no outstanding debt for sewer). The District plans out future capital expenditures funded by reserves to ensure that the sewer balance does not fall below the target.

Long-term debt is planned and used when appropriate for capital improvements.

As the Cross Valley sewer facilities age, the District is focusing on increasing maintenance programs to extend the life and capacity of the current facilities. New in the recent rate study for sewer has been to establish annual contributions to equipment replacement to soften future impacts on rates.

9.6 CURRENT RATES AND CHARGES

9.6.1 Current Sewer Rates

The current adopted sewer rates in Cross Valley are shown in Table 9-3. Cross Valley sets the rate for CV District Sewer Collection System and passes-thru the other rates.

Table 9-3: Current Sewer Rates		
Sewer Rates	2022	2023
<i>Maltby UGA customers pay CV Sewer Collection + KC Treatment</i>		
CV District Sewer Collection System (Maltby UGA)		
Base Rate per 2-Month Bill	\$89.40	\$94.80
Usage Rate on metered water > 1,500 cu ft per 750 cubic feet	\$4.47	\$4.74
King County Treatment Services (Maltby UGA)		
Pass-thru Base Rate per Month	\$49.27	TBD
Pass-thru Volume Rate >750 cu ft per 750 cubic feet	\$49.27	TBD
Silver Lake Area Sewer Service		
Single Family Flat Rate per 2-Mo.	\$163.28	TBD
Multi Family Flat Rate per 2-Mo.	\$155.16	TBD
<i>Silver Lake rates change annually on May 1st.</i>		

The Cross Valley Board of Commissioners control the sewer rate for the CV District collection services. The adopted bi-monthly sewer base rate for 2022 is \$89.40 for up to 1,500 cubic feet of water, and \$94.80 for 2023. Additional flow is charged \$4.47 per 750 cubic feet in 2022, and \$4.74 for 2023.

King County sets the monthly rate for sewage treatment service. Commercial accounts are charged per residential equivalent unit of 750 cubic feet of water usage. The 2022 monthly rate of \$49.27 (\$98.54 per two-month bill). Industrial flow is charged at a higher rate. The District had one industrial flow customer that is no longer connected.

The Silver Lake rates are set by Silver Lake WSD per the interlocal agreement, plus a Cross Valley administration fee of five percent. The Silver Lake area sewer service involves only residential customers, with single family and multifamily units. These are billed a flat rate per dwelling unit. Beginning May 1, 2021, the bimonthly flat rate is \$163.28 per single family unit and \$155.16 per multifamily unit.

9.6.2 Current Connection Fee

Any new connection to the Cross Valley sewer system will pay a connection fee to Cross Valley along with the capacity charge for treatment services dictated by King County. The new sewer connections in the Silver Lake area will pay connection charges to Silver Lake as required by the interlocal agreement.

The original sewer customers in Maltby UGA paid for the facilities directly through the ULID assessments. The next customers, in ULID No. 7, paid for their direct facilities plus the capacity charge determined with the original ULID. Sewer connections after ULID No. 7 that were not originally assessed have also paid the sewer capacity charge determined with the original ULID. All sewer connections have been responsible for the local facilities providing service.

Table 9-4 shows the current general facilities charges. These fees are expected to be reviewed in 2022 based on the planned capital improvements in this plan.

Table 9-4: Current Sewer General Facilities Charge	
Sewer Facilities Connection Charges	General Facilities Charge
Within Maltby UGA and outside of ULID No. 5	
Per Acre for 3.13 gallons per minute of flow	\$28,199.00
Within ULID No. 5 - Discharge Exceeds Design Criteria	
Requires agreement and sewer capacity charge	
Within Silver Lake Area	
Per interlocal agreement	

In addition to the charges shown in Table 9-4, new connections are required to apply for sewer service and pay inspection and other costs described in District code.

9.7 CAPITAL IMPROVEMENT FUNDING

9.7.1 Capital Funding Sources

In addition to the ULID process that the District has used for funding major sewer improvements, Cross Valley has also been successful with Public Works Trust Fund (PWTF) loans for water improvements. The PWTF loans are also available for sewer improvements. The following programs are reviewed for potential capital funding sources for major improvements.

With the Coronavirus Covid-19 pandemic, there have been several federal aid programs with funding available to support water infrastructure, such as the coronavirus state recovery fund, American Rescue Plan and upcoming Infrastructure bill. Unfortunately, this federal aid is targeted to states, counties and existing funding programs and is not available directly to water districts. The District is staying in communication with Snohomish County, WA State Departments of Ecology and Commerce, and legislators on potential new federal infrastructure funds that may become available.

The PWTF, now referred to as Public Works Board Traditional Programs, offers competitive pre-construction, construction and emergency loans with low interest rates. The pre-construction loans are offered year-round with a maximum of \$1,000,000 per jurisdiction per biennium. The construction loans have a maximum of \$10,000,000 per jurisdiction per biennium. As this has been a primary source of capital improvement funding for water, any borrowing for sewer must be coordinated to avoid conflict. The applications are due year-round when funds are available. A good target would be June-July following the legislative session in odd years. The program was on hiatus for a number of years due to the State budget crisis but has started to receive funding again. Current availability, application dates, amounts and terms should be verified prior to seeking funding. See www.pwb.wa.gov.

Other capital improvement funding sources for sewer include grants and mostly loans from the State of Washington Department of Ecology (DOE) Combined Water Quality Programs: Centennial Clean Water Fund, Clean Water State Revolving Fund and Section 319 Non-point Pollution. These programs share a combined competitive process with annual applications due October of each year. Early planning is recommended as DOE requires certain approvals prior to application. Also keep in mind that these programs may include federal funding which may have a higher level of requirements to be eligible for funding than the PWTF.

Other funding sources include the Washington State Department of Commerce energy efficiency grants and the Community Economic Revitalization Board (CERB) program geared to infrastructure improvements for job creation.

On the federal assistance side, there is the US Department of Agriculture-Rural Development Program (USDA-RD) that provides low-interest loans with potential grant subsidy for water systems in communities up to 25,000. There is also a federal Economic Development Administration (USEDA) with a Public Works grant and loan program available. Community Development Block Grant (CDBG) is another federal program, managed at the State Department of Commerce, with limited grants for improvements that benefit low to moderate income customers.

Other information is available from Washington Association of Sewer and Water Districts, of which Cross Valley is a member, and Snohomish County.

There is an infrastructure funding program database that is provided by the Infrastructure Assistance Coordinating Council (IACC). This can be accessed on the web directly at www.infracfunding.com. This database is helpful in determining which funding assistance programs may be available at the time the District is considering a project and how to contact the agencies.

9.7.2 Local Funding Sources

Monthly sewer rates provide an on-going level of funds for planned capital repairs and rehabilitation. These funds are appropriate for repair and replacement of the sewer system to serve existing customers. Sewer capacity and general facilities charges from new connections are available to fund improvements to the sewer system. The District can borrow from the above-mentioned financial assistance programs and any loans will need to be repaid by monthly rates and connection charges. The District also has authority to sell revenue bonds to fund planned system improvements. Revenue bonds will be repaid by sewer rates and connection fees.

Some of the projects will be the responsibility of developers to connect their property to the system. When developers complete approved infrastructure projects, the infrastructure is deeded over to the District. The developer can negotiate a latecomer agreement with the District to be reimbursed by new development making use of the facilities constructed by the developer for a specified period allowed by state law. In certain instances, on a case by case basis, such as when additional capacity is provided by a developer-funded project, the District may opt to participate in a cost sharing mechanism.

The District has the option to complete area-specific projects and be reimbursed as new development occurs in that area through a special connection charge. The District also has the option to establish a utility local improvement district (ULID), where the properties specially benefiting from an infrastructure investment would pay their share through an assessment. This method was used to establish the sewer collection system and lift station for the Maltby UGA.

9.7.3 Affordability

The EPA requires Ecology to award subsidy, or principal forgiveness, of at least 20 percent of the EPA capitalization grant award. In order to determine how best to award the subsidy, communities are evaluated on affordability of water compared to the median household income (MHI). EPA defines affordable sewer rates as 2 percent of MHI for a community. This also reflects the test applied by Ecology to determine the level of hardship in a community when applying for grants (subsidy) and loans for sewer improvement projects. The level of hardship can influence the financial assistance offer. If the cost of sewer service is higher, the community will be considered in hardship and could be eligible for some financial assistance in the offer, resulting in a grant (subsidy), a lower interest rate loan, or a combination of the two.

Ecology includes an appendix each year in the Combined Water Quality Funding Assistance Program Guidelines with the median household income, population and hardship eligibility (Appendix M for SFY2023, published August 2021). For Maltby Census Designated Place (CDP) in unincorporated Snohomish County, the current MHI is \$124,857. The threshold for hardship at 2.0 percent of MHI would be sewer rates of \$208.10 per month. The current cost of sewer is \$93.97 per month (CV collection \$44.70 + KC treatment \$49.27), or \$187.94 per 2-month bill. This level is considered affordable and would not be eligible for subsidy.

Another measure of affordability is what residents in local jurisdictions are paying. Table 9-5 compares 2022 sewer rates for a typical single-family residence using 750 cubic feet of water per month. Using this measure, Cross Valley currently is in the higher tier compared to other local sewer utilities which reflects the smaller areas of service.

Table 9-5: Residential Sewer Rate Comparison @ 750 cubic feet	
Service Provider	Monthly Sewer
Cross Valley - Silver Lake	\$81.64
Cross Valley - Maltby UGA (King Co.)	\$93.97
Marysville	\$46.64
Northshore U.D. - King Co. Treatment	\$61.97
Silver Lake WSD - Alderwood Basin	\$62.50
Mukilteo W&WWD	\$64.88
Silver Lake WSD - Everett Basin	\$66.45
Arlington	\$70.15
Alderwood W&WWD	\$72.19
Woodinville W.D-King Co. Treatment	\$78.07
Duvall	\$81.64
Snohomish	\$85.62
Sultan	\$90.60
Monroe	\$92.15

*Typical residential usage is measured at 750 cubic feet per month in the region.
Comparisons based on 2022 website information.*

While it is interesting to note what other jurisdictions are charging for sewer service, it is important to realize that each system should be self-supporting and many other factors could be affecting the rates or charges, including size of the service area, customer base, age of infrastructure, type of supply, contracts and interlocal agreements, etc.

9.8 SEWER CAPITAL IMPROVEMENTS

Table 7-2 of this GSP identifies \$18.3 million in 10-year recommended capital improvements, in 2022 dollars. It is reasonable to assume that the costs will be higher in the future when projects are scheduled for completion. Therefore, this financial chapter has escalated the project estimates to the year scheduled to help ensure that sufficient funding is available in future years. Construction cost escalation is included at 5.0 percent per year.

9.8.1 Ten-Year Capital Improvement Plan

This financial plan addresses the District-funded ten-year capital improvements totaling \$27.5 million (escalated). Table 9-6 shows the recommended 10-year projects grouped by funding strategy, including \$1.8 million identified for Pay-As-You-Go and \$25.6 million identified for Potential Borrowing.

Table 9-6: Sewer Ten-Year Capital Improvement Plan

#	Sewer CIP Project	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Pay-As-You-Go											
2	Lift Station Evaluation Study	-	-	55,125	-	-	-	-	-	-	-
3	Lift Station Upgrades	-	-	-	-	425,427	957,211	-	-	-	-
4	Manhole Rehabilitation	-	-	-	11,576	12,155	-	-	-	-	-
5	Equipment for Capacity Monitoring	40,000	21,000	-	-	-	-	-	-	-	-
6	Capacity and I&I Monitoring	5,000	5,250	5,513	5,788	6,078	6,381	6,700	7,036	7,387	7,757
7	Sewer Plan Update	85,000	-	-	-	-	-	-	-	-	155,133
	Jetting Program	20,000									
	<i>Subtotal Pay-As-You-Go</i>	<i>150,000</i>	<i>26,250</i>	<i>60,638</i>	<i>17,364</i>	<i>443,660</i>	<i>963,593</i>	<i>6,700</i>	<i>7,036</i>	<i>7,387</i>	<i>162,889</i>
Potential Borrow											
1	Trunk Sewer Capacity Improvements	-	-	-	-	-	-	402,029	984,970	11,819,644	12,410,626
	<i>Subtotal Potential Borrow</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>402,029</i>	<i>984,970</i>	<i>11,819,644</i>	<i>12,410,626</i>
	Total 10-Year Sewer CIP (escalated)	150,000	26,250	60,638	17,364	443,660	963,593	408,729	992,006	11,827,031	12,573,515
	Total 10-Year Sewer CIP (escalated)	27,462,785									

Table 9-7: Sewer CIP Funding Sources

Sewer CIP Funding Sources	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Reserves & Connection Charges	135,000	10,800	44,724	973	426,777	946,203	6,700	7,036	7,387	143,318
Potential Borrow: CWSRF/PWTF/Bonds	-	-	-	-	-	-	384,118	966,522	11,800,642	12,410,626
Grants	-	-	-	-	-	-	-	-	-	-
Rates	15,000	15,450	15,914	16,391	16,883	17,389	17,911	18,448	19,002	19,572
Total Sewer CIP Funding Sources	150,000	26,250	60,638	17,364	443,660	963,593	408,729	992,006	11,827,031	12,573,515

The funding plan was developed to reflect the District's outlook and prioritization of projects with conservative growth. The capital funding plan has the following categories:

- ♦ Pay-As-You-Go – The preference for Cross Valley is to plan ahead and pay for typical system rehabilitation, etc. This funding includes annual contributions from rates, reserves saved up from rates and sewer capacity charges and a one-time contribution for Brightwater. Additional growth beyond the conservative assumption will result in higher reserves to fund improvements.
- ♦ Potential Borrow – The projects identified for potential borrowing include high cost projects that will serve the District beyond any debt repayment. The expansion of sewer trunk capacity would likely be needed with changes in the urban growth area or zoning, and these decisions are controlled by Snohomish County.

Table 9-7 summarizes the planned funding sources for the 10-year improvements:

- Reserves will continue to grow and be available for one-time use.
- Connection Charges – System capacity charges were included in the original assessments from the ULID's and therefore are not collected from all new connections. New or re-development within the ULID's will pay additional capacity charges for flow that exceeds the design criteria. New connections outside of the ULID's will pay sewer capacity charges.
- Grants have not been included in this conservative outlook as there is not assurance of receiving funding.
- The 2022 sewer rates are beginning to set aside an annual contribution toward system replacement that is intended to increase each year to avoid drastic impacts on future rates. With approximately 120 customers, the cost per customer for system replacement can be very high. Volume rates should continue to increase to be sure that those customers that use the system are paying for the use.

9.9 SIX-YEAR OUTLOOK

The projected six-year outlook for sewer operations is shown in Table 9-8. No new debt is anticipated for capital improvements in the six years. The annual increase/(use) of reserves shows that the anticipated revenue and expenditures can be balanced with the annual rate increases of 6% per year 2022-2027. The 2022 bi-monthly CV District sewer collection system base rate of \$89.40 is projected to be \$119.70 in 2027. The King County treatment rate set by King County, currently \$98.54 per 2-month bill, is added on the bill. The District has completed a rate study focused on 2022-2026 and the Board has adopted rates for 2022-2023. The plan will continue to be refreshed with new information, updated growth patterns, cost estimates and timing of capital improvements in the future.

Table 9-8: Six-Year Sewer Rate Outlook						
Financial Outlook	2022	2023	2024	2025	2026	2027
Growth - New ERU's	2	2	2	2	2	2
Estimated Sewer Revenue	388,431	406,453	426,122	447,530	471,104	497,017
Total Sewer Expense	380,227	403,822	421,386	439,762	458,990	479,110
Annual Increase/(Use) of Reserves	8,204	2,631	4,737	7,768	12,114	17,907
Rate Increase This Scenario		6.0%	6.0%	6.0%	6.0%	6.0%
Estimated Sewer Base Rate (2-Mo.)*	\$89.40	\$94.80	\$100.50	\$106.50	\$112.90	\$119.70

**This Sewer Base Rate is for CV sewer collection service. King County treatment service charges, as set by KC, are added on the bill.*

9.9.1 Key Assumptions

Several key assumptions were used in making the 6-year projections and are shown in Table 9-8. These include the number of new connection equivalent residential units (ERUs) per year, cost escalation factors on sewage treatment, general and construction costs, and bi-monthly rates. The assumptions are meant to be conservative to increase the likelihood of meeting revenue and expense projections over time, such as slower revenue growth and reasonable expense escalation.

Table 9-9: Key Financial Assumptions	
Factor	Amount
Growth - New ERU's per Year	2
Cost Escalation - King County Treatment	4.0% - 4.5%
Cost Escalation - Labor & Benefits	5.5% - 4.0%
Cost Escalation - General	3.0%
CV Sewer Collection Base Rate (2-Month)	\$89.40 effective 1/1/22, \$94.80 effective 1/1/23

There is growth activity planned in the Maltby UGA but the properties within the ULID already paid some capacity charges in the sewer assessment, even if they did not connect right away. For this reason, growth assumptions are minimal. If Snohomish County were to adjust the UGA boundary, include the Rural Urban Transition Area or change the zoning, growth for the sewer area could be impacted.

King County adopted a 4.0% increase in the sewer treatment rate for 2022. Future rates are to be determined. The rate model assumes an annual increase of 4.5% per year for 2023+. The revenue and expenses are treated as a pass-thru to not affect the model.

Labor and benefits are a key portion of the operating costs and are escalated 5.5% in 2022, 5.0% in 2023 and back to the typical 4.0% in 2024+. Due to the pandemic and other supply chain worldwide issues, the costs were increasing more rapidly in 2021 when the model projections were updated during the rate study and development of the District's budget and assumed to be temporary increases that will settle back down.

Both general and construction cost escalation are flat during the six-year outlook.

The current Cross Valley connection charges are increased each September based on the Consumer Price Index. The charges are expected to be reviewed in 2022 to reflect the current recommended improvements from this plan. King County treatment capacity charges are paid directly to King County and are not included in the financial plan.

9.9.2 Detailed Six-Year Water Outlook

Table 9-10 is the detailed model printout showing the sewer revenue and expense outlook.

Table 9-10: Six-Year Sewer Rate Outlook						
Financial Outlook	2022	2023	2024	2025	2026	2027
Growth - New ERU's	2	2	2	2	2	2
Sewer Operating Revenue						
Metered sewer service	76,506	77,012	77,517	78,023	78,529	79,035
KC Treatment pass-thru consumption	257,100	270,000	283,600	297,800	312,800	328,500
Silver Lake admin fee	28,000	28,000	28,000	28,000	28,000	28,000
Side sewer permit	300	300	300	300	300	300
Reimbursement (Inspect)	0	0	0	0	0	0
Miscellaneous (inspect, sale assets)	2,700	2,700	2,700	2,700	2,700	2,700
Interest income-investments	20,000	20,000	20,000	20,000	20,000	20,000
Sewer Capacity Charge for Capital	0	0	0	0	0	0
Additional Revenue from Rate Increase	3,825	8,441	14,005	20,707	28,775	38,482
Estimated Sewer Revenue	388,431	406,453	426,122	447,530	471,104	497,017
Sewer Operating Expense						
Labor & Benefits	27,400	28,770	29,921	31,118	32,362	33,657
Sewer Mains	9,000	7,270	7,488	7,713	7,944	8,182
Sewer Lift Stations (includes power)	9,000	9,270	9,548	9,835	10,130	10,433
Sewer Operations						0
KC Treatment Sewer Charge	257,119	270,033	283,595	297,839	312,798	328,508
Sewer Operations	639	658	677	698	719	740
Sewer Observation	0	0	0	0	0	0
Customer Records (allocated)	6,164	6,348	6,539	6,735	6,937	7,145
General & Administrative						0
General & Administrative (allocated)	36,717	37,819	38,954	40,122	41,326	42,566
Other General & Administrative	5,253	5,411	5,573	5,740	5,912	6,090
Equipment Replacement	13,935	12,793	13,177	13,572	13,979	14,399
<i>Estimated S Operating Expense</i>	<i>365,227</i>	<i>378,372</i>	<i>395,472</i>	<i>413,371</i>	<i>432,107</i>	<i>451,720</i>
Capital Improvements						
Special Projects	0	10,000	10,000	10,000	10,000	10,000
Capital Funded by Rates	15,000	15,450	15,914	16,391	16,883	17,389
Total Sewer Expense	380,227	403,822	421,386	439,762	458,990	479,110
Annual Increase/(Use) of Reserves	8,204	2,631	4,737	7,768	12,114	17,907
Cumulative Impact on Rates		0	0	0	0	0
Annual % Increase to Balance		0	0	0	0	0
<i>Rate Increase This Scenario</i>		<i>6.0%</i>	<i>6.0%</i>	<i>6.0%</i>	<i>6.0%</i>	<i>6.0%</i>
<i>For Single Family Base Rate (2-Mo.)</i>						
<i>Estimated Sewer Base Rate (2-Mo.)*</i>	<i>\$89.40</i>	<i>\$94.80</i>	<i>\$100.50</i>	<i>\$106.50</i>	<i>\$112.90</i>	<i>\$119.70</i>

*This Sewer Base Rate is for CV sewer collection service. King County treatment service charges, as set by KC, are added on the bill.

9.9.3 Six-Year Sewer Balance Outlook

The Sewer cash balance projections are shown in Table 9-11. The sewer portion of the Cross Valley combined unrestricted cash & investments was \$4.8 million at the end of 2021. After setting aside \$365,000 for cash flow/emergency reserve equal to one year of operations and debt service (no outstanding debt for sewer), the sewer balance available is \$4.4 million. This is adjusted annually for the annual contribution from rates for CIP, capital investments and the annual increase or use of reserves. The sewer balance is projected to be sufficient to meet the operations and CIP program with the rate increases indicated through 2027, with a projected ending balance of \$2.9 million.

Table 9-11: Six-Year Sewer Balance Outlook						
Sewer Balance	2022	2023	2024	2025	2026	2027
Cash & Investments Dec. 2021	4,794,400					
Emergency Reserve Set Aside	(365,000)					
Sewer Balance Available	4,429,400	4,302,604	4,294,435	4,254,448	4,261,243	3,846,580
Annual Contribution from Rates for CIP	15,000	15,450	15,914	16,391	16,883	17,389
CIP Capital Improvements	(150,000)	(26,250)	(60,638)	(17,364)	(443,660)	(963,593)
Annual Increase/(Use) of Reserves	8,204	2,631	4,737	7,768	12,114	17,907
Ending Sewer Balance	4,302,604	4,294,435	4,254,448	4,261,243	3,846,580	2,918,283

9.10 FINANCIAL CONCLUSION

This financial plan demonstrates how the sewer operations and recommended capital improvements can be funded and the impact on bimonthly rates using conservative assumptions. Cross Valley prepares annual budgets and conducts regular 2-year rate studies to plan ahead for the next six years to ensure financial viability and to be sure the District can continue to provide reliable sewer service at affordable prices for generations into the future.

This plan was developed with reasonable assumptions based on current knowledge and cost estimates. As with all projections, real life will vary from the projections. The District will monitor the plan through the annual budget process and update as necessary to achieve balance between maintenance and operations, completing necessary improvements, and the impact on rates.

Key elements of this plan are the level of growth over the years, the willingness and ability to borrow funds, the impact of Snohomish County land use and zoning measures on urban growth and rural urban transition areas, the end of the pandemic and reasonable inflationary factors.



**Water System Plan
Cross Valley Water District**

**Appendix A
SEPA Documentation and Approvals**

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SEPA ENVIRONMENTAL CHECKLIST

Purpose of checklist:

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for Lead Agencies:

Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals:

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the [SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS \(part D\)](#). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

A. Background [\[HELP\]](#)

1. Name of proposed project, if applicable:

*Cross Valley Water District
2021 Sewer System Plan*

2. Name of applicant: *Cross Valley Water District*

3. Address and phone number of applicant and contact person:

Applicant

Cross Valley Water District

Mike Johnson, General Manager

8802 180th Street SE

Snohomish, WA 98296-4804

(360) 668-6766 or (425) 485-8461

Contact Person/Agent

PACE Engineers

Paul Weller, Senior Project Manager

11255 Kirkland Way, Suite 300

Kirkland, WA 98033-6715

(425) 827-2014

4. Date checklist prepared: *December 8, 2021*

5. Agency requesting checklist: *Cross Valley Water District*

6. Proposed timing or schedule (including phasing, if applicable):

A recommended Capital Facilities Plan is included in Section 7 of the Plan. Specific timing of improvements will depend on the availability of funding, the pattern of growth, and sewer system requirements.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

Please refer to Section 7 of the Plan for detailed information regarding future improvements contemplated for the sewer system. The Comprehensive Plan does not propose land use expansion or changes and only considers the sewer system improvements which are required to meet the existing and future population of the sewer service area, as outlined in the Plan.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

None known.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

None known.

10. List any government approvals or permits that will be needed for your proposal, if known.

Approvals from the State of Washington Department of Ecology and Snohomish County are required in accordance with State (RCW 57.16.010) and County regulations governing utility planning.

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

This proposal contemplates the adoption of the Cross Valley Sewer Comprehensive Plan. The Plan addresses future sewer system needs within the District's sewer service area boundaries as

described in the Plan. The Plan puts forth a recommended Capital Facilities Plan in accordance with the design criteria and system analysis developed as part of the Plan

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

As indicated on Figure 1-1 of the Plan, The District's service area is generally located in South Snohomish County with its boundaries extending from approximately the City of Snohomish on the north, to the King/Snohomish County line on the south, and from the Snohomish and Snoqualmie rivers on the east to 51st Avenue SE on the west.

B. Environmental Elements [\[HELP\]](#)

1. Earth [\[help\]](#)

a. General description of the site:

(circle one): Flat, rolling, hilly, steep slopes, mountainous, other _____

b. What is the steepest slope on the site (approximate percent slope)?

Not Applicable. Will be addressed on a project-specific basis.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

Not Applicable. Will be addressed on a project-specific basis.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

Not Applicable. Will be addressed on a project-specific basis.

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.

Not Applicable. Will be addressed on a project-specific basis.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Not Applicable. Will be addressed on a project-specific basis.

- g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

Not Applicable. Will be addressed on a project-specific basis.

- h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Not Applicable. Will be addressed on a project-specific basis.

2. Air [\[help\]](#)

- a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.

Not Applicable. Will be addressed on a project-specific basis.

- b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

Not Applicable. Will be addressed on a project-specific basis.

- c. Proposed measures to reduce or control emissions or other impacts to air, if any:

Not Applicable. Will be addressed on a project-specific basis.

3. Water [\[help\]](#)

- a. Surface Water: [\[help\]](#)

- 1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

The sewer service area is located to the west of Snohomish River. Lakes within the sewer service area include Crystal Lake, Devil's Lake, Echo Lake, and Shadow Lake.

- 2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

Not Applicable. Will be addressed on a project-specific basis.

- 3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

Not Applicable. Will be addressed on a project-specific basis.

- 4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

No.

- 5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

Specific projects recommended in the Plan may lie within the 100-year floodplain. This will be addressed on a project-specific basis.

- 6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

No

b. Ground Water: [\[help\]](#)

- 1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.

No

- 2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

Not Applicable.

c. Water runoff (including stormwater):

- 1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Not Applicable. Will be addressed on a project-specific basis

- 2) Could waste materials enter ground or surface waters? If so, generally describe.

Not Applicable. Will be addressed on a project-specific basis

- 3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

No

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

Not Applicable. Will be addressed on a project-specific basis.

4. Plants [\[help\]](#)

a. Check the types of vegetation found on the site:

- ☒ deciduous tree: alder, maple, aspen, other
☒ evergreen tree: fir, cedar, pine, other
☒ shrubs
☒ grass
☐ pasture
☐ crop or grain

- ☐ Orchards, vineyards or other permanent crops.
☒ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
☐ water plants: water lily, eelgrass, milfoil, other
☒ other types of vegetation

- b. What kind and amount of vegetation will be removed or altered?

Not Applicable. Will be addressed on a project-specific basis.

- c. List threatened and endangered species known to be on or near the site.

None Known. Will be addressed on project-specific basis.

- d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Not Applicable.

- e. List all noxious weeds and invasive species known to be on or near the site.

Not Applicable. Will be addressed on a project specific basis.

5. Animals [\[help\]](#)

- a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site.

Examples include:

birds: hawk, heron, eagle, songbirds, other:
 mammals: deer, bear, elk, beaver, other: small mammals
 fish: bass, salmon, trout, herring, shellfish, other _____

- b. List any threatened and endangered species known to be on or near the site.

Bald Eagle, Chinook Salmon and Bull Trout, but they will not be impacted by adoption of this Plan.

- c. Is the site part of a migration route? If so, explain.

The Greater Puget Sound region is part of the Pacific flyway for migratory birds.

- d. Proposed measures to preserve or enhance wildlife, if any:

Not Applicable. Will be addressed on project-specific basis.

- e. List any invasive animal species known to be on or near the site.

Not Applicable. Will be addressed on a project specific basis.

6. Energy and Natural Resources [\[help\]](#)

- a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Not Applicable, but operation of the District's sewer system requires electricity and fuel. The District will make every effort to utilize energy efficient equipment as improvements to the sewer system are implemented.

- b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

No

- c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

Not Applicable. Will be addressed on a project-specific basis. The District will make every effort to utilize energy efficient equipment when making decisions about new equipment purchases.

7. Environmental Health [\[help\]](#)

- a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

- 1) Describe any known or possible contamination at the site from present or past uses.

Not Applicable. Will be addressed on a project specific basis.

- 2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

Not Applicable. Will be addressed on a project specific basis.

- 3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

Not Applicable. Will be addressed on a project specific basis.

- 4) Describe special emergency services that might be required.

Not Applicable. Will be addressed on a project specific basis.

- 5) Proposed measures to reduce or control environmental health hazards, if any:

Not Applicable. Will be addressed on a project specific basis.

b. Noise

- 1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

None

- 2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

None. Will be addressed on a project-specific basis.

- 3) Proposed measures to reduce or control noise impacts, if any:

None. Will be addressed on a project-specific basis.

8. Land and Shoreline Use [\[help\]](#)

- a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

Existing land use in the District is identified on Figure 2-1. Single family residential accounts for a significant portion of the District's service area, with commercial and open space areas located throughout the District.

- b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?

No

- 1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversized equipment access, the application of pesticides, tilling, and harvesting? If so, how:

No

- c. Describe any structures on the site.

Not Applicable. Will be addressed on a project-specific basis.

- d. Will any structures be demolished? If so, what?

No. Will be addressed on a project-specific basis.

- e. What is the current zoning classification of the site?

The current zoning classifications within the District vary, but are predominantly Single Family Residential with some limited commercial areas (see Figure 2-2).

f. What is the current comprehensive plan designation of the site?

Future land use designations within the District vary, but are predominantly Single Family Residential with a limited amount of commercial/industrial.

g. If applicable, what is the current shoreline master program designation of the site?

Not Applicable.

h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

Environmentally sensitive areas are present throughout the District. Adoption of this Sewer System Plan will not impact any of these areas. Potential impacts to these areas will be addressed on a project-specific basis.

i. Approximately how many people would reside or work in the completed project?

None

j. Approximately how many people would the completed project displace?

None

k. Proposed measures to avoid or reduce displacement impacts, if any:

Not Applicable.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

This Sewer System Plan was developed to address the future sewer system needs of the Cross Valley Water District, based on existing and projected land use and population, as determined by the Comprehensive Land Use Plans of the jurisdictions within which the District serves.

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any:

Not Applicable.

9. Housing [\[help\]](#)

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

Not applicable.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

Not applicable.

c. Proposed measures to reduce or control housing impacts, if any:

Not applicable.

10. Aesthetics [\[help\]](#)

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

Not Applicable. Will be addressed on a project-specific basis.

- b. What views in the immediate vicinity would be altered or obstructed?

Not Applicable. Will be addressed on a project-specific basis.

- c. Proposed measures to reduce or control aesthetic impacts, if any:

Not Applicable. Will be addressed on a project-specific basis.

11. Light and Glare [\[help\]](#)

- a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

Not applicable. Will be addressed on a project-specific basis.

- b. Could light or glare from the finished project be a safety hazard or interfere with views?

Not Applicable

- c. What existing off-site sources of light or glare may affect your proposal?

Not Applicable.

- d. Proposed measures to reduce or control light and glare impacts, if any:

Not Applicable. Will be addressed on a project-specific basis.

12. Recreation [\[help\]](#)

- a. What designated and informal recreational opportunities are in the immediate vicinity?

Numerous park and recreational facilities, both designated and informal, are located throughout the District.

- b. Would the proposed project displace any existing recreational uses? If so, describe.

No

- c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

Not Applicable.

13. Historic and cultural preservation [\[help\]](#)

- a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers? If so, specifically describe.

None Known. Will be evaluated on a project-specific basis.

- b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts,

or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

Not Applicable. Will be evaluated on a project-specific basis.

- c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

Not Applicable. Will be evaluated on a project-specific basis.

- d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

Not Applicable. Will be evaluated on a project-specific basis.

14. Transportation [\[help\]](#)

- a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.

Not Applicable. Will be identified on a project-specific basis.

- b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?

Not Applicable.

- c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?

Not Applicable.

- d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).

No. Will be evaluated on a project-specific basis.

- e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

Not Applicable.

- f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?

Not Applicable.

- g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

Not Applicable.

h. Proposed measures to reduce or control transportation impacts, if any:

Not Applicable.

15. Public Services [\[help\]](#)

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.

Not Applicable.

b. Proposed measures to reduce or control direct impacts on public services, if any.

Not Applicable.

16. Utilities [\[help\]](#)

a. Circle utilities currently available at the site:

electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system,
other _____

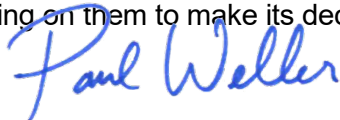
b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

This proposal establishes a plan for the future development of the sewer system within the District's service area boundaries.

C. Signature [\[HELP\]](#)

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature:



Name of signee: Paul Weller

Position and Agency/Organization: *PACE Engineers, Inc. – Planning Manager*

Date Submitted: 03/23/2022

D. Supplemental sheet for nonproject actions [\[HELP\]](#)

(IT IS NOT NECESSARY to use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

Capital improvement projects identified in the Plan will likely result in temporary construction-related impacts, including production of noise and emissions to the air from construction equipment.

Proposed measures to avoid or reduce such increases are:

Compliance with local noise ordinances and requirements related to dust control, temporary erosion and sedimentation control, vehicle emissions, etc.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

Potential impacts will be evaluated on a project-specific basis and will be dependent on a variety of factors, including project type, size and location.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

Appropriate measures to protect or conserve plants, animals, fish or marine life will be identified and implemented on a project-specific basis.

3. How would the proposal be likely to deplete energy or natural resources?

Construction of new sewer system facilities identified in the Plan will require the use of construction materials typical to this type of work.

Proposed measures to protect or conserve energy and natural resources are:

Efficient planning and design of utilities will assist in the conservation of water. In addition, energy efficient equipment for new and upgraded facilities will be utilized to the fullest extent possible.

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

Projects identified in the Plan may be located/occur within or adjacent to the types of areas listed above. Efforts will be made during project design to avoid areas that would be sensitive to this type of development activity. However, in circumstances where no other feasible location exists, projects will be compliant with all applicable Federal, State and local sensitive area regulations.

Proposed measures to protect such resources or to avoid or reduce impacts are:

Any future work associated with Cross Valley Water District's sewer system will be consistent with the regulations and policies governing the protection of such resources.

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

The District's Sewer System Plan is based on the population projections and land use designations included in the current Comprehensive Land Use Plans for the jurisdictions within which the District serves, as required by State law. Neither the Plan, nor projects included in the Plan, will affect land and shoreline use inconsistent with existing plans.

Proposed measures to avoid or reduce shoreline and land use impacts are:

Not applicable. The District has no land use or shoreline regulatory authority.

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

This proposal will not increase demands on transportation or public utilities, but will provide a guideline for future development of the District's sewer system, based on projected growth.

Proposed measures to reduce or respond to such demand(s) are:

Not Applicable.

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

This proposal will not conflict with any such laws.

**CROSS VALLEY WATER DISTRICT
SEWER SYSTEM PLAN
DETERMINATION OF NON-SIGNIFICANCE**

Description of the Proposal: *Adoption of the updated Cross Valley Water District Sewer System Plan. The Plan addresses future sanitary sewer service system needs within the District's sewer service area and sets forth a Capital Improvement Plan for system improvements.*

Proponent: *Cross Valley Water District*

Location: *The District's service area is generally located in South Snohomish County with its boundaries extending from approximately the City of Snohomish on the north, to the King/Snohomish County line on the south, and from the Snohomish and Snoqualmie rivers on the east to 51st Avenue SE on the west.*

Lead Agency: *Cross Valley Water District*

The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request.

*This DNS is issued under 197-11-340(2); the lead agency will not act on this proposal for 14 days from the date below. **Comments must be submitted by May 17th, 2022***


Responsible Official: *Mike Johnson* **Position/Title:** *General Manager*

Address: *8802 180th Street SE
Snohomish, WA 98296-4804*

Phone: *(360) 668-6766 or (425) 485-8461*

Date: *April 20, 2022*

Signature:



Mike Johnson, General Manager

**MINUTES OF REGULAR MEETING OF BOARD OF COMMISSIONERS
OF CROSS VALLEY WATER DISTRICT OF
SNOHOMISH COUNTY, WASHINGTON**

Held May 17, 2022

A regular meeting of the Board of Commissioners of Cross Valley Water District of Snohomish County, Washington, was held via remote means due to the COVID-19 declared federal, state, and local emergency, and in accordance with the Governor's Proclamation No. 20-28, as amended. The public had the opportunity to participate in the District's remote meeting using the call-in and additional connection information provided for the meeting with the meeting agenda and on the District's website. The meeting was called to order by Commissioner Dave Hutley on Tuesday, May 17, 2022, at 2:30 PM. Verbal roll call commenced, Commissioner Dave Hutley, Commissioner Warren Schott, and Commissioner Ginger Desy were present. Also, present were Attorney, Curtis Chambers; Mike Johnson, General Manager; Dave Calvo, Operations and Maintenance Manager; Robert Wagner, Financial Manager; Engineer's, Bill Reynolds, and Paul Weller, PACE Engineer; Clifton Larson Allen LLP, David Hoagland; Kristina Baylor, State Auditor's Office; and Chris Lamb.

1. Addition / Deletions to Agenda: No Additions or Deletions.
2. Public: No public was present.
3. Financial Voucher Summary: Informational only. No discussion.
4. Consent Agenda:

Commissioner Warren Schott moved to approve the consent agenda consisting of the following:

Minutes. Minutes of the May 3, 2022, Regular Board Meeting

District Claims:

Claim Nos.:	45525 through 45557
	20220501 through 20220508
Total Amount:	\$277,422.51
Claim Nos.:	10509 through 10524
Fund:	Payroll
Total Amount:	\$39,974.84

Leak Credit:

2421	\$652.84
4613	\$609.44

Commissioner Ginger Desy seconded the motion, which passed 3-0.

PUBLIC HEARING: At 2:34 pm the Board of Commissioners recessed the regular meeting of the board and opened a public hearing on SEPA Determination of Non-Significance. Engineer, Paul Weller presented the SEPA Determination of Non-Significance for the Sewer Comprehensive Plan. Engineer, Paul Weller stated there were no comments received. There were no Commissioners' comments and there were no members of the public present. Thereafter, the Board closed the public hearing at 2:37 pm and resumed the regular meeting of the Board at 2:37 pm.

5. Consideration of proposed SEPA comments: There were no comments received to consider. No action taken.

6. Business:

1. Financial Summary. General Manager Johnson introduced David Hoagland with Clifton Larson Allen LLP. David Hoagland with Clifton Larson Allen LLP presented to the Board the 2021 Financial Statement. Discussion occurred on highlighted areas of the report. Commissioner Warren Schott made a motion to approve and authorize the 2021 Financial Statement to be submitted to the State Auditor's Office. Commissioner Ginger Desy seconded the motion, which passed 3-0.

2. Water and Sewer Developer Extension Revision General Manager Johnson updated the board on the revisions. Discussion occurred on the Developer Extension forms and process.

Commissioner Desy was excused for brief communications issues to reconnect to the meeting.

Commissioner Warren Schott made a motion to approve the revised District Water and Sewer Construction Standards, Methods and Materials. Commissioner Dave Hutley seconded the motion, which passed 2-0.

Resolution No. 2022-5-2 A RESOLUTION of the Board of Commissioners of Cross Valley Water District of Snohomish County, Washington, approving revised District Water and Sewer Construction **Standards, Methods and Materials**; amending Chapters 6.40, 6.45, 7.20, 7.25, 7.30, and 7.35 of the Cross Valley Water District Code; and repealing Resolution No. 2015-6-1.

Commissioner Warren Schott made a motion to approve the revised form Water and Sewer Development Extension Agreements for the District. Commissioner Dave Hutley seconded the motion, which passed 2-0.

Resolution No. 2022-5-3 A RESOLUTION of the Board of Commissioners of Cross Valley Water District of Snohomish County, Washington, approving revised form Water and Sewer Development Extension **Agreements** for the District; amending Sections 6.10.010 and 7.05.010 of the Cross Valley Water District Code; amending Resolution No. 1990-8-6; and repealing Resolutions No. 1998-3-9, and 1999-10-16.

Commissioner Warren Schott made a motion to approve the **Side Sewer Standard Details**;

amending Chapter 7.10 of the Cross Valley Water District Code. Commissioner Dave Hutley seconded the motion, which passed 2-0.

Resolution No. 2022-5-4 A RESOLUTION of the Board of Commissioners of Cross Valley Water District of Snohomish County, Washington, approving **Side Sewer Standard Details**; amending Chapter 7.10 of the Cross Valley Water District Code; and repealing Resolutions No. 1998-2-3 and 1998-9-3.

Commissioner Warren Schott made a motion to approve the revised form Water and Sewer Developer **Cash Maintenance and Pledge Agreements** Commissioner Dave Hutley seconded the motion, which passed 2-0.

Resolution No. 2022-5-5 A RESOLUTION of the Board of Commissioners of Cross Valley Water District of Snohomish County, Washington, approving revised form Water and Sewer Developer **Cash Maintenance and Pledge Agreements**; amending Section 6.10.040 of the Cross Valley Water District Code; and amending Resolution No. 1991-3-1.

Commissioner Warren Schott made a motion to approve the revised form Water and Sewer Developer Latecomers **Reimbursement Agreements**; Commissioner Dave Hutley seconded the motion, which passed 2-0.

Resolution No. 2022-5-6 A RESOLUTION of the Board of Commissioners of Cross Valley Water District of Snohomish County, Washington, approving revised form Water and Sewer Developer Latecomers **Reimbursement Agreements**; amending Sections 6.10.030 and 7.05.020 of the Cross Valley Water District Code; and amending Resolutions No. 1990-5-5 and 2008-10-3.

Commissioner Desy re-joined the meeting due to brief communications issues.

3. Surplus Items. General Manager Johnson requested that the Board approve and authorize the surplus of the backup batteries, computers and monitor that are no longer needed, have been replaced and have no market value. Commissioner Warren Schott made a motion to authorize the General Manager to surplus the backup batteries, computers and monitor as surplus and delivering them to 1 Green Planet, a Washington State approved company. Commissioner Ginger Desy seconded the motion, which passed 3-0.

Resolution No. 2022-5-7 A RESOLUTION of the Board of Commissioners of Cross Valley Water District of Snohomish County, Washington, declaring certain property to be surplus property of the District; and authorizing the General Manager to dispose thereof.

4. ILA City of Seattle. General Manager Johnson requested that the Board approve and authorize the ILA with the City of Seattle Cooperative Purchasing Agreement for various supplies, materials, equipment and routine, expert and/or consultant services, using competitively awarded contracts.

Discussion occurred on the agreement. Commissioner Warren Schott made a motion to approve and authorize the General Manager to execute the City of Seattle Cooperative Purchasing Agreement. Commissioner Dave Hutley seconded the motion, which passed 3-0.

Resolution No. 2022-5-8 A RESOLUTION of the Board of Commissioners of Cross Valley Water District of Snohomish County, Washington, approving an Interlocal Agreement with the City of Seattle for a cooperative governmental purchasing agreement for various supplies, materials, equipment and routine, expert and/or consultant services, using competitively awarded contracts.

5. Change Order No.1 CIP W2021-01 & W2021-02. General Manager Johnson explained the Change Order No.1 amendment. General Manager Johnson requested that the Board approve and authorize the Change Order No.1 amendment. Discussion occurred on the Change Order No.1. Commissioner Ginger Desy made a motion to amending Change Order No. 1 to the Contract with B&B Utilities & Excavating, LLC for the PRV and Water Main Improvement Projects, W2021-01 and W2021-2, which was previously approved pursuant to Resolution 2021-12-12. Commissioner Warren Schott seconded the motion, which passed 3-0.

Resolution No. 2022-5-9 A RESOLUTION of the Board of Commissioners of Cross Valley Water District of Snohomish County, Washington, amending Change Order No. 1 to the Contract with B&B Utilities & Excavating, LLC for the PRV and Water Main Improvement Projects, W2021-01 and W2021-2, which was previously approved pursuant to Resolution 2021-12-12.

6. BID Award CIP – 2022 Water Main and PRV Improvement W 2022-01. Engineer Bill Reynolds stated to the Board that the bid opening for the 2022 Water Main and PRV Improvement Capital Improvement Project W2022-01 was held on May 11, 2022. Engineer Bill Reynolds, stated three bids were submitted, opened and reviewed. Engineer Bill Reynolds also stated the lowest bid was by D&G Backhoe, Inc in the amount of \$1,257,373.58. Engineer Bill Reynolds recommended that the Board award the contract to D&G Backhoe, Inc. Commissioner Ginger Desy made a motion to award D&G Backhoe, Inc the contract for the 2022 Water Main and PRV Improvement, in the amount of \$1,257,373.58. Commissioner Warren Schott seconded the motion, which passed 3-0.

Resolution No. 2022-5-10 A RESOLUTION of the Board of Commissioners of Cross Valley Water District of Snohomish County, Washington, awarding contract for the 2022 Water Main and PRV improvement project (W2022-01) to D & G Backhoe, Inc. at a cost of \$1,257,373.58 including sales tax.

7. Operator Replacement Purchase. General Manager Johnson stated to the Board that the front gate operator needs replacement and repairs are not feasible and presented a quote from Precision Door Service. Discussion occurred on the operator. General Manager Johnson requested a motion to approve the operator replacement quote in the amount of \$14,565.91 plus WA Sales Tax by using Seattle Contract #00000000003591 for the purchase once the City of Seattle has approved our purchasing agreement. Commissioner Warren Schott made a motion to approve the operator

replacement quote in the amount of \$14,565.91 plus WA Sales Tax by using Seattle Contract #000000000003591 for the purchase once the City of Seattle has approved our purchasing agreement. Commissioner Ginger Desy seconded the motion, which passed 3-0.

7. Reports / Review.

1. Attorney Report. Attorney, Curtis Chambers stated no report.
2. Engineering Report. Engineer Bill Reynolds updated the Board on Developer Extension projects.
3. Finance Manager Report. Finance Manager Wagner presented the cash and investment analysis and monthly finance report.
4. Operations and Maintenance Report. Operations and Maintenance Manager Dave Calvo presented the Well Depths Reports and stated the Districts annual flushing has started.
5. General Manager Report. General Manager Johnson reported to the Board the status of the Snohomish County LIWOP Program and informed the Board on the Department of Commerce program. Discussion occurred on the programs. General Manager Johnson updated the Board on the Engineering RFPs. General Manager Johnson also informed the Board on the Districts backflow compliance.
6. Commissioner Comments. Commissioner Dave Hutley and Commissioner Ginger Desy requested to attend the HRA VEBA webinar. Commissioner Dave Hutley requested the ability to attend meetings via video conferencing if necessary, as stated in the Board of Commissioners Handbook. The Board unanimously agreed.
8. Next Meeting. Commissioner Dave Hutley stated that the next regular meetings will be on Tuesday, June 7, 2022, and June 21, 2022 and would return to in-person meetings at the District office.
9. Executive Session: General Manager Johnson announced that an executive session would be held for 10 minutes, pursuant to RCW 42.30.110(i) – Discussion with legal counsel about legal risks of current or proposed action. The open meeting was recessed at 3:39 pm and the Executive Session convened at 3:39 pm with the Commissioners, General Manager Johnson, Attorney Curtis Chambers attending. At 3:49 pm, General Manager Johnson announced that the Executive Session was extended for an additional 5 minutes.

At 3:54 pm., the Executive Session was concluded, and the open meeting resumed. No action taken.

THERE BEING NO FURTHER BUSINESS to bring before the Board, the meeting was adjourned at 3:55 PM.

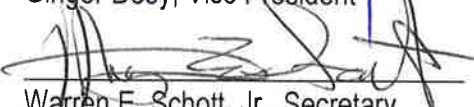
CROSS VALLEY WATER DISTRICT



Dave Hutley, President



Ginger Desy, Vice President



Warren E. Schott, Jr., Secretary



Water System Plan
Cross Valley Water District

Appendix B
Contracts and Agreements

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**CROSS VALLEY WATER DISTRICT/ALDERWOOD WATER DISTRICT
INTERLOCAL AGREEMENT FOR
SANITARY SEWER CONSTRUCTION**

THIS AGREEMENT between the Cross Valley Water District ("Cross Valley") and the Alderwood Water District ("Alderwood") is entered into this 3RD day of JUNE, 1997.

WHEREAS, Cross Valley and Alderwood are special purpose municipal corporations authorized to provide sewer service to customers within their boundaries; and

WHEREAS, Cross Valley and Alderwood share a common boundary in south Snohomish County and each district's service area includes portions of the Bear Creek Drainage Basin; and

WHEREAS, Cross Valley proposes to form its Sewer ULID No. 5 for the purpose of extending a sanitary sewer system from the existing Metro sanitary sewer system in King County into Snohomish County along the SR 522 corridor; and

WHEREAS, a portion of the proposed sanitary sewer can provide sufficient capacity to accept all sanitary sewage from the Bear Creek Drainage Basin, including that part of the Basin within Alderwood's service area, as identified in Alderwood's Bear Creek Comprehensive Plan, approved on September 28, 1994 (the "Service Area"); and

WHEREAS, Alderwood desires to participate with Cross Valley in the construction of a sanitary sewer of sufficient capacity to serve the Service Area, including a crossing of SR 522 as shown in attached Exhibit "A".

NOW, THEREFORE, the parties agree:

1. Cross Valley will design and construct a sanitary sewer system that includes sufficient capacity to serve the Service Area and a crossing of SR 522. The facilities that will serve the Service Area are identified in Schedules A and B incorporated by reference herein.
2. Alderwood's estimated capacity in the Bear Creek Basin is 2.39 million gallons per day (MGD.) The total estimated capacity for the Bear Creek Basin is 11.61 MGD. Thus, Alderwood's percentage of estimated capacity is 20.6 percent of the total estimated basin capacity.
3. Alderwood will pay Cross Valley 20.6 percent of the cost to design and construct the facilities identified in Schedules A and B as shared facilities which are further described as the following manholes and the 30-inch pipeline connecting them.

Manholes:

Existing Metro	W11-A19 to A20	5- B13 to B14
"	A20 to A21	" B14 to B15
"	A22 to A23	" B15 to B16
"	A23 to A24	" B16 to B17
"	A24 to A25	" B17 to B18
"	A25 to A26	" B18 to B19
"	A26 to A27	" B19 to B20
"	A27 to A28	" B20 to B21
"	A28 to A29	" B21 to B22
"	A29 to A30	" B22 to B23
"	A30 to A31	" B23 to B24
	W11-A31 to 5-B13	" B24 to B25
		" B25 to B26
		" B26 to B27
		" B27 to B46
		" B46 to B47
		" B47 to 5-C47A

4. Alderwood Will pay Cross Valley for all costs incurred in designing, permitting and constructing the 18-inch sanitary sewer line from Manhole 5-B14 to Manhole 5-B43, and the 30-inch pipe casing constructed therewith. Cross Valley will provide Alderwood with a bid schedule that identifies these costs as separate bid items. In addition, Alderwood will pay all costs incurred in the installation of side sewer stubs and cleanouts at the following manholes: 5-B23, 5-B24, 5-B25, 5-B27, and 5-B46.

5. In addition to construction costs described herein, Alderwood will pay Cross Valley for design, plans and specifications, bidding costs, and administrative costs for the sewer identified herein, at the same percentages as noted for construction cost sharing.

6. At time of award of contract, Alderwood will pay Cross Valley 15 percent of the estimated Alderwood costs of the facilities identified in Schedules A, B and C and the facilities described in Section 4. Thereafter, Alderwood shall pay Cross Valley pursuant to monthly engineers' estimates of the work completed in Schedules A, B and C until Alderwood has paid 20.6 percent of those costs. Alderwood shall pay Cross Valley pursuant to monthly engineering estimates for the work completed on the facilities described in Section 4.

7. Cross Valley will afford Alderwood reasonable opportunity to review construction and test results for work identified in Schedules A and B and the work described in Section 4 and to comment thereon, and Alderwood will be granted an opportunity to attend and participate in Owner/Contractor construction meetings.

8. Cross Valley will afford Alderwood reasonable opportunity to review any proposed change orders related to the 30-inch line identified in Section 3. Alderwood will give Cross Valley ample opportunity to review proposed change orders related to the sanitary sewer line

identified in Item 4, and Cross Valley will, to the extent possible, rely on Alderwood's recommendation as to approval or rejection.

9. Cross Valley shall indemnify, hold harmless and defend Alderwood from any claims, damages, injury to person or property, and judgments, including reasonable attorney's fees, arising in any way out of the construction of the sanitary sewer facilities described herein.

10. This document contains the complete agreement of the parties and any modification hereof must be in writing and signed by the parties.

CROSS VALLEY WATER DISTRICT:

By Arthur Segerson
President, Board of Commissioners

ALDERWOOD WATER DISTRICT:

By Donald J. Cross
President, Board of Commissioners

SILVER LAKE WATER-SEWER DISTRICT
CROSS VALLEY WATER DISTRICT
2009 AMENDMENT TO INTERLOCAL AGREEMENT

This Amendment entered into this 18th day of MARCH, 2009 between the Cross Valley Water District (hereinafter referred to as "Cross Valley") and the Silver Lake Water-Sewer District (hereinafter referred to as "Silver Lake") (Cross Valley and Silver Lake are herein referred to singularly as "District" and collectively as "Districts") amends the Interlocal Agreement between the Districts dated October 16, 2001 as amended by Agreement signed by the Districts on December 14, 2006 and February 20, 2007, respectively, (hereinafter referred to as 2007 Amendment) redefining and replacing Exhibit C of the Interlocal Agreement dated October 16, 2001.

WITNESSETH:

WHEREAS, the Districts entered into an Interlocal Agreement dated October 16, 2001 regarding the provision of water and sewer service in each other's District (herein referred to as "Interlocal"). A copy of the Interlocal is attached to this Amendment as Exhibit A-1; and

WHEREAS, the Districts amended this Interlocal to redefine and replace Exhibit C of the Interlocal by the 2007 Amendment; and

WHEREAS, the Districts wish to amend the Interlocal to expand the sewer service area for Silver Lake within Cross Valley's boundaries (Area B); and

WHEREAS, certain property within this expanded service area in Cross Valley designated as Valley Investments-Farm Worker Housing site depicted and described on Exhibit B-1 (Valley Investments) is outside the Urban Growth Area as defined by Snohomish County and has a Zoning Designation of Riverway Commercial Farmland; and

WHEREAS, Valley Investments has requested sewer service from Cross Valley and Silver Lake; and

WHEREAS, Snohomish County Planning and Development Services have determined that the Valley Investment property is allowed sewer service since the property meets SCC 30.29.110 (1) an exception to SCC prohibition of sewer service outside of a UGA; and

WHEREAS, Valley Investments has received approval of the Washington State Department of Health (DOH) for construction of Farm Worker Housing on its site provided such housing is connected to public sewer; and

WHEREAS, DOH has issued to Valley Investments a Construction Permit for Migrant Farm Worker Housing for its site in Cross Valley; and

WHEREAS, Silver Lake is the only viable sewer provider for the Valley Investments Migrant Farm Worker Housing; and

WHEREAS, the Districts are special purpose municipal corporations in Snohomish County, Washington, organized under the laws of the State of Washington; and

WHEREAS, the Districts desire to enter into this Amendment pursuant to the authority granted in Chapter 39.34 of the Revised Code of Washington and RCW 57.08.007; and

WHEREAS, each District has the authority to construct, condemn and purchase, acquire, add to, alter, maintain and operate waterworks, and sewer systems, within or without their corporate limits, for the purpose of furnishing its inhabitants or any other persons with an ample supply of water and for the purpose of disposing of wastewater; and

WHEREAS, the Districts wish to protect and promote their interests and the interests of their rate payers and to provide water service and sewer service to certain customers located within their respective Districts by both using water lines and sewer lines owned and operated by the other District and by providing for the wholesale of water between the Districts; and

WHEREAS, state law does not allow a special purpose water and sewer district to extend service to customers located within the boundaries of a different water and sewer district without such district's consent and approval; and

WHEREAS, both Districts desire to cooperate in providing water and sewer service to certain properties near or adjacent to the Districts' common boundary lines; and

WHEREAS, both Districts recognize that the other District has the sole lawful authority to provide water and sewer service to properties within its jurisdiction; and

WHEREAS, in accordance with RCW 57.08.007, and by interlocal agreement, the Districts may provide for water and sewer service by one District in the other District's area.

NOW, THEREFORE, the Districts do hereby agree as follows:

Section 1. Purpose.

The purpose of this Amendment is to add lands to Area "B" as described in the Interlocal so as to allow additional land area to be subject to the terms of the Interlocal to provide for future sewer service by Silver Lake to properties within Area "B."

Section 2. Expanded Area B.

Area "B" of the Interlocal is amended to add the lands as described and depicted on Exhibit B-1 attached hereto. For ease of future administration of the Interlocal, the Districts

agree that Exhibit B-1 may be inserted as the substitute exhibit for Exhibit B in the Interlocal and Exhibit C-1 of the 2007 Amendment may be inserted as the substitute for Exhibit C in the Interlocal.

Section 3. A new paragraph is added to Section 5 of the Interlocal to read as follows:

The sewer rate applied by Silver Lake to sewer customers within Area B shall be calculated at 117%, or as otherwise set by written mutual agreement of the Districts' Boards of Commissioners, of the then current rate as now or hereafter amended for Silver Lake sewer customers residing within its Everett sewer basin; that is, Silver Lake customers within its own jurisdiction whose sewer flows through piping and sewer facilities to the Everett Water Pollution Control Facility.

Section 4. A new sub-paragraph (f) is added to Section 10 of the Interlocal to read as follows:

Cross Valley shall indemnify, defend and hold the District and its elected and appointed officials, officers, employees, agents and volunteers (collectively the "District") harmless from and against all damages, losses, expenses and all claims, demands, payments, suits, actions, liabilities, including regulatory enforcement actions, recoveries, and judgments of every nature and description including attorneys' fees and costs (collectively "Claims" or "Damages") incurred by or brought or recovered against the District relating to or arising out of, directly or indirectly, the District providing sewer service to the property located along the 5300 block of Lowell-Larimer Road, Everett, Washington 98296 having Tax Parcel No. 280522-003-015-00 and legally described on Exhibit D attached hereto and incorporated herein by this reference (the "Property"), provided, however, Cross Valley's obligation to indemnify, defend and hold the District harmless under this provision shall not apply to any Claims or Damages arising out of or related to, directly or indirectly, the District's operation of its sewer system to serve the Property .

District and Cross Valley agree that all third party claims for Damages against District for providing sewer service to Tax Parcel No. 280522-003-015-00 not related to, directly or indirectly, the District's operation of its sewer system for which Cross Valley's insurance carrier does not accept defense of District may be tendered by District to the Cross Valley who shall, if so tendered by District, accept and undertake to defend or settle with the Claimant. District retains the right to approve claims investigation and legal counsel assigned to said claim or actions acting reasonably and all investigation and legal work product regarding said claim shall be performed under a fiduciary relationship to the District.

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Section 4. Incorporation and Ratification.

All other terms of the October 16, 2001 Interlocal are hereby ratified and remain in full force and effect.

18th IN WITNESS WHEREOF, the parties hereto have executed this Amendment as of this day of MARCH, 2009.

SILVER LAKE WATER DISTRICT:

Bill Anderson
President

Paul Keppeler
Commissioner

Ann H. H. H. H.
Commissioner

ATTESTED TO:
Ann H. H. H. H.
Secretary-Commissioner

CROSS VALLEY WATER DISTRICT:

[Signature]
President

[Signature]
Commissioner

[Signature]
Commissioner

ATTESTED TO:
[Signature]
Secretary-Commissioner

SILVER LAKE WATER-SEWER DISTRICT
CROSS VALLEY WATER DISTRICT
2008 AMENDMENT TO INTERLOCAL AGREEMENT
EXHIBIT A-1 - OCTOBER 16, 2001 INTERLOCAL AGREEMENT

SILVER LAKE WATER DISTRICT
CROSS VALLEY WATER DISTRICT
INTERLOCAL AGREEMENT

EX. A-1

This Agreement entered into this 16 day of OCTOBER, 2001 between the Cross Valley Water District (hereinafter referred to as "Cross Valley" and the Silver Lake Water District (hereinafter referred to as "Silver Lake"),

W I T N E S S E T H:

WHEREAS, the District's entered into this agreement in 1994, and;

WHEREAS, the Districts have determined to re-execute this agreement to clarify the legal authority to provide water and sewer service in each others district; and

WHEREAS, the Districts are special purpose municipal corporations in Snohomish County, Washington, organized under the laws of the State of Washington; and

WHEREAS, the Districts desire to enter into this Agreement pursuant to the authority granted in Chapter 39.34 of the Revised Code of Washington and RCW 57.08.007; and

WHEREAS, each District has the authority to construct, condemn and purchase, acquire, add to, alter, maintain and operate waterworks, and sewer systems, within or without their corporate limits, for the purpose of furnishing its inhabitants or any other persons with an ample supply of water and for the purpose of disposing of wastewater; and

WHEREAS, the Districts wish to protect and promote their interests and the interests of their rate payers and to provide water service and sewer service to certain customers located within their respective Districts by both using water lines and sewer lines owned and operated by the other District and by providing for the wholesale of water between the Districts; and

WHEREAS, Cross Valley has provided service to certain properties within the City Farms area of the Silver Lake as a private and public water purveyor; and

WHEREAS, state law does not allow a special purpose water and sewer district to extend service to customers located within the boundaries of a different water and sewer district without such district's consent and approval; and

WHEREAS, both Districts desire to cooperate in providing water and sewer service to certain properties near or adjacent to the Districts common boundary lines; and

WHEREAS, both Districts recognize that the other District has the sole lawful authority to provide water and sewer service to properties within its jurisdiction; and

WHEREAS, in accordance with RCW 57.08.007, and by interlocal agreement the Districts may provide for water and sewer service by one District in the other District's area.

NOW, THEREFORE, the Districts do hereby agree as follows:

Section 1. Purpose.

The purpose of this Agreement is to provide delivery of water service to properties within the City Farms area as shown on Exhibit "A" attached hereto (hereinafter Area "A") of Silver Lake Water using water systems owned and operated by Cross Valley. It is the further purpose of this agreement to provide future wholesale of water by Silver Lake to Cross Valley for water service to properties within an area of Cross Valley as shown on Exhibit "B" attached hereto (hereinafter Area "B") and to provide for future sewer service by Silver Lake to properties within Area "B". All deliveries of water by Cross Valley from existing facilities owned and operated by Cross Valley within Area "A", shall be allowed by Silver Lake pursuant to the terms, conditions, and limitations of this Agreement. All deliveries of sewer by Silver Lake within Area "B", shall be allowed by Cross Valley pursuant to the terms, conditions, and limitations of this Agreement.

Section 2. Area "A" New Customers - Interim Service.

Cross Valley shall have the right and permission of Silver Lake to provide service to existing customers and to extend service to new customers and properties within Area "A". As a condition of any such new service extension, Cross Valley shall collect from property

owners within Area "A" as a condition of water service to such property owner by Cross Valley all then existing Silver Lake water connection charges, capital improvement charges and other fees, except meter installation charges which will be retained by Cross Valley, which would be collected by Silver Lake for water service in accordance with its Resolutions and regulations. Such Silver Lake charges collected by Cross Valley are to be paid to Silver Lake within thirty days of the date collected by Cross Valley.

Section 3. Area "A" Maintenance and Repair.

All maintenance, operation, and repair costs and expenses of the water system shall be the sole responsibility of Cross Valley. Any and all construction, repair, reconstruction, replacement or other work on the existing system shall be done by Cross Valley. All new service line installation shall be constructed in accordance with Silver Lake standards and specifications. Any extension of the water system within Area "A" caused by a subdivision of property or new development within Area "A" shall be constructed in accordance with Silver Lake standards and specification. Any construction or improvement of the water facilities within Area "A" for existing general system improvements by Cross Valley may be constructed to Cross Valley standards and specification. The existing water system lines set forth on Exhibit "A", which is incorporated herein as a part of this agreement, are integral to the integrity of operation of Cross Valley's system and shall be retained by Cross Valley.

For those projects requiring construction in accordance with Silver Lake standards and specifications, Cross Valley shall submit engineering plans to Silver Lake for approval at least 60 days prior to construction, and shall notify Silver Lake at least seven days prior to beginning actual construction work.

Section 4. Transfer of Customers Area "A".

At its sole discretion and election, Silver Lake may give notice to Cross Valley that Silver Lake intends to take over the customers within Area "A" 60 days from such notice. Cross Valley shall provide to Silver Lake a current list of the names and addresses of all Cross Valley water customers within the Agreement

area. Silver Lake shall send notice of take over to all customers being served by Cross Valley advising them of their new water purveyor and that billing and payment of future water bills shall be handled by Silver Lake.

At such time of notice Cross Valley shall wholesale to Silver Lake sufficient water to serve all properties within Area "A" whether then being served or not should Silver Lake decide to purchase water from Cross Valley. Nothing herein shall require Silver Lake to purchase water from Cross Valley.

At the time of take over of the water system, Silver Lake shall be responsible for maintenance and operation of the water system within Area "A", except for those lines set forth on Exhibit "A".

Section 5. Area "B" New Sewer Customers.

Silver Lake shall have the right and permission of Cross Valley to extend sewer service to customers and properties within Area "B". Any and all construction of sewer facilities within Area "B", shall be constructed in accordance with Silver Lake standards and specifications. Silver Lake shall maintain and operate such sewer system. Silver Lake may collect any and all connection charges, capital improvement charges, monthly rates and charges and other fees which would be collected by Silver Lake in accordance with its Resolutions and regulations. Nothing herein shall preclude Silver Lake from entering into a sewer service extension agreement with individual property owners within Area "B".

Section 6. Silver Lake Wholesale of Water to Cross Valley - Area "B".

Subject to the provisions of Section 8, Silver Lake agrees to wholesale water to Cross Valley sufficient to serve all customers and properties within Area "B". Any and all costs of construction, maintenance and repair of facilities required to wholesale water to Cross Valley, such as master meter(s), shall be paid solely by Cross Valley. Such facilities shall be constructed in accordance with Silver lake standards and specification. Nothing herein shall require Cross Valley to purchase water from Silver Lake. Provided, however, that both water and sewer shall be provided by Silver Lake

for that area delineated by the number 1 within Area "B" set forth on Exhibit "C" incorporated herein, which comprises approximately 20 lots of Waldenwood Subdivision, Phase II.

Section 7. Water Quality.

Each District warrants that it will purvey water meeting the state water quality standards and requirements to the other District and to all residents within the other District. Each District agrees to protect, hold harmless, indemnify and defend the other for any claim, demand or suit arising out of purveying water to customers within the other District or the wholesaling of water to the other District.

Section 8. Delinquent Account Collection. In order to ensure that each District can protect revenue sources and protect bond covenants as well as the operational integrity of its system, every customer of both water and sewer service in Area "B" shall be treated as though that customer was receiving both water and sewer service from Silver Lake. Any and all remedies for non-payment of utility bills, including but not limited to cut off of service as authorized by RCW 57.08.090, shall pertain to Silver Lake. At all times that Silver Lake is providing sewer service to a customer within Area "B" that is being provided water service by Cross Valley, Cross Valley shall apply any water bill payment first to any Silver Lake sewer bill for the same customer that is 30 days past due. Such Cross Valley payment shall be forwarded to Silver Lake within 30 days. Should delinquency by any such customer continue, Cross Valley shall turn off that customer's water service as provided by state law.

Section 9. Water Service to Cathcart Landfill. Both Districts understand that in order to provide water to the Snohomish County Cathcart Landfill, Cross Valley has purveyed water to Cathcart even though it is in Silver Lake. Both Districts agree and understand that at such time that Silver Lake can serve water to Cathcart, Silver Lake may give notice to Cross Valley that Silver Lake will take over service of water to Cathcart and Cross Valley will cease water delivery to Cathcart.

Section 10. Miscellaneous.

a. This Agreement shall be binding upon and inure to the benefit of the parties hereto and their successors and assigns.

b. This document constitutes the entire agreement of the parties with respect to the subject matter hereof and may be modified only by an agreement in writing signed by all the parties hereto.

c. Waiver by any party of any term or condition of this Agreement shall not be deemed or construed as a waiver of any other term or condition, nor shall a waiver of any subsequent breach, whether of the same or of a different provision of this Agreement.

d. If any provision of this Agreement is held invalid or unenforceable, the remainder of the Agreement shall not be affected and shall remain in full-force and effect.

e. Any notices required or permitted under this Agreement shall be delivered to the District's business office.

Section 11. Arbitration.

Any controversy or claim arising out of or related to this contract or the breach thereof shall be settled by a Board of three arbitrators one of whom shall be selected by Cross Valley and one by Silver Lake and the third selected jointly by the first two, and the parties hereto agree that any decision of the arbitrators shall be binding upon both parties hereto and judgment upon the award rendered may be entered in any court having jurisdiction thereof, all in accordance with Chapter 7.04 RCW. Any costs, expenses, and legal fees incurred in arbitration or other legal action shall be awarded to the prevailing party.

Section 12. Effective Date, Duration, and Termination.

This Agreement shall become effective on the date on which this Agreement has been duly authorized and executed by the Districts. As to Area "A", this Agreement shall terminate at such time as Silver Lake's system is able to serve the properties within Area "A" receiving water from Cross Valley and Silver Lake has accomplished take over of water service in Area "A". This agreement may be terminated at an earlier date by mutual agreement of the Districts.

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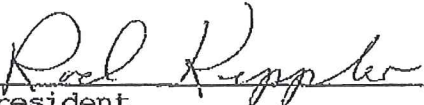
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IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of this

16th day of OCTOBER, 2001.

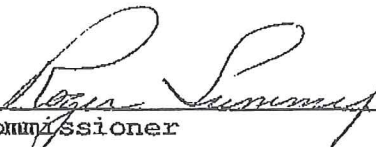
SILVER LAKE WATER DISTRICT:



President



Commissioner



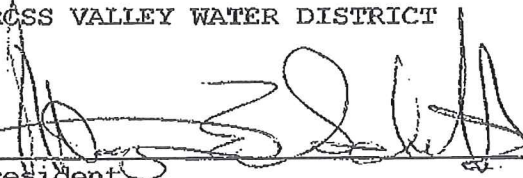
Commissioner

ATTESTED TO:

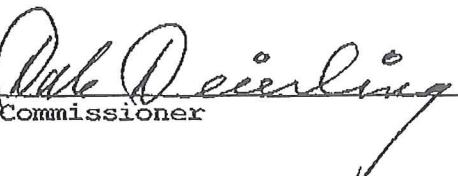


Secretary-Commissioner

CROSS VALLEY WATER DISTRICT



President




Commissioner



Commissioner

ATTESTED TO:



Secretary-Commissioner

SILVER LAKE WATER DISTRICT

LEGAL DESCRIPTION

EXHIBIT A

That portion of the West 1/2, Section 2, Township 27, Range 5 East described as follows:

Beginning at the SW corner of Lot 57 of the Plat of City Farms, thence Northerly along the West line of said Plat to the SW corner of Lot 49 of said Plat, thence Easterly along the South line of said Lot 49 to the SE corner of the West 1/2 of said Lot 49 thence Northerly along the East line of the West 1/2 of said Lot 49 and Lot 48 to the South line of Lot 47 of said Plat, thence Easterly along the South line of said Lot 47 to the SW corner of Lot 46 of said Plat, thence Northerly along the West line of said Lot 46 to the NW corner of said Lot 46, thence Easterly along the North line of said Lot 46 to the NE corner of said Lot 46 and the North-South centerline of said Section 2, thence Southerly along said North-South centerline to the North margin of 160th Street S.E., thence Westerly along said North margin to the West line of the NE 1/4 of the SW 1/4 of said Section 2, thence Northerly along said West line to the SW corner of said Lot 57 and the true point of beginning.

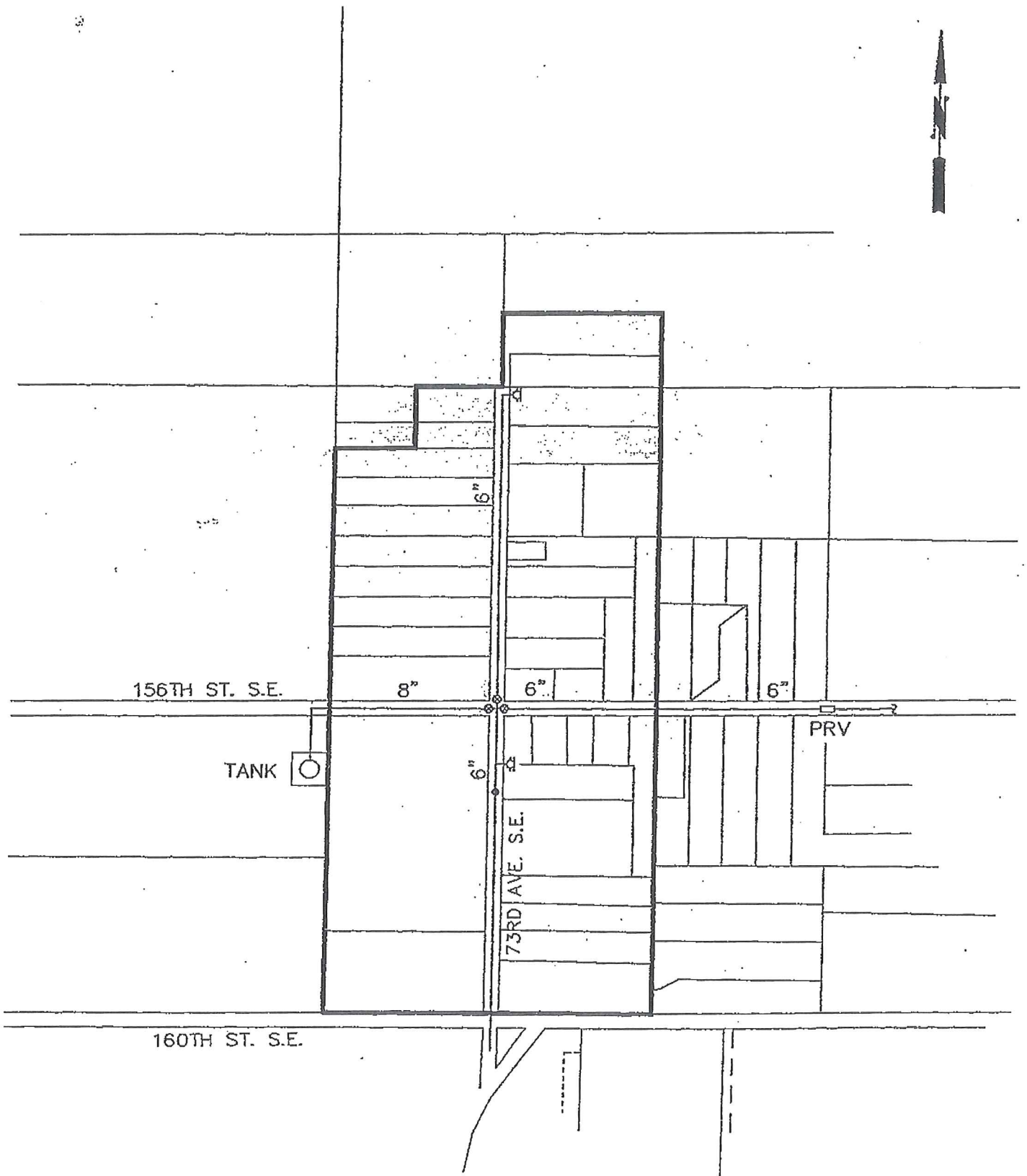


EXHIBIT A

SILVER LAKE WATER DISTRICT

LEGAL DESCRIPTION

EXHIBIT B

Beginning at the southeast corner of Lot 9 Plat of Woodridge Heights Division 1 being the true point of beginning; thence northerly along the east line of said Plat to the northeast corner of Tract 999 of said Plat; thence westerly along the north line of said Tract 999 to a point lying 800.25 feet east of the west line of Section 27, Township 28 N, Range 5 E, W.M.; thence northerly to a point on the southerly margin of 116th Street S.E. said point lying 825 feet east and 30 feet south of the northwest corner of said Section 27; thence westerly along the southerly margin of 116th Street S.E. a distance of 420 feet; thence northerly across 116th Street S.E. a distance of 60 feet to a point on the northerly margin of 116th Street S.E. said point lying 405 feet east of the west line of Section 22, Township 28 N, Range 5 E, W.M.; thence continuing northerly a distance of 400 feet to a point lying 405 feet east of the west line of said Section 22; thence westerly a distance of 405 feet to a point on the west line of said Section 22 said point lying 430 feet north of the southwest corner of said Section 22; thence northerly along the west line of said Section 22 to the northeasterly margin of Lowell-Larimer Road; thence southeasterly along said northeasterly margin of Lowell-Larimer Road to the intersection of the easterly margin of Marsh Road and East Lowell-Larimer Road; thence continuing easterly to the east line of said Section 22; thence southerly along the east line of said Sections 22 and 27 to the southeast corner of said Section 27; thence westerly along the south line of said Section 27 to the southeast corner of Lot 9 Plat of Woodridge Heights Division 1 and the true point of beginning.

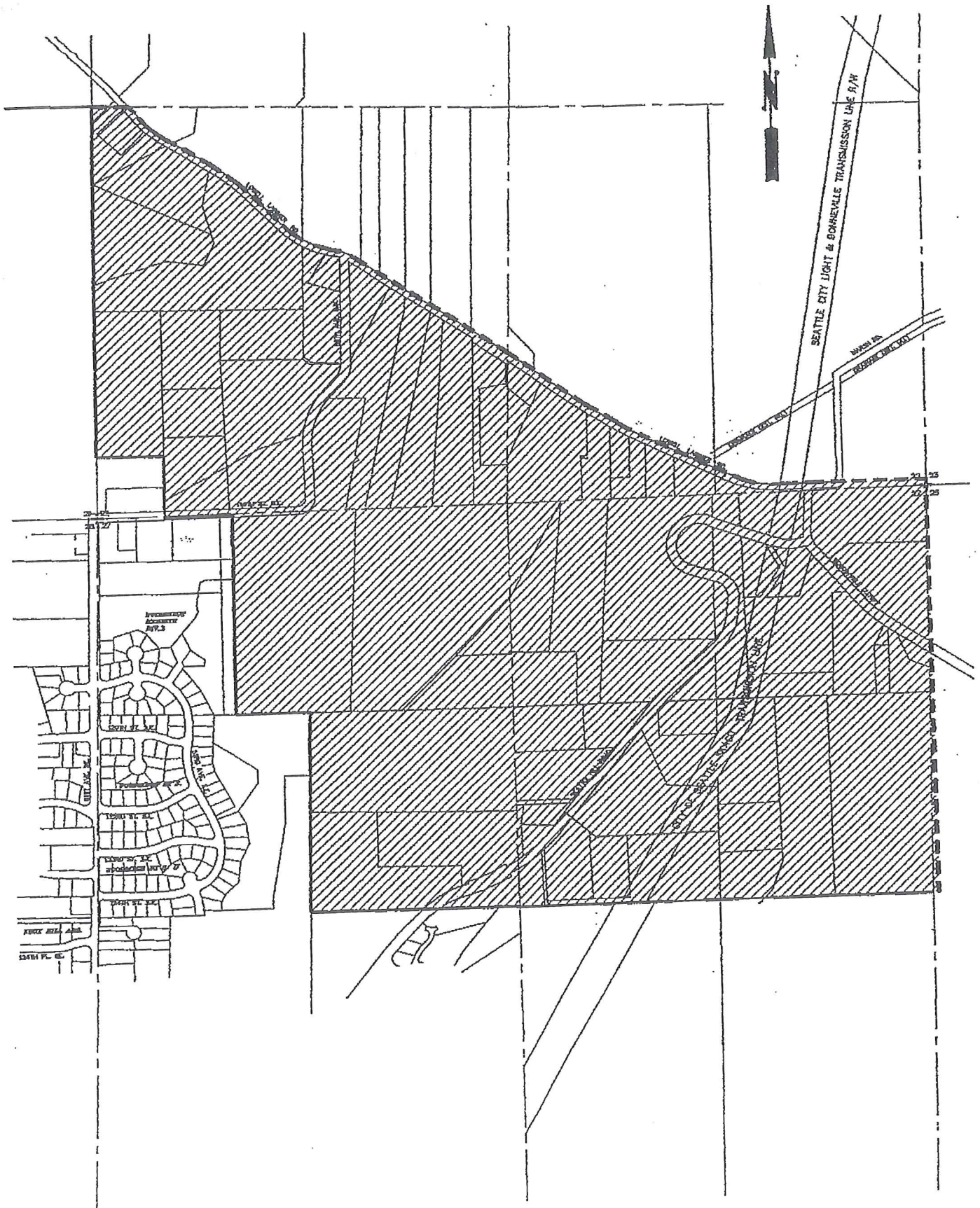


EXHIBIT B

SILVER LAKE WATER DISTRICT

LEGAL DESCRIPTION

PARCEL 1, EXHIBIT C

That portion of Section 22, Township 28 N, Range 5 E, W.M. described as follows:

BEGINNING AT A POINT 504.38 FEET SOUTH OF THE NORTHWEST
CORNER OF THE N.W. 1/4 S.W 1/4; THENCE S $65^{\circ} 57' 15''$ E A
DISTANCE OF 827.05 FEET; THENCE S $14^{\circ} 27' 30''$ E A DISTANCE OF
55.97 FEET; THENCE S $22^{\circ} 24' 00''$ W A DISTANCE OF 160.80 FEET;
THENCE N $82^{\circ} 59' 00''$ W A DISTANCE OF 243.70 FEET; THENCE S 72°
 $06' 00''$ W A DISTANCE OF 232.90 FEET; THENCE S $76^{\circ} 00' 00''$ W A
DISTANCE OF 269.40 FEET TO THE WEST LINE OF SECTION 22;
THENCE NORTH TO THE POINT OF BEGINNING.



2009 AMENDMENT
EXHIBIT B-1
LEGAL DESCRIPTION

BEGINNING at the Southwest corner, of the Southeast quarter, of the Northwest quarter, of Section 27, Township 28 North, Range 5 East, of the W.M.; THENCE Northerly to the Northwest corner, of said subdivision; THENCE Westerly, along the North line, of the Southwest quarter, of the Northwest quarter, of said Section 27, to a point lying 800.25 feet East, of the West line, of said Section 27; THENCE Northerly, to a point on the Southerly margin of 116th Street S.E., said point lying 825 feet East and 30 feet South of the Northwest corner, of said Section 27; THENCE Westerly, along the Southerly margin of 116th Street S.E. 420 feet; THENCE Northerly. 60 feet to a point on the Northerly margin of 116th Street S.E., said point lying 405 feet East, of the West line of Section 22, Township 28 North, Range 5 East, of the W.M.; THENCE continuing Northerly 400 feet, to a point lying 405 feet East, of the West line, of said Section 22; THENCE Westerly 405 feet, to a point on the West line of said Section 22, said point lying 430 feet North, of the Southwest corner of said Section 22; THENCE Northerly, to the Northwest corner, of the Southwest quarter, of said Section 22; THENCE Westerly, to the Southwest corner, of the Southeast quarter, of the Northeast quarter, of Section 21, Township 28 North, Range 5 East, of the W.M.; THENCE Northerly, along the West line of said subdivision, to the Northeasterly margin of Lowell-Larimer Road; THENCE Southeasterly, along the Northeasterly margin of said Lowell-Larimer Road, to the following described line; BEGINNING at the Northeast corner, of the Northwest quarter, of the Southwest quarter, of said Section 22; THENCE North 87°29'48" West 500.00 feet, along the North, of said subdivision; THENCE South 01°54'04" West 200.00 feet; THENCE South 44°22'49" West 207.86 feet, to the Northeasterly margin of Lowell-Larimer Road and the TERMINUS of this line description; THENCE North 44°22'49" East 207.86 feet; THENCE North 01°54'04" East 200.00 feet, to the North line, of the Northwest quarter, of the Southwest quarter, of said Section 22; THENCE South 87°29'48" East 500.00 feet, to the Northeast corner of said subdivision; THENCE continuing Easterly 50.00 feet, along the North line, of the Northeast quarter, of the Southwest quarter, of said Section 22; THENCE Southerly, parallel with and 50.00 feet Easterly of the West line of said subdivision, to the Northeasterly margin of Lowell-Larimer Road; Thence continuing Southeasterly, along the Northeasterly margin of Lowell-Larimer Road to its intersection with the Easterly margin of Marsh Road; THENCE continuing Southerly and Southeasterly, along the Easterly and Northeasterly margin of Lowell-Larimer Road, to the East line, of the Southeast quarter, of Section 26, Township 28 North, Range 5 East, of the W.M.; THENCE Southerly, to the Southeast corner of said Section 26; THENCE Westerly, to the Southwest corner, of said Southeast quarter; THENCE Northerly, to the Northwest corner, of the South half, of said Southeast quarter; THENCE Westerly, along the Southerly line, of the North half, of the Southwest quarter, of said Section 26, to the East line, of Tract 902, Snohomish Cascade Sector 8, Division 2, as recorded under Auditor's Fee Number 200203135008, records of Snohomish County, Washington; THENCE Northerly, to the Northeast corner of said

EXHIBIT B-1

Plat; THENCE Westerly, along the North line of said Plat, to the West line, of the Northeast quarter, of the Southwest quarter, of said Section 26; Thence Northerly, to the Northwest corner, of the Northeast quarter, of the Southwest quarter, of said Section 26; THENCE Westerly, to the Southwest corner, of the Northwest quarter, of Section 26; THENCE Westerly, to the Southwest corner, of the Northeast quarter, of said Section 27; THENCE Westerly to the Southwest corner, of the Southeast quarter, of the Northwest quarter, of said Section 27 and the POINT OF BEGINNING.

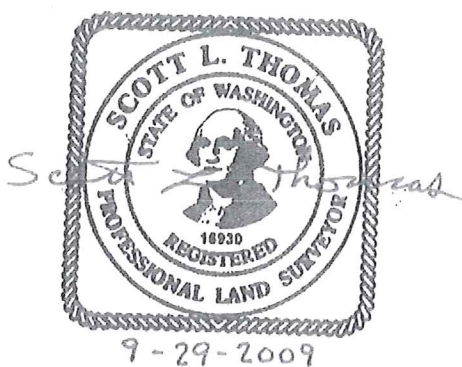
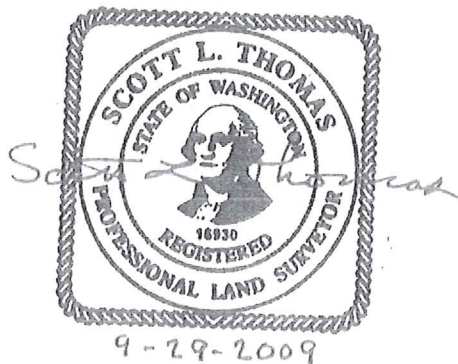


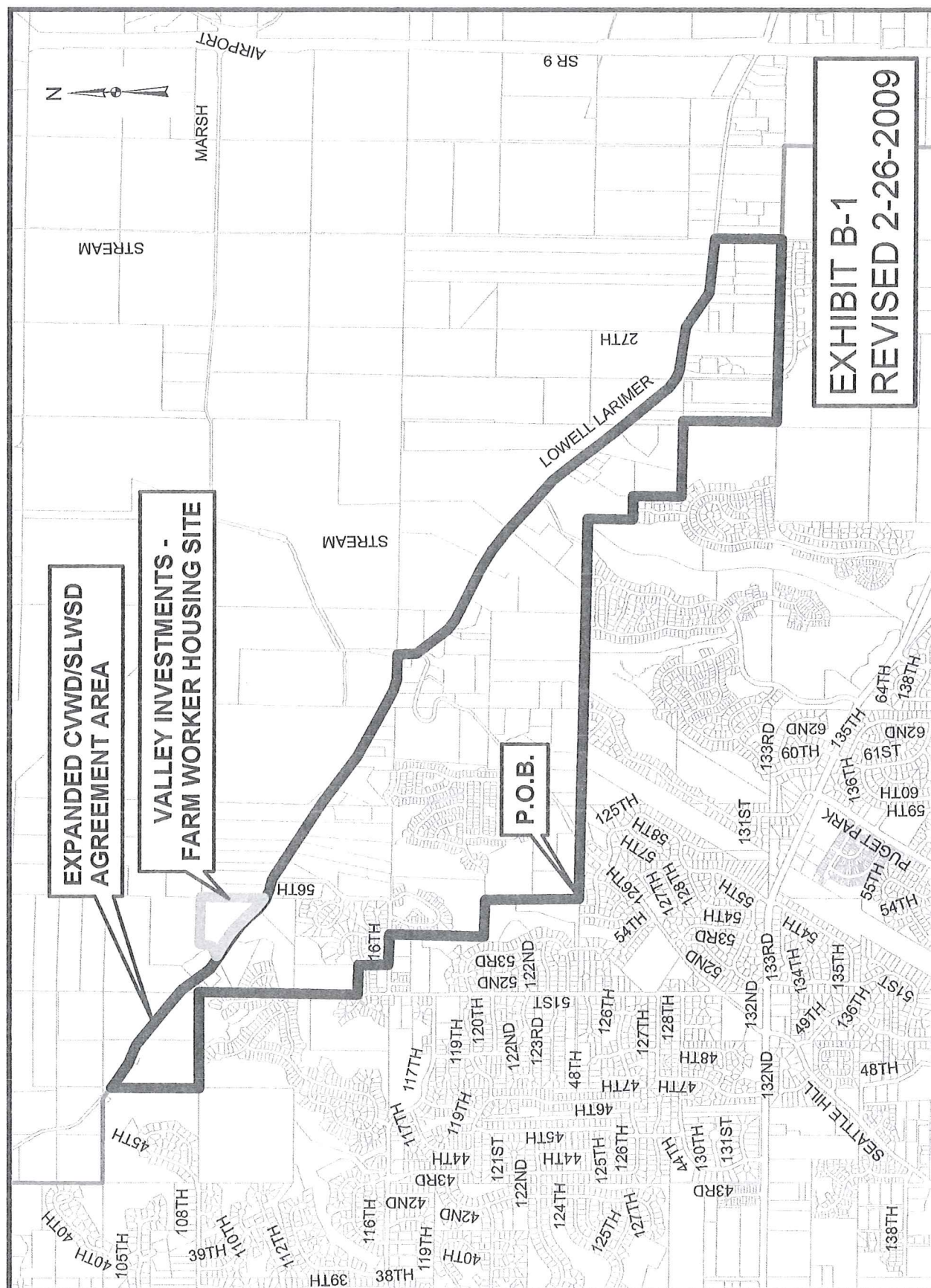
EXHIBIT B-1
VALLEY INVESTMENTS
FARM WORKER HOUSING SITE

That portion of the Northwest quarter, of the Southwest, of Section 22, Township 28 North, Range 5 East, of the W.M., lying Northeasterly of Lowell-Larimer Road and Easterly of the following described line:

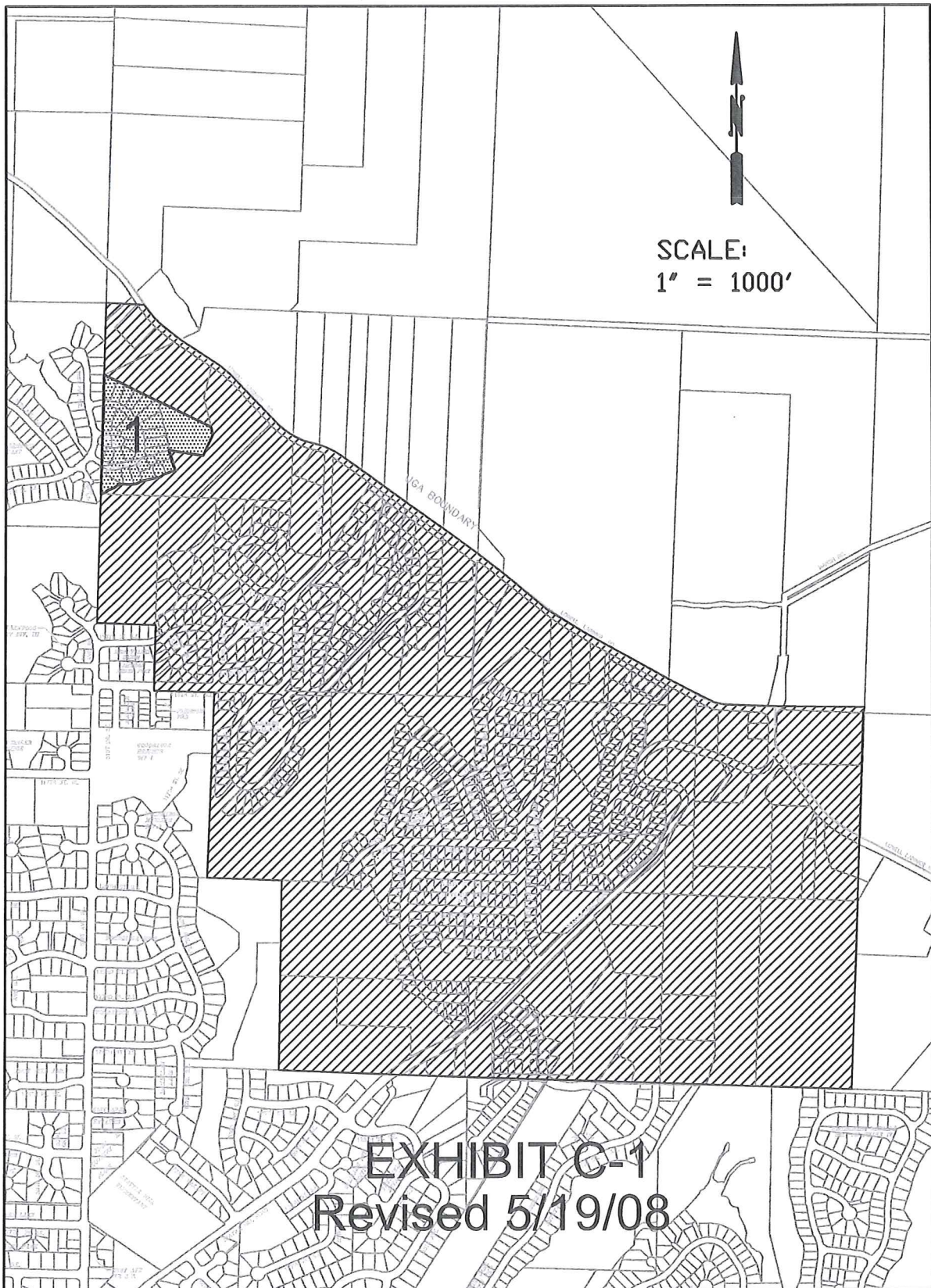
COMMENCING at the Northeast corner, of said Northwest quarter, of the Southwest quarter; THENCE North $87^{\circ}29'48''$ West, along the North line thereof 500.00 feet to the TRUE POINT OF BEGINNING; THENCE South $01^{\circ}54'04''$ West 200.00 feet; THENCE South $44^{\circ}22'49''$ West 207.86 feet, to the Northeasterly right-of-way of said Lowell-Larimer Road and TERMINUS of said Line;

TOGETHER WITH the West 50.00 feet, of that portion of the Northeast quarter, of the Southwest quarter, of said Section 22, lying Northeasterly of Lowell-Larimer Road.





SILVER LAKE WATER DISTRICT
CROSS VALLEY WATER DISTRICT
2008 AMENDMENT TO INTERLOCAL AGREEMENT
EXHIBIT C-1 - REPLACES 2001 EXHIBIT C



MUNICIPALITY OF METROPOLITAN SEATTLE

CROSS VALLEY WATER DISTRICT

AGREEMENT FOR SEWAGE DISPOSAL

THIS AGREEMENT, made as of this 16th day of March 199³7, between CROSS VALLEY WATER DISTRICT, a municipal corporation of the State of Washington, hereinafter referred to as the "District", and the MUNICIPALITY OF METROPOLITAN SEATTLE, a municipal corporation of the State of Washington, hereinafter referred to as "Metro";

W I T N E S S E T H:

WHEREAS, the public health, welfare and safety of the residents of the District and the residents of Metro require the development of adequate systems of sewage collection and disposal, the elimination of water pollution and the preservation of the fresh and salt water resources of the area; and

WHEREAS, growth of population, topographic conditions and preservation of water resources require that certain major sewage disposal works be constructed and operated and that the cities and special districts within the Metropolitan Area dispose of their sewage in accordance with a comprehensive plan for the Metropolitan Area; and

WHEREAS, Metro is engaged in developing an operating a Metropolitan sewage Disposal System and the District is engaged in developing a sewage collection system for the District; and

WHEREAS, the District desires to deliver certain sewage collected by the District to Metro for disposal as soon as facilities necessary for such delivery are available; and

WHEREAS, to provide for the disposal by Metro of sewage collected by the District it is necessary that an agreement be now entered into establishing certain rights and duties of the parties incident thereto;

NOW, THEREFORE, in consideration of the mutual covenants contained herein, it is hereby agreed as follows:

Section 1. Definition of Terms: The following words and phrases used in this agreement shall have the meanings hereinafter set fourth in this section.

(a) The words "Comprehensive Plan" shall mean the Comprehensive Sewage Disposal Plan adopted in Resolution No. 23 of the Municipality of Metropolitan Seattle and all amendments thereof or hereafter adopted.

(b) The words "Metropolitan Sewerage System" shall mean all of the facilities to be constructed, acquired or used by Metro as a part of the Comprehensive Plan. The Metropolitan Sewerage System shall generally include sewage disposal facilities with capacity to receive sewage from natural drainage areas of approximately one thousand acres or more. The Metropolitan Sewerage System shall thus include trunk or interceptor sewers.

(c) The words "Local Sewerage Facilities" shall mean all facilities owned or operated by a Participant for the local collection of sewage to be delivered to the Metropolitan Sewerage System and all side sewers and connection fittings connected directly to such System which serve customers of such Participant.

(d) The words "Metropolitan Area" shall mean the area contained within the boundaries of the Municipality of Metropolitan Seattle as now or hereafter constituted.

(e) The word "Participant" shall mean each city, town, county, sewer district, municipal corporation, person, firm or private corporation which shall dispose of any portion of its sanitary sewage into the Metropolitan Sewerage System and shall have entered into an agreement with Metro providing for such disposal.

(f) The word "Residential Customer" shall mean a single family residence billed by a Participant for sewerage charges.

Section 2. Delivery and Acceptance of Sewage. The District shall deliver to Metro all of the sewage and industrial waste collected by the District and Metro shall accept the sewage and waste delivered for treatment and disposal as hereinafter provided subject to such reasonable rules and regulations as may be adopted from time to time by the Metropolitan Council. Metro shall not directly accept sewage or wastes from any person, firm or corporation which is located within the boundaries of or is delivering its sewage into the Local Sewerage Facilities of the District without the written consent of the District. The District shall not deliver sewage to any other agency for disposal without the written consent of Metro.

Section 3. Construction of Metro Facilities. Metro shall construct, acquire or otherwise secure the right to use all facilities required for the disposal of sewage delivered to Metro pursuant to this Agreement and shall perform all services required for the maintenance, operation, repair, replacement or improvement of the Metropolitan Sewerage System, including any additions and betterments thereto. Metro shall in its sole discretion determine the nature, location and time of construction of facilities of the Metropolitan Sewerage System.

Section 4. Connection of Local Sewerage Facilities to the Metropolitan Sewerage System. Local Sewerage Facilities of the District which may be required for the delivery of sewage and wastes to Metro shall be connected to facilities of the Metropolitan Sewerage System at such time as any of the facilities of such Metropolitan Sewerage System shall be available to receive sewage collected by such local facilities. Such connection shall be accomplished at the expense of the District and in accordance with the rules and regulations of Metro at such point or points as shall be determined by Metro.

The district shall secure and pay for the right to use all Local Sewerage Facilities of another Participant which may be required to deliver the District's sewage to the Metropolitan Sewerage System. Metro shall not be required by the District at any time to construct or pay for any facilities of the Comprehensive Plan which are located in Snohomish County.

Section 5. Payment for Sewage Disposal. Commencing with the first month in which sewage is collected and delivered by the District to Metro, the District shall pay to Metro on or before the last day of each month during the term of this Agreement, a sewage disposal charge determined as provided in this Section 5.

1. For the quarterly periods ending March 31, June 30, September 30 and December 31 of each year every Participant shall submit a written report to Metro setting forth (a) the number of Residential Customers billed by such Participant for local sewerage charges as of the last day of the quarter, (b) the total number of all customers billed by such Participant as of such day, and (c) the total water consumption during such quarter for all customers billed by such Participant other than Residential Customers. The quarterly water consumption report shall be taken from water meter records and may be adjusted to exclude water which does not enter the sanitary facilities of a customer. Where actual sewage flow from an individual customer is metered, the metered sewage flows shall be reported in lieu of adjusted water consumption. The total quarterly water consumption report in cubic feet shall be divided by 2,250 to determine the number of Residential Customer equivalents represented by each Participant's customers other than single family residences. Metro shall maintain permanent records of the quarterly customer reports from each Participant.

The District's first quarterly report shall cover the first quarterly period following the date when sewage is first delivered to Metro and shall be submitted within thirty days following the end of the quarter. Succeeding reports shall be made for each quarterly period thereafter and shall be submitted within thirty (30) days following the end of the quarter.

2. a) To form a basis for determining the monthly sewage disposal charge to be paid by each Participant during any particular quarterly period, Metro shall ascertain the number of Residential Customers and Residential Customer equivalents of each Participant. This determination shall be made by taking the sum of the actual number of Residential Customers reported as of the last day of the next to the last preceding quarter and the average number of Residential Customer equivalents whose sewage is delivered to a governmental agency other than Metro or other than a Participant for disposal outside of the Metropolitan Area.

b) For the initial period until the District shall have submitted six consecutive quarterly reports, the basic reported number of Residential Customers and Residential Customer equivalents of the District shall be determined as provided in this subparagraph (b). On or before the tenth day of each month beginning with the month prior to the month in which sewage from the District is first delivered to Metro, the District shall submit a written statement of the number of Residential Customers and Residential Customer equivalents estimated to be billed by the District during the next succeeding month. For the purpose of determining the basic reported number of Residential Customers or Residential Customer equivalents of the District for such next succeeding month, Metro may at its discretion adopt either such estimate or the actual number of Residential Customers and Residential Customer equivalents reported by the District as of

the last day of the next to the last preceding reported quarter. After the District shall have furnished six consecutive quarterly reports the basic reported number of Residential Customers and Residential Customer equivalents of the District shall be determined as provided in the immediately preceding subparagraph (a).

(c) If the District shall fail to submit the required monthly and/or quarterly reports when due, Metro may make its own estimate of the number of Residential Customers and Residential Customer equivalents of the District and such estimate shall constitute the reported number for the purpose of determining sewage disposal charges.

3. The monthly sewage disposal charge payable to Metro shall be determined as follows:

a) Prior to July 1st of each year Metro shall determine its total monetary requirements for the disposal of sewage during the next succeeding calendar year. Such requirements shall include the cost of administration, operation, maintenance, repair and replacement of the Metropolitan Sewerage System, establishment and maintenance of necessary working capital and reserves, the requirements of any resolution providing for the issuance of revenue bonds of Metro to finance the acquisition, construction or use of sewerage facilities, plus not to exceed 1% of the foregoing requirements for general administrative overhead costs.

b) To determine the monthly rate per Residential Customer or Residential Customer equivalent to be used during said next succeeding calendar year, the total monetary requirements for disposal of sewage as determined in subparagraph 3(a) of this section shall be divided by twelve and the resulting quotient shall be divided by the total number of Residential Customers and Residential Customer equivalents of all Participants for the October-December quarter preceding said July 1st.

c) The monthly sewage disposal charge paid by each Participant to Metro shall be obtained by multiplying the monthly rate by the number of Residential Customers and Residential Customer equivalents of the Participant. An additional charge may be made for sewage or wastes of unusual quality or composition requiring special treatment or Metro may require pretreatment of such sewage or wastes. An additional charge may be made for quantities of storm or ground waters entering those Local Sewerage Facilities which are constructed after January 1, 1961 in excess of the minimum standard established by the general rules and regulations of Metro.

4. The parties acknowledge that, by resolution of the Metropolitan Council, Metro may impose a charge or charges directly on the future customers of a Participant for purposes of paying for capacity in Metropolitan Sewage Facilities and that such charges shall not constitute a breach of this agreement or any part thereof. The proceeds of said charge or charges, if imposed, shall be used only for capital expenditures or defeasance of outstanding revenue bonds prior to maturity.

In the event such a charge or charges are imposed, the District shall, at Metro's request, provide such information regarding new Residential Customers and Residential Customer equivalents as may be reasonable and appropriate for purposes of implementing such a charge or charges.

5. A statement of the amount of the monthly sewage disposal charge shall be submitted by Metro to each Participant on or before the first day of each month and payment of such charge shall be due on the last day of such month. If any charge or portion thereof due to Metro shall remain unpaid for fifteen days following its due date, the Participant shall be charged with and pay to Metro interest on the amount unpaid from its due date until paid at the rate of 6% per annum, and Metro may, upon failure to pay such amount, enforce payment by any remedy available at law or equity.

6. The District irrevocably obligates and binds itself to pay its sewage disposal charge out of the gross revenues of the sewer system of the District. The District further binds itself to establish, maintain and collect charges for sewer service which will at all times be sufficient to pay all costs of maintenance and operation of the sewer system of the District, including the sewage disposal charge payable to Metro hereunder and sufficient to pay the principal of and interest on any revenue bonds of the District which shall constitute a charge upon such gross revenues. It is recognized by Metro and the District that the sewage disposal charge paid by the District to Metro shall constitute an expense of maintenance and operation of the sewer system of the District. The District shall provide in the issuance of future sewer revenue bonds of the District that expenses of maintenance and operation of the sewer system of the District shall be paid before payment of principal and interest of such bonds. The District shall have the right to fix its schedule of rates and charges for sewer service provided that same shall produce revenue sufficient to meet the covenants contained in this Agreement.

Section 6. Responsibility of District. The District shall be responsible for the delivery to the Metropolitan Sewerage System of sewage collected by the District, for the construction, maintenance and operation of Local Sewerage Facilities, and for the payment of all costs incident to the collection of such sewage and its delivery to the Metropolitan Sewerage System. All sewerage facilities of the District carrying sewage delivered to Metro shall be constructed and maintained in accordance with the rules and regulations of Metro and shall be constructed, maintained and operated by the District at no expense or risk to Metro.

Section 7. Records. Permanent books and records shall be kept by Metro and the District of the respective rates established, the volumes of sewage delivered and discharged into the Metropolitan Sewerage System whenever such volumes are measured and the number of Residential Customers and Residential Customer equivalents reported. In addition Metro shall keep complete books of account showing all costs incurred in connection with the Metropolitan Sewerage System and the District shall keep complete records showing the amount billed to each of its customer for sewer service and the basis used for such billing including sewage flow and water consumption for each customer where applicable. The records required by this paragraph shall be available for examination by either party at any reasonable time.

Section 8. Development of Metropolitan Sewerage System. It is contemplated that the Metropolitan Sewerage System will be developed in stages and the nature of facilities to be constructed, acquired or used and the time of such construction, acquisition or use shall be determined by Metro, it being contemplated that Metro shall ultimately provide sewage disposal service for the entire Metropolitan Area.

Section 9. Insurance and Liability for Damages. The District shall secure and maintain with responsible insurers all such insurance as is customarily maintained with respect to sewage systems of like character against loss of or damage to the sewerage facilities of the District and against public and other liability to the extent that such insurance can be secured and maintained at reasonable cost. Any liability incurred by Metro as a result of the operation of the Metropolitan Sewerage System shall be the sole liability of Metro and any liability incurred by the District as a result of the operation of the Local Sewerage Facilities of the District shall be the sole liability of the District.

Section 10. Assignment. The District shall not have the right to assign this Agreement or any of its rights and obligations hereunder either by operation of law or by voluntary agreement without the written consent of Metro and neither party may terminate its obligations hereunder by dissolution or otherwise without first securing the written consent of the other party and this Agreement shall be binding upon and inure to the benefit of the respective successors and assigns of the parties hereto. In the event that the District should be dissolved or should no longer be authorized to operate sewer facilities, the Local Sewerage Facilities owned and operated by the District shall be assigned and transferred to Metro subject to any outstanding debts of the District which had been incurred for the specific purpose of construction or acquiring such facilities and subject to the acceptance by Metro of the obligation to continue to provide sewer service to the residents served by such local facilities upon payment by such residents of sewage disposal charges determined as herein provided and the reasonable costs of local sewer service.

Section 11. Effective Date and Term of Agreement. This Agreement shall be in full force and effect and binding upon the parties hereto upon the execution of the Agreement and shall continue in full force and effect until July 1, 2036.

Section 12. Notice. Whenever in this Agreement notice is required to be given, the same shall be given by registered Mail addressed to the respective parties at the following addresses:

MUNICIPALITY OF METROPOLITAN SEATTLE
821 Second Avenue
Seattle, Washington 98104

CROSS VALLEY WATER DISTRICT
Post Office Box 131
Snohomish, Washington 98290

unless a different address shall be hereafter designated in writing by either of the parties.

The date of giving such notice shall be deemed to be the date of mailing thereof. Billings for and payments of sewage disposal costs may be made by regular mail.

Section 13. Execution of Documents. This Agreement shall be executed in three counterparts, any of which shall be regarded for all purposes as one original. Each party agrees that it will execute any and all deeds, leases, instruments, documents and resolutions or ordinances necessary to give effect to the terms of this Agreement.

Section 14. Waiver. No waiver by either party of any term or condition of this Agreement shall be deemed or construed as a waiver of any other term or condition, nor shall a waiver of any breach be deemed to constitute a waiver of any subsequent breach whether of the same or a different provision of this Agreement.

Section 15. Remedies. In addition to the remedies provided by law, this Agreement shall be specifically enforceable by either party.

Section 16. Entirety. This agreement merges and supersedes all prior negotiations, representations and agreements between the parties hereto relating to the subject matter hereof and constitutes the entire contract between the parties.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

CROSS VALLEY WATER DISTRICT

By [Signature]
Commissioner

By [Signature]
Commissioner

By [Signature]
Commissioner

ATTEST:

[Signature]
Secretary of the Board of Commissioners

MUNICIPALITY OF METROPOLITAN SEATTLE

By [Signature]
Richard Sandaas
Executive Director

ATTEST:

[Signature]
Bonnie Matson
Clerk of the Council

EXHIBIT "A"
SNOHOMISH COUNTY
TERMS AND CONDITIONS OF UTILITY FRANCHISE

INDEX OF TERMS AND
CONDITIONS OF UTILITY FRANCHISE

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1. Scope and Duration

(Name of Grantee) Cross Valley Water District, a (Type of Entity) municipal corporation, its successors and assigns (hereinafter called "Grantee") are granted a franchise to enter upon and use the Snohomish County roads and rights-of-way stated in the ordinance granting a utility franchise for the construction, maintenance, and operation of its (type of utility facilities) water and sewer lines and facilities incidental to such lines for a period of twenty-five (25) years, all in accord with the ordinance granting this franchise, all applicable provisions of Title 13 Snohomish County Code (SCC), whether specifically referred to or not, this Exhibit A, Chapter 36.55 RCW, and Chapter 136-40 WAC. Provisions of Title 13 SCC shall control over inconsistent terms contained in Exhibit A. Provisions of Exhibit A not inconsistent with those in Title 13 SCC shall be cumulative to the requirements of Title 13 SCC.

2. Definition of Terms

BLANKET UTILITY
PERMIT

A single permit granted a franchised utility to cover a series of activities in rights-of-way

<u>COUNTY</u>	Snohomish County
<u>COUNTY COUNCIL</u>	Snohomish County Council
<u>COUNTY ENGINEER</u>	Director of the Department of Public Works or his/her designee
<u>DEPARTMENT</u>	Department of Public Works, Snohomish County
<u>FRANCHISE</u>	Occupancy and use document required for occupancy of road rights-of-way in accordance with Chapters 36.55 and 80.32 RCW
<u>GRANTEE</u>	The person named in any permit as permittee, and any successor to any rights or interests of a permittee under a permit or in property installed on the right-of-way pursuant to a permit. In the event of any transfer of any permit or any property installed on the right-of-way, all grantors and grantees shall remain permittees
<u>MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)</u>	Latest edition of the MUTCD, Manual on Uniform Traffic Control Devices for Streets and Highways, U.S. Department of Transportation, Federal Highway Administration
<u>DESIGN STANDARDS</u>	The design standards and specifications of the Department of Public Works
<u>MAP OF DEFINITE LOCATION</u>	Construction plans - plans and specifications; design standards and specifications--SCC 13.01.030
<u>PERMIT</u>	A document including any license, permit or franchise, authorizing specified use of county right-of-way and granted under the provisions of this franchise and Title 13 SCC
<u>RESTORATION</u>	A general term denoting replacing, repairing or otherwise restoring the right-of-way to same or equal conditions as before any change or construction thereon
<u>RIGHT-OF-WAY</u>	All property in which the County has any form of ownership or title and which is held for public road purposes, regardless of whether or not any road exists thereon or whether or not it is used, improved, or maintained for public travel
<u>ROADWAY</u>	The portion of the right-of-way, within the outside limits of the side slopes or between curb lines, used for vehicular travel

STANDARDS AND
SPECIFICATIONS

For road and bridge construction - the latest compilation of standard requirements for road and bridge construction issued by the Department of Public Works, including the latest edition of the WSDOT Design Standards and Specifications

STATE DIRECTOR OF
TRANSPORTATION

The Director of the State of Washington Transportation and Highways Commission

TITLE 13 SCC

Title 13 of the Snohomish County Code as is now written and/or hereinafter amended

TRAFFIC CONTROL

A general term more definitively described in the MUTCD

3. Permits, Plans and Specifications

Prior to commencing any work, other than maintenance and repairs of existing facilities within any county road or right-of-way, Grantee shall apply for and receive a permit to do such work from Snohomish County pursuant to Title 13 SCC. Such application will include plans and specifications in duplicate showing: the position, depth and location of lines and facilities to be constructed at that time and their position in relation to any involved county road and within right-of-way. These plans, all drawn to scale, shall be known as the "map of definite location." Specifications will include class and type of materials and equipment to be used, manner of excavation, construction, installation and backfill; location of temporary and permanent structures to be erected; description of road facilities which will be disturbed and plans for their restoration; traffic controls; traffic turnouts and detours; road obstructions; and such other details as are required by the County Engineer. To the extent work is permitted under a blanket utility permit issued pursuant to Title 13 SCC, detailed plans and specifications stated above are not required. Grantee shall pay all costs and expenses incurred by the County in reviewing plans and specifications.

4. Performance of Work

- A. No work on any county road or right-of-way shall be commenced until a permit has been issued by the County and a set of plans and specifications reviewed and approved and endorsed by the County Engineer have been returned to Grantee.
- B. All work shall be performed in accordance with applicable plans and specifications and be subject to inspection and incremental approval by the County Engineer. Grantee shall pay all costs and expenses incurred by the County in inspecting and approving the work. Grantee shall remain solely responsible for compliance with all applicable laws, regulations, codes and standard plans and specifications in the design and construction of utility facilities.

- C. Lines and other facilities shall be laid in exact conformance with the map of definite location except where deviations are allowed in writing by the County Engineer pursuant to application by Grantee, in which case Grantee shall file a corrected map of definite location.
- D. Any work which disturbs any soil, surface or structure of any county road or right-of-way shall be controlled by WAC 136-40, applicable design standards and specifications of the County, and applicable provisions of Title 13 SCC. Grantee, at its expense, shall restore such surface or other facility or make other provisions therefore, all to the satisfaction of the County Engineer. The County Engineer may cause to be done, at the expense of Grantee, all work the County Engineer deems necessary to render any county road or right-of-way safe where a condition which is dangerous to life, health, or property is created by Grantee or where Grantee fails, upon demand by the County Engineer, to restore any facility of the county.
- E. All work shall be done in accordance with the current County standards in a thorough, professional and workmanlike manner with minimum interference in public use of the county road. Where any work includes opening of trenches and/or ditches and/or tunneling under a county road or right-of-way, Grantee shall take all precautions necessary to protect and guard the public from any condition caused by the work. Grantee shall conform to the Manual on Uniform Traffic Control Devices, including directing traffic, signs, and barricades. If any line, pole or other facility of Grantee is so located that, in the opinion of the County Engineer, any hazard to travel or the public is created, Grantee shall remove or relocate the line, pole or other facility at its expense upon request of the County Engineer. Grantee shall be liable for any damages, including any costs incurred by the County in remedying any failure to perform by Grantee, resulting from its failure to safely perform the work or failure to provide adequate traffic controls and protection to members of the public and their property.
- F. Before any work which may affect any existing monuments or markers of any nature relating to subdivisions, plats, roads, or other surveys is performed under this franchise, Grantee shall reference all such monuments and markers. Reference points shall be so located that they will not be disturbed during Grantee's operations under this franchise. The method of referencing monuments or other points to be referenced shall be approved by the County Engineer. The replacement of all such monuments or markers disturbed during construction shall be made as expeditiously as conditions permit and as directed by the County Engineer. The cost of monuments or markers lost, destroyed, or disturbed, and the expense of replacement of approved monuments shall be borne by Grantee. A complete set of reference notes for monument and other ties shall be filed with the Department. Grantee shall comply with Title 13 SCC.

- G. All work shall be performed by the Grantee in a manner to avoid or minimize impacts on wetlands contained within the County right-of-way. Wetland impacts may occur where work related to installation, maintenance and/or repair of the Grantee's facility occurs in the wetland, or near enough to decrease the wetland's functional values. If the Grantee is unable to perform its work without wetland impacts, then it shall be responsible to take measures to mitigate those wetland impacts. Those mitigation measures within the County right-of-way shall be in compliance with all applicable Federal, State and County laws and regulations and County policies.

5. Aesthetic/Scenic Considerations

- A. Utility installations shall be designed and constructed to minimize the adverse effect on existing roadside manmade or natural amenities. Special efforts shall be taken to minimize any potential negative impact on areas of scenic beauty (i.e., scenic strips, viewpoints, rest areas, recreation areas, public parks or historic sites, etc.).
- B. Overhead utility installations shall be permitted in areas of scenic beauty when other utility locations are not available, are not technically feasible, are unreasonably costly, or are less desirable from the standpoint of visual quality.
- C. If the utility intends to use chemical sprays to control or kill weeds and brush in scenic areas, prior approval must be granted by the County at least annually. The County may limit or restrict the types, amounts, and timing of applications if a significant negative impact on the aesthetics of the area is anticipated, provided such limitations or restrictions are not in conflict with State law governing utility right-of-way maintenance.
- D. Refuse and debris resulting from the installation or maintenance of the utility facilities shall be promptly removed once the work is completed.

6. Maintenance of Utility Facilities

The County will not assume responsibility for damage to the utility's property and various objects that are placed in county roads and rights-of-way. The Grantee will take necessary steps to maintain a clear area around all objects permitted and installed within county road right-of-way. A minimum of 5 feet of clearance will be maintained around each object so as to provide clear visibility for County operations and maintenance.

7. Hazardous Wastes, Substances

Grantee agrees that it will not cause nor permit in any manner, including accidental or non-negligent acts or omissions, release of any hazardous substance, waste, or pollutant or contaminant into or upon any county road or right-of-way contrary to any state or fed-

eral law with respect thereto. Grantee shall notify the Department and the State Department of Ecology in writing of any such release. Grantee shall be completely liable for any and all consequences of such a release, including liability under any federal or state statute or at common law. Grantee shall indemnify and hold the County harmless, as provided in paragraph 10, from any and all liability resulting from such a release and shall have full responsibility for completely cleaning up, as required by any government agency, any and all contamination from a release. The County shall be entitled to full contribution for all costs incurred by it as the result of any release of such materials by Grantee. Upon any release of a hazardous substance by Grantee, the County may give immediate notice of termination of this franchise, or enter the franchised premises and take whatever steps it deems appropriate to cure the consequences of any such release, all at the expense of the Grantee.

8. Relocation

- A. If any county road or right-of-way is constructed, improved, relocated, realigned or otherwise changed, including traffic controls, drainage and illumination, or if any part of such road or right-of-way becomes a state highway and relocation or readjustment is directed by the State Director of Transportation so as to reasonably necessitate removal, relocation and/or reconstruction of any facility of the Grantee on such road or right-of-way, upon notice of the County Engineer or the State Director of Transportation, Grantee, in a timely manner, at its sole expense, shall remove, relocate, reconstruct or otherwise adjust its facilities so as to conform to and permit such construction, improvement, relocation, realignment, or change by or on behalf of the County or State.
- B. The County Engineer shall have final approval of the removal or relocation schedule. Grantee shall be responsible for timely compliance with utility relocation and coordinate with the County or County's contractor.

In accordance with paragraph 10, Grantee shall hold harmless and indemnify the County against all claims, lawsuits, damages caused in whole or in part by the utility relocation work, including but not limited to, problems, accommodations and delays, including non-negligent acts or omissions of the Grantee, its agency or employees.

- C. The construction, operation, maintenance, and repair of Grantee's lines and facilities authorized by this franchise shall not preclude the County of Snohomish, its agents or its contractors from blasting, grading, excavating or doing necessary road work contiguous to the said lines and facilities of the Grantee, provided that the Grantee shall be given forty-eight (48) hours notice of said blasting or other work.

9. Non-Exclusive/Other Occupants

- A. This franchise is not exclusive. It shall not prohibit the

County from granting other franchises or permits for use of any county roads or rights-of-way or parts thereof. Subject to this franchise, Grantee shall not prevent or prohibit the County from constructing, altering, maintaining or using any of said roads or rights-of-way, or affect its jurisdiction over them or any part of them, the County having full power to make all necessary changes, relocations, repairs, maintenance, etc., of the same as the County may deem fit.

- B. All installation, operation, maintenance and repair by the Grantee on any county road or right-of-way shall be done so as not to interfere with installation, construction, operation, maintenance or repair of other utilities, drains, ditches, structures, or other improvements permitted upon such road or right-of-way. Owners, public or private, of any such facilities installed prior to construction and/or installation of lines and facilities of Grantee, shall have preference as to positioning and location of such facilities. Such preference shall continue if relocating is required as a result of any construction relocation, realignment, and/or change of grade by the County.

10. Insurance and Security

Prior to the effective date of this franchise and during its life, the franchisee shall obtain and maintain continuously liability insurance necessary to comply with the hold harmless agreement herein with limits of liability not less than:

\$1,000,000.00 per occurrence

The Director may further determine that Business Auto Liability Insurance may also be required.

Such insurance shall include Snohomish County, its officers, elected officials, agents, and employees as an additional insured and shall not be reduced or canceled without thirty days written prior notice to the county.

Such insurance, in its provision for additional insured, shall include a "Cross Liability Endorsement," "Severability of Interests," or "Separation of Insureds" provision indicating:

"The inclusion of more than one insured under this policy shall not affect the rights of any insured as respects any claim, suit, or judgment made or brought by or for any other insured or by or for any employee of any other insured. The policy shall protect each insured in the same manner as though a separate policy had been issued to each except that nothing herein shall operate to increase the company's liability beyond the amount or amounts for which the insurer would have been liable had only one insured been named."

If the insurance is underwritten on a claims made basis, the retroactive date shall be prior to or coincident with the date of the franchise, and the insurance policy shall state that the coverage is claims made, and state the retroactive date. The franchisee shall maintain coverage for the duration of the franchise and for the three years following the expiration of same. The franchisee

shall provide the County annually a signed renewal binder or other document as evidence of such insurance. It is further agreed that either the franchisee or County may invoke the tail option on behalf of the other party and that the Extended Reporting Period premium shall be paid by the franchisee.

Proof of all insurance shall be in the form of a full copy of the policy with all endorsements and exclusions attached thereto. All insurance documentation shall be submitted and reviewed by the County Executive prior to final execution of the franchise.

The County may require any additional bond, insurance, deposit or security as provided in Title 13 SCC. Acceptance by the County of any work performed by the Grantee at the time of completion shall not be a ground for avoidance of this covenant.

11. Hold Harmless and Indemnity

The Grantee shall assume the risk of, and be liable for, and pay all damage, loss, cost and expense of any party arising out of Grantee's use of the right-of-way, except that caused by negligence and/or willful misconduct solely of Snohomish County and its employees acting within the scope of their employment. The Grantee shall protect, hold harmless from and indemnify Snohomish County, its appointed and elected officials, agents, and employees, against all claims, losses, suits, actions, costs, counsel fees, litigation costs, expenses, damages, judgments, or decrees by reason of damage to any property or business and/or any death, injury or disability to or of any person or party arising out of or suffered, directly or indirectly, by reason of or in connection with the use by Grantee of the right-of-way, or any action, error or omission of the Grantee, Grantee's employees, agents, or subcontractors, whether by negligence, including voluntary negligence, or otherwise in connection with the use of county right-of-way, except for those damages caused by the negligence or willful misconduct solely of the County, its appointed and elected officials, agents or employees.

Provided that, for only those provisions of this franchise which a court of competent jurisdiction determines are subject to RCW 4.24.115, then, in the event of damages arising out of bodily injury to persons or damage to property caused by or resulting from the concurrent negligence of the County, its appointed and elected officials, agents or employees, and the Grantee or the Grantee's agents or employees, the Grantee's liability to hold harmless and indemnify the County is enforceable only to the extent of the Grantee's negligence.

The Grantee's obligation shall include, but not be limited to, investigating, adjusting and defending all claims alleging loss from any act, error or omission or from any breach of any common law, statutory or other delegated duty of the Grantee or his employees, agents or subcontractors.

In case suit or action is brought against the County of Snohomish for damages arising out of or by reason of the above-mentioned causes, the Grantee will, upon notice to him of the commencement of

said action, defend the same at its sole cost and expense, and in case judgment shall be rendered against the County of Snohomish in suit or action, the Grantee will fully satisfy said judgment within ninety (90) days after suit or action shall have finally been determined, if determined adversely to Snohomish County.

It is specifically and expressly understood that the hold harmless and indemnification provided in this franchise constitutes the Grantee's waiver of immunity under the State Industrial Insurance Law, Title 51 RCW, solely for the purpose of this hold harmless and indemnification and that this waiver has been mutually negotiated by the parties.

12. Reservation of Police Power

In granting this franchise, the County does not waive any of its police powers to regulate the use of County roads or rights-of-way in the interest of public health, safety, and the general welfare.

13. Applicable Laws

Grantee shall comply with all federal, state and local laws, rules and regulations applicable to any work, facility or operation of Grantee upon County roads or rights-of-way during the life of this franchise.

14. Eminent Domain, Powers of the People

This franchise is subject to the power of eminent domain and the right of the Council or the people acting for themselves through the initiative or referendum to repeal, amend, or modify the franchise in the interest of the public. In any proceeding under eminent domain, the franchise itself shall have no value.

15. Annexation

If any road or right-of-way covered by this franchise is incorporated into the limits of any city or town, this franchise shall terminate as to any road or right-of-way within the corporate limits of such city or town; but this franchise shall continue as to County roads and rights-of-way not incorporated into a city or town.

16. Vacation

If the County vacates all or a portion of any county road or right-of-way which is subject to this franchise, and said vacation is for the purpose of acquiring the fee or other property interest in said road or right-of-way for the use of the County in either its proprietary or governmental capacity, the County Council may, at its option and by giving thirty (30) days' written notice to the Grantee, terminate this franchise with reference to any County road or right-of-way so vacated, and the County shall not be liable for any damages or loss to the Grantee by reason of such termination.

Whenever a county road or right-of-way or any portion thereof is vacated upon a finding that is not useful and the public will be benefited by the vacation, the County may retain an easement in respect to the vacated land for the construction, repair and maintenance of public utilities and services which at the time of the vacation are specifically authorized under paragraph 3 or physically located on a portion of the land being vacated, but only in accordance with the provisions of RCW 36.87.140. It shall be the responsibility of the Grantee to request that the County Council specifically include a provision retaining an easement in respect to any proposed Council action on a particular vacation. The County shall not be liable for any damages or loss to the Grantee by reason of any such vacation.

17. Termination

- A. If Grantee defaults on any term or condition of this franchise, the County Council may terminate this franchise as provided in Title 13 SCC. Upon termination for any cause, all rights of Grantee hereunder shall cease.
- B. Upon compliance with Title 13 SCC, the County Council, at its option, may terminate this franchise, as to those roads and rights-of-way upon which Grantee has not constructed or placed any facility, within five years of the effective date of this franchise.
- C. In the event that the use of all or any part of the facility is discontinued for any reason, including, but not limited to, discontinuance, obsolescence or abandonment of the facility, or the abandonment, termination or expiration of this franchise, the Grantee is solely responsible for the removal and proper disposal of the abandoned/surplus facilities. The Grantee is not entitled to abandon any facilities in place without the County's prior express agreement and written consent. The Grantee shall restore the county roads and rights-of-way from which such facilities have been removed to the same or equal conditions as before.

18. Assignment

All terms and conditions of this franchise are burdens upon the successors and assigns of Grantee, and all privileges as well as all obligations and liabilities of the Grantee inure to its successors and assigns equally as if they were specifically mentioned wherever the Grantee is mentioned. Neither this franchise nor any interest therein shall be sold, transferred or assigned without the prior written consent of the County Council.

19. Effective Date

This franchise shall be effective thirty (30) days after approval by the County Council; PROVIDED, that Grantee, within such time, has signed a copy thereof and returned it to the County Council.

20. Severability

If any provision of this franchise or its application to any person or circumstance is held to be invalid, such decision shall not affect the validity of the remaining portions of this franchise or its application to other persons or circumstances.

21. Limitation of Liability

Administration of this franchise shall not be construed to create the basis for any liability on the part of the County, its appointed and elected officials, and employees for any injury or damage from the failure of the Grantee to comply with the provisions of this franchise; by reason of any plan, schedule or specification review, inspection, notice and order, permission, or other approval or consent by the County; for any action or inaction thereof authorized or done in connection with the implementation or enforcement of this franchise by the County; or for the accuracy of plans submitted to the County.

22. Hazardous Conditions

Whenever the Director determines that any conditions or operations caused by any activity covered by this franchise have become a hazard to life and limb, endanger property or public resources, or adversely affect the safety, use, or stability of a public way or drainage channel; the Director shall notify the Grantee in writing of the property upon which the condition or operation is located, or other person or agent in control of said property, and direct them to repair or eliminate such condition or operation within the period specified therein so as to eliminate the hazard and be in conformance with the requirements of this franchise.

Should the Director have reasonable cause to believe that the situation is so adverse as to preclude written notice, he/she may take the measures necessary to eliminate the hazardous situation, provided that he/she shall first make a reasonable effort to notify the Grantee before acting. In such instance, the Grantee responsible for the creation of the situation shall be responsible for the payment of any reasonable costs incurred.

If costs are incurred and the hazardous situation has been created in conjunction with or as a result of an operation for which a bond has been posted pursuant to this title or any other County authority, the Director shall have the authority to forfeit the bond or other security to recover costs incurred.

23. Notices

Notices provided for in this Franchise shall be sent to the following addresses:

- 1) Department of Public Works
Snohomish County
2nd Floor Wall Street Building
Everett, WA 98201

2) Grantee
Cross Valley Water District
P.O. Box 131
Snohomish, WA 98290-0131

The Grantee shall promptly notify the County of any change in notice address.

24. Governing Law and Stipulation of Venue

The Grantee hereby agrees to be bound by the laws of the State of Washington and subjected to the jurisdiction of the State of Washington. The parties hereby stipulate that this franchise shall be governed by the laws of the State of Washington and that any lawsuit regarding this contract must be brought in Snohomish County, Washington, or in the case of a federal action, in the United States District Court for the Western District of Washington at Seattle.

Approved:

SNOHOMISH COUNTY

Jack P. Balderwood
County Engineer

Karen Miller
Chairman of the County Council
Snohomish County, Washington

Dated this 4TH day of
FEBRUARY, 1994.

Dated this 13th day of
April, 1994.

APPROVED AS TO FORM ONLY:

Barbara Dyles
Deputy Prosecuting Attorney

DATE: Jan 24, 1994

APPROVED:

(Title) _____

DATE: _____

s:utility/NM/dlh/hd
Revised 4/92

[Signature]
Snohomish County Executive

DATE: 4-13-94

[Signature]
Snohomish County Risk Management

DATE: 12/30/93

ACCEPTED: [Signature]
GENERAL MANAGER
(Official Title) _____

DATE: 5/4/94

ATTEST:

[Signature]
(Title) DISTRICT TREASURER

DATE: 5/4/94

RECORDED
94 JUN -6 P4:00
BOB TERRY, CLERK
SNOHOMISH COUNTY, WASH.

RESOLUTION NO. 2019-10-2

A RESOLUTION of the Board of Commissioners of Cross Valley Water District, Snohomish County, Washington, accepting the terms and conditions of Snohomish County Council Ordinance No. 19-040, granting the District a non-exclusive franchise authorizing limited use of the public rights-of-way in Snohomish County, Washington.

WHEREAS, Cross Valley Water District, a Washington special purpose municipal corporation ("District"), owns and operates water and sewer facilities ("Facilities") located in Snohomish County, and a portion of such Facilities are located within unincorporated Snohomish County ("County") public rights-of-way; and

WHEREAS, RCW 57.08.005(3) authorizes the District to conduct water throughout the District and any city and town therein, and construct and lay facilities along and upon public highways, roads and streets within and without the District; and

WHEREAS, RCW 57.08.005(5) authorizes the District to conduct sewage throughout the District and throughout other political subdivisions within the District, and construct and lay sewer pipe along and upon public highways, roads, and streets, within and without the District; and

WHEREAS, RCW 36.55.010 authorizes the County to grant non-exclusive franchises for the use of the public streets above or below the surface of the ground by publicly owned and operated water and sewer facilities; and

WHEREAS, the County has prepared a Franchise Agreement in the form of an Ordinance to provide for the location and operation of District Facilities within County right-of-way; and

WHEREAS, the Snohomish County Council authorized granting the District a non-exclusive franchise to construct, maintain, operate, replace and repair water and sewer systems within public rights-of-way of the County by the passage of Ordinance No. 19-040 on September 19, 2019, in the form attached hereto as **Exhibit A** and incorporated herein by this reference ("Ordinance" or "Franchise"); and

WHEREAS, the Ordinance provides in Section 31 that the rights and privileges granted to the District under the Franchise shall cease and terminate unless the District, within ninety (90) days after the passage and approval of the Franchise, files with the County Council an unconditional acceptance of the Franchise; now, therefore,

BE IT RESOLVED, by the Board of Commissioners of Cross Valley Water District, Snohomish County, Washington, as follows:

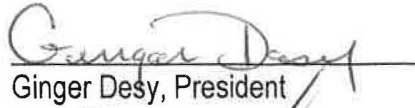
1. Incorporation of Recitals. The recitals set forth above are hereby adopted as if set forth in full herein.

2. Acceptance of Franchise. The terms and conditions of the Franchise as contained in Ordinance No. 19-040 and **Exhibit A** to this Resolution are hereby accepted; and the District General Manager is authorized and directed to sign on the District's behalf the "Acceptance" of such Franchise

attached to the Ordinance and file such executed "Acceptance" of Franchise with the Snohomish County Council.

3. Effective Date. This Resolution shall be effective the date set forth below.

ADOPTED by the Board of Commissioners of Cross Valley Water District, Snohomish County, Washington, at the regular meeting held on October 15, 2019.


Ginger Desy, President


Dave Hutley, Vice President

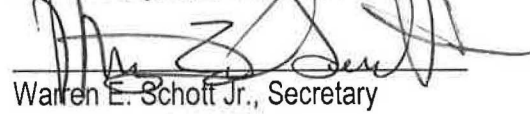

Warren E. Schott Jr., Secretary

EXHIBIT A

ORDINANCE NO. 19-040

After Recording Return To:

Asst. Clerk of the Council
Snohomish County Council
3000 Rockefeller, M/S 609
Everett, WA 98201

201911190127 28 PGS
11/19/2019 10:08am \$130.50
SNOHOMISH COUNTY, WASHINGTON

Grantor:	Snohomish County
Grantee:	Cross Valley Water District
Tax Account No:	Not Assigned
Legal Description:	See Section 1.3
Ref. # of Docs. Affected:	9406060825
Document Title:	An Ordinance of Snohomish County Council Granting a Nonexclusive Franchise Authorizing Limited Use of Public Road Rights-of-Way in portions of Snohomish County, Washington to Cross Valley Water District

SNOHOMISH COUNTY COUNCIL
Snohomish County, Washington

ORDINANCE NO. 19-040

**GRANTING A NON-EXCLUSIVE FRANCHISE AUTHORIZING LIMITED
USE OF THE PUBLIC ROAD RIGHTS-OF-WAY IN PORTIONS OF
SNOHOMISH COUNTY, WASHINGTON TO CROSS VALLEY WATER
DISTRICT**

WHEREAS, the Washington State Constitution, by and through its general grant of police power, and Section 36.55.010 of the Revised Code of Washington authorize counties to grant franchises for use of public rights-of-way; and

WHEREAS, Section 9.20 of the Snohomish County Charter and Title 13 of the Snohomish County Code specify requirements for franchises in Snohomish County rights-of-way; and

WHEREAS, a franchise is a legislative authorization to use public rights-of-way, however, actual construction and activities in the rights-of-way will also be subject to approved right-of-way use permits after review of specific plans; and

WHEREAS, Cross Valley Water District has applied to Snohomish County, Washington, for a non-exclusive franchise to construct, maintain, operate, replace and repair a water distribution, sewer collection system in, on, across, over, along, under, and/or through public rights-of-way within unincorporated Snohomish County; and

WHEREAS, the Snohomish County Council considered the Engineer's Report of the Department of Public Works, attached to and incorporated into this ordinance by reference, which report recommends that the subject franchise be granted, and further sets out guidelines and expectations for the right-of-way use permit process; and

WHEREAS, the Snohomish County Council held a public hearing on September 18, 2019, to solicit comments from the public and to consider whether to grant the requested franchise to Cross Valley Water District; and

WHEREAS, it has been found to be in the public interest that a franchise, authorizing use of public rights-of-way for a water distribution system, be granted to Cross Valley Water District.

NOW, THEREFORE, BE IT ORDAINED:

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ORDINANCE NO. 19-040

GRANTING A NON-EXCLUSIVE FRANCHISE AUTHORIZING LIMITED USE OF THE PUBLIC ROAD RIGHTS-OF-WAY IN SNOHOMISH COUNTY, WASHINGTON TO CROSS VALLEY WATER DISTRICT

Section 1. Grant of Franchise.

1.1 Pursuant to Section 36.55.010 of the Revised Code of Washington ("RCW"), Section 9.20 of the Snohomish County Charter and Chapter 13.80 of the Snohomish County Code ("SCC"), Snohomish County, a political subdivision of the State of Washington (the "County"), hereby grants to Cross Valley Water District, a municipal corporation, (the "Grantee"), a non-exclusive franchise to use those portions of the County's rights-of-way described in Section 1.3 below, for the purposes described in Section 1.2 below, subject to compliance with all applicable provisions of the SCC, the Engineering Design & Development Standards (EDDS) and the terms and conditions contained in this franchise ordinance (the "Franchise").

1.2 This Franchise grants the Grantee the right, privilege and authority to use portions of the Public Rights-of-Way (as such term is defined below) of the County for the sole purposes of constructing, maintaining, operating, replacing and repairing its water and sewer utility facilities (the "Permitted Use") and for no other purpose or use whatsoever. The term "Public Rights-of-Way" as used in this Franchise shall mean all public streets, roads, ways, or alleys of the County as now or hereafter laid out, platted, dedicated or improved. Pursuant to this Franchise, the Grantee shall have the right to install, locate, construct, operate, maintain, use, replace and/or remove such equipment and facilities as may be reasonably necessary or convenient for the conduct of the Permitted Use (the "Grantee Facilities"), in, on, across, over, along, under or through certain Public Rights-of-Way of the County, subject to all applicable provisions of Title 13 SCC (including EDDS), Chapter 36.55 RCW, and the terms and conditions of County right-of-way use permits issued pursuant to Title 13 SCC and Section 4 of this Franchise. This Franchise merely authorizes the Grantee to occupy and use the Public Rights-of-Way at issue, and does not transfer, convey or vest any easement, title, servitude, or other real property interest in or to any Public Right-of-Way or portion thereof in or to the Grantee.

1.3 This Franchise covers all Public Rights-of-Way located within the following portions of unincorporated Snohomish County:

<u>Township</u>	<u>Range</u>	<u>Sections</u>
Twp. 28N	Rge. 5E, W.M	Sects. 1, 2, 3, 10, 11, 12, 13, 14, 16, 21, 22, 24, 25, 26, 27 & 36
Twp. 28N	Rge 6E, W.M.	Sects. 30 & 31
Twp. 27N	Rge 5E, W.M.	Sects. 1, 2, 3, 9, 10, 11, 12, 13, 14, 15, 22, 23, 24, 25, 26, 27, 34 & 35
Twp. 27N	Rge. 6E,W.M.	Sects. 6, 7, 8, 16, 17, 18, 19, 20, 21, 26, 27, 28, 29, 30, 31, 32, 33, 34 & 35

ORDINANCE NO. 19-040

GRANTING A NON-EXCLUSIVE FRANCHISE AUTHORIZING LIMITED USE OF THE PUBLIC ROAD RIGHTS-OF-WAY IN SNOHOMISH COUNTY, WASHINGTON TO CROSS VALLEY WATER DISTRICT

Section 2. Non-Exclusive Franchise.

2.1 This Franchise is granted upon the express condition and understanding that it shall be a non-exclusive franchise which shall not in any manner prevent or hinder the County from granting to other parties, at other times and under such terms and conditions as the County, in its sole discretion, may deem appropriate, other franchises or similar use rights in, on, to, across, over, upon, along, under or through any Public Rights-of-Way. Owners, whether public or private, of any authorized facilities or equipment installed in, on, across, over, along, under, and/or through a Public Right-of-Way prior to the construction and/or installation of Grantee's Facilities in the same location, shall have preference as to positioning and location of their facilities. The position and location of all Grantee's Facilities in the Public Rights-of-Way shall be subject to the authority of the County Engineer.

2.2 This Franchise shall in no way prevent, inhibit or prohibit the County from using any of the Public Rights-of-Way covered or affected by this Franchise, nor shall this Franchise affect the County's jurisdiction, authority or power over any of them, in whole or in part. The County expressly retains its power to make or perform any and all changes, relocations, repairs, maintenance, establishments, improvements, dedications, or vacations of or to any of the Public Rights-of-Way as the County may, in its sole and absolute discretion, deem fit, including the dedication, establishment, maintenance and/or improvement of new Public Rights-of-Way, thoroughfares and other public properties of every type and description.

Section 3. Term, Early Termination, and Amendments.

3.1 The initial term of the Franchise shall be for a period of ten (10) years (the "Initial Term"), beginning on the Effective Date (as such term is defined in Section 32 of this Franchise) of the Franchise, and continuing until the date that is one day prior to the tenth (10th) anniversary of the Effective Date (the "Initial Term Expiration Date"), unless earlier terminated, revoked or amended pursuant to the provisions of this Franchise.

3.2 This Franchise shall automatically renew for an additional term of ten (10) years (the "Extended Term," and, together with the Initial Term, the "Term"), subject to the County's right to renegotiate and/or unilaterally terminate the Franchise at any time after the Initial Term Expiration Date, as more fully described in Section 3.3 below.

3.3 The County shall have the right, in its sole and absolute discretion, at any time after the Initial Term Expiration Date, to unilaterally elect to open negotiations with the Grantee regarding proposed amendments, alterations or other changes to the terms and conditions of this Franchise. In such event, the County shall deliver written notice to the Grantee stating the County's general desire to amend the terms and conditions of the Franchise. Within thirty (30) days after the date on which the Grantee receives the County's notice letter, the Grantee and the County shall enter into good faith negotiations regarding potential amendments to the initial terms and conditions of the Franchise. Should the parties reach agreement regarding any such amendments, the parties

ORDINANCE NO. 19-040

GRANTING A NON-EXCLUSIVE FRANCHISE AUTHORIZING LIMITED USE OF THE PUBLIC
ROAD RIGHTS-OF-WAY IN SNOHOMISH COUNTY, WASHINGTON TO CROSS VALLEY
WATER DISTRICT

shall memorialize such amendments and seek approval of same from the County Council or such other County authority as may be proper. Should the parties prove unable to reach agreement regarding any proposed amendments within ninety (90) days after the date on which negotiations commenced, then this Franchise shall automatically terminate.

3.4 Other than the process set forth in Section 3.3 for amendments, this Franchise may be amended only upon the written consent of the County and the Grantee set forth in writing in the form of a County ordinance, signed by both parties, which states that it is an amendment to this Franchise and is approved and executed in accordance with the laws of the State of Washington.

Section 4. Regulation of Use; Permits Required.

4.1 The installation, location, maintenance, operation, relocation, removal or any other work related to any of the Grantee Facilities occurring in, on, across, over, along, under, and/or through any Public Right-of-Way covered by this Franchise, shall be performed in a safe and workmanlike manner, in such a way as to minimize interference with the free flow of traffic and the use of adjacent property, whether such property is public or private.

4.2 The Grantee shall not commence any work within Public Rights-of-Way until a right-of-way use permit authorizing such work has been issued by the County pursuant to Title 13 SCC. In addition to any standards of performance imposed by this Franchise, any and all work performed by Grantee pursuant to this Franchise shall be performed in accordance with all current County standards applicable to such work, including the County approved plans and specifications for the work, and the terms and conditions of any right-of-way use permit and/or other permits and/or approvals required under Title 13 SCC in order to accomplish the work (e.g., lane closure or road detour permits). Grantee understands and acknowledges that some or all of Grantee's activities may require additional project permits and approvals under County land use codes and development regulations, and Grantee accepts full responsibility for obtaining and complying with same.

4.3 In addition to any criteria set forth in Title 13 SCC, the EDDS, and the County's utility accommodation policies, in reviewing the Grantee's application for any right-of-way use permit pursuant to this Franchise, the County Engineer may apply the following criteria in reviewing proposed utility routes and in the issuance, conditioning, or denial of such permit:

- (i) the capacity of the Public Rights-of-Way at issue to accommodate the proposed Grantee Facilities;
- (ii) the capacity of the Public Rights-of-Way at issue to accommodate additional utility, cable, telecommunications, or other public facilities if the right-of-way use permit is granted;
- (iii) the damage or disruption, if any, to public or private facilities, improvements, service, travel, or landscaping if the right-of-way use permit is granted;

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- (iv) the public interest in minimizing the cost and disruption of construction within the Public Rights-of-Way at issue, including, but not limited to, coordination with future utility installation or County projects;
- (v) recent and/or proposed construction and/or improvements to the Public Rights-of-Way at issue;
- (vi) the availability of alternate routes, locations, and/or methods of construction or installation for the proposed Grantee Facilities, including, but not limited to, whether other routes are preferred; and
- (vii) whether the Grantee has received all requisite licenses, certificates, and authorizations from applicable federal, state, and local agencies with jurisdiction over the activities proposed by the Grantee.

4.4 Prior to commencing any work in a critical area as defined by SCC 30.91C.340, the Grantee shall comply with all applicable requirements of the County's critical areas regulations in chapters 30.62A, 30.62B, 30.62C and 30.65 SCC, and shall obtain any and all required permits and approvals. The granting of this Franchise shall in no way relieve the Grantee from its responsibility for avoiding "take" of any threatened or endangered species as defined by the Endangered Species Act of 1973, 16 U.S.C. § 1531, et seq., as amended, in the performance of any work authorized by this Franchise and/or any right-of-way use permits.

Section 5. Emergency Work.

Should any of the Grantee Facilities in the Public Rights-of-Way break or become damaged such that an immediate danger to the property, life, health or safety of any individual is presented, or should any site upon which the Grantee is engaged in construction or maintenance activities pursuant to this Franchise for any reason be in such a condition that an immediate danger to the property, life, health or safety of any individual is presented, the Grantee shall immediately take such measures as are reasonably necessary to repair the Grantee Facilities at issue or to remedy the dangerous conditions on the site at issue so as to protect the property, life, health or safety of individuals. In the event of an emergency described above, the Grantee may take corrective action immediately, without first applying for or obtaining any permits or other authorizations that might otherwise have been required by the SCC and/or this Franchise. However, the emergency provisions contained in this Section 5 shall not relieve the Grantee from its obligation to obtain any permits necessary for the corrective actions taken, and the Grantee shall apply for all such permits as soon as is reasonably possible after the occurrence of the emergency. In the event of any emergency described in this Section 5, the Grantee shall notify the County of the emergency as soon as may be reasonably feasible after the Grantee discovers the emergency (such notice may be telephonic).

Section 6. Compliance with Applicable Laws; Performance Standards.

6.1 The Grantee shall at all times during the Term of the Franchise undertake the Permitted Use in compliance with all federal, state and local laws, rules and regulations (including, but not limited to, the County's comprehensive plan, zoning code, and other development regulations) that are applicable to any and all work or other activities performed by Grantee pursuant to or under authority of the Franchise.

6.2 During any period of installation, maintenance, operation, relocation, removal or any other work related to any of the Grantee Facilities subject to this Franchise, Grantee shall use industry accepted best-practices to ensure that, to the extent reasonably feasible, such work does not impede: (i) public use of the Public Rights-of-Way at issue for vehicular and pedestrian transportation; (ii) construction and/or maintenance within Public Rights-of-Way and other authorized facilities, equipment and improvements; (iii) the operation, maintenance or improvement by the County of the Public Rights-of-Way or other public property impacted by Grantee's work; or (iv) use of the Public Rights-of-Way for other governmental purposes.

6.3 During any periods of construction within the Public Rights-of-Way, the Grantee shall at all times post and maintain proper barricades and comply with all applicable safety regulations as required by the SCC, the EDDS, or the laws of the State of Washington, including, but not limited to, RCW 39.04.180 for the construction of trench safety systems.

6.4 Before the Grantee commences any work under this Franchise which may affect any existing monuments or markers of any nature relating to subdivisions, plats, roads, or other surveys, Grantee shall reference all such monuments and markers using a method or methods approved by the County Engineer, and a complete set of reference notes for monuments and other ties shall be filed with the County prior to the commencement of construction. Reference points shall be so located that they will not be disturbed during Grantee's operations. The replacement of all such monuments or markers disturbed during construction shall be made as expeditiously as conditions permit, as directed by the County Engineer, and to federal, state and local standards. All costs incurred pursuant to this Section 6.4 shall be borne by Grantee.

6.5 If the Grantee shall at any time plan to make excavations in any area covered by the Franchise, the Grantee shall, upon receipt of a written request to do so, provide an opportunity for the County and/or any other grantees or authorized users of the Public Right-of-Way at issue to participate in such excavation, and shall coordinate the location and installation of its Grantee Facilities with the County or such other grantees or authorized entities, PROVIDED THAT, Grantee need not permit the County or any other party (ies) to participate in an excavation if the County Engineer determines that any of the following are true:

- (i) such joint use would unreasonably delay the performance of Grantee's work;
- (ii) despite good-faith efforts, the parties involved are unable to agree upon reasonable terms and conditions for accomplishing such joint use; or
- (iii) valid safety reasons exist for denying a request for such joint use.

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GRANTING A NON-EXCLUSIVE FRANCHISE AUTHORIZING LIMITED USE OF THE PUBLIC ROAD RIGHTS-OF-WAY IN SNOHOMISH COUNTY, WASHINGTON TO CROSS VALLEY WATER DISTRICT

6.6 If the Grantee shall at any time plan to include communication facilities in furtherance of the Permitted Use, the Grantee shall provide an opportunity for the County to enter into negotiations for shared use of such communication facilities, and shall coordinate negotiation of shared use of its communication facilities with the County; PROVIDED THAT, Grantee need not permit the County to participate in shared use of communication facilities if any of the following are true, in the reasonable judgment of the County and the Grantee:

- (i) such shared use would unreasonably delay the performance of Grantee's work;
- (ii) despite good-faith efforts, the parties involved are unable to agree upon reasonable terms and conditions, including but not limited to allocation of costs amongst various parties, for accomplishing such shared use;
- (iii) valid safety reasons exist for denying a request for such shared use and/or the proposed facilities of the third party are in conflict with the best practices employed by the Grantee; or
- (iv) the installation of communication facilities is for the purpose of an emergency action to protect the property, life, health or safety of individuals.

Section 7. Restoration of Public Rights-of-Way.

Promptly after completing any work in, on, under, over, across or upon any Public Rights-of-Way, including, but not limited to any excavation, installation, construction, relocation, maintenance, repair or removal of any Grantee Facilities, Grantee shall, at Grantee's sole cost and expense, restore the Public Rights-of-Way and any adjacent affected areas as required by the EDDS consistent with the SCC. Grantee shall also comply with any and all restoration conditions contained in applicable permits or approvals. The County Engineer shall have final authority to determine in each instance of restoration whether adequate restoration has been performed, reasonable wear and tear excepted.

Section 8. Record Plans, Record Drawings, and Records of Grantee Facility Locations.

8.1 The Grantee shall maintain adequate records to document obligations performed under this Franchise. The Grantee agrees and covenants that it shall, promptly upon substantial completion of any construction project involving a Public Right-of-Way, provide to the County, at no cost to the County, a copy of all as-built plans, maps and records revealing the approximate final locations and conditions of the Grantee Facilities located within such Public Right-of-Way. Additionally, the County may, at any time, deliver a written request to the Grantee for copies of maps and records showing the approximate location of all or any portion of the Grantee Facilities. In such event, the Grantee shall provide the County, at no cost to the County, with copies of the requested record plans, record drawings and other records within a reasonable time after receiving the County's request for same. The County shall have the right to review the

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Grantee's records regarding the subject matter of this Franchise at reasonable times, upon reasonable notice. The right to review records shall last for six (6) years from the expiration or earlier termination of this Franchise. In addition to the maps and records of the Grantee Facility locations, the Grantee shall provide the County, upon the County's request, with copies of records of construction, maintenance, operation, inspections, or regulatory compliance for all Grantee Facilities subject to this Franchise as may be deemed necessary by the County, in its sole discretion, to manage the county roads, Public Rights-of-Way, or other property, or to protect the public health, safety, and welfare. Nothing in this Section 8 shall be construed to require Grantee to violate state or federal law concerning customer privacy, nor shall this Section 8 be construed to require Grantee to disclose proprietary or confidential information without adequate safeguards for its confidential or proprietary nature.

8.2 If the Grantee considers any portion of its records provided to the County, whether in electronic or hard copy form, to be protected from disclosure under law, the Grantee shall clearly identify any specific information that it claims to be confidential or proprietary. If the County receives a request under the Public Records Act, Chapter 42.56 RCW, to inspect or copy the information so identified by the Grantee and the County determines that release of the information is required by the Act or otherwise appropriate, the County's sole obligations shall be to notify the Grantee (a) of the request and (b) of the date that such information will be released to the requester unless the Grantee obtains a court order to enjoin that disclosure pursuant to RCW 42.56.540. If the Grantee fails to timely obtain a court order enjoining disclosure, the County will release the requested information on the date specified. The County has, and by this section assumes, no obligation on behalf of the Grantee to claim any exemption from disclosure under the Act. The County shall not be liable to the Grantee for releasing records not clearly identified by the Grantee as confidential or proprietary. The County shall not be liable to the Grantee for any records that the County releases in compliance with this section or in compliance with an order of a court of competent jurisdiction.

Section 9. Relocation of Grantee Facilities.

9.1 The Grantee agrees and covenants that it will promptly, at its sole cost and expense, protect, support, temporarily disconnect, relocate, or remove from the Public Rights of Way any Grantee Facilities when the County Engineer determines after full and fair consideration, and in the reasonable exercise of discretion, that such a relocation is necessary for any of the following reasons: (i) traffic conditions; (ii) public safety; (iii) dedications of new Public Rights-of-Way and the establishment and/or improvement thereof; (iv) widening and/or improvement of existing Public Rights-of-Way; (v) vacations of Public Rights-of-Way; (vi) freeway construction; (vii) change or establishment of road grade; or (viii) the construction of any public improvement or structure by any governmental agency acting in a governmental capacity; PROVIDED that the Grantee shall generally have the privilege to temporarily bypass, in the authorized portion of the same Public Right-of-Way, upon approval by the County Engineer, any Grantee Facilities required to be temporarily disconnected or removed. In the event of a conflict between this

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Section 9 and the specific terms of any existing real property interests and rights owned by the Grantee, such as a utility easement or other servitude, the terms of this Section 9 shall be subject to the specific terms of the real property interests and rights owned by the Grantee unless and until those rights are extinguished or amended (i) by mutual agreement, (ii) pursuant to a judicial condemnation order, (iii) by negotiated sale of said property rights between Grantee and the County in-lieu of condemnation, or (iv) by any other lawful means.

9.2 Upon the request of the County and in order to facilitate County improvements to Public Rights-of-Way, the Grantee agrees to locate and, if reasonably determined necessary by the County, to excavate and expose, at its sole cost and expense, portions of the Grantee Facilities for inspection so that the location of the facilities may be taken into account in the improvement design.

9.3 Grantee shall, upon reasonable prior written request of any person or entity holding a permit issued by the County to move any structure, temporarily move its facilities to allow the moving of such structure; PROVIDED (i) Grantee may impose a reasonable charge on the permittee for the movement of Grantee's Facilities; (ii) Grantee is granted a permit by the County for such work if a permit is needed; and (iii) Grantee is given not less than ten (10) business days' notice to arrange for such temporary relocation; EXCEPT in any case where the County Engineer determines Grantee Facilities are not reasonably movable.

9.4 Where the County imposes conditions or requirements on a third party development requiring the relocation of any Grantee Facilities, the County shall not be responsible for paying any costs related to such relocation. Nothing in this Franchise is intended or shall be construed to prohibit the Grantee from assessing on such person or entity, other than the County, the costs of relocation as a condition of such relocation.

9.5 To assist Grantee with anticipating relocations of Grantee Facilities related to County improvements to the Public Rights-of-Way, upon request, the County will provide the Grantee with copies of the most recently adopted Six-Year Transportation Improvement Program ("TIP") and Annual Construction Program ("ACP").

9.6 If the County determines that a County project necessitates the relocation of existing Grantee Facilities, the parties shall proceed as follows:

- (i) The County shall provide the Grantee at least one hundred twenty (120) days written notice prior to the commencement of the construction phase of the County project at issue; PROVIDED, that under the following circumstances the County need only provide the Grantee with written notice as soon as may be reasonably practicable: (a) in the event of an emergency posing a threat to public safety, health or welfare; (b) in the event of an emergency beyond the control of the County and which will result in adverse financial consequences to the County; or

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(c) where the need to relocate the Grantee Facilities could not reasonably have been anticipated by the County.

- (ii) The County shall provide the Grantee with copies of pertinent portions of the designs and specifications for the County project as well as a proposed new location for the Grantee Facilities at least one hundred twenty (120) days prior to the commencement of the construction phase of the County project to enable Grantee to promptly relocate such Grantee Facilities. Upon request of the Grantee, thirty-percent (30%), sixty-percent (60%) and ninety-percent (90%) design plans shall be provided to the Grantee. The County and the Grantee shall, upon the request of either party, meet to discuss the plans, specifications and schedule of the County project at issue at a mutually agreed time in a location determined by the County.
- (iii) After receipt of such notice and such plans and specifications, the Grantee shall complete relocation of its facilities within the Public Right-of-Way at least ten (10) days prior to commencement of the construction phase of the County project at no charge, cost or expense to the County, unless otherwise agreed to within a separate agreement executed by both Parties. Relocation shall be accomplished in such a manner as to accommodate the County's project. In the event of an emergency, the Grantee shall relocate the Grantee Facilities at issue within a time period reasonably specified by the County Engineer.
- (iv) The County and the Grantee may, for each individual County project, enter into an agreement for costs incurred by the County for relocation of Grantee's Facilities and associated work tied to the relocation.
- (v) In the event of an emergency, the Grantee shall relocate the Grantee Facilities at issue within a time period reasonably specified by the County Engineer.

9.7 The Grantee may, after receipt of written notice requesting a relocation of any Grantee Facilities in accordance with Section 9.6, submit to the County proposed written alternatives to such relocation. The County shall evaluate such alternatives and advise the Grantee in writing if one or more of the alternatives are suitable to accommodate the County project. If so requested by the County, the Grantee shall submit additional information to assist the County in making such evaluation. The County shall give each alternative proposed by the Grantee full and fair consideration. Where, upon the request of the Grantee, the County incurs additional costs in performing any maintenance, operation, or improvement of or to public facilities due to measures taken by the County to avoid damaging or to otherwise accommodate one or more Grantee Facilities, the Grantee shall reimburse the County for the full amount of such additional costs promptly upon receiving the County's invoice for same. In the event the County ultimately determines that there is no reasonable or feasible alternative to relocation, the Grantee shall relocate the Grantee Facilities at issue as otherwise provided in this Section 9.

9.8 The provisions of this Section 9 shall in no manner preclude or restrict the Grantee from making any arrangements it may deem appropriate when responding to a request for relocation

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of any Grantee Facility by any person or entity other than the County, where the facilities to be constructed by said person or entity are not or will not become County-owned, operated or maintained facilities, provided that such arrangements do not unduly delay any County projects. The Grantee shall provide certified record drawings (or as-built drawings) detailing the location of Grantee's Facilities within the Public Right-of-Way required to be relocated or removed for the purpose of the non-County project.

9.9 Should relocation be required for a County project pursuant to this Section 9, the Grantee shall be responsible for timely relocation of the Grantee Facilities at issue and the coordination of such relocation with the County (or the County's contractor for the County project). The Grantee shall be fully responsible for the costs of any delays to County projects resulting from relocations of any Grantee Facilities. The Grantee shall indemnify, defend and hold harmless the County from and against any and all claims, lawsuits, or damages, including those brought by a contractor of the County engaged in a County project, arising out of or caused in whole or in part by the location or relocation of one or more Grantee Facilities, as more fully set forth in Section 16 of this Franchise.

Section 10. Undergrounding of Grantee Facilities.

10.1 The undergrounding requirements of this Section 10 shall apply where the Grantee Facilities consist of cable or any other facilities, equipment or systems which are reasonably capable of being placed underground. Where the Grantee Facilities consist of antennae or other facilities, equipment or systems which are required to remain above ground in order to be functional, the terms and conditions of this Section 10 shall not apply.

10.2 In any area of the County in which there are no aerial facilities other than antennae or other facilities required to remain above ground in order to be functional, or in any area in which telephone, electric power wires or other cables have been placed underground, the Grantee shall not be permitted to erect poles or to run or suspend wires, cables or other similar facilities thereon, but shall lay all such wires, cables or other facilities underground in the manner required by the County. The Grantee acknowledges and agrees that, even if the County does not require the undergrounding of all or any portion of the Grantee Facilities at the time the Grantee applies for the applicable right-of-way use permit, the County may, at any time in the future, and in the County's sole and absolute discretion, require the Grantee to convert all or any portion of the aerial Grantee Facilities to underground installation at the Grantee's sole cost and expense.

10.3 Whenever the County may require the undergrounding of the aerial facilities in any area of the County, the Grantee shall underground the aerial Grantee Facilities in that area of the County in the manner specified by the County, and concurrently with the other affected facilities. Where other facilities are present or proposed and involved in the undergrounding project, the Grantee shall only be required to pay its fair share of common costs borne by all facilities, in addition to the costs specifically attributable to the undergrounding of the Grantee Facilities. "Common costs" shall include necessary costs not specifically attributable to the installation or

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undergrounding of any particular facility, such as costs for common trenching and utility vaults. "Fair share" shall be determined for a project on the basis of the number and size of the Grantee Facilities being installed or undergrounded in comparison to the total number and size of all other utility facilities being installed or undergrounded.

Section 11. Maintenance of Grantee Facilities.

11.1 The Grantee shall maintain all Grantee Facilities in the County's Right-of-Way in good condition and repair, in accordance with industry accepted best practices.

11.2 The Grantee shall take necessary steps to maintain a reasonably clear area around all Grantee Facilities installed above ground within Public Rights-of-Way. A minimum of five (5) feet of clearance will be maintained around each such object so as to provide clear visibility from the roadway for County operations and maintenance. Prior to using any chemical sprays within the Public Rights-of-Way to control or kill weeds and brush, the Grantee must obtain the County's permission. The County may limit or restrict the types, amounts, and timing of applications provided such limitations or restrictions are not in conflict with State law governing utility right-of-way maintenance.

Section 12. Hazardous Materials.

12.1 The County understands and agrees that the Permitted Use contemplated by the Grantee involves the use by Grantee of certain chemicals and/or materials within the Public Rights-of-Way that are classified as hazardous or otherwise harmful to life, health and/or safety (any such chemical or material, a "Hazardous Material") under one or more applicable federal, state or local laws, rules, regulations or ordinances (collectively, the "Hazardous Materials Laws"). The Grantee shall be permitted to use such Hazardous Materials within the Public Rights-of-Way as are reasonably necessary for the Grantee's conduct of the Permitted Use and which are customary for the industry in which the Grantee is engaged; PROVIDED, however, that the Grantee's use of any such Hazardous Materials within the Public Rights-of-Way shall at all times be undertaken in full compliance with all Hazardous Materials Laws, including any orders or instructions issued by any authorized regulatory agencies.

12.2 The Grantee covenants and agrees that it will neither cause nor permit, in any manner, the release, seepage or spill of any Hazardous Material upon, into, under, over, across or through any Public Right-of-Way or property adjacent thereto, whether public or private, in violation of any applicable Hazardous Materials Law. Any such release, seepage or spill of any Hazardous Material within the Public Rights-of-Way that is in violation of any applicable Hazardous Materials Law and is caused by Grantee or its directors, officers, agents, employees or contractors, is, referred to as "Release."

12.3 Should a Release occur, the Grantee shall immediately upon receiving notice thereof provide written notice of the Release to the County and the Washington State Department of Ecology. The Grantee agrees it shall indemnify, defend and hold the County, its elected and

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appointed officials, employees, agents and volunteers (collectively, the "County Parties") harmless from and against any and all claims, lawsuits, actions, judgments, awards, penalties, fines and other damages (including, but not limited to, reasonable attorneys' fees and costs) incurred or suffered by any of the County Parties, to the extent the Release is caused by any act or omission of Grantee or its directors, officers, agents, employees or, contractors (collectively, the "Grantee Parties") within Public Rights-of-Way or property adjacent thereto, whether public or private. Grantee shall be responsible, at its sole cost and expense, for completely cleaning up and remediating, as required by any governmental agency having jurisdiction, any Release caused by any Grantee Party within Public Rights-of-Way or property adjacent thereto, whether public or private. Notwithstanding the Grantee's obligation to completely remediate same; in the event of any Release by a Grantee Party, the County may (but need not), in the interest of protecting the health, safety, welfare and property of the public, immediately take whatever actions it deems necessary or advisable, in its sole discretion, to contain, clean up or remediate the Release at issue. Should the County choose to take any actions pursuant to the preceding sentence, the County shall be entitled to repayment from the Grantee of any and all reasonable costs and expenses incurred by the County in performing such actions.

12.4 Should the Grantee cause a Release as described in Section 12.2 above, failure to promptly comply with all orders or instructions lawfully issued by any authorized regulatory agencies regarding clean-up and remediation shall constitute a material breach of this Franchise, and the County Council may terminate or suspend the Franchise in accordance with Section 23.

Section 13. Dangerous Conditions, Authority for County to Abate.

13.1 Whenever the Grantee's excavation, construction, installation, relocation, maintenance, repair, abandonment, or removal of Grantee Facilities authorized by this Franchise has caused or contributed to a condition that, in the reasonable opinion of the County Engineer, substantially impairs the lateral support of the adjoining road or public or private property, or endangers the public, an adjoining public place, road facilities, County property or private property, the County Engineer may direct the Grantee to remedy the condition or danger to the satisfaction of the County Engineer, within a specified period of time and at the Grantee's sole cost and expense.

13.2 In the event that the Grantee fails or refuses to promptly take the actions directed by the County Engineer, or fails to fully comply with such directions, or if emergency conditions exist which require immediate action, in accordance with Section 13.1 above, the County may enter upon the property and take such actions as are reasonably necessary to protect the public, to protect the adjacent roads, or road facilities, to maintain the lateral support thereof, or to ensure the public safety, and the Grantee shall be liable to the County for all reasonable costs and expenses incurred by the County in performing such actions.

Section 14. Removal of Grantee Facilities; Abandonment of Grantee Facilities.

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14.1 In no event may all or any portion of any Grantee Facility located in, on, under, over, across or through the public right-of-way be abandoned or temporarily abandoned in place by the Grantee without the express written consent of the County. Should the Grantee desire to deactivate, abandon, or temporarily abandon in place all or any portion of the Grantee Facilities, the Grantee shall request the County's permission to do so by delivering a written request to the County not later than thirty (30) days after the date on which the Grantee discontinues use of any Grantee Facilities for any reason or this Franchise expires or terminates, whichever is earlier. The Grantee's request shall specify which Grantee Facilities the Grantee desires to deactivate or abandon in place. Within a reasonable time after the date on which the County receives the Grantee's written request, the County shall deliver a written response to the Grantee setting forth the County's decision, which shall be made in the County's sole and absolute discretion. If the County denies the Grantee's request with respect to all or any portion of the Grantee Facilities at issue, then the Grantee must promptly proceed to remove those Grantee Facilities for which the Grantee's request for abandonment has been denied.

14.2 If the County grants its approval to the Grantee's request for deactivation or abandonment, either in whole or in part, the County may impose conditions on such approval. The Grantee shall, at its sole cost and expense, as directed by the County, purge the Grantee Facilities that will be deactivated, abandoned, or temporarily abandoned of any product, Hazardous Material and/or other substance so as to render such Grantee Facilities safe in accordance with applicable law or such other standards as may be reasonably deemed appropriate by the County. The County's consent to such action by the Grantee shall not relieve the Grantee of the obligation and/or costs to remove or to alter such Facilities in the future in the event it is reasonably determined by the County that removal or alteration is necessary or advisable for the health and safety of the public, in which case the Grantee shall perform such work at no cost to the County. This paragraph shall survive the expiration, revocation or termination of this Franchise.

14.3 Should the Grantee fail to comply with the requirements of Section 14.1 within a reasonable time after either: (i) the expiration or earlier termination of the Franchise; or (ii) the County's denial of the Grantee's request for permission to deactivate or abandon all or any portion of the Grantee Facilities, the Grantee shall be deemed to have deactivated or abandoned the Grantee Facilities without authorization. In the event of any unauthorized abandonment of all or any portion of the deactivated or abandoned Grantee Facilities by the Grantee, the County may, at its election, and in addition to any other remedies or enforcement options available to the County under this Franchise, at law or in equity, remove all or any portion of the deactivated or abandoned Grantee Facilities on behalf of the Grantee and restore the Public Rights-of-Way following such removal. Should the County choose to perform any such removal and restoration activities on the Grantee's behalf, the County may dispose of the removed Grantee Facilities in any manner it deems fit and in accordance with applicable laws, and the Grantee shall be liable to the County for all costs and expenses incurred by the County in performing such removal and restoration activities.

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Section 15. Fees, Compensation for Use of Public Rights-of-Way and Taxes.

15.1 The Grantee shall be subject to all permit fees allowed by law associated with activities undertaken within Public Rights-of-Way through the authority granted to the Grantee by this Franchise or under applicable provisions of the SCC.

15.2 Grantee shall pay itemized costs and expenses incurred by the County in the examination and report of the proposed franchise under SCC 13.80.030(4) and any other fees required under chapter 13.110 SCC.

15.3 In addition, the Grantee shall reimburse the County for any and all documented costs the County reasonably and necessarily incurs in response to an emergency involving any Grantee Facilities. The Grantee shall promptly reimburse the County, upon submittal by the County of an itemized billing, for the Grantee's proportionate share of all actual, identified costs and expenses incurred by the County in repairing any County facility, or altering such County facility if at the Grantee's request, as the result of the presence of any Grantee Facilities in the Public Right-of-Way. Such costs and expenses shall include, but not be limited to, the Grantee's proportionate share of the costs of County personnel assigned to review construction plans or to oversee or engage in any work in the Public Right-of-Way as a result of the emergency and the presence of the Grantee Facilities in the Public Right-of-Way. Any and all costs will be billed on an actual cost basis. The billing may be on an annual basis, but the County shall provide the Grantee with the County's itemization of costs at the conclusion of each project for informational purposes.

Section 16. Hold Harmless and Indemnification.

16.1 Grantee agrees to indemnify, defend, and hold harmless any County Party (as such term is defined in Section 12 above) from any and all claims, demands, liability, suits, and judgments, including costs of defense thereof, for bodily injury to persons, death, or property damage arising out of the acts or omissions of any of the Grantee Parties (as such term is defined in Section 12 above) in the use of a Public Right-of-Way pursuant to this Franchise. This covenant of indemnification shall include, but not be limited to, any and all claims, demands, liability, suits, and judgments arising out of the placement of Grantee's existing utility fixtures and any and all third party claims, demands, liability, suits, and judgments arising out of any of the Grantee Parties' failure to complete all utility related adjustments, relocations, repairs, or work in accordance with this Franchise and the work plan and schedule agreed to by the County and Grantee. In the event of liability for damages arising out of bodily injury to persons, death or property damage caused by or resulting from the concurrent negligence of Grantee and the County, its officers, employees and agents, Grantee's liability hereunder shall be only to the extent of Grantee's negligence.

16.2 In the event the County incurs attorneys' fees, legal expenses, or other costs to enforce the provisions of this Section 16 against Grantee, all such fees, expenses, and costs shall be recoverable from Grantee to the extent the County prevails in such enforcement action.

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16.3 It is specifically and expressly understood that, solely to the extent required to enforce the indemnification, defense and hold harmless obligations contained in this Section 16, Grantee waives its immunity under RCW Title 51; provided, however, the foregoing waiver shall not in any way preclude Grantee from raising such immunity as a defense against any claim brought against Grantee by any of its employees. This waiver has been mutually negotiated by the parties.

16.4 The County shall give Grantee timely written notice of the matter of any claim or of the commencement of any such action, suit or other proceeding covered by the indemnification, defense and hold harmless obligations contained in this Section 16. In the event any such claim arises, the County or any other indemnified party shall tender the defense thereof to Grantee and Grantee shall have the right and duty to defend, settle or compromise any claims arising hereunder and the County shall cooperate fully therein.

16.5 The County's permitting approval, inspection, lack of inspection, or acceptance of any work performed by the Grantee Parties in connection with work authorized on Grantee Facilities, pursuant to this Franchise or pursuant to any other permit or approval issued in connection with this Franchise, shall not be grounds for avoidance of any of the indemnification, defense and hold harmless obligations contained in this Section 16.

16.6 The indemnification, defense and hold harmless obligations contained in this Section 16 shall survive the expiration, abandonment or termination of this Franchise.

Section 17. Limitation of County Liability.

The County's administration of this Franchise shall not be construed to create the basis for any liability on the part of the County Parties, except for and only to the extent of the County's negligence.

Section 18. Insurance.

18.1 Insurance Requirements

A. Insurance Required

Grantee shall procure, and maintain for the duration of this Franchise, insurance against claims for injuries to persons or damages to property which may arise from, or in connection with, the performance of work hereunder by the Grantee, its agents, representatives, employees and/or contractors /subcontractors. The Grantee or contractor/subcontractor shall pay the costs of such insurance. The Grantee shall furnish separate certificates of insurance and policy endorsements from each contractor/subcontractors as evidence of compliance with the insurance requirements of this Franchise.

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The Grantee is responsible for ensuring compliance with all of the insurance requirements stated herein. Failure by the Grantee, its agents, employees, officers, contractor/subcontractors to comply with the insurance requirements stated herein shall constitute a material breach of this Franchise.

Each insurance policy shall be written on an "occurrence" form; except that insurance on a "claims made" form may be acceptable with prior County approval. If coverage is approved and purchased on a "claims made" basis, the Grantee warrants continuation of coverage, either through policy renewals or the purchase of an extended discovery period, if such extended coverage is available, for not less than three years from the date of Franchise termination, and/or conversion from a "claims made" form to an "occurrence" coverage form.

Nothing contained within these insurance requirements shall be deemed to limit the scope, application and/or limits of the coverage afforded by said policies, which coverage will apply to each insured to the full extent provided by the terms and conditions of the policy(s). Nothing contained in this provision shall affect and/or alter the application of any other provision contained within this Franchise.

B. Risk Assessment by Grantee

By requiring such minimum insurance, the County shall not be deemed or construed to have assessed the risks that may be applicable to the Grantee under this Franchise, nor shall such minimum limits be construed to limit the limits available under any insurance coverage obtained by the Grantee. The Grantee shall assess its own risks and, if it deems appropriate and/or prudent, maintain greater limits and/or broader coverage.

C. Minimum Scope and limits of Insurance. Coverage shall be at least as broad as and with limits not less than the following:

(i) General Liability

Insurance Services Office form number (CG 00 01) covering COMMERCIAL GENERAL LIABILITY including XCU coverage: \$1,000,000 combined single limit per occurrence by bodily injury, personal injury, and property damage; and for those policies with aggregate limits, a \$ 2,000,000 aggregate limit.

(ii) Automobile Liability

Insurance Services Office form number (CA 00 01) covering BUSINESS AUTO COVERAGE, symbol 1 "any auto"; or the appropriate coverage provided by symbols 2, 7, 8, or 9: \$ 1,000,000 combined single limit per

accident for bodily injury and property damage if the use of motor vehicles is contemplated.

(iii) Workers' Compensation

Workers' Compensation coverage, as required by the Industrial Insurance Act of the State of Washington, as well as any similar coverage required for this work by applicable federal or "Other States" state law: Statutory requirements of the state of residency.

(iv) Stop Gap/Employers Liability

Coverage shall be at least as broad as the indemnification, protection provided by the Workers' Compensation policy Part 2 (Employers Liability) or, in states with monopolistic state funds, the protection provided by the "Stop Gap" endorsement to the general liability policy: \$1,000,000.

D. Minimum Limits of Insurance - Construction Period

Prior to commencement of Construction and until Construction is complete and approved by the Grantee and the County, the Grantee shall cause the Construction Contractor and related professionals to procure and maintain insurance against claims for injuries to persons or damages to property which may arise from, or in connection with the activities related to this Franchise. The Grantee and the County shall be named as additional insureds on liability policies except Workers Compensation and Professional Liability. The cost of such insurance shall be paid by the Grantee and/or any of the Grantee's contractor/subcontractors. The Grantee shall cause the Construction Contractor and related professionals to maintain limits no less than the following:

- (i) Commercial General Liability: \$ 1,000,000 combined single limit per occurrence for bodily injury, personal injury and property damage and \$2,000,000 in the aggregate.
- (ii) Automobile Liability: \$ 1,000,000 combined single limit per accident for bodily injury and property damage.
- (iii) Professional Liability, Errors & Omissions: \$ N/A, Per Claim and in the Aggregate.
- (iv) Workers Compensation: Statutory requirements of the state of residency.
- (v) Stop Gap or Employers Liability Coverage: \$ 1,000,000.

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E. Deductibles and Self-Insured Retentions

Any deductibles or self-insured retentions must be declared to, and approved by, the County. The deductible and/or self-insured retention of the policies shall not apply to the Grantee's liability to the County and shall be the sole responsibility of the Grantee.

F. Other Insurance Provisions

The insurance policies required in this Franchise are to contain, or be endorsed to contain, the following provisions:

(i) All Liability Policies except Professional and Workers Compensation.

a. The County, its officers, officials, employees, and agents are to be covered as additional insured with respect to liability arising out of activities performed by or on behalf of the Grantee/contractor in connection with this Franchise. Such coverage shall include Products-Completed Operations.

b. To the extent of the Grantee's/contractor's negligence, the Grantee's/contractor's insurance coverage shall be primary insurance with respect to the County, its officers, officials, employees, and agents. Any insurance and/or self-insurance maintained by the County, its officers, officials, employees, or agents shall not contribute with the Grantee's insurance or benefit the Grantee in any way.

c. The Grantee's insurance shall apply separately to each insured against whom claim is made and/or lawsuit is brought, except with respect to the limits of the insurer's liability.

(ii) All Policies

Coverage shall not be suspended, voided, canceled, reduced in coverage or in limits, except by the reduction of the applicable aggregate limit by claims paid, until after 45 days prior written notice has been given to the County. In the event of said cancellation or intent not to renew, the Grantee shall obtain and furnish to the County evidence of replacement insurance policies meeting the requirements of this Section by the cancellation date. Failure to provide proof of insurance could result in suspension of the Franchise.

G. Acceptability of Insurers

Unless otherwise approved by the County, insurance is to be placed with insurers with a Bests' rating of no less than A-VII, or, if not rated with Bests, with minimum surpluses the equivalent of Bests' surplus size VIII.

Professional Liability, Errors, and Omissions insurance may be placed with insurers with a Bests' rating of B+VII. Any exception must be approved by the County.

If, at any time, the foregoing policies shall fail to meet the above requirements, the Grantee shall, upon notice to that effect from the County, promptly obtain a new policy, and shall submit the same to the County, with appropriate certificates and endorsements, for approval.

H. Verification of Coverage

The Grantee shall furnish the County with certificates of insurance and endorsements required by this Franchise. The certificates and endorsements for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The certificates and endorsements for each insurance policy are to be on forms approved by the County prior to the commencement of activities associated with the Franchise. The County reserves the right to require complete, certified copies of all required insurance policies at any time.

I. Subcontractors

The Grantee shall include all subcontractors as insured under its policies or shall require separate certificates of insurance and policy endorsements from each subcontractor. If the Grantee is relying on the insurance coverage provided by subcontractors as evidence of compliance with the insurance requirements of this Franchise, then such requirements and documentation shall be subject to all of the requirements stated herein.

J. Insurance Review

In consideration of the duration of this Franchise, the parties agree that the Insurance section herein, at the discretion of the County Risk Manager, may be reviewed and adjusted with each amendment and within ninety (90) days of the end of the first five (5) year period of the term of this Franchise and the end of each successive five (5) year period thereafter. Any adjustments made as determined by the County Risk Manager, shall be in accordance with reasonably prudent risk management practices and insurance industry standards and shall be effective on the first day of each successive five (5) year period.

Adjustment, if any, in insurance premium(s) shall be the responsibility of the Grantee. Any failure by the County to exercise the right to review and adjust at any of the aforementioned timings shall not constitute a waiver of future review and adjustment timings.

18.2 Grantee shall furnish the County with original certificates and a copy of the amendatory endorsements, including but not necessarily limited to the additional insured endorsements, evidencing the insurance requirements of the Grantee before commencement of the work.

18.3 In satisfaction of the insurance requirements set forth in this Section 18, Grantee may self-insure against such risks in such amounts as are consistent with good utility practice. Grantee shall provide the County with reasonable written evidence that Grantee is maintaining such self-insurance.

Section 19. Performance Security.

In accordance with RCW 36.32.590 and SCC 13.10.104(4), Grantee is a unit of local government and shall not be required to secure the performance of a County-issued permit with a surety bond or other financial security device.

Section 20. Annexation.

If any Public Right-of-Way, or portion thereof, is incorporated into the limits of any city or town, it shall not be subject to the terms of this Franchise.

Section 21. Vacation.

If any Public Right-of-Way, or portion thereof, is vacated, it shall not be subject to the terms of this Franchise. The County may retain a utility easement as allowed under RCW 36.87.140 when a Public Right-of-Way, or portion thereof, is vacated. The Grantee may request the County retain a utility easement; however in no case shall the County be obligated to retain such an easement. The County shall not be liable for any damages or loss to the Grantee by reason of such vacation and termination.

Section 22. Assignment.

22.1 Neither this Franchise nor any interest therein shall be leased, sold, partitioned, transferred, assigned, disposed of, or otherwise subject to a change in the identity of the Grantee (each such activity, a "Transfer"), in whole or in part, in any manner, without the prior written consent of the County Council. Should any such Transfer be approved by the County, then each and every one of the provisions, conditions, regulations and requirements contained in this Franchise shall be binding upon the approved transferee beginning on the date of the Transfer, and all privileges, as well as all obligations and liabilities of the Grantee shall inure to such

ORDINANCE NO. 19-040

GRANTING A NON-EXCLUSIVE FRANCHISE AUTHORIZING LIMITED USE OF THE PUBLIC
ROAD RIGHTS-OF-WAY IN SNOHOMISH COUNTY, WASHINGTON TO CROSS VALLEY
WATER DISTRICT

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transferee equally as if such transferee was specifically mentioned wherever the Grantee is named herein.

22.2 In the case of a Transfer to secure indebtedness, whether by mortgage or other security instrument, the County's consent shall not be required unless and until the secured party elects to realize upon the collateral. The Grantee shall provide prompt, written notice to the County of any assignment to secure indebtedness.

22.3 Any attempt by Grantee to Transfer this Franchise in violation of this Section 22 shall constitute a material breach by Grantee.

Section 23. Termination, Revocation, and Forfeiture.

If the Grantee (i) defaults on any material term or condition of this Franchise; (ii) willfully violates or fails to comply with any of the provisions of this Franchise; or (iii) through willful misconduct or gross negligence fails to heed or comply with any notice given the Grantee by the County under the provisions of this Franchise, then the Grantee shall, at the election of the County Council, forfeit all rights conferred hereunder and the Franchise may be terminated by the County Council. Upon termination for any cause, all rights of the Grantee granted hereunder or under any right-of-way use permit shall cease, and the Grantee shall immediately commence to remove or, with approval of the County Engineer, abandon in place all of the Grantee Facilities from the Public Rights-of-Way in accordance with Section 14 above.

Section 24. Remedies to Enforce Compliance; No Waiver.

24.1 In lieu of termination, revocation or forfeiture as provided in Section 23, and without prejudicing any of its other legal rights and remedies, the County may elect to obtain an order from the Superior Court or other court, tribunal, or agency having competent jurisdiction compelling the Grantee to comply with the provisions of this Franchise and to recover damages and costs incurred by the County by reason of the Grantee's failure to comply. In addition to any other remedy provided herein, the County reserves the right to pursue any remedy to compel or force the Grantee and/or its permitted successors and assigns to comply with the terms hereof, and the pursuit of any right or remedy by the County shall not prevent the County from thereafter declaring a forfeiture or revocation for breach of the conditions herein.

24.2 Failure of the County to exercise any rights or remedies under this Franchise shall not constitute a waiver of any such right or remedy and shall not prevent the County from pursuing such right or remedy at any future time.

24.3 Nothing in this Franchise is or was intended to confer third-party beneficiary status on any person or entity to enforce the terms of this Franchise.

Section 25. County Ordinances and Regulations – Reservation of Police Power.

Nothing in this Franchise shall restrict the County's ability to adopt and enforce all necessary and appropriate ordinances regulating the performance of the conditions of the Franchise, including, but not limited to, any ordinances adopted under the County's police powers in the interest of public safety and for the welfare of the public. The County shall have the authority at all times to control by appropriate regulations, including design standards, and utility accommodation policies, the location, elevation, manner of construction, and maintenance of any Grantee Facilities located within any Public Right-of-Way, and the Grantee shall promptly conform with all such regulations, unless compliance would cause the Grantee to violate other requirements of law. In the event of a conflict between the regulatory provisions of this Franchise and any other ordinance(s) enacted under the County's police power authority, such other ordinance(s) shall take precedence over the provisions set forth herein.

Section 26. Eminent Domain, Powers of the People.

This Franchise is subject to the power of eminent domain and the right of the County Council or the people acting for themselves through initiative or referendum to repeal, amend or modify the Franchise in the interest of the public. In any proceeding under eminent domain, the Franchise itself shall have no value.

Section 27. Survival and Force Majeure.

27.1 Until such time as all of the Grantee Facilities have been removed from the Public Rights-of-Way in accordance with Section 14.1 above, or have been deactivated or abandoned in place in accordance with Sections 14.2 and 14.3 above, all of the provisions, conditions and requirements contained in the following sections of this Franchise shall survive the expiration, revocation, forfeiture or early termination of the Franchise: (i) Section 4 (Regulation of Use; Permits Required); (ii) Section 5 (Emergency Work); (iii) Section 6 (Compliance with Applicable Laws; Performance Standards); (iv) Section 7 (Restoration of Public Rights-of-Way); (v) Section 8 (Record Plans, Record Drawings, and Records of Grantee Facility Locations); (vi) Section 10 (Undergrounding of Grantee Facilities); (vii) Section 12 (Hazardous Materials); (viii) Section 13 (Dangerous Conditions, Authority for County to Abate); (ix) Section 14 (Removal of Grantee Facilities; Abandonment of Grantee Facilities); (x) Section 15 (Fees, Compensation for Use of Public Rights-of-Way and Taxes); (xi) Section 16 (Hold Harmless and Indemnification); (xii) Section 17 (Limitation of County Liability); (xiii) Section 18 (Insurance); (xiv) Section 19 (Performance Security); and (xv) Section 24 (Remedies to Enforce Compliance; No Waiver).

27.2 After such time as all Grantee Facilities have been either removed from the Public Rights-of-Way or abandoned/deactivated in place to the County's satisfaction pursuant to Section 14 above, only the following provisions shall survive the expiration or earlier termination of the Franchise: (i) Section 8 (Record Plans, Record Drawings, and Records of Grantee Facility Locations); (ii) Section 12 (Hazardous Materials); (iii) Section 16 (Hold Harmless and Indemnification); and (iv) Section 17 (Limitation of County Liability).

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27.3 If the Grantee is prevented or delayed in the performance of any of its obligations under this Franchise by reason of a Force Majeure, then Grantee's performance shall be excused during a Force Majeure occurrence. Upon removal or termination of the Force Majeure occurrence the Grantee shall promptly perform its obligations in an orderly and expedited manner using industry accepted best practices. Grantee's performance shall not be excused by economic hardship nor by the misfeasance or malfeasance of its directors, officers, or employees.

27.4 For the purposes of this Franchise, "Force Majeure" means any event or circumstance (or combination thereof) and the continuing effects of any such event or circumstance (whether or not such event or circumstance was foreseeable or foreseen) that delays or prevents performance by the Grantee of any of its obligations under this Franchise, but only to the extent that and for so long as the event or circumstance is beyond the reasonable control of the Grantee and shall include, without limitation, all of the following events and circumstances: (i) acts of nature, including volcanic eruption, landslide, earthquake, flood, lightning, tornado or other unusually severe storm or environmental conditions, perils of the sea, wildfire or any other natural disaster; (ii) acts of public enemies, armed conflicts, act of foreign enemy, acts of terrorism (whether domestic or foreign, state-sponsored or otherwise), war (whether declared or undeclared), blockade, insurrection, riot, civil disturbance, revolution or sabotage; (iii) any form of compulsory government actions, acquisitions or condemnations, changes in applicable law, export or import restrictions, customs delays, rationing or allocations; (iv) accidents or other casualty, damage, loss or delay during transportation, explosions, fire, epidemics, quarantine or criminal acts; (v) inability, after the use of commercially reasonable efforts, to obtain from any governmental authority any permit, approval, order, decree, license, certificate, authorization or permission to the extent required by applicable law; (vi) inability, after the use of commercially reasonable efforts, to obtain any consent or approval required by the Franchise; and (viii) third-party litigation contesting all or any portion of the Franchise or Grantee's rights under this Franchise.

Section 28. Governing Law and Stipulation of Venue.

This Franchise and all use of Public Rights-of-Way granted herein shall be governed by the laws of the State of Washington, unless preempted by federal law. Any action relating to this Franchise shall be brought in the Superior Court of Washington for Snohomish County, or in the case of a federal action, the United States District Court for the Western District of Washington at Seattle, unless an administrative agency has primary jurisdiction.

Section 29. Severability.

If any section, sentence, clause, phrase or provision of this Franchise or the application of such provision to any person or entity should be held to be invalid or unconstitutional by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or constitutionality of any other section, sentence, clause, phrase or provision of this Franchise nor the application of the provision at issue to any other person or entity.

Section 30. Notice and Emergency Contact.

ORDINANCE NO. 19-040

GRANTING A NON-EXCLUSIVE FRANCHISE AUTHORIZING LIMITED USE OF THE PUBLIC
ROAD RIGHTS-OF-WAY IN SNOHOMISH COUNTY, WASHINGTON TO CROSS VALLEY
WATER DISTRICT

Any notice or information required or permitted to be given to the parties under this Franchise may be sent to the following addresses unless otherwise specified:

SNOHOMISH COUNTY
Department of Public Works
3000 Rockefeller Avenue, M/S 607
Everett, WA 98201

CROSS VALLEY WATER DISTRICT
8802 180th Street SE
Snohomish, WA 98296

Attn. Right-of-Way Coordinator
Phone: (425) 388-3488

Attn. Mike Johnson, General Manager
Phone: 360-668-6766 x 102

The Grantee shall also provide the County a current emergency contact name (or title) and phone number available 24-hours a day, seven days a week. The Grantee shall promptly notify the County of any change in the notice address or emergency contact (or title) and phone number.

Section 31. Acceptance.

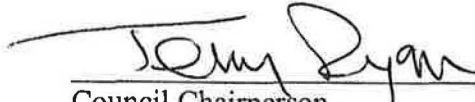
Within ninety (90) days after the passage and approval of this Franchise by the County Council, the Franchise may be accepted by the Grantee by its filing with the County Council an unconditional written acceptance thereof. Failure of the Grantee to so accept the Franchise within said period of time shall be deemed a rejection thereof by the Grantee, and the rights and privileges herein granted shall automatically cease and terminate, unless the time period is extended by ordinance duly passed for that purpose.

Section 32. Effective Date.

This Franchise shall take effect, if at all, on the date on which each and every one of the following conditions have been met (the "Effective Date"): (i) ten (10) days have passed since the County Executive executed this Franchise, or this ordinance was otherwise enacted; (ii) the Grantee executes a copy of this Franchise and returns it to the County Council within the time provided in Section 31 above; (iii) the Grantee presents to the County acceptable evidence of insurance as required in Section 18 above; and (iv) the Grantee pays all applicable fees as set forth in Section 15 above.

PASSED this 18th day of September, 2019.

SNOHOMISH COUNTY COUNCIL
Snohomish County, Washington



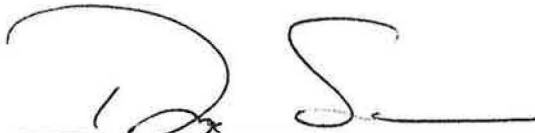
Council Chairperson

ATTEST:




Asst. Clerk of the Council

☒ APPROVED
☐ VETOED
☐ EMERGENCY



Snohomish County Executive

DATE: 9/24/19

ATTEST:


Approved as to Form Only:



Deputy Prosecuting Attorney

Date: 6/12/19

D-6

ORDINANCE NO. 19- 040

GRANTING A NON-EXCLUSIVE FRANCHISE AUTHORIZING LIMITED USE OF THE PUBLIC
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pg. 27

ACCEPTANCE:

The provisions of this Franchise are agreed to and hereby accepted. By accepting this Franchise, Cross Valley Water District covenants and agrees to perform and be bound by each and all of the terms and conditions imposed by the Snohomish County Charter, Snohomish County Code, and this Franchise.

Dated: October 17, 2019

CROSS VALLEY WATER DISTRICT

By: Mike Johnson

Printed Name: Mike Johnson

Title: GENERAL MANAGER

CERTIFICATION OF COMPLIANCE WITH CONDITIONS AND EFFECTIVE DATE:

I certify that I have received confirmation that: (1) the Grantee returned a signed copy of this Franchise to the County Council within the time provided in Section 31; (2) the Grantee has presented to the County acceptable evidence of insurance as required in Section 18 of this Franchise; and (3) the Grantee has paid all applicable processing costs and fees as set forth in Section 15 of this Franchise.

THE EFFECTIVE DATE OF THIS ORDINANCE IS:

NOVEMBER 19, 2019

By: Maria Elena Lao

Name: MARIA ELENA LAO

Title: ASST. CLERK OF THE COUNCIL

ORDINANCE NO. 19-040

GRANTING A NON-EXCLUSIVE FRANCHISE AUTHORIZING LIMITED USE OF THE PUBLIC
ROAD RIGHTS-OF-WAY IN SNOHOMISH COUNTY, WASHINGTON TO CROSS VALLEY
WATER DISTRICT



COUNTY ENGINEER'S REPORT
FRANCHISE – WATER & SEWER FACILITIES
CROSS VALLEY WATER DISTRICT

Pursuant to chapter 36.55.010 Revised Code of Washington (RCW), Section 9.20 Snohomish County Charter, and Title 13 of the Snohomish County Code (SCC), the Cross Valley Water District has applied to Snohomish County (the "County") for a franchise to construct, maintain, operate, replace and repair its water and sewer system facilities in County public rights-of-way, and for no other purpose or use whatsoever. Chapter 36.55 RCW and Snohomish County Charter Section 9.20 authorize the County to grant nonexclusive franchises for use of County public rights-of-way. Snohomish County's franchise procedure is contained in chapter 13.80 SCC. The requirements for this Engineer's report are described in SCC 13.80.040.

FINDINGS

1. Applicant

Cross Valley Water District (the "District") is a Washington special purpose municipal corporation first formed in 1989 and governed by a three person board of commissioners, which provides water and sewer services to over 6500 customers in unincorporated Snohomish County. The District's service area is approximately 50 square miles, extending from the Snohomish-King County line, north to the City of Snohomish, with a west boundary running near 51st Avenue Southeast and Lowell Larimer Rd stretching east to the Snohomish and Snoqualmie Rivers. The District was previously granted a utility franchise via Ordinance 94-023 approved on May 13, 1994 and recorded under Auditor's File Number 9406060825, which expired on May 12, 2019.

2. Description of Facilities

The District's water is primarily supplied by a series of ground water wells and supplemented by interties with adjacent water purveyors including City of Everett, Clearview Water Supply Agency, Alderwood Water and Wastewater District, and Silver Lake Water and Sewer District. The District operates a series of storage reservoirs, a water treatment plant, pumping facilities, and more than 174 miles of water transmission and distribution pipe ranging in size from 2 to 24 inches. The District's sanitary sewer system contains approximately 7 miles of 8 inch or larger gravity and force main piping, routing into King County's Brightwater Wastewater Treatment Plant located near Highway 9 and 228th St SE. The District's operations require placement in the public rights-of-way of water and sewer pipes of various sizes, manholes, fire hydrants, valves, pump stations and other appurtenances. Nearly all structures are placed underground with access (e.g. manholes and valve covers) placed flush with the road surface. All work shall be performed in compliance with federal, state and local laws, rules and

regulations (including, but not limited to, the County's comprehensive plan, zoning code, and other development regulations) that are applicable to any and all work or other activities performed by the Public Works Department pursuant to or under authority of the Franchise as more fully described within the proposed franchise and Section 6 of this report.

3. Insurance

The Cross Valley Water District has agreed to provide proof of insurance in accordance with SCC 13.10.100 and Section 18 of the franchise. The Risk Management Division has reviewed and approved the insurance requirements contained in the Section 18. In accordance with Section 32 of the franchise, the franchise shall not take effect until the Cross Valley Water District provides evidence of insurance acceptable to the Risk Management Division.

4. Description of County Rights-of-Way Covered by the Proposed Franchise

The proposed franchise includes all county rights-of-way located in the portions of unincorporated Snohomish County as indicated by township, range and section below:

<u>Township</u>	<u>Range</u>	<u>Sections</u>
28N	5E	1-3, 10-14, 16, 21, 22, 24-27 & 36
28N	6E	30 & 31
27N	5E	1-3, 9-15, 22-27, 34 & 35
27N	6E	6-8, 16-21 & 26-35

5. Term of Franchise

The initial term of the franchise shall be for a period of ten (10) years (the "Initial Term"), beginning on the Effective Date as that term is defined in Section 32 of the franchise, and continuing until the date that is one day prior to the tenth (10th) anniversary of the Effective Date (the "Initial Term Expiration Date"), unless earlier terminated, revoked or modified pursuant to the provisions of the franchise. The franchise automatically renews for an additional term of ten (10) years (the "Extended Term," and, together with the Initial Term, the "Term"), subject to the County's right to open negotiations regarding any amendments to the franchise at any time after the Initial Term Expiration Date, as more fully described in Section 3.3 of the franchise.

6. Terms and Conditions of Franchise

Under the franchise, the Cross Valley Water District will:

- Comply with the requirements of State law, County Charter, Title 13 SCC, the Engineering Design and Development Standards (EDDS), the county's Utility Accommodation Policy, and all right-of-way use permit application, review and construction standards.
- Not in any event abandon in place all or a portion of their facilities without the express written consent of the county as more fully described in franchise Section 14.
- Compensate the county for its administrative expenses in preparing the franchise.

- Provide the county with adequate insurance appropriate for a water distribution system franchise.
- Post a security device sufficient to ensure performance of its obligations when required by the County Engineer.
- Not assign any franchise rights or obligations without prior written consent of the county as more fully described in franchise Section 22.
- Indemnify, defend and hold harmless any County Party from any and all claims, demands, liability, suits, and judgments, including costs of defense thereof, for bodily injury to persons, death, or property damage arising out of its use of Public rights-of-way pursuant to the franchise as more fully described in franchise Section 16.
- Promptly, at its sole cost and expense, relocate or remove its facilities from county rights-of-way when the County Engineer determines it to be necessary due to: (i) traffic conditions; (ii) public safety; (iii) dedications of new public rights-of-way and the establishment and/or improvement thereof; (iv) widening and/or improvement of existing public rights-of-way; (v) vacations of public rights-of-way; (vi) freeway construction; (vii) change or establishment of road grade; or (viii) the construction of any public improvement or structure by any governmental agency acting in a governmental capacity.

COUNTY ENGINEER'S RECOMMENDATION

Based on the above findings, the Department of Public Works recommends the County Council grant a right-of-way franchise to the Cross Valley Water District under the terms and conditions of County Charter, County Code and the ordinance granting a franchise.

Prepared by:

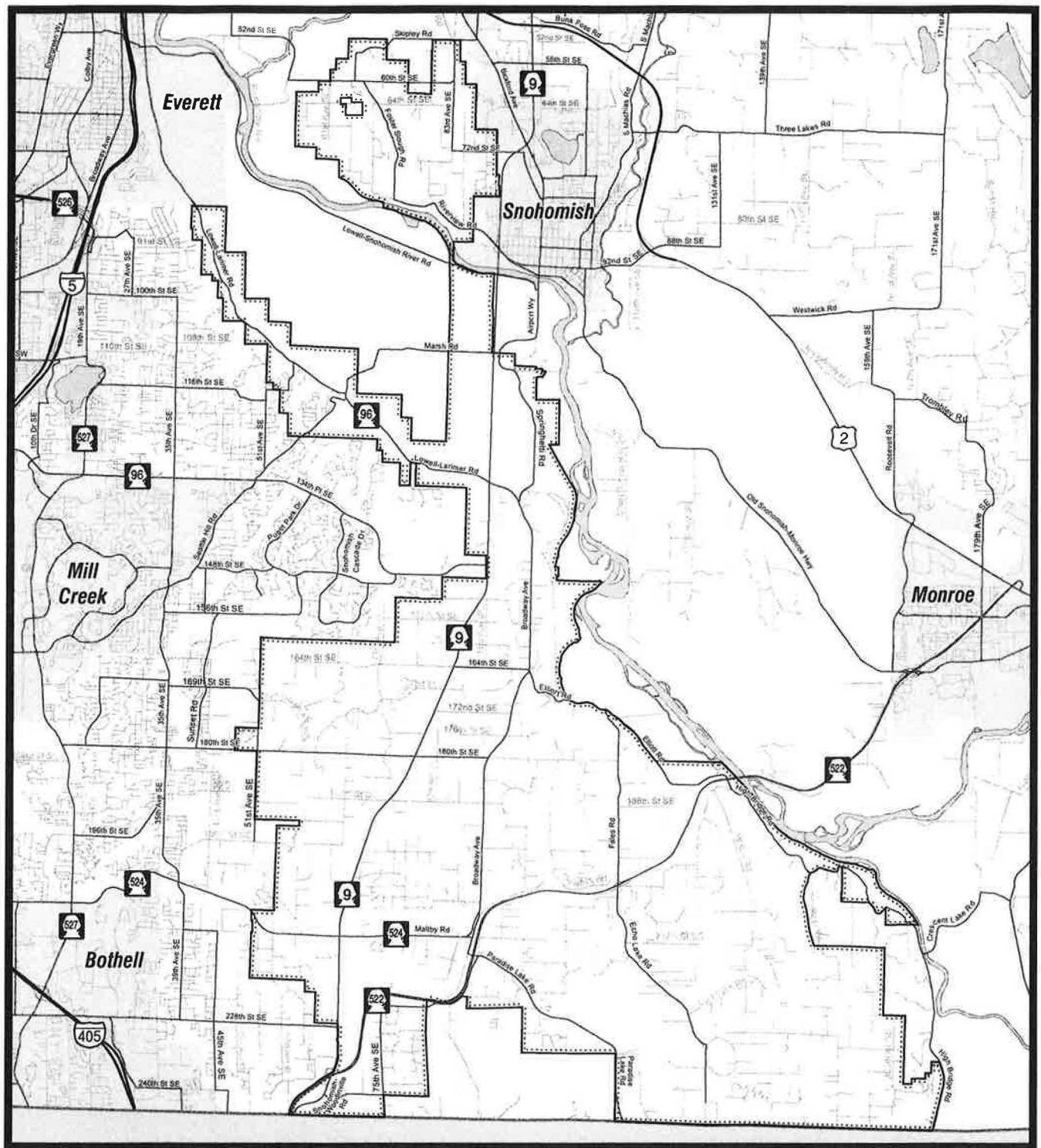
Brook Chesterfield
Brook Chesterfield, P.E.
Special Projects Coordinator

Date: 6/18/19

Approved by:

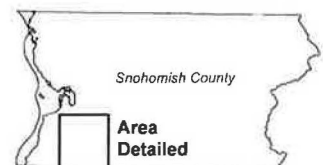
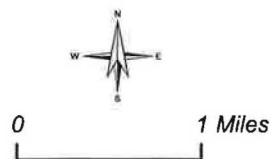
Douglas W. McCormick
Douglas W. McCormick, P.E.
County Road Engineer

Date: 6/21/19



Key to Features:

- | | |
|-----------------------------------|---------------|
| District Service Area | — Freeways |
| — Arterial Roads | — Local Roads |
| □ Unincorporated Snohomish County | ■ Cities |
| ■ Waterbodies | |



Snohomish County disclaims any warranty of merchantability or warranty of fitness of this map for any particular purpose, either express or implied. Any user of this map assumes all responsibility for use thereof, and further agrees to hold Snohomish County harmless from and against any damage, loss, or liability arising from any use of this map.

Exhibit A. Cross Valley Water District Proposed Franchise Area

(The proposed franchise applies exclusively to county rights-of-way located in the portions of unincorporated Snohomish County depicted above.)



**Water System Plan
Cross Valley Water District**

**Appendix C
Sewer Service Designation**

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CHRISTINE O. GREGOIRE
Director



OKS
DPK
CEV139

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

JUL 26 1991

CERTIFIED MAIL
P 878 774 141

Cross Valley Water District
Post Office Box 131
Snohomish, WA 98290

Gentlemen:

Enclosed is Order No. DE 91WQ-N197. All correspondence relating to this document should be directed to the Enforcement Coordinator. If you have any questions concerning the content of the document, please call Mr. David Wright, telephone (206) 649-7000.

This Order is issued under the provisions of RCW 90.48.120. Any person feeling aggrieved by this Order may obtain review thereof by application, within 30 days or receipt of this Order, to the Washington Pollution Control Hearings Board, Mail stop PY-21, Olympia, Washington 98504-8921. Concurrently, a copy of the application must be sent to the Department of Ecology, Mail Stop PV-11, Olympia, Washington 98504-8711. These procedures are consistent with the provisions of Chapter 43.21B RCW and the rules and regulations adopted thereunder.

Sincerely,

Nancy Groves
for

Mary A. Kautz
Enforcement Coordinator

MAK:jo
Enclosures

cc: George Schlender, DOH
Pam Murray, Inslee Best
S.T. Engineering
Snohomish Health District
Snohomish County Planning Dept.
P.J. Blunck, Alderwood Water District
Bruce Nelson, Silver Lake Water District

DEPARTMENT OF ECOLOGY

IN THE MATTER OF GRANTING AN APPROVAL)
AND A CERTIFICATE OF NECESSITY TO)
Cross Valley Water District)
in accordance with Chapter 57.08 RCW)

ORDER
No. DE 91WQ-N197

TO: Cross Valley Water District
Post Office Box 131
Snohomish, WA 98290

On 20th day of August 1990, Cross Valley Water District filed an application with the State of Washington Department of Ecology requesting issuance of an Approval and Certificate of Necessity pursuant to the provisions of RCW 57.08.065.

The Department of Ecology, exercising its authority pursuant to RCW 57.08.065 as implemented by Chapter 372-52 WAC, having fully investigated said application, makes the following findings:

1. That the area proposed to be served by Cross Valley Water District with a sewerage system is described in Exhibit A of this Order; said exhibit by this reference made a part hereto.
2. A sewerage system does not exist in a substantial portion of the area described in Exhibit A of this Order.
3. No regularly constituted and established sewer district, or other public or municipal corporation or political subdivision, intends to construct and operate a sewerage system in a substantial portion of the area described in Exhibit A of this Order within the reasonably foreseeable future.
4. The granting of an approval and a certificate of necessity to Cross Valley Water District to establish, maintain, construct, and operate a sewerage system, and to exercise the powers of Title 56 RCW in the area described in Exhibit A, will eliminate or alleviate an existing or imminent water pollution problem.
5. The area proposed to be served by Cross Valley Water District is within a sewage drainage basin established and designated pursuant to RCW 90.48.270, and is in conformance with an adopted Comprehensive Water Pollution Control and Abatement Plan for the Basin established pursuant to RCW 90.48.280 or is in conformance with a county general sewerage plan.


In view of the foregoing and in accordance with RCW 57.08.065 and WAC 372-52-050, IT IS ORDERED THAT:

1. Approval and certification of necessity is granted to the Cross Valley Water District to establish, maintain, construct, and operate a sewerage system within the area described in Exhibit A of this Order;
2. This Order does not constitute approval of any comprehensive Plan, engineering report, or plans and specification for a sewerage system for the said area, which must be submitted to the Department of Ecology pursuant to RCW 90.48.110 for specific approval; and
3. The granting of this approval and certificate of necessity by the department shall constitute approval to establish, maintain, construct, and operate a sewerage system within the area described in Exhibit A of this Order and shall in no way constitute approval or authority to establish, maintain, construct, and operate a sewerage system in any other area.

Any person who fails to comply with any provision of this Order shall be liable for a penalty of up to ten thousand dollars for each day of continuing noncompliance.

Or, in lieu of the above, any person feeling aggrieved by this Order may obtain review thereof by application, within thirty (30) days of receipt of this Order, to the Washington Pollution Control Hearings Board, Mail Stop PY 21, Olympia, Washington 98504-8921. Concurrently, a copy of the application must be sent to the Department of Ecology, Mail Stop PV-11, Olympia, Washington 98504-8711. These procedures are consistent with the provisions of Chapter 43.21B RCW and the rules and regulations adopted thereunder.

DATED at Bellevue, Washington JUL 26 1991


John H. Glynn
Water Quality Supervisor
Northwest Regional Office
Department of Ecology
State of Washington

RECOMMENDATION FOR ENFORCEMENT ACTION

Northwest Region: WQ X SW/HZ
 HWICP
DATE: July 17, 1991
FROM: David Evans Wright (206) 649-7059
 (Full Name of Investigator)

NOV: No. DE
ORDER: No. DE 91WQ-N197
PENALTY: No. DE
Followup Action:
PLP: Yes No

RECOMMEND ENFORCEMENT ACTION BE TAKEN AGAINST:

- I. Cross Valley Water District
(Name: Company, Individual, Municipality, County, etc.)
II. P.O. Box 131 Snohomish, Washington 98290
(Address) (Zip Code)
III. ISSUE:
- X A. Water Quality Regulatory Notice and Order, RCW 90.48.120
 1) Notice of Violation, RCW 90.48.120(1)
 2) Followup Regulatory Order, RCW 90.48.120(1)
 3) Immediate Action Order, RCW 90.48.120(2).
 B. Notice of Penalty, RCW 90.48.144 (WQ)
 C. Notice of Penalty, RCW 90.48.350 (Oil)
 D. Notice of Penalty, RCW 70.105.080 (HW)
 E. Modification of Water Quality Criteria,
 WAC 173-201-100()
 F. Agriculture Discharges, RCW 90.48.450
X G. Other Certificate of Necessity WAC 372-52

FOR VIOLATION OF:

- 1) RCW 90.48.080 Unlawful Discharge of Waste to Public Waters of the State
 2) RCW 90.48.120 Noncompliance with Regulator Order
 3) RCW 90.48.160 Wastewater Disposal Permit Requirement
 4) RCW 90.48.180 Noncompliance with Waste Discharge Permit (include copy of page 1 and permit condition violated)
 5) RCW 90.48.320 Unlawful Discharge of Oil
 6) RCW 90.48.360 Failure to Immediately Notify the Department of Oil Discharge
 7) WAC 173-201 Violation of Water Quality Criteria
 8) RCW 70.105 Hazardous Waste Laws, specific paragraphs(s)
 9) Other

RECOMMENDATION FOR ENFORCEMENT ACTION:

Date: July 17, 1991

NOV: No. DE _____
ORDER: No. DE 91WO-N197
PENALTY: No. DE _____
Followup Action: _____

Name of Company or Individual Cross Valley Water District

IV. The violation occurred at: Time _____ Date _____

V. Location of the incident/activity: Maltby/Clearview area
in Snohomish County

VI. Name of watercourse involved: _____ Class "____"
WBS# _____

VII. Narrative of incident/situation:
(Use separate page or memo if necessary)
Cross Valley Water District has requested an "Approval and
Certificate of Necessity" to operate a sewer system in the Bear
Creek and Hollywood basin drainage in the Maltby/Clearview area
of South Snohomish County.

VIII. Physical evidence obtained: Samples ____ Pictures ____ Other _____

IX. Names and addresses of witnesses:

X. Recommended penalty or regulatory action to be taken:

It is recommended that an Administrative Order be issued to Cross Valley Water District granting Approval and Certificate of Necessity to establish, maintain, construct, and operate a sewer system in accordance with 90.48.120 RCW 57.08.065 RCW and 372-52 WAC.

Escalated Penalty: ____ Yes ____ No

Enclosures _____
Lab Report No. _____
Pictures _____
Other XX _____

Investigated/Requested BY:

David E. Wright 7-19-91
David E. Wright
Senior Water Quality Engineer

RECOMMENDATION FOR ENFORCEMENT ACTION:

NOV: No. DE _____
ORDER: No. DE 91WQ-N197
PENALTY: No. DE _____
Followup Action: _____

Name of Company or Individual: Cross Valley Water District

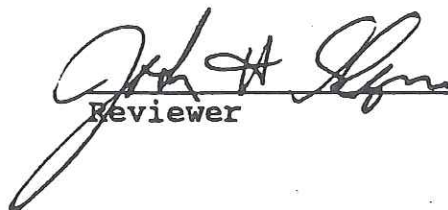
ENDORSEMENT

TO: SECTION SUPERVISOR

FROM: REVIEWER

The following action(s) within the Region (has) (have) been taken to resolve this problem.

SEPA Compliance: DNS issued June 24, 1991

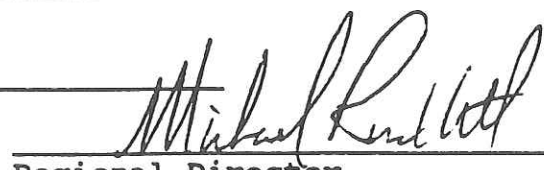

Reviewer
25 July 91
Date

TO: Section Supervisor

FROM: Regional Director

Comments: _____

No comments: _____


Regional Director
7/22/91
Date

CROSS VALLEY WATER DISTRICT SEWER SERVICE AREA BOUNDARY

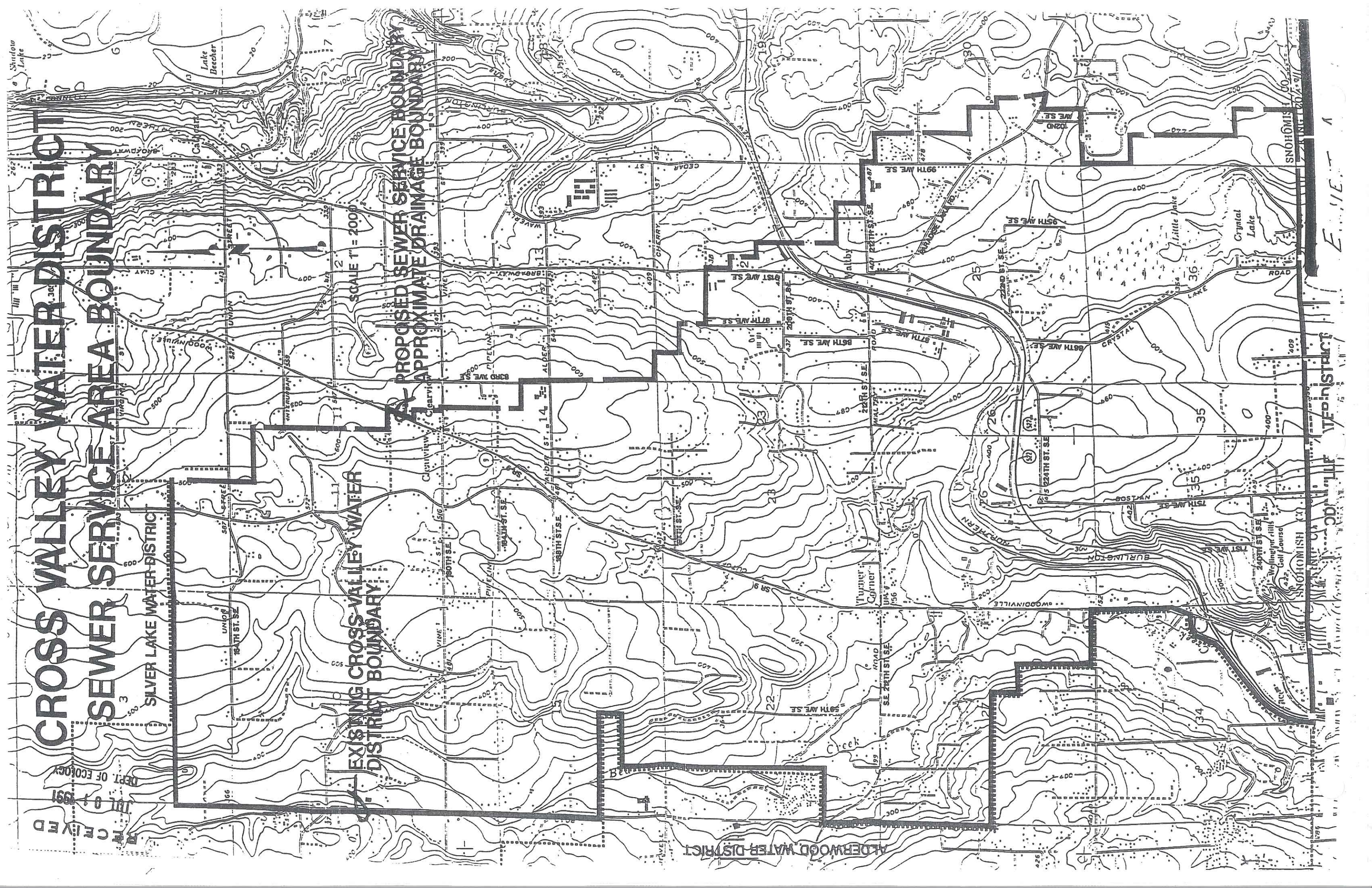
RECEIVED
JUL 01 1991
DEPT. OF ECOLOGY

SILVER LAKE WATER DISTRICT

EXISTING CROSS VALLEY WATER
DISTRICT BOUNDARY

PROPOSED SEWER SERVICE BOUNDARY
APPROXIMATE DRAINAGE BOUNDARY

SCALE 1" = 200'



E 11 E

10th Street

11th Street

12th Street

13th Street

14th Street

15th Street



STATE OF WASHINGTON
DEPARTMENT OF HEALTH

West 924 Sinto Avenue • Spokane, Washington 99201-2595 • FAX 509-436-2997

June 11, 1991

Cross Valley Water District
8710 - 180th St. S.E.
Snohomish WA 98290


RE: Application for Certificate of Necessity, Cross Valley Water
District, Snohomish County

Dear Commissioners:

In accordance with the provisions of WAC 246-270 the application for certification of necessity received in this office August 24, 1990 together with additional information received May 7, 1991 has been reviewed. The Department of Health hereby **APPROVES** Cross Valley Water District a **Certification of Necessity** to establish, maintain, construct and operate a sewer system within the service area requested.

Regulations establishing a schedule of fees for review of planning, engineering and construction documents were adopted July 1, 1987 (WAC 246-270-990). An itemized bill for \$200.00 is enclosed.

Sincerely,


George B. Schiender, Coordinator
Municipal Waste Water Program
(509) 456-2490

GBS:aa

Enclosure

cc: DOE, NW Region, Dave Wright
Pam Murray
S.T. Engineering
Snohomish Health District
State Health
Snohomish Co. Planning



**Water System Plan
Cross Valley Water District**

**Appendix D
Sole Source Aquifer Designation**

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U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 10

1200 SIXTH AVENUE
SEATTLE, WASHINGTON 98101

JUN 5 1987

REPLY TO
ATTN OF WD-139

Earl Petersen, President
Cross Valley Water Association
Post Office Box 131
Snohomish, Washington 98290

Dear Mr. Petersen:

The Environmental Protection Agency (EPA) recently completed its evaluation and analysis of the Cross Valley Sole Source Aquifer petition submitted by the Cross Valley Water Association, Inc., and the Mount Forest Protection Association. The Cross Valley aquifer is located in southern Snohomish and northern King Counties in and around Clearview, Washington. Based on our assessment, I have determined that the Cross Valley aquifer meets the criteria for sole source aquifer classification. Formal designation of the Cross Valley aquifer as a sole source aquifer, is published in the May 18, 1987, Federal Register.

An aquifer may be designated a sole source aquifer as established under Section 1424(e) of the Safe Drinking Water Act (SDWA) of 1974. This section authorizes the EPA Administrator to determine that an aquifer is the "sole or principal" source of drinking water for an area. The sole source aquifer program also provides for EPA review of federal financially assisted projects planned for the area to determine their potential for contaminating the aquifer. Based on this review, no commitment of federal financial assistance may be made for projects "which the Administrator determines may contaminate such aquifer," although federal funds may be used to modify projects to ensure that they will not contaminate the aquifer.

Enclosed for your information is a copy of the May 18, 1987, Federal Register Designation Notice, a copy of our Support Document, and a Fact Sheet describing basic aquifer information.

We will be working closely with federal, state, and local agencies as we implement this program which complements ongoing state and local ground-water protection efforts.

Sincerely,

Robie G. Russell
Regional Administrator

Enclosures



**Water System Plan
Cross Valley Water District**

**Appendix E
Specifications for Fats, Oils, and Grease Interceptors**

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**SPECIFICATIONS FOR GREASE
INTERCEPTOR
AND OIL/WATER SEPARATOR**

SPECIFICATIONS

SECTION 1: GREASE INTERCEPTOR

General	FOG -1
Vault	FOG -2
Construction	FOG -3

SECTION 2: OIL/WATER SEPARATOR

General	FOG -4
Vault	FOG -5
Construction	FOG -6

SPECIFICATIONS FOR GREASE INTERCEPTORS AND OIL/WATER SEPARATORS

SECTION 1: GREASE INTERCEPTOR

1.01 GENERAL

Whenever a commercial and/or retail food preparation operation, regardless of size, generates animal/vegetable fats, oils or grease (FOG) waste, which causes a visible sheen or accumulations in the effluent, to be discharged to the sanitary sewer, pre- treatment is required. A grease interception device, if required, shall be installed by the property owner as specified herein. Selection and sizing of the grease interceptor shall be subject to the approval of the District and/or King County/METRO. Effluent discharged from any grease interceptor shall not contain a visible sheen or accumulations of FOG, and shall be in compliance with Cross Valley Water District and King County/METRO regulations for discharge to the sanitary sewer.

Before a grease interceptor is installed, the property owner shall submit all plans to Cross Valley Water District and/or King County/METRO for review and approval. The property owner will need a letter approving the design and allowing discharge of wastewater from the properly installed tank. When submitting plans, include the following information:

- Name and address of the facility, and the phone number and mailing address of the person legally responsible for operation and maintenance.
 - Drawing of the grease interceptor with capacities and dimensions. See Standard Details.
 - Site map detailing all drains and the interceptor location.
 - Location of the water sources and maximum water flows (in gallons per minute) from all potential service areas and equipment discharging to the grease interceptor.
- A. Size and design of the grease interceptor shall conform to the uniform plumbing code, appendix H standards, and shall be subject to approval by the District. Minimum capacity shall be 600 gallons and the minimum criteria for sizing shall be as follows:

Interceptor Capacity (Gallons)	=	Waste Flow Rate X Retention Time X Storage Factor
Waste Flow Rate (GPM)	=	Provided by Developer, with approved supporting documentation
Retention Time	=	150 minutes minimum
Storage Factor	=	1 for 8 hour Operation 2 for 16 hour Operation 3 for 24 hour Operation

- B. Fixtures in the kitchen area which discharge wastewater containing grease are to be connected to the grease interceptor. Such fixtures include, but may not be limited to dishwashers, pot sinks, range woks, janitor's sink, floor sinks, and rotoclones. Toilets, urinals, and wash basins shall not flow through the interceptor.
- C. The interceptor shall be located outside the building within twenty feet of drive for access by maintenance vehicles.
- D. The interceptor shall be filled with clean water prior to start-up of system.
- E. Allowable materials for construction are as follows:
 - Tank – concrete
 - Baffles - concrete, plastic
- F. Access to the interceptor shall be maintained free for inspection and compliance determination sampling at all times.
- G. When pre-treatment is no longer required, the inlet and outlet pipes shall be permanently plugged, the separation chambers pumped out, and the vault removed, or filled with compacted crushed rock or controlled density fill. The property owner will need to apply for an revision side sewer permit and pay for the District and/or King County/METRO inspection fees.

1.02 VAULT

Grease Interceptor Vaults shall be of precast concrete construction. Cement concrete shall have a minimum 28-day compressive strength of 4,500 psi.

Deformed bars for steel reinforcement shall be in accordance with ASTM A615, grade 60. Welded-wire fabric reinforcement shall be in accordance with ASTM A185, grade 65. All interior piping shall be PVC sized to match side sewer line size.

Interior baffle shall be precast reinforced concrete, 4 inches thick. Concrete baffle shall be secured in place by slotted vault walls or with stainless steel angles as shown in the Standard Detail.

Vault cover shall include 24 inch diameter bolt-locking manhole covers and frames located over inspection tees. Manhole covers shall not allow passage of air or gases. Vault cover shall be designed for AASHTO H-20 load with 30% impact factor. See the Standard Details for vault sizes and miscellaneous details.

1.03 CONSTRUCTION

Grease interceptors shall be constructed as shown in the Standard Details. Excavation for precast vault shall be sufficient to provide a minimum of 12 inches (12") between the vault and the side of the excavation.

24-inch (24") diameter manhole frame and cover shall be adjusted to the elevation required by the Engineer prior to final acceptance of the work. Adjusting rings shall be manufactured from precast reinforced concrete. Total height of rings shall be from 8 inches (8") minimum to 20 inches (20") maximum.

The grease interceptor shall be placed on firm soil. If the foundation material is inadequate, the Contractor shall use foundation gravel or bedding concrete under the normal base to support the interceptor.

Vault shall be placed and set plumb so as to provide vertical sides. The completed interceptor shall be rigid and watertight.

The outside and inside of manhole adjusting rings, joints of precast concrete sections and the perimeter of precast baffle shall be thoroughly wetted and completely filled with mortar, plastered, and troweled smooth with 3/4" of mortar in order to attain a watertight surface.

All lift holes, if any, on precast items shall be completely filled with expanding mortar, smoothed both inside and out, to ensure water-tightness. All steel loops, if any, on precast section must be removed flush with the vault wall.

The stubs shall be covered with mortar and smoothed. Rough, uneven surfaces will not be permitted.

Precast vault and baffle shall be provided with 8-inch (8") diameter knockouts at all pipe openings or have openings core-drilled prior to installation.

All rigid pipe entering or leaving the structure shall be provided with flexible joints within twelve inches (12") of the manhole structure and shall be placed on firmly compacted bedding. Special care shall be taken to see that the openings through which pipes enter the structure are completely and firmly filled with mortar from the outside to ensure water-tightness. All PVC pipe connections to vault and baffle shall be made with gasketed coupling as approved by the District.

SPECIFICATIONS FOR GREASE INTERCEPTORS AND OIL/WATER SEPARATORS

SECTION 2: OIL/WATER SEPARATOR

2.01 GENERAL

Whenever an industrial or commercial business generates mineral/petroleum oils exceeding 100 milligrams per liter to be discharged to the sanitary sewer, pre-treatment is required. Businesses that typically need oil/water separators include but are not limited to; quicklime stations, transportation fueling facilities, vehicle/heavy equipment repair shops, and businesses using steam or pressure washers. Except where otherwise specifically permitted, no wastes other than those requiring treatment or separation shall be discharged into any interceptor. An oil/water separation device, if required, shall be installed by the property owner as specified herein. Water discharged from any oil/water separator to the sanitary sewer system shall not contain in excess of 100 milligrams per liter of petroleum oil, non-biodegradable cutting oil or mineral products, and shall be in compliance with Cross Valley Water District and King County/METRO regulations for discharge to the sanitary sewer.

Before an oil/water separator is installed, the property owner shall submit all plans to Cross Valley Water District and/or King County/METRO for review and approval. The property owner will need a letter approving the design and allowing discharge of wastewater from the properly installed tank. When submitting plans, include the following information:

- Name and address of the facility, and the phone number and mailing address of the person legally responsible for operation and maintenance.
 - Drawing of the oil/water separator with capacities and dimensions. The outlet to the sewer must have a sampling tee installed. See Standard Details.
 - Site map detailing all drains and the separator location. Indicate if any drainage is from rain water runoff. This should be kept to a maximum of 200 square feet.
 - Location of the water sources and maximum water flows (in gallons per minute) from all potential service areas and equipment discharging to the oil/water separator.
- A. Sizing of a separator facility shall be based upon maximum available flow to the separator and provision of a forty-five minute retention time in the separator at that flow, with a minimum capacity of at least 100 gallons.

- B. The oil/water separator shall be covered with removable sections. Access and inspection covers, weighing not more than 30 lbs. and with suitable hand holds, are to be provided directly above inspection "tee" and oil/grit collection compartments.
- C. Only waste water from floor drains and covered parking areas shall drain to the separator. The following items should not be put through an oil/water separator: antifreeze, degreasers, detergents fuels, alcohols, solvents, concentrated amounts of oily products, or heavy metal bearing wastewater. The location and design shall minimize or eliminate the possibility of storm water reaching the separator - areas over two hundred square feet open to rainfall shall not drain to the separator. Sewage from restrooms and shower facilities shall not drain to the separator. See Standard Details.
- D. Allowable materials for construction are as follows:
 - Tank - concrete
 - Baffles - concrete, steel plate
- E. The separator shall be located within 20 feet of drive for access by maintenance vehicle.
- F. A sampling tee shall be located on the outlet with a minimum 18 inch drop below the invert. Access to the separator shall be maintained free for inspection and compliance determination sampling at all times.
- G. The effluent discharged from any oil/water separator to the sanitary sewer shall not exceed 100 parts per million total oil.
- H. When pre-treatment is no longer required, the inlet and outlet pipes shall be permanently plugged, the separation chambers pumped out, and the vault removed, or filled with compacted crushed rock or controlled density fill.

2.02 VAULT

Oil/Water separator vaults shall be of precast concrete construction.

Cement concrete shall have a minimum 28-day compressive strength of 4,500 psi.

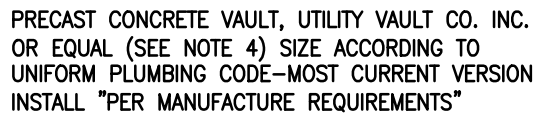
Deformed bars for steel reinforcement shall be in accordance with ASTM A615, grade 60. Welded-wire fabric reinforcement shall be in accordance with ASTM A185, grade 65. All interior piping shall be PVC sized to match side sewer line size. Baffles and weir shall be 1/2-inch-thick steel plates galvanized in accordance with ASTM A123. Vault covers shall be as shown on the Standard Details. Hatches shall be Bilco model, or equal. All covers, including hatches, clean-outs, and manhole frame and covers, shall be locking, watertight, and capable of AASHTO H-20 traffic loading. See the Standard Details for vault sizes, vault covers, and miscellaneous details required for various oil/water separator sizes.

2.03 CONSTRUCTION

Oil/water separators shall be constructed as shown in the Standard Details. Excavation for precast vault shall be sufficient to provide a minimum of 12 inches between the vault and the side of the excavations. Vault shall be placed at proper depth to set vault cover flush with finish grade. If additional depth of cover is required over inlet or outlet, piping vault riser sections shall be installed to raise vault cover a maximum of 24 inches.

The oil/water separator shall be placed on firm soil. If the foundation material is inadequate, the Contractor shall use foundation gravel or bedding concrete under the normal base to support the separator.

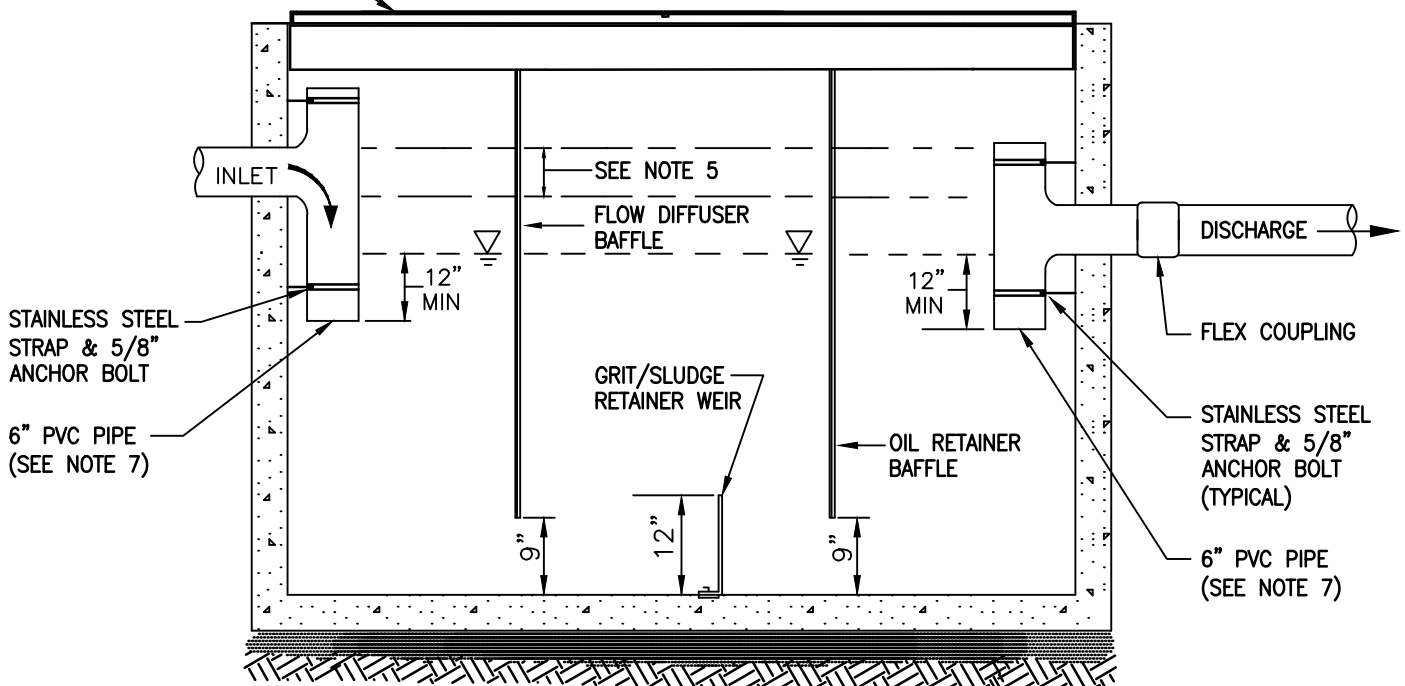
Vault shall be placed and set plumb so as to provide vertical sides. The completed separator shall be rigid and watertight.



1. GRAY-WATER ONLY. BLACK-SEWER WATER SHALL BE CARRIED BY SEPARATE SIDE SEWER.
2. LOCATE INTERCEPTOR WITHIN CLOSE PROXIMITY OF DRIVE FOR ACCESS BY A MAINTENANCE VEHICLE.
3. IF VAULT IS NOT SLOTTED TO ACCEPT PRECAST CONC. BAFFLE THEN PRECAST CONC. SHALL BE HELD IN PLACE BY (2) 3"x3"x3/8" ANGLE (4FT. LONG) ATTACHED TO VAULT WALL WITH (4 EA) 1/2" BOLTS AND NUTS (WITH WASHERS) SPACED 14" O.C. ANGLE AND FASTENERS SHALL BE STAINLESS STEEL.
4. PRECAST VAULT AND BAFFLE SHALL HAVE KNOCKOUTS AT ALL PIPE OPENINGS. IF KNOCKOUTS ARE NOT PRESENT THEN PIPE OPENINGS SHALL BE 2" LARGER THAN PIPE DIAMETER.
5. POSITION PIPE RISERS BELOW ACCESS OPENINGS TO ALLOW CLEAR ACCESS TO RISER AND VAULT CHAMBER FOR SAMPLING AND INSPECTION.
6. TOP OF INLET PIPE SHALL BE ONE PIPE DIAMETER HIGHER THAN THE TOP OF THE DISCHARGE PIPE.
7. INLET INSPECTION TEE/RISER MUST EXTEND A MINIMUM OF 12" BELOW THE DESIGNED WATER LEVEL.
8. ALL INTERNAL PIPING (RISER/INSPECTION TEE) SHALL BE A MINIMUM OF 6" PVC PIPE. EACH RISER SHALL BE CONNECTED TO THE WALL OF THE VAULT IN TWO (2) PLACES USING STAINLESS STEEL OR ALUMINUM STRAPS.
9. ALL FITTINGS SHALL BE DESIGNED TOR GREASE RETENTION.
10. CONNECTIONS THROUGH CONCRETE WALLS REQUIRE WATER TIGHT MANHOLE ADAPTERS. SEAL ALL PIPE CONNECTIONS WITH MATERIALS APPROVED BY CVWD.
11. VAULT AND FITTINGS SHALL BE WATERTIGHT.
12. LIDS, FRAMES AND BOLTS SHALL MEET DISTRICT STANDARDS. MANHOLE ACCESS REQUIRED TO ALL VAULT CHAMBERS.
13. FILL WITH CLEAN WATER PRIOR TO STARTUP OF SYSTEM.
14. DISCHARGE MUST COMPLY WITH DISTRICT STANDARDS.
15. INTERCEPTORS SHALL BE VENTED PER UNIFORM PLUMBING CODE.
16. LIQUID DEPTH SHALL MEET THE UNIFORM PLUMBING CODE.
17. DISCHARGE AND TRANSITION TEES/RISERS SHALL EXTEND TO WITHIN 12-18" OF VAULT BOTTOM.

FEB 2022

SEE SHEET SS-5A
FOR LID DETAILS



NOTES:

1. GRAY-WATER ONLY. BLACK-WATER SHALL BE CARRIED BY SEPARATE SIDE SEWER.
2. LOCATE INTERCEPTOR WITHIN CLOSE PROXIMITY OF DRIVE FOR ACCESS BY A MAINTENANCE VEHICLE.
3. PRECAST VAULT AND BAFFLE SHALL HAVE KNOCKOUTS AT ALL PIPE OPENINGS. IF KNOCKOUTS ARE NOT PRESENT THEN PIPE OPENINGS SHALL BE LARGER THAN THE PIPE DIAMETER.
4. POSITION PIPE RISERS/INSPECTION TEES BELOW ACCESS OPENINGS TO ALLOW CLEAR ACCESS TO RISER AND VAULT CHAMBER FOR SAMPLING AND INSPECTION.
5. TOP OF INLET PIPE SHALL BE ONE PIPE DIAMETER HIGHER THAN THE TOP OF THE DISCHARGE PIPE.
6. INLET AND DISCHARGE INSPECTION TEE/RISER MUST EXTEND A MINIMUM OF 12" BELOW THE DESIGNED WATER LEVEL.
7. ALL INTERNAL PIPING (RISER/INSPECTION TEE) SHALL BE A MINIMUM OF 6" PVC PIPE. EACH RISER SHALL BE CONNECTED TO THE WALL OF THE VAULT IN TWO (2) PLACES USING STAINLESS STEEL OR ALUMINUM STRAPS.
8. ALL FITTINGS SHALL BE DESIGNED TOR OIL RETENTION.
9. CONNECTIONS THROUGH CONCRETE WALLS REQUIRE WATER TIGHT MANHOLE ADAPTERS. SEAL ALL PIPE CONNECTIONS WITH WATERTIGHT GROUT (MATERIALS TO BE APPROVED BY CVWD).
10. VAULT AND FITTINGS SHALL BE WATERTIGHT.
11. LIDS, FRAMES AND BOLTS SHALL MEET DISTRICT STANDARDS FOR MANHOLE LIDS AND/OR CLEANOUTS AS APPLICABLE.
12. FILL WITH CLEAN WATER PRIOR TO STARTUP OF SYSTEM.
13. DISCHARGE MUST COMPLY WITH DISTRICT STANDARDS.
14. INTERCEPTORS SHALL BE VENTED PER UNIFORM PLUMBING CODE.
15. LIQUID DEPTH SHALL MEET THE UNIFORM PLUMBING CODE.

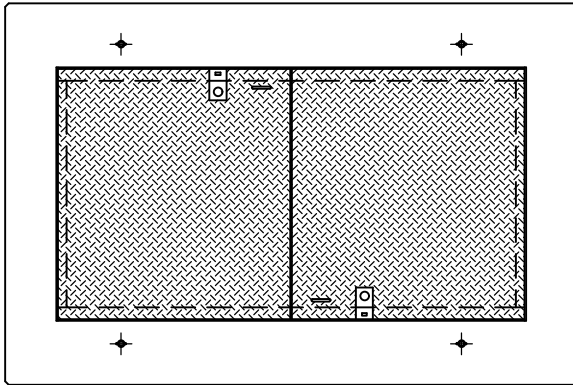
**CROSS VALLEY WATER DISTRICT
SIDE SEWER DETAILS**

OIL/WATER SEPARATOR

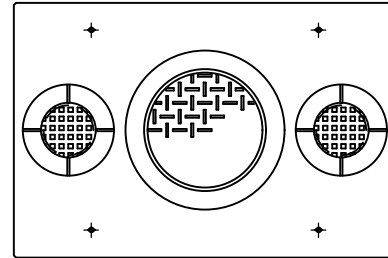
SS-5

NOT TO SCALE

FEB 2022



REQUIRED



ALTERNATE (DISTRICT APPROVAL REQUIRED)

NOTES:

1. COVERS TO HAVE SPRING ASSISTED AND FULL 180° OPENING DOORS, LOCKING LATCH & HOT DIPPED GALVANIZED DIAMOND PLATING. USE LW PRODUCTS HD ACCESS HATCH (H-20) RATED COVER OR EQUAL.
2. LID MUST BE RATED FOR LOAD REQUIREMENTS AND BE WATER TIGHT.

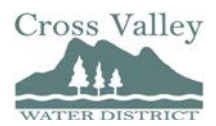
**CROSS VALLEY WATER DISTRICT
SIDE SEWER DETAILS**

**OIL/WATER SEPARATOR COVER
OPTION DETAILS**

SS-5A

NOT TO SCALE

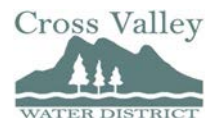
FEB 2022



**Water System Plan
Cross Valley Water District**

**Appendix F
Sewer Capacity Analysis**

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**Water System Plan
Cross Valley Water District**

**Appendix F
Keys for Old and New (Renamed) Manhole Numbers**

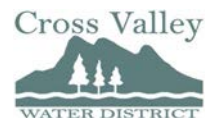
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Cross Valley Water District
Sewer System Manhole Numbers
(PREVIOUS TO CURRENT)

Previous Number		Current Number		Previous Number		Current Number		Previous Number		Current Number	
	1	MH	00244	C	66A	MH	00098	D	120	MH	00017
	2	MH	00245	C	67	MH	00097	D	121	MH	00016
	3	MH	00247	C	68	MH	00096	D	122	MH	00123
	4	MH	00246	C	69	MH	00095	D	123	MH	00121
	4A	MH	00255	C	70	MH	00094	D	124	MH	00119
	5	MH	00256	C	71	MH	00093	D	125	MH	00118
MH	#1	MH	00128	C	72	MH	00092	D	126	MH	00117
MH	#2	MH	00129	C	73	MH	00088	D	127	MH	00116
MH	#3	MH	00130	C	74	MH	00087	D	127-	MH	00124
MH	#4	MH	00131	C	75	MH	00086	D	127-BB	MH	00125
MH	#5	MH	00132	C	76	MH	00085	D	127-C	MH	00126
MH	No. 1	MH	00141	C	77	MH	00084	D	127-D	MH	00127
MH	No. 2	MH	00142	C	78	MH	00083	D	128	MH	00115
MH	No. 3	MH	00143	C	79	MH	00081	D	129	MH	00114
MH	No. 4	MH	00144	C	80	MH	00080	D	129A	MH	00113
MH	No. 5	MH	00145	C	81	MH	00079	D	130	MH	00109
MH	No. 6	MH	00146	C	87	MH	00108	D	131	MH	00110
	SSMH2	MH	00234	C	87	MH	00156	D	132	MH	00112
	SSMH4	MH	00235	C	88	MH	00107	D	133	MH	00111
	SSMH5	MH	00236	C	89	MH	00101	D	134	MH	00076
MH	7-1	MH	00054	C	90	MH	00102	D	135	MH	00075
MH	7-2	MH	00053	C	91	MH	00103	D	136	MH	00070
MH	7-3	MH	00052	C	92	MH	00104	D	137	MH	00069
MH	7-4	MH	00051	C	93	MH	00105	D	138	MH	00068
MH	7-5	MH	00050	C	94	MH	00091	D	138A	MH	00067
MH	7-6	MH	00042	C	95	MH	00090	D	139	MH	00066
MH	7-7	MH	00041	C	96	MH	00089	D	140	MH	00065
MH	7-8	MH	00023	C	97	MH	00158	D	141	MH	00063
MH	7-9	MH	00024	C	98	MH	00157	D	142	MH	00064
MH	7-10	MH	00025	D	100	MH	00078	D	143	MH	00062
MH	7-10	MH	00140	D	101	MH	00077	D	144	MH	00061
B	28	MH	00004	D	102	MH	00074	D	148	MH	00030
B	29	MH	00003	D	103	MH	00073	D	149	MH	00039
B	30	MH	00002	D	104	MH	00072	D	150	MH	00045
B	31	MH	00001	D	105	MH	00055	D	151	MH	00059
B	32	MH	00015	D	106	MH	00071	D	152	MH	00060
B	33	MH	00014	D	107	MH	00056	D	153	MH	00044
B	34	MH	00012	D	108	MH	00057	D	154	MH	00037
B	35	MH	00011	D	109	MH	00058	D	155	MH	00036
B	36	MH	00010	D	110	MH	00049	D	156	MH	00046
B	37	MH	00009	D	111	MH	00048	D	157	MH	00043
B	38	MH	00007	D	112	MH	00040	D	158	MH	00038
B	39	MH	00005	D	113	MH	00029	D	159	MH	00034
B	40	MH	00008	D	114	MH	00028	D	160	MH	00033
B	41	MH	00006	D	115	MH	00026	D	161	MH	00035
B	44	MH	00194	D	116	MH	00047	D	162	MH	00031
B	42	MH	00013	D	117	MH	00027	D	163	MH	00032
C	64	MH	00106	D	118	MH	00021	D	164	MH	00020
C	65	MH	00100	D	118A	MH	00019	D	166	MH	00122
C	66	MH	00099	D	119	MH	00018	D	167	MH	00120
								D	171	MH	00022

Cross Valley Water District
Sewer System Manhole Numbers
(Current to Previous)

Current Number		Previous Number		Current Number		Previous Number		Current Number		Previous Number	
MH	00001	B	31	MH	00051	MH	7-4	MH	00102	C	90
MH	00002	B	30	MH	00052	MH	7-3	MH	00103	C	91
MH	00003	B	29	MH	00053	MH	7-2	MH	00104	C	92
MH	00004	B	28	MH	00054	MH	7-1	MH	00105	C	93
MH	00005	B	39	MH	00055	D	105	MH	00106	C	64
MH	00006	B	41	MH	00056	D	107	MH	00107	C	88
MH	00007	B	38	MH	00057	D	108	MH	00108	C	87
MH	00008	B	40	MH	00058	D	109	MH	00109	D	130
MH	00009	B	37	MH	00059	D	151	MH	00110	D	131
MH	00010	B	36	MH	00060	D	152	MH	00111	D	133
MH	00011	B	35	MH	00061	D	144	MH	00112	D	132
MH	00012	B	34	MH	00062	D	143	MH	00113	D	129A
MH	00013	B	42	MH	00063	D	141	MH	00114	D	129
MH	00014	B	33	MH	00064	D	142	MH	00115	D	128
MH	00015	B	32	MH	00065	D	140	MH	00116	D	127
MH	00016	D	121	MH	00066	D	139	MH	00117	D	126
MH	00017	D	120	MH	00067	D	138A	MH	00118	D	125
MH	00018	D	119	MH	00068	D	138	MH	00119	D	124
MH	00019	D	118A	MH	00069	D	137	MH	00120	D	167
MH	00020	D	164	MH	00070	D	136	MH	00121	D	123
MH	00021	D	118	MH	00071	D	106	MH	00122	D	166
MH	00022	D	171	MH	00072	D	104	MH	00123	D	122
MH	00023		7-8	MH	00073	D	103	MH	00124	D	127
MH	00024		7-9	MH	00074	D	102	MH	00125	D	127-BB
MH	00025		7-10	MH	00075	D	135	MH	00126	D	127-C
MH	00026	D	115	MH	00076	D	134	MH	00127	D	127-D
MH	00027	D	117	MH	00077	D	101	MH	00128	MH	#1
MH	00028	D	114	MH	00078	D	100	MH	00129	MH	#2
MH	00029	D	113	MH	00079	C	81	MH	00130	MH	#3
MH	00030	D	148	MH	00080	C	80	MH	00131	MH	#4
MH	00031	D	162	MH	00081	C	79	MH	00132	MH	#5
MH	00032	D	163	MH	00083	C	78	MH	00140		7-10
MH	00033	D	160	MH	00084	C	77	MH	00141	MH	No. 1
MH	00034	D	159	MH	00085	C	76	MH	00142	MH	No. 2
MH	00035	D	161	MH	00086	C	75	MH	00143	MH	No. 3
MH	00036	D	155	MH	00087	C	74	MH	00144	MH	No. 4
MH	00037	D	154	MH	00088	C	73	MH	00145	MH	No. 5
MH	00038	D	158	MH	00089	C	96	MH	00146	MH	No. 6
MH	00039	D	149	MH	00090	C	95	MH	00156	C	87
MH	00040	D	112	MH	00091	C	94	MH	00157	C	98
MH	00041	MH	7-7	MH	00092	C	72	MH	00158	C	97
MH	00042	MH	7-6	MH	00093	C	71	MH	00194	B	44
MH	00043	D	157	MH	00094	C	70	MH	00234	SSMH	2
MH	00044	D	153	MH	00095	C	69	MH	00235	SSMH	4
MH	00045	D	150	MH	00096	C	68	MH	00236	SSMH	5
MH	00046	D	156	MH	00097	C	67	MH	00244		1
MH	00047	D	116	MH	00098	C	66A	MH	00245		2
MH	00048	D	111	MH	00099	C	66	MH	00246		4
MH	00049	D	110	MH	00100	C	65	MH	00247		3
MH	00050	MH	7-5	MH	00101	C	89	MH	00255		4A
								MH	00256		5



Water System Plan
Cross Valley Water District

Appendix F
Part 1: Flow Analysis from Previous Plan

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**CROSS VALLEY WATER DISTRICT
1998 CAPACITY ANALYSIS**

Line	From Manhole	To Manhole	Length feet	From Invert	To Invert	Slope %	Dia. in.	Capacity ³ gpm	Current Service Area			With Added Properties		
									Projected ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm	Add'l. ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm
1	5-D133	5-D132	229	407.8	406.5	0.57%	8.28	449	17.3	3.1	428	7.8	1.4	419
2	5-D132	5-D129A	315	406.5	404.3	0.70%	8.28	498	30.3	5.4	462	130.9	23.3	308
3	5-D129A	5-D129	82	404.3	403.8	0.61%	8.28	465	30.3	5.4	429	130.9	23.3	275
4	5-D129	5-D128	413	403.8	401.4	0.58%	8.28	454	34.0	6.0	414	130.9	23.3	260
5	5-D131	5-D130	234	404.7	403.5	0.51%	7.92	379	35.7	6.4	337	0.0	0.0	337
6	5-D130	5-D128	399	403.5	401.4	0.53%	8.28	432	47.6	8.5	376	0.0	0.0	376
7	5-D128	5-D127	310	401.4	400.0	0.45%	8.28	400	81.6	14.5	304	130.9	23.3	150
8	5-D127	5-D126	260	400.0	398.6	0.54%	7.92	388	94.6	16.8	277	130.9	23.3	123
9	5-D126	5-D125	255	398.6	397.3	0.51%	7.92	378	109.3	19.4	249	143.1	25.4	80
10	5-D125	5-D124	254	397.3	393.0	1.69%	7.92	688	109.3	19.4	559	145.1	25.8	389
11	5-D124	5-D123	400	393.0	390.7	0.58%	7.92	401	109.3	19.4	272	152.3	27.1	93
12	5-D123	5-D122	332	390.7	388.8	0.57%	7.92	400	109.3	19.4	271	197.8	35.2	38
13	5-D167	5-D166	401	394.0	389.9	1.02%	7.92	535	7.8	1.4	526	0.0	0.0	526
14	5-D166	5-D122	143	389.9	388.8	0.77%	7.92	464	7.8	1.4	455	0.0	0.0	455
15	5-D122	5-D121	270	388.8	387.3	0.56%	7.92	394	117.1	20.8	256	197.8	35.2	23
16	5-D164	5-D121	300	388.9	387.3	0.53%	7.92	386	1.3	0.2	385	0.0	0.0	385
17	5-D121	5-D120	180	387.3	386.2	0.61%	7.92	414	118.3	21.0	274	197.8	35.2	41
18	5-D120	5-D119	240	386.2	384.9	0.54%	8.28	438	118.3	21.0	299	197.8	35.2	66
19	5-D119	5-D118A	215	384.9	384.2	0.33%	12.08	930	135.0	24.0	771	197.8	35.2	538
20	5-D118A	5-D118	221	384.2	383.4	0.36%	12.08	981	135.0	24.0	822	197.8	35.2	589
21	5-D171	5-D118	371	400.8	387.7	3.53%	7.92	994	1.4	0.3	992	13.3	2.4	977
22	5-D118	5-D117	250	383.4	382.3	0.44%	12.08	1,082	169.7	30.2	882	211.1	37.5	633
23	5-D117	5-D115	215	382.3	380.9	0.65%	12.08	1,316	200.8	35.7	1,079	211.1	37.5	831
24	5-D115	5-D114	401	380.9	379.4	0.37%	12.08	997	200.8	35.7	761	211.1	37.5	512
25	5-D114	5-D113	400	379.4	377.9	0.38%	11.78	934	200.8	35.7	697	211.1	37.5	449
26	5-D113	5-D112	400	377.9	376.8	0.27%	11.78	800	214.7	38.2	547	211.1	37.5	298
27	5-D112	5-D111	287	376.8	375.8	0.35%	11.78	900	227.1	40.4	633	211.1	37.5	384
28	5-D152	5-D151	221	406.0	404.7	0.59%	7.92	406	18.5	3.3	384	0.0	0.0	384

Line	From Manhole	To Manhole	Length feet	From Invert	To Invert	Slope %	Dia. in.	Capacity ³ gpm	Current Service Area			With Added Properties		
									Projected ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm	Add'l. ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm
29	5-D151	5-D156	340	404.7	402.8	0.56%	7.92	395	37.5	6.7	351	0.0	0.0	351
30	5-D157	5-D156	290	420.4	402.8	6.07%	7.92	1,303	2.5	0.5	1,300	0.0	0.0	1,300
31	5-D156	5-D150	165	402.8	401.7	0.67%	7.92	432	41.5	7.4	383	0.0	0.0	383
32	5-D163	5-D162	272	407.7	402.4	1.95%	7.92	738	7.9	1.4	729	0.0	0.0	729
33	5-D162	5-D148	368	402.4	400.3	0.57%	7.92	400	18.0	3.2	378	0.0	0.0	378
34	5-D148	5-D149	400	400.3	398.3	0.50%	7.92	374	31.6	5.6	337	0.0	0.0	337
35	5-D149	5-D150	300	398.3	396.6	0.57%	8.28	448	37.9	6.7	404	0.0	0.0	404
36	5-D155	5-D154	412	450.1	435.0	3.67%	8.28	1,140	32.7	5.8	1,102	0.0	0.0	1,102
37	5-D160	5-D159	324	431.7	430.0	0.52%	7.92	383	8.1	1.4	374	0.0	0.0	374
38	5-D161	5-D159	367	453.7	430.0	6.46%	7.92	1,344	24.7	4.4	1,315	0.0	0.0	1,315
39	5-D159	5-D158	288	430.0	428.5	0.52%	7.92	382	32.8	5.8	343	0.0	0.0	343
40	5-D158	5-D154	290	428.5	427.0	0.52%	8.28	428	32.8	5.8	390	0.0	0.0	390
41	5-D154	5-D153	326	427.0	418.0	2.76%	8.28	990	74.8	13.3	901	0.0	0.0	901
42	5-D153	5-D150	186	418.0	405.7	6.61%	7.92	1,360	74.8	13.3	1,272	0.0	0.0	1,272
43	5-D150	5-D116	325	396.6	384.9	3.60%	8.28	1,130	154.2	27.4	948	0.0	0.0	948
44	5-D116	5-D111	277	384.9	375.8	3.29%	7.92	959	154.2	27.4	777	0.0	0.0	777
45	5-D111	5-D110	141	375.8	375.4	0.28%	11.78	812	381.3	67.8	363	211.1	37.5	114
46	5-D110	5-D109	399	375.4	374.3	0.28%	11.78	801	416.7	74.1	310	211.1	37.5	61
47	5-D109	5-D108	240	374.3	373.2	0.46%	11.78	1,032	416.7	74.1	542	211.1	37.5	293
48	5-D108	5-D107	369	373.2	371.6	0.43%	12.08	1,074	435.4	77.4	561	211.1	37.5	312
49	5-D107	5-D106	197	371.6	370.9	0.36%	12.08	972	435.4	77.4	459	211.1	37.5	211
50	5-D143	5-D142	262	423.8	412.7	4.24%	7.92	1,089	36.3	6.5	1,046	0.0	0.0	1,046
51	5-D142	5-D141	30	412.7	411.2	5.00%	7.92	1,183	36.3	6.5	1,140	0.0	0.0	1,140
52	5-D141	5-D140	290	411.2	396.0	5.24%	7.92	1,211	46.8	8.3	1,156	0.0	0.0	1,156
53	5-D140	5-D139	173	396.0	394.9	0.64%	7.92	422	53.1	9.4	359	0.0	0.0	359
54	5-D144	5-D139	331	418.1	401.1	5.14%	7.92	1,199	6.3	1.1	1,191	0.0	0.0	1,191
55	5-D139	5-D138A	100	394.9	394.3	0.60%	8.28	461	65.9	11.7	384	0.0	0.0	384
56	5-D138A	5-D138	170	394.3	393.2	0.65%	8.28	479	81.1	14.4	384	0.0	0.0	384
57	5-D138	5-D137	400	393.2	391.2	0.50%	8.28	421	104.1	18.5	299	0.0	0.0	299
58	5-D137	5-D136	430	391.2	387.5	0.86%	8.28	552	104.1	18.5	430	0.0	0.0	430

Line	From Manhole	To Manhole	Length feet	From Invert	To Invert	Slope %	Dia. in.	Capacity ³ gpm	Current Service Area			With Added Properties		
									Projected ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm	Add'l. ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm
59	5-D136	5-D106	235	387.5	380.0	3.19%	7.92	945	109.7	19.5	816	0.0	0.0	816
60	5-D106	5-D105	199	370.9	370.1	0.40%	12.08	1,034	545.1	96.9	392	211.1	37.5	143
61	5-D105	5-D104	240	370.1	369.3	0.33%	11.78	880	566.8	100.8	213	328.1	58.3	-174
62	5-D104	5-D103	350	369.3	368.3	0.29%	11.78	815	573.0	101.9	140	328.1	58.3	-246
63	5-D103	5-D102	350	368.3	367.7	0.17%	14.00	1,001	574.5	102.1	324	328.1	58.3	-63
64	5-D102	5-D101	350	367.7	367.2	0.14%	14.00	913	576.8	102.6	234	328.1	58.3	-153
65	5-D101	5-D100	281	367.2	366.7	0.18%	14.00	1,019	576.8	102.6	340	328.1	58.3	-47
66	5-D134	5-D135	200	372.8	368.0	2.40%	7.92	819	34.1	6.1	779	0.0	0.0	779
67	5-D135	5-D100	223	368.0	366.7	0.58%	8.28	455	34.1	6.1	415	0.0	0.0	415
68	5-D100	5-C81	320	366.7	365.4	0.41%	12.08	1,039	610.9	108.6	320	328.1	58.3	-67
69	5-C81	5-C80	350	365.4	364.1	0.37%	12.08	994	614.4	109.2	270	328.1	58.3	-116
70	5-C80	5-C79	350	364.1	362.7	0.40%	12.08	1,031	622.2	110.6	298	328.1	58.3	-88
71	5-C99	5-C79	225	396.3	371.8	10.89%	8.10	1,853	5.6	1.0	1,847	0.0	0.0	1,847
72	5-C79	5-C78	230	362.7	345.6	7.43%	12.08	4,446	637.8	113.4	3,695	328.1	58.3	3,309
73	5-C78	5-C77	300	345.6	343.7	0.63%	12.08	1,298	637.8	113.4	546	328.1	58.3	160
74	5-C77	5-C76	280	343.7	342.2	0.54%	12.08	1,193	637.8	113.4	442	328.1	58.3	56
75	5-C76	5-C75	360	342.2	338.2	1.11%	12.08	1,719	683.5	121.5	914	328.1	58.3	527
76	5-C75	5-C74	400	338.2	334.9	0.83%	11.78	1,385	690.5	122.8	572	328.1	58.3	185
77	5-C98	5-C97	240	384.1	345.0	16.29%	7.92	2,135	16.7	3.0	2,116	0.0	0.0	2,116
78	5-C97	5-C74	200	345.0	334.9	5.05%	7.92	1,189	16.7	3.0	1,169	0.0	0.0	1,169
79	5-C74	5-C73	325	334.9	331.0	1.20%	11.78	1,670	717.6	127.6	825	328.1	58.3	439
80	5-C73	5-C72	350	331.0	327.5	1.00%	11.78	1,525	728.9	129.6	666	328.1	58.3	280
81	5-C96	5-C95	300	403.5	370.9	10.87%	7.92	1,744	31.8	5.7	1,706	0.0	0.0	1,706
82	5-C95	5-C94	195	370.9	351.8	9.79%	7.92	1,656	40.9	7.3	1,607	0.0	0.0	1,607
83	5-C94	5-C72	400	351.8	327.5	6.08%	7.92	1,304	40.9	7.3	1,256	0.0	0.0	1,256
84	5-C72	5-C71	290	327.5	326.2	0.45%	11.78	1,021	769.9	136.9	114	328.1	58.3	-272
85	5-C71	5-C70	250	326.2	325.1	0.44%	11.78	1,011	791.3	140.7	79	328.1	58.3	-307
86	5-C70	5-C69	80	325.1	299.1	32.50%	11.94	9,011	791.3	140.7	8,079	328.1	58.3	7,693
87	5-C69	5-C68	275	299.1	297.8	0.47%	12.08	1,121	820.6	145.9	155	328.1	58.3	-232
88	5-C68	5-C67	275	297.8	296.5	0.47%	12.08	1,121	820.6	145.9	155	328.1	58.3	-232

Line	From Manhole	To Manhole	Length feet	From Invert	To Invert	Slope %	Dia. in.	Capacity ³ gpm	Current Service Area			With Added Properties		
									Projected ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm	Add'l. ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm
89	5-C67	5-C66A	200	296.5	295.3	0.60%	12.08	1,263	820.6	145.9	297	328.1	58.3	-90
90	5-C66A	5-C66	200	295.3	292.1	1.60%	12.08	2,063	820.6	145.9	1,096	328.1	58.3	710
91	5-C66	5-C65	401	282.1	280.5	0.40%	12.08	1,030	824.2	146.5	59	328.1	58.3	-327
92	5-C93	5-C92	320	365.9	359.7	1.94%	7.92	736	13.3	2.4	721	0.0	0.0	721
93	5-C92	5-C91	100	359.7	355.1	4.60%	7.92	1,135	15.4	2.7	1,116	0.0	0.0	1,116
94	5-C91	5-C90	300	355.1	322.4	10.90%	7.92	1,746	21.3	3.8	1,721	0.0	0.0	1,721
95	5-C90	5-C89	175	322.4	294.9	15.71%	8.28	2,361	21.3	3.8	2,336	0.0	0.0	2,336
96	5-C89	5-C65	150	294.9	290.0	3.27%	8.28	1,076	21.3	3.8	1,051	0.0	0.0	1,051
97	5-C65	5-C64	396	280.5	279.0	0.38%	12.08	1,004	869.3	154.5	-20	328.1	58.3	-407
98	5-C88	5-C64	59	288.7	287.9	1.36%	7.92	616	29.0	5.2	582	0.0	0.0	582
99	5-C64	5-C63	125	279.0	272.1	5.52%	11.78	3,583	898.3	159.7	2,525	328.1	58.3	2,138
100	5-C63	5-C62	400	272.1	255.2	4.23%	11.78	3,134	898.3	159.7	2,076	328.1	58.3	1,690
101	5-C62	5-C61	214	255.2	220.3	16.31%	12.08	6,585	898.3	159.7	5,527	328.1	58.3	5,141
102	5-C61	5-C60	400	220.3	201.5	4.70%	11.78	3,306	898.3	159.7	2,248	328.1	58.3	1,861
103	5-C87	5-C60	211	280.6	210.5	33.22%	8.10	3,237	24.4	4.3	3,209	0.0	0.0	3,209
104	5-C60	5-C59	230	201.5	181.7	8.61%	11.78	4,474	922.8	164.0	3,387	328.1	58.3	3,001
105	5-C59	5-C58	400	181.7	158.0	5.93%	11.78	3,712	922.8	164.0	2,625	378.7	67.3	2,179
106	5-C58	5-C57	350	158.0	151.4	1.89%	11.78	2,094	922.8	164.0	1,007	378.7	67.3	561
107	5-C57	5-C56	400	151.4	149.4	0.50%	14.43	1,851	922.8	164.0	764	378.7	67.3	318
108	5-C56	5-C55	400	149.4	147.7	0.43%	14.43	1,706	942.3	168.8	595	378.7	67.3	149
109	5-C55	5-C54	400	147.7	146.0	0.42%	14.43	1,706	959.5	173.1	574	378.7	67.3	128
110	5-C54	5-C53	400	146.0	140.2	1.45%	14.43	3,152	1006.9	183.2	1,962	378.7	67.3	1,516
111	5-C86	5-C85	340	203.5	166.9	10.76%	7.92	1,736	22.1	3.9	1,710	0.0	0.0	1,710
112	5-C85	5-C53	400	166.9	145.6	5.33%	7.92	1,221	25.0	4.4	1,191	0.0	0.0	1,191
113	5-C53	5-C52	250	140.2	139.2	0.40%	14.43	1,655	1039.8	189.0	427	378.7	67.3	-19
114	5-C52	5-C51	280	139.2	137.2	0.71%	14.43	2,212	1058.3	192.3	962	378.7	67.3	516
115	5-C51	5-C50	400	137.2	135.9	0.32%	14.43	1,492	1073.9	195.1	223	378.7	67.3	-223
116	5-C50	5-C49	123	135.9	135.3	0.49%	14.43	1,828	1089.3	197.8	541	378.7	67.3	95
117	5-C49	5-C48	400	135.3	132.3	0.75%	14.43	2,267	1123.7	204.0	939	378.7	67.3	493
118	5-C84	5-C83	200	140.2	139.0	0.60%	7.92	410	27.8	4.9	377	0.0	0.0	377

Line	From Manhole	To Manhole	Length feet	From Invert	To Invert	Slope %	Dia. in.	Capacity ³ gpm	Current Service Area			With Added Properties		
									Projected ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm	Add'l. ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm
119	5-C83	5-C48	260	139.0	137.7	0.50%	7.92	374	34.6	6.2	333	0.0	0.0	333
120	5-C48	5-C47A	165	132.3	127.2	3.09%	14.43	4,602	1158.3	210.1	3,234	378.7	67.3	2,788
121	5-C47A ¹	5-B47B	329	126.3	119.6	2.04%	29.28	19,587	1158.3	210.1	18,218	378.7	67.3	17,772
122	5-B47B ¹	5-B47	100	119.6	119.2	0.40%	29.28	8,681	1158.3	210.1	7,312	378.7	67.3	6,866
123	5-B47 ¹	5-B46	63	119.2	118.7	0.79%	29.28	12,227	1158.3	210.1	10,859	378.7	67.3	10,413
124	5-B46 ¹	5-B27	365	118.7	117.8	0.25%	29.28	6,815	1158.3	210.1	5,447	378.7	67.3	5,001
125	5-B27 ¹	5-B26	279	117.8	117.1	0.25%	29.28	6,875	1158.3	210.1	5,506	378.7	67.3	5,060
126	5-B26 ¹	5-B25	207	117.1	116.7	0.19%	29.28	6,033	1158.3	210.1	4,665	378.7	67.3	4,219
127	5-B25 ¹	5-B24	372	116.7	116.0	0.19%	29.28	5,954	1158.3	210.1	4,585	378.7	67.3	4,139
128	5-B24 ¹	5-B23	295	116.0	115.1	0.31%	29.28	7,581	1158.3	210.1	6,213	378.7	67.3	5,767
129	5-B23 ¹	5-B22	405	115.1	114.1	0.25%	29.28	6,820	1158.3	210.1	5,452	378.7	67.3	5,006
130	5-B22 ¹	5-B21	130	114.1	113.3	0.62%	29.28	10,767	1158.3	210.1	9,398	378.7	67.3	8,953
131	5-B21 ¹	5-B20	459	113.3	112.2	0.24%	29.28	6,719	1158.3	210.1	5,351	378.7	67.3	4,905
132	5-B20 ¹	5-B19	495	112.2	110.8	0.28%	29.28	7,299	1190.8	215.9	5,893	378.7	67.3	5,447
133	5-B45	5-B44	220	123.6	123.0	0.27%	7.92	276	15.9	2.8	258	0.0	0.0	258
134	5-B44	5-B19	80	123.0	122.8	0.25%	7.92	264	15.9	2.8	246	0.0	0.0	246
135	5-B19 ¹	5-B18	220	110.8	110.1	0.32%	29.28	7,742	1206.7	218.7	6,317	378.7	67.3	5,871
136	5-B18 ¹	5-B17	280	110.1	109.5	0.21%	29.28	6,354	1234.3	223.6	4,896	378.7	67.3	4,450
137	5-B17 ¹	5-B16	211	109.5	108.8	0.33%	29.28	7,905	1234.3	223.6	6,448	378.7	67.3	6,002
138	5-B16 ¹	5-B15	300	108.8	108.1	0.23%	29.28	6,630	1234.3	223.6	5,172	378.7	67.3	4,726
139	5-B15 ¹	5-B14	300	108.1	104.4	1.23%	29.28	15,243	1234.3	223.6	13,785	378.7	67.3	13,339
140	5-B14 ¹	5-B13	380	104.4	103.6	0.21%	29.28	6,298	1235.6	223.8	4,838	378.7	67.3	4,392
141	5-B39	5-B38	650	287.0	182.4	16.09%	11.94	6,341	86.9	65.5	6,189	0.0	0.0	6,189
142	5-B38	5-B37	315	182.4	156.5	8.22%	11.78	4,372	102.5	68.3	4,202	0.0	0.0	4,202
143	5-B37	5-B36	205	156.5	154.9	0.78%	11.78	1,347	118.8	71.2	1,157	0.0	0.0	1,157
144	5-B36	5-B35	340	154.9	153.4	0.44%	11.78	1,013	118.8	71.2	823	0.0	0.0	823
145	5-B35	5-B34	220	153.4	144.8	3.91%	11.78	3,015	125.0	72.3	2,818	0.0	0.0	2,818
146	5-B42	5-B34	265	150.8	144.8	2.26%	7.92	796	28.2	5.0	763	0.0	0.0	763
147	5-B34	5-B33	390	144.8	140.5	1.10%	11.78	1,601	153.2	77.3	1,371	0.0	0.0	1,371
148	5-B33	5-B32	300	140.5	135.9	1.53%	11.78	1,888	160.6	78.6	1,649	0.0	0.0	1,649

Line	From Manhole	To Manhole	Length feet	From Invert	To Invert	Slope %	Dia. in.	Capacity ³ gpm	Current Service Area			With Added Properties		
									Projected ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm	Add'l. ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm
149	5-B32	5-B31	200	135.9	131.9	2.00%	11.78	2,156	176.2	81.4	1,899	0.0	0.0	1,899
150	5-B31	5-B30	200	131.9	131.4	0.25%	11.78	762	176.2	81.4	505	0.0	0.0	505
151	5-B30	5-B29	200	131.4	130.0	0.70%	11.78	1,276	176.2	81.4	1,018	0.0	0.0	1,018
152	5-B29	5-B28	200	130.0	129.4	0.30%	11.78	835	176.2	81.4	578	0.0	0.0	578
153	5-B28	5-B13	175	129.4	122.9	3.71%	11.78	2,939	176.2	81.4	2,681	0.0	0.0	2,681
154	5-B13 ¹	W11-A31 ²	500	103.6	102.3	0.26%	29.28	6,998	1411.8	305.2	5,281	378.7	67.3	4,836

NOTES:

¹20.6% OF THE FLOW CAPACITY OF THESE SECTIONS HAS BEEN RESERVED FOR ALDERWOOD WATER DISTRICT.

THESE RESERVES HAVE BEEN DEDUCTED FROM THE PIPE CAPACITY SHOWN.

²W11-A31 IS A METRO SYSTEM MANHOLE.

³CAPACITY CALCULATED USING MANNING'S EQUATION, N = 0.013.

⁴PROJECTED FLOW BASED ON 1800 GPAD WITH A PEAK FACTOR OF 2.5.

⁵INFILTRATION & INFLOW BASED ON 800 GPAD.

**NOMINAL PIPE
DIA. & TYPE**

**ACTUAL
PIPE DIA.**

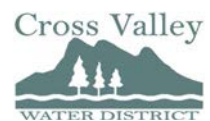
8" PVC	7.92 in.
8" PVC C900	8.28 in.
8" HDPE	8.10 in.
12" PVC	11.78 in.
12" PVC C900	12.08 in.
12" HDPE	11.94 in.
14" PVC C905	14.00 in.
15" PVC	14.43 in.
30" PVC C905	29.28 in.

CROSS VALLEY WATER DISTRICT
1998 SEWER SYSTEM CAPACITY ANALYSIS

CRV:449

SEWER RUNS WITH CAPACITY EXCEEDED BY ADDED PROPERTIES

FROM MH	TO MH	DIA.	LENGTH	CAPACITY	CAPACITY EXCEEDED	CAPACITY EXCEEDED
		IN	FT	GPM	GPM	%
D105	D104	12	240	880	174	20%
D104	D103	12	350	815	246	30%
D103	D102	14	350	1001	63	6%
D102	D101	14	350	913	153	17%
D101	D100	14	281	1019	47	5%
D100	C81	12	320	1039	67	6%
C81	C80	12	350	994	116	12%
C80	C79	12	350	1031	88	9%
C72	C71	12	290	1021	272	27%
C71	C70	12	250	1011	307	30%
C69	C68	12	275	1121	232	21%
C68	C67	12	275	1121	232	21%
C67	C66A	12	200	1263	90	7%
C66	C65	12	401	1030	327	32%
C65	C64	12	396	1004	407	41%
C51	C50	15	400	1492	223	15%
TOTAL 12"			3697			
TOTAL 14"			981			
TOTAL 15"			400			



**Water System Plan
Cross Valley Water District**

**Appendix F
Part 2: 2009 Capacity Analysis**

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**CROSS VALLEY WATER DISTRICT
2009 CAPACITY ANALYSIS**

Line	From Manhole	To Manhole	Length feet	From Invert	To Invert	Slope %	Dia. in.	Capacity ³ gpm	Flowing at 100%	Current Service Area			With Added Properties		
										Projected ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcity, gpm	Add'l. ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcity, gpm
1	5-D133	5-D132	229	407.8	406.5	0.57%	8.28	449	446	17.3	3.1	428	7.8	1.4	419
2	5-D132	5-D129A	315	406.5	404.3	0.70%	8.28	498	495	29.5	5.2	463	130.8	23.3	309
3	5-D129A	5-D129	82	404.3	403.8	0.61%	8.28	465	463	29.5	5.2	430	130.8	23.3	276
4	5-D129	5-D128	413	403.8	401.4	0.58%	8.28	454	452	33.5	6.0	415	130.8	23.3	260
5	5-D131	5-D130	234	404.7	403.5	0.51%	7.92	379	377	9.2	1.6	368	0.0	0.0	368
6	5-D130	5-D128	399	403.5	401.4	0.53%	8.28	432	430	25.8	4.6	402	0.0	0.0	402
7	5-D128	5-D127	310	401.4	400.0	0.45%	8.28	400	398	59.4	14.1	327	130.8	23.3	173
8	D127-D	D127-C	215	405.1	403.9	0.54%	7.92	390	388	20.1	3.6	367	0.0	0.0	367
9	D127-C	D127-B	119	403.9	403.1	0.70%	7.92	442	439	20.1	3.6	418	0.0	0.0	418
10	D127-B	D127-A	300	403.1	401.0	0.70%	7.92	443	440	20.1	3.6	419	0.0	0.0	419
11	D127-A	5-D127	32	401.0	400.0	3.13%	7.92	935	930	20.1	3.6	911	0.0	0.0	911
12	5-D127	5-D126	260	400.0	398.6	0.54%	7.92	388	386	92.5	16.4	279	130.8	23.3	125
13	5-D126	5-D125	255	398.6	397.3	0.51%	7.92	378	376	107.2	19.1	251	272.4	48.4	-69
14	5-D125	5-D124	254	397.3	393.0	1.69%	7.92	688	684	107.2	19.1	562	276.6	49.2	236
15	5-D124	5-D123	400	393.0	390.7	0.58%	7.92	401	399	107.2	19.1	275	299.0	53.2	-77
16	5-D123	5-D122	332	390.7	388.8	0.57%	7.92	400	398	107.2	19.1	274	299.0	53.2	-78
17	5-D167	5-D166	401	394.0	389.9	1.02%	7.92	535	532	7.5	1.3	526	0.0	0.0	526
18	5-D166	5-D122	143	389.9	388.8	0.77%	7.92	464	461	7.5	1.3	455	0.0	0.0	455
19	5-D122	5-D121	270	388.8	387.3	0.56%	7.92	394	392	114.7	20.4	259	299.0	53.2	-93
20	5-D164	5-D121	300	388.9	387.3	0.53%	7.92	386	384	1.3	0.2	385	0.0	0.0	385
21	5-D121	5-D120	180	387.3	386.2	0.61%	7.92	414	411	116.0	20.6	277	299.0	53.2	-75
22	5-D120	5-D119	240	386.2	384.9	0.54%	8.28	438	436	116.0	20.6	302	299.0	53.2	-50
23	5-D119	5-D118A	215	384.9	384.2	0.33%	12.08	930	927	127.9	22.7	780	299.0	53.2	428
24	5-D118A	5-D118	221	384.2	383.4	0.36%	12.08	981	977	127.9	22.7	830	299.0	53.2	478
25	5	4	223	432.0	417.0	6.70%	7.92	1,370	1,362	0.0	0.0	1,370	0.0	0.0	1,370
26	4	3	279	417.0	408.0	3.23%	7.92	950	945	0.0	0.0	950	0.0	0.0	950
27	3	2	105.2	408.0	406.0	1.90%	7.92	729	725	0.0	0.0	729	0.0	0.0	729
28	2	1	116	406.0	404.5	1.29%	7.92	602	598	0.0	0.0	602	0.0	0.0	602
29	1	5-D171	15	404.5	400.8	24.93%	7.92	2,641	2,627	0.0	0.0	2,641	67.8	12.1	2,561

Line	From Manhole	To Manhole	Length feet	From Invert	To Invert	Slope %	Dia. in.	Capacity ³ gpm	Flowing at 100%	Current Service Area			With Added Properties		
										Projected ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm	Add'l. ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm
30	5-D171	5-D118	371	400.8	387.7	3.53%	7.92	994	988	5.6	1.0	987	67.8	12.1	907
31	5-D118	5-D117	250	383.4	382.3	0.44%	12.08	1,082	1,077	212.8	37.8	831	366.8	65.2	399
32	5-D117	5-D115	215	382.3	380.9	0.65%	12.08	1,316	1,310	245.2	43.6	1,027	366.8	65.2	595
33	5-D115	5-D114	401	380.9	379.4	0.37%	12.08	997	993	245.2	43.6	709	366.8	65.2	277
34	5-D114	5-D113	400	379.4	377.9	0.38%	11.78	934	930	245.2	43.6	645	366.8	65.2	213
35	5-D113	5-D112	400	377.9	376.8	0.27%	11.78	800	796	259.0	46.0	495	366.8	65.2	63
36	5-D112	5-D111	287	376.8	375.8	0.35%	11.78	900	896	270.7	48.1	581	366.8	65.2	149
37	5-D152	5-D151	221	406.0	404.7	0.59%	7.92	406	403	18.5	3.3	384	0.0	0.0	384
38	5-D151	5-D156	340	404.7	402.8	0.56%	7.92	395	393	34.2	6.1	355	0.0	0.0	355
39	5-D157	5-D156	290	420.4	402.8	6.07%	7.92	1,303	1,296	2.5	0.5	1,300	0.0	0.0	1,300
40	5-D156	5-D150	165	402.8	401.7	0.67%	7.92	432	429	38.3	6.8	387	0.0	0.0	387
41	5-D163	5-D162	272	407.7	402.4	1.95%	7.92	738	734	7.9	1.4	729	0.0	0.0	729
42	5-D162	5-D148	368	402.4	400.3	0.57%	7.92	400	397	18.0	3.2	378	0.0	0.0	378
43	5-D148	5-D149	400	400.3	398.3	0.50%	7.92	374	372	31.6	5.6	337	0.0	0.0	337
44	5-D149	5-D150	300	398.3	396.6	0.57%	8.28	448	446	37.9	6.7	404	0.0	0.0	404
45	5-D155	5-D154	412	450.1	435.0	3.67%	8.28	1,140	1,134	42.2	7.5	1,090	0.0	0.0	1,090
46	5-D160	5-D159	324	431.7	430.0	0.52%	7.92	383	381	7.5	1.3	374	0.0	0.0	374
47	3	2	265	463.1	459.0	1.57%	7.92	663	659	0.0	0.0	663	0.0	0.0	663
48	2	1	61	459.0	457.6	2.21%	7.92	787	783	0.0	0.0	787	0.0	0.0	787
49	1	1-A	48	457.6	456.2	2.90%	7.92	900	895	0.0	0.0	900	0.0	0.0	900
50	1-A	5-D161	102	456.2	453.7	2.47%	7.92	831	827	26.9	4.8	800	0.0	0.0	800
51	5-D161	5-D159	367	453.7	430.0	6.46%	7.92	1,344	1,337	26.9	4.8	1,313	0.0	0.0	1,313
52	5-D159	5-D158	288	430.0	428.5	0.52%	7.92	382	380	34.4	6.1	341	0.0	0.0	341
53	5-D158	5-D154	290	428.5	427.0	0.52%	8.28	428	426	34.4	6.1	388	0.0	0.0	388
54	5-D154	5-D153	326	427.0	418.0	2.76%	8.28	990	984	85.9	15.3	888	0.0	0.0	888
55	5-D153	5-D150	186	418.0	405.7	6.61%	7.92	1,360	1,353	85.9	15.3	1,259	0.0	0.0	1,259
56	5-D150	5-D116	325	396.6	384.9	3.60%	8.28	1,130	1,124	162.1	28.8	939	0.0	0.0	939
57	5-D116	5-D111	277	384.9	375.8	3.29%	7.92	959	953	162.1	28.8	768	0.0	0.0	768
58	5-D111	5-D110	141	375.8	375.4	0.28%	11.78	812	809	432.8	76.9	302	366.8	65.2	-130
59	5-D110	5-D109	399	375.4	374.3	0.28%	11.78	801	797	468.2	83.2	249	366.8	65.2	-183
60	5-D109	5-D108	240	374.3	373.2	0.46%	11.78	1,032	1,028	468.2	83.2	481	366.8	65.2	49

Line	From Manhole	To Manhole	Length feet	From Invert	To Invert	Slope %	Dia. in.	Capacity ³ gpm	Flowing at 100%	Current Service Area			With Added Properties		
										Projected ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm	Add'l. ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm
61	5-D108	5-D107	369	373.2	371.6	0.43%	12.08	1,074	1,069	486.8	86.6	500	366.8	65.2	68
62	5-D107	5-D106	197	371.6	370.9	0.36%	12.08	972	968	486.8	86.6	399	366.8	65.2	-33
63	5-D143	5-D142	262	423.8	412.7	4.24%	7.92	1,089	1,083	31.8	5.7	1,051	0.0	0.0	1,051
64	5-D142	5-D141	30	412.7	411.2	5.00%	7.92	1,183	1,176	31.8	5.7	1,145	0.0	0.0	1,145
65	5-D141	5-D140	290	411.2	396.0	5.24%	7.92	1,211	1,204	42.3	7.5	1,161	0.0	0.0	1,161
66	5-D140	5-D139	173	396.0	394.9	0.64%	7.92	422	419	48.6	8.6	365	0.0	0.0	365
67	5-D144	5-D139	331	418.1	401.1	5.14%	7.92	1,199	1,192	5.8	1.0	1,192	0.0	0.0	1,192
68	5-D139	5-D138A	100	394.9	394.3	0.60%	8.28	461	459	60.9	10.8	390	0.0	0.0	390
69	5-D138A	5-D138	170	394.3	393.2	0.65%	8.28	479	476	75.1	13.3	391	0.0	0.0	391
70	5-D138	5-D137	400	393.2	391.2	0.50%	8.28	421	419	98.0	17.4	306	0.0	0.0	306
71	5-D137	5-D136	430	391.2	387.5	0.86%	8.28	552	549	98.0	17.4	437	0.0	0.0	437
72	5-D136	5-D106	235	387.5	380.0	3.19%	7.92	945	940	103.7	18.4	823	0.0	0.0	823
73	5-D106	5-D105	199	370.9	370.1	0.40%	12.08	1,034	1,030	590.5	105.0	338	366.8	65.2	-94
74	5-D105	5-D104	240	370.1	369.3	0.33%	11.78	880	877	714.3	127.0	39	453.7	83.3	-498
75	5-D104	5-D103	350	369.3	368.3	0.29%	11.78	815	812	720.6	128.1	-34	453.7	83.3	-571
76	5-D103	5-D102	350	368.3	367.7	0.17%	14.00	1,001	997	722.1	128.4	150	453.7	83.3	-387
77	5-D102	5-D101	350	367.7	367.2	0.14%	14.00	913	910	724.7	128.8	60	453.7	83.3	-477
78	5-D101	5-D100	281	367.2	366.7	0.18%	14.00	1,019	1,016	724.7	128.8	166	453.7	83.3	-371
79	5-D134	5-D135	200	372.8	368.0	2.40%	7.92	819	815	36.1	6.4	777	0.0	0.0	777
80	5-D135	5-D100	223	368.0	366.7	0.58%	8.28	455	452	36.1	6.4	412	0.0	0.0	412
81	5-D100	5-C81	320	366.7	365.4	0.41%	12.08	1,039	1,035	760.7	135.2	143	453.7	83.3	-394
82	5-C81	5-C80	350	365.4	364.1	0.37%	12.08	994	990	764.2	135.9	94	453.7	83.3	-443
83	5-C80	5-C79	350	364.1	362.7	0.40%	12.08	1,031	1,027	772.0	137.2	122	453.7	83.3	-415
84	5-C99	5-C79	225	396.3	371.8	10.89%	8.10	1,853	1,843	5.6	1.0	1,847	0.0	0.0	1,847
85	5-C79	5-C78	230	362.7	345.6	7.43%	12.08	4,446	4,427	787.6	140.0	3,519	453.7	83.3	2,982
86	5-C78	5-C77	300	345.6	343.7	0.63%	12.08	1,298	1,292	787.6	140.0	370	453.7	83.3	-167
87	5-C77	5-C76	280	343.7	342.2	0.54%	12.08	1,193	1,188	787.6	140.0	266	453.7	83.3	-271
88	5-C76	5-C75	360	342.2	338.2	1.11%	12.08	1,719	1,712	833.3	148.1	737	453.7	83.3	200
89	5-C75	5-C74	400	338.2	334.9	0.83%	11.78	1,385	1,379	840.3	149.4	395	453.7	83.3	-142
90	5-C98	5-C97	240	384.1	345.0	16.29%	7.92	2,135	2,123	16.7	3.0	2,116	0.0	0.0	2,116
91	5-C97	5-C74	200	345.0	334.9	5.05%	7.92	1,189	1,182	16.7	3.0	1,169	0.0	0.0	1,169

Line	From Manhole	To Manhole	Length feet	From Invert	To Invert	Slope %	Dia. in.	Capacity ³ gpm	Flowing at 100%	Current Service Area			With Added Properties		
										Projected ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm	Add'l. ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm
92	5-C74	5-C73	325	334.9	331.0	1.20%	11.78	1,670	1,663	867.3	154.2	649	453.7	83.3	112
93	5-C73	5-C72	350	331.0	327.5	1.00%	11.78	1,525	1,518	878.7	156.2	490	453.7	83.3	-47
94	5-C96	5-C95	300	403.5	370.9	10.87%	7.92	1,744	1,734	29.5	5.2	1,709	0.0	0.0	1,709
95	5-C95	5-C94	195	370.9	351.8	9.79%	7.92	1,656	1,646	38.2	6.8	1,611	0.0	0.0	1,611
96	5-C94	5-C72	400	351.8	327.5	6.08%	7.92	1,304	1,296	38.2	6.8	1,259	0.0	0.0	1,259
97	5-C72	5-C71	290	327.5	326.2	0.45%	11.78	1,021	1,017	916.9	163.0	-59	453.7	83.3	-596
98	5-C71	5-C70	250	326.2	325.1	0.44%	11.78	1,011	1,007	938.3	166.8	-94	453.7	83.3	-631
99	5-C70	5-C69	80	325.1	299.1	32.50%	11.94	9,011	8,973	938.3	166.8	7,906	453.7	83.3	7,369
100	5-C69	5-C68	275	299.1	297.8	0.47%	12.08	1,121	1,116	967.6	172.0	-19	453.7	83.3	-555
101	5-C68	5-C67	275	297.8	296.5	0.47%	12.08	1,121	1,116	967.6	172.0	-19	453.7	83.3	-555
102	5-C67	5-C66A	200	296.5	295.3	0.60%	12.08	1,263	1,258	967.6	172.0	123	453.7	83.3	-414
103	5-C66A	5-C66	200	295.3	292.1	1.60%	12.08	2,063	2,054	967.6	172.0	923	453.7	83.3	386
104	5-C66	5-C65	401	282.1	280.5	0.40%	12.08	1,030	1,026	971.2	172.7	-114	453.7	83.3	-651
105	5-C93	5-C92	320	365.9	359.7	1.94%	7.92	736	732	13.3	2.4	721	0.0	0.0	721
106	5-C92	5-C91	100	359.7	355.1	4.60%	7.92	1,135	1,128	15.4	2.7	1,116	0.0	0.0	1,116
107	5-C91	5-C90	300	355.1	322.4	10.90%	7.92	1,746	1,737	21.3	3.8	1,721	0.0	0.0	1,721
108	5-C90	5-C89	175	322.4	294.9	15.71%	8.28	2,361	2,348	21.3	3.8	2,336	0.0	0.0	2,336
109	5-C89	5-C65	150	294.9	290.0	3.27%	8.28	1,076	1,071	21.3	3.8	1,051	0.0	0.0	1,051
110	5-C65	5-C64	396	280.5	279.0	0.38%	12.08	1,004	999	1023.9	182.0	-202	453.7	83.3	-739
111	6	5	114	353.0	337.2	13.86%	7.92	1,969	1,958	21.3	3.8	1,944	0.0	0.0	1,944
112	5	4	158	337.2	317.4	12.53%	7.92	1,873	1,862	21.3	3.8	1,848	0.0	0.0	1,848
113	4	3	206	317.4	312.5	2.38%	7.92	816	811	21.3	3.8	791	0.0	0.0	791
114	3	2	230	312.5	309.2	1.43%	7.92	634	630	21.3	3.8	609	0.0	0.0	609
115	2	1	221	309.2	305.8	1.54%	7.92	656	652	21.3	3.8	631	0.0	0.0	631
116	1	5-C88	123	305.8	288.7	13.90%	7.92	1,972	1,961	21.3	3.8	1,947	0.0	0.0	1,947
117	5-C88	5-C64	59	288.7	287.9	1.36%	7.92	616	613	21.3	3.8	591	0.0	0.0	591
118	5-B39	5-B38	650	287.0	182.4	16.09%	11.94	6,341	6,314	14.3	65.5	6,261	0.0	0.0	6,261
119	B38B	B38A	185	186.6	183.4	1.73%	7.92	696	692	16.8	8.9	670	0.0	0.0	670
120	B38A	5-B38	26	183.4	182.4	3.85%	7.92	1,037	1,032	16.8	8.9	1,012	0.0	0.0	1,012
121	5-B38	5-B37	315	182.4	156.5	8.22%	11.78	4,372	4,354	31.1	74.4	4,267	0.0	0.0	4,267
122	5-B37	5-B36	205	156.5	154.9	0.78%	11.78	1,347	1,341	47.4	77.3	1,222	0.0	0.0	1,222

Line	From Manhole	To Manhole	Length feet	From Invert	To Invert	Slope %	Dia. in.	Capacity ³ gpm	Flowing at 100%	Current Service Area			With Added Properties		
										Projected ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm	Add'l. ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm
123	5-B36	5-B35	340	154.9	153.4	0.44%	11.78	1,013	1,008	47.4	77.3	888	0.0	0.0	888
124	5-B35	5-B34	220	153.4	144.8	3.91%	11.78	3,015	3,002	53.6	78.4	2,883	0.0	0.0	2,883
125	5-B42	5-B34	265	150.8	144.8	2.26%	7.92	796	791	28.2	5.0	763	0.0	0.0	763
126	5-B34	5-B33	390	144.8	140.5	1.10%	11.78	1,601	1,594	81.8	83.4	1,436	0.0	0.0	1,436
127	5-B33	5-B32	300	140.5	135.9	1.53%	11.78	1,888	1,880	89.1	84.7	1,714	0.0	0.0	1,714
128	5-B32	5-B31	200	135.9	131.9	2.00%	11.78	2,156	2,147	104.8	87.5	1,964	0.0	0.0	1,964
129	5-B31	5-B30	200	131.9	131.4	0.25%	11.78	762	759	104.8	87.5	570	0.0	0.0	570
130	5-B30	5-B29	200	131.4	130.0	0.70%	11.78	1,276	1,270	104.8	87.5	1,084	0.0	0.0	1,084
131	5-B29	5-B28	200	130.0	129.4	0.30%	11.78	835	832	104.8	87.5	643	0.0	0.0	643
132	5-B28	5-B13	175	129.4	122.9	3.71%	11.78	2,939	2,926	104.8	87.5	2,746	0.0	0.0	2,746

NOTES:

³CAPACITY CALCULATED USING MANNING'S EQUATION, N = 0.013.

⁴PROJECTED FLOW BASED ON 1800 GPAD WITH A PEAK FACTOR OF 2.5.

⁵INFILTRATION & INFLOW BASED ON 800 GPAD.

**NOMINAL PIPE
DIA. & TYPE**

**ACTUAL
PIPE DIA.**

8" PVC	7.92 in.
8" PVC C900	8.28 in.
8" HDPE	8.10 in.
12" PVC	11.78 in.
12" PVC C900	12.08 in.
12" HDPE	11.94 in.
14" PVC C905	14.00 in.
15" PVC	14.43 in.
30" PVC C905	29.28 in.

CROSS VALLEY WATER DISTRICT
2009 PROJECTED FLOWS - ULID AREA & ADDED PROPERTIES

I.D. NO.	TAX LOT NO.	AREA (ACRE)	ZONING	ULID AREA		ADDED AREA		LINE
				FLOW GPM	I & I GPM	FLOW GPM	I & I GPM	
7	27052400101700	0.52	INDUSTRIAL PARK	1.63	0.29			D133-132
3	27052400100400	5.00	PIP	15.63	2.78			D133-132
	27052400101400	2.50	INDUSTRIAL PARK			7.81	1.39	D133-132
				17.25	3.07	7.81	1.39	
2	27052400100300	2.92	PIP	9.13	1.62			D132-129A
5	27052400100600	1.00	INDUSTRIAL PARK	3.13	0.56			D132-129A
	27052400200600	9.84	INDUSTRIAL PARK			30.75	5.47	D132-129A
	27052400202200	2.35	PIP			7.34	1.31	D132-129A
	27052400201800	2.62	PIP			8.19	1.46	D132-129A
	27052400202500	5.00	PIP			15.63	2.78	D132-129A
	27052400201700	9.61	PIP			30.03	5.34	D132-129A
	27052400203900	0.39	PIP			1.22	0.22	D132-129A
	27052400100900	1.00	INDUSTRIAL PARK			3.13	0.56	D132-129A
	27052400100901	3.54	INDUSTRIAL PARK			11.06	1.97	D132-129A
	27052400101100	2.00	INDUSTRIAL PARK			6.25	1.11	D132-129A
	27052400101800	3.00	INDUSTRIAL PARK			9.38	1.67	D132-129A
				12.25	2.18	122.97	21.86	
1	27052400100200	1.29	INDUSTRIAL PARK	4.03	0.72			D129-128
				4.03	0.72	0.00	0.00	
4	27052400100500	2.93	LIGHT INDUSTRIAL	9.16	1.63			D131-130
				9.16	1.63	0.00	0.00	
6	27052400101500	5.34	LIGHT INDUSTRIAL	16.69	2.97			D130-128
				16.69	2.97	0.00	0.00	
21	27052400400300	4.78	LIGHT INDUSTRIAL	14.94	2.66			D127D-127C
23	27052400400500	1.65	LIGHT INDUSTRIAL	5.16	0.92			D127D-127C
				20.09	3.57	0.00	0.00	
20	27052400400200	4.16	LIGHT INDUSTRIAL	13.00	2.31			D127-126
				13.00	2.31	0.00	0.00	
19	27052400400100	3.25	LIGHT INDUSTRIAL	10.16	1.81			D126-125
22	27052400400400	0.93	LIGHT INDUSTRIAL	2.91	0.52			D126-125
26	27052400403200	0.54	LIGHT INDUSTRIAL	1.69	0.30			D126-125
187	00619301802200	0.46	LIGHT INDUSTRIAL			1.44	0.26	D126-125
188	00619301803000	0.17	LIGHT INDUSTRIAL			0.53	0.09	D126-125
189	27052400303300	0.63	LIGHT INDUSTRIAL			1.97	0.35	D126-125
193	27052400303400	1.51	LIGHT INDUSTRIAL			4.72	0.84	D126-125
196	27052400307400	1.05	LIGHT INDUSTRIAL			3.28	0.58	D126-125
	Previous Urban Res.	41.50	INDUSTRIAL PARK			129.69	23.06	D126-125
				14.75	2.62	141.63	25.18	
192	27052400304500	1.35	LIGHT INDUSTRIAL			4.22	0.75	D125-124
				0.00	0.00	4.22	0.75	
178	00619302702300	0.12	INDUSTRIAL PARK			0.38	0.07	D124-123
179	00619302702200	0.06	INDUSTRIAL PARK			0.19	0.03	D124-123
180	00619302701800	0.24	INDUSTRIAL PARK			0.75	0.13	D124-123
181	00619302701700	0.06	INDUSTRIAL PARK			0.19	0.03	D124-123
182	00619302701500	0.12	INDUSTRIAL PARK			0.38	0.07	D124-123
183	00619301801400	0.17	LIGHT INDUSTRIAL			0.53	0.09	D124-123
184	00619301801200	0.11	LIGHT INDUSTRIAL			0.34	0.06	D124-123
186	00619301801700	0.30	LIGHT INDUSTRIAL			0.94	0.17	D124-123
190	27052400304300	0.59	LIGHT INDUSTRIAL			1.84	0.33	D124-123
191	27052400303200	0.12	INDUSTRIAL PARK			0.38	0.07	D124-123

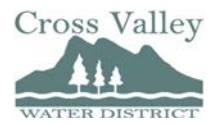
I.D. NO.	TAX LOT NO.	AREA (ACRE)	ZONING	ULID AREA		ADDED AREA		LINE
				FLOW GPM	I & I GPM	FLOW GPM	I & I GPM	
194	00619301902200	0.06	INDUSTRIAL PARK			0.19	0.03	D124-123
195	00619301902201	0.02	INDUSTRIAL PARK			0.06	0.01	D124-123
	Future Added UGA per Gary	5.18	Projected as Industrial			16.19	2.88	D124-123
				0.00	0.00	22.34	3.97	
9	27052400300200	N/A	See D118-117	0.00	0.00			D123-122
				0.00	0.00	0.00	0.00	
16	00619304600001	0.45	LIGHT INDUSTRIAL	1.41	0.25			D167-166
17	00619304600002	0.23	GENERAL COMMERCIAL	0.72	0.13			D167-166
24	27052400400600	1.36	LIGHT INDUSTRIAL	4.25	0.76			D167-166
25	27052400401200	0.36	LIGHT INDUSTRIAL	1.13	0.20			D167-166
10	27052400300300	1.41	WSDOT PROP.	N/A	M/A			D166-D122
12	27052400303900	1.20	WSDOT PROP.	N/A	N/A			D166-D122
18	00619304600003	0.40	WSDOT PROP.	N/A	N/A			D166-D123
				7.50	1.33	0.00	0.00	
11	27052400300400	0.40	LIGHT INDUSTRIAL	1.25	0.22			D164-121
				1.25	0.22	0.00	0.00	
8	27052400300100	3.82	GENERAL COMMERCIAL	11.94	2.12			D119-118A
				11.94	2.12	0.00	0.00	
	27052400301300	1.00	INDUSTRIAL PARK			3.13	0.56	1-D171
	27052400301302	0.49	INDUSTRIAL PARK			1.53	0.27	1-D171
	27052400300800	1.01	INDUSTRIAL PARK			3.16	0.56	1-D171
	27052400302100	1.00	INDUSTRIAL PARK			3.13	0.56	1-D171
	27052400302300	4.03	INDUSTRIAL PARK			12.59	2.24	1-D171
	27052400301600	0.88	INDUSTRIAL PARK			2.75	0.49	1-D171
	27052400301601	0.04	INDUSTRIAL PARK			0.13	0.02	1-D171
	27052400307000	1.77	INDUSTRIAL PARK			5.53	0.98	1-D171
	27052400307100	1.14	INDUSTRIAL PARK			3.56	0.63	1-D171
	27052400303900	1.20	INDUSTRIAL PARK			3.75	0.67	1-D171
	27052400301700	4.86	INDUSTRIAL PARK			15.19	2.70	1-D171
	27052400307200	1.29	PCB			4.03	0.72	1-D171
	27052400302600	1.00	PCB			3.13	0.56	1-D171
	27052400304200	0.70	PCB			2.19	0.39	1-D171
	27052400303800	0.47	PCB			1.47	0.26	1-D171
	00619304101200	0.29	PCB			0.91	0.16	1-D171
	00619304101700	0.54	PCB			1.69	0.30	1-D171
				0.00	0.00	67.84	12.06	
197	27052400302500	1.80	GENERAL COMMERCIAL	5.63	1.00			D171-118
				5.63	1.00	0.00	0.00	
9	27052400300200	25.03	PCB	78.22	13.91			D118-117
15	27052400305400	0.34	GENERAL COMMERCIAL	1.06	0.19			D118-117
				79.28	14.09	0.00	0.00	
30	27052500200300	2.45	COMM. BUSINESS	7.66	1.36			D115-114
42	27052500202100	4.87	COMM. BUSINESS	15.22	2.71			D115-114
49	27052500202900	3.04	LIGHT INDUSTRIAL	9.50	1.69			D115-114
				32.38	5.76	0.00	0.00	
43	27052500202200	1.31	LIGHT INDUSTRIAL	4.09	0.73			D113-112
68	00590800001100	2.00	LIGHT INDUSTRIAL	6.25	1.11			D113-112
69	00590800001101	1.11	LIGHT INDUSTRIAL	3.47	0.62			D113-112
				13.81	2.46	0.00	0.00	
67	00590800001000	3.73	LIGHT INDUSTRIAL	11.66	2.07			D112-111
				11.66	2.07	0.00	0.00	
59	00590800000300	2.50	LIGHT INDUSTRIAL	7.81	1.39			D152-151
60	00590800000400	3.41	LIGHT INDUSTRIAL	10.66	1.89			D152-151
				18.47	3.28	0.00	0.00	

I.D. NO.	TAX LOT NO.	AREA (ACRE)	ZONING	ULID AREA		ADDED AREA		LINE
				FLOW GPM	I & I GPM	FLOW GPM	I & I GPM	
37	27052500201100	1.00	LIGHT INDUSTRIAL	3.13	0.56	0.00	0.00	D151-156
58	00590800000200	4.04	LIGHT INDUSTRIAL	12.63	2.24			D151-156
				15.75	2.80			
40	27052500201500	0.81	LIGHT INDUSTRIAL	2.53	0.45	0.00	0.00	D157-156
				2.53	0.45			
34	27052500200800	0.48	LIGHT INDUSTRIAL	1.50	0.27	0.00	0.00	D156-150
				1.50	0.27			
41	27052500202000	1.23	LIGHT INDUSTRIAL	3.84	0.68	0.00	0.00	D163-162
41A	27052500202300	1.30	LIGHT INDUSTRIAL	4.06	0.72			D163-162
				7.91	1.41			
45	27052500202500	3.22	LIGHT INDUSTRIAL	10.06	1.79	0.00	0.00	D162-148
				10.06	1.79			
44	27052500202400	2.25	LIGHT INDUSTRIAL	7.03	1.25	0.00	0.00	D148-149
170	00794300000100	2.11	LIGHT INDUSTRIAL	6.59	1.17			D148-149
				13.63	2.42			
39	00794300000300	2.03	LIGHT INDUSTRIAL	6.34	1.13	0.00	0.00	D149-150
				6.34	1.13			
35	27052500203900	4.81	LIGHT INDUSTRIAL	15.03	2.67	0.00	0.00	D155-154
36	27052500201000	3.08	LIGHT INDUSTRIAL	9.63	1.71			D143-142
38	27052500204100	3.00	LIGHT INDUSTRIAL	9.38	1.67			D155-154
38A	27052500204000	2.62	LIGHT INDUSTRIAL	8.19	1.46			D155-154
				42.22	7.51			
198	27052400203800	2.41	LIGHT INDUSTRIAL	7.53	1.34	0.00	0.00	D160-159
				7.53	1.34			
31A	27052500204200	2.53	LIGHT INDUSTRIAL	7.91	1.41	0.00	0.00	1-A-D161
31	27052500204300	3.67	LIGHT INDUSTRIAL	11.47	2.04			1-A-D161
46	27052500202600	2.41	LIGHT INDUSTRIAL	7.53	1.34			1-A-D161
				26.91	4.78			
33	27052500200700	1.00	LIGHT INDUSTRIAL	3.13	0.56	0.00	0.00	D154-153
171	00794300000200	1.97	LIGHT INDUSTRIAL	6.16	1.09			D154-153
				9.28	1.65			
66	00590800000900	11.32	LIGHT INDUSTRIAL	35.38	6.29	0.00	0.00	D110-109
				35.38	6.29			
64	00590800000800	5.98	LIGHT INDUSTRIAL	18.69	3.32	0.00	0.00	D108-107
				18.69	3.32			
48	27052500202800	1.32	LIGHT INDUSTRIAL	4.13	0.73	0.00	0.00	D143-142
50	27052500203000	6.90	LIGHT INDUSTRIAL	21.56	3.83			D143-142
53	27052500203300	1.97	LIGHT INDUSTRIAL	6.16	1.09			D143-142
				31.84	5.66			
52	27052500203200	0.85	LIGHT INDUSTRIAL	2.66	0.47	0.00	0.00	D141-140
55	27052500203500	1.21	LIGHT INDUSTRIAL	3.78	0.67			D141-140
56	27052500203600	1.28	LIGHT INDUSTRIAL	4.00	0.71			D141-140
				10.44	1.86			
57	27052500203700	2.03	LIGHT INDUSTRIAL	6.34	1.13	0.00	0.00	D140-139
				6.34	1.13			
51	27052500203100	0.95	LIGHT INDUSTRIAL	2.97	0.53	0.00	0.00	D144-139
54	27052500203400	0.91	LIGHT INDUSTRIAL	2.84	0.51			D144-139
				5.81	1.03			
47	27052500202700	2.07	LIGHT INDUSTRIAL	6.47	1.15	0.00	0.00	D139-138A
				6.47	1.15			
61	00590800000401	1.94	LIGHT INDUSTRIAL	6.06	1.08	0.00	0.00	D138A-138
62	00590800000600	2.59	LIGHT INDUSTRIAL	8.09	1.44			D138A-138
				14.16	2.52			
63	00590800000700	7.34	LIGHT INDUSTRIAL	22.94	4.08			D138-137

I.D. NO.	TAX LOT NO.	AREA (ACRE)	ZONING	ULID AREA		ADDED AREA		LINE
				FLOW GPM	I & I GPM	FLOW GPM	I & I GPM	
				22.94	4.08	0.00	0.00	
77	00505100000800	1.81	LIGHT INDUSTRIAL	5.66	1.01			D136-106
				5.66	1.01	0.00	0.00	
32	27052500200500	6.24	LIGHT INDUSTRIAL	19.50	3.47			D105-104
75A	00505100000604	0.69	LIGHT INDUSTRIAL	2.16	0.38			D105-104
	27052500102400	32.70	LIGHT INDUSTRIAL	102.19	18.17			D105-104
	27052500101800	1.31	LIGHT INDUSTRIAL			4.09	0.73	D105-104
	27052500104900	1.72	LIGHT INDUSTRIAL			5.38	0.96	D105-104
	27052500101900	3.67	WSDOT PROP.			N/A	N/A	D105-104
	27052500102200	5.00	R-9,600 (23 Residences)			8.82	2.78	D-105-104
	27052500102201	6.06	R-9,600 (28 Residences)			10.74	3.37	D-105-104
	27052500103900	0.40	PCB			1.25	0.22	D-105-104
	27052500102100	13.10	PCB			40.94	7.28	D-105-104
	27052500100600	5.00	PCB			15.63	2.78	D-105-104
				123.84	22.02	86.85	18.11	
75	00505100000700	2.00	LIGHT INDUSTRIAL	6.25	1.11			D104-103
				6.25	1.11	0.00	0.00	
76	00505100000701	0.47	LIGHT INDUSTRIAL	1.47	0.26			D103-102
				1.47	0.26	0.00	0.00	
73	27052500302400	0.83	LIGHT INDUSTRIAL	2.59	0.46			D102-101
				2.59	0.46	0.00	0.00	
70	27052500300300	10.91	LIGHT INDUSTRIAL	34.09	6.06			D134-135
	27052600401200	0.63		1.97	0.35			D134-135
				36.06	6.41	0.00	0.00	
74	27052500302500	1.11	LIGHT INDUSTRIAL	3.47	0.62			C81-80
				3.47	0.62	0.00	0.00	
107	27052600402500	2.50	LIGHT INDUSTRIAL	7.81	1.39			C80-79
				7.81	1.39	0.00	0.00	
103	27052600400600	1.80	LIGHT INDUSTRIAL	5.63	1.00			C99-79
				5.63	1.00	0.00	0.00	
102	27052600400100	3.19	LIGHT INDUSTRIAL	9.97	1.77			C79-78
				9.97	1.77	0.00	0.00	
80	27052600101400	4.30	LIGHT INDUSTRIAL	13.44	2.39			C76-75
104	27052600400700	0.68	LIGHT INDUSTRIAL	2.13	0.38			C76-75
105	27052600400900	4.93	LIGHT INDUSTRIAL	15.41	2.74			C76-75
108	27052600402600	0.85	LIGHT INDUSTRIAL	2.66	0.47			C76-75
111	27052600403300	1.07	LIGHT INDUSTRIAL	3.34	0.59			C76-75
113	27052600404600	0.90	LIGHT INDUSTRIAL	2.81	0.50			C76-75
114	27052600404700	0.95	LIGHT INDUSTRIAL	2.97	0.53			C76-75
115	27052600404800	0.95	LIGHT INDUSTRIAL	2.97	0.53			C76-75
				45.72	8.13	0.00	0.00	
78	27052600101200	2.22	LIGHT INDUSTRIAL	6.94	1.23			C75-74
				6.94	1.23	0.00	0.00	
106	27052600402400	1.52	LIGHT INDUSTRIAL	4.75	0.84			C98-97
109	27052600402700	3.81	LIGHT INDUSTRIAL	11.91	2.12			C98-97
				16.66	2.96	0.00	0.00	
81	27052600101500	3.33	LIGHT INDUSTRIAL	10.41	1.85			C74-73
				10.41	1.85	0.00	0.00	
82	27052600104800	2.24	LIGHT INDUSTRIAL	7.00	1.24			C73-72
82A	27052600104700	1.39	LIGHT INDUSTRIAL	4.34	0.77			C73-72
				11.34	2.02	0.00	0.00	
85	27052600403100	3.54	LIGHT INDUSTRIAL	11.06	1.97			C96-95
110	27052600403000	5.19	LIGHT INDUSTRIAL	16.22	2.88			C96-95
112	27052600403800	0.70	LIGHT INDUSTRIAL	2.19	0.39			C96-95

I.D. NO.	TAX LOT NO.	AREA (ACRE)	ZONING	ULID AREA		ADDED AREA		LINE
				FLOW GPM	I & I GPM	FLOW GPM	I & I GPM	
				29.47	5.24	0.00	0.00	
83	27052600101900	2.80	LIGHT INDUSTRIAL	8.75	1.56			C95-94
				8.75	1.56	0.00	0.00	
84	27052600103700	5.00	LIGHT INDUSTRIAL	15.63	2.78			C71-70
86	27052600104300	1.86	LIGHT INDUSTRIAL	5.81	1.03			C71-70
				21.44	3.81	0.00	0.00	
88	27052600202100	9.38	LIGHT INDUSTRIAL	29.31	5.21			C69-68
				29.31	5.21	0.00	0.00	
87	27052600202000	1.14	LIGHT INDUSTRIAL	3.56	0.63			C66-65
				3.56	0.63	0.00	0.00	
90	27052600300100	2.07	LIGHT INDUSTRIAL	6.47	1.15			C93-92
99	27052600301600	2.20	LIGHT INDUSTRIAL	6.88	1.22			C93-92
				13.34	2.37	0.00	0.00	
89A	27052600302100	0.65	LIGHT INDUSTRIAL	2.03	0.36			C92-91
				2.03	0.36	0.00	0.00	
89	27052600202500	1.88	LIGHT INDUSTRIAL	5.88	1.04			C91-90
				5.88	1.04	0.00	0.00	
101	27052600303100	10.08	LIGHT INDUSTRIAL	31.50	5.60			C65-64
				31.50	5.60	0.00	0.00	
91	27052600300200	6.82	LIGHT INDUSTRIAL	21.31	3.79			6-5
				21.31	3.79	0.00	0.00	
100	27052600302000	7.81	LIGHT INDUSTRIAL	24.41	4.34			C87-60
				24.41	4.34	0.00	0.00	
126	27053400401900	0.48	LIGHT INDUSTRIAL	1.50	0.27			B39-38
128	27053400402100	0.65	LIGHT INDUSTRIAL	2.03	0.36			B39-38
119	27053400400100	14.30	LIGHT INDUSTRIAL	0.38	7.94			B39-38
129	27053400402200	1.10	R-5 (1 Residence)	0.38	0.61			B39-38
137	27053400402200	0.74	R-5 (1 Residence)	0.38	0.41			B39-40
160	27053500300100	3.50	R-5 (1 Residence)	0.38	1.94			B39-38
161	27053500300200	19.45	R-5 (4 Residences)	1.53	10.81			B39-38
162	27053500300300	16.92	R-5 (4 Residences)	1.53	9.40			B39-38
163	27053500300400	19.54	R-5 (4 Residences)	1.53	10.86			B39-38
164	27053500300500	16.21	R-5 (4 Residences)	1.53	9.01			B39-38
165	27053500300600	2.41	R-5 (1 Residence)	0.38	1.34			B39-38
166	27053500301100	3.04	R-5 (1 Residence)	0.38	1.69			B39-38
167	27053500302000	0.76	R-5 (1 Residence)	0.38	0.42			B39-38
168	27053500302100	0.19	R-5 (1 Residence)	0.38	0.11			B39-38
169	27053500302200	18.62	R-5 (4 Residences)	1.53	10.34			B39-38
				14.27	65.51	0.00	0.00	
127	27053400402000	5.00	LIGHT INDUSTRIAL	15.63	2.78			B38B-B38A
131	27053400402400	11.01	R-5 (3 Residences)	1.15	6.12			B38B-B38A
				16.78	8.89	0.00	0.00	
125	27053400401800	5.22	LIGHT INDUSTRIAL	16.31	2.90			B37-36
				16.31	2.90	0.00	0.00	
136	27053400403100	1.99	LIGHT INDUSTRIAL	6.22	1.11			B35-34
				6.22	1.11	0.00	0.00	
123	27053400401500	6.23	LIGHT INDUSTRIAL	19.47	3.46			B42-34
130	27053400402300	2.79	LIGHT INDUSTRIAL	8.72	1.55			B42-34
				28.19	5.01	0.00	0.00	
124	27053400401600	2.36	LIGHT INDUSTRIAL	7.38	1.31			B33-32
				7.38	1.31	0.00	0.00	
122	27053400401400	5.00	LIGHT INDUSTRIAL	15.63	2.78			B32-31
				15.63	2.78	0.00	0.00	
TOTALS		656.45				453.66	83.32	

I.D. NO.	TAX LOT NO.	AREA (ACRE)	ZONING	ULID AREA		ADDED AREA		LINE
				FLOW GPM	I & I GPM	FLOW GPM	I & I GPM	
	ADDED PROPERTIES	59.98 Acres						
	ULID 5 PROPERTIES	596.47 Acres						
	INFILTRATION/INFLOW	800 GPAD =		0.556		GPM/ACRE		
	LIGHT INDUSTRIAL	1800 GPAD X 2.5 PEAK =		3.125		GPM/ACRE		
	HEAVY INDUSTRIAL	1800 GPAD X 2.5 PEAK =		3.125		GPM/ACRE		
	GENERAL COMMERCIAL	1800 GPAD X 2.5 PEAK =		3.125		GPM/ACRE		
	PLANNED COMMERCIAL BUS.	1800 GPAD X 2.5 PEAK =		3.125		GPM/ACRE		
	PLANNED INDUSTRIAL PARK (PIP)	1800 GPAD X 2.5 PEAK =		3.125		GPM/ACRE		
	INDUSTRIAL PARK	1800 GPAD X 2.5 PEAK =		3.125		GPM/ACRE		
	R-5	85 GPCD X 2.6 CAPITA X 2.5 PEAK		0.384		GPM/5 ACRES		
	R-9600	85 GPCD X 2.6 CAPITA X 2.5 PEAK		0.384		GPM/9600 SQ FT		



**Water System Plan
Cross Valley Water District**

**Appendix F
Part 3: Buildout Capacity Analysis
Including Rural/Urban Transition Area**

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CROSS VALLEY WATER DISTRICT
RUTA ONLY - FUTURE CIP ANALYSIS w/ Replacements

Line	From Manhole	To Manhole	Length feet	From Invert	To Invert	Slope %	Dia. in.	Ex. Dia. in.	Capacity ³ gpm	Flowing at 100%	Current Service Area			With Added Properties		
											Projected ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcy, gpm	Add'l. ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcy, gpm
1	5-D133	5-D132	229	407.8	406.5	0.57%	14.00	8.28	1,821	1,814	17.3	3.1	1,800	1101.6	195.8	503
2	5-D132	5-D129A	315	406.5	404.3	0.70%	14.00	8.28	2,019	2,012	29.5	5.2	1,985	1224.5	217.7	543
3	5-D129A	5-D129	82	404.3	403.8	0.61%	14.00	8.28	1,887	1,880	29.5	5.2	1,852	1224.5	217.7	410
4	5-D129	5-D128	413	403.8	401.4	0.58%	14.00	8.28	1,842	1,835	33.5	6.0	1,803	1224.5	217.7	360
5	5-D131	5-D130	234	404.7	403.5	0.51%	7.92	7.92	379	377	9.2	1.6	368	0.0	0.0	368
6	5-D130	5-D128	399	403.5	401.4	0.53%	8.28	8.28	432	430	25.8	4.6	402	0.0	0.0	402
7	5-D128	5-D127	310	401.4	400.0	0.45%	14.00	8.28	1,624	1,618	59.4	14.1	1,550	1224.5	217.7	108
8	D127-D	D127-C	215	405.1	403.9	0.54%	7.92	7.92	390	388	20.1	3.6	367	0.0	0.0	367
9	D127-C	D127-B	119	403.9	403.1	0.70%	7.92	7.92	442	439	20.1	3.6	418	0.0	0.0	418
10	D127-B	D127-A	300	403.1	401.0	0.70%	7.92	7.92	443	440	20.1	3.6	419	0.0	0.0	419
11	D127-A	5-D127	32	401.0	400.0	3.13%	7.92	7.92	935	930	20.1	3.6	911	0.0	0.0	911
12	5-D127	5-D126	260	400.0	398.6	0.54%	16.00	7.92	2,532	2,523	92.5	16.4	2,423	1224.5	217.7	981
13	5-D126	5-D125	255	398.6	397.3	0.51%	16.00	7.92	2,463	2,455	107.2	19.1	2,337	1366.2	242.9	728
14	5-D125	5-D124	254	397.3	393.0	1.69%	16.00	7.92	4,489	4,474	107.2	19.1	4,363	1370.4	243.6	2,749
15	5-D124	5-D123	400	393.0	390.7	0.58%	16.00	7.92	2,616	2,608	107.2	19.1	2,490	1376.5	244.7	869
16	5-D123	5-D122	332	390.7	388.8	0.57%	16.00	7.92	2,610	2,601	107.2	19.1	2,484	1376.5	244.7	862
17	5-D167	5-D166	401	394.0	389.9	1.02%	12.00	7.92	1,620	1,613	7.5	1.3	1,611	196.9	35.0	1,379
18	5-D166	5-D122	143	389.9	388.8	0.77%	12.00	7.92	1,405	1,399	7.5	1.3	1,396	196.9	35.0	1,164
19	5-D122	5-D121	270	388.8	387.3	0.56%	16.00	7.92	2,572	2,563	114.7	20.4	2,436	1573.4	279.7	583
20	5-D164	5-D121	300	388.9	387.3	0.53%	7.92	7.92	386	384	1.3	0.2	385	0.0	0.0	385
21	5-D121	5-D120	180	387.3	386.2	0.61%	16.00	7.92	2,697	2,688	116.0	20.6	2,560	1573.4	279.7	707
22	5-D120	5-D119	240	386.2	384.9	0.54%	16.00	8.28	2,539	2,531	116.0	20.6	2,403	1573.4	279.7	549
23	5-D119	5-D118A	215	384.9	384.2	0.33%	18.00	12.08	2,695	2,687	127.9	22.7	2,544	1898.4	337.5	308
24	5-D118A	5-D118	221	384.2	383.4	0.36%	18.00	12.08	2,842	2,834	127.9	22.7	2,691	1898.4	337.5	455
25	5	4	223	432.0	417.0	6.70%	7.92	7.92	1,370	1,362	0.0	0.0	1,370	0.0	0.0	1,370
26	4	3	279	417.0	408.0	3.23%	7.92	7.92	950	945	0.0	0.0	950	0.0	0.0	950
27	3	2	105.2	408.0	406.0	1.90%	7.92	7.92	729	725	0.0	0.0	729	0.0	0.0	729
28	2	1	116	406.0	404.5	1.29%	7.92	7.92	602	598	0.0	0.0	602	0.0	0.0	602
29	1	5-D171	15	404.5	400.8	24.93%	7.92	7.92	2,641	2,627	0.0	0.0	2,641	67.8	12.1	2,561
30	5-D171	5-D118	371	400.8	387.7	3.53%	7.92	7.92	994	988	5.6	1.0	987	100.0	17.8	870
31	5-D118	5-D117	250	383.4	382.3	0.44%	18.00	12.08	3,133	3,124	212.8	37.8	2,882	1998.4	355.3	529

											Current Service Area			With Added Properties		
Line	From Manhole	To Manhole	Length feet	From Invert	To Invert	Slope %	Dia. in.	Ex. Dia. in.	Capacity ³ gpm	Flowing at 100%	Projected ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm	Add'l. ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm
32	5-D117	5-D115	215	382.3	380.9	0.65%	18.00	12.08	3,811	3,800	245.2	43.6	3,523	1998.4	355.3	1,169
33	5-D115	5-D114	401	380.9	379.4	0.37%	18.00	12.08	2,889	2,880	245.2	43.6	2,600	1998.4	355.3	246
34	5-D114	5-D113	400	379.4	377.9	0.38%	18.00	11.78	2,892	2,884	245.2	43.6	2,604	1998.4	355.3	250
35	5-D113	5-D112	400	377.9	376.8	0.27%	21.00	11.78	3,736	3,727	259.0	46.0	3,431	1998.4	355.3	1,077
36	5-D112	5-D111	287	376.8	375.8	0.35%	21.00	11.78	4,206	4,196	270.7	48.1	3,887	1998.4	355.3	1,533
37	5-D152	5-D151	221	406.0	404.7	0.59%	7.92	7.92	406	403	18.5	3.3	384	0.0	0.0	384
38	5-D151	5-D156	340	404.7	402.8	0.56%	7.92	7.92	395	393	34.2	6.1	355	0.0	0.0	355
39	5-D157	5-D156	290	420.4	402.8	6.07%	7.92	7.92	1,303	1,296	2.5	0.5	1,300	0.0	0.0	1,300
40	5-D156	5-D150	165	402.8	401.7	0.67%	7.92	7.92	432	429	38.3	6.8	387	0.0	0.0	387
41	5-D163	5-D162	272	407.7	402.4	1.95%	7.92	7.92	738	734	7.9	1.4	729	0.0	0.0	729
42	5-D162	5-D148	368	402.4	400.3	0.57%	7.92	7.92	400	397	18.0	3.2	378	0.0	0.0	378
43	5-D148	5-D149	400	400.3	398.3	0.50%	7.92	7.92	374	372	31.6	5.6	337	0.0	0.0	337
44	5-D149	5-D150	300	398.3	396.6	0.57%	8.28	8.28	448	446	37.9	6.7	404	0.0	0.0	404
45	5-D155	5-D154	412	450.1	435.0	3.67%	8.28	8.28	1,140	1,134	42.2	7.5	1,090	0.0	0.0	1,090
46	5-D160	5-D159	324	431.7	430.0	0.52%	7.92	7.92	383	381	7.5	1.3	374	0.0	0.0	374
47	3	2	265	463.1	459.0	1.57%	7.92	7.92	663	659	0.0	0.0	663	0.0	0.0	663
48	2	1	61	459.0	457.6	2.21%	7.92	7.92	787	783	0.0	0.0	787	0.0	0.0	787
49	1	1-A	48	457.6	456.2	2.90%	7.92	7.92	900	895	0.0	0.0	900	0.0	0.0	900
50	1-A	5-D161	102	456.2	453.7	2.47%	7.92	7.92	831	827	26.9	4.8	800	0.0	0.0	800
51	5-D161	5-D159	367	453.7	430.0	6.46%	7.92	7.92	1,344	1,337	26.9	4.8	1,313	0.0	0.0	1,313
52	5-D159	5-D158	288	430.0	428.5	0.52%	7.92	7.92	382	380	34.4	6.1	341	0.0	0.0	341
53	5-D158	5-D154	290	428.5	427.0	0.52%	8.28	8.28	428	426	34.4	6.1	388	0.0	0.0	388
54	5-D154	5-D153	326	427.0	418.0	2.76%	8.28	8.28	990	984	85.9	15.3	888	0.0	0.0	888
55	5-D153	5-D150	186	418.0	405.7	6.61%	7.92	7.92	1,360	1,353	85.9	15.3	1,259	0.0	0.0	1,259
56	5-D150	5-D116	325	396.6	384.9	3.60%	8.28	8.28	1,130	1,124	162.1	28.8	939	0.0	0.0	939
57	5-D116	5-D111	277	384.9	375.8	3.29%	7.92	7.92	959	953	162.1	28.8	768	0.0	0.0	768
58	5-D111	5-D110	141	375.8	375.4	0.28%	21.00	11.78	3,795	3,786	432.8	76.9	3,285	1998.4	355.3	931
59	5-D110	5-D109	399	375.4	374.3	0.28%	21.00	11.78	3,741	3,732	468.2	83.2	3,189	1998.4	355.3	836
60	5-D109	5-D108	240	374.3	373.2	0.46%	21.00	11.78	4,823	4,812	468.2	83.2	4,272	1998.4	355.3	1,918
61	5-D108	5-D107	369	373.2	371.6	0.43%	21.00	12.08	4,691	4,680	486.8	86.6	4,118	1998.4	355.3	1,764
62	5-D107	5-D106	197	371.6	370.9	0.36%	21.00	12.08	4,247	4,237	486.8	86.6	3,674	1998.4	355.3	1,320
63	5-D143	5-D142	262	423.8	412.7	4.24%	7.92	7.92	1,089	1,083	31.8	5.7	1,051	0.0	0.0	1,051
64	5-D142	5-D141	30	412.7	411.2	5.00%	7.92	7.92	1,183	1,176	31.8	5.7	1,145	0.0	0.0	1,145

											Current Service Area			With Added Properties		
Line	From Manhole	To Manhole	Length feet	From Invert	To Invert	Slope %	Dia. in.	Ex. Dia. in.	Capacity ³ gpm	Flowing at 100%	Projected ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm	Add'l. ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm
65	5-D141	5-D140	290	411.2	396.0	5.24%	7.92	7.92	1,211	1,204	42.3	7.5	1,161	0.0	0.0	1,161
66	5-D140	5-D139	173	396.0	394.9	0.64%	7.92	7.92	422	419	48.6	8.6	365	0.0	0.0	365
67	5-D144	5-D139	331	418.1	401.1	5.14%	7.92	7.92	1,199	1,192	5.8	1.0	1,192	0.0	0.0	1,192
68	5-D139	5-D138A	100	394.9	394.3	0.60%	8.28	8.28	461	459	60.9	10.8	390	0.0	0.0	390
69	5-D138A	5-D138	170	394.3	393.2	0.65%	8.28	8.28	479	476	75.1	13.3	391	0.0	0.0	391
70	5-D138	5-D137	400	393.2	391.2	0.50%	8.28	8.28	421	419	98.0	17.4	306	0.0	0.0	306
71	5-D137	5-D136	430	391.2	387.5	0.86%	8.28	8.28	552	549	98.0	17.4	437	0.0	0.0	437
72	5-D136	5-D106	235	387.5	380.0	3.19%	7.92	7.92	945	940	103.7	18.4	823	0.0	0.0	823
73	5-D106	5-D105	199	370.9	370.1	0.40%	21.00	12.08	4,517	4,507	590.5	105.0	3,822	1998.4	355.3	1,468
74	5-D105	5-D104	240	370.1	369.3	0.33%	24.00	11.78	5,873	5,861	714.3	127.0	5,031	2809.4	502.1	1,720
75	5-D104	5-D103	350	369.3	368.3	0.29%	24.00	11.78	5,437	5,427	720.6	128.1	4,588	2809.4	502.1	1,277
76	5-D103	5-D102	350	368.3	367.7	0.17%	27.00	14.00	5,766	5,757	722.1	128.4	4,915	2996.9	535.5	1,383
77	5-D102	5-D101	350	367.7	367.2	0.14%	27.00	14.00	5,263	5,255	724.7	128.8	4,410	2996.9	535.5	877
78	5-D101	5-D100	281	367.2	366.7	0.18%	27.00	14.00	5,874	5,865	724.7	128.8	5,021	2996.9	535.5	1,488
79	5-D134	5-D135	200	372.8	368.0	2.40%	7.92	7.92	819	815	36.1	6.4	777	0.0	0.0	777
80	5-D135	5-D100	223	368.0	366.7	0.58%	8.28	8.28	455	452	36.1	6.4	412	0.0	0.0	412
81	5-D100	5-C81	320	366.7	365.4	0.41%	24.00	12.08	6,483	6,471	760.7	135.2	5,587	2996.9	535.5	2,055
82	5-C81	5-C80	350	365.4	364.1	0.37%	24.00	12.08	6,199	6,187	764.2	135.9	5,299	2996.9	535.5	1,767
83	5-C80	5-C79	350	364.1	362.7	0.40%	24.00	12.08	6,433	6,421	772.0	137.2	5,524	2996.9	535.5	1,992
84	5-C99	5-C79	225	396.3	371.8	10.89%	8.10	8.10	1,853	1,843	5.6	1.0	1,847	0.0	0.0	1,847
85	5-C79	5-C78	230	362.7	345.6	7.43%	14.00	12.08	6,589	6,564	787.6	140.0	5,661	2996.9	535.5	2,129
86	5-C78	5-C77	300	345.6	343.7	0.63%	21.00	12.08	5,670	5,656	787.6	140.0	4,742	2996.9	535.5	1,210
87	5-C77	5-C76	280	343.7	342.2	0.54%	21.00	12.08	5,215	5,202	787.6	140.0	4,287	2996.9	535.5	755
88	5-C76	5-C75	360	342.2	338.2	1.11%	21.00	12.08	7,510	7,492	833.3	148.1	6,529	2996.9	535.5	2,996
89	5-C75	5-C74	400	338.2	334.9	0.83%	21.00	11.78	6,471	6,456	840.3	149.4	5,482	2996.9	535.5	1,949
90	5-C98	5-C97	240	384.1	345.0	16.29%	7.92	7.92	2,135	2,123	16.7	3.0	2,116	0.0	0.0	2,116
91	5-C97	5-C74	200	345.0	334.9	5.05%	7.92	7.92	1,189	1,182	16.7	3.0	1,169	0.0	0.0	1,169
92	5-C74	5-C73	325	334.9	331.0	1.20%	18.00	11.78	5,174	5,159	867.3	154.2	4,152	2996.9	535.5	620
93	5-C73	5-C72	350	331.0	327.5	1.00%	21.00	11.78	7,125	7,108	878.7	156.2	6,090	3065.7	547.7	2,476
94	5-C96	5-C95	300	403.5	370.9	10.87%	7.92	7.92	1,744	1,734	29.5	5.2	1,709	0.0	0.0	1,709
95	5-C95	5-C94	195	370.9	351.8	9.79%	7.92	7.92	1,656	1,646	38.2	6.8	1,611	0.0	0.0	1,611
96	5-C94	5-C72	400	351.8	327.5	6.08%	7.92	7.92	1,304	1,296	38.2	6.8	1,259	0.0	0.0	1,259
97	5-C72	5-C71	290	327.5	326.2	0.45%	24.00	11.78	6,810	6,797	916.9	163.0	5,731	3065.7	547.7	2,117

											Current Service Area			With Added Properties		
Line	From Manhole	To Manhole	Length feet	From Invert	To Invert	Slope %	Dia. in.	Ex. Dia. in.	Capacity ³ gpm	Flowing at 100%	Projected ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm	Add'l. ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm
98	5-C71	5-C70	250	326.2	325.1	0.44%	24.00	11.78	6,747	6,734	938.3	166.8	5,642	3065.7	547.7	2,029
99	5-C70	5-C69	80	325.1	299.1	32.50%	11.94	11.94	9,011	8,973	938.3	166.8	7,906	3065.7	547.7	4,293
100	5-C69	5-C68	275	299.1	297.8	0.47%	24.00	12.08	6,994	6,980	967.6	172.0	5,854	3065.7	547.7	2,241
101	5-C68	5-C67	275	297.8	296.5	0.47%	24.00	12.08	6,994	6,980	967.6	172.0	5,854	3065.7	547.7	2,241
102	5-C67	5-C66A	200	296.5	295.3	0.60%	21.00	12.08	5,519	5,506	967.6	172.0	4,379	3065.7	547.7	766
103	5-C66A	5-C66	200	295.3	292.1	1.60%	18.00	12.08	5,974	5,957	967.6	172.0	4,835	3065.7	547.7	1,221
104	5-C66	5-C65	401	282.1	280.5	0.40%	24.00	12.08	6,425	6,413	971.2	172.7	5,281	3065.7	547.7	1,668
105	5-C93	5-C92	320	365.9	359.7	1.94%	7.92	7.92	736	732	13.3	2.4	721	0.0	0.0	721
106	5-C92	5-C91	100	359.7	355.1	4.60%	7.92	7.92	1,135	1,128	15.4	2.7	1,116	0.0	0.0	1,116
107	5-C91	5-C90	300	355.1	322.4	10.90%	7.92	7.92	1,746	1,737	21.3	3.8	1,721	0.0	0.0	1,721
108	5-C90	5-C89	175	322.4	294.9	15.71%	8.28	8.28	2,361	2,348	21.3	3.8	2,336	0.0	0.0	2,336
109	5-C89	5-C65	150	294.9	290.0	3.27%	8.28	8.28	1,076	1,071	21.3	3.8	1,051	0.0	0.0	1,051
110	5-C65	5-C64	396	280.5	279.0	0.38%	24.00	12.08	6,260	6,248	1023.9	182.0	5,054	3065.7	547.7	1,441
111	6	5	114	353.0	337.2	13.86%	7.92	7.92	1,969	1,958	21.3	3.8	1,944	0.0	0.0	1,944
112	5	4	158	337.2	317.4	12.53%	7.92	7.92	1,873	1,862	21.3	3.8	1,848	0.0	0.0	1,848
113	4	3	206	317.4	312.5	2.38%	7.92	7.92	816	811	21.3	3.8	791	0.0	0.0	791
114	3	2	230	312.5	309.2	1.43%	7.92	7.92	634	630	21.3	3.8	609	0.0	0.0	609
115	2	1	221	309.2	305.8	1.54%	7.92	7.92	656	652	21.3	3.8	631	0.0	0.0	631
116	1	5-C88	123	305.8	288.7	13.90%	7.92	7.92	1,972	1,961	21.3	3.8	1,947	0.0	0.0	1,947
117	5-C88	5-C64	59	288.7	287.9	1.36%	7.92	7.92	616	613	21.3	3.8	591	0.0	0.0	591
118	5-B39	5-B38	650	287.0	182.4	16.09%	11.94	11.94	6,341	6,314	14.3	65.5	6,261	0.0	0.0	6,261
119	B38B	B38A	185	186.6	183.4	1.73%	7.92	7.92	696	692	16.8	8.9	670	0.0	0.0	670
120	B38A	5-B38	26	183.4	182.4	3.85%	7.92	7.92	1,037	1,032	16.8	8.9	1,012	0.0	0.0	1,012
121	5-B38	5-B37	315	182.4	156.5	8.22%	11.78	11.78	4,372	4,354	31.1	74.4	4,267	0.0	0.0	4,267
122	5-B37	5-B36	205	156.5	154.9	0.78%	11.78	11.78	1,347	1,341	47.4	77.3	1,222	0.0	0.0	1,222
123	5-B36	5-B35	340	154.9	153.4	0.44%	11.78	11.78	1,013	1,008	47.4	77.3	888	0.0	0.0	888
124	5-B35	5-B34	220	153.4	144.8	3.91%	11.78	11.78	3,015	3,002	53.6	78.4	2,883	0.0	0.0	2,883
125	5-B42	5-B34	265	150.8	144.8	2.26%	7.92	7.92	796	791	28.2	5.0	763	0.0	0.0	763
126	5-B34	5-B33	390	144.8	140.5	1.10%	11.78	11.78	1,601	1,594	81.8	83.4	1,436	0.0	0.0	1,436
127	5-B33	5-B32	300	140.5	135.9	1.53%	11.78	11.78	1,888	1,880	89.1	84.7	1,714	0.0	0.0	1,714
128	5-B32	5-B31	200	135.9	131.9	2.00%	11.78	11.78	2,156	2,147	104.8	87.5	1,964	0.0	0.0	1,964
129	5-B31	5-B30	200	131.9	131.4	0.25%	11.78	11.78	762	759	104.8	87.5	570	0.0	0.0	570
130	5-B30	5-B29	200	131.4	130.0	0.70%	11.78	11.78	1,276	1,270	104.8	87.5	1,084	0.0	0.0	1,084

											Current Service Area			With Added Properties		
Line	From Manhole	To Manhole	Length feet	From Invert	To Invert	Slope %	Dia. in.	Ex. Dia. in.	Capacity ³ gpm	Flowing at 100%	Projected ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm	Add'l. ⁴ Flow, gpm	I & I ⁵ gpm	Unused Cpcty, gpm
131	5-B29	5-B28	200	130.0	129.4	0.30%	11.78	11.78	835	832	104.8	87.5	643	0.0	0.0	643
132	5-B28	5-B13	175	129.4	122.9	3.71%	11.78	11.78	2,939	2,926	104.8	87.5	2,746	0.0	0.0	2,746

NOTES:

³CAPACITY CALCULATED USING MANNING'S EQUATION, N = 0.013.

⁴PROJECTED FLOW BASED ON 1800 GPAD WITH A PEAK FACTOR OF 2.5.

⁵INFILTRATION & INFLOW BASED ON 800 GPAD.

NOMINAL PIPE DIA. & TYPE	ACTUAL PIPE DIA.	
8" PVC	7.92	in.
8" PVC C900	8.28	in.
8" HDPE	8.10	in.
12" PVC	11.78	in.
12" PVC C900	12.08	in.
12" HDPE	11.94	in.
14" PVC C905	14.00	in.
15" PVC	14.43	in.
30" PVC C905	29.28	in.

CROSS VALLEY WATER DISTRICT

FUTURE PROJECTED FLOWS - RUTA, ULID AREA & ADDED PROPERTIES

I.D. NO.	TAX LOT NO.	AREA (ACRE)	ZONING	ULID AREA		ADDED AREA		LINE
				FLOW GPM	I & I GPM	FLOW GPM	I & I GPM	
7	27052400101700	0.52	INDUSTRIAL PARK	1.63	0.29			D133-132
3	27052400100400	5.00	PIP	15.63	2.78			D133-132
	27052400101400	2.50	INDUSTRIAL PARK			7.81	1.39	D133-132
	RUTA	350.00	Modeled as Light Industrial			1093.75	194.44	D133-132
				17.25	3.07	1101.56	195.83	
2	27052400100300	2.92	PIP	9.13	1.62			D132-129A
5	27052400100600	1.00	INDUSTRIAL PARK	3.13	0.56			D132-129A
	27052400200600	9.84	INDUSTRIAL PARK			30.75	5.47	D132-129A
	27052400202200	2.35	PIP			7.34	1.31	D132-129A
	27052400201800	2.62	PIP			8.19	1.46	D132-129A
	27052400202500	5.00	PIP			15.63	2.78	D132-129A
	27052400201700	9.61	PIP			30.03	5.34	D132-129A
	27052400203900	0.39	PIP			1.22	0.22	D132-129A
	27052400100900	1.00	INDUSTRIAL PARK			3.13	0.56	D132-129A
	27052400100901	3.54	INDUSTRIAL PARK			11.06	1.97	D132-129A
	27052400101100	2.00	INDUSTRIAL PARK			6.25	1.11	D132-129A
	27052400101800	3.00	INDUSTRIAL PARK			9.38	1.67	D132-129A
				12.25	2.18	122.97	21.86	
1	27052400100200	1.29	INDUSTRIAL PARK	4.03	0.72			D129-128
				4.03	0.72	0.00	0.00	
4	27052400100500	2.93	LIGHT INDUSTRIAL	9.16	1.63			D131-130
				9.16	1.63	0.00	0.00	
6	27052400101500	5.34	LIGHT INDUSTRIAL	16.69	2.97			D130-128
				16.69	2.97	0.00	0.00	
21	27052400400300	4.78	LIGHT INDUSTRIAL	14.94	2.66			D127D-127C
23	27052400400500	1.65	LIGHT INDUSTRIAL	5.16	0.92			D127D-127C
				20.09	3.57	0.00	0.00	
20	27052400400200	4.16	LIGHT INDUSTRIAL	13.00	2.31			D127-126
				13.00	2.31	0.00	0.00	
19	27052400400100	3.25	LIGHT INDUSTRIAL	10.16	1.81			D126-125
22	27052400400400	0.93	LIGHT INDUSTRIAL	2.91	0.52			D126-125
26	27052400403200	0.54	LIGHT INDUSTRIAL	1.69	0.30			D126-125
187	00619301802200	0.46	LIGHT INDUSTRIAL			1.44	0.26	D126-125
188	00619301803000	0.17	LIGHT INDUSTRIAL			0.53	0.09	D126-125
189	27052400303300	0.63	LIGHT INDUSTRIAL			1.97	0.35	D126-125
193	27052400303400	1.51	LIGHT INDUSTRIAL			4.72	0.84	D126-125
196	27052400307400	1.05	LIGHT INDUSTRIAL			3.28	0.58	D126-125
	Previous Urban Res.	41.50	INDUSTRIAL PARK			129.69	23.06	D126-125
				14.75	2.62	141.63	25.18	
192	27052400304500	1.35	LIGHT INDUSTRIAL			4.22	0.75	D125-124
				0.00	0.00	4.22	0.75	
178	00619302702300	0.12	INDUSTRIAL PARK			0.38	0.07	D124-123
179	00619302702200	0.06	INDUSTRIAL PARK			0.19	0.03	D124-123
180	00619302701800	0.24	INDUSTRIAL PARK			0.75	0.13	D124-123
181	00619302701700	0.06	INDUSTRIAL PARK			0.19	0.03	D124-123
182	00619302701500	0.12	INDUSTRIAL PARK			0.38	0.07	D124-123

				ULID AREA		ADDED AREA		LINE
I.D. NO.	TAX LOT NO.	AREA (ACRE)	ZONING	FLOW GPM	I & I GPM	FLOW GPM	I & I GPM	
183	00619301801400	0.17	LIGHT INDUSTRIAL			0.53	0.09	D124-123
184	00619301801200	0.11	LIGHT INDUSTRIAL			0.34	0.06	D124-123
186	00619301801700	0.30	LIGHT INDUSTRIAL			0.94	0.17	D124-123
190	27052400304300	0.59	LIGHT INDUSTRIAL			1.84	0.33	D124-123
191	27052400303200	0.12	INDUSTRIAL PARK			0.38	0.07	D124-123
194	00619301902200	0.06	INDUSTRIAL PARK			0.19	0.03	D124-123
195	00619301902201	0.02	INDUSTRIAL PARK			0.06	0.01	D124-123
				0.00	0.00	6.16	1.09	
9	27052400300200	N/A	See D118-117	0.00	0.00			D123-122
				0.00	0.00	0.00	0.00	
16	00619304600001	0.45	LIGHT INDUSTRIAL	1.41	0.25			D167-166
17	00619304600002	0.23	GENERAL COMMERCIAL	0.72	0.13			D167-166
	RUTA	63.00	Modeled as Light Industrial			196.88	35.00	D167-167
24	27052400400600	1.36	LIGHT INDUSTRIAL	4.25	0.76			D167-166
25	27052400401200	0.36	LIGHT INDUSTRIAL	1.13	0.20			D167-166
10	27052400300300	1.41	WSDOT PROP.	N/A	M/A			D166-D122
12	27052400303900	1.20	WSDOT PROP.	N/A	N/A			D166-D122
18	00619304600003	0.40	WSDOT PROP.	N/A	N/A			D166-D123
				7.50	1.33	196.88	35.00	
11	27052400300400	0.40	LIGHT INDUSTRIAL	1.25	0.22			D164-121
				1.25	0.22	0.00	0.00	
8	27052400300100	3.82	GENERAL COMMERCIAL	11.94	2.12			D119-118A
	RUTA	104.00	Modeled as Light Industrial			325.00	57.78	D119-118A
				11.94	2.12	325.00	57.78	
	27052400301300	1.00	INDUSTRIAL PARK			3.13	0.56	1-D171
	27052400301302	0.49	INDUSTRIAL PARK			1.53	0.27	1-D171
	27052400300800	1.01	INDUSTRIAL PARK			3.16	0.56	1-D171
	27052400302100	1.00	INDUSTRIAL PARK			3.13	0.56	1-D171
	27052400302300	4.03	INDUSTRIAL PARK			12.59	2.24	1-D171
	27052400301600	0.88	INDUSTRIAL PARK			2.75	0.49	1-D171
	27052400301601	0.04	INDUSTRIAL PARK			0.13	0.02	1-D171
	27052400307000	1.77	INDUSTRIAL PARK			5.53	0.98	1-D171
	27052400307100	1.14	INDUSTRIAL PARK			3.56	0.63	1-D171
	27052400303900	1.20	INDUSTRIAL PARK			3.75	0.67	1-D171
	27052400301700	4.86	INDUSTRIAL PARK			15.19	2.70	1-D171
	27052400307200	1.29	PCB			4.03	0.72	1-D171
	27052400302600	1.00	PCB			3.13	0.56	1-D171
	27052400304200	0.70	PCB			2.19	0.39	1-D171
	27052400303800	0.47	PCB			1.47	0.26	1-D171
	00619304101200	0.29	PCB			0.91	0.16	1-D171
	00619304101700	0.54	PCB			1.69	0.30	1-D171
				0.00	0.00	67.84	12.06	
197	27052400302500	1.80	GENERAL COMMERCIAL	5.63	1.00			D171-118
	RUTA	10.30	Modeled as Light Industrial			32.19	5.72	D171-118
				5.63	1.00	32.19	5.72	
9	27052400300200	25.03	PCB	78.22	13.91			D118-117
15	27052400305400	0.34	GENERAL COMMERCIAL	1.06	0.19			D118-117
				79.28	14.09	0.00	0.00	
30	27052500200300	2.45	COMM. BUSINESS	7.66	1.36			D115-114
42	27052500202100	4.87	COMM. BUSINESS	15.22	2.71			D115-114
49	27052500202900	3.04	LIGHT INDUSTRIAL	9.50	1.69			D115-114

I.D. NO.	TAX LOT NO.	AREA (ACRE)	ZONING	ULID AREA		ADDED AREA		LINE
				FLOW GPM	I & I GPM	FLOW GPM	I & I GPM	
				32.38	5.76	0.00	0.00	
43	27052500202200	1.31	LIGHT INDUSTRIAL	4.09	0.73			D113-112
68	00590800001100	2.00	LIGHT INDUSTRIAL	6.25	1.11			D113-112
69	00590800001101	1.11	LIGHT INDUSTRIAL	3.47	0.62			D113-112
				13.81	2.46	0.00	0.00	
67	00590800001000	3.73	LIGHT INDUSTRIAL	11.66	2.07			D112-111
				11.66	2.07	0.00	0.00	
59	00590800000300	2.50	LIGHT INDUSTRIAL	7.81	1.39			D152-151
60	00590800000400	3.41	LIGHT INDUSTRIAL	10.66	1.89			D152-151
				18.47	3.28	0.00	0.00	
37	27052500201100	1.00	LIGHT INDUSTRIAL	3.13	0.56			D151-156
58	00590800000200	4.04	LIGHT INDUSTRIAL	12.63	2.24			D151-156
				15.75	2.80	0.00	0.00	
40	27052500201500	0.81	LIGHT INDUSTRIAL	2.53	0.45			D157-156
				2.53	0.45	0.00	0.00	
34	27052500200800	0.48	LIGHT INDUSTRIAL	1.50	0.27			D156-150
				1.50	0.27	0.00	0.00	
41	27052500202000	1.23	LIGHT INDUSTRIAL	3.84	0.68			D163-162
41A	27052500202300	1.30	LIGHT INDUSTRIAL	4.06	0.72			D163-162
				7.91	1.41	0.00	0.00	
45	27052500202500	3.22	LIGHT INDUSTRIAL	10.06	1.79			D162-148
				10.06	1.79	0.00	0.00	
44	27052500202400	2.25	LIGHT INDUSTRIAL	7.03	1.25			D148-149
170	00794300000100	2.11	LIGHT INDUSTRIAL	6.59	1.17			D148-149
				13.63	2.42	0.00	0.00	
39	00794300000300	2.03	LIGHT INDUSTRIAL	6.34	1.13			D149-150
				6.34	1.13	0.00	0.00	
35	27052500203900	4.81	LIGHT INDUSTRIAL	15.03	2.67			D155-154
36	27052500201000	3.08	LIGHT INDUSTRIAL	9.63	1.71			D143-142
38	27052500204100	3.00	LIGHT INDUSTRIAL	9.38	1.67			D155-154
38A	27052500204000	2.62	LIGHT INDUSTRIAL	8.19	1.46			D155-154
				42.22	7.51	0.00	0.00	
198	27052400203800	2.41	LIGHT INDUSTRIAL	7.53	1.34			D160-159
				7.53	1.34	0.00	0.00	
31A	27052500204200	2.53	LIGHT INDUSTRIAL	7.91	1.41			1-A-D161
31	27052500204300	3.67	LIGHT INDUSTRIAL	11.47	2.04			1-A-D161
46	27052500202600	2.41	LIGHT INDUSTRIAL	7.53	1.34			1-A-D161
				26.91	4.78	0.00	0.00	
33	27052500200700	1.00	LIGHT INDUSTRIAL	3.13	0.56			D154-153
171	00794300000200	1.97	LIGHT INDUSTRIAL	6.16	1.09			D154-153
				9.28	1.65	0.00	0.00	
66	00590800000900	11.32	LIGHT INDUSTRIAL	35.38	6.29			D110-109
				35.38	6.29	0.00	0.00	
64	00590800000800	5.98	LIGHT INDUSTRIAL	18.69	3.32			D108-107
				18.69	3.32	0.00	0.00	
48	27052500202800	1.32	LIGHT INDUSTRIAL	4.13	0.73			D143-142
50	27052500203000	6.90	LIGHT INDUSTRIAL	21.56	3.83			D143-142
53	27052500203300	1.97	LIGHT INDUSTRIAL	6.16	1.09			D143-142
				31.84	5.66	0.00	0.00	
52	27052500203200	0.85	LIGHT INDUSTRIAL	2.66	0.47			D141-140

I.D. NO.	TAX LOT NO.	AREA (ACRE)	ZONING	ULID AREA		ADDED AREA		LINE
				FLOW GPM	I & I GPM	FLOW GPM	I & I GPM	
55	27052500203500	1.21	LIGHT INDUSTRIAL	3.78	0.67			D141-140
56	27052500203600	1.28	LIGHT INDUSTRIAL	4.00	0.71			D141-140
				10.44	1.86	0.00	0.00	
57	27052500203700	2.03	LIGHT INDUSTRIAL	6.34	1.13			D140-139
				6.34	1.13	0.00	0.00	
51	27052500203100	0.95	LIGHT INDUSTRIAL	2.97	0.53			D144-139
54	27052500203400	0.91	LIGHT INDUSTRIAL	2.84	0.51			D144-139
				5.81	1.03	0.00	0.00	
47	27052500202700	2.07	LIGHT INDUSTRIAL	6.47	1.15			D139-138A
				6.47	1.15	0.00	0.00	
61	00590800000401	1.94	LIGHT INDUSTRIAL	6.06	1.08			D138A-138
62	00590800000600	2.59	LIGHT INDUSTRIAL	8.09	1.44			D138A-138
				14.16	2.52	0.00	0.00	
63	00590800000700	7.34	LIGHT INDUSTRIAL	22.94	4.08			D138-137
				22.94	4.08	0.00	0.00	
77	00505100000800	1.81	LIGHT INDUSTRIAL	5.66	1.01			D136-106
				5.66	1.01	0.00	0.00	
32	27052500200500	6.24	LIGHT INDUSTRIAL	19.50	3.47			D105-104
75A	00505100000604	0.69	LIGHT INDUSTRIAL	2.16	0.38			D105-104
	27052500102400	32.70	LIGHT INDUSTRIAL	102.19	18.17			D105-104
	27052500101800	1.31	LIGHT INDUSTRIAL			4.09	0.73	D105-104
	27052500104900	1.72	LIGHT INDUSTRIAL			5.38	0.96	D105-104
	27052500101900	3.67	WSDOT PROP.			N/A	N/A	D105-104
	27052500102200	5.00	R-9,600 (23 Residences)			8.82	2.78	D-105-104
	27052500102201	6.06	R-9,600 (28 Residences)			10.74	3.37	D-105-104
	27052500103900	0.40	PCB			1.25	0.22	D-105-104
	27052500102100	13.10	PCB			40.94	7.28	D-105-104
	27052500100600	5.00	PCB			15.63	2.78	D-105-104
	RUTA	103.10	Modeled as Light Industrial			322.19	57.28	D105-104
	RUTA	128.63	Modeled as Light Industrial			401.97	71.46	D105-104
				123.84	22.02	811.01	146.84	
75	00505100000700	2.00	LIGHT INDUSTRIAL	6.25	1.11			D104-103
				6.25	1.11	0.00	0.00	
76	00505100000701	0.47	LIGHT INDUSTRIAL	1.47	0.26			D103-102
	RUTA	60.00	Modeled as Light Industrial			187.50	33.33	D103-102
				1.47	0.26	187.50	33.33	
73	27052500302400	0.83	LIGHT INDUSTRIAL	2.59	0.46			D102-101
				2.59	0.46	0.00	0.00	
70	27052500300300	10.91	LIGHT INDUSTRIAL	34.09	6.06			D134-135
	27052600401200	0.63		1.97	0.35			D134-135
				36.06	6.41	0.00	0.00	
74	27052500302500	1.11	LIGHT INDUSTRIAL	3.47	0.62			C81-80
				3.47	0.62	0.00	0.00	
107	27052600402500	2.50	LIGHT INDUSTRIAL	7.81	1.39			C80-79
				7.81	1.39	0.00	0.00	
103	27052600400600	1.80	LIGHT INDUSTRIAL	5.63	1.00			C99-79
				5.63	1.00	0.00	0.00	
102	27052600400100	3.19	LIGHT INDUSTRIAL	9.97	1.77			C79-78
				9.97	1.77	0.00	0.00	
80	27052600101400	4.30	LIGHT INDUSTRIAL	13.44	2.39			C76-75
104	27052600400700	0.68	LIGHT INDUSTRIAL	2.13	0.38			C76-75

				ULID AREA		ADDED AREA		LINE
I.D. NO.	TAX LOT NO.	AREA (ACRE)	ZONING	FLOW GPM	I & I GPM	FLOW GPM	I & I GPM	
105	27052600400900	4.93	LIGHT INDUSTRIAL	15.41	2.74	0.00	0.00	C76-75
108	27052600402600	0.85	LIGHT INDUSTRIAL	2.66	0.47			C76-75
111	27052600403300	1.07	LIGHT INDUSTRIAL	3.34	0.59			C76-75
113	27052600404600	0.90	LIGHT INDUSTRIAL	2.81	0.50			C76-75
114	27052600404700	0.95	LIGHT INDUSTRIAL	2.97	0.53			C76-75
115	27052600404800	0.95	LIGHT INDUSTRIAL	2.97	0.53			C76-75
				45.72	8.13			
78	27052600101200	2.22	LIGHT INDUSTRIAL	6.94	1.23	0.00	0.00	C75-74
				6.94	1.23			
106	27052600402400	1.52	LIGHT INDUSTRIAL	4.75	0.84	0.00	0.00	C98-97
109	27052600402700	3.81	LIGHT INDUSTRIAL	11.91	2.12			C98-97
				16.66	2.96			
81	27052600101500	3.33	LIGHT INDUSTRIAL	10.41	1.85	0.00	0.00	C74-73
				10.41	1.85			
82	27052600104800	2.24	LIGHT INDUSTRIAL	7.00	1.24	0.00	0.00	C73-72
82A	27052600104700	1.39	LIGHT INDUSTRIAL	4.34	0.77			C73-72
RUTA		22.00	Modeled as Light Industrial			68.75	12.22	C73-72
				11.34	2.02	68.75	12.22	
85	27052600403100	3.54	LIGHT INDUSTRIAL	11.06	1.97	0.00	0.00	C96-95
110	27052600403000	5.19	LIGHT INDUSTRIAL	16.22	2.88			C96-95
112	27052600403800	0.70	LIGHT INDUSTRIAL	2.19	0.39			C96-95
				29.47	5.24			
83	27052600101900	2.80	LIGHT INDUSTRIAL	8.75	1.56	0.00	0.00	C95-94
				8.75	1.56			
84	27052600103700	5.00	LIGHT INDUSTRIAL	15.63	2.78	0.00	0.00	C71-70
86	27052600104300	1.86	LIGHT INDUSTRIAL	5.81	1.03			C71-70
				21.44	3.81			
88	27052600202100	9.38	LIGHT INDUSTRIAL	29.31	5.21	0.00	0.00	C69-68
				29.31	5.21			
87	27052600202000	1.14	LIGHT INDUSTRIAL	3.56	0.63	0.00	0.00	C66-65
				3.56	0.63			
90	27052600300100	2.07	LIGHT INDUSTRIAL	6.47	1.15	0.00	0.00	C93-92
99	27052600301600	2.20	LIGHT INDUSTRIAL	6.88	1.22			C93-92
				13.34	2.37			
89A	27052600302100	0.65	LIGHT INDUSTRIAL	2.03	0.36	0.00	0.00	C92-91
				2.03	0.36			
89	27052600202500	1.88	LIGHT INDUSTRIAL	5.88	1.04	0.00	0.00	C91-90
				5.88	1.04			
101	27052600303100	10.08	LIGHT INDUSTRIAL	31.50	5.60	0.00	0.00	C65-64
				31.50	5.60			
91	27052600300200	6.82	LIGHT INDUSTRIAL	21.31	3.79	0.00	0.00	6-5
				21.31	3.79			
100	27052600302000	7.81	LIGHT INDUSTRIAL	24.41	4.34	0.00	0.00	C87-60
				24.41	4.34			
126	27053400401900	0.48	LIGHT INDUSTRIAL	1.50	0.27	0.00	0.00	B39-38
128	27053400402100	0.65	LIGHT INDUSTRIAL	2.03	0.36			B39-38
119	27053400400100	14.30	LIGHT INDUSTRIAL	0.38	7.94			B39-38
129	27053400402200	1.10	R-5 (1 Residence)	0.38	0.61			B39-38
137	27053400402200	0.74	R-5 (1 Residence)	0.38	0.41			B39-40
160	27053500300100	3.50	R-5 (1 Residence)	0.38	1.94			B39-38
161	27053500300200	19.45	R-5 (4 Residences)	1.53	10.81			B39-38

				ULID AREA		ADDED AREA		LINE
I.D. NO.	TAX LOT NO.	AREA (ACRE)	ZONING	FLOW GPM	I & I GPM	FLOW GPM	I & I GPM	
162	27053500300300	16.92	R-5 (4 Residences)	1.53	9.40			B39-38
163	27053500300400	19.54	R-5 (4 Residences)	1.53	10.86			B39-38
164	27053500300500	16.21	R-5 (4 Residences)	1.53	9.01			B39-38
165	27053500300600	2.41	R-5 (1 Residence)	0.38	1.34			B39-38
166	27053500301100	3.04	R-5 (1 Residence)	0.38	1.69			B39-38
167	27053500302000	0.76	R-5 (1 Residence)	0.38	0.42			B39-38
168	27053500302100	0.19	R-5 (1 Residence)	0.38	0.11			B39-38
169	27053500302200	18.62	R-5 (4 Residences)	1.53	10.34			B39-38
				14.27	65.51	0.00	0.00	
127	27053400402000	5.00	LIGHT INDUSTRIAL	15.63	2.78			B38B-B38A
131	27053400402400	11.01	R-5 (3 Residences)	1.15	6.12			B38B-B38A
				16.78	8.89	0.00	0.00	
125	27053400401800	5.22	LIGHT INDUSTRIAL	16.31	2.90			B37-36
				16.31	2.90	0.00	0.00	
136	27053400403100	1.99	LIGHT INDUSTRIAL	6.22	1.11			B35-34
				6.22	1.11	0.00	0.00	
123	27053400401500	6.23	LIGHT INDUSTRIAL	19.47	3.46			B42-34
130	27053400402300	2.79	LIGHT INDUSTRIAL	8.72	1.55			B42-34
				28.19	5.01	0.00	0.00	
124	27053400401600	2.36	LIGHT INDUSTRIAL	7.38	1.31			B33-32
				7.38	1.31	0.00	0.00	
122	27053400401400	5.00	LIGHT INDUSTRIAL	15.63	2.78			B32-31
				15.63	2.78	0.00	0.00	
TOTALS		1492.30				3065.69	547.68	

ADDED PROPERTIES 59.98 Acres

ULID 5 PROPERTIES 1432.32 Acres

INFILTRATION/INFLOW	800 GPAD =	0.556	GPM/ACRE
LIGHT INDUSTRIAL	1800 GPAD X 2.5 PEAK =	3.125	GPM/ACRE
HEAVY INDUSTRIAL	1800 GPAD X 2.5 PEAK =	3.125	GPM/ACRE
GENERAL COMMERCIAL	1800 GPAD X 2.5 PEAK =	3.125	GPM/ACRE
PLANNED COMMERCIAL BUS	1801 GPAD X 2.5 PEAK =	3.125	GPM/ACRE
PLANNED INDUSTRIAL PARK	1800 GPAD X 2.5 PEAK =	3.125	GPM/ACRE
INDUSTRIAL PARK	1800 GPAD X 2.5 PEAK =	3.125	GPM/ACRE
R-5	85 GPCD X 2.6 CAPITA X 2.5 PEA	0.384	GPM/5 ACRES
R-9600	85 GPCD X 2.6 CAPITA X 2.5 PEA	0.384	GPM/9600 SQ FT



**Water System Plan
Cross Valley Water District**

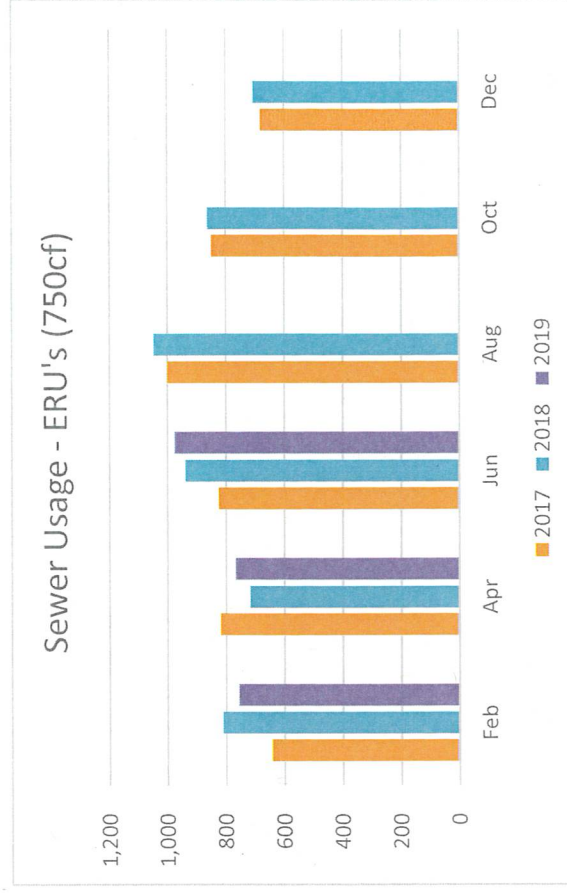
**Appendix G
Sewer Usage Data**

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Cross Valley Sewer Analysis

ERU = 750 cubic feet per month, minimum of 2 per bimonthly bill

Cross Valley Sewer Analysis							Compare To	Thru June
ERU = 750 cubic feet per month, minimum of 2 per bimonthly bill							Test Yr	Billing
		2017	2018	2019	% Change	% Change		
Sewer Usage - Cu Ft					'17 to '18	'18 to '19	% Change	
Feb		393,035	526,957	492,613	34%	-7%	25%	13%
Apr		528,809	463,921	497,238	-12%	7%	-6%	
Jun		539,058	636,092	658,210	18%	3%	22%	
Aug		672,896	715,168		6%	-100%	-100%	
Oct		558,366	577,274		3%	-100%	-100%	
Dec		429,824	452,147		5%	-100%	-100%	
Total Year		3,121,988	3,371,559	1,648,061	8%	-51%	-51%	
Avg. 2-Mo		520,331	561,927	274,677	8%	-51%	-51%	
Sewer Usage - ERU								
Feb		641	810	756	26%	-7%	18%	9%
Apr		818	716	767	-12%	7%	-6%	
Jun		825	939	975	14%	4%	18%	
Aug		1,001	1,047		5%	-100%	-100%	
Oct		850	863		2%	-100%	-100%	
Dec		680	704		4%	-100%	-100%	
Total Year		4,815	5,079	2,498	5%	-51%	-51%	
Avg. 2-Mo		803	847	416	5%	-51%	-51%	





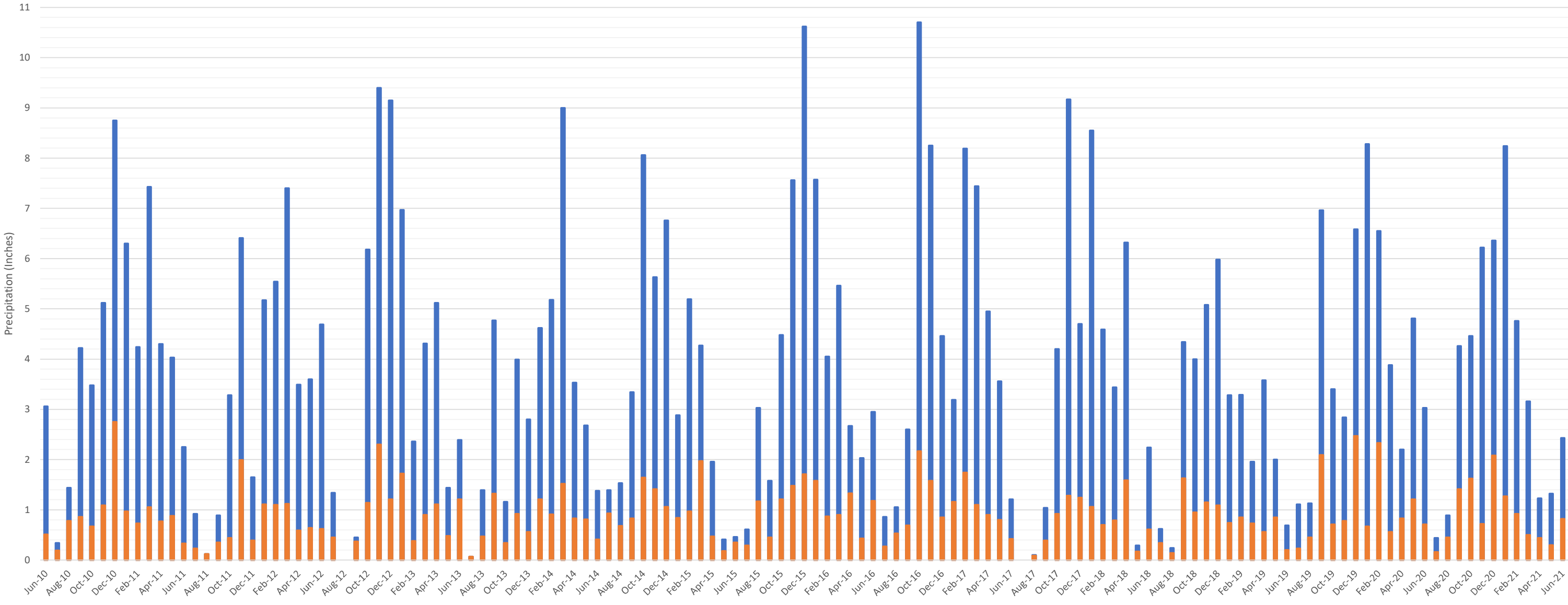
**Water System Plan
Cross Valley Water District**

**Appendix H
Brightwater WWTP Precipitation Data**

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King County (Brightwater WWTP) Rainfall Data

Monthly Precip. (in.) Max Day Precip. (in.)





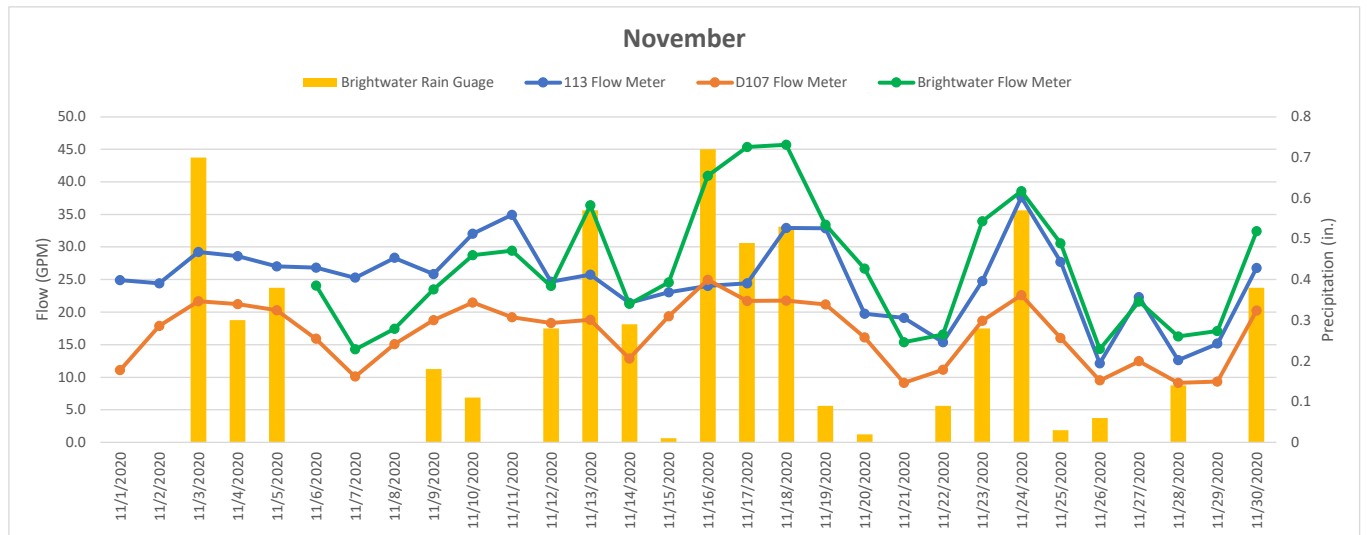
Water System Plan
Cross Valley Water District

Appendix I
Sewer Flowmeter Data

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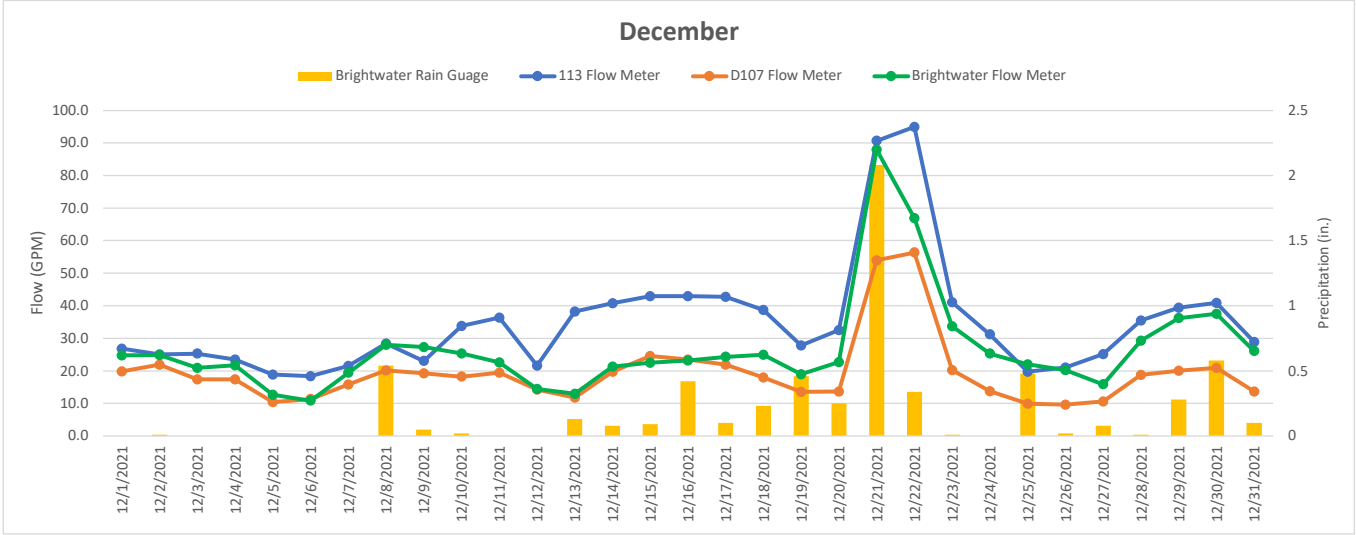
Cross Valley Water District Average Daily Sewer Flows November

Brightwater Flow Meter		D107 Flow Meter		113 Flow Meter		Brightwater Rain Gauge	
Date	Average Flow (gpm)	Date	Average Flow (gpm)	Date	Average Flow (gpm)	Date	Precip. (in.)
11/1/2020		11/1/2020	11.1	11/1/2020	24.9	11/1/2020	0
11/2/2020		11/2/2020	17.9	11/2/2020	24.4	11/2/2020	0
11/3/2020		11/3/2020	21.7	11/3/2020	29.2	11/3/2020	0.7
11/4/2020		11/4/2020	21.2	11/4/2020	28.6	11/4/2020	0.3
11/5/2020		11/5/2020	20.3	11/5/2020	27.0	11/5/2020	0.38
11/6/2020	24.1	11/6/2020	15.9	11/6/2020	26.8	11/6/2020	0
11/7/2020	14.3	11/7/2020	10.1	11/7/2020	25.3	11/7/2020	0
11/8/2020	17.5	11/8/2020	15.1	11/8/2020	28.3	11/8/2020	0
11/9/2020	23.5	11/9/2020	18.8	11/9/2020	25.9	11/9/2020	0.18
11/10/2020	28.7	11/10/2020	21.5	11/10/2020	32.0	11/10/2020	0.11
11/11/2020	29.4	11/11/2020	19.2	11/11/2020	35.0	11/11/2020	0
11/12/2020	24.0	11/12/2020	18.3	11/12/2020	24.7	11/12/2020	0.28
11/13/2020	36.4	11/13/2020	18.8	11/13/2020	25.7	11/13/2020	0.57
11/14/2020	21.2	11/14/2020	12.9	11/14/2020	21.4	11/14/2020	0.29
11/15/2020	24.6	11/15/2020	19.4	11/15/2020	23.1	11/15/2020	0.01
11/16/2020	40.9	11/16/2020	25.0	11/16/2020	24.0	11/16/2020	0.72
11/17/2020	45.3	11/17/2020	21.7	11/17/2020	24.4	11/17/2020	0.49
11/18/2020	45.7	11/18/2020	21.8	11/18/2020	32.9	11/18/2020	0.53
11/19/2020	33.4	11/19/2020	21.2	11/19/2020	32.8	11/19/2020	0.09
11/20/2020	26.7	11/20/2020	16.1	11/20/2020	19.8	11/20/2020	0.02
11/21/2020	15.4	11/21/2020	9.1	11/21/2020	19.1	11/21/2020	0
11/22/2020	16.6	11/22/2020	11.1	11/22/2020	15.4	11/22/2020	0.09
11/23/2020	33.9	11/23/2020	18.7	11/23/2020	24.7	11/23/2020	0.28
11/24/2020	38.6	11/24/2020	22.6	11/24/2020	37.6	11/24/2020	0.57
11/25/2020	30.5	11/25/2020	16.0	11/25/2020	27.7	11/25/2020	0.03
11/26/2020	14.3	11/26/2020	9.5	11/26/2020	12.1	11/26/2020	0.06
11/27/2020	21.6	11/27/2020	12.5	11/27/2020	22.3	11/27/2020	0
11/28/2020	16.3	11/28/2020	9.2	11/28/2020	12.6	11/28/2020	0.14
11/29/2020	17.1	11/29/2020	9.3	11/29/2020	15.2	11/29/2020	0
11/30/2020	32.4	11/30/2020	20.2	11/30/2020	26.8	11/30/2020	0.38



Cross Valley Water District Average Daily Sewer Flows December

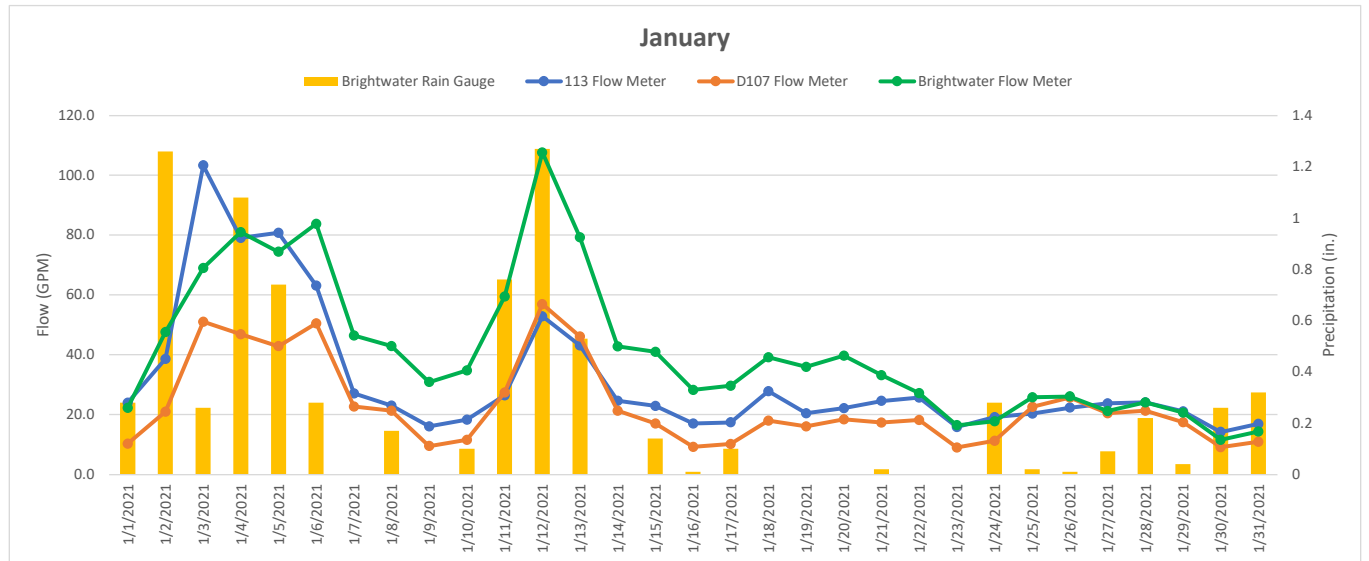
Brightwater Flow Meter		D107 Flow Meter		113 Flow Meter		Brightwater Rain Gauge	
Average Flow		Average Flow		Average Flow			
Date	(gpm)	Date	(gpm)	Date	(gpm)	Date	Precip. (in.)
12/1/2021	24.8	12/1/2021	19.8	12/1/2021	26.8	12/1/2020	0
12/2/2021	24.9	12/2/2021	21.9	12/2/2021	25.1	12/2/2020	0.01
12/3/2021	21.0	12/3/2021	17.4	12/3/2021	25.3	12/3/2020	0
12/4/2021	21.7	12/4/2021	17.4	12/4/2021	23.5	12/4/2020	0
12/5/2021	12.7	12/5/2021	10.4	12/5/2021	18.9	12/5/2020	0
12/6/2021	10.9	12/6/2021	11.4	12/6/2021	18.4	12/6/2020	0
12/7/2021	19.4	12/7/2021	15.8	12/7/2021	21.5	12/7/2020	0
12/8/2021	28.0	12/8/2021	20.2	12/8/2021	28.4	12/8/2020	0.54
12/9/2021	27.3	12/9/2021	19.3	12/9/2021	23.0	12/9/2020	0.05
12/10/2021	25.4	12/10/2021	18.2	12/10/2021	33.8	12/10/2020	0.02
12/11/2021	22.6	12/11/2021	19.5	12/11/2021	36.4	12/11/2020	0
12/12/2021	14.4	12/12/2021	14.2	12/12/2021	21.6	12/12/2020	0
12/13/2021	13.0	12/13/2021	11.8	12/13/2021	38.3	12/13/2020	0.13
12/14/2021	21.3	12/14/2021	19.7	12/14/2021	40.8	12/14/2020	0.08
12/15/2021	22.5	12/15/2021	24.6	12/15/2021	43.0	12/15/2020	0.09
12/16/2021	23.2	12/16/2021	23.5	12/16/2021	42.9	12/16/2020	0.42
12/17/2021	24.3	12/17/2021	22.0	12/17/2021	42.8	12/17/2020	0.1
12/18/2021	25.0	12/18/2021	18.0	12/18/2021	38.7	12/18/2020	0.23
12/19/2021	19.0	12/19/2021	13.6	12/19/2021	27.8	12/19/2020	0.46
12/20/2021	22.7	12/20/2021	13.7	12/20/2021	32.5	12/20/2020	0.25
12/21/2021	88.0	12/21/2021	53.9	12/21/2021	90.6	12/21/2020	2.08
12/22/2021	66.9	12/22/2021	56.4	12/22/2021	94.9	12/22/2020	0.34
12/23/2021	33.7	12/23/2021	20.3	12/23/2021	41.1	12/23/2020	0.01
12/24/2021	25.3	12/24/2021	13.8	12/24/2021	31.2	12/24/2020	0
12/25/2021	22.0	12/25/2021	9.9	12/25/2021	19.8	12/25/2020	0.48
12/26/2021	20.3	12/26/2021	9.7	12/26/2021	21.0	12/26/2020	0.02
12/27/2021	15.9	12/27/2021	10.6	12/27/2021	25.2	12/27/2020	0.08
12/28/2021	29.3	12/28/2021	18.8	12/28/2021	35.5	12/28/2020	0.01
12/29/2021	36.2	12/29/2021	20.0	12/29/2021	39.4	12/29/2020	0.28
12/30/2021	37.6	12/30/2021	21.0	12/30/2021	40.9	12/30/2020	0.58
12/31/2021	26.1	12/31/2021	13.6	12/31/2021	28.9	12/31/2020	0.1



Cross Valley Water District Average Daily Sewer Flows

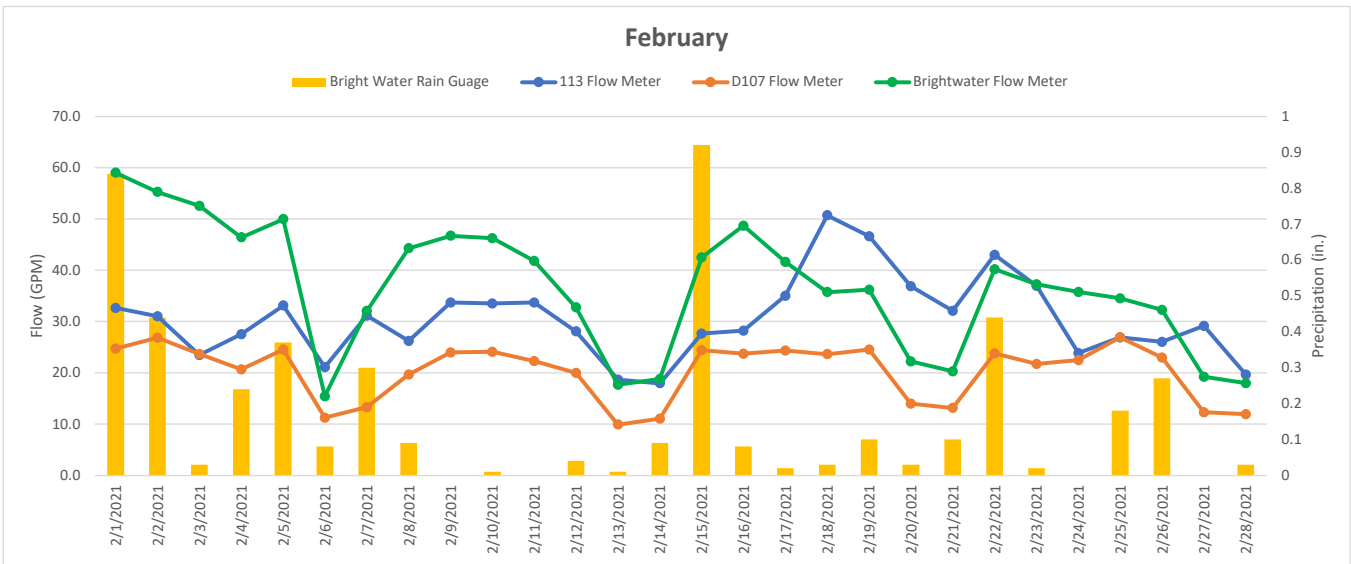
January

Brightwater Flow Meter		D107 Flow Meter		113 Flow Meter		Brightwater Rain Gauge	
Date	Average Flow (gpm)	Date	Average Flow (gpm)	Date	Average Flow (gpm)	Date	Precip. (in.)
1/1/2021	22.3	1/1/2021	10.3	1/1/2021	23.9	1/1/2021	0.28
1/2/2021	47.6	1/2/2021	21.0	1/2/2021	38.6	1/2/2021	1.26
1/3/2021	69.0	1/3/2021	51.0	1/3/2021	103.3	1/3/2021	0.26
1/4/2021	81.0	1/4/2021	46.9	1/4/2021	79.0	1/4/2021	1.08
1/5/2021	74.4	1/5/2021	42.8	1/5/2021	80.8	1/5/2021	0.74
1/6/2021	83.7	1/6/2021	50.5	1/6/2021	63.1	1/6/2021	0.28
1/7/2021	46.4	1/7/2021	22.7	1/7/2021	27.1	1/7/2021	0
1/8/2021	42.9	1/8/2021	21.3	1/8/2021	23.0	1/8/2021	0.17
1/9/2021	30.9	1/9/2021	9.5	1/9/2021	16.1	1/9/2021	0
1/10/2021	34.8	1/10/2021	11.6	1/10/2021	18.3	1/10/2021	0.1
1/11/2021	59.4	1/11/2021	27.4	1/11/2021	26.4	1/11/2021	0.76
1/12/2021	107.7	1/12/2021	56.9	1/12/2021	52.9	1/12/2021	1.27
1/13/2021	79.2	1/13/2021	46.1	1/13/2021	43.1	1/13/2021	0.53
1/14/2021	42.8	1/14/2021	21.3	1/14/2021	24.6	1/14/2021	0
1/15/2021	40.9	1/15/2021	17.0	1/15/2021	22.9	1/15/2021	0.14
1/16/2021	28.3	1/16/2021	9.2	1/16/2021	17.0	1/16/2021	0.01
1/17/2021	29.6	1/17/2021	10.2	1/17/2021	17.4	1/17/2021	0.1
1/18/2021	39.2	1/18/2021	17.9	1/18/2021	27.9	1/18/2021	0
1/19/2021	35.9	1/19/2021	16.1	1/19/2021	20.4	1/19/2021	0
1/20/2021	39.7	1/20/2021	18.4	1/20/2021	22.2	1/20/2021	0
1/21/2021	33.2	1/21/2021	17.4	1/21/2021	24.6	1/21/2021	0.02
1/22/2021	27.1	1/22/2021	18.2	1/22/2021	25.7	1/22/2021	0
1/23/2021	16.4	1/23/2021	9.0	1/23/2021	15.8	1/23/2021	0
1/24/2021	17.8	1/24/2021	11.2	1/24/2021	19.2	1/24/2021	0.28
1/25/2021	25.8	1/25/2021	22.6	1/25/2021	20.3	1/25/2021	0.02
1/26/2021	26.1	1/26/2021	25.6	1/26/2021	22.3	1/26/2021	0.01
1/27/2021	21.2	1/27/2021	20.5	1/27/2021	23.7	1/27/2021	0.09
1/28/2021	24.0	1/28/2021	21.3	1/28/2021	24.1	1/28/2021	0.22
1/29/2021	20.7	1/29/2021	17.5	1/29/2021	21.1	1/29/2021	0.04
1/30/2021	11.6	1/30/2021	9.1	1/30/2021	14.2	1/30/2021	0.26
1/31/2021	14.4	1/31/2021	10.9	1/31/2021	16.9	1/31/2021	0.32



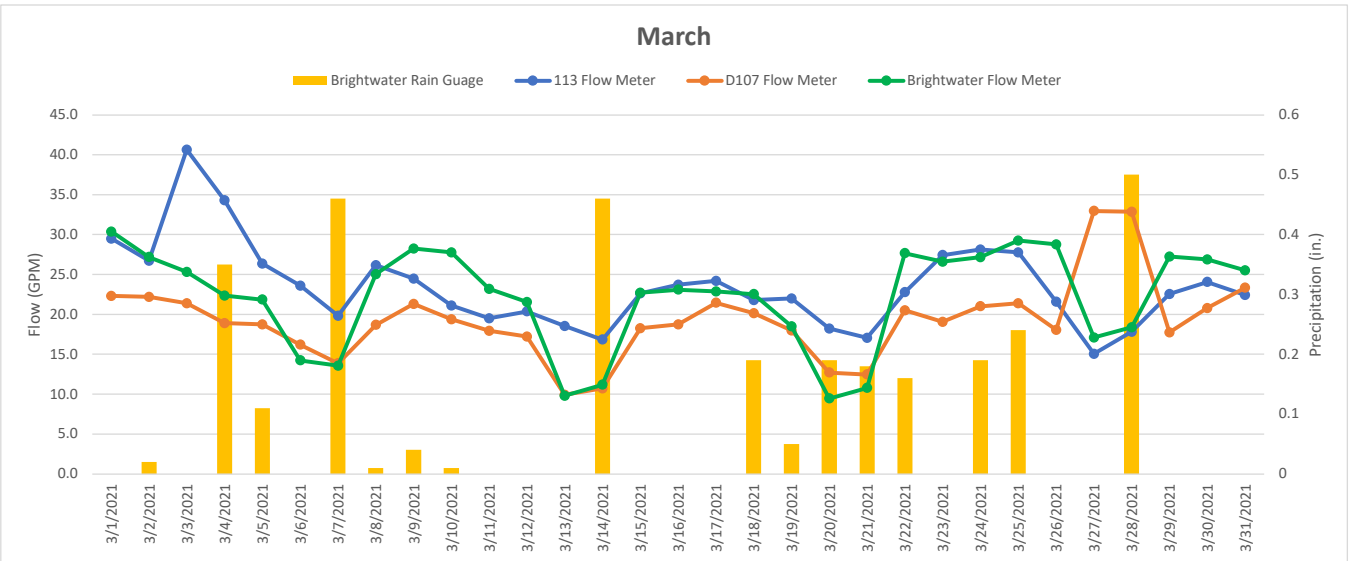
Cross Valley Water District Average Daily Sewer Flows **February**

Brightwater Flow Meter		D107 Flow Meter		113 Flow Meter		Brightwater Rain Gauge	
Date	Average Flow (gpm)	Date	Average Flow (gpm)	Date	Average Flow (gpm)	Date	Precip. (in.)
2/1/2021	59.0	2/1/2021	24.7	2/1/2021	32.7	2/1/2021	0.84
2/2/2021	55.3	2/2/2021	26.8	2/2/2021	31.0	2/2/2021	0.44
2/3/2021	52.5	2/3/2021	23.6	2/3/2021	23.5	2/3/2021	0.03
2/4/2021	46.4	2/4/2021	20.7	2/4/2021	27.5	2/4/2021	0.24
2/5/2021	50.0	2/5/2021	24.6	2/5/2021	33.1	2/5/2021	0.37
2/6/2021	15.4	2/6/2021	11.2	2/6/2021	21.1	2/6/2021	0.08
2/7/2021	32.0	2/7/2021	13.3	2/7/2021	31.2	2/7/2021	0.3
2/8/2021	44.3	2/8/2021	19.7	2/8/2021	26.2	2/8/2021	0.09
2/9/2021	46.7	2/9/2021	24.0	2/9/2021	33.7	2/9/2021	0
2/10/2021	46.2	2/10/2021	24.1	2/10/2021	33.5	2/10/2021	0.01
2/11/2021	41.8	2/11/2021	22.3	2/11/2021	33.7	2/11/2021	0
2/12/2021	32.7	2/12/2021	20.0	2/12/2021	28.1	2/12/2021	0.04
2/13/2021	17.7	2/13/2021	9.9	2/13/2021	18.7	2/13/2021	0.01
2/14/2021	18.8	2/14/2021	11.0	2/14/2021	17.9	2/14/2021	0.09
2/15/2021	42.5	2/15/2021	24.4	2/15/2021	27.6	2/15/2021	0.92
2/16/2021	48.7	2/16/2021	23.7	2/16/2021	28.2	2/16/2021	0.08
2/17/2021	41.6	2/17/2021	24.4	2/17/2021	35.0	2/17/2021	0.02
2/18/2021	35.7	2/18/2021	23.6	2/18/2021	50.7	2/18/2021	0.03
2/19/2021	36.2	2/19/2021	24.5	2/19/2021	46.6	2/19/2021	0.1
2/20/2021	22.2	2/20/2021	14.0	2/20/2021	36.9	2/20/2021	0.03
2/21/2021	20.3	2/21/2021	13.1	2/21/2021	32.1	2/21/2021	0.1
2/22/2021	40.2	2/22/2021	23.8	2/22/2021	43.0	2/22/2021	0.44
2/23/2021	37.2	2/23/2021	21.7	2/23/2021	37.0	2/23/2021	0.02
2/24/2021	35.8	2/24/2021	22.5	2/24/2021	23.8	2/24/2021	0
2/25/2021	34.5	2/25/2021	26.9	2/25/2021	26.9	2/25/2021	0.18
2/26/2021	32.3	2/26/2021	23.0	2/26/2021	26.0	2/26/2021	0.27
2/27/2021	19.3	2/27/2021	12.3	2/27/2021	29.2	2/27/2021	0
2/28/2021	18.0	2/28/2021	11.9	2/28/2021	19.7	2/28/2021	0.03



Cross Valley Water District Average Daily Sewer Flows
March

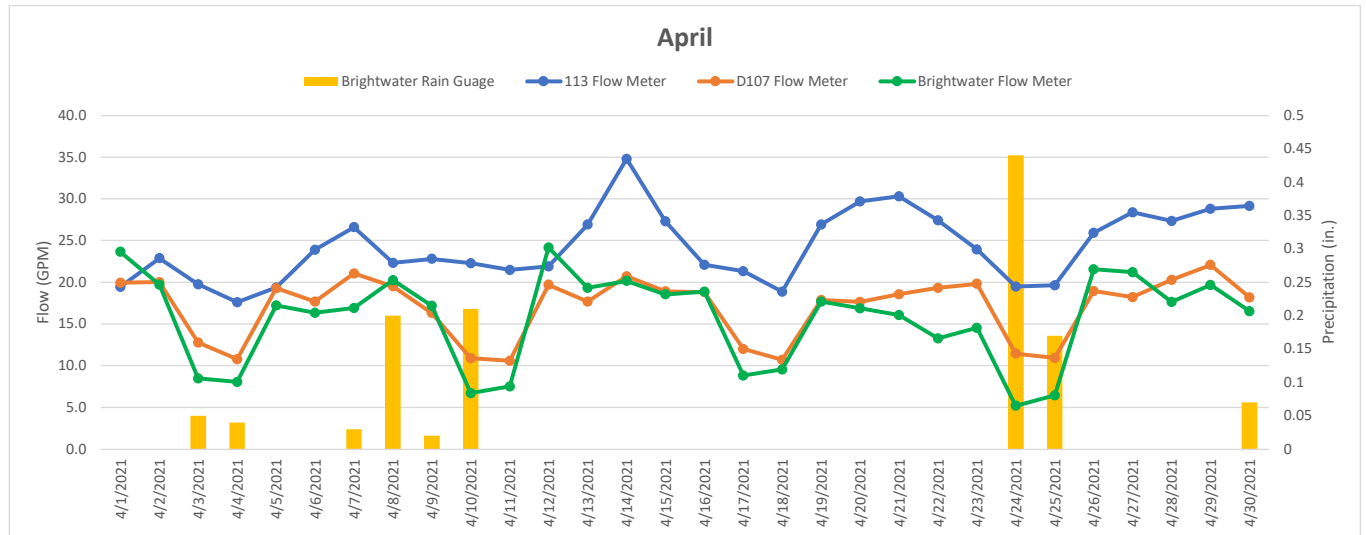
Brightwater Flow Meter		D107 Flow Meter		113 Flow Meter		Brightwater Rain Gauge	
Average Flow		Average Flow		Average Flow			
Date	(gpm)	Date	(gpm)	Date	(gpm)	Date	Precip. (in.)
3/1/2021	30.4	3/1/2021	22.3	3/1/2021	29.5	3/1/2021	0
3/2/2021	27.2	3/2/2021	22.2	3/2/2021	26.7	3/2/2021	0.02
3/3/2021	25.3	3/3/2021	21.4	3/3/2021	40.7	3/3/2021	0
3/4/2021	22.3	3/4/2021	18.9	3/4/2021	34.3	3/4/2021	0.35
3/5/2021	21.8	3/5/2021	18.7	3/5/2021	26.3	3/5/2021	0.11
3/6/2021	14.2	3/6/2021	16.2	3/6/2021	23.6	3/6/2021	0
3/7/2021	13.6	3/7/2021	13.9	3/7/2021	19.8	3/7/2021	0.46
3/8/2021	25.0	3/8/2021	18.7	3/8/2021	26.2	3/8/2021	0.01
3/9/2021	28.2	3/9/2021	21.3	3/9/2021	24.5	3/9/2021	0.04
3/10/2021	27.7	3/10/2021	19.4	3/10/2021	21.1	3/10/2021	0.01
3/11/2021	23.2	3/11/2021	17.9	3/11/2021	19.5	3/11/2021	0
3/12/2021	21.5	3/12/2021	17.2	3/12/2021	20.4	3/12/2021	0
3/13/2021	9.8	3/13/2021	9.9	3/13/2021	18.5	3/13/2021	0
3/14/2021	11.2	3/14/2021	10.7	3/14/2021	16.8	3/14/2021	0.46
3/15/2021	22.7	3/15/2021	18.2	3/15/2021	22.6	3/15/2021	0
3/16/2021	23.1	3/16/2021	18.7	3/16/2021	23.7	3/16/2021	0
3/17/2021	22.9	3/17/2021	21.4	3/17/2021	24.2	3/17/2021	0
3/18/2021	22.5	3/18/2021	20.1	3/18/2021	21.8	3/18/2021	0.19
3/19/2021	18.5	3/19/2021	18.0	3/19/2021	22.0	3/19/2021	0.05
3/20/2021	9.5	3/20/2021	12.7	3/20/2021	18.2	3/20/2021	0.19
3/21/2021	10.8	3/21/2021	12.5	3/21/2021	17.0	3/21/2021	0.18
3/22/2021	27.7	3/22/2021	20.5	3/22/2021	22.8	3/22/2021	0.16
3/23/2021	26.6	3/23/2021	19.1	3/23/2021	27.4	3/23/2021	0
3/24/2021	27.2	3/24/2021	21.0	3/24/2021	28.1	3/24/2021	0.19
3/25/2021	29.2	3/25/2021	21.4	3/25/2021	27.8	3/25/2021	0.24
3/26/2021	28.8	3/26/2021	18.0	3/26/2021	21.6	3/26/2021	0
3/27/2021	17.1	3/27/2021	33.0	3/27/2021	15.1	3/27/2021	0
3/28/2021	18.4	3/28/2021	32.8	3/28/2021	17.8	3/28/2021	0.5
3/29/2021	27.3	3/29/2021	17.7	3/29/2021	22.5	3/29/2021	0
3/30/2021	26.9	3/30/2021	20.8	3/30/2021	24.1	3/30/2021	0
3/31/2021	25.5	3/31/2021	23.3	3/31/2021	22.4	3/31/2021	0



Cross Valley Water District Average Daily Sewer Flows

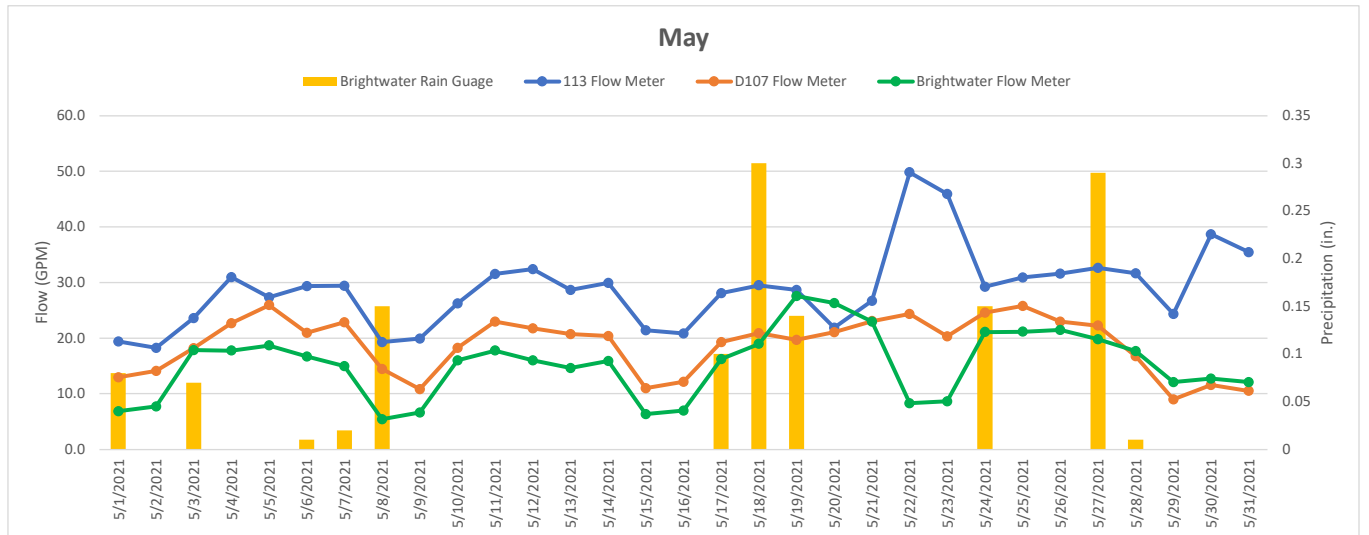
April

Brightwater Flow Meter		D107 Flow Meter		113 Flow Meter		Brightwater Rain Gauge	
Average Flow		Average Flow		Average Flow			
Date	(gpm)	Date	(gpm)	Date	(gpm)	Date	Precip. (in.)
4/1/2021	23.7	4/1/2021	20.0	4/1/2021	19.5	4/1/2021	0
4/2/2021	19.7	4/2/2021	20.0	4/2/2021	22.9	4/2/2021	0
4/3/2021	8.5	4/3/2021	12.8	4/3/2021	19.8	4/3/2021	0.05
4/4/2021	8.1	4/4/2021	10.8	4/4/2021	17.6	4/4/2021	0.04
4/5/2021	17.2	4/5/2021	19.3	4/5/2021	19.4	4/5/2021	0
4/6/2021	16.3	4/6/2021	17.7	4/6/2021	23.9	4/6/2021	0
4/7/2021	16.9	4/7/2021	21.1	4/7/2021	26.6	4/7/2021	0.03
4/8/2021	20.3	4/8/2021	19.5	4/8/2021	22.3	4/8/2021	0.2
4/9/2021	17.2	4/9/2021	16.3	4/9/2021	22.8	4/9/2021	0.02
4/10/2021	6.7	4/10/2021	10.9	4/10/2021	22.3	4/10/2021	0.21
4/11/2021	7.5	4/11/2021	10.6	4/11/2021	21.5	4/11/2021	0
4/12/2021	24.2	4/12/2021	19.7	4/12/2021	21.9	4/12/2021	0
4/13/2021	19.4	4/13/2021	17.7	4/13/2021	26.9	4/13/2021	0
4/14/2021	20.2	4/14/2021	20.7	4/14/2021	34.8	4/14/2021	0
4/15/2021	18.6	4/15/2021	18.9	4/15/2021	27.3	4/15/2021	0
4/16/2021	18.9	4/16/2021	18.8	4/16/2021	22.1	4/16/2021	0
4/17/2021	8.8	4/17/2021	12.0	4/17/2021	21.3	4/17/2021	0
4/18/2021	9.6	4/18/2021	10.7	4/18/2021	18.9	4/18/2021	0
4/19/2021	17.7	4/19/2021	17.9	4/19/2021	26.9	4/19/2021	0
4/20/2021	16.9	4/20/2021	17.6	4/20/2021	29.7	4/20/2021	0
4/21/2021	16.1	4/21/2021	18.6	4/21/2021	30.3	4/21/2021	0
4/22/2021	13.3	4/22/2021	19.3	4/22/2021	27.4	4/22/2021	0
4/23/2021	14.5	4/23/2021	19.8	4/23/2021	23.9	4/23/2021	0
4/24/2021	5.2	4/24/2021	11.5	4/24/2021	19.5	4/24/2021	0.44
4/25/2021	6.4	4/25/2021	10.9	4/25/2021	19.6	4/25/2021	0.17
4/26/2021	21.5	4/26/2021	18.9	4/26/2021	25.9	4/26/2021	0
4/27/2021	21.2	4/27/2021	18.2	4/27/2021	28.4	4/27/2021	0
4/28/2021	17.7	4/28/2021	20.3	4/28/2021	27.3	4/28/2021	0
4/29/2021	19.7	4/29/2021	22.1	4/29/2021	28.8	4/29/2021	0
4/30/2021	16.5	4/30/2021	18.2	4/30/2021	29.2	4/30/2021	0.07



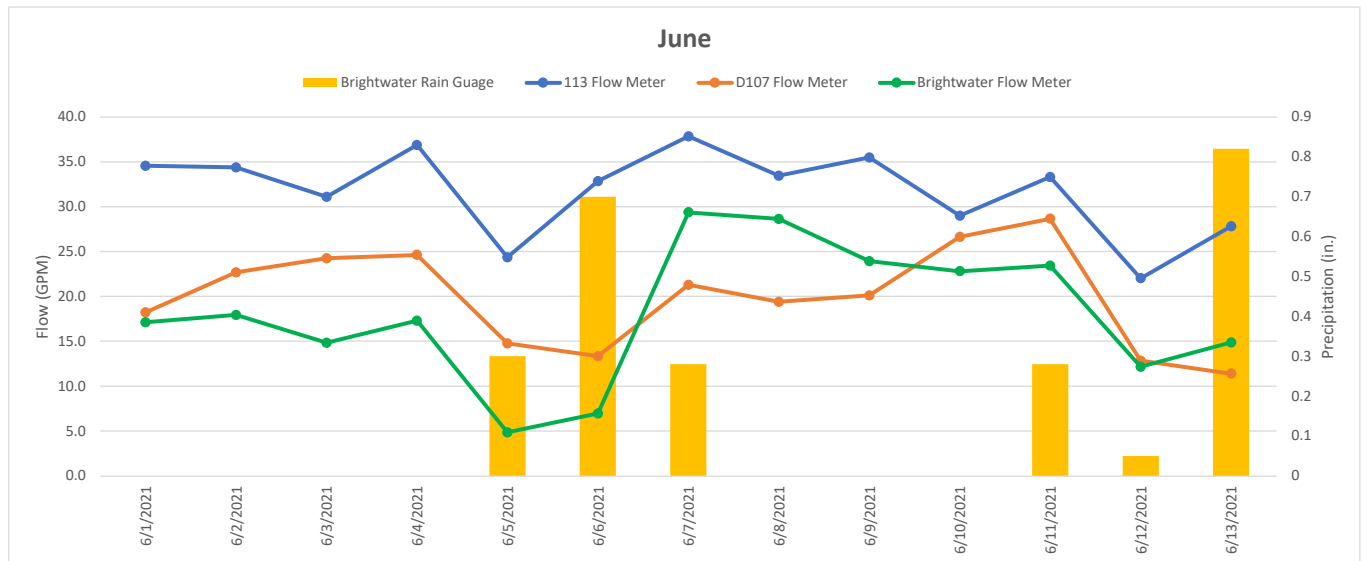
Cross Valley Water District Average Daily Sewer Flows May

Brightwater Flow Meter		D107 Flow Meter		113 Flow Meter		Brightwater Rain Gauge	
Average Flow		Average Flow		Average Flow			
Date	(gpm)	Date	(gpm)	Date	(gpm)	Date	Precip. (in.)
5/1/2021	6.9	5/1/2021	13.0	5/1/2021	19.4	5/1/2021	0.08
5/2/2021	7.7	5/2/2021	14.1	5/2/2021	18.3	5/2/2021	0
5/3/2021	17.8	5/3/2021	18.2	5/3/2021	23.6	5/3/2021	0.07
5/4/2021	17.8	5/4/2021	22.7	5/4/2021	30.9	5/4/2021	0
5/5/2021	18.7	5/5/2021	25.9	5/5/2021	27.4	5/5/2021	0
5/6/2021	16.7	5/6/2021	21.0	5/6/2021	29.4	5/6/2021	0.01
5/7/2021	14.9	5/7/2021	22.9	5/7/2021	29.4	5/7/2021	0.02
5/8/2021	5.4	5/8/2021	14.5	5/8/2021	19.3	5/8/2021	0.15
5/9/2021	6.6	5/9/2021	10.8	5/9/2021	19.9	5/9/2021	0
5/10/2021	16.0	5/10/2021	18.3	5/10/2021	26.2	5/10/2021	0
5/11/2021	17.8	5/11/2021	23.0	5/11/2021	31.6	5/11/2021	0
5/12/2021	16.0	5/12/2021	21.8	5/12/2021	32.4	5/12/2021	0
5/13/2021	14.6	5/13/2021	20.7	5/13/2021	28.7	5/13/2021	0
5/14/2021	15.9	5/14/2021	20.4	5/14/2021	29.9	5/14/2021	0
5/15/2021	6.3	5/15/2021	11.0	5/15/2021	21.4	5/15/2021	0
5/16/2021	7.0	5/16/2021	12.2	5/16/2021	20.8	5/16/2021	0
5/17/2021	16.2	5/17/2021	19.3	5/17/2021	28.1	5/17/2021	0.1
5/18/2021	19.0	5/18/2021	20.9	5/18/2021	29.5	5/18/2021	0.3
5/19/2021	27.6	5/19/2021	19.7	5/19/2021	28.6	5/19/2021	0.14
5/20/2021	26.3	5/20/2021	21.1	5/20/2021	21.9	5/20/2021	0
5/21/2021	23.0	5/21/2021	23.1	5/21/2021	26.7	5/21/2021	0
5/22/2021	8.3	5/22/2021	24.4	5/22/2021	49.8	5/22/2021	0
5/23/2021	8.7	5/23/2021	20.3	5/23/2021	45.9	5/23/2021	0
5/24/2021	21.1	5/24/2021	24.6	5/24/2021	29.2	5/24/2021	0.15
5/25/2021	21.2	5/25/2021	25.8	5/25/2021	30.9	5/25/2021	0
5/26/2021	21.5	5/26/2021	23.0	5/26/2021	31.6	5/26/2021	0
5/27/2021	19.8	5/27/2021	22.2	5/27/2021	32.6	5/27/2021	0.29
5/28/2021	17.7	5/28/2021	16.8	5/28/2021	31.7	5/28/2021	0.01
5/29/2021	12.1	5/29/2021	9.0	5/29/2021	24.4	5/29/2021	0
5/30/2021	12.7	5/30/2021	11.6	5/30/2021	38.7	5/30/2021	0
5/31/2021	12.1	5/31/2021	10.5	5/31/2021	35.5	5/31/2021	0



Cross Valley Water District Average Daily Sewer Flows June

Brightwater Flow Meter		D107 Flow Meter		113 Flow Meter		Brightwater Rain Gauge	
Date	Average Flow (gpm)	Date	Average Flow (gpm)	Date	Average Flow (gpm)	Date	Precip. (in.)
6/1/2021	17.1	6/1/2021	18.2	6/1/2021	34.6	6/1/2021	0
6/2/2021	17.9	6/2/2021	22.7	6/2/2021	34.4	6/2/2021	0
6/3/2021	14.8	6/3/2021	24.3	6/3/2021	31.1	6/3/2021	0
6/4/2021	17.3	6/4/2021	24.6	6/4/2021	36.9	6/4/2021	0
6/5/2021	4.9	6/5/2021	14.8	6/5/2021	24.3	6/5/2021	0.3
6/6/2021	7.0	6/6/2021	13.3	6/6/2021	32.8	6/6/2021	0.7
6/7/2021	29.4	6/7/2021	21.3	6/7/2021	37.8	6/7/2021	0.28
6/8/2021	28.6	6/8/2021	19.4	6/8/2021	33.4	6/8/2021	0
6/9/2021	23.9	6/9/2021	20.1	6/9/2021	35.5	6/9/2021	0
6/10/2021	22.8	6/10/2021	26.6	6/10/2021	29.0	6/10/2021	0
6/11/2021	23.4	6/11/2021	28.7	6/11/2021	33.3	6/11/2021	0.28
6/12/2021	12.2	6/12/2021	12.8	6/12/2021	22.0	6/12/2021	0.05
6/13/2021	14.9	6/13/2021	11.4	6/13/2021	27.8	6/13/2021	0.82





**Water System Plan
Cross Valley Water District**

**Appendix J
CIP Opinions of Probable Cost**

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**Cross Valley Water District
2021 Sewer System Plan CIP**

**Trunk Sewer Capacity Improvements
Preliminary Opinion of Probable Cost
January 2022**

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	12" Sewer	550	LF	\$642	\$353,100
2	14" Sewer	1,600	LF	\$657	\$1,051,200
3	16" Sewer	2,200	LF	\$656	\$1,443,200
4	18" Sewer	2,250	LF	\$718	\$1,615,500
5	21" Sewer	4,150	LF	\$755	\$3,133,250
6	24" Sewer	3,500	LF	\$831	\$2,908,500
7	27" Sewer	1,000	LF	\$907	\$907,000
Construction Subtotal					\$11,411,750
Tax (9.2%)					\$1,049,881
Design and Survey (15%)					\$1,711,763
Construction Admin. (10%)					\$1,141,175
Contingency (15%)					\$1,711,763
Total					\$17,026,331
Total (Rounded)					\$17,000,000

**Pump Station Improvements
Preliminary Opinion of Probable Cost
11/11/2021**

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	Pump Station Upgrade	1	LS	\$760,000	\$760,000
Construction Subtotal					\$760,000
Tax (9.2%)					\$69,920
Design and Survey (15%)					\$114,000
Construction Admin. (10%)					\$76,000
Contingency (15%)					\$114,000
Total					\$1,133,920
Total (Rounded)					\$1,100,000

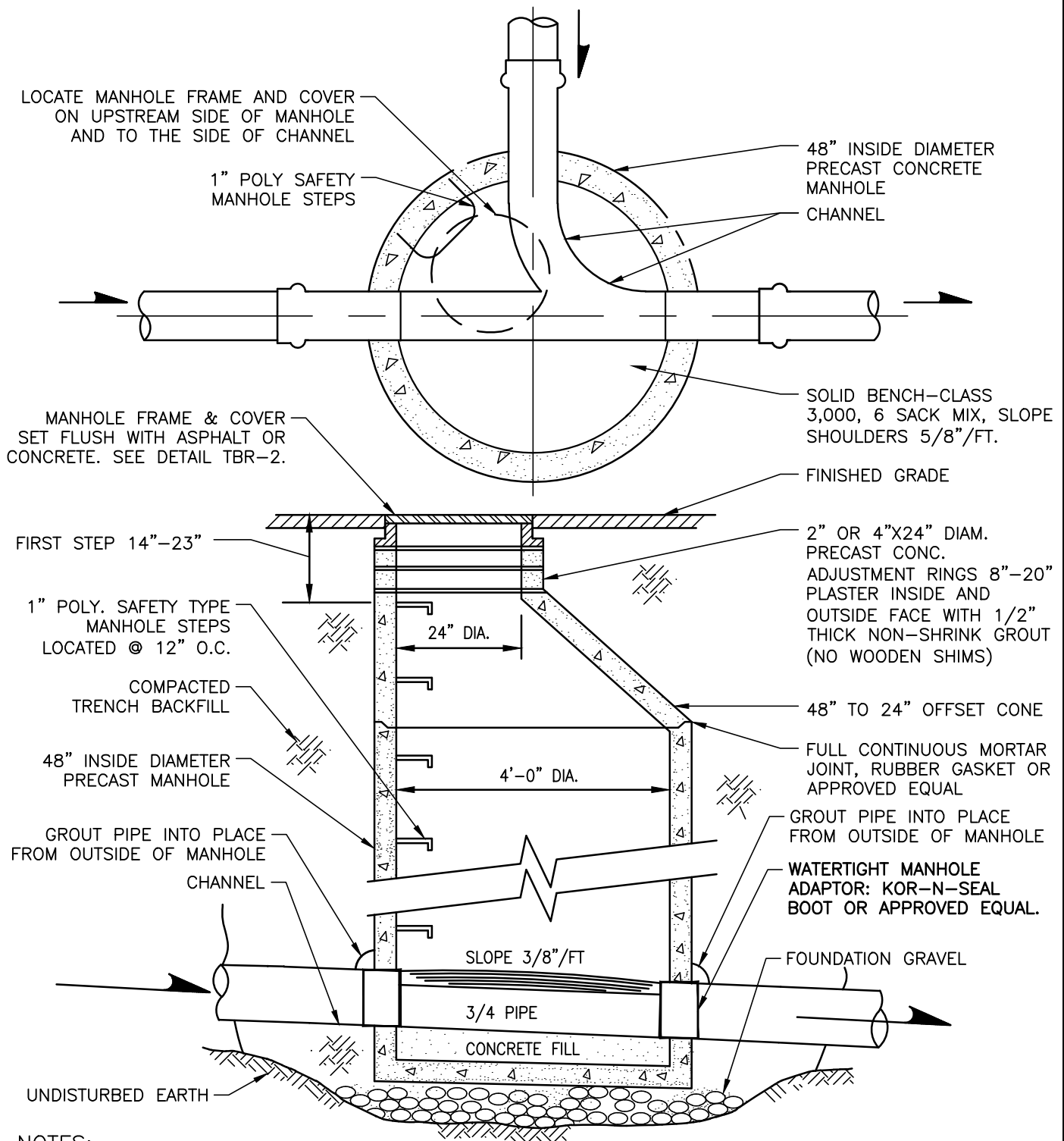


Water System Plan
Cross Valley Water District

Appendix K
Sewer Standard Details

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FILE NAME: L:\CAD\DETAILS\DISTRICTS\CROSS VALLEY WATER DISTRICT\SD-1.DWG



NOTES:

1. MANHOLES SHALL BE WATERTIGHT. GROUT PICK HOLES INSIDE AND OUT WITH NON-SHRINK GROUT.
2. SURFACE RESTORATION IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND LOCAL REGULATORY AUTHORITY.
3. IN NON-PAVED AREAS, INSTALL 6 FT. DIAMETER CONCRETE PAD 6 INCHES THICK AROUND FRAME AND COVER — UNLESS OTHERWISE DIRECTED BY THE DISTRICT.

**CROSS VALLEY WATER DISTRICT
STANDARD SEWER DETAILS**

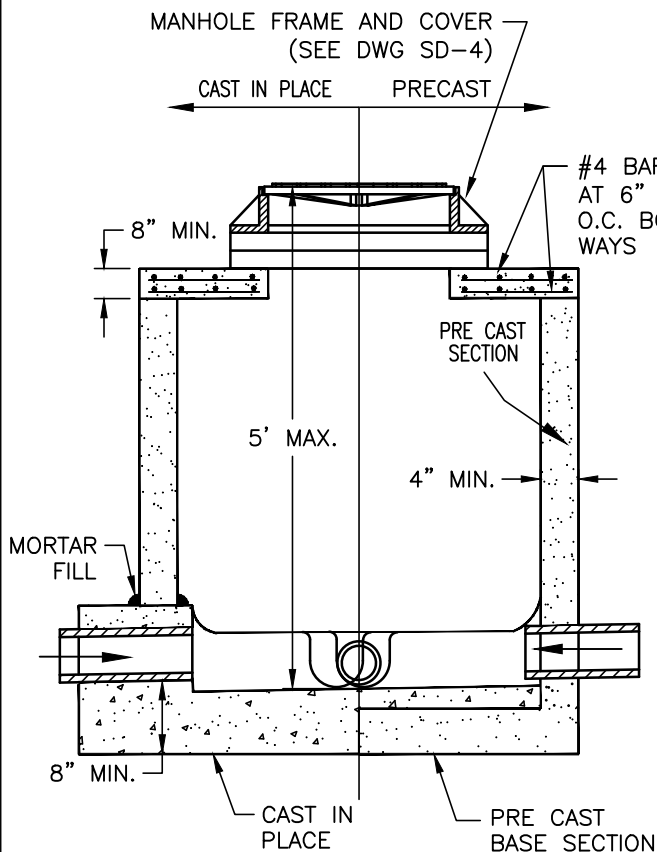
STANDARD PRECAST MANHOLE

SD-1

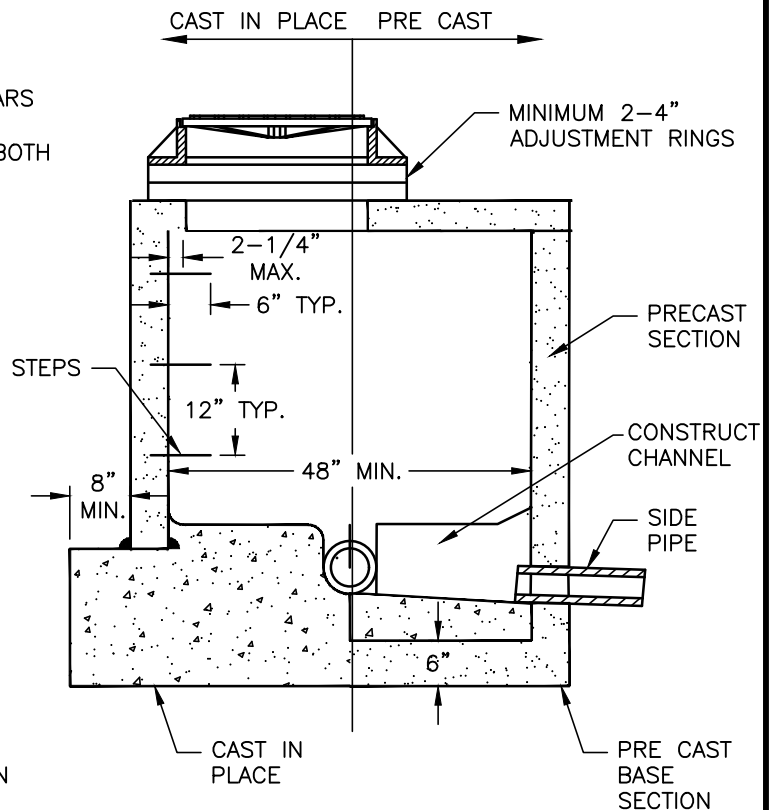
NOT TO SCALE

FEB 2022

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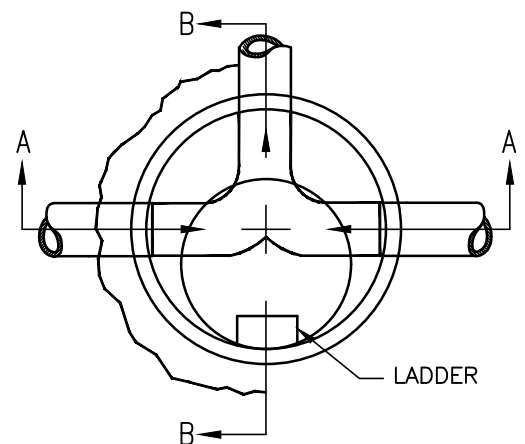
SECTION A-A



SECTION B-B

NOTES:

1. ONLY USED WITH SPECIAL WRITTEN APPROVAL FROM THE DISTRICT.
2. PRE CAST MANHOLE SECTION AND FLAT SLAB COVER SHALL CONFORM TO WSDOT STD DWG B-15.60-02.
3. ALL MANHOLE JOINTS AND PICK HOLES SHALL BE GROUTED WITH NON-SHRINK GROUT TO ENSURE A WATER TIGHT SEAL. GROUTS SHALL BE TRAWLED TO A BROOM FINISH INSIDE AND OUT.
4. ALL CHANNELIZATION OF MANHOLE BASES SHALL BE COVERED BY A RIGID MATERIAL DURING CONSTRUCTION OF ROAD SURFACES TO PREVENT FOREIGN MATERIALS FROM ENTERING SYSTEM.
5. MANHOLE ADAPTORS SHALL BE KOR-N-SEAL BOOTS OR APPROVED EQUAL.



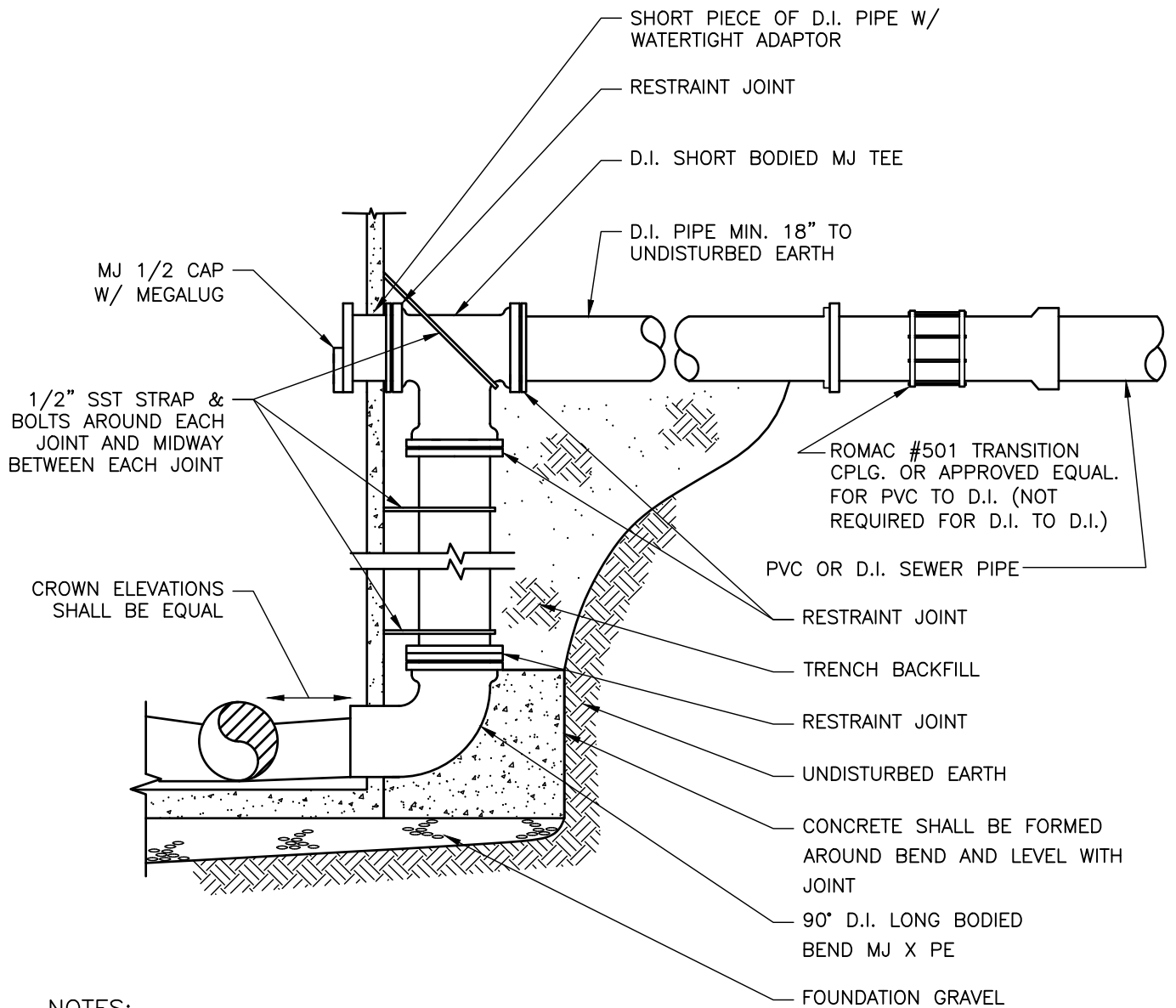
**CROSS VALLEY WATER DISTRICT
STANDARD SEWER DETAILS**

SHALLOW MANHOLE

SD-2

NOT TO SCALE

FEB 2022



NOTES:

1. ALL D.I. JOINTS TO BE RESTRAINED WITH MEGALUG TYPE DEVICES OR APPROVED EQUAL.
2. ALL D.I. PIPE AND FITTINGS TO BE EPOXY LINED.
3. ENTIRE MANHOLE INTERIOR TO BE COATED WITH RAVEN 400 OR EQUAL, UNLESS APPROVED OTHERWISE BY THE DISTRICT.

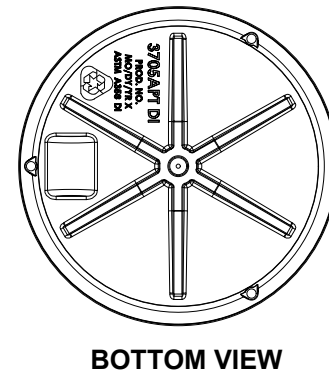
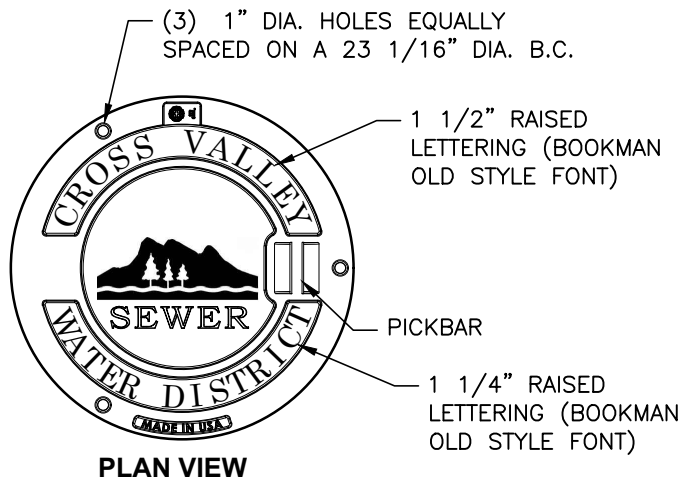
**CROSS VALLEY WATER DISTRICT
STANDARD SEWER DETAILS**

DROP MANHOLE CONNECTION

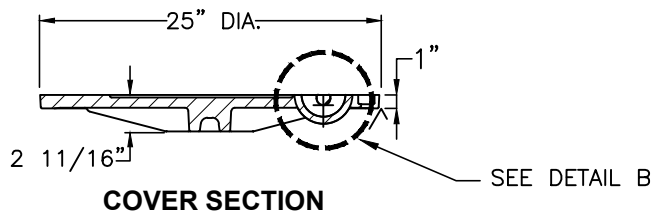
SD-3

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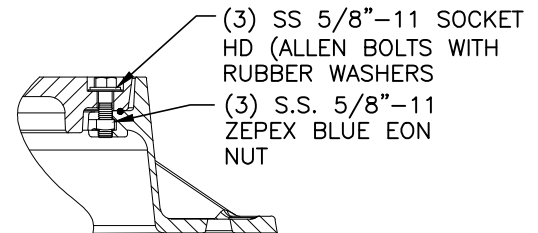
FEB 2022



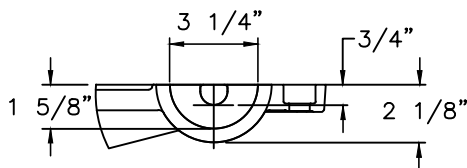
BOTTOM VIEW



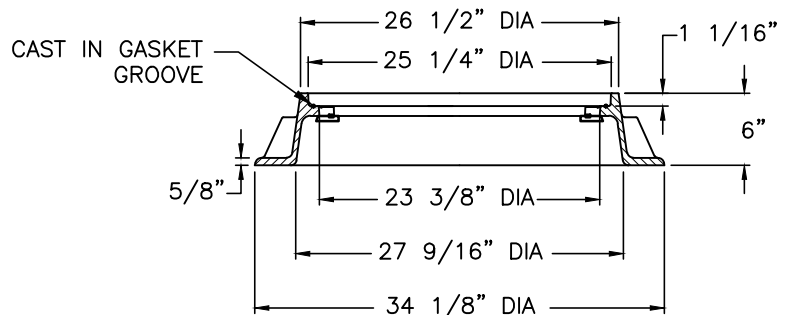
COVER SECTION



BOLT DETAIL



DETAIL B



FRAME SECTION

NOTES:

1. MATERIALS ARE DUCTILE IRON COVER ASTM A536, AND GRAY IRON IRON FRAME ASTM A48 CL35B PRODUCT# 3715ZPT.
2. MANUFACTURED IN THE USA BY EAST JORDAN IRON WORKS MANUFACTURING CO. HEAVY DUTY MANHOLE ASSEMBLY (H20 AND HS20 LOADINGS).
3. MANHOLES LOCATED WITHIN NON-PAVED AREAS SHALL REQUIRE THE INSTALLATION OF GREEN FIBERGLASS MARKER POSTS 5' IN LENGTH WITH DECAL STATING "CAUTION SEWER PIPELINE". THE BURIED END SHALL BE "BARBED" OR AN ANCHOR KIT SHALL BE USED. INSTALL A CONCRETE COLLAR 6' DIAMETER 6" THICK UNLESS OTHERWISE DIRECTED BY THE DISTRICT.
4. 3/4" STRIP OF CONSEAL CD-101 MANHOLE RING AND COVER SEALANT REQUIRED BETWEEN COVER AND FRAME WHERE MANHOLE IS SUSCEPTIBLE TO INUNDATION OR THERE IS THE POTENTIAL FOR EXCESSIVE ODORS OR AS DIRECTED BY THE DISTRICT.
5. IN SIDEWALKS, RAMPS OR CROSSWALKS USE LID COMPLIANT TO AMERICANS WITH DISABILITIES ACT REQUIREMENTS.
6. SEE DETAIL SD-7 FOR ADJUSTMENT DETAILS.

**CROSS VALLEY WATER DISTRICT
STANDARD SEWER DETAILS**

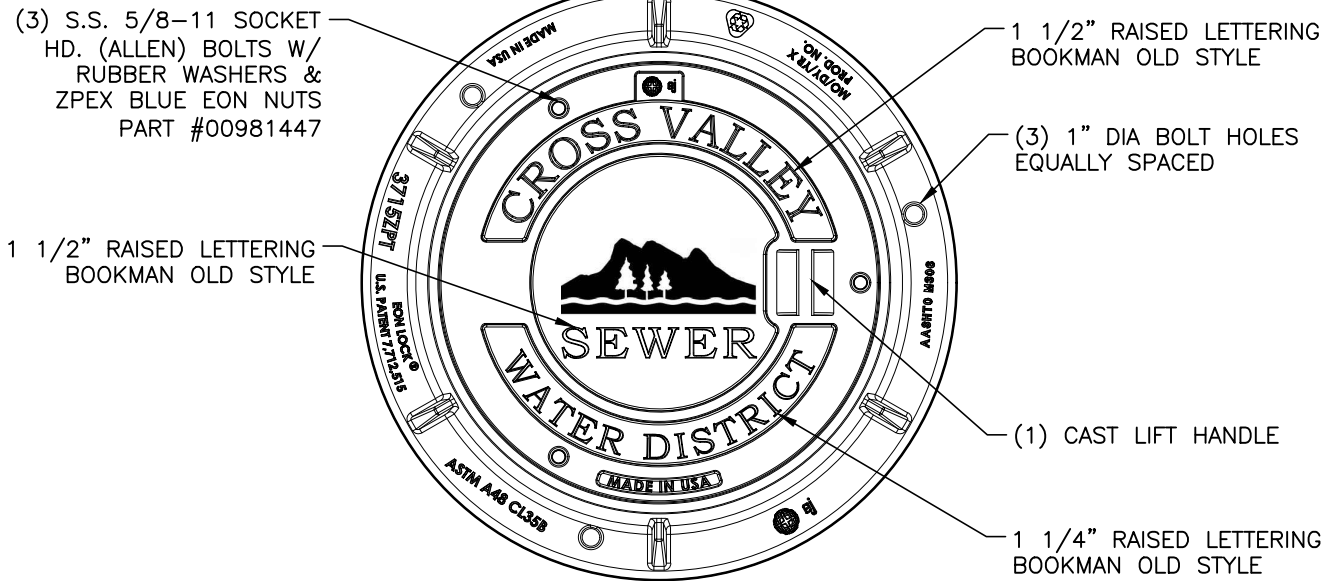
MANHOLE FRAME AND COVER

SD-4

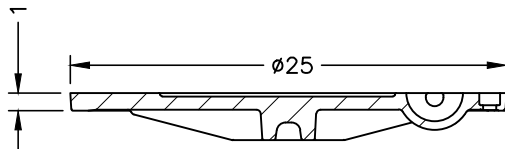
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FEB 2022

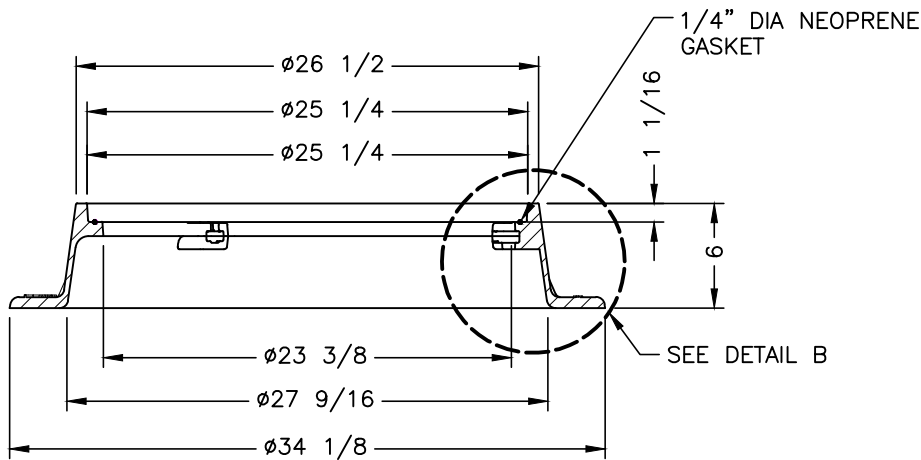
3715ZPT 3705APT DI Assembly



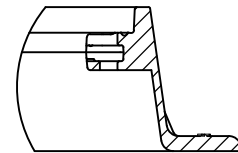
PLAN VIEW



COVER SECTION



FRAME SECTION



EON LOCK ®

DETAIL B

NOTES:

1. PROVIDE 3 EACH 5/8", 11N.C. SOCKET HEAD SCREWS 1-1/4" LONG.
2. ALL HOLES FOR LOCKING COVER SHALL BE IN ALIGNMENT AND INTERCHANGEABLE.
3. TOTAL WEIGHT OF FRAME AND COVER SHALL BE 380 LBS. MINIMUM.
4. FRAME AND COVER SHALL BE

NOTE:

COVER SHALL BE AS PER STANDARD DETAIL AND PROVIDED WITH 3 EACH HOLES FOR LOCK DOWN PURPOSE.

CROSS VALLEY WATER DISTRICT
STANDARD SEWER DETAILS

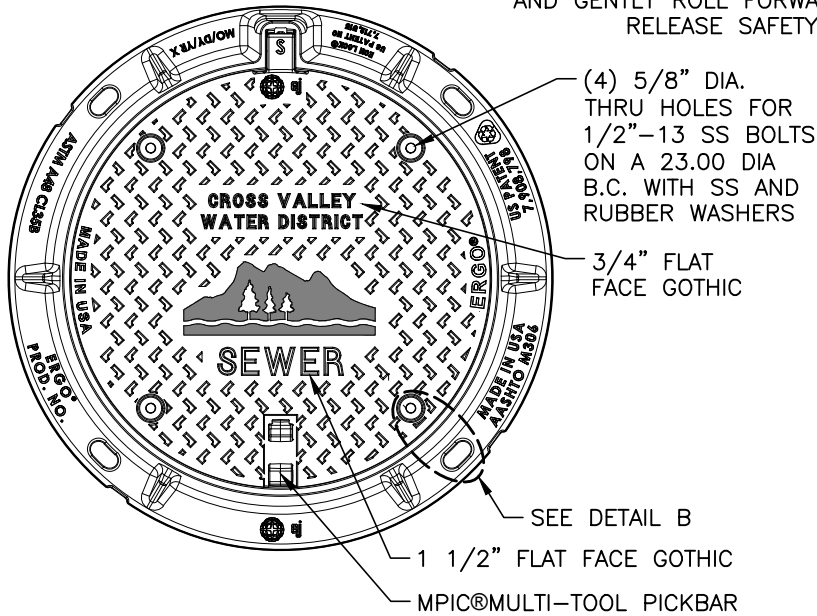
LOCKING FRAME AND COVER

SD-4A

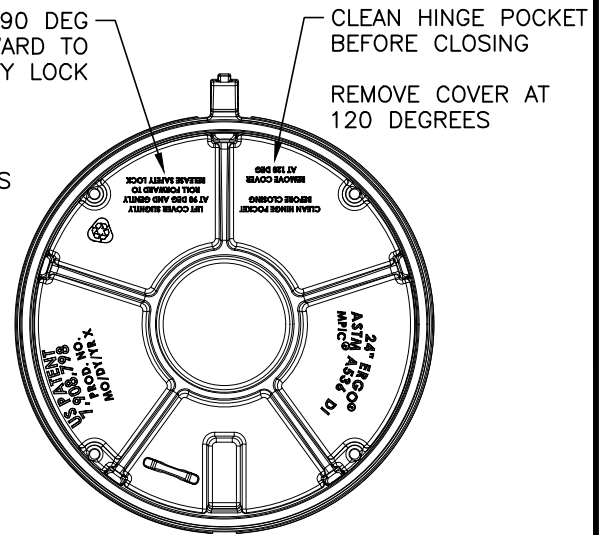
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FEB 2022

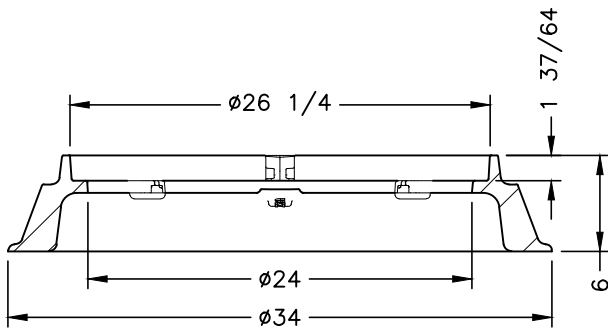
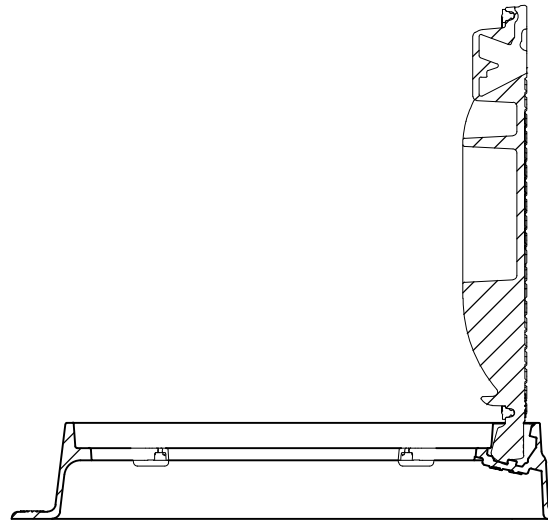
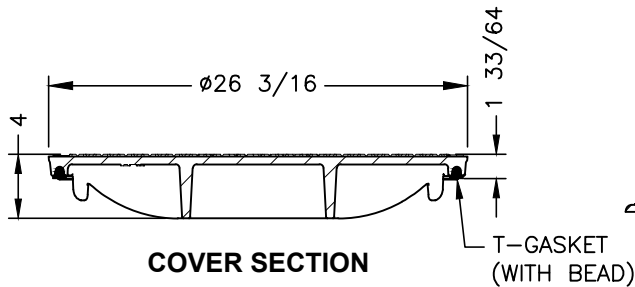
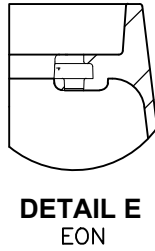
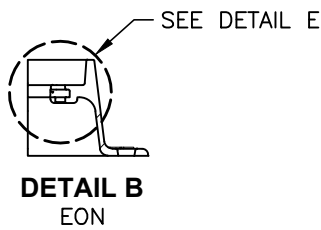
ERGO Assembly



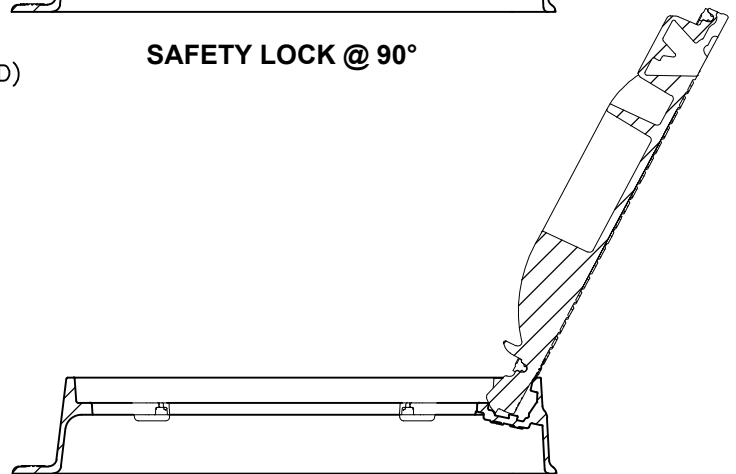
PLAN VIEW



COVER BOTTOM VIEW



FRAME SECTION



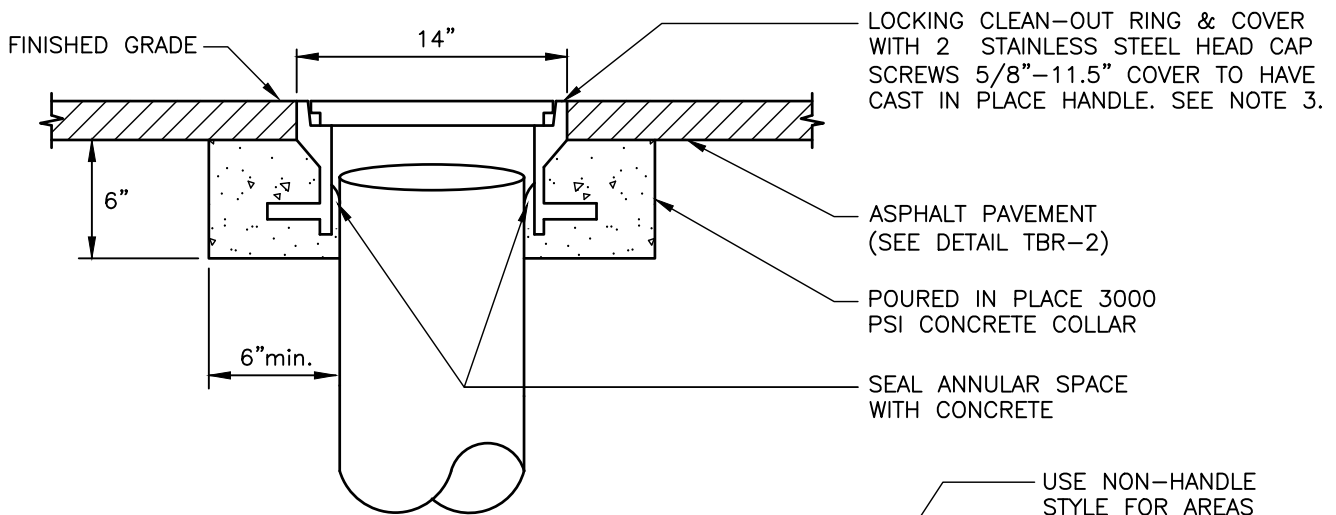
**CROSS VALLEY WATER DISTRICT
STANDARD SEWER DETAILS**

**WATERTIGHT LOCKING MANHOLE
FRAME AND COVER**

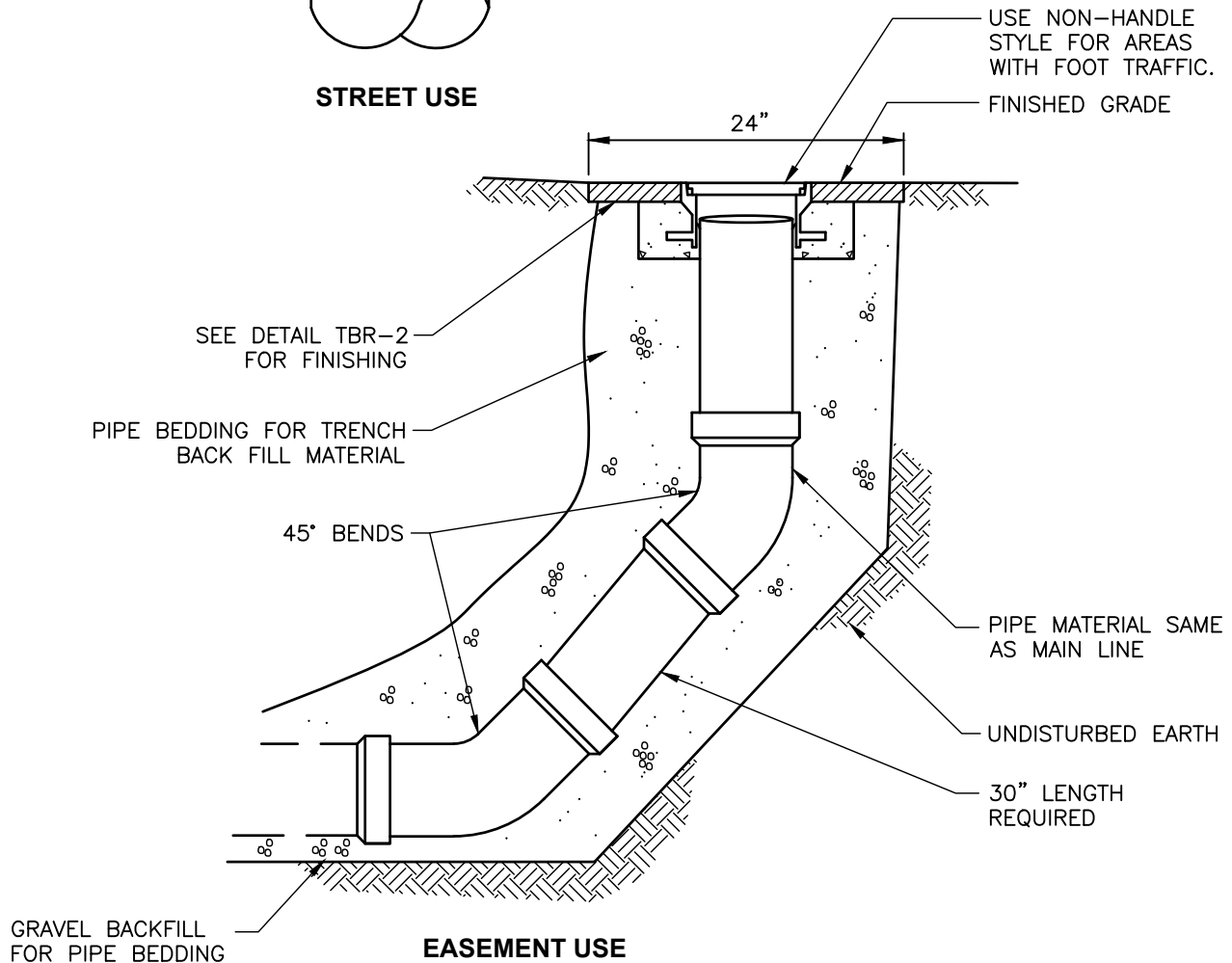
SD-4B

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STREET USE



EASEMENT USE

NOTES:

1. RESTORATION SHALL BE IN ACCORDANCE WITH DETAIL TBR-2.
2. TRENCH BACKFILL SHALL BE COMPACTED AND TESTED IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND LOCAL REGULATORY REQUIREMENTS.
3. RING AND COVER SHALL BE EJIW MFG. CO. MODEL NO. 00366107.

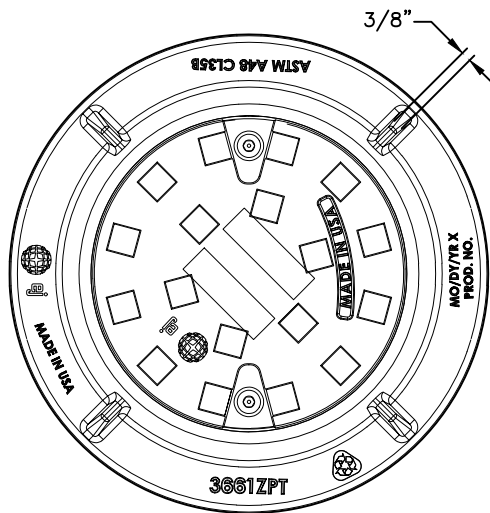
**CROSS VALLEY WATER DISTRICT
STANDARD SEWER DETAILS**

LAMP HOLE / CLEANOUT

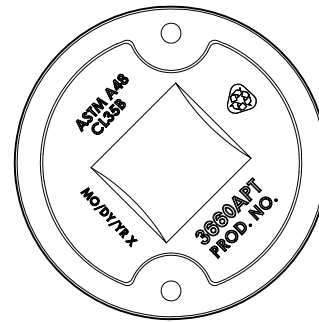
SD-5

NOT TO SCALE

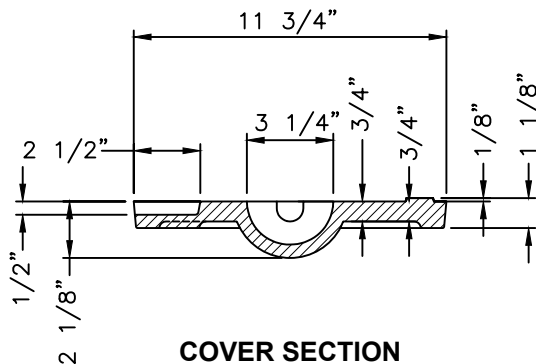
FEB 2022



PLAN VIEW

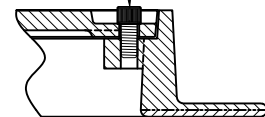


COVER BACK

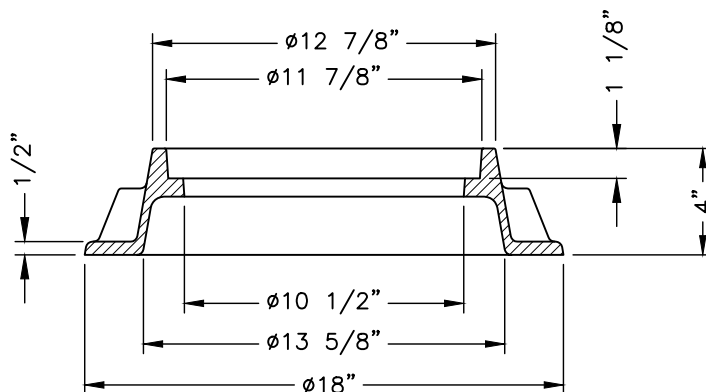


COVER SECTION

- (2) BLT SOC. (ALLEN HEAD)
5/8"-11 x 1-1/2" SS
(PART #00981177)



BOLTING DETAIL



FRAME SECTION

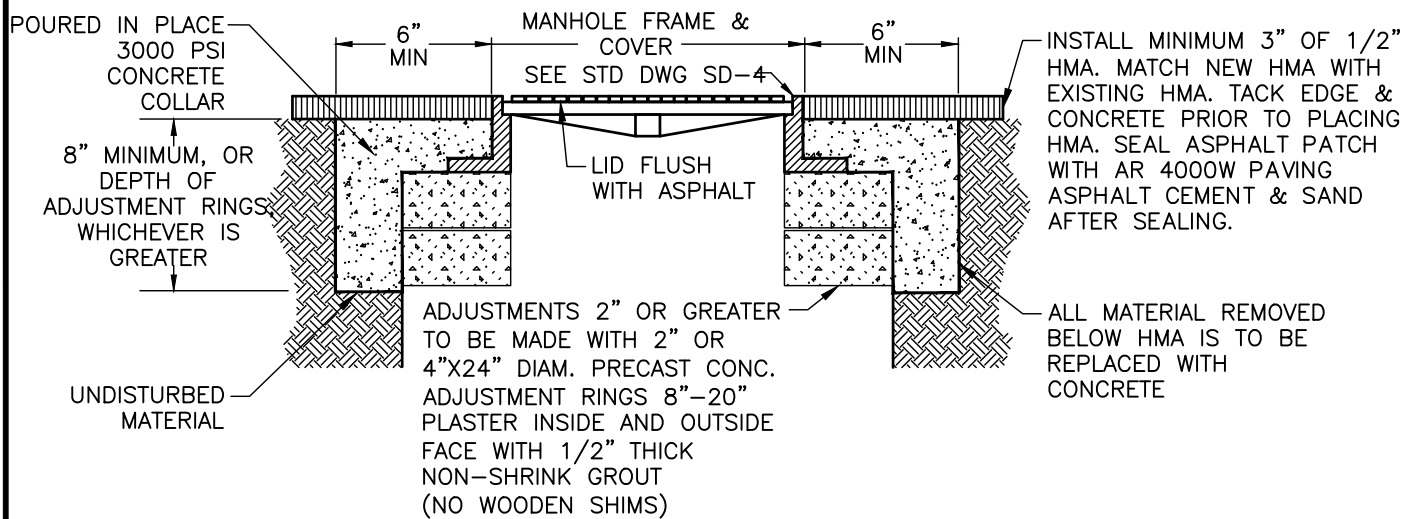
CROSS VALLEY WATER DISTRICT
STANDARD SEWER DETAILS

LOCKING C.O. FRAME & COVER

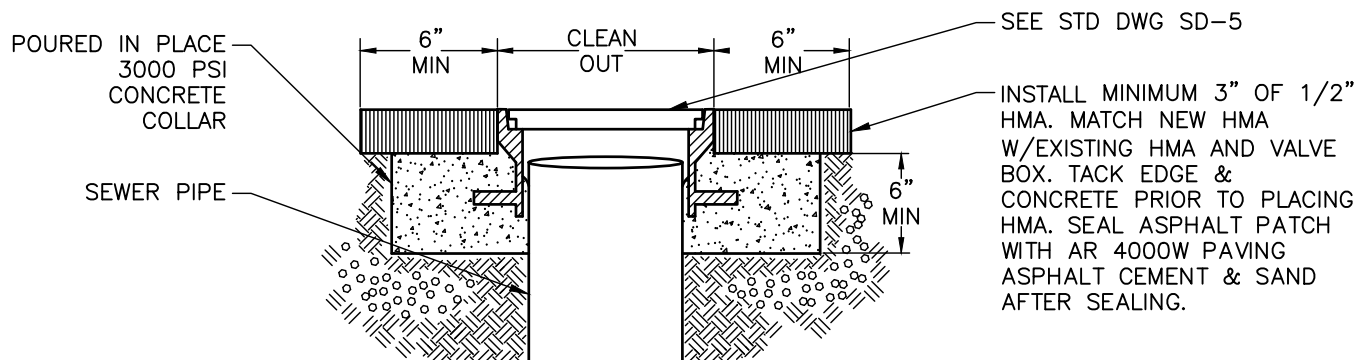
SD-6

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MANHOLE FRAME & COVER



LAMPHOLE/CLEAN-OUT

NOTES:

1. A CONCRETE COLLAR IS REQUIRED ON ALL INSTALLATIONS. IN UNIMPROVED OR UNPAVED AREAS, INSTALL THE CONCRETE COLLAR TO FINISH GRADE AS FOLLOWS:

MANHOLE: 6 FT DIA. 6 IN THICK
 WATER VALVE BOX: SEE DETAIL WD-11A
 LAMPHOLE/CLEAN-OUT: 2 FT DIA. 6 IN THICK

UNLESS OTHERWISE DIRECTED BY THE DISTRICT.

2. IF MARKER POST IS REQUIRED, SEE DETAIL WD-11C.

WRAP METALLIC MARKER TAPE AROUND SERVICE MARKER BOARD. 4 WRAPS MINIMUM. RUN UP BOARD TO SURFACE. MIN 4 WRAPS AT TOP ALSO.

INSTALL BURIED METALLIC MARKER TAPE 3' ABOVE PIPE. TAPE SHOULD READ "CAUTION BURIED SEWER BELOW". CARLTON IND., BLACKBURN MFG. CO. OR EQUAL.

6" SEWER LATERAL SHALL BE THE SAME MATERIAL AS THE MAIN LINE (PVC, EPOXY LINED D.I., C900 OR HDPE)

6" TEE ON SEWER MAIN

SEWER MAIN

FINISHED GRADE

PROPERTY LINE
PERMANENT EASEMENT LINE

2" X 4" BOARD SERVICE MARKER

4' MIN.

6' MINIMUM
VARIES

APPROVED WATERTIGHT PLUG ON CAP WITH "SEWER" IN BLACK PERMANENT MARKER

MINIMUM SLOPE 2% OR 0.02 FT./FT.

45 DEGREES (100%) MAXIMUM SLOPE FOR PVC (2% MINIMUM SLOPE)

CONCRETE POURED IN PLACE FOR SEWER LATERAL OVER 15% SLOPE

NOTES:

1. 2" X 4" BOARD – LENGTH AS REQUIRED IN EVEN FOOT INCREMENTS. PAINT TOP 4' ABOVE GROUND WITH WHITE PAINT. STENCIL IN BLOCK LETTERS THE WORD "SEWER" & TOTAL LENGTH OF THE 2" X 4" BOARD. LETTERING TO BE 3" IN HEIGHT. TOP OF 2" X 4" SHALL BE 4' ABOVE GROUND LEVEL.
2. FOR DUCTILE IRON PIPE IN RIGHT-OF-WAY & EASEMENTS, USE RESTRAINING DEVICE AS SPECIFIED BY THE DISTRICT.
3. PROVIDE DISTANCE IN FEET FROM TEE TO DOWNSTREAM MANHOLE TO THE DISTRICT.

**CROSS VALLEY WATER DISTRICT
STANDARD SEWER DETAILS**

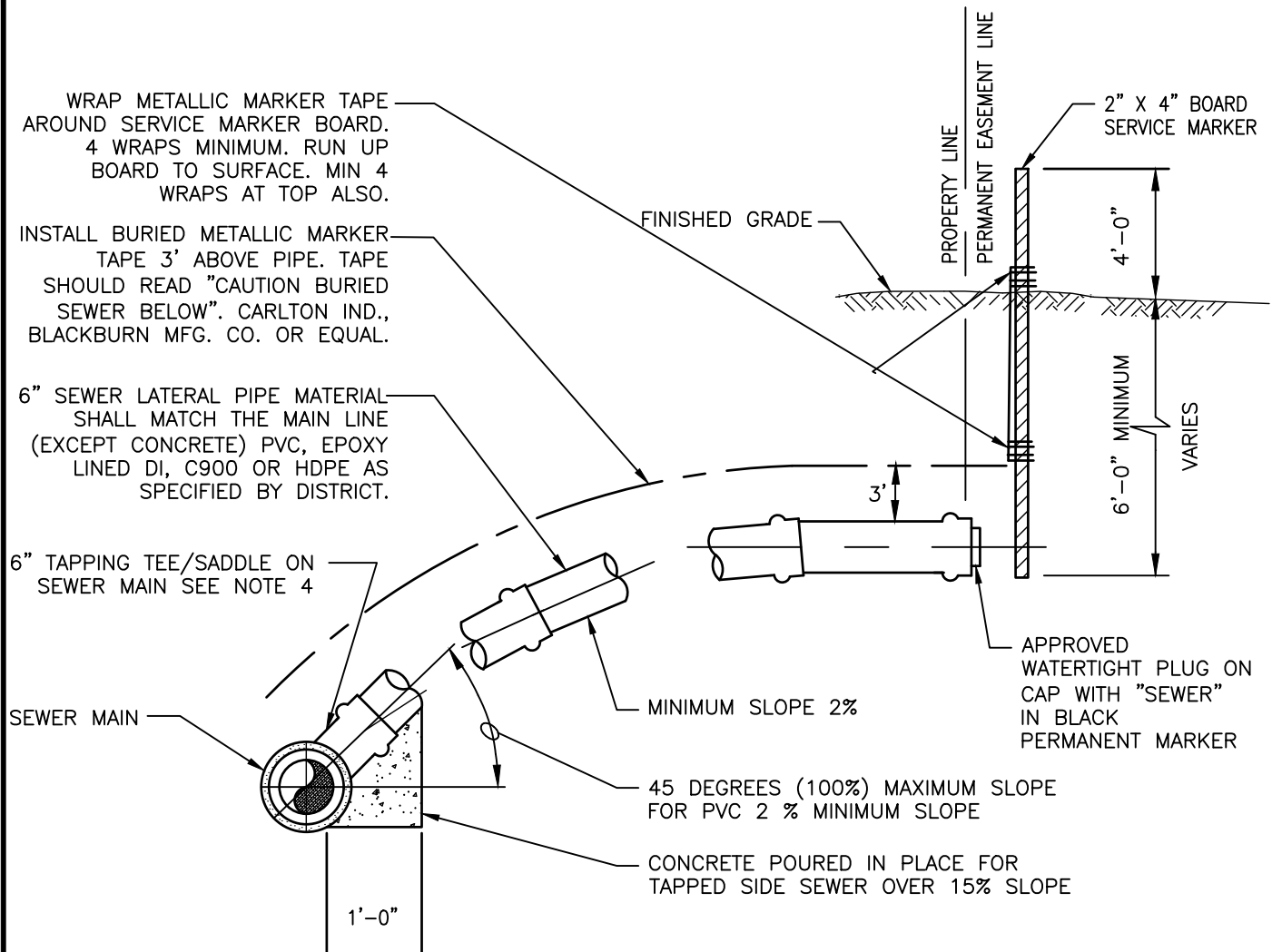
SEWER LATERAL NEW CONSTRUCTION

SD-8

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FILE NAME: L:\CAD\DETAILS\DISTRICTS\CROSS VALLEY WATER DISTRICT\SD-8A.DWG



NOTES:

1. 2" X 4" BOARD – LENGTH AS REQUIRED IN EVEN FOOT INCREMENTS. PAINT TOP 5' WITH WHITE PAINT. STENCIL IN BLOCK LETTERS THE WORD "SEWER" & TOTAL LENGTH OF THE 2" X 4" BOARD. LETTERING TO BE 3" IN HEIGHT. TOP OF 2" X 4" SHALL BE 4' ABOVE GROUND LEVEL.
2. CONTRACTOR TO PROVIDE ALL MATERIALS, TRAFFIC CONTROL, PERMITS, FLAGGING, SHORING AND MISCELLANEOUS WORK TO TAP THE MAIN AND INSTALL THE SIDE SERVICE.
3. FOR DUCTILE IRON PIPE IN RIGHT- OF-WAY & EASEMENTS, USE RESTRAINING DEVICE AS SPECIFIED BY THE DISTRICT.
4. FOR TAPS ON:
DI USE SST ROMAC, SMITH BLAIR, OR FORD TAPPING TEE. PVC OR CONCRETE, USE ROMAC CB TEE W/SST CLAMP, HDPE CONSULT THE DISTRICT.
5. PROVIDE DISTANCE IN FEET FROM TEE/SADDLE TO DOWNSTREAM MANHOLE TO THE DISTRICT.

**CROSS VALLEY WATER DISTRICT
STANDARD SEWER DETAILS**

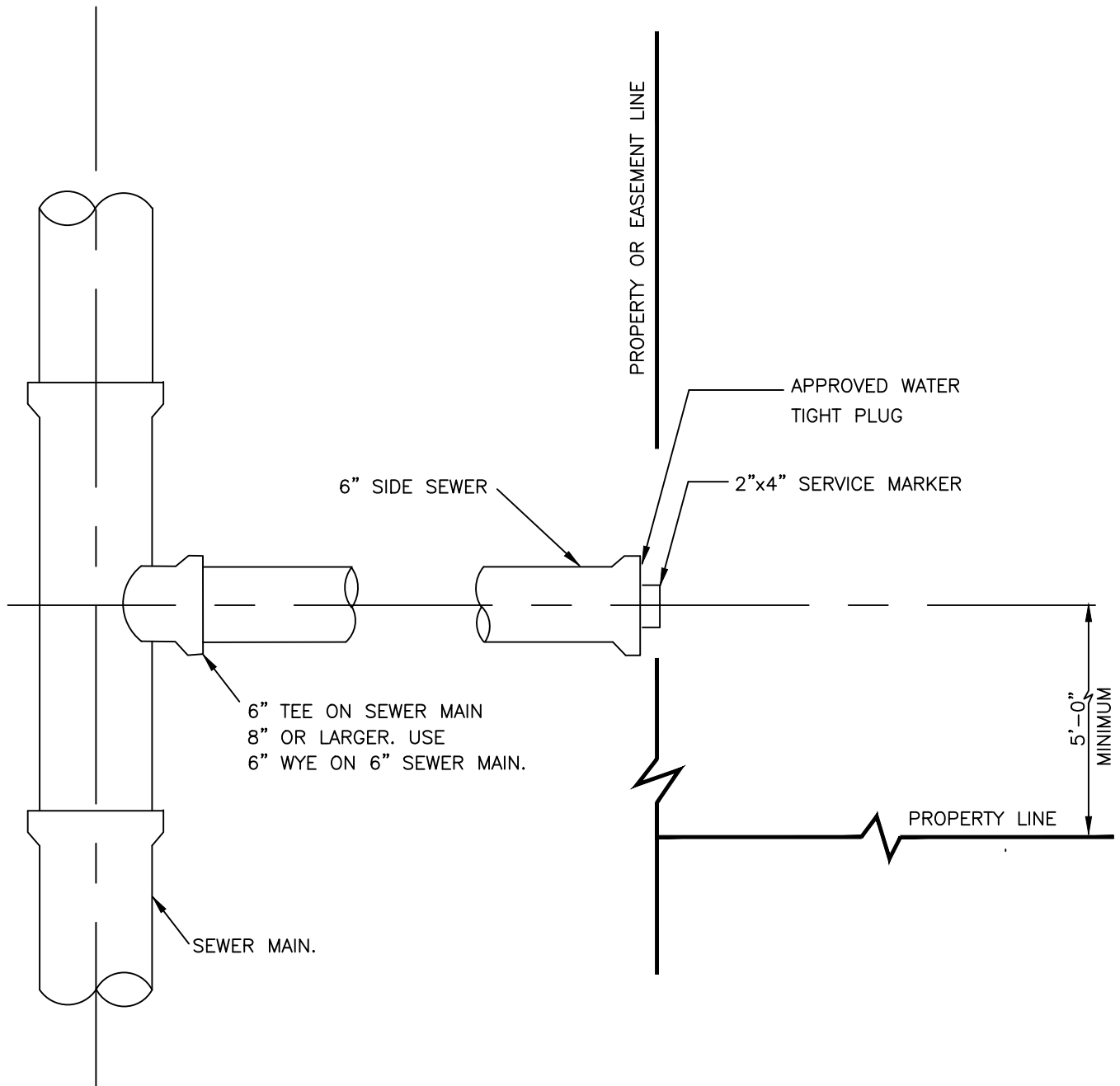
SEWER LATERAL EXISTING MAINS

SD-8A

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FILE NAME: L:\CAD\DETAILS\DISTRICTS\CROSS VALLEY WATER DISTRICT\SD-8B.DWG



PLAN

SEE STANDARD DETAIL SD-8

**CROSS VALLEY WATER DISTRICT
STANDARD SEWER DETAILS**

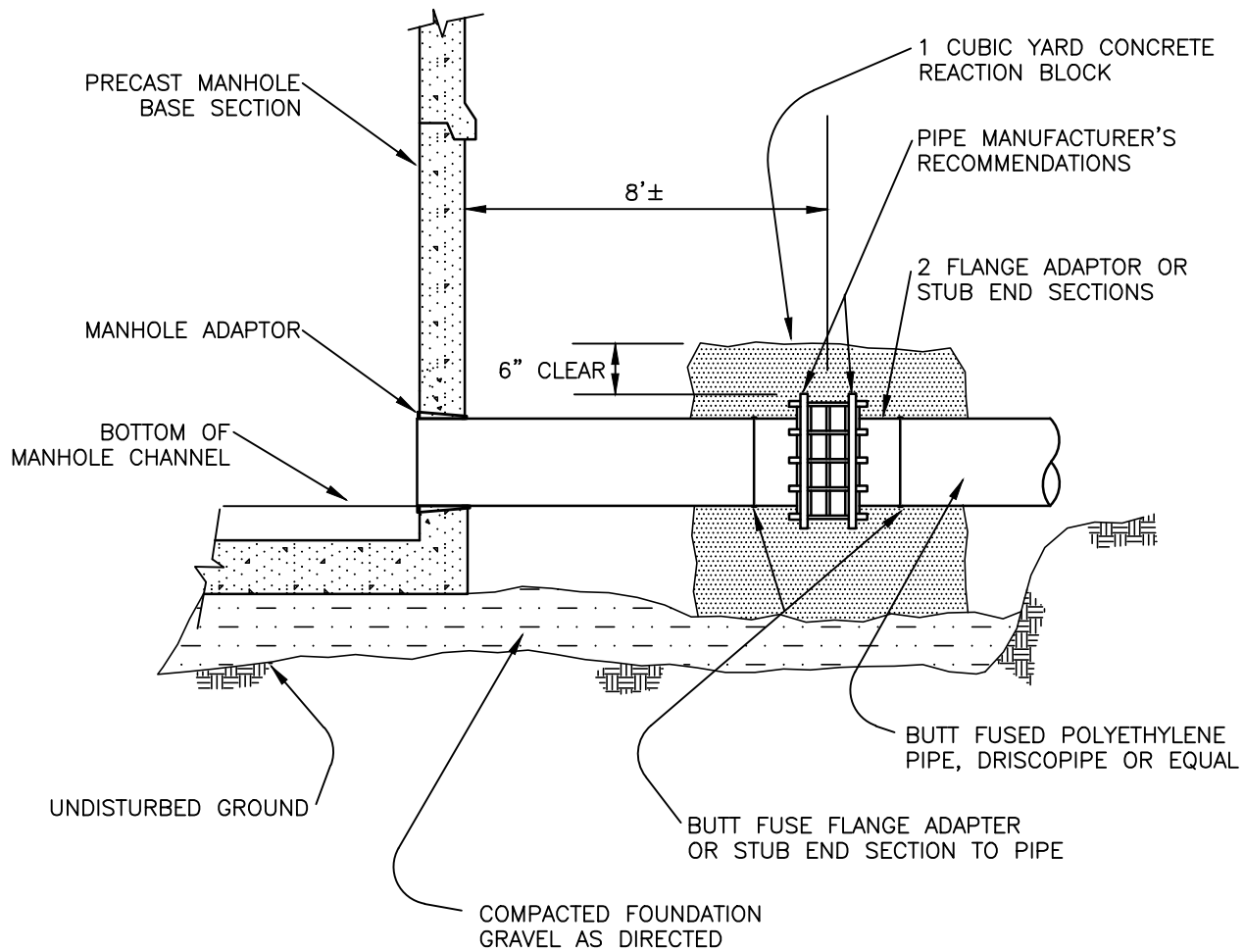
SEWER LATERAL PLAN VIEW

SD-8B

NOT TO SCALE

FEB 2022

FILE NAME: L:\CAD\DETAILS\DISTRICTS\CROSS VALLEY WATER DISTRICT\SD-9.DWG



NOTES:

1. ANCHOR BLOCKS REQUIRED AT OUTLET OF UP-STREAM MANHOLE AND INLET OF DOWN-STREAM MANHOLE.
2. MANHOLE ADAPTORS ARE TO BE KOR-N-SEAL BOOTS OR APPROVED EQUAL.

**CROSS VALLEY WATER DISTRICT
STANDARD SEWER DETAILS**

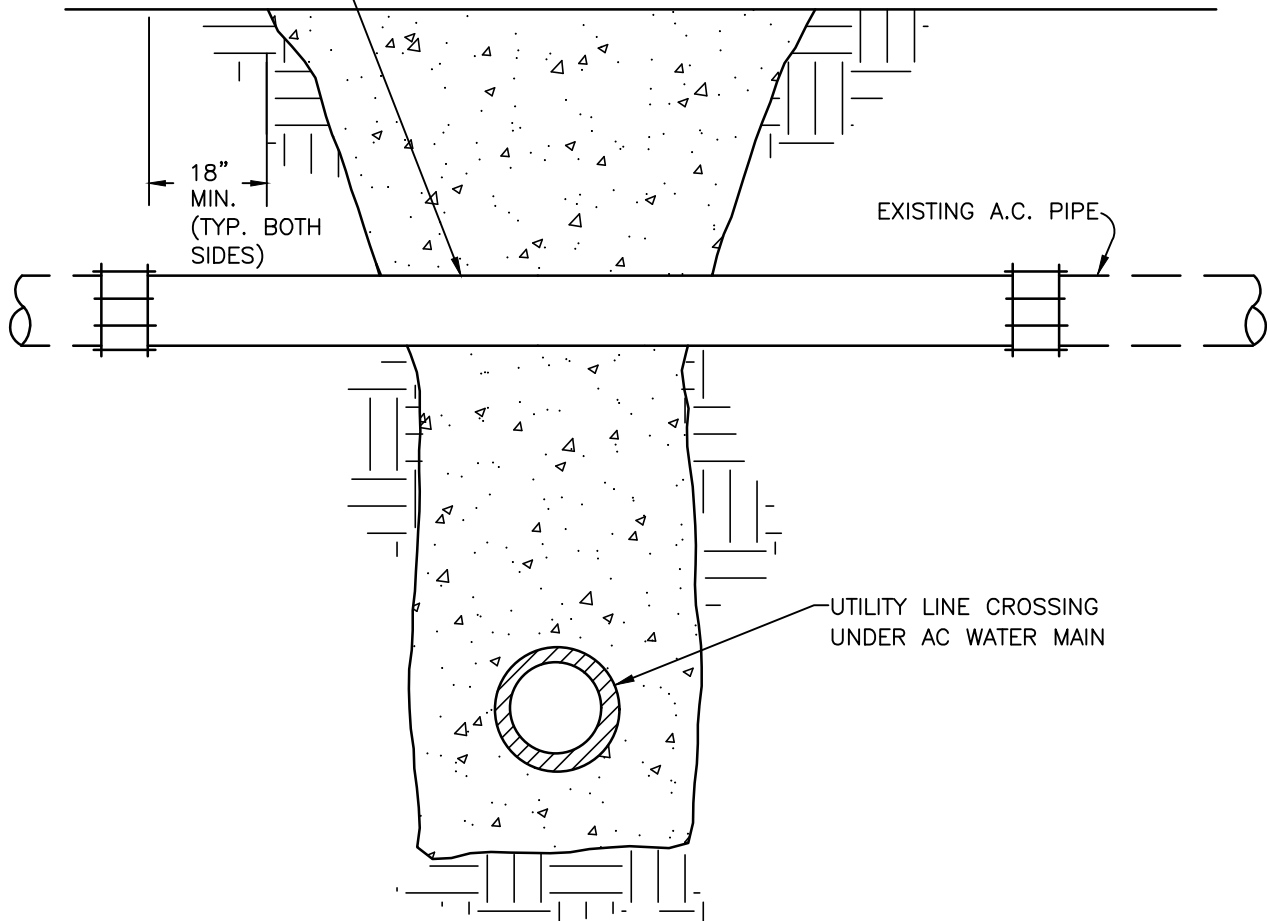
**POLYETHYLENE PIPE – MANHOLE
CONNECTION AND ANCHORAGE
DETAIL**

SD-9

NOT TO SCALE

FEB 2022

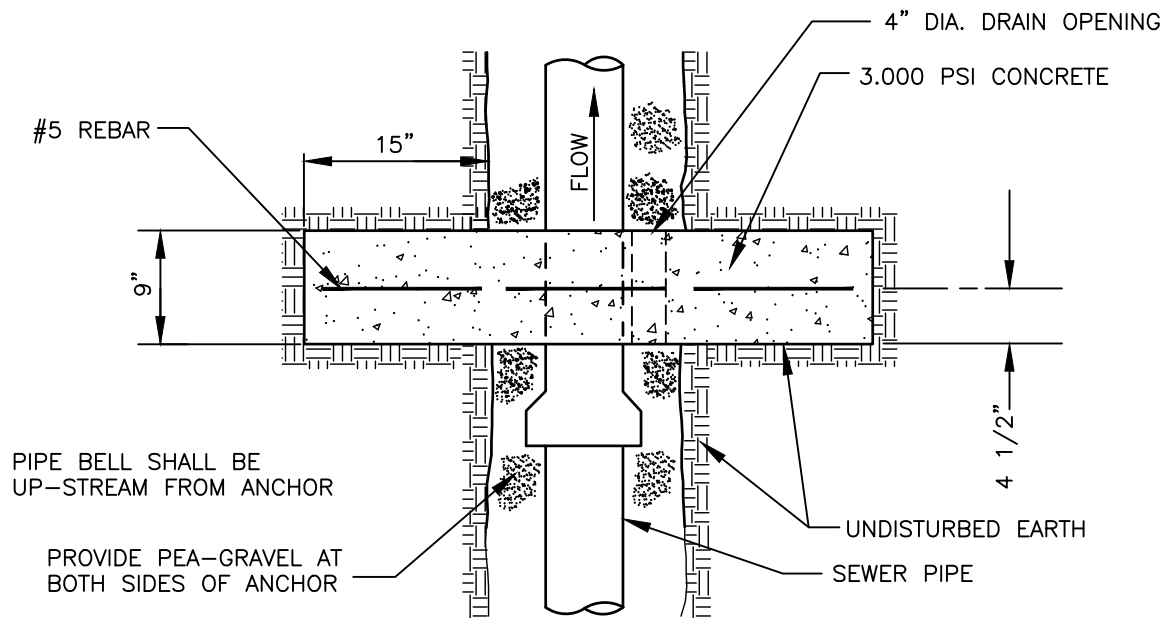
WHERE UTILITY LINE CROSSES A.C. PIPE, A SECTION OR SECTIONS OF A.C. PIPE MUST BE REPLACED WITH A SINGLE SECTION OF DUCTILE IRON PIPE, CEMENT LINED, CLASS 52, OF SIZE REMOVED. D.I. PIPE TO BE P.E. x P.E. WITH TRANSITION COUPLINGS ON EACH END. DUCTILE IRON PIPE AND COUPLINGS TO BE POLY-WRAPPED.



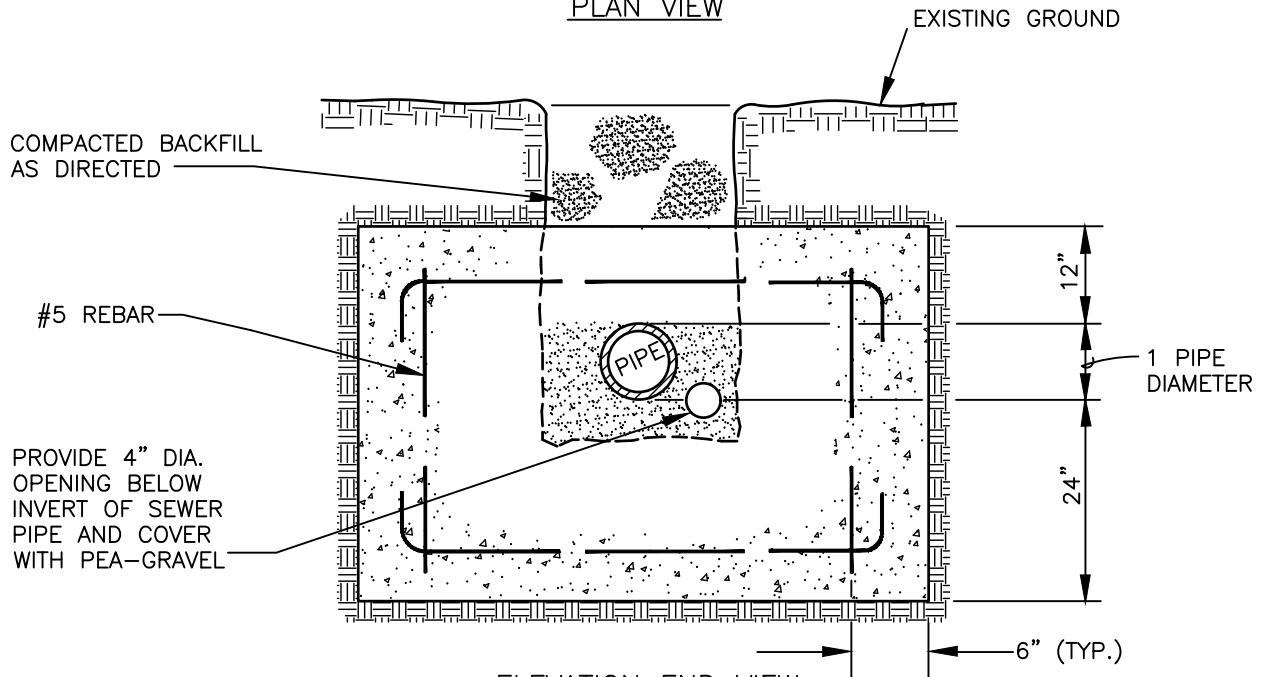
CROSSING A.C. PIPE

NOTES:

1. IF A.C. PIPE IS TO BE SAWCUT OR REMOVED, THE CONTRACTOR SHALL ADHERE TO ALL REGULATIONS OF THE ENVIRONMENTAL PROTECTION AGENCY, PUGET SOUND AIR POLLUTION CONTROL AGENCY, LABOR AND INDUSTRY AND ANY OTHER AGENCY WITH JURISDICTION.



PLAN VIEW



ELEVATION END VIEW

MINIMUM ANCHORAGE SPACING

PIPE ANCHORS ARE TO BE INSTALLED ON ALL SLOPES GREATER THAN 20% AS FOLLOWS:

1. NOT OVER 36 FEET CENTER TO CENTER ON GRADES 20% & UP TO 35%.
2. NOT OVER 24 FEET CENTER TO CENTER ON GRADES 35% & UP TO 50%.
3. NOT OVER 16 FEET CENTER TO CENTER ON GRADES 50% & OVER.

THIS ANCHOR BLOCK DETAIL REPRESENTS MINIMUM REQUIREMENTS FOR MATERIALS AND INSTALLATION.

GENERAL NOTES:

1. PROVIDE EROSION CONTROL AS REQUIRED BY JURISDICTIONAL AUTHORITY.
2. DO NOT USE ANCHORS IN SANDY MATERIAL UNLESS DIRECTED OTHERWISE BY THE DISTRICT.
3. TIGHT WRAP PIPE WITH 8 MIL. PLASTIC ON DI.
4. ANCHOR PLACED ON THE LOWER SIDE OF THE BELL.
5. FOR HDPE, BUTT FUSE RING TO OUTSIDE OF PIPE DIRECTLY ABOVE ANCHOR LOCATION. FOR C-900, INSTALL A UNIFLANGE DIRECTLY ABOVE OR IN ANCHOR.

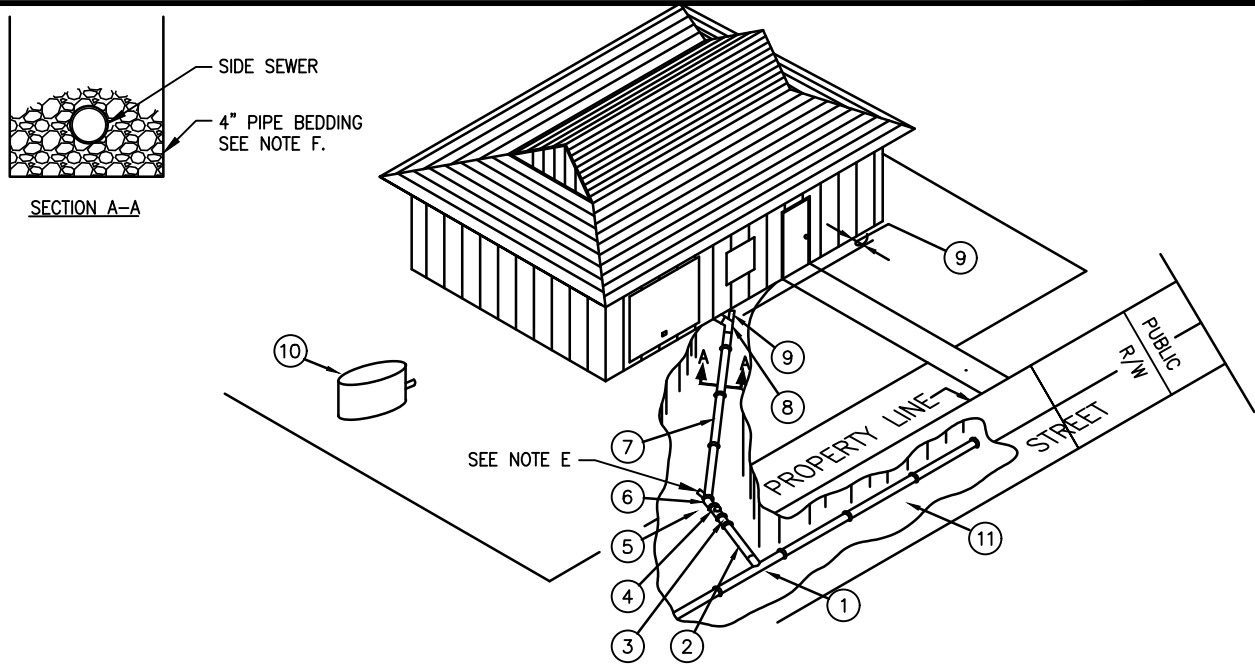
CROSS VALLEY WATER DISTRICT STANDARD SEWER DETAILS

PIPE ANCHOR

SD-11

NOT TO SCALE

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GENERAL INFORMATION ONLY. REFER TO DISTRICT STANDARDS
FOR MORE DETAILED INFORMATION.

GENERAL NOTES:

- A. A DISTRICT PERMIT IS REQUIRED FOR ALL SIDE SEWER INSTALLATIONS. MAIN LINE SEWER SHALL BE IN USE AND OPERATION.
- B. LEGAL DESCRIPTION AND ADDRESS REQUIRED TO OBTAIN PERMIT.
- C. NO DOWNSPOUTS, FOOTING DRAINS, OUTSIDE DRAINS OR ANY SOURCE OF GROUND OR SURFACE WATERS ARE ALLOWED TO CONNECT TO SIDE SEWER.
- D. SIDE SEWER IS INSTALLED BY A CONTRACTOR, A CURRENT STATE LICENSE NUMBER IS REQUIRED ON PERMIT. THE PROPERTY OWNER INSTALLING THE SIDE SEWER SHALL INDICATE SO ON THE PERMIT. ALL WORK WITHIN PUBLIC RIGHT-OF-WAY WILL REQUIRE A STATE LICENSED CONTRACTOR TO INSTALL.
- E. MAXIMUM OF 100 FEET BETWEEN CLEANOUTS. CLEANOUTS REQUIRED AT CONNECTIONS TO BUILDINGS AND FOR AGGREGATE BENDS GREATER THAN 45°, (AGGREGATE BENDS BEING A COMBINATION OF BENDS GREATER THAN 45° WITH LESS THAN 4' OF STRAIGHT PIPE BETWEEN BENDS.) SEE DEVELOPMENT GUIDELINES FOR INFORMATION ON CLEANOUTS. CLEANOUT SHALL BE A WYE LATERAL AND SHALL BE BROUGHT TO WITHIN 18" OF SURFACE IN LANDSCAPED AREAS. IN PAVED & CONCRETE AREAS CLEANOUTS SHALL BE BROUGHT TO SURFACE WITH A LOCKING FRAME AND COVER IN ACCORDANCE WITH DISTRICT STANDARDS.
- F. PIPE SHALL BE BEDDED WITH PEA GRAVEL OR 5/8 MINUS, CRUSHED ROCK IF APPROVED BY THE DISTRICT. OVER-EXCAVATION SHALL BE BROUGHT TO GRADE WITH SELECT BACKFILL AS DIRECTED BY THE DISTRICT.
- G. ALL JOINTS SHALL BE RUBBER GASKET TYPE, EXCEPT ABS & PVC SCHEDULE 40 MAY BE SOLVENT WELDED TYPE.
- H. PARALLEL WATER AND SEWER LINES SHALL BE 10 FEET APART HORIZONTALLY WHEREVER POSSIBLE.
- I. SIDE SEWER SHALL BE VISUALLY INSPECTED AND TEST WITNESSED BY DISTRICT. SIDE SEWER SHALL BE PLUGGED AND TESTED IN PRESENCE OF DISTRICT. AFTER BEDDING, PRIOR TO BACKFILLING. AFTER 15 MINUTES THERE SHALL BE NO VISIBLE OR MEASURABLE LEAKAGE. THE SYSTEM SHALL BE WATERTIGHT. AIR TESTING AFTER PIPE IS SECURED, AT 4 PSI FOR 5 MINUTES WITH NO PRESSURE LOSS IS ACCEPTABLE IN LIEU OF WATER TEST.
- J. ALL MATERIALS AND WORKMANSHIP TO COMPLY WITH UNIFORM PLUMBING CODE AND APPLICABLE DISTRICT DEVELOPMENT GUIDELINES AND STANDARDS. CONTACT THE DISTRICT FOR MORE INFORMATION.
- K. A PRE-CONSTRUCTION MEETING IS REQUIRED FOR ALL WORK OCCURRING IN PUBLIC RIGHT-OF-WAY, AND/OR WHEN A TAP ON THE EXISTING MAIN IS REQUIRED.
- L. SEE CVWD SIDE SEWER SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- M. SLOPE FOR SIDE SEWERS SHALL BE 2% MIN. TO (45',100%) MAX.

- 1 IF APPLICABLE, TAPPING SADDLES SHALL BE: ON DUCTILE IRON MAIN: ROMAC, FORD OR SMITH-BLAIR SST. ON CONCRETE OR PVC; ROMAC CB OR APPROVED EQUAL.
- 2 CONNECTION TO MAIN LINE TO BE OF LIKE MATERIALS, EXCEPT WHEN MAIN IS CONCRETE. CONSULT THE DISTRICT. ALL SEWER LATERALS LOCATED WITHIN EASEMENTS & RIGHT OF WAY, SHALL BE 6" OR LARGER. FOR MATERIALS SEE CVWD SIDE SEWER SPECIFICATIONS, SECTION 7. OUTSIDE OF RIGHT-OF-WAY OR EASEMENT, SIDE SEWER PIPE SHALL BE 4" OR LARGER FOR SINGLE FAMILY AND 6" OR LARGER FOR ALL OTHER USES.
- 3 TRANSITIONS OF DIFFERENT MATERIAL TYPES SHALL BE WITH ROMAC STYLE 501 COUPLING OR EQUAL.
- 4 TEST TEE REQUIRED AT PROPERTY LINE. INSTALL SAME SIZE AS SEWER STUB.
- 5 6" BY 4" OR 8" BY 6" REDUCER, WHERE REQ'D.
- 6 45° BEND, IF NEEDED (TYP).
- 7 ON PRIVATE PROPERTY, MINIMUM COVER SHALL BE 18".
- 8 CLEANOUT (SEE NOTE "E")
- 9 CONNECT WASTE-LINE TO SIDE SEWER CONNECTION WITH APPROVED ADAPTORS. CONNECTION WITH CLEANOUT TO BE 2.5'-5' OUT FROM STRUCTURE.
- 10 IF AN EXISTING SEPTIC TANK IS PRESENT, CAP AND PLUG PIPE AND ABANDON TANK PER APPLICABLE COUNTY/CITY HEALTH DEPARTMENT.
- 11 COMPLY WITH RESTORATION REQUIREMENTS SET FORTH IN RIGHT-OF-WAY PERMIT AND/OR DISTRICT DEVELOPMENT GUIDELINES.

**CROSS VALLEY WATER DISTRICT
SIDE SEWER DETAILS**

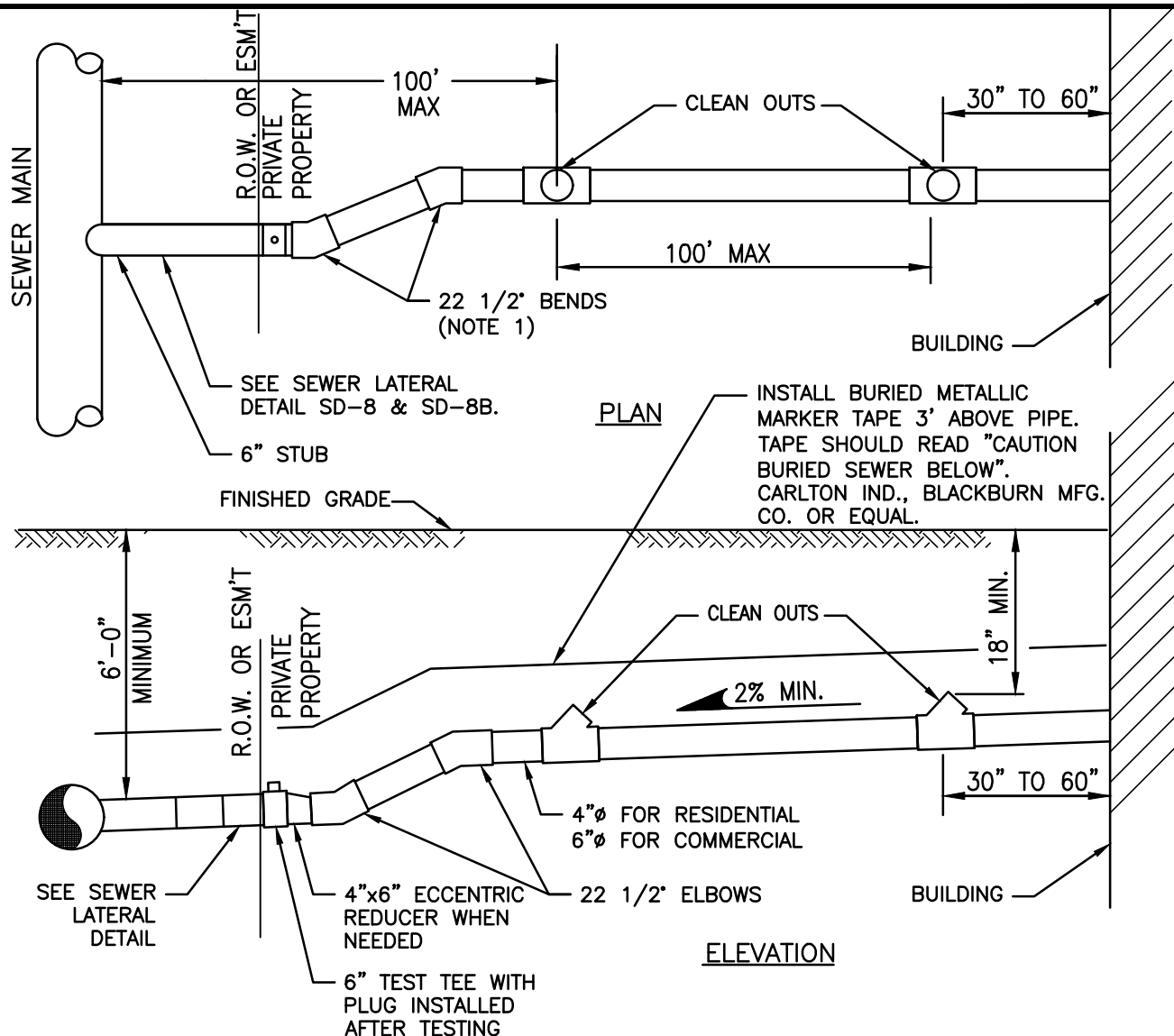
STANDARD SIDE SEWER

SS-1

NOT TO SCALE

FEB 2022

FILE NAME: \\K-FS1\LIBRARY\CAD\DETAILS\DISTRICTS\CROSS VALLEY WATER DISTRICT\SS-2.DWG



NOTES:

1. BENDS SHALL NOT BE GREATER THAN 45°.
2. CLEAN OUT IS REQUIRED FOR EACH PIPE LENGTH GREATER THAN 100' AND FOR EACH 90° ACCUMULATED BEND.
3. RIGHT-OF-WAY RESTORATION SHALL MATCH OR EXCEED THE ORIGINAL CONDITION.
4. ONLY PLUMBING OUTLETS SHALL BE CONNECTED TO THE SEWER. NO DOWNSPOUTS, FOOTING DRAINS OR STORM DRAINAGE MAY BE CONNECTED TO THE SEWER SYSTEM.
5. 18" MINIMUM COVER OF PIPE.
6. 6' MINIMUM COVER AT PROPERTY LINE.
7. LAY PIPE IN STRAIGHT LINE BETWEEN BENDS. MAKE ALL CHANGES IN GRADE OR LINE WITH A BEND OR WYE. 90° CHANGE WITH A BEND AND WYE.
8. 6" SEWER PIPE MINIMUM SIZE IN R/W & EASEMENTS.
9. 2% MINIMUM SLOPE. 45° (100%) MAXIMUM SLOPE. IF SLOPE EXCEEDS 45° FOR MORE THAN 3', SEE CVWD DETAIL SD-8.
10. CONSTRUCTION IN RIGHT-OF-WAY SHALL BE PERFORMED BY A REGISTERED LICENSED CONTRACTOR.
11. ALL CONSTRUCTION REQUIRES A PERMIT AND PAYMENT OF FEE. COMPLETE LEGAL DESCRIPTION OF PROPERTY AND DIMENSIONS.
12. RECORD DRAWING SHOWING LOCATION OF SIDE SEWER IN RELATION TO THE HOUSE IS REQUIRED AFTER INSTALLATION. PREPARED BY DISTRICT'S INSPECTOR.
13. SIDE SEWER MAINTENANCE FROM BUILDING TO PROPERTY LINE OR ESM'T, SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER.

**CROSS VALLEY WATER DISTRICT
SIDE SEWER DETAILS**

**PRIVATE SIDE SEWER
INSTALLATION**

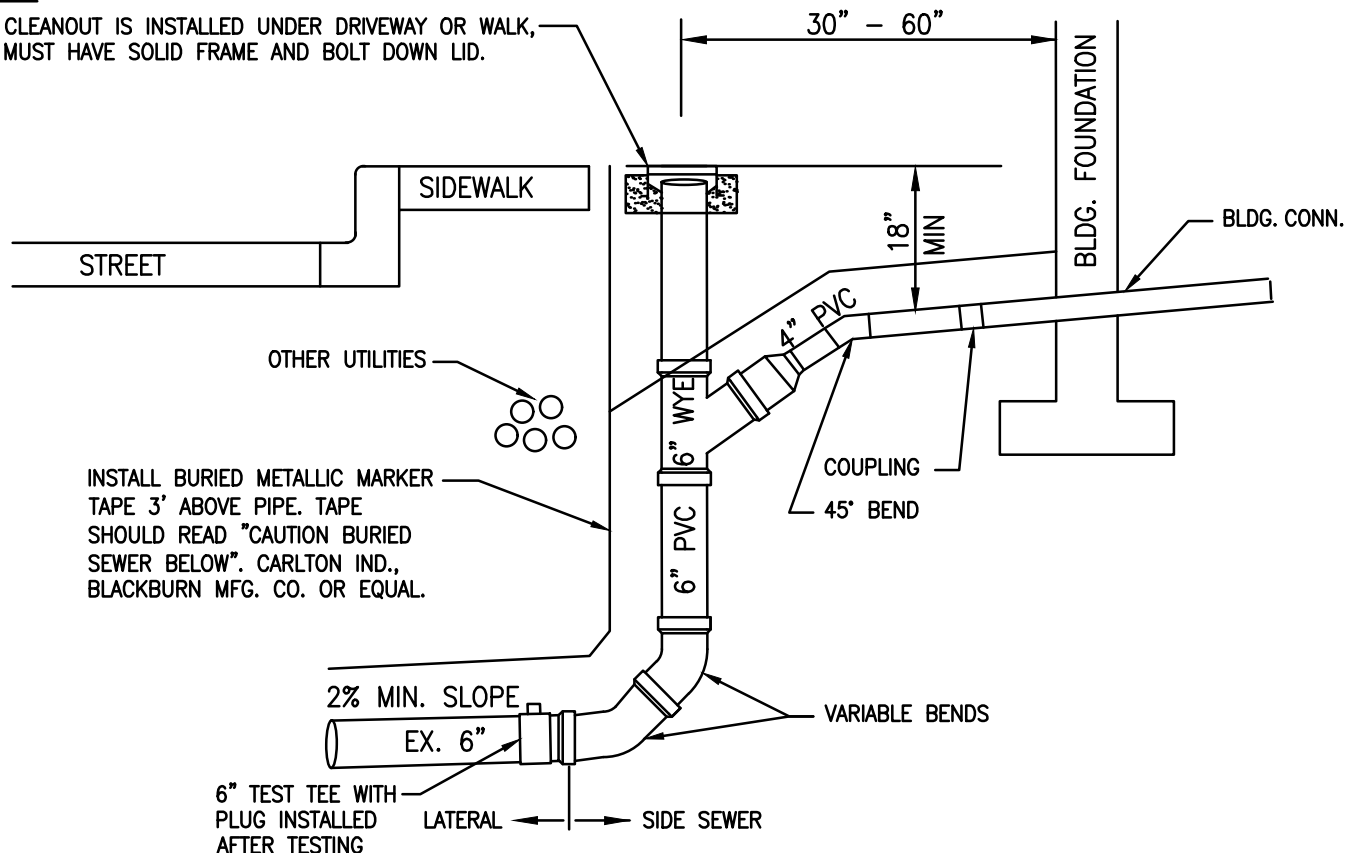
SS-2

NOT TO SCALE

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NOTE:

IF CLEANOUT IS INSTALLED UNDER DRIVEWAY OR WALK, IT MUST HAVE SOLID FRAME AND BOLT DOWN LID.



NOTES:

THIS METHOD MAY ONLY BE USED WITH PRIOR APPROVAL FROM THE DISTRICT AND ONLY WHEN STANDARD SIDE SEWER INSTALLATION PER DWG SS-1, OR SS-2 ARE NOT POSSIBLE BY EITHER:

1. CUTTING THE SIDE SEWER STUB BACK, ENABLING THE PIPE TO BE INSTALLED AT 100%, (45°, 1:1), OR LESS SLOPE (2% MIN) TO THE BLDG. CONNECTION
—OR—
LOCATED 30" FROM FOUNDATION AT MINIMUM OF 18" DEEP.
2. ROUTING THE SIDE SEWER PIPE TO EXTEND ALONG THE SIDE OF THE BUILDING TO DECREASE SLOPE.

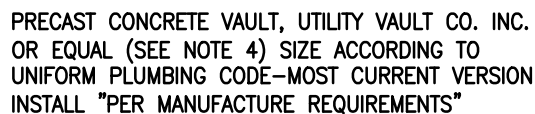
**CROSS VALLEY WATER DISTRICT
SIDE SEWER DETAILS**

**ALTERNATE SIDE SEWER
INSTALLATION**

SS-3

NOT TO SCALE

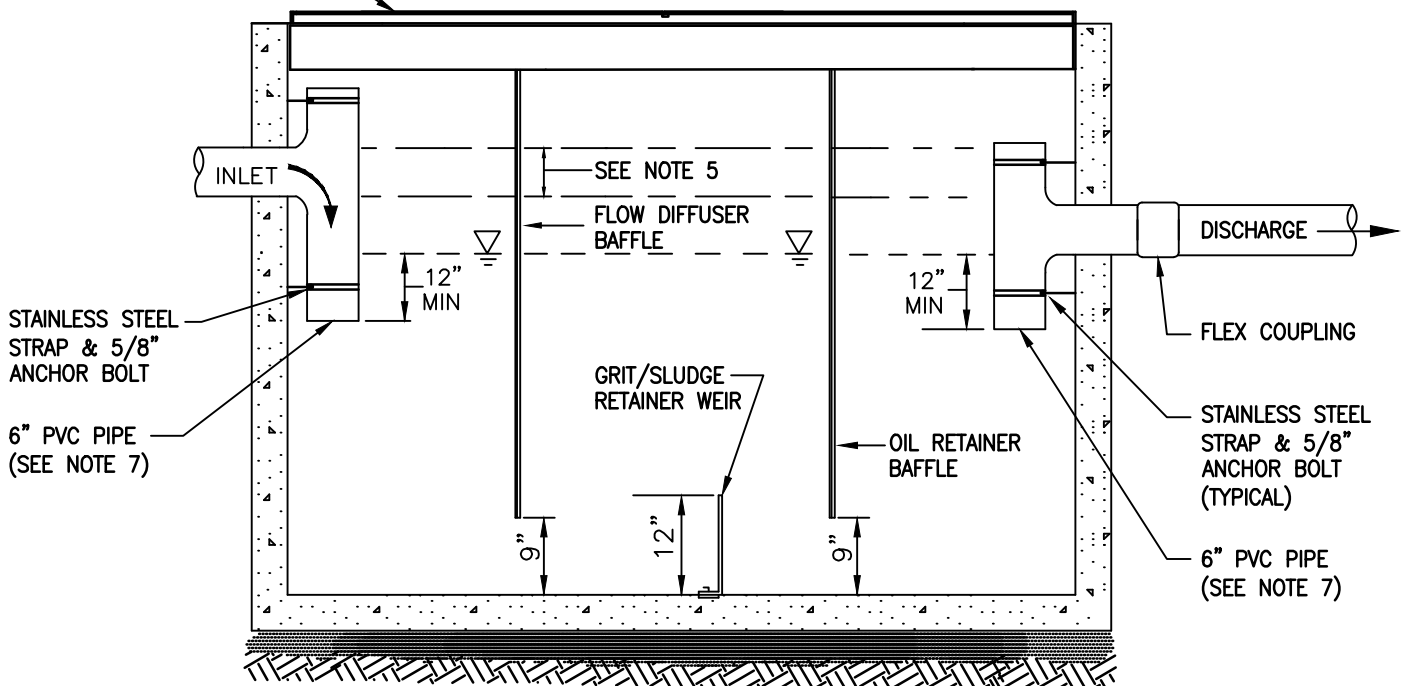
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1. GRAY-WATER ONLY. BLACK-SEWER WATER SHALL BE CARRIED BY SEPARATE SIDE SEWER.
2. LOCATE INTERCEPTOR WITHIN CLOSE PROXIMITY OF DRIVE FOR ACCESS BY A MAINTENANCE VEHICLE.
3. IF VAULT IS NOT SLOTTED TO ACCEPT PRECAST CONC. BAFFLE THEN PRECAST CONC. SHALL BE HELD IN PLACE BY (2) 3"x3"x3/8" ANGLE (4FT. LONG) ATTACHED TO VAULT WALL WITH (4 EA) 1/2" BOLTS AND NUTS (WITH WASHERS) SPACED 14" O.C. ANGLE AND FASTENERS SHALL BE STAINLESS STEEL.
4. PRECAST VAULT AND BAFFLE SHALL HAVE KNOCKOUTS AT ALL PIPE OPENINGS. IF KNOCKOUTS ARE NOT PRESENT THEN PIPE OPENINGS SHALL BE 2" LARGER THAN PIPE DIAMETER.
5. POSITION PIPE RISERS BELOW ACCESS OPENINGS TO ALLOW CLEAR ACCESS TO RISER AND VAULT CHAMBER FOR SAMPLING AND INSPECTION.
6. TOP OF INLET PIPE SHALL BE ONE PIPE DIAMETER HIGHER THAN THE TOP OF THE DISCHARGE PIPE.
7. INLET INSPECTION TEE/RISER MUST EXTEND A MINIMUM OF 12" BELOW THE DESIGNED WATER LEVEL.
8. ALL INTERNAL PIPING (RISER/INSPECTION TEE) SHALL BE A MINIMUM OF 6" PVC PIPE. EACH RISER SHALL BE CONNECTED TO THE WALL OF THE VAULT IN TWO (2) PLACES USING STAINLESS STEEL OR ALUMINUM STRAPS.
9. ALL FITTINGS SHALL BE DESIGNED TOR GREASE RETENTION.
10. CONNECTIONS THROUGH CONCRETE WALLS REQUIRE WATER TIGHT MANHOLE ADAPTERS. SEAL ALL PIPE CONNECTIONS WITH MATERIALS APPROVED BY CVWD.
11. VAULT AND FITTINGS SHALL BE WATERTIGHT.
12. LIDS, FRAMES AND BOLTS SHALL MEET DISTRICT STANDARDS. MANHOLE ACCESS REQUIRED TO ALL VAULT CHAMBERS.
13. FILL WITH CLEAN WATER PRIOR TO STARTUP OF SYSTEM.
14. DISCHARGE MUST COMPLY WITH DISTRICT STANDARDS.
15. INTERCEPTORS SHALL BE VENTED PER UNIFORM PLUMBING CODE.
16. LIQUID DEPTH SHALL MEET THE UNIFORM PLUMBING CODE.
17. DISCHARGE AND TRANSITION TEES/RISERS SHALL EXTEND TO WITHIN 12-18" OF VAULT BOTTOM.

FEB 2022

SEE SHEET SS-5A
FOR LID DETAILS



NOTES:

1. GRAY-WATER ONLY. BLACK-WATER SHALL BE CARRIED BY SEPARATE SIDE SEWER.
2. LOCATE INTERCEPTOR WITHIN CLOSE PROXIMITY OF DRIVE FOR ACCESS BY A MAINTENANCE VEHICLE.
3. PRECAST VAULT AND BAFFLE SHALL HAVE KNOCKOUTS AT ALL PIPE OPENINGS. IF KNOCKOUTS ARE NOT PRESENT THEN PIPE OPENINGS SHALL BE LARGER THAN THE PIPE DIAMETER.
4. POSITION PIPE RISERS/INSPECTION TEES BELOW ACCESS OPENINGS TO ALLOW CLEAR ACCESS TO RISER AND VAULT CHAMBER FOR SAMPLING AND INSPECTION.
5. TOP OF INLET PIPE SHALL BE ONE PIPE DIAMETER HIGHER THAN THE TOP OF THE DISCHARGE PIPE.
6. INLET AND DISCHARGE INSPECTION TEE/RISER MUST EXTEND A MINIMUM OF 12" BELOW THE DESIGNED WATER LEVEL.
7. ALL INTERNAL PIPING (RISER/INSPECTION TEE) SHALL BE A MINIMUM OF 6" PVC PIPE. EACH RISER SHALL BE CONNECTED TO THE WALL OF THE VAULT IN TWO (2) PLACES USING STAINLESS STEEL OR ALUMINUM STRAPS.
8. ALL FITTINGS SHALL BE DESIGNED TOR OIL RETENTION.
9. CONNECTIONS THROUGH CONCRETE WALLS REQUIRE WATER TIGHT MANHOLE ADAPTERS. SEAL ALL PIPE CONNECTIONS WITH WATERTIGHT GROUT (MATERIALS TO BE APPROVED BY CVWD).
10. VAULT AND FITTINGS SHALL BE WATERTIGHT.
11. LIDS, FRAMES AND BOLTS SHALL MEET DISTRICT STANDARDS FOR MANHOLE LIDS AND/OR CLEANOUTS AS APPLICABLE.
12. FILL WITH CLEAN WATER PRIOR TO STARTUP OF SYSTEM.
13. DISCHARGE MUST COMPLY WITH DISTRICT STANDARDS.
14. INTERCEPTORS SHALL BE VENTED PER UNIFORM PLUMBING CODE.
15. LIQUID DEPTH SHALL MEET THE UNIFORM PLUMBING CODE.

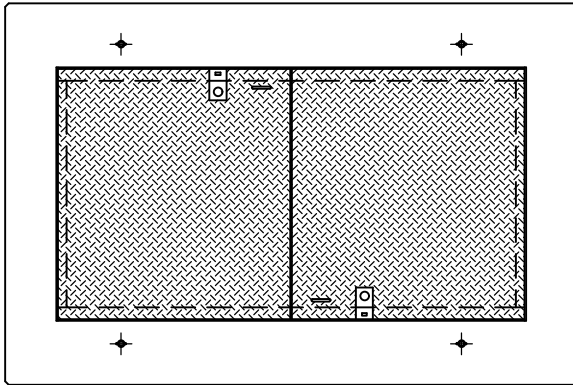
**CROSS VALLEY WATER DISTRICT
SIDE SEWER DETAILS**

OIL/WATER SEPARATOR

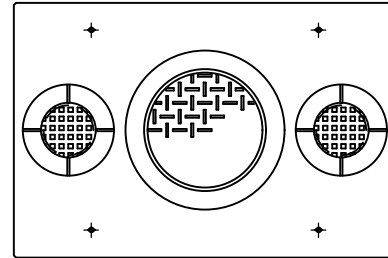
SS-5

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FEB 2022



REQUIRED



ALTERNATE (DISTRICT APPROVAL REQUIRED)

NOTES:

1. COVERS TO HAVE SPRING ASSISTED AND FULL 180° OPENING DOORS, LOCKING LATCH & HOT DIPPED GALVANIZED DIAMOND PLATING. USE LW PRODUCTS HD ACCESS HATCH (H-20) RATED COVER OR EQUAL.
2. LID MUST BE RATED FOR LOAD REQUIREMENTS AND BE WATER TIGHT.

**CROSS VALLEY WATER DISTRICT
SIDE SEWER DETAILS**

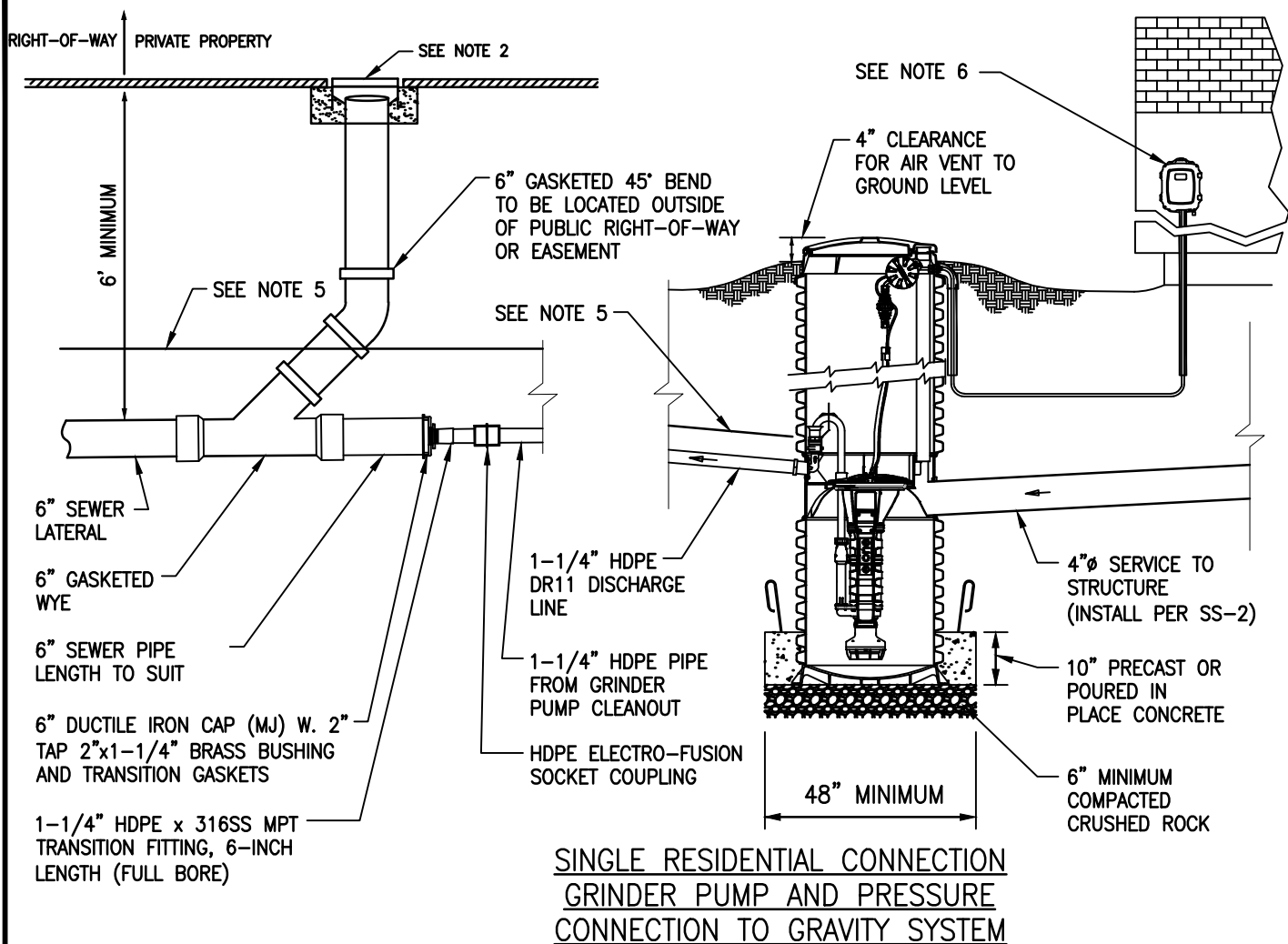
**OIL/WATER SEPARATOR COVER
OPTION DETAILS**

SS-5A

NOT TO SCALE

FEB 2022

FILE NAME: \\K-FS1\LIBRARY\CAD\DETAILS\DISTRICTS\CROSS VALLEY WATER DISTRICT\SS-6.DWG



NOTES:

1. FOR SINGLE RESIDENTIAL/UNIT CONNECTION. ANY DEVIATION MUST BE REVIEWED AND APPROVED BY THE DISTRICT PRIOR TO INSTALLATION. ALL PIPE AND FITTINGS MUST BE INSTALLED PER DISTRICT STANDARDS.
2. 6" LAMP HOLE/CLEANOUT IS REQUIRED FOR VISUAL INSPECTION OF THE PUMP LINE FLOW AND TO AID IN CLEANING OF THE SEWER SYSTEM. THE LAMP HOLE/CLEANOUT MUST BE INSTALLED PER STANDARD SS-1 PRIOR TO TESTING OF THE PUMP SYSTEM AND PERMIT SIGN-OFF. THE LAMP HOLE/CLEANOUT TO HAVE A LOCKING RING COVER.
3. FLEXIBLE COUPLINGS ARE NOT ALLOWED ON THE CONNECTION OF THIS SYSTEM.
4. ALL HDPE PIPE AND FITTINGS SHALL BE DR11 WITH ELECTRO-FUSION WELDED SOCKET JOINTS. HDPE PIPE SHALL BE WATER TESTED TO 80 PSI FOR 5 MINS.
5. INSTALL BURIED METALLIC MARKER TAPE 1' ABOVE PRESSURE LINE. TAPE SHOULD READ "CAUTION BURIED SEWER BELOW". (CARLTON IND., BLACKBURN MFG CO. OR EQUAL.)
6. ALARM PANEL & ELECTRICAL INSPECTED BY OTHERS.
7. INSTALL E-ONE TANK ASSEMBLY AND SENTRY PANEL PER MANUFACTURERS INSTALLATION MANUAL AND FOLLOW REQUIREMENTS FOR MANUFACTURER'S WARRANTY.(DH071 OR DR071 MODELS APPROVED ONLY)

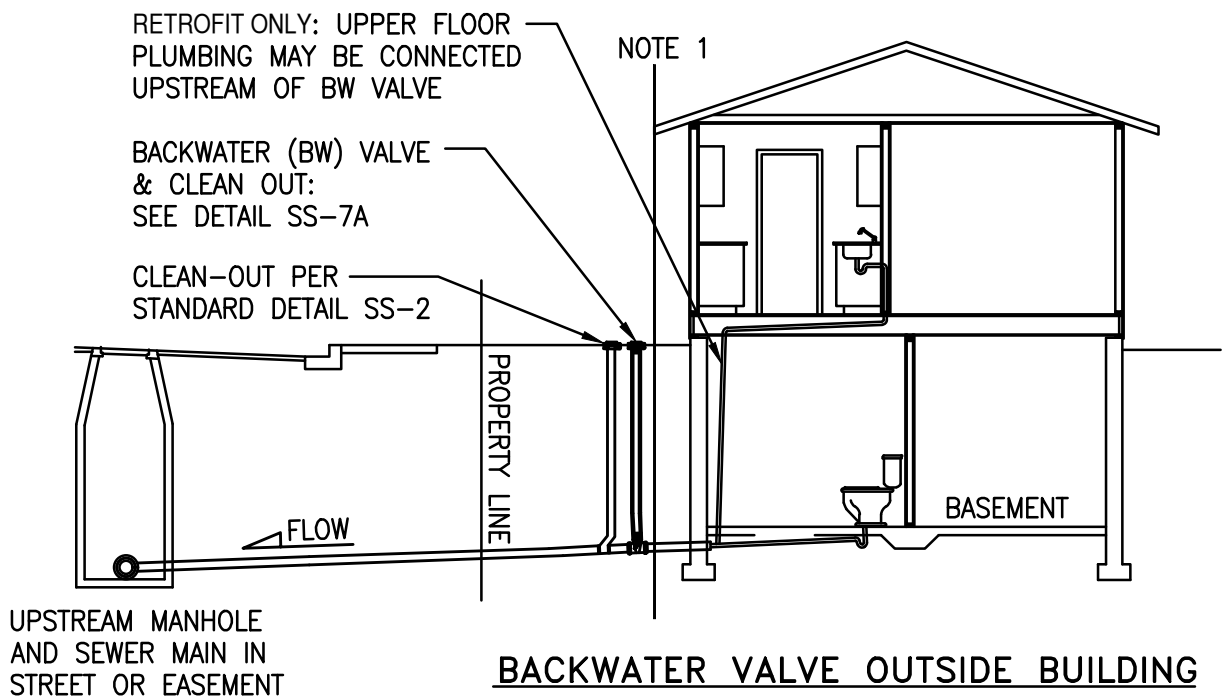
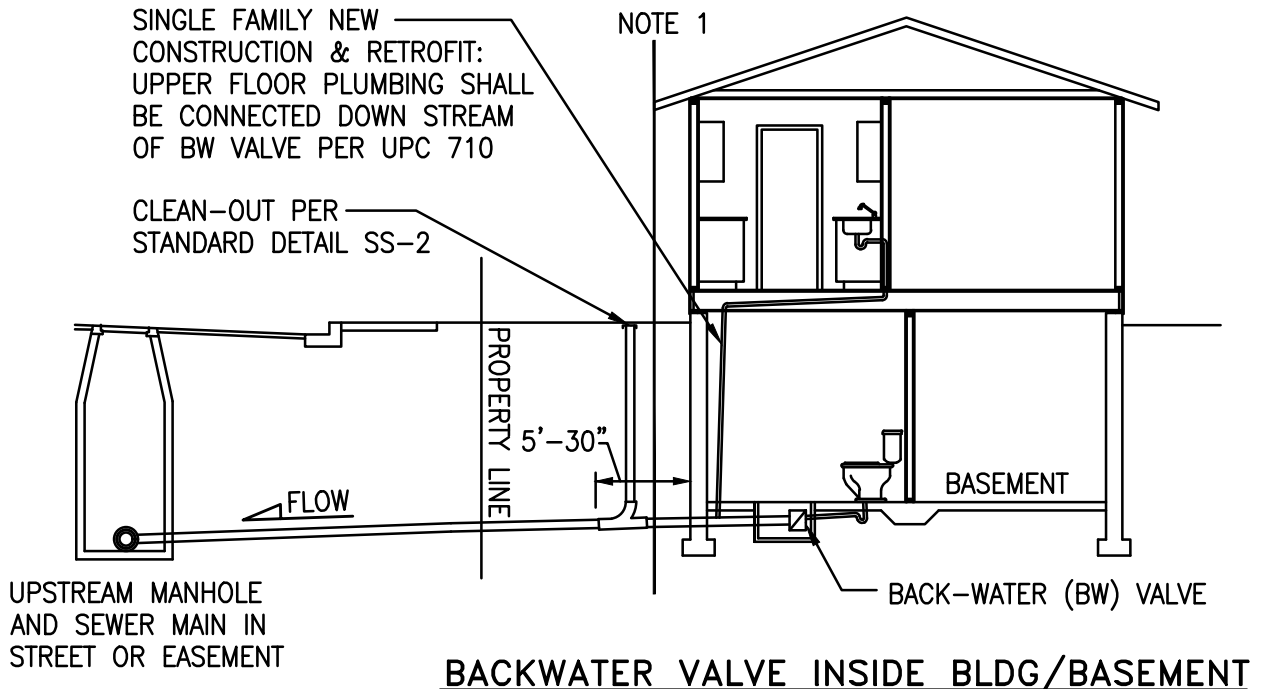
CROSS VALLEY WATER DISTRICT
SIDE SEWER DETAILS

SINGLE RESIDENTIAL
CONNECTION GRINDER PUMP

SS-6

NOT TO SCALE

FEB 2022



NOTES:

1. PLUMBING INSPECTIONS INSIDE THE BUILDING ARE THE RESPONSIBILITY OF THE COUNTY OR CITY IN ACCORDANCE WITH THE UNIFORM PLUMBING CODE.

**CROSS VALLEY WATER DISTRICT
SIDE SEWER DETAILS**

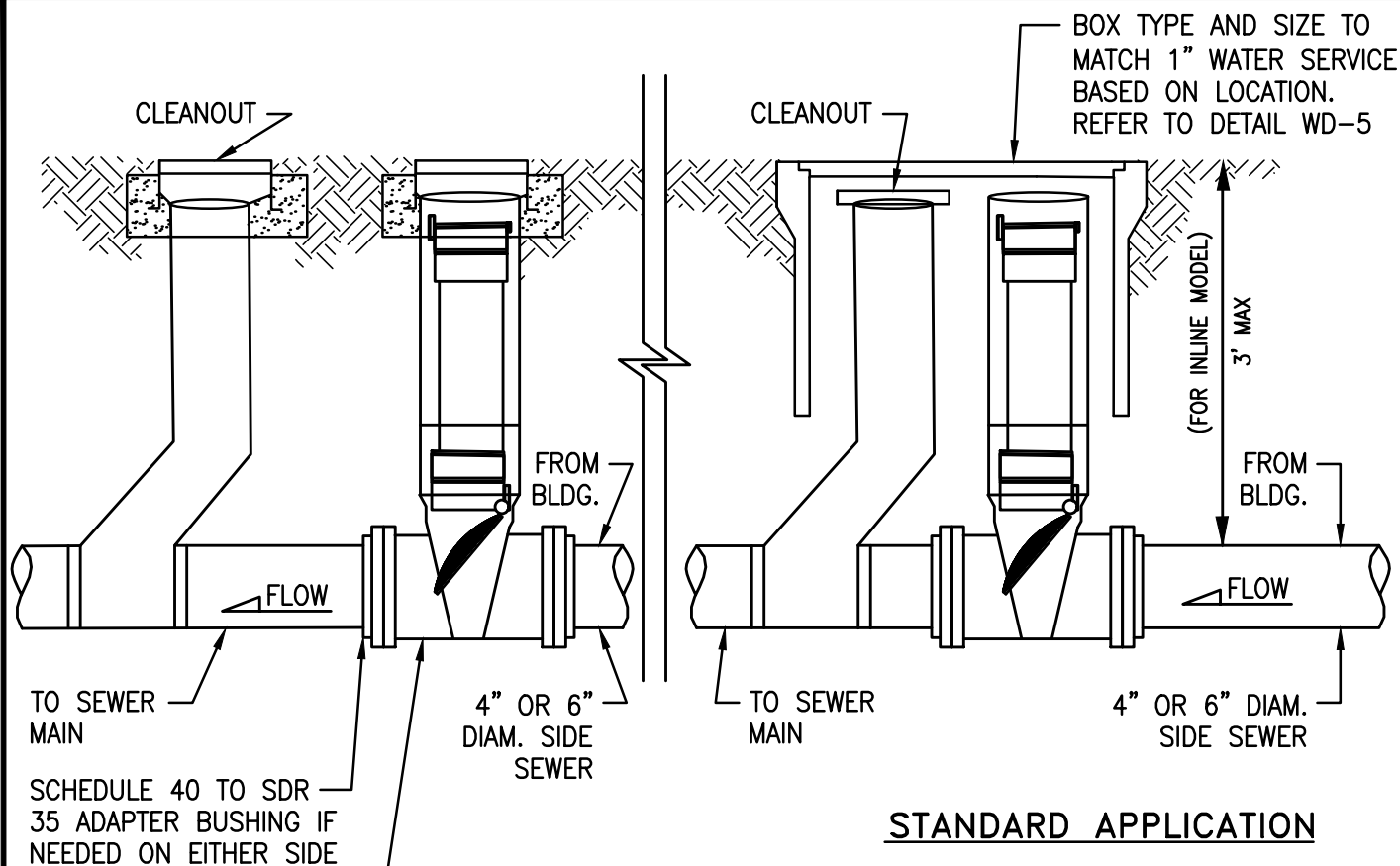
**PRIVATE BACKWATER VALVE
INSTALLATION TO SANITARY SEWER**

SS-7

NOT TO SCALE

FEB 2022

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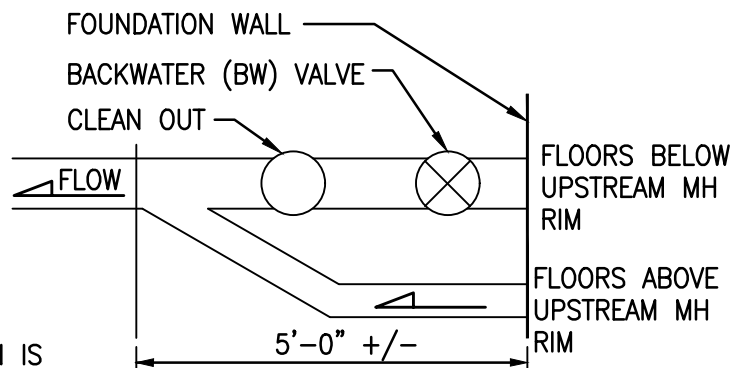


STANDARD APPLICATION

TRAFFIC APPLICATION

NOTES:

1. TO BE INSTALLED WHEN FINISH FLOOR ELEVATION IS LOWER THAN THE UPSTREAM MANHOLE RIM ELEVATION. IN ACCORDANCE WITH UPC 710.0.
- A. ALL ACCESS LIDS SHALL BE BROUGHT TO FINISH GRADE. PROPERTY/BUILDING OWNER SHALL TAKE OWNERSHIP AND RESPONSIBILITY FOR CLEANING AND MAINTAINING.
- B. IF PLACED IN CONCRETE, ASPHALT, OR TRAFFIC AREAS; A TRAFFIC BEARING LOCKING CASTING AND LID MARKED "SEWER" IS REQUIRED BY THE DISTRICT.
- C. PLASTIC BOXES MARKED "SEWER" ARE ACCEPTABLE IN LANDSCAPE AREAS.
- D. A SEPARATE BOX MAY BE USED FOR THE CLEANOUT BASED ON FIELD LOCATIONS.
- E. BACKWATER VALVE SIZE TO MATCH PLUMBING SIZE.



BACKWATER VALVE OUTSIDE PLAN VIEW

**CROSS VALLEY WATER DISTRICT
SIDE SEWER DETAILS**

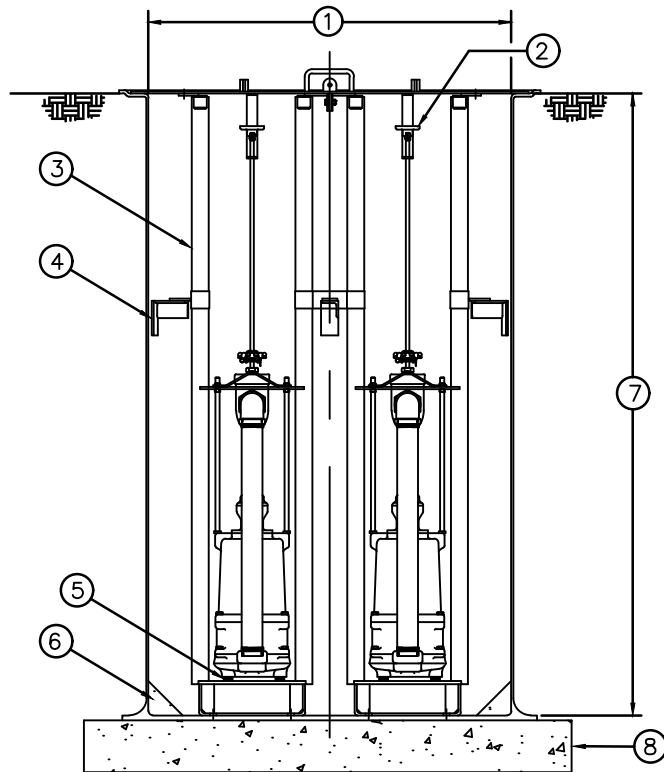
**PRIVATE BACKWATER VALVE
ASSEMBLY OUTSIDE INSTALLATION**

SS-7A

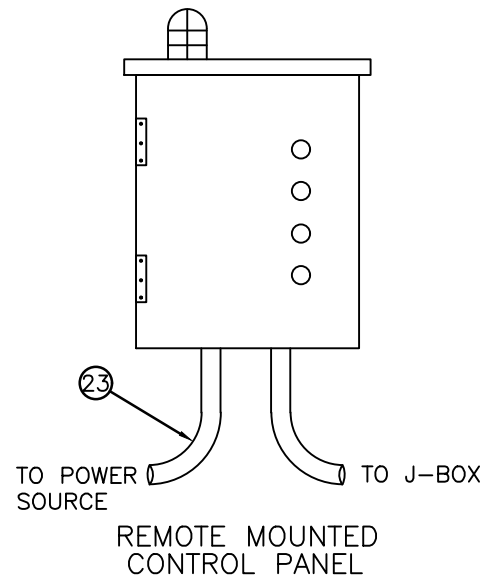
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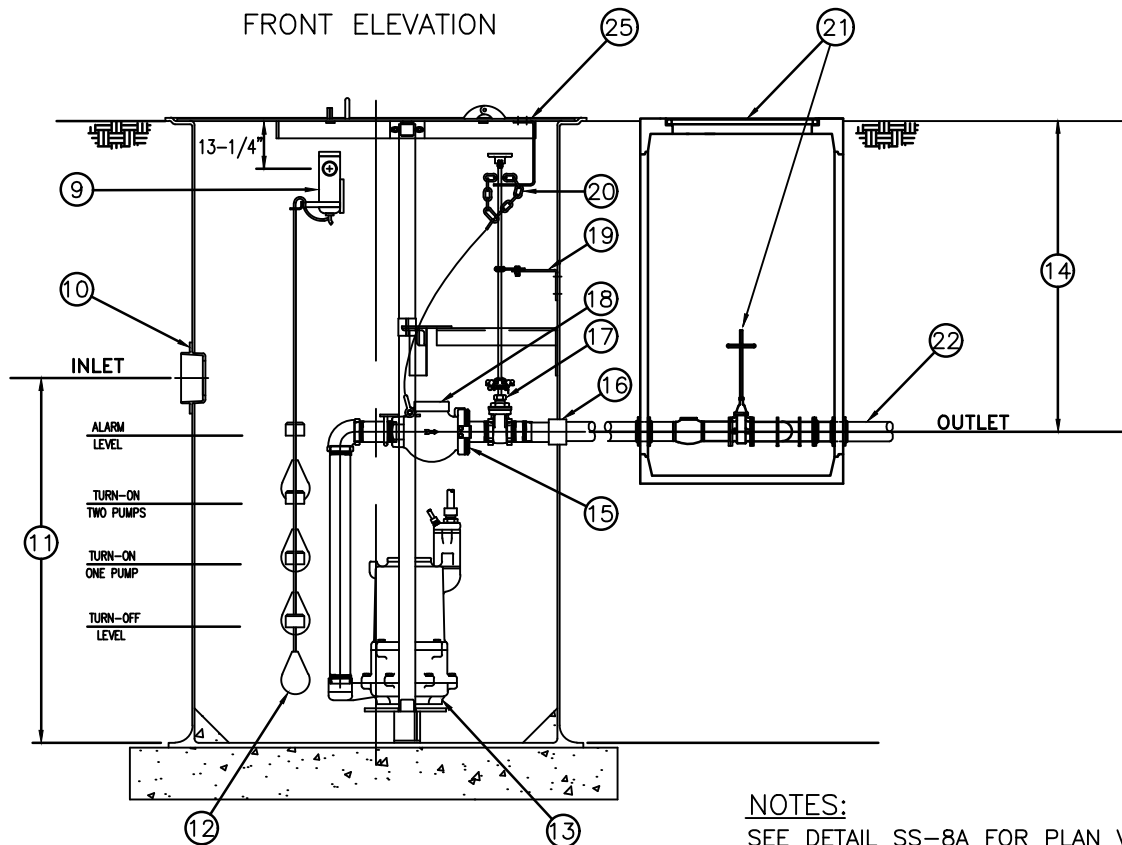
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FRONT ELEVATION



NOTE: ELECTRICAL SCHEMATIC SHALL BE PER MANUFACTURERS' RECOMMENDATION BASED ON PUMP MODEL AND POWER SOURCE.



SIDE ELEVATION

NOTES:
SEE DETAIL SS-8A FOR PLAN VIEW,
MATERIALS LIST AND GENERAL NOTES.

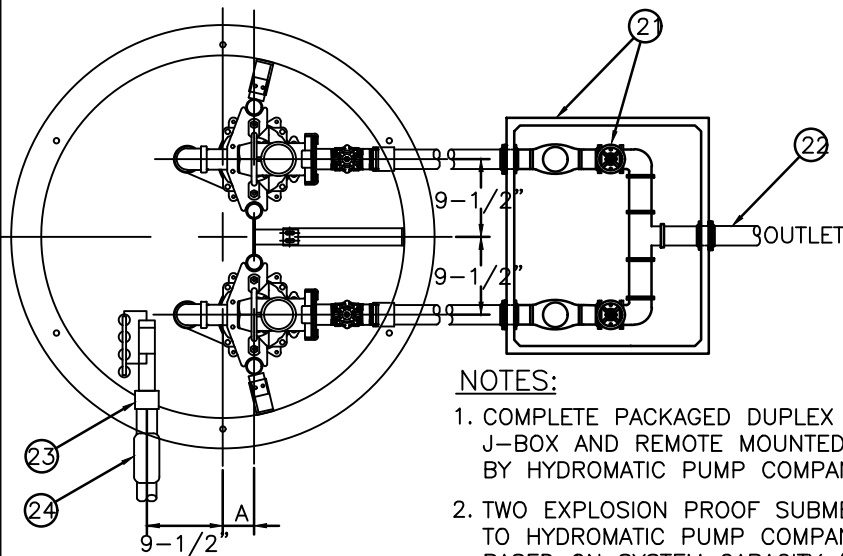
CROSS VALLEY WATER DISTRICT SIDE SEWER DETAILS

PRIVATE COMMERCIAL DUPLEX
GRINDER PUMP STATION

SS-8

NOT TO SCALE

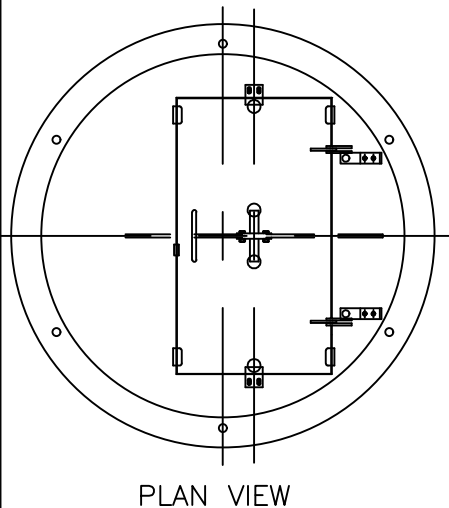
FEB 2022



TANK DIA.	"A"
48"	1"
60"	8"
72"	8"

NOTES:

1. COMPLETE PACKAGED DUPLEX SEWAGE GRINDER LIFT STATION WITH J-BOX AND REMOTE MOUNTED CONTROL PANEL AS MANUFACTURED BY HYDROMATIC PUMP COMPANY OR EQUAL.
2. TWO EXPLOSION PROOF SUBMERSIBLE SEWAGE GRINDER PUMPS EQUAL TO HYDROMATIC PUMP COMPANY OR EQUAL. PUMPS WILL BE SIZED BASED ON SYSTEM CAPACITY (GPM REQUIRED), TOTAL DYNAMIC HEAD (TDH) AND TYPE OF COMMERCIAL USE. DEVELOPER SHALL SUBMIT PUMP MODEL AND FLOW REQUIREMENTS TO CROSS VALLEY WATER DISTRICT FOR APPROVAL. SEE NOTE 6.
3. SUMP BASIN DIAMETER SHALL BE SIZED TO MEET SYSTEM CAPACITY. THE WET WELL SHOULD PROVIDE A HOLDING PERIOD NOT TO EXCEED 10 MINUTES FOR THE DESIGN AVERAGE FLOW. SEE NOTES 2 AND 6.
4. CONTROL PANEL SHALL BE CONTAINED IN A WEATHERPROOF, STEEL ENCLOSURE MEETING NEMA 3R REQUIREMENTS WITH HINGED DOOR AND NEOPRENE GASKET. CONTROL PANEL SHALL INCLUDE ALARM LIGHT, RUN LIGHT, HAND-OFF-AUTO SWITCH, TRANSFORMER RESET AND OVERLOAD RESET. THE CONTROL PANEL SHALL BE ASSEMBLED AND TESTED BY A SHOP MEETING U.L. STANDARD 508 FOR INDUSTRIAL CONTROLS. ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH ALL LOCAL CODES.
5. DEVELOPER IS RESPONSIBLE FOR OBTAINING ELECTRICAL PERMITS AND APPROVALS PRIOR TO CONSTRUCTION.
6. PROVIDE SHOP DRAWING SUBMITTALS FOR ALL MATERIALS AND SYSTEM SIZING CALCULATIONS TO CROSS VALLEY WATER DISTRICT FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.



PLAN VIEW

MATERIALS LIST

① CONCRETE OR FIBERGLASS SUMP. SEE NOTES 3 AND 6.	⑮ HYDRAULICALLY SEALED DISCHARGE FLANGE.
② GATE VALVE EXTENSION REQUIRED FOR DISTANCE GREATER THAN 2' FROM TOP OF BASIN.	⑯ 2" NPT COUPLING.
③ GALVANIZED PIPE GUIDE RAIL.	⑰ 2" BRASS GATE VALVE.
④ INSTALL BRACE WHEN GUIDE RAIL EXCEEDS 15'-0".	⑱ 2" CAST IRON BALL CHECK VALVE.
⑤ SHIMS FOR DISCHARGE FLANGE ALIGNMENT.	⑲ INTERMEDIATE BRACE REQUIRED FOR EXTENSION LONGER THAN 10'-0".
⑥ HOPPER BOTTOM BY OTHERS.	⑳ LIFTING CHAIN.
⑦ 4' MIN. AND 16' MAX. DEPTH. SEE NOTE 3.	㉑ DISCHARGE PIPING SHALL INCLUDE 2" CHECK VALVE (2 EACH), 2" GATE VALVE (2 EACH), G.I. TEE, BENDS, UNIONS AND ALL MISC. FITTINGS REQUIRED. CONCRETE VAULT SHALL BE UTILITY VAULT MODEL 444-LA OR EQUAL, WITH DRAIN AND 3' X 3' APPROVED HS20 WATERTIGHT HATCH.
⑧ 12" MINIMUM DEPTH FOUNDATION GRAVEL.	㉒ 2-1/2" PVC PIPE. MAINTAIN 36" MINIMUM COVER.
⑨ NEMA 4 J-BOX	㉓ 1-1/4" NPT CONDUIT TO POWER SUPPLY.
⑩ 6" INLET HUB OR COLLAR.	㉔ CONDUIT SEAL TO MEET LOCAL CODES AND PREVENT SURFACE WATER FROM ENTERING J-BOX.
⑪ 6" INLET PIPE DEPTH PER FIELD CONDITIONS.	㉕ APPROVED HS20 WATERTIGHT HATCH.
⑫ SEALED MERCURY OR MECHANICAL SWITCH.	
⑬ SUBMERSIBLE SEWAGE GRINDER PUMP. SEE NOTE 2.	
⑭ 3'-0" STANDARD DEPTH.	

**CROSS VALLEY WATER DISTRICT
SIDE SEWER DETAILS**

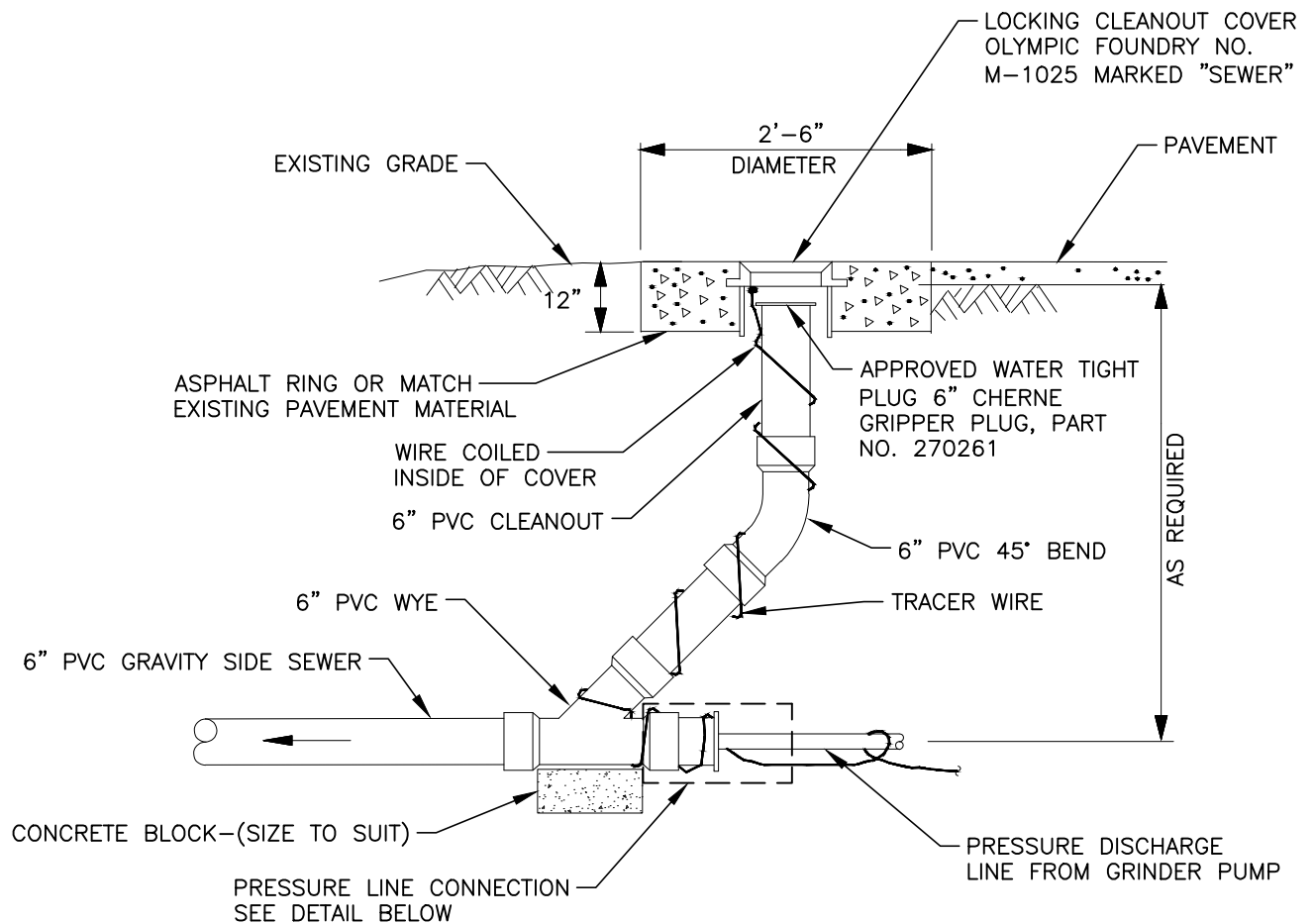
**PRIVATE COMMERCIAL DUPLEX
GRINDER PUMP STATION**

SS-8A

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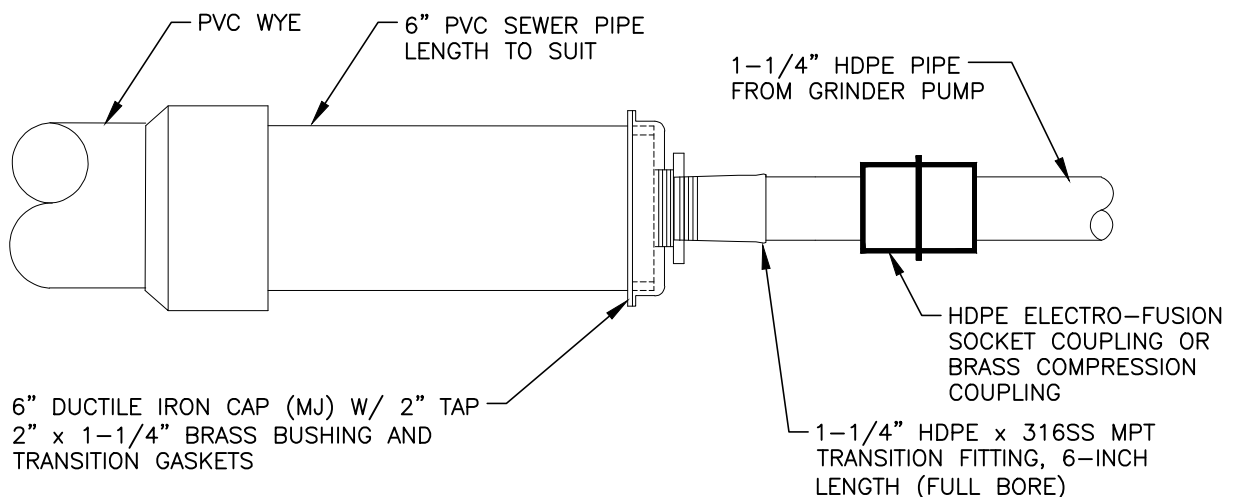
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NOTES:

1. ALL PVC FITTINGS SHALL BE GASKETED
2. NO COLLECTION VALVE BOX REQUIRED WHEN CONNECTING TO A GRAVITY SIDE SEWER

CONNECTION TO GRAVITY SEWER DETAIL



**CROSS VALLEY WATER DISTRICT
SIDE SEWER DETAILS**

**PRIVATE PRESSURE LINE
CONNECTION TO GRAVITY SEWER**

SS-9

NOT TO SCALE

FEB 2022



**Water System Plan
Cross Valley Water District**

**Appendix L – Water Facilities Map
Sewer System Plan Update**

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