City of Rock Island Water System Plan

Spring 2022

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City of Rock Island

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CERTIFICATE OF ENGINEER

"I hereby certify that this Water System Plan for the City of Rock Island was prepared under the supervision and direction of the undersigned, whose seals as licensed professional engineers of the State of Washington are affixed below."

Jared T. Ribail, P.E. Erik R. Howe, P.E.

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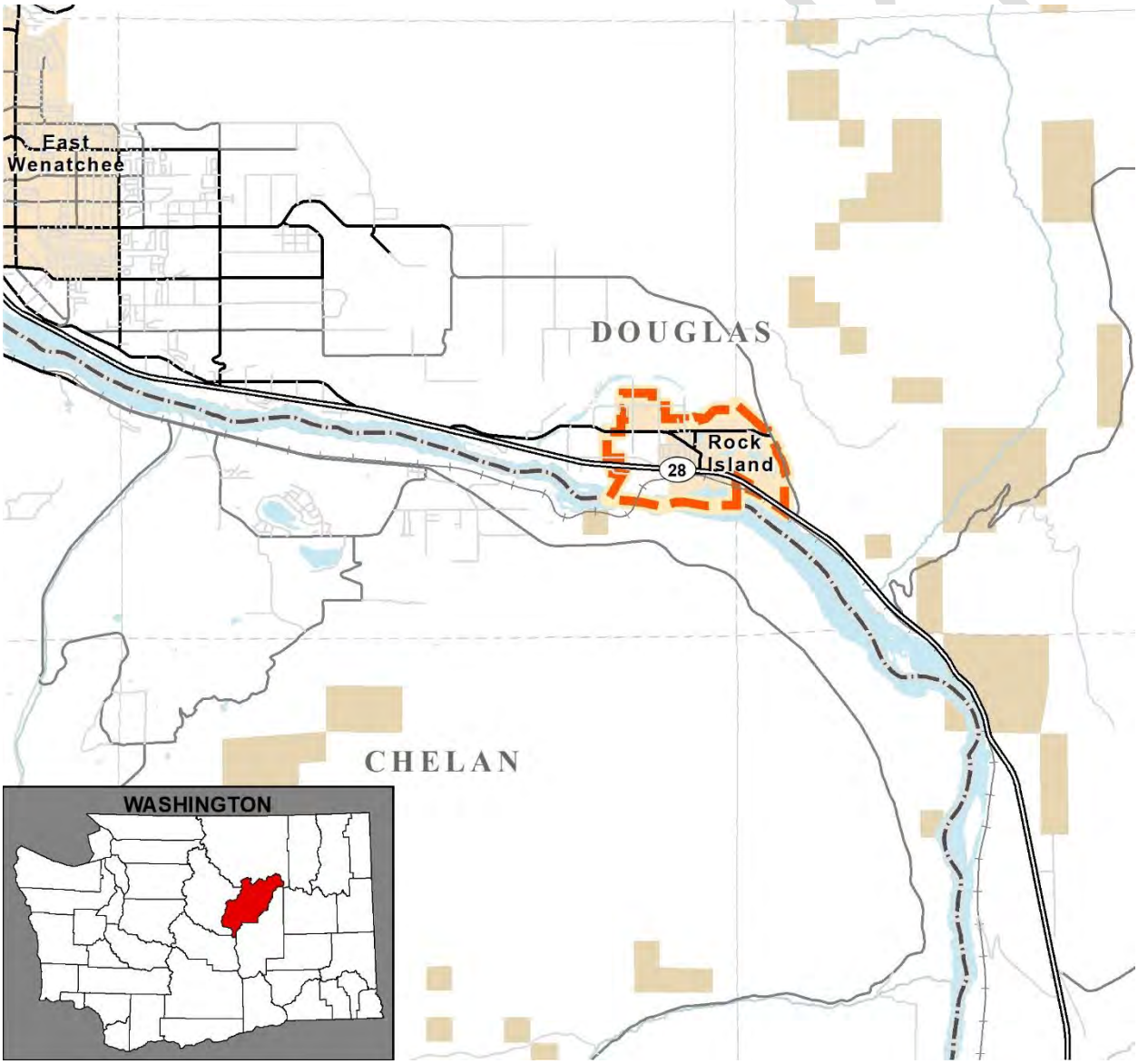
1 | INTRODUCTION

LOCATION

The City of Rock Island (City) is located southeast of the City of Wenatchee, along the north side of the Columbia River. The area was utilized for fishing and crossing the Columbia River before the City was fully incorporated in 1930. **Figure 1.1, Vicinity Map** illustrates the location of the City within Douglas County.

Figure 1.1
Vicinity Map



WATER SYSTEM OWNERSHIP

The City owns and operates a public water system. Water system data on file at the Washington State Department of Health (DOH) for the City's system is shown in **Table 1.1, Water System Ownership Information**.

Table 1.1
Water System Ownership Information

Information Type	Description
System Type	Community – Group A
System Name	Rock Island Water Department
County	Douglas
DOH System ID Number	73401E
Address	PO BOX 99 Rock Island, WA 98850
Contact	Wyatt Long
Contact Phone Number	(509) 884-1261

OVERVIEW OF EXISTING SYSTEM

A summary of water system data for the City's system and the number of customers served in 2021 is shown in **Table 1.2, Water System Summary**.

Table 1.2
Water System Summary

Description	Data (2021)
Total City Population	1,300 people
Total Connections	432 accounts
Total Customers (w/o DSL)[1]	430 ERU
Total Customers (w/ DSL)[1]	536 ERU
Average Day Demand per Customer	398 gpd/ERU
[1] The total volume of water produced system wide represented as the equivalent number of single-family customers. This total represents water use by all customer classes in terms of ERUs.	

gpd = gallons per day
ERU = equivalent residential unit
DSL = distribution system leakage

A summary of the important characteristics of the City's existing water system facilities in 2021 is shown in **Table 1.3, 2021 Water System Data.**

Table 1.3
2021 Water System Data

Description	Data (2021)
Population	1,300
Water Service Area	1.2 sq. miles
Number of Pressure Zones (HGL = 776)	1
Total Connections (Accounts)	432
Total Customers (ERU)	536
Demand per ERU	398 gpd/ERU
Demand per ERU used in WSP (5-year max)	405 gpd/ERU
Annual Supply	78 MG
Average Day Demand	0.2 MGD
Distribution System Leakage	20%
Maximum Day Demand/Average Day Demand Peaking Factor	2.2
Peak Hour Demand/Maximum Day Demand Peaking Factor	2.09
Number of Wells	5
Number of Wells Currently Utilized	2
Installed Source Capacity (Wells No. 2 and 5)	950 gpm
Total Water Rights (Qi)[1]	1,552 gpm
Total Water Rights (Qa)[1]	1,162 afy
Number of Reservoirs[2]	2
Total Capacity of System Reservoirs	0.5 MG
Total Length of Water Main	44,814 LF
[1]Not all well facilities are equipped for supplying the water system with reliable safe drinking water.	
[2]Both reservoirs are located at the same site.	

gpm = gallons per minute
gpd = gallons per day
ERU = equivalent residential unit
HGL = hydraulic grade line
LF = linear feet
MG = million gallons
MGD = million of gallons per day
afy = acre-feet per year

The location of the City is shown in **Figure 1.1, Vicinity Map.**

AUTHORIZATION AND PURPOSE

The City authorized RH2 Engineering, Inc., to prepare a Water System Plan (WSP) update as required by state law under Washington Administrative Code (WAC) 246-290-100. It is the

City's intent to update its WSP and submit it to DOH every 10 years. The previous WSP was updated in July 2013. The purpose of this updated WSP is as follows:

- To evaluate the existing water demand data and project future water demands.
- To analyze the existing water system to determine if it meets minimum requirements mandated by DOH and the City's own policies and design criteria.
- To identify water system improvements to resolve existing system deficiencies and accommodate future needs of the system for at least 20 years into the future.
- To prepare a schedule of improvements that meets the goals of the City's financial program.
- To evaluate past water quality and identify water quality improvements, as necessary.
- To document the City's operations and maintenance program.
- To evaluate conservation, emergency response, cross-connection control, wellhead and watershed protection, and water quality monitoring plans.
- To comply with all other 2021 WSP requirements of DOH.

ORGANIZATION OF PLAN

A summary of the content of the chapters in the WSP is as follows:

- The **Executive Summary** provides a brief summary of the key elements of this WSP.
- **Chapter 1** introduces the City's water system, the objectives of the WSP, and the WSP organization.
- **Chapter 2** presents the water service area, describes the existing water system, and identifies adjacent water purveyors.
- **Chapter 3** presents related plans, land use, and population characteristics.
- **Chapter 4** identifies existing water demands and projected future demands.
- **Chapter 5** presents the City's operational policies and design criteria.
- **Chapter 6** discusses the City's water sources and water quality.
- **Chapter 7** discusses the water system analyses and existing system deficiencies.
- **Chapter 8** discusses the City's operations and maintenance program.
- **Chapter 9** presents the proposed water system improvements, their estimated costs, and implementation schedule.
- **Chapter 10** summarizes the financial status of the water utility.
- The Appendices contain additional information and plans that supplement the main chapters of the WSP.

ACRONYMS AND ABBREVIATIONS

The following acronyms and abbreviations are used throughout this WSP.

AC	asbestos cement
ADD	Average Day Demand
afy	acre-feet per year
AWWA	American Water Works Association
BPS	Booster Pump Station
CIP	Capital Improvement Program
City	City of Rock Island
cfs	cubic feet per second
County	Douglas County
CT	Contact Time
CWSSA	Critical Water Supply Service Area
DOH	Washington State Department of Health
DI	ductile iron
DSL	Distribution System Leakage
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
ERU	Equivalent Residential Unit
fps	feet per second
GMA	Growth Management Act
gpd	gallons per day
gph	gallons per hour
gpm	gallons per minute
HGL	Hydraulic Grade Line
hp	horsepower
LF	linear feet
MCL	Maximum Contaminant Level
MDD	Maximum Day Demand
MG	million gallons
mg/L	milligrams per liter

MGD	million gallons per day
PHD	Peak Hour Demand
PRV	Pressure Reducing Valve
psi	pounds per square inch
PVC	polyvinyl chloride
RCW	Revised Code of Washington
SCADA	supervisory control and data acquisition
SDWA	Safe Drinking Water Act
SEPA	State Environmental Policy Act
TDH	Total Dynamic Head
UGA	Urban Growth Area
WAC	Washington Administrative Code
WSFFA	Water Supply and Facilities Funding Agreement
WSA	Water Service Area
WSP	Water System Plan
WUE	Water Use Efficiency

DEFINITION OF TERMS

Annual Demand: The total water system demand for one calendar year.

Average Day Demand (ADD): The total amount of water delivered to the system in a year divided by the number of days in the year. ADD is typically expressed as gallons per day per equivalent residential unit (gpd/ERU).

Consumption: The true volume of water used by the water system's customers. The volume is measured at each customer's connection to the distribution system.

Contaminant: A substance present in drinking water that may adversely affect the health of the consumer or the aesthetic qualities of the water.

Critical Water Supply Service Area (CWSSA): A geographical area that is characterized by a proliferation of small, inadequate water systems, or by water supply problems that threaten the present or future water quality or reliability of service in a manner that efficient and orderly development may best be achieved through coordinated planning by the water utilities in the area.

Cross-Connection: Any physical connection, actual or potential, between a water system and any source of a non-potable substance that presents the potential for contaminating the public water system.

Dead Storage: The volume of stored water not available to all consumers at the minimum design pressure.

Demand: The quantity of water required from a water supply source over a period of time necessary to meet the needs of domestic, commercial, industrial, and public uses, and to provide enough water to supply firefighting, system losses, and miscellaneous water uses. Demands are normally discussed in terms of flow rate, such as million gallons per day (MGD) or gallons per minute (gpm), and are described in terms of a volume of water delivered during a certain time period.

Demand Forecast: An estimate of future water system water supply needs assuming historically normal weather conditions and calculated using numerous parameters, including population, historic water use, local land use plans, water rates and their impacts on consumption, employment, projected water use efficiency savings from implementation of a water use efficiency program, and other appropriate factors.

Disinfection: The use of chlorine or other agent or process for killing or inactivating microbiological organisms, including pathogenic and indicator organisms.

Distribution System Leakage (DSL): The amount of water supply lost to non-metered leakage.

Equalizing Storage: The volume of storage needed to supplement supply to consumers when the peak hourly demand exceeds the total source pumping capacity.

Equivalent Residential Units (ERUs): One ERU represents the amount of water used by one single-family residence for a specific water system. The demand of other customer classes can be expressed in terms of ERUs by dividing the demand of each of the other customer classes by the demand represented by one ERU.

Fire Flow: The rate of flow of water required during firefighting, which is usually expressed in terms of gpm.

Fire Suppression Storage: The volume of stored water available during fire suppression activities to satisfy minimum pressure requirements.

Head: A measure of pressure or force exerted by water. Head is measured in feet and can be converted to pounds per square inch (psi) by dividing feet by 2.31.

Headloss: Reduction in pressure resulting from pipeline wall friction, bends, physical restrictions, or obstructions.

Hydraulic Analysis: The study of a water system's distribution main and storage network to determine present or future adequacy for provision of service to consumers within the established design parameters for the system under peak flow conditions, including fire flow. The analysis is used to establish any need for improvements to existing systems or to substantiate adequacy of design for distribution system components such as piping, elevated storage, booster stations, or similar facilities used to pump and convey water to consumers.

Hydraulic Elevation: The height of a free water surface above a defined datum; the height above the ground to which water in a pressurized pipeline would rise in a vertical open-end pipe.

Maximum Contaminant Level (MCL): The maximum permissible level of contaminant in the water that the purveyor delivers to any public water system user, measured at the locations identified under WAC 246-290-300, Table 3.

Maximum Day Demand (MDD): The maximum amount of water delivered to the system during a 24-hour time period of a given year.

Operational Storage: The volume of distribution storage associated with source or booster pump normal cycling times under normal operating conditions. Operational storage is additive to the equalizing and standby storage components, and to fire flow storage if this storage component exists for any given tank.

Peak Hour Demand (PHD): The maximum amount of water delivered to the system, excluding fire flow, during a one-hour time period of a given year. A system's peak hour demand usually occurs during the same day as the maximum day demand.

Potable: Water suitable for human consumption.

Pressure Zone: A portion of the water system that operates from sources at a common hydraulic elevation. For example, 748 Pressure Zone refers to a pressure zone that has water tanks with an overflow elevation of 748 feet.

Purveyor: An agency, subdivision of the state, municipal corporation, firm, company, mutual or cooperative association, institution, partnership, or persons or other entity owning or operating a public water system. Purveyor also means the authorized agents of such entities.

Reclaimed Water: Effluent derived in any part from sewage from a wastewater treatment system that has been adequately and reliably treated, so that as a result of that treatment, it is suitable for beneficial use or a controlled use that would not otherwise occur; it is no longer considered wastewater.

Standby Storage: The volume of stored water available for use during a loss of source capacity, power, or similar short-term emergency.

Supply: Water that is delivered to a water system by one or more supply facilities that may consist of supply stations, booster pump stations, springs, and wells.

Storage: Water that is "stored" in a reservoir to supplement the supply facilities of a system and provide water supply for emergency conditions. Storage is broken down into the following five components: operational storage; equalizing storage; standby storage; fire flow storage; and dead storage.

Water Right: A permit, claim, or other authorization, on record with or accepted by the Washington State Department of Ecology, authorizing the beneficial use of water in accordance with all applicable state laws.

2 | WATER SYSTEM DESCRIPTION

WATER SYSTEM MANAGEMENT

The City of Rock Island's (City) water system is operated and maintained by the City, a municipal corporation that is governed by a Mayor-Council form of government. The water system is operated and maintained by the City's Public Works Department. The Washington State Department of Health (DOH) water system identification number is 73401E. A copy of the Water Facilities Inventory (WFI) Form is included in **Appendix A – Water Facilities Inventory (WFI) Form**. DOH has oversight on the review and approval of the City's system and Water System Plan (WSP).

SYSTEM BACKGROUND

HISTORY OF WATER SYSTEM DEVELOPMENT AND GROWTH

The City has a 2021 estimated population of 1,300. The City's water service area covers approximately 787 acres, or 1.2 square miles, within the City limits and portions of unincorporated Douglas County (County).

Growth and System Planning Efforts

In 2013, the City updated its WSP. The primary purpose of this WSP update is to assist the City in developing a long-term planning strategy and evaluate its ability to handle future demands and requirements for water quality, storage, source, transmission, and distribution for a 20-year planning horizon. In order to continually provide reliable water service to its customers, this WSP makes recommendations for water system improvements necessary to accommodate future demands.

INVENTORY OF EXISTING FACILITIES

This section provides a detailed description of the existing water system and the current operation of the facilities. The analysis of the existing water system is presented in **Chapter 7 – Water System Analysis**.

SYSTEM OVERVIEW

The City's water system is currently served by Well No. 5 and Well No. 2. Well No. 5 is located in the eastern portion of the City near Putters Lake along the Rock Island Golf Course. Well No. 2 is located along Center Street just north of Riverside Drive. Water from both wells can be pumped to the City's reservoirs and distribution system.

The City has two reservoirs that serve its water system. The City's distribution system currently operates with one pressure zone. **Figure 2.1, Existing Water System** illustrates the existing configuration of the City's water system.

SOURCES OF SUPPLY

Wells

The City owns five wells, Well Nos. 1 through 5, but currently depends on only two wells to supply the City's water system, Well Nos. 2 and 5. Typical flow capacities for these two wells, with water rights for comparison purposes, are listed in **Table 2.1, Well Capacity**.

Table 2.1
Well Capacity

Water Right Capacity, Q_i (gpm)	Water Right Capacity, Qa (gpm)	Well Capacity (gpm)[1,2]	
		Well No. 2[3]	Well No. 5
1,552	720	250	700

[1]Further discussion regarding capacity vs. water rights is evaluated in Chapter 6.

[2] Information about Well Nos. 1, 3 and 4 is not shown due to limited available information.

[3] Well No. 2 capacity shown is adopted from historical records and has no recent data or anecdotal evidence to support its current capabilities.

ND = No Data

Water Rights

The City currently holds two groundwater claims and two groundwater certificates on file with the Washington State Department of Ecology (Ecology). The water rights meet the definition as being for municipal water supply purposes provided under Revised Code of Washington (RCW) 90.03.015. Consistent with the Municipal Water Law, the place of use for these water rights is the service area as identified in this WSP. These water rights are summarized in **Table 2.2, Water Rights**, and described in more detail in **Chapter 6 – Water Source and Quality**.

Table 2.2
Water Rights

Water Right Number	Priority Date	Source	Instantaneous Rate (Qi) (gpm)		Annual Volume (Qa) (afy)	
			Additive	Non-Additive	Additive	Non-Additive
G4-300065CL[1]	1/1/1930	Well No. 1	650	0	498	0
G4-045542CL(B)	1/1/1930	Well Nos. 2, 3, and 5	122	0	47.71	0
GWC 4224-A	10/16/1961	Well Nos. 2, 3, and 5	500	0	168	0
G4-24603C	1/31/1977	Well Nos. 2, 3, and 5	280	0	448	0
Total			**1,552**	-	**1,161.71**	-

[1]G4-300065CL has a seasonal Period of Use that runs from April 1 to October 1. Well No. 1 is used for irrigation only due water quality issues.

PUMPING FACILITIES

The City owns five wells, but the City's water system is supplied from active Well Nos. 2 and 5. An overview of the City's well pump stations is provided in **Table 2.3, Pump Stations**.

Table 2.3
Well Facilities

Well Facility Name	Pumps From	Pumps To	Serves	Control	Horsepower and Approximate Capacity
Well No. 2	Groundwater Aquifer	Distribution/Reservoirs	Main Pressure Zone	Reservoir Level SCADA	30 hp; 250 gpm
Well No. 5	Groundwater Aquifer	Distribution/Reservoirs	Main Pressure Zone	Reservoir Level SCADA	50 hp; 700 gpm

hp = horsepower

Well No. 5 Pump Station

The Well No. 5 Pump Station has a maximum capacity of approximately 700 gpm. A 12-inch-diameter water main runs from the Well No. 5 Pump Station to the distribution system and reservoirs.

Well No. 2 Pump Station

The Well No. 2 Pump Station has a reported maximum capacity of approximately 250 gpm. Limited information about the facility is available.

STORAGE

The City currently is served by two reservoirs. An overview of the City's storage reservoirs is provided in **Table 2.4, Reservoirs**.

Table 2.4
Reservoirs

No.	Reservoir Name	Volume (MG)	Overflow Elevation (feet)	Material	Year Built
1	0.4 MG Reservoir	0.40	776	Welded Steel	2000
2	0.1 MG Reservoir	0.10	776	Welded Steel	1962

0.40 and 0.10 MG Tanks

The 0.40 and 0.10 million-gallon (MG) Riverside Drive Reservoirs are located on a City-owned parcel along Riverside Drive approximately 0.4 miles northeasterly of the intersection of

Riverside Place and Highway 28. The 0.1 and 0.4 MG Reservoirs were constructed in 2000 and 1962 respectively. The tanks have an overflow elevation of approximately 776 feet.

0.4 and 0.1 MG Reservoir

PRESSURE ZONES

An open pressure zone is served by a storage reservoir open to atmospheric pressure, whereas a closed pressure zone does not rely on a storage reservoir and is therefore not open to atmospheric pressure. The City's water system consists of one pressure zone that operates as an open zone. An existing system hydraulic profile is shown on **Figure 2.2, Existing Hydraulic Profile**.

PRESSURE REDUCING VALVE STATIONS

Pressure reducing valves (PRVs) are installed between pressure zones to allow water from a higher level pressure zone to flow into the lower level pressure zone at reduced pressures. PRVs can hydraulically vary the flow rates to maintain a constant and preset pressure in the downstream or lower level pressure zone. This results in a safe range of pressures in the lower zone. The City currently does not have any pressure reducing stations.

TRANSMISSION AND DISTRIBUTION

Pipes

The existing transmission and distribution system is shown in **Figure 2.1, Existing Water System**. The water system consists of approximately 44,800 linear feet (LF) of pipe. The existing transmission and distribution system consist of pipes ranging in size from 4 inches to 12 inches in diameter. The pipes are manufactured from various materials, including asbestos cement (AC), ductile iron (DI), steel, and polyvinyl chloride (PVC). **Table 2.5, Pipe Inventory** shows a summary of the various pipe sizes and materials.

Table 2.5
Pipe Inventory

Diameter	Length (feet)	Percent of Total
4-inch	3,522	7.9%
6-inch	5,644	12.6%
8-inch	26,507	59.1%
12-inch	9,141	20.4%
Total	**44,814**	**100%**
Material	**Length (feet)**	**Percent of Total**
Asbestos Cement	652	1.5%
Ductile Iron	28,199	62.9%
PVC	7,882	17.6%
Steel	8,081	18.0%
Total	**44,814**	**100%**

The size and material of the existing water mains are an important element when evaluating the City's water system. **Figure 2.1, Existing Water System** shows the various pipe sizes and materials of the City's water system.

Meters

There are 432 metered service connections within the City's water service area (WSA) at the time of this WSP. Approximately 95 percent, or 411, of the connections are for single-family residences. The remaining meters are for public buildings and facilities, multi-family residences, irrigation, and industrial and commercial businesses.

In addition to service meters, the City owns flow meters at its well house facilities. The City will continue to install, replace and track meters throughout its system as the need arises.

TELEMETRY AND CONTROL SYSTEM

A telemetry and supervisory control system collects information and can efficiently control a water system by automatically optimizing facility operations. The telemetry and control system is capable of providing alarm notifications in the event of equipment failure, reservoir overflow, or other emergency situations. The City currently tracks reservoir levels via its supervisory control and data acquisition (SCADA) system.

TREATMENT FACILITIES

The City's Well No. 5 was constructed in 2009 and delivers treated water to the City's distribution system. The water supply is considered by DOH to be groundwater. The City's Well Nos. 2, 3 and 5 includes a feed system for chlorination.

WATER SERVICE AREA

The boundaries of the City's WSA are depicted in **Figure 2.3, Water Service Area**.

Retail Service Area

The Municipal Water Supply – Efficiency Requirements Act, Chapter 5, Laws of 2003 (Municipal Water Law) amended the Washington State Board of Health Code (Chapter 43.20 RCW) to require that municipal water suppliers provide water service to all new retail customers within a retail service area under certain conditions. A retail service area is the area within which water is or will be sold directly to the ultimate consumers.

According to the Municipal Water Law, a municipal water supplier has a duty to serve new water service within the identified retail service area if the utility:

- Can provide water service in a timely and reasonable manner;
- Has sufficient water rights or uses water from a source that has a water right;
- Has sufficient capacity to serve the water in a safe and reliable manner as determined by DOH; and

- Is consistent with the requirements of any comprehensive plans or development regulations adopted under Chapter 36.70A RCW or any other applicable adopted comprehensive plans, land use plans, or development regulations.

PHYSICAL ENVIRONMENT

Planning for the future water system requires a basic understanding of the physical environment of the WSA. A working knowledge is useful in identifying any constraints that may affect the development of the water system. Physical characteristics that influence planning and design include topography, geology, soils, surface water, groundwater, and climate. Descriptions of these characteristics, as well as a summary of environmentally sensitive areas in the City, are as follows.

Topography

The topography within the basin is predominantly flat with a shallow regional slope towards the Columbia River.

Geology and Soils

The geology of the Rock Island area, like most areas surrounding large river systems, is characterized by sandy gravels and loams typical of alluvial fans. Near the river, cobbles and large boulders are common. In general, the geology of the study area will not significantly limit development. Regions of landslide and erosion susceptibility exist along the steep slopes.

Surface Water

The City's WSA lies within the Columbia River drainage basin. The Columbia River borders the southern portion of the City's WSA. A number of additional wetlands and creeks lie within the WSA.

Climate

The City experiences somewhat arid and dry weather the majority of the year. According to the Western Regional Climate Center, the City receives an average of approximately 8 inches of precipitation per year, an average maximum temperature of 61 degrees Fahrenheit, and an average minimum temperature of 41 degrees Fahrenheit.

Environmentally Sensitive Areas

The Rock Island Municipal Code (RIMC), Title 18, establishes regulations for development in environmentally sensitive areas, also known as critical areas. These regulations were developed to protect sensitive areas within the City that include wetlands, geologically hazardous areas, fish and wildlife habitat conservation areas, frequently flooded areas, and critical aquifer recharge areas. Data on the location and extent of documented sensitive areas within the City can be obtained from the City, Douglas County, and/or state and federal agency databases.

RIMC establishes regulated buffers that protect the land directly surrounding sensitive areas. The width of the regulated buffer depends on the type and quality of the sensitive area. Direct impacts to sensitive areas or their associated buffer are either prohibited by RIMC or require

documentation, minimization actions, and compensatory mitigation subject to approval by the City or County. If a project is proposed within proximity to a known or potential sensitive area, the presence or absence of sensitive areas shall be confirmed by a qualified professional per RIMC. Any project involving new development or significant alteration of an area should assess potential impacts to sensitive areas and/or their buffers and correspond with the City's Planning Department regarding required permits and documentation. The existing environmental conditions, potential project impacts, and regulatory requirements shall be assessed before or concurrently with design of each individual project.

Moreover, certain projects may require compliance with the State Environmental Policy Act (SEPA), wherein project impacts to various elements of the environment will be evaluated.

LAND USE AND ZONING

Land use and zoning play an important role in determining growth patterns and future water requirements. Future land use, variations in use, and changing population densities, as determined by applicable zoning ordinances, can significantly impact the City's ability to provide adequate water service. Land use and zoning are discussed in more detail in **Chapter 3 – Land Use and Population**.

ADJCENT PURVEYORS AND SERVICE AREA AGREEMENTS

The City has five Group B water systems within its service area according to DOH's Source Water Assessment Program (SWAP). A Group B water system serves fewer than 15 connections and fewer than 25 people per day. The Group B water systems shown within the City include, Hurst Landing, Sunrise Cove, EZ Access Mini Storage, Hurst Landing Shores, and Baiggs Water System.

The East Wenatchee Water District is the only major adjacent purveyor. The City is approximately 2 to 3 miles from the East Wenatchee Water District's water system. Adjacent purveyors and the County have been afforded the opportunity to comment on this WSP. Comments received from adjacent purveyors have been included in **Appendix B – Adjacent Purveyors and Agency Review Comments**.

The City currently has no service agreements with adjacent water systems. The location of adjacent water purveyors is shown in **Figure 2.4, Adjacent Water Purveyors**.

3 | LAND USE AND POPULATION

RELATED PLANNING DOCUMENTS

The following related planning documents were examined in the preparation of the City of Rock Island's (City) Water System Plan (WSP) to ensure consistency with the land use policies of all involved agencies. Comments received from these agencies have been included in **Appendix B – Adjacent Purveyors and Agency Review Comments**. Comments and correspondence with the Washington State Department of Health (DOH), including review checklists, are included in **Appendix C – DOH Correspondence and Local Consistency Checklist**.

CITY OF ROCK ISLAND PLANNING DOCUMENTS

City of Rock Island Water System Plan

The City's *2013 Water System Plan Update* (Varela & Associates, Inc.), approved by DOH in 2013, presented system improvements and projects necessary to update and enhance the existing water system facilities.

City of Rock Island Comprehensive Plan

The City's *Comprehensive Plan* document includes chapters regarding the City's urban area, population and employment characteristics, and land use. The City's *Comprehensive Plan* was adopted in 2007.

REGIONAL PLANS AND DOCUMENTS

Douglas County Countywide Comprehensive Plan

The *Douglas County Countywide Comprehensive Plan* was adopted in 1999 and last updated in 2021. This document includes the City within the urban area of Douglas County (County) for purposes of planning, land use, and facility needs. The City's WSP has been developed to be consistent with the *Douglas County Countywide Comprehensive Plan*.

Douglas County Code

The Douglas County Code contains details in Chapter 15.14 regarding water and sewer comprehensive plans. A listing of the code sections is available through Douglas County and is available online. The City's WSP has been developed in conformance with these codes.

LAND USE AND ZONING

Land use and zoning play an important role in determining growth patterns and future water requirements. Future land use, variations in use, and changing population densities, as determined by applicable zoning ordinances, can significantly impact the City's ability to provide adequate water service. **Figure 3.1, County Land Use Designation** includes the City's zoning designations as defined by the County.

PROJECTED POPULATION AND LAND USE

The growth rate data from the *Douglas County Countywide Comprehensive Plan* population projections is approximately 1.04 percent. The Office of Financial Management (OFM) 2017 GMA projections of the total population for growth management forecasted a 1.2 percent medium growth rate for Douglas County. The City is currently in the process of analyzing its Urban Growth Area. In analyzing their City's potential for growth, growth rates of 2.5, 5.0 and 10.0 percent were used. Therefore, population projections for the 20-year planning horizon were estimated for the City's water service area based on an annual growth rate of 1.2, 2.5, 5.0 and 10.0 percent. Other urban growth areas in the region of similar size typically grow at a rate similar to the OFM estimate and for this reason the growth rate documented by the OFM was applied to the water system demands used throughout this WSP. Further discussion regarding City growth and its water systems capacities is included in **Chapter 7 – Water System Analysis**. Population and equivalent residential unit (ERU) projections are included in **Table 3.1, Growth Projections**.

Table 3.1
Growth Projections

Year	1.2% Growth Rate		2.5% Growth Rate[2]		5% Growth Rate[2]		10% Growth Rate[2]	
	City Population [1]	ERUs	City Population	ERUs	City Population	ERUs	City Population	ERUs
2020	1,279	507	1,279	507	1,279	507	1,279	507
2021	1,300	536	1,300	520	1,300	532	1,300	558
2022	1,316	543	1,333	533	1,365	559	1,430	614
2023	1,331	549	1,366	546	1,433	587	1,573	675
2024	1,347	556	1,400	560	1,505	616	1,730	742
2025	1,363	562	1,435	574	1,580	647	1,903	817
2026	1,380	569	1,471	588	1,659	680	2,094	898
2027	1,396	576	1,508	603	1,742	714	2,303	988
2028	1,413	583	1,545	618	1,829	749	2,533	1,087
2029	1,430	590	1,584	633	1,921	787	2,787	1,196
2030	1,447	597	1,624	649	2,017	826	3,065	1,315
2031	1,465	604	1,664	665	2,118	867	3,372	1,447
2032	1,482	611	1,706	682	2,223	911	3,709	1,591
2033	1,500	619	1,748	699	2,335	956	4,080	1,751
2034	1,518	626	1,792	717	2,451	1,004	4,488	1,926
2035	1,536	634	1,837	734	2,574	1,054	4,937	2,118
2036	1,554	641	1,883	753	2,703	1,107	5,430	2,330
2037	1,573	649	1,930	772	2,838	1,162	5,973	2,563
2038	1,592	657	1,978	791	2,980	1,220	6,571	2,819
2039	1,611	664	2,028	811	3,129	1,281	7,228	3,101
2040	1,630	672	2,078	831	3,285	1,345	7,951	3,411
2041	1,650	681	2,130	852	3,449	1,413	8,746	3,753

[1] The 2021 population estimates were revised November 30, 2021. These estimates supersede the estimates OFM released on June 30, 2021.

[2] This growth rate is shown for comparison purposes only.

4 | WATER DEMANDS

INTRODUCTION

A detailed analysis of system demands is crucial to a water purveyor's planning efforts. A demand analysis first identifies current supplies and demands to determine if the existing system can effectively provide an adequate quantity of water to its customers under the most crucial conditions, in accordance with federal and state laws. A future demand analysis identifies projected supplies and demands to determine how much water will be needed to satisfy future water system growth while continuing to meet federal and state laws.

Water system demands determine the size of storage reservoirs, supply facilities, water mains, and treatment facilities. Several different types of demands were analyzed and are addressed in this chapter, including average day demand (ADD), maximum day demand (MDD), peak hour demand (PHD), fire flow demand, future demands, and a conservation demand reduction forecast.

The magnitude of water demands is typically based on three main factors: 1) population; 2) weather; and 3) water use classification. Population and weather have the two largest impacts on water system demands. Population growth tends to increase the annual demand, whereas high temperatures tend to increase the demand over a short period of time. Population does not solely determine demand, because different populations use varying amounts of water. Actual water use varies based on the number of users in each type of customer class, land use density, and irrigation practices. Water use efficiency efforts also will impact demands and can be used to accommodate a portion of system growth without increasing a system's supply capacity.

WATER USE CLASSIFICATIONS

For planning purposes, in the City of Rock Island's (City) Water System Plan (WSP), water customers have been separated into three different groups: 1) single-family residential; 2) commercial (which includes schools, multi-family which includes rv/trailer parks and churches); and 3) City/public buildings.

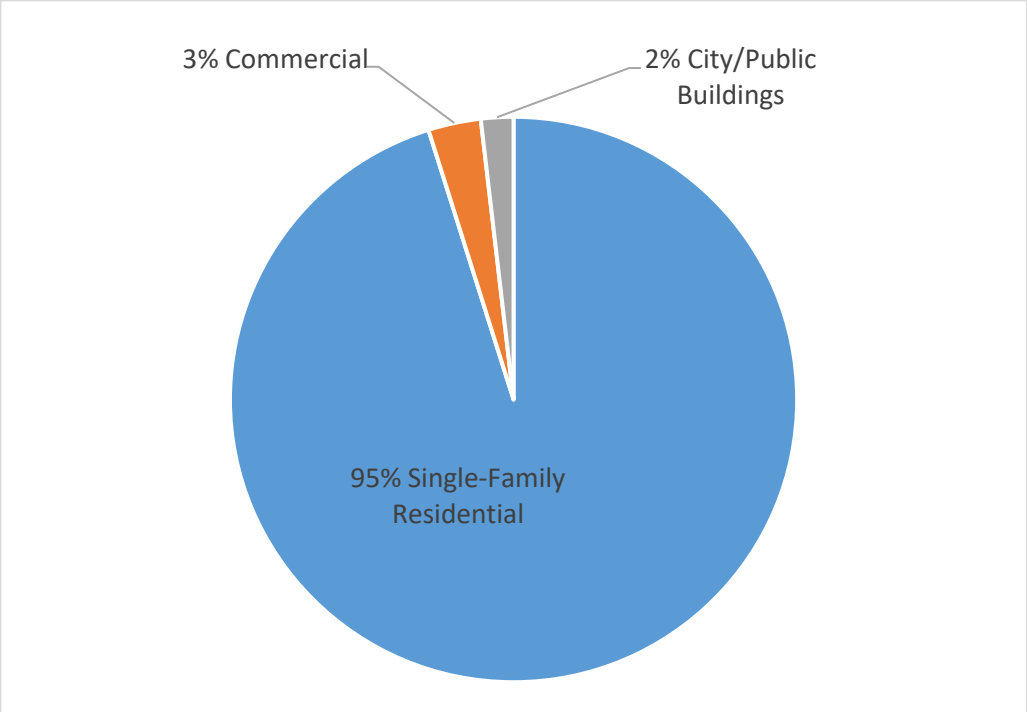
As shown in **Table 4.1, 2021 Service Connections by Customer Class**, the City currently has 432 active service connections**.**

Table 4.1
2021 Service Connections by Customer Class

Customer Class	Accounts	
	(Meters)	(Percent)
Single-Family Residential	411	95%
Commercial	13	3%
City/Public Buildings	8	2%
Total (2021)	**432**	**100%**

Approximately 95 percent of these connections are for single-family residences, as shown in **Chart 4.1, 2021 Service Connections by Customer Class**.

Chart 4.1
2021 Service Connections by Customer Class



EXISTING WATER CONSUMPTION

Water consumption is the amount of water used by all customers of the system as measured by the customer's meters. Authorized consumption is the volume of metered and unmetered water that is consumed by authorized users. Examples of authorized uses that are not billed include, but are not limited to, firefighting and training, water main flushing, street cleaning, and backwash water. Billed consumption is metered consumption documented by the City's accounting department. Historical consumption for the City is shown in **Table 4.2, Historical Consumption**.

Table 4.2
Historical Consumption

Year	Total Authorized Consumption	
	(cf/Year)	(MG/Year)
2016	7,183,369	54
2017[1]	8,155,080	61
2018[1]	8,155,080	61
2019	8,422,460	63
2020	8,126,698	61
2021	8,369,884	63

[1]The City's consumption records were erroneously inaccurate. However, production data appeared reliable and was used as a baseline for a comparison to an average consumption from years 2016, 2019, 2020 and 2021.

cf = cubic feet
MG = million gallons

Meter data for the City is collected by the City. Recent consumption records based on customer billing records are included in **Table 4.3, Historical Authorized Consumption by Customer Class**.

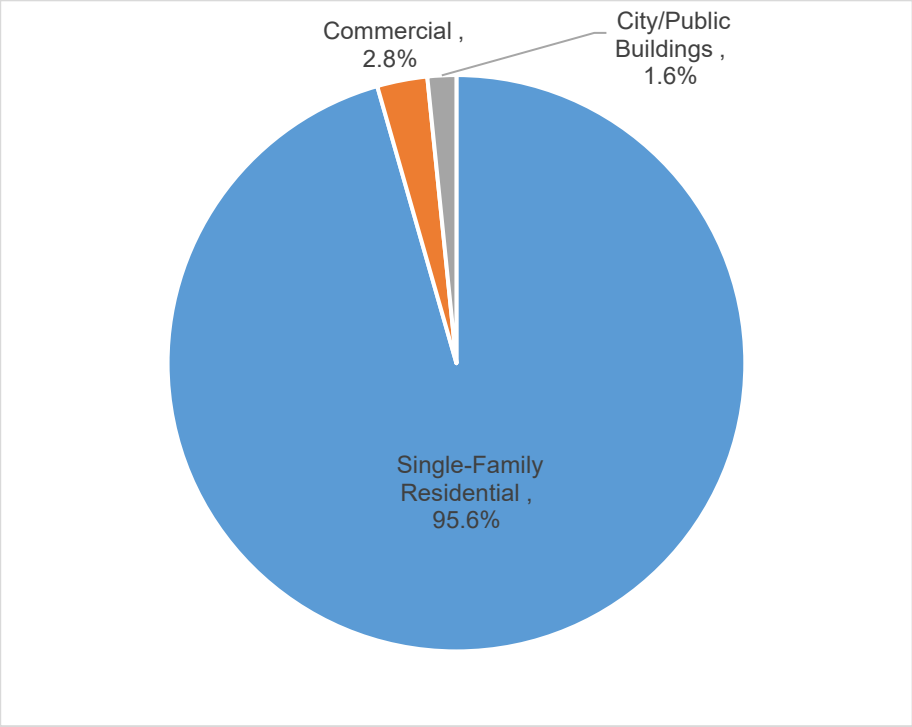
Table 4.3
Historical Authorized Consumption by Customer Class

Customer Class	Total Authorized Consumption (MG)					
	2016	2017[1]	2018[1]	2019	2020	2021
Single-Family Residential	49.4	55.3	55.3	56.9	54.5	59.8
Commercial	4.2	5.3	5.3	5.8	5.6	1.8
City/Public Buildings	0.2	0.4	0.4	0.2	0.8	1.0
Total	**54**	**61**	**61**	**63**	**61**	**63**

[1] The City's consumption data was inaccurate and incomplete. Customer class consumption was assumed to be equal to the average percentage of the available data.

Chart 4.2, 2021 Authorized Consumption by Customer Class indicates that roughly 95.5 percent of the consumption has been by the single-family residential customer class. Approximately 2.8 percent of the City's consumption is classified as commercial use.

Chart 4.2
2021 Authorized Consumption by Customer Class



EXISTING WATER DEMANDS

Equivalent Residential Units

For demand forecasting and planning purposes, the water used by each customer class can be expressed in terms of equivalent residential units (ERUs). One ERU is equivalent to the amount of water used by a one typical single-family residence. An ERU is calculated by dividing the total volume of water consumed in the single-family customer class by the total number of typical single-family residential connections. Typical single-family connections do not include mobile home parks, apartments, or duplexes/triplexes. The volume of water used by other customer classes can then be divided by this number to determine the ERUs utilized by the other customer classes.

The ERU is meant to capture how much water a single-family household uses in a year. In planning for how many customers a water system has enough capacity to serve, it is helpful to know how many additional homes, or large new commercial businesses, are being proposed. Converting all customers, both residential and non-residential, to a common demand factor helps planners understand the relative usage of various types of accounts. For example, understanding how much water a food processing plant might use, compared to how many households could be served by that same amount of water, is useful information.

The results of this analysis are shown in **Table 4.4, Historical Single-Family Residential Authorized Consumption and Demand Per Customer**, and **Table 4.5, Historical Authorized Consumption per Typical Single-Family Account and ERUs Served**. It is important to note that

the consumption and the number of accounts shown in these tables differ from previous tables in this WSP since the numbers in these tables only represent the consumption of a typical, or fully occupied, household.

Table 4.4
Historical Single-Family Residential Authorized Consumption and Demand Per Customer

Year	Total Single-Family Residential Authorized Consumption (Gal/Year)	Number of Single-Family Residential Connections	Demand Per Customer (gpd/ERU)
2016	49,363,915	347	390
2017[1]	51,269,368	353	398
2018[1]	52,431,280	361	398
2019	56,886,733	385	405
2020	54,463,834	375	398
2021	59,839,130	411	399
5-Year Average			**398**
5-Year Max			**405**

[1]The number of connections was available from the City's accounting data and an average demand per customer was derived from the average of 2016, 2019, 2020 and 2021.

Table 4.5
Historical Authorized Consumption per Typical Single-Family Account and ERUs Served

Year	Total Authorized Consumption (MG/Year)	Demand Per Customer (gpd/ERU)	Typical Customer[1] (ERU w/o DSL)	Typical Customer[1] (ERU w/ DSL)
2016	54	390	378	433
2017[2]	61	398	425	493
2018[2]	61	398	421	488
2019	63	405	426	449
2020	61	398	419	507
2021	63	399	430	536

[1] Represents the number of potential single-family home accounts based on average yearly authorized consumption.

[2] The demand per customer shown is an average from 2016, 2019, 2020 and 2021. The City recorded consumption availble through the City's accounting data was unreliable. Shown is average consumption scaled by the City's production relative to the average of the years shown.

The estimated demand per capita is shown in **Table 4.6, Historical Demand Per Customer and Per Capita**.

Table 4.6
Historical Demand Per Customer and Per Capita

Year	Demand Per Customer (gpd/ERU)	Demand Per Capita[1] (gpd/Capita)
2016	390	142
2017	398	145
2018	398	145
2019	405	147
2020	398	145
2021	399	145
5-Year Average	**398**	**145**

[1] Assumes 2.75 people per house hold per the Douglas County Comprehensive Plan.

Table 4.4, Historical Single-Family Residential Authorized Consumption per and Demand Per Customer shows that over the last 5 years, single-family residential customers used an average of approximately 397 gallons per day (gpd) per connection. The highest demand factor of 405 gpd/ERU was in 2019. **Table 4.6, Historical Demand Per Customer and Per Capita**, also shows that the amount of water used per person, or per capita, is approximately 144 gpd/Capita. This number assumes that approximately 2.75 people live in a single-family home.

Historical consumption and the number of customers by classification were used to calculate a demand factor per customer class. These demand factors are used to convert the number of service meters within a customer class to ERUs, and are included in **Table 4.7, Demand Factors by Customer Class and Total ERUs**. The total number of ERUs for 2021 represents the total number of customers the City has committed to serve; therefore, it includes all accounts. The numbers are based on the ERU factor of 398 gpd/ERU, which represents the demand from 2021 as shown in **Table 4.4, Historical Single-Family Residential Authorized Consumption and l Demand Per Customer**.

Table 4.7
Demand Factors by Customer Class and Total ERUs

Customer Class	Total Customers Served (ERU)	Metered Connections or Units	Factor	Basis
Single-Family Residential	411	411 meters	1.0	Equal to the total customers connected to the system regardless if the homes are occupied yet or not.
Commercial	12	13 meters	0.9	Total number of commercial connections times the conversion factor based on annual consumption divided by 398 gpd/ERU.
City/Public Buildings	7	8 meters	0.9	Total number of City connections times the conversion factor based on annual consumption divided by 398 gpd/ERU.
DSL	106	15 MG/Year	399 gpd/ERU	Total annual consumption divided by 398 gpd/ERU.
Total Customers w/o DSL	**430**	--		
Total Customers (2021)	**536**	--		

Largest Water Users

The 20 largest water users of the system, and their total amount of metered consumption for 2021, are shown in **Table 4.9, 2021 Largest Water Users**. The total water consumption of these 20 water accounts represents approximately 21 percent of the system's total metered consumption in 2021. The list of customer accounts in **Table 4.8, 2021 Largest Water Users** consists of water users from all customer classes.

Table 4.8
2021 Largest Water Users

Rank	Account	Customer Class	Total Annual Consumption (gallons/year)	Percent of City-Wide Consumption
1	City Owned Hydrant Meter	Other/Commercial Meter	1,880,988	3.0%
2	Jones, Kimi	Single-Family Residential	1,736,205	2.8%
3	Vickery, Ryan	Single-Family Residential	1,129,076	1.8%
4	City of Rock Island	Public	687,330	1.1%
5	Brennan, Dan	Single-Family Residential	644,806	1.0%
6	Monesmith, Amanda	Single-Family Residential	551,291	0.9%
7	Pena, Juaquin	Single-Family Residential	502,402	0.8%
8	Keane, Lucille	Single-Family Residential	497,076	0.8%
9	Martinez, Manuel	Single-Family Residential	494,712	0.8%
10	Lake, Allan & Barb	Single-Family Residential	464,276	0.7%
11	Ramos, Karina	Single-Family Residential	459,945	0.7%
12	Saul, Trudy	Single-Family Residential	453,729	0.7%
13	Slone, Josefina	Single-Family Residential	453,460	0.7%
14	Montes, Efren	Single-Family Residential	448,389	0.7%
15	Cardenas, Anastacia	Single-Family Residential	423,016	0.7%
16	Andonaegui, Carmen	Single-Family Residential	421,019	0.7%
17	Doyle Sr, Thomas E	Single-Family Residential	408,214	0.7%
18	Agnew, Verla	Single-Family Residential	399,080	0.6%
19	Rosas, Maria	Single-Family Residential	398,938	0.6%
20	M Property Management LLC	Commercial	393,568	0.6%
Total			**12,847,521**	**21%**
City-Wide Consumption			**62,606,732**	**100%**

[1] The fire hyrdant meter is used for construction water and other miscellaneous applications.

Water Supply

Water supply, or production, is the total amount of water supplied to the system, as measured by the meters at each supply source. Currently, 100-percent of the water that the supplies the City is withdrawn from Well No. 5. Well No. 2 is the City's secondary source and is not currently relied on. Water supply is different than water consumption in that water supply is essentially the recorded amount of water used by the whole system, and water consumption is the total amount of water used by customers as recorded by individual meter data. The measured amount of water supply of any system is typically larger than the measured amount of water consumption due to non-metered water use and water loss (e.g., firefighting, water main breaks, distribution system leakage, etc.).

The supply meter at Well No. 5 is monitored and read by City personnel. Historical production records have been included in **Table 4.9, Historical Production (Well No. 5 only)**.

Table 4.9
Historical Production (Well No. 5 only)

Year	Annual Production (gallons/year)	Annual Production (MG/year)	Annual Production (cf/year)
2016	61,563,400	62	8,230,401
2017	71,700,000	72	9,585,561
2018	70,820,470	71	9,467,977
2019	66,363,400	66	8,872,112
2020	73,648,940	74	9,846,115
2021	78,058,540	78	10,435,634

Distribution System Leakage

An important factor in analyzing water system demands is knowing how much water is knowingly consumed by City customers (e.g., metered residential and non-residential accounts, operation and maintenance (O&M) uses, firefighting, water main flushing, etc.) and how much is consumed or lost unintentionally (e.g., theft, meter inaccuracies, and leaks). Water use efficiency programs developed under Washington Administrative Code (WAC) 246-290-810 require purveyors to track and report to DOH how much water is lost to system leakage. Total production (TP) can be divided into two categories: Authorized Consumption (AC) and Distribution System Leakage (DSL). WAC 246-290-820 defines DSL as the difference between total water produced and authorized consumption (DSL = TP - AC). Prior to water use efficiency programs, water was classified as accounted-for and unaccounted-for water. These terms are no longer used. AC includes metered consumption by all City customers, as tracked by the City's Finance Department, including metered consumption by the City's O&M staff for City uses, and unmetered and known but estimated uses, such as firefighting, backwash water, and water main breaks. In a typical water system, there are several sources of water loss, or DSL, including water system leaks, inaccurate meters, and illegal water system connections or water use.

The Water Use Efficiency Rule, which became effective January 2007, sets a standard for DSL of less than 10 percent averaged over the last 3-year period. WAC 246-290-820(1)(b)(i) requires purveyors to implement a stricter water use efficiency program until their DSL 3-year average is less than 10 percent. To meet this standard, the City will continue to implement the measures discussed in the Water Use Efficiency Program. These measures include water main replacements, leak detection programs, system-wide service meter replacements, source meter calibration, and increased monitoring of water used for construction and firefighting.

The water produced by the City was classified into two categories: revenue and non-revenue water. The water classified as revenue water includes billed metered consumption and billed unmetered consumption. Revenue water is water consumed by customers and contractors. The water classified as non-revenue water includes unbilled metered, unbilled unmetered, unauthorized consumption, meter inaccuracies and data errors, and leaks from water mains and storage facilities. Non-revenue water is water consumed by flushing, filter backwash, firefighting, and leaking infrastructure.

Chart 4.3, Revenue and Non-Revenue Water Distribution shows the different classifications of all water produced. This chart divides all water into revenue generating water and non-revenue generating water and shows the different components that make up DSL water. For instance, production water needed for facility operations and backwash water are considered authorized consumption, but do not directly generate revenue. The chart also describes how the various categories, or classifications, are specific to the City's system.

Chart 4.3
Revenue and Non-Revenue Water Distribution

Total Water Produced (TP) (water supplied from all sources)	Own Sources: Well	Exported Water	**Authorized Consumption (AC)** to customers, other purveyors, contractors, fire departments, and the City	Billed Consumption to customers, other purveyors, and contractors.	Billed Water Exported	**Revenue Water** (money collected)
					Billed Metered Consumption (customers and contractors)	
					Billed Unmetered Consumption	
				Unbilled Consumption to the City and fire departments	Unbilled Metered Consumption City uses (i.e., flushing, backwash, production/operation water, and street washing)	**Non-Revenue Water** (lost revenue)
					Unbilled Unmetered Consumption (Firefighting and water main breaks)	
		Water Supplied to the City's Water System	**Distribution System Leakage (DSL)** or unintentional losses	Apparent losses and theft	Unauthorized Consumption (water theft)	
					Meter Inaccuracies and Data Errors (source and customer meters; accounting)	
				Real losses or actual water loss through leaks	Leaks from Transmission and Mains (leaks from City-owned water mains)	
					Leaks from Service Lines (leaks from service lines on City side of meter)	
					Leaks and Overflows from Storage Facilities	

Since 2016, the amount of DSL has ranged between a high of 20 percent and a low of 5 percent, as shown in **Table 4.10, Authorized Consumption and Distribution System Leakage**. The average amount of DSL over the last 3 years is 14 percent, which is higher than the compliance standard of less than 10 percent. The City is actively investigating the mechanisms that contribute to DSL and will continue to improve its recordkeeping for all known water uses.

Table 4.10
Authorized Consumption and Distribution System Leakage

Year	Annual Production (AP)	Total Authorized Consumption (AC)	Distribution System Leakage (DSL)			DSL 3-Year Average
	(MG/Year)	(MG/Year)	(MG/Year)	(ERU)	%	%
2016	62	54	8	55	13%	--
2017[1]	72	47	25	ND	35%	
2018[1]	71	119	-48	ND	-68%	
2019	66	63	3	23	5%	
2020	74	61	13	89	18%	
2021	78	63	15	106	20%	
3-Year Average						**14%**

[1] The authorized consumption as shown on the City's WUE forms.

The 2017 and 2018 data shown was reported to DOH in the City's Water Use Efficiency reports. There appears to be an error in both consumption data sets; therefore, they were omitted from this WSP and associated analysis. It is recognized that 35 percent is an erroneous amount of DSL and that -68 percent DSL is impossible to achieve, as there is no physical way the City can sell more water than it produced. The City is working to reconcile these discrepancies and improve its accounting and consumption reporting.

Historical Customers Served

Determining the total number of customers served in any given year is based on both consumption and production data. Calculating the number of billed customers served is based on annual consumption per customer class and the amount of water used for non-billed purposes (i.e., municipal uses such as water main flushing) and lost to DSL. This analysis is represented in **Table 4.11, Total ERUs**.

Table 4.11
Total ERUs

Customer Classification	2016	2017[1]	2018[1]	2019	2020	2021
Residential	347	390	386	385	375	411
Commercial	29	31	31	40	38	12
City/Public Buildings	1	4	4	2	5	7
System Leakage (DSL)	55	68	67	23	89	106
Total Customers (ERU)	**433**	**493**	**488**	**449**	**507**	**536**
ERU Demand Factor (gpd/ERU)	390	398	398	405	398	399
Total Production (MG/Year)	**62**	**72**	**71**	**66**	**74**	**78**

[1] The total number of ERUs was estimated for years with inadequate data by using an average percentage per each customer class.

DEMAND ANALYSIS

Demand Elements

Average Day Demand

ADD is the total amount of water delivered to the system in a year divided by the number of days in the year. ADD is determined from the system's historical water use data and can be used to project future demands. ADD data typically is used to determine standby storage requirements for water systems. Standby storage is the volume of a reservoir used to provide water supply under emergency conditions when supply facilities are out of service. Water production records from the City's wells and wholesale sources were reviewed to determine the system's ADD.

Maximum Day Demand

MDD is the maximum amount of water used throughout the system during a 24-hour time period of a given year. MDD typically is determined from the combined flow of water into the system from all supply sources and water reservoirs on the peak day. MDD typically occurs on a hot summer day when lawn watering is occurring throughout much of the system. In accordance with WAC 246-290-230 – Distribution Systems, the distribution system shall provide fire flow at a minimum pressure of 20 pounds per square inch (psi) during MDD conditions. Supply facilities (i.e., wells, springs, pump stations, and interties) typically are designed to supply water at a rate that is equal to or greater than the system's MDD.

Peak Hour Demand

PHD is the maximum amount of water used throughout the system, excluding fire flow, during a 1-hour time period of a given year. PHD, like MDD, typically is determined from the combined flow of water into the system from all supply sources and water reservoirs. In accordance with WAC 246-290-230 – Distribution Systems, new public water systems or additions to existing systems shall be designed to provide domestic water at a minimum pressure of 30 psi during PHD conditions. Equalizing storage requirements typically are based on PHD data.

Maximum Month Demand

Maximum month demand is the maximum amount of water used over a 1-month period. It is expressed in terms of gallons per day, which is an average of the total demand in gallons over one month divided by the number of days in the month. This demand can be used to see how different summers compare from year to year, and how peak MDD compares to average summer usage.

Demand Factor per Customer

An average demand per customer, or ERU, of 405 gpd per ERU is utilized in calculating projected water needs for all future growth in this WSP. This value is derived from the largest demand per customer factor calculated from the last 5 years and occurred in 2019.

Fire Flow Demand

Fire flow demand is the amount of water required during firefighting as defined by applicable codes. Fire flow requirements are established for individual buildings and expressed in terms of flow rate (gallons per minute [gpm]) and flow duration (hours). Fighting fires imposes the greatest demand on the water system because a high rate of water must be supplied over a short period of time, requiring each component of the system to be properly sized and configured to operate at its optimal condition. Adequate storage and supply are useless if the transmission or distribution system cannot deliver water at the required rate and pressure necessary to extinguish a fire.

These minimum, or general, fire flow requirements were established for the different land use categories to provide a target level of service for planning and sizing future water facilities in areas that are not fully developed. The general fire flow requirement for each land use category are shown in **Table 4.12, General Fire Flow Requirements**. The water system analyses presented in **Chapter 7 – Water System Analysis** are based on an evaluation of the water system providing sufficient fire flow in accordance with these general fire flow requirements and the fire flow requirements of existing buildings. At a minimum, the City's general requirements are used, except for areas where the other land use agency's requirements are more stringent. The general requirements do not necessarily equate to actual existing or future fire flow needs for a specific site. The values shown in **Table 4.12, General Fire Flow Requirements** are fire flow goals for varying land uses set by the City and the County.

Table 4.12
General Fire Flow Requirements

Jurisdiction	Land Use Category	Fire Flow Requirement (gpm)	Flow Duration (hours)
City	Commercial/Industrial/Multi-Family	2,500	2
	Single-Family Residential	1,500	2
County	Nieghborhood Commercial	1,500	2
	Planned Commercial	2,500	2
	Tourist Recreation Commercial	2,500	2
	Central Business District	4,000	4
	General Industrial	4,000	4
	High Density Residential	2,500	2
	Medium Density Residential	2,500	2
	Low Density Residential	1,000	2

Specific fire flow storage requirements for the City is provided in a letter from the Douglas County Fire District No. 2 included in **Appendix D – Fire Flow Requirements for Rock Island**. As indicated by the letter the silica smelter building requires 1,500 gpm for 4 hours resulting in 360,000 gallons of required fire flow storage.

Peaking Factors

Detailed telemetry data does not exist for the City, so typical peaking factors were utilized from other sources. The City-provided data included the maximum month average day demand (MMADD). The MDD was calculated using the DOH recommended MDD to MMADD ratio of 1.35 for systems serving 1,000 to 100,000 people. PHD was calculated based on Equation 3-1 presented in DOH's *Water System Design Manual.* The available historical demand data for the City is shown in **Table 4.13, Historical Demand and Demand per ERU**.

Table 4.13
Historical Demand and Demand per ERU

Demand Type[1]	2016	2017[2]	2018[2]	2019	2020	2021	Maximum
Customers (ERU)	433	493	488	449	507	536	536
Average Day Demand (gpd)	168,667	196,289	194,029	181,693	201,778	213,878	213,878
Maximum Month Demand (MG/Month)	9.67	12.55	13.14	10.97	12.47	12.47	13.14
Maximum Month Average Day Demand (gpd)	312,061	404,956	423,980	353,830	402,304	402,304	423,980
Average Day Demand (gpd/ERU)	390	398	398	405	398	399	405
Maximum Day Demand/Maximum Month Average Day Demand (MDD/MMADD)[3]	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Maximum Day Demand (gpd)	421,282	546,691	572,373	477,670	543,110	543,110	572,373
Maximum Day Demand/ Average Day Demand (MDD/ADD)	2.50	2.79	2.95	2.63	2.69	2.54	2.95

[1]Daily well pump records and the MMADD ratio were used to calculate the MDD peaking factors. The maximum of the two methods is presented.
[2]The consumption data provided by the City was inaccurate, a system average is shown.
[3]A MDD to MMADD ratio of 1.35 is recommended for systems serving 1,000 to 100,000 people.

The values shown in **Table 4.14, Demand Factors and Peaking Factors** are the peaking factors for the City's water system based on the ADD, MDD, and PHD data presented earlier in this chapter. According to DOH's *Water System Design Manual* generally the MDD is 1.5 to 3.0

times the ADD. The demand and peaking factors are in the upper range of the typical peaking factors due to large seasonal variations in water consumption. It is not uncommon to have large variations in water demand in this region where irrigation and other seasonal uses increase during warm summer months. These peaking factors will be used later in this chapter, in conjunction with projected ADD, to forecast future MDDs and PHDs of the system.

Table 4.14
Demand Factors and Peaking Factors

Demand Type	Demand Factors	
	(gpm/ERU)	(gpd/ERU)
Average Day Demand (ADD)	0.281	405
Maximum Day Demand (MDD) [1]	0.829	1,194
Peak Hour Demand (PHD)	1.730	NA
Peaking Factors		
Maximum Day Demand/Average Day Demand (MDD/ADD)		2.95
Peak Hour Demand/Maximum Day Demand (PHD/MDD)[2]		2.09
Peak Hour Demand/Average Day Demand (PHD/ADD)		6.16

[1]Based on 5-year maximum average daily demand and the maximum peaking factor over the last 5 years.

[2]Based on DOH Water System Design Manual Equation 3-2.

DEMAND PROJECTIONS

Demand projections for the next 20 years are presented in **Table 4.15, Projected System-Wide Water Demands**, which summarizes the projected demands for the City's entire water system.

Table 4.15
Projected System-Wide Water Demands

Year	Customers (ERUs)	ADD (gpd)	MDD (gpd)	PHD[1] (gallons/hour)
2020	507	205,280	605,564	52,646
2021	536	217,056	640,302	54,962
2022	543	219,658	647,979	55,474
2023	549	222,292	655,747	55,992
2024	556	224,957	663,609	56,516
2025	562	227,654	671,565	57,046
2026	569	230,383	679,616	57,583
2027	576	233,145	687,764	58,126
2028	583	235,940	696,009	58,676
2029	590	238,769	704,353	59,232
2030	597	241,631	712,798	59,795
2031	604	244,528	721,343	60,365
2032	611	247,460	729,991	60,942
2033	619	250,427	738,743	61,525
2034	626	253,429	747,600	62,115
2035	634	256,467	756,563	62,713
2036	641	259,542	765,633	63,318
2037	649	262,654	774,812	63,930
2038	657	265,802	784,101	64,549
2039	664	268,989	793,501	65,176
2040	672	272,214	803,014	65,810
2041	681	275,478	812,642	66,452

[1]PHD is calculated using DOH's Water Sytem Design Manual Equation 3-1, which varies with system size.

The City would benefit from additional capacity gained from a decrease in water demand. The City might increase its available capacity by enhancing and implementing water conservation efforts. The project water system demands with a 10 percent water use reduction over 20 years is shown in **Table 4.16**.

Table 4.16
Projected System-Wide Water Demands with Conservation

Year	Customers (ERUs)	ADD (gpd)[1]	MDD (gpd)	PHD[2] (gallons/hour)	Assumed Conservation Rate
2020	507	205,280	605,564	52,646	100.0%
2021	536	215,971	637,101	54,687	99.5%
2022	543	217,462	641,499	54,919	99.0%
2023	549	218,958	645,911	55,152	98.5%
2024	556	220,458	650,337	55,386	98.0%
2025	562	221,963	654,776	55,620	97.5%
2026	569	223,472	659,227	55,856	97.0%
2027	576	224,985	663,692	56,092	96.5%
2028	583	226,503	668,169	56,329	96.0%
2029	590	228,024	672,658	56,567	95.5%
2030	597	229,550	677,158	56,806	95.0%
2031	604	231,079	681,670	57,045	94.5%
2032	611	232,612	686,192	57,285	94.0%
2033	619	234,149	690,725	57,526	93.5%
2034	626	235,689	695,268	57,767	93.0%
2035	634	237,232	699,820	58,009	92.5%
2036	641	238,779	704,382	58,252	92.0%
2037	649	240,328	708,953	58,496	91.5%
2038	657	241,880	713,532	58,739	91.0%
2039	664	243,435	718,119	58,984	90.5%
2040	672	244,993	722,713	59,229	90.0%
2041	681	246,552	727,314	59,474	89.5%

[1]The 2020 ADD was used as a baseline with 10% conservation occuring overing the 20-year horizon.

[2]PHD is calculated using DOH's Water Sytem Design Manual Equation 3-1, which varies with system size.

5 | POLICIES AND DESIGN CRITERIA

INTRODUCTION

The service area policies for the City of Rock Island's (City) water system have been developed to guide the development and financing of the infrastructure required to provide water service throughout its water service area (WSA).

The City plans and provides water service for the residents and businesses it serves both inside and outside of City limits, consistent with the laws, policies, and design criteria emanating from multiple sources. **Table 5.1, Regulatory Agencies** summarizes the primary entities that govern the City's water system planning and operation.

Table 5.1

Regulatory Agencies

Agency	Design Criteria/Laws/Policies
U.S. Department of Health & Human Services	Federal Regulations
U.S. Environmental Protection Agency	Federal Regulations
Washington State Department of Health	State Regulations
Washington State Department of Ecology	State Regulations
Rock Island City Council	City Regulations
American Water Works Association	Design Criteria

The guidance and direction from other regulatory sources circumscribe the City's approach to its water system and help ensure City water customers are provided adequate, safe, and reliable water service. The regulatory guidance from these various sources also helps ensure that future customers and the growth that is planned for the City's WSA are supplied in a similar manner. The City's ability to meet planned and forecasted demands is detailed in **Chapter 7 – Water System Analysis**. Recommended improvements to the City's water system are identified in **Chapter 9 – Water System Improvements**.

Within the framework established by federal and state requirements, the City adopts regulations and policies. The City's water system and service policies take the form of ordinances, memoranda, and operation procedures, many of which are summarized in this chapter. City adopted ordinances can be found in **Appendix E – Water System Ordinances**.

Policies listed in this chapter that are italicized are set by federal or state law or by City code, all others are Public Works guidelines.

The policies associated with the following categories are presented in this chapter.

- Supply
- Customer Service
- Facilities
- Finance
- Organization

It is important to understand that if standards are set too low, customers will not be satisfied, and if standards are set too high, the cost of installing and operating facilities will be unacceptable.

SUPPLY POLICIES

QUALITY PROTECTION

- The City will pursue aquifer protection by developing a Wellhead Protection Program and Watershed Control Program (Washington Administrative Code [WAC] 246-290-135).
- The quality goal of the City is to maintain water quality at a level that equals or is better than water quality in its natural state and that meets or exceeds all water quality laws and standards (WAC 246-290-250 and WAC 246-290-300).
- The City will pursue steps to meet or exceed all water quality laws and standards.
- The City will take all reasonable measures to protect its system and customers.

CROSS-CONNECTION CONTROL

- The City has a responsibility to protect the public water system from contamination due to cross-connections. Cross-connections that can be eliminated will be eliminated.
- The City has staff that is certified for backflow prevention and inspection.
- *The City will comply with the backflow prevention assembly installation and testing requirements as indicated in WAC 246-290-490, and as published in the manual entitled Cross-Connection Control Manual Accepted Procedure and Practice – Pacific Northwest Section – American Water Works Association (AWWA).*

QUANTITY

- *The City will meet or exceed all laws and regulations regarding supply and storage quantities (WAC 246-290-200).*
- The City will observe water rights seniority.
- The City will pursue the acquisition of water rights or wholesale water to meet or exceed water demand at saturation development conditions.
- The City will pursue maximum supply rates as designated by relevant water rights without impacting the regional environment.
- The City is actively pursuing saturation planning for supply sources so that future water resource limitations can be handled effectively and the impacts of limitations can be minimized.
- The City will manage water resources to ensure a continued, long-term, high-quality supply for homes, commerce, industry, and recreation.

- The City will ensure that the capacity of the system, including wells, pump stations, and transmission mains, is sufficient to meet the peak day demand of the system.
- The City requires property owner for a planned development to transfer water rights to the City, see City municipal code for additional information and requirements.

FIRE FLOW

Fire flow demands are used in the hydraulic analysis of the distribution system and to determine fire storage requirements. City and County requirements are shown and further discussed in **Chapter 4**.

REGIONAL PARTICIPATION

- *The City will update the Water System Plan and submit for approval from the state as required per WAC 246-290-100.*
- The City will participate in regional supply management and planning activities to protect the environment, reduce cost of service, and improve reliability, water quality, and quantity.

  Participation in these activities includes attending meetings, providing information for studies, and performing water quality monitoring tasks, as needed.
- The City will supply all customers within the water service area unless a special agreement with an adjacent purveyor exists due to topography or other limiting factors.

CUSTOMER SERVICE POLICIES

WATER SERVICE AND CONNECTION

The following policies are in compliance with policies set forth by the City Council as outlined in the *Comprehensive Plan* and the Rock Island Municipal Code (RIMC).

- The City will strive to provide potable water service to the people within the City's water service area, provided all policies related to service can be met.
- All proposed developments within the City's water service area shall connect directly to the City's water system, unless deemed unfeasible by the City at the time of the request.
- Water system extensions required to provide water service to proposed developments shall be approved by the City and must conform to the City's adopted design criteria, construction standards, and specifications, as may be shown in the developer extension program for the City. All costs of the extension shall be borne by the developer or applicant.
- Water service can be extended within the water service area if the project is in compliance with the City's utility regulations and policies, and adopted land use plan,

zoning, and development regulations.

- All applications for permits for the use of water shall be made to the Building Department. Such application shall be made by the owner of the property to which the water may be required, and must agree to conform to the rules and regulations thereof that may be established from time to time as conditions for the use of water.
- For water service applications outside of the City limits but within the water service area, the applicant will follow the steps for a standard meter connection, including completion of an Outside City Agreement form and obtaining a water service agreement from the City.
- Water system capacity will be evaluated at the time of water service application. The City will use the capacity analysis contained in **Chapter 7 – Water System Analysis** to evaluate source of supply, storage, and water rights capacity available to the applicant.
- Delays resulting from non-technical conditions that affect the City's ability to provide new water service are the responsibility of the applicant. These conditions include, but are not limited to, environmental assessments and local regulations.

POLICIES AND REQUIREMENTS FOR OUTSIDE PARTIES

Policies and requirements for outside parties, such as developers, are outlined in the RIMC. Various sections of these standards cover the requirements of a development project that will include City water system components.

The City's water standards cover the general design requirements for additions to the City's water system. Developer extension agreements cover the administrative and contractual requirements of outside parties constructing water projects to be included in the City's water system. These documents generally address the necessary applications, provisions for special circumstances, design standards, developer charges, and performance bonding for outside parties.

It is recommended that the City implement a documentation program for the availability of its water supply. This program should include up to date tracking of water system capacity and current water usage throughout the system. This data can then be weighed against those requests for future water service to project system capacity in support of development. This also can be used to assist in the assessment of future capital facilities needs for the City's water system.

ANNEXATIONS

- Provision of service will be provided per the adopted extraterritorial utility policy. The City will follow state guidelines in the assumption of facilities in annexation areas.
- Areas annexed will be served by the City at the customer's expense, unless accepted by City Council, and must meet City water standards.

EMERGENCY SERVICE

- Compliance with standards may be temporarily deferred for emergency water service.
- Policy criteria may be waived for emergency service.

PLANNING BOUNDARIES

- New developments will be required to pay for system extensions. Provisions for latecomer agreements will be allowed as outlined in the RIMC.
- For planning purposes, the City will use the designated service area boundary established by existing interlocal agreements.
- The City will follow State of Washington guidelines in assuming portions of adjacent water systems as a result of annexation.

FACILITY POLICIES

This section describes the planning criteria and policies used to establish an acceptable hydraulic behavior level and a standard of quality for the water system. Additional criteria are contained in the City's Development Standards.

MINIMUM STANDARDS

All proposed developments within the City's service area shall conform to the City's adopted design criteria, specifications, and construction standard details included as **Appendix F – 2022 City Standard Details**.

PRESSURE

- *A minimum pressure of 30 pounds per square inch (psi) at customer meters shall be provided during normal peak hourly demand conditions, not including fire flow or other emergency demand conditions (WAC 246-290-230(5)).*
- *During fire flow and other emergency demand conditions, the minimum pressure at customer meters and in the remainder of the system shall not be less than 20 psi (WAC 246-290-230(6)).*
- The City will endeavor to maintain a minimum pressure of 40 psi at customer meters during normal demand conditions, excluding a fire or emergency.
- The City will endeavor to maintain a maximum pressure of 90 psi in the water mains during normal demand conditions, excluding pressure surges. Individual residences are responsible for reducing pressures over 100 psi.
- The City will endeavor to maintain a minimum pressure of 30 psi at customer meters during all demand conditions, excluding a fire or emergency.

- During fire conditions, the minimum pressure at customer meters and throughout the remainder of the system will be 20 psi.
- During a failure of any part of the system, the maximum pressure will not exceed 150 psi.

VELOCITIES

- During normal demand conditions, the velocity of water in a water main should be less than 5 feet per second (fps).
- During the peak hour demand (PHD) the velocity of the water in a water main shall not exceed 8 fps.
- During emergency conditions such as a fire, and for design purposes, the velocity of water in a water main may exceed 5 fps, but may not exceed 8 fps.

TRANSMISSION AND DISTRIBUTION

- Unless deemed impractical, transmission and distribution mains will be looped to increase reliability and fire flow capacity and to decrease headlosses.
- All mains will comply with the generally recognized design criteria from the AWWA and Washington State Department of Health guidelines that follow.
    1. All new construction will be in accordance with the City's Design Standards, of which a copy is included in the City's municipal code.
    2. Distribution system design assumes that adequately sized service lines will be used. Service lines will be the same size as the meter or larger.
    3. The minimum diameter of distribution mains will be 8 inches. Water mains not required to carry fire flow, as determined by the City, may be a smaller diameter. All water mains will be ductile iron pipe. The City may consider other piping materials for specialized applications on a case-by-case basis.
    4. All new distribution mains will be sized by a hydraulic analysis.
    5. All new mains providing fire flow will be sized to provide the required fire flow at a minimum residual pressure of 20 psi during peak day demand conditions, while maintaining a maximum pipeline velocity of 8 fps. In general, new water mains that will carry fire flow in residential areas shall be a minimum of 8 inches in diameter. Looping of water main extensions is required when serving more than 20 equivalent residential units (ERUs). New water mains in commercial, industrial, and school areas shall be a minimum of 12 inches in diameter and looped.
    6. Dead-end water mains shall be avoided. Approval will be on a case-by-case basis.
    7. Valve installations will satisfy the following criteria:

a. All valves larger than 12 inches may be butterfly valves. All valves 12 inches and smaller shall be resilient seat gate valves.

b. Zone valves will be located at all pressure zone boundaries to allow future pressure zone realignment without the need for additional pipe construction.

c. Isolation valves typically will be installed in the lines to allow individual pipelines to be shut down for repair or installing services. Unless it is impractical to do so, the minimum distance between isolation valves will not exceed 1,000 feet. A minimum of four valves will be provided per cross and three valves per tee. The City may increase or decrease the number of and distance between valves for new construction based on system configuration.

d. Air/vacuum release valves will be placed at all high points, or "crowns," in all pipelines.

e. Blow-off assemblies shall be located at main dead ends where there is not a fire hydrant.

f. Individual check valves will be installed on customer service lines where conditions warrant.

7. Fire hydrant installations will satisfy the following criteria:

   a. Fire hydrants serving residential dwellings on individual lots should be located not more than 350 feet from a fire hydrant, as measured along the path of vehicular access.

   b. Fire hydrants serving any use other than detached single-family dwellings or duplex dwellings on individual lots will be located not more than 300 feet on center, and will be located so that at least one hydrant is located within 150 feet of all structures, but not closer than 50 feet, unless approved by the fire marshal. Hydrants located in dead-end areas or cul-de-sacs shall service an area of no more than 120,000 square feet.

   c. A minimum of one fire hydrant shall be installed per intersection.

   d. The fire marshal will review all proposed fire hydrant installations to ensure the correct number and spacing of fire hydrants for each project.

8. A sampling station shall be required every 50 ERUs or as determined by the City Engineer. The location for said sampling stations will be determined by the City Engineer.

FACILITIES

- All existing and future facilities will be modified/constructed to comply with the following minimum standards:

1. All structures will be non-combustible, where practical.
2. All buildings will have adequate heating, cooling, ventilation, insulation, lighting, and work spaces necessary for on-site operation and repair.
3. Sites will be fenced to reduce vandalism and City liability.
4. Each facility will be equipped with a flow meter and all necessary instrumentation to assist personnel in operating and troubleshooting the facility.
5. Emergency power capability will be provided where practical.

- Pumps will be operated automatically, with flexibility in pump start/stop settings.
- Facilities will be operated with the provision for at least two methods of control to minimize system vulnerability.
- Manual override of pumps will be provided for and located at the Operations and Maintenance office using the City's supervisory control and data acquisition (SCADA) system.
- Facilities will be monitored with alarms for the following conditions:
    1. Pump started automatically or manually.
    2. Power phase failure.
    3. Power outage/generator running.
    4. Communication failure.
    5. Water in structure.
    6. Low suction pressure.
    7. High and low discharge pressure.
    8. Intrusion.
    9. Smoke detector.
    10. Heat detector.
- Facilities will have the following indicators:
    1. Local flow indication and totalizing.
    2. Flow indication and totalizing at the Operations and Maintenance office.
    3. Recording of combined supply flow to the system.

PRESSURE REDUCING STATIONS

- All pressure reducing valves will be placed in vaults that are large enough to provide ample workspace for field inspection and valve repair.
- Vaults will drain to daylight or will be equipped with sump pumps to prevent vault flooding.

- Pressure relief valves may be provided on the low-pressure side of the pressure reducing valves to prevent the system from over pressurizing in the case of a pressure reducing valve failure.

CONTROL

- The City's SCADA system must be capable of efficiently operating the water system's components in accordance with this Water System Plan, and in response to reservoir levels, system pressures, and abnormal system conditions.

MAINTENANCE

- Facility and equipment breakdown is given the highest maintenance priority. Emergency repairs will be made even if overtime labor is involved.
- Equipment will be scheduled for replacement when it becomes obsolete, and as funding is available.
- Worn parts will be repaired, replaced, or rebuilt before they represent a high failure probability.
- Spare parts will be stocked for all equipment items whose failure will impact the ability to meet other policy standards.
- Equipment that is out of service will be returned to service as soon as possible.
- A preventive maintenance schedule will be established for all facilities, equipment, and processes.
- Tools will be obtained and maintained to repair all items whose failure will impact the ability to meet other policy standards.
- Dry, heated shop space will be available for maintenance personnel to maintain facilities.
- All maintenance personnel will be trained to efficiently perform their job descriptions.
- Maintenance will be performed by the water maintenance staff or other approved sources and supervised by the Senior Water Quality Specialist.
- Written records and reports showing operation and maintenance history will be maintained on each facility and item of equipment.

JOINT USE

- All joint-use facilities (with other public water systems) must comply with City policy and design standards.
- All joint-use facilities will be maintained by the Water Department.
- Joint-use facilities will be pursued only in those areas that improve reliability or reduce operating costs.

FINANCIAL POLICIES

GENERAL

- The City will set rates that comply with state regulations.
- Rates and additional charges established for the City should be:
    1. Cost-based rates that recover current, historical, and future costs associated with the City's water system and services;
    2. Equitable charges to recover costs from customers, commensurate with the benefits they receive; and
    3. Adequate and stable source of funds to cover the current and future cash needs of the City.
- The existing customers of the City will pay the direct and indirect costs of operating and maintaining the facilities through water rates. In addition, the water rates will include debt service incurred to finance the capital assets of the City.
- New customers seeking to connect to the water system will be required to pay connection fees and charges for an equitable share of the historical cost of the system and for the system's capital improvement program (CIP). Connection charge revenues will be used to fund the CIP in conjunction with rate revenue.
- New and existing customers will be charged for extra services through separate ancillary charges based on the costs to provide the services. Ancillary charges can increase equitability, as well as increase operating efficiency by discouraging unnecessary demand for services. The charges should be reviewed regularly and updated annually based on increases in the Consumer Price Index. Revenue from ancillary charges will be used to finance annual operations and maintenance.
- The City will maintain information systems that provide sufficient financial and statistical information to ensure conformance with rate-setting policies and objectives.
- User charges must be sufficient to provide cash for the expenses of operating and maintaining the system. To ensure the fiscal and physical integrity of the utility, each year an amount should be set aside and retained for capital expenditures, which will cover some portion of the depreciation of the physical plant. The amount may be transferred from the Operations and Maintenance Fund to the Construction Fund for general purposes or for specific purposes.
- A non-restricted contingency reserve amount will be maintained to cover unanticipated emergencies and fluctuations in cash flow.
- Water rates will be based on either the Base-Extra Capacity Method or the Commodity-Demand Method. Both methods strive to equitably charge customers with different service requirements based on the cost of providing the water service. Service

requirements relate to the total volume of water used, peak rates of use, and other factors.

- Fees and charges are calculated based on the service location. Rates will be the same for all customers within the City limits. Rates will be established separately for customers located outside of the City limits.

CONNECTION CHARGES

Owners of properties that have not been assessed, charged, or have not borne an equitable share of the cost of the water system will pay one or more of the following connection charges prior to connection to a water main.

1. Latecomers Fees: Latecomers fees are negotiated with developers and property owners; they provide for the reimbursement of a pro rata portion of the original cost of water system extensions and facilities.
2. Connection Charge: The connection charge will be assessed against any property that has not participated in the development of the water system. Meter charges, or hookup fees, are additional charges in order to recover the cost of meter and service line installation.
3. Developer Extension Charges: These charges are for the administration, review, and inspection of a developer extension project.

ORGANIZATIONAL POLICIES

STAFFING

- Personnel certification will meet or exceed state standards.
- The City will promote staff training.

Relationship with Other Departments

- The Finance Department is responsible for customer billing, payment collection, project cost accounting, and fund activity reporting.
- The Personnel Department is responsible for employee records, union labor negotiations, and salary schedules.
- The Fire Department uses water utility facilities for fire protection, and the fire marshal establishes fire flow requirements.
- The Fire Department is responsible for emergency responses to hazardous events at water system facilities.
- The Fire Department is responsible for hydrant fire flow testing.
- Fire hydrant testing is performed jointly by the Fire Department and the City's Water Department.

- The Police Department is responsible for enforcing violations of City water ordinances.

6 | WATER SOURCE AND QUALITY

INTRODUCTION

The two basic objectives of a water system are to provide a sufficient quantity of water to meet customer usage demands and to provide high quality water. **Chapter 7 – Water System Analysis** discusses the City of Rock Island's (City) ability to supply a sufficient quantity of water and identifies future source requirements. This chapter discusses the City's existing water sources, its water rights, water quality regulations, and water quality monitoring results.

EXISTING WATER SOURCES AND TREATMENT

WATER SOURCES

The City obtains its municipal water supply from its wells, located in close proximity to the Columbia River, as impounded by the Rock Island Dam. Additional information on the City's sources is presented in **Chapter 2 – Water System Description**.

WATER TREATMENT

The City's Well No. 2 was originally installed in 1962 and produces 250 gallons per minute (gpm). The water supply is not considered by the Washington State Department of Health (DOH) to be groundwater under the direct influence of surface water (GWI). The City's Well No. 5 was originally installed in 2010 after continued high arsenic concentrations were encountered in Well No. 3. Well No. 5 produces 700 gpm and is not considered by DOH to be GWI. These two wells are the only active sources used by the City.

Well Nos. 2 and 5 both use simple sodium hypochlorite feed systems to provide disinfection in the distribution system. Each wellhouse is equipped with a 50-gallon chemical tank and metering pump that doses well pump discharge water.

WATER RIGHTS AND INTERTIES

OVERVIEW

A water right is a legal authorization to use a specified amount of public water for specific beneficial purposes. The water right amount is expressed in terms of instantaneous withdrawal rate and annual withdrawal volume. Washington State law requires users of public water to receive approval from the Washington State Department of Ecology (Ecology) prior to actual use of the water. This approval is granted in the form of a water right permit, which is developed into a certificate. However, a water right is not required for certain purposes

(typically individual residences) that use 5,000 gallons per day (gpd) or less of groundwater from a well.

The process of obtaining a water right involves submitting a water right application that is reviewed by Ecology. If the request is approved, a water right is issued to allow for water use to commence. A water right permit provides permission to construct the necessary wells or diversions, pumps, and pipes to start using water. The water right permit remains in effect until the permit holder determines that its project is complete, and they have used as much water as they will under the water right. At that time, the permit holder files a proof of appropriation form, which attests to the rate and volume of water used under the water right. A water right certificate is issued by Ecology following a proof of examination and determination that the amount of water put to beneficial use is consistent with the amount and conditions indicated on the water right permit.

A water right permit can only be issued by Ecology if the proposed use meets the following requirements:

- Water will be put to beneficial use.
- There will be no impairment to existing or senior rights.
- Water is physically and legally available for appropriation.
- Issuance of the requested water right will not be detrimental to the public interest.

During preparation of the report of examination, Ecology considers existing basin management plans, stream closures, minimum instream flows, hydraulic continuity (surface water interconnected to groundwater), utilization of existing water sources, water conservation, and availability of alternative water supplies, among other things. The water right decision process is increasingly becoming more complex and time consuming, due to the many competing interests for water, environmental issues, and regulatory requirements.

EXISTING WATER RIGHTS

The City currently holds two groundwater claims and two groundwater certificates as shown in **Table 6.1, Water Rights**. The City's water rights total 1,552 gallons per minute (gpm) and 1,161.71 acre-feet per year (afy). The City's most important water right documents are contained in **Appendix G – Water Right Documents**.

Table 6.1
Water Rights

Water Right	Priority Date	Most Recent Document	Source Name	Instantaneous Rate (Qi) (gpm)		Annual Volume (Qa) (afy)	
				Additive	Non-Additive	Additive	Non-Additive
G4-300065CL	1/1/1930	Claim	Well No. 1	650	--	498	--
G4-045542CL(B)	1/1/1930	Conservancy Board ROD and ROE on DOUG 19-02	Well Nos. 2, 3, and 5	122	--	47.71	--
GWC 4224-A	10/16/1961	Change ROE CG4-GWC4224-A@2	Well Nos. 2, 3, and 5	500	--	168	--
G4-24603C	1/31/1977	Change ROE CG4-24603C@2	Well Nos. 2, 3, and 5	280	--	448	--
Total				**1,552**	**gpm**	**1,161.71**	**afy**

Notes:
ROD - Record of Decision; ROE - Report of Examination

The purpose of use of each water right held by the City is municipal water supply purposes based on the definition provided in Revised Code of Washington (RCW) 90.03.015. The place of use for each water right held by the City is the service area as defined in the most recently approved Water System Plan.

The City's water rights are all for sources located in Water Resource Inventory Area (WRIA) 44 – Moses Coulee. Each water right is discussed in more detail in the sections that follow.

G4-300065CL

Water right claim G4-300065CL was filed by the City of Rock Island in December 1997. The identified date of first use is 1930. The rates claimed are 650 gpm and 498 afy for withdrawal from Well No. 1 for municipal and irrigation supply from April to October each year.

G4-045542CL(B)

The original claim was filed by H. Gary France and Iola D. France in November 1973. A change application (CG4-045542CL) was filed with and ultimately recommended for approval by the Douglas County Water Conservancy Board (Board) on September 13, 2021. The recommendation is to split the water right, with the City's portion being identified as Portion B of the water right, which will allow withdrawal of an additional 122 gpm and 47.71 afy from Well Nos. 2, 3, and 5 for year-round municipal supply. Ecology modified but approved the Board's recommendation on December 1, 2021.

GWC 4224-A

Ground water certificate (GWC) 4224-A was issued to the Town of Rock Island on June 7, 1962, with a priority date of October 16, 1961. The certificate authorized the City to withdraw 500 gpm and 168 afy from Well No. 2 for year-round municipal supply. Since the original certificate was issued, the City has filed multiple change applications.

Change application CG4-GWC4224-A requested to add Well No. 4 as an additional point of withdrawal. The change application was approved by Ecology on August 19, 1992. This change authorization was cancelled on February 10, 2010, after the City drilled Well No. 4 and determined that it would not be suitable for municipal supply.

Change application CG4-GWC4224-A@1 requested to add Well No. 3 as an additional point of withdrawal. The change application was approved by Ecology in late 2004. A provision on the decision stated, "The combined instantaneous withdrawal under the two points of withdrawal authorized under change decisions for Ground Water Certificate No's. 4224-A and G4-24603C is limited to 780 gpm and 616 acre feet per year."

Change application CG4-GWC4224-A@2 is the most recent change application filed on this water right and requested to add Well No. 5 as an additional point of withdrawal. The change application was approved by Ecology on September 26, 2011. A provision on the decision stated, "The combined withdrawal under the points of withdrawal authorized (known as Well #2, Well #3, and Well #5) under Change Authorization No. CG4-24603C@2 and CG4-GWC4224-A@2 is limited to 780 gpm (additive) and 448 acre-ft/yr (non-additive)." This change authorization is the current, active water right document and contains a development schedule with due dates for completion of construction (June 30, 2015) and full beneficial use (June 30, 2020). The City will need to work with Ecology to request extensions to the development schedule since those dates have passed.

G4-24603C

The original certificate was issued to the Town of Rock Island on May 21, 1981, with a priority date of January 31, 1977. The certificate authorized the City to withdraw 280 gpm and 448 afy from Well No. 3 for year-round municipal supply. Since the original certificate was issued, the City has filed multiple change applications.

Change application CG4-24603C requested to add Well No. 4 as an additional point of withdrawal. The change application was approved by Ecology on August 21, 1992. This change authorization was cancelled on February 10, 2010, after the City drilled Well No. 4 and determined that it would not be suitable for municipal supply.

Change application CG4-24603C@1 requested to add Well No. 2 as an additional point of withdrawal. The change application was approved by Ecology in late 2004. A provision on the decision stated, "The combined instantaneous withdrawal under the two points of withdrawal authorized under change decisions for Ground Water Certificate No's. 4224-A and G4-24603C is limited to 780 gpm and 616 acre feet per year."

Change application CG4-24603C@2 is the most recent change application filed on this water right and requested to add Well No. 5 as an additional point of withdrawal. The change application was approved by Ecology on September 26, 2011. A provision on the decision stated, "The combined withdrawal under the points of withdrawal authorized (known as Well #2, Well #3, and Well #5) under Change Authorization No. CG4-24603C@2 and CG4-GWC4224-A@2 is limited to 780 gpm (additive) and 448 acre-ft/yr (non-additive)." This change authorization is the current, active water right document and contains a development schedule with due dates for completion of construction (June 30, 2015) and full beneficial use

(June 30, 2020). The City will need to work with Ecology to request extensions to the development schedule since those dates have passed.

Water Rights Discussion

The contradictory provisions associated with the annual volume in changes to water rights GWC 4224-A and G4-24603C are not able to be reconciled after thorough review of the water right record. For that reason, the rates and volumes under GWC 4224-A and G4-24603C will both be considered to be additive, consistent with everything except the provision contained in the 2011 reports of examination for change.

EXISTING INTERTIES

The City currently does not have any interties to other water systems.

PENDING WATER RIGHT APPLICATIONS

The City currently has neither any pending new water right applications nor any water right change applications.

WATER SUPPLY EVALUATION

An evaluation of the City's existing water rights compared to the installed capacity indicates that the current limiting factor for the City's supply are the water rights. Comparison of the City's water rights with actual installed capacity is contained in **Table 6.2, Water Right and Installed Capacity Evaluation**.

Table 6-2

Water Right and Installed Capacity Evaluation

Source[3]	Water Right Capacity (gpm)	Installed Capacity[1] (gpm)	Difference (gpm)
Well No. 1[2]	650	0	650
Well No. 2	902	250	-48
Well No. 3		--	
Well No. 5		700	
Total	**1,552**	**950**	**602**

[1] The capacity of Well No. 5 is recently documented but the capacity of Well No. 2 is adopted from historical record and actual capacity has not been field verified. The capacity of Well No. 3 is unknown.

[2] Well No. 1 is used for irrigation only due to water quality issues and its current capacity is unknown.

[3] Well No. 4 is not shown since it is offline, capped, and was removed from Certificate G4-24603C in 2010.

WATER SUPPLY PLANNING

EXISTING WATER SUPPLY

The City's water system currently is solely supplied by its wells.

LONG-TERM WATER SUPPLY PLANNING

The City has enough physical capacity to allow for withdrawal up to its total water right limit from both an instantaneous rate and annual volume standpoint.

FEASIBILITY OF OBTAINING NEW WATER RIGHTS

The City does not currently need additional water rights. However, its proximity to the Columbia River and location in Douglas County make it eligible for participation in two Ecology programs led by the Office of Columbia River that are currently issuing new water rights for eligible uses. Those two programs are the Lake Roosevelt Incremental Storage Release Program and the Sullivan Lake Water Supply Project. Both of these programs represent a finite volume of water that can be allocated. The water has a cost, and once the water has been fully allocated, they will no longer be available as a source of new water rights.

FEASIBILITY OF TRANSFERRING EXISTING WATER RIGHTS

If the City decides to add additional points of withdrawal (groundwater wells) to its water system, as it has done in the past, it should be able to change its existing water rights to include those wells as long as the additional point of withdrawal will be completed in the same body of public groundwater and will not impair existing water rights.

If the City wanted to pursue a water right transfer to the City's sources from a third party, the City would need to meet the same requirements as a change to its own water rights.

DRINKING WATER REGULATIONS

OVERVIEW

The quality of drinking water in the United States is regulated by the Environmental Protection Agency (EPA). Under provisions of the Safe Drinking Water Act (SDWA), the EPA is allowed to delegate primary enforcement responsibility for water quality control to each state. In the State of Washington, DOH is the agency responsible for implementing and enforcing the drinking water regulations. For the State of Washington to maintain primacy (delegated authority to implement requirements) under the SDWA, the state must adopt drinking water regulations that are at least as stringent as the federal regulations. In meeting these requirements, the state, in cooperation with the EPA, has published drinking water regulations that are contained in Chapter 246-290 Washington Administrative Code (WAC).

EXISTING REGULATIONS

The Federal SDWA was enacted in 1974 as a result of public concern about water quality. The SDWA sets standards for the quality of drinking water and requires water treatment if these standards are not met. The SDWA also sets water testing schedules and methods that water systems must follow. In 1986, the SDWA was amended as a result of additional public concern and frequent contamination of groundwater from industrial solvents and pesticides. The 1986 Amendments require water systems to monitor and treat for a continuously increasing number of water contaminants identified in the new federal regulations. The EPA regulated approximately 20 contaminants between 1974 and 1986. The 1986 Amendments identified 83 contaminants that the EPA was required to regulate by 1989. Implementation of the new regulations has been marginally successful due to the complexity of the regulations and the associated high costs. To rectify the slow implementation of the new regulations, the SDWA was amended again and re-authorized in August of 1996.

In response to the 1986 SDWA Amendments, the EPA established six rules, known as the Phase I Rule, the Phase II and IIb Rules, the Phase V Rule, the Surface Water Treatment Rule (SWTR), the Total Coliform Rule, and the Lead and Copper Rule. The EPA regulates most chemical contaminants through the Phase I, II, IIb, and V Rules. The City's recently decommissioned surface water source was affected by these rules.

The EPA set two limits for each contaminant regulated under the rules. The first limit is a health goal, referred to as the Maximum Contaminant Level Goal (MCLG). The MCLG is zero for many contaminants, especially known cancer-causing agents (carcinogens). The second limit is a legal limit, referred to as the Maximum Contaminant Level (MCL). MCLs are equal to or higher than MCLGs; however, most MCLs and MCLGs are the same, except for contaminants that are regulated as carcinogens. The health goals (MCLGs) for carcinogens are typically zero because they cause cancer, and it is assumed that any amount of exposure may pose some risk of cancer. A summary of each rule follows.

To fully understand the discussion that follows, a brief definition of several key terms is provided below.

- Organic Chemicals – Animal or plant produced substances containing carbon and other elements such as hydrogen and oxygen.
- Synthetic Organic Chemicals (SOCs) – Man-made organic substances, including herbicides, pesticides, and various industrial chemicals and solvents.
- Volatile Organic Chemicals (VOCs) – Chemicals, as liquids, that evaporate easily into the air.
- Inorganic Chemicals (IOCs) – Chemicals of mineral origin that are naturally occurring elements. These include metals such as lead and cadmium.

Phase I Rule

The Phase I Rule, which was the EPA's first response to the 1986 Amendments, provided limits for eight VOCs that may be present in drinking water. VOCs are used by industries in the

manufacture of rubber, pesticides, deodorants, solvents, plastics, and other chemicals. VOCs are found in everyday items such as gasoline, paints, thinners, lighter fluid, mothballs, and glue, and are typically encountered at dry cleaners, automotive service stations, and elsewhere in industrial processes. The City currently complies with all contaminant monitoring requirements under this rule.

Phase II and IIb Rules

The Phase II and IIb Rules update and create limits for 38 contaminants (organics and inorganics). Some of the contaminants are frequently applied agricultural chemicals (nitrate), while others are more obscure industrial chemicals. The City currently complies with all contaminant monitoring requirements under these rules.

Phase V Rule

The Phase V Rule sets standards for 23 additional contaminants, of which 18 are organic chemicals (mostly pesticides and herbicides) and 5 are IOCs (such as cyanide). The City currently complies with all contaminant monitoring requirements under this rule.

Surface Water Treatment Rule

Surface water sources, such as rivers, lakes, and reservoirs (which are open to the atmosphere and subject to surface runoff), and groundwater sources that are under the direct influence of surface water (referred to as GWI sources), are governed by the SWTR. The SWTR seeks to prevent waterborne diseases caused by the microbes *Cryptosporidium, Legionella,* and *Giardia lamblia*, which are present in most surface waters. The rule requires disinfection of all surface water and GWI sources. All surface water and GWI sources also must be filtered unless a filtration waiver is granted. A filtration waiver may be granted to systems with pristine sources that continuously meet stringent source water quality and protection requirements. The City's well sources are not considered to be GWI; therefore, they are not subject to this rule.

Interim Enhanced Surface Water Treatment Rule

The Interim Enhanced Surface Water Treatment Rule (IESWTR) became effective concurrent with the Stage 1 Disinfectants/Disinfection Byproducts Rule. The rule primarily applies to public water systems that serve 10,000 or more people and use surface water or GWI sources. The rule also requires primacy agencies (i.e., DOH in Washington State) to conduct sanitary surveys of all surface water and GWI systems, regardless of size. DOH last conducted a Sanitary Survey in June 2021. The City's Sanitary Survey is included in **Appendix H – Sanitary Survey**. The rule is the first to directly regulate the protozoan *Cryptosporidium* and has set the MCLG for *Cryptosporidium* at zero. The City's well sources are not considered to be GWI; therefore, they are not subject to this rule.

Long Term 1 Enhanced Surface Water Treatment Rule

The Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR) addresses water systems using surface water or GWI sources serving fewer than 10,000 people. The rule extends

protections against *Cryptosporidium* for smaller water systems. The City serves fewer than 10,000 people, but its well sources are not considered to be GWI; therefore, they are not subject to this rule.

Revised Total Coliform Rule

The Revised Total Coliform Rule sets an MCL for *Escherichia Coli (E. coli)* and specifies the frequency and testing of coliform testing based on population served, public water system type, and source water type. When total coliform is detected, it is a treatment technique trigger. The water system must conduct an assessment of its water system facilities and operations and fix any sanitary defects. For confirmed *E. coli* incidents, known as an *E. coli* MCL violation, the water system must perform a Level 2 assessment and provide public notice within 24 hours. If a positive sample is collected on consecutive systems, the City also will need to collect source samples.

Coliform is a group of bacteria, some of which live in the digestive tract of humans and many animals, and are excreted in large numbers with feces. Coliform can be found in sewage, soils, surface waters, and vegetation. The presence of any coliform in drinking water indicates a potential health risk and potential waterborne disease outbreak, which may include gastroenteric infections, dysentery, hepatitis, typhoid fever, cholera, and other infectious diseases. *E. coli* is a member of the coliform group which is almost exclusively of fecal origin, and their presence can lead to increased health risks.

The City's *Coliform Monitoring Plan* is contained in **Appendix I – Coliform Monitoring Plan** and the City's E. Coli Response actions are documented in the **Appendix J – Emergency Response Plan**.

Lead and Copper Rule

The Lead and Copper Rule identifies action levels for both lead and copper. An action level is different than an MCL. An MCL is a legal limit for a contaminant, and an action level is a trigger for additional prevention or removal steps. The action level for lead is greater than 0.015 mg/L. The action level for copper is greater than 1.3 mg/L. If the 90th percentile concentration of either lead or copper from the group of samples exceeds these action levels, a corrosion control study must be undertaken to evaluate strategies and make recommendations for reducing the lead or copper concentration below the action levels. The rule requires systems that exceed the lead level to educate the affected public about reducing its lead intake. Systems that continue to exceed the lead action level after implementing corrosion control and source water treatment may be required to replace piping in the system that contains lead sources. Corrosion control typically is accomplished by increasing the pH of the water to make it less corrosive, which reduces its ability to break down water pipes and absorb lead or copper.

The EPA is in the process of implementing a lead trigger level of 10 micrograms per liter (µg/L), which would require additional monitoring and treatment requirements.

Lead is a common metal found throughout the environment in lead-based paint, air, soil, household dust, food, certain types of pottery, porcelain, pewter, brass, and water. Lead can pose a significant risk to health if too much of it enters the body. Lead builds up in the body

over many years and can cause damage to the brain, red blood cells, and kidneys. The greatest risk is to young children and pregnant women. Lead can slow normal mental and physical development of growing bodies.

Copper is a common, natural, and useful metal found in our environment. It is also a trace element needed in most human diets. The primary impact of elevated copper levels in water systems is stained plumbing fixtures. At certain levels (well above the action levels), copper may cause nausea, vomiting, and diarrhea. It can also lead to serious health problems in people with Wilson's disease. Long-term exposure to elevated levels of copper in drinking water also could increase the risk of liver and kidney damage. The City's current water quality monitoring schedule dictates that 10 samples be taken every 3 years. The City currently complies with all contaminant monitoring and treatment requirements under this rule.

Radionuclides Rule

The EPA established interim drinking water regulations for radionuclides in 1976 under the SDWA. MCLs were established for alpha, beta, and photon emitters, radium-226, and radium-228. Radionuclides are elements that undergo a process of natural decay and emit radiation in the form of alpha or beta particles and gamma photons. The radiation can cause various kinds of cancers, depending on the type of radionuclide exposure from drinking water. The regulations address both man-made and naturally occurring radionuclides in drinking water.

The 1986 Amendments to the SDWA finalized the regulations for radionuclides by eliminating the term "interim." The amendments also directed the EPA to promulgate health-based MCLGs, as well as MCLs. The EPA failed to meet the statutory schedules for promulgating the radionuclide regulations, which resulted in a lawsuit. In 1991, the EPA proposed revisions to the regulations, but a final regulation based on the proposal was never promulgated. The 1996 amendments to the SDWA directed the EPA to revise a portion of the earlier proposed revisions, adopt a schedule, and review and revise the regulations every 6 years, as appropriate, to maintain or improve public health protection. Subsequent to the 1996 Amendments, a 1996 court order required the EPA to either finalize the 1991 proposal for radionuclides or ratify the existing standards by November 2000.

The final rule was published in the Federal Register on December 7, 2000, and became effective on December 8, 2003. The rule established an MCLG of zero for the four regulated contaminates and MCLs of 5 picocuries per liter (pCi/L) for combined radium-226 and radium-228; 15 pCi/L for gross alpha (excluding radon and uranium); 4 millirems per year (mrem/year) for beta particle and photon radioactivity; and 30 µg/L for uranium. The City currently is overdue for radionuclides sampling at Source S02, but otherwise complies with all contaminant monitoring requirements under this rule.

Watershed Control Program

Section 1428 of the 1986 SDWA Amendments mandates that each state develop a wellhead protection program. The Washington State mandate for wellhead protection and the required elements of a wellhead protection program are contained in WAC 246-290-135 – Source

Protection, which became effective in July of 1994. In Washington State, DOH is the lead agency for the development and administration of the state's wellhead protection program.

A wellhead protection program is a proactive and ongoing effort of a water purveyor to protect the health of its customers by preventing contamination of the groundwater that it supplies for drinking water. All federally-defined Group A public water systems that use ground water as their source are required to develop and implement a wellhead protection program. All required elements of a local wellhead protection program must be documented and included in either the Water System Plan (applicable to the City) or Small Water System Management Program document (not applicable to the City). The City's *Wellhead Protection Program* is contained in **Appendix K – Wellhead Protection Program**.

Consumer Confidence Report

The Consumer Confidence Report (CCR) is the centerpiece of the right-to-know provisions of the 1996 Amendments to the SDWA. The annual report must be updated and re-issued to all customers by July 1st of each year.

The CCR is a report on the quality of water that was delivered to the water users during the previous calendar year. The reports must contain certain specific elements, but may also contain other information that the purveyor deems appropriate for public education. Some, but not all, of the information that is required in the reports includes the source and type of drinking water, type of treatment, contaminants that have been detected in the water, potential health effects of the contaminants, identification of the likely source of contamination, violations of monitoring and reporting, and variances or exemptions to the drinking water regulations. The City's latest CCR is contained in **Appendix L – Consumer Confidence Report**.

Stage 1 Disinfectants/Disinfection Byproducts Rule

Disinfection byproducts (DBPs) are formed when free chlorine reacts with organic substances, most of which occur naturally. These organic substances (called precursors) are a complex and variable mixture of compounds. The DBPs themselves may pose health risks. Trihalomethanes (THM) are a category of DBPs that had been regulated previous to this rule. However, systems with groundwater sources that serve a population of less than 10,000 were not previously required to monitor for THM.

The rule applies to the City and most other water systems, including systems serving fewer than 10,000 people that add a chemical disinfectant to the drinking water during any part of the treatment process. The rule reduced the MCL for total trihalomethanes (TTHMs), which are a composite measure of four individual trihalomethanes, from the previous interim level of 0.10 mg/L to 0.08 mg/L. The rule established MCLs and requires monitoring of three additional categories of DBPs (0.06 mg/L for five haloacetic acids (HAA5), 0.01 mg/L for bromate, and 1.0 mg/L for chlorite). The rule established maximum residual disinfectant levels (MRDLs) for chlorine (4.0 mg/L), chloramines (4.0 mg/L), and chlorine dioxide (0.8 mg/L). The rule also requires systems using surface water or groundwater directly influenced by surface water to implement enhanced coagulation or softening to remove DBP precursors, unless alternative

criteria are met. The current water quality monitoring schedule dictates that the City collect at a reduced frequency of one TTHM and one HAA5 sample on an annual basis. The City currently complies with all contaminant monitoring requirements under this rule.

Unregulated Contaminant Monitoring Rule

The EPA established the Unregulated Contaminant Monitoring Rule (UCMR) to generate data on contaminants that are being considered for inclusion in new drinking water standards. The information collected by select public water systems will ensure that future regulations established by the EPA are based on sound science.

Three separate lists of unregulated contaminants are maintained under the UCMR: List 1, List 2, and List 3. Contaminants are organized on the tiered lists based on the availability of standard testing procedures and the known occurrence of each contaminant, with List 1 containing contaminants that have established standard testing procedures and some, but insufficient, information on their occurrence in drinking water. Monitoring for contaminants on the three lists is limited to a maximum of 30 contaminants within a 5-year monitoring cycle, and the EPA is required to publish new contaminant monitoring lists every 5 years. As new lists are published, contaminants will be moved up on the lists if adequate information is found to support additional monitoring. All public water systems serving more than 10,000 people and a randomly selected group of smaller water systems are required to monitor for contaminants. The City currently monitors for some unregulated contaminants.

Arsenic

Arsenic is highly toxic, affects the skin and nervous system, and may cause cancer. The Arsenic Rule sets the MCLG of arsenic at zero and reduces the MCL from the previous standard of 0.05 mg/L to 0.01 mg/L. Arsenic's monitoring requirements will be consistent with the existing requirements for other inorganic contaminants. The City complies with this rule since its active sources have levels of arsenic that are below the MCL. The City's S03 source had a number of exceedances of the arsenic MCLG during 2007 to 2010; therefore, the source was relegated for use in emergency situations only.

Filter Backwash Recycling Rule

Public water systems using surface water or groundwater under the direct influence of surface water that utilize filtration processes and recycling must comply with the Filter Backwash Recycling Rule. The rule aims to reduce risks associated with recycling contaminants removed during filtration.

The rule requires filter backwash water be returned to a location that allows complete treatment. In addition, filtration systems must provide detailed information regarding the treatment and recycling process to the state. The City does not filter its groundwater well sources, so this rule does not apply.

Stage 2 Disinfectants/Disinfection Byproducts Rule

The EPA implemented the Stage 2 Disinfectants/Disinfection Byproducts Rule (Stage 2 D/DBPR) simultaneously with the Long Term 2 Enhanced Surface Water Treatment Rule.

Similar to the Stage 1 D/DBPR, this rule applies to most water systems that add a disinfectant to the drinking water other than ultraviolet light or those systems that deliver such water. The Stage 2 D/DBPR changes the calculation procedure requirement of the MCLs for two groups of disinfection byproducts: TTHM and HAA5. The rule requires each sampling location to determine compliance with MCLs based on their individual annual average DBP levels (termed the Locational Running Annual Average), rather than utilizing a system-wide annual average. The rule also proposes new MCLGs for chloroform (0.07 mg/L), trichloroacetic acid (0.02 mg/L), and monochloroacetic acid (0.03 mg/L).

Additionally, the rule requires systems to document peak DBP levels and prepare an Initial Distribution System Evaluation (IDSE) report to identify Stage 2 D/DBPR compliance monitoring sites. IDSEs require each water system to prepare a separate IDSE plan and report, with the exception of those systems who obtain a 40/30 Certification or a Very Small System Waiver. In order to qualify for the 40/30 Certification, all samples collected during Stage 1 monitoring must have TTHM and HAA5 levels less than or equal to 0.040 mg/L and 0.030 mg/L, respectively. The current water quality monitoring schedule dictates that the City collect four TTHM and HAA5 samples on a quarterly basis. The City currently complies with all contaminant monitoring requirements under this rule and has qualified for 40/30 Certification; the City does not require an IDSE plan.

Long Term 2 Enhanced Surface Water Treatment Rule

Following the publishing of the IESWTR, the EPA introduced the LT1ESWTR to supplement the preceding regulations. The second part of the regulations of the LT1ESWTR are mandated in the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR). The final rule was implemented simultaneously with the Stage 2 D/DBPR described in the previous section. This rule applies to all systems that use surface water or GWI sources.

This rule establishes treatment technique requirements for filtered systems based on their risk level for contamination, calculated from the system's average *Cryptosporidium* concentration. Requirements include up to 2.5-log *Cryptosporidium* treatment, in addition to existing requirements under the IESWTR and LT1ESWTR. Filtered systems that demonstrate low levels of risk will not be required to provide additional treatment. Unfiltered systems under this rule must achieve at least a 2-log inactivation of *Cryptosporidium* if the mean level in the source water remains below 0.01 oocysts/L. If an unfiltered system's mean level of *Cryptosporidium* exceeds 0.01 oocysts/L, the LT2ESWTR requires the system to provide a minimum 3-log inactivation of *Cryptosporidium*. All unfiltered systems also are required to utilize a minimum of two disinfectants in their treatment process.

The LT2ESWTR also addresses systems with unfinished water storage facilities. Under this rule, systems must either cover their storage facilities or achieve inactivation and/or removal of 4-log virus, 3-log *Giardia lamblia,* and 2-log *Cryptosporidium* on a state-approved schedule.

Lastly, the rule extends the requirement of the disinfection profiles mandated under the LT1ESWTR to the proposed Stage 2 D/DBPR. The City's groundwater sources are not under the influence of surface water; therefore, this rule does not apply.

Groundwater Rule

The EPA promulgated the Groundwater Rule (GWR) to reduce the risk of exposure to fecal contamination that may be present in public water systems that use groundwater sources. The GWR also specifies when corrective action (which may include disinfection) is required to protect consumers who receive water from groundwater systems from bacteria and viruses. The GWR applies to public water systems that use groundwater and to any system that mixes surface and groundwaters if the groundwater is added directly to the distribution system and provided to consumers without treatment equivalent to surface water treatment.

The rule targets risk through an approach that relies on the four following major components:

1. Periodic sanitary surveys of groundwater systems that require the evaluation of eight critical elements and the identification of significant deficiencies (such as a well located near a leaking septic system). DOH conducted its most recent sanitary survey of the City's water system on August 4, 2021, under the state's existing sanitary survey program.
2. Source water monitoring to test for the presence of *E. coli*, enterococci, or coliphage in the sample. There are two monitoring provisions.
    - Triggered monitoring for systems that do not already provide treatment that achieves at least 99.99-percent (4-log) inactivation or removal of viruses and that have a total coliform positive routine sample under the Revised Total Coliform Rule sampling in the distribution system.
    - Assessment monitoring is a complement to triggered monitoring. A state has the option to require systems to conduct source water assessment monitoring at any time to help identify high risk systems.
3. Corrective actions required for any system with a significant deficiency or source water fecal contamination. The system must implement one or more of the following corrective action options: correct all significant deficiencies; eliminate the source of contamination; provide an alternate source of water; or provide treatment that reliably achieves 99.99-percent inactivation or removal of viruses.
4. Compliance monitoring to ensure that treatment technology installed to treat drinking water reliably achieves at least 99.99-percent inactivation or removal of viruses.

The City's last sanitary survey was completed in August 2021. One significant deficiency related to reservoir access hatch gaskets was identified, which the City was required to correct within 45 days. The City addressed or is currently addressing minor deficiencies identified in this sanitary survey and complies with all other requirements of the rule.

FUTURE REGULATIONS

Drinking water regulations are continuously changing in an effort to provide higher quality and safer drinking water. Modifications to the existing rules described previously and implementation of new rules are planned for the near future. A summary of upcoming drinking water regulations that will most likely affect the City is presented as follows.

Per- and Polyfluoroalkyl Substances

In 2016, the EPA established a health advisory level for per- and polyfluoroalkyl substances (PFAS) at 70 parts per trillion (ppt). DOH proposed a regulation for PFAS in 2017, and this process will take about 2 years to complete. The primary source of PFAS contamination was historical use of PFAS-based firefighting foam used by the US military, local fire departments, and airports. DOH is currently developing state action levels (SALs) for 5 specific PFAS-based contaminants that act as indicators of PFAS impacted water. The proposed regulation is currently in the process of being adopted into state legislation. Since the final PFAS rule requirements are uncertain, the impact of this rule on the City is unknown at this time. However, the City should expect to begin sampling for the 5 PFAS contaminants as early as 2022.

Radon

In July of 1991, the EPA proposed a regulation for radon, as well as three other radionuclides. The 1996 SDWA Amendments required the EPA to withdraw the 1991 proposal due to several concerns that were raised during the comment period. A new proposed regulation was published in the Federal Register on November 2, 1999. Comments on the proposed rule were due to the EPA by February 4, 2000. Final federal requirements for addressing radon were delayed until 2008, but have not yet been published. The rule proposes a 300 pCi/L MCL for community water systems that use groundwater or an alternative, less stringent MCL of 4,000 pCi/L for water systems where their state implements an EPA-approved program to reduce radon risks in household indoor air and tap water. It is not currently known when or what a radon regulation may require as adopted by the EPA or what will be the rule's implementation schedule. Because the final radon rule requirements are uncertain, the impact of this rule on the City is unknown at this time.

Unregulated Contaminant Monitoring Rule Revisions

In accordance with the original UCMR, the EPA is proposing an updated contaminant monitoring list for the next 5-year monitoring cycle, in addition to other minor revisions to the UCMR. The proposed rule was published March 11, 2021 in the Federal Register. The revisions include a list of 30 chemicals that will be monitored during the 2023 through 2025 monitoring cycle. For this cycle, all community water systems and non-transient non-community water systems serving 3,300 people or more will be required to monitor for contaminants. The chosen contaminants for this cycle consist of 29 PFAS compounds and one metal (lithium). A total of 800 small water systems serving fewer than 3,300 people will be selected at random to monitor for the same contaminants.

SOURCE WATER QUALITY

This section presents the current water quality standards and the results of the City's recent source water quality monitoring efforts. A discussion of the water quality requirements and monitoring results for the City's distribution system is presented in the section that follows.

DRINKING WATER STANDARDS

Drinking water quality is regulated at the federal level by the EPA and at the state level by DOH. Drinking water standards have been established to maintain high quality drinking water by limiting the levels of specific contaminants (i.e., regulated contaminants) that can adversely affect public health and are known or likely to occur in public water systems. Non-regulated contaminants do not have established water quality standards and are generally monitored at the discretion of the water purveyor and in the interest of customers.

The regulated contaminants are grouped into two categories of standards: primary and secondary. Primary standards are drinking water standards for contaminants that could affect health. Water purveyors are required by law to monitor and comply with these standards and notify the public if water quality does not meet any one of the standards. Secondary standards are drinking water standards for contaminants that have aesthetic effects, such as unpleasant taste, odor, or color (staining). The national secondary standards are unenforceable federal guidelines or goals where federal law does not require water systems to comply with them. However, states may adopt their own enforceable regulations governing these contaminants. The State of Washington has adopted regulations that require compliance with some of the secondary standards. Water purveyors are not required to notify the public if water quality does not meet secondary standards.

SOURCE MONITORING REQUIREMENTS AND WAIVERS

The City is required to perform water quality monitoring at each of its active sources for inorganic chemical and physical substances, organic chemicals, and radionuclides. The monitoring requirements that the City must comply with are specified in WAC 246-290-300.

SOURCE MONITORING RESULTS

The City's source maintains a high level of water quality and has met or exceeded all drinking water standards within the last 6 years, with the exception of 1 discrete detection of coliform in January of 2016. Repeat coliform samples were not positive; therefore, these samples can be disregarded as outliers.

Source S02 has waivers for IOCs valid through December 2028; VOCs and radionuclides through 2025; and herbicides, pesticides, and soil fumigants through 2022. The source is sampled annually for nitrates.

Source S04 has waivers for IOCs valid through December 2028; VOCs and gross alpha radionuclides through 2025; and herbicides, pesticides, soil fumigants, radium-226, and radium-228 through 2022. The source is sampled annually for nitrates.

The results of inorganic chemical (including nitrate) and VOC monitoring for the City's sources indicate that all primary and secondary standards were met.

DISTRIBUTION SYSTEM WATER QUALITY

Monitoring Requirements and Results

The City is required to perform water quality monitoring within the distribution system for coliform bacteria, disinfectant (chlorine) residual concentration, DBP, lead and copper, and asbestos in accordance with Chapter 246-290 WAC. A description of the distribution system water quality monitoring requirements and procedures are contained in the City's *Water Quality Monitoring Plan* that is included in **Appendix M – Water Quality Monitoring Plan**.

The City has been in compliance with all monitoring requirements for the past several years. A summary of the results of distribution system water quality monitoring within the City's system is presented as follows.

Coliform Monitoring

The City is required to collect a minimum of 2 coliform samples per month from different locations throughout the system, based on a population served of 2,162 in 2021. The results of coliform testing from the past 6 years were all satisfactory, except a positive sample in January 2016. Follow-up repeat samples were negative; therefore, the positive sample was likely due to error.

Disinfectant Residual Concentration Monitoring

Disinfection requirements applicable to the City's Cowlitz River source are contained in WAC 246-290-692 for unfiltered systems, which states that a minimum 0.2 mg/L disinfectant residual concentration shall be maintained at the point the water enters the system, and that the disinfectant residual concentration in the distribution system is detectable in at least 95 percent of the samples taken each calendar month. In an effort to comply with these requirements, the City has established a chlorination target to maintain a positive disinfectant residual in the distribution system. The water samples collected by the City for coliform analysis also are tested for residual disinfectant concentration. The City targets a free chlorine residual between 1.2 and 1.4 mg/L downstream of the well entry points to distribution. The residual for the entire distribution system ranged between 0.45 and 1.51 mg/L in 2019. Therefore, the City is in compliance with this regulation.

Lead and Copper Monitoring

The Lead and Copper Rule identifies the action level for lead as being greater than 0.015 mg/L, and the action level for copper as being greater than 1.3 mg/L. When it was in operation, the City's water treatment plant adjusted pH to reduce lead and copper levels. Although the City no longer operates its own treatment plant, it will still be required to monitor lead and copper concentrations. Every 3 years, the City must collect and report a minimum of 10 samples. All previous samples indicate the City is in compliance with these regulations. In September 2018,

10 samples were collected, with the 90th percentile concentration of both lead and copper falling below their respective action levels.

Asbestos

Asbestos monitoring is required if the sources are vulnerable to asbestos contamination or if the distribution system contains more than 10 percent of asbestos cement (AC) pipe. The current MCL for asbestos is 7 million fibers per liter (MFL) and greater than 10 microns in length. Monitoring must be accomplished during the first 3-year compliance period of each 9-year compliance cycle. The water sample must be taken at a tap that is served by an asbestos cement pipe under conditions where asbestos contamination is most likely to occur. None of the City's sources are susceptible to asbestos contamination, and AC pipe does not comprise more than 15 percent of the City's distribution system. Therefore, the City is exempt from monitoring for asbestos in the distribution system. Currently, the City is under a 9-year exemption waiver that is valid through December 2028.

Disinfectants/Disinfection Byproducts Monitoring

TTHM and HAA5 are disinfection byproducts that are formed when free chlorine reacts with organic substances (i.e., precursors), most of which occur naturally. Formation of TTHM and HAA5 is dependent on such factors as amount and type of chlorine used, water temperature, concentration of precursors, pH, and chlorine contact time. TTHM and HAA5 have been found to cause cancer in laboratory animals and are suspected to be human carcinogens.

The City was granted a reduced sampling requirement and only collects one TTHM and one HAA5 sample on an annual basis. All recent samples show concentrations below both substances' MCLs. Therefore, the City is in compliance with this regulation. According to DOH record the City monitors for disinfection byproducts at 400 Parkway Drive. The City was granted 40/30 Certification based on historical water quality data; therefore, it is not required to perform an IDSE.

7 | WATER SYSTEM ANALYSIS

INTRODUCTION

This chapter presents the analysis of the City of Rock Island's (City) existing water system. Individual water system components were analyzed to determine their ability to meet policies and design criteria under existing and future water demand conditions. The policies and design criteria are presented in **Chapter 5 – Policies and Design Criteria**, and the water demands are presented in **Chapter 4 – Water Demands**. A description of the water system facilities and current operation is presented in **Chapter 2 – Water System Description**. The last section of this chapter presents the existing and projected system capacity analyses that were performed to determine the maximum number of equivalent residential units (ERUs) that can be served by the City's water system. These analyses are based on regulatory requirements for water system design and for maintaining an acceptable level of service. The City's primary goal is to have all its facilities in compliance with federal and state requirements; the secondary goal is to have all its facilities provide the ideal level of service as defined by the City's policies and design criteria.

DISTRIBUTION SYSTEM HYDRAULIC CAPACITY ANALYSIS

The City's transmission and distribution system consists of approximately 44,800 linear feet of pipe providing water to the City's system. Specifics regarding pipe sizes and materials have been documented in **Chapter 2 – Water System Description**. Portions of the system are generally considered to need replacement, as approximately 20 percent of the water mains are undersized and some of these areas are unable to provide sufficient flow to meet minimum fire flow requirements. It is recommended that these pipes be replaced with more appropriately sized ductile iron pipes and appurtenances. These deficiencies have been addressed with improvement projects have been included in the recommended projects listed in **Chapter 9 – Water System Improvement**.

HYDRAULIC MODEL AND CALIBRATION

Description

A computer-based hydraulic model of the existing water system was created using version 10.2 of the WaterGEMS® program developed by Bentley Systems, Inc. All facilities and water mains in the City's water system, including dead-end mains, were modeled. The water mains were entered from the City's water system mapping database, as-built records, and information obtained through discussions with City staff.

Demand Data

The hydraulic model of the existing system contains 2021 demand data. System-wide demands were allocated in the model as part of the *Water System Plan* (WSP) preparation and were scaled to match the system's demands as necessary. The peaking factors calculated in **Chapter 4 – Water Demands** were used to analyze the system under maximum day demand (MDD) and peak hour demand (PHD) conditions.

The hydraulic model of the proposed system contains 10-year and 20-year demand levels that are projected for the years 2031 and 2041, respectively. The future demand allocations are presented later is this chapter.

Facilities

The hydraulic model of the existing system used for the pressure analyses contains all active and existing system facilities. For the proposed system analyses in the years 2031 and 2041, the hydraulic model contained active and existing system facilities and proposed system improvements identified in **Chapter 9 – Water System Improvements**.

The facility settings for the pressure analyses correspond to a PHD event in the water system. All sources of supply that are currently available to the system, or will be available in the future, were operating at their normal summertime pumping rates during a peak period. The reservoir levels were modeled to reflect full utilization of operational and equalization storage. The operational conditions for the pressure analyses are summarized in **Table 7.1, Hydraulic Model Calibration Results**.

Separate fire flow analyses were performed on the system to size distribution system improvements and calculate fire flow availability. The hydraulic model for the fire flow analyses contained settings that correspond to MDD events. All sources of supply that are currently available to the system during a peak period were operating at their normal pumping rates with the largest pump at each facility offline. Reservoir levels were modeled to reflect full utilization of operational, equalizing, and fire flow storage based on the maximum planning-level fire flow requirement. The water system was modeled with the largest pump off during the fire flow analyses, consistent with Washington Administrative Code (WAC) 246-293-660. **Table 7.1, Hydraulic Model Calibration Results,** summarizes the operational conditions for the fire flow analyses for the existing and future systems.

Table 7.1
Hydraulic Model Calibration Results

Junction Number	Field											Model		Absolute Difference	
	Hydrant Location	Date	Start Time	End Time	Run Time (min)	Static Pressure (psi)	Residual Pressure (psi)	Port Size (inch)	Pitot (psi)	Flow (gpm)	Tot. Flow (gallons)	Static Pressure (psi)	Residual Pressure (psi)	Static Pressure (psi)	Residual Pressure (psi)
T-1	Penn Ave. @ Sally Jean	11/17/2021	9:50:00 AM	9:52:00 AM	2	54	48	2 1/2	10	533	1,067	54	47	0	1
T-2	Center St near Penn Ave	11/17/2021	10:40:00 AM	10:43:00 AM	3	52	49	2 1/2	8	477	1,431	53	47	-1	2
T-3	1st St & Douglas	11/17/2021	11:25:00 AM	11:26:00 AM	1	54	47	2 1/2	13	608	608	53	47	1	0
T-4[1]	4th St near WWTP	11/17/2021	1:18:00 PM	1:20:00 PM	2	59	44	2 1/2	13.5	620	1,239	57	51	2	-7
T-5	Saunders Ave near Schooler Park	11/17/2021	2:04:00 PM	2:06:00 PM	2	62	56	2 1/2	18	716	1,431	59	57	3	-1
T-6[2]	George's Shallows Dead End	11/11/2020	--	--	--	57	42	2 1/2	16	659	--	56	45	1	-3
T-7[2]	George's Shallows Entrance	11/11/2020	--	--	--	59	49	2 1/2	12	571	--	56	50	3	-1

psi = pounds per square inch

gpm = gallons per minute

[1]The pipe crossing the highway appears to have a closed valve or be a different diameter than earlier recorded. If the pipe crossing the highway is installed at 8 inch instead of 12 inch as historically noted the modeled values match the field recorded data much closer.

[2]The hydrant testing completed in this area was done as construction was coming to completion it is believed there may have been valves closed in this area.

Peak Hour Demands

According to Washington State Department of Health (DOH) requirements, a water system must maintain a minimum pressure of 30 psi in the distribution system under PHD conditions. In all modeling scenarios, all pressures throughout the distribution system exceeded the minimum system pressure of 30 pounds per square inch (psi) with the exception of a few residences along Riverside Drive. There are also a few services in the eastern portion of the water system in the George's Shallows development that have pressures extremely close to 30 psi. It is assumed that these services have a private booster pump as stipulated by City Ordinance No. 04-071. **Figures A.1, A.2, A.3** and **A.4** included in **Appendix N – Hydraulic Analysis** represent the existing, 10- and 20-year PHD conditions with the existing water system and future improvements proposed in the Capital Improvement Program (CIP). **Figure A.3** represents the 20-year PHD with the existing reservoirs and water main improvements included in the CIP, whereas **Figure A.4** represents both the water main improvements and a raised overflow of the existing 0.4 MG tank to an overflow elevation of 805 feet.

Fire Flow Analysis

A detailed fire flow analysis was completed for the City's water system. The analysis was conducted in conformance with DOH requirements that a water system must provide adequate fire flow under MDD conditions while maintaining a minimum system pressure of 20 psi. Additionally, DOH requires a maximum velocity of 8 feet per second (fps). In all modeling scenarios, all pipe velocities throughout the distribution system are less than 8 fps. **Figures B.1, B.2, B.3** and **B.4** included in **Appendix N – Hydraulic Analysis** represent the existing, 10- and 20-year MDD conditions with the existing water system and future improvements proposed in the Capital Improvement Program (CIP). **Figure B.3** represents the 20-year MDD with the existing reservoirs and water main improvements included in the CIP, whereas **Figure B.4** represents both the water main improvements and a raised overflow of the existing 0.4 MG tank to an overflow elevation of 805 feet.

Table 4.12, General Fire Flow Requirements, provides the minimum fire flow requirements used by the City. They have been developed based on the land use classifications that are included in the City's *Comprehensive Plan*. These are the minimum fire flows to be considered in the design of system improvements. Actual fire flow requirements for proposed new structures will be as determined by the City's Fire Marshal.

DISTRIBUTION AND TRANSMISSION SYSTEM DEFICIENCIES

A summary of the primary system deficiencies is outlined as follows. **Chapter 9 – Water System Improvements** provides specifics on proposed improvement projects.

In its existing condition, the water system will be able to serve the projected growth that the City is anticipating. However, there are existing deficiencies to the system, such as the inability to meet fire flow requirements. These deficiencies can be eliminated through the upsizing of water mains and looping portions of the water system. Raising the overflow and hydraulic grade line of the existing pressure zone could also eliminate fire flow deficiencies by 10-percent

or more system wide. Other deficiencies to the distribution system include water mains constructed of substandard material such as asbestos cement (AC).

Selection and Justification of Proposed Improvements

Projects were selected for inclusion in the program based on the following criteria:

1. **Growth Related Projects (New Development)** - The proposed Capital Improvement Program includes growth-related projects to serve these proposed new developments.
2. **Growth Related Projects (Existing System)** – These are proposed projects to upsize and improve portions of the existing system that will not be able to adequately serve the system with the anticipated growth.
3. **System Improvements** – These projects are included to address existing system deficiencies such as inabilities to meet minimum fire flow requirements. These projects include upsized lines and system looping improvements.
4. **Small Line Replacements** – These projects have been included to replace all water main that is 4 inches and smaller.
5. **AC Line Replacements** – These projects have been included to remove all AC water mains and replace them with ductile iron.

SOURCE ANALYSIS

The City has two wells (Well Nos. 2 and 5) that provide all source of supply for its municipal water system. Details regarding the physical capacity of the wells and allowable withdrawal rates have been included in **Chapter 2 – Water System Description** and **Chapter 6 – Water Source and Quality**. That analysis showed that the water system is currently water right limited as the installed physical pumping capacity (950 gpm) at its wells exceeds the City's water right limits (902 gpm). For the City to run both Well Nos. 2 and 5 at the same time, one of the wells must be throttled to ensure the pumping rate does not exceed the water right.

WATER SUPPLY EVALUATION

An evaluation of the City's existing water supply (water rights) was performed to determine the ability of the City's municipal water rights to meet both existing and future water demands. **Table 7.2, Existing Water Supply Evaluation**, compares the combined water right instantaneous rates with the MDD of the system, and the combined water right annual volumes with the average day demand (ADD) of the system. As shown in **Table 7.2, Existing Water Supply Evaluation**, the City has sufficient water rights and agreements to meet existing demand (2021).

Table 7.2
Existing Water Supply Evaluation

Source	Supply (Installed Capacity vs. MDD)		Annual Volume (Water Rights vs. ADD)	
	(gpm)	(gpd)	(afy)	(MG/Year)
Wells	950	1,368,000	664	216
Total Supply Available	**950**	**1,368,000**	**664**	**216**
Reliable Supply Available[1]	**792**	**1,140,000**	**664**	**216**
Required Demand (2021)	445	640,302	240	78
Surplus or (Deficit)	347	499,698	424	138

[1]Assumes both Well No. 2 and 5 are running for 20 hours per day.

gpd = gallons per day
afy = acre feet per year
MG/year = million gallons per year

Table 7.3, Future Water Supply Evaluation, summarizes the results of the future water supply evaluation, which compares the combined instantaneous rate under the City's municipal water rights with the system's 10-year and 20-year demand projections. The analyses considered future demand projections without water use reductions from the City's planned water use efficiency efforts. The results of the future water supply evaluation indicate that the City has sufficient water rights, with respect to both instantaneous rate and annual volume, to meet the demands through the year 2041.

Table 7.3
Future Water Supply Evaluation

Source	Supply (Installed Capacity vs. MDD)		Annual Volume (Water Rights vs. ADD)	
	(gpm)	(gpd)	(afy)	(MG/Year)
Wells	950	1,368,000	664	216
Total Supply Available	**950**	**1,368,000**	**664**	**216**
Reliable Supply Available[1]	**792**	**1,140,000**	**664**	**216**
Required Demand (2031)	501	721,343	274	89
Surplus or (Deficit)	291	418,657	390	127
Required Demand (2041)	564	812,642	309	101
Surplus or (Deficit)	227	327,358	355	116

[1]Assumes both Well Nos. 2 and 5 are running for 20 hours per day.

SUPPLY VULNERABILITY

Source Vulnerability

The City has sufficient capacity from Well No. 5 to accommodate both current water demands and projected water demands for the 10-year and 20-year planning periods. However, Well No. 5 is the City's primary source and if it is compromised the City is at risk, as Well No. 2 only has a reliable supply of 208 gpm. The reliable supply assumes a maximum of 20 hours of pumping per day and when compared to an existing MDD of 445 gpm the system would need to rely on storage to keep up with demand and would be at risk of not being able to maintain adequate system pressure.

Detailed information regarding the City's water rights has been presented in **Chapter 2 – Water System Description**. In addition, **Chapter 4 – Water Demands** includes calculations of projected water needs over the planning period. The City has sufficient water rights and reliable water supply to service the projected growth that the City is anticipated to experience over the next 20 years.

Collection Vulnerability

Potential problems with the source collection areas are primarily associated with the risks of aging infrastructure and contamination or damage to the wells by human and/or animal vandalism.

Transmission Vulnerability

Well No. 5 is located in the eastern portion of the City's distribution system. Water is pumped from Well No. 5 through a single 12-inch water main to the City's reservoirs and distribution system. This configuration does not provide any level of redundancy or resiliency in a case of water main failure or replacement.

STORAGE CAPACITY ANALYSIS

The City currently has two reservoirs for distribution system storage. Details regarding these reservoirs have been provided in **Chapter 2 – Water System Description**. The City should evaluate whether to recoat aging reservoirs or rebuild them at a higher hydraulic grade line (HGL) based on future growth in the area.

ANALYSIS CRITERIA

The existing and proposed storage facilities have been analyzed to ensure that there is sufficient capacity to meet the existing and future storage requirements of the system. Storage needs have been analyzed based on the projected distribution of ERUs throughout the system. **Table 7.4, ERU Projection Summary**, includes the assumed distribution of ERUs throughout the system as included in the computerized hydraulic model of the City's water system.

Table 7.4
ERU Projection Summary

Pressure Zone	2021 Existing (ERU)	2031 10-Year (ERU)	2041 20-Year (ERU)
Main Pressure Zone	536	604	681

Basic physical data for the existing storage reservoirs has been included in **Table 7.5, Storage Facility Data**.

Table 7.5
Storage Facility Data

Reservoir Data	0.4 MG (Existing)	0.1 MG (Existing)
Main Pressure Zone(s) Served	776	776
Base Elevation (Feet)	735	735
Diameter (Feet)	40	20
Height (Feet)	41	41
Overflow Elevation (Feet) or HGL	776	776
Volume per Height (gallon per vertical foot)	9,400	2,350
Total Volume (MG) (0.5 MG)	0.39	0.10
Highest Service Elevation (ft)[1]	689	689
Bottom of Standby Storage (ft)[2]	735	735
Total Usable Volume (MG) (0.48 MG)	**0.38**	**0.10**
Percent Usable to Total Volume	100%	100%

[1] This was assumed based on the elevations in the hydraulic model. There are four services next to the reservoir that were noted as having private booster pumps in the previous WSP and were therefore removed from the selection.

[2] Calculated as the water surface elevation at which highest service elevation can be served with 20 psi.

MG = million gallons
MSL = mean sea level

Storage capacity has been analyzed for the following components: 1) operational storage; 2) equalizing storage; 3) standby storage; 4) fire suppression storage; and 5) dead storage.

Operational Storage

Operational storage is the volume of the reservoirs used to supply the water system under normal conditions when the wells are not delivering water to the system. This volume is associated with the elevation difference required for the pump level sensors and was assumed to be an operational distance of 5.5 feet for each of the reservoirs.

Equalizing Storage

Equalizing storage is the volume of water used to supply the system at a minimum pressure of 30 psi at all service connections under peak demand conditions and when the system demand exceeds the total rate of supply by the Ranney Collector Well and/or the Longview Intertie. The formula used for reservoirs with electronic level controls is:

ES = (PHD – Qs) * (150 min), but in no case less than zero

where, ES = Equalizing storage (gallons)

PHD = Peak hourly demand (gpm)

Qs = Sum of all active source of supply capacities, except emergency sources of supply (gpm).

Standby Storage

Standby storage is the volume of water used to supply the water system under emergency conditions when supply facilities are out of service due to equipment failures, loss of supply, transmission main breaks, power outages, and any other situation that disrupts the supply source.

Single Source Standby Storage

SB = (2 days)(ADD)(N)

Where, SB = Standby storage

ADD = Standby storage

N = Number of ERUs

Multiple Source Standby Storage

$SB = (2\ days)(ADD)(N) - t_m(Q_S - Q_L)$

Where, SB = Standby storage

ADD = Standby storage

N = Number of ERUs

t_m = Time the remaining sources are pumped

Q_S = Sum of available supply source capacities

Q_L = The largest capacity source available to the water system

Per DOH requirements, standby storage should never be less than 200 gallons per ERU. For this WSP storage analysis, standby storage requirements were calculated using all equations with the largest calculated value governing the required standby storage for existing, 10- and 20-year projections.

Fire Suppression Storage

Fire suppression storage is the volume of storage used to supply water to the system at the maximum rate and duration required to extinguish a building with the highest fire flow requirement. Maximum fire flow requirements served by each of the reservoirs are outlined in **Table 7.6, Maximum Fire Flows by Reservoir**.

FSS = (FF) x (t)

Where, FSS = Fire suppression storage

FF = Required fire flow rate (gpm)

t = Duration of time when fire flow rate is required (minutes).

Table 7.6
Maximum Fire Flows by Reservoir

Reservoir	Land Use Planning Requirements			County Fire Department Requirements			Maximum Fire Suppression Storage Required (gal)
	Maximum Fire Flow Rate (gpm)	Duration (minutes)	Volume (gal)	Maximum Fire Flow Rate (gpm)	Duration (minutes)	Volume (gal)	
0.4 MG and 0.1 MG	2,500	120	300,000	1,500	240	360,000	360,000

Dead Storage

Dead storage is the volume of water in the reservoir that cannot be used because it is stored at an elevation that does not provide system pressures that meet the minimum pressure requirements established by DOH without pumping. The few services along Riverside Drive that cannot achieve sufficient pressure with full reservoirs are assumed to have private booster pumps in accordance with City's water system ordinances.

STORAGE REQUIREMENTS

In the evaluation of the storage requirements, WAC 246-290-235(4) and Chapter 7 of the DOH Water System Design Manual allows consolidation (nesting) of fire suppression storage and standby storage by applying whichever is greater. An analysis of the required storage components indicates that there is sufficient storage capacity within the system for existing conditions as summarized in **Table 7.7, Existing Storage Evaluation**. Future storage evaluations looked at the reliable supply and storage available to each pressure zone. The results for the 10-year planning period of 2031 are summarized in **Table 7.8, Future Storage Evaluation (2031)**, and the 20-year planning period of 2041 results are summarized in **Table 7.9 Future Storage Evaluation (2041)**.

Table 7.7
Existing Storage Evaluation

Storage Component	Total System (gallons)
Operational Storage	64,600
Equalizing Storage	0
Standby Storage	107,200
Fire Suppression Storage	360,000
Total Storage Required[1]	**424,600**
Total Storage Available	479,415
Surplus or (Deficit)	54,815

[1] The total storage required assumed that fire suppression storage and standby storage have been nested.

Table 7.8
Future Storage Evaluation (2031)

Storage Component	Total System (gallons)[2]
Operational Storage	64,600
Equalizing Storage	14,300
Standby Storage	129,017
Fire Suppression Storage	360,000
Total Storage Required[1]	**438,900**
Total Storage Available	479,415
Surplus or (Deficit)	40,515

[1] The total storage required assumed that fire suppression storage and standby storage have been nested.

[2] The analysis shown does not assign any customers to an upper pressure zone.

Table 7.9
Future Storage Evaluation (2041)

Storage Component	Total System (gallons)[2]
Operational Storage	64,600
Equalizing Storage	34,100
Standby Storage	190,955
Fire Suppression Storage	360,000
Total Storage Required	**458,700**
Total Storage Available	479,415
Surplus or (Deficit)	20,715

[1] The total storage required assumed that fire suppression storage and standby storage have been nested.

[2] The analysis shown does not assign any customers to an upper pressure zone.

OVERALL SYSTEM CAPACITY ANALYSIS

This section summarizes the various components of the water system that could limit the capacity of the City to serve future customers (e.g., supply, storage, and water rights) to determine the maximum number of ERUs it can serve. System capacity is useful in determining how much capacity is available in the water system to support new customers that apply for water service through the Building Permit process. The system capacity information, together with the projected growth of the system expressed in ERUs, as shown in **Chapter 4 – Water Demands**, also provides the City with a schedule of when additional system capacity is needed.

ANALYSIS CRITERIA

The capacity of the City's system was determined from the limiting capacity of the reliable supply, water rights, and storage. The supply capacity analysis was based on the limiting capacity of the supply facilities and the system's MDD per ERU. The annual water rights capacity evaluation was based on the existing annual water rights, as summarized in **Chapter 6 – Water Source and Quality**, and the system's ADD per ERU. The instantaneous water rights capacity evaluation was based on the existing instantaneous water rights, as summarized in **Chapter 6 – Water Source and Quality**, and the system's MDD per ERU. The storage capacity analysis was based on the total capacity of the storage facilities and the computed storage requirement per ERU. The storage requirement per ERU was determined from the existing storage requirements presented previously in this chapter and the existing number of ERUs presented in **Chapter 4 – Water Demands**.

SYSTEM CAPACITY

A summary of the results of the existing system capacity analysis is shown in **Table 7.10, System Capacity**. The results of the 2021 system capacity analysis indicate that the system can support up to a maximum of approximately 605 ERUs. The limiting component is storage. Based on the projections presented in this analysis, the existing system also can meet the 20-year projected storage requirement however; there are areas with existing and future customers that could experience an improved level of service by building additional storage.

Table 7.10
System Capacity

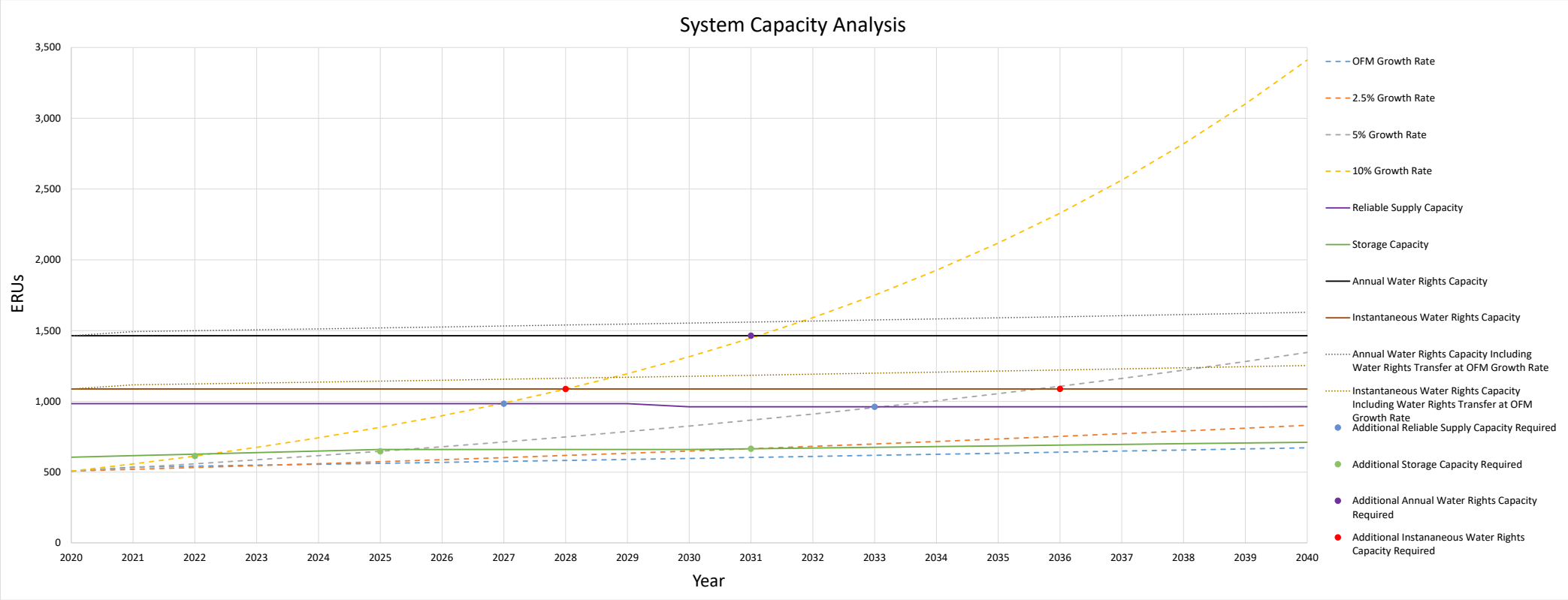
Demands per ERU Basis			
Average Day Demand per ERU (gpd/ERU)	405		
Maximum Day Demand per ERU (gpd/ERU)	1,194		
Peak Hour Demand per ERU (gpm/ERU)	1.730		
YEAR	**2021**	**2031**	**2041**
Reliable Supply Capacity			
Source Capacities (gpd)	1,140,000	1,140,000	1,140,000
Maximum Day Demand (gpd)	605,564	712,798	803,014
Maximum Supply Capacity (ERU)	984	962	963
Storage Capacity			
Maximum Storage Capacity (gal)	479,415	479,415	479,415
Storage Requirement per ERU (gal)[1]	792	727	674
Maximum Storage Capacity (ERU)	605	660	711
Annual Water Rights Capacity			
Annual Water Right Capacity (gpd)	592,482	592,482	592,482
Average Day Demand per ERU (gpd)	405	405	405
Maximum Annual Water Right Capacity (ERU)	1,464	1,464	1,464
Instantaneous Water Rights Capacity			
Instantaneous Water Right Capacity (gpd)	1,298,880	1,298,880	1,298,880
Maximum Day Demand per ERU (gpd)	1,194	1,194	1,194
Maximum Instantaneous Capacity (ERU)	1,088	1,088	1,088
Maximum System Capacity			
Based on Limiting Facility (ERU)	605	660	711
Available System Capacity			
Maximum System Capacity (ERU)	605	660	711
Customers (ERU)	536	604	681
Surplus or (Deficit) Capacity (ERU)	69	56	31

[1]Assumes nesting of standby storage and fire suppression storage.

The City's recent growth has inspired the City to further analyze its Urban Growth Area (UGA) and how its water system will be impacted by significant growth within its UGA and Water Service Area (WSA). The City growth rates analyzed for this capacity analysis are 1.2, 2.5, 5.0 and 10.0 percent as presented in **Chapter 3 – Land Use and Population**. The water demands

associated with the various growth rates were compared to the City's reliable supply, storage, annual water rights and instantaneous water rights capacity in **Chart 7.1 – System Capacity vs. Potential City Growth**.

Chart 7.1
System Capacity vs. Projected City Growth



Appendix N – Hydraulic Analysis includes a hydraulic analysis for the existing, 10-year and 20-year planning horizons. The improvements shown in Chapter 9 address deficiencies in reliable supply, storage and aging infrastructure past its useful life. Additional analyses and improvements should be completed to address all fire flow and pressure deficiencies.

8 | OPERATION AND MAINTENANCE

WATER SYSTEM MANAGEMENT AND PERSONNEL

The City of Rock Island's (City) Public Works Department operates the City's water system and is led by a Superintendent who is assisted as needed by maintenance staff. The Public Works Superintendent is charged with the day-to-day operational responsibilities of the water utility. Those responsibilities include preventive maintenance, field installation and repair judgments, water quality monitoring, and management of the City's cross-connection control program.

On issues requiring more formal notification or responses to the public or press, the Public Works Superintendent serves as a technical advisor to the City administration in formulating the appropriate responses/notifications to the public and press.

Utility billing for the system is accomplished through the field meter reading managed by the City.

OPERATOR CERTIFICATION

The City has a responsibility to comply with regulations established by the Washington State Department of Health (DOH) and chapter 246-292 of the Washington Administrative Code (WAC). This requires the City to employ the services of a Water Distribution Manager (WDM) who is in responsible charge of the daily operational activities of the system. This position is required to maintain the city's currency in the field by obtaining not less than 3 Continuing Education Units (CEUs) within a specified 3 year time frame. Common sources of that training include seminars put on by the American Water Works Association (AWWA) or Washington Education and Training Resources Center. Current water system certificate holders for the City are listed in **Table 8.1, Water System Certificate Holders**.

Table 8.1

Water System Certificate Holders

Operator Name	Operator Number	Position Number	Certification
Wyatt Long	014558	1	WDM 2

SYSTEM OPERATION AND CONTROL

SYSTEM COMPONENTS

The City's existing storage facilities, pump stations, and piping materials are included in **Figure 2.1 – Existing Water System.** The details regarding the water system components are documented as the treatment, distribution, and alarm indicators that operate as follows:

Treatment System: The system's wells, well nos. 2 and 5 are injected with chlorine at the wellhouse.

Distribution System: The levels of all the reservoirs in the distribution system are monitored by the supervisory control and data acquisition system (SCADA). The wells are controlled by the reservoir levels.

Alarm Indicators: Remote alarm indicators allow continuous monitoring and early detection of problems in the water supply system. The alarm indicator panels receive information from the City's reservoirs and pump stations. Alarms include reservoir high or low water and other pump facility alarms.

ROUTINE SYSTEM OPERATION AND PREVENTIVE MAINTENANCE

Routine maintenance activities help to preserve the value of the water system and to ensure that the utility can continue to operate in an efficient manner. In a water system, maintenance is essential to ensure that the system can fulfill the safety and health requirements of the customers.

The City conforms to all recommended maintenance tasks as published by equipment suppliers as a minimum standard for maintenance activities. Regular operational tasks for City staff are outlined in **Table 8.2, Routine Operations and Preventive Maintenance**.

Table 8.2

Routine Operations and Preventive Maintenance

Rock Island Routine Operations & Preventative Maintenance

System Component	Maintenance	Frequency
Pumps	Lubricate, inspect mechanical seals	Regularly
	Measure total suction and discharge heads	Annually
	Monitor temperature	Monthly
	Inspect pump bearings	Quarterly
Electric Motors	Lubricate, inspect motors	Regularly
	Inspect grease quantity, oil level in oil-lubricated bearings	As Required
	Check for excessive vibration and repair as necessary	Regularly
	Measure motor amp readings	Semi-Annually
	Run thermal imaging scan	As Required (every 4 to 5 years)
Water Mains	Flush	Recommended Annually
	Leak detection and repair	As Required (every 4 to 5 years)
Reservoirs	Inspect exterior components of the reservoirs, inspect for vandalism, record levels	Daily
	Inspect screens, vents, and hatch seals. Repair or replace screens and seals as needed.	Monthly
	Operate reservoir drain and run reservoir to overflow. Inspect tank interior. Clean and/or repaint interior and exterior as needed.	Annually
	Clean and inspect	As Required
Pumping Facilities	Inspect pump stations	Bi-Weekly
	Inspect condition of pump motors and lubricate as necessary. Replace pump oil. Inspect pump station buildings and piping. Repaint and repair as needed.	Annually
Distribution System Valves	Inspect valves for proper operation	Semi-Annually
Fire Hydrants	Inspect hydrants, exercise valves, and conduct flow testing	Annually (by Public Works)
Valves	Exercise	Annually
Blowoff Assemblies	Flush lines to remove stagnant water and debris	Bi-Annually
Air Valve	Inspect	Annually
Meters	Test and calibrate source meter	Every 5 Years
	Replace worn or defective meters (Approximately 10% every year)	Annually
Telemetry & Control Systems	Backup program and data	Daily
	Visually inspect cabinets and panels for damage, dust, and debris. Test alarm indicator units. Clean and flush all pressure sensitive devices.	Semi-Annually

STAFFING

The preventive maintenance procedures, as well as the normal and emergency operations of the utility, are described in the previous table. The hours of labor and supervisory activity required to effectively carry out the work of these on-going maintenance and operations schedules form the basis for determining adequate staffing levels.

CURRENT STAFF

The current staff includes, supervisory personnel, maintenance workers, and office personnel engaged in operating and maintaining the water system. There are currently two maintenance crew and one supervisor in the operations and maintenance organization that support the City's water system but are shared between the sewer and water department.

STAFFING REQUIREMENTS

The estimated hours of work required in order to achieve optimum operation and maintenance of the water system (excluding time required for clerical tasks) is shown in **Table 8.3 – Staffing Requirements**. The upper section of the table identifies the staffing time requirements for preventive maintenance tasks, and the lower section identifies the staffing time requirements for operations tasks.

At the current staffing level, the City is capable of adequately operating the water system and complying with the minimum requirements of DOH. However, the preventive maintenance tasks listed in **Table 8.3 – Staffing Requirements** have not been accomplished at the desired frequency shown in the table due to staff shortages. The City's Sewer and Water Departments currently share employees, and it is assumed that the employee hours are distributed evenly (approximately 50 percent) for each department. To achieve the level of operations and maintenance shown in **Table 8.3 – Staffing Requirements**, approximately four full-time personnel are required for the water system alone. Therefore, the City needs additional full-time employees for operation of the water system. As the system continues to age or expand, the need for additional staff will continue to grow.

Table 8.3
Staffing Requirements

Description	Total Units in System	Frequency (times per year)	Time/Unit (hours)	Time/Year (hours)
Preventive Maintenance				
Hydrants	60	1	0.5	30
Isolation Valves, Hydrant Valves	165	1	0.25	41
Air and Vacuum Release Valves	4	1	0.5	2
Blow-Off Assemblies	4	1	0.25	1
Connections	399	0.1	2	80
Leak Survey of Water Mains	8 miles	0.1	4	3
Flushing Water Mains	8 miles	0.2	20	34
Booster Pump Stations	2	52	1	104
Reservoirs	2	52	1	104
Telemetry and Control System	1	1	40	40
Operations				
Pump Stations Repairs	2	1	8	16
False Alarm Response	1	12	2	24
Meter Reading	399	12	0.5	2,394
Groundskeeping	3	12	4	144
Inventory	1	1	40	40
Meter Repair and Replacement	20	1	4	80
Main Breaks	1	2	16	32
System Failures	1	2	8	16
Hydrant Repairs	5	1	8	40
Service Connections	1	10	8	80
Main Connections	1	5	16	80
Water Quality Sampling	18	12	1	216
Administration	1	260	8	2,080
Total Requirements				
Total Hours Required				**5,681**
Total Full-Time Staff Required (based on 1,540 hours per year, per person)				**4**
Time Available Per Year, Per Person				
Beginning Hours Available				2,080
Less average vacation of 3 weeks per year				-120
Less average sick leave of 2 weeks per year				-80
Less holidays of 10 days per year				-80
Less average training of 40 hours per year				-40
Less average small tasks other than above of 1 hour per day				-220
Net Total Available Hours Per Year, Per Person				**1,540**

EQUIPMENT, SUPPLIES, AND CHEMICAL LISTING

The City utilizes the supplies included in **Table 8.4 Operation and Maintenance Equipment,** to perform routine operation and maintenance of the water system.

Table 8.4
Operation and Maintenance Equipment

Equipment
Water main, ductile iron, 4-, 6-, 8-, 10-, 12-, and 16-inch
Pipe fittings and couplings, 4-, 6-, 8-, 10-, 12-, and 16-inch
Tapping tees, 4-, 6-, 8-, 10-, 12-, and 16-inch
Repair clamps, all sizes
Service pipe, copper, 3/4-, 1-, 1-1/2-, and 2-inch
Service meters, 3/4-, 1-, 1-1/2-, and 2-inch
Miscellaneous fittings and valves
Spare parts
Fire hydrants and valves
Tapping tool
Van with welder, parts bins, and power take-off

COMPREHENSIVE MONITORING PLAN

The City conducts regular water quality testing to ensure that a safe product is being distributed to its customers in conformance with DOH regulations. A copy of the City's *Coliform Monitoring Plan* has been included in **Appendix M – Water Quality Monitoring Plan**. Further details regarding water quality monitoring requirements have been included in **Chapter 6 – Water Source and Quality**.

EMERGENCY RESPONSE PROGRAM

Utility emergency planning can be defined as the activities that prepare a utility to respond to an emergency situation. Emergencies can be small or large with respect to their effects on utility operations and service.

Many utilities cope with smaller scale or routine emergency situations frequently, perhaps weekly or daily. Larger scale, or "disaster emergency," situations occur far less frequently, but many aspects or effects of a disaster manifest themselves in the same way as the routine emergencies. In many respects, a disaster can be thought of as the simultaneous occurrence of many smaller scale emergencies. If a utility is well prepared to handle the routine emergencies, then they will be better prepared to handle the more serious ones as well.

PRIORITY SERVICES LIST

In certain instances, particularly during an emergency, it is not possible to provide advanced notice of a water shutdown. However, there are certain water customers that must be notified in the event of a disruption of service. Critical among these in the City are kidney dialysis patients. A current list of customers with dialysis machines requiring an uninterrupted supply of water must be maintained. The list must be updated regularly by the City. Customers on the priority list are notified prior to an emergency shutdown of water service.

AFTER HOURS EMERGENCY CALLOUT

It is important the City has personnel available in case of an emergency. A list of contacts and agencies available in an emergency situation can be found in the City's **Appendix J, Water System Emergency Response Plan**. An emergency call list has been provided in **Table 8.6, Emergency Call List**.

Table 8.5
Emergency Call List

City Key Personnel	Position
Randy Agnew	Mayor
James Zumini	Clerk/Treasurer
Wyatt Long	Public Works Supervisor

In the event of a major disaster:

a. All staff should report to City Hall upon learning of the disaster;

b. During the ensuing survey of the system's facilities for damage, use of the radio should be kept to a minimum and limited to the transmitting of important information;

c. Upon a request to clear the air, all operators should standby for emergency instructions;

d. All contact with the media should be through the Mayor only. This is critical as it will minimize the amount of misinformation that typically accompanies such events; and

e. It is important to stick to the task at hand until the damage to the system has been evaluated and City staff have declared that the water system emergency status has been terminated. The damage to the water system must be evaluated to prevent, where possible, loss of life, bodily injury, property damage, and contamination as a result of the damage to water system facilities. All City and King County forces will be overburdened at such times, but it is not the role of the City personnel to assist Police, Fire, or other personnel unless directed to do so or until released from the emergency work associated with the water system facilities.

EMERGENCY RESPONSE PLAN

In addition to the City's *Emergency Response Plan*, emergency responses for the wells, reservoirs, and distribution system have been identified for the following emergencies: power failure; severe earthquake; severe snowstorm; and contamination of water supply.

Power Failure

Various types of weather can cause loss of power (i.e., wind, lightning, freezing rain, and freezing snowstorm). Power is provided by the Douglas County Public Utility District. **Table 8.6 Power Failure Emergency Response**, summarizes action recommendations for a power failure event.

Table 8.6
Power Failure Emergency Response

System Component	Action
Pumps: Electric pump will shut off and system will automatically switch to backup power	Verify backup power is available and working.
Reservoirs: Water level may fall if system demand exceeds supply	Check reservoir level and notify customers to curtail water use if reservoir level continues to drop – increase pumping.
Distribution System: Pressure will drop if reservoir level drops	Continuously monitor reservoir level, implement water restrictions if needed.

Severe Earthquake

Although severe earthquakes are rare, the City may be vulnerable if facilities are damaged. The City should obtain the ability to procure trucked-in water. **Table 8.7 Severe Earthquake Emergency Response**, summarizes action recommendations for a severe earthquake event.

Table 8.7
Severe Earthquake Emergency Response

System Component	Action
Pumps: Structural damage may have occurred and/or mechanical damage to pumps or piping may have occurred	Check pumps and mechanical piping.
Reservoirs: Reservoir may be leaking or structurally damaged	Check reservoir for structural damage and drain if necessary.
	Check reservoir for cracks and leaks and seal or drain as required.
	Bypass reservoir and run system from pumps only.
Distribution System: Distribution and transmission mains may be broken	Isolate broken sections and repair.

Severe Snowstorm

In a severe snowstorm, heavy snowfall will bring motor vehicle traffic to a standstill, employees will not be able to reach the problem area, and power outages may occur. Water supply should not be interrupted. **Table 8.8 Severe Snowstorm Emergency Response**, summarizes action recommendations for a severe snowstorm event.

Table 8.8
Severe Snowstorm Emergency Response

System Component	Action
Pumps	No immediate effect – snow may prevent access. Clear snow from access roads.
Reservoirs	No immediate effect – snow may prevent access. Clear snow from access roads.
Distribution System	Transportation for City crew to monitor system and to make repairs will be limited. City crews will plow important streets – contact State Highway Department to expedite plowing to any problem area under their jurisdiction. Have chains or other snow gear in readiness for maintenance equipment. Valve location maps should be made available for maintenance personnel and should be kept current. Clear snow from fire hydrants.

Contamination of Water Supply

Contamination of the water supply might occur due to main breaks or pollution from an isolated source. Redundant source capacity and the ability to isolate the reservoirs helps to reduce the City's vulnerability; however, due to the topography of the water service area and the distribution network, it may be very difficult to maintain a desired level of service if a pump station or a reservoir in the upper pressure zones needs to be isolated. **Table 8.9 Contamination of Water Supply Emergency Response**, summarizes action recommendations for a contamination of the water supply event.

Table 8.9
Contamination of Water Supply Emergency Response

System Component	Action
Reservoirs: Chlorinate	Isolate contaminated reservoir from system and decide method of disinfection.
	Inspect vent screens, hatches, and piping to try and identify the source of contamination.
	If reservoir water is considered unsuitable for consumption due to stagnation, etc., consider draining, cleaning, and disinfecting reservoir.
	If water surface needs skimming, consider overflow reservoir and then disinfect contents.
	Disinfect reservoir with chlorine as required by AWWA standards – take bacteriological samples and return reservoir to service when results are satisfactory.
Distribution System: Isolate source of contamination	Close valves as required to isolate source of contamination. Repair and/or otherwise remove source of pollution.
	Flush previously contaminated section and test until free of contamination prior to resumption of use.

SAFETY PROCEDURES

Safety is the highest concern and responsibility of all water operations and maintenance staff. First aid kits are available at all Public Works buildings and in each maintenance vehicle. **Table 8.10 Safety Procedures,** identifies safety procedures to be followed for operations and maintenance tasks that are associated with the City's water system.

Table 8.10
Safety Procedures

Hazardous Condition	Safety Procedure
Use of Chlorine and Chlorine Products	Handle with care, provide adequate ventilation, and wear safety glasses and rubber gloves. Detailed handling procedures are found in the respective Material Safety Data Sheets (MSDS).
Use of Sodium Hydroxide	Handle with care, provide adequate ventilation, wear safety goggles, apron, and rubber gloves. Keep container tightly closed, store in a dry, corrosion-proof area. Never return contaminated material to its original container. Immediately contact the chemical supplier / manufacturer for handling instructions if drums of caustic soda appear to be swollen. Detailed handling procedures are found in the respective MSDS.
Working in Confined Spaces	Follow State requirements for confined space entry.
Working Around Heavy Equipment	Obtain proper training and follow all safety procedures. Use noise protection equipment.
Working in Traffic Areas	Wear proper clothing and provide adequate signage and flagging for work area. Refer to the Manual of Uniform Traffic Control Devices (MUTCD) for current requirements.
Working on or Around Water Reservoirs	Follow proper safety harness procedures for working on tall structures.
Working in or Around Pump Stations	Obtain proper training and follow all safety procedures for working on pumps and electrical equipment. Use noise protection equipment.
Working on Asbestos Cement (AC) Water Main	Obtain proper training and follow all safety procedures for working with asbestos materials.

CROSS-CONNECTION CONTROL PROGRAM

The City has developed a Cross-Connection Control policy to prevent contamination of the City's water supply. A copy of the *City's Cross-Connection Control Program* has been included in **Appendix O – Cross-Connection Control Standards**.

RECORDKEEPING AND REPORTING

Records and reports maintained by the City are shown in **Table 8.11 Rock Island – Recordkeeping Procedures.**

Table 8.11

Rock Island – Recordkeeping Procedures

Record	Comments
Reservoir Levels and Pump Status	Maintained at WWTP
Water Facilities Inventory Report	Submitted annually to DOH
Customer Concerns	Maintained at Public Works (City Hall)
Cross-Connection Control Annual Summary Report	Submitted Annually to DOH
Consumer Confidence Report	Submitted Annually to DOH
Annual Water Use Efficiency Report	Submitted Annually to DOH
Sanitary Survey	Maintained at Public Works (City Hall)

9 | WATER SYSTEM IMPROVEMENTS

Tee and Valve Cluster

INTRODUCTION

This chapter presents proposed improvements to the City of Rock Island's (City) water system that are necessary to resolve existing system deficiencies. It also gives an overview of major projects that may be necessary to accommodate the City's projected growth of water customers.

Water system improvements were identified from an evaluation of the results of the water system analyses presented in **Chapter 7 – Water System Analysis**. Where applicable, the water system improvements were sized to meet both the existing and future demand conditions of the system.

A Capital Improvement Program (CIP) number has been assigned to each improvement in this Water System Plan (WSP). The locations of major water system improvements are shown in **Figure 9.1, Proposed Water System Improvements**. The improvements also are illustrated in the hydraulic profile of the future water system, which is shown in **Figure 9.2, Proposed Hydraulic Profile**. The improvements that are presented in this chapter are relating to the following categories.

- Water Main Improvements
- Supply Improvements
- Storage Improvements
- Facility Improvements

- System-Wide Improvements

The remainder of this chapter presents a brief description of each group of improvements, the criteria for prioritizing improvements, the schedule for implementation, and the basis for the cost estimates.

IDENTIFYING AND PRIORITIZING IMPROVEMENTS

This chapter presents the proposed projects and schedule for the City's 10-year CIP in accordance with the requirements of Washington Administrative Code (WAC) 246-290-100.

The projects were selected to address existing deficiencies and expected growth within the water system customer base. In identifying projects, this WSP looked at the supply system, storage requirements, and transmission and distribution needs. The projects were evaluated considering health standards, land use, supply requirements, system reliability, capital investment requirements, consistency with regional plans, and environmental impacts, among others.

Projects were selected for inclusion in the program based on the following criteria:

1. **Growth-Related Projects (Existing System)** – These are proposed projects to upsize and improve portions of the existing system that will not be able to adequately serve the system with the anticipated growth.
2. **System Improvements** – These projects are included to address existing system deficiencies, such as inabilities to meet minimum fire flow requirements. These projects include upsized lines and system looping improvements.
3. **Small Line Replacements** – These projects have been included to replace all water mains that are 4 inches and smaller.
4. **Asbestos Cement Line Replacements** – These projects have been included to remove all asbestos cement (AC) water mains and replace them with ductile iron materials.

FUNDING SOURCES

Three major funding sources have been identified for funding the proposed improvement projects: 1) system development charges; 2) commodity rates; and 3) grants.

System development charges have been identified as a funding source for projects that are to be funded outright by developments as extensions to the system. Commodity rates and grants have been identified as a funding source for projects that address existing system deficiencies.

Additional discussion regarding the funding of improvements is included in **Chapter 10 – Financial Analysis**.

PROPOSED IMPROVEMENTS

This section provides general descriptions of the 10-year capital improvement projects and an overview of the deficiencies they will resolve. Several of the improvements are necessary to resolve existing system deficiencies. However, several improvements have been identified to illustrate the major facilities that will be required as development occurs. Additional

developer-funded projects include localized, on-site water main improvements that are not associated with overall water distribution but are necessary when the property served by the water main is redeveloped or expanded. The costs associated with these improvements shall be borne by the developers, rather than the existing water customers.

CIP No. W1 – Financial Rate Study

This project includes an evaluation of the City's water rates. This will improve the City's ability to finance future maintenance and growth-related projects.

CIP No. W2 – Exploratory Well Drilling

Perform pilot studies and determine an appropriate location for a new production well.

CIP No. W3 – Well Drilling and Construction

This project is intended for drilling and construction of a new wellhouse. The location and size of the well will be better established following CIP No. W8.

CIP No. W4 – Water Blending Study

As the City continues to grow, it will need to evaluate additional redundant and reliable sources of supply that include an intertie with an adjacent and willing water purveyor. This project will provide a framework for evaluating the water quality impacts related to an intertie connection with another water system.

CIP No. W5 – Review Water Right Beneficial Use

A recent water right change application completed by the City was approved by Ecology with the requirement of providing information on the development schedule of the water rights use after allowing new construction to take place. Ecology modified the development schedule to allow for 10 years to complete construction of the homes on the former orchard property and 2 years following completion to show full beneficial use.

CIP No. W6 – Evaluate Raising Existing Hydraulic Grade Line

The City will evaluate the benefit of raising the overflow and hydraulic grade line of the existing tank and/or pressure zone. This would solve existing pressure and fire flow deficiencies and could also provide improved service areas for future development as it occurs. However, the exact change in system pressures must be analyzed to determine the need for service pressure reducing valves.

CIP No. W7 – Water System Plan Update

In the 10- to 20-year horizon, the City will be required to update its water system plan to meet any new regulations and accommodate new development.

CIP No. W8 – EWWD Intertie Design and Construction

This project completes the design and construction of an intertie with the East Wenatchee Water District (EWWD). This would include a watermain along Batterman Road and a pressure reducing facility.

CIP No. W9 – SCADA and Telemetry Improvements

This project is for upgrading the supervisory control and data acquisition (SCADA) system, which will improve the efficiency of day-to-day operations.

CIP No. A1 – Annual Replacement Program

This project provides for the replacement of small diameter (4 inch), undersized and deteriorating water main, as well as AC piping.

CIP No. A2 – Leak Detection Program

Over the past couple of years, distribution system leakage has increased from 4 percent to 18 percent. The City needs to identify and prioritize areas of interest as some of the distribution system components are aging and in possible need of repair or replacement.

CIP No. A3 – Hydrant Coverage and Replacement Program

The City has old leaky hydrants that are in need replacing. In addition, due to the age of some downtown areas the City would benefit from installing hydrants at locations that may need fire protection where it is not currently provided. The City's municipal code requires hydrant installation every 300 feet for commercial and every 350 feet for residential development.

CIP No. DE1 – Center Street to Douglas Street

This project is intended to improve the available fire flow in a developing area of the City. Some of the water main may already be constructed by a private developer.

CIP No. DE2 – West Water System Expansion

This project will expand the City's water system west towards the city of East Wenatchee. Existing and new customers will benefit by having the ability to connect to the City's water system. Additionally, more reliable fire flow will become available in areas that currently have fire flow deficiencies.

CIP No. DE3 – South Water System Expansion

This project will expand the City's water system south towards the Columbia River. Existing and new customers will benefit by having the ability to connect to the City's water system. Additionally, more reliable fire flow will become available in areas that currently have fire flow deficiencies.

CIP No. DE4 – Reservoir, PRV, BPS, and Upper Pressure Zone Infrastructure

This project completes the design and construction that would support growth north and east of the City's existing City limits. This would include an evaluation for property acquisition and capacity of the related facilities.

CIP No. DE5 – Waterfront Improvements

This project completes the design and construction that would support growth further south towards the Columbia River. This project includes installation of new watermain and system storage by either building a new tank or upsizing the proposed 0.45 MG tank to meet the additional demands required by the development.

The proposed improvements are presented in **Table 9.1, Proposed CIP**.

Table 9.1
Proposed CIP

CIP No.	Description	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	10-20 Year [1]
	Water Main, Supply, System, and Facility Improvements											
W1	Financial Rate Study	$ 45,000										
W2	Exploratory Well Drilling		$ 125,000	$ 125,000								
W3	Wellhouse Facility Design and Construction					$ 200,000	$ 800,000					
W4	Water Blending Study								$ 40,000			
W5	Review Water Right Beneficial Use									$ 20,000		
W6	Evaluate Raising Existing Hydraulic Grade Line											$ 30,000
W7	Water System Plan Update											$ 200,000
W8	EWWD Intertie Design and Construction											$ 3,915,000
W9	SCADA and Telemetry Improvements											$ 500,000
	YEARLY TOTALS[3]	**$ 45,000**	**$ 125,000**	**$ 125,000**	**$ -**	**$ 200,000**	**$ 800,000**	**$ -**	**$ 40,000**	**$ 20,000**	**$ -**	**$ 4,645,000**
	Annual Programs											
A1	Annual Replacement Program	$ 90,000	$ 90,000	$ 90,000	$ 90,000	$ 90,000	$ 90,000	$ 90,000	$ 90,000	$ 90,000	$ 90,000	--
A2[2]	Leak Detection Program	$ 10,000	$ 50,000	$ 50,000	--	--	--	--	--	--	--	--
A3	Hydrant Coverage and Replacement Program	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	--
	Subtotal Annual Programs Cost	**$ 120,000**	**$ 115,000**	**$ 115,000**	**$ 65,000**	**$ 65,000**	**$ 65,000**	**$ 65,000**	**$ 65,000**	**$ 65,000**	**$ 65,000**	--
	YEARLY TOTALS[3]	**$ 170,000**	**$ 250,000**	**$ 260,000**	**$ 70,000**	**$ 310,000**	**$ 1,040,000**	**$ 80,000**	**$ 130,000**	**$ 90,000**	**$ 90,000**	--
	Extension Projects											
DE1	Center St to Douglas Street Water Main		$ 850,000									
DE2	West Water System Expansion					$ 2,748,000						
DE3	South Water System Expansion						$ 3,025,000					
DE4	Tank, PRV, BPS and Upper Pressure Zone Infrastructure											$ 10,000,000
DE5	Riverfront Improvements											$ 1,200,000
	YEARLY TOTALS[3]	**$ -**	**$ 850,000**	**$ -**	**$ -**	**$ 2,748,000**	**$ 3,025,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 11,200,000**

[1] The annual programs were not extended to the 10 to 20 year horizon. The need for the annual projects to continue past the 10 year horizon should be assessed at a later date.

[2] The leak detection program includes a survey of the water system and minor piping repairs following reporting and idenfication of necessary repairs.

[3] The estimated cost is in 2022 dollars and includes 4-percent annual inflation.

Planning, prioritizing, scheduling, and funding capital improvements for the next 10 years after the 10-year CIP projects have been completed is more speculative, and many adjustments and additions to the 10-20 year CIP are to be expected.

ESTIMATING COSTS OF IMPROVEMENTS

Project costs for the proposed improvements were estimated based on costs of similar, recently constructed water projects in the City and around the Eastern Washington area and are presented in 2022 dollars. The cost estimates include the estimated construction cost of the improvement and indirect costs related to construction cost for engineering preliminary design, final design, construction management and contract administration services, permitting, legal, and administrative services.

The unit costs for each water main size are based on estimates of all construction-related improvements, such as materials and labor for the water main installation, water services, fire hydrants, fittings, valves, connections to the existing system, trench restoration, asphalt surface restoration, and other work necessary for a complete installation. Additional costs were added to some water main improvements to cover anticipated increased costs related to the project location and degree of difficulty.

All cost estimates shown in the table are presented in year 2022 dollars. Therefore, it is recommended that future costs be adjusted to account for the effects of inflation and changing construction market conditions at the actual time of project implementation. Future costs can be estimated using the Engineering News Record Construction Cost Index for the area, or by applying an estimated rate of inflation that reflects the current and anticipated future market conditions.

Appendix A

Water Facilities Inventory (WFI) Form

WATER FACILITIES INVENTORY (WFI) FORM

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

ONE FORM PER SYSTEM

Quarter: 2
Updated: 07/28/2021

Printed: 8/19/2021
WFI Printed For: On-Demand
Submission Reason: Source Update

RETURN TO: Central Services - WFI, PO Box 47822, Olympia, WA, 98504-7822

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
73401 E	ROCK ISLAND WATER DEPT CITY OF	DOUGLAS	A	Comm

6. PRIMARY CONTACT NAME & MAILING ADDRESS

WYATT H. LONG
PO BOX 99
ROCK ISLAND, WA 98850

7. OWNER NAME & MAILING ADDRESS

ROCK ISLAND, CITY OF
RANDY AGNEW
PO BOX 99
ROCK ISLAND, WA 98850-0099

MAYOR

STREET ADDRESS IF DIFFERENT FROM ABOVE

ATTN
ADDRESS 5 N GARDEN
CITY ROCK ISLAND STATE WA ZIP 98850

STREET ADDRESS IF DIFFERENT FROM ABOVE

ATTN
ADDRESS 5 N GARDEN ST
CITY ROCK ISLAND STATE WA ZIP 98850

9. 24 HOUR PRIMARY CONTACT INFORMATION		10. OWNER CONTACT INFORMATION	
Primary Contact Daytime Phone:	(509) 884-1261	Owner Daytime Phone:	(509) 884-1261
Primary Contact Mobile/Cell Phone:	(509) 860-3521	Owner Mobile/Cell Phone:	(509) 679-7557
Primary Contact Evening Phone:	(xxx)-xxx-xxxx	Owner Evening Phone:	(xxx)-xxx-xxxx
Fax:	E-mail: xxxxxxxxxxxxxxxxxxxx	Fax: (509) 886-0569	E-mail: xxxxxxxxxxxxxxxxxxxx

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

- [x] Not applicable (Skip to #12)
- [ ] Owned and Managed
- [ ] Managed Only
- [ ] Owned Only

SMA NAME: _____ SMA Number:

12. WATER SYSTEM CHARACTERISTICS (mark all that apply)

- [ ] Agricultural
- [ ] Commercial / Business
- [ ] Day Care
- [x] Food Service/Food Permit
- [ ] 1,000 or more person event for 2 or more days per year
- [ ] Hospital/Clinic
- [ ] Industrial
- [ ] Licensed Residential Facility
- [ ] 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 FIELD	SPRING	SPRING FIELD	SPRING IN SPRINGFIELD	SEA WATER	SURFACE WATER	RANNEY / INF. GALLERY	OTHER	PERMANENT	SEASONAL	EMERGENCY	SOURCE METERED	NONE	CHLORINATION	FILTRATION	FLUORIDATION	IRRADIATION (UV)	OTHER	DEPTH TO FIRST OPEN TERVAL IN FEET	CAPACITY (GALLONS PER MINUTE)	1/4, 1/4 SECTION	SECTION NUMBER	TOWNSHIP	RANGE
S02	Well #2 - ABR438		X										X			Y		X					120	250	NW NW	25	22N	21E
S03	Well #3 - ABS153		X												X	Y		X					77	500	SE SE	23	22N	21E
S04	Well #5 - BBL430		X										X			Y		X					73	700	NW NW	30	22N	22E

WATER FACILITIES INVENTORY (WFI) FORM - Continued

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
73401 E	ROCK ISLAND WATER DEPT CITY OF	DOUGLAS	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?)		359	430
A. Full Time Single Family Residences (Occupied 180 days or more per year)	359		
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.	23	23	0
28. TOTAL SERVICE CONNECTIONS		382	430

29. FULL-TIME RESIDENTIAL POPULATION

A. How many residents are served by this system 180 or more days per year? 945

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?	10000	10000	10000	27250	27250	27250	27250	27250	27250	27250	27250	10000
B. How many days per month is water accessible to the public?	31	28	31	30	31	30	31	31	30	31	30	31

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 that are NOT alrealy included in the residential population?	338	338	338	338	338	3	3	3	338	338	338	338
B. How many days per month are they present?	20	20	20	20	20	20	20	20	20	20	20	20

33. ROUTINE COLIFORM SCHEDULE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	2	2	2	2	2	2	2	2	2	2	2	2

34. NITRATE SCHEDULE	QUARTERLY	ANNUALLY	ONCE EVERY 3 YEARS
(One Sample per source by time period)			

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: _____

WS ID	WS Name
73401	Rock Island Water Dept City of

Total WFI Printed: 1

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

Water Facilities Inventory (WFI)

Report Create Date:	8/19/2021		
Water System Id(s):	73401E		
Print Data on Distribution Page:	ALL		
Print Copies For:	DOH Copy		
Water System Name:	ALL		
County:	-- Any --		
Region:	ALL		
Group:	ALL		
Type:	ALL		
Permit Renewal Quarter:	ALL		
Water System Is New:	ALL		
Water System Status:	ALL		
Water Status Date From:	ALL	To	ALL
Water System Update Date	ALL	To	ALL
Owner Number:	ALL		
SMA Number:	ALL		
SMA Name:	ALL		
Active Connection Count From:	ALL	To:	ALL
Approved Connection Count	ALL	To:	ALL
Full-Time Population From:	ALL	To:	ALL
Water System Expanding	ALL		
Source Type:	ALL		
Source Use:	ALL		
WFI Printed For:	On-Demand		

Appendix B

Adjacent Purveyors and Agency Review Comments

Appendix C

DOH Checklists and Correspondence

Local Government Consistency Determination Form

Water System Name: City of Rock Island PWS ID: 73401E

Planning/Engineering Document Title: Water System Plan Plan Date: 2022

Local Government with Jurisdiction Conducting Review: City of Rock Island

Before the Department of Health (DOH) approves a planning or engineering submittal under Section 100 or Section 110, the local government must review the documentation the municipal water supplier provides to prove the submittal is consistent with **local comprehensive plans, land use plans and development regulations** (WAC 246-290-108). Submittals under Section 105 require a local consistency determination if the municipal water supplier requests a water right place-of-use expansion. The review must address the elements identified below as they relate to water service.

By signing this form, the local government reviewer confirms the document under review is consistent with applicable local plans and regulations. If the local government reviewer identifies an inconsistency, he or she should include the citation from the applicable comprehensive plan or development regulation and explain how to resolve the inconsistency, or confirm that the inconsistency is not applicable by marking N/A. See more instructions on reverse.

	For use by water system	For use by local government
Local Government Consistency Statement	**Identify the page(s) in submittal**	**Yes or Not Applicable**
a) The water system service area is consistent with the adopted land use and zoning within the service area.	Figure 3.1	Yes
b) The growth projection used to forecast water demand is consistent with the adopted city or county's population growth projections. If a different growth projection is used, provide an explanation of the alternative growth projection and methodology.	Chapter 3	Yes
c) For cities and towns that provide water service: All water service area policies of the city or town described in the plan conform to all relevant utility service extension ordinances.	Appendix E	Yes
d) Service area policies for new service connections conform to the adopted local plans and adopted development regulations of all cities and counties with jurisdiction over the service area.	Appendix E	Yes
e) Other relevant elements related to water supply are addressed in the water system plan, if applicable. This may include Coordinated Water System Plans, Regional Wastewater Plans, Reclaimed Water Plans, Groundwater Management Area Plans, and the Capital Facilities Element of local comprehensive plans.	N/A	Not Applicable

I certify that the above statements are true to the best of my knowledge and that these specific elements are consistent with adopted local plans and development regulations.

Signature Date

Printed Name, Title, & Jurisdiction

Consistency Review Guidance

For Use by Local Governments and Municipal Water Suppliers

This checklist may be used to meet the requirements of WAC 246-290-108. When using an alternative format, it must describe all of the elements; 1a), b), c), d), and e), when they apply.

For **water system plans (WSP)**, a consistency review is required for the service area and any additional areas where a municipal water supplier wants to expand its water right's place of use.

For **small water system management programs**, a consistency review is only required for areas where a municipal water supplier wants to expand its water right's place-of-use. If no water right place-of-use expansion is requested, a consistency review is not required.

For **engineering documents,** a consistency review is required for areas where a municipal water supplier wants to expand its water right's place-of-use (water system plan amendment is required). For noncommunity water systems, a consistency review is required when requesting a place-of-use expansion. All engineering documents must be submitted with a service area map (WAC 246-290-110(4)(b)(ii)).

A) Documenting Consistency: The planning or engineering document must include the following when applicable.

a) A copy of the adopted **land use/zoning** map corresponding to the service area. The uses provided in the WSP should be consistent with the adopted land use/zoning map. Include any other portions of comprehensive plans or development regulations that relate to water supply planning.

b) A copy of the **growth projections** that correspond to the service area. If the local population growth projections are not used, explain in detail why the chosen projections more accurately describe the expected growth rate. Explain how it is consistent with the adopted land use.

c) Include water service area policies and show that they are consistent with the **utility service extension ordinances** within the city or town boundaries. *This applies to cities and towns only.*

d) All **service area policies** for how new water service will be provided to new customers.

e) **Other relevant elements** the Department of Health determines are related to water supply planning. See Local Government Consistency – Other Relevant Elements, Policy B.07, September 2009.

B) Documenting an Inconsistency: Please document the inconsistency, include the citation from the comprehensive plan or development regulation, and explain how to resolve the inconsistency.

C) Documenting a Lack of Local Review for Consistency: Where the local government with jurisdiction did not provide a consistency review, document efforts made and the amount of time provided to the local government for review. Please include: name of contact, date, and efforts made (letters, phone calls, and emails). To self-certify, please contact the DOH Planner.

Appendix D

Douglas County Fire Flow Requirements for Rock Island

Douglas County Fire District No. 2

* COMMISSIONERS: Ettore Castellente, Dave Fennell, Danny Johnson

377 Eastmont Avenue * East Wenatchee WA 98802 * (509) 884-6671 * Email: admin@douglasfire2.org

February 14, 2022

RH2 Engineering
C/O Jarod Ribail
1201 Pacific Avenue, Suite 1750
Tacoma, WA 98402

Subject: Fire flow storage requirements for the Town of Rock Island.

To Whom It May Concern:

The largest forecasted commercial structure within the Rock Island town limits is the Rock Island Silicon Smelter. While the structure currently lies abandoned and in a state of deterioration, an investment group working with the Douglas County Port District has been considering the revitalization of this site and existing structure.

The silica smelter's primary storage building is estimated at approximately 50,000 square feet. Assuming Type II-B / III-B Construction, a fire flow of 4750 Gallons per minute for a duration of 4 hours would be initially required. However, with the required NFPA 13 sprinkler protection, a 75% reduction of required fire flow would bring us to the minimum 1500 gallons per minute for four hours—requiring a total of 360,000 gallons of required storage.

However, please consider the following. If a 11,999 square foot structure is constructed utilizing Type V construction with *no* sprinklers, the fire flow requirement would be 3000 gallons per minute for a 3-hour duration. *This would require 540,000 total gallons of fire flow storage*. It is this figure that I would prefer to use for the overall storage requirement.

Nested storage of municipal water resources is hereby authorized and encouraged *provided* that all 540,000 gallons are available 24/7/365 at a minimum of 20 psi of delivery.

If you have any questions, please feel free to contact me.

Sincerely,

Kurt W. Blanchard
Assistant Chief / Fire Marshal

Appendix E

Water System Ordinances

ORDINANCE NO. 98-013

AN ORDINANCE OF THE CITY OF ROCK ISLAND, WASHINGTON, ESTABLISHING UTILITY DISCOUNTS FOR LOW INCOME SENIOR CITIZENS AND DISABLED PERSONS, CONTAINING A SEVERABILITY PROVISION AND SETTING AN EFFECTIVE DATE.

THE CITY COUNCIL OF THE CITY OF ROCK ISLAND, WASHINGTON, DO ORDAIN AS FOLLOWS:

Section 1: A new chapter is hereby added to the Rock Island Municipal Code to read as follows:

Chapter 8.34

RATES FOR LOW INCOME SENIOR AND LOW INCOME DISABLED

_____.010 Purpose and Findings The City Council of the City of Rock Island finds that it is appropriate for the City of Rock Island to establish reduced rates for utilities including garbage collection and water provided by the City or its Contractor to low-income senior and low-income disabled residents of the City.

_____.020 Definitions.

A. "Senior citizen" means a person who:
   1. Resides within the City of Rock Island;
   2. Is sixty-two years of age or older;
   3. Receives utility services from the City of Rock Island; and
   4. Is the head of a household.

B. "Disabled citizen" means a person who:
   1. Resides within the City of Rock Island;
   2. Receives utility services from the City of Rock Island;
   3. Is the head of a household, and
   4. Qualifies for special parking privileges under RCW 46.16.381(1)(a) through (f), or a blind person as defined in RCW 74.18.020, or a person who qualifies for supplemental social security benefits due to a disability.

C. "Low-income" is defined as follows:

1. Every single person whose combined disposable income as defined in RCW 84.36.383(5), as it now exists or is hereafter amended, is less than the qualifying amount set forth in RCW 84.36.381(5)(b)(ii), as it now exists or is hereafter amended.

2. Every married couple, constituting a marital community, and whose combined disposable income as defined in RCW 84.36.383(5), as it now exists or is hereafter amended, is less than the qualifying amount set forth in RCW 84.36.381(5)(a), as it now exists or is hereafter amended.

_____.030 Rate Reduction-Applicable.

A. A utility rate reduction shall be applied to the residential garbage collection bills and water bills of qualified low-income senior citizens and low-income disabled citizens, in accordance with the terms of this Chapter.

B. The amount of the utility rate reduction for garbage and refuse collection, including any adjustments to said rate, shall be as established by City Ordinance and is subject to amendment by future City Ordinances. The utility rate reduction for garbage and refuse collection as of the date of passage of the Ordinance codifying this Chapter is set forth in City Ordinance 98-012

C. The amount of the utility rate reduction for water, including any adjustments to said rate, shall be as established by City resolution and is subject to amendment by future City resolutions.

_____.040 Application for Reduced Rate.

A. Applications for utility discounts shall be obtained from and filed with the City Clerk, or his or her designee. The application shall be on a form prescribed by the City Clerk, and shall contain the information necessary to evaluate the applicant's qualification for reduced utility rates.

B. Submission of an application for a utility discount shall constitute a verification by the applicant that all information provided in such application is true and correct to the best of the applicant's knowledge.

C. Once approved by the City Clerk, the application shall become effective the next billing cycle following 30 days after approval of the application.

D. Each application is effective for 12 months commencing the first month the reduced rate becomes effective for the applicant. It shall be the sole responsibility of the

applicant to re-apply for successive twelve month periods of eligibility for reduced utility rates.

_____.050 Penalty for False Information. Any individual wilfully providing false information to the City in an application for reduced utility rates shall forfeit the low-income senior or disabled citizen's eligibility for future reductions in utility rates. Additionally, the low-income senior or disabled citizen shall be required to repay the amount of any utility discount received based upon such false information, together with interest at the rate of eighteen percent (18%) per annum until repaid in full.

Section 2. If any section, sentence, clause or phrase in this Ordinance shall be held to be invalid or unconstitutional by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or the constitutionality of any other section, sentence, clause or phrase of this Ordinance.

Section 3. This Ordinance shall take effect and be in full force five (5) days after this ordinance or a summary thereof consisting of the title is published.

APPROVED:

MAYOR WHITEY EVENHUIS

ATTEST/AUTHENTICATED:

CITY CLERK, KAY JONES

//

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City of Rock Island
5 N. Garden Ave. / PO Box 99
Rock Island, WA 98850
(509) 884-1261

APPLICATION FOR LOW INCOME SENIOR CITIZEN/LOW INCOME DISABLED RATES FOR WATER AND GARBAGE SERVICE

DATE: _____

NAME _____ ACCOUNT # _____

SERVICE ADDRESS _____

MAILING ADDRESS _____ PHONE # _____

To qualify for this discount, proof of the following must be provided to the city clerk:

A. A senior citizen must:
Provide picture identification to show that they are 62 years or older, and proof of being low-income.

B. A disabled citizen must:
Provide proof such as their special parking privilege permit, and proof of being low-income.

C. Low-income is:
As a single person, income for the previous year of $15,000, or less.
As a married couple, a combined income for the previous year of $28,000, or less.
This proof may be in the form of a property tax statement from Douglas County treasurer showing the senior citizen exemption, or your most recent tax return.

All statements contained herein are true to the best of my knowledge, and I do understand that there is a penalty for false information under City Ordinance #98-013.

_____ _____
SIGNATURE DATE

RESOLUTION NO. 08-093

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF ROCK ISLAND, WASHINGTON, SETTING SEVERAL FEES AND RATES, INCLUDING THOSE FOR ANIMAL CONTROL, WATER USE, ADMINISTRATIVE SERVICES, ROCK ISLAND TRAILER COURT, DEVELOPMENT, PERMITTING, AND ANNEXATION; BUILDING PERMITS; REPEALING CITY RESOLUTIONS NO. 07-085 AND NO. 07-088; CONTAINING A SEVERABILITY CLAUSE AND SETTING AN EFFECTIVE DATE.

WHEREAS, City staff and the Mayor and City Council have reviewed the various rates and fees of the City and the City Council has determined that the rates and fees set forth in this resolution should be adopted; now, therefore,

THE CITY COUNCIL OF THE CITY OF ROCK ISLAND, WASHINGTON, HEREBY RESOLVE AS FOLLOWS:

Section 1. Animal control fees. Pursuant to Section 6.12.050 of the Rock Island Municipal Code, the following fees are hereby adopted by the City Council:

A.

1. Dog registration and renewal fee, with registration identification tag, altered: $10.00
2. Dog registration and renewal fee, with registration identification tag, not altered: $20.00
3. Dog registration and renewal fee, with electronic identification, altered: $5.00
4. Dog registration and renewal fee, with electronic identification, not altered: $7.00
5. Voluntary animal registration fee, with registration identification tag: $5.00
6. Voluntary animal registration fee, with electronic identification: $-0-
7. Dog kennel license fee: $50.00
8. Guard dog or attack dog registration fee: $100.00
9. Dangerous animal registration fee: $50.00
10. Potentially dangerous dog registration fee: $50.00

11. Late fee penalty: two times the underlying fee
12. Registration fee discounts for senior citizens and disabled persons: none
13. Administrative fees pursuant to Section 6.12.050
14. Impound fee: $25.00

B. Other fees pursuant to Rock Island Municipal Code 6.12.050(C) at the actual cost charged to the City by the service provider.

Section 2. Rates for water use. Pursuant to Rock Island Municipal Code 6.24.050, the following rates shall be charged for water usage, installation and capital recovery:

A. Water meter installation fees:
(Meter size of 5/8)
1. Within City limits: $1,155.00
2. Outside City limits: $1,375.00

The water meter installation fee for one water meter shall be waived by the City upon proof by the applicant in a form acceptable to the City, that the applicant has at its expense installed and dedicated to the City water system improvements of a minimum value of $20,000.

B. Plant Investment Fees (all users): $1,000

C. Residential
1. Within City limits
a. Minimum charge of $30.00 per month for the first 1,500 cubic feet. This charge shall increase to $30.75 per month effective December 31, 2005, then to $31.52 per month effective December 31, 2006, then to $32.31 per month effective December 31, 2007, and then to $33.12 per month effective December 31, 2008.
b. A minimum charge of 20 cents per 100 cubic feet for the next 500 cubic feet.
c. A minimum charge of 25 cents per 100 cubic feet for the next 2,000 cubic feet.
d. For each 100 cubic feet or part thereof over 4,000 cubic feet the sum of 50 cents per 100 cubic feet.

2. Outside City limits
a. A minimum charge of $38.50 per month for the first 1,500 cubic feet. This charge shall increase to $39.46 per month effective December 31, 2005, then to $40.45 per month effective December 31, 2006, then to $41.46 per month effective December 31, 2007, and then to $42.50 per month effective December 31, 2008.
b. A minimum charge of 20 cents per 100 cubic feet for the next 500 cubic feet.
c. A minimum charge of 25 cents per 100 for the next 2,000 cubic feet.

a. A minimum charge of $36.00 per month for the first 2,200 cubic feet. This charge shall increase to $36.90 per month effective December 31, 2005, then to $37.82 per month effective December 31, 2006, then to $38.77 per month effective December 31, 2007, and then to $39.74 per month effective December 31, 2008.

b. A minimum charge of 20 cents per 100 cubic feet for the next 500 cubic feet.

c. A minimum charge of 25 cents per 100 cubic feet for the next 2,000 cubic feet.

d. For each 100 cubic feet or part thereof over 4,700 cubic feet the sum of 50 cents per 100 cubic feet.

2. Outside City Limits

a. A minimum charge of $43.50 per month for the first 2,200 cubic feet. This charge shall increase to $44.59 per month effective December 31, 2005, then to $45.70 per month effective December 31, 2006, then to $46.84 per month effective December 31, 2007, and then to $48.01 per month effective December 31, 2008.

b. A minimum charge of 20 cents per 100 cubic feet for the next 500 cubic feet.

c. A minimum charge of 25 cents per 100 cubic feet for the next 2,000 cubic feet.

d. For each 100 cubic feet or part thereof over 4,700 cubic feet the sum of 50 cents per 100 cubic feet.

E. Miscellaneous Charges

1. Office charges

a. Account set-up: $20.00.

b. Late fee: $7.50. All payments are due on the last business day of the month by 11:59 p.m.

c. NSF Fee: $25.00

2. Service charges

a. Red-tag fee for failure to timely pay service fees (final warning to customer prior to service shut off). $10.00

3 rate reduction

10% rate reduction

b. Service shut-off or reconnection charges:
   (1) Between the hours of 9:00 a.m. and 3:00 p.m. Monday through Friday, except holidays: $40.00 (includes red-tag fee)
   (2) All other times: $50.00 (includes red-tag fee)
c. Meter Testing at customer request: $25.00
d. Meter Box Clean Out: $15.00
e. Replacement of broken meter, meter box, meter lid or pad: Actual cost of Replacements and $15.00

Section 3. Fees for Administrative Services. Pursuant to Ordinance No. 99-047, the City Council adopts the following fees for administrative services pursuant to Chapter 1.24 of the Rock Island Municipal Code as follows:

A. Copying Charges $.10 per page for public documents pursuant to RCW 42.17.300 and $.25 per page for non-public documents;
B. Faxes $3.00 for first page, $1.00 for each additional page;
C. Notary Service $4.00 per stamp;
D. NSF fee on any check returned to the City, $25.00.

Section 4. Rock Island Trailer Court Fees. Pursuant to City Ordinance No. 99-048, the rental rates and NSF fees for the Rock Island Trailer Court are hereby established as follows:

A. The monthly rent rate for the Rock Island Trailer Court shall be increased to $200 per month including leasehold tax and the HB 1461 authorized annual fee of $5.00. Subject to the notice requirements of RCW Chapter 59.20 RCW, Rock Island Trailer Court Lease Agreements shall be amended accordingly.

B. A late fee of $25 shall be due and payable in addition to the monthly rental fee due for any monthly rental fee payment not made on or before the 10th day of the month.

C. The NSF fee shall be $25 for any NSF checks returned to the City on any payments made pursuant to a Rock Island Trailer Court Lease Agreement. Rock Island Trailer Court Lease Agreements shall be amended accordingly.

Section 5. Development, permitting, and annexation fees. Chapter 14.05 of the Rock Island Municipal Code ("RIMC") provides that the City Council shall, by resolution, establish fees for processing and reviewing certain projects that shall cover the cost of

processing, inspecting, reviewing, or preparing materials related to development processes identified in Chapter 14.05 and in this Section of this Resolution.

RIMC 14.05.010(C) provides that in the event the fees established by the City are less than the actual costs incurred by the City:

> " ... any excess costs shall be assessed and paid by the applicant on the basis of the hourly rate of City department staff or outside consultants retained for inspection, review and/or analysis of the development or permitting action, including, but not limited to, engineers, surveyors, planners, architects, and attorneys, plus material costs and reasonable expenses incurred by such consultants and billed to the City."

The purposes of the fees set forth in this Section of this Resolution are to implement the previous action of the City Council as set forth in Chapter 14.05 RIMC.

RIMC 16.04.080 provides that the actual costs of processing and handling applications made pursuant to Title 16 of the RIMC shall be paid in the manner set forth in RIMC 16.04.080.

The City Council hereby adopts the language in RIMC 16.04.080 with respect to all development-related fees identified in this section of this Resolution regardless of whether the fees are associated with Title 16 RIMC development applications.

For purposes of establishing a base line minimum fee for certain development permit applications, the City adopts the following minimum fee schedule table in addition to the fees set forth in the RIMC and as identified above in this Section of this Resolution. In all development permit application circumstances addressed in the table set forth below, the Clerk-Treasurer may require additional advance fee deposits from the applicant when it is reasonably estimated by the Clerk-Treasurer that the actual costs of the City to process the development application may exceed the minimum fee listed in the table.

	Development Action	Minimum Fee
1	Subdivision	$450 + $25 per lot
2	Short Subdivision	$250 + $25 per lot
3	Final Plat Review	$200
4	Plat Amendment & Plat Alteration	$100
5	Boundary Line Adjustment	$50
6	Planned Residential Development	$450 + $25 per lot
7	Binding Site Plan	$250
8	Variance	$500
9	Conditional Use Permit	$500
10	Home Occupation Permit	$500
11	Shoreline Substantial Development Permit	$300
12	Appeals	$500
13	Site Evaluation	$50
14	Revisions and/or Rehearings	$500
15	Zoning Code Text Amendment	$100
16	Zoning Map Amendment	$100
17	Comprehensive Plan Text Amendment	$100
18	Comprehensive Plan Map Amendment	$1,000
19	Consultation Fee	$50 Minimum or actual amount estimated by Clerk-Treasurer
20	Professional Fees	Actual amount Clerk-Treasurer estimates in advance as required initial advance fee deposit as set forth in RIMC 14.04.080 with respect to all development-related applications or inquiries
21	SEPA (with notice)	$200
22	SEPA (without notice)	$100
23	SEPA - Mitigated Determination of Non-Significance (MDNS) or Environmental Impact Statement (EIS)	Clerk-Treasurer shall require an advance fee deposit in an amount estimated to cover the City costs and continuous deposits to ensure that all actual costs of the City are paid by the applicant
24	Annexation Fee	$5,000.00 deposit to be held by City in an account for payment of those costs incurred in analyzing the annexation proposal as set forth in RIMC Section 14.05.010(C). As the City is billed and pays for items associated with the proposed annexation, the account shall be

reduced in amounts necessary to reimburse the City. Any remaining sums in the account at the time of annexation, completion or termination of the annexation process, for any reason, less outstanding costs, shall be refunded to the applicant. If the account is reduced to zero, and additional sums are necessary for payment of those costs, the applicant shall reimburse the City for such costs upon written demand by the City.

Section 6. Building Permit and Plan Review Fees.

A. For purposes of RIMC 15.02.045, building permit fees as set forth in Section 107.2, Table 1-A, of the 1997 edition of the Uniform Building Code are adopted by this reference as if fully set forth, subject to the following fee amendments for inspection of mobile homes and manufactured homes, as defined pursuant to RCW 46.04.302, as now exists or as may be hereafter amended, which shall be charged in lieu of any other building permit fees:

1.	Single wide	$150
2.	Double wide and above	$200

B. The "Total Valuation" referenced in Table 1-A shall be based on local area construction costs, as the same are calculated from time to time by the City Building Official.

C. In addition to the building permit application and plan review fees that the applicant must submit as specified herein and in Table 1-A, Section 107 of the 1997 edition of the Uniform Building Code, whenever review of a building permit application requires the retention by the city of professional consultant services, the applicant shall reimburse the city for the cost of such professional consultant services. The city may also require the applicant to deposit an amount with the city estimated in the discretion of the building official to be sufficient

to cover anticipated costs of retaining professional consultant services and to insure reimbursement to the city for such costs.

Section 7. Repealer. Resolutions No. 07-085 and No. 07-088 are hereby repealed and replaced by this Resolution.

Section 8. Severability. If any section, sentence, clause or phrase of this resolution should be held to be invalid or unconstitutional by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or constitutionality of any other section, clause or phrase of this resolution.

Section 9. Effective Date. This Resolution will take effect and be in full force May 23rd, 2008 at 12:01 a.m.

RESOLVED this 22 day of May, 2008.

APPROVED:

MAYOR RUSSELL CLARK

ATTEST/AUTHENTICATED:

BONNY MALONE

FILED WITH THE CITY CLERK : 5/22/08
PASSED BY THE CITY COUNCIL : 5/22/08
RESOLUTION NO.: 08-093

ORDINANCE NO. 04-071

AN ORDINANCE OF THE CITY OF ROCK ISLAND, WASHINGTON, ENACTING A NEW WATER SYSTEM CODE FOR THE CITY OF ROCK ISLAND, WASHINGTON, AND REPEALING CITY ORDINANCE 95-003; CONTAINING A SEVERABILITY CLAUSE AND ESTABLISHING AN EFFECTIVE DATE.

THE CITY COUNCIL OF THE CITY OF ROCK ISLAND, WASHINGTON DO ORDAIN AS FOLLOWS:

Section 1. A new Chapter 8.38 is hereby added to the Rock Island Municipal Code to read as set forth in Exhibit "A" to this Ordinance.

Section 2. Ordinance No. 95-003, as amended and as the same currently exists, is hereby repealed.

Section 3. To the extent any resolution is required by Chapter 8.38 of the Rock Island Municipal Code as adopted in Section 1 of this Ordinance, all existing applicable resolutions of the City that may have been adopted with reference to Ordinance 95-003 or concerning water system rates, fees, and charges shall be hereafter interpreted as having been adopted pursuant to the terms of Chapter 8.38 of the Rock Island Municipal Code as adopted in Section 1 of this Ordinance.

Section 4. If any section, sentence, clause or phrase of this Ordinance should be held to be invalid or unconstitutional by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or the constitutionality of any other section, sentence, clause or phrase of this Ordinance.

Section 5. This Ordinance shall take effect and be in full force five (5) days after this ordinance or a summary thereof consisting of the title is published.

APPROVED:

MAYOR ANGELA LARSON

ATTEST/AUTHENTICATED:

CITY CLERK TREASURER, KAY JONES

APPROVED AS TO FORM:
OFFICE OF THE CITY ATTORNEY

BY

FILED WITH THE CITY CLERK TREASURER: 3/8/04
PASSED BY THE CITY COUNCIL: 3/25/04
PUBLISHED: 4/8/04
EFFECTIVE DATE: 4/13/04
ORDINANCE NO. 04-071

SUMMARY OF ORDINANCE NO. 04-071

of the City of Rock Island, Washington

On the 25 day of March, 2004, the City Council of the City of Rock Island, Washington, passed Ordinance No. 04-071. A summary of the content of said Ordinance, consisting of the title, provides as follows:

> AN ORDINANCE OF THE CITY OF ROCK ISLAND, WASHINGTON, ENACTING A NEW WATER SYSTEM CODE FOR THE CITY OF ROCK ISLAND, WASHINGTON, AND REPEALING CITY ORDINANCE 95-003; CONTAINING A SEVERABILITY CLAUSE AND ESTABLISHING AN EFFECTIVE DATE.

The full text of this Ordinance will be mailed upon request.

DATED this 26 day of March, 2004.

Kay Jones

CITY CLERK TREASURER, KAY JONES

EXHIBIT "A"
CHAPTER 8.38
WATER SYSTEM CODE

8.38.010	Definitions
8.38.020	General Provisions
8.38.030	Service Connections and Charges
8.38.040	Turn Ons and Turn Offs
8.38.050	Water Meters
8.38.060	Water Rights
8.38.070	Mains and Main Extensions
8.38.080	Latecomer Agreements

8.38.010 Definitions. Interpretation of Definitions. For the purpose of this Chapter the following words or phrases have the meaning set forth herein, unless context indicates otherwise.

"Clerk-Treasurer" means the City Clerk-Treasurer of the City of Rock Island.

"Cost of Construction" means those costs incurred, including but not limited to costs for design, engineering, acquisition of right-of-way and/or easements, construction, materials, installation and contract administration required in order to create an improvement which complies with city standards. Until such time as Chapter 35.91 RCW is amended to expressly authorize inclusion of interest charges or other financing costs, such expenses shall not be included in the calculation of construction costs. In the event of a disagreement between the City and the applicant concerning the cost of the improvement, the City Clerk-Treasurer's determination shall be final.

"City Council" or "Council" means the City Council of the City of Rock Island.

"Cross Connection" means cross connection as defined in Chapter 8.30 of the Rock Island Municipal Code.

"Customer" means all persons obtaining water service from the water supply system of the City of Rock Island.

"Department" means the Public Works Department of the City of Rock Island.

"Director" means the Public Works Maintenance Supervisor of the City of Rock Island.

"Industrial Services" means the water service connections to a business enterprise engaged in the manufacture of products, materials, equipment, machinery and supplies on a substantial or major scale.

"Latecomer Agreement" means a written contract between the City and one or more property owners providing for construction of Water Facilities and for partial

reimbursement to the party causing such improvements to be made of a portion of the costs of such improvements, as more specifically described in Chapter 35.91 RCW, as the same now exists or as it may hereafter be amended.

"Main" means a water line designed or used to serve more than one premises.

"Multiple Dwelling Units" means duplexes, apartment buildings, condominiums, mobile home parks and trailer courts.

"Person" means natural persons of either sex, and associations, partnerships and corporations, whether acting by themselves or by a servant, agent or employee.

"Permanent Main" means a main of PVC, cast iron, asbestos-cement or other materials as approved by the Public Works Superintendent which are constructed to Uniform Plumbing Code standards as adopted in Chapter 15.02 of the Rock Island Municipal Code, as now exist or as may be hereafter amended.

"Premises" means a private home, building, apartment house, condominium, trailer court, mobile home park, a group of adjacent buildings or property utilized under one ownership and under a single control with respect to use of water and responsibility for payment therefore.

"Residential Service" means a water service connection to a single family dwelling unit.

"Service Installation, Service Connection, or Connection" means all piping and fittings from the main to the property owner's side of the water meter assembly.

"System" means all water source and supply facilities, transmission pipelines, and storage facilities, pumping plants, distribution mains and appurtenances, and materials storage facilities.

"Temporary Main" means mains which do not conform to City Standards with respect to size, location, type of material and/or method of installation.

"Water Facilities" means improvements and shall have the meaning specified in RCW 35.91.020 as the same exists now or may hereafter be amended.

"Water Service Area" means that area consisting of the corporate limits of the City of Rock Island and those areas that have been or may be designated for water service by the City Council.

8.38.020 General Provisions

A. Purpose. The purpose of this Chapter is to establish fees for service, and general rules and regulations for the service and extension of service from the water system of the City of Rock Island; and to promote the public health, safety, and general welfare of the users of the

water system, in accordance with standards established by the City, County, State and Federal governments.

B. Applicability. The provisions of this Chapter shall apply to all water services provided by and to all work performed by the Department.

C. Exclusive water provider. The City of Rock Island shall be the exclusive provider of water within the City limits.

D. Inspection.

1. Authorized employees of the City, properly identified, shall have access, at reasonable hours of the day, to all parts of a premises to which water is supplied by the City, for the purpose of assuring conformity to these regulations.

2. Whenever the owner of any premises to which water is supplied by the Department restrains authorized City employees from making such necessary inspections, water service may be refused or discontinued.

E. Unlawful Acts Defined.

1. Any person causing damage to any property belonging to the City shall be liable to the City for any and all damages resulting either directly or indirectly therefrom including costs and attorneys' fees.

2. It shall be unlawful for any person to willfully disturb, break, deface, damage or trespass upon any property belonging to or connected with the water system of the City of Rock Island, in any manner whatsoever.

3. It shall be unlawful for any person to store, maintain or keep any goods, merchandise, materials or rubbish within a distance of five (5) feet of, or to interfere with the access or operation of any water meter, gate valve, fire hydrant, or other appurtenance in use on any water service connection, water main, or fire protection service.

F. Hydrants - Authorized Use. It shall be unlawful for any person, other than authorized employees of the Fire and Public Works Departments of the City, to operate fire hydrants and hose outlets, unless proper arrangements have been made for payment thereof and permission has been granted by the Department.

G. Emergency Interruption of Service.

1. In case of emergency, or whenever the public health, safety, or the equitable distribution of water so demands, the Director may authorize the Department to change, reduce or limit the time for, or temporarily discontinue the use of water. Water service may be temporarily interrupted for purposes of making repairs, extension or doing other

necessary work. The City reserves the right to shut off the water without notice in the case of an emergency.

2. Except as set forth in Subsection G(1) above, before so changing, reducing, limiting or interrupting the use of water, the Department shall notify, insofar as practicable, all water consumers affected. For the purposes of this section, notice may be given by local radio broadcast, printed in the City's official newspaper, mailed or served in writing.

3. The City shall not be responsible for any damages resulting from interruption, change or failure of the water supply system.

H. Cross Connections-Regulations. Cross connections regulations are set forth in Chapter 8.30 of the Rock Island Municipal Code, as the same exists now or may hereafter be amended. To the extent any conflict exists between the provisions of this Chapter 8.38 and the provisions of Chapter 8.30, the more stringent applicable provisions shall apply.

I. City Not Liable for Damages. The City shall not be liable for damages, including costs and attorneys' fees, nor will allowances be made for loss of production, sales or service, in case of water pressure variations, or in case the operation of the City's source of water supply or means of distribution fails or is curtailed, suspended, interrupted or interfered with, for any reason. Such pressure variation, failure, curtailment, suspension, interruption or interference shall not be held to constitute a breach of contract on the part of the City, or in any way affect any liability for payment for water made available or for money due on or before the date of such occurrence.

J. Discontinuance of Service.

1. The City may discontinue service by reason of a failure to pay a bill for service or the failure to comply with the terms of this Chapter, in accordance with the procedures established pursuant to RCW 35.21.290 and RCW 35.21.300, as now exist or as may be hereafter amended.

2. Service to any premises upon which a private water supply system is used or operated contrary to the provisions of this chapter may be discontinued or refused.

K. Administration.

1. The Director and the City Clerk-Treasurer may make such administrative determinations for the proper operation of this Chapter as are not inconsistent with its provisions.

2. The Director shall establish and enforce such customer service policies and related additional rules as may be deemed necessary from time to time to encourage and facilitate the use of water, pursuant to City Council ordinances and resolutions approving the same.

L. Violations - Penalty. Any person who violates any of the provisions of this Chapter shall be guilty of a civil infraction, and shall be subject to a monetary penalty of up to $500.00. Each day of a continuing violation shall subject the person to a separate fine of up to $500.00 per day.

8.38.030 Service Connections and Charges

A. Application for Service.

1. An application shall be made for all service connections, for the use of fire hydrants, and for work to be performed by the Department. Such application shall be on forms provided by the Department.

2. An application shall be accompanied by all fees required by this Chapter.

3. The application shall provide all information required by this Chapter and Chapter 8.30, as well as all other information determined by the Director to be necessary for consideration and action upon the application.

4. The application, when approved by the Director or City Clerk-Treasurer, shall constitute an agreement whereby the applicant agrees to conform to the provisions of this Chapter, as now enacted or hereafter amended.

5. A change of use of the served premises shall require a new application for service as set forth in Section 8.38.030B(7) and (8).

B. Conditions Applicable to All Water Service Connections.

1. No application shall be accepted or approved without being accompanied by a current valid building permit for the premises to which water service is requested.

2. All service connections shall be metered.

3. Each served Premises must have a separate connection to a main, unless otherwise approved by the City Council when impossible or impractical as recommended by the Director.

4. Water will not be provided to more than one customer or dwelling through a single service connection, and separate service applications are required for each dwelling. When two customers are being served by a single service connection on the effective date of the ordinance codifying this Chapter, the Director may require the installation of a new service, when necessary, for efficient operation of the system, at the cost of the customer.

5. When the Premises for which service is sought does not abut a main with sufficient pressure and capacity to provide the required flow at the property line, the

application for service shall be rejected, unless a private booster pump is installed at the customer's expense.

6. No application for water service shall be accepted or approved for locations outside of the City water service area.

7. The furnishing of water by a customer to premises other than that serviced by the customer's service is prohibited, except as may be approved by the Director and except during emergencies, provided that emergency service cannot continue for more than 30 days and an application for emergency service shall be made to the Department within 48 hours of the onset of the emergency.

8. A request for a change in the size of service connection shall be treated as a request for a new service installation.

9. A change of use of the served premises will require a new service connection, unless the existing service is adequate for the changed use, as determined by the Director.

C. Conditions Applicable to All Connections.

1. All water service connections shall be made by the Department.

2. The cost of such connections shall be paid by the customer at the time of application.

3. The fees established by this Chapter are for the water service connection only. Where special conditions exist, including but not limited to, the inability to bury service lines, the actual cost of installation shall be charged to the customer in addition to any engineering and administrative fees and water service connection fees and such charges shall be a lien upon the premises and property served.

4. When buildings are replaced by new buildings, the existing water service connection shall not be used if the Director determines that such connection is not acceptable. In such instance, the customer shall be required to install a new service connection, in accordance with the terms of this Chapter.

D. Service Connection Fees. The fees for new water service connections including the meter, shall be as established and amended from time to time by City Council Resolution.

E. Ownership of Permanent Facilities.

1. The ownership of all water mains and service connections in public rights-of-way shall be solely vested in the City.

2. The ownership and responsibility for the maintenance of individual service pipe extensions from the meter to the premises served shall be that of the owner of the premises served and the City shall not be liable for any part thereof.

F. Owner's Service Piping Specifications.

1. All water service piping leading from the water main to the meter and from the meter to the premises shall be laid not less than 36 inches below the surface of the ground.

2. Water service pipes or any underground water pipes shall not be laid in the same trench with building sewer or drainage piping.

3. Water service pipes, parallel to building sewers or drainage piping shall be installed pursuant to the most current applicable Uniform Plumbing Code as adopted by the City in Chapter 15.02 of the Rock Island Municipal Code, as now exists or as may be hereafter amended.

4. Shut-off valves of approved full-flow pattern with key or hand wheel shall be installed before any branch connections in the water service pipe leading from the City meter to the building, within the premises served, in accordance with the most current applicable Uniform Plumbing Code as adopted by the City in Chapter 15.02, as now exists or as may be hereafter amended. Shut-off valves where buried shall be properly enclosed in a minimum 6 inch pipe, or box, of concrete, plastic, or iron with an approved cover, protected from freezing and readily accessible.

5. Valves or customer-owned equipment are not permitted to be installed within the City's meter box.

6. Service connections and extension pipes laid underground shall be sized in conformance with the applicable provisions of the most current applicable Uniform Building Code as adopted by the City in Chapter 15.02 of the Rock Island Municipal Code, as now exists or as may be hereafter amended.

7. Service connection and extension pipes shall be constructed of standard weight galvanized iron or steel pipe, cast or ductile iron pipe, copper tubing, or non-metallic material as approved by the Director.

8. The Department may require any customer to install a pressure reducing valve, backflow preventative device, pressure relief valve or similar device at any location where the Director determines a need, to protect the Department's facilities and in accordance with Chapter 8.30, as the same exists now or may hereafter be amended.

9. The customer shall provide and install copper tubing type "K," Schedule 80 PVC, CTS Poly, or such other material as approved by the Director as a service line from the meter to the structure to be served.

G. Plumbing Specifications.

1. All persons installing fixtures or appliances to be supplied with water from the City water mains shall be subject to the requirements of the most current applicable Uniform Plumbing Code adopted by the City in Chapter 15.02 of the Rock Island Municipal Code, as now exists or as may be hereafter amended. Persons installing plumbing in new buildings shall leave the valve at the meter in the "Off" position upon completion of their work.

2. Persons making additions or repairs to existing plumbing systems shall not operate the valve at the meter.

3. The Director shall have the right to refuse water service or discontinue water service in any situation where it is discovered that applicable code sections or federal, state or City Standards have not been complied with in making the installations.

H. Lawn Sprinkler Specifications.

1. A lawn sprinkler system connected to a domestic, or commercial connection shall be equipped with a vacuum breaker and/or backflow preventor, placed between the sprinkler stop and waste valve and the first sprinkler outlet. The approved vacuum breaker shall be placed at a height as provided in the most current applicable Uniform Plumbing Code adopted by the City in Chapter 15.02, as now exists or as may be hereafter amended. The stop and waste valve and vacuum breaker shall be in the sprinkler line after it branches from the water service pipe or the building plumbing.

2. The stop and waste valve for a lawn sprinkler system shall be at the same depth as the water service pipe, however, the lawn sprinkler system proper may be laid to a lesser depth at the option of the owner.

3. Such additional stop and waste valves as are required to properly drain the sprinkler piping, shall also be installed.

4. All sprinkler piping shall be inspected by the Director or his designee prior to backfilling the trenches.

5. Water service may be refused on existing lawn sprinkler systems which are not equipped with a stop and waste valve and an approved vacuum system.

I. Fire Protection Service.

1. A water service connection to be used solely for fire protection purposes may be installed to service any premises, subject to the provisions of this section.

2. Fire protection systems shall be provided in accordance with the most current applicable Uniform Fire Code adopted by the City in Chapter 15.02 and in accordance with the National Fire Protection Association Standards, as now exist or as may be hereafter amended.

3. A plan of the proposed required fire protection system showing the general installation detail shall be required and shall be approved by the Director and the Fire Chief prior to construction.

4. Service of more than one premise by a fire protection service shall not be permitted.

5. Fire Protection systems shall be installed and maintained by the customer in a manner approved by the Director and the system shall contain an approved, tested backflow prevention device.

6. Fire protection systems shall be installed with a detection check meter of a size and type approved by the Director.

7. Indications of unauthorized use of water through a detector check meter more than once per calendar year shall be cause for installation of a fire line meter at the expense of the customer.

8. Delinquency in payment of expense for fire protection service or failure of the customer to make changes in meter installation as herein provided, after reasonable notice from the Department, shall be sufficient cause for filing a lien on the property and/or discontinuance of the service.

8.38.040 Turn Ons and Turn Offs

A. Turn on - New Installation. When new water service connections are installed by the Department for any premises, the valve at the meter shall be turned to the "Off" position and remain off until a "turn on" is applied for and an order shall be issued by the Department upon written application therefore by the owner of the premises to be supplied after inspection and approval by the Department, and after the Director has issued a certificate indicating compliance with all applicable Plumbing Code provisions.

B. Turn off - No Charge. After written application or verbal request, any water service will be turned off without charge where such "turn off" can be accomplished at a time convenient to the Department.

C. Special or Emergency Turn On or Turn Off Fees. Whenever a request is made of the Department for a special or emergency "turn off" or "turn on" or temporary discontinuance of water service to any premises which necessitates immediate action, charges shall be assessed as established by City Council resolution and from time to time amended for the following:

1. Emergency/Special "Turn Off", "Turn On" During Regular Working Hours.

2. Emergency/Special "Turn Off", "Turn On" Outside of Regular Working Hours.

D. General Requirement as to Fees.

1. Emergency turn on charges shall not be pro-rated for services started during a billing period.

2. All unpaid water service charges and penalties against the premises shall be paid at the time of application for turn on and before water is supplied to the premises.

E. Turn On - Unauthorized.

1. It shall be unlawful for any person, except duly authorized employees of the City to "turn on" the water supply to the premises after a "turn-off" is made at the meter by the City.

2. A water service to any premise turned on by an unauthorized person, after said water supply has been turned off by the Department, may, upon discovery, be disconnected by the City from the water main in the street, and shall not be connected again until all fees due as a result of the disconnecting and reconnecting of such service are paid.

F. Turn On - Liability Disclaimer. The City shall not be liable for any damage, including costs and attorneys' fees, to persons or property resulting from a properly performed and authorized "turn off" or "turn on" of the water service including, but not limited to, situations where water service is left on between a change of customers occupying the premises, at the request of one of the customers, or the water service is disconnected for non-payment.

G. Disconnection of Service - Condemned Buildings. Whenever a premise supplied with water has been found by the proper authorities to be dangerous to human life and unfit for human habitation, and notice of such finding has been received by the Department from said authorities, the Director shall cause the water service to such premise to be turned off. Water service to such premise shall not be restored until the customer has secured a release or clearance from the proper authorities.

8.38.050 Water Meters

A. Meter Ownership and Installation. All meters installed on water service connections by the Department shall be and remain the property of the City and shall be removed only by the Department.

B. Meters - Exchange and Reinstallation.

1. Whenever the owner of any premises desires to change the size of a meter an application shall be made to the department, as provided for in Section 8.38.030(B)(7), and upon approval, the exchange will be made at the expense of the owner. Whenever the relocation of a permanent main is necessitated, all existing customer meters will be reinstalled and connected to the new or relocated permanent main at no expense to the customer. Any expenses incurred to connect the premises to the newly installed meter shall be borne by the customer.

2. Whenever demand periodically exceeds the rated capacity of a meter to the extent that the meter may be damaged, the Department shall notify the owner of this fact. After evaluating the owner's requirements, the Department shall advise what size meter is necessary to give proper service without damage to the meter. The estimate of cost covering such change shall be furnished by the Department, upon request by the owner, without charge. If the owner does not make the required deposits for the installation of the larger meter within thirty days after the date of the notice, then the Department shall install the proper size meter, charging the total cost to the owner, or the Department may discontinue service.

C. Meter - Maintenance and Repair.

1. The Department shall maintain and repair all domestic, commercial and industrial service meters and shall replace meters periodically, when necessary, if rendered unserviceable by ordinary use.

2. When replacement or repairs to any meter are made necessary due to the intentional or negligent acts of the owner or occupant of the premises, all expenses of such replacement, including but not limited to engineering fees, costs and attorneys' fees, shall be borne by the owner or occupant of the premises.

D. Meter Tests and Adjustment of Bill.

1. Upon request from a customer, based upon a complaint that the water bill for any period has been excessive, the Department shall have the meter re-read.

2. Should the customer then request that the meter be tested for accuracy, the customer shall make a deposit with the City Clerk-Treasurer in the amount estimated by the Director to pay for the entire cost of a meter test, including engineering fees. The customer shall be notified and permitted to be present when such test is made. If the test discloses an error of more than three percent in favor of the City, the deposit shall be refunded to the customer, a correct registering meter shall be installed, and the customer's account shall be credited as approved by the Director. If the test discloses either no error or an error of three percent or less, the amount deposited shall be retained by the Department to cover a portion

of the cost of such test. The customer shall pay the City the balance required, if any, to reimburse the City for the entire actual cost for the meter test, including all engineering fees.

8.38.060 Water Rates

A. Monthly Rates. The monthly water use fees shall be established and amended from time to time by City Council resolution.

B. Rates - Temporary Water Use.

1. For billing purposes where two or more premises are served on a single meter, each shall be considered a separate Premises for base rate purposes.

2. The use of water for construction purposes shall be allowed, where available, to construct or reconstruct any building or structure or settle trenches or fills. Before commencing such usage, application therefore shall be made to the Department and a fee, established by City Council resolution, paid. Water used shall be paid for at rates established by City Council resolution.

C. Service Charge. Whenever the Department responds to a request outside of regular working hours for assistance to investigate a deficiency in water service to any Premises and it is determined that the deficiency is the result of improper operation or maintenance of the customer's plumbing, a charge equal to the actual cost of the call out shall be charged to the customer.

D. Reading of Water Meters. All water meters will be read monthly weather permitting. The base rate established by City Council resolution will be charged during months the meters cannot be read. Any excess use charges shall be charged the next time the meters can be read.

E. Estimate of charges upon failure of meter. When a meter is determined to be malfunctioning by the Director based upon inaccuracies in the meter information, water usage shall be charged for in accordance with the water usage during the previous year for the same months.

F. Discontinuance of Water services.

1. The City may discontinue or refuse water service to any customer, without notice or hearing, for any of the following reasons:

a. When the customer so requests;
b. When it is determined by the Director or his/her designee, fire department or police department that the continuance of water service constitutes a dangerous condition presenting a likely immediate threat to health or safety of persons or to property on or near the customer's premises.

G. The City may discontinue or refuse water service to any customer, following compliance with the notice and hearing requirements of Subsection J herein, for the following reasons:

1. Nonpayment of utility bills and charges as provided in Subsection I herein.

2. When the customer misrepresents his or her identity or otherwise intentionally provides false information for the purpose of obtaining water services from the City.

H. The City may discontinue or refuse water service to any customer, following notice to the customer and legal owner, for any of the reasons set out in this subsection. The customer shall have the right to a hearing within a reasonable time, not to exceed ten days.

1. When the customer refuses to grant the Department access to equipment installed upon the premises of the customer for the purpose of inspection, meter reading, maintenance and replacement.

2. When the customer violates any rule, regulation or ordinance of the city pertaining to water services, which violation adversely affects the safety of the customer or other persons, or the integrity of the city's water services delivery system.

3. When the customer attempts, causes or permits unauthorized interference, diversion, theft, tampering, damage or use of water services or the water services delivery system situated or delivered on or about the customer's premises.

I. Utility billing dates—Delinquency date.

1. Utility billings shall be mailed on the first through the fifth business days of each month for the previous month serviced. All billings for utility services shall be due and payable in full at the office of the City Clerk-Treasurer on the last business day of the month by 11:59 p.m. Failure to make timely payment shall result in the mailing of an account delinquency and service discontinuation notice.

2. Budget billing or an equal payment plan shall be available to residential customers as set forth in RCW 35.21.300(4) pursuant to such customer's request.

J. Nonpayment of Utility Bills.

1. An account delinquency and service discontinuance notice shall be issued in writing. Notice shall be sent by the U.S. mail, first class, to the customer at the last known address of the customer as shown on the records of the city. Written notice may also be provided by personal service upon the customer by an employee of the city or by any city law enforcement officer or by such city employee posting the written notice upon a door of a building upon the property serviced.

2. The notice of account delinquency and service discontinuance shall provide the following information:

a. The date of the notice;
b. Name of customer and address where service is being provided;
c. Account number;
d. Services amount past due;
e. The amount of the non-payment penalty and interest as established by City Council resolution; and
f. Notice that utility service shall be terminated upon failure to pay the delinquent billing plus non-payment penalty and interest charges by the date written on the notice which shall be seven (7) days after the date of the notice.

3. Following the date of termination of service identified in the city notice of delinquency, the city shall post the property with an additional notice twenty-four (24) hours prior to disconnecting the service.

4. To avoid service shutoff, after receipt of the notice of delinquency, a customer may file a written complaint concerning the amount of the bill in dispute or detailing the customer's current temporary financial difficulties and request an informal conference with the City Clerk-Treasurer at City Hall during normal business hours prior to the date set forth in the delinquency notice for service termination. The City Clerk-Treasurer may adjust the bill if the billing was inappropriate or may permit the customer to make payments on a deferred payment plan in the event the City Clerk-Treasurer is satisfied that the customer will be able to follow through with the deferred payment plan. The City Clerk-Treasurer shall not adjust any disputed bill without adequate confirmation that an error in the billing has occurred. In the event the City Clerk-Treasurer permits a deferred payment plan arrangement, such deferred payment plan shall be in writing and, if not followed by the customer, shall result in the customer receiving only a 24-hour posting notice prior to shut off of the services.

K. Discontinuance of Utility Services. The Director is hereby authorized to discontinue and disconnect utility service to any customer pursuant to the procedure set out in this Chapter. Customers shall remain responsible for furnishing the city with the correct address for billing purposes.

L. Lien Upon Customer's Property. In the event any person shall neglect, fail or refuse to pay within seven days following notice of discontinuance the utility billings, delinquency charges and turn on charges due the town, such billings and charges shall constitute a lien upon the real property served by the connection to the utility service, and shall be certified by the City Clerk-Treasurer to the County Clerk of Douglas County, Washington, to be placed on the tax roll for collection, subject to the same penalties and collected in like manner as other taxes are by law collectable.

M. Landlord Liability. Owners and occupants of leased Premises served by the utilities furnished by the City are jointly and severally liable for payment of the cost of any utilities furnished by the city to such Premises, whether such utility service is furnished upon the application and request of the owner or the lessee of the Premises. The owner of any leased premises, or the owner's agent if leasing through an agent, shall be notified of the delinquency of the occupant of the leased Premises in the same manner as notice is provided to customers pursuant to Subsection J herein and at the same time of notice to the lessee-customer.

N. Late Payment Charges and Reconnection Fees.

1. Late Payment Charges. All bills delinquent after the last business day of the month of the billing shall be subject to a penalty and interest as set by City Council resolution. Public entities are exempt from the penalty.

2. Posting Charges. All delinquent bills shall result in the City posting the property serviced with written notice of shut off twenty-four (24) hours prior to shut off and the customer shall be assessed a posting fee as established by City Council resolution.

3. Reconnection Charges. Prior to reconnecting a utility service disconnected following a delinquency, the customer shall pay to the city the entire balance due and owing to the city at the time of reconnection. The customer shall also pay a reconnection charge as set by City Council resolution for reconnection of water services.

8.38.070 Mains and Main Extensions

A. When Required. A main extension shall be required whenever a customer requests service and the property to be served does not abut city right of way or city easement containing a water main, or the existing water main is not adeqnate to provide the necessary water pressure for flow characteristics. Customers are not permitted to connect to the city water system without first extending the city main to the customer's property.

B. Applications.

1. The person desiring a main extension shall apply to the Director requesting permission to extend the City's water system.

2. The Director shall review the application, and if the requested extension is determined to be a proper extension of the water system, shall provide the petitioner with the design requirements for the extension. If the requested main extension is determined to be an improper extension of the water system, the application shall be denied.

C. Preparation of Plans and Specifications. Upon receipt of the design requirements from the Department, the petitioner shall cause plans and specifications to be submitted in accordance with APWA standards adopted by the Department as now exist or as may be hereafter amended. The completed plans and specifications, having a valid Professional Engineer's

licensed in Washington state seal and endorsement, shall be submitted to the Department for review and approval.

D. Inspection - Fee - Deposit Required.

1. After approval of the plans and specifications, the Department shall provide the petitioner with an estimate of the construction inspection fee. A permit for construction will be issued after the inspection fees and estimated main connection charges have been deposited with the City Clerk-Treasurer. At such time as the Director determines the remaining funds are not adequate to provide necessary inspection for project completion, the petitioner shall be notified of such and an estimate of additional inspection fees required will be provided. The additional fees shall be deposited with the City Clerk-Treasurer prior to depletion of the funds on deposit. All moneys unexpended from the inspection deposit upon completion of the project shall be returned to the petitioner.

E. Construction of Main Extensions.

1. Main extensions may be made by private contract, through local improvement district procedure, or by Department forces.

2. Any main extension done other than by the Department's forces shall be done by a licensed and bonded contractor of the State of Washington.

3. Extension of the City mains shall be at the expense of the person requesting construction of the main.

4. All main extensions must be constructed on public right-of-way or on the City's frontage of the applicant's property and such property shall be dedicated by deed or easement to the City in the form requested by the City.

F. Acceptance of Main Extensions.

1. The City reserves the right to reject any installation not inspected and approved by the Department.

2. Upon satisfactory completion of all required tests and acceptance of the main extension, the Department shall cause the extension to be connected to the City System. All costs incurred in such connection(s) including engineering fees, legal fees, City staff time, overhead, and administrative charges shall be the responsibility of the petitioner. An adjustment on the actual cost of installation because of variance between the estimate and the actual cost shall be adjusted by refund upon completion of the job by the petitioner, or by payment by the petitioner to the City of any additional expense above the estimate.

3. No main extension shall be charged other than for test purposes by duly authorized personnel until the main extension has been accepted by the City and all fees and

charges have been paid. If charging a main is necessary to restore service to existing customers, fire hydrants will not be activated until acceptance of the main extension.

G. Construction Drawings.

1. Upon completion of a main extension, the petitioner shall provide the Department a reproducible mylar drawing that accurately indicates the main extension and appurtenances as actually installed in plan and profile.

2. No main extension will be accepted until satisfactory "as built" drawings are provided to the City.

H. Main Extensions Deeded to City.

1. The permit holder shall provide the City with a deed of conveyance for all main extensions as a condition of acceptance of the main extension by the City.

2. The transfer of any main to the City shall be on the condition that the owner, district, company, constructor, or contributor shall transfer or provide for any necessary and proper franchise.

I. Temporary Mains.

1. No temporary mains shall be permitted to be installed as a part of the City's water system.

2. Temporary mains and main extensions, however, may be acquired, maintained and operated by the Department where provisions have been made by the owners of such mains to standardize such installations, in compliance with the standards for permanent mains, under the terms of an agreement entered into with the City as approved by the City Council. Where necessary, said agreement may provide for a surcharge rate or charge to be levied by the City for a specified period of time to provide sufficient revenues to assure compliance with City standards. The Director shall, before recommending the acceptance, delineate the temporary mains included in such installations, which are to be brought up to the City standards, on a map to be included as an exhibit under the aforementioned agreement.

8.38.080 Latecomer Agreements

A. Purpose. The purpose of this section is to prescribe rules and regulations for exercise of the authority to enter into Water Facilities Latecomer Agreements authorized by Chapter 35.91 RCW, as the same now exists or as it may hereafter be amended.

B. Application Eligibility

1. Whenever a developer is required to construct Water Facilities as a result of the application of this Chapter or a determination of the Director or City Council and the Water Facilities benefit nonparticipating properties, the developer may apply for a Latecomer Agreement to establish a reimbursement area that includes other properties benefiting from the improvements. Such application shall be filed with the Director prior to commencing work on the improvements.

2. In order to be eligible for a Latecomer Agreement, the cost of the improvement must not be less than four thousand dollars. The cost of the improvement shall be determined, based upon a construction contract for the project, bids, engineering or architectural estimates, receipts or other information deemed by the Director to be a reliable basis for determining cost.

3. Latecomer Agreements must be applied for prior to commencement of construction of the Water Facility.

C. Application Contents

1. Applications for establishment of an assessment reimbursement area through a Latecomer's Agreement shall be accompanied by a nonrefundable application fee in an amount set by resolution of the City Council to reimburse the city for expenses in processing the application.

2. An application shall be considered complete upon submission of the fee to the City Clerk-Treasurer along with the written application on a form approved by the Director and shall include the following items:

a. Legal description of the applicant's property.

b. Detailed construction plans and drawings of the entire project prepared and stamped by a licensed civil engineer.

c. Itemization of all costs of construction of the project. Such itemized estimates of construction costs shall be prepared and signed by a licensed civil engineer or shall be in the form of a bid submitted by a qualified contractor (if more than one bid has been obtained, all bids must be submitted to the Director).

d. Scaled and clearly reproducible vicinity drawings, stamped by a licensed civil engineer or licensed land surveyor depicting the improvements, their location, the proposed benefit area (assessment reimbursement area) including dimensions and county assessor's numbers for each tax parcel, size of parcels, and proposed method and evaluation for determining benefit.

e. A proposed assessment roll containing the county auditor's tax lot numbers, a certified list of record owners, legal descriptions and proposed assessment for each separate parcel within the proposed

assessment reimbursement area as determined as set forth in subsection D of this Section.

f. Such other information as the Director determines is necessary to properly review the application.

D. Determination of Benefited Area Boundaries and Assessments. An assessment reimbursement area shall be based upon a determination of which parcels did not contribute to the original cost of the Water Facility and who may subsequently tap into or use the same, including not only those who may connect directly thereto, but also those who may connect to laterals or branches connecting thereto. The amount of the assessment shall be established so that each property will be assessed a share of the cost of the construction of the Water Facilities based on the front footage required to extend the Water Facility to the nearest property line.

E. Duration of Agreement. No latecomer agreement shall provide for reimbursement for a period longer than fifteen years from the date of final acceptance of the Water Facility by the city.

F. Resolution of Preliminary Determination - Public Hearing.

1. The Director shall examine applications submitted in accordance with this Chapter and make recommendations to the City Council at a public hearing. The public hearing before the City Council shall be held within twenty days of receipt of the developer's complete application by the Director. The City Clerk-Treasurer shall provide ten days written notice to the developer of the date, time and place of the public hearing. The City Conncil may accept, modify or deny the developer's proposal. Any action to accept or modify the developer's proposal shall require the adoption of a resolution of preliminary determination and shall be based on a finding that the properties within the reimbursement areas are benefited from the development improvements, and that the method of assessment equitably distributes the cost of installation between all benefited parties. The resolution of preliminary determination shall include the following:

a. A map showing the geographical boundaries of the assessment area.

b. The assessments for the assessment area property.

c. Notification to property owners within the assessment area of their right to appeal the preliminary decision of the City Council set forth in the resolution by causing a written request for a hearing to be served on the City Clerk-Treasurer within twenty days of the mailing of the resolution to the assessed area property owners. The appeals shall be held at a public hearing before the City Council and all property owners in the assessed area shall be provided notice of the hearing.

d. Notification to property owners within the assessment area that the City Council at a public hearing requested by an assessment area property owner for the purpose of appealing the preliminary determination resolution of the City Council may deny a property

owner's appeal, reduce the size of the assessment area, increase or decrease the final assessments to assessment area property owners, or otherwise modify the terms of the preliminary determination resolution without further notification to the assessment area property owners.

e. Notification that the City Council's decision at a public hearing requested by an assessment area property owner for the purpose of appealing the preliminary determination resolution of the City Council is determinative and final.

f. Notification that the City Council may contract with the petitioner to carry out the preliminary determination resolution provisions or any modification thereof made at a pnblic hearing on the preliminary determination resolution requested by an assessment area property owner and such contract shall be binding on all assessment area property owners.

2. In reviewing the Director's decision, the City Council shall apply the criteria set forth in this Chapter and Chapter 35.91 RCW as it now exists or as it may be hereafter amended. The City Council may adopt, reject or modify the Director's determination.

G. Notification to Assessment Area Property Owners. Within ten days of adoption of a resolution making a preliminary determination as provided in subsection F, the City Clerk-Treasurer shall send, by certified mail, a copy of the resolution to all property owners of record within the assessment area.

H. Appeals by Assessment Area Property Owners. Whenever any property owner requests a hearing to appeal the City Council's preliminary determination resolution, ten days' written notice of the public hearing shall be sent by certified mail to all assessment area property owners and the developer. The hearing shall be conducted as a public hearing before the City Council within thirty-five days of the City Clerk-Treasurer's receipt of the assessment area property owner's request for the hearing. All requests for hearings received from area property owners shall be considered by the City Council at the same public hearing. The City Council's determination shall be based on a finding that the properties within the reimbursement areas are benefited from the development improvements, and that the method of assessment equitably distributes the costs of installation between all benefited parties. The City Council may adopt, reject or modify the preliminary determination resolution. The determination of the City Council at any such hearing is final.

I. Final Determination Ordinance - Written Agreement. Following any final determination of the City Council after a public hearing on an appeal by an assessment area property owner, or upon expiration of the time period for appeal, a Latecomer Agreement in a form prepared by the City attorney along with the application and supporting documents, together with the determination of costs, benefited area and assessments, shall be presented to the City Council with a request that the City Council adopt an ordinance

containing the final determination of the assessment reimbursement area and the pro rata share of reimbursable costs, approving the Latecomer Agreement and authorizing the mayor to sign the agreement on behalf of the City. The Latecomer Agreement shall contain a provision that the City shall not be responsible for the costs of enforcement of the Latecomer Agreement and shall not under any circumstances be liable to the party requesting the Latecomer Agreement for any of the costs of constructing the Water Facilities that are the subject of the Latecomer Agreement. Upon approval by the City Council, the City Clerk-Treasurer shall acquire the signatures of all other parties and record the agreement as required by subsection K of this Section.

J. Costs and Fees - Developer Responsibility.

1. Developers petitioning the City Council to establish a reimbursement area shall pay all of the City's costs and fees for professional services incurred in establishing or attempting to establish a Latecomer Agreement with the developer. The City's costs and fees for professional services shall include, but shall not be limited to, the costs for mailing notices, auditor's filing fees, fees for the City's professional engineering services or other consultant service, and reasonable attorney's fees incurred by the City.

2. In the event that costs incurred by the City as set forth in part 1 of this subsection exceed the amount of the application fee established pursuant to subsection D, the City Clerk-Treasurer shall so advise the City Council and the City Council's approval of the Latecomer Agreement shall be conditioned upon the prior receipt of payment by the applicant of an amount sufficient to compensate the City for its costs in excess of the application fee.

K. Latecomer Agreement Must be Recorded. In order to become effective, a Latecomer Agreement must be recorded with the office of the Douglas County auditor no later than thirty days after the Latecomer Agreement is signed by all parties.

L. Construction and Acceptance of Improvements - Recording of Final Assessment.

1. When an application is made prior to construction of the Water Facility and the Latecomer Agreement has been signed by all parties and all necessary permits and approvals have been obtained, the applicant shall construct improvements, and upon completion, request final inspection and acceptance of the improvements by the City, subject to any required obligation to repair defects. When deemed appropriate by the Director, a bill of sale, easement and any other documents needed to convey the improvements to the City and to insure right of access for maintenance, repair and replacement shall be provided, along with documentation of the actual costs of the improvement and a certification by the applicant verifying the actual costs and that all of such costs have been paid.

2. In the event the actual costs are less than the preliminary assessment estimate by ten percent or more, the Director shall recalculate the assessments, reducing

them accordingly, and shall cause a revised list of assessments to be recorded with the Douglas County Auditor.

M. Collection of Assessments.

1. Subsequent to the recording of a Latecomer Agreement, the City shall not permit connection of the assessment area properties to any Water Facility constructed pursuant to the Latecomer Agreement, unless the share of the costs of such facilities required by the recorded agreement is first paid to the developer(s) as evidenced by the certificate of payment and release of assessment recorded as set forth in subsection O.

2. Upon receipt of any reimbursement fees, the City shall deduct a six percent administrative fee and remit the balance of the reimbursement fees to the party entitled to the fees pursuant to the Latecomer Agreement. In the event that through error, the City fails to collect a required reimbursement fee prior to approval of connection to a Water Facility, the City shall make diligent efforts to collect such fee, but shall under no circumstances be obligated to make payment to the party entitled to reimbursement, or in any other way be liable to such party.

3. In the event the City becomes a party to any litigation arising out of the City's attempted enforcement of a Latecomer Agreement against an assessment area property owner, the City shall be entitled to recover from the developer its reasonable attorneys' fees and costs, which fees and costs shall constitute a lien upon all funds due the developer pursuant to the Latecomer Agreement.

N. City - Not Liable. The City shall not be liable under a Latecomer Agreement or otherwise to pay for any of the costs of the Water Facilities constructed by a developer.

O. Release of Assessments. When total reimbursement is received for each parcel subject to the Latecomer Agreement, the developer shall record a certificate of payment and release of assessment as to the real property owned by the party paying a latecomer assessment within sixty days of receipt of the funds.

RESOLUTION NO. 04-_058__

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF ROCK ISLAND, WASHINGTON, SETTING FEES AND RATES FOR ANIMAL CONTROL, WATER USE, ADMINISTRATIVE SERVICES, ROCK ISLAND TRAILER COURT, DEVELOPMENT, PERMITTING, AND ANNEXATION; BUILDING PERMITS; REPEALING CITY RESOLUTION NOS. 02-041 AND 04-056; CONTAINING A SEVERABILITY CLAUSE AND SETTING AN EFFECTIVE DATE.

WHEREAS, City staff have reviewed the various rate resolutions of the City Council and in an effort to assist the City staff, City Council and Mayor in evaluating fees and rates for City services, proposes to combine all of those rates and fees into one resolution; and

WHEREAS, the City Council have reviewed this Resolution and the rates set forth herein and support the adoption of this consolidated Resolution; now, therefore,

THE CITY COUNCIL OF THE CITY OF ROCK ISLAND, WASHINGTON, HEREBY RESOLVE AS FOLLOWS:

Section 1. Animal control fees. Pursuant to Section 6.12.050 of the Rock Island Municipal Code, the following fees are hereby adopted by the City Council:

A.

1. Dog registration and renewal fee, with registration identification tag, altered: $10.00
2. Dog registration and renewal fee, with registration identification tag, not altered: $20.00
3. Dog registration and renewal fee, with electronic identification, altered: $5.00
4. Dog registration and renewal fee, with electronic identification, not altered: $7.00
5. Voluntary animal registration fee, with registration identification tag: $5.00
6. Voluntary animal registration fee, with electronic identification: $-0-

7. Dog kennel license fee: $50.00
8. Guard dog or attack dog registration fee: $100.00
9. Dangerous animal registration fee: $50.00
10. Potentially dangerous dog registration fee: $50.00
11. Late fee penalty: two times the underlying fee
12. Registration fee discounts for senior citizens and disabled persons: none
13. Administrative fees pursuant to Section 6.12.050
14. Impound fee: $25.00

B. Other fees pursuant to Rock Island Municipal Code 6.12.050(C) at the actual cost charged to the City by the service provider.

Section 2. Rates for water use. Pursuant to Rock Island Municipal Code 8.24.050, the following rates shall be charged for water usage, installation and capital recovery:

A. Water meter installation fees:
(Meter size of 5/8)
1. Within City limits: $1,050.00
2. Outside City limits: $1,250.00

The water meter installation fee for one water meter shall be waived by the City upon proof by the applicant in a form acceptable to the City, that the applicant has at its expense installed and dedicated to the City water system improvements of a minimum value of $20,000.

B. Plant Investment Fees (all users): $1,000

C. Residential
1. Within City limits
a. Minimum charge of $30.00 per month for the first 1,500 cubic feet. This charge shall increase to $30.75 per month effective December 31, 2005, then to $31.52 per month effective December 31, 2006, then to $32.31 per month effective December 31, 2007, and then to $33.12 per month effective December 31, 2008.
b. A minimum charge of 20 cents per 100 cubic feet for the next 500 cubic feet.
c. A minimum charge of 25 cents per 100 cubic feet for the next 2,000 cubic feet.
d. For each 100 cubic feet or part thereof over 4,000 cubic feet the sum of 50 cents per 100 cubic feet.

2. Outside City limits
a. A minimum charge of $38.50 per month for the first 1,500 cubic feet. This charge shall increase to $39.46 per month effective December 31, 2005, then to $40.45 per month effective December 31, 2006, then to $41.46 per month effective December 31, 2007, and then to $42.50 per month effective December 31, 2008.

b. A minimum charge of 20 cents per 100 cubic feet for the next 500 cubic feet.

c. A minimum charge of 25 cents per 100 for the next 2,000 cubic feet.

d. For each 100 cubic feet or part thereof over 4,000 cubic feet the sum of 50 cents per 100 cubic feet.

3. Rate Reduction

Low income senior citizens and low income disabled citizens as defined in Chapter 8.34 RIMC, as now exists or as may be hereafter amended, are entitled to a $3.00 rate reduction in the minimum charge established in paragraphs 1.a. and 2.a.

D. Commercial Users

1. Within City limits

a. A minimum charge of $36.00 per month for the first 2,200 cubic feet. This charge shall increase to $36.90 per month effective December 31, 2005, then to $37.82 per month effective December 31, 2006, then to $38.77 per month effective December 31, 2007, and then to $39.74 per month effective December 31, 2008.

b. A minimum charge of 20 cents per 100 cubic feet for the next 500 cubic feet.

c. A minimum charge of 25 cents per 100 cubic feet for the next 2,000 cubic feet.

d. For each 100 cubic feet or part thereof over 4,700 cubic feet the sum of 50 cents per 100 cubic feet.

2. Outside City Limits

a. A minimum charge of $43.50 per month for the first 2,200 cubic feet. This charge shall increase to $44.59 per month effective December 31, 2005, then to $45.70 per month effective December 31, 2006, then to $46.84 per month effective December 31, 2007, and then to $48.01 per month effective December 31, 2008.

b. A minimum charge of 20 cents per 100 cubic feet for the next 500 cubic feet.

c. A minimum charge of 25 cents per 100 cubic feet for the next 2,000 cubic feet.

d. For each 100 cubic feet or part thereof over 4,700 cubic feet the sum of 50 cents per 100 cubic feet.

E. Miscellaneous Charges

1. Office charges

a. Account set-up: $20.00.

b. Late fee: $5.00. All payments are due on the last business day of the month by 11:59 p.m.

c. NSF Fee: $25.00

2. Service charges

a. Service shut-off or reconnection charges:

(1) Between the hours of 9:00 a.m. and 3:00 p.m. Monday through Friday, except holidays: $20.00

(2) All other times: $40.00

b. Meter Testing at customer request: $25.00

c. Meter Box Clean Out: $15.00

d. Replacement of broken meter, meter box, meter lid or pad: Actual cost of Replacements and $15.00

Section 3. **Fees for Administrative Services.** Pursuant to Ordinance No. 99-047, the City Council adopts the following fees for administrative services pursuant to Chapter 1.24 of the Rock Island Municipal Code as follows:

A. Copying Charges $.10 per page for public documents pursuant to RCW 42.17.300 and $.25 per page for non-public documents;

B. Faxes $3.00 for first page, $1.00 for each additional page;

C. Notary Service $4.00 per stamp;

D. NSF fee on any check returned to the City, $25.00.

Section 4. **Rock Island Trailer Court Fees.** Pursuant to City Ordinance No. 99-048, the rental rates and NSF fees for the Rock Island Trailer Court are hereby established as follows:

A. The monthly rent rate for the Rock Island Trailer Court shall be increased to $175 per month including leasehold tax. Subject to the notice requirements of RCW Chapter 59.20 RCW, Rock Island Trailer Court Lease Agreements shall be amended accordingly.

B. A late fee of $25 shall be due and payable in addition to the monthly rental fee due for any monthly rental fee payment not made on or before the 10th day of the month.

C. The NSF fee shall be $25 for any NSF checks returned to the City on any payments made pursuant to a Rock Island Trailer Court Lease Agreement. Rock Island Trailer Court Lease Agreements shall be amended accordingly.

Section 5. **Development, permitting, and annexation fees.** Chapter 14.05 of the Rock Island Municipal Code ("RIMC") provides that the City Council shall, by resolution,

establish fees for processing and reviewing certain projects that shall cover the cost of processing, inspecting, reviewing, or preparing materials related to development processes identified in Chapter 14.05 and in this Section of this Resolution.

RIMC 14.05.010(C) provides that in the event the fees established by the City are less than the actual costs incurred by the City:

> " ... any excess costs shall be assessed and paid by the applicant on the basis of the hourly rate of City department staff or outside consultants retained for inspection, review and/or analysis of the development or permitting action, including, but not limited to, engineers, surveyors, planners, architects, and attorneys, plus material costs and reasonable expenses incurred by such consultants and billed to the City."

The purposes of the fees set forth in this Section of this Resolution are to implement the previous action of the City Council as set forth in Chapter 14.05 RIMC.

RIMC 16.04.080 provides that the actual costs of processing and handling applications made pursuant to Title 16 of the RIMC shall be paid in the manner set forth in RIMC 16.04.080.

The City Council hereby adopts the language in RIMC 16.04.080 with respect to all development-related fees identified in this section of this Resolution regardless of whether the fees are associated with Title 16 RIMC development applications.

For purposes of establishing a base line minimum fee for certain development permit applications, the City adopts the following minimum fee schedule table in addition to the fees set forth in the RIMC and as identified above in this Section of this Resolution. In all development permit application circumstances addressed in the table set forth below, the Clerk-Treasurer may require additional advance fee deposits from the applicant when it is reasonably estimated by the Clerk-Treasurer that the actual costs of the City to process the development application may exceed the minimum fee listed in the table.

	Development Action	Minimum Fee
1	Subdivision	$450 + $25 per lot
2	Short Subdivision	$250 + $25 per lot
3	Final Plat Review	$200
4	Plat Amendment & Plat Alteration	$100
5	Boundary Line Adjustment	$50
6	Planned Residential Development	$450 + $25 per lot
7	Binding Site Plan	$250
8	Variance	$300
9	Conditional Use Permit	$300
10	Home Occupation Permit	$300
11	Shoreline Substantial Development Permit	$300
12	Appeals	$300
13	Site Evaluation	$50
14	Revisions and/or Rehearings	$300
15	Zoning Code Text Amendment	$100
16	Zoning Map Amendment	$100
17	Comprehensive Plan Text Amendment	$100
18	Comprehensive Plan Map Amendment	$1,000
19	Consultation Fee	$50 Minimum or actual amount estimated by Clerk-Treasurer
20	Professional Fees	Actual amount Clerk-Treasurer estimates in advance as required initial advance fee deposit as set forth in RIMC 16.04.080 with respect to all development-related applications or inquiries
21	SEPA (with notice)	$200
22	SEPA (without notice)	$100
23	SEPA - Mitigated Determination of Non-Significance (MDNS) or Environmental Impact Statement (EIS)	Clerk-Treasurer shall require an advance fee deposit in an amount estimated to cover the City costs and continuous deposits to ensure that all actual costs of the City are paid by the applicant
24	Annexation Fee	$5,000.00 deposit to be held by City in an account for payment of those costs incurred in analyzing the annexation proposal as set forth in RIMC Section 14.05.010(C). As the City is billed and pays for items associated with the proposed annexation, the account shall be reduced in amounts necessary to reimburse the City. Any remaining sums in the account at the time of

annexation, completion or termination of the annexation process, for any reason, less outstanding costs, shall be refunded to the applicant. If the account is reduced to zero, and additional sums are necessary for payment of those costs, the applicant shall reimburse the City for such costs upon written demand by the City.

Section 6. Building Permit and Plan Review Fees.

A. For purposes of RIMC 15.02.045, building permit fees as set forth in Section 107.2, Table 1-A, of the 1997 edition of the Uniform Building Code are adopted by this reference as if fully set forth, subject to the following fee amendments for inspection of mobile homes and manufactured homes, as defined pursuant to RCW 46.04.302, as now exists or as may be hereafter amended, which shall be charged in lieu of any other building permit fees:

1. Single wide $150
2. Double wide and above $200

B. The "Total Valuation" referenced in Table 1-A shall be based on local area construction costs, as the same are calculated from time to time by the City Building Official.

C. In addition to the building permit application and plan review fees that the applicant must submit as specified herein and in Table 1-A, Section 107 of the 1997 edition of the Uniform Building Code, whenever review of a building permit application requires the retention by the city of professional consultant services, the applicant shall reimburse the city for the cost of such professional consultant services. The city may also require the applicant to deposit an amount with the city estimated in the discretion of the building official to be sufficient

to cover anticipated costs of retaining professional consultant services and to insure reimbursement to the city for such costs.

Section 7. **Repealer.** The following City Resolutions are hereby repealed: 02-041 and 04-056.

Section 8. **Severability.** If any section, sentence, clause or phrase of this resolution should be held to be invalid or unconstitutional by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or constitutionality of any other section, clause or phrase of this resolution.

Section 9. **Effective Date.** This Resolution will take effect and be in full force January 1, 2005 at 12:01 a.m.

RESOLVED this 9th day of December, 2004.

APPROVED:

Angela Larson

MAYOR ANGELA LARSON

ATTEST/AUTHENTICATED:

Kristi Haskins

INTERIM CITY CLERK-TREASURER, KRISTI HASKINS

FILED WITH THE CITY CLERK:
PASSED BY THE CITY COUNCIL:
RESOLUTION NO. 04-058.

City of Rock Island

Title 19
DEVELOPMENT STANDARDS

Chapters:

19.02 General Provisions
19.10 Streets
19.20 Storm water
19.30 Water System
19.40 Sewer System (Reserved)
19.50 Lighting
19.90 Drafting Standards

Chapter 19.30
WATER SYSTEM

Sections:

19.30.010 Introduction and Applicability
19.30.020 Design Standards
19.30.030 Plans and Profiles

19.30.010 Introduction and Applicability

A. The items herein contained are the water system standards, conditions, and specifications of the City of Rock Island, and are to be considered in conjunction with other provisions of City plans and/or regulations governing the public water supply system. These are minimums only and may be increased or altered to fit particular site conditions and/or situations. The City by this reference adopts the latest edition of the *"Standard Specifications for Road, Bridge and Municipal Construction"* (hereinafter referred to as the "Standard Specifications") as prepared by the Washington State Department of Transportation and the Washington State Chapter of the American Public Works Association to govern all aspects of street improvements including but not limited to materials, labor, equipment for installation, workmanship, testing, etc. Any material, design, standard, or testing not specifically addressed within this document shall be as per the Standard Specifications. The City also by this reference adopts the latest version of the *"Standard Plans"* (engineering drawings hereinafter referred to as the "Standard Plans") published by the Washington State Department of Transportation.

B. In addition to the specific standards set forth in this chapter, the City may develop a Technical Specifications Guidebook containing drawings that graphically depict the provisions of this chapter and the Standard Specifications. This guidebook may also specify where the City may choose to add to, remove from, and/or replace (in whole or in part) certain aspects of the Standard Specifications and Standard Plans adopted by reference herein. The guidebook is a technical reference document that may be updated periodically based on changes in engineering standards, whether those be City standards or updated standards in the design and construction documents that are adopted by reference in this chapter.

C. These standards and specification shall apply to any work that is done to the City's water system, whether required as a condition of development permit approval or as a result of an individual request for water extension.

19.30.020 Design Standards

The design and construction of water system improvements shall be dependent on local site conditions, and shall conform to the following minimum standards.

A. General Requirements

1. The design and construction of extensions of the water system shall be consistent with the City's approved comprehensive plans and all other applicable state, county and local agency standard regulations. Obtaining necessary permits issued by an agency or authority other than the City shall be the responsibility of the developer.
2. If future extension of the system are deemed probable by the City, the proposed systems shall be designed and sized to service future customers. Easements shall be provided to facilitate the same. Water lines shall be extended to the boundaries of the property being served, providing access for future service to adjacent properties. Water mains shall be designed and constructed for the ultimate development of the service areas and as may be further established in the City's Water Comprehensive Plan.
3. Whenever water lines are located outside of public streets or alleys, the easement shall be of sufficient width to allow for future replacement of the facility without damage to permanent adjacent improvements. In general, if the water line is located in the center of an easement, the easement shall be a minimum width of 15 feet. Special circumstances may require additional widths as determined by the City.
4. Detailed plans shall be submitted for the City's review and approval that provide the location, size, type and direction of flow of the proposed watermains and the connection with existing mains. Horizontal locations and elevation information shall be to a datum acceptable to the City. Computations and other data used for the design of the water system improvements shall be submitted to the City for approval.
5. Construction of new water systems or extension of existing systems will be allowed only if enough water is available to meet fire flow requirements per the City and the Uniform Fire Code.
6. All materials shall be new and undamaged, and the same manufacturer of each item shall be used throughout the work. Material and installation specifications shall contain appropriate requirements that have been established by the industry in its technical publications, such as ASTM, WSDOT, WEF and APWA standards. Requirements shall be set forth in the specifications for the pipe and methods of bedding and backfilling so as not to damage the pipe or its joints, impede cleaning operations and future tapping, nor create excessive side fill pressure or deformation of the pipe, nor seriously impair flow capacity.
7. All main lines must be designed to provide proper circulation of water and fire flow to all lands serviced by the development. All water mains shall be designed to prevent damage from superimposed loads. Proper allowance for loads on the water main due to the width and depth of the trench should be made. When standard-strength water pipe is not sufficient, extra-strength pipe shall be used, as determined by the City.
8. Prior to final inspection, all pipelines shall be tested, flushed and cleaned and all debris removed and disposed of at a location approved by the City. A pipeline "cleaning ball" of the proper diameter for each size of pipe shall be flushed

through all pipelines prior to final inspection. Hydrant meters shall be acquired from the City and utilized by the contractor for all water withdrawn form the City's system for flushing, construction, cleaning and testing purposes.

9. After all other work is completed and before final acceptance, the entire roadway, including, without limitation, the roadbed, planting, sidewalk areas, shoulders, driveways, alley and side street approaches, slopes, ditches, utility trenches and construction areas shall be neatly finished to the lines, grades and cross sections for a new street consistent with the provisions of this title and the original street section.
10. Water main extension projects shall be conveyed to the City for operation and maintenance upon final project acceptance.

B. Design elements

1. Water pipelines shall be laid only in dedicated streets, alleys or easements which have been, or will be prior to final acceptance, exclusively granted to the City.
2. The minimum size water main permitted shall be six inch (6") diameter when an adequate grid is provided. An adequate grid shall be defined as a piping system that measures no more than six hundred feet on one side and the sum of the two sides shall not exceed nine hundred feet. Hydraulic calculations shall be submitted where required to validate designs involving two or more pressure zones, a booster pump, or a reservoir, as required by the engineer. Where an adequate grid is not established, pipe size shall be eight inch (8") diameter or larger as required to transport peak daily demand plus fire flow.
3. The water pipelines shall be located such that a minimum of 10 foot horizontal separation from proposed or existing parallel sewer mains and 5 foot horizontal separation from all other parallel underground utilities is maintained at all times.
4. Ductile iron pipe shall be Class 52 and conform to AWWA C151 and C104.
5. The allowable cover (finished grade) for DI and PE pipe shall be no less than 4 feet nor more than 25 feet, as approved by the City engineer. The City reserves the right to require a minimum of four feet of cover unless topography, existing facilities or other future improvements prohibit this minimum cover for installation.
6. Fire hydrants are required approximately every 350 feet in the residential areas and are required every 300 feet in commercial, public and industrial areas. The size, type and location of fire hydrants shall meet the approval of the Fire District, and all fire hydrants and installations shall conform to the current edition of the Uniform Fire Code.
7. Pipe runs from main line to standard hydrants less than 50 feet in length must be a minimum of 6 inches. Pipe runs from main line to standard hydrants more than 50 feet in length must be a minimum of 8 inches.
8. One-inch minimum air and vacuum release valves shall be installed at principal high points in the system. High points should be avoided, to the extent possible. Valving shall be installed at all intersections, on each end of easement lines and in line at maximum spacing of 600 feet.

9. Dead-end lines are not permitted, except in certain cul-de-sac streets, in which case, hydrants must be provided at the end of the main.
10. Service connections shall be installed with pipe saddles for 2 inch taps. Double strap saddles are required on 12 inch and larger diameter mains.
11. System valves shall be installed at intervals of no more than 1,200 feet.
12. Blow-off assemblies are required at all dead ends and all low points in the water distribution system, and shall be placed as determined by the City engineer.
13. Pressure reducing systems must be installed when static pressures exceed 80 psi.
14. Meters smaller than 2" shall be furnished and set by the City. Meters shall not be activated prior to payment by water user of all applicable hook-up fees. The City owns and maintains only appurtenances from and including the water meter to the water main

C. General Construction Practices

1. Except as otherwise noted herein, all work shall be accomplished as recommended in the current Standard Specifications and according to the recommendations of the manufacturer of the material or equipment used. Contractor shall have a copy of the specifications on the job site at all times. Contractor shall furnish a water-tight plug of the appropriate size which shall be installed in the end of the water main when work is delayed or stopped at the end of the work day.
2. Installation and testing shall be in conformance with the current edition of the Standard Specifications. The City must supervise the owner taking necessary samples for bacteriological tests. The system shall not be placed into service until the City provides written permission.
3. Hydrostatic testing shall be accomplished by the developer on lines before completion of backfilling, with the pipe joints accessible for examination. Sufficient backfill material shall be placed over the pipe barrel between joints to prevent movement.
4. Trenches shall be excavated to the line and depth designated by the approved plans and shall be excavated only to such widths as are necessary for adequate and safe working space. No manned trench width less than 30 inches will be allowed. The trench shall be kept free from water until complete. Surface water shall be diverted so as not to enter the trench. The Developer shall maintain sufficient pumping equipment on the job to insure that these provisions are carried out.
5. The Developer shall perform all excavation. Boulders, rocks, roots and other obstructions shall be entirely removed or cut out to the width of the trench and to a depth 6 inches below water main grade. Where material is removed from below subgrade, the trench shall be backfilled to grade with material satisfactory to the City. Unsuitable material below the depth of the proposed pipe shall be removed and replaced with satisfactory materials as determined by the City. The Developer shall be responsible for meeting current Labor and Industry Trench and Shoring Protection and Washington State Safety Standards.

6. When trenching operations cut through asphalt/concrete pavement, the pavement shall be removed to a solid edge along the width of the trench as approved by the City engineer. The pavement shall be saw cut on a straight line and shall be beveled so that the cut will be approximately 1 inch wider at the top than at the bottom.
7. Trenching operations shall not proceed more than 200 feet in advance of pipe laying without written approval of the City.
8. Special treatment may be required at the discretion of the City for pipe laid in filled areas. This treatment may consist of compacting the backfill in 6" layers, use of select backfill materials, use of Mechanical Joint Ductile Iron Pipe in short lengths, welded HDPE pipe, or such other reasonable methods or combinations as may be necessary in the opinion of the City based upon topography, soil type and any other unique characteristics or the area.
9. Pipe shall be placed on a prepared subgrade of stable bedding material consisting of clean, granular, unfractured material. Bell holes shall be excavated so the pipe, when laid, will have a uniform bearing under the full length of the pipe. The Developer shall be responsible for adequate support and bedding for the pipe. The trench shall be backfilled and compacted to no less than 95 percent of the maximum theoretical density
10. Whenever the trench is excavated below the depth required for proper bedding, it shall be backfilled with bedding gravel and compacted, as provided above.
11. Backfilling and surface restoration shall closely follow installation and testing of pipe, so that not more than 200 feet of pipe is left exposed without express approval of the City. Selected backfill material shall 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 shall be compacted to current WSDOT Standards. Where other agencies have jurisdiction over roadways, the backfill and compaction shall be done to the standard of the agency having jurisdiction.
12. Pipe trenches shall not be backfilled until the pipe and bedding installation has been inspected and approved by the City.
13. Final testing shall not be accepted until after the asphalt treated base or finished paving is accomplished, all other underground utilities have been installed, and the lines have been satisfactorily flushed and cleaned in accordance with the requirements of the State Health department and in a manner satisfactory to the City.
14. Any material, design, standard or testing not specifically addressed within these standards shall be as per the current edition of the Standard Specifications and the American Water Works Association Standards, which is hereby adopted by this reference.
15. The developer shall give City customers whose service may be disrupted no less than 24 hours notice prior to the interruption.

19.30.030 Plans and Profiles

A plan and profile of the proposed water system improvements showing the following data shall be submitted to the City for approval prior to any final development approval and construction. The plan shall be prepared and designed by a Civil Engineer currently licensed to practice in the State of Washington and shall contain the Engineer's stamp and signature certifying the design. It shall be submitted on a sheet size of 24" x 36", and shall be drawn at a scale of 1" = 50'. A one & one half-inch margin shall be provided on the left edge, and a one half-inch margin shall be provided on the other edges of the map. All maps shall be drawn on mylar sheets.

A. **Plan:** The plan shall contain the following information:

1. Show the locations of existing streets, right-of ways, adjacent property lines, easements, utilities, driveways and water mains;
2. Show all proposed right-of-ways, easements and or proposed property lines;
3. Site topography shall be shown at a minimum of one-foot intervals, to include a minimum of five foot internals within adjacent areas;
4. Show a vicinity and site location map.
5. Include all known existing structures, both above and below ground, that might interfere with the proposed construction, particularly sewer lines, gas mains, storm drains overhead and underground power lines, telephone lines and television cables;
6. Show all valves, fire hydrants, fittings and other appurtenances. Each shall be called out and located by stationing along the centerline of the street or baseline of the easement.
7. Show the size, material and length of each water line.
8. Show details as necessary to direct the contractor in making connections to the existing system and to protect existing facilities during construction of the new water line. Details shall be to scale drawings, which clearly show special water pipeline joints, connections, cross-sections, water appurtenances and all other items as required by the City to clearly identify construction items, materials and/or methods.

B. **Profile:** A separate drawing showing the vertical profile of the proposed water system is required. The scale of these drawings shall be 1" = 50' horizontal and 1" = 5' vertical with horizontal grid of 50' and vertical grid of 5'.

1. Show the water line in profile and the existing and proposed ground lines. Identify the size, slope and horizontal length of the water line;
2. Above the ground line, indicate the profile location by street name or other right-of-way designation.
3. Show all crossing utilities and designate special materials or construction procedures that may be required.
4. Provide a legend to clearly illustrate the composition of the profile.

Appendix F

2022City Standard Details

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE MOST CURRENT VERSIONS OF THE FOLLOWING:
   - 1.1. CITY OF ROCK ISLAND DEVELOPER EXTENSION AGREEMENT (when applicable).
   - 1.2. CITY OF ROCK ISLAND STANDARD DETAILS. IF ANY DETAIL IS REVISED AFTER PLAN APPROVAL, THE CITY WILL DETERMINE IF THE REVISION MUST BE INCORPORATED INTO THE WORK.
   - 1.3. CITY OF ROCK ISLAND SERVICE POLICIES AND CONSTRUCTION STANDARDS.
   - 1.4. WA. STATE DEPT. OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION.

2. ALL METAL PRODUCTS (VALVE BOXES & CASING PIPES EXCLUDED) & FITTING COMPONENTS (e.g. BOLTS, GLANDS, ETC) SHALL BE OF DOMESTIC FABRICATION & CONSTRUCTION. TEMPORARY MATERIALS NOT PART OF THE PERMANENT FACILITY NEED NOT BE DOMESTIC.

3. ONLY FORD, MCDONALD, & MUELLER PRODUCTS ARE APPROVED FOR SERVICE BRASS, UNLESS OTHERWISE NOTED IN THESE DETAILS.

4. A PRECONSTRUCTION CONFERENCE IS REQUIRED PRIOR TO CONSTRUCTION AND 48 HOURS ADVANCE NOTIFICATION OF THE LOCAL MUNICIPALITY, THE CITY OF ROCK ISLAND, AND ALL AFFECTED UTILITY COMPANIES PRIOR TO THE ACTUAL START OF WORK.

5. THE CONTRACTOR SHALL COMPLY WITH THE PROVISIONS OF THE RIGHT-OF-WAY/STREET CONSTRUCTION PERMIT AS ISSUED BY THE DOUGLAS COUNTY DEPT. OF TRANSPORTATION AND LAND SERVICES, CITY OF ROCK ISLAND, AND/OR WA. STATE DOT FRANCHISE FOR THIS PROJECT. TRAFFIC CONTROL SHALL FOLLOW THE ROAD AGENCY'S CODES AND STANDARDS.

6. LOCATIONS OF EXISTING UTILITIES SHOWN ON THE PLANS ARE ESTIMATED UNLESS STATED OTHERWISE. THE CONTRACTOR SHALL VERIFY, LOCATE AND PROTECT ALL UTILITIES WITHIN THE PROJECT AREA. THE CONTRACTOR SHALL REPLACE OR REPAIR ANY UTILITIES DAMAGED DURING CONSTRUCTION. SHOW ALL ENCOUNTERED UTILITIES ON THE AS-BUILTS.

7. LOCATION AND EXTENT OF IRRIGATION PIPELINES WITHIN THE PROJECT LIMITS ARE UNKNOWN. CONTRACTOR SHALL CONTACT PROPERTY OWNERS ADJACENT TO THE PROJECT FOR LOCATING PRIVATE IRRIGATION SYSTEMS. CONTRACTOR IS RESPONSIBLE FOR LOCATING, REPLACING, OR REPAIRING IRRIGATION SYSTEMS DAMAGED DURING CONSTRUCTION. REPAIR IRRIGATION SYSTEMS WITH PRODUCTS OF NO LESSER QUALITY THAN SCH 40 PVC. SHOW IRRIGATION ON THE AS-BUILTS.

8. ALL EXCAVATION SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH THE STANDARD DETAILS AND SECTIONS 7-9.3(10) AND 7-9.3(11) OF THE STANDARD SPECIFICATIONS. COMPACTION TESTING IS REQUIRED DURING BACKFILLING OPERATIONS AT THE DISCRETION OF THE CITY. IF TRENCH BACKFILL DOES NOT MEET COMPACTION REQUIREMENTS, CONTRACTOR SHALL EXCAVATE, RECOMPACT, AND RETEST MATERIAL AT CONTRACTOR'S EXPENSE.

9. RESTORATION OF DAMAGED ROAD SURFACING SHALL BE IN ACCORDANCE WITH THE LOCAL MUNICIPALITY'S REQUIREMENTS. ALL OTHER AREAS SHALL BE RESTORED TO ORIGINAL CONDITION OR AS DIRECTED BY THE CITY. THIS INCLUDES SHOULDERS, LANDSCAPING, WALLS, FENCES AND OTHER IMPROVEMENTS.

10. ALL WATER SERVICES, FIRE HYDRANTS, AND THRUST BLOCKING SHALL BE INSPECTED BY THE CITY BEFORE BURY.

11. CITY APPROVED THRUST RESTRAINTS ARE REQUIRED FOR ALL UNRESTRAINED FITTINGS. RESTRAINED JOINTS ARE ALLOWED INSTEAD OF THRUST BLOCKING WHERE APPROPRIATE RESTRAINED JOINTS ARE REQUIRED FOR MAINS THAT MAY BE EXTENDED LATER.

12. PROVIDE A SANITARY GAP BETWEEN THE EXISTING AND NEW WATER SYSTEMS. CONNECTION TO THE EXISTING WATER SYSTEM SHALL BE PERFORMED BY THE CONTRACTOR ONLY AFTER COMPLETING AN ACCEPTABLE PRESSURE TEST AND THE PIPELINE IS DISINFECTED, FLUSHED, AND RECEIPT OF ACCEPTABLE WATER QUALITY TEST RESULTS FROM THE HEALTH CITY OR LAB.

13. PERFORM PRESSURE TEST AT 250psi. THE CITY INSPECTOR HAS DISCRETION TO MODIFY THE TESTING REQUIREMENTS.
   - 13.1. PRESSURE WASHERS ARE NOT ALLOWED FOR PRESSURE TESTING. CITY HAS THE RIGHT TO REJECT ANY PUMP SYSTEM THAT IN THE CITY'S SOLE OPINION MAY BE UNSAFE OR UNSATISFACTORY.
   - 13.2. PRESSURE TEST INCLUDES MAINLINE, HYDRANTS, SERVICE LINES, SETTERS, AND CUSTOMER SERVICE SIDE TAILPIPE.
   - 13.3. TEST MAINLINE IN SECTIONS OF NO MORE THAN 1,500 FEET. PRESSURE DROP SHALL NOT EXCEED 5 psi IN 60 MINUTES.
   - 13.4. ASSEMBLE AND TEST VALVE CLUSTERS OUTSIDE OF THE TRENCH PRIOR TO INSTALLATION.
   - 13.5. TEST GAUGE RANGE SHALL NOT EXCEED 160% OF TEST PRESSURE (400 psi MAX FOR 250 psi TEST).

14. AN INFLATABLE PIPE PLUG SHALL BE USED ON EACH JOINT DURING INSTALLATION TO PROTECT AGAINST SOIL INTRUSION AND FLOODING OF THE PIPE. OPEN ENDS OF VALVES SHALL BE PLUGGED OR BAGGED UNTIL EXTENDED WITH PIPE.

15. NO OTHER PARALLEL UTILITIES SHALL BE INSTALLED WITHIN 36" HORIZONTALLY OF ANY ACTIVE WATER LINE UNLESS OTHERWISE APPROVED BY THE CITY.

16. CONTRACTOR SHALL POTHOLE A SUFFICIENT DISTANCE AHEAD OF PIPELAYING TO VERIFY DEPTH OF EXISTING WATER MAINS AND CROSSING UTILITIES AND TO ANTICIPATE ANY NECESSARY CHANGES IN FITTINGS OR ALIGNMENT.

17. HDPE SERVICE PIPE SHALL BE 200 psi RATED (DR9) CTS (Copper Tube Size). ONLY "QUICK-JOINT" OR EQUAL FITTINGS ALLOWED FOR HDPE OR COPPER PIPE CONNECTIONS, NO PACK JOINTS.

CONTINUED ON W-30 . . .

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18. AN AS-BUILT RECORD MUST BE SUBMITTED TO THE CITY BEFORE WATER SERVICE WILL BE PROVIDED.

19. DEFLECTION AT PIPE AND FITTING JOINTS WILL BE ALLOWED UP TO 3.0° PER JOINT (11" PER 18' PIPE STICK, WHICH IS 350' RADIUS) OR AS RECOMMENDED BY MANUFACTURER, WHICHEVER IS LESS.

20. CONTRACTOR SHALL ONLY DISPOSE OF WASTE MATERIAL AT SITES APPROVED BY DOUGLAS COUNTY TRANSPORTATION AND LAND SERVICES. STOCKPILE MATERIALS ONLY ON CITY APPROVED SITES.

21. ALL PIPE 3" AND LARGER SHALL BE DUCTILE IRON. DI PIPE SHALL BE MIN. CLASS 50 EXCEPT WHERE TRENCH BACKFILL AND LOADING DICTATE A STRONGER CLASS PIPE. CLASS 52 SHALL BE USED FOR HYDRANT RUNS AND IN AREAS WHERE PRESSURE EXCEEDS 150 PSI.

22. CONTRACTORS WORKING WITHIN THE RIGHT OF WAY OR ON EXISTING CITY INFRASTRUCTURE SHALL BE LICENSED, BONDED, AND HAVE EXPERIENCE INSTALLING PUBLIC DOMESTIC WATER SYSTEMS AND BE PREPARED TO PRESENT EXAMPLES OF 5 SUCH PROJECTS UPON REQUEST BY THE CITY.

23. <u>VAULT LID NOTE</u>: FOR ALL TAPER-TOP STYLE VAULTS FOR WATER SERVICES, AIR VALVES, PERMANENT BLOW-OFFS, AND OTHER PURPOSES, CONTRACTOR TO PURCHASE LID AND FRAME EQUAL TO EAST JORDAN IRONWORKS' FRAME/LID 3620Z/3620C FOR NON-TRAFFIC AREAS, AND 3619Z/3619C FOR DRIVEWAYS AND TRAFFIC AREAS.
   - 23.1. ANCHOR FRAME TO VAULT USING NON-SHRINK GROUT. FRAME AND LID TO BE RATED FOR TRAFFIC LOADING IN TRAFFIC AREAS.
   - 23.2. WATER SERVICE VAULT LIDS TO INCLUDE ONE 2-3/16" DIAMETER HOLE WITH 4-1/4" DIAMETER x 9/16" DEEP RECESS FOR RADIO.
   - 23.3. FOR AIR VALVES AND BLOW-OFFS, DO NOT DRILL HOLE IN LIDS, NOR PROVIDE "METER" TEXT ON FRAME.
   - 23.4. LID SURFACE TO HAVE A STATIC COEFFICIENT OF FRICTION NO LESS THAN 0.60 AS DETERMINED BY ASTM C-1028.

24. CONTRACTOR TO PROVIDE NO LESS THAN 48 HOURS NOR MORE THAN 72 HOURS NOTICE TO THE CITY PRIOR TO ANY REQUESTED SHUTDOWN OR CUSTOMER OUTAGE. CITY WILL PROVIDE NOTICE TO CUSTOMERS 24 HOURS IN ADVANCE OF OUTAGE.

25. RESTRAINTS, GASKETS, OR RESTRAINED PIPES (PORTIONS GOUGED BY RESTRAINTS) MAY <u>NOT</u> BE REUSED ONCE ASSEMBLED.

26. FLANGE GASKETS MUST BE RING TYPE (NOT FULL FACE) AND MINIMUM 1/8" THICK. FLANGE BOLTS ASTM A307 GRADE A OR B. STEEL BOLTS, NUTS AND WASHERS TO BE ZINC PLATED OR BE OF COR-TEN MATERIALS.

27. BURIED VALVES SMALLER THAN 4" DIAMETER TO BE CURB STOP OR CORP STOP PER DETAILS, OR STYLE AT THE DISCRETION OF THE CITY. BURIED VALVES SMALLER THAN 4" SHALL <u>NOT</u> BE GATE VALVES.

28. CONTRACTOR SHALL MAINTAIN AND RETURN ANY TEMPORARY EQUIPMENT PROVIDED BY THE CITY. CONTRACTOR SHALL REIMBURSE THE CITY FOR ANY DAMAGE OR LOSS OF EQUIPMENT.

29. STAKE LOCATIONS OF WATERMAIN, BENDS, TEES, HYDRANTS, AND VAULTS PRIOR TO EXCAVATION. AT THE CITY'S DISCRETION, THE CONTRACTOR MAY PROVIDE A GPS ROVER WITH LOCATIONS PRE-LOADED.

30. ALL CONCRETE VAULTS AND CHAMBERS MUST BE PRECAST. CAST-IN-PLACE ARE NOT ALLOWED.

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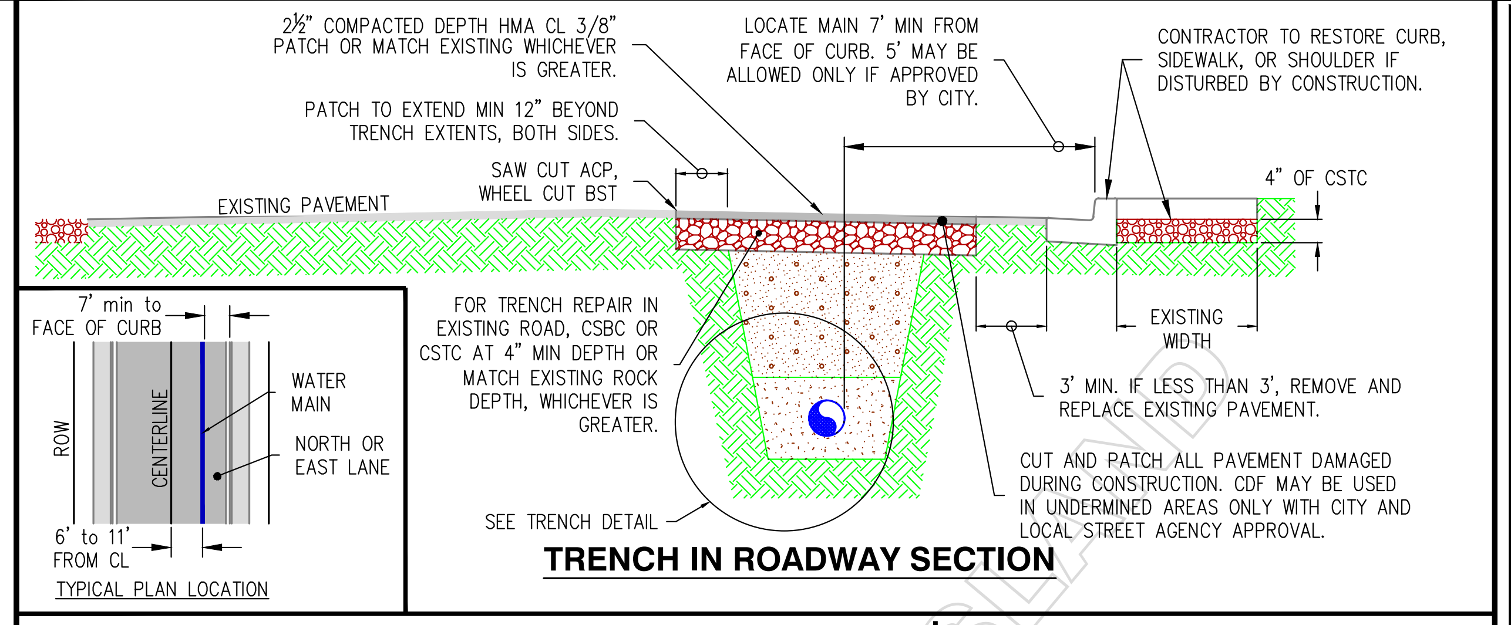


TRENCH IN ROADWAY SECTION

1. WATER TO OBTAIN OPTIMUM MOISTURE CONTENT AS DETERMINED BY COMPACTION TESTING PROCTOR.

2. RESTORE SHOULDERS WITH 6" OF ⅝" MINUS CRUSHED ROCK IF DISTURBED.

3. RESTORE DITCHES DISTURBED DURING CONSTRUCTION TO ORIGINAL CONDITION.

4. PLACE A TEMPORARY PATCH OVER TRENCH CUTS AT THE END OF EACH WORKING DAY SO THAT TRAFFIC IS NOT AFFECTED. TEMPORARY PATCHING MATERIAL SHALL BE ⅝" MINUS CRUSHED ROCK. COLD MIX MAY BE REQUIRED BY THE COUNTY OR CITY AS A TEMPORARY PATCH IN SOME AREAS.

5. ALL TRENCHING TO BE DONE IN ACCORDANCE WITH OSHA AND WISHA STANDARDS.

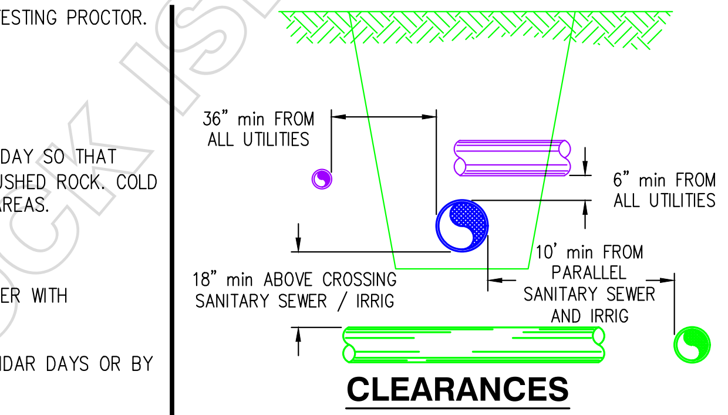
6. CROSSINGS OF INTERSECTIONS SHALL BE RESTORED BY THE END OF THE DAY EITHER WITH PERMANENT PATCH OR TEMPORARY COLD MIX.

7. NO TRENCH IN PAVED AREAS SHALL BE LEFT UNPAVED FOR MORE THAN 12 CALENDAR DAYS OR BY THE SECOND FRIDAY, WHICHEVER COMES FIRST.

8. POLY PIPE FOR WATER SERVICES, AIR VALVES, ETC. SHALL BE BEDDED IN SAND A MINIMUM OF 6" ABOVE AND BELOW THE PIPE.

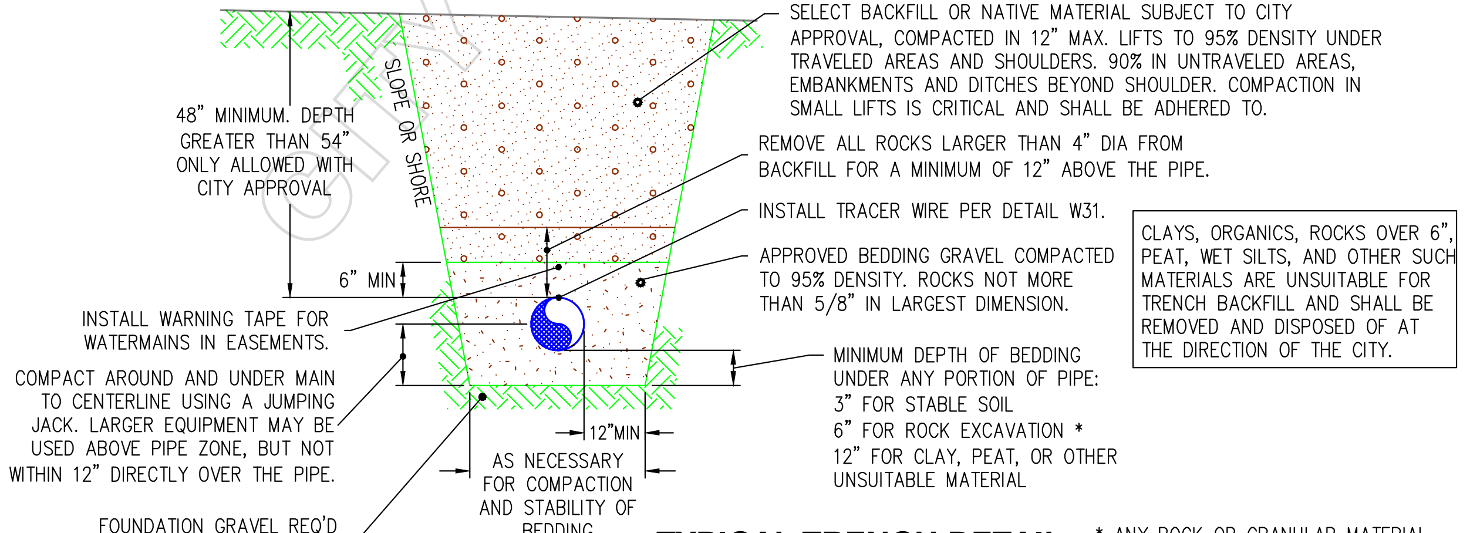
9. CITY OR COUNTY RESTORATION STANDARDS SHALL GOVERN IF MORE STRINGENT THAN SHOWN HERE.

10. INSTALL MAINS TO WITHIN 6-INCHES HORIZONTAL AND 2-INCHES VERTICAL OF THE APPROVED PLAN ALIGNMENT. VARIATIONS MUST BE APPROVED BY THE CITY.



CLEARANCES

IF 18" VERTICAL CLEARANCE IS AVAILABLE ABOVE PARALLEL SEWER/IRRIG, SEPARATION MAY BE REDUCED TO 5 FT HORIZONTAL, WALL TO WALL, ONLY IF APPROVED BY THE CITY. D.O.H. *WATER SYSTEM DESIGN MANUAL* SECTION 8.4 AND D.O.E. *CRITERIA FOR SEWAGE WORKS DESIGN* SECTION C1-9 SHALL BE ADHERED TO FOR CLEARANCES AND FOR MITIGATION METHODS.



TYPICAL TRENCH DETAIL

* ANY ROCK OR GRANULAR MATERIAL OVER 3" DIAMETER

City of
Rock Island
WATER SYSTEM STANDARD DETAIL
TRENCH SECTION
AND RESTORATION
File: EWDTW22 | Revised: DEC 21, 2021 | Printed: DEC 21, 2021
DRAWING NO. W-03 | SHEET NO. 3

CONSTRAINTS

1. SOIL CONDITIONS AND BEARING CHARACTERISTICS ARE TO BE DETERMINED BY THE CITY.

2. THIS STANDARD DETAIL IS FOR HORIZONTAL THRUST RESTRAINT ONLY.

3. CONCRETE BLOCKING SHALL BE PER DOT/APWA SPECIFICATION 7-09.3(21), CURRENT EDITION.

4. MAINTAIN 18" MINIMUM GROUND COVER OVER THE TOP OF ALL CONCRETE BLOCKING.

5. ALL THRUST BLOCKS TO BE FORMED AND FITTINGS COVERED IN PLASTIC.

6. ANY TEMPORARY BLOCKING USED TO SUPPORT FITTINGS DURING CONSTRUCTION SHALL BE REMOVED PRIOR TO BACKFILLING.

<u>PROCEDURE</u>

1. DETERMINE BEARING FACTOR IN TABLE 1 CORRESPONDING TO APPROPRIATE PIPE SIZE AND TYPE OF FITTING.

2. MULTIPLY THE BEARING FACTOR DETERMINED IN TABLE 1 BY THE MULTIPLICATION FACTOR IN TABLE 2 FOR THE APPROPRIATE SOIL CLASSIFICATION.

THE RESULT IS THE REQUIRED AREA OF CONCRETE (IN SQ. FT.) WHICH MUST BEAR AGAINST UNDISTURBED SOIL.

3. USING TABLE 3 LOCATE THE MINIMUM DEPTH OF CONCRETE (Dmin) CORRESPONDING TO THE REQUIRED BEARING AREA.

4. USING Dmin, THE HEIGHT AND LENGTH OF THE THRUST BLOCKING CAN BE DETERMINED FROM THE DIMENSION RELATIONSHIPS ILLUSTRATED IN FIGURE 1 AND DESCRIBED BELOW:

A. "H" EQUALS "D"
B. MAX. "L" EQUALS 2 x "H"
C. MIN. "L" EQUALS "H"

TABLE 1 - BEARING FACTOR

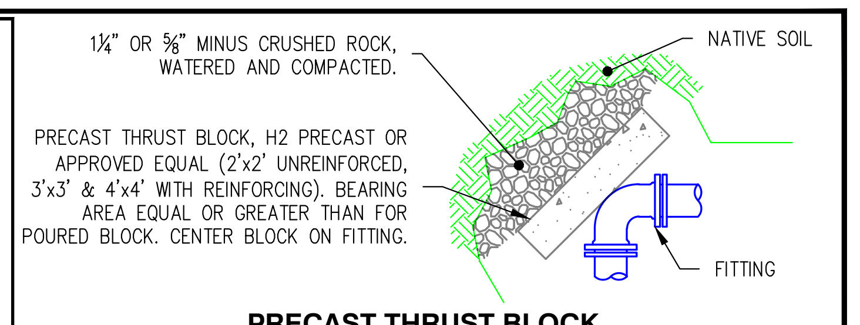
SIZE	TEST PRESSURE	TEES DEAD ENDS	90° BEND	45° BEND	22½° BEND	11¼° BEND
3	300	2.3*	2.6	2.3*	2.3*	2.3*
4	300	2.3*	3.8	2.3*	2.3*	2.3*
6	300	5.6	7.9	4.3	2.3*	2.3*
8	300	9.6	13.6	7.4	3.8	2.3*
10	300	14.5	20.5	11.1	5.7	2.8
12	300	20.5	29.0	15.7	8.0	4.0
14	300	27.6	39.0	21.1	10.8	5.4
16	300	35.7	50.4	27.3	13.9	7.0
18	300	44.8	63.4	34.3	17.5	8.8
20	300	55.0	77.7	42.1	21.4	10.8
24	300	78.4	111.0	60.0	30.6	15.4

* 2.3 BASED ON GEOMETRIC FACTORS

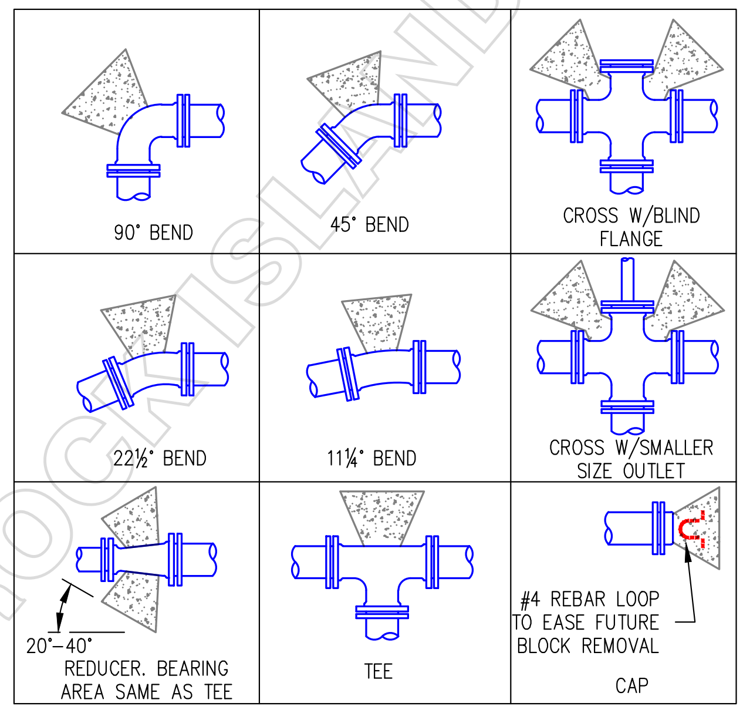
TABLE 2 - MULTIPLICATION FACTOR

SOIL CONDITION	MULTIPLICATION FACTOR
*MUCK, PEAT, etc.	–
SOFT CLAY	2.0
SILT	1.3
SAND OR SANDY SILT	1.0
SAND AND GRAVEL	0.7
SAND AND GRAVEL CEMENTED W/ CLAY	0.5
HARD SHALE	0.2

* RESTRAINT SHALL BE DESIGNED BY ENGINEER



PRECAST THRUST BLOCK



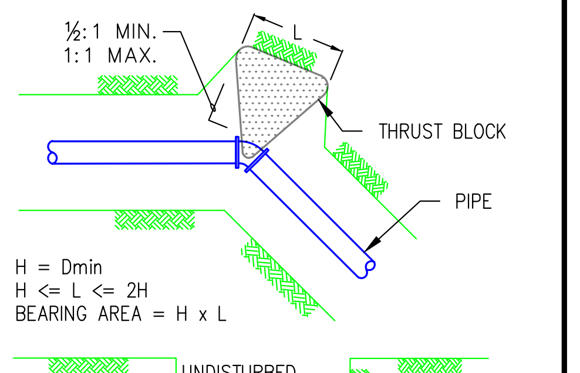


TABLE 3 - BLOCK SHAPE

REQ'D BEARING AREA (SQ. FT.)	MINIMUM DEPTH Dmin
2.25 MIN.– 5.0	1.5'
5.01 – 10.0	2.3'
10.01 – 15.0	3.0'
15.01 – 30.0	4.0'
30.01 – 40.0	4.5'
40.01 – 50.0	5.0'
50.01 – 70.0	6.0'

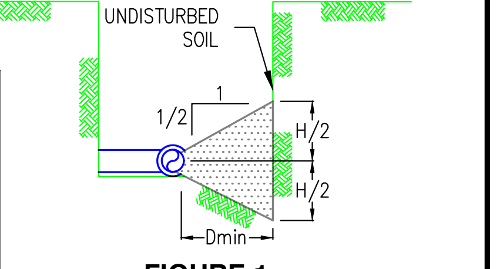
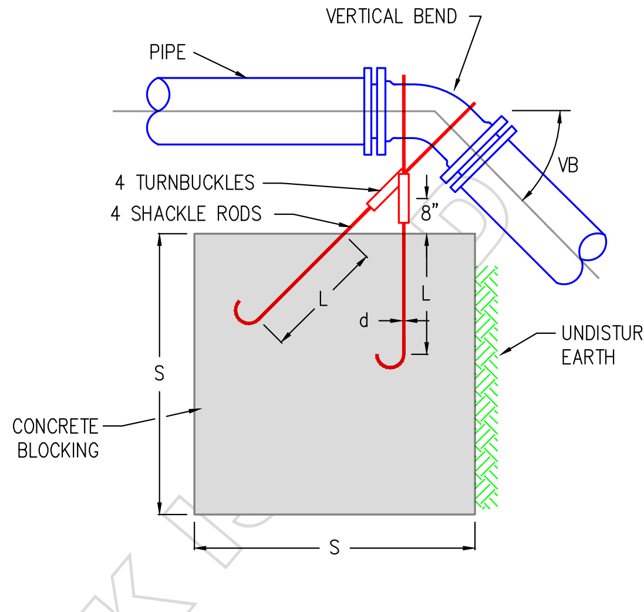


FIGURE 1

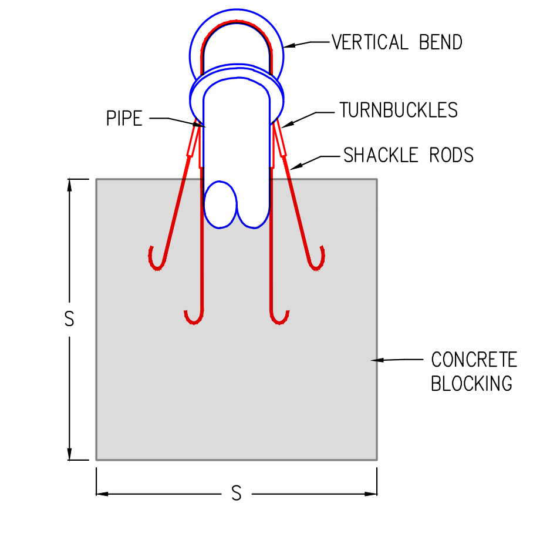
City of
Rock Island
WATER SYSTEM STANDARD DETAIL
HORIZONTAL
THRUST BLOCKING
File: EWDTW6 | Revised: JAN 22, 2021 | Printed: JAN 22, 2021
DRAWING NO. W-04 | SHEET NO. 4

VERTICAL THRUST BLOCKING FOR 11.25°, 22.5°, AND 45° BENDS

		VB		S	d	L	
PIPE SIZE NOM. DIAMETER – INCHES	TEST PRESSURE PSI	VERTICAL BEND DEGREES	AMOUNT CONCRETE BLOCKING – CU FT	LENGTH OF SIDE FEET	SHACKLE ROD DIA. INCHES	DEPTH OF ROD IN CONCRETE INCHES	NUMBER OF TIE ROD SETS (2 EMBEDDED RODS PER SET)
3"	300	11 1/4	5.8	1.8	5/8	12"	2
		22 1/2	11.5	2.3	5/8	12"	2
		45	22.6	2.8	5/8	12"	2
4"	300	11 1/4	8.5	2.0	5/8	12"	2
		22 1/2	17.0	2.6	5/8	12"	2
		45	33.2	3.2	5/8	12"	2
6"	300	11 1/4	17.6	2.6	5/8	12"	2
		22 1/2	35.0	3.3	5/8	12"	2
		45	68.7	4.1	5/8	12"	2
8"	300	11 1/4	30.3	3.1	3/4	12"	2
		22 1/2	60.2	3.9	3/4	12"	2
		45	118	4.9	3/4	12"	4
10"	300	11 1/4	45.5	3.6	3/4	12"	2
		22 1/2	90.6	4.5	3/4	12"	2
		45	178	5.6	3/4	24"	4
12"	300	11 1/4	64.4	4.0	3/4	12"	2
		22 1/2	128	5.1	3/4	12"	4
		45	251	6.3	3/4	12"	6
14"	250	11 1/4	86.5	4.4	3/4	12"	2
		22 1/2	172	5.6	3/4	24"	4
		45	338	7.0	1"	24"	6
16"	250	11 1/4	112	4.8	3/4	12"	3
		22 1/2	223	6.1	3/4	12"	6
		45	436	7.6	1"	12"	6
18"	250	11 1/4	141	5.2	3/4	24"	4
		22 1/2	280	6.5	1"	24"	4
		45	549	8.2	1-1/4"	24"	6



BLOCKING FOR VERTICAL BENDS



1. RESTRAINED JOINTS ARE PREFERRED OVER VERTICAL THRUST BLOCKING UNLESS RESTRAINTS ARE NOT PRACTICAL.

2. CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI.

3. SHACKLE RODS PER STANDARD DETAIL W-07.

VERTICAL THRUST BLOCKING

City of
Rock Island
WATER SYSTEM STANDARD DETAIL
VERTICAL THRUST BLOCKING
File: EWDTW13 | Revised: APR 13, 2007 | Printed: JUL 18, 2008
DRAWING NO. W-05 | SHEET NO. 5

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1. RESTRAINED JOINTS ARE ACCEPTABLE INSTEAD OF THRUST BLOCKS, WHERE APPROPRIATE. THE CITY WILL BE THE SOLE DETERMINER IF THE APPLICATION IS APPROPRIATE. THE FOLLOWING APPLICATIONS MUST USE RESTRAINED JOINTS UNLESS IMPRACTICAL:
   - 1.1. DEAD END MAINS THAT MAY BE EXTENDED IN THE FUTURE.
   - 1.2. SOFT OR SATURATED SOILS, FITTINGS NEAR TOP OF SLOPE, OR BEARING AGAINST AN ADJACENT UTILITY.
   - 1.3. VERTICAL BENDS WITH FORCE DIRECTION UPWARDS ARE NOT COVERED HERE. MUST BE DESIGNED BY ENGINEER FOR EACH CASE.

2. MECHANICAL JOINT RESTRAINTS SHALL BE COATED WITH FUSION BONDED POLYESTER, OR ZINC & EPOXY COATING. EBAA MEGABOND, ROMAC ROMABOND, FORD ARMORGUARD E-COAT, OR APPROVED EQUAL.

3. THE FOLLOWING PRODUCTS ARE <u>NOT</u> ALLOWED: SET-SCREW STYLE RESTRAINTS, TYLER/McWANE TUFGRIP RESTRAINTS, AND TYLER/McWANE SURE-STOP GASKETS.

4. THE FOLLOWING TABLES ARE BASED ON EQUATIONS FROM THE ***DUCTILE IRON PIPE RESEARCH ASSOCIATION'S 2016 THRUST RESTRAINT FOR DUCTILE IRON PIPE***. THE FOLLOWING CONDITIONS MUST BE MET FOR THESE RESULTS TO BE VALID. IF ANY OF THESE CONDITIONS CANNOT BE MET, PROJECT SPECIFIC CALCULATIONS MUST BE PROVIDED:
   - 4.1. THESE TABLES ONLY FOR BARE (UNWRAPPED) DUCTILE IRON OR PVC PIPE.
   - 4.1. PIPE LAYING CONDITION TYPE 4 or 5, DEFINED AS:
     - 4.1.1. SELECT GRANULAR BEDDING MATERIAL BELOW PIPE.
     - 4.1.2. PIPE ZONE BEDDING EXTENDING TO TOP OF PIPE MECHANICALLY COMPACTED IN LIFTS.
   - 4.2. PIPE RESTING DIRECTLY ON NATIVE TRENCH BOTTOM IS NOT ACCEPTABLE.
   - 4.3. SANDY SILT BEDDING. FOR IMPORT CLEAN SAND OR 5/8" TOP COURSE, LENGTHS MAY BE REDUCED BY 25%.
   - 4.4. DEPTH OF COVER IS 3.5 FEET MINIMUM AT THE TIME OF PRESSURE TESTING.
   - 4.5. 250psi TEST PRESSURE MAXIMUM. FOR HIGHER TEST PRESSURE, MULTIPLY "L" BY THE PROPORTIONAL DIFFERENCE.
     - 4.5.1. EXAMPLE: FOR 300psi, 300/250=1.2 THEREFORE, LENGTHS MUST BE MULTIPLIED BY 1.2.

THE LENGTH "**L**" GIVEN BELOW IS THE DISTANCE THAT PIPE MUST BE RESTRAINED PAST THE FITTING JOINT. ALL JOINTS WITHIN THIS DISTANCE MUST BE RESTRAINED, INCLUDING THE FITTING.

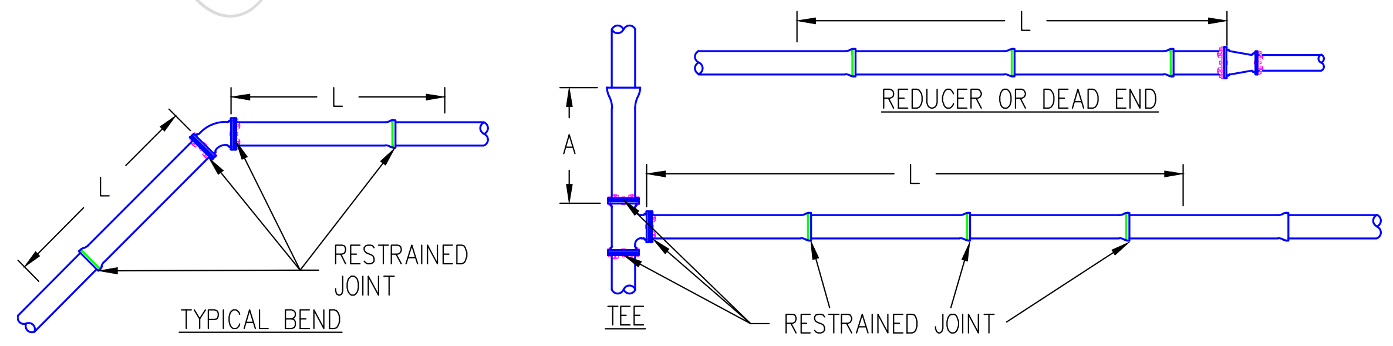
DIA.	11¼° BEND	22½° BEND	33¾° BEND	45° BEND	67½° BEND	90° BEND	DEAD END	REDUCER *
4"	3'	5'	8'	10'	17'	25'	61'	20'
6"	4'	7'	11'	14'	23'	34'	86'	58'
8"	5'	9'	14'	19'	30'	44'	112'	81'
10"	6'	11'	16'	22'	36'	53'	135'	83'
12"	7'	13'	19'	26'	41'	62'	158'	84'
16"	8'	16'	24'	33'	53'	78'	203'	86'
18"	9'	18'	27'	36'	58'	86'	224'	121'
PVC**	1.2x	1.2x	1.2x	1.2x	1.2x	1.2x	1.4x	1.4x

* Assumes reducer down 2 sizes. (example 12"x8"). Larger reductions shall be treated as a tee.
** For PVC or poly-bagged pipe, multiply the lengths by the value shown in the PVC row.

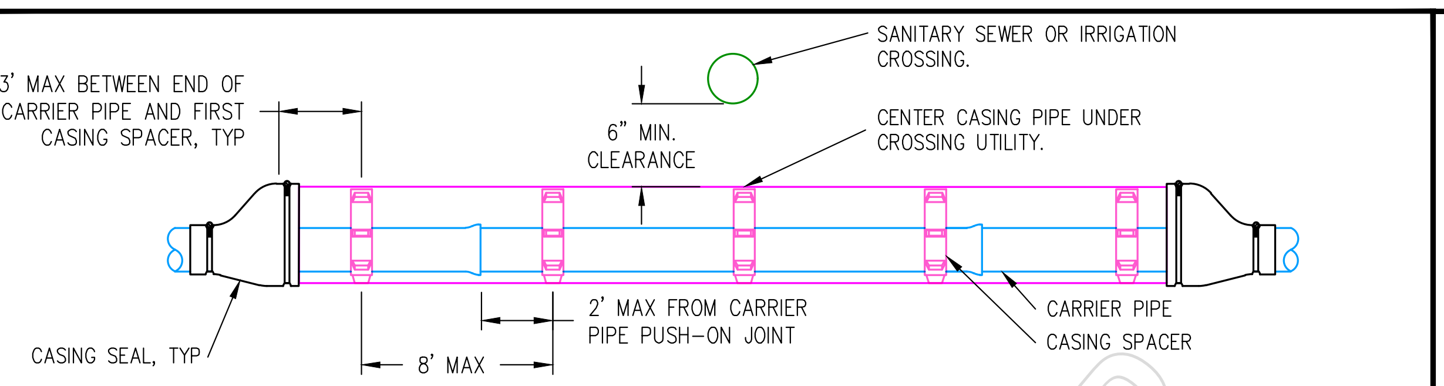
STANDARD & BRANCH REDUCING TEES (1.4x for PVC)

		RUN DIAMETER						
		4"	6"	8"	10"	12"	16"	18"
BRANCH DIAMETER	4"	46'	39'	31'	23'	15'	1'	1'
	6"	–	70'	65'	60'	55'	43'	37'
	8"	–	–	97'	93'	89'	80'	75'
	10"	–	–	–	119'	116'	109'	105'
	12"	–	–	–	–	143'	137'	133'
	16"	–	–	–	–	–	187'	184'
	18"	–	–	–	–	–	–	207'

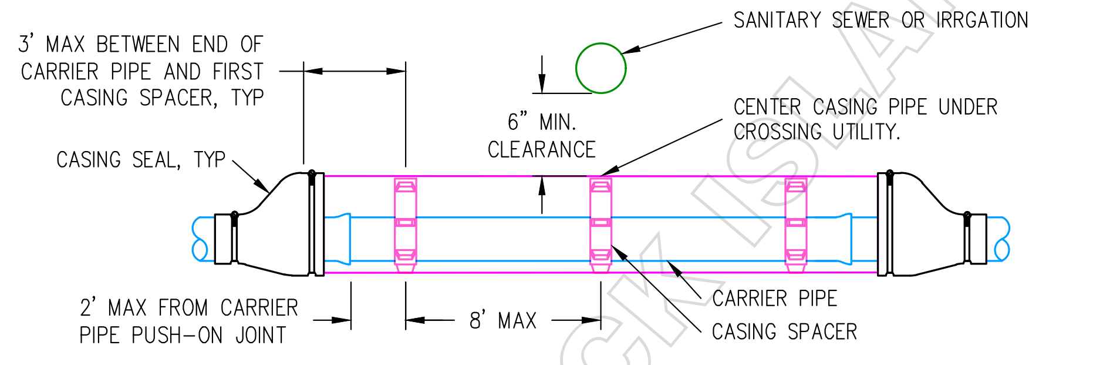
Restrain tee/cross run legs with a minimum 5' stick of pipe in each leg (dimension "A"). Branch increasing or "bullhead" tees restrained as a dead-end, length based on largest size.



City of
Rock Island
WATER SYSTEM STANDARD DETAIL
RESTRAINED JOINT PIPE
File: EWDTW16 | Revised: SEP 16, 2021 | Printed: SEP 16, 2021
DRAWING NO. W-16 | SHEET NO. 6



CASING PIPE LONGER THAN 20' DETAIL



20' CASING PIPE DETAIL

1. CASING TO BE USED WHEN
   - WATERMAIN CROSSES UNDER SANITARY SEWER OR IRRIGATION.
   - WATERMAIN CROSSES OVER SANITARY SEWER OR IRRIGATION WITH LESS THAN 18" CLEARANCE.
   - AT THE DISCRETION OF THE CITY.
   - ALTERNATELY, SANITARY SEWER OR IRRIGATION MAY BE CASED OR CONSTRUCTED OF WATERMAIN CLASS MATERIALS (DI, C900 PVC, ETC.)

2. CASINGS SHALL BE NEW STEEL, DI, HDPE OR C900/C905 PVC; MATERIAL AND WALL THICKNESS AT THE DISCRETION OF THE CITY.

3. PIPE THROUGH CASINGS SHALL BE SUPPORTED WITH RUNNERS SPACED MEETING THE FOLLOWING REQUIREMENTS:
   - NO FARTHER THAN 8 FEET BETWEEN RUNNERS
   - A RUNNER NO FARTHER THAN 3 FEET FROM EACH END OF THE CASING
   - A RUNNER NO FARTHER THAN 2 FEET FROM EACH CARRIER PIPE PUSH-ON JOINT.

4. RUNNERS SHALL BE MANUFACTURED PRODUCTS (PSI, CALPICO, OR APPROVED EQUAL), NO BLOCKS AND STRAPS. CASING ENDS SHALL BE CAPPED WITH MANUFACTURED CASING END SEALS.

5. CASING LENGTH AS NECESSARY TO EXTEND 10 FEET PAST THE UTILITY CROSSING, BOTH SIDES, OR AS DIRECTED BY THE CITY.

6. CASING RUNNERS TO BE SELECTED SO CLEARANCE BETWEEN TOP RUNNER LEG AND CASING DOES NOT EXCEED 1".

7. MINIMUM CASING SIZE (INSIDE DIAMETER) ASSUMING PUSH-ON JOINT DI CARRIER PIPE.
   - 6" PIPE – 12" CASING
   - 8" PIPE – 14" CASING
   - 12" PIPE – 18" CASING
   - 16" PIPE – 24" CASING
   - OTHER SIZES OR TYPES OF CARRIER PIPE, CONFIRM WITH CITY.

City of
Rock Island
WATER SYSTEM STANDARD DETAIL
PIPE CASING
File: EWDTW32 | Revised: MAY 2, 2018 | Printed: MAY 2, 2018
DRAWING NO. W-32 | SHEET NO. 7

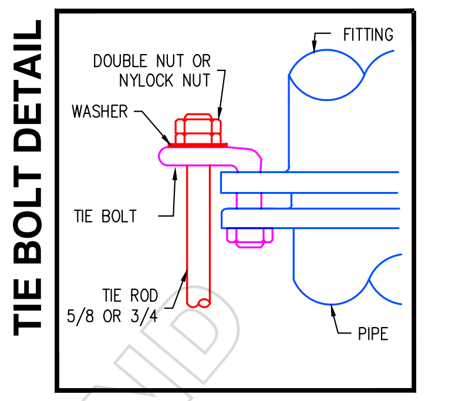
TIE ROD SELECTION TABLES

ASTM A242 (COR-TEN® OR EQUAL) STEEL ROD DIAMETER: 5/8" OR (3/4")

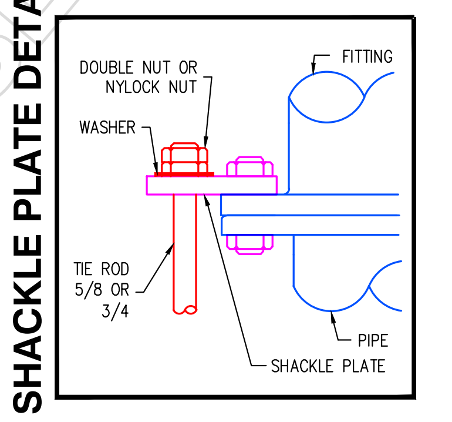
	NUMBER OF TIE RODS PER JOINT				MAXIMUM TIE ROD LENGTH, FEET			
PIPE DIAMETER	TEE DEAD END VALVE 90° BEND	45° BEND	22.5° BEND	11.25° BEND	TEE DEAD END 90° BEND VALVE	45° BEND	22.5° BEND	11.25° BEND
3	2 –	2 –	2 –	2 –	100 ––	100 ––	100 ––	100 ––
4	2 (2)	2 (2)	2 (2)	2 (2)	100 (100)	100 (100)	100 (100)	100 (100)
6	2 (2)	2 (2)	2 (2)	2 (2)	60 (90)	80 (100)	100 (100)	100 (100)
8	4 (3)	2 (2)	2 (2)	2 (2)	50 (50)	50 (70)	90 (100)	100 (100)
10	6 (4)	4 (2)	2 (2)	2 (2)	40 (60)	60 (50)	60 (80)	100 (100)
12	8 (6)	4 (4)	2 (2)	2 (2)	60 (60)	60 (80)	50 (80)	100 (100)
14	10 (5)	6 (4)	4 (2)	2 (2)	60 (70)	60 (60)	80 (60)	80 (100)
16	12 (8)	8 (6)	4 (3)	2 (2)	60 (50)	60 (70)	60 (70)	60 (90)
18	16 (12)	8 (6)	6 (3)	3 (2)	50 (50)	50 (60)	70 (50)	70 (70)

304SS OR OTHER STEELS ROD DIAMETER: 5/8" OR (3/4")

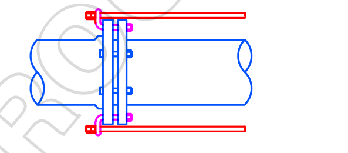
PIPE DIAMETER	TEE DEAD END VALVE 90° BEND	45° BEND	22.5° BEND	11.25° BEND	TEE DEAD END 90° BEND VALVE	45° BEND	22.5° BEND	11.25° BEND
3	2 –	2 –	2 –	2 –	100 ––	100 ––	100 ––	100 ––
4	2 (2)	2 (2)	2 (2)	2 (2)	100 (100)	100 (100)	100 (100)	100 (100)
6	2 (2)	2 (2)	2 (2)	2 (2)	60 (90)	80 (100)	100 (100)	100 (100)
8	4 (3)	3 (2)	2 (2)	2 (2)	50 (50)	70 (70)	90 (100)	100 (100)
10	6 (4)	4 (4)	2 (2)	2 (2)	70 (60)	60 (90)	60 (80)	100 (100)
12	8 (6)	6 (4)	4 (2)	2 (2)	80 (90)	80 (80)	100 (80)	100 (100)
14	12 (8)	8 (6)	4 (4)	2 (2)	70 (90)	80 (90)	80 (100)	80 (100)
16	16 (10)	10 (6)	4 (4)	3 (2)	70 (80)	80 (70)	90 (90)	90 (90)
18	– (14)	12 (8)	6 (4)	3 (2)	–– (80)	80 (80)	70 (70)	70 (70)



TIE BOLT DETAIL



SHACKLE PLATE DETAIL



TIE BOLT
STAR SUPPLY CORPORATION OR APPROVED EQUAL

GENERAL NOTES

1) TIE RODS SHALL BE "ALL THREAD" ROD OF ONE OF THE APPROVED MATERIALS:
- ASTM A242 (COR-TEN)
- 304 STAINLESS STEEL
- ASTM F3125 A325 TYPE 3
- ASTM A588
- ASTM A709 GR 50W

MILD STEEL <u>WILL NOT</u> BE ALLOWED. ASTM A307 GRADE A OR B ROD IS ALLOWED, BUT MUST BE FIELD COATED AFTER ASSEMBLY WITH EPOXY, COAL-TAR OR RUBBER.

2) TIE RODS SHALL HAVE "NATIONAL-COARSE" THREAD WITH EITHER TWO NUTS OR ONE SELF-LOCKING NUT AT EACH END. NUTS ARE TO BE STAR NATIONAL TIENUT OR NUT OF EQUIVALENT OR GREATER OUTER DIAMETER.

3) NUMBER OF TIE RODS PER JOINT SHALL BE IN ACCORDANCE WITH TIE ROD SELECTION TABLES ABOVE UNLESS OTHERWISE SHOWN ON APPROVED DESIGN PLANS.

5) TIE RODS SHALL BE ASSEMBLED SYMMETRICALLY ABOUT EACH JOINT (IF AN EVEN NUMBER OF RODS ARE USED THEN EACH ROD SHALL HAVE A ROD LOCATED ON THE DIRECT OPPOSITE SIDE OF JOINT. IF 3 OR 6 RODS ARE USED THEN AN EQUAL NUMBER OF UNSHACKLED BOLT HOLES SHALL BE LEFT BETWEEN ANY TWO TIE RODS.)

6) TIE ROD NUTS SHALL BE TIGHTENED UNIFORMLY AT EACH JOINT.

7) TIE ROD LENGTHS SHALL NOT EXCEED THOSE LISTED IN ABOVE TABLES, UNLESS SPECIFICALLY SHOWN ON APPROVED PLANS.

8) TIE ROD COUPLINGS SHALL BE GALVANIZED "STAR NATIONAL PRODUCTS TIECOUPLING" OR APPROVED EQUAL.

9) TIE RODS SHALL BE ATTACHED TO JOINTS WITH TIE BOLTS, EXCEPT FOR FIRE HYDRANT INSTALLATIONS WHICH SHALL USE TIE BOLTS ON LUGS. TIE BOLTS SHALL BE GALVANIZED "STAR NATIONAL PRODUCTS TIEBOLT" OR APPROVED EQUAL. "DUC-LUGS" ARE <u>NOT</u> ALLOWED.

10) 20" FITTINGS AND LARGER SHALL HAVE TIE ROD DESIGN INCLUDED ON DESIGN PLANS.

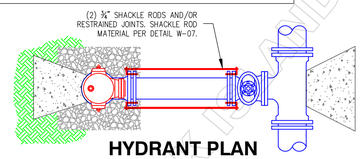
City of
Rock Island
WATER SYSTEM STANDARD DETAIL
TIE RODS
File: EWDTW7 | Revised: MAY 2, 2018 | Printed: MAY 2, 2018
DRAWING NO. W-07 | SHEET NO. 8

RYAN C. PETERSON

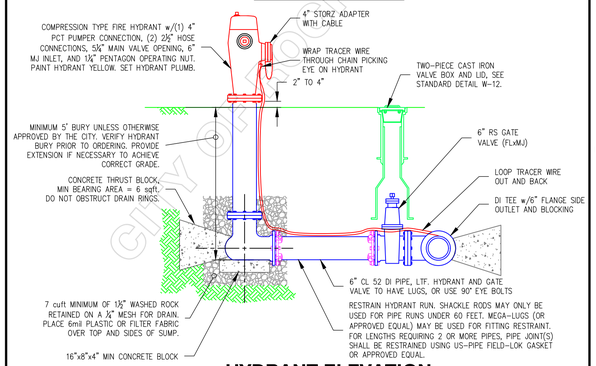
SIGNED:
01/31/2022

ROCDTSHT1.DWG
JAN 31, 2022

1. SEE STANDARD DETAIL W-23 FOR ADDITIONAL DETAILS INCLUDING LOCATION REQUIREMENTS.
2. ALL HYDRANTS SHALL BE DOUBLE RESTRAINED. WHERE THRUST BLOCKING IS NOT PRACTICAL, SHACKLES AND RESTRAINED JOINTS ARE REQUIRED.
3. APPROVED HYDRANTS:
   - MUELLER A423
   - M & H 129, 129S or 929
   - CLOW MEDALLION
   - WATEROUS W867-250
   - KENNEDY K81A OR K81D
4. IF THERE IS AN EXISTING HYDRANT IN THE VICINITY THAT WILL BE DEACTIVATED, REMOVE AND DELIVER HYDRANT TO CITY SHOP. CONFIRM WITH CITY AND REFER TO DETAIL W-15 FOR METHODS.
5. COVER HYDRANTS THAT ARE NOT YET IN SERVICE WITH BLACK 3-MIL POLY BAGS.

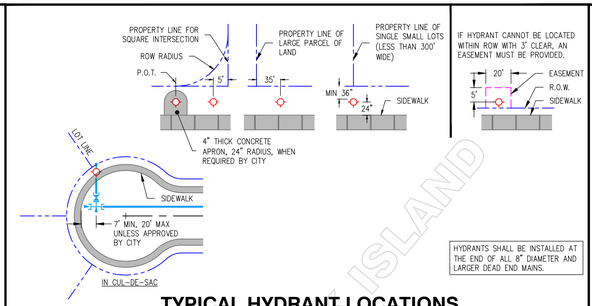


HYDRANT PLAN



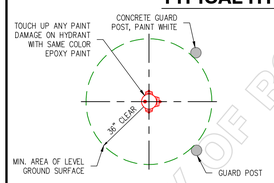
HYDRANT ELEVATION

City of Rock Island | WATER SYSTEM STANDARD DETAIL | **FIRE HYDRANT** | DRAWING NO. W-02 | SHEET NO. 9 | File: EWDTW15 | Revised: DEC 21, 2021 | Printed: DEC 21, 2021

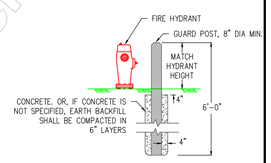


HYDRANTS SHALL BE INSTALLED AT THE END OF ALL 8" DIAMETER AND LARGER DEAD END MAINS.

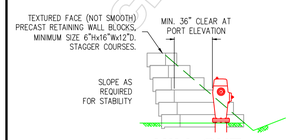
TYPICAL HYDRANT LOCATIONS



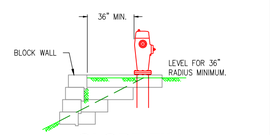
GUARD POST PLAN



GUARD POST ELEVATION

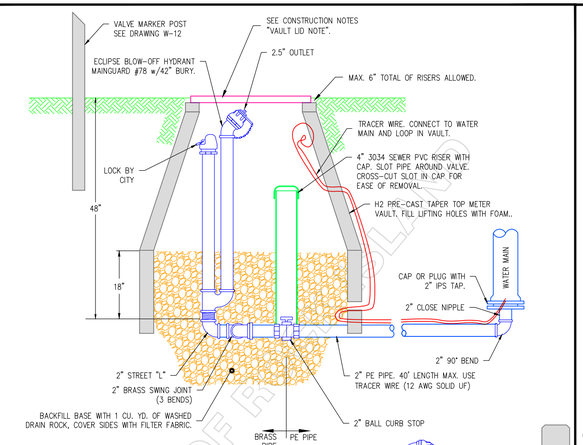


HILL CUT



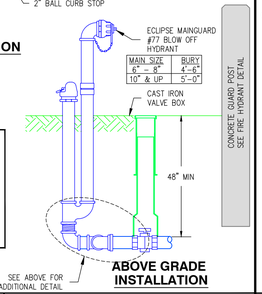
SLOPE FILL

City of Rock Island | WATER SYSTEM STANDARD DETAIL | **HYDRANT LOCATIONS** | DRAWING NO. W-23 | SHEET NO. 10 | File: EWDTW8 | Revised: DEC 1, 2021 | Printed: DEC 1, 2021



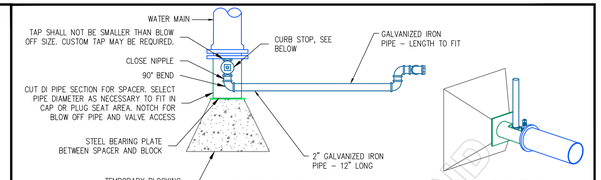
BELOW GRADE INSTALLATION

1. SEE DETAIL W-29 FOR VAULT INSTALLATION REQUIREMENTS.
2. CAP OR PLUG ON WATER MAIN TO BE RESTRAINED PER W-16, BY STANDARD THRUST BLOCK, OR DEADMAN THRUST BLOCK AS APPROVED BY THE CITY.
3. CONTACT CITY TO DETERMINE WHETHER THE ABOVE GRADE OR BELOW GRADE HYDRANT IS TO BE USED FOR EACH INSTANCE.
4. PLACEMENT OF HYDRANT TO BE VERIFIED WITH CITY PRIOR TO INSTALLATION. CITY MAY REQUIRE A MINIMUM 3' RADIUS CLEAR ZONE AROUND HYDRANT AND THE INSTALLATION OF GUARD POSTS. DETERMINATION WILL BE MADE PER INSTALLATION.



ABOVE GRADE INSTALLATION

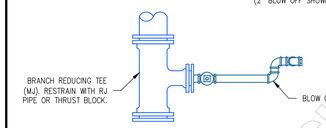
City of Rock Island | WATER SYSTEM STANDARD DETAIL | **PERMANENT BLOW-OFF HYDRANT** | DRAWING NO. W-08 | SHEET NO. 11 | File: EWDTW1 | Revised: JAN 20, 2021 | Printed: JAN 20, 2021



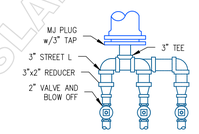
OPTION 1 - PLAN

(2" BLOW OFF SHOWN)

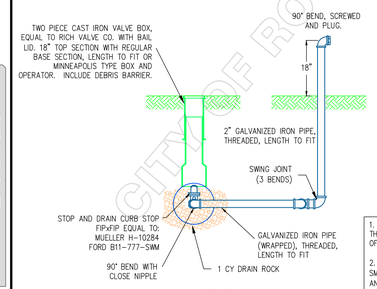
3D VIEW



OPTION 2 - PLAN

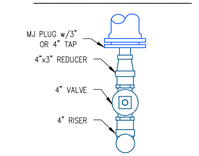


MULTIPLE BLOW OFF



ELEVATION

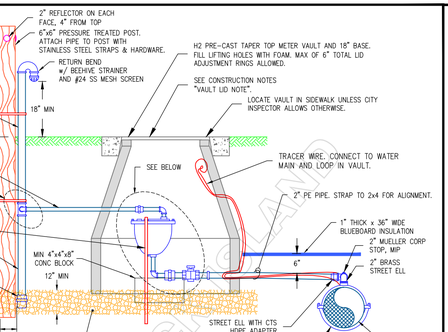
FOR INSTALLATIONS LONGER THAN 6 MONTHS 2" BLOW OFF SHOWN



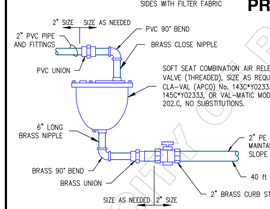
4" BLOW OFF

1. THIS DETAIL IS NOT TO BE USED IN SITUATIONS WHERE THE BLOW-OFF MAY STAY IN THE GROUND FOR A PERIOD OF MORE THAN ONE YEAR.
2. MINIMUM BLOW OFF SIZE SHALL BE 2" FOR 8" AND SMALLER MAINS. 3" OR DOUBLE 2" BLOW OFF FOR 10" AND 12" MAINS. 4" BLOW OFF ON 14" AND LARGER MAINS. LARGER BLOW OFFS MAY BE REQUIRED DEPENDING ON AVAILABLE SYSTEM PRESSURE.
3. PE PIPE AND FITTINGS MAY BE USED ON ONE SIDE OF CURB STOP. GALV MUST BE USED ON AT LEAST ONE SIDE.

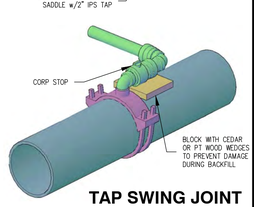
City of Rock Island | WATER SYSTEM STANDARD DETAIL | **CONSTRUCTION BLOW-OFF ASSEMBLY** | DRAWING NO. W-09 | SHEET NO. 12 | File: EWDTW11 | Revised: JAN 22, 2021 | Printed: JAN 22, 2021



PROFILE

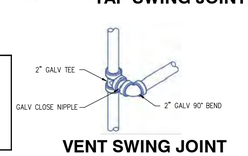


ENLARGEMENT



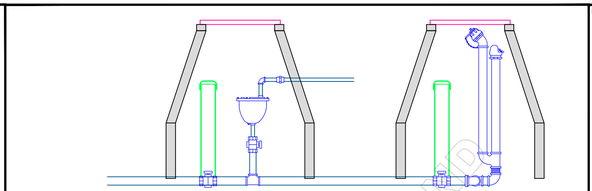
TAP SWING JOINT

1. AIR VALVE ASSEMBLIES SHALL BE INSTALLED AT EVERY HIGH POINT.
2. COMBINATION AIR RELEASE AND VACUUM VALVE SHALL BE A 1" SIZE FOR 6" OR 8" MAINS WHEN SPACED AT 1,500' MAX. ALL OTHER INSTALLATIONS SHALL BE 2" SIZE.
3. FOR 1" COMBINATION VALVE, INSTALL 2"x1" BRASS REDUCER BETWEEN CURB STOP AND UNION.
4. SEE DETAIL W-29 FOR VAULT INSTALLATION REQUIREMENTS.
5. ALL METAL FITTINGS TO BE DOMESTIC MADE. ALL PVC PIPE & FITTINGS TO BE SCHEDULE 40 MINIMUM.

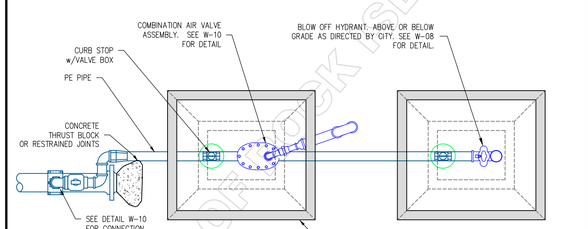


VENT SWING JOINT

City of Rock Island | WATER SYSTEM STANDARD DETAIL | **COMBINATION AIR VALVE ASSEMBLY** | DRAWING NO. W-10 | SHEET NO. 13 | File: EWDTW2 | Revised: JAN 22, 2021 | Printed: JAN 22, 2021



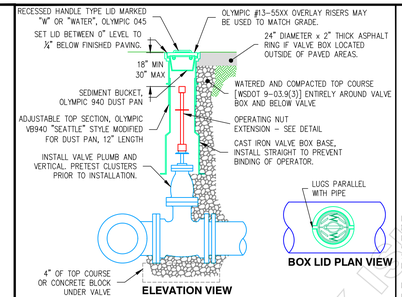
ELEVATION



PLAN VIEW

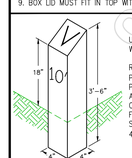
1. INSTALL STANDARD MARKER POST IDENTIFYING VALVE LOCATION.
2. SET VAULT LID FLUSH WITH SIDEWALK OR CURB IF LOCATED IN A LAWN.
3. SET VAULT LID 2" ABOVE FINISHED GRADE IF IN A LANDSCAPING AREA.
4. ALL FITTINGS TO BE COPPER OR BRASS UNLESS OTHERWISE NOTED.
5. SEE THE COMBINATION AIR VALVE AND BLOW OFF STANDARD DETAILS FOR MORE INFORMATION.

City of Rock Island | WATER SYSTEM STANDARD DETAIL | **COMBINATION AIR VALVE & BLOW-OFF ASSEMBLIES** | DRAWING NO. W-11 | SHEET NO. 14 | File: EWDTW17 | Revised: JUL 18, 2008 | Printed: JUL 18, 2008



ELEVATION VIEW

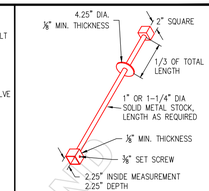
1. INSTALL VALVES AT NO MORE THAN 1,000 FT SPACING. PROVIDE (3) VALVES ON ALL TEES THAT LOOP OR ARE 6" OR LARGER.
2. VALVES 4" AND LARGER TO BE NRS RESILIENT SEAT GATE VALVES MEETING AWWA C509 OR C515. OTHER TYPES OF VALVES (BUTTERFLY OR ECCENTRIC) ARE ONLY ALLOWED WHEN APPROVED FOR SPECIFIC LOCATIONS BY THE CITY.
3. COMPACT BACKFILL AROUND VALVE BOXES USING A JUMPING JACK.
4. OLYMPIC FOUNDRY VALVE BOX MODEL NUMBERS SHOWN. OWNER APPROVED EQUALS WILL BE ALLOWED. SIGMA PRODUCTS ARE NOT ALLOWED DUE TO CLEARANCE ISSUES.
5. RESTRAIN IN-LINE VALVES WITH DEVICES SHOWN IN DETAIL W-16 FOR A DISTANCE EQUAL TO A DEAD-END MAIN ON BOTH SIDES OF THE VALVE.
6. SUPPLY EACH VALVE WITH VALVE BOX, LID, AND DUST PAN. LID SHALL HAVE RECESSED HANDLE. ALIGN VALVE BOX RISER LUGS PARALLEL TO WATER FLOW.
7. PRE-PRESSURE TEST ALL VALVES. TEST THOSE THAT ARE PART OF A CUT-IN CONNECTION OR HOT TAP ON AN EXISTING MAIN ON BOTH SIDES OF THE CLOSED SEAT PRIOR TO INSTALLATION.
8. FOR VALVES LEFT TEMPORARILY EXPOSED DURING CONSTRUCTION, BLOCK THE OPEN END WITH A PLUG, OR COVER TIGHTLY WITH POLY BAG TO PROTECT THE VALVE SEAT FROM DAMAGE.
9. BOX LID MUST FIT IN TOP WITH NO MORE THAN 1/16" CLEARANCE.



USE MARKER POST WHEN VALVE IS LOCATED OUT OF TRAVELED WAY, IN GRAVEL, OR AT THE DIRECTION OF THE CITY.

RENTON CONCRETE PRODUCTS NO. VM-1 OR APPROVED EQUAL. PAINT WITH TWO COATS OF NO. 43-114 (INTERNATIONAL YELLOW) PAINT AS SPECIFIED BY THE PRESERVATIVE PAINT CO. OR APPROVED EQUAL. LOCATE POST IN A SAFE AND REASONABLY CONSPICUOUS LOCATION AT A RIGHT ANGLE TO THE ROADWAY FROM THE VALVE. DISTANCE TO THE VALVE SHALL BE NEATLY STENCILED ON THE POST WITH TWO-INCH NUMBERS WITH NO. 43-102 (BLACK) PAINT AS SPECIFIED BY PRESERVATIVE PAINT CO.

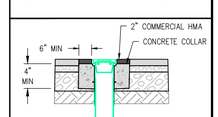
VALVE MARKER POST



OPERATING NUT EXTENSION

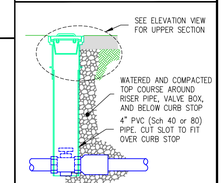
EXTENSIONS ARE REQUIRED WHEN THE VALVE NUT IS MORE THAN 3.5 FEET BELOW FINISHED GRADE. EXTENSIONS NO LESS THAN ONE (1) FT LONG, ONLY ONE EXTENSION PER VALVE. EXTENSIONS MADE OF STEEL SIZED AS NOTED, PAINTED WITH TWO COATS OF EPOXY.

FOR EXTENSIONS LONGER THAN 4 FT AND/OR VALVES LARGER THAN 12" DIAMETER, BAR SHALL BE 1¼" DIA.



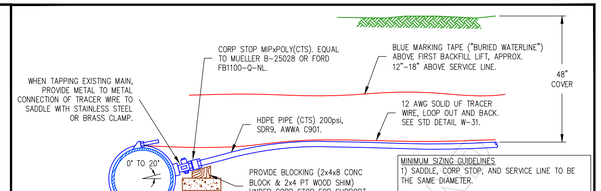
1. SET LID TOP 0" TO 1/8" BELOW SURFACE.
2. CURE CONCRETE 3 DAYS PRIOR TO PLACING HMA.
3. CUT HMA ROUGHLY CIRCULAR, NO LESS THAN 8 EDGES.

VALVE BOX IN PAVED ROAD



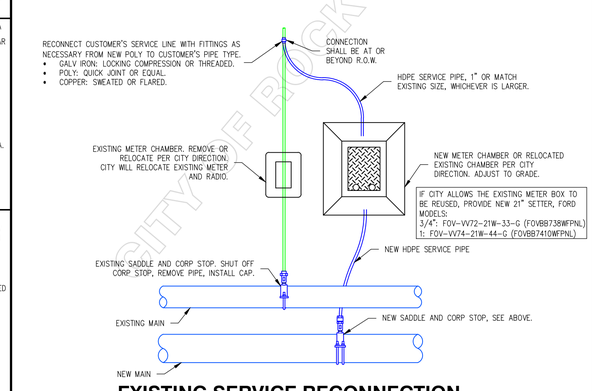
CURB STOP DETAIL

City of Rock Island | WATER SYSTEM STANDARD DETAIL | **ISOLATION VALVE INSTALLATION DETAILS** | DRAWING NO. W-12 | SHEET NO. 15 | File: EWDTW9 | Revised: DEC 21, 2021 | Printed: DEC 21, 2021



MINIMUM SIZING GUIDELINES
1) SADDLE, CORP STOP, AND SERVICE LINE TO BE THE SAME DIAMETER.
2) 1½" DIAMETER SERVICE LINE FOR ALL ¾" AND 1" SINGLE AND DOUBLE METERS.
3) 2" DIAMETER SERVICE LINE FOR 1½" AND 2" METERS.
4) LARGER SIZES MAY BE REQUIRED DEPENDING ON FIRE SPRINKLER DEMANDS, AVAILABLE PRESSURE, OR LONG PIPE RUNS.

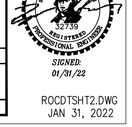
WATER SERVICE TAP AND PIPE



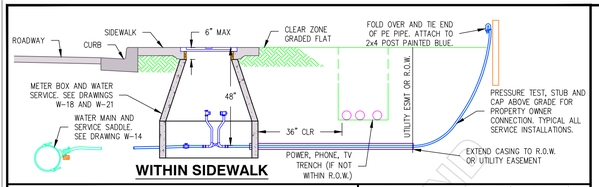
IF CITY ALLOWS THE EXISTING METER BOX TO BE REUSED, PROVIDE NEW 21" SETTER, FORD MODELS:
3/4": FOV-VV72-21W-33-G (FOVBB7338WFPNL)
1: FOV-VV74-21W-44-G (FOVBB7410WFPNL)

EXISTING SERVICE RECONNECTION

City of Rock Island | WATER SYSTEM STANDARD DETAIL | **CUSTOMER SERVICE CONNECTIONS** | DRAWING NO. W-14 | SHEET NO. 16 | File: EWDTW14 | Revised: DEC 21, 2021 | Printed: DEC 21, 2021



ROCDTSHT2.DWG
JAN 31, 2022



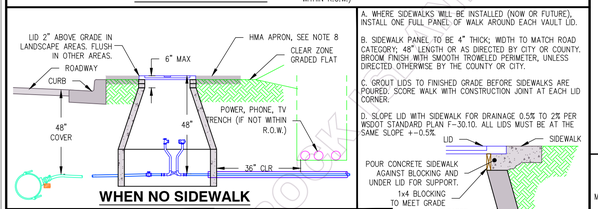
WITHIN SIDEWALK

A. WHERE SIDEWALKS WILL BE INSTALLED (NOW OR FUTURE), INSTALL ONE FULL PANEL OF WALK AROUND EACH VAULT LID.

B. SIDEWALK PANEL TO BE 4" THICK; WIDTH TO MATCH ROAD CATEGORY; 48" LENGTH OR AS DIRECTED BY CITY OR COUNTY. BROOM FINISH WITH SMOOTH TROWELED PERIMETER, UNLESS DIRECTED OTHERWISE BY THE COUNTY OR CITY.

C. GROUT LIDS TO FINISHED GRADE BEFORE SIDEWALKS ARE POURED. SCORE WALK WITH CONSTRUCTION JOINT AT EACH LID CORNER.

D. SLOPE LID WITH SIDEWALK FOR DRAINAGE 0.5% TO 2% PER WSDOT STANDARD PLAN F-30.10. ALL LIDS MUST BE AT THE SAME SLOPE +-0.5%.



WHEN NO SIDEWALK

LID WITHIN SIDEWALK

1. INSTALL VAULT IN RIGHT OF WAY OR UTILITY EASEMENT. EASEMENT MUST EXTEND A MINIMUM OF 3ft BEYOND VAULT.

2. WHERE VAULT IS IN CURRENT OR FUTURE SIDEWALK, LID ELEVATION MUST BE SURVEYED & SET AT SIDEWALK FINISHED GRADE. SET LID TO WITHIN 1" OF FINISHED GRADE WITH H2-PRECAST RISERS. H2 RISERS MUST BE USED FOR ADJUSTMENTS 2" OR MORE. USE GROUT FOR FINAL LEVELING IN LANDSCAPE AREAS, SET LID 2" ABOVE FINISHED GRADE.

3. 6" MAX LID ADJUSTMENT (MEASURED FROM TOP OF LID TO TOP OF VAULT).

4. FOR VAULTS INSTALLED ON SLOPES, CONSTRUCT A 6'x6' PAD WITH RETAINING STRUCTURES REQUIRED TO MAINTAIN STABLE INSTALLATION AND APPROPRIATE COVER OVER PIPE. SEE DETAIL W-23 FOR RETAINING WALLS.

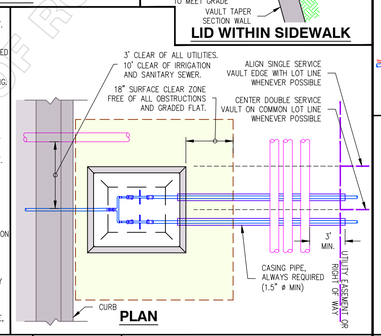
5. INSTALL MASTIC BETWEEN VAULT SECTIONS.

6. LOCATE VAULTS 5ft MIN FROM POWER HAND-HOLES. TRANSFORMERS SHALL BE ON OPPOSITE LOT CORNER.

7. EXTEND SERVICE LINE TO PROPERTY LINE FOR CONNECTION BY PROPERTY OWNER.

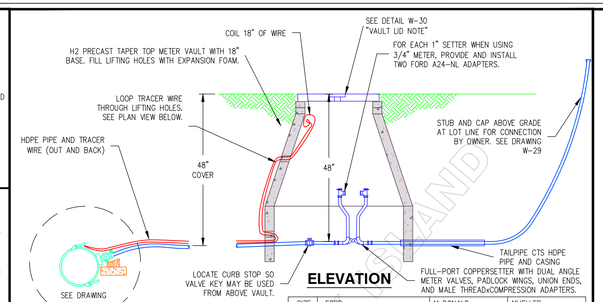
8. IN UNPAVED TRAVELED AREAS, INCLUDING GRAVELED SHOULDERS, DRIVES, AND ROADS, INSTALL 2" DEEP, 4'x4' HMA APRON CENTERED ON THE LID. SLOPE TO DRAIN AWAY FROM LID.

9. OUTSIDE OF SIDEWALKS, SECURE LID FRAME TO VAULT WITH LIQUID NAILS POLYURETHANE CONSTRUCTION ADHESIVE, LN-950



PLAN

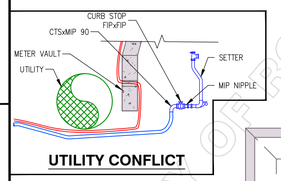
City of Rock Island	WATER SYSTEM STANDARD DETAIL: WATER SERVICE, AIR VALVE, BLOW OFF VAULT INSTALLATION DETAILS	DRAWING NO. W-29	SHEET NO. 17
File: EWDTW3 Revised: DEC 21, 2021 Printed: DEC 21, 2021			



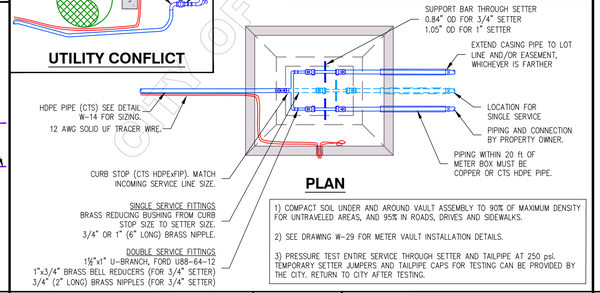
ELEVATION

SIZE	FORD	McDONALD	MUELLER
3/4"x3/4"	VBB73-8W-11-33-7-5-FP-NL	20-D207-JJ-DD-33	3/4"x3/4" B-2404N
1"	VBB74-10W-11-44-FP-NL	20-412-JJ-DD-44	1x10 B-2404N
	ADAPTERS C84-xx-Q		ADAPTER H-14222

NOTES:
- SETTER MODEL NUMBERS CHANGE FREQUENTLY. CONFIRM WITH SUPPLIER AND CITY.
- SETTERS SHALL BE FULL SIZE (FULL-PORT) THROUGHOUT. e.g. A 5/8"x3/4" SETTER SHALL HAVE 3/4" ID PIPE (1.05" OD), VALVES, AND FITTINGS. 1" SHALL HAVE 1" ID PIPE AND FITTINGS.
- 3/4" METER MAXIMUM 20 GPM RATING.
- 1" METER MAXIMUM 50 GPM RATING.



UTILITY CONFLICT



PLAN

1) COMPACT SOIL UNDER AND AROUND VAULT ASSEMBLY TO 90% OF MAXIMUM DENSITY FOR UNTRAVELED AREAS, AND 95% IN ROADS, DRIVES AND SIDEWALKS.

2) SEE DRAWING W-29 FOR METER VAULT INSTALLATION DETAILS.

3) PRESSURE TEST ENTIRE SERVICE THROUGH SETTER AND TAILPIPE AT 250 psi. TEMPORARY SETTER JUMPERS AND TAILPIPE CAPS FOR TESTING CAN BE PROVIDED BY THE CITY. RETURN TO CITY AFTER TESTING.

City of Rock Island	WATER SYSTEM STANDARD DETAIL: 3/4" AND 1" SINGLE AND DOUBLE WATER SERVICES	DRAWING NO. W-21	SHEET NO. 18
File: EWDTW26 Revised: APR 8, 2021 Printed: APR 8, 2021			

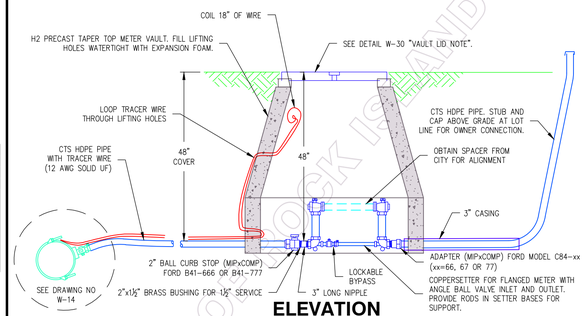
1) ALL PIPE TO BE HDPE (NOT INCLUDING SETTER).

2) SEE DETAIL W-14 FOR SERVICE LINE AND TAP SIZING.

3) SEE DETAIL W-29 FOR METER VAULT INSTALLATION DETAILS.

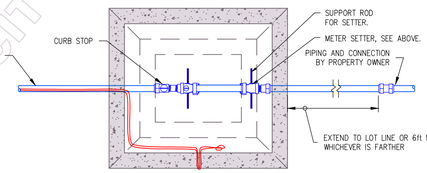
4) PRESSURE TEST ENTIRE SERVICE THROUGH SETTER AND TAILPIPE AT 250 psi. TEMPORARY SETTER JUMPERS AND TAILPIPE CAPS FOR TESTING PROVIDED BY CITY. RETURN TO CITY AFTER TESTING.

5) MAXIMUM METER RATINGS: 1.5" = 160 GPM, 2" = 200 GPM.



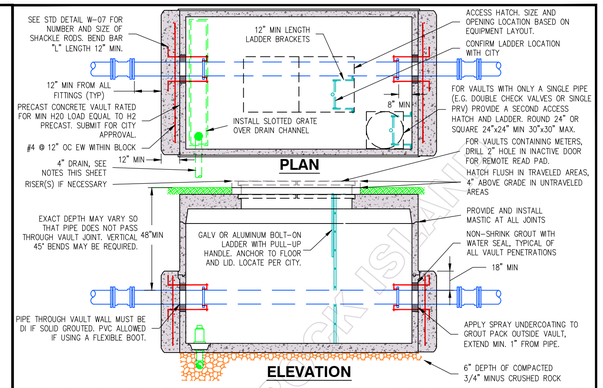
ELEVATION

SIZE	FORD	McDONALD	MUELLER
1½"	VBB76-12B-11-66-NL	20-B612-WW-FF-665	1½x12 695-B-2423N
2"	VBB77-12B-11-77-NL	20-B712-WW-FF-775	2x12 105-B-2423N



PLAN

City of Rock Island	WATER SYSTEM STANDARD DETAIL: 1½" AND 2" WATER SERVICE	DRAWING NO. W-18	SHEET NO. 19
File: EWDTW23 Revised: DEC 21, 2020 Printed: DEC 21, 2020			



1. INSTALL PIPE CONTINUOUS THROUGH THE VAULT TO ENSURE ALIGNMENT. MORE THAN ONE STICK MAY BE NEEDED FOR LONG VAULTS, IN WHICH CASE LOCATE BELL APPROXIMATELY AT CENTER OF VAULT.

2. EXTERNAL CONCRETE BLOCKING SHALL BE INSTALLED AT THE DIRECTION OF THE CITY. INSTALL BLOCKS BEFORE INTERNAL PIPING IS CUT OUT. BLOCKING SHALL BE FORMED, NOT DIRECTLY POURED AGAINST DIRT WALLS. BLOCKING SHALL BE CONSOLIDATED BY MECHANICAL VIBRATION, MINIMUM 1" DIAMETER STINGER HEAD.

3. ALL HATCHES 2'x2' OR LARGER SHALL BE HINGED, SPRING OR GAS SHOCK ASSIST OPENING, RECESSED PADLOCK HASP, DRAINAGE COLLECTION FRAME (U CHANNEL WITH PIPE CONNECTION), H20 RATED MINIMUM, ALUMINUM OR GALVANIZED STEEL. IF HATCH WILL BE LOCATED IN A TRAVELED AREA (ROAD OR DRIVEWAY), SUBMIT MANUFACTURER'S STATEMENT THAT HATCH IS RATED FOR CONTINUOUS AND DELIBERATE H20 TRAFFIC SERVICE. HATCHES SHALL BE CAST INTO VAULT LID OR RISER. FRAME DRAIN PLUMBED THROUGH LID TO SURFACE IF LID IS AT LEAST 4" ABOVE GRADE. OTHERWISE, INSTALL 1" OR LARGER SCH 40 PVC PIPE AND FITTINGS FROM THE FRAME DRAIN, ROUTED NEATLY AND SECURED ALONG THE CEILING AND WALLS TO THE FLOOR.

4. SLOPE VAULT FLOOR TO THE DRAIN. A DRAIN SYSTEM MUST BE PROVIDED. TYPE OF DRAIN AT THE CITY'S DISCRETION.
   - 4.1. 4" DRAIN (MIN) TO DAYLIGHT OR STORM SYSTEM, OR
   - 4.2. 2cy DRAIN ROCK WRAPPED IN FILTER FABRIC, OR
   - 4.3. 120VAC SUMP PUMP WITH 15' CORD & 15' HOSE (ONLY WITH CITY APPROVAL)
   - 4.4. FOR DOUBLE CHECK VALVE; RP DEVICES, INSTALLATION MUST BE ABOVE GRADE OR VAULT DRAIN BORESIGHTED (LANTERNED) TO DAYLIGHT.

5. DRAIN CHANNEL SHALL HAVE KNOCKOUTS FOR BOTH BOTTOM AND SIDE DRAINAGE.

6. AT THE DISCRETION OF THE CITY, COAT VAULT INTERIOR WITH WHITE EPOXY PAINT.

7. COAT BURIED VAULT EXTERIOR WITH 20mil COAL TAR EPOXY. DO NOT COAT EXTERIOR OF EXPOSED SURFACES. COAT EXTERIOR OF ALL GROUT PATCHES WITH 20mil COAT-TAR EPOXY OR RUBBER.

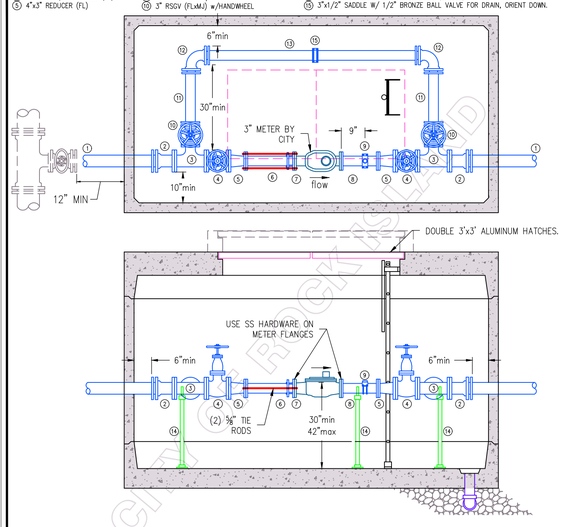
8. CRACKED OR DAMAGED VAULTS WILL BE REJECTED AT THE DISCRETION OF THE CITY. CAST-IN-PLACE VAULTS ARE NOT ALLOWED.

9. ALL VAULTS MUST BE SUBMITTED TO THE CITY FOR REVIEW. SUBMITTALS MUST INCLUDE DIMENSIONS, HATCH LAYOUT, AND HATCH MATERIALS.

10. INSTALL A SPRING LOADED, "LADDER-UP" EXTENSION ON ALL LADDERS. SECURE AT BOTH TOP AND BOTTOM. LADDER-UP TO BE ALUMINUM, SS, OR POWDER COATED STEEL.

City of Rock Island	WATER SYSTEM STANDARD DETAIL: LARGE VAULTS	DRAWING NO. W-26	SHEET NO. 20
File: EWDTW20 Revised: DEC 21, 2021 Printed: DEC 21, 2021			

① 4" DI PIPE
② 4" FLxRJ ADAPTER
③ 4"x3" TEE (FL)
④ 4" RSGV w/HANDWHEEL (FL)
⑤ 4"x3" REDUCER (FL)
⑥ 3" DI PIPE FLxPE, 20" LENGTH
⑦ 3" FCA, DO NOT "PUSH HOME" PIPE
⑧ 3" DI PIPE FL, 15" LENGTH
⑨ 2"x3" SADDLE w/2" PLUG
⑩ 3" RSGV (FLxMJ) w/HANDWHEEL
⑪ 3" DI PIPE, 24" LENGTH
⑫ 3" 90° BEND (MJ)
⑬ 3" DI PIPE, 90° LENGTH
⑭ STANDOIN OR GRINNELL PIPE SUPPORT (5 total)
⑮ 3"x1/2" SADDLE W/ 1/2" BRONZE BALL VALVE FOR DRAIN, ORIENT DOWN.

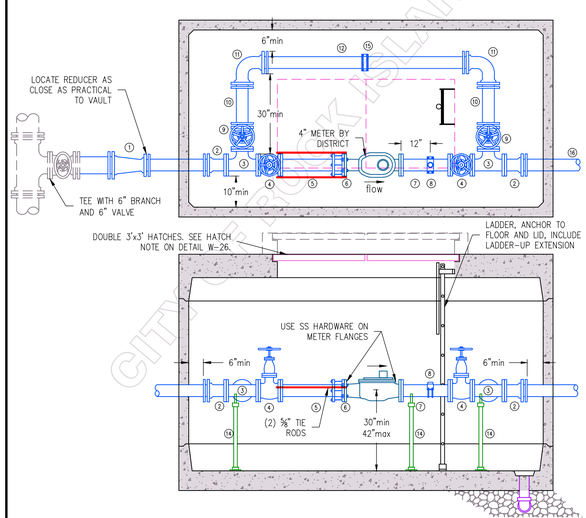


1. SEE W-26 FOR ADDITIONAL VAULT INSTALLATION DETAILS
2. SENSUS OMNI C2 METER LAY LENGTH = 17"
3. TIE ROD MATERIAL TO BE PER W-07.
4. ALL MECHANICAL JOINTS SHALL BE RESTRAINED PER DETAIL W-16.
5. USE ONE FULL LENGTH OF 4" PIPE THROUGH THE VAULT TO INSURE ALIGNMENT. CUT OUT FOR INSTALLATION OF ASSEMBLY.
6. VAULT MINIMUM INSIDE DIMENSIONS OF 12'Lx6'Wx6.5'H, UTILITY VAULT 612LA OR APPROVED EQUAL.
7. 3" OMNI C2 METER RATED CAPACITY = 500 GPM x 80% = 400 GPM
8. ALL JOINTS SHALL BE RESTRAINED BETWEEN THE WATERMAIN AND THE METER ASSEMBLY. ALL JOINTS ON THE DOWNSTREAM (CUSTOMER) SIDE OF THE METER SHALL BE RESTRAINED TO NO LESS THAN 50 FEET PAST THE VAULT.

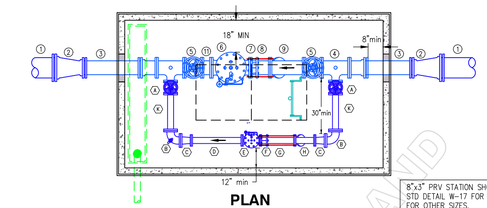
City of Rock Island	WATER SYSTEM STANDARD DETAIL: 3" METER ASSEMBLY	DRAWING NO. W-20	SHEET NO. 21
File: EWDTW25 Revised: MAY 2, 2018 Printed: MAY 2, 2018			

① 6"x4" REDUCER (RJ)
② 4" FLxRJ ADAPTER
③ 4" TEE (FL)
④ 4" RSGV w/HANDWHEEL (FL)
⑤ 4" DI PIPE FLxPE, 26" LENGTH
⑥ 4" FCA, DO NOT "PUSH HOME" PIPE
⑦ 4" DI PIPE FLxFL, 20" LENGTH
⑧ 2"x4" SADDLE w/2" PLUG
⑨ 4" RSGV (FLxMJ) w/HANDWHEEL
⑩ 4" DI PIPE, 20" LENGTH
⑪ 4" 90° BEND (MJ)
⑫ 4" DI PIPE, 84" LENGTH
⑬ 4" FLxMJ ADAPTER
⑭ STANDOIN OR GRINNELL PIPE SUPPORT (5 total)
⑮ 4"x1/2" SADDLE W/ 1/2" BRONZE BALL VALVE FOR DRAIN, ORIENT DOWN.
⑯ 4" DI PIPE

1. SEE W-26 FOR ADDITIONAL VAULT INSTALLATION DETAILS
2. SENSUS OMNI C2 METER LAY LENGTH = 20"
3. TIE ROD MATERIAL SHALL BE PER W-07.
4. ALL MECHANICAL JOINTS SHALL BE RESTRAINED PER DETAIL W-16.
5. USE ONE FULL LENGTH OF 4" PIPE THROUGH THE VAULT TO INSURE ALIGNMENT. CUT OUT FOR INSTALLATION OF ASSEMBLY.
6. VAULT MINIMUM INSIDE DIMENSIONS OF 12'Lx6'Wx6.5'H, UTILITY VAULT 612LA OR APPROVED EQUAL.
7. 4" METER RATED CAPACITY = 1,000 GPM x 80% = 800 GPM
8. ALL JOINTS SHALL BE RESTRAINED BETWEEN THE WATERMAIN AND THE METER ASSEMBLY. ALL JOINTS ON THE DOWNSTREAM (CUSTOMER) SIDE OF THE METER SHALL BE RESTRAINED TO NO LESS THAN 50 FEET PAST THE VAULT.



City of Rock Island	WATER SYSTEM STANDARD DETAIL: 4" METER ASSEMBLY	DRAWING NO. W-24	SHEET NO. 22
File: EWDTW30 Revised: MAY 2, 2018 Printed: MAY 2, 2018			

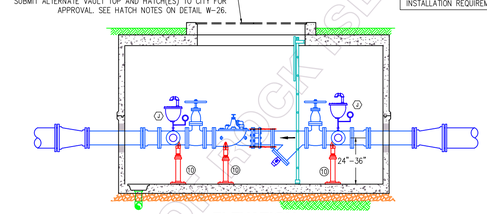


PLAN

8"x3" PRV STATION SHOWN. SEE STD DETAIL W-17 FOR CALLOUTS FOR OTHER SIZES.

SEE DETAIL W-26 FOR VAULT AND INSTALLATION REQUIREMENTS

DOUBLE 3'x3' CLEAR ACCESS HATCH EQUAL TO LW HATCH, OR SUBMIT ALTERNATE VAULT TOP AND HATCH(ES) TO CITY FOR APPROVAL. SEE HATCH NOTES ON DETAIL W-26.



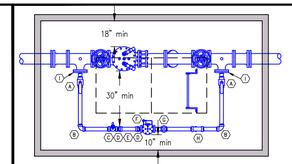
ELEVATION

① DI PIPE, LENGTH TO FIT
② DI REDUCER (RJ) IF NEEDED
③ DI SPOOL (FLxPE) LTF
④ DI REDUCING TEE (FLxFLx4"FL) w/TAPPED BOSS
⑤ RS GATE VALVE (FLxFL) w/HAND WHEEL
⑥ PRESSURE REDUCING VALVE (FLxFL) EQUAL TO CLA-VAL 90G-01ABCS OR CITY APPROVED EQUAL. EPOXY LINING, VALVE POSITION INDICATOR, POLY PILOT LINES.
⑦ FCA w/SHACKLE RESTRAINT (OR ROMAC DJ400 DISMANTLING JOINT)
⑧ DI PIPE (FLxPE) APPROX. 12" LENGTH
⑨ STRAINER (FLxFL) EQUAL TO WATTS 77F-D-FDA, EPOXY LINED, BRASS BALL VALVE FOR BLOW OUT
⑩ ADJUSTABLE SADDLE PIPE SUPPORT, RISER PIPE, AND BASE EQUAL TO GRINNEL FIGURE 264. ALSO PROVIDE (2) UNDER BYPASS LINE
⑪ FLxFL SPOOL, 7" LENGTH
Ⓐ 4" RS GATE VALVE (FL)
Ⓑ 4" DI 90° BEND (FL) W/1" TAP ON SIDE AND HOSE BIB
Ⓒ 4"x3" DI REDUCER (FL)
Ⓓ 3" DI PIPE (FL) 36" LENGTH
Ⓔ PRESSURE REDUCING VALVE (FLxFL) EQUAL TO CLA-VAL 90G-01ABS. EPOXY LINING, VALVE POSITION INDICATOR, POLY PILOT LINES.
Ⓕ FCA w/SHACKLE RESTRAINT (OR ROMAC DJ400)
Ⓖ 4" DI PIPE (FLxPE) LTF
Ⓗ STRAINER (FL) EQUAL TO WATTS 77F-D-FDA AND BRONZE BALL VALVE FOR BLOW OUT
Ⓘ PRESSURE GAUGE AND COMB. AIR VALVE, SEE W-17
Ⓙ 4" DI PIPE (FLxFL) LTF

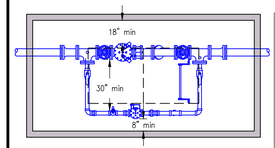
SEE SIZING TABLE ON STD DETAIL W-17 FOR PIPE AND FITTING SIZES.

AN ADDITIONAL PRESSURE RELIEF VALVE MAY BE REQUIRED AT THE CITY'S DISCRETION. CONFIGURATION AND SIZE TO BE DETERMINED PER INSTALLATION.

City of Rock Island	WATER SYSTEM STANDARD DETAIL: PRESSURE REDUCING STATION	DRAWING NO. W-19	SHEET NO. 23
File: EWDTW24 Revised: MAY 5, 2021 Printed: MAY 5, 2021			



6"x2" PRV STATION



4"x2" PRV STATION

SIZING TABLE (MIN SIZES)

Main Line	Main PRV	Bypass Line	Utility Vault
12"	8"	3"	712-LA
10"	8"	3"	712-LA
8"	6"	2"	612-LA
6"	4"	2"	5106-LA

1. SEE STD DETAIL W-19 FOR ADDITIONAL STATION INFORMATION.

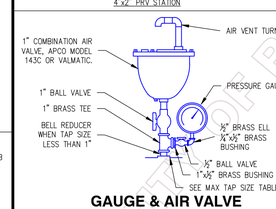
2. PREP ALL SURFACES PER PAINT MANUFACTURER'S INSTRUCTIONS PRIOR TO APPLICATION. REMOVE ALL DIRT, GREASE, SCALE AND RUST. FACTORY COATINGS SHALL BE ROUGHENED TO PROVIDE ADEQUATE PROFILE FOR TOP COATS.

3. COAT DI PIPE, FITTINGS AND STEEL FASTENERS WITH POLYMIDE EPOXY PAINT, 2 COATS AT 5 DRY MILS EACH. COLOR: LIGHT BLUE. PIPE SHALL BE EMPTY DURING COATING.

4. ALL BALL VALVES AND CURB STOP SHALL BE FULL-PORT.

5. ALL SHACKLE SYSTEMS SHALL BE PER W-07.

6. SEE W-26 FOR ADDITIONAL VAULT INSTALLATION DETAILS



GAUGE & AIR VALVE

NOTES:
- GAUGE & AIR VALVE COMBO SHALL BE INSTALLED ON BOTH SIDES OF THE PRV.
- BRASS NIPPLES NOT CALLED OUT, PROVIDE AS NECESSARY.
- PRESSURE GAUGE WITH 4.5" FACE, GLYCERINE FILLED, SCALE RANGE NO LESS THEN 1.2x NOR MORE THAN 2x WORKING PRESSURE.

MAX TAP SIZE TABLE
- 0.5" FOR 3" TEE
- 0.75" FOR 4"-6" TEE
- 1" FOR 8" AND LARGER TEES

Ⓐ 2" BRASS BALL VALVE (THREADED)
Ⓑ 2" BRASS 90° BEND (THREADED)
Ⓒ 2" BRASS TEE (THREADED)
¾" HOSE BIB
Ⓓ 2" BRASS THREADxSWEAT ADAPTER
Ⓔ 2" COPPER PIPE, LTF
Ⓕ PRESSURE REDUCING VALVE (THREADED) EQUAL TO CLA-VAL, 90G-01ABS. EPOXY LINING, VALVE POSITION INDICATOR, POLY PILOT LINES.
Ⓖ 2" BRASS UNION
Ⓗ STRAINER (THREADED) EQUAL TO WATTS 777S AND BRONZE BALL VALVE FOR BLOW OUT
Ⓘ 4" DI BLIND FLANGE w/2" TAP

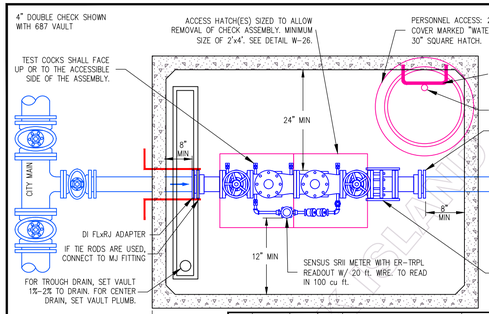
USE THREADED BRASS NIPPLES (NOT CALLED OUT) ON BYPASS PIPING. USE CLOSE NIPPLES WHERVER POSSIBLE.

City of Rock Island	WATER SYSTEM STANDARD DETAIL: PRESSURE REDUCING STATION DETAILS	DRAWING NO. W-17	SHEET NO. 24
File: EWDTW5 Revised: MAY 2, 2018 Printed: MAY 2, 2018			

STEVEN C. PEDERSON, STATE OF WASHINGTON, 42139, REGISTERED PROFESSIONAL ENGINEER

SIGNED: 01/31/22

ROCDTSHT3.DWG
JAN 31, 2022



VALVE DIAM	MAX FLOW*	MIN. VAULT HEIGHT	MIN. VAULT WIDTH
2½"	225 gpm	72"	50"
3"	320 gpm	72"	54"
4"	500 gpm	72"	58"
6"	1000 gpm	72"	60"
8"	1600 gpm	72"	62"
10"	2300 gpm	74"	66"
12"	3000 gpm	82"	66"

* MAXIMUM FLOW RATE OBTAINED FROM AWWA C510, C511 AND FCCC

MIN. VAULT LENGTH BASED ON BACKFLOW DEVICE LENGTH

ALL 2.5" DIA. DEVICES, VAULT 5' DEVICE < 41", VAULT 7' DEVICE 41" TO 47", VAULT 7.5' DEVICE 47" TO 50", VAULT 8' DEVICE 50" TO 66", VAULT 10' DEVICE > 66", VAULT 12'

a. CLEARANCES SHOWN ARE REQUIRED MINIMUMS.
b. VAULT DIMENSIONS ARE INTERIOR MINIMUMS AND A LARGER VAULT MAY BE REQUIRED.
c. DESIGN ENGINEER TO CONFIRM SIZING.
d. ALTERNATE VAULT SIZES REQUIRE DIMENSIONED LAYOUT FOR REVIEW.

1. DEVICE TO BE MAINTAINED BY OWNER. ANNUAL TESTING IS REQUIRED.

2. WATER MAIN SHALL NOT BE PLACED IN SERVICE UNTIL AFTER DEVICE IS APPROVED BY A CITY INSPECTOR.

3. RESTRAIN ALL JOINTS BETWEEN THE WATERMAIN AND THE DEVICE. RESTRAIN ALL JOINTS ON THE DOWNSTREAM (CUSTOMER) SIDE OF THE DEVICE PER DEAD-END LENGTH CALLOUTS ON STANDARD DETAIL W-16, OR AS APPROVED BY THE CITY.

4. CITY OWNERSHIP TERMINATES AT R.O.W. OR VAULT WALL, WHICHEVER IS REACHED FIRST.

5. THIS PLAN IS SHOWN FOR GENERAL LAYOUT ONLY. DESIGN ENGINEER MUST VERIFY EACH INSTALLATION INCLUDING HATCH AND LADDER LOCATIONS. SUBMITTAL OF LAYOUT FOR CITY REVIEW IS ENCOURAGED.

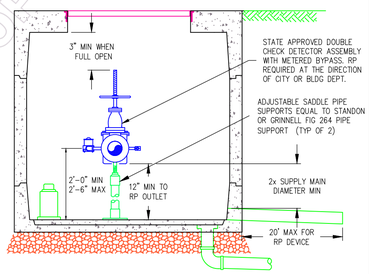
6. DESIGN ENGINEER TO VERIFY SIZE OF DEVICE REQUIRED PER MANUFACTURER AND FIRE CITY CRITERIA. SUBMIT SIZING TO CITY FOR REVIEW.

7. SEE STANDARD DETAIL W-25 FOR MORE INFO.

8. RP=REDUCED PRESSURE PRINCIPAL.

9. NOTHING ON THESE DETAILS SHALL BE INTERPRETED AS WAIVING STATE CROSS CONNECTION CONTROL REQUIREMENTS.

10. SEE W-26 FOR ADDITIONAL VAULT INSTALLATION DETAILS. "HOT-BOX" MAY ALSO BE ACCEPTABLE.



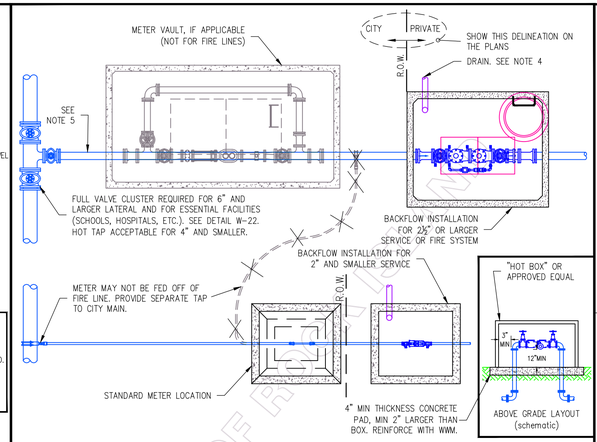
City of Rock Island

File: EWDTW4 | Revised: DEC 21, 2021 | Printed: DEC 21, 2021

WATER SYSTEM STANDARD DETAIL

BACKFLOW PREVENTION ASSEMBLY

DRAWING NO. W-13 | SHEET NO. 25



1. THIS DETAIL IS A GENERAL REFERENCE FOR COMMON CROSS CONNECTION CONTROL STANDARDS. EACH PROJECT WILL BE REVIEWED BY THE CITY ON A CASE-BY-CASE BASIS AND MAY REQUIRE ADDITIONAL ACTIONS.

2. FOLLOW THE REQUIREMENTS OF WAC 246-290-490 AND THE PNWS-AWWA CROSS CONNECTION CONTROL MANUAL.

3. HEATED ABOVE-GRADE ENCLOSURES ARE ALLOWED. "HOT-BOX" OR APPROVED EQUAL.

4. IF A BURIED VAULT IS USED, A DRAIN MUST BE PROVIDED.
   4.1. FOR A NON-RPBA, THE DRAIN MAY GO TO DAYLIGHT OR A SUMP.
   4.2. FOR AN RPBA DEVICE, THE DRAIN MUST BE BORESIGHTED TO DAYLIGHT AND SIZED TO PASS THE DUMP-VALVE FLOW AS STATED BY THE MANUFACTURER'S DATA. MAXIMUM LENGTH OF DRAIN IS 20 FEET (Chapter 6 of the PNW-AWWA CCC Manual).
   4.3. DAYLIGHT DRAIN OUTLET MUST INCLUDE AIR GAP OF AT LEAST 2x DRAIN DIAMETER.

5. LATERAL PIPE BETWEEN MAIN AND VAULT TYPICALLY SIZED TO NOT EXCEED 8.0 fps VELOCITY AT THE RATED FLOW. THE CITY MAY ALLOW UP TO 10.0 fps IF LATERAL PIPE IS CLASS 52 DUCTILE IRON. THE CUSTOMER IS RESPONSIBLE FOR DETERMINING THE MINIMUM SIZING FOR PIPE, VALVES, AND FITTINGS TO MEET THEIR PERFORMANCE REQUIREMENTS.

6. BACKFLOW DEVICE SHALL INCLUDE DETECTOR ASSEMBLY IF MAINLINE IS NOT OTHERWISE METERED.

7. IN-PREMISE BACKFLOW PREVENTION IS THE JURISDICTION OF THE CITY OR COUNTY BUILDING DEPARTMENT AND DETERMINATION OF ANY ADDITIONAL BACKFLOW PREVENTION SHALL BE MADE BY THAT AGENCY. RCW 19.27.

8. DETERMINATION OF THE NEED FOR AN RPBA SHALL REST SOLELY WITH THE CITY. RPBA=REDUCED PRESSURE PRINCIPAL BACKFLOW ASSEMBLY.

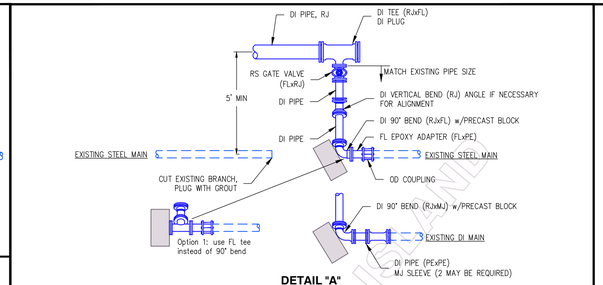
City of Rock Island

File: EWDTW10 | Revised: DEC 21, 2021 | Printed: DEC 21, 2021

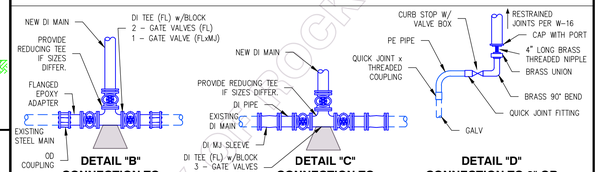
WATER SYSTEM STANDARD DETAIL

BACKFLOW ASSEMBLY INSTALLATION

DRAWING NO. W-25 | SHEET NO. 26



DETAIL "A"
CONNECTION TO EXISTING BRANCH MAIN



DETAIL "B"
CONNECTION TO EXISTING STEEL MAIN

DETAIL "C"
CONNECTION TO EXISTING D.I. MAIN

DETAIL "D"
CONNECTION TO 2" OR SMALLER LOOPED MAIN

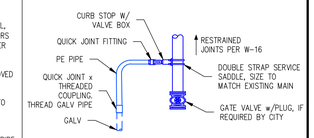
1. CITY WILL SELECT WHICH DETAIL TO USE AT EACH CONNECTION.

2. OD COUPLINGS 3" DIAMETER AND LARGER SHALL BE ROMAC 511 OR EQUAL, WITH 7" CENTER RING LENGTH MINIMUM. CUT PIPE SUCH THAT NO GAP OCCURS BETWEEN NEW AND EXISTING PIPE INSIDE COUPLING. CUT AND INSTALL SPACER PIPE IF GAP LARGER THAN ⅜" OCCURS.

3. RJ = RESTRAINED JOINT: MEGALUGS, FIELD-LOK GASKETS OR CITY APPROVED EQUAL. SEE STANDARD DETAIL W-16.

4. PRE-PRESSURE TEST TEE/CROSS/VALVE ASSEMBLIES BEFORE CUTTING INTO EXISTING MAINS.

5. FLANGED EPOXY ADAPTER IS A FLxPE STEEL SPOOL, EPOXY OR POWDER COATED INSIDE AND OUT. STEEL PIPE DIAMETER TO MATCH EXISTING STEEL PIPE. COATING TO BE NSF61 CERTIFIED. SPOOL TO BE ⅜" MIN. WALL THICKNESS.



DETAIL "E"
CONNECTION TO 2" OR SMALLER DEAD END MAIN

City of Rock Island

File: EWDTW28 | Revised: MAY 3, 2021 | Printed: MAY 3, 2021

WATER SYSTEM STANDARD DETAIL

CONNECTIONS TO EXISTING MAINS

DRAWING NO. W-22 | SHEET NO. 27

ABANDONMENT, REMOVAL, AND TERMINATION NOTES

CITY SHALL BE SOLE DETERMINER OF APPROPRIATE ABANDONMENT PROCEDURES AND METHODS. RESTORE ALL DISTURBED SURFACES TO ORIGINAL CONDITION AND TO THE SATISFACTION OF THE CITY. DELIVER, UNDAMAGED, ALL REMOVED EQUIPMENT (HYDRANTS, SERVICE BRASS, VALVES, ETC., NOT PIPE) TO THE CITY SHOP WITHIN ONE WEEK OF REMOVAL. THE CITY OWNS ALL EXISTING MATERIALS AND HAS THE RIGHT OF SALVAGE FOR ANY EQUIPMENT AT THEIR DISCRETION. ANY EQUIPMENT THE CITY DOES NOT WISH RETURNED SHALL BE DISPOSED OF BY THE CONTRACTOR. SHOULD THE CONTRACTOR UNNECESSARILY DAMAGE ANY EXISTING FUNCTIONAL EQUIPMENT, SAID EQUIPMENT SHALL BE REPLACED BY THE CONTRACTOR AT THEIR COST. THE FOLLOWING METHODS ARE APPROVED ABANDONMENT PROCEDURES FOR TERMINATED EQUIPMENT.

ABANDONED HYDRANTS, SERVICES, BRANCH MAINS, ETC. SHALL BE TERMINATED AT THE FACILITY LOCATION AND AT THE MAINLINE. THE LATERAL SHALL NOT BE LEFT CONNECTED TO THE MAINLINE.

VALVES
1. REMOVE VALVES AND VALVE BOXES. PLUG OR BLIND FLANGE THE WATER MAIN.
2. AN ALTERNATIVE METHOD OF ABANDONMENT IS ACCEPTABLE IF, AT THE DISCRETION OF THE CITY, THE VALVE CANNOT BE REMOVED. PLUG AND CLOSE THE VALVE, THEN REMOVE THE VALVE BOX.

WATER MAINS
1. CUT AND DRAIN THE ABANDONED WATER MAIN WHERE EXPOSED DURING CONSTRUCTION AND AT ALL LOW POINTS.
2. REMOVE MAINS IN THE WAY OF NEW CONSTRUCTION. SAW CUT AND REMOVE SHORT SECTIONS OF PIPE. MAINS SHALL NOT BE FORCIBLY REMOVED WITH HEAVY EQUIPMENT DUE TO POTENTIAL DAMAGE TO SURROUNDING UTILITIES.
3. MAINS THAT WILL BE TERMINATED BUT NOT ENCOUNTERED DURING NEW TRENCHING MAY BE LEFT IN PLACE, BUT ALL VALVES MUST BE REMOVED OR ABANDONED AS DESCRIBED UNDER "VALVES".
4. PLUG ENDS OF ABANDONED MAINS EXPOSED DURING CONSTRUCTION WITH GROUT PLUG, BLIND FLANGE, OR CAP AS DIRECTED BY THE CITY DEPENDING ON THE TYPE OF PIPE AND SOIL CONDITIONS.

WATER SERVICES AND AIR VALVE ASSEMBLIES
1. REMOVE ALL VAULTS, SETTERS AND MISCELLANEOUS FITTINGS. BACKFILL WITH CRUSHED ROCK AND COMPACT. NATIVE SOILS MAY BE USED FOR BACKFILL ONLY IF APPROVED BY THE CITY.
2. CUT SERVICE AT MAIN AND REMOVE STUB FROM CORP STOP. CLOSE CORP STOP AND INSTALL THREADED CAP.
3. REMOVE ENTIRE SERVICE LINE BACK TO WATER MAIN (EXCAVATE OR PULL).
4. AT THE DISCRETION OF THE CITY, THE SERVICE LINE MAY REMAIN IN PLACE, BUT MUST BE TERMINATED AT THE MAINLINE AS DESCRIBED IN ITEM 2.

HYDRANTS
1. REMOVE ENTIRE HYDRANT. REMOVE OR ABANDON LATERAL PIPE AND ISOLATION VALVE AS DETAILED ABOVE.
2. REMOVE ANY BOLLARDS.
3. BACKFILL WITH CRUSHED ROCK, OR NATIVE MATERIAL IF APPROVED BY THE CITY.

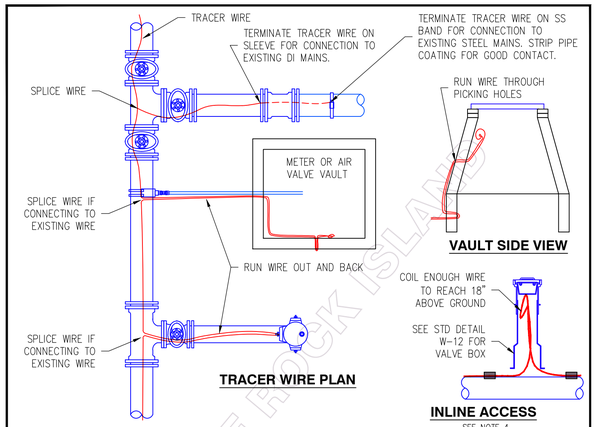
City of Rock Island

File: EWDTW29 | Revised: JAN 7, 2020 | Printed: JAN 7, 2020

WATER SYSTEM STANDARD DETAIL

ABANDONMENT AND REMOVAL OF TERMINATED FACILITIES

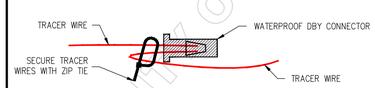
DRAWING NO. W-15 | SHEET NO. 28



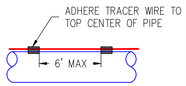
TRACER WIRE PLAN

VAULT SIDE VIEW

INLINE ACCESS
SEE NOTE 4



SPLICE DETAIL



TRACER WIRE ON PIPE

1. INSTALL TRACER WIRE ON ALL WATERMAINS, HYDRANTS, SERVICE PIPES, AIR VALVE PIPES, AND BLOW OFF PIPES. DO NOT WRAP WIRE AROUND PIPE.

2. TRACER WIRE TO BE SOLID COPPER CORE, UF, BLUE COLOR, 12 AWG FOR LENGTHS 2,000 FEET AND LESS, OR 10 AWG FOR LENGTH OVER 2,000 FEET.

3. SEE STANDARD DETAILS W-14, W-18 AND W-21 FOR TRACER WIRE LAYOUT AT WATER SERVICES, W-08 AT BLOW-OFFS, AND W-10 AT AIR VALVES.

4. IF SPACING IS GREATER THAN 1,000 FEET BETWEEN WIRE ACCESS POINTS, PROVIDE A VALVE BOX FOR TERMINATION. INCLUDE MARKER POST IF VALVE BOX IS NOT IN PAVED ROAD.

5. FOR SPLICES, USE A WATERPROOF DBY SPLICE KIT AND SECURE WITH ZIP TIES.

City of Rock Island

File: EWDTW31 | Revised: DEC 21, 2021 | Printed: DEC 21, 2021

WATER SYSTEM STANDARD DETAIL

TRACER WIRE

DRAWING NO. W-31 | SHEET NO. 29

BRIAN C. PETERSON, STATE OF WASHINGTON, 32139, REGISTERED PROFESSIONAL ENGINEER

SIGNED: 01/31/22

ROCDTSHT4.DWG
JAN 31, 2022

Appendix G

Water Rights Documents

Water Right Self-Assessment Form for Water System Plan

Mouse-over any link for more information. Click on any link for more detailed instructions.

Water Right Permit, Certificate, or Claim # *If water right is interruptible, identify limitation in yellow section below	WFI Source # If a source has multiple water rights, list each water right on separate line	Existing Water Rights Qi= Instantaneous Flow Rate Allowed (GPM or CFS) Qa= Annual Volume Allowed (Acre-Feet/Year) This includes wholesale water sold				Current Source Production – Most Recent Calendar Year Qi = Max Instantaneous Flow Rate Withdrawn (GPM or CFS) Qa = Annual Volume Withdrawn (Acre-Feet/Year) This includes wholesale water sold				10-Year Forecasted Source Production (determined from WSP) This includes wholesale water sold				20-Year Forecasted Source Production (determined from WSP) This includes wholesale water sold			
		Primary Qi Maximum Rate Allowed	Non-Additive Qi Maximum Rate Allowed	Primary Qa Maximum Volume Allowed	Non-Additive Qa Maximum Volume Allowed	Total Qi Maximum Instantaneous Flow Rate Withdrawn	Current Excess or (Deficiency) Qi	Total Qa Maximum Annual Volume Withdrawn	Current Excess or (Deficiency) Qa	Total Qi Maximum Instantaneous Flow Rate in 10 Years	10-Year Forecasted Excess or (Deficiency) Qi	Total Qa Maximum Annual Volume in 10 Years	10-Year Forecasted Excess or (Deficiency) Qa	Total Qi Maximum Instantaneous Flow Rate in 20 Years	20-Year Forecasted Excess or (Deficiency) Qi	Total Qa Maximum Annual Volume in 20 Years	20-Year Forecasted Excess or (Deficiency) Qa
1 G4-300065CL	Well No. 1 – NA	650 gpm	0 gpm	498 afy	0 afy	0 gpm	650 gpm	0 afy	498 afy	0 gpm	650 gpm	0 afy	498 afy	0 gpm	650 gpm	0 afy	498 afy
2 G4-045542CL	Well Nos. 2, 3, and 5 (S02, S03, and S04)	122 gpm	0 gpm	47.71 afy	0 afy	950 gpm	(48 gpm)	226 afy	437.71 afy	950 gpm	(48 gpm)	286 afy	377.71 afy	950 gpm	(48 gpm)	322 afy	341.71 afy
3 GWC 4224-A		500 gpm	0 gpm	168 afy	0 afy												
4 G4-24603C		280 gpm	0 gpm	448 afy	0 afy												
	TOTALS =	1,552 gpm		1,161.71 afy		950 gpm	602 gpm	226 afy	935.71 afy	950 gpm	602 gpm	286 afy	875.71 afy	950 gpm	602 gpm	322 afy	839.71 afy
Column Identifiers for Calculations:		A		B		C	=A-C	D	=B-D	E	= A-E	F	=B-F	G	=A-G	H	=B-H

PENDING WATER RIGHT APPLICATIONS: Identify any water right applications that have been submitted to Ecology.

Application Number	New or Change Application?	Date Submitted	Quantities Requested			
			Primary Qi	Non-Additive Qi	Primary Qa	Non-Additive Qa
None						

INTERTIES: Systems receiving wholesale water complete this section. Wholesaling systems must include water sold through intertie in the current and forecasted source production columns above.

Name of Wholesaling System Providing Water	Quantities Allowed In Contract		Expiration Date of Contract	Currently Purchased Current quantity purchased through intertie				10-Year Forecasted Purchase Forecasted quantity purchased through intertie				20-Year Forecasted Purchase Forecasted quantity purchased through intertie			
	Maximum Qi Instantaneous Flow Rate	Maximum Qa Annual Volume		Maximum Qi Instantaneous Flow Rate	Current Excess or (Deficiency) Qi	Maximum Qa Annual Volume	Current Excess or (Deficiency) Qa	Maximum Qi 10-Year Forecast	Future Excess or (Deficiency) Qi	Maximum Qa 10-Year Forecast	Future Excess or (Deficiency) Qa	Maximum Qi 20-Year Forecast	Future Excess or (Deficiency) Qi	Maximum Qa 20-Year Forecast	Future Excess or (Deficiency) Qa
1 None															
2															
3															
TOTALS =															
Column Identifiers for Calculations:	A	B		C	=A-C	D	=B-D	E	=A-E	F	=B-F	G	=A-G	H	=B-H

INTERRUPTIBLE WATER RIGHTS: Identify limitations on any water rights listed above that are interruptible.

Water Right #	Conditions of Interruption	Time Period of Interruption
1 None		
2		
3		

ADDITIONAL COMMENTS:

[1] G4-300065CL period of use is April 1 to October 1.

Well No. 1 = 0 gpm, Well No. 2 = 250 gpm, Well No. 3 = 0 gpm, Well No. 5 = 700 gpm.

Existing use is 2020, 10-year forecast is 2030, and 20-year forecast is 2040.

Ground Water Claim G4-300065CL

Well No. 1

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

STATEMENT OF WATER RIGHT CLAIM

FOR OFFICE USE ONLY
44/17
'97 DEC 29 A7:25
98000146
DEPT. OF ECOLOGY
WRIA

1. City of Rock Island
Name
P.O. Box 99
Mailing Address
Rock Island, WA 98850
City State Zip
Phone No. (509) 884-1261

2. Date water was first put to use on your property *(see instructions)* Month _____ and Year 1930

3. COMPLETE ONLY ONE BOX BELOW *(please read the instructions)*

3a. GROUND WATER	3b. SURFACE WATER (Give name if known)
☒ Well ☐ Infiltration Trench ☐ Other _____ Give Name	☐ _____ River ☐ _____ Lake ☐ _____ Creek ☐ _____ Spring ☐ _____ Ditch ☐ _____ Pond ☐ Other _____
4a. INSTANTANEOUS QUANTITY 650 gpm *(See Instructions 10 gpm=0.02 cfs ; 1 cfs=450 gpm)*	4b. INSTANTANEOUS QUANTITY _____ cfs *(See Instructions 10 gpm=0.02 cfs ; 1 cfs=450 gpm)*
5a. ANNUAL QUANTITY OF WATER 498 af/y *(One acre foot = 325,581 gallons)*	5b. ANNUAL QUANTITY OF WATER _____ af/y *(One acre foot = 325,581 gallons)*

6. PURPOSE OF USE:
☒ Irrigation *(Number of acres irrigated)* 4.38
☐ Domestic Use *(Number of units)* _____
☐ Commercial *(Description)* _____
☐ Stockwater
☒ Municipal
☐ Other *(List all)* _____

7. PERIOD OF USE: ☐ Continuous or ☒ Seasonal From April To October

8. LOCATION OF THE POINT OF DIVERSION/WITHDRAWAL:
Approximately _____ Feet (north, south) and _____ Feet (east, west) From The _____ Corner of Section _____
Being Within The _____ 1/4 _____ 1/4 of Section _____ T. _____ N., R. _____ (E . or W.) W.M.

9. IF THE POINT OF DIVERSION/WITHDRAWAL IS LOCATED ON PLATTED PROPERTY:
Lot ½ of 4 Block 1 of East Wenatchee Land Company (Plat or Addition)
Section 25 T. 22 N N., R. 21 (E. or W.) W.M.

10. LEGAL DESCRIPTION OF PROPERTY WHERE WATER IS USED:
See Attached

Within Section _____ T. _____ N., R. _____ (E. or W.) W.M., County _____

11. TAX PARCEL NUMBER: 102 000 006 00, 102 000 005 01, 102 000 005 07, 102 000 005 09

12. LEGAL DOCTRINE: ☒ Appropriation ☐ Riparian ☐ Other _____

REGISTRATION NUMBER
300065

THIS IS NOT A WATER RIGHT

If this form is not fully completed, it will be returned.
I hereby swear that the above information is true and accurate to the best of my knowledge.

Signature: Kay Jones
Date: 12-23-97

ECY 040-57 (7/97)

Ecology is an equal opportunity and affirmative action employer.

98000146

A-228 Lr5,6

(11)

VOL 176 PAGE 359

151238

QUIT CLAIM DEED

THE GRANTOR, THE HOUSING AUTHORITY OF THE TOWN OF ROCK ISLAND, WASHINGTON, for good and valuable consideration conveys and quit claims to THE TOWN OF ROCK ISLAND, WASHINGTON, a municipal corporation, the following described real estate, situate in the County of Douglas, State of Washington, to-wit:

All that tract or parcel of land being part of Lots 5 and 6, East Wenatchee Land Co.'s Plat of part of sections 24 and 25, TWP 22North, Range 21 EWM, being in Douglas County, Washington, and more particularly described as follows:

Beginning at the Northeast corner of the Northwest quarter of section 25, TWP 22N, Range 21 EWM, which is the intersection of Saunders Street and Rock Island Street; thence South 89 36' West along the northerly boundary of said Northwest quarter of Section 25, for 30 feet; thence South 0 14' West a distance of 30 feet to the true point of beginning of this description; thence continuing South 0 14' West a distance of 563.54 feet to the northeasterly right of way of State Road number 10; thence North 56 01' West along the Northeasterly right of way of State Road No. 10 a distance of 549.13 feet to the beginning of a curve with a radius of 1462.5 feet; thence continuing in a Northwesterly direction on arc of a curve along the right of way of State Road No. 10 a distance of 457.79 feet to the intersection of the south boundary of Saunders Street; thence North 89 36' East along the South boundary of Saunders Street a distance of 563.65 feet to the true point of beginning, containing 4.38 acres of land, more or less.

EXCEPTING THEREFROM, the following described parcel:

All that certain lot, piece or parcel of land, containing .37 acre, bounded and described as follows:

Beginning at the Northeast line of State Road No. 10 and its intersection with the West Line of Rock Island Street; and running thence in a northwesterly direction along the boundary of said State Road No. 10, a distance of 175 feet; thence East a distance of 145 feet more or less, to the West boundary of Rock Island Street; thence South along the West boundary of Rock Island Street, a distance of 95 feet more or less, to the point of beginning, all in the Northwest quarter of Section 25, TWP 22N, Range 21 E.W.M.

W. GORDON KELLEY
ATTORNEY-AT-LAW
WENATCHEE WASHINGTON

Ground Water Claim G4-045542CL(B)

Well Nos. 2, 3, and 5

Ground Water Certificate 4224-A

Well Nos. 2, 3, and 5

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
1250 W Alder St • Union Gap, WA 98903-0009 • (509) 575-2490

SENT VIA EMAIL

December 1, 2021

City of Rock Island
The Honorable Randy Agnew
P.O. Box 99
Rock Island, WA 98850-0099
Email: mayor@rockislandwa.gov

RE: Ecology Modifies the Douglas Board's Decision and Approves Water Right Change Application No. **CG4-045542CL (DOUG-19-02)**

Dear Mayor Agnew:

In accordance with RCW 90.80.080 the Department of Ecology (Ecology) has reviewed the Record of Decision (ROD), Report of Examination (ROE), and all comments, protests, objections and other relevant information submitted by the Douglas County Water Conservancy Board (the Board) for the above referenced application for change.

Ecology has **modified** the decision of the Board and the proposed change/transfer of water right is **approved** under the following conditions:

Summary of Ecology's Final Order

CG4-045542CL(A) Donald Barth & George Pond, LLC

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	24.2 gpm 40 gpm	10.77 ac-ft/yr 5 ac-ft/yr	Irrigation of 2.69 acres, April 1 to October 1 Continuous Frost and Heat Protection

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
A well	

¼	¼	SECTION	TOWNSHIP	RANGE	WRIA	COUNTY
SE	NW	30	22 N	22 E.W.M.	44	Douglas

AT A POINT LOCATED:

GPS: 47.3728 -120.1257
Douglas County Parcel No. 59400000004

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD
Part of Lots 21 and 22, E. Wenatchee Land Company's Plat of Section 30, T 22N, R 22 E.W.M., Douglas County, WA, according to the recorded plat thereof, described as follows: Begin at the NW corner of said Lot 22 and run thence SE to a point of the E line thereof which is 330 ft S of the NE corner thereof; thence continue SE to the SE corner of said Lot 21; thence N along the E line of said Lot 21 to the NE corner thereof; thence W along the N lines of said lots to the point of beginning. ALSO the NE Quarter of the NW Quarter, and the E 164.5 feet of the SE Quarter of the NW Quarter of Section 30, Township 22N, Range 22 E.W.M., Douglas County, WA.
DOUGLAS COUNTY PARCEL NOS.
Multiple, including 41700002103 and 59400000004.

CG4-045542CL(B) City of Rock Island

MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
122 gpm	47.71 ac-ft/yr	Continuous Municipal Water Supply Purposes

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
Well #2 Well #3, Tag #ABS153 Well #5, Tag #BBL430	

SOURCE NAME	¼	¼	SECTION	TOWNSHIP	RANGE	WRIA	COUNTY
Well #2	NW	NW	25	22	21 E.W.M.	44	Douglas
Well #3	SE	SE	23	22	21 E.W.M.		
Well #5	NW	NW	30	22	22 E.W.M.		

AT A POINT LOCATED:

Well #2
GPS: 47.37403 -120.15411
Douglas County Parcel No. 41500000902

Well #3
Well Tag #ABS153
GPS: 47.38029 -120.1564
Douglas County Parcel No. 41300004902

Well #5
Well Tag #BBL430
GPS: 47.3767 -120.13137
Douglas County Parcel No. 10800000001

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD		
City of Rock Island Corporate Limits and Water Service Area as specified in the 2013 Water System Plan for the City of Rock Island, including all or portions of Section 19 and 30, T. 22 N., R. 22 E.W.M., and Section 23, 24, 25, and 26, T. 22 N., R. 21 E.W.M. Note: See provision for place of use changes for water systems.		
DEVELOPMENT SCHEDULE		
BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER TO PUT TO FULL USE BY THIS DATE:
Begun	December 31, 2031	December 31, 2033

Ecology has **MODIFIED** the decision of the Board in the tables above and as follows:

The continuous domestic quantities, 10 gpm and 2 ac-ft/yr, that were approved in the Board's decision have not been used for many years and are therefore relinquished to the state. The Board's extent and validity analysis found that the water duty for the orchard was 4.1 ac-ft/acre, however, the claimed water duty was 4.0 ac-ft/acre (80 ac-ft/yr for irrigation of 20 acres). The Board's record lacked evidence demonstrating a need for a higher water duty to supply the remaining 14.62 acres of irrigation. Therefore, Ecology reduces the annual quantity that remains valid for the irrigation of 14.62 acres to 58.48 ac-ft/yr. See below for detailed calculations.

- Irrigation of 14.62 acres:
    - Qi: 14.62 acres * 10 gpm/acre = 146.2 gpm.
    - Qa: 14.62 acres * 4 ac-ft/yr/acre = 58.48 ac-ft/yr.
- Frost and heat protection: 40 gpm and 5 ac-ft/yr.
- Total Qi: 186.2 gpm.
- Total Qa: 63.48 ac-ft/yr.

The quantities for the (B) portion remain fixed at 122 gpm and 47.71 ac-ft/yr based on the January 25, 2018, Water Right Transfer Agreement between Rock Island City, George Pond, LLC, and Donald Barth. Therefore, Ecology reduced the (A) portion quantities in the table above to:

- 24.2 gpm and 10.77 ac-ft/yr for irrigation of 2.69 acres.
- 40 gpm and 5 ac-ft/yr for frost and heat protection.

Ecology modified the development schedule for the (B) portion to allow for 10 years to complete construction of the homes on the former orchard property and 2 years following completion to show full beneficial use. No development schedule is needed for the (A) portion.

Ecology modified the legal description of the (A) portion well. The claimed legal description is within the SE¼NW¼ of Section 30. The application and public notice erroneously identify the well as being in the NW¼NW¼ of Section 30, but the same well is intended to be used for the remaining irrigation. Ecology changed the well location back to the SE¼NW¼ of Section 30. In addition, Ecology corrected the parcel number to Douglas County Parcel No. 59400000004 to match the latest parcel number.

For the (B) portion, Ecology updated the parcel number where Well #5 is located to Douglas County Parcel No. 10800000001.

Ecology has added GPS coordinates to the well locations in the tables above.

Multiple parcels that were in the Board's decision table for the (A) portion are obsolete after Douglas County subdivided the land for development. Ecology modified the legal description for the (A) portion to take out those parcel numbers.

In the PROVISIONS section of the Board's ROE, Ecology adds the following provisions to both (A) and (B):

Real Estate Excise Tax

This decision may indicate a Real Estate Excise Tax liability for the seller of water rights. The Department of Revenue has requested notification of potentially taxable water right related actions, and therefore will be given notice of this decision, including document copies. Please contact the state Department of Revenue to obtain specific requirements for your project. Phone: (360) 570-3265. The mailing address is: Department of Revenue, Real Estate Excise Tax, PO Box 47477, Olympia WA 98504-7477. Internet: http://dor.wa.gov/ or E-mail: REETSP@DOR.WA.GOV.

Authority to Access Project

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the project location, and to inspect at reasonable times, records of water use, wells, diversions, measuring devices and associated distribution systems for compliance with water law.

Ecology also adds the following provision to the (B) portion only:

Proof of Appropriation

Consistent with the development schedule given in this report (unless extended by Ecology), the water right holder must file a Notice of Proof of Appropriation (PA) of Water with Ecology. The PA documents the project is complete and all the water needed has been put to full beneficial use (perfected). In order to verify the extent of water use under this permit, an inspection of water use is typically required, known as a "proof exam". After filing the PA, the water right holder's next step is to hire a Certified Water Rights Examiner (CWRE) to conduct this proof exam. A list of CWREs is provided to the water right holder upon filing the PA with Ecology. The final water right document, a water right certificate, then may issue based upon the findings of the CWRE. Statutory county and state filing fees may apply prior to certificate issuance.

YOUR RIGHT TO APPEAL

You have a right to appeal this Decision to the Pollution Control Hearings Board (PCHB) within 30 days of the date of receipt of this Decision. The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do all of the following within 30 days of the date of receipt of this Decision:

- File your appeal and a copy of this Decision with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this Decision on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION	
Street Addresses	**Mailing Addresses**
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey WA 98503 **Pollution Control Hearings Board** 1111 Israel Road SW, Ste. 301 Tumwater WA 98501	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia WA 98504-7608 **Pollution Control Hearings Board** PO Box 40903 Olympia WA 98504-0903

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov
To find laws and agency rules visit the Washington State Legislature Website: http://www.leg.wa.gov/CodeReviser

If you have any question about this decision, please contact Benjamin Carr at (509) 490-1936.

Trevor Hutton, Section Manager
Water Resources Program
Central Regional Office

TH:BC:aa (211201)

Enclosures: Your Right to Be Heard
Completion of Construction
Water Measurement Requirements, Form 1, and Telemetered Metering Options

By certified mail: 9489 0090 0027 6130 2951 69

cc: Erin McCool, Ogden Murphy Wallace, PLLC (ecc)
Marc Marquis, Marquis Law Office (ecc)
Carol Cowling, Douglas County Water Conservancy Board (ecc)

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Board Name: Douglas County
WATER CONSERVANCY BOARD
Application for Change/Transfer
Record of Decision

Reviewed by: _____
Date Reviewed:

Applicant Name: City of Rock Island Application Number: DOUG 19-02

This record of decision was made by a majority of the board at an open public meeting of the(Board Name) Douglas County Water Conservancy Board held on (date meeting was held) 9/13/21. The undersigned board commissioners certify that they each understand the board is responsible "to ensure that all relevant issues identified during its evaluation of the application, or which are raised by any commenting party during the board's evaluation process, are thoroughly evaluated and discussed in the board's deliberations. These discussions must be fully documented in the report of examination." [WAC 173-153-130(5)] The undersigned therefore, certifies that each commissioner, having reviewed the report of examination, knows and understands the content of the report.

☒ **Approval:** The (board name) Water Conservancy Board hereby **grants** conditional approval for the water right transfer described and conditioned within the report of examination on (date report of exam was signed) 9/13/21 and submits this record of decision and report of examination to the Department of Ecology for final review.

☐ **Denial:** The (board name) Water Conservancy Board hereby **denies** conditional approval for the water right transfer as described within the report of examination on (date report of exam was signed) _____ and submits this record of decision to the Department of Ecology for final review.

Signed:

Water Conservancy Board Name: Douglas County	Date: 9-13-21
Chair Name: Lee Hemmer	Signature:
(choose one) ☒ Approve ☐ Deny ☐ Abstain ☐ Recuse ☐ Other (please explain)	

Water Conservancy Board Name: Douglas County	Date: 9/13/21
Title: Vice Chair Name: Courtney Hill	Signature:
(choose one) ☒ Approve ☐ Deny ☐ Abstain ☐ Recuse ☐ Other (please explain)	

Water Conservancy Board Name: Douglas County	Date: 9-13-21
Title: Member Name: Martin Hernandez	Signature:
(choose one) ☒ Approve ☐ Deny ☐ Abstain ☐ Recuse ☐ Other (please explain)	

Water Conservancy Board Name:	Date:
Title: Name:	Signature:
(choose one) ☐ Approve ☐ Deny ☐ Abstain ☐ Recuse ☐ Other (please explain)	

Water Conservancy Board Name:	Date:
Title: Name:	Signature:
(choose one) ☐ Approve ☐ Deny ☐ Abstain ☐ Recuse ☐ Other (please explain)	

RECEIVED
SEP 17 2021
Dept of Ecology
Central Regional Office

Mailed with all related documents to the Dept of Ecology (send to the Regional office below), and any other interested parties.

DEPARTMENT OF ECOLOGY
State of Washington

Board Name: **Douglas County Conservancy Board**

WATER CONSERVANCY BOARD

Application for Change/Transfer

OF A RIGHT TO THE BENEFICIAL USE OF THE PUBLIC WATERS OF THE STATE OF WASHINGTON

REPORT OF EXAMINATION

NOTE TO APPLICANT: Pursuant to WAC 173-153-130(8), the applicant is not permitted to proceed to act on the proposal until Ecology makes a final decision affirming, in whole or in part, the board's recommendation. It is advised that the applicant not proceed until the appeal period of Ecology's decision is complete.

NOTE TO AUTHOR: *Read the instructions for completing a water conservancy board report of examination. Use the Tab key to move through the form or with your mouse, select the fields to enter information.*

☐ Surface Water ☒ Ground Water

Date Application Received	**March 18, 2019**	Water Right Document Number (i.e., claim, permit, certificate, etc.)	**G4-045542CL**
Water Right Priority Date	**Before 1930**	Board-Assigned Change Application Number	**DOUG 19-02**
Name: **City of Rock Island**		Phone: **509-884-1261**	Email: **emccool@omwlaw.com**
Address (street): **P.O. Box 99 (5 N. Garden)**	City: **Rock Island**	State: **WA**	Zip: **98850**

Changes Proposed:
☒ Change purpose ☐ Add purpose ☐ Add irrigated acres
☒ Change point of diversion/withdrawal ☐ Add point of diversion/withdrawal ☒ Change place of use
☐ Other (Temporary, Trust, Interties, etc.)

SEPA:
The board has reviewed the provisions of the State Environmental Policy Act of 1971, Chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC and has determined the application is: ☒ Exempt ☐ Not Exempt

BACKGROUND AND DECISION SUMMARY

Please include a map(s) reflecting all referenced existing and proposed point(s) of diversion or withdrawal and place(s) of use (RCW 90.03.260(7); WAC 173-153-070 (6)(c).

Existing Right (Tentative Determination)							
Maximum cub ft/second			Maximum gal/minute	**188.6 gpm**			
Maximum acre-ft/yr	**66.45 af/yr**		Describe Type(s) of use, and period(s) of use	**Irrigation April 1 - Oct 1, Continuous domestic, Frost & Heat protection**			
Source	**Well**		Tributary of (if surface water)				
At a Point Located: Parcel No.	**41700002103**	¼	**NW**	¼	**NW**	Section	**30**
Township N.	**22**	Range	**22E**	WRIA		County	**Douglas**

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED

Type detailed legal description of the place of use: **Part of Lots 21 and 22, E. Wenatchee Land Company's Plat of Section 30, T22N, R22E.W.M., Douglas County, WA, according to the recorded plat thereof, described as follows: Begin at the NW corner of said Lot 22 and run thence SE to a point on the E line thereof which is 33 ft S of the NE corner thereof; thence continue SE to the SE corner of said Lot 21; thence N along the E line of said Lot 21 to the NE corner thereof; thence W along the N lines of said lots to the pt of beginning. ALSO the NE Quarter of the NW Quarter, and the E. 164.5 feet of the SE Quarter of the NW Quarter of Section 30 Township 22N, Range 22 E.W.M, Douglas County, WA**

Parcel no.	**22223020006, 22223020003,**	¼		¼	**NW**	Section	**30**

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ECY 040-106 (03/2017) To request ADA accommodation including materials in a format for the visually impaired, call Ecology Water Resources Program 360-407-6872. Persons with impaired hearing may call Washington Relay Service at 711. Persons with speech disability may call TTY at 877-833-6341.

Continue to 3.2

G4-045542CL (A)

Proposed Use

Maximum cub ft/second		Maximum gal/minute	66.6 gpm
Maximum acre-ft/yr	18.74	Describe Type(s) of use, and period(s) of use	Irrigation April 1 - Oct 1
Source	Well	Tributary of (if surface water)	

At a Point Located: Parcel No.	41700002103	¼	NW	¼	NW	Section	30
Township N.	22	Range	22E	WRIA		County	Douglas

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED

Type detailed legal description of the place of use: **Part of Lots 21 and 22, E. Wenatchee Land Company's Plat of Section 30, T22N, R22E.W.M., Douglas County, WA, according to the recorded plat thereof, described as follows: Begin at the NW corner of said Lot 22 and run thence SE to a point on the E line thereof which is 33 ft S of the NE corner thereof; thence continue SE to the SE corner of said Lot 21; thence N along hte E line of said Lot 21 to the NE corner thereof; thence W along the N lines of said lots to the pt of beginning. ALSO the NE Quarter of the NW Quarter, and the E. 164.5 feet of the SE Quarter of the NW Quarter of Section 30 Township 22N, Range 22 E.W.M, Douglas County, WA**

Parcel no.	22223020006, 22223020003, 41700002103, 10800002101, 10800002801, 2222302005	¼		¼	NW	Section	30
Township N.	22	Range	22	WRIA		County	Douglas

Board's Decision on the Application G4-045542(L(A)

Maximum cub ft/second		Maximum gal/minute	66.6 gpm
Maximum acre-ft/yr	18.74	Describe Type(s) of use, and period(s) of use	Irrigation April 1 - Oct 1
Source	Well	Tributary of (if surface water)	

At a Point Located: Parcel No.	41700002103	¼	NW	¼	NW	Section	30
Township N.	22	Range	22E	WRIA		County	Douglas

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED

Type detailed legal description of the place of use: **Part of Lots 21 and 22, E. Wenatchee Land Company's Plat of Section 30, T22N, R22E.W.M., Douglas County, WA, according to the recorded plat thereof, described as follows: Begin at the NW corner of said Lot 22 and run thence SE to a point on the E line thereof which is 33 ft S of the NE corner thereof; thence continue SE to the SE corner of said Lot 21; thence N along hte E line of said Lot 21 to the NE corner thereof; thence W along the N lines of said lots to the pt of beginning. ALSO the NE Quarter of the NW Quarter, and the E. 164.5 feet of the SE Quarter of the NW Quarter of Section 30 Township 22N, Range 22 E.W.M, Douglas County, WA**

Parcel no.	22223020006, 22223020003, 41700002103, 10800002101, 10800002801, 2222302005	¼	NW	¼	NW	Section	30
Township N.	22	Range	22E	WRIA		County	Douglas

Description of Proposed Works

Description of water diversion/withdrawal, conveyance, and distribution system: **This is the remainder of the existing irrigation and frost and heat protection use that is administratively divided from the portion of G4-045542CL that is being transferred to the City of Rock Island.**

continued from pg. 2 Existing Right (Tentative Determination)

	41700002103, 10800002101, 10800002801						
Township N.	22	Range	22	WRIA		County	Douglas

Proposed Use G4-045542CL (B)							
Maximum cub ft/second		Maximum gal/minute	122 gpm				
Maximum acre-ft/yr	47.71	Describe Type(s) of use, and period(s) of use	Municipal Water Supply				
Source	Well #3 Well #2 Well #5	Tributary of (if surface water)					
At a Point Located: Parcel No.	41300004902 41500000902 10800000002	¼	SE NW NW	¼	SE NW NW	Section	23 25 30
Township N.	22 22 22	Range	21 21 22	WRIA		County	Douglas

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED

Type detailed legal description of the place of use: **City of Rock Island Corporate Limits & Water Service Area as specified in the Water System Plan - 2013 for the City of Rock Island , including all or potions of Sections 19 and 30, T. 22N., R. 22 E.W.M., and Sections 23-26, T. 22N., R. 21 E.W.M.**

Parcel no.		¼		¼		Section	
Township N.		Range		WRIA		County	

Board's Decision on the Application G4-045542CL (B)							
Maximum cub ft/second		Maximum gal/minute	122 gpm				
Maximum acre-ft/yr	47.71	Describe Type(s) of use, and period(s) of use	Municipal Water Supply				
Source	Well #3 Well #2 Well #5	Tributary of (if surface water)					
At a Point Located: Parcel No.	41300004902 41500000902 10800000002	¼	SE NW NW	¼	SE NW NW	Section	23 25 30
Township N	22 22 22	Range	21 21 22	WRIA		County	Douglas

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED

Type detailed legal description of the place of use: **City of Rock Island Corporate Limits & Water Service Area as specified in the Water System Plan - 2013 for the City of Rock Island , including all or potions of Sections 19 and 30, T. 22N., R. 22 E.W.M., and Sections 23-26, T. 22N., R. 21 E.W.M.**

Parcel no.		¼		¼		Section	
Township N.		Range		WRIA		County	

Description of Proposed Works

Account	Usage	Billing Period	Meter #	Demand Rdg	Actual usage bill
725047	784	Sep-20	151682	19.82	
725047	1,791	Aug-20	151682	19.35	
725047	2,360	Jul-20	151682	21.24	
725047	782	Jun-20	151682	21.49	
725047	0	May-20	151682	0.01	
725047	0	Apr-20	151682	0	
725047	1	Mar-20	151682	0.01	
725047	0	Feb-20	151682	0	
725047	0	Jan-20	151682	0	
725047	0	Dec-19	151682	0	
725047	0	Nov-19	151682	0	
725047	0	Oct-19	151682	0	
725047	1,491	Sep-19	151682	21.99	
725047	2,302	Aug-19	151682	21.93	
725047	4,400	Jul-19	151682	22.03	
725047	2,272	Jun-19	151682	21.51	
725047	1,364	May-19	151682	21.71	
725047	11	Apr-19	151682	21.6	
725047	1	Mar-19	151682	0	
725047	0	Feb-19	151682	0	
725047	0	Jan-19	151682	0	
725047	0	Dec-18	151682	0	
725047	0	Nov-18	151682	0	
725047	1,930	Oct-18	151682	21.62	
725047	3,042	Sep-18	151682	21.57	
725047	2,385	Aug-18	151682	21.44	
725047	568	Jul-18	151682	19.59	
725047	0	Jun-18	151682	0	
725047	0	May-18	151682	0	
725047	1	Apr-18	151682	0	
725047	0	Mar-18	151682	0	
725047	0	Feb-18	151682	0	
725047	0	Jan-18	151682	0	
725047	0	Dec-17	151682	0	
725047	0	Nov-17	151682	0	
725047	4,494	Oct-17	151682	21.84	
725047	2,999	Sep-17	151682	21.82	
725047	1,068	Aug-17	151682	21.75	
725047	1,501	Jul-17	151682	21.87	
725047	0	Jun-17	151682	0	
725047	0	May-17	151682	0	
725047	1	Apr-17	151682	0	
725047	0	Mar-17	151682	0	
725047	6,811	Oct-16	151682	0	
725047	4,828	Sep-16	151682	0	

725047	1,246	Aug-16	151682	21.28	
725047	5,947	Aug-16	50587	21.28	
725047	4,672	Jul-16	50587	0	
725047	4,672	Jun-16	50587	0	
725047	4,672	May-16	50587	0	
725047	5,295	Apr-16	50587	0	
725047	0	Mar-16	50587	0	
725047	1,653	Oct-15	50587	0	
725047	2,917	Sep-15	50587	0	
725047	7,720	Aug-15	50587	0	
725047	5,147	Jul-15	50587	0	
725047	5,147	Jun-15	50587	0	
725047	5,147	May-15	50587	0	
725047	4,975	Apr-15	50587	0	
725047	0	Mar-15	50587	0	Actual usage bill
725047	10,282	Oct-14	50587	0	Bills were estima
725047	4,434	Sep-14	50587	0	
725047	4,434	Aug-14	50587	0	
725047	4,434	Jul-14	50587	0	
725047	4,434	Jun-14	50587	0	
725047	4,434	May-14	50587	0	
725047	4,434	Apr-14	50587	0	
725047	0	Mar-14	50587	0	
725047	3,091	Oct-13	50587	0	
725047	4,787	Sep-13	50587	0	
725047	4,632	Aug-13	50587	0	
725047	4,632	Jul-13	50587	0	
725047	4,632	Jun-13	50587	0	
725047	4,632	May-13	50587	0	
725047	4,632	Apr-13	50587	0	
725047	0	Mar-13	50587	0	
725047	1,314	Oct-12	50587	0	
725047	5,134	Sep-12	50587	0	
725047	5,134	Aug-12	50587	0	
725047	5,134	Jul-12	50587	0	
725047	5,134	Jun-12	50587	0	
725047	5,134	May-12	50587	0	
725047	5,134	Apr-12	50587	0	
725047	0	Apr-12	50587	0	
725047	18,705	Oct-11	50587	0	
725047	3,118	Sep-11	50587	0	
725047	3,118	Aug-11	50587	0	
725047	3,118	Jul-11	50587	0	
725047	3,325	Jun-11	50587	0	
725047	3,118	May-11	50587	0	
725047	2,806	Apr-11	50587	0	Bills were estima

Description of water diversion/withdrawal, conveyance, and distribution system:
Well #2 (ABR438) - A 12" x 115' well equipped with a 30 HP line shaft turbine pump capable of 320 pgm
Well # 3 (ABR153) - A 10" x 76 ' well to be used as emergency back-up
Well # 5 (ABR430) - A 12" x 73' well equipped with a 50 HP line shaft turbine pump capable of 700 gpm
The City's primary wells (#2 & #5) are connected to the municipal domestic water system and are automatically controlled based on water level in the reservoir which is communicated to the well pump controls via radio transmission. During periods when demand exceeds well pumping, the reservoirs are drained. Well #3 is used only for emergencies.

Development Schedule	
Begin project by this date (At least 75 days after Board's ROD issuance):	**December 1, 2021**
Complete project by this date:	**December 1, 2026**
Complete change & put water to full use by this date:	**December 1, 2026**

Report

NOTE TO AUTHOR: This form reflects the minimum regulatory requirements as required in WAC 173-153-130(6). In accordance with WAC 173-153-130(5), "It is the responsibility of the water conservancy board to ensure that all relevant issues identified during its evaluation of the application, or which are raised by any commenting party during the board's evaluation process, are thoroughly evaluated and discussed in the board's deliberations. These discussions must be fully documented in the report of examination." **Completion solely of the minimum regulatory requirements may not constitute a fully documented decision.**

BACKGROUND [See WAC 173-153-130(6)(a)]

On Month **March**, day **18**, year **2019**.

Name of applicant: **City of Rock Island** of City: **Rock Island** State: **WA** filed an application

for change (to do what e.g., POU, POD, POW, etc) **POU, POW, Purpose of Use** under (Water right number, e.g., certificate, permit,

claim , superseding document #, cert of change #): **G4-045542CL**. The application was accepted at an open public meeting

on Month: **March**, day: **18**, year: **2019**, and the board assigned application number(XXXX-YR-##): **DOUG 19-02**.

Attributes of the water right as currently documented

Name on certificate, claim, permit: **H. Gary France and Iola D. France**

Water right document number (e.g., cert #, claim #, permit #, superseding document #): **G4-45542CL**

As modified by certificate of change number: _____

Priority date, first use Date of priority or claimed date water was originally first put to beneficial use : **Before 1930**

Water quantities: Qi (Instant qty): **250 gpm** Qa (Annual qty): **87** acre ft./ year

Source (well, river, etc): **Well**

Point of diversion/withdrawal (Distance from ¼¼, Section, Township, Range EWM): **NW1/4, NW1/4, S 30 T 22 R21**

Purpose of use: **Irrigation, Domestic, and Frost& Heat**

Number of Acres if Irrigation: **20**

Period of use: **Dom - 12mo Irr-Apr 1-Oct1**

Place of use: **See Attached**

Existing provisions (family farm act, interruptable, etc.): _____

Tentative determination of the water right

The tentative determination is provided on the front page of this report.

History of water use

Describe the historical water use information that was considered by the board:

Courtney Hill, Douglas County Water Conservancy Board Commissioner inspected the current place of use, existing point of withdrawal, and proposed place of use and points of withdrawal with Don Barth (owner of the current place of use), Marc Marquis, Erin McCool, and Rock Island Mayor Randy Agnew on March 28, 2019. Don Barth, owner of the existing place of use provided electrical records for the well of the existing point of withdrawal to Courtney Hill. Don Barth provided information on the historic use of the water for irrigation, domestic use, frost & heat protection, and orchard spraying and dust control. The Board reviewed aerial photography of the existing uses in 1957, 1965, 1998, 2002, 2005, 2009, 2011, 2015, and 2017. See attached Exhibit 1 & 3. Additionally, the Board reviewed the title history of the place of use going back to 1942. Recorded documents dating back to April 1942 refer to a five horse electric pump well for domestic and irrigation purposes for the place of use. Record Agreements in February 1943 further indicate that the place of use was used as an apple orchard by referring to apple wood and spray pipes. The presence of spray pipes in 1943 further supports the use of water for frost and heat protection. See the attached Exhibit 4. Don Barth indicates that when the water was used for frost or heat protection, the well would produce at full force and instantaneous quantity over the entire orchard as needed.

Previous changes

Describe any previous change decisions associated with the water right:

None.

SEPA

The board has reviewed the proposed project in its entirety (Provide a detailed explanation of how the board complied with the State Environmental Policy Act):

A - The project discussed herein involves a transfer of a maximum withdrawal of 66.6 gpm. For State Environmental Policy Act (SEPA) purposes this water right change application is categorically exempt under SEPA because the total withdrawal is less than 2,250 gpm as set forth in WAC 197-11-800(4). **B - The project discussed herein involves a transfer of a maximum withdrawal of 122 gpm. For State Environmental Policy Act (SEPA) purposes this water right change application is categorically exempt under SEPA because the total withdrawal is less than 2,250 gpm as set forth in WAC 197-11-800(4).**

Other

Provide any other pertinent information relative to the background of this water right:

The water right that is being changed is a Claim. A portion of the Claim for a total of 47.71 acre feet per year at an instantaneous rate of 122 gpm shall transfer to the City as municipal water supply. The City, George Pond LLC, and Don Barth request that the claim (including the claim amendment filed with Ecology on January 25, 2019) be administratively divided between the municipal uses (47.71 af/yr, 122 gpm) and the remaining agricultural uses (18.74 af/yr, 66.6 gpm): **G4-045542CL(A) DonBarth/Georges Pond 66.6gpm 18.74 af/yr NW NW S30, T22N, R22E WM** **G4-045542CL (B) City of Rock Island 122gpm 47.71 af/yr SE SE S23, T22N, R21E WM** .

The information or conclusions in this section were authored and/or developed by (Name of Person): ____

COMMENT AND PROTESTS [See WAC 173-153-130(6)(b)]

Public notice of the application was given in the (Name of Publication(s): **Empire Press**

on Dates Published: **5//9/10 and 5/16/19**. Protest period ended on (end date of protest period): **June 15, 2019**

There were # ____ **or no** ☒ protests received during the 30 day protest period. In addition, **no** ☒ **or #** ____ oral and written comments were received at an open public meeting of the board or other means as designated by the board.

Date (protest/comment received): ____

This was recognized by the board as a ☐ Protest ☐ Comment

Name/address of protestor/commenter: ____

Issue (describe issues raised): ____

Board's analysis (board's response to the protest/comment): ____

NOTE to author: *Repeat this table as necessary to describe each protest or comment*

(attach a separate sheet if needed)

Other

Provide any other pertinent information relative to the comments and protests receive:

Ecology requested that the change application be sent to the Office of the Columbia River for consultation. The OCR sent out requests for comment to 18 agencies and entities on November 20, 2020. One comment was received from the Washington Department of Fish and Wildlife on December 22, 2020. WDWF recommended that the total amount of the claim be adjusted to reflect the actual use of the water to 16 irrigated acres and recommended that the claim be transferred and divided as follows:

G4-045542CL(A) DonBarth/Georges Pond 80gpm 23.69 af/yr NW NW S30, T22N, R22E WM
G4-045542CL (B) City of Rock Island 122gpm 47.71 af/yr SE SE S23, T22N, R21E WM

As indicated in the tentative determination of the water claim below, the Board generally adopts WDFW's recommendation to adjust the claim to reflect actual irrigated acres and tentatively determinces that 14.62 acres have been continuously irrigated but adjusts the total Qa to 66.45 af/yr and the Qi to 188.6 gpm to reflect the water duty of 4.1 af/yr and the 5 af/yr for heat & frost suppression, and 2 af/yr for continuous domestic use. The claim should be administratively divided as follows:

G4-045542CL(A) DonBarth/Georges Pond 66.6gpm 18.74 af/yr NW NW S30, T22N, R22E WM Seasonal Irrigation
G4-045542CL (B) City of Rock Island 122gpm 47.71 af/yr SE SE S23, T22N, R21E WM Municipal Water

The information or conclusions in this section were authored and/or developed by (Name of Person): ____

INVESTIGATION [See WAC 173-153-130(6)(c)]

The following information was obtained from a site inspection conducted by (person(s)): **Courtney Hill** on (date of field exam): **March 28, 2019** , technical reports, research of department records (list other references, if any) **RH2 Technical Memoradum July 13, 2020** and conversations with the applicant and/or other interested parties.

Proposed project plans and specifications

Describe proposed use of water to include # of connections, method of irrigation, type of crop, commercial use, etc. Also describe any issues related to development, such as the proposed development schedule and an analysis of the effect of the proposed transfer on other water rights, pending change applications & instream flows established under state law.

The City proposes the following changes for G4-045542CL (B):

• New POWs:

o NW ¼ ¼ of NW ¼ of Section 25, Township 22 N, Range 21 E (City Well No. 2).

o SE ¼ ¼ of SE ¼ in Section 23, Township 22 N Range 21 E (City Well No. 3).

o NW ¼ ¼ of NW ¼ of Section 30, Township 22 N, Range 22 E (City Well No. 5).

• Additional POU: City of Rock Island corporate limits and water service area.

• Proposed Purpose of Use: Municipal water supply, continuous.

• Proposed Quantity: 122 gpm and 47.71 afy.

• The City has two water rights that authorize withdrawal from the same three POWs.

The actual quantities of the proposed change will depend on the result of the administrative division of the claim between the owner and the City based on a tentative determination of the claim.

The City proposes to withdraw groundwater from three existing City-owned wells at the proposed POWs. The wells currently are used by the City for municipal supply.

The water claim G4-044542CL includes seasonal (April 1st to October 1st) irrigation rights and continuous domestic, continuous frost and heat protection, and continuous orchard maintenance use. Using the irrigation portion of the transferred water for the City's continuous municipal supply may be constrained during periods of low instream flow in the Columbia River, which occasionally occur during the non-irrigation season. The City likely will choose to avoid potential curtailment of the use of the irrigation portion of the transferred water during low flow periods by fully allocating its use during irrigation season and re-allocating the withdrawal for its continuous use rights during non-irrigation season.

Other water rights appurtenant to the property (if applicable)

Describe any other water rights or other water uses associated with both the current and proposed place of use and an explanation of how those other rights or uses will be exercised in conjunction with the right proposed to be transferred.

The City has other municipal rights:

Claim No. 300065 - This claim is for seasonal irrigation only and is not included associated with the three wells that are the proposed points of withdrawal for this transfer.

Other water rights associated with POWs Well #2, Well #3, and Well #5:

Certificate No. 4224-A - Priority date 1961, 168 af/yr at 500 gpm for continuous municipal supply

Certificate No. G4-24603C - Priority date 1977, 448 af/yr at 280 gpm for continuous municipal supply.

G4-044542CL will be incorporated into the City's municipal water rights portfolio for a total Qa of 409.71 af/yr and Qi 922 gpm.

Public Interest (groundwater only)

The proposed transfer is subject to RCW 90.44.100 and therefore, cannot be detrimental to the public interest, including impacts on any watershed planning activities. Provide an analysis of the transfer as to whether it is detrimental to the public interest, including impacts on any watershed planning activity. Public interest is not considered if the proposed water right is authorized under RCW 90.03.380 exclusively.

The Water Board finds that there have been no issues raised that indicate that the change would prove detrimental to the public interest. This transfer application will enable the City of Rock Island to secure a reliable public water supply and support planned development consistent with the City's Water System Plan.

Tentative Determination

In order to make a water right change decision, the Board must make a tentative determination on the validity and extent of the right. The Board has made the tentative determination as displayed upon the first page of this report. There are several circumstances that can cause the board's tentative determination to differ from the stated extent of the water right within water right documentation. Water right documents attempt to define a maximum limitation to a water right, rather than the actual extent to which a water right has been developed and maintained through historic beneficial use. Additionally, except for a sufficient cause pursuant to RCW 90.14.140, water rights, in whole or in part, not put to a beneficial use for five consecutive years since 1967 may be subject to relinquishment under Chapter 90.14.130 through 90.14.180 RCW. Water rights may additionally be lost through abandonment. The Board's tentative determination was based upon the following findings. Describe any information indicating that an existing water right or portion of a water right has been relinquished or abandoned due to nonuse and the basis for the determination.

On March 18, 2019, the City of Rock Island, with the consent of George Pond, LLC, filed a change application with the Board to change Claim G4-045542CL. The change application was assigned Water Board number DOUG 19-02. The purpose of the change application is to transfer a portion of the Claim to the City's municipal water supply for use in the City's water service area from three city wells. The original claim identified one point of withdrawal.

The applicant, with the concurrence of George Pond, LLC and Don Barth, desire to divide the water right according to the allocation reflected in the Remarks section of the Application (which was signed by both parties). Pursuant to input from CRO Conservancy Board Coordinator Ben Carr, the Board conducted a tentative determination of the entire right.

Courtney Hill, Board Commissioner, inspected the site on March 28, 2019 with Don Barth, the owner of the current place of use. The entire site of the current place of use was inspected, including the existing point of withdrawal associated with the current use. The orchard had been recently been removed. It is clear from the size of the trees remaining that this was likely an original orchard planted when the property was developed sometime before 1930. Title documents for the existing place use indicate that apple orchard existed and was irrigated in 1942. All areas were being irrigated consistent with the mapping provided by the applicant. There was no indication that the water has not been put to full beneficial use since the issuance since 1930.

The Board reviewed aerial photography dating back to 1957 indicating that approximately 14.62 acres of apple orchard have been irrigated continuously from at least 1957 until 2017 when the orchard was removed. The water duty for the orchard was 4.1 ft/ac indicating that at least 59.45 af/yr have been continuously used on those 14.62 acres for irrigation, 5 af/yr for frost & heat suppression, and 2 af/yr for continuous domestic use.

The Board concludes that the portion of the Claim to be transferred to the City pursuant to G4-045542CL (B), 47.71 af/yr, 122 gpm, has been put to beneficial use. Pursuant to the Water Right Transfer Agreement between the City and Barth/George Pond, the remaining water after the transfer to the City shall remain with Barth/George Pond (G4-04452CL (A)). The Board tentatively determines as to the remaining agricultural uses that 18.74 af/yr, 66.6 gpm should be administratively divided and remain with Barth/George Pond.

Geologic, Hydrogeologic, or other scientific investigations (if applicable)

Describe the results of any geologic, hydrogeologic, or other scientific investigations that were considered by the board and how this information contributed to the board's conclusions.

Steve Nelson of RH2 Engineering conducted a review of the hydrogeologic conditions and determined that the existing point of withdrawal is in hydraulic continuity with the three City wells that are the proposed points of withdrawal. Nelson further concluded that groundwater is available at the proposed points of withdrawal and that the additional proposed rate of groundwater withdrawal (122 gpm) to any of the proposed POWs would not impair nearby rights holders at their POWs. See Exhibit 2.

Other

Provide any other pertinent information relative to the investigation of this application.

The information or conclusions in this section were authored and/or developed by (Name of Person): ____

CONCLUSIONS [See WAC 173-153-130(6)(d)]

Tentative determination (validity and extent of the right)

Describe whether, and to what extent, a valid water right exists.

Claim G4-045542CL is a valid right and eligible for change to the extent that 66.45 af/yr, 188.6 gpm has been continously put to beneficial use.

Relinquishment or abandonment concerns

Describe any relinquishment or abandonment of the water right associated with the water right transfer application as discussed in the investigation section of this report.

The Board concludes that the claim holder has beneficially used 66.45 af/yr for the irrigation of approximately 14.62 acres of orchard, heat & frost protection, and continuous domestic use. Approximately 3.84 acres of the orignal place of use located to the north of the road was unplanted between 2002-2011 without an exception for non-use. That portion of the claim (15.55 af/yr, 61.4 gpm) is subject to relinquishment.

Hydraulic analysis

Describe the result, as adopted by the board, of any hydraulic analysis done related to the proposed water right transfer.

The existing point of withdrawal is in hydraulic continuity with the three City wells that are the proposed points of withdrawal. Further, adequate groundwater is available at the proposed points of withdrawal and that the additional proposed rate of groundwater withdrawal (122 gpm) to any of the proposed POWs would not impair nearby rights holders at their POWs.

Consideration of comments and protests

Discuss the board's conclusions of issues raised by any comments and protests received.

No comments or protests were received.

Impairment

Describe how or if the transfer proposal will impair existing rights of others.

The pumping test results at City Well No. 5 indicated that withdrawal of 650 gpm at Well No. 5 induced drawdowns of 0.6 and 0.1 feet, respectively, at monitoring wells completed in the same aquifer at distances of 50 and 500 feet from Well No. 5 (GeoEngineers, 2010).

Similar aquifer characteristics (composition, thickness, transmissivity, specific capacity) exist at City Well Nos. 2 and 3. Pumping groundwater at rates of up to 350 gpm at Well No. 2 and 675 gpm at Well No. 3 would induce less than 1 foot of drawdown at wells completed within 100 feet of these wells.

Adding the entire additional proposed rate of groundwater withdrawal (122 gpm) to any one of the existing POWs would increase the drawdown induced by the combined pumping at these wells but would not result in drawdown that would impair the ability for nearby right holder's wells to exercise their existing rights at their POWs.

Public Interest

If the proposed transfer is authorized pursuant to RCW 90.44.100, describe whether it is detrimental to the public interest. Public interest shall not be considered if the proposed transfer is authorized pursuant to RCW 90.03.380 exclusively.

The Board determines that the transfer is not detrimental to the public interest.

Other

The board also considered the previous provisions associated with the water right as identified in the background section of this report when making its decision. Provide any other pertinent information relative to the board's conclusions.

DECISION [See WAC 173-153-130(6)(e)]

Provide a complete description of the board's decision, fully and comprehensively addressing the entire application proposal.

As requested by the Applicants, the subject right is administratively divided between those portions which are transferred to the City and those quantities retained for agricultural irrigation.

G4-045542CL (A):

The Board tentatively determines that the extent and validity of the right for the remaining agricultural uses is 18.74 af/yr and 66.6 gpm.

G4-045542CL (B):

The Board tentatively determines that the extent and validity of right proposed for change to municipal use are 122gpm and 47.21af and as further articulated within the Board's Decision on the Application which appears on Page 3 of this ROE.

Provide any other pertinent information relative to the board's decision.

The information or conclusions in this section were authored and/or developed by (Name of Person): _____

PROVISIONS [See WAC 173-153-130(6)(f)]

Conditions and limitations

Identify any conditions and limitations recommended as part of an approved transfer, and/or any other corrective action necessary to maintain the water use in compliance with state laws and regulations.

WELLS, WELL LOGS AND WELL CONSTRUCTION STANDARDS

1. In accordance with WAC 173-160, wells shall not be located within certain minimum distances of potential sources of contaminations. These minimum distances shall comply with local health regulations, as appropriate. In general, wells shall be located at least 100 feet from sources of contaminations. Wells shall not be located within 1,000 feet of the boundary of a solid waste landfill.

2.All wells constructed in the state shall meet the construction requirements of WAC 173-160 titled "Minimum Standards for the Construction and Maintenance of Wells" and RCW 18.104 titled "Water Well Construction." Any well which is unusable, abandoned, or whose use has been permanently discontinued, or which is in such disrepair that it is continued use is impractical or is an environmental, safety, or public health hazard shall be decommissioned.

3.Well #3 which is no longer intended to be used as a primary water supply well is to be used as backup to Well #5 and #2 or as an emergency source only.

4. All wells shall be tagged with a Department of Ecology unique well identification number. If you have an existing well and it does not have a tag, please contact the well-drilling cooridnator at the regional Department of Ecology office issuing this decision. This tag shall remain attached to the well. If you are required to submit water measuring reports, reference this tag number.

5. Required installation and maintenance of an access port as described in WAC 173-160-291(3).

MEASUREMENTS, MONITORING, METERING, AND REPORTING

An approved measuring device must be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use," chapter 173-173 WAC, which describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition the Department of Ecology (Ecology) for modifications to some of the requirements. Recorded water use data shall be submitted electronically by January 31 each year. To set up an Internet reporting account, contact the Central Regional office. If you do not have Internet access, you can still submit hard copies by contacting the Central Regional office for forms to submit your water use data.

MUNICIPAL PLACE OF USE

If the criteria in RCW 90.03.386(2) are not met and a Water System Plan/Small Water System Management Program was approved after September 9, 2003, the place of use of this water right reverts to the service area described in that document. If the criteria in RCW 90.03.386(2) are not met, and no Water System Plan/Small Water System Management Program has been approved after September 9, 2003, the place of use reverts to the last place of use described by the Department of Ecology in a water right authorization.

CONSERVATION

The water right holder is required to maintain efficient water delivery systems and use of up-to-date water conservation practices consistent with RCW 90.03.005.

Mitigation (if applicable)

Describe any requirement to mitigate adverse effects of the project. Mitigation may be proposed by the applicant or the board and be required in the board's decision.

N/A

Construction Schedule

Provide a schedule for development and completion of the water right transfer, if approved in part or in whole that includes a definite date for completion of the transfer and application of the water to an authorized beneficial use.

The City intends to begin the project on December 1, 2021 and will put the entire right to beneficial use on or before December 1, 2026.

Other

Provide any other pertinent information relative to provisions

G4-045542CL should be administratively divided as follows:

G4-045542CL(A) DonBarth/Georges Pond 66.6 gpm 18.74 af/yr NW NW S30, T22N, R22E WM Seasonal Irrigation

G4-045542CL (B) City of Rock Island 122gpm 47.71 af/yr SE SE S23, T22N, R21E WM Municipal Water

The information or conclusions in this section were authored and/or developed by (Name of Person): Erin C. McCool

The undersigned board commissioner certifies that he/she understands the board is responsible "to ensure that all relevant issues identified during its evaluation of the application, or which are raised by any commenting party during the board's evaluation process, are thoroughly evaluated and discussed in the board's deliberations. These discussions must be fully documented in the report of examination." [WAC 173-153-130(5)] The undersigned therefore, certifies that he/she, having reviewed the report of examination, knows and understands the content of this report and concurs with the report's conclusions.

Signed at Wakenville, (City) Washington

This 13 (Date (Day)) day of Sept, (Month) 2021 (Year)

Name of Board Representative: Lee Hemmer

Name of Water Conservancy Board: Douglas County

RECEIVED
SEP 17 2021
Dept of Ecology
Central Regional Office

Signature: Fes M Hemmer

Account	Usage	Billing Period	Meter #	Demand Rdg	Actual usage bille
725047	784	Sep-20	151682	19.82	
725047	1,791	Aug-20	151682	19.35	
725047	2,360	Jul-20	151682	21.24	
725047	782	Jun-20	151682	21.49	
725047	0	May-20	151682	0.01	
725047	0	Apr-20	151682	0	
725047	1	Mar-20	151682	0.01	
725047	0	Feb-20	151682	0	
725047	0	Jan-20	151682	0	
725047	0	Dec-19	151682	0	
725047	0	Nov-19	151682	0	
725047	0	Oct-19	151682	0	
725047	1,491	Sep-19	151682	21.99	
725047	2,302	Aug-19	151682	21.93	
725047	4,400	Jul-19	151682	22.03	
725047	2,272	Jun-19	151682	21.51	
725047	1,364	May-19	151682	21.71	
725047	11	Apr-19	151682	21.6	
725047	1	Mar-19	151682	0	
725047	0	Feb-19	151682	0	
725047	0	Jan-19	151682	0	
725047	0	Dec-18	151682	0	
725047	0	Nov-18	151682	0	
725047	1,930	Oct-18	151682	21.62	
725047	3,042	Sep-18	151682	21.57	
725047	2,385	Aug-18	151682	21.44	
725047	568	Jul-18	151682	19.59	
725047	0	Jun-18	151682	0	
725047	0	May-18	151682	0	
725047	1	Apr-18	151682	0	
725047	0	Mar-18	151682	0	
725047	0	Feb-18	151682	0	
725047	0	Jan-18	151682	0	
725047	0	Dec-17	151682	0	
725047	0	Nov-17	151682	0	
725047	4,494	Oct-17	151682	21.84	
725047	2,999	Sep-17	151682	21.82	
725047	1,068	Aug-17	151682	21.75	
725047	1,501	Jul-17	151682	21.87	
725047	0	Jun-17	151682	0	
725047	0	May-17	151682	0	
725047	1	Apr-17	151682	0	
725047	0	Mar-17	151682	0	
725047	6,811	Oct-16	151682	0	
725047	4,828	Sep-16	151682	0	

725047	1,246	Aug-16	151682	21.28	
725047	5,947	Aug-16	50587	21.28	
725047	4,672	Jul-16	50587	0	
725047	4,672	Jun-16	50587	0	
725047	4,672	May-16	50587	0	
725047	5,295	Apr-16	50587	0	
725047	0	Mar-16	50587	0	
725047	1,653	Oct-15	50587	0	
725047	2,917	Sep-15	50587	0	
725047	7,720	Aug-15	50587	0	
725047	5,147	Jul-15	50587	0	
725047	5,147	Jun-15	50587	0	
725047	5,147	May-15	50587	0	
725047	4,975	Apr-15	50587	0	
725047	0	Mar-15	50587	0	Actual usage bill
725047	10,282	Oct-14	50587	0	Bills were estima
725047	4,434	Sep-14	50587	0	
725047	4,434	Aug-14	50587	0	
725047	4,434	Jul-14	50587	0	
725047	4,434	Jun-14	50587	0	
725047	4,434	May-14	50587	0	
725047	4,434	Apr-14	50587	0	
725047	0	Mar-14	50587	0	
725047	3,091	Oct-13	50587	0	
725047	4,787	Sep-13	50587	0	
725047	4,632	Aug-13	50587	0	
725047	4,632	Jul-13	50587	0	
725047	4,632	Jun-13	50587	0	
725047	4,632	May-13	50587	0	
725047	4,632	Apr-13	50587	0	
725047	0	Mar-13	50587	0	
725047	1,314	Oct-12	50587	0	
725047	5,134	Sep-12	50587	0	
725047	5,134	Aug-12	50587	0	
725047	5,134	Jul-12	50587	0	
725047	5,134	Jun-12	50587	0	
725047	5,134	May-12	50587	0	
725047	5,134	Apr-12	50587	0	
725047	0	Apr-12	50587	0	
725047	18,705	Oct-11	50587	0	
725047	3,118	Sep-11	50587	0	
725047	3,118	Aug-11	50587	0	
725047	3,118	Jul-11	50587	0	
725047	3,325	Jun-11	50587	0	
725047	3,118	May-11	50587	0	
725047	2,806	Apr-11	50587	0	Bills were estima

EXHIBIT 1

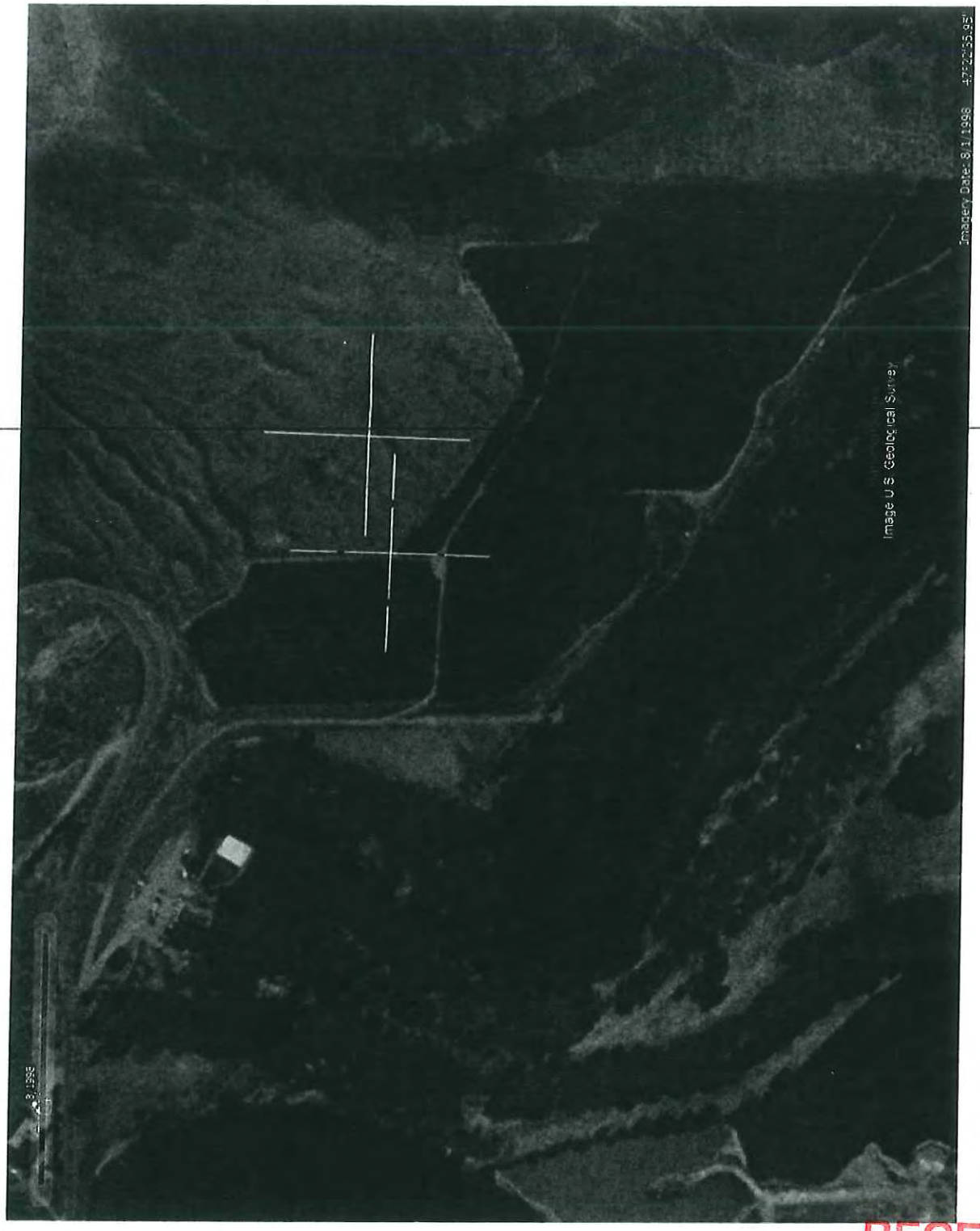


EXHIBIT 1

{ECM2264214.DOCX;1/00056.200038/ }

Douglas County, WA

December 28, 2017

Parcel Lines
County Boundary
Major Public Road
Minor Public Road
Private
Proposed
Airports
Railroads
Township Lines
Section Lines

1:6,423

0 0.05 0.1 0.2 mi

0 0.075 0.15 0.3 km

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

EXHIBIT 1

EXHIBIT 3

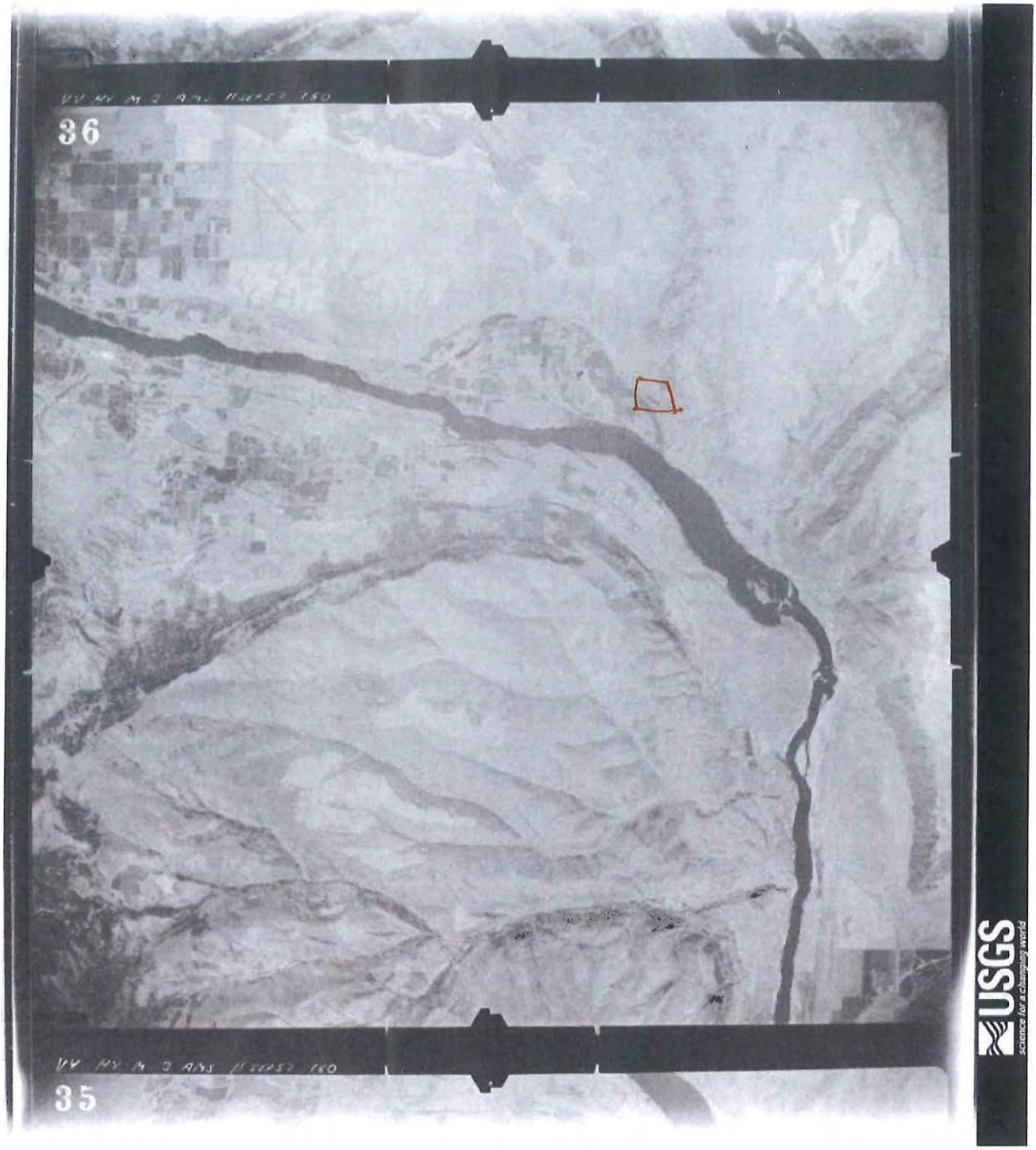
4FRD09021_016.jpg (800×723)

1965

https://ims.cr.usgs.gov/browse/aircraft/phoenix/aerial/4FRD/4FRD09021/4FRD09021_016.jpg

5/10/2021

3GRD15040_093.jpg (800×723)



1957

https://ims.cr.usgs.gov/browse/aircraft/phoenix/aerial/3GRD/3GRD15040/3GRD15040_093.jpg

5/10/2021

Exhibit 3

1965

Exhibit 3
Page 3 of 3

EXHIBIT 4

WARRANTY DEED 95894

WARRANTY DEED

The grantors, E. E. Williams and Alice I. Williams, his wife, of County of Douglas, State of Washington, for and in consideration of the value of Two Thousand ($2,000) Dollars in hand paid, convey and warrant to Mrs. Gwen Parr, a widow, the following described real estate situate in the County of Douglas, State of Washington, to-wit:

Part of Lot 21, East Wenatchee Land Company's Plat of Section 30, Township 22 North, Range 22 E.W.M. according to the plat thereof recorded in Volume B of Plats, page 5, records of Douglas County, Washington, described as follows: Beginning at the Northwest corner of said Lot and run South on the West line of said lot, 330 feet; thence run Southeasterly to the Southeast corner of said lot; thence North on the East line of said lot to the Northeast corner thereof; thence West on the North line of said lot to the place of beginning. Part of Lot 22, East Wenatchee Land Company's Plat of Section 30 Township 22 North, Range 22, E.W.M. according to the plat thereof recorded in Volume B of plats, page 5, records of said county, described as follows, to-wit: Beginning at the Northeast corner of said lot and run west on the North line thereof 660 feet to the Northwest corner; thence Southeasterly to a point on the east line of said lot 330 feet south of the Northeast corner; thence north on the east line of said lot 330 feet to the place of beginning; the northeast Quarter of the Northwest Quarter and the East 164.5 feet of the Southeast Quarter of the Northwest Quarter, of Section 30, Township 22 North, Range 22 E.W.M.

Together with all the tenements, hereditaments, rights, privileges and appurtenances thereunto belonging, and all waters and water rights, and all watering and irrigating apparatus and fixtures which are appurtenant to or incident to the ownership of said premises; but nothing herein contained shall be construed as a warranty of any water right.

Warrant and defend free and clear from any and all incumberances.

Dated this 31st day of March, 1942.

E. E. WILLIAMS
ALICE I. WILLIAMS

State Tax Stamp : $2.00 Documentary Stamps: $2.20
Cancelled 5-1-42 C.H.M. Cancelled 5-1-42 C.H.M.

STATE OF WASHINGTON, }
COUNTY OF CHELAN. } ss.

I, the undersigned, a Notary Public in and for the State of Washington, hereby certify that on this 31st day of March, 1942, personally appeared before me E.E. Williams, and Alice I. Williams, his wife, to me known to be the individuals described in and who executed the foregoing instrument, and acknowledged that they signed and sealed the same as their 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.

Notary Seal: R. E. Conner R. E. CONNER
Comm. Ex. Apr. 9, 1945 Notary Public in and for the State of Washington, residing at Wenatchee.

Filed for record at the request of Mrs. W. O. Parr, 636 Yakima Street, Wenatchee, Wash., May 1st, 1942 at 9:37 A.M.

Recorded by: Myrna Kummer Deputy G. MERTON DICK, County Auditor
BY: CLARICE MITCHELL, Deputy

----------oOoo----------

ABC202

situate, lying and being in the County of Douglas, State of Washington, to-wit:

Lots Eight (8), Nine (9) and Ten (10) in Block Fifteen (15) of Kincaid's First Addition to the Town of Waterville, Douglas County, Washington, according to the plat thereof on file and of record in the office of the County Auditor of said county.

State Tax Stamps-$.50
Documentary Stamps-$.55
Cancelled 10/22/46 Mea

TO HAVE AND TO HOLD, The said premises, with all their appurtenances, unto the said party of the second part and to their heirs and assigns forever; and the said Albert Mitchell and Ida Pearl Mitchell, parties of the first part, for themselves and for their heirs, executors and administrators, do hereby covenant to and with the said parties of the second part their heirs and assigns, that they are the owners in fee simple of said premises, and that they are free from all incumbrances and that they will WARRANT and DEFEND the title thereto against all lawful claims whatsoever

WITNESS, Their hands and seals this 17 day of October A. D. One Thousand Nine Hundred and Forty Six.

Signed, Sealed and Delivered in the Presence of

LOUISE E. FLETCHER — ALBERT I. MITCHELL (Seal)
MRS. IDA PEARL MITCHELL (Seal)
(Seal)
(Seal)

STATE OF WASHINGTON, }
County of Douglas. } ss.

I, Frank B. Malloy, A Notary Public in and for the said State, do hereby certify that on this 17th day of October, 1946 personally appeared before me Albert Mitchell and Ida Pearl Mitchell, husband and wife, to me known to be the individuals described in and who executed the within instrument, and acknowledged that they signed and sealed the same as their free and voluntary act and deed, for the uses and purposes therein mentioned.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

Notarial Seal: Frank B. Malloy — FRANK B. MALLOY
Comm. Ex. Dec. 1, 1946 — Notary Public in and for the State of Washington, residing at Waterville in said County.

Filed for record at the request of Mrs. E. A. Top Waterville, Wash on the 22nd day of October, 1946 at 11:30 A. M.

Recorded by: [signature] Deputy — G. MERTON DICK, County Auditor By: LUCILLE FLETCHER, Deputy

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REAL ESTATE CONTRACT 102713

REAL ESTATE CONTRACT

IS IS HEREBY MUTUALLY AGREED by and between Mrs. Owen Parr, a widow, the party of the first part, and Floyd Williams and Helen Williams, husband and wife, the parties of the second part, that the party of the first part will sell to the parties of the second part, their heirs or assigns, and that the parties of the second part will purchase of the said party of the first part, her executors, administrators or assigns, the following described real estate, to-wit:

Part of Lot 21, East Wenatchee Land Company's Plat of Section 30, Township 22 North, Range 22 E.W.M., according to the plat thereof recorded in volume B of plats, page 5 records of said county, described as follows, to-wit:

Beginning at the northwest corner of said lot and run South on the west line of said lot 330 feet; thence run southeasterly to the southeast corner of said lot; thence north on the east line of said lot to the northeast corner thereof; thence west on the north line of said lot to the place of beginning; and part of Lot 22, East Wenatchee Land Company's Plat of Section 30, Township 22 North, Range 22 E.W.M., according to the plat thereof recorded in Vol B of Plats page 5, records of said County, described as follows, to-wit: Beginning at the northeast corner of said lot and run west on the north line thereof 660 feet to the northwest corner; thence southeasterly to a point on the east line of said lot 330 feet south of the northeast corner; thence north on the east line of said lot 330 feet to the place of beginning; excepting therefrom part of land deeded for County Road. Also the northeast quarter of the northwest quarter, and the east 164.5 feet of the southeast quarter of the northwest quarter, Section 30, Township 22 north, Range 22 E.W.M. Situated in the County of Douglas, State of Washington; containing fifty-three acres, more or less; together with a domestic water system and a five horse electric pump for irrigation purposes, and together with the appurtenances thereunto belonging.

The said sale and purchase being upon the following express terms and conditions, to-wit:

The purchase price for said land and premises is two thousand dollars, none of which has this day been paid; the full purchase price to be paid in semi-annual installments of $100.00, it being expressly understood by and between the parties hereto that such semi-annual installments may be increased at the option of the parties of the second part; the first payment of $100.00 to be paid on the first day of October, 1942, and the further sum of $100.00 to be paid on the first day of April, 1943; payments to continue in this manner until the full sum of both principal and interest shall have been paid; all deferred payments to bear interest from date until paid at the rate of six per cent per annum, payable semi-annually in addition to the payments heretofore mentioned.

The parties of the second part also agree to pay all taxes and assessments which may be levied or may accrue against said land, or any part thereof, beginning with the taxes falling due during 1942; and parties of the second part shall keep said land free from liens of all kinds and description, and in case the parties of the second part shall fail to pay any tax, assessment or lien claim, the party of the first part may pay same, and the sums so paid shall bear interest from the date of payment at the rate of ten per cent per annum, and the same shall be due and payable on demand, as a part of the obligation of the parties of the second part on this contract.

The parties of the second part shall keep the buildings on said lands insured against loss by fire in a reliable insurance company, for not less than one thousand dollars, with loss if any payable to the parties hereto as their interests may appear, and the policy shall be delivered to and kept by the party of the first part.

It is agreed that in case of any loss, destruction or damage to any of the improvements on said lands by fire or otherwise, the parties of the second part shall receive the benefit of any insurance actually received on account thereof as their interest may appear, and that the party of the first part shall not be required to make any allowance or adjustment on account of such loss, destruction or damage; and that the full balance on this contract shall be payable to the party of the first part regardless of such loss, destruction or damage, if any. However, credit shall be given for the amount of insurance received by the party of the first part, if any.

It is agreed that the parties of the second part may occupy the said land and premises so long as they are not in default in regard to any of the terms of this contract, but in case of such default such right of occupancy shall terminate without notice.

The said land and premises shall be conveyed by a good and sufficient warranty deed, subject only to such liens as shall have been done or suffered by the parties of the second part, their heirs or assigns, if any, when said purchase price shall have been fully paid at which time Title Insurance showing marketable title shall be furnished by the party of the first part.

This contract shall not be assigned without the written consent of the party of the first part.

Time is of the essence of this contract, and in case of the failure of the parties of the second part, their heirs or assigns, to make either of the payments above mentioned within the time herein specified, or to perform any of the covenants on their part to be performed, including the payment of taxes and assessments before they become delinquent, this contract may be forfeited and determined at the option of the party of the first part, her executors, administrators or assigns, and the parties of the second part shall forfeit all payments made by them on this contract, and such payments shall be retained by the party of the first part in full satisfaction and liquidation of all damages by her sustained; and she shall have the right to re-enter and take possession of said land and premises and every part thereof.

Witness our hands in duplicate this 22d day of April, 1942.

MRS. OWEN PARR

FLOYD WILLIAMS

STATE OF WASHINGTON)
COUNTY OF CHELAN) SS

This certifies that on this 22d day of April, 1942, before me, the undersigned, a notary public in and for the state of Washington, personally appeared Mrs. Owen Parr, a widow, to me known to be the person described in and who executed the foregoing instrument, and acknowledged that she executed the said instrument freely and voluntarily for the uses and purposes therein mentioned.

Witness my hand and official seal the day and date in this certificate first above written.

NOTARIAL SEAL: R. E. Conner — R. E. CONNER

Comm. Ex. Apr. 9, 1945 — Notary Public in and for the State of Washington, residing at Wenatchee in said state.

Filed for record at the request of Fred L. Johnson, Rt. #5 Wenatchee on the 22nd day of Oct A. D., 1946 at 2:10 P. M. Mail to Ferguson & Ross Agency Wenatchee

Recorded by: Muriel Anderson, Deputy — O. MERTON DICK, County Auditor By: MURIEL ANDERSON, Deputy

---------oooOOooo---------

PURCHASER'S ASSIGNMENT OF REAL ESTATE CONTRACT — 102714

PURCHASER'S ASSIGNMENT OF REAL ESTATE CONTRACT

For value received the undersigned assignors, holders of that certain real estate contract entered into the 22nd day of April, 1942, between Mrs. Owen Parr, a widow, as seller, and Floyd Williams and Helen Williams, husband and wife, as purchasers, for the sale and purchase of the following real estate situated in Douglas County, Washington, to-wit:

Part of lot 21, East Wenatchee Land Company's Plat of Section 30, Township 22 North, Range 22E.W.M., according to the plat thereof recorded in volume N of plats, page 5, records of said county, described as follows, to-wit: Beginning at the northeast corner of said lot and run South on the west line of said lot 330 feet; thence run southeasterly to the southeast corner of said lot; thence north on the east line of said lot to the northeast corner thereof; thence west on the north line of said lot

JM

The said land and premises shall be conveyed by a good and sufficient warranty deed, subject only to such liens as shall have been done or suffered by the parties of the second part, their heirs or assigns, if any, when said purchase price shall have been fully paid at which time Title Insurance showing marketable title shall be furnished by the party of the first part.

This contract shall not be assigned without the written consent of the party of the first part.

Time is of the essence of this contract, and in case of the failure of the parties of the second part, their heirs or assigns, to make either of the payments above mentioned within the time herein specified, or to perform any of the covenants on their part to be performed, including the payment of taxes and assessments before they become delinquent, this contract may be forfeited and determined at the option of the party of the first part, her executors, administrators or assigns, and the parties of the second part shall forfeit all payments made by them on this contract, and such payments shall be retained by the party of the first part in full satisfaction and liquidation of all damages by her sustained; and she shall have the right to re-enter and take possession of said land and premises and every part thereof.

Witness our hands in duplicate this 22d day of April, 1942.

MRS. GWEN PARR

FLOYD WILLIAMS

STATE OF WASHINGTON }
COUNTY OF CHELAN } SS

This certifies that on this 22d day of April, 1942, before me, the undersigned, a notary public in and for the state of Washington, personally appeared Mrs. Gwen Parr, a widow, to me known to be the person described in and who executed the foregoing instrument, and acknowledged that she executed the said instrument freely and voluntarily for the uses and purposes therein mentioned.

Witness my hand and official seal the day and date in this certificate first above written.

NOTARIAL SEAL: R. E. Conner

Comm. Ex. Apr. 9, 1945

R. E. CONNER

Notary Public in and for the State of Washington, residing at Wenatchee in said state.

Filed for record at the request of Fred L. Johnson, Rt. #5 Wenatchee on the 22nd day of Oct A. D., 1946 at 2:10 P. M. Mail to Ferguson & Ross Agency Wenatchee

Recorded by: Muriel Anderson
Deputy-

O. MERTON DICK, County Auditor
By: MURIEL ANDERSON, Deputy

---------oooOOooo--------

PURCHASER'S ASSIGNMENT OF REAL ESTATE CONTRACT 102714

PURCHASER'S ASSIGNMENT OF REAL ESTATE CONTRACT

For value received the undersigned assignors, holders of that certain real estate contract entered into the 22nd day of April, 1942, between Mrs. Gwen Parr, a widow, as seller, and Floyd Williams and Helen Williams, husband and wife, as purchasers, for the sale and purchase of the following real estate situated in Douglas County, Washington, to-wit:

Part of lot 21, East Wenatchee Land Company's Plat of Section 30, Township 22 North, Range 22E.W.M., according to the plat thereof recorded in volume N of plats, page 5, records of said county, described as follows, to-wit: Beginning at the northwest corner of said lot and run South on the west line of said lot 330 feet; thence run southeasterly to the southeast corner of said lot; thence north on the east line of said lot to the northeast corner thereof; thence west on the north line of said lot

JM

to the place of beginning;

and Part of Lot 22, East Wenatchee Land Company's Plat of Section 30, Township 22 North, Range 22 E.W.M., according to the plat thereof recorded in Volume B of plats, page 5, records of said county, described as follows, to-wit: Beginning at the northeast corner of said lot and run west on the north line thereof 660 feet to the northwest corner; thence southeasterly to a point on the east line of said lot 330 feet south of the northeast corner. thence north on the east line of said lot 330 feet to the place of beginning; excepting therefrom part of land deeded for County Road.

Also the northeast quarter of the northwest quarter, and the east 164.5 feet of the southeast quarter of the northwest quarter, Section 30, Township 22 North, Range 22 E. W. M. Situated in the County of Douglas, State of Washington, containing fifty-three acres, more or less, together with a domestic water system and a five horse electric pump for irrigation purposes, and together with the appurtenances thereunto belonging.

do hereby assign, transfer, and set over to Fred L. Johnson and Martha Johnson, husband and wife, the assignees, the said real estate contract and the said assignors do bargain, sell and convey said described premises to said assignees who hereby assume and agree to fulfill the terms and conditions of said real estate contract.

Dated this 9 day of February, 1943.

FLOYD WILLIAMS
HELEN WILLIAMS
Assignors.

State of Washington, }
County of Clark } ss

I, the undersigned, a Notary Public in and for the State of Washington, do hereby certify that on this 9 day of February, 1943, personally appeared before me Floyd Williams to me known to be the individuals described in and who executed the foregoing assignment of contract, and acknowledged that they signed and sealed the same as their free and voluntary act and deed for the uses and purposes therein mentioned.

IN WITNESS WHEREOF I have hereunto set my hand and affixed my official seal the day and year above first written.

NOTARIAL SEAL: W. M. Hodgkin
Comm. Ex. Jan. 8, 1945

W. M. HODGKIN
Notary Public in and for the State of Washington, residing at Vancouver, Wash.

We, Fred L. Johnson and Martha Johnson, husband and wife, the assignees named in the foregoing assignment do hereby accept the same and agree to comply with all the terms and conditions of the real estate contract therein assigned.

Dated this 13th day of February, 1943.

FRED L. JOHNSON
MARTHA JOHNSON

I hereby consent to the assignment of the real estate contract described in the foregoing instrument to Fred L. Johnson and Martha Johnson, his wife.

Dated this 13th day of February, 1943.

MRS. GWEN PARR

State of Washington, }
County of Chelan } ss

I, the undersigned, a Notary Public in and for the state of Washington, do hereby certify that on this 13th day of February, 1943, personally appeared before me Helen Williams, wife of Floyd Williams, to me known to be one of the individuals described in

and who executed the foregoing assignment of contract, and and acknowledged that she signed and sealed the same as her free and voluntary act and deed for the uses and purposes therein mentioned.

In witness whereof I have hereunto set my hand and affixed my official seal this 13th day of February, 1943.

(NO SEAL)

R. E. BEATTY

Notary Public in and for the State of Washington, residing at Wenatchee, Washington.

AGREEMENT

IS IS HEREBY UNDERSTOOD AND AGREED, between Ed Williams and Fred L. Johnson, as follows:

That should Fred L. Johnson purchase the 53 acre tract in Douglas County, Washington, belonging to Floyd Williams, that Ed Williams whom it appears has certain personal property on the 53 acre tract belonging to him, shall have until March, 15 1943, and a reasonable time thereafter, substantially Two weeks after the ground should thaw out this spring of 1943, in which to remove the following personal property from the real property in question, viz:

All the apple wood that has been cut pole length;

The pile of old lumber and scrap iron on the point;

The Wall board up stairs in the home;

The spray pipe buried in the ground;

The insert electric water heater in the water tank.

The buyer of the property Fred L. Johnson, is desirous of putting considerable of the available ground into hay crop this spring of 1943 and would like to have the pipe taken up before he proceeds to seed the land, hence this agreement on removing the personal property by March, 15, or a reasonable time thereafter.

Also that the two motors now held by Ed Williams will be delivered to the 53 acre tract simultaneously with the execution of the papers and the payment of the money by Johnson.

Dated at Wenatchee, Washington February, 12, 1943.

Witness.

MRS. FLOYD WILLIAMS

FRED L. JOHNSON

Filed for record at the request of Fred L. Johnson, Rt#5 Wenatchee on the 22nd day of Oct A. D., 1946 at 2:11 P. M. Mail to Ferguson & Ross Agency Wenatchee

Recorded by: Deputy

G. MERTON DICK, County Auditor

By: MURIEL ANDERSON, Deputy

---------oooOOooo---------

WARRANTY DEED 102717

THE GRANTOR Arthur W. Lenhart, also known as Art W. Lenhart and Arthur Lenhart, in his sole and separate capacity, for and in consideration of One Dollar and other valuable considerations Dollars ($), in hand paid, conveys and warrants to Albert E. Sarhop, a single person, the following described real estate, situated in the County of Douglas, State of Washington:

Part of Lot 19, East Wenatchee Land Company's Plat of Section 11 and part of Section 2, Township 22 North Range 20 E.W.M., according to the plat thereof recorded in volume A of plats, page 196, records of said county, described as follows, to-wit: Beginning at the southwest corner of said Lot 19; thence North 67 degrees 22½' East for 120 feet along the south line of said lot; thence left 90 degrees and running North 22 degrees 37½' West for 50 feet; thence left 90 degrees and running South 67 degrees 22½' West for 120 feet; thence South 22 degrees 37½' East for 50 feet to the said true point of beginning.

This deed is given to correct the description in that certain deed executed by the grantor

104584

VENDEES' ASSIGNMENT OF REAL ESTATE CONTRACT

KNOW ALL MEN BY THESE PRESENTS, that FRED L. JOHNSON and MARTHA JOHNSON, his wife, as Parties of the First Part, for and in consideration of the sum of One Dollar, lawful money of the United States and other valuable considerations to them in hand paid by TED L. BRALEY and MILDRED BRALEY, his wife, as Parties of the Second Part, have granted, bargained, sold, transferred and set over unto the said TED L. BRALEY and MILDRED BRALEY, his wife, their heirs and assigns, all their right, title and interest in and to that certain real estate contract for the purchase of the following described real estate situate in Douglas County, Washington, to-wit:

> Part of Lot 21, East Wenatchee Land Company's Plat of Section 30, Township 22 north, Range 22 E.W.M., according to the plat thereof recorded in volume B of plats, page 5, records of said county, described as follows, to-wit:-
> Beginning at the northwest corner of said lot and run South on the west line of said lot 330 feet; thence run southeasterly to the southeast corner of said lot; thence north on the east line of said lot to the northeast corner thereof; thence west on the north line of said lot to the place of beginning; and part of Lot 22, East Wenatchee Land Company's Plat of Section 30, Township 22 North, Range 22 E.W.M., according to the plat thereof recorded in Vol. B of Plats page 5, records of said County, described as follows, to-wit: Beginning at the northeast corner of said lot and run west on the north line thereof 660 feet to the northwest corner; thence southeasterly to a point on the east line of said lot 330 feet south of the northeast corner; thence north on the east line of said lot 330 feet to the place of beginning; excepting therefrom part of land deeded for County Road. Also the northeast quarter of the northwest quarter, and the east 164.5 feet of the southeast quarter of the northwest quarter, Section 30, Township 22 north, Range 22 E.W.M. Situated in the County of Douglas, State of Washington; containing Fifty-three acres, more or less

together with a domestic water system and a five horse electric pump for irrigation purposes, and together with the appurtenances thereunto belonging.

and which contract was dated April 22, 1942 and was between Mrs. Gwen Parr, a widow, as party of the First Part, and Floyd Williams and Helen Williams, husband and wife, as Parties of the Second Part. Said real estate contract having been assigned to the Party of the First Part herein by the said Floyd Williams and Helen Williams, hiw wife, by instrument dated February 9, 1943.

The said FRED L. JOHNSON and MARTHA JOHNSON, his wife, Parties of the First Part herein, do hereby release and quit claim unto the said TED L. BRALEY and MILDRED BRALEY, his wife, all their right, title and interest in and to the above described real estate and premises and the whole and every part thereof and the said Mrs. Gwen Parr, a widow, or her successor and assignee is authorized to receive from the said TED L. BRALEY and MILDRED BRALEY, his wife, all unpaid balances due on the said real estate contract and upon final payment of all the purchase price and upon full compliance with all the requirements contained in said real estate contract to execute or cause to be executed to the said TED L. BRALEY and MILDRED BRALEY, his wife, their heirs and assigns, a warranty deed for said premises as provided in said real estate contract.

It is agreed by and between the parties hereto that there remains unpaid under the said real estate contract between Mrs. Gwen Parr, a widow and Floyd Williams and Helen Williams, his wife, the sum of $1,150.82 as of October 1, 1946.

Fred L Johnson
Martha Johnson
Parties of the First Part

Ted L Braley
Mildred Braley
Parties of the Second Part

LAW OFFICES OF
D. A. SHINER
SUITE 201, WENATCHEE
SAVINGS AND LOAN BUILDING
WENATCHEE, WASH.

37

STATE OF WASHINGTON)
) ss.
COUNTY OF CHELAN)

THIS IS TO CERTIFY that on this 22nd day of October, 1946, before me a Notary Public in and for said State, personally appeared FRED L. JOHNSON and MARTHA JOHNSON, his wife, to me known to be the individuals described in and who executed the within instrument, and acknowledged to me that they signed and sealed the same for the uses and purposes therein mentioned.

IN WITNESS THEREOF, I have hereunto set my hand and official seal the day and year last above written.

Amos L. Shiner
Notary Public in and for the State of Washington, residing at Wenatchee.

Consent to the within assignment is hereby given this 24th day of October, 1946. We agree that $1,150.82 is the unpaid balance of the purchase price in said real estate contract as of October 1, 1946.

NATIONAL BANK OF COMMERCE OF SEATTLE

By R. W. Prague
Vice President

C. O. Crisdale
Cashier

Filed for record the 15 day of August 1958 at the request of DOUGLAS COUNTY TITLE COMPANY

Sherry Cameron
Deputy Auditor and Ex-Officio Recorder, Douglas County

LAW OFFICES OF
D. A. SHINER
WENATCHEE, WASH.

VENDEES' ASSIGNMENT OF REAL ESTATE CONTRACT

The undersigned, TED L. BRALEY and MILDRED BRALEY, his wife, for One Dollar ($1.00) and other consideration to them in hand paid, receipt of which is hereby acknowledged, do hereby sell, transfer and set over to PERCY C. GALBRAITH and ANNIS M. GALBRAITH, his wife, all their right, title and interest in and to that certain real estate contract from Gwen Parr, a widow, as vendor, to Floyd Williams and Helen Williams, his wife, as purchasers, dated April 22, 1942, and which contract was by said purchaser assigned on February 9, 1943, to Fred L. Johnson and Martha Johnson, his wife, and which said contract was further assigned by said Fred L. Johnson and Martha Johnson, his wife, to the assignors herein by an assignment dated October 22, 1946, and which contract is for the purchase of part of Lots 21 and 22 of East Wenatchee Land Company's Plat of Section 30, Township 22 north, Range 22 E.W.M. and part of SE¼ of NE¼ and NE¼ NW¼ of said section, township and range as more particularly described by metes and bounds in said contract.

The assignors herein do hereby release and quit claim to the assignees all their right, title and interest in and to the above described real estate, and the said Gwen Parr, a widow, is authorized to receive from the assignees herein all unpaid balances due on said real estate contract, and upon final payment of the purchase price to execute to the assignees herein a warranty deed for said premises as provided in said real estate contract.

It is agreed by the assignors herein that there remains unpaid under said contract the sum of $1,150.82 plus interest thereon from October 1, 1946, at the rate stated in said contract.

Mildred Braley
Ted L Braley
Assignors

LAW OFFICES OF
CROLLARD & O'CONNOR
GREEN BUILDING
WENATCHEE, WASH.

STATE OF WASHINGTON }
County of Chelan } ss

THIS IS TO CERTIFY that on this 31st day of July, 1947. before me, the undersigned Notary Public, personally appeared TED L. BRALEY and MILDRED BRALEY, his wife, to me known to be the individuals described in and who executed the foregoing instrument, and acknowledged to me that they signed and executed the said instrument as their free and voluntary act and deed for the uses and purposes therein mentioned.

WITNESS my hand and official seal the day and year in this certificate first above written.

Notary Public in and for the State of Washington, residing at Wenatchee.

Filed for record on the 15 day of August 47 at 2:06 P.M. at the request of DOUGLAS COUNTY TITLE COMPANY

Auditor, Douglas County

LAW OFFICES OF
CROLLARD & O'CONNOR
WENATCHEE, WASH.

WASHINGTON
TITLE INSURANCE
COMPANY

Form L.6

104086

Special Warranty Deed

(CORPORATE FORM)

THE GRANTOR The National Bank of Commerce of Seattle, Trustee

for and in consideration of Ten and No/100 - Dollars ($ 10.00), in hand paid, grant , bargain , sell , convey , and confirm to

PERCY C. GALBRAITH and ANNIS M. GALBRAITH, husband and wife,

the following described real estate, situated in the County of Douglas State of Washington: Part of Lot 21, East Wenatchee Land Company's Plat of Section 30, Township 22 North, Range 22 E.W.M., according to the plat thereof recorded in volume B of plats, page 5 records of said county, described as follows, to-wit: Beginning at the northwest corner of said lot and run South on the west line of said lot 330 feet; thence run southeasterly to the SE corner of said lot; thence N. on the E. line of said lot to the NE corner thereof; thence W. on the N. line of said lot to the place of beginning; and part of Lot 22, East Wenatchee Land Company's Plat of Sec. 30., Twp. 22 N. Range 22 E.W.M., according to the plat thereof recorded in Vol. B of Plats page 5, records of said County, described as follows, to-wit: Beginning at the NE corner of said lot and run W. on the N. line thereof 660 feet to the NW corner; thence SEly to a point on the E. line of said lot 330 feet S of the NE corner; thence N on the E line of said lot 330 feet to the place of beginning; excepting therefrom part of land deeded for County Road. Also the NE ¼ of the NW ¼, and the E. 164.5 feet of the SE ¼ of the NW ¼, Sec. 30, Twp. 22 N. Range 22 E.W.M; containing 53 acres, more or less.

SUBJECT to that certain contract of sale dated April 22, 1942 entered into by Mrs. Gwen Parr, as Seller, and Floyd Williams and Helen Williams, as purchasers, unless by the delivery of this deed all rights outstanding under said contract become merged with the fee simple title conveyed by this deed.

The Grantor for itself and for its successors and assigns does by these presents expressly limit the covenants of this deed to those herein expressed, and excludes all covenants arising or to arise by statutory or other implication, and does hereby covenant that against all persons whomsoever, lawfully claiming or to claim by, through or under said Grantor and not otherwise, it will forever warrant and defend the said described real estate.

IN WITNESS WHEREOF, said corporation has caused this instrument to be executed by its proper officers and its corporate seal to be hereunto affixed this 29th day of July, A. D. 1947.

CONVEYANCE TAX PAID TWO DOLLARS

The National Bank of Commerce of Seattle, Trustee

By R. W. Sprague Vice President

Attest: C. O. Ousdahl Cashier ~~Secretary~~

STATE OF WASHINGTON,
County of King } ss.

On this 29th day of July 1947, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared R. W. Sprague and C. O. Ousdahl to me known to be the Vice President and Cashier ~~Secretary~~, respectively, of the corporation that executed the foregoing instrument as Trustee and acknowledged the said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that they are authorized to execute the said instrument and that the seal affixed is the corporate seal of said corporation.

Witness my hand and official seal hereto affixed the day and year in this certificate above written.

Filed for record on the 15 day of August 1947 at 2:07 P.M. at the request of DOUGLAS COUNTY TITLE COMPANY

NOTARY PUBLIC STATE OF WASHINGTON

Notary Public in and for the State of Washington, residing at Seattle.

Sherry Cannon
Deputy Auditor, Douglas County

109656

BOOK 115 PAGE 612

WARRANTY DEED

This Indenture, Made this 16 day of February, in the year of our Lord one thousand nine hundred and fifty one

Between Percy C. Galbraith, and Annis M. Galbraith, his wife,

the parties of the first part and Charles Noto and Melba J. Noto, his wife,

parties of the second part:

Witnesseth, That the said parties of the first part, for and in consideration of the sum of SEVENTY SIX HUNDRED FIFTY DOLLARS lawful money of the United States, to them in hand paid by the said parties of the second part, the receipt whereof is hereby acknowledged, do, by these presents, grant, bargain, sell, convey and confirm unto the said parties of the second part, and to their heirs and assigns, the following tract, lot or parcel of land, situate, lying and being in the County of Douglas, State of Washington, and particularly bounded and described as follows, to-wit:

DESCRIPTION

Part of Lot 21, East Wenatchee Land Company's Plat of Section 30 Township 22 north, Range 22 E.W.M. in Douglas County, Washington, according to the Plat thereof recorded in Volume B of Plats, Page 5, records of said county, described as follows :: Beginning at the Northwest corner of said Lot and run south on the west side of said Lot 330 feet ; thence run Southeasterly to the south east corner of said Lot ; thence North on the East line of said Lot to the Northeast corner thereof; thence west on the North line of said lot to the place of beginning and part of Lot 22, East Wenatchee Land Company's Plat of Section 30, Township 22 North, Range 22, E.W.M. according to the Plat thereof recorded in Volume B of Plats, Page 5, records of said county, described as follows : Beginning at the Northeast corner of said Lot and run West on the North line thereof 660 feet to the Northwest corner; thence Southeasterly to a point on the east line of said Lot 330 feet south of the Northeast corner ; thence North on the East line of said Lot 330 feet to the place of beginning ; EXCEPTING THEREFROM part of land deeded for county roads; Also the Northeast quarter, of the Northwest quarter, and the East 164.5 feet of the Southeast quarter of the Northwest quarter, of Section 30, Township 22 North , Range 22 E.W.M. ; containing 53 acres more or less;

Together with the appurtenances, to have and to hold the said premises, with the appurtenances, unto said parties of the second part, and to their heirs, executors, administrators and assigns forever.

And the said parties of the first part, for themselves, and for their heirs, executors or administrators do by these presents, covenant and agree to and with the said parties of the second parties heirs, executors or administrators and assigns, that that they lawfully seized in fee simple absolute of and in all and singular the above granted and described premises and the appurtenances; that they have good and lawful right to sell and convey the same; that the same are free from all liens and incumbrances

and that they hereby WARRANT and will DEFEND the same from all lawful claims whatsoever

In Witness Whereof, *The said parties of the first part have hereunto set their hands and seals the day and year first above written.*

Signed, Sealed and Delivered in Presence of

Percy C. Galbraith (SEAL)

Patricia M. Galbraith (SEAL)

(SEAL)

(SEAL)

Printing Date 8/15/46

Vol. 115 Page 614

STATE OF WASHINGTON, } ss. (INDIVIDUAL ACKNOWLEDGMENT)
County of CHELAN

I, Fred L. Munroe Notary Public in and for the State of Washington, residing at Wenatchee, Washington, do hereby certify that on this 16 day of February, 1951, personally appeared before me Percy C. Galbraith and Annis M. Galbraith, his wife to me known to be the individuals described in and who executed the within instrument and acknowledged that they signed and sealed the same as their free and voluntary act and deed for the uses and purposes herein mentioned.

GIVEN UNDER MY HAND AND OFFICIAL SEAL this 16 day of February, 1951.

Fred L. Munroe

Notary Public in and for the State of Washington, residing at Wenatchee, Washington in said County.

STATE OF WASHINGTON, } ss. (CORPORATE ACKNOWLEDGMENT)
County of

On this day of 19

before me personally appeared

to me known to be the of the corporation that executed the within and foregoing instrument, and acknowledged said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that he was authorized to execute said instrument and that the seal affixed is the corporate seal of said corporation.

IN WITNESS WHEREOF I have hereunto set my hand and affixed my official seal the day and year first above written.

Notary Public in and for the State of Washington, residing at in said County.

Filed for record at 9:00 A. M. February, 51
at the request of Valley Title Co., Inc. Wenatchee, Wash.
Lorenia Billingsley
By Bernice Janssen, Deputy

No.

WARRANTY DEED

FROM

TO

To Charles Witt
Route #4 Box Miller
Wenatchee Wash.

REAL ESTATE EXCISE TAX

PAID

$90.00

Douglas County Treasurer
Merle Tanner

By [signature] 10-1-5 Deputy

#1314

113043

LIBER 120 PAGE 303

REAL ESTATE CONTRACT

IT IS HEREBY MUTUALLY AGREED by and between MELBA NOTO, a widow, hereinafter referred to as first party, and HERBERT S. FRANCE and VIVIAN B. FRANCE, husband and wife, and H. GARY FRANCE and IOLA D. FRANCE, husband and wife, Whitetail Place, Wenatchee, Wash, hereinafter referred to as second parties, WITNESSETH:

Mail to Herb France Whitetail Place Wenatchee, Wa

That first party will sell to second parties and second parties will purchase from first party, her heirs or assigns, the following described tract of land situated in Douglas County, State of Washington, and more particularly described as follows, to-wit:

> Part of Lots 21 and 22, East Wenatchee Land Company's Plat of Section 30, Township 22 North, Range 22 E. W. M., Douglas County, Washington, according to the recorded plat thereof, described as follows: Begin at the Northwest corner of said Lot 22 and run thence Southeasterly to a point on the East line thereof which is 330 feet South of the Northeast corner thereof; thence continue Southeasterly to the Southeast corner of said Lot 21; thence North along the East line of said Lot 21 to the Northeast corner thereof; thence West along the North lines of said lots to the point of beginning.
>
> ALSO the Northeast Quarter of the Northwest Quarter, and the East 164.5 feet of the Southeast Quarter of the Northwest Quarter of Section 30, Township 22 North, Range 22 E. W. M., Douglas County, Washington.
>
> SUBJECT TO the rights of way as the same are granted for existing roads and subject to existing rights of way, easements, reservations and restrictions, if any.

on the following terms and conditions:

1. The purchase price of said land is the sum of $9,000.00, of which the sum of $5,000.00 has this day been paid, the receipt of which is hereby acknowledged. The balance of the purchase price, to-wit $4,000.00, together with interest thereon at 6 per cent per annum, shall be paid as follows: Interest on the unpaid principal shall be paid annually on or before December 1 of each year, beginning with December 1, 1953. The balance of the principal shall be paid as follows: $500.00, or more, on December 1, 1955, and $500.00, or more, on December 1 of each year thereafter, until the balance of the principal and interest has been paid in full.

IT IS UNDERSTOOD AND AGREED that second parties may pay all of the balance of the principal and interest, or a sum in excess of $500.00 per year, on any regular payment date.

HUGHES & JEFFERS
ATTORNEYS AT LAW
WENATCHEE, WASH.

2. IT IS UNDERSTOOD AND AGREED that Clarence W. Randolph holds a mortgage upon said premises, which mortgage was filed for record on August 23, 1951, and is recorded in Book 82, page 87, records of the Douglas County Auditor, and which mortgage was in the sum of $7,650.00. That the down payment made under the terms of this contract, namely $5,000.00, will be paid by first party to the said Clarence W. Randolph, and which $5,000.00 payment will be credited on said mortgage above referred to.

IT IS FURTHER UNDERSTOOD AND AGREED that all additional payments made under the terms of this contract shall be paid by first party when received from second parties to the said Clarence W. Randolph, and which payments will be credited upon said mortgage of Clarence W. Randolph until said mortgage is paid in full, at which time the said Clarence W. Randolph will execute a satisfaction of said mortgage.

3. The second parties shall pay all taxes and assessments which may be levied or may accrue against said land or any part thereof, including any street, water and sewer assessments, including all installments thereof to become due, before the same shall become delinquent; it being understood and agreed that in the event any of said items become delinquent, first party shall have the right to make said payments, add the same to the balance of the principal, and upon which payments she shall be entitled to receive interest at the rate of 8 per cent per annum.

4. The second parties shall have the right to the possession and use of the above described premises on November 1, 1952, and in consideration thereof they covenant and agree to and do hereby assume all risks incident to ownership, including loss resulting to said premises from any cause; and any damage, loss or destruction of said premises, or any part thereof, or any improvements placed thereon, from any cause whatsoever, shall not constitute a failure of consideration.

IT IS FURTHER UNDERSTOOD AND AGREED that said premises are now under lease to Henry M. Smith and Martha Smith, husband and wife, which lease expires October 31, 1952, and second parties assume all responsibility in connection

HUGHES & JEFFERS
ATTORNEYS AT LAW
WENATCHEE, WASH.

with the occupancy of said premises by said lessees.

5. Second parties agree not to assign or sell any part of this contract or the land therein described, or any portion thereof, without the written consent of first party first obtained.

6. IT IS UNDERSTOOD AND AGREED by and between the parties hereto that in the event said property, or any part thereof, is taken by eminent domain proceedings, the price received in connection with a settlement or condemnation proceedings by right of eminent domain shall be paid to first party to apply upon the unpaid balance of this contract.

7. Said land is to be conveyed by a good and sufficient warranty deed to second parties when the purchase price and interest have been fully paid, free from all encumbrances except those incurred, suffered, permitted or imposed by said second parties subsequent to the execution of this contract. That first party has submitted to second parties a title insurance policy, which has been accepted by second parties, and first party is under no obligation to furnish further evidence of title.

8. Time is the essence of this contract, and in case of the failure of the second parties to make any of the payments or perform any of the covenants herein contained, this contract shall be forfeited and determined, at the option of first party, and the said second parties shall forfeit all payments by them made on this contract, and such payments shall be retained by first party in full satisfaction and liquidation of all damages by her sustained; and she shall have the right to reenter and take possession of said land and premises and every part thereof.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hands and seals, in duplicate, this 26th day of September, 1952.

Nellie Nota
Party of the First Part

Herbert S. France
Lucian B. France
J. Gary France
Lolu D. France
Parties of the Second Part

HUGHES & JEFFERS
ATTORNEYS AT LAW
WENATCHEE, WASH.

STATE OF WASHINGTON }
} SS.
COUNTY OF CHELAN }

On this day personally appeared before me MELBA NOTO, a widow, to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that she signed the same as her free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 26th day of September, 1952.

Richard G. Jeffers
Notary Public in and for the State of Washington, residing at Wenatchee

Filed for record on the 1 day of Oct. 1952 at 9:45 A M. at the request of Valley Title Co. Wenatchee Branch
ROXANNE BILLINGSLEY
Auditor, Douglas County
Evelyn Benedict
Deputy

MELDRUM
DIRECT.
REVERSE
RECORDED
COMPARED
PAGED

HUGHES & JEFFERS
ATTORNEYS AT LAW
WENATCHEE, WASH.

LIBER 152 PAGE 144

137491

THE GRANTOR

MELBA NOTO SCHUMACHER, a widow

for and in consideration of TEN Dollars

($ 10.00), in hand paid, convey and warrant to and other valuable consideration

H. GARY FRANCE and IOLA D. FRANCE, husband and wife

HERBERT S. FRANCE and VIVIAN B. FRANCE, husband and wife

the following described real estate, situated in the County of DOUGLAS, State of Washington:

Part of Lots 21 and 22, East Wenatchee Land Company's Plat of Section 30, Township 22 North, Range 22 E.W.M., Douglas County, Washington, according to the recorded plat thereof, described as follows: Begin at the Northwest corner of said Lot 22 and run thence Southeasterly to a point on the East line thereof which is 330 feet South of the Northeast corner thereof; thence continue Southeasterly to the southeast corner of said Lot 21; thence North along the East line of said Lot 21 to the Northeast corner thereof; thence West along the North lines of said lots to the point of beginning.

ALSO the Northeast Quarter of the Northwest Quarter, and the East 164.5 feet of the Southeast Quarter of the Northwest Quarter of Section 30, Township 22 North, Range 22 E. W. M., Douglas County, Washington.

SUBJECT TO the rights of way as the same are granted for existing roads and subject to existing rights of way, easements, reservations and restrictions, if any.

Dated this 12th day of November, A. D. 19 62

12-11-62

EXEMPT FORREST R. LEEDY TREASURER, DOUGLAS COUNTY WATERVILLE, WASH.

Melba Noto Schumacher (SEAL)

(SEAL)

STATE OF WASHINGTON, COUNTY OF CHELAN } ss.

ENTERED RECORDED COMPARED INDEXED REVIEWED

Filed for record on the 11 day of Nov 1962 at 2 P.M. at the request of Mrs. Melba Schumacher.

Melba K. Firoved Auditor Douglas County

On this day personally appeared before me

MELBA NOTO SCHUMACHER

to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that she signed the same as her free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 12th day of November, 1962.

Notary Public in and for the State of Washington, residing at Wenatchee

HUGHES & JEFFERS
801-3 Donald Building
WENATCHEE, WASHINGTON

9 00

AFFT. # 52415
REAL ESTATE EXCISE TAX
PAID
$ 11.18.90
DOUGLAS COUNTY TREASURER
MARY E. DODGE
BY 3.21.91 DEPUTY

FILED OR RECORDED
BOOK OF M307 FOR
Ogden Murphy Wallace
91 MAR 21 AM 11:04
DOUGLAS COUNTY AUDITOR
WATERVILLE, WASHINGTON
DOUGLAS COUNTY
PAGE 98-100

STATUTORY WARRANTY DEED

266824

THE GRANTORS, H. GARY FRANCE and IOLA D. FRANCE, husband and wife, for and in consideration of Ten and No/100 Dollars ($10) and other good and valuable consideration, in hand paid, convey and warrant to SHARON W. MARTIN, a single person, as surviving spouse of Jerry R. Martin, pursuant to the Lease with Option to Purchase recorded under Douglas County Auditor's No. 224392, which is now terminated, the following described real estate, situated in the County of Douglas, State of Washington:

*See Attached Exhibit "A"

SUBJECT TO rights and easements shown on attached Exhibit "B".

DATED this 20th day of March, 1991.

H. Gary France
H. GARY FRANCE

Iola D. France
IOLA D. FRANCE

STATE OF WASHINGTON)
COUNTY OF Chelan) ss:

I certify that I know or have satisfactory evidence that H. GARY FRANCE and IOLA D. FRANCE are the persons who appeared before me, and said persons acknowledged that they signed this instrument and acknowledged it to be their free and voluntary act for the uses and purposes mentioned in the instrument.

DATED this 20th day of March, 1991.

Jeri J Kendall
Notary Public in and for the State of Washington, residing at E. Wenatchee
My commission expires 1-15-93

Statutory Warranty Deed
PJR002025D/4020.40006/031491

BOOK M307 PAGE 98

LAW OFFICES OF
OGDEN MURPHY WALLACE

69305
Exhibit "A"

LEGAL DESCRIPTION:

That portion of Lots 21 and 22, East Wenatchee Land Company's Plat of Section 30, Township 22 North, Range 22, East of the Willamette Meridian, Douglas County Washington, according to the Plat thereof recorded in Volume B of Plats, page 5, described as follows:
Begin at the Northwest corner of said Lot 22 and
run thence Southeasterly to a point on the East line thereof which is 330 feet South of the Northeast corner thereof;
Thence continue Southeasterly to the Southeast corner of said Lot 21;
Thence North along the East line of said Lot 21 to the Northeast corner thereof;
Thence West along the North lines of said lots to the Point of Beginning.

AND the Northeast quarter of the Northwest quarter, and the East 164.5 feet of the Southeast quarter of the Northwest quarter of Section 30, Township 22 North, Range 22, East of the Willamette Meridian, Douglas County, Washington.
EXCEPT that portion conveyed to Douglas County for roadway by Deed recorded September 18, 1961 under Auditor's No. 134509.
EXCEPT that portion thereof lying below a contour elevation of 620 feet above sea level U.S.G.S. Datum.

M155 PAGE 35

BOOK M307 PAGE 99

EXHIBIT "B"

1. Matters relating to water and water rights, and rights of way for necessary conduits and facilities for distribution of water, if any, and right of entry for repair and maintenance.

2. Right of the Puget Sound Power and Light Company, its successors and assigns, to raise the waters of Columbia River to 615 feet above sea level and thereby damage, by seepage, overflow or erosion, all as fully set forth in book 85 of deeds, page 85, Douglas County records.

3. EASEMENT AND THE TERMS AND CONDITIONS THEREOF:

Grantee:	United States of America and its assigns
Purpose:	Perpetual easement and right to enter and erect, maintain, repair, rebuild, operate, and patrol 1 line of electric power transmission structures and appurtenant signal lines, including the right to erect such poles, transmission structures, wires cables, and appurtenances
Recorded:	February 4, 1960
Dated:	January 26, 1960
Auditor's No.:	130702
Affects:	That portion of the Northeast quarter of the Northwest quarter; that portion of the East 164.5 feet of the Southeast quarter of the Northwest quarter; that portion of a part of Lot 21 of the East Wenatchee Land Company's Plat of Section 30. A Strip of land 150 feet in width.

M155 PAGE 36

BOOK 307 PAGE 100

RH2 TECHNICAL MEMORANDUM

Client:	Ogden Murphy Wallace, PLLC		
Project:	Change Application for Water Right Claim G4-045542CL		
Project File:	OMW 119.187.01.101	Project Manager:	Paul Cross, PE
Composed by:	Steve Nelson, LG, LHG		
Reviewed by:	Paul Cross, PE		
Subject:	Hydrogeologic Opinion to Support Proposed City of Rock Island Change Application		
Date:	July 13, 2020		

STEPHEN ERIC NELSON

Signed: 07/13/2020

Signed: 07/13/2020

INTRODUCTION

This technical memorandum summarizes available hydrogeologic and groundwater data to support a proposed water right change application in Douglas County, Washington. The City of Rock Island (City) proposes to acquire groundwater claim G4-045542CL and change the purpose of use, change the place of use (POU), and change the point of withdrawal (POW). This technical memorandum summarizes the hydrogeologic conditions that are associated with the existing and proposed POWs and supports the finding that the POWs are in the same body of water, and the proposed change would not enlarge the existing right or impair existing rights.

EXISTING INFORMATION

Current Water Right Conditions

Groundwater claim G4-045542CL claims the withdrawal of groundwater at one POW in Douglas County for irrigation use in Douglas County.

The conditions for claim G4-045542CL include the following:

- Priority Date: "before 1930."
- Owner: George Pond, LLC, and Donald Barth.
- POW: NW ¼ ¼ of NW ¼ of Section 30, Township 22 N, Range 22 E.
- POU: Six parcels all within the NW ¼ of Section 30 of Township 22 N, Range 22 E in Douglas County.
- Purpose of use:
  - Irrigation of 20 acres of orchard, April 1st to October 1st.
  - Domestic use, continuously.
  - Frost and heat protection, continuously.
  - Orchard spraying, vehicle maintenance, and dust suppression, continuously.
- Quantity: 250 gallons per minute (gpm) and 89 acre-feet per year (afy).

Proposed Change to G4-044542CL

The City proposes the following changes.

- New POWs:
  - NW ¼ ¼ of NW ¼ of Section 25, Township 22 N, Range 21 E (City Well No. 2).
  - SE ¼ ¼ of SE ¼ in Section 23, Township 22 N Range 21 E (City Well No. 3).
  - NW ¼ ¼ of NW ¼ of Section 30, Township 22 N, Range 22 E (City Well No. 5).
- Additional POU: City of Rock Island corporate limits and water service area.
- Proposed Purpose of Use: Municipal water supply, continuous.
- Proposed Quantity: 122 gpm and 47.71 afy.
- The City has two water rights that authorize withdrawal from the same three POWs.

The actual quantities of the proposed change will depend on the result of the administrative division of the claim between the owner and the City based on a tentative determination of the municipal use portion of the claim.

The City proposes to withdraw groundwater from three existing City-owned wells at the proposed POWs. The wells currently are used by the City for municipal supply.

Regional Hydrogeology

Driller's logs for most water supply wells completed in the Rock Island area within approximately 500 to 2,000 feet of the Columbia River along the Douglas County shoreline near Rock Island Dam indicate that several sand and gravel aquifers underly the Rock Island area and extend continuously to and below the Columbia River (United States Geological Survey (USGS), 1982; Washington State Department of Ecology (Ecology) well driller's log database). The Rock Island area along the Columbia River is underlain by several regional geologic units, including Tertiary-age sedimentary rock (mostly sandstone and siltstone), Tertiary-age basalt flows, Pleistocene-age glacial flood deposits (mostly sand and gravel) and large-scale landslides of basalt blocks and Holocene-age (within 10,000 years) alluvial and fluvial deposits associated with the Columbia River. The sand and gravel aquifers formed in the sediment near the Columbia River consist of layers of fine to coarse sand and gravel with discontinuous intervening layers of finer-grained silt or clay. The Rock Island aquifers are underlain by sandstone/siltstone or basalt bedrock.

Local Hydrogeology

The surface geologic unit of the Rock Island area is derived from recently deposited alluvium associated with the Columbia River and is underlain by sand and gravel deposited during catastrophic outburst floods during the most recent glacial period (USGS, 1982; 2008). The stratigraphic boundary between the alluvium and flood deposits is interbedded and often indistinguishable. The surficial layers of these units are covered locally by a thin layer of recent landslide deposits. For example, at the proposed POW, USGS (1982) maps the area as recent landslide units based on evidence of mass movement of slopes comprised of basalt blocks, flood deposits and alluvium.

Groundwater in the sand and gravel aquifers occurs predominantly in the deeper, coarse-grained flood deposits within several miles of the Columbia River. Groundwater elevations in wells completed in the sand and gravel aquifers and within 0.5 miles of the Columbia River and the five Rock Island lakes typically are equivalent to the elevation of the Rock Island Pool of the Columbia River (elevation 610 feet above mean sea level). Groundwater elevations in these wells typically fluctuate with pool levels, which are affected by the operation of the Rock Island Dam. Groundwater in the sand and gravel aquifers flows generally towards or sub-parallel to the river, and ultimately discharges into the Columbia River above the Rock Island Dam.

The sand and gravel aquifers typically exhibit transmissivity values ranging from 50,000 to 2,000,000 gallons per day per foot (gpd/ft), a specific yield value of approximately 0.2 where unconfined, and a storativity value of 0.01 to 0.001 where confined (USGS, 2008).

Characteristics at Existing POW

The groundwater well at the existing POW is described in G4-45542CL as a 20-foot-deep well (the Barth well). The well is less than 50 feet from Hammond Lake, and the ground surface elevation is approximately 10 feet higher than the lake surface. Hammond Lake is one of the Rock Island lakes that is hydraulically connected to the Rock Island Pool (**Figure 1**). The well log for the existing POW is not available for review, but the depth, location, and mapped geologic unit at the well location indicate that the existing POW is completed in a permeable sand and gravel aquifer in hydraulic continuity with Hammond Lake, the other four Rock Island lakes, and the Rock Island Pool of the Columbia River.

Characteristics at Proposed POWs

The three proposed POWs are existing wells owned and operated by the City for withdrawal of municipal supply under two City-held water rights (CG4-GWC4224-A@2 (for Well Nos. 2 and 3), G4-24603C@2 (for Well Nos. 2, 3, and 5), which authorize a combined groundwater withdrawal of 780 gpm (500 gpm + 280 gpm) and an annual rate of 616 afy (168 afy + 448 afy) to supply municipal water to the City service area. **Table 1** summarizes the characteristics of the three POWs

Table 1
Summary of City of Rock Island Municipal Supply Wells

Well No.	Well Depth	Static Water Level	Aquifer Composition	Well Use	Well Testing Yield Drawdown Specific Capacity
2	115 ft	41 ft	Sand and gravel	Active	350 gpm 26 feet* 14 gpm/ft
3	76 ft	34 ft	Sand and gravel	Emergency (arsenic)	675 gpm 15 feet 45 gpm/ft
5	98 ft	33 ft	Sand, gravel, and cobbles	Active	600 gpm 6.5 feet 92 gpm/ft

* Well exhibits high well loss possibly due to the short (5-foot) well screen.

In 2009 and 2020, the City changed both water rights CG4-GWC4224-A@1 and G4-24603C@2 to co-associate the POWs for the two rights so that the City may withdraw its entire right from a combination of withdrawals from the three POWs. In the Report of Examination for the changes, Ecology concluded that all three of the proposed POWs are completed within the same body of groundwater in hydraulic continuity through a connected sand and gravel aquifer

system. These conclusions were based on extensive hydrogeologic analysis of the Rock Island area (GeoEngineers, 2007, 2009, 2010).

In summary, all three City wells (Nos. 2, 3, 5) are completed in the same continuous sand and gravel aquifer; the static groundwater level in the wells is equivalent to the elevation of the Rock Island lakes and Rock Island Pool; and pumping the wells resulted in rapid water level drawdown stabilization (5 to 30 minutes) and rapid recovery (between 5 and 34 minutes). The wells locations are shown on **Figure 1**, and well drilling logs are attached.

EVALUATION

The following summarizes RH2 Engineering, Inc.'s evaluation of the legal and physical availability of water at the proposed POW and the potential effects of the proposed change on local hydrogeologic conditions and existing senior rights.

Hydraulic Continuity

The existing POW is completed within a sand and gravel aquifer in hydraulic continuity with Hammond Lake and the Rocky Reach Pool. The reported range of transmissivity values for the sand and gravel aquifer indicates a high degree of permeability and capacity to transmit groundwater within the aquifer and to exchange water directly with surface water in the Rocky Reach Pool.

Withdrawal of groundwater from the existing POW would have a near instantaneous impact on the entire Rock Island Pool, and a near instantaneous impact on groundwater in direct hydraulic connection with the Rock Island Pool. Therefore, there is there is little or no significant time lag between the effect of groundwater withdrawal at the existing POW, which is in hydraulic connection with the Rock Island Pool and at the proposed POWs, which are also in hydraulic connection with the Rock Island Pool, and with each other.

Groundwater withdrawal at the existing POW will initially induce groundwater flow from the groundwater stored within the surrounding aquifer. Within less than 1 hour, the radius of influence of the groundwater withdrawal will extend to the interface between groundwater in the sand and gravel aquifer and surface water in the Rock Island Pool. The groundwater withdrawal will induce seepage from the Rock Island Pool into the aquifer to replace groundwater withdrawn from the aquifer.

The effect of the withdrawal would be transmitted throughout the Rock Island Pool.

Under the proposed change, groundwater withdrawal at the proposed POWs, would immediately affect local groundwater and then the adjacent Rock Island Pool. The time of depletion of the Rock Island Pool due to groundwater withdrawal at the proposed POWs is less than 1 hour.

In conclusion, the existing and proposed POWs are in hydraulic conductivity through the sand and gravel aquiver, Rock Island lakes, and Rock Island Pool, and there would be no significant

lag in timing and no change in water quantity in the hydraulically connected sand and gravel aquifer due to relocation of the withdrawal from the existing POW to the proposed POWs.

Potential for Impairment

The pumping test results at City Well No. 5 indicated that withdrawal of 650 gpm at Well No. 5 induced drawdowns of 0.6 and 0.1 feet, respectively, at monitoring wells completed in the same aquifer at distances of 50 and 500 feet from Well No. 5 (GeoEngineers, 2010).

Similar aquifer characteristics (composition, thickness, transmissivity, specific capacity) exist at City Well Nos. 2 and 3. Pumping groundwater at rates of up to 350 gpm at Well No. 2 and 675 gpm at Well No. 3 would induce less than 1 foot of drawdown at wells completed within 100 feet of these wells.

Adding the entire additional proposed rate of groundwater withdrawal (122 gpm) to any one of the existing POWs would increase the drawdown induced by the combined pumping at these wells but would not result in drawdown that would impair the ability for nearby right holder's wells to exercise their existing rights at their POWs.

Availability of Groundwater at Proposed POWs

The aquifer characteristics described in the driller's logs and the results of the pumping tests at the proposed POWs indicate a substantial ability to withdraw groundwater at all three wells (GeoEngineers, 2007, 2010; see attached well logs). Pumping tests at Well Nos. 3 and 5 indicated that both wells could sustain an increase of the maximum pumping rate (122 gpm) proposed by the change, despite recommendations not to exceed 700 gpm at Well No. 5. Extrapolation of the pumping test rate to include the proposed additional withdrawal indicates that the well could accommodate the additional rate. Likewise, Well No. 3 has sufficient available drawdown to accept the total rate.

It is possible that Well No. 3 itself cannot accommodate the additional quantity, but that is only a result of the limited well capacity, not the sand and gravel aquifer.

In reality, the City will likely share the new proposed withdrawal between Well No. 2 and Well No. 5. In the case that a well is offline for repair or rehabilitation, it would be possible to add the total proposed withdrawal to any of the three POWs, either temporarily, or through construction of a supplemental well in the same advertised area for the water right for Well Nos. 2, 3, or 5 and providing Ecology with a showing of compliance.

The proposed additional groundwater withdrawal is available at the proposed POWs.

Groundwater Withdrawal Outside of the Season of Use

The water claim G4-044542CL includes seasonal (April 1st to October 1st) irrigation rights and continuous domestic, continuous frost and heat protection, and continuous orchard maintenance use. Using the irrigation portion of the transferred water for the City's continuous municipal supply may be constrained during periods of low instream flow in the Columbia River,

which occasionally occur during the non-irrigation season. The City likely will choose to avoid potential curtailment of the use of the irrigation portion of the transferred water during low flow periods by fully allocating its use during irrigation season and re-allocating the withdrawal for its continuous use rights during non-irrigation season.

CONCLUSIONS

Review of the well logs, local and regional hydrogeologic conditions, and basic hydrogeologic principles, the existing and proposed POWs are in hydraulic continuity, and the impact of withdrawal at the proposed POWs on the Columbia River would be equal in magnitude and would occur within less than 24 hours of a similar withdrawal at the existing POW.

The proposed rate and volume of withdrawal would be deducted from the total water right so that the combined withdrawal at the existing and proposed POWs would not enlarge the water right.

Based on the analysis of pumping effects at the proposed POWs, the effect of withdrawal at the proposed POWs would not impair existing rights.

Based on pumping data and aquifer capacity, water is physically available for groundwater withdrawal at the proposed POWs.

ATTACHMENTS

1. Figure 1 – City of Rock Island Points of Withdrawal
2. City of Rock Island Well Logs - Nos. 2, 3, and 5

REFERENCES

GeoEngineers, Inc. (2007). *Groundwater Production Well Evaluation, Well No. 2, City of Rock Island*. Prepared for Varela & Associates, Inc.

GeoEngineers, Inc. (2009). *Phase 1 Hydrogeologic Evaluation, Proposed Golf Course Well Site, City of Rock Island, Rock Island, Washington*. Prepared for Varela & Associates, Inc.

GeoEngineers, Inc. (2010). *Phase 2 Hydrogeologic Evaluation, Golf Course Well Site, City of Rock Island, Rock Island, Washington*. Prepared for Varela & Associates, Inc.

U.S. Geological Survey. (1982). Geologic Map of the Wenatchee 1:100,000 Quadrangle, Central Washington. Geological Survey Miscellaneous Investigations Map I-1311. Authors: R. W. Tabor, R. B. Waitt, Jr., V. A. Frizzell, Jr., D. A. Swanson, G. R. Byerly, & R. D. Bentley.

U.S. Geological Survey. (2008). Conceptual Model of Hydrologic and Thermal Conditions of the Eastbank Aquifer System Near Rocky Reach Dam, Douglas County, Washington: U.S. Geological Survey Scientific Investigations Report 2008-5071. p. 66. Authors: Marijke van Heeswijk, S.E. Cox, R.L. Huffman, and C.A. Curran.

Washington State Department of Ecology. Water Well Database Drillers Log database:

https://appswr.ecology.wa.gov/wellconstruction/map/WCLSWebMap/WellConstructionMapSearch.aspx

Figure 1 – City of Rock Island Points of Withdrawal

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Figure 1
City of Rock Island
Points of Withdrawal

4,000 feet

City of Rock Island Well Logs - Nos. 2, 3, and 5

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Rock Island Well No. 2

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
AND DEVELOPMENT

WELL LOG No. A.6084

Date 1-31, 19 62

Record by well driller

Source driller's record

Location: State of WASHINGTON

County Douglas

Area

Map

¼ ¼ sec 25 T. 22 N., R. 21 E. W.M.

Diagram of Section

Drilling Co. John H. Pryor

Address Rt. 3, Box 3079, Wenatchee, Wash.

Method of Drilling Date, 19

Owner Town of Rock Island, Wash.

Address

Land surface, datum ft. above/below

Correlation	Material	Thickness (feet)	Depth (feet)
	Soil	4	4
	Rock & Gravel	39	43
	Sand & gravel	25	68
	Coarse sand-no rocks	40	108
	Gravel & sand mixed	7	115
	PUMP TEST:		
	Dim. 12"x117'		
	SWL: 50'		
	Yield: 400 g.p.m.		
	Type & size of pump: Johnston Turbine		
	Type & size of motor or engine: 35 h.p.		
	CASING:		
	12" diam. from 0 to 111'6"		
	12" drive shoe 6" below casing		

(Transcribe driller's terminology literally but paraphrase as necessary, in parentheses. If material water-bearing, so state and record static level if reported. Give depths in feet below land surface datum unless otherwise indicated. Correlate with stratigraphic column, if feasible. Following log of materials, list all casings, perforations, screens, etc.)

Turn up

Sheet of sheets

Rock Island
Well No. 3

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Rock Island

Application No. 024603

Permit No. — — —

(1) OWNER: Name East Wenatchee Water District Address 800 Eastmont Ave., E. Wenatchee, Wa

(2) LOCATION OF WELL: County Douglas — — — — — S.E.¼ S.E.¼ Sec. 22, T 22N, R 21E W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☒ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) — —
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 18 inches.
Drilled 85 ft. Depth of completed well 76 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 18" Diam from 0 ft. to 25 ft.
Threaded ☐ — — Diam from — ft. to — ft.
Welded ☒ — Diam from — ft. to — ft.

Perforations: Yes ☒ No ☐
Type of perforator used Mill
SIZE of perforations 3/8 in. by 1 in.
— perforations from 75 ft. to 25 ft.
— perforations from — ft. to — ft.
— perforations from — ft. to — ft.

Screens: Yes ☐ No ☒
Manufacturer's Name — —
Type — Model No. — —
Diam. — Slot size — from — ft. to — ft.
Diam. — Slot size — from — ft. to — ft.

Gravel packed: Yes ☐ No ☒ Size of gravel — —
Gravel placed from — ft. to — ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used to seal Puddle Clay
Did any strata contain unusable water? Yes ☐ No ☒
Type of water — Depth of strata —
Method of sealing strata off —

(7) PUMP: Manufacturer's Name — —
Type: — H.P. —

(8) WATER LEVELS: Land-surface elevation above mean sea level — ft.
Static level — ft. below top of well Date — —
Artesian pressure — lbs. per square inch Date —
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom?
Yield: — gal./min. with — ft. drawdown after — hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
—	—				

Date of test — —
Bailer test — gal./min. with — ft. drawdown after — hrs.
Artesian flow — — — gpm Date —
Temperature of water — Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Boulders	0	18
Sand & coarse	18	60
Gravel (fine, water bearing)	60	64
Sand	64	70
Gravel (Water bearing)	70	76
Clay (gray)	76	85

Work started — — , 19 — Completed — — , 19 —

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Glessner Well Drilling (Person, firm, or corporation) (Type or print)

Address Box 303

[Signed] Wesley Glessner (Well Driller)

License No. 0154 Date 2/28/77, 19

(USE ADDITIONAL SHEETS IF NECESSARY)

RECEIVED
SEP 17 2021
Dept of Ecology
Central Regional Office

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

WATER WELL REPORT

State of Washington Date Printed: 11-Jan-2010 Log No. 0

Construction / Decommission: Original Construction Notice 366430

Construction

PROPOSED USE: MUNICIPAL

TYPE OF WORK: Owners's Well Number: (If more than one well)

NEW WELL Method: CABLE

DIMENSIONS Diameter of well: 12 inches

Drilled 110 ft. Depth of completed well 98 ft.

CONSTRUCTION DETAILS: Casing installed WELDED

12 " Dia from +2 ft. to 73 ft.

" Dia from ft. to ft.

" Dia from ft. to ft.

Liner installed:

" Dia from ft. to ft.

Perforations: No Used In:

Type of perforator used

SIZE of perforations in. b in.

Perforation from ft. to ft.

Perforation from ft. to ft.

Perforation from ft. to ft.

Screens: 2 K-Pac Location 70

Manufacture's Name ALLOY MACHINE

Type: STAINLESS Model No.

Diam. 10.75 slot size 40 from 73 ft. to 93 ft.

Diam. 10.75 slot size blank from 93 ft. to 98 ft.

Gravel/Filter packed: No Size of Gravel

Material placed fro ft. to ft.

Surface seal: Yes To what depth 50 ft.

Seal method: Material used in seal BENTONITE

Did any strata contain unusable water No

Type of water Depth of strata

Method of sealing strata off

PUMP: Manufacture's name

Type: H.P. 0

WATER LEVELS Land-surface elevation above mean sea level: 0 ft.

Static level 34 ft. below top of well Date 11/04/2009

Artesian Pressure lbs per square inch Date

Artesian water controlled by

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made No If yes, by whom

Yield gal/min with ft drawdown after

Yield gal/min with ft drawdown after

Yield gal/min with ft drawdown after

Recovery data (time taken as zero when pump turned off)(water level measured from well top to water level

Time:	Water Level	Time:	Water Level	Time:	Water Level

Date of test: 12/04/2009

Bailer test 600 gal/min 5 ft drawdown after 72 hrs.

Air test gal/min w/ stem set at ft. for hours

Artesian flow gpm Date

Temperature of water Was a chemical analysis made No

CURRENT

Notice of Intent No.: WE10732

Unique Ecology Well I.D. No BBL430

Water Right Permit Number: G4-24603C

OWNER: CITY OF, ROCK ISLAND

OWNER ADD P O BOX 99

ROCK ISLAND, WA 98850

Rock Island Well No. 5

Well Add SAUNDERS AVENUE

City: Rock Island, WA 98850 County: Douglas

Location: NW 1/4 NW 1/4 Sec 30 T 22 R 22E EW

Lat/Long: (s,'t, r still REQUIRED) Lat Deg Lat Min/Sec

Long Deg Long Min/Se

Tax Parcel No.: 108 00000002

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure. Show thickness of aquifers and the kind and nature of the material in each stratum penetrated. Show at least one entry for each change in formation.

Material	From	To
LIGHT GRAY FINE TO MEDIUM SAND	0	5
COARSE BROWN SAND W/COBBLES	5	16
COARSE GREY SAND W/COBBLES SOME BOUL	16	31
BASALT BOULDERS W/COBBLES CRS GREY SA	31	36
BROWN GREY SILTY SAND WITH BOULERS/CO	36	55
GREY CEMENTED SAND COBBLES SILT	55	87
GREY SILTY SAND W/OCCASIONAL COBBLES	87	95
GREY SAND HARD W/COBBLES FINE	95	108
COARSE GREY SAND W/COBBLES	108	110

Notes:

Work starte 10/19/2009 Complete 12/04/2009

WELL CONSTRUCTION CERTIFICATION:

I constructed and/or accept responsibility for construction of this well and its compliance with all Washington well construction standards. Materials used and the information reported are true to my best knowledge and belief.

☐ Driller ☐ Engineer ☑ Trainee

Name: GRAY RICH License No.: 2980T

Signature:

If trainee, Licensed driller is: DAVID MEYER License No.: 2427

Licensed Driller Signature

Drilling Company:

NAME: FOGLE PUMP & SUPPLY, INC. Shop: COLVILLE

ADDRESS: 316 W. 5TH

Colville, WA 99114

Phone: 509-684-2569 Toll Free: 800-533-6518

E-Mail: jeanne@foglepump.com

FAX: 509-684-3032 WEB Site: www.foglepump.com

Contractor's Registration No.: FOGLEPS095L4 Date Log Created: 01/06/2010

RECEIVED JAN 29 2010 DEPARTMENT OF ECOLOGY - CENTRAL REGIONAL OFFICE

RECEIVED SEP 17 2021 Dept of Ecology Central Regional Office

AFFP

Affidavit of Publication

STATE OF WASHINGTON } SS
COUNTY OF DOUGLAS }

The Douglas County Empire Press is a legal newspaper published in Douglas County, Washington, and approved as such by the Superior Court of said County and State. Serving the county of Douglas.

That said newspaper was regularly issued and circulated on those dates.

May 09, 2019, May 16, 2019

Subscribed to and sworn to me this 16th day of May 2019.

Linda K. Barta

Linda K. Barta, Notary Public, Douglas County, Washington

My commission expires: May 10, 2017

00016427 00072787 509-663-1553

OGDEN MURPHY WALLACE-EP LEGAL
P.O. BOX 1606
WENATCHEE, WA 98807

LINDA K. BARTA
COMMISSION EXPIRES
NOTARY
PUBLIC
05-10-2021
STATE OF WASHINGTON

DOUGLAS COUNTY WATER CONSERVANCY BOARD

Notice of Application to Change the purpose of use, the place of use, and the point of withdrawal under Water Right Claim Number G4-045542CL

TAKE NOTICE: That on March 18, 2019, the City of Rock Island, Washington filed an application with the Douglas County Water Conservancy Board (DCWCB) to change the purpose of use, the place of use, and the points of withdrawal under Water Right Claim Number G4-045542CL. The DCWCB-assigned application number is DOUG 19-02.

That said claim, under priority date of before 1930, authorizes the withdrawal of 250 maximum gpm and 82 acre-feet per year for continuous domestic use and seasonal irrigation on 20 acres, 5 acre-feet per year for frost and heat protection, and 2 acre-feet per year for orchard spraying, vehicle maintenance, and dust suppression from a well located within NW1/4NW1/4 of S30, T22, R22E. That said right authorizes water to be used for irrigation from April 1 through October 1 and domestic use year-round within NW1/4 of S30, T22, R22E. A more exact place of use can be provided by the DCWCB.

That the applicant proposes to change a portion of the seasonal irrigation and domestic use totaling 122 gpm and 47.71 acre-feet per year to municipal use for the City of Rock Island and the proposed points of withdrawal are all existing wells owned by the City of Rock Island. The balance of the Water Right Claim shall be retained for agricultural purposes pursuant to an administrative division of the Water Right Claim.

That the proposed place of use is within the City of Rock Island corporate limits and water service area, and the proposed points of withdrawal are owned by the City of Rock Island and are as follows:

Well #2 – Unnamed –
NW1/4NW1/4, S25, T22, R21EWM
Well #3 – Unnamed –
SE1/4SE1/4, S23, T22, R21EWM
Well #5 – Golf Course Well –
NW1/4NW1/4, S30, T22, R22EWM
All within Douglas County, Washington

Any protests or objections to the approval of this application may be filed with the Department of Ecology and must include a detailed statement of the basis for objections; protests must be accompanied by a fifty dollar ($50) recording fee and filed with the Department of Ecology Cashiering Unit, P.O. Box 47611, Olympia, WA 98504-7611 within thirty (30) days from May 16, 2019

Any interested party may submit comments, objections, and other information to the Board regarding this application. The comments and information may be submitted in writing or verbally at any public meeting of the Board held to discuss or decide on the application. This application will be on the Boards agenda during its regular meeting to be held on the third Monday of each month at 4:00 p.m. at 104 East Locust Street, Waterville WA until a decision on the application is made. Additionally, the Douglas County Water Conservancy Board may receive written comments or information provided within thirty days from May 16, 2019 at its office, P.O. Box 608, Waterville, WA 98858.

Ogden Murphy Wallace P.L.L.C.
One Fifth Street, Suite 200 Wenatchee, WA 98801
phone: 509.662.1954 | fax: 509.663.1553

emccool@omwlaw.com | www.omwlaw.com

[Quoted text hidden]

Public Notice - CORRECTED (1911858x7ACF2).doc
20K

Carol Cowling <carol.cowling@gmail.com> Thu, May 2, 2019 at 10:22 AM
To: "Erin C. McCool" <emccool@omwlaw.com>
Cc: Empire Press Legals <legals@empire-press.com>, "Lauren E. Van Winkle" <lvanwinkle@omwlaw.com>, Lee Hemmer <leeh427@hotmail.com>, Martin H <martinhernandez93@gmail.com>, "Hill, Courtney" <courtney.hill@chelanpud.org>, "Lois.trevino@colvilletribes.com" <Lois.trevino@colvilletribes.com>, Steven Boessow <steven.boessow@dfw.wa.gov>, "Stephenie.Kramer@dahp.wa.gov" <Stephenie.Kramer@dahp.wa.gov>, "ringt@yakama.com" <ringt@yakama.com>, "trowland@co.douglas.wa.us" <trowland@co.douglas.wa.us>, "mdun461@ecy.wa.gov" <mdun461@ecy.wa.gov>, "marcm@nwi.net" <marcm@nwi.net>, Chuck Zimmerman <czimmerman@omwlaw.com>

Empire Press,
Please see the corrected notice. I changed the withdrawal of 50 to 250 maximum gpm.
Thanks
[Quoted text hidden]

WCB Public Notice DOUG 19-02.doc
27K

Carol Cowling <carol.cowling@gmail.com> Mon, May 6, 2019 at 6:23 PM
To: Empire Press Legals <legals@empire-press.com>

Just making sure you got this. Normally I hear back from you.
cdc
[Quoted text hidden]

WCB Public Notice DOUG 19-02.doc
27K

Legals Empire Press <legals@empire-press.com> Tue, May 7, 2019 at 7:53 AM
To: Carol Cowling <carol.cowling@gmail.com>, "Erin C. McCool" <emccool@omwlaw.com>

Hi Carol,

An email was sent to Erin last Thursday and it looks like we missed sending it to you. Our apologies.

Please review the attached files to make sure they are correct. It also looks like the invoice was billed to Ogden

Douglas County Water Conservancy Board
May 20, 2019– Waterville City Hall

Sign in Sheet – Must sign if providing comment on

DOUG 19-02 – City of Rock Island

Limit of ten minutes per comment.

Please Print

no comment

AFFP

Affidavit of Publication

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Linda K. Barta, Notary Public, Douglas County, Washington

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NW1/4NW1/4, S30, T22, R22EWM
All within Douglas County, Washington

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For Ecology Use
(Date Stamp)

DEPARTMENT OF ECOLOGY
State of Washington

WATER RESOURCES
Application for Change/Transfer of a Water Right

You must include a $50.00 minimum filing fee with this application for:

(Check all that apply.)
- [x] Change purpose(s) of use
- [ ] Add purpose(s) of use
- [x] Change/transfer place of use
- [x] Change point(s) of diversion/withdrawal
- [ ] Add point(s) of diversion/withdrawal
- [ ] Other (i.e. consolidation, intertie, trust water)

Explain: A portion of the water right will be changed to a municipal water right for the City of Rock Island.

No filing fee is required for applications for:
- [ ] Drought
- [ ] Cost Reimbursement
- [x] Water Conservancy Board

FOR OFFICIAL USE ONLY

DATE APPLICATION RECEIVED 3-18-19
CHECK NO. 5000559 FEE $ 1000.00
DATE ACCEPTED 3-18-19 BY q
CHANGE NO. DOUG 19-02
COUNTY Douglas WRIA 44
SPECIAL AREA

SEPA: ☐ EXEMPT ☐ NOT EXEMPT
C64-045542CL DOUG-19-02

ECY CODING: 001-002-WR10285-000011

APP NO. PERMIT NO.
CERT NO. CERT OF CHG NO.

☐ **I have completed a pre-application consultation with Ecology.**

1. Applicant Information

APPLICANT/BUSINESS NAME	PHONE NO.	FAX NO.
City of Rock Island	509-884-1261	
ADDRESS: 5 N. Garden Avenue		
CITY: Rock Island	STATE: WA	ZIP CODE: 98850
EMAIL ADDRESS (IF AVAILABLE)		

CONTACT (IF DIFFERENT FROM ABOVE)	PHONE NO.	FAX NO.
Erin McCool	509-662-1954	509-663-1553
ADDRESS: 1 5th Street, Suite 200		
CITY: Wenatchee	STATE: WA	ZIP CODE: 98801
EMAIL ADDRESS (IF AVAILABLE): emccool@omwlaw.com		

LEGAL LAND OWNER or PART OWNER OF PROPOSED PLACE OF USE	PHONE NO.	FAX NO.
City of Rock Island		
ADDRESS: 5 N. Garden Avenue		
CITY: Rock Island	STATE: WA	ZIP CODE: 98850
EMAIL ADDRESS (IF AVAILABLE)		

RECEIVED
MAR 25 2019
Dept of Ecology
Central Regional Office

DOUG-19-02 C64-045542CL

2. Water Right Information

WATER RIGHT OR CLAIM NUMBER	RECORDED NAME(S)
G4-045542CL	H. Gary Franc and Iola D. France

DO YOU OWN THE RIGHT TO BE CHANGED? ☐ YES ■ NO

IF NO, PROVIDE OWNER(S) NAME and ADDRESS: George Pond, LLC, 630 Valley Mall Pkwy, Ste 411 East Wenatchee, WA 98802

HAS THE WATER BEEN USED AS AUTHORIZED IN THE LAST FIVE (5) YEARS? ■ YES ☐ NO

- Attach copies of any documentation that shows the historical use of water that has occurred since the right was established.
- If you have a water system plan or conservation plan, please include a copy with your application.

3. Point(s) of Diversion/Withdrawal:

A. Existing

SOURCE	NO.	¼	¼	SEC.	TWP.	RGE.	PARCEL #	WELL TAG #
Well		NW	NW	30	22	22E	41700002103	

B. Proposed (if different from 3.A.)

SOURCE	NO.	¼	¼	SEC.	TWP.	RGE.	PARCEL #	WELL TAG #
See attached Wells								
Well	3	SE	SE	23	22	21	41300004902	ABS153

C. DO YOU OWN THE EXISTING AND PROPOSED POINT(S) OF DIVERSION/WITHDRAWAL?

EXISTING: ☐ YES ■ NO PROPOSED: ■ YES ☐ NO – IF NO, PROVIDE OWNER NAME(S): Donald Barth

- Include copies of all associated water well reports.
- If you know the distances from the nearest section corner to the above point(s) of diversion/withdrawal, please include that information in Item No. 6 (remarks) or as an attachment.

4. Purpose of Use:

A. Existing

PURPOSE OF USE	GPM or CFS	ACRE-FT/YR	PERIOD OF USE
Irrigation & Domestic of 20 acres	210 gpm	82	Domestic - 12 months; Irrigation - April 1-Octo
Frost & Heat Protection	30 gpm	5	Continuously
Orchard spraying, vehicle maintenance & dust suppre	10 gpm	2	Continuously

B. Proposed (if different from 4.A.)

PURPOSE OF USE	GPM or CFS	ACRE-FT/YR	PERIOD OF USE
Municipal Water Supply	122 gpm	47.71	Continuously

5. Place of Use:

A. Existing

LEGAL DESCRIPTION OF LANDS WHERE WATER IS PRESENTLY USED:							
See Attached							
¼	¼	SEC.	TWP.	RGE.	COUNTY	PARCEL #	# OF ACRES
	NW	30	22	22	Douglas		20

DO YOU OWN ALL THE LANDS IN THE EXISTING PLACE OF USE? ☐ YES ■ NO

IF NO, PROVIDE OWNER NAME(S): George Pond, LLC; Donald Barth

B. Proposed (if different than 5.A.)

LEGAL DESCRIPTION OF LANDS WHERE NEW USE IS PROPOSED:							
City of Rock Island Corporate Limits & Water Service Area - See attached							
¼	¼	SEC.	TWP.	RGE.	COUNTY	PARCEL #	# OF ACRES

DO YOU OWN ALL THE LANDS IN THE PROPOSED PLACE OF USE? ■ YES ☐ NO

IF NO, PROVIDE OWNER NAME(S):

- Attach a detailed map of your proposed change/transfer. The map should show existing and proposed point(s) of diversion/withdrawal, place of use and any other features involved with this application.
- If platted property, please include a certified copy of the plat map.

C. Are there any additional water rights or claims related to the same property as the one proposed for change/transfer?

■ YES ☐ NO – IF YES, PROVIDE THE WATER RIGHT/CLAIM NUMBER(S): Certificate 4224-A; G4-24603C; Claim 300065

6. Remarks and Other Relevant Information:

Donald Barth requests that the claim (including the claim amendment filed with Ecology on January 25, 2019 and attached as Exhibit B) be administratively divided between the municipal and uses and agricultural uses. Only the municipal use portion transferred to the City of Rock Island pursuant to the January 25, 2018 Water Right Transfer Agreement (attached as Exhibit C) and proposed for change should be the subject of a tenantive dtermination.

IF FOR SEASONAL OR TEMPORARY, START DATE ___/___/____ END DATE ___/___/____

Certain applications may incur a Real Estate Excise Tax liability for the seller of the water rights. The Department of Revenue has requested notification of potential taxable water right related actions and therefore may be provided with a copy of this request. For further information, contact:

Department of Revenue
Real Estate Excise Tax
PO Box 47477
Olympia, WA 98504-7477

Phone (360) 570-3265

7. Signatures:

I certify that the information above is true and accurate to the best of my knowledge. I understand that in order to process my application, I hereby grant staff from the Department of Ecology or the County Conservancy Board access to the above site(s) for inspection and monitoring purposes. If assisted in preparing this above application, I understand that all responsibility for the accuracy of the information rests with me.

Randy Agnew, Mayor, City of Rock Island	Randy Agnew	3-18-19
Applicant Printed Name – Title	**Applicant Signature**	**(Date: MM/DD/YYYY)**
Vince Stimac, George Pond, LLC		3-18-19
Water Right Holder Printed Name	**Water Right Holder Signature**	**(Date: MM/DD/YYYY)**
Donald Barth		
Land Owner of Existing Place of Use Printed Name	**Land Owner of Existing Place of Use Signature**	**(Date: MM/DD/YYYY)**
Randy Agnew, Mayor, City of Rock Island	Randy Agnew	3-18-19
Land Owner of Proposed Place of Use Printed Name	**Land Owner of Proposed Place of Use Signature**	**(Date: MM/DD/YYYY)**

***Submit your application to:** DEPARTMENT OF ECOLOGY CASHIERING SECTION PO BOX 47611 OLYMPIA, WA 98504-7611	☐ Central Regional Office 1250 W. Alder Street Union Gap, WA 98903-0009 (509) 575-2490	☐ Eastern Regional Office 4601 N. Monroe Street Spokane, WA 99205-1265 (509) 329-3400
	☐ Northwest Regional Office 3190 – 160th Avenue SE Bellevue, WA 98008-5452 (425) 649-7000	☐ Southwest Regional Office PO Box 47775 Olympia, WA 98504-7775 (360) 407-6300

ATTACHMENT FOR
Application for Change/Transfer of Water Right

Point(s) of Diversion/Withdrawal - ☐ Existing ■ Proposed:

SOURCE	NO.	¼	¼	SEC.	TWP.	RGE.	PARCEL #	WELL TAG #
WELL	2	NW	NW	25	22	21	41500000902	
WELL	5	NW	NW	30	22	22	10800000002	BBL430

DO YOU OWN THE ABOVE POINT(S) OF DIVERSION/WITHDRAWAL? ☐ YES ☐ NO

IF NO, PROVIDE OWNER NAME(S):

Purpose(s) of Use - ☐ Existing ☐ Proposed:

PURPOSE OF USE	GPM or CFS	ACRE-FT/YR	PERIOD OF USE

Place of Use - ■ Existing ☐ Proposed:

LEGAL DESCRIPTION OF LANDS
Parts of Lots 21 and 22 , E. Wenatchee Land Company's Plat of Section 30, T 22N, R 22 E.W.M, Douglas County, Washington, according
to the recorded plat thereof, described as follows: Begin at the NW corner of said Lot 22 and run thence SE to a point on the E line thereof
which is 330 feet S of the NE corner thereof; thence continue SE to the SE corner of said Lot 21; thence N along the E line of said Lot 21 to the NE
corner thereof; thence W along the N Lines of said lots to the point of the beginning. Also the NE Quarter of the NW Quarter and the E 164.5 feet of
the SE Quarter of the NW Quarter of Section 30 Township 22N, Range 22E.W.M., Douglas County Washington
Douglas County Parcel Nos. 22223020006, 22223020003, 41700002103, 10800002101; 10800002801

¼	¼	SEC.	TWP.	RGE.	COUNTY	PARCEL #	# OF ACRES
	NW	30	22	22	Douglas		20

DO YOU OWN ALL THE LANDS IN ABOVE PLACE OF USE? ☐ YES ■ NO

IF NO, PROVIDE OWNER NAME(S): Donald Barth, George Pond, LLC

ATTACHMENT FOR
Application for Change/Transfer of Water Right

Signatures:

I certify that the information above is true and accurate to the best of my knowledge. I understand that in order to process my application, I hereby grant staff from the Department of Ecology or the County Conservancy Board access to the above site(s) for inspection and monitoring purposes. If assisted in the preparation of the above application, I understand that all responsibility for the accuracy of the information rests with me.

Lorre Stimac, George Pond LLC	Lorre A. Stimac	3.18.19
☐**Applicant Printed Name – Title** ☒**Water Right Holder Printed Name** ☒**Land Owner of Existing Place of Use Printed Name** ☐**Land Owner of Proposed Place of Use Printed Name**	☐**Applicant Signature** ☐**Water Right Holder Signature** ☐**Land Owner of Existing Place of Use Signature** ☐**Land Owner of Proposed Place of Use Signature**	**(Date: MM/DD/YRYR)**
☐**Applicant Printed Name – Title** ☐**Water Right Holder Printed Name** ☐**Land Owner of Existing Place of Use Printed Name** ☐**Land Owner of Proposed Place of Use Printed Name**	☐**Applicant Signature** ☐**Water Right Holder Signature** ☐**Land Owner of Existing Place of Use Signature** ☐**Land Owner of Proposed Place of Use Signature**	**(Date: MM/DD/YRYR)**
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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
WATER RIGHT CLAIMS REGISTRATION

WATER RIGHT CLAIM

RECEIVED
DEPARTMENT OF ECOLOGY
NOV -5 1973
CASH ___ OTHER 1 NONE ___

1. NAME H. GARY FRANCE and IOLA D. FRANCE

ADDRESS 1203 4th

Wenatchee, Washington ZIP CODE 98801

2. SOURCE FROM WHICH THE RIGHT TO TAKE AND MAKE USE OF WATER IS CLAIMED: Ground (SURFACE OR GROUND WATER)

W.R.I.A. 44 (LEAVE BLANK)

A. IF GROUND WATER, THE SOURCE IS 20 foot deep well

B. IF SURFACE WATER, THE SOURCE IS ___

3. THE QUANTITIES OF WATER AND TIMES OF USE CLAIMED:

A. QUANTITY OF WATER CLAIMED 210 g.p.m. PRESENTLY USED 210 g.p.m. (CUBIC FEET PER SECOND OR GALLONS PER MINUTE)

B. ANNUAL QUANTITY CLAIMED 82 acre feet PRESENTLY USED 82 acre feet (ACRE FEET PER YEAR)

C. IF FOR IRRIGATION, ACRES CLAIMED 20 acres PRESENTLY IRRIGATED 20 acres

D. TIME(S) DURING EACH YEAR WHEN WATER IS USED: Domestic-12 months, irrigation April - October 1.

4. DATE OF FIRST PUTTING WATER TO USE: MONTH ___ YEAR before 1930

5. LOCATION OF THE POINT(S) OF DIVERSION/WITHDRAWAL: 220 FEET South AND 470 FEET East FROM THE Center of N W 1/4 ~~XXXXXX~~ CORNER OF SECTION 30

BEING WITHIN Northwest Quarter OF SECTION 30 T. 22 N., R. 22 (E ~~XXX~~) W.M.

IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, LOT 22 BLOCK XXXX OF East Wenatchee Land Company's Plat of Sec. 30, T 22N, R 22 E., W.M., Douglas County (GIVE NAME OF PLAT OR ADDITION)

6. LEGAL DESCRIPTION OF LANDS ON WHICH THE WATER IS USED: Part of Lots 21 and 22, E. Wenatchee Land Company's Plat of Section 30, T 22N, R 22 E.W.M., Douglas County, Washington, according to the recorded plat thereof, described as follows: Begin at the NW corner of said Lot 22 and run thence SE to a point on the E line thereof which is 330 feet S of the NE corner thereof; thence continue SE to the SE corner of said Lot 21; thence N along the E line of said Lot 21 to the NE corner thereof; thence W along the N lines of said lots to the point of beginning. ALSO the NE Quarter of the NW Quarter, and the E 164.5 feet of the SE Quarter of the NW Quarter of Section 30, Township 22N, Range 22 E.W.M., Douglas County, Washington

Douglas COUNTY Washington

7. PURPOSE(S) FOR WHICH WATER IS USED: Domestic and Irrigation

8. THE LEGAL DOCTRINE(S) UPON WHICH THE RIGHT OF CLAIM IS BASED: use

DO NOT USE THIS SPACE

THE FILING OF A STATEMENT OF CLAIM DOES NOT CONSTITUTE AN ADJUDICATION OF ANY CLAIM TO THE RIGHT TO USE OF WATERS AS BETWEEN THE WATER USE CLAIMANT AND THE STATE OR AS BETWEEN ONE OR MORE WATER USE CLAIMANTS AND ANOTHER OR OTHERS. THIS ACKNOWLEDGEMENT CONSTITUTES RECEIPT FOR THE FILING FEE.

DATE RETURNED ___ THIS HAS BEEN ASSIGNED WATER RIGHT CLAIM NUMBER 7045542

DIRECTOR, DEPARTMENT OF ECOLOGY

I HEREBY SWEAR THAT THE ABOVE INFORMATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF

X H. Gary France

DATE November 9, 1973.

IF CLAIM FILED BY DESIGNATED REPRESENTATIVE PRINT OR TYPE FULL NAME AND MAILING ADDRESS OF AGENT BELOW

☒ ADDITIONAL INFORMATION RELATING TO WATER QUALITY AND/OR WELL CONSTRUCTION IS AVAILABLE

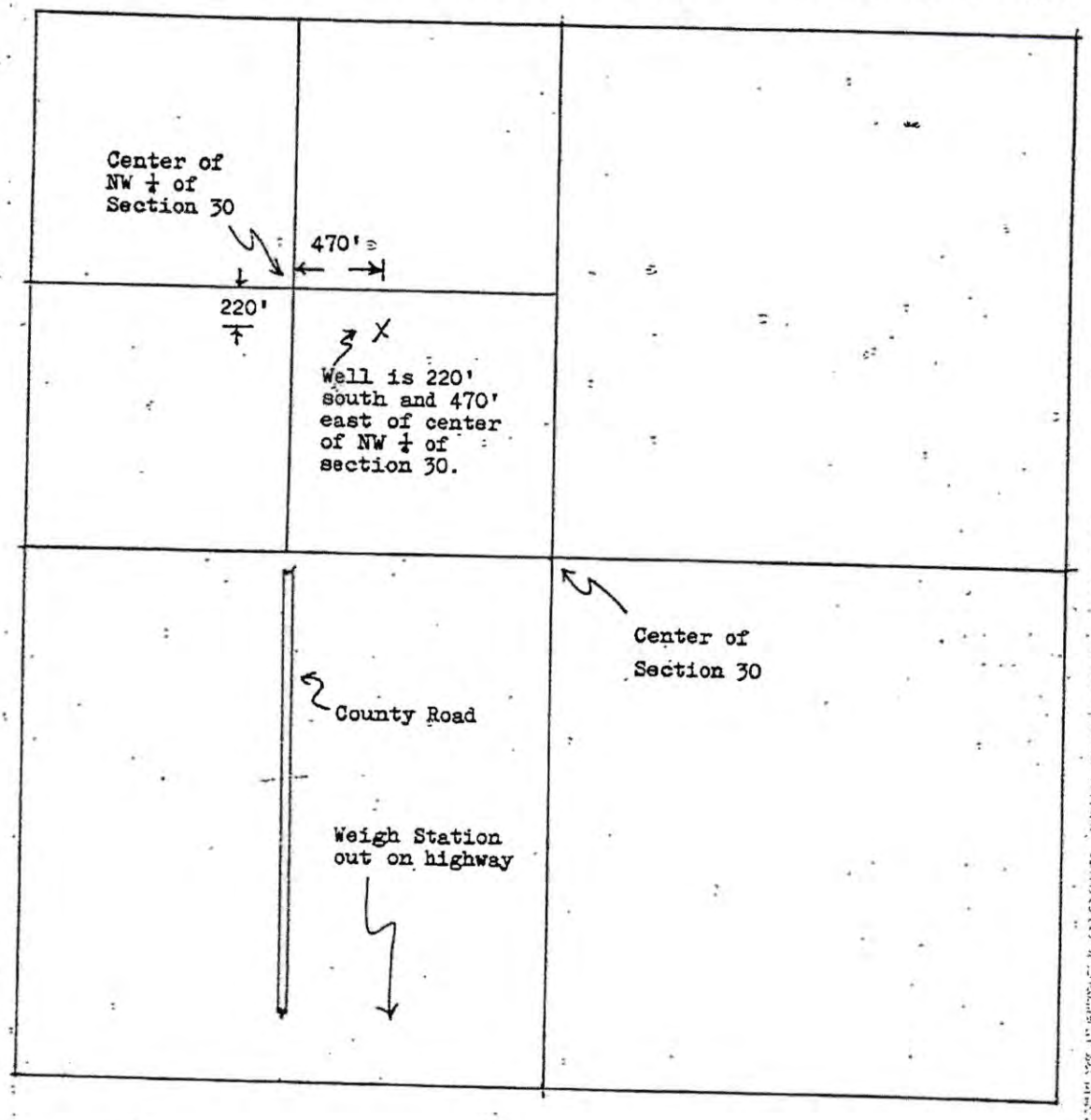
A FEE OF $2.00 MUST ACCOMPANY THIS WATER RIGHT CLAIM

ORIGINAL PWR

RETURN ALL THREE COPIES WITH CARBONS INTACT ALONG WITH YOUR FEE TO
DEPARTMENT OF ECOLOGY
WATER RIGHT CLAIMS REGISTRATION
P.O. BOX 829 OLYMPIA WASHINGTON 98504

Exhibit A
Page 1 of 2

Section 30, Township 22 North, Range 22 E. W. M., Douglas County, Washington



Peterson & Marquis Law Office
1267 Wheatridge Drive
East Wenatchee, WA 98802
h2oattorneys.com
January 25, 2019

Department of Ecology
Central Regional Office
Water Resources Program
1250 West Alder St.
Union Gap, WA 98903

Re: Claim Amendment G4-045542CL

Dear Ecology Staff,

The enclosed claim amendment is filed on behalf of Don Barth. Mr. Barth recently sold portions of the place of use identified within the subject claim to George Pond, LLC. Pursuant to a 3-party agreement executed between Barth, George Pond, and the City of Rock Island a portion of this claim is obligated for transfer to the city for municipal use. The balance of water not transferred to the City shall be retained by Barth for continued agricultural uses. As per the terms of the Agreement, Rock Island intends to file a change application with the Douglas County Water Conservancy Board in February or March of this year. Before this occurs, a claim amendment is necessary to correct errors to estimated quantities.

The subject claim asserts the use of 210gpm and 82af for 20ac irrigation and domestic use. In addition to these quantities, 5afy have been applied @ 0.25af/ac for frost & heat protection along with another 2afy for orchard spraying, vehicle maintenance, and dust suppression for a total use of 250gpm and 89afy.

Best Regards,

Marc Marquis, JD

Enclosures:
$50 Check #5389
Claim Amendment Form
Water Right Claim
Water Right Transfer Agreement
Barth/George Pond Statutory Warranty Deed

Mark Peterson: 509.264.1882 email: mppete@gmail.com
Marc Marquis: 509.679.0337 email: marcm@nwi.net

COPY

DEPARTMENT OF ECOLOGY State of Washington

Water Resources Program
Amendment to Water Right Claim

Water Right Claim Registry No. G4-045542CL	
Please attach a copy of your Water Right Claim to this form and return with the required **$50.00** fee to:	**Department of Ecology** **Cashiering Unit** **PO Box 47611** **Olympia, WA 98504-7611**

Name: Don Barth	Phone No: 509-470-0620	Other No:
Address: *P.O. box 85*		
City: *Pateros*	State: *WA*	Zip: *98846*
Email Address: *bearmtgolf@gmail.com*		

Original Water Right Claim was filed by:

Name: H. Gary France	Address: 1203 4th Wenatchee, WA 98801

Reason for Amendment: Please check appropriate box(es)

☒ An error in estimation of the quantity of the applicant's water claim as prescribed in RCW 90.14.051.
(Applicant must provide reasons for the error in the original claim.)

Explanation: Claim inadvertantly omitted water utilized for frost protection, heat control, orchard spraying, and dust supression

☐ Change in circumstances not foreseeable at the time the original claim was filed.
(Such a change must relate only to the manner of transportation or diversion of the water and not to the use or quantity of water.)

Explanation:

☐ The amendment is ministerial in nature.
(Obvious typographical or clerical errors occurred in the act of filling out the original claim.)

Explanation:

ECY 040-6 (Rev 02-2013) To request ADA accommodation including materials in a format for the visually impaired, call Ecology Water Resources Program at 360-407-6872. Persons with impaired hearing may call Washington Relay Service at 711. Persons with speech disability may call TTY at 877-833-6341.

COPY

ONLY FILL OUT THE INFORMATION TO BE AMENDED:

Source from which the right to take and make use of water is claimed: (choose one)

☐ Groundwater, the source is: _____

☐ Surface water, the source is: _____

Quantities of water and times of use claimed:

Quantity of water claimed: 250gpm_____ (Cubic feet per second or gallons per minute)

Quantity of water presently used: 250gpm_____ (Cubic feet per second or gallons per minute)

Annual quantity claimed: 89af_____ (Acre-feet per year)

Annual quantity presently used: 89af_____ (Acre-feet per year)

If for irrigation, Acres claimed: _____ Presently Irrigated: _____

Times during each year when water is used: _____

Date of first putting water to use: Month: _____ Day: _____ Year: _____

Location of the point(s) of diversion/withdrawal: _____ feet _____ and _____ feet _____

From the _____ corner of Section _____ being within the _____ of Section _____

Township _____N. Range _____ (E or W) W.M.

If this is within the limits of a recorded platted property, Lot _____ Block _____ of

_____

(Give name of Plat or Addition)

Legal description of lands on which the water is used (attach description if more space needed):

_____

_____

_____

_____

_____**County:** _____

Purpose(s) for which water is used: Domestic, Irrigation, Frost & Heat Protection, Spraying, Truch Washing and Maitenance, and Dust Supression

The Legal Doctrine upon which the right of claim is based: _____

I hereby swear that the above information is true and accurate to the best of my knowledge and belief:

ECY 040-6 (Rev 02-2013) To request ADA accommodation including materials in a format for the visually impaired, call Ecology Water Resources Program at 360-407-6872. Persons with impaired hearing may call Washington Relay Service at 711. Persons with speech disability may call TTY at 877-833-6341.

Printed Name: MARC MARQUIS ATTORNEY FOR DON BARTH	Date: 1/25/2019
Signature:	

ECY 040-6 (Rev 02-2013) To request ADA accommodation including materials in a format for the visually impaired, call Ecology Water Resources Program at 360-407-6872. Persons with impaired hearing may call Washington Relay Service at 711. Persons with speech disability may call TTY at 877-833-6341.

WATER RIGHT TRANSFER AGREEMENT

THIS WATER RIGHT TRANSFER AGREEMENT ("Agreement") is entered into this date by and between George Pond, LLC, a Washington limited liability Company ("George Pond"); Donald Barth, as his separate estate ("Barth") and the City of Rock Island, a Washington municipal corporation (the "City"). Individually, George Pond, Barth, and the City may be referred to herein as a "Party" or collectively as the "Parties".

RECITALS

A. George Pond is pursuing a development of property located within the City into 88 residential lots (the "Property"). The Property is legally described on attached Exhibit "A", which is incorporated herein by this reference.

B. Barth currently owns the Property and the water right associated with the Property. Barth and George Pond have entered into a purchase and sale agreement, whereby George Pond is purchasing the Property for purposes of the development. This Agreement is a contingency to closing the transaction.

C. As a condition of development, the City requires that every developer transfer water to the City that is equivalent to the anticipated water service to the development.

D. The Parties enter into this Agreement in satisfaction of City Code Chapter 8.50.

AGREEMENT

NOW THEREFORE, in light of the above Recitals, which are incorporated herein by this reference as part of the agreement of the Parties, and in consideration of the mutual covenants set out below, the Parties agree as follows:

1. Description of Water Right. The Water Right appurtenant to the Property is generally described as Water Right Claim No. 045542, filed on December 27, 1973 by H. Gary France and Iola D. France (the "Water Right"). The attributes of the Water Right claim the use of 210 gpm and 82 acre feet per year for the irrigation of 20 acres and domestic use.

2. Needs of the Development; Remainder. The City, by and through its engineer, has determined that the needs of the development proposed for the Property is equal to 47.71 acre feet of water, based on the City's Water System Plan. George Pond and Barth agree to the City's determination that 47.71 acre feet of water must be transferred to the City in satisfaction of City Code Chapter 8.50. As part of closing the transaction between Barth and George Pond (concerning George Pond's purchase of the Property), Barth will transfer 122 gpm and 47.71 acre feet of water associated with the Water Right to George Pond (to be included in the Statutory Warranty Deed to George Pond). As a result of closing, 122 gpm and 47.71 acre feet of water will be appurtenant to the Property and available to transfer to the City. After

satisfying the needs of the development, it is anticipated that 88 gpm and 34.29 acre feet of water will be appurtenant to other property owned by Barth that is not part of the development of the Property for purposes of irrigation and domestic use, subject to Section 7, below. The Parties agree to the allocation of the Water Right as set forth herein.

3. **Reserved Access.** The existing well located on the Property shall remain for the continued sole use by Barth on property owned by the Barth that is not party of the development of the Property. The Parties agree that easements shall be retained by Barth at locations to be agreed upon by George Pond, to provide Barth continued access to and use of the existing well and the main line from the well to the neighboring property owned by Barth. It is anticipated as part of the development that the property on which the existing well is located will be dedicated to the City and the City agrees to the easements to be retained by Barth.

4. **Transfer to City.** Upon completion of the change application set forth in Section 5, below, George Pond will transfer 122 gpm and 47.71 acre feet to the City pursuant to a Water Right Statutory Warranty Deed. The City will record the Statutory Warranty Deed with the Douglas County Auditor. Barth agrees to sign any documents reasonably requested by George Pond or the City to effectuate this transfer to the City. As a result of this Agreement, the Property will not have any further water rights and will not be installing a separate irrigation system as part of the development of the Property. George Pond will have transferred all water rights to the City in which George Pond has an interest, in complete satisfaction of City Code Chapter 8.50.

5. **City to Process Change Application.** Following closing of the transaction between George Pond and Barth, the City shall be solely responsible for preparing, filing and processing a change application with the Douglas County Water Conservancy Board, or with the Department Ecology ("Ecology"), as determined by the City. The change application will formally request the change and transfer of 122 gpm and 47.71 acre feet from the Water Right to the City for municipal purposes. The application will indicate that the Water Right shall be administratively divided between those portions retained by Barth and those portions transferred to the City. Pursuant to this division of the Water Right, it is the intent of the Parties that only those portions of the Water Right transferred to the City will be subjected to a tentative determination. George Pond and Barth agree to sign all documents and provide all information reasonably requested by the City in furtherance of the change application. The processing of the change application, including but not limited to all communications and submittals regarding the change application and whether to appeal or otherwise challenge a decision regarding the change application, are committed to the sole discretion of the City. The costs of processing the change application reasonably incurred by the City, shall be reimbursed by George Pond and Barth within thirty (30) days of the receipt of an invoice from the City, with George Pond and Barth each being responsible for one-half of the invoice submitted by the City.

6. **Satisfaction of City Code.** The City accepts this Agreement as complete satisfaction of the requirements set forth in City Code Chapter 8.50.

7. **Approval by Ecology.** In the event that the Change Application results in less water being available to allocate than desired by the Parties (a total allocation of 82 acre feet), then Barth agrees that any lesser amount shall impact only the 34.29 acre feet Barth desires to retain to ensure a transfer of 47.71 acre feet to the City for municipal purposes. The Parties understand and acknowledge that the amounts set forth in this Agreement are a good faith allocation of the Water Right, but that the analysis of the Water Right during the change application process could impact the extent and validity of the Water Right. This provision requiring Barth to bear the impact if the entire 82 acre feet associated with the Water Right is not recognized by Ecology is intended to address the inherent uncertainty associated with processing change applications. However, nothing herein shall alter the fact that this Agreement is in complete satisfaction of City Code or impose any further obligation on George Pond to transfer additional water to the City.

8. **Survival of Obligations; Cooperation.** All of the obligations set forth in this Agreement survive (a) the purchase of the Property by George Pond from Barth, and (b) the preliminary and final plat approval associated with the development of the Property pursued by George Pond. The Parties agree to cooperate and provide any information reasonably requested by another Party in furtherance of the steps outlined herein, including but not limited to historical water use information.

[The remainder of this page left blank intentionally]

9. **Litigation; Attorney Fees and Costs.** Any litigation concerning this Agreement shall be commenced in Douglas County Superior Court, Waterville, Washington. In the event litigation is commenced, the substantially prevailing party shall be awarded reasonable attorney fees and costs, as determined by the Superior Court Judge.

GEORGE POND, LLC

By: _____
Vincent Stimac, Member

Dated: January 25, 2018

By: Lorre Stimac
Lorre Stimac, Member

Dated: January 25, 2018

BARTH

_____
Donald Barth

Dated: January 25, 2018

CITY OF ROCK ISLAND

By: Randy Agnew
Randy Agnew, Mayor

Dated: 1-24-18

EXHIBIT "A"
Legal Description

Parcel No. 22223020006
That portion of the East 164.5 feet of the Southeast quarter of the Northwest quarter of Section 30, Township 22 North, Range 22, E.W.M., Douglas County, Washington, lying Westerly of Batterman Road,
EXCEPT that portion conveyed to Douglas County for roadway by deed recorded September 18, 1961, under Auditor's No.134509,
EXCEPT that portion thereof lying below a contour elevation of 620 feet above sea level U.S.G.S. Datum,
ALSO EXCEPT that portion conveyed to Douglas County by deeds recorded under Auditor's file Nos. 3009649, 3024039 and 3024040.

Parcel No. 22223020003
That portion of the Northeast quarter of the Northwest quarter of Section 30, Township 22 North, Range 22, E.W.M., Douglas County, Washington, lying Westerly of Batterman Road and Southerly of Saunders Road,
EXCEPT that portion conveyed to Douglas County for roadway by deed recorded September 18, 1961, under Auditor's No. 134509,
EXCEPT that portion thereof lying below a contour elevation of 620 feet above sea level U.S.G.S. Datum,
ALSO EXCEPT that portion conveyed to Douglas County by deeds recorded under Auditor's file Nos. 3009649, 3024039 and 3024040.

Parcel No. 41700002103
That portion of the following described property lying Westerly of Batterman Road:
That portion of Lots 21 and 22, East Wenatchee Land Company's Plat of Section 30, Township 22 North, Range 22, E.W.M., Douglas County, Washington, according to the plat thereof recorded in Volume B of Plats, page 5, described as follows:
Begin at the Northwest corner of said Lot 22 and run thence Southeasterly to a point on the East line thereof which is 330 feet South of the Northeast corner thereof: thence continue Southeasterly to the Southeast corner of said Lot 21;
thence North along the East line of said Lot 21 to the Northeast corner thereof; thence West along the North lines of said lots to the point of beginning.
EXCEPT that portion thereof lying below a contour elevation of 620 feet above sea level U.S.G.S. Datum,

Parcel Nos. 10800002101 and 10800002801:

That portion of the following three described tracts in the East Wenatchee Land Company's Plat of Section 30, Township 22 North, Range 22, E. W.M., Douglas County , Washington, according to the plat thereof recorded in Volume B of Plats, page 5, lying and being above a contour line at elevation 620 feet above sea level, USGS Survey Datum, as described in deed recorded January 13, 1976, under auditor's file No. 178616:

Tract 1
All of Tract 22,
EXCEPT the following described tract:
Beginning at the Northeast corner of said tract and run thence West along the North line of said lot, 660 feet to the Northwest corner of said tract; thence Southeasterly to a point on the East line of said tract, 330 feet South of the Northeast corner thereof; thence North on the East line of said tract a distance of 330 feet to the Place of Beginning.

Tract 2,
All of Tract 21
EXCEPT the following described tract:
Beginning at the Northwest corner of said tract and run thence South on the West line of said tract a distance of 330 feet; thence Southeasterly to the Southeast corner of said tract; thence North on the East line of said tract to the Northeast corner thereof; thence West on the North line of said tract to the Place of Beginning.

Tract 3
All of Tract 28.

Thad L. Duvall, Auditor, Douglas County, WA. AFN # 3209860
Recorded 01/25/2018 :23:21PM, DEED Page: 1 of 5 .00
CENTRAL WASHINGTON T___E CO

5 C

Filed for and return to:

OGDEN MURPHY WALLACE, P.L.L.C.
Peter A. Fraley
1 Fifth Street, Suite 200
P O Box 1606
Wenatchee WA 98807-1606

AFFT # 107218
REAL ESTATE EXCISE TAX PAID
$ 11,450.00
DOUGLAS COUNTY TREASURER
NONA HABERMAN
By Cell 1-25-18
DEPUTY

253176

The information contained in this boxed section is for recording purposes only pursuant to RCW 36.18 and RCW 65.04, and is not to be relied upon for any other purpose, and shall not affect the intent of or any warranty contained in the document itself.

Grantor(s): Donald Barth, as his separate estate
Grantee(s): George Pond, LLC, a Washington limited liability company
Reference Number(s) of Documents Assigned or Released:
Abbreviated Legal Description: Ptns of S30, T22N, R22, EWM, Douglas County, WA
Complete or Additional Legal Description on Exhibit "A" of Document.
Assessor's Parcel Number(s): 22223020006, 22223020003, 41700002103, 10800002101, and 10800002801

STATUTORY WARRANTY DEED

THE GRANTOR, Donald Barth, as his separate estate, for and in consideration of Ten Dollars ($10.00) and other good and valuable consideration, in hand paid, conveys and warrants to George Pond, LLC, a Washington limited liability company, the following described real estate, situated in the county of Douglas, state of Washington:

See Exhibit "A" attached hereto and incorporated herein by this reference.

TOGETHER WITH the following portion of Water Right Claim No. 045542: 47.71 acre feet, delivered at the rate of 122 gallons per minute subject to the terms of an unrecorded Water Right Agreement between Donald Barth, George Pond, LLC, and the City of Rock Island.

[The remainder of this page left blank intentionally]

SUBJECT TO rights, restrictions, reservations, covenants, easements, and matters of record, including the following:

1. An Easement including all its terms and provisions reserved by Puget Sound Power and Light Company, for the right to perpetually impound the waters of the Columbia River and the raise the same to various levels, and to perpetually inundate and overflow to the said elevation:
   Dated: June 21, 1946
   Recording No.: 102432

2. Easement, including terms and provisions contained therein:
   Recording No.: 116690
   In favor of: Public Utility District No. 1 of Douglas County
   For: Electric transmission and/or distribution system

3. Easement, including terms and provisions contained therein:
   Recorded: May 18, 1976
   Recording No.: 180212
   In favor of: Public Utility District No. 1 of Chelan County
   For: The right and privilege of making and maintaining fills upon that portion lying between elevations 608 feet and 616 feet above sea level

4. Easement, including terms and provisions contained therein:
   Recorded: February 4, 1960
   Recording No.: 130702
   In favor of: United States of America
   For: Electric transmission and distribution lines

5. Easement, including terms and provisions contained therein:
   Recorded: July 20, 1931
   Recording No.: 84428
   In favor of: Puget Sound Power and Light Company, a Washington corporation
   For: Electric transmission and/or distribution system

6. Easement, including terms and provisions contained therein:
   Recorded: April 25, 1995
   Recording No.: 303996
   In favor of: Public Utility District No. 1 of Douglas County
   For: Electric transmission and/or distribution system

7. An Easement including all its terms and provisions reserved by Puget Sound Power and Light Company, for the right to perpetually impound the waters of the Columbia River and the raise the same to various levels above sea level, and to perpetually inundate and overflow to the said elevation:

Recorded: April 22, 1947
Recording No.: 103563

DATED this 25th day of January, 2018.

Donald Barth

STATE OF WASHINGTON)
)ss.
County of Chelan)

I certify that I know or have satisfactory evidence that Donald Barth is the person who appeared before me, and said person acknowledged that he signed this instrument and acknowledged it to be his free and voluntary act for the uses and purposes mentioned in the instrument.

Dated: January 25, 2018.

Deborah Foltz (Printed name)
NOTARY PUBLIC, state of Washington
My appointment expires 9/5/2018

DEBORAH FOLTZ
COMMISSION EXPIRES
NOTARY
PUBLIC
9-05-18
STATE OF WASHINGTON

EXHIBIT "A"
Legal Description

Parcel No. 22223020006:

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EXCEPT that portion thereof lying below a contour elevation of 620 feet above sea level U.S.G.S. Datum,
ALSO EXCEPT that portion conveyed to Douglas County by deeds recorded under Auditor's file Nos. 3009649, 3024039 and 3024040.

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Parcel No. 41700002103:

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That portion of Lots 21 and 22, East Wenatchee Land Company's Plat of Section 30, Township 22 North, Range 22, E.W.M., Douglas County, Washington, according to the plat thereof recorded in Volume B of Plats, page 5, described as follows:
Begin at the Northwest corner of said Lot 22 and run thence Southeasterly to a point on the East line thereof which is 330 feet South of the Northeast corner thereof: thence continue Southeasterly to the Southeast corner of said Lot 21;
thence North along the East line of said Lot 21 to the Northeast corner thereof; thence West along the North lines of said lots to the point of beginning.
EXCEPT that portion thereof lying below a contour elevation of 620 feet above sea level U.S.G.S. Datum.

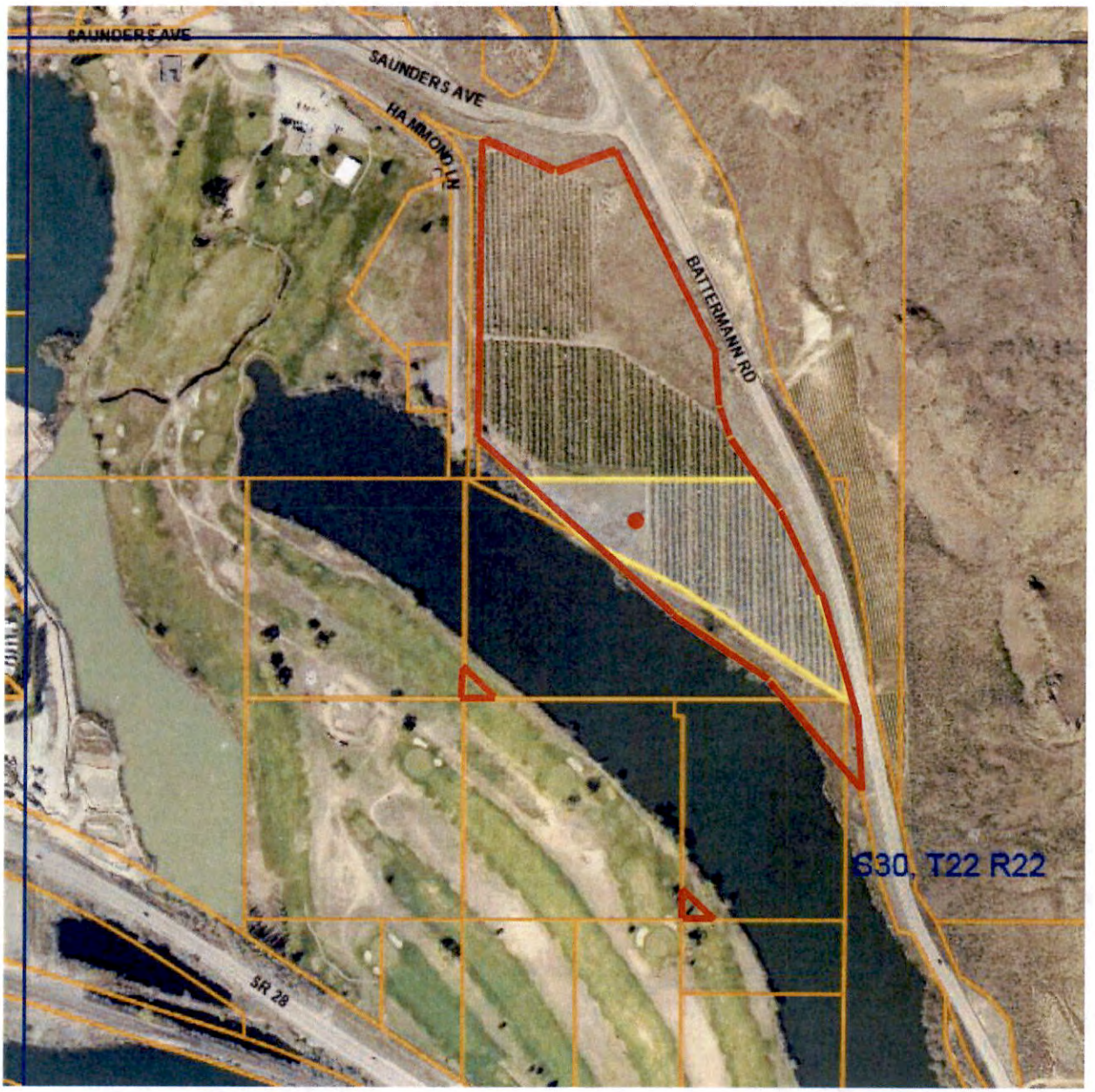
Parcel No. 10800002101 and Parcel No. 10800002801:

That portion of the following three described tracts in the East Wenatchee Land Company's Plat of Section 30, Township 22 North, Range 22, E. W.M., Douglas County , Washington, according to the plat thereof recorded in Volume B of Plats, page 5, lying and being above a contour line at elevation 620 feet above sea level, USGS Survey Datum, as described in deed recorded January 13, 1976, under auditor's file No. 178616:

Tract 1
All of Tract 22,
EXCEPT the following described tract:
Beginning at the Northeast corner of said tract and run thence West along the North line of said lot, 660 feet to the Northwest corner of said tract; thence Southeasterly to a point on the East line of said tract, 330 feet South of the Northeast corner thereof; thence North on the East line of said tract a distance of 330 feet to the Place of Beginning.

Tract 2,
All of Tract 21
EXCEPT the following described tract:
Beginning at the Northwest corner of said tract and run thence South on the West line of said tract a distance of 330 feet; thence Southeasterly to the Southeast corner of said tract; thence North on the East line of said tract to the Northeast corner thereof; thence West on the North line of said tract to the Place of Beginning.

Tract 3
All of Tract 28.



N

● Existing Point of Withdrawal

□ Existing Place of Use

106 Existing Water System 2016

N

0 400 800
SCALE

SCALE:	AS SHOWN
DESIGNED:	-
DRAWN:	TVP/TVS
CHECKED:	
APPROVED:	
PROJ. NO.:	106
DATE:	04/26/16

GENERAL NOTES

1. ALL STEEL (STL) WATER MAINS WERE INSTALLED IN 1962.
2. ALL DUCTILE IRON (DI) WATER MAINS WERE INSTALLED IN 1989-93.
3. ALL ASBESTOS CONCRETE (AC) WATER MAINS WERE INSTALLED IN 1931.
4. THIS IS A WATER SYSTEM SCHEMATIC MAP. LOCATIONS OF WATER LINES ARE APPROXIMATE ONLY AND HAVE NOT BEEN VERIFIED IN THE FIELD. THIS MAP IS NOT INTENDED FOR ANY CONSTRUCTION ACTIVITIES.
5. STREET R.O.W./PROPERTY LINES ARE FROM DOUGLAS COUNTY GIS

LEGEND

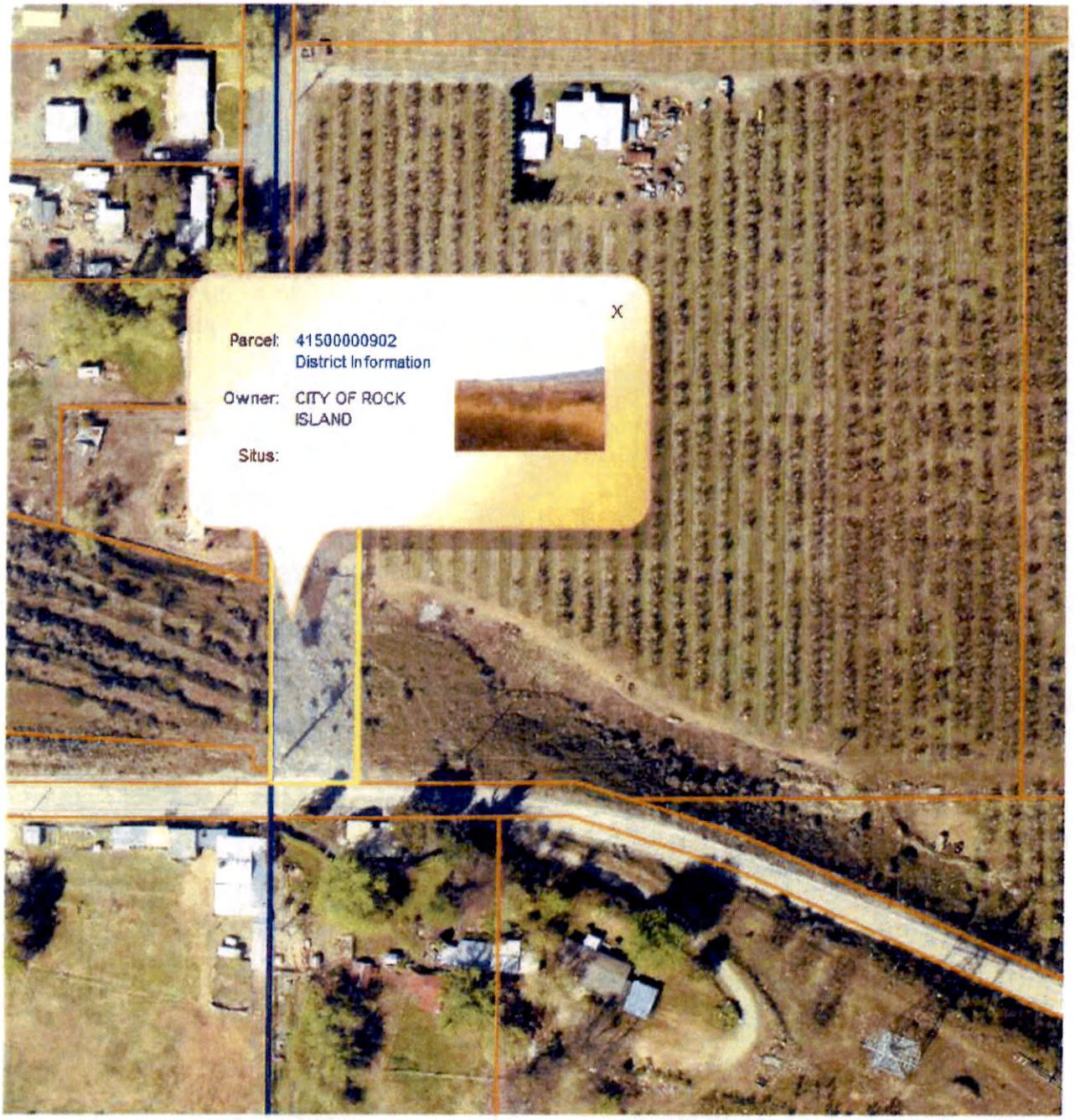
- CORPORATE LIMITS
- UGA BOUNDARY
- CURRENT WATER SERVICE AREA
- 8"PVC(2010) WATER MAIN w/DIAMETER, MATERIAL & YEAR OF INSTALLATION IF KNOWN
- VALVE
- FIRE HYDRANT
- AIR RELEASE VALVE
- REDUCER

VARELA AND ASSOCIATES, INC.
ENGINEERING AND MANAGEMENT

CITY OF ROCK ISLAND, WASHINGTON

EXISTING WATER SYSTEM

Proposed Place of Use
Exhibit E
Page 1 of 1


X
Parcel: 41500000902
District Information
Owner: CITY OF ROCK ISLAND
Situs:

Well 2

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
AND DEVELOPMENT

WELL LOG No. A.6084

Date 1-31, 19 62

Record by well driller

Source driller's record

Location: State of WASHINGTON

County Douglas

Area

Map

¼ ¼ sec 25 T 22 N., R 21 E.

Diagram of Section

Drilling Co. John H. Pryor

Address Rt. 3, Box 3079, Wenatchee, Wash.

Method of Drilling Date 19

Owner Town of Rock Island, Wash.

Address

Land surface, datum ft. above/below

Correlation	Material	Thickness (feet)	Depth (feet)
	Soil	4	4
	Rock & Gravel	39	43
	Sand & gravel	25	68
	Coarse sand-no rocks	40	108
	Gravel & sand mixed	7	115
	PUMP TEST:		
	Dim. 12"x117'		
	SWL: 50'		
	Yield: 400 g.p.m.		
	Type & size of pump: Johnston Turbine		
	Type & size of motor or engine: 35 h.p.		
	CASING:		
	12" diam. from 0 to 111'6"		
	12" drive shoe 6" below casing		

(Transcribe driller's terminology literally but paraphrase as necessary, in parentheses. If material water-bearing, so state and record static level if reported. Give depths in feet below land-surface datum unless otherwise indicated. Correlate with stratigraphic column, if feasible. Following log of materials, list all casings, perforations, screens, etc.)

Turn up

Sheet ... of ... sheets


Parcel: 41300004902
District Information
Owner: CITY OF ROCK ISLAND
Situs:
PENN AVE
PENN AVE
PENN AVE
PENN AVE
DEMAR PL
CENTER ST
DEMAR PL

Well 3

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

Roy Island

WATER WELL REPORT

STATE OF WASHINGTON

Application No. 424603

Permit No. ____

(1) OWNER: Name East Wenatchee Water District Address 890 Eastmont Ave., E. Wenatchee, Wa

(2) LOCATION OF WELL: County Douglas — S.E.¼ S.E.¼ Sec. 23 T. 22N R. 21EWM

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☒ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ____
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 10 inches.
Drilled 85 ft. Depth of completed well 74 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 10" Diam from 0 ft. to 75 ft.
Threaded ☐ ____ Diam from ____ ft. to ____ ft.
Welded ☒ ____ Diam from ____ ft. to ____ ft.

Perforations: Yes ☒ No ☐
Type of perforator used Mill
SIZE of perforations 1/8 in. by 2 in.
____ perforations from 75 ft. to 25 ft.
____ perforations from ____ ft. to ____ ft.
____ perforations from ____ ft. to ____ ft.

Screens: Yes ☐ No ☒
Manufacturer's Name ____
Type ____ Model No. ____
Diam. ____ Slot size ____ from ____ ft. to ____ ft.
Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: ____
Gravel placed from ____ ft. to ____ ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used in seal Placed Big Clay
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? ____ Depth of strata ____
Method of sealing strata off ____

(7) PUMP: Manufacturer's Name ____
Type: ____ H.P. ____

(8) WATER LEVELS: Land-surface elevation above mean sea level ____ ft.
Static level ____ ft. below top of well Date ____
Artesian pressure ____ lbs. per square inch Date ____
Artesian water is controlled by ____ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom?
Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test ____
Bailer test ____ gal./min. with ____ ft. drawdown after ____ hrs.
Artesian flow ____ g.p.m. Date ____
Temperature of water ____ Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Boulders	0	18
Sand & coarse	18	60
gravel (fine water bearing	60	64
Sand	64	70
gravel (water bearing	70	76
Clay (gray)	76	85

Should have PUMP
HAVE A CLIVID
test well

Work started ____, 19__, Completed ____, 19__

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Glessner Well Drillers (Person, firm, or corporation) (Type or print)

Address Box 302

[Signed] Wesley Glessner (Well Driller)

License No. 0154 Date 1/28/77, 19

(USE ADDITIONAL SHEETS IF NECESSARY)

IV 050-1 20

WASHINGTON STATE DEPARTMENT OF ECOLOGY

UNIQUE WELL I.D. NUMBER A B S 15 3
X Y Z 1 2 3

WELL TAGGING FORM

Date of Field Visit 9-12-94 By Michael Cook

ADDITIONAL WELL IDENTIFIERS

Department of Health System ID Number 73401E Source Number SO 03

USGS Site Identification _____ Doh # 1367

RECORD VERIFICATION

- ☐ Well Report available *(please attach)*
- ☐ Well Report not available
- ☐ Verification inconclusive

WELL OWNERSHIP, IF DIFFERENT FROM WELL REPORT

Name City of Rock Island

Street address PO Box 99 5N Garden

City Rock Island State WA 98850

LOCATION OF WELL, IF DIFFERENT FROM WELL REPORT

See attached

Well Address _____

City _____ County _____

T. _____ N. R. _____ ___ WM. Sec. _____ _____ ¼ of the _____ ¼

Latitude _____ ° _____ ' _____ "

Longitude _____ ° _____ ' _____ "

- ☐ GPS (raw data)
- ☐ GPS (corrected)
- ☐ Topographic Map
- ☐ Survey
- ☐ Computer generated
- ☐ Other _____

Elevation at land surface _____ feet/meters *(circle one)*

- ☐ Digital Altimeter
- ☐ Topographic Map
- ☐ Other _____

Additional information, if available:

☐ Location marked on topographic map *(please attach)*

☐ Location marked on air photo *(please attach)*

Water Right # _____ Priority Date _____

Circle one: Application Permit Certificate Claim Exempt

WELL CHARACTERISTICS

Physical Description of Well (size of casing, type of well, housing, etc.): _____

_____

Location of Well Identification Tag: _____

_____

Was Supplemental Tag needed for ease of identifying well?
☐ NO ☐ YES

If yes, where was tag placed? _____

Scale 1:24,000 (1"=2,000')

D	C	B	A
E	F	G	H
M	L	K	J
N	P	Q	R

Indicate the location of the well within the Section by drawing a dot at that point.

SECTION _____

COMMENTS: _____

See attached

Please attach this form to the Well Report and submit it to the Department of Ecology Water Resources Program Headquarters, Well Identification Program, P.O. Box 47600, Olympia, WA 98504-7600

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No Ru T Island

Permit No

(1) OWNER: Name Address

(2) LOCATION OF WELL: County — ¼ ¼ Sec T N R WM

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☒ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one)

New well ☒ Method Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 10 inches
Drilled 85 ft Depth of completed well 76 ft

(6) CONSTRUCTION DETAILS:

Casing installed: 10 " Diam from 0 ft to 75 ft
Threaded ☐ " Diam from ft to ft
Welded ☒ " Diam from ft to ft

Perforations Yes ☒ No ☐
Type of perforator used Mill
SIZE of perforations 3/8 in by 2 in
perforations from 70 ft to 75 ft
perforations from ft to ft
perforations from ft to ft

Screens: Yes ☐ No ☒
Manufacturer's Name
Type Model No
Diam Slot size from ft to ft
Diam Slot size from ft to ft

Gravel packed: Yes ☐ No ☒ Size of gravel
Gravel placed from ft to ft

Surface seal Yes ☒ No ☐ To what depth? 18 ft
Material used in seal Puddling Clay
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type HP

(8) WATER LEVELS: Land-surface elevation above mean sea level ft
Static level ft below top of well Date
Artesian pressure lbs per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes by whom?
Yield gal./min with ft drawdown after hrs
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test gal./min with ft drawdown after hrs
Artesian flow g.p.m Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation

MATERIAL	FROM	TO
Boulders	0	18
Sand (Coarse	18	60
gravel (Some water bearing	60	64
Sand	64	70
gravel (Waterbearing	70	76
Clay (gray)	76	85

Work started , 19 Completed , 19

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief

NAME Glessner Well Drilling (Person, firm, or corporation) (Type or print)

Address Box 302

[Signed] Wesley Glessner (Well Driller)

License No 0154 Date , 19

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

100

STAT ASHINGTON
DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

☐ Surface Water (Issued in accordance with the provisions of Chapter 117 Laws of Washington for 1917 and amendments thereto and the rules and regulations of the Department of Ecology)

☒ Ground Water (Issued in accordance with the provisions of Chapter 263 Laws of Washington for 1945 and amendments thereto and the rules and regulations of the Department of Ecology)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
January 31, 1977	G4-24603	G4-24603P	G4-24603C

NAME
TOWN OF ROCK ISLAND

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
P.O. Box 98	Rock Island	Washington	98850

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown

PUBLIC WATER TO BE APPROPRIATED

SOURCE
well

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE FEET PER YEAR
	280	448

QUANTITY TYPE OF USE PERIOD OF USE
To be used continuously for a municipal supply

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION—WITHDRAWAL
1,000 feet north and 50 feet west of the southeast corner of Sec 23

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N	RANGE (E OR W) W M	W R I A	COUNTY
SE¼ SE¼	23	22	21 E.	44	Douglas

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
9		E Wenatchee Land Co Plat

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by Town of Rock Island within Secs. 23-26, T 22 N., R 21 E W M.

INDEXED
DIRECT
REVERSE
RECORDED
COMPARED
MAILED

FILED OR RECORDED
BOOK OF M115 FOR
Dept of Ecology
'81 JUN 8 AM 9:15
DOUGLAS COUNTY AUDITOR
WATERVILLE, WASHINGTON
Emily Smith DEPUTY

VOL M115 PAGE 573

040 1 2 (Rev 4 77) (SEE REVERSE SIDE) CERTIFICATE
RETAIN FOR YOUR FILES

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

11-6-79

CONSTRUCTION NOTICE

☐ BEGINNING OF CONSTRUCTION

☑ COMPLETION OF CONSTRUCTION

NAME	SURFACE WATER PERMIT NO	GROUND WATER PERMIT NO
East Wenatchee Water District		G4-24603P
DATE CONSTRUCTION BEGAN	DATE CONSTRUCTION COMPLETED	DATE COMPLETION EXPECTED
See below	3-77	

IF CONSTRUCTION NOT COMPLETE, SHOW % COMPLETED AS OF THIS DATE

% EQUIPMENT IN PLACE	% MATERIAL IN PLACE	% EXCAVATED	% STRUCTURE

IF CONSTRUCTION HAS BEEN ABANDONED

DATE ABANDONED	REASON ABANDONED

REMARKS OR ANY ADDITIONAL INFORMATION WHICH MAY TEND TO SHOW GOOD FAITH IN THE PROSECUTION OF THE WORK

The East Wenatchee Water District completed this project in March 1977. The above ground water permit was discussed with Ann Jensen of the Chelan-Douglas Health District on 11-5-79. She contacted your office and was advised that we should ask for an Assignment Form to transfer this permit to the Town of Rock Island. They purchased the well and its entire distribution system from the East Wenatchee Water District and assumed control of the system on 1-1-79.

I would appreciate you sending the necessary papers so that we might transfer this permit. Thank you.

I certify I am the holder of the above permit issued by the Department of Ecology for the State of Washington, and in accordance with the terms of such permit and the limitations endorsed by the Department of Ecology have ☐ begun ☐ completed the actual construction of the work described in the permit

Charlie Johnston
Signature of Applicant

890 Eastmont Avenue
Present Address

East Wenatchee, Washington 98801
City State Zip Code

FCY 040-1 30

State of Washington Department of Ecology

JAN 31

APPLICATION FOR PERMIT TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

☐ SURFACE WATER ☒ GROUND WATER

$10.00 MINIMUM STATUTORY EXAMINATION FEE REQUIRED WITH APPLICATION

(GRAY BOXES FOR OFFICE USE ONLY)

APPLICATION NO	W.R.A.	COUNTY	PRIORITY DATE	TIME	ACCEPTED
424603					

APPLICANT'S NAME: East Wenatchee Water District

BUSINESS TEL: 884-3569

HOME TEL:

ADDRESS (STREET): 890 Eastmont Avenue

CITY: E. Wenatchee

STATE: Washington

ZIP CODE: 98801

DATE & PLACE OF INCORPORATION IF APPLICANT IS A CORPORATION: May 27, 1940 E. Wenatchee, Washington

1 SOURCE OF SUPPLY

IF SURFACE WATER — SOURCE (NAME OF STREAM, LAKE, SPRING, ETC.) IF UNNAMED, SO STATED:

TRIBUTARY:

IF GROUND WATER — SOURCE (WELL, TUNNEL, INFILTRATION TRENCH, ETC.): A Well

SIZE AND DEPTH: 10" Dia X 78' in Depth

2 USE

USE TO WHICH WATER IS TO BE APPLIED (DOMESTIC SUPPLY, IRRIGATION, MINING, MANUFACTURING, ETC.): Domestic Supply

ENTER QUANTITY OF WATER REQUESTED USING UNITS OF: CUBIC FEET PER SECOND (CFS) OR GALLONS PER MINUTE (GPM): 500 ACRE FEET PER YEAR

TIMES DURING YEAR WATER WILL BE REQUIRED: Continuously

IF IRRIGATION, NUMBER OF ACRES:

IF DOMESTIC USE, NUMBER OF UNITS BY TYPE, E.G. 1 HOME, MOBILE HOME, 3 DAYPORTS, ETC.: 118

IF MUNICIPAL USE, ESTIMATED POPULATION 20 YEARS FROM TODAY: 19,000 est.

DATE PROJECT WAS OR WILL BE STARTED: August 1976

DATE PROJECT WAS OR WILL BE COMPLETED: Sept 1978 Est

3 LOCATION OF POINT OF DIVERSION/WITHDRAWAL

3A IF IN PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)	SECTION	TOWN	RANGE	ALSO PLEASE ENCLOSE A COPY OF THE PLAT AND MARK THE POINT(S) OF WITHDRAWAL OR DIVERSION
49		East Wenatchee Land Co	23	22	21	

3B IF NOT IN PLATTED PROPERTY

ON ACCOMPANYING SECTION MAPS ACCURATELY MARK AND IDENTIFY EACH POINT OF DIVERSION. SHOW NORTH-SOUTH AND EAST-WEST DISTANCES FROM NEAREST SECTION CORNER OR PROPERTY CORNER.

ALSO ENTER BELOW THE DISTANCES FROM THE NEAREST SECTION OR PROPERTY CORNER TO THE DIVERSION OR WITHDRAWAL.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N	RANGE E. OR W. W.M.	COUNTY

4 DO YOU OWN THE LAND ON WHICH THIS SOURCE IS LOCATED? IF NOT, INSERT NAME & ADDRESS OF OWNER:

5 LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

ATTACH A COPY OF THE LEGAL DESCRIPTION OF THE PROPERTY (ON WHICH THE WATER WILL BE USED) TAKEN FROM A REAL ESTATE CONTRACT, PROPERTY DEED OR TITLE INSURANCE POLICY OR COPY CAREFULLY IN THE SPACE BELOW.

Legal Description Enclosed See POW

Lands Served by EWWD within
Sections: T 22N R 21 W.W.M.
and
36 T 22N R 22 W.W.M.

Rock Island

ECY 040-14(4)
Rev 7 75

APPLICATION

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

WHAT IS YOUR INTEREST IN THE PROPERTY ON WHICH THE WELL IS TO BE LOCATED? (OWNER, LESSEE, CONTRACT PURCHASER, ETC.)

We own this prop. t;

ARE THERE ANY EXISTING WATER RIGHTS RELATED TO THE LAND ON WHICH THE WATER IS TO BE USED (INCLUDING WATER PROVIDED BY IRRIGATION DISTRICTS OR DITCH COMPANIES) ☒ YES ☐ NO

IF YES, FROM WHAT SOURCE (i.e. SURFACE OR GROUND WATER) AND UNDER WHAT AUTHORITY

There are several private wells within District, also, the area is serviced by the Greater Wenatchee Irr Dist and the Wenatchee Reclamation District (irrigation) these two Districts take water from river.

6 DESCRIPTION OF SYSTEM PROPOSED OR INSTALLED

(FOR EXAMPLE: SIZE OF PUMP, CAPACITY OF PUMP, PUMP MOTOR HORSE POWER, PIPE DIAMETER, NUMBER OF SPRINKLERS, ETC.)

40 H.P. 500 G.P.M.

REMARKS

7

IF 10 ACRE FEET OR MORE OF WATER IS TO BE STORED AND/OR IF THE WATER DEPTH WILL BE 10 FEET OR MORE AT THE DEEPEST POINT, A STORAGE PERMIT MUST BE FILED IN ADDITION TO THIS PERMIT. THESE FORMS CAN BE SECURED TOGETHER WITH INSTRUCTIONS FROM THE DEPARTMENT OF ECOLOGY

SIGNATURES

Ruth Finch
APPLICANT'S SIGNATURE

Same as above
LEGAL LANDOWNER'S SIGNATURE

890 Eastmont Avenue, E. Wenatchee, Wa 98801
LEGAL LANDOWNER'S ADDRESS

FOR OFFICE USE ONLY

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY } ss

This is to certify that I have examined this application together with the accompanying maps and data and am returning it for correction or completion as follows

In order to retain its priority date this application must be returned to the Department of Ecology with corrections on or before 19

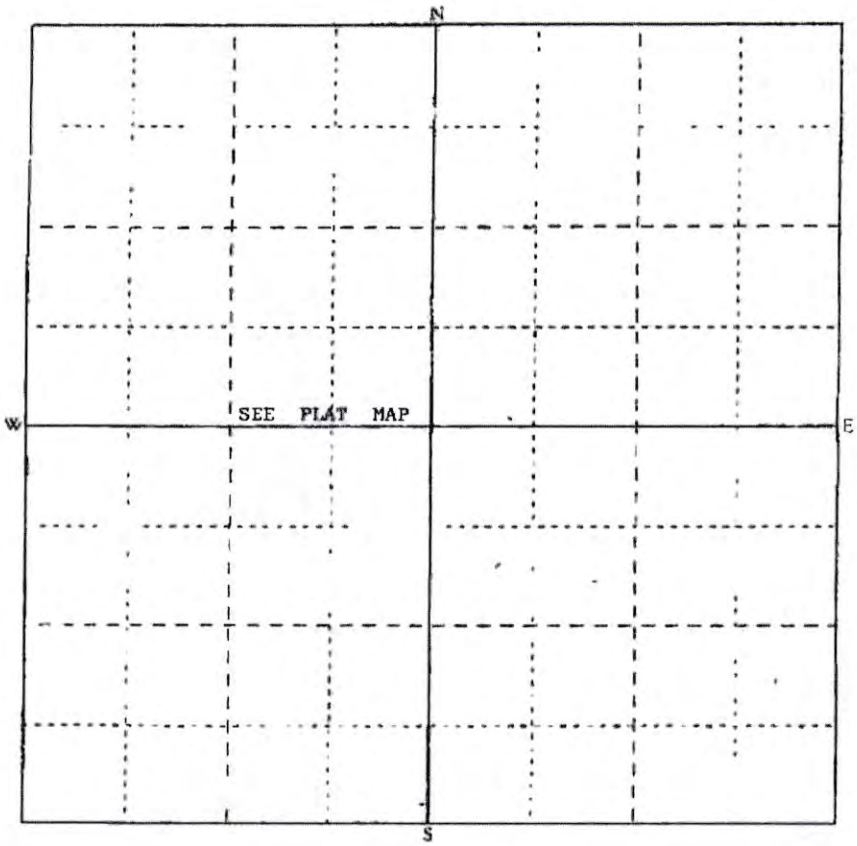
Witness my hand this day of 19

Department of Ecology

ECY 040-1 (4/5)
Rev 7 75

SECTION MAP

Sec 23 Twp 22N N. R 21E



Scale 1 inch = 800 feet (each small square = 10 acres)

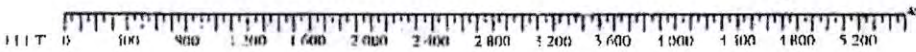
Show by a cross (X) the location of point of diversion (surface water source) or point of withdrawal (ground water source). For ground water applications show by a circle (O) the locations of other wells or wells within a quarter of a mile.

Indicate distances from nearest town or space line.

Beginning at East Wenatchee city limits and S R 20, thence South on S.R 28, 3 miles to Old Rock Island Road, thence left on Old Rock Island Road, 2 miles to Center Avenue, thence left on Center ½ mile to Penn Street, left on Penn Street 25 miles to District property

Detach here

Fold along scale



Detach the scale at the perforation, fold excess paper under or cut off excess by cutting along the scale line. This scale corresponds to the SECTION MAP above. You can read feet directly from this scale to outline property and locate points of diversion or withdrawal on the SECTION MAP. I enclose this map along with the application and $10.00 examination fee.

ECY 040-1 (4/0)

WELLS & WADE HARDWARE

P. O. BOX 1161 · WENATCHEE, WASHINGTON 98801

TELEPHONE (509) 662-7173

WELL TEST DATE TESTED 7-16-76

NAME EAST WENATCHEE WATER DEPARTMENT

ADDRESS EAST WENATCHEE, WASHINGTON

DISTANCE OF WELL ON PLACE NO. OF ROCK ISLAND SCHOOL

LOCATION OF WELL ON PLACE

DUG OR DRILLED DRILLED PIT OR SURFACE SURFACE

CASED YES I D. OF CASING 10" LENGTH OF CASING 75'

NEW OR OLD WELL AND HOW OLD NEW

DRILLER'S NAME WES GLESNOR

DEPTH AND STRATA DRILLED THROUGH 75' GRAVEL AT BOTTOM

STATIC WATER LEVEL 40' PERFORATED FROM 70-75'

8 HR TEST

GALLONS	DRAW DOWN BELOW ~~STATIC~~ GROUND LEVEL	TIME	REMARKS
675	14 Ft	7.30	2200 RPM
675	14½ ft.	8:00	" "
675	15 ft.	8.30	" "
675	15 ft.	9:00	" "
675	15 ft.	9:30	" "
675	15 ft.	10 00	" "

CONTINUED ON PAGE TWO

TEST PUMP USED 8" HC SETTING OF PUMP 75'

TOTAL TIME PUMPED 1 hr. 45 min on 15th 8 hrs. on 16th TIME TAKEN TO CLEAR UP 1½ hr. the day before

CONDITION OF WATER AT START OF TEST SANDY AND MURKY

CUSTOMER'S PLANS AS TO USE OF WELL DOMESTIC WATER

TESTED BY SCOTT

(PLEASE USE REVERSE SIDE OF THIS FORM TO DRAW SKETCH IF FURTHER EXPLANATION IS NEEDED, OR IF ADDITIONAL INFORMATION IS AVAILABLE.)

PAGE TWO

WELL TEST - EAST WENATCHEE WATER DEPARTMENT

GPM	DRAWDOWN	TIME	RPM
675	15 ft	10:30	2200
675	15 ft.	11:00	2200
675	15 ft	11:30	2200
675	15 ft	12:00	2200
675	15 ft	12 30	2200
675	15½ ft.	1:00	2200
675	15½ ft.	1·30	2200
675	15½ ft.	2:00	2200
675	15½ ft	2:30	2200
675	15½ ft.	3:00	2200
675	15½ ft.	3:30	2200

FULL RECOVERY IN 15 SEC

On the day before, the 15th, we surged for 2 hours and pumped steady for 1 hour and 45 minutes at 625 GPM with 13 ft. drawdown. Pumped quite a bit of sand for over an hour before clearing up. Could hardly stir up a grain after that.

Well 3

EAST WENATCHEE WATER DISTRICT

UMMARY SHEET 2 OF 2

EAST WENATCHEE, WASHINGTON

		MYRICK PIPE AND SUPPLY		BENDICKSON-THOMPSON PUMP AND IRRIGATION			
		P O B 325 QUINCY, WA. 98848		313 NO MISSION WENATCHEE, WA 98801			
I T E M	QUANTITY	UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT
TURBINE PUMP 500 gpm FURNISHED AND INSTALLED	1 ea.	3,841.76	3,841 76	3,725.00	3,725 00		
SUB-TOTAL			3,841 76		3,725 00		
WASH. STATE SALES TAX			195.93		189.98		
TOTAL AMOUNT BID			4,037 69		3,914 98		

STATE OF WASHINGTON
Dixy Lee Ray
Governor

DEPARTMENT OF ECOLOGY
2802 Main Street, Union Gap, Washington 98903 509/575-2000

December 12, 1979

Town of Rock Island
P.O. Box 98
Rock Island, WA 98801

Re: Assignment of G4-24603P from E. Wenatchee Water Dist. to the Town of Rock Island, WA

Your request for assignment has been processed. Our records have been changed to indicate the assignment and future correspondence will be sent to assignee, unless we are otherwise advised.

A receipt for the assignment fee is enclosed.

Sincerely,

Resource Management
CENTRAL REGIONAL OFFICE

Enclosure : Receipt No. 96107

le

cc: E. Wenatchee Water Dist.

ECY 040-1-58
Rev. 6/78

STATE OF WASHINGTON

[redacted]

DEPARTMENT OF ECOLOGY

[redacted] 509/575-2800

3601 W. Washington, Yakima, WA 98903

February 5, 1981

Completion March - 1977
Completion of Construction Nov 1 - 1979
assignment Nov 6 - 1979
Dec 12 - 1979

The Town of Rock Island
P.O. Box 98
Rock Island, WA 98850

RE: Ground Water Permit No. G4-24603P

In checking the file of your permit to appropriate public waters, it has been found that you have not notified this office that you have complied with the terms of the permit.

You were to have completely applied the water to beneficial use and filed a report of such action with this office on or before October 1, 1980. At this time, your permit is subject to cancellation due to noncompliance with the terms of the permit.

If you have not put the waters to beneficial use and you are still interested in completing your project, you must make a written request for an extension of time stating the reasons why such extension is necessary and remit a statutory fee of $5.00 to this office.

If we do not receive either the completed form or the request for extension together with the associated fee within thirty (30) days from the date of receipt of this letter, we will initiate action to cancel this permit.

Resource Management Division

Enc.: P. A. Form

C-22(g)

ECY 040-1-28

JOHN SPELLMAN
Governor

DONALD W MOOS
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
3601 West Washington • Yakima, Washington 98903 • (509) 575-2800

May 1, 1981

Ms. Evelyn Briggs
Town Clerk
Town of Rock Island
P.O. Box 98
Rock Island, WA 98850

RE: Ground Water Permit G4-24603P
and Certificate No. 4224-A

Dear Ms. Briggs:

As we discussed on the telephone, I am returning the application you submitted for the well located in Lot 9. I am also sending you a copy of Certificate No. 4224 which is for that same well.

Our field inspector has decided that an inspection is not necessary prior to issuing the Certificate for Permit No. G4-24603P (this is the permit for the well in Lot 49). Therefore, the Certificate can issue as soon as you submit the necessary recording fees. The fees are $5.00 payable to the Department of Ecology and $4.00 made payable to the Douglas County Auditor. Send both checks to this office.

If you have any more questions, please feel free to contact me again.

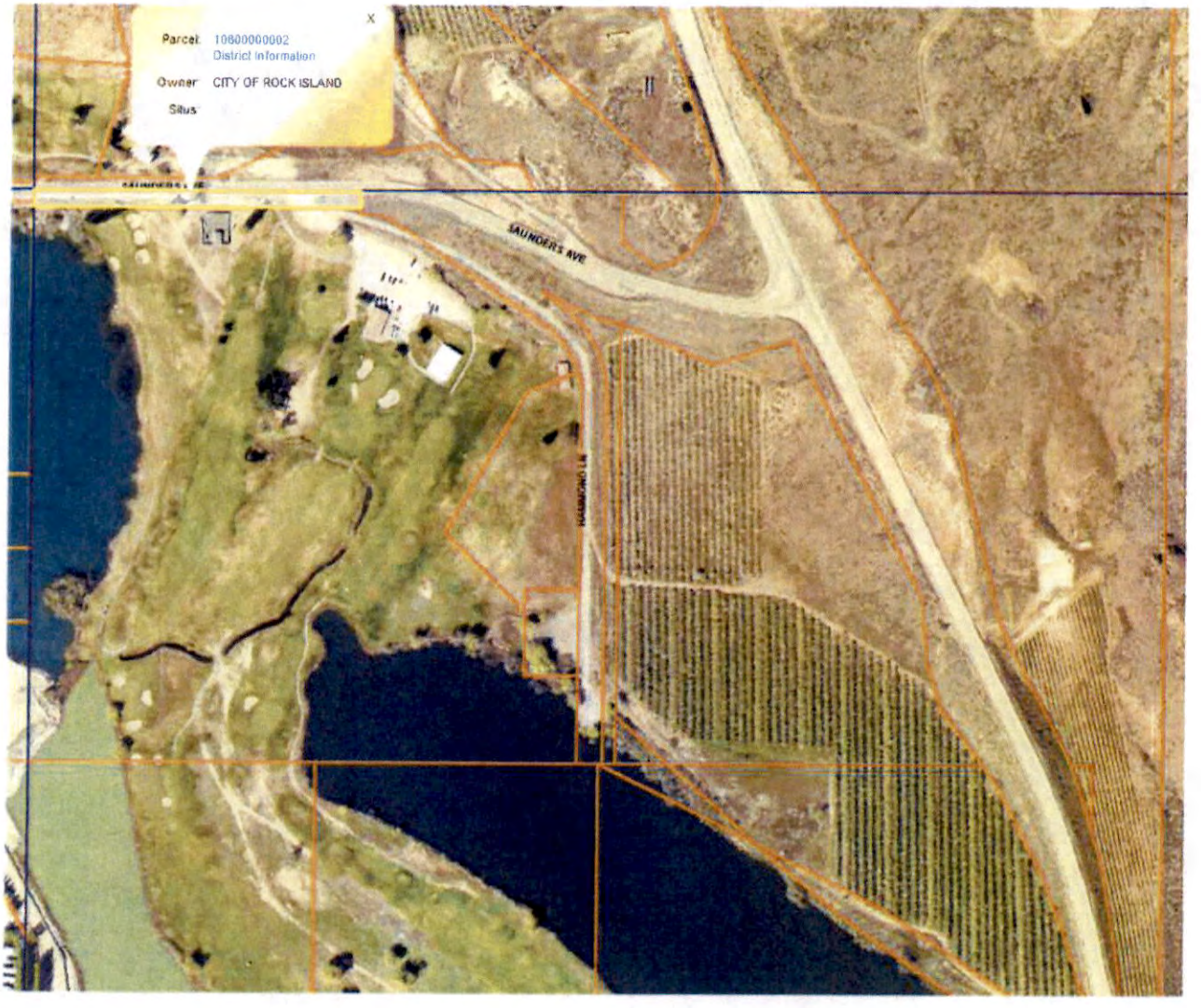
Sincerely,

Becky Johnson

Becky Johnson
Resource Management Division

BJ:lo

Encl: Application
Check No. 5198-53
Copy of Certificate No. 4224


Parcel 10600000002
District Information
Owner CITY OF ROCK ISLAND
Situs
SAUNDERS AVE

Well 5

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

WATER WELL EPORT

State of Washington Date Printed: 11-Jan-2010 Log No. 0

Construction / Decommission: Original Construction Notice 366430

Construction

PROPOSED USE: MUNICIPAL

TYPE OF WORK: Owners's Well Number: (If more than one well)

NEW WELL Method: CABLE

DIMENSIONS Diameter of well: 12 inches

Drilled 110 ft. Depth of completed well 98 ft.

CONSTRUCTION DETAILS: Casing installed WELDED

12 " Dia from +2 ft. to 73 ft.

" Dia from ft. to ft.

" Dia from ft. to ft.

Liner installed:

" Dia from ft. to ft.

Perforations: No Used In:

Type of perforator used

SIZE of perforations in. b in.

Perforation from ft. to ft.

Perforation from ft. to ft.

Perforation from ft. to ft.

Screens: 2 K-Pac Location 70

Manufacture's Name ALLOY MACHINE

Type: STAINLESS Model No.

Diam. 10.75 slot size 40 from 73 ft. to 93 ft.

Diam. 10.75 slot size blank from 93 ft. to 98 ft.

Gravel/Filter packed: No Size of Gravel

Material placed fro ft. to ft.

Surface seal: Yes To what depth 50 ft.

Seal method: Material used in seal BENTONITE

Did any strata contain unusable water No

Type of water Depth of strata

Method of sealing strata off

PUMP: Manufacture's name

Type: H.P. 0

WATER LEVELS Land-surface elevation above mean sea level: 0 ft.

Static level 34 ft. below top of well Date 11/04/2009

Artesian Pressure lbs per square inch Date

Artesian water controlled by

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made No If yes, by whom

Yield gal/min with ft drawdown after

Yield gal/min with ft drawdown after

Yield gal/min with ft drawdown after

Recovery data (time taken as zero when pump turned off)(water level measured from well top to water level

Time:	Water Level	Time:	Water Level	Time:	Water Level

Date of test: 12/04/2009

Bailer test 600 gal/min 5 ft drawdown after 72 hrs.

Air test gal/min w/ stem set at ft. for hours

Artesian flow gpm Date

Temperature of water Was a chemical analysis made No

CURRENT

Notice of Intent No.: WE10732

Unique Ecology Well I.D. No BBL430

Water Right Permit Number: G4-24603C

OWNER: CITY OF, ROCK ISLAND

OWNER ADD P O BOX 99

ROCK ISLAND, WA 98850

Well Add SAUNDERS AVENUE

City: Rock Island, WA 98850 County: Douglas

Location: NW 1/4 NW 1/4 Sec 30 T 22 R 22E EW

Lat/Long: (s, t, r still REQUIRED) Lat Deg Lat Min/Sec Long Deg Long Min/Se

Tax Parcel No.: 108 00000002

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure. Show thickness of aquifers and the kind and nature of the material in each stratum penetrated. Show at least one entry for each change in formation.

Material	From	To
LIGHT GRAY FINE TO MEDIUM SAND	0	5
COARSE BROWN SAND W/COBBLES	5	16
COARSE GREY SAND W/COBBLES SOME BOUL	16	31
BASALT BOULDERS W/COBBLES CRS GREY SA	31	36
BROWN GREY SILTY SAND WITH BOULERS/CO	36	55
GREY CEMENTED SAND COBBLES SILT	55	87
GREY SILTY SAND W/OCCASIONAL COBBLES	87	95
GREY SAND HARD W/COBBLES FINE	95	108
COARSE GREY SAND W/COBBLES	108	110

Notes:

Work starte 10/19/2009 Complete 12/04/2009

WELL CONSTRUCTION CERTIFICATION:

I constructed and/or accept responsibility for construction of this well and its compliance with all Washington well construction standards. Materials used and the information reported are true to my best knowledge and belief.

☐ Driller ☐ Engineer ☑ Trainee

Name: GRAY RICH License No.: 2980T

Signature:

If trainee, Licensed driller is: DAVID MEYER License No.: 2427

Licensed Driller Signature

Drilling Company:

NAME: FOGLE PUMP & SUPPLY, INC. Shop: COLVILLE

ADDRESS: 316 W. 5TH

Colville, WA 99114

Phone: 509-684-2569 Toll Free: 800-533-6518

E-Mail: jeanne@foglepump.com

FAX: 509-684-3032 WEB Site: www.foglepump.com

Contractor's Registration No.: FOGLEPS095L4 Date Log Created: 01/06/2010

RECEIVED

JAN 29 2010

DEPARTMENT OF ECOLOGY - CENTRAL REGIONAL OFFICE

Ground Water Certificate G4-24603C

Well Nos. 2, 3, and 5

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

☐ Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

☒ Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
January 31, 1977	G4-24603	G4-24603P	G4-24603C

NAME
TOWN OF ROCK ISLAND

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
P.O. Box 98	Rock Island	Washington	98850

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown.

PUBLIC WATER TO BE APPROPRIATED

SOURCE
A well

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
	280	448

QUANTITY, TYPE OF USE, PERIOD OF USE
To be used continuously for a municipal supply.

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION—WITHDRAWAL
1000 feet north and 90 feet west of the southeast corner of Sec. 23.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
SE¼ SE¼	23	22	21 E.	44	Douglas

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
49		E. Wenatchee Land Co. Plat

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by Town of Rock Island within Secs. 23-26, T. 22 N., R. 21 E.W.M.

PROVISIONS

Installation and maintenance of an access port as described in Ground Water Bulletin No. 1 is required. An air line and gage may be installed in addition to the access port.

All water wells constructed within the state shall meet the minimum standards for construction and maintenance as provided under RCW 18.104 (Washington Water Well Construction Act of 1971) and Chapter 173-160 WAC (Minimum Standards for Construction and Maintenance of Water Wells).

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.

Given under my hand and the seal of this office at **Yakima,** *Washington, this* **21st** *day of* **May**, *19* **81**

Department of Ecology

ENGINEERING DATA
OK: M. Wilson
ogr

by Russell K. Taylor
RUSSELL K. TAYLOR, Regional Manager

FOR COUNTY USE ONLY

Appendix H

2021 Sanitary Survey

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
EASTERN DRINKING WATER REGIONAL OPERATIONS
16201 E Indiana Avenue, Suite 1500, Spokane Valley, Washington 99216-2830
711 Washington Relay Service

August 4, 2021

Randy Agnew, Mayor
City of Rock Island
PO Box 99
Rock Island, WA 98850-0099

Subject: Rock Island Water Dept City of, PWS ID #73401; Douglas County
Routine Sanitary Survey Inspection Report – Survey Date: June 16, 2021

Dear Mayor Agnew:

I would like to thank Wyatt Long, Josue Hernandez, and James Zumini, of the City of Rock Island for meeting with me on June 16, 2021 to do a sanitary survey of the water system. I appreciate the time and attention they provided during the visit. We inspected the wells, reservoirs, and related facilities, and photos are enclosed. Please pay close attention to the information in this letter and the attachments. There may be issues of concern and tasks to accomplish within a required timeframe.

Department of Health (DOH) identifies defects in your water system facilities or operations that need your immediate attention below as *significant deficiencies* or *significant findings*. **Significant Deficiencies**, if left unaddressed, have the potential of causing an immediate or potential risk to the health of the water system customers. A **Significant Finding** is a problem that imparts a serious but less direct public health threat than a significant deficiency. If left unaddressed, a significant finding creates a risk to the physical safety, security or reliability of the public water supply.

There is one significant deficiency from the survey that needs follow-up, and it is described below

- Both reservoir access hatches – the gasket material in the lid needs to be replaced such that the seal between the lid and curb is watertight.

Addressing Significant Deficiencies and Significant Findings. Within forty-five (45) days of the date of this letter, you must correct the Significant Deficiencies and Findings.

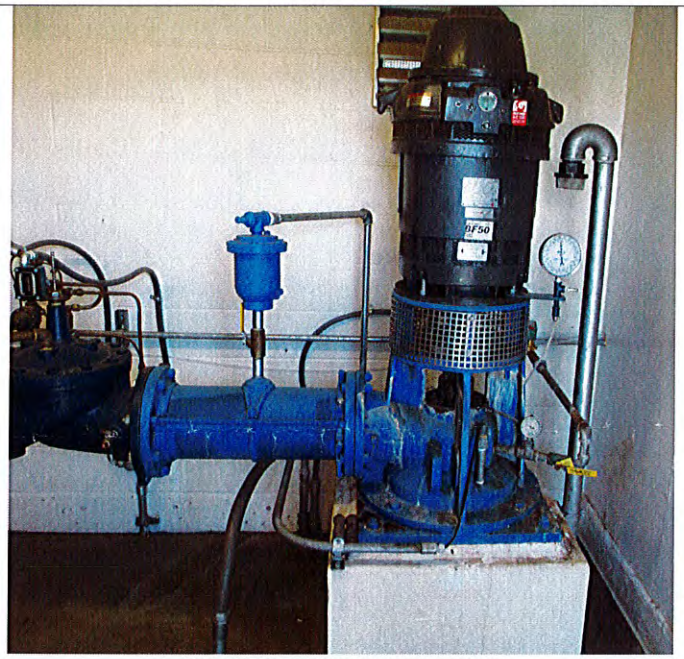
Ensuring your water system completes corrections for each Deficiency and Finding is a high priority for the Office of Drinking Water. Failure to complete corrections within the designated timeframe may result in enforcement action.

Upon completion of corrections, please provide verification by submitting photographs and supporting narrative, to:

- Email: ero.sanitarysurveys@doh.wa.gov or
- Mail: "Attn: Mark Steward, Sanitary Survey Program Manager" at the address listed on our letterhead.

In your transmittal, please provide: (1) Water System Name, (2) PWS ID #, and (3) Dates of Correction(s).

City of Rock Island Water Department, PWS 73401, Douglas Co –
Sanitary Survey conducted by: Jeff Johnson (DOH) – June 16, 2021
Accompanied by Wyatt Long, Josue Hernandez, and James Zumini, City of Rock Island



Well #5 – BBL430 (S04)

Well #5 discharge line

Well #5 chlorinator

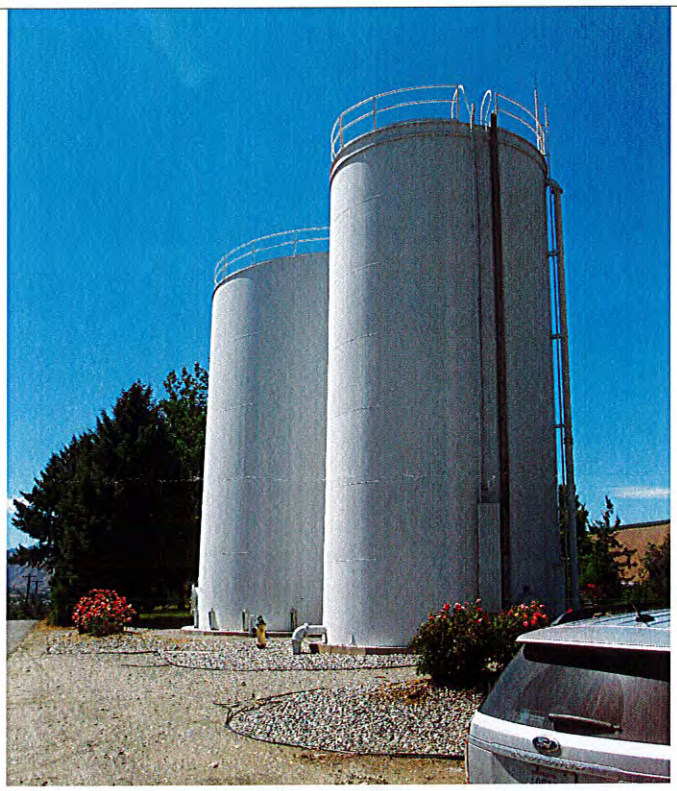
Well #5 emergency generator

Well #2 – ABR438 (S02)

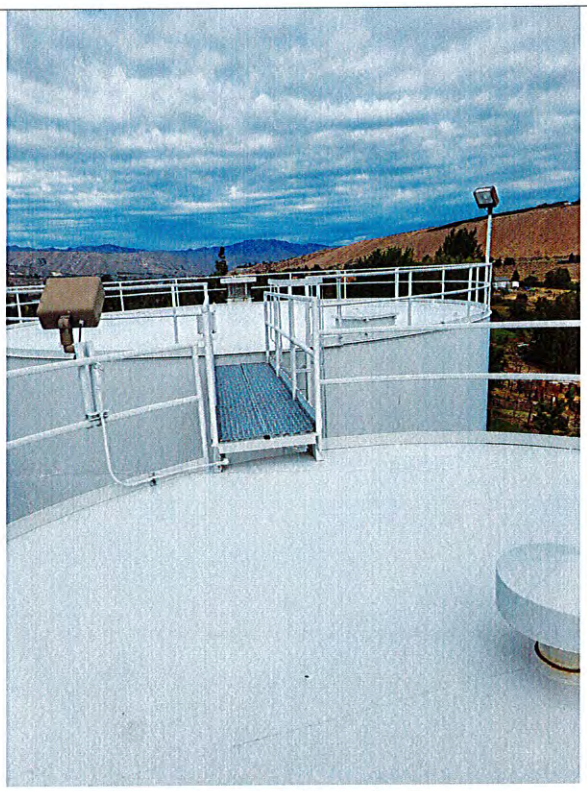
Well #2 and discharge line

Well #2 – discharge line

Well #3 – ABS153 (S03) - **Emergency well, not used due to arsenic at levels above the MCL**



Reservoirs



Reservoir roofs

Reservoir access hatch – **gasket material in the lid needs to be replaced such that the seal between the lid and curb makes is watertight.**

Reservoir access hatch – **gasket material in the lid needs to be replaced such that the seal between the lid and curb makes is watertight.**

Reservoir roof vent

Reservoir roof vent

Appendix I

Coliform Monitoring Plan

Coliform Monitoring Plan for: CITY OF ROCK ISLAND

A. System Information

Water System Name	County	System I.D. Number
CITY OF ROCK ISLAND	DOUGLAS	73401 E
Attach copy of current WFI		
Number of Routine Samples Required Monthly by Regulation: 2	Number of Sample Sites Needed to Represent the Distribution System: 3	

B. Routine and Repeat Sample Locations

Location/Address for Routine Sample Sites	Location/Address for Repeat Sample Sites
X1. 5 N. Garden Ave 5540 Penn Ave	1-1. Sample within 5 1-2. connections up stream 1-3. or down stream. Include 1-4. wells that are in service
X2. 33 Elgin 19 Indiana	2-1. same as X1 above 2-2. 2-3. 2-4.
X3. 13 Jefferson 13 ~~Indiana Avenue~~	3-1. Same as X1 above. 3-2. 3-3. 3-4.

If the number of Routine samples needed to cover the distribution system requires more than three Routine sites, attach additional sheets as needed.

C. Routine Sample Rotation Schedule

Month	Routine Site(s)	Month	Routine Site(s)
January	—	July	X1
February	—	August	X2
March	—	September	X3
April	X1	October	X1
May	X2	November	X2
June	X3	December	X3

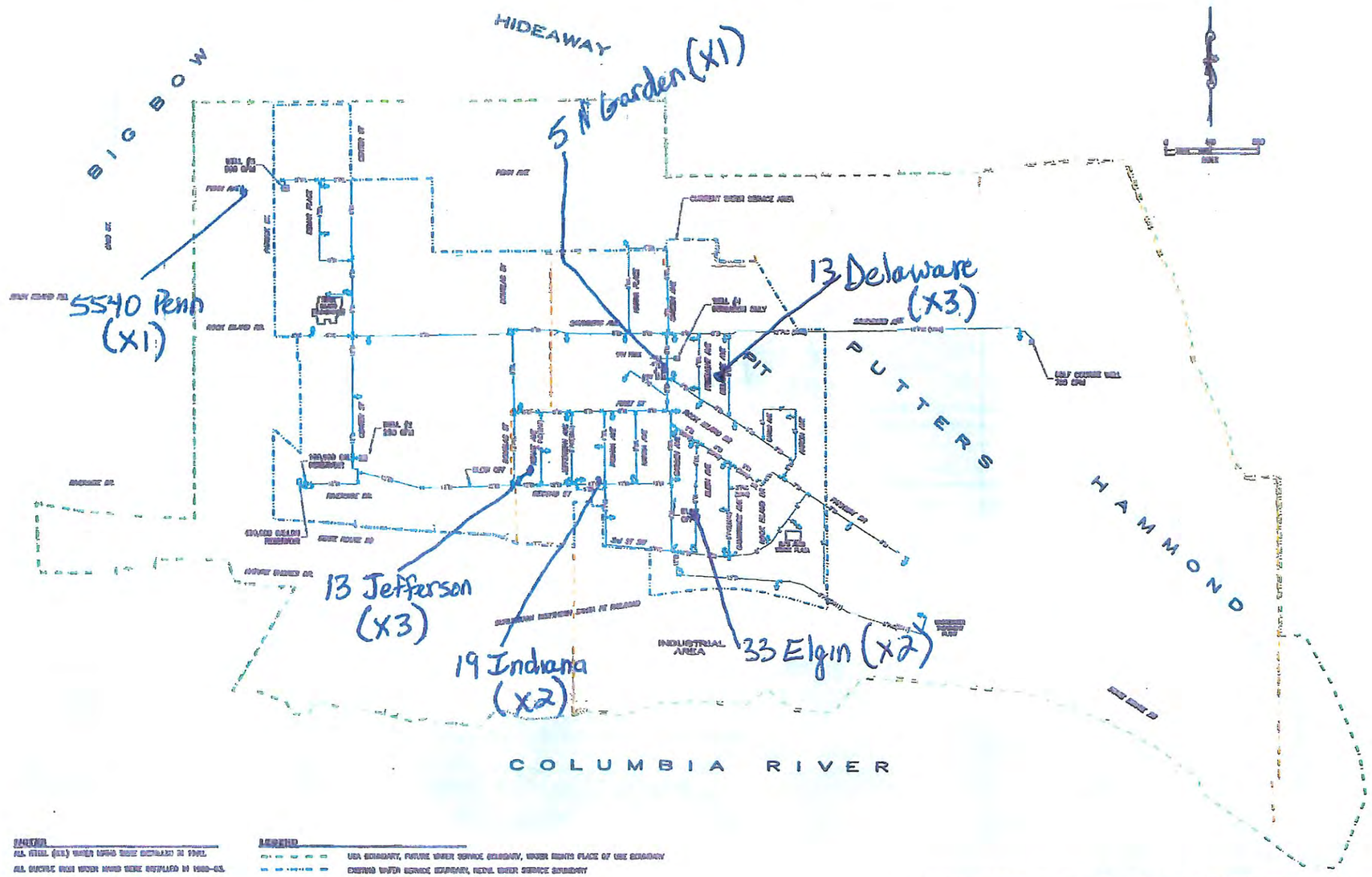
D. Month Following Unsatisfactory Samples

Description of Sample Collection Locations for Month Following Unsatisfactory Samples
The month after a Coliform positive sample, five (5) follow-up samples will be submitted,
Marked as "Routine" type samples. We will collect these samples from the 3 Routine
sample sites, as well as from 1 of the repeat sample sites. Which Repeat sites are used
Will depend on where the contamination occurred.

E. Preparation Information

System Name	Date Plan Completed	Dates Modified
CITY OF ROCK ISLAND	4/18/13	—
Name of Plan Preparer	**Position**	**Daytime Phone #**
NOE ANDRADE (WDM-2, CCS)	OPERATOR	(509) 884-9274
State Reviewer	**Date Last Review**	SDR-668-0343

F. System Map See Attached.



NOTES

ALL STEEL (S.S.) WATER MAINS WERE INSTALLED IN 1941.

ALL DUCTILE IRON WATER MAINS WERE INSTALLED IN 1960-63.

ALL ASBESTOS CONCRETE (AC) WATER MAINS WERE INSTALLED IN 1939.

THIS IS A WATER SYSTEM SCHEMATIC MAP. LOCATIONS OF WATER LINES ARE APPROXIMATE ONLY AND ARE NOT BEEN VERIFIED IN THE FIELD. THIS MAP IS NOT INTENDED FOR ANY CONSTRUCTION ACTIVITIES.

LEGEND

- UGA BOUNDARY, FUTURE WATER SERVICE BOUNDARY, WATER RIGHTS PLACE OF USE BOUNDARY
- EXISTING WATER SERVICE BOUNDARY, RETAIL WATER SERVICE BOUNDARY
- CORPORATE LIMITS
- WATER MAIN W/ SIZE & MATERIAL
- WATER VALVE
- FIRE HYDRANT
- AIR RELEASE VALVE
- REDUCER

SCALE: AS SHOWN
DESIGNED: JJC
DRAWN: TVP/VVS
CHECKED:
APPROVED:
PROJ. NO.: 123-02-33
DATE: 12/22/12

VARELA AND ASSOCIATES, INC.
ENGINEERING AND MANAGEMENT

CITY OF ROCK ISLAND, WASHINGTON
WATER SYSTEM PLAN

COLIFORM MONITORING PLAN

FIGURE
5

Appendix J

Rock Island Emergency Response Plan

CITY OF
ROCK ISLAND

Emergency Response Plan for Rock Island Public Drinking Water System

Contents

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Section 3. Events that Cause Emergencies 6
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Section 9. Plan Approval 21
Section 10.Certificate of Completion 22

The requirement for an emergency response plan

The United States Department of Agriculture, Rural Development (USDA/RD) is requiring that all systems that receive USDA/RD funding must complete a Security Vulnerability Assessment (SVA) and Emergency Response Plan (ERP). In addition to the USDA/RD requirements, the preparation of a SVA and ERP will help improve the management of the water system and will increase the system's ability to respond to emergencies.

Section 1. System Information

Keep this basic information easily accessible to authorized staff for emergency responders, repair people, and the news media.

System information

System Identification Number	PWS ID #73401E	
System Name and Address	Rock Island Water System Saunders Road	
Directions to the System	City Hall 5 N. Garden Ave. Rock Island WA. 98850	
Basic Description and Location of System Facilities	*City Shop* 23 S. Garden Ave. *R.I. WWTP* 201 S. 4TH ST.	
Location/Town	Rock Island, Washington	
Population Served and Service Connections from Division of Drinking Water	1220 people	400 connections

Records		
System Owner	City of Rock Island	
Name, Title, and Phone Number of Person Responsible for Maintaining and Implementing the Emergency Plan	Wyatt Long, WDM 2 Public Works Director	(509) 884-1261 Office Phone (509) 860-3521 Cell

Section 2.
Chain of Command – Lines of Authority

The first response step in any emergency is to inform the person at the top of this list, who is responsible for managing the emergency and making key decisions.

Chain of command – lines of authority

Name and Title	Responsibilities During an Emergency	Contact Numbers
Randy Agnew, Mayor	Verify implementation of emergency plan Ensure that staff has all equipment and support needed to respond to emergency Notify public agencies if required	509-679-7557
Wyatt Long, Public Works Director	Implement emergency plan Notify city management Notify public agencies if required	509-860-3521

Section 3.
Emergency Response Procedures

The following table describes the appropriate response for various potential types of emergencies.

Events that cause emergencies

Potential Emergency	Action
Fire	• Provide assistance to fire department as needed.
Contaminant spill near wells	• Contact police and fire department – 911 • Contact DOE spill response unit – (509) 456-2926 • Contact DOH (ERO 509-456-3115, emergency after-hours hotline 877-481-4901) • Shut down well pump(s) if contaminant could reach aquifer. If necessary, notify public of emergency water consumption restrictions by way of nearest available television station.
Main break	• Isolate breach by closing nearest valves. • Repair main. If parts not available from City inventory, contact supplier for replacement.
Power outage at wells	• Contact local power company. • Demand temporarily supplied from storage. • If outage expected to last longer than a day, put out the word regarding needed use reductions.
Controls between reservoir & sources are temporarily disabled	• Operate well pumps manually as necessary until repairs can be made.
Well pump out of service	• Contact well pump and/or electrical repair company as necessary.
Backflow incident	• Contact Rock Island operator at (509) 884-1261. • If unknown source, determine contaminant and then immediately inspect facilities suspected of using or storing this type of contaminant. • Contact local health district if assistance is needed in determining type or source of contaminant. • When source is determined, shut off water service until plumbing modifications can be made. • Contact DOH (ERO 509-456-3115, emergency after-hours hotline 877-481-4901)

Section 4.
Emergency Notification

Notification call-up lists - Use these lists to notify first responders of an emergency.

Emergency Notification List				
Organization or Department	**Name & Position**	**Telephone**	**Night or Cell Phone**	**Email**
Local Law Enforcement	Douglas County Sheriff	(509) 884-1535	911	
Fire Department	Rock Island Fire Dept. Doug. Co. Fire Dist. 2	(509) 884-8206 (509) 884-6674	911	
Emergency Medical Services	Ballard Ambulance Lifeline Ambulance	(509) 662-5111 (509) 663-8091	911	
Water Operator (if contractor)	Wyatt Long	(509) 860-3521		
Primacy Agency Contact				
Hazmat Hotline	HazMat Spill Reporting - Regional Response Team	(800) 424-8802		
Interconnected Water System	Not Applicable			
Neighboring Water System (not connected)	East Wenatchee Water District	509-884-3569		
RCAP Contact				
Rural Water Contact	Chad Short or Mike Pendagraph Evergreen Rural Water	1-800-272-5381		

Priority Customers				
Organization or Department	**Name & Position**	**Telephone**	**Night or Cell Phone**	**Email**
Hospitals or Clinic(s)	None in City Limits			
Public or Private Schools	Office Mgr Rock Island Elementary	(509) 884-5023		
Wastewater Treatment Plant	Wyatt Long	509-884-1261	509-860-3521	Publicwrork@rockislandwa.gov
Adult Care Facility	None in City Limits			

State, Federal or Tribal Notification List				
Organization or Department	**Name & Position**	**Telephone**	**Night or Cell Phone**	**Email**
State or Tribal Police	N/A			
Regulatory Agency State/Federal/Tribal	N/A			
Authorized Testing Laboratory	Cascade Analytical	509-662-1888		

Service / Repair Notifications				
Organization or Department	**Name & Position**	**Telephone**	**Night or Cell Phone**	**Email**
Electric Utility Co.	Douglas County PUD	509-884-7191		
Electrician	Scott Cruz All phase electric	509-679-2605		
Gas/Propane Supplier	N/A			
Water Testing Lab.	Cascade Analytical	509-662-1888		
Sewer Utility Co.	Wyatt Long R.I. WWTP operator	509-884-1261	509-860-3521	publicworks@rockislandwa.gov
Telephone Co.	LocalTel	888-8888		
Plumber	Apple Valley Pluming	509-884-7960		
Pump Supplier	Pump Tech, out of Moses Lake	509-766-6330		
"Call Before You Dig"	811	811		
Rental Equipment Supplier	Star Rentals	509-663-0064	Ken , 509-421-7367	
Chlorine Supplier	Keller Supply	509-664-7000		
Well Drilling Co.	Tumwater Drilling	509-548-5361		
Pipe Supplier	Consolidated Sup.	509-662-7128		

SCADA/Telemetry/ Radio	Adam Bluher	509-521-8987		

Media Notification List				
Organization or Department	**Name & Position**	**Telephone**	**Night or Cell Phone**	**Email**
Newspaper - Local	Wenatchee World	509-663-5161		
Newspaper – Regional/State/Tribal				
Radio	KW3	509-665-6565		
Radio	La Nueva	509-662-9900		
TV Station	N/A			

Notification procedures

Notify water system customers of potential water shortage

Who is Responsible:	City Clerk
Procedures:	Posting Notice Mailings if time allows Public Service Announcements

Alert local law enforcement, state, federal, or tribal drinking water officials, and local health agencies

Who is Responsible:	City Clerk
Procedures:	Telephone

Contact service and repair contractors

Who is Responsible:	System Operator
Procedures:	Telephone

Contact neighboring water systems, if necessary

Who is Responsible:	Not Applicable
Procedures:	

Procedures for issuing a health advisory

Who is Responsible:	System Operator
Procedures:	Call Chelan-Douglas Health District and local agencies Post Notice Public Service Announcements

Other procedures as necessary

Who is Responsible:	
Procedures:	

Section 5.
Effective Communication

Communication with customers, the news media, and the general public is a critical part of emergency response.

Designated public spokesperson

Designate a spokesperson (and alternate) and contact your local primacy agency for delivering messages to the news media and the public.

Designate a spokesperson and alternates

Spokesperson	Alternate
Randy Agnew	City Clerk

Health advisories

During events when water quality and human health are in question, it may be necessary to issue a health advisory that gives advice or recommendations to water system customers on how to protect their health when drinking water is considered unsafe. These advisories are issued when the health risks to the consumers are sufficient, in the estimation of the water system, state or tribal, or local health officials, to warrant such advice.

Health advisories usually take the form of a drinking water warning or boil water advisory. Communication during these times is critical. Health advisories should always be well thought out and provide very clear messages.

The U.S. Environmental Protection Agency has put together a number of tools, including fact sheets, brochures, forms, and templates to help prepare for a health advisory. These are on the web at: http://www.epa.gov/safewater/pn.html

Section 6.
Response Actions for Specific Events

In any event, there are a series of general steps to take:

1. Analyze the type and severity of the emergency;
2. Take immediate actions to save lives;
3. Take action to reduce injuries and system damage;
4. Make repairs based on priority demand, and
5. Return the system to normal operation.

The following tables identify the assessment, set forth immediate response actions, define what notifications need to be made, and describe important follow-up actions.

A. Power outage

Assessment	Power out
Immediate Actions	Make sure backup generators are running
Notifications	Contact Douglas County PUD
Follow-up Actions	Find out how long the power is going to be out and keep a checking up on our backup generators.

B. Distribution line break

Assessment	Find out where the leak is.
Immediate Actions	Turn off water main
Notifications	Public works crew
Follow-up Actions	Find out what is needed to fix and repair.

C. Chlorine treatment equipment failure

Assessment	Fine the leak and or problem
Immediate Actions	Turn off the chlorination pump off
Notifications	Contact the operator
Follow-up Actions	Fix or replace the pump as needed Monitor chlorine levels

D. Treatment equipment

Assessment	N/A
Immediate Actions	
Notifications	
Follow-up Actions	

E. Source pump failure

Assessment	Pump not running or other unknown
Immediate Actions	Contact operator
Notifications	Notify Mayor or proper person depending on issue
Follow-up Actions	Verify pump in is working order

F. Microbial (coliform, *E. coli*) contamination

Assessment	Positive microbial (coliform, E.coli)
Immediate Actions	Contact operator and or the DOH.
Notifications	Mayor and or public depending on what the actual issue is
Follow-up Actions	Contact local agencies and lab; re-test as needed

G. Chemical contamination

Assessment	Work with lab to determine nature of contamination
Immediate Actions	Contact DOH and lab
Notifications	Notify Mayor, DOH, EPA, other agencies, and public if necessary
Follow-up Actions	Re-test periodically to ensure contamination is cleared.

H. Vandalism or terrorist attack

Assessment	Unknown
Immediate Actions	Call 911
Notifications	Mayor or appropriate personal depending on the issue
Follow-up Actions	Work with local law enforcement

I. Reduction or loss of water in the well

Assessment	Reduction or loss
Immediate Actions	Contact water operator

Notifications	Notify mayor
Follow-up Actions	Work with engineer to provide long-term solution

J. Drought

Assessment	Water loss
Immediate Actions	Same as above
Notifications	
Follow-up Actions	

K. Flood

Assessment	Determine whether flood water impacts system function or causes contamination
Immediate Actions	Contact mayor and public works personnel
Notifications	Close roads, preserve system integrity, monitor water quality
Follow-up Actions	Continue monitoring

L. Earthquake

Assessment	Potential structural damage?
Immediate Actions	Assess damage
Notifications	Notify Emergency Services and Mayor
Follow-up Actions	Monitor system integrity

M. Hazardous materials spill in vicinity of sources or system lines

Assessment	Determine nature of spill or hazardous material
Immediate Actions	Contact Ecology and DOH (also local emergency management)
Notifications	Douglas County Department of Emergency Management or EPA
Follow-up Actions	Work with agencies to contain and clean up as needed

N. Electronic equipment failure

Assessment	Telemetry communication is down
Immediate Actions	Check out key components of the city like water system and sewer plant
Notifications	Notify electrical engineers
Follow-up Actions	Work with engineers to ensure long-term solution to problem and continue monitoring

O. Cyber attack

Assessment	Determine extent of breach
Immediate Actions	Contact Tech Support
Notifications	Notify Mayor
Follow-up Actions	Work with Tech Support to restore system integrity and increase security

P. Other

Assessment	
Immediate Actions	
Notifications	
Follow-up Actions	

Section 7.
Alternative Water Sources

Intertie to adjacent water supply system

Water Systems Within One-Quarter Mile of our System	Feasibility of Connecting
None	

Alternate source(s) of water

Alternative Sources	Names	Phone	Availability	Is the Water Safe for Drinking?
Bottled water Suppliers for potable water use	Costco Cascade Quality Water	509-886-9212 509-662-8865	Pallets.	Yes
Tanker trucks in the area available to deliver bulk water for non potable use	Unknown			

Section 8.
Returning to Normal Operation

Returning to normal operations

Action	Description and Actions
Check water pressure	Pressure gauge
Test Water Quality	Take samples to lab
Make sure lines are delivering water	Test at various locations throughout delivery system
Check chlorine residual levels	Take samples at various locations
Test telemetry and electronic systems	Ensure systems are communicating and providing proper readings
Notification	Notify Council, Mayor, agencies, and/or public that system is functioning and clear

Section 9.
Plan Approval

Plan approval

This plan is officially in effect when reviewed, approved, and signed by the following people:

Name/Title	Signature	Date
Randy agnew, Mayor		

Section 10.
Certificate of Completion

I certify to the United States Department of Agriculture, Rural Development (USDA/RD) that this community water system has completed an Emergency Response Plan (ERP) that incorporates the results of the Security Vulnerability Assessment (SVA) completed for the system.

I certify that this document was prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information (Safe Drinking Water Act (42U.S.C. 300f et seq.).

Mail the completed certificate only (do not send your SVA or ERP) to the appropriate USDA Rural Development office.

Public Water System ID Number: 73401E

System Name: Rock Island Water System

Address: Rock Island, Washington

Print Name of Person Authorized to Sign this Certification on behalf of the System:

Randy Agnew **Title:** Mayor

Signature: _____

Phone: 509-884-1261 **Fax:** 509-886-5069 **Email:** mayor@rockislandwa.gov

Received Technical Assistance from the following:

☐ Rural Community Assistance Partnership

(CRG, Great Lakes RCAP/WSOS, MAP, RCAC, RCAP Solutions, Southeast RCAP)

☐ Rural Water Association

Completing the following:

☐ Security Vulnerability Assessment

☐ Emergency Response Plan

Disclaimer

This document contains information on how to plan for protection of the assets of your water system. The work necessarily addresses problems in a general nature. You should review local, state, tribal (if applicable), and federal laws and regulations to see how they apply to your specific situation.

Knowledgeable professionals prepared this document using current information. The authors make no representation, expressed or implied, that this information is suitable for any specific situation. The authors have no obligation to update this work or to make notification of any changes in statutes, regulations, information, or programs described in this document. Publication of this document does not replace the duty of water systems to warn and properly train their employees and others concerning health and safety risks and necessary precautions at their water systems.

Rural Community Assistance Partnership, Inc. assumes no liability resulting from the use or reliance upon any information, guidance, suggestions, conclusions, or opinions contained in this document.

Rural Community Assistance Partnership, Inc.
1522 K Street, N.W., Suite 400
Washington, D.C. 20005
888/321-7227

Appendix K

Wellhead Protection Program

Ground Water Contamination
Susceptibility Assessment Survey Form
Version 2.2

IMPORTANT! Please complete one form for each ground water source (well, wellfield, spring) used in your water system.
Photocopy as necessary.

PART I: **System Information**

Well owner/manager: City of Rock Island

Water system name: City of Rock Island Water Department

County: Douglas

Water system number: 73401 Source number: (S04)

Well depth: 98 feet (From Well Driller's Log)

Source name: Golf Course Well (Well #5)

WA well identification tag number: B B L - 4 3 0

☐ Well not tagged

Number of connections: 301 Population served: 739

Township: 22 N Range: 22 E

Section: 30 ¼ ¼ Section: NW ¼ NW ¼

Latitude/longitude (if available): 47° 22' 36" N / 120° 07' 54" W

How was latitude/longitude determined?

___ Global positioning device ___ survey ___ topographical map
X other: Google Earth

*Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

PART II: **Well Construction and Source Information**

1) Date well originally constructed: 12 / 4 / 09 month/day/year

last reconstruction: ___/___/___ month/day/year

☐ Information unavailable

2) Well driller: Fogle Pump & Supply

316 W. 5th, Colville, WA 99114

Driller's License No. 2427

☐ Well driller unknown

3) Type of well:

X Drilled: ☐ rotary ☐ bored ☒ cable (percussion) ☐ Dug

____ other: ☐ spring(s) ☐ lateral collector (Ranney)

☐ driven ☐ jetted ☐ other: _____

4) Well report available ☒ Yes (attach copy to form) ☐ No

5) Average pumping rate: 700 (gallons/min)

Source of information based on well analysis by Geo Engineers and decision by City

If not documented, how was pumping rate determined? N/A

☐ Pumping rate unknown

6) Is this source treated?

☒ yes ☐ no

If so, what type of treatment:

☒ disinfection ☐ filtration ☐ carbon filter ☐ air stripper ☐ other

Purpose of treatment (describe materials to be removed or controlled by treatment):

Chlorination helps the Town avoid positive coliform samples

7) If source is chlorinated, is a chlorine residual maintaiued: ☒ Yes ☐ No

Residual level: ≈2-3 mg/l (At the point closest to the source.)

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

☐ <20 ft ☐ 20-50ft ☒ 50-100ft ☐ 100-200ft ☐ >200ft

☐ information unavailable

2) Depth to ground water (static water level):

☐ <20ft ☒ 20-50ft ☐ 50-100ft ☐ > 100ft

☐ flowing well/spring (artesian)

How was water level determined?

☒ well log ☐ other _____

☐ depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

N/A psi (pounds per square inch) or

N/A feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: ☐ Yes ☐ No

5) Wellhead elevation (height above mean sea level): 645 feet

How was elevation determined? ☐ topographic map ☐ Drilling/Well Log ☐ altimeter

☒ other: Survey from well pump station and t-main design

☐ information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to assistance package for example.)

_____ evidence of a confining layer in well log

X no evidence of a confining layer in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the **bottom** of the **lowest confining layer**? ☐ Yes ☐ No

☐ information unavailable

7) Sanitary setback:

☐ < 100ft* ☒ 100-120ft ☐ 120-200 ft ☐ >200ft

* If less than 100ft, describe the site conditions:

_____

_____

_____

_____

8) Wellhead construction:

☒ wellhead enclosed in a wellhouse

☐ controlled access (describe): _____

_____

☐ other uses for wellhouse (describe): _____

_____

☐ no wellhead control

9) Surface seal:

☐ 18 ft

☐ less than 18 ft (no Department of Ecology approval)

☐ less than 18 ft (Approved by Ecology, include documentation)

☒ greater than 18 ft (surface sealed to depth of 50 ft)

☐ depth of seal unknown

☐ no surface seal

10) Annual rainfall (inches per year):

☒ <10 in/yr ☐ 10-25 in/yr ☐ >25 in/yr

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: 45,200,000 (gallons)

How was this determined?

☐ meter

☒ estimated: ☐ pumping rate (_____)

☐ pump capacity (_____)

☒ other: 70% of annual system demand

2) "Calculated Fixed Radius" estimate of ground water movement:
(see Instruction Packet)

6-month ground water travel time: 465 feet

1-year ground water travel time: 660 feet

5-year ground water travel time: 1,480 feet

10-year ground water travel time: 2,090 feet

Information available on length of screened/open interval?

☒ Yes ☐ No

Length of screened/open interval: 20 feet
(From Geo Engineers As-Built Diagram and field observation)

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6- month time of travel boundary?

☒ Yes ☐ No (mark and identify on map)

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6-month time of travel boundary?

☐ Yes ☒ No (mark and identify on map)

Comments:_____

PART V: Assessment of Water Quality

1) Regional sources of risk to ground water:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five-year ground water travel time:

	6 month	1 year	5 year	unknown
◦ likely pesticide application	X	X	X	
◦ stormwater injection wells				
◦ other injection wells				
◦ abandoned ground water well				
◦ landfills, dumps, disposal areas				X
◦ known hazardous materials clean-up site				
◦ water system(s) with known quality problems				
◦ population density >1 house/acre				
◦ residences commonly have septic tanks	X	X	X	
◦ Wastewater treatment lagoons				
◦ sites used for land application of waste				

Mark and identify on map any of the risks listed above which are located within the 6-month time of travel boundary. (Please include a map of the wellhead and time of travel areas with this form. Please locate and mark any of the following.)

If other recorded or potential sources of ground water contamination exist within the ten-year time of travel circular zone around your water supply, please describe:

The well is located on the same property as the golf course. The most common potential contaminant inside the 10-year time of travel zone is pesticide application on the golf course and surrounding orchards. Nearby City and County roads may occasionally receive herbicide application. An RV park at the outer edge of the 10-year time of travel zone currently utilizes a large onsite septic drainfield; however once the City installs sewer, the RV park will connect and discontinue use of the drainfield. The City received anecdotal reports that an old burn or waste site may have existed approximately 1,000 ft southeast of the well site; the City drilled a monitoring well at the reported site prior to drilling the production well and found no evidence that the reported burn or waste site affects surrounding water quality.

2) Source-specific water quality records:

Please indicate the occurrence of any test results since 1986 that meet the following conditions: (Unless listed on assessment, MCLs are listed in assistance package.)

A. **Nitrate:** (Nitrate MCL = 10 mg/l)	YES	NO
Results greater than MCL		X
<2 mg/liter nitrate		X
2-5 mg/liter nitrate	X	
>5 mg/liter nitrate		X
Nitrate sampling records unavailable		X

B. **VOCs:** (VOC detection level 0.5 ug/l or 0.0005 mg/l)	YES	NO
Results greater than MCL or SAL		X
VOCs detected at least once		X
VOCs never detected	X	
VOC sampling records unavailable		X

C. **EDB/DBCP:** (EDB MCL = 0.05 ug/l or 0.00005 mg/l. DBCP MCL = 0.2 ug/l or 0.0002 mg/l.)	YES	NO
EDB/DBCP detected below MCL at least once		X
EDB/DBCP detected above MCL at least once		X
EDB/DBCP never detected	X	
EDB/DBCP tests required but not yet completed		X
EDB/DBCP tests not required		X

D. **Other SOCs (Pesticides):**	YES	NO
Other SOCs detected (pesticides and other synthetic organic chemicals)		X
Other SOC tests performed but none detected (list test methods in comments)		X
Other SOC tests not performed	X	

If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list test methods here:_____

E. **Bacterial contamination:**

	YES	NO
Any bacterial detection(s) in the past 3 years in samples taken from the source (not distribution sampling records)?	_____	X
Has source (in past 3 years) had a bacteriological contamination problem found in distribution samples that was attributed to the source?	_____	X
Source sampling records for bacteria unavailable	_____	X

PART VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution

The following questions will help identify those ground water systems which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for these sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the 10-year time of travel zone of the CFR? (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge?)

☒ Yes ☐ No

Describe with references to map produced in Part IV:

A steep hill side exists to the north of the well site. Several small lakes also exist inside the 10-year time of travel boundary.

2) Aquifer Material:

A) Does the drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?

☐ Yes ☒ No

B) Does the drilling log, well log or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?

☒ Yes ☐ No

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

☒ Yes ☐ No

4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs?

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within…

	YES	NO	unknown
<6-month travel time		X	
6 month—1 year travel time	X		
1—5 year travel time			X
5—10 year travel time			X

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within…

	YES	NO	unknown
<1-year travel time			X
1—5 year travel time			X
5—10 year travel time			X

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

Suggestions and Comments

Did you attend one of the susceptibility workshops? ☐ Yes ☒ No

Did you find it useful? ☐ Yes ☐ No

Did you seek outside assistance to complete the assessment? ☒ Yes ☐ No

---

This form and instruction packet is still in the process of development. Your comments, suggestions and questions will help us upgrade and improve this assessment form. If you found particular sections confusing or problematic, please let us know. How could this susceptibility assessment be improved or made clearer? Did the instruction package help you find the information needed to complete the assessment? How much time did it take you to complete the form? Were you able to complete the assessment without additional/outside expertise? Do you feel the assessment was valuable as a learning experience? Any other comments or constructive criticisms you have would be appreciated.

CITY OF ROCK ISLAND
5 N. GARDEN / P.O. BOX 99
ROCK ISLAND, WA. 98850

WELL HOUSE #2

1. AGRICULTURE; ORCHARD
2. SEPTIC SYSTEMS
3. ABANDONED WELL

Ground Water Contamination
Susceptibility Assessment Survey Form
Version 2.1

IMPORTANT! Please complete one form for each ground water source (well, wellfield, spring) used in your water system. Photocopy as necessary.

PART I: System Information

Well owner/manager : TOM PORTER

Water system name : CITY ROCK ISLAND

County: DOUGLAS

Water system number: X 73401E Source number: X

Well depth: 114 (ft.) (*From WFI form*)

Source name: WELL

WA well identification tag number: ___ ___ ___ - ___ ___ ___

X well not tagged

Number of connections: 252 Population served: 540

Township: ROCK ISLAND Range: ____

Section: 25, T22N, R21E 1/4 1/4 Section: N.W. 1/4 OF N.W. 1/4

Latitude/longitude (if available): ____ / ____

How was lat./long. determined?

____ global positioning device ____ survey ____ topographic map
____ other: ____

* Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: 11 / __ / 61 month/day/year

last reconstruction: __ / __ / __ month/day/year

____ information unavailable

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

___ < 20 ft ___ 20–50 ft ___ 50–100 ft X 100–200 ft ___ >200 ft

___ information unavailable ('< ' *means less than;* '> ' *means greater than*)

2) Depth to ground water (static water level):

___ < 20 ft X 20–50 ft ___ 50–100 ft ___ >100 ft

___ flowing well/spring (artesian)

How was water level determined?

___ well log ___ other: _____

___ depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

_____ psi (pounds per square inch) N/A
or
_____ feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: ___ YES X NO

5) Wellhead elevation (height above mean sea level): _____ (ft)

How was elevation determined? ___ topographic map ___ Drilling/Well Log ___ altimeter

___ other: _____

X information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to assistance package for example.)

___ evidence of a confining layer in well log

___ no evidence of a confining layer in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the ~~top of the open interval~~? X YES ___ NO

___ information unavailable

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: _____ (gallons)

How was this determined?

X meter

___ estimated: ___ pumping rate (_____)

___ pump capacity (_____)

___ other: _____

2) "Calculated Fixed Radius" estimate of ground water movement:
(see Instruction Packet)

6 month ground water travel time : _____(ft)

1 year ground water travel time : _____(ft)

5 year ground water travel time: _____(ft)

10 year ground water travel time: _____(ft)

Information available on length of screened/open interval?

__ YES X NO

Length of screened/open interval: _____(ft)

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? ___ YES X NO (mark and identify on map).

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? ___ YES X NO (mark and identify on map).

Comments: _____

_____

_____

_____

_____

2) Source specific water quality records:

Please indicate the occurrence of any test results since 1986 that meet the following conditions: (Unless listed on assessment, MCLs are listed in assistance package.)

A. Nitrate: (Nitrate MCL = 10 mg/l)	YES	NO
Results greater than MCL	___	___
< 2 mg/liter nitrate	___	___
2–5 mg/liter nitrate	___	___
> 5 mg/liter nitrate	___	✓
___ Nitrate sampling records unavailable		

B. VOCs: (VOC detection level 0.5 ug/l or 0.0005 mg/l.)	YES	NO
Results greater than MCL or SAL	___	___
VOCs detected at least once	___	___
VOCs never detected	___	✓
___ VOC sampling records unavailable		

C. EDB/DBCP:	YES	NO
(EDB MCL = 0.05 ug/l or 0.00005 mg/l. DBCP MCL = 0.2 ug/l or 0.0002 mg/l.)		
EDB/DBCP detected below MCL at least once	___	___
EDB/DBCP detected above MCL at least once	___	___
EDB/DBCP never detected	___	✓
___ EDB/DBCP tests required but not yet completed		
___ EDB/DBCP tests not required		

D. Other SOCs (Pesticides):	YES	NO
Other SOCs detected (pesticides and other synthetic organic chemicals)	___	✓
___ Other SOC tests performed but none detected (list test methods in comments		
___ Other SOC tests not performed		

If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list test methods here: _____

_____

_____

_____

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

___ YES ✓ NO

4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs?

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within...

	YES	NO	unknown
< 6 month travel time	___	✓	___
6 month–1 year travel time	___	___	___
1–5 year travel time	___	___	___
5–10 year travel time	___	___	___

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within...

	YES	NO	unknown
< 1 year travel time	✓	___	___
1–5 year travel time	___	___	___
5–10 year travel time	___	___	___

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

CITY OF ROCK ISLAND
5 N. GARDEN / P.O. BOX 99
ROCK ISLAND, WA. 98850

WELL HOUSE #3

1. AGRICULTURE; ORCHARD
2. SEPTIC SYSTEMS
3. ABANDONED WELL

Ground Water Contamination
Susceptibility Assessment Survey Form
Version 2.1

IMPORTANT! Please complete one form for each ground water source (well, wellfield, spring) used in your water system. Photocopy as necessary.

PART I: System Information

Well owner/manager : TOM PORTER

Water system name : CITY ROCK ISLAND

County: DOUGLAS

Water system number: 73401E Source number: _____

Well depth: 176 (ft.) (*From WFI form*)

Source name: WELL

WA well identification tag number: ___ ___ ___-___ ___ ___

X well not tagged

Number of connections: 252 Population served: 540

Township: ROCK ISLAND Range: _____

Section: 23, T22N, R21E 1/4 1/4 Section: S.E. 1/4 of S.E. 1/4

Latitude/longitude (if available): _____/_____

How was lat./long. determined?

_____ global positioning device _____ survey _____ topographic map

____other: _____

* Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: 9 / __ / 78 month/day/year

last reconstruction: __ / __ / __ month/day/year

_____ information unavailable

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

___ < 20 ft ___ 20–50 ft ___ 50–100 ft ___ 100–200 ft ___ >200 ft

X information unavailable ('< ' *means less than;* '> ' *means greater than*)

2) Depth to ground water (static water level):

___ < 20 ft ___ 20–50 ft X 50–100 ft ___ >100 ft

___ flowing well/spring (artesian)

How was water level determined?

X well log ___ other: _____

___ depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

_____ psi (pounds per square inch)
or
_____ feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: ___ YES X NO

5) Wellhead elevation (height above mean sea level): _____ (ft)

How was elevation determined? ___ topographic map ___ Drilling/Well Log ___ altimeter

___ other: _____

X information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to assistance package for example.)

___ evidence of a confining layer in well log

___ no evidence of a confining layer in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the top of the open interval? ___ YES ___ NO

X information unavailable

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: _____ (gallons)

How was this determined?

___ meter

___ estimated: ___ pumping rate (_____)

___ pump capacity (_____)

___ other: _____

2) "Calculated Fixed Radius" estimate of ground water movement:
(see Instruction Packet)

6 month ground water travel time : _____(ft)

1 year ground water travel time : _____(ft)

5 year ground water travel time: _____(ft)

10 year ground water travel time: _____(ft)

Information available on length of screened/open interval?

___ YES X NO

Length of screened/open interval: _____(ft)

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? X YES ___ NO (mark and identify on map).

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? ___ YES X NO (mark and identify on map).

Comments: _____

_____

_____

_____

_____

2) Source specific water quality records:

Please indicate the occurrence of any test results since 1986 that meet the following conditions: (Unless listed on assessment, MCLs are listed in assistance package.)

A. Nitrate: (Nitrate MCL = 10 mg/l)	YES	NO
Results greater than MCL	___	___
< 2 mg/liter nitrate	___	___
2–5 mg/liter nitrate	___	___
> 5 mg/liter nitrate	___	✓
___ Nitrate sampling records unavailable		

B. VOCs: (VOC detection level 0.5 ug/l or 0.0005 mg/l.)	YES	NO
Results greater than MCL or SAL	___	___
VOCs detected at least once	___	___
VOCs never detected	___	✓
___ VOC sampling records unavailable		

C. EDB/DBCP:	YES	NO
(EDB MCL = 0.05 ug/l or 0.00005 mg/l. DBCP MCL = 0.2 ug/l or 0.0002 mg/l.)		
EDB/DBCP detected below MCL at least once	___	___
EDB/DBCP detected above MCL at least once	___	___
EDB/DBCP never detected	___	✓
___ EDB/DBCP tests required but not yet completed		
___ EDB/DBCP tests not required		

D. Other SOCs (Pesticides):	YES	NO
Other SOCs detected	___	✓
(pesticides and other synthetic organic chemicals)		

___ Other SOC tests performed but none detected
(list test methods in comments

___ Other SOC tests not performed

If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list test methods here: _____

_____

_____

_____

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sonrces located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

___ YES ___ NO

4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs?

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within...

	YES	NO	unknown
< 6 month travel time	___	___	___
6 month–1 year travel time	X	___	___
1–5 year travel time	___	___	___
5–10 year travel time	___	___	___

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within...

	YES	NO	unknown
< 1 year travel time	X	___	___
1–5 year travel time	___	___	___
5–10 year travel time	___	___	___

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

_____

_____

_____

_____

_____

_____

_____

_____

VARELA & ASSOCIATES, INC.
ENGINEERING AND MANAGEMENT
601 W. Mallon Avenue, Suite A, Spokane, WA 99201 ◊ (509) 328-6066 ◊ (509) 328-1388 fax ◊ www.varela-engr.com

Memo

TO: File
FROM: Jesse Cowger, PE
DATE: April 6, 2010
RE: Golf Course Well Source Approval
Calculated Fixed Radius

Formula: Washington State Wellhead Protection Program Guidance Document, pg 30

$$R = \sqrt{\frac{Q \times t}{\pi \times n \times H}}$$

where;

R = radius of travel time
Q = pumping rate of well (annual volume in cu.ft.)
t = travel time to well (1, 5, and 10 year)
π = 3.1416
n = aquifer porosity; 0.22 (if a site specific estimate of aquifer porosity is lacking, a generalized value of 0.22 may be substituted)
H = open interval or length of well screen; based on well report from driller and construction observation, this well has 20 ft of well screen from 73' to 93'

Q is unknown because the well is not yet in operation. The City intends to operate the well as the lead supply for the system and only use Well #2 as a backup. In 2009 the City used approximately 64.6 MG from Wells #2 and #3; approximately 58.4 MG came from Well #2. The following assumptions lead to an estimate of annual volume to be withdrawn from the Golf Course Well:

- The Golf Course Well will supply approximately 90% of annual system demand

The following calculations estimate the annual volume of water the City will withdraw from the Golf Course Well

V = 64.6 MG x 70%
V = 45.2 MG
V = 6,049,000 cf

The preceding values and assumptions yield the following radii for times of travel listed:
R = 1 yr/660 ft, 5 yr/1,480 ft, 10 yr/2,090 ft

Table 11 - *Water Rights* provides a summary of the water rights status for the two wells. While the combined withdrawal from the wells is within both instantaneous and maximum annual volume limits, Well No. 3 is currently pumped at rates exceeding its instantaneous water right by 220 gpm. The City must apply for an additional point of withdrawal for its Well No. 2 water right if it intends to continue this pumping regime. That would permit cumulative instantaneous withdrawals of 780 gpm, with a maximum of 500 gpm pumped from Well No. 2, and cumulative annual withdrawals of 616 acre-ft/year, with no greater than 168 acre-ft/year pumped from Well No. 2.

The City does not anticipate applying for additional water rights within the next 20 years. It is likely that the City will purchase water from East Wenatchee Water District via a future intertie.

Table 11: Water Rights

	Well No.2	Well No. 3	Combined Total
Permit	5756	G4-24603P	NA
Certificate	9-4224-A	G4-24603C	NA
Priority Date	10/16/61	1/31/77	NA
Maximum Withdrawal Rate (Q) gpm	500	280	780
Maximum Annual Volume			
acre feet per year	168	448	616
gallons	54,660,000	146,117,000	200,777,000
Existing Consumption			
Instanteous Withdrawal Rate gpm	250	500	750
Annual Volume acre feet per year	61	160	221
Excess or (Deficiency) of Water Rights			
Instanteous Withdrawal Rate gpm	250	(220)	30
Annual Volume acre feet per year	107	288	395

WELLHEAD PROTECTION

The Wellhead Protection Program is intended to protect public water supplies that rely on groundwater. Both federal and state regulations mandate wellhead protection programs. The federal mandate is under Section 1428 of the 1986 Safe Drinking Water Act Amendments. In Washington, this program is managed by the Washington State Department of Health (DOH). The state mandate for wellhead protection is provided under WAC 246-290, the Washington Administrative Code that addresses Group A public water systems. The code includes a provision for mandatory wellhead protection measures for all Group A public water systems that use wells or springs as their source of supply. Minimum requirements for local wellhead protection programs in Washington State are the following (DOH 1995):

- Susceptibility Assessment;
- Delineated wellhead protection area;
- Inventory within wellhead protection area of all potential sources of contamination that may pose a threat to the aquifer utilized by the well;
- Documentation that delineation and inventory findings are distributed to required entities;

- Contingency plans for providing alternative sources of drinking water in the event of contamination;
- Coordination with local emergency responders for appropriate spill/incident response measures.

Wellhead Protection Checklist

Table 12 lists required wellhead protection elements. The locations of the required information in the City of Rock Island Comprehensive Water Plan are also provided. Numbers in the first column are reference numbers from the Wellhead Protection Checklist (DOH 1995).

Table 12: Wellhead Protection Requirement

Wellhead Protection Requirement	Cwp Location
Susceptibility Assessment	
Assessment Description	Chapter 5
DOH Forms	Appendix I
Delineation	
Map of travel time zones	Chapter 5
Explanation of methodology	Chapter 5
Contaminant Source Inventory	
List of existing potential contaminant sources	Appendix H
Discussion of past and proposed land use	Chapter 2
Contingency and Emergency Response Plans	
Contingency plans for providing alternative sources of drinking water	Chapter 9
Documentation of notification to emergency responders	Chapter 6
Notification of Findings	Appendix J

Susceptibility

Washington's wellhead protection program groups wells into three classes of susceptibility based on well construction and the geological setting: 1) high susceptibility; 2) moderate susceptibility; and 3) low susceptibility. Appendix I provides the DOH Susceptibility Assessments. Both Wells 2 and 3 were rated as highly susceptible to contamination.

Delineation

The Wellhead Protection Area (WHPA) defines the area in the vicinity of a well or wellfield that is managed to protect the water supply source from groundwater contamination. The delineation of the WHPA is most commonly based on travel time from a potential contaminant source to a well. The one-, five-, and ten- year time of travel zones are subject to different management strategies based on the urgency of response and characteristics of risks to public health posed by contaminants within the zones. Contaminants within the one year time of travel zone could

potentially enter the aquifer within a one year period. Microbial contamination in the form of bacteria and viruses is a distinct threat within this zone. Response time is limited, so aggressive management is essential. While providing more time for responsive actions, the five and ten-year times of travel zones must also be properly managed and inventoried for potential contaminant sources.

The travel time approach does not incorporate the infiltration characteristics of the soils. It is assumed that a contaminant released in a WHPA capture zone would reach the water table instantaneously. In reality, soils may provide natural treatment of contaminants by filtration or other mechanisms. Low permeability layers may also impede vertical migration of the contaminant into the aquifer. However, given the nature of the soils in the vicinity of Rock Island and the absence of any significant confining layer above the aquifers, the conservative assumptions incorporated into times of travel analyses are entirely appropriate.

The one-, five-, and ten-year times of travel zones were estimated for the two wells using the Calculated Fixed Radius (CFR) method. The CFR method is a simple volumetric flow equation that calculates times of travel radii based on the following: 1) well pumping rate; 2) aquifer porosity; 3) open or screened interval of the well. Table 13 provides the information and assumptions used for the CFR time of travel zone determination. The annual volume pumped was based on the 1996 production records for Well Nos. 2 and 3. An assumed porosity of 0.30 was used, consistent with the WSU findings that soil porosities ranged from 0.27 to 0.33.

Table 13: Calculated Fixed Radius Time of Travel Zones

				Calculated Fixed Radius Times Of Travel			
Source of Supply	Screened interval	Porosity	Annual volume pumped	0.5 year	1 year	5 year	10 year
Well No. 2	7 ft	0.30	19,917,700 gal	449 ft	635 ft	1,420 ft	2,009 ft
Well No. 3	5 ft	0.30	52,055,000 gal	859 ft	1,215 ft	2,717 ft	3,843 ft

Figure 7 shows the wellhead protection area delineations obtained from this analysis. The current and past land use of the area within the wellhead protection area is predominately agricultural. The high soil porosities result in an extensive area to be encompassed within the travel time zones. Based on groundwater gradient information (Appendix E), the simple CFR determination may be conservative and overestimate the contribution from areas to the east. However, given the number of wells in the area that tap the same aquifer as the City wells, the potential for contamination is high, and wellhead protection should be a high priority.

Contaminant Source Inventory

Wellhead protection must be pursued aggressively by the City of Rock Island to ensure a safe drinking water supply. In addition, it is important that the City coordinate with Douglas County since the wellhead protection area extends beyond the Rock Island city limits. Protection of Rock Island's sources presents significant challenges for several reasons: 1) There is no significant aquiclude or aquitard (impermeable or retarding layer) above the aquifer that supplies the City wells;

2) Native soils provide little or no treatment through natural mechanisms such as filtration or adsorption of pollutants; 3) There is evidence of hydraulic continuity between surface waters and the aquifer supplying the City wells; 4) dependence of the agricultural industry on heavy irrigation during summers results in groundwater fluctuations and the potential for contaminants to enter the groundwater; and 5) There are several potential contaminant sources that are difficult to manage within the WHPA. The principal sources of potential contamination are described below:

Septic Systems

Rock Island is currently unsewered, so residents use onsite sewage disposal systems such as septic tanks and drainfields for wastewater disposal. The high porosity soils in the vicinity of Rock Island provide minimal natural pollutant removal. This problem is further compounded by the fact that some septic systems were poorly designed, incorporating cesspools that discharge wastewater downward rather than dispersing it through a drainfield. This limits the contact time with the soils and increases the rate of transport to the aquifer. Some systems that had been constructed prior to the WSU study that established groundwater gradients were constructed upgradient of wells, posing a clear threat that is compounded by improper design.

Orchard and Ranch Operations

Routine orchard operations include the use of pesticides and other sprays to protect fruit-bearing trees from damage.

The large amount of agriculture in the Rock Island area requires the extensive use of pesticides. Most of the pesticides used for apple, cherry, and apricot orchards adsorb well to soil particles and are not very soluble in water. Therefore, if they are used at the dilution rates and dosages recommended by the manufacturer, they are not likely to contaminate the groundwater quality. A program should be implemented to establish possible alternatives to the use of chemicals around the well field. Table 14 lists some of the pesticides used on local apple, cherry, and apricot orchards. The table also lists health effects of toxic amount of the pesticides.

In the City of Rock Island increased nitrogen concentrations are likely caused by extensive irrigation leaching fertilizers from soils or by septic tank contamination.

High levels of nitrate in drinking water can cause a potentially fatal blood disorder called methemoglobinemia or "blue baby disease." Although methemoglobinemia can affect any age, nitrate contaminated water principally causes this illness in children under six months. Some studies

Table 14 - Pesticides Used in WHPA		
Trade Name	Chemical Name	Potential Health Effects
Lorsban	chlorpyrifos	Nervous System, Cardiovascular, Respiratory, Skin and Eye Irritant, Brain
Guthion	azinphos-methyl	Nervous System, Respiratory, Eye Irritant, Cardiovascular, Brain
Diazinon	diazinon	Nervous System, Reproductive, Possible Mutagen
Rally		Eye Irritant, Reproductive
Rubigan	Naphthalene	Skin and Eye Irritant, Kidney and Liver Damage, Respiratory, Brain
Cygon, DeFend	Dimethoate	Respiratory, Nervous System, Cardiovascular, Reproductive, Mutagen, Carcinogen, Kidney Damage
Provodo	Imidazolidinimine	Eye Irritant, Weight Loss
Sevin	carbaryl	Skin Irritant, Nervous System, Respiratory, Mutagen, Carcinogen, Kidney and Liver Damage
Thiodan	endosulfan	Nervous System, Kidney and Liver Damage, Possible Teratogenic, Mutagen
Captan		Weight loss, Carcinogen, Eye and Skin Irritant

have suggested a possible link between nitrate and cancer and birth defects. These suggestions, however, have not been confirmed.

Ranches within the wellhead protection area can also be a threat to the water supply. Inadequate clean-up of animal waste has caused previous water quality problems at Well 3. Future contamination can be minimized by carefully monitoring the activities of ranch owner and/or operators.

Private Well Construction

Poorly constructed private wells with inadequate seals and incompletely abandoned wells pose a significant threat to the City wells. Poorly constructed wells present a direct pathway for contaminants to enter the aquifer that is supplying the City wells. When the WSU study was conducted in 1973 and 1974, only 13 of the 85 wells sampled were found to have adequate seals.

These domestic wells are not required to meet state drinking water standards, but City wells are vulnerable to any contamination resulting from runoff, rodents, insects and other pollutants entering the aquifer through improperly sealed wells. In addition to inadequate wells, only 17 percent of the 41 residences investigated had septic tanks and drainfields that appeared to meet design standards. Others had drywells or septic tank-drywell combinations that inject wastewater downward. The WSU study showed that coliforms in private wells were highest during and immediately following irrigation season. A more recent investigation found that problems with septic systems persist.

The City must be diligent in ensuring that wells are constructed properly, upgradient from septic systems and drainage fields, and completely abandoned so as not to permit rodents or contaminants from entering the well.

American Silicon Metaltech

American Silicon Technologies, a silicon smelter industry, is currently on the Washington State's Hazardous Cleanup List. The company reports to using solvents, ethylene glycol (antifreeze), chlorine, and sulfuric acid. The activities and cleanup of this site, located at 100 South Fourth Street, should be carefully monitored in order to prevent aquifer contamination.

Columbia River

Wells that appear to experience seasonal recharge from the Columbia River were found to have low specific conductivities and chloride concentrations, indicating that they were all influenced by surface water. These wells may be more susceptible to surface water contamination.

Irrigation Canal

The irrigation canal is open, and therefore is subject to contamination by wildlife and other potential sources of contamination to surface waters. The canal is supplied with water from the Wenatchee Bureau of Reclamation Ditch, which supplies water from the Wenatchee River. The Wenatchee River water has been found to contain lower concentrations of chloride and lower specific conductance than Rock Island groundwater. The WSU water quality study found that wells near areas irrigated by canal water displayed lower chloride content and lower specific conductivity than distant wells, indicating that canal water is reaching the wells.

Table 15 lists the potential contamination sources and where they lie in the wellhead protection area.

Contingency and Emergency Response Plans

While the City of Rock Island has adequate water rights for estimated future demands, alternative sources must be evaluated (per WAC 246-290-100) to maintain the quality of the City's water supply in the event of source contamination. The Contingency Plan is a discussion of alternative short and long-term sources that the City may have available in the event of contamination of one or more of the City's sources.

The Emergency Response Plan describes the procedures that should be followed should a spill or incident occur that may threaten the quality of the City's water supply.

Contingency Plan

The City of Rock Island water system model shows that pumping from the City's largest source (Well 3) can cease and fireflows in the City will still be adequate. Therefore, if localized contamination occurs and remediation efforts are attainable within a relatively short time, demand can be met with the uncontaminated well while remedial actions are underway. However, if there is extensive contamination of the aquifer, an alternate source is required.

An intertie with East Wenatchee Water District is listed as part of the CIP. East Wenatchee Water District is agreeable to and has adequate supply for an intertie to the City of Rock Island's water system. This intertie will be used for short-term water supply to the City in the event of a emergency. If necessary, future improvements may allow the intertie to be used as a permanent source of supply to the City of Rock Island.

Table 15 - Potential Contamination Sources in Wellhead Protection Area

Contaminant source	Well	Six-month	One year	Five Year
Septic tanks	2	13	17	
Domestic wells	2	2	5	
Horse stable	2		1	
Truck repair business	2		1	
Old cars	2		Several	
Orchards	2	Well surrounded by orchards on 3 sides		
Septic tanks	3	54	77	
Domestic wells	3	4	18	
Old cars	3		Several	
Rock Island School	3	(No chemicals used at school)		
Golf cart repair business	3	1		
Street Sweeping Service	3	1		
Swimming pools	3	4		
Abandoned wells (one contaminated)	3	2		
Storage tanks (above ground)	3	3		
Animals (rabbits, horses, birds)	3	(Has caused previous water quality problems.)		
Orchards	3	Yes		
Septic tanks	2 & 3			161
Domestic wells	2 & 3			54
Swimming pools	2 & 3			4
Storage tanks (above ground)	2 & 3			6
Storage tanks (under ground)	2 & 3			1
Concrete Product Manufacturer	2 & 3			1
Construction Company	2 & 3			1
Trailer Court	2 & 3			17 mobile homes
American Silicon Metaltech	2 & 3			On States Hazardous Cleanup List
Under-designed septic system	2 & 3			3 homes on septic system designed for 1 home

The CIP also includes further investigation of the aquifers located in the City. The existing available information suggests that there is hydraulic continuity between the two aquifers. If additional investigation confirms hydraulic continuity between the aquifers, an additional well drawing from the same aquifers may not be the most appropriate source of new supply. However, if further investigation shows that there is an aquifer without hydraulic continuity, an additional source from that aquifer may be feasible.

Emergency Response Plan

For the City of Rock Island emergency response plan, the City will educate its staff of proper spill response and take the necessary measures to prepare for an emergency. In addition, the City will encourage emergency responders and business owners and operators to learn about proper spill response procedures.

Notification of Findings

Owners and operators of potential and actual contaminant sources were notified of their location in the wellhead protection area. A list of owners and operators that were notified and the notification letter are located in Appendix J.

Regulatory agencies, local governments and emergency response agencies were notified of the location of the wellhead protection area boundaries, inventory findings, contingency plans, and spill response procedures. This notification letter and a list of agencies notifeid are located in Appendix J.

CONSERVATION

The objective of this section is to describe the City's conservation program and related actions to promote efficient use of the City's water resources. This section covers the conservation program based on Washington State Department of Health and Department of Ecology guidelines set forth in *Guidelines and Requirements for Public Water Systems* regarding water use, reporting, demand forecasting methodology, and conservation programs.

Conservation Goals And Objectives

The City supports water conservation as a wise and efficient use of natural resources. The programs presented here will include elements that improve source management and increase public awareness with the intent of reducing per capita water consumption. The objectives of the City's conservation program over the next six years are to:

1. reduce per capita water use by six percent,
2. promote public education and awareness of water conservation issues.

To achieve these and objectives as listed above, the City will implement the following three conservation measures as suggested by the Conservation Planning Requirements document:

Potential Source Owners and Operators Notified

Otis Hampton (orchard owner)
1705 Center Street
East Wenatchee, WA 98802

Ray Gibbs (horse stable owner)
5670 Riverside Drive
East Wenatchee, WA 98802

Terry Vance (orchard owner)
1850 S. Douglas
East Wenatchee, WA 98802

Eric Jones (animal farm)
5661 Pennsylvania Avenue
Rock Island, WA 98850

City of Rock Island (golf course)
5 N. Garden
Rock Island, WA 98850

City of Rock Island (Gravel dredging by Central Washington Concrete)
314 Saunders Avenue
Rock Island, WA 98850

This inventory list was evaluated in April 2013 and updated accordingly from the previous list.

Noe Andrade
WDM 2
City of Rock Island Public Works

Jurisdictions and Agencies Notified

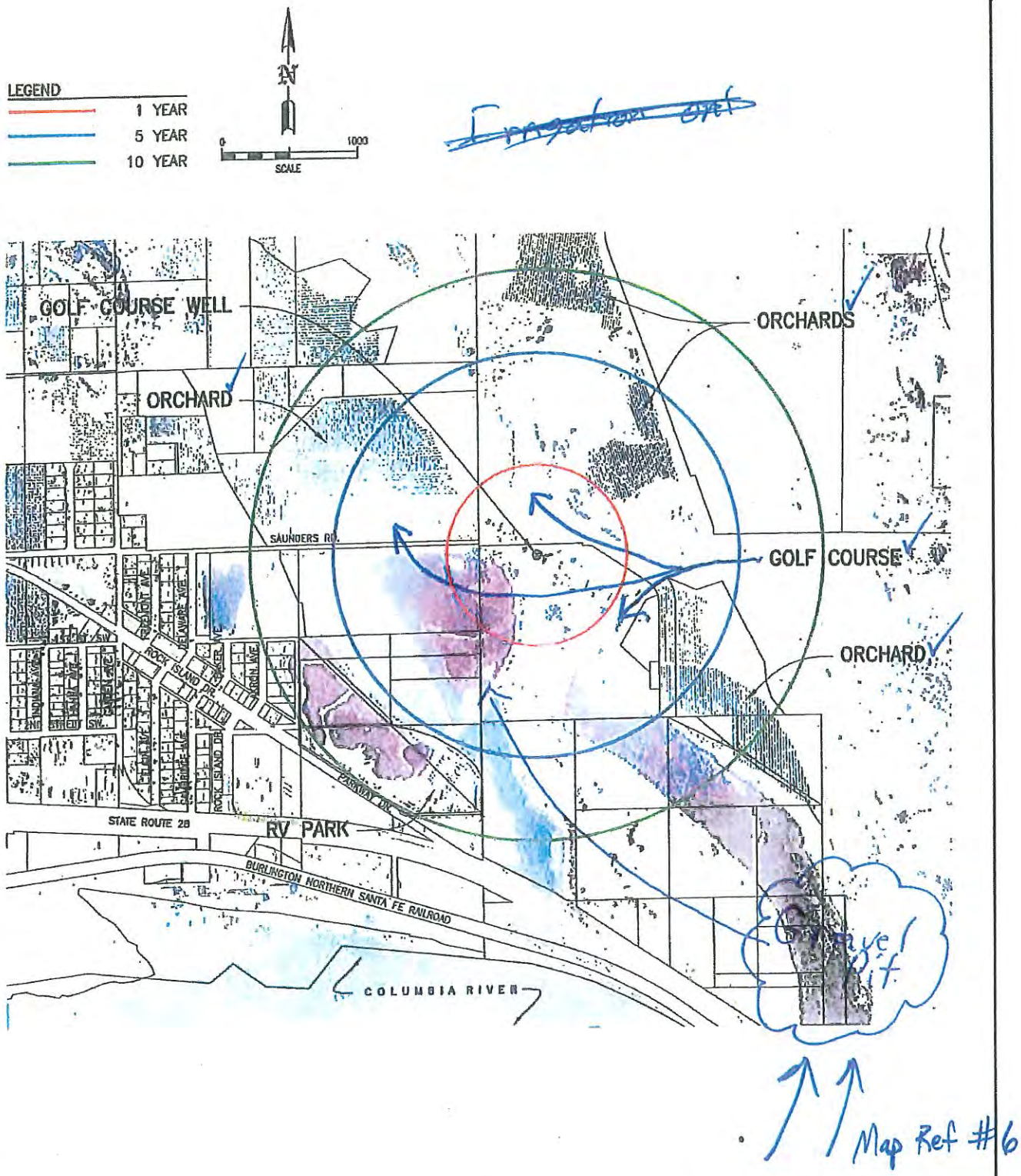
City of Rock Island Police Department
5 N. Garden
Rock Island, WA 98850
(509) 884-1261

Washington State Department of Health
Eastern Regional Office
1500 W 4th Avenue, Suite 305
Spokane, WA 99204
(509) 456-2774

Washington State Department of Ecology
Central Regional Office
106 South Sixth Avenue
Yakima, WA 98902-3387
(509) 575-2490

This inventory list was evaluated in April 2013 and updated accordingly from the previous list.

Noe Andrade
WDM 2
City of Rock Island Public Works



1060409—Figure 4

SCALE: AS SHOWN DESIGNED: – DRAWN: TVP CHECKED: APPROVED: PROJ. NO.: 106-04-09 DATE: Apr. 2012	VARELA AND ASSOCIATES, INC. ENGINEERING AND MANAGEMENT

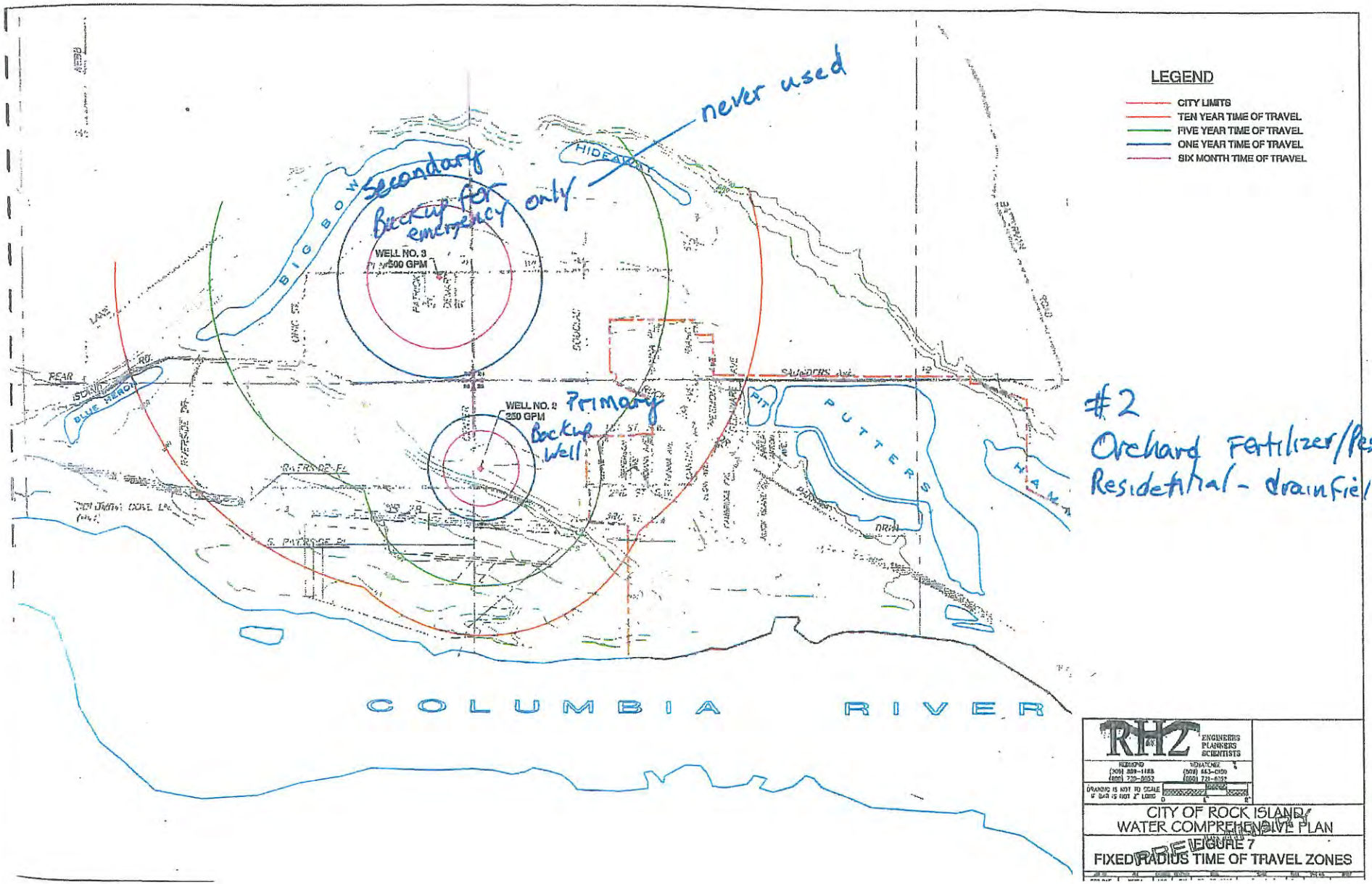
CITY OF ROCK ISLAND, WASHINGTON GOLF COURSE WELL PUMP STATION & TRANSMISSION MAIN	FIGURE
WELLFIELD CALCULATED FIXED RADIUSES & POTENTIAL CONTAMINANT LOCATIONS	4

CITY OF ROCK ISLAND

Golf Course Well WHP Area Potential Contaminant Source List

Map Ref.[1]	Facility	Address	Potential of Contaminant
1	Orchards	N/A	Fertilizers, pesticides
2	Golf Course	314 Saunders Rd	Fertilizers, pesticides
3	RV Park	Parkway Dr	Drainfield Now on Sewer
4	Saunders Rd	Saunders Rd	Herbicides, storm water runoff
5	Batterman Rd	Batterman Rd	Herbicides, storm water runoff
6	Gravel Pit	Parkway Dr	Turbidity ?
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			

1. *Numbers shown refer to **Figure 4 – Wellfield Calculated Fixed Radiuses & Potential Contaminant Locations***



RHZ ENGINEERS PLANNERS SCIENTISTS

CITY OF ROCK ISLAND
WATER COMPREHENSIVE PLAN

FIGURE 7
FIXED RADIUS TIME OF TRAVEL ZONES

Contaminant source	Well	Six-month	One year	Five Year
Septic tanks	2	13	17	
Domestic wells	2	2	5	
Horse stable	2		1	
Truck repair business	2		1	
Old cars	2		Several	
Orchards	2	Well surrounded by orchards on 3 sides		
Septic tanks	3	54	77	
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Rock Island School	3	(No chemicals used at school)		
Golf cart repair business	3	1		
Street Sweeping Service	3	1		
Swimming pools	3	4		
Abandoned wells (one contaminated)	3	2		
Storage tanks (above ground)	3	3		
Animals (rabbits, horses, birds)	3	(Has caused previous water quality problems.)		
Orchards	3	Yes		
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Storage tanks (above ground)	2 & 3			6
Storage tanks (under ground)	2 & 3			1
Concrete Product Manufacturer	2 & 3			1
Construction Company	2 & 3			1
Trailer Court	2 & 3			17 mobile homes
American Silicon Metaltech	2 & 3			On States Hazardous Cleanup List
Under-designed septic system	2 & 3			3 homes on septic system designed for 1 home

2012: Well No. 3 is a "last resort" emergency only – e.g. Major Fire, Reservoir failure

Well No. 2 is the Primary backup, used occasionally.

– septics w/in City Limits are now decommissioned

SAMPLE LETTER

CITY OF
ROCK ISLAND

5 North Garden
Rock Island, WA
98850

CITY OF ROCK ISLAND

LETTER OF NOTIFICATION

Well Head Protection Plan

May 15, 2013
Subject: Wellhead Protection Program

Dear Business Owner/Operator or Agency,

In order to protect the City of Rock Island drinking water supply, the City has developed a wellhead protection plan. As part of the plan the areas overlying the short tem recharge zone of our drinking water supply wells were mapped. This recharge area is called the wellhead protection area.

One of the goals of this plan is to raise public awareness about the vulnerability of the groundwater in our area to contamination. The purpose of this letter is to inform you of the proximity of your business to our wellhead protection areas and to serve as a reminder that any hazardous material spilled onto the ground or put into a septic system has the potential of contaminating our drinking water supply. Some potential contamination sources are:

- Improper use of septic system (dumping paint, cleaners, or solvents into your septic system).
- Dumping motor oil, gasoline, antifreeze or similar fluids onto the ground. These materials can be recycled, free of charge, at most major shops and parts stores.
- Leaking fuel storage tanks and distribution lines.
- Accidental spillage of fuel.

Because everyone plays a role in the protection plan, local residents are also being contacted with similar information. We are fortunate to have a very good supply of drinking water. It should be everyone's intent to keep it that way for our continued good use, and for those who will come after us. Thanks you for following these guidelines. If you have any questions about this matter, please feel free to contact me.

Sincerely,

Noe Andrade
Operator, City of Rock Island
Telephone: 509-884-1261

Updated/sent May 2013

CITY OF
ROCK ISLAND
5 North Garden
Rock Island, WA
98850

SAMPLE LETTER

CITY OF ROCK ISLAND

LETTER OF NOTIFICATION

Well Head Protection Plan

May 15, 2013
Subject: Wellhead Protection Program

Dear Residents,

The City of Rock Island's water system is developing a wellhead protection plan as required by the Washington State Department of Health. Wellhead protection involves protecting the land area surrounding our wells in order to prevent contamination of the drinking water supply. Part of the plan is a letter of notification to all potential sources of contamination to our wells.

This letter is an attempt to inform you of the locations of our wells and protection zones and to serve as a reminder that hazardous materials put onto the ground (or in septic systems) has the potential of contaminating our drinking water supply. Some examples of household hazardous materials are:

- Paint, paint thinner, and other solvents.
- Motor oil, gasoline, antifreeze or similar automotive fluids. These materials can be recycles, free of charge at most major auto shops and parts stores.
- Fertilizers and pesticides.
- Household cleaners, bleach, and furniture polish.

These materials should only be used according to label directions. Any unwanted or unused household hazardous materials can be disposed of free of charge at the hazardous waste clean-up days. Contact: 509-422-2602.

We are fortunate to have a very good supply of drinking water. It should be everyone's intent to keep it that way for our continued good use, and for those who will come after us. Thanks you for following these guidelines. If you have any questions about this matter, please feel free to contact me.

Sincerely,

Noe Andrade
Operator, City of Rock Island
Telephone: 509-884-1261

Updated/sent May 2013

Thad L. Duvall, Auditor, Douglas County, WA.
AFN # 3143015 Recorded 10:43 AM 04/30/2010
COVEN Page: 1 of 3 $64.00
OGDEN, MURPHY & WALLACE

Filed for and return to:

Charles D. Zimmerman
OGDEN MURPHY WALLACE, P.L.L.C.
1 Fifth Street, Suite 200
PO Box 1606
Wenatchee WA 98807-1606

The information contained in this boxed section is for recording purposes only pursuant to RCW 36.18 and RCW 65.04, and is not to be relied upon for any other purpose, and shall not affect the intent of or any warranty contained in the document itself.

Grantor(s): City of Rock Island
Grantee(s): City of Rock Island
Reference Number(s) of Documents Assigned or Released: N/A
Abbreviated Legal Description: See page 1 of Declaration
Complete or Additional Legal Descriptions on page 1 of Declaration and Exhibit A
Assessor's Parcel Number(s): 10800000001

DECLARATION OF COVENANT

The City of Rock Island, a Washington municipal corporation ("City"), owner in fee simple of the land described herein, hereby declares this Covenant and places the same on record.

The City, the "Grantor" herein, is the owner in fee simple of the following described real estate situated in Douglas, County, State of Washington; to wit:

> Government Lot 1, Section 30 Township 22 North, Range 22, E.W.M., Douglas County, Washington, EXCEPT those portions conveyed to Douglas County by deeds recorded under Auditor's Nos. 134186 and 3009650 for road purposes, and by deed recorded under Auditor's No. 186784 for the establishment of a cul-de-sac.

on which the Grantor owns and operates a well and waterworks supplying water for public use located on said real estate, at:

> 423 feet east of the western most line of Government Lot 1 and 77 feet south of the southern most edge of the public right of way commonly known as Saunders Road located in the Northwest portion of Government Lot 1 of Section 30, Township 22 North, Range 22, E.W.M, as described above and depicted on Attachment A.

and Grantor is required to keep the water supplied from said well free from impurities which might be injurious to the public health.

It is the purpose of this grant and covenant is to prevent certain practices hereinafter enumerated in the use of said Grantor's land.

NOW, THEREFORE, the Grantor agrees and covenants that said Grantor, its heirs, successors, and assigns will not construct, maintain, or suffer to be constructed or maintained upon the said land of the Grantor and within One Hundred (100) feet of the well herein described, for so long as the well is operated to furnish water for public consumption, any potential source of contamination, such as septic tanks and drainfields, sewerlines, underground storage tanks, railroad tracks, parked 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.

These Covenants shall run with the land and shall be binding upon 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.

GRANTOR:

APPROVED by the City Council of the City of Rock Island at an Open Public Meeting the 22 day of April, 2010.

CITY OF ROCK ISLAND

By: Russell Clark

Russell Clark, Mayor

LISA A. JOHNSTON
COMMISSION EXP.
NOTARY
PUBLIC
JUNE 1, 2010
STATE OF WASHINGTON

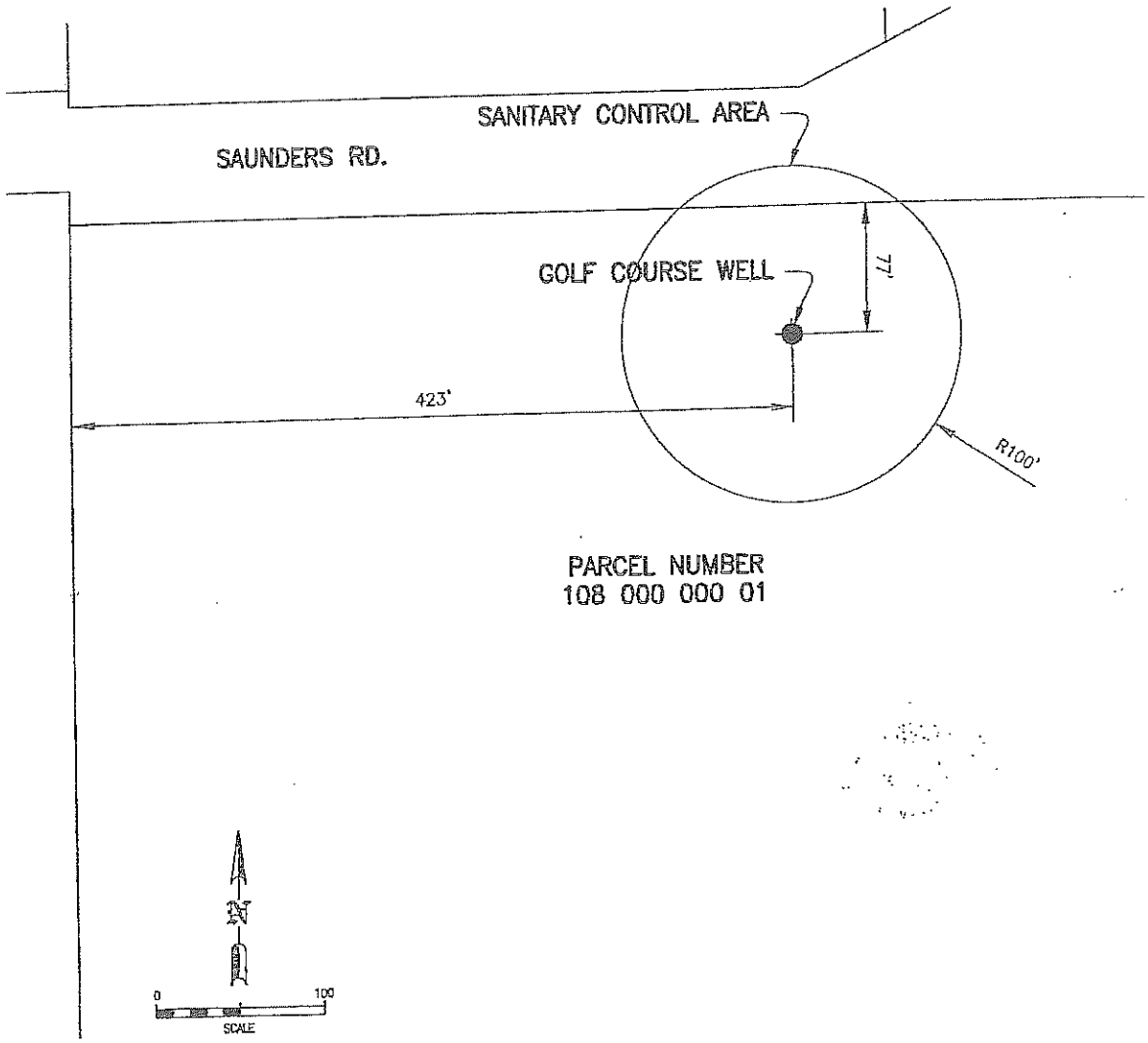
STATE OF WASHINGTON)
)ss.
County of Douglas)

I certify that I know or have satisfactory evidence that RUSSELL CLARK is the person who appeared before me, and said person acknowledged that he signed this instrument, on oath stated that he was authorized to execute the instrument and acknowledged it as the Mayor of the City of Rock Island to be the free and voluntary act of such party for the uses and purposes mentioned in the instrument.

Dated April 23rd, 2010

Lisa A. Johnston
(printed name)
NOTARY PUBLIC, State of Washington
My appointment expires June 1, 2010

EXHIBIT



1060409-Figure 3

SCALE: AS SHOWN
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DRAWN: TVP
CHECKED:
APPROVED:
PROJ. NO.: 106-04-09
DATE: 01/04/10

VARELA AND ASSOCIATES, INC.
ENGINEERING AND MANAGEMENT

CITY OF ROCK ISLAND, WASHINGTON GOLF COURSE WELL PUMP STATION & TRANSMISSION MAIN	FIGURE
WELL LOCATION	3

Appendix L

Consumer Confidence Report

CITY OF
ROCK ISLAND

5 North Garden
Rock Island, WA
98850

2021 Water Quality Report

Rock Island is pleased to present this year's annual Water Quality Report. We want you to understand the efforts we make to continually provide safe and dependable drinking water.

This report is a summary of testing results conducted within the last five years. The report lists all regulated contaminants that were found above the state reporting limit during the most recent round of testing for each contaminant. During the 2020 reporting year, monthly tests for contaminants were performed on the Rock Island's drinking water. **The City of Rock Island is proud to announce that your drinking water quality exceeds all state and federal drinking water standards**.

If you have any questions or concerns about your water quality, please contact Wyatt Long at City Hall at 509-884-1261.

INFORMATION FROM THE EPA

The sources of drinking water (both tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

Microbial contaminants, such as viruses, parasites and bacteria, which may come from septic systems, livestock, and wildlife.

Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, wastewater discharges, and farming.

Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and can also come from gas stations, urban storm water runoff, and septic systems.

Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

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 water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (1-800-426-4791).

In order to ensure that tap water is safe to drink, the Department of Health and EPA prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The food and Drug Administration (FDA) and the Washington Department of Agriculture regulations establish limits for contaminants in bottled water that must provide a similar degree of safety.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

Este informe contiene informacion muy importante sobre su agua beber. Traduzcalo o hable con alguien que lo entienda bien.

2020 Water Quality Information

Rock Island: PWSID #73401E

The water quality information presented in the tables is from the most recent round of testing done in accordance with regulations.*

Inorganic Contaminants SO4							
Contaminant (units)	Violation (Y/N)	Sample Date	Highest Level Detected	Range of Detections	MCL	MCLG	Likely Source of Contamination
Arsenic (ppb)	No	June. 2019	2.3	One Sample	10	10	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium (ppm)	No	June. 2019	0.02557	One Sample	2	2	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Cadmium (ppb)	No	June. 2019	0.1	One Sample	5	5	Corrosion of galvanized pipes; Erosion of natural deposits; Discharge from metal refineries; Runoff from waste batteries and paints
Chromium (ppb)	No	June. 2019	1.440	One Sample	100	100	Discharge from steel and pulp mills; Erosion of natural deposits
Mercury [inorganic] (ppb)	No	June. 2019	0.2	One Sample	2	2	Erosion of natural deposits; Discharge from refineries and factories; Runoff from landfills; Runoff from cropland
Selenium (ppb)	No	June. 2019	1.570	One Sample	50	50	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
Beryllium (ppb)	No	June. 2019	0.1	One Sample	4	4	Discharge from metal refineries and coal-burning factories; Discharge from electrical, aerospace, and defense industries
Antimony (ppb)	No	June. 2019	0.1	One Sample	6	6	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
Thallium (ppb)	No	June. 2019	0.45	One Sample	2	0.5	Leaching from reprocessing sites; Discharge from electronics, glass, and drug factories
Fluoride (ppm)	No	June. 2019	0.36	One Sample	4	4	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrite (ppm)	No	Aug. 2020	<0.7	One Sample	1	1	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Nitrate (ppm)	No	Nov. 2019 AUG 2020	5.85(S02) 3.23(S04)	One Sample	10	10	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits

Disinfection Byproducts - Blend of Sources SO2/SO4							
Contaminant	Violation (Y/N)	Sample Date	Highest Level Detected	Range of Detections	MCL	MCLG	Likely Source of Contamination
Total Trihalomehtanes (ppb)	NO	Aug. 2018	4.69	One sample	80	N/A	Byproduct of drinking water disinfection.

Lead and Copper							
Contaminant	Violation (Y/N)	Sample Date	90th% Level Detected	Range of Detections	MCL	MCLG	Likely Source of Contamination
Lead (ppb)**	NO	Sept. 2018	ND	ND	15 (AL)	0	Corrosion of household plumbing systems; erosion of natural deposits
Copper (ppm)	NO	Sept. 2018	0.050	ND – 0.0502	1.3(AL)	1.3	Corrosion of household plumbing systems; erosion of natural deposits

**Lead and Copper 90th Percentile: Out of every 10 homes sampled, 9 were at or below this level.

Lead, if present in elevated levels can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Rock Island is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for thirty seconds to two minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead.

Nitrate in drinking water at levels above 10ppm 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 local health care provider.

Definitions

MCL (Maximum Contaminant Level): 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. **MCLG** (Maximum Contaminant Level Goal): 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. **AL** (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow. **N/A**: Not Applicable **ND**: Not Detected	**ppm**: parts per million One part per million (ppm) is: 3 drops in 42 gallons 1 second in 12 days 1 penny in $10,000 1 inch in 16 miles	**ppb**: parts per billion One part per billion (ppb) is: 1 drop in 14,000 gallons 1 second in 32 years 1 penny in $10,000,000 1 inch in 16,000 miles

Information about your water…

The City of Rock Island water system uses a groundwater source consisting of two municipal wells. The wells draw water from two independent aquifers. The well located on Center Street is referred to as backup water source #2 and the well on Saunders Avenue is referred to as primary water source #4 "Golf Course Pump." The water is drawn from the wells and disinfected before it enters the distribution system. The distribution system includes two reservoirs totaling 500,000 gallons and approximately 7 miles of water mains.

We want our customers to be well informed about their water utility. If you want to learn more please attend any of our regularly scheduled meetings. Meetings are held on the 2nd and 4th Thursdays of every month and are located at 5 North Garden Avenue.

Water Conservation Tips

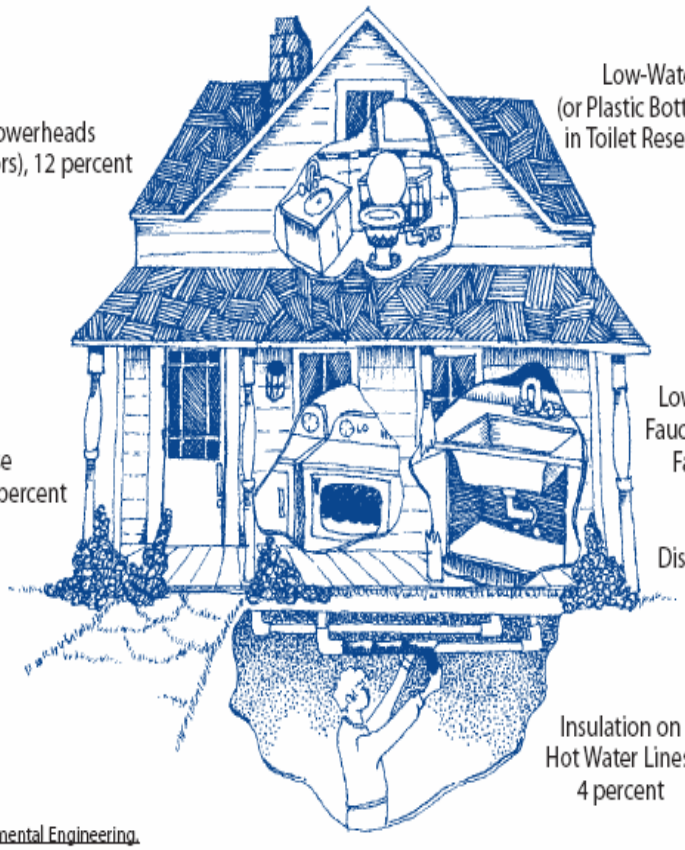
Did you know that the average U.S. household uses approximately 400 gallons of water per day or 100 gallons per person per day? Luckily, there are many low-cost and no-cost ways to conserve water. Small changes can make a big difference – try one today and soon it will become second nature.

- Adjust sprinklers so only your lawn is watered. Apply water only as fast as the soil can absorb it and during the cooler parts of the day to reduce evaporation.
- Take short showers - a 5 minute shower uses 4 to 5 gallons of water compared to up to 50 gallons for a bath.
- Shut off water while brushing your teeth, washing your hair and shaving and save up to 500 gallons a month.
- Use a water-efficient showerhead. They're inexpensive, easy to install, and can save you up to 750 gallons a month.
- Run your clothes washer and dishwasher only when they are full. You can save up to 1,000 gallons a month.
- Water plants only when necessary.
- Fix leaky toilets and faucets. Faucet washers are inexpensive and take only a few minutes to replace. To check your toilet for a leak, place a few drops of food coloring in the tank and wait. If it seeps into the toilet bowl without flushing, you have a leak. Fixing it or replacing it with a new, more efficient model can save up to 1,000 gallons a month.
- Teach your kids about water conservation to ensure a future generation that uses water wisely. Make it a family effort to reduce next month's water bill!
- Visit www.epa.gov/watersense for more information.

CITY OF
ROCK ISLAND
5 North Garden
Rock Island, WA
98850

Ways To Save Water At Home*

(*Water Savings as Percent of Total Interior Water Use)



Source: Corbitt, Robert A.
Standard Handbook of Environmental Engineering.
McGraw-Hill, Inc. 1989.

Appendix M

Water Quality Monitoring Plan

WATER QUALITY MONITORING PLAN

INTRODUCTION

This Water Quality Monitoring Plan (Plan) presents the requirements for monitoring water quality at the sources and in the distribution system in accordance with the drinking water regulations contained in Washington Administrative Code (WAC) 246-290-300. This Plan also provides a summary of the existing water system facilities and system operation.

EXISTING WATER SYSTEM DESCRIPTION

The City of Rock Island owns and operates a public water system. Water system data on file at the Washington State Department of Health (DOH) for the City's system is shown in **Table 1.1, Water System Ownership Information**.

Table 1.1
Water System Ownership Information

Information Type	Description
System Type	Community – Group A
System Name	Rock Island Water Department
County	Douglas
DOH System ID Number	73401E
Address	PO BOX 99 Rock Island, WA 98850
Contact	Wyatt Long
Contact Phone Number	(509) 884-1261

OVERVIEW OF EXISTING SYSTEM

A summary of water system data for the City's system and the number of customers served in 2020 is shown in **Table 1.2, Water System Summary**.

Table 1.2
Water System Summary

Description	Data (2020)
Total City Population	1,220 people
Total Connections	399 accounts
Total Customers (w/o DSL)	415 ERU
Total Customers (w/ DSL)	503 ERU
Largest Customer	BJ's Auto & Truck
Average Day Demand per Customer	405 gpd/ERU

gpd = gallons per day
ERU = equivalent residential unit

A summary of the important characteristics of the City's existing water system facilities in 2020 is shown in **Table 1.3, Water System Description.**

Table 1.3
Water System Description

Description	Facilities
Number of Pressure Zones	1
Installed Source Capacity	950 gpm
Total Water Rights	902 gpm
Total Length of Water Main	52,005 linear feet
Number of Pump Stations	5
Number of Reservoirs [1]	2
Total Storage	0.5 MG
[1]Both reservoirs are located at the same site.	

gpm = gallons per minute
LF = linear feet
MG = million gallons

SOURCE WATER QUALITY MONITORING

The City is required to perform water quality monitoring of the purchased supply for lead and copper (LCR), Nitrate, total trihalomethanes (TTHM), and haloacetic acids (HAA5). The monitoring requirements that the City must comply with are specified in WAC 246-290-300.

Table 1.4 summarizes the source water quality monitoring requirements through 2026, is based on information available at the time that this document was prepared, and may change in the future.

Table 1.4

Monitoring Schedule for 2021 - 2026

Month	Monitor	Monitoring Group	Test Method	Upon Violation
		2021		
August	Dist	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
September	S02	Nitrate	NIT	Quarterly for 1 Year
September	S04	Nitrate	NIT	Quarterly for 1 Year
September	Dist	Lead and Copper	LCR	Two 6-Month Periods
		2022		
May	S02	VOCs	VOC - 524.2	Quarterly for 2 Quarters
May	S02	Herbicides	VOC - 524.2	Quarterly for 2 Quarters
May	S02	Pesticides	VOC - 524.2	Quarterly for 2 Quarters
August	Dist	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
September	S02	Nitrate	NIT	Quarterly for 1 Year
September	S04	Nitrate	NIT	Quarterly for 1 Year
		2023		
August	Dist	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
August	S04	Radionuclides	RAD	Quarterly until less than MCL
September	S02	Nitrate	NIT	Quarterly for 1 Year
September	S04	Nitrate	NIT	Quarterly for 1 Year
		2024		
August	Dist	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
September	S02	Nitrate	NIT	Quarterly for 1 Year
September	S04	Nitrate	NIT	Quarterly for 1 Year
September	Dist	Lead and Copper	LCR	Two 6-Month Periods
		2025		
June	S04	VOCs	VOC - 524.2	Quarterly for 2 Quarters
August	Dist	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
September	S02	Nitrate	NIT	Quarterly for 1 Year
September	S04	Nitrate	NIT	Quarterly for 1 Year
October	S02	IOC and Physical	IOC	Quarterly for 2 Quarters
		2026		
August	Dist	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
September	S02	Nitrate	NIT	Quarterly for 1 Year
September	S04	Nitrate	NIT	Quarterly for 1 Year

Stage 2 DBPs = Stage 2 Disinfection Byproducts
IOC = Inorganic Chemical
VOC = Volatile Organic Chemical

MONITORING REQUIREMENTS AND PROCEDURES

Inorganic Chemical and Physical – A minimum of one sample shall be taken after treatment at the entry point to the distribution system for each source. If a maximum contaminated level (MCL) is exceeded, quarterly sampling is required for at least two quarters. According to the City's water quality monitoring schedule generated in 2021, the City has a waiver for a 9 year period, during which the City was required to record a single sample at each of its sources. Source S02 was last monitored for IOCs in 2016, with the next round of sampling due in 2025,

while S04 was last monitored for IOCs in 2019, with the next round of sampling due in 2028. Monitoring for nitrate, asbestos, arsenic, manganese, and iron shall continue to be monitored as discussed below.

Monitoring for nitrate shall be accomplished once per year at each source. The repeat monitoring frequency shall be quarterly for at least 1 year following any one sample in which the concentration is greater than or equal to 50 percent of the MCL for nitrate or nitrite.

Monitoring for asbestos is typically required once every 9 years. Systems not vulnerable to asbestos contamination at the source or in the distribution system (due to asbestos cement pipe) may apply to the state for a waiver of the monitoring requirements. A sample must be taken at a tap served by an asbestos cement pipe where asbestos contamination is most likely to occur. If the MCL is exceeded, quarterly sampling is required for at least two quarters. The City does not need to monitor for asbestos during its current compliance period, which ends in 2028.

Monitoring for arsenic is not required at any of the City's sources. However, if the MCL is exceeded, quarterly sampling is required for at least two quarters.

Monitoring for manganese is not required at any of the City's sources. However, if the secondary MCL is exceeded, quarterly sampling is required for at least two quarters.

Monitoring for iron is not required at any of the City's sources. However, if the MCL is exceeded, quarterly sampling is required for at least two quarters.

Volatile Organic Chemicals – A minimum of one sample shall be taken after treatment at the entry point to the distribution system for each source. Monitoring for volatile organic chemicals shall be accomplished once every 6 years for each compliance period. If an MCL is exceeded, quarterly sampling is required for at least two quarters. The state may then allow annual monitoring if the results are satisfactory. After three consecutive annual samples that comply with the MCLs, a waiver for reduced monitoring may be applied for again. Sources S02 and S04 have 6-year volatile organic chemical (VOC) waivers. S02's next sample is due in 2022, and S04's next sample should be collected in 2025.

Synthetic Organic Chemicals – A minimum of one sample shall be taken after treatment at the entry point to the distribution system for each source. Monitoring for synthetic organic chemicals (SOCs) shall be accomplished once every 3 years for each compliance period if a monitoring waiver is not provided by the state. If an MCL is exceeded, quarterly sampling is required for at least two quarters. The state may then allow annual monitoring if the results are satisfactory. After three consecutive annual samples that comply with the MCLs, a waiver for reduced monitoring may be applied for again. The City is not required to monitor for soil fumigants at either source, but S02 has a 3-year waiver for pesticides and herbicides, and S04 has a 9-year waiver for herbicides. Herbicides samples are due in 2022 for S02 and between 2023 and 2032 for S04. A pesticides sample is due in 2022 for S02.

Unregulated Inorganic Chemicals – Sulfate is the only unregulated inorganic chemical that must be monitored under the current State regulations. A minimum of one sample shall be taken after treatment at the entry point to the distribution system for each source. Monitoring is required at least once every 5 years, unless a waiver is granted by the State. The City monitors for sulfate when monitoring is performed for regulated inorganic compounds.

Unregulated Volatile Organic Chemicals – A minimum of one sample shall be taken after treatment at the entry point to the distribution system for each source. Monitoring is required at least once every 5 years. The City monitors for unregulated volatile organic chemicals when samples for regulated volatile organic chemicals are taken.

Unregulated Synthetic Organic Chemicals – A minimum of one sample shall be taken after treatment at the entry point to the distribution system for each source. Monitoring is required at least once every 5 years, unless a waiver is granted by the State. The City monitors for unregulated SOCs when samples for regulated SOCs are taken.

Radionuclides – A minimum of one sample shall be taken after treatment at the entry point to the distribution system for each source. Initial monitoring for gross alpha particle radioactivity, radium-226 and radium-228 required four consecutive quarterly samples. Monitoring thereafter requires four consecutive quarterly samples at least once every 48 months. The analysis for radium-226 and radium-228 may be omitted, if the results from the gross alpha particle radioactivity analysis are less than 5 pCi/L. In addition, if the results of the initial analysis are less than half of the established MCL, the required monitoring may be reduced to a single sample collected every 48 months. The initial radionuclide samples resulted in levels much less than the MCL, if detectable at all, and the City may now monitor for radionuclides once every 6 years at all sources, except S04, which has a 9-year waiver for radium-226/228. The next gross alpha and radium-226/228 sampling is required in 2026 for S02, and S04 requires gross alpha sampling in 2023, and radium-226/228 sampling in 2028.

DISTRIBUTION SYSTEM WATER QUALITY MONITORING

The City is required to perform water quality monitoring within its distribution system for coliform bacteria, disinfectant (chlorine) residual concentration, lead and copper, and trihalomethanes in accordance with Chapter 246-290 WAC.

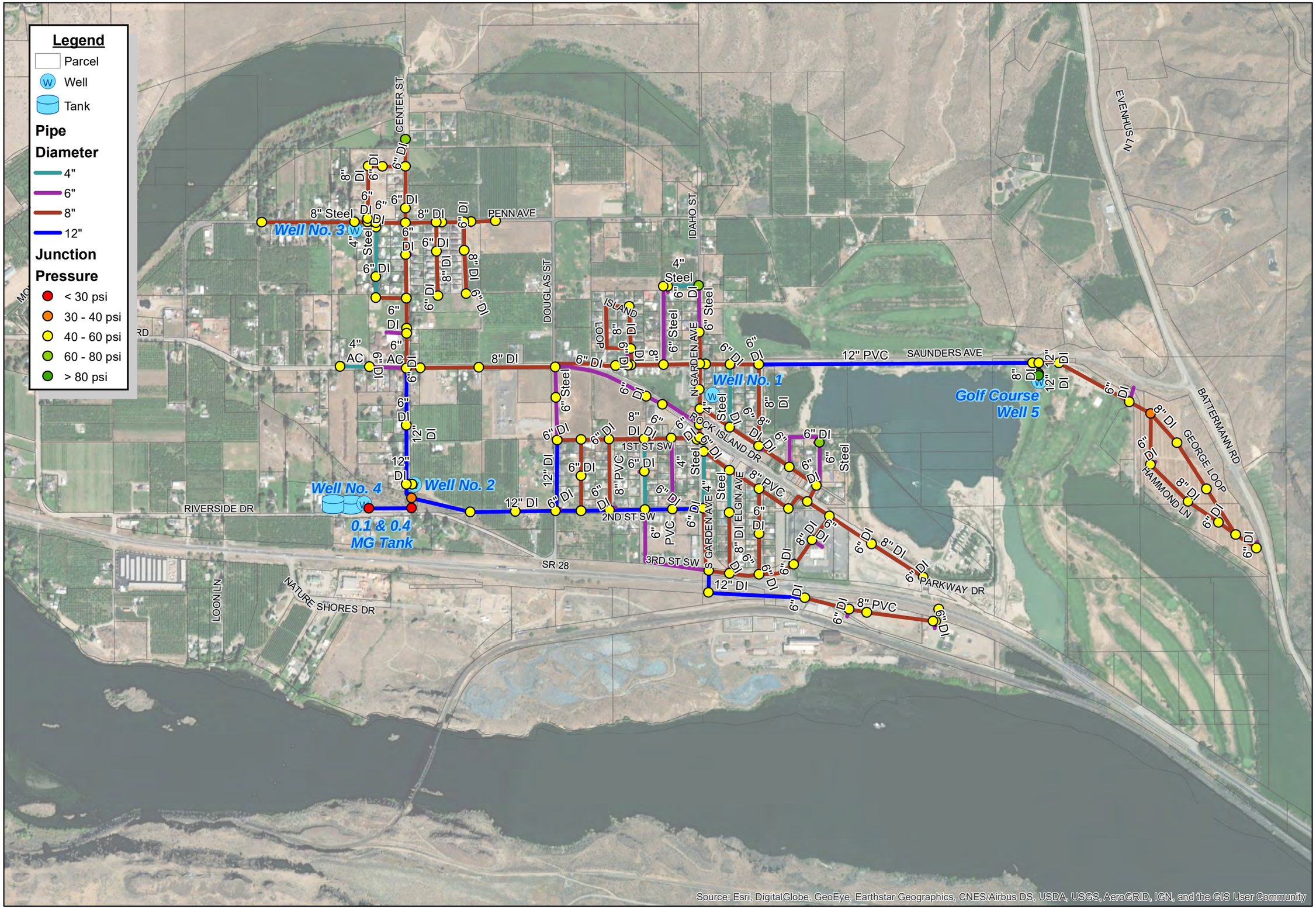
MONITORING REQUIREMENTS AND PROCEDURES

Coliform Bacteria Routine Sampling – Specific requirements are contained in WAC 246-290-300. A minimum of two samples per month shall be taken from different locations throughout the system, based on the current population of 2,191 in 2021. If a coliform presence is detected in a sample, three repeat samples must be taken. Currently, the City takes two samples each month to obtain an adequate representation of the pressure zones, reservoirs, and distribution system.

Coliform Bacteria Repeat Sampling – In the event that a sample tests positive for coliform, a repeat sample shall be taken at the same location as the suspect sample, and two additional samples shall be taken within five service connections upstream and downstream of the suspect sample. These repeat samples shall be taken by the end of the next business day after receiving the unsatisfactory results. If the results conclude that an MCL is exceeded (i.e., coliform are present in two or more samples for the month, including repeat samples), the City shall proceed with public notification in accordance with WAC 246-290-495.

Appendix N

Hydraulic Analysis



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PRELIMINARY

Vicinity Map

, HERE, Garmin, (c)
enStreetMap contributors,

Figure A.1
Existing Water System 2021 PHD
City of Rock Island Water System Plan

CITY OF ROCK ISLAND

1 inch = 800 feet

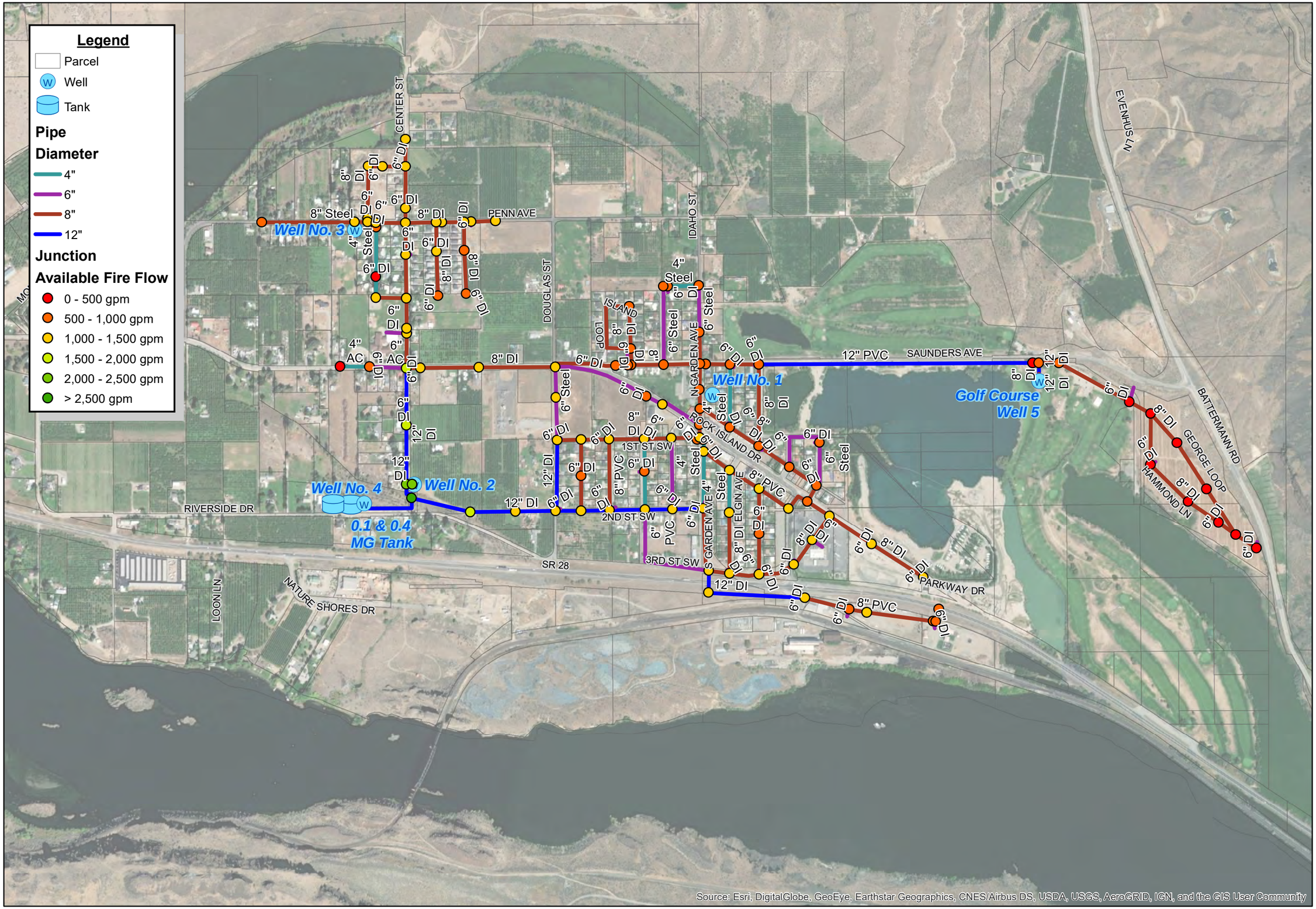
0 205 410 820 Feet

DRAWING IS FULL SCALE WHEN BAR MEASURES 1"

RH2

NORTH

J:\DATA\ROC\20-0103\GIS\MAP\FIGURE B PHD JUNCTIONS.MXD BY: JRIBAIL PLOT DATE: MAY 4, 2022 COORDINATE SYSTEM: NAD 1983 HARN STATEPLANE WASHINGTON NORTH FIPS 4601 FEET



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PRELIMINARY

Vicinity Map

J:\DATA\ROC\20-0103\GIS\MAP\FIGURE A MDD JUNCTIONS.MXD BY: JRIBAIL PLOT DATE: MAY 4, 2022 COORDINATE SYSTEM: NAD 1983 HARN STATEPLANE WASHINGTON NORTH FIPS 4601 FEET

Figure B.1

Existing Water System 2021 MDD

City of Rock Island Water System Plan

CITY OF ROCK ISLAND

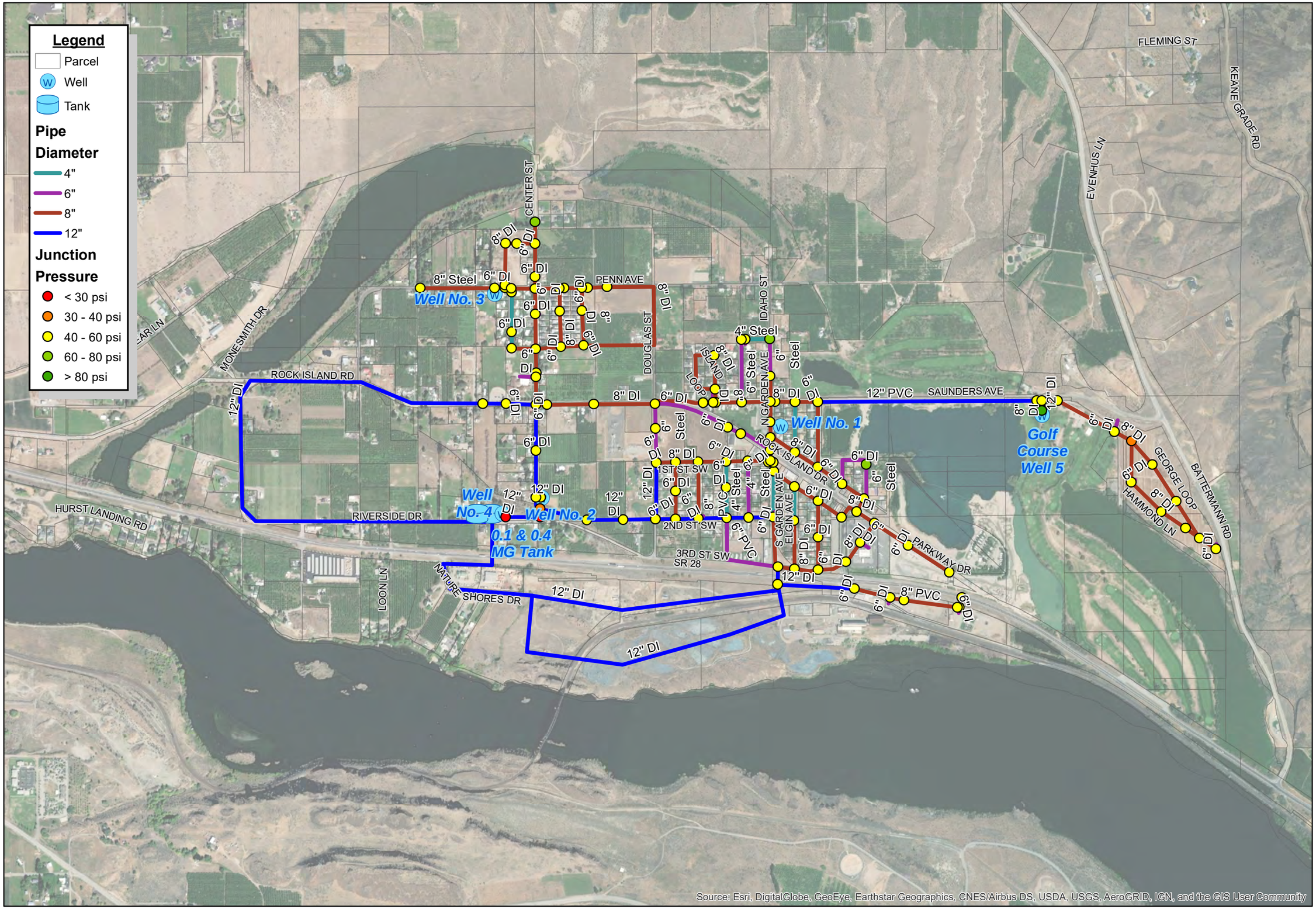
1 inch = 800 feet

0 205 410 820 Feet

DRAWING IS FULL SCALE WHEN BAR MEASURES 1"

RH2

NORTH



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PRELIMINARY

Vicinity Map

J:\DATA\ROC20-0103\GIS\MAP\FIGURE D 2031 PHD JUNCTIONS.MXD BY: JRIBAIL PLOT DATE: MAY 4, 2022 COORDINATE SYSTEM: NAD 1983 HARN STATEPLANE WASHINGTON NORTH FIPS 4601 FEET

Figure A.2
2031 PHD Pressure
City of Rock Island Water System Plan

CITY OF ROCK ISLAND

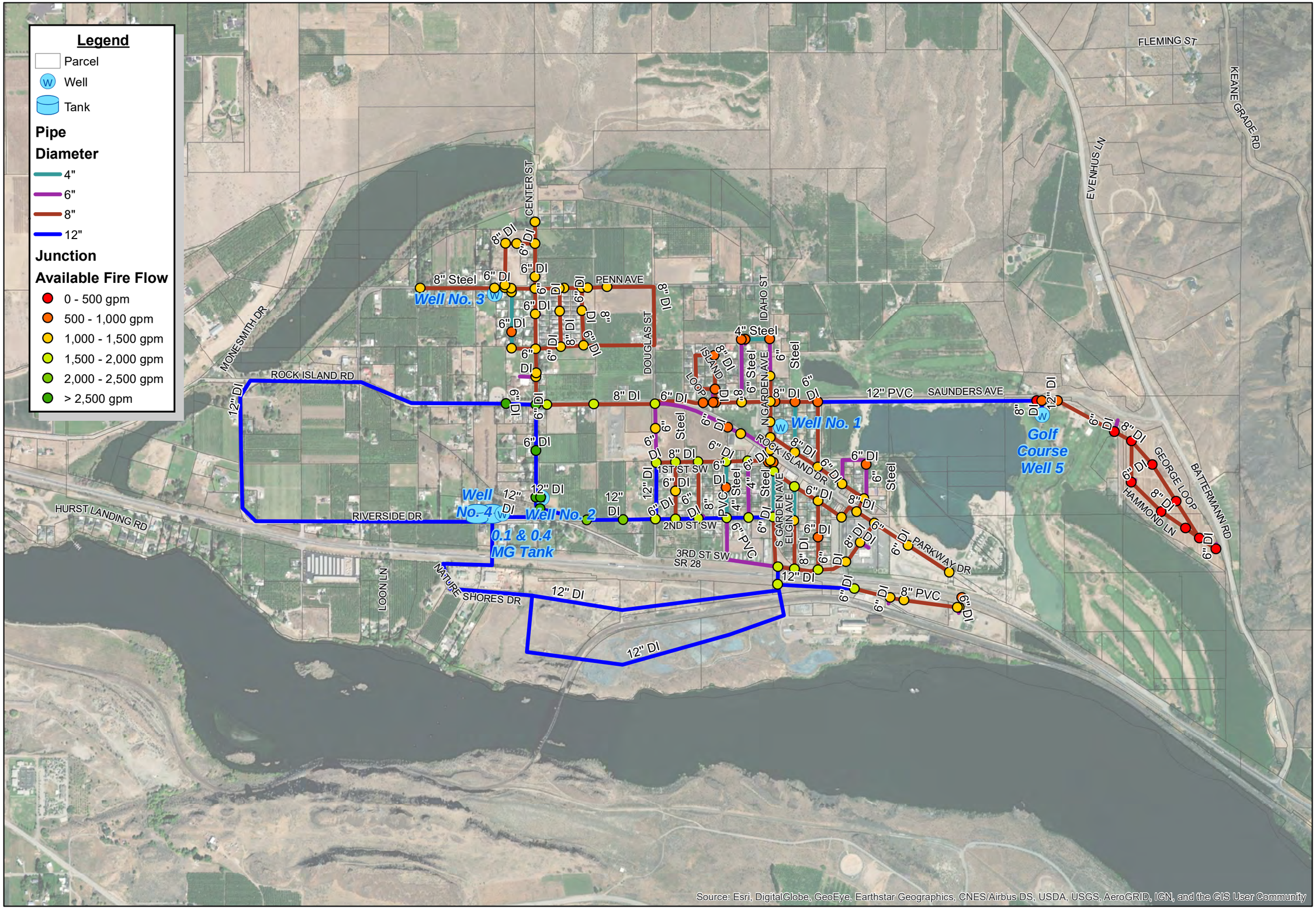
1 inch = 1,000 feet

0 255 510 1,020 Feet

DRAWING IS FULL SCALE WHEN BAR MEASURES 1"

RH2

NORTH



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PRELIMINARY

Vicinity Map

, HERE, Garmin, (c)
enStreetMap contributors,

Figure B.2
2031 MDD Available Fire Flow
City of Rock Island Water System Plan

CITY OF ROCK ISLAND

1 inch = 1,000 feet

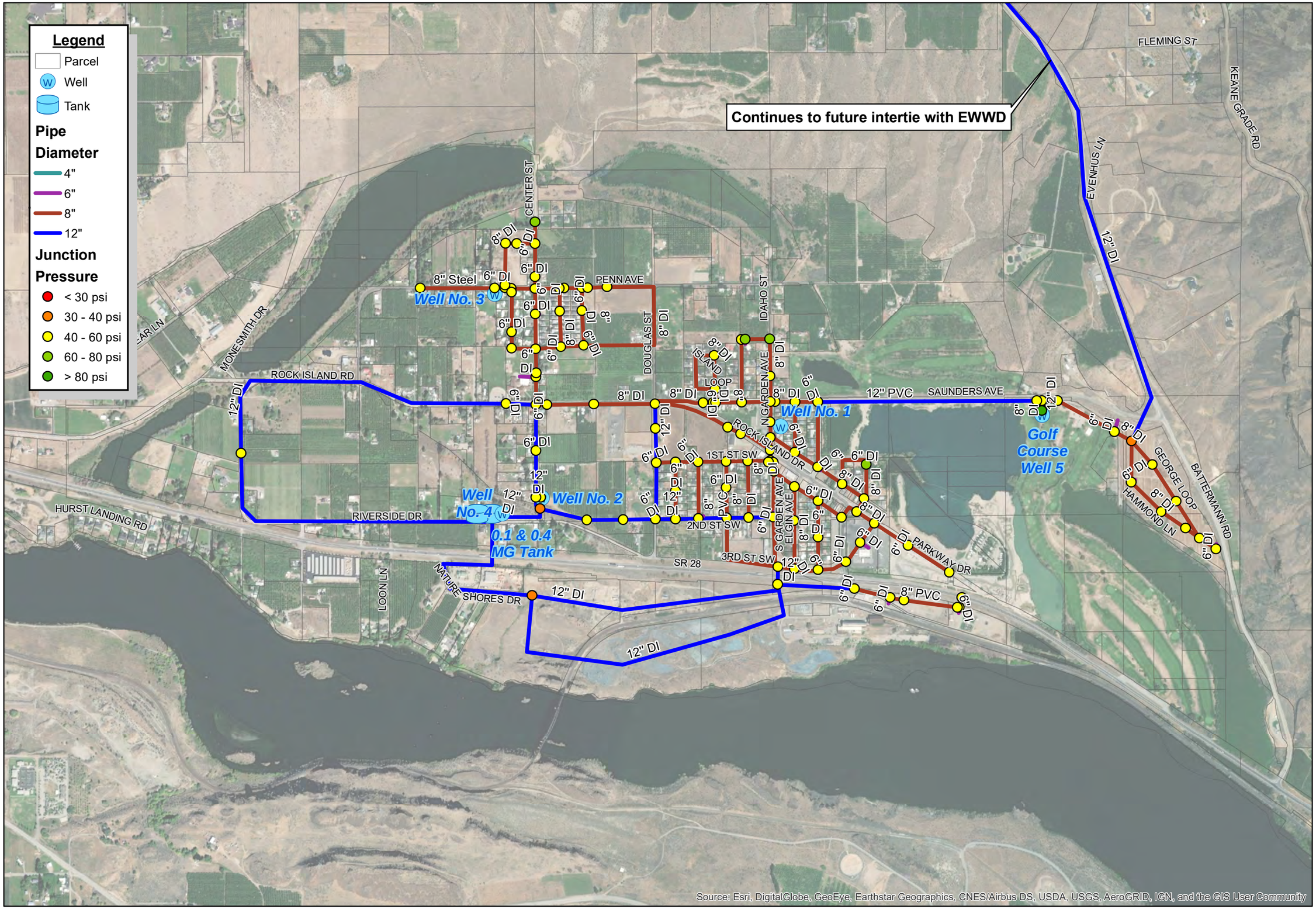
0 255 510 1,020 Feet

DRAWING IS FULL SCALE WHEN BAR MEASURES 1"

RH2

NORTH

J:\DATA\ROC\20-0103\GIS\MAP\FIGURE C 2031 MDD JUNCTIONS.MXD BY: JRIBAIL PLOT DATE: MAY 4, 2022 COORDINATE SYSTEM: NAD 1983 HARN STATEPLANE WASHINGTON NORTH FIPS 4601 FEET



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PRELIMINARY

Vicinity Map

J:\DATA\ROC\20-0103\GIS\MAP\FIGURE A.3 2041 PHD JUNCTIONS.MXD BY: JRIBAIL PLOT DATE: MAY 4, 2022 COORDINATE SYSTEM: NAD 1983 HARN STATEPLANE WASHINGTON NORTH FIPS 4601 FEET

Figure A.3
2041 PHD Pressure
City of Rock Island Water System Plan

CITY OF ROCK ISLAND

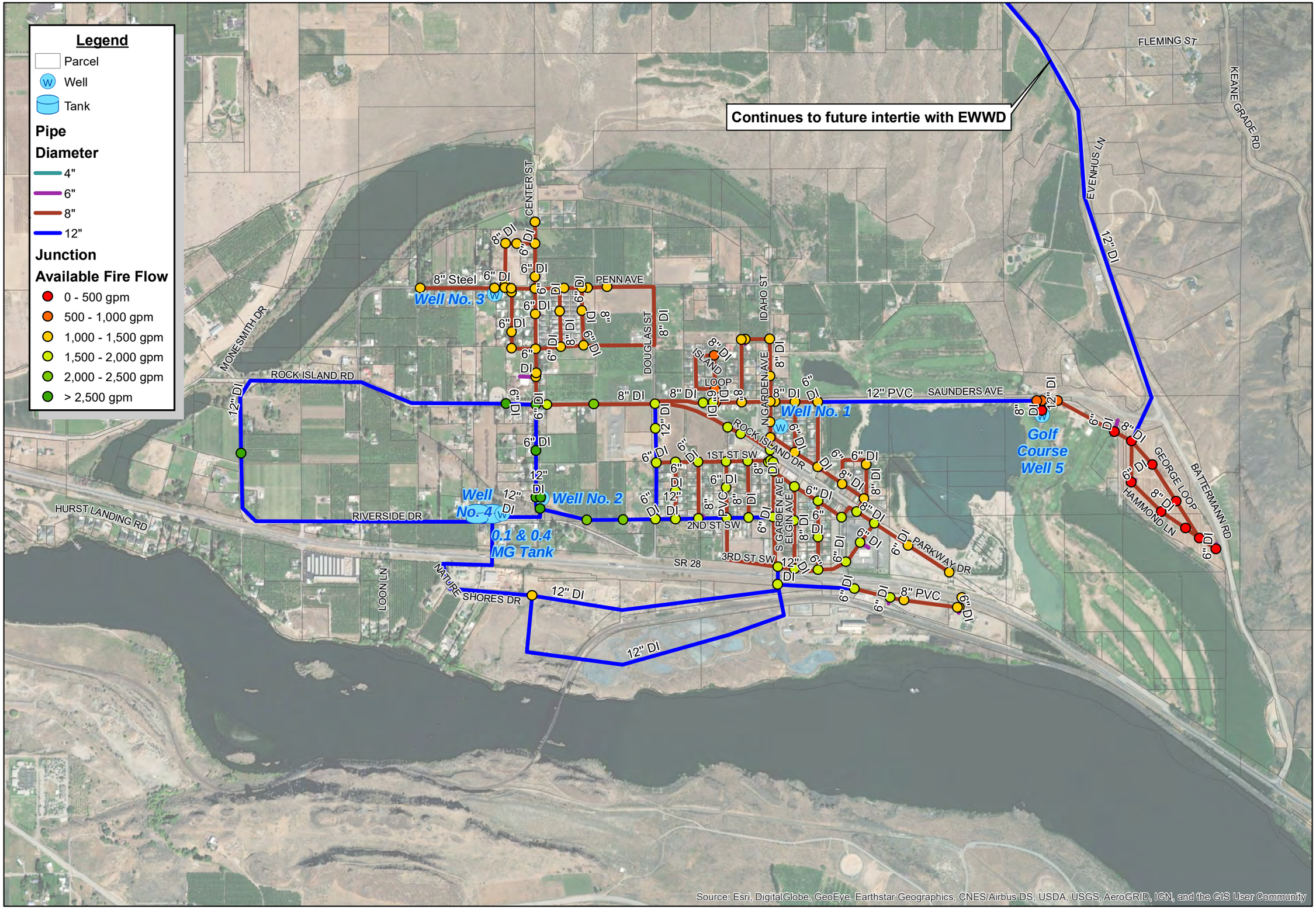
1 inch = 1,000 feet

0 255 510 1,020 Feet

DRAWING IS FULL SCALE WHEN BAR MEASURES 1"

RH2

NORTH



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PRELIMINARY

Vicinity Map

Figure B.3
2041 MDD Available Fire Flow
City of Rock Island Water System Plan

CITY OF ROCK ISLAND

1 inch = 1,000 feet

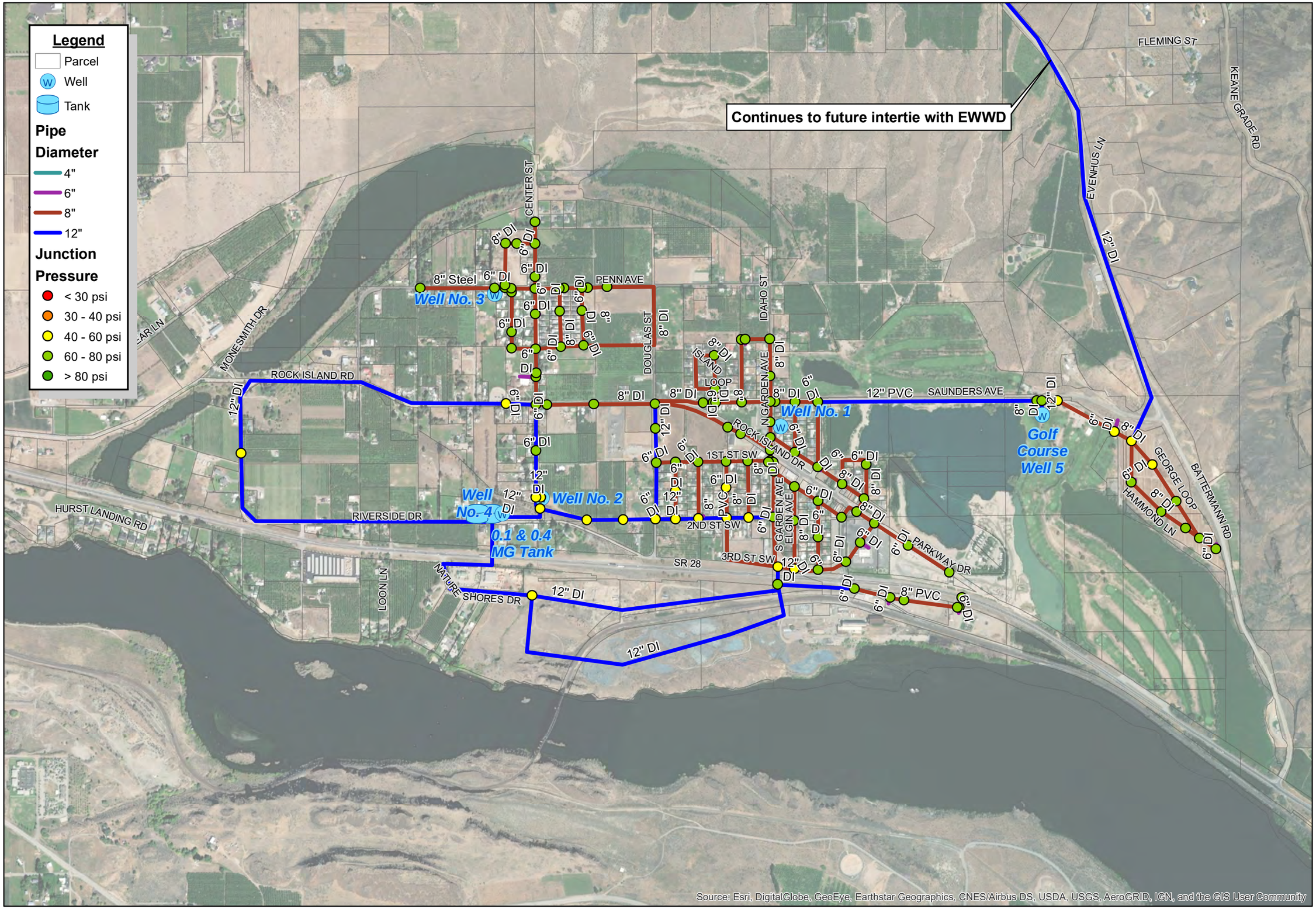
0 255 510 1,020 Feet

DRAWING IS FULL SCALE WHEN BAR MEASURES 1"

RH2

NORTH

J:\DATA\ROC\20-0103\GIS\MAP\FIGURE B.3 2041 MDD JUNCTIONS.MXD BY: JRIBAIL PLOT DATE: MAY 4, 2022 COORDINATE SYSTEM: NAD 1983 HARN STATEPLANE WASHINGTON NORTH FIPS 4601 FEET



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PRELIMINARY

Vicinity Map

Figure A.3
2041 PHD Pressure
City of Rock Island Water System Plan

CITY OF ROCK ISLAND

1 inch = 1,000 feet

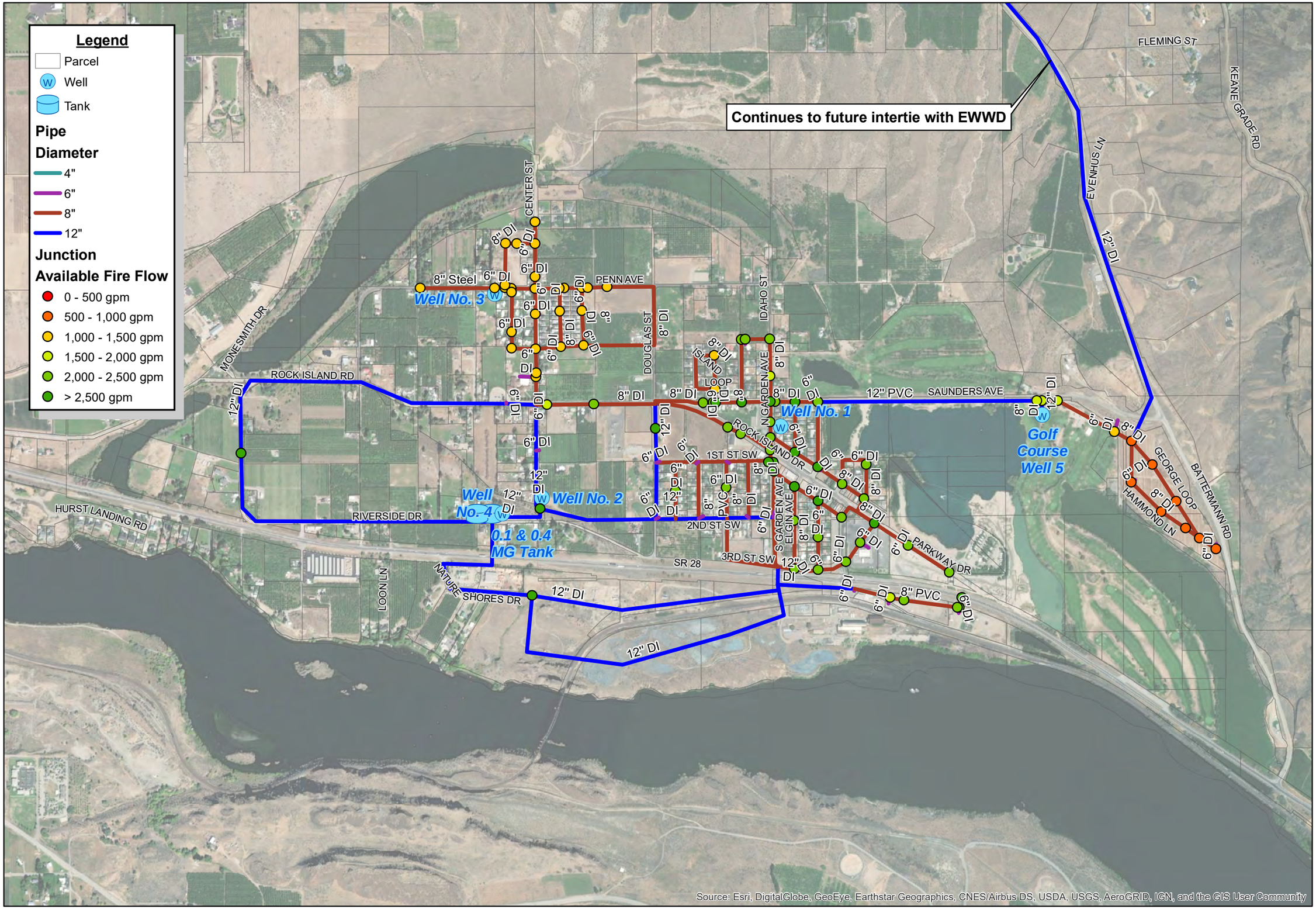
0 255 510 1,020 Feet

DRAWING IS FULL SCALE WHEN BAR MEASURES 1"

RH2

NORTH

J:\DATA\ROC20-0103\GIS\MAP\FIGURE F 2041 PHD JUNCTIONS.MXD BY: JRIBAIL PLOT DATE: MAY 4, 2022 COORDINATE SYSTEM: NAD 1983 HARN STATEPLANE WASHINGTON NORTH FIPS 4601 FEET



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PRELIMINARY

Vicinity Map

Figure B.3
2041 MDD Available Fire Flow
City of Rock Island Water System Plan

CITY OF ROCK ISLAND

1 inch = 1,000 feet

0 255 510 1,020 Feet

DRAWING IS FULL SCALE WHEN BAR MEASURES 1"

RH2

NORTH

J:\DATA\ROC\20-0103\GIS\MAP\FIGURE E 2041 MDD JUNCTIONS.MXD BY: JRIBAIL PLOT DATE: MAY 4, 2022 COORDINATE SYSTEM: NAD 1983 HARN STATEPLANE WASHINGTON NORTH FIPS 4601 FEET

Appendix O

Cross Connection Control Standards

Chapter 8.30

CROSS-CONNECTIONS*

Sections:

8.30.010 Purpose.
8.30.020 Adoption by reference.
8.30.030 Definitions.
8.30.040 Cross-connection control/ customer responsibilities.
8.30.050 Backflow prevention assembly installation practices.
8.30.055 Premises isolation practices.
8.30.060 Backflow prevention assembly testing procedures.
8.30.070 Enforcement.
8.30.080 Inspection of new construction.
8.30.090 Inspection of existing construction.
8.30.100 Inspection access.
8.30.110 Records.
8.30.120 Penalty.
8.30.130 Termination/notice.

*Code reviser's note: Ordinance 97-008 adds these provisions as Chapter 8.26. The chapter has been editorially renumbered to prevent duplication of numbering.

8.30.010 Purpose.

A. The purpose of the cross-connection control program is to protect the health of water consumers and potability of the public 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.

B. No cross-connections shall exist except in accordance with this chapter and applicable state law as now exists or as may be hereafter amended. (Ord. 97-008 § 1).

8.30.020 Adoption by reference.

A. Cross-connections and backflow prevention assemblies and devices shall conform to the Uniform Plumbing Code, 1994 Edition, as now exists or as may be hereafter amended, and the State of Washington Board of Health, Drinking Water Regulations, WAC 246-290-490, as now exists or as may be hereafter amended. Said codes are hereby adopted by this reference as if fully set forth herein.

B. Policies, procedures and criteria for determining appropriate levels of cross-connection protection shall be in accordance with the Cross-Connection Control Manual, Accepted Procedure and Practice, Sixth Edition, December 1995, Cross-Connection Control Committee, Pacific Northwest Section AWWA, or any superseding edition, which is adopted by this reference as if fully set forth herein. (Ord. 97-008 § 1).

8.30.030 Definitions.

A. For the purposes of this chapter, the following words and phrases shall be defined as follows:

1. "Accessible" means, in reference to the installation of backflow preventers, that such backflow preventers shall be placed so that they can be reached for testing and/or maintenance safely, but may allow access to panels, doors, etc.

2. "Administrative authority" means the maintenance supervisor of the city of Rock Island or other person designated by the mayor, or other individual, department or agency given the responsibility and authority by the state, county, or other political entity created by law to administer and enforce the provision of a cross-connection control program.

3. "Air gap" means the vertical physical separation between the free flowing discharge end of the potable supply line and the overflow rim of the receiving vessel. In an "approved" air gap, the separation must be at least twice the inside diameter of the supply line, but never less than one inch. When the air gap is within three pipe diameters (measured horizontally) of a wall, the air gap shall be increased to three times the incoming pipe diameter, or four times the effective opening for intersecting walls.

4. "Approval/approved" means approved in writing by the health authority or other administrative authority having jurisdiction.

5. "Aspiration" means the use of the venturi principle (a subatmospheric pressure condition caused by an increase of velocity in a water line through a localized restriction) to introduce a second substance in the water supply.

6. "ASSE" is the abbreviation for the American Society of Sanitary Engineering.

7. "Atmospheric vacuum breaker (AVB)" means a device which contains a float check (poppet), a check seat and an air inlet vent. When water pressure is reduced to a gauge pressure of zero or below, the float check drops, allowing air to enter the device, preventing backsiphonage. It is designed to protect against backsiphonage only.

8. "Auxiliary water supply" means any water supply on, or available to, a premises in addition to the purveyor's approved public potable water supply.

9. "Auxiliary water supply, approved" means an auxiliary water supply which has been investigated and approved by the health authority, meets water quality regulations, and is accepted by the water purveyor.

10. "Auxiliary water supply, unapproved" means an auxiliary water supply which is not approved by the health authority and the water purveyor.

11. "AWWA" is the abbreviation for the American Water Works Association.

12. "Backflow" means the flow of water or other liquids, gases or solids from any source back into the customer's plumbing system or the water purveyor's water distribution system.

13. Backflow Prevention Assembly. The nomenclature "assembly" refers to a backflow preventer which is designed to be in-line tested and repaired, and to meet the head loss and flow requirements of the recognized approval authority. The "assembly" consists of the backflow prevention unit, two resilient seated shutoff valves, and test cock(s).

14. Backflow Prevention Device. The nomenclature "device" refers to a backflow preventer that is not designed for in-line testing.

15. Backflow Prevention Assembly Tester – Certified (BAT). See "certified backflow assembly tester."

16. "Backpressure" means water pressure which exceeds the operating pressure of the purveyor's potable water supply.

17. "Backsiphonage" means backflow due to a negative or reduced pressure within the purveyor's potable water supply.

18. "Barometric loop (BL)" means a loop of pipe rising at least 35 feet at its uppermost point, above the highest point on the downstream piping.

19. "Capillary action" means a form of backflow where liquids can be drawn into small openings of a water outlet by capillary action. Capillary action (or attraction) is the energy that causes a liquid to adhere to the internal walls of a small pipe, overcoming the internal cohesion of the liquid.

20. "Certified backflow assembly tester" means a person who is certified by the administrative authority having jurisdiction to test backflow prevention assemblies.

21. "Certified cross-connection control specialist/inspector" means a person who is certified by the administrative authority having jurisdiction to administer a cross-connection control program and to conduct facility surveys.

22. "Check valve" is a generic term used for a variety of valves that specifically allow flow in one direction only. The variety of such valves include slanting disc checks, silent checks (wafer or globe), automatic control checks, rubber flapper checks, double disc swing checks, swing checks (internally or externally weighted), and a spring loaded check. A check valve in an approved assembly must be an approved check valve (components of double check valve assemblies, reduced pressure backflow assemblies, pressure vacuum breakers etc.) that is drip-tight in the normal direction of flow when the inlet pressure is at least one p.s.i.

23. "City" means the city of Rock Island and its authorized agents and employees.

24. "Confined space" means any space having a limited means of egress and not intended for continuous occupancy, which is

subject to the accumulation of toxic or flammable contaminants or an oxygen deficient atmosphere.

25. "Containment" means to restrict or limit the flow of contaminated or polluted water to the meter or service connection where the public water enters the private (customer's) water system. The two systems are separated by a backflow preventer commensurate with the degree of hazard. (See also "premises isolation.")

26. "Contamination" means an impairment of the quality of the potable water which creates an actual hazard to the public health through poisoning or through the spread of diseases by sewage, industrial fluids or waste. Also defined as severe or high hazard. Also see "pollution" and "maximum contaminant level."

The term "contamination" used in EPA and state drinking water regulations "maximum contamination level" bestows a different meaning than that used in describing a cross-connection hazard.

27. "Critical level" means the point on a vacuum breaker which determines the minimum elevation above the flood level rim of the fixture or receptacle served at which the vacuum breaker may be installed.

28. "Cross-connection" means any actual or potential physical connection between a potable water line and any pipe, vessel, or machine containing a nonpotable fluid or has the possibility of containing a nonpotable fluid, such that it is possible for the nonpotable fluid to enter the water system by backflow. A cross-connection could be any physical arrangement whereby a potable water supply is connected, directly or indirectly, with any nonpotable or unapproved water supply system, sewer, drain, conduit, pool, storage reservoir, plumbing fixture, or any other device which contains, or may contain, contaminated water, liquid, gases, sewage, or other waste, of unknown or unsafe quality which may be capable of imparting contamination to the potable water supply as a result of backflow. See also "point of hazard."

29. "Customer" includes owner(s) of the property in which the customer system is located and the tenant(s) of such property.

30. "Customer system" means all plumbing, piping, and appurtenances on the customer's side of the point of metering or connection.

31. "Double check detector assembly (DCDA)" means an approved assembly consisting of two approved double check valve assemblies, set in parallel, equipped with a meter on the bypass line to detect small amounts of water leakage or use.

32. "Double check value assembly (DCVA)" means an approved assembly consisting of two independently operating check valves, loaded to the closed position by springs or weights, and installed as a unit with, and between, two resilient seated shutoff valves and having suitable connections for testing.

33. "Distribution system" means the network of pipes and other facilities which are used to distribute water from the source, treatment, transmission, or storage facilities to the water user.

34. "Dual distribution system" means a facility with two water systems, one potable and the other nonpotable. The purpose of the nonpotable water system is to reduce the cost of the potable water supply.

35. "Facility survey" means an on-site review of the water source, facilities, equipment, operation, and maintenance for the purpose of evaluating the hazards to the potable water supply.

36. "Flood level" means the highest level to which water, or other liquid, will rise within a tank or fixture (i.e., the overflow rim of the receiving vessel).

37. "Gray water" is untreated household water which has not come into contact with sewage. Gray water can include used water from kitchen sinks, dishwasher waste water, bathtubs, showers, bathroom wash basins and water from clothes washing machines and laundry tubs.

38. "Hazard, plumbing" means a cross-connection in a customer's potable water system.

39. "Hazard, public health" means a condition, device or practice which is conducive to the introduction of waterborne disease organisms, or harmful chemical, physical, or radioactive substances into a potable water system, and which presents an unreasonable risk to health.

40. "Health authority" means the appropriate state department or districts of public health or, in some cases, a local agency having jurisdiction.

41. "Heat sink" means the use of the purveyor's potable water system as a heat sink, by taking water from a water main, passing it through a heat exchanger and then returning the warm water back to the purveyor's potable water system.

42. "High health hazard" means a physical or toxic hazard which could be detrimental to one's health.

43. "Hose faucet vacuum breakers (HFVBs)" are vacuum breakers that are either incorporated into or attached onto the hose faucet (hose bibb) threads.

44. Industrial Water. See "process water."

45. "Industrial piping system" of a customer refers to that piping system that transmits, confines, or stores any fluids that are not approved potable water. Such a system would include all pipes, tanks, fixtures, equipment and other extensions of the nonpotable water system.

46. "In-plant isolation" means the practice of installing backflow prevention assemblies at the point of hazard to protect one or more actual or potential cross-connections within a premises. See "point of hazard."

47. "Internally loaded check valve" means a check valve which is internally loaded, either by springs or weights, to the extent it will be drip tight with a one p.s.i. differential in the direction of flow.

48. "Internal protection" means internal isolation, the practice of installing backflow prevention assemblies to protect an area within a customer's facility.

49. "Local enforcement authority" means the authorized agent of the administrative authority and/or the water purveyor.

50. "Low health hazard" means those contaminants which, at the levels found in the water, could cause aesthetic problems such as adverse effects on the taste, odor and color of the water or have a detrimental effect on the quality of the purveyor's potable water supply, but which does not present a danger to health.

51. "Maximum contaminant level (MCL)" means the maximum amount of a contaminant allowed in a sample of water according to federal and state regulations. The importance of this to cross-connection control is that the presence of a higher level than at the source may signify the occurrence of a cross-connection incident.

52. "Nonpotable fluid" means any water, other liquid, gas, or other substance which is not safe for human consumption, or is not a part of the public potable water supply as described by the health authority.

53. "Nonpotable piping system" means a piping system which is made of nonpotable material. Such materials are to be considered nonpotable if they can affect either the aesthetics or degradation of the healthfulness of the water. Examples of such pipe are black iron and certain plastics.

54. "Pathogenic" means a specific agent (bacterium, virus or parasite) causing or capable of causing disease.

55. "Pollution" means:

a. An impairment of the quality of the public potable water supply which does not create a hazard to the public health but which does adversely affect the aesthetic qualities of such potable waters for domestic use. Also defined as low hazard. See also "contaminant" and "maximum contaminant level."

b. An impairment of the quality of potable water which creates an actual hazard to the public health through poisoning or through the spread of diseases by sewage, industrial fluids or waste. Also defined as high hazard.

56. "Point of hazard" means the point where a real or potential cross-connection (potable water coming in contact with nonpotable water, gases, or other fluids) can be determined. More obvious points include fixtures and any systems including boilers, fire protec-

tion services, or any system where the possibility of chemical contact or stagnation exists.

57. "Potable water" means water which is safe for human consumption, free from harmful or objectionable materials, as described by the health authority. (See "safe drinking water.")

58. "Premises isolation" means the practice of protecting the public potable water supply by installing backflow prevention assemblies at or near the point where water enters the premises. This type of protection does not provide protection to personnel on the premises.

59. "Pressure vacuum breaker assembly (PVBA)" means an approved assembly consisting of a spring loaded check valve loaded to the closed position, an independently operating air inlet valve loaded to the open position, and installed as a unit with and between two resilient seated shutoff valves and with suitable connections for testing. It is designed to protect against backsiphonage only.

60. "Private hydrant" means any hydrant which is not owned, operated or maintained by the local water purveyor or his agent.

61. "Process water" means water that is directly connected to, or could come in contact with, an extreme high hazard situation, and must never be consumed by humans.

62. "Reasonable risk" means the amount of risk acceptable to a prudent and reasonable water purveyor using reasonable diligence.

63. "Reclaimed water" means wastewater that has been treated for nonpotable water use within the same facility or premises. Examples of use would be irrigation and for industrial use.

64. "Reduced pressure backflow assembly (RPBA)" means an approved assembly consisting of two independently operating check valves, spring loaded to the closed position, separated by a spring loaded differential pressure relief valve loaded to the open position, and installed as a unit with and between two resilient seated shutoff valves and having four suitable test cocks for checking the water tightness of the check valves and the operation of the relief valve.

65. "Reduced pressure detector assembly (RPDA)" means an approved assembly consisting of two approved reduced pressure backflow assemblies, set in parallel, equipped with a meter on the bypass line to detect small amounts of water leakage or use. This unit must be purchased as a complete assembly. The assembly may be allowed on fire line water services in place of an approved reduced pressure backflow assembly upon approval by the local water purveyor.

66. The "Safe Drinking Water Act" was legislation that was enacted by the United States Congress in 1974 to ensure that the public is provided with safe drinking water, thereby protecting the public welfare.

67. "Safe drinking water" means water which has sufficiently low concentrations of microbiological, inorganic chemical, organic chemical, radiological or physical substances so that individuals drinking such water at normal levels of consumption will not be exposed to disease organisms or other substances which may produce harmful physiological effects.

68. "Service connection" means the piping connection by means of which water is conveyed from the water purveyor's distribution main to a customer's premises. For a community water system, the portion of the service connection which conveys water from the distribution main to the customer's property line, or to the service meter where provided, is under the jurisdiction of the water purveyor.

69. "System hazard" means the actual or potential threat of severe danger to the physical characteristics, as well as serious water quality deterioration of public and private plumbing systems, such as the damage caused by air or steam in piping systems not designed for such substances.

70. "Thermal expansion" is the pressure increase due to a rise in water temperature. The problem becomes acute in heated water piping systems when such system becomes "closed" due to a backflow preventer which disallows expansion beyond that point.

71. "Toxicity" means the degree to which a substance is toxic, that is, poisonous,

in relation to affecting the potability of the water supply.

72. "Unreasonable risk to health" means a risk to health which is not necessary or acceptable to the water purveyor and/or consumer; a term used to distinguish what type of backflow prevention should be required. See also "reasonable risk."

73. "USC FCCCHR" is the abbreviation for the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research. It is an agency which tests and approves backflow prevention assemblies by approved standards.

74. "Used water" means any potable water which is no longer in the purveyor's distribution system. In most cases, the potable water has moved past (downstream of) the water meter and/or the property line.

75. "Water purveyor" means any agency, subdivision of the state, municipal corporation, firm, company, mutual or cooperative association, institution, partnership, person or other entity that owns or operates a public potable water system. It also means the authorized agents of such entities.

76. "Water system" means a system for the provision of piped water for human consumption. (Ord. 97-008 § 1).

8.30.040 Cross-connection control/ customer responsibilities.

A. It is the responsibility of all customers to abide by the conditions of this chapter. In the event of any changes to the customer's system, it is the responsibility of the customer to notify the city so a facility survey may be scheduled and conducted.

B. All costs associated with this chapter and the purchase, installation, testing or repair of devices are the responsibility of the customer.

C. The customer shall take all measures necessary to prevent the contamination of the customer's system and the purveyor's water system that may occur from backflow through any cross-connection. These measures shall include the prevention of backflow under any backpressure or backsiphonage condition, including the disruption of supply from the purveyor's system that may occur by reason of routine system maintenance or during emergency conditions such as a water main break.

D. For cross-connection control facility surveys or other public health related surveys, the customer shall provide free access for the employees of the water purveyor or other administrative authority to all parts of the premises during reasonable working hours of the day for routine facility surveys, and at all times during emergency.

E. The customer shall install all backflow prevention assemblies requested by the purveyor, and maintain those assemblies in good working order. The assemblies shall be of type, size and make approved by the water purveyor and the state health authority. The assemblies shall be installed in accordance with all standards established by the purveyor.

F. The customer shall have all backflow prevention assemblies tested upon installation, annually thereafter, or when requested by the purveyor, after repair and after relocation. A certified backflow assembly tester shall perform all testing. The results of the tests shall be reported within 30 days to the water purveyor on a form provided by or approved by the purveyor.

G. The customer acknowledges the right of the water purveyor, in keeping with state regulations to impose retroactive requirements imposed by the water purveyor for cross-connection control measures.

H. The customer shall indemnify and hold harmless the city for all contamination of the customer's system or the city's water system that results from an unprotected or inadequately protected cross-connection within their premises. This indemnification shall pertain to all backflow conditions that may arise from the city's suspension of water supply or reduction of water pressure, recognizing that the air gap separation otherwise requires the customer to provide adequate facilities to collect, store and pump water from their premises. (Ord. 97-008 § 1).

8.30.050 Backflow prevention assembly installation practices.

A. Elimination. Cross-connections shall be removed and eliminated where reasonably practical.

B. Alternatives to Elimination. Where it is not reasonably practical to remove or eliminate a cross-connection, the type of protection required shall be commensurate with the degree of hazard which exists as follows:

1. An air gap separation, reduced pressure backflow assembly (RPBA) or a reduced pressure detector assembly (RPDA) shall be installed if the cross-connection creates an actual or potential public health or system hazard.

2. An air gap separation, RPBA, RPDA, double check valve backflow prevention assembly (DCVA), or double check detector assembly (DCDA) shall be installed if the cross-connection is objectionable (low health hazard), but does not pose an unreasonable risk to health.

3. A pressure vacuum breaker assembly (PVBA) or an atmospheric vacuum breaker (AVB) may be installed where the substance which could backflow is objectionable, but does not pose an unreasonable risk to health (low health hazard) and where there is no possibility of backpressure in the down stream piping.

4. 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 opinion of the city's certified cross-connection control inspector and the Department of Health, no hazard exists:

a. Car washes;

b. Chemical plants using water process;

c. Facilities having an auxiliary water supply;

d. Farms;

e. Food and beverage processing plants;

f. Hospitals, medical centers;

g. Irrigation systems;

h. Laboratories;

i. Metal plating industries;

j. Manufacturing plants;

k. Mobile home and recreational parks;

l. Mortuaries;

m. Nursing homes;

n. Petroleum processing or storage plants;

o. Piers, docks, marinas;

p. Premises with heat exchangers and solar potable hot water systems;

q. Radioactive material processing plants or nuclear reactors;

r. Sewage and wastewater treatment plants;

s. Shopping malls;

t. Veterinary clinics, medical clinics, dental clinics;

u. Others specified by the city or other regulations of any administrative authority as now exist or may hereafter be amended.

C. Backflow Prevention Assemblies/ Devices. All installed RPBAs, RPDAs, DCVAs, DCDAs, and PVBAs shall be models included on the current list of Washington State approved cross-connection control backflow assembly devices at the time of installation. All installed RPBAs, RPDAs, DCVAs, DCDAs, and PVDAs in service, but not listed on the current state approved cross-connection control assembly list, may remain in service provided the backflow prevention assemblies were:

1. 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 have successfully passed 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.

D. Installation of Backflow Prevention Assemblies/Devices. All air gaps and backflow prevention assemblies shall be installed

in accordance with the current edition of the Cross-Connection Control Manual of the Pacific Northwest Section – AWWA.

E. Substitution. The purveyor may permit the substitution of a properly installed air gap in lieu of an approved backflow prevention assembly. All such air gap substitutions shall be inspected annually by the certified backflow assembly tester. (Ord. 97-008 § 1).

8.30.055 Premises isolation practices.

In those situations specified below, the following premises isolation practices shall be used unless the inspector finds a higher standard is necessary based upon the degree of hazard present.

A. Used Water.

1. The use of the potable water supply for cooling or heating, or other purposes, and return of the used water to the potable water system is prohibited.

2. The occurrence of two interconnected water services, including but not limited to those for large buildings or other customers requiring redundancy for assured supply, shall require premises isolation, in the form of a single soft-seated check valve installed on each service.

3. Where multiple interconnected water services exist (more than two), premises isolation shall be in the form of an approved DCVA.

B. Auxiliary Water Supply.

1. An approved auxiliary water supply, including but not limited to wells, shall be considered a low health hazard and shall be considered used water. Such auxiliary water supply shall not be allowed to enter the water purveyor's distribution system. Premises isolation at the service connection by an approved DCVA connected to the piping system shall be required for all customers with approved auxiliary water supplies.

2. Unapproved auxiliary water supplies shall be considered a high health hazard. Premises isolation at the service connection by an approved air gap or RPBA shall be required for all customers with unapproved auxiliary water supplies connected to a piping system, whether or not an interconnection exists between the unimproved auxiliary supply and the potable water supply.

3. A stand-alone, elevated water storage facility (e.g., water tank) shall be considered an unapproved auxiliary supply and at a minimum be required to provide premises isolation by an approved DCVA.

C. Gray Water System. All gray water systems shall be considered high health hazards. Premises isolation at the service connection by an approved air gap or RPBA shall be required.

D. Storm Water Reuse Systems. Storm water reuse systems utilize the rain water collected from roof drains, roads, parking areas, and other impervious surfaces for lawn or crop irrigation. A residential storm water reuse system contains a holding tank, an overflow to the building drains, irrigation distribution piping and a pump. All storm water reuse systems shall be considered a high health hazard. Premises isolation at the service connection by an approved air gap or RPBA shall be required.

E. Fire Protection Systems.

1. Fire protection systems that are connected to the water purveyor's potable water system, either directly or indirectly on the property site of a potable water service, shall be isolated with an approved backflow prevention assembly. The level of backflow protection shall be dependent upon the degree of hazard. All fire protection systems shall be considered a high health hazard unless the water purveyor has knowledge that a system does not contain and is unlikely to contain chemicals.

2. Backflow protection for fire systems shall be required as follows:

a. High Hazard Fire System. This category shall include:

i. All foamite systems;

ii. Systems where an unapproved auxiliary water supply is connected to a fire system, or is in close proximity and intended for use by fire pumper trucks;

iii. Systems in which chemical additives or antifreeze are allowed; and

iv. A high hazard fire system shall require, at a minimum, an RPBA or RPDA.

b. Low Hazard Fire System.

i. This category consists of all fire systems not included under high hazard fire systems above.

ii. A DCVA or DCDA shall be required for all low hazard fire systems. (Ord. 97-008 § 1).

8.30.060 Backflow prevention assembly testing procedures.

A. Inspection and Testing. The certified backflow assembly tester shall inspect and test all:

1. RPBAs;
2. RPDAs;
3. DCVAs;
4. DCDAs;
5. New PVDA installations; and
6. Existing PVBAs discovered through routine inspections.

B. Timing. Timing tests and/or inspections shall be conducted as follows:

1. At the time of initial installation;
2. Annually after initial installation, or more frequently if tests indicate repeated failures; and
3. After the assembly is repaired.

C. Repair/Replacement. The assemblies shall be repaired, overhauled, or replaced whenever found to be defective. Improperly installed or altered air gaps must be replumbed or replaced by an approved RPBA. Inspections, tests, and repairs shall be made under the city inspector's supervision and records thereof kept as required by the city. (Ord. 97-008 § 1).

8.30.070 Enforcement.

A. Inspection/Administration. The city's maintenance supervisor ("inspector") shall be responsible for enforcement of the rules and regulations promulgated pursuant to this chapter.

B. Nuisance/Abatement/Termination of Water Service. The installation or maintenance of any cross-connection which would endanger the public water supply of the city of Rock Island is prohibited. Any such cross-connection now existing or hereafter installed is hereby declared a nuisance subject to immediate termination of water service and any such cross-connection shall be abated immediately.

C. Standards. The standards for the maintenance and installation of backflow prevention assemblies and premises isolation practices shall be those set forth in this chapter and in the Cross-Connection Control Manual, Accepted Procedures and Practice, Sixth Edition, December 1995, Cross-Connection Control Committee, Pacific Northwest Section AWWA, or superseding edition (the "manual"). The inspector is authorized to establish higher standards for the installation and maintenance of backflow prevention assemblies and premises isolation practices where he/she finds that good engineering practice, industry standards, or the protection of public health requires such higher standards. If any conflict exists between this chapter and the manual, the higher standard required shall control. (Ord. 97-008 § 1).

8.30.080 Inspection of new construction.

A. Plans for new construction or enlargement of existing services shall be reviewed by the inspector in order to eliminate actual and potential cross-connections.

B. The inspector shall inspect the actual construction performed for compliance of the rules and regulations promulgated pursuant to this chapter.

C. The inspector may only issue a certificate of compliance upon finding that the service complies with all such rules and regulations. (Ord. 97-008 § 1).

8.30.090 Inspection of existing construction.

A. The inspector shall inspect existing service connections at least once a year for compliance with the rules and regulations as promulgated pursuant to this chapter.

B. The inspector may only issue a certificate of compliance upon finding that the service complies with all such rules and regulations. (Ord. 97-008 § 1).

8.30.100 Inspection access.

The inspector, with proper identification, shall have free access at reasonable hours of the day to all parts of any premises to which water is supplied. Water services may be refused or terminated to any customer for failure to allow an inspection. (Ord. 97-008 § 1).

8.30.110 Records.

The inspector shall maintain records of inspection of new and existing construction, certificates of compliance, and customers who are not in compliance. (Ord. 97-008 § 1).

8.30.120 Penalty.

A. Service to any premises receiving water from the public water system shall be contingent upon compliance with all rules and regulations of this chapter, the Department of Health and the purveyor. Service shall be discontinued to any premises for failure to comply with the rules and regulations of the Department and the purveyor.

B. Every customer, owner or occupant of any premises covered by this chapter is responsible for compliance with the terms of this chapter and shall be strictly liable for all damages, including but not limited to, costs and expenses of the city, including attorneys' fees, incurred as a result of failure to comply with the terms and provisions contained in this chapter. (Ord. 97-008 § 1).

8.30.130 Termination/notice.

A. Failure of the customer to cooperate in the installation, maintenance, repair, inspection or testing of backflow prevention assemblies or air gap separation shall be grounds for termination of water service to the premises.

B. If an emergency situation exists, in the discretion of the inspector, water service may be terminated immediately.

C. If an emergency situation is not determined to exist, the water service may be terminated after seven days' written notice to the customer. Notice will be deemed to have been given when deposited in the Rock Island branch of the United States Postal Service. (Ord. 97-008 § 1).

Chapter 8.34

RATES FOR LOW-INCOME SENIOR AND LOW-INCOME DISABLED

Sections:

8.34.010 Purpose and findings.
8.34.020 Definitions.
8.34.030 Rate reduction – Applicable.
8.34.040 Application for reduced rate.
8.34.050 Penalty for false information.

8.34.010 Purpose and findings.

The city council of the city of Rock Island finds that it is appropriate for the city of Rock Island to establish reduced rates for utilities including garbage collection and water provided by the city or its contractor to low-income senior citizens and low-income disabled citizens. (Ord. 98-014 § 2).

8.34.020 Definitions.

A. "Senior citizen" means a person who:

1. Is 62 years of age or older;

2. Receives utility services from the city of Rock Island; and

3. Is the head of a household.

B. "Disabled citizen" means a person who:

1. Receives utility services from the city of Rock Island;

2. Is the head of a household; and

3. Qualifies for special parking privileges under RCW 46.16.381(1)(a) through (f), or a blind person as defined in RCW 74.18.020, or a person who qualifies for supplemental social security benefits due to a disability.

C. "Low-income" is defined as follows:

1. Every single person whose combined disposable income as defined in RCW 84.36.383(5), as it now exists or is hereafter amended, is less than the qualifying amount set forth in RCW 84.36.381(5)(b)(ii), as it now exists or is hereafter amended.

2. Every married couple, constituting a marital community, and whose combined disposable income as defined in RCW 84.36.383(5), as it now exists or is hereafter amended, is less than the qualifying amount set

ORDINANCE NO. 97-008

AN ORDINANCE OF THE CITY OF ROCK ISLAND, WASHINGTON, ESTABLISHING A CROSS CONNECTION CONTROL PROGRAM TO INCLUDE MINIMUM CROSS CONNECTION CONTROL OPERATING POLICIES, BACKFLOW PREVENTION ASSEMBLY INSTALLATION PRACTICES, BACKFLOW PREVENTION ASSEMBLY TESTING PROCEDURES, PREMISE ISOLATION PRACTICES, ESTABLISHING ENFORCEMENT AUTHORITY AND PENALTIES; CONTAINING A SEVERABILITY CLAUSE AND ESTABLISHING AN EFFECTIVE DATE.

WHEREAS, the City of Rock Island has the responsibility to protect its public water system from contamination due to cross connections pursuant to WAC 246-290-490; and

WHEREAS, cross connections which can be eliminated are required to be eliminated; and

WHEREAS, the City of Rock Island is required to develop and implement a cross connection control program acceptable to the State of Washington, Department of Health; and

WHEREAS, WAC 246-290-490 authorizes the City to deny or discontinue water service to any customer failing to cooperate in the installation, maintenance, testing, or inspection of backflow prevention assemblies; now, therefore,

THE CITY COUNCIL OF THE CITY OF ROCK ISLAND, WASHINGTON DO ORDAIN AS FOLLOWS:

Sections:

8.26.010 Purpose.
8.26.020 Adoption by Reference.

8.26.030 Definitions.
8.26.040 Cross Connection Control/Customer Responsibilities.
8.26.050 Backflow Prevention Assembly Installation Practices.
8.26.055 Premise Isolation Practices.
8.26.060 Backflow Prevention Assembly Testing Procedures.
8.26.070 Enforcement.
8.26.080 Inspection of New Construction.
8.26.090 Inspections of Existing Construction.
8.26.100 Inspection Access.
8.26.110 Records.
8.26.120 Penalty.
8.26.130 Termination/Notice.

Section 1. A new Chapter 8.26 is hereby added to the Rock Island Municipal Code to read as follows:

8.26.010 Purpose.

A. The purpose of the cross connection control program is to protect the health of water consumers and potability of the public 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.

B. No cross connections shall exist except in accordance with this Chapter and applicable state law as now exists or as may be hereafter amended.

8.26.020 Adoption by Reference.

A. Cross connections and backflow prevention assemblies and devices shall conform to the Uniform Plumbing Code, 1994 Edition, as now exists or as may be hereafter amended, and the State of Washington Board of Health, Drinking Water Regulations, WAC 246-290-490, as now exist or as may be hereafter amended. Said codes are hereby adopted by this reference as if fully set forth herein.

B. Policies, procedures and criteria for determining appropriate levels of cross connection protection shall be in accordance with the *Cross Connection Control Manual,*

Accepted Procedure and Practice, Sixth Edition, December 1995, Cross Connection Control Committee, Pacific Northwest Section AWWA, or any superseding edition, which is adopted by this reference as if fully set forth herein.

8.26.030 Definitions.

A. For the purposes of this Chapter, the following words and phrases shall be defined as follows:

1. Accessible. In reference to the installation of backflow preventers, accessible shall mean that such backflow preventers shall be placed so that they can be reached for testing and/or maintenance safely, but may allow access panels, doors, etc.

2. Administrative Authority. The Maintenance Supervisor of the City of Rock Island or other person designated by the Mayor, or other individual, department or agency given the responsibility and authority by the state, county, or other political entity created by law to administer and enforce the provision of a cross connection control program.

3. Air Gap. The vertical physical separation between the free flowing discharge end of the potable supply line and the overflow rim of the receiving vessel. In an "approved" air gap, the separation must be at least twice the inside diameter of the supply line, but never less than one-inch. When the air gap is within three pipe diameters (measured horizontally) of a wall, the air gap shall be increased to three times the incoming pipe diameter, or four times the effective opening for intersecting walls.

4. Approval/Approved. Approved in writing by the health authority or other administrative authority having jurisdiction.

5. Aspiration. The use of the venturi principle (a sub-atmospheric pressure condition caused by an increase of velocity in a water line through a localized restriction) to introduce a second substance in the water supply.

6. ASSE. ASSE is the abbreviation for the American Society of Sanitary Engineering.

7. Atmospheric Vacuum Breaker (AVB). A device which contains a float check (poppet), a check seat and as air inlet vent. When water pressure is reduced to a gauge pressure of zero or below, the float check drops, allowing air

to enter the device, preventing backsiphonage. It is designed to protect against backsiphonage only.

8. Auxiliary Water Supply. Any water supply on, or available to, a premise in addition to the purveyor's approved public potable water supply.

9. Auxiliary Water Supply-Approved. An auxiliary water supply which has been investigated and approved by the health authority, meets water quality regulations, and is accepted by the water purveyor.

10. Auxiliary Water Supply-Unapproved. An auxiliary water supply which is not approved by the health authority and the water purveyor.

11. AWWA. AWWA is the abbreviation for the American Water Works Association.

12. Back Flow. The flow of water or other liquids, gases or solids from any source back into the customer's plumbing system or the water purveyor's water distribution system.

13. Backflow Prevention Assembly. The nomenclature "assembly" refers to a backflow preventer which is designed to be in-line tested and repaired, and to meet the head loss and flow requirements of the recognized approval authority. The "assembly" consists of the backflow prevention unit, two resilient seated shutoff valves, and test cock(s).

14. Backflow Prevention Device. The nomenclature "device" refers to a backflow preventer that is not designed for in-line testing.

15. Backflow Prevention Assembly Tester-Certified (BAT). See Certified Backflow Assembly Tester.

16. Backpressure. Water pressure which exceeds the operating pressure of the purveyor's potable water supply.

17. Backsiphonage. Backflow due to a negative or reduced pressure within the purveyor's potable water supply.

18. Barometric Loop (BL). A loop of pipe rising at least 35 feet at its uppermost point, above the highest point on the downstream piping.

19. Capillary Action. A form of backflow where liquids can be drawn into small openings of a water outlet by capillary action. Capillary action (or attraction) is the energy that causes a liquid to adhere to the internal walls of a small pipe, overcoming the internal cohesion of the liquid.

20. Certified Backflow Assembly Tester. A person who is certified by the administrative authority having jurisdiction to test backflow prevention assemblies.

21. Certified Cross Connection Control Specialist/Inspector. A person who is certified by the administrative authority having jurisdiction to administer a cross connection control program and to conduct facility surveys.

22. Check Valve. The term "check valve" is a generic term used for a variety of valves that specifically allow flow in one direction only. The variety of such valves include slanting disc checks, silent checks (wafer or globe), automatic control checks, rubber flapper checks, double disc swing checks, swing checks (internally or externally weighted), and a spring loaded check. A check valve in an approved assembly must be an approved check valve (components of double check valve assemblies, reduced pressure backflow assemblies, pressure vacuum breakers etc) that is drip-tight in the normal direction of flow when the inlet pressure is at least one p.s.i.

23. City. City means the City of Rock Island and its authorized agents and employees.

24. Confined Space. Any space having a limited means of egress and not intended for continuous occupancy, which is subject to the accumulation of toxic or flammable contaminants or an oxygen deficient atmosphere.

25. Containment. To restrict or limit the flow of contaminated or polluted water to the meter or service connection where the public water enters the private (customer's) water system. The two systems are separated by a backflow preventer commensurate with the degree of hazard. (See also **Premise Isolation.**)

26. Contamination. An impairment of the quality of the potable water which creates an actual hazard to the public health through poisoning or through the spread of diseases by sewage, industrial fluids or waste. Also defined as severe or high hazard. Also see **Pollution** and **Maximum Contaminant Level.**

The term "contamination" used in EPA and state drinking water regulations "Maximum contamination level" bestows a different meaning than that used in describing a cross connection hazard.

27. Critical Level. The point on a vacuum breaker which determines the minimum elevation above the flood level rim of the fixture or receptacle served at which the vacuum breaker may be installed.

28. Cross Connection. A cross connection is any actual or potential physical connection between a potable water line and any pipe, vessel, or machine containing a non-potable fluid or has the possibility of containing a non-potable fluid, such that it is possible for the non-potable fluid to enter the water system by backflow. A cross connection could be any physical arrangement whereby a potable water supply is connected, directly or indirectly, with any non-potable or unapproved water supply system, sewer, drain, conduit, pool, storage reservoir, plumbing fixture, or any other device which contains, or may contain, contaminated water, liquid, gases sewage, or other waste, of unknown or unsafe quality which may be capable of imparting contamination to the potable water supply as a result of backflow. See also **Point of Hazard**.

29. Customer. A customer includes owner(s) of the property in which the customer system is located and the tenant(s) of such property.

30. Customer System. All plumbing, piping, and appurtenances on the customer's side of the point of metering or connection.

31. Double Check Detector Assembly (DCDA). An approved assembly consisting of two approved double check valve assemblies, set in parallel, equipped with a meter on the bypass line to detect small amounts of water leakage or use.

32. Double Check Value Assembly (DCVA). An approved assembly consisting of two independently operating check valves, loaded to the closed position by springs or weights, and installed as a unit with, and between, two resilient seated shutoff valves and having suitable connections for testing.

33. Distribution System. The network of pipes and other facilities which are used to distribute water from the source, treatment, transmission, or storage facilities to the water user.

34. Dual Distribution System. A facility with two water systems, one potable and the other non-potable. The purpose of the non-potable water system is to reduce the cost of the potable water supply.

35. Facility Survey. An on-site review of the water source, facilities, equipment, operation, and maintenance for the purpose of evaluating the hazards to the potable water supply.

36. Flood Level. The highest level to which water, or other liquid, will rise within a tank or fixture (i.e. the overflow rim of the receiving vessel).

37. Gray Water. Gray water is untreated household water which has not come into contact with sewage. Gray water can include used water from kitchen sinks, dishwasher waste water, bathtubs, showers, bathroom wash basins and water from clothes washing machines and laundry tubs.

38. Hazard-Plumbing. "Plumbing hazard" is a cross connection in a customer's potable water system.

39. Hazard-Public Health. A condition, device or practice which is conducive to the introduction of waterborne disease organisms, or harmful chemical, physical, or radioactive substances into a potable water system, and which presents an unreasonable risk to health.

40. Health Authority. The appropriate state department or districts of public health or, in some cases, a local agency having jurisdiction.

41. Heat Sink. The use of the purveyor's potable water system as a heat sink, by taking water from a water main, passing it through a heat exchanger and then returning the warm water back to the purveyor's potable water system.

42. High Health Hazard. A physical or toxic hazard which could be detrimental to one's health.

43. Hose Faucet Vacuum Breaker (HFVB). Hose faucet vacuum breakers are vacuum breakers that are either incorporated into or attached onto the hose faucet (hose bibb) threads.

44. Industrial Water. See Process Water.

45. Industrial Piping System. A customer's "industrial piping" system refers to that piping system that transmits, confines, or stores any fluids that are not approved potable water. Such a system would include all pipes, tanks, fixtures, equipment and other extensions of the non-potable water system.

46. In-Plant Isolation. The practice of installing backflow prevention assemblies at the point of hazard to protect one or more actual or potential cross connections within a premise. See **Point of Hazard**.

47. Internally-Loaded Check Valve. A check valve which is internally loaded, either by springs or weights, to the extent it will be drip tight with a 1 p.s.i. differential in the direction of flow.

48. Internal Protection. Internal isolation is the practice of installing backflow prevention assemblies to protect an area within a customer's facility.

49. Local Enforcement Authority. Authorized agent of the administrative authority and/or the water purveyor.

50. Low Health Hazard. A low hazard means those contaminants which, at the levels found in the water, could cause aesthetic problems such as adverse effects on the taste, odor and color of the water or have a detrimental effect on the quality of the purveyor's potable water supply, but which does not present a danger to health.

51. Maximum Contaminant Level (MCL). The maximum amount of a contaminant allowed in a sample of water according to federal and state regulations. The importance of this to cross connection control is that the presence of a higher level than at the source may signify the occurrence of a cross connection incident.

52. Non-Potable Fluid. Any water, other liquid, gas, or other substance which is not safe for human consumption, or is not a part of the public potable water supply as described by the health authority.

53. Non-Potable Piping System. A piping system which is made of non-potable material. Such materials are to be considered non-potable if they can affect either the aesthetics or degradation of the healthfulness of the water. Examples of such pipe are black iron and certain plastics.

54. Pathogenic. "Pathogenic" means a specific agent (bacterium, virus or parasite) causing or capable of causing disease.

55. Pollution. An impairment of the quality of the public potable water supply which does not create a hazard to the public health but which does adversely affect the aesthetic qualities of such potable waters for domestic use. Also defined as low hazard. See also **Contaminant** and **Maximum Contaminant Level**.

An impairment of the quality of potable water which creates an actual hazard to the public health through poisoning or through the spread of diseases by sewage, industrial fluids or waste. Also defined as high hazard.

56. Point of Hazard. The point where a real or potential cross connection (potable water coming in contact with non-potable water, gases, or other fluids) can be determined. More obvious points include fixtures and any systems including boilers, fire protection services, or any system where the possibility of chemical contact or stagnation exists).

57. Potable Water. Water which is safe for human consumption, free from harmful or objectionable materials, as described by the health authority. (See **Safe Drinking Water**.)

58. Premise Isolation. The practice of protecting the public potable water supply by installing backflow prevention assemblies at or near the point where water enters the premise. This type of protection does not provide protection to personnel on the premise.

59. Pressure Vacuum Breaker Assembly (PVBA). An approved assembly consisting of a spring loaded check valve loaded to the closed position, an independently operating air inlet value loaded to the open position and installed as a unit with and between two resilient seated shutoff valves and with suitable connections for testing. It is designed to protect against backsiphonage only.

60. Private Hydrant. Any hydrant which is not owned, operated or maintained by the local water purveyor or his agent.

61. Process Water. Water that is directly connected to, or could come in contact with, an extreme high hazard situation, and must never be consumed by humans.

62. Reasonable Risk. The amount of risk acceptable to a prudent and reasonable water purveyor using reasonable diligence.

63. Reclaimed Water. Wastewater that has been treated for non-potable water use within the same facility or premise. Examples of use would be irrigation and for industrial use.

64. Reduced Pressure Backflow Assembly (RPBA). An approved assembly consisting of two independently operating check valves, spring loaded to the closed position, separated by a spring loaded differential pressure relief valve loaded to the open position, and installed as a unit with and between two resilient seated shutoff valves and having four suitable test cocks for checking the water tightness of the check valves and the operation of the relief value.

65. Reduced Pressure Detector Assembly (RPDA). An approved assembly consisting of two approved reduced pressure backflow assemblies, set in parallel, equipped with a meter on the bypass line to detect small amounts of water leakage or use. This unit must be purchased as a complete assembly. The assembly may be allowed on fire line water services in place of an approved reduced pressure backflow assembly upon approval by the local water purveyor.

66. Safe Drinking Water Act. The Safe Drinking Act was legislation that was enacted by the United States Congress in 1974 to ensure that the public is provided with safe drinking water, thereby protecting the public welfare.

67. Safe Drinking Water. "Safe Drinking Water" means water which has sufficiently low concentrations of microbiological, inorganic chemical, organic chemical, radiological or physical substances so that individuals drinking such water at normal levels of consumption, will not be exposed to disease organisms or other substances which may produce harmful physiological effects.

68. Service Connection. "Service Connection" means the piping connection by means of which water is conveyed from the water purveyor's distribution main to a customer's premise. For a community water system, the portion of the service connection which conveys water from the distribution main to the customer's property line, or to the service meter where provided, is under the jurisdiction of the water purveyor.

69. System Hazard. The actual or potential threat of severe danger to the physical characteristics, as well as serious water quality deterioration of public

and private plumbing systems, such as, the damage caused by air or steam in piping systems not designed for such substances.

70. Thermal Expansion. Thermal expansion is the pressure increase due to a rise in water temperature. The problem becomes acute in heated water piping systems when such system becomes "closed" due to a backflow preventor which disallows expansion beyond that point.

71. Toxicity. The degree to which a substance is toxic, that is poisonous, in relating to affecting the potability of the water supply.

72. Unreasonable Risk to Health. A risk to health which is not necessary or acceptable to the water purveyor and/or consumer; a term used to distinguish what type of backflow prevention should be required. See also Reasonable Risk.

73. USC FCCCHR. "USC FCCCHR" is the abbreviation for the University of Southern California Foundation for Cross Connection Control and Hydraulic Research. It is an agency which tests and approves backflow prevention assemblies by approved standards.

74. Used Water. Any potable water which is no longer in the purveyor's distribution system. In most cases, the potable water has moved past (downstream of) the water meter and/or the property line.

75. Water Purveyor. Any agency, subdivision of the state, municipal corporation, firm, company, mutual or cooperative association, institution, partnership, person or other entity that owns or operates a public potable water system. It also means the authorized agents of such entities.

76. Water System. "Water System" means a system for the provision of piped water for human consumption.

8.26.040 Cross Connection Control/Customer Responsibilities.

A. It is the responsibility of all customers to abide by the conditions of this Chapter. In the event of any changes to the customer's system, it is the responsibility of the customer to notify the City so a facility survey may be scheduled and conducted.

B. All costs associated with this Chapter and the purchase, installation, testing or repair of devices are the responsibility of the customer.

C. The customer shall take all measures necessary to prevent the contamination of the customer's system and the purveyor's water system that may occur from backflow through any cross connection.. These measures shall include the prevention of backflow under any back pressure or back siphonage condition, including the disruption of supply from the purveyor's system that may occur by reason of routine system maintenance or during emergency conditions such as a water main break.

D. For cross connection control facility surveys or other public health related surveys, the customer shall provide free access for the employees of the water purveyor or other administrative authority to all parts of the premise during reasonable working hours of the day for routine facility surveys, and at all times during emergency.

E. The customer shall install all backflow prevention assemblies requested by the purveyor, and to maintain those assemblies in good working order. The assemblies shall be of type, size and make approved by the water purveyor and the State Health Authority. The assemblies shall be installed in accordance with all standards established by the purveyor.

F. The customer shall have all backflow prevention assemblies tested upon installation, annually thereafter, or when requested by the purveyor, after repair and after relocation. A certified backflow assembly tester shall perform all testing. The results of the tests shall be reported within 30 days to the water purveyor on a form provided by or approved by the purveyor.

G. The customer acknowledges the right of the water purveyor, in keeping with State regulations to impose retroactive requirements imposed by the water purveyor for cross connection control measures.

H. The customer shall indemnify and hold harmless the City for all contamination of the customer's system or the City's water system that results from an unprotected or inadequately protected cross connection within their premise. This indemnification shall pertain to all backflow conditions that may arise from the City's suspension of water supply or reduction of water pressure, recognizing that the air gap separation otherwise requires the customer to provide adequate facilities to collect, store and pump water from their premise.

8.26.050 Backflow Prevention Assembly Installation Practices.

A. Elimination. Cross connections shall be removed and eliminated where reasonably practical.

B. Alternatives to Elimination. Where it is not reasonably practical to remove or eliminate a cross connection, the type of protection required shall be commensurate with the degree of hazard which exists as follows:

1. An air gap separation, Reduced Pressure Backflow Assembly (RPBA) or a Reduced Pressure Detector Assembly (RPDA) shall be installed if the cross connection creates an actual or potential public health or system hazard.

2. An air gap separation, RPBA, RPDA, Double Check Valve Backflow Prevention Assembly (DCVA), or Double Check Detector Assembly (DCDA) shall be installed if the cross connection is objectionable (low health hazard), but does not pose an unreasonable risk to health.

3. A Pressure Vacuum Breaker Assembly (PVBA) or an Atmospheric Vacuum Breaker (AVB) may be installed where the substance which could backflow is objectionable, but does not pose an unreasonable risk to health (low health hazard) and where there is no possibility of back pressure in the down stream piping.

4. 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 opinion of the City's Certified Cross Connection Control Inspector and the Department of Health, no hazard exists:

(a) Car washes;
(b) Chemical plants using water process;
(c) Facilities having an auxiliary water supply;
(d) Farms;
(e) Food and beverage processing plants;
(f) Hospitals, Medical Centers;
(g) Irrigation Systems;
(h) Laboratories;
(i) Metal plating industries;
(j) Manufacturing plants;
(k) Mobile home and recreational parks;
(l) Mortuaries;
(m) Nursing homes;
(n) Petroleum processing or storage plants;
(o) Piers, docks, marinas;
(p) Premises with heat exchangers and solar potable hot water systems;
(q) Radioactive material processing plants or nuclear reactors

(r) Sewage and Wastewater treatment plants;
(s) Shopping malls;
(t) Veterinary clinics, medical clinics, dental clinics;
(u) Others specified by the City or other regulations of any administrative authority as now exist or may hereafter be amended.

C. Backflow Prevention Assemblies/Devices. All installed RPBA's, RPDA's, DCVA's, DCDA's, and PVBA's shall be models included on the current list of Washington State approved cross connection control backflow assembly devices at the time of installation. All installed RPBA's, RPDA's, DCVA's, DCDA's, and PVDA's in service, but not listed on the current state approved cross connection control assembly list, may remain in service provided the backflow prevention assemblies were:

1. 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 have successfully passed 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.

D. Installation of Backflow Prevention Assemblies/Devices. All air gaps and backflow prevention assemblies shall be installed in accordance with the current edition of the Cross Connection Control Manual of the Pacific Northwest Section--AWWA.

E. Substitution. The purveyor may permit the substitution of a properly installed air gap in lieu of an approved backflow prevention assembly. All such air gap substitutions shall be inspected annually by the Certified Backflow Assembly Tester.

8.26.055 Premise Isolation Practices.

In those situations specified below, the following premise isolation practices shall be used unless the Inspector finds a higher standard is necessary based upon the degree of hazard present.

A. Used Water.

1. The use of the potable water supply for cooling or heating, or other purposes, and return of the used water to the potable water system is prohibited.

2. The occurrence of two interconnected water services, including but not limited to those for large buildings or other customers requiring redundancy for assured supply, shall require premise isolation, in the form of a single soft-seated check valve installed on each service.

3. Where multiple interconnected water services exist (more than two), premise isolation shall be in the form of an approved DCVA.

B. Auxiliary Water Supply.

1. An approved auxiliary water supply, including but not limited to wells, shall be considered a low health hazard and shall be considered used water. Such auxiliary water supply shall not be allowed to enter the water purveyor's distribution system. Premise isolation at the service connection by an approved DCVA connected to the piping system shall be required for all customers with approved auxiliary water supplies.

2. Unapproved auxiliary water supplies shall be considered a high health hazard. Premise isolation at the service connection by an approved air gap or RPBA shall be required for all customers with unapproved auxiliary water supplies connected to a piping system, whether or not an interconnection exists between the unimproved auxiliary supply and the potable water supply.

3. A stand-alone, elevated water storage facility (e.g., water tank) shall be considered an unapproved auxiliary supply and at a minimum be required to provide premise isolation by an approved DCVA.

C. Gray Water System. All gray water systems shall be considered high health hazards. Premise isolation at the service connection by an approved air gap or RPBA shall be required.

D. Storm Water Reuse Systems. Storm water reuse systems utilize the rain water collected from roof drains, roads, parking areas, and other impervious surfaces for lawn or crop irrigation. A residential storm water reuse system contains a holding tank, an overflow to the building drains, irrigation distribution piping and a pump. All storm water reuse systems shall be considered a high health hazard. Premise isolation at the service connection by an approved air gap or RPBA shall be required.

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E. Fire Protection Systems.

1. Fire protection systems that are connected to the water purveyor's potable water system, either directly or indirectly on the property site of a potable water service, shall be isolated with an approved backflow prevention assembly. The level of backflow protection shall be dependent upon the degree of hazard. All fire protection systems shall be considered a high health hazard unless the water purveyor has knowledge that a system does not contain and is unlikely to contain chemicals.

2. Backflow protection for fire systems shall be required as follows:

a. High Hazard Fire System: This category shall include:

i. All foamite systems;

ii. Systems where an unapproved auxiliary water supply is connected to a fire system, or is in close proximity and intended for use by fire pumper trucks; and

iii. Systems in which chemical additives or antifreeze are allowed,

iv. A high hazard fire system shall require, at a minimum, a RPBA or RPDA.

b. Low Hazard Fire System.

i. This category consists of all fire systems not included under high hazard fire systems above.

ii. A DCVA or DCDA shall be required for all low hazard fire systems.

8.26.060 Backflow Prevention Assembly Testing Procedures.

A. Inspection and Testing. The Certified Backflow Assembly Tester shall inspect and test all:

1. RPBA's
2. RPDA's
3. DCVA's

4. DCDA's
5. New PVDA installations, and
6. Existing PVBA's discovered through routine inspections

B. Timing. Timing tests and/or inspections shall be conducted as follows:

1. At the time of initial installation,
2. Annually after initial installation, or more frequently if tests indicate repeated failures, and
3. After the assembly is repaired.

C. Repair/Replacement. The assemblies shall be repaired, overhauled, or replaced whenever found to be defective. Improperly installed or altered air gaps must be replumbed or replaced by an approved RPBA. Inspections, tests, and repairs shall be made under the City Inspector's supervision and records thereof kept as required by the City.

8.26.070 Enforcement.

A. Inspection/Administration. The City's Maintenance Supervisor ("Inspector") shall be responsible for enforcement of the rules and regulations promulgated pursuant to this Chapter.

B. Nuisance/Abatement/Termination of Water Service. The installation or maintenance of any cross connection which would endanger the public water supply of the City of Rock Island is prohibited. Any such cross connection now existing or hereafter installed is hereby declared a nuisance subject to immediate termination of water service and any such cross connection shall be abated immediately.

C. Standards. The standards for the maintenance and installation of backflow prevention assemblies and premise isolation practices shall be those set forth in this Chapter and in the *Cross Connection Control Manual, Accepted Procedures and Practice*, Sixth Edition, December 1995, Cross Connection Control Committee, Pacific Northwest Section AWWA, or superseding edition (the "Manual"). The Inspector is authorized to establish higher standards for the installation and maintenance of backflow prevention assemblies and premise isolation practices where he/she finds that good engineering practice, industry standards, or the protection of public health requires such higher standards. If any conflict exists between this Chapter and the Manual, the higher standard required shall control.

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8.26.080 Inspection of New Construction.

A. Plans for new construction or enlargement of existing services shall be reviewed by the Inspector in order to eliminate actual and potential cross connections.

B. The Inspector shall inspect the actual construction performed for compliance of the rules and regulations promulgated pursuant to this Chapter.

C. The Inspector may only issue a certificate of compliance upon finding that the service complies with all such rules and regulations.

8.26.090 Inspections of Existing Construction.

A. The Inspector shall inspect existing service connections at least once a year for compliance with the rules and regulations as promulgated pursuant to this Chapter.

B. The Inspector may only issue a certificate of compliance upon finding that the service complies with all such rules and regulations.

8.26.100 Inspection Access.

A. The Inspector, with proper identification, shall have free access at reasonable hours of the day to all parts of any premises to which water is supplied. Water services may be refused or terminated to any customer for failure to allow an inspection.

8.26.110 Records.

The Inspector shall maintain records of inspection of new and existing construction, certificates of compliance, and customers who are not in compliance.

8.26.120 Penalty.

A. Service to any premises receiving water from the public water system shall be contingent upon compliance with all rules and regulations of this Chapter, the Department of Health and the purveyor. Service shall be discontinued to any premises or failure to comply with the rules and regulations of the department and the purveyor.

B. Every customer, owner or occupant of any premises covered by this Chapter is responsible for compliance with the terms of this Chapter and shall be strictly liable for all damages, including but not limited to, costs and expenses of the city, including

attorney's fees, incurred as a result of failure to comply with the terms and provisions contained in this Chapter.

8.26.130 Termination/Notice.

A. Failure of the customer to cooperate in the installation, maintenance, repair, inspection or testing of backflow prevention assemblies or air gap separation shall be grounds for termination of water service to the premise.

B. If an emergency situation exists, in the discretion of the Inspector, water service may be terminated immediately.

C. If an emergency situation is not determined to exist, the water service may be terminated after seven (7) days written notice to the customer. Notice will be deemed to have been given when deposited in the Rock Island Branch of the United States Postal Service.

Section 2. Severability. If any section, sentence, clause or phrase of this Ordinance should be held to be invalid or unconstitutional by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or the constitutionality of any other section, sentence, clause or phrase of this Ordinance.

Section 3. This ordinance shall take effect and be in full force five (5) days after this ordinance or a summary thereof consisting of the title is published.

APPROVED:

MAYOR WHITEY EVENHUS

ATTEST/AUTHENTICATED:

CITY CLERK, KAY JONES

APPROVED AS TO FORM:
OFFICE OF THE CITY ATTORNEY

BY Karen M. Wiggins

FILED WITH THE CITY CLERK: 10-08-97
PASSED BY THE CITY COUNCIL: 10-09-97
PUBLISHED: 10-16-97
EFFECTIVE DATE: 10-21-97
ORDINANCE NO. 97-008

BACKFLOW ASSEMBLY MASTER LIST

Account Number	Location	Size & Brand	Type	Model	Serial Number	Date Last Tested	Repairs Required	Comments

CHAPTER 1

Introduction

PURPOSE AND SCOPE

This document contains a proposed Cross Connection Control Plan for the City of Rock Island and is one element of the City's 1997 Comprehensive Water System Plan update. The purpose of the Cross Connection Control Plan is to provide a clear definition of cross connections, provide procedures and design criteria for backflow prevention, and summarize current City, State, and Federal policies and regulations regarding cross connections. The importance of having an approved Cross Connection Control Plan in place can be further understood by the following AWWA policy statement on cross connections.

> AWWA recognizes that the water purveyor has the responsibility to provide its customers with water that is safe under all foreseeable circumstances. Thus, in the exercise of this responsibility, the water purveyor must take reasonable precautions to protect the community distribution system from the hazards originating on the premises of its customers that may degrade the water in the community distribution system.
>
> Cross connection control and plumbing inspections on premises of water customers are regulatory in nature and should be handled through rules, regulations, and recommendations of the State or provincial appointed authority or the plumbing code enforcement agencies having jurisdiction. The water purveyor, however, should be aware of any situation requiring inspection and reinspection necessary to detect hazardous conditions resulting

from cross connection. If in the opinion of the utility, effective measures consistent with the degree of hazard may not have been taken by the regulatory agency, the water purveyor should take necessary measures to ensure that the community distribution system is protected from contamination. Such action would include the installation of a backflow prevention device, consistent with the degree of hazard, at the service connection, or discontinuance of the service. In addition, customer use of water from the community distribution system for cooling or other purposes within the customer system and later returned to the community distribution system is not acceptable and is opposed by AWWA.

The protection and preservation of the public potable water supply is one of the greatest priorities of a water purveyor. Once drinking water has been produced, provisions must be made to ensure that it will not be contaminated with tainted water or substances from other sources.

The purpose of the Rock Island Cross Connection Control Plan is to establish recommended procedures to be used to protect the public potable water supply from the possibility of contamination or pollution due to existing or potential cross connections. This protection of the water consumers' health is maintained by ensuring the proper installation and surveillance of backflow prevention devices when actual or potential cross connections exist and cannot be eliminated.

DEFINITIONS

The following are definitions for words which are widely used throughout this document, therefore,

it is important to understand these key terms.

Cross connection	Any actual or potential physical connection between a potable water line and any pipe, vessel, or machine containing a non potable fluid, such that it is possible for the non potable fluid to enter the potable water system by backflow.
Actual Cross Connection	A cross connection that currently exists.
Potential Cross Connection	A cross connection that does not exist at the time of inspection, however, it may occur at any time. Examples of potential cross connections include: bypass arrangements, jumper connections, unattached hose connections, intricate piping, etc.
Potable Water	Water suitable for human ingestion, free from harmful or objectionable materials.
Non-potable fluid	All liquids and gases that are not potable water. A list of non-potable fluids is virtually infinite, but includes used water, fuel, liquid chemicals, gases, etc.. Used water is any potable water which is no

	longer in the purveyors distribution system. In most cases, this includes any water downstream of the water meter and/or property line.
Backflow	Reverse of the normal flow direction of water in a plumbing system or public water distribution system. Backflow is caused by either back pressure or backsiphonage.
Back Pressure	Results from the downstream pressure being higher than the upstream (supply) pressure.
Back Siphonage	Results from a partial vacuum (negative pressure) within the piping system.

Appendix A contains examples which clearly illustrate typical cross connection situations.

BACKFLOW PREVENTION DEVICES

A wide choice of devices exists that can be used to prevent potential cross connections within the water system. Generally, the selection of the proper device to use is based upon the degree of hazard posed by the cross connection. Additional considerations are based upon piping size,

location, and the potential need to periodically test the device to ensure proper operation. There are six basic types of devices that can be used to correct the cross connections:

1. Air gaps
2. Barometric loops
3. Vacuum breakers - both atmospheric and pressure type
4. Double check with intermediate atmospheric vent
5. Double check valve assemblies
6. Reduce pressure principal devices

Of these, there are four basic types of mechanical assemblies that are used in the prevention of backflow:

1. Reduced Pressure Principle Backflow Assembly (RPBA)
2. Double Check Valve Assemblies (DCVA)
3. Pressure Vacuum Breaker Assemblies (PVBA)
4. Atmospheric Vacuum Breakers (AVB)

HOW TO USE THIS MANUAL

This manual is intended to aid users in implementing an effective cross connection control

program. This manual should be used in conjunction with the Cross Connection Control Manual Accepted Procedure and Practice published by the American Water Works Association, Pacific Northwest Section. Together they will provide the information necessary to ensure that the proper steps are taken towards reviewing existing and new facilities for potential cross connections. The use of this information will also ensure that the proper procedures are followed during the installation and inspection of backflow prevention assemblies. This plan is arranged in five sections. Chapter 2 documents the procedures and design criteria necessary to properly select backflow prevention devices and ensure their continuous operation. Chapter 3 documents the existing City policies regarding cross connections and includes the policies from State, Federal, and other agencies. Chapter 4 documents the current City ordinance for cross connections and provides an example of a new or modified ordinance. Chapter 5 describes each of the backflow prevention devices and contains illustrations of each. The appendix contains other pertinent information regarding cross connection as well as examples of cross connections.

CHAPTER 2

Procedures and Design Criteria

PURVEYORS RESPONSIBILITY

Federal, State, and provincial regulations place the responsibility for cross connection control on the water purveyor and/or the local authority. The degree of responsibility varies from state to state and province to province. When implementing a cross connection control program, the City needs to follow an organized plan that considers the following items:

1. Provide local enforcement by means of an ordinance code or resolution to adopt the State or provincial regulations. City Ordinance 95-003, Item 29, covers cross connections for the purpose of protecting the health of customers receiving water from the City by protecting the public water system from contamination.

2. One person shall be delegated the authority and responsibility to organize and carry out the cross connection control program. It is recommended that this person be educated and certified as a cross connection control specialist.

3. All existing facilities where cross connections are suspected shall be listed on a priority basis and inspected accordingly.

4. Provisions shall be made to route all applications for new commercial and industrial water services or for extending services through the person in charge of the cross connection control program.

5. All new commercial and industrial construction shall be inspected for possible cross connections.

6. A list of backflow prevention assemblies approved by the State of Washington shall be made available to each water user required to provide backflow protection. The most recent list of backflow prevention assemblies approved for installation in Washington State can be obtained from the AWWA.

7. The City should keep adequate records which include the following:

    1. Date of inspection.
    2. Results of inspection.
    3. Recommended protection.
    4. List of all backflow prevention devices in the system.
    5. Test and maintenance reports.

6. All correspondence pertaining to the water purveyor the regulatory and/or local authority and the customer.
7. After installation of the approved backflow device, the assembly shall be inspected, tested, and approved before it is accepted by the water purveyor.
8. Most regulations require testing of backflow prevention assemblies at least once a year. Therefore, the City should set up an annual testing program. Normally, the water purveyor notifies the customer or owner of the assembly when the assembly needs to be tested. It is then the customer's responsibility to have the assembly tested by a certified backflow device tester.
9. A list of certified backflow device testers who provide services throughout Chelan and Douglas County. An updated list has been provided in the table below.

Table 2-1: Certified Backflow Assembly Testers
Currently on File With the East Wenatchee Water District (3/31/97)

1. Shane Davis - Certification No. B1748 PUUMBCO Wenatchee, WA98802	4. Keith Ramaker - Certification Vaughn Downing - Certification Columbia Basin Water Works Basin Street SW Ephrata, WA 98823 Phone: (509) 754-5472 or 1-800-433-3611
2. Rick Inskeep - Certification No. B2594 Grinnell Fire Protection Systems Company Goldcrest Street East Wenatchee, WA 98802 Phone (509) 886-3473, Pager 665-5171	5. Thomas K. Hurst - Certification No. B2633 Highland Drive Wenatchee, WA 98801 Phone (509) 662-6463 or 669-5874
3. Weilliam Wilson - Certification No. B1295 Inland Fire Protection, Inc Piere Street Wenatchee, WA 98801 Phone (509) 884-6717	6. Stan Simmons Certification No. B1526 Accurate Backflow Northwest S. Columbia Street Wenatchee, WA 98801 Phone (509) 662-5881, Fax 662-1661
* The City of Rock Island does not recommend or endorse of the above Backflow Assembly Testers. It is	

If an immediate hazard to health is caused by a cross connection, water service to the premises must be discontinued until the cross connection has been either protected or eliminated.

Failure of the customer to cooperate in the installation, maintenance, testing, or inspection of backflow prevention assemblies should be grounds for termination of water service to the premises or the requirement of an approved air gap separation. Authority to terminate the water service should be included in the ordinance, code, or resolution.

The City must recognize its responsibility to coordinate with other responsible authorities to eliminate or protect cross connections in the system. The City must also recognize that it could be held personally liable for any problems that arise due to an unprotected cross connection.

SELECTION OF BACKFLOW PREVENTION DEVICES

Selection of the necessary backflow prevention device is based on the protection needed for the type of hazard identified. Where high hazards or unknown hazards exist, a properly maintained air gap separation or a reduced pressure backflow assembly shall be used since they offer the highest known degree of protection. Double check valve assemblies or vacuum breakers are used where low hazard (aesthetic problems or undesirable situations) may occur. Each cross connection must be examined on an individual basis to determine the necessary type of backflow protection needed.

Normally the risk to the water system caused by actual potential cross connections fall into one of two categories:

1. High Hazard - a physical or toxic hazard that could be detrimental to health. High hazard is also referred to as contamination.

2. Low Hazard - a hazard which could cause aesthetic problems or have a detrimental effect on the quality of water in the system. Low hazard is also referred to as pollution.

The following table provides a list of backflow prevention devices, their abbreviations, and the level of protection which they are designed to provide. This table should be used as a guide when determining the proper device necessary to isolate actual or potential cross connections.

Backflow Prevention Devices
Level of Protection

Device Description	Level of Protection (lower numbers denote higher levels of protection)
Air Gap (AG)	1
Reduced Pressure Backflow Assembly (RPBA)	2
Reduced Pressure Detector Assembly (RPDA)	2
Double Check Valve Assembly (DCVA)	3
Double Check Detector Assembly (DCDA)	3
Pressure Vacuum Breaker Assembly (PVBA)	4
Atmospheric Vacuum Breaker (AVB)	5

INSTALLATION CRITERIA

Proper selection of an installation site for any backflow prevention assembly is essential to its

continued effect on operation. The assemblies must not be installed in any enclosure or hooded area containing fumes which are corrosive, toxic, or poisonous. Proper drainage must be provided when they are installed indoors. The assemblies must be protected against atmospheric, mechanical, and vehicle abuse. Location of the assemblies must provide easy access for testing and maintenance.

EQUIPMENT APPROVAL AND TESTING

The Washington State Department of Health has transferred responsibility for distributing a list of approved backflow prevention assemblies to the AWWA. The AWWA has established a list of approved backflow prevention assemblies for installation in Washington State. This list is updated periodically and the most recent list can be obtained from the AWWA.

Each backflow prevention assembly should be tested to ensure that it functions properly:

- Upon installation
- After being repaired, relocated, or reinstalled
- Annually inspected or more frequent if required by the City

The owner of the backflow prevention device shall be notified prior to the date for annual testing. It is then the owners responsibility to acquire the services of a certified tester to test the assembly. If the test indicates the assembly must be repaired, the record of the repair work and the report of the satisfactory final test must be sent to the City. Failure to test and maintain backflow prevention assemblies is grounds for the City to discontinue water service to the owner of that device.

The backflow prevention assemblies must be periodically tested by certified individuals to ensure continued satisfactory operation. A list of certified testers in the Chelan and Douglas County areas has been provided in the table on Page 2-3. However, it is recommended that one of the members of the Water Department staff obtain certification to perform spot checks on commercial testers working within the City system.

CHAPTER 3

Policies

This chapter identifies policies which are associated with cross connection control.

Table 3-1 illustrates the relationship of Federal, State, and City regulatory agencies and standards. Table 3-2 illustrates the relationship of the utility systems division and development services division for the administration of the cross connection control program. Table 3-3 illustrates the flow of the plan review process for cross connection control.

Table 3-4 is a complete list of all certified cross connection control specialist within the City of Rock Island. This list should be revised as necessary and recorded in the City's current addition of the cross connection plan.

Table 3.4

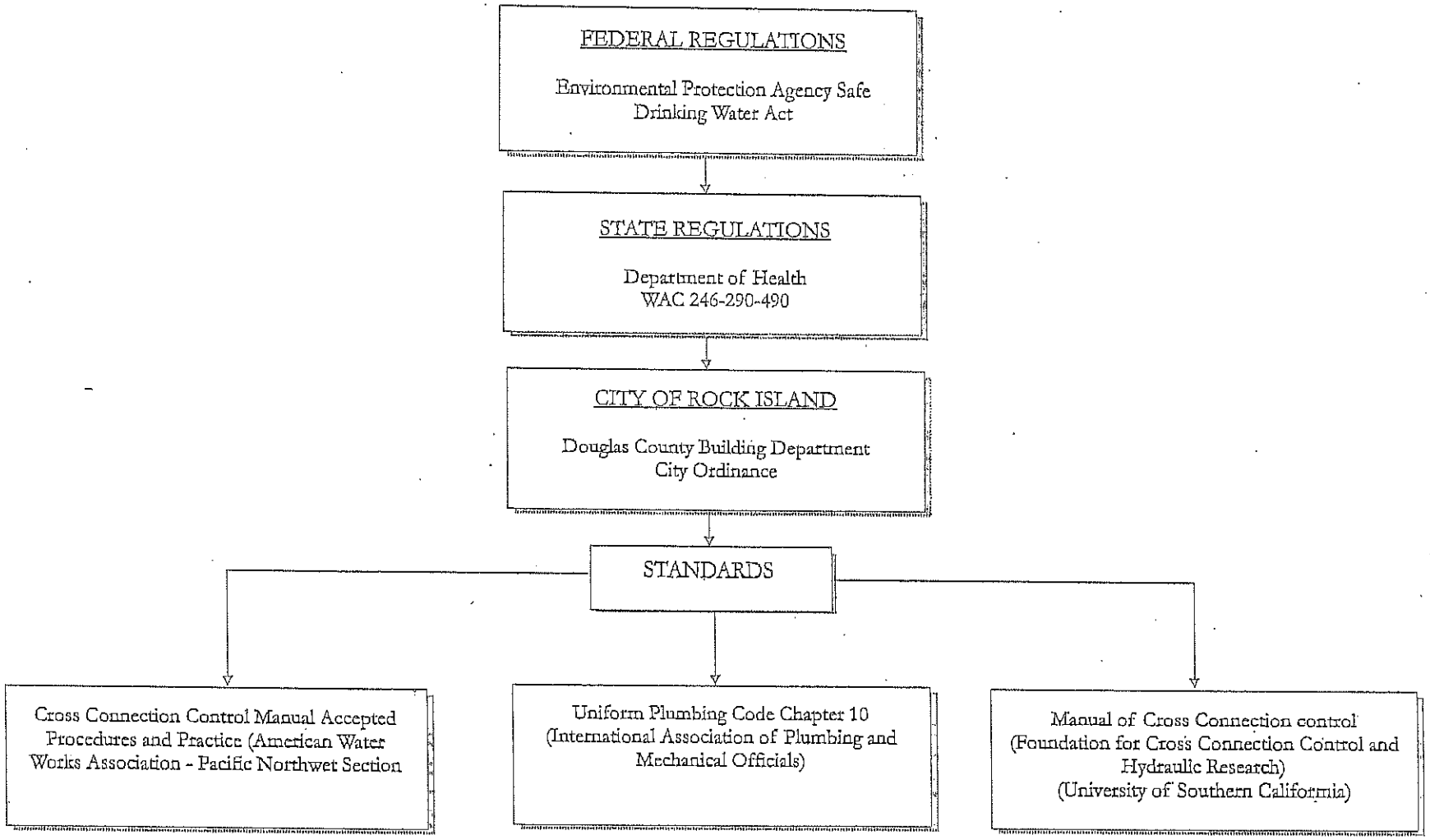
City of Rock Island

Cross Connection Control Specialists

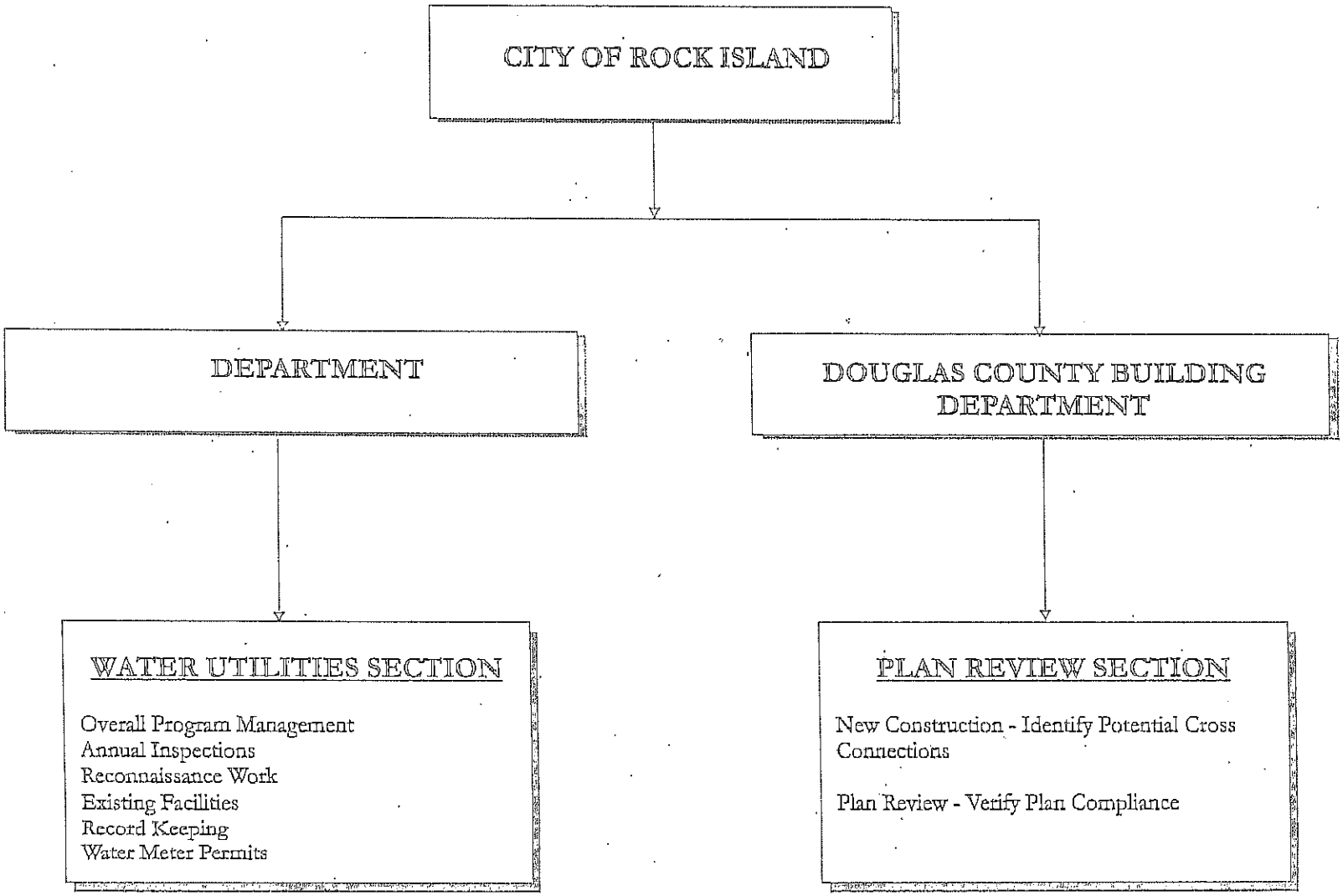
Jeff Spencer	Utilities Superintendent

CITY POLICIES

The following is a list of City's cross connection control policies.

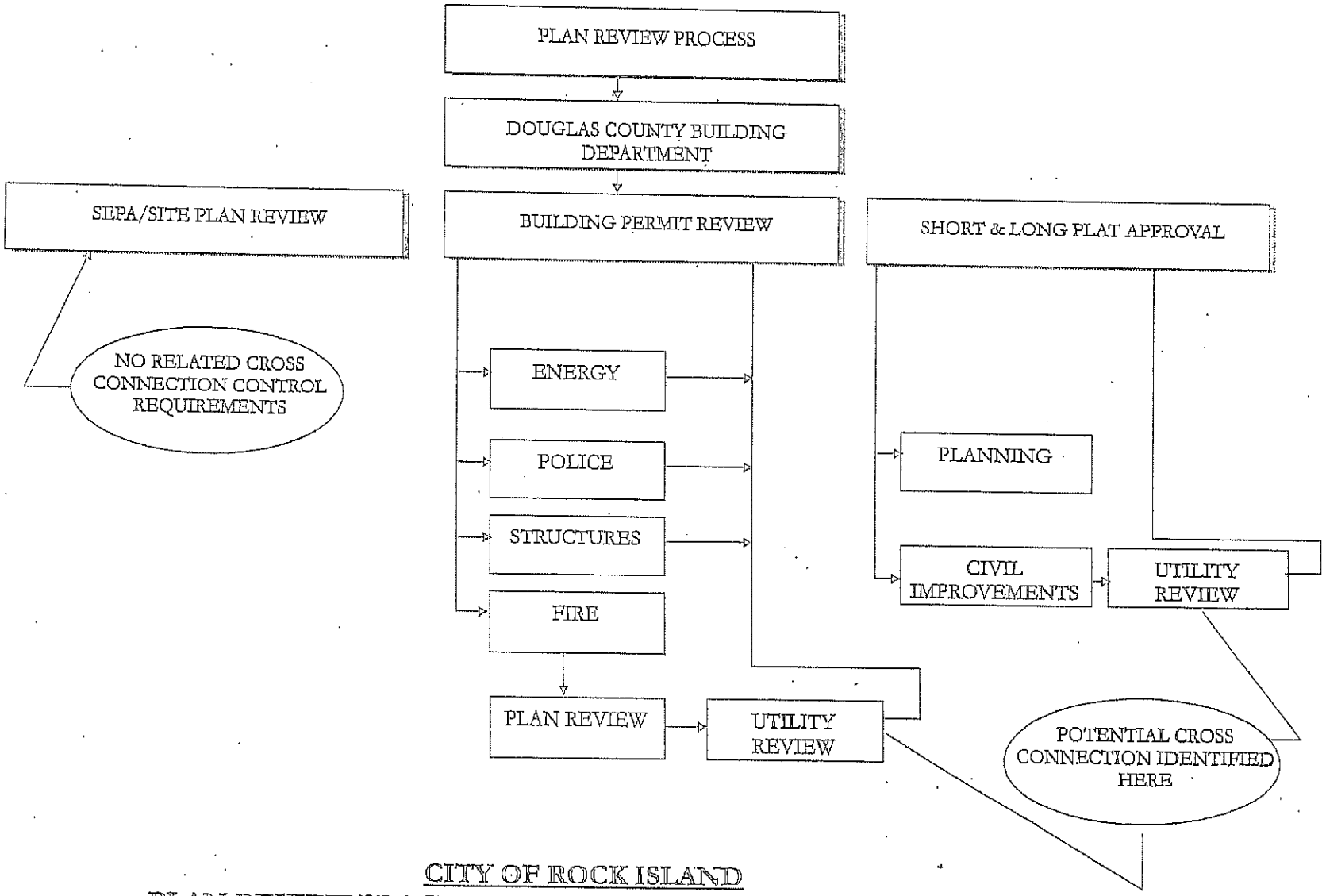


REGULATORY STANDARDS FOR CROSS CONNECTION CONTROL
Table 3-1



DEPARTMENTAL RESPONSIBILITIES FOR CROSS CONNECTION CONTROL

Table 3-2



CITY OF ROCK ISLAND
PLAN REVIEW PROCESS FOR CROSS CONNECTION CONTROL
Table 3-3

Supply Policy

In accordance with the policies adopted in the Comprehensive Plan, the Utility Staff will operate to:

"Provide the highest quality water in sufficient quantity to meet the needs of the City"

The City of Rock Island Water Utility has accepted the responsibility of supplying safe drinking water throughout the City. Part of this responsibility includes ensuring that the water is not contaminated before it reaches the consumer due to backflow of contaminated water into the distribution system.

To maintain a high quality water supply the City shall enforce the following policies:

Policy: Ensure that existing backflow prevention assemblies are maintained in an operating condition in compliance with the State requirements.

Action: Maintain a testing program wherein the City informs all backflow prevention assembly owners of their responsibility to have their assembly tested annually by a certified tester.

Keep records on all existing assemblies and verify that each passes an annual test.

Provide random spot inspections of existing assemblies to verify that they are properly installed and in working order.

Replace existing assemblies which are no longer on the most current Washington State approved list. However, these assemblies may remain in service until maintenance is required.

Policy: Minimize the potential hazards of new cross connections.

Action: Review plans for new construction to identify potential cross connections. All plans for development will be reviewed by the

Douglas County Building Department.

Instigate procedures which will route all requests for new service or enlargement of existing services to the Douglas County Building Department for identification of any cross connections.

Establish a program that would require that plumbing plans be submitted along with construction plans for approval before a building permit is issued.

Policy: Minimize the potential hazards of existing cross connections.

Action: Update and maintain a list of all existing cross connections and backflow prevention assemblies throughout the City.

Establish a reconnaissance program which inspects existing facilities for actual or potential cross connections. This should be an on-going endeavor which concentrates on high risk facilities.

Inform all owners of heat exchangers and solar domestic hot water systems of the inherent health hazards of their systems, and make available to them the AWWA literature pertaining to such systems.

Inform all owners of hot water heaters of the potential hazards to their system.

Inform all owners of fire sprinkler systems, both commercial and residential, of the new State requirements regarding these systems and require all owners to upgrade to current standards.

Policy: Ensure that all cross connections which cannot be eliminated are protected with an approved backflow prevention assembly.

Policy: Ensure that all cross connection assemblies are in Compliance with the

City's program.

Action: Terminate water service to any premise where the customer fails to cooperate in the installation, maintenance, testing, inspection, or replacement of any backflow prevention assembly.

Make available to the public all information necessary to assist them in complying with the City's Cross Connection Control Program.

ORGANIZATIONAL POLICY

"Provide sufficient staff to achieve all policy goals"

Two separate entities will be responsible for administration of the Cross Connection Control Program. The Water Utilities Section within the Utility Systems Division and the Douglas County Building Department. To maintain an efficient and effective program, the City has adopted the following policies:

Policy: The Water Utilities Section will be responsible for implementing Rock Island's Cross Connection Control Program.

Action: This section shall ensure that annual testings are performed, that records of all actions for each assembly are kept on file, and that an on-going search for existing, uncontrolled, or unmonitored cross connections are performed.

Policy: The Douglas County Building Department will be responsible for reviewing all in-coming plans and requests for new construction. It will also be responsible for identifying potential cross connections, and ensuring that development plans meet the cross connection standards and criteria of the City.

Action: All requests for new service, repair, or enlargement of existing services shall be routed through this Department.

All new construction plans shall be reviewed and assessed for cross connections, and all backflow preventers shall be installed correctly and concurrent with that facility.

Financial Impacts

The costs to administer this Cross Connection Control Program consist of the personnel costs to review and identify cross connection hazards in the Douglas County Building Department and costs to administer device testing and inspection in the Utility Division. Funding for the program will be provided from the operating funds of these two departments.

CHAPTER 4

City Ordinance

INTRODUCTION

Appendix B contains the current City ordinance for cross connections. The Washington State Department of Health and the American Water Works Association have separately established criteria for the content requirements of City ordinances in regard to cross connection control. The following is an example of the technical requirements for a cross connection control program and ordinance in compliance with these criteria.

EXAMPLE ORDINANCE

Purpose

Under the provisions of the Safe Drinking Water Act of 1974, the Federal government has established, through the EPA, national standards of safe drinking water. These standards, as they apply to cross connections, are enforced by the State of Washington through the Department of Health. The City of Rock Island, as the water purveyor, has the primary responsibility for preventing water from unapproved sources from entering the public potable water system.

This ordinance, in conjunction with Chapter 10 of the Uniform Plumbing Code (see Appendix C), the State of Washington Administrative Code (WAC 246-290-490), and the current edition of the Cross Connection Control Manual Accepted Procedure and Practice, AWWA-Pacific Northwest Section, is to protect the health of the water consumer and the potability of the water in the distribution system. This is accomplished by eliminating or controlling all actual (direct) and potential (indirect) cross connection between potable and non-potable systems through the use of approved backflow prevention assemblies. The City of Rock Island is required to ensure that such

assemblies are properly installed and periodically inspected and that all new and existing plumbing systems are reviewed for identification of cross connections.

Application

The provisions of this chapter apply throughout the water service area of the City of Rock Island. They apply to all systems installed prior to or after its enactment. Therefore, anyone wanting, or using water from the City of Rock Island is responsible for compliance with these regulations and shall be strictly liable for all damage incurred as a result of failure to comply with the express terms and provisions contained herein.

Enforcement

The Director of the Douglas County Building Department and the Director of the Rock Island Utility Department will administer the provisions of this chapter. They designate cross connection specialists and propound all necessary rules and regulations to enforce these provisions. The Water Utility Department will be responsible for monitoring and inspecting all existing cross connection assemblies and for keeping all records generated by the Cross Connection Control Program. The Douglas County Building Department will be responsible for reviewing all new and improvement plans for cross connections.

Definitions

Air Gap: A physical vertical separation through the free atmosphere sufficient to prevent backflow between the free flowing discharge end of the potable water system and the overflow level of the receiving vessel, tank, plumbing fixture or any other system. Physically defined as a distance greater than or equal to twice the diameter of the supply pipe diameter but in no case less than one inch.

Approved: Approved in writing by the Department of Health or other agency having jurisdiction.

Atmospheric Vacuum Break: An assembly which prevents backsiphonage by creating an atmospheric vent when there is either a negative pressure or sub-atmospheric pressure in the water system. It is designed to protect against backsiphonage only.

Auxiliary Supply: Any water source or system on, or available to, the premises other than the purveyor approved potable water supply.

Backflow: The flow of water or any other liquid, gas or substance from any source back into the distribution pipes of the potable water supply system.

Backpressure: Backflow caused by a pump, elevated tank, boiler, or other means that could create pressure within the system greater than the potable water supply system.

Backsiphonage: The flow of water or any other liquid, gas or other substance from any source back into the distribution pipes of the potable water supply system caused by the reduction of pressure in the potable water supply system.

Backflow Preventer: An approved assembly which prevents the backflow of water or any other liquid, gas, or substance from any source back into the distribution pipes of the potable water supply system.

Barometric Loop: A fabricated piping arrangement rising at least thirty-five (35) feet at its topmost point above the highest fixture it supplies. It is used in water supply systems to protect against backsiphonage only.

Contaminant: A substance that will impair the quality of the water to a degree that it creates a serious health hazard.

Cross Connection: Any physical or potential arrangement whereby a public water system is connected, directly or indirectly, with any other non-potable water system, drain, sewer, conduit, pool, storage reservoir, plumbing fixture, or other device which contains, or may contain, contaminated water, sewer, or other waste liquid of unknown or unsafe quality which may be capable of imparting contamination to the public water system as a result of backflow. Bypass arrangements, jumper connections, removable sections, swivel or change-over devices, or other temporary or permanent devices through which backflow may occur are considered to be cross connections.

Double Check Valve Assembly: An approved assembly composed of two single, independently acting check valves, either spring loaded or internally weighted, installed as a unit between two tightly closing shutoff valves and having suitable connections for testing.

Health Hazard: A physical or toxic hazard which could be dangerous to health.

Reduced Pressure Principle Backflow Preventer: An assembly consisting of two independently acting, spring-operated check valves, separated by a spring loaded differential pressure relief valve, which is installed as a unit between two tightly closing shutoff valves and having suitable connections for testing.

Pollution: A hazard which could cause aesthetic problems or have a detrimental effect on the quality of water in the potable system.

Potable Water: Water which is safe for human consumption, as described by the public health authority having jurisdiction.

Pressure Vacuum Breaker: An assembly consisting of a spring loaded check valve, and independently operating air inlet valve, inlet and discharge shutoff valve and properly installed test cocks. The air inlet valve is internally loaded to the open position normally by means of a spring. This internal loading allows the assembly to be installed on the pressure side of a shutoff valve. It is designed to protect against backsiphonage only.

Installation of Backflow Prevention Assemblies

Backflow prevention assemblies required by this chapter must be installed so as to be readily accessible for maintenance and testing. All assemblies shall be connected at the meter, the property line when meters are not used, or within any premise wherein it is the judgment of the City of Rock Island Cross Connection Control Specialist that the nature and extent of activity on the premises, or the materials used or stored could present a health hazard should a cross connection occur. This includes:

1. Premises having an auxiliary water supply.
2. Premises having internal cross connections that are not correctable, or intricate plumbing arrangements which make it impractical to ascertain whether or not cross connection exist.
3. Premises where entry is restricted so that inspections for cross connections cannot be made with sufficient frequency or at sufficient short notice to ensure that cross connections do not exist.
4. Premises having a repeated history of cross connections being established or re-established.
5. Premises on which any substance is handled under pressure so as to permit entry into the public water system, or where a cross-connection could reasonably be expected to occur. This includes the handling of process waters and cooling waters.
6. Premises where materials of a toxic or hazardous nature are handled such that if backsiphonage should occur, a health hazard may result.
7. Hospitals, mortuaries, clinics.
8. Laboratories;
9. Piers and docks;
10. Sewage treatment plants;
11. Food or beverage processing plants;

12. Chemical plants using a water process;
13. Metal plating industries;
14. Petroleum processing or storage plants;
15. Radioactive material processing plants or nuclear reactors;
16. Car washes;
17. Process waters or cooling towers;
18. Fire sprinkler systems;
19. Irrigation systems;
20. Solar hot water systems;
21. Others specified by the Director of the Department of Planning/Building/Public Works Administrator.

Types of Backflow Prevention Assemblies Required

Specific types of backflow prevention assemblies are required in the following conditions:

1. An air-gap separation or reduced principle backflow prevention assembly shall be installed where the water supply may be contaminated by industrial waste of a toxic nature or any other contamination which would cause a health or system hazard.

2. An air gap must be used between a potable water supply and sewer connected wastes.

3. Lawn sprinkler or irrigation systems, which are supplied by City water only, shall be required to have a pressure vacuum breaker. If such system contains an auxiliary pump or is subject to chemical additives, a double-check valve assembly, air-gap separation or a reduced pressure principle backflow prevention assembly will be required.

Requirements

Water Utility Department

1. The Water Utility Department will perform evaluations and inspections of plans and/or premises in all existing facilities and inform the owner by letter of any corrective action deemed necessary, the method of achieving the correction, and the time allowed for the correction to be made.

2. The Water Utility Department shall ensure that all backflow prevention assemblies are tested annually to ensure satisfactory operation.

3. The Water Utility Department shall inform the Owner by letter, of any failure to comply, by the time of the first re-inspection. An additional fifteen (15) days will be allowed for the correction. In the event the Owner fails to comply with the necessary correction by the time of the second re-inspection, the Water Utility Department will inform the Owner, by letter, that the water service to the Owner's premises will be terminated within a period not to exceed five (5) days.

4. If the Water Utility Department determines at any time that a serious threat to the public health exists, the water service will be terminated immediately and without notice.

Plan Review Section

1. On new installations, the Plan Review Section will provide on-site evaluation and/or inspection of plans in order to determine if cross connections exist and what type of backflow preventer, if any, will be required before a water meter permit can be issued.

Owner

1. The owner shall be responsible for the elimination or protection of all cross connection on his property.

2. The Owner, whether notified by the City or not, shall, at his expense, install, maintain, and have tested by a certified tester any and all backflow preventer on his premises.

3. The Owner shall return to the City of Rock Island the assembly test reports within thirty (30) days after receipt of the yearly test notification.

4. The Owner shall inform the Water Utility Department of any proposed or modified cross connections.

5. Owners who cannot shut down operation for testing of assemblies must provide bypass piping with an additional backflow assembly at their expense.

6. The Owner shall only install backflow preventers which are approved by the Washington State Department of Health.

7. The Owner shall install backflow preventers only in a manner approved by the Washington State Department of Health.

8. The Owner may be required to install a backflow preventer at the service entrance if a private water source is maintained on his premises, even if it is not cross connected to the City's system.

9. Failure of the Owner to cooperate in the installation, maintenance, repair, inspection

and testing of backflow preventers required by this ordinance shall be grounds for the termination of water service or the requirement of an air gap separation.

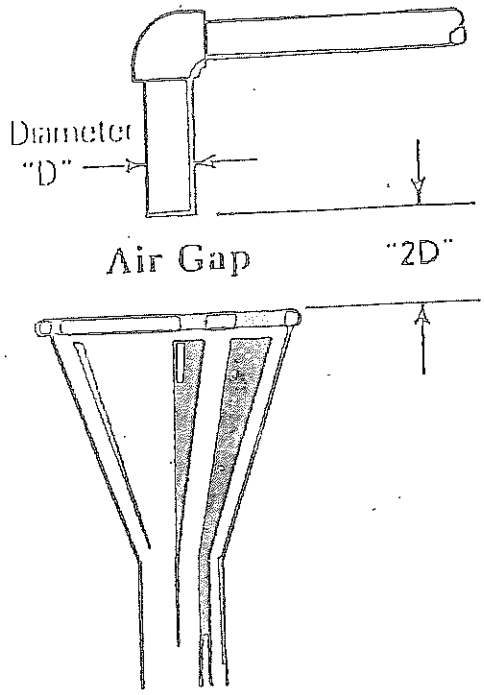
Annual Inspection and Testing Requirements

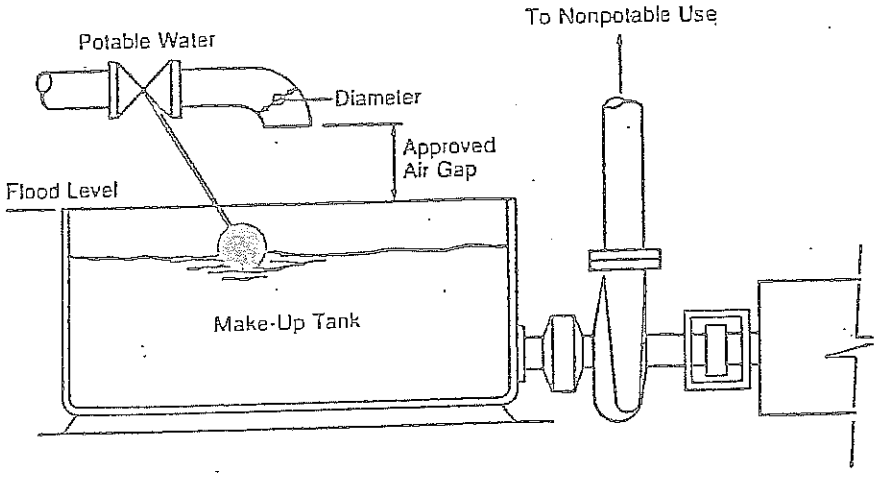
All reduced pressure principle backflow assemblies, double check valve assemblies, atmospheric vacuum breaker assemblies, pressure vacuum breaker assemblies, and air gaps installed in lieu of a backflow preventer, shall be inspected and tested annually or more often when successive inspections indicate failure. All inspections and testing will be done by a certified tester. The test reports shall be returned to the City of Rock Island within thirty (30) days after receipt of the yearly test notification.

AIR GAP

1. Air Gap (AG) must be:

- a physical separation through the free atmosphere
- at least 2 times the diameter of the inlet pipe
- in no case less than 1-inch
- used either in cases of back pressure and backsiphonage flow
- inspected annually

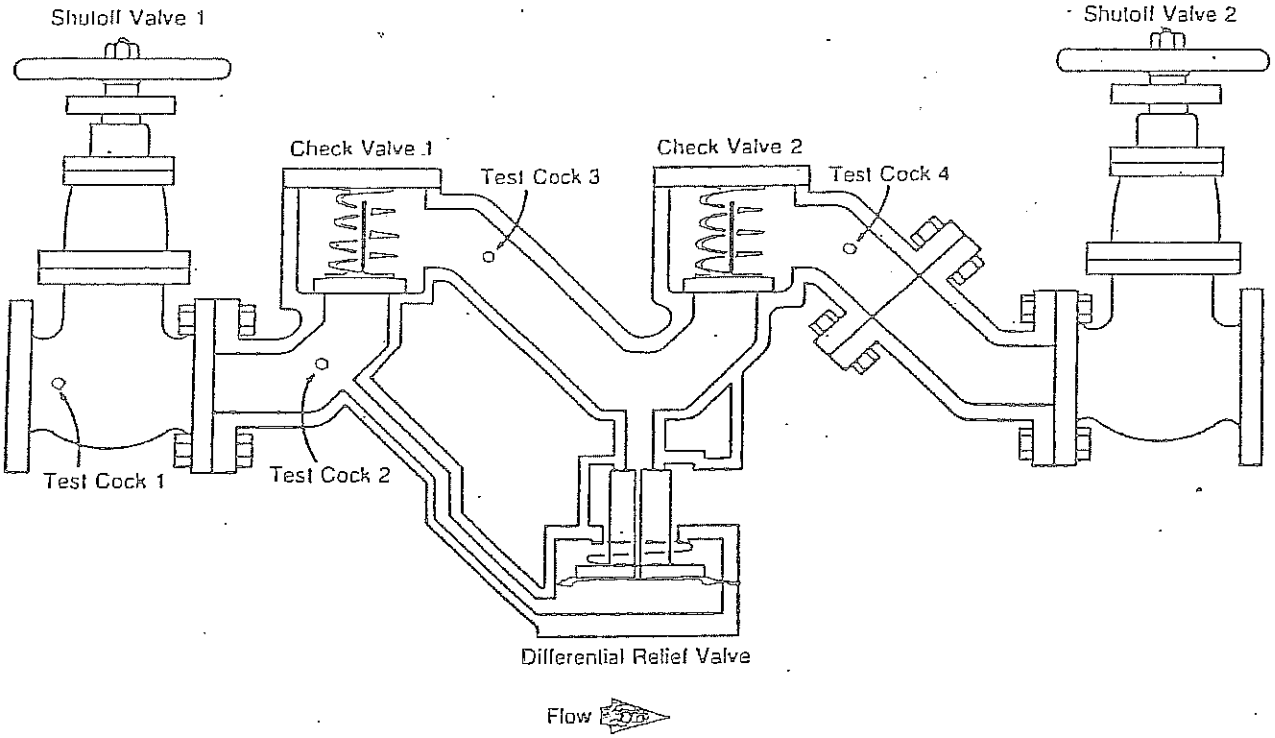




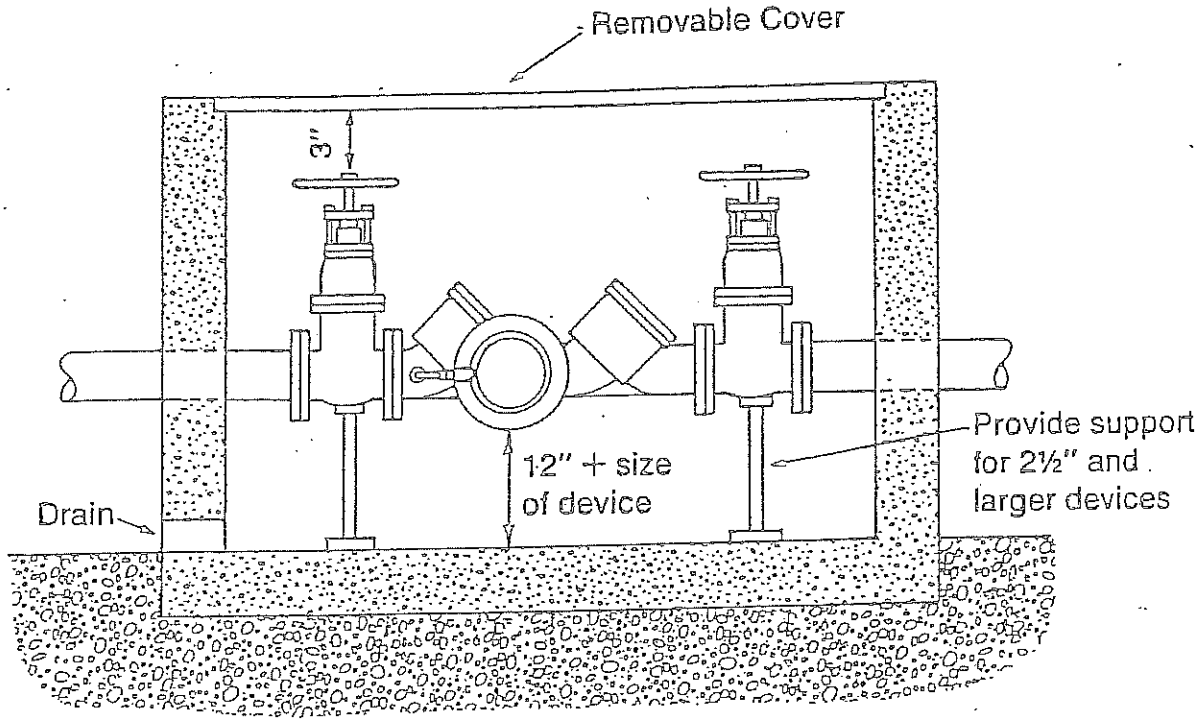
REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY

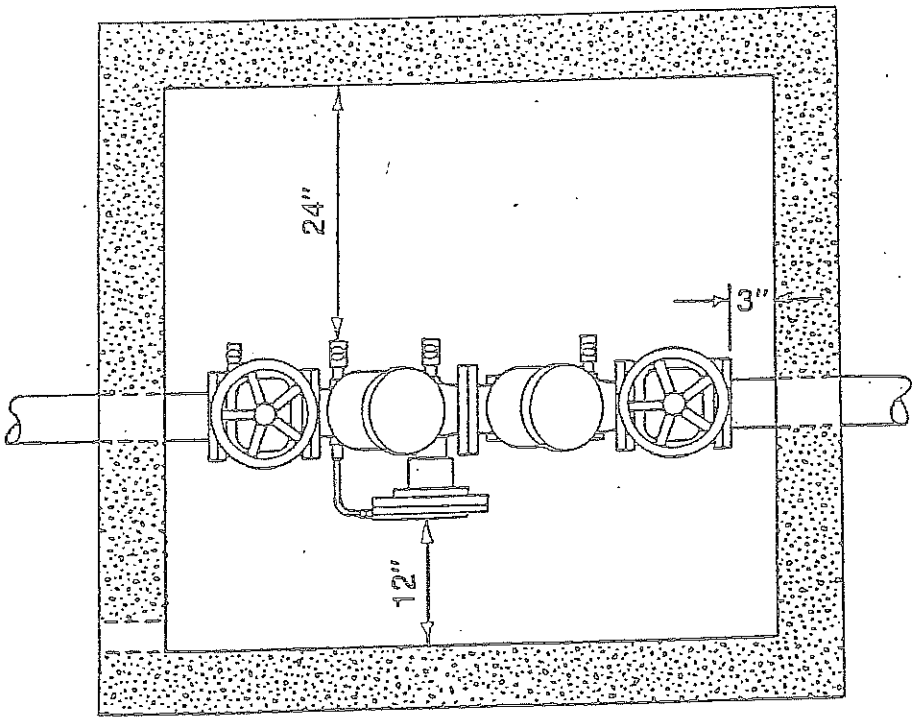
2. Reduced Pressure Principle Backflow Assembly (RPPBA) must be:

- installed with adequate space to facilitate maintenance and testing
- at least 12-inches above floor level but in no case above five (5) feet unless installed with a platform
- protected from freezing conditions
- protected from high temperatures, water hammer and pressures over its capacity (see manufactures specifications)
- of a model approved by the Department of Health
- inspected annually
- never subject to flooding
- used in conditions hazardous to health if an air gap can not be used



MINIMUM CLEARANCES FOR RPBP INSTALLATION



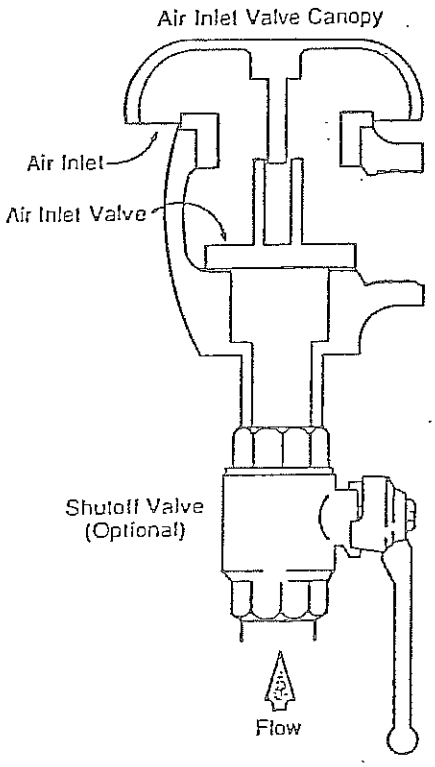


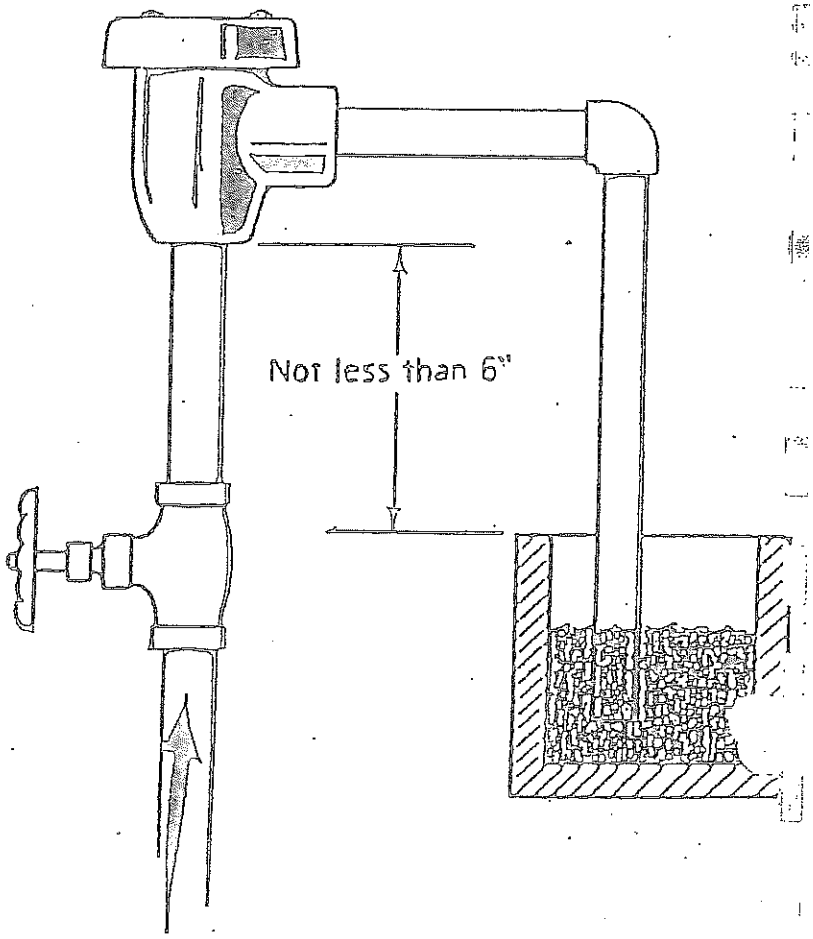
NOTE: Bottom and side clearances apply when devices are installed inside building. Access doors may be provided on side of above-ground vault.

ATMOSPHERIC VACUUM BREAKER

3. Atmospheric Vacuum Breaker (AVB) must:

- be installed vertically
- have no shut off valves down stream
- be at least 6-inches above the highest outlet or overflow level
- be used only to prevent cases of backsiphonage flow
- be inspected annually
- never be subject to flooding
- not be installed more than five (5) feet above ground or floor level
- not be installed where it will be under continuous operating pressure for more than 12 hours in any 24 hour period
- only be used in conditions not hazardous to health

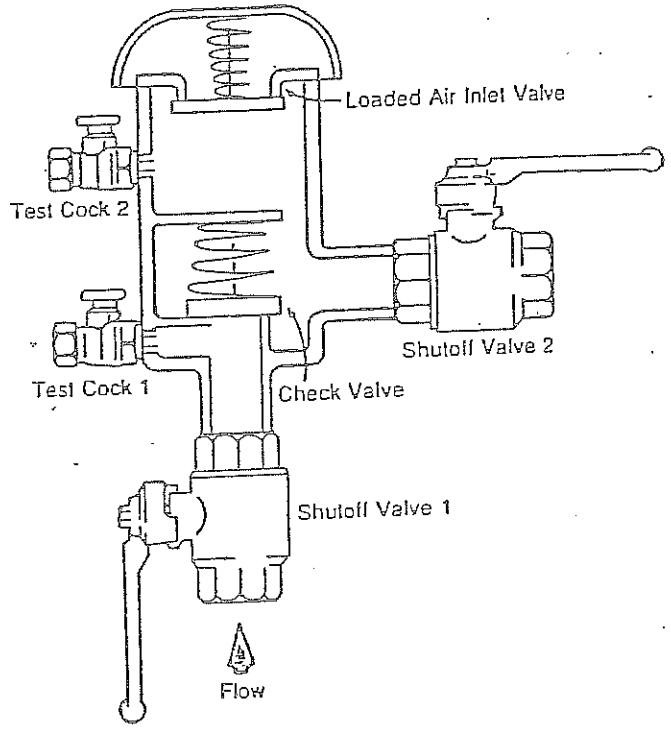


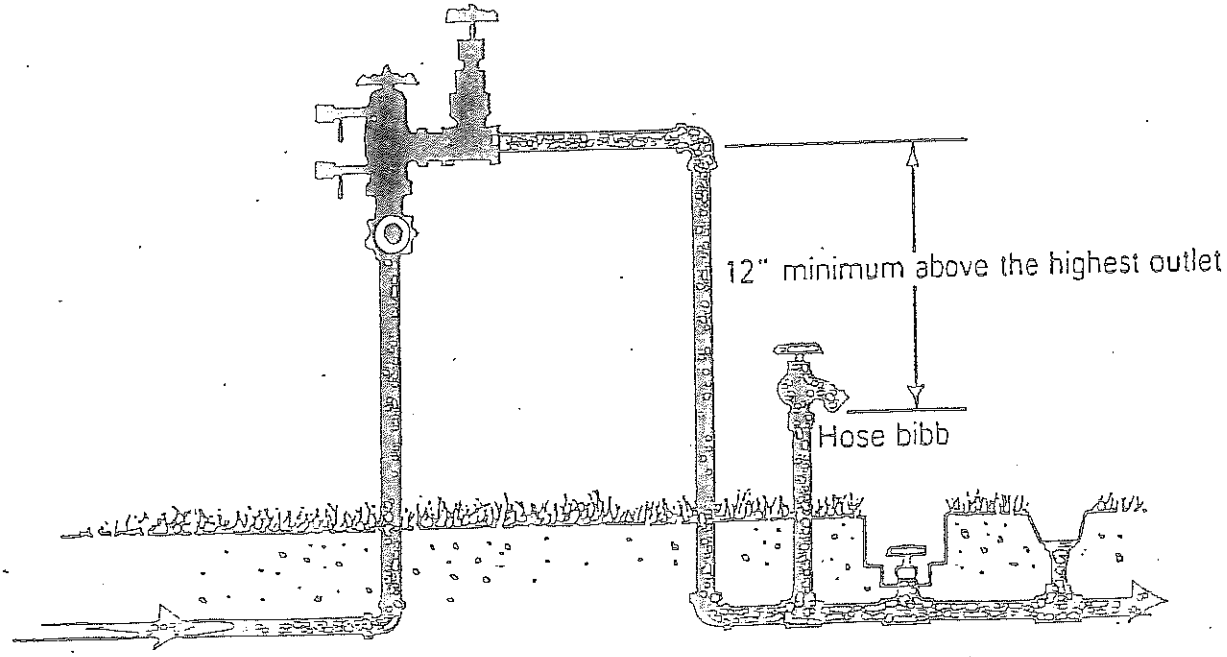


PRESSURE VACUUM BREAKER

4. Pressure Vacuum Breaker (PVB) must be

- capable of being tested in line
- at least 12-inches above highest outlet or overflow
- used only to prevent cases of backsiphonage flow, even though they can be under constant pressure
- never subject to flooding
- inspected annually.
- not installed more than five (5) feet above ground or floor level
- approved by the Department of Health

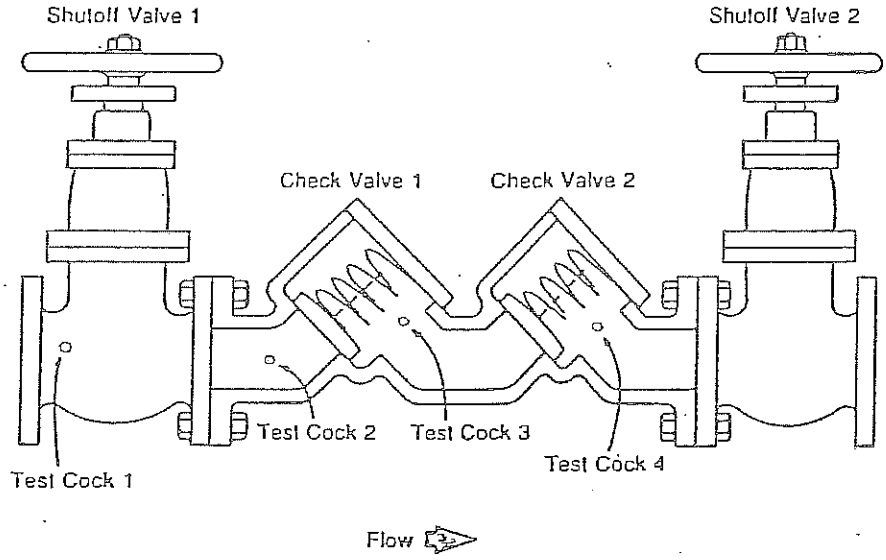




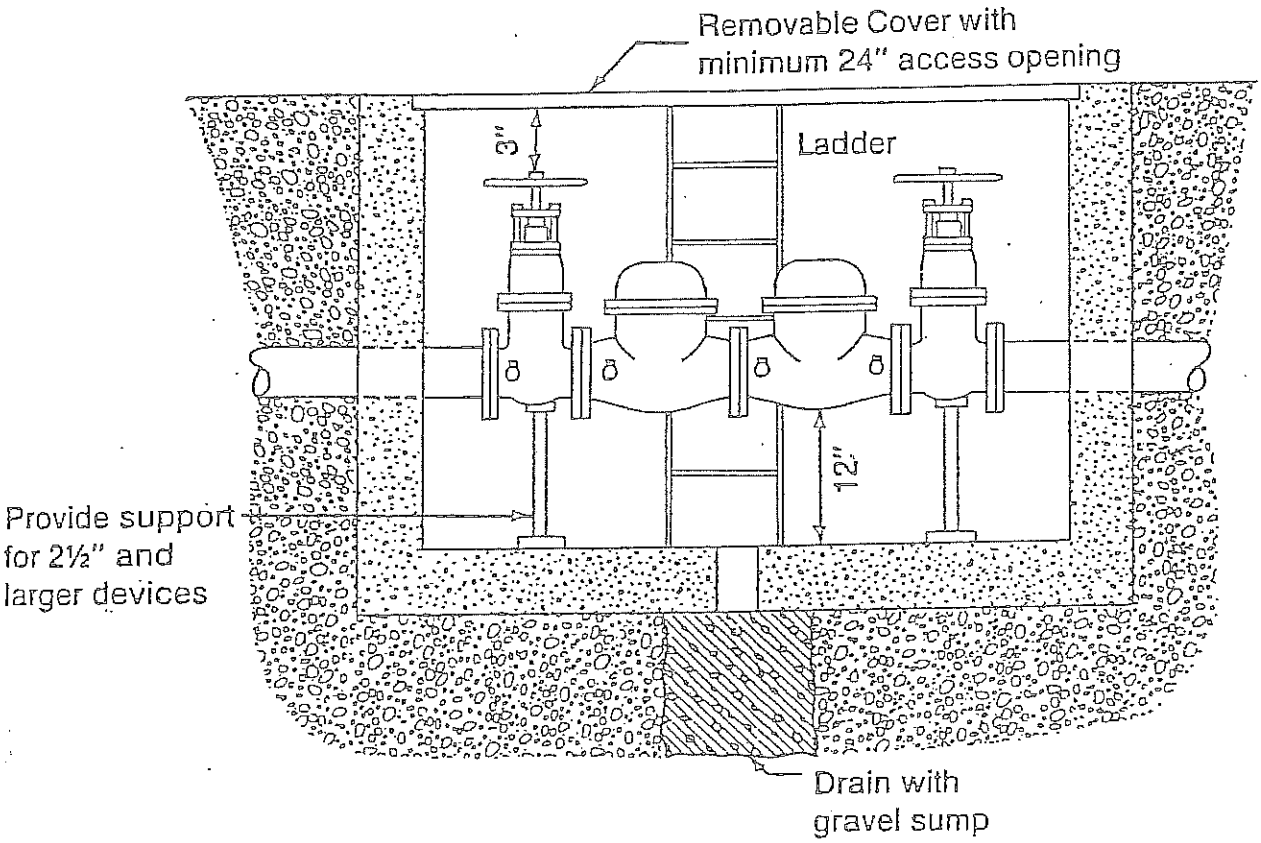
DOUBLE CHECK VALVE ASSEMBLY

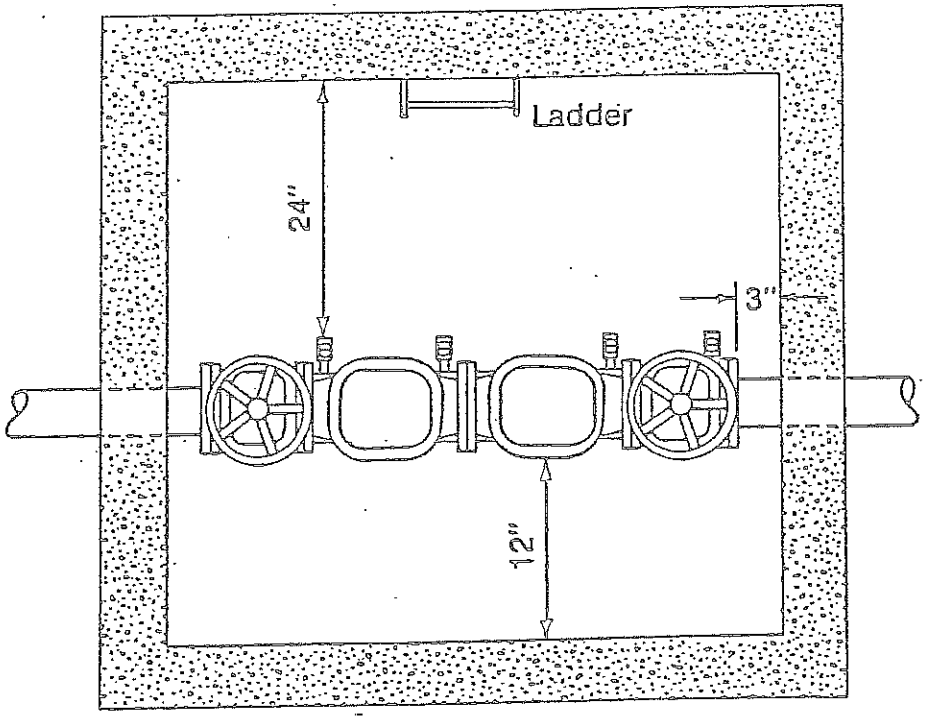
5. Double Check Valve Assembly must be:

- installed with adequate space to facilitate maintenance and testing
- at least 12-inches above floor level but in no case above five (5) feet unless installed with a platform
- protected from freezing conditions
- protected from high temperatures, water hammer and pressures over its capacity (see manufactures specifications)
- of a model approved by the Department of Health
- used only in conditions not hazardous to health
- inspected annually
- never subject to flooding unless plugs are installed in test cock tappings
- never subject to flooding if assembly contains an intermediate atmospheric vent



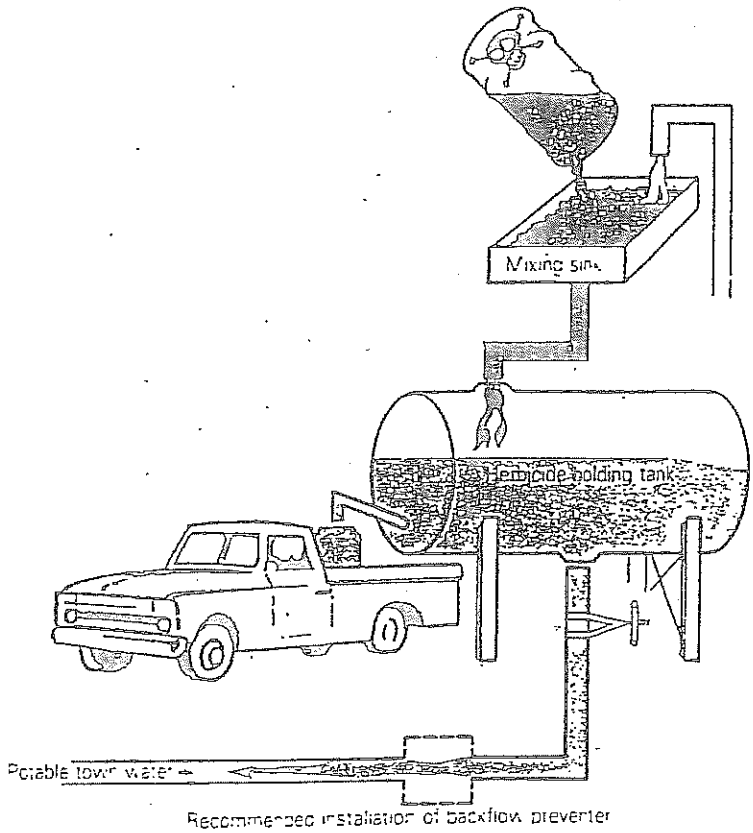
MINIMUM CLEARANCES FOR DCVA INSTALLATION

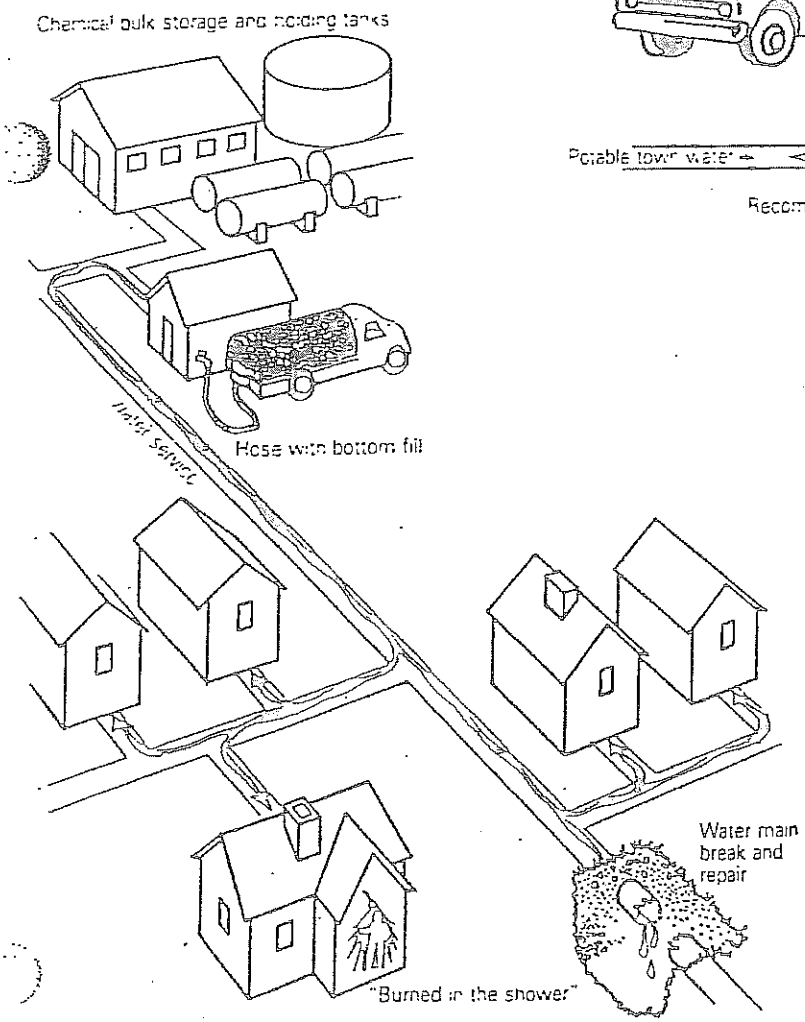


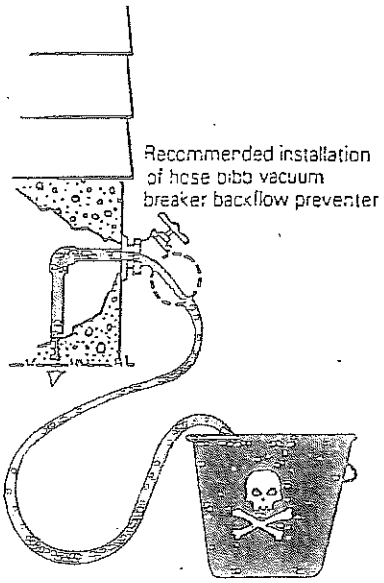


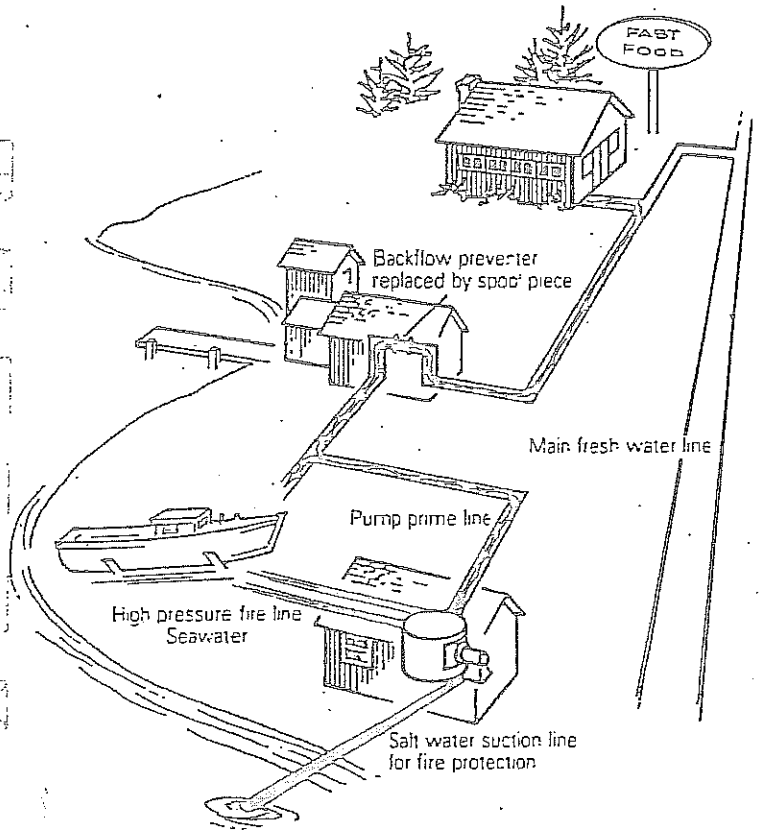
NOTE: Bottom and side clearances apply when devices are installed inside building.

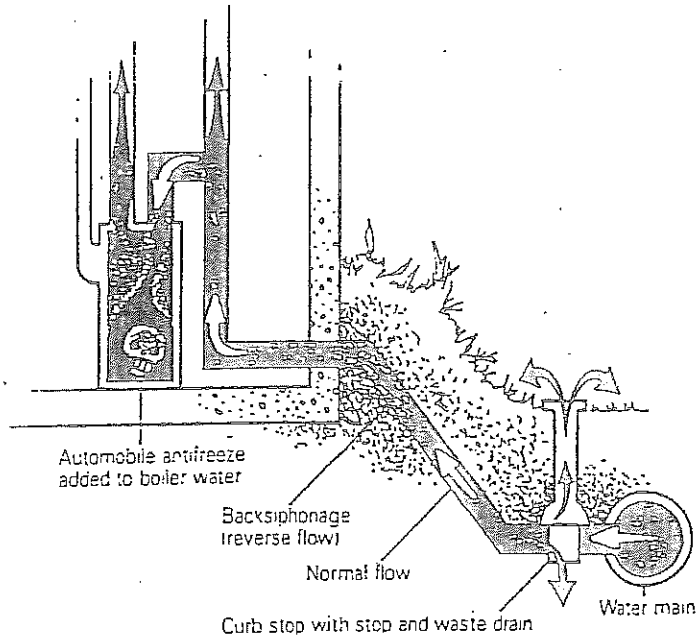
APPENDIX A

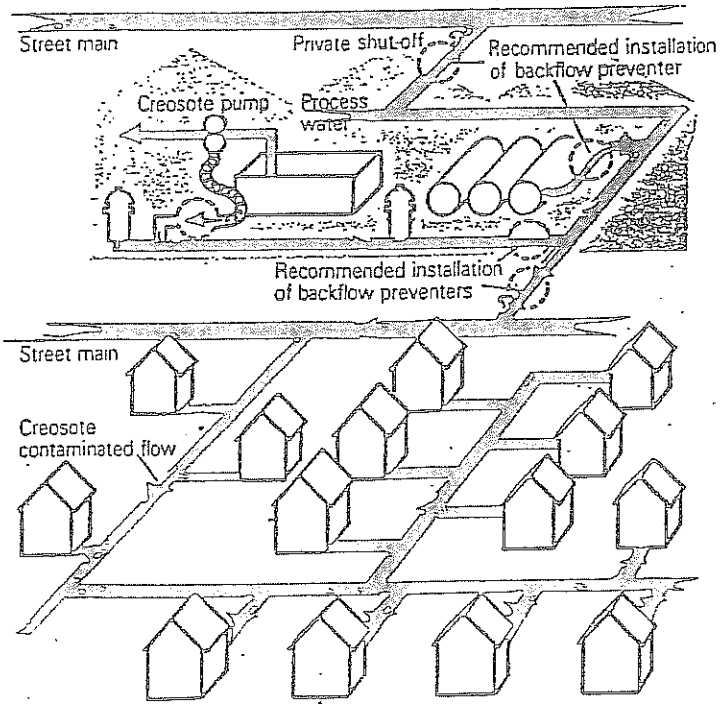

Mixing sink
Herbicide holding tank
Potable town water
Recommended installation of backflow preventer

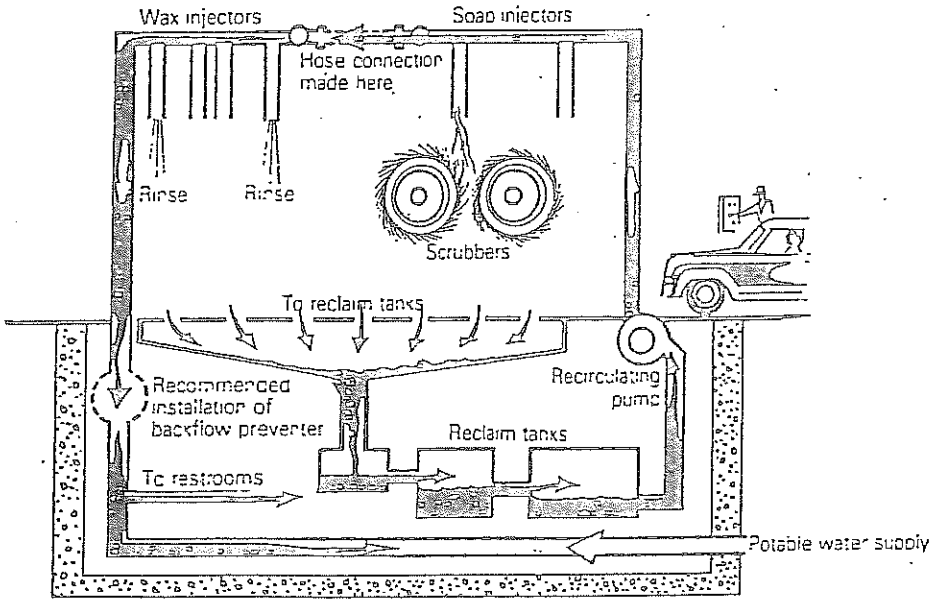

Chemical bulk storage and holding tanks
Hose with bottom fill
Water main break and repair
"Burned in the shower"

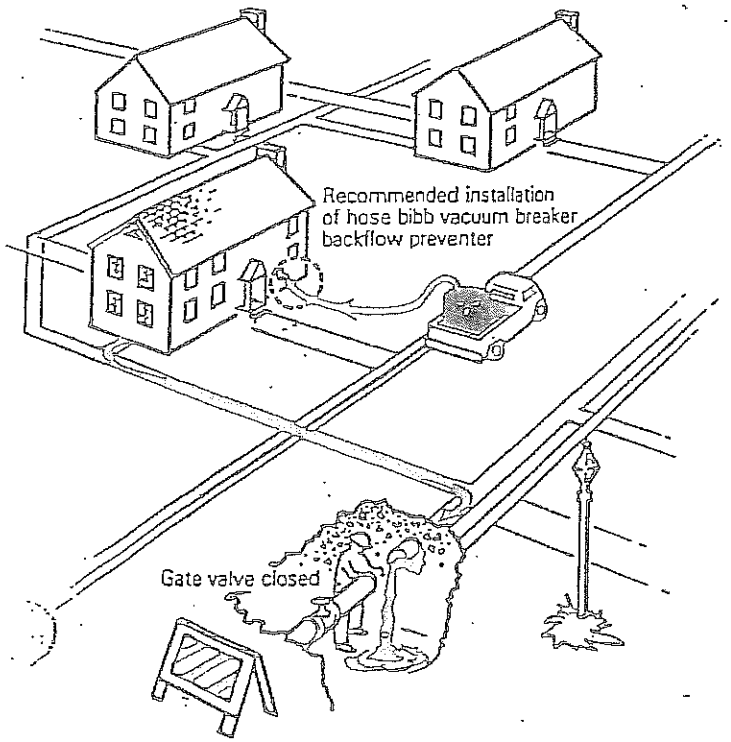

Recommended installation of hose bibb vacuum breaker backflow preventer

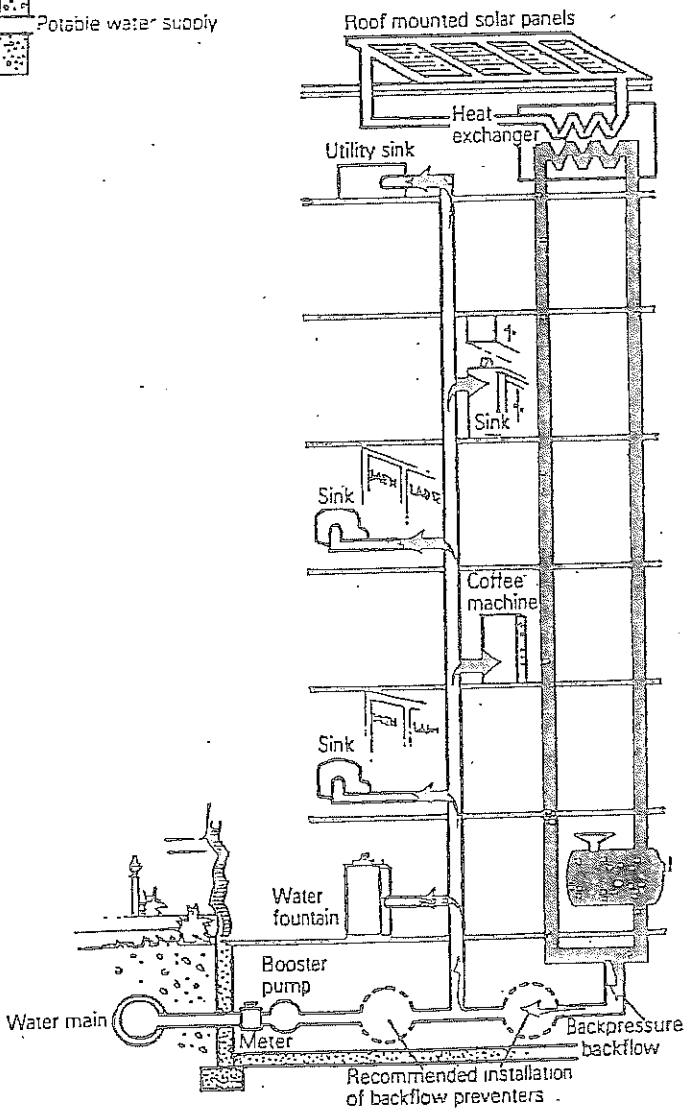

FAST FOOD
Backflow preventer replaced by spool piece
Main fresh water line
Pump prime line
High pressure fire line Seawater
Salt water suction line for fire protection

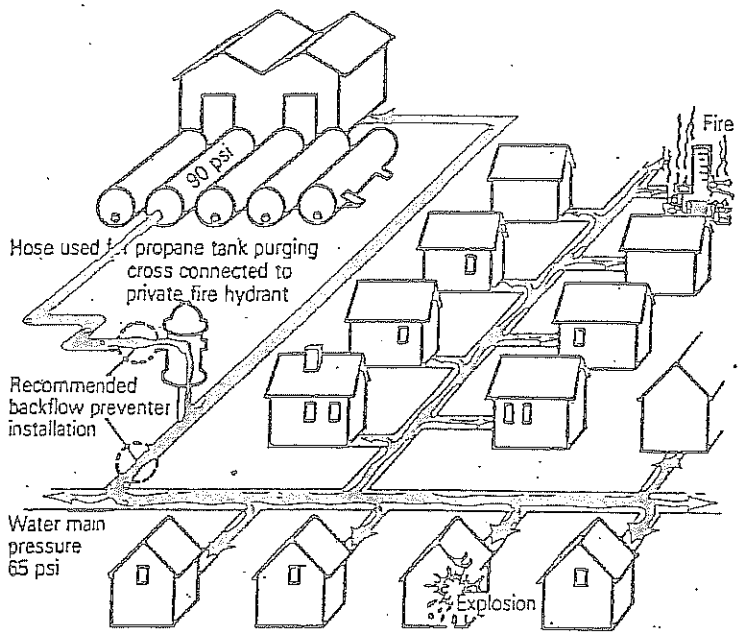

Automobile antifreeze added to boiler water
Backsiphonage (reverse flow)
Normal flow
Curb stop with stop and waste drain
Water main

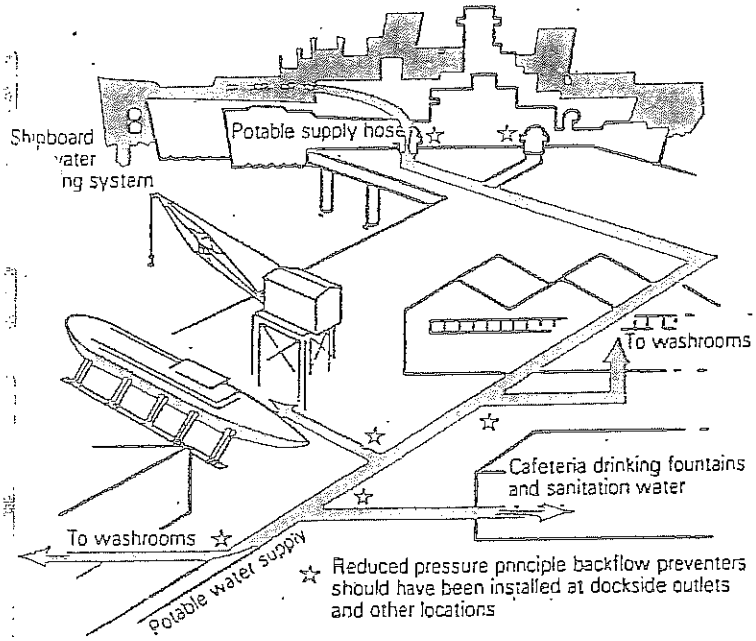

Street main
Private shut-off
Recommended installation of backflow preventer
Creosote pump
Process water
Recommended installation of backflow preventers
Street main
Creosote contaminated flow

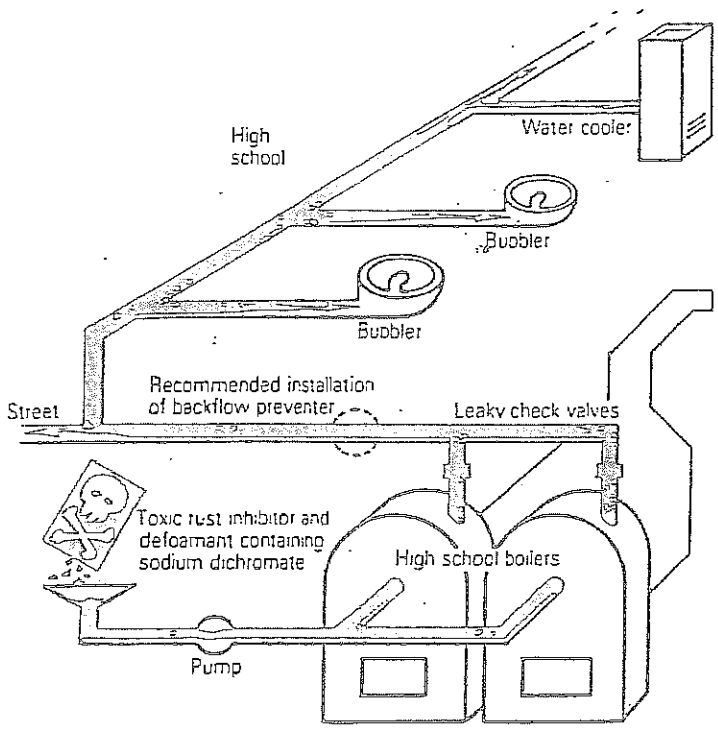

Wax injectors
Soap injectors
Hose connection made here
Rinse
Rinse
Scrubbers
To reclaim tanks
Recommended installation of backflow preventer
Recirculating pump
Reclaim tanks
To restrooms
Potable water supply


Recommended installation of hose bibb vacuum breaker backflow preventer
Gate valve closed


Roof mounted solar panels
Heat exchanger
Utility sink
Sink
Sink
Coffee machine
Sink
Water fountain
Booster pump
Water main
Meter
Backpressure backflow
Recommended installation of backflow preventers


Fire
90 psi
Hose used for propane tank purging cross connected to private fire hydrant
Recommended backflow preventer installation
Water main pressure 65 psi
Explosion


Shipboard water ing system
Potable supply hose
To washrooms
Cafeteria drinking fountains and sanitation water
To washrooms
Potable water supply
Reduced pressure principle backflow preventers should have been installed at dockside outlets and other locations


High school
Water cooler
Bubbler
Bubbler
Street
Recommended installation of backflow preventer
Leaky check valves
Toxic rust inhibitor and defoamant containing sodium dichromate
High school boilers
Pump

ITEM 28

Customer's Responsibility for Department's Property

The customer shall provide space for, and exercise proper care to protect the Department's property on his premises. This shall include meters, meter pits, meter boxes, fittings, pipes and other facilities installed by, and remaining the property of the department. In the event of loss or damage to the Department's property because of the customer's negligence or abuse, the customer will be required to pay the cost of repairs of replacement.

A service line shall presume to be abandoned by the owner when service charges have been unpaid for a period of one year. Upon abandonment pursuant to this article, City service can be resumed only upon payment of the new water system development fee.

If a hook-up has been paid to the Department, for a property prior to the passage of this ordinance, and said property has not been paying monthly water user charges, the property owner shall pay the monthly water user charges from the rate determined for a single family residence, or the service of this requirement in the same manner and for the same time City Water Service cannot be restored unless a new Water System Development Fee is paid. If a structure served by a City system is torn down or destroyed, the owner can either voluntarily abandon the service line or prevent abandonment by paying the service charges to the City in an amount equal to the charges

prior to the building's destruction. Any property owner may voluntarily abandon their service line by written notice of their intention to do so.

ITEM 29

Customer's Responsibility to Prevent Backflow

Present State and Federal laws provide that there shall be no cross connection, open or potential, between a system furnishing potable water and a system furnishing non-potable water. Construction shall be such as to prevent backflow of contaminated water into a potable water system. Backflow prevention devices or a type approved by Washington State Department of Social and Health Services shall be installed by the customer when deemed necessary by the Department. All devices shall remain in the customer's ownership and be his responsibility. Backflow devices tested over a year will be at customer's expense.

Also, any sprinkler system or orchard standpipe connected to the Department's system shall have an approved backflow prevention device. Inspection of such devices may be made periodically by a Department representative. It shall be the customer's responsibility at all times to maintain this cross connection control device or backflow prevention in a fully functioning condition.

ITEM 30

Department Representation of Employees

No inspector, agent, or employee of the Department may ask, demand, receive, or accept any personal compensation for any service rendered to water consumers or other persons in connection with supplying or furnishing water by the Department.

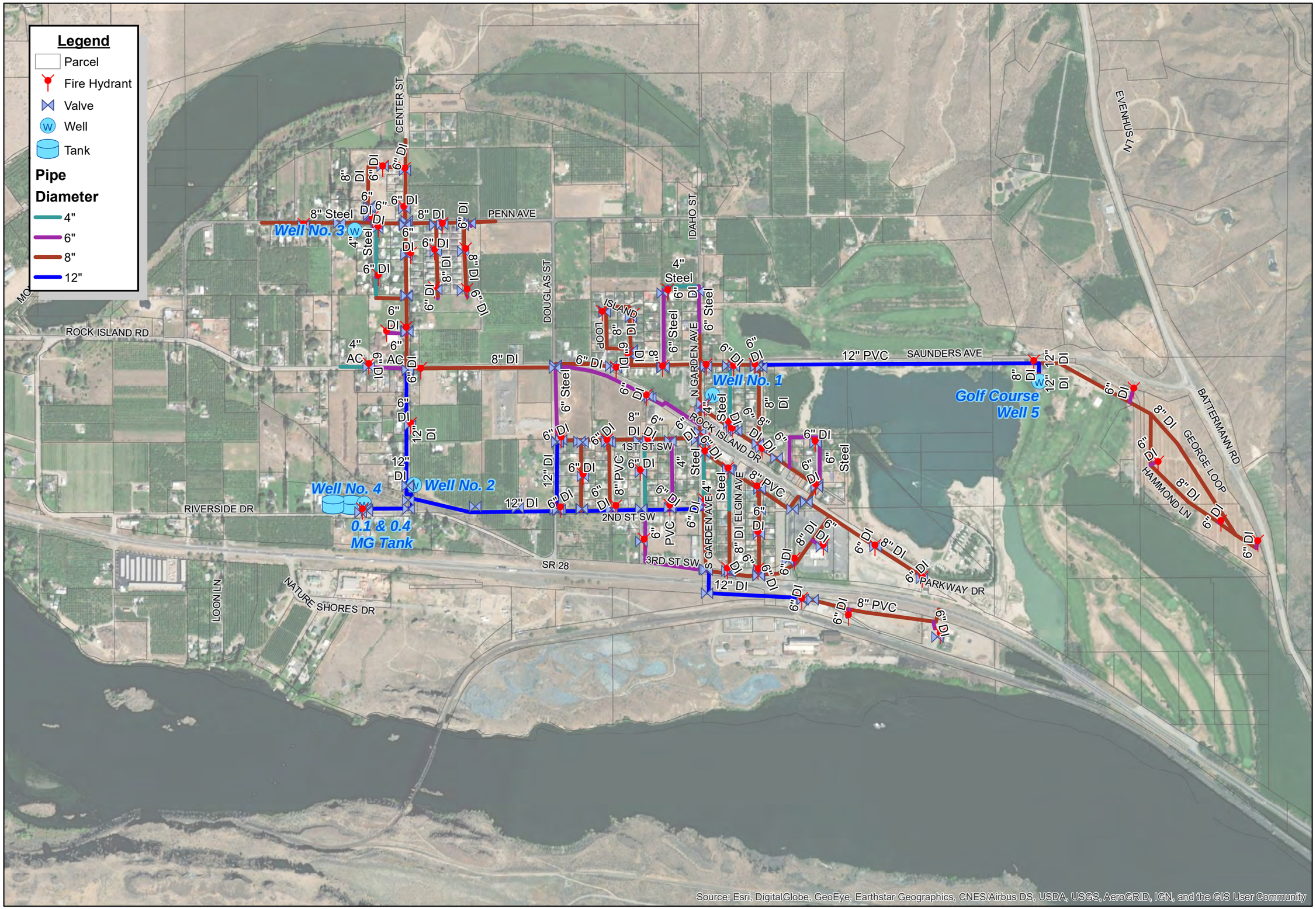
No promise, agreement or representation of any employee or agent of the Department with reference to the furnishing of water shall be binding on the Department unless the same shall be in writing and signed by the Manager or his authorized agents.

ITEM 31

Services.

It is preferable that water service not be over 300 feet from the meter to the point of use in order to maintain adequate flow. Service over 300 feet in the length is permitted, however, the Department will not guarantee adequate pressure for these services. The customer's service pipe should be at a depth of 48 inches, with 6 inches bedding sand beneath and surrounding the pipe. The water service pipe shall be installed at a location mutually agreeable to the Department and the customer. The line shall consist of material approved by Manager as outline by AWWA regulations (American Water Works Association). The Department will install the meter box and short piece of pipe beyond the meter box to which the customer will connect his service. There shall be no cross connections between the Department's service and any other source of water such as a well or another water system.

Figures



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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PRELIMINARY

Vicinity Map

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enStreetMap contributors,

Figure 2.1
Existing Water System
City of Rock Island Water System Plan

CITY OF ROCK ISLAND

1 inch = 800 feet

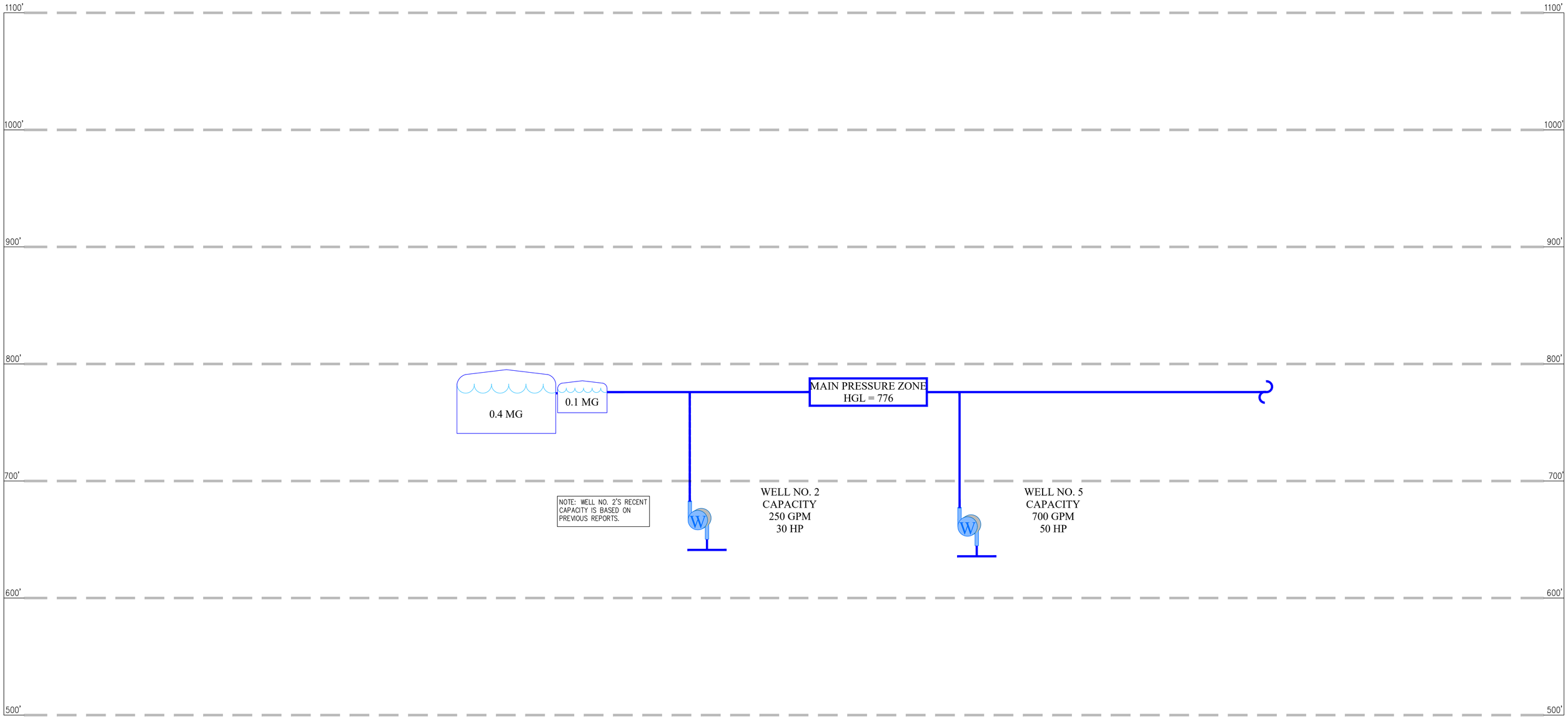
0 205 410 820 Feet

DRAWING IS FULL SCALE WHEN BAR MEASURES 1"

RH2

NORTH

J:\DATA\ROC\20-0103\GIS\MAP\FIGURE 2.1 EXISTING SYSTEM.MXD BY: JRIBAIL PLOT DATE: APR 29, 2022 COORDINATE SYSTEM: NAD 1983 HARN STATEPLANE WASHINGTON NORTH FIPS 4601 FEET



LEGEND

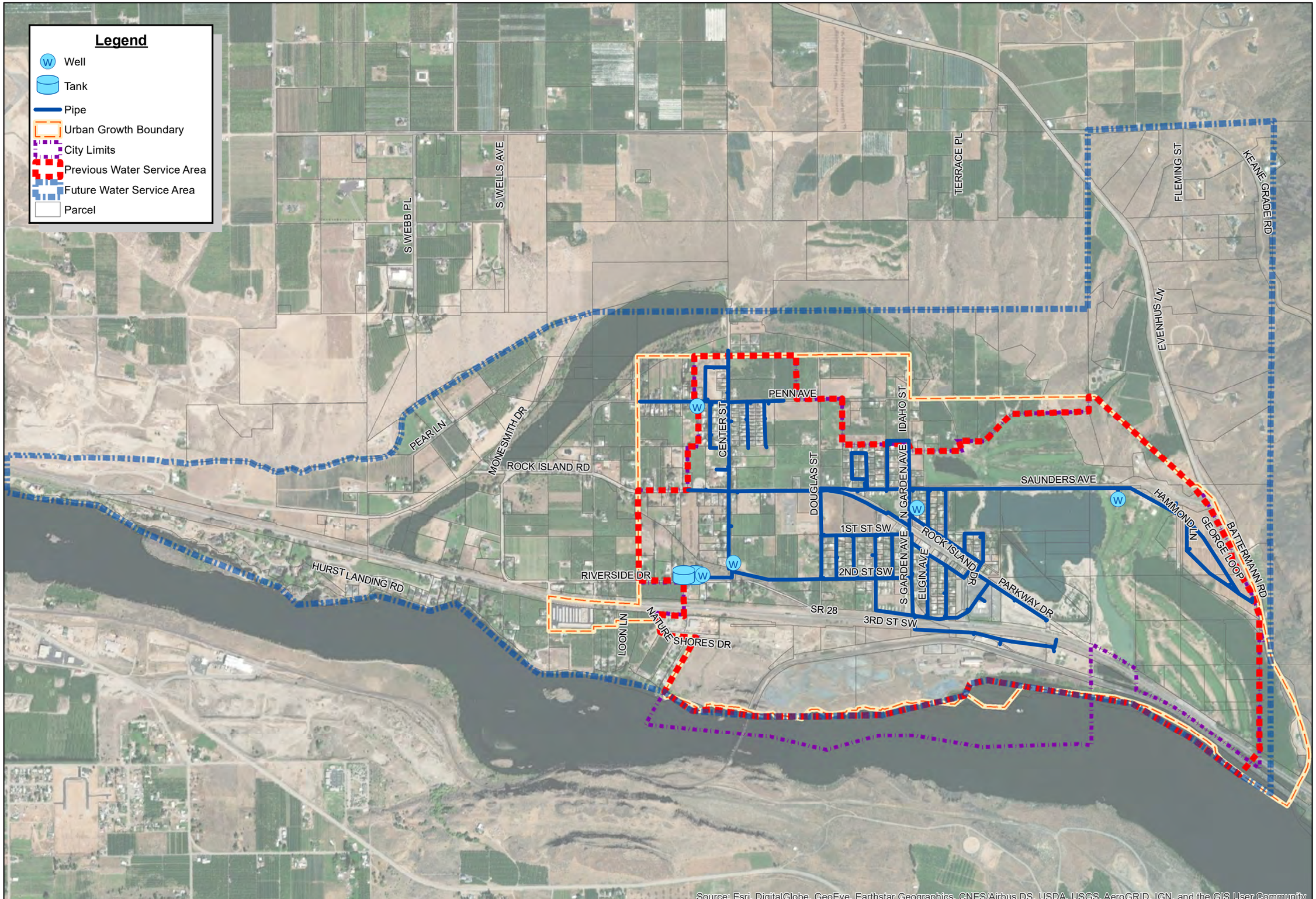
- Existing System
- Well
- Water Tank

City of Rock Island

EXISTING HYDRAULIC PROFILE

RH2

FIGURE 2.2



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J:\DATA\ROC\20-0103\GIS\MAP\FIGURE 2.3 WATER SERVICE AREA.MXD BY: JRIBAIL PLOT DATE: APR 29, 2022 COORDINATE SYSTEM: NAD 1983 HARN STATEPLANE WASHINGTON NORTH FIPS 4601 FEET

Figure 2.3
Water Service Area
City of Rock Island Water System Plan

CITY OF ROCK ISLAND

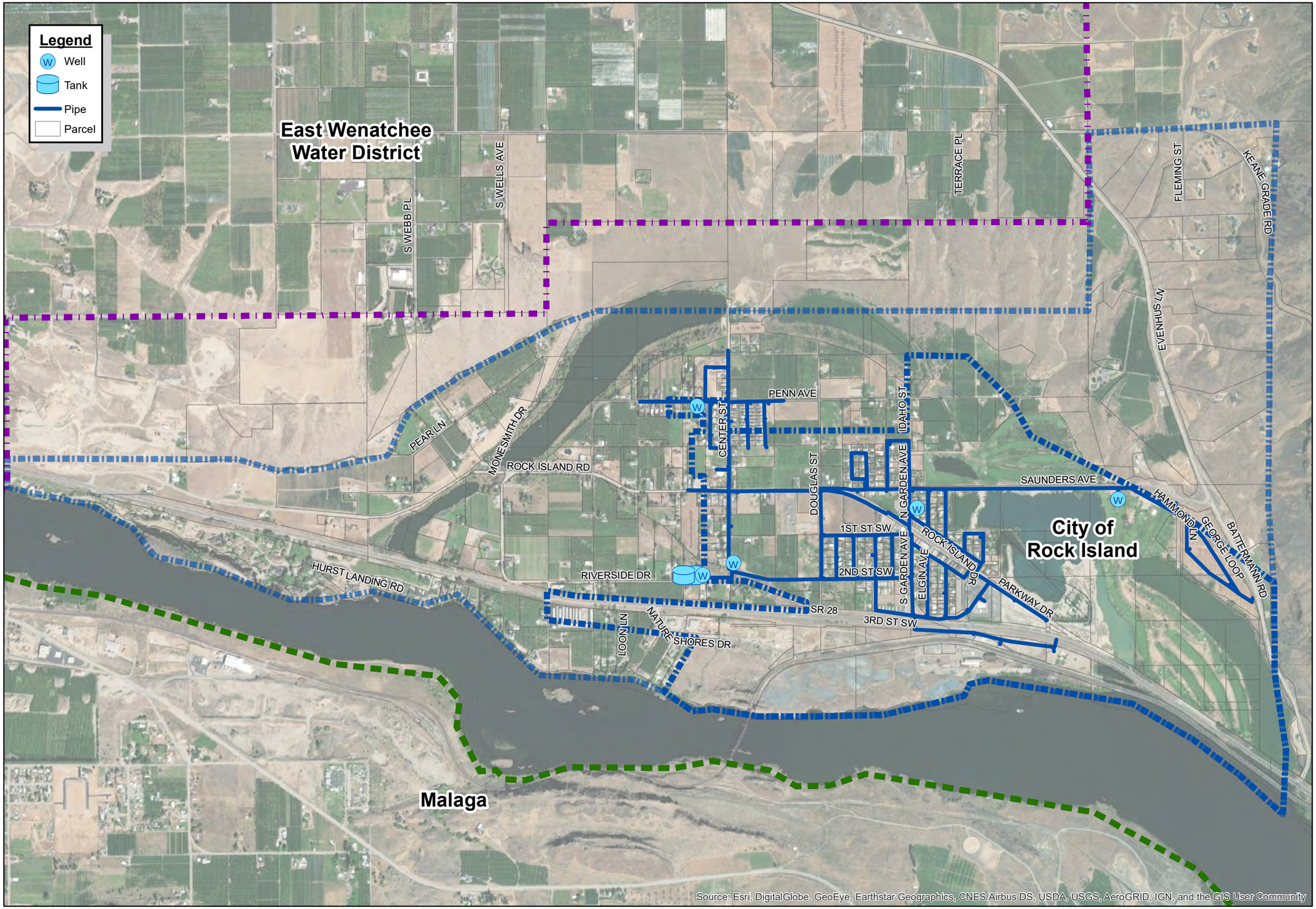
1 inch = 1,300 feet

0 335 670 1,340 Feet

DRAWING IS FULL SCALE WHEN BAR MEASURES 1"

RH2

NORTH



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J:\DATA\ROC\20-0103\GIS\MAP\FIGURE 2.4 ADJACENT PURVEYORS.MXD BY: JRIBAIL PLOT DATE: APR 29, 2022 COORDINATE SYSTEM: NAD 1983 HARN STATEPLANE WASHINGTON NORTH FIPS 4601 FEET

Figure 2.4
Adjacent Purveyors
City of Rock Island Water System Plan

CITY OF ROCK ISLAND

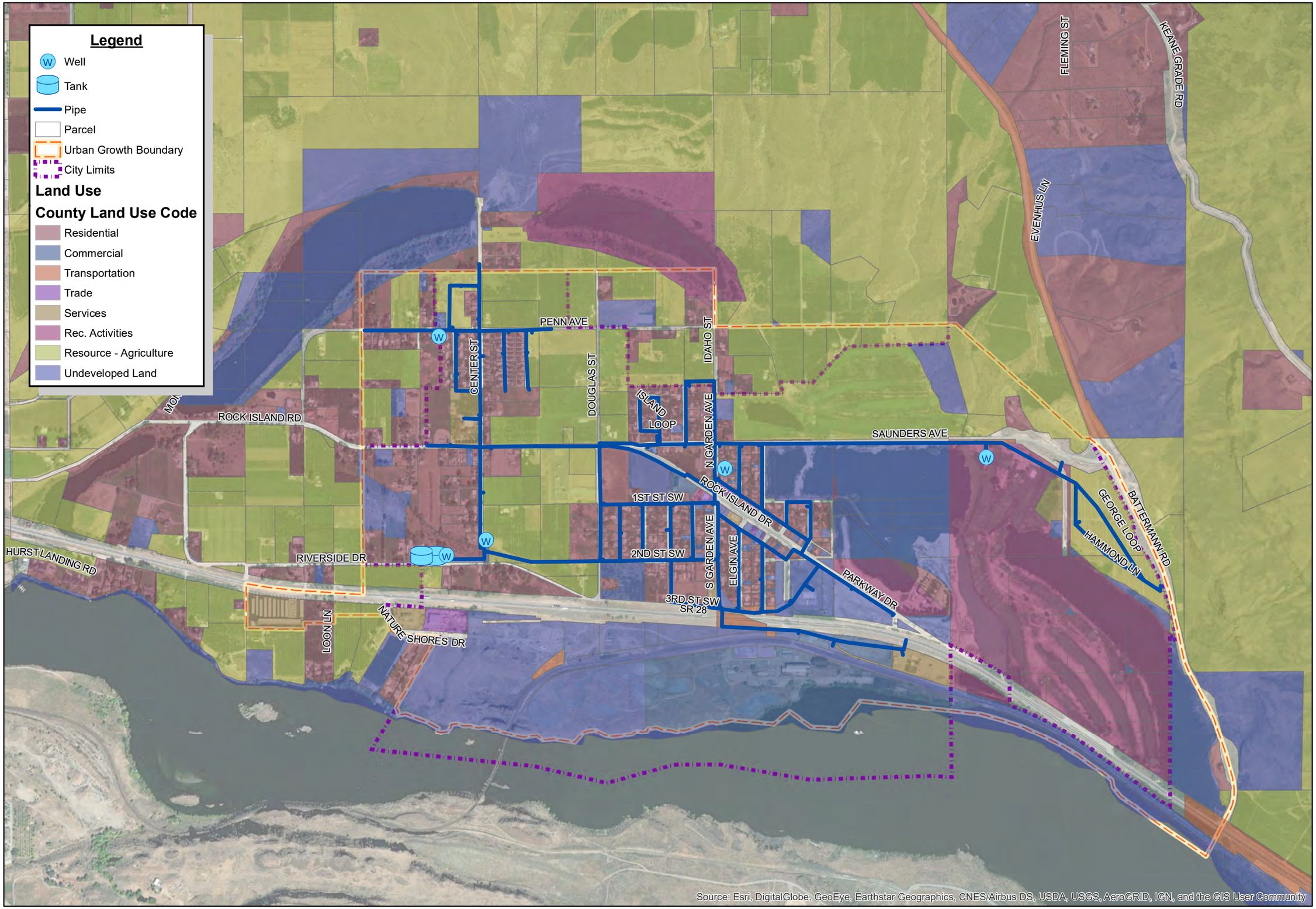
1 inch = 1,300 feet

0 335 670 1,340 Feet

DRAWING IS FULL SCALE WHEN BAR MEASURES 1"

RH2

NORTH



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J:\DATA\ROC\20-0103\GIS\MAP\FIGURE 3.1 LAND USE.MXD BY: JRIBAIL PLOT DATE: APR 29, 2022 COORDINATE SYSTEM: NAD 1983 HARN STATEPLANE WASHINGTON NORTH FIPS 4601 FEET

Figure 3.1
Land Use
City of Rock Island Water System Plan

CITY OF ROCK ISLAND

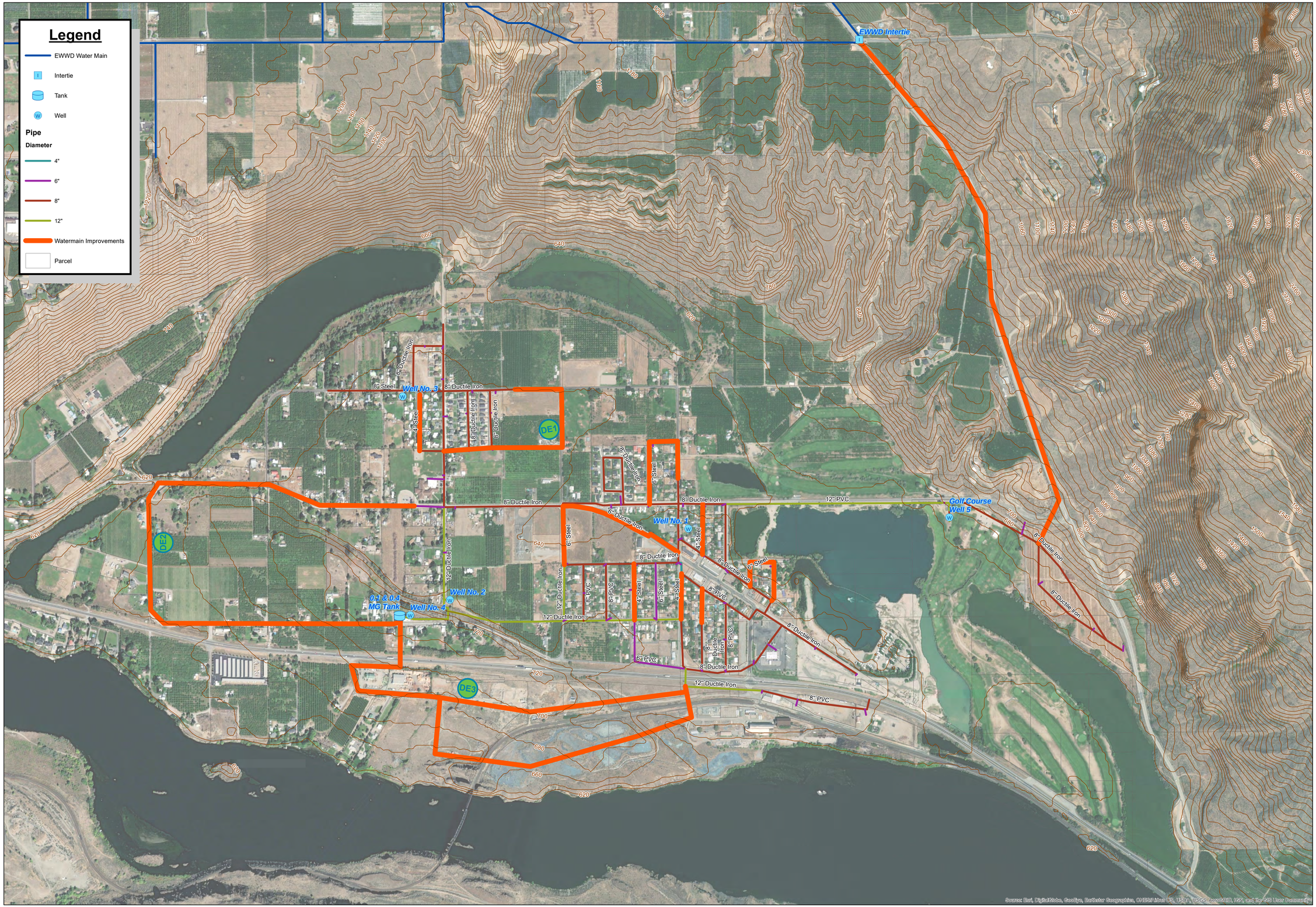
1 inch = 1,000 feet

0 255 510 1,020 Feet

DRAWING IS FULL SCALE WHEN BAR MEASURES 1"

RH2

NORTH



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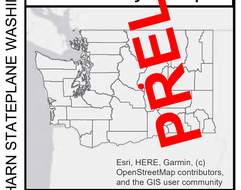


J:\DATA\ROC\20-0103\GIS\MAP\FIGURE 9.1 PROPOSED IMPROVEMENTS.MXD BY: JRIBAIL PLOT DATE: APR 29, 2022 COORDINATE SYSTEM: NAD 1983 HARN STATEPLANE WASHINGTON NORTH FIPS 4601 FEET

Figure 9.1
Proposed Improvements
City of Rock Island Water System Plan

CITY OF ROCK ISLAND

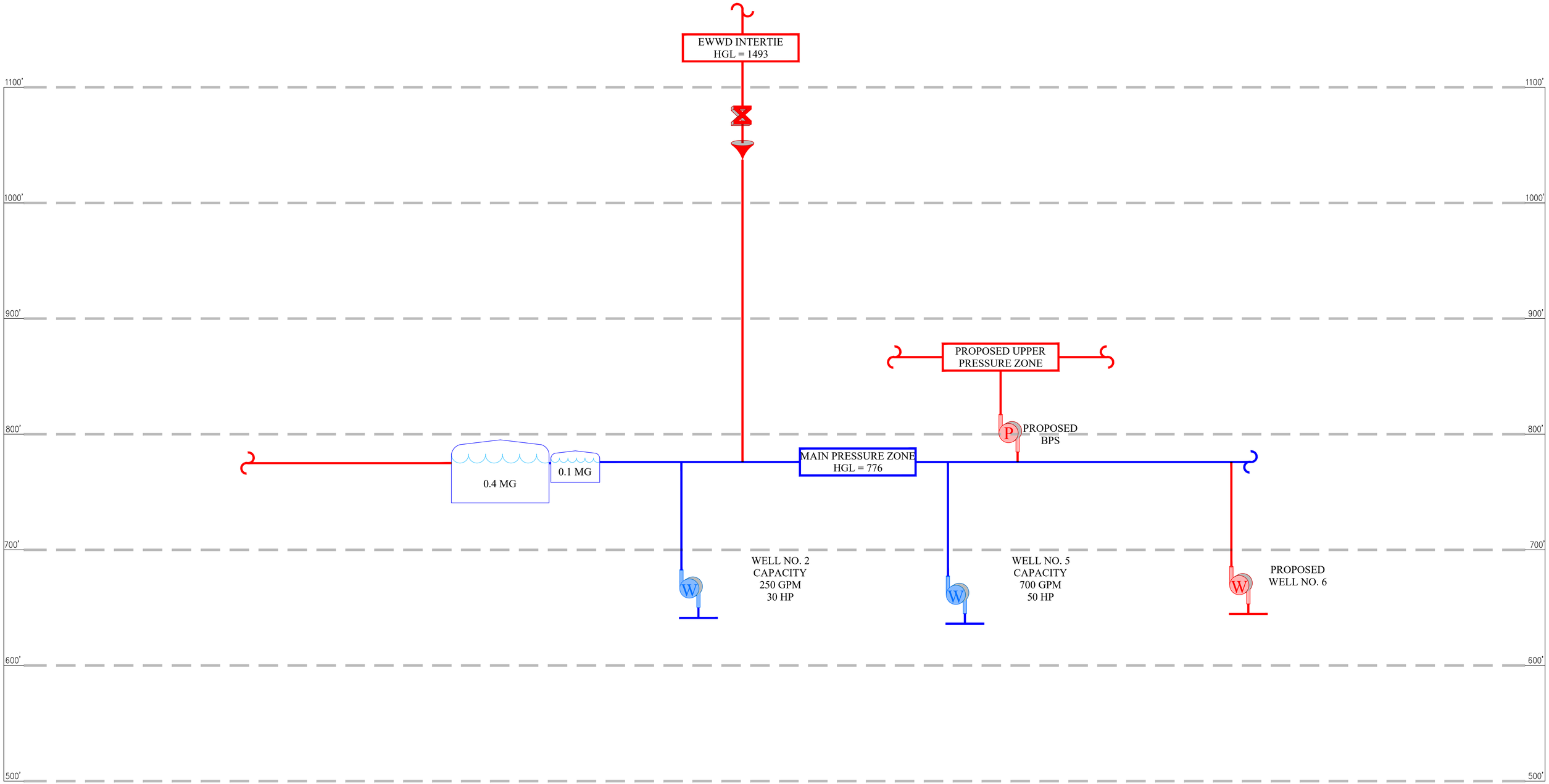
1 inch = 500 feet

0 255 510 1,020 Feet

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

RH2

NORTH



LEGEND

- Existing System
- Pump Station
- Intertie
- PRV
- Water Tank

City of Rock Island

PROPOSED HYDRAULIC PROFILE

RH2

FIGURE 9.2