Town of Concrete

ID #03950M

45672 Main Street
P.O. Box 39
Concrete, WA 98267

2012 Water System Plan

Approved
Department of Health
Office of Drinking Water
Nancy Hagin
Engineer

Date July 16, 2012

Prepared by

Reichhardt & Ebe Engineering, Inc.
813 Metcalf Street
Sedro-Woolley, WA 98284
360-855-1713

Jennifer Knopack
Planner

CARL F. REICHHARDT
STATE OF WASHINGTON
0048
REGISTERED
PROFESSIONAL ENGINEER

May 2012

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
NORTHWEST DRINKING WATER REGIONAL OPERATIONS
20435 72nd Avenue South, Suite 200, Kent, Washington 98032-2358

July 16, 2012

HONORABLE MAYOR JUDD WILSON & TOWN COUNCIL
PO BOX 39
CONCRETE WA 98267

RE: Town of Concrete ID# 03950
Skagit County
Water System Plan
Submittal # 12-0304

Dear Honorable Mayor Judd Wilson and Town Council:

The Town of Concrete's water system plan (WSP), received in this office on March 12, 2012, with revisions submitted on June 28, 2012, has been reviewed, and in accordance with the provisions of WAC 246-290-100, is hereby **APPROVED.**

Approval of this plan is valid as it relates to current standards outlined in Chapter 246-290 WAC, revised April 2012, Chapter 246-293 WAC, revised September 1997, Chapter 70.116 RCW, the Skagit County Coordinated Water System Plan (CWSP), and is subject to the qualifications herein. An approved update of this WSP is required on or before **July 16, 2018** unless ODW requests an update or plan amendment pursuant to WAC 246-290-100(9).

APPROVED NUMBER OF CONNECTIONS

The analysis provided in this WSP shows the water system has sufficient capacity to meet the growth projections during this planning period. The WSP demonstrates the Town of Concrete water system has the design capacity to support **557 equivalent residential units. This means the Town may add 51 additional residential connections.** Based upon the information submitted by your engineer, Carl Reichhardt, P.E, the limiting factor is the capacity of the spring source.

CONSTRUCTION WAIVERS

Standard Construction Specifications for distribution main extensions have been approved as part of this water system plan. With this approval and consistent with WAC 246-290-125(2) the system may elect to proceed with the installation of distribution main extensions provided that the system maintains on file completed construction completion reports (a copy of which is attached) in accordance with WAC 246-290-125 (2) and WAC 246-290-120 (5) and makes it available for review upon request by the department.

Below is the regulatory language for three elements that apply to all water system approvals:

LOCAL GOVERNMENT CONSISTENCY

This document meets local government consistency requirements for WSP approval pursuant to RCW 90.03.386 and RCW 43.20.

SERVICE AREA AND DUTY TO SERVE

Pursuant to RCW 90.03.386(2), the service area identified in this WSP service area map may now represent an expansion in "place of use" for this system's water rights. Changes in service area should be made through a WSP amendment.

Concrete has a duty to provide new water service within its retail service area. This WSP includes service policies to describe how your system plans to provide new service within your retail service area.

WATER RESOURCES

This approval does not provide any guarantee and should not be considered to provide any guarantee concerning legal use of water or any subsequent water right decisions by Ecology.

Ecology did provide a comment letter on April 17, 2012.

PLANNING ACCOMPLISHMENT

We recognize the significant effort and resource commitment involved in the preparation of this WSP. Thank you for your cooperation.

Sincerely,

Jennifer Kropack
Regional Planner
(253) 395-6769

Nancy Feagin
Regional Engineer
(253) 395-6765

Enclosures: Construction Completion Reports

cc: Alan Wilkins, Concrete Public Works Director
Carl Reichhardt, PE, Reichhardt & Ebe Engineering, Inc.
Jacque Klug, Ecology, NWRO
Lorna Parent, Skagit County Health Department
Gary Christensen, Director, Skagit County Planning & Development Services
Aniela Sidorska, DOH

CONSTRUCTION COMPLETION REPORT FOR DISTRIBUTION MAIN PROJECTS

In accordance with WAC 246-290-120(5), a ***Construction Completion Report*** is required for all construction projects. Under the submittal exception process for distribution main projects, designed by a professional engineer but not submitted to DOH for approval, the report does not need to be submitted. **However, the purveyor must keep the Construction Completion Report on file and make it available for review upon request by DOH in accordance with WAC 246-290-125 (2)(b).** Furthermore:

(1) The report form must bear the seal, date and signature of a professional engineer (PE) licensed in the state of Washington; and

(2) Per WAC 246-290-120(5)(c), the amount of change in the physical capacity of a system must be documented, if the project results in a change in physical capacity.

CONCRETE UTILITIES
Name of Water System

DOH System ID No.: 03950

ALAN WILKINS
Name of Purveyor (Owner or System Contact)

Date Water System Plan that includes Standard Construction Specifications

PO BOX 39
Mailing Address

Date Standard Specifications Approved by DOH: 7/16/2012

CONCRETE, WA 98237
City State Zip

PROJECT NAME AND DESCRIPTIVE TITLE:
(Include the name of any development project and number of services.)

Date Project or Portions Thereof Completed

PROFESSIONAL ENGINEER'S ACKNOWLEDGMENT

The undersigned professional engineer (PE), or his/her authorized agent, has inspected the above-described project that, as to layout, size and type of pipe, valves and materials, and other designed physical facilities, has been constructed and is substantially completed in accordance with construction documents reviewed by the purveyor's engineer. In the opinion of the undersigned engineer, the installation, physical testing procedures, water quality tests, and disinfection practices were carried out in accordance with state regulations and principles of standard engineering practice.

I have reviewed the disinfection procedures, pressure test results, and results of the bacteriological test(s) for this project and certify that they comply with the requirements of the construction standards/specifications approved by DOH.

P.E.'s Seal

Date Signed

Name of Engineering Firm

Name of PE Acknowledging Construction

Mailing Address

City State Zip

Engineer's Signature

State/Federal Funding Type (if any) _____

Please keep a completed, signed, and stamped copy on file.

☒ NWRO Drinking Water Department of Health 20435 72nd Ave. S, Ste 200 Kent, WA 98032-2358 (253) 395-6750	☐ SWRO Drinking Water Department of Health PO Box 47823 Olympia, WA 98504-7823 (360) 236-3030	☐ ERO Drinking Water Department of Health 16201 E Indiana Ave, Suite 1500 Spokane Valley, WA 99216 (509) 329-2100

For persons with disabilities, this document is available on request in other formats. To submit a request, please call 1-800-525-0127 (TTY 1-800-833-6388).

TABLE OF CONTENTS

APPENDICES

A – Correspondences
B – Policies, Rates, Service Area, Agreements
C – Statement of Consistency
D – Water Quality, Coliform Monitoring Plan
E – Water Service Extension Policy
F – Cross Connection Control
G – Construction Standards
H – Hydraulic Analysis
I – Water Rights
J – Water Use Efficiency Plan
K – Wellhead Protection
L - Miscellaneous

CHAPTER 1

DESCRIPTION OF WATER SYSTEM

1.1 INTRODUCTION

This Chapter describes the existing Water System Facilities for the Town of Concrete.

1.2 OWNERSHIP AND MANAGEMENT

1.2.1 Water System Name

The Town of Concrete is located in Skagit County, Washington. See the Location Map and Vicinity Map on Exhibit 1-1. The Concrete water system is a "Group A" community system as defined by WAC 246-290-020 (5)(a). The System Identification Number is 03950 M.

1.2.2 Type of Ownership

The type of ownership is "Municipal".

1.2.3 Description of Management Structure and Decision-Making Process

The Town of Concrete is responsible for planning, operation, maintenance and quality control. The Town's Public Works Department has developed Standards and Specifications for the water system (Chapter 7).

The Director of Public Works oversees the operation and maintenance of the water system. Responsibilities include budget formulation, cross-connection control, safety, implementation of capital improvements, oversight of developer projects, and coordination of the operations of the water department.

1.2.4 Water Facilities Inventory Form (WFI)

The Town's current DOH WFI, dated March 16, 2010 is included in Appendix B.

1.3 SYSTEM BACKGROUND

1.3.1 History of Water System Development and Growth

The first Town and water system originated in 1908, when the Superior Portland Cement Company began production in the then named community of Baker. The Superior Portland Cement Company obtained a Ground Water Right certificate (Claim No. 117) from the State of Washington Department of Conservation and Development in 1908, allowing them to withdraw 750 gallons per minute (gpm) and 1190 acre feet per year (af/yr).

In 1909, the community was incorporated and renamed Concrete. Records indicate that the Town water system began with construction of an earthen dam built for the purpose of impounding water from springs located just northwest of the Town. This water was piped to the Town of Concrete and the cement plant operated by Superior Portland Cement Company.

In 1917, a spring collection system consisting of several wood stave collection pipes was installed. This system diverted shallow subsurface spring flows into a concrete collection box. Water was conveyed to the Town and the cement plant through a 4-inch wood stave pipe.

Much of the water system was constructed in the 1930's from wood stave and steel pipes. Approximately 400 lineal feet of wood stave pipe remains in the system, plaguing the Town with leakage and pressure deficiencies.

In 1941, an underground tunnel and collection system was constructed to replace the surface collection system. That system consisted of a 16-inch water collection pipe installed in a tunnel drilled into Burpee Hill. Water from the collection system was piped through a 6-inch transmission line to a 105,000 gallon wood stave reservoir situated on a hillside near the eastern part of Town.

In 1947, The State of Washington issued a Ground Water Right certificate for withdrawal from the underground tunnel source (Claim No., GWC 117). This allowed the Town to withdraw a maximum of 750 gpm and a total of 1190 acre-feet per year. Copies of water rights documentation are in Appendix I.

Table 1-1: Town of Concrete, Existing Water Rights

Cert./Permit	Date	Location	Location	Quantity	Comments
GWC 117	2/14/47	Grassmere Spring	SE¼, SE¼, S4, T35N, R 8E	Qi = 750 gpm Qa = 1190 af/yr	Domestic, commercial and industrial use

Source: Town of Concrete, September 2010

In 1982, all interests in the water system held by Lone Star Industries (formerly Superior Portland Cement Company) and Baker River Power, Light, and Water were gifted to the Town of Concrete.

Major system upgrades were completed in 1983, including construction of a new 8-inch polyvinyl chloride (PVC) transmission line from the collection box at the source to the wood stave reservoir. A pressure-reducing valve (PRV) was also installed on the transmission line south of the collection box.

In 1998, two new 200,000 gallon concrete storage reservoirs were constructed. One was built at the Seidel Street site and the second was built near the source. A new 12-inch water main was constructed to address pressure deficiencies and fire flow concerns to the Concrete School District facilities. Also completed in 1998 were the Superior Avenue transmission mains.

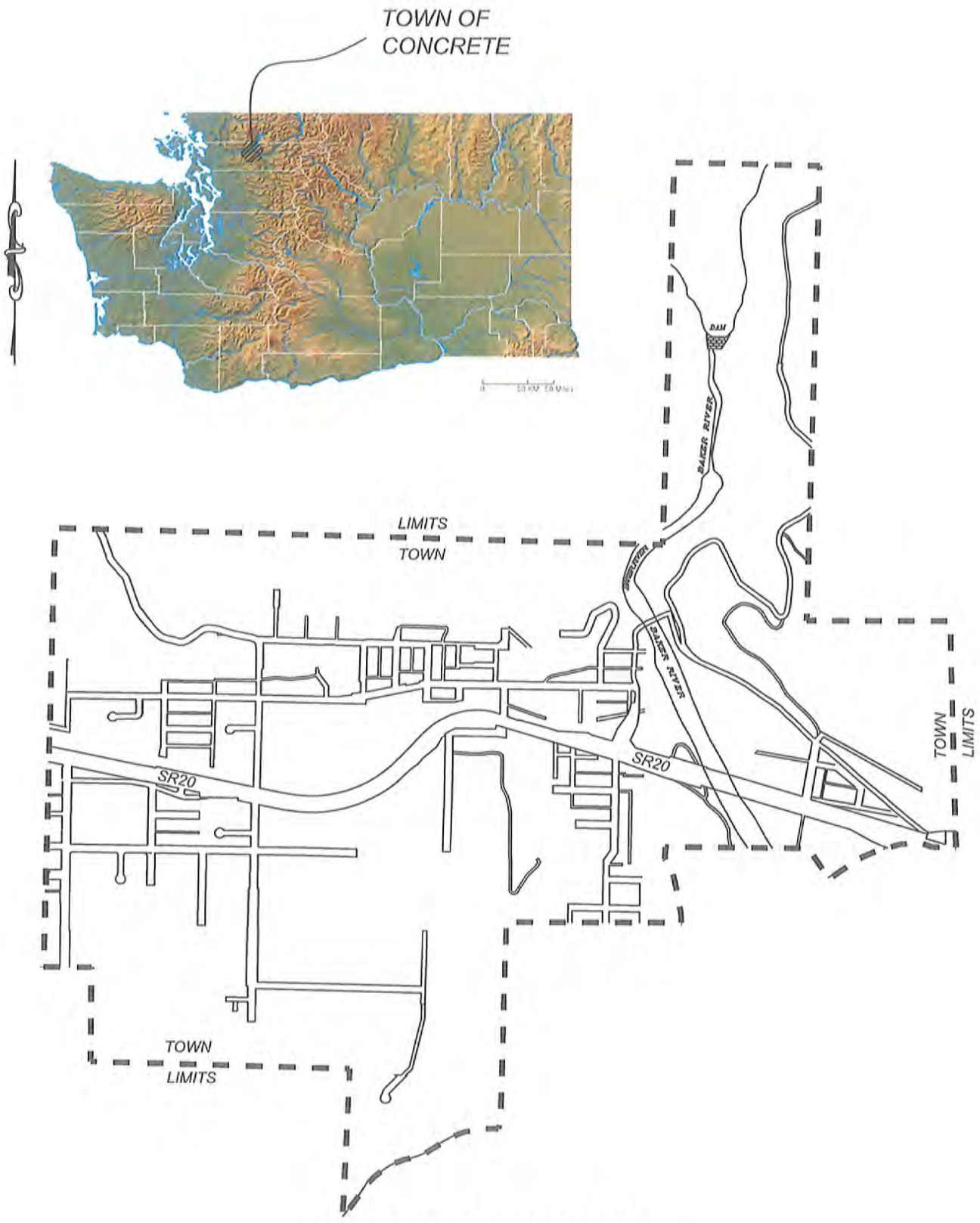


EXHIBIT 1-1: VICINITY MAP

TOWN OF CONCRETE, SKAGIT CO., WA
2010 WATER SYSTEM PLAN UPDATE

VICINITY MAP
NTS

1.3.2 Geography

The Town of Concrete is located at the confluence of the Skagit River and the Baker River, which flows out of nearby Lake Shannon. The geography of the Concrete area ranges from the Skagit River flood plain in the south eastern part of town known as Crow's Foot, to the main part of town on a plateau above the Skagit River. This plateau abuts the base of Burpee Hill and other topography. The area displays characteristics of glaciation and alluvial deposits adjacent to the Skagit River, and the soil is classified as a Kline very gravelly sandy loam. Ground elevations range from 200 to 550 feet on the northern outskirts of Town.

1.3.3 Neighboring/Adjacent Purveyors

The Town is surrounded by several small community water systems that have their own source and/or distribution system. These water systems are owned and managed by Skagit County Public Utilities District No. 1 (PUD No. 1). Some of these water systems are listed below.

- Skagit View Village Water System
- Cedar Grove Water System

Other nearby community water systems with their own sources and/or distribution systems are listed below.

- Town of Hamilton
- Skagit County PUD #1

The Town of Concrete does not have a water service intertie with any of these smaller systems, which precludes the possibility of buying, selling, or wheeling water. A copy of Concrete's Water Utility Service Area Agreement is included in Appendix B.

1.3.4 Ordinances

Minimum performance requirements stipulated by the Town for an applicant to receive water service are formalized as Town Ordinances. Applicable Ordinances are referenced and discussed, where appropriate.

1.4 INVENTORY OF EXISTING FACILITIES

1.4.1 General Description

The existing system is shown on Water System Plan Sheet 1, which also shows the Urban Growth Area, Service Area and Retail Service Area. An overview of major components follows.

Water Supply

The Town's primary source of water is the Grassmere Spring on Burpee hill. This Spring has a covered intake, located approximately 100 feet inside the hill and at an approximate elevation of 550 ft above mean sea level. The Grassmere Springs water rights allow instantaneous water withdrawal of 750 gpm and cumulative withdrawal of 1,190 acre-ft/year. The Grassmere Spring

is the only water source that the Town of Concrete uses. No secondary water source is currently part of the Town's water system. The Town tests the water quality the Grassmere Spring periodically as required.

Treatment

Grassmere Spring has been classified by the Department of Health as groundwater. Water quality testing at the Spring has resulted in satisfactory reports and as a result the spring does not require chlorination or other water treatment.

Storage

There are three reservoirs within the water system. Characteristics of these reservoirs are summarized in Table 1-2. The distribution system is free-floating with respect to the water levels in the Fir and Seidel Reservoirs. Because there is no pumping associated with withdrawal from the Grassmere Spring, the Town does not utilize reservoir control devices. Therefore, water is allowed to overflow the reservoirs through spill lines. All three reservoirs overflow into culverts and flow overland towards the Skagit River. Overflow from the Fir Reservoir is fed directly into the Baker River, while overflow from Seidel and Grassmere Reservoirs are channeled to Lorenzen Creek, a tributary of the Skagit River.

Table 1-2: Summary of Storage Reservoirs

Dimensions	Fir Reservoir	Seidel Reservoir	Grassmere Reservoir
Diameter	30 feet	30 feet	30 feet
Overall Height	20 feet	40 feet	40 feet
Total Capacity	105,000 gal	200,000 gal	200,000 gal
Material	Wood	Concrete	Concrete
Base Elevation	368 ft	356 ft	412 ft
Spill Elevation	388 ft	394 ft	450 ft

Source: Town of Concrete.

Storage Capacity Analyses were conducted to assess the ability of these reservoirs to meet current and future storage requirements. Storage evalutation, per the Water System Design Manual (*DOH, 2009*), can be found in Chaper 3.

Transmission/Distribution

The transmission/distribution system including piping and valves evolved as the Town grew. Transmission and distribution mains range from 4 to 12 inches in diameter. Most of the water distribution pipes are PVC, however, water lines in Dillard and Cupples Alley are wood stave, in poor condition.

The Town currently operates the system within a single pressure zone. Pressure is maintained through the use of storage reservoirs and a pressure reducing valve (PRV) between the higher Grassmere reservoir and the Town.

Pump Stations

Currently, the Town does not require the use of any booster pump stations. The system is entirely fed by gravity.

Service Connections:

Service connections for the Town of Concrete for 2010 are shown in Table 1-3.

Table 1-3: Service Connections as of 2010

Category	Number of Services
Single Family Residences	376
Multi-Family Apartment Buildings	12 (50 units)
Commercial/ Industrial	64
Schools	2
Wholesale	1
Total	455

Source: Town of Concrete Treasurer

1.4.2 Existing Interties

The Town of Concrete has no existing interties with any Water Associations, small community systems, or Skagit County PUD No. 1.

1.5 RELATED PLANS

The analysis provided herein is based on the following planning documents:

- Skagit County, "Skagit County Comprehensive Plan" 2007
- Economic and Engineering Services, Inc. "Town of Concrete, 2002 Water System Plan Update", April 2003.
- Town of Concrete Planning Commission, "Town of Concrete, Comprehensive Plan – 2005 to 2025", 2005.
- Public Utility District No. 1 of Skagit County, "Final Draft – 2007 Water System Plan", December 2007. Public Utility District No. 1 of Skagit County, "Final Draft – 2007 Water System Plan", December 2007.
- DOH "Water System Design Manual", December 2009
- DOE "Skagit Instream Flow Rule" 2001, amended 2006

1.5.1 Inconsistencies with Related Plans

This Water System Plan Update is in conformance with the Plans listed in Section 1.5. Statements of consistency are in Appendix C. The Town is not affected by the Skagit Instream Flow Rule.

1.5.2 Applicable Agency Comments

Comments from agencies regarding this Water System Plan Update have been solicited and comments, if any, can be found in Appendix A.

1.5.3 Adjacent Purveyors

Skagit County PUD No. 1 and the Town of Hamilton are the closest significantly size water purveyors near the Town of Concrete. The Town of Concrete is considered independent from all adjacent water purveyors and does not share their watershed with any other significant wells or springs.

1.6 EXISTING SERVICE AREA CHARACTERISTICS

1.6.1 Existing Service Area and Retail Service Area

The Town's existing Service Area, which is also the Retail Service Area, consists of all land within the Incorporated Area of the Town of Concrete, all areas within the Concrete Urban Growth Area, plus those pre-existing areas already served.

1.6.2 Zoning and Land Use

Zoning and land use designations for the existing service area is shown on Exhibit 2-1. Land use falls into five (5) zoning categories ranging from Open Space to Industrial. Existing areas within each category in the year 2005 are presented in Table 1-4. Approximately half of the land within the existing service area is designated for Residential or Commercial/Light Industrial purposes. The Transportation Corridor has been identified as a significantly sized land use area, but is not considered a zoning area.

Table 1-4: Gross Area Calculations, Existing Service Area (2005)

Zoning	Acreage (ac)	% of Total
Commercial/ Light Industrial	80.3	8.6
Industrial	83.3	9.0
Open Space	203.8	21.9
Public Lands	115.3	12.4
Residential	391.1	42.1
Transportation Corridor	56.2	6.0
Total	**930.0**	**100.0**

Source: Town of Concrete, Comprehensive Plan – 2005 to 2025, 2005

Discussion

State Route 20 (SR 20) divides the Town in an east/west direction. In addition, the Baker River traverses in a north to south direction, passing under SR 20 and flowing into the nearby Skagit River. The following comments are made:

- The Town of Concrete has a significant amount of roads, railway, or right-of-way within the service area as demonstrated by the acreage designated as Transportation Corridor. This is due to the location of SR 20 and the abandoned Great Northern railroad corridor,

both of which run through the middle of Concrete. However, the majority of Commercial/Light Industrial and Industrial zoning is located along or adjacent to SR 20.

- Approximately one-sixth (1/6) of the total area in the Existing Service Area is located to the east of the Baker River. Half of all Open Space zoning is in this portion of town and located on steep slopes to the north of SR 20. Also located to the north of SR 20 and east of the Baker River are the Puget Sound Energy facilities, which account for a significant portion of the Industrial zoning within Concrete. The remaining areas to the east of the Baker River are evenly distributed between Commercial/Light Industrial, Residential, and Public Lands.
- The remaining Industrial zoned areas are located along the western edge of the existing service area, in the currently unincorporated Concrete UGA.
- Residential zoning within the service area is fairly evenly distributed both north and south of SR 20. It should be noted that there is approximately 117 acres of undevelopable land within Residential zones because of defined Critical Areas, including steep slopes, wetlands, and/or flooding.
- Public Land includes the Concrete School District facilities, the Municipal Airport, cemetery, and Town parks. The Municipal Airport, high school, junior high, and elementary schools are located to the south of SR 20 and account for approximately two-thirds (2/3) of all Public Lands.
- The current Concrete UGA and topography of the surrounding area indicates that future growth will occur to the west along SR 20 and to the south along the Concrete Sauk Valley Road, at least as far as the Skagit River flood plain will allow.

1.7 FUTURE SERVICE AREA

Concrete's service area boundaries include all land within the Town Limits and the Town's approved Urban Growth Areas. The Town has no future service area other than the UGA. The boundaries can be seen in Exhibit 2-2.

1.8 SERVICE AREA AGREEMENTS

The Town of Concrete and Skagit County entered into an "Agreement for Establishing Water Utility Service Area Boundaries" in 1992. The Service Area Boundaries were established at that time, but have been reduced since in accordance with the requirements of the Growth Management Act. The Agreement is in Appendix B.

1.9 SERVICE AREA POLICIES

1.9.1 Wholesaling Water

The Town provides water on a wholesale basis to Advanced H2O, LLC (Advanced H2O), a water bottling company, through a metered filling station. The most recent service agreement between these parties is provided in Appendix B. The agreement is for an interruptible supply, with the Town having the right to suspend or terminate service if adequate water is not available, or if water is needed for other municipal uses.

1.9.2 Wheeling Water

The Town does not currently wheel water and has no plans to do so in the future.

1.9.3 Annexation

The Town of Concrete's annexation policy is outlined in Chapter 19.76 of the Building Code.. In practice, if properties are annexed, the annexed property owners pay the costs of expanding the water facilities. Connection fees are charged in addition to the cost of system expansion. Annexation is currently limited to properties within the existing UGA.

1.9.4 Direct Connection and Satellite/Remote Systems

The Town requires Developers to connect to sewers as a prerequisite to water service, and also requires Developers to connect to water service prior to receiving sewer service. Developments in areas currently with water but not sewer service are exempt from the sewer service connection requirement.

The Town's does not utilize a Satellite Management Agency (SMA) to assist in water system operations.

1.9.5 Design and Performance Standards Reference

New developments or subdivisions within Concrete's service area are required to be served by the Town water system. Minimum standards for all water-related construction within the incorporated area, as well as within the UGA, must be in accordance with the current Town of Concrete Development Standards and the Water System Plan. The Town also adheres to all minimum design standards as outlined in the *Skagit County Coordinated Water System Plan (1999).* System design standards are further discussed in Chapter 7 and Appendix G.

1.9.6 Surcharge for Customers Outside of City Limits

Customers outside of Town Limits currently pay an additional surcharge for their water connection. See the Rate Structure Policy in Appendix B.

1.9.7 Formation of Local Improvement Districts Outside Legal Boundaries

The Town requires annexation of areas outside of the Town Limits prior to entertaining formation of Local or Utility Local Improvement Districts. LIDs and ULIDs are generally to be utilized for providing service to previously developed areas, not to finance developer improvements.

1.9.8 UGA

The Town of Concrete is located within an UGA, shown by Exhibit 2-2. Areas outside of the UGA will not be served. Annexation is a requirement for water service.

1.9.9 Late-Comer Agreements

The purpose of Late-Comer Agreement policies is to establish a method for reimbursement for developer extension construction costs. It is the policy of the Town to contract with owners for reimbursement of system extension construction costs. The method of reimbursement is through connection charges received from properties using Town facilities. Latecomer reimbursement policies are provided in detail in Appendix E. These policies address the following:

- Reimbursement time limitation of 15 years.
- Types of reimbursable costs such as costs of design, engineering, installation, restoration, permit fees, and charges specifically applicable to the facilities.
- Formulation of reimbursement area for which reimbursement is applicable.
- Methodology for auditing owner's invoices and other documentary evidence to determine actual construction costs.
- Timeframe for submission of necessary documentary evidence to allow a reasonable audit of actual costs and the waiving of statutory right to reimbursement of its actual costs.
- Commencement of fifteen-year reimbursement period.
- Entitlement and compensation allowing reimbursement period.
- Deductions by the Town for actual costs of administration of reimbursement agreements.
- Authority of the Town to request segregation of connection charge for owners of property within a reimbursement area.
- Limitation of enforcement of reimbursement agreements to actual utilization by property owner of facilities.
- The deduction of costs, including attorney fees and court costs, to defend a challenge to a reimbursement agreement.
- Recording of reimbursement agreements.

1.9.10 Oversizing

Oversizing of water system facilities is covered in the Water System Extension Policy which is included in Appendix E. The Town will consider payment or issuing credit under certain conditions for the cost of oversizing developer installed water mains that are sized to accommodate future development.

1.9.11 Cross-Connection Control Program

The Town developed an Illegal Turn-on and Cross Connection Control Ordinance 531 in June 2004 which can be found in the Town's Building Code. A copy is included in Appendix F.

1.9.12 Extension

The Town of Concrete serves water to all customers within its identified water service area. An extension of service must be in accordance with the *Skagit County CWSP (1999)* and the Town's Water Service Extension Policy which is included in Appendix E. The cost of water distribution

mains, fire hydrants, and a portion of the cost of general facilities shall be paid for by the owners of the land that is being benefited. Following are four (4) methods under which water may be made available within the service area.

- Utility Local Improvement District Method
- Main Extension Method
- Temporary Service Method
- Interim Service Method

1.10 CONDITIONS OF SERVICE

Conditions of Service address specific requirements that facilitate the implementation of the utility's service area policies. These conditions, which are formalized as Town Ordinances and Policies, must be met prior to an applicant receiving water service.

1.10.1 Purveyor Responsibility

The Town of Concrete is authorized to operate a municipal water system by the Washington State Department of Health. The Town is required to provide water service in accordance with the Duty to Serve requirement of the Municipal Water Law.

1.10.2 Customer Responsibility

The Town of Concrete assesses fees (set by ordinance) in order to generate adequate revenue to operate the system. It is the responsibility of water system customers to maintain good standing through payment of water bills in a timely manner. Customers also have the responsibility for employing water conservation practices and proper system usage in order to protect water quality, water supply, and system infrastructure.

1.10.3 Connection Fees

The Town of Concrete establishes connection fees by resolution. Resolution #2011-06 sets the water connection fee at $6,302.58 per connection. A copy of this resolution is included in Appendix B.

1.10.4 Special Fees

Resolution 2011-06 of the Town delineates all special fees for various services such as water service turn-off and turn-on. A copy of this resolution is included in Appendix B.

1.10.5 Customer Consent and Notification Procedure

Reasonable efforts are made by utility staff to notify customers of planned interruptions of service for maintenance, repairs, flushing of mains, etc. The duration of the interruption, plus the number of customers affected, will dictate the means of notification to be chosen. For short

outages, postings will be placed at Town Hall and the post office. For longer outages or those affecting a large number of customers, means of notification may include written or verbal notice to affected customers via direct mailings, phone calls, and/or door hangers.

1.10.6 Rate Structure

Water rates are established by resolution. The current resolution, 2011-06 sets rates for all classes of service, both inside and outside the Town Limits. The majority of the water services, including all residential are not metered and are on a flat rate. Some commercial/industrial services are metered and charged for the water used. The rates are based upon a declining block rate, where the cost of water decreases as the use increases. A copy of the rate and fee resolution 2011-06 is in Appendix B. The resolution is amended from time to time by the Town Council.

1.11 COMPLAINTS

1.11.1 Policy and Process to Deal with Complaints

Complaints with water service in regards to system operation and water quality are directed to the Public Works Department for follow up response and remedy. All other issues pertaining to water service such as policy, fees, and rates are forwarded directly to the Town Clerk, Mayor and/or Town Council.

1.11.2 Record Keeping

All complaints regarding water service issues such as policy, fees, and rates are recorded by the Town Clerk, complete with notes of actions taken.

1.12 DUTY TO SERVE

1.12.1 Threshold Factors

Municipal water suppliers have a duty to provide service to all new connections within their retail service area when circumstances meet four threshold factors;

1. The municipal water supplier has sufficient **capacity** to serve water in a safe and reliable manner. This is covered in Section 3.7.
2. The service request is **consistent** with adopted local plans and development regulations. This plan has been determined to be consistent with locally adopted comprehensive plans. Therefore service requests must be consistent with this plan. Statements of Consistency by both the Town and Skagit County are included in Appendix C.
3. The municipal water supplier has sufficient **water rights** to provide service. The Town has sufficient water rights for the next 20 years. See Section 3.4.1.
4. The municipal water supplier can provide service in a **timely and reasonable** manner. This threshold factor is discussed in Section 1.12.

1.12.2 Conditions of Service

Water service is normally provided only to properties within the Town Limits. Properties outside the Town Limits, but within the Urban Growth Areas (UGA) must first apply for annexation. Property owners that wish to be annexed by the Town must follow the procedures outlined in Chapter 19.76 of the Town of Concrete Building Code. Extension of water service into areas not presently served will be paid for by the developer or property owners requesting service. Properties outside of the UGA, but served by the Town's existing water mains may be given service on the existing facilities, provided that no new pipeline extensions or larger pipelines are constructed.

1.12.3 Service Requests

Individual service requests for water are part of the building permit process, or the subdivision platting process. Prior to recording a new subdivision, the applicants must install all utilities at their cost. Water utilities normally include the water mains, service lines to the property line and meters. When specific users apply for building permits, water service is included as part of the application. When water lines must be extended to serve the properties, the Developer must go through the Developer Extension Process, which includes design and construction of the facilities, generally at the Developer's expense. Payback agreements are available. The Town reviews developer plans to ensure that Town Standards are met and that the facilities conform to Comprehensive Plans. The water facilities are constructed, inspected and tested in accordance with the Town's Standards and WAC 264-290. Design and Construction Standards are included in Appendix E.

1.12.4 System Capacity for New Service

Water Rights, water source and water quality are considered to be adequate for the projected 20 year planning period. If the Town applies water conservation methods and reduces the amount of unaccounted for water then the existing water source may be enough to supply the Town's water needs for many additional years. Water storage facilities are considered to be functioning adequately for the 20 year planning period, but the Town may require additional storage if there is heavy development within the water system service area. Water distribution must be extended into certain areas within UGA before service can be provided. Generally these will be developer funded as the Town expands. The Water System Plan Sheet 2 shows the general location and size of the facilities that must be constructed into new areas. ULIDs may be utilized under certain conditions to provide extensions of service to existing developed areas.

The Town either has adequate capacity, or has the ability to provide such capacity for all land within its Service Area for the next 20 years.

1.12.5 Time Extensions and Disputes

Extension of facilities for water service is normally the responsibility of the private developers who finance them. The Town has limits on the number of connections and ERUs that can be served. Developer extension agreements must have time limits in order that the Town not

overextend it's capability to provide such service. On Town financed and constructed Capital Improvements, the Contract Documents for such work provide mechanisms for extension of time. Time extensions due to weather, change in scope or other such items are normally granted.

In cases where development of areas in the UGA require the Town to construct facilities such as water storage tanks, booster pumps or transmission mains, the Town will budget and schedule the improvements. Currently there have been no plans submitted to the Town that will require new pump station or storage facilities to serve areas in the UGA. Development dependent upon such improvements must be coordinated with Town schedules.

Water service to certain areas can be denied because of such factors as lack of capacity for fire flows in undersized mains, the area requesting service is outside of the Town's UGA or is in a remote location where service has not yet been extended. In these cases where service is denied by staff, the applicant can pay for and extend required facilities and services, or appeal to the Town Council.

CHAPTER 2

BASIC PLANNING DATA AND WATER DEMAND FORECASTING

2.1 CURRENT POPULATION, SERVICE CONNECTIONS, WATER USE AND EQUIVALENT RESIDENTIAL UNITS

2.1.1 Current Population

The population for the Town of Concrete can be seen in Table 2-1 below. The majority of the population resides in single family residences, with a small number in apartments and duplexes.

A total of 840 residents are served by the Town's water system 180 or more days per year according to the March 16, 2010 Water Facilities Inventory (WFI) Form. The current WFI for the Town is included in Appendix B.

Table 2-1: Town of Concrete Population

Year	Population	Year	Population
1980	592	1995	746
1981	585	1996	786
1982	580	1997	787
1983	570	1998	796
1984	565	1999	787
1985	580	2000	790
1986	565	2001	790
1987	623	2002	790
1988	620	2003	780
1989	620	2004	785
1990	735	2005	815
1991	735	2006	840
1992	733	2007	845
1993	734	2008	845
1994	746	2009	835

Source: Town of Concrete, U.S. Census Bureau

2.1.2 Total Service Connections

The total number of active service connections was determined using billing records. The commercial/industrial category includes non-residential uses. Two additional categories were created to account for the school, and Advanced H_20, a water wholesaler, due to their large amount water usage. The town does not have any agricultural connections. The number of connections by category can be seen in Table 2-2. The Town's Retail Service Area extends

outside of the Town Limits, resulting in a larger total population and number of connections served than in the Town alone.

Table 2-2: Water Service Connections

	2010	2009	2008	2007
Single family (SF)	376	370	369	369
Multi-Family (MF)*	50	50	50	50
Commercial/Industrial (C/I)	64	59	59	59
School	2	2	2	2
Wholesale	1	1	1	1
Total	493	482	481	481

** Actual number of Multi-family units served, not connections*
Source: Town of Concrete, Treasure's Office July 2011

2.1.3 Water Use Data Collection

The Town has one source, the Grassmere spring that flows from the collection facilities into the Grassmere storage tank. Excess water produced by the spring overflows the tank. Water flows from the Grassmere tank through a meter to the Town's distribution system and storage tanks. The two storage tanks in the Town are at a lower elevation than the Grassmere tank, and overflow regularly. As a result a considerable amount of non-consumptive, non metered water from the source is diverted through the water system's tank overflows to surface water channels. The existing meter downstream from the Grassmere tank registers all water to the distribution system including the non-consumptive tank overflows. Since the overflows aren't measured, it is not possible under current conditions to obtain an accurate accounting of the amount of source water actually delivered to the distribution system. In summary, the Town does not have adequate source metering and the service connections are not fully metered. Currently there are service meters on approximately 56 connections, consisting of multi-family, commercial and industrial, the school, and the one wholesaler, Advanced H_20. The Town does not currently meter single family residential connections. Several of the metered connections for multi-family complexes serve multiple units, and many of the commercial services are un-metered. The lack of adequate source and service meters requires that water use be based upon limited available information and estimates.

2.1.4 Single family Residential Water Use

Average Day Demand

As meter records for single family residential water use do not exist, water use is estimated using the method described in the Department of Health (DOH) Water System Design Manual, December 2009, Appendix D. This method describes a generalized relationship between average annual demand for residential developments and average annual rainfall (AAR), which could be described using curvilinear functions. The method is considered to be conservative in that 80% or more of the data used to develop these equations lie below the curves describing each function. Though many other factors affect average daily demand (ADD), this method is considered to be adequate for describing the Town's water usage. The ADD must be recalculated as the Town becomes totally metered and more accurate data becomes available.

The recommended hyperbolic function is used. This function is:

$$ADD = \frac{8{,}000}{AAR} + 200$$

Where:

ADD = Average Day Demand (gallons per day per ERU)
AAR = Average Annual Rainfall (inches)
ERU = Equivalent Residential Unit

The AAR from the Town of Concrete is **67.42 inches**, per the Western Regional Climate Center; see Appendix L. The ADD for the Town is calculated by this method as follows:

$$ADD = \frac{8{,}000}{67.42} + 200 = \mathbf{318.66}\,\frac{\boldsymbol{gpd}}{\boldsymbol{ERU}}$$

This ADD does not consider unaccounted for water use or system leakage. As the required information for estimating these two figures does not exist, an approximation will be added for both unaccounted for water use and system leakage.

Authorized but unaccounted for water, such as main flushing, wastewater treatment plant use, town hall and shop use, etc., may be more accurately estimated in the future as meter data becomes available. Until that time unaccounted for water is assumed to be 10%.

System leakage is assumed to be 10%. As meter data becomes available the Town will be able to more accurately calculate leakage. If leakage is determined to be more than 10%, the Town must take action to reduce it to 10% or less. Therefore, 10% system leakage will be used, as the Town will be required to meet this goal. The leakage is based upon a percentage of ADD. It is not increased for MDD or PHD calculations.

The ADD for the Town is revised to include unaccounted for water use and system leakage:

$$ADD = \frac{8{,}000}{67.42} + 200 = 319 + 32\,(unaccounted) + 32\,(leakage) \approx \mathbf{383}\,\frac{\boldsymbol{gpd}}{\boldsymbol{ERU}}$$

The estimated ADD is considered to be conservative and when the Town is fully metered, actual water use may drop considerably. This will result in lower demand requirements per ERU and will have a positive effect on water storage requirements, water rights and pipeline flows.

Maximum Day Demand

Generally, the MDD per ERU is determined using a peaking factor from 1.5 to 3 (Appendix D of the Water System Design Manual. Since a conservative approach was used to estimate the ADD per ERU, the use of a standard peaking factor of 2 is considered adequate. The MDD per ERU is calculated as follows:

$$MDD = 2(ADD) = 2\left(319\,\frac{gpd}{ERU}\right) + 32(unaccounted) + 32\,(leakage) = \mathbf{702}\,\frac{\boldsymbol{gpd}}{\boldsymbol{ERU}}$$

2.1.5 Equivalent Residential Units (ERUs)

Single Family Residences

An ERU is the amount of water consumed by an average single family residence. It is a unit of measure used to equate non-residential or multi-family residential water usage to a specific number of single family residences. An ERU is system specific. As described in the previous section, the ADD for a single family residence is 383 gpd, including unaccounted for water.

$$1\ single\ family\ residence = 1\ ERU = 383\ gpd$$

Multi-Family Residences

Data for multi-family residences is limited. The Town meters 4 of the 30 multi-family connections. Multi-family demands are estimated using meter data from the 4 metered connections and then extrapolating that use over the remaining 26 connections. Furthermore, the multi-family connections must be broken down into the number of units served by each connection. For example, 1 connection may serve a duplex (2 units), or an apartment complex (3 or more units). Breaking the multi-family connections into units will normalize the multi-family demands. Table 2-3 shows the water used by the metered, multi-family units.

Table 2-3: Multi-Family Water Use

	2009	2008	2007
Total Use (gal)	972,864	853,595	1,044,657
Metered MF Units	12	12	12
GPD/Unit	222.12	194.88	238.51

Source: Town of Concrete

The average water use over the three year period is 218.50 gpd/unit. The ADD is revised to include unaccounted for water use and system leakage:

$$ADD = 218.50 + 10\%\ (unaccounted) + 10\%\ (leakage) = 262.20\ \frac{gpd}{ERU}$$

$$\frac{262.20\ \frac{gpd}{Unit}}{383\ \frac{gpd}{ERU}} = \mathbf{0.69\ \frac{ERUs}{Unit}}$$

The total number of multi-family units can be seen in Table 2-4.

Table 2-4: Multi-Family Units

Year	Metered Units	Unmetered Units	Total Units
2009	12	38	50
2008	12	38	50
2007	12	38	50

Source: Town of Concrete

Commercial / Industrial Connections

Meter data from the commercial/industrial connections is limited. The same procedure to calculate the multi-family demands cannot be applied to the commercial/industrial connections. Water used for the unmetered connections is assumed to be higher than that of metered connections as the unmetered user pays a flat rate regardless of the amount of water used. Table 2-5 shows the water used by the metered, commercial/industrial connections.

Table 2-5: Commercial/Industrial Metered Water Use

	2009	2008	2007
Total Use (gal)	5,314,106	4,938,191	4,258,865
Metered C/I Connections	35	38	36
GPD/Conn.	415.98	356.03	324.11

Source: Town of Concrete

The average over the three years is 365.37 gpd/connection. The ADD is revised to include unaccounted for water use and system leakage:

$$ADD = 365.37 + 10\%\ (unaccounted) + 10\%\ (leakage) = 438.46\ \frac{gpd}{conn.}$$

$$\frac{438.46 \frac{gpd}{Conn.}}{383 \frac{gpd}{ERU}} = \mathbf{1.14 \frac{ERUs}{Conn.}; Metered}$$

An additional 10% use was assumed to account for the increased water used by the unmetered connections versus metered connections.

$$438.46 \frac{gpd}{conn.} + 10\%\ (additional\ use) = 482.31\ \frac{gpd}{conn.}$$

$$\frac{482.31 \frac{gpd}{Conn.}}{383 \frac{gpd}{ERU}} = \mathbf{1.26 \frac{ERUs}{Conn.}; Unmetered}$$

The total number commercial/industrial connections can be seen in Table 2-6.

Table 2-6: Commercial/Industrial Connections

Year	Metered Conn.	Unmetered Conn.	Total Conn.
2009	35	24	59
2008	38	21	59
2007	36	23	59

Source: Town of Concrete

School

Meter records for the school exist for the past several years. Based on these records, the school uses a larger amount of water than a commercial user. Therefore, the school was considered separately from the other categories of system users.

Table 2-7 shows the school's water use over the past three years.

Table 2-7: School Water Use

	2009	2008	2007
Total Use (gal)	2,769,515	2,118,815	2,378,116
Connections	2	2	2
GPD/Conn.	3,793.86	2,902.49	3,257.69

Source: Town of Concrete

The average over the three years is 3,318.01 gpd/connection ≈ **3,320 gpd/connection**.

$$\frac{3{,}320\,\frac{gpd}{Conn.}}{383\,\frac{gpd}{ERU}} = 8.67\,\frac{ERUs}{Conn.} \approx \mathbf{9}\,\frac{\boldsymbol{ERUs}}{\boldsymbol{Conn.}}$$

ERUs by Category

Using the above relationships between water usage and connections, Table 2-8 shows the total number of ERUs the Town currently served in 2010.

Table 2-8: Total ERUs

	Connections or Units[1]	ERU/Conn or Unit	ERUs
Single family (SF)	376	1	376
Multi-Family (MF)	12 Conn. (50 Units)	0.69	35
Metered Commercial/Industrial (C/I)	34	1.14	39
Unmetered Commercial/Industrial (C/I)	30	1.26	38
School	2	9	18
Wholesale	1	NA	NA
Total	455 Connections	--	506

[1] *Based on 2010 Data, Town of Concrete*

2.1.6 Wholesale Water Use

The Town has a wholesale water agreement with Advanced H2O, a water bottling company. Due to the significant amount of water usage, a Wholesale category has been established. The agreement between the Town and Advanced H2O clearly states that the Town can suspend water supply to Advanced H2O if the Town's domestic supply is not met. Therefore, the wholesale demand must be treated as an interruptible connection. During periods of water shortage the wholesale use can be suspended. To date this has not been an issue. Wholesale use is accounted for in the water use calculations and projections, and included in water rights analysis, but is not used in computing Standby Storage requirements. The 2010 use records are used to determine

the Average Day Demand, the Maximum Day Demand and the Peak Hourly Demand. Wholesale water is not counted in ERUs, but is included in calculations for ADD, MDD and PHD as applicable. Advanced H2O's water use for 2010 can be seen in Table 2-9.

Table 2-9: Advanced H2O 2010 Water Use

Month	Use (gal)	No. Days	Max GPD
Jan	1,053,000	21	108,000
Feb	999,000	20	108,000
Mar	819,000	23	72,000
Apr	1,044,000	21	108,000
May	1,890,000	29	144,000
Jun	1,584,000	28	108,000
Jul	1,494,000	27	135,000
Aug	1,467,000	26	108,000
Sep	1,628,000	29	108,000
Oct	963,000	22	72,000
Nov	1,008,000	19	108,000
Dec	837,000	19	81,000
Total	**14,786,000**	**284**	**105,000 AV.**

Wholesale Peak Hourly Demand (PHD_w)

The wholesale water is taken from the system in 9,000 gallon tanker trucks. The trucks are filled in 50 minutes each, at a rate of 180 gpm. This figure is added to Peak Hourly Demand used to determine Standby Storage requirements in Chapter 3 and in the hydraulic model.

$$PHD_W = 180\ gpm$$

Wholesale Average Day Demand (ADD_w)

$$ADD_w = \frac{14{,}786{,}000\ gal}{365\ days} = 40{,}509.59\ gpd \approx \mathbf{40{,}510\ gpd}$$

Wholesale Maximum Day Demand (MDD_w)

The average Wholesale Maximum Day Demand for 2010 from Table 2-9 was **105,000 gpd.**

Table 2-9 shows higher peak days in several months, but during periods of water shortage it is a simple matter to control the take of wholesale water by shifting the times of deliveries from day to day without reducing the total amount of wholesale water sold. Therefore average peak day per month for the entire year was used (105,000 gal.) for Wholesale MDD rather than the actual peak day of an individual month (144,000 gal).

Wholesale Acre Feet Per Year (AFY_w)

$$AFY_w = \frac{ADD_W\ gpd \times 365\ days}{7.48\ gpcf \times 43{,}560\ {}^{sf}/_{af}} = \frac{40{,}510 \times 365}{7.48 \times 43{,}560} \approx \mathbf{45\ af}$$

2.1.7 Peak Hourly Demand

The Town's PHD is calculated using Equation 5-1 of the DOH Water System Design Manual, plus the historical (2010) wholesale peak hourly demand PHDw. The PHD is used to compute the Equalizing Storage component of the Water Reservoirs.

$$PHD = \left\{\left(\frac{MDD}{1{,}440}\right)[(C \times N) + F] + 18\right\} + PHD_w$$

Where:

PHD = Peak Hourly Demand (gallons per minute)
PHDw = Wholesale Peak Hourly Demand (gallons per minute)
C = Coefficient Associated with Ranges of ERUs
N = Number of ERUs
F = Factor Associated with Ranges of ERUs
MDD = Maximum Day Demand (gpd/ERU)

For the Town with more than 500 ERUs: N varies with growth, C = 1.6, F = 225, MDD = 702 gpd/ERU, PHDw = 180 gpm

2.2 PROJECTED LAND USE, FUTURE POPULATION, AND WATER DEMAND

2.2.1 Projected Land Use

In an effort to manage the Town's growth, Concrete has developed six Comprehensive Plan Designations. These designations include:

1. Residential (Res)
2. Public (Pub)
3. Open Space (OS)
4. Commercial/Light Industrial (C/L)
5. Town Center (TC)
6. Industrial (Ind)

For more information on each of the designations, please refer to the Town of Concrete's Comprehensive Plan, 2005 to 2025.

The Town's ability to develop within its service area is constricted by several factors including the amount of vacant or underdeveloped land available, zoning, density, etc. Table 2-10 was

taken from the Town's Comprehensive Plan, and shows the amount of developed and undeveloped land within the Town limits and UGA.

Table 2-10: Estimated Area within Town and UGA

Comp. Plan Designation	Developed Land (ac)	Undeveloped Land (ac)	Total (ac)
Residential	121.2	269.9	**391.1**
Public	80.7	34.6	**115.3**
Open Space	1.6	202.2	**203.8**
Commercial/Light Industrial	34.2	28	**62.2**
Industrial	34.2	49.1	**83.3**
Town Center			**18.1**
Transportation Corridor			**56.2**
Total			**930**

Source: Town of Concrete Comprehensive Plan

Not all of the land within the Town's limit and UGA is developable. Approximately 270 acres of the land has development constraints such as steep slopes, wetlands, and flooding concerns.

The Town expects minimal growth within the next six years, however, there are several developers interested in developing in Concrete's planning area within 6 to 20 years. Table 2-11 shows the expected areas of development. A future 122 lot development is shown in on Exhibit 2-2.

Table 2-11: Developable Land in the Concrete Planning Area

Description	Land Use	Time Frame	Area (ac)	Connections (ea)	Population
Town Limits					
Residential Property Available within Town	Residential	6-10 years	43	172	465
Along Highway 20	Commercial	6-10 years	19	40	--
East of Baker River	Industrial	6-10 years	9	9	--
Airport Hangers	Misc.	6-10 years	--	15	--
UGA					
Along Highway 20	Commercial	6-10 years	6.2	25	--
Residential Property Available within UGA	Residential	20 years	32.5	130	325
Further Development of Available Industrial Land	Industrial	20 years	38	38	--
Total			**147.7**	**429**	**790**

Source: Town of Concrete Planning Department, Sept 2010.

2.2.2 Projected Population

Prior to forecasting future water needs, it is necessary to evaluate growth within the service area. The Town's population was analyzed from 1980 to the present and was found to have a historical growth rate of 1.27%. This growth rate was found to be consistent with the low growth rate of 1.21% as stated in Public Utility District No. 1 of Skagit County 2007 Water System Plan.

However, Concrete's growth appears to be relatively stable and predictable so the calculated annual growth rate of 1.27% will be used. Table 2-12, below shows the Service Area population projection under the calculated 1.27% annual growth scenario.

Table 2-12: Projected Population

Year	Town Population	Service Area Population
2007	845	
2008	845	
2009	835	
2010	846	1078
2011	857	1091
2012	868	1105
2013	879	1120
2014	890	1134
2015	901	1148
2016	912	1162
2017	924	1177
2031	1,102	1377

In 2010, there were approximately 493 services. Of those, 76% were single family residences, 10% were multi-family residences, 13% were commercial/industrial connections, 0.4% were the school connections, and 0.2% account for the wholesale connection. Using the same approximate percentages, the connections by category can be seen in Table 2-13.

Table 2-13: Projected Connections and ERUs

Year	SF Conn. /ERUs	**MF Units	MF ERUs	C/I Conn.	C/I ERUs	School Conn.	School ERUs	Whole-sale Conn.	Whole-sale ERUs	***Total Conn/ Units	Total ERUs
2007*	369	50	35	59	70	2	18	1	N/A	481	492
2008*	369	50	35	59	69	2	18	1	N/A	481	491
2009*	370	50	35	59	70	2	18	1	N/A	482	493
2010*	376	50	35	64	77	2	18	1	N/A	493	506
2011	380	50	35	65	78	2	18	1	N/A	498	511
2012	385	51	35	66	79	2	18	1	N/A	505	517
2013	389	51	35	66	79	2	18	1	N/A	509	521
2014	394	52	36	67	80	2	18	1	N/A	516	528
2015	398	52	36	68	82	2	18	1	N/A	521	533
2016	403	53	36	69	83	2	18	1	N/A	528	540
2017	408	54	37	70	84	2	18	1	N/A	535	547
2031	488	62	42	83	100	2	18	1	N/A	636	648

* *Actual Records*

** *Multifamily units, not connections*

*** *For convenience this total assumes that all multi-family units are on separate services.*

Wholesale water use was not converted to ERUs because including it would skew the PHD and other calculations. Instead wholesale water was added in separately to arrive at true PHD, MDD and Qa. According to the most recent Water Facilities Inventory form (WFI, Appendix B) the Town is approved for 484 service connections. The growth projections in Table 2-13 show that the Town will reach this limit soon. It should be realized that the actual number of service connections for multi-family developments is less than shown, because in most cases there are several living units per connection.

2.2.3 Projected Non-Residential Water Needs

Demands for the commercial/industrial, school, and wholesale connections were all derived from meter readings, dating from January 2007 to December 2009. The meter readings were analyzed to derive an average daily demand per category, and then extrapolated over the unmetered connections in the same category.

Projected ERUs from the non-residential water connections can be obtained from Table 2-13. It is assumed that school and wholesale water demands over the planning period will not change substantially. School consumption is largely for irrigation in the summer. With conservation, the lower irrigation demand will tend to offset future increased enrollment demand. Wholesale water use has been fairly consistent over the past several years and is not expected to change.

2.2.4 Projected Non-Revenue Water

Non-revenue or "unaccounted for" water is the water that results from water main flushing, construction use, fire demands, etc. By reducing the amount of unaccounted for water that is used, the Town may find areas to reduce water usage that may not be apparent elsewhere.

Currently, unaccounted for water cannot be accurately quantified. Meter data from both the source and users is needed to better estimate the unaccounted for water. Until meter data exists, an arbitrary 10% unaccounted for water and 10% leakage will be added to the system demands.

2.2.5 Water Rates and Rate Impacts on Water Demand

The Town currently meters approximately 42 connections. The metered connections follow a reverse block rate which decreases the price per cubic foot of water as water use increases. The unmetered connections follow a flat rate structure. This rate structure does not encourage users to conserve water.

As meters are installed throughout the system flat rates will be eliminated. The increasing block rate structure replacing it will encourage customers to conserve and demand will decrease accordingly.

2.2.6 Water Demand Forecasting

Water demand for the next twenty years is projected with and without conservation. Years one through six and year twenty are shown in both scenarios. It is assumed that conservation will occur, and calculations for water storage, water rights, etc. in this plan will use the "with conservation" projections. Wholesale water use is not included in the ERUs, as it is accounted for separately so as not to skew calculation results. It is included in Qa calculations as noted.

Water Use Without Conservation

Table 2-14 shows future demands based upon current water consumption, with a 15% drop in 2018 after meters are installed. This occurs after the six year planning period, but shows up in the twenty year projections.

Average Day Demand (ADD) = 383 gpd/ERU through 2017, 325 gpd thereafter
Maximum Day Demand (MDD) = 702 gpd/ERU through 2017, 606 gpd thereafter

Table 2-14: Projected Water Demand without Conservation

Year	ERUs	ADD (gpd/ERU)	Q_a (Ac·ft)	MDD (gpd/ERU)	MDD (gpm)
2011	511	383	265	702	250
2012	517	383	267	702	253
2013	521	383	269	702	254
2014	528	383	272	702	258
2015	533	383	275	702	261
2016	540	383	277	702	264
2017	547	383	280	702	267
2018	553	325	283	606	233
2031	648	325	325	606	273

Q_a includes 45 AFY Wholesale

Water Use With Conservation

Conservation will occur after service meters are installed and users become aware of the cost of their water. The Water Use Efficiency Program will also promote conservation. The ADD was assumed to drop approximately 5% in 2013 as the Water Use Efficiency Program takes effect, from 383 gpd/ERU to 365 gpd/ERU, and another 20% after meters are installed in 2018, from 365 gpd/ERU to 290 gpm/ERU. MDD is projected to drop proportionally.

Average Day Demand (ADD) = 383 gpd/ERU through 2012, 365 through 2017, 290 thereafter.
Max Day Demand (MDD) = 702 gpd/ERU through 2011, 665 through 2017, 516 thereafter.

Table 2-15: Projected Water Demand with Conservation

Year	ERUs	ADD (gpd/ERU)	Q_a (AFY)	MDD (gpd/ERU)	MDD (gpm)
2011	511	383	265	702	250
2012	517	383	267	702	253
2013	521	365	259	665	241
2014	528	365	261	665	244
2015	533	365	264	665	247
2016	540	365	266	665	250
2017	547	365	269	665	253
2018	553	290	225	516	199
2031	648	290	256	516	233

Q_a includes 45 AFY Wholesale

Figures 2-A and 2-B show projected water demand **without** wholesale water use. Figures 2-C and 2-D show projected water demand **with** wholesale water use.

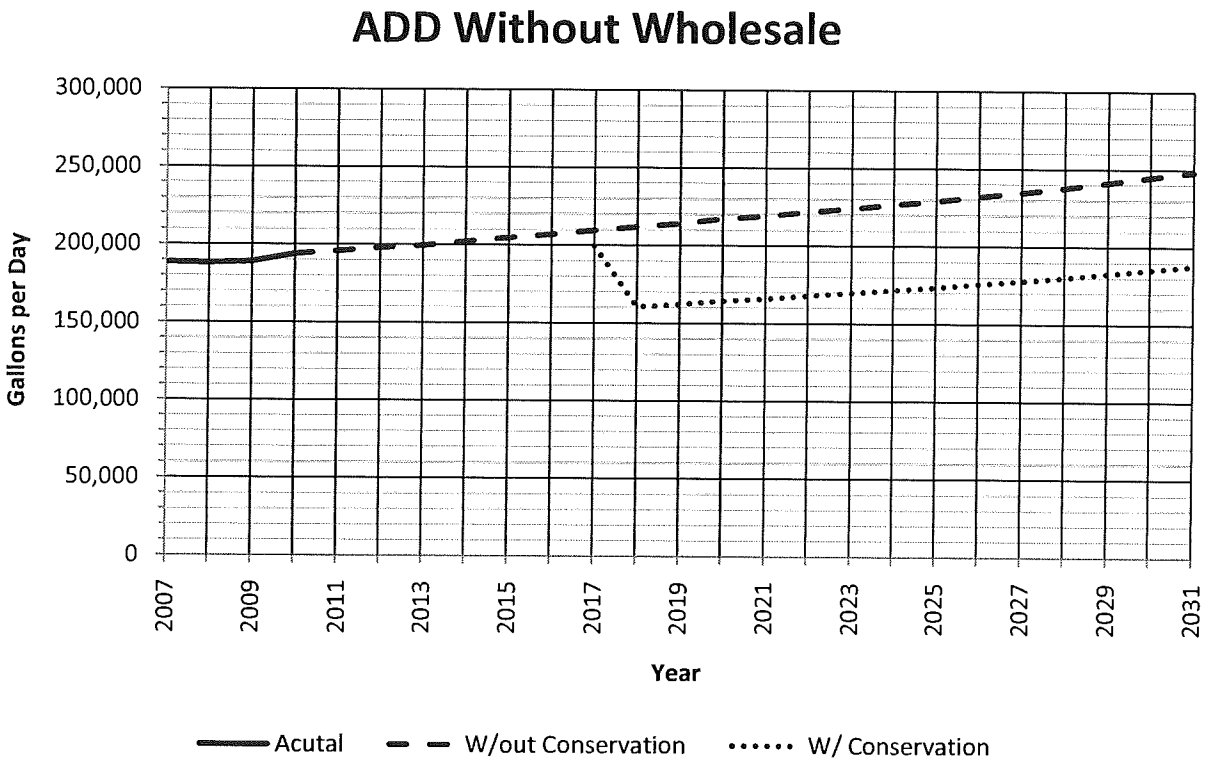


Figure 2-A: Projected Water Demand, ADD

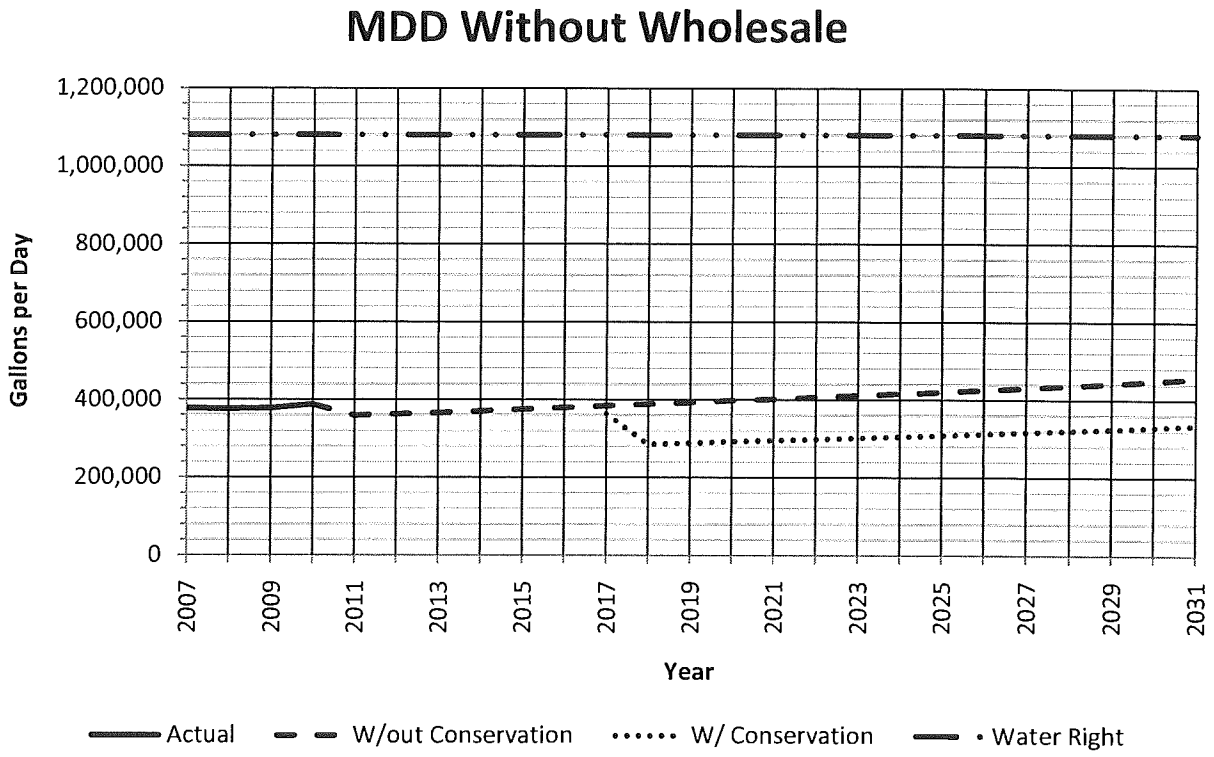


Figure 2-B: Projected Water Demand, MDD, with Water Right

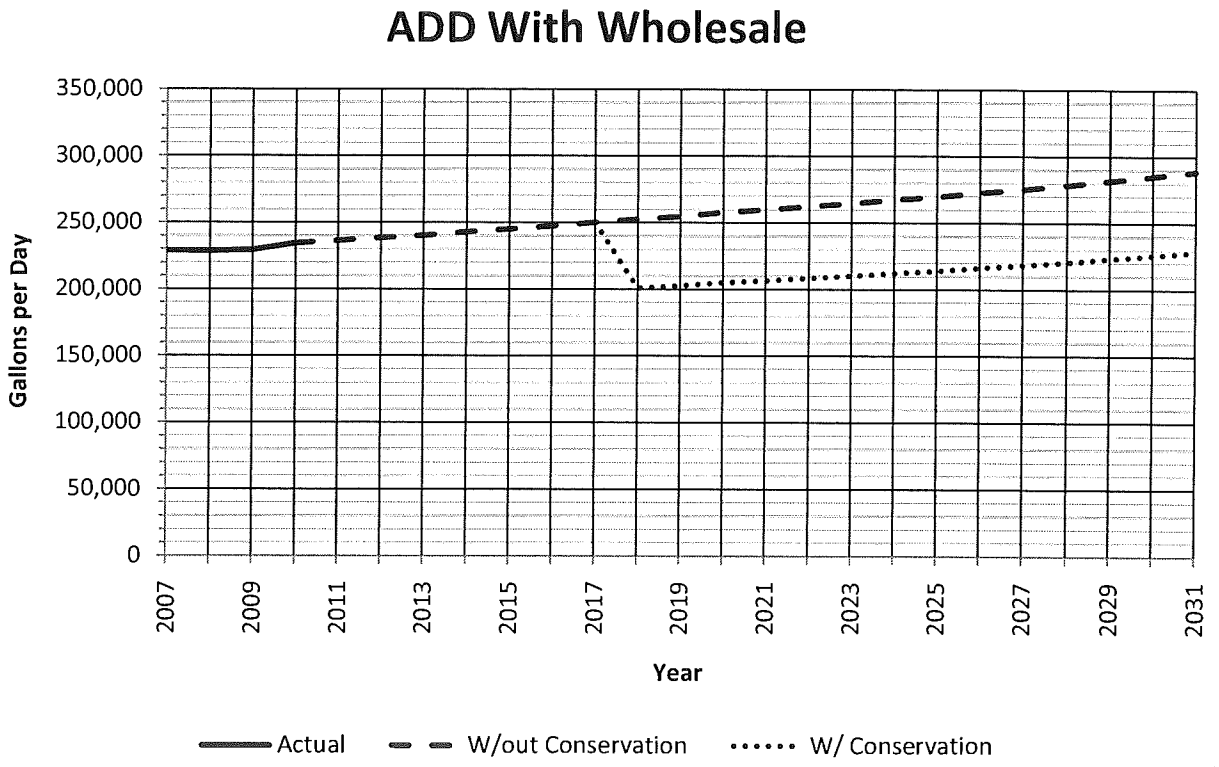


Figure 2-C: Projected Water Demand, ADD, with Wholesale Water Use

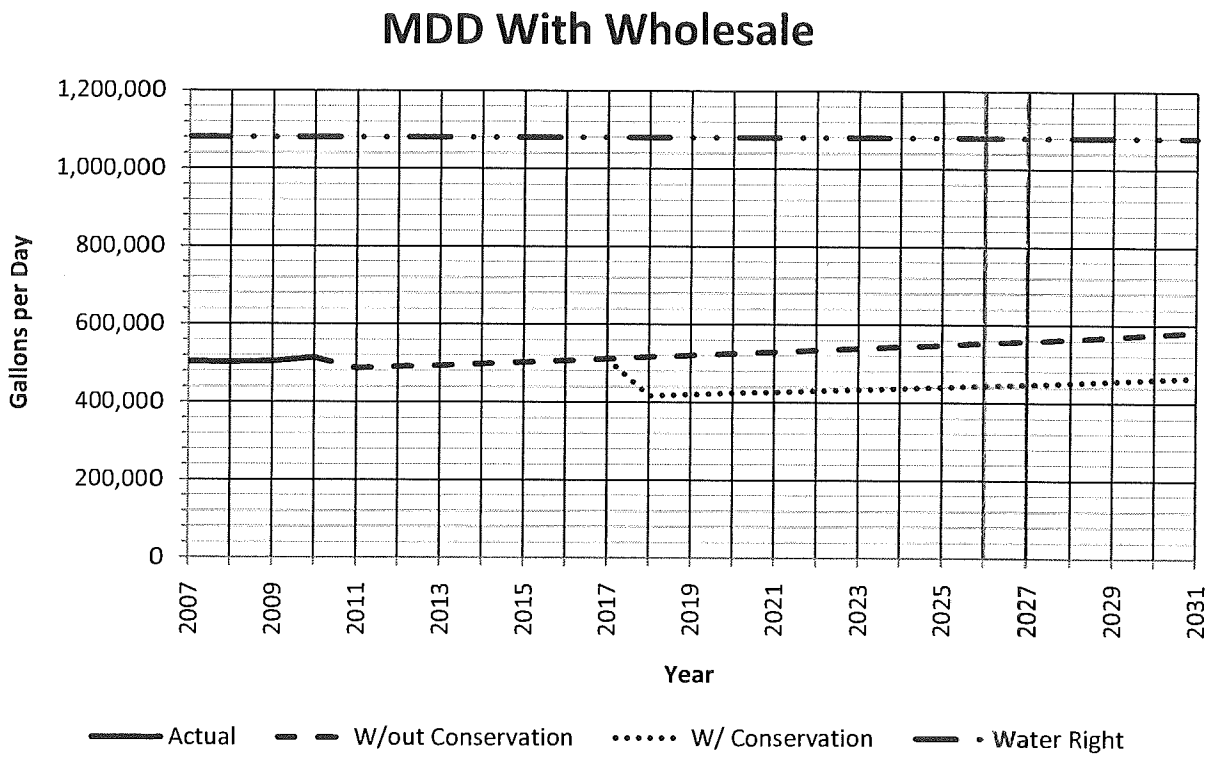


Figure 2-D: Projected Water Demand, MDD, with Water Right and Wholesale Water Use

2.2.7 Fire Flow Requirements

The Washington Administration Code (WAC Chapter 246-293-640) sets minimum fire flow standards. The minimum fire flow requirements per the Skagit County Coordinated Water System Plan, dated July 2000 are shown below in Table 2-16. Local fire protection authorities are allowed to set standards which are higher.

Table 2-16: Minimum Fire Flow Requirements

Land Use Designations Or Densities	Minimum Fire Flow (gpm)	Minimum Duration (minutes)
Urban Growth Areas		
Industrial	1,500	60
Commercial	1,500	60
Multi-Family Residential	1,500	60
Single family & Duplex Residential	1,000	60
Non-Urban Growth Areas		
Commercial / Industrial	1,500	60
1 Dwelling Unit Per Lot Less Than 2.5 Acres	500	30
1 Dwelling Unit Per Lot 2.5 Acres Or Larger	None	None
Natural Resource Lands	None	None

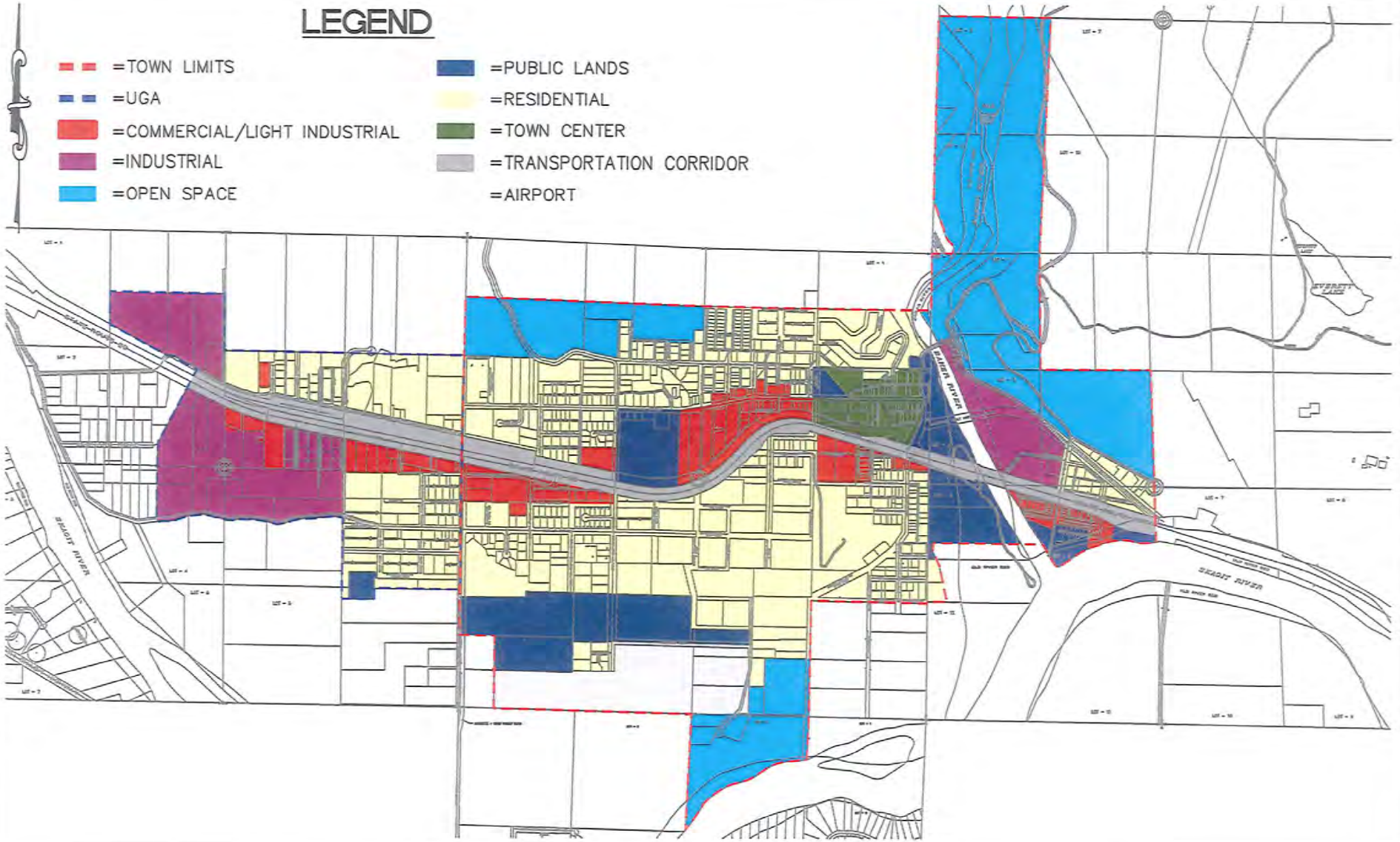


EXHIBIT 2-1

R&E
REICHHARDT & EBE
ENGINEERING, INC.
423 Front St, Ste 201 Lynden, WA 98264
Phone 354-3687 FAX 354-0407

TOWN OF CONCRETE

2006 LAND USE AND ZONING MAP

12/11/06

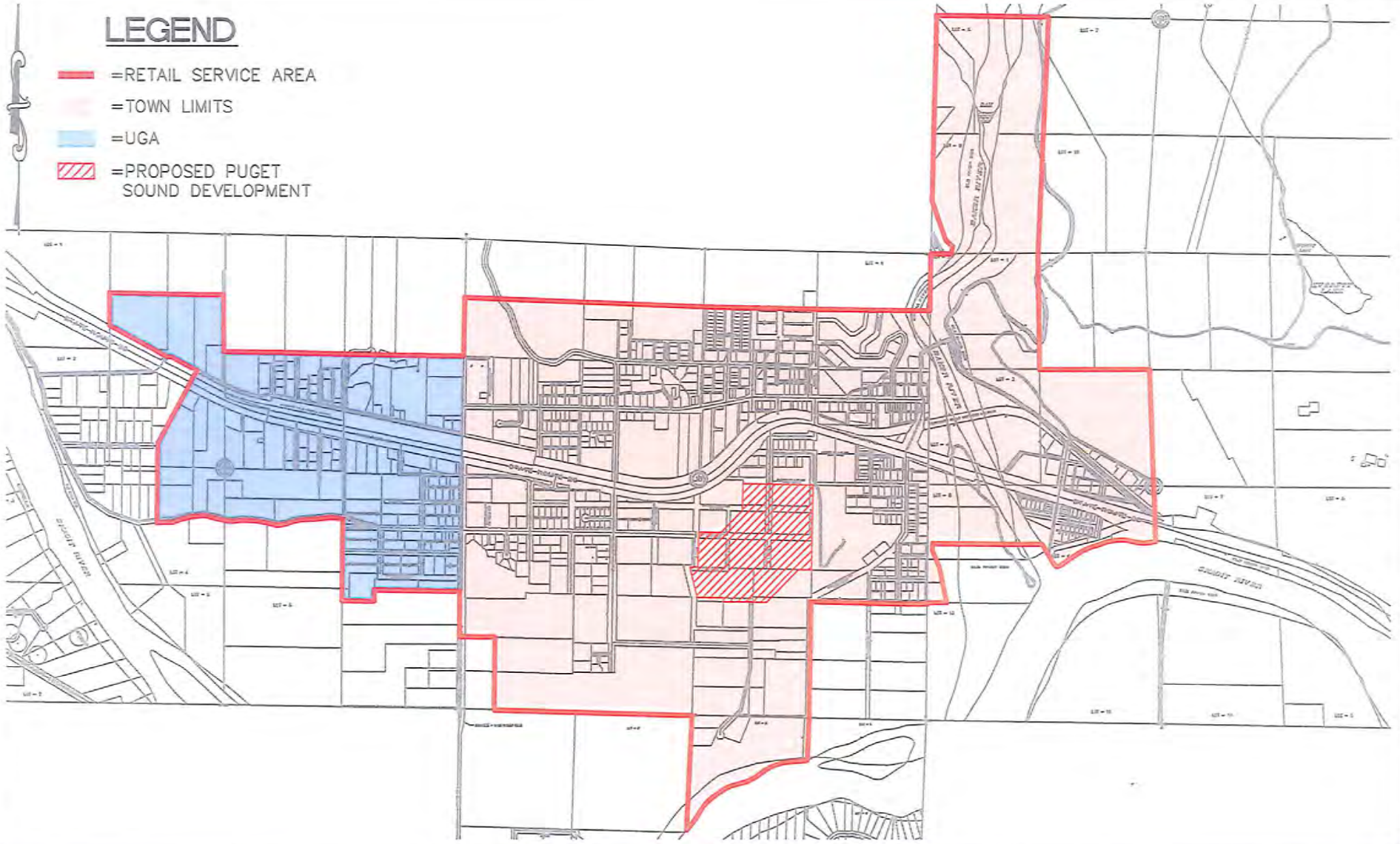


EXHIBIT 2-2

R&E
REICHHARDT & EBE
ENGINEERING, INC.
423 Front St, Ste 201 Lynden, WA 98264
Phone 354-3687 FAX 354-0407

TOWN OF CONCRETE

TOWN LIMITS, UGA, AND RETAIL SERVICE AREA

7/13/11

CHAPTER 3

SYSTEM ANALYSIS

3.1 INTRODUCTION

This chapter summarizes the adequacy, performance, reliability and design criteria established by the Department of Health and the Town of Concrete. Hydraulic modeling was performed to identify system deficiencies and generate recommended improvements for inclusion in the Capital Improvement Plan.

3.2 SYSTEM DESIGN STANDARDS

This Section summarizes the standards that ensure water customers receive reliable and cost-effective service. The standards include requirements for providing water service to new developments, design of new improvements to the existing system and establishing requirements for neighboring water utilities requesting to be incorporated into the Town's Water System. Chapter 7 contains the Standards in detail. Chapter 2 defines and details the system demands used for design of future facilities and upgrading existing facilities.

The Town of Concrete has adopted design and construction standards for their water system. These design standards – Chapter 2, *Town of Concrete Engineering Standards, April 2008* – are provided in Appendix C, and address the following:

- General Requirements
- Procedural Requirements
- General Facility Placement
- Distribution Mains
- Connecting to Existing Water Mains
- Service Interruption
- Hydrants
- Valves
- Meters
- Air and Vacuum Release Valves
- Blowoff Assemblies
- Backflow Prevention
- Service Connections
- Minimum Separation
- Construction and Testing

3.2.1 Water Quality Parameters

The drinking water supplied by the Town of Concrete is high quality, untreated water, complying with the Safe Drinking Water Act and meeting the State of Washington's water quality provisions contained in Chapter 246-290 WAC.

3.2.2 Average and Maximum Day Demands

Average and Maximum Day Demand requirements for the Town of Concrete are calculated in accordance with the Washington State Department of Health 2009 Water System Design Manual.

Average Day Demand (ADD) is used to project future demands. One single family residence is equivalent to one ERU. ERUs are used to equate multi-family residential and non-residential uses to the amount of water used by one average single family residence. Since single family residences are not metered, the value of one ERU is estimated, as is unaccounted for water. The ADD will change as the system becomes metered and water conservation efforts take effect. The ADD for each customer category is presented in Chapter 2.

Maximum Day Demand (MDD) is the water demand for the peak day of the year. It is typically used to determine required capacity for treatment, pump stations, water rights and storage. The MDD is estimated to be a factor of 2 times ADD plus 20% ADD for unaccounted for water, as described in Chapter 2. Wholesale water use is known and historical records are used to determine the wholesale component of MDD. As with ADD, the MDD will change as metering and water conservation occurs.

3.2.3 Peak Hourly Demand

Peak Hourly Demand (PHD) is the maximum one-hour demand during the peak day of the year. It is used to size pumps, tanks, transmission and distribution piping. The PHD estimates are presented in Chapter 2. PHD is a function of MDD and the number of ERUs and will change as those values change.

3.2.4 Storage Requirements

The required volume of storage includes: operating, equalizing, standby, dead, and fire flow storage. Fire storage can be nested within standby storage, per Section 4.6.7 of the Coordinated Water System Plan. The volume of storage required for each of the components (existing and future projected conditions) is in accordance with the recommendations of the Washington State Department of Health 2009 Water System Design Manual.

3.2.5 Fire Flow Rate and Duration

Fire flow requirements adopted by the Town of Concrete are as outlined in the *Skagit County CWSP* (2007) and are summarized in Table 3-1.

Table 3-1: Fire Flow Requirements

Classification	Fire Flow (gpm)	Duration (hours)
Residential	1,000	1
Multi-Family & Minor Commercial	1,500	1
Commercial	1,500	1
Industrial	1,500	1

Source: Skagit County CWSP (2007)

3.2.6 Minimum System Pressures

System pressures are maintained at or below 100 psi during normal operating conditions to avoid damage to water services. Pressure reducing valves are an option for individual property owners, and can be installed by the owners on their service lines to reduce pressure. The Town does not install or maintain the PRVs.

A minimum of 30 psi for peak hourly demand flows is required at the location of all service connections in the distribution system except during fire flow conditions. During Fire Flow situations, a minimum residual pressure of 20 psi is maintained. Certain locations, such as near storage tanks or in areas of high elevation may experience pressures below minimum requirements. Property owners in these locations are allowed to install individual booster pumps to increase pressure, provided that the pumps are installed at an elevation lower than the bottom of the storage tanks.

3.2.7 Minimum Pipe Sizes

The minimum size of new distribution lines is 8-inches where fire flow is provided. Smaller lines require a hydraulic analysis. Pipe type shall be C-900 PVC. In addition, new pipe is to be sized to keep velocities below 10 feet per second (fps) during MDD demand plus fire flow conditions.

3.2.8 Telemetry Systems

The system currently has no telemetry or SCADA systems. Future telemetry systems may be installed to monitor tank levels and source metering. The telemetry and alarm systems shall be compatible with the Town's SCADA system utilized by the wastewater department.

3.2.9 Backup Power Requirements

There are no pumps in the water system requiring backup power. However, if there are any new electronically control sensors or equipment that are critical to the water system, then backup power facilities shall be constructed.

3.2.10 Valve and Hydrant Spacing

Valves

At a minimum, isolation valves shall be placed as follows:

- On each main at junction points.
- Along mains at intervals not to exceed 500 feet for pipe 10-inches and larger.
- Along mains at intervals not to exceed 800 feet for pipe less than 10-inches.
- At fire hydrants as required for main flushing.

All valves shall be resilient seat gate valves.

Fire Hydrants

Hydrants shall be spaced at intervals no greater than 500 feet in residential areas and 300 feet, or as directed by the Fire Chief, in multi-family, mixed use, and commercial areas.

3.2.11 Other System Policies that Affect Performance and Design

All system improvements must meet standards and specifications of the Washington State Department of Health, American Public Works Association and Town of Concrete, and be designed, constructed and operated in accordance with good engineering practice.

3.3 WATER QUALITY ANALYSIS

The standards for water quality are set forth by the Washington State Department of Health in Chapter 246-290 WAC as well as federal drinking water regulations pursuant to the Safe Drinking Water Act (SDWA). Standards that apply to the Town's system are categorized as follows: bacteriological, inorganic chemical and physical, turbidity, lead and copper, trihalomethanes, pesticides, and radionuclides. The Town has performed all required testing and has had no exceedances. Copies of the test results from the DOH Database are in Appendix D.

3.3.1 Groundwater Under the Influence of Surface Water Determination

The Grassmere Spring is the Town's source for water. Springs are categorically considered to be potential Groundwater Under the Influence of Surface Water (GUI) sources (WAC 246-290-010). The GUI determination process for spring sources involves two steps. First, several water quality parameters are monitored at the source on a weekly basis over a 12-month period. These parameters include water temperature, pH, conductivity, and turbidity. The variability of the monitoring data, as well as the correlation with air temperature and local precipitation, provides an indication of the hydraulic connection between the spring and the atmosphere. In contrast to surface water and GUI sources, these water quality parameters are typically quite stable for the true groundwaters is generally less than 10% and the correlation between water temperature and air temperature is weak or absent. The DOH analyzes the monitoring data using statistical methods to make the determination of hydraulic connection. The second step, known as Microscopic Particulate Analysis (MPA), applies only to those water sources determined to be hydraulically connected. MPA testing is a procedure designed to identify the occurrence of primary particulates, including Giardia, diatoms, algae, insects/larvae, rotifers, and plant debris. Based on the concentrations of these indicators, the water is assigned a relative surface water risk score. Since MPA testing is the final step in determining whether source water is GUI, multiple test (generally 2-4 per source) are required to confirm the microbiological integrity of the water.

In 1998, the DOH instructed the Town to initiate studies to ascertain the GUI potential of the Grassmere Spring. The same year, the Town completed 12 months of source monitoring for temperature and conductivity. These parameters showed variability, based on weekly monitoring, of greater than ±10%; therefore, the DOH concluded that the spring was in hydraulic connection with surface water and requested 2 rounds of follow-up MPA sampling. The Town collected source water MPA samples in November 1999 (round 1) and March 2000 (round 2), and the risk score of each sample was zero (low risk). Copies of the MPA test results are in Appendix K. According to the GUI determination protocol, sources that exhibit low risk characteristics for two consecutive MPA samples are not of hydraulic connection, the Town expressed concern that there was significant instrumentation and testing error in the original 12 months of monitoring data. Therefore, the Town was granted the opportunity to conduct a

second round of source monitoring, which it completed over the period June 2000 to May 2001. During this round, temperature and conductivity measurements for the spring exhibited little variation, and the DOH re-designated the source as groundwater. A copy of this determination is in Appendix K.

3.3.2 Total Coliform Rule

The Total Coliform Rule requires water systems to meet strict limitations for the presence of coliform bacteria, an indicator of microbiological water quality within the distribution system. While these bacteria themselves are not known to produce disease, their presence is often indicative of other pathogenic organisms such as fecal coliform and *Escherichia coli* (*E. coli*).

The Town implements a Coliform Monitoring Plan (CMP) which establishes monthly sampling for coliform bacteria, and can be found in Chapter 6. When a routine sampling tests positive for coliform bacteria, a series of repeat sampling is done to determine if harmful bacteria is present in the water system. When the coliform bacteria limit has been exceeded in the past, the Town has conducted DOH directed chlorination of the water system and repeat sampling to ensure that the system tests negative for the presence of coliform bacteria. Table 3-2 summarizes the results of coliform monitoring over the past five (5) years. There was a coliform problem in 2008, but it has not recurred.

Table 3-2: Coliform Monitoring Results

	Routine Sampling		Repeat Sampling	
Year	**Coliform Present**	**Coliform Absent**	**Coliform Present**	**Coliform Absent**
2007	0 Samples	12 Samples	N/A	N/A
2008	4 Samples	16 Samples	0 Samples	10 Samples
2009	0 Samples	12 Samples	N/A	N/A
2010	0 Samples	12 Samples	N/A	N/A
2011	0 Samples	9 Samples	N/A	N/A
Totals	**4 Samples**	**61 Samples**	**0 Samples**	**14 Samples**

Source: Skagit County CWSP (2007).

All positive coliform samples in 2008 tested *negative* for the presence of fecal coliform or *E. coli* and all repeat sampling found no presence of coliform bacteria. It is believed that the positive total coliform sampling that occurred in 2008 was due to the natural environment and/or poor turnover of water in the reservoirs. The Town cleaned the reservoirs and changed the operation to promote more turnover by allowing water to continuously flow into the reservoirs and out the overflows. The process of keeping the reservoirs clean and continuously turning the water over in them appears to have eliminated the coliform problem. As the Town's distribution system is updated and leaking lines are replaced, the potential for positive total coliform in the system should decrease even further.

3.3.3 Consumer Confidence Report

Community water systems are required to produce and distribute an annual Consumer Confidence Report (CCR) to their customers. A CCR describes the system's drinking water

source and levels of any contaminants found. The report is intended to provide a summa of drinking water quality for the preceding year. The Town's CCR for 2010 has been included in Appendix D. A typical CCR will contain the following information:

- The Town's drinking water source
- A brief definition of terms
- If regulated contaminants are detected, the maximum contaminant level goal (MCLG), the MCL, and the level detected
- If an MCL is violated, description of health effects
- Levels of unregulated contaminants

3.4 SYSTEM DESCRIPTION & ANALYSIS

This section summarizes the various components of the Concrete water system including; source water, storage, and distribution system piping.

3.4.1 Source

The Town's only source for water is a groundwater spring. The Grassmere Spring is located on Burpee Hill at an Elevation of 550 feet above mean sea level. The main spring is tunneled 100 feet inside the hill and has a covered intake structure that feeds to a concrete sump box. As provided under Certificate No. 401035 (Appendix I), this source has been approved for the following water rights

- Instantaneous withdrawal (Qi) of 750 gpm
- Cumulative withdrawal (Qa) of 1,190 acre-ft/yr

Water production from the spring is not accurately known, although there have been attempts in the past to quantify it. The 2002 Water System Plan, Section 2.6 refers to a historic source capacity of 400 gpm and reports a study in May, 2002 that recorded 291 – 325 gpm. In Section 5.3 of the same report, it refers to a production capacity of 312 gpm. Three meter readings from January through July indicated a production capacity of 475 gpm. Based on the Town's 6-month long meter data, the average production capacity of the Grassmere source is 475 gpm. The meter used for determining source capacity is downstream from the Grassmere tank, and because of overflows at the tank, the meter may not be recording all of the spring production. Calculations in this Plan will assume the average of the 2002 study as the instantaneous withdrawal capacity of the spring, which is well below that of the water right.

- Instantaneous withdrawal capacity (Qi) of 308 gpm = 443,520 gpd
- Cumulative withdrawal capacity(Qa) of 497 acre-ft/yr

Water use projections from Chapter 2 predict that in 2018 after service meters are installed, ADD with conservation is expected to be approximately 290 gpd/ERU, and MDD is expected to be approximately 516 gpm/ERU. The spring can supply: Qa = 419,040 gpd/290 gpd/ERU = 1,529 ERUs; Qi = (443,520 gpd – 105,000 wholesale gpd)/516 gpd/ERU = 656 ERUs.

Summary of Source Capacity

Based upon water use projections, the source is limited to 656 Future ERUs which includes wholesale use.

3.4.2 Treatment

The Grassmere Spring is untreated. Although Concrete has had a problem in the past with total coliform within the distribution system, it has not been shown to originate at the source. A change in testing protocol has eliminated the problem, and it is not anticipated that source treatment will be required in the future.

3.4.3 Pumping

Spring water is fed by gravity from the concrete sump box to the distribution system and storage reservoirs. There is no need for source or booster pumping. A Pressure Reducing Valve (PRV) is located downstream of the Grassmere Reservoir and is used to reduce hydraulic head in order to provide a residual pressure of less than 100 psi at all points within the distribution system.

3.4.4 Storage

There are three reservoirs within the water system. Characteristics of these reservoirs are summarized in Table 3-3. The distribution system is free-floating with respect to the water levels in the three reservoirs. Because there is no pumping associated with withdrawal from the Grassmere spring, the Town does not utilize reservoir level control devices. Therefore, water is allowed to overflow the reservoirs at the spill lines. All three reservoirs overflow into culverts and flow overland towards the Baker and Skagit Rivers. Overflow from the Fir Reservoir is fed directly into the Baker River, while overflow from Seidel and Grassmere Reservoirs is channeled to Lorenzen Creek, a tributary of the Skagit River. The Seidel and Grassmere Reservoirs are relatively new reinforced concrete tanks, and are in good condition. The Fir Reservoir is an older wood structure in fair condition.

Table 3-3: Summary of Storage Reservoirs

Dimensions	Fir Reservoir	Seidel Reservoir	Grassmere Reservoir
Diameter	30 feet	30 feet	30 feet
Overall Height	20 feet	40 feet	40 feet
Total Capacity	105,000 gal	200,000 gal	200,000 gal
Material	Wood	Concrete	Concrete
Base Elevation	368 ft	356 ft	412 ft
Spill Elevation	388 ft	394 ft	450 ft

Source: Town of Concrete.

The required volume of storage includes operating, equalizing, standby, dead and fire flow storage. Fire storage can be nested within standby storage, per Section 4.6.7 of the Coordinated Water System Plan. Since the required maximum fire storage of 1500 gpm for one hour is far below the standby requirements, fire storage is not included in the storage requirements or calculations.

Wholesale water is provided to one customer under the provisions of an interruptible supply contract, but the wholesale water requirement is not included in Standby Storage calculations. It is assumed that in a severe shortage or emergency situation, wholesale deliveries will be curtailed. Wholesale water use is included in Equalizing Storage calculations, because use of equalizing storage is a fairly normal situation. Operating Storage and Standby Storage are subtracted from the total volume of storage in the reservoirs, leaving only Equalizing Storage and Standby Storage as Available Storage. The available ERUs shown in Table 3-4 for the various ADD conditions are for non-wholesale ERUs, allowing for wholesale use of the water under the condition that wholesale deliveries will be curtailed after equalizing storage is used but before Standby Storage is used.

Operating Storage. Operating storage is the normal fluctuation of levels in the storage facilities due to source conditions such as pump starting and stopping. This also helps provide circulation and water turnover in the tanks. Water in Concrete is provided by constant gravity flow from the Grassmere spring. The tanks are generally kept full, and overflow when system demands are less than spring production. As a result the operating storage is not a factor. However in the future, tanks may be operated by a different control system, so one foot operating storage is reserved in each tank. All three tanks are 30 ft. diameter and each holds 5,285 gallons per foot. **Total operating storage is 15,855 gal., all conditions.**

Equalizing Storage (ES). When source production cannot keep up with system demand, the excess demand requirement is provided by the storage facilities. The equalizing storage is the peak hourly demand less the source production for a period of two and one half hours. ES = (PHD – Qs) x 150 minutes, where Qs = source production. PHD and Qs are in gallons per minute. Qs for the Grassmere Spring is estimated to be a minimum of 312 gpm. PHD is a variable, generally increasing with population growth. PHD includes wholesale withdrawals. The rate of wholesale withdrawals is based upon the equivalency of 106 ERUs, as calculated in Chapter 2.

Standby/Fire Storage. This storage component is equal to two days water requirements at ADD for all ERUs excluding wholesale use. As described above, wholesale water deliveries are assumed to be curtailed during conditions when standby storage is used.

Dead Storage. This storage component relates to the level of water in the reservoirs required to maintain minimum pressure of 30 psi (20 psi under certain conditions) at all service locations. Water stored below that level is considered dead storage. The Seidel and Fir Reservoirs are located at higher elevations in the Town and can supply water at the required pressure to all but one home, which utilizes a booster pump. In the event that other homes are located at elevations too high to receive adequate pressure, the Town will require individual booster pumps as a condition of service. Therefore, the dead storage is considered to be one foot in all reservoirs.

The bottom foot is generally not accessible due to outlet conditions that do not allow efficient water withdrawal. All three 30' diameter reservoirs hold 5285 gallons per foot.

Total Dead Storage is 15,855 gal.

Available Storage (ES + SB)= Total Capacity - Operating Storage - Dead Storage
= 505,000 gal – 15,855 gal – 15,855 gal = 473,290 gal.

The number of ERUs (N) that can be supplied by the Available Storage is:

$SB = 2(N)ADD + 150((PHD + PHD_w) – Q_i)) = 2(N)ADD + 150(PHD – 128)$
Where, $PHD_w = 180$ gpm, $Q_i = 308$ gpm

Storage is evaluated for three MDD conditions with conservation, using the above formula.

Scenario 1. Existing ADD of 383 gpm/ERU and MDD of 702 gpd/ERU. Years 2011 and 2012. Maximum number of ERUs = 536

Scenario 2. Future ADD of 365 gpm/ERU and MDD of 665 gpd/ERU. Years 2013 – 2017. Maximum number of ERUs = 564

Scenario 3. Future ADD of 290 gpm/ERU and MDD of 516 gpd/ERU. Years 2018 – 2031. Maximum number of ERUs = 717

Table 3-4: Storage Capacity

Year	ERUs	Required Storage (gal)	Available Storage (gal)	Surplus Storage (gal)
2011	511	451,126	473,290	42,164
2012	517	456,472	473,290	16,818
2013	521	437,180	473,290	36,110
2014	528	443,040	473,290	30,250
2015	533	447,290	473,290	26,000
2016	540	453,150	473,290	20,140
2017	547	459,010	473,290	14,280
2031	648	427,140	473,290	46,150

Required Storage includes wholesale requirement in ES

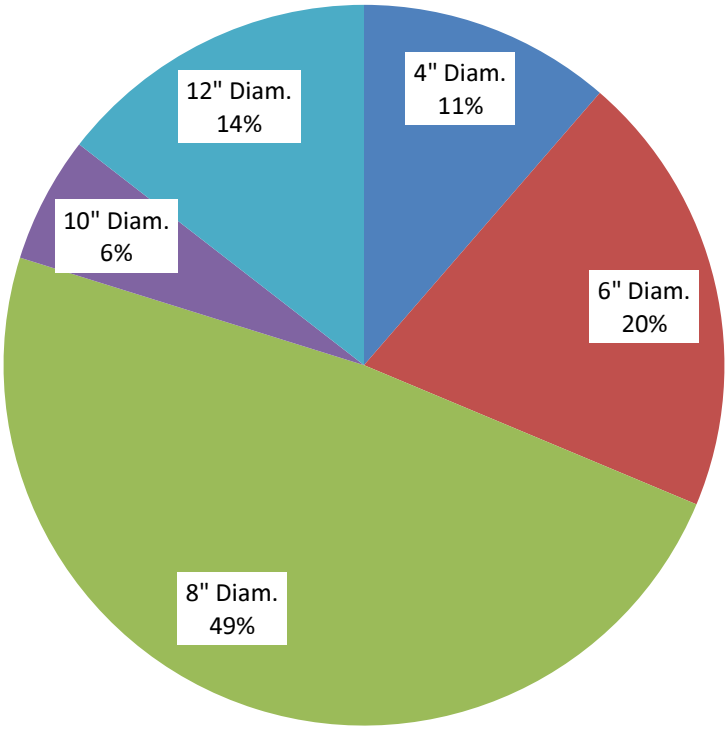
Existing Reservoir Capacity can support 536 ERUs at current ADD demand conditions, and up to 717 ERUs in future demand conditions with conservation, including wholesale water.

3.4.5 Distribution System

The transmission and distribution system contains about 36,200 feet (6.9 miles) of pipe. Excluding service connections, pipe less than 4 inches in diameter, distributed as shown in Exhibit 3-1. The majority of the pipe material in the water system is Plastic. Approximately 400 lineal feet of 4-inch wood stave pipe remain in service in the Town's water system.

Approximately 200 feet is located along Cupples Alley and another 200 feet along South Dillard. There are currently no funded plans to replace this pipe. However, the Town is investigating opportunities for funding that would provide for the replacement and upgrade of the remaining wood stave pipe.

Exhibit 3-1: Distribution System Composition



3.4.6 Instrumentation and Control Systems

There are no instrumentation and control capabilities as the system is un-automated. There is a single altitude valve installed in the system (Grassmere Reservoir). However, it was bypassed shortly after installation and is not currently functioning.

3.5 HYDRAULIC MODELING AND FIRE FLOW ANALYSIS

Hydraulic analysis was conducted using the hydraulic model WaterCAD. The computer model uses pressures as the preliminary hydraulic parameters to identify system deficiencies. Modeling was performed under peak hourly demand (PHD) conditions in order to identify areas of the water system where the pressure drops below 30 psi. Modeling was also performed under maximum daily demand (MDD) conditions with fire flow in order to identify areas of the water system where the pressure drops below 20 psi. The following demand scenarios were modeled:

1. 2009- Exisiting demand conditions
2. 2015- Annual growth scenario of 1.2%, no conservation
3. 2029- Annual growth scenario of 1.2%, no conservation

Fire flow requirements outlined in the *Skagit County CWSP* (2007) are summarized in Table 3-1 and duplicated below in Table 3-5. Based on current zoning with the Town's administrative boundaries, the system must be capable of providing at least 1,000 gpm for 60 seconds at all existing hydrants. Within the designated commercial boundaries, the fire flow capability must be at least 1,500 gpm for 60 minutes. The Town stated that there are no areas in town that require more flow or a longer duration than 1500 gpm for 60 minutes.

Table 3-5: Fire Flow Requirements

Classification	Fire Flow (gpm)	Duration (hours)
Residential	1,000	1
Multi-Family & Minor Commercial	1,500	1
Commercial	1,500	1
Industrial	1,500	1

Source: Skagit County CWSP (2007).

The model was calibrated based on the results of four separate flow tests performed on January 6, 2011. The tests involved opening a fire hydrant, measuring the discharge rate via pitot pressure, and identifying the residual pressure drop at the nearest hydrant. The tests were performed when reservoirs were full. The field test results were compared to those generated by WaterCAD, and the model was calibrated to replicate field conditions. Measured system pressures were approximately 5 psi greater than the model pressures. The pressure reducing valve downstream from the Grassmere Reservoir is not operational, resulting in slightly higher system pressure. To calibrate the model, the Siedel and Fir tanks were raised approximately 12 feet to adjust for the higher system pressure. Both tanks were set to have an overflow elevation of 406 feet. Table 3-6 below shows the results of the calibrated model.

Table 3-6: Model Calibration Results

		Model Results			Field Test Results			Difference in Model and Field Data		
Node	Flow (gpm)	Static (psi)	Residual (psi)	Drop (psi)	Static (psi)	Residual (psi)	Drop (psi)	Static (psi)	Residual (psi)	Drop (psi)
J15	508	71.39	70.38	1.0	69	68	1	2.4	2.4	0.0
J18	954	66.92	61.37	5.55	68	61	7	-1.1	0.4	-1.5
J34	1187	92.32	87.5	4.82	93	89	4	-0.7	-1.5	0.8
J45	1187	87.16	84.32	2.84	89	86	3	-1.8	-1.7	-0.2
							Ave	-0.4	-0.1	-0.2

Source: Skagit County CWSP (2007).

The Water System Plan Sheet 1 shows a schematic of the water system used in the hydraulic model. The Town has planned several pipeline construction projects for the near future; hydraulic modeling was performed with these improvements in place and on-line. Pressure deficiencies identified during hydraulic modeling are illustrated on Water System Plan Sheet 2. As discussed previously, pressure shortages have been observed during routine system operations and high elevation connections. These locations were disregarded during hydraulic modeling.

With the exception of nodes near reservoirs, the water system facilities are capable of maintaining 30 psi at all locations under current and future PHD conditions. System upgrades planned for 2011 will begin to alleviate existing fire flow deficiencies. However, additional infrastructure improvements are needed to maintain 20 psi at all locations during periods of fire flow under 2010, 2015, and 2015 MDD conditions. Exhibit 8-1 depicts the location of areas unable to support 20 psi during fire flow under future MDD conditions.

3.6 SUMMARY OF DISTRIBUTION SYSTEM DEFICIENCIES AND IMPROVEMENTS

Larger water lines are required in several low-pressure areas in order to meet fire flow requirements. These upgrades are identified in Table 3-7. The cost estimates provide for these upgrades include materials, excavation, installation, backfill, compaction, and removal of existing pipe. The following assumptions were used to develop cost estimations:

$120 per lineal foot of 8-Inch main
$150 per lineal foot of 12-Inch main
$250 per lineal foot of Highway/River Crossing

The Tables listed in this section are numbered in the same order as shown on Water System Plan Sheet 2. The numbers in the Table and on the plan sheets designated with an “L” correspond with Long Term Improvements in the 6 to 20 year period. Table 3-7 describes the existing deficiencies of the water system and provides possible solutions. Table 3-8 provides future planning and long term system improvements.

Table 3-7: Recommended System Improvements

No.	Location	Description	Est. Cost
1	Source	Source Meter, Reservoir Overflow Meters	$85,000
2	System Wide	Service Meters	$325,000
3	Cupples Alley	8" Pipe Upgrade	$50,000
4	Main St.	8" Pipe Extension	$110,000
5	Crowfoot Area	8" Pipe Upgrade	$275,000
6	N. Rietze Ave., Spring St., N. Park Ave.	8" Loop Extension	$162,000
7	Limestone St., Calcite St., E Ave.	8" Pipe Extension	$155,000
8	B Ave.	8" Pipe Upgrade	$51,000
9	S. Park Ave.	8" Pipe Extension	$68,000
10	Baker St. to N. Dillard Ave.	8" Pipe Extension	$38,000
11	Douglas Vose III Way to Mill Ave.	8" Pipe Extension	$87,000
12	Mill Ave., Division Ave., Dillard Ave.	8" Pipe Extension	$270,000
13	First St. and Grassmere Rd. to Sauk Valley Rd. and SR20	12" Pipe Extension	$302,000
14	Pine St.	8" Pipe Upgrade	$57,000
15	Fir St. to Superior Ave.	8" Pipe Extension	$99,000
16	Fir St. to Cedar Ave.	8" Pipe Extension	$58,000
17	System Wide	Source Study	$50,000
18	North of Limestone St.	Water Storage Tank	$300,000

Table 3-8: Recommended Future Improvements

No.	Location	Description	Est. Cost
1L	Central Concrete, Proposed Cedar and D St.	8" and 12" Future Connections	$569,000
2L	Limestone St.	8" Pipe Upgrade	$152,000
3L	SR20, East	8" Pipe Extension	$216,000
4L	Airport Way to S. Dillard	8" Pipe Extension	$204,000
5L	SR20, West	12" Pipe Extension	$760,000
6L	W. Dalles	12" Pipe Extension	$615,000
7L	Sauk Valley Rd.	8" and 12" Pipe Extensions	$822,000
8L	System Wide	Locate and Utilize an Additional Water Source	$3,000,000

Project 1: Install meters at the source and on all reservoir overflows in order to quantify source production and "unaccounted for" water. Modify the valves and piping at the source as required for proper and efficient operation.

Project 2: Install meters on all water services in Town. This is a state requirement and must be completed by 2017.

Project 3: Cupples Alley. This neighborhood has wood stave water mains in poor condition. Replace existing 4" water main with an 8" water main.

Project 4: Main Street, Superior to A Ave. The existing 6" watermain is undersized. Replace with 8" water main.

Project 5: Crowfoot Area. This neighborhood has small 2" water mains. Replace existing 2" water main with 8" water main.

Project 6: N. Rietze Ave., Spring St., and N. Park Ave. Create an 8" looped system.

Project 7: Limestone St., Calcite St., and E Ave. This neighborhood has water mains in poor condition and does not have adequate fire flow. Replace existing 2" water main with 8" water mains.

Project 8: B Ave. This neighborhood has 4" water mains. Replace existing 4" water main with 8" water main.

Project 9: S. Park Ave. Connect Cedar St. to Fir St. with 8" water main.

Project 10: Baker St. to N. Dillard Ave. Connect to two streets with a new 8" water main.

Project 11: Douglas Vose III Way to Mill Ave. Install new 8" water main along the south side of State Route 20.

Project 12: Mill Ave., Division Ave., Dillard Ave. This neighborhood has wood stave water mains in poor condition and does not have adequate fire flow. Replace existing water mains with 8" water mains, including looping lines on Dillard North of State Route 20.

Project 13: First St. and Grassmere Rd. to Sauk Valley Rd. and State Route 20. This project would install a new 12" water main under and along the south side of State Route 20.

Project 14: Pine St. Create a new 8" looped system in combination with project 9, 15 and 16.

Project 15: Fir St. to Superior Ave. Create a new 8" looped system in combination with project 9, 14 and 16.

Project 16: Fir St. to Cedar Ave. . Create a new 8" looped system in combination with project 9, 14 and 15.

Project 17: Conduct studies to locate an additional source of water.

Project 18: Replace the Fir Storage Tank with a 200,000 gal. minimum capacity tank.

Projects 1L through 8L are long term projects that generally extend service into undeveloped areas. Locations shown on Water System Plan Sheet 2 are general in nature and will vary as development proceeds. Cost is dependent upon actual location of water mains. The projects are anticipated to be constructed by developers and are shown primarily as a guide. Project 8L is a long term project that will be based upon a source study designated as Project 17.

3.7 SUMMARY OF SYSTEM CAPACITY

The water system analysis determined the capacity of the system in ERUs for three components, source, storage, and distribution system. The capacity is based upon future use estimated

Source. The actual production capacity of the source has not been accurately quantified. Various studies in the past have shown production from just under 300 gpm to 475 gpm. For the purpose of this Plan, the average flow of a 2002 study was assumed. This flow is 308 gpm. Based upon this quantity the source is limited to 656 ERUs, using future water use demands with conservation. Wholesale water MDD demands are included.

Storage. The three reservoirs have a combined capacity of 505,000 gal. Assuming that the few homes around the Seidel Reservoir will be served by a higher pressure zone, the existing storage is capable of supplying 717 ERUs, using future water use demands with conservation. Wholesale water is included in the equalizing storage component but not the standby component.

Distribution System. The hydraulic analysis shows that the distribution system is generally capable of supplying the PHD and Fire demands, with some exceptions. These are shown on Exhibit 8-1.

Based upon the assumptions presented in this Plan, the source and storage components are adequate for the 20 year planning period. The maximum number of ERUs anticipated at that time is 648. **The limiting system component is the source which is estimated to be capable of supplying 656 ERUs, including an allowance for wholesale water.**

CHAPTER 4

WATER USE EFFICIENCY PROGRAM AND WATER RIGHTS

4.1 INTRODUCTION

The Town of Concrete has one water source, the Grassmere Spring, which is an excellent source with adequate supply and water rights for many years in the future. At the present time water from the source is not measured on a consistent basis, and the quantity of water actually produced by the spring can only be estimated. The Town does not have meters on all of its services, and it is difficult to estimate accurately the amount of water used. The Town uses excess water from the spring to circulate water through its three reservoirs, keeping them fresh with good turnover characteristics. This excess water is returned to the Baker River and Lorenzen Creek and is considered to be non-consumptive water. The amount of non-consumptive water has not been quantified but will be when source metering improvements are made. Although the Town can undertake conservation efforts such as education and watering restrictions, the results cannot be measured until a complete meter installation program has been completed. Metering is the highest priority of the Capital Improvement Program addressed in this plan, and is the basis for water conservation efforts and the Water Use Efficiency Program.

4.2 WATER USE EFFICIENCY PROGRAM

The Town of Concrete has developed and is implementing a Water Use Efficiency Program that promotes efficient water use and enhances the adequacy of the current source to meet existing and future needs. The Water Use efficiency Plan is included in Appendix J.

4.2.1 Goals and Objectives

A demand side goal of reducing individual water use by 5% and a supply side goal of reducing leakage to under 10% by 2018 have been established by the Town.

4.2.2 Water Use Efficiency Measures

The Town of Concrete has 455 existing connections (Table 2-8) and as a result is required to evaluate or implement at least one Water Use Efficiency Measure in addition to the Mandatory Measures that must be implemented or evaluated.

<u>Mandatory Water Use Efficiency Measures</u>

- Source Meters. Source Metering will be installed by 2017
- Service Meters. Service meters will be installed by 2017
- Meter Calibration. Calibration will be done during installation.

- Water Loss Control Action Plan. The Town cannot evaluate water loss until meters have been installed in 2017. At that time water loss will be known and evaluated to determine if a Water Loss Control "Action Plan is required.
- Customer Education. This will be implemented in 2012. Conservation notices will be sent out with water bills.
- Conservation Rate Structure (Increasing Block Rates). This will be instituted after a rate study has been completed and service meters installed. (2017)

Minimum Measures

- Voluntary Odd-Even watering schedule
- Additional Customer Education

4.3 SOURCE OF SUPPLY ANALYSIS

The Town of Concrete has adequate water rights and water source for the next 20 years, as determined by the analysis in Chapter 2. There is no need to file for new water rights at the existing source. The Town may, however choose to look for a second source for redundancy, and in that case may require a water rights transfer or additional water rights.

A brief source of supply analysis follows:

- Enhanced Conservation Measures
  The Town has adopted a Water Use Efficiency Program and there are no current plans for enhanced conservation measures.

- Water Right Changes
  The Town has no current plans for future water right changes.

- Interties
  The Town of Concrete has no existing interties with any Water Associations, small community systems, or Skagit County PUD No. 1. The Town does not plan to propose any interties in the future.

- Artificial Recharge
  It is not anticipated that surface water will be used to recharge the Grassmere Spring aquifer.

- Use of Reclaimed Water, Reuse and other Non-potable Sources
  The Town of Concrete does not have the facilities or resources to use reclaimed water at this time.

- Treatment
  The Town of Concrete does not have a water treatment plant, and nor does the Town intend to install one in the near future as long as the Grassmere Spring continues to pass all DOH testing requirements.

- Program Promotion
  A consumer education program will be continued, notifying customers of water conservation tips and making them aware of the advantages of conservation. It will also prepare them for the time when their consumption will be metered and they will be required to pay for all water they use.

- Source Meters
  A Source metering program will be instituted. Funding is being pursued, and it is anticipated that the source metering program will be completed by 2015.

- Service Meters
  Service meters are required to be installed by January 2017. Funding is being pursued, and service meters are expected to be installed by the required time period in 2017.

- Water Loss Control Action Plan
  Water loss will be quantified after service meters are installed. If water loss exceeds 10% a water loss control action plan will be required.

- Conservation Rate Structure
  After service meters are installed, a rate study will be performed. Part of the rate study will evaluate an inclining block rate.

4.4 SOURCE OF SUPPLY CHARACTERISTICS

4.4.1 Demand Characteristics

The Town of Concrete's residential customers are primarily made up of single family homes. Approximately 97% of the Town's population lives in Single Family residences and 3% of the Town's population lives in Multi-family residences. There are approximately 50 Multi-family units, 65 commercial/industrial/institutional users, and one wholesale contract user. Quantifying water demand characteristics is difficult due to lack of meter information, but most cities and towns see a typical diurnal pattern throughout a normal day. Water consumption varies by season as well, with a higher demand in the late summer months when residential lawns and gardens require water. The Town of Concrete may vary from the typical seasonal peaks seen in typical water systems. Due to the fixed rate structure, Water customers may not feel the need to conserve water in the winter and may keep a continuous flow of water within yard spigots and house plumbing to reduce the chance of freezing pipes. For this analysis, it was assumed that Maximum Monthly Demand is double the Average Daily Demand.

4.5 WATER RIGHT EVALUATION

4.5.1 Permit, Certificates and Claims.

The Town has a Certificate from the State of Washington to utilize groundwater from the Grassmere Spring. A summary for the spring is shown below.

Table 4-1: Town of Concrete Spring Summary

Number	Date	Q (gpm)	V (AFY)	Prim./Supp.	Cert./Permit	Location
GWC 117	2/14/47	750	1,190	Primary	Certificate	SE ¼, SE ¼, S04, T35 N, R 8E

Source: Town of Concrete

GWC 117 is for the Grassmere well (spring) and tunnel that is installed Northwest of the Town. This Ground water certificate was originally received by Superior Portland Cement, Inc but is currently used by the Town as a municipal and commercial/industrial water supply. The priority date of the water right is 1908. The purpose of use on the certificate is for domestic Supply, municipal use and manufacturing. The place of use is the Town's Water Service Area, as shown on Exhibit 2-1 in Chapter 2. There are no restrictions or limitations on the certificate. A copy of the water rights certificates and water rights self assessment forms for current, 6 year projections and 20 year projections are included in Appendix I.

The current and forecasted water use is estimated in the self assessment forms, since actual water production and withdrawal quantities are not measured.

4.5.2 Water System Reliability Analysis

Source Reliability

Grassmere Spring has proven to be a reliable source of high quality water for over 100 years. Efforts to insure that the source remains reliable in the future include land acquisition to secure the sanitary control area, securing the concrete collection sump, preparation of an emergency spill response plan, production and distribution of wellhead protection education letters to landowners within the various WHPAs , and completion of a contamination inventory update. To date the Town has secured additional land at the source.

Water Right Adequacy

The existing water rights are adequate for many years in the future. See the Water Rights Self Assessment Forms in Appendix I.

Facility Reliability

The source is analyzed in Section 3.4 of this plan and is found to be a reliable source for the next 20 years. The source may not be able to actually produce the full amount of water in the water rights, but that must be determined by a source analysis that can commence when source metering facilities are in place.

It is desirable to have a second source for water for reliability and to reduce the storage requirements. A second source could include surface water from a lake or a river or a second groundwater well or spring. Water rights for the existing ground water source are adequate for 20 years, but another source would in all likelihood require additional water rights. If the Town elects to have a secondary source of water, construction of additional facilities with

accompanying operational costs will ensue. Some of the alternative water source options may require the Town to build a Water Treatment Plan (WTP), storage tanks, water transmission mains, wells, and/or booster pump stations. There are several alternatives available to the Town for developing a backup source water supply for the next 20 years, as follows.

Alternative Source A) Surface water from Lake Shannon. This water will require treatment and may require pumping to serve the Town. Mixing surface water with water from the Grassmere spring will require chlorination of the distribution system.

Alternative Source B) Surface water from Baker River which runs through the Town. This water will require treatment and will require pumping to serve the Town. Mixing surface water with water from the Grassmere spring will require chlorination of the distribution system.

Alternative Source C) Construct a new groundwater source. There are several aquifers in the area that could be tapped for a second source. These include the Jackman Creek basin near Everett Lake East of Town, Cupples Creek basin North of Town and the existing aquifer supplying the Grassmere spring.

The preferred Source Alternative is C. A hydrogeologic study would be required to evaluate potential sources, analyze water quality, evaluate alternatives, address water rights and include a cost analysis.

4.6 EXISTING AND PROPOSED INTERTIES

The Town of Concrete has no existing interties with any Water Associations, small community systems, or Skagit County PUD No. 1. The Town does not plan to propose any interties in the future.

CHAPTER 5

SOURCE WATER PROTECTION

5.1 INTRODUCTION

The Town of Concrete water supply comes from a groundwater source. The Grassmere Spring source consists of a tunnel approximately 100 feet long into Burpee Hill and piped out to a springbox. The source was determined to be "not directly influenced by surface water" by the Department of Health, as a result of low risk characteristics for two consecutive MPA samples. Copies of the determination letter by DOH and the MPA results are in Appendix K. As a result, the Grassmere source is considered as groundwater, and requires a Wellhead Protection Program (WHPP).

5.1.1 Overview

In May 1994, GeoEngineers, Inc. published the "Report of Hydrogeologic Services Wellhead Protection Study" for Concrete, WA. A Susceptibility Assessment Survey Form was also completed at that time. The 1994 WHPP addressed the following:

- Spring Site and Vicinity Conditions
- Geologic/Hydrogeologic Conditions
- Wellhead Protection Delineation
- Regulatory Review and Land Use/Contaminant Inventory
- Potential Ground Water Contamination Sources
- Susceptibility of the Aquifer to Contamination
- Wellhead Protection Strategies

An update to the WHPP was performed in 2002 as a part of Water System Plan Update by Economic and Engineering Services, Inc. The update included the following:

- Characterization of the hydrogeologic setting of the source
- Delineation of Wellhead Protection Areas (WHPAs)
- Inventory of potential contaminant sources
- Management of WHPAs to prevent contamination
- Outline emergency response and contingency plans
- Identification of necessary program improvements

This Chapter serves as an update and summary to the 1994 WHPP and the 2002 WHPP update, both of which are included in Appendix K. This update addresses the four program improvements identified in the 2002 update.

- Purchase additional land around source (SCA)
- Prepare Emergency Spill Response Plan
- Secure Concrete Sump Box

- Distribute Public Education Flyers

5.2 WELLHEAD PROTECTION PROGRAM IMPROVEMENTS

5.2.1 Sanitary Control Area

WAC 246-290-135(2) requires the establishment of a sanitary control area (SCA) around the source. The purpose of this requirement is to prevent source water contamination by restricting land use. In the case of a spring, a 200-ft protective radius is required. In 1994, the Town purchased a 2-acre parcel of land immediately surrounding the spring. However, this parcel only provided a buffer radius of 170 feet, less than that required for the SCA. In order to meet SCA requirements, the Town entered into litigation with the Aloha Lumber Corporation in order to obtain an additional 20-acre parcel of land immediately surrounding and uphill of the Grassmere Spring source. In 2009, both parties agreed to settle the land dispute through a Boundary Line Adjustment, thus allowing the Town to meet SCA requirements. Land within a 200 foot radius around the spring is now owned by the Town, and a sanitary control covenant is in the process of being adopted. A copy of the Aloha Lumber settlement and a copy of the Declaration of Covenant for Sanitary Control are included in Appendix K.

5.2.2 Emergency Spill Response Plan

In the event of an accidental chemical spill, residents and business owners are instructed to call the Town offices. A member of the Town staff would in turn notify the Town of Concrete Fire Department and Skagit County Fire District No. 10 as a first responder. The fire district is responsible for contacting the Skagit County Department of Emergency Management if additional spill response measures are needed. An emergency call-up list for the Town is provided in Chapter 6.

In the case of an emergency that may threaten the ability to provide continuous water service, several public notification measures will be employed. These include the placement of door hangers, postings at Town Hall and the Town Post Office, and announcements to local media outlets.

In the event of source water contamination, Concrete will employ a number of measures to protect public health. When monitoring indicates an MCL exceedance, the spring will be isolated from the system by valving. Residents will be notified to use bottled water for drinking until the problem is remedied. In the event that source water contamination is bacteriological in nature, the Town will follow DOH requirements with regard to shock chlorination, flushing, public notification, and isolation of the source if necessary. Extensive follow-up monitoring will be performed to ensure the integrity of drinking water quality.

5.2.3 Secure Concrete Sump Box

The concrete sump box cover was bolted into place to prevent unauthorized entry. In 2006, the Sanitary Survey recommended providing a cover with a lip to prevent contaminants from entering around the existing cover. This has been completed except that a screen needs to be placed on the overflow per the 2011 Sanitary Survey .

5.2.4 Public Education

A Contaminant Source Inventory must be updated every 2 years. Aerial Photo Reconnaissance revealed no new development or changes in land use. The 2002 Update recommended that landowners within the 5 year Time-of-Travel Zone be notified annually. It is recommended that these landowners be sent Public Education Flyers.

5.3 WELLHEAD PROTECTION PROGRAM NEEDS

Wellhead protection program needs are summarized in Table 5-1.

Table 5- 1: Wellhead Protection Program Needs

Description	Purpose	Cost
Overflow Screen on sump box	Prevent contamination	$300
Distribute public education flyers	Inform landowners about septic systems and pesticides	$200

CHAPTER 6

OPERATION AND MAINTENANCE PROGRAM

6.1 INTRODUCTION

The Town of Concrete water system is classified as a "Group A" (non-transient) community system. The System Identification Number is 03950 M. There were 473 active service connections as of March, 2010. This chapter will address the ten (10) critical elements of an operation and maintenance program (O & M) in accordance with the Safe Drinking Water Act (SDWA) and WAC 246-290-100, -300, -310, -320, -440, -480, and -490; as well as WAC 246-292-020, -050, and -090.

6.2 WATER SYSTEM MANAGEMENT AND PERSONNEL

The Town of Concrete's Public Works Director is responsible for all operations and maintenance of the public water system. Duties include general oversight of all activities, water quality monitoring, budget formulation, implementation of the improvement program, contact with the public/press, responding to complaints, and review/approval of billings. The Public Works Director is also responsible for responding to emergencies related to the water system, maintenance of the Town water system (including reservoirs, valves, piping, and the source) as well as the development/implementation of the cross-connection control program. The Public Works Director is assisted in his duties by the Town's Assistant Public Works Director.

6.3 OPERATOR CERTIFICATION

WAC 246-292-50 establishes minimum Operator Certification requirements for public water systems. Based on the Town's population and classification as an expanding Group A (non-transient) community water system, the following certifications are required:

- Water Distribution Manager (WDM)
- Cross-Connection Control Specialist (CCS)

Alan Wilkins is the only certified Town water system operator at this time; however Rich Philips, Assistant Public Works Director is currently in the progress of obtaining his Water Distribution Manager and Cross-Connection Control Specialist certifications by the year 2011. Operator Certifications and contact information for Town Staff are provided in Table 6–1.

Table 6-1: Operator Certifications and Contact Information

Name	Title	Active Certifications	Contact Numbers
Alan Wilkins	Public Works Director	WDM 1, CCS	(360) 770-0394
Rich Philips	Assistant Public Works Director	WDM 1, CCS (Both In Progress)	(360) 770-1269

Note that the Town does not have a certified Backflow BAT on staff nor does it have the necessary equipment.

6.4 SYSTEM OPERATION AND CONTROL

6.4.1 Identification of Major System Components

A map showing the components of the existing water system is provided in Plan Sheet 1 of 2. Major components include:

- The Grassmere Spring source, which is located at the northwest edge of Town along with the 200,000 gallon Grassmere reservoir.
- Two (2) additional storage reservoirs, Seidel and Fir, that provide a total capacity of 305,000 gallons.
- A pressure reducing valve and strategically located reservoirs to maintain a single water system pressure.
- Transmission and distribution piping including isolation valves and hydrants.

6.4.2 Routine System Operation

Water Supply

The Town's primary source of water is the Grassmere Spring on Burpee hill. This spring has a covered intake, located approximately 100 feet inside of the hill and at an approximate elevation of 550 ft above mean sea level. Based on the water rights given to the Grassmere Spring, the instantaneous water withdrawal is 750 gpm and a cumulative withdrawal is 1,190 acre-ft/year. The Grassmere spring is the only water source that the Town of Concrete uses, no secondary water source is currently part of the Town's water system. The following are regular O & M activities for the Grassmere Spring source:

Weekly –

- Read source meter
- Record keeping and O & M reports
- Security Check
- Take water samples per the Water Quality Monitoring Report and Coliform Monitoring Plan

Annually –

- Source water quality monitoring
- Mail Wellhead Protection Flyers

Storage

There are three reservoirs within the water system. The Distribution system is free-floating with respect to the water levels in the Fir and Seidel and Grassmere Reservoirs and excess water is allowed to overflow the reservoirs through spill lines. All three reservoirs overflow into culverts and flow overland towards the Skagit River. Overflow from the Fir Reservoir is fed directly into the Baker River, while overflow from Seidel and Grassmere Reservoirs is channeled to Lorenzen

Creek, a tributary of the Skagit River. The following are regular O & M activities for all Town reservoirs:

Weekly –

- Record reservoir levels

Transmission/Distribution

Transmission and distribution mains range from 4 to 12 inches in diameter. Most of the water distribution pipes are PVC, however, some lines on Dillard and Cupples Alley is woodstave and leaks and requires repairs. The following are considered regular O & M activities for the Town water distribution system:

Monthly –

- Coliform monitoring within the distribution system
- Read service meters

Annually –

- Conduct cross-connection inspection

6.4.3 Preventative Maintenance Program

The following are considered to be regular preventative maintenance activities conducted by the Town Public Works Director. Other preventative maintenance activities are conducted on a non-regular basis to ensure the safety of the Public and extend the design life of the Town water system.

Reservoirs

Monthly –

- Verify integrity of reservoir vent screens
- Check reservoir hatch locks
- Check reservoir hatch seals
- Inspect inlet piping and level gauge

Semi-Annually –

- Exercise reservoir fill and drain valves
- Clean top of reservoirs
- Inspect vents, overflows and all openings

Annually –

- Inspect interior of reservoirs, clean if necessary

Distribution System

Pressure Reducing Valves and service meters are inspected as needed. The City replaces the older meters throughout the system as resources will allow.

Semi-Annually –

- Inspect service meters for damage

Annually –

- Flush water mains
- Exercise valves and fire hydrants; repair as necessary

6.4.4 Equipment, Supplies and Chemical Listing

The following are chemicals kept on hand at the Public Works Department shop:

- Liquid Chlorine for cleaning and disinfecting

The Town also maintains an inventory of pipe, fittings, repair parts and service materials. Risk assessment contact information is provided in Table 6-2.

Table 6-2: Town of Concrete - Risk Assessment Contact Numbers

Organization	Contact	Phone
Electric Utility Company	Puget Sound Energy	888-225-5773
Gas Utility Company	Cascade Natural Gas	360-733-5980
Sewer Department	Town of Concrete	360-853-8550
Telephone Utility Company	Verizon	800-483-2000
Plumber	Town of Concrete	360-853-8550
Utilities Underground Locate Center	Call Before You Dig	1-800-424-5555
Soil Excavator/Backhoe Operator	Town of Concrete	360-853-8550
Equipment Rental (Generators)	Hertz Rental	360-354-1610
Equipment Repairman	Town of Concrete	360-853-8550
Pipe Supplier	HD Fowler	360-734-8400

6.5 COMPREHENSIVE MONITORING PLAN

The Town of Concrete is required by DOH to sample water quality at representative locations throughout the distribution system. Sampling parameters are established by federal rule that have been adopted by the State. These parameters are a function of the population served and the type of source(s) used. Each year, DOH will provide the Town with a comprehensive Water Quality Monitoring Report (WQMR) that outlines the monitoring needs for that year. The DOH provided WQMR for the year 2010 can be found in Appendix D, and the monitoring requirements that apply to the Town are shown in Table 6-3.

The Town has received State Waiver for the following monitoring groups through December of 2010; Dioxin, Endothall, Glyphosphate, Insesticides, and Diquat. If Sate Waivers are not granted for these monitoring requirements in the future, the Town will begin sampling as required by the Washington State DOH.

The Town currently has one source, the Grassmere Spring. This is the location of much of the DOH required sampling. Distribution system sample locations vary from test to test since the

system is so small and has only one source. However, it is common for samples to be taken at Public facilities such as the Town Shop and the Town Hall.

Current and past compliance sampling reports have been included in Appendix D.

Coliform Monitoring Plan

Based on the current service population, the Town of Concrete is required to collect one routine sample each month from representative locations within the distribution system. A copy of the Town's current Coliform Monitoring Plan (CMP) can be found in Appendix D.

According to the Town's CMP, the number of sampling points needed to represent the distribution system is three (3). The following locations have been established as the three (3) routine sampling locations within the distribution system; Wilkins Residence at 7245 Nims Place, Town Hall at 45672 Main Street, and the Public Works Shop (City Shop) at 7285 Baker Street. The current routine CMP schedule is summarized in Table 6-4.

Table 6-4: Routine Coliform Monitoring Plan Sampling Schedule

Site Location	Number Of Routine Samples											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
X1: Wilkins Residence				1				1				1
X2: Town Hall	1				1				1			
X3: City Shop		1				1				1		
X4: Airport Way			1				1				1	

Source: Town of Concrete Coliform Monitoring Plan

Once the service population surpasses 1,000, the Town will be required to collect at least two routine coliform samples per month. This is project to occur in 2015-2016, at which time the Town will need to revise its current Coliform Monitoring Plan.

6.6 EMERGENCY RESPONSE PROGRAM

Under emergency situations, all Town of Concrete Public Works personnel are available for system operation and maintenance. All personal are equipped with Town provided cell phones and contact lists are kept up to date. Depending on the type or extent of the problem, the notification process includes emergency services and fire department personnel. An interlocal agreement between the Town of Concrete and Skagit County for equipment and emergency supplies is in place.

6.6.1 Water System Personnel Emergency Call-Up List

A contact list of Town and emergency personnel is shown in Table 6-5.

Table 6-5: Town of Concrete Emergency Call-Up List

Contact	Name	Phone
Fire/Police/Medical	Skagit County	911
Emergency Services	Skagit County	911
Mayor	Judd Wilson	360-733-5980
Public Works Director	Alan Wilkins	360-770-0394
Assistant Public Works Director	Rich Philips	360-770-1269
Town Engineer Reichhardt & Ebe Engineering	Cody Hart	360-855-1713
DOH Engineer	Nancy Feagin	253-395-6765
DOH Hotline after hours		1-877-481-4901
Skagit County Environmental Health	Lorna Parent	360-336-9380

6.6.2 Notification Procedures

The procedure to notify the Town (and public if necessary) under an emergency condition follows:

- Notify Public Works Department on the type and extent of the problem. Notify the Department of Health. If necessary, notify emergency services and the fire department.
- Contact Public Works Director. Depending on the extent of damage to the water system, appropriate areas will be isolated through valves. Repairs will be made in the following order: 1) storage reservoirs; 2) transmission lines; 3) distribution lines; and, 4) subdivision and feeder lines to isolated areas.
- The type of damage or contamination of the water system will require additional sampling to ensure the water quality is acceptable. If the water quality is not acceptable, the Public Works Director will issue a "boil water" order and notify the Mayor who will notify the local media. Door hangers and postings at the Town Hall will inform residents of the impacted area. Notifications will include a description of the communication process for obtaining status updates after hours, weekends and holidays.

6.6.3 Vulnerability Analysis

The vulnerability of the Town of Concrete's water system was established through field reviews and discussions with Town Public Works staff. The three most critical elements of the water system are as follows:

- Source collection facilities
- Storage facilities
- Distribution system

Currently, the aging and failing distribution system is the most vulnerable component of the Town water system. Town personnel spend countless resources repairing and maintaining out-dated distribution mains and services. Vulnerable facilities within the Town water system have been summarized in Table 6-6, as well as estimate repair/replacement times for each.

Table 6-6: Vulnerable Facilities Summary

Facility	Failure Mode	Repair Or Replacement Time
Grassmere Spring	Collapse/Contamination	2 - 3 Days
Transmission Mains	Leaks/Failure (Break)	24 - 48 Hours
Distribution Mains	Leaks/Failure (Break)	12 - 24 Hours
Storage Reservoirs	Leaks/Contamination	12 - 24 Hours

6.6.4 Contingency Operational Plan

At this time, the Town does not have a second source to use if the Grassmere Spring source becomes contaminated. Therefore, residents will be notified to use bottled water for drinking until the problem is remedied. In the event that source water contamination is bacteriological in nature, the Town will follow DOH requirements with regard to shock chlorination, flushing, public notification, and, if necessary, isolation of the source. The Grassmere Spring source can be isolated from the system through valves, with water for emergency use coming from the three reservoirs.

6.7 SAFETY PROCEDURES

The Town's Public Works Department has a Safety Committee that meets monthly. Safety procedures maintained by the City are:

- All employees are required to notify their supervisor immediately and fill out the appropriate form in the event of a work-place injury.
- Material Safety Data Sheets for all chemicals are located at the Shop.
- Chlorine and air packs are stored at the Shop in accordance with current requirements. The Water System Operator and all other personnel are tested in safety procedures.
- Appropriate clothing is specified when handling specific chemicals.
- All employees are trained in first-aid annually and CPR every two years. First-Aid equipment is maintained at the Town Shop and in Town vehicles.

6.8 SANITARY RECOMMENDATIONS

The DOH performed a Sanitary Survey of the Town's Water system on June 22, 2011. A copy of the Survey is included in Appendix A. The listed recommendations have either been completed or are in the process of being completed or implemented.

6.9 CROSS-CONNECTION CONTROL PROGRAM

The Town has a documented cross-connection control program (CCP), which is included as Appendix F. With respect to requests for new service, the Public Works Department will evaluate the potential for cross-connection and the level of protection needed. Service will not be approved until a cross connection specialist certifies that the connection poses no significant risk to the public water system. The 2008 Town of Concrete Engineering Design Standards establishes requirements and devices for backflow prevention. Table 6-7 summarizes the requirements of the Town of Concrete's cross-connection control program, as stated in WAC 246-290-490.

Table 6-7: Town Cross-Connection Control Program Summary

Element	Responsibility	Status	Notes
Ordinance, Resolution, or By-laws	Town Council	Complete	
Procedures & Schedules for Evaluating Services for Degree of Hazard	Water Staff	Complete	Evaluates or re-evaluates new and existing pipes
Procedures & Schedules for Addressing Cross-Controls	Water Staff	Complete	Device installations are done by private parties
Certified Cross-Connection Specialist (CCS)	Water Staff	Complete	Alan Wilkins, Cert. #8144
Procedures for Inspection & Testing of Devices	DOH	Complete	According to WAC
QA Program for Testing of Devices	Water Staff/ DOH	Complete	According to WAC
Procedures for Responding to Backflow Incidents	Water Staff	Complete	According to WAC
Consumer Education	Water Staff/ Town Council	June 2003	Will implement per CCR
Record Keeping	Water Staff	Complete	
Procedures for Reclaimed Water	N/A[1]	N/A[1]	

(1) The Town water system does not use reclaimed water

The Town Council adopted Ordinance # 531 establishing cross-connection controls in June, 2004. In addition, Town staff includes Cross Connection Control Specialists certified by Department of Social Health Service. Backflow devices must be tested annually by private certified Backflow Assembly Testers. It is the responsibility of the property owners to have the

assemblies tested, and provide results to the Public Works Department. Currently (2012) there are 16 approved backflow prevention devices on the water system. Public Works staff monitors testing status in order to assure that annual testing is accomplished and reports filed.

6.10 CUSTOMER COMPLAINT RESPONSE PROGRAM

The Town of Concrete does not have a formally documented customer inquiry response procedure. However, Public Works Department staff will address and respond to all inquiries pertaining to system operation and water quality. All other issues pertaining to water service such as policy, fees, and rates are forwarded directly to the Town Clerk, Mayor and/or Town Council.

When a water customer inquires or complains about water quality, the Public Works Department conducts the following activities:

- Inspect the service line in question
- Collect water samples for analyses
- Report the findings to the customer
- Take appropriate action to resolve the water quality issue

6.11 RECORDKEEPING AND REPORTING

Sampling schedules are mandated by State regulations. Further information on monitoring requirements can be found in WAC 246-290-300.

DOH requires that a Group A water system keep records of operation and water quality. The specific requirements are found in WAC 246-290-480. These regulations stipulate that the results of water quality testing, operational reports, and other documents related to compliance with the State regulations must be available for inspection. In addition, this information must be submitted to the State. It is the responsibility of the Public Works Department to document, track, and store all records relating to the Town water system. The following sections summarize these requirements.

6.11.1 Test Results for Water Quality Sampling

Any tests that are in non-compliance with State standards must be reported to DOH. Chemical analysis results are kept for as long as the system is in operation. Bacteriological test results are retained for five years at the Public Works Department.

6.11.2 Meter Readings and System Records

Grassmere Spring source flow meter readings and customer service meter readings are documented by Public Works staff and stored at the Town Hall. The water system infrastructure map, water system hydraulic map, water facilities inventory documentation, water rights certificates, plans and manuals are all kept at the Public Works Department. Copies of some of this information are also on hand at Town Hall.

6.11.3 Routine Inspection, Maintenance, and Repair Documentation

Historical documents of infrastructure repair work, equipment maintenance logs, valve and hydrant records, and details of reservoir inspections and maintenance activities are stored at the Public Works Department.

6.11.4 Complaints, Regulations, Violations, and Town Actions

Information regarding easements, written records of actions taken to correct regulatory violations, and billing complaints are stored at Town Hall. All written reports, summaries, technical memoranda, and written communications relating to the water system are copied and stored in both the Town Hall and the Public Works Department.

6.12 SUMMARY OF O&M DEFICIENCIES

The following is a brief list of the Town of Concrete's Operations and Maintenance deficiencies:

- Installation, monitoring, and calibration of source and service meters within the system.

CHAPTER 7

DISTRIBUTION FACILITIES DESIGN AND CONSTRUCTION STANDARDS

7.1 INTRODUCTION

The Town of Concrete has adopted design and construction standards for their water system. This chapter describes those standards and the Town's methods of assuring conformance.

WAC 246-290-125 exempts the Town from submittal requirements to the State Department of Health for review and approval of Project Reports per WAC 246-290-110, and construction documents per WAC 246-290-120 for new distribution mains and other distribution-related projects as defined in WAC 246-290-010 under certain conditions.

- The purveyor has a current Water System Plan (WSP) approved by Washington State Department of Health (DOH).
- The purveyor submits a request for such exemption with each Water System Plan or Amendment, identifying the types of projects to be exempted.
- The purveyor has procedures and standards for preparation, submittal, review and approval of Project Reports, contract plans and specifications, and construction administration/documentation in accordance with WAC 246-290-125 (3).

Exemption for the following project types shown in the Capital Improvement Section of this Water System Plan is requested:

- Distribution Mains
- Transmission Mains

7.2 PROJECT REVIEW PROCEDURES

The Town requires approved construction plans, specifications, and under certain condition a project report per WAC 246-290-110, for projects when water system additions, modifications or improvements are made to the Town's system. Improvements will fall into two categories:

1. Capital Improvement Projects (CIP) proposed by the Town, in accordance with an approved Water System Plan. Typically the Town retains the services of a Design Engineer to prepare the design.

2. Private Developer Projects. In this case, the developer (applicant) normally retains an engineering firm to do the design. The Town reviews the developer's design and monitors construction, testing, and approval process defined in WAC 245-290-110, 120, and 125.

7.3 POLICIES AND REQUIREMENTS FOR OUTSIDE PARTIES

It is Town policy to require developers and new customers to fund necessary improvements caused by impact of additional services. The impacts shall be determined by a hydraulic analysis. The hydraulic analysis shall be directed by the Town and paid for by the developer.

7.4 DESIGN STANDARDS

The distribution system should provide dependable service. This requires proper line sizing and interconnections to provide adequate water pressure and fire protection. Water pressure on the mains should be maintained at a minimum of 30 psi and a maximum of 100 psi throughout the system. The use of individual booster pumps and pressure reducing valves may be implemented to maintain these pressures. The distribution mains should be at least 8 inches in diameter. Valves should be placed at all junctions and branches, and should not to exceed 600 feet spacing in the distribution system. Fire hydrants should be located at every intersection, not to exceed 500 feet in residential areas, and 300 feet, or as directed by the Fire Chief, in multi-family, mixed use, and commercial areas. Any hydrant branch exceeding 50 feet in length should be a minimum 8 inch.

Chapter 2 of the *Town of Concrete Engineering Design Standards, April 2008*, relating to water system improvements can be found in Appendix G.

7.5 CONSTRUCTION STANDARDS

See Appendix G.

7.6 CONSTRUCTION CERTIFICATION AND FOLLOW-UP PROCEDURES

All distribution system construction is monitored and observed by the Public Works Department. Pressure testing, flushing and disinfection are done under the direction of the Public Works Department or its engineer. After receipt and approval of as-built drawings from the developer's engineer or surveyor, the Public Works Department or its engineer shall certify the results of the pressure test and disinfection.

CHAPTER 8

IMPROVEMENT PROGRAM

8.1 INTRODUCTION

The purpose of this Chapter of the Water System Plan is to plan, schedule and estimate the cost of upgrading the Town of Concrete's Water System to eliminate current deficiencies and provide for growth into undeveloped areas. Several of the improvements to the system that were described and recommended in the 2002 Water System Plan have not yet been completed, and they have been incorporated into this plan. This section lists the improvements recommended for the next six year planning period, and the 20 year planning period.

Section 1 through 7 of this Water System Plan evaluated the various elements of the Concrete water system and identified deficiencies that must be addressed. The Capital Improvement Plan (CIP) prioritizes these deficiencies, identifies alternatives, and presents cost estimates. This information is presented in Table 8.1, and establishes a schedule of system improvements to enable Concrete to financially plan and prioritize projects. The CIP prioritizes projects based on their importance to the system and serves as the basis for the financial analysis presented in Section 9. The CIP summary worksheet (Table 8-1) identifies planned expenditures through 2017 and creates a single long-term (2018-2031) compilation of expenditures. All cost estimates are based on year 2010 dollars.

8.2 PRIORITIZING IMPROVEMENTS

8.2.1 Identification of Capital Improvements

Capital improvements are generally classified as follows:

System Wide Improvements
Source Improvements
Storage Tank Improvements
Transmission Main and Distribution System Improvements

8.2.2 Assessment of Alternatives

Where there is more than one solution to eliminating a deficiency, alternatives are presented. In some cases the alternatives will required additional evaluation and planning, which is beyond the scope of this plan.

8.3 RECOMMENDED IMPROVEMENTS

8.3.1 System Wide Improvements

Service meters are required to be installed on all services by January 22, 2017 in accordance with the 2003 Municipal Water Law. A service meter installation schedule was due on January 1, 2009. There are approximately 430 unmetered services in the Town. The Town will need to begin installing meters in 2012, at the rate of approximately 90 per year.

The cost will depend upon the type of meter selected, the location physical condition of each existing service, the meter reading system selected, and the method of installation, either by contract or by Town maintenance personnel.

8.3.2 Source and Reservoir Improvements

The source must be metered. Production meters were required to be installed by January 22, 2007. The existing meter downstream from the Grasssmere Reservoir does not adequately record all production water, since a substantial amount of non-consumptive water is released through reservoir overflows. There are two alternatives to metering the source described.

Alternative 1, Meter the source and reservoir overflows. This alternative keeps the system operating essentially as it is now, while addressing the requirement for source metering and system leakage. This includes installation of a meter at or near the springbox to record all water captured, and installation of meters at all of the reservoir inlets and outlets to deduct the non-consumptive water. If approved by the Department of Ecology, it will allow the Town to quantify the source water to meet the source metering requirement and to determine system leakage to satisfy the Water Use Efficiency Program requirement. It may be possible to utilize the existing source meter downstream from the Grassmere Reservoir rather than installing a new meter at the spring.

Advantages to this Alternative include increased water turnover in the reservoirs to keep the stored water fresh, and to reduce the chance of coliform problems. The cost is also less than other alternatives. Disadvantages include; non-consumptive water may be needed in the future as water demands increase.

Alternative 2. Reconfigure the system with the existing altitude valve at the Grassmere Reservoir, in such a manner as to prevent overflows. Re-activate the Pressure Reducing Valve downstream from the Grassmere Reservoir to lower the system pressure at the Seidel and Fir Reservoirs. Altitude valves or other level controls would need to be installed at the Seidel and Fir Reservoirs to maintain proper turnover. Mixers or other circulating devices may need to be installed in the Reservoirs to prevent stagnation. Piping inside and outside of the Reservoirs may need reconfiguration. A telemetry system would be almost essential to monitor the tank performance. Advantages to this Alternative include conservation of water resources and better monitoring of the tanks and source. Disadvantages are higher cost.

Recommendation. Proceed with Alternative 1. A budget figure based upon this alternative is included in Table 8-1.

8.3.3 Alternative Source

The source currently used is the Grassmere Spring. Water quantity from the spring is sufficient under the current DOH requirements, however the Town should ideally have a minimum of two sources for water. A back up source should be available for emergency use and reliability. This source could include surface water from a lake or a river or a second groundwater well. Water rights for the Grassmere source are projected to be adequate for 20 years, but additional wells with new or revised water rights may be required to produce the amount of water required for the future. If the Town elects to have a secondary source of water, then additional facilities and operational costs will ensue. Some of the alternative water source options may require the Town to build a Water Treatment Plant (WTP), transmission mains, wells, and/or booster pump stations. There are several alternatives available to the Town for developing a new source of supply, as follows.

Alternative Source 1) Surface water from Lake Shannon. This water will require treatment and may require pumping to service the Town. Disadvantages include; blending surface and spring water may cause problems, and will introduce chlorine into the water system; the cost may be prohibitive; and O&M costs will be high.

Alternative Source 2) Surface water from Baker River which runs through the Town of Concrete. This water will require treatment and will require pumping to serve the Town. Disadvantages include; blending surface and spring water may cause problems, and will introduce chlorine into the water system; the cost may be prohibitive; and O&M costs will be high.

Alternative Source 3) Collect surface water or ground water from the watershed northeast of the Town, near Everett Lake, within the Jackman Creek basin. Ideally, wells would be drilled or a spring would be located further north on the basin to obtain better ground water quality. However, the further north the well is located, the further the water would have to be piped. Advantages include; water will be of higher quality than treated surface water; and cost may be lower than constructing a treatment plant.

Alternative Source 4) Develop another spring or well in the Grassmere Aquifer. There are other springs near the Grassmere Spring that have been used in the past, and it may be possible to develop one or more additional sources from the aquifer without diminishing the water from the Grassmere Spring. There are distinct advantages to this alternative, including the possibility of utilizing existing water rights. Cost of connecting to the system would be much less than other alternatives. The water quality is known, and treatment would not be required.

The recommended Source Alternatives are 3 and 4. A feasibility study and Engineering Report will be required, which will include a hydro-geologic study, water right evaluation, constructing test wells, water quality testing, and cost analysis. The Alternative Source Analysis is included in the Capital Improvement Program in Table 8.1

8.3.4 Pressure Zone Improvements

Under current operation, the system consists of one gravity pressure zone, defined by the pressure reducing valve downstream from the Grassmere Tank and the nearly identical water levels in the Fir and Seidel Tanks. Several existing homes located above the 310' elevation North of Limestone near the Seidel Tank are not able to maintain 30 psi when the Seidel and Fir Reservoirs are near empty. Two existing homes are affected and are known to have individual booster pumps to maintain adequate pressure. The magnitude of this problem is relatively small and is handled by requiring new home construction in the higher areas of the Town to utilize individual booster pumps.

8.3.5 Distribution System Improvements

The existing distribution system has many pipes that are undersized or in poor condition. Many of the undersized pipes supply fire hydrants, with no alternative but to be replaced. Others are in poor condition, including old wood stave and asbestos cement pipes which are prone to leaks and breaks from pressure spikes.

Hydraulic modeling was used to identify areas of the distribution system that will need to be upgraded to meet fire flow requirements. System deficiencies and upgrades are identified in Chapter 3, and are prioritized in Table 8-1.

8.3.6 Storage Improvements

The Fir Storage Tank is a wood stave tank that is nearing the end of its service life. The June 22, 2011 Sanitary Survey Report, by the Department of Health recommended that the reservoir be replaced. This is a relatively large undertaking, and is included in the short term improvement project. If funds become available, the project could be designed and built in a reasonable short time period. The capacity of the storage tank is recommended to be a minimum of 200,000 gal.

8.4 CAPITAL IMPROVEMENT SCHEDULE

The 6 and 20 Year Comprehensive Water System Plan, Sheet 2 shows a general layout of improvements required to eliminate deficiencies and serve future development areas within the Service Area. Projects listed on the 6 year improvement schedule are principally the Town's responsibility, while the majority of the long term projects beyond the 6 year schedule are Developer Responsibility. Town Responsibility consists of General Facilities projects that benefit the general public such as source and storage improvements, replacing undersized transmission mains and older deteriorated water lines, meter installation, rate studies and water system planning. Developer Responsibility consists of replacing undersized or inadequate facilities that benefit specific private properties, such as increasing line size to provide fire flow to a new building or development. Developers will also be responsible for extending new lines to serve their developments in areas that do not presently have water service. Table 8-1 lists the Capital Improvements that address water system deficiencies through the year 2031. There are other deficiencies that may be addressed during the life of this plan. When the Town does major street improvements they often replace utilities that may be adequate to meet existing demands,

but should be enlarged to meet Town Standards or be replaced because of poor condition or age. These types of projects are not included in Tables 8-1 or 8-2.

Table 8-1: Capital Improvement Schedule, Six Year

No.	Location	Description	Est. Cost
1	Source	Source Meter, Reservoir Overflow Meters	$85,000
2	System Wide	Service Meters	$325,000
3	Cupples Alley	8" Pipe Upgrade	$50,000
4	Main St.	8" Pipe Extension	$110,000
5	Crowfoot Area	8" Pipe Upgrade	$275,000
6	N. Rietze Ave., Spring St., N. Park Ave.	8" Loop Extension	$162,000
7	Limestone St., Calcite St., E Ave.	8" Pipe Extension	$155,000
8	B Ave.	8" Pipe Upgrade	$51,000
9	S. Park Ave.	8" Pipe Extension	$68,000
10	Baker St. to N. Dillard Ave.	8" Pipe Extension	$38,000
11	Douglas Vose III Way to Mill Ave.	8" Pipe Extension	$87,000
12	Mill Ave., Division Ave., Dillard Ave.	8" Pipe Extension	$270,000
13	First St. and Grassmere Rd. to Sauk Valley Rd. and SR20	12" Pipe Extension	$302,000
14	Pine St.	8" Pipe Upgrade	$57,000
15	Fir St. to Superior Ave.	8" Pipe Extension	$99,000
16	Fir St. to Cedar Ave.	8" Pipe Extension	$58,000
17	System Wide	Source Study	$50,000
18	North of Limestone St.	Water Storage Tank	$300,000

Table 8-2: Capital Improvement Schedule, Long Term

1L	Central Concrete, Proposed Cedar and D St.	8" and 12" Future Connections	$569,000
2L	Limestone St.	8" Pipe Upgrade	$152,000
3L	SR20, East	8" Pipe Extension	$216,000
4L	Airport Way to S. Dillard	8" Pipe Extension	$204,000
5L	SR20, West	12" Pipe Extension	$760,000
6L	W. Dalles	12" Pipe Extension	$615,000
7L	Sauk Valley Rd.	8" and 12" Pipe Extensions	$822,000
8L	System Wide	Locate and Utilize an Additional Water Source	$3,000,000

CHAPTER 9

FINANCIAL PROGRAM

9.1 GENERAL DISCUSSION

The Town of Concrete is a Municipality organized under the laws of the State of Washington. The Town operates the Concrete Water System as part of the Public Works Department. Budgets are adopted annually for Public Works operations, maintenance and capital improvements. Rates and connection fees are adopted by ordinance and adjusted as needed. The Town has two funds for the water system. The Water Fund includes water income and expenditures. Income is generally derived from retail and wholesale water rates. Expenses include operation and maintenance costs plus capital improvements. The Water Reserve is a fund that can be used for emergencies and capital costs. The Water System has a less than 1,000 connections and as a municipal utility, is not regulated by the Utilities and Transportation Commission (UTC).

9.2 PAST FINANCIAL STATUS AND CURRENT REQUIREMENTS

The Town maintains budgetary controls over the water system. Rates and connection fees have been set and will continue to be set at levels required to finance operation, maintenance and capital improvements. Residential and some commercial connections are unmetered and are billed at a flat rate. Metered connections have historically been set on a decreasing block rate structure. A major source of income has been a wholesale customer, Advanced H20, LLC. Copies of the current rate ordinance and the wholesale water supply agreement are included in Appendix B.

Table 9-1 is a summary of the financial history of the Water Fund for the past six years (2006-2011). This table does not include the Water Reserve Fund.

Table 9-1: Town of Concrete, Water System Financial History

Source of Funds	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Rate Revenues	326,172	326,617	298,009	287,137	306,194	296,176
Other Revenues	2,748	5,839	6,1959	4,345	33,739	5,743
Total Revenues	328,919	332,456	304,204	291,482	339,933	301,919
Beginning Cash & Investments	90,745	216,760	313,155	233,299	82,466	23,397
Total Sources of Funds	**$419,664**	**$549,216**	**$617,359**	**$524,781**	**422,399**	**325,316**
Application of Funds	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Operation & Maintenance	160,169	199,222	206,515	209,323	233,469	210,496
Capital Costs	42,653	36,839	182,350	23,7819	165,533	97,620
Less: Other Funding (Grants/other revenue)	0	0	0	0	0	18,740
Total Expenses	**$202,822**	**$236,061**	**$388,865**	**$447,142**	**399,002**	**289,376**
Balance / (Deficiency) of Funds	**$216,842**	**$313,155**	**$228,494**	**$77,639**	**23,397**	**35,940**

As Table 9-1 depicts, the water costs, including capital improvements have been generally financed by water revenues. The Water Reserve Fund is used to fund portions of water system capital requirements when needed. The source of the water cash reserve is business and occupation (B&O) tax and water connection fees. The interest earned from this fund is reinvested into the fund. The ending balance for the Water Reserve Fund for 2011 was $389,592.

The Town is required to provide source metering [WAC 246-290-414(3) & (5)] and service meters [WAC 246-290-496(2) (c) and (d)]. The service meters must be installed by January 22, 2017. After service meters are installed and operational, a new rate structure must be implemented to replace the existing flat rate structure. A recent water budget and rate analysis by the Rural Community Assistance Corporation (Appendix L) recommended that the Town replace its current rate structure for metered connections with an increasing block rate. This is also a goal in the Town's Water Use Efficiency Program (Appendix J). Historically when a metered rate structure is adopted, water use declines, and rates must be adjusted to ensure that fixed costs are covered.

9.3 IMPROVEMENT PROGRAM FINANCING

9.3.1 Required Improvements

Capital Improvements 1 and 2 from Table 3-7 are for installation of source and service meters. The source meters were to be installed by 2007, and the service meters are required to be installed by January 22, 2017. The estimated cost for both source meters and service meters is $410,000, with installation assumed to occur over a 4 year period, from 2013 through 2016. The potential sources of funds are:

1. Rate increase. This would amount to approximately $16.00 per month per service.
2. Water Reserve Fund, possibly supplemented by a rate increase in order to avoid depleting the reserve account.
3. Bureau of Reclamation Conservation Grant. Applications are due in January of every calendar year.
4. Drinking Water State Revolving Fund. Meters can be funded as part of a larger program, but not on their own. Applications are generally due March 1 of every year. Loans are 20 year low interest with some principal forgiveness available. This is a traditional funding source for qualifying water systems.
5. Public Works Trust Fund. Applications are generally due in May of every year. Loans are 20 year low interest, and grants may be available.
6. USDA – Rural Development. Loans and grants are available to qualifying municipalities under 10,000 population. Loans are 40 year at market interest rates.
7. Municipal Bonds. Both Revenue and General Obligation Bonds are a source of funding, but tend to be an expensive source for small projects.
8. Utility Local Improvement District. ULIDs could be formed, and the cost of improvements assessed to all property owners over a 15 year period. This can complicated and expensive and is not recommended without further analysis.

9.3.2 Other Capital Improvements

The 6 year Capital Improvement Program shown in Table 3-7 has a total cost of nearly $2.3 million dollars. In addition to the metering projects discussed in the above section, Projects 3, 4, 12 and 17 are considered as high priorities. Projects 3, 4 and 12 replace the remaining wood stave pipes and other deteriorated pipes, and should be completed as soon as possible. These projects are the Cupples Alley, Main Street, and Mill Avenue water main projects. Project 17 consists of a study for a second source. Project 18 consists of replacement of the wood stave Fir reservoir, which is in poor condition. The Town is currently pursuing funding for completion of Projects 1, 2, 3, and 12. Grants and low interest loans will be used, if available, to fund the Fir reservoir and other capital improvements shown in Table 3-7. Some of the listed projects may also be constructed with developer funds. Table 9-2 lists the projects proposed to be completed in the next 6 years along with proposed funding requirements. Funding sources for these designated projects are generally the same as listed in the above section. The funding source shown in tables 9-2 and 9-3 is assumed to be a 20 year low interest loan from the Public Works Trust Fund or the Drinking Water State Revolving Fund. Rural Development (RD) funding could also be utilized. The 40 year repayment period from a RD loan would result in lower annual principal payments but higher interest payments.

Table 9-2: Summary of Proposed Water Capital Improvement Projects & Funding Sources

CIP No.	Projects	2012	2013	2014	2015	2016	2017
1	Source Meters			$85,000			
2	Service Meters		$25,000	$100,000	$100,000	$100,000	
3	Cupples Alley & Main St. Mains				$160,000		
12	Mill Ave. Mains				$270,000		
17	Source Study			$50,000			
	Misc. Cap. Imp.	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
	Total Capital Outlay	**$50,000**	**$75,000**	**$285,000**	**$580,000**	**$150,000**	**$50,000**
	Funding	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
	Loan or Bond		$25,000	$185,000	$530,000	$100,000	
	Local Funds	$50,000	$50,000	$100,000	$50,000	$50,000	$50,000
	Total Funding	**$50,000**	**$75,000**	**$285,000**	**$580,000**	**$150,000**	**$50,000**

9.4 FUTURE FINANCIAL PLANNING

Historical financial data, shown in Table 9-1, and revenue requirements for capital improvements shown in Table 9-2 were utilized to prepare the 6 year budget, shown in Table 9-3.

9.4.1 Available Revenue Sources

The principal source of funding for the water department is from sale of water, which is made up of two main categories, Retail and Wholesale. Retail sales include all individual residential, commercial and institutional water within the Town's service area. Commercial and institutional water sales are only partially metered, and residential use is unmetered. All unmetered sales are billed on a flat rate basis. The revenue projections assume the following:

1. Retail water sales will have an annual 2% inflation increase over the next 6 years. The flat rate for unmetered services will need to be maintained until service meters are installed. A rate study will be required to insure that the switch from a flat rate to a metered rate will continue to produce the required revenue.

2. Revenue from growth was not included in the projections. Actual growth has been very slow over the past several years and cannot be counted on in the near future.

3. Revenue from connection charges and B&O contributions was not included in the Water Reserve Fund.

4. Wholesale water sales will continue through 2017, with rate escalation similar to the ones in the current contract. Wholesale water sales are a major source of water income. The Town has a long standing contract for water with Advanced H2O, a water bottling company. The current contract expires in November of 2014, and is expected to be renewed at that time. The agreement has a price escalation clause in which rates increase every two years. It is also assumed that the volume of wholesale water sold will remain stable. As can be seen in Table 9-3, wholesale water sale is the major source of income for the water department. Sales depend upon the high quality of water from the Grassmere Spring. Water from an alternate source, or changes to the water system that affect water quality could result in loss of wholesale income, and require substantial rate increases to the retail customers to make up the difference.

5. Operation and maintenance grew at approximately 8% per year from 2006 through 2010 and then leveled off in 2011. It is assumed that O&M will continue to increase at 8% per year, due to increased regulatory demands, and the addition of meters to the system.

6. Capital improvements in Table 9-3 are taken from Table 9-2. A separate item for miscellaneous capital improvements was added to account for minor improvements that must be done from time to time.

7. The source of funds for the capital improvements is assumed to be a DWSRF or PWTF loan in the amount of $840,000. Debt service is computed at 1% over 20 years. The actual terms of the loan will vary depending upon phasing, drawdown and other factors.

The fund balance for 2012 includes the remaining balance from 2011, (Table 9-1). Table 9-3 shows that debt service for the selected capital improvements from Table 9-2 can be covered within the 6 year budget period with only inflationary rate increases. However the Water Fund balance decreases rapidly and rates may need to be increased in 2015, or contributions made from the B&O tax fund, in order to cover debt service in future years.

The loan for capital improvements shown in Table 9-3 covers only the most pressing needs, meters and replacement of wood and asbestos pipe. Additional funding should be pursued for the remainder of the 6 year capital improvement projects, and specifically replacement of the Fir Reservoir.

Table 9-3: 6 Year Water Fund Budget

Year	2012	2013	2014	2015	2016	2017
Source of Funds						
Retail Rate Revenues	$126,252	$128,777	$131,353	$133,980	$136,659	$139,392
Wholesale Revenues	$199,611	$199,611	$214,455	$214,455	$229,183	$229,183
Other Revenues	$6,030	$6,332	$6,648	$6,980	$7,330	$7,696
Grant/Loan Income		$25,000	$185,000	$530,000	$100,000	
Total Revenues	**$331,893**	**$359,720**	**$537,456**	**$885,415**	**$473,172**	**$376,271**
Expenses						
Operation & Maintenance	$227,336	$245,523	$265,165	$286,378	$309,288	$334,031
Capital Costs		$25,000	$185,000	$530,000	$100,000	
Loan Interest/Principal				$46,000	$46,000	$46,000
Misc. Capital Improvements	$50,000	$50,000	$100,000	$50,000	$50,000	$50,000
Total Expenses	**$277,336**	**$320,523**	**$550,165**	**$912,378**	**$505,288**	**$430,031**
Income less Expenses	**$54,557**	**$39,197**	**$(12,709)**	**$(26,963)**	**$(32,116)**	**$(53,760)**
Water Fund Balance	**$90,498**	**$129,695**	**$116,986**	**$90,023**	**$57,907**	**$4,147**

9.4.2 Reserves

Financial Viability of the water system requires reserves for operations and emergency replacement of the most vulnerable component of the system. Operating cash reserves are normally 45 days of operating expense, or 1/8 of the annual O&M budget. Emergency reserves are normally the cost of replacing or repairing the most vulnerable facility. Replacement or repair of the water source and transmission line from the source has been determined by the Town to be the most vulnerable facility, at a cost of approximately $100,000.

The Water Reserve Fund is unallocated, but should not be allowed to drop below the minimum of 1/8 of the O&M budget plus $100,000, adjusted for inflation. An estimate of the minimum fund balance is shown in Table 9-4.

Table 9-4: 6 Year Water Reserve Fund Budget

Year	2012	2013	2014	2015	2016	2017
Operational Cash Reserve	$28,417	$30,690	$33,146	$35,797	$38,661	$41,754
Emergency Reserve	$100,000	$102,000	$104,040	$106,121	$108,243	$110,408
Total Reserve Requirement	$128,417	$132,690	$137,186	$141,918	$146,904	$152,162

9.4.3 Financial Viability Test

The financial viability test consists of four related financial tests. The first three deal with the adequacy of the O&M Budget, Cash Reserves and Operating Reserves.

O&M Budget

The revenue generated must meet the expenses. Table 9-3 shows that Income less Expenses is a positive number until the 3rd year, when expenses begin to exceed revenue. The budget figures should be updated annually, and used to plan improvements and rate adjustments.

Reserves, Operating Cash and Emergency

Table 9-4 shows the minimum reserves to be maintained in reserve funds. At the end of 2011 the Water Reserve Fund had a balance of $389,592, which is in excess of the estimated requirement of $128,417 for 2012 as shown in Table 9-4. The Water Reserve Fund is not allocated. Consideration should be creating two funds, an Operating Cash Fund and an Emergency Fund. A Bond Reserve or Loan Reserve Fund may be required if loans or bonds are utilized for financing capital improvements.

Median Household Income Index Analysis

The Department of Health guidelines for financial viability recommend that water rates not exceed 1.5% of Median Household Income. The MHI for Concrete in 2009 was $29,102. 1.5% x $29,102 = $436.53.

Residential water flat monthly rate inside the Town is $25.80 per month = $309.60 per year. Outside the Town is $36.20 per month = $434.40 per year. The residential water rates do not exceed 1.5% of the Median Household Income. It should be noted that the Town has a large debt for a recently constructed sewage treatment plant, and combined water/sewer bills average approximately $100 per month.

9.4.4 Rate Structure Analysis

The current rate structure for unmetered residential and commercial customers is a flat rate, and the few existing metered commercial and institutional services are charged on a decreasing block rate. This type of rate structure does not promote or encourage conservation. WAC 290-100 requires an evaluation in the Water System Plan of a rate structure that encourages conservation. The Water Use Efficiency Guidebook recommends an increasing block rate structure that charges a higher amount per unit of water as use increases. The Water Use Efficiency Program

adopted by the Town (included in Appendix J) states that the Town will adopt a uniform rate billing structure after meters are installed, and will utilize an inclining block rate. This will require a rate study to determine an equitable base or fixed rate and a commodity rate for the actual amount of water used. It is important to establish the metered rates high enough to maintain the required revenue to pay for required improvements.

In September of 2011, the Rural Community Assistance Corporation performed a fiscal analysis of the water department, including a discussion of restructuring water rates. A report was generated and is included in Appendix L. The report concluded that the Town is in a financial position to make investments in the water system. It further recommended that the Town restructure its current rate schedule to an increasing block rate and a reduction of tiers. The Town has a number of commercial meters installed, and could institute an increasing block rate for existing metered customers.

Town of Concrete
Town Council Meeting
May 29, 2012

7:00 p.m. Mayor Wilson called the meeting to order. Mayor Wilson led the gallery in the Pledge of Allegiance.

Roll Call: Council Members: Jack Mears, Dave Pfeiffer, Michael Bartel, Marla Reed and Jason Miller.

Staff Present: Town Attorney David Day, Clerk Treasurer Andrea Fichter, Town Planner Jeroldine Hallberg and Public Works Director Alan Wilkins.

Audience Members Signed In: None.

Public Participation: Karren Wegers – Water Fine: Karren explained that her water service had been shut off; a zip tie placed on the valve and that the zip tie had been reported as broken. She stated that neither she nor her husband had turned their water back on. She stated they paid their utility bill current, but could not afford to pay the fine to have their water turned back on. Karren stated that her husband has been struggling to pay the bills after taking over his father's finances after his death.

Public Works Director Alan Wilkins reviewed the timeline and discussed when the water was turned off and turned backed on, and why the theft of services fine was assessed.

Kristen Siler stated that Karren babysits her children and that she had to buy her water last week to cook dinner and make her son's bottle. She also stated that she was at their home until 11 pm that night watching movies and that Karren and Tracy did not have water.

Jason Miller stated that according to the timeline there is a history of delinquency as well as the water being turned on after being turned off by town staff.

Karren again stated that she or her husband had not turned the water back on.

Jason Miller stated the council is charged with enforcing the ordinances of the town and the timeline associated with this utility account causes some concern.

Discussion ensued regarding the timeline and the water services being turned on. Karren stated that she knows that it sounds unbelievable, but they did not turn their water on. She stated that someone else must have turned it on.

Kristen Siler stated that she had bought the couple food and other things because they could not afford to do so. She stated it's been one year since the death of Karren's father-in-law and the couple is struggling to pay their bills. She stated that Karren's husband has a large portion of his check being paid to child support, leaving them with such a small pay check with which to pay bills.

Jack Mears made a motion to turn the Wegers' water back on with the bill remaining current for six (6) months. (Jack Mears later rescinded this motion.)

Jason Miller made a motion to turn the water back on, keeping the bill current and giving them six (6) months to pay on the fine. (Jason Miller later rescinded this motion.)

Mayor Wilson suggested giving them a year to pay on the fine. He stated that giving them only six (6) months would increase their monthly payments by $83.33, making it more difficult for them to remain current.

Jason Miller made a motion for the water to be turned back on and the $500.00 fine to be broken into twelve (12) monthly payments of $41.67 beginning with the next payment, having the fine completely

paid off within one year and for the bill to be kept current until such time the fine is paid in full. Jack Mears seconded the motion. The motion carried unanimously.

Andrea Fichter will put this motion in writing for the homeowners.

<u>Special Presentations:</u> **Public Safety:** Mayor Wilson reported on a couple emails received from council regarding the Public Safety Building. Discussion ensued regarding the aesthetics of the building. Mayor Wilson stated that some minor alterations can be made to the design as long as they are not changing the structural integrity of the building.

Jeroldine suggested having an architect look at the Superior Building as well and have them aesthetically match the two buildings.

Discussion ensued on the ADA requirements for the building. Mayor Wilson stated he is going to contact the Sedro-Woolley Fire Chief to discuss a tour of the fire station on Highway 9. He stated he will try to set this up for June 15 at 11 a.m. for those council members who would be interested in viewing the building. Mayor Wilson stated that the grant writer, Michelle Mazzola would also like a copy of the plans to view while researching grants.

Mayor Wilson asked council if they had any other public safety concerns. Deputy Marlow reported that things in town have been pretty quiet except for a stabbing incident involving two (2) juvenile girls that took place last week.

Jack Mears stated that he had spoken with Rick Williams, who had reported that he has a lot of kids that he is taking care of that have no other place to go. Jack also reported that Rick will be carving some large totems in front of his place this summer.

There was a question on possible gang members that are now living in town. Deputy Marlow stated that he knows of the individual in question, but cannot confirm or deny any possible gang affiliations.

Jason Miller questioned a party that occurred on a weekend around Prom that he had heard took place at a certain adult's home and that this adult either supplied or allowed minors access to alcohol. Deputy Marlow stated he cannot confirm that the party even took place. He stated it was reported to have occurred outside of town limits on private property and he could not confirm the presence of that adult in question or that this adult provided the alcohol.

Reichhardt & Ebe Engineering – Cody Hart: Cody requested that Carl be allowed to speak on the Water System Plan at this time.

Carl reviewed the comments and suggested changes received from the State regarding the Water System Plan (WSP) update. He reviewed each of the suggestions and changes noted in the letter from the Department of Health (DOH) that need to be changed or included in the WSP. He explained the changes that have already been incorporated into the plan. He discussed the rates and that the State had recommended the town increase their rates to be able to financially cover some of the projects listed in the WSP. Carl stated that he believes the current rates are sufficient to cover a majority of these projects. He further reviewed the suggestions and the need to have the plan adopted. Carl proposed adoption of the WSP with the eleven (11) suggestions/comments from DOH to be addressed.

Carl further reviewed the revenues compared to expenditures and the items that could be completed with possible loans from the Public Works Trust Fund.

Jason Miller made a motion to adopt the Water System Plan with the Department of Health comments incorporated or addressed in the document. Dave Pfeiffer seconded the motion. The motion carried unanimously.

It was stated the Capital Facilities Plan will also need to be updated to reflect the items listed in the Water System Plan as well.

Cody reported they had completed the walk-through on the East Main Street waterline project today and that no punch list items had been determined. He stated there should be a final pay request ready for the next council meeting.

Cody also reported they are at about 70% complete with the Main Street reconstruction plans. He also stated he will be contacting Adam LeMieux in Rick Larsen's office to discuss the options for FEMA funding for the Public Safety Building.

He also reported on the FEMA funding being available now for the permanent repairs to Burpee Hill Road. He stated the town should be able to go out to bid in July, with construction occurring in August. He also stated the road will most likely have to be closed for approximately one week during construction.

CCTV Bid Award: Cody reported on the recommendation to award to EconoVac on the base bid amount, which is less expensive than the alternate bids that were also included. Cody stated that he had a meeting with Alan, Andrea and the mayor to discuss the financing for this project. He also explained the process associated with the CCTV.

Jason Miller made a motion to award the bid to EconoVac with a not-to-exceed amount of $31,968.12. Jack Mears seconded the motion. The motion carried unanimously.

SCOG Grant Application: Jack Mears expressed concerns regarding this project. He detailed items that the town is currently working on and the costs of these projects. He expressed his concerns regarding building this road and that the gates were installed for a reason. Jack stated he does not believe this project is a good idea for the town. Jack also stated that he believes this project is not worth it for the town to complete and he will fight against it. He also stated he would have put together a petition if he'd had more time.

Cody explained the changes that had been made to the application after discussions at the last council meeting. He also stated the submittal deadline is the end of this month. Cody stated he is at the town's direction.

Jack Mears stated again that he does not believe in this project. He also stated that he spoke with James Mastin at SCOG and that they do not give grants, they give loans. Andrea Fichter stated the money is a grant from the federal government passed through SCOG. She stated the money is a grant, not a loan and that the funding is not coming directly from SCOG.

Jason Miller stated that he disagrees with Jack. He stated when it comes to municipalities and communities, connectivity is a good thing. Jason stated that he also believes it's a good project to complete, that it would also encourage development in this area. Jason stated the town needs to think more long term. He also stated the gating of the road is a tough issue. Jason also stated that it would not be a highway, it would be a street and policed like every other street in town.

Dave Pfeiffer stated that he has not seen any industry proposed for this town. Dave stated that he believes the developer should have to pay for the road construction and the town should not have to pay for the infrastructure. He also stated that it's not a street at this time, it's a dirt road. He does not believe there is any demand to build in this town and does not agree with the building of this road.

Jack Mears suggested the town finish the projects that it currently has listed. He also questioned why the town should put in the infrastructure for the developer. He stated the developer should have to pay for this. Discussion ensued regarding development.

Mike Bartel stated that he believes this is a good project with this area's potential for growth and the town should try to encourage development. He also stated that with development comes more revenue for the town and the town could benefit as a whole from this one road improvement.

Cody stated the town has been lucky this last year in the amount of grant funding it has received. He also stated that this is just the submittal of the application and that there are no guarantees the town

will receive the funding. He also stated that funding for these types of projects may not be available in the future.

Further discussion occurred on where the road cuts through the property in question and the town possibly using eminent domain when constructing the road to reduce costs.

Marla Reed stated that she agrees with Jack regarding the amount of projects and other streets in town that need repair, that the town should complete first. She stated that she believed this was originally discussed as a second access not a full-blown road construction. She stated that she also can see potential for growth and the points made by Jason and Mike. Marla questioned if the town has the required matching funds. Andrea Fichter confirmed that the town has the matching funds.

Jason Miller made a motion to submit the grant application. Mike Bartel seconded the motion. The motion carried with David Pfeiffer and Jack Mears opposed.

Consent Agenda

- Town Council Minutes: May 14, 2012
- Claims Warrants: #27095-#27112
- Payroll Warrants

Jason Miller made a motion to approve the consent agenda. Marla Reed seconded the motion. The motion carried unanimously.

Public Hearings: **Town of Concrete 6 Year TIP Amendment – Resolution #2012-09:** Andrea and Jeroldine gave updates on the need for the amendment to the TIP.

Dave Pfeiffer questioned the projects listed and if the town was spending more money it doesn't have.

Andrea stated that all the projects are listed in the transportation portion of the town's Capital Facilities Plan. She also stated these projects need to be part of the TIP to be eligible to apply for federal funding. She also stated this is a plan and none of the funding has been secured nor the projects actually finalized.

Mayor Wilson opened the public hearing for public comment at 9:09 p.m. With no public in attendance Mayor Wilson closed the public comment portion of the hearing at 9:09 p.m.

Jason Miller made a motion to approve Resolution 2012-09. Marla Reed seconded the motion. The motion carried unanimously.

Old Business: **Event Application – Fly-In:** Andrea stated the application and the signed agreement have been received.

Jason Miller made a motion to approve the events application. Marla Reed seconded the motion. The motion carried unanimously.

Water System Plan Update – Adoption: Moved to earlier in the meeting.

Mears Field Lot #39 Transfer Request: Andrea reported on the request made in March of 2012 by Steve Bolan and Clarkson. She stated a letter was sent to Clarkson informing him he would be assuming the current lease and not getting a new lease. She received the letter back from Clarkson stating he had read and acknowledged the stipulations and would like to know how to proceed.

Jason Miller made a motion to approve the lease transfer request. Marla Reed seconded the motion. The motion carried unanimously.

New Business: **eCivis – Grant Research License:** Andrea reported this item could be moved to the next meeting due to time constraints this evening.

Events Application – Concrete Chamber, Fourth of July Parade: Jason Miller made a motion to approve the events application. Marla Reed seconded the motion. The motion carried unanimously.

Skagit County Agreement C20040083 SHB 2060 Amendment and Skagit County Agreement C20060468 SHB 2163 Amendment: Andrea reported on the changes to the agreements. She stated there was a name change from Skagit County Community Action to Skagit County Community Services and the amendment makes changes in the actual agreements to reflect this.

Jason Miller pointed out a possible typo on page 71 of the council packets, where the word "compromised" should be "comprised."

Jason Miller made a motion to approve the amendments to both agreements. Marla Reed seconded the motion. The motion carried unanimously.

45906/08/10 Main Street – Sewer Lien: David Day stated he had not heard back from the Skagit County Treasurers Office regarding the current property taxes owed. He stated he would like to revisit this item at the next meeting.

Discussion Items: PSE Payment Request: Nothing to report.

Clifton Gravel Pile: Mayor Wilson stated that Jack Clifton had called him and reported that the gravel piles would be leveled this weekend. Mayor Wilson also stated that he will request this in writing.

45501 Main Street: David updated on the next steps and the possible costs associated with this. He also stated that Columbia Bank unofficially declared they no longer have any interest in this property. Andrea stated the council should review the timeline provided and research the town's next steps so they can discuss further at the next meeting for an actual decision as to what to do with this property.

Council Reports: Airport: Jack Mears: Jack reported there's not much going on at the airport.

Parks: Jason Miller: Andrea reported that a young woman should be contacting Jason regarding her interest in being on the Parks Committee and that she also wanted to purchase bleachers to place at the ball fields at Veterans Memorial Park.

Imagine Concrete: Jason Miller: Jason reported the next meeting will be held on June 13, 2012 at 6 p.m. at the Pilots' Lounge. He also reported the May meeting had been canceled.

Department Reports: Planning Commission/ Historical Preservation: Jeroldine Hallberg: Jeroldine gave brief updates on the East Valley Clinic's possible expansion, the Shorelines Master program update and the broken drainage line that Puget Sound Energy is working on repairing.

Administration/Finance Report: Andrea Fichter: Andrea referred the council to the construction schedules included in their packets, as well as some pictures of the powerhouse construction that is occurring. She also referred the council to a thank-you note that was received from a resident in town for some work completed by Public Works.

Public Works: Alan Wilkins: Alan reported on a few things at the wastewater treatment plant. He also stated the lagoon decommissioning will be completed by town staff, which will save the town money. He also reported they will be using some of the rock and dirt stored by Puget Sound Energy from their projects to fill in the lagoon.

Mayor's Report: Mayor Wilson reported that he has gotten his CDL. He also reported that town staff will complete the work on the lagoon, which will be great for saving the town money.

Announcements: None.

Executive Session: None.

Adjournment: Jason Miller made a motion for adjournment at 9:32 p.m. Jack Mears seconded the motion. The motion carried unanimously.

Judd Wilson, Mayor

Attest: Andrea Fichter, Clerk Treasurer

May 29, 2012
Minutes prepared by Andrea Fichter
Minutes edited for grammar and spelling by Jason Miller

Town of Concrete
Town Council Meeting
April 9, 2012

7:00 p.m. Mayor Wilson called the meeting to order. Mayor Wilson led the gallery in the Pledge of Allegiance.

Roll Call: Council Members: Jack Mears, Dave Pfeiffer, Michael Bartel, Marla Reed and Jason Miller.

Staff Present: Town Attorney David Day, Public Works Director Alan Wilkins, Clerk Treasurer Andrea Fichter, and Town Planner Jeroldine Hallberg.

Audience Members Signed In: Chad Clark, Evalyn Goeringer, Don Payne, Garret Gladsjo, Fred West, George Wenzinger and Allen and Carol Fabrick.

Public Participation: Andy Kollar – Closing of the Concrete Eagles #1444 – Absent.

Special Presentations: Public Safety: Mayor Wilson reported on the meeting with grant writer Michelle Mazzola. He reported she was given a tour of the current public safety building. Mayor Wilson stated he needs to find out what her hourly rate is for writing this grant. He requested permission from council to proceed with having her write a grant for a new public safety building.

Marla Reed stated she was not comfortable approving this without first finding out Mazzola's hourly rate. Jason Miller stated that he agreed with Marla and would also like to know how many hours this will take her.

Mayor Wilson stated they are currently looking at a few different funding sources. He reported the design work is almost complete. He also reported the west side of the Superior Building is the proposed site for the new building. Discussion ensued on the amount of room in this area, along with the position of the building so drive-through bays could be in the building.

Andrea Fichter reported she had handed out a copy of the Sheriff's incident report for March.

Marla Reed reported on the underage drinking assemblies that were held at the school, during which Deputy Kelly Howell had spoken. Marla stated that it had gone very well, the kids were very receptive, and Deputy Howell had done a great job.

Sergeant Clark reported the calls for service continue to remain low. He also reported on two smoking citations and a DUI issued over the previous weekend.

Jack Mears reported on the cartoon in the Sunday edition of the Skagit Valley Herald. He stated the cartoon referred to the smoking issues in Concrete. Jason Miller further reported and commented on the caption for the cartoon.

An audience member questioned if the public safety building costs will have a cost for the citizens as well.

It was stated the town is doing its best to make sure there are no costs to the citizens. The funding that is being sought is via grant(s) and/or already secured local funds.

Audience member Don Payne questioned how many floors the public safety building would have. It was stated there would be two floors to the building.

Reichhardt & Ebe Engineering – Cody Hart: In Cody's absence Garret Gladsjo presented the three items on this evening's agenda to the council.

Mayor Wilson reviewed each of the three items proposed by Reichhardt & Ebe. He stated there are

the East Main Street Waterline project contractor award recommendation, Task Order T for construction management during the East Main Street Waterline project, and the Burpee Hill Winter Protective Measure project contractor award.

Discussion ensued on the three bids received for the Burpee Hill Winter Protective Measures. It was stated that H. O. Stafford Trucking was the low bidder. It was further stated that H. O. Stafford has performed other projects for the town successfully.

Jason Miller made a motion to accept the bid and award the contract to H. O. Stafford Trucking and Excavating for the Burpee Hill Winter Protective Measures project. Marla Reed seconded the motion. The motion carried unanimously.

Mayor Wilson reported on the East Main Street Waterline Project bids. He stated a meeting had been held with the apparent low bidder to discuss any possible issues with the project. Andrea Fichter reported that each council member had received a copy of the letter from Reichhardt and Ebe with their recommendation to award to Carman's Construction.

Further discussion ensued regarding the bid amounts and the amount of Task Order T for the construction management portion of the project.

Jason Miller made a motion to award the project to Carman's Construction and to approve Task Order T. Marla Reed seconded the motion. The motion carried unanimously.

Consent Agenda

- Town Council Minutes: March 26, 2012
- Claims Warrants: #26995-#27030
- Payroll Warrants

Jack Mears made a motion to approve the consent agenda. Dave Pfeiffer seconded the motion. The motion carried unanimously.

Public Hearings: Town of Concrete Water System Plan: Carl Reichhardt gave a summary of water system plans in general. He stated they first came about to help entities track rules and regulations while putting all their planning documents for their water systems into one document. He stated two of the purposes of the plan are to track system adequacy and to be able to plan for the future. He stated the latest draft has been submitted to the State Department of Health for its review and comments. He stated they should actually begin their review within the next few weeks. Carl stated once they receive the comments back, they will be reviewed and incorporated into the plan. He also stated these plans are supposed to be updated every six (6) years. He stated it's important to make sure they are updated to meet funding requirements as well.

Carl reviewed the chapters of the water system plan. He touched on different elements for projecting usage and future customer base. He also reported on three (3) different types of demands. He stated there is an average day demand, which he gave the formula for; there is a peak day demand, which is usually twice the average day demand; and then there is also peak hour demand. He said the state has guidelines to follow on each of these demands and how to calculate them. He stated these guidelines are also based on conservation.

Carl stated they also reviewed the town's water rights and he believes there is an adequate supply to serve customers for the next six (6) to twenty (20) years. He stated they also reviewed the town's current storage capacity using calculations from the demands. He stated it looks as if there's enough storage to also get the town through the next six (6) to twenty (20) years. He did report the state would like to see the wooden reservoir replaced, but as long as the town keeps up on maintenance and repair, he doesn't believe there should be an issue.

Carl also reported on fire flow calculations. He stated there are two (2) to three (3) kinds of deficiencies. He stated there are some that have to be done, some that should be done and then some the town would like to have done. He also stated that metering is one of those that have to be done.

Dave Pfeiffer questioned what is wrong with the source meter. Carl stated the meter at the source is adequate, but what needs to be reviewed is the spilling of water that is not metered at the reservoirs.

Carl handed out a spreadsheet on water capital improvement projects. He reviewed some of the different projects. He stated the State would like to see a second source for emergency purposes. He stated the town might be able to use the existing spring. He stated that trying to apply for new water rights can be troublesome. He stated all the projects are put in this capital improvement list so that if grants or loans become available, the projects are listed in the plan and the town can more easily apply for the funding for that particular project.

David Pfeiffer questioned if these projects need to be done within the six (6) years or the next twenty (20) years.

Carl stated this list is for the next twenty (20) years or longer if needed.

Jason Miller also questioned if these projects are listed in priority order.

Carl stated the first two projects on the list are mandated by the state and then the projects are listed by priority.

Discussion ensued regarding where the second source could be installed that would not be too close to the current spring so that both sources were not made unusable during an emergency or natural disaster.

Carl further reviewed the financial chapter and the recommendation made by RCAC, who did the water utility rate analysis. He stated RCAC had recommended that rates be raised according to inflation and changing the decreasing rate structure into an increased rate structure. He stated this would also be helpful in encouraging water conservation.

Carl suggested the town research applying for grants and/or low-interest loans. He stated the Public Works Trust Fund has low-interest rates. He stated the water system plan may need to be adopted prior to receiving funding as a requirement of some of the funding agencies. He stated if that is the case, the town may have to wait until next year to apply, if this year's deadlines are missed. Carl stated if the town is interested in pursuing loans, he could start putting together an application package. He stated the Public Works Trust Fund is a pretty good program.

Discussion ensued on the types of meters that are available and how they would be read. He also reported on how possible leaks could be detected. He also reported that some of the service lines may have to be replaced when installing the meters.

Carl reported on the water efficiency laws that have to do with water conservation. He said the state is making all entities comply with the regulations whether they have meters installed or not. He also reported that each entity has to develop its own water efficiency plan. He stated the plan has to call out certain goals and measures for conservation and efficiency. He went over suggested percentages for reduction of water use and leakage. He also reported the town has to come up with water use efficiency measures. He reported on some that are mandatory such as source meters, service meters, source meter collaboration, implementation of a water loss control plan to reduce leakage (which will have to be done once meters are installed) and to educate consumers annually on water conservation. He also stated the town would need to evaluate their rates, not necessarily increase rates, but to evaluate them so as to encourage residents to conserve. Carl also reported on suggested measures to include in the plan such as having odd/even lawn-watering days and educating the public more often than annually. He stated the Water Efficiency Program would also need to be adopted.

Mike Bartel questioned if operation and maintenance costs are incorporated into this plan as well.

Discussion ensued regarding operation and maintenance costs, along with loans and the requirements of different loan programs.

Mayor Wilson opened the Public Hearing for comment by the public at 8:06 p.m.

George Wenzinger – Short Street: Mr. Wenzinger stated he does not believe that just because the State may think the town needs to have a second source the town should not have to spend the money if one is not actually needed. He also stated the water efficiency laws should have exemptions for smaller towns. He also commented the inflation rate that Carl spoke to is not seen by customers in their pay or benefits received.

Audience Member requested clarification on the one (1) percent charge for the loan. He stated it is his understanding the town would have to pay one (1) percent of the loan amount up front.

Don Payne: Mr. Payne stated he would like to see all the businesses in the Grasmere area connected to water to help ease the financial burden on the town. He also stated he would like the town to take into consideration the business owners are not seeing an increase in revenue and raising rates will damage businesses further.

Mayor Wilson closed the public hearing at 8:17 p.m.

Carl commented on some the questions from the public. He stated when there is an increase in expenditures, there has to be an increase in revenues to cover the costs. He also stated that with one particular funding source there is a one (1) percent charge on the total loan amount.

Carl stated he will forward comments received from the state to council for review prior to the council making a motion for adoption of the Water System Plan. Carl thanked the mayor and the town for the opportunity to present this information to them this evening.

Old Business: North Cascades Vintage Aero Museum – Fly-in Event Agreement: David Day reported on the changes made from the original document. He reviewed the changes and some of the terminology within the agreement. He also reviewed the insurance section and the indemnity clause as well. He stated this has a much clearer delineation as to who is responsible for the event.

Dave Pfeiffer questioned some of the recitals that are incorrect statements. David Day stated the recitals basically give a background and do not really have a legal bearing.

Jason Miller made a motion to approve the agreement between the town and the North Cascade Vintage Aero Museum. Dave Pfeiffer seconded the motion. The motion carried unanimously.

Clifton Gravel Pile: David Day referred the council to a draft letter included in their packets. He spoke to different rules and regulations within the town's zoning code that does not allow for the storage of material in that particular area. He again apologized for not taking action on this sooner.

Jason Miller made a motion to update the date on the letter and send it. Dave Pfeiffer seconded the motion. The motion carried unanimously.

New Business: None.

Discussion Items: PSE Payment Request: Andrea reported to the council that she had not received a response from PSE with regard to the letter sent.

Council Reports: Airport: Jack Mears and Dave Pfeiffer: Jack Mears reported on a compliment received from a pilot who visited the airport recently. He stated the pilot had stated our airport is one of the nicest airports he has been to.

Jack also reported that Dave Pfeiffer continues to work on his hangar.

Parks: Jason Miller: Jason Miller reported on the park meeting that was held this evening to discuss options and ideas for the area located in Mill Addition where the slide occurred in 2009. He reviewed potential names and ideas from the sheets used at the meeting. He stated he will summarize all the suggestions and bring them back to the next Parks Committee meeting to discuss further and then a recommendation will made to the council. He also reported the bench for Silo Park had arrived.

Imagine Concrete: Jason Miller: Jason reported the next meeting will be held on April 11, 2012, at 6 p.m. at the Pilots' Lounge. He reported the community garden is moving forward on a possible grant for the shed and signage. He also stated they need some bricks to use to create a retaining wall for the Memory Garden. Jack Mears reported that he had some he would donate. Jason also reported on an offer from Jennie Goforth at Finney Farm to have a couple interns manage four (4) of the eight (8) food bank beds, along with a donation of seeds from her for the garden.

Mayor Wilson reported that he has constructed a bench for the Memory Garden in honor of Dave Faddis and Adrienne Nelles.

Jason also reported on a totem carved by Rick Williams, which Miller is currently painting for the community garden.

Department Reports: Planning Commission/ Historical Preservation: Jeroldine Hallberg: Jeroldine stated the Superior Building will be discussed at the Historical Preservation meeting tomorrow night and the commission will make a decision on the recommendation that should be made to council on the rehabilitation of the building. She also reported on a discrepancy on the town zoning map regarding the medical office being zoned as residential instead of commercial. She stated that although the map shows it as residential, it has always been treated as a commercial property. She requested from David Day if an amendment or change should be done using a resolution or an ordinance. David stated that she could use either.

Administration/Finance Report: Andrea Fichter: No report.

Public Works: Alan Wilkins: No report.

Mayor's Report: Mayor Wilson reported he will contact Michelle Mazzola to discuss her rate and hours. He also reported he will have a meeting with Sergeant Clark to discuss how things are going since he took over the East Detachment.

Announcements: None.

Executive Session: None.

Adjournment: Jason Miller made a motion for adjournment at 8:39 p.m. Marla Reed seconded the motion. The motion carried unanimously.

Judd Wilson, Mayor

Attest: Andrea Fichter, Clerk-Treasurer

December 7, 2009

ALAN WILKINS
TOWN OF CONCRETE
PO BOX 39
CONCRETE WA 98237

RE: Town of Concrete, ID# 03950
Skagit County
Water System Plan - Pre-Plan Conference

Dear Alan:

Thank you for meeting with us on November 30, 2009 to discuss the preparation of a Water System Plan (WSP) for the Town's water system. This letter summarizes the major elements of that meeting, including the main regulatory requirements and the specific agreed upon items necessary for approval. Please review the attached Water System Plan Pre-Plan Agenda. It shows the appropriate scope and agreed upon content of your WSP.

Attendees: Mayor Judd Wilson, Alan Wilkins, Public Works Director, James Hobbs, PE, Reichhardt & Ebe Engineering, Inc., Nancy Feagin, PE, DOH and Jennifer Kropack, Planner, DOH.

Chapter 1. Description of Water System. Since the Town's history is in the last plan, it is only necessary to summarize the Town's Comprehensive Plan and the Skagit County CWSP, the Skagit Instream Flow Rule, and these impacts on the water system. Discuss and identify on the service area map your existing (mains and sizes), retail, and future areas, if choosing a future service area for the place of use benefit of Municipal Water Law. Please also address in your service policies the new emphasis on "Duty to Serve," and cover all elements in the fact sheets regarding new service; costs, conditions, timeframes, and dispute resolution.

Please also identify on your map, the long platt for Puget Sound Development (122 lots).

To gain Local Government Consistency, please use the forms I gave you. You will need signatures from the Town and the County. It works best if you submit the plan, the form and a letter of request to the County Planning Department. It is up to you to get this done. DOH cannot approve plans without consistency review. If problems arise, contact me. For the unincorporated area, apply the County's zoning. Please provide a map and narrative for maximum build out with the current zoning. It helps to identify both connected parcels and vacant. Do the same for the Town.

Chapter 2. Basic Planning Data. Include consecutive 6 to 7 & 20 year projections from the Town and County projections, with and without quantitative water savings goal (population, service connections, ERUs.). If these projections go through 2017, then the Town can gain approval through 2017 (a cost-savings).

Include as much information as you can for past years' monthly and annual source production, and the annual usage for the commercial class. Explain the limitations for data collection based on your current set-up. The new water efficiency data collection requirements began **January 1, 2008**.

Town of Concrete
December 7, 2009

Chapter 3. System Analysis. Address all of the elements of this chapter and for each system component (source, treatment, storage, distribution and water rights), describe limitations. I've attached the three WRSA forms. The plan must evaluate system capacity as described in WAC 246-290-222. http://apps.leg.wa.gov/WAC/default.aspx?cite=246-290-222

The Water System Design Manual has information on how to evaluate system capacity and determine the limiting factor.
https://fortress.wa.gov/doh/eh/dw/publications/publications.cfm?action=pubdetail&type=subject&PubId=11

Section 8.2 of the Design Manual gives information on performing a hydraulic analysis. The analysis must demonstrate how the system meets the minimum pressure criteria of WAC 246-290-221.
http://apps.leg.wa.gov/wac/default.aspx?cite=246-290-221

Chapter 4. Water Use Efficiency Program. Prepare all elements of a water use efficiency program, and include documentation about your WUE goal setting forum. Address water supply characteristics – look at WAC definition and describe in a few paragraphs. A Town of < 500 connections is required to implement (if don't want to evaluate from a cost-effective perspective) one customer demand efficiency measure beyond annual education on this topic. No other sections of this chapter will be required.

Since you cannot measure historical water loss, please describe all the efforts you have made to decrease system leakage and any efforts to change the system set-up to meter more effectively. Here's the information about Ecology's cost-sharing grant program for metering water use: http://www.ecy.wa.gov/programs/wr/measuring/measuringhome.html#costshare.

Chapter 5. Write a letter to property owner in your watershed control area about your future concern for your drinking water source. Provide copies in plan to DOH and Lorna Parent.

Chapter 6. Provide a summary update of the first four items. Include an updated Coliform Monitoring Plan (map and table with initial and repeat site locations, and the rotation sequence). Describe your water shortage plan. Describe your level of service reliability. Address sanitary survey issues and their completion date. Describe your progress on cross connection control. Summarize any O & M issues to fix in the next six years. Summarize complaints for the past 6 years and the handling of them.

Chapter 7. Provide standard specifications in order to gain the benefit of no review by DOH on any distribution system extension projects (a cost savings).

Chapter 8. Provide a capital improvement schedule through 2017, and look forward 20 years. Include everything the Town may like to accomplish, so you do not need a plan amendment in the next 7 years to gain the maximum benefit of this plan (a cost-savings).

Chapter 9. Provide a balanced six year budget, and demonstrate financial capacity. The CIP schedule from Chapter 8 needs to identify funding sources. Most governmental entities are stating they will not help provide grants or loans unless the community is paying an appropriate rate to fund

at least some of their aging infrastructure. I forgot to request information about Town charges for SDC and LFC so please include. Lastly, describe your evaluation of a rate structure to encourage water demand efficiency.

Chapter 10. Provide documentation of your meeting with the consumers to discuss the water system plan. Provide documentation of elected governing body approval of the plan prior to DOH's final approval. Summarize any franchise or road issues that may occur when you replace your water mains if County and State roads are involved.

Submittal Process.

- Complete a WSP Submittal Form
- Provide DOH three copies of the plan
- Provide one copy to Skagit County Planning and one to Skagit County Health.

Please keep me advised as to the submittal date of your plan if it changes from the stated **goal of June 2010.**

I hope this letter accurately portrays the outcome and agreed upon scope and content of the WSP document as discussed in this meeting. Please contact me with any questions or clarifications.

Sincerely,

Jennifer Kropack
Regional Planner
(253) 395-6769

Enclosures: Preplan Agenda, Water Right Self Assessment (WRSA) forms (Existing, 6 Year, and 20 Year Status), Water System Plan Submittal Form

cc: Nancy Feagin, DOH
James L. Hobbs, Jr., PE, Reichhardt & Ebe Engineering, Inc.
Kirk Johnson, Skagit County Planning
Lorna Parent, Skagit County Health

Concrete Pre-Plan Meeting – November 30, 2009
Water System Plan (WSP) Pre-Plan Agenda

√Required	Content Description	WSP Page #
	Chapter 1 Description of Water System	
(√)	Ownership and management	
(√)	System history and background	
(√)	Inventory of existing facilities	
(√)	Related plans / Coordinated Water System Plan (CWSP)	
(√)	Information & Maps: Service area, **identify retail service area☆**, designated land use and zoning, future comprehensive plan request for changes to land use, & agreements	
(√)	Policies: Service area, SMA, conditions of service, annexation	
(√)	**Duty to serve☆** requirement: identify process, timeframes, conditions, appeals	
(√)	**Consistency** from **local planning☆** agency	
~~(√)~~	Consistency ~~from~~ local **watershed☆** ~~planning group (if applies)~~	
	Chapter 2 Basic Planning Data	
(√)	Current water use: Population, service connections, & ERUs and data reporting	
(√)	Consecutive 6 & 20th year projections: Population, service connections, & ERUs	
(√)	Consecutive 6 & 20th year projections: Demand forecasts **w/ & w/o expected efficiency savings☆**	
(√)	Monthly and annual production. Totals per source	
~~(√)~~	~~Annual usage for water supplied to other systems~~	
(√)	Annual usage by customer class	
(√)	Historical total water loss **(DSL) – percent and volumes☆**	
~~(√)~~	~~>1000, seasonal variations in consumption by customer class☆~~	
	Chapter 3 System Analysis	
(√)	Capacity analysis with **water right self assessment** (DOH/ECY per MOU)	
(√)	System design standards	
(√)	Water quality analysis	
(√)	System inventory, description and analysis	
(√)	Source	
(√)	Treatment	
(√)	Storage	
(√)	Distribution system/hydraulics	
(√)	Summary of system deficiencies	
(√)	Analysis of possible improvement projects	
	Chapter 4 Water Use Efficiency Program and Water Rights	
(√)	**Water Use Efficiency Program per WAC 246-290-810☆** ~~(conservation plan)~~	
(√)	**Source & Service Meters/Or schedule w/activities to minimize leakage☆**	
(√)	**Water right self assessment☆** for existing, 6, and 20-year projections	
(√)	**Water supply and demand characteristics, description & discussion on effect**	

S = Summarize

Identify pipe sizes on map

Ecology provides

duplicate

Concrete Pre-Plan Meeting – November 30, 2009

	√Required	Content Description	WSP Page #
		of water use☆	
	(?)	Source of supply analysis and evaluation of supply alternatives	
	(?)	Interties	
	( )	≥1,000 connections explore reclaimed water opportunities☆	
Chapter 5		**Source Water Protection (Check One or Both)**	
	(√)	Wellhead protection program STATEMENT TO SHOW	
	( )	Watershed control program	
Chapter 6		**Operation and Maintenance Program**	
	(√)	Water system management and personnel	
	(√)	Operator certification - RICH DOES CONNECTION	
	(√)	Routine operating procedures and preventive maintenance	
	(√)	Water quality sampling procedures & program – Identify WQ PN Requirements	
	(√)	Coliform monitoring plan SHOW CURRENT PLAN (ALAN) REPEAT SITES	
	(√)	Emergency program, water shortage plan, service reliability per WAC 246-290-420 — EMERGENCY DISINFECTION	
	(√)	Address sanitary survey findings ? SURVEY WAS DONE BY NANCY MAKE SURE EVERYTHING HAS BEEN DONE — WATER SHORTAGE PLAN ADVANCED H_2O	
	(√)	Cross-connection control program STATUS AND NEXT STEPS (WAC ELEMENTS)	
	(√)	Recordkeeping, reporting, and customer complaint program DESCRIBE	
	(√)	Summary of O&M deficiencies	
Chapter 7		**Distribution Facilities Design and Construction Standards**	
	(?)	Standard construction specification for distribution mains SEND COPY OF STANDARDS TO NANCY	
Chapter 8		**Improvement Program**	
	(√)	Capital improvement schedule for 6 and 20 years	
Chapter 9		**Financial Program**	
	( )	≥1000 connections – Balanced 1-year budget	
	(√)	<1000 connections – Balanced 6-year budget, w/ Financial Viability-Feasibility 2010 2011 — 2017	
	(√)	Revenue and cash flow stability to fund capital and emergency improvements	
	(√)	Evaluation of affordable rate structure that encourages water demand efficiency☆	
Chapter 10		**Miscellaneous Documents**	
	(√)	Meeting of the consumers (date and description). Approval by EGB prior to DOH approval (per WAC 2007)	
	(√)	County/Adjacent Utility Correspondence	
	( )	≥1000 connections - State Environmental Policy Act (SEPA) Determination	
	(?)	Agreements (interfie, service area, franchise, etc.) ?	
	(?)	Satellite Management Program NO	

SKIP RAND DENNIS WILL SEND CONTACT INFO

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
NORTHWEST DRINKING WATER REGIONAL OPERATIONS
20435 72nd Avenue South, Suite 200, Kent, Washington 98032-2358

July 15, 2011

ALAN WILKINS
CONCRETE UTILITIES
PO BOX 39
CONCRETE WA 98237

Subject: Concrete Utilities (ID# 03950M)
Skagit County
Routine Sanitary Survey

AI

Dear Mr. Wilkins:

On June 22nd I met with you to complete a sanitary survey of your water system. The purpose of the sanitary survey program is to identify potential problems and assist you in complying with the Drinking Water Regulations. I appreciate the time you devoted to showing me your water system and answering my questions.

The attached report contains a number of recommendations and/or deficiencies that require your attention. The following two items are considered to be significant deficiencies and must be corrected within 90 days of the date of this letter:

1. To prevent contamination, the spring box overflow needs to be replaced with a downward facing screened pipe.
2. At the wood reservoir, action is needed to repair the leak in the wall, reseal the roof around the hatch and inspect the roofline around the perimeter of the tank and replace caulking and insect screens as necessary.

Failure to correct the deficiency by the specified timeline may result in formal enforcement.

Please call me at (253) 395-6765 if you have any corrections, comments or questions regarding this report. I would appreciate a status report on your progress with these recommendations by August 31, 2011.

Based on the criteria in WAC 246-290-416, your next survey is due in the calendar year 2014.

Regulations establishing a schedule of fees, including fees for sanitary surveys, were adopted August 3, 2007 (WAC 246-290-990). The total cost of this survey is $1,836. The Office of Drinking Water has used state and federal funds to pay $918 of this amount. An itemized

invoice showing the remaining amount due of $918 is enclosed. Please remit your complete payment in the form of a check or money order within thirty days of the date of this letter to: **WDOH, Revenue Section, PO Box 1099, Olympia WA 99507-1099.**

Sincerely

Nancy Feagin

Nancy Feagin, P.E.
Regional Engineer
Northwest Drinking Water Operations

Enclosures

cc (with enclosures):
Lorna Parent, Skagit County Health Department

STATE OF WASHINGTON

DEPARTMENT OF HEALTH

NORTHWEST DRINKING WATER REGIONAL OPERATIONS

20435 72nd Avenue South, Suite 200, Kent, Washington 98032-2358

SYSTEM INSPECTION/MEETING SUMMARY

DATE OF VISIT: June 22, 2011

NAME OF SYSTEM: Concrete Utilities (ID#03950M)

COUNTY: Skagit

THOSE ATTENDING: Nancy Feagin, Al Wilkins (WDM1, CCS)

REASON FOR INSPECTION: Routine Sanitary Survey

---------- OBSERVATIONS ----------

General. The Town of Concrete is located along Highway 20 about 25 miles east of Sedro Woolley. The system serves about 473 residential and small commercial connections.

Source. The source of supply for the Town is an untreated spring. Since the previous survey the Town has improved protection of the spring source by purchasing an additional 40 acres of the watershed upgradient from the spring box. The spring box overflows continuously.

Treatment. The Town does not provide any treatment. A temporary chlorination system is available if needed.

Distribution. The distribution system consists of a single pressure zone fed by gravity from the three reservoirs. The distribution system consists mainly of PVC pipe, with a small amount of asbestos cement and less than 500 feet of wood stave pipe remaining from the original system. The Town sells water to an offsite bottling company, Advanced H20, through a dedicated fill station (1.5 to 2.5 million gallons per month).

Finished Water Storage. Water flows by gravity from the spring box to a 200,000 gallon concrete reservoir (no. 3). The altitude valve that originally controlled the flow into this reservoir did not function properly. It has been disabled, and flow to the reservoir is now manually controlled by a valve on the transmission line. From this reservoir, water passes through a transmission line and pressure reducing valve into Town. Two other reservoirs, the 200,000 gallon concrete reservoir no. 2 (Seidel) and the 100,000 wood stave reservoir (no. 1) are located in the distribution system and fill by gravity. These reservoirs often overflow if demand is less than the flow from the spring.

Pumping Facilities & Controls. The system does not have any pumping facilities.

Water Quality Monitoring & Reporting. The Town is in compliance with water quality monitoring requirements and the water quality currently meets primary and secondary standards. Coliform bacteria have been found in the system in the past. The most recent problem occurred in August 2008, resulting in a non-acute MCL violation.

System Management & Operations. The most recent water system plan was approved by the Department on July 9, 2003. The Town is currently working on a water system plan update. Operation of the wastewater treatment plant takes significant staff resource and limits time available for preventative maintenance of the water system. Public works staff inspect the spring and the three reservoirs every one to two weeks, weather permitting. There is no program for routine internal inspection of the reservoirs. The distribution system is flushed on an as-needed basis. Distribution system valves have been located as part of the water system plan update; however, there is currently no program to exercise distribution valves. Business customers are metered, and the meters are read monthly. Some residential customers are metered, but they are not read. Residential customers are charged a flat rate for service.

There are fewer than ten existing cross-connection control devices including the medical center and the wastewater treatment plant. These devices were tested upon installation, but the Town has not implemented an annual testing program.

Operator Certification. Al Wilkins is a water distribution manager (WDM1) and certified cross connection control specialist and fulfills the Town's certification requirements. Richard Philips is the backup operator. He has taken classes and plans to take the certification test.

Previous Survey Deficiencies. The most recent sanitary survey was completed in December, 2006. The Town has completed all of the recommendations of the previous survey with the following exceptions:

- Springbox improvements- installation of the new overflow.
- Copies of the construction report forms.
- Locate and exercise the valves on a regular basis.

---------- RECOMMENDATIONS/DIRECTIVES ----------

The Town has made significant improvements to the system since the last survey, specifically in the area of watershed protection and spring development and sanitary control. The following additional measures are necessary to comply with regulations, safeguard water quality and improve management of your system:

1. We encourage the Town to use the results of the ongoing rate study to ensure that the water system has sustainable source of funding into the future.

2. Spring: to prevent contamination, the spring box overflow needs to be replaced with a downward facing screened pipe. Town staff have already fabricated a new overflow. We discussed using a larger mesh screen, flap valve or "tideflex" style valve to allow water to flow freely when the spring box is overflowing.

3. Reservoir 1 (Spring): to ensure it is protected from contamination, climb the reservoir and inspect the hatch, hatch seal and vent screen. Please send photos of the inspection.

4. Reservoir 2 (Seidel): climb the reservoir and inspect the hatch, hatch seal and vent screen. Please send photos of the inspection. The drain line discharge should have a screen or flap valve attached.

5. Reservoir 3 (Wood): this reservoir is in poor condition and should be replaced as soon as possible. Immediate action is needed to repair the leak in the wall, reseal around the hatch, inspect the roofline around the perimeter of the tank and replace caulking and insect screen as necessary.

6. Coliform monitoring: we recommend one additional routine site closer to the high school to better represent the distribution system. Al indicated that vandalism is an ongoing issue. A dedicated sample station could be an option if located in a secure location. Please make any necessary changes and return a copy to this office.

7. Please send copies of the construction report forms for all distribution mains completed since July, 2003. The Town must maintain these forms on file as a condition of approval of its standard construction specifications for water main extensions.

8. AWWA recommends comprehensive inspections of storage tanks every 3-5 years. Internal inspections of all three tanks should be scheduled in the next 12 months.

9. To ensure the reliability of your system, distribution valves should be exercised on a regular basis.

10. A reminder and tracking system to ensure annual testing of backflow devices is needed.

11. Water usage now must be reported every year under the municipal water law. The Town needs to develop a metering program that accounts water spilled from the three reservoirs. Service meters must be installed by 2017.

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
NORTHWEST DRINKING WATER REGIONAL OPERATIONS
20435 72nd Avenue South, Suite 200, Kent, Washington 98032-2358

May 21, 2012

HONORABLE MAYOR JUDD WILSON & TOWN COUNCIL
PO BOX 39
CONCRETE WA 98267

RE: Town of Concrete ID# 03950
Skagit County
Water System Plan
Submittal # 12-0304

Dear Honorable Mayor Judd Wilson and Town Council:

Thank you for submitting the draft water system plan (WSP) for the Town of Concrete, received in this office on March 12, 2012. We have reviewed the submittal and offer the following comments. Please address prior to final plan approval.

Planning

1. Pages 1-11 and 1-12. Under the duty to serve section, please add language regarding the four threshold factors. See factsheet: http://www.doh.wa.gov/ehp/dw/Publications/331-366.pdf

Operations & Maintenance

2. Page 6-6, Table 6-5. Please add the DOH after-hour emergency hotline phone number 1-877-481-4901 so the Operator can contact us if not normal working hours.

3. Page 6-9. Please identify the total number of back flow prevention devices on your system and the number in compliance with annual testing.

4. In the coliform monitoring plan, sample site R4 should be labeled as Fir reservoir (#1) and the location corrected on the map (Appendix D)

Water Use Efficiency & Water Resources

5. Page 4-1. The Town's water use efficiency customer demand goal must have a time period identified. The maximum is 6 years. Please correct. This correction can occur outside the plan process.

6. Page 4-3. The Town is unable to calculate distribution system leakage as required because of unmetered reservoir over-flows. It appears the Town is committed to getting the fixes in place by 2013.

Source Protection

7. Chapter 5. Has the Town filed covenants for sanitary control area around the spring? Per the pre-plan notes, please provide documentation of communication with the major property owner of concern.

Financials and Capital Improvement Program

8. We strongly recommend that you add replacement of the wood tank to the six year capital improvement plan and actively pursue funding to complete the project. The existing reservoir is a high maintenance facility, vulnerable to earthquake damage and may present a sanitary risk which could threaten town's status as an un-disinfected system. (p 3-5) The cost for the replacement 200,000 gallon storage tank, at $30,000 appears to be low. (CIP, Table 8-1, p 8-6).

9. Please verify that all of the wood stave pipe will be eliminated by the projects included in the six year capital improvement program.

10. Page 8-2. Please describe the flowmeter techonologies being considered for metering the partially filled pipes on the storage tank overflows.

11. Pages 9-2 and 9-2. Water rates appear to not be funding the full cost of water service and are not adequate to fund what we see as real risks for the Town (comment #10). There are several recommendations made in the Rural Community Assistance Corporations September 2011 report. The most immediate to implement will be changing the commercial decreasing block rate to at a minimum, a uniform block rate. This could be done within the year for those commercial accounts on meters if the Town's works its policy goals and communicates to this customer class the reasons for the need to implement full cost pricing. Declining block rates do not meet WAC 2465-290-100 (4) (j) (iv) to encourage water efficiency from customers. Most importantly, the Town needs additional revenues in order to be financially stable into the future and meet its obligations of providing safe and reliable water.

Other

12. Please provide documentation of the Board's approval of the plan prior to DOH approving the plan.

Regulations establishing a schedule for fees for review of planning, engineering and construction documents have been adopted (WAC 246-290-990). The total cost is $1,507.50. The Office of Drinking Water has used state and federal funds to pay $301.50 of this amount. An itemized invoice showing the remaining amount due of **$1,206.00** is enclosed.

This fee covers our cost for review of the initial submittal, plus the review of one revised document. Please remit your complete payment in the form of a check or money order within thirty days of the date of this letter to: **DOH, Revenue Section, and P.O. Box 1099, Olympia, WA 98507-1099.**

Thank you again for submitting your plan for our review. If you have any comments or questions concerning our review, please contact me on the planning subjects or contact Nancy Feagin about the engineering questions.

Sincerely,

Jennifer Kropack
Regional Planner
(253) 395-6769

Nancy Feagin
Regional Engineer
(253) 395-6765

Enclosure: Invoice

cc: Alan Wilkins, Concrete Public Works Director
Carl Reichhardt, PE, Reichhardt & Ebe Engineering. Inc.
Jacque Klug, Ecology, NWRO
Lorna Parent, Skagit County Health Department
Gary Christensen, Director, Skagit County Planning & Development Services

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

April 17, 2012

Jennifer Kropack
Department of Health
Northwest Drinking Water Operations
20435 – 72nd Ave. S., Ste 200
Kent, WA 98032

Re: Concrete Utilities Water System WSP ID #03950; ODW #12-0304

Consistent with the Memorandum of Understanding between the Department of Health and the Department of Ecology, I reviewed the portions of the proposed Concrete Utilities Water System water system plan and offer the following comments.

Water Right Self Assessment Table

The Water Rights Self Assessment table shows the system holds ground water certificate 117 (G1-*00117SWRIS) authorizing a total instantaneous quantity of 750 gallons per minute (gpm) and an annual quantity of 1190 acre-feet per year (a-f/y). Water served to single family residential connections is not currently metered, and with the inadequate source and service meters, water use information is not adequate for water system planning.

Sufficient capacity is available to the Town of Concrete for the 20-year planning horizon. The town of Concrete should continue to add metering to individual connections to provide adequate planning data.

Watershed Plan

After reviewing this water system plan, I have determined that the document is not inconsistent with the adopted watershed plan for WRIA 4, the Upper Skagit Water Resource Inventory Area.

Thank you for the opportunity to review this project. Please contact me at (360) 407-6636 if you have questions regarding my review or need additional information.

Contact Water Resources Program staff at the Northwest Regional Office with any questions related to water rights.

Sincerely,

Don Davidson
Water Resources Program

cc: Jacque Klug, Water Resources Program
Alan Wilkins, Public Works Director, Town of Concrete

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

WATER FACILITIES INVENTORY (WFI) FORM

ONE FORM PER SYSTEM

Quarter: 2
Updated: 02/07/2011
Printed: 10/13/2011
WFI Printed For: On-Demand
Submission Reason: No Change

RETURN TO: Northwest Regional Office, 20435 72nd Ave S STE 200, Kent, WA, 98032

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
03950 M	CONCRETE UTILITIES	SKAGIT	A	Comm

6. PRIMARY CONTACT NAME & MAILING ADDRESS	7. OWNER NAME & MAILING ADDRESS	8. Owner Number 000283
ALAN WILKINS [DIRECTOR] PO BOX 39 CONCRETE, WA 98237	CONCRETE, TOWN OF ALAN WILKINS PO BOX 39 CONCRETE, WA 98237	TITLE: DIRECTOR
STREET ADDRESS IF DIFFERENT FROM ABOVE ATTN ADDRESS CITY STATE ZIP	STREET ADDRESS IF DIFFERENT FROM ATTN ADDRESS CITY STATE ZIP	

9. 24 HOUR PRIMARY CONTACT INFORMATION	10. OWNER CONTACT INFORMATION
Primary Contact Daytime Phone: (360) 853-8550	Owner Daytime Phone: (360) 853-8550
Primary Contact Mobile/Cell Phone: (360) 770-0394	Owner Mobile/Cell Phone: (360) 770-0394
Primary Contact Evening Phone: (xxx) xxx-xxxx	Owner Evening Phone: (xxx) xxx-xxxx
Fax:(360) 853-8002 | E-mail: alanw@concretewa.gov	Owner Fax Phone: | E-mail:

WAC 246-290-420(9) requires that water systems provide 24-hour contact information for emergencies.

11. SATELLITE MANAGEMENT AGENCY - SMA (check only one)

- [x] Not applicable (Skip to #12)
- [ ] Owned and Managed — SMA NAME: _____ SMA Number:
- [ ] Managed Only
- [ ] Owned Only

12. WATER SYSTEM CHARACTERISTICS (mark all that apply)

- [ ] Agricultural
- [x] Commercial / Business
- [ ] Day Care
- [ ] Food Service/Food Permit
- [ ] 1,000 or more person event for 2 or more days per year
- [x] Hospital/Clinic
- [x] Industrial
- [ ] Licensed Residential Facility
- [x] Lodging
- [x] Recreational / RV Park
- [x] Residential
- [x] School
- [ ] Temporary Farm Worker
- [x] Other (church, fire station, etc.): _____

13. WATER SYSTEM OWNERSHIP (mark only one)

- [ ] Association
- [x] City / Town
- [ ] County
- [ ] Federal
- [ ] Investor
- [ ] Private
- [ ] Special District
- [ ] State

14. STORAGE CAPACITY (gallons)

500,000

15	16	17	18									19			20	21						22	23	24			
	SOURCE NAME	INTERTIE	SOURCE CATEGORY									USE				TREATMENT						DEPTH		SOURCE LOCATION			
Source Number	LIST UTILITY'S NAME FOR SOURCE AND WELL TAG ID NUMBER. Example: WELL #1 XYZ456 IF SOURCE IS PURCHASED OR INTERTIED, LIST SELLER'S NAME Example: SEATTLE	INTERTIE SYSTEM ID NUMBER	WELL	WELL FIELD	WELL IN A WELL	SPRING	SPRING FIELD	SPRING IN	SEA WATER	SURFACE WATER	RANNEY / INF. GALLERY	OTHER	PERMANENT	SEASONAL	EMERGENCY	SOURCE METERED	NONE	CHLORINATION	FILTRATION	FLUORIDATION	IRRADIATION (UV)	OTHER	DEPTH TO FIRST OPEN INTERVAL IN FEET	CAPACITY (GALLONS PER MINUTE)	1/4, 1/4 SECTION	SECTION NUMBER	TOWNSHIP	RANGE
S01	SPRING #1					X						X				X							750	SE SE	04	35N	08E

WATER FACILITIES INVENTORY (WFI) FORM - Continued

1. SYSTEM ID	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
03950 M	CONCRETE UTILITIES	SKAGIT	A	Comm

	ACTIVE SERVICE CONNECTIONS	DOH USE ONLY! CALCULATED ACTIVE CONNECTIONS	DOH USE ONLY! APPROVED CONNECTIONS
25. SINGLE FAMILY RESIDENCES (How many of the following do you have?)	0	473	484
A. Full Time Single Family Residences (Occupied 180 days or more per year)	473		
B. Part Time Single Family Residences (Occupied less than 180 days per year)	0		
26. MULTI-FAMILY RESIDENTIAL BUILDINGS (How many of the following do you have?)			
A. Apartment Buildings, condos, duplexes, barracks, dorms	0		
B. Full Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied more than 180 days/year	0		
C. Part Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied less than 180 days/year	0		
27. NON-RESIDENTIAL CONNECTIONS (How many of the following do you have?)			
A. Recreational Services and/or Transient Accommodations (Campsites, RV sites, hotel/motel/overnight units)	0	0	0
B. Institutional, Commercial/Business, School, Day Care, Industrial Services, etc.	0	0	0
28. TOTAL SERVICE CONNECTIONS		473	484

29. FULL-TIME RESIDENTIAL POPULATION

A. How many residents are served by this system 180 or more days per year? 840

30. PART-TIME RESIDENTIAL POPULATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many part-time residents are present each month?												
B. How many days per month are they present?												

31. TEMPORARY & TRANSIENT USERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many total visitors, attendees, travelers, campers, patients or customers have access to the water system each month?												
B. How many days per month is water accessible to the public?												

32. REGULAR NON-RESIDENTIAL USERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. If you have schools, daycares, or businesses connected to your water system, how many students daycare children and/or employees are present each month?												
B. How many days per month are they present?												

33. ROUTINE COLIFORM SCHEDULE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	1	1	1	1	1	1	1	1	1	1	1	1

35. Reason for Submitting WFI:

☐ Update - Change ☐ Update - No Change ☐ Inactivate ☐ Re-Activate ☐ Name Change ☐ New System ☐ Other _____

36. I certify that the information stated on this WFI form is correct to the best of my knowledge.

SIGNATURE: _____

DATE: _____

PRINT NAME: _____

TITLE: _____

STATE OF WASHINGTON
Public Water System
Operating Permit

The Department of Health Office of Drinking Water issues a permit to operate

CONCRETE UTILITIES (ID# 03950 M)

to owner: CONCRETE, TOWN OF County: SKAGIT

CONCRETE, TOWN OF
45672 MAIN ST
PO BOX 39
CONCRETE, WA 98237

This Permit is valid through August 2011

PERMIT CATEGORY: **** Green ****

The permit category may be modified or the permit revoked subject to water system compliance with applicable State of Washington drinking water rules and regulations and the folowing statements

The system operating permit color category is based on information on file with the Department at the time this permit was printed.

System is substantially in compliance with applicable drinking water requirements

Washington State Department of Health

DOH 331-030 (11/08)

Report Date: 08/10/2010

AGREEMENT FOR ESTABLISHING WATER UTILITY SERVICE AREA BOUNDARIES

PREAMBLE

This Agreement for water utility service area boundaries identifies and establishes between the undersigned parties the external boundary of the service area for which the designated water purveyor has assumed direct retail water service responsibility. The responsibilities accepted by the water purveyor are outlined in the Skagit County Coordinated Water System Plan (CWSP), and as defined by the adopted rules and regulations of the Washington State Department of Health (DOH). Except as specifically provided herein, this Agreement does not give new authorities or responsibilities to any water purveyor or to Skagit County or State regulatory agencies, but acknowledges the geographical area for these designated service responsibilities.

The terms used within this Agreement shall be as defined in the implementing regulations of Chapter 70.116 RCW, except as identified below.

1. Skagit County Critical Water Supply Service Area Map shall mean the map incorporated into this Agreement as Attachment A for the retail service area, except as amended in accordance with the CWSP procedures and with the concurrence of the affected water purveyors.

2. Retail Service Area shall mean the designated geographical area in which a purveyor shall supply water either by direct connection to the existing system, by a remote/detached system, or through interim service by an adjacent utility under agreement with the designated utility.

3. Wholesale Service Area shall mean the designated geographical area in which a purveyor, a group of purveyors, or another organization provides water to other water purveyors on a wholesale basis. A wholesale water supplier shall not provide water to individual customers in another purveyor's retail service area except with the written concurrence of the purveyor responsible for the geographical service area in question.

4. Lead Agency for administering the Agreement For Establishing Water Utility Service Area Boundaries shall be the Skagit County Department of Health, unless otherwise established by amendment to the CWSP.

The authority for this Agreement is granted by the Public Water System Coordination Act of 1977, Chapter 70.116 RCW.

TERMS OF AGREEMENT

001439

WHEREAS, Such an Agreement is required in WAC 246-293-250, Service Area Agreements-Requirement, of the Public Water System Coordination Act; and

WHEREAS, Designation of retail water service areas, together with the cooperation of utilities, will help assure that time, effort, and money are best used by avoiding unnecessary duplication of service; and

WHEREAS, Definite future service areas will facilitate efficient planning for, and provision of, water system improvements within Skagit County as growth occurs; and

WHEREAS, Responsibility for providing water service through ownership and/or management of water systems in a designated service area is vested in the designated utility; and

WHEREAS, Definite retail and wholesale service areas will help assure that water reserved for public water supply purposes within Skagit County will be utilized in the future in an efficiently planned manner,

NOW, THEREFORE, the undersigned parties, having entered into this Agreement by signature of its authorized representatives, concur with and will abide by the following provisions:

Section 1. Service Area Boundaries. The undersigned parties acknowledge that the Skagit County Critical Water Supply Service Area Map, included as Attachment A to this Agreement and as may be subsequently updated, identifies the purveyor's future water service area. The undersigned further acknowledge that there are no service area conflicts with adjacent water purveyors, or, where such conflicts exist, agrees that no new water service will be extended within disputed areas until such conflicts are resolved.

Section 2. Common Service Area Transfer. It is understood that purveyors may initially continue existing water service within the boundaries of neighboring purveyors, as defined in Attachment A. Such common service areas, if they exist, are described in Attachment B to this agreement. Also included in Attachment B are copies of, or a list of, all resolutions, ordinances, or agreements permitting these uncontested overlays. The undersigned parties agree that any water line for retail service extending outside of the retail service area boundary, as set forth in Attachment A, shall be phased out and service transferred to the designated adjacent purveyor on an economic basis or by mutual agreement.

Economic basis considerations shall include, but are not limited to:

(a) A determination by the present owner of service lines that maintenance, repair, and/or replacement costs exceed attributable income.

(b) Planned or imminent major street improvements or major improvements to either or both water systems which include an opportunity to transfer service.

The terms of the transfer of service area described in this Section shall be established in a separate agreement among the adjacent purveyors whose boundaries are affected.

Section 3. Boundary Streets. Unless separate agreements exist with adjacent purveyors concerning water services or other utility services, the parties agree that the water purveyor which is located to the north or east of boundary streets between this purveyor and adjacent purveyors shall be entitled to provide future water service on both sides of those streets. Depth of service on boundary streets shall be limited to one platted lot or as otherwise agreed by the utilities. Existing services on boundary streets shall remain as connected unless transfer of service is agreed to by both purveyors, as per Section 2. These provisions do not disallow the placement of mains in the same street by adjacent purveyors where geographic or economic constraints require such placement for the hydraulic benefit of both purveyors.

Section 4. Boundary Adjustments. If, at some time in the future it is deemed appropriate by one or both of the undersigned parties to make service area boundary adjustments, such modifications must receive written concurrence (which shall not be unreasonably withheld) of all purveyors that would be directly affected by such a boundary adjustment and the legislative authority(ies) having jurisdiction. These written modifications shall be noted and filed with the designated Skagit County lead agency and DOH. It is understood by the undersigned parties that if, as provided by RCW 70.116.040, the purveyor is unable to provide service within its designated service area boundary it may decline to do so. But, in that case, an applicant will first be referred to adjacent purveyors with an approved water system plan that provides for expansion. An existing system shall be considered "adjacent" to the proposed development if service can be provided with a waterline extension not to exceed one-half mile in length. If service will not be provided by an adjacent purveyor, the developer will be referred to the Skagit County PUD. The original service area boundary will be adjusted accordingly. This provision does not apply where boundary adjustments are made as a result of municipal annexations or incorporations, nor is it intended to modify the provisions of state law.

Section 5. Service Extension Policies. The undersigned parties agree that prior to expanding the purveyor's water service area, other than by addition of retail customers to existing water mains, the purveyor shall have adopted design standards

customers to existing water mains, the purveyor shall have adopted design standards and utility service extension policies. The design standards shall meet or exceed the Skagit County CWSP Minimum Design Standards.

001439

Municipalities further agree that if an individual municipality identifies a service area outside of its existing municipal corporate boundaries, said municipality shall assume full responsibility for providing water service equivalent to (excluding rates and charges) the level of service provided for their inside-city customers. This shall be in conformance with applicable land use policies.

Section 6. Systems Placed in Receivership. RCW 43.70.195 enacted in the 1990 Regular Session of the Washington State Legislature provides that whenever an action is brought in superior court to place a public water system in receivership, the petition to the court shall name candidates for receiver who have consented to assume operation of the water system. The undersigned purveyor agrees to be named as receiver in such actions initiated for systems within its designated service area. By this consent, the undersigned does not waive its rights to appear and participate in the court proceedings to determine acceptable conditions of receivership.

This agreement by reference includes the following attachments:

Attachment A - Skagit County Critical Water Supply Service Area Map. (see Section 1)

Attachment B - Common Service Area Agreement - Optional - Utility may attach copies or list such agreements if relevant. (see Section 2)

IN WITNESS WHEREOF, the undersigned parties have executed this Agreement.

Board of County Commissioners
Skagit County, Washington

W. W. Vaux, ~~Chairman~~ Comm.

Robby Robinson, Commissioner

Ruth Wylie, Commissioner

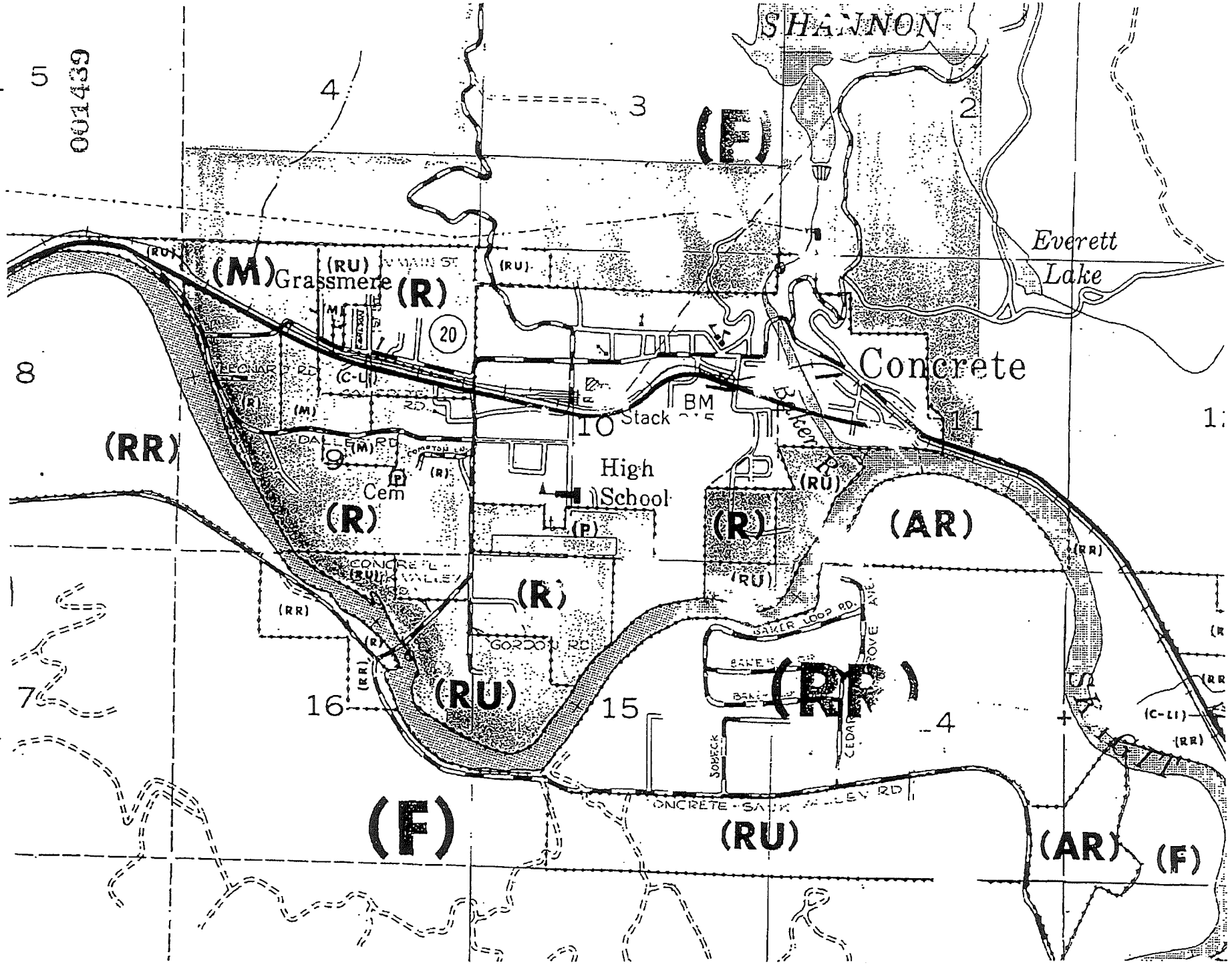
10/6/92
Date

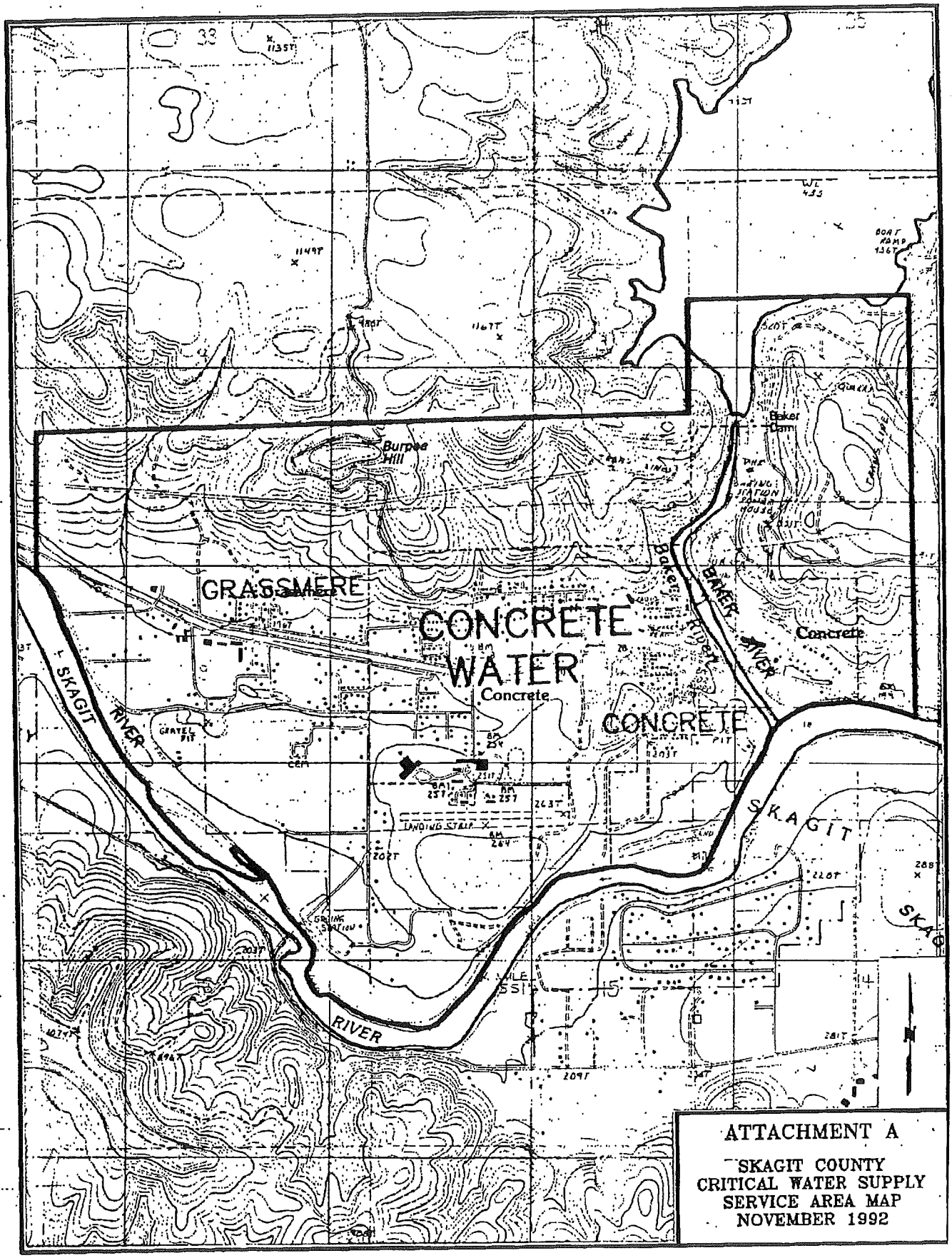
TOWN OF CONCRETE
Water Purveyor

X Dale Ludwigsen
Representative

MAYOR
Title

8-13-92
Date


SHANNON
Everett
Lake
Concrete
Grassmere
(M)
(R)
(RU)
(F)
(RR)
(AR)
(C-LI)
20
Stack
BM
High
School
Cem
Baker Loop Rd.
Concrete-Sauk Valley Rd
Gordon Rd
Dalles Rd
Leonard Rd
Sauk
Jobeck
Cedar Grove Ave
3
4
2
1
8
9
10
11
16
15
7
P.6
51
001439
3604045666
Feb 19 03 01:42p
EES



ATTACHMENT A

SKAGIT COUNTY
CRITICAL WATER SUPPLY
SERVICE AREA MAP
NOVEMBER 1992

ORIGINAL

AGREEMENT
BETWEEN THE TOWN OF CONCRETE AND ADVANCED H2O
FOR WATER SUPPLY

THIS AGREEMENT is made by and between the TOWN OF CONCRETE a municipal corporation in Skagit County, State of Washington, hereinafter called the "TOWN", and ADVANCED H2O, LLC, a Washington corporation, doing business in the State of Washington, hereinafter called the "COMPANY".

WHEREAS, the COMPANY wishes to purchase spring water from the TOWN water supply, and

WHEREAS, the TOWN owns and operates a system for the supply and distribution of domestic water and is authorized to sell and distribute said water to its residential, commercial and industrial inhabitants and to other persons and customers inside and outside the corporate limits of the Town, and

WHEREAS, the TOWN is willing to sell water of the TOWN to the COMPANY,

NOW THEREFORE, in consideration of the mutual covenants contained herein, the parties do agree as follows:

1. Subject to the conditions and covenants contained herein, the COMPANY shall have the right to take water from the TOWN water system during the term of this agreement. The COMPANY shall pay to the TOWN monthly the sum of one cent for each gallon plus six (6) percent utility tax of water supplied by the TOWN. Said sum shall be billed by the TOWN monthly and shall be paid by the COMPANY within 15 days of receipt.

2. The cost for water purchase during the term of this agreement is set forth herein. Beginning from the date of execution of this agreement until December 31, 2009, the cost per gallon shall be one cent (.01), the rate for January 1, 2010 through December 31, 2011 shall be one and one quarter cent (.0125) per gallon plus six (6%) percent utility tax to be paid within fifteen (15) days of receipt. On or before December 31, 2011 a new rate agreeable by the TOWN and the COMPANY shall be established along with the effective dates of the new rate. If the parties are unable to agree to a new rate, the matter shall be settled by arbitration pursuant to RCW 7.04, nothing herein shall be interpreted as prohibiting the parties from settling any disputes by mediation or other dispute resolution mechanism.

3. For the purpose of permitting the COMPANY to withdraw water from the TOWN water system, the TOWN shall provide access to the main line of the water system from which the COMPANY may withdraw water. The location of said point of access shall be at the direction of the TOWN Public Works Director but at the cost of the COMPANY. Any withdrawal of water shall be only at such point of access through a meter to assure accuracy of billing.

4. It is understood and agreed that the water to be supplied by the TOWN to the COMPANY is water that is primarily used by the TOWN to supply its present customers and future customers. The primary use of water by the TOWN is and will be to supply water to the TOWN's residential, commercial and industrial domestic

customers, including those which may compete with the COMPANY, now located within the TOWN city limits, its future expanded city limits and its growth management area, as may become designated by the TOWN comprehensive plan and any amendments thereto. The TOWN is also obligated to furnish water to the Washington State Department of Natural Resources and other agencies for fire protection. If, at any time, the available water demand from domestic customers exceeds the amount of water available to be supplied to such customers as determined by quantity standards under the Washington Administrative Code and State Statute, then the Town shall have the option to suspend performance or terminate this agreement.

5. This agreement to supply water to the COMPANY shall be subject to, and not limited by, unavoidable accidents, acts of God and any other conditions beyond the control of the TOWN. If the TOWN supply is limited, the COMPANY's supply will be limited in such a manner to ensure adequate water for all other domestic users and needs, including fire flow, which shall have priority. If the TOWN declares an emergency of limited water available through accident, catastrophe or its own emergency and notifies the COMPANY of the limitations imposed by the TOWN the COMPANY shall comply forthwith to those limitations or be subject to the TOWN controlling delivery of water at the water meter for the duration of the emergency.

6. The TOWN will treat any major interruptions to the supply of the COMPANY as an urgent matter and will attempt to restore, or cause to be restored, normal service to the COMPANY as expeditiously as possible. The TOWN shall not be liable to the COMPANY for loss or damages of any kind resulting from interruptions or limitations in the supply of water to the COMPANY.

7. Whenever the COMPANY desires to withdraw remarkably more water than their average consumption, the COMPANY shall first obtain the permission of the TOWN Public Works Director.

8. In the event that the TOWN shall receive an offer from another party to purchase water to bottle that the TOWN desires to accept, then the COMPANY shall have the first right of refusal for the additional water upon the same terms and conditions as the offer made by the third party. Upon receipt by the TOWN of an offer that they desire to accept, they shall notify the COMPANY of the terms of said offer. The COMPANY shall within 15 days after either receiving said notification, exercise their option or said option shall be terminated and of no further force of effect. The first right of refusal option granted herein shall not be applicable to a business located within the TOWN growth management area. Any business located within the growth management area shall be considered a primary customer.

9. The term of this agreement shall be for five years from and after the date of its execution. The COMPANY shall have the option to renew this agreement for an additional term of five years beyond the termination date of the first five-year period. Said option shall be exercised by giving written notice of the COMPANY's intention on or before ninety (90) days prior to the termination date of the first term. In the even that the TOWN has incurred significant additional expenses in the operation of its water system, the price to be paid per gallon by the COMPANY during the option term shall be subject to negotiation. Both the TOWN and the COMPANY shall

annually review the performance of the agreement to determine if any modifications are required.

10. The COMPANY shall, during the term of the agreement, obtain and maintain product liability insurance in an amount not less than one million dollars and furnish proof thereof to the TOWN. The COMPANY shall hold the TOWN harmless from any liability incurred by the COMPANY as a result of bottling and sale of water and any activities conducted by the COMPANY in acquiring water from the TOWN water system. It is fully understood that the TOWN is providing untreated and unprocessed water to the COMPANY and that the TOWN has the right to add chemical treatment as permitted or required by State and Federal laws, codes and regulations as deemed necessary. The TOWN makes no guarantees or warranties whatsoever concerning the purity of the water to the COMPANY. It is the total responsibility of the COMPANY to make such tests as are necessary to determine the purity of the water for any purpose that the COMPANY may have.

11. Any disputes that may arise between the parties with respect to this agreement shall be submitted to arbitration. Either party requesting arbitration may, if an arbitrator cannot be agreed upon, petition the Skagit County Superior Court to appoint an arbitrator. All arbitration shall be conducted in accordance with the laws of the State of Washington, the rules of the Washington State Supreme Court and the Skagit County Superior Court, including MAR arbitration. Both Parties expressly waive any monetary limitation imposed by MAR arbitration.

IN WITNESS WHEREOF, the parties have hereunto set their hands this 23 day of November, 2009.

TOWN OF CONCRETE

BY _____
Mayor-Judd Wilson

ADVANCED H2O, LLC

BY _____

Shane Banks Director of manufacturing
Printed Name and Title

Current Water Rate Ordinance

Resolution # 2011-06

A RESOLUTION OF THE TOWN OF CONCRETE, WASHINGTON SETTING FEES FOR GOVERNMENTAL SERVICES IN THE TOWN OF CONCRETE FOR THE BUDGET YEAR 2011.

NOW THERFORE, be it resolved by the Town Council of Town of Concrete hereby adopts the annual fee schedule for the budget year 2011 is amended as follows:

Administrative Fees:		
Business License	$25.00	Per Year
Business License Open after June 30	$12.50	Per Bal. of Year
Business License Late Fee	10%	Per Month
Business License Transfer Fee	$25.00	Per Transfer
Business License Transfer Fee after June 30	$12.50	Per Transfer
Itinerant Merchants	$20.00	Per Month
Second Hand/Pawnbroker	$30.00	Per Year
Second Hand/Pawnbroker after June 30	$15.00	Per Bal. of Year
Second Hand/Pawnbroker Late Fee	10%	Per Month
Special Events Special Event –Non Profit Organizations	$30.00 $20.00	Per Event With Proof of 501C (3) Status
Street Carnivals and Circuses	$25.00	Per Day
Copies (R.C.W. 42.17.300)	$0.15	Per Copy + Tax
Faxing Fees - Sent or Received	$1.50	First Page
	$1.00	Each Additional Pg.
Mileage	Standard IRS Mileage Rate	
Notary Fee (5 or fewer Notarial Acts)	$5.00	
(Over 5 Notarial Acts)	$10.00	
NSF Check Fee	$35.00/10% of Total Check(whichever amount is greater)	Plus Bank Fee
Per Diem Rate	$61.00	Max + 15% Gratuity
Breakfast	$10.00	+ 15% Gratuity

		& 8.2% Sales Tax
Lunch	$15.00	+ 15% Gratuity & 8.2% Sales Tax
Dinner	$31.00	+ 15% Gratuity & 8.2% Sales Tax
Building Permit Fees:		
Plumbing Permits Fees		
Toilet	$7.00	Each
Urinal	$7.00	Each
Bidet	$7.00	Each
Bathroom Sink	$7.00	Each
Bathtub	$7.00	Each
Shower	$7.00	Each
Bathtub/Shower Combo	$7.00	Each
Kitchen Sink	$7.00	Each
Dishwasher	$7.00	Each
Ice Maker Hook-Up	$7.00	Each
Wet Bar Sink	$7.00	Each
Laundry Sink	$7.00	Each
Washing Machine	$7.00	Each
Water Heater	$7.00	Each
Floor Sink	$7.00	Each
Floor Drain	$7.00	Each
Utility Sink	$7.00	Each
Mop Sink	$7.00	Each
Slop Sink	$7.00	Each
Drinking Fountain	$7.00	Each
Water Piping	$7.00	Each
Water Faucet	$7.00	Each
Back Flow Prevention Device	$7.00	Each
Water Line to Building	$50.00	Each
Vacuum Breaker	$5.00	First Five
	$1.00	Each additional
Fire Suppression/Sprinklers	$120.00	System
Mechanical Permit Fees		
Air Conditioning	$14.70	Unit
Boiler	$14.70	Unit
Forced Air Unit	$14.80	Unit
Heat Pump Unit	$14.80	Unit
Unit Heaters	$7.00	Unit

Metal Fireplace	$10.65	Unit
Fireplace Insert	$10.65	Unit
Wood Stove	$10.65	Unit
Gas Stove	$10.65	Unit
Kerosene Stove	$10.65	Unit
Pellet Stove	$10.65	Unit
Misc. Appliance	$10.65	Unit
Clothes Dryer	$10.65	Unit
Exhaust Fan/Unit	$7.25	Unit
Range Hood	$10.65	Unit
Micro Hood	$10.65	Unit
Air Handling Unit	$10.65	Unit
L.P. Gas Piping	$5.50	Unit
L.P. Storage Tank	$10.65	Unit
Fire Suppression	$14.80	Unit
Miscellaneous	Per Building Inspector	
Other	Per Building Inspector	
Demolition Permit	$50.00	
Mobile Home Title Elimination	$25.00	
Engineer Fees:		
Review Development Plans	As billed by consulting Town Engineer	
Fire Protection Fees:		
Fire Inspections – New Construction/Remodels	$75.00 $20.00	Initial Inspection Each Follow Up Inspection
Fire Inspection – Requested/Special	$25.00	Per Visit
False Alarms - Ordinance #433 Third Occurrence	$50.00 $100.00	Second Occurrence Additional Fine Received Within 6 Month Period of Initial Fine
Community Garden Fees:		
Bed Rental - 4 X 8 Bed	$25.00	Per Year
Bed Rental - 4 X 10 Bed	$35.00	Per Year
Bed Rental - 4 X 12 Bed	$45.00	Per Year
Bed Rental - 4 X 4 Children's Bed	Free	w/ parent and child signature
Bed Rental - Began after July 31	50%	Of Annual Bed Rental Price
Code Enforcement Fees:		
Animal Pickup Fee	$10.00	Minimum

	$50.00	Maximum
Animal Impound Fee – Local	$10.00	Per Day
Animal Impound Fee – Skagit Humane Society	Actual Humane Society Fee	
Animal Impound Fee – Care/Feed	$5.00 Min.	Per Day
	$20.00 Max.	Per Day
Dog Classification Appeal Filing Fee	$100.00	
Dog License Tag Dog License Issued After June 30th (new licenses only)	$8.00 $4.00	Per Year Per Bal. of Year
Dog License Tag Replacement	$2.00	Per Replacement
Dog License Tag Late Fee – After Jan. 31	$1.00	Per Month
Vehicle Abatement	Per RCW	
Permits & Taxes:		
Real Estate Excise Tax	0.25%	
Planning and Land Use Fees:		
Amendment to Comp Plan Text	$500.00	
Amendment to Comp Plan Map	$500.00	
Amendment to Zoning Text	$240.00	
Annexation	$240.00	
Appeals	$100.00	
Binding Site Plan Application & Review	$300.00	
Final Binding Site Plan	$100.00	
Boundary Adjustment Review and Boundary Line Adjustment	$120.00	
Communication Facilities Permit	$240.00	
Conditional Use Permit	$240.00	
Critical Areas Permit	$240.00	
Environmental Review	$120.00	
Environmental Threshold Determination	$240.00	
Fill and Grade Permit (50 c.y. and over) (Under 50 c.y.)	$120.00 $50.00	
Long Plat Application	$500.00	Base Fee
	$25.00	Per Lot
Final Long Plat/Plat Amendments	$200.00	
Planned Unit Development	$240.00	Base Fee
	$15.00	Per Lot

Rezone	$240.00	
Commercial SEPA Environmental Checklist	$250.00	Base Fee for up to 10 hours staff time - $60.00 per hour over 10 hours
Commercial Shoreline Permit Application	$240.00	Base Fee for up to 10 hours staff time - $60.00 per hour over 10 hours
Residential SEPA Environmental Checklist	$250.00	
Residential Shoreline Permit Application	$240.00	
Right-Of-Way Permit Application	$120.00	
Short Subdivision Application	$300.00	Base Fee
	$25.00	Per Lot
Final Short Plat Sign Permits	$100.00 $50.00	
Sign/Town Center Initial Fee	$150.00	
Sign/Town Center Annual Fee	$15.00	
Special Review	$120.00	
Temporary Use Permit	$120.00	
Urban Growth Area Adjustment	$240.00	
Vacation of Public Right of Way Variance	$240.00 $240.00	
Additional Professional Services Fee	$250.00 $60.00	Deposit Min. Per Hour
Public Notice Sign	$25.00	
Engineering Design Standards	$28.00	
Zoning, Subdivision & Land Development Code	$15.00	

Detailed Billing Statement Will Be Submitted for Any Additional Fees

If the Town elects to use the services of a consultant or attorney, the applicant/developer shall pay to the Town all actual fees incurred. ALL COSTS ASSOCIATED WITH THE PUBLIC NOTICE SHALL BE BORNE BY THE APPLICANT; INCLUDING PUBLICATION, MAILING, COPYING AND POSTING COSTS. THESE COSTS ARE IN ADDITION TO THE APPLICATION FEE(S)

Public Works Fees:		
Curbs and/or Walk Installation Permit	$120.00	
Illuminations (eg. Street Lighting) Review	$120.00	
Parking Lot Paving Review	$120.00	
Right of Way Permit	$120.00	

Roadway Imp. And Roadway Paving Review	$120.00	
Sanitary Sewer Installation of Imp. Review	$120.00	
Special Inspection	$120.00	
Storm Sewer Installation/Imp Review	$120.00	
Storm Sewer Installation/Detention System	$120.00	
Street Excavation/Grading/Preparing	$120.00	
Street Imp (Including Clearing/Grub)	$120.00	
Traffic System Review and Inspection	$120.00	
Utilities Extension Review and Inspection	$120.00	
Water Main Review and Inspection	$120.00	
Rental Fees:		
Airport Pilots Lounge (no charge for airport leaseholders)	$35.00	Per 4 Hours
	$50.00	Per 8 Hours
Airport Lot Waiting List Fee	$50.00	Initial Fee
	$15.00	Annually
Airport Lot Assignment Request Fee	$50.00	Per Request
Utilities:		
Sewer System Development Fee Per ERU	$2655.30	Per Connection
Utility Tax	6%	
Water System Development Fee Per ERU	$6302.58	Per Connection
Water Delinquent Notification Charge (Payoff Agreements)	$10.00	Per Incident
Water Delinquent Termination	$35.00	
Water Theft of Services Fee	$500.00 $750.00	1st Occurrence 2nd Occurrence
Water Reconnect Non Work Hours – Non Emergency	$75.00	
Water Shut Off Requested Work Hour	$10.00	
Water Shut Off Requested w/Billing Stopped	$15.00	
Water Shut Off Requested Non Work Hours – Non Emergency	$75.00	
Water Shut Off Requested Non Work Hours – Emergency	No Charge	
Water Delinquent Notice Fee	$20.00	
Sewer Rates:		
Inside Town Houses and Churches	Non-Metered	$67.78
Inside Town Commercial/Business &	Metered	$71.98*

Schools		
* Sewer rate is for first 500 Cubic feet plus $0.0125 for each additional Cubic Foot		
Food Bank	Metered	$5.00*
* Sewer rate is for first 500 Cubic feet plus $0.0124 for each additional Cubic Foot.		
Flat Rate Water Services (non-metered):		
Inside Town Houses and churches		$25.80
Outside Town Houses and churches		$36.20
Inside Town Commercial/Business & School		$26.85
Outside Town Commercial/Business & School		$37.78
Metered Water Services		
A. Inside the Town		

Full Commercial Inside

Note: Full Commercial Includes Restaurants, Beauty Salons, Medical offices, Bars, Hotels, Motels, Schools and all other Businesses deemed by the Director of Public Works to fit this category.

Charge		$26.85
Minimum		500
	STEP	
1	1,500	0.0213
2	2,000	0.0147
3	6,000	0.0114
4	10,000	0.0059
	Overage Rate	0.0037

Commercial 2 Inside

Note: Commercial 2 includes Businesses w/Public Bathrooms ONLY and all other Business deemed by the Director of Public Works to fit this category.

Charge		$26.85
Minimum		500
	STEP	
1	1,500	0.0200
2	2,000	0.0140
3	6,000	0.0109
4	10,000	0.0057
Overage Rate		0.037

Commercial 3 Inside
Note: Commercial 3 includes Business w/Employee Bathrooms ONLY and all other Businesses deemed by the Director of Public Works to fit this category.

Charge		$26.85
Minimum		500
	STEP	
1	1,500	0.0150
2	2,000	0.0105
3	6,000	0.0082
4	10,000	0.0043

B. Outside the Town

Full Commercial Outside
Note: Full Commercial includes Restaurants, Beauty Salons, Medical Offices, Bars, Hotels, Motels, Schools and all other Business deemed by the Director of Public Works to fit this category.

Charge		$37.78
Minimum		500
	STEP	
1	1,500	0.0205
2	2,000	0.0144
3	6,000	0.0112
Overage Rate		0.0058

Commercial 2 Outside
Note: Commercial 2 includes Businesses w/Public Bathrooms ONLY and all other Businesses deemed by the Director of Public Works to fit this category.

Charge	$37.78
Minimum	500

	STEP	
1	1,500	0.0193
2	2,000	0.0135
3	6,000	0.0105
	Overage Rate	0.0058

Commercial 3 Outside

Note: Commercial 3 includes Businesses w/Employee Bathrooms ONLY and all other Businesses deemed by the Director of Public Works to fit this category.

Charge		$37.78
Minimum		500
	STEP	
1	1,500	0.0145
2	2,000	0.0102
3	6,000	0.0080
	Overage Rate	0.0058

C. Food Bank

Charge		$5.00
Minimum		500
	STEP	
1	1,500	0.0150
2	2,000	0.0105
3	6,000	0.0082
4.	10,000	0.0043
	Overage Rate	0.0037

D. Commercial Enterprises with consumption over 29,000 per month

$ .0125 per gallon

E. Fire Protection Rates:

For water furnished to fire hydrants outside the Town limits of the Town of Concrete, $13.45 per month per hydrant.

RESOLVED, by the Concrete Town Council and approved by the Mayor this____ day of _____2010.

ATTEST:

Mayor, Judd Wilson

Clerk–Treasurer, Andrea Fichter

PLANNING & DEVELOPMENT SERVICES

GARY R. CHRISTENSEN, AICP, DIRECTOR

TIM DEVRIES, CBO, ACO, CFM
Building Official & Floodplain Manager

April 30, 2012

Reichhardt & Ebe Engineering, Inc
Carl Reichhardt, PE
813 Metcalf Street
Sedro-Woolley, WA 98284

Dear Mr. Reichhardt,

Thank you for the opportunity to review the Town of Concrete draft 2012 Water System Plan, dated February, 2012.

Regarding the six-year growth projection, Skagit County has adopted countywide growth forecasts for each municipality and its urban growth area. For your information, the Town of Concrete allocated population forecast for 2025 is 1,350 residents. See Table 3 of the following referenced report at: http://www.skagitcounty.net/PlanningandPermit/Documents/uga2005/Skagit%20County%20Forecast%20Allocation1203.pdf. The draft 2012 Water System Plan projected population for 2031, six years beyond the 2025 forecast, is 1,377 residents. I don't view this as a significant deviation; however, I did want to bring it your attention.

I have reviewed your submitted *Water System Plan and Small Water System Management Program Consistency Statement Checklist* and referenced document pages and exhibits.

With this issue noted, I have attached a signed Local Government Consistency Review Checklist.

If you have any questions, please contact me at (360) 336-9410, ext. 5624, or garyc@co.skagit.wa.us.

Sincerely,

Gary R. Christensen, AICP
Director

Attachment

Attachment 5: Water System Plan and Small Water System Management Program Consistency Statement Checklist

This checklist is intended to ensure consistency of water system planning documents with adopted local comprehensive plans and development regulations. Each local planning jurisdiction in which the water utility provides service will review the relevant water system planning information and provide a signed consistency statement to the utility for submittal to the Department of Health. If the local planning agency will not respond, the highest authority within the utility (chair of governing body, executive director of private companies, etc.) must sign to verify consistency of the plan information.

Water System Name: Town of Concrete PWS ID: 03950

Planning Document Title: ~~2011~~ 2012 Water System Plan Plan Date: ~~October, 2011~~ FEBRUARY, 2012

Local Planning Jurisdiction: Skagit County Planning Department

Consistency Statement (Reference Municipal Water Law Section 5 and 8, amendment to chapter 90.03.386 and chapter 43.20 RCW)	Page(s) in Planning Document (completed by utility)	Yes – No – Not Applicable
The retail service area, and any other areas not served by a separate public water system, and land use identified in the WSP is consistent with the *adopted comprehensive plan and adopted development regulations and policies.*	Page 1-6 Exhibits 2-1 and 2-2	YES
For WSPs only: The growth projection used to forecast water demand for the retail service area is consistent with the adopted city/county's population growth projections (and commercial development projection if applicable). If a different growth projection was used, the alternative growth projection and methodology proposed is acceptable based on explanation given.	Pages 2-8 and 2-9	YES
For WSPs only: New potential large water users (that may have a significant impact on the water system) that the city/county is aware of have been identified in the WSP.	Page 2-9	YES
For city-owned systems only: All policies regarding water service outside the corporate boundaries are included in this WSP. These policies are consistent with the adopted *comprehensive plan* and *development regulations.*	Page 1-9	YES
Where the local planning agency is unable to sign a Consistency Statement: Provide documentation of efforts to coordinate with local agencies with a 60-day timeline for local agency to respond. Include: name of contact, date, type of effort attempted, and response from local agency.		

I certify that the above statements are true to the best of my knowledge and that these statements support the conclusion that the subject-planning document is consistent with adopted comprehensive plans, development regulations, and other policies.

Signature 4/30/12 Date

GARY R. CHRISTENSEN, DIRECTOR

Printed Name, Title, & Jurisdiction SKAGIT COUNTY PDS

****For any issues of inconsistency, please provide comments on how they can be resolved. ****

Attachment 5: Water System Plan and Small Water System Management Program Consistency Statement Checklist

This checklist is intended to ensure consistency of water system planning documents with adopted local comprehensive plans and development regulations. Each local planning jurisdiction in which the water utility provides service will review the relevant water system planning information and provide a signed consistency statement to the utility for submittal to the Department of Health. If the local planning agency will not respond, the highest authority within the utility (chair of governing body, executive director of private companies, etc.) must sign to verify consistency of the plan information.

Water System Name: Town of Concrete PWS ID: 03950

Planning Document Title: 2011 Water System Plan Plan Date: October, 2011

Local Planning Jurisdiction: Town of Concrete Planning Department

Consistency Statement (Reference Municipal Water Law Section 5 and 8, amendment to chapter 90.03.386 and chapter 43.20 RCW)	Page(s) in Planning Document (completed by utility)	Yes – No – Not Applicable
The retail service area, and any other areas not served by a separate public water system, and land use identified in the WSP is consistent with the *adopted comprehensive plan and adopted development regulations and policies.*	Page 1-6 Exhibits 2-1 and 2-2	Y
For WSPs only: The growth projection used to forecast water demand for the retail service area is consistent with the adopted city/county's population growth projections (and commercial development projection if applicable). If a different growth projection was used, the alternative growth projection and methodology proposed is acceptable based on explanation given.	Pages 2-8 and 2-9	Y
For WSPs only: New potential large water users (that may have a significant impact on the water system) that the city/county is aware of have been identified in the WSP.	Page 2-9	Y
For city-owned systems only: All policies regarding water service outside the corporate boundaries are included in this WSP. These policies are consistent with the adopted *comprehensive plan* and *development regulations.*	Page 1-9	Y
Where the local planning agency is unable to sign a Consistency Statement: Provide documentation of efforts to coordinate with local agencies with a 60-day timeline for local agency to respond. Include: name of contact, date, type of effort attempted, and response from local agency.		

I certify that the above statements are true to the best of my knowledge and that these statements support the conclusion that the subject-planning document is consistent with adopted comprehensive plans, development regulations, and other policies.

Geraldine Hallberg
Signature

1-10-12
Date

Geraldine Hallberg Town Planner Town of Concrete
Printed Name, Title, & Jurisdiction

****For any issues of inconsistency, please provide comments on how they can be resolved. ****

REGULATED CONTAMINANTS

TEST RESULTS						
Contaminant	Violation Y/N	Level Detected	Unit Measurement	MCL	MCL	Likely Source of Contamination
Microbiological Contaminants						
1. Total Coliform Bacteria	N	0	100mL	0	presence of coliform bacteria in 5% of monthly samples	Naturally present in the environment
2. Fecal coliform a *E.coli*	N	0	100mL	0	a routine sample and repeat sample are total coliform positive, and one is also fecal coliform or *E. coli* positive	Human and animal fecal waste
Inorganic Contaminants						
Arsenic	N	0.003	mg/L	0.010		Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Copper	N	.123	mg/L	1.3		Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Nitrate	N	0.42	mg/L	10.00		Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

Copper is an essential mineral in the diet. Too much copper, however, can cause health problems. Major food sources of copper are shellfish, nuts, grains, leafy vegetables, and stone fruits. Typical sources of copper from food range from less than 2 milligrams (mg.) to 5 mg. per day. Health studies have found that copper in drinking water can add 4 to 45 percent more copper to a person's diet than what is in food sources. Absorption studies have indicated that the body excretes about half of ingested copper, which offers some protection against copper poisoning. Copper is widely distributed within the tissues of the body, but accumulates primarily in the liver and kidneys.

Nitrate in drinking water at levels above 10 mg/L is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider.

Inorganic contaminants such as salts and metals, which can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also, come from gas stations, urban storm water runoff, and septic systems. Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses. Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities. In order to ensure that tap water is safe to drink, the Environmental Protection Agency and/or the Washington state board of health prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration and/or the Washington state department of agriculture regulations establish limits for contaminants in bottled water that must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

Total Coliform: The Total Coliform Rule requires water systems to meet a stricter limit for coliform bacteria. Coliform bacteria are usually harmless, but their presence in water can be an indication of disease-causing bacteria. When coliform bacteria are found, special follow-up tests are done to determine if harmful bacteria are present in the water supply. If this limit is exceeded, the water supplier must notify the public by newspaper, television or radio. **In the past when this limit was exceeded the Town chlorinated the water system to protect our water customers.**

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

In our continuing efforts to maintain a safe and dependable water supply it may be necessary to make improvements in your water system. The costs of these improvements may be reflected in the rate structure. The Town will make every effort to get funding for these project but rate adjustments may be necessary in order to address these improvements.

We at the Town of Concrete work around the clock to provide top quality water to every household. We ask that all our customers help us protect our water sources, which are the heart of our community, our way of life and our children's future.

Alan Wilkins

Public Works Director
Town of Concrete

Annual Drinking Water Quality Report
Town of Concrete
June 27, 2011

The Town of Concrete is pleased to present to you this year's Annual Water Quality Report. This report is designed to inform you about the quality of our water and services we deliver to you every day. Our constant goal is to provide you with a safe and dependable supply of drinking water. Our water source is a spring located on the south facing slopes of Burpee Hill.

We have a water source protection plan available at Town Hall that provides more information such as potential sources of contamination.

I'm pleased to report that our drinking water is safe and meets federal and state requirements.

If you have any questions about this report concerning your water utility, please contact Alan Wilkins, Public Works Director at 360-853-8550. We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled council meetings, which are every second and fourth Monday of each month, 7:00pm at 45672 Main Street.

The Town of Concrete routinely monitors for constituents in your drinking water according to Federal and State laws. This report shows the results of our monitoring for the period of July 1st 2010 to June 30st 2011.

In this table you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms we've provided the following definitions:

Non-Detects (ND) - laboratory analysis indicates that the constituent is not present.

Parts per million (ppm) or Milligrams per liter (mg/l) - one part per million corresponds to one minute in two years or a single penny in $10,000.

Parts per billion (ppb) or Micrograms per liter - one part per billion corresponds to one minute in 2,000 years, or a single penny in $10,000,000.

Picocuries per liter (pCi/L) - picocuries per liter is a measure of the radioactivity in water.

Millirems per year (mrem/yr) - measure of radiation absorbed by the body.

Million Fibers per Liter (MFL) - million fibers per liter is a measure of the presence of asbestos fibers that are longer than 10 micrometers.

Nephelometric Turbidity Unit (NTU) - nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

Action Level - the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Treatment Technique (TT) - A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

Maximum Contaminant Level - The "Maximum Allowed" (MCL) is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal - The "Goal" (MCLG) is the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Microscopic Particulate Analysis - (MPA) A Method for Determining Groundwater under the Direct Influence of Surface Water.

We sample monthly for Coliform Bacteria in the water supply to meet regulatory requirements. This past year the Town experienced no total coliform non-compliance level samples. All sources of drinking water are subject to potential contamination by substances that are naturally occurring or manmade. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and can pick up substances resulting from the presence of animals or from human activity. These substances can be microbial contaminants such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Arsenic: some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

Water Quality Monitoring Report for the Year 2010

System: CONCRETE UTILITIES **PWSID:** 03950 M **Report Date:** 03/03/2010
Contact: ALAN WILKINS **Group:** A - Comm **County:** SKAGIT **Region:** NORTHWEST

Part 1: List of Active Sources with Water Quality Monitoring Requirements

DOH Source#	Name	Type	Use	Susceptibility Rating
S01	SPRING #1	Spring	Permanent	High

Part 2: Sampling Schedule for the Year 2010

Coliform Sampling (Routine)	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
	1	1	1	1	1	1	1	1	1	1	1	1

* Indicates the requirement is an exception from WAC 246-290.

- If the coliform (bacteriological) sampling schedule listed at the bottom of the current Water Facilities Inventory (WFI) form for your system is different from the schedule listed above, follow the schedule on the current WFI.
- Samples must be collected from representative points within the distribution system.
- Repeat samples are required following an unsatisfactory sample.
- A minimum of 5 routine samples are required the month following one or more unsatisfactory samples in accordance with your system's Coliform Monitoring Plan.

Lead and Copper Distribution Sampling

- Lead and copper samples must be collected from indoor faucets within the distribution system after the water has sat unused in the pipes for at least 6 hours but no more than 12 hours.
- Sample faucets should be flushed with cold water the evening prior to collecting the sample.
- Part 2 indicates the month in which samples should be collected. Part 4 indicates the total number of sample required.
- If you are required to sample Annually or once every 3 years, samples must be collected between June and September.

Chemical Sampling Requirements

- Source water chemical samples must be taken from a location as near to the source as possible, after any treatment.
- Nitrate, nitrite and arsenic are included as part of a complete IOC.

Month	Source	Monitoring Requirement	Test Panel
January		*No source chemical sampling required this month*	
February	S01	EDB AND OTHER SOIL FUMIGANTS	FUMIGANT
March		*No source chemical sampling required this month*	
April		*No source chemical sampling required this month*	
May		*No source chemical sampling required this month*	
June		ASBESTOS	ASB

Water Quality Monitoring Report for the Year 2010

Month	Source	Monitoring Requirement	Test Panel
June	S01	VOLATILE ORGANIC CONTAMINANTS	VOCI
July		*No source chemical sampling required this month*	
August		*No source chemical sampling required this month*	
September		*No source chemical sampling required this month*	
October	S01	NITRATE	NITRATE
November		*No source chemical sampling required this month*	
December		*No source chemical sampling required this month*	

Part 3: State Waivers

- Automatically granted to all sources based on DOH assessment of conditions within the state.
- No waiver application, or fee required.
- State waivers granted for the 2008 - 2010 compliance period are listed in Part 4.

Part 4: Water Quality Monitoring Frequency

- Although waivers may be granted for your system, there may be some monitoring required as a condition of the waiver your system was granted.

Monitoring Group	Test Panel	Sample Location	Schedule/Status
Asbestos	ASB	Distribution	Collect 1 Asbestos sample in 2010
Bacteriological	Coli	Distribution	See routine sample schedule in part 2
Dioxin	Dioxin	All sources	State Waiver Thru Dec 2010
Endothall	Endo	All sources	State Waiver Thru Dec 2010
EDB and other soil fumigants	Fumigant	S01	1 sample between Jan 2008 - Dec 2010
Glyphosphate	Glyphs	All sources	State Waiver Thru Dec 2010
Herbicides	Herbs	S01	1 sample between Jan 2008 - Dec 2010
Insecticides	Insect	S01	Waived thru Dec 2010
Inorganic Contaminants	IOC	S01	1 complete IOC sample between Jan 2002 - Dec 2010
Lead/Copper *	LCR	Distribution	LCR 1 Set of 10 samples between Jan 2010 - Dec 2012
Nitrate *	NIT	S01	Collect 1 sample(s) every 1 year
General Pesticides	Pest1	S01	1 sample between Jan 2008 - Dec 2010
Diquat	Diquat	All sources	State Waiver Thru Dec 2010
Volatile Organic Contaminants	VOC	S01	1 sample between Jan 2008 - Dec 2010

** These contaminant monitoring groups do not have waiver options under the SDWA.*

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

Water Quality Monitoring Report for the Year 2010

Part 5: Regional Water Quality Monitoring Contact

Northwest Regional Office

For Further information call the Northwest Regional Office Steve Hulsman Phone: (253) 395-6777

For questions regarding Disinfection ByProducts (DBP) monitoring, contact: Jolyn Leslie (253) 395-6762

Special Note

For Group A Community Systems Only: Your Consumer Confidence Report, summarizing the results of your 2009 water quality monitoring requirements is due before July 1, 2010. For further information visit www.doh.wa.gov/ehp/dw/Our_Main_Pages/consumer.htm or contact the CCR Coordinator at your Regional Office.

ALAN WILKINS
CONCRETE UTILITIES
PO BOX 39
CONCRETE WA 98237

Water Quality Monitoring Report for the Year 2010

-- Page intentionally left blank --

Washington State Department of Health

Division of Environmental Health
Office of Drinking Water

Help

Individual System View - CONCRETE UTILITIES - Water System Id - 03950

Compliance Actions | Operating Permits | Operators | Reports | Water Use Efficiency

General Information | Source Information | Samples | Exceedances

Type	Source	DOE Source	Collect Date	Analyte	Result Quantity	Units	Test Panel	Analyte Group	Sample Number	Lab Number
P	Distribution		8/7/2008	TOTAL COLIFORM	Present	/100ml	COLI_AP	MICRO	23265	164
P	Distribution		8/7/2008	TOTAL COLIFORM	Present	/100ml	COLI_AP	MICRO	23264	164
P	Distribution		8/7/2008	TOTAL COLIFORM	Present	/100ml	COLI_AP	MICRO	23266	164
P	Distribution		7/8/2008	TOTAL COLIFORM	Present	/100ml	COLI_AP	MICRO	19897	164
P	Distribution		1/11/2006	TOTAL COLIFORM	Present	/100ml	COLI_AP	MICRO	00932	164
P	Distribution		3/3/2004	TOTAL COLIFORM	Present	/100ml	COLI_AP	MICRO	02459	046
P	Distribution		10/1/2003	TOTAL COLIFORM	Present	/100ml	COLI_AP	MICRO	02592	058
P	Distribution		6/4/2003	TOTAL COLIFORM	Present	/100ml	COLI_AP	MICRO	98230	058
P	Distribution		10/9/2002	TOTAL COLIFORM	Present	/100ml	COLI_AP	MICRO	89136	058
P	Distribution		10/9/2002	TOTAL COLIFORM	Present	/100ml	COLI_AP	MICRO	89137	058
P	Distribution		9/17/2002	TOTAL COLIFORM	Present	/100ml	COLI_AP	MICRO	88171	058
P	Distribution		9/17/2002	TOTAL COLIFORM	Present	/100ml	COLI_AP	MICRO	88168	058
P	Distribution		9/17/2002	TOTAL COLIFORM	Present	/100ml	COLI_AP	MICRO	88170	058
P	Distribution		9/17/2002	TOTAL COLIFORM	Present	/100ml	COLI_AP	MICRO	88169	058
P	Distribution		9/11/2002	TOTAL COLIFORM	Present	/100ml	COLI_AP	MICRO	87943	058
P	Distribution		1/8/2002	TOTAL COLIFORM	Present	/100ml	COLI_AP	MICRO	79000	058
P	Distribution		10/1/2001	TOTAL COLIFORM	Present	/100ml	COLI_AP	MICRO	75540	058
P	Distribution		10/1/2001	TOTAL COLIFORM	Present	/100ml	COLI_AP	MICRO	75541	058
P	Distribution		9/10/2001	TOTAL COLIFORM	Present	/100ml	COLI_AP	MICRO	74746	058
P	Distribution		8/2/2001	TOTAL COLIFORM	Present	/100ml	COLI_AP	MICRO	73328	058
P	Distribution		5/3/2001	TOTAL COLIFORM	Present	/100ml	COLI_AP	MICRO	70237	058
P	Distribution		5/3/2001	TOTAL COLIFORM	Present	/100ml	COLI_AP	MICRO	70239	058
P	Distribution		5/3/2001	TOTAL COLIFORM	Present	/100ml	COLI_AP	MICRO	70240	058
P	Distribution		4/4/2001	TOTAL COLIFORM	Present	/100ml	COLI_AP	MICRO	69195	058

Washington State Department of Health

Division of Environmental Health
Office of Drinking Water

Help

Individual System View - CONCRETE UTILITIES - Water System Id - 03950

Compliance Actions | Operating Permits | Operators | Reports | Water Use Efficiency

General Information | Source Information | Samples | Exceedances

Source	DOE Source	Collect Date	Test Panel	Analyte Group	Sample Number	Lab Number	Exceedances
Dist		10/3/2011	COLI_AP	MICRO	35004	164	No
Dist		9/20/2011	COLI_AP	MICRO	33272	164	No
Dist		8/4/2011	COLI_AP	MICRO	26832	164	No
Dist		7/8/2011	COLI_AP	MICRO	22864	164	No
Dist		6/2/2011	COLI_AP	MICRO	17940	164	No
Dist		5/16/2011	COLI_AP	MICRO	15904	164	No
Dist		4/8/2011	COLI_AP	MICRO	11192	164	No
Dist		3/8/2011	COLI_AP	MICRO	07083	164	No
Dist		2/9/2011	COLI_AP	MICRO	04396	164	No
Dist		1/6/2011	COLI_AP	MICRO	00607	164	No
Dist		12/2/2010	COLI_AP	MICRO	40734	164	No
Dist		11/9/2010	COLI_AP	MICRO	38530	164	No
Dist		10/4/2010	COLI_AP	MICRO	33696	164	No
Dist		9/1/2010	COLI_AP	MICRO	29228	164	No
Dist		8/5/2010	COLI_AP	MICRO	25596	164	No
Dist		7/12/2010	COLI_AP	MICRO	21918	164	No
Dist		6/11/2010	COLI_AP	MICRO	18325	164	No
Dist		5/12/2010	COLI_AP	MICRO	14670	164	No
Dist		4/19/2010	COLI_AP	MICRO	11523	164	No
Dist		3/9/2010	COLI_AP	MICRO	06970	164	No
Dist		2/1/2010	COLI_AP	MICRO	02987	164	No
Dist		1/5/2010	COLI_AP	MICRO	00260	164	No
Dist		12/28/2009	LCR	IOC	42105	046	No
Dist		12/23/2009	LCR	IOC	42065	046	No
Dist		12/23/2009	LCR	IOC	42066	046	No

Records 1 - 25 of 115

Export CSV

Washington State Department of Health

Division of Environmental Health
Office of Drinking Water

Help

Individual System View - CONCRETE UTILITIES - Water System Id - 03950

Compliance Actions | Operating Permits | Operators | Reports | Water Use Efficiency

General Information | Source Information | Samples | Exceedances

Source	DOE Source	Collect Date	Test Panel	Analyte Group	Sample Number	Lab Number	Exceedances
01		7/13/2000	RAD	RAD	67413	023	No
01		3/28/2000	COLI_NUM	MICRO	57481	058	No
01		3/28/2000	COLI_NUM	MICRO	57482	058	No
01		1/27/2000	VOC1	VOC	00730	046	No
01		8/31/1998	FUMIGANT	SOC	06162	046	No
01		11/19/1997	NIT	IOC	06187	046	No
01		9/4/1996	IOC	IOC	03596	046	No
01		8/23/1995	INSECT1	SOC	02857	046	No
01		8/23/1995	QUAT	SOC	02857	046	No
01		8/23/1995	GLYP	SOC	02857	046	No
01		9/29/1993	HERB1	SOC	03506	046	No
01		9/29/1993	PEST1	SOC	03506	046	No
01		9/29/1993	PESTX	SOC	03506	046	No
01		9/29/1993	ICHEM	IOC	03501	046	No
01		9/29/1993	FUMIGANT	SOC	03502	046	No
01		9/29/1993	VOC1	VOC	03503	046	No
01		6/18/1991	FUMIGANT	SOC	00060	052	No
01		12/5/1990	VOC1	VOC	02942	054	No
01		9/11/1990	ICHEM	IOC	12703	051	No
01		8/17/1987	ICHEM	IOC	10018	051	No
01		11/8/1984	ICHEM	IOC	07715	051	No
01		11/18/1982	ICHEM	IOC	06198	051	No
Dist		10/3/2011	COLI_AP	MICRO	35004	164	No
Dist		9/20/2011	COLI_AP	MICRO	33272	164	No
Dist		8/4/2011	COLI_AP	MICRO	26832	164	No

Records 26 - 50 of 115

Export CSV

Washington State Department of Health

Division of Environmental Health
Office of Drinking Water

Help

Individual System View - CONCRETE UTILITIES - Water System Id - 03950

Compliance Actions | Operating Permits | Operators | Reports | Water Use Efficiency

General Information | Source Information | Samples | Exceedances

Source	DOE Source	Collect Date	Test Panel	Analyte Group	Sample Number	Lab Number	Exceedances
Dist		7/8/2011	COLI_AP	MICRO	22864	164	No
Dist		6/2/2011	COLI_AP	MICRO	17940	164	No
Dist		5/16/2011	COLI_AP	MICRO	15904	164	No
Dist		4/8/2011	COLI_AP	MICRO	11192	164	No
Dist		3/8/2011	COLI_AP	MICRO	07083	164	No
Dist		2/9/2011	COLI_AP	MICRO	04396	164	No
Dist		1/6/2011	COLI_AP	MICRO	00607	164	No
Dist		12/2/2010	COLI_AP	MICRO	40734	164	No
Dist		11/9/2010	COLI_AP	MICRO	38530	164	No
Dist		10/4/2010	COLI_AP	MICRO	33696	164	No
Dist		9/1/2010	COLI_AP	MICRO	29228	164	No
Dist		8/5/2010	COLI_AP	MICRO	25596	164	No
Dist		7/12/2010	COLI_AP	MICRO	21918	164	No
Dist		6/11/2010	COLI_AP	MICRO	18325	164	No
Dist		5/12/2010	COLI_AP	MICRO	14670	164	No
Dist		4/19/2010	COLI_AP	MICRO	11523	164	No
Dist		3/9/2010	COLI_AP	MICRO	06970	164	No
Dist		2/1/2010	COLI_AP	MICRO	02987	164	No
Dist		1/5/2010	COLI_AP	MICRO	00260	164	No
Dist		12/28/2009	LCR	IOC	42105	046	No
Dist		12/23/2009	LCR	IOC	42066	046	No
Dist		12/23/2009	LCR	IOC	42065	046	No
Dist		12/22/2009	LCR	IOC	42068	046	No
Dist		12/22/2009	LCR	IOC	42073	046	No
Dist		12/19/2009	LCR	IOC	42069	046	No

Records 51 - 75 of 115

Export CSV

Washington State Department of Health

Division of Environmental Health
Office of Drinking Water

Help

Individual System View - CONCRETE UTILITIES - Water System Id - 03950

Compliance Actions | Operating Permits | Operators | Reports | Water Use Efficiency

General Information | Source Information | Samples | Exceedances

Source	DOE Source	Collect Date	Test Panel	Analyte Group	Sample Number	Lab Number	Exceedances
Dist		12/18/2009	LCR	IOC	42070	046	No
Dist		12/18/2009	LCR	IOC	42067	046	No
Dist		12/18/2009	LCR	IOC	42072	046	No
Dist		12/18/2009	LCR	IOC	42071	046	No
Dist		12/11/2009	COLI_AP	MICRO	40703	164	No
Dist		11/10/2009	COLI_AP	MICRO	37112	164	No
Dist		12/27/2006	LCR	IOC	36298	046	No
Dist		12/27/2006	LCR	IOC	36291	046	No
Dist		12/27/2006	LCR	IOC	36290	046	No
Dist		12/26/2006	LCR	IOC	36292	046	No
Dist		12/22/2006	LCR	IOC	36293	046	No
Dist		12/22/2006	LCR	IOC	36295	046	No
Dist		12/21/2006	LCR	IOC	36297	046	No
Dist		12/20/2006	LCR	IOC	36294	046	No
Dist		12/20/2006	LCR	IOC	36289	046	No
Dist		12/20/2006	LCR	IOC	36296	046	No
Dist		12/4/2003	LCR	IOC	14376	046	No
Dist		11/19/2003	LCR	IOC	13620	046	No
Dist		11/18/2003	LCR	IOC	13619	046	No
Dist		11/18/2003	LCR	IOC	13623	046	No
Dist		11/17/2003	LCR	IOC	13621	046	No
Dist		11/14/2003	LCR	IOC	13622	046	No
Dist		11/14/2003	LCR	IOC	13483	046	No
Dist		11/14/2003	LCR	IOC	13486	046	No
Dist		11/14/2003	LCR	IOC	13485	046	No

Records 76 - 100 of 115

Export CSV

Washington State Department of Health

Division of Environmental Health
Office of Drinking Water

Help

Individual System View - CONCRETE UTILITIES - Water System Id - 03950

Compliance Actions | Operating Permits | Operators | Reports | Water Use Efficiency

General Information | Source Information | Samples | Exceedances

Source	DOE Source	Collect Date	Test Panel	Analyte Group	Sample Number	Lab Number	Exceedances
Dist		11/14/2003	LCR	IOC	13484	046	No
Dist		11/17/2000	LCR	IOC	10393	046	No
Dist		11/14/2000	LCR	IOC	10289	046	No
Dist		11/14/2000	LCR	IOC	10291	046	No
Dist		11/9/2000	LCR	IOC	10287	046	No
Dist		11/9/2000	LCR	IOC	10285	046	No
Dist		11/8/2000	LCR	IOC	10290	046	No
Dist		11/7/2000	LCR	IOC	10288	046	No
Dist		11/7/2000	LCR	IOC	10284	046	No
Dist		11/7/2000	LCR	IOC	10286	046	No
Dist		11/7/2000	LCR	IOC	10283	046	No
Dist		9/20/1996	HET	MICRO	19057	058	No
Dist		9/4/1996	HET	MICRO	19058	058	No
Dist		9/4/1996	HET	MICRO	19059	058	No
Dist		10/20/1980	RAD	RAD	00038	101	No

Records 101 - 115 of 115

Export CSV

Home Page | Find Water Systems | Find Water Quality | Downloads/Reports

DOH Home | Division of Environmental Health | Drinking Water Home | Drinking Water Contacts
Access Local Health | Privacy Notice | Disclaimer/Copyright Information

Links to external resources are provided as a public service and do not imply endorsement by the Washington State Department of Health

Department of Health, Office of Drinking Water

Street Address:
243 Israel Road S.E. 2nd floor
Tumwater, WA 98501

Mail:
PO BOX 47822
Olympia, WA 98504-7822

Phone: (360) 236-3100

Send inquiries about DOH and its programs to the Health Consumer Assistance Office
Comments or questions regarding this Web site? Send email to Environmental Health Application Testing and Support or call 360-236-3113.

EDGE ANALYTICAL LABORATORIES

Burlington WA | 1620 S Walnut St - 98233
Corporate Office | 800.755.9295 • 360.757.1400 • 360.757.1402fax
Bellingham WA | 805 Orchard Dr Suite 4 - 98225
Microbiology | 360.671.0688 • 360.671.1577fax

ACCREDITED IN ACCORDANCE WITH nelac Florida Dept of Health Lab E871040

SYNTHETIC ORGANIC COMPOUNDS (SOC) REPORT

Client Name: Concrete, Town of
Box 39
Concrete, WA 98237

System Name: CONCRETE UTILITIES
System ID Number: 03950
DOH Source Number: 01
Multiple Sources:
Sample Type: D - Drinking Water
Sample Purpose: C - Compliance
Sample Location: Spring Box
County: Skagit
Sampled By: A. W.
Sampler Phone: 360-770-0394

Reference Number: 09-15591
Project: 515, 525, Nitrate

Field ID: Town of Concrete
Lab Number: 046-33339
Date Collected: 10/8/09 10:30
Date Extracted: 525_091015
Date Analyzed: 10/15/09
Report Date: 11/3/09
Analyst: CO
Peer Review: PM

EPA Method 525.2 For State Drinking Water Compliance

DOH#	COMPOUNDS	RESULTS	UNITS	SRL	Trigger	MCL	COMMENT
	EPA Regulated						
33	ENDRIN	ND	ug/L	0.02	0.02	2	
34	LINDANE (BHC - GAMMA)	ND	ug/L	0.04	0.04	0.2	
35	METHOXYCHLOR	ND	ug/L	0.2	0.2	40	
17	ALACHLOR	ND	ug/L	0.4	0.4	2	
119	ATRAZINE	ND	ug/L	0.2	0.2	3	
120	BENZO(A)PYRENE	ND	ug/L	0.04	0.04	0.2	
122	CHLORDANE, TECHNICAL	ND	ug/L	0.4	0.4	2	
124	DI(ETHYLHEXYL)-ADIPATE	ND	ug/L	1.3	1.3	400	
125	DI(ETHYLHEXYL)-PHTHALATE	ND	ug/L	1.3	1.3	6	
126	HEPTACHLOR	ND	ug/L	0.08	0.08	0.4	
127	HEPTACHLOR EPOXIDE	ND	ug/L	0.04	0.04	0.2	
128	HEXACHLOROBENZENE	ND	ug/L	0.2	0.2	1	
129	HEXACHLOROCYCLO-PENTADIENE	ND	ug/L	0.2	0.2	50	
133	SIMAZINE	ND	ug/L	0.15	0.15	4	
134	PENTACHLOROPHENOL	ND	ug/L	0.4	0.08	1	screening only / compliance by 515.4
	EPA Unregulated						
118	ALDRIN	ND	ug/L	0.2	0.2		
121	BUTACHLOR	ND	ug/L	0.4	0.4		
123	DIELDRIN	ND	ug/L	0.2	0.2		
130	METOLACHLOR	ND	ug/L	1.0	1.0		
131	METRIBUZIN	ND	ug/L	0.2	0.2		
132	PROPACHLOR	ND	ug/L	0.2	0.2		
	State Unregulated - Other						
179	BROMACIL	ND	ug/L	0.2	0.2		
254	FLUORENE	ND	ug/L	0.2	0.2		

NOTES:
pound is detected > or = to the State Reporting Level, SRL, specified increased monitoring frequencies may occur per DOH.
Maximum Contaminant Level) maximum permissible level of a contaminant in water established by EPA; Federal Action Levels are 0.015 mg/L for Lead and 1.3 mg/L for Copper. Sodium has a recommended limit of 20 mg/L. A blank MCL value indicates a level is not currently established.
Trigger Level: DOH Drinking Water Response level. Systems with compounds detected in excess of this level are required to take additional samples. Contact your regional DOH office.
ND (Not Detected): indicates that the parameter was not detected above the State Reporting Limit (SRL).
An * in front of the parameter name indicates it is not NELAP accredited but it is accredited through WSDOH or USEPA Region 10.

These test results meet all the requirements of NELAC, unless otherwise stated in writing, and relate only to these samples.
If you have any questions concerning this report contact at the above phone number.

FORM: SOC

ANALYTICAL LABORATORIES

Burlington WA | 1620 S Walnut St - 98233
Corporate Office | 800.755.9295 • 360.757.1400 • 360.757.1402fax
Bellingham WA | 805 Orchard Dr Suite 4 - 98225
Microbiology | 360.671.0688 • 360.671.1577fax

ACCREDITED IN ACCORDANCE WITH nelac
Florida Dept of Health Lab E871040

SYNTHETIC ORGANIC COMPOUNDS (SOC) REPORT

Client Name: Concrete, Town of
Box 39
Concrete, WA 98237

System Name: CONCRETE UTILITIES
System ID Number: 03950
DOH Source Number: 01
Multiple Sources:
Sample Type: D - Drinking Water
Sample Purpose: C - Compliance
Sample Location: Spring Box
County: Skagit
Sampled By: A. W.
Sampler Phone: 360-770-0394

Reference Number: 09-15591
Project: 515, 525, Nitrate

Field ID: Town of Concrete
Lab Number: 046-33339
Date Collected: 10/8/09 10:30
Date Extracted: 508_091015
Date Analyzed: 10/15/09
Report Date: 10/21/09
Analyst: GEB
Peer Review:

EPA Method 508.1 For State Drinking Water Compliance

DOH#	COMPOUNDS	RESULTS	UNITS	SRL	Trigger	MCL	COMMENT
	PCBs/Toxaphene						
153	PCBS (Total Aroclors)	ND	ug/L	0.2	0.2	0.5	
173	AROCLOR 1221	ND	ug/L	20	20		
174	AROCLOR 1232	ND	ug/L	0.5	0.5		
175	AROCLOR 1242	ND	ug/L	0.5	0.3		
176	AROCLOR 1248	ND	ug/L	0.1	0.1		
177	AROCLOR 1254	ND	ug/L	0.1	0.1		
178	AROCLOR 1260	ND	ug/L	0.2	0.2		
180	AROCLOR 1016	ND	ug/L	0.1	0.1		
36	TOXAPHENE	ND	ug/L	2	2	3	

NOTES:
If compound is detected > or = to the State Reporting Level, SRL, specified increased monitoring frequencies may occur per DOH.
MCL (Maximum Contaminant Level) maximum permissible level of a contaminant in water established by EPA; Federal Action Levels are 0.015 mg/L for Lead and 1.3 mg/L for Copper. Sodium has a recommended limit of 20 mg/L. A blank MCL value indicates a level is not currently established.
Trigger Level: DOH Drinking Water Response level. Systems with compounds detected in excess of this level are required to take additional samples. Contact your regional DOH office.
ND (Not Detected): indicates that the parameter was not detected above the State Reporting Limit (SRL).
An * in front of the parameter name indicates it is not NELAP accredited but it is accredited through WSDOH or USEPA Region 10.

These test results meet all the requirements of NELAC, unless otherwise stated in writing, and relate only to these samples.
If you have any questions concerning this report contact at the above phone number.

FORM: SOC

EDGE ANALYTICAL LABORATORIES

Burlington WA | 1620 S Walnut St - 98233
Corporate Office | 800.755.9295 • 360.757.1400 • 360.757.1402fax
Bellingham WA | 805 Orchard Dr Suite 4 - 98225
Microbiology | 360.671.0688 • 360.671.1577fax

ACCREDITED IN ACCORDANCE WITH nelac
Florida Dept of Health Lab E871040

INORGANIC COMPOUNDS (IOC) REPORT

Client Name: Concrete, Town of
Box 39
Concrete, WA 98237

Reference Number: 09-15591
Project: 515, 525, Nitrate

System Name: CONCRETE UTILITIES
System ID Number: 03950
DOH Source Number: 01
Multiple Sources:
Sample Type: D - Drinking Water
Sample Purpose: C - Compliance
Sample Location: Spring Box
County: Skagit

Sample Number: Town of Concrete
Lab Number: 046-33339
Collect Date: 10/8/09 10:30
Date Received: 10/8/09
Report Date: 11/4/09
Sampled By: A. W.
Sampler Phone: 360-770-0394
Released by:

DOH#	ANALYTES	RESULTS	UNITS	SRL	Trigger	MCL	Analyst	METHOD	Analyzed	COMMENT
	EPA Regulated									
20	NITRATE-N	**0.42**	mg/L	0.100	5	10	bj	300.0	10/09/09 04:43	

NOTES:

State Reporting Level): indicates the minimum reporting level required by the Washington Department of Health (DOH).

(Maximum Contaminant Level) maximum permissible level of a contaminant in water established by EPA; Federal Action Levels are 0.015 mg/L for Lead and 1.3 mg/L for Copper. Sodium has a recommended limit of 20 mg/L. A blank MCL value indicates a level is not currently established.

Trigger Level: DOH Drinking Water Response level. Systems with compounds detected in excess of this level are required to take additional samples. Contact your regional DOH office.

ND (Not Detected): indicates that the parameter was not detected above the Specified Reporting Limit (SRL).

An * in front of the parameter name indicates it is not NELAP accredited but it is accredited through WSDOH or USEPA Region 10.

These test results meet all the requirements of NELAC, unless otherwise stated in writing, and relate only to these samples.

If you have any questions concerning this report contact us at the above phone number.

FORM: IOC_ST

EDGE ANALYTICAL LABORATORIES

Burlington WA | 1620 S Walnut St - 98233
Corporate Office | 800.755.9295 • 360.757.1400 • 360.757.1402fax
Bellingham WA | 805 Orchard Dr Suite 4 - 98225
Microbiology | 360.671.0688 • 360.671.1577fax

ACCREDITED IN ACCORDANCE WITH nelac Florida Dept of Health Lab E871040

HERBICIDES IN DRINKING WATER

Client Name: Concrete, Town of
Box 39
Concrete, WA 98237

System Name: CONCRETE UTILITIES
System ID Number: 03950
DOH Source Number: 01
Multiple Sources:
Sample Type: D - Drinking Water
Sample Purpose: C - Compliance
Sample Location: Spring Box
County: Skagit
Sampled By: A. W.
Sampler Phone: 360-770-0394

Reference Number: 09-15591
Project: 515, 525, Nitrate

Field ID: Town of Concrete
Lab Number: 046-33339
Date Collected: 10/8/09 10:30
Date Extracted: 515.4_091012
Date Analyzed: 10/15/09
Report Date: 10/19/09
Analyst: CO
Peer Review: [signature]

EPA Method 515.4 For State Drinking Water Compliance

DOH#	COMPOUNDS	RESULTS	UNITS	SRL	Trigger	MCL	COMMENT
	EPA Regulated						
37	*2,4 - D	ND	ug/L	0.5	0.2	70	
38	*2,4,5 - TP (SILVEX)	ND	ug/L	1.0	0.4	50	
134	*PENTACHLOROPHENOL	ND	ug/L	0.2	0.08	1	
137	*DALAPON	ND	ug/L	5	2	200	
139	*DINOSEB	ND	ug/L	1.0	0.4	7	
140	*PICLORAM	ND	ug/L	0.5	0.2	500	
	Other						
138	*DICAMBA	ND	ug/L	0.2	0.2		
225	*DCPA (ACID METABOLITES)	ND	ug/L	0.1	0.1		
135	*2,4 DB	ND	ug/L	1.0	1.0		
136	*2,4,5 T	ND	ug/L	0.4	0.4		
220	*BENTAZON	ND	ug/L	0.5	0.5		
221	*DICHLORPROP	ND	ug/L	0.5	0.5		
223	*ACIFLUORFEN	ND	ug/L	2.0	2.0		
224	*CHLORAMBEN	ND	ug/L	0.2	0.2		
226	*3,5 - DICHLOROBENZOIC ACID	ND	ug/L	0.5	0.5		

NOTES:
mpound is detected > or = to the State Reporting Level, SRL, specified increased monitoring frequencies may occur per DOH.
(Maximum Contaminant Level) maximum permissible level of a contaminant in water established by EPA; Federal Action Levels are 0.015 mg/L for Lead and 1.3 mg/L for Copper. Sodium has a recommended limit of 20 mg/L. A blank MCL value indicates a level is not currently established.
Trigger Level: DOH Drinking Water Response level. Systems with compounds detected in excess of this level are required to take additional samples. Contact your regional DOH office.
ND (Not Detected): indicates that the parameter was not detected above the State Reporting Limit (SRL).
An * in front of the parameter name indicates it is not NELAP accredited but it is accredited through WSDOH or USEPA Region 10.

These test results meet all the requirements of NELAC, unless otherwise stated in writing, and relate only to these samples.
If you have any questions concerning this report contact at the above phone number.

FORM: SOC

EDGE ANALYTICAL
The lab you can trust!
11525 Knudson Rd.
Burlington, WA 98233
(800) 755-9295
(360) 757-1400 - FAX (360) 757-1402

VOLATILE ORGANIC COMPOUNDS (VOC) REPORT

Client Name: Concrete, Town of
Box 39
Concrete, WA 98237

System Name: CONCRETE UTILITIES
System ID Number: 03950M
DOH Source Number: 01
Multiple Sources:
Sample Type: D - Drinking Water
Sample Purpose: C - Compliance
Sample Location: Spring Box
County: Skagit
Sampled By: Alan Wilkins
Sampler Phone: 360-853-8550

Reference Number: 06-08089

Project: VOC

Field ID: 03950M S01
Lab Number: 04616616
Date Collected: 6/27/2006
Date Extracted: 524_060628
Date Analyzed: 6/28/2006
Report Date: 7/3/2006
Analyst: CO
Supervisor:

EPA Method 524.2 For State Drinking Water Compliance

DOH#	COMPOUNDS	RESULTS	Units	SRL	Trigger	MCL	COMMENT
	EPA/State Regulated						
45	VINYL CHLORIDE	ND	ug/L	0.5	0.5	2	
46	1,1 - DICHLOROETHYLENE	ND	ug/L	0.5	0.5	7	
47	1,1,1 - TRICHLOROETHANE	ND	ug/L	0.5	0.5	200	
48	CARBON TETRACHLORIDE	ND	ug/L	0.5	0.5	5	
49	BENZENE	ND	ug/L	0.5	0.5	5	
50	1,2 - DICHLOROETHANE	ND	ug/L	0.5	0.5	5	
51	TRICHLOROETHYLENE	ND	ug/L	0.5	0.5	5	
52	P - DICHLOROBENZENE	ND	ug/L	0.5	0.5	75	
56	METHYLENE CHLORIDE	ND	ug/L	0.5	0.5	5	
57	T - 1,2 - DICHLOROETHYLENE	ND	ug/L	0.5	0.5	100	
60	CIS - 1,2 - DICHLOROETHYLENE	ND	ug/L	0.5	0.5	70	
63	1,2 - DICHLOROPROPANE	ND	ug/L	0.5	0.5	5	
66	TOLUENE	ND	ug/L	0.5	0.5	1000	
67	1,1,2 - TRICHLOROETHANE	ND	ug/L	0.5	0.5	5	
68	TETRACHLOROETHYLENE	ND	ug/L	0.5	0.5	5	
71	CHLOROBENZENE	ND	ug/L	0.5	0.5	100	
73	ETHYLBENZENE	ND	ug/L	0.5	0.5	700	
74	M/P - XYLENE	ND	ug/L	0.5	0.5		
75	O - XYLENE	ND	ug/L	0.5	0.5		
76	STYRENE	ND	ug/L	0.5	0.5	100	
84	O - DICHLOROBENZENE	ND	ug/L	0.5	0.5	600	
95	1,2,4, - TRICHLOROBENZENE	ND	ug/L	0.5	0.5	70	
102	ETHYLENE DIBROMIDE (EDB)	ND	ug/L			0.05	Screening Only
103	1,2-DIBROMO-3-CHLOROPROPANE	ND	ug/L			0.2	Screening Only
160	TOTAL XYLENES	ND	ug/L	0.5	0.5	10000	
	EPA/State Unregulated						

. Result of "ND" indicates that the compound was not detected above the Lab's Method Detection Limit - MDL.

Maximum Contaminant Level, maximum permissible level of a contaminant in water established by EPA, NPDWR. State Advisory Level (SAL) for Unregulated compounds.

A blank MCL or SAL value indicates a level is not currently established.

If a compound is detected > or = to the State Reporting Level, SRL, specified increased monitoring frequencies may occur per DOH.

Method Detection Limit is the lab's minimum concentration a compound can be measured and reported with 99% confidence that the compound concentration is greater than zero.

J - Estimated value.

VOLATILE ORGANIC COMPOUNDS (VOC) REPORT

DOH#	COMPOUNDS	RESULTS	Units	SRL	Trigger	MCL	COMMENT
53	CHLOROMETHANE	ND	ug/L	0.5	0.5		
54	BROMOMETHANE	ND	ug/L	0.5	0.5		
55	CHLOROETHANE	ND	ug/L	0.5	0.5		
58	1,1 - DICHLOROETHANE	ND	ug/L	0.5	0.5		
59	2,2 - DICHLOROPROPANE	ND	ug/L	0.5	0.5		
62	1,1 - DICHLOROPROPENE	ND	ug/L	0.5	0.5		
64	DIBROMOMETHANE	ND	ug/L	0.5	0.5		
65	CIS - 1,3 - DICHLOROPROPENE	ND	ug/L	0.5	0.5		
69	TRANS- 1,3 - DICHLOROPROPENE	ND	ug/L	0.5	0.5		
70	1,3 - DICHLOROPROPANE	ND	ug/L	0.5	0.5		
72	1,1,1,2 - TETRACHLOROETHANE	ND	ug/L	0.5	0.5		
78	BROMOBENZENE	ND	ug/L	0.5	0.5		
79	1,2,3 - TRICHLOROPROPANE	ND	ug/L	0.5	0.5		
80	1,1,2,2 - TETRACHLOROETHANE	ND	ug/L	0.5	0.5		
81	O - CHLOROTOLUENE	ND	ug/L	0.5	0.5		
82	P - CHLOROTOLUENE	ND	ug/L	0.5	0.5		
83	M - DICHLOROBENZENE	ND	ug/L	0.5	0.5		
85	TRICHLOROFLUOROMETHANE	ND	ug/L	0.5	0.5		
86	BROMOCHLOROMETHANE	ND	ug/L	0.5	0.5		
87	ISOPROPYLBENZENE	ND	ug/L	0.5	0.5		
88	N - PROPYLBENZENE	ND	ug/L	0.5	0.5		
89	1,3,5 - TRIMETHYLBENZENE	ND	ug/L	0.5	0.5		
90	TERT - BUTYLBENZENE	ND	ug/L	0.5	0.5		
91	1,2,4 - TRIMETHYLBENZENE	ND	ug/L	0.5	0.5		
92	SEC - BUTYLBENZENE	ND	ug/L	0.5	0.5		
93	P - ISOPROPYLTOLUENE	ND	ug/L	0.5	0.5		
94	N - BUTYLBENZENE	ND	ug/L	0.5	0.5		
96	NAPHTHALENE	ND	ug/L	0.5	0.5		
97	HEXACHLOROBUTADIENE	ND	ug/L	0.5	0.5		
98	1,2,3 - TRICHLOROBENZENE	ND	ug/L	0.5	0.5		
104	DICHLORODIFLUOROMETHANE	ND	ug/L	0.5	0.5		
	EPA Regulated - Under Trihalomethanes Program						
27	CHLOROFORM	ND	ug/L				
28	BROMODICHLOROMETHANE	ND	ug/L				
29	CHLORODIBROMOMETHANE	ND	ug/L				
30	BROMOFORM	ND	ug/L				
31	TOTAL TRIHALOMETHANE	ND	ug/L	60	60	80	
	State Unregulated - Other						
0	METHYL TERT-BUTYL ETHER	ND	ug/L				

. Result of "ND" indicates that the compound was not detected above the Lab's Method Detection Limit - MDL.

Maximum Contaminant Level, maximum permissible level of a contaminant in water established by EPA, NPDWR. State Advisory Level (SAL) for Unregulated compounds.

A blank MCL or SAL value indicates a level is not currently established.

If a compound is detected > or = to the State Reporting Level, SRL, specified increased monitoring frequencies may occur per DOH.

Method Detection Limit is the lab's minimum concentration a compound can be measured and reported with 99% confidence that the compound concentration is greater than zero.

J - Estimated value.

EDGE ANALYTICAL
"The lab you can trust!"

11525 Knudson Rd.
Burlington, WA 98233
(800) 755-9295
(360) 757-1400 - FAX (360) 757-1402

RECEIVED
AUG 12 2004
TOWN OF CONCRETE

SOIL FUMIGANTS REPORT

Client Name: Concrete, Town of
Box 39
Concrete, WA 98237

System Name: CONCRETE UTILITIES
System ID Number: 03950
DOH Source Number: 01
Multiple Sources:
Sample Type: B - Before treatment
Sample Purpose: C - Compliance
Sample Location: spring
County: Skagit

Reference Number: 04-6400
Project: EDB
Field ID:
Lab Number: 04613063
Date Collected: 7/29/2004
Date Extracted: 504_040803
Date Analyzed: 8/4/2004
Report Date: 8/6/2004
Analyst: TW
Supervisor:

EPA Method 504.1 For State Drinking Water Compliance

DOH#	COMPOUNDS	RESULTS	Units	SRL	Trigger	MCL	COMMENT
	EPA Regulated Monitoring Required						
102	ETHYLENE DIBROMIDE (EDB)	**ND**	ug/L	0.02	0.02	0.05	
103	1,2-DIBROMO-3-CHLOROPROPANE	**ND**	ug/L	0.04	0.04	0.2	
	State Unregulated - Other						
79	1,2,3 - TRICHLOROPROPANE	**ND**	ug/L	0.5	0.5		

Result of "ND" indicates that the compound was not detected above the Lab's Method Detection Limit - MDL.
Maximum Contaminant Level, maximum permissible level of a contaminant in water established by EPA, NPDWR. State Advisory Level (SAL) for Unregulated compounds.
A blank MCL or SAL value indicates a level is not currently established.
If a compound is detected > or = to the State Reporting Level, SRL, specified increased monitoring frequencies may occur per DOH.
Method Detection Limit is the lab's minimum concentration a compound can be measured and reported with 99% confidence that the compound concentration is greater than zero.
J - Estimated value.

3.9.

ANALYTICAL LABORATORIES

Burlington WA | 1620 S Walnut St - 98233
Corporate Office | 800.755.9295 • 360.757.1400 • 360.757.1402fax
Bellingham WA | 805 Orchard Dr Suite 4 - 98225
Microbiology | 360.671.0688 • 360.671.1577fax

ACCREDITED IN ACCORDANCE WITH nelac
Florida Dept of Health Lab E871040

INORGANIC COMPOUNDS (IOC) REPORT FOR LEAD & COPPER

Client Name: Concrete, Town of
Box 39
Concrete, WA 98237

Reference Number: 09-19703
Project: Lead & Copper

System Name: CONCRETE UTILITIES
System ID Number: 03950M
DOH Source Number: 93
Multiple Sources:
Sample Type:
Sample Purpose: C
County: Skagit

Analyst: mvp
Date Received: 12/28/2009
Report Date: 1/20/2010

Approved By: mvp

DOH#	23 (Copper)	9 (Lead)
SRL	0.02 mg/L	0.002 mg/L
AL	1.3 mg/L	0.015 mg/L

Lab Number	Date Collected	Site / Location	Copper mg/L	Lead mg/L	METHOD
046-42065	12/23/09	7462 N. Rietze Ave.	**0.027**	**ND**	200.8
42066	12/23/09	#3	**0.019**	**ND**	200.8
046-42067	12/18/09	45168 Spring Street	**0.012**	**ND**	200.8
046-42068	12/22/09	7410 North Park	**0.065**	**ND**	200.8
046-42069	12/19/09	45268 Cedar Street	**0.059**	**ND**	200.8
046-42070	12/18/09	7428 North Park	**0.050**	**ND**	200.8
046-42071	12/18/09	45170 Pine Street	**0.123**	**ND**	200.8
046-42072	12/18/09	#9	**0.116**	**ND**	200.8
046-42073	12/22/09	#10	**0.019**	**ND**	200.8

NOTES:

State Reporting Level): indicates the minimum reporting level required by the Washington Department of Health (DOH).

MCL (Maximum Contaminant Level) maximum permissible level of a contaminant in water established by EPA; Federal Action Levels are 0.015 mg/L for Lead and 1.3 mg/L for Copper. Sodium has a recommended limit of 20 mg/L. A blank MCL value indicates a level is not currently established.

ND (Not Detected): indicates that the compound was not detected above the Specified Reporting Limit (SRL).

These test results meet all the requirements of NELAC, unless otherwise stated in writing, and relate only to these samples. If you have any questions concerning this report contact at the above phone number.

FORM: Pb&Cu

EDGE ANALYTICAL
11525 Knudson Rd.
Burlington, WA 98233
(800) 755-9295
(360) 757-1400 - FAX (360) 757-1402

IBWA Data Report

Client Name: Advanced H20
P O Box 326
Burlington, WA 98233

Reference Number: 02-3644

Project: Annual Source Water IBWA Testing
Field ID: Source Water
Sample Description: Concrete, WA, AKA Superior Springs AKA Burpee Hills
Sampled By:
Sample Date: 7/15/2002

Lab Number: 04606913
Report Date: 8/30/2002
Supervisor:

CAS ID#	COMPOUNDS	Result *	MCL	MRL	Units	Method	COMMENT
	Inorganic Chemicals (IOCs)						
7440-36-0	ANTIMONY	ND	0.006	0.001	mg/L	200.8	
7440-38-2	ARSENIC	0.003	0.010	0.001	mg/L	200.8	
7440-39-3	BARIUM	ND	1.0	0.010	mg/L	200.8	
7440-41-7	BERYLLIUM	ND	0.004	0.001	mg/L	200.8	
7440-43-9	CADMIUM	ND	0.005	0.001	mg/L	200.8	
7440-47-3	CHROMIUM	ND	0.05	0.005	mg/L	200.8	
57-12-5	CYANIDE, FREE	ND	0.1	0.040	mg/L	SM4500-CN F	
16984-48-8	FLUORIDE	ND	2.4	0.10	mg/L	300.0	
7439-92-1	LEAD	ND	0.005	0.001	mg/L	200.8	
7439-97-6	MERCURY	ND	0.001	0.0002	mg/L	245.1	
7440-02-0	NICKEL	ND	0.1	0.001	mg/L	200.8	
14797-55-8	NITRATE-N	0.72	10	0.10	mg/L	300.0	
14797-65-0	NITRITE-N	ND	1.0	0.10	mg/L	300.0	
E-10128	TOTAL NITRATE/NITRITE	0.72	10	0.10	ug/L	300.0	
7782-49-2	SELENIUM	0.002	0.010	0.001	mg/L	200.8	
7440-28-0	THALLIUM	ND	0.002	0.001	mg/L	200.8	

Notation:
* - A Result of "ND" indicates that the compound was not detected above the Lab's Method Reporting Limit - MRL.
MCL - Maximum Contaminant Level, maximum permissible level of a contaminant in water established by EPA, NPDWR or IBWA.
MRL - Method Reporting Limit.

EDGE ANALYTICAL

Reference Number: 02-3644
Lab Number: 6913
Report Date: 8/30/2002

IBWA Data Report

CAS ID#	COMPOUNDS	Result *	MCL	MRL	Units	Method	COMMENT
	Secondary Inorganic Parameters						
7429-90-5	ALUMINUM	ND	0.2	0.010	mg/L	200.7	
16887-00-6	CHLORIDE	1	250	1	mg/L	300.0	
7440-50-8	COPPER	ND	1.0	0.005	mg/L	200.8	
7439-89-6	IRON	ND	0.3	0.050	mg/L	200.7	
7439-96-5	MANGANESE	ND	0.05	0.001	mg/L	200.8	
7440-22-4	SILVER	ND	0.025	0.010	mg/L	200.8	
14808-79-8	SULFATE	10	250	10	mg/L	300.0	
E-10173	TOTAL DISSOLVED SOLIDS (TDS)	136	500	10	mg/L	SM2540 C	
7440-66-6	ZINC	ND	5.0	0.05	mg/L	200.8	

Notation:

* - A Result of "ND" indicates that the compound was not detected above the Lab's Method Reporting Limit - MRL.

MCL - Maximum Contaminant Level, maximum permissible level of a contaminant in water established by EPA, NPDWR or IBWA.

MRL - Method Reporting Limit.

EDGE ANALYTICAL

Reference Number: 02-3644
Lab Number: 6913
Report Date: 8/30/2002

IBWA Data Report

CAS ID#	COMPOUNDS	Result *	MCL	MRL	Units	Method	COMMENT
	Volatile Organic Chemicals (VOCs)						
71-55-6	1,1,1 - TRICHLOROETHANE	ND	30	0.5	ug/L	524.2	
79-00-5	1,1,2 - TRICHLOROETHANE	ND	3	0.5	ug/L	524.2	
75-35-4	1,1 - DICHLOROETHYLENE	ND	2	0.5	ug/L	524.2	
120-82-1	1,2,4 - TRICHLOROBENZENE	ND	9	0.5	ug/L	524.2	
107-06-2	1,2 - DICHLOROETHANE	ND	2	0.5	ug/L	524.2	
78-87-5	1,2 - DICHLOROPROPANE	ND	5	0.5	ug/L	524.2	
71-43-2	BENZENE	ND	1	0.5	ug/L	524.2	
56-23-5	CARBON TETRACHLORIDE	ND	5	0.5	ug/L	524.2	
156-59-2	CIS - 1,2 - DICHLOROETHYLENE	ND	70	0.5	ug/L	524.2	
156-60-5	TRANS - 1,2 - DICHLOROETHYLENE	ND	100	0.5	ug/L	524.2	
100-41-4	ETHYLBENZENE	ND	700	0.5	ug/L	524.2	
75-09-2	METHYLENE CHLORIDE (DICHLOROME	ND	3	0.5	ug/L	524.2	
108-90-7	MONOCHLOROBENZENE	ND	50	0.5	ug/L	524.2	
95-50-1	O - DICHLOROBENZENE	ND	600	0.5	ug/L	524.2	
106-46-7	P - DICHLOROBENZENE	ND	75	0.5	ug/L	524.2	
100-42-5	STYRENE	ND	100	0.5	ug/L	524.2	
127-18-4	TETRACHLOROETHYLENE	ND	1	0.5	ug/L	524.2	
108-88-3	TOLUENE	ND	1000	0.5	ug/L	524.2	
79-01-6	TRICHLOROETHYLENE	ND	1	0.5	ug/L	524.2	
75-01-4	VINYL CHLORIDE	ND	2	0.5	ug/L	524.2	
1330-20-7	XYLENES (TOTAL)	ND	1000	0.5	ug/L	524.2	
75-27-4	BROMODICHLOROMETHANE	ND		0.5	ug/L	524.2	
124-48-1	CHLORODIBROMOMETHANE	ND		0.5	ug/L	524.2	
67-66-3	CHLOROFORM	ND		0.5	ug/L	524.2	
75-25-2	BROMOFORM	ND		0.5	ug/L	524.2	
E-14471	TOTAL TRIHALOMETHANE	ND	10	0.5	ug/L	524.2	
1634-04-4	METHYL TERT-BUTYL ETHER	ND	70	0.5	ug/L	524.2	
91-20-3	NAPHTHALENE	ND	300	0.5	ug/L	524.2	
79-34-5	1,1,2,2 - TETRACHLOROETHANE	ND	1	0.5	ug/L	524.2	

Notation:

* - A Result of 'ND' indicates that the compound was not detected above the Lab's Method Reporting Limit - MRL.

MCL - Maximum Contaminant Level, maximum permissible level of a contaminant in water established by EPA, NPDWR or IBWA.

MRL - Method Reporting Limit.

EDGE ANALYTICAL

Reference Number: 02-3644
Lab Number: 6913
Report Date: 8/30/2002

IBWA Data Report

Synthetic Organic Chemicals (SOCs)

CAS ID#	COMPOUNDS	Result *	MCL	MRL	Units	Method	COMMENT
25057-89-0	BENTAZON	ND		0.5	ug/L	515.1	
2212-67-1	MOLINATE	ND		0.04	ug/L	525.2	
28249-77-6	THIOBENCARB	ND		0.1	ug/L	525.2	
93-72-1	2,4,5 - TP (SILVEX)	ND	10	0.4	ug/L	515.1	
94-75-7	2,4 - D	ND	70	0.2	ug/L	515.1	
15972-60-8	ALACHLOR	ND	2	0.2	ug/L	525.2	
116-06-3	ALDICARB	ND	3	1	ug/L	531.1	
1646-88-4	ALDICARB SULFONE	ND	3	1	ug/L	531.1	
1646-87-3	ALDICARB SULFOXIDE	ND	4	1	ug/L	531.1	
1912-24-9	ATRAZINE	ND	3	0.1	ug/L	525.2	
1563-66-2	CARBOFURAN	ND	40	1.8	ug/L	531.1	
57-74-9	CHLORDANE	ND	2	0.2	ug/L	525.2	
75-99-0	DALAPON	ND	200	2	ug/L	515.1	
96-12-8	DIBROMOCHLOROPROPANE (DBCP)	ND	0.2	0.04	ug/L	504.1	
88-85-7	DINOSEB	ND	7	0.4	ug/L	515.1	
72-20-8	ENDRIN	ND	2	0.01	ug/L	525.2	
106-93-4	ETHYLENE DIBROMIDE (EDB)	ND	0.05	0.02	ug/L	504.1	
76-44-8	HEPTACHLOR	ND	0.4	0.04	ug/L	525.2	
1024-57-3	HEPTACHLOR EPOXIDE "B"	ND	0.2	0.02	ug/L	525.2	
58-89-9	LINDANE (BHC - GAMMA)	ND	0.2	0.02	ug/L	525.2	
72-43-5	METHOXYCHLOR	ND	40	0.1	ug/L	525.2	
23135-22-0	OXYMAL (VYDATE)	ND	200	4	ug/L	531.1	
87-86-5	PENTACHLOROPHENOL	ND	1	0.04	ug/L	525.2	
1918-02-1	PICLORAM	ND	500	0.2	ug/L	515.1	
1336-36-3	POLYCHLORINATED BIPHENYLS (PCB	ND	0.5	0.2	ug/L	525.2	
122-34-9	SIMAZINE	ND	4	0.07	ug/L	525.2	
8001-35-2	TOXAPHENE	ND	3	1	ug/L	525.2	
41903-57-5	DIOXIN (2,3,7,8-TETRACHLORODIBENZ(	ND	30	5	pg/L	1613	Analyzed by Triangle Laboratories
85-00-7	DIQUAT	ND	20	2	ug/L	549.2	
145-73-3	ENDOTHALL	ND	100	20	ug/L	548.2	
1071-83-6	GLYPHOSATE	ND	700	10	ug/L	547	Analyzed by Coffey Laboratories
50-32-8	BENZO(A)PYRENE	ND	0.2	0.02	ug/L	525.2	
103-23-1	DI(2-ETHYLHEXYL)-ADIPATE	ND	400	1.32	ug/L	525.2	
117-81-7	DI(2-ETHYLHEXYL)-PHTHALATE	ND	6	0.6	ug/L	525.2	
118-74-1	HEXACHLOROBENZENE	ND	1	0.1	ug/L	525.2	
77-47-4	HEXACHLOROCYCLO-PENTADIENE	ND	50	0.1	ug/L	525.2	
E-10253	TOTAL RECOVERABLE PHENOLICS	ND	1	1	ug/L	420.1	Analyzed by Free-Col Laboratories

Notation:

* - A Result of "ND" indicates that the compound was not detected above the Lab's Method Reporting Limit - MRL.

MCL - Maximum Contaminant Level, maximum permissible level of a contaminant in water established by EPA, NPDWR or IBWA.

MRL - Method Reporting Limit.

IBWA Data Report

CAS ID#	COMPOUNDS	Result *	MCL	MRL	Units	Method	COMMENT
	Water Properties						
1332-21-4	ASBESTOS	ND		0.098	MFL>10u	100.2	
E-11712	COLOR	ND	5	5	Color Uni	SM2120 B	
E-10617	TURBIDITY	0.6	0.5	0.1	NTU	SM2130 B	
E-10139	HYDROGEN ION	7.63	5.0-8.5		pH Units	150.1	
E-11734	ODOR	ND	3	1	TON	SM2150	

Notation:

* - A Result of "ND" indicates that the compound was not detected above the Lab's Method Reporting Limit - MRL.

MCL - Maximum Contaminant Level, maximum permissible level of a contaminant in water established by EPA, NPDWR or IBWA.

MRL - Method Reporting Limit.

EDGE ANALYTICAL

Reference Number: 02-3644
Lab Number: 6913
Report Date: 8/30/2002

IBWA Data Report

CAS ID#	COMPOUNDS	Result *	MCL	MRL	Units	Method	COMMENT
	Disinfectants/DBP						
NA	HAA(5)	ND	0.060	0.001	mg/L	552.2	
15541-45-4	BROMATE	ND	0.010	0.005	mg/L	300.1	
10049-04-4	CHLORINE DIOXIDE	ND	0.8	0.1	mg/L	SM4500-ClO2 I	
7758-19-2	CHLORITE	ND	1.00	0.050	mg/L	300.1	
NA	CHLOROAMINES TOTAL	ND	4.0	0.10	mg/L	SM4500-Cl G	
7782-50-5	CHLORINE	ND	0.1	0.02	mg/L	SM4500-Cl G	

Notation:

* - A Result of "ND" indicates that the compound was not detected above the Lab's Method Reporting Limit - MRL.

MCL - Maximum Contaminant Level, maximum permissible level of a contaminant in water established by EPA, NPDWR or IBWA.

MRL - Method Reporting Limit.

EDGE ANALYTICAL

Reference Number: 02-3644
Lab Number: 6913
Report Date: 8/30/2002

IBWA Data Report

CAS ID#	COMPOUNDS	Result *	MCL	MRL	Units	Method	COMMENT
	Radiological Contaminants						
12587-46-1	GROSS ALPHA	ND	15		pCi/L	SM7110	Analyzed by Energy Labs
12587-47-2	GROSS BETA	ND	50		pCi/L	SM7110	Analyzed by Energy Labs

Notation:

* - A Result of "ND" indicates that the compound was not detected above the Lab's Method Reporting Limit - MRL.

MCL = Maximum Contaminant Level, maximum permissible level of a contaminant in water established by EPA, NPDWR or IBWA.

MRL = Method Reporting Limit.

ANALYTICAL LABORATORIES

Burlington WA | 1620 S Walnut St - 98233
Corporate Office | 800.755.9295 • 360.757.1400 • 360.757.1402fax
Bellingham WA | 805 Orchard Dr Suite 4 - 98225
Microbiology | 360.671.0688 • 360.671.1577fax

INORGANIC COMPOUNDS (IOC) REPORT

Client Name: Concrete, Town of
Box 39
Concrete, WA 98237

Reference Number: 08-04397
Project: Nitrate

System Name: CONCRETE UTILITIES
System ID Number: 03950
DOH Source Number: 01
Multiple Sources:
Sample Type: D - Drinking Water
Sample Purpose: C - Compliance
Sample Location: Spring Box
County: Skagit

Sample Number: 03950 S01
Lab Number: 04609444
Collect Date: 4/7/2008
Date Received: 4/7/2008
Report Date: 4/10/2008
Sampled By: R Philips
Sampler Phone: 360-853-8550
Peer Review: JM

DOH#	ANALYTES	RESULTS	UNITS	SRL	Trigger	MCL	Analyst	METHOD	COMMENT
	EPA Regulated								
20	NITRATE-N	**0.44**	mg/L	0.100	5	10	bj	300.0	

RECEIVED
APR 14 2008
TOWN OF CONCRETE

NOTES:

(State Reporting Level): indicates the minimum reporting level required by the Washington Department of Health (DOH).

(Maximum Contaminant Level) maximum permissible level of a contaminant in water established by EPA; Federal Action Levels are 0.015 mg/L for Lead and 1.3 mg/L for Copper. Sodium has a recommended limit of 20 mg/L. A blank MCL value indicates a level is not currently established.

Trigger Level: DOH Drinking Water Response level. Systems with compounds detected in excess of this level are required to take additional samples. Contact your regional DOH office.

ND (Not Detected): indicates that the parameter was not detected above the Specified Reporting Limit (SRL).

NA (Not Analyzed): indicates that this parameter was not analyzed.

Comments:

FORM: IOC_ST

EDGE ANALYTICAL
"the lab you can trust!"

Burlington WA | 1620 S Walnut St - 98233
Corporate Office | 800.755.9295 • 360.757.1400 • 360.757.1402fax
Bellingham WA | 805 Orchard Dr Suite 4 - 98225
Microbiology | 360.671.0688 • 360.671.1577fax

INORGANIC COMPOUNDS (IOC) REPORT

Client Name: Concrete, Town of
Box 39
Concrete, WA 98237

Reference Number: 07-03764
Project: Nitrate

System Name: CONCRETE UTILITIES
System ID Number: 03950M
DOH Source Number: 01
Multiple Sources:
Sample Type: D - Drinking Water
Sample Purpose: C - Compliance
Sample Location: Spring Box
County: Skagit

Sample Number: 03950M S01
Lab Number: 04608569
Collect Date: 3/29/2007
Date Received: 3/30/2007
Report Date: 4/3/2007
Sampled By: Al Wilkins
Sampler Phone: 360-853-8550
Supervisor: mvp

DOH#	ANALYTES	RESULTS	UNITS	SRL	Trigger	MCL	Analyst	METHOD	COMMENT
	EPA Regulated								
20	NITRATE-N	**0.48**	mg/L	0.100	5	10	mvp	300.0	

NOTES:

(State Reporting Level): indicates the minimum reporting level required by the Washington Department of Health (DOH).

MCL (Maximum Contaminant Level) maximum permissible level of a contaminant in water established by EPA; Federal Action Levels are 0.015 mg/L for Lead and 1.3 mg/L for Copper. Sodium has a recommended limit of 20 mg/L. A blank MCL value indicates a level is not currently established.

Trigger Level: DOH Drinking Water Response level. Systems with compounds detected in excess of this level are required to take additional samples. Contact your regional DOH office.

ND (Not Detected): indicates that the parameter was not detected above the Specified Reporting Limit (SRL).

NA (Not Analyzed): indicates that this parameter was not analyzed.

Comments:

FORM: IOC_ST

#2237

EDGE ANALYTICAL
11525 Knudson Rd.
Burlington, WA 98233
(800) 755-9295
(360) 757-1400 - FAX (360) 757-1402

INORGANIC COMPOUNDS (IOC) REPORT

Client Name: Concrete, Town of
Box 39
Concrete, WA 98237

Reference Number: 03-3332
Project: Arsenic Sample

System Name: CONCRETE UTILITIES
System ID Number: 03950M
DOH Source Number: 01
Multiple Sources:
Sample Type: B
Sample Purpose: C
Sample Location: Spring Box
County: Skagit

Sample Number: S01
Lab Number: 04606136
Collect Date: 6/11/2003
Date Received: 6/11/2003
Report Date: 6/25/2003

Supervisor: JD

DOH#	ANALYTES	RESULTS	UNITS	SRL	Trigger	MCL	Analyst	METHOD	COMMENT
	EPA Regulated								
4	ARSENIC	**0.003**	mg/L	0.002		0.010	mvp	200.8	

NOTES:

SRL (State Reporting Level): indicates the minimum reporting level required by the Washington Department of Health (DOH).

MCL (Maximum Contaminant Level) maximum permissible level of a contaminant in water established by EPA; Federal Action Levels are 0.015 mg/L for Lead and 1.3 mg/L for Copper. Sodium has a recommended limit of 20 mg/L. blank MCL value indicates a level is not currently established.

Trigger Level: DOH Drinking Water Response level. Systems with compounds detected in excess of this level are required to take additional samples. Contact your regional DOH office.

ND (Not Detected): indicates that the compound was not detected above the Specified Reporting Limit (SRL).

NA (Not Analyzed): indicates that this compound was not analyzed.

Comments:

FORM: IOC_ST

ENERGY LABORATORIES, INC. • 2393 Salt Creek Highway (82601) • P.O. Box 3258 • Casper, WY 82602
Toll Free 888.235.0515 • 307.235.0515 • Fax 307.234.1639 • casper@energylab.com • www.energylab.com

04-10159

RECEIVED
DEC 0 1 2004
TOWN OF CONCRETE

RADIONUCLIDE ANALYSES REPORT

System ID No.: **03950M**	System Name: **Concrete Utilities**	
Lab/Sample No: **142-43001**	Date Collected: **10/27/04**	DOH Source No: **S01**
Multiple Source Nos:	Sample Type: **Drinking Water**	Sample Purpose: **Compliance**
Date Received: **11/01/04**	Date Reported: **11/22/04**	Supervisor: **Roger Garling**
	Date Analyzed: **11/04/04**	Analyst: **Pegi Jacobs**
County: **Skagit**	Group :	**A**
Sample Location:		

Send Report To: **Edge Analytical, Inc.**
11525 Knudson Rd
Burlington, WA 98233

Bill To: **Edge Analytical, Inc.**
11525 Knudson Rd
Burlington, WA 98233

DOH #	ANALYTES	LAB MDA	RESULTS	UNITS	DATE ANALYZED	MCL	(ANALYST'S INITIALS) & METHOD USED
EPA/STATE REGULATED (These analyses should be performed in order as listed)							
165	Gross Alpha			pCi/L		--	
166	Radium 228	**1.0**	**ND**	pCi/L	**11/04/04**	**5**	**PJ / E904.0**
*Determine Radium 226 activity if Gross Alpha is greater than 5.0 pCi/L**							
39	Radium 226*			pCi/L		--	
*Determine Uranium activity if Gross Alpha is greater than 15.0 pCi/L **							
105	Uranium** (mass)			µg/L		30	
105	Uranium** (activity)			pCi/L		20**	
Depending on the foregoing data determine the following (must be completed if data is available):							
40	Radium 226 + 228			pCi/L		5	
40	Gross Alpha*** + Radium 228			pCi/L		5	
41	Gross Alpha minus Uranium			pCi/L		15	
Do the following only if specifically requested by the client or the state							
42	Gross Beta****			pCi/L		50	
43	Tritium****			pCi/L		20,000	
44	Strontium 90****			pCi/L		8	
107	Cesium 134****			pCi/L		***	
108	Iodine 131****			pCi/L		***	

NOTES:

MCL (Maximum Contaminant Level): If the contaminant amount exceeds the MCL, immediately contact your regional DOH office.

MDA: Minimum Detectable Amount.

NA (Not Analyzed): use in the results column for compounds not included in the current analysis.

ND (Not Detected): use in the results column for compounds analyzed and not detected at a level greater than or equal to the MDA.

*** If Gross Alpha is less than , or equal to, 5 pCi/L,** it may be assumed that the Alpha activity is entirely due to Radium 226 (i.e., Radium 226 would not need to be run). The Alpha activity is then added to the Radium 228 activity (i.e., Beta activity) for MCL determinations. If the sum of the Alpha activity plus the Radium 228 activity is greater than 5 pCi/L, Radium 226 activity must then be determined for water system compliance purposes (i.e., Radium 226 + Radium 228 activity)

****Uranium's MCL is given in mass terms (µg/L).** When Uranium is determined by mass methods, it must be converted to activity levels (pCi/L) for calculation of the MCL (Gross Alpha less Uranium). A conversion factor of 0.67 pCi/l per µg/L should be used. Uranium needs to be determined only when the Gross Alpha exceeds 15 pCi/L.

*** Use Gross Alpha in lieu of Radium 226 when the Gross Alpha is less than, or equal to, 5.0 pCi/L

****** The MCL for beta particle and photon radioactivity from man-made radionuclides** is the average annual concentration which shall not produce an annual dose equivalent to the total body or any internal organ greater than four millirem/yr.

Comments: Use back of page for comments

COLIFORM MONITORING PLAN
System Information

Water System Name: Concrete Utilities			County: Skagit	System I.D. Number: 03950M
Peak Population Served: 857			Service Connections: 484	
SOURCE	DOH Source Number: S01		Category: Spring - GW	Well Depth: N/A
TREATMENT	Treatment Process: NA	Purpose: NA	**STORAGE**	Storage Capacity: 500,000 Gal

Sampling Information

Number of Routine Samples Required Monthly By Regulation		1	Number of Sample Site Needed to Represent the Distribution System	4
	Type	Site #	Location	
Sample Site Group	Routine	X1	Wilkins Residence: 7245 Nims Place	
	Repeat	R1	Seidel Reservoir	
	Repeat	X2	Town Hall: 45672 Main St.	
	Repeat	R2	Springbox	
Sample Site Group	Routine	X2	Town Hall: 45672 Main St.	
	Repeat	X1	Wilkins Residence: 7245 Nims Place	
	Repeat	X3	City Shop: 7285 Baker St.	
	Repeat	R2	Springbox	
Sample Site Group	Routine	X3	City Shop: 7285 Baker St.	
	Repeat	R3	Fir Reservoir	
	Repeat	X2	Town Hall: 45672 Main St.	
	Repeat	R2	Springbox	
Sample Site Group	Routine	X4	Superior and Airport Way	
	Repeat	R4	Grassmere Reservoir	
	Repeat	X2	Town Hall: 45672 Main St.	
	Repeat	R2	Springbox	

For maximum coverage of different branches of the distribution system, a decision to rotate the required routine sample(s) among different sample sites may be made. It is recommended that ROUTINE sampling sites be tested about 4 times per year or more often.

Rotation Schedule

Month	Sample Site(s)	Month	Sample Site(s)
January	X1	July	X3
February	X2	August	X4
March	X3	September	X1
April	X4	October	X2
May	X1	November	X3
June	X2	December	X4

The month after a coliform positive sample, five follow-up samples must be submitted. Describe below the method of selecting the follow-up sites. Sites designated as other sampling sites may also be used. List any sites which will routinely be used as follow-up sites.

Month After Follow-up Sample Sites

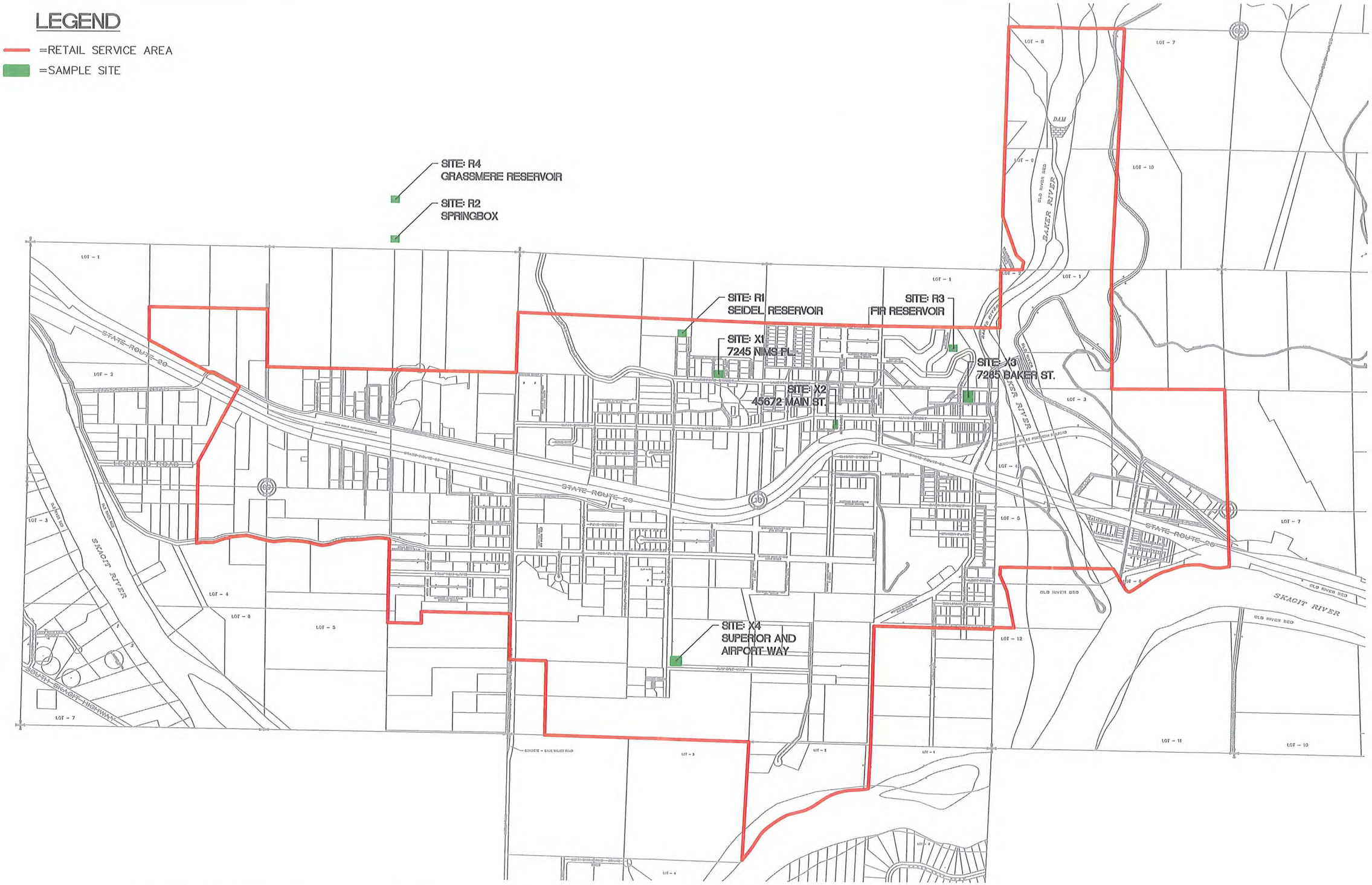
PREPARATION INFORMATION

System Name: Concrete Utilities	Date Completed: 6/25/2012	Date Modified:
Name of Plan Preparer: Alan Wilkins	Position: Public Works Director	Daytime Phone #: (360) 770-0394
State Reviewer:	Date Last Review:	

LEGEND

=RETAIL SERVICE AREA

=SAMPLE SITE



DESIGNED BY: CFR DRAWN BY: IDH CHECKED BY: CFR	R&E	REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO.	DATE	REVISION	BY	TOWN OF CONCRETE P.O. BOX 39 CONCRETE, WA 98237

COLIFORM MONITORING PLAN
SAMPLE SITE LOCATION MAP
CONCRETE, WA

JOB # / DWG		DATE
10007.1	WS1	6/25/12
SCALE		SHEET
H:1"=1000', n/a		1

P:\Projects\10007.1\ WS2.dwg, COLIFORM, 6/25/2012 4:03:36 PM

Water System Extension Policy

The Town of Concrete adopts these policies upon which water service is made available. The State law requires towns to allow private developers to employ their own engineer when they are financing and constructing extensions to the Town's system. The Council has examined standards, requirements, and procedures for such developer engineered extensions, which the Council wishes to incorporate into its Main Extension method of service and Developer Extension Agreement forms. The Council has determined that certain other additions and changes to the Town's methods, policies and procedures for making water service available are in the best interests of the Town.

The Council of The Town of Concrete adopts the following as a statement of the policy, methods, criteria, terms, and conditions upon which water service is made available in the Town. The Council further adopts new Developer Extension Agreements as set forth further below.

It is the policy of The Town of Concrete that water will be available to all residents and property owners within the Town equally; further, that the cost of water distribution mains, fire hydrants, and a portion of the cost of general facilities shall be paid for by the owners of the land that is being benefited by the construction of such water mains and general facilities. A portion of the cost of water supply storage, transmission mains, master meters, control systems, booster and pressure reducer stations, and other general facilities will be financed from the revenue of the Town. As a general policy the Town does not approve the installation of water mains unless proper circulation is provided.

There are four methods under which water may be made available to land within the Town.

Method 1 - Utility Local Improvement District Method

An owner of land may elect to file a petition for the formation of a utility local improvement district (ULID) under the laws of the State of Washington. In this event, the owner shall request the council to authorize the Town's staff to prepare a petition for formation of a ULID. An owner may, in the alternative, request formation by Resolution of the Council. Formation by Resolution will be made only after review by the Council, and only upon the Council being convinced there is substantial support for a ULID by property owners within the Town to be formed.

The costs of construction pursuant to this method will be borne by the ULID, which shall assess the property within the Town. However, prior to connection, an area charge as established by Town Resolution shall be paid to the Town.

Said area charge is made in order that all property owners shall bear an equitable share of the cost of the Town's general facilities. In the event a previous charge or assessment for general facilities has been made against property, a credit for the same shall be given.

Method 2 - Main Extension Method

An owner or developer may elect not to form a utility local improvement district, but to install the water distribution system or enter into a private contract for such installation. In this event there shall be approval of the system to be installed and location of facilities, roads, and easements by the Town Council, the construction being accomplished according to Town specifications and standards. A Developer Extension Agreement shall be entered into between the developer and the Town. The form of such agreement will depend upon whether the developer elects to have the Town Engineer prepare the plans and design for such extension, or hires its own engineer to do so. Should the developer elect to hire its own engineer to prepare the plans and design, it must execute an agreement in the form of 'Optional Engineered Method', the terms of which are hereby adopted and incorporated by this reference. Should the developer elect to utilize the services of the Town's engineer, he must execute an agreement in the form of 'Town Engineered Method', the terms of which are hereby adopted and incorporated by this reference. Upon execution of the agreement, the developers shall pay all Developer Extension fees, as established by Town Resolution.

Method 3 - Temporary Service Method

In the event a landowner has one single family residence which is over 150 feet from a water main, but which is on a parcel of land which abuts a water main, and cannot feasibly obtain water for the home by methods 1 or 2, such owner may make written application to the Town for special permission to install a temporary private service line, from the nearest water main. Such written application shall specify the address of the applicant's property, the location of the nearest water main, and shall include an explanation of why the provisions set forth in Methods 1 and 2 are not applicable, and shall contain a legal description of the land to be served by water. Such application shall be accompanied by a sketch showing property dimensions and location thereon of the single-family residence.

As a policy, the Town considers temporary private service lines with disfavor in that such lines frustrate the orderly extension of the water system of the Town and hinder the proper development of the Town's Comprehensive Plan. Permission to install such temporary private service lines will be granted at the sole discretion of the Council and only after its determination that service on a temporary basis is in the best interest of the Town.

In granting such permission the following criteria, terms, and conditions shall govern:

(1) The applicant must pay the general facilities charge of the Town as established by Resolution. Said charge represents the applicant's portion of general facilities, the Council having determined that said charge is a reasonable connection charge in order that all property owners shall bear their equitable share of the cost of the water system of the Town. In the event a previous assessment for general facilities has been made against the property a credit for the same shall be allowed.

(2) The applicant must also pay the following:

- The current meter charge and service installation charge, and regular water

consumption charge, at prevailing rates.

- A special temporary service charge of $300.00 to compensate the Town for its costs for engineering and legal services, administrative, overhead, and indirect expenses incidental to the granting of such permission.

(1) Application will be considered only for land used or to be used for one single family home which lies outside a utility local improvement district.

(2) It is the policy of the Town to install water mains meeting the material specifications and general construction standards of The Town of Concrete, rather than to allow temporary private service lines permitted by Method 3, which method is designed to prevent extreme hardship.

(3) Should permission be granted, the applicant must obtain any easements necessary for the temporary private service line.

(4) The applicant must also grant to the Town easements over, through, under, and across its property which the Town may require for the implementation of this Comprehensive Plan or for the improvement of its water supply system.

(5) If permission for such line is granted, the owner shall sign a no protest agreement agreeing that there will be no protest of the construction of, or assessment for, a permanent water main which shall necessarily be constructed to serve the applicant's property. Such agreement shall run with the land and shall contain the legal description of the property to be served and shall be acknowledged before a notary public. The agreement may be recorded with the Skagit County Auditor at the Town's option.

(6) Should permission be granted, the applicant shall execute a Limited Power of Attorney, granting power of attorney to the mayor of the Town to sign on the applicant's behalf any ULID petition for construction of a permanent water main to serve the property of the applicant, which power of attorney shall be recorded.

Method 4 - Interim Service Method

In the event a land owner has a single family home or parcel of land for residential use to which water service cannot feasibly be provided by Methods 1 and 2, and which is not eligible for Method 3, such owner may apply by written application to the Town for special permission to install an interim private service line from the nearest water main. All information requested therein shall be provided as a condition to review the application by the Town Council.

Permission to install an interim service line will be granted at the sole discretion of the Town Council, which will approve applications only upon its determination that such approval is in the best interest of the Town. If permission is granted, connection shall be allowed only after compliance with the following:

(1) The applicant must pay the general facilities charge of the Town as established by Town

Resolution. Said charge represents the applicant's portion of general facilities, the Council having determined that said charge is a reasonable connection charge in order that all property owners shall bear their equitable share of the cost of the water system of the Town. In the event a previous assessment for general facilities has been made against the property a credit for same shall be allowed.

(2) The applicant must also pay the current meter charge, and regular water consumption charges at prevailing rates.

(3) The applicant must contribute its estimated pro rata share, based upon front footage, for the installation of a future water main. The front foot amount shall be established annually by the Town Council.

(4) It is the policy of the Town to install water mains meeting the material specifications and general construction standards of The Town of Concrete, rather than to allow interim private service lines permitted by Method 4, which method is designed to prevent extreme hardship.

(5) If the Town's engineer is able to specify the location of the future main to be installed, pursuant to the Comprehensive Plan, as an additional requirement of this Method the owner shall convey such easements as are necessary for such future main.

(6) The applicant shall execute a Limited Power of Attorney, granting power of attorney to the Town Mayor to sign on the applicant's behalf any ULID petition for construction of a permanent water main to serve the property of the applicant, which power of attorney shall be recorded.

(7) A copy of the agreement for Interim service shall be recorded. Upon installation of the future main, and upon 30-day notice by the Town to the applicant, the meter serving the interim service line shall be removed and relocated by the Town to the permanent service line for the property. It shall be the applicant's responsibility, at his or her cost, to install a private service line to make connection at the permanent meter location.

(8) Interim service lines to be located within the easement area for a future main will be allowed only by permission of the Town.

Town of Concrete

DEVELOPER EXTENSION AGREEMENT

- Optional Engineered Method -

PROJECT NAME _____

DATE AGREEMENT SIGNED _____

DATE AGREEMENT FEES PAID _____

AGREEMENT EXPIRATION DATE _____

MAIN EXTENSION FEE ACCOUNT _____

INSPECTION ACCOUNT _____

GUARANTY DEPOSIT ACCOUNT _____

EASEMENT DEPOSIT ACCOUNT _____

ADDITIONAL FEES ACCOUNT _____

TOWN OF CONCRETE

SKAGIT COUNTY, WASHINGTON

DEVELOPER EXTENSION CHECK LIST

WATER DIVISION

- OPTIONAL ENGINEERED METHOD -

NAME OF PLAT/PROJECT _____

LOCATION _____

_____

_____

DEVELOPER _____

ADDRESS _____

_____

PHONE _____

ADDITIONAL OWNER(S) _____

DEVELOPER'S ENGINEER _____

ADDRESS _____

_____

PHONE _____

A. PRELIMINARY

____	1.	Payment of preliminary engineering fee	(Developer)
____	2.	Approved or draft preliminary plat map Scale 1" = 100 feet or 1" = 50 feet	(Developer)
____	3.	Contour map with 5' or less intervals (USGS Datum)	(Developer)
____	4.	Legal description of property and any encumbrances	(Developer)
____	5.	Existing and finished road and storm plan and profile (showing minimum floor limitations, if any) Hor: 1" = 50' Vert: 1" = 5'	(Developer)
____	6.	Fire flow requirements and fire hydrant locations from Skagit County Fire Marshall	(Developer)
____	7.	Cost estimate of special facilities	(Town)
____	8.	Calculation of Main Extension Fee	(Town)
____	9.	Application form completed	(Developer)
____	10.	Payment of General Facilities Connection Charge, if applicable; first half of Main Extension Fee, Inspection Fee, Developer Guaranty Deposit, Developer Conformance Deposit, and the Deposit for Easement Preparation and Processing	(Developer)
____	11.	Application approved and plans ordered	(Developer)

B. REQUIRED BEFORE PRE-CONSTRUCTION CONFERENCE

____	1.	Plans and specifications prepared and submitted to Town for review	(Developer)
____	2.	Written approval by Town of system plans and specifications	(Developer)
____	3.	Written approval of final street and storm construction plans by Skagit County Building Department	(Developer)
____	4.	Approval of plans by Skagit County Fire Marshall	(Developer)
____	5.	On-site and off-site easements and construction permits properly executed and delivered to Town	(Developer)
____	6.	Approval of plans by applicable permitting agencies	(Developer)
____	7.	Approval of contractor	(Town)

____	8.	Insurance certificate	(Developer/Contractor)
____	9.	Survey control (centerline street and lot corners) staked in field	(Developer)
____	10.	Coordination of telephone vaults, and coordination of power vault and hand hold locations with Puget Power	(Developer)
____	11.	Payment of second half of Main Extension Fee	(Developer)

C. REQUIRED BEFORE CONSTRUCTION BEGINS

____	1.	Pre-construction conference	(Town, Engineer, Developer, Contractor)
		Note: Developer or on-site representative, and on-site representative of the Contractor must be present at the pre-construction conference.	
____	2.	Request for staking with required offsets	(Contractor)
____	3.	One week notice of starting date	(Contractor)
____	4.	Construction stakes in place	(Town)
____	5.	Grade sheets prepared and issued to Field Representative	(Town)
____	6.	Oversizing, if any, determined by Town	(Town)

D. PRIOR TO ACCEPTANCE OF JOB

____	1.	Approval of final construction	(Town)
____	2.	Certification of areas of all parcels and lots	(Developer)
____	3.	Verification of fill to meet plat design	(Developer)
____	4.	Installation of telephone and Puget Power facilities	(Developer)
____	5.	Copy of recorded final plat	(Developer)
____	6.	Construction costs to Town	(Developer)
____	7.	Value of system to Town	(Developer)
____	8.	Preparation of Bill of Sale	(Town)
____	9.	Executed Bill of Sale and on-site easements returned to Town	(Developer)
		Note: Signed easements are required prior to recording Final Plat.	
____	10.	As-builts prepared	(Town)

-Water meter applications will now be accepted-

E. PRIOR TO RELEASE OF GUARANTY CASH DEPOSIT

____	1.	Final inspection just prior to one year from acceptance of Bill of Sale	(Town)
____	2.	Notification of necessary repairs and/or restoration	(Town)
____	3.	Completion of repairs	(Developer)
____	4.	Release of deposit	(Town)

Town of Concrete

DEVELOPER EXTENSION AGREEMENT

- Town Engineered Method -

PROJECT NAME _____

DATE AGREEMENT SIGNED _____

DATE AGREEMENT FEES PAID _____

AGREEMENT EXPIRATION DATE _____

MAIN EXTENSION FEE ACCOUNT _____

INSPECTION ACCOUNT _____

GUARANTY DEPOSIT ACCOUNT _____

EASEMENT DEPOSIT ACCOUNT _____

ADDITIONAL FEES ACCOUNT _____

TOWN OF CONCRETE

SKAGIT COUNTY, WASHINGTON

DEVELOPER EXTENSION CHECK LIST

WATER DIVISION

- TOWN ENGINEERED METHOD -

NAME OF PLAT/PROJECT _____

LOCATION _____

_____

_____

DEVELOPER _____

ADDRESS _____

_____

PHONE _____

ADDITIONAL OWNER(S) _____

DEVELOPER'S ENGINEER _____

ADDRESS _____

_____

PHONE _____

A. PRELIMINARY

____	1.	Payment of preliminary engineering fee	(Developer)
____	2.	Approved or draft preliminary plat map Scale 1" = 100 feet or 1" = 50 feet	(Developer)
____	3.	Contour map with 5' or less intervals (USGS Datum)	(Developer)
____	4.	Legal description of property and any encumbrances	(Developer)
____	5.	Existing and finished road and storm plan and profile (showing minimum floor limitations, if any) Hor: 1" = 50' Vert: 1" = 5'	(Developer)
____	6.	Fire Flow requirements and fire hydrant locations from Skagit County Fire Marshall	(Developer)
____	7.	Cost estimate of special facilities	(Town)
____	8.	Calculation of Main Extension Fee	(Town)
____	9.	Application form completed	(Developer)
____	10.	Payment of General Facilities Connection Charge, if applicable; first half of Main Extension Fee, Inspection Fee, Developer Guaranty Deposit, Developer Conformance Deposit, and the Deposit for Easement Preparation and Processing	(Developer)
____	11.	Application approved and plans ordered	(Developer)

B. REQUIRED BEFORE PRE-CONSTRUCTION CONFERENCE

____	1.	Plans and specifications	(Developer)
____	2.	Written approval of final street and storm construction plans by Skagit County Building Department	(Developer)
____	3.	Approval of plans by Skagit County Fire Marshall	(Town)
____	4.	On-site and off-site easements and construction permits properly executed and delivered to Town	(Developer)
____	5.	Approval of plans by applicable permitting agencies	(Town)
____	6.	Approval of contractor	(Town)
____	7.	Insurance certificate	(Developer/Contractor)

____	8.	Survey control (centerline street and lot corners) staked in field	(Developer)
____	9.	Coordination of telephone vaults, and coordination of power vault and hand hold locations with Puget Power	(Developer)
____	10.	Payment of second half of Main Extension Fee	(Developer)

C. REQUIRED BEFORE CONSTRUCTION BEGINS

____	1.	Pre-construction conference	(Town, Engineer, Developer, Contractor)
		Note: Developer or on-site representative, and on-site representative of the Contractor must be present at the pre-construction conference.	
____	2.	Request for staking with required offsets	(Contractor)
____	3.	One week notice of starting date	(Contractor)
____	4.	Construction stakes in place	(Town)
____	5.	Grade sheets prepared when specified on plans	(Town)
____	6.	Oversizing, if any, determined by Town	(Town)

D. PRIOR TO ACCEPTANCE OF JOB

____	1.	Approval of final construction	(Town)
____	2.	Certification of areas of all parcels and lots	(Developer)
____	3.	Verification of fill to meet plat design	(Developer)
____	4.	Installation of telephone and Puget Power facilities	(Developer)
____	5.	Copy of recorded final plat	(Developer)
____	6.	Construction costs to Town	(Developer)
____	7.	Value of system to Town	(Developer)
____	8.	Preparation of Bill of Sale	(Town)
____	9.	Executed Bill of Sale and on-site easements returned to Town	(Developer)
		Note: Signed easements are required prior to recording Final Plat.	
____	10.	As-builts prepared	(Town)

-Water meter applications will now be accepted-

E. PRIOR TO RELEASE OF GUARANTY CASH DEPOSIT

____	1.	Final inspection just prior to one year from acceptance of Bill of Sale	(Town)
____	2.	Notification of necessary repairs and/or restoration	(Town)
____	3.	Completion of repairs	(Developer)
____	4.	Release of deposit	(Town)

TOWN OF CONCRETE

SKAGIT COUNTY, WASHINGTON

APPLICATION AND AGREEMENT TO ALLOW CONSTRUCTION
OF EXTENSION TO WATER FACILITIES
-TOWN ENGINEERED METHOD-

TO: TOWN OF CONCRETE

The undersigned ("the Developer"), hereby makes application to The Town of Concrete, Skagit County, Washington ("the Town") for permission to construct and install an extension to the Town's water facilities in the public right-of-way under the Town's franchise and/or upon easements approved by the Town, and to connect to the Town's water distribution system; and in consideration thereof, makes the following representations and agreements, to wit:

1. LOCATION AND EXTENSION

Name of Plat/Project _____

2. LEGAL DESCRIPTION

A copy of the plat must be attached and must include a legal description, and by this reference thereto the same is made a part of this Agreement.

3. DESCRIPTION OF EXTENSION

The proposed extension will consist of approximately _____ lineal feet of water pipe and appurtenances and shall be installed in accordance with the plans and specifications provided by the Town's engineer, and in accordance with the standards and conditions for constructing extensions to the water distribution system adopted by the Council of the Town, the terms of which are by this reference made a part hereof as though set forth in full herein.

4. SPECIAL FACILITIES

Special facilities are those that must be constructed to make service available to the Developer's plat, but which are other than the typical mains and appurtenances for developer extension projects (eg. pump stations and pressure reducing valve stations).

The description and estimated construction cost of any special facilities are as follows (check one):

____ a. Not applicable

____ b. As attached, and by this reference made a part of this Agreement.

Cost of special facilities $ _____

5. MAIN EXTENSION FEE

A Main Extension Fee shall be paid by the Developer to the Town in an amount equal to the current rate schedule for main extension fees on file at the Town office for water main extensions, together with an amount equal to 20% of the estimated construction cost of any special facilities. Payment of the Main Extension Fee is in consideration of the following basic work:

a. Plans sent to Skagit County Fire Marshall and WS Department of Health for approval (except as noted in Section 6).

b. Four (4) sets of contract plans, specifications, and information required for the preparation of the Bill of Sale.

c. Advice regarding Town's requirements.

d. Construction staking (horizontal only).

e. Final acceptance inspection by the Town, if within the Period of Acceptance as specified in Section 24 hereof. Any inspections following such Period shall be deemed "additional" and charged for as provided in Section 6 hereof.

f. Regular and ordinary administrative costs, which have been determined to be 20% of the total amount.

g. Regular and ordinary legal fees attributable to the administration of developer extension agreements.

h. Regular and ordinary administrative costs attributable to special facilities.

i. Preparation of Bill of Sale and Resolution of acceptance.

6. ADDITIONAL FEES

Additional fees shall be paid by the Developer to the Town for the costs of work required in addition to the basic work described in Section 5, including, but not limited to the following:

a. Revisions to the contract plans and specifications and other work occasioned by any act of the Developer, the Developer's engineer, or the Developer's contractor.

b. Cost of preparing, as applicable, permit applications for Skagit County Grading and Clearing Permit, Skagit County Shorelines Substantial Development Permit, Skagit County Special Use Permit, Skagit County Right-of-Way Use Permit, Washington State Department of Transportation Right-of-Way Use Permit, Army Corps of Engineers Section 404 Permit, and any railway right-of-way permits, including application costs, fees, bonds, insurance, filing, and administrative costs.

c. Costs attributable to obstruction, delay or prevention of construction staking, establishment of benchmarks, and/or replacement of stakes and additional staking.

d. Costs of obtaining Skagit County and/or State of Washington or other governmental agency permits, franchises, service area boundary adjustments, annexations, or required approvals, and charges for any inspections performed by those agencies. (Charges for such services are established by the individual agency and not by the Town).

e. Easement preparation costs, including title policies, as-built surveys, easement drafting, and any necessary addenda or special stipulations required therein, and Resolutions of acceptance.

f. Costs attributable to any required environmental assessment and evaluation, including SEPA Checklist and Determination.

g. Costs of preparation of any special agreements between the Developer and the Town, and Resolutions of acceptance.

h. Actual inspection costs which exceed the Inspection Fee, and inspection costs attributable to defective work.

i. All costs, damages, and expenses, including reasonable attorney fees, incurred by the Town in responding to, and/or defending claims made by third parties for acts of the Developer, its engineer, or contractor.

j. Renotification of customers if contractor is unable to meet pre-arranged shutdown schedule.

Additional fees shall be based on the Town's current schedule of costs for Town employees, and actual engineering, legal, and other charges for additional work plus 20% of the total thereof as the Town's administrative costs attributable thereto. Such fees are due upon receipt of the Town's invoice, and completed payment is a prerequisite for acceptance by the Town of the extension.

7. PAYMENT OF FEES, CHARGES, AND DEPOSITS

The following is a description of the fees, charges, and deposits, and the payment terms thereof attributable to this Agreement, and/or necessary to provision of public water service by the Town:

a. **General Facilities Connection Charge** - The Town's charge for general facilities. This fee is subject to change and is non-refundable. Residential connections are charged on a per living unit basis. The connection charge shall be paid at the time of application for a meter at the current rate in effect at the time of such application.

b. **Main Extension Fee** - This fee is as described in Section 5 hereinabove, and shall be paid in two equal installments, one-half at the time of application, and the balance prior to the pre-construction conference.

TOTAL AMOUNT SHALL BE $_____
1/2 DUE WITH APPLICATION $_____

c. **Inspection Fee** - The actual cost for inspections as determined by the Town, plus 20% for administrative costs. An estimated inspection feel shall be paid prior to the preconstruction conference. To the extent that actual inspection costs exceed this amount and/or to the extent inspection costs are attributable to deficient work, such costs shall be deemed "additional" and charged for as provided in Section 6 of this Agreement.

PRIOR TO PRECONSTRUCTION $_____

d. **Developer Guaranty Deposit** - This deposit is described in Section 11 hereof, and is $.30 per lineal foot of water main, plus 2% of the estimated construction cost of any special facilities. The minimum deposit shall be $350.00. This deposit shall be made at the time of application.

DUE WITH APPLICATION $_____

e. **Developer Conformance Deposit** - This deposit is described in Section 19 hereof, and is $15.00 per lot, with a minimum deposit of $250.00 This deposit shall be made at the tome of application.

DUE WITH APPLICATION $_____

f. **Latecomer Charges** - The charge presently allocated against the property to be developed for prior construction for which there is a latecomer connection fee established. This charge is to be paid at the time of submission of the Bill of Sale as a condition to commencement of service.

_____ feet X $_____ per foot = $_____

g. **Deposit for Easement, Grading, Right-of Way Use, Shoreline and/or Other Regulatory Permit Preparation and Processing** - The estimated cost will be determined by the Town for preparation, legal fees, recording fees, and 20% administrative cost attributable to easement and/or regulatory permit preparation and processing. One-half is due at the time of application with the balance due prior to the pre-construction conference.

DUE WITH APPLICATION $_____

TOTAL AMOUNT DUE WITH APPLICATION $_____

ADD. AMOUNT DUE PRIOR TO PRE-CONST. CONFERENCE $_____

8. PRELIMINARY ENGINEERING

The Developer shall furnish three (3) copies each of the approved preliminary plat map, contour map, and proposed road and storm plan and profile sheets, approved by the Town Engineer.

The final plat map shall be to a scale of 1 inch = 100 feet or 1 inch = 50 feet. The contour map shall be to a scale of 1 inch = 100 feet with contour intervals of 5 feet or less. The road profile and storm plan sheets shall be to a scale of 1 inch = 50 feet and shall be furnished to the Town rolled, not folded.

The Developer shall also provide the description, location, and elevation of all benchmark data available on the project site and this information, wherever possible, shall be indicated on the maps furnished by the Developer. Datum shall be USGS Sea Level Datum. If not provided by the Developer, this data will be procured by the Town, and the cost thereof will be charged as Additional Fees pursuant to Section 6 hereof, to which fee the Developer hereby consents. The Developer shall also furnish a plat computation work map with a scale of 1 inch = 50 feet, and a certification by the Developer's engineer of the areas of all lots and parcels within the plat.

9. CONSTRUCTION STAKING

The Developer shall provide center line control and lot corner stakes forty-eight (48) hours prior to requesting construction staking by the Town Engineer.

10. EVIDENCE OF INSURANCE

The Developer or the Developer's Contractor shall secure and maintain during the life of this contract, Public Liability Insurance for bodily injury and property damage liability, including without limitation, coverage for explosion, collapse, blasting, and destruction of underground utilities (X.C.U.) and contingent liability, including projects and completed operations and blanket contractual liability, as shall protect the Developer or Developer's contractor and the Town and its officers, agents and employees and specifically designating the Town's consulting engineering firm as and additional named insured in said policies, all at no cost to the Town or its Engineers.

The above insurance shall cover the Town and its officers, agents, and employees, its consulting engineers, the Developer, and Developer's contractor and subcontractors for claims or damages for bodily injury, including wrongful death, as well as other claims for property damage which may arise from operations under this contract whether such operations are performed by the Developer by any contractor or subcontractor or anyone directly or indirectly employed by either of them and the Developer agrees, in addition. to indemnify and save harmless the Town, its officers, agents, and employees, and/or its consulting engineers, from all suits, claims, demands, judgements and attorney's fees, expenses or losses occasioned by the performance of this Agreement by the Developer, its contractor and subcontractors, or persons working directly or indirectly for the Developer, on account of, or in consequence of, any neglect in safeguarding the work or failure to conform with the safety standards for construction work adopted by the Safety Division of the Department of Labor and Industries of the State of Washington.

The amount of such insurance shall be as follows: Bodily injury liability insurance in an amount not less than $250,000 for injuries, including wrongful death, to any one person, and subject to the same limit for each person, in an amount not less than $1,000,000.00 on account of any one occurrence, and property damage liability insurance in an amount not less than $250,000.00 for each occurrence.

The Developer shall not cause any policy to be cancelled or permit it to lapse, and all policies shall include a clause to the effect that the policy or certificate shall not be subject to cancellation or to a reduction in the required limits of liability or amounts of insurance or any other material change until notice has been mailed to the Town stating when, not less than ten (10) days thereafter, such cancellation or reduction or change shall be effective.

There shall be provided to the Town a "Certification of Insurance on the Town's form which is provided herewith as an attachment hereto. The "Accord Certificate of Insurance" is the only acceptable substitution. Said form is to be completed in full, endorsed to the required limits, and certified by the Developer's or the Developer's contractor's insurance company.

11. DEVELOPER GUARANTY DEPOSIT

The Guaranty Deposit shall be to condition the Developer's compliance with the terms, conditions and standards contained or referenced herein, and shall insure the Town against any damage to its existing system and/or proposed extension as a result of the Developer's failure to comply.

The Guaranty Deposit shall be used in cases determined by the Town when the Developer has failed to make the necessary repairs or restoration of any failures, including ditch settlement of any portion of the project covered by the guaranty within twenty-four (24) hours after notification by the Town of the necessity for said repairs. At the end of the 24-hour period, if the Developer has not accomplished the necessary work, the Town will have the work done and pay all costs in connection therewith from the deposit. Determination of any necessary repairs or restoration will be made by the Town during the course of periodic inspections and until the final inspection that is to be made within one (1) year of the Town's acceptance of the Bill of Sale as provided herein. The Guaranty Deposit will be retained by the Town until all items requiring repair or restoration have been satisfactorily completed.

In the event that the Guaranty Deposit is reduced by application by the Town to repairs or restoration prior to the final inspection, the Town shall notify the Developer of the amount of the Guaranty Deposit which has been utilized and the Developer shall immediately deposit with the Town the amount of such deposit deficiency.

The amount of the Guaranty Deposit shall not constitute a limit on the amount of any Town claim, or on the Developer's liability for repairs or restoration, or liability arising out of any other claim by the Town for breach of any term of this Agreement. In the event the Main Extension Fee does not cover actual costs, any balance remaining in this deposit may, at the Town's option, be applied to the deficit.

12. EASEMENTS

All easements shall be executed on the Town's form and shall be obtained by the Developer at its sole cost and expense prior to commencement of construction. Such easements shall be presented free of all encumbrances, except those acceptable to the Town. The Town will record a Notice of Executed Easement upon receipt of plat Volume and Page Numbers. Easements will be recorded by the Town upon completion of the project and recording of the Final Plat.

If the actual cost of preparing and administering easements exceeds the Deposit for Easement Preparation and Processing as described in Section 7 hereof, the Developer will be billed for such additional amount, and the Developer agrees that such billing must be paid as a condition to the Town's acceptance of the extension. In the event the Main Extension Fee does not cover actual costs, any balance remaining in this deposit may at the Town's option be applied to the deficit.

13. PERMITS

All necessary permits and governmental approvals shall be applied for and obtained by the Town before construction commences, at the Developer's expense and shall be paid as an Additional Fee (Section 6).

14. GRADING OF ROADS

The Developer shall grade all roads to the design subgrade elevation prior to the start of construction or construction staking, and shall advise the Town in writing of any changes which may be contemplated during construction. If the Developer changes the subgrade elevation of any road after completion of the extension, or any part thereof, the Developer shall be responsible for all costs incurred by the Town as a result of any such change in subgrade elevation. This obligation shall continue in full force until the Town, WSDOT, Skagit County and/or any other governing agency releases the right-of-way or road construction bond, or releases any bond of other description provided to ensure the Developer's obligation to the County or other agency for completion of roads within the area of the extension.

15. CONNECTION TO THE TOWN'S SYSTEM

Not less than forty-eight (48) hours prior to the time that actual connection to the Town's system is requested to be made, application for permission to make such connection at a specified time shall be made by the Developer or its Contractor.

16. USE OF EXISTING MAINS

Until execution and acceptance of the Bill of Sale, there shall be no water flow through any on-site or off-site mains or facilities.

17. OVERSIZING

Oversized lines typically are those in excess of eight (8) inches in diameter. Any reimbursement for oversizing shall be determined by the Town Council prior to start of construction, and shall be established by Resolution in accordance with and pursuant to the laws of the State of Washington.

The Town may refuse to participate in a project with oversizing payment if budgetary considerations or the prudent management of the Town indicates such participation is not appropriate at the time. In such event, the Developer may proceed to construct its extension with the required oversizing, and shall be entitled to a reimbursement agreement with the Town, payment to be conditioned upon future events justifying such Town expenditure, eg. development utilizing such oversized facilities and providing General Facility Charge funds to the Town.

18. LATECOMER REIMBURSEMENT AGREEMENT

This project does/does not include the installation by Developer of facilities for which latecomer reimbursement is available. Entitlement to latecomer reimbursement and the amount thereof shall be established by execution of the Town's Developer Extension Reimbursement Agreement by the Town and the Developer.

19. DEVELOPER CONFORMANCE DEPOSIT

The Developer Conformance Deposit shall be held until the Developer has filed with the Town office a copy of the recorded plant and any adjustments, amendments or additions to the easement documents or as-built records of the Town that are required due to changes in the following, but not limited to: lot line changes, lot number changes, greenbelt area legal description changes, and changes that require amendment to easement descriptions; any of said changes having been made after submittal of the preliminary plat plans, short plat or subdivision plans.

The Deposit will be retained by the Town until all items requiring adjustment, amendment, or addition have been completed. All costs of such changes for engineering, legal and administration shall be deducted from the deposit and any balance remaining shall be returned to the Developer. The Deposit shall not constitute a limit on the amount to be paid to the Town for any such adjustments, and connections to the system will not be allowed until the Town has been reimbursed for the full amount thereof if in excess of the amount of the Deposit. In the event the Main Extension Fee does not cover actual costs, any balance remaining in this deposit may at the Town's option be applied to the deficit.

20. PLAT APPROVAL PRIOR TO COMPLETION OF CONSTRUCTION

If the Developer desires to obtain final plat approval prior to completion of the extension, the Town will allow the Developer to provide the Town with a performance bond or set-aside letter guaranteeing the Developer's compliance with this Developer Extension Agreement.

The content and form of the performance bond or set-aside letter has been established by Resolution, and will be provided by the Town. All expense, including engineering, legal, and administrative costs will be determined by the Town and paid by the Developer prior to the Town's acceptance of the bond or set-aside.

The Town will advise the WS Department of Health of the Developer Extension Agreement, and the performance bond or set-aside letter on its acceptance by the Town.

Signed easements, ready for recording, shall be provided to the Town prior to the Town's letter to the WS Department of Health. The Developer shall provide the final plat recording number, Volume and Page Number of Plats, to the Town immediately on recording the plat.

21. FINAL ACCEPTANCE

The Town agrees to accept title to the extension only when all work has been properly completed, when any damage has been repaired, and when the Town has made its inspection and has approved the system as having been completed in accordance with the plans and specifications; provided, however, that there will be no acceptance if the Developer is in default of any of the terms of this Agreement. Acceptance of the extension will be by Resolution of the Town Council accepting an executed Bill of Sale on the form provided by the Town.

Acceptance by the Town shall not relieve the Developer of the obligation to correct defects in labor and/or materials as heretofore provided, nor of the obligations set forth in the applicable paragraphs hereof. Acceptance shall cause the extension to be subject to the ownership, control, use and operation of the

Town, which may thereafter apply to it all regulations and conditions of service, and make such charges therefor as the Council has determined by Resolution to be reasonable and proper.

22. BILL OF SALE CONDITIONS

The Bill of Sale will provide for transfer of title to the constructed extension from the Developer to the Town, and its acceptance is conditioned on the following:

a. The Developer is the lawful owner and has the right to transfer the extension, that the extension is free from all encumbrances, and the Developer will warrant and defend the same against all claims and demands of any person.

b. All bills for labor and materials have been paid and the Developer has provided a certificate from the Contractor installing the extension acknowledging that the Contractor has been paid in full and/or does fully release, transfer, assign, and set over to the Town all of its rights, title, claims, and interest therein.

c. The Developer has submitted to the Town the total costs incurred in the installation of the extension.

d. The consideration for the Bill of Sale shall be the Town's incorporation of the improvements into its overall water distribution system.

e. The Developer warrants that for a period of one (1) year from the date of the Bill of Sale, the water system will remain in acceptable working order and condition, except where abused or neglected by the Town, and the Developer will repair or replace at its own expense any work or material that is shown to have been defective during said one (1) year period of warranty.

f. The Developer has submitted a copy of the recorded plat.

23. BREACH OF CONTRACT - ATTORNEY FEES

A breach of any provision of this Agreement shall constitute a total breach thereof, and shall subject the Developer to cancellation of the Agreement, forfeiture of deposits, and claim for costs and damages, as appropriate. The parties agree that in the event of litigation regarding the terms or performance of this Agreement, the substantially prevailing party shall be entitled to an award of reasonable attorney fees and costs, in addition to any other appropriate remedy.

24. LIMITATION FOR PERIOD OF ACCEPTANCE

The Developer agrees that the construction of the extension shall be carried out in a timely and efficient manner and further agrees that the improvements shall be completed and ready for acceptance by the Town within 12 months of the date of this Agreement. If the Developer has executed a performance bond or set-aside letter, on expiration of the period thereof, the Town may order the work done, or any remaining portion thereof, and all costs and expense incurred, shall be reimbursed to the Town from the bond company or financial institution holding the funds as provided in the set-aside letter; provided, however, that the amount of such reimbursement available shall not be deemed to limit the Developer's obligation to pay the total costs attributable to the work. If the work is completed beyond the period of acceptance, reimbursement shall also include the costs of renewal of this Agreement as described below.

If the extension is not completed and ready for acceptance within said period, the Developer's rights under this Agreement shall cease and no additional administrative, engineering or legal services will be provided

by the Town unless and until the Developer makes a new application, or until the Town consents to the renewal of the expired Agreement. If the Town consents to the renewal of the Agreement, and in consideration thereof, the Town's actual costs incurred to the date of renewal shall be accounted, and if they exceed the amount of the fees collected by the Town to the date of renewal, the Developer shall pay the difference. In addition, the Developer shall pay all administrative, legal, engineering, and inspection costs attributable to the renewal.

DATED THIS _____ day of _____, 199_____

_____
DEVELOPER - Authorized Signature

_____
ADDITIONAL OWNERS - SIGNATURE

_____
Developer's Mailing Address

_____
City State Zip

_____
Developer's Phone Number

_____
SIGNATURE OF TOWN MAYOR
approving Application and Agreement
Date _____, 19___

_____
CONTRACTOR'S NAME

_____
Registration Number

_____
Contractor's Mailing Address

_____
City State Zip

_____
Contractor's Phone Number

ADDENDUM TO DEVELOPER'S EXTENSION AGREEMENT
WATER DIVISION
(To be completed when construction has been completed)

_____ _____
CONTRACTOR'S NAME PROJECT NAME

The undersigned CONTRACTOR does hereby certify and acknowledge that he has been fully paid/or does fully release, transfer, assign and set over to The Town of Concrete, all of his rights, title and interest in those certain improvements referred to as:

ALL WATER MAINS, FIRE HYDRANTS AND APPURTENANCES IN THE _____ _____ DEVELOPMENT.

The undersigned Contractor does hereby waive any claim, right or title to said improvements and further does hereby bargain, sell, transfer and set over to The Town of Concrete, any ownership rights he may have therein, in consideration of the acceptance by The Town of Concrete of a Bill of Sale from the Developer described above.

DATED this _____ day of _____ 19 ____.

Contractor's Signature _____

Company name _____

STATE OF WASHINGTON)
) ss
COUNTY OF SKAGIT)

I hereby verify that I know or have satisfactory evidence that _____ _____ is the person who appeared before me, and said person acknowledged that ____ he ____ she signed this instrument and
( ) acknowledged it to be the ____ his ____ her free and voluntary act for the uses and purposes mentioned in this instrument; or

( ) on oath stated that _____ he _____ she is authorized to execute the instrument and acknowledged it as the _____ (title) of _____ _____ to be the free and voluntary act of such party for the uses and purposes mentioned in the instrument.

Dated: _____

_____
NOTARY PUBLIC in and for the State of Washington
residing at _____
My appointment expires _____

DEVELOPER EXTENSION FEES

1. The **Developer Guaranty Deposit Charge** shall be an amount equal to $0.50 per lineal foot of water main to be constructed. The minimum amount shall be $350.00.

2. The **Developer Conformance Guaranty Deposit Charge** shall be an amount computed at the rate of $15.00 per lot, with a minimum deposit of $350.00.

3. The **Easement Preparation and Processing Deposit Charge** shall be determined by the Town and based on the estimated cost of preparation, legal fees, recordings fees, and twenty percent (20%) overhead, and shall be due at the time of application.

4. The fee for **Review of Developer Extensions** in which the developer elects to retain its own engineer to plan and design water system extensions shall be $0.50 per lineal foot with a minimum charge of $800.00.

5. The fee for the **Main Extension** which includes charges for engineering plans and specifications, construction inspection, Town administrative expense, as-built records, and fire marshall review shall be computed at a rate of $6.00 per lineal foot of water main. Survey cost will be in addition to above charges.

6. The fee for the **Optional Main Extension** which includes charges for construction inspection, Town administrative expense, as-built records, and fire marshall review shall be computed at a rate of $5.00 per lineal foot of water main. Survey cost will be in addition to above charges.

7. The fee for **Survey Charges for Developer Extensions** shall be computed at a rate of $2.00 per lineal foot for design survey and $2.00 per lineal foot for construction surveying.

Latecomer Agreement Policy

The purpose of these policies is to establish a method for the reimbursement to developers for developer extension construction costs (Latecomers). It is the policy of the Town of Concrete to contract with owners for the reimbursement of developer extension construction costs from connection charges received for properties subsequently utilizing Town facilities developed by the developer extension method of procuring service.

Based upon Washington Laws, 1989, R.C.W. 56.16.030 and 57.08.010, the Washington State Legislature has established statutory requirements and procedures for the reimbursement to developers from connection charges.

Policy #1

All developer extension contracts between an owner and the Town of Concrete provide for reimbursement to the owner or the owner's assigns for a period of 15 years. This reimbursement covers a portion of the costs of the water facilities constructed as a result of such a contract for connection charges. These charges shall be paid to the Town by the property owners who connect to or use the facilities within the 15-year period, but who did not contribute to the original cost of the facilities.

Policy #2

The reimbursement shall be a pro rata share of construction and contract administration costs of the project. These costs are defined to be the costs of design, engineering, installation, restoration, permit fees, and charges specifically applicable to the facilities.

Policy #3

A reimbursement area shall be formulated by the Council within a reasonable time after acceptance of the facilities for which reimbursement is applicable. This area shall include those parcels that would require similar water improvements upon development, and a connection ("latecomer") charge will be established for said reimbursement area.

Policy #4

The pro rata share of construction costs as defined hereinabove shall be determined by audit of the owner's invoices and other documentary evidence of its actual costs, which audit shall be performed by the Town's consulting engineer.

Policy #5

The failure of the owner to provide the necessary documentary evidence to allow a reasonable audit of actual costs within thirty (30) days of acceptance of the facilities by the Town shall constitute a waiver by the owner of its statutory right to reimbursement of its actual costs, and it shall thereafter only be entitled to reimbursement for reasonable costs of the construction of similar facilities under similar circumstances, such amount to be determined upon recommendation by the Town's consulting engineer.

Policy #6

The fifteen-year reimbursement period shall commence from the date the facilities are accepted by the Town, without regard to the date of determination of the reimbursement amount or execution of a reimbursement agreement.

Policy #7

Upon expiration of the fifteen-year period, the owner shall have no further entitlement to reimbursement for the facilities, and the amount established for reimbursement shall be paid to the Town as an additional connection charge to ensure that all persons utilizing the facilities of the Town pay their fair share, and to compensate the Town for the maintenance and operation of under-utilized facilities. This is provided, however, that the Town shall include the potential for recovery of "latecomers" after fifteen-years in the development of its general facilities charges, upon which basis such facilities shall not be considered "donated" as such term is referred to in R.C.W. 56.16.030 and R.C.W. 57.08.01 0.

Policy #8

The Town shall deduct twenty percent (20%) from all amounts collected as reimbursement connection charges which have been determined by the Council to be a reasonable estimate of the Town's actual costs for the administration of reimbursement agreements. This is provided, however, that in the event that an owner waives entitlement to reimbursement, the Town shall be entitled to ten percent (10%) of the amount waived, which shall remain as a connection charge against such portion of the reimbursement area, and provided further, that no administration charge provided for in this policy shall be considered a construction or contract administration cost of the project.

Policy #9

The Town, upon request, shall have the right to provide for one segregation of connection charge for each owner of property within a reimbursement area, provided, however, that no segregation shall result in a parcel with less that 100 feet of frontage.

Policy #10

The Town's duty to enforce reimbursement agreements shall be limited to instances of actual utilization by property owners of facilities.

Policy #11

The costs, including attorney fees and court costs, reasonably incurred by the Town to defend a challenge to a reimbursement agreement shall be deducted from the applicable connection charges, provided, however, that the Town may assign its rights to defend to an owner upon payment of the twenty percent administrative charge applicable to such connection charge.

Policy #12

Included in Appendix E is a form of DEVELOPER EXTENSION AGREEMENT to be utilized by the Town, which form and each and every provision thereof is incorporated herein and adopted as supplementary to the policy stated herein as though fully set forth.

Policy #13

Upon execution and acceptance, reimbursement agreements shall be recorded in the Skagit County Auditor's office.

Policy #14

This policy contains the entire policy of the Town of Concrete as to the reimbursement of developers from connection charges, to the extent any prior policies of the Town are inconsistent herewith, they are hereby expressly repealed to the extent of such inconsistencies.

CROSS CONNECTION CONTROL PROGRAM

The Washington State Department of Health regulations place the primary responsibility for the cross connection control on the Town. The purpose of this policy is to protect the water supply of the Town from contamination or pollution from potential cross connections; and assure that approved backflow devices are tested annually.

1. General

Cross-connections which can be eliminated shall be eliminated. The Town shall work cooperatively with the Skagit County Department of Public Health to eliminate or control potential cross-connections. The Town shall develop and implement a cross connection control program acceptable to the Washington State Department of Health. The most recently published edition of the manual titled "Accepted Procedure and Practice in a Cross Connection Control-Pacific Northwest Section-American Waterworks Association together with the current edition of AWWA "M14 Recommended Practice for Backflow Prevention and Cross Connection Control" shall be used as the resources to establish:

a. Minimum cross-connection control operating policies;

b. Backflow prevention assembly installation practices;

c. Backflow prevention assembly testing procedures; and

d. Enforcement authority.

The purpose of the cross-connection control program is to protect the health of water consumers and the potability of the Town water system by assuring:

(1) The inspection and regulation of plumbing in existing and proposed piping networks; and

(2) The proper installation and surveillance of backflow prevention assemblies when actual or potential cross-connections exist and cannot be eliminated.

The cross-connection control program shall be included in the water system's plan under WAC 248-54-065.

The cross-connection poses a potential health or system hazard, the Town shall shut off water service to the premises until the cross-connection has been eliminated or controlled by the installation of a proper backflow prevention assembly. The cross-connection control program manager for the Town shall be notified when a service has been shut off.

2. Backflow Prevention Assembly Installation and Testing

If a cross-connection cannot be eliminated, then:

(a) An air-gap separation, reduced pressure principle backflow prevention assembly (RPDA) shall be installed if the cross-connection creates an actual or potential health or system hazard.

(b) An air-gap separation, RPBA, RPDA, double-check valve backflow prevention assembly (DCVA), or double-check detector backflow prevention assembly (DCDA) shall be installed if the cross-connection is objectionable, but does not pose an unreasonable risk to health.

(c) A pressure vacuum breaker assembly (PVBA) or an atmospheric vacuum breaker may be installed where the substance which could backflow is objectionable but does not pose an unreasonable risk to health and where there is no possibility of backpressure in the downstream piping.

(d) Backflow prevention assemblies, appropriate for the degree of hazard or air gaps and in some cases both, shall be installed at the service connection or within the following facilities, unless in the judgement of the Town and the department, no hazard exists: Hospitals, mortuaries, clinics, laboratories, piers and docks, sewage treatment plants, food and beverage processing plants, chemical plants using water process, metal plating industries, petroleum processing or storage plants, radioactive material processing plants or nuclear reactors, car washes, facilities having a nonpotable auxiliary water supply, and others specified by the department.

All installed RPBA's, RPDA's, DCVA's, DCDA's, and PVBA's shall be models included on the current list of backflow assemblies, approved for installation in Washington state, and maintained and published by the department of health. Backflow prevention assemblies in service, but not listed, shall remain in service provided the backflow prevention assemblies:

(1) Are listed on the current Washington state-approved cross-connection control assembly list at the time of installation;

(2) Are properly maintained;

(3) Are of a type appropriate for the degree of hazard; and

(4) Are tested and successfully pass the test annually. When unlisted assemblies are moved or require more than minimum maintenance, the unlisted assemblies shall be replaced by an assembly listed on the current approved model list.

All air gaps and backflow prevention assemblies shall be installed in accordance with the cross-connection control manual referenced under Section 1(b) of this policy.

The Town may permit the substitution of a properly installed air gap in lieu of an approved back-blow prevention assembly. All such air gap substitutions shall be inspected annually by a Washington state certified backflow assembly tester.

A Washington state certified backflow assembly tester shall inspect and test all:

a) RPBA's

b) RPDA's

c) DCDA's

d) New PVBA Installations, and

e) Existing PVBA's discovered through routine inspections.

Tests and/or inspections shall be conducted:

a) At the time of initial installation:

b) Annually after initial installation, or more frequently if tests indicate repeated failures; and

c) After the assembly is repaired.

The assemblies shall be repaired, overhauled or replaced whenever found to be defective. The Town requires that improperly installed or altered air gaps be replumbed or replaced by an approved RPBA at their discretion. Inspections, tests, and repairs shall be made under the Town's supervision and records thereof kept as required by the Town.

The Town shall deny or discontinue water service to any customer failing to cooperate in the installation, maintenance, testing, or inspection of backflow prevention assemblies required by the regulations of this resolution.

Authorized employees of the Town with proper identification shall have free access at reasonable hours of the day, to all parts of a premise or within buildings to which water is supplied. Water service may be refused or terminated to any premise for failure to allow necessary inspections.

3 Private Fire Protection Systems Connected to Public Water Systems

Because of the quality of the water found in private fire protection systems, they shall be considered non-potable systems. Some of the Town's concerns with these systems are:

a. The growth of offensive microorganisms which can create taste and odor problems.

b. The leaching of metals such as zinc, cadmium, iron, copper or lead into the water.

c. The addition of corrosion inhibitors, antifreeze or other chemicals to protect the piping systems.

d. Dry systems containing compressed air or nitrogen.

e. Systems which are constructed of unapproved or non-potable water piping or materials.

f. A loss of pressure on the public water supply main or an increase in pressure on the consumer's system which would allow water from these systems to enter the public water supply. Because of these concerns, each system shall be evaluated by the Town to determine the degree of hazard. If backflow should occur from

these systems, the hazard will vary from a low hazard to a high hazard. For this reason, it is required that all private fire systems which are connected to the Town's public water system, either directly, or indirectly on the property side of a potable water service, shall be protected with an approved backflow prevention assembly. Backflow protection shall be commensurate with the degree of hazard. The Town will require a detector meter on the system to detect any unauthorized use or leakage within the system. This is accomplished by the use of a double check detector assembly or reduced pressure detector assembly, depending on the degree of hazard determined by the Town. A single detector check or single check valve shall not be considered an approved backflow preventer. This requirement shall be enforced on all new fire services being installed and, on all existing fire systems as changes or additions are made or at such time as the building or premises is inspected during the routing cross connection inspection program.

4. Washington State Certified Backflow Assembly Testers

A backflow assembly tester shall become certified and maintain certification per department of health backflow assembly tester certification program guidelines.

The Town shall maintain a list of persons certified to test backflow prevention assemblies.

5. Enforcement

All existing facilities, where cross connections are suspected, shall be listed on a priority basis and inspected accordingly.

Provisions shall be made to route all applications for new commercial and industrial water services, or for enlarging services, through one person in charge of cross connection control.

All new commercial and industrial construction shall be inspected for possible cross connections. Plans shall be reviewed before construction.

One person shall be delegated the responsibility and authority to organize and carry out the cross connection control program. He must be instructed as to the causes and hazards of unprotected cross connections.

After installation, a device shall be tested and approved before it is accepted by the Town.

Adequate records, including date of inspection; results of inspection; recommended protection; list of all reduced pressure principle backflow devices (RPBD), double check valve assemblies reports; and all correspondence between the Town, and the regulatory and/or local authority and the customer, shall be kept and filed for reference.

Backflow preventers shall be tested a minimum of once a year. Therefore, the Town shall set up a program for annual testing. The Town shall notify the customer (owner of the device) as to the date the device is to be tested. It is then the responsibility of the customer to have the device tested by a certified tester.

6. Backflow Prevention Assembly Installation Agreement

The contents and requirements of the Town of Concrete's Backflow Prevention Assembly Installation Agreement are hereby adopted, and incorporated herein by this reference. A copy of such Agreement is attached hereto as an attachment to this plan.

TOWN OF CONCRETE

BACKFLOW PREVENTION ASSEMBLY INSTALLATION AGREEMENT

PROGRAM NAME _____

DATE AGREEMENT SIGNED _____

DATE FEES PAID _____

SPECIAL FACILITY FEE ACCOUNT NO. _____

GUARANTY DEPOSIT ACCOUNT NO. _____

ADDITIONAL FEES ACCOUNT NO. _____

AGREEMENT EXPIRATION DATE _____

CONSTRUCTION START DATE _____

COMPLETION DATE _____

ONE YEAR INSPECTION DATE _____

RENEWAL APPROVED BY _____
Town Mayor

4. PAYMENT OF FEES

The application payment for the special facility fees, bypass meter, the Developer's Guarantee Deposit, and additional fees shall be paid as follows:

a) Special Facility Fee - Administrative, legal, engineering design and review, inspection, and other miscellaneous costs. An amount equal to 15% of the construction cost as determined by the Town.

SAID AMOUNT SHALL BE $ _____

b) Developer's Guarantee Deposit - An amount equal to 10% of the construction cost as determined by the Town. The minimum deposit shall be $200.00

SAID AMOUNT SHALL BE $ _____

c) 5/8" x 3/4" Bypass Meter

SAID AMOUNT SHALL BE $ _____

TOTAL AMOUNT DUE NOW $ _____

4. PAYMENT OF FEES

a) Additional Fees - An amount based on actual time and expenses for any additional work as described in Section four. This fee shall be paid upon receipt of the Town's notice thereof and completed payment shall be a prerequisite for obtaining water service.

5. ADDITIONAL FEES

Additional fees shall be paid to the Town by the Developer for any additional work required including, but not limited to, the following:

a) Revision of work occasioned by an act of the Developer related thereto.

b) Additional inspections. These shall include, but shall not be limited to, all inspections beyond the established time and also any inspections beyond the called for final inspection, plus one additional inspection and reinspection of deficient work.

c) The obtaining of Skagit County permits, State of Washington permits, franchises, or governmental approval as required, and inspections performed by the necessary agencies.

d) Preparation of, and obtaining, "Title Policies" for easements on the Developer's behalf.

e) Environmental assessment and evaluation, as required.

f) Additional copies of plans and documents.

g) Any and all costs, charges, expenses and damages incurred resulting from failure of the Developer to comply with this agreement and/or requirements of any governing agency.

h) All costs, damages and expenses, including reasonable attorney fees incurred by the Town in responding to and/or defending claims made by third parties.

6. PRELIMINARY ENGINEERING

The Developer shall provide two (2) copies each of a site development plan prior to the Town's request for review by the Town engineer. This map shall have a scale of 1 inch = 100 feet.

7. EVIDENCE OF INSURANCE

The Developer or the Developer's Contractor shall take out and maintain during the life of this contract Public Liability Insurance for bodily injury and property damage liability, including without limitation, coverage for explosion, collapse, blasting, and destruction of underground utilities (X.C.U.) and contingent liability, including products and completed operations and blanket contractual liability, as shall protect him and the Town's officers, agents and employees and the Engineers specifically added as additional named insureds in said policies, all at no cost to the Town or Engineers.

The aforementioned insurance shall cover the Town, Engineers, Developers, and subcontractors for claims or damages for bodily injury, including wrongful death, as well as other claims for property damage which may arise from operations under this contract whether such operations be by himself or by any subcontractor or anyone directly or indirectly employed by either of them. The Developer agrees, in addition, to indemnity and save harmless the Town and engineers, either or both, from all suits, claims, demands, judgements and attorney's fees, expenses or losses occasioned by the performance of this contract by himself, and subcontractor, or persons working directly or indirectly for him, or on account of, or in consequence of, any neglect in safeguarding the work or failure to conform with the safety standards for construction work adopted by the Safety Division of the Department of Labor and Industries of the State of Washington.

The amount of such insurance shall be as follows:

Bodily injury liability insurance in an amount not less than $250,000.00 for injuries, including wrongful death, to any one person, and subject to the same limit for each person, in an amount not less than $500,000.00 on account of any one occurrence, and property damage liability insurance in an amount lot less than $250,000.00 for each occurrence.

The Developer shall not cause any policy to be canceled or permit it to lapse and all policies shall include a clause to the effect that the policy or certificate shall not be subject to cancellation or to a reduction in the required limits of liability or amounts of insurance or any other material change until notice has been mailed to the Town stating when, or less than ten (10) days thereafter, such cancellation or reduction or change shall be effective.

There shall be provided to the Town a "Certificate of Insurance" on the Town's form attached hereto (The Accord Certificate of Insurance form is the only acceptable substitution). Said form to be completed in full, endorsed to the required limits, and certified by the Developer's or the Developer's Contractor's insurance company.

8. GUARANTEE DEPOSIT

At the time this application is made, the Developer shall provide for the Town a cash deposit of $_____. This cash deposit shall be conditioned upon the Developer's strict compliance with he Town's regulations and standards contained herein and shall insure the Town against any damage to the existing system and/or proposed improvements as a result of the Developer's failure to comply.

The guarantee cash deposit shall be used in cases determined by the Town when the Developer does not make any necessary repairs or restoration of any failures, including ditch settlement of any portion of the project covered by the project guarantee, within twenty-four (24) hours after notification by the Town of the

The Town agrees to accept title to the improvements when all work has been completed, and when any and all damage which may have been caused thereby has been repaired, and when the Town has made final inspection and given approval of the system as having been completed in accordance with the standard plans and other applicable requirements; provided, no acceptance will be considered if the Developer is in default of any of the terms of this agreement. Acceptance of said improvements shall be by Resolution of the Town Council, and prior to such acceptance a completed Bill of Sale must be executed on the form furnished by the Town.

Such acceptance by the Town shall not relieve the Developer of the obligation to correct defects in labor and/or materials as heretofore provided and/or the obligations set forth in the applicable paragraphs hereof. Acceptance by the Town Council shall cause said improvements to be subject to the control, use, and operation of the Town, which may apply thereto all regulations and conditions of service and make such changes therefore as the Town Council deem reasonable and proper.

15. CONDITIONS AND STANDARDS ON BACKFLOW PREVENTION ASSEMBLIES

Developer agrees to execute a Bill of Sale prepared by the Town. Said Bill of Sale will provide for transfer of title to the constructed improvements from the Developer to the Town and will further include the following items:

a) Developer is the lawful owner of said property and it is free from all encumbrances.

b) That all bills for labor and materials have been paid.

c) That the Developer has the right to transfer the same that it will warrant and defend the same against all claims and demands of all persons.

d) The consideration for the Bill of Sale shall be the Town's incorporation of the improvement into its water system.

e) Developer further warrants that for a period of one (1) year from the date of the Bill of Sale that the water system will remain in acceptable working order and condition except where abused or neglected by the Town and that Developer will repair or replace at its own expense any work or material that may prove to be defective during said one (1) year period of warranty.

16. BREACH OF CONTRACT

A breach of any section of this contract and/or any unauthorized connections shall be a total breach of contract and shall subject the Developer to cancellation of said contract, forfeiture or the guarantee cash deposit, and claims for damages incurred by the Town.

17. LIMITATION OF PERIOD OF ACCEPTANCE

The improvements shall be complete and accepted within one year of the date of acceptance of this application by the Town. If the improvements are not completed and accepted within one year from the date below, then the Developer's rights under this agreement shall cease and no connections shall be made to the water system unless and until the Developer shall make a new application or the Town consents to the renewal of the existing application and the Developer shall pay the additional administrative, legal, engineering, and inspection costs involved, all as determined by the Council.

DATED at _____, Washington, this _____ day of _____.

_____
Developer

_____
Address - Phone Number

_____
Additional Owners

_____ _____
Signature of Mayor Approving Application and Agreement — Date

(Note: All squares below must be completed)

CERTIFICATE OF INSURANCE

NAME OF INSURANCE COMPANY: _____

JOB DESCRIPTION OR U.L.I.D. NO.: _____

THIS IS TO CERTIFY TO: TOWN OF CONCRETE that all of the following conditions and insuring provisions exist:

NAME OF INSURED: _____

ADDRESS: _____

The Town of Concrete officers, agents, employees, and engineers have been added to this policy as additional named insureds.

INSURANCE IN FORCE

TYPE OF INSURANCE	POLICY NO.	EFFECTIVE	EXPIRES	LIMITS OF LIABILITY
Manufacturers' and Contractor's (Bodily Injury)				$250,000 Each Person $500,000 Each Occurrence
Manufacturers' and Contractors' Including Completed Operations (Property Damage)				$250,000 Each Person $500,000 Each Aggregate
Owners' and Contractors' Protective (Bodily Injury)				$250,000 Each Person $500,000 Each Occurrence
Owners' and Contractors' Protective (Property Damage)				$250,000 Each Person $500,000 Each Aggregate
Blanket Contractual (Bodily Injury)				$250,000 Each Person $500,000 Each Occurrence
Blanket Contractual (Property Damage)				$250,000 Each Person $500,000 Each Aggregate
Comprehensive General (Bodily Injury)				$250,000 Each Person $500,000 Each Occurrence $500,000 Agg. Products
Comprehensive General (Property Damage)				$250,000 Each Occurrence $500,000 Agg. Operations $500,000 Agg. Protective $500,000 Agg. Products $500,000 Agg. Contractual
Automobile (Bodily Injury)				$250,000 Each Person $500,000 Each Occurrence
Automobile (Property Damage)				$250,000 Each Occurrence

Policy(s) has been endorsed to the occurrence basis, for both bodily injury and property damage liability.

Explosion, blasting, collapse and destruction of underground utilities (X.C.U.) is covered.

In the event of cancellation of, or any reduction of limits in, the insurance or other material change, as shown herein, the issuing company will give 10 days advance notice, by certified mail, to the parties to whom this certificate is issued and at the address stated herein. The mailing of such notice as aforesaid shall be sufficient proof of notice.

DATE: _____

_____

INSURANCE COMPANY

_____

Chapter 2
WATER

1. General Requirements

Any extension of the Concrete Water System must be approved by the Public Works Department and all extensions must conform to these standards, the Concrete Water System Plan, the rules and regulations of the Department of Health (Chapter 246-290 WAC) and the Concrete Fire Department requirements.

Water system refers to water treatment, storage and transmission facilities for domestic, fire protection, commercial and industrial, irrigation, recreation and other uses. Treatment of water shall comply with Washington State Department of Health requirements.

These standards apply to both the in-Town and out-of-Town water service areas.

Anyone that wishes to extend or connect to the Town's water system should contact the Department of Public Works for preliminary information and discussion of the extension proposed. The design of a water system extension is the responsibility of the Developer proposing the construction and upgrading of the public water system.

In designing and planning for any development, it is the developer's responsibility to see that adequate water for both domestic and fire protection use is attainable. The developer must show, in the proposed plans, how water will be provided, whether the existing system will be adversely impacted, and how adequate water will be supplied at the required pressures in case of fire. A detailed hydraulic analysis of the system may be required if it appears that the system might be inadequate. The analysis will be directed by the Town, and will be paid for by the developer.

Prior to the final connection of the water service, all Public Works improvements must be completed and approved including granting of right-of-way or easements, and all applicable fees as set forth in the CMC must be paid.

Issuance of building permits for new construction of single family residences within new subdivisions shall not occur until final Public Works approval of all improvements is given, unless otherwise allowed through an approved improvement methods report and/or construction bond. For commercial projects, building permits may be issued upon completion and acceptance of the required fire protection facilities, providing the necessary easements have been filed and all required fees and connection charges paid. Certificates of occupancy will not be granted until final Town approval and acceptance of all improvements is given.

5. Any other information deemed reasonably necessary by the Town Engineer to review the application for compliance with the CMC and these Standards, or required by other provisions of the Town's code, Department of Health requirements, SEPA, permit conditions, or Town ordinance.

The Town will not process any application unless and until the information required above is complete. The Town Engineer may reject an application as incomplete within a reasonable time of review, in which case the Town shall return it to the applicant with an indication of the additional information needed to make the application complete.

A water service application must be submitted on forms provided by the Town for anyone located outside of the Town limits but within the service area. Information required for the water reservation is included on the application form. If a water line extension or other water system improvement is required as a result of the development, engineered plans shall be prepared and submitted for review in accordance with these standards and the Building Permit packet. For a new development, the developer must follow these procedures:

1. A water service application and Land Development Permit are part of the Building Permit packet and are required for any water main extension, replacement, and other system improvements in the Town. The Land Development Permit shall contain all design drawings and information necessary for the Public Works Department to determine compliance with these Standards and the applicable codes and standards incorporated by reference into these Standards.
2. When the Town receives the application, the application will first be checked for completeness. Once it is determined to be complete the Town will begin its review of the application.
3. Water service applications are reviewed and approved by the Public Works Department. Construction shall not commence until the permit is approved by the Town.
4. All applicants for water system connections and improvements shall furnish Construction Drawings/Engineered Plans and Specifications necessary to describe and illustrate the proposed water system improvements. If base maps prepared by a licensed land surveyor are available, the design and construction plans shall be submitted on such maps. If base maps are unavailable, the Town Engineer may require a survey to avoid conflicts with existing facilities, to determine elevations and contours, and to determine the right-of-way for utility placement.
5. All plans for main extensions and water system improvements shall be prepared, signed and stamped by a civil engineer licensed in the State of Washington. All design and construction plans and specifications shall be prepared in accordance with current WSDOT/APWA Standard Specifications and the Town's engineering design standards. If

There shall be no obstructions placed in a public right-of-way or utility easement that restricts access to public water system lines and public fire hydrants.

Check for crossing or parallel utilities. Maintain minimum vertical and horizontal clearances. Avoid crossing at highly acute angles (smallest angle measure between utilities should be between 45 and 90 degrees).

At points where thrust blocking is required, minimum clearance between the concrete blocking and other buried utilities or structures shall be 5'.

A horizontal clearance from water main for Cable TV, Gas, Power, Telephone, and Fiber Optics is 5'.

Vertical clearances from water main to Cable TV, and Gas, Power is 2', and vertical clearance from water main to Telephone, and Fiber Optics is 1'.

Where the water main crosses above or below the sanitary sewer one full length of water pipe shall be used with the pipe centered for maximum joint separation. In cases where the water main joints are less than 10 feet from the sanitary sewer line, the water main must be placed in a 20 ft long casing pipe that is centered over the sanitary sewer line. Washington Department of Ecology criteria will also apply.

Send letter and preliminary plan to existing utilities to inform them of new construction. Request as-built information and incorporate into plans. At minimum, the following utilities should be contacted:

1. Cable Television
2. Natural Gas
3. Power
4. Sanitary Sewer
5. Storm Drainage
6. Telephone/Fiber Optics

In addition, draft plans shall be sent to the above listed utilities to allow coordination of projects.

4. Distribution Mains

Water mains will be sized to provide adequate domestic plus fire flow at the required residual pressure. Fire flow requirements will be determined by the Town Fire Department; however, the quantity of water required will in no case be less than 500 gpm at 20 psi residual pressure.

The minimum water main size will be 6 inches diameter where looped. Dead-end mains will be 8 inches diameter to the last fire hydrant. Larger-sized mains are required in specific areas outlined in the Town Water System Plan. Nothing will preclude the Town from requiring the installation of a larger-sized main in areas

Water mains will be looped where feasible to ensure improved water quality and provide redundancy. Redundancy ensures continuous service during a water main break. The water main will be designed to meet desired velocities of 7 feet per second during any flow condition to reduce the chance of water hammer. Pressure of 45 to 60 psi will be maintained at the main during peak-day demands. A pressure of 45 psi provides adequate pressure at all the fixtures, and pressure above 65 psi results in excess water usage and is above the target level set by the Town.

When pressures reach 80 psi or above during static conditions, a pressure-reducing valve may be required on the customer's side of the meter.

Joint deflection shall be no more than 80 percent of the maximum deflections recommended by the manufacturer.

5. Connection to Existing Water Main

The developer's engineer will be responsible for determining the scope of work for connection to existing water mains. See Standard Plan WA-07 in the Chapter 2 Appendix. A minimum of ten working days' notice following application at the Town Hall is needed to schedule shutdowns. The Public Works Director will be consulted regarding fittings or couplings required.

It will be the Contractor's responsibility to field-verify the location and depth of the existing main and the fittings required to make the connections to the existing mains. All excavation, connections, piping, tapping, valve fittings, services, anchors, blocking, bedding, backfill, compaction, restoration, or other labor and materials required will be furnished and placed by the contractor.

Any new connection to an existing Town water main will require backflow protection. A double-check assembly shall be installed between the new main and existing main for flushing and filling and shall remain in place until the new main is approved.

The Public Works Director will be notified 48 hours (two working days) prior to the contractor performing the tap.

Town staff will make all shutdowns on existing mains. The contractor may operate the valve under the immediate supervision of the Town Public Works Director.

6. Service Interruption

Following application at the Town Hall for connection to the existing water main, the contractor will give the Town a minimum of three business days (72 hours) notice of any planned connection to an existing pipeline, including all cut-ins and live taps. Notice is required so any disruptions to existing services can be scheduled.

5. Fire hydrants will be set as shown in Standard Plan WA-11 in the Chapter 2 Appendix.
6. Requirement regarding use, size, and location of a fire department connection (FDC) and/or post indicator valve will be determined by the Building Official and the Town Fire Department. Location of the FDC will be shown on the water plans.
7. Where needed, the Town Engineer or Fire Chief may require hydrants to be protected by two or more posts, 5 feet in height, made of either reinforced concrete or steel. For reinforced concrete, the posts shall be 6 inches in diameter. For concrete filled steel posts, the posts can be 4 inches in diameter. See Standard Plan WA-06 for more information.
8. Fire hydrants must be installed, tested, and accepted prior to the issuance of a building permit.
9. Fire hydrants shall be abandoned by removing the 6-inch fire hydrant assembly back to the main. A blind flange shall be placed on the tee.

8. Valves

All valves and fittings will be ductile iron with ANSI flanges or mechanical joint ends. All existing valves will be operated by Town employees only.

Valves will be installed in the distribution system at sufficient intervals to facilitate system repair and maintenance, but in no case will there be less than one valve every 600 feet. In addition there will be a valve located on each leg of a tee or cross. For example, there will be three valves on each tee and four valves on each cross. The notches in the valve casings shall be turned to the direction of flow.

Specific requirements for valve spacing will be made at the plan review stage.

Specific valve requirements are as follows:

1. System Gate Valves, 2-inch to 12-inch. The design, materials, and workmanship of all gate valves will conform to AWWA C509 or AWWA C-515, latest revision. Gate valves will be resilient wedge, non-rising stem (NRS), with two internal O-ring stem seals. Gate valves will be Mueller, M&H, Clow, Kennedy, or American Flow Control Series 500. Gate valves will be used on all 2- to 10-inch lines. Gate valves may be used on 12-inch lines.
2. Butterfly Valves. Butterfly valves will conform to AWWA C504- 87, Class 150B, with cast iron short body and O-ring stem seals. Butterfly valves will be Mueller, M&H, Clow, Kennedy, or American Flow.

   Butterfly valves may be used for 12-inch lines and will be used on all lines 14 inches and larger.
3. Valve Box. All valves will have a standard Rich 940 ductile iron water valve box set to grade. The valve box shall be installed such that the lugs line up with the direction of the pipe. If valves are not set in a paved area, a 1-foot by

The installation of required backflow devices is necessary to protect the existing water system and users from possible contamination. All backflow prevention assemblies will be of a type and model pre-approved by the DOH or the Town.

No cross connections will be created, installed, used, or maintained within the Town water service area.

Approved backflow prevention assemblies will be installed at the expense of the user, either at the service connection or within the premises, as determined by the Town Engineer in each of the following circumstances:

1. If the nature and extent of any activity on the premises, or the materials used in connection with any activity on the premises, or materials stored on the premises could contaminate or pollute the potable water supply.
2. On premises having one or more cross connections.
3. Internal cross connections that are not correctable or intricate plumbing arrangements that make it impracticable to ascertain whether or not cross connections exist.
4. A repeated history of cross connections being established or reestablished.
5. Unduly restricted entry so that inspections for cross connections cannot be made with sufficient frequency or with sufficient notice to assure that cross connections do not exist.
6. Materials of a toxic, objectionable, or hazardous nature, either liquids, solids, or gases being used such that if back siphonage should occur, a health hazard could result.
7. Any mobile apparatus that uses the Town system or water from any premises within the Town system.
8. On any premise where installation of an approved backflow prevention device is deemed to be necessary to accomplish the purpose of these regulations in the judgment of the Town Engineer.
9. On any premise where an appropriate cross-connection report form has not been filed with the office of the Town Engineer.
10. On any premise where a bypass arrangement is installed around a backflow assembly, a second backflow assembly of equal protection shall be installed on the bypass piping.

All uniform plumbing codes (UPC) must be maintained.

Assemblies installed at the point of delivery or on the internal plumbing system of any building shall not have galvanized piping attached to the inlet side of the assembly. Rigid piping, such as brass or copper, is allowed on the inlet side.

Any use of radiant heat will require the installation of a reduced pressure (RP) backflow assembly at the meter.

meter and a meter-sized approved reduced pressure principle backflow prevention assembly. This assembly will be used on all fire protection services rated as a health hazard.

The meter will register accurately for only very low rates of flow and will show a registration for all rates of flow.

The term "Pressure Vacuum Breaker (PVBA)" will mean an assembly containing an independently operating, internally loaded check valve and an independently operating loaded air inlet valve located on the discharge side of the check valve. The assembly is to be equipped with properly located test cocks and tightly closing shutoff valves attached at each end of the assembly. This assembly is designed to protect against a health hazard under a back siphonage condition only.

The term "Spill-Resistant Pressure Vacuum Breaker" shall mean an assembly containing an independently operating, internally loaded check valve and independently operating loaded air inlet valve located on the discharge side of the check valve. The assembly is to be equipped with a properly located resilient seated test cock, a properly located bleed/vent valve, and tightly closing resilient-seated shutoff valves attached at each end of the assembly. This assembly is designed to protect against a high health hazard under a back siphonage condition only.

Existing backflow devices that are no longer on the state-approved list of backflow assemblies will be allowed to remain in service provided they pass the annual testing requirements. Backflow assemblies that are no longer approved and do not pass the required testing shall be replaced with a new assembly commensurate with the degree of hazard.

14. Service Connection

All service connections relating to new development will be of the appropriate size as determined by industry standard and approved by the Town and installed by the developer at the time of mainline construction. After the lines have been constructed, tested, and approved, the owner may apply for a water meter. The Town will install a water meter after the application has been made and all applicable fees have been paid. Water meters will be set only after the system is inspected and approved.

When water is desired to a parcel fronting an existing main but not served by an existing setter, an application must be made to the Town. Upon approval of the application and payment of all applicable fees, the Town will tap the main and install the meter, box, and setter.

Service lines will be domestic, high-density polyethylene pipe, minimum pressure, Class 200 psi, Grade PE 3408. Glued joints will not be accepted. Service lines will be installed a minimum of 45 degrees off the main. Tracer tape and 14-gauge blue-coated wire wrapped around the pipe will be installed on all service lines.

appropriate state and local agencies. See Standard Plan WA-02 in the Chapter 2 Appendix.

15.2 Vertical Separation

Sewer lines crossing water lines shall be laid below the water lines to provide a separation of at least 18 inches between the invert of the water line and the crown of the sewer.

When local conditions prevent a vertical separation as described above, construction shall be used as follows:

15.3 Unusual Conditions - Sewer

When gravity sewers pass under or over water lines, these gravity sewers shall be:

1. The one segment of the maximum standard length of pipe (but not less than 18 feet long) shall be used with the pipes centered to maximize joint separation.
2. Standard gravity sewer material encased in concrete or in a ¼-inch-thick continuous steel, ductile iron, or pressure-rated PVC pipe with a dimension ratio (DR) (the ratio of the outside diameter to the pipe wall thickness) of 18 or less, with all voids pressure grouted with sand-cement grout or bentonite. Commercially available pipe skids and end seals are acceptable. When using steel or ductile iron casing, design consideration for corrosion protection should be considered.
3. The length of sewer pipe shall be centered at the point of crossing so that the joints will be equidistant and as far as possible from the water line. The sewer pipe shall be the longest standard length available from the manufacturer.

15.4 Unusual Conditions - Water

When water lines pass under gravity sewers, they shall be protected by providing:

1. A vertical separation of at least 18 inches between the invert of the sewer and the crown of the water line.
2. Adequate structural support for the sewers to prevent excessive deflection of joints and settling on and breaking of the water lines.
3. The length of sewer pipe shall be centered at the point of crossing so that the joints will be equidistant and as far as possible from the water line. The sewer pipe shall be the longest standard length available from the manufacturer.
4. A water line casing equivalent to that specified above.

The bottom of the trench will be finished to grade with hand tools in such a manner that the pipe will have bearing along the entire length of the barrel. The bell holes will be excavated with hand tools to sufficient size to make up the joint.

The contractor will maintain the presence of a "competent person" as defined by the Washington State Department of Labor and Industries when any trench excavation and backfill work is being done at the project site.

18. Thrust Blocking

Location of thrust blocking will be shown on the plans. Thrust block concrete will be Class B poured against undisturbed earth. A plastic barrier will be placed between all thrust blocks and fittings. See Standard Plan WA-03 and WA-04 for thrust block locations and calculations.

Upon approval by the Town Engineer, MJ Mega Lug retainers, restraining rods, or Romac Grip Ring Retainers can be used in lieu of concrete thrust blocking.

19. Backfilling

Backfilling will not commence until the pipe installation has been inspected and approved.

Backfilling and surface restoration will closely follow installation of pipe so that not more than 100 feet is left exposed during construction hours without approval of the Town. Selected backfill material will be placed and compacted around and under the water mains by hand tools to a height of 6 inches above the top of the water main. The remaining backfill will be compacted to 95 percent of the maximum density in traveled areas and 90 percent outside traveled areas. Where governmental agencies other than the Town have jurisdiction over roadways, the backfill and compaction will be done to the satisfaction of the agency having jurisdiction. Suitable backfill material, as determined by the Town, shall conform to the current WSDOT/APWA Section 7-09 with the exception of gradation of the bedding material to be a maximum size of 1-inch.

20. Street Patching and Restoration

See Chapter 6 Transportation for requirements regarding street patching and trench restoration.

Also, see Standard Plan WA-01 in the Chapter 2 Appendix for trench pavement restoration.

21. Hydrostatic Tests

Prior to the acceptance of the work, the installation will be subjected to a hydrostatic pressure test by the contractor of 225 psi for 15 minutes, and leaks or imperfections developing under said pressure will be remedied by the contractor.

Chapter 2
WATER
APPENDIX

Forms:
Allowable Leakage Test Report For Ductile Iron Pipe
Allowable Leakage Test Report For Polyvinyl Chloride Pipe
Allowable Leakage Test Report For Prestressed Concrete Cylinder Pipe

Water Standard Notes

Standard Plans:

WA-01	TRENCH PAVEMENT RESTORATION DETAIL
WA-02	WATER LINE SEPERATION
WA-03	STANDARD BLOCKING DETAIL
WA-04	THRUST LOADS
WA-05	STANDARD VALVE BOX
WA-06	VALVE MARKER POST AND HYDRANT BOLLARD DETAIL
WA-07	CONNECTION TO EXISTING MAIN
WA-08	SINGLE SERVICE CONNECTION ¾" AND 1" DIAMETER
WA-09	DOUBLE SERVICE CONNECTION ¾" AND 1" DIAMETER
WA-10	1–½" & 2" STANDARD SETTER WITH BYPASS
WA-11	FIRE HYDRANT ASSEMBLY
WA-12	TYPICAL COMBINATION AIR VACUUM/AIR RELEASE VALVE
WA-13	2" BLOWOFF ASSEMBLY
WA-14	DUEL SERVICE DOUBLE CHECK VALVE ASSEMBLY W/FDC
WA-15	DOUBLE CHECK DETECTOR CHECK VALVE ASSEMBLY

ALLOWABLE LEAKAGE TEST REPORT
FOR
DUCTILE IRON PIPE

PROJECT NAME: _____

ENGINEER OF RECORD NAME: _____

CONTRACTOR REPRESENTATIVE NAME: _____

COMPANY NAME: _____

SERVICE REQUEST NO: _____ DATE:_____

INSPECTOR: _____

_____WATER PRESSURE TEST _____FORCEMAIN PRESSURE TEST

CALCULATIONS BASED ON A.W.W.A. STD C-600, SECTION 4

$$L = \frac{SD\ (P)\ ½}{133{,}200}$$

WHERE: L = ALLOW LEAKAGE IN GALS, PER HOUR
S = LENGTH OF PIPE TESTED, IN FEET (FOR 18 FT. LENGTH)*
D = NOMINAL DIAMETER OF PIPE IN INCHES
P = AVERAGE TEST PRESSURE (PSIG)

NOTE: IF 20 FT. LENGTH IS USED CHANGE DENOMINATOR FROM 133,200 TO 148,000

CALCULATIONS:

$$L = \frac{[\quad][\quad]( )\ ½}{133{,}200} = \_\_\_\_\_ \text{GALS/HR. ALLOWED}$$

GALS., HR. X 2 HR. = _____GALS. ALLOWED LOST

FIELD MEASUREMENTS:

START TEST @ _____ PRESSURE = _____# READING =_____

FINISH TEST @ _____ PRESSURE = _____# READING = _____

LOSS = _____# GALLONS = _____

PEOPLE PRESENT:

TEST RESULTS AND COMMENTS:

ALLOWABLE LEAKAGE TEST REPORT
FOR
POLYVINYL CHLORIDE PIPE

PROJECT NAME: _____

ENGINEER OF RECORD NAME: _____

CONTRACTOR REPRESENTATIVE NAME: _____

COMPANY NAME:_____

SERVICE REQUEST NO.;_____DATE_____

INSPECTOR: _____

_____WATER PRESSURE TEST _____FORCEMAIN PRESSURE TEST

CALCULATIONS BASED ON UNI-BELL EQUATION 99 FOR GASKETED PIPE IN 20 FT LENGTHS.

$$L = \frac{ND(P)^{1/2}}{7,400}$$

WHERE: L = ALLOWABLE LEAKAGE IN GALS. PER HOUR
N = NUMBER OF JOINTS IN THE TESTED LINE (PIPE AND FITTINGS)
D = NOMINAL DIAMETER OF PIPE IN INCHES
P = AVERAGE TEST PRESSURE (PSIG)

CALCULATIONS:

$$L = \frac{[\quad][\quad]( )^{1/2}}{7,400} = \_\_\_\_\_ \text{ GALS/HR. ALLOWED}$$

GALS., HR. X 2 HR. = _____GALS. ALLOWED LOST

FIELD MEASUREMENTS:

START TEST = _____ PRESSURE = _____# READING = _____

FINISH TEST = _____ PRESSURE = _____# READING = _____

LOSS = _____# GALLONS = _____

PEOPLE PRESENT: TEST RESULTS AND COMMENTS:

ALLOWABLE LEAKAGE TEST REPORT
FOR
PRESTRESSED CONCRETE CYLINDER PIPE

PROJECT NAME: _____

ENGINEER OF RECORD NAME: _____

CONTRACTOR REPRESENTATIVE NAME: _____

COMPANY NAME:_____

SERVICE REQUEST NO.;_____DATE_____

INSPECTOR: _____

_____WATER PRESSURE TEST _____FORCEMAIN PRESSURE TEST

CALCULATIONS BASED ON A.W.W.A. STD C-600, SECTION 4

$$L = \frac{SD}{12{,}672}$$

WHERE: L = ALLOW LEAKAGE IN GALS, PER HOUR
S = LENGTH OF PIPE TESTED IN FEET
D = NOMINAL DIAMETER OF PIPE IN INCHES

CALCULATIONS:

$$L = \frac{[\quad][\quad]( )\,½}{12{,}672} = \_\_\_\_\_ \text{GALS/HR. ALLOWED}$$

GALS., HR. X 2 HR. = _____GALS. ALLOWED LOST

FIELD MEASUREMENTS:

START TEST @ _____ PRESSURE = _____# READING = _____

FINISH TEST @ _____ PRESSURE = _____# READING = _____

LOSS = _____# GALLONS = _____

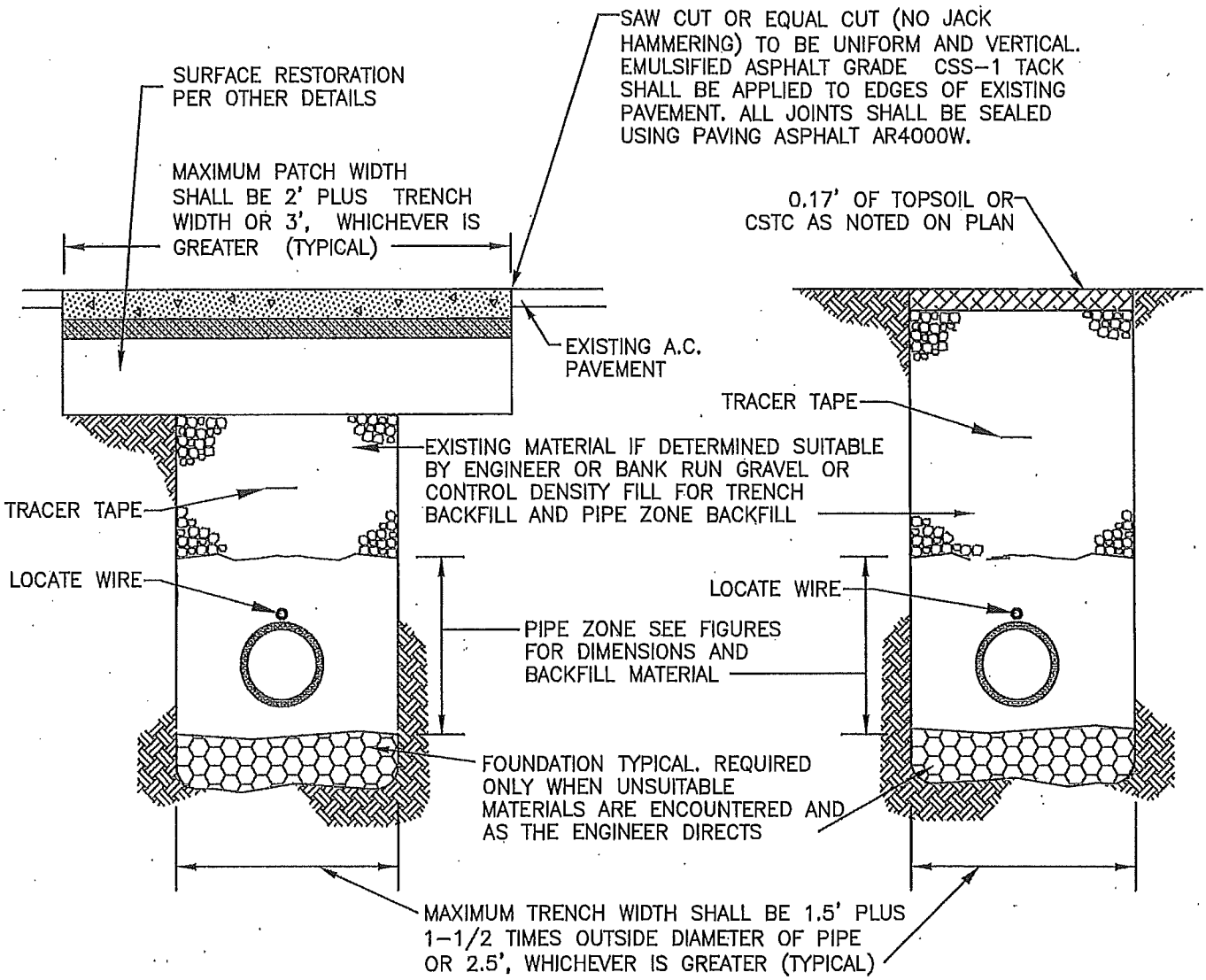
PEOPLE PRESENT:

TEST RESULTS AND COMMENTS:

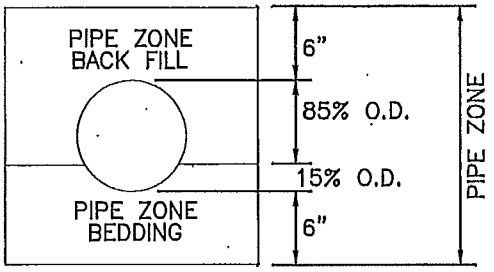
Water Standard Notes

These standard plan notes must be included on all plans.

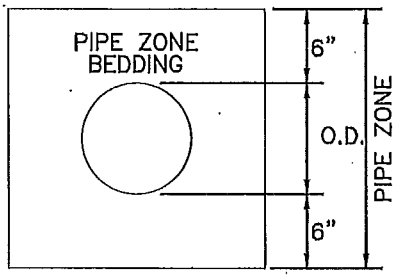
1. All workmanship and material will be in accordance with the Town of Concrete *Engineering Standards* and the most current copy of the *State of Washington Standard Specifications for Road, Bridge and Municipal Construction*; Department of Health (DOH) regulations; and American Water Works Association standards.
2. A preconstruction meeting will be held with the Town prior to the start of construction.
3. All materials to be approved by the Town prior to construction. A list of materials, indicating the manufacture, model, and size will be submitted to the Town before any construction.
4. Water mains 2-inch to 10-inch diameter will be ductile iron pipe, Class 50, or PVC pipe meeting the requirements of AWWA Class 200, C900. All water mains 12-inch diameter and larger will be ductile iron cement mortar-lined thickened, Class 50.
5. System gate valves will be resilient wedge, NRS (Non-Rising Stem), with O-ring seals. Valve ends will be mechanical joint or ANSI flanges. Valves will conform to AWWA 509-80 or AWWA C-515. Valves will be Mueller, M&H, Clow, Kennedy, American Flow, or equal. Valves will be operated by Town employees only.
6. Fire hydrants will be Dresser M&H Reliant Style 929, Clow Medallion, Waterous Pacer 250, Mueller Centurion, or equal. Hydrants will be bagged until system is approved. Hydrants will be painted with Parker Paint Marathon Enamel Safety Yellow paint or equal. All chains between caps and hydrants shall be cut and removed.
7. All lines to be flushed, disinfected, and test per these standards. Town representative to be present during testing and must approve in writing
8. New pipelines, including fire hydrants and service lines, to be pressure tested to 225 p.s.i. per WSDOT standards.
9. All pipe and services will be installed with continuous tracer tape installed 12 inches to18 inches under the final ground surface. The marker will be plastic non-biodegradable, metal core, or backing marked water, which can be detected by a standard metal detector. Tape will be Terra Tape D or approved equal. In addition to the tracer tape, blue toning (tracer) wire will be installed over all pipe and services. Toning wire will be UL listed, Type UF, 14-gauge coated copper taped to the top of the pipe to prevent stretching and damage. The wire will be brought up and tied off at valve body or meter setter with the end of the wire accessible to hook up to a locator (2 feet of slack).



CONCRETE AND DUCTILE IRON PIPE



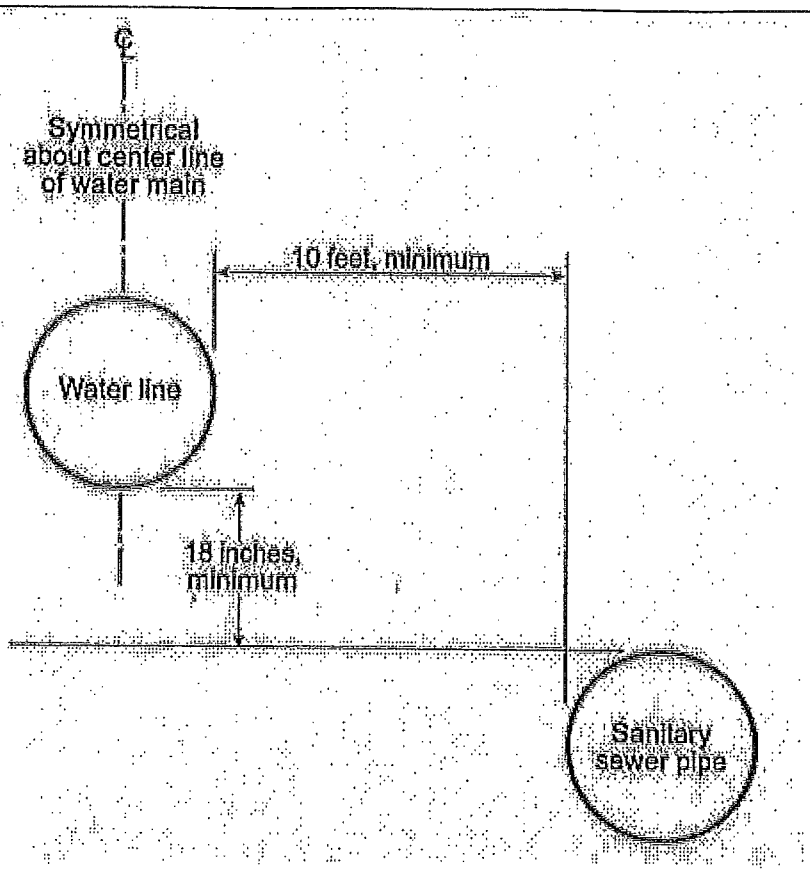
THERMOPLASTIC PIPE



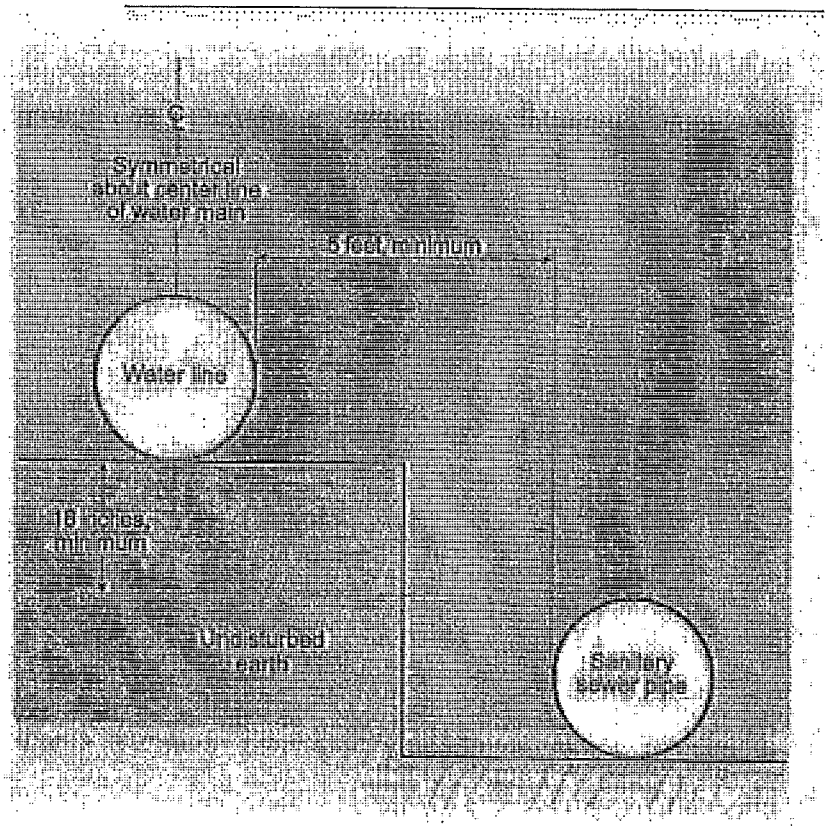
NOTES:

1. ALL MATERIALS EXCEPT A.C.P. AND BEDDING MATERIAL SHALL BE COMPACTED IN 6-INCH MAXIMUM LIFTS TO 95% DENSITY.
2. PIPE ZONE BEDDING SHALL CONFORM TO SECTION 9-03.12(3) OF WSDOT/APWA STANDARD SPECIFICATIONS EXCEPT 100% SHALL PASS 1".
3. COMPACTION: BEDDING AND BACKFILL WITHIN THE PIPE ZONE SHALL BE COMPACTED TO 95% MAX. AS DETERMINED BY ASTM D1557. BACKFILL ABOVE THE PIPE ZONE SHALL BE COMPACTED TO 85% IN UNPAVED AREA, AND 95% IN PAVED OR SHOULDER AREAS AS DETERMINED BY ASTM D1557.

APPROVED BY:	REVISION DATE	Town of Concrete	STD PLAN NO.
TOWN ENGINEER	APRIL 2008	TRENCH-PAVEMENT RESTORATION DETAIL	WA-01

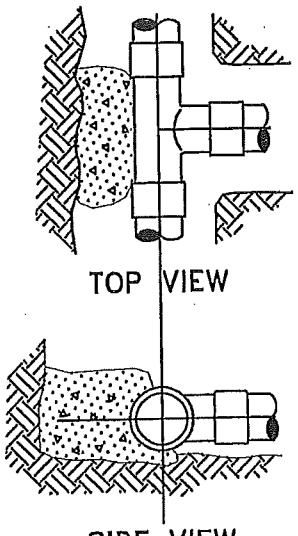


Required Separation Between Water Lines and Sanitary Sewers, Parallel Construction

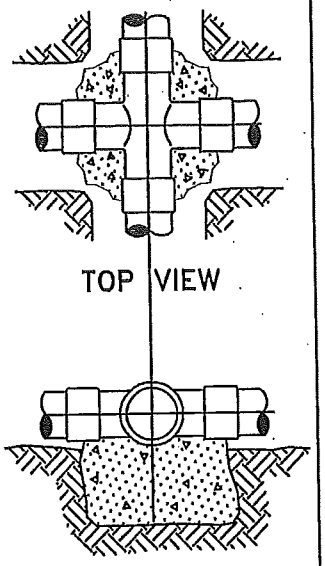


Required Separation Between Water Lines and Sanitary Sewers, Unusual Conditions Parallel Construction

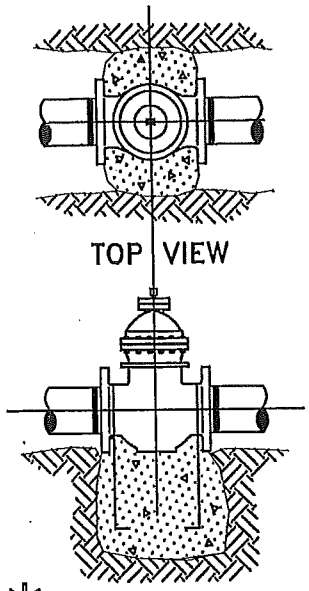
APPROVED BY:	REVISION DATE	Town of Concrete	STD PLAN NO.
TOWN ENGINEER	APRIL 2008	WATER LINE SEPARATION	WA-02



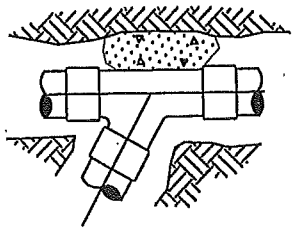
TEE



CROSS

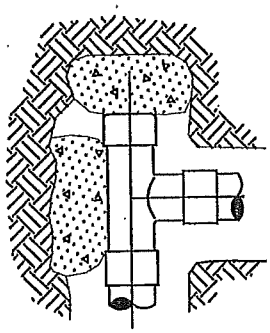


* GATE VALVE

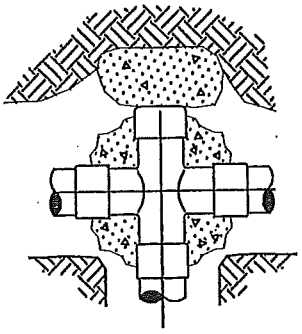


WYE

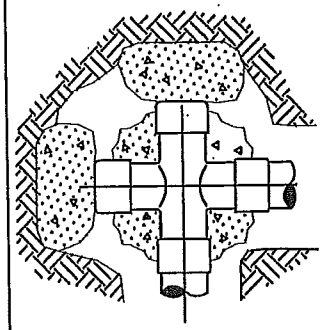
HORIZ. BEND



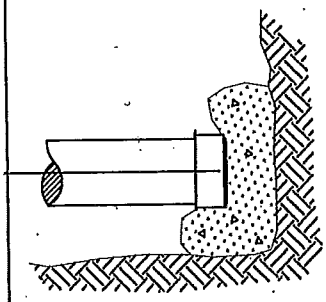
TEE WITH PLUG



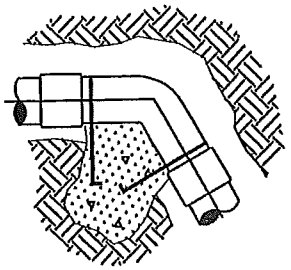
CROSS WITH PLUG



CROSS WITH PLUGS



PLUG OR CAP



45° – 90° VERTICAL BEND

NOTES:

1. *CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.*
2. *PLASTIC BARRIER SHALL BE PLACED BE– TWEEN ALL THRUST BLOCKS & FITTINGS.*
3. *ANCHOR REBAR SHALL BE #5 ON 12" DIA. AND LESS WITH 30" IMBEDMENT, #5 ON 16"–24" DIAMETER WITH 36" IMBEDMENT.*
4. *PLUGS TO BE MINIMUM OF 5' FROM TEE, WYE, CROSS ON VALVE.*

** IF IN THE OPINION OF THE TOWN ENGINEER THE VALVE IS ON A SLOPE AND/OR THE COVER ON THE PIPE WOULD APPLY UPWARD THRUST; THEN THRUST BLOCKING WILL BE REQUIRED.*

APPROVED BY:	REVISION DATE	Town of Concrete	STD PLAN NO.
TOWN ENGINEER	APRIL 2008	STANDARD BLOCKING DETAIL	WA-03

THRUST LOADS

THRUST AT FITTINGS IN POUNDS AT 200 POUNDS PER SQUARE INCH OF WATER PRESSURE

PIPE DIAMETER	90° BEND	45° BEND	22-1/2° BEND	11-1/4° BEND	DEAD END OR TEE
4"	3,600	2,000	1,000	500	2,600
6"	8,000	4,400	2,300	1,200	5,700
8"	14,300	7,700	4,000	2,000	10,100
10"	22,300	12,100	6,200	3,100	15,800
12"	32,000	17,400	8,900	4,500	22,700
14"	43,600	23,600	12,100	6,100	30,800
16"	57,000	30,800	15,700	7,900	40,300

NOTES:

1. BLOCKING SHALL BE CEMENT CONCRETE CLASS "B" POURED IN PLACE AGAINST UNDISTURBED EARTH. FITTING SHALL BE ISOLATED FROM CONCRETE THRUST BLOCK WITH PLASTIC OR SIMILAR MATERIAL.

2. TO DETERMINE THE BEARING AREA OF THE THRUST BLOCK IN SQUARE FEET (S.F.):

   EXAMPLE : 12" – 90° BEND IN SAND AND GRAVEL
   32,000 LBS ÷ 3000 LB/S.F. = 10.7 S.F. OF AREA

3. AREAS MUST BE ADJUSTED FOR OTHER PIPE SIZE, PRESSURES AND SOIL CONDITIONS.

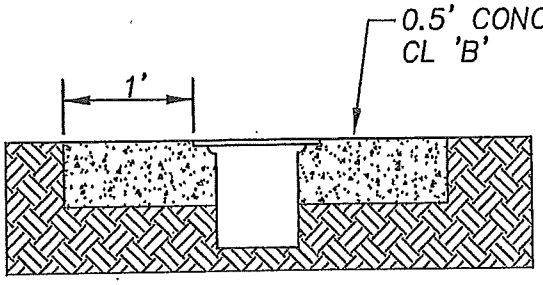
4. BLOCKING SHALL BE ADEQUATE TO WITHSTAND FULL TEST PRESSURE AS WELL AS TO CONTINUOUSLY WITHSTAND OPERATING PRESSURE UNDER ALL CONDITIONS OF SERVICE.

SAFE SOIL BEARING LOADS

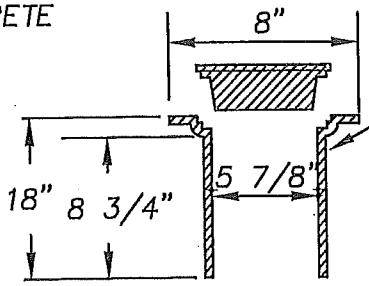
FOR HORIZONTAL THRUSTS WHEN THE DEPTH OF COVER OVER THE PIPE EXCEEDS 2 FEET

SOIL	POUNDS PER SQUARE FOOT
MUCK, PEAT	0
SOFT CLAY	1,000
SAND	2,000
SAND & GRAVEL	3,000
SAND & GRAVEL CEMENTED WITH CLAY	4,000
HARD SHALE	10,000

APPROVED BY:	REVISION DATE	Town of Concrete	STD PLAN NO.
TOWN ENGINEER	APRIL 2008	THRUST LOADS	WA-04

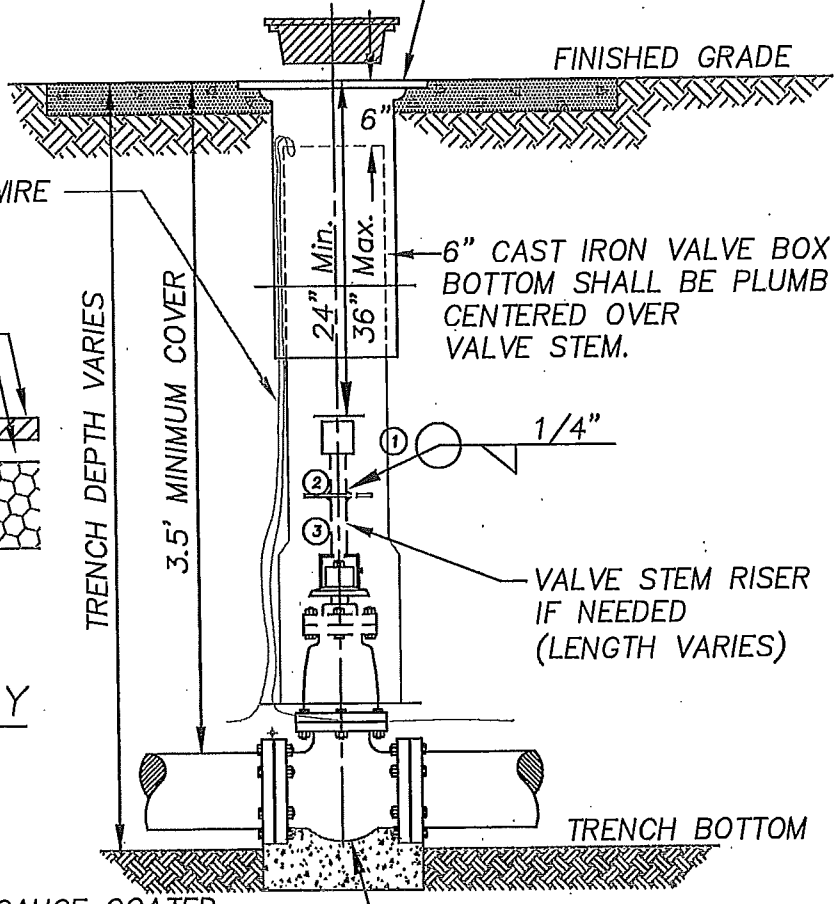


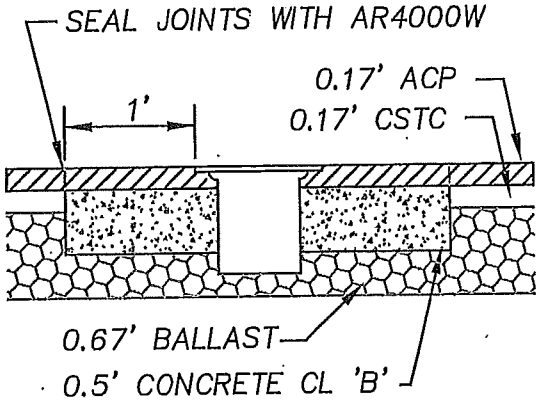
OUTSIDE PAVED AREA



SECTION

RICH #940 VALVE BOX, OR EQUAL, WITH "WATER", CAST IN LID. VALVE BOX SHALL BE INSTALLED SUCH THAT THE LUGS LINE UP WITH THE DIRECTION OF THE PIPE. THE LIDS SHALL BE ANTI KICK OUT.





INSIDE PAVED ROADWAY

NOTE:

ALL VALVES SHALL HAVE 14 GAUGE COATED COPPER TRACER WIRE TIED OFF AT VALVE BODY, EXTENDING TO ONE FOOT ABOVE TOP OF VALVE BOX BOTTOM BETWEEN VALVE BOX BOTTOM AND VALVE BOX LID.

GATE VALVE SHOWN–SIMILAR INSTALLATION REQUIRED FOR BUTTERFLY VALVES.

VALVE STEM EXTENSION LEGEND

① VALVE OPERATING NUT OR 1 7/8" X 1 7/8" X 2" HIGH GRADE STEEL WELDED TO GUIDE PLATE.

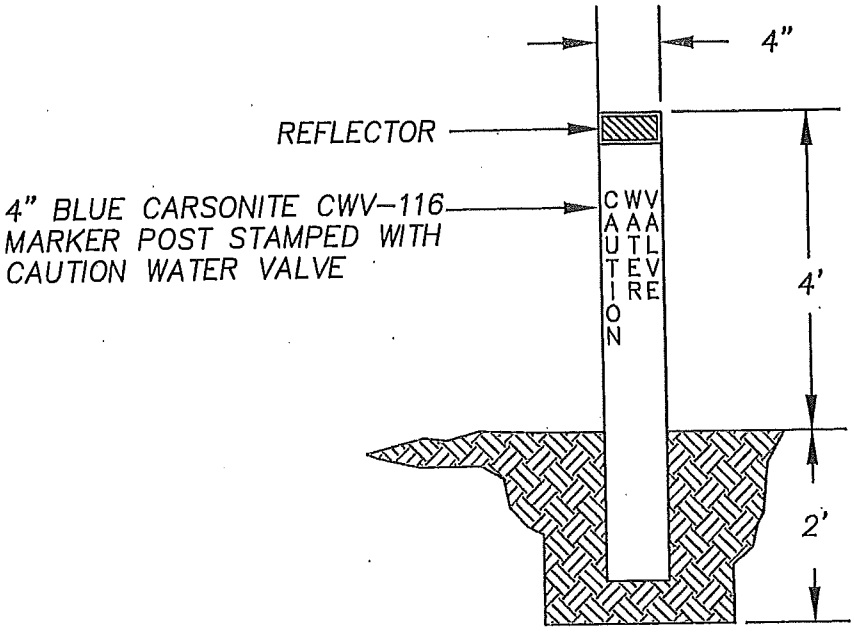
② 3/16" THICK X 5 1/5" DIA STEEL GUIDE PLATE WELDED TO RISER SHAFT.

③ 2"X2"X 3/16" SQUARE STRUCTURAL STEEL TUBING TO FIT OPERATING NUT. LENGTH AS REQUIRED.

NOTE:

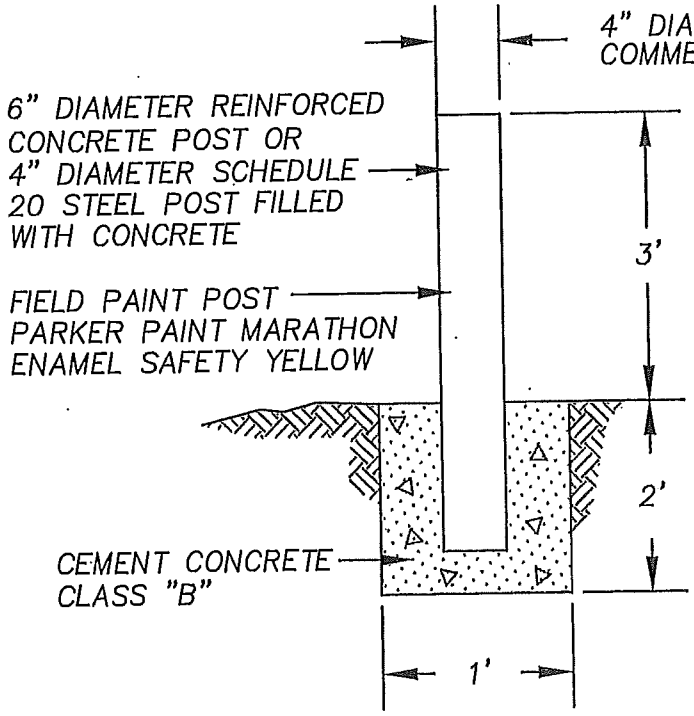
WELD ALL AROUND, AS SPECIFIED ABOVE

APPROVED BY:	REVISION DATE	Town of Concrete	STD PLAN NO.
TOWN ENGINEER	APRIL 2008	STANDARD VALVE BOX	WA-05



FRONT

VALVE MARKER POST



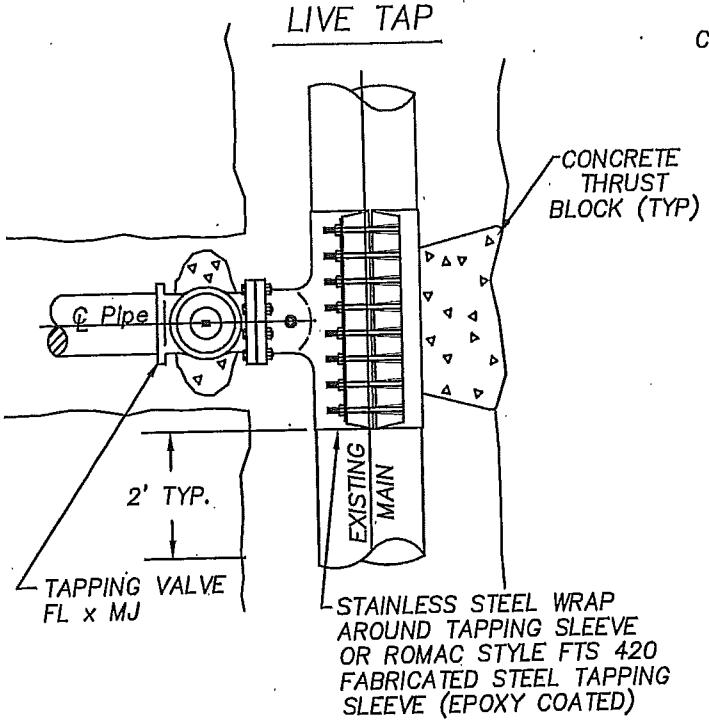
NOTE:

1. LOCATE POSTS 3' FROM HYDRANT DO NOT BLOCK HYDRANT PORTS
2. PIPE TO RECEIVE ONE PRIME COAT AND TWO COATS OUTDOOR OIL BASE ENAMEL (SAME COLOR AS HYDRANT– SEE DETAIL WA–11)
3. FOR REMOTE LOCATIONS

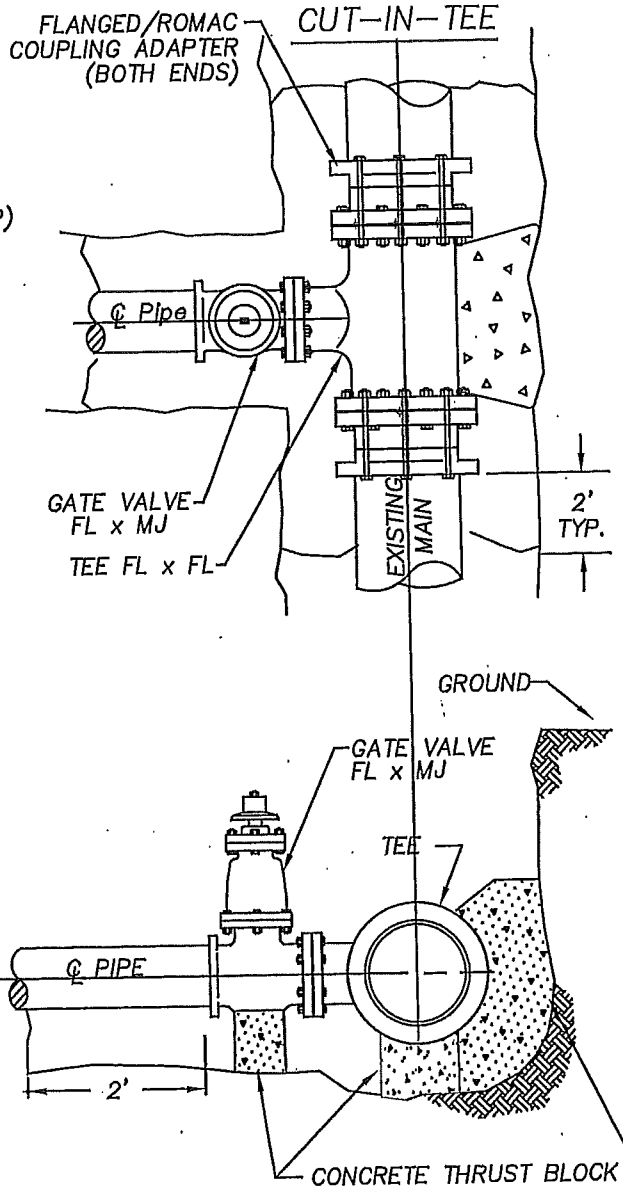
HYDRANT BOLLARD

APPROVED BY:	REVISION DATE	Town of Concrete	STD PLAN NO.
TOWN ENGINEER	APRIL 2008	VALVE MARKER POST AND HYDRANT BOLLARD DETAIL	WA-06

LIVE TAP



CUT-IN-TEE



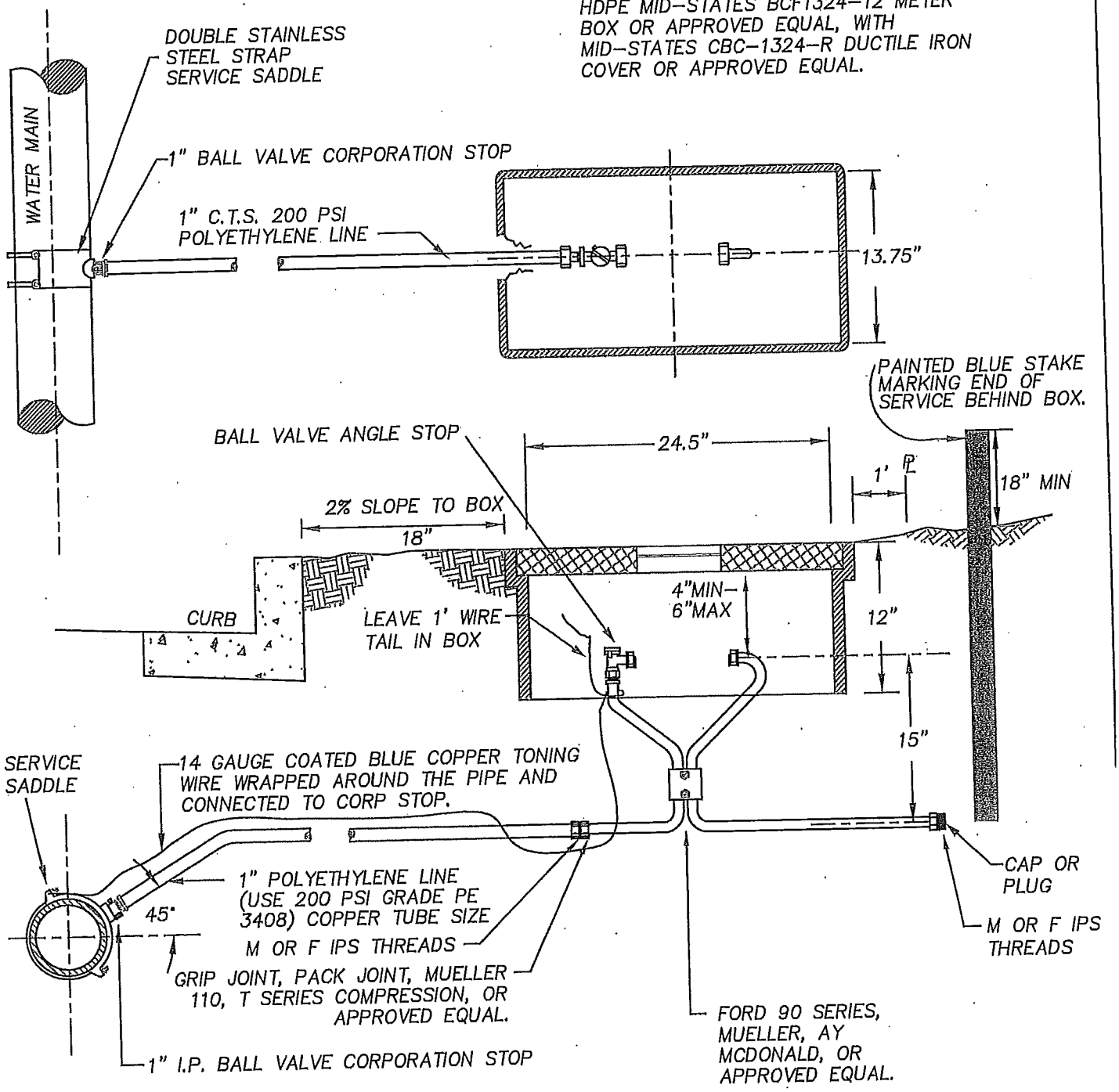
VALVE AND SLEEVE SHALL BE SUPPORTED AND BACKFILLED AS SHOWN BELOW-RIGHT.

NOTES:

1. 11 MIL PLASTIC OR CONSTRUCTION FABRIC SHALL BE WRAPPED AROUND PIPE AND FITTINGS BEFORE THRUST BLOCKS ARE POURED.

2. SUPPORT VALVE AND SLEEVE CONTINUOUSLY THROUGH INSTALLATION.

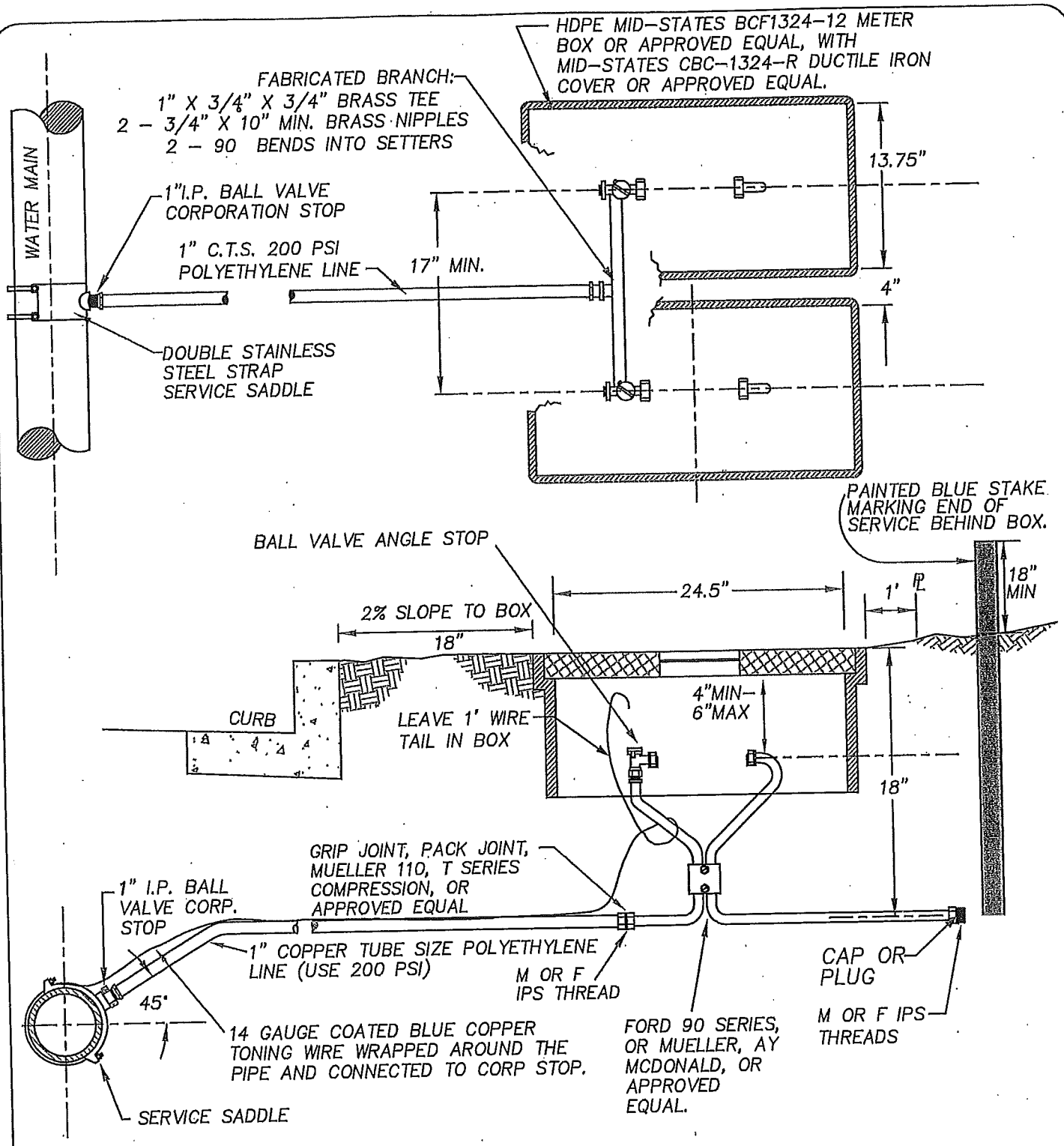
APPROVED BY:	REVISION DATE	Town of Concrete	STD PLAN NO.
TOWN ENGINEER	APRIL 2008	CONNECTION TO EXISTING MAIN	WA-07



NOTES:

1. CORPORATION STOPS SHALL BE ALL U.S. BRASS AND SHALL BE FORD D, MUELLER, MCDONALD, OR APPROVED EQUAL, WITH THREADS CONFORMING TO AWWA C800. STAINLESS STEEL INSERTS REQUIRED FOR ALL PACK JOINTS OR GRIP JOINTS.
2. SETTER SHALL BE CENTERED IN BOX.
3. ALL SERVICE SADDLES SHALL HAVE RUBBER GASKET, I.P. THREADS, AND STAINLESS STEEL DOUBLE STRAPS. TORQUE TO MANUFACTURES SPECIFICATIONS.

APPROVED BY:	REVISION DATE	Town of Concrete	STD PLAN NO.
TOWN ENGINEER	APRIL 2008	SINGLE SERVICE CONNECTION ¾" AND 1" DIAMETER	WA-08



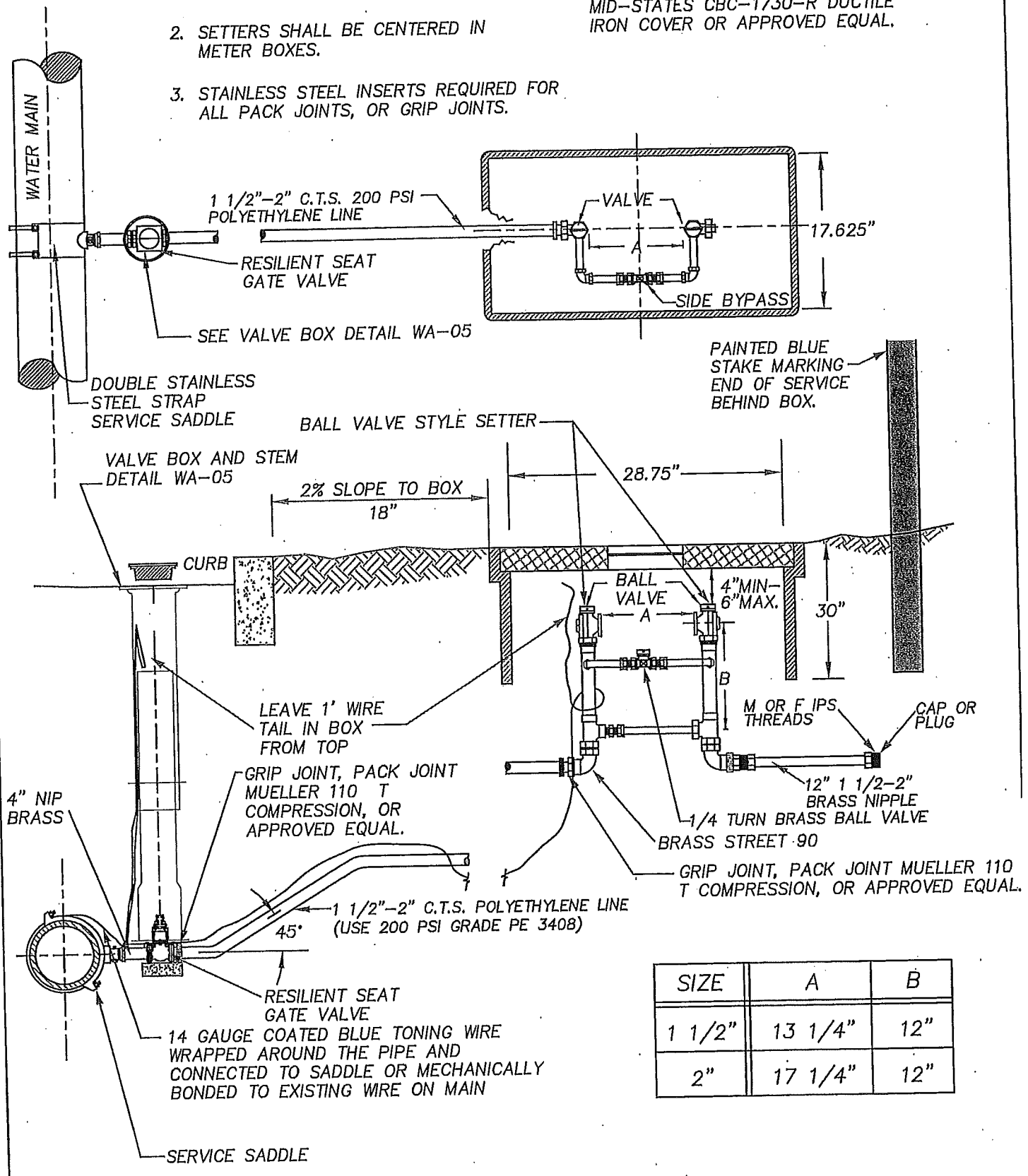
NOTES:

1. CORPORATION STOPS SHALL BE ALL U.S. BRASS AND SHALL BE FORD, MUELLER, MCDONALD, OR APPROVED EQUAL, WITH THREADS CONFORMING TO AWWA C800.
2. STAINLESS STEEL INSERTS REQUIRED FOR ALL PACK JOINTS, OR GRIP JOINTS.
3. ALL SERVICE SADDLES SHALL HAVE RUBBER GASKET, I.P. THREADS, AND STAINLESS STEEL DOUBLE STRAPS. TORQUE TO MANUFACTURE'S SPECS.
4. SERVICE FITTINGS 2" AND SMALLER SHALL BE ALL U.S. BRASS
5. SETTER SHALL BE CENTERED IN BOX.

APPROVED BY:	REVISION DATE	Town of Concrete	STD PLAN NO.
TOWN ENGINEER	APRIL 2008	DOUBLE SERVICE CONNECTION 3/4" AND 1" DIAMETER	WA-09

NOTES:

1. ALL SERVICE SADDLES SHALL HAVE RUBBER GASKET AND I.P. THREADS.
2. SETTERS SHALL BE CENTERED IN METER BOXES.
3. STAINLESS STEEL INSERTS REQUIRED FOR ALL PACK JOINTS, OR GRIP JOINTS.
4. METER BOX SHALL BE HDPE MID-STATES BCF1730-12 OR APPROVED EQUAL, WITH MID-STATES CBC-1730-R DUCTILE IRON COVER OR APPROVED EQUAL.

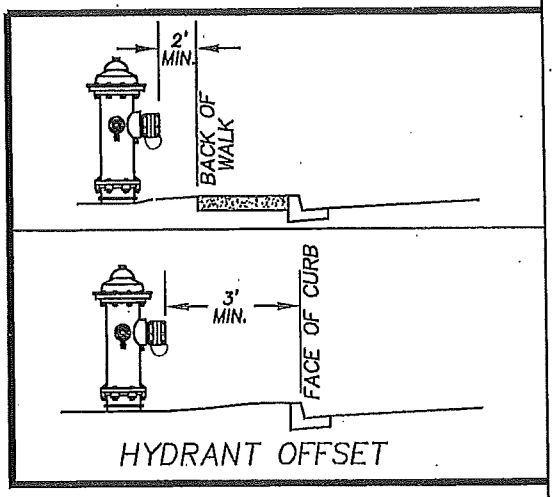


SIZE	A	B
1 1/2"	13 1/4"	12"
2"	17 1/4"	12"

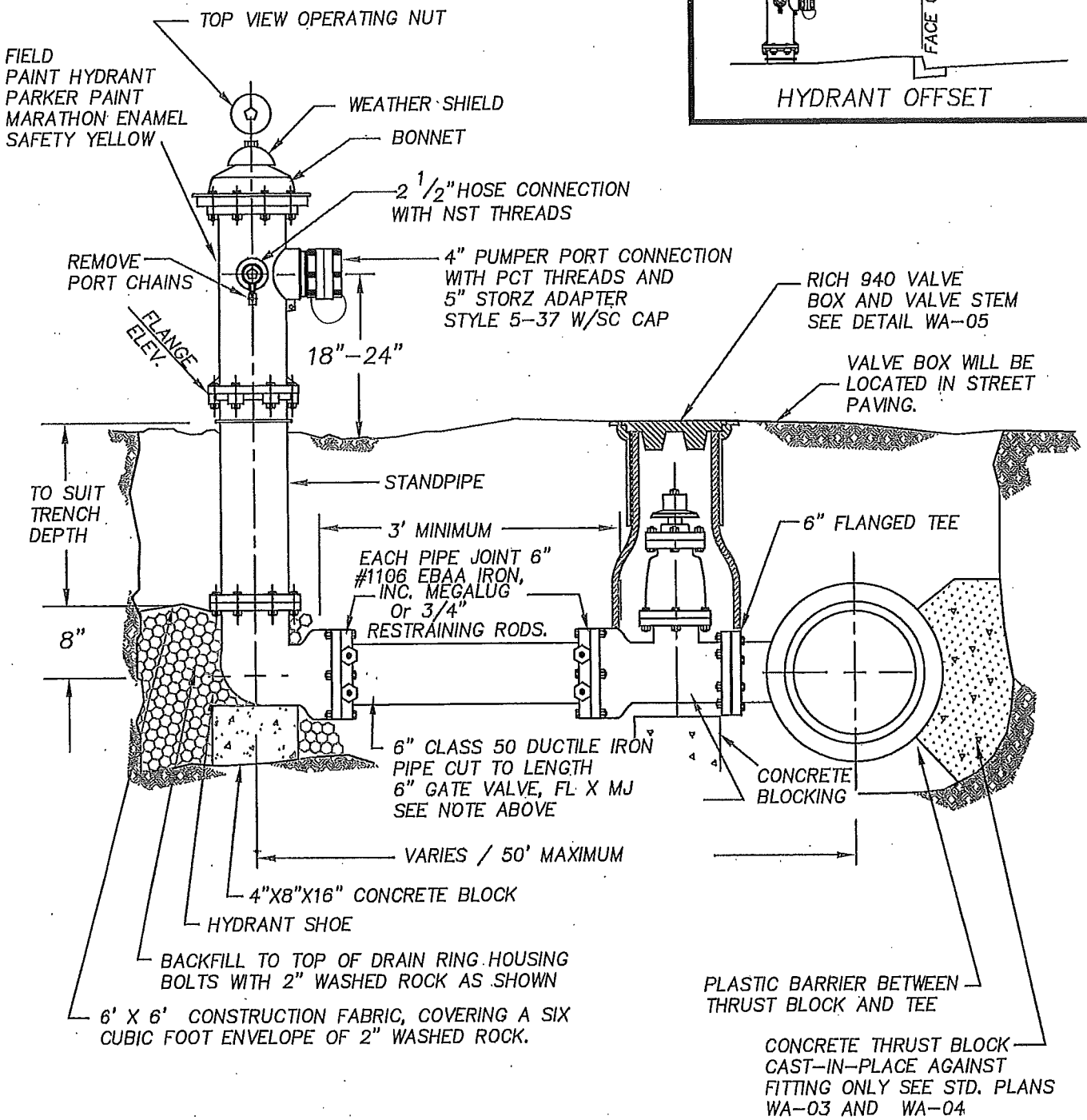
APPROVED BY:	REVISION DATE	Town of Concrete	STD PLAN NO.
TOWN ENGINEER	APRIL 2008	1-1/2" & 2" STANDARD SETTER WITH BYPASS	WA-10

NOTES

1. HYDRANTS SHALL BE LOCATED WITH A MINIMUM THREE FOOT RADIUS UNOBSTRUCTED WORKING AREA PROVIDED AROUND ALL HYDRANTS, AND IN NO CASE SHALL BE LOCATED IN SIDEWALK.
2. WHEN R/W IS NOT ADEQUATE, A MINIMUM 5' EASEMENT IS REQUIRED ON ALL SIDES OF THE HYDRANT.
3. HYDRANT SHALL BE DRESSER M & H RELIANT STYLE 929, MUELLER CENTURION, OR CLOW MEDALLION, OR APPROVED EQUAL

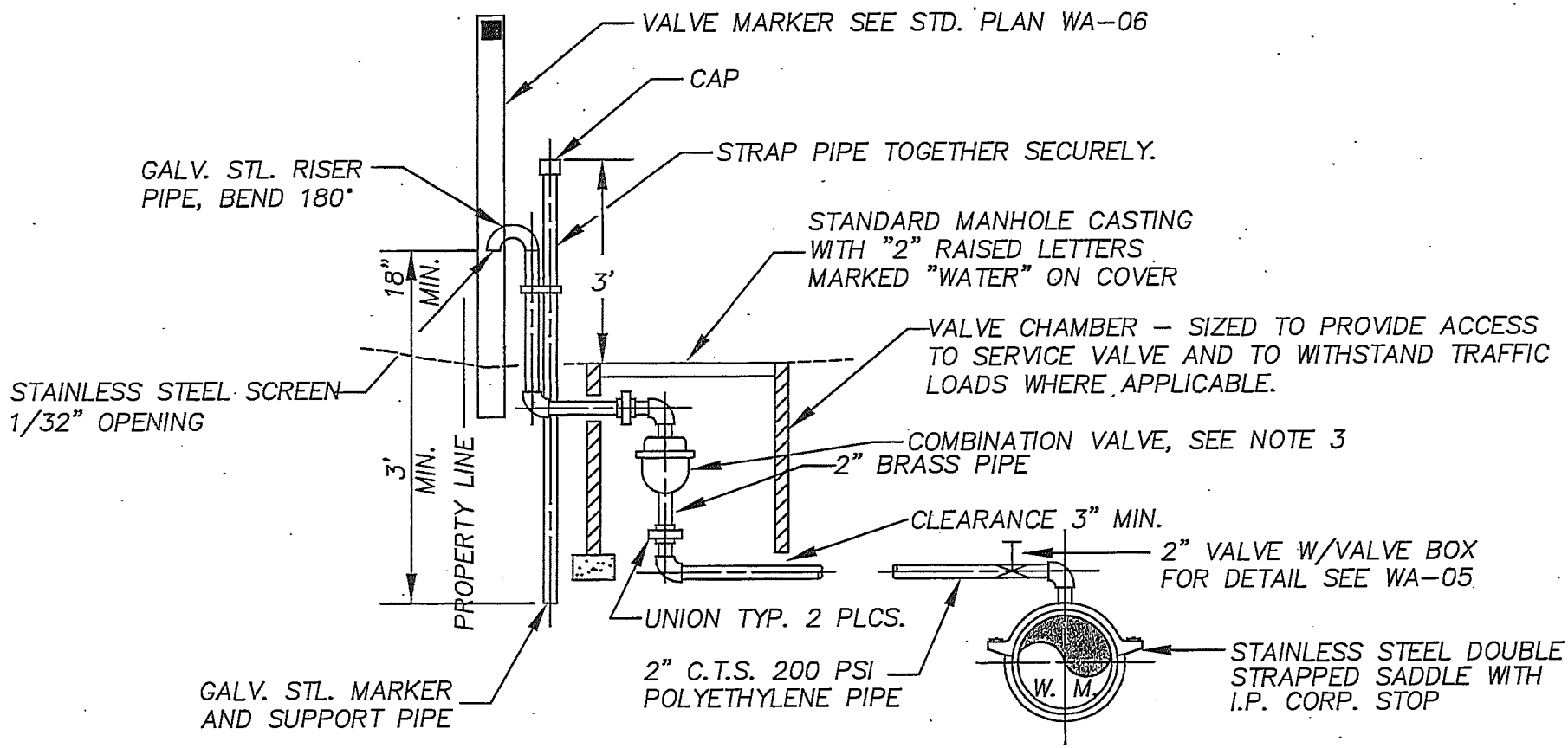


HYDRANT OFFSET



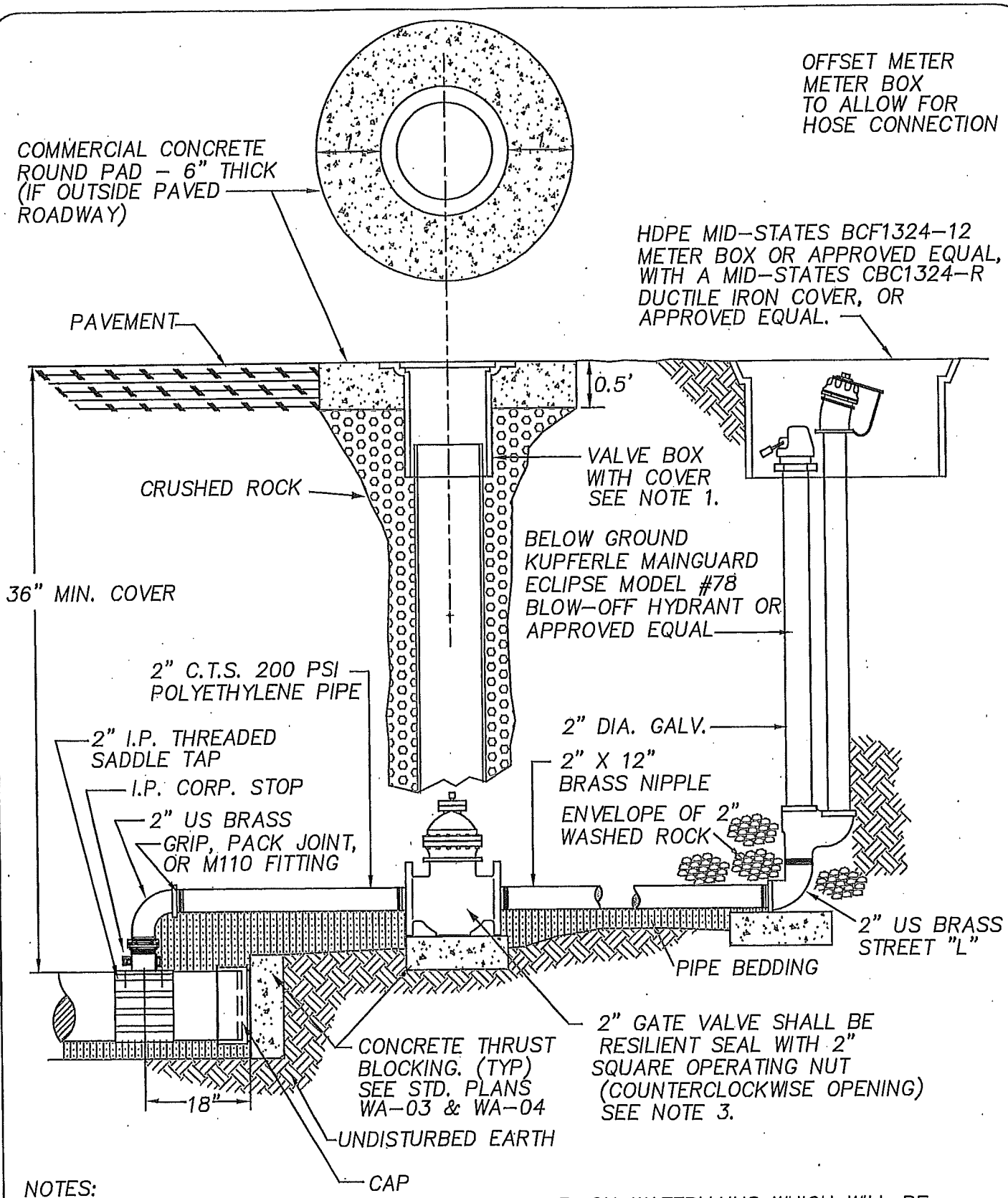
APPROVED BY:	REVISION DATE	Town of Concrete	STD PLAN NO.
TOWN ENGINEER	APRIL 2008	FIRE HYDRANT ASSEMBLY	WA-11

TOWN ENGINEER	APPROVED BY:
APRIL 2008	REVISION DATE
TYPICAL COMBINATION AIR VACUUM/AIR RELEASE VALVE	Town of Concrete
WA-12	STD PLAN NO.



NOTES:

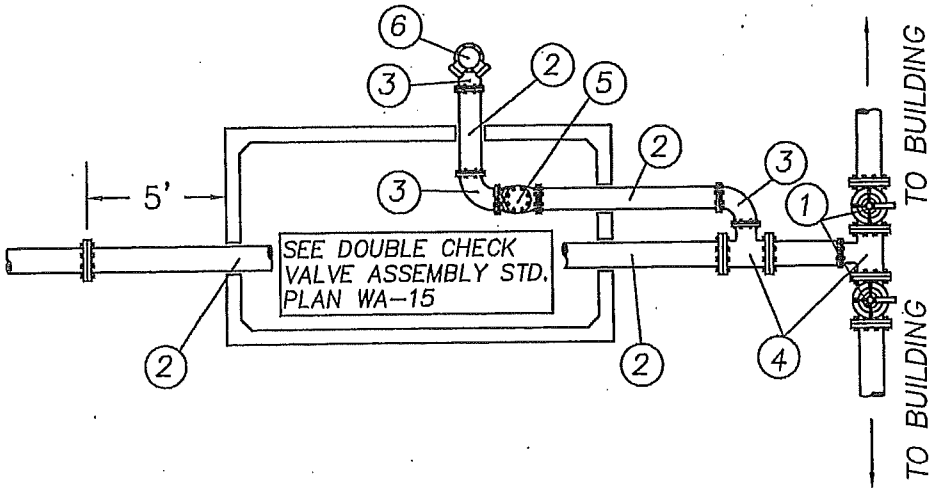
1. IF NOT SPECIFIED, SIZE OF PIPE TO BE SUBMITTED SHALL PUBLIC WORKS DEPT. FOR APPROVAL
2. SUBMIT SHOP DRAWINGS OF VALVE CHAMBER FOR APPROVAL
3. COMBINATION A.V./A.R. VALVE SHALL BE APCO 143C, 145C, 147C, 149C OR APPROVED EQUAL AS DICTATED BY SIZE OF WATER MAIN. SUBMIT CALCULATIONS TO PW DEPT. FOR APPROVAL.
4. ALL RIGID PIPE AND FITTINGS BELOW AIR RELIEF PIPE SHALL BE US MADE BRASS.
5. ACTUAL PIPE SIZES ARE DEPENDENT ON VALVE SIZE.



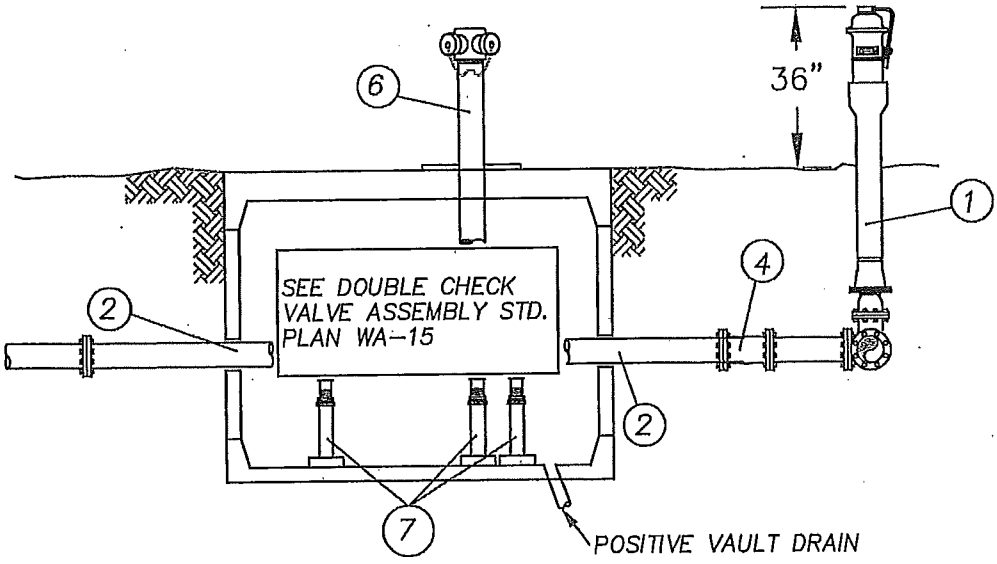
NOTES:

1. VALVE BOX AND COVER SHALL BE PER VALVE BOX DETAIL WA-05
2. LOCATE BLOW-OFF HYDRANT OUTSIDE ROADWAY, LOCATE VALVE WITHIN ROADWAY
3. ON WATERMAINS WHICH WILL BE EXTENDED IN THE FUTURE, THE VALVE WHICH OPERATES THE BLOWOFF ASSEMBLY SHALL BE THE SAME SIZE AND PROVIDED WITH A CONCRETE THRUST BLOCK.

APPROVED BY:	REVISION DATE	Town of Concrete	STD PLAN NO.
TOWN ENGINEER	APRIL 2008	2" BLOWOFF ASSEMBLY	WA-13



PLAN



PROFILE

MATERIAL LIST:

1. POST INDICATOR VALVE
2. CLASS 52 DI WALL PIPE FL X FL
3. CLASS 52 DI 90° BEND FL X FL
4. CLASS 52 DI TEE FL X FL
5. SWING CHECK VALVE W/BALL DRIP ASSEMBLY
6. FIRE DEPARTMENT CONNECTION
7. VALVE STANDS
8. WHERE PIPING PASSES THROUGH CONCRETE WALL PROVIDE 2" CLEARANCE W/ WATERPROOF MASTIC OR FLEXIBLE SEALANT

GENERAL NOTES:

A. PIPE FROM VAULT TO BUILDING SHALL BE CLASS 50 DI.

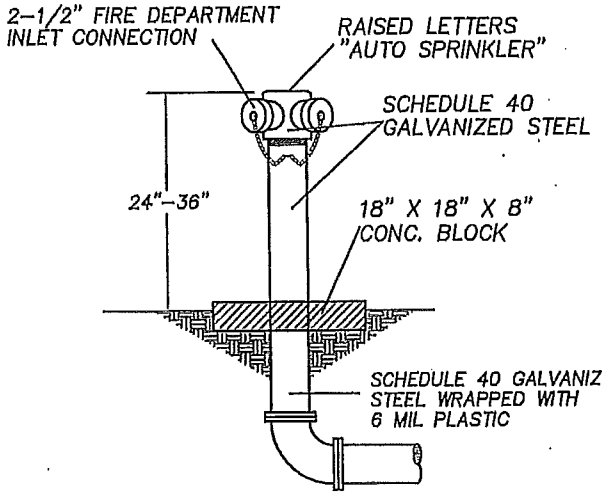
B. TAMPER SWITCHES SHALL BE INSTALLED ON 1 AND 3 CONNECTED TO BUILDING FIRE ALARM SYSTEM.

C. INSTALL PLUGS ON ALL TEST COCKS. FINGER TIGHTEN.

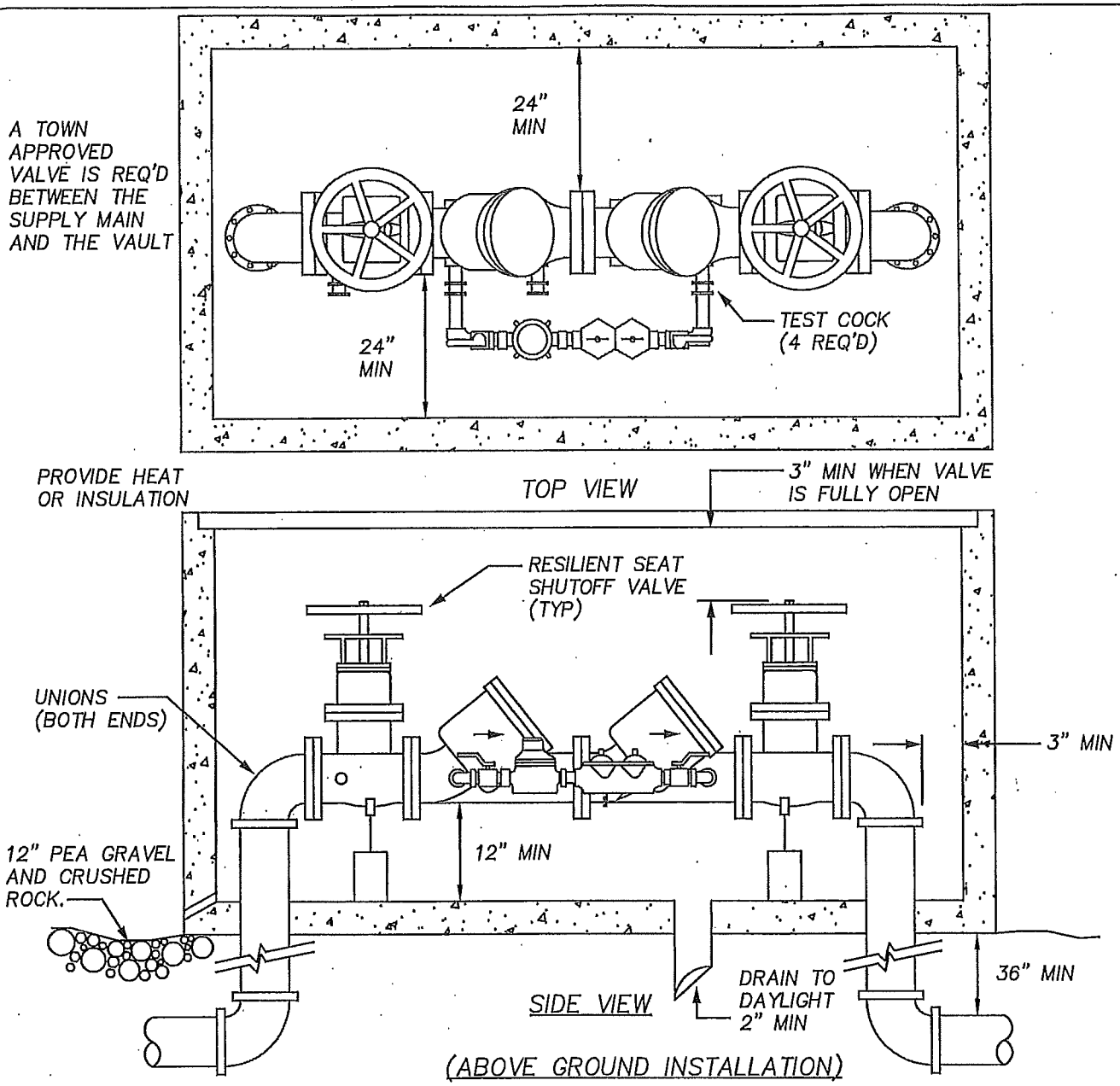
D. ALL PIPING SHALL BE A MINIMUM OF 4" DIA. AS PER NFPA13.

E. FIRE SERVICES REQUIRE DETECTOR TYPE BACKFLOW PROTECTION ASSEMBLIES.

FIRE DEPARTMENT CONNECTION



APPROVED BY:	REVISION DATE	Town of Concrete	STD PLAN NO.
TOWN ENGINEER	APRIL 2008	DUAL SERVICE DOUBLE CHECK VALVE ASSEMBLY W/FDC	WA-14



NOTE: ALL ITEMS SHALL COMPLY WITH THE FOLLOWING

- DOUBLE CHECK DETECTOR CHECK VALVE ASSEMBLY SHALL BE A WASHINGTON STATE DEPT. OF HEALTH APPROVED MODEL.
- BACK FLOW ASSEMBLY SHALL BE AN APPROVED MODEL W/4 TEST COCKS AND A RESILIENT SEATED SHUT OFF VALVE MOUNTED AT EACH END.
- THE WATER LINE SHALL BE DISINFECTED, FLUSHED, AND PRESSURE TESTED PRIOR TO INSTALLING THE BACK FLOW ASSEMBLY. THE BACK FLOW ASSEMBLY SHALL BE PROTECTED FROM FREEZING AND FLOODING.
- THE BACK FLOW ASSEMBLY SHALL BE TESTED AFTER INSTALLATION AND PRIOR TO ACCEPTANCE AND ALSO YEARLY THEREAFTER BY A CERTIFIED BACK FLOW ASSEMBLY TESTER OR TOWN OF CONCRETE CROSS CONNECTION SPECIALIST. TEST RESULTS SHALL BE SENT TO THE TOWN OF CONCRETE WATER SECTION.
- ALL PIPE VALVE AND FITTING JOINTS, FROM THE SUPPLY MAIN, SHALL BE FLANGED AND RESTRAINED.
- FIRE DEPT. CONNECTION SHALL NOT EXIT THROUGH THE TOP OF THE VAULT.
- GROUT PIPE ENTRANCE AND EXIT, IN VAULT, WITH WATERTIGHT GROUT.
- ALL VAULTS SHALL BE PRE-APPROVED PRIOR TO INSTALLATION.
- VAULTS SHALL BE INSTALLED AT PROPERTY LINE OR EASEMENT LINE AND ON OWNERS PROPERTY.
- VAULTS SHALL HAVE A MINIMUM OF 3' CLEARANCE FROM ALL STRUCTURES.
- REQUIRED FOR FIRE SUPPRESSION SYSTEMS.

NOTE: IF WYE PATTERN- MUST LAY CHECKS HORIZONTAL W/GROUND AND TEST CHECKS FACING UP. 2" AND SMALLER.

VAULTS MUST BE WITHIN 3' OF METER OR INSTALLED HORIZONTALLY WITHIN THE BUILDING

APPROVED BY:	REVISION DATE	Town of Concrete	STD PLAN NO.
TOWN ENGINEER	APRIL 2008	DOUBLE CHECK DETECTOR CHECK VALVE ASSEMBLY	WA-15

Current Year - PHD

Peak hourly demand (PHD). This condition is modeled where all equalizing storage has been depleted and assumes that all sources are operating. Pressures in the system must not drop below 30 psi.

SETTINGS:

Valves:

Location	Valve	Valve Setting (ft)	Downstream Pipe	Diameter (in)
Grassmere Tank	PRV1	Inactive	Pv2	8

PRV indicates a pressure reducing valve. These valves are used to maintain a desired system pressure. This valve has been deactivated in an effort to increase system pressures in the vicinity of the Seidel Tank.

Tanks:

Name	Label	Base Elevation (ft)	Initial HGL (ft)	Tank Diameter (ft)
Grassmere Tank	T1	412	449	30
Seidel Tank	T2	356	383	30
Fir Tank	T3	368	383	30

The tank levels are at the bottom of operating and equalizing storage.

RESULTS:

Scenario: Ex PHD
Steady State Analysis
Junction Report

Label	Zone	Base Flow (gpm)	Elevation (ft)	Calculated Hydraulic Grade (ft)	Pressure Head (ft)	Pressure (psi)	Pattern
J1	Zone-1	0.00	411.00	443.89	32.89	14.23	Fixed
J2	Zone-1	0.00	410.00	443.86	33.86	14.65	Fixed
J3	Zone-1	2.21	240.00	413.81	173.81	75.20	Fixed
J4	Zone-1	1.65	220.00	390.80	170.80	73.90	Fixed
J5	Zone-1	2.20	240.00	389.56	149.56	64.71	Fixed
J6	Zone-1	11.56	270.00	387.09	117.09	50.66	Fixed
J7	Zone-1	10.46	280.00	386.30	106.30	45.99	Fixed
J8	Zone-1	9.36	295.00	383.29	88.29	38.20	Fixed
J9	Zone-1	3.30	280.00	383.10	103.10	44.60	Fixed
J10	Zone-1	2.19	270.00	383.00	113.00	48.89	Fixed
J11	Zone-1	4.74	265.00	382.98	117.98	51.04	Fixed
J12	Zone-1	0.00	255.00	382.95	127.95	55.36	Fixed
J13	Zone-1	13.79	250.00	382.94	132.94	57.52	Fixed
J14	Zone-1	6.69	240.00	382.92	142.92	61.83	Fixed
J15	Zone-1	9.49	250.00	382.91	132.91	57.50	Fixed
J16	Zone-1	0.00	265.00	382.90	117.90	51.01	Fixed
J17	Zone-1	19.56	265.00	382.91	117.91	51.01	Fixed
J18	Zone-1	5.59	245.00	382.90	137.90	59.66	Fixed
J19	Zone-1	2.50	250.00	382.89	132.89	57.50	Fixed
J20	Zone-1	0.00	240.00	382.88	142.88	61.82	Fixed
J21	Zone-1	2.79	240.00	382.85	142.85	61.80	Fixed
J22	Zone-1	3.60	228.00	382.79	154.79	66.97	Fixed
J23	Zone-1	3.30	210.00	382.79	172.79	74.76	Fixed
J24	Zone-1	4.41	360.00	383.13	23.13	10.01	Fixed
J25	Zone-1	2.76	340.00	383.08	43.08	18.64	Fixed
J26	Zone-1	2.76	330.00	383.07	53.07	22.96	Fixed
J27	Zone-1	4.95	320.00	383.00	63.00	27.26	Fixed
J28	Zone-1	6.60	305.00	382.99	77.99	33.74	Fixed
J29	Zone-1	3.85	280.00	382.98	102.98	44.56	Fixed
J30	Zone-1	4.41	275.00	382.50	107.50	46.51	Fixed
J31	Zone-1	0.00	330.00	382.99	52.99	22.93	Fixed
J32	Zone-1	3.35	280.00	382.95	102.95	44.54	Fixed
J33	Zone-1	2.79	200.00	389.94	189.94	82.18	Fixed
J34	Zone-1	1.10	200.00	389.71	189.71	82.08	Fixed
J35	Zone-1	6.60	200.00	389.55	189.55	82.01	Fixed
J36	Zone-1	9.91	200.00	388.29	188.29	81.46	Fixed
J37	Zone-1	6.06	200.00	383.57	183.57	79.42	Fixed
J38	Zone-1	0.00	205.00	383.50	178.50	77.23	Fixed
J39	Zone-1	3.30	220.00	383.62	163.62	70.79	Fixed
J40	Zone-1	1.65	240.00	383.74	143.74	62.19	Fixed
J41	Zone-1	8.26	250.00	383.74	133.74	57.86	Fixed
J42	Zone-1	4.41	250.00	383.74	133.74	57.86	Fixed
J43	Zone-1	2.20	240.00	383.74	143.74	62.19	Fixed
J44	Zone-1	7.94	263.00	383.29	120.29	52.04	Fixed
J45	Zone-1	415.22	225.00	383.29	158.29	68.49	Fixed
J46	Zone-1	1.10	220.00	383.44	163.44	70.71	Fixed
J47	Zone-1	0.00	240.00	382.91	142.91	61.83	Fixed
J48	Zone-1	0.00	240.00	382.91	142.91	61.83	Fixed
J49	Zone-1	0.00	240.00	382.90	142.90	61.83	Fixed
J50	Zone-1	4.41	240.00	382.90	142.90	61.83	Fixed
J51	Zone-1	0.00	240.00	382.89	142.89	61.82	Fixed
J52	Zone-1	9.36	235.00	382.79	147.79	63.94	Fixed
J53	Zone-1	9.40	225.00	382.78	157.78	68.26	Fixed
J54	Zone-1	2.21	230.00	382.63	152.63	66.04	Fixed

- NEAR GRASSMERE TANK
- " " "
- KNOWN LOW PRESSURE AREA ALONG LIMESTONE ST.
- NEAR FIR TANK

Scenario: Ex PHD
Steady State Analysis
Pipe Report

Label	From Node	To Node	Material	Hazen-Williams C	Length (ft)	Diameter (in)	Discharge (gpm)	Pressure Pipe Headloss (ft)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Open?	Check Valve?
P1	R1	T1	Ductile Iro	130.0	1,000.00	8.0	2,000.97	66.00	12.77	66.00	true	false
P2	T1	J1	Ductile Iro	120.0	301.00	8.0	887.58	5.11	5.67	16.99	true	false
P3	J2	J3	Ductile Iro	120.0	1,769.00	8.0	887.58	30.05	5.67	16.99	true	false
P4	J3	J4	Ductile Iro	120.0	1,361.00	8.0	885.37	23.01	5.65	16.91	true	false
P5	J4	J5	Ductile Iro	120.0	315.00	8.0	401.74	1.23	2.56	3.91	true	false
P6	J5	J6	Ductile Iro	120.0	638.00	8.0	399.54	2.47	2.55	3.87	true	false
P7	J6	J7	Ductile Iro	120.0	217.00	8.0	387.98	0.80	2.48	3.67	true	false
P8	J7	J8	Ductile Iro	120.0	861.00	8.0	377.52	3.00	2.41	3.49	true	false
P9	J8	J9	Ductile Iro	120.0	612.00	6.0	49.13	0.20	0.56	0.32	true	false
P10	J9	J10	Ductile Iro	120.0	338.00	6.0	45.83	0.10	0.52	0.29	true	false
P11	J10	J11	Ductile Iro	120.0	293.00	8.0	49.59	0.02	0.32	0.08	true	false
P12	J11	J12	Ductile Iro	120.0	298.00	8.0	49.09	0.02	0.31	0.08	true	false
P13	J12	J13	Ductile Iro	120.0	141.00	8.0	49.31	0.01	0.31	0.08	true	false
P14	J13	J14	Ductile Iro	120.0	567.00	8.0	35.52	0.02	0.23	0.04	true	false
P15	J14	J15	Ductile Iro	120.0	350.00	8.0	24.43	0.01	0.16	0.02	true	false
P16	J15	J16	Ductile Iro	120.0	349.00	8.0	14.94	0.00	0.10	0.01	true	false
P17	J16	J17	Ductile Iro	120.0	176.00	8.0	-19.24	0.00	0.12	0.01	true	false
P18	J17	J18	Ductile Iro	120.0	337.00	8.0	30.57	0.01	0.20	0.03	true	false
P19	J18	J19	Ductile Iro	120.0	327.00	8.0	22.19	0.01	0.14	0.02	true	false
P20	J19	J20	Ductile Iro	120.0	541.00	8.0	19.69	0.01	0.13	0.01	true	false
P21	J20	J21	Ductile Iro	120.0	549.00	6.0	19.69	0.03	0.22	0.06	true	false
P22	J21	J22	Ductile Iro	120.0	1,300.00	6.0	16.89	0.06	0.19	0.04	true	false
P23	J22	J23	Ductile Iro	120.0	1,007.00	8.0	3.30	0.00	0.02	0.00	true	false
P24	J8	J24	Ductile Iro	120.0	541.00	12.0	289.43	0.16	0.82	0.30	true	false
P25	J24	J25	Ductile Iro	120.0	173.00	12.0	285.03	0.05	0.81	0.29	true	false
P26	J25	J26	Ductile Iro	120.0	275.00	8.0	32.97	0.01	0.21	0.04	true	false
P27	J26	J27	Ductile Iro	120.0	542.00	6.0	30.22	0.07	0.34	0.13	true	false
P28	J27	J28	Ductile Iro	120.0	285.00	6.0	19.33	0.02	0.22	0.06	true	false
P29	J28	J29	Ductile Iro	120.0	290.00	6.0	8.48	0.00	0.10	0.01	true	false
P30	J29	J30	Ductile Iro	100.0	437.00	2.0	4.41	0.48	0.45	1.10	true	false
P31	T3	J31	Ductile Iro	120.0	211.00	10.0	72.72	0.01	0.30	0.06	true	false
P32	J31	J32	Ductile Iro	120.0	620.00	10.0	72.72	0.03	0.30	0.06	true	false
P33	J4	J33	Ductile Iro	120.0	463.00	10.0	481.97	0.86	1.97	1.85	true	false
P34	J33	J34	Ductile Iro	120.0	307.00	12.0	477.78	0.23	1.36	0.75	true	false
P35	J34	J35	Ductile Iro	120.0	309.00	12.0	392.68	0.16	1.11	0.52	true	false
P36	J35	J36	Ductile Iro	120.0	760.00	10.0	454.12	1.26	1.86	1.66	true	false
P37	J36	J37	Ductile Iro	120.0	470.00	4.0	107.96	4.72	2.76	10.05	true	false
P38	J37	J38	Ductile Iro	120.0	470.00	4.0	10.88	0.07	0.28	0.14	true	false
P39	J38	J39	Ductile Iro	120.0	344.00	12.0	-314.77	0.12	0.89	0.35	true	false
P40	J39	J40	Ductile Iro	120.0	349.00	12.0	-318.08	0.12	0.90	0.35	true	false
P41	J40	J41	Ductile Iro	120.0	534.00	12.0	14.87	0.00	0.04	0.00	true	false
P42	J41	J42	Ductile Iro	120.0	924.00	6.0	6.61	0.01	0.07	0.01	true	false
P43	J42	J43	Ductile Iro	120.0	635.00	8.0	2.20	0.00	0.01	0.00	true	false
P44	J8	J44	Ductile Iro	120.0	275.00	12.0	29.60	0.00	0.08	0.00	true	false
P45	J44	J45	Ductile Iro	120.0	691.00	12.0	5.14	0.00	0.01	0.00	true	false
P46	J45	J46	Ductile Iro	120.0	270.00	12.0	-410.08	0.15	1.16	0.56	true	false
P47	J14	J47	Ductile Iro	120.0	257.00	8.0	4.41	0.00	0.03	0.00	true	false
P48	J47	J48	Ductile Iro	90.0	180.00	4.0	4.41	0.01	0.11	0.05	true	false
P49	J48	J49	Ductile Iro	120.0	490.00	6.0	4.41	0.00	0.05	0.00	true	false
P50	J49	J50	Ductile Iro	120.0	185.00	6.0	4.41	0.00	0.05	0.00	true	false
P51	J16	J51	Ductile Iro	120.0	331.00	8.0	34.18	0.01	0.22	0.04	true	false
P52	J51	J52	Ductile Iro	120.0	623.00	6.0	34.18	0.10	0.39	0.17	true	false
P53	J52	J53	Ductile Iro	120.0	391.00	8.0	24.82	0.01	0.16	0.02	true	false

Scenario: Ex PHD
Steady State Analysis
Tank Report

Label	Zone	Base Elevation (ft)	Minimum Elevation (ft)	Initial HGL (ft)	Maximum Elevation (ft)	Inactive Volume (gal)	Tank Diameter (ft)	Calculated Hydraulic Grade (ft)	Inflow (gpm)	Current Status	Calculated Percent Full (%)
T1	Zone-1	412.00	412.00	449.00	450.00	0.00	30.00	449.00	1,113.40	Filling	97.4
T2	Zone-1	356.00	356.00	383.00	396.00	0.00	30.00	383.00	249.30	Filling	67.5
T3	Zone-1	368.00	368.00	383.00	388.00	0.00	30.00	383.00	-72.72	Draining	75.0

Current Year – Fire Flow at MDD

Fire suppression flows during maximum daily demand (MDD). Under this condition the system is modeled where all operational, equalizing and fire suppression storage has been depleted. Pressures in the system must not drop below 20 psi.

SETTINGS:

Valves:

The initial valve settings are the same as the PHD scenario.

Tanks:

Name	Label	Base Elevation (ft)	Initial HGL (ft)	Tank Diameter (ft)
Grassmere Tank	T1	412	449	30
Seidel Tank	T2	356	377	30
Fir Tank	T3	368	377	30

The tank levels are at the bottom of operating, equalizing, and fire suppression storage. To see the volumes for the different tanks, refer to the Storage Calculations in Chapter 3.

RESULTS:

Scenario: Ex MDD
Fire Flow Analysis
Fire Flow Report

Label	Zone	Satisfies Fire Flow Constraints?	Needed Fire Flow (gpm)	Fire Flow Upper Limit (gpm)	Available Fire Flow (gpm)	Total Flow Needed (gpm)	Total Flow Available (gpm)	Calculated Residual Pressure (psi)	Calculated Minimum Zone Pressure (psi)	Minimum Zone Junction
J1	Zone-1	false	1,500.00	10,000.00	0.00	1,500.00	0.00	14.08	7.57	J24
J2	Zone-1	false	1,500.00	10,000.00	0.00	1,500.00	0.00	14.50	7.57	J24
J3	Zone-1	true	1,500.00	10,000.00	3,509.20	1,500.77	3,509.97	20.00	5.56	J24
J4	Zone-1	true	1,500.00	10,000.00	4,683.70	1,500.58	4,684.28	20.00	1.94	J24
J5	Zone-1	true	1,500.00	10,000.00	3,851.59	1,500.77	3,852.36	20.00	3.43	J24
J6	Zone-1	true	1,500.00	10,000.00	3,012.88	1,504.06	3,016.94	20.00	4.79	J24
J7	Zone-1	true	1,500.00	10,000.00	2,814.13	1,503.68	2,817.81	20.00	5.11	J24
J8	Zone-1	true	1,500.00	10,000.00	4,787.79	1,503.29	4,791.08	21.34	0.00	J24
J9	Zone-1	true	1,500.00	10,000.00	1,901.76	1,501.16	1,902.92	20.00	7.03	J24
J10	Zone-1	true	1,500.00	10,000.00	2,492.03	1,500.77	2,492.81	20.00	6.78	J27
J11	Zone-1	true	1,500.00	10,000.00	2,542.19	1,501.20	2,543.39	20.00	6.93	J24
J12	Zone-1	true	1,500.00	10,000.00	2,633.23	1,500.00	2,633.23	20.00	6.98	J24
J13	Zone-1	true	1,500.00	10,000.00	2,693.54	1,502.36	2,695.91	20.00	7.00	J24
J14	Zone-1	true	1,500.00	10,000.00	2,843.03	1,501.73	2,844.76	20.00	7.10	J24
J15	Zone-1	true	1,500.00	10,000.00	2,714.16	1,941.83	3,155.98	20.00	7.21	J24
J16	Zone-1	true	1,500.00	10,000.00	2,736.29	1,500.00	2,736.29	20.00	7.29	J24
J17	Zone-1	true	1,500.00	10,000.00	3,042.76	1,504.71	3,047.48	20.00	7.29	J24
J18	Zone-1	true	1,500.00	10,000.00	2,476.65	1,501.34	2,478.00	20.00	7.35	J24
J19	Zone-1	true	1,500.00	10,000.00	1,941.12	1,500.72	1,941.85	20.01	7.38	J24
J20	Zone-1	true	1,500.00	10,000.00	1,653.81	1,500.00	1,653.81	20.00	7.39	J24
J21	Zone-1	false	1,500.00	10,000.00	1,029.19	1,500.67	1,029.86	20.00	7.44	J24
J22	Zone-1	false	1,500.00	10,000.00	691.86	1,501.11	692.97	20.01	7.48	J24
J23	Zone-1	false	1,500.00	10,000.00	716.02	1,500.72	716.74	20.01	7.47	J24
J24	Zone-1	false	1,500.00	10,000.00	0.00	1,501.55	1.55	7.57	14.08	J1
J25	Zone-1	false	1,500.00	10,000.00	0.00	1,500.97	0.97	16.14	7.57	J24
J26	Zone-1	false	1,500.00	10,000.00	294.88	1,500.97	295.84	20.00	7.46	J24
J27	Zone-1	false	1,500.00	10,000.00	765.88	1,501.74	767.62	20.00	7.40	J24
J28	Zone-1	false	1,500.00	10,000.00	926.82	1,502.32	929.14	20.00	7.39	J24
J29	Zone-1	false	1,500.00	10,000.00	968.41	1,501.35	969.76	20.00	7.38	J24
J30	Zone-1	false	1,500.00	10,000.00	54.59	1,501.55	56.14	20.46	7.54	J24
J31	Zone-1	false	1,500.00	10,000.00	435.90	1,500.00	435.90	20.00	7.56	J24
J32	Zone-1	true	1,500.00	10,000.00	3,632.06	1,500.87	3,632.93	20.00	7.34	J24
J33	Zone-1	true	1,500.00	10,000.00	4,845.08	1,500.67	4,845.75	20.00	1.38	J24
J34	Zone-1	true	1,500.00	10,000.00	4,799.12	1,500.39	4,799.51	20.00	1.44	J24
J35	Zone-1	true	1,500.00	10,000.00	4,769.93	1,502.32	4,772.25	20.00	1.47	J24
J36	Zone-1	true	1,500.00	10,000.00	4,624.80	1,503.48	4,628.29	20.00	1.56	J24
J37	Zone-1	true	1,500.00	10,000.00	3,965.22	1,502.13	3,967.35	20.01	2.55	J24
J38	Zone-1	true	1,500.00	10,000.00	4,871.87	1,500.00	4,871.87	39.34	0.00	J24
J39	Zone-1	true	1,500.00	10,000.00	4,877.30	1,501.16	4,878.46	28.54	-0.00	J24
J40	Zone-1	true	1,500.00	10,000.00	4,634.12	1,500.58	4,634.70	20.00	0.74	J24
J41	Zone-1	true	1,500.00	10,000.00	3,804.06	1,502.90	3,806.96	20.00	2.96	J24
J42	Zone-1	false	1,500.00	10,000.00	977.02	1,501.55	978.57	20.00	7.22	J24
J43	Zone-1	false	1,500.00	10,000.00	960.55	1,500.77	961.32	20.02	7.23	J24
J44	Zone-1	true	1,500.00	10,000.00	4,820.74	1,500.77	4,821.51	30.05	0.00	J24
J45	Zone-1	true	1,500.00	10,000.00	4,866.54	1,671.00	5,037.54	35.75	-0.00	J24
J46	Zone-1	true	1,500.00	10,000.00	4,871.94	1,500.39	4,872.33	34.79	0.00	J24
J47	Zone-1	true	1,500.00	10,000.00	2,313.42	1,500.00	2,313.42	20.00	7.23	J24
J48	Zone-1	false	1,500.00	10,000.00	617.10	1,500.00	617.10	20.01	7.45	J24
J49	Zone-1	false	1,500.00	10,000.00	559.20	1,500.00	559.20	20.01	7.46	J24
J50	Zone-1	false	1,500.00	10,000.00	541.10	1,501.55	542.64	20.01	7.46	J24
J51	Zone-1	true	1,500.00	10,000.00	2,424.72	1,500.00	2,424.72	20.00	7.33	J24
J52	Zone-1	false	1,500.00	10,000.00	1,133.38	1,503.29	1,136.66	20.00	7.41	J24

NEAR GLASSMERE TANK

ALONG LIMESTONE

Scenario: Ex MDD
Fire Flow Analysis
Tank Report

Label	Zone	Base Elevation (ft)	Minimum Elevation (ft)	Initial HGL (ft)	Maximum Elevation (ft)	Inactive Volume (gal)	Tank Diameter (ft)	Calculated Hydraulic Grade (ft)	Inflow (gpm)	Current Status	Calculated Percent Full (%)
T1	Zone-1	412.00	412.00	449.00	450.00	0.00	30.00	449.00	1,081.84	Filling	97.4
T2	Zone-1	356.00	356.00	377.00	396.00	0.00	30.00	377.00	494.47	Filling	52.5
T3	Zone-1	368.00	368.00	377.00	388.00	0.00	30.00	377.00	-277.34	Draining	45.0

Twenty Year - PHD

ADDED IMPROVEMENTS:

Based on the results from the system analysis, several improvements to the system are recommended. These improvements were added and modeled in the twenty year scenario. A table of the added improvements can be found both on the system map and in Chapter 3.

SETTINGS:

Valves:

Location	Valve	Valve Setting (ft)	Downstream Pipe	Diameter (in)
Grassmere Tank	PRV1	Inactive	Pv2	8

PRV indicates a pressure reducing valve. These valves are used to maintain a desired system pressure. This valve has been deactivated in an effort to increase system pressures in the vicinity of the Seidel Tank.

Tanks:

Name	Label	Base Elevation (ft)	Initial HGL (ft)	Tank Diameter (ft)
Grassmere Tank	T1	412	449	30
Seidel Tank	T2	356	383	30
Fir Tank	T3	368	383	30

Tank levels are at the bottom of operating and equalizing storage.

RESULTS:

Scenario: Prop PHD
Steady State Analysis
Junction Report

Label	Zone	Base Flow (gpm)	Elevation (ft)	Calculated Hydraulic Grade (ft)	Pressure Head (ft)	Pressure (psi)	Pattern
F-J1	Zone-1	23.59	235.00	394.73	159.73	69.11	Fixed
F-J2	Zone-1	17.43	235.00	393.58	158.58	68.61	Fixed
F-J3	Zone-1	6.97	235.00	393.26	158.26	68.47	Fixed
F-J4	Zone-1	6.97	220.00	392.15	172.15	74.48	Fixed
F-J5	Zone-1	10.30	220.00	391.43	171.43	74.17	Fixed
F-J6	Zone-1	8.72	200.00	390.34	190.34	82.35	Fixed
F-J7	Zone-1	10.46	200.00	389.09	189.09	81.81	Fixed
F-J8	Zone-1	0.00	200.00	388.46	188.46	81.54	Fixed
F-J10	Zone-1	0.00	210.00	387.27	177.27	76.70	Fixed
F-J11	Zone-1	15.11	235.00	386.79	151.79	65.67	Fixed
F-J12	Zone-1	0.00	230.00	386.39	156.39	67.66	Fixed
F-J13	Zone-1	5.15	275.00	385.55	110.55	47.83	Fixed
F-J14	Zone-1	34.87	235.00	384.30	149.30	64.59	Fixed
F-J15	Zone-1	59.06	240.00	384.29	144.29	62.43	Fixed
F-J16	Zone-1	0.00	240.00	384.35	144.35	62.45	Fixed
F-J17	Zone-1	0.00	240.00	384.40	144.40	62.47	Fixed
F-J18	Zone-1	0.00	220.00	382.99	162.99	70.52	Fixed
F-J19	Zone-1	0.00	240.00	384.24	144.24	62.40	Fixed
F-J20	Zone-1	0.00	225.00	383.00	158.00	68.36	Fixed
J1	Zone-1	0.00	411.00	441.24	30.24	13.08	Fixed
J2	Zone-1	0.00	410.00	441.20	31.20	13.50	Fixed
J3	Zone-1	1.37	240.00	395.59	155.59	67.32	Fixed
J4	Zone-1	1.03	220.00	387.74	167.74	72.57	Fixed
J5	Zone-1	1.37	240.00	387.08	147.08	63.64	Fixed
J6	Zone-1	7.21	270.00	385.77	115.77	50.09	Fixed
J7	Zone-1	6.52	280.00	385.35	105.35	45.58	Fixed
J8	Zone-1	5.84	295.00	383.73	88.73	38.39	Fixed
J9	Zone-1	2.06	280.00	383.42	103.42	44.75	Fixed
J10	Zone-1	1.37	270.00	383.26	113.26	49.00	Fixed
J11	Zone-1	2.96	265.00	383.24	118.24	51.16	Fixed
J12	Zone-1	0.00	255.00	383.23	128.23	55.48	Fixed
J13	Zone-1	8.60	250.00	383.22	133.22	57.64	Fixed
J14	Zone-1	4.17	240.00	383.18	143.18	61.95	Fixed
J15	Zone-1	5.92	250.00	383.10	133.10	57.59	Fixed
J16	Zone-1	0.00	265.00	383.03	118.03	51.07	Fixed
J17	Zone-1	12.18	265.00	383.01	118.01	51.06	Fixed
J18	Zone-1	3.49	245.00	383.00	138.00	59.71	Fixed
J19	Zone-1	1.56	250.00	383.00	133.00	57.54	Fixed
J20	Zone-1	0.00	240.00	383.00	143.00	61.87	Fixed
J21	Zone-1	9.59	240.00	383.00	143.00	61.87	Fixed
J22	Zone-1	2.24	228.00	383.00	155.00	67.06	Fixed
J23	Zone-1	2.06	210.00	383.00	173.00	74.85	Fixed
J24	Zone-1	2.75	360.00	383.36	23.36	10.11	Fixed
J25	Zone-1	1.72	340.00	383.24	43.24	18.71	Fixed
J26	Zone-1	1.72	330.00	383.24	53.24	23.04	Fixed
J27	Zone-1	3.09	320.00	383.24	63.24	27.36	Fixed
J28	Zone-1	4.12	305.00	383.24	78.24	33.85	Fixed
J29	Zone-1	2.40	280.00	383.23	103.23	44.66	Fixed
J30	Zone-1	2.75	275.00	383.23	108.23	46.83	Fixed
J31	Zone-1	0.00	330.00	383.00	53.00	22.93	Fixed
J32	Zone-1	2.09	280.00	383.00	103.00	44.57	Fixed
J33	Zone-1	1.74	200.00	387.56	187.56	81.15	Fixed
J34	Zone-1	0.69	200.00	387.51	187.51	81.13	Fixed
J35	Zone-1	4.12	200.00	387.41	187.41	81.08	Fixed

NEAR GRASSMERE TANK

KNOWN LOW PRESSURE AREA ALONG LIMESTONE ST.
→ RECOMMENDS INDIVIDUAL BOOSTER PUMPS

NEAR FIR TANK - No HOMES

Scenario: Prop PHD
Steady State Analysis
Pipe Report

Label	From Node	To Node	Material	Hazen-Williams C	Length (ft)	Diameter (in)	Discharge (gpm)	Pressure Pipe Headloss (ft)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)	Open?	Check Valve?
F-P1	J3	F-J1	Ductile Iro	130.0	835.00	12.0	614.99	0.86	1.74	1.03	true	false
F-P2	F-J1	F-J2	Ductile Iro	130.0	1,199.00	12.0	591.41	1.15	1.68	0.96	true	false
F-P3	F-J2	F-J3	Ductile Iro	130.0	353.00	12.0	573.97	0.32	1.63	0.91	true	false
F-P4	F-J3	F-J4	Ductile Iro	130.0	1,251.00	12.0	567.00	1.11	1.61	0.89	true	false
F-P5	F-J4	F-J5	Ductile Iro	130.0	837.00	12.0	560.03	0.72	1.59	0.87	true	false
F-P6	F-J5	F-J6	Ductile Iro	130.0	1,306.00	12.0	549.73	1.09	1.56	0.84	true	false
F-P7	F-J6	F-J7	Ductile Iro	130.0	1,537.00	12.0	541.01	1.25	1.53	0.81	true	false
F-P8	F-J7	F-J8	Ductile Iro	130.0	801.00	12.0	530.55	0.63	1.51	0.78	true	false
F-P11	F-J10	F-J11	Ductile Iro	130.0	920.00	12.0	429.37	0.49	1.22	0.53	true	false
F-P12	F-J11	F-J12	Ductile Iro	130.0	811.00	12.0	414.26	0.40	1.18	0.50	true	false
F-P13	F-J12	F-J13	Ductile Iro	130.0	1,690.00	12.0	414.26	0.84	1.18	0.50	true	false
F-P14	J38	F-J14	Ductile Iro	130.0	930.00	12.0	79.81	0.02	0.23	0.02	true	false
F-P15	F-J14	F-J15	Ductile Iro	130.0	813.00	12.0	44.95	0.01	0.13	0.01	true	false
F-P16	F-J15	F-J16	Ductile Iro	130.0	513.00	8.0	-67.95	0.06	0.43	0.13	true	false
F-P17	F-J16	F-J17	Ductile Iro	130.0	331.00	8.0	-67.95	0.04	0.43	0.13	true	false
F-P18	F-J17	F-J18	Ductile Iro	130.0	1,650.00	8.0	0.00	0.00	0.00	0.00	false	false
F-P19	F-J15	F-J19	Ductile Iro	130.0	628.00	8.0	53.83	0.05	0.34	0.08	true	false
F-P20	F-J19	J50	Ductile Iro	130.0	315.00	8.0	53.83	0.03	0.34	0.08	true	false
F-P21	F-J18	J55	Ductile Iro	130.0	250.00	6.0	0.00	0.00	0.00	0.00	true	false
F-P22	F-J17	J43	Ductile Iro	130.0	536.00	8.0	-67.95	0.07	0.43	0.13	true	false
F-P23	J35	F-J10	Ductile Iro	130.0	261.00	12.0	429.37	0.14	1.22	0.53	true	false
F-P24	J61	F-J8	Ductile Iro	130.0	444.00	12.0	-530.55	0.35	1.51	0.78	true	false
F-P25	J56	F-J20	Ductile Iro	130.0	533.00	8.0	5.61	0.00	0.04	0.00	true	false
F-P26	F-J20	J53	Ductile Iro	130.0	284.00	8.0	-3.51	0.00	0.02	0.00	true	false
F-P27	F-J20	J58	Ductile Iro	130.0	1,778.00	8.0	9.12	0.01	0.06	0.00	true	false
F-P28	J57	J23	Ductile Iro	120.0	1,079.00	8.0	1.15	0.00	0.01	0.00	true	false
F-P30	F-J13	J41	Ductile Iro	130.0	785.00	12.0	409.10	0.38	1.16	0.48	true	false
P1	R1	T1	Ductile Iro	130.0	1,000.00	8.0	2,000.97	66.00	12.77	66.00	true	false
P2	T1	J1	Ductile Iro	120.0	301.00	8.0	1,111.82	7.76	7.10	25.78	true	false
P3	J2	J3	Ductile Iro	120.0	1,769.00	8.0	1,111.82	45.60	7.10	25.78	true	false
P4	J3	J4	Ductile Iro	120.0	1,361.00	8.0	495.45	7.85	3.16	5.77	true	false
P5	J4	J5	Ductile Iro	120.0	315.00	8.0	285.35	0.65	1.82	2.08	true	false
P6	J5	J6	Ductile Iro	120.0	638.00	8.0	283.98	1.31	1.81	2.06	true	false
P7	J6	J7	Ductile Iro	120.0	217.00	8.0	276.77	0.43	1.77	1.96	true	false
P8	J7	J8	Ductile Iro	120.0	861.00	8.0	270.24	1.62	1.72	1.88	true	false
P9	J8	J9	Ductile Iro	120.0	612.00	6.0	62.27	0.31	0.71	0.50	true	false
P10	J9	J10	Ductile Iro	120.0	338.00	6.0	60.21	0.16	0.68	0.47	true	false
P11	J10	J11	Ductile Iro	120.0	293.00	8.0	42.50	0.02	0.27	0.06	true	false
P12	J11	J12	Ductile Iro	120.0	298.00	8.0	36.17	0.01	0.23	0.05	true	false
P13	J12	J13	Ductile Iro	120.0	141.00	8.0	50.10	0.01	0.32	0.08	true	false
P14	J13	J14	Ductile Iro	120.0	567.00	8.0	41.50	0.03	0.26	0.06	true	false
P15	J14	J15	Ductile Iro	120.0	350.00	8.0	88.41	0.08	0.56	0.24	true	false
P16	J15	J16	Ductile Iro	120.0	349.00	8.0	82.49	0.07	0.53	0.21	true	false
P17	J16	J17	Ductile Iro	120.0	176.00	8.0	57.66	0.02	0.37	0.11	true	false
P18	J17	J18	Ductile Iro	120.0	337.00	8.0	23.40	0.01	0.15	0.02	true	false
P19	J18	J19	Ductile Iro	120.0	327.00	8.0	12.56	0.00	0.08	0.01	true	false
P20	J19	J20	Ductile Iro	120.0	541.00	8.0	11.01	0.00	0.07	0.00	true	false
P21	J20	J21	Ductile Iro	120.0	549.00	8.0	11.01	0.00	0.07	0.01	true	false
P22	J21	J22	Ductile Iro	120.0	1,300.00	8.0	1.42	0.00	0.01	0.00	true	false
P23	J22	J23	Ductile Iro	120.0	1,007.00	8.0	0.91	0.00	0.01	0.00	true	false
P24	J8	J24	Ductile Iro	120.0	541.00	12.0	454.60	0.37	1.29	0.68	true	false
P25	J24	J25	Ductile Iro	120.0	173.00	12.0	451.85	0.12	1.28	0.68	true	false
P26	J25	J26	Ductile Iro	120.0	275.00	8.0	8.30	0.00	0.05	0.00	true	false

Scenario: Prop PHD
Steady State Analysis
Tank Report

Label	Zone	Base Elevation (ft)	Minimum Elevation (ft)	Initial HGL (ft)	Maximum Elevation (ft)	Inactive Volume (gal)	Tank Diameter (ft)	Calculated Hydraulic Grade (ft)	Inflow (gpm)	Current Status	Calculated Percent Full (%)
T1	Zone-1	412.00	412.00	449.00	450.00	0.00	30.00	449.00	889.15	Filling	97.4
T2	Zone-1	356.00	356.00	383.00	396.00	0.00	30.00	383.00	441.83	Filling	67.5
T3	Zone-1	368.00	368.00	383.00	388.00	0.00	30.00	383.00	19.99	Filling	75.0

Twenty Year– Fire Flow at MDD

SETTINGS:

Valves:

The initial valve settings are the same as the PHD scenario.

Tanks:

Name	Label	Base Elevation (ft)	Initial HGL (ft)	Tank Diameter (ft)
Grassmere Tank	T1	412	449	30
Seidel Tank	T2	356	377	30
Fir Tank	T3	368	377	30

The tank levels are at the bottom of operating, equalizing, and fire suppression storage. To see the volumes for the different tanks, refer to the Storage Calculations in Chapter 3.

RESULTS:

Scenario: Prop MDD
Fire Flow Analysis
Fire Flow Report

Label	Zone	Satisfies Fire Flow Constraints?	Needed Fire Flow (gpm)	Fire Flow Upper Limit (gpm)	Available Fire Flow (gpm)	Total Flow Needed (gpm)	Total Flow Available (gpm)	Calculated Residual Pressure (psi)	Calculated Minimum Zone Pressure (psi)	Minimum Zone Junction
F-J1	Zone-1	true	1,500.00	10,000.00	4,568.33	1,508.05	4,576.38	20.01	3.47	J24
F-J2	Zone-1	true	1,500.00	10,000.00	4,383.60	1,504.33	4,387.93	20.00	3.65	J24
F-J3	Zone-1	true	1,500.00	10,000.00	4,347.92	1,501.73	4,349.66	20.00	3.67	J24
F-J4	Zone-1	true	1,500.00	10,000.00	4,581.78	1,501.73	4,583.51	20.00	3.14	J24
F-J5	Zone-1	true	1,500.00	10,000.00	4,581.93	1,503.73	4,585.66	20.00	3.07	J24
F-J6	Zone-1	true	1,500.00	10,000.00	5,055.85	1,502.16	5,058.02	20.00	2.00	J24
F-J7	Zone-1	true	1,500.00	10,000.00	5,351.34	1,502.60	5,353.94	20.00	1.23	J24
F-J8	Zone-1	true	1,500.00	10,000.00	5,651.37	1,500.00	5,651.37	20.00	0.46	J24
F-J10	Zone-1	true	1,500.00	10,000.00	5,688.73	1,500.00	5,688.73	29.07	-0.00	J24
F-J11	Zone-1	true	1,500.00	10,000.00	5,266.55	1,505.47	5,272.03	20.00	0.92	J24
F-J12	Zone-1	true	1,500.00	10,000.00	5,282.29	1,500.00	5,282.29	20.00	0.80	J24
F-J13	Zone-1	true	1,500.00	10,000.00	4,097.78	1,501.87	4,099.65	20.00	3.44	J24
F-J14	Zone-1	true	1,500.00	10,000.00	5,302.74	1,508.66	5,311.40	20.00	0.53	J24
F-J15	Zone-1	true	1,500.00	10,000.00	4,645.04	1,521.40	4,666.44	20.00	2.26	J24
F-J16	Zone-1	true	1,500.00	10,000.00	3,278.25	1,500.00	3,278.25	20.01	5.00	J24
F-J17	Zone-1	true	1,500.00	10,000.00	2,933.34	1,500.28	2,933.62	20.00	5.55	J24
F-J18	Zone-1	false	1,500.00	10,000.00	1,119.96	1,500.00	1,119.96	20.00	7.49	J24
F-J19	Zone-1	true	1,500.00	10,000.00	2,963.39	1,500.28	2,963.67	20.02	5.65	J24
F-J20	Zone-1	true	1,500.00	10,000.00	3,271.42	1,500.00	3,271.42	20.00	7.24	J24
J1	Zone-1	false	1,500.00	10,000.00	0.00	1,500.00	0.00	12.92	7.67	J24
J2	Zone-1	false	1,500.00	10,000.00	0.00	1,500.00	0.00	13.33	7.67	J24
J3	Zone-1	true	1,500.00	10,000.00	4,659.80	1,500.50	4,660.29	20.01	3.43	J24
J4	Zone-1	true	1,500.00	10,000.00	5,578.77	1,500.37	5,579.14	20.00	0.41	J24
J5	Zone-1	true	1,500.00	10,000.00	4,206.79	1,500.50	4,207.29	20.00	3.25	J24
J6	Zone-1	true	1,500.00	10,000.00	3,113.38	1,502.61	3,115.99	20.00	5.13	J24
J7	Zone-1	true	1,500.00	10,000.00	2,888.20	1,502.37	2,890.56	20.00	5.49	J24
J8	Zone-1	true	1,500.00	10,000.00	5,175.44	1,502.11	5,177.55	21.67	0.00	J24
J9	Zone-1	true	1,500.00	10,000.00	2,030.86	1,500.75	2,031.60	20.01	6.95	J24
J10	Zone-1	true	1,500.00	10,000.00	3,034.07	1,500.50	3,034.57	20.00	6.33	J24
J11	Zone-1	true	1,500.00	10,000.00	3,246.02	1,500.77	3,246.79	20.00	6.21	J24
J12	Zone-1	true	1,500.00	10,000.00	3,762.80	1,500.00	3,762.80	20.00	2.90	J27
J13	Zone-1	true	1,500.00	10,000.00	3,779.08	1,501.52	3,780.60	20.00	4.81	J27
J14	Zone-1	true	1,500.00	10,000.00	4,071.64	1,501.11	4,072.76	20.00	6.26	J24
J15	Zone-1	true	1,500.00	10,000.00	3,761.01	1,501.55	3,762.56	20.00	6.79	J24
J16	Zone-1	true	1,500.00	10,000.00	3,591.65	1,500.00	3,591.65	20.00	7.11	J24
J17	Zone-1	true	1,500.00	10,000.00	3,766.78	1,503.03	3,769.81	20.00	7.14	J24
J18	Zone-1	true	1,500.00	10,000.00	3,282.32	1,500.86	3,283.19	20.01	7.23	J24
J19	Zone-1	true	1,500.00	10,000.00	2,578.04	1,500.47	2,578.50	20.00	7.35	J24
J20	Zone-1	true	1,500.00	10,000.00	2,343.70	1,500.00	2,343.70	20.00	7.38	J24
J21	Zone-1	true	1,500.00	10,000.00	2,164.15	1,502.38	2,166.53	20.00	7.40	J24
J22	Zone-1	true	1,500.00	10,000.00	2,207.30	1,500.71	2,208.02	20.00	7.40	J24
J23	Zone-1	true	1,500.00	10,000.00	2,143.49	1,501.74	2,145.23	20.00	7.40	J24
J24	Zone-1	false	1,500.00	10,000.00	0.00	1,500.00	0.00	7.67	12.92	J1
J25	Zone-1	false	1,500.00	10,000.00	0.00	1,500.00	0.00	16.20	7.67	J24
J26	Zone-1	false	1,500.00	10,000.00	352.30	1,501.24	353.54	20.00	7.55	J24
J27	Zone-1	false	1,500.00	10,000.00	1,252.39	1,501.12	1,253.51	20.00	7.38	J24
J28	Zone-1	true	1,500.00	10,000.00	1,860.51	1,501.49	1,862.00	20.00	7.17	J24
J29	Zone-1	true	1,500.00	10,000.00	2,612.21	1,500.87	2,613.08	20.00	6.74	J24
J30	Zone-1	false	1,500.00	10,000.00	1,460.07	1,783.59	1,743.66	20.00	7.34	J24
J31	Zone-1	false	1,500.00	10,000.00	766.76	1,500.00	766.76	20.00	7.64	J24
J32	Zone-1	true	1,500.00	10,000.00	4,227.00	1,500.56	4,227.56	20.00	7.30	J24
J33	Zone-1	true	1,500.00	10,000.00	5,730.17	1,500.43	5,730.60	30.54	-0.00	J24

Scenario: Prop MDD
Fire Flow Analysis
Tank Report

Label	Zone	Base Elevation (ft)	Minimum Elevation (ft)	Initial HGL (ft)	Maximum Elevation (ft)	Inactive Volume (gal)	Tank Diameter (ft)	Calculated Hydraulic Grade (ft)	Inflow (gpm)	Current Status	Calculated Percent Full (%)
T1	Zone-1	412.00	412.00	449.00	450.00	0.00	30.00	449.00	859.50	Filling	97.4
T2	Zone-1	356.00	356.00	377.00	396.00	0.00	30.00	377.00	613.80	Filling	52.5
T3	Zone-1	368.00	368.00	377.00	388.00	0.00	30.00	377.00	11.68	Filling	45.0

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

Table 1

WATER SYSTEM PLAN
WATER RIGHTS SELF ASSESSMENT – EXISTING STATUS

PERMIT CERTIFICATE OR CLAIM #	NAME ON DOCUMENT	PRIORITY DATE (List oldest first)	SOURCE NAME/ NUMBER	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	EXISTING WATER RIGHTS		EXISTING CONSUMPTION		CURRENT WATER RIGHT STATUS (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
Permits/ Certificates 1. 117	Superior Portland Cement, Inc.	1908	SO1	None	750 gpm	1190 AF	475 gpm	265 AF	275 gpm	925 AF
2.										
3.										
4.										
Claims 1.										
2.										
3.										
4.										
TOTAL	**********	********	********	**********	750 gpm	1190 AF	475 gpm	265 AF	275 gpm	925 AF

INTERTIE NAME/ IDENTIFIER	NAME OF PURVEYOR PROVIDING WATER	EXISTING LIMITS ON INTERTIE USE		EXISTING CONSUMPTION THROUGH INTERTIE		CURRENT INTERTIE SUPPLY STATUS (Excess/Deficiency)	
		Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
1.							
2.							
3.							
4.							
TOTAL	**********						

PENDING WATER RIGHT APPLICATION (New/Change)	NAME ON APPLICATION	DATE SUBMITTED	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	PENDING WATER RIGHTS	
				Maximum Instantaneous Flow Rate (Qi) Requested	Maximum Annual Volume (Qa) Requested
1.					
2.					
3.					
4.					

If you need this publication in an alternate format, call (800) 525-0127. For TTY/TDD call (800) 833-6388.

DOH Form 331-371 (Updated 08/10)

To return form, please see reverse side.

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

Table 2

WATER SYSTEM PLAN
WATER RIGHTS SELF ASSESSMENT – 6 YEAR FORECAST

PERMIT CERTIFICATE OR CLAIM #	NAME ON DOCUMENT	PRIORITY DATE (List oldest first)	SOURCE NAME/ NUMBER	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	EXISTING WATER RIGHTS		FORECASTED WATER USE FROM SOURCES (6-year Demand)		FORECASTED WATER RIGHT STATUS (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
Permits/ Certificates 1. 117	Superior Portland Cement, Inc.	1908	SO1	None	750 GPM	1190 AF	475 gpm	280 AF	275 gpm	910 AFY
2.										
3.										
4.										
Claims 1.										
2.										
3.										
4.										
TOTAL	**********	********	********	**********	750 GPM	1190 AF	475 gpm	280 AF	275 gpm	910 AFY

INTERTIE NAME/ IDENTIFIER	NAME OF PURVEYOR PROVIDING WATER	EXISTING LIMITS ON INTERTIE USE		FORECASTED CONSUMPTION THROUGH INTERTIE		FORECASTED INTERTIE SUPPLY STATUS (Excess/Deficiency)	
		Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
1.							
2.							
3.							
4.							
TOTAL	**********						

PENDING WATER RIGHT APPLICATION (New/Change)	NAME ON APPLICATION	DATE SUBMITTED	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	PENDING WATER RIGHTS	
				Maximum Instantaneous Flow Rate (Qi) Requested	Maximum Annual Volume (Qa) Requested
1.					
2.					
3.					
4.					

If you need this publication in an alternate format, call (800) 525-0127. For TTY/TDD call (800) 833-6388.

DOH Form 331-372 (Updated 08/10)

To return form, please see reverse side.

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

Table 3

WATER SYSTEM PLAN
WATER RIGHTS SELF ASSESSMENT – 20 YEAR FORECAST

PERMIT CERTIFICATE OR CLAIM #	NAME ON DOCUMENT	PRIORITY DATE (List oldest first)	SOURCE NAME/ NUMBER	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	EXISTING WATER RIGHTS		FORECASTED WATER USE FROM SOURCES (20-year Demand)		FORECASTED WATER RIGHT STATUS (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
Permits/ Certificates 1. 117	Superior Portland Cement, Inc.	1908	SO1	None	750 GPM	1190 AF	475 gpm	325 AF	275 gpm	865 AFY
2.										
3.										
4.										
Claims 1.										
2.										
3.										
4.										
TOTAL	**********	********	********	**********	750 GPM	1190 AF	475 gpm	325 AF	275 gpm	865 AFY

INTERTIE NAME/ IDENTIFIER	NAME OF PURVEYOR PROVIDING WATER	EXISTING LIMITS ON INTERTIE USE		FORECASTED CONSUMPTION THROUGH INTERTIE		FORECASTED INTERTIE SUPPLY STATUS (Excess/Deficiency)	
		Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
1.							
2.							
3.							
4.							
TOTAL	**********						

PENDING WATER RIGHT APPLICATION (New/Change)	NAME ON APPLICATION	DATE SUBMITTED	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	PENDING WATER RIGHTS	
				Maximum Instantaneous Flow Rate (Qi) Requested	Maximum Annual Volume (Qa) Requested
1.					
2.					
3.					
4.					

If you need this publication in an alternate format, call (800) 525-0127. For TTY/TDD call (800) 833-6388.

DOH Form 331-373 (Updated 08/10)

To return form, please see reverse side.

S. F. No. 1161—6-45—1M. 8337.

CORRECTED
CERTIFICATE RECORD NO. 1 PAGE NO. 71-D UNDER DECLARATION OF CLAIM NO. 117

STATE OF WASHINGTON, COUNTY OF Skagit

Certificate of Ground Water Right

Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and the rules and regulations of the State Supervisor of Hydraulics thereunder.

THIS IS TO CERTIFY That SUPERIOR PORTLAND CEMENT, INC.

of Concrete, Washington has filed

in the office of the State Supervisor of Hydraulics of Washington Declaration of Claim No. 117

to withdraw ground waters of the State from a Tunnel

located within the SE¼ of SE¼ of Sec. 4, Twp. 35 N., Rge. 8 E.W.M.

for the purpose of Domestic supply, municipal use and manufacturing

The right to the use of said ground waters has been sustained and approved by the Supervisor of Hydraulics in accordance with Chapter 263, Laws of Washington for 1945, and is hereby entered of record in Volume 1 of Ground Water Certificates at page 71-D; the right approved has a priority of the year 1908; the amount of water which the Declarant is entitled to withdraw for the aforesaid purpose is limited to the amount actually beneficially used and shall not exceed 750 gallons per minute; 1180 acre-feet per year; and is appurtenant to the following described lands or place of use:

Superior Portland Cement, Inc. Plant at Concrete, Washington and Town of Concrete, Skagit County, Washington.

The right to the use of the ground water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in Sections 6 and 7, Chapter 122, Laws of 1929.

WITNESS the seal and signature of the State Supervisor of Hydraulics affixed this 14th day of February, 1947

RODNEY TYKER
State Supervisor of Hydraulics.

BY: Theo. Matthews

S. F. No. 7349—6-45—1M. 9180.

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION AND DEVELOPMENT
Division of Hydraulics

Declaration of Ground Water Claim

117 (Separate claims should be filed for each well, tunnel or infiltration trench)

No. 1

I, SUPERIOR PORTLAND CEMENT, INC. (Name of claimant)

of CONCRETE, SKAGIT COUNTY, WASHINGTON. (Complete postoffice address)

do hereby make declaration of claim of vested right to ground water by use prior to June 7, 1945, and file the same with the State Supervisor of Hydraulics, in accordance with Section 9, Chapter 263, Laws of 1945 of the State of Washington, and request a Certificate of Ground Water Right thereunder.

1. SOURCE *from which water is withdrawn is* TUNNEL (Flowing well, pump well, infiltration trench, or tunnel)

2. LOCATION *is:* approximately 2530' N 19°30' W from West end Main Street of Concrete, Wash. (Approximate distance and direction from nearest city or town)

and is more particularly described as follows:

(a) Approximately 1030' N 59° W from S E Corner Sec 4, Twp 35 N R 8 E. (Give distance and bearing to corner of section or other legal subdivision)

being within S E ¼ of N E ¼ (Smallest legal subdivision) *of Sec.* 4, *Twp.* 35 *N., Rge.* 8 E (E. or W.)

or (b) Within limits of incorporated city or town of _____,

in Lot _____, *Block* _____ *of* _____ (Name of addition or plat)

County of SKAGIT *within* _____ (Leave blank) *area*

_____ (Leave blank) *sub-area* _____ (Leave blank) *zone*

(c) The location of the well or other works is shown on the accompanying plat, or other adequate maps or drawings.

(d) The owner of property on which the works are constructed is:

SUPERIOR PORTLAND CEMENT, INC. (Name) CONCRETE, WASHINGTON (Post office address)

3. CONSTRUCTION WORK *was begun on* 1908 (Date); *was completed on* 1908 and 1940 (Date)

and the ground water claimed was first used for the purposes set out below on 1908 (Date);

since which time the water has been used continuously (Continuously or intermittently)

from 1908 (Date) *to* present (Date)

4. QUANTITY *of water claimed and used is* 750 *gallons per minute;* 1190 *acre feet per year.*

5. PURPOSE OR PURPOSES *for which water is used* Domestic, Municipal and manufacturing (Domestic, irrigation, municipal, manufacturing, industrial, etc.)

PERFORATED CASINGS OR SCREENS:

_____ from _____ to _____
(Number per foot and size of perforations, or describe screen)

_____ from _____ to _____

_____ from _____ to _____

_____ from _____ to _____

TUNNEL

LOG OF WELL: *(Describe each stratum or formation clearly, indicate if water bearing, and give thickness and depth as indicated.)*

MATERIAL	Thickness (Feet)	Depth to Bottom (Feet)
A tunnel was driven into the hill side at a point where a natural spring came out. to a total depth of approximately 100 feet the flow was on a cemented gravel formation and the water bearing stratum was sandy gravel and clay. The thickness of this stratum has not been determined.		

(b) INFILTRATION TRENCH: *Covered or open*_____

*Dimensions: Length*_____*ft. Minimum depth*_____*ft. Maximum depth*_____*ft.*

*Bottom width*_____*ft. Discharge*_____*g.p.m. Date of test*_____

TIMBER

(c) TUNNEL: *Type of lining*_____

4' 0" wide, 5' 8" high and 100 feet long

Dimensions: _____
(Length, course, and cross-sectional size)

Position of water bearing stratum with reference to portal of tunnel About the same elevation and to the Northward of portal of tunnel.

Log of tunnel: (Preceding table for log of well may be used, if desired. Give footage from portal and character of materials, as pertinent.)

7. *Ownership of each existing well or other works for withdrawal of ground water within a radius of one-quarter mile and the distance and direction from well or other works being reported herein:*

(Name of owner)	(Direction)	(Distance)
NONE		

(On accompanying plat or map show location of these existing wells or works.)

8. *Remarks:*

SUPERIOR PORTLAND CEMENT, INC.

By [signature] AUDITOR

STATE OF WASHINGTON, } ss.
COUNTY OF SKAGIT }

I, the claimant named in the foregoing claim, being first duly sworn, depose and say that I have read the above and foregoing claim to ground water right; that I know the contents thereof; and that to the best of my knowledge, information and belief, the facts therein stated are true and correct.

[signature]

Subscribed and sworn to before me this 15 *day of* FEBRUARY, 19 46

[signature]

Notary Public in and for the State of Washington,

Residing at Concrete

TOWN OF CONCRETE

WATER USE EFFICENCY PROGRAM

1.0 Current Water Conservation Program

The Grassmere Spring that supplies the Town of Concrete with its water supply has an abundant supply of water for its existing customers and the one large wholesale user. The water costs very little to collect and deliver to customers. The spring flows water constantly, and water that is not withdrawn for use, along with overflows from the water storage reservoirs flows to the Skagit River system. Leakage in the distribution system does not presently cause water shortages, and the water right is sufficiently large for current use. However the supply is finite, and at some point in the future the water supply will need to be utilized more efficiently in order to maintain adequate service. Therefore the Town must continue and intensify its water conservation efforts in order to guarantee a future water supply. The 2002 Water System Plan adopted by the Town included a conservation element, which included the following recommendations:

a. Provide Public Education by public service announcements, sending periodic mailings of conservation pamphlets.

b. Pursue a leak detection program.

c. Add meters at source and all service connections.

These measures are evaluated in the Water Use Efficiency Program along with other mandatory and voluntary measures.

2.0 Water Use Efficiency Goals

The Town currently does not have the water system metered, and as a result cannot evaluate efficiency. When metering is completed in 2017 and the Town begins developing a history of water use and leakage, both a demand side goal and a supply side goal will be established. The 2012 Water System Plan estimated water use and made projections both with and without conservation. These projections are presented in Chapter 2. It was assumed that some conservation would occur beginning in 2012 as a result of the Public Education Water Use Efficiency Measure adopted by the Town. After meters are installed in 2017, and the Town adopts an inclining block water rate, the projections indicate that water use will decline further.

Two goals were evaluated by the Town, although there is no effective way of quantifying them. The demand side goal is to reduce daily water use per person. This goal will be quantified in 2017 and 2018 after service meters are installed. The supply side goal is to reduce water withdrawn from the source. This goal can be quantified after the source meter is installed.

Initially the goal is to reduce water withdrawn by 5% (non wholesale) by 2018 when the service meters are installed. Implementation of these goals is done through adopted Water Use Efficiency Measures.

3.0 Evaluation and Description of Proposed Water Use Efficiency Measures

The Town has fewer than five hundred connections. The projection of the number of connections/units in Table 2-13 of the Water System Plan show that this number will be exceeded in 2012, however Table 2-13 assigns each multi-family unit as a separate connection. The number of physical connections will probably not exceed five hundred until approximately 2016 or 2017. Water systems with less than five hundred connections must implement or evaluate five mandatory and one additional Water Use Efficiency measures. The following measures were evaluated.

Mandatory Measures

a. Install production (source) meters. WAC 246-290-496(1). This was to be done by January 22, 2007. The Town has a production meter, but it does not effectively measure the actual water delivered to the distribution system. The Towns unique water source consists of a spring that runs constantly; the output cannot be controlled. Water is withdrawn from the spring, metered and sent to three storage tanks where excess water overflows, unmeasured. The overflow water is considered as non-consumptive water use, as it is not used in the distribution system. The only feasible way of adequately measuring the water going to the distribution system is to measure the reservoir overflow water, and subtract it from the amount of water withdrawn from the source. Construction of an overflow metering system will complete the production meter Water Use Efficiency Measure. The Town will implement this measure.

b. Install consumption (service) meters. WAC 246-290-496(2). The Town does not meter residential services. The Town will implement this measure.

c. Perform Meter Calibration. WAC 246-290-496(3). The Town will implement this measure.

d. Implement a water loss control action plan to control leakage. WAC 246-290-820(4). The Town does not currently have the ability to quantify leakage. After meters have been installed in 2017, the Town will evaluate leakage, and if it is above 10%, will prepare adopt and implement a water loss control action plan.

e. Educate customers about how they can use water efficiently at least once per year. WAC 246-290-810. The Town will mail water conservation tips to consumers at least once per year. These will be mailed with the Consumer Confidence Reports or with a Water Bill.

f. Evaluate rates that encourage water demand efficiency. WAC 246-290-100(4)(j)(iv) and WAC 246-290-105(4)(l). The Town will perform a rate study after service meters are installed in 2017. The rate study will include evaluation of an inclining block rate.

WUE Measures (Non Mandatory)

a. Voluntary odd-even lawn watering policy. The Town will adopt a during periods of summer high water use when water supplies are low.

b. The Town will educate consumers about the importance of using water efficiently. This will be in addition to the mandatory customer education measure.

The two non-mandatory WUE measures listed are cost effective measures that can be implemented prior to installation of service meters. Public education and voluntary lawn watering schedules can help prepare customers for the time when they are billed for the water they actually use.

5.0 Describe Customer Education Plan

The Town communicates the importance of using water efficiently directly to customers in the annual Consumer Confidence Report. At times conservation letters will also be included with water bills.

6.0 Estimated Water Savings from the Water Use Efficiency Plan

The goal of reducing customer water use by 5% and leakage to under 10% will reduce water demand from the estimated amount of 319 gpd/ERU to 303 gpd/ERU by 2013. The projections of water demand with and without conservation are shown in Tables 2-14 and 2-15 of the Water System Plan. This amounts to a reduction of approximately 10 acre feet of water in 2013.

The voluntary odd – even lawn watering policy and customer education are short term measures that will be used to address the demand side goal of reducing customer water use. After servicer meters are installed, the use of inclining block rates along with charging customers for actual water used will reduce the water use further.

7.0 Evaluation of Effectiveness of the Water Use Efficiency Program

Evaluation of water use is very difficult without source and service meters. Until meters are installed, the main method of evaluation will be visual observation of residential lawn watering.

At the present time there is no incentive for customers to conserve water, and lawn watering occurs as often and as long as users want. A voluntary odd – even watering plan is easy to observe. During drier months, the Town maintenance staff can observe the lawn watering habits of residents, and remind users of the voluntary policy.

8.0 System Leakage Evaluation

Part of the customer education program is to make the public aware of leakage, and how it can be identified. Leakage in service lines is the responsibility of the customer, and leaky service lies should be repaired before meters are installed, if possible, in order to prevent large water bills after the meters are in operation. After water meters have been installed at all services and the source, the Town will be able to compare water produced with water sold on an annual basis. Records will be kept of all authorized but un-metered water used, such as flushing and fire department use. A method of estimating these types of flows will be established. Records of leaks, along with estimates of the volume of lost water will also be kept. If leakage exceeds 10%, a leak detection program will be required.

9.0 Rate Structure

The Town currently utilizes a fixed fee billing structure. The Town will perform a rate study and adopt a uniform rate billing structure after meters are installed. The Town will also utilize an inclining block rate which will charge more per unit of water as more water is consumed. The Town Council will adopt the rate structure after the Town is fully metered.

10.0 Water Supply Characteristics

a. Source Description. The Town obtains all of its water from the Grassmere Spring. This water comes from the watershed north of the spring and currently does not require any treatment in the form of filtration or disinfection.

b. Production Capacity. The Town is limited to 750 gpm and 1190 af/yr by the current water rights applied to the Grassmere Spring. The Town typically draws water from the spring at a varying rate, currently estimated at an average of 308 gpm. The current withdrawal rate is estimated to be sufficient for the next 20 years, with conservation.

c. Variability. The water rights and water facilities are adequate to handle the year round variations in water use. Water storage reservoirs can handle the difference in Peak Hour Demand and source production capacity.

d. Water Rights. In 1947, The State of Washington issued a Ground Water Right certificate for withdrawal from the underground tunnel source (Claim No., GWC 117). This allowed the Town to pump a maximum of 750 gpm and a total of 1190 acre-feet per year.

e. Legal Constraints. New subdivisions of land requiring water service must be approved by the Town.

Section 4
Wellhead Protection Plan

4.1 Introduction

The Town is required to complete an updated Wellhead Protection Plan (WHPP) per WAC 246-290-135. The purpose of the WHPP is to protect the Grassmere Spring water source by identifying and managing potential sources of subsurface contamination. This section serves as an update and summary to the 1994 WHPP, which is included as Appendix I.

This WHPP update addresses the following:

- Characterization of the hydrogeologic setting of the source
- Delineation of Wellhead Protection Areas (WHPAs)
- Inventory of potential contaminant sources
- Management of WHPAs to prevent contamination
- Outline emergency response and contingency plans
- Identification of necessary program improvements

4.2 Hydrogeologic Characterization

Grassmere Spring is located northwest of the confluence of the Skagit and Baker Rivers on Burpee Hill. A collection pipe conveys water horizontally from 100 feet inside Burpee Hill to a concrete sump box equipped with an unsecured lid and overflow spillway.

The upland area north of the spring, which contains the aquifer feeding the spring, is geologically dominated by dense sand and gravel. This sand and gravel layer sits above a silt and clay layer and is capped by a layer of relatively impermeable glacial till approximately 30-60 feet deep. The aquifer, though protected on the west and northwest by impermeable bedrock, extends north for an unknown distance. Discharge boundaries for this aquifer, including Grassmere Spring, occur along the southern and eastern slopes of the upland area.

In 1999, source water monitoring was conducted to determine whether the source should be classified as a Groundwater Under the Influence of Surface Water (GUI). Based on those studies, the spring was determined not to be a GUI source.

In order to determine the vulnerability of a drinking water source to contamination, a Susceptibility Assessment Survey Form (SASF) was prepared as part of the 1994 Wellhead Protection Plan (Appendix J). The basis for the "high" susceptibility rating assigned to the spring is due to the lack of available information pertaining to spring construction.

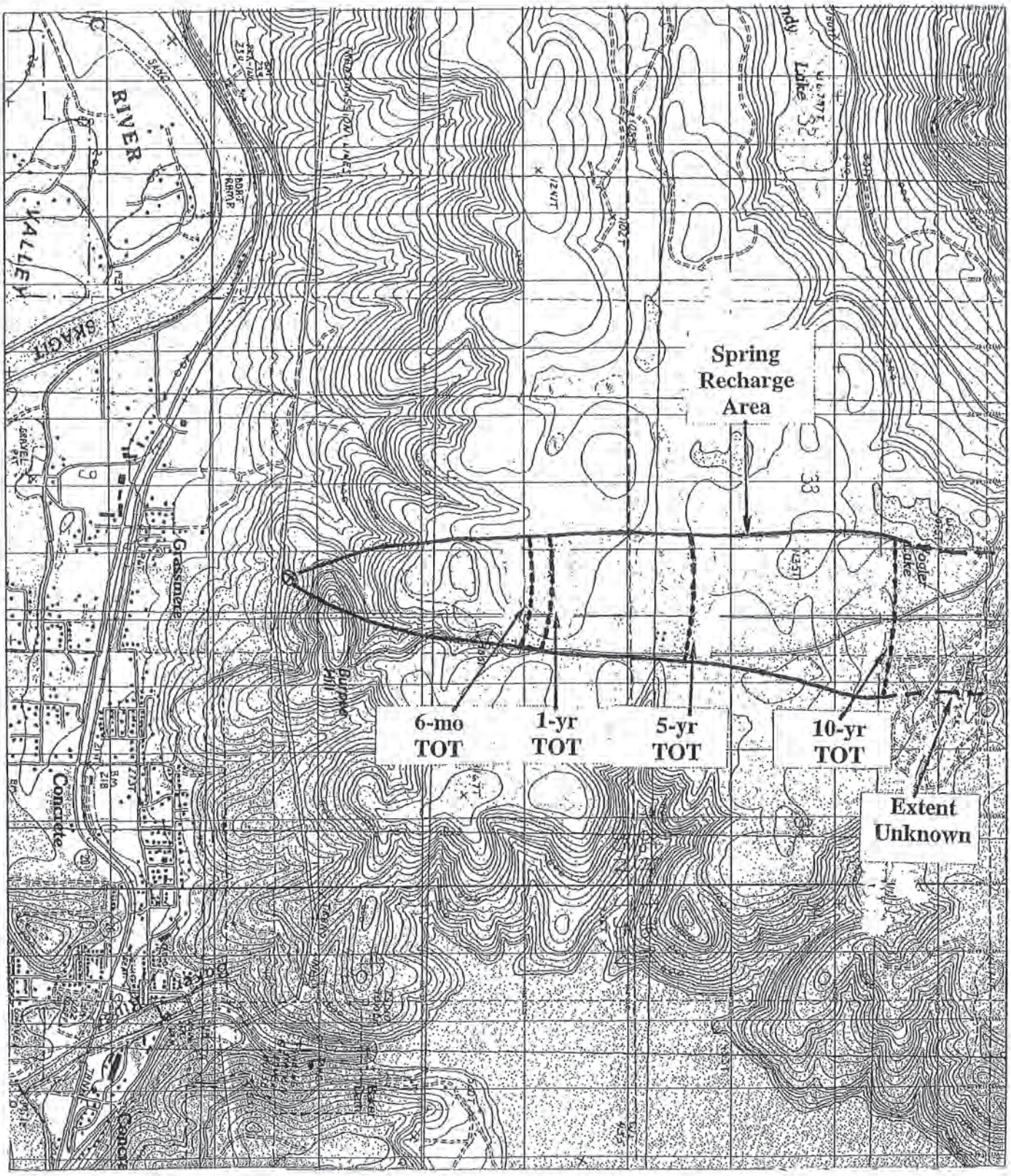


Exhibit 4-1
Wellhead Protection Areas Determined By Hydrogeologic Mapping

4.4 Contaminant Inventory

In 1994, land uses within the WHPAs were investigated to identify potential sources of groundwater contamination. This information was updated using multiple sources:

- USEPA "Enviromapper"
- Ecology "Facility/Site Atlas"
- Windshield reconnaissance
- Local records

At present, there is no evidence to indicate the presence of any underground storage tanks, hazardous waste generators, or current or abandoned disposal sites. Searches of EPA and DOE databases show no point source contaminants inside or bordering the 10-year WHPA. Accounts of residents with local knowledge confirm that there have been no changes to the status of land use in the WHPA since 1994.

Land within the WHPA is zoned for forestry, with a minimum parcel size of 20 acres. Forested areas are subject to periodic harvest by the forestry companies that own parcels in the WHPA. There are two single-family residences with septic systems located within the 5-year TOT zone. These residences are also potential sources of contamination due to pesticide application, household hazardous waste storage and disposal, agricultural waste storage and disposal, and heating tanks.

Burpee Hill Road is the only paved road in the WHPA. The road crosses through the 1-year, 5-year, and 10-year TOT zones. The road has unlined drainage ditches that provide overland flow. There is the potential for both contaminated surface water runoff and spills of hazardous material due to a traffic accident. Additionally, there is an unpaved access road to the wellhead in the WHPA. This road is vulnerable to contamination by direct infiltration.

At the spring, there are two potential routes of contamination. One source is contamination resulting from decay of the timber shoring within the spring system wood stave collection tunnel. The shoring was placed in the tunnel during the 1940s and it is unknown if the wood was chemically treated. The other source is the concrete sump box fed by the wood stave tunnel. This sump box has an unsecured lid, and is susceptible to tampering.

4.5 Contamination Susceptibility

In the 1994 WHPP, the majority of the WHPA was identified as low risk of contamination under the present zoning due to the protective nature of the till cap. If septic systems are properly maintained, the private residences are considered a low risk to source water contamination.

The southern portion of the 1-year TOT zone is more vulnerable to contamination due to the lack of a glacial till cap. There is also a moderately steep sloped and winding section of Burpee Hill Road in this portion of the WHPA. This area is at a higher risk for contamination by hazardous spills due to traffic accidents and contaminated run-off. Although currently stable, disturbing the slope around the spring could increase the potential for shallow slope failures.

Table 4-2
Wellhead Protection Program Needs

Description	Purpose	Cost
Purchase additional land around source	Establish Sanitary Control Area	$30,000
Prepare emergency spill response plan	Provide guidance in the event of a spill	$2,000
Secure concrete sump box	Prevent tampering	$500
Distribute public education flyers	Inform landowners about septic systems and pesticides	$100

Report of
Hydrogeologic Services
Wellhead Protection Study
Concrete, Washington

May 18, 1994

For

Town of Concrete

CONTENTS

REPORT OF HYDROGEOLOGIC SERVICES
WELLHEAD PROTECTION STUDY
CONCRETE, WASHINGTON
FOR
TOWN OF CONCRETE

EXECUTIVE SUMMARY

GeoEngineers performed a hydrogeologic assessment in the vicinity of Concrete, Washington in support of the development of a Wellhead Protection Plan (WHPP) for a spring collection system operated by the Town of Concrete. Our services involved the completion of three tasks: (1) characterization the hydrogeologic setting of the water supply system including areas of recharge, (2) delineation of the boundaries of the WHPAs (wellhead protection areas), and (3) performing a contaminant source inventory to identify existing and potential sources of ground water contamination within the boundaries of the WHPA. The following is a summary of our findings and conclusions:

- The spring collection system is completed in an unconfined sand and gravel aquifer.
- The aquifer recharge area for the spring system is located on the upland plateau area north of the spring collection system.
- Ground water is located at an approximate depth of 350 feet beneath the upland plateau area.
- Ground water flows southward within the recharge area at a rate of approximately 1.5 feet per day in the upland plateau area and 21 feet per day near the downgradient margins of the upland plateau.
- Existing water quality in the aquifer that supplies the Town of Concrete's spring collection system is excellent.
- The 1-year WHPA time of travel boundary is located approximately 3,800 feet north of the spring system.
- The 5-year WHPA time of travel boundary is located approximately 5,800 feet north of the spring system.
- The 10-year WHPA time of travel boundary is located approximately 8,600 feet north of the spring system.
- Currently the WHPA for the spring system is zoned as a Forestry District and is mostly undeveloped.
- Potential contamination sources identified within the WHPA include: (1) septic systems, (2) surface water runoff, (3) traffic accidents, and (4) timber shoring located within the tunnel that comprises the spring collection system.
- The greatest risk of aquifer contamination appears to be from accidental releases of hazardous substances along the Burpee Hill Road immediately north of the spring collection system.

PURPOSE AND SCOPE

The purpose of our services was to provide technical information to aid in the development of a WHPP for the Town of Concrete. Our services generally consisted of three tasks: (1) characterize the hydrogeologic setting of the water supply system including areas of recharge, (2) delineate boundaries of the WHPAs (wellhead protection areas), and (3) perform a contaminant source inventory to identify existing and potential sources of ground water contamination within the boundaries of the WHPA. Specifically, our scope of services included:

TASK 1. Hydrogeologic Setting

1. Research existing information to develop an understanding of local/regional hydrogeology. The information included geologic maps, water well reports, pumping test results, water quality information, water supply bulletins, and other available information.
2. Map hydrogeologic systems contributing water to the spring based on our literature research and field observations. Identify interpreted recharge areas for the spring on 7.5-minute United States Geologic Survey (USGS) quadrangle map.
3. Research water rights in the vicinity of the spring system.
4. Evaluate regional flow gradients and flow direction in the aquifer system that supplies the spring based on the collected information.
5. Estimate production aquifer and aquitard properties including hydraulic conductivity, transmissivity, porosity, flow direction and water flow velocity using available information.
6. Assess the susceptibility of the spring system to potential contamination based on the physical and hydrogeologic setting of the spring.
7. Assess probable deviation from a circular zone of contribution based on factors that included the presence of wells in the vicinity of the spring system, hydrogeologic boundaries and topography.

TASK 2. Boundary Delineation

1. Estimate WHPA boundaries using a conceptual hydrogeologic model that considered local hydrogeologic conditions, topography, recharge conditions and the climatic water budget for the area. One-year, 5-year and 10-year TOT (time of travel) boundaries were estimated based on the information obtained in Task 1.
2. Identify the 1-, 5- and 10-year TOTs on 7.5-minute USGS quadrangle maps.

TASK 3. Potential Contaminant Sources Inventory

1. Review available aerial photographs and maps of the area within the 1- or 5-year (as appropriate) TOT boundaries to identify potential sources of ground water contamination. We also conducted a visual reconnaissance of properties within the WHPA to identify and locate potential sources of contamination.

north, directly into the hillslope, made an approximate 100 degree turn to the west, and extended an additional 50 feet parallel to the hillslope. It is our understanding that both systems were utilized until the early to mid 1970s when the initial shallow collection system was abandoned. We further understand that the wood-stave transmission line was totally replaced by 1984.

The collection box and collector pipe for the current spring collection system is located at a elevation of approximately 530 feet above mean sea level (MSL). During a site visit in April 1994 we observed approximately 10 to 20 gpm (gallons per minute) of water bypassing the spring collection system and forming a small stream that flows across the site to the south. Mr. David Herring of the Town of Concrete indicated that the entrance to the tunnel was demolished over 20 years ago to restrict unauthorized entry. The condition of the collection pipe and the remaining portion of the tunnel is currently unknown. A generalized schematic of the current tunnel and spring system is shown in Figure 2.

GEOLOGIC/HYDROGEOLOGIC CONDITIONS

GENERAL

Our interpretation of surface and subsurface geologic/hydrogeologic conditions in the vicinity of the spring system is based on our review of available geologic/hydrogeologic information, approximately 18 water well reports obtained from Ecology files, a detailed geologic reconnaissance of the spring site and surrounding area and our experience. The surfical geology of the site and surrounding area is described and illustrated at a scale of 1:50,000 in Heller, 1979 (USGS Open-File Report 79-964).

The approximate locations of selected wells in the vicinity of the Town are shown in Figure 1. A generalized geologic map describing surface geologic conditions of the upland area located north of the Town is presented in Figure 3. A generalized geologic cross section depicting subsurface conditions inferred from water well reports and available geologic/hydrogeologic information is presented in Figure 4. Copies of the Ecology water well reports for the wells shown in Figure 1 are presented in Appendix A.

GEOLOGIC SETTING

Regional Geology

The Town of Concrete is located within a deeply eroded valley in the western portion of the Cascade Range. The Town is situated near the confluence of the Skagit and Baker Rivers, as shown in Figure 1. The upper and lower Baker River hydroelectric projects, completed in the 1930s and 1940s, created Lake Shannon and Baker Lake. These two lakes currently occupy most of the eastern portion of the Baker River valley. Grandy Creek flows southwest through a former channel of the Baker River located along the northwest margin of the Baker River valley. The creek originates in Grandy Lake and Lake Tyee (Figure 1) and eventually drains into the Skagit River approximately 5 miles west of the Town of Concrete.

is locally exposed below approximate elevation 900 feet above MSL on the margins of the upland area, as shown on Figures 3 and 4. The spring collection system that supplies water for the Town of Concrete is located near the base of the advance outwash unit (Figure 4).

The lacustrine silt and clay sediments were deposited in standing water ponded by glacial ice. The lacustrine sediments are exposed below approximate elevations of 500 feet to 600 feet above MSL near Lake Shannon (Figure 4). A unit of older Vashon or pre-Vashon silty sand and gravel appears to locally underlie the silt and clay unit, as shown on Figure 4.

HYDROGEOLOGIC SETTING

General

Our review of available information for this study, site observations and our experience in the area indicate that at least two aquifers are present in the vicinity of Town of Concrete: (1) an unconfined aquifer located in the advance outwash, and (2) a shallow unconfined aquifer located in the recent fluvial deposits near the Skagit River. Other aquifers may exist within the pre-Vashon sediments that underlie the lacustrine and recent fluvial deposits. Several wells are completed in the shallow unconfined aquifer located in the Skagit River valley (Figures 1 and 3). However, only three wells (A1, N1 and F1) appear to be completed in the advance outwash aquifer that supplies the Town of Concrete's spring system.

The Town of Concrete spring collection systems appears to be completed in the unconfined aquifer located in the advance sand and gravel outwash. Our site observations and review of the available geologic/hydrogeologic information indicates that the aquifer is situated beneath a roughly triangular-shaped upland plateau area located north of the Town. For the purposes of this report, the plateau is assumed to extend north from the Town to the northern end of Lake Tyee and from the Grandy Creek drainage on the west to Lake Shannon on the east (Figure 1). The remaining sections of this report focus on evaluating the hydrogeologic characteristics of the advance outwash aquifer with regard to the WHPA for the spring collection system.

Advance Outwash Aquifer Hydrogeologic Boundaries

Hydrogeologic boundaries define the physical or hydraulic limits of an aquifer system. Hydrogeologic boundaries can be low permeability units that restrict flow, such as silt and clay material or impermeable bedrock. They can also be stream channels that intersect the aquifer or topographic conditions that separate aquifers into independent hydrologic basins. Defining the boundaries of an aquifer requires locating aquifer recharge and discharge areas. The following is a brief description of the advance outwash aquifer boundaries in the vicinity of the Town's spring system.

- The advance outwash aquifer is underlain by relatively impermeable lacustrine silt and clay. The silt and clay unit appears to be locally extensive and likely significantly restricts vertical ground water flow through the base of the aquifer. The aquifer is bounded on the west and northwest by impermeable bedrock that constitutes a no-flow boundary along the valley wall.

obtained during a well pumping test. A limited pumping test was performed on well N1 located near Lake Tyee in November 1978 by the well driller. The water well report indicated that the aquifer was able to produce 243 gpm with 4 feet of water level drawdown after 4 hours of pumping. An average hydraulic conductivity of approximately 100 ft/d (feet per day) was estimated for the advance outwash aquifer based on the pumping test data, soil conditions observed in the field and our experience.

Ground Water Quality

The spring collection system has been sampled periodically by representatives of the Town of Concrete for parameters required by the WDOH for Group A Public Water Supply Systems. Mr. David Herring, Public Works Director for the Town of Concrete, indicated that the water quality of the spring system is excellent. All of the parameters periodically tested for either were not detected or were detected at concentrations less than federal and state drinking water standards for Group A Public Water Systems in all of the water samples submitted since 1984.

WELLHEAD PROTECTION AREA DELINEATION

GENERAL

A WHPA is an area in the vicinity of a well or spring where plans or strategies are implemented to protect the aquifer that supplies the well or spring from potential contamination. WHPAs are generally based on ground water time of travel (TOT) from a potential contaminant source to the well. The TOT area around a well can be termed a capture zone, in that a 1-year capture zone represents an area where contaminants could potentially reach the well within one year after reaching the aquifer. The TOT capture zones required by the WDOH for WHPPs are the 1-, 5-, and 10-year TOT areas.

The TOT approach assumes that any potential contaminant travels at the same rate as ground water in the aquifer. Furthermore, the TOT approach does not take into account vertical travel times (infiltration rates) of contaminants to the aquifer or the fact that most contaminants are "retarded" by aquifer matrix interactions and migrate considerably slower than the velocity of ground water flow. These assumptions lead to very conservative interpretations of TOTs.

WHPA DELINEATION METHODOLOGY

General

Wellhead protection areas can be delineated using several different methodologies. These methods, in order of increasing sophistication, include the calculated fixed radius (CFR), analytical calculations, hydrogeologic mapping and numerical modeling. The WDOH Wellhead Protection Program (June 1993) recommends that WHPAs for public water supply systems like the Town of Concrete (between 100 and 1,000 connections and having a strongly non-circular zone of contribution) be delineated using "analytical or other sophisticated, site specific methods (numerical modeling and/or hydrogeologic mapping) within five years" of implementation. The

Representatives of the Town indicated that the spring system flows at an estimated rate of approximately 350 to 400 gpm. They also indicated that the spring flow rate does not vary significantly throughout the year. We measured the spring system discharge using a Swoffer flow meter during a site visit in April 1994. The spring system was flowing at a rate of approximately 400 gpm during our site visit. Our reconnaissance of the site vicinity indicated that an estimated 20 gpm bypasses the spring collection system through a small stream channel. Therefore, the total ground water discharge at the spring site is approximately 420 gpm, or approximately 678 ac-ft per year.

Based on a total ground water recharge rate of 2.1 feet per year, a recharge area of approximately 325 acres ((678 + 0.7)/2.1 = 323.2 acres) would be required to provide the total annual discharge estimated for the spring system. Our interpretation of the approximate location of the spring recharge area is shown on Figure 5.

Hydrogeologic Mapping/Analytical Calculations

The hydrogeologic mapping involved evaluating aquifer recharge and discharge areas relative to the spring system. As discussed previously, the recharge area for the advance outwash aquifer is the upland plateau area located north of the spring site and the main aquifer discharge areas are springs located on the eastern and southern margins of the upland.

The average linear ground water flow velocity was estimated, based on existing data, and used to calculate the TOT capture zones (WHPAs) presented on Figure 5. The average linear velocity of ground water in an aquifer system was calculated using the following formula:

$$V_x = (1/N_e) \times K \times i$$

Where:

V_x = Average linear velocity of ground water
N_e = Effective porosity
K = Hydraulic conductivity
i = Hydraulic gradient or water table slope

Average linear velocities of approximately 21 feet per day near the eastern and southern discharge boundaries and approximately 1.5 feet per day in the upland area were calculated using the values of K and i previously discussed and assuming an average effective porosity of 0.25. The ground water velocities were used to define the 1-, 5- and 10-year TOT capture zones shown on Figure 5. These TOT boundaries define the WHPA for the spring system that supplies the Town of Concrete.

EPA LISTS

We reviewed EPA lists for information on properties in the site vicinity. The following is a summary of the lists reviewed and their content.

- NPL dated of June 18, 1993. This list includes sites that have been officially designated as priority cleanup sites. No NPL sites are listed as being located within WHPA boundaries.
- CERCLIS list dated August 5, 1993. This list includes sites where hazardous substances are known or suspected to have been released and where assessment and remediation under EPA's CERCLA program may be in progress. No CERCLIS sites are listed as being located within the WHPA boundaries.
- RCRA notification system dated June 14, 1993. This list identifies facilities that are classified by the EPA as hazardous waste generators, transporters and/or handlers, or as treatment, storage and disposal facilities. A facility appearing on this list does not imply that releases of hazardous materials have occurred at the facility. No RCRA treatment, storage and disposal facilities were listed within the WHPA. No hazardous waste generators were listed within the WHPA.

HISTORICAL DIRECTORIES

We were unable to locate any historical directories that covered the WHPA identified during this study.

WINDSHIELD SURVEY OF WHPA

We performed a drive through windshield survey of the WHPA in April 1994. The only public road that provides access to the WHPA is the Burpee Hill Road. We did not identify any indication of any past or present use, storage or release of hazardous materials on properties within the WHPA during our April 1994 windshield survey of the area. One domestic well and potentially two septic drainfields were identified within the WHPA boundaries.

PAST LAND USE

We reviewed historical aerial photographs of the site and surrounding area dated 1965, 1969, 1981, 1988 and 1992. The aerial photographs were obtained from Walker and Associates, Inc. The following is a summary of our interpretation of past land use in the WHPA, based on our review of the aerial photographs and our knowledge of the area.

The area in the immediate vicinity of the spring site is wooded and the Burpee Hill Road is present within the WHPA in all of the photographs reviewed. Overhead power lines owned and operated by the Puget Sound Power & Light Company (PSP&L) are visible running in an east-west direction, just south of the spring site in all of photographs. The land in the WHPA, as shown in the aerial photographs reviewed, was largely undeveloped property that was subjected to periodic timber harvesting.

WATER RIGHTS

We reviewed Ecology WRIS (Water Rights Information System) files regarding water rights in the vicinity of the WHPA and spring recharge area. The only water right listed for the spring recharge area is for the Town of Concrete's spring collection system. The Town's water right (Number G1*00117S) is for an instantaneous withdrawal rate of 750 gpm and an annual withdrawal of 1,190 acre-feet of ground water.

A summary of the listed water rights for the WHPA and the surrounding properties are presented in Table 2 and the approximate locations of the water rights are shown on Figure 7. The WRIS file describing the water rights listed for the WHPA and surrounding properties is presented in Appendix C.

CONCLUSIONS

POTENTIAL GROUND WATER CONTAMINATION SOURCES

General

Potential sources of ground water contamination are generally grouped into two categories: point and non-point sources. Point sources usually have specific fixed locations such as aboveground or underground storage tanks, facilities that store or utilize hazardous substances, landfills and single family septic systems. The release of contamination from point sources usually occurs during a specific time period. Non-point sources are usually occur over large areas and can be relatively continuous sources of contamination. Street runoff and fertilizer applications would be examples of non-point source contamination. The following is a brief discussion of the potential sources of contamination identified in the spring system's WHPA.

Septic Systems

Our research indicates that there currently are two single family septic systems located within the WHPA boundaries. Both systems are located within the 5-year TOT zone of the WHPA. Domestic and community septic systems are frequent point sources of contaminants in areas of heavy housing density and where shallow ground water is present. Contaminants commonly associated with septic system effluent include: nitrate, nitrite, ammonia, chloride and coliform bacteria.

Surface Water Runoff

Surface water runoff from road surfaces is a typical non-point source of ground water contamination. Storm sewers that collect runoff from road surfaces greatly reduce the volume of runoff that can potentially contaminate ground water. Contaminants commonly associated with surface water runoff include: petroleum hydrocarbons, volatile organic compounds and semi-volatile organic compounds. The Burpee Hill Road is the only paved road within the 1-, 5- and 10-year TOT zones for the spring system. It is our understanding that the road has unlined drainage ditches along sections and does not drain to a sewer system.

Septic Systems

The entire WHPA for the Town of Concrete spring system is in a Forestry District and single family residential dwellings are restricted to minimum 20-acre size lots. Furthermore, the advance outwash aquifer is located at an average depth of approximately 300 feet below the ground surface in the upland area. Properly constructed, operated and maintained septic systems are a very effective means of treating effluent. Based on the hydrogeologic setting of the aquifer and the current zoning of the WHPA, it is our opinion that single family septic systems, completed, operated and maintained according to current regulations, do not pose a significant threat to the advance outwash aquifer in the WHPA. However, if future rezoning of the area allows higher density housing or large community drainfields, a more detailed analysis of contaminant loading and the potential effect on the ground water system will be required.

Surface Water Runoff

In our opinion, surface water runoff represents a very minor risk of contamination to the aquifer within the 10-year, 5-year and northern portion of the 1-year TOT zones of the WHPA based on the present state of development and the hydrogeologic setting of the spring system. The risk increases slightly in the immediate vicinity of the spring system because of the absence of the till unit and a thinner sequence of unsaturated material located above the aquifer.

Traffic Accidents

The susceptibility of the advance outwash aquifer to contamination resulting from a release of hazardous materials during a traffic accident is low to moderate beneath the upland plateau area of the WHPA because of the presence of the relatively impervious till and the depth to ground water. However, because of the absence of the till unit, a thinner sequence of unsaturated material located above the aquifer, the absence of a storm water runoff containment system, and the narrow, moderately steep, and tortuous nature of the Burpee Hill Road in southern portion of the 1-year TOT zone, it is our opinion that a release of hazardous material within the southern portion of the 1-year TOT zone poses a moderate to high risk to water quality at the spring system.

Timber Shoring

The current condition of the timber shoring located within the spring collection system is unknown. However, it is known that the entrance to the tunnel was demolished over 20 years ago and it is likely that some of the remaining portions of the tunnel have collapsed since its construction. Furthermore, it is very probable that the timbers have been in contact with ground water within the system since the tunnel was constructed in 1940. There has been no indication of potential ground water contamination associated with the decay of the timbers in water samples obtained by the Town of Concrete from the spring system. It is our opinion that the risk of

- **Special Permitting:** Permitting allows the Town or County to evaluate any proposed land use on a case by case basis.

- **Public Education:** Public awareness could be increase regarding the critical recharge area for the spring system and the potential of effect of contamination on the Town's water system.

- **Spill Response Planning:** Comprehensive and effective spill response plans minimize the potential for ground water contamination occurring as the result of an accidental release of hazardous materials. Such planning would be particularly appropriate for Burpee Hill Road within the 1-year TOT boundary. Ecology has guidelines for the development and implementation of spill response plans.

- **Water Supply Contingency Planning:** The Town should develop an emergency water supply that could be utilized if the spring system becomes contaminated or is temporarily not useable. Possible alternative water supplies include: (1) water obtained from shallow wells completed in the Skagit River valley, (2) water obtained from moderately deep wells completed on the upland Plateau area, and (3) water obtained from other springs located on the southern margin of the upland plateau area.

- **Ground Water Monitoring:** Ground water monitoring allows the Town to monitor water quality within the advance outwash aquifer to establish trends and detect potential problems prior to contaminants reaching the spring system. This option would require the construction of one or more observation/sampling wells north of the spring collection system.

LIMITATIONS

We have prepared this report for use by the Town of Concrete and its consultant Leonard, Boudinot & Skodje, Inc in support of the preparation of a Wellhead Protection Plan for the Town of Concrete, Washington.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices in this area at the time the report was prepared. No warranty or other conditions, express or implied, should be understood.

◂ ◇ ▸

TABLE 1
SUMMARY OF PROPERTY OWNERSHIP IN WHPA

Parcel Number	Owner	Address
1	Aloha Lumber Corporation	2513 Douglas Street SW, Tumwater, Washington 98512
2	Aloha Lumber Corporation	2513 Douglas Street SW, Tumwater, Washington 98512
3	Crown Pacific Ltd.	121 SW Morrison Street, #900, Portland, Oregon 97204
4	R. A. and H. R. Cupples	721 First, Concrete, Washington 98237
5	State of Washington, Department of Natural Resources	202 John Cherberg Building, SP #A, Olympia, Washington 98504
6	State of Washington, Department of Natural Resources	202 John Cherberg Building, SP #A, Olympia, Washington 98504
7	Puget Sound Power & Light	B. Moreton, Puget Power Building, Bellevue, Washington 98009
8	Crown Pacific Ltd.	121 SW Morrison Street, #900, Portland, Oregon 97204
9	Goodyear Nelson Lumber	P.O. Box 71, Sedro Woolley, Washington 98284
10	Goodyear Nelson Lumber	P.O. Box 71, Sedro Woolley, Washington 98284
11	Darrell H. Coggins	P.O. Box 222, Concrete, Washington 98237
12	Western Resource Group, Inc.	P.O. Box 1152, Bellingham, Washington 98227
13	Western Resource Group, Inc.	P.O. Box 1152, Bellingham, Washington 98227
14	Western Resource Group, Inc.	P.O. Box 1152, Bellingham, Washington 98227
15	Western Resource Group, Inc.	P.O. Box 1152, Bellingham, Washington 98227
16	Western Resource Group, Inc.	P.O. Box 1152, Bellingham, Washington 98227
17	Crown Pacific Ltd.	121 SW Morrison Street, #900, Portland, Oregon 97204
18	Lake Tyee, Inc.	Moselle Kennedy, 11922 25th Street SE, Everett, Washington 98205
19	Nielsen Brothers, Inc.	100 East Pine, Bellingham, Washington 98225
20	Theodore F. Olson	P.O. Box 531, Hamilton, Washington 98255

Note: See Figure 6 for approximate location of parcels

#3513-001-B04 CSL:mim 04/27/94

EXPLANATION:

- ▲ A1 — WATER WELL LOCATION AND NUMBER
- ⊗ — TOWN OF CONCRETE SPRING SYSTEM LOCATION
- A' / A — GEOLOGIC CROSS SECTION

N

0 2,000 4,000

SCALE IN FEET

Reference: USGS 7.5' topographic quadrangle maps, Lake Shannon and Grandy Lake, Washington, photorevised 1983 and 1985.

Geo Engineers

SITE VICINITY AND WELL LOCATION MAP

FIGURE 1

#3513-001-B04 CS_.mim 05/04/94

EXPLANATION:

Q_{AL}	RECENT FLUVIAL DEPOSITS. SAND AND GRAVEL WITH VARYING AMOUNTS OF SILT
Q_{VT}	VASHON TILL. DENSE SILTY SAND WITH OCCASIONAL GRAVEL
Q_{VA}	VASHON ADVANCE OUTWASH. DENSE SAND AND GRAVEL WITH VARYING AMOUNTS OF SILT
Q_{VL}	VASHON LACUSTRINE DEPOSITS. SILT AND CLAY LAKE DEPOSITS.

Note: Geologic contacts are generalized from Heller, 1979, USGS Open File Report 79-964.

N

0 2,000 4,000

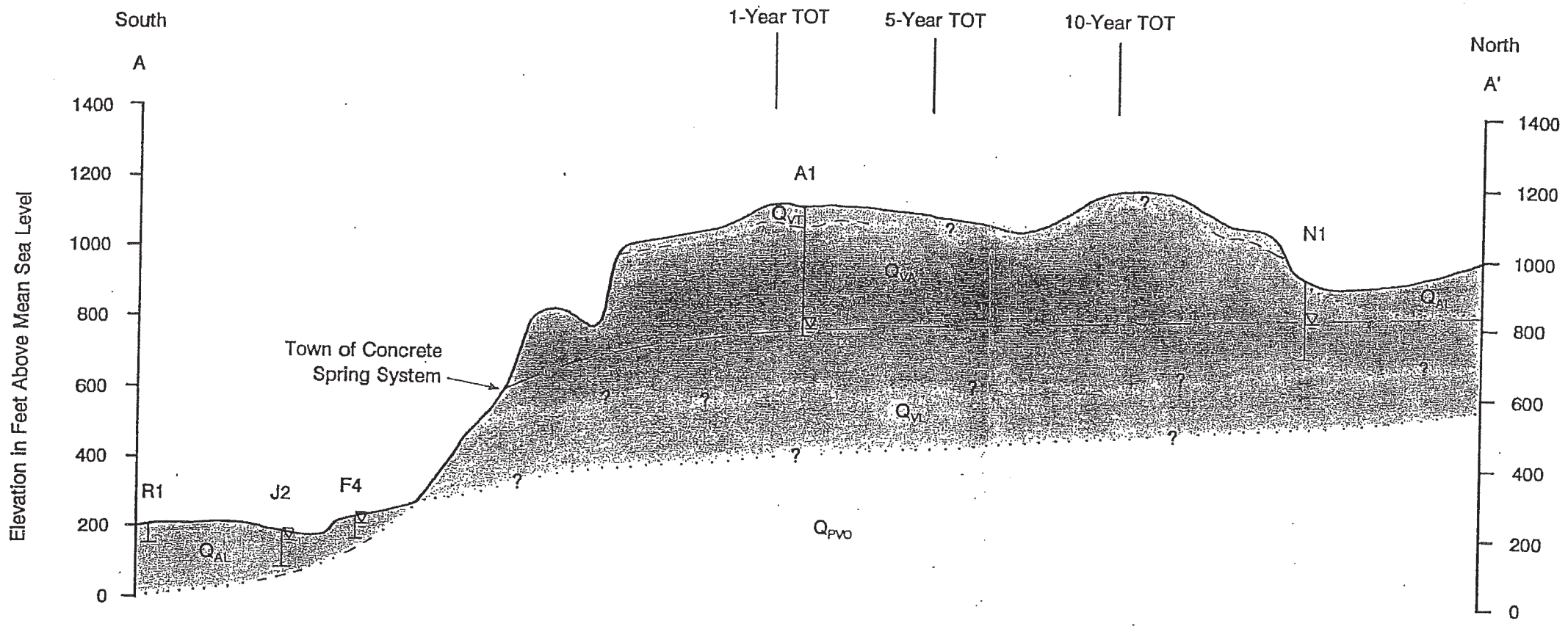
SCALE IN FEET

Reference: USGS 7.5' topographic quadrange maps, Lake Shannon and Grandy Lake, Washington, Photorevised 1983 and 1985.

Geo Engineers

GENERALIZED GEOLOGIC MAP OF UPLAND AREA

FIGURE 3



EXPLANATION:

Q_{AL}	RECENT FLUVIAL DEPOSITS. SAND AND GRAVEL WITH VARYING AMOUNTS OF SILT
Q_{VT}	VASHON TILL. DENSE SILTY SAND WITH OCCASIONAL GRAVEL.
Q_{VA}	VASHON ADVANCE OUTWASH. DENSE SAND AND GRAVEL WITH VARYING AMOUNTS OF SILT.
Q_{VL}	VASHON LACUSTRINE DEPOSITS. SILT AND CLAY LAKE DEPOSITS.
Q_{PVO}	PRE-VASHON ADVANCE OUTWASH. DENSE SAND AND GRAVEL WITH SOME SILT AND CLAY LENSES.
A1	WELL LOCATION AND NUMBER
▽	STATIC WATER LEVEL AND POTENTIOMETRIC SURFACE

SCALE:

HORIZONTAL	1"	=	2,000'
VERTICAL	1"	=	400'
VERTICAL EXAGGERATION		=	5X

Note: Geologic contacts are dashed where approximate and dotted where inferred.
See Figure 1 for location of section.

Geo Engineers

GENERALIZED GEOLOGIC CROSS SECTION

FIGURE 4

#3513-001-B04 CSL:mlm 05/12/94

SPRING RECHARGE AREA

10-Year TOT

5-Year TOT

1-Year TOT

Grandy Lake

Vogler Lake

Lake Tyee

LAKE

Burpee Hill

Grassmere

Concrete

Concrete

Baker Dam

Everett Lake

SCENIC RIVER VALLEY

SKAGIT

EXPLANATION:

⊗ TOWN OF CONCRETE SPRING SYSTEM

——— SPRING RECHARGE AREA

– – – – – TIME OF TRAVEL BOUNDARY

N

0 2,000 4,000

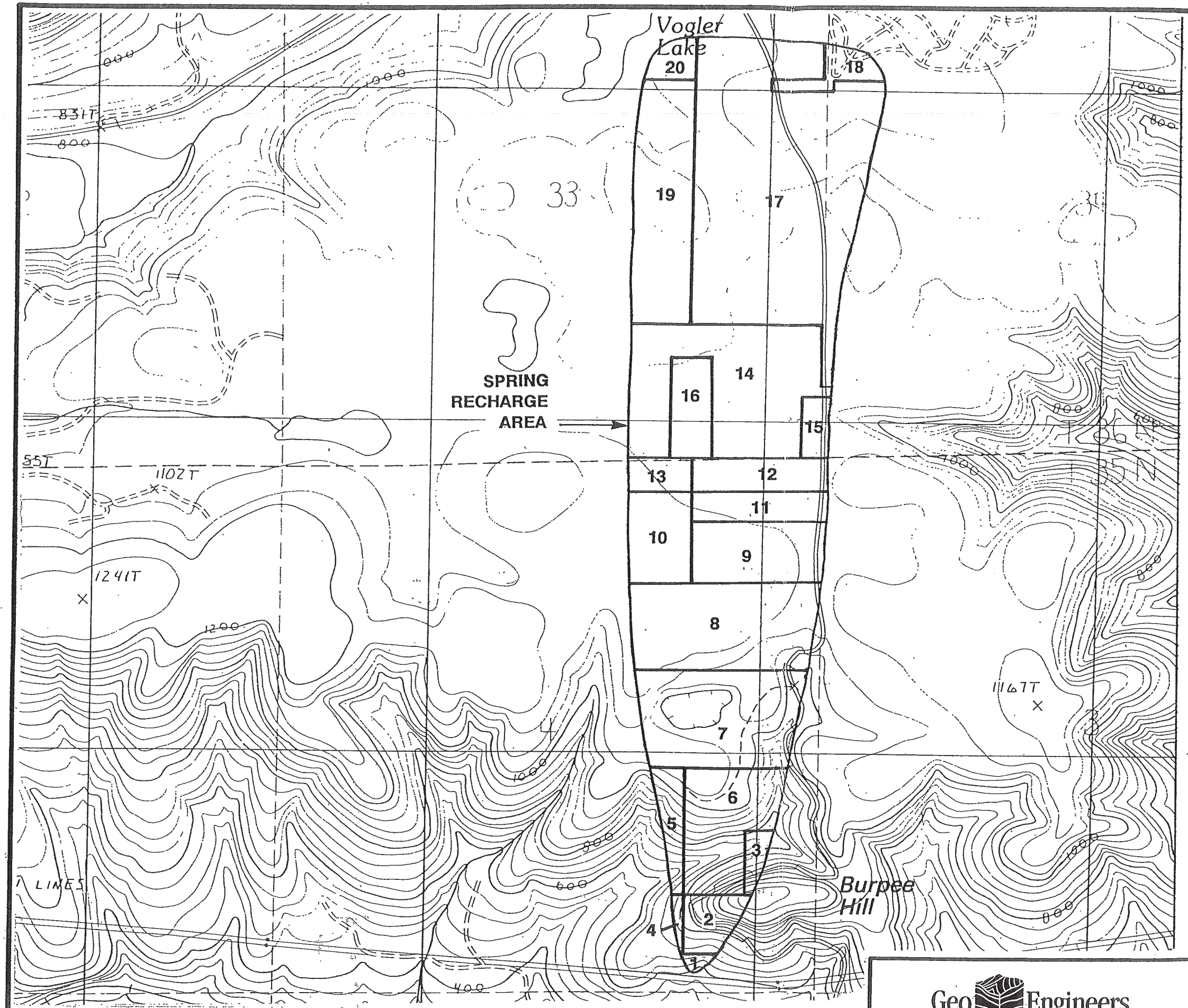
SCALE IN FEET

Reference: USGS 7.5' topographic quadrangle maps, Lake Shannon and Grandy Lake, Washington, photorevised 1983 and 1985

Geo Engineers

SPRING RECHARGE AREA

FIGURE 5



Note: See Table 1 for description of parcels.

N

0 1,000 2,000

SCALE IN FEET

Reference: USGS 7.5' topographic quadrangle map, Grandy Lake, Washington, photorevised 1985.

Geo Engineers

PROPERTY OWNERSHIP MAP

FIGURE 6

#3513-001-B04 CSL:mlm 05/14/94

#3513-001-B04 CSL:mlm 05/12/94

EXPLANATION:

- ● 1 GROUND WATER RIGHT LOCATION AND NUMBER
- ▲ 2 SURFACE WATER RIGHT LOCATION AND NUMBER

Note: See Table 2 and/or Appendix B for description of water rights.

N

0 2,000 4,000

SCALE IN FEET

Reference: USGS 7.5' topographic quadrangle maps, Lake Shannon and Grandy Lake, Washington, photorevised 1983 and 1985

Geo Engineers

WATER RIGHT LOCATION MAP

FIGURE 7

IN THE SUPERIOR COURT, STATE OF WASHINGTON, SKAGIT COUNTY

TOWN OF CONCRETE, a municipal corporation of the State of Washington, Plaintiff, vs. ALOHA LUMBER CORPORATION, a Washington corporation, Defendant.	Case No.: 00-2-01073-0 **STIPULATION AND ORDER FOR PARTITION AND DISMISSAL**

STIPULATION

Come now the parties, by their respective attorneys and stipulate and agree pursuant to RCW 2.44 and CR 2A as follows:

1. The parties have agreed to settle the dispute as to ownership of the property in question by a partition of the parcel of land which is in dispute herein. In furtherance of said agreement the parties have procured Partition by completion of a Boundary Line Adjustment as authorized by Skagit County Code 14.18.700, and received approvals for the division pursuant to said Ordinance.

2. The defendant shall retain all right, title, and interest in the parcel which is a northerly tract of the disputed lands herein, being more fully described as:

Fairhaven Legal Associates, P.S.
P.O. Box 526
Burlington, WA 98233
(360) 755-0611
Fax: (360) 755-9723

3. The Plaintiff, Town of Concrete, shall retain all right, title, and interest in the parcel which is the southerly tract of the disputed lands herein, being more fully described as:

All that Ptn which lies South of the North line of the South ½ of the Southeast ¼ of the Southeast ¼ of Section 4, Township 35 North, Range 8 East W.M.

EXCEPT the right of way of the county road known as Burpee Hill Road and as the Baker Lake Road.

Situate in the County of Skagit, State of Washington.

TOGETHER WITH:

That portion of the Southeast ¼ of the Southeast ¼ of Section 4, Township 35 North, Range 8 East, W.M., described as follows:

That certain 2 acre tract of land described as follows:

Beginning at the Southeast corner of said Section 4, running
thence North 69°0' West a distance of 838 feet plus or minus to the true point of beginning (being the Southeast corner of said 2 acre tract);
thence West 295.16 feet;
thence North 295.16 feet;
thence East 295.16 feet;
thence South 295.16 feet to the true point of beginning. It is intended that mid the point of said 2 acre tract is a spring fed water system belonging to and operated by the City of Concrete, Washington. If a subsequent survey should reveal that the water system is not so centered, the boundary lines shall be adjusted accordingly.

TOGETHER WITH that certain parcel described as follows:

Beginning at the Southeast corner of Section 4, Township 35 North, Range 8 East, W.M.;
thence North 69° West, approximately 837 feet to the Southeast corner of a 2 acre square parcel centered about an existing concrete well structure;
thence North 253.61 feet to the true point of beginning;
thence North 41.55 feet to the Northeast corner of said 2 acre parcel;
thence West, along the North lien of said 2 acre parcel, 93.69 feet;
thence North 36°34'31" East to an intersection with the South right of way of the Burpee Hill County Road;
thence Southeasterly along said right of way to a point North 36°34'31" East of the true point of beginning;
thence South 36°34'31" West to the true point of beginning.

Situate in the County of Skagit, State of Washington.

Fairhaven Legal Associates, P.S.
P.O. Box 526
Burlington, WA 98233
(360) 755-0611
Fax: (360) 755-9723

As part of this transaction and in settlement under Skagit County cause number 00-2-01093-0 the parties have agreed to additional conditions which shall be covenants to run with the land:

Whereas it is agreed and understood by the parties that this parcel (created herewith) lies outside the Town boundaries and outside the Urban Growth Area as designated by Skagit County,

And whereas it is also understood that the parcel created herewith is uphill from the Town water source and the piping which supplies water to the Town system.

Now therefore, in consideration of the mutual promises herein and other good and valuable consideration, which is hereby acknowledged,

The Town of Concrete agrees to supply one water connection to the Town water system to serve the tract created herewith. Aloha agrees to pay the cost of connection (hookup) in effect at the time of application for connection. All costs associated with connection including engineering, installation, pipe, pumping, and any other expense incidental to such connection shall be solely at the expense of Aloha.

Aloha agrees to comply with any County, State, or Federal laws or regulations in effect at the time of such application, including but not limited to any zoning laws or regulations and any requirements of the Growth Management Act, RCW 36.70A.

This agreement shall be a covenant to run with the land, binding upon the heirs, successors and assigns of the parties hereto.

2. The Plaintiff, Town of Concrete, shall retain all right, title, and interest in the parcel which is the southerly tract of the disputed lands herein, being more fully described as:

All that Ptn which lies South of the North line of the South ½ of the Southeast ¼ of the Southeast ¼ of Section 4, Township 35 North, Range 8 East W.M.

EXCEPT the right of way of the county road known as Burpee Hill Road and as the Baker Lake Road.

Situate in the County of Skagit, State of Washington.

TOGETHER WITH:

Fairhaven Legal Associates, P.S.
P.O. Box 526
Burlington, WA 98233
(360) 755-0611
Fax: (360) 755-9723

STATE OF WASHINGTON

DEPARTMENT OF HEALTH

20435 72nd Ave. S., Suite 200, K17-12 • Kent, Washington 98032-2358

July 16, 2001

ALAN WILKINS
CONCRETE UTILITIES
PO BOX 39
CONCRETE WA 98237

Subject Concrete Water System (ID #03950M)
Skagit County
Groundwater Under the Direct Influence of Surface Water (GWI) Determination
MPA Results and Second Set of Water Quality Monitoring Data for Spring #1 (S01)
Submittal # 99-0125b

Dear Mr. Wilkins:

The Department has reviewed the two MPA results and analyzed the second year of water quality data for your spring. The MPA results are summarized below:

MPA Sample Date	MPA Result
11/29/99	0 - Low Risk
3/23/00	0 - Low Risk

(These samples were analyzed by Udder Health System laboratory using EPA Consensus Method. MPA = microscopic particulate analysis.)

According to the MPA Protocols that have been developed for the Department to make GWI determinations, sources that exhibit low risk characteristics for two consecutive MPA samples are NOT considered to be under the direct influence of surface water. Therefore, at the present time, **the source is not considered to be directly influenced by surface water.**

The Department has also analyzed the second set of water quality monitoring data for your spring (collected June 2000 to May 2001). This second set of data was collected in order to confirm the "hydraulic connection" determination that was based on your original set of data. Concrete Utilities had expressed concern that there was significant instrumentation and testing error in the original data.

Based on the second set of data, it does not appear that the spring is in hydraulic connection with surface water. Both the temperature and conductivity measurements for the spring show little variation. Therefore, the Department has concluded that spring #1 (S01) is not in hydraulic connection with surface water. This is a change to the finding stated in my October 22, 1999 letter to you. **At this time, the wells will continue to be designated as ground water sources and disinfection is not required.**

The Department may reevaluate this source in the future should either the conditions affecting the water quality of your source change or the regulatory approach to determining the influence of surface water upon ground water be modified. Also, please be aware that the USEPA is currently preparing a new regulation that applies to ground water systems called the Ground Water Rule. This new rule could potentially result in a requirement that the spring be disinfected. At this time, it is unclear when the Ground Water Rule will go into effect.

Regulations establishing a schedule of fees for the reviews of documents have been adopted (WAC 246-290-990); an invoice for $222.50 is enclosed for this review. Please remit your complete payment in the form of a check or money order within 30 days of the date of this letter to: **DOH, Revenue Section, P.O. Box 1099, Olympia, WA 98507-1099.**

Thank you for your efforts to document the water quality of your spring. If you have any questions regarding this letter, please feel free to call me at (253) 395-6765.

Sincerely,

Nancy Feagin

Nancy Feagin, PE
Regional Engineer
NW Drinking Water Operations

cc: Lorna Parent, Skagit County Health Department
GWI file
Jim Nilson, DOH

UDDER HEALTH SYSTEMS

Allan Britten, DVM, MPVM
6401 Old Guide Rd
Bellingham, WA 98226
206-398-1360-Lab
206-398-7617 -Fax

MPA SOURCE WATER FINAL REPORT

On December 3, 1999 the following water specimen from the Concrete Utilities was evaluated using the Consensus Method for Determining Groundwater under the Direct Influence of Surface Water using Microscopic Particulate Analysis (MPA). The analysis was performed by Kent Oostra, Microbiologist. The total final pellet volume obtained from the filtration of the well can be found on the MPA source water identification sheet under sediment values. Alan Wilkins submitted the sample. The source water was sampled on the 29th of November and was received by Udder Health Systems on the 1st of December. Processing of the sample began on the 1st of December and the final reads were completed on the 3rd of December. The water source was from the water main at the #3 Reservoir.

The final floated pellet volume for the well can be found on the MPA source water identification sheet under sediment values. The sediment was diluted accordingly and placed on ten slides. An average of the ten slides was calculated to get an equivalent of number of organisms per 100 gallons. This average was done to lessen the chance of a false elevated or false negative count. The primary and secondary particulates were counted and evaluated. The primary indicators are used in determining the risk of surface water contamination; they include Giardia, Coccidia, Diatoms, Other Algae, Insects/Larvae, Rotifers and Plant Debris. Rotifers are good indicators of surface water influence when found with other indicators, but a few species of rotifers can have nutritional requirements that can be satisfied by food sources not necessarily associated with surface indicators. They are also found associated with mosses, which can often be found in or around a ground water source. No primary bioindicators were found in the sample. When applying the evaluated particulates to the necessary risk factor as per the consensus method a relative risk factor of **0** was found for the well. The risk factor score of 0 places the well's contamination risk in the **Low risk** range.

Also, present in the sample, but not used in assessing the risk factor was amorphous debris. The fine amorphous debris was granular material. The granular material could be a combination of silica and organic detritus. The large amorphous debris are of greater than 5 um and were a mix of organic detritus and large grains of sand. Since the materials listed previous are nonspecific and ubiquitous in all water sources they are not good indicators for surface water influence.

Using a quantitative approach per unit volume linked to a relative risk factor would place a ground water source at either low, moderate or high risk of surface water contamination. The occasional spurious occurrence of flying insects, pupae, rotifers, crustacea, ciliates, colorless flagellates or plant debris *without* diatoms/algae, Giardia or coccidia would place the source at low to moderate risk. On the other hand, the presence of Giardia or coccidia in any amount would place the system in the high risk category. Since the well had no bio-indicators, it was placed in the low range of a source that is at a low risk of being influenced by surface water.

It should be emphasized that the surface water influence on a groundwater source cannot be determined solely on the basis of one or two MPA's. Also the MPA consensus protocol should be regarded as a tentative method with limited recovery efficiency data available for review. The absence of Giardia cysts, coccidia or other Bio-indicators indicates a negative sample to the extent of the detection limits of the analysis performed; it does not ensure that the source is Giardia or pathogen-free. Conversely, a positive MPA result does not necessarily signify the presence of Giardia or other related pathogens.

Sincerely,

Kent Oostra
Supervisor
Microbiologist

DEC 29

✓ faxed
___ phoned
___ message

Worksheet

Date 12/3/99 Dilution 1: 100 Microscopy Brightfield, Phase Contrast, Hoffman Number of Slides To Examined 7

Analyst Kent Oostra Magnification 10x and 100 x Vol final pellet 19 Number of Slides Examined 5

Lab Number 5854841

Primary Particulates	Slide 1	Slide 2	Slide 3	Slide 4	Slide 5	Slide 6	Slide 7	Slide 8	Slide 9	Slide 10	Total	#/100 gallon	Risk Factor
Giardia	0	0	0	0	0	0	0	0	0	0	0	0	0
Coccidia	0	0	0	0	0	0	0	0	0	0	0	0	0
Diatoms	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Algae	0	0	0	0	0	0	0	0	0	0	0	0	0
Insect/Larvae	0	0	0	0	0	0	0	0	0	0	0	0	0
Rotifers	0	0	0	0	0	0	0	0	0	0	0	0	0
Plant Debris	0	0	0	0	0	0	0	0	0	0	0	0	0
										Total	0		0

Secondary Particulates													
Large Amorphous debris	1	3	7	2	0	11	2	4	3	0	33	48	
Fine Amorphous debris	68	47	36	22	74	19	31	52	12	49	410	597	
Minerals	0	0	0	0	0	0	0	0	0	0	0	0	
Plant pollen	0	0	0	0	0	0	0	0	0	0	0	0	
Nematodes	0	0	0	0	0	0	0	0	0	0	0	0	
Crustacia	0	0	0	0	0	0	0	0	0	0	0	0	
Amoeba	0	0	0	0	0	0	0	0	0	0	0	0	
Ciliate	0	0	0	0	0	0	0	0	0	0	0	0	
Flagellates	0	0	0	0	0	0	0	0	0	0	0	0	
Other	0	0	0	0	0	0	0	0	0	0	0	0	
											0	0	
											0	0	

Relative risk factor: 0 **Risk of Surface Water Contamination: LOW RISK**

UDDER HEALTH SYSTEMS, INC.
6401 OLD GUIDE RD
BELLINGHAM, WA 98226
LAB 360-398-1360 • FAX 360-398-7617

MPA SOURCE WATER IDENTIFICATION

Lab # 5854841
Water System Concrete Utilities
Address PO Box 39 Concrete, Wa 98237
Phone 360-853-8550
Fax 360-853-8002
Date(s)/Time Relinquished; 11/30/99 9:53 PM
Sampled/Relinquished by: Alan Wilkins

SAMPLE COLLECTION INFORMATION

Start Time 9:46 am
Start Date 11/29/99
Stop Time 9:40 am
Stop date 11/30/99

Meter Reading: before 8070 after 9380
Total Volume filtered 1310 gallons
Operator's Name Alan Wilkins
PSI 10

Water source ID as; _X_spring ___infil galley _____artesian well
_____dug well ___drilled well ___horizontal well _____other _____
If well : depth _____ft. Distance from river/stream/lake _____ft.

Drainage Ditch

ld Measuements:

	Date	Turb(NTU)	pH	Cond.	T. Chlo.	F. Chlo.	Temp.
Visit One							
Visit Two							

Sampling Location Water Main at the #3 Reservoir
Exact Sample Point Water main

LAB

Processing Information:

Total Volume filtered 1310
Time Required 24 hours

Sediment Values:	Total Volume	ul sediment/100gal
Total pooled filtered sediment	0.25 ML	19
Final floated pellet	0.25 ML	19
Remaining floatation sediment	0 ML	0

Floatation parameters:

_____ Percoll/sucrose gradient
_____ Sucrose gradient
_____ Potassium citrate
_____ Zinc Sulfate (ZNSO4)
_____ Other _____

UDDER HEALTH SYSTEMS

Allan Britten, DVM, MPVM
6401 Old Guide Rd
Bellingham, WA 98226
206-398-1360-Lab
206-398-7617 -Fax

MPA SOURCE WATER FINAL REPORT

On March 27, 2000 the following water specimen from the Concrete Utilities was evaluated using the Consensus Method for Determining Groundwater under the Direct Influence of Surface Water using Microscopic Particulate Analysis (MPA). The analysis was performed by Kent Oostra, Microbiologist. The total final pellet volume obtained from the filtration of the well can be found on the MPA source water identification sheet under sediment values. Alan Wilkins submitted the sample. The source water was sampled on the 22nd of March and was received by Udder Health Systems on the 24th of March. Processing of the sample began on the 24th of March and the final reads were completed on the 27th of March. The water source was from the #3 Reservoir.

The final floated pellet volume for the well can be found on the MPA source water identification sheet under sediment values. The sediment was diluted accordingly and placed on seven slides. An average of the seven slides was calculated to get an equivalent of number of organisms per 100 gallons. This average was done to lessen the chance of a false elevated or false negative count. The primary and secondary particulates were counted and evaluated. The primary indicators are used in determining the risk of surface water contamination; they include Giardia, Coccidia, Diatoms, Other Algae, Insects/Larvae, Rotifers and Plant Debris. Rotifers are good indicators of surface water influence when found with other indicators, but a few species of rotifers can have nutritional requirements that can be satisfied by food sources not necessarily associated with surface indicators. They are also found associated with mosses, which can often be found in or around a ground water source. No primary bioindicators were found in the sample. When applying the evaluated particulates to the necessary risk factor as per the consensus method a relative risk factor of 0 was found for the well. The risk factor score of 0 places the well's contamination risk in the Low risk range.

Also, present in the sample, but not used in assessing the risk factor were nematodes and amorphous debris. The fine amorphous debris was granular material. The granular material could be a combination of silica and organic detritus. The large amorphous debris are of greater than 5 um and were a mix of organic detritus and large grains of sand. Nematodes are common in healthy water sources. They feed on bacteria and algae and their usefulness as indicators of groundwater under the direct influence of surface water may be limited Since the materials listed previous are nonspecific and ubiquitous in all water sources they are not good indicators for surface water influence.

Using a quantitative approach per unit volume linked to a relative risk factor would place a ground water source at either low, moderate or high risk of surface water contamination. The occasional spurious occurrence of flying insects, pupae, rotifers, crustacea, ciliates, colorless flagellates or plant debris *without* diatoms/algae, Giardia or coccidia would place the source at low to moderate risk. On the other hand, the presence of Giardia or coccidia in any amount would place the system in the high risk category. Since the well had no bio-indicators, it was placed in the low range of a source that is at a low risk of being influenced by surface water.

It should be emphasized that the surface water influence on a groundwater source cannot be determined solely on the basis of one or two MPA's. Also the MPA consensus protocol should be regarded as a tentative method with limited recovery efficiency data available for review. The absence of Giardia cysts, coccidia or other Bio-indicators indicates a negative sample to the extent of the detection limits of the analysis performed; it does not ensure that the source is Giardia or pathogen-free. Conversely, a positive MPA result does not necessarily signify the presence of Giardia or other related pathogens.

Sincerely,

Kent Oostra
Supervisor
Microbiologist

Worksheet

Date 3/27/00 Dilution 1: 70 Microscopy Brightfield, Phase Contrast, Hoffman Number of Slides To Examined 7

Analyst Kent Oostra Magnification 10x and 100 x Vol final pellet 19 Number of Slides Examined 7

Lab Number 5857482

Primary Particulates	Slide 1	Slide 2	Slide 3	Slide 4	Slide 5	Slide 6	Slide 7	Slide 8	Slide 9	Slide 10	Total	#/100 gallon	Risk Factor
Giardia	0	0	0	0	0	0	0				0	0	0
Coccidia	0	0	0	0	0	0	0				0	0	0
Diatoms	0	0	0	0	0	0	0				0	0	0
Other Algae	0	0	0	0	0	0	0				0	0	0
Insect/Larvae	0	0	0	0	0	0	0				0	0	0
Rotifers	0	0	0	0	0	0	0				0	0	0
Plant Debris	0	0	0	0	0	0	0				0	0	0
Secondary Particulates										**Total**	0		0
Large Amorphous debris	0	4	3	0	8	2	6				23	22	
Fine Amorphous debris	24	38	17	25	41	29	31				205	199	
Minerals	0	0	0	0	0	0	0				0	0	
Plant pollen	0	0	0	0	0	0	0				0	0	
Nematodes	1	0	2	0	1	0	0				4	4	
Crustacia	0	0	0	0	0	0	0				0	0	
Amoeba	0	0	0	0	0	0	0				0	0	
Ciliate	0	0	0	0	0	0	0				0	0	
Flagellates	0	0	0	0	0	0	0				0	0	
Other	0	0	0	0	0	0	0				0	0	
											0	0	
											0	0	

Relative risk factor: 0 **Risk of Surface Water Contamination: LOW RISK**

When recorded return to:

TOWN OF CONCRETE
P.O. BOX 39
CONCRETE, WA 98237

Document Title:
Declaration of Covenant

Reference Number :

Grantor(s): ☐ additional grantor names on page ___.

1. Town of Concrete

2.

Grantee(s): ☐ additional grantee names on page___.

1. Public

2.

Abbreviated legal description: ☐ full legal on page(s) 5 .

S 1/2, SE, SE 4/35/8

Assessor Parcel / Tax ID Number: ☐ additional tax parcel number(s) on page ___.

P128056

DECLARATION OF COVENANT

I (we) the undersigned, owner(s) in fee simple of the land described herein, hereby declare this covenant and place same on record.

I (we) the grantor(s) herein, am (are) the owner(s) in fee simple of (an interest to) the following described real estate situated in Skagit County, State of Washington; to wit:

See attached Exhibit B

on which the grantor(s) owns and operates a spring and waterworks supplying water for public use located on said real estate, at:

A Spring Water Source located within the S. ½ of the SE ¼ of the SE ¼ of Section 4, T. 35 N, R. 8 E, W.M., described as follows: Beginning at the SE corner of said Section 4, thence N. 69° 00' West, a distance of 838 feet plus or minus; thence N. a distance of147.58 feet; thence W. a distance of 147.58 feet to said Spring Water Source. Skagit County Parcel No. P128056.

and grantor(s) is (are) required to keep the water supplied from said source free from impurities which might be injurious to the public health.

It is the purpose of these grants and covenants to prevent certain practices hereinafter enumerated in the use of said grantor(s) water supply.

NOW, THEREFORE, the grantor(s) agree(s) and covenant(s) that said grantor(s), his (her) (their) heirs, successors and assigns will not construct, maintain, or suffer to be constructed or maintained upon the said land of the grantor(s) and within 200 (Two Hundred) feet of the well herein described, so long as the same is operated to furnish water for public consumption, any potential source of contamination, such as septic tanks and drainfields, sewerlines, underground storage tanks, roads, railroad tracks, vehicles, structures, barns, feed stations, grazing animals, enclosures for maintaining fowl or animal manure, liquid or dry chemical storage, herbicides, insecticides, hazardous waste, or garbage of any kind or description.

These covenants shall run with the land and shall be binding to all parties having or acquiring any right, title, or interest in the land described herein or any part thereof, and shall inure to the benefit of each owner thereof.

WITNESS my hand this 11th day of June, 2012.

Mayor
Town of Concrete, WA
Grantor(s)

State of Washington)
County of Skagit)

I, the undersigned, a Notary Public in and for the above named County and State, do hereby certify that on this

11th Day of June, 2012, personally appeared before me
Judd Wilson- Mayor to me known to be the individual described in and who executed the within instrument, and acknowledge that he ~~(they)~~ signed and sealed the same as free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal the day and year last above written.

Andrea R Fichter

Notary Public in and for the State of Washington, residing at

Concrete, WA

My Commission Expires:

12/03/15

ANDREA RAE FICHTER
Commission Expires
NOTARY PUBLIC
12-03-2015
STATE OF WASHINGTON

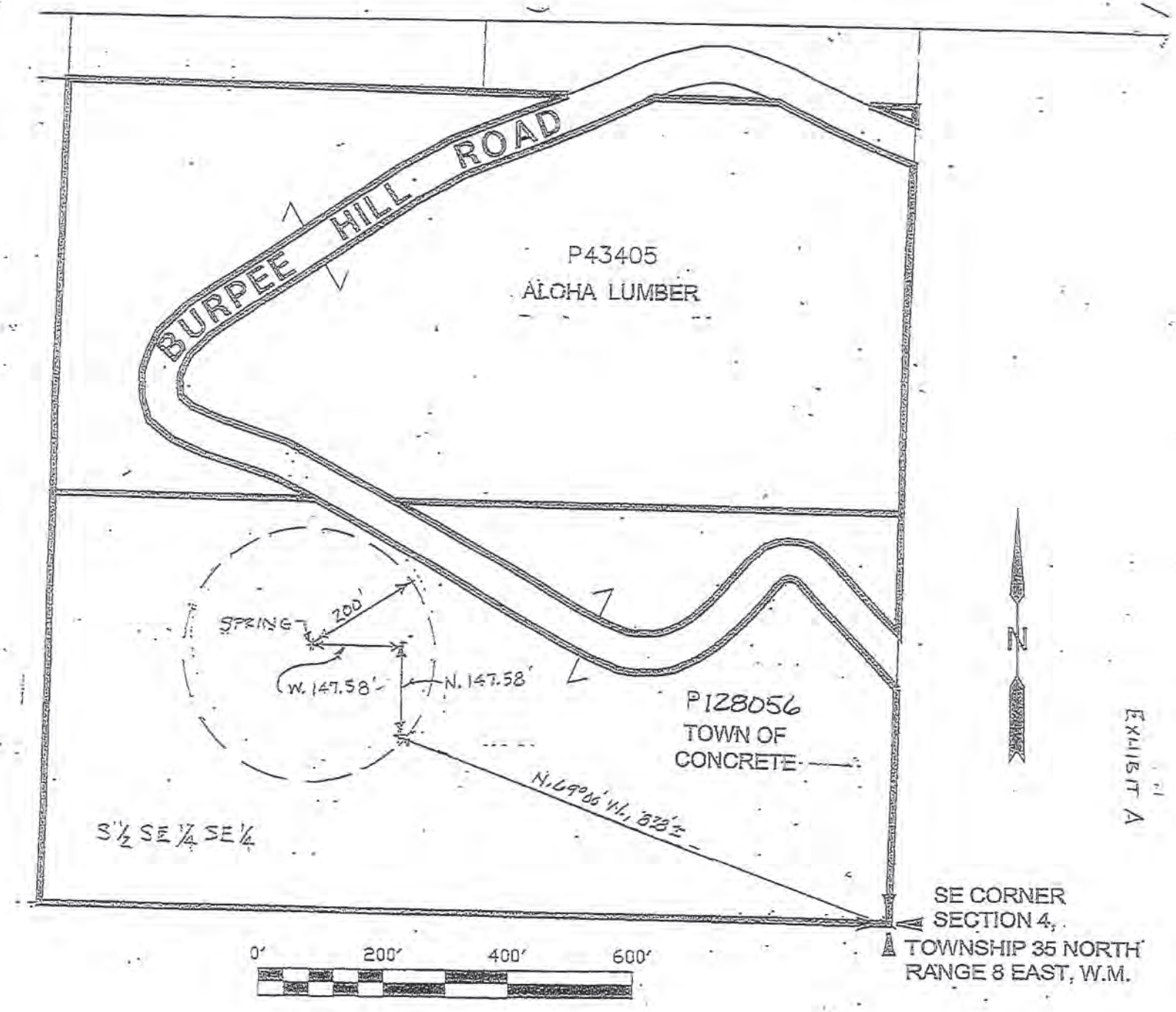

BURPEE HILL ROAD
P43405
ALOHA LUMBER
SPRING
200'
W. 147.58'
N. 147.58'
P128056
TOWN OF
CONCRETE
N. 69°06'11" W. 828'±
S½ SE¼ SE¼
N
0'
200'
400'
600'
SE CORNER
SECTION 4,
TOWNSHIP 35 NORTH
RANGE 8 EAST, W.M.

EXHIBIT A

Exhibit B

The South half of the Southeast quarter of the Southeast quarter of Section 4, Township 35 North, Range 8 East, W.M.;

EXCEPT the right of way of the County road known as the Burpee Hill Road and as the Baker Lake Road.

Situate in Skagit County, Washington.

Rural Community Assistance Corporation

1403 South Grand Blvd., Ste. 203 South • Spokane, WA 99203 • 509.860.7063
dbannier@rcac.org
www.rcac.org

Town of Concrete, Washington

Town of Concrete
Council Workshop Meeting
September 12, 2011
Monday 5:30pm
Prepared by Dan Bannier, RCAC

Meeting Objectives: To review rate setting alternatives and scenarios, to discuss the town's 2011 budget, and review asset inventory documentation. Respond to questions and address concerns from Council members regarding the water rate analysis and possible restructuring of water rates.

Budget Analysis:

General Summary of Analysis
For the past two years, water fund expenditures have not exceeded revenue. The water utility currently generates sufficient revenue to meet non-emergency operations expenses. Although there is a water reserve fund, there is no dedicated emergency reserve or operations reserve. There is also no debt service.

Existing Sources of Revenue
There are forty-five of sixty-seven commercial customers that have meters. The current commercial rate structure is (other than those metered connections) "flat-rate" driven in that the primary revenues generated are from the unmetered connections. The ERU monthly charge is $26.85 per month.

There are 414 residential service connections. All active accounts are billed on a flat-rate of $25.80 per month.

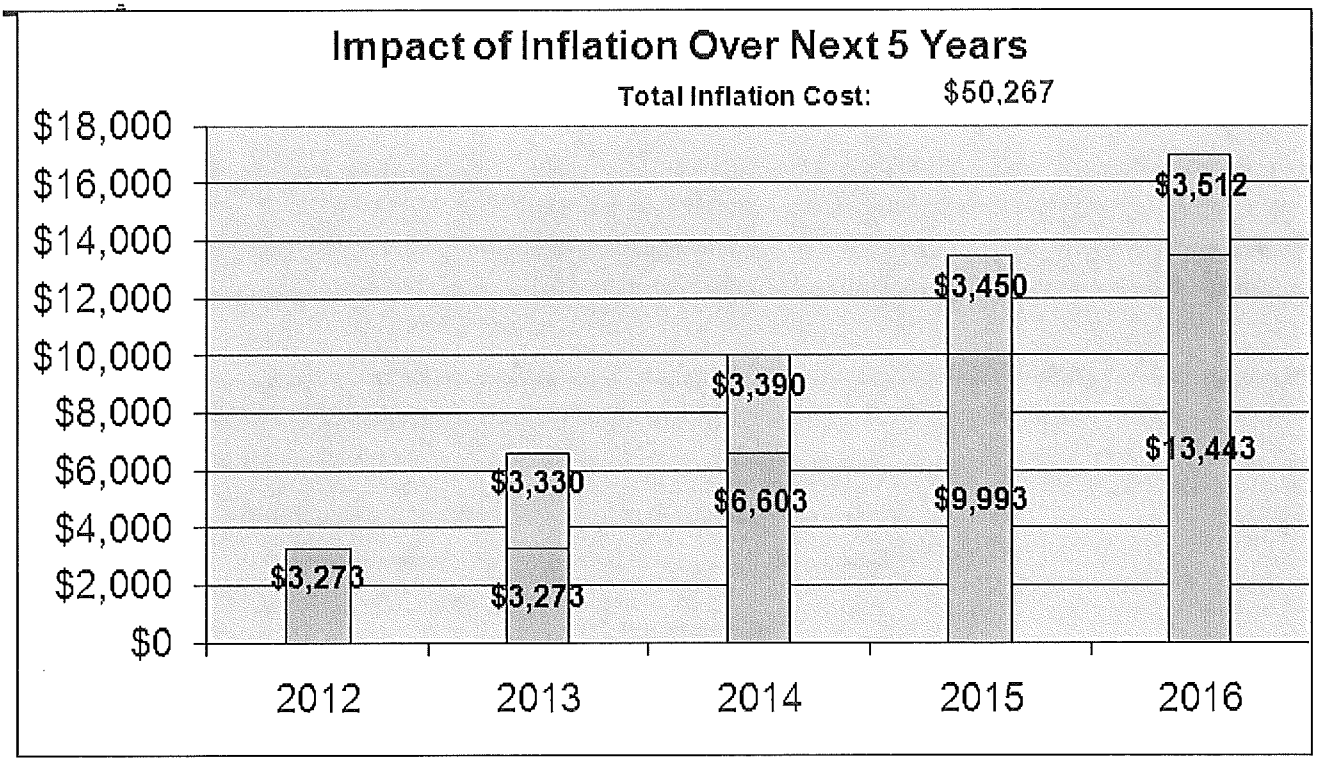
New Connection fees are currently $6,302.58 per ERU. It is understood that the new connection fees collected would will go into a dedicated 'Water Connections' account. The account will provide market rate interest.

Reserve Accounts
There is a reserve water fund account; however, the funds are currently non-allocated.

Impact of Inflation
Inflation pressure is very important in calculating future budgets and subsequent rate increases as it is almost universally misunderstood. Inflation is cumulative and must be funded from rate increases, new revenues, decreases in expenses or from reserves. If $1,000 was needed and the reserves are used, over the next 5 years you would deplete the reserves by $5,000 just for this

year's inflation.....plus the additional annual inflation of each succeeding year which is also cumulative.

It should be noted that if a utility goes for several years without a rate increase it is extremely detrimental to the financial viability of the fund and almost always leads to large rate increases. The impact of inflation on a utility's operations and maintenance costs or capital improvement and replacement costs is often overlooked. The budget projections below represent a 1.8% estimated annual 'inflation pressure'. A 2 to 3% is a generally a reasonable annual inflation estimate, but may be high given the current economic recession. The point here is that, over time, inflation significantly increases a utility's expenses. Revenue therefore must also increase for the utility to remain solvent. Using the current budget, the cumulative cost of inflation over the next 5 years is $50,267



Total inflation paid to end of this year:	$3,273	$9,876	$19,869	$33,312	$50,267

Revenue Analysis

Fixed and Variable Costs

Fixed Costs refer to all expenses that the utility must cover *regardless of the amount of water customers use.* Variable costs are those related to the volume of water pumped, treated, and distributed. Generally, fixed costs are recovered through the minimum customer charge (base rate) and variable costs are recovered through water use charges (volume charge). Whatever the methodology and ratio of volume charges to base rate charges, total revenues (base rate + volume charge) must meet or exceed total costs (fixed + variable).

Equity and Rates

Under the current rate structure:

- The current rate structure is "base-rate" driven in that the primary revenues generated are from the base rate/service charge. Because of the lack of customer water meters, the rate is generally a flat rate, which does not discourage heavy water use; small water users currently subsidize large water users.

The comparison of rates to other utilities is meaningless because of the many unknown underlying financial factors and the policies of the governing body. We must also assume that all water users will pay their utility bill in a timely manner.

There is no law in the State of Washington that requiring fairness or 'equity' amongst water customer charges, and there are many different reasons why a utility would want to make charges disproportionate to water use. (For example, a utility may want to subsidize local industry or provide assistance to low-income individuals.) However, it is generally understood that the town has a commitment to evaluate the fairness of their current rate structure in moving toward a true commodity rate in the future through the installation of customer meters. Rates should be restructured to tie revenue return more closely to water use.

Concrete's Financial Viability Test (FVT):

Although Concrete has a Water Reserve Fund ($306,905.02 in reserve funds and $27,656.43 in the water fund, effective January 1, 2011) the reserve funds are not allocated. WAC 246-290-100 contains the Financial Viability Test (FVT) requirements for water systems. The requirements consist of four related financial tests. The first three tests examine the adequacy of the operating budget, operating cash reserve, and emergency reserve. The fourth test, the household income index analysis, provides information to help evaluate the water rate impact on system users. See details about the four tests below.

The first test requires you to develop an operating budget that demonstrates sufficient revenue to meet all of your expenses. The initial operating budget covers a 6- and 20-year period. You must regularly (yearly) update your budget, including impacts from projects and activities identified in your WSP. During the operating budget process, you review whether you are generating sufficient revenue to meet your estimated expenses. If you don't have sufficient revenue, you must either raise water rates or reduce non-essential expenses.

Test #1- Develop an Operating Budget (2011 Budget)

- Revenues – Expenses ≥ 0
  - ($357,500 - $357,415) = $85 ≥ 0
  - **PASS**

Develop an Operating Budget (2010 Budget)

- Revenues – Expenses ≥ 0
  - ($391,869.29 - $397,320.58) = -$5,451.20 ≥ 0
  - **FAIL**

The second test requires you to develop and fund an operating cash reserve. The Operating Cash Reserve is essentially the "check-book balance" you must maintain to meet cash flow needs and provide contingency funds for unforeseen operating emergencies. There can be a significant length of time between when you provide a service and when a customer pays for that service. Typically you can look at your cash flow history to determine the amount of time that passes between service

delivery and payment. A 45-day period is the generally accepted industry norm. To meet this norm, you need to keep at least one-eighth of your annual operating and maintenance (O&M) and general and administrative (G&A) expenses in an Operating Cash Reserve. You can initially fund this reserve with one of the following:

- A one-time charge.
- Transfer of funds from an existing reserve.
- Funds accumulated in the first year of the budget in the Operating Cash Reserve line item.

Test #2- Create and Fund an Operating Cash Reserve (2011)

- Operating Cash Reserve > 1/8 x Annual O&M + G&A
  - $ 257,215> 1/8 x $2=32,177
  - **FAIL (Only due to funds not being allocated to the operating reserves.)**

Create and Fund an Operating Cash Reserve (2010)

- Operating Cash Reserve > 1/8 x Annual O&M + G&A
  - $284,821 > 1/8 x $35,603
  - **FAIL (Only due to funds not being allocated to the operating reserves.)**

The third test requires Concrete to demonstrate the ability to cover the costs of an emergency or failure of the most vulnerable system component. This can be completed by doing one of the following:

- Develop and fund an Emergency Reserve.

  OR

- Obtain an alternative financing arrangement.

In the WSP, you must conduct a vulnerability assessment to establish the facility most likely to fail. Generally, replacement of a source of supply, reservoirs, or key transmission lines represents the most expensive and difficult facility to replace. We have used the most expensive replacement cost to establish the minimum Emergency Reserve amount. Management objectives and overall system reliability determine the emergency reserve level. You can initially fund this reserve with one of the following:

- A one-time charge.
- Transfer of funds from existing reserves.
- Funds accumulated in the 6-year budget in the emergency reserve line item.
- Alternative financing arrangements.

Test #3- Create and Fund an Emergency Reserve

- Emergency Reserve ≥ Cost of Most Vulnerable Facility
  - $306,905.≥ $100,000
  - a transfer of funds from existing reserves
    - Identify funds that are easily accessed. Actual Emergency Reserve amount depends on the ability to access money quickly.
  - **Potential Available $306,905**

- The most expensive article identified is the spring and transmission main to the reservoir. When evaluating the criticality of these two components they have been valued at $100,000, based on the understanding that the entirety of the transmission main would not be lost. Concrete has identified these two components as their most vulnerable pieces of equipment.
- **PASS**

Test #4- Conduct Median Household Income Index Analyses

- Rates ≤ 1.5 percent x MHHI
  - MHHI based on Skagit County, 2000 Census data
  - $322/year ≤ 1.5% x $42,381
  - $434/year ≤ 1.5% x $42,381 (Outside Town)
  - $26.85/month ≤ $52.97/month
  - $36.20/month ≤ $52.97/month
  - **PASS**

The Town of Concrete's water system, by passing the first three tests of the FVT, may be able to:

- be managed, operated and maintained successfully,
- respond in an emergency situation and obtain needed facilities,
- plan for and implement needed improvements to supply growth without interruption,
- improve working relations with lending institutions, and
- Facilitate the documentation process for existing and potential financial assistance programs.

Summary Review

Commercial Accounts:

Concrete utilizes a comprehensive commercial water rate structure (There are sixty-seven commercial accounts. Forty-five (45) of the sixty-seven (67) accounts are metered.) known as "Decreasing Block Rate Structure". The price of water decreases as the amount used increases. Each succeeding consumption block is less expensive. This rate structure is not based on the assumption that water rates promote water conservation. The commercial rates are made up of five tiers and three separate commercial classifications. The commercial rate customers located outside of town is noted to be 150% from those customers located inside town. However, due to the rate increases since 2006, when calculated the true outside rate is currently at 146%. (Please see Resolution 2010-13).

Example: (In Town)

$26.85 minimum for first 500 cubic feet used ($26.85 min)
$0.0213 per 100 cubic feet from 501 – 1500 cubic feet
$0.0147 per 100 cubic feet from 1501 – 1999 cubic feet
$0.0114 per 100 cubic feet from 2000 – 5999 cubic feet
$0.0059 per 100 cubic feet from 6000 – 10,000 cubic feet
$0.0037 per 100 cubic feet thereafter.

Cubic Feet?	☑	Entry Multiplier: 100☐ 10☐ 0☑		True ERU:	N/A			Total Water used in period this page:	821,182
Included Water:	500	Water Use Tiers: 1st	1,500	2d:	2,000	3d:	6,000	Total Water sold in period this page:	644,640
Water Sold below tier:	208255 -- 25%	Water Sold in 1st Tier:	68369 -- 8%	Sold:	259400 -- 32%	Sold:	108616 -- 13%	Water Sold %:	78.5%
Total Included Water Used:	176,542	Customers never using allowed included water:	12 - 27%	Sometimes use included water:	18 - 40%	Always use included water:	15 - 33%	Used vs possible included water:	65.4%
Total Customers:	45	Residential water used and customers:		OTR water used and customers:	821182 - 45	Included water as % of total water used in period:			21.5%

Residential accounts:

Residential accounts structured as a flat rate charge. Again using an outside town surcharge of 150%, which when calculated equates to 146%.

Example:

(In Town) $25.80 per account (houses and churches)
(Outside of Town) $36.20 account (houses and churches)

NOTE:

- Monthly ERU's for year round lot owners is undetermined, due to lack of meters and reservoir overtopping. It should be noted for this analysis; we used 628-cubic feet per ERU/month. This is based on the neighboring utilities in the area. Typically the true ERU is consistent with in neighboring utilities in the vicinity.
- Food bank is charged a minimum of $5.00/month
- Public facilities are not charged

Conclusion:

The town's current water rates have been reviewed and evaluated for utility sustainability. Concrete is in a financial position to make investments. These investments have been identified as the installation of customer service meters, maintaining an equipment replacement program, and adequately funding operation and emergency reserves. An increase in water rates would allow the town to continue to operate without using their reserve funds. However, existing reserves may be depleted by 2014 if no rate adjustment is made and the level of service increases. The town has identified the value of their water system infrastructure at $1,594.000. The annual amount needed to fund the asset management program is $22, 743. At this juncture, RCAC recommends that the town consider restructuring its current rate schedule to an increasing block rate and a reduction of tiers; establish the allocation of reserve funds consistent with the VFTs above; include public industrial and institutional classifications into the rate structure.

NOTES:

2012 BUDGET

OF THE

TOWN OF CONCRETE

45672 Main Street
P.O. Box 39
Concrete, WA 98237
Phone: (360) 853-8401
Fax: (360) 853-8002
Website: www.townofconcrete.com

Town Officials

Elected/Appointed

Mayor	Judd Wilson	12-31-2013

Council Members		Term Expires
Position 1	Jack Mears	12-31-2015
Position 2	Dave Pfeiffer	12-31-2015
Position 3	Michael Bartel	12-31-2013
Position 4	Marla Reed	12-31-2015
Position 5	Jason Miller	12-31-2013

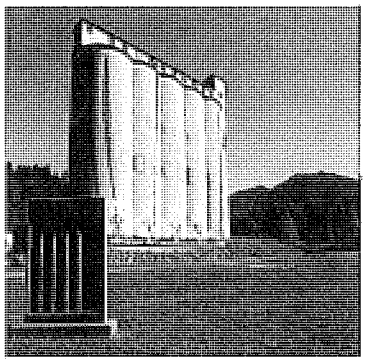
Department Heads

Clerk-Treasurer	Andrea Fichter
Director of Public Works	Alan Wilkins
Town Attorney	David Day
Building Inspector	Jack McCormick
Code Enforcement Officer/Fire Chief	Richard Philips
Town Planner	Jeroldine Hallberg

Table of Contents

Brief History of the Town of Concrete

The area that is now the Town of Concrete was originally two settlements located at the convergence of the Baker and Skagit Rivers in the northern Cascade Mountains in the State of Washington.



The settlement on the west side of the Baker River was originally known as Minnehaha. The east side of the river was known as Baker. The initial settlers to the area relied on timber from the mountains to build homes and run their mills. The settlers soon discovered that the mountains yielded more important products for the town's future, limestone and clay. The settlers of Minnehaha changed their town's name to Cement City when the Washington Portland Cement Plant began construction in 1905.

The production of cement was so profitable that a second company, the Superior Portland Cement Company opened for business in 1908. The influence of these companies was so great that when the two towns were incorporated into a single town in 1909, they named the town after their most important business, Concrete.

ORDINANCE #691 ADOPTED THE BUDGET OF THE TOWN OF CONCRETE, WASHINGTON FOR THE FISCAL YEAR ENDING DECEMBER 31, 2012.

The full text of the ordinance is available for review at the Concrete Town Hall. The below is the approved budgeted amounts for each fund.

2012 BUDGET

FUND	DEPARTMENT	AMOUNT
GENERAL (Current Expense)	General Gov't - Operations	595,810.00
	Fire	224,244.00
	Parks	24,765.00
	Total General Fund:	$844,819.00
STREET		68,525.00
WATER RESERVE		425,750.00
FIRE RESERVE		31,050.00
SEWER RESERVE		115,300.00
CAPITAL IMPROVEMENT		62,600.00
AIRPORT		27,488.00
SEWER		495,400.00
WATER		333,150.00
	TOTAL ALL FUNDS:	$2,404,082.00

2012 SALARY SCHEDULE

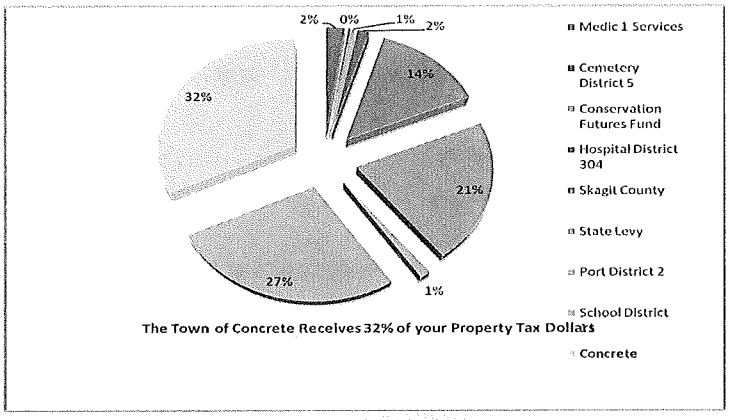
ORDINANCE #690 ADOPTED THE SALARIES OF THE TOWN OF CONCRETE, WASHINGTON FOR THE FISCAL YEAR ENDING DECEMBER 31, 2012.

The full text of the ordinance is available for review at the Concrete Town Hall. The below is the approved salaries for each position.

Elected Officials		
Classification	Maximum	
Mayor	$7,200.00	annual
Council Members (5)	$4,500.00	annual
Classification	Maximum	
Clerk-Treasurer	$38,937.23	annual
Deputy Clerk	$27,720.00	annual
Volunteer Coordinator/Office Asst.	$1,442.40	annual
Public Works Director	$48,652.80	annual
Public Works Assistant	$37,641.22	annual
PW Maintenance Worker #1	$29,735.13	annual
Fire Chief	$3,600.00	annual
Code Enforcement Officer	$4,848.00	annual
Planner	$30,000.00	annual

PROPERTY TAX HISTORY

Year of Collection	Type	Assessed Valuation	Levy Rate	Total Taxes Assessed
2011	GENERAL	66,830,614	3.375	225,553.00
2010	GENERAL	65,943,336	3.375	222,558.76
2009	GENERAL	65,943,336	3.375	222,558.76
2008	GENERAL	76,568,224	2.5467	194,996.00
2007	GENERAL	60,766,693	2.9951	182,002.00
2006	GENERAL	59,962,690	3.0032	171,070.00
2005	GENERAL	56,031,798	2.9555	165,602.00

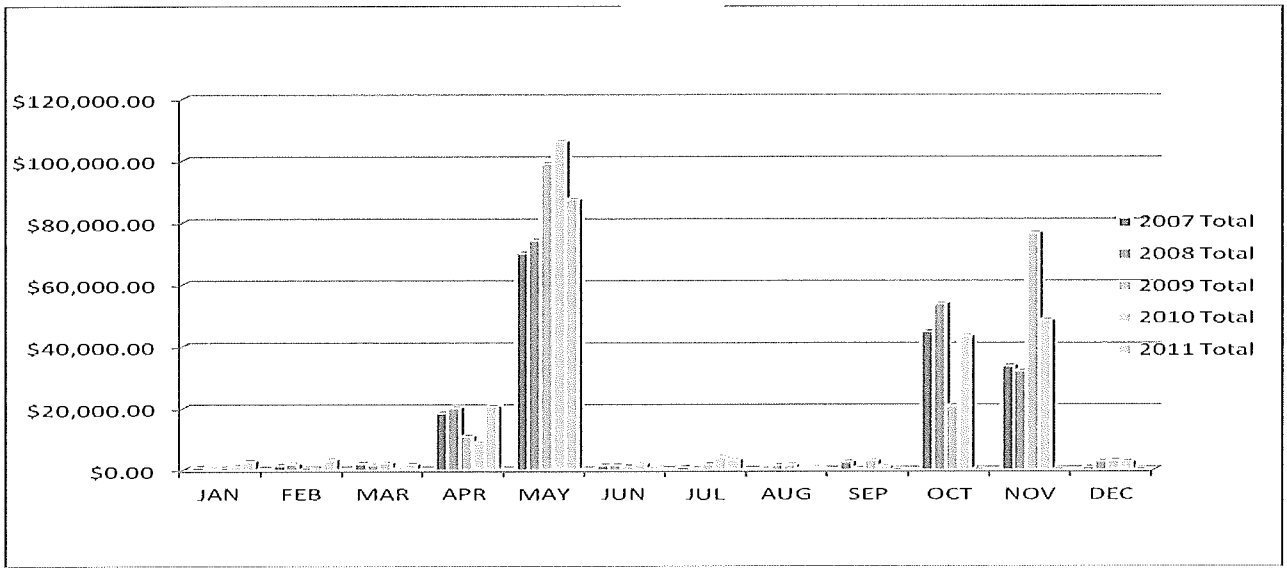


How much of the town's budget is supported by my property taxes?

The town's general fund receives about $190,000 in property tax revenue, which is approximately 40% of the total general fund revenue. The general fund pays for services that generally benefit the entire community, like law enforcement, fire, economic development, community planning, parks and recreation, and other general governmental services.

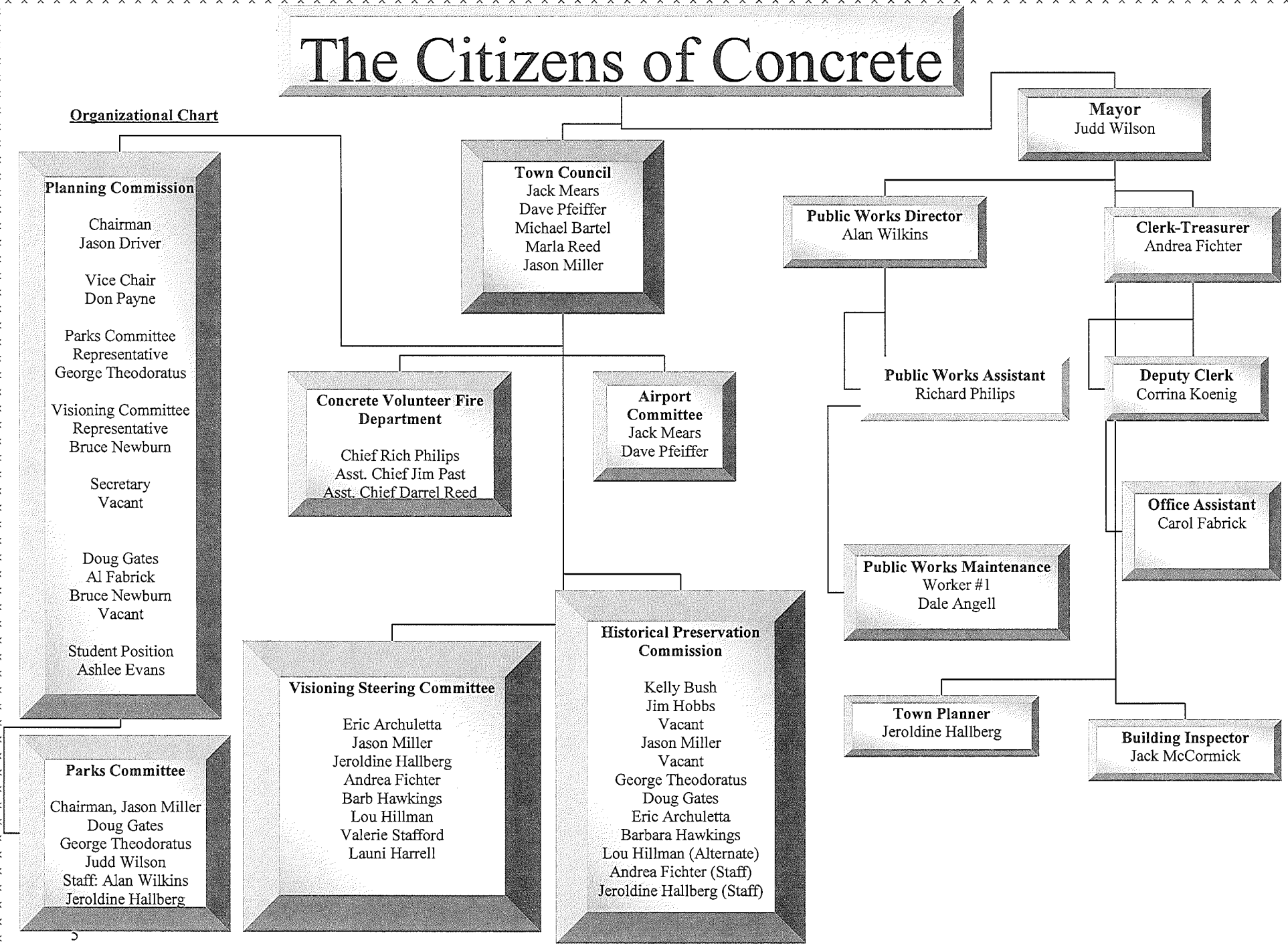
Where does your property tax dollar go?

For every dollar that is paid by you in property taxes, the Town of Concrete receives an average of 32% on your total property taxes paid.



The Citizens of Concrete

Organizational Chart



The budget and the budget process for the Town of Concrete.

The budget is the legal authority to obligate public funds. It also provides policy direction by the Town Council to the staff and community as well as a financial plan for the current year.

Preparation of the annual budget involves every town official and employee. Each member of the town team has an opportunity and responsibility to contribute suggestions for projects and processes that would improve the town or use of the town's resources more efficiently. Budget preparation can be difficult, time consuming and frustrating, yet valuable and rewarding. The end result is a collaborative, comprehensive set of plans and directives for the management of the town's activities and resources for the coming year and beyond.

The budget provides four functions:

The budget as a policy document

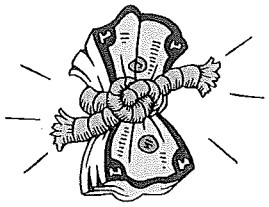
Decisions made during the budget process and documented herein reflect the general principles or plans that guide the actions taken for the future. The budget links desired goals and objectives and policy direction to the actual day-to-day activities of the town staff.

The Town of Concrete's financial policies are intended to provide a framework for financial decision making for the financial planning and management of the town. These policies have been established to provide general fiscal guidelines and are intended to provide sound direction in the management of the town's financial affairs. Most of these policies represent long-standing policies, procedures and practices that are already in practice and have worked well for the town. These policies express four main goals:

- Preserve financial assets in order to meet normal operating expenses, planned future obligations and to adjust to changes in the service requirements of the town.
- Operate water and sewer utilities in a fiscally sound manner.
- Maintain existing infrastructure and capital assets in good repair, working order and condition.
- Maintain a strong credit rating thus ensuring lower cost financing when needed. A sound credit rating also demonstrates to taxpayers the town is well managed and follows financially sound business practices.

Financial Policy Objectives

- The budget shall balance recurring operating expenses to recurring operating revenue.
- Revenues shall be conservatively estimated and based upon the best information available.
- When appropriate, user charges and fees should reflect the full cost of providing the related service or the percentage of total service cost as determined by the town.
- One-time revenues are non-recurring in nature, and therefore, shall not be relied upon to fund regular operating budgets for the ongoing programs. Cash balances in excess of the amount required to maintain reserves may be used to fund one-time or non-recurring costs.
- The maturity date for debt will not exceed the reasonable expected useful life of the asset or project financed.
- The impact of proposed capital improvements on the operating budget shall be considered when deciding whether such projects are feasible.
- The accounting system will maintain records on a basis consistent with generally accepted accounting standards for local government accounting and the State of Washington Budgeting, Accounting, and Reporting system (BARS).



The budget as a financial plan

Financial planning is the most basic aspect of the budget and is a requirement of state law. The budget must be adopted as a balanced budget and must be in place prior to the expenditure of any town funds. The budget is the legal authority to expend public monies, and controls those expenditures by limiting the amount of the appropriation at either the fund or department level. Revenues and beginning fund balances are estimated to determine resources available in each fund. Council and staff expenditure requests, other commitments such as debt service requirements, and desired ending fund balances are balanced against available resources to determine department and fund appropriations.

The budget as an operation guide

The function and/or goals of each department and fund are described in the following sections, along with the objectives planned for the current year to perform those functions and meet those goals. This process assists in maintaining an understanding of the various operations of the town and how they relate to each other and to the attainment of the policy issues and goals of the Town Council.

The budget as a communication device

The budget provides a unique opportunity to allow and encourage public review of the town's operations. The budget document describes the activities of the town, the reason or cause for those activities and future implications. The budget process invites individual citizens to provide direct input to the budget. Citizens are always welcome to discuss problems, desires and opportunities with the Mayor, Town Council and staff. These discussions frequently lead to budget objectives. Additionally, the town holds two public hearings on the budget and another on the Property Tax where the public is formally invited to participate in the budget process.

Basis of the Budget

The Town of Concrete uses single entry; cash basis accounting which is a departure from the Generally Accepted Accounting Principles. Revenues are recognized when received in cash and expenditures are recognized when paid. This is a departure from generally accepted accounting principles which require revenue and expenditure recognition on the modified – accrual basis in governmental funds.

The annual financial report of the town is prepared on the same basis. The budget can be directly compared to the operating reports in the annual financial report.

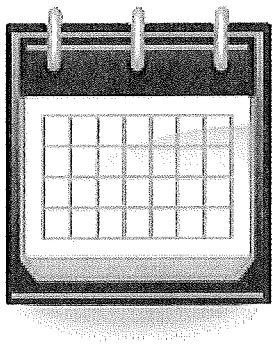
The basis for budgeting is consistent with state law and is practical both for preparing and managing the budget.

Amending the Budget

The Town Clerk-Treasurer is authorized to transfer budget amounts between categories within funds; however, any revisions that alter the total expenditures of a department or fund, or affect the number of authorized employee positions, salary ranges, hours or other conditions of employment, must be approved by the Town Council. When the Town Council determines that it is in the best interest of the town to increase or decrease the appropriation for a particular fund or department, it may do so by ordinance approved by one more than the majority of the Town Council.

BUDGET CALENDAR

Washington town budget procedures are mandated by RCW 35.33. These mandates are incorporated into the procedures described below:



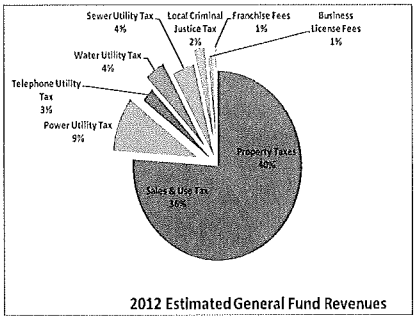
- August – The Clerk-Treasurer submits notice to department heads to file budget requests.
- September – The department heads return appropriation requests and revenue estimates to the Clerk-Treasurer
- October – The Clerk-Treasurer submits proposed budget requests and information on current revenues to the Town Council.
- November – The Mayor submits the proposed budget to the Town Council. This budget is based on priorities established by the Council and estimates provided by town departments during the preceding months, prioritized and balanced with revenue estimates made by the Clerk-Treasurer.
- Prior to first Monday in December – The Town Council conducts a public hearing(s) on the proposed budget.
- Prior to December 31 – The Town Council makes its adjustments to the proposed budget and adopts by ordinance a final balanced budget.
- After adoption, the final budget is available to the public.

The budget is adopted at the fund level. Any unexpended appropriation balances lapse at year-end. Any changes in staffing levels or composition and significant capital expenditures must also be included in this budget document or be specifically approved by Town Council motion.

Revenue Highlights

Budgeted resources for all funds in 2012 total $2,404,082.00, a $62,262.00 increase from the 2011 Budget.

In the General Fund, taxes are the largest ongoing single resource. Sales tax revenues are estimated to be $175,000.00. This represents an increase of $50,000.00 over last year's estimate. Property tax collections are estimated at $208,500.00 for the 2012 Budget, property tax revenues are split at ninety percent (90%) into the General Fund and ten percent (10%) into the Street Fund.



2012 Estimated General Fund Revenues

The projected revenue for the Street Fund is $68,525.00. This is a $1,475.00 increase from the 2011 Budget.

The Water Reserve Fund for 2012 is estimated at $425,750.00. This is a $750.00 decrease from the 2011 Budget.

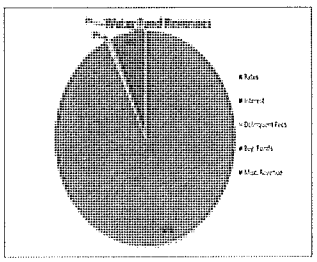
The Fire Reserve Fund for 2012 is estimated at $31,050.00. This is a $6,925.00 increase from the 2011 budget. The Fire Reserve fund revenues are derived mainly from Capital Transfers from the General Fund. The purpose of the Fire Reserve Fund is for the purchase of needed fire safety equipment, vehicles and/or the construction of a new Public Safety facility.

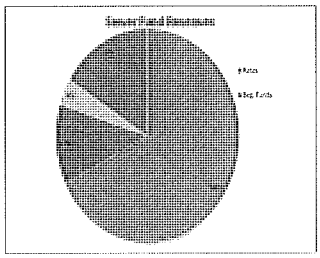
The Sewer Reserve Fund estimated revenue for 2012 is estimated at $115,300.00. This is a $10,450.00 decrease from 2011.

The projected Capital Improvement Fund revenue amount for 2012 is $62,600.00. The major source of revenue to the Capital Improvement fund is Real Estate Excise Tax which due to the continued shortfall in revenues received from the Real Estate Excise Tax the Capital Improvement Fund will see a $17,900.00 decrease from the 2011 Budget.

The Airport Fund is projected at $27,488.00 a $2,038.00 increase from the 2011 budget.

Charges for utility services in 2012 are projected to be $620,000.00 including $285,000.00 for water and $335,000.00 for sewer. The total Water Fund is projected at $333,150.00 a decrease of $24,765.00. The total Sewer Fund is projected at $495,400.00, a $24,585.00 increase from 2011.

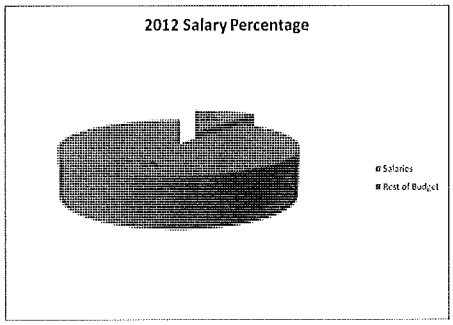




Personnel changes

Changes in positions:

The Town Planner retired in August of 2011. A new Town Planner assumed these duties as of September 2011. There are no personnel changes scheduled for 2012.



Changes in salaries:

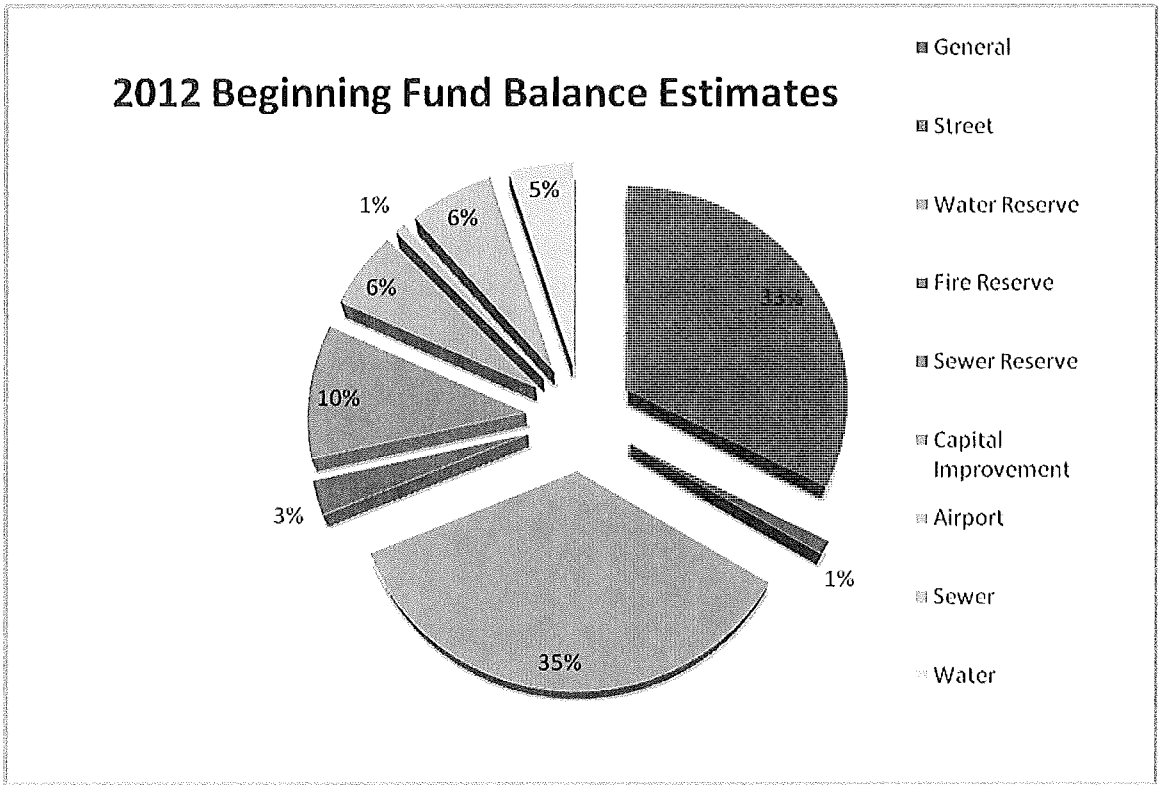
The budgeted 2011 annual wage was $239,100.61, which included a salary amendment for the town planner position. The budgeted 2012 Annual Wage is $234,276.78. This is $4,823.83 decrease from the 2011 Amended Salaries.

The salary adjustment for the 2012 Salaries reflects a 5% raise for all full-time employees.

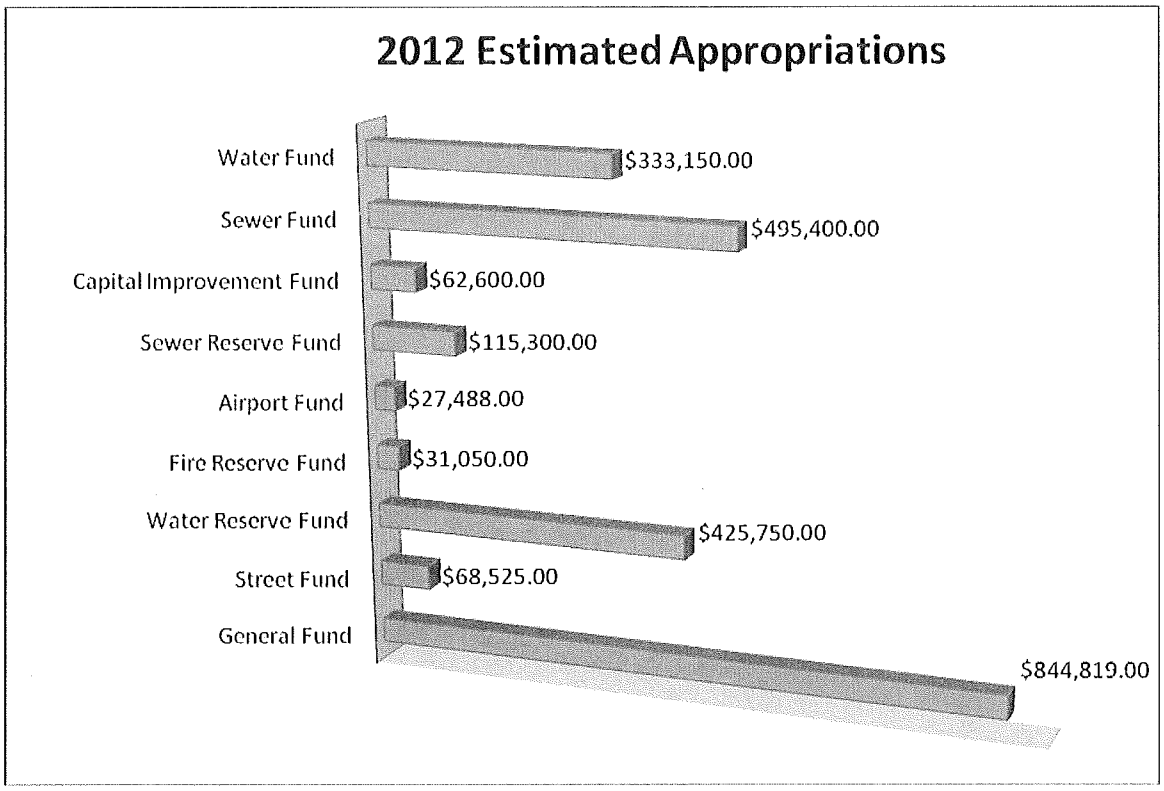
BEGINNING FUND BALANCES

As per the Town's Financial Policy Objectives, the 2011 Budget Beginning Fund Balance estimates are conservatively estimated and based upon the best information available.

	2009 Actual	2010 Estimate	2010 Actual	2011 Estimate	2011 Actual	2012 Estimate
General	$282,242.53	$255,000.00	$339,090.19	$300,000.00	$262,950.67	$300,000.00
Street	$12,226.38	$2,500.00	$7,130.20	$7,000.00	$13,352.73	$10,000.00
Water Reserve	$409,509.34	$375,000.00	$487,851.41	$300,000.00	$306,905.20	$325,000.00
Fire Reserve	$12,794.11	$16,500.00	$16,910.77	$18,000.00	$21,000.00	$25,000.00
Sewer Reserve	$125,682.91	$145,000.00	$147,357.23	$85,000.00	$100,909.40	$95,000.00
Capital Improvement	$119,916.71	$80,000.00	$76,143.73	$65,000.00	$72,269.43	$55,000.00
Airport	$8,996.48	$5,500.00	$3,898.27	$5,000.00	$4,239.59	$8,000.00
Sewer	$94,381.61	$125,000.00	$174,530.92	$90,000.00	$61,395.61	$60,000.00
Water	$233,298.73	$200,000.00	$82,466.32	$40,000.00	$23,397.12	$50,000.00
TOTALS	$1,305,048.80	$1,174,500.00	$1,355,378.04	$910,000.00	$867,328.97	$923,000.00



Expenditure Highlights



General Fund
The General Fund is the general operating fund of the town. It accounts for all financial resources and transactions except those that are required to be accounted for in another fund.

Resources include sales tax, property tax, utility tax and other taxes and/or fees from various permits, licenses and user charges, grants and/or entitlements from the State of Washington or other funding agencies.

The activities included in the Town of Concrete's General Fund are departmentalized and include General Government Uses (including Legislative, Planning and Inspection), the Fire Department and Parks Department.

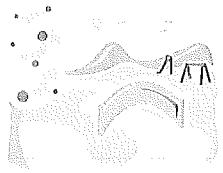
The General Fund accounts for thirty five percent (35%) of the 2012 appropriations. The total General Fund budgeted amount is $844,819.00, which is a $81,104.00 increase from 2011.

General Government Uses is budgeted at $595,810.00, $69,780.00 more than the 2011 Budget.

The Fire Department uses are budgeted at $224,244.00, $10,911.00 more than the 2011 Budget. The Town of Concrete Volunteer Fire Department has been actively serving this community for over 110 years. Concrete's Fire Department, manned by an entirely volunteer crew, offers 24 hour fire protection to the Town of Concrete. When the roster is full, the department consists of 25 members in four squads. There are four captains, two assistant chiefs and the Fire Chief, Rich Philips, who has served on the department for more than 25 years.

The three trucks currently in service are Truck 4, a Howe, purchased in 1968 for a price of $18,000, Truck 5, a Darley, purchased in 1989 for a price of $98,000 and in 2010 the town received a 1991 Ford Darley Fire Truck from the City of Sedro-Woolley.

The Park Fund is budgeted at $24,765.00, an increase of $413.00 from 2011. The function of the Parks Fund is to provide quality and safe recreational experiences for people using the town park facilities through routine maintenance, repair and improvements to town parks grounds and buildings, including:



- Restroom cleaning at town parks
- Placement and servicing of trash receptacles
- Placement and maintenance of park equipment
- Installation and maintenance of trees and landscape areas
- Inspection to insure safety and compliance with applicable guidelines and regulations

Street Fund
The function of the Street Fund is to provide street maintenance and repair, construction and reconstruction, maintaining street and pedestrian lighting, snow removal and ice control, maintaining storm drains and installing and maintaining traffic control devices. The expenditures for the Street fund for the 2012 Budget are estimated at $68,525.00 a $1,475.00 increase from the 2011 Budget. The Street Fund receives ten percent (10%) of all Property Tax Revenue received by the Town. It is also supplemented by capital transfers from the General Fund.

Water Reserve Fund
The Water Reserve Fund accumulates resources for major water capital projects and accounts for their purchase, construction and financing. Sources of revenues for this fund include transfers from the Water Fund, water hook-up fees and savings investments. For 2012 funds have been set aside for the design and possible construction/replacement of water lines in the East Concrete and Mill Addition areas. In 2004, an item was added to the Water Reserve and Sewer Reserve to begin accumulating resources for a new Public Works Shop. It is estimated that $60,000.00 will be placed in this line item. Estimated date for these resources to be used for the Public Works Shop is 2015. The 2012 Budget estimate for the Water Reserve Fund is $425,750.00 a decrease of $750.00 from the 2011 budget. The Water Reserve Fund makes up eighteen percent (18%) of the 2012 Budget.

Fire Reserve Fund
The function of the Fire Reserve Fund is to accumulate resources for major fire department projects and accounts for their purchase, construction and financing. The source of revenue for this fund is investment interest and transfers from the General Fund. The Fire Reserve Fund is estimated at $31,050.00 for the 2012 Budget year. This is a $6,925.00 increase from the 2011 Budget. The Fire Reserve Fund makes up one percent (1%) of the 2012 Budget.

Sewer Reserve Fund
The Sewer Reserve Fund accumulates resources for major sewer projects and accounts for their purchase, construction and financing. Sources of revenues for this fund include transfers from the Sewer Fund, sewer hook-up fees and interest earned. In 2004, an item was added to the Water Reserve and Sewer Reserve to begin accumulating resources for a new Public Works Shop. It is estimated that $40,000.00 will be placed in this line item for 2012. The Estimated date for these resources to be used for the Public Works Shop is 2015. The Sewer Reserve Fund makes up five percent (5%) of the 2012 Budget and is budgeted at $115,300.00, a decrease of $10,450.00 from 2011.

Capital Improvements Fund
The Capital Improvements Fund accounts for the proceeds of the locally imposed Real Estate Excise Tax (REET). Permitted uses are public works projects included in the capital facilities plan. The Capital Improvements Fund is estimated at $62,600.00 for the 2012 Budget. This is a $17,900.00 decrease from the 2011 Budget. This decrease is mainly due to the shortfall in Real Estate Excise Tax received in 2011.

Airport Fund
The function of the Airport Fund is to promote general aviation at Mears Field. Sources of revenues for this fund are derived from donations, Airport lot leases, airport lot waiting list fees and rental of the Pilots Lounge. The Airport Fund is budgeted at $27,488.00 for 2012, an increase of $2,038.00 from the 2011 Budget.

Sewer Fund
The function of the Sewer Fund is the operation and maintenance of the town's wastewater collection and wastewater treatment plant to provide a reliable, safe, and cost effective wastewater system with consistent wastewater treatment and biosolids processing meeting or exceeding Federal and State requirements and guidelines. In 2012, the Sewer Fund will make up twenty-one percent (21%) of the budget. The 2012 Sewer Fund is budgeted at $495,400.00 an increase of $24,585.00 from 2011.

Water Fund

The function of the Water Fund is to provide a water supply, storage, transmission and distribution system conforming with Federal and State requirements, and meeting or exceeding customer expectations in terms of safety, quality (taste and aesthetics), and quantity. The 2012 Budget for the Water Fund is $333,150.00, a decrease of $24,765.00 from the 2011 Budget. A scheduled transfer to the Water Reserve Fund of $100,000.00 is planned by year end. The Water Fund makes up fourteen percent (14%) of the total 2011 Budget. This amount may be amended if grants or loans are received for a second water source, waterline improvements or more storage.

Public Works Department

The Town of Concrete Public Works Department is responsible for the day-to-day management, maintenance and improvements of all publicly owned lands and corresponding buildings or assets throughout the town.

The Public Works Department employs three (3) full-time workers, including a Public Works Director, Public Works Assistant and a Public Works Maintenance Worker.

It is the responsibility of the Public Works Department to maintain the Towns infrastructure, including streets, sidewalks, culverts, water and sewer systems, storm water, and park facilities. The department is also responsible for the maintenance of town owned buildings, including Town Hall, Airport Lounge, Public Works Shops, Wastewater Treatment Plant, Fire Hall and the public restrooms.

Several projects are planned for 2012, including the decommission of the old lagoon wastewater system, construction of Main Street and the adjacent sidewalks between Couples Alley and Superior Avenue, extend the sidewalks from their current location on Superior Avenue underneath the school to the top of Superior Avenue, construction of a new Public Safety Building and the possible re-reroute of Lorenzen Creek. Some of these items are dependent on funding being secured. Other projects may be added if grants or other funding is secured.

Town Hall Staff

The Town of Concrete employs two (2) full-time and three (3) part time positions at town hall, the Clerk Treasurer, the Deputy Clerk, an Office Assistant, a Building Official, and the Town Planner.

Some of the duties of the Clerk Treasurer include, payroll, budgeting, grant management, bank reconciliations, meeting minutes, and overseeing the duties of the Deputy Clerk.

Some of the duties of the Deputy Clerk are business license issuance and tracking, utility billing and receipting, accounts payable, dog license issuance and tracking and other duties as assigned by the Clerk Treasurer.

The duties of the Office assistant are similar to those of the Deputy Clerk.

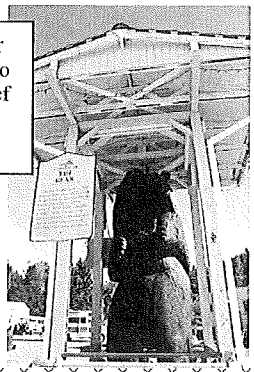
The duties of the town Building Official are to review and issue building permits and perform inspections pursuant to the Uniform Building Code and Town of Concrete municipals codes.

The duties of the Town Planner are to review and issue land use permits pursuant to Federal, State and Local codes and to perform site visits as necessary.

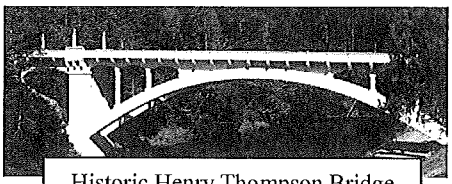
All Funds

The total budgeted amount for the 2012 budget year is $2,404,082.00. This is an increase of $62,262.00 from the 2011 budget.

These amounts may be amended if grants or loans are received for planned or unplanned projects.



"Talking Bear" at Bear Square, this bear talks to tourists and gives a brief history of the Town of Concrete



Historic Henry Thompson Bridge at one time was stated to be "one of the longest single span concrete structures in the West". The bridge was listed on the Department of Archeology and Historic Preservation register May 4, 1976

SUMMARY

	2011 APPROPRIATED	2012 APPROPRIATED
GENERAL FUND	763,715.00	844,819.00
STREET FUND	67,050.00	68,525.00
WATER RESERVE FUND	426,500.00	425,750.00
FIRE RESERVE	24,125.00	31,030.00
SEWER RESERVE	125,750.00	115,300.00
CAPITAL IMPROVEMENT	80,500.00	62,600.00
AIRPORT FUND	25,450.00	27,488.00
SEWER FUND	470,815.00	495,400.00
WATER FUND	357,915.00	333,150.00
TOTAL ALL EXPENDITURES	2,341,820.00	2,404,082.00

2011 Accpomplishments

- Became a certified local government and created its own historical preservation commission to protect historical buildings.
- Secured funding from FEMA and the State Department of Emergency Management to repair the section of Burpee Hill Road that was damaged by a slide at the beginning of 2011.
- Secured grants funds for improvements to Main Street and the adjoining sidewalks from Couples Alley to North Superior Avenue.
- Secured grant funds for the extension of sidewalks to go underneath the school to the top of South Superior.
- Received a grant to complete a feasability study on the Superior Building
- Began construction and partial completion on its first community garden
- Completed the purchase, demolition and clean-up of homes in the 2009 June Alley landslide area.

TOWN DEBT

Loans

DEBT	BEGINNING BALANCE	CURRENT BALANCE	PAYMENTS DUE IN 2012	DESCRIPTION
Fire District 10	60,000.00	8,000.00	4,000.00	Settlement Agreement
Public Works Board (CTED)	108,500.00	76,835.13	6,081.71	Wastewater Treatment Facility Upgrade
Public Works Board (CTED)	255,000.00	154,172.48	14,355.87	Wastewater Treatment Facility Upgrade
USDA Rural Development Loan #1	1,355,000.00	1,301,378.13	73,360.00	Wastewater Treatment Facility Upgrade
USDA Rural Development Loan #2	327,000.00	313,678.13	17,390.00	Wastewater Treatment Facility Upgrade
USDA Rural Development Loan #3	1,405,000.00	1,370,591.03	74,728.54	Wastewater Treatment Facility Upgrade
Department of Ecology	485, 445.07	423,208.52	24,894.62	Wastewater Treatment Facility Upgrade
TOTALS	$3,996,145.07	$3,647,863.42	$214,810.74	

Interfund Loans

LOAN TO:	ORIGINAL AMOUNT	AMOUNT DUE W/INTEREST 2011	DUE DATE	LOAN FROM:
None				

GLOSSARY

Appropriation – A legal authorization granted by the Town Council, or other legislative body, to make expenditures and to incur obligations for specific purposes, within a specific period. Spending may not exceed this level without approval by Council.

Assessed valuation – The value assigned to properties within the town which is used in computing the property taxes to be paid by property owners.

B.A.R.S. – Budgeting, Accounting and Reporting Systems

Benefits – Compensation provided to employees in addition to salaries and wages. Benefits include medical, dental, worker's compensation insurance, retirement and Social Security.

Budget – The financial plan for the operation of a program or organization for the year (or other fiscal period) containing an estimate of proposed expenditures and the means of financing them.

D.O.E. – Department of Ecology

Fund – A fiscal and accounting entity with a self-balancing set of accounts in which cash and other financial resources, all related liabilities and residual balances are segregated to carry on specific activities.

Fund balance – The difference between fund assets and fund liabilities of governmental funds.

Intergovernmental revenue – Revenue from other governments, primarily shared State revenue and Federal or State grants.

Internal Controls – A plan or organization for purchasing, accounting, and other financial activities which, among other things, provides that:

- The duties of employees are segregated so that no single employee handles financial transactions from beginning to end;
- Proper authorization from specific responsible officials is obtained before key steps in the processing of a transaction are completed;
- Records and procedures are arranged appropriately to facilitate effective control.

Levy Rate – The rate of tax imposed on the assessed value of property for the computation of property tax revenues.

R.C.W. – Revised Code of Washington

R.E.E.T. – Real Estate Excise Tax

U.S.D.A. – United States Department of Agriculture

RECOMMENDED IMPROVEMENTS

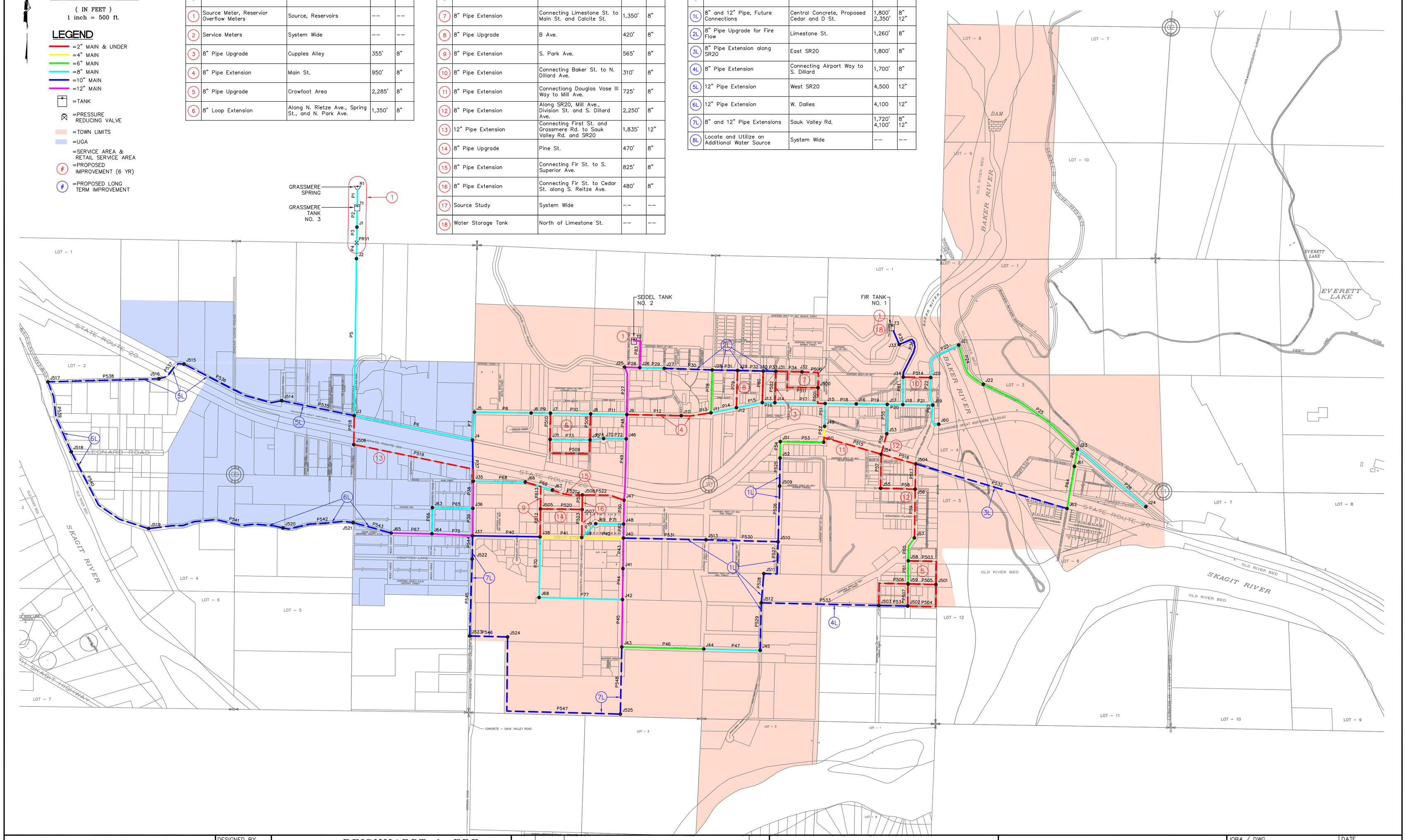
GRAPHIC SCALE
500 0 250 500
(IN FEET)
1 inch = 500 ft.

LEGEND
- =2" MAIN & UNDER
- =4" MAIN
- =6" MAIN
- =8" MAIN
- =10" MAIN
- =12" MAIN
- =TANK
- =PRESSURE REDUCING VALVE
- =TOWN LIMITS
- =UGA
- =SERVICE AREA & RETAIL SERVICE AREA
- (#) =PROPOSED IMPROVEMENT (6 YR)
- (#) =PROPOSED LONG TERM IMPROVEMENT

#	DESCRIPTION	LOCATION	LENGTH	SIZE
1	Source Meter, Reservior Overflow Meters	Source, Reservoirs	--	--
2	Service Meters	System Wide	--	--
3	8" Pipe Upgrade	Cupples Alley	355'	8"
4	8" Pipe Extension	Main St.	950'	8"
5	8" Pipe Upgrade	Crowfoot Area	2,285'	8"
6	8" Loop Extension	Along N. Rietze Ave., Spring St., and N. Park Ave.	1,350'	8"

#	DESCRIPTION	LOCATION	LENGTH	SIZE
7	8" Pipe Extension	Connecting Limestone St. to Main St. and Calcite St.	1,350'	8"
8	8" Pipe Upgrade	B Ave.	420'	8"
9	8" Pipe Extension	S. Park Ave.	565'	8"
10	8" Pipe Extension	Connecting Baker St. to N. Dillard Ave.	310'	8"
11	8" Pipe Extension	Connectiong Douglas Vose III Way to Mill Ave.	725'	8"
12	8" Pipe Extension	Along SR20, Mill Ave., Division St. and S. Dillard Ave.	2,250'	8"
13	12" Pipe Extension	Connecting First St. and Grassmere Rd. to Sauk Valley Rd. and SR20	1,835'	12"
14	8" Pipe Upgrade	Pine St.	470'	8"
15	8" Pipe Extension	Connecting Fir St. to S. Superior Ave.	825'	8"
16	8" Pipe Extension	Connecting Fir St. to Cedar St. along S. Reitze Ave.	480'	8"
17	Source Study	System Wide	--	--
18	Water Storage Tank	North of Limestone St.	--	--

#	DESCRIPTION	LOCATION	LENGTH	SIZE
1L	8" and 12" Pipe, Future Connections	Central Concrete, Proposed Cedar and D St.	1,800' 2,350'	8" 12"
2L	8" Pipe Upgrade for Fire Flow	Limestone St.	1,260'	8"
3L	8" Pipe Extension along SR20	East SR20	1,800'	8"
4L	8" Pipe Extension	Connecting Airport Way to S. Dillard	1,700'	8"
5L	12" Pipe Extension	West SR20	4,500	12"
6L	12" Pipe Extension	W. Dalles	4,100	12"
7L	8" and 12" Pipe Extensions	Sauk Valley Rd.	1,720' 4,100'	8" 12"
8L	Locate and Utilize an Additional Water Source	System Wide	--	--



DESIGNED BY CFR DRAWN BY IDH CHECKED BY CFR	R&E	REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. / DATE / REVISION / BY	TOWN OF CONCRETE P.O. BOX 39 CONCRETE, WA 98237	WATER SYSTEM PLAN FUTURE CONDITIONS	JOB# / DWG 10007.1 WS1 SCALE H: 1"=500' V: n/a	DATE 6/25/11 SHEET 2 of 2

GRAPHIC SCALE

500 0 250 500

(IN FEET)
1 inch = 500 ft.

LEGEND

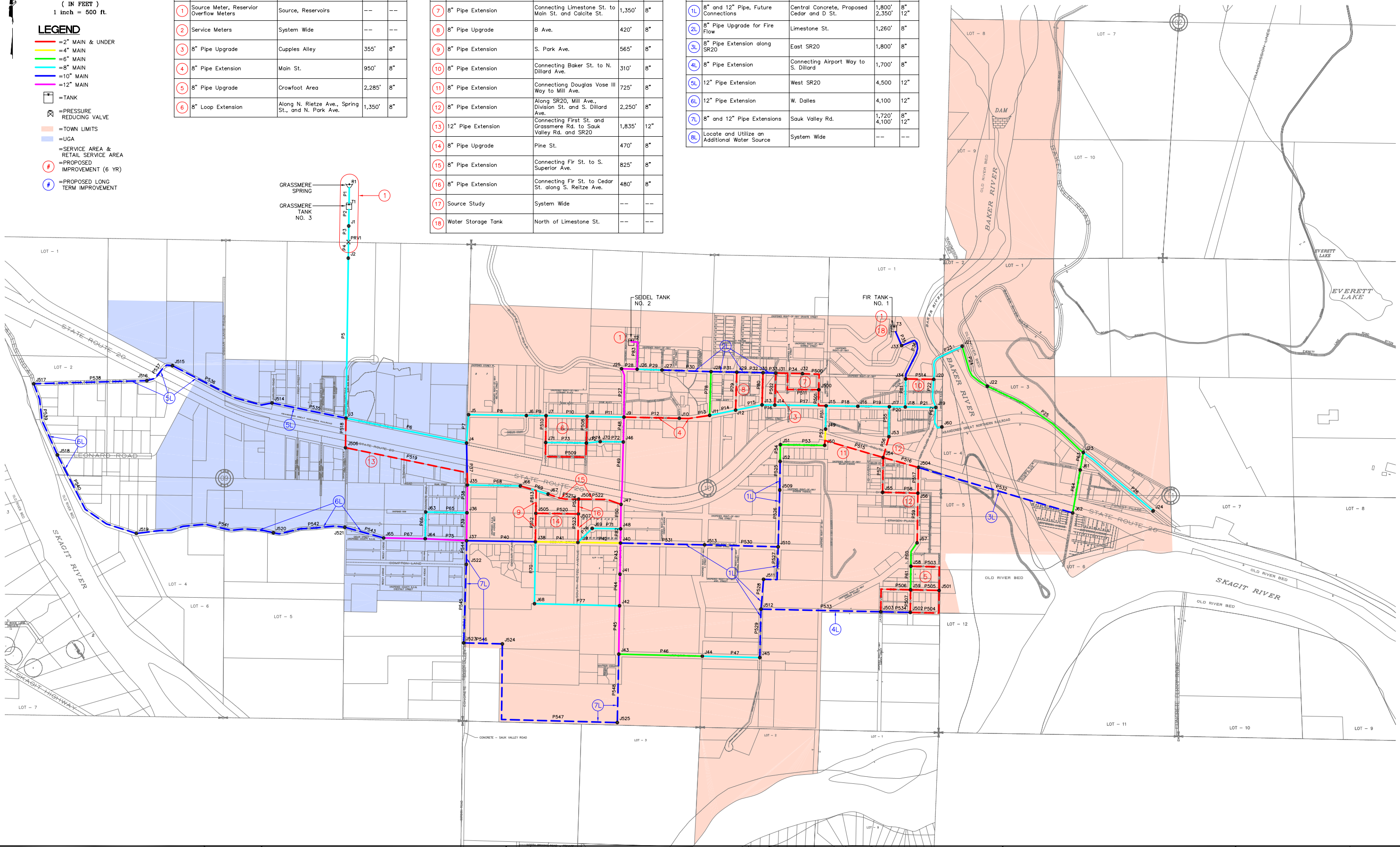
- =2" MAIN & UNDER
- =4" MAIN
- =6" MAIN
- =8" MAIN
- =10" MAIN
- =12" MAIN
- =TANK
- =PRESSURE REDUCING VALVE
- =TOWN LIMITS
- =UGA
- =SERVICE AREA & RETAIL SERVICE AREA
- (#) =PROPOSED IMPROVEMENT (6 YR)
- (#) =PROPOSED LONG TERM IMPROVEMENT

RECOMMENDED IMPROVEMENTS

#	DESCRIPTION	LOCATION	LENGTH	SIZE
1	Source Meter, Reservior Overflow Meters	Source, Reservoirs	--	--
2	Service Meters	System Wide	--	--
3	8" Pipe Upgrade	Cupples Alley	355'	8"
4	8" Pipe Extension	Main St.	950'	8"
5	8" Pipe Upgrade	Crowfoot Area	2,285'	8"
6	8" Loop Extension	Along N. Rietze Ave., Spring St., and N. Park Ave.	1,350'	8"

#	DESCRIPTION	LOCATION	LENGTH	SIZE
7	8" Pipe Extension	Connecting Limestone St. to Main St. and Calcite St.	1,350'	8"
8	8" Pipe Upgrade	B Ave.	420'	8"
9	8" Pipe Extension	S. Park Ave.	565'	8"
10	8" Pipe Extension	Connecting Baker St. to N. Dillard Ave.	310'	8"
11	8" Pipe Extension	Connectiong Douglas Vose III Way to Mill Ave.	725'	8"
12	8" Pipe Extension	Along SR20, Mill Ave., Division St. and S. Dillard Ave.	2,250'	8"
13	12" Pipe Extension	Connecting First St. and Grassmere Rd. to Sauk Valley Rd. and SR20	1,835'	12"
14	8" Pipe Upgrade	Pine St.	470'	8"
15	8" Pipe Extension	Connecting Flr St. to S. Superior Ave.	825'	8"
16	8" Pipe Extension	Connecting Flr St. to Cedar St. along S. Reitze Ave.	480'	8"
17	Source Study	System Wide	--	--
18	Water Storage Tank	North of Limestone St.	--	--

#	DESCRIPTION	LOCATION	LENGTH	SIZE
1L	8" and 12" Pipe, Future Connections	Central Concrete, Proposed Cedar and D St.	1,800' 2,350'	8" 12"
2L	8" Pipe Upgrade for Fire Flow	Limestone St.	1,260'	8"
3L	8" Pipe Extension along SR20	East SR20	1,800'	8"
4L	8" Pipe Extension	Connecting Airport Way to S. Dillard	1,700'	8"
5L	12" Pipe Extension	West SR20	4,500	12"
6L	12" Pipe Extension	W. Dalles	4,100	12"
7L	8" and 12" Pipe Extensions	Sauk Valley Rd.	1,720' 4,100'	8" 12"
8L	Locate and Utilize an Additional Water Source	System Wide	--	--



DESIGNED BY CFR DRAWN BY IDH CHECKED BY CFR	R&E	REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. / DATE / REVISION / BY	TOWN OF CONCRETE P.O. BOX 39 CONCRETE, WA 98237	WATER SYSTEM PLAN FUTURE CONDITIONS

JOB# / DWG 10007.1 WS1 | DATE 6/25/11
SCALE H:1"=500' V: n/a | SHEET 2 of 2

P:\Projects\10007.1\dwg\WS2.dwg, 24x36_FUT, 6/25/2012 3:49:43 PM

GRAPHIC SCALE
500 0 250 500
(IN FEET)
1 inch = 500 ft.

LEGEND

- =2" MAIN & UNDER
- =4" MAIN
- =6" MAIN
- =8" MAIN
- =10" MAIN
- =12" MAIN
- =TANK
- =PRESSURE REDUCING VALVE
- =TOWN LIMITS
- =UGA
- =SERVICE AREA & RETAIL SERVICE AREA

GRASSMERE SPRING
GRASSMERE TANK NO. 3
SEIDEL TANK NO. 2
FIR TANK NO. 1
PRV1
DAM
BAKER RIVER
EVERETT LAKE
STATE ROUTE 20
SKAGIT HIGHWAY
GRASSMERE ROAD
LEONARD ROAD
COMPTON LANE
PINE STREET
ERIKSEN PLACE
BENJAMIN STREET
CONCRETE – SAUK VALLEY ROAD
NORTH BROOKS ROAD – PRIVATE
SKAGIT RIVER
OLD RIVER BED
ABANDONED GREAT NORTHERN RAILROAD
TRANSMISSION LINES
LOT – 1 through LOT – 12

DESIGNED BY CFR DRAWN BY IDH CHECKED BY CFR	R&E	REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO.	DATE	REVISION	BY	TOWN OF CONCRETE P.O. BOX 39 CONCRETE, WA 98237

WATER SYSTEM PLAN
CURRENT CONDITIONS

JOB# / DWG		DATE
10007.1	WS1	10/28/11
SCALE		SHEET
H:1"=500' V: n/a		1 of 2

P:\Projects\10007.1\dwg\WS2.dwg, 24x36_EX, 2/15/2012 9:03:13 AM