

CITY OF SELAH

GENERAL SEWER PLAN



Prepared by:



PROJECT NO. 17044E

October 2018

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EXECUTIVE SUMMARY

INTRODUCTION

The City of Selah is located in the south-central portion of Washington State in Yakima County, as shown on Figure 1-1 – Washington State Vicinity Map. The City lies along Interstate 82 approximately 3 miles north of the City of Yakima. Selah is the largest of the bedroom communities to the City of Yakima. As a result of increasing growth within the Yakima Valley, there has been a significant increase in population both within Selah and the area surrounding the City. A future service area for Selah (Urban Growth Area) has been established through the Growth Management Act planning process. This General Sewer Plan will provide Selah with one component of its Capital Facilities Plan for providing future services within both the City and its Urban Growth Area (UGA).

This General Sewer Plan includes the general location and description of existing and future trunk and interceptor sewers, pumping stations, local service areas, and the sewer collection system to serve those areas. The sections of this Plan describe the basis for development of planning areas, growth projections, forecast municipal wastewater loadings, and design criteria for recommended collection system improvements. Maps showing the existing sewer system and proposed sewer extensions are included in the back pockets of this report.

A draft of the Comprehensive Sewer Plan was prepared in 1999, and the City was in the process of developing its service area policies and growth management strategies. Concurrently, Selah was updating its Comprehensive Water Plan, and it was important to coordinate the two master plan documents. As result, the draft plan was reviewed by the City, and final preparation of the Comprehensive Sewer Plan was placed on hold pending final decisions on growth management issues. In the interim period, the City proceeded with implementation of its capital improvement plan, and completed several of the projects recommended in the draft Comprehensive Sewer Plan.

REQUIREMENTS

State regulation 173-240-050 WAC specifies that a General Sewer Plan include the following information:

1. Purpose and need for the proposed plan.
2. A discussion of who will own, operate, and maintain the system.
3. The existing and proposed service boundaries.
4. Layout map including existing and proposed sewers, existing and proposed pump stations and force mains, topography and elevations, streams, lakes, and other bodies of water, and location of major water system components.
5. Current and future population.
6. Existing domestic or industrial wastewater facilities within the vicinity of the general plan area.
7. A discussion of any infiltration and inflow problems.
8. A statement regarding provisions for, and adequacy of wastewater treatment.
9. List of all sources of, and quality and quantity of industrial wastewater discharged to the system.
10. Location of private and public wells, or other sources of water supply.
11. Alternatives evaluated.
12. Financial evaluation including the cost per service in terms of both debt service and operation and maintenance costs.
13. A statement regarding compliance with any adopted water quality management plan under the Federal Water Pollution Control Act as amended.
14. A statement regarding compliance with the State Environmental Policy Act (SEPA) and the National Environmental Policy Act (NEPA).

PURPOSE AND OBJECTIVE OF PLAN

This General Sewer Plan has been developed to serve as a guide for the expansion of the City of Selah's wastewater collection, treatment, and disposal facilities. The following major components are included in this Plan:

- ❖ Definition of the planning area, determination of the areas in and around Selah most likely to grow, and the projected population increases.

- ❖ Development of estimates for the current quantity of wastewater and the projected quantity to be generated within the planning area.
- ❖ Evaluation of the capacity and condition of the existing sewer system, including lift stations.
- ❖ Recommendations for extension of the existing sewer system, including lift stations.
- ❖ Development of design standards for extension of sewers and for lift stations.
- ❖ Review of the evaluation of the existing treatment and disposal facilities and recommendations for improvements.
- ❖ Development of policies for the extension of sewer service.

The sections of this Plan describe the basis for development of planning areas, growth projections, forecast wastewater loadings, and design criteria for recommended improvements. Maps showing the existing sewer system and proposed sewer extensions are included in the back of this Plan.

By regulation, general sewer plans are required to contain maps showing sources of water supply, water storage reservoirs, water treatment plants, and water transmission lines. A map in the back of this Plan shows these water system elements in relation to the existing and future sewer system area.

An equally important reason for developing a general sewer plan is to assure orderly growth of the system while maintaining reliable wastewater collection and treatment service. This Plan is intended to guide sewer utility actions in a manner consistent with other activities taking place in the community.

APPROACH

The existing service area, population, and flow data were used to develop a hydraulic model using Infosewer. The model outputs were compared to actual flows measured at the WWTP to confirm the general values used to develop the model were representative of actual conditions. Population densities were then applied to the full UGA, and the model was run to estimate the expected flows in the collection system for full buildout conditions. A third model run, using historical and Office of Financial Management (OFM) population data and projections to estimate the flows and needs for the year 2037, was then performed. The model output shows sections of the collection system that are undersized to meet the estimated existing, future buildout, and 2037 flow estimates. The flow estimates were also used to determine lift station and WWTP needs to meet the projected growth over the same time periods.

Sections of piping deficient in size per the model output, along with problem areas identified by City Public Works staff, were then combined and prioritized to develop potential project costs and priorities to address the collection system needs. Alternative collection system improvements were considered to address the future needs for deficient areas in the collection system. Cost estimates were developed for each of these alternatives, and areas were combined into potential projects for consideration. A schedule of improvements was then developed and methods to fund the improvements were analyzed to determine impacts on rates.

SUMMARY OF RECOMMENDED IMPROVEMENTS

Improvements to the existing collection and treatment system, and expansion to accommodate future growth are identified within this Plan. The following is a summary of the recommended improvements:

Maintenance related and previously identified improvements

- M1. Construct 900 LF of new 15-inch industrial pretreatment sewer in Railroad Avenue.
- M2. Connect previously constructed sewer under South First Street at Southern Avenue with 50 LF of 12-inch sewer and 250 LF of 15-inch sewer to the collection system and re-route wastewater from Southern Avenue through this line.

- M3. Install 1,920 LF of 10-inch sewer beginning at Tenth Street and Fremont Avenue continuing down Fremont Avenue to manhole at North Fourth Street. Install six manholes along Fremont Avenue.
- M4. Address deficient and/or settled manholes at the following locations:
- a. Replace settled manhole within Wixson Park
 - b. Replace deficient manhole at South Third Street and Park Avenue
 - c. Replace settled manhole at Naches Avenue and Railroad Avenue
 - d. Replace settled manhole east of South First Street just north of Riverview Avenue
 - e. Install new manhole in Yakima Avenue between South Second and Third Street

Existing Collection System Improvements

The items below represent areas of the existing collection system in need of improvement in order to accommodate peak flows:

- C1. 175 LF of 10-inch, 2,367 LF of 12-inch, and 908 LF of 15-inch sewer starting at Fremont Avenue and North Fourth Street (end of M3 project above), to Third Avenue, then turns south to Naches Avenue, where it turns to go east until intersection of Naches Avenue and Railroad Avenue.
- C3. 630 LF of new 12-inch sewer from manhole located in Wixson Park heading south to Selah Avenue, then turning to the east to South Third street.

Both improvements mentioned above are incorporated into the future collection system improvements for projected year 2037.

Future improvements to the existing collection system recommended to address deficiencies in the existing collection system as a result of growth are listed below.

Future Collection System Improvements – Year 2037

Improvements to the existing collection system due to year 2037 projected flows are listed below and are shown on Figure 5-4 – Collection System Recommended Improvement for Projected Year 2037:

- C2B. 2,975 LF of new 15-inch sewer at the intersection of Eleventh Avenue and an alley east of South First Street north to Tenth Avenue and east towards the Burlington Northern Santa Fe (BNSF) Railroad right-of-way traveling north to the wastewater treatment plant.
- C4. 1,269 LF of new 21-inch sewer from Naches Avenue and Railroad Avenue south to Third Avenue.
- C5. 150 LF of new 10-inch sewer west of Wixson Park, southwest of Lince Elementary School.

Lift Station Improvements

- L1. The South Lift Station will have sufficient capacity to pump the projected peak design flow at ultimate build-out. However, it is expected that at least one of the City's lift stations will need refurbishment within the next 20 years. Since the South Lift Station has an existing high velocity condition in the forcemain, approximately twice the recommended velocity, improvements to this station and installation of new forcemain has been included in the analysis and financial model for planning purposes.

SCHEDULE OF IMPROVEMENTS

It is recommended that Selah proceed with construction of improvements as referenced in Chapter 7 on Table 7-3 - Schedule of Recommended Improvements, and shown on Map C in the back pocket of this report.

ESTIMATED COSTS AND PROPOSED SEWER SYSTEM FINANCIAL PROGRAM

Estimated costs for construction of the improvements recommended in the previous section are presented in Chapter 7, Table 7-3 - Schedule of Recommended Improvements.

Developing a plan for project financing involves examining current system expenditures and revenues, integrating the schedule and costs of the recommended improvements into the City's financial structure, recommending funding sources, and developing method to pay for the identified improvements. The wastewater collection system improvements are necessary to improve collection system capacity, and to reduce operation and maintenance costs. An underlying premise of the financial program is that growth will pay for the growth-related improvements, and the "connection fee" approach discussed in section 7.5 is carried forward as the preferred method of paying for growth-related improvements. However, the timing of the growth-related improvement needs is uncertain. Since much of the older downtown core sewer system has reached or exceeded capacity in the model of the existing condition, and since these same sewer lines were identified as high maintenance areas, projects should be initiated soon to reduce the overall cost to the City to implement these improvements.

To fund the necessary improvements to the existing wastewater treatment facilities and the existing collection system, the City should implement a connection fee program, setting the minimum connection fee at \$6,185 per ERU (Equivalent Residential Unit), payable at the time a connection is made to the sewer system, and to account for inflation allow the fee to be increased similar to user charges (refer to Section 7.5). The City raised sewer rates 4% in December 2017, with the understanding that future rate increases may be needed. Based on the proposed financial plan, revenue increases of 5% in 2019 and 2020, followed by 3.0% per year thereafter, will be needed to generate revenue for operation and improvement of the wastewater system to address necessary projects prior to the connection fee revenues generating enough for the near-term project needs. Revenue increases expected to still be needed if no collection system improvements are made, because maintenance costs will continue to escalate in the problem areas if capacity improvements are not implemented.

CHAPTER 1

BASIC PLANNING

INFORMATION

1.1 BACKGROUND INFORMATION

Wastewater System Ownership

The City of Selah, a municipal corporation located within the north-central part of Yakima County as shown on Figure 1-1 - Washington State Vicinity Map, owns and operates its own wastewater collection, treatment, and disposal system. Decisions regarding daily sewer system operations are made by the Public Works Director, and decisions regarding daily treatment facility operations are made by the Wastewater Treatment Plant Operator. Financial decisions regarding major wastewater system improvements and establishment of sewer rates are made by the Selah City Council. The following parties are involved in the operation, maintenance, and planning for the Selah wastewater collection, treatment, and disposal facilities:

WASTEWATER SYSTEM NAME, OWNER, AND OPERATOR:

City of Selah
115 West Naches Avenue
Selah, WA 98942
Phone: (509) 698-7328

Mayor: Sherry Raymond
City Administrator: Donald Wayman
Public Works Director: Joe Henne
Wastewater Treatment Plant Operator: Todd LaRoche

WASTEWATER SYSTEM CONSULTING ENGINEER:

HLA Engineering and Land Surveying, Inc.
2803 River Road
Yakima, WA 98902
Phone: (509) 966-7000
Project Engineer: Dean P. Smith, PE

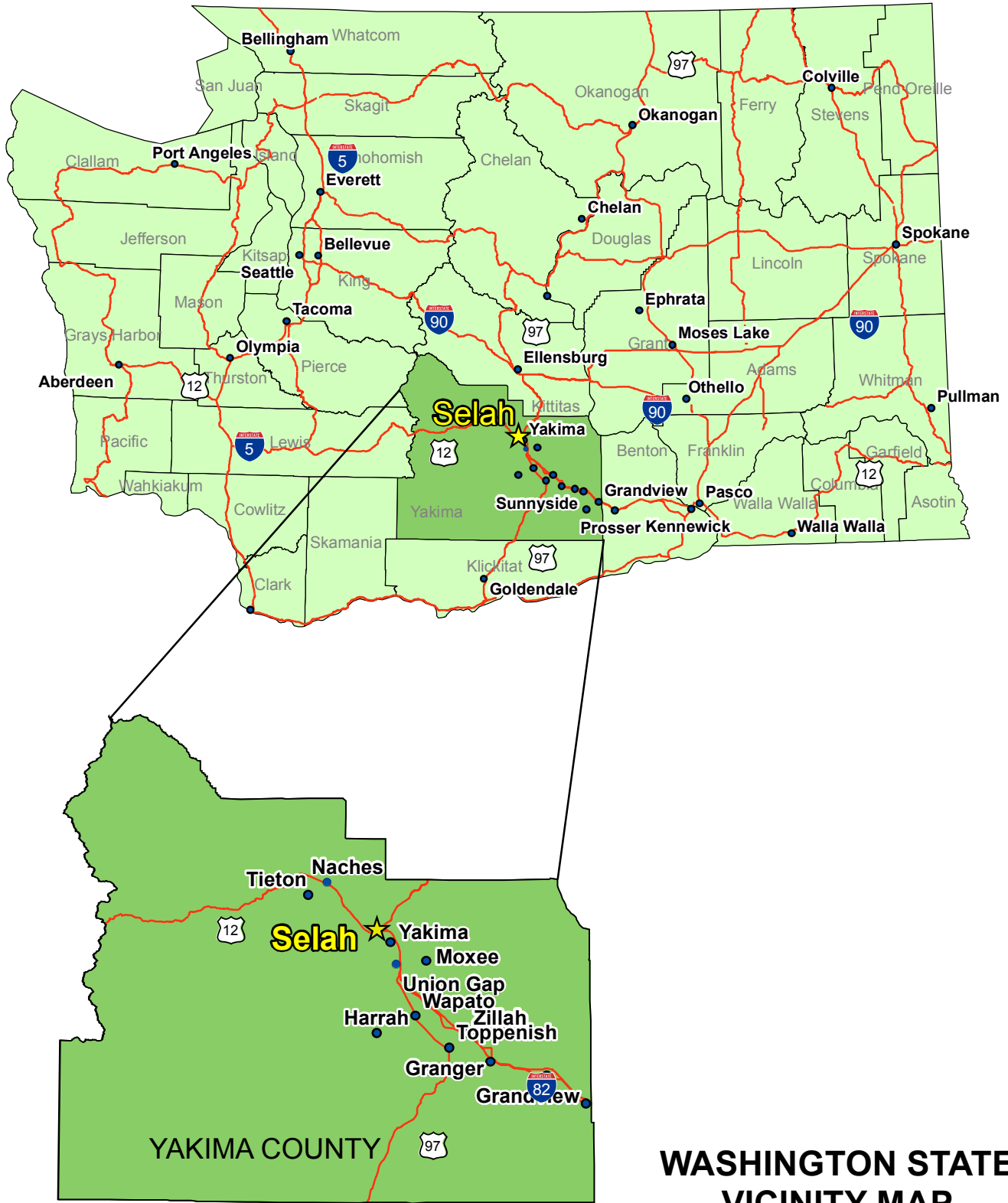
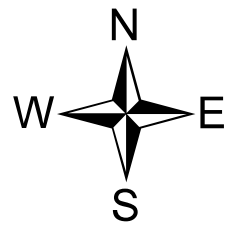
Geography

The City of Selah and its Urban Growth Area are located in the Upper Yakima Valley, the northern part of Yakima County, in the south-central portion of Washington State, as shown on Figure 1-1. The City lies in a basin which is surrounded to the north, west, and south by sage-covered foothills, and to the east by the Yakima River and Yakima Ridge. The Yakima River has cut its way through Yakima Ridge, creating an area called the Selah Gap. Interstate 82 and the Burlington Northern-Santa Fe (BNSF) Railroad make their way through Selah Gap, providing access to the City of Ellensburg, 36 miles to the north, and the City of Yakima, 3 miles to the south.

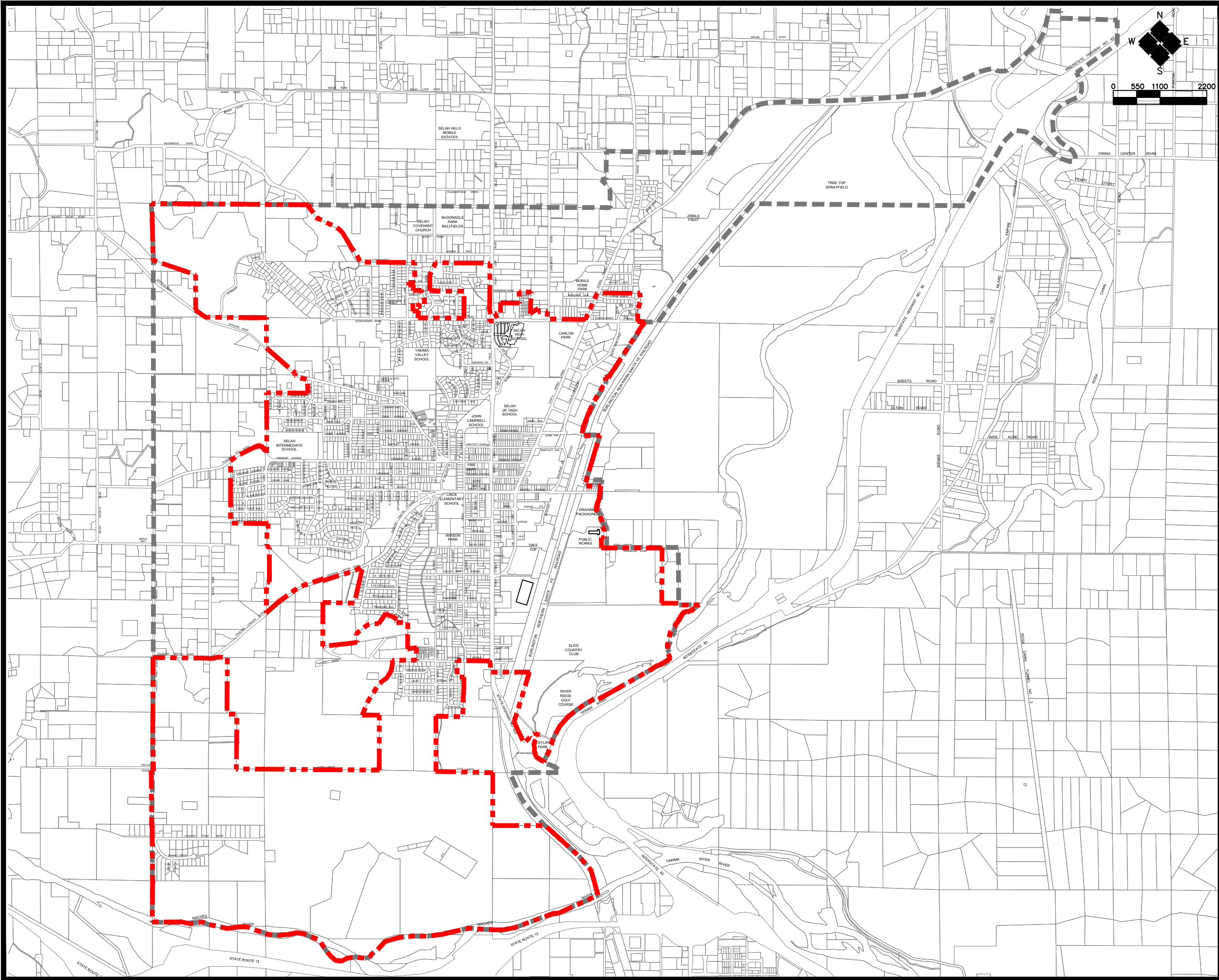
The City of Selah lies against the west foothills of the valley, with over two-thirds of the City ranging in elevation from 1,100 to 1,300 feet above mean sea level. However, portions of the western, northern and southern areas of Selah rise above 1,400 feet in elevation.

In October 1997, Selah completed its Urban Growth Area (UGA) Comprehensive Plan as required by the Growth Management Act. Selah updated that UGA Comprehensive Plan in January 2005. Selah's existing wastewater service area boundary generally corresponds to the current City Limits, and is shown on Figure 1-2 – Existing and Future Sewer Service Area Boundaries. Selah's future service area boundary corresponds to its UGA Boundary, and is also shown on Figure 1-2. However, eight areas within the City Limits (1,245 acres total) are presently not served by City sewer, which are shown shaded on Figure 1-3.

Like the rest of the Yakima Valley, Selah and its Urban Growth Area have a warm and dry climate. The Cascade Mountain Range acts as a barrier between Yakima County and the Pacific Ocean, keeping precipitation low and temperatures warm. The mean annual temperature range is from a low of 17.8° F to a high of 89.2° F. The median temperature is 64.7° F and the mean annual precipitation is 7.2 inches.



**WASHINGTON STATE
VICINITY MAP
FIGURE 1-1**





CITY OF SELAH

General Sewer Plan Update

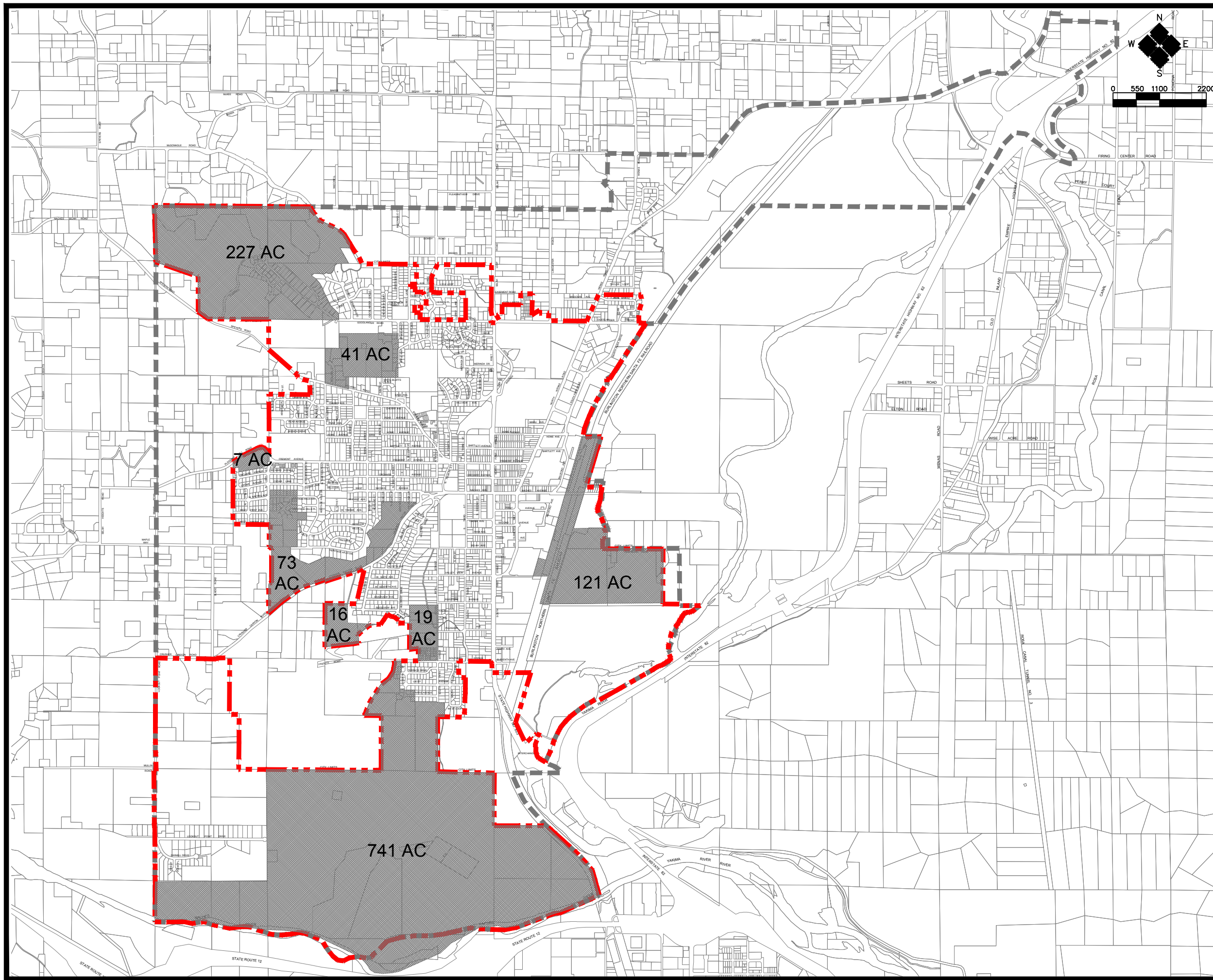
EXISTING & FUTURE SEWER SERVICE AREA BOUNDARIES

LEGEND

-  EXISTING RETAIL SERVICE AREA
BOUNDARY (CITY LIMITS)
-  FUTURE RETAIL SERVICE AREA
BOUNDARY (UGA)



2803 River Road
Yakima, WA 98902
509.966.7000
Fax 509.965.3800
www.hlacivil.com



CITY OF SELAH

General Sewer Plan Update

AREAS OF CITY NOT SERVED BY CITY SEWER

LEGEND

- - - - - EXISTING RETAIL SERVICE AREA BOUNDARY (CITY LIMITS)
- - - - - FUTURE RETAIL SERVICE AREA BOUNDARY (UGA)
- AREA WITHOUT SEWER SERVICE



HLA

Engineering and Land Surveying, Inc.

2803 River Road
Yakima, WA 98902
509.966.7000
Fax 509.965.3800
www.hlacivil.com

With a warm climate and rich volcanic soils, Yakima County is a significant agricultural region as well as a recreational area.

The economy of Selah, and of the Yakima Valley, depends largely upon the agricultural industry. Fruit grown throughout the Yakima Valley is packed and shipped to and from local warehouses. Two such warehouses, along with two major fruit juicing companies, provide for much of the employment in Selah. As the largest bedroom community to the City of Yakima, Selah's economy is closely tied to that of Yakima.

Wastewater System History

Although the City of Selah has not maintained historical records of the wastewater system's initial beginning, Table 1-1 provides some information as to the growth of the system.

TABLE 1-1 MAJOR WASTEWATER SYSTEM IMPROVEMENTS	
Year	Improvement Description
1936	Wastewater treatment facility constructed
1949	Wastewater treatment facility remodeled to include trickling filter and sludge handling
1968	Wastewater treatment facility remodeled & enlarged – converted to extended aeration
1973-75	Wastewater treatment facility remodeled to include new clarifier, chlorine contact basin modification, a new aerobic digester and a new control building
1985	Industrial pretreatment constructed for fruit processing wastewaters
1987	New secondary clarifier added to main treatment plant with improvements to digester aeration, and chlorine contact chamber
1991	Replacement of comminutor
1995	East Naches lift station was completed and put into operation
1998	Riverview Avenue sewer improvements (8-inch replacement)
2000	Riverview Avenue sewer improvements (12-inch replacement with 21-inch)
2000	Pleasant Avenue/South Third Street sewer improvements
2000	Railroad Avenue/Naches Avenue sewer improvements
2001	Goodlander Heights sewer extension
2004	Wastewater treatment facility disinfection improvements
2008	Wastewater pretreatment facility clarifier constructed
2008	Wastewater treatment facility biosolids handling improvements added
2012	Clarifier Project
2014	WWTP Energy Efficiency Upgrades

1.2 RELATED PLANNING DOCUMENTS

Wastewater Plans

In 1999, the City of Selah completed a Draft Comprehensive Sewer Plan for the City and its UGA. This document:

1. Described the existing and future sewer service area;
2. Described existing conditions including the condition and location of existing trunk and interceptor sewers, pumping stations, the collection system, and the treatment facilities, current wastewater characteristics, current system operation and maintenance, problem areas, and evaluated the existing system using a computer model;
3. Based upon growth projections, forecasted future domestic and industrial wastewater loadings; and
4. Recommended a wastewater system improvement plan and financial plan.

Wastewater Treatment Facilities Engineering Report

In 2005, the City of Selah completed a Wastewater Treatment Facilities Engineering Report for the City and its UGA. This document:

1. Described the existing and future sewer service area, population projections, land use issues, and regulatory requirements;
2. Described the existing wastewater treatment facilities;
3. Provided alternatives for the upgrade of the City's wastewater treatment facilities; and
4. Recommended a wastewater treatment upgrade alternative and financial strategy for implementation.

Other Reports, Studies, and Documents

Since 1999, the City of Selah has completed numerous wastewater reports and documents required by the City's NPDES Permit (Permit No. WA-002103-2). Selah was issued a new NPDES permit on August 23, 2012, with an effective date of October 1, 2012 and an expiration date of September 30, 2017. A list of required reports, studies, and documents required by the City's current NPDES permit, their dates, and the requiring permit condition is provided in Table 1-2.

TABLE 1-2 NPDES PERMIT REQUIRED REPORTS, STUDIES, AND DOCUMENTS		
Year	Permit Condition	Document
2012	S9.2	Sampling and Analysis Plan for Selah Ditch
2014	S4.E.4	Infiltration and Inflow Evaluation
2013 and 2015	S9.4	TMDL Effective Monitoring Report
2016	S4.F	Wasteload Assessment
2016	S6.E	Industrial User Survey
2016	S8.	Application for Permit Renewal

Urban Growth Area Comprehensive Plan

The City of Selah completed and adopted its Growth Management Act Urban Growth Area Comprehensive Plan in October 1997, and updated the Plan in January 2005. This Plan identifies many of the physical, environmental, and economic elements within the City and its Urban Growth Area, and attempts to forecast anticipated changes within that geographical area. Understanding and predicting future changes within the City and its Urban Growth Area are critical in forecasting future demands on the City's sewer system. As a result, Selah's Urban Growth Area Comprehensive Plan was an important tool in development of this General Sewer Plan.

Comprehensive Water Plans

The City's first Comprehensive Water Plan was completed in 1971, which provided Selah with an in-depth look at their system, its deficiencies, and potential growth. Updates to the City's Comprehensive Water Plan were completed in 1994, 2000, 2008, and 2014.

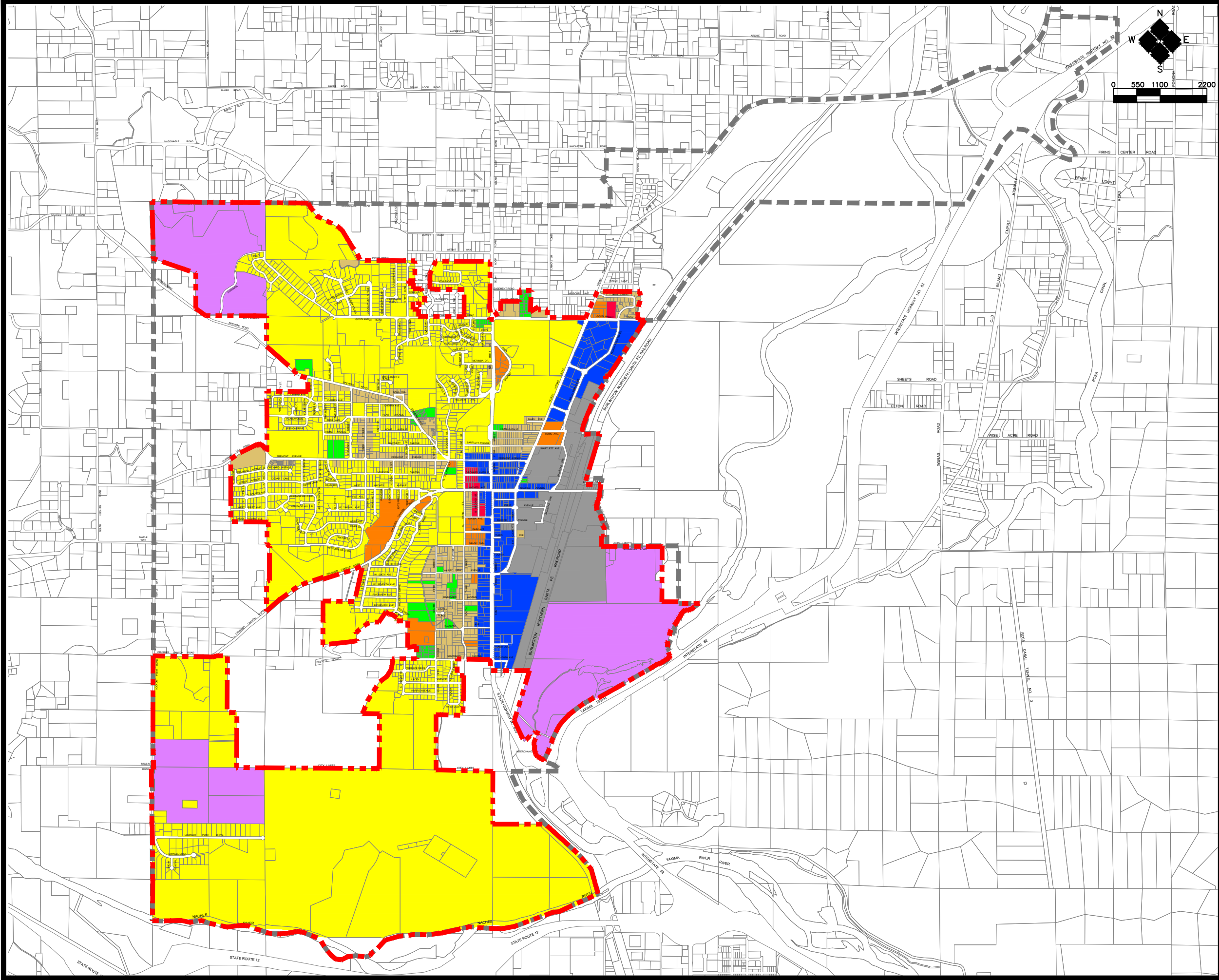
1.3 NEIGHBORING/ADJACENT WASTEWATER SYSTEMS

No other wastewater collection and treatment systems exist within Selah's Urban Growth Area. Selah's nearest municipal neighbors, the City of Yakima (located three miles south of Selah), and the Town of Naches (located 10 miles northwest of Selah) each own and operate their own wastewater collection and treatment systems.

1.4 EXISTING SERVICE AREA

The existing wastewater system serves a combination of residential, commercial, industrial, and public users within the City. The current area within the City Limits is approximately 2,782 acres. Current land use within the City is presented in Table 1-3, and is shown on Figure 1-4 - Existing Land Use Map.

TABLE 1-3 EXISTING LAND USE WITHIN SELAH CITY LIMITS		
Land Use Category	Total Acreage *	Percent of Total
Single Family Residential (R-1)	1,736	59.0%
Two Family Residential	129	4.4%
Multiple Family Residential	48	1.6%
Low Density Single Family (LDSF)	442	15.0%
Professional Business	8	0.3%
General Business	130	4.4%
Industrial	182	6.2%
Planned Development	24	0.8%
Un-zoned **	245	8.3%
TOTAL	2,944	100.0%
* Source: Yakima County Geographic Information Services, January 2017.		
** Un-zoned areas include streets, alleys, right-of-ways, and other un-zoned areas within the City Limits boundary.		



CITY OF SELAH

General Sewer Plan Update

EXISTING LAND USE MAP

LEGEND

- EXISTING RETAIL SERVICE AREA BOUNDARY (CITY LIMITS)
- FUTURE RETAIL SERVICE AREA BOUNDARY (UGA)

ZONING LEGEND

- R-1 RESIDENTIAL
- R-2 RESIDENTIAL, TWO FAMILY
- R-3 RESIDENTIAL, MULTI-FAMILY
- LDSF LOW DENSITY SINGLE FAMILY
- B-1 BUSINESS, GENERAL
- B-2 BUSINESS, PROFESSIONAL
- M1 INDUSTRIAL
- PD PLANNED DEVELOPMENT



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As shown in Table 1-3, Single-Family Residential (R-1) is the largest zoned area within the City Limits, comprising approximately 1,736 acres or 59.0% of the land. The combined residentially zoned areas make up approximately 2,355 acres or 80.0% of the land within the City Limits. Most Business uses are along South 1st Street, Naches Avenue, Jim Clements Way, and Wenas Road, and total 138 acres (4.7% of the land within the City). Industrial development within Selah comprises approximately 182 acres (6.2% of the land within the City), and is generally adjacent to Railroad Avenue.

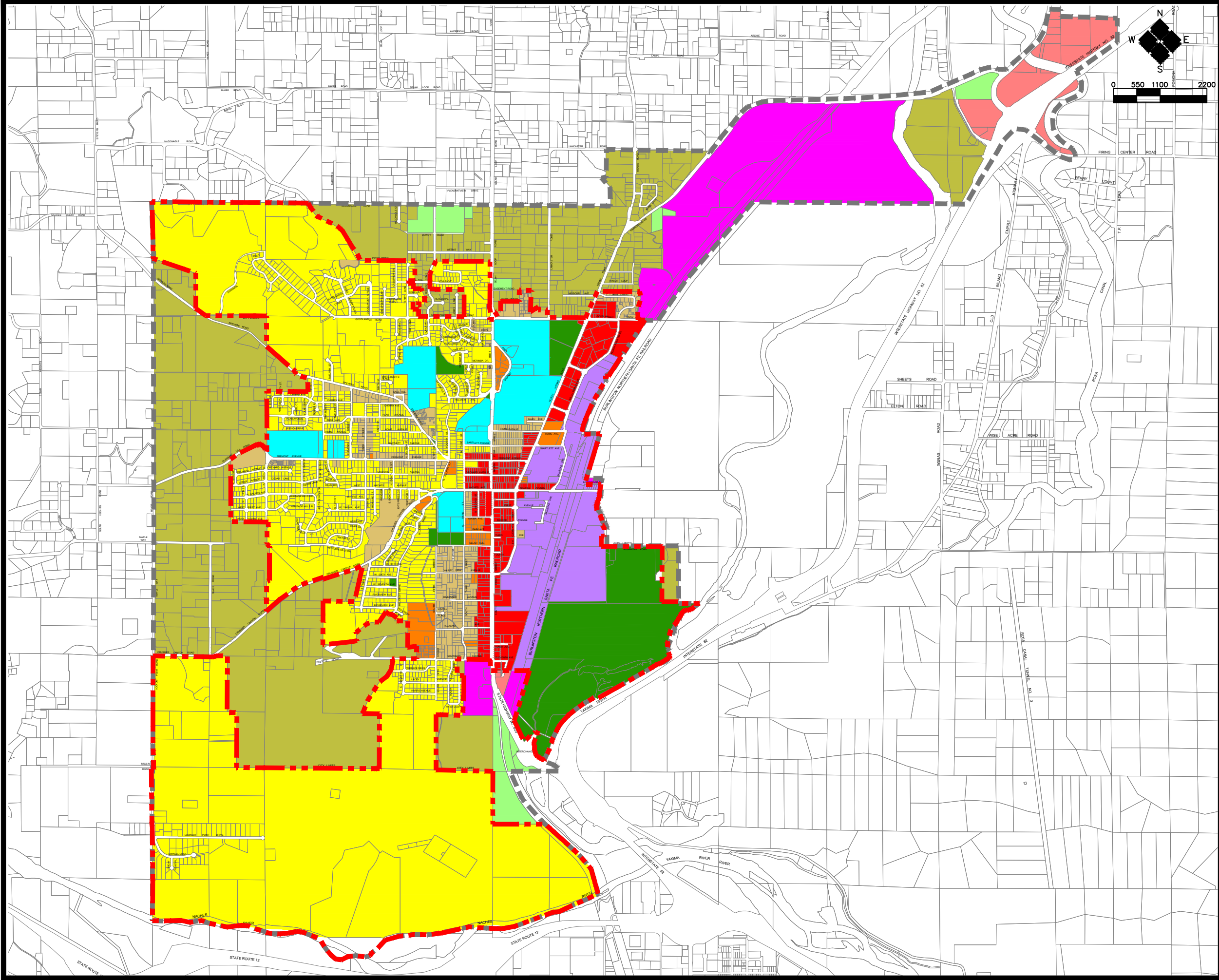
1.5 FUTURE SERVICE AREA

The Future Service Area for the City of Selah water generally corresponds to the City's Urban Growth Area (UGA), as adopted in the City's *GMA Comprehensive Plan*. The Future Service Area/UGA boundary is shown in Figure 1-2, and Figure 1-5. Future land use within the City's Urban Growth Area (UGA) boundary is also shown in Figure 1-5. The City of Selah UGA includes an area of approximately 1,699 acres. A breakdown of future land use within the UGA is provided in Table 1-4.

As part of the City's *GMA Comprehensive Plan*, Selah developed a future land use map for areas within the City Limits and the UGA. Future land use within the City Limits is consistent with existing zoning. A breakdown of the future land use within the UGA is presented in Table 1-4.

TABLE 1-4 FUTURE LAND USE WITHIN SELAH UGA		
Land Use Category	Total Acreage*	Percent of Total
Low Density Residential	1,065	63.8%
Moderate Density Residential	44	2.6%
Commercial	87	5.2%
Industrial	176	10.5%
Industrial Sprayfield	130	7.8%
Quasi-Public Open Space	33	2.0%
Floodway	84	5.0%
Steep Slopes	51	3.1%
TOTAL	1,670	100.0%
* Source: Yakima County Geographic Information Services, January, 2017.		

As shown in TABLE 1-4, Low Density Residential area is the largest future land use within Selah's UGA, comprising approximately 63.8% (1,065 acres) of the land within the UGA.



CITY OF SELAH

General Sewer Plan Update

FUTURE LAND USE MAP

LEGEND

- EXISTING RETAIL SERVICE AREA BOUNDARY (CITY LIMITS)
- FUTURE RETAIL SERVICE AREA BOUNDARY (UGA)

FUTURE LAND USE - UGA

- URBAN RESIDENTIAL
- URBAN COMMERCIAL
- URBAN INDUSTRIAL
- URBAN PUBLIC

FUTURE LAND USE - CITY LIMITS

- LOW DENSITY RESIDENTIAL
- MODERATE DENSITY RESIDENTIAL
- HIGH DENSITY RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- EDUCATION
- PARK



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1.6 POPULATION

Current Population

According to the U.S. Census Bureau, the 2010 population of the City of Selah was 7,147, an increase of 837 people since 2000. Selah's growth rate for the period 1990-2000 was approximately 2.12% per year (13.3% for the ten-year period). Population increases for the forty-year period 1970-2010 averaged 21.6% per decade. Population trends in Selah, Yakima County, and the State of Washington for the period 1910 through 2010 are presented in Table 1-6.

TABLE 1-6 POPULATION TRENDS						
Year	City of Selah		Yakima County		State of Washington	
	Population	Percent Change	Population	Percent Change	Population	Percent Change
1910			41,709		1,141,990	
1920			63,710	52.7%	1,356,621	18.8%
1930	767		77,402	21.5%	1,563,396	15.2%
1940	1,130	47.3%	99,019	27.9%	1,736,191	11.1%
1950	2,489	120.3%	135,723	37.1%	2,378,963	37.0%
1960	2,824	13.5%	145,112	6.9%	2,853,214	19.9%
1970	3,311	17.2%	145,212	0.1%	3,413,250	19.6%
1980	4,500	35.9%	172,508	18.8%	4,132,353	21.1%
1990	5,113	13.6%	188,823	9.5%	4,866,659	17.8%
2000	6,310	23.4%	222,581	17.9%	5,894,143	21.1%
2010	7147	13.3%	243,231	9.3%	6,724,816	14.1%

The Washington Office of Financial Management (OFM) has developed population estimates for the City of Selah, Selah's UGA, and for Yakima County since the 2010 census as shown on Table 1-7.

TABLE 1-7 POPULATION PROJECTIONS			
Year	City Population Estimate	UGA Population Estimate	Yakima County Population Estimate
2010	7,147	1,543*	243,231
2011	7,205	1,558*	244,700
2012	7,290	1,574*	246,000
2013	7,340	1,589*	247,250
2014	7,395	1,604*	248,800
2015	7,495	1,619*	249,970
2016	7,530	1,635*	250,900
2017	7,630	1,657*	253,000
* Estimate based on 2010 UGA population with the same percent increase as the City OFM population estimate.			

Current Sewer Service Population

In addition to serving the current City population, Selah provides sewer service to a number of residences and to two mobile home parks located outside the City Limits but within the City's UGA. The current number of outside services and estimated sewer service population are shown in Table 1-8.

TABLE 1-8 CURRENT OUTSIDE SERVICES		
Outside Residential Services	Outside Mobile Home Park Services	Outside Sewer Services Population
11	155	278
¹ Assumes a population of 2.72 persons per outside residential service.		
² Assumes a population of 1.6 persons per outside mobile home park service.		

Selah's sewer service population for the period 2013 through 2017 is presented in Table 1-9.

TABLE 1-9 CURRENT SEWER SERVICE POPULATION			
Year	City Service Population	UGA Residential Service Population	Total Sewer Service Population
2013	7,340	278	7,618
2014	7,395	278	7,673
2015	7,495	278	7,773
2016	7,530	278	7,808
2017	7,630	278	7,908

Future City and UGA Population

Selah updated its Growth Management Act (GMA) Comprehensive Plan in 2016. As part of that process, Selah, in conjunction with Yakima County, developed population projections for the City and the UGA through the year 2040. The GMA Comprehensive Plan listed populations for 2015 and 2040. The average increase for the population projected in the GMA Comprehensive plan equates to 1.122% per year. For this plan, this population rate increase was used for years not included in the latest Washington State Office of Financial Management (OFM) to calculate the projected populations for the future years up to 2037 as presented on Table 1-10.

TABLE 1-10 CITY AND UGA POPULATION PROJECTIONS				
Year	City Population Projection	City Increase from 2010*	UGA Population Projection	UGA Increase from 2010*
2017	7,678	531	1,646	103
2022	8,157	1,010	1,700	157
2027	8,637	1,490	1,756	213
2032	9,120	1,973	1,814	269
2037	9,607	2,460	1,873	330
* Increase from 2010 estimate of 7,147 for City population and 1,543 for UGA population shown in Table 1-7.				

Future Sewer Service Population

Table 1-10 presents the projected City and UGA populations through the year 2037. As previously stated, the Selah wastewater system provides service to residential and mobile home park services outside the City. For planning purposes, it is assumed that the Selah sewer system will serve the entire population within the City, and will serve a population outside the City but within the UGA similar to the number currently served. The total population projected to be served by the Selah sewer system over the next 20-year period is shown in Table 1-11.

TABLE 1-11 FUTURE SEWER SYSTEM SERVICE POPULATION			
Year	City Service Population	Outside UGA Service Population	Total Sewer Service Population
2017	7,630	278	7,908
2022	8,107	278	8,385
2027	8,614	278	8,892
2032	9,152	278	9,430
2037	9,724	278	10,002

CHAPTER 2 PAST AND PROJECTED WASTEWATER LOADINGS

2.1 GENERAL

Background

The City of Selah provides wastewater collection and treatment services to the residences, businesses, public facilities, and industries within the City's service area. Municipal sewage, consisting of wastewaters from residential and commercial users, schools, two fruit packing operations (Larson Fruit and Matson Fruit), and Graham Packaging (a manufacturer of plastic containers) flows to the main plant for treatment. Industrial wastewaters generated by Yakima Juice, a fruit juice operation, flow into an industrial pretreatment facility where much of the industrial influent BOD is converted to biological solids. Effluent from the industrial pretreatment facility flows to the main Selah plant where it is combined with municipal wastewaters prior to treatment. A detailed description of Selah's wastewater treatment process is provided in Chapter 6 of this plan.

The City of Selah samples both the main plant and the industrial pretreatment facility to determine total hydraulic and organic loading to the system. Sampling to determine the municipal and industrial components of loading takes place at the main plant influent, the industrial pretreatment influent, and the industrial pretreatment effluent. Sampling at the main plant collects municipal influent, mixed with effluent from the industrial pretreatment facility. Calculation of municipal hydraulic and organic loadings is obtained by subtracting the industrial pretreatment effluent loading component from the total measured at the entrance to the main plant. Industrial loading is determined by sampling the influent to the industrial pretreatment facility. Total, municipal and industrial loadings are discussed in this chapter.

System Capacity

Selah's current National Pollutant Discharge Elimination System (NPDES) permit, issued by the Washington Department of Ecology in 2012, specifies the following design criteria for the municipal plant and for the industrial pretreatment facility. The design criteria for Selah's entire wastewater treatment facility and industrial pretreatment facility, specified in that permit, are presented in Tables 2-1 and 2-2, respectively.

TABLE 2-1 ENTIRE WASTEWATER TREATMENT PLANT DESIGN CRITERIA	
Parameter	Design Quantity
Average Flow for the Maximum Month	2.0 MGD
BOD ₅ for the Maximum Month	3,300 lbs/day
TSS for the Maximum Month	4,400 lbs/day

The design criteria for Selah's industrial pre-treatment plant, specified in that permit, are presented in Table 2-2.

TABLE 2-2 INDUSTRIAL PRE-TREATMENT PLANT DESIGN CRITERIA	
Parameter	Design Quantity
Average Flow for the Maximum Month	0.40 MGD
Influent BOD ₅ for the Maximum Month	4,000 lbs/day
Influent TSS for the Maximum Month	1,500 lbs/day
Effluent BOD ₅ for the Maximum Month	510 lbs/day
Effluent TSS for the Maximum Month	3,750 lbs/day

2.2 INFLUENT WASTEWATER TRENDS – 2012 THROUGH 2016

Main Plant Flows

Effluent from the industrial pretreatment facility combines with municipal wastewater before entering the main treatment plant. The main plant influent flows for the period 2012 through 2016 are presented on Table 2-3. “Summer average flows” represent the average flows for the months of June through August, while “winter average flows” represent the average flows for the months of December through February.

TABLE 2-3 AVERAGE MONTHLY MAIN PLANT INFLUENT WASTEWATER FLOWS (values are in MGD)					
	2012	2013	2014	2015	2016
January	1.237	1.350	1.267	1.286	1.362
February	1.271	1.322	1.288	1.329	1.438
March	1.317	1.364	1.306	1.286	1.352
April	1.308	1.351	1.359	1.343	1.226
May	1.342	1.408	1.381	1.349	1.251
June	1.328	1.372	1.347	1.327	1.285
July	1.177	1.329	1.338	1.293	1.040
August	1.134	1.321	1.275	1.206	0.927
September	1.246	1.379	1.365	1.246	1.058
October	1.421	1.380	1.364	1.278	1.080
November	1.373	1.300	1.287	1.255	1.061
December	1.362	1.255	1.258	1.266	1.050
Annual Average	1.293	1.344	1.320	1.289	1.178
Summer Average	1.213	1.341	1.320	1.275	1.084
Winter Average	1.257	1.345	1.270	1.291	1.355
Maximum Month	1.421	1.408	1.381	1.349	1.438
Maximum Day	1.613	1.762	1.629	1.742	1.698

Average monthly main plant influent flows have ranged from a low of 1.178 MGD in 2016 to a high of 1.344 MGD in 2013. Average influent summer flows have ranged from a low of 1.084 MGD in 2016, to a high of 1.341 MGD in 2013. The greatest maximum monthly flow occurred in 2016 when the treatment facility received an average of 1.438 MGD in the month of February. This influent flow represents 71.9% of the design hydraulic capacity (average flow for the maximum month) of Selah’s entire wastewater treatment facility.

Municipal Flows

Municipal flows (which include wastewater from residential, commercial, and government services as well as wastewater from Graham Packaging) are obtained by subtracting the industrial pretreatment effluent flows and wastewater flows from Larson Fruit and Matson Fruit (measured at metering and monitoring stations) from the flows measured at the main plant. Table 2-4 shows the monthly average municipal influent wastewater flows, and the annual, summer, and winter flow averages for the period 2012 through 2016. "Summer average flows" represent the average flows for the months of June through August, while "winter average flows" represent the average flows for the months of December through February.

TABLE 2-4 AVERAGE MONTHLY MUNICIPAL WASTEWATER FLOWS (values are in MGD)					
	2012	2013	2014	2015	2016
January	1.237	1.350	1.267	1.286	1.362
February	1.271	1.322	1.288	1.329	1.438
March	1.317	1.364	1.306	1.286	1.352
April	1.308	1.351	1.359	1.343	1.226
May	1.342	1.408	1.381	1.349	1.251
June	1.328	1.372	1.347	1.327	1.285
July	1.177	1.329	1.338	1.293	1.040
August	1.134	1.321	1.275	1.206	0.927
September	1.246	1.379	1.365	1.246	1.058
October	1.421	1.380	1.364	1.278	1.080
November	1.373	1.300	1.287	1.255	1.061
December	1.362	1.255	1.258	1.266	1.050
Annual Average	1.293	1.344	1.320	1.289	1.178
Summer Average	1.213	1.341	1.320	1.275	1.084
Winter Average	1.257	1.345	1.270	1.291	1.355
Maximum Month	1.421	1.408	1.381	1.349	1.438

Municipal average monthly flows have ranged from a low of 1.178 MGD in 2016 to a high of 1.344 in 2013. With a service population of 7,340, the 2013 average flow represents a hydraulic loading of 175.0 gallons per capita per day. When reviewing these values, it must be remembered that commercial, government, and some industrial wastewater are included in the "municipal" flow values.

Industrial Pretreatment Plant Influent Flows

Wastewater flows to Selah's industrial pretreatment plant for the period 2012 through 2016 are presented on Table 2-5. "Summer flows" represent the average flows for the months of June through August, while "winter flows" represent the average flows for the months of December through February.

TABLE 2-5 INDUSTRIAL PRE-TREATMENT PLANT MONTHLY WASTEWATER FLOWS (values are in MGD)					
	2012	2013	2014	2015	2016
January	0.177	0.224	0.270	0.269	0.239
February	0.190	0.215	0.272	0.272	0.324
March	0.203	0.222	0.271	0.278	0.247
April	0.211	0.238	0.309	0.317	0.253
May	0.229	0.277	0.277	0.257	0.246
June	0.212	0.256	0.289	0.313	0.280
July	0.200	0.249	0.294	0.345	0.188
August	0.145	0.207	0.206	0.238	0.181
September	0.238	0.279	0.293	0.271	0.309
October	0.275	0.308	0.331	0.279	0.271
November	0.226	0.254	0.259	0.209	0.264
December	0.206	0.219	0.266	0.187	0.227
Annual Average	0.209	0.246	0.278	0.270	0.252
Summer Average	0.186	0.237	0.263	0.299	0.216
Winter Average	0.173	0.215	0.254	0.269	0.250
Maximum Month	0.275	0.308	0.331	0.345	0.324
Maximum Day	0.402	0.516	0.550	0.554	0.535

Industrial pretreatment plant average monthly influent flows have ranged from a low of 0.209 MGD in 2012 to a high of 0.278 MGD in 2014. The greatest maximum monthly flow occurred in 2015 when the industrial pretreatment plant received an average of 0.345 MGD in the month of July. This influent flow represents 86.3% of the design hydraulic capacity (average flow for the maximum month) of Selah's industrial pretreatment facility.

Main Plant Organic Loadings

Effluent from the industrial pretreatment facility combines with municipal wastewater prior to entering the main treatment plant. Monthly main plant BOD₅ loadings to Selah's wastewater treatment facility for the period 2012 through 2016 are presented on Table 2-6. "Summer average loadings" represent the average loadings for the months of June through August, while "winter average loadings" represent the average loadings for the months of December through February.

TABLE 2-6 MONTHLY AVERAGE MAIN PLANT BOD₅ LOADINGS (values are in pounds per day)					
	2012	2013	2014	2015	2016
January	2,125	1,700	1,976	2,156	2,363
February	1,791	1,907	1,762	1,929	2,878
March	1,988	1,593	1,917	2,027	2,526
April	1,756	1,983	1,972	2,554	2,025
May	1,970	1,844	2,384	2,576	2,003
June	2,215	2,128	2,191	2,402	2,218
July	2,346	1,895	1,652	2,017	1,587
August	2,071	1,675	1,489	2,112	1,477
September	2,328	1,794	2,129	1,964	1,527
October	2,252	1,519	1,877	2,100	1,738
November	1,729	1,681	1,943	2,177	1,841
December	1,954	2,229	1,941	2,217	1,883
Annual Average	2,044	1,829	1,936	2,186	2,005
Summer Average	2,211	1,899	1,777	2,177	1,761
Winter Average	2,022	1,854	1,989	2,008	2,486
Maximum Month	2,346	2,229	2,384	2,576	2,878
Maximum Day	3,701	3,788	3,559	4,407	4,020

Average monthly influent BOD₅ loading to the entire treatment facility (which includes municipal and industrial BOD₅ loading) has ranged from a low of 1,829 lbs/day in 2013, to a high of 2,186 lbs/day in 2015. The highest maximum month flow of 2,878 lbs/day occurred in February 2016. The highest influent loading represents 87.2% of the BOD₅ design capacity (loading for the maximum month) of Selah's entire wastewater treatment facility. However, the flow during February 2016, included Tree Top discharges to the plant which is not typical. Tree Top has their own wastewater treatment facility, and only discharges to the plant on a case by case basis when they are unable to use their facility for maintenance purposes. When disregarding February 2016, the maximum month influent loading of 2,576 lbs/day for BOD₅ occurred in May of 2015, which represents 78.1% of the design capacity.

Monthly main plant TSS loadings to Selah's wastewater treatment facility for the period 2012 through 2016 are presented on Table 2-7. "Summer average loadings" represent the average loadings for the months of June through August, while "winter average loadings" represent the average loadings for the months of December through February.

TABLE 2-7 MONTHLY AVERAGE MAIN PLANT TSS LOADINGS (values are in pounds per day)					
	2012	2013	2014	2015	2016
January	2,538	1,745	2,504	2,756	2,567
February	2,470	2,018	2,363	3,225	3,166
March	2,614	1,957	2,560	3,239	2,650
April	2,269	2,242	2,834	3,293	2,526
May	2,339	2,349	2,799	3,026	2,556
June	2,869	2,712	2,528	2,280	2,626
July	2,601	2,139	2,488	2,394	1,830
August	2,620	1,840	2,127	2,313	1,430
September	2,878	2,392	2,197	2,380	2,021
October	2,749	2,026	2,514	2,590	2,288
November	2,393	2,526	3,252	2,282	2,371
December	2,828	2,805	3,032	2,154	2,259
Annual Average	2,597	2,229	2,600	2,661	2,358
Summer Average	2,697	2,230	2,381	2,329	1,962
Winter Average	2,505	2,197	2,558	3,005	2,629
Maximum Month	2,878	2,805	3,252	3,293	3,166
Maximum Day	5,327	4,560	5,194	4,743	5,198

Average monthly influent TSS loading to the entire treatment facility (which includes municipal and industrial TSS loading) has ranged from a low of 2,229 lbs/day in 2013 to a high of 2,661 lbs/day in 2015. The greatest maximum monthly TSS loading occurred in 2015 when the treatment facility received an average of 3,293 lbs/day in the month of March. This influent loading represents 74.8% of the TSS design capacity (loading for the maximum month) of Selah's entire wastewater treatment facility.

Municipal Organic Loadings

Municipal organic loadings (which include wastewater from residential, commercial, and government services as well as wastewater from Graham Packaging) are obtained by subtracting the industrial pretreatment and Larson Fruit and Matson Fruit BOD₅ and TSS loading values from the BOD₅ and TSS loading values measured at the main plant.

Table 2-8 shows the monthly average municipal BOD₅ loadings and the annual, summer, and winter BOD₅ loading averages for the period 2012 through 2016. "Summer average BOD₅" represent the average BOD₅ loading for the months of June through August, while "winter average BOD₅" represent the average BOD₅ loading for the months of December through February.

TABLE 2-8 MONTHLY AVERAGE MUNICIPAL BOD₅ LOADINGS (values are in pounds per day)					
	2012	2013	2014	2015	2016
January	1,944	1,378	1,486	1,617	1,693
February	1,629	1,651	1,378	1,479	2,078
March	1,883	1,378	1,521	1,566	2,176
April	1,647	1,813	1,646	2,135	1,702
May	1,875	1,606	2,140	2,358	1,749
June	2,146	1,924	2,008	2,132	1,896
July	2,239	1,799	1,527	1,731	1,488
August	2,005	1,614	1,382	1,935	1,404
September	2,200	1,653	1,905	1,803	1,262
October	2,015	1,233	1,661	1,829	1,465
November	1,536	1,247	1,479	1,812	1,500
December	1,734	1,715	1,422	1,766	1,428
Annual Average	1,904	1,584	1,630	1,847	1,653
Summer Average	2,130	1,779	1,639	1,933	1,596
Winter Average	1,856	1,587	1,526	1,506	1,846
Maximum Month	2,239	1,924	2,140	2,358	2,176

Municipal average annual BOD₅ loadings have ranged from a low of 1,584 lbs/day in 2013 to a high of 1,904 lbs/day in 2012. With a service population of 7,530, the 2016 average BOD₅ loading represents 0.22 pounds per capita per day. When reviewing these values, it must be remembered that commercial, government, and some industrial wastewater are included in the “municipal” BOD₅ loading values.

Table 2-9 shows the monthly average municipal TSS loadings and the annual, summer, and winter TSS loading averages for the period 2012 through 2016. “Summer average TSS” represent the average TSS loading for the months of June through August, while “winter average TSS” represent the average TSS loading for the months of December through February.

TABLE 2-9 MONTHLY AVERAGE MUNICIPAL TSS LOADINGS (values are in pounds per day)					
	2012	2013	2014	2015	2016
January	2,113	1,028	795	1,299	1,138
February	1,968	1,378	682	1,412	1,447
March	2,111	1,199	820	1,386	1,520
April	1,635	1,672	1,275	1,645	1,015
May	1,948	1,637	1,940	1,910	1,445
June	2,608	2,123	1,735	1,439	1,076
July	2,304	1,576	1,913	1,470	1,159
August	2,462	1,521	1,666	1,466	1,178
September	2,477	1,471	1,496	1,569	1,180
October	1,930	448	1,726	1,601	1,316
November	1,721	576	2,090	1,423	853
December	2,017	1,706	1,445	1,126	934
Annual Average	2,108	1,361	1,465	1,479	1,188
Summer Average	2,458	1,740	1,772	1,458	1,138
Winter Average	2,010	1,474	1,061	1,386	1,237
Maximum Month	2,608	2,123	2,090	1,910	1,520

Municipal average annual TSS loadings have ranged from a low of 1,188 lbs/day in 2016 to a high of 2,108 lbs/day in 2012. With a service population of 7,530, the 2016 average TSS loading represents 0.16 pounds per capita per day. When reviewing these values, it must be remembered that commercial, government, and some industrial wastewater are included in the “municipal” TSS loading values.

Industrial Pretreatment Organic Loadings

BOD₅ loadings to Selah’s industrial pretreatment plant for the period 2012 through 2016 are presented on Table 2-10. “Summer flows” represent the average flows for the months of June through August, while “winter flows” represent the average flows for the months of December through February.

TABLE 2-10 INDUSTRIAL PRE-TREATMENT PLANT MONTHLY BOD₅ LOADINGS (values are in pounds per day)					
	2012	2013	2014	2015	2016
January	938	1,928	2,682	3,646	2,011
February	1,168	2,005	2,611	2,665	3,118
March	888	1,874	3,085	2,346	2,208
April	1,089	1,894	2,616	2,940	2,059
May	1,360	2,354	2,608	3,286	2,017
June	1,493	1,924	3,015	4,589	2,942
July	1,005	1,919	2,624	3,194	1,899
August	600	1,245	1,941	1,963	1,436
September	2,153	2,350	2,825	2,857	2,688
October	2,332	2,592	3,227	2,741	1,471
November	2,021	2,784	2,916	2,890	2,098
December	1,490	1,574	4,213	1,814	2,033
Annual Average	1,378	2,037	2,864	2,911	2,165
Summer Average	1,033	1,696	2,527	3,249	2,092
Winter Average	1,065	1,807	2,289	3,508	2,314
Maximum Month	2,332	2,784	4,213	4,589	3,118

Average influent BOD₅ loading to the industrial pretreatment plant ranged from a low of 1,378 lbs/day in 2012 to a high of 2,911 lbs/day in 2015. The greatest maximum monthly BOD₅ loading occurred in 2015 when the industrial pretreatment plant received an average of 4,589 lbs/day in the month of June. This influent loading represents 114.7% of the BOD₅ design capacity (loading for the maximum month) of the Selah industrial pretreatment plant.

Monthly influent TSS loadings to Selah's industrial pretreatment plant for the period 2012 through 2016 are presented on Table 2-11. "Summer average loadings" represent the average loadings for the months of June through August, while "winter average loadings" represent the average loadings for the months of December through February.

TABLE 2-11 INDUSTRIAL PRE-TREATMENT PLANT MONTHLY TSS LOADINGS (values are in pounds per day)					
	2012	2013	2014	2015	2016
January	269	387	835	879	977
February	277	455	869	799	1,070
March	276	498	972	1,085	653
April	294	534	879	1,158	937
May	187	418	785	774	909
June	189	382	788	1,436	1,130
July	228	413	988	1,139	721
August	77	478	804	1,139	418
September	297	654	1,073	974	773
October	539	776	751	1,115	418
November	413	809	912	1,055	672
December	421	497	907	1,039	799
Annual Average	289	525	880	1,049	790
Summer Average	165	425	860	1,238	757
Winter Average	268	421	734	862	1,028
Maximum Month	539	809	1,073	1,436	1,130

Average influent TSS loading to the industrial pretreatment plant ranged from a low of 289 lbs/day in 2012 to a high of 1,049 lbs/day in 2015. The greatest maximum monthly TSS loading occurred in 2015 when the industrial pretreatment plant received an average of 1,436 lbs/day in the month of June. This influent loading represents 95.7% of the TSS design capacity (loading for the maximum month) of the industrial pretreatment plant.

2.3 FUTURE WASTEWATER LOADING PROJECTIONS

Future loading projections were made for both of the City's treatment facilities. Future loadings without the pretreatment are also presented including flows from the fruit packers, Larson Fruit and Matson Fruit, that are representative of the loadings the collection system will see. Future loadings with the effluent from the pretreatment facility are representative of the loadings the main wastewater treatment facility will experience.

Forecasts for future loadings for flow, BOD, and TSS to the Selah Wastewater Treatment Facility including, and not including, the industrial pretreatment effluent for the years 2022, 2027, 2032, and 2037 are presented in Table 2-12 and 2-13, respectively. These wasteload projections were developed using the following information and assumptions:

- ❖ Future sewer service populations are as presented in Table 1-11. These growth projections include expansion and growth of the City's population and service to a fixed population in the UGA.

- ❖ Selah's future wastewater loadings were assumed to increase at a percentage similar to the population. Loadings from Larson Fruit and Matson Fruit are included in the projections, so possible increases in their loadings, or loadings from a new industrial customer, are included in the projections.
- ❖ Average of the 2014 - 2016 average annual and maximum month loadings for flow, BOD, and TSS, presented earlier in this chapter, were used as a baseline from which to project future loadings starting in 2016.

TABLE 2-12 FUTURE WASTEWATER LOADING PROJECTIONS FOR MAIN TREATMENT PLANT WITH PRE-TREATMENT EFFLUENT

	Baseline (2016)	Year 2022	Year 2027	Year 2032	Year 2037
Service Population	7,808	8,385	8,892	9,430	10,002
Annual Average Flow (MGD)	1.262	1.355	1.437	1.524	1.617
Maximum Monthly Flow (MGD)	1.389	1.492	1.582	1.678	1.780
Annual Average BOD ₅ Loading (lbs/day)	2,042	2,193	2,326	2,467	2,616
Maximum Month BOD ₅ Loading (lbs/day)	2,613	2,806	2,976	3,156	3,347
Annual Average TSS Loading (lbs/day)	2,539	2,727	2,892	3,067	3,253
Maximum Month TSS Loading (lbs/day)	3,237	3,476	3,686	3,910	4,147

TABLE 2-13 FUTURE WASTEWATER LOADING PROJECTIONS WITHOUT PRE-TREATMENT EFFLUENT

	Baseline (2016)	Year 2022	Year 2027	Year 2032	Year 2037
Service Population	7,808	8,385	8,892	9,430	10,002
Annual Average Flow (MGD)	1.011	1.089	1.157	1.229	1.306
Maximum Month Flow (MGD)	1.127	1.213	1.289	1.370	1.455
Annual Average BOD ₅ Loading (lbs/day)	1,847	1,988	2,112	2,244	2,385
Maximum Month BOD ₅ Loading (lbs/day)	2,358	2,538	2,697	2,865	3,044
Annual Average TSS Loading (lbs/day)	1,378	1,483	1,575	1,674	1,779
Maximum Month TSS Loading (lbs/day)	1,840	1,981	2,105	2,236	2,376

Forecasts for future loadings for flow, BOD, and TSS to the Selah Industrial Pre-Treatment Facility, for the years 2022, 2027, 2032, and 2037 are presented in Table 2-14. These wasteload projections were developed using the following information and assumptions:

- ❖ Future sewer service populations are as presented in Table 1-11. These growth projections include expansion and growth of the City's population and service to a fixed population in the UGA.
- ❖ Selah's future wastewater loadings were assumed to increase at a percentage similar to the population. Loadings from Larson Fruit, Matson Fruit, and the industrial pretreatment facility effluent are included in the projections, so possible increases in those loadings, or loadings due to a new industrial customer, are included in the projections.
- ❖ 2016 average annual and maximum month loadings for flow, BOD, and TSS, presented earlier in this chapter, are used as a baseline from which to project future loadings.
- ❖ The pretreatment facility would continue to operate as it does currently, and provide the same level of treatment.

TABLE 2-14 FUTURE WASTEWATER LOADING PROJECTIONS OF PRE-TREATMENT FACILITY					
	Baseline (2016)	Year 2022	Year 2027	Year 2032	Year 2037
Service Population	7,808	8,385	8,892	9,430	10,002
Annual Average Flow (MGD)	0.267	0.286	0.304	0.322	0.342
Maximum Monthly Flow (MGD)	0.333	0.304	0.380	0.403	0.427
Annual Average BOD ₅ Loading (lbs/day)	2,911	3,126	3,315	3,516	3,729
Maximum Month BOD ₅ Loading (lbs/day)	4,589	4,928	5,226	5,542	5,879
Annual Average TSS Loading (lbs/day)	906	973	1,032	1,095	1,161
Maximum Month TSS Loading (lbs/day)	1,213	1,303	1,381	1,465	1,554

CHAPTER 3

EXISTING COLLECTION

SYSTEM

3.1 GENERAL DESCRIPTION

The Selah wastewater collection system consists of approximately 132,000 linear feet (LF) of pipe, of which about 125,000 LF is gravity sewer pipe. The majority of the pipe is 8-inch diameter. The approximate lengths of various pipe sizes are shown on Table 3-1.

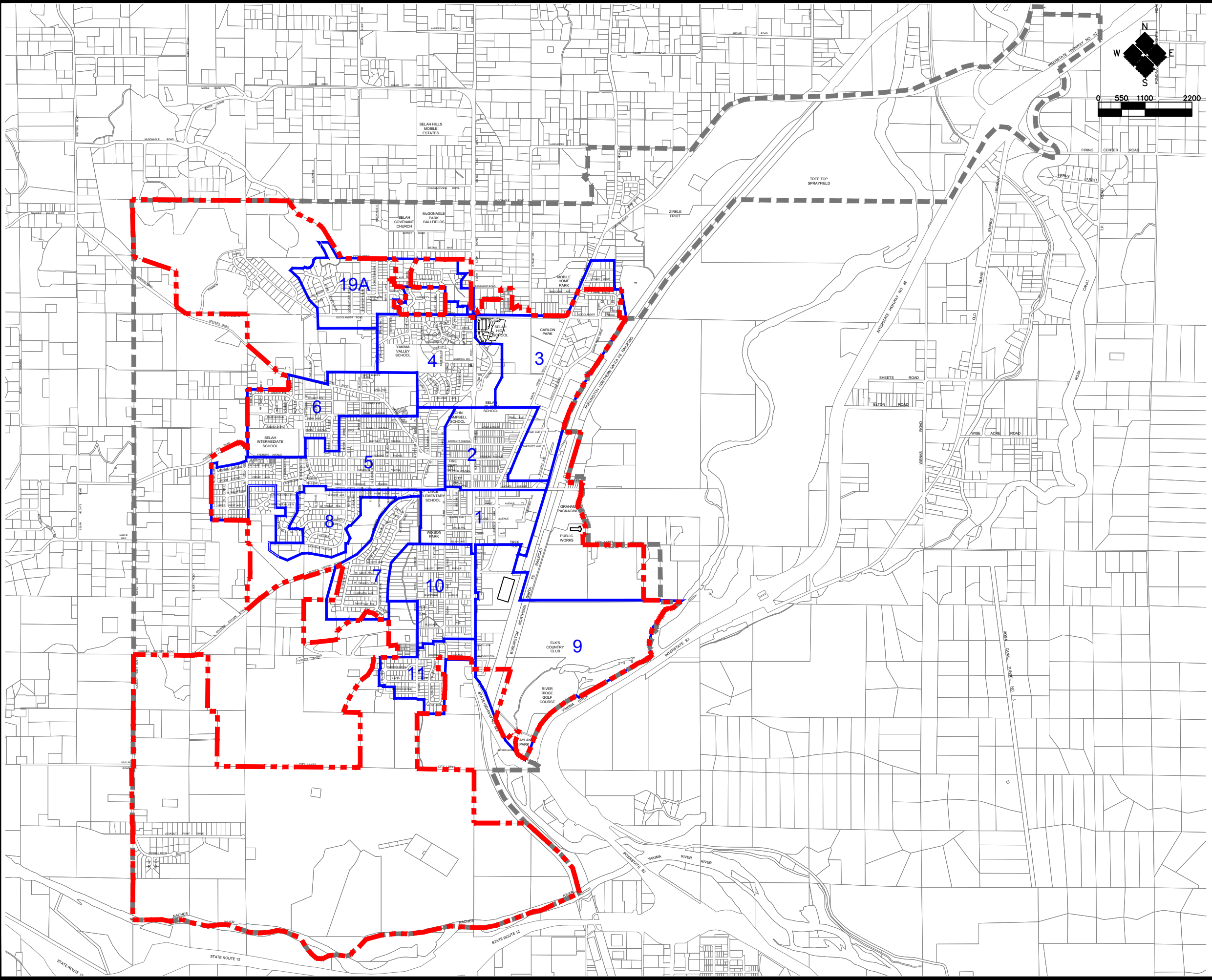
TABLE 3-1 SELAH SEWER SYSTEM PIPING	
Pipe Size	Linear Feet
6-inch	480
8-inch	98,830
10-inch	6,180
12-inch	14,620
15-inch	3,520
16-inch	30
18-inch	720
21-inch	490
TOTAL GRAVITY	124,870
4-inch force main	4,650
6-inch force main	1,890
TOTAL FORCE MAIN	6,540

3.2 COLLECTION SYSTEM BASINS

The existing collection system can be divided into 12 collection system drainage basins for purposes of analyzing system performance. Each basin includes a main trunk line or sewage lift station which conveys wastewater toward the treatment facility. The 12 existing collection system basins are shown on Figure 3-1 - Existing Collection System Basin Boundaries, and are discussed below.

Basin No. 1: The area within Basin 1 has property zoned residential, commercial, industrial, parks, and quasi-public open space uses. The basin lies in the central portion of the service area, bounded on the north by Naches Avenue and Basin 2, on the south by Basins 9 and 10, on the west by Basins 7 and 8, and on the east by future Basins 12 & 23. Wastewaters from this basin flow through a 12-inch gravity sewer line to the treatment facility. Significant dischargers within this basin include domestic wastewater from SunRype and Tree Top, the City swimming pool, Robert Lince Elementary School, and Wixson Park. The area of this basin is approximately 88 acres. There are approximately 8,019 LF of 8-inch gravity sewer line, 481 LF of 10-inch gravity sewer, 2,679 LF of 12-inch gravity sewer, 533 LF of 18-inch gravity sewer, 389 LF of 21-inch gravity sewer and 46 manholes within this basin. Based upon existing land use, flows from this basin used in the hydraulic analysis of Selah's collection system are 0.18 MGD.

Basin No. 2: The land within Basin 2 includes areas of residential and commercial uses. The basin lies in the central portion of the service area, bounded on the north by Basins 3 and 4, on the south by Naches Avenue and Basin 1, on the west by Basin 5 and Third Street, and on the east by Basin 3. Wastewaters from this basin drain to the 12-inch gravity sewer line in Railroad Avenue, flow into Basin 1, and then enter the treatment facility. Significant dischargers within this basin include John Campbell Elementary School, Sunset School and Selah Junior High School. The area of this basin is approximately 82 acres. There are approximately 204 LF of 6-inch gravity sewer line,



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EXISTING COLLECTION SYSTEM BASIN BOUNDARIES

- LEGEND**
- EXISTING RETAIL SERVICE AREA BOUNDARY (CITY LIMITS)
 - FUTURE RETAIL SERVICE AREA BOUNDARY (UGA)
 - BASIN AREA BOUNDARY
 - 12 EXISTING BASIN NUMBER





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8,514 LF of 8-inch gravity sewer line, 628 LF of 10-inch gravity sewer, 2,679 LF of 12-inch gravity sewer and 32 manholes within this basin. Based upon existing land use, flows from this basin used in the hydraulic analysis of Selah's collection system are 0.05 MGD.

Basin No. 3: The land within Basin 3 includes areas of residential, commercial, industrial, parks, vacant, and quasi-public open space uses. The basin lies in the northeastern portion of the service area, bounded on the north and east by the City Limits, and on the south and west by Basins 2 and 4. Wastewaters from this basin drain to the 12-inch gravity sewer line in Railroad Avenue, flow through a small portion of Basin 2 into Basin 1, and then enter the treatment facility. Significant dischargers within this basin include the high school, two fruit packing operations, and Carlon Park. The area of this basin is approximately 190 acres. There are approximately 3,538 LF of 8-inch gravity sewer line, 587 LF of 10-inch gravity sewer, 6,728 LF of 12-inch gravity sewer and 43 manholes within this basin. Based upon existing land use, flows from this basin used in the hydraulic analysis of Selah's collection system are 0.16 MGD.

Basin No. 4: The land within Basin 4 includes areas of residential and quasi-public open space uses. The basin lies in the northern portion of the service area, bounded on the north by the City Limits, on the south by Basins 2, 5, and 6, on the west by Basins 6 and 19A, and on the east by Basin 3. Wastewaters from this basin drain to the 8-inch gravity sewer line in North First Street, and flow into Basin 2. Significant dischargers within this basin include the middle school, and the main buildings of the Yakima Valley School for the handicapped. The area of this basin is approximately 118 acres. There are approximately 477 LF of 6-inch gravity sewer line, 13,136 LF of 8-inch gravity sewer, 702 LF of 12-inch gravity sewer and 60 manholes within this basin. Based upon existing land use, flows from this basin used in the hydraulic analysis of Selah's collection system are 0.11 MGD.

Basin No. 5: The land within Basin 5 includes areas of residential and quasi-public open space uses. The basin lies in the west-central portion of the service area, bounded on the north by Basin 6, on the south by Basin 8, on the west by the City Limits and unsewered portions of the City, and on the east by Basin 2. Wastewaters from this basin drain to the 8-inch gravity sewer line in an alley west of Third Street, and flow into Basin 1. The area of this basin is approximately 184 acres. There are approximately 3,538 LF of 8-inch gravity sewer line and 101 manholes within this basin. Based upon existing land use, flows from this basin used in the hydraulic analysis of Selah's collection system are 0.14 MGD.

Basin No. 6: The land within Basin 6 includes areas of residential, agricultural, and quasi-public open space uses. The basin lies in the northwestern portion of the service area, bounded on the north by Basin 4 and unsewered portions of the City, on the south by Basin 5, on the west by the City Limits, and on the east by Basin 4. Wastewaters from this basin drain to the 8-inch gravity sewer line in Speyers Road and flow into Basin 5. Significant dischargers within this basin include the residential housing units of the Yakima Valley School for the handicapped. The area of this basin is approximately 123 acres. There are approximately 314 LF of 6-inch gravity sewer line, 12,721 LF of 8-inch gravity sewer and 64 manholes within this basin. Based upon existing land use, flows from this basin used in the hydraulic analysis of Selah's collection system are 0.08 MGD.

Basin No. 7: The land use within Basin 7 is almost entirely residential. The basin lies in the western portion of the service area, bounded on the north by unsewered portions of the City, on the south by the City Limits, on the west by the City Limits and unsewered portions of the City, and on the east by Basins 1 and 10. Wastewaters from this basin drain to the 12-inch gravity sewer line in Crusher Canyon Road, which then flows into an 8-inch gravity sewer line adjacent to the Lince Elementary School, and flows into Basin 1. The area of this basin is approximately 74 acres. There are approximately 12,078 LF of 8-inch gravity sewer line, 2,396 LF of 12-inch gravity sewer and 52 manholes within this basin. Based upon existing land use, flows from this basin used in the hydraulic analysis of Selah's collection system are 0.06 MGD.

Basin No. 8: The land use within Basin 8 is almost entirely residential. The basin lies in the western portion of the service area, bounded on the north and east by Basin 5, on the south by unsewered portions of the City, and on the east by Basins 1 and 7. Wastewaters from this basin drain to the 12-inch gravity sewer line in Crusher Canyon Road, then to an 8-inch gravity sewer line and flow into Basin 1. The area of this basin is approximately 59 acres. There are approximately 6,512 LF of 8-inch gravity sewer line and 35 manholes within this basin. Based upon existing land use, flows from this basin used in the hydraulic analysis of Selah's collection system are 0.03 MGD.

Basin No. 9: The land within Basin 9 includes areas of industrial, commercial, agricultural, and quasi-public open space uses. The basin lies in the southeastern portion of the service area, bounded on the north by Basin 1, on the south by the City Limits, on the west by Basins 10 and 11, and on the east by the Burlington Northern Santa Fe Railroad tracks. Wastewaters from this basin drain to the 10-inch gravity sewer line in the Burlington Northern Santa Fe Railroad right of way and flow to the treatment facility. This basin also receives wastewater from the Elks Golf Course, which enters the basin from a lift station and 6-inch force main. The area of this basin is approximately 266 acres. There are approximately 642 LF of 8-inch gravity sewer line, 2,612 LF of 10-inch gravity sewer, 1,341 LF of 12-inch gravity sewer and 17 manholes within this basin. Based upon existing land use, flows from this basin used in the hydraulic analysis of Selah's collection system are 0.11 MGD.

Basin No. 10: The land within Basin 10 includes areas of residential and commercial uses. The basin lies in the central portion of the service area, bounded on the north by Basins 1 and 7, on the south by Basin 11, on the west by Basin 7 and unsewered portions of the City, and on the east by Basin 9. Wastewaters from this basin drain to the 8-inch gravity sewer line in South First Street and flow into Basin 9. The area of this basin is approximately 84 acres. There are approximately 9,065 LF of 8-inch gravity sewer line and 35 manholes within this basin. Based upon existing land use, flows from this basin used in the hydraulic analysis of Selah's collection system are 0.08 MGD.

Basin No. 11: The land use within Basin 11 is almost entirely residential. The basin lies in the southern portion of the service area, bounded on the north by Basin 10, on the south by unsewered portions of the City, on the west by unsewered portions of the City, and on the east by Basin 9 and unsewered portions of the City. Wastewaters from this basin drain to the 8-inch gravity sewer line in Southern Avenue and flow north into Basin 10. The area of this basin is approximately 51 acres. There are approximately 8,174 LF of 8-inch gravity sewer line and 41 manholes within this basin. Based upon existing land use, flows from this basin used in the hydraulic analysis of Selah's collection system are 0.04 MGD.

Basin No. 19A: The land use within Basin 19A is residential and agricultural. The basin lies in the northern most portion of the service area, bounded on the north by the City Limits, on the south by Basin 4 and unsewered portions of the City, on the west and east by unsewered portions of the City and UGA. Wastewaters from this basin drain to the 12-inch gravity sewer line in East Goodlander Road and flow east into Basin 3. The area of this basin is approximately 103 acres. There are approximately 246 LF of 4-inch gravity sewer line, 11,307 LF of 8-inch gravity sewer, and 59 manholes within this basin. Based upon existing land use, flows from this basin used in the hydraulic analysis of Selah's collection system are 0.06 MGD.

Basin 19, Basin 20 and Basin 23 include areas outside of the City Limits that are currently being served by the existing collection system. Selah Hills Mobile Estates, a mobile home park located north of the City on Selah Loop Road, discharges septic tank effluent via a force main in Selah Loop Road to a manhole at the bottom of Basin 19, at the intersection of North First Street and Goodlander. Septic tank effluent generated by the Selah Covenant Church (7 acres) and the City's McGonagle Park Ball Field (9.4 acres), located within Basin 19, gravity feeds to a lift station on McGonagle Road, which discharges to the force main in Selah Loop Road also serving Selah Hills Mobile Estates. Wastewater from a mobile home park (7.8 acres), located north of Missouri avenue between Lancaster Road and North Wenas Road, gravity feeds to via 10-inch sewer line and flows to Goodlander Road in Basin 3. Lastly, wastewater generated from Graham Packaging, located in Basin 23, discharges to the East Naches Lift Station, which pumps to the upstream end of Basin 1.

3.3 LIFT STATIONS

The existing wastewater collection system contains four sewage lift stations which aid in the conveyance of wastewater to the treatment and disposal facilities.

1. **South Lift Station:** This duplex lift station is located at the south end of the wastewater treatment facility. Wastewaters from the southern end of the City flow to the wet-well side of this station and are discharged through 145 LF of 6-inch force main, where they combine with industrial pretreatment effluent before gravity flowing through 234 LF of 15-inch sewer to the main treatment plant headworks. The duplex pump station contains two Cornell pumps (Model 4NNT VM15-4) located in a separate dry pit. Each pump is powered by a 15 hp, 460-volt, 1,750 RPM motor suitable for submerged operation, and is designed to pump 1,150 GPM.
2. **Elks Lift Station:** This duplex lift station is located in and provides service to the Elks Golf Course. The duplex pump station contains two Cornell pumps (Model 4DNDL-SS 7-4). Each 7 hp, 3-phase, 230-volt, 1,750 RPM pump is designed to pump 200 GPM. Wastewaters collected by this pump station are discharged through 1,150 LF of 6-inch force main into the 10-inch gravity sewer in Eleventh Avenue, just east of South First Street.
3. **East Naches Avenue Lift Station:** Constructed in 1995, this duplex lift station is located on East Naches Avenue and currently provides service only to Graham Packaging, an industry that manufactures plastic bottles. The pump station was also sized to provide future service for approximately 91 acres east of the current City Limits. The duplex pump station contains two Flygt submersible pumps (Model CP-3102X). Each 5 hp, 3-phase, 230-volt 1,730 RPM pump is designed to pump 320 GPM at 22 feet total dynamic head. Wastewaters collected by this pump station are discharged through 750 LF of 6-inch ductile iron force main into the 12-inch gravity sewer in East Naches Avenue at Railroad Avenue.
4. **Selah Hills Mobile Estates Lift Station:** This lift station, constructed in 1993, currently provides service only for the Selah Hills Mobile Estates, a mobile home park located north of the City on Selah Loop Road. The privately-owned duplex pump station pumps septic tank effluent through 4,650 LF of 4-inch, City-owned, PVC force main into the 12-inch gravity sewer line in Goodlander Road at North First Street.
5. **McGonagle Park Ball Field Lift Station:** This lift station currently provides service only for the Selah Covenant Church and City of Selah's McGonagle Park Ball Fields, located adjacent to each other on the south side of McGonagle Road, west of Selah Loop Road. Septic tank effluent gravity feeds from each facility through 6-inch PVC pipe to a City-owned duplex pump station. The lift station discharges through a 4-inch, City-owned, PVC force main along McGonagle Road that is connected to the City-owned 4-inch force main in Selah Loop Road that serves Selah Hills Mobile Estates. The duplex lift station consists of two submerged pumps, Homa Model TP50M16/2/1, 1.2 HP, 230-volt, single phase, capable of pumping 50 gpm at a 19-foot head. Since the pumps handle septic tank effluent, they are only capable of passing a 2-inch solid.

Table 3-2 provides summary information on the existing sewage lift stations found in the City's sewage collection system.

TABLE 3-2 SEWAGE LIFT STATION SUMMARY INFORMATION				
Station Number	Year Built	Station Type	Pump Brand, Type, Model	Pump Capacity (each)
1	--	Duplex	Cornell Dry-Pit Pumps (Model 4NNT VM 15-4).	1,150 gpm
2	--	Duplex	Cornell Submersible Pumps (Model 4DNDL-SS 7-4).	200 gpm
3	1995	Duplex	Flygt Submersible Pumps (Model CP-3102X)	320 gpm
4	1993	Duplex	Privately Owned – Septic Tank Effluent	N/A
5	2004	Duplex	Homa Submersible Pumps (Model TP50M16/2/1)	50 gpm

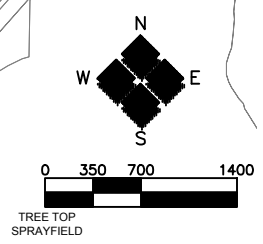
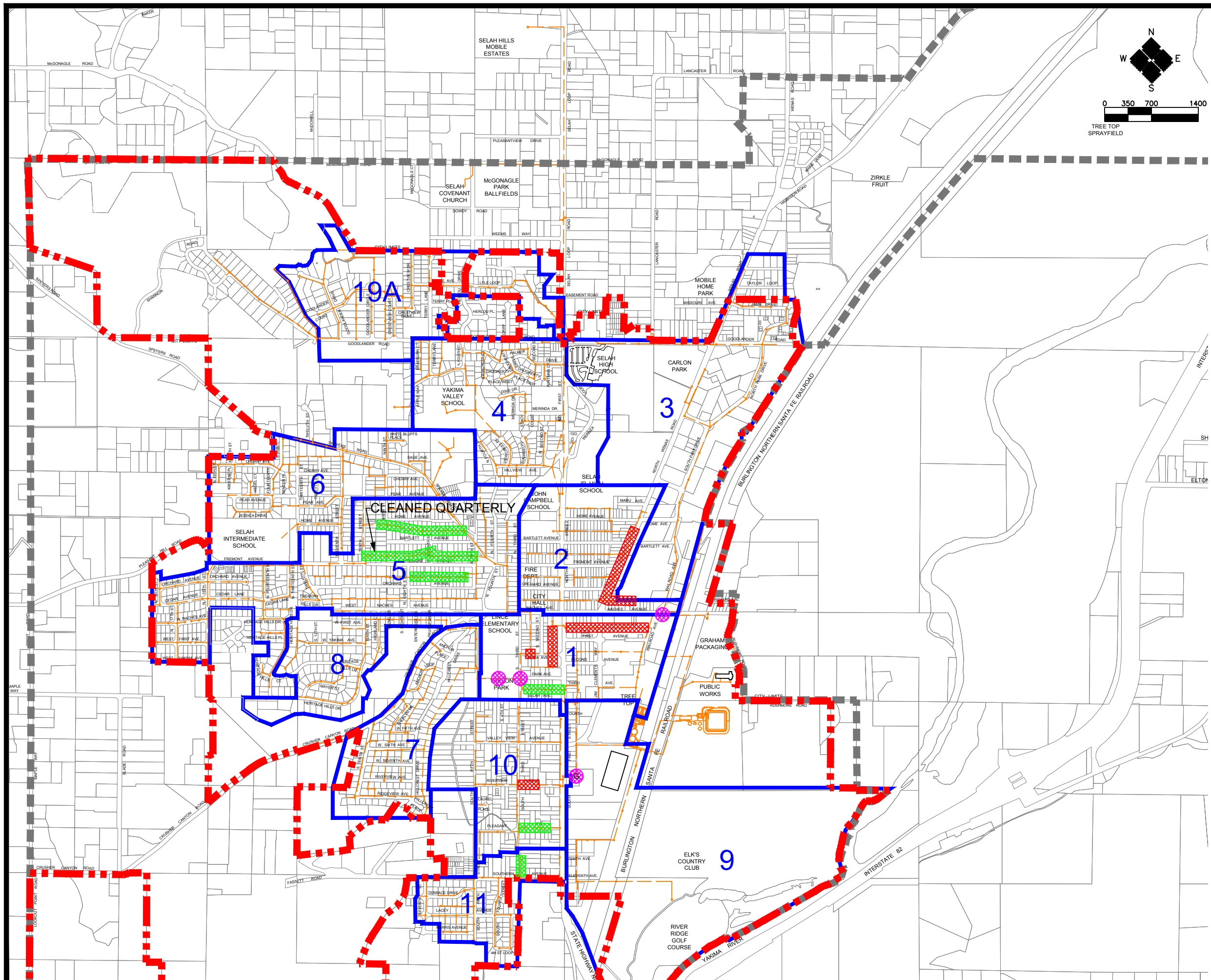
3.4 COLLECTION SYSTEM MAINTENANCE PROBLEMS

The City has identified six sections of sewer pipe that have significant root problems, requiring regular cleaning and maintenance. One location requiring frequent cleaning due to root problems is Fremont Avenue between Fifth Street and Tenth Street. Due to these root problems, the capacity is considerably reduced, and at times, there is no capacity because of the obstructions. The roots also cause cracks and breakage in the sewer lines.

The City has also identified several sections of sewer pipe that have sedimentation problems including gravel and other debris, requiring regular cleaning and maintenance. Some sedimentation problems have been pinpointed to specific discharges. The sedimentation in the sewer line between First and Second Street at Yakima Avenue is considered to be caused by the nearby car wash. The City has identified a tee within the sewer piping at Yakima Avenue between Second and Third Street, causing sediment buildup in addition to hydraulic problems. This tee should be replaced with a manhole to minimize maintenance at the location.

The City has identified four manholes that are damaged and/or have sunken or settled over the years and are in need of replacement or adjustment. The manhole within Wixson Park has settling problems and is in need of adjustment, but preferably replacement with an improved base. The manhole at South Third Street and Park Avenue is deficient as the invert elevation of the outlet is higher than the inlet. In addition, a plate is currently used to divert the flows to the southerly outlet away from the easterly outlet. The manhole at Naches Avenue and Railroad Avenue has settled over the years and is in need of replacement. The manhole east of South First Street just north of Riverview Avenue is also in need of replacement due to settling.

The City should further investigate these high maintenance areas using TV inspection of each problem area. Confirmed root and sediment problem areas due to broken pipes or offset joints should be scheduled for replacement as City sewer funds become available. These known areas are shown on Figure 3-2 – Existing Collection System High Maintenance Areas.



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EXISTING COLLECTION SYSTEM HIGH MAINTENANCE AREAS

LEGEND

- EXISTING RETAIL SERVICE AREA BOUNDARY (CITY LIMITS)
- FUTURE RETAIL SERVICE AREA BOUNDARY (UGA)
- EXISTING SEWER LINE
- ROOT PROBLEMS
- DEBRIS/ GRAVEL PROBLEMS
- SUNKEN OR BROKEN MANHOLE
- EXISTING BASIN BOUNDARY
- GREASE BUILDUP PROBLEMS



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3.5 EXISTING SEWER SYSTEM HYDRAULIC ANALYSIS

A hydraulic analysis of the existing Selah collection system was performed to evaluate the capacity of the system and to identify specific hydraulic loading problem areas within the existing system. The computer-assisted analysis involves utilizing information such as pipe sizes and slopes to develop a model of the main trunk lines of the sewer system. Following model development, the process involves:

- ❖ Assigning wastewater flows from each basin into the collection system based upon existing land use and land use unit flow rates;
- ❖ Inputting average industrial point source flows at their known discharge locations;
- ❖ Assuming a roughness coefficient (Mannings "n") of 0.013 for all pipelines in the analysis;
- ❖ Assuming lift station discharges would continue as peak flows through the basin without the effects of dampening within the gravity flow line;
- ❖ Using the following peaking factor equation, suggested by Metcalf & Eddy, to analyze the collection system at peak flows.

$$Q_{\text{Peak}} = K (Q_{\text{Average}})^{0.9}$$

where Q represents flow in MGD, and K represents the peaking factor.

The peaking factor value for K of 3.0 was determined based upon wastewater treatment facility flow records.

Unit Flow Rates

The hydraulic analysis is based on unit flow rates from different land uses within the 12 collection system basins. The type of activity is taken from land use maps, and the flow rates discussed below are assigned based upon that activity.

Residential: Wastewater flow rates from the residential areas are based upon Washington Department of Ecology's "Criteria for Sewage Works Design," which recommends an average unit flow rate of 100 gallons/person/day. Density of development and type of housing (single family, multi-family) in residential areas was divided into three categories - low, medium and high. Flow rates in low-density residential areas were calculated assuming 1.67 dwellings per acre. Flow rates in medium-density residential areas were calculated assuming 2.17 dwellings per acre. Flow rates in high-density residential areas were calculated assuming 2.5 dwellings per acre. The resulting flow rates (in million gallons per day per acre) used in the hydraulic analysis, assuming an average occupancy of 3 persons per dwelling, from the three densities of residential development are as follows:

Residential Low.....	0.00050 MGD/Acre
Residential Medium	0.00065 MGD/Acre
Residential High.....	0.00075 MGD/Acre

General Business: Wastewater flow rates from the general business areas are based on a unit flow rate of 0.0015 MGD/Acre. For general business wastewater flow rates, Wastewater Engineering: Treatment, Disposal, Reuse (Metcalf & Eddy, Third Edition, 1991) suggests a range from 0.0008 to 0.0015 MGD/Acre. For a conservative analysis, the higher flow rate is used.

Industrial: Wastewater flow rates from industrially zoned areas are based on a unit flow rate of 0.003 MGD/Acre. For medium industrial developments, Metcalf & Eddy suggest a range from 0.0015 to 0.0030 MGD/Acre. Again, the higher value was applied to the analysis to remain conservative. It should be noted that individual industries may discharge wastewaters at higher rates, depending on the industrial process.

Public: Wastewater flow rates from publicly zoned areas are based on a unit flow rate of 0.0005 MGD/Acre.

A summary of the basin area, land use type, and predicted average flow is presented in Table 3-3.

Map A in the back pocket of this report shows the pipe layout of City of Selah's existing sewer collection system.

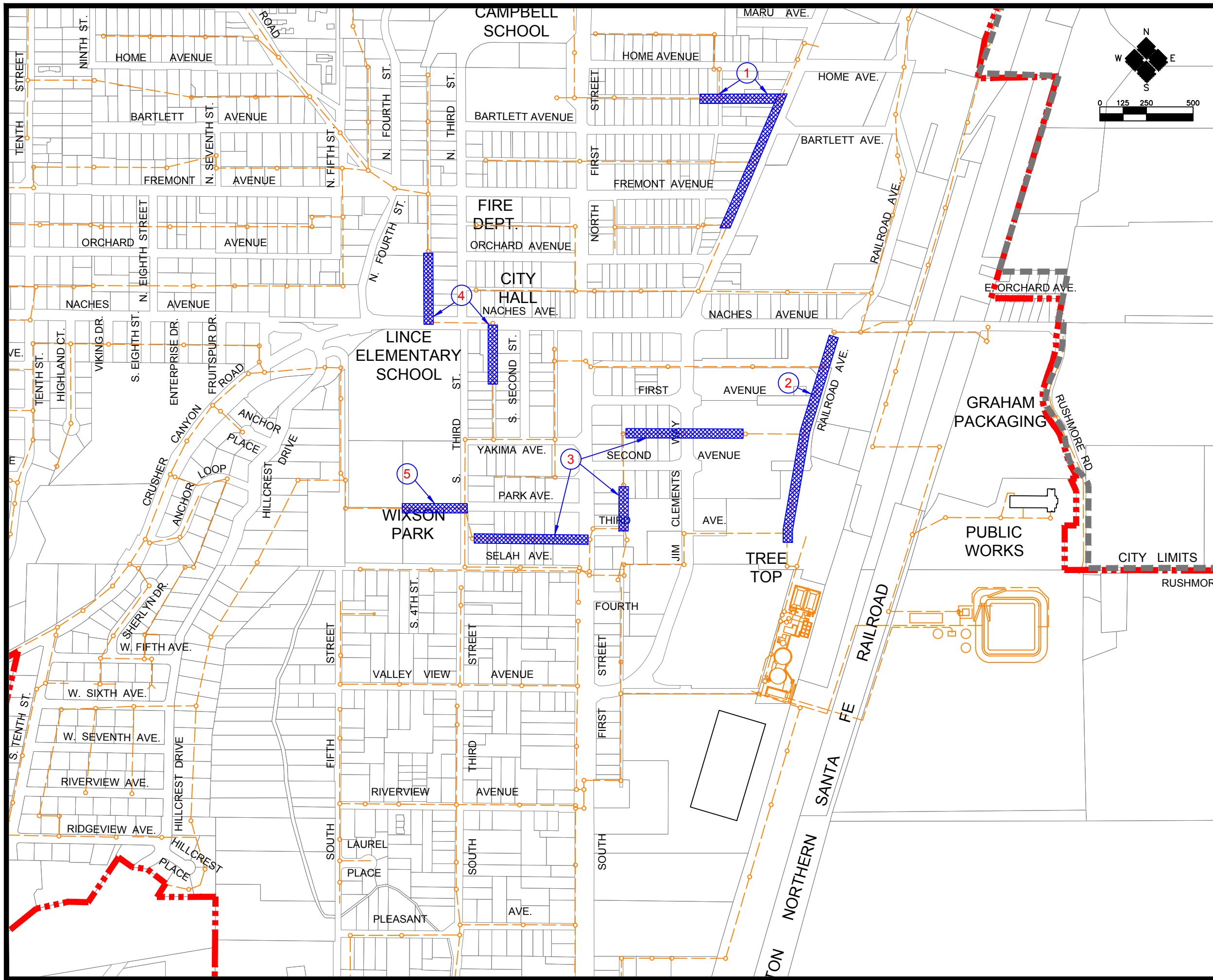
TABLE 3-3 COLLECTION SYSTEM BASINS			
Basin No.	Acreage	Land Use Type	Projected Average Flow (MGD)
1	88.18	residential, commercial, industrial, parks, and quasi-public	0.18
2	81.94	residential, commercial, industrial, and quasi-public	0.05
3	189.97	residential, commercial, industrial, parks, vacant, and quasi-public	0.16
4	118.15	residential, agricultural, vacant, and quasi-public	0.11
5	184.47	residential and quasi-public	0.14
6	123.26	residential, agricultural, and quasi-public	0.08
7	73.86	residential	0.06
8	58.71	Residential and vacant	0.03
9	265.73	commercial, industrial, agricultural, and quasi-public	0.11
10	84.13	residential and commercial	0.08
11	51.26	residential	0.04
19A	103.05	residential	0.06
Total	1,422.27		1.10

Collection System Hydraulic Analysis Results

A hydraulic analysis was performed which modeled the existing sewer network under existing conditions for normal and peak flow. It was assumed all lift stations were in operation at the same time. Data from the hydraulic analysis predicted average flows of 1.22 MGD, and peak flows of 3.59 MGD (peaking factor of 3.0). The predicted average flow of 1.22 MGD is slightly higher than the average max month flow to the main Plant from 2012 through 2016 which is 1.14 MGD (after subtracting out the Pre-Treatment effluent flows). During this period, the highest value was 1.165 MGD occurring in 2012, and the lowest value of 1.097 MGD occurring in 2016 (refer to Table 2-4).

The model predicts peak flows exceed pipe capacities in several areas in the existing collection system. These areas are shown and labeled on Figure 3-3 - Existing Collection System Deficiencies, and are described as follows:

1. 383 LF of 8-inch sewer beginning in an alley south of Home Avenue, heading west to North Wenas Road, then turning south for 1,124 LF on North Wenas Road to manhole aligned with alley north of Orchard Avenue. Under expected peak flow conditions, the model predicts minor surcharging could occur throughout this reach. The hydraulic analysis of the future system (presented in Chapter 4 of this Plan) shows that the recommended 10-inch sewer will accommodate future flows at ultimate build-out. The City has not reported any problems in this reach, and since the modeled surcharge in this section is minimal, this deficiency is not recommended for improvement to meet current flows. However, the City should monitor this section closely as future development occurs.



CITY OF SELAH

General Sewer Plan Update

EXISTING COLLECTION SYSTEM DEFICIENCIES

LEGEND

- EXISTING RETAIL SERVICE AREA BOUNDARY (CITY LIMITS)
- FUTURE RETAIL SERVICE AREA BOUNDARY (UGA)
- AREA NUMBER CORRESPONDING TO TEXT DISCUSSION
- UNDER CAPACITY
- EXISTING SEWER LINE

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2. 1,400 LF of 12-inch sewer on Railroad Avenue beginning at the alley south of Naches Avenue to the manhole east of Third Avenue. Under expected peak flow conditions, the model predicts minor surcharging could occur throughout this reach. The hydraulic analysis of the future system (presented in Chapter 4 of this Plan) shows that the recommended 18-inch sewer will accommodate future flows at ultimate build-out.
3. 2,838 LF of 8-inch sewer beginning at Wixson Park aligned with Park Avenue, jogging south to alley between Selah Avenue and Park Avenue where it travels east across South First Avenue to alley turning north, parallel to North First Street, until heading back to the east in alley between First and Second Avenues, crossing Jim Clements Way and connecting into Railroad Avenue. Under expected peak flow conditions, the model predicts minor surcharging could occur throughout this reach. A project planned to begin in August of 2017 to run a new sewer line from the manhole in Wixson Park south to Selah Avenue, then east to the manhole in Selah Avenue and South Third containing a 12-inch sewer will alleviate the surcharging potential for the short term. Long term, an upgraded, or new interceptor running from west to east needs to be installed to address these surcharging issues.
4. 1,260 LF of 8-inch sewer beginning in alley between North Third and North Fourth Street, at the first manhole north of Naches Avenue traveling south and turning east in Naches until turning back to the south in alley between South Third and South Second Street to manhole in Yakima Avenue. Under expected peak flow conditions, the model predicts minor surcharging could occur throughout this reach. City operations and maintenance staff have also reported that the manhole in Yakima Avenue requires weekly monitoring and cleaning to prevent backups. The planned project in Wixson Park described in item 4 above is expected to alleviate the surcharging somewhat, but additional improvements are required to fully address the needs in this area.
5. 330 LF of 8-Inch sewer beginning at Park Avenue and South Third Street west through Wixson Park. Under expected peak flow conditions, the model predicts the upstream manhole could be surcharged by approximately 1 foot.

Other Existing Collection System Considerations

Wastewater from fruit packers Matson Fruit and Larson Fruit currently flows to the 12-inch sewer in Railroad Avenue and is treated the main wastewater treatment plant. Long-term benefits could be gained by routing this flow to the industrial sewer located east of Matson Fruit and parallel to Railroad Avenue, so the wastes would flow to the industrial pretreatment facility. This would relieve industrial loadings to the main plant, and would combine the majority of industrial wastes for pretreatment at the City's pretreatment facility. Therefore, it is recommended the City of Selah construct 900 LF of new 15-inch industrial pretreatment sewer in Railroad Avenue to accommodate wastewater flow from Matson Fruit and Larson Fruit.

Lift Stations Hydraulic Analysis Results

Another element of the hydraulic analysis was the review of the lift station capacities and their ability to meet the system demands. Information on the lift stations was presented earlier in this chapter. Results of the collection system hydraulic analysis were compared with the maximum station capacity. Since all stations are duplex pumping stations, the capacity is based on the ability of the station to lift wastewater with only one pump in operation. The results of the comparison of station capacity with current modeled peak flow are presented in Table 3-4.

TABLE 3-4 CURRENT SEWAGE LIFT STATION PEAK FLOWS		
Station	Station Capacity*	Current Modeled Peak Flow
South Lift Station	1,150 gpm	530 gpm
Elks Lift Station	200 gpm	78 gpm
East Naches Avenue Lift Station	320 gpm	133 gpm
* Capacity with largest pump out of service.		

Based on the comparisons, all existing lift stations have sufficient capacity to meet the existing system demands when only a single pump is in operation.

Force Main Hydraulic Analysis Results

Another element of the hydraulic analysis was the review of the force mains and their ability to meet the system demands. The force main hydraulic analysis was similar to the analysis of lift stations, using projected peak flow rates from the model and from actual known pumping rates. The desired velocity within a force main is between 2 and 8 feet per second. Velocities below 2 feet per second tend to lead to deposition of solids in the pipe line, while velocities above 8 feet per second can create excessive pumping costs. Current force main velocities are shown in Table 3-5.

TABLE 3-5 CURRENT FORCE MAIN VELOCITIES					
Lift Station Force Main No.	Station	Current Pumping Rate*	Force Main Diameter (inches)	Desired Velocity	Current Velocity*
1	South Lift Station	1,150 gpm	6-inch	2 to 8 feet/second	13.05 ft/sec
2	Elks Lift Station	200 gpm	6-inch	2 to 8 feet/second	2.27 ft/sec
3	East Naches Avenue Lift Station	320 gpm	6-inch	2 to 8 feet/second	3.63 ft/sec
* Pumping rate and velocity with largest pump in operation.					

All three existing force mains have the capacity to accommodate the current peak flows from the lift stations. Force main velocities for the Elks Lift Station and East Naches Avenue Lift Station are within the desired 2 and 8 feet per second. However, force main velocity for the South Lift Station exceeded the desired 8 feet per second maximum. The projections for future force main adequacy will be discussed in the following chapter.

3.6 COLLECTION SYSTEM INFILTRATION / INFLOW

Infiltration

Infiltration is defined as groundwater entering a sewer system by means of defective pipes and side sewers, pipe joints, and manhole walls. The volume of infiltration is dependent upon ground water levels and upon the condition of the sewer system. The U.S. Environmental Protection Agency (EPA) considers infiltration to be excessive if non-storm sewage flows are greater than 120 gallons per capita per day.

Selah's most recent Infiltration and Inflow evaluation was completed in January 2014. This evaluation reported the average monthly municipal influent flows for the period 2009 through 2013, as shown on Table 3-6. As mentioned previously in this chapter, municipal flows include residential commercial, government, and minor amounts of industrial wastewater.

TABLE 3-6 AVERAGE MONTHLY MUNICIPAL FLOWS 2009 - 2013						
	2009	2010	2011	2012	2013	Average
Average Monthly Municipal Flow (MGD)	0.986	1.012	1.004	1.042	1.045	1.018
Average Monthly Per Capita Flow (gpcd)	131	135	133	137	136	134

This data shows that Selah's wastewater flows only slightly exceed the 120 gallons per capita per day, the value EPA considers to be excessive.

Infiltration in Selah fluctuates seasonally. The average municipal influent winter flow (December through February) and the average municipal influent summer flow (June through August) for the period 2003 through 2007 are shown on Table 3-7. This table also presents the ratio of average summer to average winter municipal influent flows.

TABLE 3-7 AVERAGE SUMMER AND WINTER MUNICIPAL FLOWS						
	2009	2010	2011	2012	2013	Average
Average Summer Flows (MGD)	0.966	0.945	0.979	1.013	1.067	0.994
Average Winter Flows (MGD)	0.992	1.11	1.048	1.041	1.078	1.054
Summer: Winter Ratio	0.974	0.851	0.934	0.973	0.990	0.944

Presented on a per capita basis, the average municipal influent summer flows and the average municipal influent winter flows for the period 2009 through 2013 are shown on Table 3-8.

TABLE 3-8 PER CAPITA AVERAGE SUMMER AND WINTER MUNICIPAL FLOWS (values are in gallons per person per day)						
	2009	2010	2011	2012	2013	Average
Average Summer Flows	128	126	130	133	139	131
Average Winter Flows	132	148	139	136	140	139

Both the average summer per capita flows and the average winter per capita flows slightly exceed 120 gallons per capita per day, the value EPA considers as excessive infiltration (cited in *I/I Analysis and Project Certification*). Winter per capita domestic flows averaged approximately 8 gallons higher for the five-year period than summer per capita domestic flows. When reviewing this data it is important to remember that municipal flows include wastewater from commercial and government sources and Graham Packaging, as well as from residential services.

Inflow

Inflow is defined as surface water or runoff that enters the collection system through constructed openings such as manhole covers, storm sewer cross-connections, and yard, basement, or roof drains. Inflow is directly related to storm (rainfall) or flooding events, and results in an immediate increase in sewage flows following the event. EPA considers inflow to be excessive when average daily flows exceed 275 gallons per capita per day (cited in *I/I Analysis and Project Certification*) during periods of excessive rainfall (excluding major commercial and industrial flows).

One weather station located in Selah collects daily precipitation data. Table 3-9 shows the average monthly precipitation (inches) in Selah (for the period 2009 through 2013).

TABLE 3-9 AVERAGE MONTHLY PRECIPITATION 2009 - 2013												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average (inches)	0.79	1.50	0.92	0.48	1.46	0.71	0.50	0.09	0.40	0.43	0.42	1.03

From the data presented in Table 3-9, precipitation is greatest during the months of October, November, December and January. The per capita municipal flows for those months during the period 2009 through 2013 are presented in Table 3-10.

TABLE 3-10 AVERAGE MONTHLY PRECIPITATION AND PER CAPITA MUNICIPAL FLOWS (municipal influent flows are in gallons per person per day)						
	Monthly Precipitation (inches)	2009	2010	2011	2012	2013
January	0.79	136.0	153.0	143.2	134.6	141.0
March	0.92	125.3	138.3	125.2	140.7	137.6
May	1.46	128.6	132.6	130.1	144.2	139.3
June	0.71	126.3	131.6	128.1	143.7	139.6
December	1.03	142.0	139.8	139.0	142.2	127.7
Average	0.98	131.6	139.1	133.1	141.1	137.1

Never do the municipal per capita wet weather flows approach or exceed the 275-gallon value considered to be excessive by EPA.

Another way to investigate inflow is to examine daily flows during precipitation events. If inflow is occurring in Selah, one would expect to observe a jump in influent flow during or just following significant precipitation events. As previously stated, a precipitation-recording weather station exists in Selah. For the purpose of investigating inflow during precipitation events, data from that Selah station is used.

Table 3-11 shows wastewater flow and precipitation data from two storm events in 2011 and 2013. The table presents the following information:

- ❖ Total influent flows from days before, during, and after significant precipitation events;
- ❖ Total influent flow expressed as gallons per capita per day from the same days;
- ❖ Municipal influent flows from days before, during, and after significant precipitation events;
- ❖ Municipal influent flow expressed as gallons per capita per day from the same days;
- ❖ Precipitation totals recorded in Selah from the same days.

TABLE 3-11 PRECIPITATION AND INFLUENT FLOW DATA							
Month Year	Day		Selah Precipitation (inches)	Total Influent Flow (MGD)	Total Per Capita Flow (gal/capita/day)	Municipal Influent Flow (MGD)	Municipal Per Capita Flow (gal/capita/day)
Oct 2011	1	Sat	0.00	1.286	170	1.075	143
	2	Sun	0.00	1.300	172	0.959	127
	3	Mon	0.2	1.322	177	1.017	135
	4	Tue	0.03	1.346	178	1.014	134
	5	Wed	0.76	1.426	189	1.052	139
	6	Thurs	0.01	1.397	185	1.034	137
	7	Fri	0.01	1.467	194	1.199	159
	8	Sat	0.00	1.293	171	1.081	143
May 2013	19	Sun	0.00	1.191	155	0.777	101
	20	Mon	0.00	1.357	177	1.018	133
	21	Tues	0.35	1.690	220	1.301	169
	22	Wed	0.95	1.597	208	1.034	135
	23	Thurs	0.01	1.613	210	1.137	148
	24	Fri	0.67	1.692	220	1.306	170
	25	Sat	0.00	1.354	176	1.084	141
	26	Sun	0.00	1.240	162	1.094	143
	27	Mon	0.02	1.141	149	0.853	111

During the October 2011 precipitation event, the heaviest rainfall occurred on Wednesday, October 5. Municipal flow on this day was 1.052 MGD (139 gallons per capita). Although municipal per capita flow increased the days following the precipitation event from (139 to 159 gallons per capita day), those values only differed slightly for the domestic per capita flow from the days preceding the precipitation event (127 to 143 gallons per capita day).

During the May 2013 precipitation event, the heaviest rainfall occurred on Wednesday, May 22. Influent municipal flow on this day was 1.034 MGD (135 gallons per capita). Though it can be seen that the precipitation did affect the domestic flows, there is not a significant relationship to cause a concern requiring action to address a problem.

The data presented in Table 3-11 does not show a significant correlation between higher influent flows and precipitation events. The data does show that both total influent flows and municipal influent flows were always substantially less than the 275 gallons per capita per day value cited in *I/I Analysis and Project Certification*.

Infiltration / Inflow Conclusions

The following conclusions can be made based on the examination of infiltration and inflow to the Selah wastewater collection system:

- ❖ During the five-year period 2009 through 2013, annual average per capita domestic wastewater flows have ranged from 131 gallons per capita per day to 137 gallons per capita per day.

- ❖ Infiltration is not thought to be a significant source of flow into the Selah sanitary sewer system. Selah's average monthly municipal flows for the period 2009 through 2013 only slightly exceed 120 gallons per capita per day, the value EPA considers as infiltration.
- ❖ Inflow is not thought to be a significant source of flow into the Selah sanitary sewer system. Selah's maximum month domestic flows for the period 2009 through 2013 do not exceed nor approach 275 gallons per capita per day, the value EPA considers as excessive inflow.

CHAPTER 4

FUTURE COLLECTION SYSTEM – COMPLETE DEVELOPMENT

4.1 GENERAL DESCRIPTION

Forecasting expansion of the future sewer collection system is dependent upon the type, nature, and location of future growth within the City of Selah and its UGA. Development of the future collection system is based upon the future land use goals shown in Figure 1-5 (developed for Selah by the Yakima Valley Council of Governments as part of the 1997 GMA Comprehensive Plan, updated in 2005), and the future sewer system service population. The sewer service population by the year 2037 is projected to be 11,820.

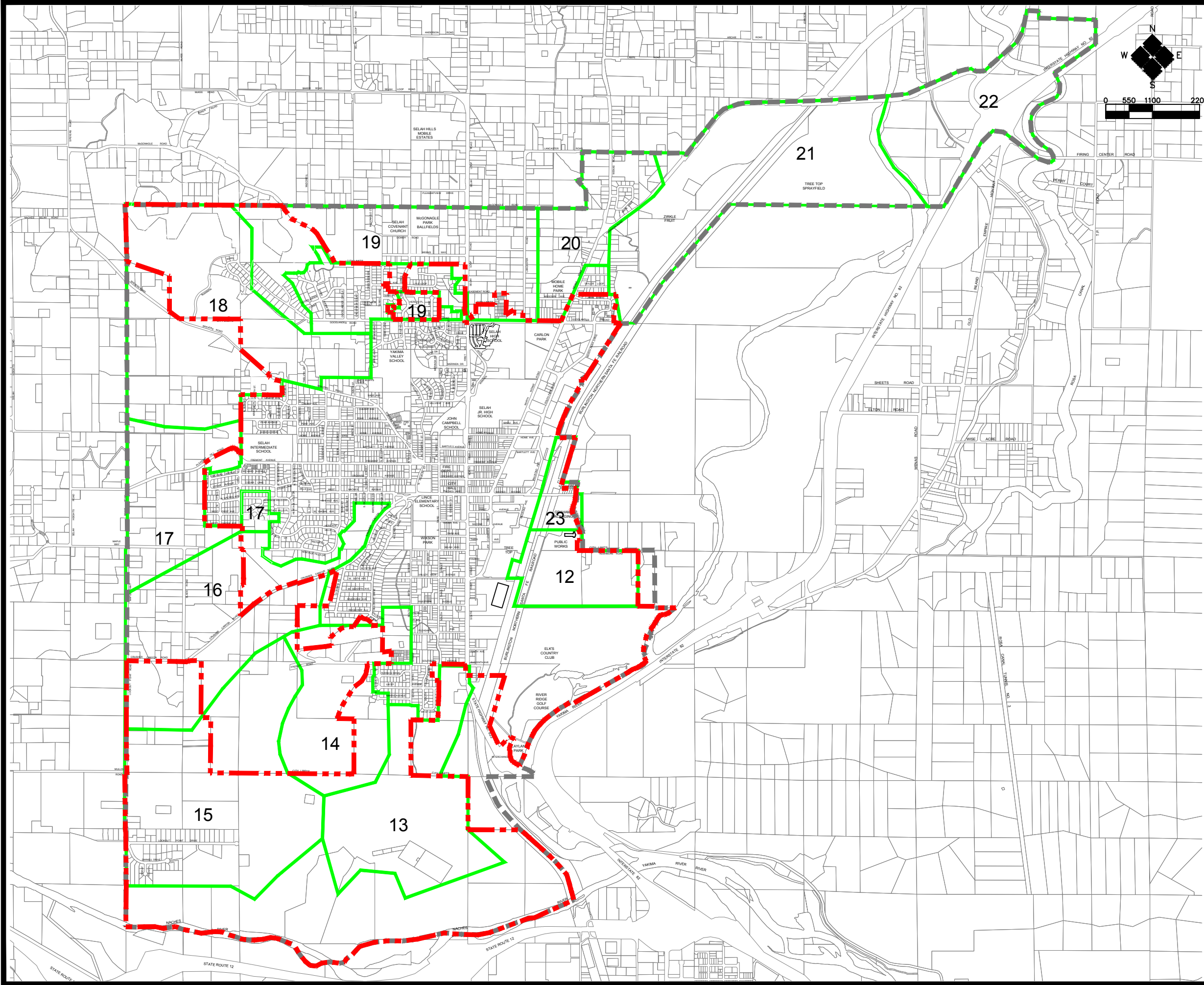
One of the goals of this General Sewer Plan is to serve as a guide for growth of the City of Selah's wastewater collection system as it expands beyond the current City Limits into the UGA. To accomplish this goal, the following tasks were undertaken and accomplished:

- ❖ The existing collection system was modeled under existing conditions for normal and peak flows (Chapter 3).
- ❖ In keeping with the basin approach developed in Chapter 3 of this Plan, future collection system basins were developed for unsewered areas within the City Limits and UGA.
- ❖ Flows for the future drainage basins were estimated using future land use and unit flow rates. For the purposes of this Plan, future land use within the City and UGA is assumed to be as presented on Figure 1-5.
- ❖ Flows from the future basins were modeled in the collection system. Additional flows from the future drainage basins were routed through the existing pipelines to examine system capacity and determine potential problem areas.
- ❖ Needed improvements to the existing system were developed to accommodate the additional flows, with a portion of the flow being carried through proposed alternate pipelines.

4.2 FUTURE COLLECTION SYSTEM BASINS

Using the collection system basin approach presented in Chapter 3, the future collection system within the UGA is divided into 12 additional collection system drainage basins, with future land use as shown on Figure 1-5. The future collection system drainage basins are shown on Figure 4-1 - Future Collection System Basin Boundaries, and discussed below. Some lands within the City Limits and UGA (such as the south side of Lookout Point) are not included within the areas of future basins because their topography makes it unlikely they will be developed. These lands appear as shaded areas on Figure 1-4. Other areas, although included within future basins, will likely not develop because of their current use (such as the Tree Top industrial wastewater sprayfield), or they lie within the flood plain. Future flows from such areas are considered to be zero. Main trunks of the future collection system within each basin are shown on Map B in the back pocket.

Basin No. 12: This basin lies in the eastern portion of the new service boundary and contains approximately 105 acres. The area is bounded on the north by Basin 23, the City Limits, and the UGA boundary; on the west by Basins 1 and 9; on the south by Basin 9; and on the east by the City Limits. Future land uses for this area are industrial and quasi-public open spaces. A significant portion of this basin is now occupied by a Tree Top truck parking area, the City's industrial wastewater pretreatment facility, open land owned by the City, and a section of the Elks Golf Course. Therefore, future flow generated within this basin is expected to be low, and is estimated to be 0.058 MGD as a result of complete development. Wastewater from this basin will flow need flow to a future lift station, and be pumped into Basin 9, and enter the South Lift Station, possibly using the existing industrial pretreatment effluent pipeline to cross the Burlington Northern Santa Fe Railroad right-of-way.







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FUTURE COLLECTION SYSTEM BASIN BOUNDARIES

LEGEND

-  EXISTING RETAIL SERVICE AREA BOUNDARY (CITY LIMITS)
-  FUTURE RETAIL SERVICE AREA BOUNDARY (UGA)
-  BASIN AREA BOUNDARY
-  FUTURE BASIN NUMBER



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Basin No. 13: This basin lies in the southern area of the new service boundary and contains approximately 217 acres. The area is bounded on the north by Basins 11 and 14, on the south by steep slopes, on the west by Basins 14 and 15, and on the east by steep slopes. Future land uses for this area are industrial and low-density residential. Average wastewater flows generated within this basin are expected to be 0.168 MGD as a result of complete development. Wastewater from this basin will flow into Basin 11 via the existing 8-inch gravity sewer line in Lacey Avenue.

Basin No. 14: This basin lies in the southwestern area of the new service boundary and contains approximately 197 acres. The area is bounded on the north by Basins 7, 10, and 16; on the south by Basins 13 and 15; on the west by Basin 15; and on the east by Basins 10, 11, and 13. Future land uses for this area is residential. Average wastewater flows generated within this basin are expected to be 0.120 MGD as a result of complete development. Wastewater from this basin will flow into Basin 11 via the existing 8-inch gravity sewer line in Southern Avenue.

Basin No. 15: This basin lies in the southwestern area of the new service boundary and contains approximately 402 acres. The area is bounded on the north by Basins 16, on the south by steep slopes, on the west by the UGA boundary, and on the east by Basins 13 and 14. Future land uses are residential and urban reserve. Average wastewater flows generated within this basin are expected to be 0.241 MGD as a result of complete development. Wastewater from this basin will flow into the future Basin 14 through an extension of the 12-inch sewer line in Crusher Canyon Road.

Basin No. 16: This basin lies in the western area of the new service boundary and contains approximately 308 acres. The area is bounded on the north by Basins 8 and 17, on the south by Basins 14 and 15, on the west by the UGA boundary, and on the east by Basin 7. Future land uses for this area is residential. Average wastewater flows generated within this basin are expected to be 0.187 MGD as a result of complete development. Wastewater from this basin will flow into Basin 7 via the existing 12-inch gravity sewer line in Crusher Canyon Road.

Basin No. 17: This basin lies in the western area of the new service boundary and contains approximately 190 acres. The area is bounded on the north by Basins 6 and 18, on the south by Basin 16, on the west by the UGA boundary, and on the east by Basin 5. Future land use will be residential. Average wastewater flows generated within this basin are expected to be 0.113 MGD as a result of complete development. Wastewater from this basin will flow into Basin 5.

Basin No. 18: This basin lies in the northwestern area of the new service boundary and contains approximately 397 acres. The area is bounded on the north and west by the UGA boundary, on the south by Basins 6 and 17, and on the east by Basins 4, 6, and 19. Future land uses for this area are residential and quasi-public open spaces. Average wastewater flows generated within this basin are expected to be 0.231 MGD as a result of complete development. Wastewater from this basin will flow into Basin 6.

Basin No. 19: This basin lies in the northern area of the new service boundary and contains approximately 300 acres. The area is bounded on the north by the UGA boundary, on the south by Basins 3, 4, and 18, on the west by Basin 18, and on the east by Basin 20. Future land uses in the basin are residential and quasi-public open spaces. Average wastewater flows generated within this basin are expected to be 0.096 MGD as a result of complete development. Approximately 10% of the wastewater generated within this basin will flow into Basin 4 via the existing 8-inch sewer in North First Street, and approximately 90% of the wastewater generated within this basin will flow into Basin 3 via the existing 12-inch sewer in Goodlander Road. Sewer stubs were installed beneath Selah Loop Road when it was improved in 2008 – one at McGonagle Road and one in the low-lying area about 1/4 mile south of McGonagle. Wastewater flow from areas west of Selah Loop Road can be routed to these stubs, with future pipelines extending southeasterly to the intersection of Goodlander Road and Lancaster Road.

Basin No. 20: This basin lies in the northern area of the new service boundary and contains approximately 130 acres. The area is bounded on the north by the UGA boundary, on the south by Basin 3, on the west by Basin 19, and on the east by Basin 21. Future land uses include residential and quasi-public open spaces. Average wastewater flows generated within this basin are expected to be 0.042 MGD as a result of complete development. Wastewater generated within this basin will flow into Basin 3 via the existing 10-inch gravity sewer in North Wenas Road.

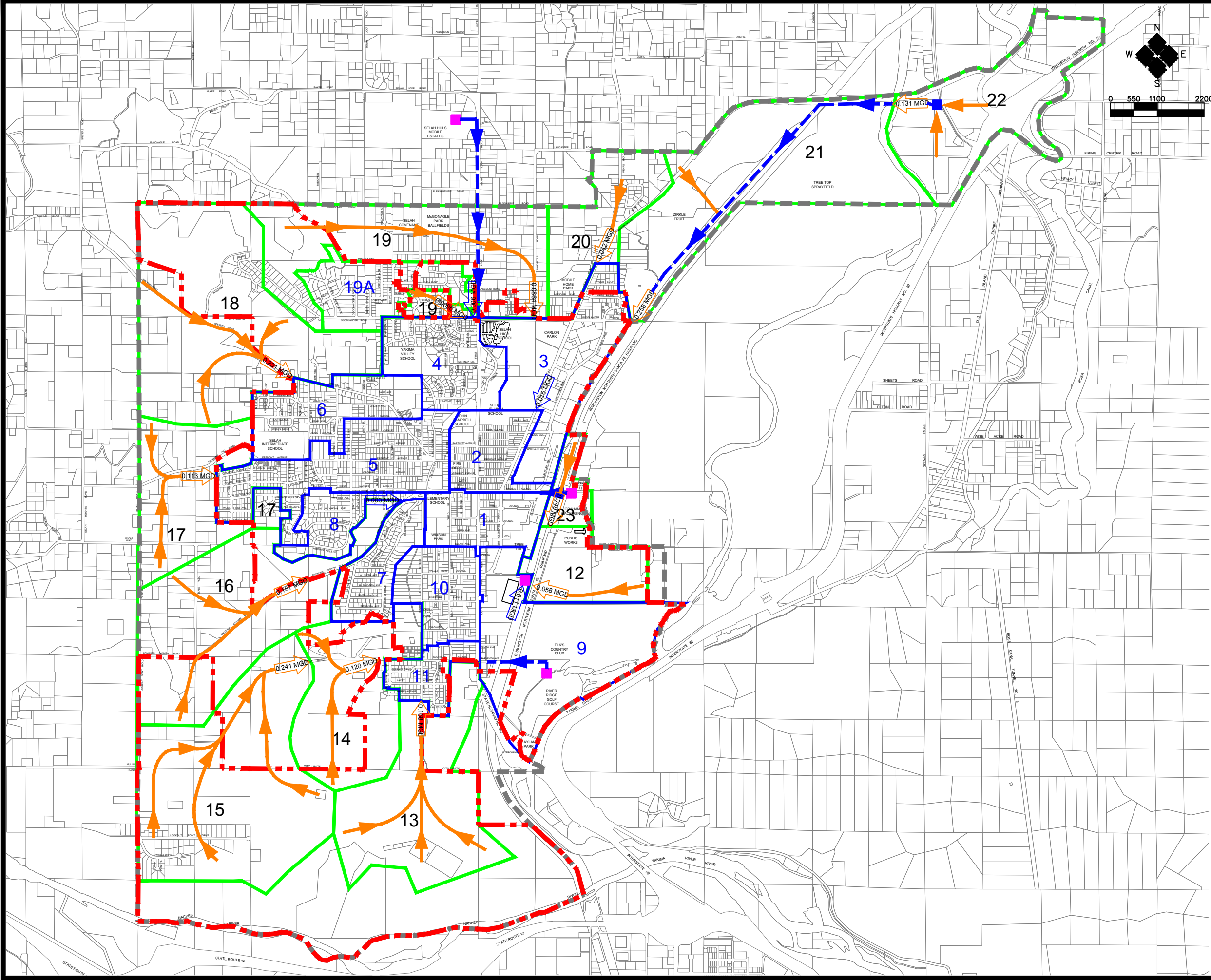
Basin No. 21: This basin lies in the northeastern area of the new service boundary and contains approximately 304 acres. The area is bounded on the north and south by the UGA boundary, on the west by Basin 20, and on the east by Basin 22. Future land uses are industrial, industrial sprayfield, and residential. Tree Top is currently using the industrial sprayfield for effluent disposal, and Zirkle Fruit Company occupies a large portion of the basin west of the Burlington Northern Santa Fe Railroad. Average wastewater flows generated within this basin are expected to be 0.127 MGD as a result of complete development, which, from the standpoint of system hydraulics, should allow for the future connection of Zirkle Fruit to the City's system. Wastewater from this basin will flow into Basin 3.

Basin No. 22: This basin lies in the northeastern area of the new service boundary and contains approximately 87.38 acres. The area is bounded on the north, south, and east by the UGA boundary, and on the west by Basin 21. This basin lies entirely east of the Yakima River, and future land use for this area is commercial in the vicinity of the I-82 Interchange. Average wastewater flows generated within this basin are expected to be 0.131 MGD as a result of complete development. Wastewater from this basin will be collected at a future lift station, which could discharge via force main into future Basin 21.

Basin No. 23: This small basin lies in the eastern area of the new service boundary, and contains approximately 33 acres. The area is bounded on the north and east by the UGA boundary, on the south by Basin 12, and on the west by Basins 1 and 3. Future land use in the basin is industrial. Among the industrial facilities is Graham Packaging, which is currently served by the East Naches Lift Station. Gravity flow piping entering the lift station was sized and set to a grade to allow for gravity flow from the basin to the lift station. Average wastewater flows generated within this basin are expected to be 0.049 MGD as a result of complete development. Wastewater from this basin will be pumped by the East Naches Lift Station to the upstream end of Basin 1 at the intersection of East Naches Avenue and Railroad Avenue.

A summary of the future basins, their areas, projected flows at complete development, and discharge locations is presented in Table 4-1. In addition to the flows generated within the UGA, future flows will also increase because of infill in the existing basins. Estimated infill flows area also shown in Table 4-1.

Figure 4-2 – Collection System Loading at Projected Ultimate Build-Out, shows the layout of the future collection system within the UGA. The actual location of the future collection system may change depending on the timing and location of actual development.



CITY OF SELAH

General Sewer Plan Update

COLLECTION SYSTEM LOADING AT PROJECTED ULTIMATE BUILD-OUT

LEGEND

- EXISTING RETAIL SERVICE AREA BOUNDARY (CITY LIMITS)
- FUTURE RETAIL SERVICE AREA BOUNDARY (UGA)
- ULTIMATE BUILD-OUT BASIN AREA BOUNDARY
- EXISTING BASIN AREA BOUNDARY
- EXISTING LIFT STATIONS
- FUTURE LIFT STATIONS
- FORCE MAINS
- TRUNK SEWERS
- 0.74 MGD AVERAGE DESIGN FLOW FROM ULTIMATE BUILD-OUT (IN MGD)
- 0.74 MGD ADDITIONAL FLOW FROM EXISTING BASIN INFILL (IN MGD)



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TABLE 4-1 FUTURE DRAINAGE BASINS			
Basin No.	Acreage	Discharge Location	Projected Flows
3*		To Basin No. 2.	0.016 MGD
8*		To Basin No. 1.	0.003 MGD
9*		To WWTP	0.011 MGD
19A*		To Basin No. 4.	0.006 MGD
Subtotal Infill			0.036 MGD
12	Low Den. Residential 3.13 Industrial 63.20 Quasi-Open Spaces 38.94	To Basin No. 9.	0.058 MGD
13	Low Den. Residential 201.6 Industrial 15.72	To Basin No. 11.	0.168 MGD
14	Low Den. Residential 174 Medium Den. Residential 5.03 High Den. Residential 17.86	To Basin No. 11.	0.120 MGD
15	Low Den. Residential 400.79 Quasi-Open Spaces 1	To Basin No. 14.	0.241 MGD
16	Low Den. Residential 290.36 High Den. Residential 17.59	To Basin No. 7.	0.187 MGD
17	Low Den. Residential 183.26 Medium Den. Residential 6.67	To Basin No. 5.	0.113 MGD
18	Low Den. Residential 329.25 Quasi-Open Spaces 67.27	To Basin No. 6.	0.231 MGD
19	Low Den. Residential 264.63 Med. Den. Residential 12.72 Quasi-Open Spaces 22.70	To Basin No. 3.	0.096 MGD
20	Low Den. Residential 109.78 Med. Den. Residential 19.80	To Basin No. 3.	0.042 MGD
21	Med. Den. Residential 15.45 Industrial 143.45 Quasi-Open Spaces 4.45 Industrial Sprayfield 140.62	Portion to New Lift Station in Basin No. 21 and Portion To Basin No. 3.	0.127 MGD
22	Commercial 87.38	Future Lift station To Basin No. 21.	0.131 MGD
23	Industrial 32.97	To Basin No. 12.	0.049 MGD
Subtotal Basins 12-23	2,669.62	--	1.60 MGD
Subtotal Exist. Basins 1-11, 19A	1,422.27	--	1.10 MGD
Total	4,091.89	--	2.70 MGD

4.3 FUTURE SEWER SYSTEM HYDRAULIC ANALYSIS

A hydraulic analysis of the existing Selah collection system was performed to find what problems would be created by projected wastewater flows resulting from the full development of property within the City and the UGA. The future sewer system hydraulic analysis proceeded in two steps. The first step examined system performance at projected wastewater flows resulting from complete development within the City and the UGA. The second step examined the system at projected year 2028 wastewater flows (Chapter 5). As a result, improvements needed to meet year 2037 demands could be adequately sized to meet longer-term demands, and other routing strategies needed to meet completed development demands could be followed.

Like the analysis presented in Chapter 3, analysis of the future system involves inputting information about pipe slopes, making assumptions about pipe friction losses, assigning wastewater flows to the existing 12 collection system basins, and assigning wastewater flows to the future 12 collection system basins. The hydraulic capacity of the existing and proposed future collection system is based on the location and size of the future collection system as shown on Figure 4-2. As presented in Chapter 3, the process involves:

- ❖ Assigning wastewater flows from each existing and future basin based upon future land use and land use unit flow rates within the basin. The same unit flows used in the analysis of the existing collection system is used in the analysis of the future collection system. In many cases, flows from future basins are directed to enter and flow through existing basins (as described earlier in this chapter and summarized in Table 4-1) and into the existing collection systems within those basins;
- ❖ Inputting future industrial wastewater flows (20-year) for existing industries at their known discharge locations assuming an annual growth rate similar to the City's (2% per year);
- ❖ Assuming a roughness coefficient (Mannings "n") of 0.013 for all pipelines in the analysis;
- ❖ Assuming lift station discharges would continue as peak flows through the basin without the effects of dampening within the gravity flow line;
- ❖ Using the same equation used to analyze the existing collection system at peak flows.

$$Q_{\text{Peak}} = K (Q_{\text{Average}})^{0.9}$$

where Q represents flow in MGD, and K represent the peaking factor.

The same peaking factor value for K of 3.0 used to analyze the existing collection system is used to evaluate peak flows in the future.

Calibration of the model, used in the hydraulic analysis of the existing system, was not completed in this case, because the population at complete development of the service area is unknown. Therefore, it was assumed the unit flows (flows per acre) would be suitable to predict full development conditions.

Map B in the back pocket of this report shows the layout of City of Selah's future sewer collection system within the UGA. The actual location of the future collection system may change depending on the timing and location of actual development

Unit Flow Rates – Existing System

The hydraulic analysis is based on unit flow rates from different land uses within the existing and future collection system basins. The unit flow rates, identical to the ones used in the hydraulic analysis of the existing system in Chapter 3, are assigned to the various existing basins based upon the land use designations. Those existing unit flow rates are:

Residential Low.....	0.00050 MGD/Acre
Residential Medium	0.00065 MGD/Acre
Residential High.....	0.00075 MGD/Acre
Commercial.....	0.0015 MGD/Acre
Industrial	0.0030 MGD/Acre
Schools	0.0005 MGD/Acre
Public	0.0005 MGD/Acre

Unit Flow Rates – Urban Growth Area

A review of land uses and lot sizes in the UGA revealed that unit flow rates in the UGA would be different than within the existing system boundaries. Therefore, new unit flow rates were calculated for UGA residential development.

Wastewater flow rates from the residential areas are based upon Washington Department of Ecology's "Criteria for Sewage Works Design," which recommends an average unit flow rate of 100 gallons/person/day. Density of development and type of housing (single family, multi-family) in residential areas was divided into three categories - low, medium, and high. Future low-density residential areas were further subdivided because of differences noted between several UGA drainage basins. Flow rates in low-density residential areas within Basins 13 through 18 were calculated assuming 2.0 dwellings per acre, and flow rates in low-density residential areas within Basins 12, 19, and 20 were calculated assuming 1.0 dwelling per acre. Flow rates in medium-density residential areas were calculated assuming 1.5 dwellings per acre. Flow rates in high-density residential areas were calculated assuming 2.5 dwellings per acre. The resulting flow rates (in million gallons per day per acre) used in the hydraulic analysis, assuming an average occupancy of 3 persons per dwelling, from the three densities of residential development are as follows:

Residential Low – Basins 13 through 18.....	0.00060 MGD/Acre
Residential Low – Basins 12, 19 and 20.....	0.00030 MGD/Acre
Residential Medium	0.00045 MGD/Acre
Residential High.....	0.00075 MGD/Acre

Unit flow rates for other land uses in the UGA were held at their existing values as follows:

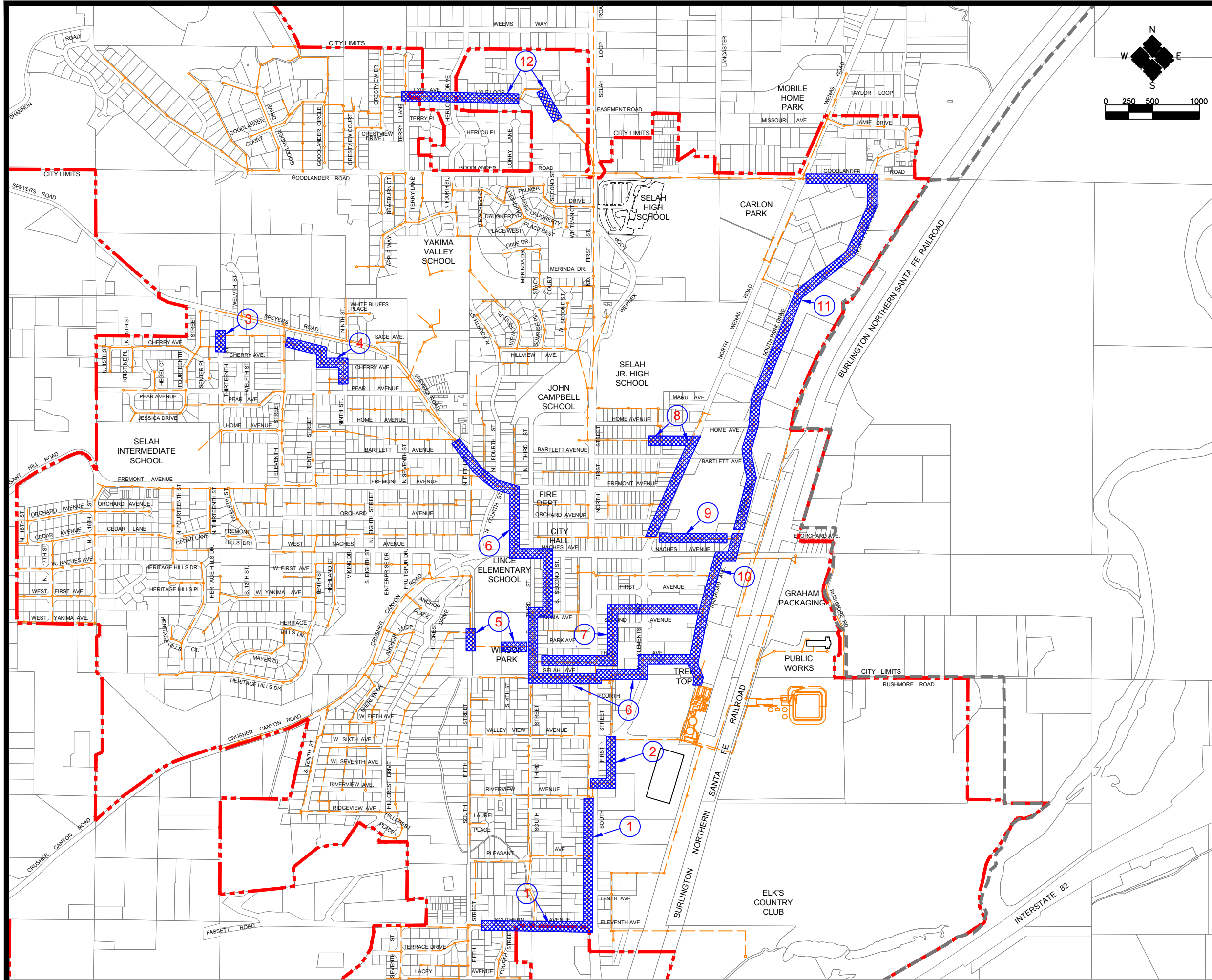
Commercial.....	0.0015 MGD/Acre
Industrial	0.0030 MGD/Acre
Schools	0.0005 MGD/Acre
Public	0.0005 MGD/Acre

Collection System Hydraulic Analysis Results

The hydraulic analysis examined the existing and proposed future sewer network at normal and peak flows generated by the complete development within both the City and the UGA. Flows from the future collection basins were modeled and routed through the existing collection system to examine system capacity and determine potential problem areas. Results of this hydraulic analysis identified nine potential problems within the existing collection system (see Map A - Hydraulic Analysis Pipe and Node Map). Those nine areas requiring corrective action are shown and labeled on Figure 4-3 - Collection System Deficiencies at Projected Ultimate Build-Out are described as follows:

1. 2,577 LF of 8-inch sewer on Southern Avenue beginning at the manhole west of South Fifth Street to South First Street, then north on South First Street to Riverview Avenue. Under expected future peak flow conditions, the model predicts surcharging throughout this entire reach.

2. 732 LF of 12-inch sewer beginning at a manhole north of Riverview Avenue and South First Street, traveling north and then east through an alley, and then north to Fifth Avenue. Under expected future peak flow conditions, the model predicts the upstream manhole could be surcharged by approximately 1 foot.
3. 138 LF of 8-inch sewer on Thirteenth Street between Speyers Road and Cherry Avenue. Under expected future peak flow conditions, the model predicts the upstream manhole could be surcharged by approximately 1 foot.



CITY OF SELAH

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EXISTING COLLECTION SYSTEM DEFICIENCIES AT PROJECTED ULTIMATE BUILD-OUT

LEGEND

- EXISTING RETAIL SERVICE AREA BOUNDARY (CITY LIMITS)
- FUTURE RETAIL SERVICE AREA BOUNDARY (UGA)
- 1 AREA NUMBER CORRESPONDING TO TEXT DISCUSSION
- UNDER CAPACITY
- EXISTING SEWER LINE

NOTE:
SEE FIGURE 3-2 FOR ADDITIONAL
OPERATION AND MAINTENANCE
RELATED SYSTEM DEFICIENCIES.



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4. 920 LF of 8-inch sewer beginning at an alley north of Cherry Avenue in Eleventh Street traveling east before turning south to Cherry Avenue, then east to Ninth Street and finally south to a manhole between Cherry Avenue and Pear Avenue. Under expected future peak flow conditions, the model predicts minor surcharging would occur in the upstream manhole.
5. 515 LF of 8-inch sewer west of Wixson Park southwest of Lince Elementary School and through Wixson Park to South Third Street. Under expected future peak flow conditions, the model predicts minor surcharging would occur in this segment of the sewer main.
6. 1,987 LF of 8-inch sewer in Speyers Road, south of Home Avenue to the alley west of South Third Street south to Naches Avenue, east to the alley west of South Second Street, and south to Yakima Avenue; 537 LF of 10-inch sewer in Yakima Avenue and South Third Street; and 2,216 LF of 12-inch sewer in South Third Street and in Selah Avenue to Railroad Avenue. Under expected future peak flow conditions, the model predicts surcharging could occur throughout this entire reach.
7. 2,400 LF of 8-inch sewer starting in South Third and Park Avenue heading south to the alley north of Selah Avenue where it turns east traveling to an alley east of South First Street, turning north to the alley north of Second Avenue, where it turns east and travels to Railroad Avenue. Under expected future peak flow conditions, the model predicts surcharging could occur throughout this entire reach.
8. 1,700 LF of 8-inch sewer beginning in the alley between Home Avenue and Bartlett heading east to North Wenas Road, then turning south in North Wenas Road to the alley between Orchard Avenue and Naches Avenue. Under expected future peak flow conditions, the model predicts minor surcharging could occur throughout this reach. Due to minimal surcharge, this deficiency will not be recommended for improvement but will be monitored closely as future development occurs.
9. 1,100 LF of 8-inch between North Wenas Road and Railroad Avenue. Under expected future peak flow conditions, the model predicts minor surcharging could occur throughout this reach.
10. 1,700 LF of 12-inch sewer in Railroad Avenue beginning at Naches Avenue and ending at the Wastewater Treatment Plant. Under expected future peak flow conditions, the model predicts surcharging could occur throughout this entire reach.
11. 5,000 LF of 12-inch sewer beginning at North Wenas Road and Goodlander Road heading east until it turns south on North Park Drive which becomes South Park Drive and ends at Naches Avenue. Under expected future peak flow conditions, the model predicts surcharging could occur throughout this entire reach. Due to minimal surcharge, this deficiency will not be recommended for improvement but will be monitored closely as future development occurs.
12. 566 LF of 8-inch sewer in Lyle Loop east of Terry Lane, and 136 LF of 8-inch sewer in an easement between Lyle Loop and Selah Loop Road. Under expected future peak flow conditions, the model predicts minor surcharging could result in these areas. This deficiency will not be recommended for improvement but should be monitored as future development occurs.

Alternate Routing Schemes

Alternate routing schemes were developed to determine the benefits to the existing system by routing flows to the wastewater treatment plant via different pipelines. The Alternate routing schemes are described as follows:

1. Re-route the flow from Southern Avenue across South First Street to Eleventh Avenue through 250 LF of new 15-inch sewer line, traveling north through an alley north of Tenth Avenue and east to the Burlington Northern Santa Fe Railroad right-of-way, then north towards the wastewater treatment plant. This will re-route flows from the southern portion of the City along the shortest route to the wastewater treatment plant, and will alleviate sewer line deficiencies in

South First Street. With this re-route, other deficiencies develop. As a result, it will be necessary to replace a total of 1,796 LF of 10-inch sewer. 364 LF of existing 10-inch sewer, beginning at the manhole north and east of Tenth Avenue, should be replaced with a 15-inch sewer line; 393 LF of existing 10-inch sewer from the intersection of Tenth Avenue and the BNSF right-of-way northward to the next manhole should be replaced with a 15-inch sewer line; in addition, 1,039 LF of existing 10-inch sewer on BNSF right-of-way northward towards the wastewater treatment plant should be replaced with a 15-inch sewer line.

2. Re-route flow from Basins 21 and Basin 22 through a new sewer line within the Burlington Northern Santa Fe right-of-way that will parallel the sewer line on Railroad Avenue and discharge to a manhole in Naches Avenue east of Railroad Avenue. Pipe size proposed for the re-route will depend upon the rate and type of future growth. Due to the alternate re-route, sewer line deficiencies noted in the existing collection system will be reduced. Approximately 1,930 LF of 12-inch sewer line from North Park Drive to a manhole south of Bartlett Avenue will no longer be considered deficient. Pipe sizes from Bartlett Avenue south to Naches Avenue have been reduced in most cases by one pipe size as a result of the re-route. However, deficiencies from Naches Avenue south to the wastewater treatment plant remain the same.
3. Currently, all of the basins west of the downtown core, south of Speyers Road, and west of Hillcrest Drive (basins 5, 6, 7, and 8) are combined into older sewer mains which are primarily 8-inch that were installed as early as 1936. The flows are collected into one of three parallel paths to cross through town before they reach the wastewater treatment facility. Future basins 14, 15, 16, 17, and 18 are all planned to be connected into these existing basins which will place increasing demands on the downtown core sewer mains. The model shows the majority of the downtown core network of sewer mains along these three paths to be surcharged under the future conditions. An alternative to address nearly all of the downtown core over capacity areas is to install a new 15-inch sewer main in Naches Avenue from Third Avenue to Railroad Avenue. The design of this Naches Avenue interceptor would include an extension of the main in North Wenas Road from the existing manhole just north of Naches Avenue to tie into the new interceptor. The line would be sized to be able to connect to the existing 12-inch sewer near Crusher Canyon and South Fifth to relieve the surcharging potential throughout the downtown core.
4. Install a new 12-inch sewer main from the center of Wixson Park south to Selah Avenue where it will turn east and tie into the existing 12-inch sewer main in the intersection of South Third Street and Selah Avenue.

It is recommended that the alternate routing schemes mentioned above be considered and/or implemented to reduce the effects on the existing system.

4.4 LIFT STATION ANALYSIS

Another element of the hydraulic analysis was the review of the lift station capacities and their ability to meet system demands. The capacity of the existing lift stations and their ability to meet existing system demands was discussed in Chapter 3. Even with the complete development of the UGA, it is desirable to continue to use the existing stations to the extent possible. It will also be necessary to construct at least one new lift station to serve the northeast section of the future collection system (Basin 22).

The lift station hydraulic analysis was similar to the analysis of the collection system, using the same unit area flow rates and peaking factor equations. Projected flows for the complete development and build-out condition are compared in Table 4-2 with the existing lift station capacities.

TABLE 4-2 COMPLETE DEVELOPMENT SEWAGE LIFT STATION PEAK FLOWS			
Station No.	Current Station Capacity ¹	Peak Design Flow	
		Existing	Ultimate Build-Out
South Lift Station	1,150 gpm	585 gpm	1,915 gpm
Elks Lift Station	200 gpm	83 gpm	257 gpm
East Naches Avenue Lift Station	320 gpm	135 gpm	364 gpm
Future Lift Station ²	None	None	358 gpm
<ol style="list-style-type: none"> Capacity with largest pump out of service. A future pump station is proposed to serve the most northeasterly portion of the Urban Growth Area. Need for the pump station and design flows, would depend on rate of growth and the extension of sewer service. 			

All three existing lift stations indicate insufficient capacity to pump the projected peak design flows for the complete development of the UGA. Therefore, at some point in the future, capacity will need to be increased either by providing higher capacity pumps at each location or with an addition of another lift station adjacent to the existing. Timing of those improvements will depend on the rate of growth and the sequence of development in the community. Projections for sewer system growth for the next 20 years and resulting lift station expansion will be discussed in the following chapter.

The existing South Lift Station has limited room for expansion, and the existing force main has limited additional capacity. Therefore, it is recommended a new wet well/dry well lift station be constructed adjacent to the existing lift station, with a new force main to the existing gravity sewer. The wet wells could be connected together to provide for common control of the pumps and provide additional redundancy. The new wet well could be constructed during the installation of the first collection system improvements, where the new 12-inch sewer line would tie into the new wet well, and a connecting pipe would tie to the existing wet well.

Force Mains Hydraulic Analysis Results

The ability of the existing force mains to meet existing system demands was discussed in Chapter 3. It is desirable to continue to use the existing force mains as long as possible. The force main hydraulic analysis was similar to the analysis of lift stations, using the projected peak flow rates from the model and from actual known pumping rates. Projected force main velocities for the complete development condition are compared in Table 4-3 with the desired force main velocities.

TABLE 4-3 COMPLETE DEVELOPMENT FORCE MAIN VELOCITIES				
Lift Station	Complete Development Pumping Rate ¹	Force Main Diameter (in inches)	Desired Velocity	Complete Development Velocity ¹
South Lift Station	1,915 gpm	6 inch	2 to 8 feet/second	21.74 ft/sec
Elks Lift Station	257 gpm	6 inch	2 to 8 feet/second	2.91 ft/sec ²
East Naches Avenue Lift Station	364 gpm	6 inch	2 to 8 feet/second	4.13 ft/sec ²
<ol style="list-style-type: none"> Pumping rate and velocity with largest pump in operation. Identical to existing velocity as the existing lift station has adequate capacity. 				

The velocity within the South Lift Station force main will exceed the maximum desired velocity of 8 feet per second at ultimate build-out. This force main will need to be expanded in the future. Timing of force main improvements will depend on the rate of growth and the sequence of development in the community, and

should be completed in conjunction with improvements to the South Lift Station. Projections for sewer system growth for the next 20 years and need for lift station upgrades and force main replacement will be discussed in the following chapter.

CHAPTER 5 YEAR 2037 COLLECTION SYSTEM

5.1 GENERAL DESCRIPTION

Chapter 3 of this Plan discussed, analyzed, and evaluated Selah's existing sewer collection system based upon current wastewater flows. Chapter 4 of this Plan discussed, analyzed, and evaluated the collection system necessary to accommodate the full development with the City and the UGA. This chapter will analyze and evaluate Selah's collection system necessary to accommodate projected future growth for the next 20 years (through the year 2037). The following approach was used to evaluate related to growth through the year 2037:

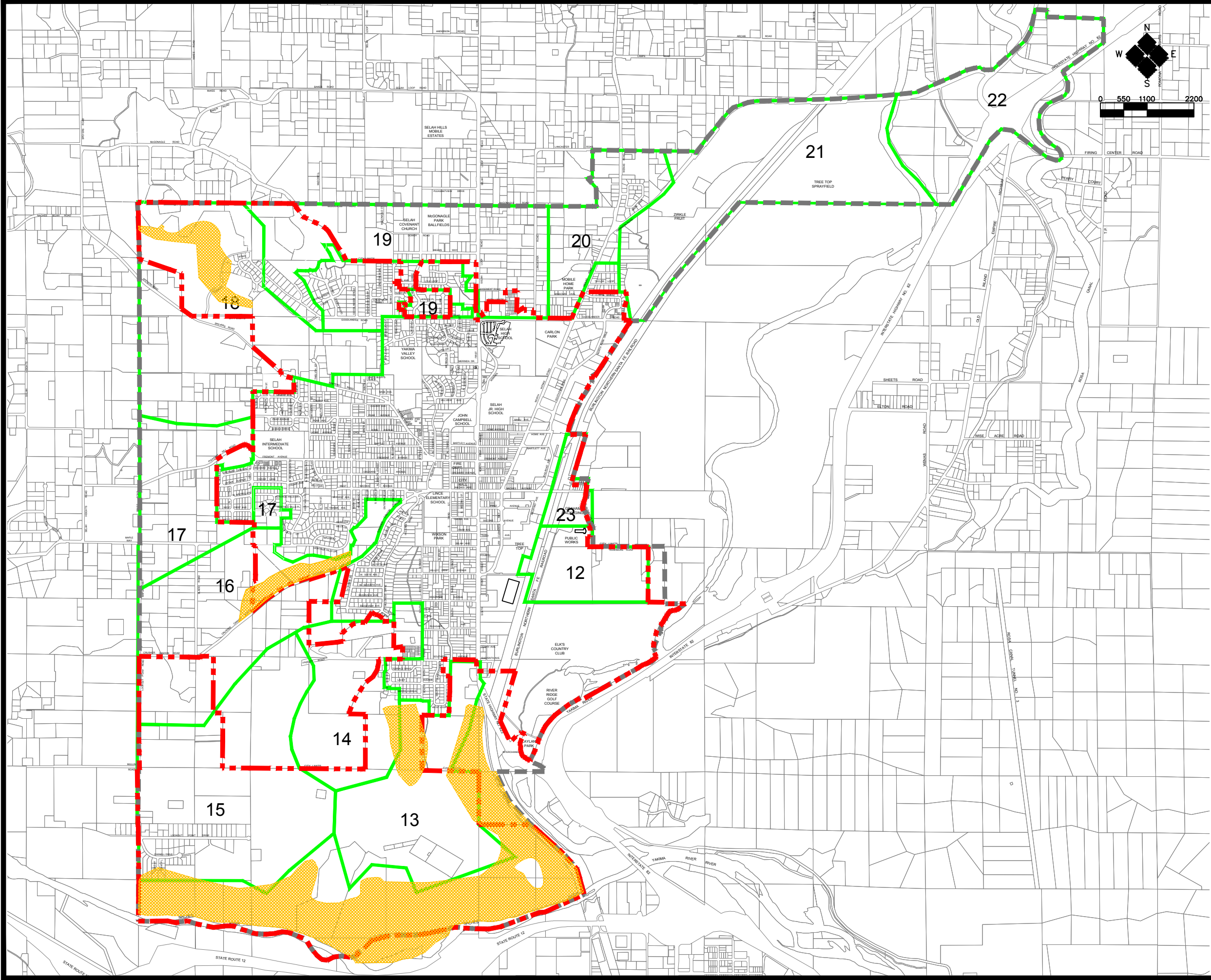
- ❖ Future collection system basins developed in Chapter 4 for un-sewered areas within the Selah City Limits and the UGA were again used.
- ❖ Future flows were developed, based upon future land use and unit flow rates. For the purposes of this Plan, future land use within the City and UGA is assumed to be as presented on Figure 1-6.
- ❖ Rather than assuming complete development within the City and the UGA, year 2037 flows are based on serving the population of 11,820 as presented in Chapter 1 of this Plan. Assumptions are made as to where the future population will locate within the City and the UGA.
- ❖ Flows from the future basins were modeled and routed through the existing pipelines to examine system capacity and determine potential problem areas.
- ❖ Needed improvements to the existing system were developed to accommodate the additional flows, with a portion of the flow being carried through proposed alternate pipelines.

Map C in the back pocket of this report shows the layout of the future collection system within the year 2037 service area. The actual location of the future collection system may change depending on the timing and location of actual development.

5.2 YEAR 2037 COLLECTION SYSTEM BASINS

The 12 future collection system basins presented in Chapter 4 are used to develop the year 2037 sewer service area. The future collection system drainage basins are shown on Figure 5-1 – Year 2037 Collection System Basin Boundaries. The year 2037 sewer service area differs from the sewer service area at full development by excluding Basin Nos. 21 and 22. Some lands within the City Limits and UGA (such as the south side of Lookout Point) are not included within the areas of future basins because their topography makes it unlikely they will be developed. These lands appear as shaded areas on Figure 5-1. Other areas, although included within future basins, will likely not develop because of their current use (such as the Tree Top industrial wastewater sprayfield), or they lie within the flood plain. Future flows from such areas are considered to be zero for the year 2037 analysis.

Flows from the future collection system basins are based on a percentage of the full development, as well as flow related to in-fill in the existing basins 3, 8, 9, and 19A. The percentage of the developed area was estimated based on development patterns. The result is a municipal average annual flow estimate of 1.52 MGD at the WWTP. The year 2037 projected municipal flow of 1.617 MGD listed in Table 2-12 based on population projection is only 6% higher than the model projection. Therefore, the model projections were not adjusted. A summary of the year 2037 basins, their areas, percent development served, and discharge locations are presented in Table 5-1. If future added flow occurs as a result of in-fill rather than as new development, the hydraulic model should still be representative of future conditions, because future basin flows are added to the system at the upstream end of the existing basins.







CITY OF SELAH

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YEAR 2037 COLLECTION SYSTEM BASIN BOUNDARIES

LEGEND

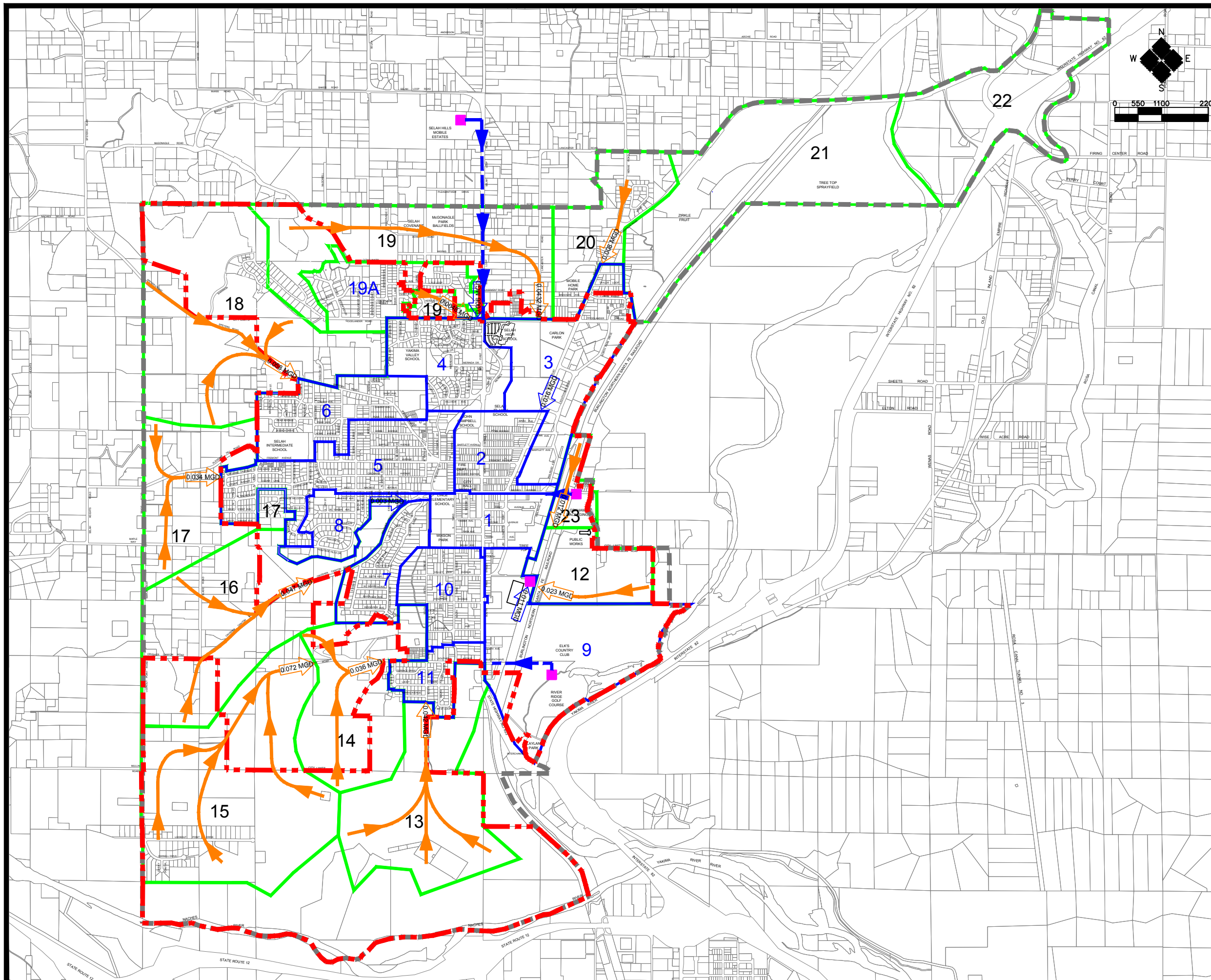
-  EXISTING RETAIL SERVICE AREA
BOUNDARY (CITY LIMITS)
-  FUTURE RETAIL SERVICE AREA
BOUNDARY (UGA)
-  BASIN AREA BOUNDARY
-  12 FUTURE BASIN NUMBER
UNSEWERED AREAS OF EXISTING
COLLECTION SYSTEM DUE TO
STEEP SLOPES



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TABLE 5-1 FUTURE DRAINAGE BASINS				
Basin No.	Acreage	Discharge Location	% Area Served	Projected Flows – Year 2037 (MGD)
3*		To Basin No. 2.	10	0.016
8*		To Basin No. 1.	10	0.003
9*		To WWTP	10	0.011
19A*		To Basin No. 4.	10	0.006
12	Residential 3.13 Industrial 63.20 Quasi-Open Spaces 38.94	To Basin No. 9.	40	0.023
13	Residential 260	To Basin No. 11.	25	0.042
14	Residential 207	To Basin No. 11.	30	0.036
15	Residential 409.5	To Basin No. 14.	30	0.072
16	Residential 327	To Basin No. 7.	25	0.047
17	Residential 190	To Basin No. 5.	30	0.034
18	Residential 432.89 Quasi-Open Spaces 63.07	To Basin No. 6.	25	0.058
19	Residential 303.84 Quasi-Open Spaces 23.57	To Basin No. 3.	50	0.048
20	Residential 143.51 Quasi-Open Spaces 2.79	To Basin No. 3.	20	0.008
23	Industrial 32.97	To Basin No. 12.	25	0.012
Subtotal Basins 12-23	2,501.41	--		0.42
Subtotal Basins 1-11, 19A	1,422.27	--		1.10
Total	3,923.68	--		1.52
* Development of additional unoccupied areas within existing basin. Percent of area served represents the percent increase in flow from that existing basin.				

Figure 5-2 – Collection System Loading at Projected Year 2037, shows the layout of the future collection system within the UGA. The actual location of the future collection system may change depending on the timing and location of actual development.












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COLLECTION SYSTEM LOADING AT PROJECTED YEAR 2037

LEGEND

- | | |
|---|---|
|  | EXISTING RETAIL SERVICE AREA
BOUNDARY (CITY LIMITS) |
|  | FUTURE RETAIL SERVICE AREA
BOUNDARY (UGA) |
|  | YEAR 2028 BASIN AREA BOUNDARY |
|  | EXISTING BASIN AREA BOUNDARY |
|  | EXISTING LIFT STATIONS |
|  | FORCE MAINS |
|  | TRUNK SEWERS |
|  | AVERAGE DESIGN FLOW FOR
YEAR 2037 (IN MGD) |
|  | ADDITIONAL FLOW FROM
EXISTING BASIN INFILL
(IN MGD) |



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5.3 FUTURE SEWER SYSTEM HYDRAULIC ANALYSIS

A hydraulic analysis of the existing Selah collection system was performed to find what problems would be created by projected wastewater flows resulting from the year 2037 development of property within the City and the UGA. Like the analysis presented in Chapter 3, analysis of the future system involves inputting information regarding pipe slopes, making assumptions about pipe friction losses, assigning wastewater flows to the existing 12 collection system basins, and assigning wastewater flows to the future 12 collection system basins. The hydraulic capacity of the existing and proposed future collection system is based on the location and size of the future collection system as shown on Figure 5-2. As presented in Chapter 3, the process involves:

- ❖ Assigning wastewater flows from each existing and future basin based upon future land use and land use unit flow rates within the basin. The same unit flows used in the analysis of the existing collection system are used in the analysis of the future collection system. In many cases, flows from future basins are directed to enter and flow through existing basins (as described earlier in this chapter and summarized in Table 5-1) and into the existing collection systems within those basins;
- ❖ Inputting future industrial wastewater flows (20-year) for existing industries at their known discharge locations assuming an annual growth rate similar to the City's (1% per year);
- ❖ Assuming a roughness coefficient (Mannings "n") of 0.013 for all pipelines in the analysis;
- ❖ Assuming lift station discharges would continue as peak flows through the basin without the effects of dampening within the gravity flow line;
- ❖ Using the same equation used to analyze the existing collection system at peak flows.

$$Q_{\text{Peak}} = K (Q_{\text{Average}})^{0.9}$$

where Q represents flow in MGD, and K represent the peaking factor.

The same peaking factor value for K of 3.0 used to analyze the existing collection system is used to evaluate peak flows in the future.

Calibration of the model, used in the existing system (Chapter 3) hydraulic analysis by comparing projected year 2037 flows with those predicted by the model, was completed. The total year 2037 flow of 1.52 MGD was computed by the modeling program, which compares well to the 1.433 MGD projected flow for year 2037 found in Chapter 2 of this report.

In Chapter 4, a hydraulic analysis of Selah's existing collection system using projected flows for ultimate build-out was analyzed. The purpose of analyzing the collection system at full build-out is to provide some foresight when estimating pipe size requirements to alleviate potential future problems with the collection system at Year 2037. Current pipe manufacturing technologies, primarily PVC and HDPE products, allow for pipelines to be installed in the ground and remain functional for several decades without the need for replacement (provided the pipe has sufficient capacity for the collection system needs). As such, collection system pipe requiring replacement due to capacity issues in year 2037 will be compared to the ultimate build-out to determine the pipe size upgrade required to accommodate the flows at ultimate build-out.

Unit Flow Rates

The hydraulic analysis is based on unit flow rates from different land uses within the existing and future collection system basins. The unit flow rates, identical to the ones used in the hydraulic analysis of the existing system in Chapter 3 are assigned to the various basins based upon those future land use designations. Those unit flow rates are:

Residential Low.....	0.00050 MGD/Acre
Residential Medium	0.00065 MGD/Acre
Residential High.....	0.00075 MGD/Acre
Commercial.....	0.0015 MGD/Acre
Industrial	0.0030 MGD/Acre
Schools	0.0005 MGD/Acre
Public	0.0005 MGD/Acre

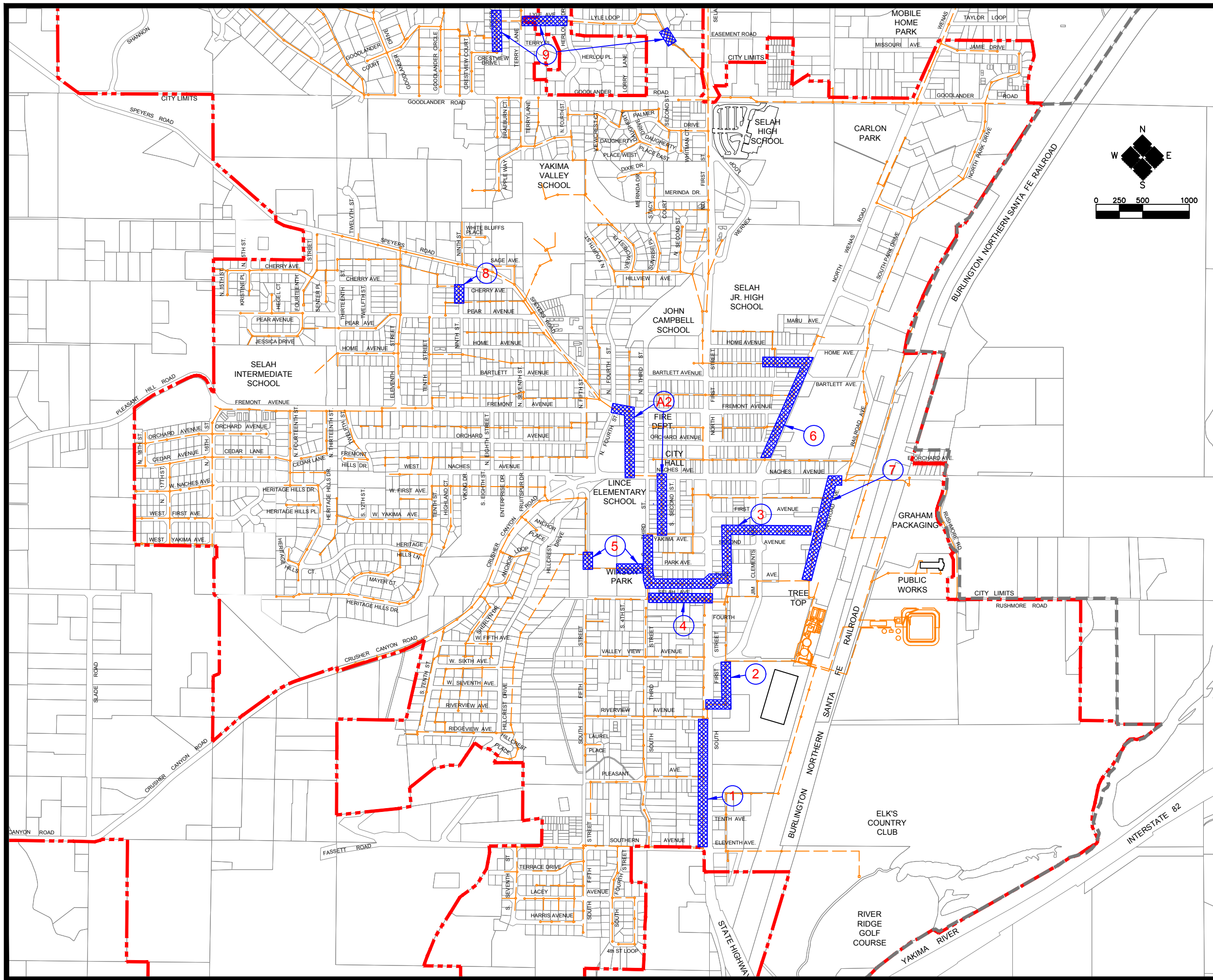
As discussed above in section 5.2, the new basin areas served within the UGA by 2037 are based on a percentage of the complete development described in Chapter 4. Unit flows used to estimate future flows from the UGA basins were also described in Chapter 4.

Collection System Hydraulic Analysis Results

The hydraulic analysis examined the existing and proposed year 2037 sewer network at normal and peak flows generated by the projected year 2037 development within both the City and the UGA. Flows from the year 2037 collection basins were modeled and routed through the existing collection system to examine system capacity and determine potential problem areas. Results of year 2037 hydraulic analysis identified 8 potential problems within the existing collection system. The areas requiring corrective action are shown and labeled on Figure 5-3 – Existing Collection System Deficiencies At Projected Year 2037, and is described as follows:

1. 1,400 LF of 8-inch sewer beginning at the intersection of Southern Avenue and South First Street north to Riverview Avenue. Under expected year 2037 peak flow conditions, the model predicts surcharging throughout this entire reach.
2. 639 LF of 12-inch sewer north of the intersection of Riverview Avenue and South First Street traveling east through an alley and then north through another alley to Jim Clements Way. Under expected year 2037 peak flow conditions, the model predicts surcharging throughout this entire reach.
3. 2,508 LF of 8-inch sewer beginning at Park Avenue and South Third Street heading south, then turns east in the alley north of Selah Avenue crossing South First Street to Third Avenue, then north to the alley between First Street and Second Street, where it turns east and runs to Railroad Avenue. The model identifies several sections of sewer in this area currently have minor surcharging. Under expected year 2037 peak flow conditions, the model predicts surcharging will increase and occur in additional sections of the system in this area. There are also several sections of gravity sewer currently identified as a high maintenance area.
4. 396 LF of 12-inch sewer on Selah Avenue west of South First Street and the segment of sewer at the intersection of Selah Avenue and South First Street. Under expected year 2037 peak flow conditions, the model predicts minor surcharging would occur in the segments.
5. 185 LF of 8-inch sewer west of Wixson Park southwest of Lince Elementary School. Under expected future peak flow conditions, the model predicts minor surcharging would occur in the upstream manhole.
6. 1,700 LF of 8-inch sewer beginning in the alley between Home Avenue and Bartlett Avenue, then east to North Wenas Road and back south to the alley between Orchard Avenue and Naches Avenue. Under expected year 2037 peak flow conditions, the model predicts minor surcharging throughout this entire reach. Due to minimal surcharge, this deficiency will not be recommended for improvement but will be monitored closely as future development occurs.
7. 1,269 LF of 12-inch sewer starting at Naches Avenue and Railroad Avenue, south to the junction east of Third Avenue. Under expected year 2037 peak flow conditions, the model predicts surcharging could occur throughout this entire reach.

8. 90 LF of 8-inch sewer beginning at an alley north of Cherry Avenue in Ninth Street between Cherry Avenue and Pear Avenue. Under expected future peak flow conditions, the model predicts minor surcharging would occur in the upstream manhole. Due to minimal surcharge, this deficiency will not be recommended for improvement but will be monitored closely as future development occurs.



CITY OF SELAH

General Sewer Plan Update

EXISTING COLLECTION SYSTEM DEFICIENCIES AT PROJECTED YEAR 2037

LEGEND

- EXISTING RETAIL SERVICE AREA
BOUNDARY (CITY LIMITS)
- FUTURE RETAIL SERVICE AREA
BOUNDARY (UGA)
- AREA NUMBER CORRESPONDING
TO TEXT DISCUSSION
- UNDER CAPACITY
- EXISTING SEWER LINE
- NEW SEWER LINE

NOTE:
SEE FIGURE 3-2 FOR ADDITIONAL
OPERATION AND MAINTENANCE
RELATED SYSTEM DEFICIENCIES.



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9. 600 LF of 8-inch sewer in Crestview Drive north of Goodlander Road, and in Lyle Avenue from the first manhole east of Terry Lane to the first manhole east of Herlou Drive. Under expected future peak flow conditions, the model predicts minor surcharging would occur in the upstream manhole. Due to minimal surcharge, this deficiency will not be recommended for improvement but will be monitored closely as future development occurs.

Alternate Routing Scheme

As presented in Section 4.3, alternate routing schemes were developed to determine benefits to the existing system by routing flows to the wastewater treatment plant via different pipelines. The Alternate routing scheme to address the 2037 needs are described as follows:

1. Re-route the flow from Southern Avenue across South First Street to Eleventh Avenue through 250 LF of new 15-inch sewer line, traveling north through an alley north of Tenth Avenue and east to the Burlington Northern Santa Fe Railroad right-of-way, then north towards the wastewater treatment plant. This will re-route flows from the southern portion of the City along the shortest route to the wastewater treatment plant, and will alleviate sewer line deficiencies in South First Street. With this re-route, other deficiencies develop. As a result, it will be necessary to replace a total of 1,796 LF of 10-inch sewer. 364 LF of existing 10-inch sewer beginning at the manhole north and east of Tenth Avenue should be replaced with a 15-inch sewer line; 393 LF of existing 10-inch sewer from the intersection of Tenth Avenue and the BNSF right-of-way northward to the next manhole should be replaced with a 15-inch sewer line; in addition, 1,039 LF of existing 10-inch sewer on BNSF right-of-way northward towards the wastewater treatment plant should be replaced with a 15-inch sewer line.

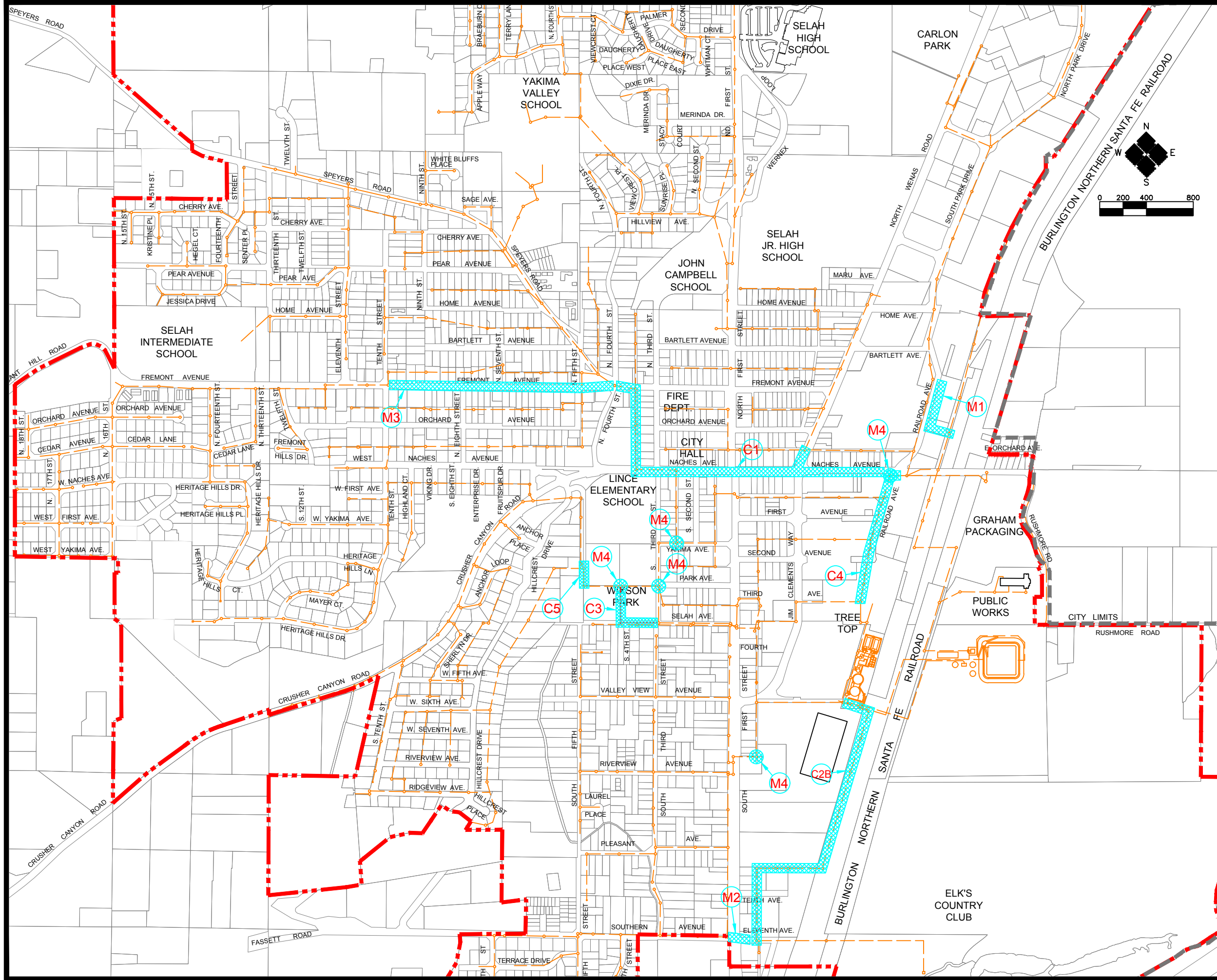
This alternate alleviates capacity issues within the existing collection system and is therefore recommended in the General Sewer Plan as Improvement Number C2B to be completed by year 2027 and shown on Figure 5-4 – Collection System Recommended Improvements for Projected Year 2037.

2. Install a new 15-inch sewer main in Naches Avenue from Third Avenue to Railroad Avenue. Extend the main in North Wenas Road from the existing manhole just north of Naches Avenue to tie into this main interceptor. Size the line to be able to connect the existing 12-inch sewer near Crusher Canyon and South Fifth to relieve the surcharging potential throughout the downtown core.

This alternate will alleviate multiple capacity issues within the downtown core. If implemented, the timing of improvements in Railroad Avenue south of Naches Avenue will occur sooner, as more flow will be diverted into this section of the collection system. This alternative is recommended as Improvement Number C1 to be completed in year 2020 and shown on Figure 5-4 – Collection System Recommended Improvements for Projected Year 2037.

3. Install a new 12-inch sewer main from the center of Wixson Park south to Selah Avenue where it will turn east and tie into the existing 12-inch sewer main in the intersection of South Third Street and Selah Avenue.

This alternative will alleviate the flows being combined together in South Third Street and West Park Avenue. Timing of this project will be coordinated with the pending Pool Improvements planned by the City.



CITY OF SELAH

General Sewer Plan Update

COLLECTION SYSTEM RECOMMENDED IMPROVEMENTS FOR PROJECTED YEAR 2037

LEGEND

- EXISTING RETAIL SERVICE AREA BOUNDARY (CITY LIMITS)
- FUTURE RETAIL SERVICE AREA BOUNDARY (UGA)
- AREA NUMBER CORRESPONDING TO TEXT DISCUSSION
- RECOMMENDED IMPROVEMENT AREAS
- MANHOLE REPLACEMENT/INSTALLATION
- EXISTING SEWER LINE
- NEW SEWER LINE

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Lift Stations Hydraulic Analysis Results

The capacity of the existing lift stations and their ability to meet existing system demands was discussed in Chapter 3. The year 2037 lift station hydraulic analysis was similar to the analysis of the collection system, using the same unit area flow rates and peaking factor equations. Projected flows for the year 2037 development and build-out condition are compared in Table 5-2 with the existing lift station capacities.

TABLE 5-2 YEAR 2037 DEVELOPMENT SEWAGE LIFT STATION PEAK FLOWS			
Station No.	Station	Current Station Capacity*	Modeled Year 2037 Build-Out Peak Flow
1	South Lift Station	1,150 gpm	931 gpm
2	Elks Lift Station	200 gpm	94 gpm
3	East Naches Ave. Lift Station	320 gpm	188 gpm
* Capacity with largest pump out of service.			

All of the existing lift stations have sufficient capacity to pump the projected peak design flows for projected development in the year 2037.

Force Mains Hydraulic Analysis Results

The ability of the existing force mains to meet existing system demands was discussed in Chapter 3. It is desirable to continue to use the existing force mains as long as possible. Year 2037 force main hydraulic analysis was similar to the existing flow analysis of lift stations, using the projected peak flow rates from the model. Projected forcemain velocities for the year 2037 development condition are compared in Table 5-3 with the desired force main velocities.

TABLE 5-3 YEAR 2037 DEVELOPMENT FORCE MAIN VELOCITIES				
Force Main Number	Year 2037 Development Pumping Rate ¹	Force Main Diameter (in inches)	Desired Velocity	Year 2037 Development Velocity ¹
1	1,150 gpm	6 inch	2 to 8 feet/second	13.05 ft/sec
2	200 gpm	6 inch	2 to 8 feet/second	2.27 ft/sec ²
3	320 gpm	6 inch	2 to 8 feet/second	3.63 ft/sec ²
1. Pumping rate and velocity with one pump in operation.				
2. Identical to existing pumping rate and force main velocity as the existing lift station has adequate capacity.				

All of the existing force mains have adequate capacity to accommodate projected year 2037 loading. However, it will be necessary to increase the force main diameter for the South Lift Station from 6 inches to 10 inches to reduce the velocity from 13.05 ft/sec to 4.70 ft/sec, in conjunction with other South Lift Station improvements.

5.4 RECOMMENDED IMPROVEMENTS

Recommended improvements can be divided into the following three categories:

1. Maintenance related and previously identified capacity improvements to the existing collection system.
2. Capacity-related improvements to the existing collection system as a result of future development; and
3. Pipeline extension improvements to serve new drainage basins.

Maintenance Related and Identified Capacity Improvements

- M1. Construct 900 LF of new 15-inch industrial pretreatment sewer in Railroad Avenue.
- M2. Connect previously constructed sewer under South First Street at Southern Avenue with 50 LF of 12-inch sewer and 250 LF of 15-inch sewer to the collection system and re-route wastewater from Southern Avenue through this line.
- M3. Install 1,920 LF of 10-inch sewer beginning at Tenth Street and Fremont Avenue continuing down Fremont Avenue to the manhole at North Fourth Street. Install six manholes along Fremont Avenue.
- M4. Address deficient and/or settled manholes at the following locations:
 - a. Replace settled manhole within Wixson Park
 - b. Replace deficient manhole at South Third Street and Park Avenue
 - c. Replace settled manhole at Naches Avenue and Railroad Avenue
 - d. Replace settled manhole east of South First Street just north of Riverview Avenue
 - e. Install new manhole in Yakima Avenue between South Second and Third Street

Capacity Related Improvements for Future Development

It is recommended the City of Selah implement the following development-related improvements to accommodate future flows, identified through the hydraulic analysis process, as development and needs dictate. These pipe sizes will also meet the requirements for full build-out demands:

- C1. 175 LF of 10-inch, 2,367 LF of 12-inch, and 908 LF of 15-inch sewer starting at Freemont Avenue and North Fourth Street (end of M3 project above), to Third Avenue, then turns south to Naches Avenue, where it turns to go east until intersection of Naches Avenue and Railroad Avenue.
- C2B. 2,975 LF of new 15-inch sewer at the intersection of Eleventh Avenue and an alley east of South First Street north to Tenth Avenue and east towards the Burlington Northern Santa Fe (BNSF) Railroad right-of-way traveling north to the wastewater treatment plant.
- C3. 630 LF of new 12-inch sewer beginning in Wixson Park heading south to Selah Avenue traveling east to South Third Street.
- C4. 1,269 LF of new 21-inch sewer from Naches Avenue and Railroad Avenue south to Third Avenue.
- C5. 150 LF of new 10-inch sewer west of Wixson Park, southwest of Lince Elementary School.

Recommended improvements to be completed to support flow projections in Year 2037 are shown on Figure 5-4.

Improvements to Serve New Drainage Basins

The existing collection system will need to be extended to provide service to the drainage basins within the UGA. Proposed sewer extensions to serve the new drainage basins are presented on Map C in the back pocket of this Plan. These proposed sewer extensions are intended to provide general guidance for development of the sewer system within the UGA. Actual locations and sizes of sewer extensions will depend on the schedule and location of development.

5.5 LIFT STATION ANALYSIS

The capacity of the existing lift stations and their ability to meet existing system demands was discussed in Chapter 3. As the system grows, it is desirable to continue to use the existing stations to the extent possible. As shown in Table 5-4, all the existing lift stations are identified to not have sufficient capacity to pump the projected peak design flow for the ultimate build-out of the UGA. Timing of the lift station expansion will depend on the rate of growth and the sequence of development of the collection system. It is likely that each of these lift stations may require refurbishment within the next 20 years. When the South Lift Station is refurbished, it is recommended a new wet well/dry well lift station be constructed adjacent to the existing lift station, with a new force main to the existing gravity sewer to alleviate the high velocity condition that currently exists at this location. The City may wish to tie lift station improvements to the collection system capacity improvements in the southern portion of the City.

TABLE 5-4 PROJECTED LIFT STATION DESIGN FLOWS				
Station	Installed Capacity	Peak Design Flow		
		Existing	Ultimate Build-Out	2037 Estimate
South	1,150 gpm	585 gpm	1,915 gpm	931 gpm
Elks	200 gpm	83 gpm	257 gpm	94 gpm
East Naches Avenue	320 gpm	135 gpm	364 gpm	188 gpm

The existing South Lift Station has limited room for expansion, and the existing force main has limited additional capacity. Therefore, it is recommended a new wet well/dry well lift station be constructed adjacent to the existing lift station, with a new force main to the existing gravity sewer. The wet wells could be connected together to provide for common control of the pumps and additional redundancy. The new wet well could be constructed during the installation of the first collection system improvements, where the new 12-inch sewer line would tie into the new wet well, and a connecting pipe would tie to the existing wet well. The year 2037 design flow for the South Lift Station is 931 gpm. When upgrades are made, the wetwell and forcemain should be designed for ultimate build-out flows, but pumps could be initially installed for a lower flow, depending on the 20-year projected system demands at the time the improvements are made.

CHAPTER 6 TREATMENT AND DISPOSAL FACILITIES

6.1 BACKGROUND AND HISTORY

The Selah Wastewater Treatment Plant was originally constructed in 1936 and provided separate treatment for municipal and industrial wastewaters. For municipal wastewaters, the treatment facility provided primary treatment along with digestion of solids. Industrial wastewater treatment consisted of screening followed by solids digestion.

The plant was upgraded and enlarged in 1949, retaining separate municipal and industrial wastewater treatment. Municipal wastewater improvements included a one-stage trickling filter and expanded sludge handling facilities, while industrial wastewater treatment remained essentially the same. At that time, design loadings to the municipal facilities were 0.72 MGD, and 800 lbs BOD/day.

In 1968, the treatment plant was remodeled and enlarged, combining the municipal and industrial treatment components into one facility. The trickling filter process was replaced with an extended aeration activated sludge system treating both municipal and industrial wastewaters, with abandonment of the old industrial waste treatment facilities. Design loadings to the combined facilities were 0.88 MGD and 3,375 lbs BOD/day.

The treatment plant was again expanded in 1975 to accommodate projected loadings through the year 1985. Design loadings for these upgraded facilities were 2.1 MGD and 6,000 lbs BOD/day. An industrial pretreatment facility was added in 1985 to pretreat industrial wastewaters from fruit juice operations prior to their introduction into the main plant. In 1987, a second final clarifier was added to the main treatment plant, and improvements were made to the disinfection system and the sludge handling system. In 1991, Tree Top constructed its own industrial treatment system and withdrew from the City system. Since then, Hi-Country (now SunRype) has been the sole user of the industrial pretreatment system.

Digester aeration improvements continued in the fall of 1990, when the foundations were replaced on the 125 HP aerobic digester centrifugal blowers. This improvement did not resolve alignment and vibration problems with the blowers, and it was found the blowers were defective, so new blowers with the same capacity were installed in 1995. In 1998, the blower building was replaced, leaving the blowers in their reconstructed foundations. The new, larger structure also provided new storage and equipment maintenance areas at the treatment plant.

The influent lift station (also known as the North Lift) has undergone similar phased improvements over the years. In 1990, significant improvements were completed. A new electrical and control system was installed, and two new pumps with eddy current clutch variable speed drives replaced two of the old pumps. With this improvement in place, the lift station was more reliable and could match the influent flow rate using the variable speed drives, thereby improving flows to downstream processes. Then the comminutor was replaced with a Muffin Monster sewage grinder in 1991. Lastly, maintenance access was improved in the fall of 1996 when roof hatches were added, and floor openings modified so the pumps could be easily removed for maintenance.

Improvements to the disinfection system were undertaken in 2002 and 2003. Half the chlorine contact tank was converted for use as a UV disinfection facility, and chlorine disinfection stopped. Selah could now meet the stringent effluent chlorine limits found in their discharge permit. This project also included the addition of gates on the activated sludge process aeration basins and reconstruction of the South Lift Station. South Lift Station improvements consisted of new pumps and piping in the dry well, and new electrical and controls located above ground; the lift station was now more reliable. Finally, a new effluent magnetic flow meter was installed.

In 2008, a new biosolids treatment facility was constructed, and a clarifier following the pretreatment lagoon was added.

Other miscellaneous improvements to the treatment plant include the 1996 installation of a bridge crane in the pump gallery between the clarifiers, the 1997 modifications to the lab water supply to eliminate a potential cross-connection with the potable water supply, and 2014 energy efficiency upgrades performed at the facility.

6.2 EXISTING WASTEWATER TREATMENT FACILITIES

Main Treatment Facility

The Selah main treatment facility receives municipal wastewater from the City and pretreated industrial wastewater from the City's industrial pretreatment facility. Wastewater enters the main treatment facility from the north and south. Wastewater from the south part of the City is lifted at the South Lift Station, and combines with effluent from the industrial pretreatment system. These then mix with municipal wastewaters from the north part of the City before entering the treatment plant at the influent building. Wastewater entering the influent building normally passes through a mechanically-cleaned perforated fine screen, with a screenings washer/press, or if that unit is off-line, pass through a hand-cleaned bar screen. After screening, wastewater is lifted into the aeration basins by one or more of the three influent wastewater pumps. The two main pumps are variable speed 1,400 gpm pumps, and the third pump is a 1,100 gpm fixed speed pump. The pumps are controlled by a bubbler system with back-up float controls.

Wastewater enters the north end of the two aeration basins where, after mixing with return activated sludge (RAS) from the clarifiers, most of the biological treatment occurs. Each aeration basin has a volume of 392,800 gallons. Mixing and aeration of the activated sludge within the aeration basins is accomplished by four 2-speed aerators, two in each basin, which can be operated at 22.5 or 30 hp. The liquid surface elevation within each basin is controlled by V notch weirs in control structures at the south end of each basin.

Activated sludge exits the aeration basins and gravity flows to one of two center-feed final clarifiers (activated sludge settling tanks), where the denser (sludge) portion of the activated sludge is separated from the clarified effluent portion. The north clarifier is 85 feet in diameter, 16 feet deep, with a volume of 679,000 gallons and a surface area of 5,675 square feet. The south clarifier is 85 feet in diameter, 12 feet deep, with a volume of 509,000 gallons and a surface area of 5,675 square feet. Flow to the clarifiers is controlled by a gate valve in the piping upstream of the south clarifier. The liquid surface elevation within each clarifier is controlled by circular weirs around the perimeter of each clarifier.

Within each clarifier, settled solids are conveyed by circular sweepers to the clarifier center well where the sludge enters either the return sludge line or the waste sludge line. Sludge entering the return sludge line, known as return activated sludge (RAS), is pumped back to the aeration basins for use in treating influent waste. Two Paco vertical dry-pit return sludge pumps serve the north clarifier from the pipe gallery between the two clarifiers. Two similar sludge return pumps service the south clarifier from a vault on the southwest side of that clarifier. Sludge entering the waste sludge line, known as waste activated sludge (WAS), is pumped to the aerobic digester for additional biological decomposition and stabilization. Two Seepex progressive cavity pumps in the pipe gallery lift the WAS to the aerobic digester. In addition, each clarifier has a mechanism for removing floating scum, which is conveyed to the WAS pumps for transport to the aerobic digester.

Effluent from the clarifiers gravity flows to the UV disinfection channels, created by modifying one half of the chlorine contact chamber. The other half of the contact chamber is still available on an emergency basis for chlorine disinfection. The UV disinfection process consists of three channels, two housing the UV lamp modules and one for bypass. Three lamp modules are installed in the north channel, and provisions are made for installing three modules in the south channel in the future. Each module has 40 vertical low-pressure, high-intensity lamps, and a combined air scour and wiper system for cleaning the lamps. The channels housing the lamp modules are 2 feet wide and 5 feet deep. The bypass channel is wider, and houses a module cleaning tank. Both the UV channels and the remaining chlorine contact chamber have a scum skimmer, and scum removed from each chlorine contact tank gravity flows to the WAS pumps in the pump gallery and is pumped to the aerobic digester. Disinfected effluent is gravity discharged to Selah Ditch.

The aerobic digester, with a volume of 448,800 gallons, receives waste activated sludge for additional biological decomposition and stabilization. Mixing and aeration of the WAS in the aerobic digester is done by injecting diffused air through perforated PVC piping lying on the bottom of the digester tank. The diffused air is supplied by two 125 hp Lamson centrifugal blowers, each with an output of 1,100 cubic feet per minute.

From the aerobic digester, sludge gravity flows to the 89,700-gallon main treatment plant sludge holding tank. Mixing and aeration are supplied by the same two blowers that supply air to the aerobic digester. The sludge holding tank has an overflow weir that allows recycle of the majority of the sludge to the aeration basins. Sludge not recycled to the aeration basins is wasted from the system by pumping through a single rotary lobe, positive displacement, 15 hp, 200 gpm sludge transfer pump to the new 264,300-gallon sludge holding tank located at the biosolids treatment facility. Sludge in this holding tank is aerated by two blowers.

From the new 264,300-gallon sludge holding tank, sludge is pumped to a centrifuge through one of two rotary lobes, positive displacement, 7.5 hp, 150 gpm pumps. The centrifuge has a hydraulic loading rate of 100 gpm at a solids concentration of 1.2% (12,000 mg/l), is designed for an average daily sludge flow of 33,900 gallons per day and a maximum month sludge flow of 47,500 gallons per day. The centrifuge has an average daily biosolids production capacity of 3,390 lbs/day and a maximum month biosolids production capacity of 4,750 lbs/day. Following the centrifuge, the biosolids are transferred to the sludge storage hopper, and then are further treated in the sludge dryer which converts the biosolids from 16% solids to 90% solids. The sludge dryer has a wet solids loading capacity of 2,000 lbs per hour.

A flow diagram of Selah's current wastewater treatment process is shown on Figure 6-1 - Wastewater Treatment Plant.

Selah's current main plant design criteria and industrial pre-treatment plant criteria are based on their current National Discharge Elimination System (NPDES) permit, issued by the Washington Department of Ecology in 2007:

Selah Municipal Wastewater Treatment Facilities Design Criteria

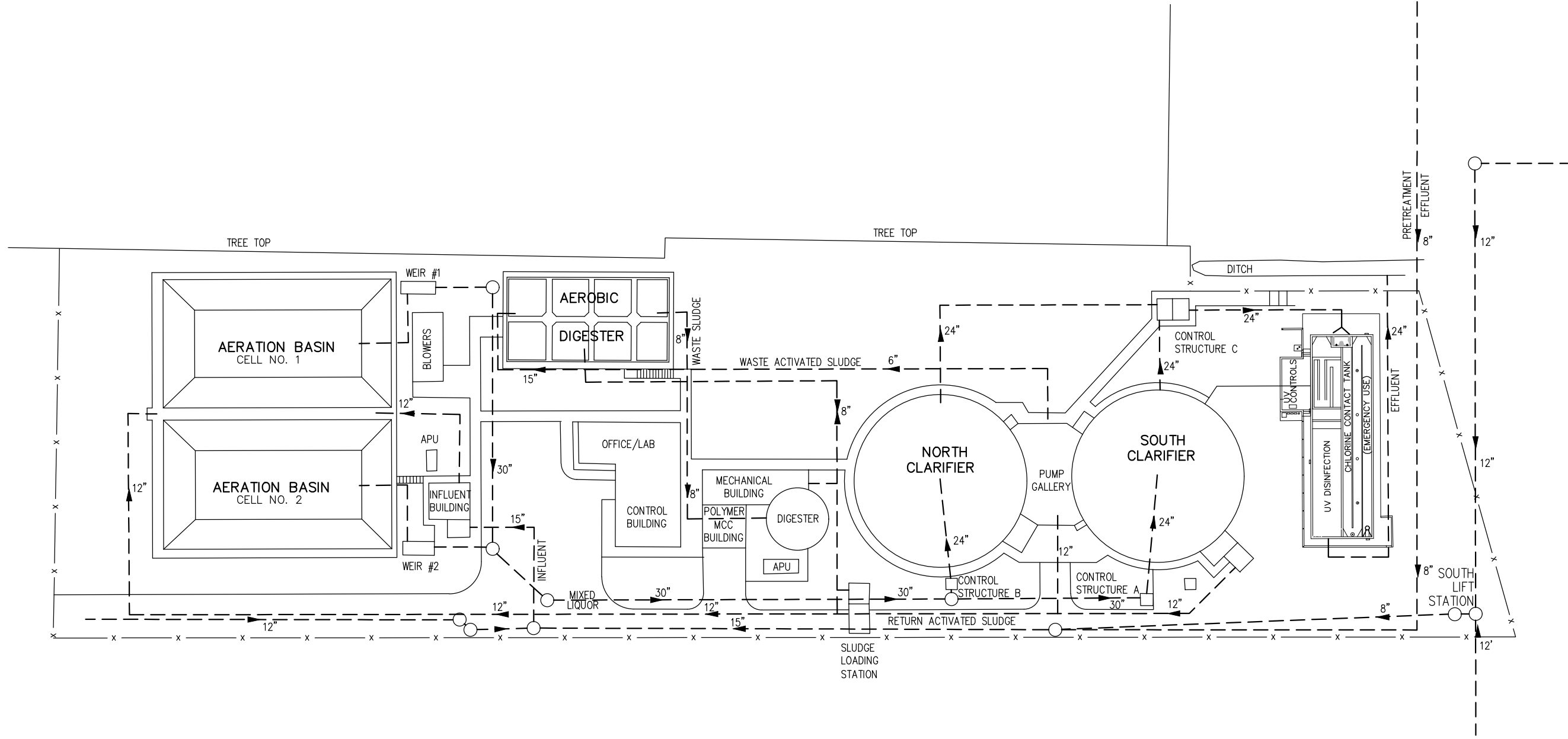
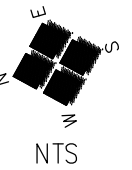
Average Flow for the Maximum Month	2.00 MGD
Influent BOD Loading for the Maximum Month	3,300 lbs/day
Influent TSS Loading for the Maximum Month	4,400 lbs/day

Industrial Pretreatment Facility

In 1985, the City of Selah constructed an industrial wastewater pretreatment facility to treat food processing wastes before they reach the main Selah treatment facility. The pretreatment process reduces BOD loading levels to the main Selah facility by converting most of the BOD present in the industrial wastes to biological solids.

Industrial wastewaters from fruit processors connected to the pretreatment system travel through a 15-inch industrial wastewater pipe to the industrial pretreatment pumping station at the pretreatment headworks. Wastewaters are lifted by two variable speed, 800 gpm pumps to the gunnite concrete lined pretreatment lagoon. The 250-foot by 250-foot (bottom dimensions) lagoon has a volume of 6.39 MG at a depth of 13 feet. Industrial wastes enter on the east side of the lagoon. Aeration and lagoon mixing is accomplished by five floating surface aerators anchored to the lagoon bottom. The largest aerator, 75 hp, is located in the center of the lagoon. The four other aerators, 40 hp each, are located symmetrically in the center of each quarter of the lagoon. Because of the nutrient-poor nature of the fruit wastes, nutrients (in the form of inorganic nitrogen and phosphorus) necessary to support biological growth can be added to the pump station wet well, and mixed with the wastewater as it enters the pretreatment lagoon. Operators have found nutrient addition has not been required in recent years. Though nutrient addition is possible, it is not currently being practiced. Wastewaters exit the lagoon from the outlet structure on the west side and are discharged through an 8-inch inverted siphon to a pipe upstream of the headworks of Selah's main treatment plant.

In 2008, Selah constructed a 100,750-gallon industrial pretreatment clarifier. This new clarifier removes solids generated in the industrial pretreatment lagoon from the waste stream flowing to the main treatment facility. Solids that settle in the industrial pretreatment clarifier are pumped through one of two rotary lobe, positive displacement, 7.5 hp, 100 gpm pumps to the new 264,300-gallon sludge holding tank located at the biosolids treatment facility.



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12-13-17
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FIGURE 6-1

Selah's industrial pretreatment facilities design criteria are:

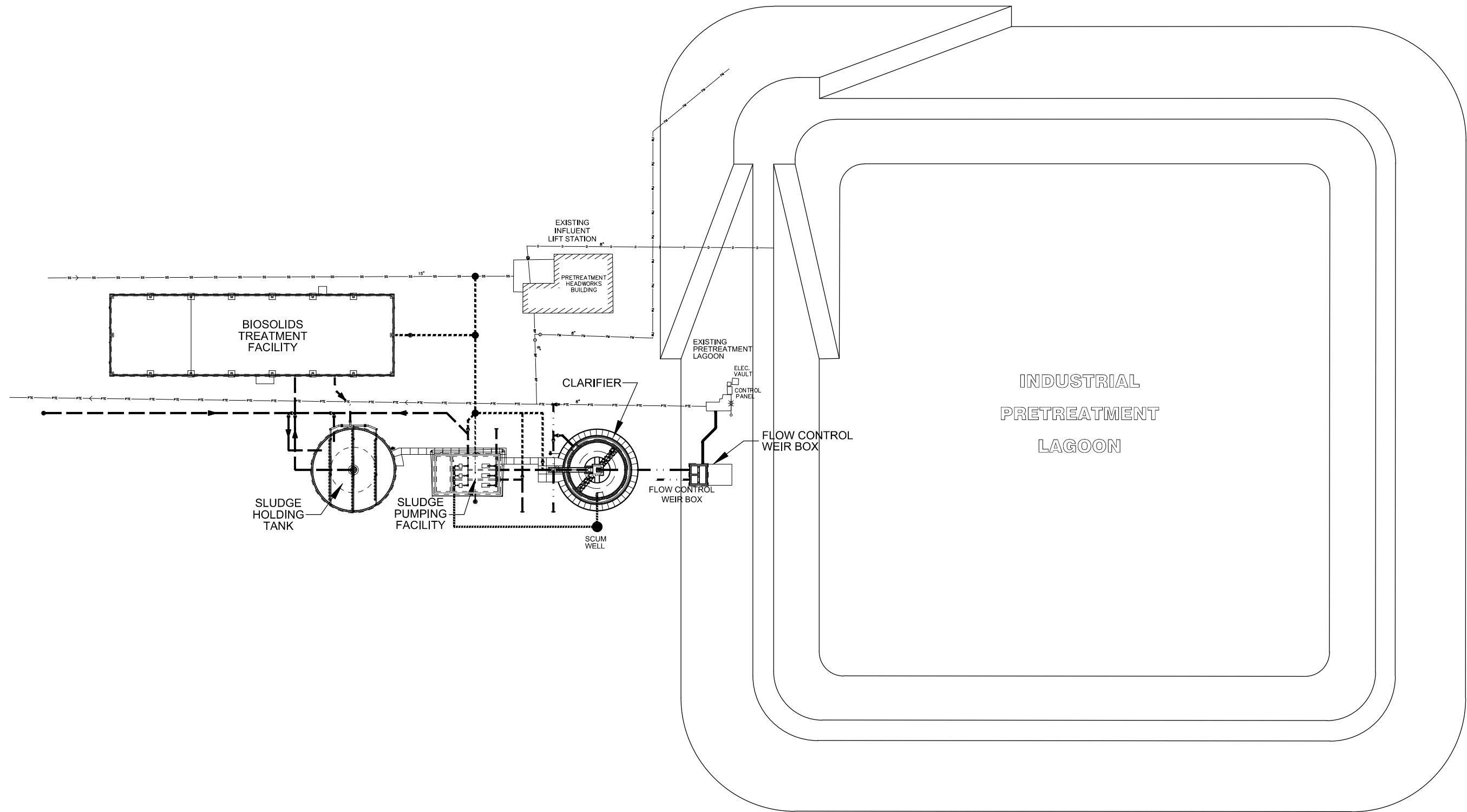
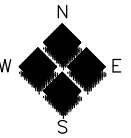
Selah Industrial Wastewater Pretreatment Facilities Design Criteria

Average Flow for the Maximum Month	0.40 MGD
Influent BOD for the Maximum Month	4,000 lbs/day
Influent TSS for the Maximum Month	1,500 lbs/day
Effluent BOD for the Maximum Month	510 lbs/day
Effluent TSS for the Maximum Month	3,750 lbs/day

When completed in 1985, the industrial wastewater pretreatment facility was used by Tree Top, Inc., and by Hi-Country Foods Corporation for the biological pretreatment of fruit processing wastewaters. In 1991, Tree Top constructed their own industrial wastewater facility and withdrew from Selah's pretreatment system. Since September 1991, Hi-Country (and now SunRype) has been the sole industrial user of the pretreatment facility.

A flow diagram of Selah's industrial wastewater pre-treatment facility is shown on Figure 6-2 – Industrial Pre-Treatment Lagoon & Biosolids Treatment Facility. Table 6-1 – Treatment Component Summary provides a summary of the major treatment facility components.

TABLE 6-1 TREATMENT COMPONENT SUMMARY	
<i>INDUSTRIAL PRETREATMENT FACILITY</i>	
Industrial Pretreatment Lagoon (1 each)	
Bottom Length	250 Feet
Bottom Width	250 Feet
Depth	12 to 13 Feet
Volume	6.39 MG at 13 Feet
Aerators	4 Each at 40 HP, and 1 Each at 75 HP
Aerator Type	High Speed, Floating Surface Aerator
Industrial Pretreatment Clarifier (1 each)	
Diameter	35 Feet
Depth	14 Feet
Volume	100,750 Gallons
Surface Area	962 Square Feet
Type	Center Feed
<i>MAIN TREATMENT FACILITY</i>	
Headworks Lift Station (1 each)	
Pumps (3)	1,400 gpm; 1,400 gpm; 1,100 gpm
Aeration Basins (2 each)	
Top Length	104 Feet
Top Width	58 Feet
Bottom Length	80 Feet
Bottom Width	34 Feet



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FIGURE 6-2

Depth	12 Feet
Volume (each)	392,800 Gallons
Volume (total)	785,600 Gallons
Aerators	4 Each, Two Speed, Low = 22.5 HP, High = 30 HP
Aerator Type	Low Speed Turbine
North Clarifier (1 each)	
Diameter	85 Feet
Depth	16 Feet
Volume	679,000 Gallons
Surface Area	5,675 Square Feet
Type	Center Feed
South Clarifier (1 each)	
Diameter	85 Feet
Depth	12 Feet
Volume	509,000 Gallons
Surface Area	5,675 Square Feet
Type	Center Feed
UV Disinfection Facility	
Channel Depth	60 Inches
Channel Width	24 Inches
UV Lamp Type	Vertical, High Output, Low Intensity
Number of UV Lamps per Module	40
Current Number of UV Lamp Modules	3
Future Number of UV Lamp Modules	3
Current Total Number of UV Lamps	120
Future Total Number of UV Lamps	240
Chlorine Contact Tank (1 each for emergency use)	
Channel Length	330 Feet
Channel Width	5 Feet
Depth	7 Feet
Volume	87,400 Gallons
BIOSOLIDS TREATMENT FACILITY	
Aerobic Digester (1 each)	
Volume	454,000 Gallons
Aeration Type	Coarse Bubble Diffuser
Air Supply Blowers	2 Centrifugal Blowers at 125 HP each

Main Treatment Plant Sludge Holding Tank (1 each)	
Volume	89,700 Gallons
Aeration Type	Coarse Bubble Diffuser
Air Supply Blowers	By Aerobic Digester Blowers
Biosolids Sludge Holding Tank	
Diameter	50 Feet
Sidewall Depth	18 Feet
Volume	264,300 Gallons
Centrifuge	
Hydraulic Loading	110 GPM
Feed Solids Concentration	12,000 mg/l (1.2%)
Solids Loading Rate	660 lbs/hour
Discharge Solids Concentration	16%
Sludge Dryer	
Wet Solids Input Capacity	2,000 lbs/hour
Input Solids Concentration	16%
Output Solids Concentration	90%

6.3 PERMIT EFFLUENT LIMITS AND EFFLUENT QUALITY

Effluent limits specified in a wastewater permit have a direct bearing on the degree of treatment that must be achieved by a wastewater treatment facility. The City of Selah's current effluent limits are specified in National Pollutant Discharge Elimination System (NPDES) Waste Discharge Permit No. WA-002103-2, issued with an effective date of October 1, 2012, and an expiration date of September 30, 2017. Selah's current effluent limits are presented in Table 6-2.

TABLE 6-2 CITY OF SELAH'S CURRENT EFFLUENT LIMITS		
Parameter	Average Monthly ¹	Average Weekly ¹
Biochemical Oxygen Demand (5 day)	30 mg/l; 495 lbs/day	45 mg/l; 742 lbs/day
Total Suspended Solids	30 mg/l; 500 lbs/day	45 mg/l; 751 lbs/day
Fecal Coliform Bacteria	100 colonies/100 ml	200 colonies/100 ml
pH	between 6.0 and 9.0 at all times	
Parameter	Daily Maximum ²	
Total Ammonia, as N (NH ₃ -N)	2.90 mg/l; 48.4 lbs/day	
<div>1. The average monthly and weekly effluent limitations are based on the arithmetic mean of the samples taken with the exception of fecal coliform, which is based on the geometric mean.</div> <div>2. The maximum daily effluent limitation is defined as the highest allowable daily discharge. The daily discharge means the discharge of a pollutant measured during a calendar day. For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For other units of measurement, the daily discharge is the average measurement of the pollutant over the day.</div>		

The Washington Department of Ecology is performing a TMDL (total maximum daily load) study on the Selah Ditch because the receiving water does not meet established water quality standards. The study focuses on the water quality parameters for temperature, dissolved oxygen, chlorine, and ammonia. Since the study is still underway, it is not known what impacts the results will have on the effluent limits for Selah's wastewater treatment plant. To further complicate receiving water issues, Ecology is also implementing new water quality standards that may influence the TMDL outcomes and effluent limits. Desired water temperatures proposed in the new standards are much more limiting than the current standards. Since temperature influences dissolved oxygen, future effluent limits have not been determined for the next permit cycle beginning in 2017.

6.4 FUTURE WASTEWATER LOADING PROJECTIONS

Forecasts for future loadings for flow, BOD, and TSS to the Selah Wastewater Treatment Facility for the years 2022, 2027, 2032, and 2037 were previously presented in Chapter 2 of this Plan, and are again presented in Table 6-3.

TABLE 6-3 FUTURE WASTEWATER LOADING PROJECTIONS						
Year	Flow		BOD		TSS	
	Average Monthly Flow (MGD)	Maximum Month Flow (MGD)	Average Monthly BOD (lbs/day)	Maximum Month BOD (lbs/day)	Average Monthly TSS (lbs/day)	Maximum Month TSS (lbs/day)
2016 (Baseline)	1.262	1.389	2,042	2,613	2,539	3,237
2022	1.355	1.492	2,193	2,806	2,727	3,476
2027	1.437	1.582	2,326	2,976	2,892	3,686
2032	1.524	1.678	2,467	3,156	3,067	3,910
2037	1.617	1.780	2,616	3,347	3,253	4,147

6.5 FACILITY DESIGN LIFE

The design criteria for Selah's wastewater treatment facility are presented in Table 6-4.

TABLE 6-4 SELAH WASTEWATER TREATMENT FACILITY DESIGN CRITERIA	
Parameter	Design Quantity
Average Flow for the Maximum Month	2.0 MGD
BOD ₅ for the Maximum Month	3,300 lbs/day
TSS for the Maximum Month	4,400 lbs/day

As noted Chapter 2, monthly influent loadings have not exceeded or approached the design capacity of the wastewater treatment plant, and effluent quality has remained excellent. The following assumptions are used to determine when the design capacity of the treatment plant will be reached:

- ❖ The future sewer system service population will be as presented in Table 1-11.
- ❖ The baseline 2016 maximum month flow of 1.389 MGD was used as a baseline from which to project future wastewater flows.
- ❖ The baseline 2016 maximum month influent BOD loading of 2,613 lbs/day was used as a baseline from which to project future influent BOD loadings.
- ❖ The baseline 2016 maximum month influent TSS loading of 3,237 lbs/day was used as a baseline from which to project future influent TSS loadings.
- ❖ The maximum month flow, BOD loading, and TSS loading are assumed to increase at a rate similar to the sewer service population.

Based on these assumptions, the design capacity of the treatment plant will be reached as follows:

Hydraulic Capacity

2016 Maximum Month Loading	=	1.389 MGD
WWTP Maximum Month Design Capacity	=	2.0 MGD
Year Design Capacity is Reached	=	2046

BOD Capacity

2016 Maximum Month Loading	=	2,878 lb/day
WWTP Maximum Month Design Capacity	=	3,300 lb/day
Year Design Capacity is Reached	=	2035

TSS Capacity

2015 Maximum Month Loading	=	3,293 lb/day
WWTP Maximum Month Design Capacity	=	4,400 lb/day
Year Design Capacity is Reached	=	2042

The Industrial Pre-Treatment facility is has the following design capacities:

Hydraulic Capacity

Maximum Month Average Flow	=	0.4 MGD
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BOD Capacity

Maximum Month Influent Loading	=	4,000 lb/day
Maximum Monthly Effluent Loading	=	510 lb/day

TSS Capacity

Maximum Month Influent Loading	=	1,500 lb/day
Maximum Monthly Effluent Loading	=	3,750 lb/day

As these design limits are reached, the effluent discharges will increase the loading to the to the main treatment plant. The recommended plan in the 1996 Design for Maintaining Adequate Capacity was to:

- Work with industries to reduce industrial loadings to the plant.
- Add a pretreatment clarifier (which was completed in 2008)
- Plan for a separate discharge to the Yakima River to eliminate the loads for the industrial facility.

In addition to these items, other action steps to reduce the loading to the Main Plant is to increase the treatment capacity of the Industrial Pretreatment facility through:

- Adding additional aeration equipment.
- Adding additional clarification
- Find an alternative discharge use (neighboring industry, adjacent golf course, etc.)

CHAPTER 7

CAPITAL

IMPROVEMENT PLAN

7.1 GENERAL

In the previous chapters of this General Sewer Plan, deficiencies in the existing City of Selah wastewater collection system have been identified and the collection system improvements necessary to serve future development within the City and its UGA were presented. In Chapter 3, maintenance related improvements and improvements needed to address existing capacity deficiencies were identified. Generally, capacity needs are related to minor surcharging of the existing pipelines under peak flow conditions. In some cases, the surcharging may be only related to the modeling effort based on the selected peaking factor, because public works personnel have not noted manhole surcharging in the field. Therefore, most of these improvements can be delayed until other capacity improvements are necessary. In Chapter 4, the ability of the existing system to handle flows from full build-out of the UGA was examined. As expected, a number of deficiencies were identified since the existing collection system was not originally designed to serve the entire UGA. However, this analysis was important from the standpoint of identifying long-term piping needs and developing alternate routing schemes to carry flows past bottlenecks in the existing system. Lastly, 20-year needs were examined in Chapter 5. The ability of the existing system to meet the year 2037 demands was considered and deficiencies were identified. Recommendations were then made to address both current and future capacity needs, as well as maintenance related items. Typically, recommendations needed to meet year 2037 demands were in concert with the recommendations needed to meet full build-out demands.

This chapter of the report summarizes the recommended improvements, presents estimated costs, develops a plan for constructing the improvements, and discusses financing options.

7.2 RECOMMENDED IMPROVEMENTS AND ESTIMATED COSTS

Following is a listing of recommended improvements and estimated construction costs to address maintenance-related and capacity-related improvements to the existing collection system to accommodate projected flows from the new service areas. Actual costs will vary from those costs listed because of changes in the construction industry, the competitive bidding process, the availability of materials and equipment, and the timing of the improvements. Additional details for each of the estimated costs are presented in the Appendix. Costs include contingencies, taxes, engineering fees, and administrative expenses. These preliminary cost estimates are made in 2017 dollars, so inflationary increases should be added for the expected date of construction. It should be noted that no cost estimates have been made for extending service into the UGA.

Maintenance Related Improvements

The City has identified seven sections of sewer pipe that have significant root and sediment problems and require regular cleaning and maintenance for unknown reasons. The City should further investigate these high maintenance areas using TV inspection of each problem area. Confirmed root and sediment problem areas due to broken pipes or offset joints should be scheduled for replacement as City sewer funds become available. There are also three manholes that have sunken down over the years and are in need of adjustment or replacement.

The improvements listed below are generally needed to improve operation of the existing system and reduce maintenance needs. Construction of a new industrial sewer in Railroad Avenue is not a required maintenance item, but is included to provide industrial wastewater service to the two fruit packers on Railroad Avenue, thereby reducing the loadings to the main wastewater treatment facility.

- | | |
|---|-----------|
| M1. Construct 900 LF of new 15-inch industrial pretreatment sewer in Railroad Avenue. | \$238,000 |
| M2. Connect previously constructed sewer under South First Street at Southern Avenue with 50 LF of 12-inch and 250 LF of 15-inch sewer to the collection system and re-route wastewater from Southern Avenue through this line. | \$72,000 |

M3.	Install 1,920 LF of 10-inch sewer beginning at Tenth Street and Fremont Avenue continuing down Fremont Avenue to the manhole at North Fourth Street. Install six manholes along Fremont Avenue.	\$365,000
M4.	Address deficient and/or settled manholes at the following locations:	
a.	Replace settled manhole within Wixson Park	\$7,000
b.	Replace deficient manhole at South Third Street and Park Avenue	\$7,000
c.	Replace settled manhole at Naches Avenue and Railroad Avenue	\$7,000
d.	Replace settled manhole east of South First Street just north of Riverview Avenue.	\$7,000
e.	Install new manhole in Yakima Avenue between South Second Street and South Third Street.	\$7,000
SUBTOTAL ESTIMATED COST		\$710,000
MAINTENANCE-RELATED IMPROVEMENTS		

Existing Capacity Improvements

The hydraulic analysis model of the existing collection system identified three areas where current pipeline capacity at peak wastewater flows may not be sufficient. These areas are shown and labeled on Figure 3-3 - Existing Collection System Deficiencies. Since the hydraulic model shows these problem areas only result in minor manhole surcharging, some of which has not been observed in the field, these problems are addressed as part of the pipeline improvements needed to carry the year 2037 projected flows.

UGA Build-Out Considerations

It is impractical to initially construct all facilities needed to serve the ultimate UGA build-out, particularly when it is unknown when such ultimate build-out will occur. However, ultimate UGA needs should be considered when evaluating improvements to the existing system and when service is extended into new areas. That is, the upgrade of existing facilities and the extension of sewers into the UGA should consider what full development of those areas would require. In that manner, the City will avoid having to prematurely replace new or upgraded facilities.

The improvements needed to increase the capacity of the existing system to meet the demands of full build-out of the UGA are described in Chapter 4. The pipe sizes recommended to meet the future peak demand were used in the recommended Year 2037 improvements so a second increase in pipe size would not be needed in the future.

Year 2037 Recommended Improvements and Costs

Following are the recommended capacity related improvements needed to meet the demands placed on the collection system by year 2037 loadings. These improvements were identified in Chapter 5, and pipeline sizes are based on carrying the system flows at full build-out.

C1.	175 LF of 10-inch, 2,367 LF of 12-inch, and 908 LF of 15-inch sewer starting at Fremont Avenue and North Fourth Street (end of M3 project above), to Third Avenue, then turns south to Naches Avenue, where it turns to go east to the intersection of Naches Avenue and Railroad Avenue.	\$1,000,000
C2B.	New 15-inch (2,975 LF) sewer from Eleventh Avenue north to Tenth Avenue, east to Burlington Northern Santa Fe right-of-way and north to the wastewater treatment plant.	\$791,000
C3.	630 LF of new 12-inch sewer beginning in Wixson Park heading south to Selah Avenue traveling east to South Third Street.	\$133,000

- | | | |
|-----|---|-----------|
| C4. | 1,269 LF of new 21-inch sewer from Naches Avenue and Railroad Avenue south to Third Avenue. | \$390,000 |
| C5. | 150 LF of new 10-inch sewer west of Wixson Park, southwest of Lince Elementary School. | \$48,000 |

SUBTOTAL ESTIMATED COST	\$2,362,000
DEVELOPMENT-RELATED IMPROVEMENTS	

Lift Station Improvements

The ultimate buildout hydraulic analysis indicated that the lift stations would not have adequate capacity to accommodate future wastewater from their respective service areas. However, the Year 2037 estimates indicate the existing capacity is adequate until sometime later than 2037. It is likely that each of these lift stations may require refurbishment within the next 20 years. When the South Lift Station is refurbished, it is recommended a new wet well/dry well lift station be constructed adjacent to the existing lift station, with a new force main to the existing gravity sewer to alleviate the high velocity condition that currently exists at this location. The new wet well could be constructed during the installation of the first collection system improvements, where the new 12-inch sewer line would tie into the new wet well, and a connecting pipe would tie to the existing wet well. When upgrades are made, the wetwell and forcemain should be designed for ultimate build-out flows, but pumps could be initially installed for a lower flow, depending on the 20-year projected system demands at the time the improvements are made. For planning purposes, a South Lift Station improvement project has been included in the financial model.

- | | | |
|-----|---|-----------|
| L1. | Lift station improvements to increase the capacity of the South Lift Station. | \$627,000 |
|-----|---|-----------|

7.3 CAPITAL IMPROVEMENT PLAN

An estimated schedule for making system improvements is developed in this section. Priorities for improvements are based on the capacity available in the existing pipelines to meet future growth needs. Existing system deficiencies are given the highest priority, followed by system deficiencies resulting from year 2037 demands. The process used to set improvement priorities consisted of the following steps:

- ❖ The critical pipeline segment was identified within each deficient section of the collection system. The critical segment is defined as that segment with the flattest slope, thereby reducing the amount of sewage that can be carried in the pipe. As a result, that segment has the least amount of excess capacity available to meet future demands. In some cases, the overall slope of the deficient section of pipe was considered because it may not be reasonable to base pipeline replacement on a short section of flat pipe that would cause surcharging at a single location. It was assumed that when the capacity of this critical pipeline segment was reached, it would trigger the need to replace the deficient section of the system.
- ❖ The capacity of the existing pipe in MGD was the same as determined for the hydraulic analysis.
- ❖ The existing flow in the pipeline was as determined in the Chapter 3 hydraulic analysis.
- ❖ Available capacity in MGD is equal to the pipeline capacity minus the existing flow.
- ❖ Available capacity in ERUs (Equivalent Residential Units) was found by dividing the excess flow capacity in gallons per day by 300 gallons per ERU per day. The 300-gallon per ERU per day amount is the same as the figure used to estimate the amount of flow from the UGA.
- ❖ Table 7-1 summarizes the information used to determine the excess capacity available in MGD and ERUs.

- ❖ Once the available capacity was found, the estimated year when the capacity would be reached was determined. The flow added to each critical pipeline segment as a result of year 2037 development was estimate by subtracting the existing flow from the year 2037 flow. Straight-line linear interpolation was then used to find the year when the capacity of the critical pipe segment would be reached. The results of this analysis are presented in Table 7-2.
- ❖ This approach may underestimate the year when improvements are needed after 2028 because of the assumption that growth is linear after 2037, and occurs in the same basins as growth prior to 2037. However, the approach does demonstrate that portions of the system have adequate capacity to meet long-term needs.

TABLE 7-1 AVAILABLE SYSTEM CAPACITY

Improvement Number (Figure 7-1)	Existing Peak Capacity (MGD)	Existing Peak Flow (MGD)	Available Capacity (MGD)	Available Capacity (ERU'S)
M1	--- ¹	--- ¹	--- ¹	--- ¹
M2	--- ²	--- ²	--- ²	--- ²
M4	---	---	---	---
C2B	0.59	0.47	0.12	400
C5	0.54	0.46	0.08	267
C1	0.95	0.92	--- ³	--- ³
C3	0.32	0.51	--- ⁴	--- ⁴
C4	2.88	2.13	--- ⁴	--- ⁴
L1 ⁵	0.52	0.41	0.11	367
M3 ⁶	1.26	.88	0.38	1267

¹ Recommended improvement to route fruit packer flows to the industrial pretreatment facility.

² Recommended improvement to route flows around old pipeline parallel to South First Street – about 50 ERUs of capacity is available in the existing pipeline.

³ New Naches Avenue Interceptor to alleviate multiple areas where model indicates no capacity is available in downtown core. This project eliminates the need for several other capacity related projects.

⁴ Per hydraulic model, no capacity is available. However, field observations do not show surcharging.

⁵ South Lift Station capacity includes 0.4 MGD flow from industrial pre-treatment facility.

⁶ Recommended improvement to route flows around high maintenance section of existing system.

TABLE 7-2 ESTIMATED YEAR OF IMPROVEMENT					
Improvement Number (Figure 7-1)	Contributing Basins (Figure 4-1)	Added Year 2037 Flow (MGD)	Added Year 2037 ERU's	Available Capacity (ERU'S)	Estimated Year Capacity Reached
M1	--- ¹	--- ¹	--- ¹	--- ¹	2021
M2	--- ²	--- ²	--- ²	--- ²	2019
M3 ⁵	5, 17	0.28	933	1267	2025
M4	---	---	---	---	---
C1	8, 16, 17, 18	--- ⁴	--- ⁴	--- ⁴	2020
C2B	9, 12, 13, 14, 15, 16	0.47	1,567	400	2027
C3	3, 19A, 19, 20	--- ³	--- ³	--- ³	2018
C4	3, 19A, 19, 20, 21, 22, 23	--- ³	--- ³	--- ³	2019
C5	8, 16	0.18	600	267	2020
L1	9, 12, 13, 14, 15, 16	0.19	633	367	2029
¹ Recommended improvement to route fruit packer flows to the industrial pretreatment facility. ² Recommended improvement to route flows around old pipeline parallel to South First Street – about 50 ERUs of capacity is available in the existing pipeline. ³ Per hydraulic model, no capacity is available. However, field observations do not show surcharging. ⁴ New Naches Avenue Interceptor to alleviate multiple areas where model indicates no capacity is available in downtown core. This project eliminates the need for several other and capacity related projects. ⁵ Existing pipeline, if in good condition, has adequate capacity to carry flows at ultimate buildout. Improvement needed due to maintenance problems.					

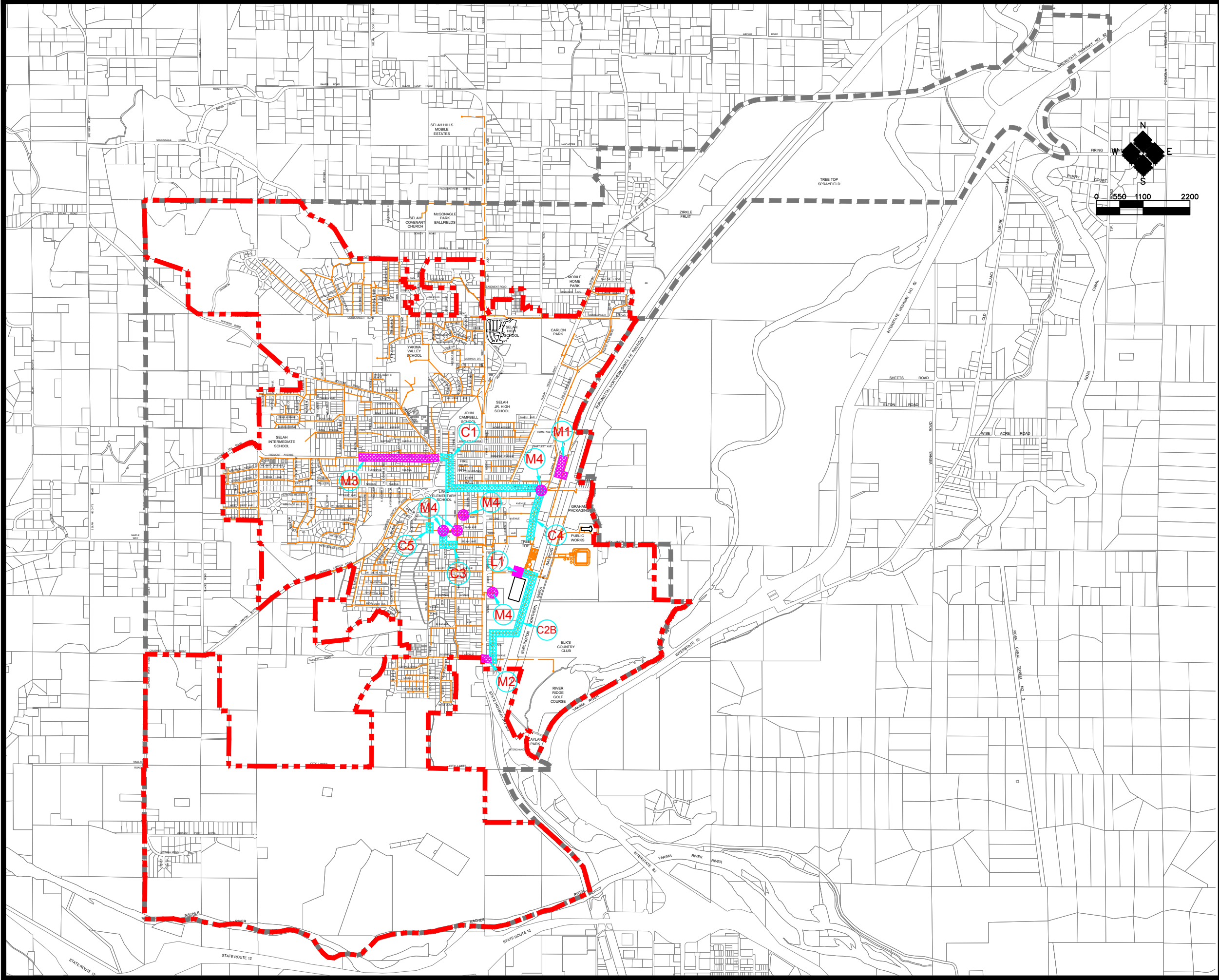
The information presented in Tables 7-1 and 7-2 provides an estimate of when the capacity of the existing collection system components will be reached. The actual date when improvements will be needed depends on development rates and patterns. Therefore, monitoring collection system performance, and noting where and when growth occurs, is important. The column labeled "Available Capacity (ERUs)" in Table 7-2 is a general indication of the number of connections that can be made within the "Contributing Basins," listed in the same table, before improvements are needed. It is important to reiterate that the timing of improvements C4 in Railroad Avenue is estimated based on system performance, rather than the results of the hydraulic model. Though the hydraulic model shows this section of the system is at capacity, field evidence does not support this conclusion. However, this pipeline is near capacity, so improvements are planned within the next five years. C3 is recommended to be coordinated with the planned municipal pool construction project anticipated to occur within the next two years. Improvements M1 and M2 are also planned within the next 5 years to improve system performance and to prepare for future increased system loadings.

Table 7-3 presents a schedule of recommended system improvements. Dates listed in the table match those listed in Table 7-2, and future costs are estimated assuming 3 percent inflation per year.

**TABLE 7-3 SCHEDULE OF RECOMMENDED
MAINTENANCE AND CAPACITY RELATED IMPROVEMENTS**

Improvement No.	Improvement Description	Estimated Cost in 2017 Dollars	Completion Year	Estimated Improvement Costs in Dollars	Funding Source
C3	630 LF of new 12-inch sewer beginning in Wixson Park heading south to Selah Avenue traveling east to South Third Street	\$133,000	2019	\$141,000	City
M2	Connect new 15-inch sewer to existing sewer under South First Street at Southern Avenue to collection system	\$72,000	2019	\$76,000	City
M4	Replacement of 5 manholes	\$35,000	2019	\$35,000	City
C4	New 21-inch sewer from Naches Avenue and Railroad Avenue south to Third Avenue	\$390,000	2019	\$414,000	City
C5	New 10-inch sewer West of Wixson Park Southwest of Lince Elementary School	\$48,000	2020	\$54,000	City
C1	New 10-inch, 12-inch, and 15-inch sewer starting at Fremont Avenue and North Fourth Street (end of M3 project), to Third Avenue, south to Naches Avenue, and east until intersection of Naches Avenue and Railroad Avenue	\$1,000,000	2020	\$1,093,000	City
M1	New 15-inch Industrial Pretreatment Sewer in Railroad Avenue	\$238,000	2021	\$268,000	City
C2B	New 15-inch sewer at the intersection of Eleventh Avenue and an alley east of South First Street north to Tenth Avenue and east towards the Burlington Northern Santa Fe (BNSF) Railroad right-of-way traveling north to the wastewater treatment plant	\$791,000	2027	\$1,063,000	City
M3	Install 1,920 LF of 10-inch sewer beginning at Tenth Street and Fremont Avenue continuing down Fremont Avenue to the manhole at North Fourth Street. Install six manholes along Fremont Avenue	\$365,000	2025	\$462,000	City
L1	Lift Station Improvements – Refurbish and increase capacity of the South Lift Station	\$627,000	2029	\$894,000	City
		\$3,699,000		\$4,500,000	

These recommended improvements are shown on Figure 7-1 – Collection System Recommended Maintenance and Capacity Related Improvements.



CITY OF SELAH

General Sewer Plan Update

COLLECTION SYSTEM RECOMMENDED MAINTENANCE AND CAPACITY RELATED IMPROVEMENTS

LEGEND

- EXISTING RETAIL SERVICE AREA BOUNDARY (CITY LIMITS)
- FUTURE RETAIL SERVICE AREA BOUNDARY (UGA)
- AREA NUMBER CORRESPONDING TO TEXT DISCUSSION
- RECOMMENDED CAPACITY IMPROVEMENT
- RECOMMENDED MAINTENANCE IMPROVEMENT
- MANHOLE REPLACEMENT/INSTALLATION
- EXISTING SEWER LINE
- EXISTING LIFT STATION



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7.4 FUNDING SOURCES

Funds may be available for financing the proposed improvements from several sources. Those considered in this section are listed below:

1. Local Public Enterprise Funds.
2. Use of Local Public Powers.
3. State Assisted or Guaranteed Resources.
4. Federally Assisted or Guaranteed Resources.
5. Private Development.

Available funding is limited in a number of these five sources. Many also restrict the use of funds to certain projects, while other sources limit their participation to a percentage of the total cost. Each of these categories are described briefly below.

1. Local Public Enterprise Funds

Reserves in the Enterprise Fund are accumulated from revenues from sewer user fees. The amount of the reserves will depend on the balance of operation and maintenance costs of the system versus total revenue generated by the fees. These reserves may be used to finance any sewer system related project approved by the City Council.

Funds for a future project may be generated by increases in user fees, thus building the reserves in the Enterprise Fund. With this method of financing, often called the "pay-as-you-go" approach, the City is collecting interest on the reserves as opposed to paying interest on a loan balance. One method used by some communities to accumulate reserves is through the development of a capital recovery charge system. This approach is similar to assessing connection fees, except the amount is based on the capital costs of constructing collection system trunk lines and treatment facilities, and the collected funds are usually set aside as capital reserves for future projects.

2. Use of Local Public Powers

The use of local public powers consists of three primary bonding techniques including general obligation bonds, special assessment bonds, and revenue bonds. There are advantages and disadvantages to each. The type of bond issue to finance a community improvement depends in part on custom and in part on the circumstances of a particular offering. General information about the three principal types of municipal bonds follows:

GENERAL OBLIGATION BONDS pledge the unlimited taxing power and the full faith and credit of the issuing government to meet the required principal and interest payments.

SPECIAL ASSESSMENT BONDS (LID Bonds) are used to finance improvements where the property specially benefitted can be identified. Special assessment bonds are frequently used to make capital improvements in a particular neighborhood. Principal and interest payments for these bonds are made by the special assessment on the property benefitting from the improvement. Before special assessment bonds are issued, estimated costs are mailed to property owners, and a public hearing is held to allow the affected property owners to say whether or not they want the improvements. During a subsequent 30-day protest period, property owners may protest the improvements prior to City Council action formally establishing the project. Debt financed by special assessment bonds is not subject to debt limitations. This type of financing is typically not suited for treatment plant improvement projects or construction of trunk sewers within a collection system. However, it is often used as a means to finance extension of sewers into a new service area.

REVENUE BONDS are frequently used to finance City-owned utilities, industrial parks, and other municipal public facilities. The bonds pledge the revenue from a particular revenue source to meet the principal and interest payments. Revenue bonds are appropriate debt instruments when the enterprise fund can be expected to generate sufficient revenue to meet both operating and debt service cost. Revenue bonds generally do not become a general obligation of the government issuing them. Communities may have to pay higher rates of interest on these bonds than on general obligation bonds, because revenue bonds are considered less secure. However, revenue bonds also have an important

advantage over general obligation bonds: the amount of the revenue bonds is not included in the amount of indebtedness subject to state debt limitations. The legal requirements for issuing revenue bonds are more complex than those for issuing general obligation bonds. When revenue bonds are issued, a special authority (Sewer Fund) operates the facility and a special revenue fund receives and disburses all funds. A trust agreement to provide for the monthly reimbursement of revenues and containing provisions to protect the bond holders must be formulated.

3. State Assisted or Guaranteed Resources

Three types of State-administered funding sources are available for domestic wastewater system projects: the Centennial Clean Water Fund Program (administered by the Washington Department of Ecology), the State Revolving Fund Loan Program (administered by the Washington Department of Ecology), and the Public Works Trust Fund (administered by the Department of Community, Trade, and Economic Development).

The CENTENNIAL CLEAN WATER FUND was established in 1986, obtaining its money from a tax on tobacco products. Funds from this program are used for grants and loans to local governments for measures to prevent and control water pollution. Up to two-thirds of the funds in this program can be used for activities and facilities related to point source discharges. The Centennial Program will fund up to 50% of the total eligible project costs. Applications are accepted once a year. However, rules for these funds prohibit their use on projects where state or federal grants were previously awarded and the same objective achieved.

The STATE REVOLVING FUND provides low-interest loans to local governments for projects which improve and protect the State's water quality. Up to 100% of eligible project costs are fundable through this program. Applications are accepted once a year, concurrent with the Centennial Clean Water Fund applications.

The PUBLIC WORKS TRUST FUND was created in 1985 to provide loans for replacement of public works facilities. Applications for construction funds may be submitted once each year, and applications for pre-construction funds (for such items as engineering design, bid document preparation, right-of-way acquisition, environmental studies, and infiltration/inflow studies) may be submitted anytime during the year. Current allocations of funds have been for a wide variety of projects including domestic wastewater projects. The interest rate on PWTF loans ranges from 0.5% to 2% depending on the amount of matching money provided by the City.

4. Federally Assisted or Guaranteed Resources

Three federally financed funding sources are available for domestic wastewater system construction: the USDA's Rural Development Program, the Economic Development Administration's Public Works Grants and Loans Program, and the Department of Housing and Urban Development's Community Development Block Grants administered by the State Department of Community, Trade, and Economic Development.

The USDA RURAL DEVELOPMENT PROGRAM is one of several programs established by USDA to provide public works assistance to small communities in rural areas. Public entities such as municipalities, counties, special purpose districts or authorities, Indian tribes, and nonprofit corporations or cooperatives are eligible in areas under 10,000 population. Priority will be given to public entities in areas smaller than 5,500 people to improve, enlarge, or modify a wastewater facility. Preference will also be given to requests that involve the merging of small facilities and those serving low-income communities. Loans and grant funds may be used to construct, repair, improve, expand, or otherwise modify rural wastewater collection and treatment systems. Targeted at the neediest communities, grants are designed to keep costs economical. Grants are limited to reducing the facilities per user annual costs for debt service to a minimum of 1% of the area's median family income. Loans in the past have also been available at a 5% to 10% interest rate for the useful life of the facility, or the statutory limit on the applicant's borrowing authority, or for a maximum of 40 years.

The PUBLIC WORKS GRANTS AND LOANS PROGRAM funded by the Economic Development Administration (EDA) is used to encourage long-range development gains in jurisdictions where economic growth is lagging or where the economic base is shifting. The program provides public works and development facilities needed to attract new industry and provide business expansion. Financial aid may be used to acquire and develop land and improvements for public works and to acquire, construct, rehabilitate, alter, expand, or improve such facilities, including related machinery and equipment. When completed, such projects are expected to bring additional private investment to the area. Selah has successfully used these funds for past water and wastewater system upgrades by showing demonstrable benefits to the local industries.

Under the U.S. Department of Housing and Urban Development (HUD), COMMUNITY DEVELOPMENT BLOCK GRANT PROGRAM administered by the State Department of Community, Trade, and Economic Development (CTED), communities under 50,000 can apply for grants to undertake activities in providing adequate housing, expanded economic opportunities, and correcting deficiencies in public facilities which affect the public safety and health of area or community residents. The program is designed to aid low- and moderate-income people, and is also directed to have maximum impact on stated community problems. Its primary focus is to assist blighted communities, or communities suffering a particular community or economic development problem. Sanitary sewer system projects in low-income areas of the City could be eligible for funding under this program.

5. Private Development

Expansion of domestic wastewater facilities to newly developing areas outside the existing service area is a common requirement of private developments. Installation of public utilities within housing subdivisions is normally financed entirely by the developer.

Although funding has been curtailed in a number of programs within the last few years, some projects statewide are still receiving financing. Competition for available funds, however, has increased significantly. Projects showing the greatest need and have the largest local funding participation, or benefit to low-income families, are receiving the majority of financing from these programs. Careful planning and packaging of the project is necessary so through effective dollar use, including local participation, a funding agency may obtain the maximum benefit for the greatest number of people.

Table 7-4 provides a summary of funding sources and projects that are eligible under each program.

TABLE 7-4 FUNDING SOURCE SUMMARY	
Funding Source	Eligible Projects
Sewer Enterprise Fund	All wastewater system projects
General Obligation Bond	All wastewater system projects
Revenue Bond	All wastewater system projects
Special Assessment Bond	Local Improvement District projects
Centennial Clean Water Fund	All wastewater system projects not previously funded with State or federal funds; limited eligibility for growth- and industrial-related projects
State Revolving Fund	All wastewater system projects; limited eligibility for industrial-related projects
Public Works Trust Fund	Replacement of existing wastewater system facilities; service to previously unsewered areas
USDA Rural Development Sewer Grant	All wastewater system projects once maximum level of indebtedness is reached
USDA Rural Development Sewer Loan	All wastewater system projects
EDA Public Works Grant	Water system projects to attract new industries and provide for business expansion
EDA Public Works Loan	Wastewater system projects to attract new industries and provide for business expansion
HUD Community Development Block Grant	Wastewater system projects which directly benefit low- and moderate-income families
Private Development	All wastewater system projects necessary for new housing and/or commercial developments

7.5 RECOMMENDED PROJECT FINANCING

Earlier sections in this General Sewer Plan identified the improvements to the existing sewer collection system needed as a result of growth in the existing service area and the Urban Growth Area. Typically, the existing system does not have adequate hydraulic capacity to handle the increased flow from the added users. Consequently, increased pipe sizes or new parallel pipelines, and lift station upgrades are necessary. Even if growth should not occur, a portion of the proposed improvements to the existing system are still needed because not all the pipelines have adequate capacity to meet existing demands, and several areas are high maintenance areas that require excessive resources to prevent back-ups, and to reduce the risk of claims from property owners, should a back-up occur.

An important consideration is how to pay for improvements to the existing system that are necessary due to growth. Options to pay for improvements to the existing sewer system should consider the following:

- ❖ The City of Selah could pay for all the improvements. As a result, the costs of the improvements would be borne by the ratepayers, including existing system users. However, the improvements are not needed to serve the existing customers.
- ❖ A developer could pay for all the improvements. This method could be cost prohibitive, because the developer who triggers the need for the improvements would be responsible for all costs. Furthermore, the developer would not be able to recover costs through latecomer agreements because no new direct service connections would be made to the improved sections of the existing system.

- ❖ A benefit area could be created, where specific improvements are tied to an area where growth occurs. This method could be applied to the several different sewage service basins within the service area. The estimated costs of the collection system improvements needed to serve the basin would be divided by the number of lots benefited to arrive at a special connection charge per lot. This cost is paid to the City when a new connection is made. There are several disadvantages to this approach. First, when applied to a large basin, the average cost per lot is lower because more lots are benefited than for a single development. Therefore, when the capacity of the existing system is reached, the City may not have collected enough revenue to pay for the improvements. Second, as the City grows, multiple benefit areas would be needed to address multiple system improvements, and multiple basins contribute to a section of the existing system that needs improvement, which could be difficult to administer. Third, all costs would need to be considered to properly determine the benefit area charge, including cost for improvements to the collection system and costs for treatment plant improvements.
- ❖ The City could adjust sewer connection fees to pay for the improvements to the existing infrastructure as a result of growth-related impacts. This money could be set aside so the improvements would be funded and constructed when the capacity of various system components is reached. An advantage to this approach is that when new users connect to the system, they would contribute to the cost of improvements to the existing system regardless of where the improvements are needed.
- ❖ One advantage of either the benefit area or the connection fee approach is that the developer is not directly paying for the cost of improvements to the existing infrastructure at the time construction begins. The fees would be collected at the time connections are made to the sewer system, and could be included as a homeowner cost.

Based on the above considerations, using connection fees to pay for the costs of capacity upgrades appears to be the most equitable and easiest to administer. Existing system users do not pay the cost for system upgrades to serve new users, revenue is collected at the time a connection is made, and collected fees can be set aside in a reserve fund for future use. One disadvantage of this approach is that sufficient funds may not be available if several locations in the existing system need improving simultaneously, but not enough connections are made. Fortunately, by including the treatment cost in the calculated connection fee, sufficient revenue should be collected to pay for more immediate pipeline improvements.

Two parameters are needed to calculate the connection fee – the estimated cost of system improvements, and the number of connections served by those improvements. For purposes of this calculation method, the conditions at full build-out of the UGA will be examined. The number of future connections can be determined using the projected flows from Table 4-1 and the proposed system improvement costs are based on the improvements needed to address the deficiencies shown on Figure 4-3. Using these two numbers, the proposed connection fee can be calculated by dividing the estimated cost by the number of connections.

Improvement costs include both collection system and treatment costs. Collection system costs are straightforward estimates based on the length and diameter of replacement and parallel pipe. Costs for lift station upgrades are also better defined. The estimated cost of the collection system improvements needed to serve full build-out in the UGA, as discussed in Chapter 4 is \$4,183,000.

Estimated costs for treatment plant improvements are more difficult to determine. Identifying specific treatment plant upgrades and their construction sequence requires the detailed analysis typically associated with an Engineering Report or Facility Plan, and is beyond the scope of this General Sewer Plan. However, finding a ballpark estimate of the costs is possible using cost factors available from the EPA. Since the treatment plant site has limited space for expansion, it is reasonable to assume a treatment process with a small footprint, such as membrane reactor technology, would be selected. EPA (Wastewater Management Fact Sheet, Membrane Bioreactors) suggests a cost range of \$8.00 to \$24.00 per gallon per day of wastewater treatment capacity. Since Selah already has treatment plant components in place, a price of \$15.00 per gallon per day of wastewater treatment plant capacity was chosen. Table 4-1 shows the added average day flow from full build-out will be 1.60 MGD. Since treatment plant capacity is based on maximum month flow, the average day flow needs to be adjusted using the 2016 ratio of maximum month flow to average day flow of 1.199. Therefore, treatment plant improvements should be capable of treating an additional maximum month flow of 1.92 MGD (1.60 MGD

times 1.199). At a unit cost of \$15.00 per gallon per day, the estimated cost of the treatment plant upgrade is \$28.8 million.

The total estimated cost of system upgrades needed to serve full build-out of the City and UGA is:

Collection System Improvements	\$4,183,000
Treatment Facility Upgrades	<u>\$28,800,000</u>
Total Estimated Cost	\$32,983,000

The estimated number of future connections within the City and UGA are directly related to the full build-out flows presented in Chapter 4. Those flows were based on the number of dwellings per acre, assuming a daily flow per dwelling of 300 gallons per day. (An equivalent residential unit, or ERU, is assumed to be 300 gallons per day using an average of 3 people per dwelling at 100 gallons per day.) As a result, the number of future connections can be calculated as follows:

Estimated additional flow from full build-out = 1,600,000 gallons per day
Divided by the average flow per connection = 300 gallons per day

Equals the number of future connections = 5,333 connections

By dividing the total estimated cost for system upgrades to serve City and UGA build-out of \$32,983,000 by the 5,333 future connections, yields a connection fee of \$6,185. To account for unknowns and other future cost increases, it is recommended the City adopt a sewer connection fee of \$6,185. Collection fee revenue could be set aside in a reserve fund for improving the existing system components as needed to meet the demands imposed in the system by future growth.

As a check to find if sufficient revenue is being generated to make collection system improvements, the revenue generated by the proposed connection fee can be compared with the costs of system upgrades to meet 2037 demands. Table 5-1 estimates that in 2037, average annual flows will be 1.52 MGD. This is an increase of 0.235 MGD compared to the average of the 2012 through 2016 Annual Average in Table 2-4 which is 1.285 MGD. Using a flow of 300 gallons per connection per day, equates to about 783 new connections. This should generate approximately \$4,843,000 in connection fee revenue. The estimated cost of collection system improvements to meet 2037 demands required for capacity related projects driven by development is \$2,362,000, so sufficient revenue should be available to make these improvements, and the additional revenue can be set aside for wastewater treatment plant upgrades.

7.6 SEWER SYSTEM FINANCIAL PROGRAM

Developing a plan for project financing involves examining current system expenditures and revenues, integrating the schedule and costs of the recommended improvements into the City's financial structure, recommending funding sources, and developing method to pay for the identified improvements. The wastewater collection system improvements are necessary to improve collection system capacity, and to reduce operation and maintenance costs. Section 7.3 of this Plan presented a schedule and cost estimates for maintenance-related, and for future capacity-related improvements (in 2016 dollars). An underlying premise of the financial program is that growth will pay for the growth-related improvements, and the "connection fee" approach discussed in section 7.5 is carried forward as the preferred method of paying for growth-related improvements. Therefore, timing of the improvements has been developed to meet future growth-related capacity needs and to allow for accumulation of City revenues to reduce future financing costs.

Table 7-5 presents a financial model for Selah for design and construction of the recommended improvements based on the following:

- ❖ The financial program used to plan for the 2018 sewer system budget was used as the basis for this financial planning effort.

- ❖ Actual 2017 revenues and expenditures are listed. 2018 revenues and expenditures are taken from the 2018 budget.
- ❖ Connection fee revenue is estimated from the growth rates and service area population presented in Chapter 2, assuming a 1% annual growth rate which would result in 30 to 35 connections annually. Connection fees are also assumed to increase at the same percentage as the charges for service to account for inflation of collection system improvement costs. The financial model used a conservative connection rate of 20 additional connections per year, each paying the recommended connection charge of \$6,183.
- ❖ Connection fees are transferred to the sewer reserve fund each year. When collection system improvements are made, reserve funds are transferred back in to pay for the improvements.
- ❖ The analysis includes yearly transfers out for street maintenance (\$20,000 per year), and public works equipment reserve (\$40,000 per year), which is consistent with City practices the last five years.
- ❖ Maintenance- and capacity-related collection system improvements recommended in this Plan are as proposed in Table 7-3. Schedule adjustments may be needed to coordinate construction with street improvements and developer extension of service into new areas.
- ❖ A future treatment plant improvement project will be needed to address long-term capacity needs and possible regulatory requirements. Though the scope of the project has not been specifically identified, the connection fee calculations consider the cost of treatment plant improvements. However, no specific project is included in the schedule of improvements, but sewer fund reserves are allowed to build for this future project.
- ❖ Existing annual sewer system expenses are assumed to increase by 3% annually.

In December 2017, the City of Selah instituted a 4% rate increase to cover operating expenses and fund future improvements. In the financial model, revenues from “Charges for Service” are shown to increase at a rate of 5% in 2019, 5% in 2020, and 3% per year, each year thereafter. Connection fee revenue is sufficient to offset the proposed collection system improvements and build the sewer reserve fund for future projects. However, due to unknowns related to operating expenses and growth, the City should continue to monitor system finances and make necessary annual adjustments in rates to meet expenses.

CHAPTER 8

PLAN

IMPLEMENTATION

8.1 PURPOSE

Recommended actions for Plan implementation are discussed in this section. These actions should be initiated as soon as the Plan has been adopted by resolution of the City Council and approved by the Washington Department of Ecology.

Actions needed to implement this Plan may be classified into two categories: institutional and budgetary. Institutional actions are related to the functions and processes carried out by the City as a municipal corporation. Budgetary actions are related to the financing of the sewer utility, both short-term and long-term.

8.2 GENERAL POLICIES

Selah officials have established the following policies to guide actions associated with the sewer utility. These policy statements form the basis for the implementing steps set forth in this section.

- ❖ Minimize user charges to the greatest extent possible.
- ❖ Budget in a timely manner for replacement and/or expansion of capital improvements.
- ❖ Assure organizational measures are taken to protect the investment in the sewer utility.
- ❖ Assure the process for expansion of the sewer utility is clear, economical, and adequate.

8.3 INSTITUTIONAL ACTIONS

A. Sewer System Code

The following chapters of the Selah Municipal Code contain the rules governing the City's Sewer System:

Chapter 9.10	Sewer System
Chapter 9.11	Separate Industrial Wastewater Treatment Systems
Chapter 9.14	Plumbing and Side Sewers
Chapter 9.15	Service Outside City Limits
Chapter 9.16	Water and Sewer Facilities Act
Chapter 9.17	Plant Investment Fee
Chapter 9.19	Utility Latecomer Agreements
Chapter 9.21	Septage Waste Disposal
Chapter 11.08	Plumbing Code
Resolution 1931	Sewer Rate Resolution

Copies of these Municipal Code Chapters are bound in the Appendix.

B. Service Area Policies

Many policies are established by a utility that affects growth and development. Some policies deal specifically with wastewater and have a direct impact upon utility development within the future service area. The City of Selah has identified the following service area policies that affect the sewer system:

1. The City of Selah will make every effort to provide domestic sewer service to new customers within Selah's future service area. The City may choose to participate in the cost of extending sewers for new customers who are within the City Limits.

2. All costs associated with extending sewers to unimproved properties shall be the responsibility of the developer. Requirements to be met by developers when extending the City's sewer system are identified in "Extension by Developers Policy," provided in the Appendix.
3. The City may choose to require a sewer extension be oversized for future demand. The difference in material and construction costs between the two sizes may be paid for by the City, or the City may enter into an agreement or develop a program requiring those costs to be repaid by future users.
4. The City will administratively assist property owners who wish to establish a Local Improvement District for the purposes of constructing sewer system improvements.
5. The City has established by Municipal Code Chapter 9.19 a Latecomer's Agreement format for extension of sewer mains. A copy of this code section is provided in the Appendix.
6. The City will provide sewer service to properties outside the City Limits in accordance with Chapter 9.15 of the City Municipal Code. The "outside customers" must execute an outside utility agreement and will be assessed rates that are higher than those charged to customers within the City Limits. (Resolution 2580 establishes the current rates for services both within and without the City Limits.) Copies of these documents are bound in the Appendix.
7. When a public sewer becomes available (within 200 feet of the property line), the side sewer shall be connected to the public sewer within 60 days.

C. Overall Project Review

Utilizing the information contained in this Plan, Selah should review proposed development projects to assess probable impacts on the wastewater collection and treatment facilities. If impacts are expected to be extraordinary, fees may be assessed or specific improvements required as a condition of project approval.

D. Outside Service Area Policy

The City of Selah has determined it is in the public interest and for the general welfare of the City to allow certain selected extensions of City water and/or sewer services to property outside the corporate limits of the City in accordance with Chapter 9.15 of the Municipal Code. A copy of this Municipal Code Chapter is bound in the Appendix.

As specified in the code, City sewer service may, at the discretion of the Council, be extended outside the City of Selah limits, if the following conditions are met:

1. The area to be served lies within the "Area of Mutual Planning Concern" as established by Resolution 986 or within the City's Urban Growth Area;
2. The proposed extension of City water and sewer mains and system appurtenances conform to the City's comprehensive plans;
3. The applicant has executed an outside utility agreement containing the following conditions, as a minimum:
 - a. The agreement shall be executed by the property owner(s) and shall be recorded and constitute a covenant upon the land;
 - b. The owner(s) shall pay all connection charges, service fees, etc., as prescribed by City ordinance when the service is applied for;
 - c. The owner(s) shall assist the City in taking the necessary steps to obtain the approval of the Yakima Boundary Review Board;

- d. The owner(s) shall comply with City ordinances concerning short or long platting and shall construct all improvements to City standards as if the property affected by this agreement were situated within the boundaries of the City;
- e. The owner(s) agree to sign in favor of any and all notices, petitions, and any other documents requested concurrent with the outside utility agreement or at any time requested by the City leading to the annexation of the property to the City; and
- f. The outside utility agreement may also contain other conditions or covenants, as determined by the Council, to assure the orderly, planned development of the area.

E. Sewer Construction

The City currently maintains requirements for side sewers (City Code Chapter 11.08 and Sewer Design Standards), copies of which are bound in the Appendix.

F. Source Metering and Monitoring

The City may require, through source monitoring, that industrial users of the City wastewater facilities determine the volume and strength of industrial wastes discharged (Resolution 2580). When required, the City designates the number and location of monitoring stations. Installation of the City-approved monitoring stations is at the expense of the industrial user.

8.4 BUDGETARY ACTIONS

The primary action related to budgetary needs is the development of and commitment to a capital improvement program for upgrading collection and treatment facilities, and the establishment of rates and fees to finance the program. A proposed capital improvement plan is provided in Table 7-3 and a financial program is provided in Table 7-5.

Through an analysis of existing problems and probable development patterns, this Plan identifies recommended improvements to the existing collection system (Chapter 3 and Chapter 5) and identifies development of the future collection system (Chapter 4). Estimated project costs are provided along with the identified improvements, and a financial program for the improvements is presented in Chapter 7 with detailed financial information available in Table 7-5. The City should refer to and regularly update the financial program to assure funds are available and currently unidentified needs are included in the financing structure.

To fund the necessary improvements to the existing wastewater treatment facilities and the existing collection system, the City should implement a connection fee program, setting the minimum connection fee at \$6,100 per ERU (Equivalent Residential Unit), payable at the time a connection is made to the sewer system, and to account for inflation allow the fee to be increased similar to user charges. The City raised sewer rates 2% in December 2016, and have typically raised rates by 2% to 3% each year since 2008 when the rates were raised by 5%. To generate revenue for operation and improvement of the wastewater system, the proposed financial plan is to raise rates 10% in 2019 and 3% each year after. These revenue increases are the same as if no collection system improvements are made, because the proposed connection fee program is used to pay for collecting system improvements.

APPENDIX

APPENDIX DOCUMENTS

State Environmental Policy Act (SEPA) Checklist

SEPA Determination of Non-Significance (DNS)

NPDES Permit No. WA-002103-2

City of Selah Sewer Rate Resolution

City of Selah Municipal Sewer Code

Chapter 9.10	Sewer System
Chapter 9.11	Separate Industrial Wastewater Treatment Systems
Chapter 9.14	Plumbing and Side Sewers
Chapter 9.15	Service Outside City Limits
Chapter 9.16	Water and Sewer Facilities Act
Chapter 9.17	Plant Investment Fee
Chapter 9.19	Utility Latecomer Agreements
Chapter 9.21	Septage Waste Disposal

City of Selah Construction Standards

City of Selah Standard Details for Sewer

Engineering Cost Estimates

Maintenance Improvements

Capacity Improvements

Lift Station Improvements

Map A – Existing Collection System Survey Data

Map B – Collection System Loading and Recommended Improvements at Projected Ultimate Build-out

Map C – Collection System Loading at Projected Year 2037

City of Selah Existing Sewer System Map

City of Selah Existing Water System Map

Map D – Hydraulic Model Node Map

Hydraulic Model Output

Existing System

Ultimate Buildout System

2037 System

**STATE ENVIRONMENTAL
POLICY ACT
(SEPA)
CHECKLIST**

**CITY OF SELAH
Yakima County, Washington**

**CITY OF SELAH
GENERAL SEWER PLAN**

**STATE ENVIRONMENTAL POLICY ACT
ENVIRONMENTAL CHECKLIST**



HLA Project No. 17044E

December 2017

STATE ENVIRONMENTAL POLICY ACT

ENVIRONMENTAL CHECKLIST

A. BACKGROUND

1. *Name of Proponent:* City of Selah
Phone Number: (509) 698-7328
Address of Proponent: 115 West Naches Avenue
Selah, WA 98942

2. *Person Completing Form:* Dean P. Smith, PE
Phone Number: (509) 966-7000
Address: HLA Engineering and Land Surveying, Inc.
2803 River Road
Yakima, WA 98902

3. *Date Checklist Submitted:* December 17

4. *Agency Requiring Checklist:* City of Selah

5. *Name of Proposal, if Applicable:* City of Selah General Sewer Plan

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

General Sewer Plan Adoption, January 2018

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

This plan identifies the on-going maintenance activities as well as replacement and growth-related improvements of the City's wastewater collection and treatment system.

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

None.

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

No.

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

1. Department of Ecology - Approval of the General Sewer Plan.
2. Department of Ecology – Approval of collection system and treatment facility construction plans and specifications for improvements identified within the General Sewer Plan.
3. Selah City Council – Authorization to advertise for bids and award of construction contracts

11. *Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page.*

Adoption of the General Sewer Plan for the City of Selah Urban Growth Area. The plan identifies the following recommended maintenance- and growth-related improvements to the Selah wastewater collection and treatment system at projected year 2028:

1. Construct 900 LF of new 15-inch industrial pretreatment sewer in Railroad Avenue.
2. Connect previously constructed sewer under South First Street at Southern Avenue with 50 LF of 12-inch sewer and 250 LF of 15-inch sewer to the collection system and re-route wastewater from Southern Avenue through this line.
3. 2,975 LF of new 15-inch sewer at the intersection of Eleventh Avenue and an alley east of South First Street north to Tenth Avenue and east towards the Burlington Northern Santa Fe (BNSF) Railroad right-of-way traveling north to the wastewater treatment plant.
4. 330 LF of new 12-inch sewer from Wixson Park, south to Selah Avenue and east to South Third Street.
5. 1,269 LF of new 21-inch sewer from Naches Avenue and Railroad Avenue south to Third Avenue.

This Environmental Checklist has been completed as it pertains to adoption of the City of Selah General Sewer Plan. Construction, with potential construction related impacts, will be necessary to implement the Plan recommendations. Further environmental review is required for all non-exempt construction activities, and project specific checklist responses will be provided at that time.

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

The proposed wastewater system improvements are located throughout the incorporated and unincorporated areas within the City of Selah Urban Growth Area boundary, and are shown on Map B of the General Sewer Plan.

B. ENVIRONMENTAL ELEMENTS

1. EARTH

- a. *General description of the site (circle one): Flat, rolling, hilly, steep slopes, mountainous, other.*

25% slopes.

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

The majority of the City sits on slopes that range from 0% to 2%.

- c. *What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.*

There exists a wide variety of soils within the current Selah sewer service area, including silt, sand, and gravel. Some of the soils within the Selah area are classified by the U.S. Department of Agriculture Natural Resource Conservation Service as Prime Farmland. Future construction of the water system to serve areas within Selah's Urban Growth Area may cross some of these prime farmland areas.

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

Some steep slope areas within the Urban Growth Area may contain unstable soils.

- e. *Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.*

None proposed.

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

No.

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

No additional impervious surfaces.

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

None.

2. AIR

- a. *What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.*

None.

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

No.

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

None.

3. WATER

- a. *Surface:*

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

The Selah Ditch, the Naches River, the Yakima River, Wenas Creek, and irrigation canals and drains lie within or immediately adjacent to the current and future water service areas.

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

No.

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

None.

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

No.

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

The City of Selah Urban Growth Area boundary contains lands located within the 100-year floodplains of the Yakima River and the Naches River.

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

The City of Selah's current NPDES permit, issued by the Washington Department of Ecology in 2007, authorizes the City to discharge treated wastewater to the Yakima River. In 2007, the Selah wastewater treatment facility discharged an average of 1.178 million gallons per day (430 million gallons per year) of treated wastewater to the Yakima River. This volume is expected to increase to approximately 1.466 million gallons per day (approximately 535.1 million gallons per year) by the year 2028.

b. Ground:

1. *Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.*

No.

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

None.

c. *Water Runoff (including storm water):*

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

Storm water will continue to flow into existing storm drains at the Selah Wastewater Treatment Plant site and areas throughout the sewer service area.

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

Previously described in question 3.a.6., and question 3.b.1.

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

It is anticipated that the discharge of treated wastewater with specific effluent limits will continue as authorized by the Washington Department of Ecology.

4. PLANTS

- a. *Check or underline type of vegetation found on the site (within the City of Selah Urban Growth Area boundary):*

 x deciduous tree: alder, maple, aspen, other
 x evergreen tree: fir, cedar, pine, other
 x shrubs
 x grass
 x pasture
 x crop or grain
 x wet soil plants; cattail, buttercup, bullrush, skunk cabbage, other
_____ water plants: water lily, eelgrass, milfoil, other
_____ other types of vegetation

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

None.

- c. *List threatened or endangered species known to be on or near the site (City of Selah Urban Growth Area boundary).*

None.

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

None.

5. ANIMALS

- a. *Underline any birds and animals which have been observed on or near the site or are known to be on or near the site (City of Selah Urban Growth Area boundary):*

Bird: hawk, heron, eagle, songbird, other

Mammals: deer, bear, elk, beaver, other

Fish: bass, salmon, trout, herring, shellfish, other

- b. *List any threatened or endangered species known to be on or near the site (City of Selah Urban Growth Area boundary).*

None.

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

The City of Selah Urban Growth Area boundary may be within a migratory route for some bird species.

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

None.

6. ENERGY AND NATURAL RESOURCES

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

None.

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

No.

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

None.

7. ENVIRONMENTAL HEALTH

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

No.

1. *Describe special emergency services that might be required.*

None.

2. *Proposed measures to reduce or control environmental health hazards, if any:*

None.

- b. *Noise*

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

None.

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

None.

3. *Proposed measures to reduce or control noise impacts, if any:*

None.

8. LAND AND SHORELINE USE

- a. *What is the current use of the site and adjacent properties?*

The City of Selah Urban Growth Area is a combination of agricultural, residential, commercial, industrial, public, and quasi-public land uses.

- b. *Has the site been used for agriculture? If so, describe.*

Historically, land within the City of Selah Urban Growth Area has been used for agriculture. However some of the land area has been converted to non-agricultural urban uses.

- c. *Describe any structures on the site.*

Not applicable.

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

No.

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

The incorporated and unincorporated City of Selah Urban Growth Area consists of a range of zoning classifications including agricultural, residential, commercial, industrial, and public.

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

Not applicable.

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

Not applicable.

- h. *Has any part of the site been classified as an "environmentally sensitive" area?*

No.

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

Not applicable.

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

None.

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

Not applicable.

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

None.

9. HOUSING

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

None.

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

None.

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

Not applicable.

10. AESTHETICS

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

None.

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

None.

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

None.

11. LIGHT AND GLARE

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

None.

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

No.

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

None.

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

None.

12. RECREATION

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

The City of Selah Urban Growth Area contains numerous municipal parks and school playgrounds. Numerous informal recreational opportunities such as fishing, bird watching, walking, jogging, bicycling, etc., exist within the Urban Growth Area.

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

No.

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

None.

13. HISTORIC AND CULTURAL PRESERVATION

- a. *Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.*

No.

- b. *Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.*

None.

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

None.

14. TRANSPORTATION

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

The City of Selah Urban Growth Area contains numerous City of Selah, Yakima County, and Washington Department of Transportation streets and highways. Public streets are shown on Map B of this General Sewer Plan.

- b. *Is the site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?*

Public transit service is provided on First Street within the City of Selah.

- c. *How many parking spaces would the completed project have? How many would the project eliminate?*

Not applicable.

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

No.

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

A Burlington Northern – Santa Fe rail line traverses the City of Selah Urban Growth Area.

- f. *How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.*

None.

- g. *Proposed measures to reduce or control transportation impacts, if any:*

None.

15. PUBLIC SERVICES

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

No.

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

None.

16. UTILITIES

- a. *Underline the utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, irrigation, cable TV, drains, other.*

Available at numerous locations within the City of Selah Urban Growth Area.

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

None.

C. SIGNATURE

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

Proponent or Person Completing Form
Dean P. Smith, PE
Project Engineer

D. SUPPLEMENTAL SHEET FOR NONPROJECT ACTION

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

This General Sewer Plan addresses and identifies improvements to and expansion of the City of Selah's wastewater system necessary to accommodate projected growth within the City and its Urban Growth Area over the next 20-year period. The volume of treated wastewater is expected to increase over the next twenty-year period, but no increases in emissions to air, production, storage, or release of toxic or hazardous substances, or production of noise are likely as a result of this proposal.

Proposed measures to avoid or reduce such increases are:

None.

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

No effects are likely as a result of this proposal.

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

Not applicable.

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

Because some wastewater system components operate electrically, this proposal may result in a minor increase in energy requirements to operate electrical equipment over current amounts.

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

The increase of electrical energy requirements will be reduced to the extent possible through the use of high-efficiency electrical motors and equipment.

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

The proposal is not likely to use or effect environmentally sensitive areas.

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

Environmentally sensitive areas were identified during the development of Selah's GMA Comprehensive Plan. These areas will be avoided when detailed plans are prepared and sewer alignments selected.

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

The proposal will not affect land or shoreline use in ways incompatible with existing plans.

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

None.

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

This proposal identifies the future demand upon the Selah wastewater system, and identifies the measures the City will take to accommodate that future demand.

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

Proposed measures include expansion of the wastewater system to serve lands within the City's Urban Growth Area.

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

This proposal does not conflict with laws or requirements for the protection of the environment. Improvements identified within this proposal will allow the City to comply with public health requirements.

**SEPA
DETERMINATION OF
NON-SIGNIFICANCE
(DNS)**

DETERMINATION OF NONSIGNIFICANCE (DNS)

Description of Proposal:
General Sewer Plan.

Proponent:
City of Selah

Location of proposal, including street address, if any:
City of Selah
115 West Naches Avenue
Selah, WA 98942

Lead Agency:
City of Selah

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

 There is no comment period for this DNS.

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

Responsible Official: Donald Wayman

Position/title: City Supervisor/SEPA Responsible Official

Address: 115 West Naches Avenue
Selah, WA 98942

Phone: (509) 698-7333

Date: _____ *Signature:* _____

**NPDES
PERMIT NO.
WA-002103-2**



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

1250 W Alder St • Union Gap, WA 98903-0009 • (509) 575-2490

September 5, 2017

Joe Henne
City of Selah
222 S. Rushmore Rd
Selah, WA 98942

RE: Administrative Extension for NPDES Permit No. WA0021032 for the Selah Publicly Owned Treatment Works (POTW), Effective October 1, 2017

Dear Mr. Henne:

Your National Pollutant Discharge Elimination System (NPDES) Permit No. WA0021032 is scheduled to expire September 30, 2017. Your application for renewal was received on September 29, 2016, and accepted on November 10, 2016. Because of workload and staffing issues, the Department of Ecology (Ecology) is unable to reissue your permit prior to expiration. When the permit writer assigned to write your permit begins developing a draft permit, you may be asked to provide additional or updated information.

In accordance with Chapter 90.48 of the Revised Code of Washington (RCW), your existing permit and the terms and conditions thereof remain in effect until further notice. You are also required to comply with all water pollution laws and regulations.

If you have any questions or need assistance, please feel free to contact Coleman Miller, your permit manager at 509/457-7108.

Sincerely,

A handwritten signature in cursive script that reads "David B. Bowen".

David B. Bowen
Section Manager
Water Quality Program

By Certified Mail 91 7199 9991 7037 0226 2218

c: Todd LaRoche, City of Selah
Charles Gilman, Ecology-Olympia

Issuance Date: August 23, 2012
Effective Date: October 1, 2012
Expiration Date: September 30, 2017

**National Pollutant Discharge Elimination System
Waste Discharge Permit No. WA0021032**

State of Washington
DEPARTMENT OF ECOLOGY
Olympia, Washington 98504-7600

Central Regional Office
15 West Yakima Avenue, Suite 200
Yakima, WA 98902

In compliance with the provisions of
The State of Washington Water Pollution Control Law
Chapter 90.48 Revised Code of Washington
and
The Federal Water Pollution Control Act
(The Clean Water Act)
Title 33 United States Code, Section 1342 et seq.

**City of Selah
Public Works - 222 S Rushmore Road
City Hall - 115 West Naches Avenue
Selah, Washington 98942**

is authorized to discharge in accordance with the Special and General Conditions that follow.

Plant Location: 222 S. Railroad Ave. Selah, WA 98942	Receiving Water: Selah Ditch to the Yakima River
Treatment Type: Class III, Activated Sludge, Industrial Pretreatment, Ultra-Violet Disinfection and Aerobic Sludge Digestion	

Charles McKinney
Section Manager
Water Quality Program
Central Regional Office
Washington State Department of Ecology

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Summary of Permit Report Submittals

Refer to the Special and General Conditions of this permit for additional submittal requirements. The following table is for quick reference only. Enforceable submittal requirements are contained in the permit narrative.

Permit Section	Submittal	Frequency	First Submittal Date
S3.A	Discharge Monitoring Report (DMR)	Monthly	November 15, 2012
S3.A	Effluent Characterization DMR (S2A Monitoring Table (5))	Quarterly	January 15, 2013
S3.A	Permit Renewal Application Requirements DMR (S2A Monitoring Table (6))	Annually	January 15, 2013
S3.E	Reporting Permit Violations	As necessary	
S3.E.a	Reporting Permit Violations – Immediate Reporting	As necessary	
S3.E.b	Reporting Permit Violations – 24-Hour Reporting	As necessary	
S3.E.c	Reporting Permit Violations – Report within Five Days	As necessary	
S3.E.e	Reporting Permit Violations – All Other Reporting	Monthly as necessary	
S3.F	Other Reporting	As necessary	
S4.B	Plans for Maintaining Adequate Capacity	As necessary	
S4.D	Notification of New or Altered Sources	As necessary	
S4.E.4.	Infiltration and Inflow Evaluation	1/permit cycle	January 31, 2014
S4.F	Wasteload Assessment	1/permit cycle	January 31, 2016
S5.F	Bypass Notification	As necessary	
S5.G.a.1	Operations and Maintenance Manual Update	1/permit cycle	November 1, 2016
S6.E	Industrial User Survey Update	As necessary	November 1, 2016
S8	Application for Permit Renewal	1/permit cycle	September 30, 2016
S9.1.	Meeting of the Technical Advisory Workgroup	As necessary	October 2012
S9.2.	Sampling and Analysis Plan for Selah Ditch	1/permit cycle	November 30, 2012
S9.3.	First planting along Selah Ditch	1/permit cycle	Spring 2013
S9.4.	TMDL effectiveness monitoring and report	1/permit cycle	August 2013
S9.5.	Planting trees and other riparian vegetation in coordination with the Public Education Area design in the meander of the Selah Ditch	1/permit cycle	Spring 2013
S9.6.	Letter of completion of planting of shade trees along Selah Ditch	1/permit cycle	Spring 2014
S9.7.	Progress report on funding and/or construction report for the “Public Education Area” in the meander section of the Selah Ditch	As necessary	December 31, 2014
S9.8.	Conduct 2 nd TMDL effectiveness monitoring event	1/permit cycle	August 31, 2015

Permit Section	Submittal	Frequency	First Submittal Date
S9.9.	Submit engineering plans to meet effluent dissolved oxygen requirement as determined through monitoring and modeling to meet water quality standards	1/permit cycle	November 30, 2015
S9.10.	Complete construction of mitigation engineering and construction of improvements, if needed, to meet water quality criterion for dissolved oxygen at the edge of the chronic mixing zone	1/permit cycle	November 30, 2016
S10.A.1	Acute Toxicity Characterization Testing	3/permit cycle	Once in the summer, fall and winter prior to application for permit renewal
S10.A.2	Acute Toxicity Effluent Test Results with Permit Renewal Application	1/permit cycle	September 30, 2016
S11.A.1	Chronic Toxicity Characterization Testing	3/permit cycle	Once in the summer, fall and winter prior to application for permit renewal
S11.A.2	Chronic Toxicity Effluent Test Results with Permit Renewal Application	1/permit cycle	September 30, 2016
G1.	Notice of Change in Authorization	As necessary	
G4.	Reporting Planned Changes	As necessary	
G5.	Engineering Report for Construction or Modification Activities	As necessary	
G7.	Notice of Permit Transfer	As necessary	
G10.	Duty to Provide Information	As necessary	
G13.	Payment of Fees	As assessed	
G20.	Compliance Schedules	As necessary	
G21.	Contract Submittal	As necessary	

Special Conditions

S1. Discharge limits

S1.A. Effluent limits

All discharges and activities authorized by this permit must comply with the terms and conditions of this permit. The discharge of any of the following pollutants more frequently than, or at a level in excess of, that identified and authorized by this permit violates the terms and conditions of this permit.

Beginning on **October 1, 2012** and lasting through **September 30, 2017**, the Permittee may discharge municipal wastewater to the Selah Ditch at the permitted location subject to compliance with the following limits:

Effluent Limits: Outfall # 001 Latitude 46.6486 Longitude -120.5261			
Parameter	Average Monthly ^a		Average Weekly ^b
Biochemical Oxygen Demand (5-day) (BOD ₅)	30 milligrams/liter (mg/L) 495 pounds/day (lbs/day) 85% removal of influent BOD ₅		45 mg/L 742 lbs/day
Total Suspended Solids (TSS)	30 mg/L 500 lbs/day 85% removal of influent TSS		45 mg/L 751 lbs/day
Parameter	Monthly geometric mean		7- day geometric mean
Fecal Coliform Bacteria ^c	100/100 mL		200/100 mL
Parameter	Daily minimum		Daily Maximum ^d
pH	6.0 standard units		9.0 standard units
Total Ammonia (asNH ₃ -N)	Not applicable (NA)		2.9 mg/L, 48.4 lbs/day
TMDL Adaptive Management Limits		Minimum Concentration	
Dissolved Oxygen		Interim Limit effective June 11, 2012 to September 30, 2016	4.1 mg/L
		Final Limit effective October 1, 2016	7.4 mg/L
a	Average monthly effluent limit means the highest allowable average of daily discharges over a calendar month. To calculate the discharge value to compare to the limit, you add the value of each daily discharge measured during a calendar month and divide this sum by the total number of daily discharges measured. See footnote c for fecal coliform calculations.		
b	Average weekly discharge limitation means the highest allowable average of “daily discharges” over a calendar week, calculated as the sum of all “daily discharges” measured during a calendar week divided by the number of “daily discharges” measured during that week. See footnote c for fecal coliform calculations.		
c	Ecology provides directions to calculate the monthly and the 7-day geometric mean in publication No. 04-10-020, Information Manual for Treatment Plant Operators available at: http://www.ecy.wa.gov/pubs/0410020.pdf . The establishment of a 7-day Geomean of 113 forming colonies per 100 mls is in response to the Selah Ditch Multi-Parameter TMDL benchmark.		
d	Maximum daily effluent limit is the highest allowable daily discharge. The daily discharge is the average discharge of a pollutant measured during a calendar day. For pollutants with limits expressed in units of mass, calculate the daily discharge as the total mass of the pollutant discharged over the day. This does not apply to pH or temperature.		

S1.B. Mixing zone authorization

The boundary of the specially extended chronic mixing zone as defined in the Selah Ditch Multiparameter Total Maximum Daily Load is 3,100 feet downstream from the outfall. The acute mixing zone is 310 feet downstream from the outfall. The acute and chronic dilution factors are 1.0 and 1.13, respectively.

Available Dilution (dilution factor)	
Acute Aquatic Life Criteria	1 to 1
Chronic Aquatic Life Criteria	1.3 to 1

S2. Monitoring requirements

S2.A. Monitoring schedule

The Permittee must monitor in accordance with the following schedule and the requirements specified in Appendix A.

The Permittee must monitor the wastewater according to the following schedule. The Permittee must use the specified analytical methods unless the method used produces measurable results in the sample and EPA has listed it as an EPA-approved method in 40 CFR Part 136. If the Permittee uses an alternative method, not specified in the permit and as allowed above, it must report the test method, DL, and QL on the discharge monitoring report or in the required report.

Parameter	Units	Laboratory Method	Minimum Sampling Frequency	Sample Type
(1) Wastewater Influent				
Wastewater Influent means the raw sewage flow from the collection system into the treatment facility. Sample the wastewater entering the headworks of the treatment plant excluding any side-stream returns from inside the plant.				
Flow	mgd	NA	Continuous ^a	Measurement
pH	standard units	SM 4500-H ⁺ B	Daily ^b	Grab ^c
Biochemical Oxygen Demand (BOD ₅)	mg/L	SM 5210 B	3/week ^d	24-hr composite ^e
BOD ₅	lbs/day	NA	3/week	Calculated ^f
Total Suspended Solids (TSS)	mg/L	SM 2540 D	3/week	24-hr composite
TSS	lbs/day	NA	3/week	Calculated
(2) Final Wastewater Effluent				
Final Wastewater Effluent means wastewater which is exiting, or has exited, the last treatment process or operation. Typically, this is after or at the exit from the chlorine contact chamber or other disinfection process. The Permittee may take effluent samples for the BOD ₅ analysis before or after the disinfection process. If taken after, dechlorinate and reseed the sample.				
BOD ₅	mg/L	SM 5210 B	3/week	24-hr composite
BOD ₅	lbs/day	NA	3/week	Calculated
BOD ₅	% removal	NA	1/month ^g	Calculated ^h
TSS	mg/L	SM 2540 D	3/week	24-hr composite
TSS	lbs/day	NA	3/week	Calculated
TSS	% removal	NA	1/month	Calculated
Fecal Coliform	#Organisms/100ml	SM 9222 D (MF)	3/week	Grab
Total Ammonia	mg/L	SM4500-NH ₃ - GH	5/week ⁱ	Grab
Total Ammonia	lbs/day	NA	5/week	Calculated
Dissolved Oxygen	mg/L	SM4500-OC/OG	Daily	Grab
pH	Standard Units	SM 4500-H ⁺ B	Daily	Grab
Temperature ^j	°C	NA	Daily	Measurement
Critical Season 7-DAD Max Temperature ^k	°C	Data Logger	continuous	Calculated

Parameter		Units	Laboratory Method	Minimum Sampling Frequency	Sample Type
a	Continuous means uninterrupted except for brief lengths of time for calibration, for power failure, or for unanticipated equipment repair or maintenance. The Permittee must sample every six hours when continuous monitoring is not possible.				
b	Daily means 7 days per week, including holidays.				
c	Grab means an individual sample collected over a fifteen (15) minute, or less, period.				
d	3/week means three (3) times during each calendar week and on a rotational basis throughout the days of the week, except weekends and holidays.				
e	24-hour composite means a series of individual samples collected over a 24-hour period into a single container, and analyzed as one sample.				
f	Calculation means figured concurrently with the respective sample, using the following formula: Concentration (in mg/L) X Flow (in MGD) X Conversion Factor (8.34) = lbs/day				
g	Monthly means once every calendar month during alternate weeks.				
h	$\% \text{ removal} = \frac{\text{Influent concentration (mg/L)} - \text{Effluent concentration (mg/L)}}{\text{Influent concentration (mg/L)}} \times 100$ Calculate the percent (%) removal of BOD ₅ and TSS using the above equation.				
i	5/week means five (5) times during each calendar week, excluding weekends and holidays.				
j	Temperature grab sampling must occur when the effluent is at or near its daily maximum temperature, which usually occurs in the late afternoon.				
k	The critical season is defined as that time beginning April 1 st and ending October 31 st of each year. The Permittee must determine and report a daily maximum from half-hour measurements in a 24-hour period. Continuous monitoring instruments must achieve an accuracy of 0.2 degrees C and the Permittee must verify accuracy annually.				
l	Quarterly means once per 3 month calendar quarter beginning in the first month of permit effective date.				
(3) Whole Effluent Toxicity Testing – Final Wastewater Effluent					
Acute Toxicity Testing		As specified in Special Condition S10.			
Chronic Toxicity Testing		As specified in Special Condition S11.			
(4) Pretreatment: sampled at the influent headworks and before the effluent siphon					
Flow, influent	mgd	NA	Continuous ^a	Measurement	
Flow, effluent	mgd	NA	Continuous	Measurement	
pH, influent	Standard units	SM 4500-H ⁺ B	3/week ^d	Grab ^c	
pH, effluent	Standard units	SM 4500-H ⁺ B	3/week	Grab	
BOD ₅ , influent	mg/L	SM 5210 B	3/week	24-hr composite ^e	
BOD ₅ , effluent	mg/L	SM 5210 B	3/week	24-hr composite ^e	
BOD ₅ , influent	lbs/Day	NA	3/week	Calculated ^f	
BOD ₅ , effluent	lbs/Day	NA	3/week	Calculated	
BOD ₅ , effluent	% removal	NA	1/month	Calculated ^h	
TSS, influent	mg/L	SM 2540 D	3/week	24-hr composite	
TSS, effluent	mg/L	SM 2540 D	3/week	24-hr composite	
TSS, influent	lbs/Day	NA	3/week	Calculated	
TSS, effluent	lbs/Day	NA	3/week	Calculated	
TSS, effluent	% removal	NA	1/month	Calculated	
(5) Effluent Characterization – Final Wastewater Effluent					
Total Phosphorus	mg/L as P	SM 4500-PE/PF (EPA 365.1)	Quarterly ⁱ	Grab	
Ortho-Phosphorus (PO4)	mg/L as P	4500- PE/PF	Quarterly	Grab	
Nitrate-Nitrite Nitrogen	mg/L as N	4500-NO3- E/F/H	Quarterly	Grab	
Total Kjeldahl Nitrogen TKN)	mg/L as N	SM 4500-N Org B/C	Quarterly	Grab	

Parameter	Units	Laboratory Method	Minimum Sampling Frequency	Sample Type
(6) Permit Renewal Application Requirements – Final Wastewater Effluent				
The Permittee must record and report the wastewater treatment plant flow discharged on the day it collects the sample for priority pollutant testing with the discharge monitoring report.				
Oil and Grease	mg/L	1664A	Once per year	Grab
Total Dissolved Solids	mg/L	SM2540 C	Once per year	Grab
Total Hardness	mg/L	SM2340B	Once per year	Grab
Cyanide	µg/L	335.4	Once per year	Grab
Total Phenolic Compounds	µg/L	EPA 420.1	Once per year	Grab
Priority Pollutants (PP) – Total Metals	µg/L; ng/L for mercury	See appendix A	Once per year	24-Hour composite Grab for mercury
PP – Volatile Organic Compounds	µg/L	See appendix A	Once per year	Grab
PP – Acid-extractable Compounds	µg/L	See appendix A	Once per year	24-Hour composite
PP – Base-neutral Compounds	µg/L	See appendix A	Once per year	24-Hour composite
(7) Receiving Water Temperature Study				
As specified in Section S9.				
(8) Receiving Water Study				
As specified in Permit Condition S9.				

S2.B. Sampling and analytical procedures

Samples and measurements taken to meet the requirements of this permit must represent the volume and nature of the monitored parameters. The Permittee must conduct representative sampling of any unusual discharge or discharge condition, including bypasses, upsets, and maintenance-related conditions that may affect effluent quality.

Sampling and analytical methods used to meet the monitoring requirements specified in this permit must conform to the latest revision of the *Guidelines Establishing Test Procedures for the Analysis of Pollutants* contained in 40 CFR Part 136.

S2.C. Flow measurement, field measurement and continuous monitoring devices

The Permittee must:

1. Select and use appropriate flow measurement, field measurement, and continuous monitoring devices and methods consistent with accepted scientific practices.
2. Install, calibrate, and maintain these devices to ensure the accuracy of the measurements is consistent with the accepted industry standard and the manufacturer's recommendation for that type of device.
3. Calibrate continuous monitoring instruments weekly unless it can demonstrate a longer period is sufficient based on monitoring records. The Permittee:
 - a. May calibrate apparatus for continuous monitoring of dissolved oxygen by air calibration.
 - b. Must calibrate continuous pH measurement instruments using a grab sample analyzed in the lab with a pH meter calibrated with standard buffers and analyzed within 15 minutes of sampling.
 - c. Must calibrate continuous chlorine measurement instruments using a grab sample analyzed in the laboratory within 15 minutes of sampling.
4. Calibrate micro-recording temperature devices, known as thermistors, using protocols from Ecology's Quality Assurance Project Plan Development Tool (Continuous Temperature Sampling Protocols for the Environmental Monitoring and Trends). This document is available online at:
<http://www.ecy.wa.gov/programs/eap/qa/docs/QAPPtool/Mod6%20Ecology%20SOPs/Protocols/ContinuousTemperatureSampling.pdf>
Calibration as specified in this document is not required if the Permittee uses recording devices certified by the manufacturer.
5. Use field measurement devices as directed by the manufacturer and do not use reagents beyond their expiration dates.
6. Maintain calibration records for at least three years.

S2.D. Laboratory accreditation

The Permittee must ensure that all monitoring data required by Ecology is prepared by a laboratory registered or accredited under the provisions of chapter 173-50 WAC, Accreditation of Environmental Laboratories. Flow, temperature, settleable solids, conductivity, pH, and internal process control parameters are exempt from this requirement. The Permittee must obtain accreditation for conductivity and pH if it must receive accreditation or registration for other parameters.

S2.E. Request for reduction in monitoring

The Permittee may request a reduction of the sampling frequency after twelve (12) months of monitoring. Ecology will review each request and at its discretion grant the request when it reissues the permit or by a permit modification.

The Permittee must:

1. Provide a written request.
2. Clearly state the parameters for which it is requesting reduced monitoring.
3. Clearly state the justification for the reduction.

S3. Reporting and recording requirements

The Permittee must monitor and report in accordance with the following conditions. Falsification of information submitted to Ecology is a violation of the terms and conditions of this permit.

S3.A. Reporting

The first monitoring period begins on **October 1, 2012**. The Permittee must:

1. Summarize, report, and submit monitoring data obtained during each monitoring period on a Discharge Monitoring Report (DMR) form provided, or otherwise approved, by Ecology. Include a summary listing daily results for the parameters tabulated in Special Condition S2, including MDLs and QLs (when applicable). If submitting DMRs electronically, report a value for each day sampling occurred and for the summary values (when applicable) included on the form.
2. Submit the form as required with the words "no discharge" entered in place of the monitoring results, if the facility did not discharge during a given monitoring period. If submitting DMRs electronically, you must enter "no discharge" for an entire DMR, for a specific monitoring point, or for a specific parameter as appropriate.
3. Report the test method, the DL, and the QL on the discharge monitoring report or in the required report, if the Permittee used an alternative method not specified in the permit and as allowed in Appendix A.
4. Include the following information (for priority pollutant organic and metal parameters lab reports): sampling date, sample location, date of analysis, parameter name, CAS number, analytical method/number, method detection limit (MDL), laboratory practical quantitation limit (PQL), reporting units, and concentration detected. The Permittee must submit a copy of the contract laboratory report to provide this information. Analytical results from samples sent to a contract laboratory must also include information on the chain of custody, QA/QC results, and documentation of accreditation for the parameter. If the Permittee submits electronic DMRs, then it must attach an electronic file of the lab report to the electronic DMR.

5. Ensure that DMR forms are postmarked or received by Ecology no later than the dates specified below, unless otherwise specified in this permit. If submitting DMRS electronically, submit the DMR no later than the dates specified below, unless otherwise specified in this permit.
6. Submit DMRs for parameters with the monitoring frequencies specified in S2 (monthly, quarterly, annual, etc.) at the reporting schedule identified below. The Permittee must:
 - a. Submit **monthly** DMRs by the 15th day of the following month.
 - b. Submit **quarterly DMRs**, unless otherwise specified in the permit, by the 15th day of the month following the monitoring period. Quarterly sampling periods are January through March, April through June, July through September, and October through December.
 - c. Submit **annual DMRs**, unless otherwise specified in the permit, by January 15 for the previous calendar year. The annual sampling period is the calendar year.
7. Submit reports to Ecology online using Ecology's electronic DMR submittal forms or send reports to Ecology at:

Water Quality Permit Coordinator
Department of Ecology
Central Regional Office
15 West Yakima Avenue, Suite 200
Yakima, WA 98902

S3.B. Records retention

The Permittee must retain records of all monitoring information for a minimum of three (3) years. Such information must include all calibration and maintenance records and all original recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit. The Permittee must extend this period of retention during the course of any unresolved litigation regarding the discharge of pollutants by the Permittee or when requested by Ecology.

S3.C. Recording of results

For each measurement or sample taken, the Permittee must record the following information:

1. The date, exact place, method, and time of sampling or measurement
2. The individual who performed the sampling or measurement
3. The dates the analyses were performed
4. The individual who performed the analyses
5. The analytical techniques or methods used
6. The results of all analyses

S3.D. Additional monitoring by the Permittee

If the Permittee monitors any pollutant more frequently than required by Condition S2 of this permit, then the Permittee must include the results of such monitoring in the calculation and reporting of the data submitted in the Permittee's DMR.

S3.E. Reporting permit violations

The Permittee must take the following actions when it violates or is unable to comply with any permit condition:

1. Immediately take action to stop, contain, and cleanup unauthorized discharges or otherwise stop the noncompliance and correct the problem.
2. If applicable, immediately repeat sampling and analysis. Submit the results of any repeat sampling to Ecology within thirty (30) days of sampling.

a. Immediate reporting

The Permittee must immediately report to Ecology and the Local Health Jurisdiction (at the numbers listed below), all:

- Failures of the disinfection system.
- Collection system overflows.
- Plant bypasses resulting in a discharge.
- Any other failures of the sewage system (pipe breaks, etc).

Central Regional Office	509-575-2490
Yakima Public Health	509 575 4040 (prompt #1 after hours)

b. Twenty-four-hour reporting

The Permittee must report the following occurrences of noncompliance by telephone, to Ecology at the telephone number listed above, within 24 hours from the time the Permittee becomes aware of any of the following circumstances:

1. Any noncompliance that may endanger health or the environment, unless previously reported under immediate reporting requirements.
2. Any unanticipated bypass that causes an exceedance of an effluent limit in the permit (See Part S5.F, "Bypass Procedures").
3. Any upset that causes an exceedance of an effluent limit in the permit (See G.15, "Upset").
4. Any violation of a maximum daily or instantaneous maximum discharge limit for any of the pollutants in Section S1.A of this permit.
5. Any overflow prior to the treatment works, whether or not such overflow endangers health or the environment or exceeds any effluent limit in the permit.

c. Report within five days

The Permittee must also provide a written submission within five days of the time that the Permittee becomes aware of any reportable event under subparts a or b, above. The written submission must contain:

1. A description of the noncompliance and its cause.
2. The period of noncompliance, including exact dates and times.
3. The estimated time the Permittee expects the noncompliance to continue if not yet corrected.
4. Steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.
5. If the noncompliance involves an overflow prior to the treatment works, an estimate of the quantity (in gallons) of untreated overflow.

d. Waiver of written reports

Ecology may waive the written report required in subpart c, above, on a case-by-case basis upon request if the Permittee has submitted a timely oral report.

e. All other permit violation reporting

The Permittee must report all permit violations, which do not require immediate or within 24 hours reporting, when it submits monitoring reports for S3.A ("Reporting"). The reports must contain the information listed in subpart c, above. Compliance with these requirements does not relieve the Permittee from responsibility to maintain continuous compliance with the terms and conditions of this permit or the resulting liability for failure to comply.

f. Report submittal

The Permittee must submit reports to the address listed in S3.A.

S3.F. Other reporting

The Permittee must report a spill of oil or hazardous materials in accordance with the requirements of RCW 90.56.280 and chapter 173-303-145. You can obtain further instructions at the following website:

<http://www.ecy.wa.gov/programs/spills/other/reportaspill.htm>.

Where the Permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application, or in any report to Ecology, it must submit such facts or information promptly.

S3.G. Maintaining a copy of this permit

The Permittee must keep a copy of this permit at the facility and make it available upon request to Ecology inspectors.

S4. Facility loading

S4.A. Design criteria

The flows or waste loads for the permitted facility must not exceed the following design criteria:

Design Loadings for the Pretreatment Wastewater Treatment Facility

Average flow for the maximum month	0.40 MGD
Influent BOD ₅ loading for maximum month	4,000 lbs/day
Influent TSS loading for maximum month	1,500 lbs/day
Effluent BOD ₅ loading for maximum month	510 lbs/day
Effluent TSS loading for maximum month	3,750 lbs/day

Design Loadings Wastewater Treatment Facility

Average flow for the maximum month	2.0 MGD
Influent BOD ₅ loading for maximum month	3,300 lbs/day
Influent TSS loading for maximum month	4,400 lbs/day

S4.B. Plans for maintaining adequate capacity

a. Conditions triggering plan submittal

The Permittee must submit a plan and a schedule for continuing to maintain capacity to Ecology when:

1. The actual flow or waste load reaches 85 percent of any one of the design criteria in S4.A for three consecutive months.
2. The projected plant flow or loading would reach design capacity within five years.

b. Plan and schedule content

The plan and schedule must identify the actions necessary to maintain adequate capacity for the expected population growth and to meet the limits and requirements of the permit. The Permittee must consider the following topics and actions in its plan.

1. Analysis of the present design and proposed process modifications
2. Reduction or elimination of excessive infiltration and inflow of uncontaminated ground and surface water into the sewer system
3. Limits on future sewer extensions or connections or additional waste loads
4. Modification or expansion of facilities
5. Reduction of industrial or commercial flows or waste loads

Engineering documents associated with the plan must meet the requirements of WAC 173-240-060, "Engineering Report," and be approved by Ecology prior to any construction.

If the Permittee intends to apply for state or federal funding for the design or construction of a facility project, the plan may also need to meet the environmental review requirements as described in 40 CFR 35.3040 and 40 CFR 35.3045, and it may also need to demonstrate cost effectiveness as required by WAC 173-95-730. The plan must specify any contracts, ordinances, methods for financing, or other arrangements necessary to achieve this objective.

S4.C. Duty to mitigate

The Permittee must take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

S4.D. Notification of new or altered sources

1. The Permittee must submit written notice to Ecology whenever any new discharge or a substantial change in volume or character of an existing discharge into the wastewater treatment plant is proposed which:
 - a. Would interfere with the operation of, or exceed the design capacity of, any portion of the wastewater treatment plant.
 - b. Is not part of an approved general sewer plan or approved plans and specifications.
 - c. Is subject to pretreatment standards under 40 CFR Part 403 and Section 307(b) of the Clean Water Act.
2. This notice must include an evaluation of the wastewater treatment plant's ability to adequately transport and treat the added flow and/or waste load, the quality and volume of effluent to be discharged to the treatment plant, and the anticipated impact on the Permittee's effluent [40 CFR 122.42(b)].

S4.E. Infiltration and inflow evaluation

1. The Permittee must conduct an infiltration and inflow evaluation. Refer to the U.S. EPA publication, I/I Analysis and Project Certification, available as Publication No. 97-03 at:
<http://www.ecy.wa.gov/programs/wq/permits/guidance.html>
2. The Permittee may use monitoring records to assess measurable infiltration and inflow.
3. The Permittee must prepare a report summarizing any measurable infiltration and inflow. If infiltration and inflow have increased by more than 15 percent from that found in the previous report based on equivalent rainfall, the report must contain a plan and a schedule to locate the sources of infiltration and inflow and to correct the problem.
4. The Permittee must submit a report summarizing the results of the evaluation and any recommendations for corrective actions **by January 31, 2014**.

S4.F. Wasteload assessment

The Permittee must conduct an assessment of its influent flow and waste load and submit a report to Ecology **by January 31, 2016**. The Permittee must submit a paper copy and an electronic copy (preferably in a portable document format (PDF)).

The report must contain:

1. A description of compliance or noncompliance with the permit effluent limits.

2. A comparison between the existing and design:
 - a. Monthly average dry weather and wet weather flows.
 - b. Peak flows.
 - c. BOD₅ loading.
 - d. Total suspended solids loadings.
3. The percent change in the above parameters since the previous report (except for the first report).
4. The present and design population or population equivalent.
5. The projected population growth rate.
6. The estimated date upon which the Permittee expects the wastewater treatment plant to reach design capacity, according to the most restrictive of the parameters above.

Ecology may modify the interval for review and reporting if it determines that a different frequency is sufficient.

S5. Operation and maintenance

The Permittee must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances), which are installed to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance also includes keeping a daily operation logbook (paper or electronic), adequate laboratory controls, and appropriate quality assurance procedures. This provision of the permit requires the Permittee to operate backup or auxiliary facilities or similar systems only when the operation is necessary to achieve compliance with the conditions of this permit.

S5.A. Certified operator

This permitted facility must be operated by an operator certified by the state of Washington for at least a Class III plant. This operator must be in responsible charge of the day-to-day operation of the wastewater treatment plant. An operator certified for at least a Class II plant must be in charge during all regularly scheduled shifts.

S5.B. Operation and maintenance program

The Permittee must:

1. Institute an adequate operation and maintenance program for the entire sewage system.

2. Keep maintenance records on all major electrical and mechanical components of the treatment plant, as well as the sewage system and pumping stations. Such records must clearly specify the frequency and type of maintenance recommended by the manufacturer and must show the frequency and type of maintenance performed.
3. Make maintenance records available for inspection at all times.

S5.C. Short-term reduction

The Permittee must schedule any facility maintenance, which might require interruption of wastewater treatment and degrade effluent quality, during non-critical water quality periods and carry this maintenance out in a manner approved by Ecology.

If a Permittee contemplates a reduction in the level of treatment that would cause a violation of permit discharge limits on a short-term basis for any reason, and such reduction cannot be avoided, the Permittee must:

1. Give written notification to Ecology, if possible, thirty (30) days prior to such activities.
2. Detail the reasons for, length of time of, and the potential effects of the reduced level of treatment.

This notification does not relieve the Permittee of its obligations under this permit.

S5.D. Electrical power failure

The Permittee must ensure that adequate safeguards prevent the discharge of untreated wastes or wastes not treated in accordance with the requirements of this permit during electrical power failure at the treatment plant and/or sewage lift stations. Adequate safeguards include, but are not limited to, alternate power sources, standby generator(s), or retention of inadequately treated wastes.

The Permittee must maintain Reliability Class II (EPA 430/9-74-001) at the wastewater treatment plant. Reliability Class II requires a backup power source sufficient to operate all vital components and critical lighting and ventilation during peak wastewater flow conditions. Vital components used to support the secondary processes (i.e., mechanical aerators or aeration basin air compressors) need not be operable to full levels of treatment, but must be sufficient to maintain the biota.

S5.E. Prevent connection of inflow

The Permittee must strictly enforce its sewer ordinances and not allow the connection of inflow (roof drains, foundation drains, etc.) to the sanitary sewer system.

S5.F. Bypass procedures

This permit prohibits a bypass, which is the intentional diversion of waste streams from any portion of a treatment facility. Ecology may take enforcement action against a Permittee for a bypass unless one of the following circumstances (1, 2, or 3) applies.

1. Bypass for essential maintenance without the potential to cause violation of permit limits or conditions.

This permit authorizes a bypass if it allows for essential maintenance and does not have the potential to cause violations of limits or other conditions of this permit, or adversely impact public health as determined by Ecology prior to the bypass. The Permittee must submit prior notice, if possible, at least ten (10) days before the date of the bypass.

2. Bypass which is unavoidable, unanticipated, and results in noncompliance of this permit.

This permit authorizes such a bypass only if:

- a. Bypass is unavoidable to prevent loss of life, personal injury, or severe property damage. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass.
- b. No feasible alternatives to the bypass exist, such as:
 - The use of auxiliary treatment facilities.
 - Retention of untreated wastes.
 - Maintenance during normal periods of equipment downtime, but not if the Permittee should have installed adequate backup equipment in the exercise of reasonable engineering judgment to prevent a bypass.
 - Transport of untreated wastes to another treatment facility or preventative maintenance), or transport of untreated wastes to another treatment facility.

- c. Ecology is properly notified of the bypass as required in Condition S3.E of this permit.
3. If bypass is anticipated and has the potential to result in noncompliance of this permit.
 - a. The Permittee must notify Ecology at least thirty (30) days before the planned date of bypass. The notice must contain:
 - A description of the bypass and its cause.
 - An analysis of all known alternatives which would eliminate, reduce, or mitigate the need for bypassing.
 - A cost-effectiveness analysis of alternatives including comparative resource damage assessment.
 - The minimum and maximum duration of bypass under each alternative.
 - A recommendation as to the preferred alternative for conducting the bypass.
 - The projected date of bypass initiation.
 - A statement of compliance with SEPA.
 - A request for modification of water quality standards as provided for in WAC 173-201A-410, if an exceedance of any water quality standard is anticipated.
 - Details of the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass.
 - b. For probable construction bypasses, the Permittee must notify Ecology of the need to bypass as early in the planning process as possible. The Permittee must consider the analysis required above during preparation of the engineering report or facilities plan and plans and specifications and must include these to the extent practical. In cases where the Permittee determines the probable need to bypass early, the Permittee must continue to analyze conditions up to and including the construction period in an effort to minimize or eliminate the bypass.
 - c. Ecology will consider the following prior to issuing an administrative order for this type of bypass:
 - If the bypass is necessary to perform construction or maintenance-related activities essential to meet the requirements of this permit.
 - If feasible alternatives to bypass exist, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment down time, or transport of untreated wastes to another treatment facility.

- If the Permittee planned and scheduled the bypass to minimize adverse effects on the public and the environment.

After consideration of the above and the adverse effects of the proposed bypass and any other relevant factors, Ecology will approve or deny the request. Ecology will give the public an opportunity to comment on bypass incidents of significant duration, to the extent feasible. Ecology will approve a request to bypass by issuing an administrative order under RCW 90.48.120.

S5.G. Operations and maintenance (O&M) manual

a. O&M manual submittal and requirements

The Permittee must:

1. Update the Operations and Maintenance (O&M) Manual that meets the requirements of 173-240-150 WAC and submit it to Ecology for approval by **November 1, 2016**. The Permittee must submit a paper copy and an electronic copy (preferably as a PDF).
2. Review the O&M Manual at least annually.
3. Submit to Ecology for review and approval substantial changes or updates to the O&M Manual whenever it incorporates them into the manual. The Permittee must submit a paper copy and an electronic copy (preferably as a PDF).
4. Keep the approved O&M Manual at the permitted facility.
5. Follow the instructions and procedures of this manual.

b. O&M manual components

In addition to the requirements of WAC 173-240-080 (1) through (5), the O&M Manual must include:

1. Emergency procedures for cleanup in the event of wastewater system upset or failure.
2. Wastewater system maintenance procedures that contribute to the generation of process wastewater.
3. Reporting protocols for submitting reports to Ecology to comply with the reporting requirements in the discharge permit.
4. Any directions to maintenance staff when cleaning or maintaining other equipment or performing other tasks which are necessary to protect the operation of the wastewater system (for example, defining maximum allowable discharge rate for draining a tank, blocking all floor drains before beginning the overhaul of a stationary engine).

5. The treatment plant process control monitoring schedule.
6. Minimum staffing adequate to operate and maintain the treatment processes and carry out compliance monitoring required by the permit.
7. Specify other items on case-by-case basis such as O&M for collection systems pump stations, lagoon liners, etc.

S6. Pretreatment

S6.A. General requirements

The Permittee must work with Ecology to ensure that all commercial and industrial users of the publicly owned treatment works (POTW) comply with the pretreatment regulations in 40 CFR Part 403 and any additional regulations that the Environmental Protection Agency (U.S. EPA) may promulgate under Section 307(b) (pretreatment) and 308 (reporting) of the Federal Clean Water Act.

S6.B. Duty to enforce discharge prohibitions

1. Under federal regulations (40 CFR 403.5(a) and (b)), the Permittee must not authorize or knowingly allow the discharge of any pollutants into its POTW which may be reasonably expected to cause pass through or interference, or which otherwise violate general or specific discharge prohibitions contained in 40 CFR Part 403.5 or WAC-173-216-060.
2. The Permittee must not authorize or knowingly allow the introduction of any of the following into their treatment works:
 - a. Pollutants which create a fire or explosion hazard in the POTW (including, but not limited to waste streams with a closed cup flashpoint of less than 140 degrees Fahrenheit or 60 degrees Centigrade using the test methods specified in 40 CFR 261.21).
 - b. Pollutants which will cause corrosive structural damage to the POTW, but in no case discharges with pH lower than 5.0, or greater than 11.0 standard units, unless the works are specifically designed to accommodate such discharges.
 - c. Solid or viscous pollutants in amounts that could cause obstruction to the flow in sewers or otherwise interfere with the operation of the POTW.
 - d. Any pollutant, including oxygen-demanding pollutants, (BOD₅, etc.) released in a discharge at a flow rate and/or pollutant concentration which will cause interference with the POTW.
 - e. Petroleum oil, non-biodegradable cutting oil, or products of mineral origin in amounts that will cause interference or pass through.
 - f. Pollutants which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity which may cause acute worker health and safety problems.

- g. Heat in amounts that will inhibit biological activity in the POTW resulting in interference but in no case heat in such quantities such that the temperature at the POTW headworks exceeds 40 degrees Centigrade (104 degrees Fahrenheit) unless Ecology, upon request of the Permittee, approves, in writing, alternate temperature limits.
 - h. Any trucked or hauled pollutants, except at discharge points designated by the Permittee.
 - i. Wastewaters prohibited to be discharged to the POTW by the Dangerous Waste Regulations (chapter 173-303 WAC), unless authorized under the Domestic Sewage Exclusion (WAC 173-303-071).
- 3. The Permittee must also not allow the following discharges to the POTW unless approved in writing by Ecology:
 - a. Noncontact cooling water in significant volumes.
 - b. Stormwater and other direct inflow sources.
 - c. Wastewaters significantly affecting system hydraulic loading, which do not require treatment, or would not be afforded a significant degree of treatment by the system.
- 4. The Permittee must notify Ecology if any industrial user violates the prohibitions listed in this section (S6.B), and initiate enforcement action to promptly curtail any such discharge.

S6.C. Wastewater discharge permit required

The Permittee must:

- 1. Establish a process for authorizing non-domestic wastewater discharges that ensures all SIUs in all tributary areas meet the applicable state waste discharge permit (SWDP) requirements in accordance with chapter 90.48 RCW and chapter 173-216 WAC.
- 2. Immediately notify Ecology of any proposed discharge of wastewater from a source, which may be a significant industrial user (SIU) [see fact sheet definitions or refer to 40 CFR 403.3(t)(i)(ii)].
- 3. Require all SIUs to obtain a SWDP from Ecology prior to accepting their non-domestic wastewater, or require proof that Ecology has determined they do not require a permit.
- 4. Require the documentation as described in S6.C.3 at the earliest practicable date as a condition of continuing to accept non-domestic wastewater discharges from a previously undiscovered, currently discharging and unpermitted SIU.

5. Require sources of non-domestic wastewater, which do not qualify as SIUs but merit a degree of oversight, to apply for a SWDP and provide it a copy of the application and any Ecology responses.
6. Keep all records documenting that its users have met the requirements of S6.C.

S6.D. Identification and reporting of existing, new, and proposed industrial users

1. The Permittee must take continuous, routine measures to identify all existing, new, and proposed SIUs and potential significant industrial users (PSIUs) discharging or proposing to discharge to the Permittee's sewer system (see Appendix B of the fact sheet for definitions).
2. Within 30 days of becoming aware of an unpermitted existing, new, or proposed industrial user who may be a significant industrial user (SIU), the Permittee must notify such user by registered mail that, if classified as an SIU, they must apply to Ecology and obtain a State Waste Discharge Permit. The Permittee must send a copy of this notification letter to Ecology within this same 30-day period.
3. The Permittee must also notify all Potential SIUs (PSIUs), as they are identified, that if their classification should change to an SIU, they must apply to Ecology for a State Waste Discharge Permit within 30 days of such change.

S6.E. Industrial user survey

The Permittee must update the industrial user survey annually as needed. The Permittee must submit an updated Industrial User Survey to Ecology by **November 1, 2016**. The Permittee must submit a paper copy and an electronic copy (preferably as a PDF). The updated survey must include a list of all new industrial users, as well as existing industrial users, which are known or discovered to have significantly altered processes or disposal practices since submittal of the last survey or survey update. For industrial users for which there are potentially significant non-domestic discharges, the Permittee must obtain and include in the report the minimum information described in Section F.1 above for PSIUs.

S7. Solid wastes

S7.A. Solid waste handling

The Permittee must handle and dispose of all solid waste material in such a manner as to prevent its entry into state ground or surface water.

S7.B. Leachate

The Permittee must not allow leachate from its solid waste material to enter state waters without providing all known, available, and reasonable methods of treatment, nor allow such leachate to cause violations of the State Surface Water Quality Standards, Chapter 173-201A WAC, or the State Ground Water Quality Standards, Chapter 173-200 WAC. The Permittee must apply for a permit or permit modification as may be required for such discharges to state ground or surface waters.

S8. Application for permit renewal or modification for facility changes

The Permittee must submit an application for renewal of this permit by **September 30, 2016**. The Permittee must submit a paper copy and an electronic copy (preferably as a PDF).

The Permittee must also submit a new application or supplement at least one hundred eighty (180) days prior to commencement of discharges, resulting from the activities listed below, which may result in permit violations. These activities include any facility expansions, production increases, or other planned changes, such as process modifications, in the permitted facility.

S9. Compliance schedule

By the dates tabulated below, the Permittee must complete the following tasks and submit a report describing, at a minimum:

- Whether it completed the task and, if not, the date on which it expects to complete the task.
- The reasons for delay and the steps it is taking to return the project to the established schedule.

	Tasks	Date Due
S9.1.	Meeting of the Technical Advisory Workgroup	October 31, 2012
S9.2.	Submit a Sampling and Analysis Plan for Selah Ditch environmental monitoring and TMDL effectiveness	November 30, 2012
S9.3.	1 st Planting of shade trees along Selah Ditch	Spring 2013
S9.4.	TMDL effectiveness monitoring	August 2013
S9.5.	Plant trees and other riparian vegetation in coordination with the Public Education Area design in the meander of the Selah Ditch	Spring 2013
S9.6.	Complete planting of shade trees along Selah Ditch	Spring 2014
S9.7.	Progress report on funding and/or construction report for the “Public Education Area” in the meander section of the Selah Ditch	December 31, 2014
S9.8.	Conduct 2 nd effectiveness monitoring event	August 31, 2015
S9.9.	Submit engineering plans to meet effluent dissolved oxygen requirement as determined through monitoring and modeling to meet water quality standards	November 30, 2015
S9.10.	Complete implementation of mitigation engineering and construction of improvements, if needed, to meet water quality criterion for dissolved oxygen at the edge of the chronic mixing zone	November 30, 2016

S10. Acute toxicity

10.A. Testing when there is no permit limit for acute toxicity

The Permittee must:

1. Conduct acute toxicity testing on final effluent during month, year and month, year (**once in the last summer, once in the last fall, and once in the last winter prior to submission of the application for permit renewal**).
2. Submit the results to Ecology **September 30, 2016**.

3. Conduct acute toxicity testing on a series of at least five concentrations of effluent, including 100% effluent and a control.
4. Use each of the following species and protocols for each acute toxicity test:

Acute Toxicity Tests	Species	Method
Fathead minnow 96-hour static-renewal test	<i>Pimephales promelas</i>	EPA-821-R-02-012
Daphnid 48-hour static test	<i>Ceriodaphnia dubia</i> , <i>Daphnia pulex</i> , or <i>Daphnia magna</i>	EPA-821-R-02-012

10.B. Sampling and reporting requirements

1. The Permittee must submit all reports for toxicity testing in accordance with the most recent version of Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*. Reports must contain bench sheets and reference toxicant results for test methods. If the lab provides the toxicity test data in electronic format for entry into Ecology's database, then the Permittee must send the data to Ecology along with the test report, bench sheets, and reference toxicant results.
2. The Permittee must collect 24-hour composite effluent samples or grab samples for toxicity testing. The Permittee must cool the samples to 0 - 6 degrees Celsius during collection and send them to the lab immediately upon completion. The lab must begin the toxicity testing as soon as possible but no later than 36 hours after sampling was completed.
3. The laboratory must conduct water quality measurements on all samples and test solutions for toxicity testing, as specified in the most recent version of Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*.
4. All toxicity tests must meet quality assurance criteria and test conditions specified in the most recent versions of the EPA methods listed in Subsection C and the Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*. If Ecology determines any test results to be invalid or anomalous, the Permittee must repeat the testing with freshly collected effluent.
5. The laboratory must use control water and dilution water meeting the requirements of the EPA methods listed in Section A or pristine natural water of sufficient quality for good control performance.
6. The Permittee must conduct whole effluent toxicity tests on an unmodified sample of final effluent.
7. The Permittee may sample receiving water at the same time as the effluent and instruct the lab to measure the hardness of both and increase the hardness of the effluent sample to match the hardness of the receiving water sample prior to beginning the toxicity test. Otherwise, the Permittee must conduct whole effluent toxicity tests on an unmodified sample of final effluent.

- a. The Permittee may choose to conduct a full dilution series test during compliance testing in order to determine dose response. In this case, the series must have a minimum of five effluent concentrations and a control. The series of concentrations must include the acute critical effluent concentration (ACEC). The ACEC equals 100% effluent.
- b. All whole effluent toxicity tests, effluent screening tests, and rapid screening tests that involve hypothesis testing must comply with the acute statistical power standard of 29% as defined in WAC 173-205-020. If the test does not meet the power standard, the Permittee must repeat the test on a fresh sample with an increased number of replicates to increase the power.

S11. Chronic toxicity

S11.A. Testing when there is no permit limit for chronic toxicity

The Permittee must:

1. Conduct chronic toxicity testing on final effluent during month, year and month, year (**once in the last summer, once in the last fall, and once in the last winter prior to submission of the application for permit renewal**).
2. Submit the results to Ecology by **September 30, 2016**.
3. Conduct chronic toxicity testing on a series of at least five concentrations of effluent and a control. This series of dilutions must include the acute critical effluent concentration (ACEC). The ACEC equals 100% effluent. The series of dilutions should also contain the CCEC of 88% effluent.
4. Compare the ACEC to the control using hypothesis testing at the 0.05 level of significance as described in Appendix H, EPA/600/4-89/001.
5. Perform chronic toxicity tests with all of the following species and the most recent version of the following protocols:

Freshwater Chronic Test	Species	Method
Fathead minnow survival and growth	<i>Pimephales promelas</i>	EPA-821-R-02-013
Water flea survival and reproduction	<i>Ceriodaphnia dubia</i>	EPA-821-R-02-013
Alga	<i>Pseudokirchneriella subcapitata</i> (formerly <i>Selenastrum capricornutum</i>)	EPA-821-R-02-013

S11.B. Sampling and reporting requirements

1. The Permittee must submit all reports for toxicity testing in accordance with the most recent version of Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*. Reports must

contain bench sheets and reference toxicant results for test methods. If the lab provides the toxicity test data in electronic format for entry into Ecology's database, then the Permittee must send the data to Ecology along with the test report, bench sheets, and reference toxicant results.

2. The Permittee must collect 24-hour composite effluent samples for toxicity testing. The Permittee must cool the samples to 0 - 6 degrees Celsius during collection and send them to the lab immediately upon completion. The lab must begin the toxicity testing as soon as possible but no later than 36 hours after sampling was completed.
3. The laboratory must conduct water quality measurements on all samples and test solutions for toxicity testing, as specified in the most recent version of Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*.
4. All toxicity tests must meet quality assurance criteria and test conditions specified in the most recent versions of the EPA methods listed in Section C. and the Ecology Publication no. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*. If Ecology determines any test results to be invalid or anomalous, the Permittee must repeat the testing with freshly collected effluent.
5. The laboratory must use control water and dilution water meeting the requirements of the EPA methods listed in Subsection C. or pristine natural water of sufficient quality for good control performance.
6. The Permittee must conduct whole effluent toxicity tests on an unmodified sample of final effluent.
7. The Permittee may sample receiving water at the same time as the effluent and instruct the lab to measure the hardness of both and increase the hardness of the effluent sample to match the hardness of the receiving water sample prior to beginning the toxicity test. Otherwise, the Permittee must conduct whole effluent toxicity tests on an unmodified sample of final effluent.
8. The Permittee may choose to conduct a full dilution series test during compliance testing in order to determine dose response. In this case, the series must have a minimum of five effluent concentrations and a control. The series of concentrations must include the CCEC and the ACEC. The CCEC and the ACEC may either substitute for the effluent concentrations that are closest to them in the dilution series or be extra effluent concentrations. The CCEC equals 88% effluent. The ACEC equals 100% effluent.
9. All whole effluent toxicity tests that involve hypothesis testing must comply with the chronic statistical power standard of 39% as defined in WAC 173-205-020. If the test does not meet the power standard, the Permittee must repeat the test on a fresh sample with an increased number of replicates to increase the power.

GENERAL CONDITIONS

G1. Signatory requirements

1. All applications, reports, or information submitted to Ecology must be signed and certified.
 - a. In the case of corporations, by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:
 - A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation, or
 - The manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
 - In the case of a partnership, by a general partner.
 - In the case of sole proprietorship, by the proprietor.
 - In the case of a municipal, state, or other public facility, by either a principal executive officer or ranking elected official.

Applications for permits for domestic wastewater facilities that are either owned or operated by, or under contract to, a public entity shall be submitted by the public entity.

2. All reports required by this permit and other information requested by Ecology must be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - a. The authorization is made in writing by a person described above and submitted to Ecology.
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or

position having overall responsibility for environmental matters. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

3. Changes to authorization. If an authorization under paragraph B.2, above, is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph B.2, above, must be submitted to Ecology prior to or together with any reports, information, or applications to be signed by an authorized representative.
4. Certification. Any person signing a document under this section must make the following certification:

“I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

G2. Right of inspection and entry

The Permittee must allow an authorized representative of Ecology, upon the presentation of credentials and such other documents as may be required by law:

1. To enter upon the premises where a discharge is located or where any records must be kept under the terms and conditions of this permit.
2. To have access to and copy, at reasonable times and at reasonable cost, any records required to be kept under the terms and conditions of this permit.
3. To inspect, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, methods, or operations regulated or required under this permit.
4. To sample or monitor, at reasonable times, any substances or parameters at any location for purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act.

G3. Permit actions

This permit may be modified, revoked and reissued, or terminated either at the request of any interested person (including the Permittee) or upon Ecology's initiative. However, the permit may only be modified, revoked and reissued, or terminated for the reasons

specified in 40 CFR 122.62, 40 CFR 122.64 or WAC 173-220-150 according to the procedures of 40 CFR 124.5.

1. The following are causes for terminating this permit during its term, or for denying a permit renewal application:
 - a. Violation of any permit term or condition.
 - b. Obtaining a permit by misrepresentation or failure to disclose all relevant facts.
 - c. A material change in quantity or type of waste disposal.
 - d. A determination that the permitted activity endangers human health or the environment, or contributes to water quality standards violations and can only be regulated to acceptable levels by permit modification or termination.
 - e. A change in any condition that requires either a temporary or permanent reduction, or elimination of any discharge or sludge use or disposal practice controlled by the permit.
 - f. Nonpayment of fees assessed pursuant to RCW 90.48.465.
 - g. Failure or refusal of the Permittee to allow entry as required in RCW 90.48.090.
2. The following are causes for modification but not revocation and reissuance except when the Permittee requests or agrees:
 - a. A material change in the condition of the waters of the state.
 - b. New information not available at the time of permit issuance that would have justified the application of different permit conditions.
 - c. Material and substantial alterations or additions to the permitted facility or activities which occurred after this permit issuance.
 - d. Promulgation of new or amended standards or regulations having a direct bearing upon permit conditions, or requiring permit revision.
 - e. The Permittee has requested a modification based on other rationale meeting the criteria of 40 CFR Part 122.62.
 - f. Ecology has determined that good cause exists for modification of a compliance schedule, and the modification will not violate statutory deadlines.
 - g. Incorporation of an approved local pretreatment program into a municipality's permit.
3. The following are causes for modification or alternatively revocation and reissuance:
 - a. When cause exists for termination for reasons listed in A1 through A7 of this section, and Ecology determines that modification or revocation and reissuance is appropriate.
 - b. When Ecology has received notification of a proposed transfer of the permit. A permit may also be modified to reflect a transfer after the effective date of an automatic transfer (General Condition G7) but will not be revoked and reissued after the effective date of the transfer except upon the request of the new Permittee.

G4. Reporting planned changes

The Permittee must, as soon as possible, but no later than sixty (60) days prior to the proposed changes, give notice to Ecology of planned physical alterations or additions to the permitted facility, production increases, or process modification which will result in:

1. The permitted facility being determined to be a new source pursuant to 40 CFR 122.29(b)
2. A significant change in the nature or an increase in quantity of pollutants discharged.
3. A significant change in the Permittee's sludge use or disposal practices. Following such notice, and the submittal of a new application or supplement to the existing application, along with required engineering plans and reports, this permit may be modified, or revoked and reissued pursuant to 40 CFR 122.62(a) to specify and limit any pollutants not previously limited. Until such modification is effective, any new or increased discharge in excess of permit limits or not specifically authorized by this permit constitutes a violation.

G5. Plan review required

Prior to constructing or modifying any wastewater control facilities, an engineering report and detailed plans and specifications must be submitted to Ecology for approval in accordance with chapter 173-240 WAC. Engineering reports, plans, and specifications must be submitted at least one hundred eighty (180) days prior to the planned start of construction unless a shorter time is approved by Ecology. Facilities must be constructed and operated in accordance with the approved plans.

G6. Compliance with other laws and statutes

Nothing in this permit excuses the Permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations.

G7. Transfer of this permit

In the event of any change in control or ownership of facilities from which the authorized discharge emanate, the Permittee must notify the succeeding owner or controller of the existence of this permit by letter, a copy of which must be forwarded to Ecology.

1. Transfers by Modification

Except as provided in paragraph (B) below, this permit may be transferred by the Permittee to a new owner or operator only if this permit has been modified or revoked and reissued under 40 CFR 122.62(b)(2), or a minor modification made under 40

CFR 122.63(d), to identify the new Permittee and incorporate such other requirements as may be necessary under the Clean Water Act.

2. Automatic Transfers

This permit may be automatically transferred to a new Permittee if:

- a. The Permittee notifies Ecology at least thirty (30) days in advance of the proposed transfer date.
- b. The notice includes a written agreement between the existing and new Permittees containing a specific date transfer of permit responsibility, coverage, and liability between them.
- c. Ecology does not notify the existing Permittee and the proposed new Permittee of its intent to modify or revoke and reissue this permit. A modification under this subparagraph may also be minor modification under 40 CFR 122.63. If this notice is not received, the transfer is effective on the date specified in the written agreement.

G8. Reduced production for compliance

The Permittee, in order to maintain compliance with its permit, must control production and/or all discharges upon reduction, loss, failure, or bypass of the treatment facility until the facility is restored or an alternative method of treatment is provided. This requirement applies in the situation where, among other things, the primary source of power of the treatment facility is reduced, lost, or fails.

G9. Removed substances

Collected screenings, grit, solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters must not be resuspended or reintroduced to the final effluent stream for discharge to state waters.

G10. Duty to provide information

The Permittee must submit to Ecology, within a reasonable time, all information which Ecology may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The Permittee must also submit to Ecology upon request, copies of records required to be kept by this permit.

G11. Other requirements of 40 CFR

All other requirements of 40 CFR 122.41 and 122.42 are incorporated in this permit by reference.

G12. Additional monitoring

Ecology may establish specific monitoring requirements in addition to those contained in this permit by administrative order or permit modification.

G13. Payment of fees

The Permittee must submit payment of fees associated with this permit as assessed by Ecology.

G14. Penalties for violating permit conditions

Any person who is found guilty of willfully violating the terms and conditions of this permit is deemed guilty of a crime, and upon conviction thereof must be punished by a fine of up to ten thousand dollars (\$10,000) and costs of prosecution, or by imprisonment in the discretion of the court. Each day upon which a willful violation occurs may be deemed a separate and additional violation.

Any person who violates the terms and conditions of a waste discharge permit may incur, in addition to any other penalty as provided by law, a civil penalty in the amount of up to ten thousand dollars (\$10,000) for every such violation. Each and every such violation is a separate and distinct offense, and in case of a continuing violation, every day's continuance is deemed to be a separate and distinct violation.

G15. Upset

Definition – “Upset” means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limits because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limits if the requirements of the following paragraph are met.

A Permittee who wishes to establish the affirmative defense of upset must demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

1. An upset occurred and that the Permittee can identify the cause(s) of the upset.
2. The permitted facility was being properly operated at the time of the upset.
3. The Permittee submitted notice of the upset as required in Condition S3.E.
4. The Permittee complied with any remedial measures required under S4.C of this permit.

In any enforcement action the Permittee seeking to establish the occurrence of an upset has the burden of proof.

G16. Property rights

This permit does not convey any property rights of any sort, or any exclusive privilege.

G17. Duty to comply

The Permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

G18. Toxic pollutants

The Permittee must comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if this permit has not yet been modified to incorporate the requirement.

G19. Penalties for tampering

The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit must, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than two (2) years per violation, or by both. If a conviction of a person is for a violation committed after a first conviction of such person under this condition, punishment must be a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than four (4) years, or by both.

G20. Compliance schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit must be submitted no later than fourteen (14) days following each schedule date.

G21. Contract review

The Permittee must submit to Ecology any proposed contract for the operation of any wastewater treatment facility covered by this permit. The review is to ensure consistency with chapters 90.46 and 90.48 RCW. In the event that Ecology does not comment within a thirty (30)-day period, the Permittee may assume consistency and proceed with the contract.

Appendix A

PRIORITY POLLUTANTS

Pollutant & CAS No. (if available)	Recommended Analytical Protocol	Detection (DL) ¹ µg/L unless specified	Quantitation Level (QL) ² µg/L unless specified
METALS, CYANIDE & TOTAL PHENOLS			
Antimony, Total (7440-36-0)	200.8	0.3	1.0
Arsenic, Total (7440-38-2)	200.8	0.1	0.5
Beryllium, Total (7440-41-7)	200.8	0.1	0.5
Cadmium, Total (7440-43-9)	200.8	0.05	0.25
Chromium (hex) dissolved (18540-29-9)	SM3500-Cr EC	0.3	1.2
Chromium, Total (7440-47-3)	200.8	0.2	1.0
Copper, Total (7440-50-8)	200.8	0.4	2.0
Lead, Total (7439-92-1)	200.8	0.1	0.5
Mercury, Total (7439-97-6)	1631E	0.0002	0.0005
Nickel, Total (7440-02-0)	200.8	0.1	0.5
Selenium, Total (7782-49-2)	200.8	1.0	1.0
Silver, Total (7440-22-4)	200.8	0.04	0.2
Thallium, Total (7440-28-0)	200.8	0.09	0.36
Zinc, Total (7440-66-6)	200.8	0.5	2.5
Cyanide, Total (57-12-5)	335.4	5	10
Cyanide, Weak Acid Dissociable	SM4500-CN I	5	10
Cyanide, Free Amenable to Chlorination (Available Cyanide)	SM4500-CN G	5	10
Phenols, Total	EPA 420.1		50
ACID COMPOUNDS			
2-Chlorophenol (95-57-8)	625	1.0	2.0
2,4-Dichlorophenol (120-83-2)	625	0.5	1.0
2,4-Dimethylphenol (105-67-9)	625	0.5	1.0
4,6-dinitro-o-cresol (534-52-1) (2-methyl-4,6,-dinitrophenol)	625/1625B	1.0	2.0
2,4 dinitrophenol (51-28-5)	625	1.0	2.0
2-Nitrophenol (88-75-5)	625	0.5	1.0
4-nitrophenol (100-02-7)	625	0.5	1.0
Parachlorometa cresol (59-50-7) (4-chloro-3-methylphenol)	625	1.0	2.0
Pentachlorophenol (87-86-5)	625	0.5	1.0
Phenol (108-95-2)	625	2.0	4.0
2,4,6-Trichlorophenol (88-06-2)	625	2.0	4.0

PRIORITY POLLUTANTS (continued)

Pollutant & CAS No. (if available)	Recommended Analytical Protocol	Detection (DL) ¹ µg/L unless specified	Quantitation Level (QL) ² µg/L unless specified
VOLATILE COMPOUNDS			
Acrolein (107-02-8)	624	5	10
Acrylonitrile (107-13-1)	624	1.0	2.0
Benzene (71-43-2)	624	1.0	2.0
Bromoform (75-25-2)	624	1.0	2.0
Carbon tetrachloride (56-23-5)	624/601 or SM6230B	1.0	2.0
Chlorobenzene (108-90-7)	624	1.0	2.0
Chloroethane (75-00-3)	624/601	1.0	2.0
2-Chloroethylvinyl Ether (110-75-8)	624	1.0	2.0
Chloroform (67-66-3)	624 or SM6210B	1.0	2.0
Dibromochloromethane (124-48-1)	624	1.0	2.0
1,2-Dichlorobenzene (95-50-1)	624	1.9	7.6
1,3-Dichlorobenzene (541-73-1)	624	1.9	7.6
1,4-Dichlorobenzene (106-46-7)	624	4.4	17.6
Dichlorobromomethane (75-27-4)	624	1.0	2.0
1,1-Dichloroethane (75-34-3)	624	1.0	2.0
1,2-Dichloroethane (107-06-2)	624	1.0	2.0
1,1-Dichloroethylene (75-35-4)	624	1.0	2.0
1,2-Dichloropropane (78-87-5)	624	1.0	2.0
1,3-dichloropropene (mixed isomers) (1,2-dichloropropylene) (542-75-6) ³	624	1.0	2.0
Ethylbenzene (100-41-4)	624	1.0	2.0
Methyl bromide (74-83-9) (Bromomethane)	624/601	5.0	10.0
Methyl chloride (74-87-3) (Chloromethane)	624	1.0	2.0
Methylene chloride (75-09-2)	624	5.0	10.0
1,1,2,2-Tetrachloroethane (79-34-5)	624	1.9	2.0
Tetrachloroethylene (127-18-4)	624	1.0	2.0
Toluene (108-88-3)	624	1.0	2.0
1,2-Trans-Dichloroethylene (156-60-5) (Ethylene dichloride)	624	1.0	2.0
1,1,1-Trichloroethane (71-55-6)	624	1.0	2.0
1,1,2-Trichloroethane (79-00-5)	624	1.0	2.0
Trichloroethylene (79-01-6)	624	1.0	2.0
Vinyl chloride (75-01-4)	624/SM6200B	1.0	2.0

Pollutant & CAS No. (if available)	Recommended Analytical Protocol	Detection (DL) ¹ µg/L unless specified	Quantitation Level (QL) ² µg/L unless specified
BASE/NEUTRAL COMPOUNDS (compounds in bold are Ecology PBTs)			
Acenaphthene (83-32-9)	625	0.2	0.4
Acenaphthylene (208-96-8)	625	0.3	0.6
Anthracene (120-12-7)	625	0.3	0.6
Benzidine (92-87-5)	625	12	24
Benzyl butyl phthalate (85-68-7)	625	0.3	0.6
Benzo(a)anthracene (56-55-3)	625	0.3	0.6
Benzo(b)fluoranthene (3,4-benzofluoranthene) (205-99-2) ⁴	610/625	0.8	1.6
Benzo(j)fluoranthene (205-82-3) ⁴	625	0.5	1.0
Benzo(k)fluoranthene (11,12-benzofluoranthene) (207-08-9) ⁴	610/625	0.8	1.6
Benzo(r,s,t)pentaphene (189-55-9)	625	0.5	1.0
Benzo(a)pyrene (50-32-8)	610/625	0.5	1.0
Benzo(ghi)Perylene (191-24-2)	610/625	0.5	1.0
Bis(2-chloroethoxy)methane (111-91-1)	625	5.3	21.2
Bis(2-chloroethyl)ether (111-44-4)	611/625	0.3	1.0
Bis(2-chloroisopropyl)ether (39638-32-9)	625	0.3	0.6
Bis(2-ethylhexyl)phthalate (117-81-7)	625	0.1	0.5
4-Bromophenyl phenyl ether (101-55-3)	625	0.2	0.4
2-Chloronaphthalene (91-58-7)	625	0.3	0.6
4-Chlorophenyl phenyl ether (7005-72-3)	625	0.3	0.5
Chrysene (218-01-9)	610/625	0.3	0.6
Dibenzo (a,j)acridine (224-42-0)	610M/625M	2.5	10.0
Dibenzo (a,h)acridine (226-36-8)	610M/625M	2.5	10.0
Dibenzo(a-h)anthracene (53-70-3)(1,2,5,6-dibenzanthracene)	625	0.8	1.6
Dibenzo(a,e)pyrene (192-65-4)	610M/625M	2.5	10.0
Dibenzo(a,h)pyrene (189-64-0)	625M	2.5	10.0
3,3-Dichlorobenzidine (91-94-1)	605/625	0.5	1.0
Diethyl phthalate (84-66-2)	625	1.9	7.6
Dimethyl phthalate (131-11-3)	625	1.6	6.4
Di-n-butyl phthalate (84-74-2)	625	0.5	1.0
2,4-dinitrotoluene (121-14-2)	609/625	0.2	0.4
2,6-dinitrotoluene (606-20-2)	609/625	0.2	0.4
Di-n-octyl phthalate (117-84-0)	625	0.3	0.6
1,2-Diphenylhydrazine (as Azobenzene) (103-33-3)	1625B	5.0	20

Pollutant & CAS No. (if available)	Recommended Analytical Protocol	Detection (DL) ¹ µg/L unless specified	Quantitation Level (QL) ² µg/L unless specified
VOLATILE COMPOUNDS			
Fluoranthene (206-44-0)	625	0.3	0.6
Fluorene (86-73-7)	625	0.3	0.6
Hexachlorobenzene (118-74-1)	612/625	0.3	0.6
Hexachlorobutadiene (87-68-3)	625	0.5	1.0
Hexachlorocyclopentadiene (77-47-4)	1625B/625	0.5	1.0
Hexachloroethane (67-72-1)	625	0.5	1.0
Indeno(1,2,3-cd)Pyrene (193-39-5)	610/625	0.5	1.0
Isophorone (78-59-1)	625	0.5	1.0
3-Methyl cholanthrene (56-49-5)	625	2.0	8.0
Naphthalene (91-20-3)	625	0.3	0.6
Nitrobenzene (98-95-3)	625	0.5	1.0
N-Nitrosodimethylamine (62-75-9)	607/625	2.0	4.0
N-Nitrosodi-n-propylamine (621-64-7)	607/625	0.5	1.0
N-Nitrosodiphenylamine (86-30-6)	625	0.5	1.0
Perylene (198-55-0)	625	1.9	7.6
Phenanthrene (85-01-8)	625	0.3	0.6
Pyrene (129-00-0)	625	0.3	0.6
1,2,4-Trichlorobenzene (120-82-1)	625	0.3	0.6
DIOXIN			
2,3,7,8-Tetra-Chlorodibenzo-P-Dioxin (176-40-16)	1613B	1.3 pg/L	5 pg/L
PESTICIDES/PCBs			
Aldrin (309-00-2)	608	0.025	0.05
alpha-BHC (319-84-6)	608	0.025	0.05
beta-BHC (319-85-7)	608	0.025	0.05
gamma-BHC (58-89-9)	608	0.025	0.05
delta-BHC (319-86-8)	608	0.025	0.05
Chlordane (57-74-9) ⁵	608	0.025	0.05
4,4'-DDT (50-29-3)	608	0.025	0.05
4,4'-DDE (72-55-9)	608	0.025	0.05 ¹⁰
4,4' DDD (72-54-8)	608	0.025	0.05
Dieldrin (60-57-1)	608	0.025	0.05
alpha-Endosulfan (959-98-8)	608	0.025	0.05
beta-Endosulfan (33213-65-9)	608	0.025	0.05
Endosulfan Sulfate (1031-07-8)	608	0.025	0.05
Endrin (72-20-8)	608	0.025	0.05
Endrin Aldehyde (7421-93-4)	608	0.025	0.05
Heptachlor (76-44-8)	608	0.025	0.05

Pollutant & CAS No. (if available)	Recommended Analytical Protocol	Detection (DL) ¹ <i>µg/L unless specified</i>	Quantitation Level (QL) ² <i>µg/L unless specified</i>
VOLATILE COMPOUNDS			
Heptachlor Epoxide (1024-57-3)	608	0.025	0.05
PCB-1242 (53469-21-9) ⁶	608	0.25	0.5
PCB-1254 (11097-69-1)	608	0.25	0.5
PCB-1221 (11104-28-2)	608	0.25	0.5
PCB-1232 (11141-16-5)	608	0.25	0.5
PCB-1248 (12672-29-6)	608	0.25	0.5
PCB-1260 (11096-82-5)	608	0.13	0.5
PCB-1016 (12674-11-2) ⁶	608	0.13	0.5
Toxaphene (8001-35-2)	608	0.24	0.5

1. Detection level (DL) or detection limit means the minimum concentration of an analyte (substance) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero as determined by the procedure given in 40 CFR part 136, Appendix B.

Quantitation Level (QL) also known as Minimum Level of Quantitation (ML) – The lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to the concentration of the lowest calibration standard, assuming that the lab has used all method-specified sample weights, volumes, and cleanup procedures. The QL is calculated by multiplying the MDL by 3.18 and rounding the result to the number nearest to $(1, 2, \text{ or } 5) \times 10^n$, where n is an integer. (64 FR 30417).

ALSO GIVEN AS:

The smallest detectable concentration of analyte greater than the Detection Limit (DL) where the accuracy (precision & bias) achieves the objectives of the intended purpose. (Report of the Federal Advisory Committee on Detection and Quantitation Approaches and Uses in Clean Water Act Programs

**CITY OF SELAH
SEWER RATE
RESOLUTION**

RESOLUTION NO. 2580

A RESOLUTION OF THE CITY OF SELAH, WASHINGTON,
PERTAINING TO SEWER RATES

WHEREAS, Chapter 9.02.160 of the Selah Municipal Code provides that rates for Sewer Utility services be set by resolution of the City Council from time to time; and,

WHEREAS, the City Council has determined that a revision in the Sewer Rate structure is appropriate;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF SELAH, WASHINGTON, as follows:

1. RESIDENTIAL RATES

- A. Single-family dwellings and multi-family units of four units or less shall be charged a rate of thirty-eight dollars and ninety-six cents (\$38.96) per month, provided water or sewer service is requested and connection has been made.
- B. Multi-residential dwellings consisting of more than four units on one parcel of land, including, but not limited to, multiplexes, apartments and multi-unit residential complexes, served collectively or independently, shall be charged twenty-six dollars and one cent (\$26.01) per unit per month without consideration to occupancy status.
- C. Multi-family dwellings, including guest and sleeping rooms, shall be charged thirty-eight dollars and ninety-six cents (\$38.96) per unit of family capacity, per month, without consideration to occupancy status. Family capacity is based on the number of beds, where three beds are considered equal to one unit of family capacity.
- D. Multi-residential developments, including manufactured housing parks, condominium and townhouse developments, and residential development complexes served collectively or independently, shall be charged thirty-eight dollars and ninety-six cents (\$38.96) per unit, or space, per month without consideration to occupancy status.
- E. Low-Income Senior Citizens and Low-Income Disabled Persons Occupant Rate.
 - (1) Single-family dwellings shall be charged a rate of charged twenty-three dollars and forty-one (\$23.41) per month, per dwelling, regardless of occupancy, provided water or sewer service is requested and connection has been made.

- (2) A senior citizen is a person who occupies a dwelling unit where either the person or the person's spouse is sixty-two years of age or older at the commencement of any month.
- (3) A low-income senior citizen shall be a senior citizen whose income, combined with the income of the spouse, if any, for the calendar year preceding was fifteen thousand dollars (\$15,000.00) or less.
- (4) A disabled person is a person who occupies a dwelling unit and 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(4) or developmentally disabled as defined in RCW 71A.10.020(2) or a mentally ill person as defined in RCW 71.05.020(1).
- (5) A low-income disabled person shall be a disabled person whose income, combined with the income of the spouse, if any, for the calendar year preceding was fifteen thousand dollars (\$15,000) or less.
- (6) Combined income shall be income from all sources, provided that only two-thirds (2/3) of any social security benefits, two-thirds (2/3) of any retirement pension, two-thirds (2/3) of disability benefits, and the full amount of any other income shall be considered as income for the purpose of this section, and provided further, that the gain realized by any person from the sale, transfer, or upon being displaced from, his or her residence shall not be considered as income for the purposes of this section, if reinvested in a replacement residence within eighteen (18) months of its realization.
- (7) Determination of eligibility shall be made by the City Clerk-Treasurer based upon the annual statement of the low-income senior citizen or low-income disabled person, or any other reasonable and verifiable means at the discretion of the Clerk-Treasurer.

F. Outside utility users shall pay one hundred fifty percent (150%) of the applicable sewer service charges charged to all City residents.

2. COMMERCIAL/BUSINESS RATES

- A. The minimum monthly charge to a commercial/business account in this category shall be thirty-five dollars and forty cents (\$35.40) per establishment.
- B. For commercial and business establishments maintaining only restroom facilities for employees and the public, and for hotels and motels without a restaurant that discharges to the same service line, domestic waste charges shall be based upon metered water consumption, and shall be two dollars and ninety-five cents (\$2.95) per one hundred cubic feet, but not less than thirty-five dollars and forty cents (\$35.40) per establishment, per month.
- C. For commercial and business establishments discharging more than domestic wastes into the City sewage works for treatment, the strength of the wastewater shall be determined by the City, and the commercial/business establishment shall be charged

based upon the determined strength and the metered water consumption at the following rate:

Component		Rate
Hydraulic	Q	\$0.9406 per 100 cu.ft.
Biochemical oxygen demand	BOD	0.5403 per pound
Total suspended solids	TSS	1.0303 per pound

Monthly charges shall be made based on the quantities of these constituents discharged to the sewage works, but not less than thirty-five dollars and forty cents (\$35.40) per establishment, per month.

D. Grocery Stores, Bakeries, Restaurants, Drive-Ins, Convenience Stores Serving Food and Hotels and Motels with a Restaurant

The rate for grocery stores, bakeries, restaurants, drive-ins, and convenience stores serving food and hotels and motels with a restaurant that discharge sewage to the same service line (based upon a typical waste strength of 400 mg/BOD and 400 mg/l TSS for those establishments) shall be based upon metered water consumption, and shall be four dollars and eighty-one cents (\$4.81) per one hundred cubic feet, but not less than thirty-five dollars and forty cents (\$35.40) per establishment, per month.

E. Where multiple commercial and business establishments are tenants in a single building and are served by a common water meter, and have a single account with the City, domestic waste charges shall be based upon metered water consumption, and shall be at the rate determined by the City for the highest BOD and TSS values of the users discharging to the sewer, but not less than thirty-five dollars and forty cents (\$35.40) per establishment, per month. If commercial and business establishments are served by separate water meters, then each establishment shall be charged at the appropriate rate specified within this section, but not less than thirty-five dollars and forty cents (\$35.40) per meter, per month.

F. Where multiple commercial and business establishments are tenants in a single building and are served by a common water meter, and each establishment has separate account with the City, domestic waste charges shall be based upon metered water consumption at the rate determined by the City for the highest BOD and TSS values of the users discharging to the sewer, but not less than thirty-five dollars and forty cents (\$35.40) per establishment, per month. Billing amounts in excess of the minimum shall be distributed equally between the establishments connected to the meter.

G. Where residential and commercial uses are jointly served by a common water meter, each residential dwelling unit shall be charged thirty-eight dollars and ninety-six cents (\$38.96), per unit, per month, and each business establishment shall be charged thirty-five dollars and forty cents (\$35.40) per unit, per month, and be allotted three hundred cubic feet of water per month per residential dwelling unit. Water metered

in excess of three hundred cubic feet per residential unit shall be considered commercial consumption, and the appropriate rate as determined by the City shall be applied.

- H. Commercial/business users who lose water through evaporation, irrigation, or in the product, may request a reduction in their monthly sewer charge only if the difference between water consumed and wastewater discharged to the City is documented through the use of water meters. In such a situation, the monthly sewer charges will be based upon the volume of wastewater discharged to the City at the appropriate rate specified within this section.
- I. Outside utility commercial/business users shall pay one hundred fifty percent (150%) of the applicable sewer service charges charged to City commercial/business users.

3. GOVERNMENT RATES

Unless otherwise noted below, governmental sewer accounts shall be charged for sewer service based upon metered water consumption at the rate of two dollars and ninety-five cents (\$2.95) per one hundred cubic feet, but not less than thirty-five dollars and forty cents (\$35.40) per month.

- A. Schools.
Schools shall be charged for sewer service based upon metered water consumption at the rate of two dollars and ninety-five cents (\$2.95) per one hundred cubic feet, but not less than thirty-five dollars and forty cents (\$35.40) per month per metered account.
- B. Yakima Valley School.
Yakima Valley School (with the assumed wastewater strength of BOD = 400 mg/I and TSS = 400 mg/I) shall be charged for sewer service based upon metered water consumption at the rate of four dollars and eighty-one (\$4.81) per one hundred cubic feet. The minimum monthly charge for the Yakima Valley School shall be ninety-nine dollars and forty-three cents (\$99.43).
- C. Outside utility government users shall pay one hundred fifty percent (150%) of the applicable sewer service charges charged to City government users.

4. INDUSTRIAL RATES

Industrial users of the City wastewater facilities shall be evaluated and determined by the City as to whether monitoring stations on wastewater discharges will be required. If monitoring stations are required by the City, the City shall designate when, where, and how many stations shall be placed. City-approved monitoring stations shall be installed and maintained continuously in satisfactory and effective operation by, and at the expense of, the industrial user, at the direction of the City.

- A. General Industrial User Conditions.

The following conditions apply to all industrial users discharging to the City wastewater facilities:

- (1) There shall be no unmetered sources of water contributing wastewater to the City sewage works without the knowledge and prior written approval of the City.
- (2) The City reserves the right to test, monitor, and control any wastewater discharged to any City facility at any time, including the right set forth in Selah Code Section 9.10.072.
- (3) The discharges of industrial users may be restricted to a capacity allocated in an industrial discharge contract with the City, or a State or NPDES Waste Discharge Permit issued to the user by the Washington Department of Ecology, whichever results in the smaller capacity. In the event the discharge from an industrial user exceeds that allocated, then a rate surcharge shall be assessed. Such a surcharge shall only be assessed when the discharge exceeds that allocated to the industrial user on an average monthly basis for any of the three components that comprise the rate determination (flow, BOD, and TSS). The surcharge shall only be applied to that portion of the component that is in excess of the industrial user's allocation, and shall be equal to one hundred twenty-five percent (125%) of the rate for that component. For example, if an industrial user's discharge is within the allocated limits for flow and BOD, but exceeds the TSS allocated limit by 100 pounds per day on an average monthly basis, then that excess 100 pounds per day times the number of days in the month shall be charged a rate equal to 125% of the per pound TSS rate.
- (4) Industrial users who lose water through evaporation, irrigation, or in the product, may request a reduction in their monthly sewer charge only if the difference between water consumed and wastewater discharged to the City is documented through the use of water meters. In such a situation, the monthly sewer charges will be based upon the volume of wastewater discharged to the City at the appropriate rate specified within this section.
- (5) The pH of discharges from all industrial users discharging liquids into the public sewers other than the industrial pretreatment system shall not be lower than 6.0 nor greater than 9.0 as determined by monitoring station results. Any discharge of waste outside this range shall be subject to a penalty of one hundred thirty-eight dollars and fifty-two cents (\$138.52) per day. For the purposes of this monetary penalty, each day's discharge shall be considered a separate event.
- (6) In the event characteristics of the wastewater as determined by the monitoring station results are not available due to an equipment malfunction, failed la-

boratory test, or other unforeseen circumstance, then the quantities of flow, BOD, and TSS shall be determined as follows:

- a. The quantity of wastewater flow shall be based on one of the following methods as determined by the City to be effective and representative for the month when data or results are not available:

- i. The wastewater flow shall be equal to the flow for the same month in the previous year times the average flow for the previous twelve (12) months divided by the average flow for the twelve (12) month period preceding the month used from the previous year. For example, if the quantity of flow is not available in October 1999, then the flow would be calculated as follows:

$$\text{October 1999 flow} = \frac{(\text{October 1998 flow}) \times (\text{Average daily flow Oct 1998 through Sept 1999})}{(\text{Average daily flow Oct 1997 through Sept 1998})}$$

- ii. The wastewater flow shall be equal to the total water flow into the user, as determined by water meter readings for the user, times a conversion factor determined by dividing the wastewater flows for the previous twelve (12) months by the water meter readings for the previous twelve (12) months. For example, if the quantity of flow is not available in October 1999, then the flow would be calculated as follows:

$$\text{October 1999 flow} = \frac{(\text{October 1999 water flow}) \times (\text{Oct 1998 through Sept 1999 wastewater flow})}{(\text{Oct 1998 through Sept 1999 water flow})}$$

- iii. The wastewater flow shall be equal to the total water flow into the user, as determined by water meter readings for the user, times a conversion factor determined by the City performing a quantitative water balance through the users process to develop a relationship between water consumption and wastewater discharge.

- iv. The wastewater flow shall be determined by any other method deemed acceptable to the City.

- b. The quantity of BOD shall be based on one of the following methods as determined by the City to be effective and representative for the month when data or results are not available:

- i. The BOD concentration shall be equal to the BOD concentration for the same month in the previous year times the average BOD concentration for the previous twelve (12) months di-

vided by the average BOD concentration for the twelve (12) month period preceding the month used from the previous year. For example, if the BOD concentration is not available in October 1999, then the BOD concentration would be calculated as follows:

$$\text{October 1999 BOD} = \frac{(\text{October 1998 BOD}) \times (\text{Average BOD conc. Oct 1998 through Sept 1999})}{(\text{Average BOD conc. Oct 1997 through Sept 1998})}$$

- ii. The BOD concentration shall be equal to the BOD concentration for the previous month.
 - iii. The BOD concentration shall be determined by any other method deemed acceptable to the City.
- c. The quantity of TSS shall be based on one of the following methods as determined by the City to be effective and representative for the month when data or results are not available:
- i. The TSS concentration shall be equal to the TSS concentration for the same month in the previous year times the average TSS concentration for the previous twelve (12) months divided by the average TSS concentration for the twelve (12) month period preceding the month used from the previous year. For example, if the TSS concentration is not available in October 1999, then the TSS concentration would be calculated as follows:

$$\text{October 1999 TSS} = \frac{(\text{October 1998 TSS}) \times (\text{Average TSS conc. Oct 1998 through Sept 1999})}{(\text{Average TSS conc. Oct 1997 through Sept 1998})}$$

- ii. The TSS concentration shall be equal to the TSS concentration for the previous month.
 - iii. The TSS concentration shall be determined by any other method deemed acceptable to the City.
- (7) The City shall charge monetary penalties for any discharge from an industrial user that meets the criteria of an excessive industrial discharge as defined in Selah Code section 9.10.010. For the purposes of charging monetary penalties, each day's discharge and each component (flow, BOD, and TSS) shall be considered a separate event. Monetary penalties shall include, but not necessarily be limited to, the following:
- a. All costs associated with providing treatment to the industrial slug discharge.

- b. All costs associated with repair of equipment damaged by, or associated with, providing treatment to the industrial slug discharge.
 - c. All costs associated with NPDES permit violations, federal or state government orders resulting from NPDES permit violations, penalties imposed by the federal or state government upon the City for NPDES permit violations, and all costs associated with any citizens lawsuit filed against the City for NPDES permit violations.
 - d. Industrial slug discharges lasting five (5) or more consecutive days shall be subject to the surcharge provisions of Section 4.A.(3) of this Resolution whether or not the industrial user's maximum monthly allocated capacity is exceeded.
- (8) Outside utility industrial users shall pay one hundred fifty percent (150%) of the applicable sewer service charges charged to City industrial users.

B. Industrial Users Not Required to Have Monitoring Stations.

- (1) The minimum monthly charge to an industrial account in this category shall be thirty-eight dollars and eighteen cents (\$38.18) per month, per industry.
- (2) For industrial users maintaining only restroom facilities for employees and the public, domestic waste charges shall be based upon metered water consumption at the rate of three dollars and twenty-seven cents (\$3.27) per one hundred cubic feet, but not less than thirty-nine dollars and thirty-three cents (\$39.33) per month, per industry.
- (3) Where an industrial user discharges more than just domestic wastewater, and a City-approved monitoring station is not required, rates shall be based upon metered water consumption. Those industries not utilizing City water will be required to install City-approved flow meters on their water supply, and to allow the volume of water used to be determined by meter readings taken by the City on a monthly basis. Charges for wastewater service shall be based upon the volume, strength, and characteristics of the wastewater, using assumed values where actual values are not known or established by the City using a portable sampler, at the following rates:

Component		Rate
Hydraulic	Q	\$0.9406 per 100 cu.ft.
Biochemical oxygen demand	BOD	0.5403 per pound
Total suspended solids	TSS	1.0303 per pound

C. Industrial Users Required to Have Monitoring Stations.

- (1) The minimum monthly charge to an industrial account in this category shall be three hundred sixty dollars and fifty-nine cents (\$360.59) per month, per industry.
- (2) Industrial users required to install City-approved monitoring stations on their discharges to the City, but not required to connect to the City pretreatment facility, shall be charged for sewer service based upon the volume, strength, and characteristics of the wastewater as determined by the monitoring station results at the following rates:

Component		Rate
Hydraulic	Q	\$0.9406 per 100 cu.ft.
Biochemical oxygen demand	BOD	0.5403 per pound
Total suspended solids	TSS	1.0303 per pound

D. Industrial Users Required to Connect to the City Pretreatment Facility.

- (1) The minimum monthly charge to an industrial account in this category shall be six hundred one dollars and one cent (\$601.01) per month, per monitoring station, per industry.
- (2) The industrial pretreatment facility is recognized as having a finite capacity to treat wastewater. The following capacities and limitations have been established:

Component	Units	Capacity	Occurrence
Flow	MGD	0.40	Max. Monthly Flow
BOD	lbs/day	4,000	Max. Monthly BOD Loading
TSS	lbs/day	1,500	Max. Monthly TSS Loading

- (3) In the event of multiple users of the pretreatment facility, the City shall allocate a respective share of the capacity of each component to each of the users.
- (4) Industrial users required to connect to the City pretreatment facility shall install City-approved monitoring stations at their expense on their wastewater discharge lines to monitor the volume, strength, and characteristics of their wastewater discharges into the pretreatment facility. Charges for sewer service shall be based upon the volume, strength, and characteristics of the wastewater discharged to the pretreatment facility as determined by monitoring station results at the following rates:

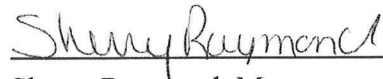
Component	Rate
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Hydraulic	Q	\$0.4326 per 100 cu.ft.
Biochemical oxygen demand	BOD	0.2484 per pound
Total suspended solids	TSS	0.4737 per pound


- (5) The pH of discharges from all industrial users discharging liquids into the industrial pretreatment system shall not be lower than 5.0 nor greater than 11.0 as determined by monitoring station results. Any discharge of waste outside this range shall be subject to a penalty of one hundred thirty-eight dollars and fifty-two cents (\$138.52) per day. For the purposes of this monetary penalty, each day's discharge shall be considered a separate event.
- (6) In addition to the user rates for wastewater treatment in subsection (4) of this section, all users of the City industrial pretreatment facility shall proportionally bear the operational, maintenance, preventative maintenance, capital, and improvement costs of the pretreatment facility. These costs shall be proportionally divided by the City and imposed on participating users based on volume and strength monitoring by the individual monitoring stations of the user. Special costs (such as sludge removal from the pretreatment facility) shall be proportioned based on the constituent of wastewater creating the necessity for expenditures over the period leading to the need.

BE IT FURTHER RESOLVED that the rates set forth herein shall be effective commencing on January 1, 2017.

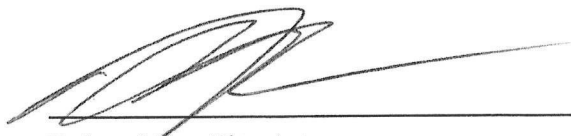
PASSED AND ADOPTED BY THE CITY COUNCIL OF THE CITY OF SELAH, WASHINGTON, this 13th day of December 2016.


Sherry Raymond, Mayor

ATTEST:


Dale E. Novobielski, Clerk-Treasurer

APPROVED AS TO FORM:


Robert Noe, City Attorney

RESOLUTION NO. 2580

**CITY OF SELAH
MUNICIPAL SEWER CODE**

Chapter 9.10 - SEWER SYSTEM

Sections:

9.10.010 - Definitions.

As used in this chapter:

"Applicant" means the owner or authorized agent of the property to be served, and said applicant shall be the responsible person for payment of bills for sewer service.

"BOD" (denoting Biochemical oxygen demand) means the quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedures in five days at twenty degrees centigrade, expressed in milligrams per liter.

"Building drain" means that part of the lowest horizontal piping of a drainage system which receives the discharge from soil, waste, and other drainage pipes inside the walls of the building and conveys it to the building sewer, beginning five feet outside the inner face of the building wall.

"Building sewer" means the extension from the public sewer to the building drainage system.

"City" means city of Selah.

"Commercial or business" means a commercial or business establishment excluding grocery stores, bakeries, restaurants and drive-ins discharging domestic wastes in volumes less than five thousand gallons per day on an average annual flow basis and not constituting a significant load on the sewage works. Wastes from such a user do not pass through a city-approved monitoring station. For the purposes of determining sewer rates, waste from such a user is assumed to have a strength of two hundred mg/l BOD and two hundred mg/l TSS.

"Cooling water" or "uncontaminated cooling water" or "noncontact cooling water" means water used for cooling purposes which does not come into direct contact with any raw material, intermediate product, waste product, or finished product, and that contains no additives, pollutants, toxics, or dangerous wastes.

"Excessive industrial discharge" means any discharge of water, wastewater or industrial waste from an industrial user which, in volume or concentration, exceeds that industrial users allocated capacity for any component (flow, BOD, or TSS) by twenty-five percent for any one day period.

"Grocery stores, bakeries, restaurants and drive-ins" means a commercial or business establishment engaged in the commercial preparation and selling of foods, which typically discharge wastes with strengths greater than the waste discharged by a residential user.

"Industrial user" means any nongovernmental user of the sewage treatment plant identified in the Standard Industrial Classification Manual, 1972, United States Office of Management and Budget, as amended and supplemented. In addition, an industrial user is a user of either the pretreatment plant or the sewage treatment plant who discharges wastewater into the system.

"Industrial waste" means any solid, liquid or gaseous substance discharged or permitted to be discharged to the sewage works from any industrial or manufacturing establishment as distinct from sewage.

"Major industrial user" means an industrial user who:

- (1) Has a flow of twenty-five thousand gallons or more of process wastewater per average workday (excluding sanitary, noncontact cooling and boiler blowdown wastewater);
- (2) Has a flow equal to or greater than five percent of the flow or organic loading carried by the municipal system receiving the waste;
- (3) Has in its waste a toxic pollutant in toxic amounts as defined in standards issued under Section 307(a) of the Federal Water Pollution Control Act Amendments of 1972;

- (4) Has a significant impact, either singly or in combination with other contributing industries, on a publicly owned treatment works or on the quality of effluent from that works; or
- (5) Is designated as such by the Washington Department of Ecology.

"Milligrams per liter" (mg/l) shall mean the weight of any substance expressed in milligrams contained within one liter.

"Natural outlet" means any outlet into a watercourse, pond, ditch, lake, or other body of surface or ground water.

"Noncity user" means a person connected to and a user of the city sewage works whose physical location is outside the city limits.

"Nonfood industrial user" means an industrial user who does not discharge food processing waste.

"Parts per million" means a weight-to-weight ratio; the parts-per-million value multiplied by the factor 8.345 shall be equivalent to pounds per million gallons of water.

"Person" means any individual, firm, company, association, society, corporation, or group.

"pH" means the logarithm of the reciprocal of the weight of hydrogen ions in grams per liter of solution.

"Private sewer" means the sewer line and disposal system constructed, installed, or maintained where connection with the public sewer system is not required herein.

"Properly shredded garbage" means the wastes from the preparation, cooking, and dispensing of food that has been shredded to such degree that all particles will be carried freely under the flow conditions normally prevailing in public sewers, with no particle greater than one-half inch (1.27 centimeters) in any dimension.

"Public sewer" means a sewer in which all owners of abutting properties have equal rights, is controlled by public authority, which carries sewage and industrial waste, and to which storm waters, surface waters and ground waters are not intentionally admitted.

"Sewage" means a combination of the water-carried wastes from residences, business buildings, and institutions, together with such ground, surface, and storm waters as may be present.

"Sewage treatment plant" means any arrangement of devices and structures used for treating sewage.

"Sewage works" means all facilities for collecting, pumping, treating, and disposing of sewage.

"Sewer" means a pipe or conduit for carrying sewage.

"Shall" and "may." The word "shall" is mandatory. The word "may" is permissive.

"Slug" means a discharge of water, sewage, or industrial wastes which in concentration of any given constituent or in quantity of flow exceeds for any period of duration longer than fifteen minutes more than five times the average twenty-four hour concentration or flows during normal operation.

"Standard methods" means the examination and analytical procedures set forth in the most recent edition of Standard Methods for the Examination of Water, Sewage, and Industrial Wastes, published jointly by the American Public Health Association, the American Water Works Association, and the Water Environment Federation.

"Storm sewer or storm drain" means a sewer that carries storm, surface and ground water drainage, but excludes sewage and industrial wastes other than unpolluted cooling water.

"Strength of wastewater" means the amount of BOD and TSS in the wastewater as determined through samples collected and tested by the city in accordance with the latest edition of Standard Methods for the Examination of Water and Wastewater, published by the American Public Health Association.

"Superintendent" means the public works superintendent of the city of Selah, or his/her authorized representative.

"Treatment plant supervisor" means the supervisor in charge of the city of Selah sewage treatment plant.

"Total suspended solids" (TSS) means solids that either float on the surface of, or are in suspension in water, sewage, or industrial waste, which are removable by laboratory filtering, are determined by quantitative standard laboratory procedures, and are expressed in milligrams per liter.

"Unpolluted water or liquids" means any water or liquid containing none of the following: free or emulsified grease or oil; acids or alkalis; substances that may impart taste-and-odor or color-characteristics; toxic or poisonous substances in suspension, colloidal state or solution; odorous or otherwise obnoxious gases.

"Usual business hours" means the hours between eight a.m. and five p.m. Monday through Friday.

"Wastewater" means a combination of the liquid or water carried wastes removed from residences, institutions, commercial, and industrial establishments, together with such ground water surface water, and stormwater as may be present.

"Watercourse" means a channel in which a flow of water occurs, either continuously or intermittently.

(Ord. 1394 (part), 1998.)

9.10.020 - Creation of department.

A sewer department of the city of Selah is established. The sewer department is responsible for the operation and maintenance of the sewer collection and the making of repairs and construction of whatever nature that may be established.

(Ord. 1394 (part), 1998.)

9.10.030 - Admission of wastes into public sewers.

- (a) It is unlawful for any person to place, deposit, or permit to be deposited in any unsanitary manner upon public or private property within the city of Selah, or in any area under the jurisdiction of the city, any human or animal excrement, garbage, or other objectionable waste.
- (b) Except as hereinafter provided, it is unlawful to construct or maintain any privy, privy vault, septic tank, cesspool, or other facility intended to be used for the disposal of sewage.
- (c) Pretreatment. Where required, in the opinion of the city council, to modify or eliminate wastes that are harmful to the structures, processes, or operation of the sewage works, the person shall provide at his/her expense such preliminary treatment or processing facilities as may be determined necessary to render his/her wastes acceptable for admission to the public sewers. Plans, specifications, and any other pertinent information relating to proposed preliminary treatment or processing facilities shall be submitted for approval to the city council prior to the start of their construction if the effluent from such facilities is to be discharged into the public sewers.
- (d) The owner of each lot or parcel of real property within the city of Selah, not already connected to the public sewer system of the city, upon which lot or parcel of property there is situated any building or structure used for human occupancy or for any other purpose, where plumbing fixtures and/or drainage piping systems are installed therein, shall install suitable toilet facilities therein, and shall connect such facilities, together with all other facilities therein, the use of which results in the existence of sewage as defined in this chapter, to the public sewer system, at his/her own expense within sixty days after service of notice to do so, signed by the city clerk-treasurer and mailed to the address listed on the records of the city of Selah for the payer of sewer charges, whenever there is a

public sewer line that is contiguous or abuts or passes through or under the lot or parcel of property, or is adjacent to said lot or parcel of property. "Adjacent" is defined for the purposes of this provision to mean that the public sewer lines shall be no more than two hundred feet from the nearest property line of said lot or parcel.

- (e) Where a public sewer line is not available under the provisions of Section 9.10.030(d) of this code, a private sewer and sewage disposal system shall be constructed, connected, and maintained in accordance with provisions herein.
- (f) The city of Selah shall have the authority, upon request by an owner of real property required to connect with the public sewer system of the city, to postpone the mandatory connection to the public sewer system, provided:
 - (1) Such postponement, in the opinion of the city, would not operate to the detriment of adjacent property owners, or of the public welfare, health and safety;
 - (2) The property owner shall show unnecessary hardship that would be alleviated by a postponement of the required connection with the public sewer system;
 - (3) The postponement of the connection with the public sewer system shall be necessitated because weather conditions prohibit and prevent appropriate excavations on the real property to facilitate such connection;
 - (4) Postponed sewer connection completions shall be for no longer than six months.
- (g) No unauthorized person shall uncover, make any connection with, or opening into, use, alter, or disturb any public sewer without first obtaining a written permit from the superintendent. No unauthorized person shall open, alter, or disturb the streets or alleys of the city of Selah for the purpose of making connection with the public sewer system, without first obtaining a written permit therefor from the superintendent.
- (h) No person shall construct nor commence the construction of a private sewer or private sewage disposal system without first obtaining a written permit from the superintendent. No person shall construct, extend, re-lay, repair, or connect a building sewer without first obtaining a written permit from the superintendent.
- (i) An application for any permit shall be made on a form furnished by the city of Selah which the applicant shall supplement with such plans, specifications, and other information as deemed necessary by the superintendent. No permit shall become effective until after the superintendent has inspected the construction or installation as completed and before any underground portions are covered. Inspection shall be made by the superintendent within forty-eight hours after receipt of notice excluding Saturdays, Sundays, and holidays.
- (j) The type, capacities, location, and layout of a private sewage system shall comply with all recommendations and regulations of the Department of Health of the State of Washington. No septic tank or cesspool shall be permitted to discharge to any public sewer or natural outlet, or to ground surface, or shall be permitted to discharge to any public sewer without the prior approval of the city council. The owner shall operate and maintain the private sewage disposal facilities in a sanitary manner at all times, at no expense to the city.
- (k) Whenever a public sewer becomes available to a lot or parcel served by a private sewage disposal system, as provided in Section 9.10.030(d), a direct connection shall be made to the public sewer in compliance with this ordinance, and any septic tanks, cesspools, and similar private sewage disposal facilities shall be abandoned and filled with suitable material.
- (l) A separate and independent building sewer line shall be provided for each building, for connection with the public sewer system; provided that where feasible this requirement may be waived upon submission of alternate plans approved by and thereafter constructed under the supervision of the superintendent. Each property connected must obtain a permit as provided in subsection (i) of this section and pay the connection charge as provided in Chapter 9.17 of this code.

- (m) All connections and building sewer lines connecting with the public sewer system shall be constructed, installed, and connected in such a manner as to ensure a permanent and sanitary sewer, watertight throughout. The pipe used in the installation thereof shall be equal in quality to the pipe used in the general sewer system, and not less than four inches in diameter. The jointing compound, where mechanical joints are not used, shall be equal in quality to that used in the general or public sewer system. Where mechanical joints are used, they shall be of such construction that an absolutely tight joint is ensured. The building sewer shall be sufficient to carry all sewage into the general sewer system and each toilet, sink, stationary washstand, and every other piece or type of equipment or facility having waste fluids or sewage shall be connected therewith. The slope of the building sewer shall be subject to the approval of the superintendent; the pipe in the building sewer shall be laid so that the flow line therein will be at a depth of not less than thirty inches from the surface of the ground.
- (n) All excavations for building sewer installations shall be properly safeguarded with lights and barricades so the same may not be a menace to public safety. All streets, sidewalks, alleys, parkways, and other public property disturbed in the course of the work shall be restored in a manner satisfactory to the city.
- (o) Sewer connection permit fees and special connection charges required by ordinance shall be paid in cash. In the event of litigation, the city shall recover from the property owner reasonable attorney fees and actual costs.
- (p) In the event the building sewer and connection are not made within the time herein provided for following notice, the superintendent is authorized and directed to cause the same to be made and to file a statement of the cost with the city clerk-treasurer, and thereupon a warrant shall be issued under the direction of the city council against the sewer fund for the payment of such cost. The cost, together with a penalty of ten percent thereof, plus interest at the rate of eight percent per annum upon the total amount of the cost and penalty, shall be assessed against the property upon which such building sewer and connection has not been placed as required, and shall become a lien thereon as herein provided. Such total amount, when collected, shall be paid to the sewer fund.

(Ord. 1394 (part), 1998.)

9.10.040 - Prohibited discharges.

- (a) No person shall discharge or cause to be discharged any storm water, surface water, ground water, roof runoff, subsurface drainage, or noncontact cooling water to any sanitary sewer.
- (b) No person shall discharge or cause to be discharged any substances that, in the opinion of the superintendent, may harm either the sewage works, the sewage treatment process, or equipment; have an adverse effect on the receiving stream; or can otherwise endanger life, limb, public property, or constitute a nuisance. No person shall discharge or cause to be discharged any of the following described waters or wastes to any public sewer:
 - (1) Any waters or wastes which by reason of their nature or quantity are, or may be sufficient either alone, or by interaction, to: (a) create a fire or explosion hazard in the sewage treatment plant (including, but not limited to, waste streams with a closed cup flashpoint of less than one hundred forty degrees Fahrenheit or sixty degrees Centigrade); (b) create a public nuisance or hazard to life; (c) prevent entry into the sewage works for its maintenance or repair; or (d) be injurious in any other way to the sewage works or its personnel;
 - (2) Any waters or wastes having a pH lower than 6.0 or higher than 9.0, or having any other corrosive property capable of causing damage or hazard to structures, equipment, or personnel of the sewage works;
 - (3) Heat in amounts that will inhibit biological activity in the sewage treatment plant which cause, or may cause, pass-through interference, but in no case heat in such quantities such that the

temperature at the sewage treatment plant headworks exceeds one hundred four degrees Fahrenheit or forty degrees Centigrade;

- (4) Any waters or wastes including oxygen demanding pollutants (BOD, etc.) and suspended solids (TSS, etc.) released in either a slug load or continuous discharge of such volume, flow rate, and/or concentration which will cause, or may cause, pass-through or interference of the sewage treatment plant;
- (5) Any waters or wastes in amounts that cause, or may cause, obstruction to the flow in the sewage works, does not meet the definition of properly shredded garbage, or otherwise interfere with the operations or maintenance of the sewage works;
- (6) Petroleum oil, nonbiodegradable cutting oil, or products of mineral origin in amounts that will cause, or may cause, pass-through or interference of the sewage treatment plant;
- (7) Any waters or wastes which result in the presence of toxic gases, vapors, or fumes within the sewage works in a quantity which cause, or may cause, acute worker health and safety problems;
- (8) Any trucked or hauled pollutants without prior approval by the superintendent or treatment plant supervisor, except at discharge points designated by the superintendent or treatment plant supervisor;
- (9) Noncontact cooling water in significant amounts, unpolluted storm water, or any other direct water inflow sources which do not require treatment or would not be afforded a significant degree of treatment by the sewage treatment plant;
- (10) Any waters or wastes containing dangerous waste, as prohibited by Chapter 173-303 WAC; and
- (11) Any waters or wastes containing substances which are not amenable to treatment by the sewage treatment plant, or are amenable to treatment only to such degree that the sewage treatment plant effluent cannot meet the requirements of its waste discharge permit or of other agencies having jurisdiction over discharge to the receiving waters.

(Ord. 1394 (part), 1998.)

9.10.060 - Sewer service charge.

Rates for sewer service used by customers of the city sewer department shall be set by resolution of the city council from time to time and said rates shall be on file and available at the office of the city clerk.

(Ord. 1394 (part), 1998.)

9.10.061 - Responsibility for sewerage charge.

All accounts for sewerage service shall be kept in the name of the property owner who shall be responsible for the payment of all charges set forth in this chapter. At the request of the property owner, the clerk-treasurer may bill the consumer or consumers but the charge shall ultimately be the responsibility of the property and property owner.

(Ord. 1394 (part), 1998.)

9.10.061A - Proration of sewerage charge.

Where more than one user on an account/service address, is to be charged for services during any one month, the minimum monthly service charges will be prorated between the users based upon the percentage of days of service provided to each user in that month.

(Ord. 1502 (part), 2001.)

9.10.062 - Sewerage charges—When due.

All charges for sewerage service shall be due to the city clerk-treasurer on or before the tenth day of the month succeeding the date the bill was rendered. Sewerage bill shall be presented monthly for sewerage service delivered in the preceding month. Water service shall be suspended from any property for which the sewerage service charge remains unpaid by the tenth day of the next succeeding month. The clerk-treasurer shall notify the property owner or consumer in the next succeeding month following the initial sewerage service charge billing of the fact that payment has not been received. In the event of failure to pay the one-month delinquent payment, together with the current sewerage service charge appearing upon the bill notifying the property owner or consumer of the nonpayment, the water service shall be disconnected.

In the event of the disconnection of the water service for sewerage service delinquencies, the property owner or consumer shall be charged twenty dollars for the service of disconnecting the water service. The property owner or consumer shall be charged twenty dollars for the service of reconnecting the water service. Service to any property disconnected for delinquencies shall not be reinstated until all delinquencies, disconnection charges, and reconnection charges have been paid to the clerk-treasurer.

(Ord. 1394 (part), 1998.)

9.10.062A - Sewerage charge during construction period.

During the construction of a building or buildings following application for water use, the minimum charge shall not be charged to the property owner for periods prior to the occupancy and subsequent to the installation of plumbing fixtures.

(Ord. 1394 (part), 1998.)

9.10.063 - Discontinuance of water service.

In the event of the discontinuance of water service, there shall be for the period of the discontinued service no sewerage charge.

(Ord. 1394 (part), 1998.)

9.10.066 - Minimum charge for property not receiving sewerage service.

The minimum service charge for sewerage service shall be charged all occupied property whether or not connected to the sewer system where the sewer system is within two hundred feet of the property line of the occupied property.

(Ord. 1394 (part), 1998.)

9.10.072 - Pretreatment of industrial waste.

Under standards established by the United States Environmental Protection Agency, the city has the right and the obligation to establish guidelines for the pretreatment of industrial wastes.

- (1) Review and acceptance of the city council shall be obtained prior to the discharge into the public sewers of any waters or wastes having a total suspended solids content greater than three hundred fifty parts per million.

- (2) The allowable pH of industrial wastes discharged to the sewage works depends on the location of the discharge according to the following:
 - (A) No industrial user shall discharge liquids into the industrial pretreatment system having a pH lower than 5.0 or higher than 11.0, or having any corrosive properties capable of causing damage or hazards to structures, equipment, processes, or personnel of the sewage plant.
 - (B) No industrial user shall discharge liquids into the public sewers other than the industrial pretreatment system, having a pH lower than 6.0 or higher than 9.0, or having any corrosive properties capable of causing damage or hazards to structures, equipment, processes, or personnel of the sewage plant.
- (3) All industrial wastes shall be pretreated at the source to meet the minimum standards established by the United States Environmental Protection Agency as now exists or are later amended. The city shall actively encourage the industrial users to institute in-plant measures to reduce the quantity and strength of industrial wastewater flows to assist the city in achieving the best practicable treatment and to increase the quality of the effluent discharged from the sewage treatment plant. If the minimum standards set by the EPA fail to achieve the above objectives as shown through a local analysis, then the city reserves the right to establish more stringent requirements for pretreatment. Where required to modify or eliminate wastes that are harmful to the structures, processes, or operation of the sewage disposal works or which fail to meet minimum discharge standards, the industrial user shall provide at its expense such preliminary treatment or processing facilities as may be deemed necessary to render its waste acceptable for admission to the public sewers. Plans, specifications, and any other pertinent information relating to proposed preliminary treatment or processing facilities shall be submitted to the city for their review and approval prior to the issuance of a building permit or the start of any construction if the effluent from such facilities is to be discharged into the public sewers.
- (4) If the sewage treatment plant's efficiency, stability, or performance is threatened as determined by tests conducted by the city, by the industrial user's excess use beyond maximum daily allocations, then the city may reduce the water intake to the industrial user.

(Ord. 1408, 1998; Ord. 1394 (part), 1998.)

9.10.073 - Reallocation of capacity.

The discharges of industrial users may be restricted to a capacity allocated in an industrial discharge contract with the city, or a state or NPDES waste discharge permit issued to the user by the Washington Department of Ecology, whichever results in the smaller capacity. Any industrial user desiring an increase in their allocation shall apply to the city in writing at least ninety days in advance of the date on which it is desired to commence the increased discharge. That written application shall demonstrate to the city that the industrial user has a reasonable expectation to use the new allocation.

Any industrial user desiring a decrease in their allocation shall notify the city in writing of its willingness to release capacity.

All requests for capacity reallocation are subject to the approval of the city.

(Ord. 1394 (part), 1998.)

9.10.080 - Severability.

If any provision of this ordinance shall be construed by any court to be unconstitutional, such invalidity shall not affect the other provisions of this chapter.

(Ord. 1394 (part), 1998.)

9.10.130 - Payment by city of Selah for its use of sewer services.

The city of Selah shall pay out of the proper funds in the city treasury, in the same manner as other current claims against the city are paid, all charges and rates herein specified for the use of the facilities and furnishing of sewerage services of the city sewer system to the city of Selah itself.

(Ord. 1394 (part), 1998.)

9.10.140 - Inspection and penalties.

- (a) The superintendent and/or treatment plant supervisor shall have free access during usual business hours to all buildings or premises served by the sewage system for the purpose of inspecting pipes and fixtures, testing or measuring discharge to the public sewer system, the manner in which domestic water is being used, and other compliance or lack of compliance with this chapter.
- (b) No unauthorized person shall maliciously, wilfully, or negligently break, damage, destroy, uncover, deface, or tamper with any structure, appurtenance, or equipment which is part of the public sewer and sewage disposal system including the sewage treatment plant.
- (c) Any person who violates any of the provisions of this chapter may become liable to the city for any actual expenses, loss, or damage to the city by reason of the violation.
- (d) Any person found guilty of violating any provision of this chapter shall be punished by a fine not exceeding five hundred dollars, or imprisonment for any term not exceeding six months, or by both such fine and imprisonment. Each violation occurring in either unit violation or per-day violation shall constitute a separate offense.

(Ord. 1394 (part), 1998.)

9.10.170 - Violation by city of federal permits.

In the event the city is charged with a violation of its NPDES permit, and further, in the event the violation was caused in whole or in part by the violations of this chapter by one or more industrial user, then, in that event, the industrial user or users shall have added to their sewer statement all of the actual costs of the city required to comply with NPDES permit violations, orders from the federal or state government, any penalties imposed by the federal or state government upon the city, and all costs associated with any citizens lawsuits filed against the city for NPDES permit violations.

(Ord. 1394 (part), 1998.)

Chapter 9.11 - SEPARATE INDUSTRIAL WASTEWATER TREATMENT SYSTEMS

Sections:

9.11.010 - Establishment of separate industrial wastewater facility.

Industrial users of the city Wastewater System are, upon proper application and approval, authorized to establish a separate facility for the treatment and disposal of industrial wastewaters subject to the terms and conditions of this chapter.

(Ord. 1006 (part), 1991.)

9.11.020 - Acknowledgement of police power.

The applicant permittee acknowledges the police power of the city of Selah to regulate, permit, and authorize the disposal of any and all sewage and wastewaters created within the city of Selah.

(Ord. 1006 § 1, 1991.)

9.11.030 - Specifications of permit.

Any permit issued by the city shall specify the amount and nature of wastewaters authorized for processing in the permittee's system, and/or the amount of wastewaters authorized or required to be processed in the city's system.

(Ord. 1006 § 2, 1991.)

9.11.040 - Monthly fee for permit to operate a separate system.

Permittees not previously served by the city's system shall pay a monthly fee for the permit to operate a separate system equal to the amount of city utility tax which would have been assessed on the volume of wastewater if processed by the city wastewater utility. Such fees shall be calculated at least annually and shall be based on the permittee's reports as filed with the state. Permittees withdrawing from the city wastewater system shall pay an annual permit fee payable monthly based upon the amount of the city utility tax attributable to permittee's industrial wastewater assessment paid to the city during the previous twelve months of operations prior to withdrawal. Permit fees shall be adjusted annually according to the Consumer Price Index published by the Bureau of Labor Statistics of the U.S. Department of Labor for All Urban Consumer (CPT-U), U.S. City Average for All Items, with a reference base period of 1982-84 = 100. Permit fees shall be paid by the permittee during the term of the permit.

(Ord. 1006 § 3, 1991.)

9.11.050 - Permit restrictions.

The permit authorizing the establishment of separate wastewater facilities shall be restricted to permittee's present facilities and expansions thereto and no other usage. Permittee shall be prohibited from allowing other current or potential future users of city's system from using permittee's system.

(Ord. 1006 § 4, 1991.)

9.11.060 - Use of facilities to be in accordance with applicable NPDES or state waste discharge permits.

Use of the collection, transmission, treatment and disposal facilities shall be in accordance with all applicable NPDES or state waste discharge permits.

(Ord. 1006 § 5, 1991.)

9.11.070 - Monthly industrial sewer availability fee.

Permittees not previously served by the city's system shall pay a monthly industrial sewer availability fee of one percent of the rate the permittee would be paying if fully discharging into the city's system. Permittees withdrawing from the city wastewater system shall pay a monthly availability fee not exceeding one percent of the average of the monthly wastewater fees paid to the city for the twelve months prior to withdrawal. Such availability fee shall be adjusted annually according to the Consumer Price Index published by the Bureau of Labor Statistics of the U.S. City Average for All Items, with a reference base period of 1982-84 = 100. If a permittee does, at any time, discharge industrial wastewater to the city

treatment facilities, such discharge shall be as regulated by the city. The charges shall be based on the wastewater rate schedule and shall be a credit against the availability fee for the specific month of use with the balance of the availability fee if any, due to the city. Availability fees shall be paid by the permittee during the term of the permit.

(Ord. 1106 § 6, 1991.)

9.11.080 - Withdrawal of industrial user.

Any withdrawing industrial user shall indemnify and hold the city harmless and further will defend the city in any action or proceeding by reason of permittee's activities, conditions or liability created by the separate industrial user's system.

(Ord. 1006 § 7, 1991.)

9.11.090 - Permit modification.

A permit issued hereunder may not be modified except by either (a) the express written consent of the permittee, or (b) by the city in the reasonable and proper exercise of its police power to preserve and safeguard public health, after due notice to the permittee and a hearing specifically held for that purpose.

(Ord. 1006 § 8, 1991.)

9.11.100 - Permit revocation.

The city may revoke the permit only if the following conditions are met:

- (1) The city council finds, after due notice to permittee and after a hearing specifically held for that purpose, that it is in the public interest to revoke the permit, in the reasonable and proper exercise of its police power to preserve and safeguard public health; and
- (2) Having made the decision to revoke the permit, the permit shall be revoked no sooner than one year after the decision to revoke the permit; and
- (3) The city acquires the separate industrial waste facilities of the permittee pursuant to the terms set forth in Selah Code Section 9.11.110

(Ord. 1006 § 9, 1991.)

9.11.110 - City acquisition of permittee's separate wastewater facility.

If the city acquires the permittee's separate industrial wastewater facility or system pursuant to Selah Code Section 9.11.100, the price shall be for its depreciated costs, payable in cash at the time of acquisition, or upon terms of purchase agreed to between the city and the permittee. Depreciated cost shall be determined by the city and the permittee, or failing that agreement, by an independent qualified professional appraiser mutually agreed upon by the city and permittee. In the event of appraisal, the city and the permittee shall pay an equal amount of the appraisal fee. Depreciated cost shall be defined as and determined by first determining the new replacement cost at the time of acquisition and then deducting depreciation from all sources (i.e., physical deterioration, functional and/or economic obsolescence). The acquisition shall be subject to the city acquiring all prior interests, including, but not limited to, underlying fee title, leaseholds, permits, licenses, easements, security interests, and will hold harmless, defend and indemnify permittee with respect thereto, and will provide for permittees the current and future wastewater processing needs according to the permittee's five-year wastewater generation

and discharge projections at the time of city acquisition, up to the capacity of the separate system at the time of acquisition.

(Ord. 1006 § 10, 1991.)

9.11.120 - Selah comprehensive sewer plan to govern usage of separate industrial system.

Terms and conditions required by the city and usage of the separate industrial system shall remain consistent with the requirements of the Selah comprehensive sewer plan. The comprehensive sewer plan shall not be modified except in accordance with Selah Code Section 9.11.090.

(Ord. 1006 § 11, 1991.)

9.11.130 - Duration of permit.

Permits shall be granted for a period up to twenty years and shall be renewed at the option of the permittee for additional periods up to twenty years subject to the modification provisions outlined in Selah Code Section 9.11.090.

(Ord. 1006 § 12, 1991.)

9.11.140 - Transferral of permit.

The permit to withdraw and/or operate a separate industrial wastewater treatment system shall be nontransferable except to a successor in interest of permittee and/or of permittee's assets, exclusive of a current user of the city's wastewater facilities.

(Ord. 1006 § 13, 1991.)

9.11.150 - Permit application fee.

There shall be a permit application fee of \$500.00.

(Ord. 1006 § 14, 1991.)

9.11.160 - Permit subject to council approval.

The permit to withdraw or operate a separate system shall be subject to the approval of the city council.

(Ord. 1006 § 15, 1991.)

Chapter 9.14 - PLUMBING AND SIDE SEWERS*

Sections:

9.14.020 - Plumbing inspector appointment—Removal—Vacancy.

The office of plumbing inspector of the city of Selah is hereby created and established.

The plumbing inspector shall be appointed by the mayor, who may remove him at any time and appoint his successor. In case of a removal, notice in writing of such removal shall be served upon the plumbing inspector and a copy of such notice, together with a statement of the fact of said removal, signed by the mayor, shall be filed with the clerk-treasurer forthwith.

In case of a vacancy in the office of plumbing inspector or removal as herein provided, the mayor shall at or before the next regular council meeting appoint some competent person to fill such office, and shall file written notice of such appointment with the clerk-treasurer. All appointments and removals hereinbefore provided for shall be subject to the approval of the council.

(Ord. 74A § 2, 1936.)

Chapter 9.15 - SERVICE OUTSIDE CITY LIMITS

Sections:

9.15.010 - Statement of policy.

It is the policy of the city of Selah to annex areas contiguous to the city limits that are requesting utility services. The city, at its sole discretion, shall determine the timing and annexation requirements for any parcel of land seeking utility services.

Prospectively, for noncontiguous area, if the city of Selah has determined that it is in the public interest and general welfare of the city of Selah in order to encourage orderly and planned growth, or to help eliminate a public health hazard, the city may allow certain selected extensions of city water and sewer services to property outside the city limits if the criteria of this chapter are fulfilled.

(Ord. 1080 (part), 1993: Ord. 693 § 1, 1978: Ord. 565 § 1, 1975.)

9.15.020 - Criteria for water/sewer service outside city limits.

City water or sewer service may, at the discretion of the council, be extended outside the city of Selah limits, upon the following events occurring:

- (1) That the area to be served lies within the "Area of Mutual Planning Concern" as established by Resolution 986;
- (2) That the proposed extension of city water and sewer mains and system appurtenances conform to the city's comprehensive plans;
- (3) That the applicant has executed an outside utility agreement containing the following conditions, as a minimum:
 - (A) The agreement shall be executed by the property owner(s) and shall be recorded and constitute a covenant upon the land,
 - (B) The owner(s) shall pay all connection charges, service fees, etc. as prescribed by city ordinance when the service is applied for,
 - (C) The owner(s) shall assist the city in taking the necessary steps to obtain the approval of the Yakima boundary review board,
 - (D) The owner(s) shall comply with city ordinances concerning short or long platting and shall construct all improvements to city standards as if the property affected by this agreement were situated within the boundaries of the city,
 - (E) The owner(s) agree to sign in favor of any and all notices, petitions and any other documents requested concurrent with this agreement or at any time requested by the city leading to the annexation to the city of the property,

- (F) The agreement may also contain other conditions or covenants, as determined by the council to assure the orderly, planned development of the area.

(Ord. 1080 (part), 1993: Ord. 693 § 2, 1978.)

9.15.030 - Conditions and covenants to approval.

The city council may require the applicant to execute a concomitant agreement concerning the orderly development of the property or other restrictive covenants running with the land to ensure the policy set forth above.

(Ord. 1080 (part), 1993: Ord. 693 § 3, 1978.)

9.15.035 - Fees and charges.

The application fee for processing an outside utility agreement is contained in Selah Municipal Code, Title 20, Chapter 20.20.

(Ord. 1418 § 34, 1998.)

9.15.040 - Connections to existing utility extensions outside city limits.

The public works director is authorized to allow lateral service connections to existing water/sewer extensions outside the city limits if the following minimum conditions are met:

- (1) The land, parcel or lot for which the service is requested has been previously reviewed as part of a development for which an overriding outside utility agreement currently exists.
- (2) An outside utility agreement has been executed for the above land, parcel or lot.

(Ord. 1080 (part), 1993.)

Chapter 9.16 - WATER AND SEWER FACILITIES ACT

Sections:

9.16.010 - Adoption of municipal water and sewer facilities act.

The city is authorized to contract with owners of real estate in the manner provided for in RCW 35.91. All such contracts by the city shall provide for a period of reimbursement of up to twenty years.

(Ord. 603, 1976.)

(Ord. No. 1994, § 1, 4-12-16)

Chapter 9.17 - PLANT INVESTMENT FEE

Sections:

9.17.010 - Definitions.

"Water or sewer facilities" means storm, sanitary or combination sewers, pumping stations and disposal plants, water mains, hydrants or appurtenances connecting to the public water or sewerage system, and as further defined in RCW 35.91.020.

(Ord. 678 § 2, 1978.)

9.17.020 - Plant investment fee—Water system.

- (a) Any property owner, prior to connecting to the municipal water system, shall be required to purchase a portion of the depreciated water source, transmission, and storage system and system capacity improvements outlined in the city's comprehensive water plan through the payment of a plant investment fee (P.I.F.)
- (b) Any new or expanded existing use, requesting or requiring connection to the municipal water system which requires the installation of a new or expanded water service shall pay the required P.I.F. The P.I.F. is due and payable prior to the installation of the new or expanded water service. A P.I.F. is nonrefundable and shall remain as part of the property to which it has been assigned, to be passed on with the sale of the land.
- (c) Funds collected from the water system plant investment fee shall be deposited in the Water Reserve Fund No. 461.
- (d) The water system P.I.F. is listed in Title 20, Chapter 20.80.

(Ord. 1451 § 2, 1999: Ord. 678 § 3 (part), 1978: Ord. 489 § 1 (part), 1973.)

9.17.021 - Plant investment fee—Sewer system.

- (a) Any property owner, prior to connecting to the municipal sewer system, shall be required to purchase a portion of the depreciated wastewater treatment, interceptor, trunk, and pumping facilities and system capacity improvements outlined in the city's comprehensive sewer plan through the payment of a plant investment fee (P.I.F.).
- (b) Any new or expanded existing use, requesting or requiring connection to the municipal sewer system shall pay the required P.I.F. The P.I.F. is due and payable prior to the connection of the new or expanded use. A P.I.F. is nonrefundable and shall remain as part of the property to which it has been assigned, to be passed on with the sale of the land.
- (b) Funds collected from the sewer system plant investment fee shall be deposited in the Sewer Reserve Fund No. 465.
- (d) The sewer system P.I.F. is listed in Title 20, Chapter 20.80.

(Ord. 1451 § 3, 1999: Ord. 678 § 3 (part), 1978.)

Chapter 9.19 - UTILITY LATECOMER AGREEMENTS

Sections:

9.19.010 - Latecomer charge.

Pursuant to RCW 65.08 (Chapter 72, Laws of 1977), the city is authorized to levy a charge on property pertaining to:

- (1) The amount required by the provisions of a contract pursuant to Selah Code Chapter 9.16, under which the water or sewer facilities so tapped into or used were constructed; or

- (2) Any connection charges which are in fact reimbursement for the cost of facilities constructed by the sale of revenue bonds; or
- (3) The additional connection charge authorized in RCW 35.92.025.

(Ord. 1450 § 1 (part), 1999.)

9.19.020 - Latecomer charge procedure.

In the event the city desires to establish a benefit area subject to the levy for the improved water or sewer facility, it shall do so by resolution authorizing city representatives to record with the Yakima County auditor, notice pursuant to RCW 65.08. Prior to tapping into the water or sewer facility, the city council shall determine the equitable share to be borne by the property owners in the benefited area, as provided by RCW 35.92.025. In addition to the equitable share shall be added interest from the date the water or sewer facility is accepted by the city council until payment. The rate of interest shall be stated in the resolution.

(Ord. 1450 § 1 (part), 1999.)

Chapter 9.21 - SEPTAGE WASTE DISPOSAL

Sections:

9.21.010 - Septage waste defined.

The phrase "septage waste" means a semiliquid substance consisting of settled sewage solids combined with varying amounts of water and dissolved material generated from a private or public septic tank or other private or public wastewater treatment system.

(Ord. 1089 (part), 1993.)

9.21.020 - Acceptance of septage waste.

- (a) Septage waste will be accepted for disposal at the Selah Wastewater Treatment Plant subject to the provisions, terms and conditions specified in this chapter, and subject to all applicable rules and regulations of the city of Selah Municipal Code and subject to all applicable rules and regulations of the Yakima County Health District related to septage waste disposal.
- (b) The city of Selah may, at its sole discretion, stop accepting septage waste without notice and for any reason.
- (c) No septage waste shall be accepted for disposal at the Selah Wastewater Treatment Plant unless the hauler holds a valid and applicable Yakima County Health District registration certificate and unless the vehicle which hauls the septic waste to the treatment plant for disposal has been approved by the Yakima County Health District in connection with the issuance of the registration certificate.

(Ord. 1089 (part), 1993.)

9.21.030 - Refusal of septage waste.

Septage waste will not be accepted for disposal at the Selah Wastewater Treatment Plant if any of the following conditions exist:

- (1) Any solids, liquids or gases which by themselves or by interaction with other substances may cause fire or explosion hazards, or in any other way be injurious to persons, property or the operation of the Selah Wastewater Treatment Plant.
- (2) Any solids, greases, slurries or viscous material of such character or in such quantity that, in the opinion of the treatment plant supervisor or the public works director may cause an obstruction to the flow or otherwise interfere with the proper functioning of the Selah Wastewater Treatment Plant.
- (3) Any toxic substance, chemical element or compounds in quantities sufficient to impair the operation or efficiency of the Selah Wastewater Treatment facilities, or that will pass through the treatment plant and cause the effluent thereof to exceed state or interstate water-quality requirements for the receiving stream.
- (4) Any liquids having a pH lower than 5.0 or higher than 9.0, or having any corrosive property capable of causing damage or hazard to structures, equipment, or personnel of the Selah Wastewater Treatment Plant.
- (5) Any radioactive materials.
- (6) The hauler of the septage waste does not hold a valid applicable Yakima County Health District registration certificate, or otherwise fails to satisfy or comply with the requirements of any applicable provision of this chapter, any applicable rule or regulation of the Yakima County Health District, or rules or regulations adopted by the city of Selah pertaining to septage waste.
- (7) The hauler of the septage waste is delinquent in paying his bill from the city of Selah for septage disposal fees by more than thirty days from the date of billing.

(Ord. 1089 (part), 1993.)

9.21.040 - Disposal fees.

The disposal fee payment schedule is as follows:

- (1) A fee at the rate of \$0.1685 per gallon shall be paid to the city of Selah by the septage hauler for septage waste disposed of at the Selah Wastewater Treatment Plant.
- (2) The amount of disposal fee, at the rate specified in subsection (1) of this section, shall be based on the capacity of the hauling tank as certified by the Yakima County Health District in connection with the issuance of the applicable Yakima County Health District registration permit.
- (3) The disposal fee shall be payable monthly. A billing shall be rendered monthly by the city of Selah for all disposal fees due from septage waste haulers for the preceding month and shall be payable within thirty days from the date it is issued by the city.

(Ord. 1373, 1998; Ord. 1089 (part), 1993.)

9.21.050 - Liability insurance required.

Liability insurance is required as described: No septage waste shall be accepted for disposal at the Selah Wastewater Treatment Plant unless the hauler has filed with the city of Selah clerk-treasurer a certificate or proof of the existence of liability insurance with coverage of not less than one million dollars for property damage to city-owned property resulting from operations of the septage hauler.

(Ord. 1089 (part), 1993.)

CITY OF SELAH CONSTRUCTION STANDARDS

CITY OF SELAH

DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS FOR PUBLIC WORKS IMPROVEMENTS



**City of Selah
222 Rushmore Road
Selah, WA 98942**

**(509) 698-7365
FAX (509) 698-7372**

SEPTEMBER 2015

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SEPTEMBER 2015

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CHAPTER 1 - GENERAL

1. ENACTING AUTHORITY

These Design and Construction Standards are enacted by the City of Selah, in accordance with state law, to protect and preserve the public health, safety, and general welfare.

2. PURPOSE

The purpose of these Design Construction Standards is to provide consistent requirements, standards, and specifications for the design and construction of public works infrastructure improvements by the City and by private developers.

3. STATE ENVIRONMENT POLICY ACT (SEPA)

These Design and Construction Standards will not affect any considerations involving issues under the State Environmental Policy Act (SEPA). The City's responsible official will continue to make all necessary SEPA decisions when individual proposals are submitted.

4. CONFLICTING PROVISIONS

The standards, procedures, and requirements of these Design and Construction Standards are the minimum necessary to promote the health, safety, and welfare of the residents of the City of Selah. The City may adopt more rigorous or different standards, procedures, and requirements whenever necessary. If the provisions of these Design and Construction Standards conflict with one another, or if a provision of these Design and Construction Standards conflicts with the provision of the City Code or another Ordinance of the City, the most restrictive provision or the provision imposing the highest standard shall prevail.

5. SEVERANCE

If any provision of these Design and Construction Standards or its application to any person or circumstance is for any reason held to be invalid, the remainder of these Design and Construction Standards or the application of the provisions is not affected.

6. PROCESS

Design Phase

Any person, firm, or corporation (the "Developer") which intends to construct a public works improvement shall apply to the City Public Works Director. The request by the Developer shall include a map showing the area to be served; the number and type of proposed units, or the type and size of the proposed facility and a general layout of the development.

Upon receipt of the design requirements from the Public Works Director, the Developer shall employ a Consulting Engineer to prepare plans and specifications for the public works improvements in accordance with these Design and Construction Standards and the Selah Municipal Code. The Developer or its Consulting Engineer shall submit three (3) paper sets of plans and specifications for review by the City and/or the City's engineer.

The City shall review the initial submittal and indicate corrections or additions or request additional information and return one “red-lined” set to the Developer. The Developer shall make the required corrections and resubmit two (2) paper sets of revised plans and specifications to the City Public Works Department.

When it has been determined the plans and specifications indicate compliance with City of Selah Design and Construction Standards, the Developer shall submit the original plan tracings and specifications for final approval to the City. The cover sheet of the original plans shall contain an “APPROVED FOR CONSTRUCTION BY THE CITY OF SELAH” signature block. The City's responsible official will sign the plans. Such approved plans and specifications shall not be changed, modified, or altered without written authorization from the City Public Works Director. The Developer shall provide the City with a minimum of three (3) copies of the approved plan set and specifications for use by City Inspectors and City Departments as required.

Upon receipt by the Public Works Director of the plan review fee, as discussed in Chapter 1, Section 8, the approved original plans and specifications will be returned to the Developer.

Construction Phase

Before the Developer's Contractor commences any work, he shall be required to attend a Preconstruction Conference with the City Public Works Department, the City's Engineer, and utility companies as determined by the City of Selah. The Contractor will submit his insurance and construction schedule at this meeting.

All construction shall be inspected by the City of Selah or its authorized agent. The Contractor shall give ten (10) days minimum prior notice to the Public Works Director the start of any construction activities.

After cleanup by the Contractor and final inspection by the City, the City will calculate the inspection fees and submit them to the Developer. The Developer will pay the inspection fee, as discussed in Section 8, to the Public Works Department.

7. ENGINEERING DESIGN PLAN REQUIREMENTS

All improvement plans, specifications, engineering calculations, diagrams, details, and other relevant data shall be designed and prepared by a Civil Engineer licensed by the State of Washington (Consultant), in accordance with Chapter 2 - General Plan Requirements.

8. PLAN REVIEW AND INSPECTION FEE

Plan review and inspection fees are hereby established to defray the administrative expense of plan review and inspection costs incurred by the City of Selah.

The plan review and inspection fee shall be the total actual costs incurred by the City of Selah, its agents, employees, and elected or appointed officials, for review and approval of the plans and specifications and for inspection of construction of the public works improvements. The fee shall include, but not be limited to, initial plan review, subsequent meetings with the Developer, explanations to the Developer's engineering consultant, reviews of revised plans, construction inspection, re-inspections, and a final inspection prior to the expiration of the maintenance period.

The plan review fee shall be tabulated and sent to the Developer and paid by the Developer in full prior to the City releasing the approved original plans and specifications for construction or the issuance of a Building Permit.

The construction inspection fee shall be tabulated and sent to the Developer and paid by the Developer in full prior to the City issuing a Certificate of Occupancy or final acceptance of the public works improvements.

9. RECORD DRAWINGS

The Developer's Consulting Engineer shall prepare and maintain a neatly marked, full-sized print set of record drawings showing the final location and layout of all new construction of the public facilities. Prior to final acceptance by the City of Selah, one (1) set of reproducible Record Drawings and two (2) sets of prints prepared by the Developer's engineer and clearly marked "Record Drawings" shall be delivered to the Public Works Director for review and acceptance.

10. TRANSFER OF OWNERSHIP

The Developer shall complete a Transfer of Ownership Form upon completion of the construction of the public works improvements and pending acceptance by the City. This form may be found in Appendix A.

11. EASEMENTS

Public utility easements shall be established for the location of new and future public improvements serving new land divisions and land developments. Easements shall also be granted across the front of new lots and existing lots to provide future utility access as required.

All easements required shall be prepared by the Developer on the proper form and format for recording at the Yakima County Auditor's Office. The easement legal description shall be prepared by a land surveyor licensed in the State of Washington. The executed and notarized easement document shall be submitted to the Public Works Director for recording.

Eight (8) foot wide utility easements shall be dedicated along the front of each lot in subdivisions and short subdivisions. Easements for new and/or future utility lines shall be a minimum of sixteen (16) feet wide, provided the width of the easements for buried utilities will be at least twice the depth of the planned excavation.

Utility easements shall be continuous and aligned from block to block within a subdivision and with easements in adjoining subdivisions to facilitate the extension and future extension of public utilities.

12. UTILITIES

All utilities shall be placed underground and installed at a depth of not less than three (3) feet.

CHAPTER 2 - GENERAL PLAN REQUIREMENTS

All improvement plans, details, specifications, engineering calculations, diagrams, and other relevant data shall be designed and prepared by a Civil Engineer licensed by the State of Washington.

GENERAL PLAN FORMAT

1. Plan sheets and profile sheets or combined plan and profile sheets and detail sheets shall be on a sheet size of 24" x 36" or 22" x 34".
2. The Cover sheet shall contain the following:
 - a. Name, address, and phone number of the owner/developer;
 - b. Name, address, and phone number and stamp of the Civil Engineer preparing the plans (Consultant);
 - c. "APPROVED FOR CONSTRUCTION BY THE CITY OF SELAH" with signature block for City final approval of the plans;
 - d. "APPROVED FOR CONSTRUCTION BY FIRE DISTRICT #____" with signature block for final approval of the plans;
 - e. "APPROVED FOR CONSTRUCTION BY _____ IRRIGATION DISTRICT'S" with signature block for final approval of the plans;
 - f. Vicinity map showing the project site location;
 - g. An overall site plan with contours;
 - h. Table of Contents;
 - i. Applicable project information; and
 - j. The utility locate call # 1-800-424-5555.
3. Each sheet shall contain the following project information:
 - a. Project title and City project number, work order number, or LID number, if appropriate;
 - b. Quarter section, Section - Township – Range;
 - c. Sheet title;
 - d. Page (of page) numbering;
 - e. Revision block;
 - f. Subdivision or short plat name.
4. All plan sheets must have a NORTH arrow preferably pointing to the top of the sheet or to the left, and must indicate the drawing scale. All engineering plans must be drawn to an appropriate engineer's scale. For profiles, the vertical scale shall be 1"=2', 1"=5' or 1"=10'. The horizontal scale shall be the same for both plan and profile and shall normally be 1" = 20'. Plan and profile stationing shall generally read left to right.
5. The Vertical Datum for all plan submittals must be based on the City of Selah datum. The benchmark used shall be referenced on the plans. An assumed datum will not be accepted.
6. Existing features and topography within the project construction limits must be shown on the plans. This shall include existing road width and surfacing, utility poles, existing underground utilities and surface appurtenances, significant trees, landscaping, and other elements that may affect design/construction.
7. Plan sheets shall indicate all adjacent property lines, right-of-way lines, and easements.

8. Plan sheets shall show all horizontal survey control as required to properly locate and tie the improvements in horizontal location.

WATER SYSTEM PLAN REQUIREMENTS

See Chapter 4 for specific design requirements.

1. Show all existing and proposed water system features if known, including but not limited to:
 - a. Water mains;
 - b. Water valves;
 - c. Water meters;
 - d. Water service lines;
 - e. Fire hydrants;
 - f. Blow offs;
 - g. Air and vacuum release valve assemblies;
 - h. Pressure reducing valves;
 - i. Fire sprinkler system lines;
 - j. Double check valves;
 - k. Post indicator valves;
 - l. Thrust blocking.
2. Indicate all easements required for the water main extensions and future extensions.
3. Show the water system and the sanitary sewer system on the same plan and profile view for verification of minimum separation requirements. The design information for each system may be on individual drawings for that system.
4. Show the length, size, and pipe type for all main extensions, fire sprinkler system services, and domestic services where applicable.
5. Identify all joint connections; provide detail of all non-standard joints.
6. Show by station or dimension the location of all fire hydrants, tees, crosses, and services relative to centerline or property lines.
7. A profile view shall be shown for all City water main extensions, aligned if practical with the plan view. Clearly indicate the horizontal and vertical scales.
8. Show the minimum cover and minimum separation on each sheet.
9. In the profile view, show all utilities crossing the proposed water main.
10. When an irrigation system is to be transferred to City ownership, that system design shall meet the plan requirements above.

SANITARY SEWER SYSTEM PLAN REQUIREMENTS

See Chapter 5 for specific design requirements.

1. Show all existing and proposed sanitary sewer system features including, but not limited to, the following:
 - a. Sewer lines, gravity and force mains;
 - b. Side service, proposed locations;

- c. Manholes;
 - d. Clean outs;
 - e. Pump stations.
2. Indicate all easements required for the sanitary sewer line extensions and laterals.
 3. Provide an overall site plan of development with contours, to show that all lots/parcels will be served by the proposed sewer system at design depth for all new development.
 4. Show the sanitary sewer system and water system on the same plan and profile for verification of minimum separation requirements. The design information for each may be on individual drawings for that system.
 5. Slope, length, size, and pipe type shall be indicated for all lines and side sewers. Pipe length shall be measured from centerline of manholes. The minimum sewer line size allowed will be eight (8) inches in diameter.
 6. Provide a profile for each sanitary sewer line extension. Clearly indicate the vertical and horizontal scale. Show the profile on the same sheet with, and aligned underneath, the plan view as practical.
 7. The plan and profile must show the location of all existing and proposed gas, water, irrigation, storm drain, and other utility lines and crossings.
 8. Generally show all vertical data in the profile view and all horizontal data in the plan view. It is not desirable to repeat the vertical data in the plan view unless it does not show in a profile.
 9. Each manhole shall be uniquely numbered and shall be stationed off of a referenced centerline. Indicate rim and invert elevations in and out at all manholes. Indicate the length of each side sewer stub, the centerline stationing for each side sewer, and the size.

STORMWATER SYSTEM PLAN REQUIREMENTS

See Chapter 6 for specific design requirements.

1. Show all existing features if known and all proposed storm sewer (drain) system features, including but not limited to:
 - a. Storm drain mains and lines;
 - b. Catch basins;
 - c. Inlets;
 - d. Infiltration trenches;
 - e. Retention systems;
 - f. Biofiltration swales;
 - g. Culverts;
 - h. Streams;
 - i. Ditches;
 - j. Natural drainage swales;
 - k. Headwalls;
 - l. Oil/water separator assembly;
 - m. Other requirements of the Department of Ecology Stormwater Management Manual for Eastern Washington.

2. Indicate all grate, rim, and invert elevations in the profile view.
3. Provide stormwater runoff and drainage facilities sizing calculations as described in Chapter 6.
4. Indicate all easements required for the storm drainage system.
5. The plan shall clearly indicate the location of the storm drainage items stationed from a referenced centerline.
6. Show all horizontal measurements and control in the plan view.
7. Show slope, length, size, and pipe material for all storm drain mains and lines.
8. All catch basins and inlets shall be uniquely numbered and shall be clearly labeled. Stationing and offsets shall be indicated from referenced centerline. Show all proposed storm drain features within the right of way in a profile.

STREET PLAN REQUIREMENTS

See Chapter 7 for specific design requirements.

1. Provide a Plan and Profile of all new public roadways or extensions of existing roadways. Provide topography within the R/W including utilities. Indicate all horizontal and vertical curve data, percent of grade, bearings, centerline stationing every 50 feet, finish grade elevations, and existing ground line. The profile of the existing centerline ground should extend a minimum of 100 feet before the beginning and at the end of the proposed improvements to show the gradient blend.
2. Provide a cross section or typical section of all rights of way indicating right-of-way width, centerline, pavement width, super-elevation or crown, sidewalk, street lights, curb and gutter, pavement, and base thickness of proposed section.
3. Show all existing and proposed roadway improvements, including but not limited to:
 - a. Pavement and edge of pavement;
 - b. Concrete curb and gutter;
 - c. Sidewalk(s);
 - d. Utilities (manholes, utility poles, pedestals, valves, water meters, etc.);
 - e. Sidewalk ramps;
 - f. Signs and Barricades;
 - g. Driveways;
 - h. Rockery or retaining walls;
 - i. Mailboxes;
 - j. Monuments;
 - k. Streetlights, conduit junction boxes, and service cabinet;
 - l. Compliance with ADA requirements.
4. Align the profile view with the plan view, if practical. Clearly indicate the horizontal and the vertical scale.
5. Show all Right-of-Way (R/W) lines, centerlines, and roadway widths for all rights of way.

6. Clearly differentiate between areas of existing pavement, areas of new pavement, and areas to be overlaid.
7. Clearly label all profiles with respective street names and plan sheet reference numbers if drawn on separate sheets.
8. For developments where road work is required on an existing street, development plans are required to include cross section of the existing street and spot elevations at proposed intersections and appurtenances to the project.

CHAPTER 3 - GENERAL REQUIREMENTS FOR ALL PROJECTS

FORWARD

The City of Selah has adopted the latest edition of the Standard Specifications for Road, Bridge, and Municipal Construction prepared by the Washington State Department of Transportation (WSDOT), and the American Public Works Association (APWA) General Special Provisions (GSP's) for Division One General Requirements as the standard specifications governing all design and construction of public works improvements by the City and by private developers.

All references hereinafter made to the "Standard Specifications" shall refer to the latest edition of the Standard Specifications described above. Except as may be amended, modified, or supplemented hereinafter, each section of the Standard Specifications shall be considered as much a part of these requirements as if they were actually set forth herein.

The Standard Specifications, General and Project Special Provisions, and City Standard Plans and Details contained in these **Design and Construction Standards** shall apply in their entirety to all City of Selah public works projects. These Design and Construction Standards have been prepared to form a compiled document intended to assist and inform developers, consultants, and contractors of the construction requirements to be used on proposed public works improvements.

The Standard Specifications, General and Project Special Provisions, and City Standard Plans and Details shall periodically be amended, revised and updated. It shall be the responsibility of each user of this information to verify that he has the latest revisions prior to submitting any work covered by these specifications and details.

Developers and contractors are encouraged to contact the City of Selah Public Works Department to obtain a copy of these Design and Construction Standards.

GENERAL

All work shall be done in accordance with the approved Plans, the latest edition of the Standard Specifications for Road, Bridge, and Municipal Construction prepared by the Washington State Department of Transportation, amendments to the Standard Specifications, referenced codes and organizations, and these Special Provisions.

Note: The American Public Works Association (APWA) General Special Provisions (G.S.P.'s) to Division One of the WSDOT Standard Specifications amend Division One of the "Standard Specifications for Road, Bridge, and Municipal Construction." These GSP's are available at www.wsdot.wa.gov/partners/apwa.

All materials incorporated into a proposed public works improvements project shall meet the requirements of Division 9 of the Standard Specifications or City of Selah Design and Construction Standards as shown in the Standard Plans and Details and Special Provisions.

Any Public Works facility improvements or components that are not specifically addressed in these Design and Construction Standards shall be designed by a professional engineer and provided to the City for review by the City Engineer and approval.

1-01 DEFINITIONS AND TERMS**1-01.3 DEFINITIONS**

The terms defined in Section 1-01.3 of Division One of the Standard Specifications and the APWA GSP's shall be further described by the following:

Consultant:	Means an engineer licensed in the State of Washington, employed by the Developer to design the improvement and prepare plans and specifications, perform construction staking, or similar services.
Construction Documents:	Means the project plans, specifications, and special provisions prepared by the Developer's Consultant for the public works improvements contemplated and approved by the City.
City:	Means the City of Selah, a municipal corporation, as represented by its authorized officials, employees or agents.
Contractor:	Means the person or firm employed by the Developer or under Contract with the City to do the construction of the public works improvements.
Developer:	Means the person or firm constructing the new development and engaging the services of and employing consultants, and/or contractors and paying for the design and construction of the public works improvements to be transferred to the City.
Drawings:	Means the construction plans prepared by the Developer's Consultant for the public works improvements contemplated. The terms "Construction Documents," "Contract Documents," "Plans," "Engineer's Plans," "Engineer's Drawings," "Working Drawings," and "Project Manual" are synonymous.
Engineer:	Means the appointed City Engineer for the City of Selah or his/her duly authorized agent or representative.
Owner:	Means the City of Selah acting through its legally established officials, boards, commissions, etc., as represented by its authorized officers, employees, or agents.
Public Works Director:	Means the appointed official for the City. Responsible for management of Department of Public Works.
Standard Plans and Details:	Means specific drawings adopted by the City of Selah and revised from time to time which show frequently recurring components of work which have been standardized for use.
Standard Specifications:	The latest edition of Standard Specifications for Road, Bridge, and Municipal Construction prepared by the Washington State Department of Transportation, and amendments, and the APWA GSP's for Division One that are, by this reference, made part of the Contract Documents. Except as may be amended, modified, or supplemented hereinafter, each section of the Standard

Specifications shall be considered as much a part of these Construction Documents as if they were actually set forth herein.

Special Provisions:

The Special Provisions supplement or modify the Standard Specifications and supersede any conflicting provisions of the Standard Specifications for Road, Bridge, and Municipal Construction and the appended amendments to the Standard Specifications and are made a part of a Construction Document.

Should any conflicts be encountered, the following inter-relationships shall govern: The Special Provisions shall supersede the APWA GSP's, which shall supersede the WSDOT Amendments, which shall supersede the Standard Specifications.

1-04 SCOPE OF THE WORK

1-04.4 CHANGES

The provisions of Section 1-04.4 of the Standard Specifications shall be modified as follows:

No changes in the work covered by the approved Construction Documents shall be made without having prior written approval of the Developer and the City.

1-04.11 FINAL CLEANUP

Delete this section and replace it with the following:

The Contractor shall perform final cleanup as provided in this section to the Developer's and City's satisfaction. The date of completion will not be established until this is done. The material sites and all ground the Contractor occupied to do the work shall be left neat and presentable. The Contractor shall:

1. Remove all rubbish, surplus materials, discarded materials, falsework, temporary structures, equipment, and debris, and
2. Deposit in embankments, or remove from the project, all unneeded, oversized rock left from grading, surfacing, or paving.

Partial cleanup shall be done by the Contractor when he feels it is necessary or when, in the opinion of the City or Developer, partial clean-up should be done prior to either major cleanup or final inspection.

1-04.12 WASTE SITE (NEW SECTION)

The following new section shall be added to the Standard Specifications:

Where there is additional waste excavation in excess of that needed for the project and in excess of that needed for compliance with requests of the Developer or City, the Contractor shall secure and operate his own waste site at his own expense. The Contractor shall also be required to secure and operate his own waste site at his own expense for the disposal of all unsuitable material, asphalt, concrete, debris, waste material, and any other objectionable material which is directed to waste.

The Contractor shall comply with the State of Washington's regulations regarding disposal of waste material as outlined in WAC 173-304, Subchapter 461.

1-05 CONTROL OF WORK

1-05.1 AUTHORITY OF THE ENGINEER

This section is supplemented with the following:

Unless otherwise expressly provided in the approved Construction Drawings, Specifications and Addenda, the means and methods of construction shall be such as the Contractor may choose; subject, however, to the Consultant and the City's right to reject the means and methods proposed by the Contractor which (1) will constitute or create a hazard to the work, or to persons or property; or (2) will not produce finished work in accordance with the terms of the approved Construction Documents. Approval of the Contractor's means and methods of construction or his failure to exercise his right to reject such means or methods shall not relieve the Contractor of the obligation to accomplish the result intended by the Construction Documents; nor shall the exercise of such right to reject create a cause for action for damages.

1-05.3(1) Project As-Built Drawings (New Section)

The following new section shall be added to the Standard Specifications:

The Contractor shall maintain a neatly marked, full-size set of as-built drawings showing the final location and layout of all new construction. Drawings shall be kept current weekly, with all field instruction, change orders, and construction adjustment.

As-built Drawings shall be subject to the inspection of the Developer and the City at all times. Prior to acceptance of the work, the Contractor shall deliver to the Developer one set of neatly marked as-built drawings showing the information required above. The Developer shall prepared and delivered to the City of Selah the neatly marked Record Drawings in accordance with Section 9 of Chapter 1 - General.

1-05.5 CONSTRUCTION STAKING (NEW SECTION)

The following new section shall be added to the Standard Specifications:

The Consultant retained by the Developer will establish the line and grade of proposed construction by offset stakes. The Consultant will establish the centerline for minor structures and establish bench marks at convenient locations for use by the Contractor. The Contractor shall establish grades from the Consultant's stakes at suitable intervals in accordance with good practice and acceptable to the City. Where new construction adjoins existing construction, the Contractor shall make such adjustments in grade as are necessary.

1-05.6(1) Testing (New Section)

The following new section shall be added to the Standard Specifications:

The Contractor/Developer shall be responsible for scheduling and paying for all material and compaction testing required by these Design and Construction Standards for new public works Improvements. All testing services shall be performed by an independent, certified

testing firm and/or laboratory meeting the approval of the Engineer or the City. The Contractor shall submit information relating to the qualifications of the proposed testing firm to the Engineer or City for review and approval prior to the preconstruction conference. The testing service shall provide copies of all test results to the Engineer or City within 24 hours after completion of any test. Test reports shall become the property of the City. The testing frequencies listed below may be modified to assure compliance with the Specifications.

Trench Backfill

Copies of moisture-density curves for each type of material encountered and copies of all test results shall be provided to the Engineer or City as construction progresses.

Compaction tests shall be taken at a frequency and at depths sufficient to document that the required density has been achieved. At a minimum, one (1) compaction test shall be taken for each 100 linear feet of mainline pipeline trench and one (1) test for each street crossing. At alternating 100-foot locations along the main trench line, tests shall be taken at 1-foot, 2-foot, and 3-foot depths below finish grade.

The Engineer or City may request additional tests be performed at the Contractor's/Developer's expense, if test results do not meet the required trench backfill densities.

All trenches shall be backfilled and compacted to at least 95 percent of maximum density as determined by ASTM D 698 (Standard Proctor).

Roadway Subgrade (Embankment and Excavation Sections)

Copies of the moisture density curves for each type of material encountered and copies of all test results shall be provided to the Engineer or City as construction progresses.

Compaction tests shall be taken at a frequency sufficient to document that the required density has been achieved. At a minimum, one (1) compaction test shall be taken for every 5,000 square feet of subgrade.

The Engineer or City may request additional tests be performed at the Contractor's expense, if test results do not meet the required subgrade densities. Subgrade compaction shall be as specified for Roadway Embankment in Section 2-03.3(14) Method "C."

Ballast and Crushed Surfacing

Copies of the moisture density curves and gradation for each type of material incorporated into the project and copies of all test results shall be provided to the Engineer or City as construction progresses.

Compaction tests shall be taken at a frequency sufficient to document that the required density has been achieved. At a minimum, one (1) compaction test shall be taken for every 5,000 square feet of surface area for each lift of ballast or crushed surfacing.

The Engineer or City may request additional tests be performed at the Contractor's/Developer's expense, if test results do not meet the required subgrade densities.

Compaction of ballast and crushed surfacing shall be as specified in SECTION 4-04.3(5).

Asphalt Paving

Copies of the reference maximum density test for each class of Hot Mix Asphalt pavement and copies of all test results shall be provided to the Engineer or City as construction progresses.

Density tests shall be taken at a frequency sufficient to document that the required density has been achieved. At a minimum, one (1) compaction test shall be taken for every 5,000 square feet of surface area for each lift of asphalt concrete pavement.

The Engineer or City may request additional tests be performed at the Contractor's/Developer's expense, if test results do not meet the required subgrade densities.

Compaction of Hot Mix Asphalt pavement shall be as specified in SECTION 5-04.3(10)B.

Cement Concrete Curb, Gutter, and Sidewalk

A copy of the cement concrete design mix or certification from the concrete supplier that the concrete provided has been prepared to the strength requirement as specified elsewhere in these specifications.

Concrete strength cylinders shall be taken and tested for each truck load of concrete delivered to the job. All testing procedures shall be conducted in accordance with applicable Sections of Division 6-02 of the Standard Specifications.

Copies of all test results shall be provided to the Engineer or City as construction progresses.

1-05.10 GUARANTEES

Delete this section and replace it with the following:

If, within two years (2) after the date of Final Acceptance of the Work, defective and unauthorized materials or work is discovered, the Contractor shall promptly, upon written request, return and in accordance with the instructions either correct such work, or if such work has been rejected, remove it from the Project Site and replace it with non-defective and authorized work, all without cost to the City. If the Contractor does not promptly comply with the written request to correct defective and unauthorized work, or if an emergency exists, the City reserves the right to have defective and unauthorized work corrected or rejected, removed, and replaced pursuant to the provisions of Section 1-05.7 of the APWA Division I GSP's of the Standard Specifications.

The Contractor agrees the above two-year limitation shall not exclude nor diminish any rights under any law to obtain damages and recover costs resulting from defective and unauthorized work discovered after two years.

1-05.16 WATER AND POWER

Water shall be furnished and applied in accordance with the provisions of Sections 1-05.16 of the APWA Division One GSP's and 2-07 of the Standard Specifications modified as follows:

Water Supply: Water for use on the projects may be obtained/purchased from the City of Selah and the Contractor shall arrange for and convey the water from the nearest convenient hydrant or other source at his own expense. The hydrants shall be used in accordance with the City of Selah Water Department regulations.

The City reserves the right to deny the use of fire hydrants where deemed inappropriate by the City.

1-07 LEGAL RELATION AND RESPONSIBILITIES TO THE PUBLIC

1-07.1 LAWS TO BE OBSERVED

Amend the second sentence of the first paragraph to read:

The Contractor/Developer shall indemnify and save harmless the City of Selah (including any agents, officers, employees, and representatives) against any claims that may arise because the Contractor (or any employee of the Contractor or subcontractor or materialman) violated a legal requirement.

1-07.5(3) State Department of Ecology

This Section is supplemented with the following:

- 9) Comply with the requirements and special general conditions of the "General Permit for Storm Water Discharge Associated with Construction Activities" issued by the Washington State Department of Ecology to the Developer/Contractor for this project.

1-07.5(4) Air Quality

In addition to the requirements of Section 1-07.5(4), the Contractor shall comply with the environmental provisions of local air pollution authorities, Yakima County Clean Air Authority.

A method of dust control during construction shall be submitted to, and approved by, the Yakima County Clean Air Authority. A written copy of their approval shall be submitted to the Public Works Director prior to commencement of construction. The Contractor/Developer shall designate a project coordinator for contact during construction regarding alleged air quality violations and other complaints.

1-07.13 CONTRACTOR'S RESPONSIBILITY FOR WORK

The following shall be added to this section of the Standard Specifications:

The Contractor is responsible for constructing and completing all work included in the approved Construction Documents and any other work directed by the Developer in a professional manner with first-class workmanship.

The Contractor shall keep the City of Selah, the Developer, and the Consultant informed in writing of the address to which official correspondence is to be directed, the address and phone number of the person in charge of his field personnel, and the address and telephone number of the Contractor's representative who will be responsible and available outside of normal working hours for emergency repairs and the maintenance of traffic control and safety devices.

The Developer shall be responsible for the satisfactory operation and condition of all public improvements for a period of two (2) years following final inspection and acceptance in accordance with the Selah Municipal Code.

1-07.17 UTILITIES AND SIMILAR FACILITIES

Section 1-07.17 is supplemented by the following:

It shall be the Contractor's responsibility to investigate and verify the presence and location of all utilities prior to construction.

The Contractor/Developer shall call for field location, not less than two nor more than ten business days before the scheduled date for commencement of excavation which may affect underground utility facilities, unless otherwise agreed upon by the parties involved. A business day is defined as any day other than Saturday, Sunday, or a legal local, state, or federal holiday. **The phone number for the Northwest Utility Notification Center for Selah is 1-800-424-5555.** If no one-number locator service is available, notice shall be provided individually by the Contractor to those owners known to or suspected of having underground facilities within the area of proposed excavation.

The Contractor/Developer is alerted to the existence of Chapter 19.122 RCW, a law relating to underground utilities. Any cost to the Contractor/Developer incurred as a result of this law shall be at the Contractor's/Developer's expense.

No excavation shall begin until all known facilities, in the vicinity of the excavation area, have been located and marked.

1-07.18 PUBLIC LIABILITY AND PROPERTY DAMAGE INSURANCE

The Contractor shall obtain and maintain in full force and effect during the duration of this Contract public liability and property damage insurance in accordance with Section 1-07.18 of the APWA Division One GSP's and as modified herein.

Prior to start of construction, the Contractor/Developer shall furnish the City of Selah a Certificate of Insurance and the additional insured endorsements as evidence of compliance with these requirements. This certificate shall name **the City of Selah, its employees, agents, elected and appointed officials, engineering consultant, and all subcontractors** as "additional insureds" and shall stipulate that the policies named thereon

cannot be canceled unless at least forty-five (45) days written notice has been given to the City of Selah. The certificate shall not contain the following or similar wording regarding cancellation notification: **“Failure to mail such notice shall impose no obligation or liability of any kind upon the company, its agents, or representatives.”**

1-07.23 PUBLIC CONVENIENCE AND SAFETY

The provisions of Section 1-07.23 of the Standard Specifications are supplemented as follows:

At entrances to business properties and other private roads, driveways, bridges, or other such means as to provide access shall be provided by the Contractor. The Contractor shall maintain vehicular and pedestrian access to businesses at all times that businesses are open for business.

Upon failure of the Contractor to provide immediately and maintain adequate suitable access, when ordered to do so, the City shall be at liberty, without further notice to the Contractor or the Surety, to provide the same and request payment for providing proper access, and the City assumes no liability connected therewith.

Any traffic restriction must have prior approval of the City of Selah. Appropriate traffic control measures and signing are required during such temporary road closures.

It shall be the responsibility of the Contractor to secure the approval of and notify the Developer, City of Selah, and the Police and Fire Departments at least 24 hours prior to closing any street, in addition to correlating the proposed closures with the City of Selah to ensure proper detouring of traffic. When the street is re-opened, it shall again be the responsibility of the Contractor to notify the above named departments and persons.

1-07.23(3) Notifying Property Owners (New Section)

The following new section shall be added to the Standard Specifications:

When construction activities will affect ingress and egress to a property along the project alignment, the Contractor shall be responsible for notifying the occupant/occupants of the property 24 hours prior to the construction activity beginning. If personal contact with the occupant is not possible, the Contractor shall leave written notification.

1-07.28 SAFETY STANDARDS (NEW SECTION)

The following new section shall be added to the Standard Specifications:

All work shall be performed in accordance with all applicable local, state, and federal health and safety codes, standards, regulations, and/or accepted industry standards. It shall be the responsibility of the Contractor to ensure that his work force and the public are adequately protected against any hazards.

The City of Selah or Developer shall have the authority at all times to issue a stop work order at no penalty if, in their opinion, working conditions present an undue hazard to the public, property, or the work force. Such authority shall not, however, relieve the Contractor of responsibility for the maintenance of safe working conditions or assess any responsibility to the City or Developer for the identification of any or all unsafe conditions.

1-08 PROSECUTION AND PROGRESS**1-08.3 PROGRESS SCHEDULE**

The provisions of SECTION 1-08.3 shall be supplemented with the following:

Prior to the commencement of any work, a preconstruction conference shall be held. The Contractor or Developer shall contact the City of Selah and set a date and time for the meeting. It shall be the responsibility of the Contractor/Developer to notify and invite all parties having an interest in the project to the meeting, including the major subcontractors, Fire District and Irrigation District, and private utilities.

At this conference all points of the approved Plans and Specifications will be open to discussion including scope, order and coordination of work, equipment lead time required, means and methods of construction, inspection and reporting procedures, etc. The Contractor should satisfy himself that all provisions and intentions of the work are fully understood.

The Contractor shall prepare and submit to the City and Developer at the Preconstruction Conference a Construction Progress and Completion Schedule using a bar graph format. Items in the Schedule shall be arranged in the order and sequence in which they will be performed. The schedule shall be drawn to a time scale, shown along the base of the diagram, using an appropriate measurement per day with weekends and holidays indicated. The Construction Progress Schedule shall be continuously updated and, if necessary, redrawn upon the first working day of each month or upon issuance of any Change Order which substantially affects the scheduling. Copies (2 prints or 1 reproducible) of newly updated Schedules shall be forwarded to the City and Engineer, as directed, immediately upon preparation.

1-10 TEMPORARY TRAFFIC CONTROL

This section is supplemented with the following:

The provisions of the latest edition of the Manual on Uniform Traffic Control Devices (M.U.T.C.D.) for Streets and Highways and amendments thereto published by the U.S. Department of Transportation, Federal Highway Administration, and WSDOT by this reference are made a part of these Documents.

1-10.2(2) Traffic Control Plans

Delete the entire section and replace with the following:

The Contractor shall prepare a signing plan showing the necessary Class A and B construction signing, barricades, and traffic control devices required for the project and submit it to the Consultant and City for review no later than the preconstruction conference date. When the Class B signing for a particular area will be provided as detailed on one or more of the figures included in the MUTCD without modification, the Contractor may reference the applicable MUTCD figure at the appropriate location on the Plan. When this procedure is used, variable distances such as minimum length of taper must be specified by the Contractor.

The signing plan prepared by the Contractor shall provide for adequate warning within the limits of the project and on all streets, alleys, and driveways entering the project so that

approaching traffic may turn left or right onto existing undisturbed streets before reaching the project. The Plan shall be prepared to create a minimum of inconvenience for pedestrian and vehicle traffic.

All modifications to the accepted signing plans shall be reviewed by the City.

1-10.3(3)A Construction Signs

The first sentence of the first paragraph is revised to read:

All signs, barricades, flashers, cones, traffic safety drums, barricades, and other traffic control devices required by the approved traffic control plan(s), as well as any other appropriate signs prescribed by the City or County, shall be furnished and maintained by the Contractor.

Open trenches shall be provided with proper barricades and at night they shall be distinctly indicated by adequately spaced lights.

CHAPTER 4 - WATER SYSTEM IMPROVEMENTS

GENERAL REQUIREMENTS FOR WATER SYSTEM IMPROVEMENTS

All extensions and additions to the City of Selah's domestic water system shall conform to the Design and Construction Standards of the City of Selah and the Washington State Department of Health (WSDOH) as follows:

All new lots and developments shall be served by a public domestic water supply line to be maintained by the City of Selah and located adjacent to the lot or development site. The water supply line shall be capable of providing sufficient flow and pressure to satisfy the fire flow and domestic service requirements of the proposed lots and development requirements.

Water lines shall be extended by the Developer to the point where the adjoining property owner's responsibility for further extension begins. This typically requires an extension across the entire frontage of the property to the property line of the adjoining owner. In some cases, it will require dedication of an easement and a line extension across the property or extension across two or more sides of the developing property. Extensions will be consistent with and implement the City's adopted Water Comprehensive Plan.

Cover over new watermains shall be a minimum of 48" and a maximum of 72". All new public domestic water mains shall be a minimum diameter of 8 inches. Fire hydrant runs less than 50 feet from the water main to the fire hydrant shall be a minimum of 6 inches.

Larger public water mains may be required depending upon fire flow requirements as determined by the City of Selah's Public Works Director, Fire Chief or City Engineer.

Water main oversizing, above that required for the particular development being submitted, may be required by the City of Selah to be installed for future extension. The cost of the materials only for the oversizing shall be reimbursed to the Developer by the City. The Developer shall submit actual material invoices showing the actual cost of the materials furnished and the cost of the same materials of the size required for the development.

All domestic water mains shall be looped, where possible. Temporary dead-end mains over 300 feet in length will only be allowed where future water main looping via public right of way will be assured. No permanent dead-end water mains over 300 feet in length will be allowed to be part of the City of Selah's public water system.

Maximum valve spacing in public water mains will be 750 linear feet. Valves will be furnished and installed on all legs of new water main intersections. Valve operating nut extensions approved by the engineer will be required on valves where the operating nut is deeper than 36 inches below finished grade.

All new water meters shall be a minimum of 3/4-inch and shall be furnished and installed by the City of Selah. All meter boxes and meter setters and service lines shall be installed by the Contractor. Only one meter shall be served from each main tap. All taps shall be made under the supervision of the Public Works Director or his designee.

All live taps of water mains shall be performed by a City-approved contractor (or City's representative with Public Works Director's approval) using a full circle stainless steel tapping sleeve with gate valve and paid for by the Developer. No cut-in tees will be allowed.

Minimum 2-inch air and vacuum release valves shall be furnished and installed at high points in the water system.

Fire hydrants shall be spaced at least every 350 feet. Additional hydrants may be required to protect structures as determined by the Fire Chief and Public Works Director. Additional fire hydrants required on a site may require a looped, on-site fire hydrant main. Easements will be provided for all on-site, public, looped water mains, in accordance with Chapter 1, Section 11.

Water and sewer mains shall be separated in accordance with Section C1-9.1 of the Criteria for Sewage Works Design, August 2008, by the Washington State Department of Ecology.

The design of water mains and appurtenances is subject to review and approval by the City of Selah Public Works Director. The Public Works Director may, at his discretion, adjust these Design and Construction Standards as necessary to facilitate installation of water lines and appurtenances for the health, safety, and protection of the general public.

Irrigation Systems

The proposed development, wherever possible (as determined by Public Works Director), shall be served by a separate irrigation water distribution system with an individual service for each lot. The irrigation system shall be designed by a professional and constructed in accordance with the applicable Irrigation District Standards and City of Selah Design and Construction Standards. All irrigation pipelines under roadways shall meet the requirements of Section 9-30.1(5)A (AWWA C900 or C905). Pipe not under the roadway may meet the requirements of Section 9-05.12 (PVC solid wall ASTM D 3034 SDR35) or 9-15.1(2) (ASTM D 1784, 200 psi, SDR21). All irrigation pipe shall be installed with a minimum cover of 30 inches and with a 3-inch wide magnetic marking tape 12 inches above the pipe.

Irrigation services which must use the City's domestic water system shall require a City permit and be installed with a State approved, double check valve assembly. All double detector check valve assemblies shall conform to City of Selah Design and Construction Standards. Initial and annual testing will be required.

SPECIAL PROVISIONS FOR WATER SYSTEMS

The following sections of the WSDOT Standard Specifications have been amended or supplemented as described below and apply to the construction of public works water system improvements within the City of Selah.

7-09 WATER MAINS

7-09.2 MATERIALS

Section 7-09.2 of the Standard Specifications shall be revised as follows:

Water Main pipe shall be:

Ductile Iron, conforming to the requirements of Section 9-30.1(1) of the Standard Specifications, except that it shall be Standard Thickness Class 52. Joints shall be rubber gasket, push-on type (Tyton Joint). Fittings shall be mechanical joint or

flanged, as shown on the Plans, and shall conform to Section 9-30.2(1) of the Standard Specifications.

Delete entire Aggregates Sub-Section and replace with the following:

Bedding Materials (Rigid Pipes)
Imported Select Backfill

9-03.12(3) Gravel Backfill for Pipe Zone Bedding
9-03.9(3) Crushed Surfacing Base Course

7-09.3(5) Grade and Alignment

The first sentence of the third paragraph is replaced with the following:

The depth of trenching for water mains shall be such to provide a minimum cover of 4 feet and a maximum cover of 6 feet, unless otherwise approved by the Public Works Director.

7-09.3(9) Bedding the Pipe

Supplement this section with the following:

All construction work shall be inspected by the City or its representative before pipe installation and backfilling. Imported pipe zone bedding/backfill for pipes shall be in accordance with Section 7-09.2 above, placed and compacted per the Standard Specifications. Bedding shall be placed under all pipe.

7-09.3(10) Backfilling Trenches

Add the following:

Street crossing trenches, and other locations as directed, shall have the trench backfilled full depth with Imported Select Backfill. The Public Works Director may require the use of Controlled Density Fill (CDF) for trench backfill in certain circumstances. The requirements for CDF are set forth in Chapter 7, Section 8-30 of these Special Provisions.

7-09.3(11) Compaction of Backfill

Mechanical compaction of 95% of maximum density is required on all trenches. The Contractor shall be responsible for scheduling and paying for all testing required.

7-09.3(23) Hydrostatic Pressure Test

Replace the first sentence with the following:

All water mains and appurtenances shall be tested under a hydrostatic pressure of 180 psi for a fifteen (15) minute period.

7-12 VALVES FOR WATER MAINS

7-12.2 MATERIALS

Add the following:

Gate Valves: All valves sizes 2-inch through 10-inch shall be gate valves manufactured in the U.S. and shall conform to the latest revision of AWWA Resilient Seated Gate Valves Standard C509 and AWWA C104.

All gate valves shall have non-rising stems, open counterclockwise, and shall be provided with a 2-inch square AWWA operating nut. Gate valves 4-inch and larger shall have mechanical joint connections.

Butterfly Valves: All valves sizes 12 inches and larger shall be butterfly valves manufactured in the U.S. and suitable for direct burial and shall be rubber seated and conform to the latest revision of AWWA Standard C504 Class 150B and C104.

Valve operators shall be worm gear type, sealed, gasketed, and lubricated for underground service. All valves shall open counterclockwise and shall be provided with a 2-inch square AWWA operating nut.

Tapping Sleeve and Valve Assemblies: Tapping sleeves shall be full circle, Romac Stainless Steel Tapping Sleeve (SST) with Ductile Iron Flanged Outlet, or approved equal, conforming to the latest AWWA Standard C223.

Valve Boxes shall be two piece adjustable. The top section shall be similar to Olympic Foundry Model 940-B, or equal, 18-inches high. The bottom section shall be Olympic Foundry Model R-36, or equal, 36-inches high. Extension sections shall be Olympic Foundry Model 044, or equal, 12-inches high.

7-12.3 CONSTRUCTION REQUIREMENTS

Supplement this section with the following:

Tapping Sleeve and Valve Assemblies: The Contractor or Subcontractor completing the work shall have at least five (5) years' experience with a minimum of ten (10) water main taps of pipes with diameters equal to or larger than specified in this project. Contractor shall notify City at least 72 hours prior to all proposed taps and provide work experience references if requested. Work to complete the tap shall not commence without City's written approval. If the Contractor or Subcontractor does not have sufficient experience in the sole opinion of the City, a qualified Subcontractor as approved by the City, shall be used to complete the tap at no additional cost.

Valves: Upon completion of all work in connection with this Contract, the Developer/Contractor shall contact the City of Selah Public Works for opening water valves. Valves shall only be operated by City Public Works staff.

Valve Boxes: Valve boxes should be set to position during backfilling operations so they will be in a vertically centered alignment to the valve operating stem. The top of the box will be at final grade.

The Contractor shall adjust all water valve boxes to the final grade of the surrounding area including new concrete sidewalk, asphalt paving, gravel surfacing, or topsoil surfacing, in accordance with the details shown on the Drawings. Valve box cover shall be rotated such that lugs are in-line with pipe alignment.

The Contractor shall keep the valve boxes free from debris caused by the construction activities. All valve boxes will be inspected during final walk-thru to verify that the valve box is plumb and that the valve wrench can be placed on the operating nut.

7-14 HYDRANTS

7-14.2 MATERIALS

Replace the entire Section with the following:

The City of Selah accepts fire hydrants of the following manufacturers, providing the hydrants conform to the City's technical specifications for fire hydrants:

Mueller Super Centurion
M & H 929 Reliant

All hydrants shall have a Main Valve Opening (MVO) of 5-1/4" and one port with a 5" Storz Quick Coupling and two (2) 2-1/2" diameter ports. Threads on all ports shall be National Standard Thread.

7-14.3(1) Setting Hydrants

Add the following:

The hydrant shall be set to the correct elevation on a concrete block base measuring 12" x 12" x 6" thick, which has been placed on undisturbed earth. Around the base of the hydrant, the Contractor shall place 0.50 cubic yards of washed drain rock ranging in size from 3/4" to 1 1/2" to allow free drainage of the hydrant. The drain rock shall be completely covered with construction geotextile fabric as directed by the City.

The Contractor shall be responsible for verifying the hydrant flange elevations and shall provide additional depth-of-bury hydrants or hydrant extensions to achieve a flange elevation of 3" above the back of curb, sidewalk, or finished grade, as shown on the City's Standard Detail.

The hydrants will be painted in a color approved by the City.

7-14.3(2) Hydrant Connections

Add the following:

Hydrant runs of less than 50 feet shall be connected to the main with 6-inch minimum diameter water main. Each hydrant lateral shall include an auxiliary gate valve and valve box.

7-14.3(2)A Hydrant Restraint

Add the following:

The Contractor shall securely connect the hydrant to the water main as indicated on the Standard Detail.

7-14.3(2)C Hydrant Guard Posts

Replace this section with the following:

The Public Works Director may determine that four (4) 6-inch diameter Sch. 40 steel guard posts be installed at a hydrant location. The posts will be painted the same color as the hydrants.

7-15 SERVICE CONNECTIONS**7-15.1 DESCRIPTION**

Replace this section with the following:

This work consists of the relocation of existing water meters, meter setters, and water meter boxes, where necessary, and the installation of new saddles, corp stops, service pipe, water meter box, meter setter, and meter stops as shown on the Plans.

7-15.2 MATERIALS

SECTION 7-15.2 of the Standard Specifications shall be revised as follows:

Saddle: New service tapping saddles shall be Romac D.I. service saddle with double stainless steel straps or approved equal.

Corporation Stop: New corp stops shall be Mueller, Ford 1001 or approved equal.

Service Line: New service pipe shall be Copper Tubing Type K.

Meter Box: New meter boxes shall be Carson HW Model 1527BCF-18 (for ¾" and 1" meters) and 1730BCF-18 (for 2" and larger meters).

Pipe Bedding and Select Backfill: The imported pipe bedding and select backfill to be utilized for trench backfill as directed by the Engineer or Public Works Director shall be in accordance with SECTION 7-09 of these Special Provisions.

7-15.3 CONSTRUCTION REQUIREMENTS

Add the following:

The Contractor shall set the water meter box to the finished grade of the area. The Contractor will be required to reset the meter box if it is not at finished grade at the completion of the project. The completed water service shall be tested at system operating pressure by the Contractor and must show no signs of leakage.

Future water services shall be marked with an 18" long section of #4 rebar buried vertically with the top of the rebar set 6" below the finish surface and a 6-foot 2x4 post.

CHAPTER 5 - SANITARY SEWER SYSTEM IMPROVEMENTS

GENERAL REQUIREMENTS FOR SANITARY SEWER SYSTEM IMPROVEMENTS

All extensions and additions to the City's sanitary sewer system shall conform to the Design and Construction Standards of the City of Selah, the Washington State Department of Ecology, and be designed by a licensed professional Engineer as follows:

All new lots and developments shall be served by a public sanitary sewer line adjacent to the lot or development site.

Sewer lines shall be extended by the Developer to the point where the adjoining property owner's responsibility for further extension begins. This typically requires an extension across the entire frontage of the property to the property line of the adjoining owner. In some cases, it will require dedication of an easement and a line extension across the property or extension across two or more sides of the developing property. Extensions will be consistent with and implement the City's adopted Sewer Comprehensive Plan.

Sewer lines shall be located in streets to serve abutting properties. When necessary, sewer lines may be located within public easements. Lines located in streets will be offset from the street centerline and not located within a vehicle wheel path. Sewer lines located in easements shall generally be located in the center of the easement, but may, with the approval of the Public Works Director, be offset to accommodate the installation of other utilities or to satisfy special circumstances.

Sewer lines shall be designed for gravity flow operation. The minimum size for public sewer lines is eight (8) inches in diameter. The developer's sewer system must provide capacity for the proposed development, but must also provide capacity for future extensions.

Sewer lines shall be terminated with a manhole. In special circumstances, a flush-end (cleanout) may be installed on the end of a sewer main extension, provided the end is no further than 150 feet from the last manhole and the sewer main line and grade will permit further extension.

Manholes shall be installed at intervals of no greater than 400 feet and at all vertical and horizontal angle points in the sewer main.

Each building containing sanitary sewer facilities shall be served by a separate private side sewer line. Branched side sewers serving multiple buildings and properties shall not be permitted. Side sewers serving multi-unit buildings are permitted.

Side sewers shall be installed in accordance with these Construction Standards and as shown on the City Standard Details. Water and sewer lines shall not be laid in the same trench, except if approved materials (those listed in Section 7-17.2 of the *Standard Specifications for Road, Bridge, and Municipal Construction*) are used and the following requirements are met:

1. The bottom of the water pipe shall not be less than 12 inches above the top of the sewer or drain line.
2. The water pipe shall be placed on a solid shelf excavated at one side of the common trench with a clear horizontal distance of not less than 12 inches from the sewer or drain line.

Lift stations and force mains shall be limited to those locations and circumstances where they are consistent with the Comprehensive Sewer Plan and are the only viable solution to serve the proposed development and other properties in the vicinity. Lift stations and force mains shall be designed by a Professional Civil Engineer licensed in the State of Washington in accordance with the direction and requirements given by the City Engineer.

The design of sewer lines and appurtenances is subject to review and approval by the City of Selah Public Works Director. The Public Works Director may, at his discretion, adjust these Design and Construction Standards as necessary to facilitate installation of sewer lines and appurtenances for the health, safety, and protection of the general public.

SPECIAL PROVISIONS FOR SANITARY SEWER SYSTEM IMPROVEMENTS

All construction work shall be performed in accordance with the Standard Specifications and these sections that have been amended or supplemented as described below.

7-05 MANHOLES, INLETS, CATCH BASINS, AND DRYWELLS

7-05.2 MATERIALS

Add the following:

Sanitary Sewer Manholes shall be gasketed and constructed of 48-inch or larger diameter reinforced precast concrete manhole sections in conformance with the requirements of this Section. The base and first barrel section shall be precast monolithically with preformed channels.

Joints in the manhole sections shall be watertight and shall be a rubber ring compression joint complying with ASTM C443, a flexible, plastic gasket, or approved equal.

Manhole frames and covers shall be cast iron and manufactured in the U.S., with a combined weight of not less than 400 pounds and have a clear opening of 24 inches. The frames and covers shall be the manufacturer's stock pattern capable of withstanding, with appropriate margin of safety, an H20 loading. Covers shall have a 1-inch hole only, unless otherwise noted, and the top shall be flat with a non-skid pattern and marked "SEWER." The contact surfaces of the frames and covers shall be machine finished to a common plane or have other adequate provision to prevent rocking.

7-05.3 CONSTRUCTION REQUIREMENTS

Add the following:

The design and construction of all manholes shall provide for a 0.10 foot vertical drop through the manhole.

Manhole coupling adaptors may be precast in the manhole to accept PVC pipe, provided diameters match. No field grouting of pipe into manholes will be allowed. Pipe connections at manholes must be gasketed and must be flexible. "A-Lok" gasket system or approved equal may be used as an alternate to the manhole coupling adapter.

7-05.3(1) Adjusting Manholes and Catch Basins to Grade

Delete and replace with the following:

Manholes, valve boxes and similar utility appurtenances and structures shall not be adjusted until the pavement is completed, **at which time the center of each structure shall be relocated from references previously established by the Contractor.**

The asphalt pavement shall be cut and removed to a neat circle, the diameter of which shall be equal to the outside diameter of frame plus 2 feet. The frame shall be placed on cement concrete blocks or adjustment rings and wedged up to the desired grade. The base materials shall be removed and Class 3000 cement concrete shall be placed within the entire volume of the excavation up to, but not to exceed, 2 inches below the finished pavement surface.

On the following day, the concrete, the edges of the asphalt pavement, and the outer edge of the casting shall be painted with hot liquid asphalt. Class 3/8" HMA shall then be placed and compacted with hand tampers and a patching roller.

The completed patch shall match the existing paved surface for texture, density, and uniformity of grade. The joint between the patch and the existing pavement shall then be painted with hot liquid asphalt or asphalt emulsion and shall be immediately covered with dry paving sand before the HMA solidifies.

7-05.3(2) Abandon Existing Manholes

Replace the entire section with the following:

Where shown on the Plans, existing sanitary sewer manholes shall be abandoned in place after the new sanitary sewer collection system is in place and all side sewers have been transferred to the new sanitary sewer pipeline. The following new section shall be added to the Standard Specifications:

At least the top 3 feet of each manhole, or the top conical section in precast concrete manholes, shall be removed, including the cast iron ring and cover and concrete pad, if any. Debris resulting from breaking of the upper portion of the manhole may be mixed with backfill subject to the approval of the Engineer. Ring and cover will become property of the Contractor and all other surplus material shall be disposed of.

The existing pipe openings shall be plugged watertight with Class 3000 concrete and the manhole bottom slabs shall be broken to promote drainage. The remaining manhole structure shall be backfilled with granular material conforming to SECTION 9-03.9(3) CRUSHED SURFACING BASE COURSE. Place backfill in uniform layers and compact to 95% maximum dry density, as determined by ASTM D 1557 (Modified Proctor).

Excavations resulting from manhole abandonment shall be backfilled with suitable, job-excavated material to top of subgrade. Compact to 95% maximum dry density as determined by ASTM D 698 (Standard Proctor). Restore surface to the condition existing prior to excavation with native material, gravel surfacing, or asphalt concrete pavement, as shown for trench repair on the Plans.

7-08 GENERAL PIPE INSTALLATION REQUIREMENTS**7-08.1 GENERAL**

Add the following:

The Contractor shall notify the Utility Notification Center (One Call Center) at least 48 hours prior to start of excavation so that underground utilities may be marked. Telephone number is 1-800-424-5555.

All construction work shall be inspected by the City of Selah prior to backfilling. At least 48 hours notice shall be given to the City Department of Public Works prior to backfilling.

7-08.3(1)C Bedding the Pipe

Add the following:

The imported pipe zone bedding/backfill to be utilized for the trench backfill shall be Crushed Surfacing Top Course in conformance with Section 9-03.9(3), placed and compacted in layers as designated by the Public Works Director.

7-08.3(2)B Pipe Laying - General

Add the following:

All sewer pipe shall be installed with 3-inch wide magnetic marking tape as detailed in the Standard Detail SS-5 and Section 9-15.18.

7-08.3(3) Backfilling

Add the following:

Street crossing trenches and other locations, where directed, shall be backfilled for the full depth of the trench with Imported Select Backfill conforming to Section 9-03.9(3) Crushed Surfacing Base Course. The Public Works Director may require the use of Controlled Density Fill (CDF) for trench backfill in certain circumstances. The requirements for CDF are set forth in Chapter 7, Section 8-30 of these Special Provisions.

Mechanical compaction shall be required for all trenches. The density of the compacted materials shall be at least 95% of the maximum density as determined by ASTM D 698 Test (Standard Proctor). The Contractor shall be responsible for scheduling, conducting, and paying for all testing required.

7-17 SANITARY SEWER~~Error! Bookmark not defined.~~**7-17.2 MATERIALS**

Sanitary Sewer Pipe approved for the City of Selah shall be:

PVC Sewer Pipe (Gravity): Polyvinyl Chloride Pipe with flexible gasketed joints shall conform with the requirements of Section 9-05.12 of the Standard Specifications (ASTM D3034, DR 35). Pipe joint type for restrained gasket.

PVC fittings for PVC sewer pipe such as tees, wyes, elbows, plugs, caps, etc., shall be flexible gasket joint fittings acceptable for use and connection to PVC sewer pipe.

Detectable Marker Tape: Marker tape shall be a detectable type and shall be marked "SEWER," and shall conform to Section 9-15.18 of the Standard Specifications.

7-17.3 CONSTRUCTION REQUIREMENTS

7-17.3(2)A General

Delete the first paragraph and replace it with the following:

All sewer pipes and appurtenances shall be cleaned and tested after backfilling. Both infiltration (if applicable) and exfiltration testing of the gravity sewer pipeline will be required. Deflection testing of the pipeline will also be required, 15 days after completion of backfill and compaction. All testing shall be witnessed by the City.

7-18 SIDE SEWERS

7-18.3 CONSTRUCTION REQUIREMENTS

7-18.3(1) General

Add the following:

Side sewers shall be constructed with a minimum of 30 inches of cover. This provision may be waived by the Public Works Director under special circumstances; however, under no circumstances shall the side sewer be laid with less than 18 inches of cover.

Side sewers shall be a minimum of 4 inches in diameter. Larger sizes, if required, will be approved by the Public Works Director on a case-by-case basis.

CHAPTER 6 – STORMWATER IMPROVEMENTS

GENERAL REQUIREMENTS FOR STORMWATER IMPROVEMENTS

All new storm drainage facilities, public or private, shall be designed by a Professional Engineer licensed in the State of Washington. Complete stormwater runoff and drainage facilities sizing calculations shall be submitted to the City Public Works Director for review and comment. Storm sewer facilities and pipelines shall be designed to meet a minimum 25-year storm criteria, and both the long-duration and short-duration storms shall be considered in the design.

All storm drainage improvements shall be planned, designed, permitted, constructed and maintained in accordance with the requirements of the latest edition of the Washington Department of Ecology (Ecology) Stormwater Management Manual for Eastern Washington (SWMMEW).

All storm runoff occurring on all new lots and developments (private property) shall be retained and disposed of on-site. Storm runoff will not be permitted to enter public property or the public storm drainage system. The property owner shall maintain all stormwater Best Management Practices (BMPs) that are installed on private property.

Storm runoff for new public streets shall be designed and constructed as required to the point where the adjoining property owner's responsibility for further extension begins. This typically requires an extension across the entire frontage of the property to the property line of the adjoining owner.

All storm sewer designs for new public streets shall be based upon an engineering analysis that takes into account total drainage areas, runoff rates, pipe and inlet capacities, treatment capacity, and any other factors pertinent to the design.

All subsurface infiltration facilities used for the treatment and disposal of stormwater shall meet the requirements of and be registered with the WDOE Underground Injection Control (UIC) program. The registration process shall be completed prior to project approval.

Inlet spacing shall be designed in accordance with the WSDOT Hydraulics Manual, Chapter 5. Generally, inlet spacing shall not exceed 300 feet. There shall be a manhole or Type II catch basin installed at the intersection of two collector storm sewers. A collector storm sewer is a sewer servicing more than one catch basin.

Small private developments may be designed to accommodate 1.5 inches of precipitation (10-year, 24-hour storm) over the on-site impervious surfaces. Small developments are defined to be 5,000 square feet or less of impervious surface area. Impervious surfaces must be clearly noted and shown on the project site plan.

DESIGN CRITERIA

The *Stormwater Management Manual for Eastern Washington* allows different methodologies to apply design storms to stormwater facility design. For purposes of consistency, specific design storm amounts of precipitation are provided below and summarized in Table 6-1. Precipitation amounts are taken from the figures and calculation methods provided in the *Stormwater Management Manual for Eastern Washington*. Once the rainfall amount is known, hydrographic methods are used to determine the rate and volume of runoff from the selected design storm, and to mathematically route a storm through proposed facilities. Hydrographic methods are discussed below along with their application to different design conditions in Selah.

DESIGN STORMS

Design storms are used to establish the amount of precipitation to be used in calculating the runoff from a parcel or basin. Based on rainfall records and methods outlined in the *Stormwater Management Manual for Eastern Washington*, the storm events described below are applicable to Selah. Note that all 24-hour storm precipitation amounts have been adjusted by a factor of 1.0 for use in the long-duration storm for Eastern Washington Region 2.

Water Quality 3-Hour Storm – 0.28 inches of precipitation. This short-duration water quality storm event is intended to provide treatment for the “first flush” events and is representative of a summer thundershower. The “first flush” can be thought of as the first amount of water that enters the system during a storm, which typically contains the highest concentration of pollutants such as roadway grit, dust and oils.

Water Quality 24-Hour Storm – 0.66 inches of precipitation. This 24-hour water quality storm event is intended to provide treatment for the “first flush” events. All stormwater treatment BMPs should be designed to treat runoff from this 24-hour water quality storm.

2-Year, 24-Hour Storm – 1.00 inches of precipitation. This 24-hour storm has a two-year return frequency, or a 50 percent chance of occurring in any one year. Designing to the 2-year storm is considered necessary for control of nuisance water. The 2-year storm also has other applications for the design of stormwater detention and water quality treatment facilities.

10-Year, 24-Hour Storm – 1.50 inches of precipitation. This 24-hour storm has a 10-year return frequency, or a 10 percent chance of occurring in any one year. Historically, storm drain facilities were designed to carry flows from this storm, but it was found that in Eastern Washington stormwater facilities were better protected if they were designed to carry flows from the summer thunderstorm, which has greater rainfall intensity over a shorter period of time.

25-Year, 3-Hour Storm (Regional Short-Duration Storm) – 0.95 inches of precipitation. This short-duration storm has a 25-year return frequency, or a 4 percent chance of occurring in any one year. This unique storm is representative of the summer thunderstorm where a significant amount of rainfall occurs over a 3-hour period, and should be used for design of flow-based stormwater BMPs.

25-year, 72-Hour Storm (Regional Long-Duration Storm) – 1.80 inches of precipitation (uses 25-year, 24-hour storm intensity). This long-duration storm has a 25-year return frequency, or a 4 percent chance of occurring in any one year. Volume-based BMPs should be designed for this 72-hour, long-duration storm. The intensity of this storm is lower since the rainfall occurs more slowly over an extended time within the 72-hour period. Therefore, the runoff rate is lower, but the volume is greater than the 3-hour storm.

50-Year, 24-hour, Storm – 1.90 inches of precipitation. This 24-hour storm has a 50-year return frequency, or a 2 percent chance of occurring in any one year. The City of Selah has selected this storm as the desired design storm to protect the downstream components of the stormwater collection system. Minor ponding is acceptable during this event, as long as the streets remain passable, and buildings are not flooded.

100-Year, 24-Hour Storm – 2.20 inches of precipitation. This 24-hour storm has a 100-year return frequency, or a 1 percent chance of occurring in any one year. Major structures and critical facilities should be protected from damage by flows from this storm.

TABLE 6-1 PRECIPITATION EVENT INFORMATION	
Storm Event	Precipitation in Inches
6-Month, 3-Hour Storm Event	0.28
6-Month, 24-Hour Storm Event	0.66
2-Year, 24-Hour Storm Event	1.00
10-Year, 24-hour Storm Event	1.50
25-Year, 3-Hour Storm Event	0.95
25-Year, 24-Hour Storm Event	1.80
50-Year, 24-Hour Storm Event	1.90
100-Year, 24-Hour Storm Event	2.20
Source: <i>Stormwater Management Manual for Eastern Washington</i> , WDOE Note: 24-hour precipitation amounts have been adjusted for use in the long-duration regional storm distribution.	

Hydrologic Analysis

Hydrologic analysis determines the amount of runoff from a given storm for a given drainage area. Though hydrologic studies are backed with considerable science, there is still a certain amount of art in their application. Available methods range from the simple calculations of the Rational Method to complex computer models, requiring significant data input and knowledge of hydrologic effects.

The following hydrographic methods are considered acceptable for the watersheds within Selah and its urban growth area.

- The Santa Barbara Urban Hydrograph (SBUH) method may be used for all analyses regardless of the size of the drainage area. Input parameters shall be as described by WDOE or WSDOT for the design storms described above. Other computer models may also be used with prior approval by the City.
- For drainage areas less than or equal to 20 acres, the rational formula and modified rational method, as described in older WSDOT and Soil Conservation Service publications, may be used for flow-rate-based applications. Inputs shall be as described in those publications, or other engineering texts. The SCS Unit Hydrograph Method may also be used.
- For drainage areas greater than 20 acres, and when it is necessary to route flows through detention facilities, the SCS Unit Hydrograph Method may be used. Inputs shall be as described in WSDOT and Soil Conservation Service publications, or other engineering texts.

The SBUH method uses a hyetograph to depict the intensity (amount) of rainfall versus time. A hyetograph may also be required for routing design storms through some BMPs. Design storm hyetographs applicable to Selah stormwater facilities are as follows:

- Water Quality Volume-Based Treatment BMPs – 24-hour SCS Type 1A storm with a 6-month return frequency.
- Water Quality Flow-Rate-Based Treatment BMPs – 3-hour short-duration storm with a 6-month return frequency.
- Volume-Based BMPs – 72-hour Regional Long-Duration Storm with a 25-year return frequency. Storm intensity is based on the 25-year, 24-hour storm event.
- Flow-Rate-Based BMPs – 3-hour short-duration storm with a 25-year return frequency as described in the SWMMEW.
- Critical facilities required to carry 50- and 100-year storms – 24-hour SCS Type II storm.

Treatment BMP Sizing

The City of Selah is located in the WDOE Region 2 of Eastern Washington. Therefore, all calculations shall be based on Region 2 methods recommended in the WDOE's *Stormwater Management Manual for Eastern Washington* for the sizing of stormwater BMPs. The following are design guidelines for volume-based treatment BMPs and flow-rate-based treatment BMPs.

Volume-based treatment BMPs are sized the same whether they are located upstream or downstream of a detention facility. The volume of runoff predicted for the proposed developed condition of a site will be calculated using the 24-hour SCS Type 1A storm with a 6-month return frequency. (The 0.66-inch water quality design storm.) The BMP will be sized to treat this amount of water, and will also be sized to pass the 25-year short-duration storm, either through or around the BMP, without damaging the BMP or dislodging pollutants from within it.

Flow-rate-based treatment BMPs are sized differently depending on whether they are located upstream or downstream from a detention facility. If the BMP is located upstream of a detention facility, or if there is no detention facility, the runoff flow rate predicted for the proposed developed condition of a site will be calculated using the 3-hour short-duration storm with a 6-month return frequency. (The 0.66-inch water quality design storm.) See Chapter 7 of the *Stormwater Management Manual for Eastern Washington* for design parameters. If the BMP is located downstream of a detention facility, it must be sized for the full 2-year release rate of the detention facility.

Flow Control

The criteria listed below shall apply to control of stormwater runoff flow and the designated design storms shall apply:

- Storm sewer facilities and pipelines shall be designed to carry at minimum the 25-year short-duration design storm described in the *Stormwater Management Manual for Eastern Washington* (0.95 inches of precipitation). Depending on the size of the basin, time of concentration and infiltration rates, some infiltration facilities will also need to be checked using the 25-year, 24-hour storm (1.80 inches of precipitation, SCS Type 1A). At the City's discretion, if the facilities are critical to public health and safety, or

significant property damage could occur, they shall be designed to successfully pass the 50-year or 100-year storm.

- Retention and detention basins shall be designed based on the 25-year, 72-hour long-duration storm (1.80 inches of precipitation, Regional Long-Duration). A secondary outlet or emergency spillway shall be provided to pass the 100-year storm (2.20 inches of precipitation, SCS Type II) without damage to the facility.

Street Drainage

Streets represent a large portion of the impervious area within a community. They can be used to convey a significant amount of stormwater; however, they must remain passable during storm events. To that end, streets may be used to convey local runoff to inlets, but stormwater must be removed at specific intervals in order to prevent excessive flooding. Guidance for flow carried within the street is presented below for the design storm (25-year) in Table 6-2, and the major storm (100-year) in Table 6-3. At intersections, the flow carried in one street may flow across the other street. Allowable cross street flow is listed in Table 6-4 for both the design storm and the major storm.

TABLE 6-2 25-YEAR STORMWATER RUNOFF ALLOWABLE STREET USE	
Street Classification	Maximum Pavement Encroachment
Residential	No curb overtopping. Flow may spread to crown of street.
Collector, Minor, and Principal Arterials	No curb overtopping. Flow spread must leave at least one lane in each direction free of water.
Freeway	No encroachment is allowed on any traffic lanes.

TABLE 6-3 100-YEAR STORMWATER RUNOFF ALLOWABLE STREET INUNDATION	
Street Classification	Maximum Pavement Encroachment
Residential	Residential dwellings and public, commercial, and industrial buildings shall not be inundated at the lowest finished floor elevation unless buildings are flood-proofed. The depth of water over the gutter flowline shall not exceed 12 inches.
Collector, Minor, and Principal Arterials	Residential dwellings and public, commercial, and industrial buildings shall not be inundated at the lowest finished floor elevation unless buildings are flood-proofed. The depth of water at the street crown shall not exceed 6 inches in order to allow operation of emergency vehicles. The depth of water over the gutter flowline shall not exceed 12 inches.
Freeway	No inundation is allowed.

TABLE 6-4 STORMWATER RUNOFF ALLOWABLE CROSS STREET FLOW		
Street Classification	25-Year Storm Runoff	100-Year Storm Runoff
Residential	6 inches in depth in valley gutter	12 inches in depth in valley gutter
Collector, Minor, and Principal Arterials	None	6 inches or less over crown
Freeway	None	None

In addition to the criteria for street carrying capacity, the following design criteria shall also apply to street drainage:

- The following design storms shall apply:
 - Flow in gutters and ditches shall be evaluated based on the 25-year design storm.
 - Storm drain laterals shall carry the 25-year design storm, or be a minimum of 8-inches in diameter.
 - Storm drain inlets on a slope shall handle the 25-year storm.
 - Storm drain inlets in sag (low-point) shall handle the 50-year storm. (WSDOT design criteria. May be waived at City's discretion.)
- Stormwater runoff for new public streets shall be designed and constructed as required to the point where the adjoining property owner's responsibility for further extension begins. This typically requires an extension across the entire frontage of the property to the property line of the adjoining owner.
- All storm sewer designs for new public streets shall be based upon an engineering analysis which takes into account total drainage areas, runoff rates, pipe and inlet capacities, and any other factors pertinent to the design.
- All stormwater BMPs installed by the City in the public domain shall be maintained by the City, or by a subcontracted party.
- Inlet spacing shall be designed in accordance with the WSDOT Hydraulics Manual, Chapter 5. Generally, inlet spacing shall not exceed 300 feet. There shall be a manhole or Type II catch basin installed at the intersection of two collector storm sewers. A collector storm sewer is a sewer servicing more than one catch basin.

SPECIAL PROVISIONS FOR STORM SEWERS AND DRAINAGE

The following Sections of the Standard Specifications have been amended or supplemented as described below:

7-02 CULVERTS

7-02.2 MATERIALS

Add the following:

Culvert pipe approved for use on a City project shall be as follows:

Corrugated Aluminum Alloy Culvert Pipe meeting the requirements of SECTION 9-05.5 of the Standard Specifications.

OR

HDPE Pipe: Corrugated High Density Polyethylene (CPE) pipe, couplings, and fittings shall comply with the requirements of SECTION 9-05.19 of the Standard Specifications.

7-04 STORM SEWERS

7-04.2 MATERIALS

Add the following:

The storm sewer (drain) pipe approved for use on a City project shall be as follows:

15-INCH THROUGH 36-INCH PIPE

Corrugated Aluminum Alloy Storm Sewer Pipe: All corrugated aluminum alloy storm sewer pipe shall comply with the requirements specified in SECTION 9-05.11 of the Standard Specifications and shall be 16 gauge with helical corrugations. A protective coating shall not be required. All corrugated metal pipe joints shall be flexible using rubber gasket joints. Gaskets shall be made of 3/8-inch thick by 12-inch minimum width closed cell synthetic sponge rubber, per ASTM D 1056, Grade SCE-43, fabricated in the form of a cylinder with a diameter of approximately 10 percent less than the nominal pipe size. The gasket shall be centered under the band and lapped an equal distance on the ends of the adjoining pipe sections. Coupling bands shall be used and shall conform to the provisions of SECTION 9-05.11(1) of the Standard Specifications. Coupling bands shall be made by the same manufacturer as the pipe and shall be made of the same base material as the pipe which it connects.

PE Pipe: Corrugated High Density Polyethylene (CPE) pipe, couplings, and fittings shall comply with the requirements of SECTION 9-05.20 of the Standard Specifications.

12-INCH AND SMALLER PIPE

PVC Pipe: Polyvinyl chloride (PVC) pipe shall conform with requirements specified in SECTION 9-05.12(1) of the Standard Specifications (ASTM D 3034, DR 35). The

pipe joint type shall be restrained gasket.

OR

PE Pipe: Corrugated High Density Polyethylene (CPE) pipe, couplings, and fittings shall comply with all the requirements of Section 9-05.20. Joints shall be water-tight.

Pipe shall be as manufactured by Hancor, Advanced Drainage Systems, Inc., or approved equal.

The perforated underdrain pipe for infiltration trenches approved for use shall be as follows:

PE Pipe: Perforated Corrugated High Density Polyethylene (CPE) underdrain pipe, couplings, and fittings shall comply with all the requirements of SECTION 9-05.2(8) of the Standard Specifications.

DRAIN ROCK: Drain rock for use as backfill for the perforated underdrain pipe in infiltration trenches shall be clean coarse aggregate conforming to the requirements for "Gravel Backfill for Drywells" as specified in SECTION 9-03.12(5) of the Standard Specifications.

7-04.3(1) Cleaning and Testing

7-04.3(1)A General

No infiltration or exfiltration test will be required for the storm drain pipe.

7-05 MANHOLES, INLETS, CATCH BASINS, AND DRYWELLS

7-05.2 MATERIALS

Section 7-05.2 of the Standard Specifications shall be revised as follows:

Drain Rock: Backfill for drywells and infiltration trenches shall be Gravel Backfill for Drywells as specified in Section 9-03.12(5) of the Standard Specifications.

Manhole Metal Castings: All cast iron frames and covers shall be as specified in SECTION 9-05.15(1) of the Standard Specifications. All cast iron frames and covers to be used on this project shall be manufactured in the U.S. and shall be of the type, weight, and size approved by the City of Selah, and shall be furnished by the Contractor. Covers for sanitary sewer shall be stamped "SEWER." Covers for storm drain shall be stamped "STORM."

Precast Concrete Catch Basin: Catch basins shall be WSDOT Type I, IL or II and constructed as shown on the City Standard Details.

Catch Basin Metal Castings: All frames and grates shall be manufactured in the U.S. and capable of withstanding, with a reasonable margin of safety, a concentrated load of 20,000 pounds and shall be as specified in SECTION 9-05.15(2) of the Standard Specifications and Standard Plan B-30.10 and B-30.50. The grate shall be ductile iron and "bicycle safe." The contact surfaces of the frame and grate shall be machine finished to a common plane and shall be so cast as to prevent rocking.

Construction Geotextile: All geotextile fabric for underground drainage applications shall be

Moderate Survivability - Class B as specified in Section 9-33.2(1).

Precast Concrete Pretreatment Manhole: Stormwater pretreatment manholes shall be approved by the Washington State Department of Ecology (Ecology) with a General Use Level Designation (GULD), capable of 50% removal of fine (50 micron mean size) and 80% removal of coarse (125 micron mean size) total suspended solids (TSS) for influent concentrations greater than 100 mg/L, but less than 200 mg/L, as required by DOE.

Pretreatment manholes shall be constructed of pre-cast concrete manhole sections, flat top slab, and adjustment sections (similar to WSDOT Catch Basin Type 2, Standard Plan B-10.20-01), with cast iron covers as described above. The pretreatment insert shall be constructed of fiberglass and/or steel materials that are corrosion resistant. Manhole safety steps shall be provided as shown on the Plans and the pretreatment insert shall act as a platform for maintenance purposes.

Approved pretreatment manholes include Contech CDS, Stormceptor, Hydro International Downstream Defender, and Aqua-Swirl Concentrator.

The pretreatment manhole shall be capable of handling the specified water quality flows and shall incorporate a bypass within the unit to handle the specified peak flows. The pretreatment manhole shall be capable of incorporating multiple inlets/outlets, with the inlet and outlet pipes at 90 degrees to each other. Access to pretreatment insert ports and openings for maintenance shall be achieved through the cast iron cover(s).

7-05.3(1) Adjusting Manholes and Catch Basins to Grade

Delete and replace with the following:

Manholes, valve boxes, catch basins, and similar utility appurtenances and structures shall not be adjusted until the pavement is completed, at which time the center of each structure shall be relocated from references previously established by the Contractor.

The asphalt concrete pavement shall be cut and removed to a neat circle, the diameter of which shall be equal to the outside diameter of frame plus two (2) feet. The frame shall be placed on cement concrete blocks or adjustment rings and brought up to the desired grade. The base materials shall be removed and Class 3000 cement concrete shall be placed within the entire volume of the excavation up to, but not to exceed, 2 inches below the finished pavement surface.

On the following day, a tack coat of asphalt shall be applied to the concrete, the edges of the asphalt concrete pavement, and the outer edge of the casting. HMA Cl. 3/8-Inch asphalt concrete shall then be placed and compacted with hand tampers and a patching roller.

The completed patch shall match the existing paved surface for texture, density, and uniformity of grade. The joint between the patch and the existing pavement shall then be sealed with emulsified asphalt and shall be immediately covered with dry paving sand before the tack has broken.

7-08 GENERAL PIPE INSTALLATION REQUIREMENTS

7-08.1 General

Add the following:

All construction work shall be inspected by the City of Selah prior to backfilling. At least 48 hours notice shall be given to the City Public Works Department prior to backfilling.

The Contractor shall notify the Utility Notification Center (One Call Center) at least 48 hours prior to start of excavation so that underground utilities may be marked. Telephone number is 1-800-424-5555.

7-08.3(1)C Bedding the Pipe

Add the following:

The imported pipe bedding and select backfill to be utilized for the trench backfill shall be crushed gravel, placed and compacted in layers as designated by the Director of Public Works. Crushed gravel shall conform to Section 9-03.9(3) Crushed Surfacing Top Course.

CHAPTER 7 - STREET IMPROVEMENTS

GENERAL REQUIREMENTS FOR STREETS

All new street design and construction must conform to these Design and Construction Standards of the City of Selah, the Selah Municipal Code, and the latest edition of the Standard Specifications.

TRAFFIC STUDIES

In order to provide sufficient information to assess a development's impact on the transportation system and level of service, the Public Works Director may require a traffic study to be completed by the Developer at the Developer's expense. This decision will be based upon the size of the proposed development, existing roadway condition, existing and expected, traffic volumes, accident history, expressed community concern, and other factors relating to transportation. Traffic studies shall be conducted under the direction of a traffic engineer or civil engineer licensed in the State of Washington and possessing special training and experience in traffic engineering. The level of detail and scope of the traffic study may vary with the size, complexity, and location of the proposed development. A traffic study shall, at a minimum, be a thorough review of the immediate and long-range effects of the proposed development on the City's transportation system. Guidelines for the traffic study shall be reviewed by the Public Works Director on a project basis. ADT and peak hour volumes for the development shall be estimated using the trip generators found in the latest edition of the Trip Generation Manual published by ITE.

STREET REQUIREMENTS

Arterial streets serve as the high volume corridors that connect the major traffic generators and shall be designed with a minimum seventy (70) foot-wide Right of Way and forty-four (44) foot-wide roadway surface face of curb to face of curb. Face of curb radius at intersection shall be a minimum of 50 feet and the street centerline radius shall be designed to a minimum 40 mph design speed or as approved by the Public Works Director. Both Arterial and Collector streets shall be designed for a WB-50 vehicle and HS-25 loadings.

Collector streets shall be designed with a minimum sixty (60) foot-wide right of way and a forty (40) foot-wide roadway surface face of curb to face of curb. Face of curb radius at intersection shall be a minimum of forty (40) feet and the street centerline radius shall be designed to a minimum 35 mph design speed or as approved by the Public Works Director.

Local Access (Residential) streets shall be designed with a minimum fifty (50) foot-wide right of way and thirty-two (32) foot-wide roadway surface curb to curb. Face of curb radius at intersection shall be a minimum of twenty-five (25) feet and street centerline radius shall be designed to a minimum of 30 mph design speed or as approved by the Public Works Director.

The maximum length of a cul-de-sac street shall be 600 feet measured along the street centerline from the nearest street intersection to the throat of the cul-de-sac. Where it is not feasible to construct a cul-de-sac turnaround, the City may allow the use of an "L" or "Hammerhead" turnaround upon approval. The minimum cul-de-sac right-of-way is a radius of 55 feet and a curb radius of 45 feet.

A subdivision of 15 or more lots shall have two or more access points. Street intersections shall not be less than 80 degrees. Offset street intersections shall be not less than 200 feet for arterial and collector streets and 100 feet for local access streets. Street grades shall be kept to a minimum and no street grade shall be less than two tenths (0.02) percent or greater than twelve (12) percent. Vertical curves shall be designed when the grade difference is greater than two (2) percent.

Sidewalks shall be installed on both sides of Arterial and Collector streets. Sidewalks shall be constructed when homes/businesses are constructed and shall be completed prior to occupancy.

Cement concrete traffic curb and gutter and sidewalk(s) shall be installed along all new streets unless otherwise approved by the City of Selah. Mountable curb is allowable for local access interior and dead end streets in subdivisions, except for the corner lot at an intersection, where the curb shall be full height. There shall be a 10-foot long transition from the full height curb to the mountable curb.

Driveways shall be located on the lowest classification of roadway abutting the development. Driveways accessing onto arterial streets are discouraged and shall be limited. Driveway widths and locations are limited to one per lot as approved by the Public Works Director. "Corner" lot driveway shall be located as far as possible from the street intersection.

A street light shall be installed at each street intersection, and at mid block, no more than one hundred seventy-five (175) feet apart, and at ends of culs-de-sac. Street lights shall meet the design and placement requirements of these Design and Construction Standards and the City Public Works Director and the local electric utility.

Installation of monument case with cover caps and monument cases at the centerline of street intersects and at other locations as directed by the Public Works Director is required in new developments.

Traffic control signs and sign posts shall be provided and installed by the developer in accordance with the latest edition of the Manual of Uniform Traffic Control Devices (MUTCD) and City Design and Construction Standards.

SPECIAL PROVISIONS FOR STREETS

The following sections of the Standard Specifications have been amended or supplemented as described below.

2-03 ROADWAY EXCAVATION AND EMBANKMENT

2-03.3(14)C Compacting Earth Embankments

All embankment construction shall be compacted by Method "C" as specified in the above section.

2-03.3(14)D Compacting and Moisture Control Tests

The contractor shall notify the City and Consultant when the subgrade is ready for in-place density tests and the materials testing firm will be on the site. Placement of aggregate surfacing courses shall not proceed until subgrade density requirements are met.

2-07 WATERING

2-07.1 DESCRIPTION

The Contractor shall be solely responsible for dust control on the Developer's project and shall protect the adjacent property, homes and businesses, orchards, crops and school yards from dust by whatever means necessary. The Contractor shall be responsible for any claims for damage or dust impacts and shall protect the City and the Developer from all such claims.

When directed by the City, the Contractor shall provide and apply water within two hours of such an order, including on weekends and holidays.

5-04 HOT MIX ASPHALT

5-04.1 Description

Supplement this section with the following:

An asphalt prime coat will not be required, nor will a soil sterilant be required to be applied to the subgrade.

Asphalt concrete surfaces shall be so constructed that the finished pavement will conform to the cross-section, line, and grade as shown on the Plans and in accordance with the referenced Standard Specifications.

5-04.2 Materials

Supplement this section with the following:

The class of hot mix asphalt shall be: HMA Class 1/2"
The grade of asphalt binder shall be: PG 64-28

5-04.3 Construction Requirements

5-04.3(2) Hauling Equipment

Supplement this section with the following:

Sufficient numbers of trucks shall be provided by the Contractor to assure a continuous paving operation at proper HMA mix temperatures. Paving operations shall not proceed until hauling equipment sufficient to assure continuous operations is provided.

5-04.3(3) Hot Mix Asphalt Pavers

Supplement this section with the following:

The HMA paver that is utilized shall be capable of spreading and finishing courses of HMA plant mix material in a width from centerline of the roadway to the edge of the roadway or gutter in a single pass (up to 22-foot width).

5-04.3(5)E Pavement Repair

Supplement this section with the following:

After the completion of trench and patch repairs, the Contractor shall seal all joints with CSS-1 and concrete sand.

5-04.3(7) Preparation of Aggregates**5-04.3(7)A1 General**

Supplement this section with the following:

The Contractor may submit for acceptance an approved WSDOT mix design for the class of HMA specified in the contract if the mix design has been approved within the previous 12-month period using aggregate and asphalt binder from the same sources. The Contractor shall provide the mix design to the City at least fifteen (15) working days prior to any paving.

5-04.3(7)A2 Statistical or Nonstatistical Evaluation

Delete this section and replace it with the following:

The Contractor shall be responsible for verification of the mix design.

5-04.3(8)A Acceptance Sampling and Testing – HMA Mixture**5-04.3(8)A1 General**

Delete this section and replace it with the following:

Acceptance of HMA shall be as provided under Nonstatistical or Commercial evaluation.

Commercial evaluation will be used for Commercial HMA and for other classes of HMA in the following applications: Sidewalks, road approaches, ditches, slopes, paths, trails, gores and other nonstructural applications as approved by the City. Sampling and testing of HMA accepted by commercial evaluation will be at the option of the City. The proposal quantity of HMA that is accepted by commercial evaluation will be excluded from the quantities used in the determination of Nonstatistical evaluation.

Commercial HMA can be used for patching utility or conduit trenches less than 24 inches in width.

5-04.3(10) Compaction**5-04.3(10)B Control**

Delete this section and replace with the following:

HMA used in traffic lanes, including lanes for ramps, truck climbing, weaving, and speed change, and having specified compacted course thickness greater than 0.10 foot, shall be compacted to a specified level relative density. The specified level of relative density shall be a minimum of 91.0 percent of the reference maximum density as determined by WSDOT for AASHTO T 209. The reference maximum density shall be determined as the moving average of the most recent five determinations for the lot of HMA being placed. The specified level of density attained will be determined by five nuclear gauge tests taken in accordance with WAQTC FOP TM8 and WSDOT SOPT 729 on the day the mix is placed (after completion of the finish rolling) at locations determined by the stratified random sampling procedure conforming to WSDOT Test Method 716 within each density lot. The quantity represented by each density lot will be no greater than a single day's production or approximately 400 tons, whichever is less. The City will furnish the Contractor with a copy

of the results of all acceptance testing performed in the field within one working day.

In addition to the randomly selected locations for tests of density, the City may also isolate from a normal lot any area that is suspected of being defective in relative density. Such isolated material will not include an original sample location. A minimum of five (5) randomly located density tests will be taken.

Control lots not meeting the minimum density standard shall be removed and replaced with satisfactory material.

HMA constructed under conditions other than those listed above shall be compacted on the basis of a test point evaluation of the compaction train. The test point evaluation shall be performed in accordance with instructions from the City. The number of passes with an approved compaction train, required to attain the maximum test point density, shall be used on all subsequent paving.

5-04.3(11) Reject Work

Supplement this section with the following:

Delete all references to Combined Pay Factor (CPF). HMA not meeting the quality requirements of the City shall be rejected, including use of HMA Cl. 3/8-Inch.

5-04.3(13) Surface Smoothness

Supplement this section with the following:

Where directed by the City, the Contractor shall feather the HMA pavement in a manner to produce a smooth-riding connection to the existing pavement.

HMA Cl. 3/8-inch shall be utilized in the construction of the feathered connections to existing pavement.

5-04.3(14) Planing Bituminous Pavement

The third paragraph of this section is deleted and replaced with the following:

The ground HMA material resulting from the pavement planing operation shall become the property of the City when so desired.

The Contractor shall haul and stockpile the material at a location as directed by the City.

All other debris resulting from the planing operation shall become the property of the Contractor and be disposed of in accordance with Section 2-03.3(7)C.

5-04.3(17) Paving Under Traffic

Delete the following in the last paragraph:

“except the costs of temporary pavement markings”

5-04.3(19) Sealing of Pavement Surfaces

Revise the first sentence to read:

“The Contractor shall apply a fog seal to all travel lanes and allow it to cure prior to opening the lane to traffic, when the wearing course is placed after October 1 and before April 1.”

8-04 CURBS, GUTTERS, AND SPILLWAYS**8-04.3(1) Cement Concrete Curbs, Gutters, and Spillways**

This section is supplemented with the following:

Cement concrete traffic curb and gutter shall be as shown on the City's Standard Plans. Full Height or “Barrier” cement concrete traffic curb and gutter as shown shall be used on the roadway as shown on the Plans. Depressed or “Driveway” cement concrete traffic curb and gutter as shown shall be used at all driveway entrances and sidewalk ramp locations as shown on the Plans and as directed in the field by the Engineer. Mountable or “Rolled” curb shall be used on the roadway as shown on the Plans. Cement concrete curb and gutter which does not comply with the City's details shall be removed and replaced at the Contractor's expense.

A template shall be required to be placed at the back of curb for construction of driveway transitions from Barrier to Driveway or Rolled curb and gutter. The template shall extend from the bottom of curb to the top of the curb, and shall have a minimum length of 10 feet, with the 6-foot long transition centered in the template. The Contractor shall also be required to use a template at the back of Driveway/Depressed curb and gutter to ensure a straight and uniform back of curb in conformance with the Standard Plan.

The new concrete curb and gutter shall be cured in accordance with SECTION 5-05.3(13)B of the Standard Specifications. Application of the curing compound shall be in accordance with the manufacturer's recommendations.

First-class workmanship and finish will be required on all portions of concrete curb and gutter work. Quality of workmanship and finish will be evaluated continuously and will be based solely upon the judgment of the Engineer. The Contractor shall be required to construct a minimum 20 linear foot section of curb and gutter which demonstrates quality which is acceptable by the Owner and Engineer. This “model” section will be referenced during construction for comparison to newly poured curb. If at any time it is found that quality is unacceptable, work shall be immediately stopped, and no additional curb and gutter shall be placed. Cement concrete curb and gutter which does not comply with the section details on the Plans, or in the Engineer's opinion does not demonstrate first-class workmanship and finish, shall be removed and replaced at the Contractor's expense. Should the Contractor's equipment or methods be unable to produce curb and gutter meeting the requirements of the Details and Specifications, no further curb and gutter construction will be allowed until corrections have been made to said equipment or methods.

8-06 CEMENT CONCRETE DRIVEWAY ENTRANCES**8-06.3 Construction Requirements**

This section is supplemented with the following:

The concrete driveway entrance/sidewalk shall be six (6) inches in thickness.

8-14 CEMENT CONCRETE SIDEWALKS**8-14.3(3) Placing And Finishing Concrete**

This section is supplemented with the following:

All sidewalks not located in driveway entrance areas shall be four (4) inches in thickness. All sidewalks and concrete driveway entrances located behind a Depressed curb and gutter section or Rolled Curb section shall be six (6) inches in thickness.

Sidewalks shall be marked across the entire width every five (5) feet and with preformed asphalt impregnated joint fillers 3/8-inch thick every twenty (20) feet. Concrete sidewalk shall be cured in accordance with SECTION 5-05.3(13)A of the Standard Specifications. Application of the curing compound shall be in accordance with the manufacturer's recommendations. Failure to properly secure or seal the cement concrete sidewalk will require the Contractor to remove and replace the sidewalk section at his expense.

Sidewalk ramps, in accordance with the City Standard Plan, shall be constructed at all intersections as shown on the Detail Sheet and at a width shown on the plans. Ramps shall include a detectible warning pattern approved by the City.

First-class workmanship and finish will be required on all portions of cement concrete sidewalk work. Quality of workmanship and finish will be evaluated continuously and will be based solely upon the judgment of the Engineer. If at any time it is found that quality is unacceptable, work shall be immediately stopped, and no additional sidewalk shall be placed. Cement concrete sidewalk which does not comply with the section details on the Plans, or in the Engineer's opinion does not demonstrate first-class workmanship and finish, shall be removed and replaced at the Contractor's expense. Should the Contractor's equipment or methods be unable to produce sidewalk meeting the requirements of the Details and Specifications, no further sidewalk construction will be allowed until corrections have been made to said equipment.

8-20 ILLUMINATION, TRAFFIC SIGNAL SYSTEMS, AND ELECTRICAL**8-20.1 Description**

Supplement this section with the following:

All illumination and electrical work shall be coordinated with Pacific Power and the City of Selah.

8-20.2 Materials

Supplement this section with the following:

The provisions of Section 9-29 shall apply, except for the following modifications or additions:

Conduit: Below grade conduit shall be Schedule 40 PVC, conforming to NEMA TC 2. Rigid Steel Conduit and Fittings shall be used for all bends, entrances, and exits of pull boxes and where required by code. Conduit bends shall have no less than 12-Inch radius. "Push-Penny" plugs shall be used at all terminations to keep conduits clean.

A 1/8-Inch braided nylon rope, 450 pounds minimum breaking strength, shall be installed in each conduit run with two (2) feet doubled back at each termination. When the conductors are pulled, a rope shall be re-pulled with the conductor and left for future use. Pull rope shall be installed in all spare conduits.

Light Standards: Poles and arms shall be hot-dipped galvanized over their entire surface per ASTM A-123. Anchor bolts, nuts, and washers shall be hot-dipped galvanized over their entire length per ASTM A-153. All poles, arms and accessories shall be furnished by the same manufacturer.

Luminaire poles shall provide a nominal mounting height of thirty-seven (37) feet and have ten (10) foot arms for Collectors and Arterials, and eight (8) foot arms for Local Access roadways. The pole base shall be of the "fixed" type. Handholes shall be 4 inches by 6-1/2 inches, located 18 inches above the base, turned toward the street. A 1/2-inch NC ground stud shall be located inside the handhole. Light standards shall be designed to a minimum of 90 MPH wind velocity.

Accessories shall include anchor bolts (each with heavy hex nuts and washers) as sized by the manufacturer, bolt templates, full base covers, and removable pole end caps.

Luminaires: LED luminaires shall be CREE LED XSP2 Series, Version C, Type 3ME (Arterial and Collector) or Type 2ME (Local Access), both w/BLS Distribution, standard 4000k, 139W, 120-277V, without individual photoelectric controls. Luminaires shall be CREE LED XSP2 Series or approved equal.

Electrical Service: Service shall be a 200 AMP post mounted service cabinet, type EUSERC 308 as required by Pacific Power.

8-20.3 Construction Requirements

8-20.3(1) General

Supplement this section with the following:

Prior to installation, the Contractor shall inform the City when the luminaire equipment has arrived on-site. The City will compare the supplied luminaire equipment to these Design and Construction Standards prior to installation and must be present during installation to check for socket settings and luminaire head orientation.

The Contractor is responsible for coordinating with the Department of Labor and Industries, serving electrical utility, and authority having jurisdiction for all required inspections and service.

8-20.3(2) Excavation and Backfill

Delete the first paragraph and replace it with the following:

The excavation required for the installation of conduit, cement concrete anchor bases, and pullboxes shall be performed in such a manner as to cause the least possible injury to streets, sidewalks, and other improvements. Anchor base excavation shall be augered or dug by hand with proper care to avoid damage to other utilities. Excavation shall not be performed until immediately prior to installation of conduit and/or structures. Backfilling shall be as shown on the Plans and shall conform to the provisions specified herein. Compaction of conduit trenches and structure backfill shall be accomplished by a method which will result in backfill compacted to at least 95 percent of maximum density.

8-20.3(4) Foundations

Supplement this section with the following:

The top six inches (anchor base) of the concrete foundation shall be formed and finished 24-inches square with 3/4-Inch chamfer edges, and the top shall be at finish sidewalk grade. The anchor base shall be separated from adjacent concrete surfaces by means of expansion joints. Forms for the anchor bases shall be true to line and grade and the conduit ends and anchor bolts shall be held in proper position and height by means of a temporary template. After standards are plumbed, the Contractor shall grout between the base plate and anchor base as shown on the Plans.

8-20.3(5) Conduit

Supplement this section with the following:

The ends of conduits for future connection shall be marked with an 18" long section of #4 rebar buried vertically with the top of the rebar set 6" below the finished grade.

8-20.3(6) Junction Boxes, Cable Vaults, and Pull boxes

Replace the first paragraph with the following:

The terms "pullbox" and "junction box" are considered interchangeable.

Pullboxes shall be constructed as shown on the Plans and in accordance with Standard Plan J-40.10-03 Type 1. The pullboxes shall be installed true to line and grade. The pullboxes shall be placed where shown on Plans and shall be separated from other concrete surfaces by an expansion joint.

8-20.3(10) Electrical Service

Supplement this section with the following:

A 120/240 V single phase electrical service shall be provided as determined by the City. The Contractor shall coordinate the final location of the service with the local electrical utility company and City. A State electrical permit will be required for the service. All wiring and equipment shall be in conformance with the appropriate electrical codes.

All of the work shall meet the requirements of Pacific Power and the National Electric Code.

The Contractor shall provide conduits to the proposed service locations shown on the Plans and shall coordinate the location of the service(s) with Pacific Power.

8-20.3(13)A Light Standards

Supplement this section with the following:

Light standards shall have base flanges requiring four (4) anchor bolts for connection to foundation. Anchor bolt covers shall be provided on all light standards.

8-21 PERMANENT SIGNING

8-21.2 MATERIALS

This section is supplemented with the following:

Sign posts for permanent signing within an approved development shall be Unistrut Telespar 2" x 2" 12 gauge steel tubing or 2" galvanized pipe. Socket sleeves for sign posts shall be 2 1/4" x 2 1/4" x 30" 12 gauge steel tubing.

Reflective background sheeting material shall be Type III for regulatory signs and Type I for all other signs unless otherwise directed by the City.

8-21.3 CONSTRUCTION REQUIREMENTS

This section is supplemented with the following:

Socket sleeves for sign posts shall be set in 12" diameter x 18" deep base of class 3000 concrete at finish grade so that erected signs will be plumb. The Contractor shall correct any misaligned sign posts at his own expense. Signs shall be located 12" behind the sidewalk.

8-30 CONTROLLED DENSITY FILL (NEW SECTION)

The following new section shall be added to the Standard Specifications:

8-30.1 GENERAL

Controlled Density Fill (CDF) may be required for street crossings by the Public Works Director. It shall be a mixture of Portland Cement, fly ash, aggregate, water, and admixtures proportioned to provide a non-segregating, self-consolidating, free-flowing material which will result in a hardened, dense, non-settling fill.

8-30.2 MATERIALS

Materials shall meet the requirements of the following Sections of the Standard Specifications:

Portland Cement	9-01 Type II
Fly Ash	Class F or C
Aggregates	9-03.1
Water	9-25
Admixtures	9-23.6

8-30.3 CONSTRUCTION REQUIREMENTS

8-30.3(1) Construction Materials

The CDF shall be a mixture of Portland Cement, fly ash, aggregate, water, and admixtures which has been batched and mixed in accordance with Section 6-02.3 of the Standard Specifications.

The following table provides a guideline for proportioning the Controlled Density Fill for this project. The final mix provided by the Contractor shall result in a material which is excavatable by machine with a maximum unconfined compressive strength of 300 psi.

Water	50 gals per cubic yard
Cement	50 lbs per cubic yard
Fly Ash	250 lbs per cubic yard
Aggregate	3,200 lbs per cubic yard

The above table provides a guideline for the CDF mixture. The weights shown are only an estimate of the amount to be used per cubic yard of CDF. Actual amounts may vary from those shown as approved by the Engineer or approved mix data from similar projects which provided proper strength, workability, consistency, and density.

8-30.3(7) Placing Controlled Density Fill

The floatable CDF shall be placed in the trench area where directed by the Engineer or Inspector for smaller jobs and brought up uniformly to the elevation directed. In the cases where existing concrete slabs have been undermined by excavation, the Contractor shall ensure that the CDF is flowed completely under the slab.

Mixing and placing may be started if weather conditions are favorable, when the temperature is at least 34° F and rising. At the time of placement, CDF must have a temperature of at least 40° F. Mixing and placing shall stop when the temperature is 38° F and falling. Each filling stage shall be as continuous an operation as practicable. CDF shall not be placed on frozen ground.

The trench section to be filled with CDF shall be contained at either end of trench section by bulkhead or earth fill.

APPENDIX A

TRANSFER OF OWNERSHIP OF PUBLIC WORKS IMPROVEMENTS

(Individual)

_____, the Developer or Owner(s), do(es) hereby transfer(s), deliver(s) and relinquish(es) to the City of Selah, Washington, all right, title and interest in, and ownership of, the following described Public Works Improvement located at: _____

{ Water

{ Sewer

{ Stormwater

{ Streets

The undersigned owner(s) agree (s) and understand(s) that this transfer of ownership of the above described Public Improvement to the City of Selah is subject to the conditions of the 2nd paragraph of **Section 1-05.12 Final Acceptance** of the latest edition of the Standard Specifications for Road, Bridge, and Municipal Construction, Washington State Department of Transportation modified as follows:

“Final acceptance shall not constitute acceptance of any unauthorized or defective work or material. The City shall not be barred from requiring the Contractor to remove, replace, repair, or dispose of any unauthorized or defective work or material or from recovering damages for any such work or material for a period of two (2) years.”

This Transfer of Ownership shall be effective only upon the City's final approval and acceptance of the Constructed Improvements and the acceptance of the Project Record Drawings.

PROPERTY OWNER/DEVELOPER

DATE

ACCEPTED BY THE City of Selah

AUTHORIZED OFFICIAL

DATE

I certify that I know of and have satisfactory evidence that _____ and _____ (is/are) the person(s) who personally appeared before me and that said person(s) acknowledged that (he/she/they) signed this instrument, and acknowledged it to be (his/her/their) free and voluntary act and for the uses and purposes mentioned in the instrument.

Dated: _____

Given under my hand and official seal the day and year last written.

Notary Public in and for the State of Washington residing at _____

My Commission expires _____

TRANSFER OF OWNERSHIP OF PUBLIC WORKS IMPROVEMENT
(Corporate)

_____, the Developer or Owner(s), do(es) hereby transfer(s), deliver(s) and relinquish(es) to the City of Selah, Washington, all right, title and interest in, and ownership of, the following described Public Works Improvement located at: _____

{ Water

{ Sewer

{ Stormwater

{ Streets

The undersigned owner(s) agree (s) and understand(s) that this transfer of ownership of the above described Public Improvement to the City of Selah is subject to the conditions of the 2nd paragraph of **Section 1-05.12 Final Acceptance** of the latest edition of the Standard Specifications for Road, Bridge, and Municipal Construction, Washington State Department of Transportation modified as follows:

“Final acceptance shall not constitute acceptance of any unauthorized or defective work or material. The City shall not be barred from requiring the Contractor to remove, replace, repair, or dispose of any unauthorized or defective work or material or from recovering damages for any such work or material for a period of two (2) years.”

This Transfer of Ownership shall be effective only upon the City's final approval and acceptance of the Constructed Improvements and the acceptance of the Project Record Drawings.

PROPERTY OWNER/DEVELOPER

DATE

ACCEPTED BY THE City of Selah

AUTHORIZED OFFICIAL

DATE

I certify that I know or have satisfactory evidence that _____ 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 _____ of _____ a _____ to be the free voluntary act of such party for the uses and purposes mentioned in the instrument.

Dated: _____

Given under my hand and official seal the day and year last written.

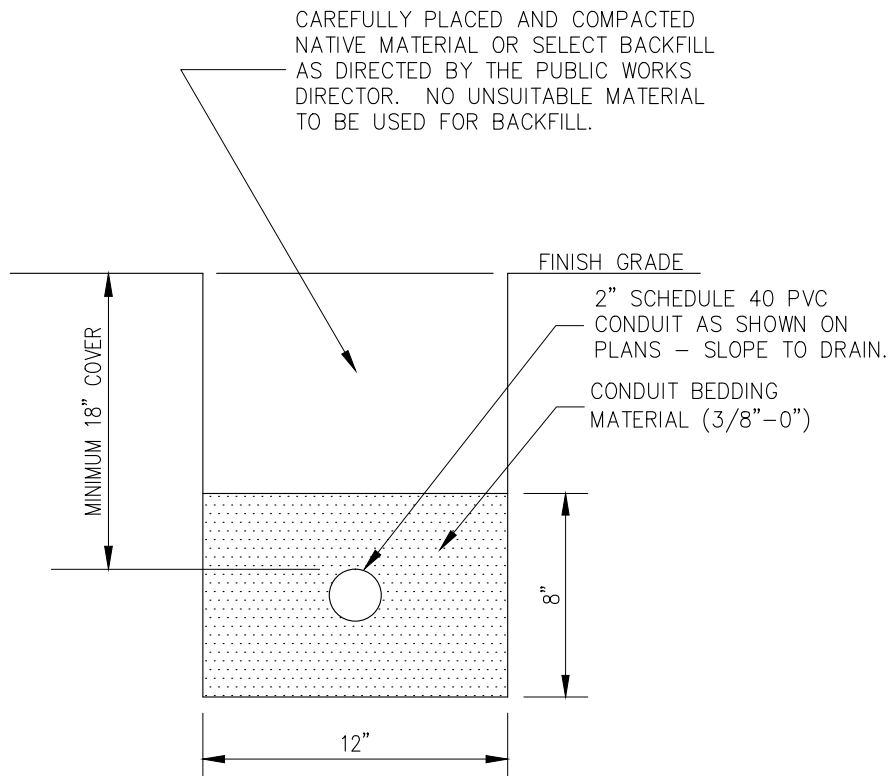
Notary Public in and for the State of Washington residing at _____

My Commission expires _____

APPENDIX B

SELAH STANDARD DETAILS

E-1	Conduit Trench
E-2	Junction Box
E-3	Street Light
SD-1	Catch Basin
SD-2	Type 2 Catch Basin
SD-3	Infiltration System
SS-1	Manhole (Type 1)
SS-2	Sanitary Sewer Cleanout
SS-3	Drop Connection
SS-4	Manhole Adjustment Detail
SS-5	Sewer/Storm Trench Section
SS-6	Manhole Safety Step
SS-7	Side Sewer Connection
ST-1	Roadway Section - Arterial
ST-2	Roadway Section - Collector
ST-3	Roadway Section - Local Access (Residential)
ST-4	Concrete Curb & Gutter
ST-5	Concrete Sidewalk Sections
ST-6	Sidewalk Ramp
ST-7	Sidewalk Jointing
ST-8	Residential Driveway Entrance
ST-9	Trench Surfacing Repair
ST-10	Monument
ST-11	Asphalt Sidewalk Ramp
ST-12	Cul-de-Sac Layout
ST-13	Bollard
ST-14	Cement Concrete Commercial Driveway
ST-15	Corner Lot Vision Clearance
W-1	Watermain Trench
W-2	Fire Hydrant Assembly
W-3	Water Service
W-4	Water Meter and Service Replacement
W-5	Water Valve Box
W-6	Air Release/Vacuum Valve
W-7	Blow-Off Assembly
W-8	Irrigation Backflow Preventer
W-9	Typical Thrust Blocking
W-10	Fire Hydrant Guard Posts
W-11	Fire Service



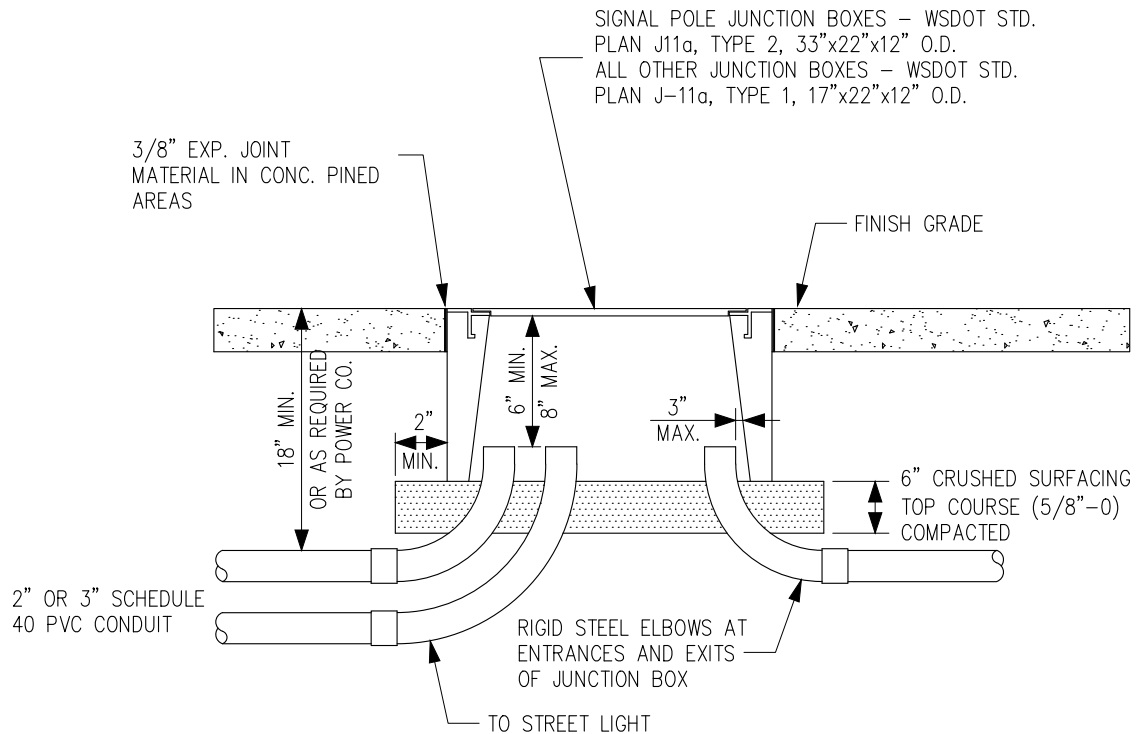
CONDUIT TRENCH SECTION

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	10/06		
Revision	Date	Description	Appr



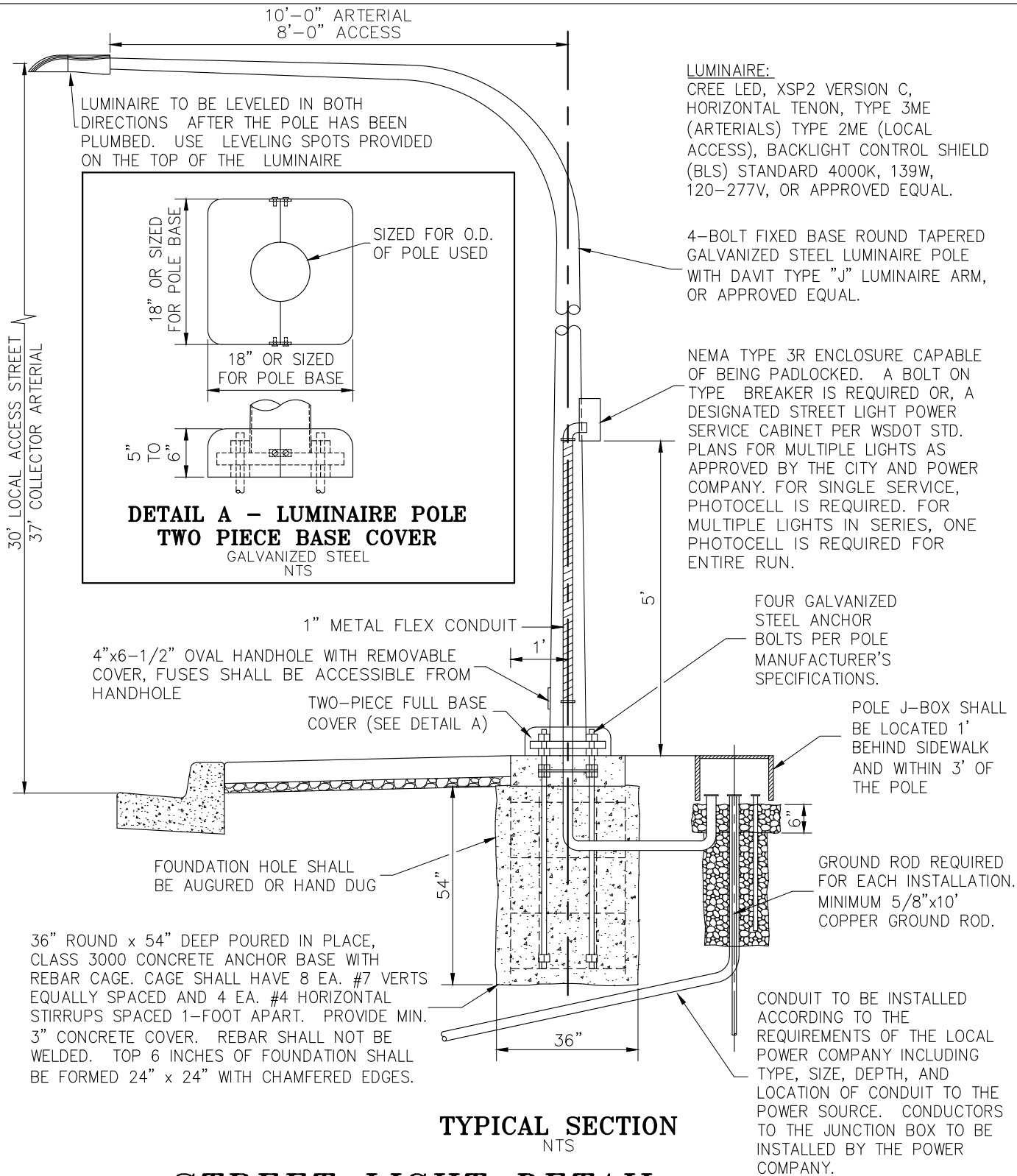
CONDUIT ENTRANCE AT JUNCTION BOX

NOT TO SCALE

NOTES:

- GROUND ROD FOR PVC CONDUIT OR NO. 8 AWG BONDING JUMPER FOR METAL CONDUIT (RIGID) REQUIRED AT EACH JUNCTION BOX. SEE PLANS FOR CONDUIT TYPE.
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	10/06		
Revision	Date	Description	Appr



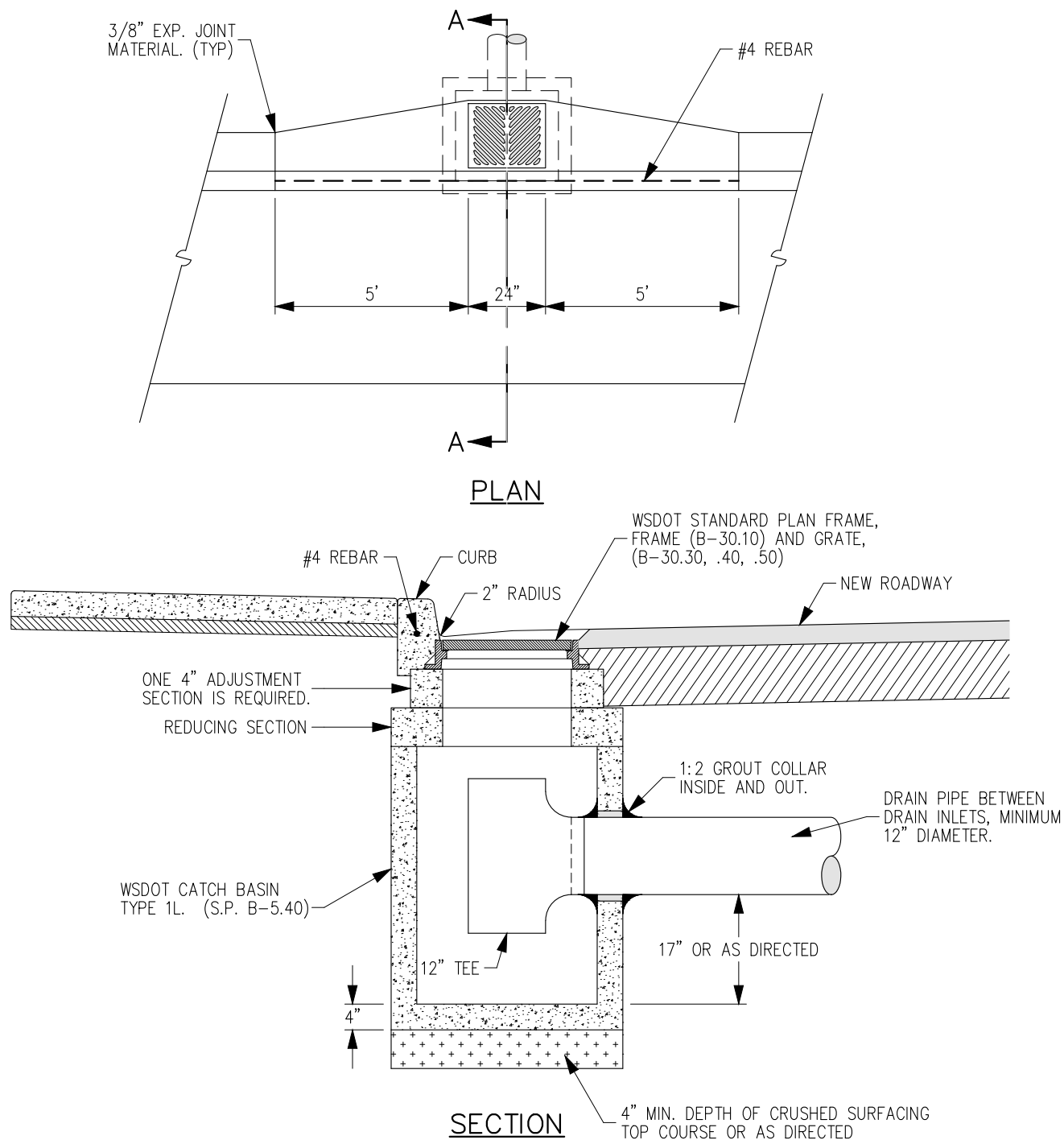
STREET LIGHT DETAIL

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

	09/15	LED LUMINAIRE	
ORIG.	10/06		
Revision	Date	Description	Appr



CATCH BASIN DETAIL

NOT TO SCALE

NOTES:

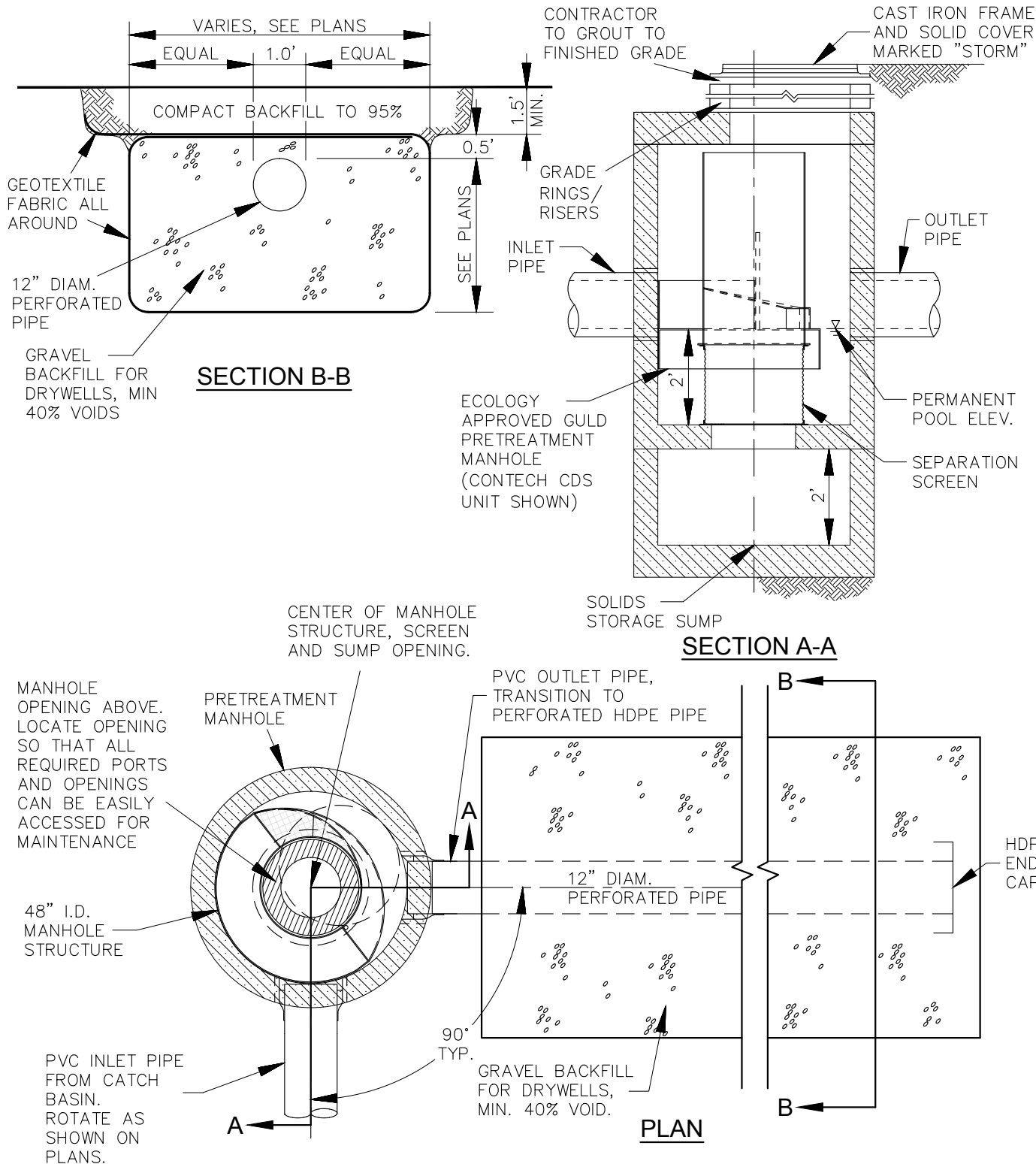
- USE VANED GRATES WHEN STREET GRADE EXCEEDS 4%.
- FRAMES AND GRATES SHALL BE MANUFACTURED IN THE UNITED STATES.
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

REV 1	01/12	CHANGED ELBOW TO TEE	
ORIG.	10/06		
Revision	Date	Description	Appr

CITY OF SELAH—STANDARD DETAIL

CATCH BASIN

SD—1



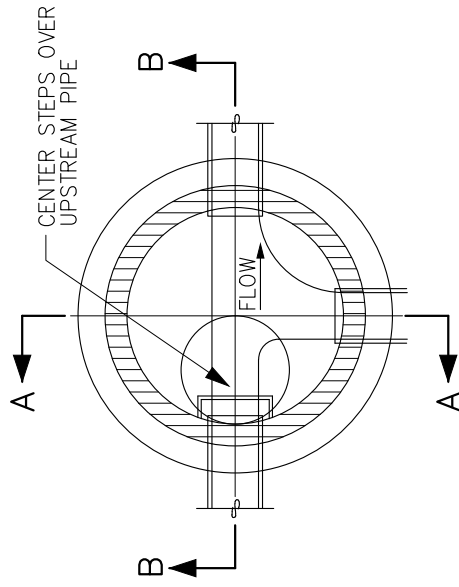
INFILTRATION SYSTEM

NOT TO SCALE

NOTES:

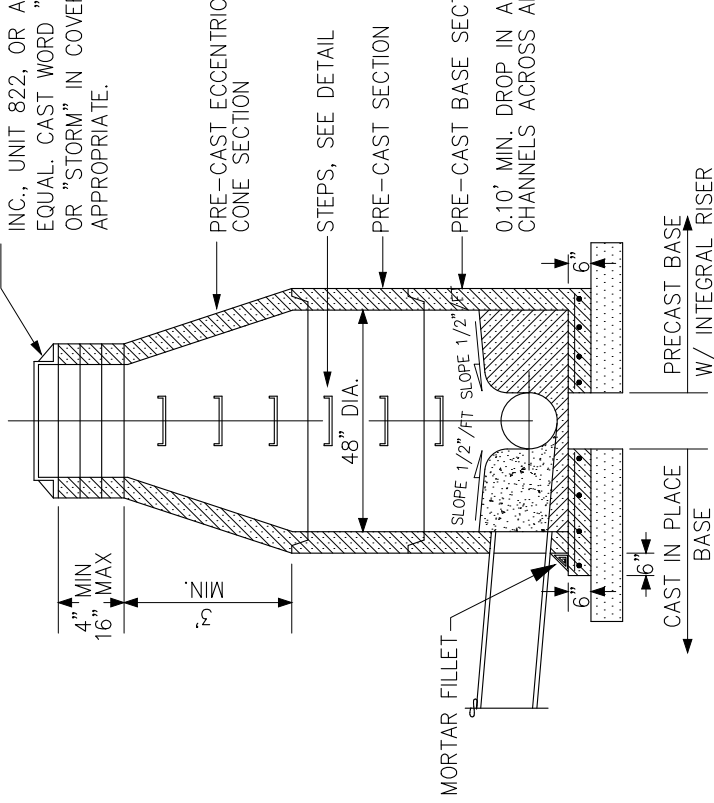
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	09/15		
Revision	Date	Description	Appr



PLAN VIEW

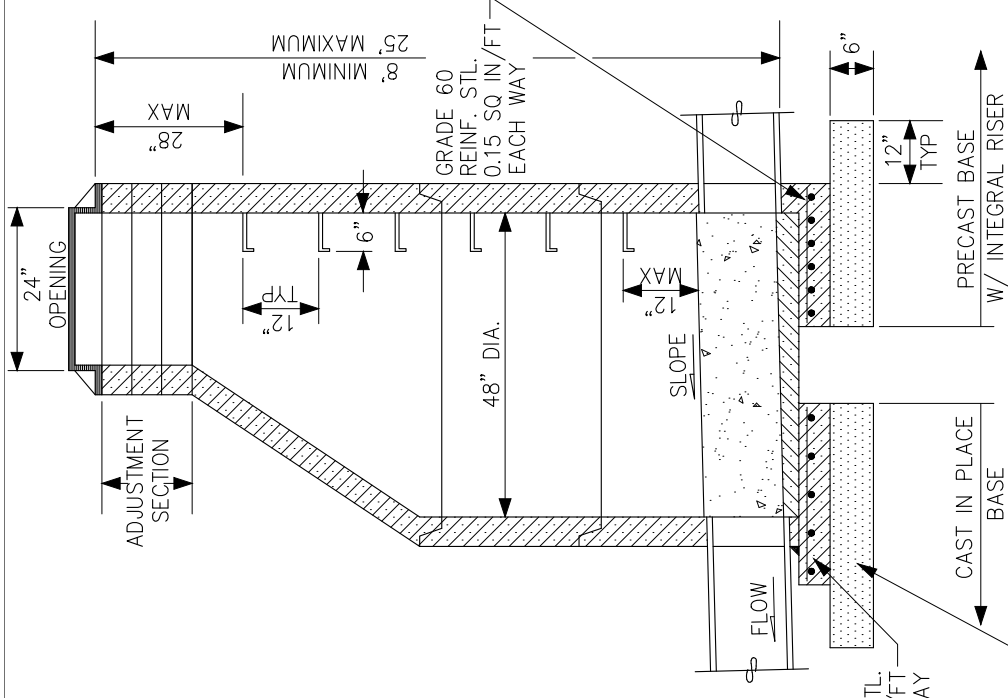
CAST IRON FRAME & COVER
OLYMPIC FOUNDRY COMPANY,
INC., UNIT 822, OR APPROVED
EQUAL. CAST WORD "SEWER"
OR "STORM" IN COVER AS
APPROPRIATE.



GRADE 60 REINF. STL.
0.23 SQ IN/FT
EACH WAY

CRUSHED SURFACING TOP
COURSE, COMPACT TO 95%
MAXIMUM DENSITY

SECTION B-B



NOTES:
• ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

SECTION A-A

Revision	Date	Description	Appr
ORIG.	10/06		

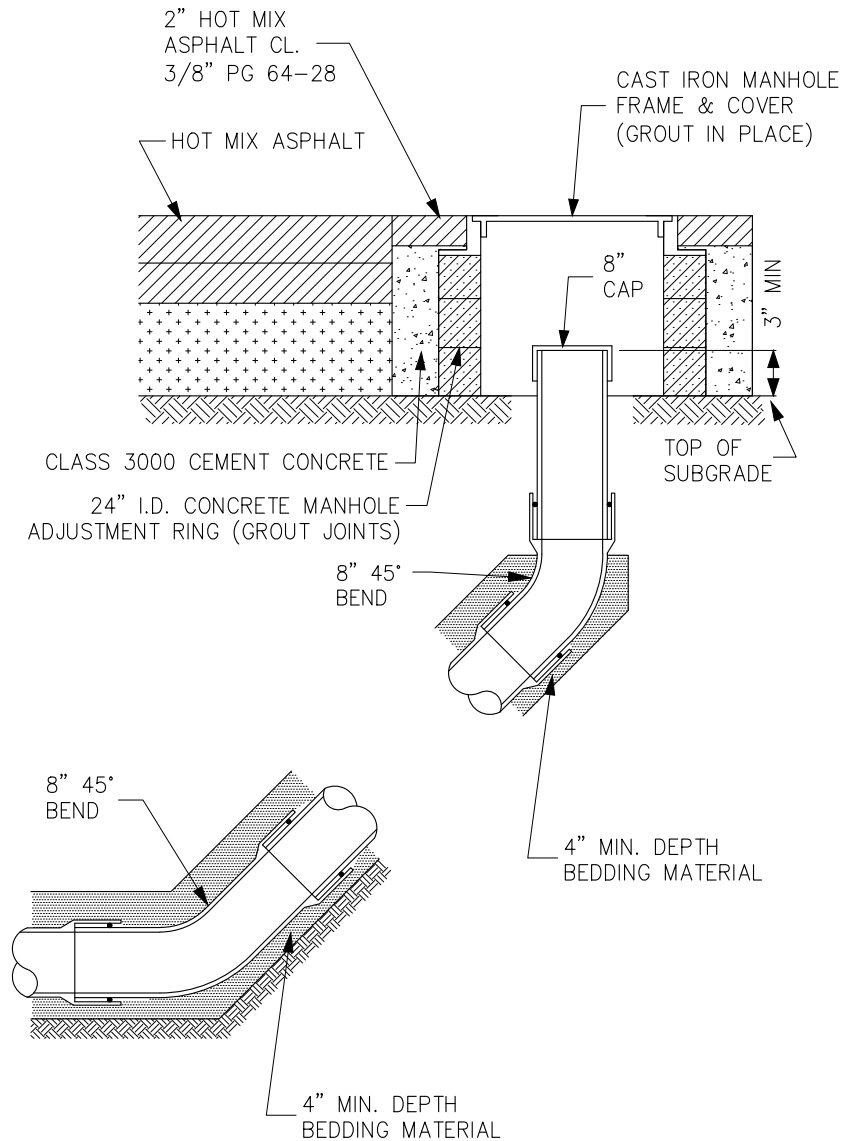
CITY OF SELAH-STANDARD DETAIL

MANHOLE (TYPE 1)

SS-1

NOTES:

1. CAST IRON FRAME & COVER SHALL BE OLYMPIC FOUNDRY COMPANY INC., UNIT 247 OR APPROVED EQUAL.
2. IN UNPAVED AREAS, SET FRAME & COVER FLUSH WITH FINISHED GRADE. EXTEND 12" THICK, 2' DIAMETER, CEMENT CONCRETE RING FLUSH WITH FRAME AND SLOPE OUTWARD AT 1/4"/FT.
3. CLEANOUT PIPE SHALL BE 8" DIA. PVC SEWER PIPE IN ACCORDANCE W/ THE STANDARD SPECIFICATIONS.



SANITARY SEWER CLEANOUT

NOT TO SCALE

NOTES:

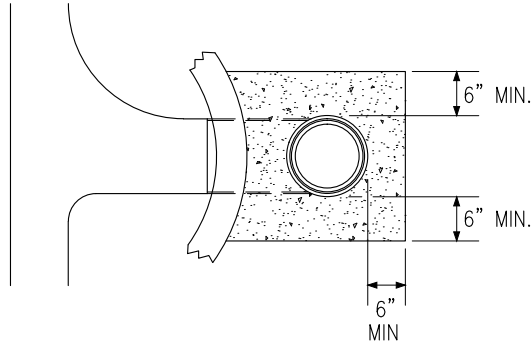
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

REV.	01/12	ADDED MANHOLE COVER	
ORIG.	10/06		
Revision	Date	Description	Appr

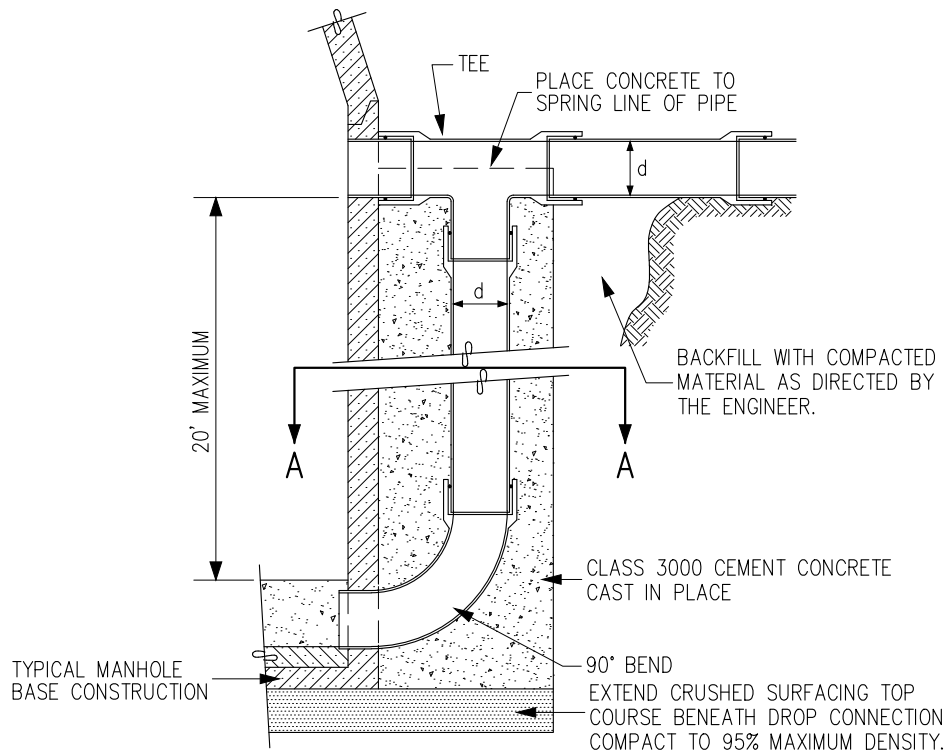
CITY OF SELAH—STANDARD DETAIL

SANITARY SEWER CLEANOUT

SS-2



SECTION A-A



PROFILE VIEW

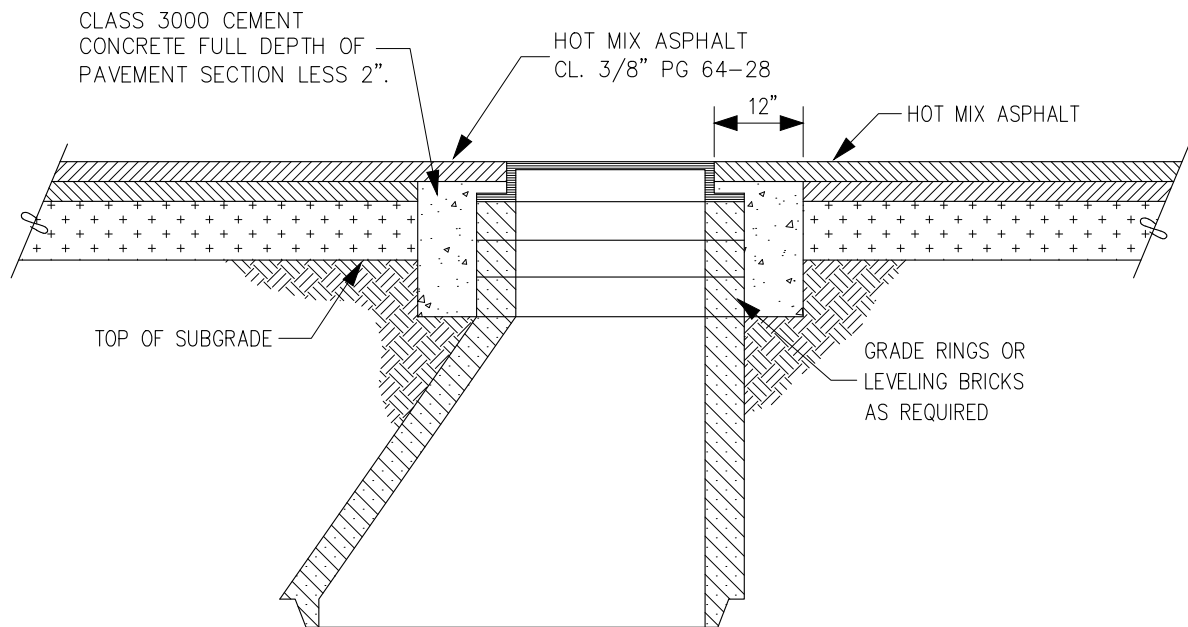
DROP CONNECTION

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	10/06		
Revision	Date	Description	Appr



NOTES:

1. MANHOLES SHALL BE ADJUSTED TO FINISHED GRADE AFTER PLACEMENT OF THE FINAL LIFT OF ASPHALT PAVEMENT.
2. GRADE RINGS AND/OR LEVELING BRICKS SHALL BE GROUTED IN PLACE AND BE WATER TIGHT.
3. IN UNPAVED AREAS, PROVIDE 12" THICK, 5' DIA. CEMENT CONCRETE RING AROUND TOP OF MANHOLE. SET MANHOLE FRAME FLUSH W/ FINISHED GRADE AND SLOPE CONCRETE OUTWARD AT 1/4"/FT.

MANHOLE ADJUSTMENT DETAIL

NOT TO SCALE

NOTES:

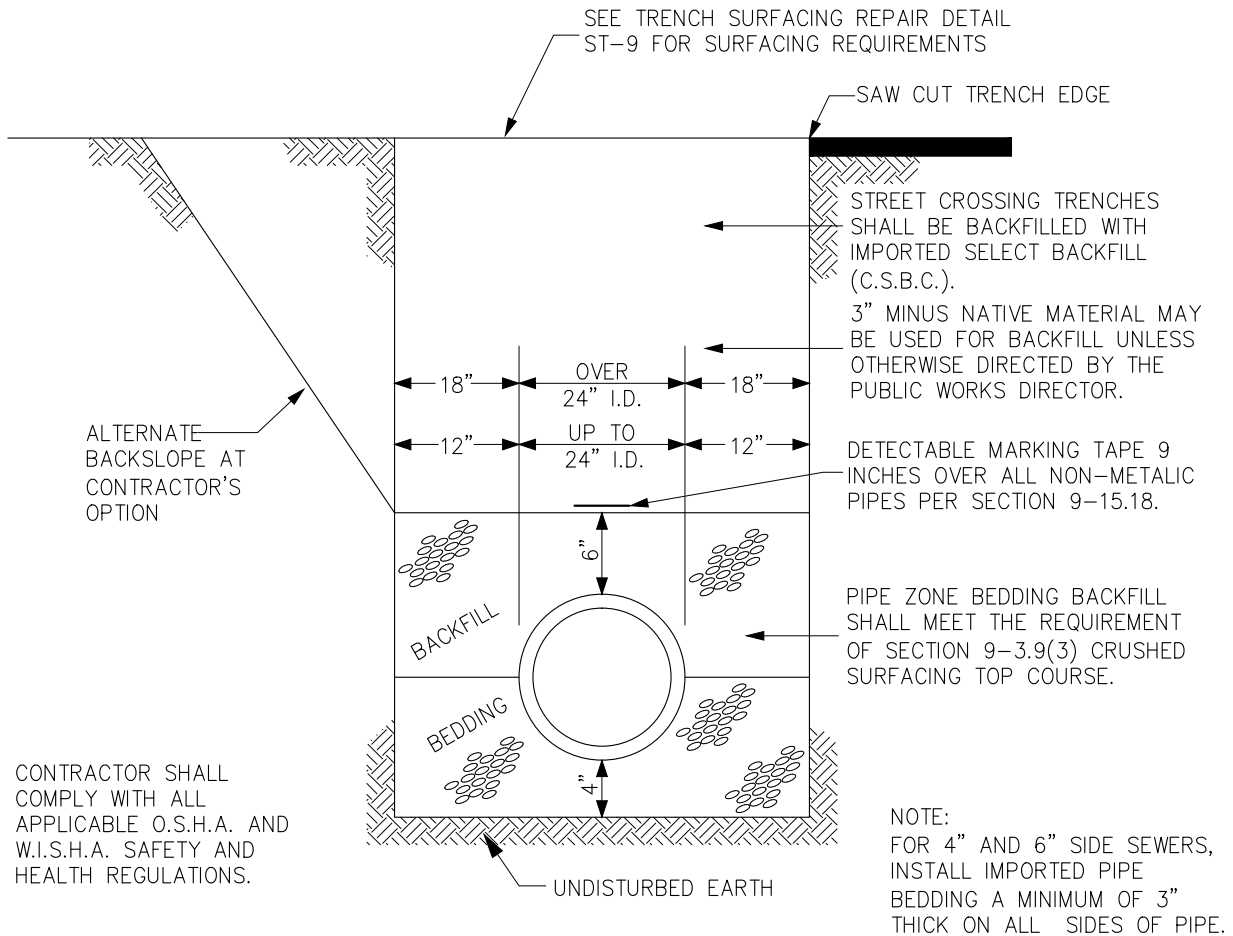
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	10/06		
Revision	Date	Description	Appr

CITY OF SELAH—STANDARD DETAIL

MANHOLE ADJUSTMENT DETAIL

SS-4



TYPICAL TRENCH SECTION FOR SANITARY AND STORM SEWER PIPES

NOT TO SCALE

NOTES:

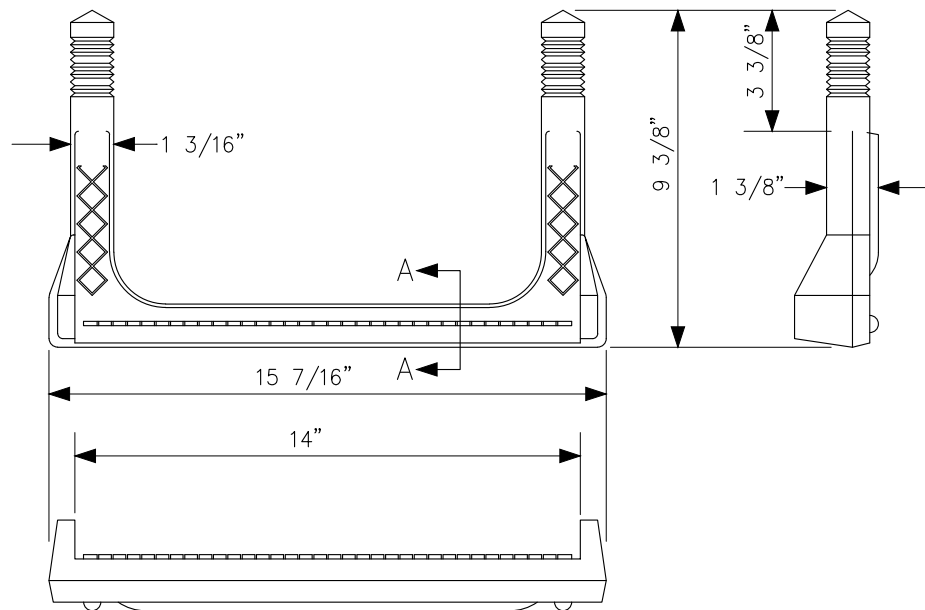
- MECHANICAL TAMPING AND COMPACTION REQUIRED AS DIRECTED BY THE CITY. WATER SETTLING MAY ONLY BE USED OUTSIDE THE ROADWAY PRISM WHEN APPROVED BY THE CITY.
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	10/06		
	6/14	SAWCUT UPDATE	
Revision	Date	Description	Appr

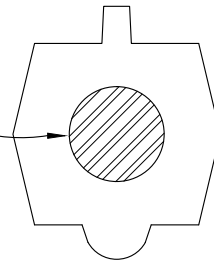
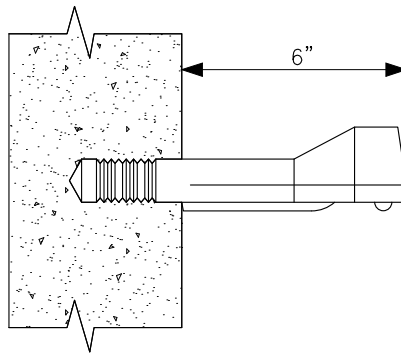
CITY OF SELAH-STANDARD DETAIL

SEWER/STORM TRENCH SECTION

SS-5



COPOLYMER POLYPROPYLENE
PLASTIC 1/2" GRADE 60
STEEL REINFORCEMENT



SECTION A-A

NOTE:
MANHOLE STEPS SHALL BE COPOLYMER
POLYPROPYLENE PLASTIC COATED 1/2"
GRADE 60 STEEL REINFORCEMENT, MODEL
PS2-PF, AS MANUFACTURED BY M.A.
INDUSTRIES INC., OR APPROVED EQUAL

MANHOLE SAFETY STEP

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

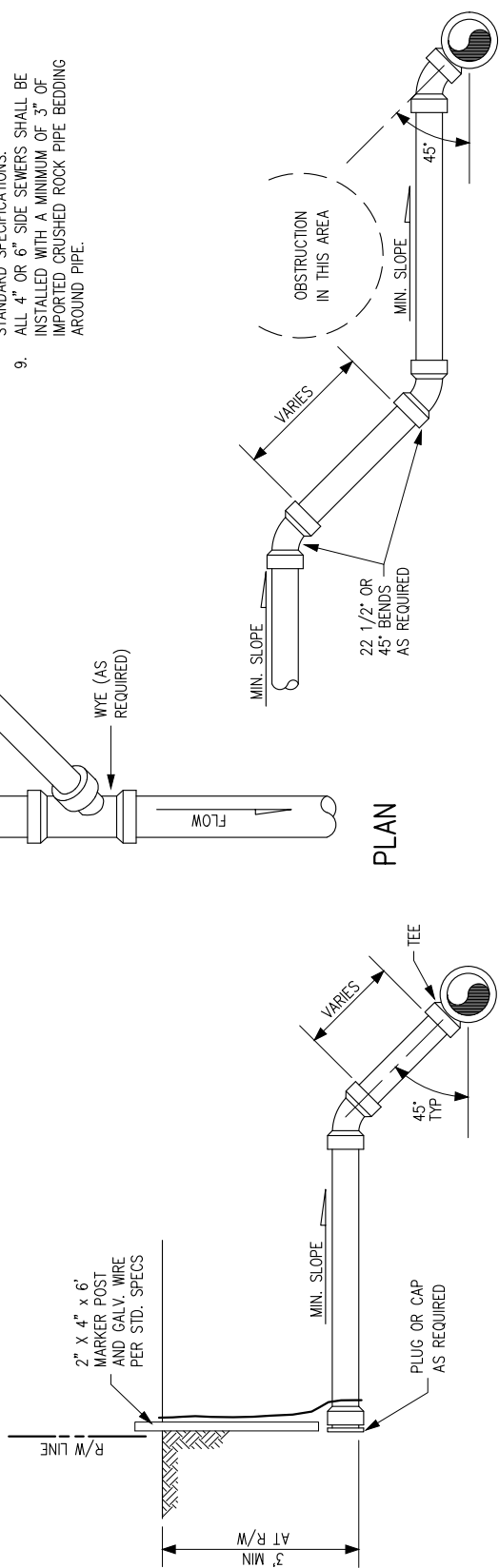
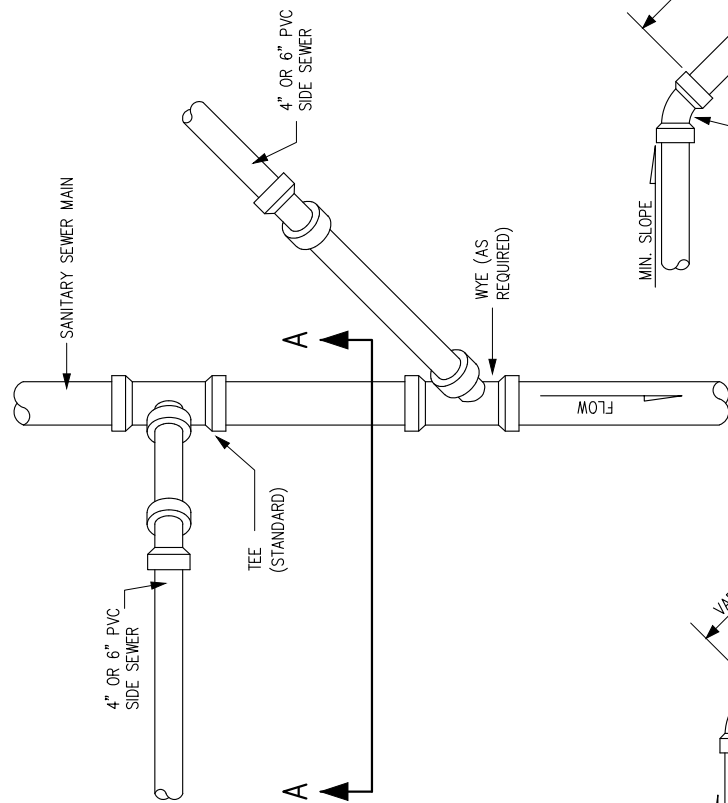
ORIG.	10/06		
Revision	Date	Description	Appr

CITY OF SELAH-STANDARD DETAIL

MANHOLE SAFETY STEP

SS-6

- NOTES:
1. SIDE SEWERS SHALL BE INSTALLED IN ACCORDANCE WITH SEC. 7-18 OF THE STANDARD SPECIFICATIONS
 2. SERVICE CONNECTIONS 8" OR LARGER MUST BE MADE AT MANHOLE.
 3. IF 5' MAXIMUM SLOPED DISTANCE IS INSUFFICIENT FOR SIDE SEWER CONNECTION, INSTALL SIDE SEWER RISER PER DETAIL.
 4. ROTATE SANITARY SEWER MAIN TEE OR WYE 45° UPWARD.
 5. TEES OR WYES SHALL BE INSTALLED IN NEW SANITARY SEWER MAINS. WHEN INSTALLING SIDE SEWERS IN EXISTING MAINS, CONNECTION SHALL BE MADE BY MACHINE MADE TAP AND APPROVED SADDLE.
 6. WHERE DEPTH IS INSUFFICIENT TO ALLOW CONNECTION AS SHOWN, CONNECT SERVICE AS DIRECTED BY THE PUBLIC WORKS DIRECTOR.
 7. TERMINATE SIDE SEWER AT R/W LINE UNLESS OTHERWISE DIRECTED BY THE PUBLIC WORKS DIRECTOR OR SHOWN OTHERWISE ON PLANS.
 8. ALL SIDE SEWER MATERIALS SHALL BE PVC SEWER PIPE CONFORMING TO THE REQUIREMENTS OF SECTION 9-05.12 OF THE STANDARD SPECIFICATIONS.
 9. ALL 4" OR 6" SIDE SEWERS SHALL BE INSTALLED WITH A MINIMUM OF 3" OF IMPORTED CRUSHED ROCK PIPE BEDDING AROUND PIPE.



SIDE SEWER CONNECTIONS

NOT TO SCALE

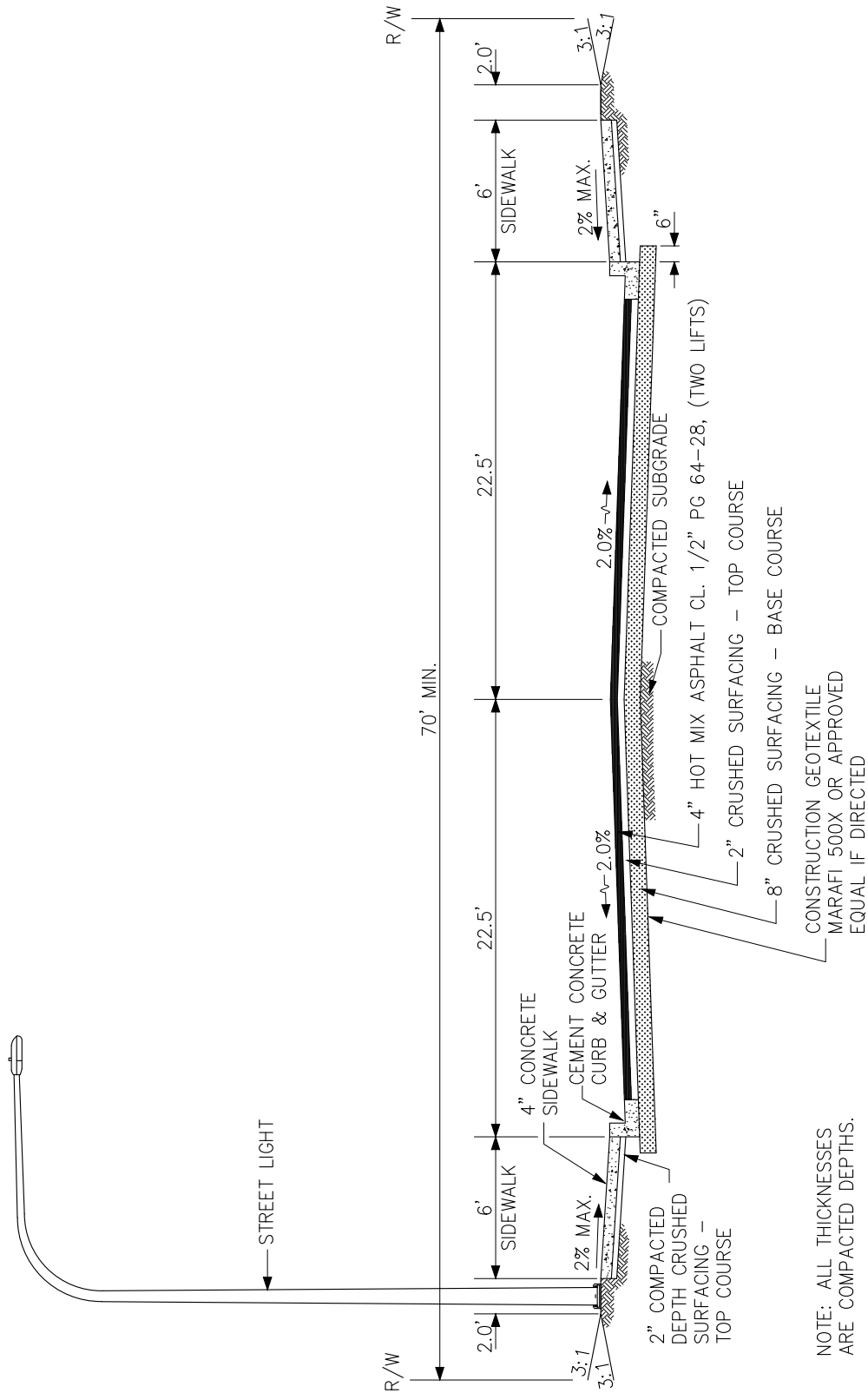
- NOTES:
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	10/06		
Revision	Date	Description	Appr

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

REV.	01/12	WIDENED SIDEWALK TO 6'	
ORIG.	10/06		
Revision	Date	Description	Appr



NOTE: ALL THICKNESSES ARE COMPACTED DEPTHS.

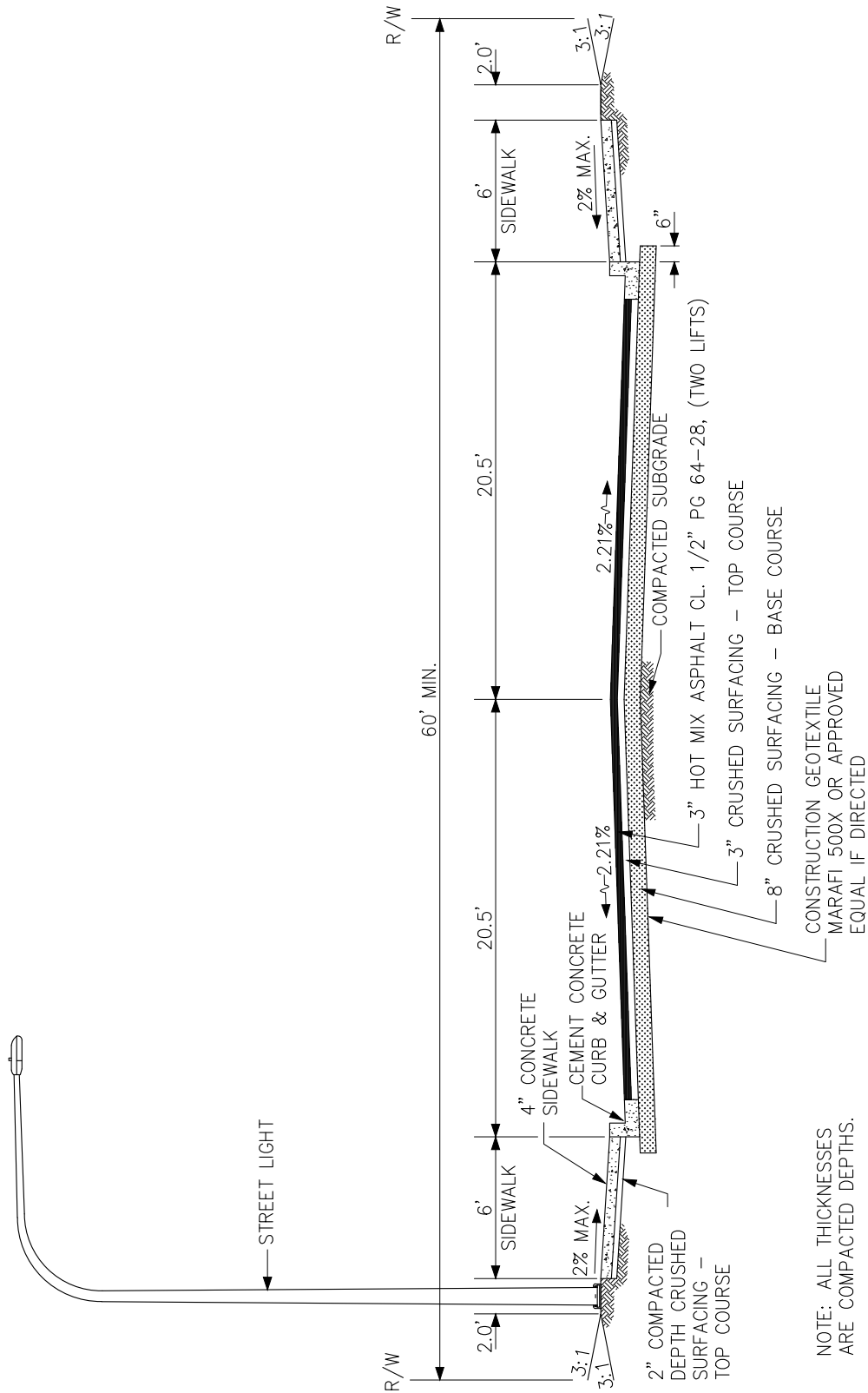
ROADWAY SECTION – ARTERIAL

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

REV.	01/12	WIDENENED SIDEWALK TO 6'	
ORIG.	10/06		
Revision	Date	Description	Appr

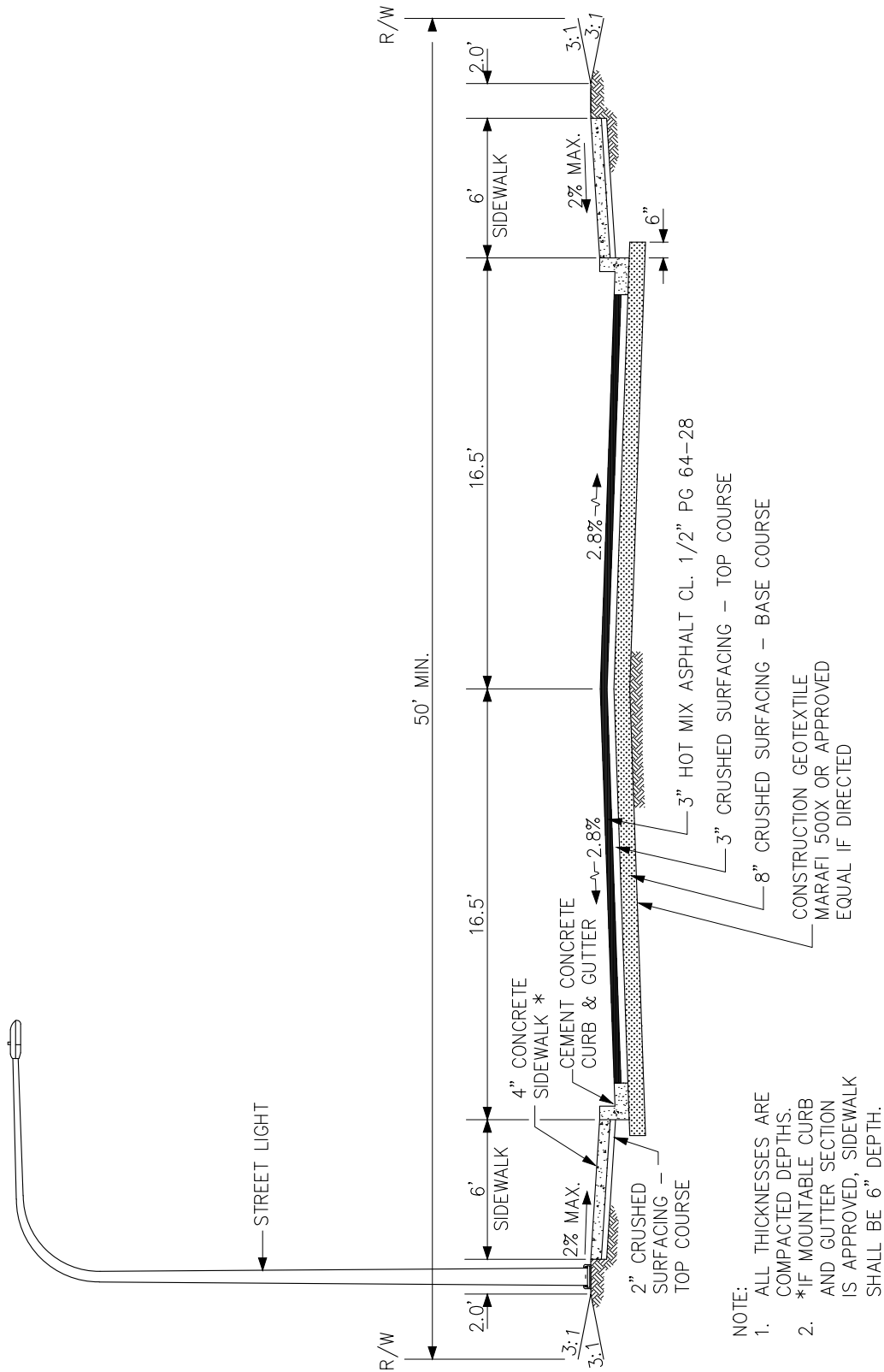


ROADWAY SECTION – COLLECTOR

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

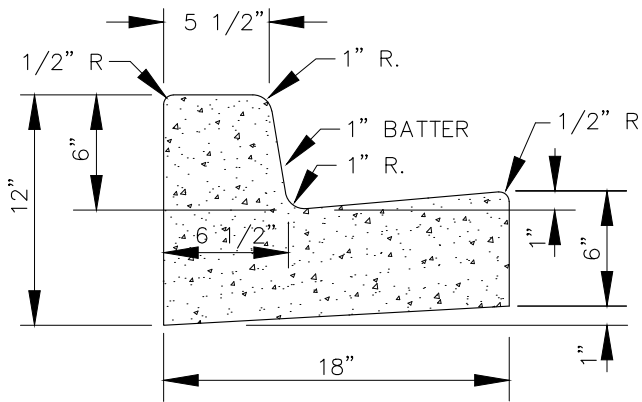


- NOTE:
1. ALL THICKNESSES ARE COMPACTED DEPTHS.
 2. *IF MOUNTABLE CURB AND GUTTER SECTION IS APPROVED, SIDEWALK SHALL BE 6" DEPTH.

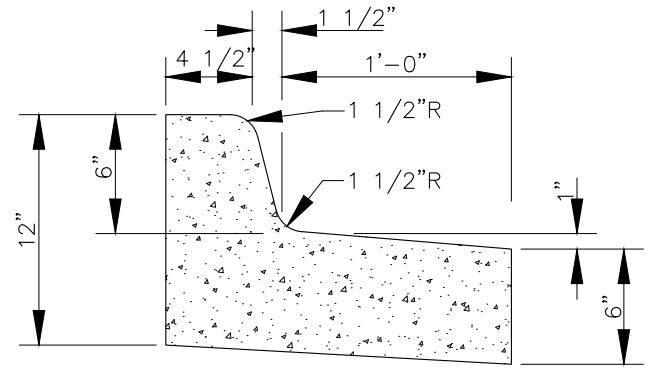
ROADWAY SECTION - LOCAL ACCESS (RESIDENTIAL)

NOT TO SCALE

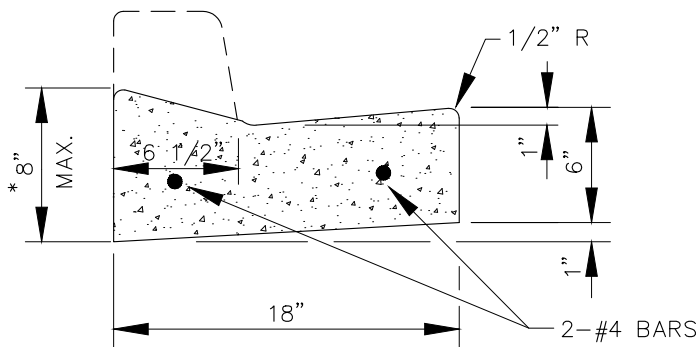
REV.	01/12	WIDENED SIDEWALK TO 6'	
ORIG.	10/06		
Revision	Date	Description	Appr



FULL HEIGHT - BARRIER



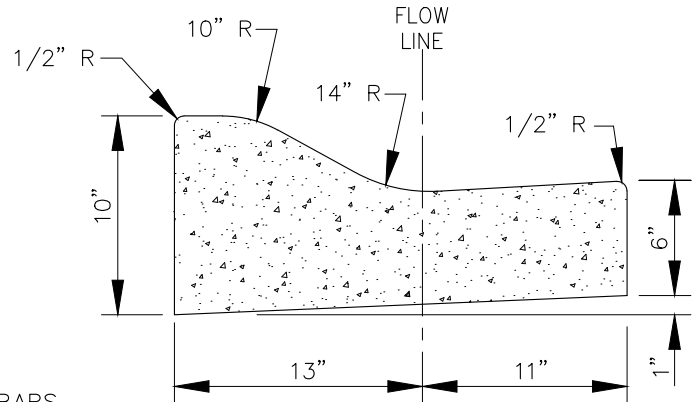
CONCRETE SPILL CURB



DEPRESSED - DRIVEWAYS

NOTE:

*AS DIRECTED BY ENGINEER. MAY VARY DEPENDING UPON GRADE OF SIDEWALK AND DRIVEWAY BEYOND CURB.



MOUNTABLE - ROLLED CURB

NOTE:

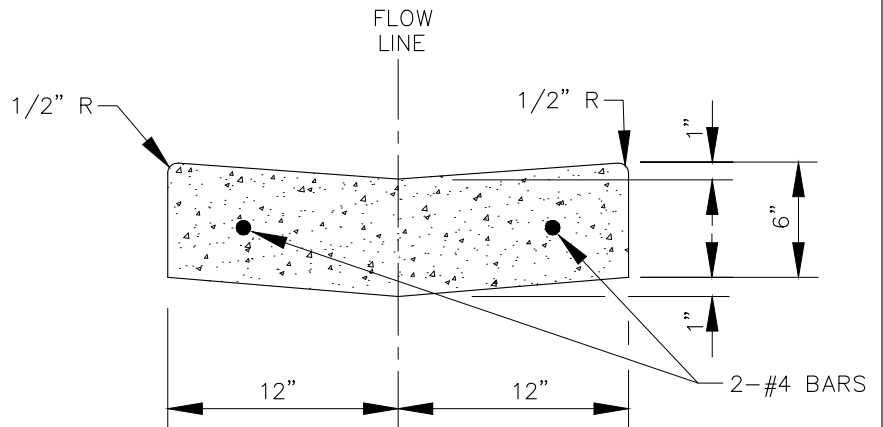
TOP OF CURB ELEVATION SHOWN IS TOP OF FULL HEIGHT CURB. SUBTRACT 0.17' FOR TOP OF ROLLED CURB.

NOTES:

1. AS DIRECTED BY THE PUBLIC WORKS DIRECTOR. MAY VARY DEPENDING UPON GRADE OF SIDEWALK AND DRIVEWAY BEYOND CURB. BACK OF CURB WILL BE 6 1/2" HIGH AT SIDEWALK RAMP.
2. 3/8" THICK MASTIC EXPANSION JOINT TO BE PLACED AT ALL POINTS OF TANGENCY.
3. FOR STATIONARY FORM CONSTRUCTION STANDARD PLATES AND HALF PLATES TO BE PLACED AT 10'-0" INTERVALS.
4. FOR SLIP-FORM CONSTRUCTION, PROVIDE FULL DEPTH JOINTS AT 10'-0" INTERVALS.
5. BACKFILL BEHIND CURB SHALL EXTEND FROM TOP OF CURB BACK TO A POINT AS DIRECTED BY THE THE PUBLIC WORKS DIRECTOR. THE TOP 4" OF BACKFILL SHALL BE OF A FINE GRADED MATERIAL SUITABLE FOR LAWNS, AND BE DAMPENED AND MECHANICALLY COMPACTED TO OBTAIN A REASONABLE LEVEL OF COMPACTION.

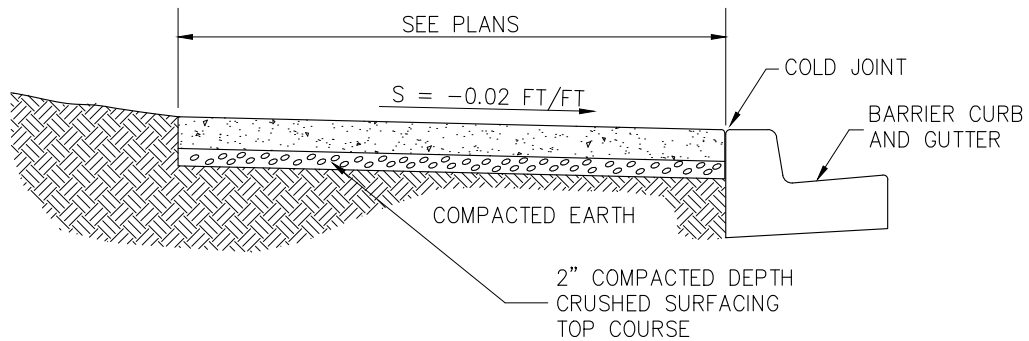
NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

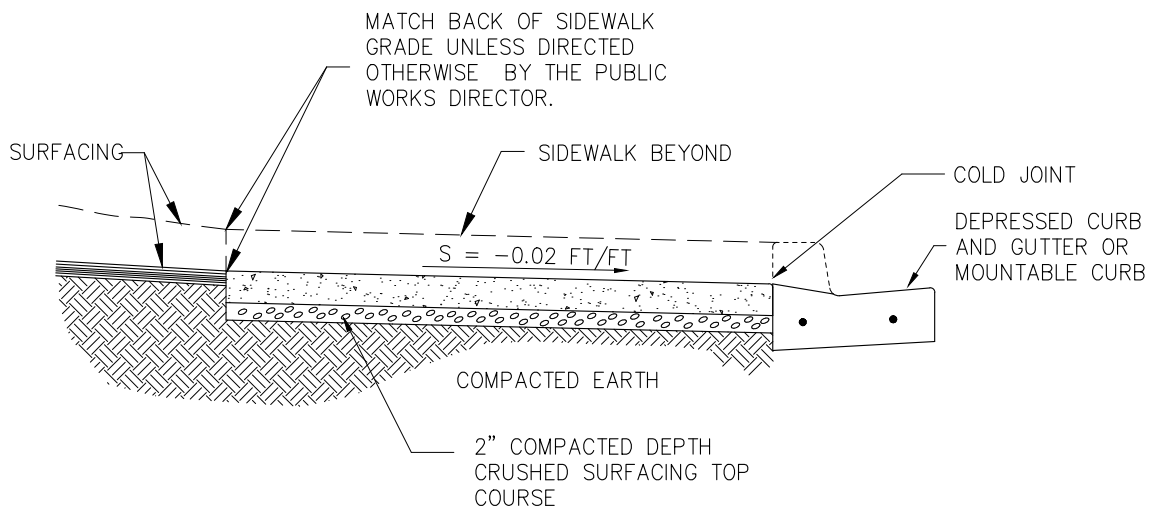


VALLEY GUTTER

ORIG.	11/15		
Revision	Date	Description	Appr



4" THICK SIDEWALK SECTION



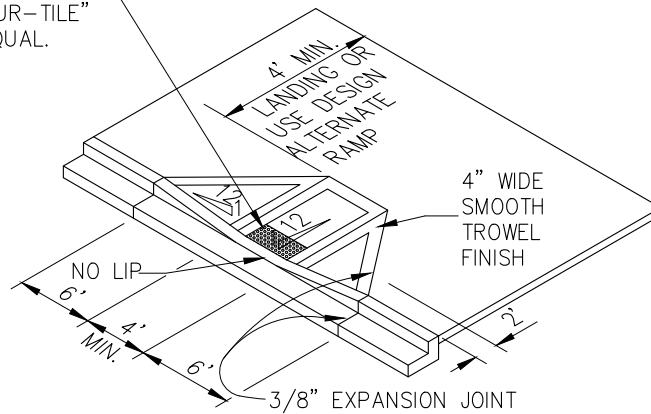
6" THICK SIDEWALK SECTION AT DRIVEWAY ENTRANCES AND MOUNTABLE CURB

NOTES:

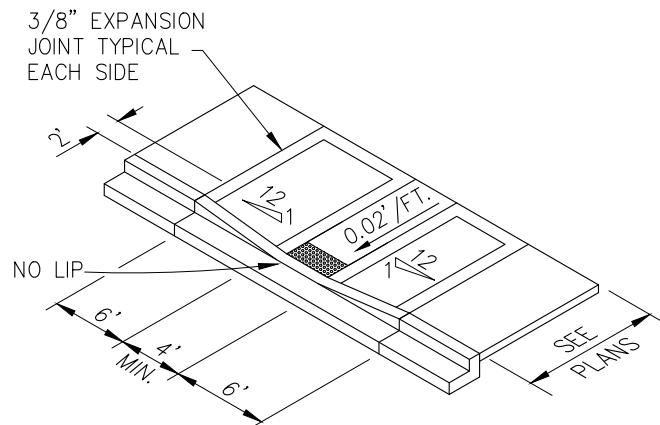
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	10/06		
Revision	Date	Description	Appr

CAST-IN-PLACE 24" DEEP
TRUNCATED DOME
DETECTABLE WARNING
PATTERN, "ARMOUR-TILE"
OR APPROVED EQUAL.



STANDARD



ALTERNATE

SIDEWALK RAMP DETAIL

NOT TO SCALE

NOTES:

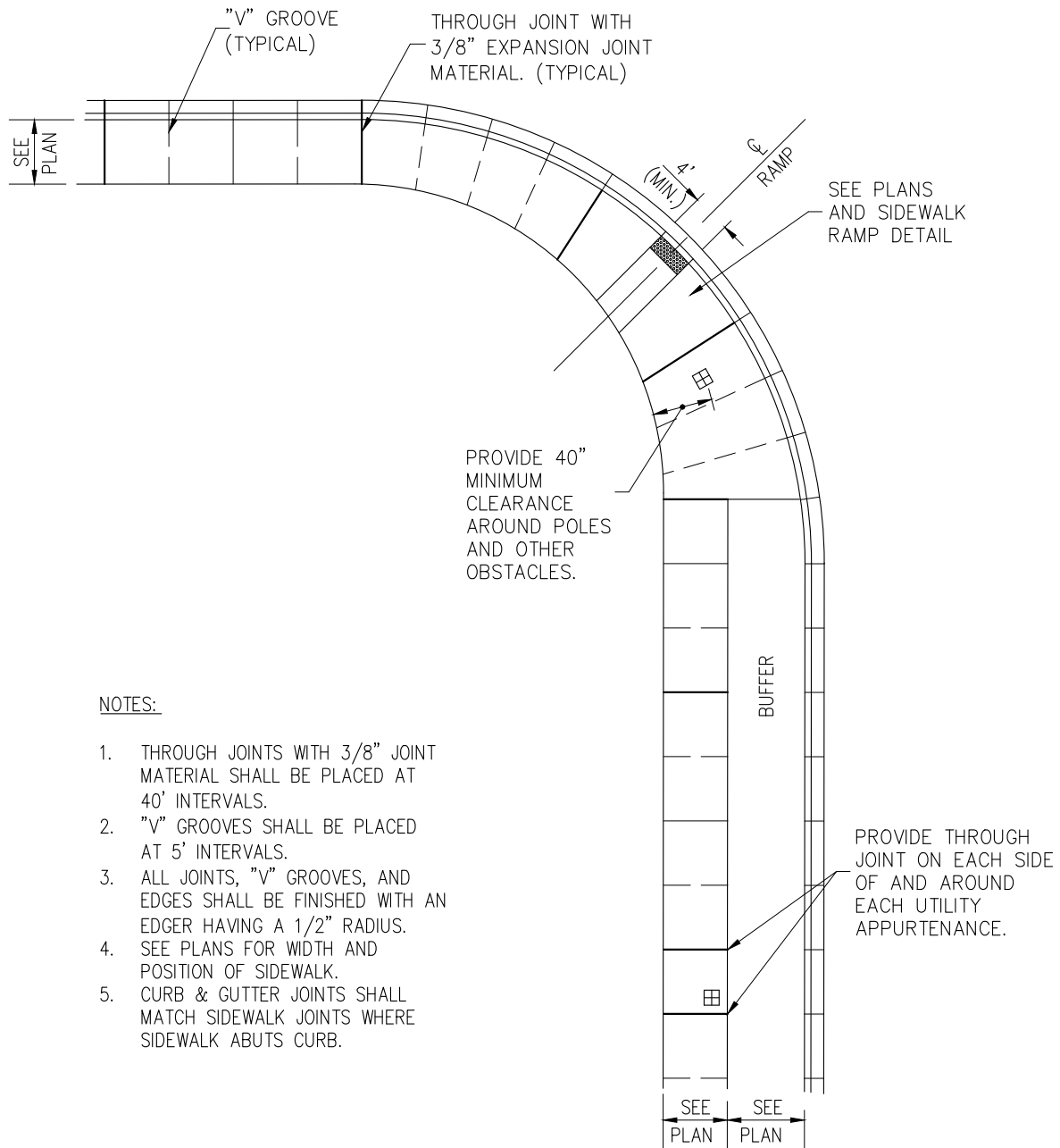
- SIDEWALK RAMP WILL NOT BE POURED INTEGRAL WITH SIDEWALK OR CURB AND GUTTER AND SHALL BE ISOLATED BY EXPANSION JOINT MATERIAL ON ALL SIDES EXCEPT ADJACENT TO THE CURB.
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

REV.	01/12	UPDATED NOTES	
ORIG.	10/06		
Revision	Date	Description	Appr

CITY OF SELAH—STANDARD DETAIL

SIDEWALK RAMP

ST-6



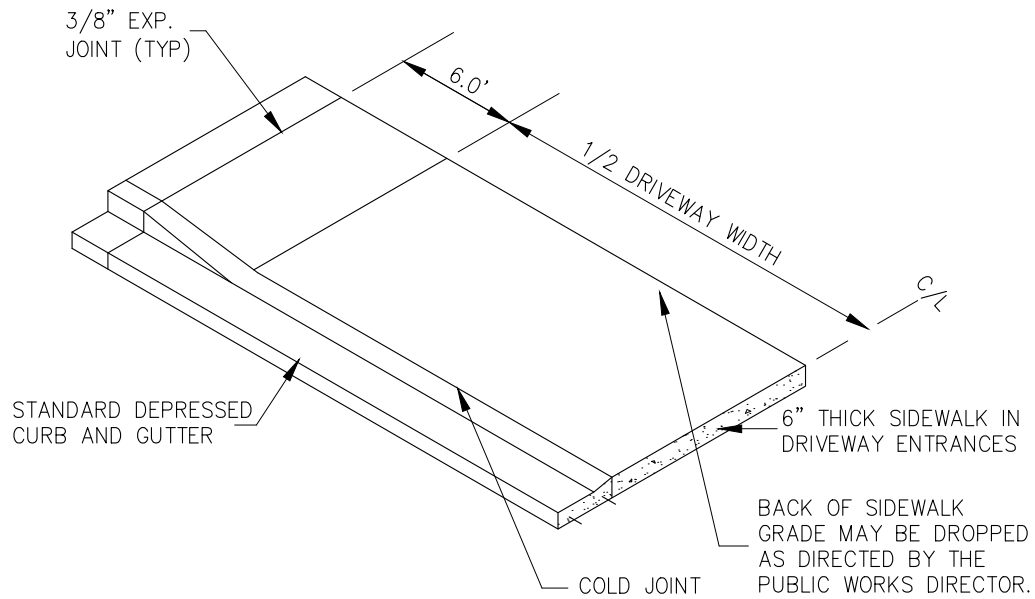
NOTES:

1. THROUGH JOINTS WITH 3/8" JOINT MATERIAL SHALL BE PLACED AT 40' INTERVALS.
2. "V" GROOVES SHALL BE PLACED AT 5' INTERVALS.
3. ALL JOINTS, "V" GROOVES, AND EDGES SHALL BE FINISHED WITH AN EDGER HAVING A 1/2" RADIUS.
4. SEE PLANS FOR WIDTH AND POSITION OF SIDEWALK.
5. CURB & GUTTER JOINTS SHALL MATCH SIDEWALK JOINTS WHERE SIDEWALK ABUTS CURB.

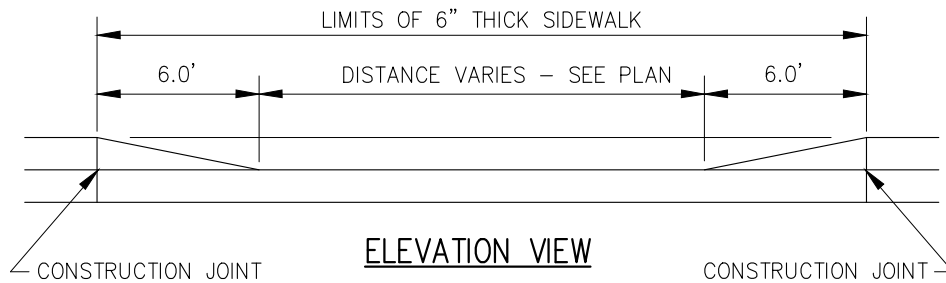
NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	10/06		
Revision	Date	Description	Appr



ISOMETRIC VIEW



ELEVATION VIEW

NOTE:
REINFORCEMENT NOT SHOWN FOR CLARITY.
EXTEND REINFORCEMENT TO CONSTRUCTION JOINTS.

RESIDENTIAL DRIVEWAY ENTRANCE

NOT TO SCALE

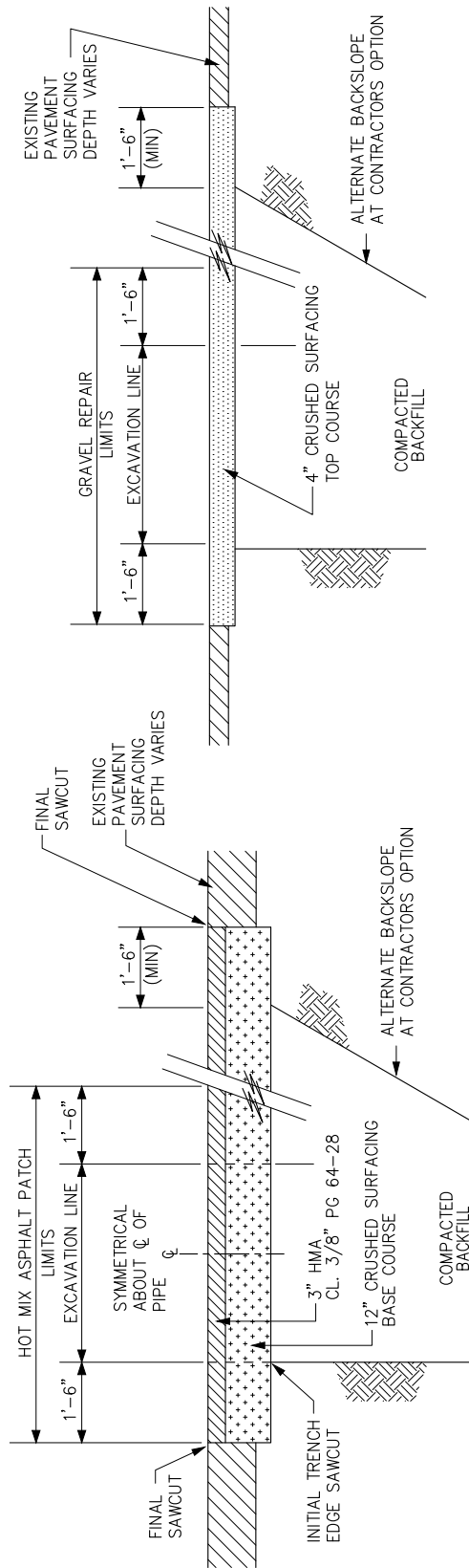
NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

REV.	01/12	LIMITS OF 6" THICKNESS	
ORIG.	10/06		
Revision	Date	Description	Appr

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

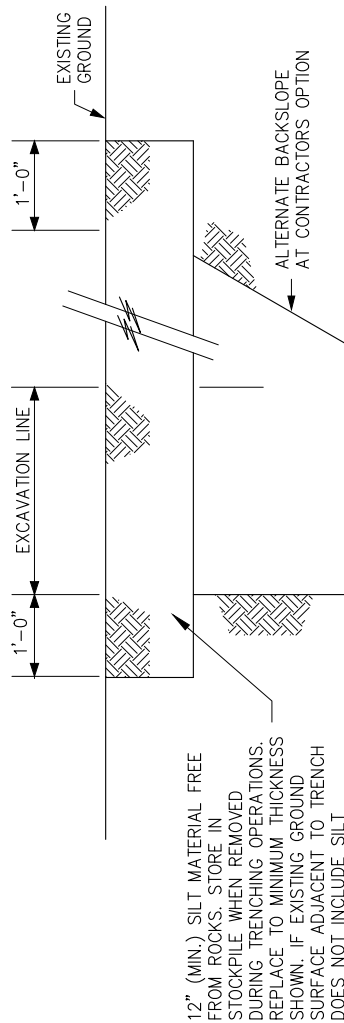


GRAVEL SURFACING

NOTES:

- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRENCH SURFACE RESTORATION BEYOND THE PAYMENT LIMITS SHOWN, INCLUDING WIDER TRENCH SECTIONS RESULTING FROM LAYING BACK TRENCH SIDES AT THE CONTRACTOR'S OPTION. NO MEASUREMENT OR PAYMENT WILL BE MADE FOR SURFACE REPAIR BEYOND THE PAYMENT LIMITS.
- NO MEASUREMENT OR PAYMENT WILL BE MADE FOR TRENCH SURFACING REPAIR IN UNSURFACED AREAS.
- HMA PATCHING WILL BE COMPLETED WITHIN THREE DAYS.
- ALL THICKNESS ARE COMPACTED DEPTH.

ASPHALT PAVEMENT SURFACING



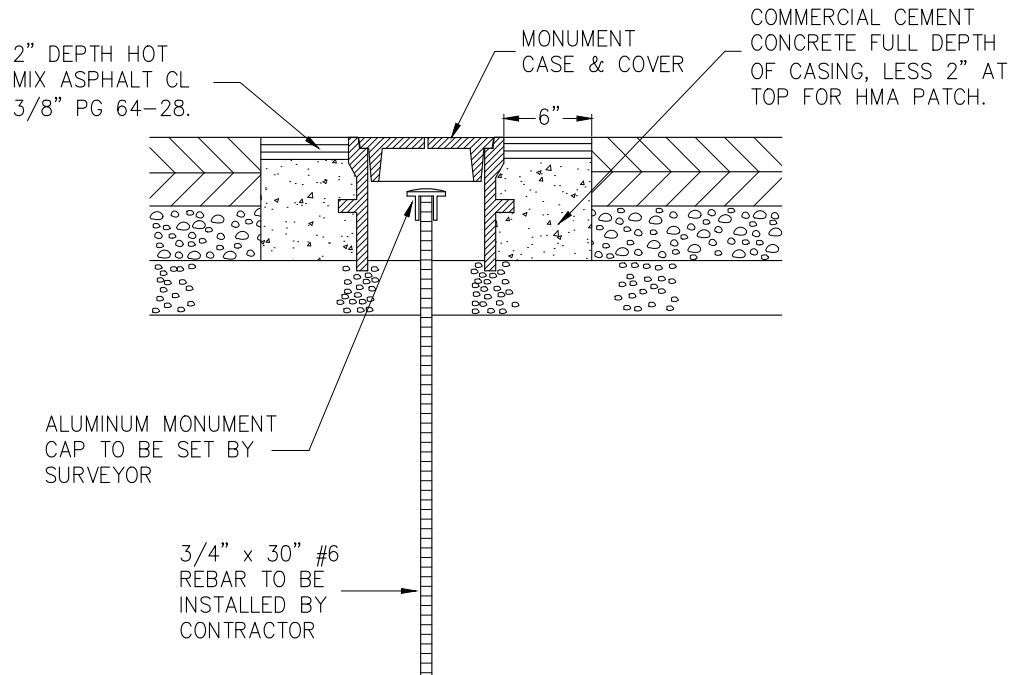
12" (MIN.) SILT MATERIAL FREE FROM ROCKS. STORE IN STOCKPILE WHEN REMOVED DURING TRENCHING OPERATIONS. REPLACE TO MINIMUM THICKNESS SHOWN. IF EXISTING GROUND SURFACE ADJACENT TO TRENCH DOES NOT INCLUDE SILT OVERBURDEN, THEN BACKFILL TO SURFACE WITH NATIVE MATERIAL EXCAVATED FROM TRENCH.

UNSURFACED AREAS

TRENCH SURFACING REPAIR

NOT TO SCALE

ORIG.	10/06		
	6/14	SAWCUT ADJUSTMENT	
Revision	Date	Description	Appr



NOTES:

1. TOP OF MONUMENT CAP SHALL BE 3" BELOW FINISH GRADE
2. MONUMENT, MONUMENT CASE & COVER TO BE PLACED AFTER FINAL LIFT OF HMA.
3. MONUMENT CASE, COVER AND RISERS SHALL BE THE REQUIREMENTS OF SECTION 9-22 AND MANUFACTURED BY OLYMPIC FOUNDARY OR EQUAL.

MONUMENT DETAIL

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	10/06		
Revision	Date	Description	Appr

CITY OF SELAH—STANDARD DETAIL

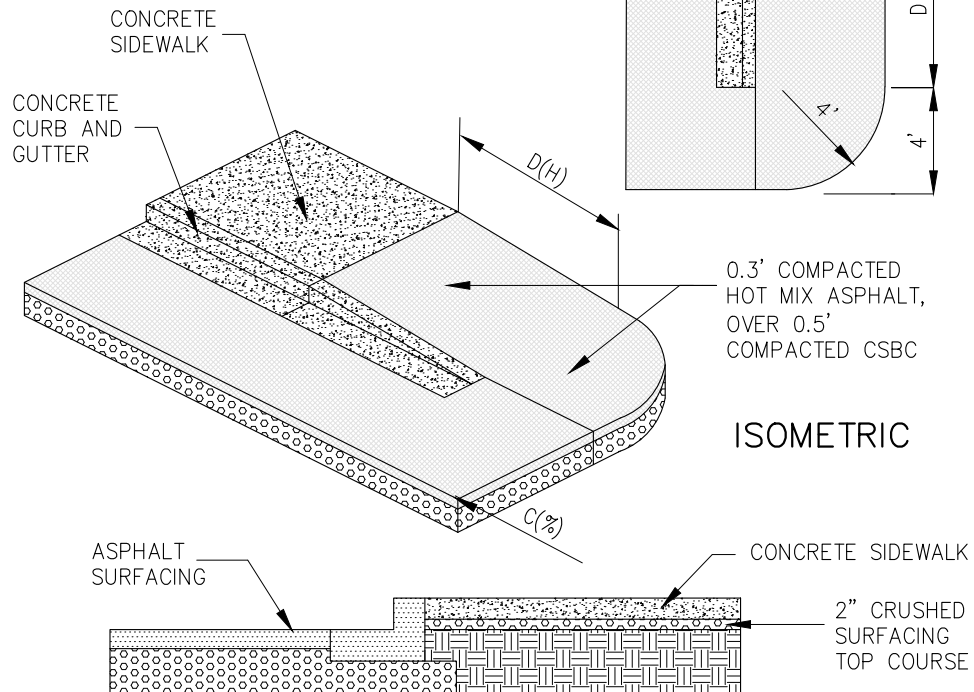
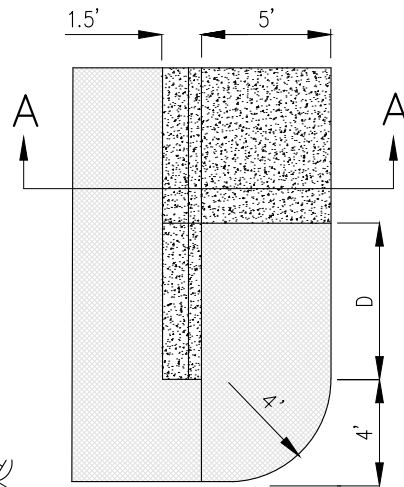
MONUMENT

ST-10

$C = G_L$ SLOPE APPROACHING RAMP

$$D = \frac{50}{(8.33 - C)}$$

PLAN



ISOMETRIC

SECTION A—A

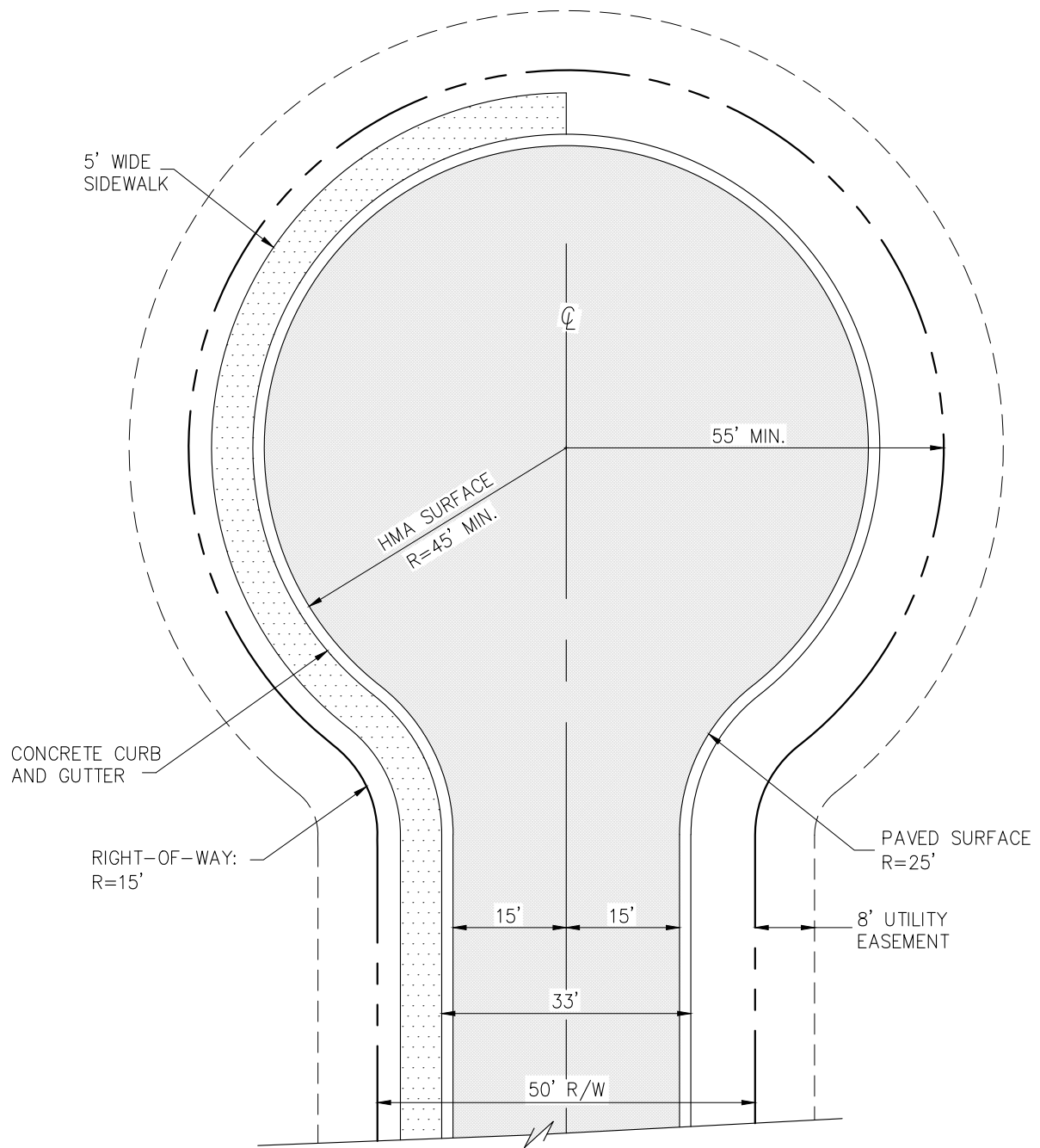
ASPHALT SIDEWALK RAMP

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	09/15	THICKNESS	
ORIG.	10/06		
Revision	Date	Description	Appr

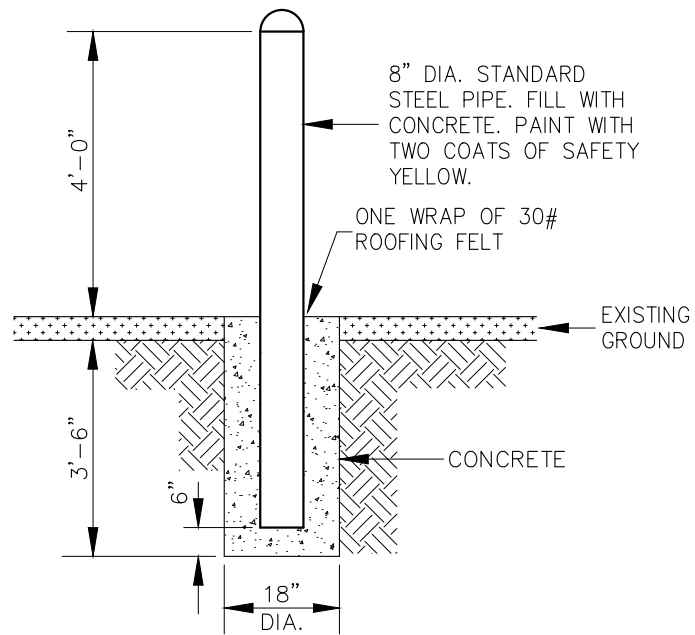


PLAN VIEW
NOT TO SCALE

NOTES:

- CUL-DE-SAC STREETS SHALL BE A MAXIMUM OF 600 FEET IN LENGTH.
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

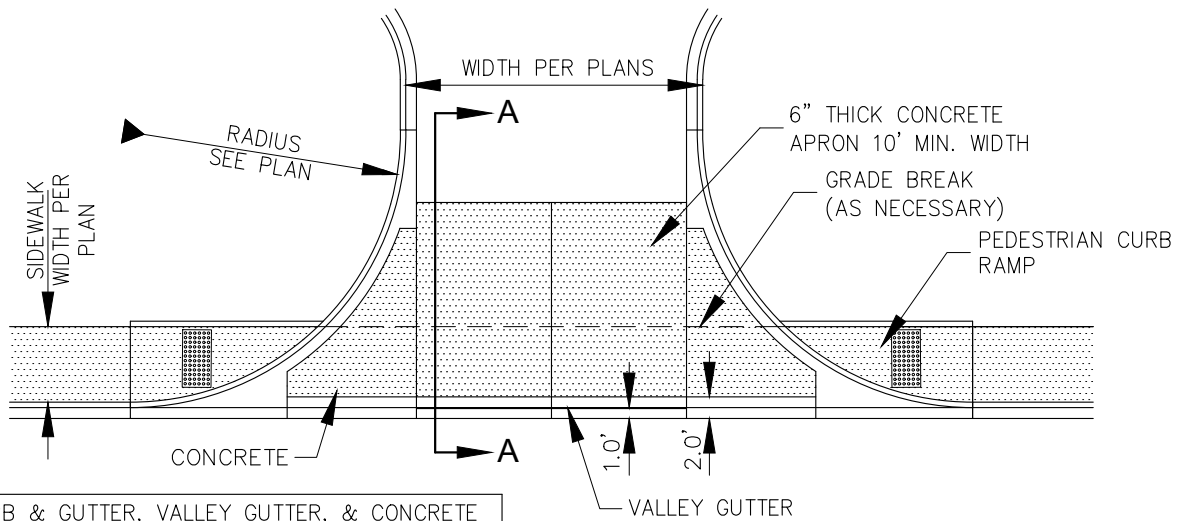
REV.	01/12	CHANGED RADIUS TO 45'	
ORIG.	10/06		
Revision	Date	Description	Appr



NOTES:

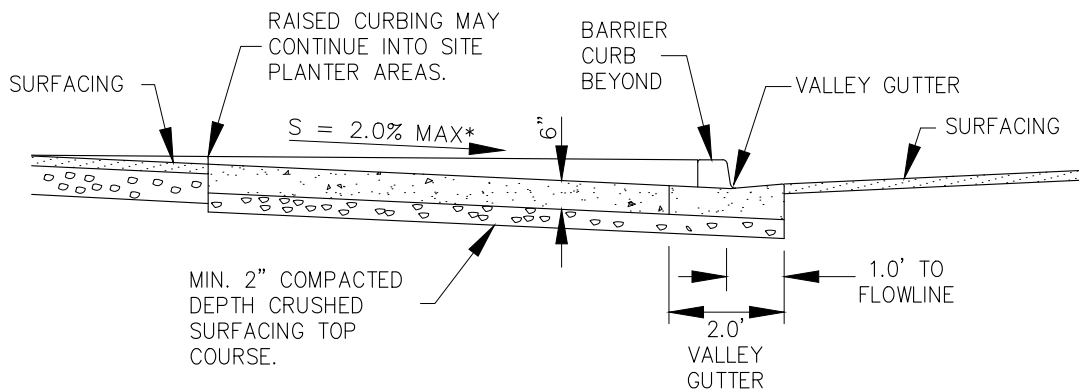
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	10/06		
Revision	Date	Description	Appr



CURB & GUTTER, VALLEY GUTTER, & CONCRETE APPROACH SHALL BE SEPARATED BY EXPANSION JOINT OR SEPARATE POUR.

PLAN



SECTION A-A

*NOTE:
 DRIVEWAY CROSS SLOPE SHALL NOT EXCEED 2.0%, FOR WIDTH OF SIDEWALK ENTERING DRIVEWAY. A GRADE BREAK BEYOND THE SIDEWALK WIDTH IS ACCEPTABLE FOR CROSS SLOPES GREATER THAN 2%.

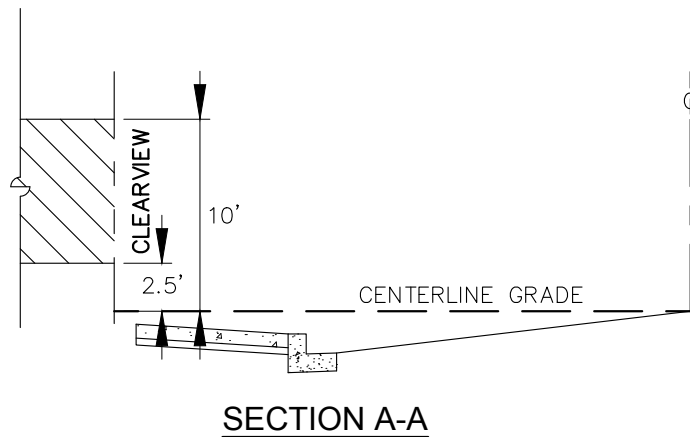
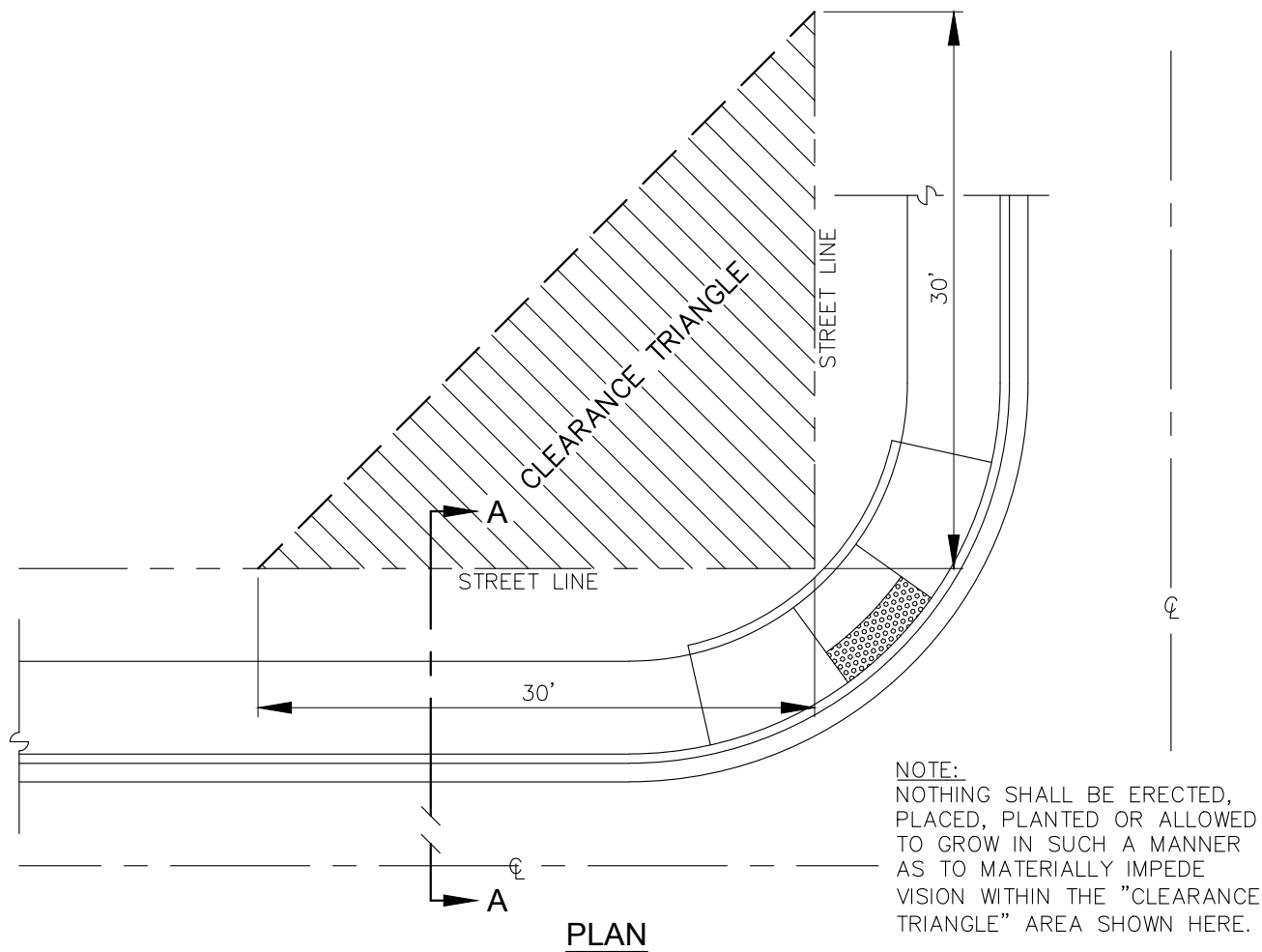
CEMENT CONCRETE COMMERCIAL DRIVEWAY

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	11/15		
Revision	Date	Description	Appr



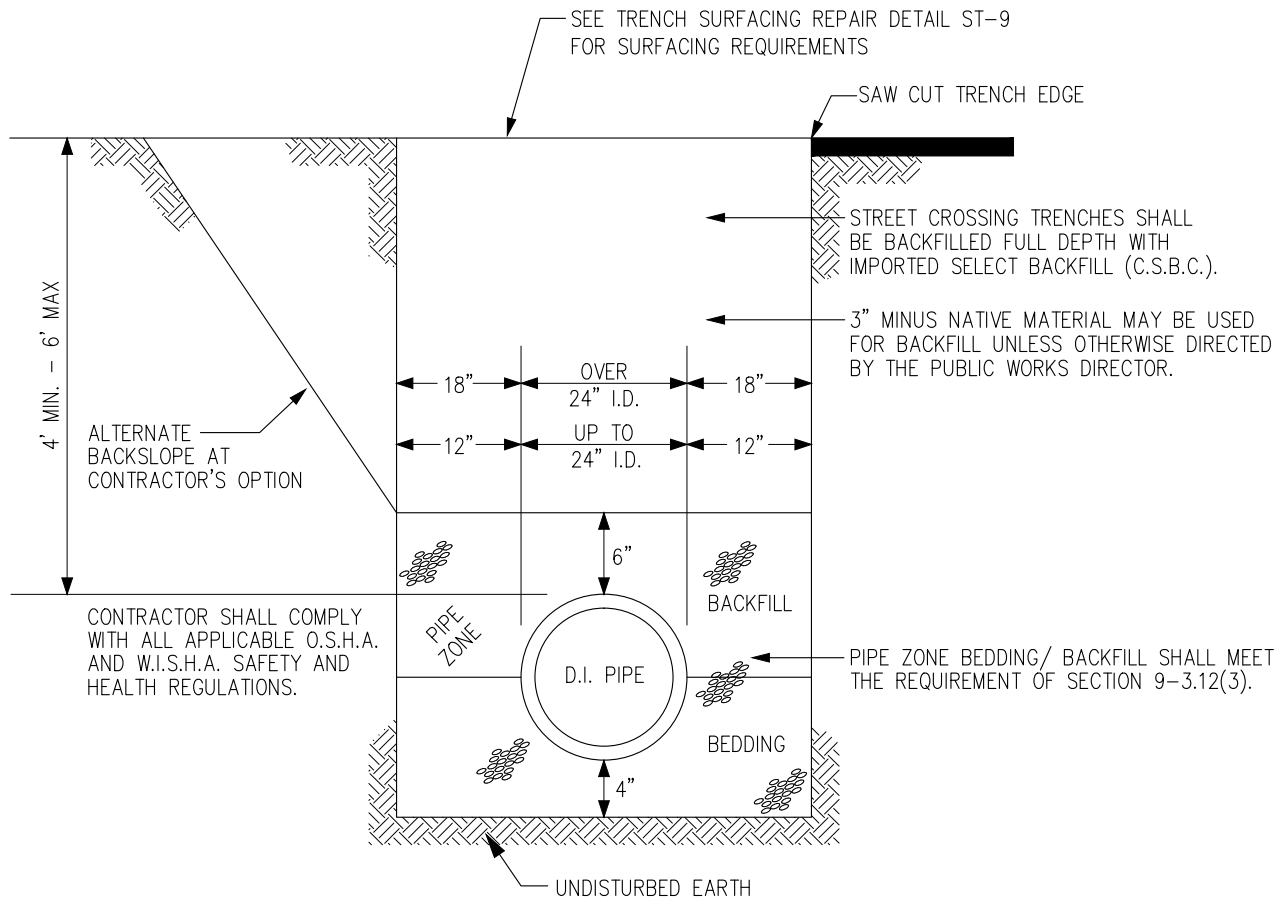
CORNER LOT VISION CLEARANCE

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	09/15		
Revision	Date	Description	Appr



TYPICAL WATERMAIN TRENCH

NOT TO SCALE

NOTES:

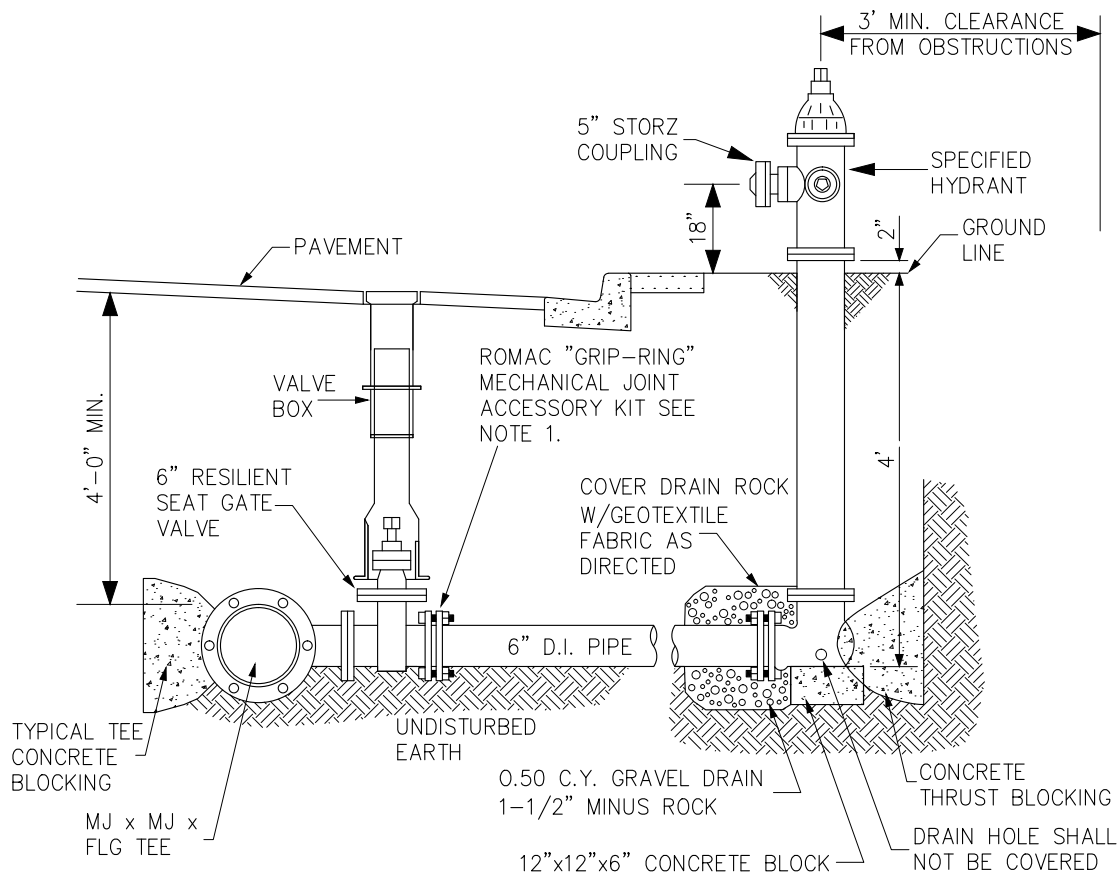
- FOR WATER SERVICES, INSTALL IMPORTED PIPE BEDDING A MINIMUM OF 3" THICK ON ALL SIDES OF PIPE.
- MECHANICAL TAMPING AND COMPACTION REQUIRED AS DIRECTED BY THE CITY. WATER SETTLING MAY ONLY BE USED OUTSIDE THE ROADWAY PRISM WHEN APPROVED BY THE CITY.
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
REV.	6/14	SAWCUT UPDATE	
REV.	01/12	DELETED PVC OPTION	
ORIG.	11/06		

CITY OF SELAH-STANDARD DETAIL

WATERMAIN TRENCH

W-1



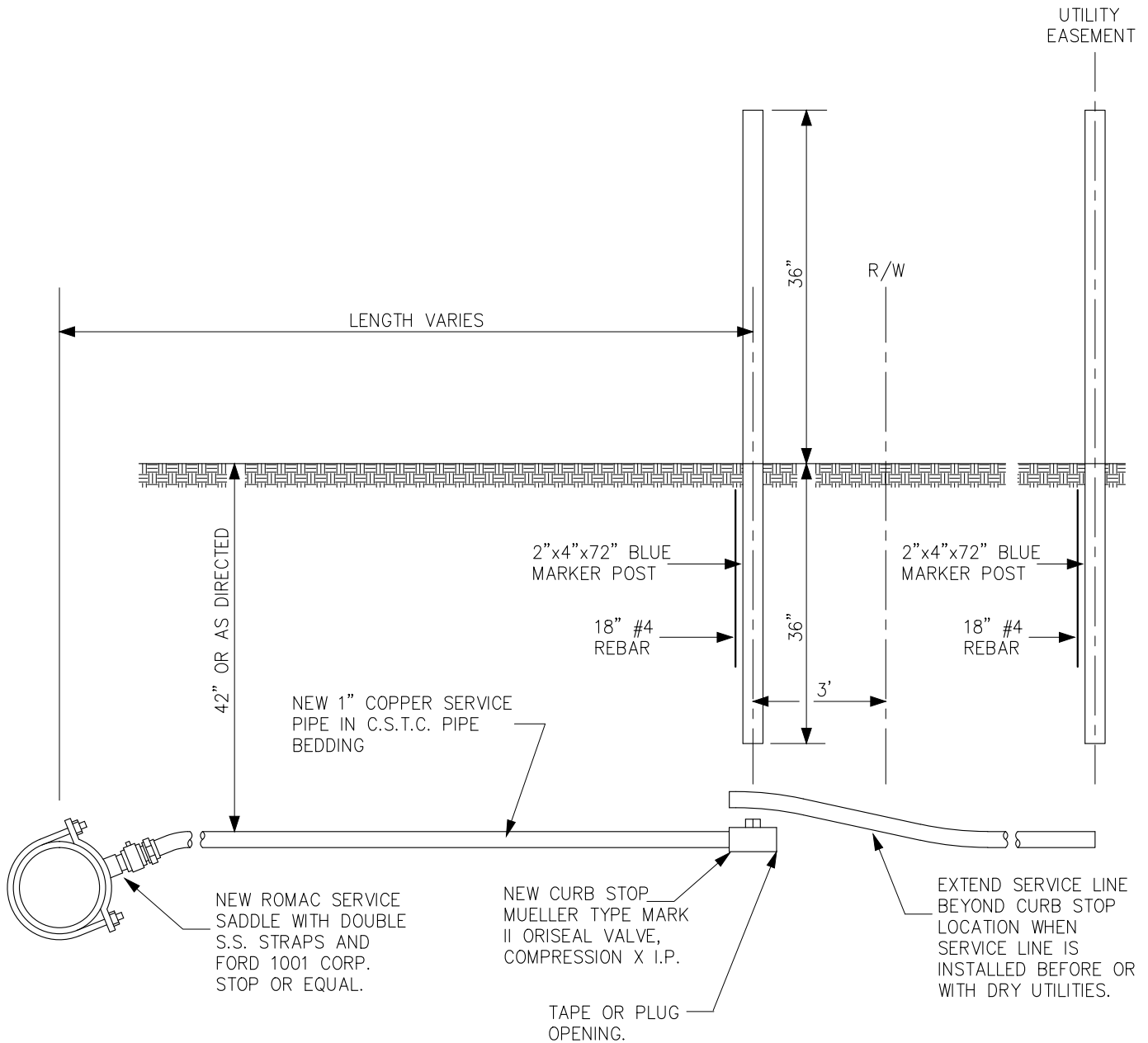
TYPICAL FIRE HYDRANT ASSEMBLY

NOT TO SCALE

NOTE:

1. ROMAC "GRIP-RING" MECHANICAL JOINT ACCESSORY KITS SHALL BE USED ON ALL MECHANICAL JOINT CONNECTIONS FROM VALVE TO HYDRANT.
 2. MINIMUM HYDRANT DEPTH IS 4 FEET.
 3. SHACKLE RODS MAY BE USED IN PLACE OF "GRIP-RINGS" OR A THRUST BLOCK WHEN APPROVED BY THE PUBLIC WORKS DIRECTOR.
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

REV.	01/12	ADDED SHACKLE ROD NOTE	
ORIG.	10/06		
Revision	Date	Description	Appr



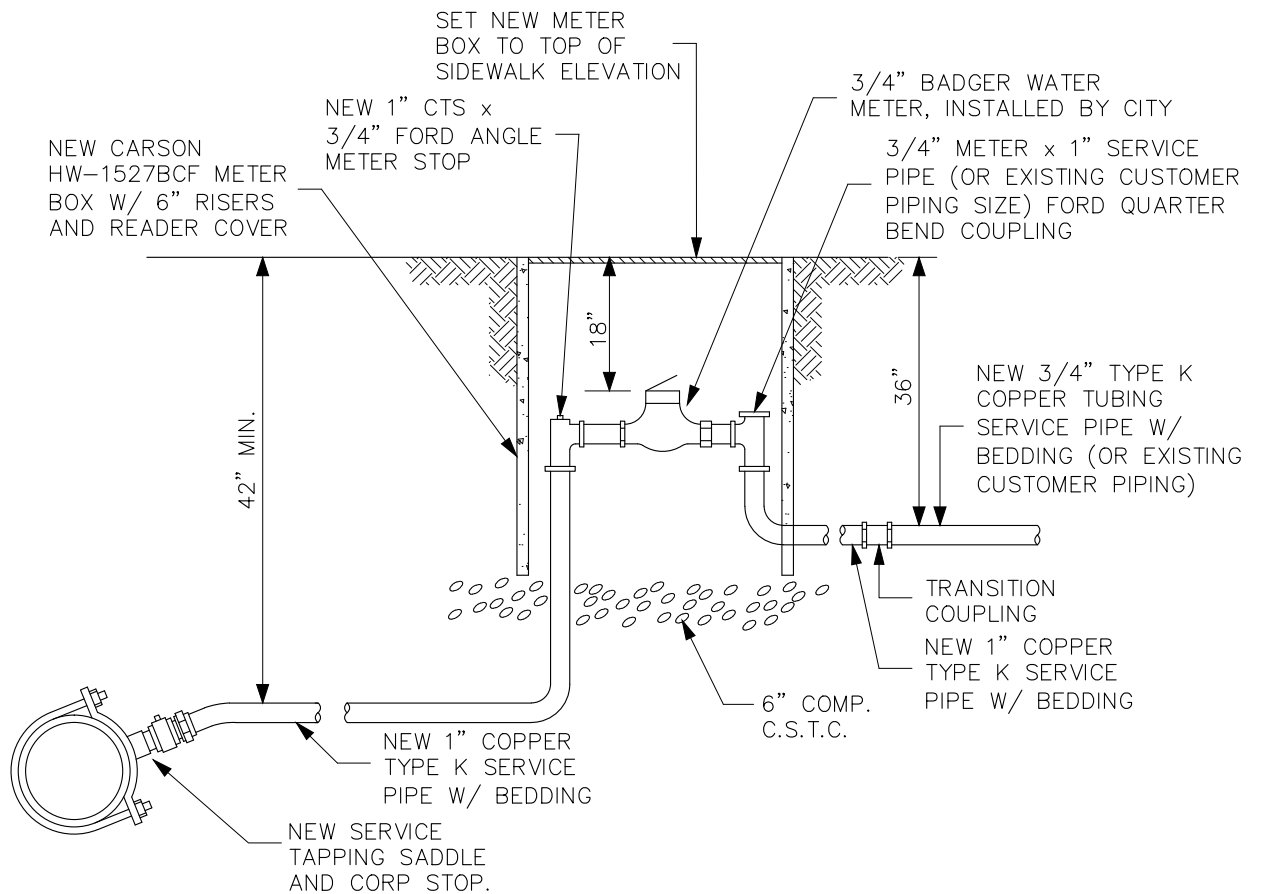
WATER SERVICE

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.
- WATER SERVICE SHALL BE INSTALLED W/ A MINIMUM OF 3" THICKNESS C.S.T.C. PIPE BEDDING ON ALL SIDES

REV.	01/12	ADDED SERVICE LINE OPTION	
ORIG.	10/06		
Revision	Date	Description	Appr



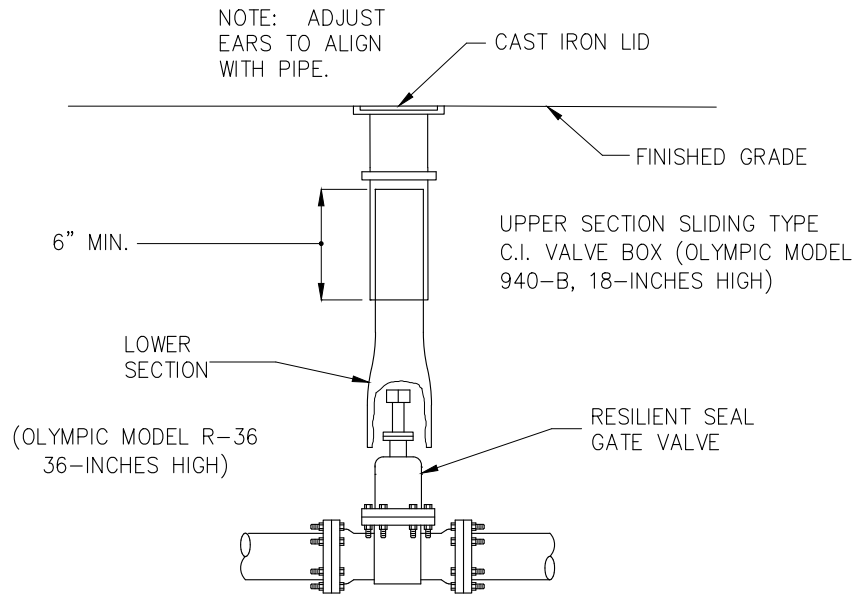
WATER METER BOX AND SERVICE REPLACEMENT

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

REV.	11/15	FITTINGS	
ORIG.	10/06		
Revision	Date	Description	Appr



VALVE SIZE AND ENDS AS SPECIFIED OR INDICATED ON PLANS. INSTALLATION IS SIMILAR FOR BUTTERFLY VALVE.

NOTE: PROVIDE EXTENSION PIECE WHERE REQUIRED FOR VALVE BOX. (OLYMPIC MODEL 044, 12-INCHES HIGH)

WATER VALVE BOX

NOT TO SCALE

NOTES:

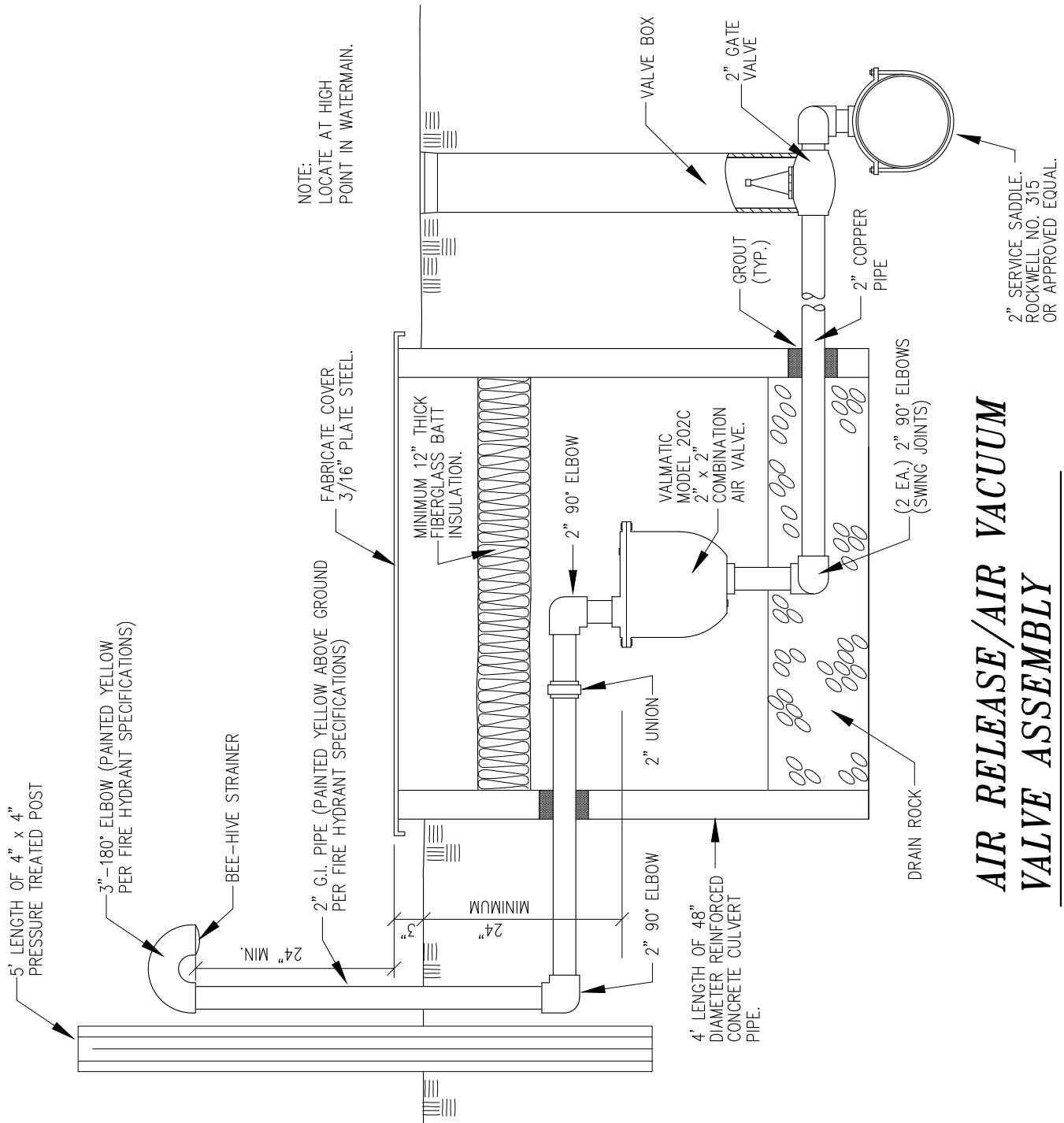
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	10/06		
Revision	Date	Description	Appr

CITY OF SELAH-STANDARD DETAIL

WATER VALVE BOX

W-5



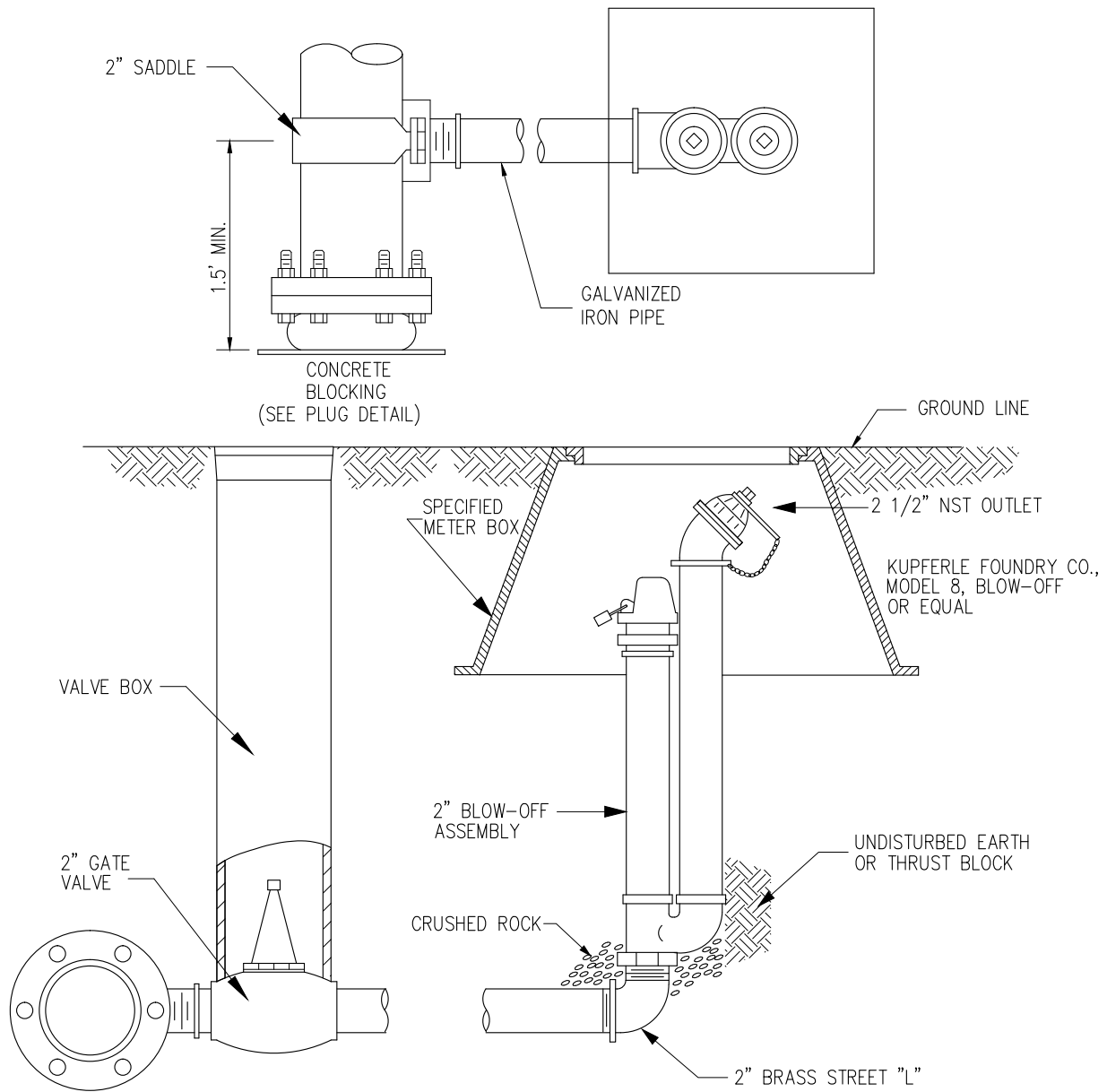
AIR RELEASE/AIR VACUUM VALVE ASSEMBLY

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

REV.	01/12	SIDE OUTLET, WOOD POST	
ORIG.	10/06		
Revision	Date	Description	Appr



BLOW-OFF ASSEMBLY

NOT TO SCALE

NOTES:

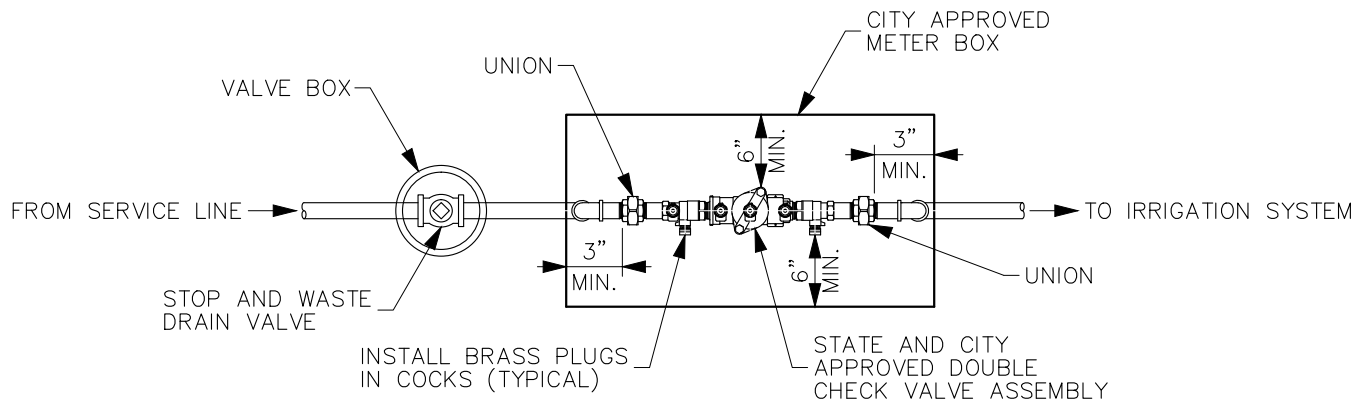
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	10/06		
Revision	Date	Description	Appr

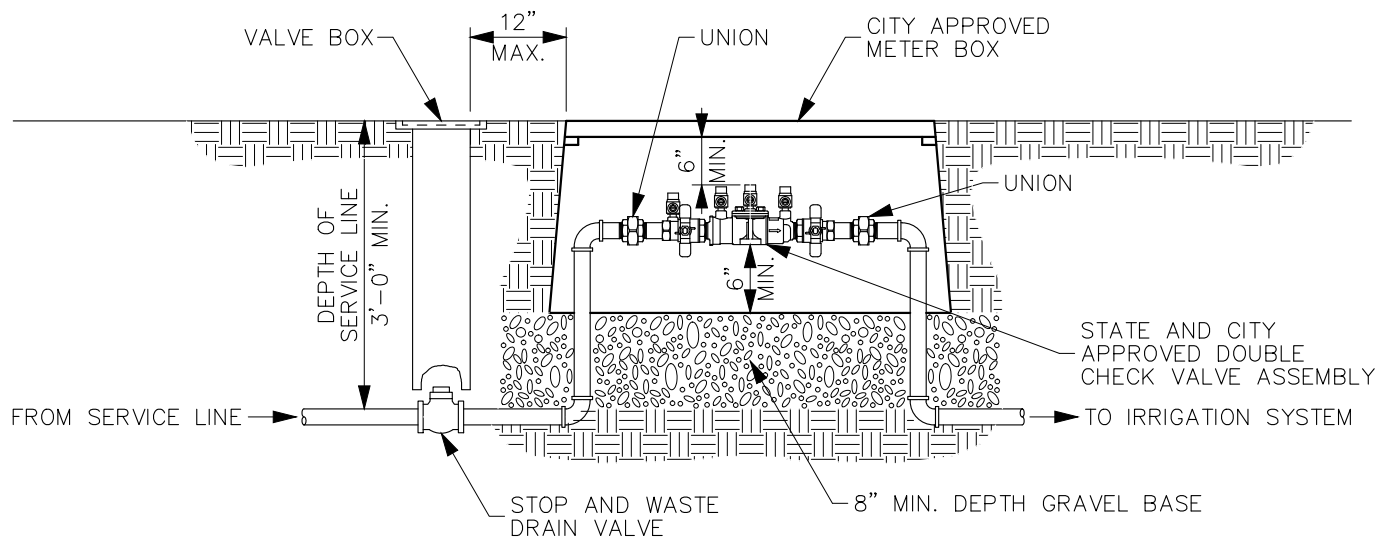
CITY OF SELAH—STANDARD DETAIL

BLOW-OFF ASSEMBLY

W-7



PLAN



ELEVATION

NOTES:

1. DOUBLE CHECK VALVE ASSEMBLY SHALL MEET REQUIREMENTS OF THE AWWA "ACCEPTED PROCEDURE AND PRACTICE IN CROSS-CONNECTION CONTROL" MANUAL.
2. DEVICES MUST BE ON STATE DEPT. OF SOCIAL AND HEALTH SERVICES LIST OF "APPROVED CROSS CONNECTION CONTROL DEVICES".
3. METER BOX SIZE SHOULD BE SIZED TO PROVIDE THE MINIMUM CLEARANCES SHOWN IN THE DETAIL.

TYPICAL IRRIGATION BACKFLOW PREVENTER (3/4" - 2")

NOT TO SCALE

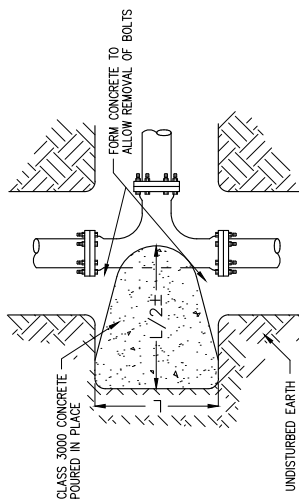
NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE CITY DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

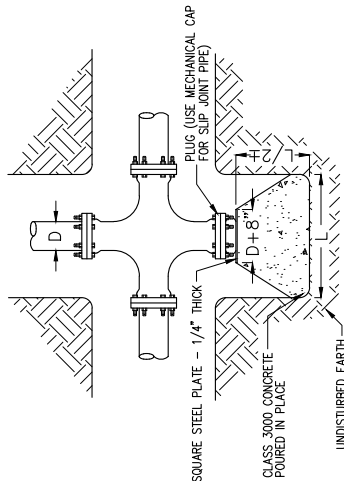
ORIG.	12/07		
Revision	Date	Description	Appr

NOTES:

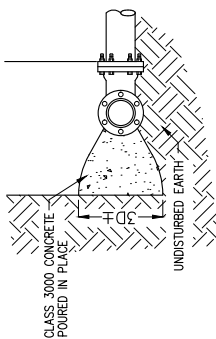
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.



TEES



PLUGS AND CAPS



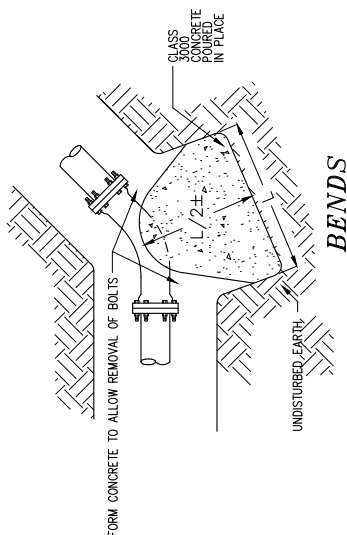
SIDE VIEW

THIS VIEW TYPICAL OF ALL BLOCKING

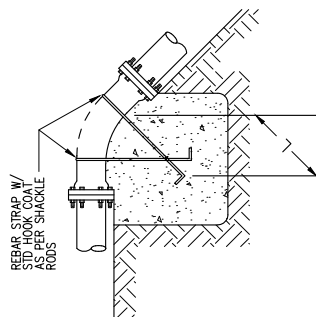
NOTES:

- D IS APPROXIMATE PIPE DIAMETER. THE ABOVE END AREAS ARE BASED ON AN ALLOWABLE SOIL BEARING PRESSURE OF 1500 PSF AND 250 PSI TEST PRESSURE.
- DIMENSIONS LISTED DENOTE MINIMUM STANDARDS FOR SOIL AND TEST PRESSURES SHOWN. SHOULD TEST PRESSURE AND/OR SOIL CONDITIONS VARY, THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR SPECIAL THRUST BLOCK DESIGN.
- ALL FITTINGS AND/OR PIPE MAKING DIRECT CONTACT WITH CONCRETE SHALL BE WRAPPED WITH 4 MIL POLYETHYLENE SHEETING PRIOR TO PLACEMENT OF CONCRETE.

MINIMUM END AREAS				
PIPE SIZE (D)	TEES & PLUGS	90° BENDS	45° BENDS	11 1/4° AND 22 1/2° BENDS
6"	5.1 SQ FT	7.2 SQ FT	3.9 SQ FT	2.0 SQ FT
8"	8.8 SQ FT	12.4 SQ FT	6.7 SQ FT	3.4 SQ FT
10"	14.3 SQ FT	20.2 SQ FT	11.0 SQ FT	5.6 SQ FT
12"	20.4 SQ FT	28.9 SQ FT	15.7 SQ FT	7.9 SQ FT
14"	27.7 SQ FT	39.2 SQ FT	21.2 SQ FT	10.7 SQ FT
16"	35.8 SQ FT	51.2 SQ FT	27.5 SQ FT	13.9 SQ FT



BENDS



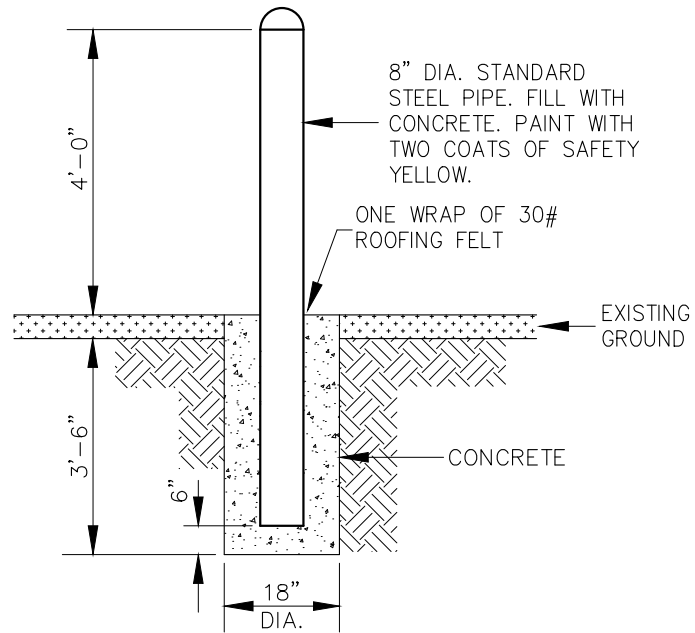
VERTICAL OVERBEND

VERTICAL OVERBEND				
PIPE SIZE (D)	22 1/2° BEND	45° BEND	REBAR SIZE	L
6"	20 CU FT	39 CU FT	#5	2.0 FT
8"	34 CU FT	67 CU FT	#5	2.0 FT
10"	56 CU FT	110 CU FT	#5	2.0 FT
12"	79 CU FT	157 CU FT	#6	2.5 FT
14"	107 CU FT	212 CU FT	#7	3.0 FT
16"	139 CU FT	275 CU FT	#9	4.0 FT

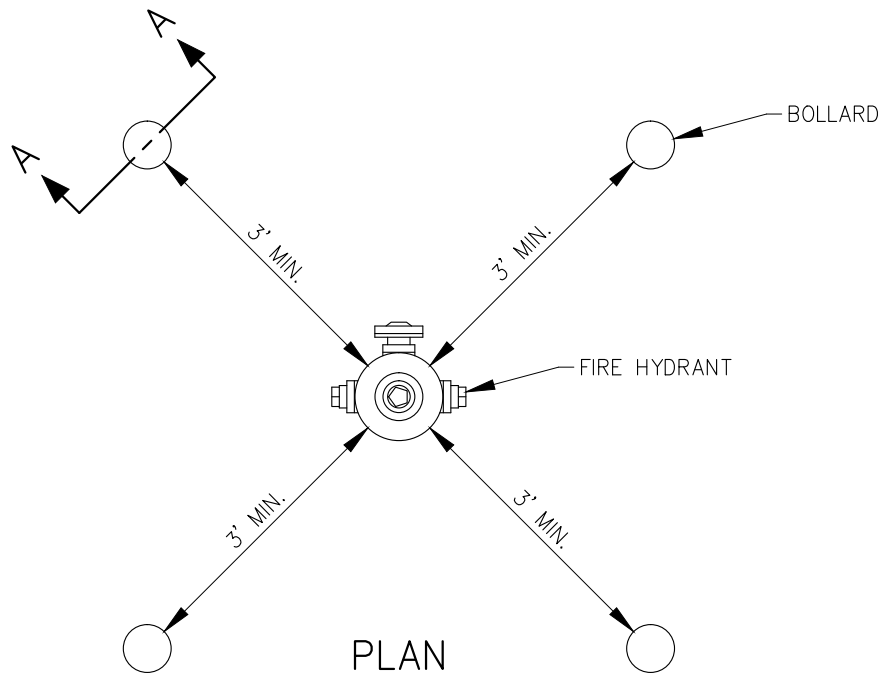
TYPICAL THRUST BLOCKING

NOT TO SCALE

ORIG.	10/06		
Revision	Date	Description	Appr



SECTION A-A



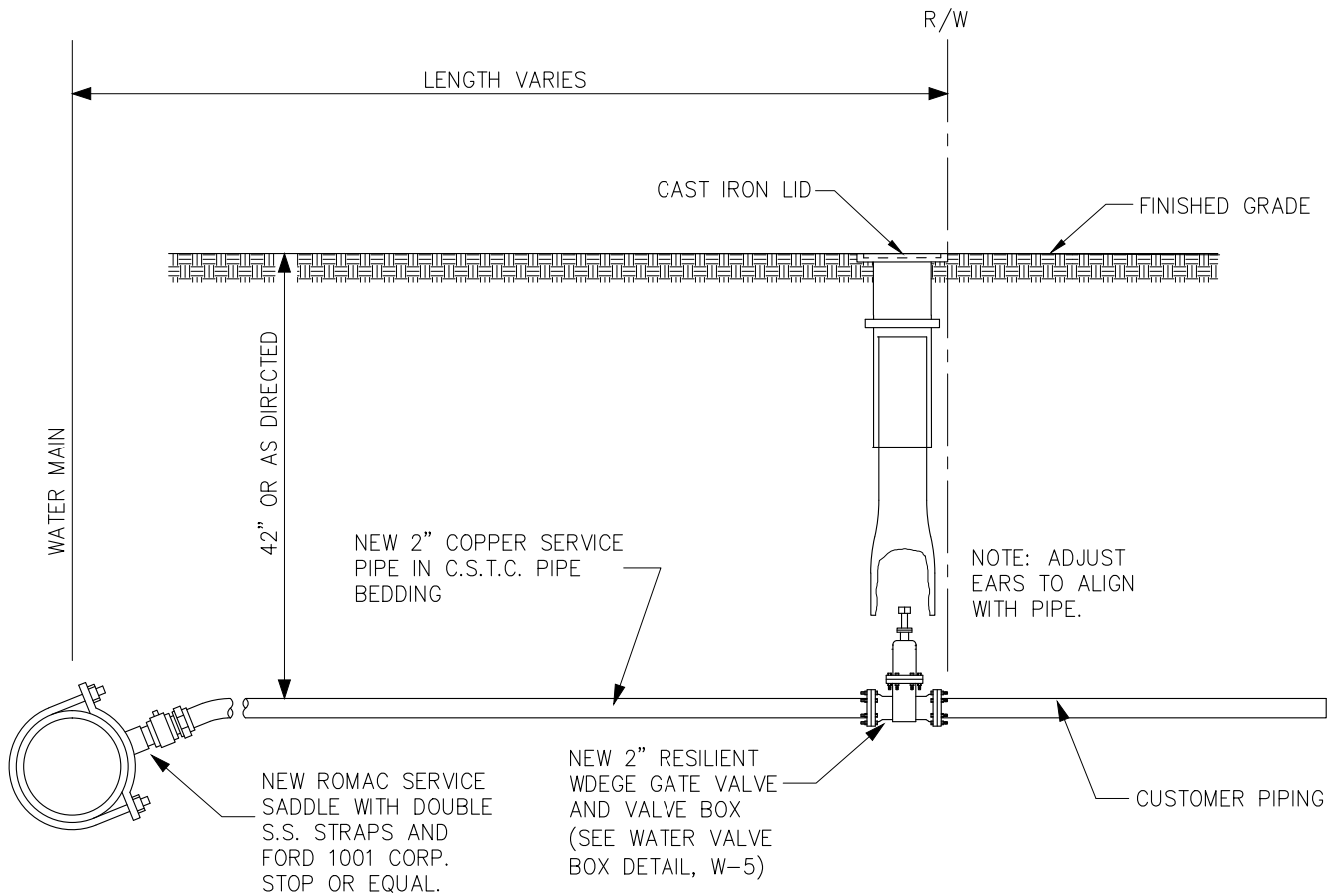
FIRE HYDRANT GUARD POSTS

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

REV.	1/12	UPDATED BOLLARD DETAIL	
ORIG.	10/06		
Revision	Date	Description	Appr



FIRE SERVICE

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.
- FIRE SERVICE SHALL BE INSTALLED W/ A MINIMUM OF 3" THICKNESS C.S.T.C. PIPE BEDDING ON ALL SIDES

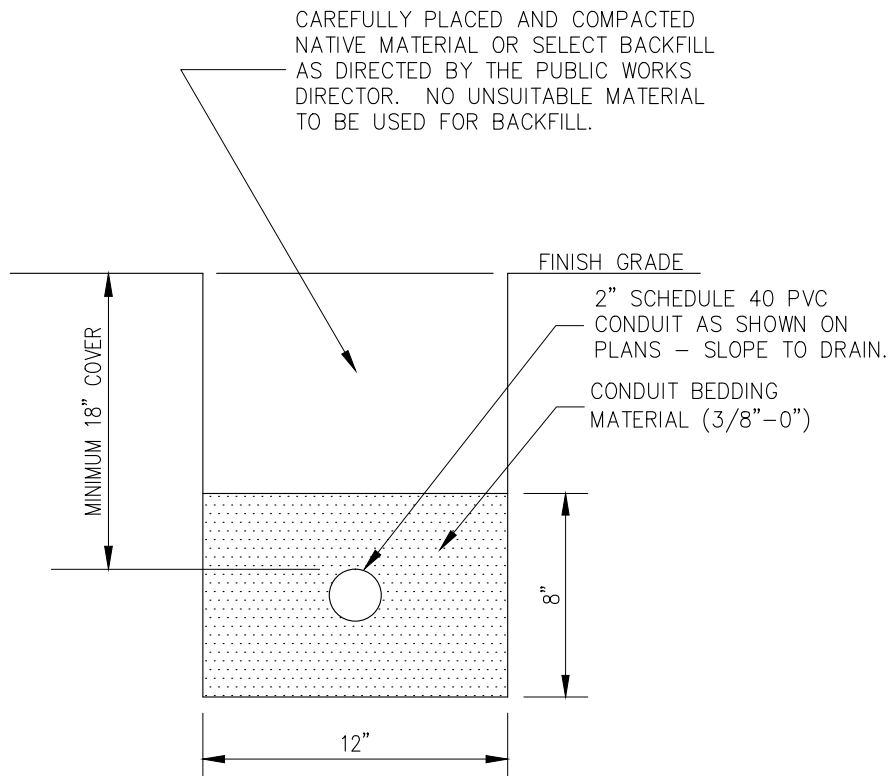
REV.			
ORIG.	09/14		
Revision	Date	Description	Appr

CITY OF SELAH—STANDARD DETAIL

FIRE SERVICE

W-11

**CITY OF SELAH
STANDARD DETAILS
FOR SEWER**



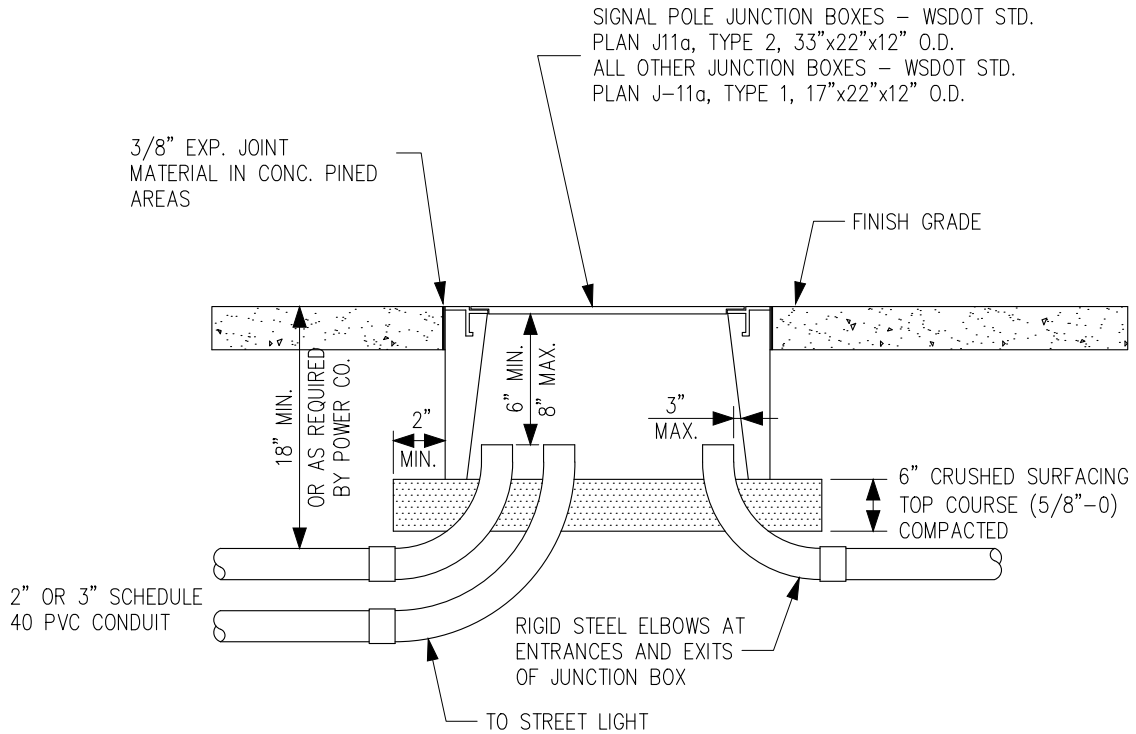
CONDUIT TRENCH SECTION

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	10/06		
Revision	Date	Description	Appr



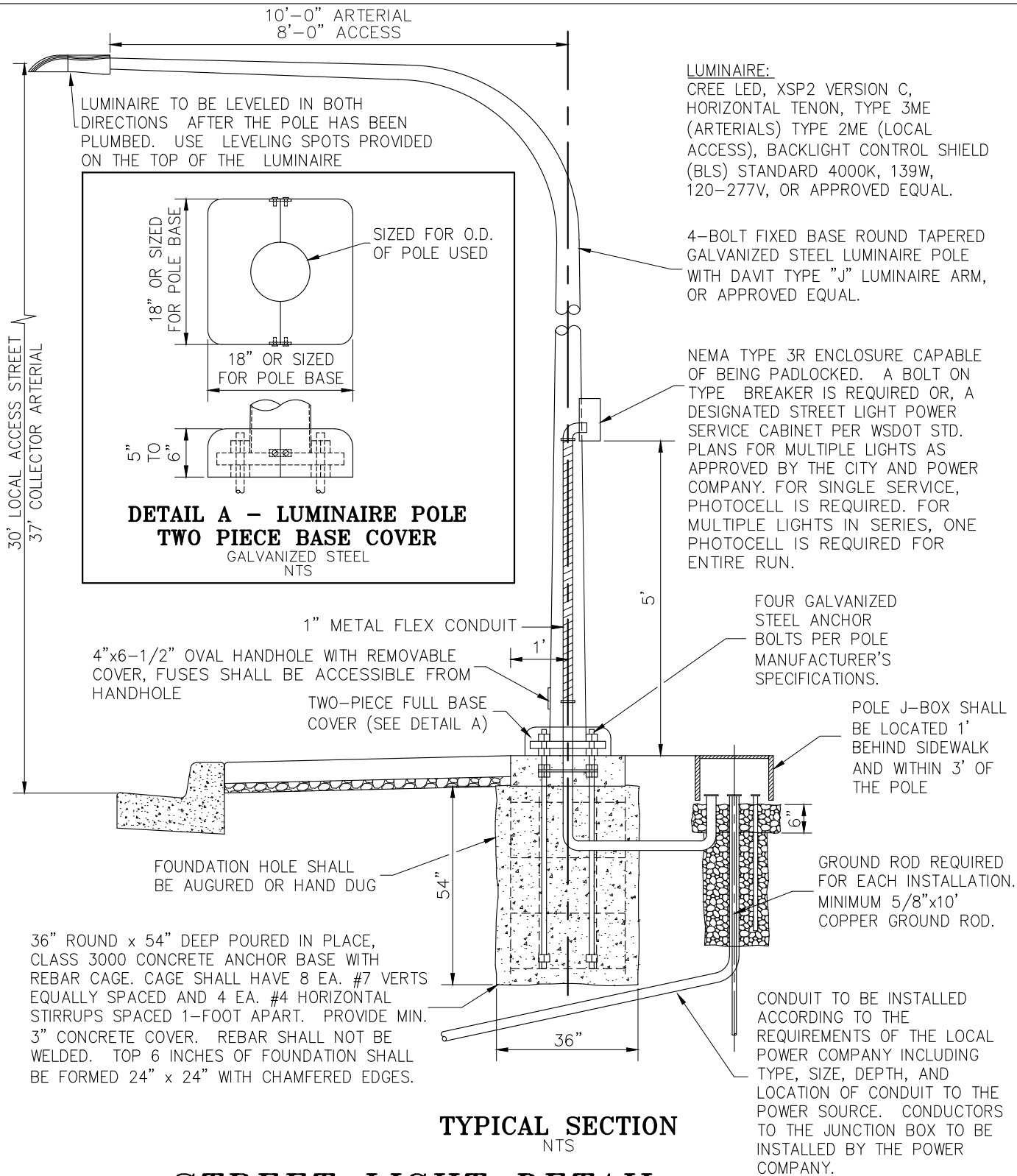
CONDUIT ENTRANCE AT JUNCTION BOX

NOT TO SCALE

NOTES:

- GROUND ROD FOR PVC CONDUIT OR NO. 8 AWG BONDING JUMPER FOR METAL CONDUIT (RIGID) REQUIRED AT EACH JUNCTION BOX. SEE PLANS FOR CONDUIT TYPE.
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

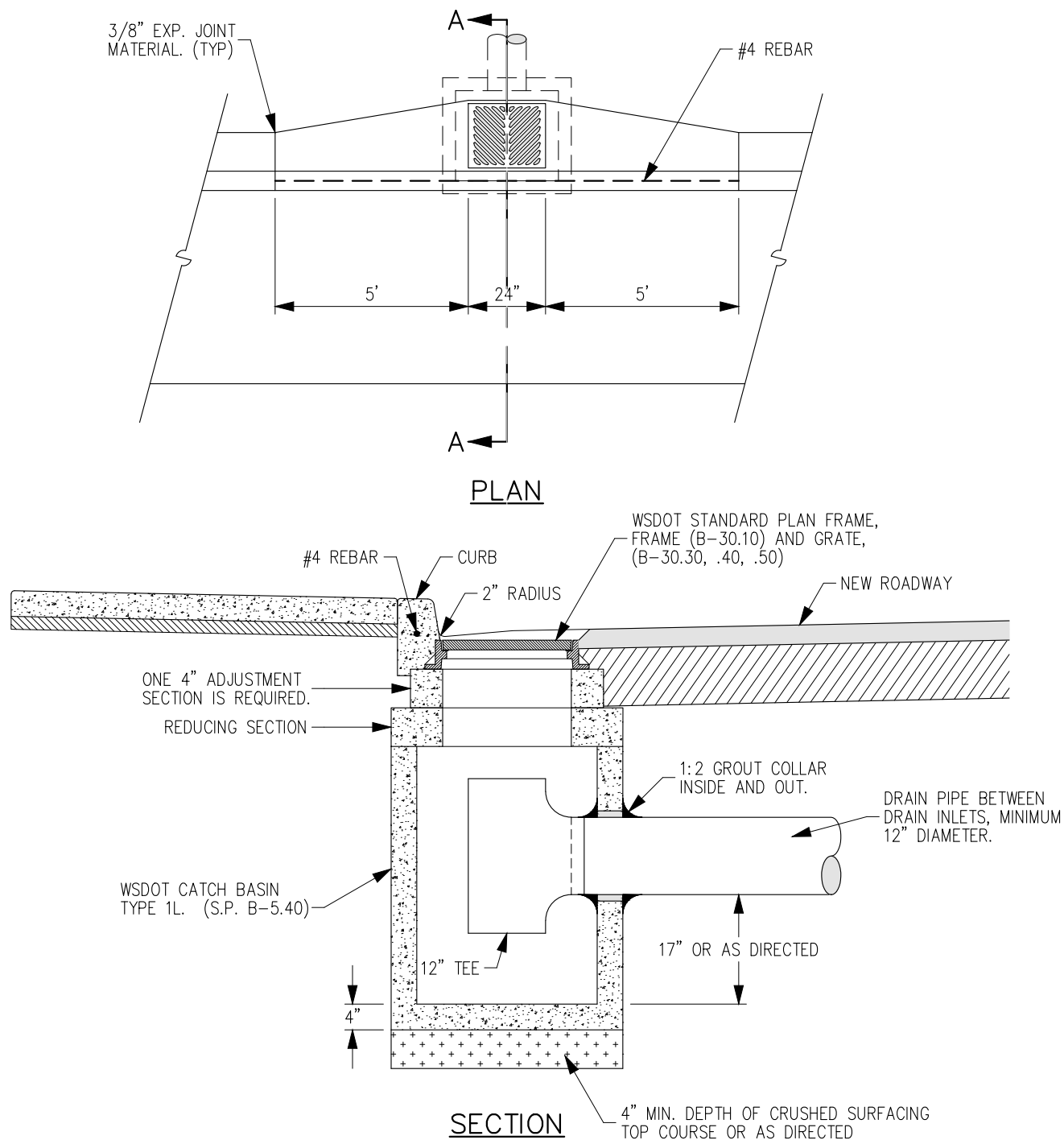
ORIG.	10/06		
Revision	Date	Description	Appr



NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

	09/15	LED LUMINAIRE	
ORIG.	10/06		
Revision	Date	Description	Appr



CATCH BASIN DETAIL

NOT TO SCALE

NOTES:

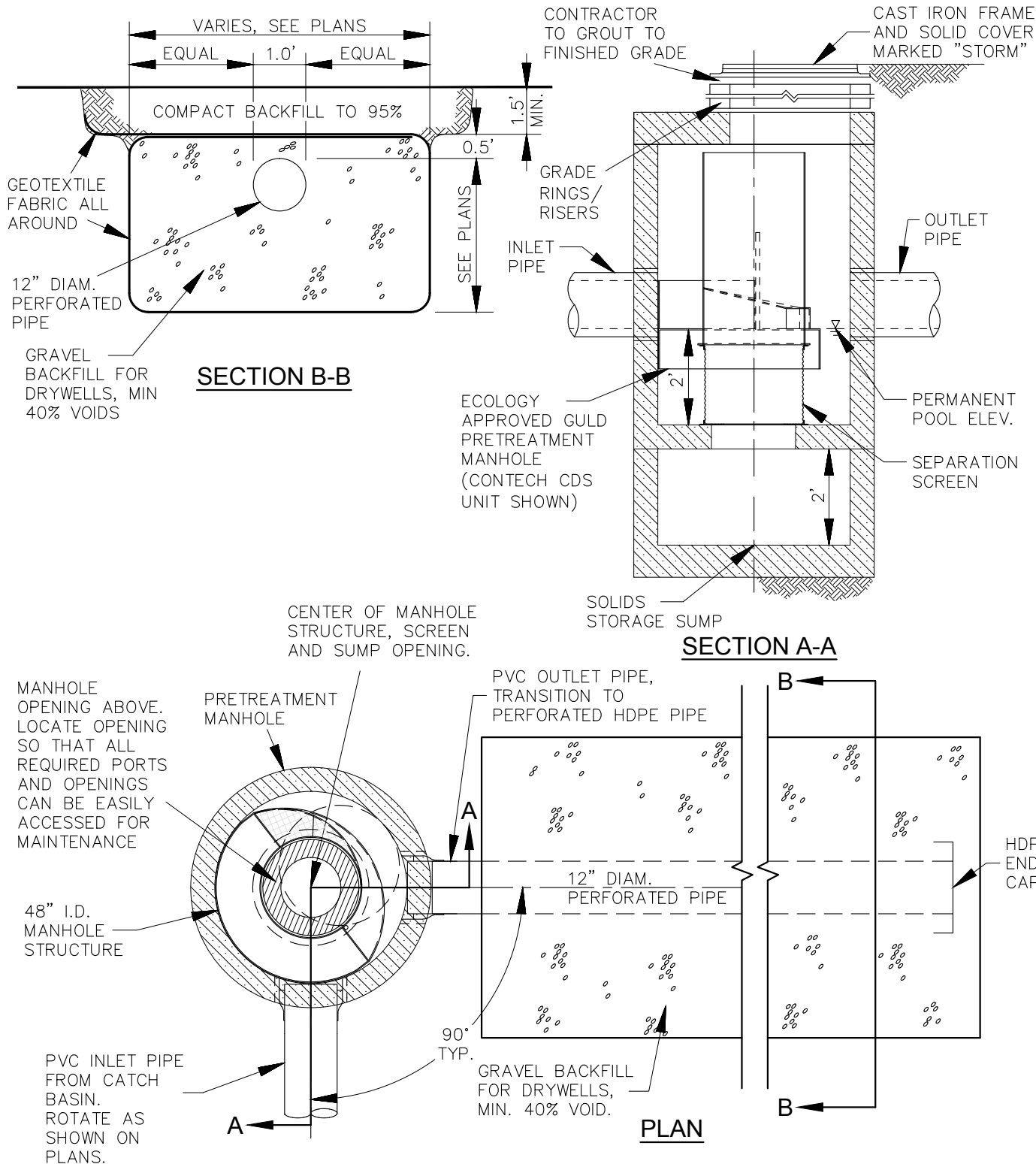
- USE VANED GRATES WHEN STREET GRADE EXCEEDS 4%.
- FRAMES AND GRATES SHALL BE MANUFACTURED IN THE UNITED STATES.
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

REV 1	01/12	CHANGED ELBOW TO TEE	
ORIG.	10/06		
Revision	Date	Description	Appr

CITY OF SELAH—STANDARD DETAIL

CATCH BASIN

SD—1



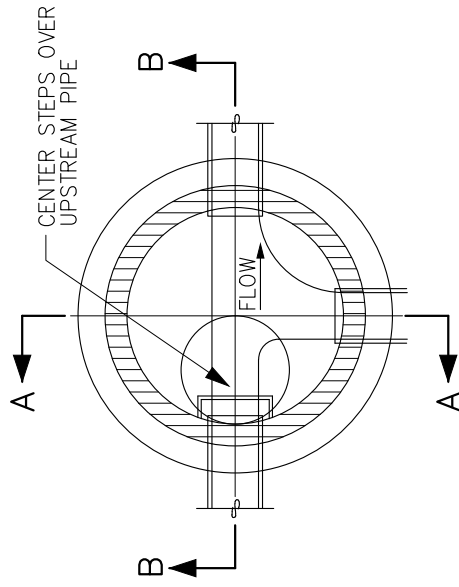
INFILTRATION SYSTEM

NOT TO SCALE

NOTES:

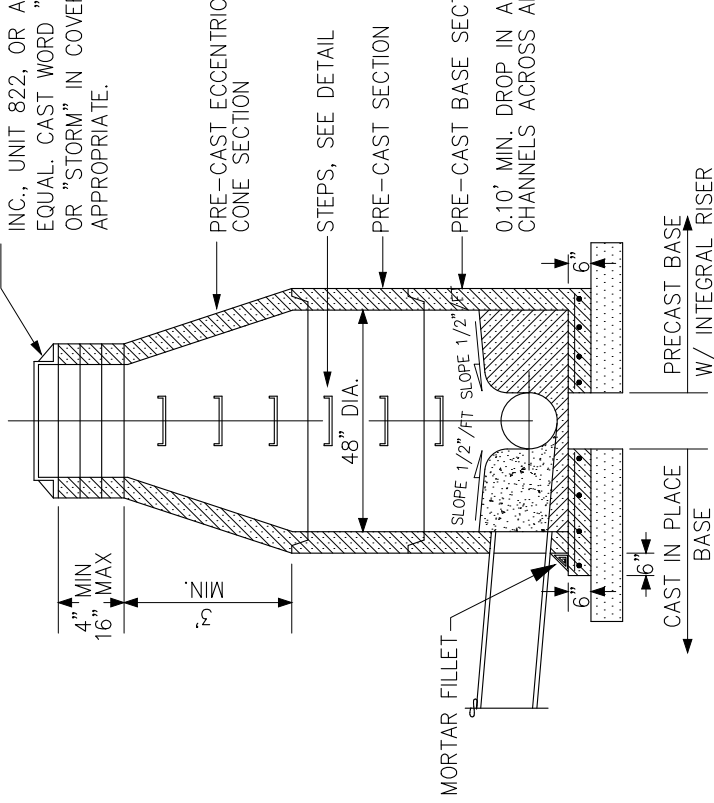
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	09/15		
Revision	Date	Description	Appr



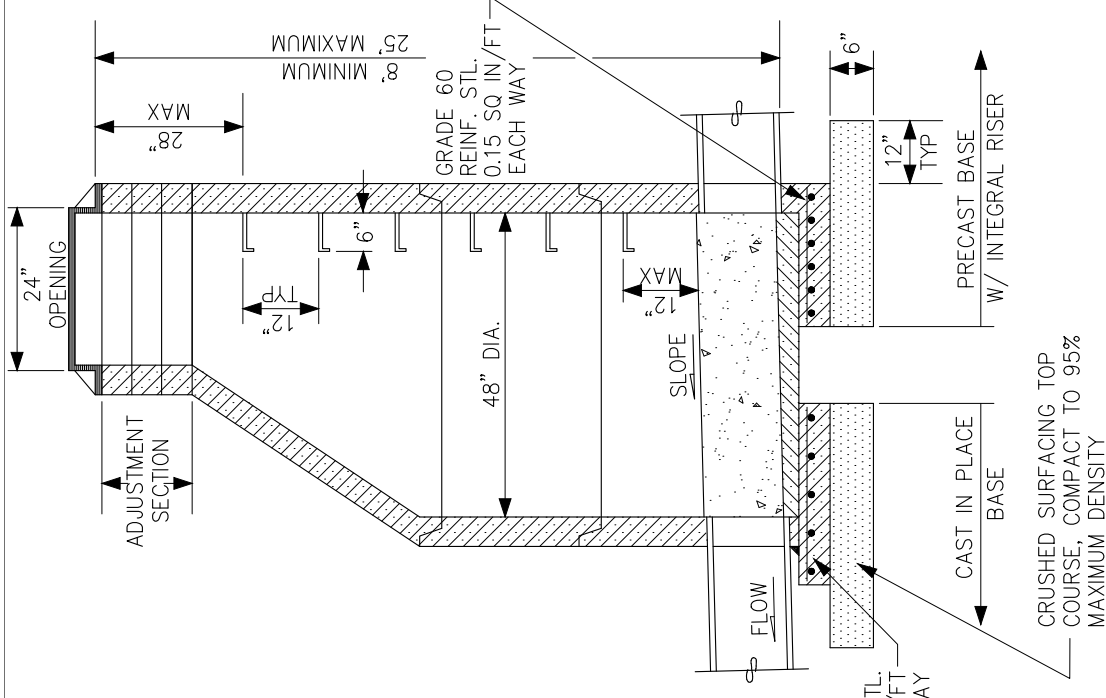
PLAN VIEW

CAST IRON FRAME & COVER
OLYMPIC FOUNDRY COMPANY,
INC., UNIT 822, OR APPROVED
EQUAL. CAST WORD "SEWER"
OR "STORM" IN COVER AS
APPROPRIATE.



NOTES:
• ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

SECTION A-A

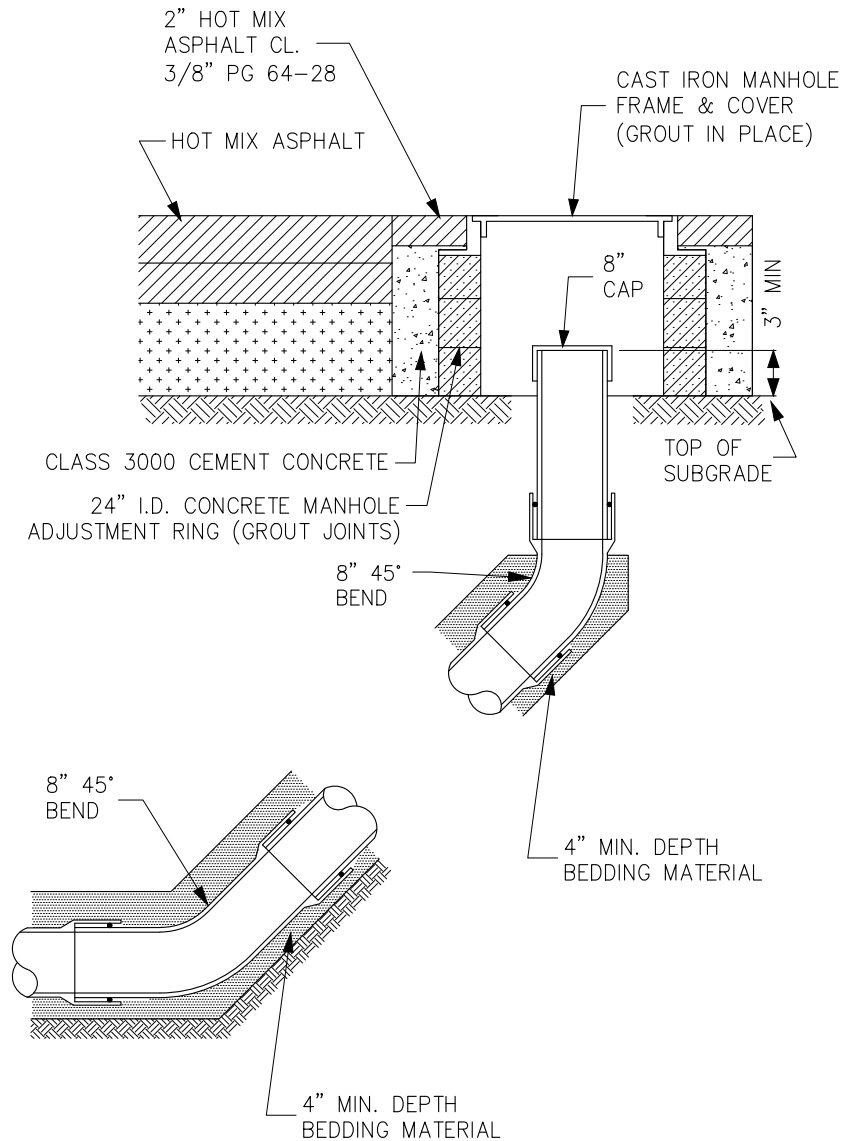


SECTION B-B

ORIG.	10/06	Date	Description	Appr	

NOTES:

1. CAST IRON FRAME & COVER SHALL BE OLYMPIC FOUNDRY COMPANY INC., UNIT 247 OR APPROVED EQUAL.
2. IN UNPAVED AREAS, SET FRAME & COVER FLUSH WITH FINISHED GRADE. EXTEND 12" THICK, 2' DIAMETER, CEMENT CONCRETE RING FLUSH WITH FRAME AND SLOPE OUTWARD AT 1/4"/FT.
3. CLEANOUT PIPE SHALL BE 8" DIA. PVC SEWER PIPE IN ACCORDANCE W/ THE STANDARD SPECIFICATIONS.



SANITARY SEWER CLEANOUT

NOT TO SCALE

NOTES:

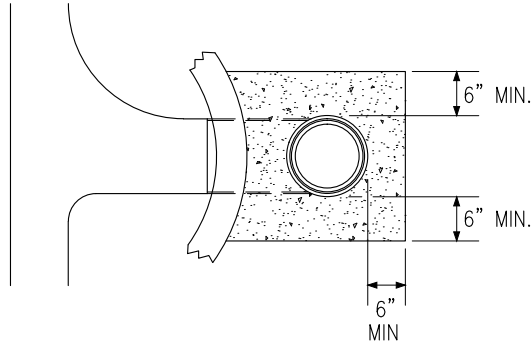
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

REV.	01/12	ADDED MANHOLE COVER	
ORIG.	10/06		
Revision	Date	Description	Appr

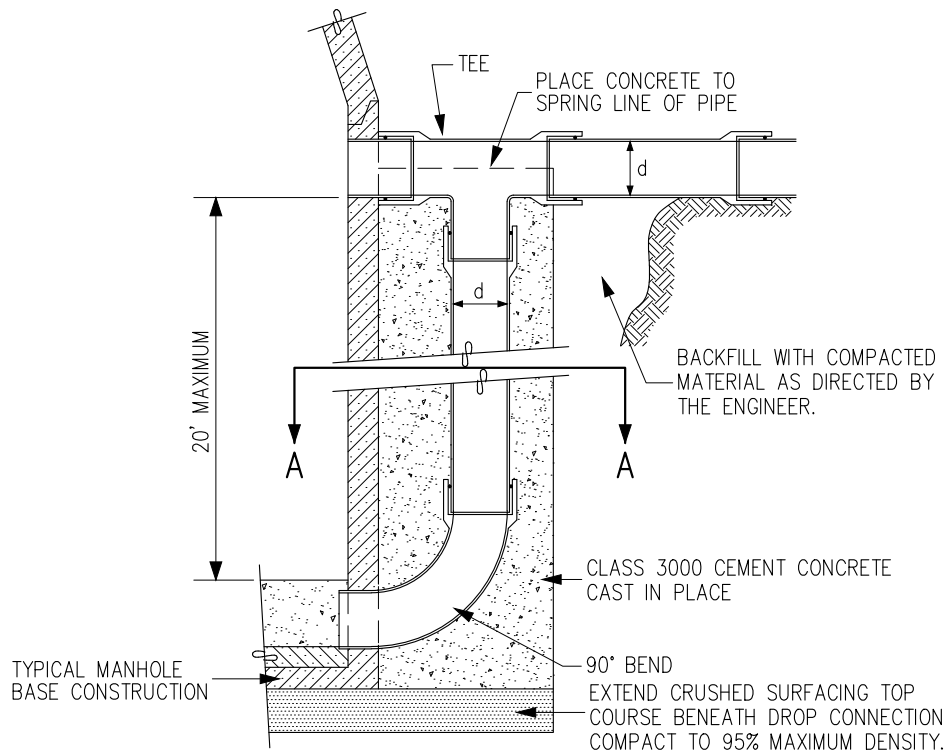
CITY OF SELAH—STANDARD DETAIL

SANITARY SEWER CLEANOUT

SS-2



SECTION A-A



PROFILE VIEW

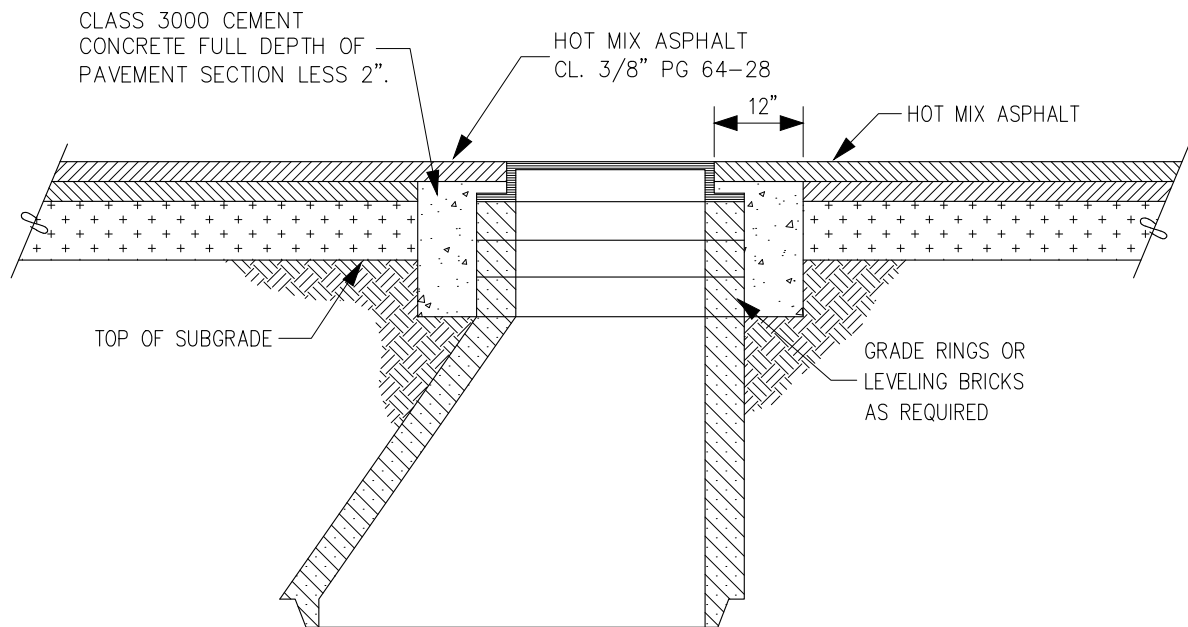
DROP CONNECTION

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	10/06		
Revision	Date	Description	Appr



NOTES:

1. MANHOLES SHALL BE ADJUSTED TO FINISHED GRADE AFTER PLACEMENT OF THE FINAL LIFT OF ASPHALT PAVEMENT.
2. GRADE RINGS AND/OR LEVELING BRICKS SHALL BE GROUTED IN PLACE AND BE WATER TIGHT.
3. IN UNPAVED AREAS, PROVIDE 12" THICK, 5' DIA. CEMENT CONCRETE RING AROUND TOP OF MANHOLE. SET MANHOLE FRAME FLUSH W/ FINISHED GRADE AND SLOPE CONCRETE OUTWARD AT 1/4"/FT.

MANHOLE ADJUSTMENT DETAIL

NOT TO SCALE

NOTES:

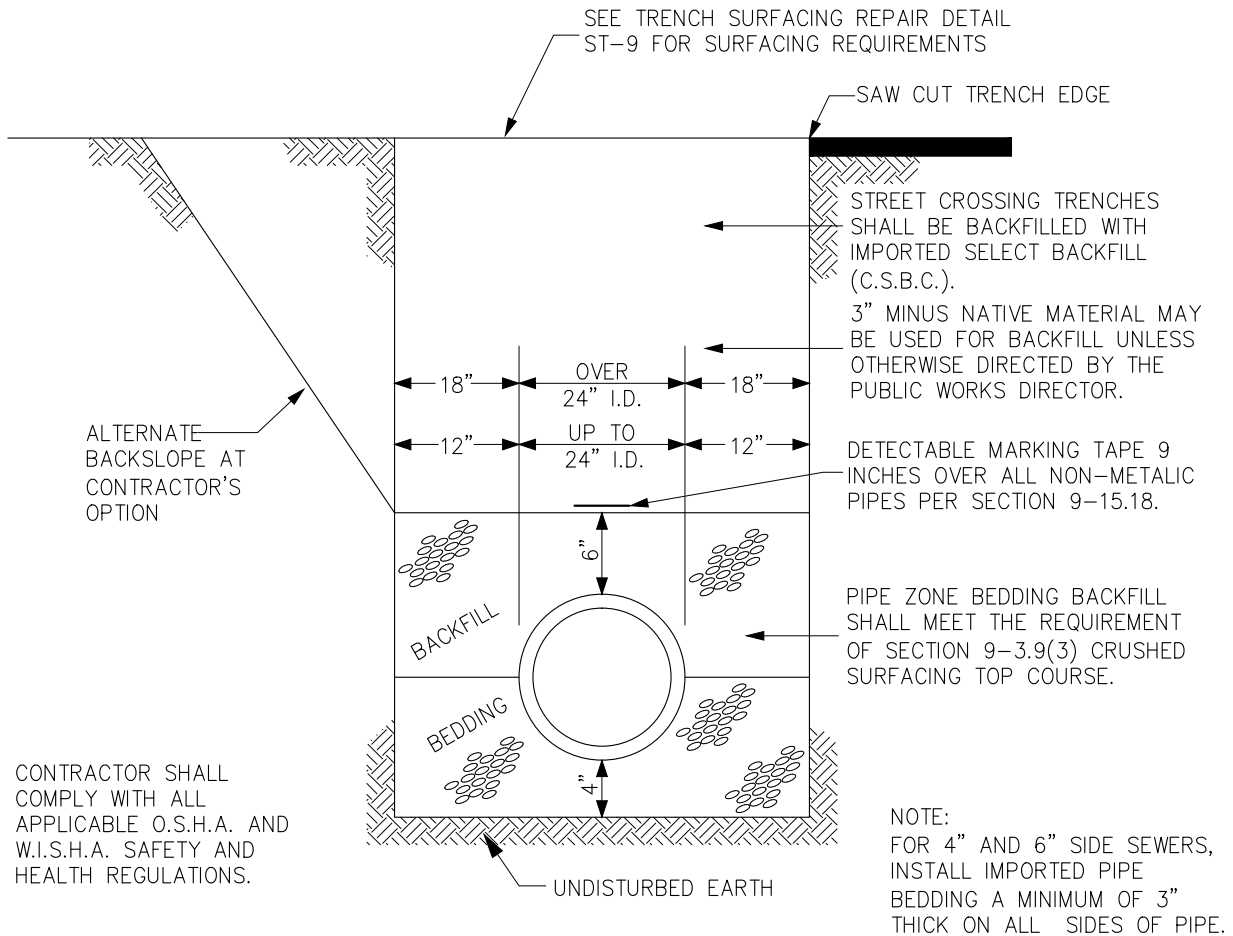
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	10/06		
Revision	Date	Description	Appr

CITY OF SELAH—STANDARD DETAIL

MANHOLE ADJUSTMENT DETAIL

SS-4



TYPICAL TRENCH SECTION FOR SANITARY AND STORM SEWER PIPES

NOT TO SCALE

NOTES:

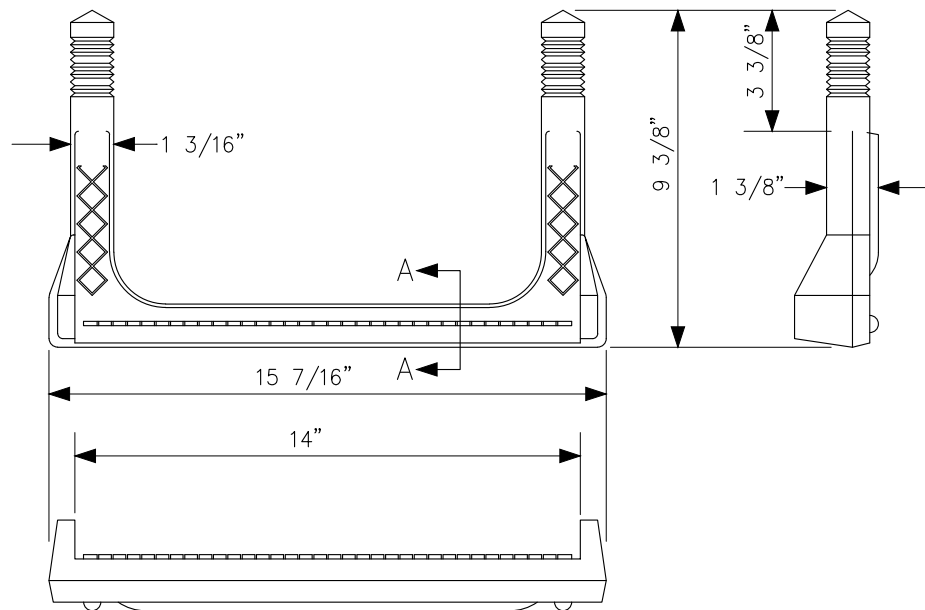
- MECHANICAL TAMPING AND COMPACTION REQUIRED AS DIRECTED BY THE CITY. WATER SETTLING MAY ONLY BE USED OUTSIDE THE ROADWAY PRISM WHEN APPROVED BY THE CITY.
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	10/06		
	6/14	SAWCUT UPDATE	
Revision	Date	Description	Appr

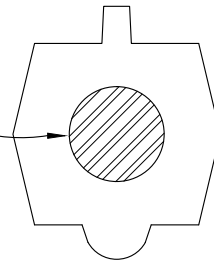
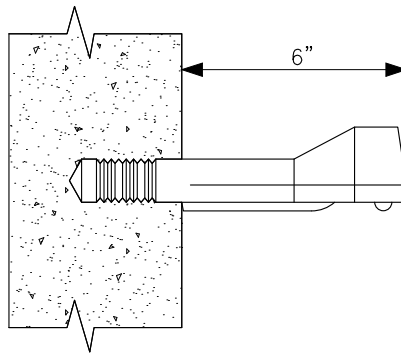
CITY OF SELAH-STANDARD DETAIL

SEWER/STORM TRENCH SECTION

SS-5



COPOLYMER POLYPROPYLENE
PLASTIC 1/2" GRADE 60
STEEL REINFORCEMENT



SECTION A-A

NOTE:
MANHOLE STEPS SHALL BE COPOLYMER
POLYPROPYLENE PLASTIC COATED 1/2"
GRADE 60 STEEL REINFORCEMENT, MODEL
PS2-PF, AS MANUFACTURED BY M.A.
INDUSTRIES INC., OR APPROVED EQUAL

MANHOLE SAFETY STEP

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

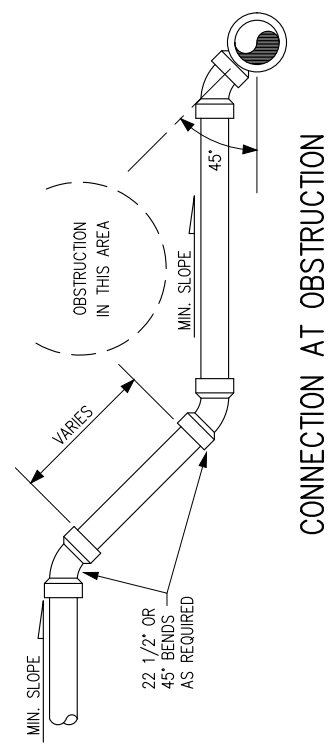
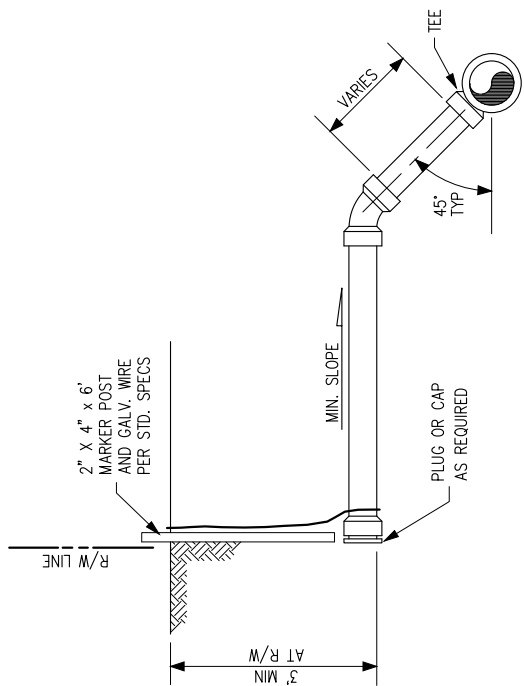
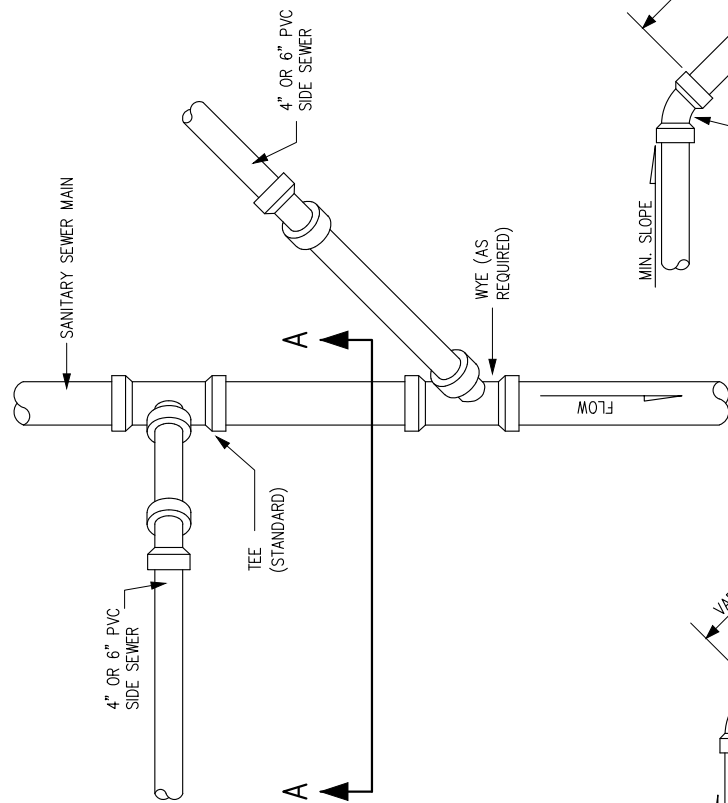
ORIG.	10/06		
Revision	Date	Description	Appr

CITY OF SELAH-STANDARD DETAIL

MANHOLE SAFETY STEP

SS-6

- NOTES:
- SIDE SEWERS SHALL BE INSTALLED IN ACCORDANCE WITH SEC. 7-18 OF THE STANDARD SPECIFICATIONS
 - SERVICE CONNECTIONS 8" OR LARGER MUST BE MADE AT MANHOLE.
 - IF 5' MAXIMUM SLOPED DISTANCE IS INSUFFICIENT FOR SIDE SEWER CONNECTION, INSTALL SIDE SEWER RISER PER DETAIL.
 - ROTATE SANITARY SEWER MAIN TEE OR WYE 45° UPWARD.
 - TEES OR WYES SHALL BE INSTALLED IN NEW SANITARY SEWER MAINS. WHEN INSTALLING SIDE SEWERS IN EXISTING MAINS, CONNECTION SHALL BE MADE BY MACHINE MADE TAP AND APPROVED SADDLE.
 - WHERE DEPTH IS INSUFFICIENT TO ALLOW CONNECTION AS SHOWN, CONNECT SERVICE AS DIRECTED BY THE PUBLIC WORKS DIRECTOR.
 - TERMINATE SIDE SEWER AT R/W LINE UNLESS OTHERWISE DIRECTED BY THE PUBLIC WORKS DIRECTOR OR SHOWN OTHERWISE ON PLANS.
 - ALL SIDE SEWER MATERIALS SHALL BE PVC SEWER PIPE CONFORMING TO THE REQUIREMENTS OF SECTION 9-05.12 OF THE STANDARD SPECIFICATIONS.
 - ALL 4" OR 6" SIDE SEWERS SHALL BE INSTALLED WITH A MINIMUM OF 3" OF IMPORTED CRUSHED ROCK PIPE BEDDING AROUND PIPE.



SIDE SEWER CONNECTIONS

NOT TO SCALE

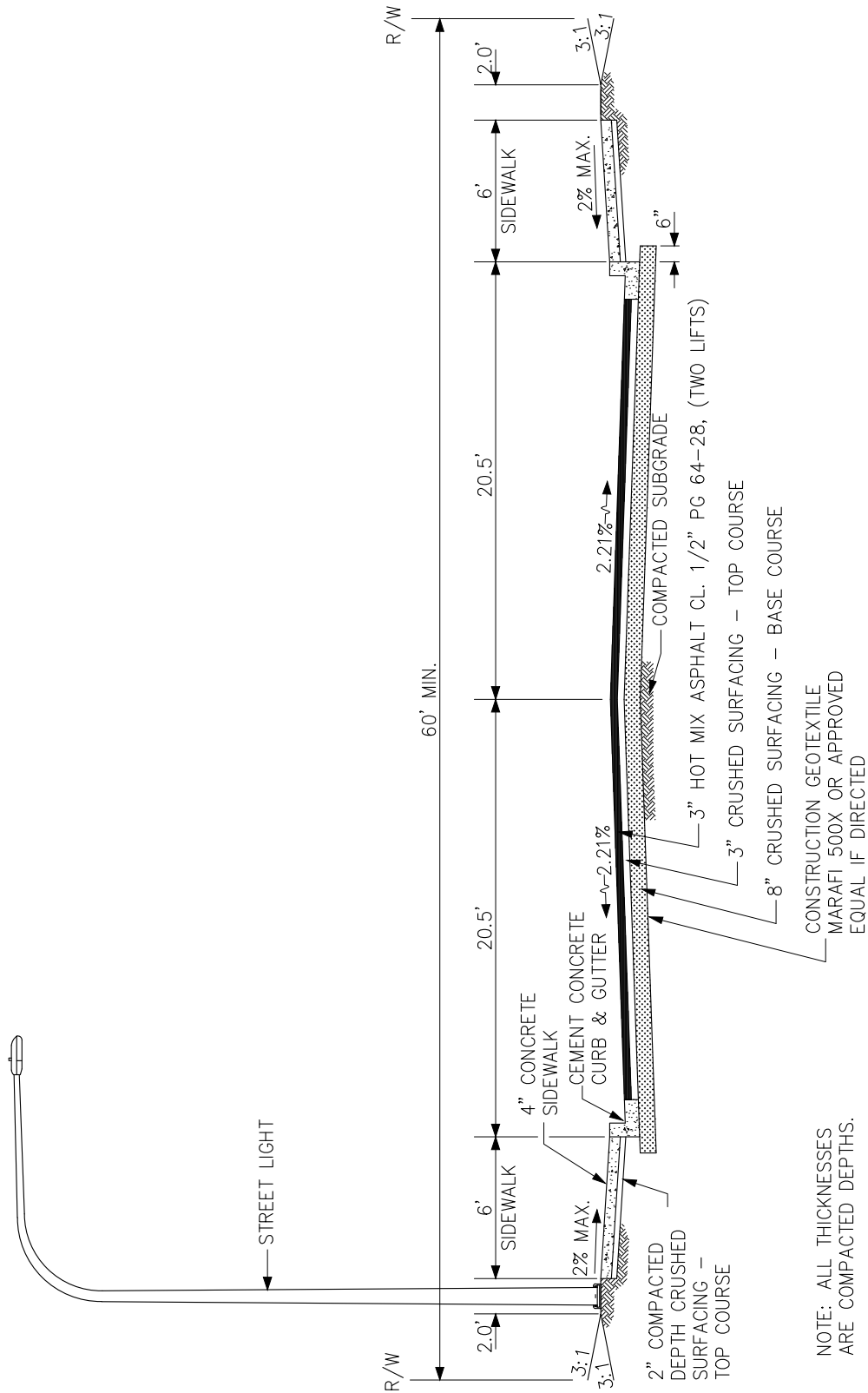
- NOTES:
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	10/06		
Revision	Date	Description	Appr

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

REV.	01/12	WIDENENED SIDEWALK TO 6'	
ORIG.	10/06		
Revision	Date	Description	Appr



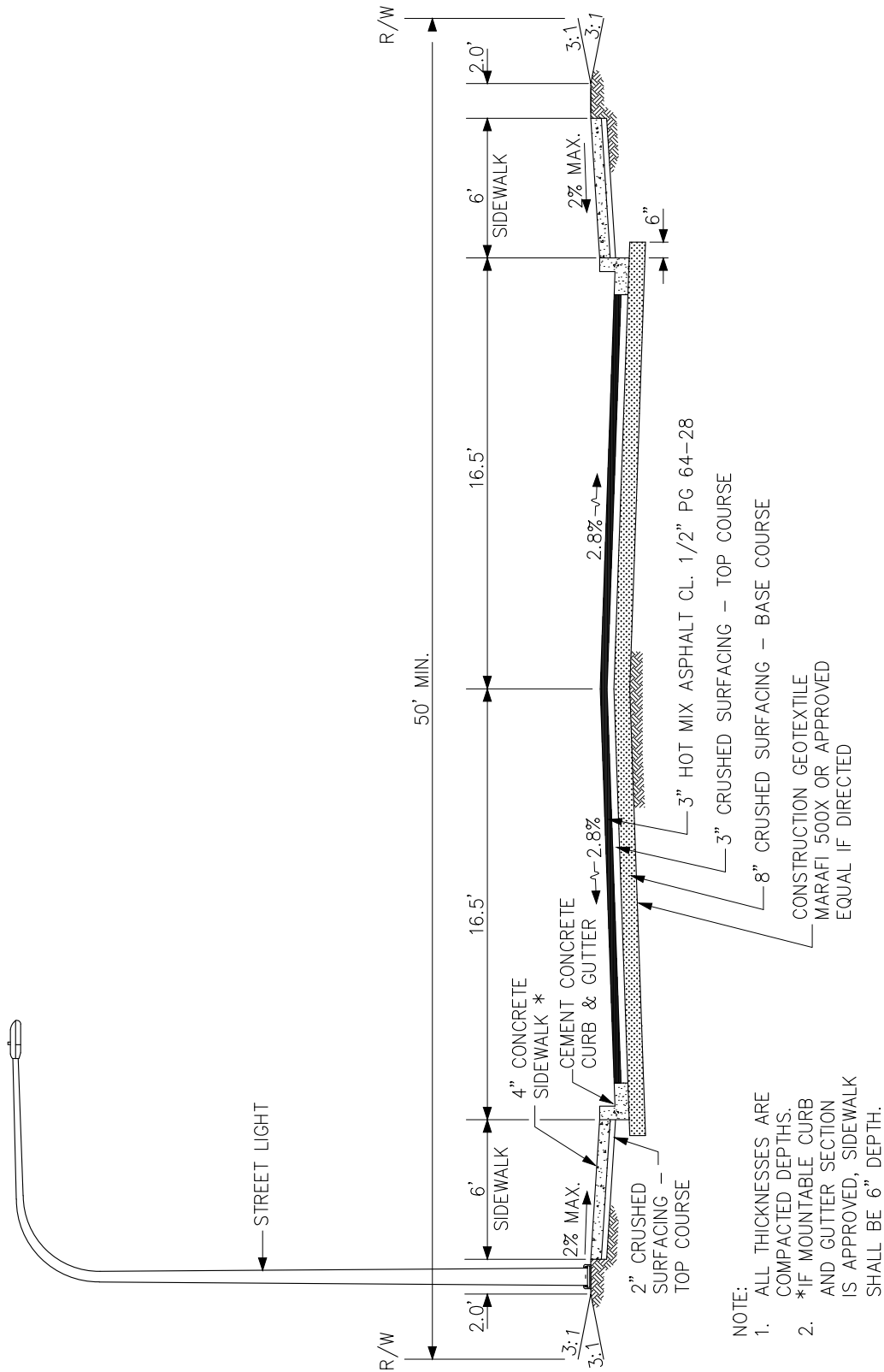
NOTE: ALL THICKNESSES ARE COMPACTED DEPTHS.

ROADWAY SECTION - COLLECTOR

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

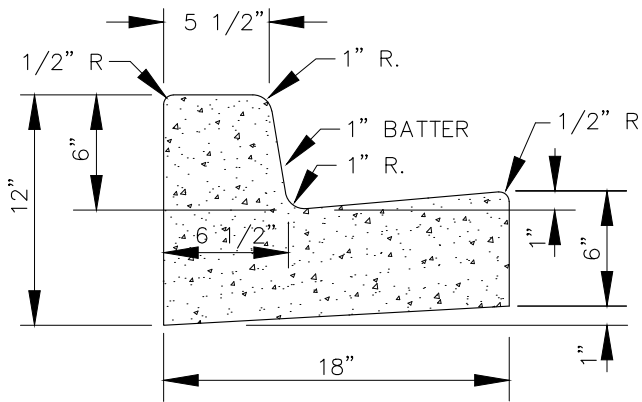


- NOTE:
1. ALL THICKNESSES ARE COMPACTED DEPTHS.
 2. *IF MOUNTABLE CURB AND GUTTER SECTION IS APPROVED, SIDEWALK SHALL BE 6" DEPTH.

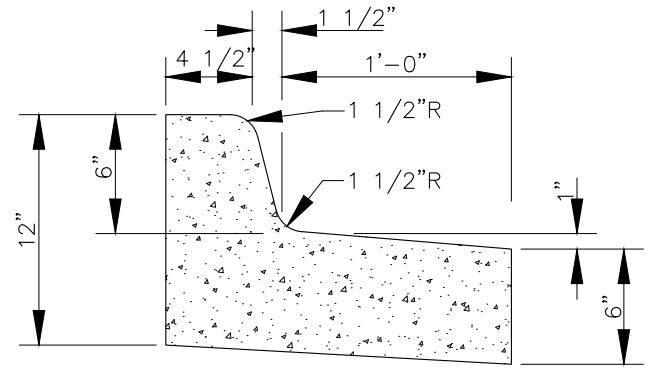
ROADWAY SECTION - LOCAL ACCESS **(RESIDENTIAL)**

NOT TO SCALE

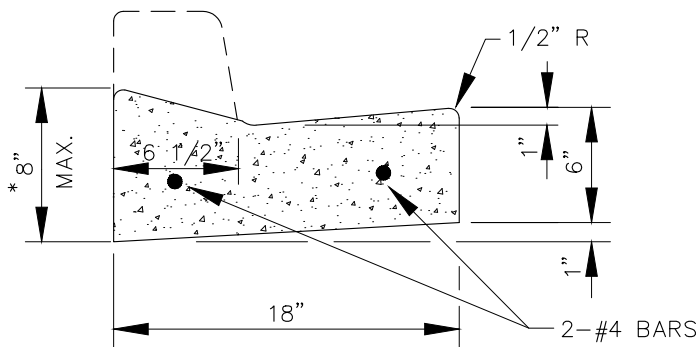
REV.	01/12	WIDENED SIDEWALK TO 6'	
ORIG.	10/06		
Revision	Date	Description	Appr



FULL HEIGHT - BARRIER



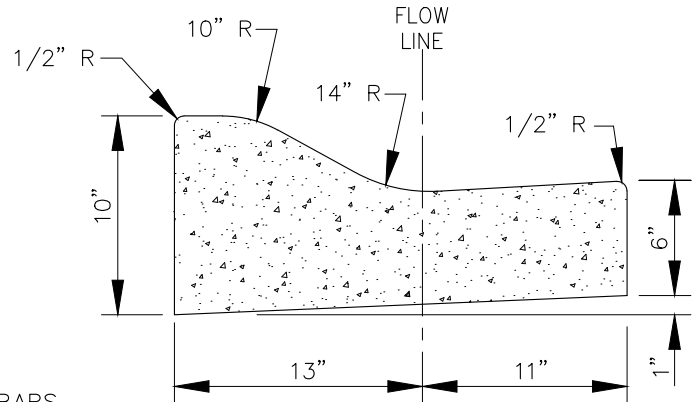
CONCRETE SPILL CURB



DEPRESSED - DRIVEWAYS

NOTE:

*AS DIRECTED BY ENGINEER. MAY VARY DEPENDING UPON GRADE OF SIDEWALK AND DRIVEWAY BEYOND CURB.



MOUNTABLE - ROLLED CURB

NOTE:

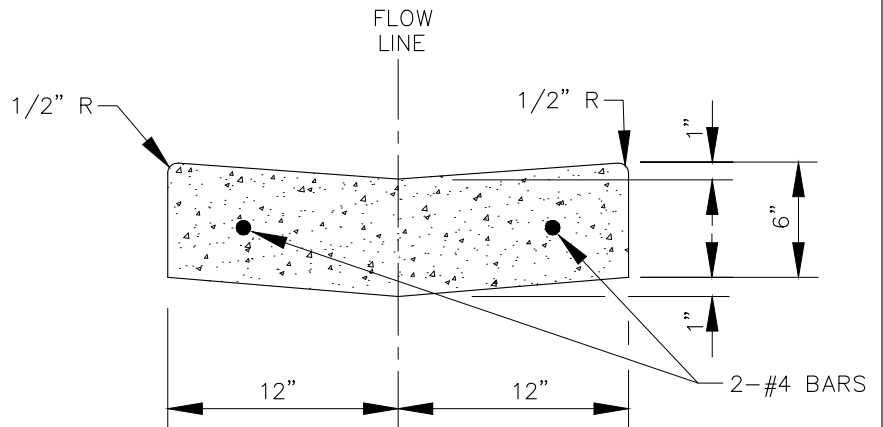
TOP OF CURB ELEVATION SHOWN IS TOP OF FULL HEIGHT CURB. SUBTRACT 0.17' FOR TOP OF ROLLED CURB.

NOTES:

1. AS DIRECTED BY THE PUBLIC WORKS DIRECTOR. MAY VARY DEPENDING UPON GRADE OF SIDEWALK AND DRIVEWAY BEYOND CURB. BACK OF CURB WILL BE 6 1/2" HIGH AT SIDEWALK RAMP.
2. 3/8" THICK MASTIC EXPANSION JOINT TO BE PLACED AT ALL POINTS OF TANGENCY.
3. FOR STATIONARY FORM CONSTRUCTION STANDARD PLATES AND HALF PLATES TO BE PLACED AT 10'-0" INTERVALS.
4. FOR SLIP-FORM CONSTRUCTION, PROVIDE FULL DEPTH JOINTS AT 10'-0" INTERVALS.
5. BACKFILL BEHIND CURB SHALL EXTEND FROM TOP OF CURB BACK TO A POINT AS DIRECTED BY THE THE PUBLIC WORKS DIRECTOR. THE TOP 4" OF BACKFILL SHALL BE OF A FINE GRADED MATERIAL SUITABLE FOR LAWNS, AND BE DAMPENED AND MECHANICALLY COMPACTED TO OBTAIN A REASONABLE LEVEL OF COMPACTION.

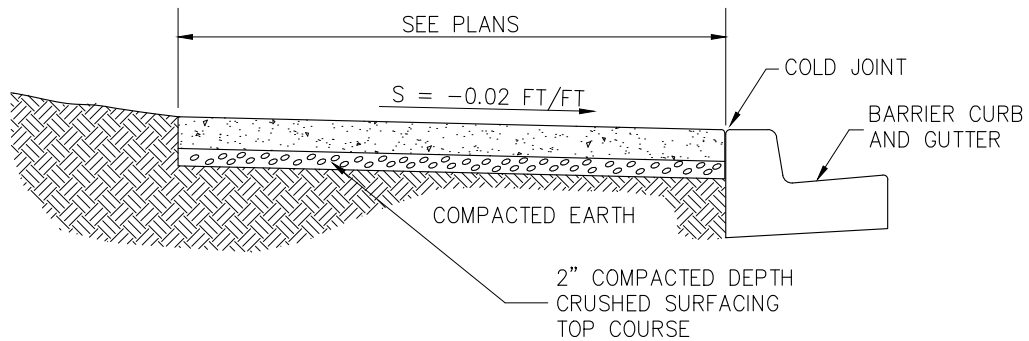
NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

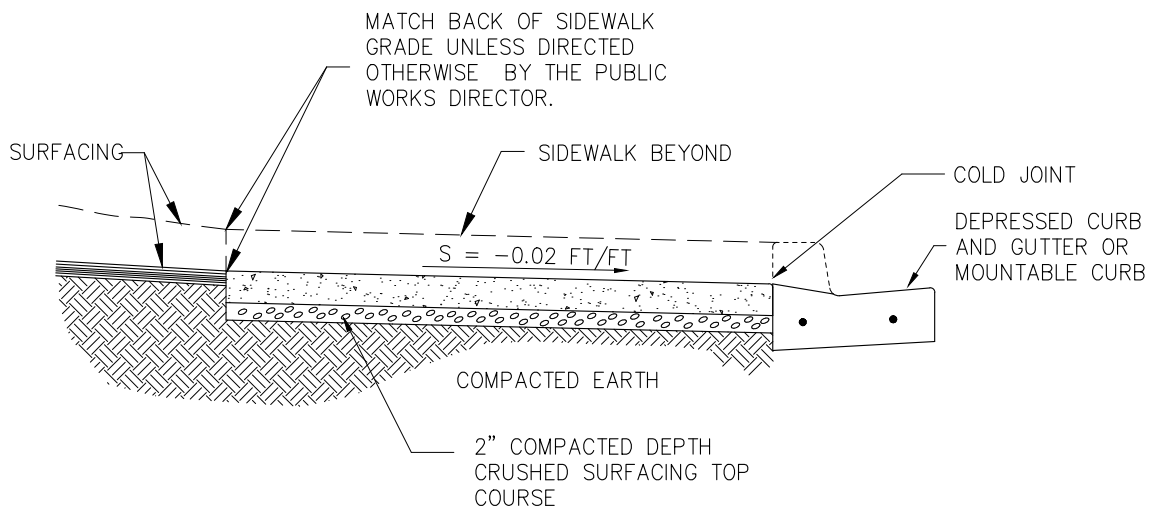


VALLEY GUTTER

ORIG.	11/15		
Revision	Date	Description	Appr



4" THICK SIDEWALK SECTION



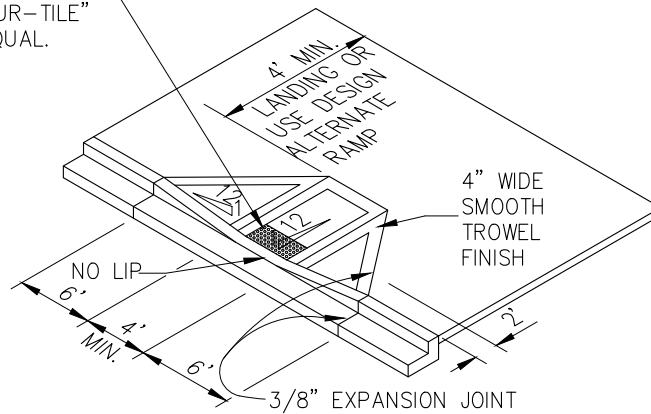
6" THICK SIDEWALK SECTION AT DRIVEWAY ENTRANCES AND MOUNTABLE CURB

NOTES:

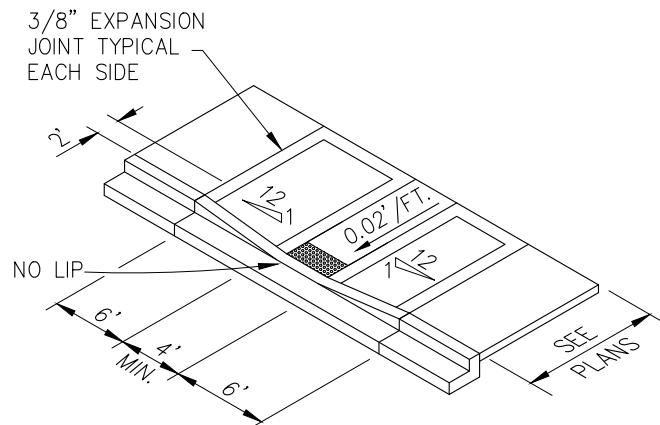
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	10/06		
Revision	Date	Description	Appr

CAST-IN-PLACE 24" DEEP
TRUNCATED DOME
DETECTABLE WARNING
PATTERN, "ARMOUR-TILE"
OR APPROVED EQUAL.



STANDARD



ALTERNATE

SIDEWALK RAMP DETAIL

NOT TO SCALE

NOTES:

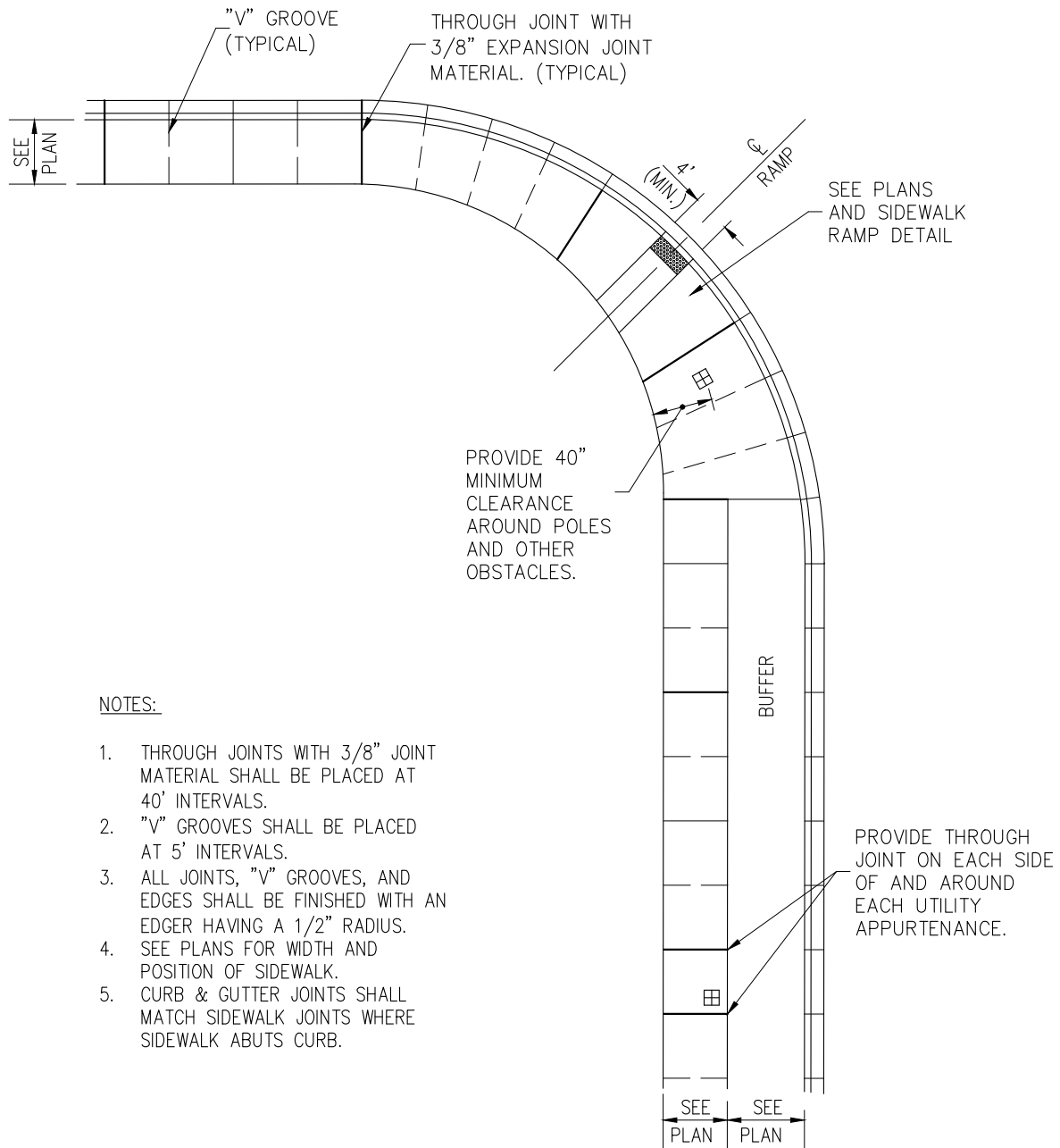
- SIDEWALK RAMP WILL NOT BE POURED INTEGRAL WITH SIDEWALK OR CURB AND GUTTER AND SHALL BE ISOLATED BY EXPANSION JOINT MATERIAL ON ALL SIDES EXCEPT ADJACENT TO THE CURB.
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

REV.	01/12	UPDATED NOTES	
ORIG.	10/06		
Revision	Date	Description	Appr

CITY OF SELAH—STANDARD DETAIL

SIDEWALK RAMP

ST-6



NOTES:

1. THROUGH JOINTS WITH 3/8" JOINT MATERIAL SHALL BE PLACED AT 40' INTERVALS.
2. "V" GROOVES SHALL BE PLACED AT 5' INTERVALS.
3. ALL JOINTS, "V" GROOVES, AND EDGES SHALL BE FINISHED WITH AN EDGER HAVING A 1/2" RADIUS.
4. SEE PLANS FOR WIDTH AND POSITION OF SIDEWALK.
5. CURB & GUTTER JOINTS SHALL MATCH SIDEWALK JOINTS WHERE SIDEWALK ABUTS CURB.

NOTES:

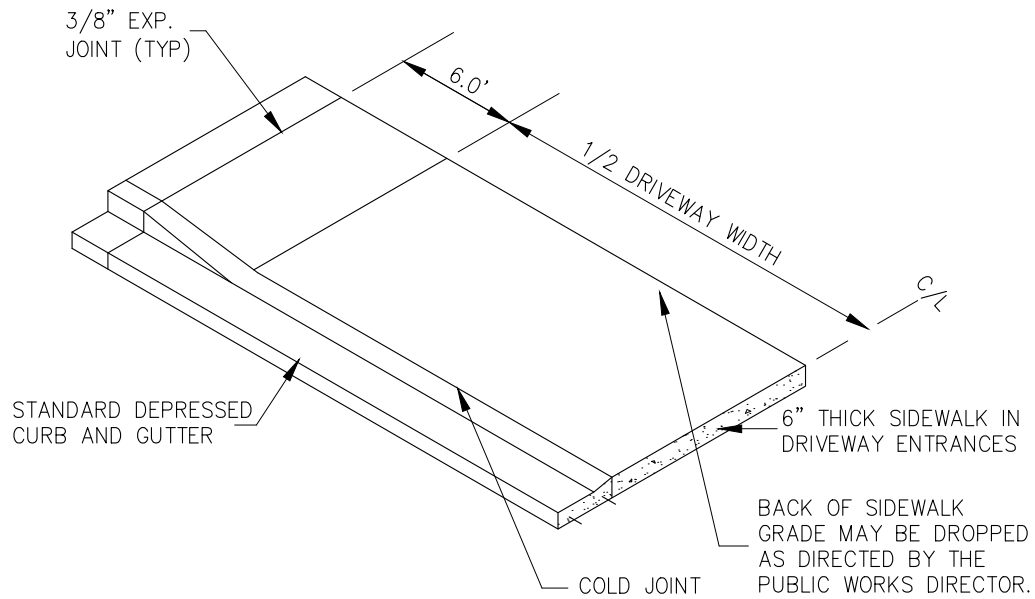
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	10/06		
Revision	Date	Description	Appr

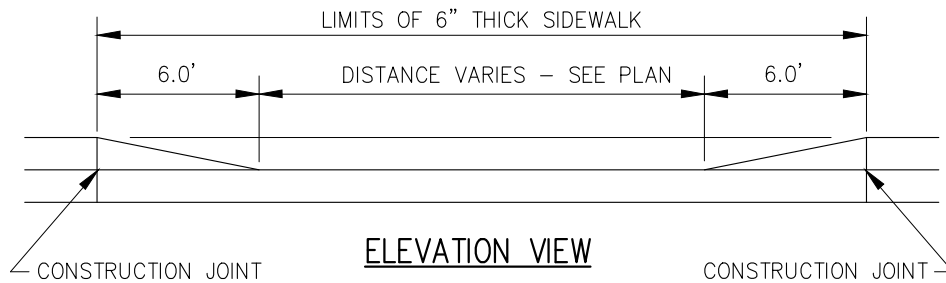
CITY OF SELAH—STANDARD DETAIL

SIDEWALK JOINTING

ST-7



ISOMETRIC VIEW



ELEVATION VIEW

NOTE:
REINFORCEMENT NOT
SHOWN FOR CLARITY.
EXTEND REINFORCEMENT
TO CONSTRUCTION JOINTS.

RESIDENTIAL DRIVEWAY ENTRANCE

NOT TO SCALE

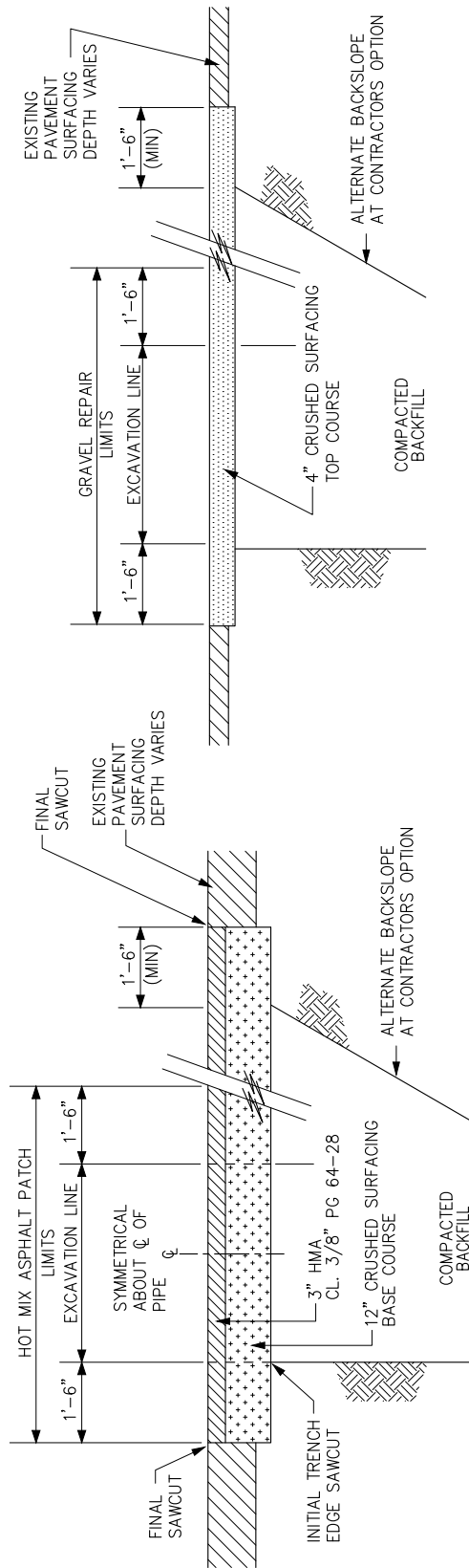
NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

REV.	01/12	LIMITS OF 6" THICKNESS	
ORIG.	10/06		
Revision	Date	Description	Appr

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

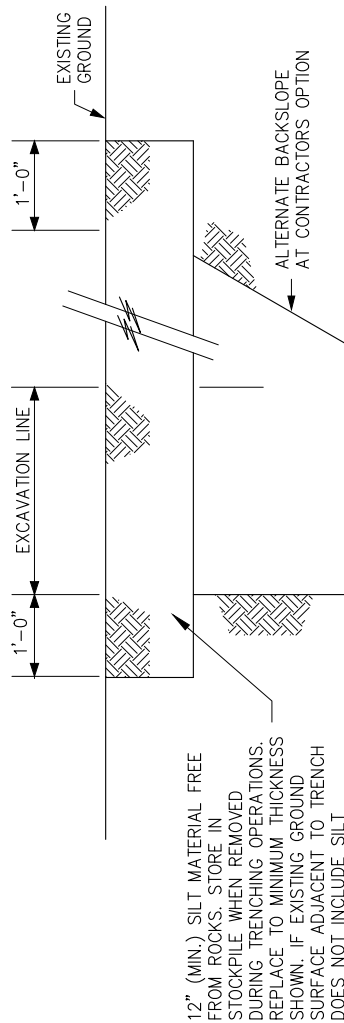


GRAVEL SURFACING

NOTES:

- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRENCH SURFACE RESTORATION BEYOND THE PAYMENT LIMITS SHOWN, INCLUDING WIDER TRENCH SECTIONS RESULTING FROM LAYING BACK TRENCH SIDES AT THE CONTRACTOR'S OPTION. NO MEASUREMENT OR PAYMENT WILL BE MADE FOR SURFACE REPAIR BEYOND THE PAYMENT LIMITS.
- NO MEASUREMENT OR PAYMENT WILL BE MADE FOR TRENCH SURFACING REPAIR IN UNSURFACED AREAS.
- HMA PATCHING WILL BE COMPLETED WITHIN THREE DAYS.
- ALL THICKNESS ARE COMPACTED DEPTH.

ASPHALT PAVEMENT SURFACING

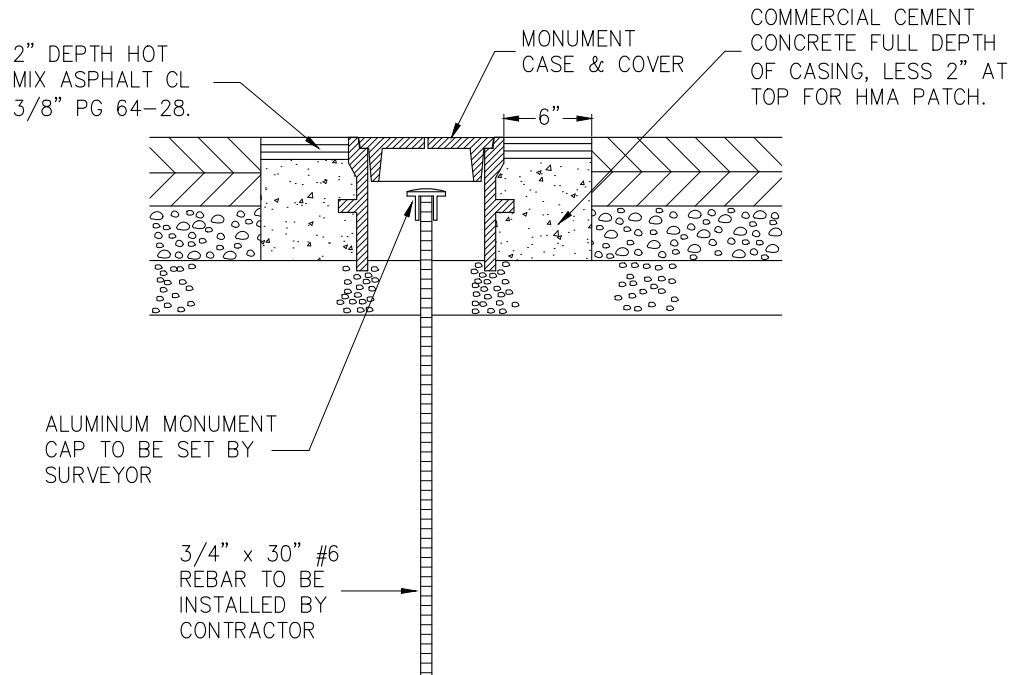


UNSURFACED AREAS

TRENCH SURFACING REPAIR

NOT TO SCALE

ORIG.	10/06		
	6/14	SAWCUT ADJUSTMENT	
Revision	Date	Description	Appr



NOTES:

1. TOP OF MONUMENT CAP SHALL BE 3" BELOW FINISH GRADE
2. MONUMENT, MONUMENT CASE & COVER TO BE PLACED AFTER FINAL LIFT OF HMA.
3. MONUMENT CASE, COVER AND RISERS SHALL BE THE REQUIREMENTS OF SECTION 9-22 AND MANUFACTURED BY OLYMPIC FOUNDARY OR EQUAL.

MONUMENT DETAIL

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	10/06		
Revision	Date	Description	Appr

CITY OF SELAH—STANDARD DETAIL

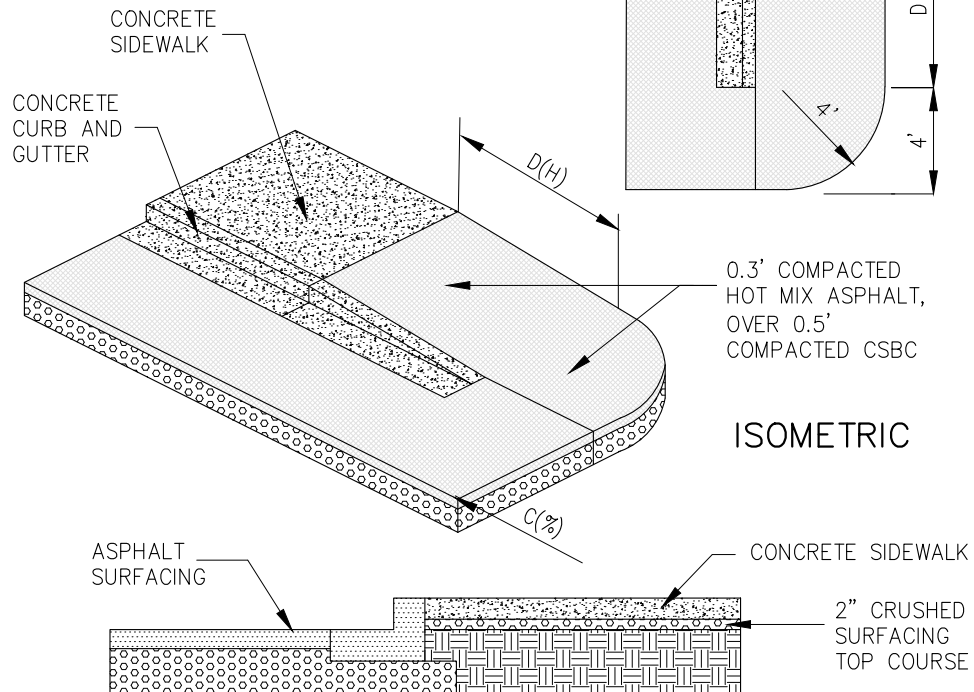
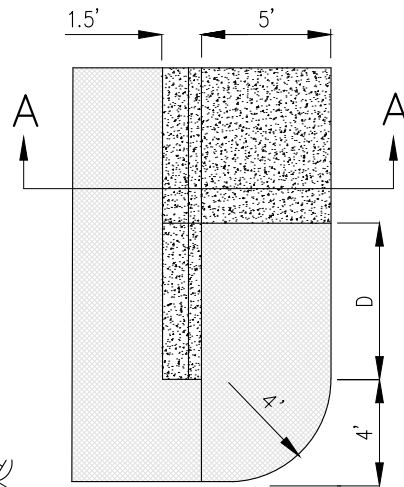
MONUMENT

ST-10

$C = G_L$ SLOPE APPROACHING RAMP

$$D = \frac{50}{(8.33 - C)}$$

PLAN



ISOMETRIC

SECTION A—A

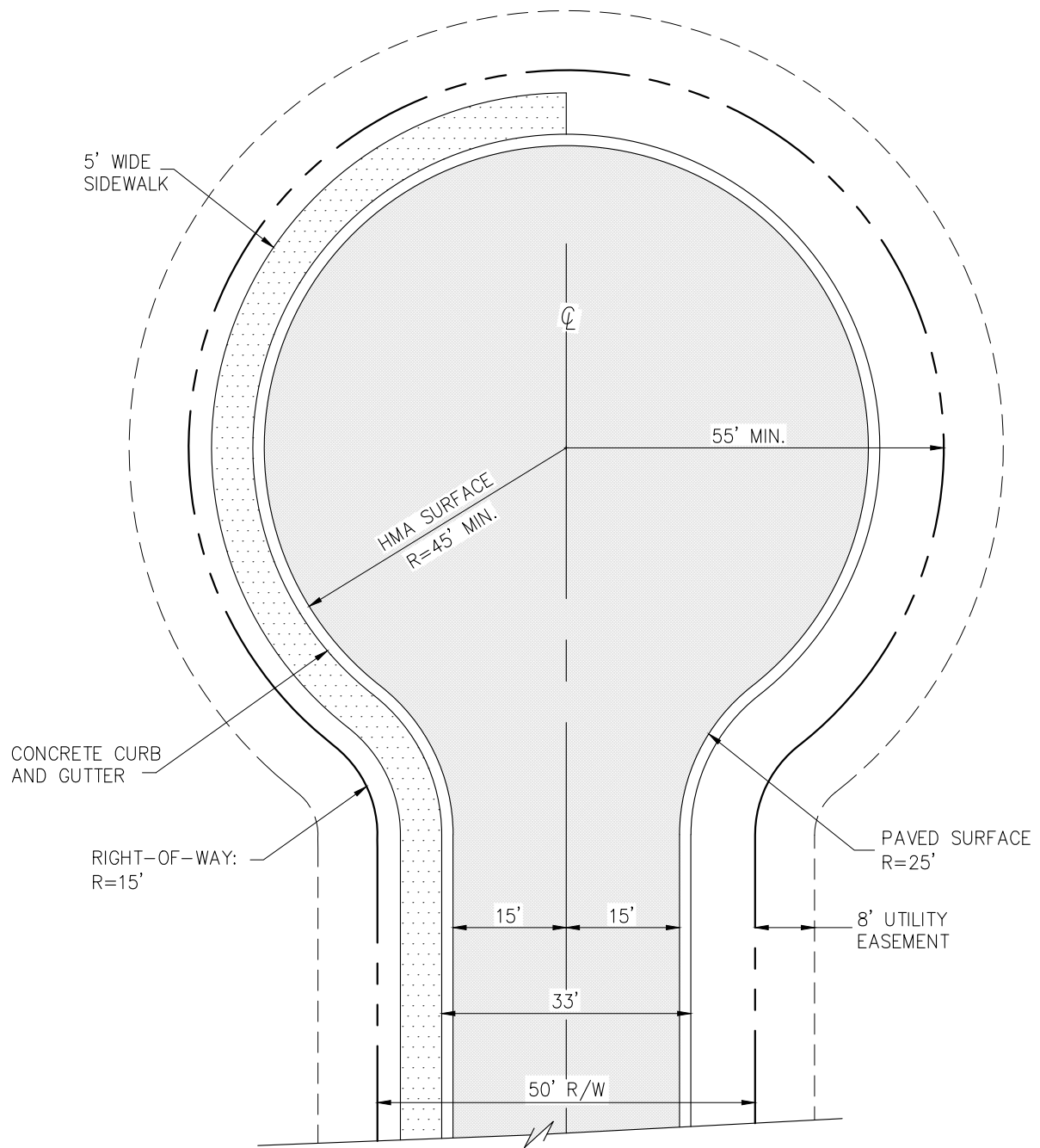
ASPHALT SIDEWALK RAMP

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	09/15	THICKNESS	
ORIG.	10/06		
Revision	Date	Description	Appr

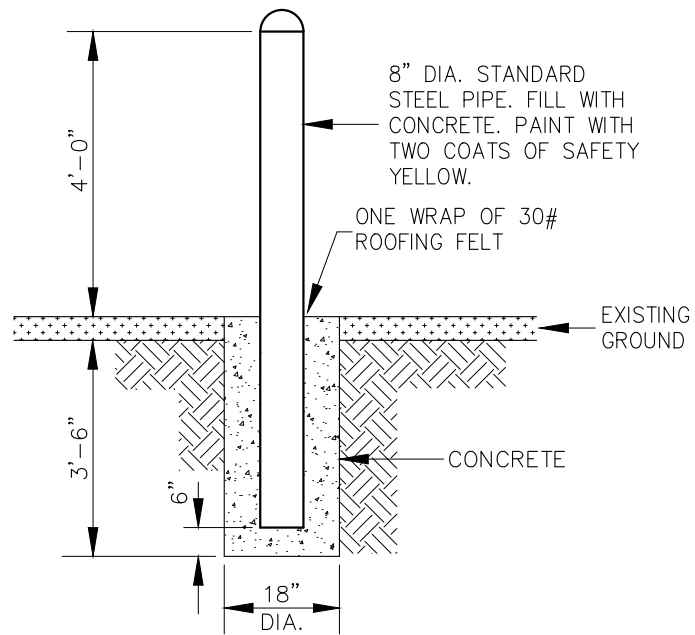


PLAN VIEW
NOT TO SCALE

NOTES:

- CUL-DE-SAC STREETS SHALL BE A MAXIMUM OF 600 FEET IN LENGTH.
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

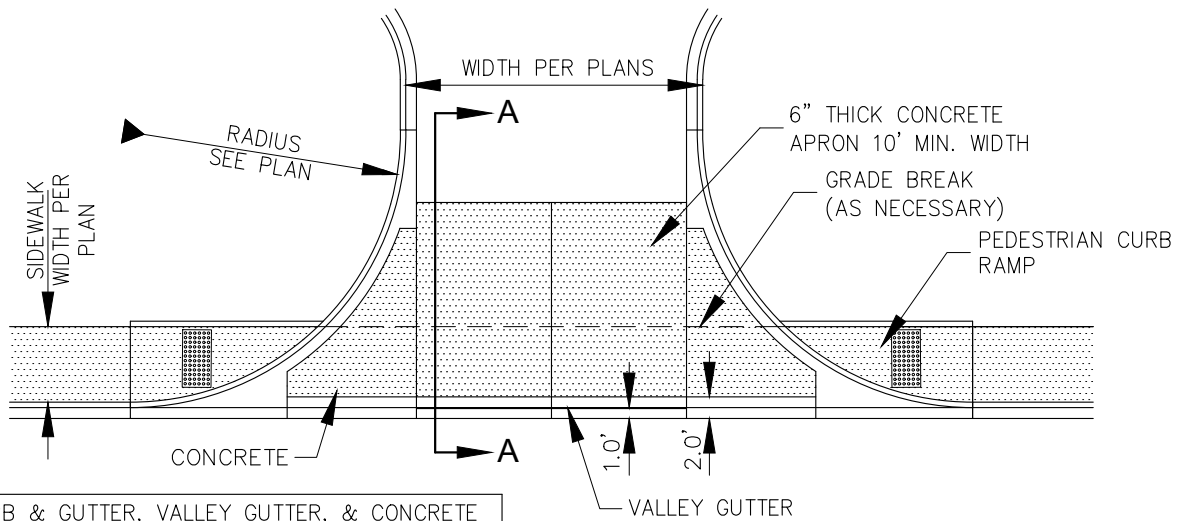
REV.	01/12	CHANGED RADIUS TO 45'	
ORIG.	10/06		
Revision	Date	Description	Appr



NOTES:

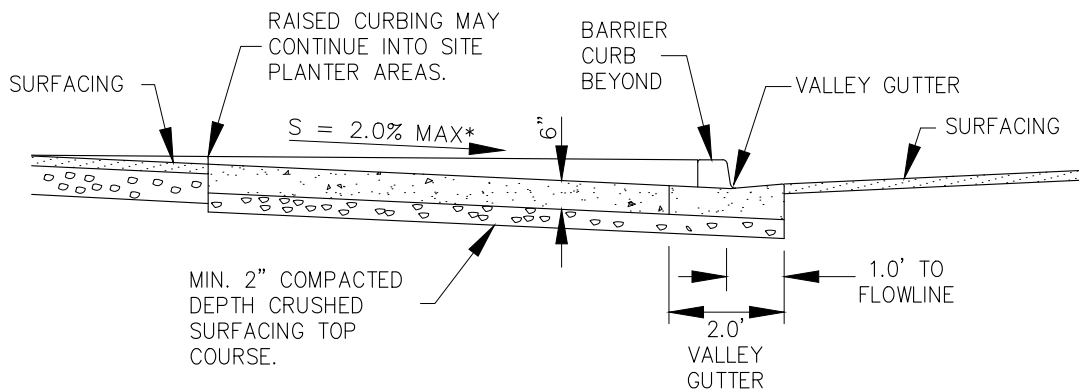
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	10/06		
Revision	Date	Description	Appr



CURB & GUTTER, VALLEY GUTTER, & CONCRETE APPROACH SHALL BE SEPARATED BY EXPANSION JOINT OR SEPARATE POUR.

PLAN



*NOTE:
 DRIVEWAY CROSS SLOPE SHALL NOT EXCEED 2.0%, FOR WIDTH OF SIDEWALK ENTERING DRIVEWAY. A GRADE BREAK BEYOND THE SIDEWALK WIDTH IS ACCEPTABLE FOR CROSS SLOPES GREATER THAN 2%.

SECTION A-A

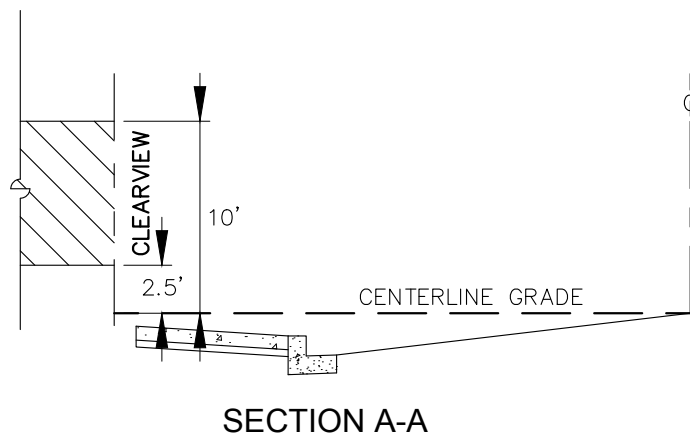
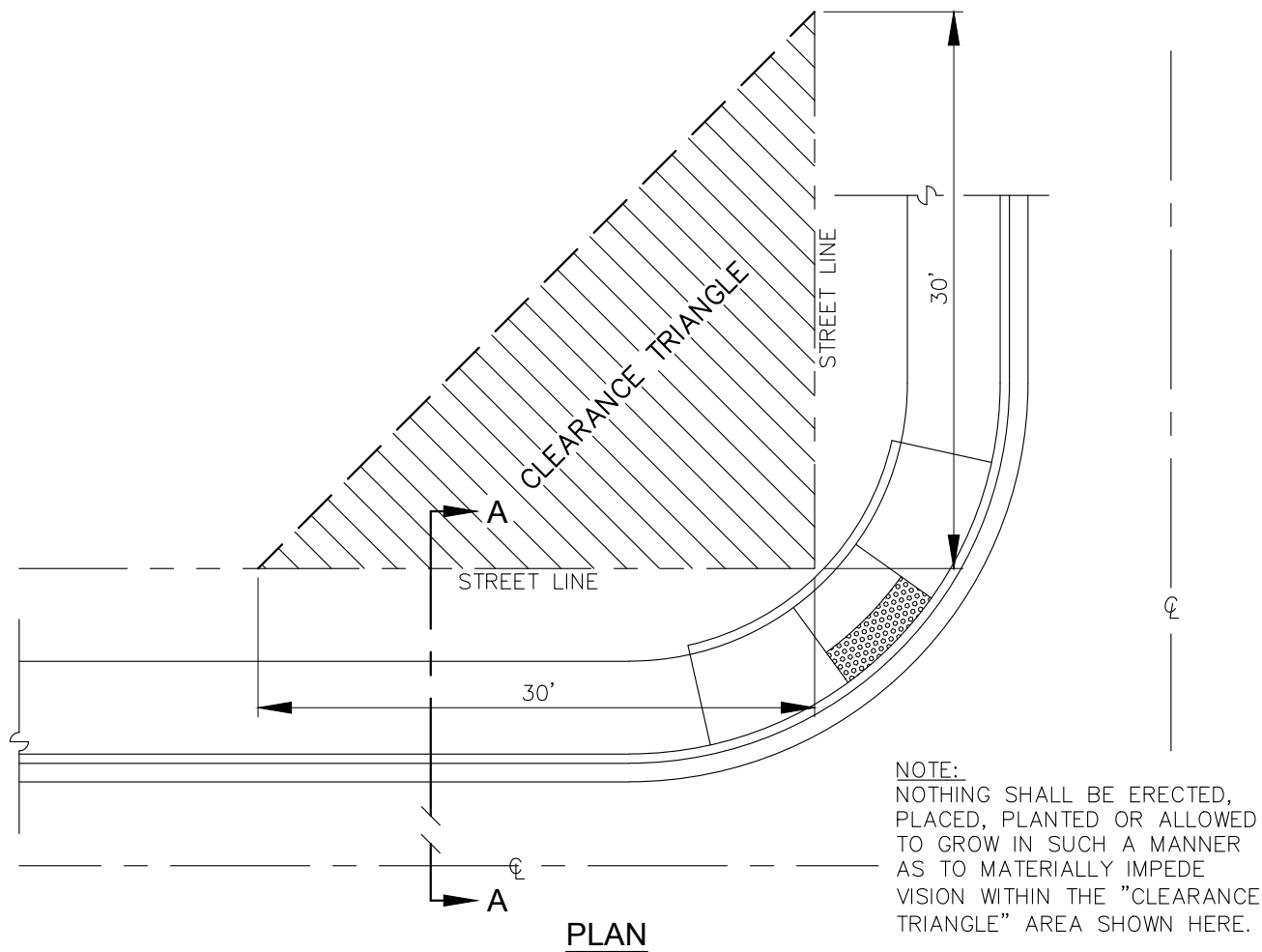
CEMENT CONCRETE COMMERCIAL DRIVEWAY

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	11/15		
Revision	Date	Description	Appr



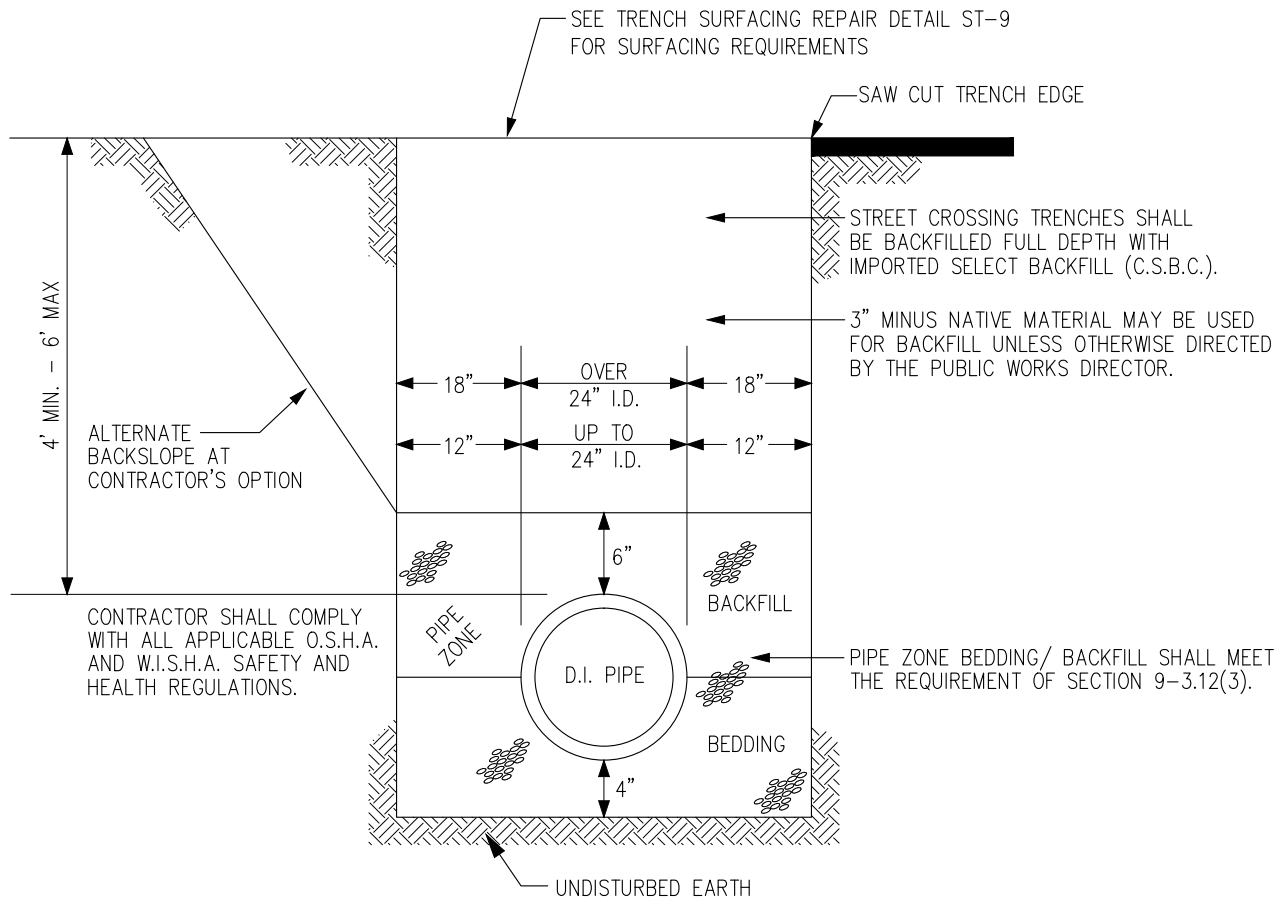
CORNER LOT VISION CLEARANCE

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	09/15		
Revision	Date	Description	Appr



TYPICAL WATERMAIN TRENCH

NOT TO SCALE

NOTES:

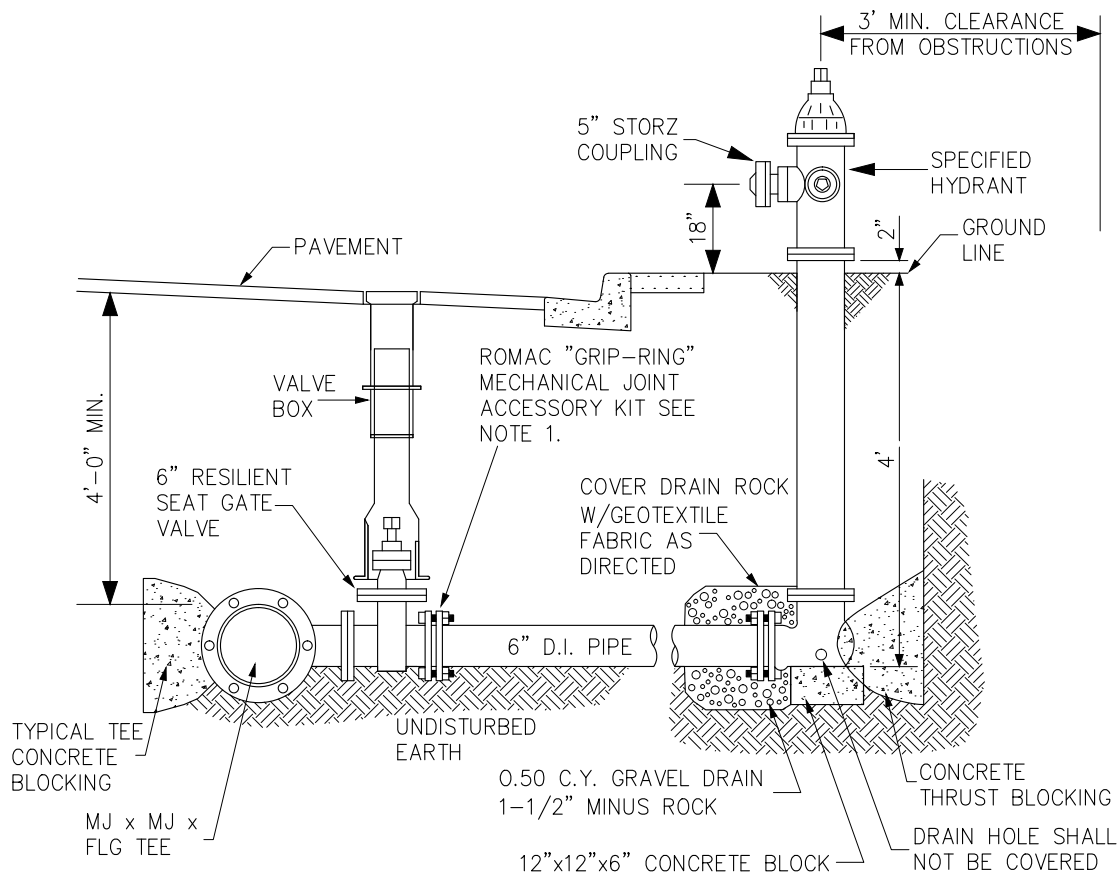
- FOR WATER SERVICES, INSTALL IMPORTED PIPE BEDDING A MINIMUM OF 3" THICK ON ALL SIDES OF PIPE.
- MECHANICAL TAMPING AND COMPACTION REQUIRED AS DIRECTED BY THE CITY. WATER SETTLING MAY ONLY BE USED OUTSIDE THE ROADWAY PRISM WHEN APPROVED BY THE CITY.
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
REV.	6/14	SAWCUT UPDATE	
REV.	01/12	DELETED PVC OPTION	
ORIG.	11/06		

CITY OF SELAH-STANDARD DETAIL

WATERMAIN TRENCH

W-1



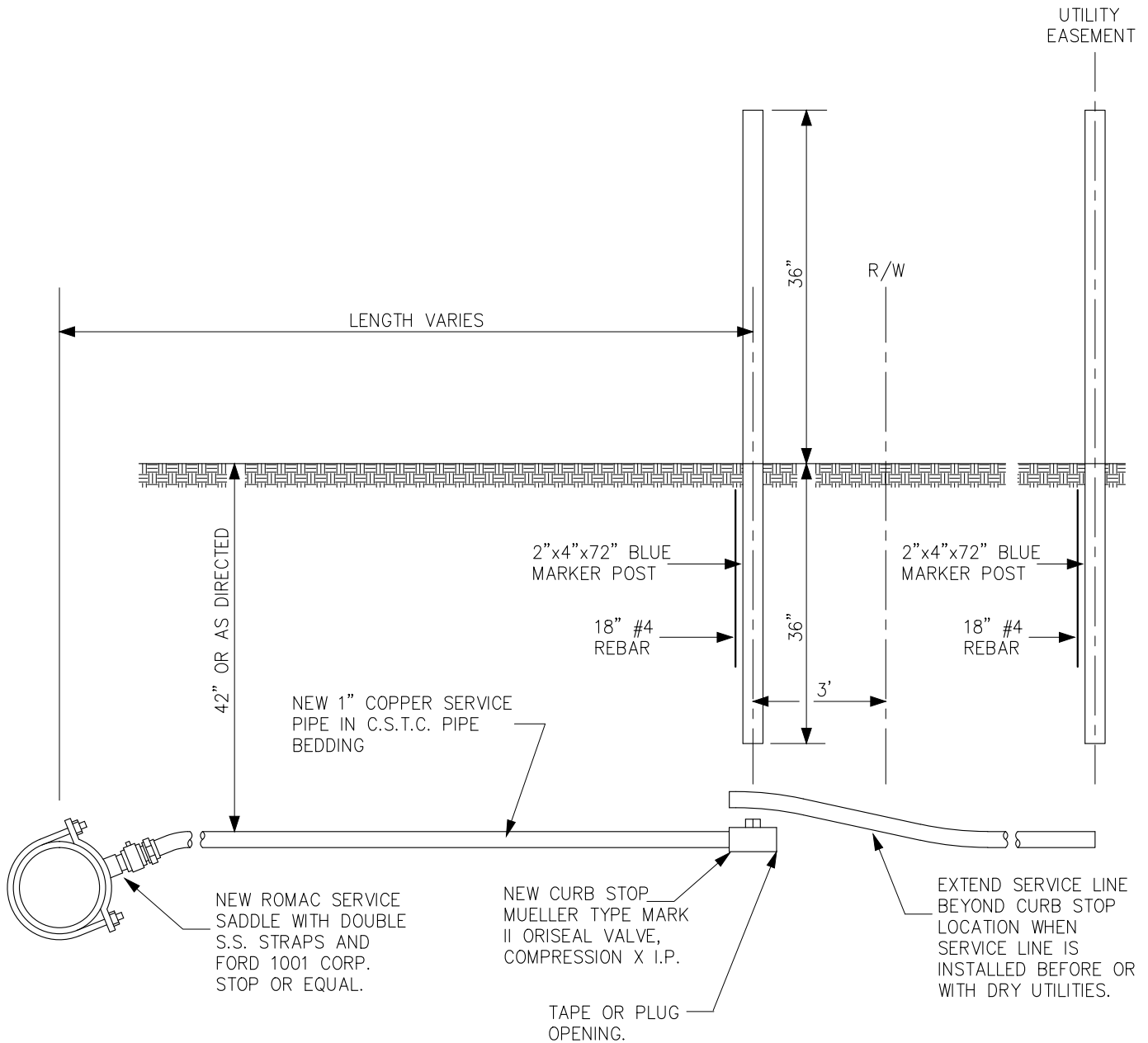
TYPICAL FIRE HYDRANT ASSEMBLY

NOT TO SCALE

NOTE:

1. ROMAC "GRIP-RING" MECHANICAL JOINT ACCESSORY KITS SHALL BE USED ON ALL MECHANICAL JOINT CONNECTIONS FROM VALVE TO HYDRANT.
 2. MINIMUM HYDRANT DEPTH IS 4 FEET.
 3. SHACKLE RODS MAY BE USED IN PLACE OF "GRIP-RINGS" OR A THRUST BLOCK WHEN APPROVED BY THE PUBLIC WORKS DIRECTOR.
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

REV.	01/12	ADDED SHACKLE ROD NOTE	
ORIG.	10/06		
Revision	Date	Description	Appr



WATER SERVICE

NOT TO SCALE

NOTES:

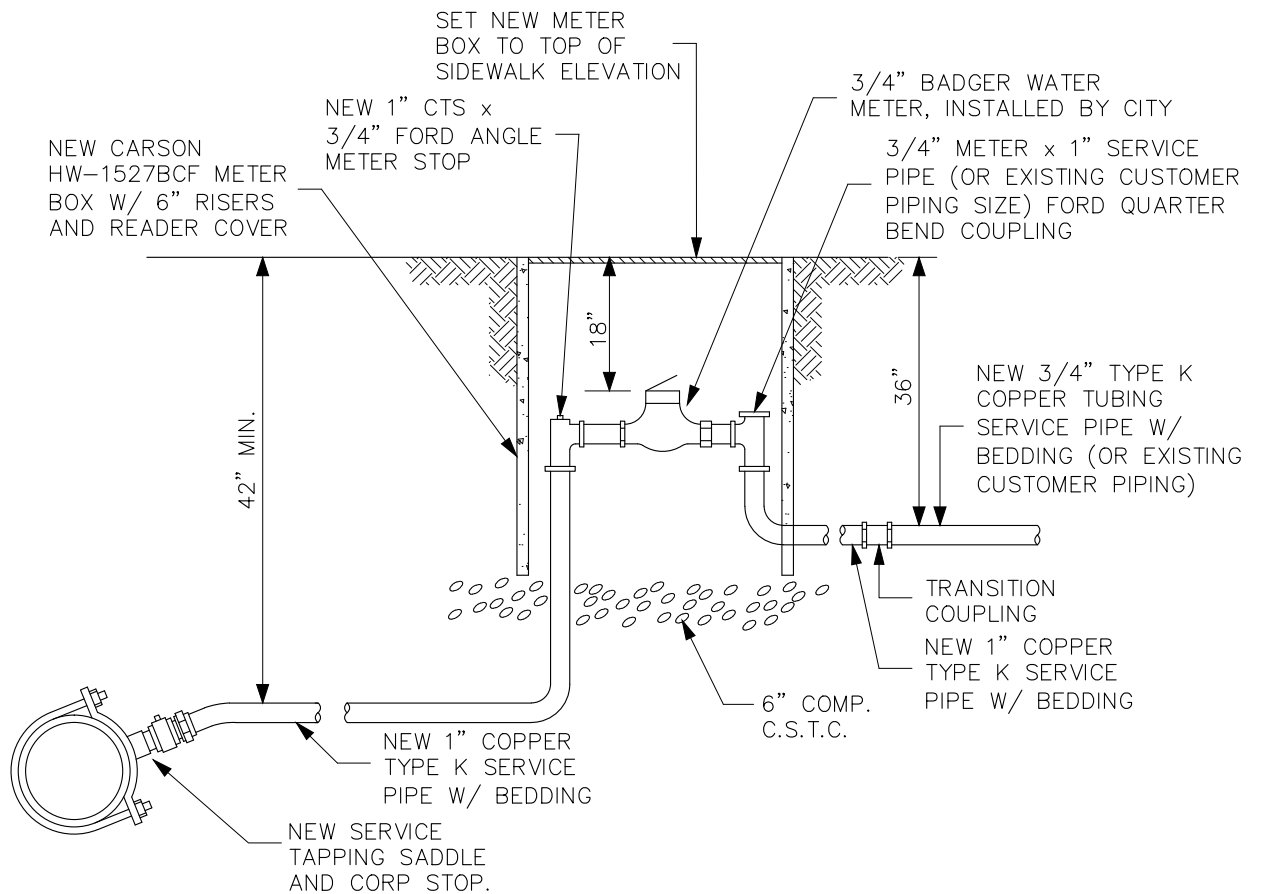
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.
- WATER SERVICE SHALL BE INSTALLED W/ A MINIMUM OF 3" THICKNESS C.S.T.C. PIPE BEDDING ON ALL SIDES

REV.	01/12	ADDED SERVICE LINE OPTION	
ORIG.	10/06		
Revision	Date	Description	Appr

CITY OF SELAH—STANDARD DETAIL

WATER SERVICE

W-3



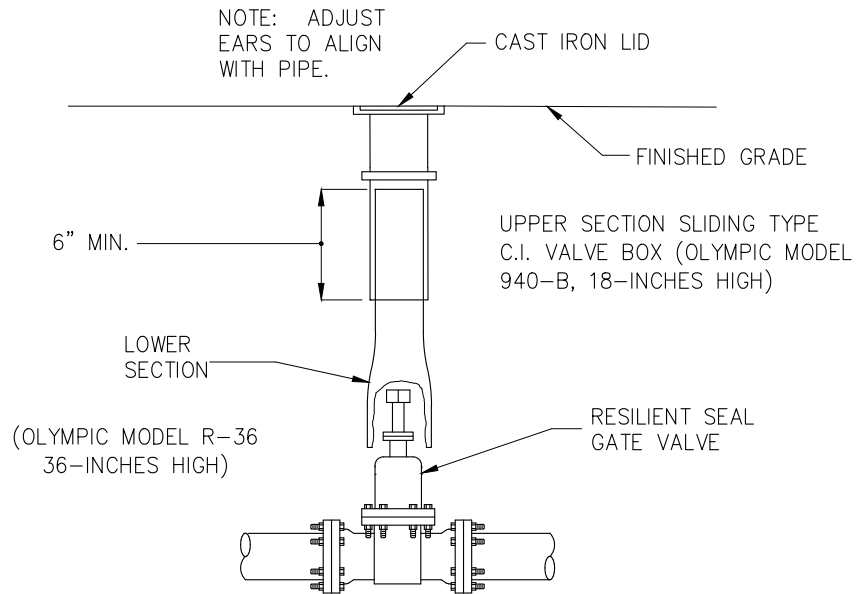
WATER METER BOX AND SERVICE REPLACEMENT

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

REV.	11/15	FITTINGS	
ORIG.	10/06		
Revision	Date	Description	Appr



VALVE SIZE AND ENDS AS SPECIFIED OR INDICATED ON PLANS. INSTALLATION IS SIMILAR FOR BUTTERFLY VALVE.

NOTE: PROVIDE EXTENSION PIECE WHERE REQUIRED FOR VALVE BOX. (OLYMPIC MODEL 044, 12-INCHES HIGH)

WATER VALVE BOX

NOT TO SCALE

NOTES:

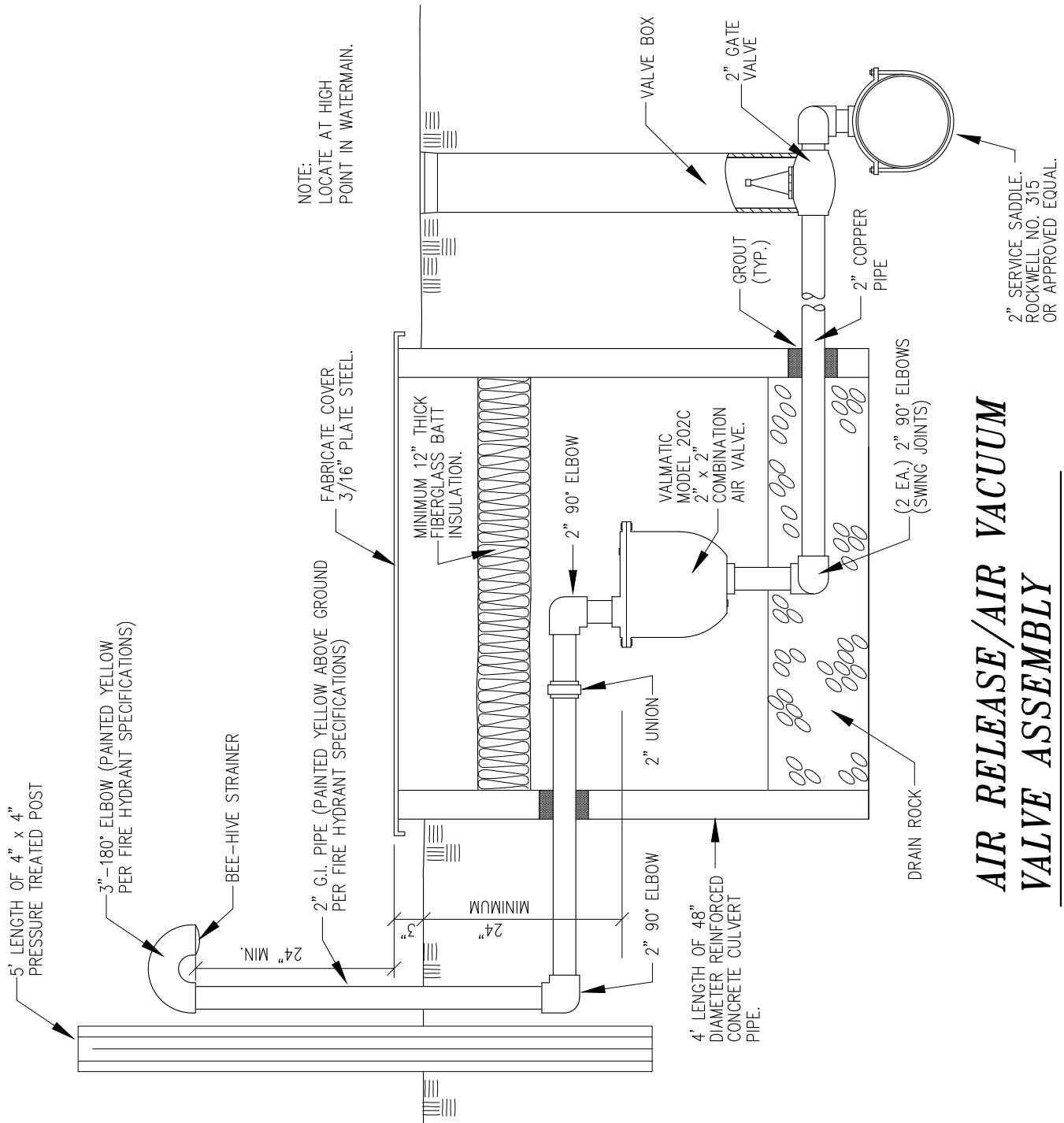
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	10/06		
Revision	Date	Description	Appr

CITY OF SELAH—STANDARD DETAIL

WATER VALVE BOX

W-5



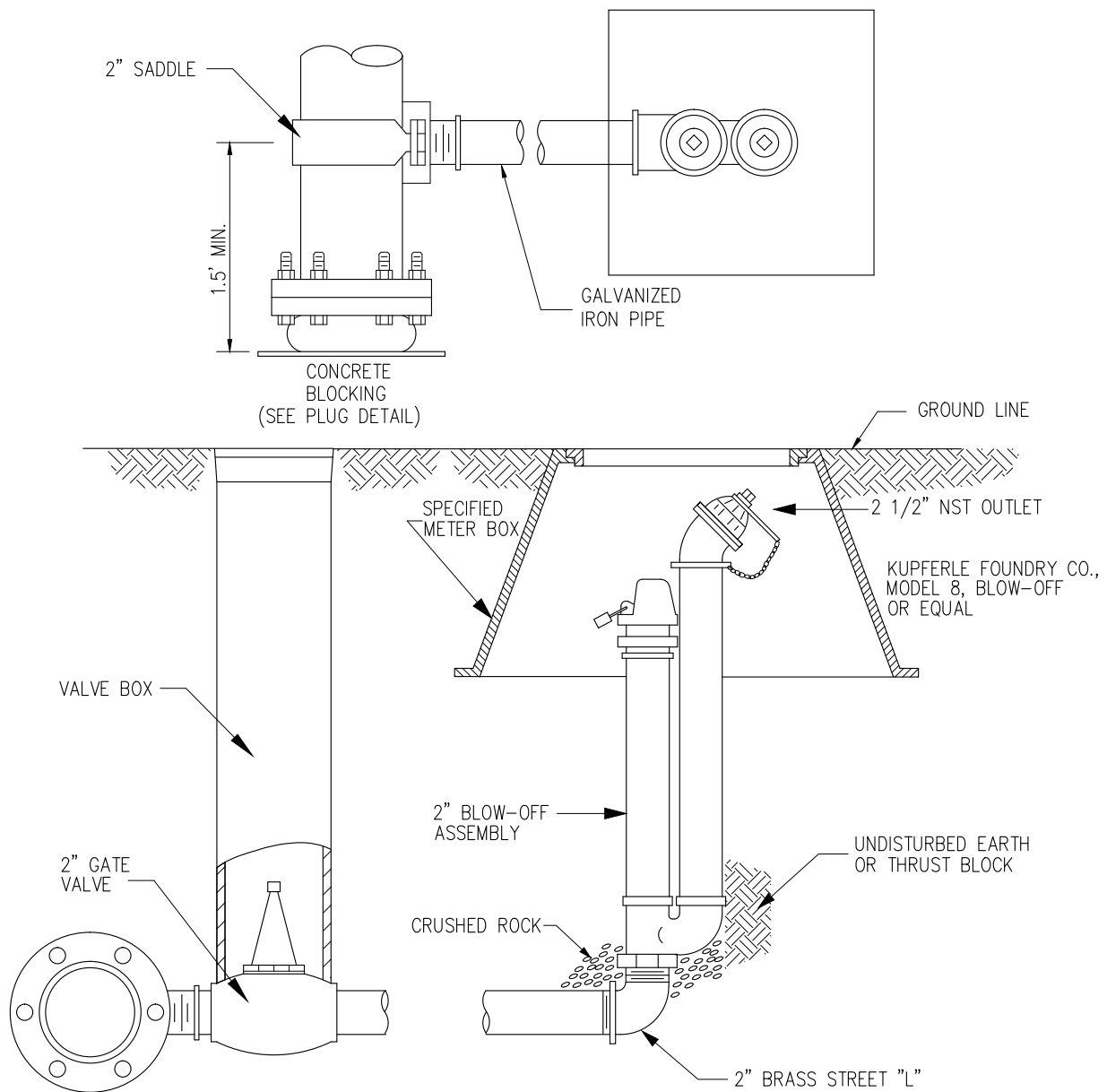
AIR RELEASE/AIR VACUUM VALVE ASSEMBLY

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

REV.	01/12	SIDE OUTLET, WOOD POST	
ORIG.	10/06		
Revision	Date	Description	Appr



BLOW-OFF ASSEMBLY

NOT TO SCALE

NOTES:

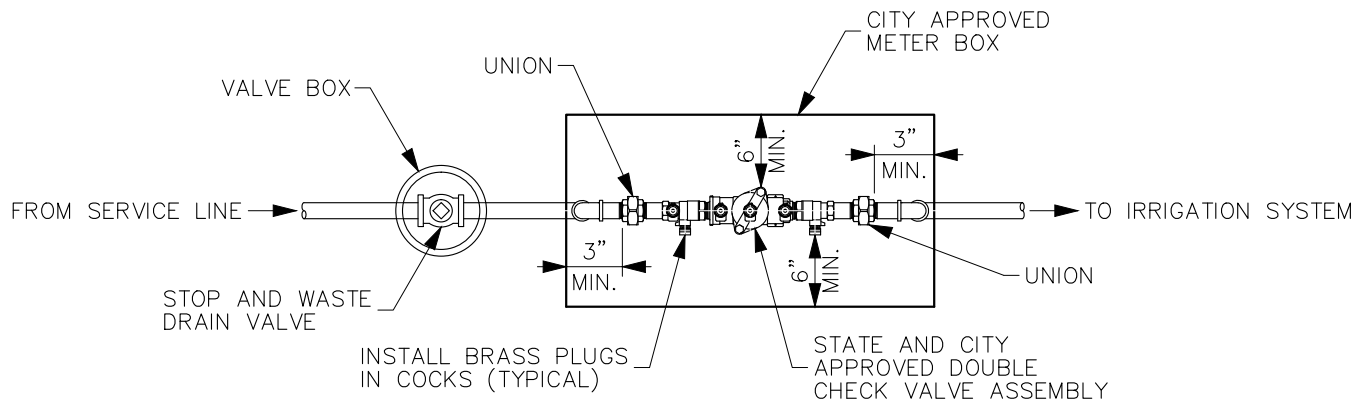
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

ORIG.	10/06		
Revision	Date	Description	Appr

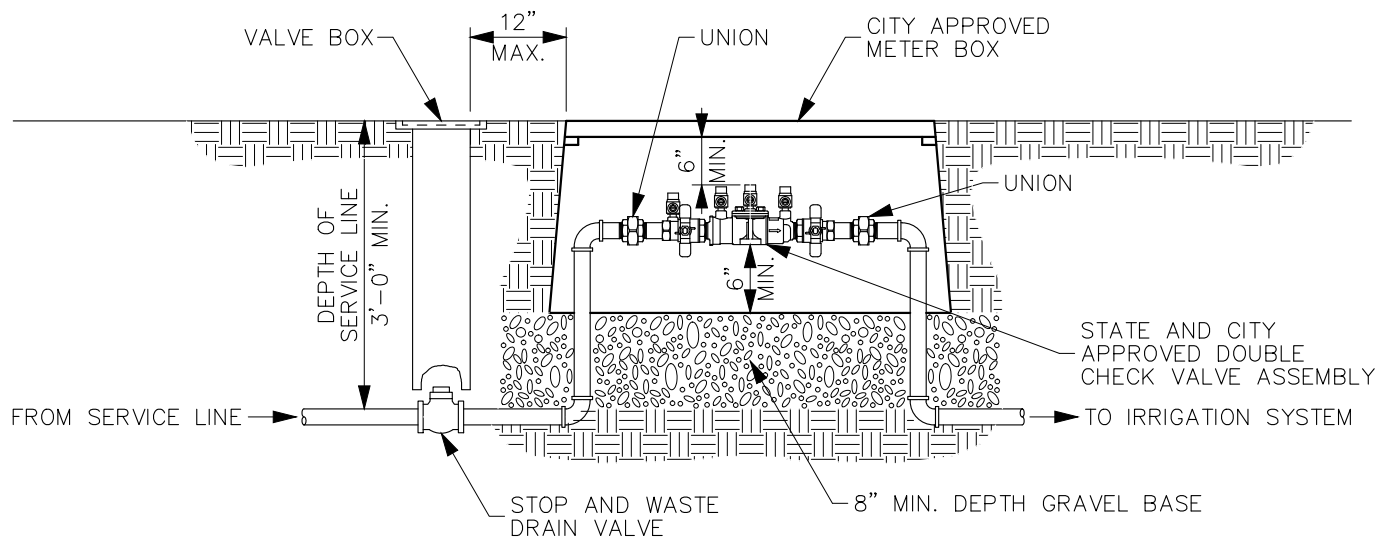
CITY OF SELAH—STANDARD DETAIL

BLOW-OFF ASSEMBLY

W-7



PLAN



ELEVATION

NOTES:

1. DOUBLE CHECK VALVE ASSEMBLY SHALL MEET REQUIREMENTS OF THE AWWA "ACCEPTED PROCEDURE AND PRACTICE IN CROSS-CONNECTION CONTROL" MANUAL.
2. DEVICES MUST BE ON STATE DEPT. OF SOCIAL AND HEALTH SERVICES LIST OF "APPROVED CROSS CONNECTION CONTROL DEVICES".
3. METER BOX SIZE SHOULD BE SIZED TO PROVIDE THE MINIMUM CLEARANCES SHOWN IN THE DETAIL.

TYPICAL IRRIGATION BACKFLOW PREVENTER (3/4" - 2")

NOT TO SCALE

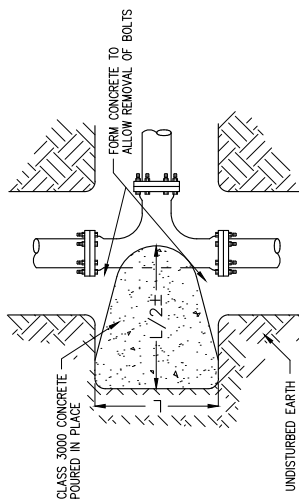
NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE CITY DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

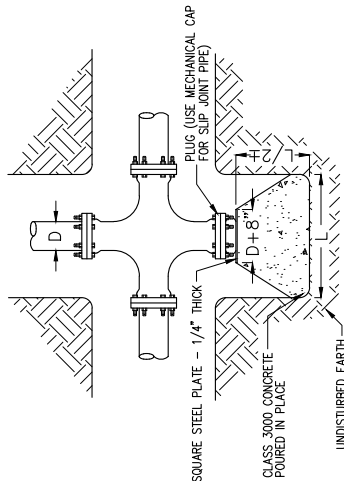
ORIG.	12/07		
Revision	Date	Description	Appr

NOTES:

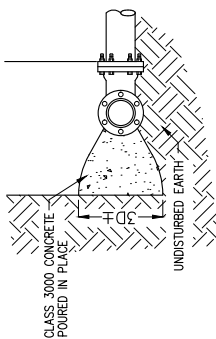
- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.



TEES



PLUGS AND CAPS



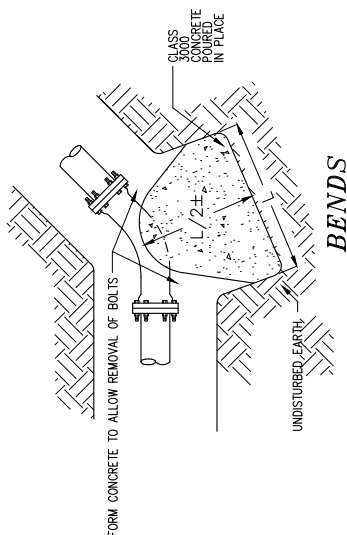
SIDE VIEW

THIS VIEW TYPICAL OF ALL BLOCKING

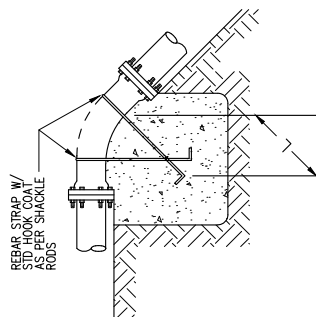
NOTES:

- D IS APPROXIMATE PIPE DIAMETER. THE ABOVE END AREAS ARE BASED ON AN ALLOWABLE SOIL BEARING PRESSURE OF 1500 PSF AND 250 PSI TEST PRESSURE.
- DIMENSIONS LISTED DENOTE MINIMUM STANDARDS FOR SOIL AND TEST PRESSURES SHOWN. SHOULD TEST PRESSURE AND/OR SOIL CONDITIONS VARY, THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR SPECIAL THRUST BLOCK DESIGN.
- ALL FITTINGS AND/OR PIPE MAKING DIRECT CONTACT WITH CONCRETE SHALL BE WRAPPED WITH 4 MIL POLYETHYLENE SHEETING PRIOR TO PLACEMENT OF CONCRETE.

MINIMUM END AREAS				
PIPE SIZE (D)	TEES & PLUGS	90° BENDS	45° BENDS	11 1/4° AND 22 1/2° BENDS
6"	5.1 SQ FT	7.2 SQ FT	3.9 SQ FT	2.0 SQ FT
8"	8.8 SQ FT	12.4 SQ FT	6.7 SQ FT	3.4 SQ FT
10"	14.3 SQ FT	20.2 SQ FT	11.0 SQ FT	5.6 SQ FT
12"	20.4 SQ FT	28.9 SQ FT	15.7 SQ FT	7.9 SQ FT
14"	27.7 SQ FT	39.2 SQ FT	21.2 SQ FT	10.7 SQ FT
16"	35.8 SQ FT	51.2 SQ FT	27.5 SQ FT	13.9 SQ FT



BENDS



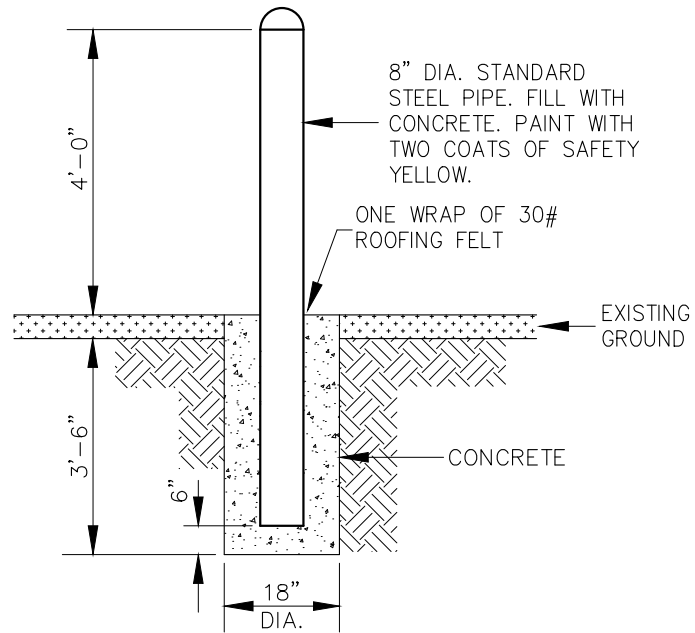
VERTICAL OVERBEND

VERTICAL OVERBEND				
PIPE SIZE (D)	22 1/2° BEND	45° BEND	REBAR SIZE	L
6"	20 CU FT	39 CU FT	#5	2.0 FT
8"	34 CU FT	67 CU FT	#5	2.0 FT
10"	56 CU FT	110 CU FT	#5	2.0 FT
12"	79 CU FT	157 CU FT	#6	2.5 FT
14"	107 CU FT	212 CU FT	#7	3.0 FT
16"	139 CU FT	275 CU FT	#9	4.0 FT

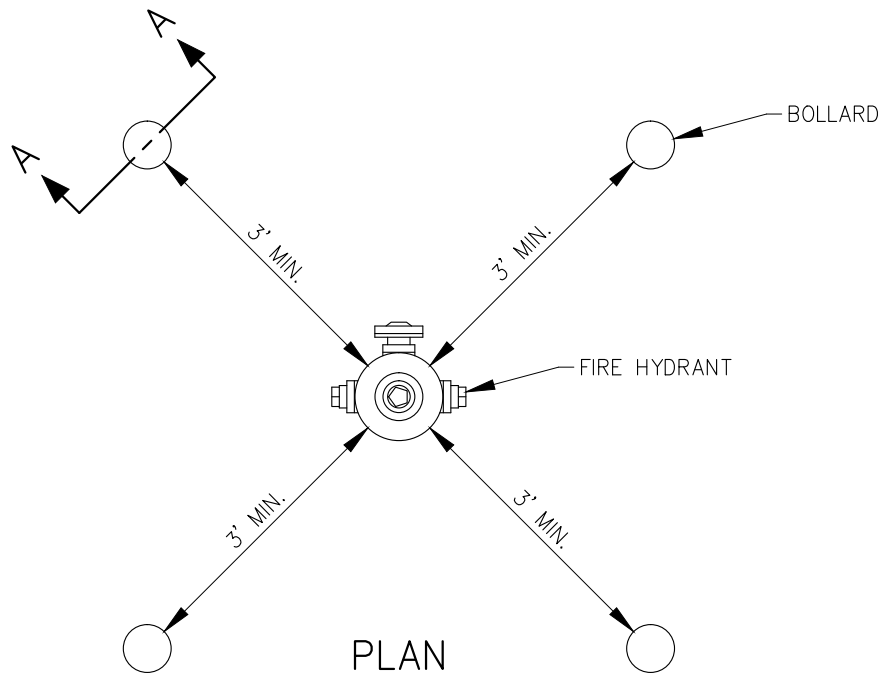
TYPICAL THRUST BLOCKING

NOT TO SCALE

ORIG.	10/06		
Revision	Date	Description	Appr



SECTION A-A



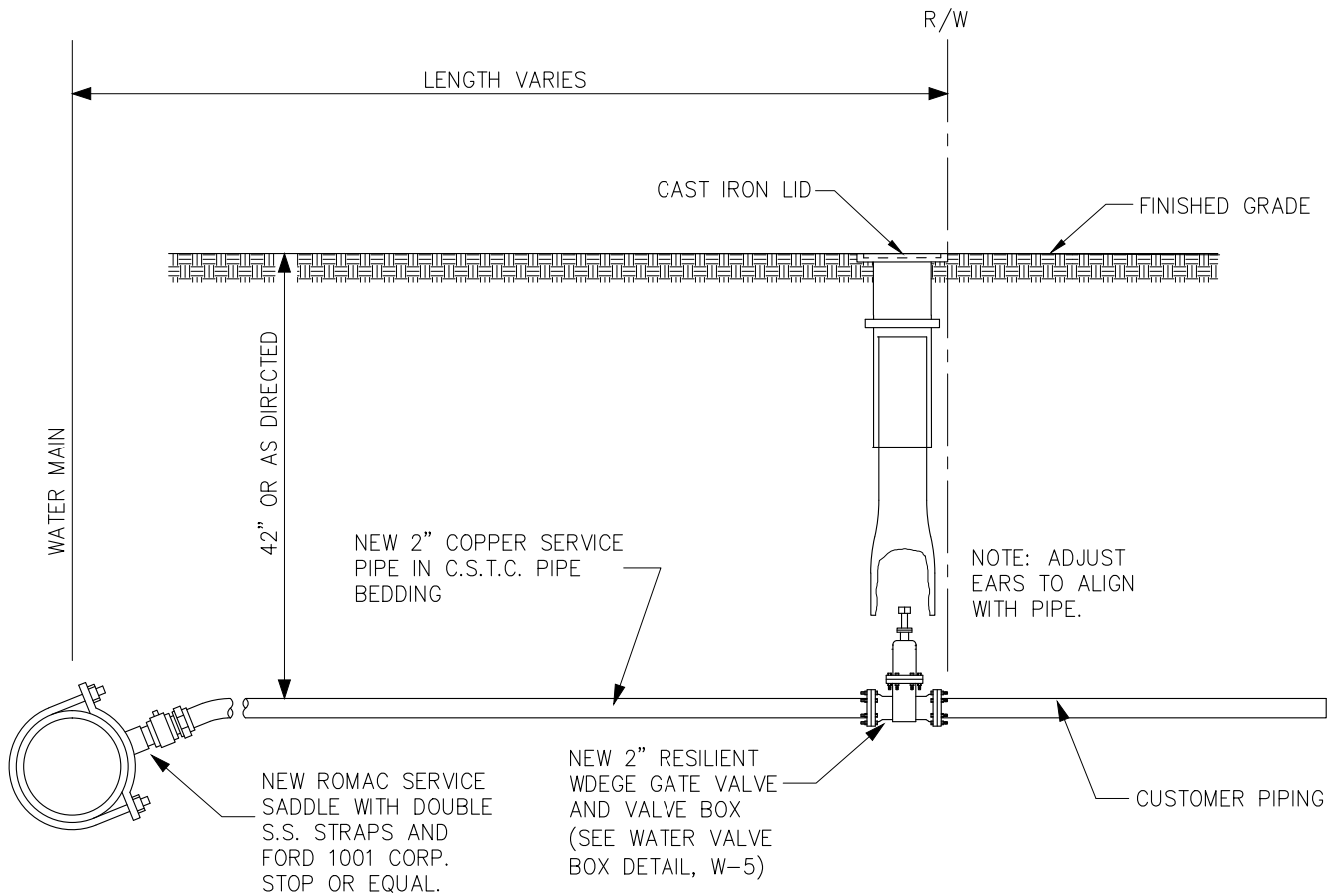
FIRE HYDRANT GUARD POSTS

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

REV.	1/12	UPDATED BOLLARD DETAIL	
ORIG.	10/06		
Revision	Date	Description	Appr



FIRE SERVICE

NOT TO SCALE

NOTES:

- ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.
- FIRE SERVICE SHALL BE INSTALLED W/ A MINIMUM OF 3" THICKNESS C.S.T.C. PIPE BEDDING ON ALL SIDES

REV.			
ORIG.	09/14		
Revision	Date	Description	Appr

CITY OF SELAH—STANDARD DETAIL

FIRE SERVICE

W-11

ENGINEERING COST ESTIMATES

ESTIMATED COSTS - MAINTENANCE IMPROVEMENT PROJECTS

Item	Quantity	Unit Price	Amount
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M1 New 15-inch Industrial Pretreatment Sewer in Railroad Ave.

15-inch Sanitary Sewer Pipeline, LF	900	\$87	\$78,030
New 4-foot Diameter Manhole, each	4	\$3,500	\$14,000
Surface Restoration - Asphalt, TN	133	\$120	\$15,960
Surface Restoration-Base Course, TN	371	\$24	\$8,904
Connections to Existing System	1	\$1,000	\$1,000
Side Sewer Connections	2	\$800	\$1,600

Subtotal	\$119,494
Tax and Contingencies	\$26,289
Engineering, Admin, and Legal	\$36,446
Total Estimated Cost	\$182,228

Inflated total at 3% from 2008 to 2017: **\$237,767**

M2 Connect new 12-inch/15-inch sewer to existing sewer under South First Street at Southern Avenue

12-inch Sanitary Sewer Pipeline, LF	50	\$79	\$3,970
15-inch Sanitary Sewer Pipeline, LF	250	\$87	\$21,675
Surface Restoration - Asphalt, TN	36	\$120	\$4,320
Surface Restoration-Base Course, TN	100	\$24	\$2,400
Connections to Existing System	4	\$1,000	\$4,000

Subtotal	\$36,365
Tax and Contingencies	\$8,000
Engineering, Admin, and Legal	\$11,091
Total Estimated Cost	\$55,457

Inflated total at 3% from 2008 to 2017: **\$72,358**

M3 New 10-inch Sewer in Fremont Avenue

10-inch Sanitary Sewer Pipeline, LF	1,920	\$71	\$136,032
New 4-foot Diameter Manhole, each	6	\$3,500	\$21,000
Surface Restoration - Asphalt, SY	273	\$120	\$32,760
Surface Restoration-Base Course, TN	0	\$24	\$0
Connections to Existing System	3	\$1,000	\$3,000

Subtotal	\$192,792
Tax and Contingencies	\$38,558
Engineering, Admin, and Legal	\$48,198
Total Estimated Cost	\$279,548

Inflated total at 3% from 2008 to 2017: **\$364,747**

M4 Manhole Replacement/Installation

New 4-foot Diameter Manhole, each	5	\$3,500	\$17,500
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Subtotal	\$17,500
Tax and Contingencies	\$3,500
Engineering, Admin, and Legal	\$4,375
Total Estimated Cost	\$25,375

Inflated total at 3% from 2008 to 2017: **\$33,109**

ESTIMATED COSTS - CAPACITY IMPROVEMENT PROJECTS

Item	Quantity	Unit Price	Amount
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C2A New 10-inch/12-inch Sewer on Southern Ave. east of South Fifth Street to the intersection at Southern Ave.

Required to support growth south of the City

10-inch Sanitary Sewer Pipeline, LF	567	\$71	\$40,172
12-inch Sanitary Sewer Pipeline, LF	568	\$79	\$45,099
New 4-foot Diameter Manhole, each	5	\$3,500	\$17,500
Surface Restoration - Asphalt, TN	161	\$120	\$19,320
Surface Restoration-Base Course, TN	452	\$24	\$10,848
Connections to Existing System	2	\$4,000	\$8,000
Side Sewer Connections	16	\$800	\$12,800

Subtotal	\$153,739
Tax and Contingencies	\$33,823
Engineering, Admin, and Legal	\$46,890
Total Estimated Cost	\$234,452

Inflated total at 3% from 2008 to 2017: **\$305,907**

C2B New 15-inch Sewer on Eleventh Ave. north to Tenth & East to BNSF ROW, Then north to WWTP

Required to support growth south of the City

15-inch Sanitary Sewer Pipeline, LF	2,975	\$87	\$257,933
New 4-foot Diameter Manhole, each	11	\$3,500	\$38,500
Surface Restoration - Asphalt, TN	438	\$120	\$52,560
Surface Restoration-Base Course, TN	1,227	\$24	\$29,448
Connections to Existing System	2	\$4,000	\$8,000
Side Sewer Connections	14	\$800	\$11,200

Subtotal	\$397,641
Tax and Contingencies	\$87,481
Engineering, Admin, and Legal	\$121,280
Total Estimated Cost	\$606,402

Inflated total at 3% from 2008 to 2017: **\$791,217**

C6 New 10-inch sewer on Thirteenth Street Between Speyers Road & Cherry Ave.

Required to support growth west of City

10-inch Sanitary Sewer Pipeline, LF	138	\$71	\$9,777
New 4-foot Diameter Manhole, each	2	\$3,500	\$7,000
Surface Restoration - Asphalt, TN	20	\$120	\$2,400
Surface Restoration-Base Course, TN	55	\$24	\$1,320
Connections to Existing System	2	\$1,000	\$2,000
Side Sewer Connections	3	\$800	\$2,400

Subtotal	\$24,897
Tax and Contingencies	\$5,477
Engineering, Admin, and Legal	\$7,594
Total Estimated Cost	\$37,968

Inflated total at 3% from 2008 to 2017: **\$49,540**

C7 New 12-inch sewer in Alley North of Cherry Ave. east to Ninth Street and then south Between Cherry Ave. & Pear Ave.

Required to support growth west of City

12-inch Sanitary Sewer Pipeline, LF	518	\$79	\$41,129
New 4-foot Diameter Manhole, each	4	\$3,500	\$14,000
Surface Restoration - Asphalt, TN	20	\$120	\$2,400
Surface Restoration-Base Course, TN	55	\$24	\$1,320
Connections to Existing System	3	\$1,000	\$3,000
Side Sewer Connections	9	\$800	\$7,200

Subtotal	\$69,049
Tax and Contingencies	\$15,191
Engineering, Admin, and Legal	\$21,060
Total Estimated Cost	\$105,300

Inflated total at 3% from 2008 to 2017: **\$137,393**

C5 New 10-inch sewer west of Wixson Park Southwest of Lince Elementary School***Required to support growth west of City***

10-inch Sanitary Sewer Pipeline, LF	150	\$71	\$10,628
New 4-foot Diameter Manhole, each	2	\$3,500	\$7,000
Gravel Surfacing, SY	61	\$15	\$915
Connections to Existing System	3	\$1,000	\$3,000
Side Sewer Connections	3	\$800	\$2,400

Subtotal	\$23,943
Tax and Contingencies	\$5,267
Engineering, Admin, and Legal	\$7,302
Total Estimated Cost	\$36,512

Inflated total at 3% from 2008 to 2017: **\$47,640****C3** New 12-inch Sewer Through Wixson Park, around pool.***Project to eliminate line from pool connecting into Third Street***

12-inch Sanitary Sewer Pipeline, LF	650	\$79	\$51,610
New 4-foot Diameter Manhole, each	1	\$3,500	\$3,500
Surface Restoration-Asphalt, TN	47	\$120	\$5,640
Surface Restoration-Base Course, TN	131	\$24	\$3,144
Connections to Existing System	2	\$1,000	\$2,000
Side Sewer Connections	1	\$800	\$800

Subtotal	\$66,694
Tax and Contingencies	\$14,673
Engineering, Admin, and Legal	\$20,342
Total Estimated Cost	\$101,708

Inflated total at 3% from 2008 to 2017: **\$132,706****C1A** New 10-inch Sewer on Speyers Road south to Fremont Ave. Traveling east to South Third St. then south to Park.***Required to support growth west of City********Possibly substituted by Naches Avenue Interceptor*****

10-inch Sanitary Sewer Pipeline, LF	2,230	\$71	\$157,996
New 4-foot Diameter Manhole, each	10	\$3,500	\$35,000
Surface Restoration-Asphalt, TN	317	\$120	\$38,040
Surface Restoration-Base Course, TN	888	\$24	\$21,312
Connections to Existing System	3	\$1,000	\$3,000
Side Sewer Connections	37	\$800	\$29,600

Subtotal	\$284,948
Tax and Contingencies	\$62,688
Engineering, Admin, and Legal	\$86,909
Total Estimated Cost	\$434,545

Inflated total at 3% from 2008 to 2017: **\$566,983**

C1B New 15-inch Sewer at the intersection of Park Ave & South Third St. to intersection of Selah Ave and South First St.**Required to support growth west of City******Possibly substituted by Naches Avenue Interceptor****

15-inch Sanitary Sewer Pipeline, LF	989	\$87	\$85,746
New 4-foot Diameter Manhole, each	5	\$3,500	\$17,500
Surface Restoration-Asphalt, TN	146	\$120	\$17,520
Surface Restoration-Base Course, TN	408	\$24	\$9,792
Connections to Existing System	2	\$1,000	\$2,000
Side Sewer Connections	20	\$800	\$16,000

Subtotal	\$148,558
Tax and Contingencies	\$32,683
Engineering, Admin, and Legal	\$45,310
Total Estimated Cost	\$226,551

Inflated total at 3% from 2008 to 2017: **\$295,598****C1C** New 15-inch Sewer east of Intersection at Selah Ave & South First Street to Selah Ave Traveling east to Railroad Ave**Required to support growth west of City******Possibly substituted by Naches Avenue Interceptor****

15-inch Sanitary Sewer Pipeline, LF	1,254	\$87	\$108,722
New 4-foot Diameter Manhole, each	4	\$3,500	\$14,000
Surface Restoration-Asphalt, TN	185	\$120	\$22,200
Surface Restoration-Base Course, TN	517	\$24	\$12,408
Connections to Existing System	2	\$1,000	\$2,000
Side Sewer Connections	7	\$800	\$5,600

Subtotal	\$164,930
Tax and Contingencies	\$36,285
Engineering, Admin, and Legal	\$50,304
Total Estimated Cost	\$251,518

Inflated total at 3% from 2008 to 2017: **\$328,174****C4** New 18-inch Sewer on Railroad Avenue from Naches Avenue to Junction east of Third Avenue.**Required to support growth west of City****Change to 21-inch for Naches Ave Interceptor option**

21-inch Sanitary Sewer Pipeline, LF	1,269	\$97	\$122,712
New 4-foot Diameter Manhole, each	7	\$3,500	\$24,500
Surface Restoration-Asphalt, TN	193	\$120	\$23,160
Surface Restoration-Base Course, TN	541	\$24	\$12,984
Connections to Existing System	4	\$1,000	\$4,000
Side Sewer Connections	11	\$800	\$8,800

Subtotal	\$196,156
Tax and Contingencies	\$43,154
Engineering, Admin, and Legal	\$59,828
Total Estimated Cost	\$299,138

Inflated total at 3% from 2008 to 2017: **\$390,308****CC** 12-inch Crusher Canyon Extension

12-inch Sanitary Sewer Pipeline, LF	4,600	\$79	\$365,240
8-inch Sanitary Sewer Pipeline, LF	560	\$62	\$34,888
New 4-foot Diameter Manhole, each	18	\$3,500	\$63,000
Surface Restoration-Asphalt, TN	2,200	\$120	\$264,000
Surface Restoration-Base Course, TN	1,560	\$24	\$37,440
Connections to Existing System	4	\$1,000	\$4,000
Side Sewer Connections	12	\$800	\$9,600

Subtotal	\$778,168
Tax and Contingencies	\$171,197
Engineering, Admin, and Legal	\$237,341
Total Estimated Cost	\$1,186,706

Inflated total at 3% from 2008 to 2017: **\$1,548,382**

L1

Liftstation Improvements

Required for growth south of City and industrial to NE

Parallel liftstation and forcemain

315,000

Refurbish and increase the capacity of the South Lift Station

Subtotal	\$315,000
Tax and Contingencies	\$69,300
Engineering, Admin, and Legal	\$96,075
Total Estimated Cost	\$480,375

Inflated total at 3% from 2008 to 2017:

\$626,780

ESTIMATED COSTS: CAPACITY IMPROVEMENT ALTERNATIVE COMPARISON FOR NACHES AVENUE INTERCEPTOR

Item	Quantity	Unit Price	Amount
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New 12-inch Sewer on Naches Avenue from Fremont Avenue through alley between N Third and N Fourth to Naches Avenue turning east to intersection of N Wenas and Naches Avenue where it changes to 15-inch until Railroad Avenue. Includes 15-inch line extension of MH 2-5 in N Wenas at Alley just south of Orchard to new line in Naches Ave. Project is an alternative to items C1A, B, and C listed below.

	Item	Quantity	Unit Price	Amount
C1	10-inch from Fremont and Fourth Street to MH 5-3 in Fremont	175	\$71	\$12,399
	Replacement of 8-inch sewer with 12-inch Sanitary Sewer Pipeline, LF	1,269	\$79	\$100,759
	New 12-inch Sanitary Sewer Pipeline, LF	1,098	\$79	\$87,181
	15-inch Sanitary Sewer Pipeline, LF	908	\$87	\$78,724
	New 4-foot Diameter Manhole, each	8	\$3,500	\$28,000
	Surface Restoration-Asphalt, TN	978	\$120	\$117,311
	Surface Restoration-Base Course, TN	1,495	\$24	\$35,880
	Connections to Existing System	3	\$1,000	\$3,000
	Side Sewer Connections	20	\$800	\$16,000
	Extra Excavation - and concrete removal, CY	100	\$235	\$23,500
	Subtotal			\$502,753
	Tax and Contingencies			\$110,606
	Engineering, Admin, and Legal			\$153,340
	Total Estimated Cost			\$766,699

Inflated total at 3% from 2008 to 2017: **\$1,000,368**

The projects below (C1A, B, and C) address capacity restraints identified by the modeling. Project C1 shown above addresses all these areas.

C1A	New 10-inch Sewer on Speyers Road South to Fremont Ave. Traveling east to South Third Street then south to Park A			
	10-inch Sanitary Sewer Pipeline, LF	2,230	\$71	\$157,996
	New 4-foot Diameter Manhole, each	10	\$3,500	\$35,000
	Surface Restoration-Asphalt, TN	317	\$120	\$38,040
	Surface Restoration-Base Course, TN	888	\$24	\$21,312
	Connections to Existing System	3	\$1,000	\$3,000
	Side Sewer Connections	37	\$800	\$29,600
	Subtotal			\$284,948
	Tax and Contingencies			\$62,688
	Engineering, Admin, and Legal			\$86,909
	Total Estimated Cost			\$434,545

Inflated total at 3% from 2008 to 2017: **\$566,983**

C1B	New 15-inch Sewer at the intersection of Park Ave & South Third St. to intersection of Selah Ave and South First St.			
	Item	Quantity	Unit Price	Amount
	15-inch Sanitary Sewer Pipeline, LF	989	87	85,746
	New 4-foot Diameter Manhole, each	5	3,500	17,500
	Surface Restoration-Asphalt, TN	146	120	17,520
	Surface Restoration-Base Course, TN	408	24	9,792
	Connections to Existing System	2	1,000	2,000
	Side Sewer Connections	20	800	16,000
	Subtotal			148,558
	Tax and Contingencies			32,683
	Engineering, Admin, and Legal			45,310
	Total Estimated Cost			226,551

Inflated total at 3% from 2008 to 2017: **\$295,598**

C1C	New 15-inch Sewer east of Intersection at Selah Ave & South First Street to Selah Ave Traveling east to Railroad Ave			
	15-inch Sanitary Sewer Pipeline, LF	1254	86.7	108721.8
	New 4-foot Diameter Manhole, each	4	3500	14000
	Surface Restoration-Asphalt, TN	185	120	22200
	Surface Restoration-Base Course, TN	517	24	12408
	Connections to Existing System	2	1000	2000
	Side Sewer Connections	7	800	5600
	Subtotal			164,930
	Tax and Contingencies			36,285
	Engineering, Admin, and Legal			50,304
	Total Estimated Cost			251,518

Inflated total at 3% from 2008 to 2017: **\$328,174**

Total projects C1A, B, and C: \$1,190,755

TABLE B-1: UNIT PIPELINE INSTALLATION COSTS

(Assumed to be 2011 costs)

Item	Quantity Per LF	Unit Price	Cost Per LF
------	--------------------	---------------	----------------

8-inch Sanitary Sewer

Pipeline, LF	1.0	\$35	\$35
Trench Excavation and Backfill, CY	0.9	\$15	\$14
Imported Pipe Bedding, ton	0.6	\$18	\$11

Unit Cost Per Linear Foot	\$59
Cost Per Linear Foot Used	\$62

10-inch Sanitary Sewer

Pipeline, LF	1.0	\$40	\$40
Trench Excavation and Backfill, CY	1.0	\$15	\$14
Imported Pipe Bedding, ton	0.7	\$18	\$13

Unit Cost Per Linear Foot	\$67
Cost Per Linear Foot Used	\$71

12-inch Sanitary Sewer

Pipeline, LF	1.0	\$45	\$45
Trench Excavation and Backfill, CY	1.0	\$15	\$15
Imported Pipe Bedding, ton	0.8	\$18	\$14

Unit Cost Per Linear Foot	\$74
Cost Per Linear Foot Used	\$79

15-inch Sanitary Sewer

Pipeline, LF	1.0	\$50	\$50
Trench Excavation and Backfill, CY	1.1	\$15	\$17
Imported Pipe Bedding, ton	0.9	\$18	\$16

Unit Cost Per Linear Foot	\$83
Cost Per Linear Foot Used	\$87

18-inch Sanitary Sewer

Pipeline, LF	1.0	\$55	\$55
Trench Excavation and Backfill, CY	1.1	\$15	\$17
Imported Pipe Bedding, ton	0.9	\$18	\$16

Unit Cost Per Linear Foot	\$88
Cost Per Linear Foot Used	\$92

21-inch Sanitary Sewer

Pipeline, LF	1.0	\$60	\$60
Trench Excavation and Backfill, CY	1.1	\$15	\$17
Imported Pipe Bedding, ton	0.9	\$18	\$16

Unit Cost Per Linear Foot	\$93
Cost Per Linear Foot Used	\$97

24-inch Sanitary Sewer

Pipeline, LF	1.0	\$65	\$65
Trench Excavation and Backfill, CY	1.1	\$15	\$17
Imported Pipe Bedding, ton	0.9	\$18	\$16

Unit Cost Per Linear Foot	\$98
Cost Per Linear Foot Used	\$102

30-inch Sanitary Sewer

Pipeline, LF	1.0	\$70	\$70
Trench Excavation and Backfill, CY	1.1	\$15	\$17
Imported Pipe Bedding, ton	0.9	\$18	\$16

Unit Cost Per Linear Foot	\$103
Cost Per Linear Foot Used	\$107

36-inch Sanitary Sewer

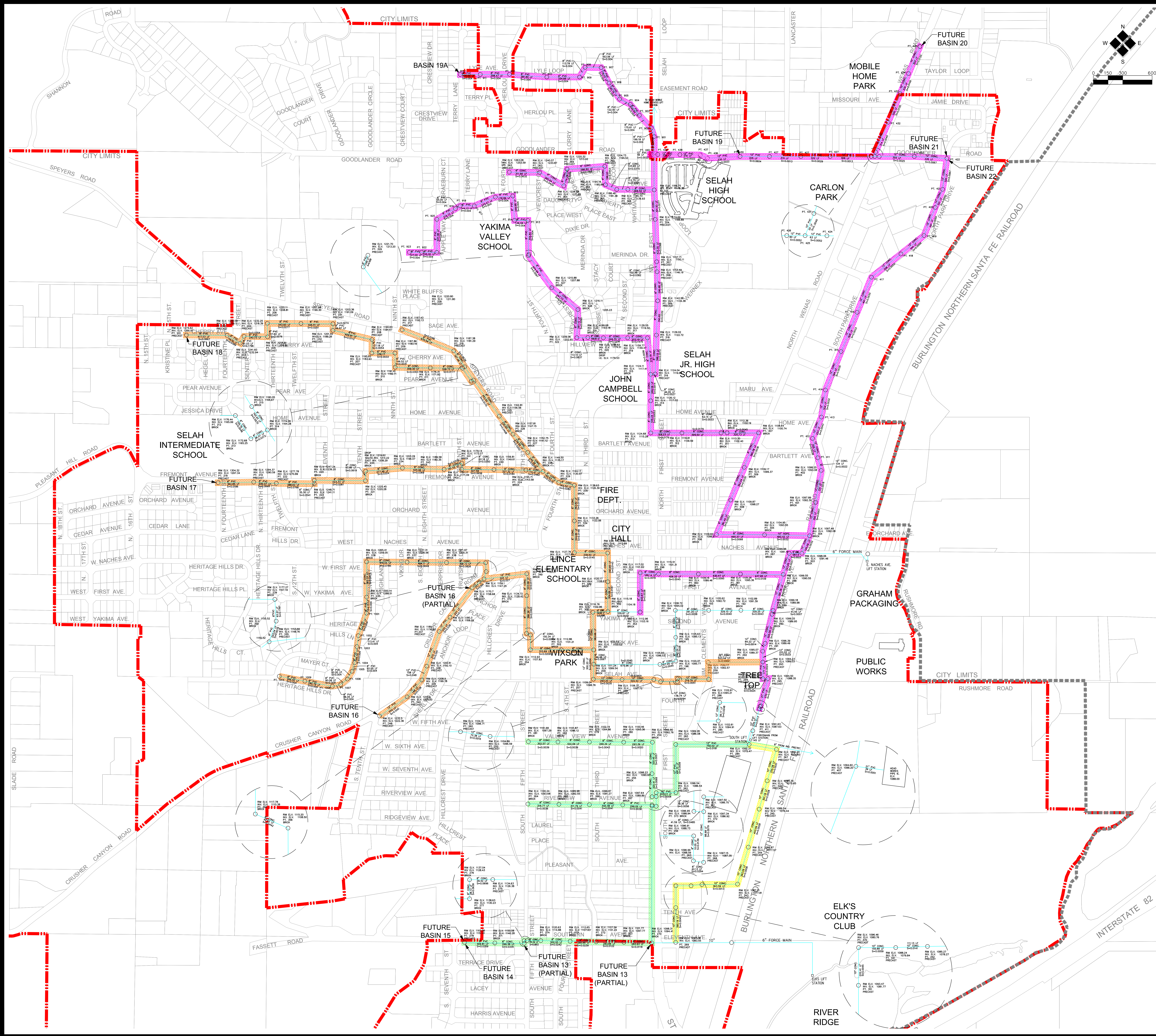
Pipeline, LF	1.0	\$75	\$75
Trench Excavation and Backfill, CY	1.1	\$15	\$17
Imported Pipe Bedding, ton	0.9	\$18	\$16

Unit Cost Per Linear Foot	\$108
Cost Per Linear Foot Used	\$112

TABLE B-2: OTHER SEWER INSTALLATION COSTS

Item	Unit	Unit Price
<u>Manholes</u>		
4-foot Diameter Manhole	Each	\$3,500
6-foot Diameter Manhole	Each	\$5,500
<u>Surface Restoration</u>		
Native Material	SY	\$15
Gravel Surfacing	SY	\$15
Asphalt Concrete Pavement	SY	\$40
Surface Restoration - Asphalt	TN	\$120
Surface Restoration - Base Course	TN	\$24
<u>Other</u>		
Connection to Existing System	Each	\$1,000
Side Sewer Connections	Each	\$800

**MAP A -
EXISTING COLLECTION
SYSTEM SURVEY DATA**



LEGEND

- EXISTING RETAIL SERVICE AREA BOUNDARY (CITY LIMITS)
- FUTURE RETAIL SERVICE AREA BOUNDARY (UGA)
- BRANCH A
- BRANCH B
- BRANCH C
- BRANCH D
- SEWER MAIN
- MANHOLE

DATUM ELEVATION

CITY OF SELAH DATUM
FROM THE SR82 - FIRST STREET OVERCROSSING STRUCTURE.
GO NORTH 1.5 MI. ON FIRST TO MARK ON LEFT. THE MARK
IS LOCATED 34.7 FT. WEST OF THE C.L., 21.0 FT. SOUTH OF
AN ELECTRICAL VAULT IN SIDEWALK, 27.5 FT. SOUTHWEST OF
A POWER POLE, AND 28.0 FT. AND 32.9 FT. SOUTHWEST OF
TWO MANHOLE COVERS. THE MARK IS A WSDOT BRASS DISK
SET INTO THE CONCRETE SIDEWALK.
ELEVATION: 1122.50

- NOTES:**
- THE MANHOLE ELEVATIONS AND PIPELINE LENGTHS SHOWN
HEREON WERE DETERMINED FROM FIELD SURVEYS PERFORMED
FROM OCTOBER 1994 TO NOVEMBER 1995.
 - RIM ELEVATIONS WERE DETERMINED USING TRIGONOMETRIC
LEVELING TECHNIQUES AND A TOPCON GTS 303 TOTAL STATION.
INVERT ELEVATIONS ARE TYPICALLY AT THE BOTTOM CENTER OF
THE MANHOLE AND WERE DETERMINED BY MEASURING DOWN
FROM THE MANHOLE RIM.
 - CITY STREETS ARE SHOWN TO PROVIDE GENERAL LOCATION
INFORMATION. THE RELATIONSHIP BETWEEN THE MANHOLE
LOCATION AND STREET LOCATION ARE APPROXIMATE ONLY,
AND SHOULD NOT BE RELIED UPON TO DETERMINE EXACT
PLACEMENT.
 - ONLY SURVEYED MANHOLES ARE SHOWN. OTHER MANHOLES
AND SEWER PIPELINES EXIST, BUT ARE NOT SHOWN.

MAP A

CITY OF SELAH

General Sewer Plan Update

EXISTING COLLECTION SYSTEM SURVEY DATA



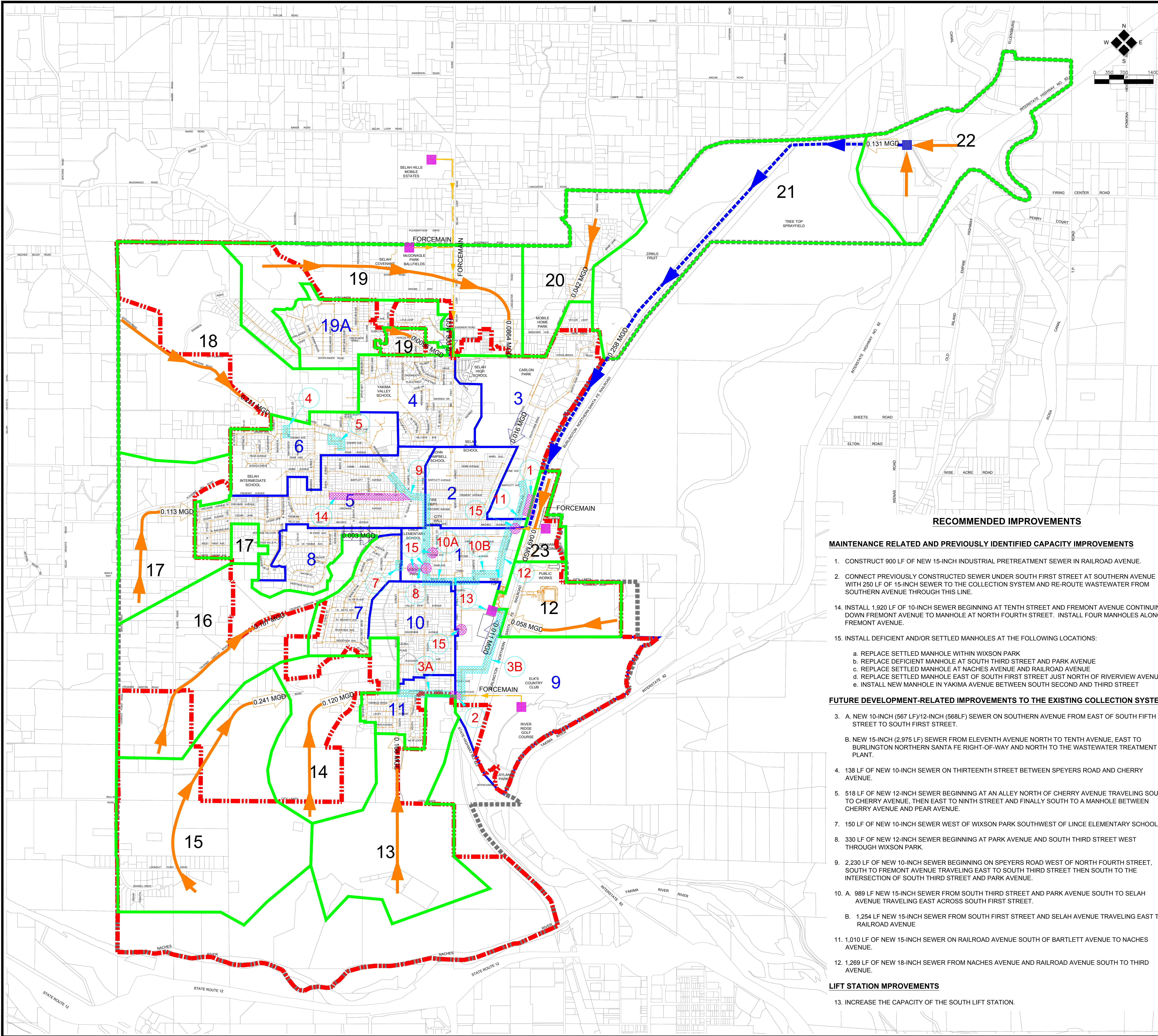
HLA
Engineering and Land Surveying, Inc.

2803 River Road
Yakima, WA 98902
509.966.7000
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www.hlaclvl.com



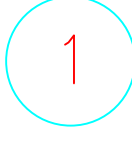










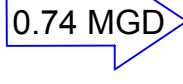




W&A

**MAP B -
COLLECTION SYSTEM
LOADING AND
RECOMMENDED
IMPROVEMENTS AT
PROJECTED ULTIMATE
BUILD-OUT**



LEGEND

- | | |
|---|--|
|  | EXISTING RETAIL SERVICE AREA BOUNDARY (CITY LIMITS) |
|  | FUTURE RETAIL SERVICE AREA BOUNDARY (UGA) |
|  | AREA NUMBER CORRESPONDING TO TEXT DISCUSSION |
|  | RECOMMENDED CAPACITY IMPROVEMENT |
|  | RECOMMENDED MAINTENANCE IMPROVEMENT |
|  | MANHOLE REPLACEMENT/INSTALLATION |
|  | EXISTING SEWER LINE |
|  | FUTURE LIFT STATION |
|  | EXISTING LIFT STATIONS |
|  | FUTURE FORCE MAINS |
|  | FUTURE TRUNK SEWERS |
|  | EXISTING FORCE MAINS |
|  | AVERAGE DESIGN FLOW FROM ULTIMATE BUILD-OUT (IN MGD) |
|  | ADDITIONAL FLOW FROM EXISTING BASIN INFILL (IN MGD) |
|  | ULTIMATE BUILD-OUT BASIN AREA BOUNDARY |
|  | EXISTING BASIN AREA BOUNDARY |

NOTES:

1. PIPELINES NOTED AS "REPLACED" INDICATE A NEW SEWER WILL REPLACE AN EXISTING SEWER.
2. PIPELINES NOTED AS "PARALLEL" INDICATE A NEW SEWER WILL BE INSTALLED AND THE EXISTING PIPELINE WILL REMAIN IN SERVICE.
3. PROPOSED SEWER EXTENSIONS ARE INTENDED TO PROVIDE GENERAL GUIDANCE FOR DEVELOPMENT OF THE SEWER SYSTEM WITHIN THE URBAN GROWTH AREA. ACTUAL LOCATIONS AND SIZES OF PIPELINES WILL DEPEND ON THE SCHEDULE AND LOCATION OF DEVELOPMENT. IMPROVEMENTS WITHIN THE EXISTING SYSTEM NEEDED TO ACCOMMODATE UGA GROWTH SHOULD BE MADE AS GROWTH OCCURS, OR IN CONJUNCTION WITH OTHER CAPITAL FACILITY IMPROVEMENTS, AS APPROPRIATE.
4. DRAINAGE BASIN BOUNDARIES ARE SHOWN TO INDICATE THE GENERAL ROUTING OF FLOWS USED IN THE HYDRAULIC ANALYSIS, AS AREAS DEVELOP, PIPELINES SHOULD BE ROUTED TO THE SYSTEM IN ACCORDANCE WITH THE BASIN BOUNDARIES SO THE ASSUMPTIONS MADE IN THE HYDRAULIC ANALYSIS REMAIN VALID.
5. DESIGN FLOWS SHOW LOCATIONS WHERE SEWAGE FLOWS FROM FULL BUILD-OUT OF THE UGA ARE INTRODUCED INTO THE EXISTING SYSTEM. THE GIVEN FLOW SHOULD BE USED FOR DESIGN OF THE PIPELINE EXTENSION.

RECOMMENDED IMPROVEMENTS

MAINTENANCE RELATED AND PREVIOUSLY IDENTIFIED CAPACITY IMPROVEMENTS

1. CONSTRUCT 900 LF OF NEW 15-INCH INDUSTRIAL PRETREATMENT SEWER IN RAILROAD AVENUE.
2. CONNECT PREVIOUSLY CONSTRUCTED SEWER UNDER SOUTH FIRST STREET AT SOUTHERN AVENUE WITH 250 LF OF 15-INCH SEWER TO THE COLLECTION SYSTEM AND RE-ROUTE WASTEWATER FROM SOUTHERN AVENUE THROUGH THIS LINE.
14. INSTALL 1,920 LF OF 10-INCH SEWER BEGINNING AT TENTH STREET AND FREMONT AVENUE CONTINUING DOWN FREMONT AVENUE TO MANHOLE AT NORTH FOURTH STREET. INSTALL FOUR MANHOLES ALONG FREMONT AVENUE.
15. INSTALL DEFICIENT AND/OR SETTLED MANHOLES AT THE FOLLOWING LOCATIONS:
 - a. REPLACE SETTLED MANHOLE WITHIN WIXSON PARK
 - b. REPLACE DEFICIENT MANHOLE AT SOUTH THIRD STREET AND PARK AVENUE
 - c. REPLACE SETTLED MANHOLE AT NACHES AVENUE AND RAILROAD AVENUE
 - d. REPLACE SETTLED MANHOLE EAST OF SOUTH FIRST STREET JUST NORTH OF RIVERVIEW AVENUE
 - e. INSTALL NEW MANHOLE IN YAKIMA AVENUE BETWEEN SOUTH SECOND AND THIRD STREET

FUTURE DEVELOPMENT-RELATED IMPROVEMENTS TO THE EXISTING COLLECTION SYSTEM

3. A. NEW 10-INCH (567 LF)/12-INCH (568LF) SEWER ON SOUTHERN AVENUE FROM EAST OF SOUTH FIFTH STREET TO SOUTH FIRST STREET.
- B. NEW 15-INCH (2,975 LF) SEWER FROM ELEVENTH AVENUE NORTH TO TENTH AVENUE, EAST TO BURLINGTON NORTHERN SANTA FE RIGHT-OF-WAY AND NORTH TO THE WASTEWATER TREATMENT PLANT.
7. 138 LF OF NEW 10-INCH SEWER ON THIRTEENTH STREET BETWEEN SPEYERS ROAD AND CHERRY AVENUE.
5. 518 LF OF NEW 12-INCH SEWER BEGINNING AT AN ALLEY NORTH OF CHERRY AVENUE TRAVELING SOUTH TO CHERRY AVENUE, THEN EAST TO NINTH STREET AND FINALLY SOUTH TO A MANHOLE BETWEEN CHERRY AVENUE AND PEAR AVENUE.
7. 150 LF OF NEW 10-INCH SEWER WEST OF WIXSON PARK SOUTHWEST OF LINCIE ELEMENTARY SCHOOL.
8. 330 LF OF NEW 12-INCH SEWER BEGINNING AT PARK AVENUE AND SOUTH THIRD STREET WEST THROUGH WIXSON PARK.
9. 2,230 LF OF NEW 10-INCH SEWER BEGINNING ON SPEYERS ROAD WEST OF NORTH FOURTH STREET, SOUTH TO FREMONT AVENUE TRAVELING EAST TO SOUTH THIRD STREET THEN SOUTH TO THE INTERSECTION OF SOUTH THIRD STREET AND PARK AVENUE.
10. A. 989 LF NEW 15-INCH SEWER FROM SOUTH THIRD STREET AND PARK AVENUE SOUTH TO SELAH AVENUE TRAVELING EAST ACROSS SOUTH FIRST STREET.
- B. 1,254 LF NEW 15-INCH SEWER FROM SOUTH FIRST STREET AND SELAH AVENUE TRAVELING EAST TO RAILROAD AVENUE
11. 1,010 LF OF NEW 15-INCH SEWER ON RAILROAD AVENUE SOUTH OF BARTLETT AVENUE TO NACHES AVENUE.
12. 1,269 LF OF NEW 18-INCH SEWER FROM NACHES AVENUE AND RAILROAD AVENUE SOUTH TO THIRD AVENUE.

LIFT STATION IMPROVEMENTS

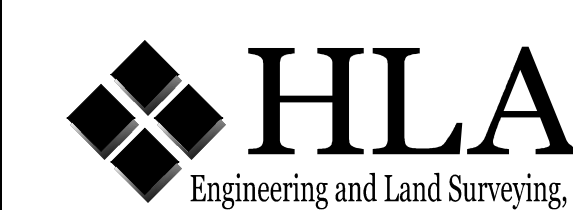
13. INCREASE THE CAPACITY OF THE SOUTH LIFT STATION

MAP B

CITY OF SELAH

General Sewer Plan Update

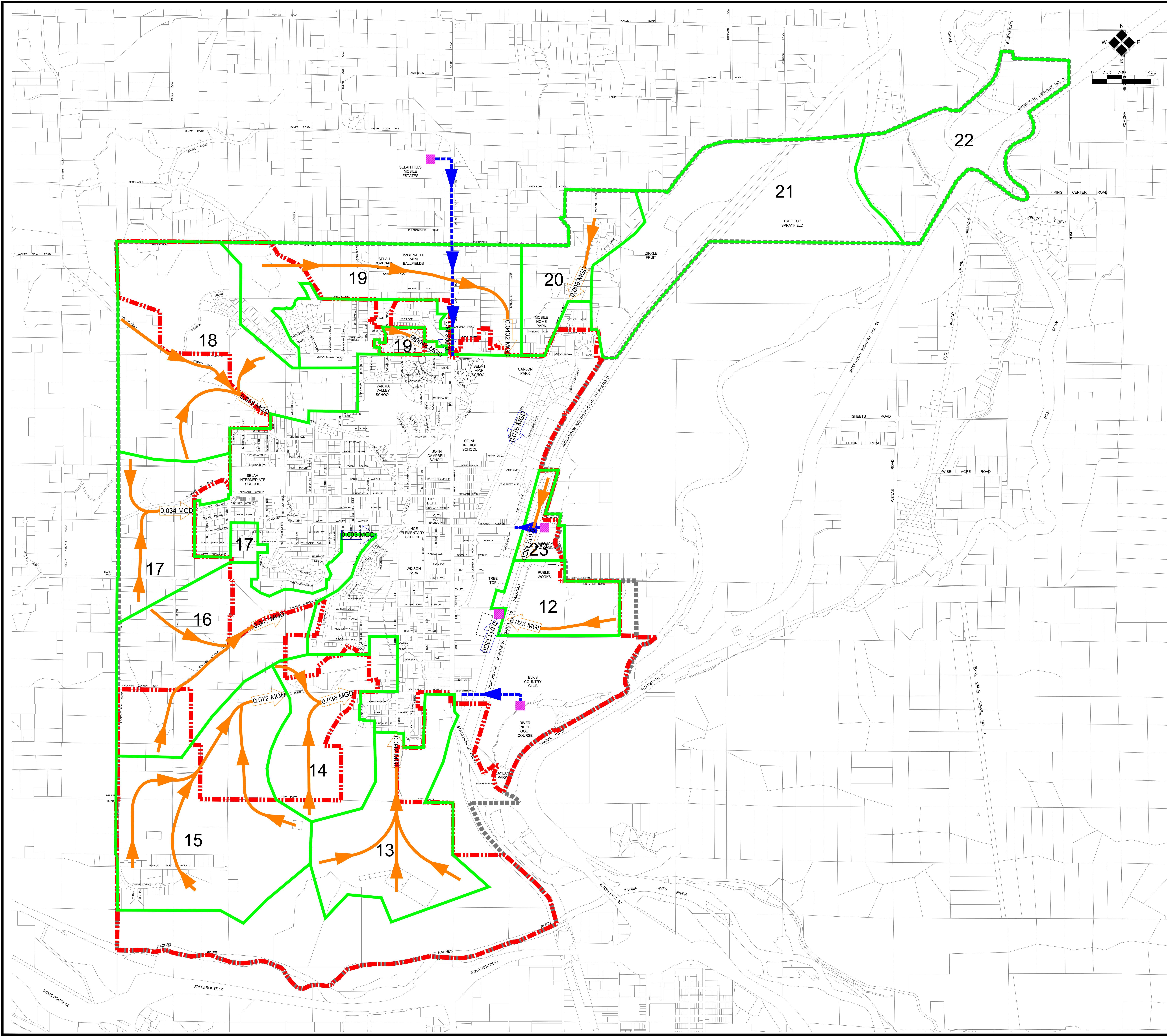
COLLECTION SYSTEM LOADING AND RECOMMENDED IMPROVEMENTS AT PROJECTED ULTIMATE BUILD-OUT



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**MAP C -
COLLECTION SYSTEM
LOADING AT PROJECTED
YEAR 2037**



LEGEND

EXISTING RETAIL SERVICE AREA
BOUNDARY (CITY LIMITS)

FUTURE RETAIL SERVICE AREA
BOUNDARY (UGA)

YEAR 2028 BASIN AREA BOUNDARY

EXISTING BASIN AREA BOUNDARY

EXISTING LIFT STATIONS

FORCE MAINS

TRUNK SEWERS

0.74 MGD

AVERAGE DESIGN FLOW FOR
YEAR 2028 (IN MGD)

0.74 MGD

ADDITIONAL FLOW FROM
EXISTING BASIN INFILL
(IN MGD)

MAP C

CITY OF SELAH

General Sewer Plan Update

COLLECTION SYSTEM
LOADING AT
PROJECTED YEAR 2037

HLA

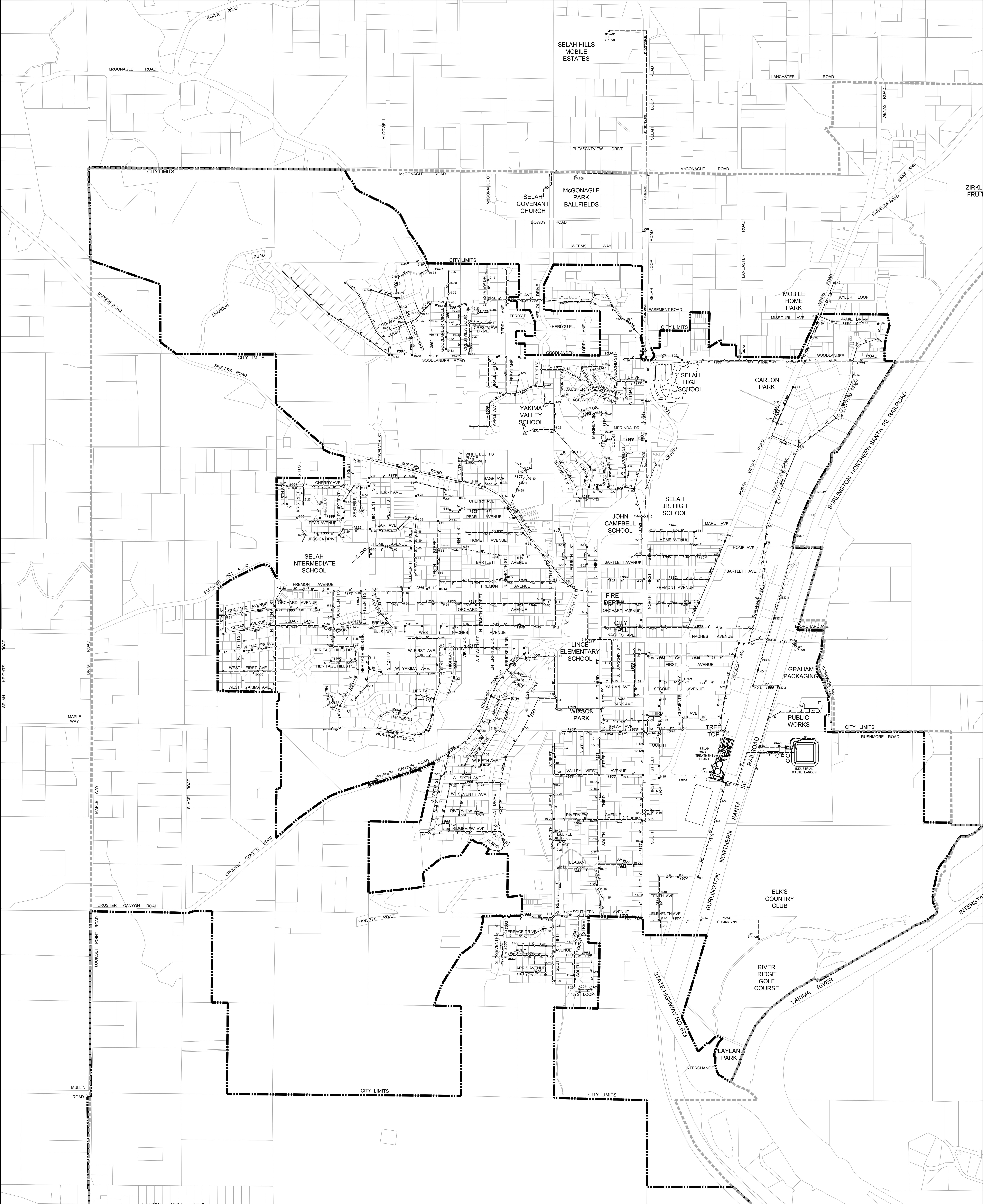
Engineering and Land Surveying, Inc.

2803 River Road
Yakima, WA 98902
509.966.7000
Fax 509.965.3800
www.hlaenv.com

W4340

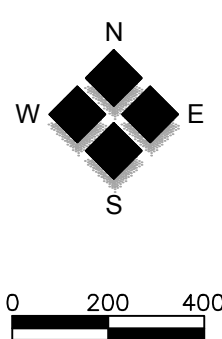
12-13-17
P:\Projects\2017\7044\Maps BC.dwg

**CITY OF SELAH
EXISTING SEWER
SYSTEM MAP**



LEGEND

MUNICIPAL BOUNDARY	-----	PIPE SIZE	8"
URBAN GROWTH AREA BOUNDARY	-----	YEAR CONSTRUCTED	1958
SEWER MAIN	-----		
SEWER MH & NUMBER	-----		
SEWER CLEANOUT	-----		



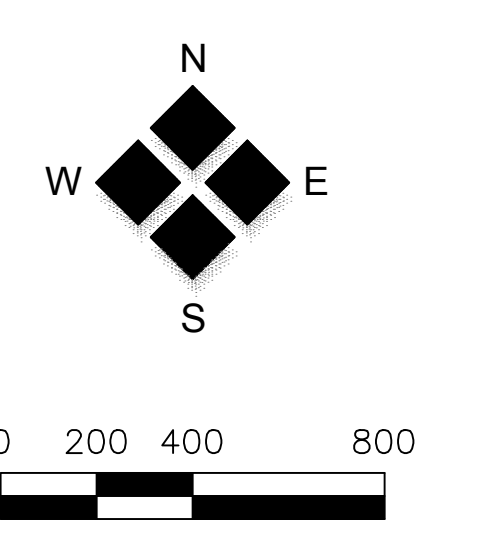
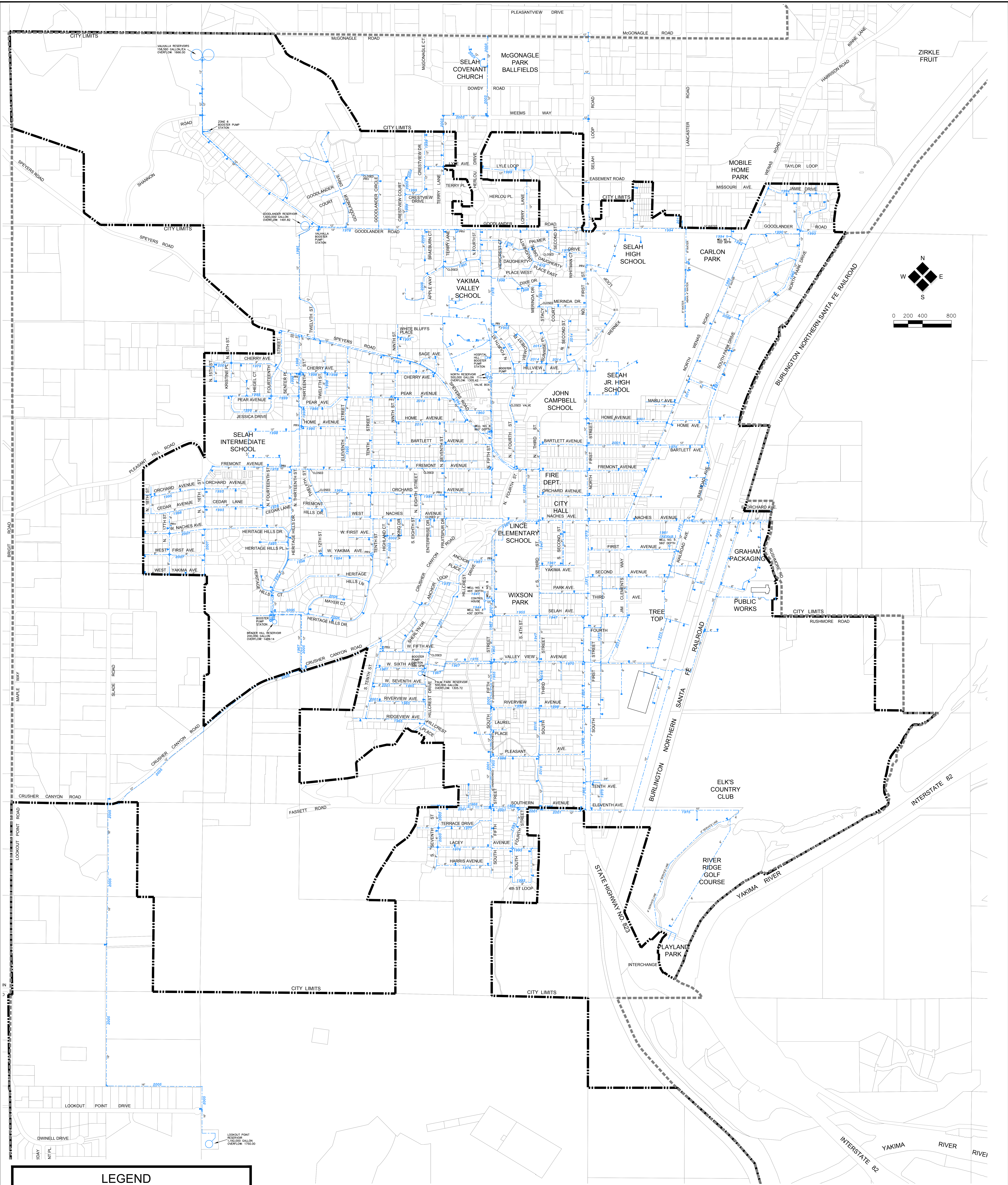
CITY OF SELAH
Sewer System



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**CITY OF SELAH
EXISTING WATER
SYSTEM MAP**



LEGEND

CITY LIMITS

CITY OF SELAH UGA BOUNDARY

EXISTING WATER MAIN

EXISTING WATER VALVE

EXISTING FIRE HYDRANT

EXISTING BLOW OFF

EXISTING PIPE SIZE

YEAR CONSTRUCTED

CITY OF SELAH

EXISTING WATER SYSTEM

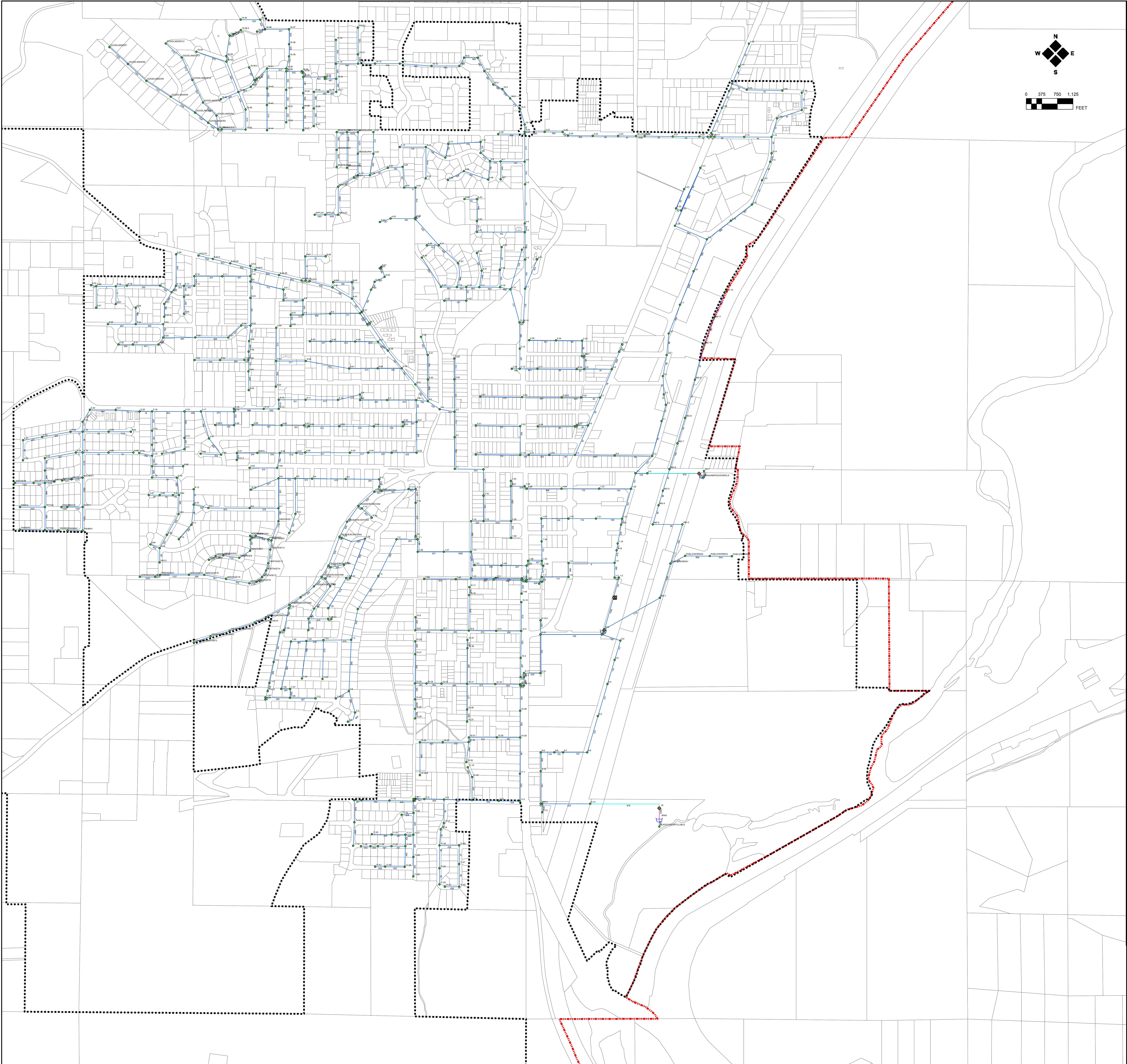


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**MAP D - HYDRAULIC
MODEL NODE MAP
AND
HYDRAULIC MODEL
OUTPUT**



CITY OF SELAH

GENERAL SEWER PLAN

Legend



Selah City Limits



Selah UGA Boundary



Loading Manhole



Chamber Manhole



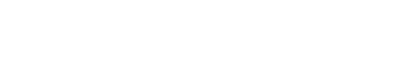
Outlet Manhole



Wetwell



Gravity Pipe



Force Main Pipe



Pump



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HYDRAULIC MODEL NODE MAP

12/14/2017
P:\arcview\2017\17044\Selah Sewer Pipes BASINS.mxd

MAP D

Selah Sewer Existing Peak Gravity Main Report

ID	From ID	To ID	Diameter (in)	Length (ft)	Slope	Total Flow (mgd)	Peakable Flow (mgd)	Flow Type	Velocity (ft/s)	d/D	q/Q	Water Depth (ft)	Critical Depth (ft)	Full Flow (mgd)	Backwater Adjustment	Adjusted Depth (ft)	Adjusted Velocity (ft/s)
1	6-21	6-20	8	247.304	0.093	0.007	0.001	Free Surface	2.326	0.039	0.003	0.026	0.046	2.388	Yes	0.033	1.624
2	6-22	6-20	8	53	0.094	0.004	0.001	Free Surface	2.022	0.031	0.002	0.021	0.036	2.405	Yes	0.031	1.141
3	6-19	6-18	8	123.184	0.041	0.025	0.005	Free Surface	2.6	0.088	0.016	0.059	0.09	1.582	No	0.059	2.6
4	6-23	6-19	8	203.824	0.083	0.008	0.001	Free Surface	2.314	0.042	0.003	0.028	0.049	2.262	Yes	0.044	1.219
5	6-20	6-19	8	227	0.066	0.015	0.003	Free Surface	2.605	0.061	0.007	0.041	0.068	2.013	Yes	0.05	1.929
6	1-5	1-4	18	542.969	0.005	0.772	0.221	Free Surface	3.042	0.274	0.164	0.411	0.409	4.711	Yes	0.843	1.167
7	4-54	4-28	8	134.133	0.142	0.073	0.016	Free Surface	5.518	0.109	0.025	0.072	0.153	2.947	Yes	0.084	4.465
8	4-25	4-24	8	126.587	0.032	0.115	0.027	Free Surface	3.733	0.195	0.083	0.13	0.194	1.392	No	0.13	3.733
9	6-47	6-45	8	278.327	0.097	0.029	0.006	Free Surface	3.654	0.077	0.012	0.051	0.096	2.433	Yes	0.062	2.731
10	6-48	6-47	8	235	0.115	0.017	0.003	Free Surface	3.301	0.057	0.006	0.038	0.073	2.654	Yes	0.045	2.618
11	5-26	5-25	8	71.707	0.028	0.057	0.012	Free Surface	2.894	0.142	0.043	0.095	0.135	1.308	No	0.095	2.894
13	5-21	5-20	8	278.521	0.014	0.147	0.035	Free Surface	3.03	0.268	0.157	0.178	0.22	0.938	Yes	0.209	2.427
15	5-96	5-95	8	290.154	0.014	0.007	0.001	Free Surface	1.18	0.06	0.007	0.04	0.045	0.919	Yes	0.053	0.784
16	5-20	5-19	8	138.442	0.005	0.15	0.036	Free Surface	2.051	0.36	0.278	0.24	0.222	0.541	No	0.24	2.051
17	5-24	5-23	8	109.859	0.082	0.139	0.033	Free Surface	5.514	0.169	0.062	0.112	0.213	2.241	Yes	0.118	5.14
18	5-25	5-24	8	240	0.1	0.099	0.023	Free Surface	5.348	0.136	0.04	0.091	0.179	2.476	Yes	0.102	4.547
22	5-93	5-24	8	302.875	0.003	0.017	0.003	Free Surface	0.96	0.134	0.038	0.089	0.074	0.45	Yes	0.101	0.804
23	5-95	5-25	8	301.007	0.01	0.016	0.003	Free Surface	1.377	0.099	0.02	0.066	0.07	0.782	Yes	0.078	1.064
24	5-79	5-78	8	288.886	0.017	0.052	0.011	Free Surface	2.39	0.153	0.051	0.102	0.129	1.03	No	0.102	2.39
25	5-85	5-80	8	62	0.097	0.015	0.003	Free Surface	2.984	0.056	0.006	0.037	0.068	2.436	Yes	0.055	1.689
26	5-83.5	5-83	8	163.864	0.098	0.008	0.001	Free Surface	2.443	0.041	0.003	0.027	0.049	2.447	Yes	0.034	1.727
27	5-89	5-24	8	134.375	0.022	0.03	0.006	Free Surface	2.221	0.111	0.026	0.074	0.098	1.17	Yes	0.093	1.585
28	5-92	5-91	8	231.247	0.099	0.008	0.001	Free Surface	2.509	0.042	0.003	0.028	0.05	2.47	Yes	0.047	1.156
29	5-87	5-86	8	120	0.033	0.006	0.001	Free Surface	1.589	0.048	0.004	0.032	0.044	1.43	Yes	0.034	1.446
30	5-86	5-85	8	151	0.066	0.012	0.002	Free Surface	2.427	0.054	0.006	0.036	0.06	2.015	Yes	0.037	2.379
31	8-13	8-10	8	174.633	0.006	0.011	0.002	Free Surface	1.028	0.096	0.019	0.064	0.06	0.593	No	0.064	1.028
32	8-11	8-10	8	232.64	0.034	0.019	0.004	Free Surface	2.259	0.081	0.013	0.054	0.078	1.452	No	0.054	2.259
33	11-18	11-17	8	75.442	0.278	0.052	0.011	Free Surface	6.316	0.079	0.013	0.053	0.129	4.131	Yes	0.076	3.663
34	11-19	11-18	8	183.712	0.12	0.048	0.01	Free Surface	4.58	0.092	0.018	0.062	0.123	2.71	No	0.062	4.58
35	11-25	11-24	8	184	0.043	0.009	0.002	Free Surface	1.922	0.053	0.005	0.035	0.052	1.633	Yes	0.037	1.776
36	11-22	11-21	8	262	0.134	0.015	0.003	Free Surface	3.346	0.052	0.005	0.035	0.069	2.862	Yes	0.056	1.657
37	11-21	11-20	8	214	0.009	0.021	0.004	Free Surface	1.473	0.115	0.028	0.077	0.082	0.757	Yes	0.091	1.151
38	11-24	11-19	8	265	0.094	0.016	0.003	Free Surface	3.027	0.058	0.007	0.039	0.071	2.405	Yes	0.05	2.074
39	11-17	11-5	8	273.476	0.023	0.058	0.012	Free Surface	2.734	0.15	0.048	0.1	0.136	1.195	Yes	0.133	1.812
40	3-36	3-35	8	198.992	0.005	0.009	0.001	Free Surface	0.901	0.087	0.015	0.058	0.052	0.555	Yes	0.075	0.607
41	3-34	3-15	8	224.839	0.004	0.031	0.006	Free Surface	1.275	0.167	0.06	0.111	0.1	0.522	Yes	0.204	0.537
42	3-15	3-14	12	184.981	0.012	0.483	0.131	Free Surface	3.808	0.298	0.193	0.298	0.361	2.501	No	0.298	3.808
43	3-44	3-43	8	417.429	0.001	0.011	0.002	Free Surface	0.467	0.166	0.06	0.111	0.06	0.192	Yes	0.119	0.42
44	3-16	3-15	12	320.186	0.001	0.456	0.123	Free Surface	1.652	0.534	0.559	0.534	0.35	0.816	No	0.534	1.652
45	3-35	3-34	8	303.614	0.003	0.019	0.004	Free Surface	0.986	0.14	0.042	0.093	0.077	0.449	Yes	0.102	0.864
46	3-41	3-40	10	212.174	0.012	0.013	0.002	Free Surface	1.321	0.064	0.008	0.054	0.059	1.541	Yes	0.078	0.753
47	3-40	3-39	10	87.581	0.006	0.035	0.007	Free Surface	1.395	0.124	0.033	0.103	0.099	1.073	No	0.103	1.395
48	3-39	3-38	10	204.612	0.01	0.038	0.008	Free Surface	1.724	0.113	0.027	0.094	0.103	1.404	Yes	0.098	1.617
49	3-18	3-17	12	36.58	0.005	0.437	0.118	Free Surface	2.814	0.345	0.256	0.345	0.343	1.707	Yes	0.441	2.022
50	3-20	3-19	12	90.015	0.002	0.401	0.107	Free Surface	1.981	0.42	0.369	0.42	0.328	1.088	No	0.42	1.981
51	3-19	3-18	12	24.935	0.008	0.403	0.107	Free Surface	3.157	0.299	0.195	0.299	0.329	2.068	Yes	0.322	2.851

52	3-38	3-37	10	308.985	0.01	0.045	0.009	Free Surf	1.813	0.123	0.032	0.102	0.113	1.399	Yes	0.224	0.59
53	3-22	3-21	12	327.527	0.001	0.398	0.106	Free Surf	1.584	0.496	0.493	0.496	0.327	0.807	No	0.496	1.584
54	3-21	3-20	12	308.945	0.001	0.4	0.107	Free Surf	1.621	0.489	0.481	0.489	0.327	0.831	No	0.489	1.621
55	3-24	3-23	12	295.756	0.058	0.394	0.105	Free Surf	6.325	0.18	0.071	0.18	0.325	5.552	Yes	0.239	4.222
57	3-23	SELAHHIGH1	12	204.924	0.008	0.396	0.105	Free Surf	3.111	0.299	0.194	0.299	0.326	2.04	Yes	0.361	2.394
58	3-42	3-41	10	289.346	0.021	0.006	0.001	Free Surf	1.298	0.04	0.003	0.034	0.042	2.045	Yes	0.044	0.886
59	3-43	3-40	8	182.19	0.001	0.023	0.005	Free Surf	0.771	0.192	0.08	0.128	0.086	0.29	No	0.128	0.771
60	3-17	3-16	12	347.677	0.001	0.442	0.119	Free Surf	1.59	0.538	0.565	0.538	0.345	0.783	No	0.538	1.59
61	3-12	3-11	12	305.515	0.005	0.496	0.135	Free Surf	2.817	0.379	0.305	0.379	0.366	1.629	No	0.379	2.817
62	3-13	3-12	12	233.049	0.005	0.488	0.133	Free Surf	2.83	0.373	0.296	0.373	0.363	1.65	Yes	0.376	2.8
63	3-33	3-32	8	242	0.002	0.01	0.002	Free Surf	0.685	0.113	0.027	0.076	0.055	0.356	Yes	0.077	0.67
64	3-32	3-30	8	55.291	0.005	0.017	0.003	Free Surf	1.131	0.117	0.029	0.078	0.072	0.577	Yes	0.109	0.692
65	3-30	3-31	8	554.672	0.001	0.025	0.005	Free Surf	0.724	0.211	0.097	0.141	0.089	0.258	Yes	0.148	0.675
66	IND-11	IND-10	12	324.967	0.002	0.03	0.006	Pressurized	0.824	0.125	0.033	0.125	0.088	0.906	Yes	1	0.06
67	IND-10	IND-9	12	426.261	0.002	0.046	0.01	Free Surf	1.085	0.139	0.041	0.139	0.109	1.118	Yes	0.145	1.023
68	3-6	3-5	12	251.654	0.003	0.663	0.187	Pressurized	2.576	0.505	0.509	0.505	0.426	1.302	Yes	1	1.306
69	3-5	3-4	12	246.885	0.004	0.67	0.189	Pressurized	2.88	0.467	0.445	0.467	0.428	1.506	Yes	1	1.32
70	IND-8	IND-7	15	310.105	0.003	0.055	0.012	Free Surf	1.24	0.105	0.023	0.131	0.112	2.377	Yes	0.134	1.209
71	3-2	3-1	15	191.939	0.004	0.692	0.196	Pressurized	2.702	0.359	0.276	0.449	0.407	2.51	Yes	1.25	0.872
72	3-3	3-2	15	116.314	0.002	0.687	0.194	Pressurized	2.237	0.411	0.354	0.514	0.406	1.941	Yes	1.25	0.866
73	3-1	2-3	15	423.823	0.001	0.703	0.2	Pressurized	1.504	0.571	0.621	0.713	0.411	1.132	Yes	1.25	0.887
74	3-4	3-3	15	211.178	0.004	0.679	0.192	Pressurized	2.74	0.35	0.264	0.438	0.403	2.577	Yes	1.25	0.856
75	IND-9	IND-8	12	463.726	0.002	0.052	0.011	Free Surf	1.093	0.15	0.049	0.15	0.116	1.072	No	0.15	1.093
76	IND-12	IND-11	12	339.216	0.001	0.019	0.004	Pressurized	0.703	0.101	0.021	0.101	0.069	0.886	Yes	1	0.037
77	2-30	2-29	8	85.161	0.006	0.019	0.004	Pressurized	1.216	0.123	0.032	0.082	0.078	0.6	Yes	0.667	0.086
78	2-8	2-7	8	358.85	0.004	0.585	0.163	Pressurized	2.592	1	1.209	0.667	0.409	0.484	Yes	0.667	2.592
79	2-32	2-31	8	19.172	0.052	0.04	0.008	Pressurized	3.25	0.104	0.022	0.069	0.113	1.788	Yes	0.667	0.178
80	2-33	2-32	8	175.701	0.006	0.037	0.008	Pressurized	1.461	0.17	0.063	0.113	0.109	0.591	Yes	0.667	0.165
81	2-10	2-9	8	82.063	0.003	0.522	0.143	Pressurized	2.314	1	1.318	0.667	0.368	0.396	Yes	0.667	2.314
82	2-31	2-9	8	147.035	0.019	0.044	0.009	Pressurized	2.352	0.138	0.041	0.092	0.118	1.083	Yes	0.667	0.195
83	2-34	2-33	8	305.012	0.01	0.029	0.006	Free Surf	1.648	0.133	0.038	0.088	0.096	0.777	Yes	0.667	0.129
84	2-11	2-10	8	460.241	0.016	0.516	0.142	Pressurized	4.397	0.516	0.528	0.344	0.423	0.979	Yes	0.667	2.289
85	2-23	2-22	8	20.166	0.05	0.023	0.004	Free Surf	2.695	0.08	0.013	0.053	0.085	1.744	No	0.053	2.695
86	2-22	2-6	8	119.888	0.064	0.026	0.005	Free Surf	3.064	0.08	0.013	0.053	0.09	1.988	Yes	0.667	0.115
87	2-6	2-5	8	377.669	0.004	0.663	0.187	Pressurized	2.937	1	1.405	0.667	0.403	0.472	Yes	0.667	2.937
88	2-24	2-23	8	435.773	0.014	0.015	0.003	Free Surf	1.504	0.088	0.016	0.059	0.068	0.919	No	0.059	1.504
89	2-16	2-5	8	298.56	0.044	0.067	0.015	Free Surf	3.567	0.138	0.041	0.092	0.147	1.64	Yes	0.667	0.297
90	2-25	2-7	8	217.039	0.031	0.057	0.012	Pressurized	2.99	0.139	0.041	0.093	0.135	1.369	Yes	0.667	0.252
91	2-9	2-8	8	321.95	0.005	0.556	0.154	Pressurized	2.464	1	1.058	0.667	0.427	0.526	Yes	0.667	2.464
92	2-7	2-6	8	357.453	0.003	0.638	0.179	Pressurized	2.826	1	1.468	0.667	0.386	0.434	Yes	0.667	2.826
94	2-4	2-3	10	440.535	0.003	0.735	0.209	Pressurized	2.631	0.739	0.896	0.616	0.475	0.82	Yes	0.833	2.084
95	IND-4	IND-3	15	229.741	0.004	0.067	0.015	Free Surf	1.463	0.108	0.024	0.134	0.124	2.762	No	0.134	1.463
96	IND-5	IND-4	15	172.808	0.006	0.064	0.014	Free Surf	1.59	0.098	0.02	0.122	0.121	3.184	Yes	0.128	1.482
97	IND-6	IND-5	15	260.643	0.003	0.061	0.013	Free Surf	1.311	0.109	0.025	0.136	0.118	2.46	No	0.136	1.311
98	IND-3	IND-2	15	348.242	0.006	0.072	0.016	Free Surf	1.648	0.104	0.023	0.13	0.129	3.172	Yes	0.735	0.149
100	IND-2	PUBLICWORKS1	15	483.066	0.006	0.077	0.017	Pressurized	1.722	0.105	0.023	0.131	0.132	3.299	Yes	1.25	0.096
101	2-1	1-22	12	184.192	0.003	1.498	0.462	Pressurized	2.951	1	1.127	1	0.612	1.329	Yes	1	2.951
102	1-21	1-20	12	61.606	0	2.243	0.724	Pressurized	4.418	1	4.402	1	0.371	0.509	Yes	1	4.418
103	1-22	1-21	12	366.65	0.002	1.768	0.556	Pressurized	3.484	1	1.943	1	0.502	0.91	Yes	1	3.484
104	1-23	1-22	8	372.398	0.013	0.348	0.091	Pressurized	3.703	0.434	0.391	0.29	0.344	0.89	Yes	0.667	1.543
105	1-31	1-21	8	304.429	0.005	0.596	0.166	Pressurized	2.644	1	1.119	0.667	0.43	0.533	Yes	0.667	2.644

106	1-3	1-2	21	42.265	0.003	2.875	0.954	Free Surf	3.448	0.529	0.549	0.925	0.772	5.238	Yes	1.695	1.867
107	1-2	1-1	21	232	0	2.878	0.955	Pressurized	1.852	1	1.35	1.75	0.66	2.132	No	1.75	1.852
108	1-33	1-32	8	314	0.004	0.576	0.16	Pressurized	2.552	1	1.143	0.667	0.418	0.504	Yes	0.667	2.552
109	1-36	1-35	8	51.649	0.004	0.014	0.003	Pressurized	0.994	0.111	0.026	0.074	0.065	0.523	Yes	0.667	0.061
110	1-35	1-34	8	224.632	0.003	0.56	0.155	Pressurized	2.482	1	1.34	0.667	0.379	0.418	Yes	0.667	2.482
111	1-37	1-36	8	209.556	0.005	0.011	0.002	Pressurized	0.941	0.097	0.019	0.064	0.057	0.541	Yes	0.667	0.047
112	1-8	1-7	12	47.625	0.015	0.739	0.211	Free Surf	4.654	0.351	0.264	0.351	0.451	2.799	Yes	0.408	3.795
113	1-7	1-6	12	311.423	0.005	0.741	0.211	Free Surf	3.199	0.466	0.442	0.466	0.451	1.675	No	0.466	3.199
114	1-34	1-33	8	264.972	0.004	0.567	0.157	Pressurized	2.515	1	1.119	0.667	0.419	0.507	Yes	0.667	2.515
115	1-24	1-23	8	444.002	0.009	0.335	0.088	Free Surf	3.239	0.468	0.446	0.312	0.338	0.752	Yes	0.667	1.487
116	1-32	1-31	8	321.743	0.004	0.586	0.163	Pressurized	2.599	1	1.165	0.667	0.417	0.503	Yes	0.667	2.599
117	9-3	9-2	10	232.289	0.005	0.314	0.082	Pressurized	2.428	0.395	0.329	0.329	0.305	0.955	Yes	0.833	0.892
118	1-1	WASTEWATERPLANT	21	28.89	0.007	3.593	1.222	Free Surf	5.258	0.452	0.421	0.792	0.867	8.544	No	0.792	5.258
119	9-4	9-3	10	291	0.003	0.299	0.077	Free Surf	1.987	0.442	0.404	0.369	0.297	0.74	Yes	0.682	0.968
120	9-6	9-5	10	446.793	0.001	0.237	0.06	Free Surf	1.016	0.629	0.721	0.524	0.264	0.329	No	0.524	1.016
121	9-5	9-4	10	393	0.003	0.272	0.069	Free Surf	1.978	0.413	0.357	0.344	0.283	0.761	Yes	0.356	1.888
122	9-16	9-15	12	455.978	0.001	0.506	0.138	Free Surf	1.558	0.61	0.689	0.61	0.37	0.733	No	0.61	1.558
123	9-7	9-6	10	278.518	0.002	0.226	0.056	Free Surf	1.537	0.435	0.392	0.362	0.257	0.577	Yes	0.443	1.186
124	9-9	9-8	10	153.016	0.006	0.191	0.047	Free Surf	2.341	0.282	0.173	0.235	0.236	1.101	No	0.235	2.341
125	9-8	9-7	10	96.327	0.016	0.204	0.05	Free Surf	3.402	0.226	0.112	0.189	0.244	1.813	Yes	0.275	2.003
126	9-15	9-1	12	728.026	0.019	0.55	0.152	Free Surf	4.669	0.283	0.174	0.283	0.386	3.157	Yes	1	1.084
127	9-15.5	9-15	8	160	0.018	0.033	0.007	Free Surf	2.125	0.121	0.031	0.081	0.102	1.058	Yes	0.182	0.665
128	2-2	2-1	12	130.505	0.002	0.199	0.049	Pressurized	1.653	0.287	0.18	0.287	0.229	1.107	Yes	1	0.393
129	9-2	9-1	8	225.846	0.009	0.321	0.083	Pressurized	3.228	0.453	0.422	0.302	0.33	0.76	Yes	0.667	1.422
130	IND-7	IND-6	15	315.858	0.003	0.059	0.013	Free Surf	1.256	0.109	0.025	0.136	0.116	2.355	No	0.136	1.256
131	2-3	2-1	15	263	0.002	1.35	0.412	Pressurized	2.741	0.595	0.664	0.744	0.576	2.033	Yes	1.25	1.701
132	3-14	3-13	12	93.608	0.07	0.485	0.132	Free Surf	7.202	0.19	0.079	0.19	0.362	6.121	Yes	0.282	4.136
133	4-10	4-9	8	121.467	0.071	0.053	0.011	Free Surf	3.921	0.11	0.025	0.073	0.13	2.08	Yes	0.082	3.291
134	4-12	4-11	8	162.946	0.05	0.038	0.008	Free Surf	3.15	0.102	0.022	0.068	0.11	1.752	Yes	0.071	2.923
135	4-11	4-10	8	380.036	0.05	0.047	0.01	Free Surf	3.34	0.112	0.027	0.075	0.122	1.746	No	0.075	3.34
136	4-14	4-13	8	303	0.065	0.012	0.002	Free Surf	2.462	0.056	0.006	0.038	0.062	1.998	Yes	0.05	1.606
137	4-30	4-29	8	251.148	0.108	0.014	0.003	Free Surf	3.061	0.054	0.006	0.036	0.067	2.568	Yes	0.047	2.036
138	4-13	4-12	8	257.985	0.048	0.032	0.006	Free Surf	2.928	0.094	0.018	0.063	0.1	1.709	Yes	0.065	2.768
140	19-1	3-28	8	78.964	0.066	0.354	0.093	Free Surf	6.706	0.284	0.176	0.189	0.347	2.01	No	0.189	6.706
141	4-5	4-4	12	459.427	0.037	0.142	0.034	Free Surf	3.974	0.123	0.032	0.123	0.193	4.412	Yes	0.135	3.476
142	4-4	4-3	8	95.107	0.041	0.169	0.041	Free Surf	4.586	0.22	0.106	0.147	0.236	1.59	Yes	0.157	4.159
143	4-6	4-5	12	262.572	0.032	0.116	0.027	Free Surf	3.564	0.115	0.028	0.115	0.174	4.12	Yes	0.119	3.397
144	4-8	4-7	8	118.026	0.038	0.081	0.018	Free Surf	3.589	0.157	0.053	0.105	0.162	1.524	Yes	0.141	2.329
145	4-47	4-7	8	205.675	0.005	0.01	0.002	Free Surf	0.975	0.094	0.018	0.063	0.057	0.57	Yes	0.12	0.377
146	4-48	4-8	8	211.465	0.031	0.025	0.005	Free Surf	2.369	0.094	0.018	0.063	0.089	1.386	Yes	0.084	1.552
147	4-7	4-6	8	280.23	0.006	0.094	0.021	Free Surf	1.944	0.267	0.156	0.178	0.174	0.603	No	0.178	1.944
148	4-55	4-15	6	486.689	0.007	0.006	0.001	Free Surf	0.966	0.098	0.02	0.049	0.047	0.31	No	0.049	0.966
149	4-2	4-1	8	340.508	0.034	0.212	0.053	Free Surf	4.59	0.259	0.147	0.173	0.266	1.449	Yes	0.223	3.212
150	4-39	4-16	8	198.112	0.225	0.019	0.004	Free Surf	4.307	0.051	0.005	0.034	0.077	3.711	Yes	0.667	0.084
151	4-40	4-39	8	264.979	0.011	0.012	0.002	Free Surf	1.319	0.083	0.014	0.056	0.061	0.833	No	0.056	1.319
152	4-3	4-2	8	320.434	0.037	0.208	0.052	Free Surf	4.685	0.251	0.139	0.168	0.263	1.503	Yes	0.17	4.591
153	4-44	4-43	8	139.792	0.086	0.014	0.003	Free Surf	2.807	0.056	0.006	0.037	0.066	2.294	Yes	0.044	2.226
154	4-43	4-42	8	254.756	0.067	0.023	0.004	Free Surf	2.988	0.075	0.011	0.05	0.085	2.023	Yes	0.057	2.45
155	4-42	4-41	8	122.058	0.049	0.033	0.007	Free Surf	3.014	0.096	0.019	0.064	0.103	1.736	Yes	0.067	2.85
156	4-50	4-49	8	208.464	0.072	0.011	0.002	Free Surf	2.45	0.052	0.005	0.035	0.058	2.101	Yes	0.041	1.934
157	4-32	4-18	8	153.309	0.12	0.021	0.004	Free Surf	3.58	0.063	0.008	0.042	0.082	2.709	Yes	0.085	1.265

158	4-37	4-17	8	190.536	0.039	0.015	0.003	Free Surf	2.196	0.07	0.01	0.047	0.069	1.553	Yes	0.08	0.986
159	4-38	4-37	8	209.417	0.005	0.009	0.002	Free Surf	0.904	0.091	0.017	0.06	0.054	0.541	No	0.06	0.904
160	4-21	4-20	8	305.29	0.009	0.175	0.043	Free Surf	2.658	0.334	0.24	0.222	0.241	0.73	Yes	0.223	2.645
161	4-33	4-32	8	253.31	0.037	0.017	0.003	Free Surf	2.236	0.075	0.011	0.05	0.073	1.514	No	0.05	2.236
162	4-41	4-3	8	566.663	0.056	0.042	0.009	Free Surf	3.377	0.104	0.023	0.069	0.115	1.855	Yes	0.118	1.545
163	4-49	4-48	8	298.857	0.064	0.019	0.004	Free Surf	2.792	0.07	0.01	0.047	0.078	1.974	Yes	0.055	2.207
164	2-15	2-14	8	37.403	0.065	0.243	0.061	Free Surf	5.989	0.236	0.122	0.157	0.285	1.996	Yes	0.354	1.992
165	2-14	2-13	12	306.129	0.001	0.485	0.132	Free Surf	1.689	0.552	0.589	0.552	0.362	0.824	No	0.552	1.689
166	2-28	2-12	8	85	0.079	0.017	0.003	Free Surf	2.879	0.062	0.008	0.041	0.072	2.202	Yes	0.165	0.384
167	2-13	2-12	8	231.517	0.008	0.494	0.135	Free Surf	3.282	0.633	0.727	0.422	0.413	0.679	No	0.422	3.282
168	2-18	2-17	8	90.818	0.033	0.05	0.011	Free Surf	2.956	0.128	0.035	0.085	0.126	1.423	Yes	0.1	2.354
169	2-20	2-18	8	336.384	0.006	0.03	0.006	Free Surf	1.393	0.152	0.05	0.101	0.098	0.604	No	0.101	1.393
170	5-29	5-28	8	240	0.029	0.027	0.005	Free Surf	2.348	0.098	0.02	0.065	0.092	1.337	Yes	0.071	2.079
171	5-4	5-3	8	171.996	0.027	0.888	0.259	Free Surf	6.119	0.614	0.695	0.409	0.552	1.278	Yes	0.469	5.233
172	5-3	5-2	8	296.739	0.015	0.918	0.268	Free Surf	4.777	0.794	0.971	0.53	0.56	0.946	Yes	0.667	4.07
173	5-28	5-3	8	378.865	0.031	0.038	0.008	Free Surf	2.662	0.115	0.028	0.077	0.11	1.371	Yes	0.303	0.384
174	2-27	2-26	8	494.084	0.022	0.021	0.004	Free Surf	1.977	0.092	0.018	0.062	0.081	1.168	Yes	0.073	1.556
175	2-21	2-20	8	521.723	0.01	0.016	0.003	Free Surf	1.367	0.1	0.021	0.067	0.071	0.767	Yes	0.084	0.979
176	2-19	2-18	8	523.193	0.01	0.013	0.002	Free Surf	1.274	0.09	0.017	0.06	0.063	0.766	Yes	0.073	0.963
177	4-15	2-14	8	401.606	0.08	0.267	0.068	Free Surf	6.623	0.235	0.121	0.156	0.3	2.213	Yes	-6.934	-1
178	4-1	2-15	8	395.828	0.007	0.236	0.059	Free Surf	2.704	0.41	0.353	0.273	0.281	0.668	No	0.273	2.704
179	4-24	4-23	8	353.426	0.048	0.121	0.028	Free Surf	4.373	0.18	0.071	0.12	0.199	1.707	No	0.12	4.373
180	4-27	4-26	8	168.788	0.036	0.102	0.023	Free Surf	3.756	0.178	0.069	0.119	0.182	1.476	Yes	0.121	3.645
181	4-53	4-52	8	125.303	0.072	0.021	0.004	Free Surf	3	0.071	0.01	0.047	0.082	2.099	Yes	0.05	2.772
182	4-26	4-25	8	239.981	0.033	0.108	0.025	Free Surf	3.729	0.186	0.075	0.124	0.187	1.43	Yes	0.127	3.606
183	4-52	4-22	8	282.439	0.107	0.032	0.007	Free Surf	3.914	0.079	0.013	0.053	0.101	2.561	Yes	0.13	1.043
184	6-41	6-40	8	115.6	0.043	0.019	0.004	Free Surf	2.438	0.076	0.012	0.051	0.078	1.629	No	0.051	2.438
185	6-39	6-38	8	93.862	0.085	0.036	0.007	Free Surf	3.734	0.087	0.016	0.058	0.107	2.286	Yes	0.059	3.652
186	6-38	6-37	8	281.022	0.111	0.044	0.009	Free Surf	4.353	0.09	0.017	0.06	0.118	2.615	Yes	0.099	2.091
187	6-49	6-43	8	186.193	0.111	0.017	0.003	Free Surf	3.246	0.057	0.006	0.038	0.072	2.612	Yes	0.066	1.457
188	6-44	6-43	8	259.842	0.022	0.067	0.015	Free Surf	2.796	0.163	0.058	0.109	0.146	1.161	No	0.109	2.796
189	6-50	6-49	8	215	0.005	0.007	0.001	Free Surf	0.812	0.078	0.012	0.052	0.045	0.534	No	0.052	0.812
190	6-43	6-37	8	190.502	0.066	0.085	0.019	Free Surf	4.418	0.14	0.042	0.093	0.165	2.016	Yes	0.116	3.226
191	4-28	4-27	8	223.474	0.081	0.097	0.022	Free Surf	4.929	0.142	0.044	0.095	0.177	2.222	Yes	0.107	4.15
192	6-40	6-39	8	124.441	0.225	0.033	0.007	Free Surf	5.084	0.066	0.009	0.044	0.102	3.715	Yes	0.051	4.091
193	5-31	5-30	8	286.192	0.08	0.034	0.007	Free Surf	3.598	0.086	0.015	0.058	0.104	2.22	Yes	0.068	2.81
194	5-34	5-33	8	243.406	0.025	0.459	0.124	Free Surf	5.063	0.423	0.373	0.282	0.398	1.233	Yes	0.283	5.041
195	5-32	5-31	8	221.595	0.104	0.025	0.005	Free Surf	3.564	0.07	0.01	0.047	0.088	2.523	Yes	0.052	3.017
196	5-60	5-34	8	279.523	0.035	0.069	0.015	Free Surf	3.338	0.148	0.047	0.099	0.149	1.47	Yes	0.19	1.308
197	5-35	5-34	8	260.182	0.036	0.401	0.107	Free Surf	5.602	0.355	0.269	0.236	0.371	1.489	Yes	0.259	4.949
198	5-6	5-5	8	129.799	0.065	0.452	0.122	Free Surf	7.146	0.324	0.227	0.216	0.395	1.993	Yes	0.314	4.332
199	5-33	5-5	8	241.382	0.025	0.463	0.125	Free Surf	5.065	0.425	0.377	0.284	0.4	1.229	Yes	0.348	3.895
200	5-41	5-6	8	252.476	0.053	0.156	0.037	Free Surf	4.901	0.199	0.086	0.132	0.226	1.805	Yes	0.174	3.323
201	5-42	5-41	8	360.28	0.017	0.094	0.021	Free Surf	2.807	0.206	0.093	0.138	0.175	1.011	No	0.138	2.807
202	5-53	5-52	8	42.025	0.024	0.061	0.013	Free Surf	2.798	0.153	0.05	0.102	0.14	1.208	No	0.102	2.798
203	5-7	5-6	8	339.854	0.018	0.321	0.083	Free Surf	4.07	0.381	0.308	0.254	0.33	1.043	No	0.254	4.07
204	5-52	5-41	8	156	0.058	0.065	0.014	Free Surf	3.894	0.127	0.035	0.085	0.145	1.881	Yes	0.109	2.722
205	5-43	5-42	8	290	0.031	0.081	0.018	Free Surf	3.34	0.164	0.059	0.109	0.161	1.38	Yes	0.124	2.805
206	5-30	5-5	8	249.798	0.031	0.041	0.008	Free Surf	2.739	0.118	0.03	0.079	0.114	1.386	Yes	0.245	0.546
207	6-2	6-1	8	20.092	0.048	0.261	0.066	Free Surf	5.505	0.263	0.152	0.176	0.296	1.721	Yes	0.22	4.026
208	6-3	6-2	8	146.658	0.005	0.259	0.066	Free Surf	2.422	0.48	0.466	0.32	0.295	0.556	No	0.32	2.422

209	5-38	5-37	8	263.504	0.015	0.031	0.006	Free Surf	1.952	0.123	0.032	0.082	0.099	0.965	Yes	0.082	1.941
210	6-37	6-1	8	157.148	0.028	0.123	0.029	Free Surf	3.646	0.207	0.094	0.138	0.201	1.309	Yes	0.201	2.148
211	6-4	6-3	8	348.692	0.017	0.256	0.065	Free Surf	3.743	0.343	0.253	0.229	0.293	1.013	Yes	0.274	2.928
212	5-39	5-38	8	285.005	0.039	0.022	0.004	Free Surf	2.429	0.083	0.014	0.055	0.083	1.538	Yes	0.069	1.771
213	5-61	5-60	8	334.244	0.045	0.06	0.013	Free Surf	3.482	0.13	0.036	0.087	0.139	1.659	Yes	0.093	3.164
214	5-9	5-8	8	57.594	0.038	0.307	0.08	Free Surf	5.286	0.305	0.202	0.203	0.323	1.523	No	0.203	5.286
215	5-55	5-54	8	403.817	0.05	0.045	0.009	Free Surf	3.301	0.111	0.026	0.074	0.119	1.743	Yes	0.089	2.493
216	5-10	5-9	8	262.933	0.027	0.302	0.078	Free Surf	4.655	0.33	0.235	0.22	0.32	1.285	No	0.22	4.655
217	5-45	5-44	8	210.182	0.048	0.063	0.014	Free Surf	3.605	0.131	0.037	0.088	0.142	1.708	Yes	0.09	3.459
218	6-1	5-35	8	384.111	0.02	0.368	0.097	Free Surf	4.421	0.397	0.332	0.264	0.354	1.11	No	0.264	4.421
219	5-54	5-53	8	338	0.018	0.056	0.012	Free Surf	2.46	0.157	0.054	0.105	0.134	1.043	No	0.105	2.46
220	5-8	5-7	8	315.394	0.068	0.312	0.081	Free Surf	6.55	0.264	0.153	0.176	0.325	2.044	Yes	0.215	4.965
221	5-44	5-43	8	271.29	0.048	0.071	0.016	Free Surf	3.746	0.139	0.042	0.093	0.151	1.714	Yes	0.101	3.303
222	4-22	4-21	8	422.288	0.009	0.159	0.038	Free Surf	2.652	0.312	0.211	0.208	0.229	0.754	Yes	0.215	2.531
223	4-36	4-21	8	134.844	0.06	0.009	0.002	Free Surf	2.162	0.049	0.005	0.033	0.053	1.92	Yes	0.123	0.312
224	4-35	4-34	8	409.381	0.02	0.017	0.003	Free Surf	1.788	0.087	0.016	0.058	0.074	1.095	No	0.058	1.788
225	5-5	5-4	8	162.225	0.026	0.883	0.257	Free Surf	6.045	0.617	0.701	0.411	0.551	1.26	No	0.411	6.045
226	1-26	1-25	8	31.422	0.001	0.317	0.082	Pressurized	1.403	1	1.133	0.667	0.307	0.279	No	0.667	1.403
227	1-30	1-27	8	53.695	0.193	0.008	0.001	Free Surf	3.109	0.035	0.002	0.023	0.049	3.443	Yes	0.275	0.088
228	1-27	1-26	8	157.026	0.002	0.313	0.081	Free Surf	1.64	0.79	0.965	0.527	0.326	0.325	Yes	0.602	1.461
229	1-28	1-27	8	411.125	0.004	0.304	0.079	Free Surf	2.249	0.578	0.635	0.386	0.321	0.479	Yes	0.456	1.85
230	1-29	1-28	8	192	0.004	0.013	0.002	Free Surf	0.915	0.112	0.026	0.075	0.063	0.48	Yes	0.23	0.184
232	1-39	1-38	8	49.837	0.001	0.546	0.151	Pressurized	2.421	1	2.842	0.667	0.252	0.192	Yes	0.667	2.421
233	1-49	1-43	8	155.904	0.051	0.006	0.001	Free Surf	1.86	0.044	0.004	0.029	0.045	1.774	Yes	0.667	0.029
234	1-43	1-42	8	48.127	0.005	0.043	0.009	Pressurized	1.477	0.187	0.076	0.125	0.117	0.564	Yes	0.667	0.191
235	1-10	1-9	12	56.251	0.002	0.733	0.209	Free Surf	2.264	0.609	0.687	0.609	0.448	1.066	No	0.609	2.264
236	1-42	1-39	8	162.145	0.001	0.044	0.009	Pressurized	0.924	0.264	0.153	0.176	0.118	0.288	Yes	0.667	0.195
237	1-40	1-39	8	295.117	0.008	0.514	0.141	Pressurized	3.454	0.627	0.717	0.418	0.422	0.716	Yes	0.667	2.278
238	1-11	1-10	12	306.55	0.003	0.732	0.209	Free Surf	2.675	0.531	0.552	0.531	0.448	1.325	Yes	0.57	2.449
239	1-44	1-43	8	326.193	0.003	0.036	0.007	Pressurized	1.166	0.195	0.084	0.13	0.107	0.434	Yes	0.667	0.161
240	1-15	1-14	10	141.607	0.009	0.71	0.209	Pressurized	3.808	0.523	0.539	0.436	0.467	1.318	Yes	0.833	2.014
241	1-16	1-15	8	296.811	0.015	0.956	0.281	Free Surf	4.867	0.813	0.992	0.542	0.569	0.963	Yes	0.667	4.236
242	1-17	1-16	8	306.551	0.014	0.947	0.278	Pressurized	4.195	1	1.03	0.667	0.56	0.919	No	0.667	4.195
243	5-1	1-17	8	334.47	0.015	0.94	0.275	Free Surf	4.814	0.808	0.986	0.538	0.565	0.953	Yes	0.667	4.165
244	1-13	1-12	12	304.5	0.006	0.691	0.207	Pressurized	3.251	0.436	0.394	0.436	0.435	1.755	Yes	1	1.361
246	10-11	10-10	8	85.014	0.012	0.004	0.001	Free Surf	0.948	0.048	0.004	0.032	0.034	0.849	Yes	0.053	0.453
248	1-14	1-13	10	359.154	0.007	0.743	0.212	Pressurized	3.516	0.579	0.635	0.482	0.478	1.17	Yes	0.833	2.108
249	1-41	1-40	8	315.131	0.002	0.508	0.139	Pressurized	2.251	1	1.567	0.667	0.332	0.324	Yes	0.667	2.251
250	1-12	1-11	12	288.39	0.004	0.729	0.208	Free Surf	2.766	0.515	0.526	0.515	0.447	1.386	Yes	0.523	2.715
251	1-45	1-44	8	445.4	0.007	0.029	0.006	Pressurized	1.447	0.146	0.046	0.097	0.097	0.643	Yes	0.667	0.131
252	10-4	10-3	8	314.02	0.006	0.095	0.022	Free Surf	1.94	0.27	0.16	0.18	0.176	0.598	No	0.18	1.94
253	10-2	10-1	8	30	0.067	0.109	0.025	Free Surf	4.795	0.157	0.054	0.105	0.188	2.032	Yes	0.277	1.234
254	10-1	9-17	8	39.231	0.006	0.465	0.126	Free Surf	2.883	0.672	0.793	0.448	0.4	0.586	Yes	0.53	2.418
255	10-14	10-13	8	34.684	0.036	0.373	0.099	Free Surf	5.468	0.342	0.252	0.228	0.357	1.481	Yes	0.32	3.483
256	10-13	10-1	8	90.524	0.005	0.38	0.101	Free Surf	2.591	0.619	0.704	0.412	0.36	0.54	Yes	0.43	2.466
257	10-3	10-2	8	221.446	0.009	0.107	0.025	Free Surf	2.339	0.256	0.144	0.171	0.186	0.742	No	0.171	2.339
258	10-5	10-4	8	289.357	0.002	0.078	0.017	Free Surf	1.264	0.317	0.218	0.211	0.158	0.357	No	0.211	1.264
259	10-16	10-15	8	290.272	0.004	0.12	0.028	Free Surf	1.809	0.336	0.243	0.224	0.198	0.495	No	0.224	1.809
260	10-29	10-28	8	312.6	0.003	0.251	0.063	Free Surf	2.023	0.538	0.566	0.359	0.29	0.443	Yes	0.435	1.607
261	10-30	10-29	8	269.648	0.019	0.064	0.014	Free Surf	2.604	0.167	0.06	0.111	0.144	1.066	Yes	0.235	0.905
262	10-28	10-14	8	293.815	0.001	0.273	0.07	Free Surf	1.473	0.766	0.935	0.511	0.303	0.293	No	0.511	1.473

263	10-37	10-36	8	90	0.006	0.005	0.001	Free Surf	0.81	0.068	0.009	0.045	0.041	0.584	Yes	0.097	0.264
264	10-36	10-17	8	418.528	0.001	0.02	0.004	Free Surf	0.535	0.224	0.11	0.149	0.08	0.184	Yes	0.178	0.416
265	10-7	10-6	8	315.646	0.004	0.04	0.008	Free Surf	1.319	0.193	0.081	0.128	0.113	0.495	Yes	0.141	1.15
266	10-18	10-17	8	299.199	0.004	0.062	0.013	Free Surf	1.534	0.235	0.121	0.156	0.141	0.512	Yes	0.182	1.241
268	10-35	10-32	8	233.691	0.009	0.009	0.002	Free Surf	1.109	0.079	0.013	0.053	0.054	0.724	Yes	0.071	0.71
269	10-27	10-26	8	135	0.015	0.01	0.002	Free Surf	1.382	0.073	0.011	0.048	0.056	0.953	Yes	0.058	1.063
270	10-33	10-32	8	301.27	0.023	0.033	0.007	Free Surf	2.32	0.115	0.028	0.077	0.103	1.194	Yes	0.083	2.053
271	10-26	10-17	8	298.3	0.019	0.023	0.004	Free Surf	1.941	0.101	0.021	0.067	0.085	1.085	Yes	0.137	0.69
272	10-6	10-5	8	320.24	0.005	0.063	0.014	Free Surf	1.593	0.232	0.118	0.154	0.142	0.536	Yes	0.183	1.255
273	10-17	10-16	8	328.457	0.004	0.106	0.024	Free Surf	1.78	0.311	0.21	0.207	0.186	0.508	Yes	0.215	1.686
274	10-31	10-30	8	328	0.015	0.05	0.011	Free Surf	2.253	0.154	0.051	0.103	0.126	0.967	Yes	0.107	2.129
275	10-12	10-4	8	337.734	0.001	0.013	0.002	Free Surf	0.515	0.17	0.063	0.113	0.064	0.209	Yes	0.147	0.355
276	10-10	10-6	8	417.238	0.008	0.018	0.003	Free Surf	1.292	0.111	0.026	0.074	0.075	0.679	Yes	0.114	0.69
277	7-11	7-10	8	155	0.025	0.328	0.085	Free Surf	4.666	0.349	0.262	0.233	0.333	1.25	No	0.233	4.666
278	7-9	7-1	8	35.501	0.053	0.346	0.091	Free Surf	6.163	0.297	0.192	0.198	0.343	1.802	Yes	0.336	3.028
279	7-10	7-9	8	390	0.049	0.34	0.089	Free Surf	5.957	0.3	0.196	0.2	0.34	1.73	No	0.2	5.957
280	8-2	8-1	8	76.648	0.217	0.186	0.046	Free Surf	8.487	0.154	0.051	0.102	0.248	3.652	Yes	0.121	6.673
281	7-1	1-48	8	140.768	0.005	0.463	0.125	Free Surf	2.691	0.712	0.856	0.475	0.399	0.54	No	0.475	2.691
282	7-2	7-1	8	245	0.298	0.142	0.034	Free Surf	8.733	0.125	0.033	0.083	0.215	4.274	No	0.083	8.733
283	7-35	7-13	8	152.531	0.144	0.011	0.002	Free Surf	3.144	0.045	0.004	0.03	0.059	2.974	No	0.03	3.144
284	8-3	8-2	8	393.985	0.084	0.18	0.044	Free Surf	6.011	0.19	0.079	0.127	0.244	2.27	No	0.127	6.011
285	7-4	7-3	8	460.243	0.05	0.116	0.027	Free Surf	4.398	0.175	0.066	0.116	0.195	1.751	No	0.116	4.398
286	7-42	7-15	8	155.451	0.134	0.009	0.002	Free Surf	2.834	0.04	0.003	0.027	0.052	2.871	Yes	0.045	1.295
287	7-38	7-37	8	35.317	0.142	0.01	0.002	Free Surf	3.018	0.043	0.003	0.028	0.056	2.946	Yes	0.039	1.896
288	7-37	7-36	8	496.953	0.038	0.017	0.003	Free Surf	2.241	0.074	0.011	0.049	0.073	1.531	No	0.049	2.241
289	7-3	7-2	8	481.774	0.066	0.13	0.031	Free Surf	5.032	0.172	0.065	0.115	0.207	2.018	No	0.115	5.032
290	10-22	10-21	8	145	0.007	0.01	0.002	Free Surf	1.042	0.085	0.015	0.057	0.055	0.65	Yes	0.101	0.447
291	10-20	10-19	8	126.766	0.004	0.044	0.009	Free Surf	1.368	0.2	0.088	0.134	0.118	0.502	Yes	0.14	1.279
292	10-21	10-20	8	340.832	0.001	0.025	0.005	Free Surf	0.688	0.218	0.104	0.145	0.089	0.24	No	0.145	0.688
293	10-9	10-8	8	145.529	0.005	0.017	0.003	Free Surf	1.104	0.122	0.032	0.082	0.074	0.547	Yes	0.092	0.923
294	10-24	10-23	8	105	0.019	0.01	0.002	Free Surf	1.516	0.069	0.01	0.046	0.057	1.081	No	0.046	1.516
295	10-25	10-24	8	104.592	0.01	0.006	0.001	Free Surf	1.028	0.064	0.008	0.043	0.044	0.766	Yes	0.045	0.977
296	10-23	10-20	8	181.3	0.035	0.013	0.002	Free Surf	2.016	0.067	0.009	0.045	0.064	1.462	Yes	0.089	0.733
297	7-32	7-6	8	177.052	0.119	0.008	0.001	Free Surf	2.7	0.041	0.003	0.027	0.051	2.697	Yes	0.039	1.58
298	7-7	7-6	8	261.061	0.065	0.009	0.002	Free Surf	2.225	0.048	0.004	0.032	0.053	1.998	Yes	0.042	1.519
299	7-6	7-5	8	606.503	0.077	0.026	0.005	Free Surf	3.274	0.077	0.012	0.051	0.091	2.18	Yes	0.084	1.577
300	7-5	7-4	8	367.418	0.041	0.106	0.024	Free Surf	3.991	0.176	0.067	0.117	0.186	1.582	No	0.117	3.991
301	1-48	1-47	8	305	0.022	0.47	0.127	Free Surf	4.851	0.444	0.407	0.296	0.402	1.154	Yes	0.667	2.081
302	1-46	1-45	8	369.014	0.005	0.019	0.004	Pressurized	1.175	0.124	0.033	0.083	0.077	0.576	Yes	0.667	0.084
303	10-8	10-7	8	307.332	0.004	0.025	0.005	Free Surf	1.126	0.154	0.051	0.103	0.089	0.483	Yes	0.116	0.95
304	10-19	10-18	8	170.009	0.004	0.05	0.01	Free Surf	1.352	0.22	0.106	0.146	0.126	0.469	Yes	0.151	1.288
305	10-34	10-33	8	265	0.019	0.02	0.004	Free Surf	1.841	0.094	0.018	0.063	0.079	1.076	Yes	0.07	1.576
306	5-2	5-1	8	372.009	0.011	0.927	0.271	Pressurized	4.108	1	1.111	0.667	0.537	0.834	No	0.667	4.108
307	6-45	6-44.5	8	37.975	0.082	0.058	0.012	Free Surf	4.252	0.11	0.026	0.074	0.136	2.248	Yes	0.105	2.515
308	6-8	6-7	8	116.341	0.006	0.227	0.057	Free Surf	2.549	0.417	0.364	0.278	0.275	0.625	Yes	0.307	2.241
309	6-7	6-6	8	224.047	0.003	0.232	0.058	Free Surf	2.04	0.503	0.505	0.335	0.278	0.459	Yes	0.35	1.934
310	6-24	6-9	8	187.861	0.052	0.131	0.031	Free Surf	4.616	0.183	0.073	0.122	0.207	1.783	Yes	0.179	2.696
311	6-10	6-9	8	55.771	0.033	0.104	0.024	Free Surf	3.669	0.183	0.073	0.122	0.184	1.418	Yes	0.178	2.139
312	6-53	6-10	8	113.31	0.14	0.011	0.002	Free Surf	3.101	0.045	0.004	0.03	0.059	2.934	Yes	0.076	0.777
313	6-9	6-8	8	399.719	0.011	0.223	0.056	Free Surf	3.146	0.352	0.266	0.235	0.273	0.839	Yes	0.256	2.792
314	6-52	6-51	8	127.401	0.024	0.007	0.001	Free Surf	1.454	0.055	0.006	0.037	0.047	1.202	Yes	0.037	1.439

315	5-64	5-63	8	389.816	0.003	0.011	0.002	Free Surf	0.773	0.116	0.028	0.077	0.059	0.397	No	0.077	0.773
316	6-51	6-5	8	136.217	0.054	0.011	0.002	Free Surf	2.213	0.056	0.006	0.037	0.058	1.812	Yes	0.112	0.439
317	5-63	5-62	8	347.59	0.04	0.033	0.007	Free Surf	2.8	0.1	0.021	0.067	0.102	1.572	Yes	0.075	2.36
318	5-57	5-56	8	46.049	0.065	0.024	0.005	Free Surf	3.025	0.078	0.012	0.052	0.088	1.999	Yes	0.057	2.64
319	5-13	5-12	8	100.432	0.06	0.279	0.071	Free Surf	6.072	0.257	0.145	0.171	0.306	1.924	No	0.171	6.072
320	5-15	5-14	8	190.736	0.09	0.156	0.04	Free Surf	5.901	0.174	0.066	0.116	0.226	2.352	Yes	0.194	2.841
321	5-12	5-11	8	313.084	0.039	0.282	0.072	Free Surf	5.215	0.289	0.182	0.193	0.308	1.547	Yes	0.193	5.2
322	5-58	5-57	8	262	0.034	0.019	0.004	Free Surf	2.241	0.08	0.013	0.053	0.077	1.451	No	0.053	2.241
324	5-65	5-63	8	300.507	0.007	0.011	0.002	Free Surf	1.075	0.092	0.017	0.061	0.059	0.639	Yes	0.064	1.005
325	6-26	6-25	8	102.108	0.005	0.078	0.017	Free Surf	1.72	0.255	0.142	0.17	0.158	0.548	No	0.17	1.72
326	6-59	6-58	8	114.066	0.009	0.041	0.008	Free Surf	1.751	0.161	0.056	0.107	0.114	0.733	No	0.107	1.751
327	6-27	6-26	8	202.415	0.047	0.07	0.015	Free Surf	3.704	0.139	0.041	0.093	0.15	1.696	Yes	0.131	2.238
328	6-58	6-25	8	180.266	0.039	0.046	0.01	Free Surf	3.051	0.118	0.03	0.079	0.121	1.543	Yes	0.103	2.066
329	6-61	6-60	8	38.376	0.026	0.021	0.004	Free Surf	2.106	0.09	0.017	0.06	0.082	1.264	Yes	0.071	1.644
330	6-64	6-60	8	127	0.016	0.017	0.003	Free Surf	1.639	0.09	0.017	0.06	0.072	0.983	Yes	0.071	1.282
331	6-60	6-59	8	91.045	0.022	0.038	0.008	Free Surf	2.355	0.123	0.032	0.082	0.109	1.161	Yes	0.095	1.919
332	5-66	5-16	8	154	0.077	0.014	0.003	Free Surf	2.706	0.057	0.006	0.038	0.066	2.176	Yes	0.097	0.688
333	5-51.5	5-51	8	76.857	0.052	0.008	0.001	Free Surf	1.96	0.047	0.004	0.031	0.049	1.786	Yes	0.033	1.818
334	5-51	5-50.5	8	236.112	0.102	0.013	0.002	Free Surf	2.92	0.052	0.005	0.035	0.064	2.497	Yes	0.042	2.228
335	6-65	6-64	8	216.869	0.014	0.01	0.002	Free Surf	1.33	0.072	0.011	0.048	0.055	0.921	Yes	0.054	1.117
336	5-15	5-14	8	347.692	0.049	0.115	0.029	Free Surf	4.371	0.174	0.066	0.116	0.194	1.742	Yes	0.194	2.104
337	5-59	5-58	8	336.485	0.048	0.01	0.002	Free Surf	2.067	0.055	0.006	0.037	0.056	1.708	Yes	0.045	1.523
338	5-50.5	5-48	8	257.852	0.062	0.021	0.004	Free Surf	2.836	0.073	0.011	0.049	0.081	1.951	Yes	0.058	2.186
340	6-6	6-5	8	165.579	0.003	0.236	0.059	Free Surf	1.876	0.546	0.579	0.364	0.281	0.408	No	0.364	1.876
341	6-25	6-24	8	320.419	0.037	0.121	0.028	Free Surf	4.02	0.191	0.08	0.127	0.199	1.515	No	0.127	4.02
342	6-13	6-12	8	106.536	0.01	0.079	0.018	Free Surf	2.218	0.216	0.102	0.144	0.16	0.777	No	0.144	2.218
343	6-15	6-14	8	88.161	0.038	0.058	0.012	Free Surf	3.262	0.133	0.038	0.089	0.136	1.536	Yes	0.092	3.097
344	6-54	6-14	8	122.208	0.098	0.017	0.003	Free Surf	3.113	0.059	0.007	0.039	0.073	2.454	Yes	0.067	1.416
345	6-14	6-13	8	113.19	0.045	0.073	0.016	Free Surf	3.703	0.142	0.044	0.095	0.153	1.669	Yes	0.119	2.658
346	6-56	6-15	8	368.932	0.029	0.008	0.001	Free Surf	1.622	0.056	0.006	0.037	0.05	1.328	Yes	0.063	0.746
347	6-12	6-11	8	326.639	0.029	0.084	0.019	Free Surf	3.308	0.17	0.063	0.114	0.165	1.336	Yes	0.119	3.095
348	6-57	6-16	8	157.088	0.083	0.011	0.002	Free Surf	2.56	0.05	0.005	0.033	0.058	2.258	Yes	0.045	1.63
349	6-17	6-16	8	150.603	0.041	0.039	0.008	Free Surf	2.953	0.108	0.024	0.072	0.111	1.585	No	0.072	2.953
350	6-18	6-17	8	389.567	0.072	0.032	0.006	Free Surf	3.382	0.086	0.015	0.057	0.1	2.094	Yes	0.065	2.839
351	6-16	6-15	8	82.015	0.177	0.049	0.01	Free Surf	5.291	0.085	0.015	0.057	0.125	3.298	Yes	0.073	3.68
352	6-63	6-62	8	295.931	0.051	0.008	0.001	Free Surf	1.99	0.049	0.005	0.033	0.051	1.763	Yes	0.04	1.5
353	5-67	5-17	8	329.081	0.085	0.024	0.005	Free Surf	3.302	0.072	0.01	0.048	0.087	2.289	Yes	0.101	1.105
354	5-69	5-68	8	238.176	0.134	0.009	0.002	Free Surf	2.838	0.04	0.003	0.027	0.052	2.87	Yes	0.044	1.358
355	5-68	5-67	8	234.393	0.017	0.018	0.003	Free Surf	1.727	0.092	0.018	0.061	0.075	1.023	No	0.061	1.727
356	5-70	5-18	8	308.006	0.105	0.02	0.004	Free Surf	3.345	0.063	0.008	0.042	0.079	2.54	Yes	0.09	1.086
357	5-71	5-70	8	125.05	0.168	0.011	0.002	Free Surf	3.333	0.043	0.004	0.029	0.06	3.209	Yes	0.035	2.48
358	5-18	5-17	8	188.155	0.105	0.236	0.059	Free Surf	7.038	0.206	0.093	0.138	0.281	2.534	Yes	0.146	6.453
359	5-73	5-19	8	221.584	0.071	0.079	0.018	Free Surf	4.436	0.133	0.038	0.089	0.16	2.082	Yes	0.148	2.13
360	5-75	5-74	8	121.039	0.14	0.07	0.015	Free Surf	5.434	0.107	0.024	0.071	0.15	2.935	Yes	0.072	5.372
361	5-74	5-73	8	159.735	0.144	0.073	0.016	Free Surf	5.555	0.108	0.025	0.072	0.153	2.971	Yes	0.081	4.729
362	5-76	5-75	8	148.041	0.027	0.004	0.001	Free Surf	1.273	0.04	0.003	0.027	0.035	1.287	Yes	0.049	0.523
363	5-19	5-18	8	380.003	0.018	0.218	0.054	Free Surf	3.658	0.31	0.209	0.207	0.27	1.044	No	0.207	3.658
364	5-72	5-71	8	265.691	0.019	0.007	0.001	Free Surf	1.322	0.056	0.006	0.038	0.045	1.074	No	0.038	1.322
365	6-55	6-54	8	193.85	0.052	0.012	0.002	Free Surf	2.262	0.059	0.007	0.04	0.062	1.779	No	0.04	2.262
366	6-57.5	6-57	8	145.192	0.014	0.005	0.001	Free Surf	1.086	0.053	0.005	0.035	0.039	0.919	No	0.035	1.086
367	6-11	6-10	8	326.365	0.025	0.094	0.021	Free Surf	3.246	0.186	0.076	0.124	0.175	1.242	No	0.124	3.246

368	6-28	6-27	8	386.375	0.008	0.061	0.013	Free Surf	1.882	0.2	0.088	0.133	0.139	0.69	No	0.133	1.882
369	6-62	6-61	8	282.529	0.053	0.018	0.003	Free Surf	2.556	0.07	0.01	0.047	0.075	1.804	Yes	0.053	2.095
370	5-66.5	5-66	8	218.4	0.092	0.007	0.001	Free Surf	2.366	0.041	0.003	0.027	0.048	2.37	Yes	0.033	1.804
371	5-17	5-16	8	387.42	0.077	0.257	0.065	Free Surf	6.464	0.232	0.118	0.155	0.294	2.171	Yes	0.155	6.438
372	8-5	8-4	8	193.598	0.085	0.164	0.04	Free Surf	5.871	0.182	0.072	0.121	0.233	2.282	Yes	0.126	5.537
373	7-43	7-16	8	98.964	0.235	0.026	0.005	Free Surf	4.805	0.059	0.007	0.039	0.09	3.793	Yes	0.047	3.707
374	7-44	7-43	8	320.347	0.028	0.021	0.004	Free Surf	2.153	0.088	0.016	0.059	0.081	1.313	No	0.059	2.153
375	5-50	5-49	8	322	0.062	0.008	0.001	Free Surf	2.128	0.047	0.004	0.031	0.05	1.952	Yes	0.036	1.745
376	8-8	8-7	8	335.687	0.07	0.059	0.013	Free Surf	4.043	0.116	0.028	0.077	0.137	2.071	Yes	0.094	3.03
377	8-16	8-6	8	327.925	0.07	0.014	0.003	Free Surf	2.61	0.058	0.007	0.039	0.066	2.072	Yes	0.078	0.938
378	7-24	7-23	8	194.449	0.026	0.055	0.012	Free Surf	2.789	0.143	0.044	0.095	0.133	1.256	No	0.095	2.789
379	7-33	7-23	8	457.57	0.14	0.014	0.003	Free Surf	3.344	0.05	0.005	0.033	0.067	2.929	Yes	0.062	1.33
380	7-34	7-24	8	446.126	0.134	0.011	0.002	Free Surf	3.057	0.045	0.004	0.03	0.059	2.872	Yes	0.063	1.033
381	7-46	7-45	8	128.022	0.133	0.005	0.001	Free Surf	2.366	0.031	0.002	0.021	0.039	2.854	Yes	0.032	1.233
382	7-20	7-19	8	47.222	0.042	0.024	0.005	Free Surf	2.602	0.086	0.015	0.057	0.088	1.612	No	0.057	2.602
383	7-27	7-26	8	97.317	0.062	0.032	0.006	Free Surf	3.207	0.089	0.016	0.059	0.1	1.944	No	0.059	3.207
384	7-26	7-25	8	572.379	0.115	0.035	0.007	Free Surf	4.108	0.08	0.013	0.053	0.105	2.659	Yes	0.086	2.046
385	7-25	7-24	8	174.377	0.006	0.041	0.008	Free Surf	1.507	0.178	0.069	0.119	0.114	0.593	No	0.119	1.507
386	7-28	7-27	8	97.537	0.072	0.029	0.006	Free Surf	3.282	0.082	0.014	0.055	0.095	2.098	Yes	0.057	3.084
387	7-31	7-28	8	296.705	0.04	0.011	0.002	Free Surf	2.012	0.06	0.007	0.04	0.059	1.575	Yes	0.047	1.565
388	7-22	7-21	8	248.062	0.113	0.009	0.002	Free Surf	2.683	0.042	0.003	0.028	0.052	2.631	Yes	0.034	2.052
389	7-30	7-29	8	14.928	0.134	0.004	0.001	Free Surf	2.254	0.028	0.001	0.019	0.036	2.866	Yes	0.032	1.01
390	7-29	7-28	8	286.383	0.01	0.008	0.001	Free Surf	1.124	0.069	0.01	0.046	0.049	0.801	Yes	0.05	0.986
391	7-21	7-20	8	354.626	0.135	0.02	0.004	Free Surf	3.651	0.059	0.007	0.039	0.079	2.881	Yes	0.048	2.692
392	7-45	7-44	8	129.061	0.07	0.017	0.003	Free Surf	2.781	0.065	0.008	0.043	0.073	2.068	Yes	0.051	2.173
393	7-18	CRUSHERCANYON8	8	32.365	0.011	0.032	0.006	Free Surf	1.764	0.134	0.038	0.089	0.1	0.826	Yes	0.108	1.337
394	7-19	7-18	8	254.612	0.112	0.028	0.006	Free Surf	3.817	0.073	0.011	0.049	0.094	2.626	Yes	0.069	2.282
395	5-81	5-80	8	217.985	0.032	0.033	0.007	Free Surf	2.579	0.105	0.023	0.07	0.102	1.403	Yes	0.071	2.525
396	5-80	5-79	8	200.721	0.06	0.047	0.01	Free Surf	3.583	0.108	0.025	0.072	0.123	1.915	Yes	0.087	2.725
397	8-10	8-9	8	171.039	0.17	0.033	0.007	Free Surf	4.617	0.071	0.01	0.048	0.102	3.224	Yes	0.058	3.416
398	8-12	8-11	8	221.091	0.077	0.01	0.002	Free Surf	2.449	0.049	0.005	0.033	0.056	2.171	Yes	0.043	1.619
399	5-78	5-77	8	126.765	0.158	0.057	0.012	Free Surf	5.317	0.094	0.018	0.063	0.135	3.11	Yes	0.064	5.165
400	5-84	5-83	8	109.427	0.11	0.01	0.002	Free Surf	2.731	0.044	0.004	0.03	0.055	2.593	Yes	0.036	2.076
401	5-83	5-82	8	174.309	0.109	0.02	0.004	Free Surf	3.397	0.062	0.008	0.042	0.079	2.585	Yes	0.059	2.027
402	5-82	5-81	8	275.396	0.015	0.026	0.005	Free Surf	1.829	0.115	0.028	0.076	0.091	0.944	No	0.076	1.829
403	8-9	8-8	8	488.331	0.074	0.048	0.01	Free Surf	3.864	0.104	0.022	0.069	0.123	2.126	Yes	0.073	3.549
404	5-49	5-48	8	170.852	0.059	0.013	0.002	Free Surf	2.432	0.06	0.007	0.04	0.065	1.894	Yes	0.054	1.577
405	5-77	5-75	8	117.646	0.179	0.066	0.014	Free Surf	5.796	0.098	0.02	0.065	0.145	3.308	Yes	0.068	5.43
406	6-44.5	6-44	8	275.342	0.007	0.062	0.013	Free Surf	1.852	0.206	0.093	0.137	0.141	0.667	No	0.137	1.852
407	5-40	5-39	8	241.006	0.058	0.011	0.002	Free Surf	2.25	0.054	0.006	0.036	0.057	1.887	Yes	0.046	1.573
408	6-5	6-4	8	318.873	0.034	0.248	0.063	Free Surf	4.792	0.28	0.171	0.187	0.288	1.447	Yes	0.208	4.132
409	5-62	5-61	8	518.081	0.033	0.047	0.01	Free Surf	2.903	0.125	0.033	0.083	0.123	1.419	Yes	0.085	2.818
410	8-4	8-3	8	392.979	0.067	0.171	0.042	Free Surf	5.463	0.197	0.085	0.131	0.238	2.024	No	0.131	5.463
411	5-46	5-45	8	527.85	0.051	0.052	0.011	Free Surf	3.493	0.118	0.029	0.079	0.129	1.771	Yes	0.083	3.22
412	5-56	5-55	8	360	0.053	0.032	0.006	Free Surf	3.048	0.093	0.018	0.062	0.101	1.799	Yes	0.068	2.664
413	5-11	5-10	8	380.01	0.041	0.293	0.075	Free Surf	5.381	0.29	0.184	0.194	0.314	1.593	Yes	0.207	4.908
414	7-39	7-38	8	410.675	0.005	0.006	0.001	Free Surf	0.819	0.076	0.012	0.051	0.045	0.546	No	0.051	0.819
415	7-40	7-45	8	225.145	0.071	0.009	0.002	Free Surf	2.299	0.048	0.004	0.032	0.053	2.088	Yes	0.037	1.799
416	7-23	7-5	8	324.589	0.055	0.075	0.016	Free Surf	3.998	0.137	0.04	0.091	0.155	1.844	Yes	0.104	3.305
417	4-45	4-6	10	322.84	0.021	0.011	0.002	Free Surf	1.556	0.053	0.005	0.044	0.056	2.053	Yes	0.08	0.651
418	4-9	4-8	8	141.32	0.032	0.057	0.012	Free Surf	3.063	0.138	0.041	0.092	0.135	1.41	Yes	0.098	2.776

419	4-51	4-13	8	364.317	0.006	0.01	0.002	Free Surf	0.99	0.089	0.016	0.059	0.055	0.599	Yes	0.061	0.95
420	4-29	4-28	8	252.056	0.028	0.021	0.004	Free Surf	2.135	0.088	0.016	0.058	0.081	1.305	Yes	0.077	1.434
421	2-35	2-34	8	312.925	0.022	0.009	0.002	Free Surf	1.524	0.061	0.007	0.041	0.052	1.171	Yes	0.161	0.207
422	4-31	4-1	8	373.663	0.009	0.012	0.002	Free Surf	1.201	0.088	0.016	0.059	0.06	0.734	Yes	0.166	0.265
423	2-12	2-11	8	203.428	0.028	0.507	0.139	Free Surf	5.435	0.432	0.387	0.288	0.419	1.31	Yes	0.667	2.249
424	2-25.5	2-25	8	224.098	0.013	0.049	0.01	Free Surf	2.147	0.159	0.055	0.106	0.125	0.906	Yes	0.667	0.219
425	2-17	2-16	8	239.4	0.013	0.056	0.012	Free Surf	2.178	0.171	0.064	0.114	0.134	0.877	No	0.114	2.178
426	1-25	1-24	8	403.751	0.005	0.323	0.084	Free Surf	2.465	0.564	0.609	0.376	0.331	0.53	No	0.376	2.465
427	1-38	1-35	8	156.573	0.005	0.549	0.152	Pressurized	2.435	1	1.027	0.667	0.431	0.535	Yes	0.667	2.435
428	1-9	1-8	12	175.702	0.01	0.734	0.209	Free Surf	3.974	0.392	0.325	0.392	0.449	2.258	No	0.392	3.974
429	9-17	9-16	12	187.189	0.001	0.467	0.127	Free Surf	1.435	0.612	0.692	0.612	0.355	0.675	No	0.612	1.435
430	9-13	9-12	10	92.26	0.011	0.019	0.004	Free Surf	1.447	0.079	0.013	0.066	0.072	1.478	Yes	0.08	1.075
431	9-11	9-10	10	383.19	0.005	0.159	0.038	Free Surf	2.025	0.274	0.164	0.228	0.214	0.968	Yes	0.235	1.948
432	9-14	9-12	10	566.143	0.002	0.126	0.03	Free Surf	1.342	0.312	0.211	0.26	0.19	0.597	No	0.26	1.342
433	11-2	11-1	8	320.701	0.011	0.175	0.042	Free Surf	2.858	0.316	0.216	0.211	0.24	0.807	Yes	0.271	2.031
434	11-3	11-2	8	243.446	0.014	0.17	0.041	Free Surf	3.113	0.291	0.185	0.194	0.237	0.92	Yes	0.202	2.938
435	11-16	11-15	8	118.914	0.008	0.007	0.001	Free Surf	1.022	0.071	0.01	0.047	0.047	0.718	Yes	0.072	0.548
436	11-15	11-4	8	267.409	0.003	0.019	0.004	Free Surf	0.937	0.145	0.045	0.097	0.077	0.417	Yes	0.151	0.494
437	11-5	11-4	8	326.41	0.02	0.148	0.035	Free Surf	3.391	0.249	0.135	0.166	0.221	1.096	Yes	0.186	2.894
438	11-20	11-19	8	227	0.004	0.028	0.006	Free Surf	1.229	0.158	0.054	0.105	0.094	0.52	No	0.105	1.229
439	11-23	11-22	8	162	0.012	0.006	0.001	Free Surf	1.105	0.059	0.007	0.039	0.043	0.87	No	0.039	1.105
440	11-4	11-3	8	312.554	0.011	0.17	0.041	Free Surf	2.88	0.308	0.206	0.205	0.237	0.825	No	0.205	2.88
441	11-7	11-6	8	95.514	0.12	0.087	0.02	Free Surf	5.502	0.123	0.032	0.082	0.168	2.717	Yes	0.099	4.187
442	11-8	11-7	8	15	0.137	0.086	0.019	Free Surf	5.732	0.119	0.03	0.079	0.167	2.895	Yes	0.081	5.582
443	11-26	11-9	8	131.992	0.013	0.062	0.014	Free Surf	2.302	0.178	0.069	0.118	0.141	0.907	No	0.118	2.302
444	11-9	11-8	8	16.779	0.107	0.086	0.019	Free Surf	5.265	0.126	0.034	0.084	0.167	2.565	No	0.084	5.265
445	11-31	11-27	8	87.794	0.011	0.039	0.008	Free Surf	1.897	0.148	0.047	0.099	0.112	0.836	No	0.099	1.897
446	11-27	11-26	8	252.875	0.067	0.053	0.011	Free Surf	3.866	0.111	0.026	0.074	0.13	2.03	Yes	0.096	2.648
447	11-32	11-31	8	154.837	0.019	0.013	0.002	Free Surf	1.636	0.077	0.012	0.051	0.064	1.09	Yes	0.075	0.934
448	11-30	11-26	8	134.97	0.074	0.007	0.001	Free Surf	2.128	0.041	0.003	0.027	0.045	2.132	Yes	0.073	0.498
449	11-10	11-9	8	277.933	0.036	0.028	0.006	Free Surf	2.566	0.095	0.019	0.063	0.094	1.489	Yes	0.074	2.062
450	11-29	11-28	8	222.927	0.094	0.005	0.001	Free Surf	2.143	0.034	0.002	0.023	0.04	2.403	Yes	0.028	1.609
451	11-35	11-34	8	156	0.006	0.013	0.002	Free Surf	1.121	0.101	0.021	0.067	0.065	0.627	No	0.067	1.121
452	11-40	11-39	8	226.266	0.04	0.006	0.001	Free Surf	1.7	0.047	0.004	0.031	0.045	1.562	Yes	0.033	1.593
453	11-39	11-34	8	239.927	0.088	0.012	0.002	Free Surf	2.667	0.051	0.005	0.034	0.06	2.317	Yes	0.042	1.938
454	11-34	11-31	8	128.214	0.086	0.026	0.005	Free Surf	3.402	0.075	0.011	0.05	0.091	2.294	Yes	0.074	1.908
455	11-28	11-27	8	257.783	0.101	0.011	0.002	Free Surf	2.793	0.049	0.005	0.033	0.06	2.487	Yes	0.053	1.345
456	11-33	11-32	8	227.118	0.079	0.008	0.001	Free Surf	2.283	0.043	0.004	0.029	0.049	2.205	Yes	0.04	1.406
457	11-36	11-35	8	154	0.058	0.01	0.002	Free Surf	2.185	0.051	0.005	0.034	0.054	1.893	Yes	0.051	1.213
458	11-41	11-40	8	109.883	0.064	0	0	Free Surf	0	0	0	0	0	1.976	Yes	0.016	0
459	11-6	11-5	8	226.254	0.032	0.092	0.021	Free Surf	3.512	0.174	0.066	0.116	0.173	1.402	Yes	0.141	2.654
460	9-10	9-9	10	215.062	0.005	0.178	0.043	Free Surf	2.1	0.289	0.183	0.241	0.227	0.973	No	0.241	2.1
461	11-1	10-29	8	424.619	0.002	0.188	0.046	Free Surf	1.68	0.497	0.495	0.331	0.25	0.38	Yes	0.345	1.595
462	10-34.5	10-34	8	385.5	0.016	0.012	0.002	Free Surf	1.492	0.079	0.013	0.053	0.062	0.977	Yes	0.058	1.301
463	5-23	5-22	8	158.446	0.057	0.14	0.033	Free Surf	4.863	0.185	0.075	0.124	0.214	1.866	Yes	0.191	2.626
464	5-22	5-21	8	300.959	0.003	0.143	0.034	Free Surf	1.777	0.387	0.318	0.258	0.217	0.451	No	0.258	1.777
465	5-91	5-90	8	223.588	0.009	0.015	0.003	Free Surf	1.314	0.1	0.021	0.066	0.069	0.741	No	0.066	1.314
466	5-90	5-89	8	337.41	0.039	0.024	0.005	Free Surf	2.496	0.087	0.015	0.058	0.087	1.537	Yes	0.066	2.06
467	5-27	5-26	8	368.02	0.043	0.051	0.011	Free Surf	3.273	0.121	0.031	0.081	0.127	1.633	Yes	0.088	2.901
468	1-4	1-3	21	177	0.002	2.869	0.952	Free Surf	3.328	0.543	0.574	0.95	0.771	5.002	Yes	1.416	2.128
469	1-6	1-5	18	156.98	0.006	0.762	0.218	Free Surf	3.282	0.257	0.145	0.385	0.406	5.268	Yes	0.398	3.137

470	1-18	1-4	12	142.748	0.002	2.256	0.729	Pressurized	4.444	1	2.002	1	0.562	1.127	Yes	1	4.444
474	1-19	1-18	12	74	0.002	2.251	0.727	Pressurized	4.435	1	2.421	1	0.508	0.93	Yes	1	4.435
475	1-20	1-19	12	220.684	0.002	2.246	0.725	Pressurized	4.425	1	2.131	1	0.542	1.054	Yes	1	4.425
476	19-12	19-11	8	288.472	0.007	0.286	0.073	Free Surf	2.795	0.463	0.438	0.309	0.31	0.652	No	0.309	2.795
477	19-2	19-1	8	182.565	0.038	0.343	0.09	Free Surf	5.478	0.322	0.224	0.214	0.342	1.533	No	0.214	5.478
478	19-3	19-2	8	165.61	0.036	0.342	0.09	Free Surf	5.363	0.326	0.23	0.217	0.341	1.491	No	0.217	5.363
479	19-4	19-3	8	135.94	0.022	0.336	0.088	Free Surf	4.459	0.368	0.288	0.245	0.338	1.163	No	0.245	4.459
480	19-5	19-4	8	112.49	0.098	0.332	0.087	Free Surf	7.58	0.249	0.135	0.166	0.336	2.449	Yes	0.205	5.614
481	19-6	19-5	8	185.195	0.005	0.324	0.084	Free Surf	2.627	0.537	0.564	0.358	0.332	0.575	No	0.358	2.627
482	19-7	19-6	8	168.096	0.059	0.318	0.083	Free Surf	6.276	0.276	0.167	0.184	0.328	1.91	Yes	0.271	3.696
483	19-10	19-9	8	324.655	0.092	0.302	0.078	Free Surf	7.232	0.241	0.127	0.16	0.32	2.38	Yes	0.165	6.957
484	19-13	19-12	8	193.994	0.01	0.28	0.072	Free Surf	3.216	0.41	0.352	0.273	0.307	0.795	Yes	0.291	2.957
485	19-11	19-10	8	371.802	0.019	0.29	0.075	Free Surf	4.045	0.355	0.27	0.237	0.313	1.074	No	0.237	4.045
486	19-8	19-7	8	153.565	0.065	0.313	0.081	Free Surf	6.451	0.268	0.157	0.178	0.326	1.998	Yes	0.181	6.31
487	19-9	19-8	8	103.775	0.077	0.307	0.08	Free Surf	6.814	0.254	0.141	0.169	0.322	2.174	Yes	0.174	6.565
488	19-21	19-20	8	203.5	0.118	0.008	0.001	Free Surf	2.643	0.04	0.003	0.027	0.05	2.689	Yes	0.033	1.961
489	19-18	19-17	8	90	0.033	0.021	0.004	Free Surf	2.275	0.084	0.014	0.056	0.081	1.43	No	0.056	2.275
490	19-14	19-13	8	256	0.059	0.257	0.065	Free Surf	5.868	0.249	0.135	0.166	0.293	1.896	Yes	0.219	3.968
491	19-22	19-16	8	129	0.019	0.212	0.053	Free Surf	3.741	0.299	0.194	0.199	0.265	1.09	No	0.199	3.741
492	19-17	19-16	8	147.16	0.088	0.033	0.007	Free Surf	3.671	0.083	0.014	0.055	0.102	2.327	Yes	0.123	1.143
493	19-24	19-23	8	249	0.06	0.208	0.051	Free Surf	5.572	0.222	0.108	0.148	0.263	1.922	Yes	0.153	5.332
494	19-16	19-14	8	171.1	0.029	0.239	0.06	Free Surf	4.485	0.286	0.178	0.191	0.283	1.339	No	0.191	4.485
495	19-19	19-18	8	159.5	0.019	0.017	0.003	Free Surf	1.763	0.088	0.016	0.059	0.073	1.074	No	0.059	1.763
496	19-20	19-19	8	190	0.074	0.014	0.003	Free Surf	2.655	0.058	0.007	0.038	0.066	2.126	Yes	0.049	1.875
497	6-35	6-34	8	325.682	0.126	0.007	0.001	Free Surf	2.642	0.038	0.003	0.025	0.048	2.778	Yes	0.037	1.504
498	6-36	6-34	8	187.016	0.048	0.009	0.002	Free Surf	2.037	0.053	0.005	0.035	0.054	1.718	Yes	0.042	1.583
499	6-34	6-33	8	320.35	0.078	0.023	0.005	Free Surf	3.18	0.073	0.011	0.049	0.086	2.188	Yes	0.055	2.633
500	6-33	6-29	8	151	0.04	0.028	0.006	Free Surf	2.648	0.093	0.018	0.062	0.094	1.561	Yes	0.073	2.088
501	6-31	6-30	8	298.905	0.03	0.013	0.002	Free Surf	1.927	0.07	0.01	0.047	0.065	1.359	Yes	0.047	1.908
502	6-30	6-29	8	89.474	0.056	0.019	0.004	Free Surf	2.648	0.071	0.01	0.047	0.077	1.851	Yes	0.066	1.643
503	6-29	6-28	8	376.394	0.035	0.049	0.01	Free Surf	2.986	0.126	0.034	0.084	0.125	1.455	Yes	0.109	2.045
504	5-16	5-15	8	23.287	0.082	0.268	0.068	Free Surf	6.698	0.234	0.12	0.156	0.3	2.243	No	0.156	6.698
505	5-14	5-13	8	171.242	0.01	0.276	0.07	Free Surf	3.173	0.409	0.351	0.273	0.305	0.785	No	0.273	3.173
506	3-27	3-26	12	206.156	0.033	0.36	0.095	Free Surf	5.077	0.197	0.085	0.197	0.31	4.224	No	0.197	5.077
508	3-26	3-25	12	66.579	0.07	0.361	0.095	Free Surf	6.578	0.165	0.059	0.165	0.311	6.088	No	0.165	6.578
509	3-25	3-24	12	288.678	0.103	0.374	0.099	Free Surf	7.636	0.153	0.05	0.153	0.316	7.422	No	0.153	7.636
510	19-50	19-49	8	230.928	0.035	0.059	0.013	Free Surf	3.168	0.138	0.041	0.092	0.138	1.458	Yes	0.094	3.081
512	19-51	19-50	8	277.391	0.144	0.055	0.012	Free Surf	5.091	0.094	0.018	0.063	0.132	2.974	Yes	0.077	3.753
513	19-44	19-43	8	292.358	0.099	0.009	0.002	Free Surf	2.596	0.044	0.004	0.03	0.053	2.466	Yes	0.037	1.857
514	19-49	19-48	8	219.684	0.036	0.066	0.014	Free Surf	3.325	0.143	0.044	0.095	0.145	1.494	No	0.095	3.325
515	19-54	19-53	8	370.191	0.097	0.012	0.002	Free Surf	2.781	0.05	0.005	0.033	0.061	2.442	Yes	0.087	0.677
516	19-48	19-47	8	151.85	0.112	0.11	0.025	Free Surf	5.749	0.14	0.042	0.093	0.189	2.62	Yes	0.097	5.435
517	19-41	19-30	8	220.717	0.063	0.143	0.034	Free Surf	5.088	0.182	0.073	0.122	0.217	1.972	Yes	0.122	5.042
518	19-47	19-45	8	104.396	0.086	0.113	0.026	Free Surf	5.287	0.151	0.049	0.101	0.192	2.299	Yes	0.104	5.032
519	19-43	19-42	8	190.196	0.053	0.016	0.003	Free Surf	2.466	0.067	0.009	0.045	0.071	1.796	Yes	0.061	1.557
520	19-33	19-32	8	160	0.181	0.008	0.001	Free Surf	3.043	0.036	0.002	0.024	0.049	3.334	Yes	0.031	2.001
521	19-42	19-41	8	230.008	0.009	0.021	0.004	Free Surf	1.422	0.116	0.028	0.077	0.081	0.73	Yes	0.099	0.983
522	19-29	19-34	8	178.123	0.062	0.191	0.047	Free Surf	5.482	0.211	0.098	0.141	0.251	1.946	No	0.141	5.482
523	19-27	19-26	8	260	0.127	0.007	0.001	Free Surf	2.591	0.037	0.002	0.024	0.046	2.79	Yes	0.03	1.913
524	19-34	19-28	8	12.922	0.077	0.194	0.048	Free Surf	5.968	0.202	0.089	0.134	0.254	2.178	Yes	0.159	4.706
525	19-46	19-45	8	17.045	0.117	0.011	0.002	Free Surf	2.906	0.046	0.004	0.031	0.058	2.682	Yes	0.069	0.882

526	19-45	19-41	8	170.519	0.076	0.122	0.029	Free Surf	5.18	0.161	0.057	0.108	0.2	2.162	Yes	0.115	4.731
527	19-56	19-55	8	242.447	0.194	0.015	0.003	Free Surf	3.843	0.048	0.004	0.032	0.07	3.448	Yes	0.044	2.402
528	19-55	19-53	8	55.992	0.036	0.022	0.004	Free Surf	2.363	0.084	0.015	0.056	0.083	1.48	Yes	0.098	1.043
529	19-36	19-35	8	136.913	0.073	0.035	0.007	Free Surf	3.501	0.089	0.016	0.06	0.105	2.116	Yes	0.062	3.321
530	19-35	19-30	8	140.009	0.071	0.04	0.008	Free Surf	3.622	0.096	0.019	0.064	0.113	2.093	Yes	0.093	2.076
531	19-38	19-37	8	279.405	0.222	0.018	0.003	Free Surf	4.186	0.05	0.005	0.033	0.074	3.689	Yes	0.044	2.787
532	19-40	19-39	8	225	0.071	0.003	0.001	Free Surf	1.721	0.03	0.002	0.02	0.033	2.088	No	0.02	1.721
533	19-39	19-38	8	120	0.2	0.006	0.001	Free Surf	2.862	0.03	0.002	0.02	0.042	3.502	Yes	0.027	1.88
534	19-56.5	19-56.25	4	90	0.144	0.004	0.001	Free Surf	2.575	0.067	0.009	0.022	0.043	0.469	Yes	0.027	1.984
535	19-56.25	19-56	4	42.041	0.119	0.008	0.001	Free Surf	2.879	0.093	0.018	0.031	0.058	0.425	Yes	0.032	2.785
536	19-37	19-36	8	170.009	0.065	0.027	0.005	Free Surf	3.101	0.081	0.013	0.054	0.092	1.992	Yes	0.057	2.885
537	19-30	19-29	8	22.011	0.091	0.176	0.043	Free Surf	6.135	0.185	0.074	0.123	0.241	2.36	Yes	0.132	5.55
538	19-28	19-24	8	43.792	0.023	0.196	0.048	Free Surf	3.879	0.275	0.165	0.183	0.255	1.183	No	0.183	3.879
539	19-32	19-31	8	210.009	0.057	0.013	0.002	Free Surf	2.369	0.059	0.007	0.039	0.063	1.872	Yes	0.062	1.22
540	19-26	19-25	8	165	0.067	0.011	0.002	Free Surf	2.396	0.053	0.005	0.035	0.059	2.022	Yes	0.041	1.948
541	19-25	19-24	8	184	0.038	0.015	0.003	Free Surf	2.145	0.069	0.01	0.046	0.068	1.527	Yes	0.097	0.719
542	19-31	19-29	8	214	0.005	0.018	0.003	Free Surf	1.099	0.126	0.034	0.084	0.075	0.535	Yes	0.112	0.718
543	19-53	19-48	8	381.101	0.003	0.039	0.008	Free Surf	1.129	0.211	0.098	0.141	0.111	0.401	No	0.141	1.129
544	19-52	19-48	8	218.639	0.146	0.009	0.002	Free Surf	3.004	0.041	0.003	0.027	0.054	2.996	Yes	0.06	0.935
545	8-14	8-5	8	417.073	0.072	0.01	0.002	Free Surf	2.365	0.049	0.005	0.033	0.055	2.1	Yes	0.077	0.672
546	8-6	8-5	8	191.573	0.084	0.152	0.036	Free Surf	5.717	0.176	0.067	0.117	0.224	2.267	Yes	0.119	5.581
547	8-15	8-14	8	231.604	0.121	0.004	0.001	Free Surf	2.178	0.029	0.002	0.019	0.036	2.723	Yes	0.026	1.403
548	19-15	19-14	8	276	0.036	0.018	0.003	Free Surf	2.241	0.077	0.012	0.051	0.075	1.491	Yes	0.108	0.749
549	11-14	11-13	8	275.18	0.058	0.007	0.001	Free Surf	1.971	0.044	0.004	0.029	0.046	1.888	Yes	0.036	1.46
550	11-11	11-10	8	327.786	0.034	0.022	0.004	Free Surf	2.348	0.087	0.016	0.058	0.084	1.443	Yes	0.061	2.196
551	11-12	11-11	8	77.501	0.11	0.018	0.003	Free Surf	3.324	0.06	0.007	0.04	0.076	2.592	No	0.04	3.324
552	11-13	11-12	8	254.244	0.063	0.016	0.003	Free Surf	2.608	0.063	0.008	0.042	0.07	1.964	No	0.042	2.608
553	11-38	11-37	8	104	0.077	0.004	0.001	Free Surf	1.805	0.031	0.002	0.021	0.034	2.172	Yes	0.023	1.531
554	11-37	11-36	8	79	0.089	0.006	0.001	Free Surf	2.223	0.038	0.003	0.025	0.044	2.331	Yes	0.03	1.76
555	7-22.5	7-22	8	89.478	0.112	0.003	0.001	Free Surf	1.997	0.027	0.001	0.018	0.032	2.618	Yes	0.023	1.384
557	7-41	7-40	8	28.983	0.069	0.006	0.001	Free Surf	2.016	0.04	0.003	0.026	0.043	2.057	Yes	0.029	1.755
558	4-46	4-45	8	308.166	0.055	0.011	0.002	Free Surf	2.213	0.054	0.006	0.036	0.057	1.839	Yes	0.04	1.896
559	2-29	2-8	8	217.175	0.001	0.028	0.006	Pressurized	0.777	0.218	0.104	0.145	0.094	0.271	Yes	0.667	0.125
560	6-32	6-31	8	164.433	0.079	0.007	0.001	Free Surf	2.226	0.042	0.003	0.028	0.047	2.202	Yes	0.037	1.438
561	6-42	6-41	8	12.687	0.079	0.008	0.001	Free Surf	2.261	0.043	0.003	0.029	0.049	2.199	Yes	0.04	1.383
563	LYLE1	19-13	8	102	0.01	0.018	0.003	Free Surf	1.428	0.106	0.023	0.07	0.076	0.775	Yes	0.172	0.395
564	3-31	3-29	8	752.053	0.002	0.043	0.009	Free Surf	1.076	0.233	0.119	0.155	0.117	0.361	No	0.155	1.076
565	3-29	3-9	8	407.429	0.015	0.07	0.015	Free Surf	2.479	0.182	0.072	0.121	0.15	0.961	Yes	0.301	0.704
566	3-10	3-9	12	355.253	0.005	0.526	0.145	Free Surf	2.904	0.387	0.317	0.387	0.377	1.662	Yes	0.434	2.491
567	3-11	3-10	12	310.811	0.006	0.507	0.139	Free Surf	3.017	0.366	0.285	0.366	0.37	1.776	Yes	0.376	2.904
568	3-9	3-8	12	406.69	0.003	0.592	0.165	Free Surf	2.45	0.481	0.468	0.481	0.401	1.265	No	0.481	2.45
569	3-8	3-7	12	423.175	0.003	0.613	0.171	Free Surf	2.557	0.478	0.463	0.478	0.409	1.323	Yes	0.839	1.349
570	3-7	3-6	12	362.208	0.004	0.653	0.184	Pressurized	2.662	0.487	0.478	0.487	0.422	1.367	Yes	1	1.287
581	HERITAGE12	HERITAGE2	8	103.412	0.203	0.037	0.007	Free Surf	5.077	0.072	0.01	0.048	0.108	3.529	Yes	0.059	3.739
584	HERITAGE10	HERITAGE9	8	81.675	0.073	0.013	0.002	Free Surf	2.63	0.057	0.006	0.038	0.065	2.122	Yes	0.047	1.913
589	NACHES7	NACHES5	8	125	0.032	0.011	0.002	Free Surf	1.861	0.063	0.008	0.042	0.059	1.401	Yes	0.05	1.456
593	177TH4	177TH2	8	266.391	0.086	0.012	0.002	Free Surf	2.654	0.051	0.005	0.034	0.06	2.301	Yes	0.039	2.206
594	177TH2	NACHES5	8	280.004	0.161	0.026	0.005	Free Surf	4.217	0.065	0.008	0.043	0.09	3.139	Yes	0.05	3.349
595	NACHES5	177TH1	8	139.59	0.115	0.041	0.008	Free Surf	4.292	0.086	0.015	0.058	0.114	2.651	Yes	0.058	4.288
596	177TH1	5-27	8	139.589	0.136	0.044	0.009	Free Surf	4.681	0.086	0.015	0.058	0.119	2.889	Yes	0.069	3.579
598	HERITAGE20	HERITAGE19	8	175.463	0.006	0.016	0.003	Free Surf	1.129	0.112	0.026	0.075	0.07	0.591	No	0.075	1.129

601	HERITAGE19	HERITAGE18	8	256	0.047	0.019	0.004	Free Surf	2.505	0.075	0.011	0.05	0.078	1.695	No	0.05	2.505
602	HERITAGE18	HERITAGE17	8	275.789	0.16	0.024	0.005	Free Surf	4.122	0.063	0.008	0.042	0.087	3.128	Yes	0.045	3.732
605	HERITAGE16	HERITAGE15	8	80.088	0.006	0.029	0.006	Free Surf	1.399	0.147	0.047	0.098	0.095	0.619	Yes	0.099	1.369
606	HERITAGE8	HERITAGE7	8	145.515	0.124	0.027	0.005	Free Surf	3.875	0.069	0.01	0.046	0.091	2.754	No	0.046	3.875
607	HERITAGE7	HERITAGE6	8	120	0.183	0.03	0.006	Free Surf	4.636	0.067	0.009	0.045	0.098	3.353	No	0.045	4.636
608	HERITAGE6	HERITAGE5	8	39.542	0.253	0.033	0.007	Free Surf	5.307	0.065	0.008	0.043	0.102	3.938	Yes	0.049	4.474
609	HERITAGE4	HERITAGE3	8	148.819	0.067	0.042	0.009	Free Surf	3.6	0.1	0.021	0.066	0.116	2.03	No	0.066	3.6
610	HERITAGE3	HERITAGE2	8	30	0.267	0.044	0.009	Free Surf	5.913	0.074	0.011	0.049	0.119	4.044	Yes	0.059	4.451
612	BRAEBURN1	4-54	8	249.323	0.028	0.042	0.009	Free Surf	2.651	0.123	0.032	0.082	0.115	1.312	No	0.082	2.651
620	HERITAGE1	8-7	8	146.092	0.113	0.081	0.018	Free Surf	5.257	0.12	0.031	0.08	0.162	2.631	Yes	0.096	4.068
621	8-7	8-6	8	349.719	0.084	0.137	0.032	Free Surf	5.553	0.167	0.06	0.111	0.212	2.273	Yes	0.114	5.345
624	CRUSHERCANYON12	CRUSHERCANYON11	12	230	0.03	0.011	0.002	Free Surf	1.724	0.039	0.003	0.039	0.053	4.028	Yes	0.045	1.386
625	CRUSHERCANYON11	CRUSHERCANYON10	12	308	0.019	0.016	0.003	Free Surf	1.65	0.051	0.005	0.051	0.064	3.222	No	0.051	1.65
626	CRUSHERCANYON10	CRUSHERCANYON9	12	140	0.107	0.021	0.004	Free Surf	3.229	0.039	0.003	0.039	0.073	7.557	Yes	0.042	2.832
627	CRUSHERCANYON9	CRUSHERCANYON8	12	307.093	0.072	0.024	0.005	Free Surf	2.95	0.046	0.004	0.046	0.079	6.18	Yes	0.086	1.152
629	7-17	CRUSHERCANYON7	12	197	0.005	0.056	0.012	Free Surf	1.503	0.126	0.034	0.126	0.12	1.645	No	0.126	1.503
630	CRUSHERCANYON7	CRUSHERCANYON6	12	138	0.174	0.058	0.013	Free Surf	5.23	0.056	0.006	0.056	0.122	9.628	Yes	0.077	3.258
631	CRUSHERCANYON6	CRUSHERCANYON5	12	148	0.034	0.085	0.019	Free Surf	3.307	0.098	0.02	0.098	0.148	4.244	No	0.098	3.307
632	7-16	CRUSHERCANYON6	8	42	0.066	0.027	0.005	Free Surf	3.146	0.082	0.014	0.054	0.093	2.015	Yes	0.076	1.92
633	7-15	CRUSHERCANYON5	8	20	0.005	0.011	0.002	Free Surf	0.96	0.096	0.019	0.064	0.058	0.554	Yes	0.081	0.682
634	CRUSHERCANYON5	CRUSHERCANYON4	12	363.02	0.044	0.096	0.022	Free Surf	3.771	0.098	0.02	0.098	0.158	4.847	Yes	0.108	3.251
636	CRUSHERCANYON4	CRUSHERCANYON3	12	189.059	0.034	0.126	0.029	Free Surf	3.718	0.118	0.03	0.118	0.181	4.231	No	0.118	3.718
637	CRUSHERCANYON3	CRUSHERCANYON2	12	226.009	0.04	0.129	0.03	Free Surf	3.979	0.115	0.028	0.115	0.183	4.618	Yes	0.124	3.564
638	7-13	CRUSHERCANYON2	8	43.247	0.31	0.014	0.003	Free Surf	4.419	0.042	0.003	0.028	0.067	4.357	Yes	0.08	0.928
639	CRUSHERCANYON2	CRUSHERCANYON1	12	247	0.027	0.142	0.034	Free Surf	3.565	0.133	0.038	0.133	0.193	3.777	No	0.133	3.565
640	CRUSHERCANYON1	7-12	12	76	0.089	0.145	0.035	Free Surf	5.453	0.1	0.021	0.1	0.194	6.881	Yes	0.137	3.48
641	7-12	7-11	12	315	0.044	0.315	0.082	Free Surf	5.377	0.173	0.065	0.173	0.289	4.846	Yes	0.203	4.268
642	8-1	7-12	8	52.597	0.062	0.187	0.046	Free Surf	5.467	0.209	0.096	0.139	0.249	1.953	Yes	0.156	4.66
643	7-11.5	7-11	8	75.222	0.002	0.009	0.002	Free Surf	0.637	0.116	0.029	0.078	0.054	0.326	Yes	0.168	0.209
644	6-46.25	6-46	8	267.714	0.022	0.027	0.005	Free Surf	2.153	0.105	0.023	0.07	0.093	1.172	Yes	0.073	2.038
645	6-46.5	6-46.25	8	282.588	0.011	0.016	0.003	Free Surf	1.415	0.098	0.02	0.065	0.071	0.807	Yes	0.068	1.34
646	6-53.25	6-46.5	8	301.192	0.04	0.01	0.002	Free Surf	1.953	0.058	0.007	0.038	0.056	1.563	Yes	0.052	1.256
647	6-53.5	6-53.25	8	205	0.034	0.007	0.001	Free Surf	1.643	0.05	0.005	0.033	0.046	1.447	Yes	0.036	1.466
648	6-53.75	6-53.5	8	168.343	0.048	0.004	0.001	Free Surf	1.538	0.035	0.002	0.023	0.034	1.707	Yes	0.028	1.154
649	6-46	6-45	8	40.016	0.022	0.031	0.006	Free Surf	2.22	0.113	0.027	0.075	0.099	1.155	No	0.075	2.22
650	5-37	5-35	8	149.93	0.023	0.039	0.008	Free Surf	2.412	0.124	0.033	0.083	0.111	1.186	Yes	0.159	0.934
662	4-34	4-19	8	182.832	0.122	0.03	0.006	Free Surf	4.008	0.074	0.011	0.049	0.097	2.738	Yes	0.091	1.613
663	4-19	4-18	8	104.072	0.091	0.208	0.052	Free Surf	6.449	0.2	0.088	0.134	0.263	2.362	No	0.134	6.449
664	4-18	4-17	8	147.597	0.126	0.225	0.056	Free Surf	7.417	0.192	0.081	0.128	0.274	2.785	No	0.128	7.417
665	4-17	4-16	8	237.965	0.231	0.24	0.06	Free Surf	9.346	0.171	0.064	0.114	0.283	3.765	Yes	0.667	1.064
666	4-16	4-15	8	118.574	0.253	0.258	0.066	Free Surf	9.857	0.174	0.066	0.116	0.294	3.937	Yes	0.667	1.145
668	PUBLICWORKS3	PUBLICWORKS2	8	285.696	0.001	0.011	0.002	Pressurized	0.442	0.169	0.062	0.113	0.059	0.179	Yes	0.667	0.05
669	PUBLICWORKS2	PUBLICWORKS1	8	190.54	0.001	0.016	0.003	Pressurized	0.568	0.183	0.073	0.122	0.071	0.22	Yes	0.667	0.071
670	9-12	9-11	10	9.522	0.152	0.153	0.037	Free Surf	6.856	0.114	0.028	0.095	0.21	5.541	Yes	0.162	3.18
671	10-32	10-31	8	45.103	0.022	0.046	0.01	Free Surf	2.505	0.135	0.039	0.09	0.121	1.166	Yes	0.096	2.268
672	10-15	10-14	8	12.248	0.011	0.121	0.028	Free Surf	2.641	0.257	0.145	0.171	0.199	0.837	Yes	0.2	2.13
673	19-38.5	19-38	8	90.037	0.111	0.007	0.001	Free Surf	2.506	0.039	0.003	0.026	0.047	2.61	Yes	0.029	2.048
674	19-23	19-22	8	10.34	0.048	0.21	0.052	Free Surf	5.172	0.236	0.122	0.157	0.264	1.722	Yes	0.178	4.339
675	4-23	4-22	8	3.259	0.43	0.13	0.03	Free Surf	9.664	0.109	0.025	0.073	0.206	5.133	Yes	0.141	3.743
676	3-37	3-18	10	39.944	0.013	0.047	0.01	Free Surf	2.009	0.118	0.03	0.099	0.115	1.589	Yes	0.595	0.175
677	19-46.5	19-46	8	152.886	0.026	0.01	0.002	Free Surf	1.655	0.062	0.008	0.041	0.055	1.267	No	0.041	1.655

680	23-1	GRAHAMPACKAGINGLS	6	71.216	0.014	0.006	0.001	Free Surf	1.204	0.082	0.014	0.041	0.046	0.431	Yes	0.127	0.235
683	9-1	5010	15	70.74	0.004	0.842	0.244	Free Surf	2.834	0.401	0.338	0.501	0.451	2.489	No	0.501	2.834
684	7-8	7-7	8	144.626	0.152	0.005	0.001	Free Surf	2.438	0.029	0.002	0.019	0.038	3.054	Yes	0.026	1.592
685	7-36	7-14	8	282.616	0.142	0.028	0.006	Free Surf	4.15	0.069	0.01	0.046	0.095	2.952	Yes	0.056	3.137
686	4-20	4-19	8	280.568	0.009	0.183	0.045	Free Surf	2.746	0.336	0.243	0.224	0.246	0.751	No	0.224	2.746
687	2-26	2-25.5	8	467.116	0.019	0.036	0.007	Free Surf	2.226	0.125	0.033	0.083	0.107	1.087	Yes	0.095	1.856
1001	GRAHAMPACKAGINGLS	WW7	6	25	0.02	0.195	0.048	Free Surf	3.774	0.427	0.379	0.214	0.278	0.514	No	0.214	3.774
1007	ELKSCOUNTRYCLUBLS	WW6	10	100	0.02	0.12	0.028	Free Surf	3.129	0.166	0.06	0.138	0.186	2.008	No	0.138	3.129
1012	5-88	5-77	8	363	0.011	0.007	0.001	Free Surf	1.132	0.067	0.009	0.045	0.048	0.822	Yes	0.055	0.835
1033	CRUSHERCANYON13	CRUSHERCANYON12	12	205	0.054	0.006	0.001	Free Surf	1.734	0.025	0.001	0.025	0.039	5.348	Yes	0.032	1.224
1035	PUBLICWORKS1	IND-1	15	421.482	0.001	0.093	0.021	Pressurized	1.02	0.172	0.064	0.215	0.146	1.442	Yes	1.25	0.117
1041	PUBLICWORKS4	PUBLICWORKS3	6	256.228	0.001	0.006	0.001	Pressurized	0.438	0.165	0.059	0.082	0.046	0.102	Yes	0.5	0.047
1049	SELAHHIGH1	3-22	12	95.076	0.002	0.397	0.106	Free Surf	1.936	0.424	0.375	0.424	0.326	1.059	Yes	0.46	1.74
1053	HERITAGEHILLS	HERITAGE22	8	172.538	0.038	0.003	0.001	Free Surf	1.355	0.034	0.002	0.023	0.032	1.52	Yes	0.031	0.846
1061	APPLE5	APPLE4	8	117	0.162	0.006	0.001	Free Surf	2.706	0.032	0.002	0.022	0.043	3.156	Yes	0.025	2.135
1063	APPLE4	APPLE3	8	145	0.159	0.011	0.002	Free Surf	3.248	0.044	0.004	0.029	0.059	3.119	Yes	0.049	1.477
1065	APPLE3	APPLE2	8	327.382	0.018	0.024	0.005	Free Surf	1.941	0.105	0.023	0.07	0.088	1.06	No	0.07	1.941
1067	APPLE2	APPLE1	8	209.718	0.081	0.029	0.006	Free Surf	3.436	0.08	0.013	0.053	0.096	2.23	Yes	0.055	3.303
1069	APPLE1	4-54	8	45	0.089	0.034	0.007	Free Surf	3.722	0.084	0.015	0.056	0.104	2.335	Yes	0.064	3.052
1073	BRAEBURN2	BRAEBURN1	8	249.323	0.084	0.037	0.008	Free Surf	3.745	0.089	0.016	0.059	0.108	2.273	Yes	0.07	2.899
1075	BRAEBURN3	BRAEBURN2	8	120.999	0.124	0.03	0.006	Free Surf	4.011	0.073	0.011	0.049	0.097	2.757	Yes	0.054	3.45
1077	BRAEBURN6	BRAEBURN3	8	418.657	0.002	0.004	0.001	Free Surf	0.561	0.074	0.011	0.049	0.036	0.383	No	0.049	0.561
1079	BRAEBURN8	BRAEBURN7	8	195	0.036	0.006	0.001	Free Surf	1.602	0.046	0.004	0.031	0.043	1.484	Yes	0.041	1.063
1081	BRAEBURN7	BRAEBURN4	8	205	0.024	0.014	0.003	Free Surf	1.817	0.075	0.012	0.05	0.066	1.223	No	0.05	1.817
1083	BRAEBURN4	BRAEBURN3	8	113.001	0.115	0.021	0.004	Free Surf	3.533	0.064	0.008	0.042	0.082	2.656	Yes	0.046	3.176
1085	FIRST1	NACHES1	8	342.576	0.163	0.019	0.004	Free Surf	3.878	0.056	0.006	0.037	0.078	3.166	Yes	0.043	3.155
1087	FIRST2	FIRST1	8	175	0.006	0.01	0.002	Free Surf	0.989	0.091	0.017	0.06	0.056	0.592	No	0.06	0.989
1089	FIRST3	FIRST2	8	190	0.003	0.005	0.001	Free Surf	0.626	0.081	0.013	0.054	0.041	0.402	Yes	0.057	0.576
1091	FIRST4	177TH2	8	290	0.028	0.008	0.001	Free Surf	1.618	0.057	0.006	0.038	0.051	1.301	Yes	0.041	1.477
1093	GOODLANDER1	19-51	8	33.917	0.088	0.052	0.011	Free Surf	4.225	0.103	0.022	0.069	0.129	2.329	No	0.069	4.225
1095	GOODLANDER2	GOODLANDER1	8	132.381	0.144	0.03	0.006	Free Surf	4.237	0.071	0.01	0.047	0.097	2.967	Yes	0.058	3.133
1097	GOODLANDER3	GOODLANDER2	8	190.021	0.126	0.025	0.005	Free Surf	3.856	0.068	0.009	0.045	0.09	2.783	Yes	0.046	3.722
1099	GOODLANDER4	GOODLANDER3	8	340.073	0.091	0.021	0.004	Free Surf	3.238	0.067	0.009	0.044	0.081	2.364	Yes	0.045	3.196
1101	GOODLANDER5	GOODLANDER4	8	339.93	0.074	0.016	0.003	Free Surf	2.778	0.062	0.008	0.041	0.071	2.124	Yes	0.043	2.633
1104	GOODLANDER6	GOODLANDER5	8	290.52	0.396	0.011	0.002	Free Surf	4.461	0.035	0.002	0.023	0.059	4.927	Yes	0.667	0.05
1105	GOODLANDER7	GOODLANDER6	8	290.717	0.058	0.006	0.001	Free Surf	1.898	0.041	0.003	0.027	0.043	1.894	No	0.027	1.898
1107	GOODLANDER8	GOODLANDER1	8	156.621	0.003	0.021	0.004	Free Surf	1.007	0.148	0.048	0.099	0.081	0.442	No	0.099	1.007
1108	7-14	CRUSHERCANYON4	8	19.12	0.043	0.033	0.007	Free Surf	2.867	0.098	0.02	0.065	0.102	1.632	Yes	0.092	1.745
1109	GOODLANDER9	GOODLANDER8	8	215.788	0.012	0.018	0.003	Free Surf	1.517	0.102	0.022	0.068	0.076	0.843	Yes	0.083	1.124
1110	CRUSHERCANYON8	7-17	8	19.12	0.043	0.053	0.011	Pressurized	3.321	0.124	0.033	0.083	0.131	1.632	Yes	0.667	0.237
1111	GOODLANDER10	GOODLANDER9	8	290.176	0.003	0.016	0.003	Free Surf	0.95	0.127	0.034	0.085	0.07	0.46	No	0.085	0.95
1112	5-94	5-93	8	256.6	0.008	0.009	0.002	Free Surf	1.057	0.079	0.013	0.053	0.052	0.691	Yes	0.071	0.681
1113	GOODLANDER11	GOODLANDER10	8	287.49	0.002	0.01	0.002	Free Surf	0.644	0.118	0.029	0.079	0.055	0.327	Yes	0.082	0.608
1114	5-47	5-46	8	96.37	0.073	0.043	0.009	Free Surf	3.733	0.099	0.021	0.066	0.117	2.11	Yes	0.072	3.271
1115	GOODLANDER12	GOODLANDER11	8	247.886	0.006	0.006	0.001	Free Surf	0.862	0.07	0.01	0.047	0.043	0.609	Yes	0.063	0.559
1116	5-48	5-47	8	190.73	0.052	0.038	0.008	Free Surf	3.211	0.101	0.021	0.067	0.11	1.793	No	0.067	3.211
1118	IND-1	213	15	699	0.014	0.097	0.022	Pressurized	2.428	0.097	0.02	0.122	0.149	4.88	Yes	1.25	0.122
1119	HERITAGE2	HERITAGE1	8	234	0.179	0.077	0.017	Free Surf	6.079	0.105	0.023	0.07	0.157	3.318	Yes	0.075	5.476
1125	HERITAGE5	HERITAGE4	8	57.503	0.139	0.039	0.008	Free Surf	4.531	0.081	0.013	0.054	0.111	2.921	Yes	0.06	3.849
1133	HERITAGE9	HERITAGE8	8	184.117	0.033	0.021	0.004	Free Surf	2.255	0.084	0.015	0.056	0.08	1.414	No	0.056	2.255
1137	HERITAGE11	HERITAGE10	8	82.628	0.109	0.008	0.001	Free Surf	2.57	0.041	0.003	0.027	0.05	2.584	Yes	0.033	1.958

1141	HERITAGE13	HERITAGE12	8	156	0.135	0.034	0.007	Free Surfac	4.317	0.077	0.012	0.051	0.104	2.873	No	0.051	4.317
1143	HERITAGE14	HERITAGE13	8	82	0.061	0.032	0.006	Free Surfac	3.21	0.09	0.017	0.06	0.101	1.934	No	0.06	3.21
1145	HERITAGE15	HERITAGE14	8	82	0.006	0.03	0.006	Free Surfac	1.409	0.151	0.05	0.101	0.098	0.611	No	0.101	1.409
1149	HERITAGE17	HERITAGE16	8	76.045	0.118	0.028	0.005	Free Surfac	3.862	0.071	0.01	0.048	0.093	2.694	Yes	0.073	2.067
1157	HERITAGE21	HERITAGE20	8	336	0.003	0.008	0.001	Free Surfac	0.735	0.095	0.019	0.063	0.05	0.427	Yes	0.069	0.648
1159	HERITAGE22	HERITAGE21	8	55	0.009	0.005	0.001	Free Surfac	0.956	0.06	0.007	0.04	0.04	0.747	Yes	0.052	0.655
1163	LYLE2	LYLE1	8	312	0.032	0.01	0.002	Free Surfac	1.82	0.061	0.007	0.041	0.057	1.402	Yes	0.056	1.151
1165	YAKIMA1	FIRST1	8	273.42	0.084	0.006	0.001	Free Surfac	2.137	0.037	0.003	0.025	0.043	2.271	Yes	0.031	1.535
1167	YAKIMA2	YAKIMA1	8	173	0.006	0.003	0.001	Free Surfac	0.71	0.054	0.006	0.036	0.032	0.595	No	0.036	0.71
1169	YAKIMA3	177TH4	8	155	0.006	0.003	0	Free Surfac	0.726	0.051	0.005	0.034	0.031	0.629	No	0.034	0.726
1171	YAKIMA4	177TH4	8	290	0.003	0.005	0.001	Free Surfac	0.658	0.071	0.01	0.047	0.038	0.46	No	0.047	0.658
1173	NACHES1	5-25	8	293.554	0.14	0.031	0.006	Free Surfac	4.244	0.073	0.011	0.048	0.099	2.927	Yes	0.07	2.486
1175	NACHES2	NACHES1	8	125	0.08	0.01	0.002	Free Surfac	2.485	0.049	0.005	0.033	0.056	2.215	Yes	0.041	1.799
1177	NACHES3	NACHES2	8	103	0.078	0.005	0.001	Free Surfac	1.986	0.035	0.002	0.024	0.04	2.182	Yes	0.028	1.535
1179	NACHES4	NACHES5	8	104.046	0.106	0.004	0.001	Free Surfac	2.051	0.029	0.002	0.02	0.035	2.546	Yes	0.039	0.752
1185	NACHES8	NACHES7	8	215	0.079	0.005	0.001	Free Surfac	1.997	0.035	0.002	0.024	0.039	2.202	Yes	0.033	1.213
1545	213	1-1	15	388	0.001	0.91	0.266	Free Surfac	1.624	0.665	0.782	0.832	0.469	1.164	No	0.832	1.624
1549	1-13	1-41	8	156.3	0.006	0.46	0.138	Pressurized	3.022	0.639	0.738	0.426	0.398	0.623	Yes	0.667	2.038
1553	1-15	1-28	8	320	0.002	0.252	0.074	Free Surfac	1.613	0.653	0.762	0.436	0.291	0.33	No	0.436	1.613
1563	3-28	3-27	12	240	0.011	0.354	0.093	Free Surfac	3.415	0.258	0.146	0.258	0.307	2.431	No	0.258	3.415
1665	1-47	1-13	12	315	0.002	0.48	0.13	Pressurized	2.065	0.467	0.444	0.467	0.36	1.081	Yes	1	0.945
1667	2-5	2-4	8	477	0.007	0.72	0.205	Pressurized	3.19	1	1.097	0.667	0.478	0.656	Yes	0.667	3.19

Current Peak Gravity Main Report with Wixson Project Completed																			
ID	From ID	To ID	Diameter (in)	Length (ft)	Slope	Total Flow (mgd)	Peakable Flow (mgd)	Flow Type	Velocity (ft/s)	d/D	q/Q	Water Depth (ft)	Critical Depth (ft)	Full Flow (mgd)	Backwater Adjustment	Adjusted Depth (ft)	Adjusted Velocity (ft/s)		
78	2-8	2-7	8.000	358.850	0.004	0.585	0.163	Pressurized	2.592	1	1.209	0.667	0.409	0.48	Yes	0.667	2.592		
81	2-10	2-9	8.000	82.063	0.003	0.522	0.143	Pressurized	2.314	1	1.318	0.667	0.368	0.40	Yes	0.667	2.314		
87	2-6	2-5	8.000	377.669	0.004	0.663	0.187	Pressurized	2.937	1	1.405	0.667	0.403	0.47	Yes	0.667	2.937		
91	2-9	2-8	8.000	321.950	0.005	0.556	0.154	Pressurized	2.464	1	1.058	0.667	0.427	0.53	Yes	0.667	2.464		
92	2-7	2-6	8.000	357.453	0.003	0.638	0.179	Pressurized	2.826	1	1.468	0.667	0.386	0.43	Yes	0.667	2.826		
101	2-1	1-22	12.000	184.192	0.003	1.498	0.462	Pressurized	2.951	1	1.127	1	0.612	1.33	Yes	1	2.951		
102	1-21	1-20	12.000	61.606	0.000	2.104	0.674	Pressurized	4.146	1	4.13	1	0.371	0.51	Yes	1	4.146		
103	1-22	1-21	12.000	366.650	0.002	1.768	0.556	Pressurized	3.484	1	1.943	1	0.502	0.91	Yes	1	3.484		
107	1-2	1-1	21.000	232.000	0.000	2.878	0.955	Pressurized	1.852	1	1.35	1.75	0.66	2.13	No	1.75	1.852		
226	1-26	1-25	8.000	31.422	0.001	0.317	0.082	Pressurized	1.403	1	1.133	0.667	0.307	0.28	No	0.667	1.403		
232	1-39	1-38	8.000	49.837	0.001	0.382	0.101	Pressurized	1.692	1	1.987	0.667	0.252	0.19	Yes	0.667	1.692		
242	1-17	1-16	8.000	306.551	0.014	0.947	0.278	Pressurized	4.195	1	1.03	0.667	0.56	0.92	No	0.667	4.195		
249	1-41	1-40	8.000	315.131	0.002	0.342	0.090	Pressurized	1.515	1	1.055	0.667	0.332	0.32	No	0.667	1.515		
306	5-2	5-1	8.000	372.009	0.011	0.927	0.271	Pressurized	4.108	1	1.111	0.667	0.537	0.83	No	0.667	4.108		
470	1-18	1-4	12.000	142.748	0.002	2.118	0.679	Pressurized	4.172	1	1.879	1	0.562	1.13	Yes	1	4.172		
474	1-19	1-18	12.000	74.000	0.002	2.113	0.677	Pressurized	4.163	1	2.273	1	0.508	0.93	Yes	1	4.163		
475	1-20	1-19	12.000	220.684	0.002	2.108	0.676	Pressurized	4.153	1	2	1	0.542	1.05	Yes	1	4.153		
1667	2-5	2-4	8.000	477.000	0.007	0.720	0.205	Pressurized	3.19	1	1.097	0.667	0.478	0.66	Yes	0.667	3.19		
241	1-16	1-15	8.000	296.811	0.015	0.956	0.281	Free Surface	4.867	0.813	0.992	0.542	0.569	0.96	No	0.542	4.867		
243	5-1	1-17	8.000	334.470	0.015	0.940	0.275	Free Surface	4.814	0.808	0.986	0.538	0.565	0.95	Yes	0.667	4.165		
172	5-3	5-2	8.000	296.739	0.015	0.918	0.268	Free Surface	4.777	0.794	0.971	0.53	0.56	0.95	Yes	0.667	4.07		
228	1-27	1-26	8.000	157.026	0.002	0.313	0.081	Free Surface	1.64	0.79	0.965	0.527	0.326	0.33	Yes	0.602	1.461		
110	1-35	1-34	8.000	224.632	0.003	0.396	0.105	Pressurized	2.108	0.776	0.948	0.518	0.368	0.42	Yes	0.667	1.756		
262	10-28	10-14	8.000	293.815	0.001	0.273	0.070	Free Surface	1.473	0.766	0.935	0.511	0.303	0.29	No	0.511	1.473		
94	2-4	2-3	10.000	440.535	0.003	0.735	0.209	Pressurized	2.631	0.739	0.896	0.616	0.475	0.82	Yes	0.833	2.084		
281	7-1	1-48	8.000	140.768	0.005	0.463	0.125	Free Surface	2.691	0.712	0.856	0.475	0.399	0.54	No	0.475	2.691		
116	1-32	1-31	8.000	321.743	0.004	0.423	0.114	Pressurized	2.501	0.703	0.841	0.468	0.381	0.50	Yes	0.667	1.877		
235	1-10	1-9	12.000	56.251	0.002	0.887	0.258	Free Surface	2.35	0.697	0.832	0.697	0.496	1.07	No	0.697	2.35		
108	1-33	1-32	8.000	314.000	0.004	0.413	0.110	Pressurized	2.491	0.688	0.819	0.459	0.376	0.50	Yes	0.667	1.828		
105	1-31	1-21	8.000	304.429	0.005	0.434	0.117	Pressurized	2.633	0.686	0.814	0.457	0.386	0.53	Yes	0.667	1.924		
114	1-34	1-33	8.000	264.972	0.004	0.404	0.108	Pressurized	2.494	0.675	0.797	0.45	0.372	0.51	Yes	0.667	1.79		
254	10-1	9-17	8.000	39.231	0.006	0.465	0.126	Free Surface	2.883	0.672	0.793	0.448	0.4	0.59	Yes	0.53	2.418		
1545	213	1-1	15.000	388.000	0.001	0.910	0.266	Free Surface	1.624	0.665	0.782	0.832	0.469	1.16	No	0.832	1.624		
1553	1-15	1-28	8.000	320.000	0.002	0.252	0.074	Free Surface	1.613	0.653	0.762	0.436	0.291	0.33	No	0.436	1.613		
167	2-13	2-12	8.000	231.517	0.008	0.494	0.135	Free Surface	3.282	0.633	0.727	0.422	0.413	0.68	No	0.422	3.282		
120	9-6	9-5	10.000	446.793	0.001	0.237	0.060	Free Surface	1.016	0.629	0.721	0.524	0.264	0.33	No	0.524	1.016		
427	1-38	1-35	8.000	156.573	0.005	0.385	0.102	Pressurized	2.579	0.628	0.72	0.419	0.363	0.54	Yes	0.667	1.706		
256	10-13	10-1	8.000	90.524	0.005	0.380	0.101	Free Surface	2.591	0.619	0.704	0.412	0.36	0.54	Yes	0.43	2.466		
225	5-5	5-4	8.000	162.225	0.026	0.883	0.257	Free Surface	6.045	0.617	0.701	0.411	0.551	1.26	No	0.411	6.045		
171	5-4	5-3	8.000	171.996	0.027	0.888	0.259	Free Surface	6.119	0.614	0.695	0.409	0.552	1.28	Yes	0.469	5.233		
429	9-17	9-16	12.000	187.189	0.001	0.467	0.127	Free Surface	1.435	0.612	0.692	0.612	0.355	0.68	No	0.612	1.435		
122	9-16	9-15	12.000	455.978	0.001	0.506	0.138	Free Surface	1.558	0.61	0.689	0.61	0.37	0.73	No	0.61	1.558		
238	1-11	1-10	12.000	306.550	0.003	0.886	0.258	Free Surface	2.797	0.598	0.669	0.598	0.495	1.33	Yes	0.647	2.549		
131	2-3	2-1	15.000	263.000	0.002	1.350	0.412	Pressurized	2.741	0.595	0.664	0.744	0.576	2.03	Yes	1.25	1.701		
250	1-12	1-11	12.000	288.390	0.004	0.884	0.257	Free Surface	2.895	0.58	0.638	0.58	0.495	1.39	Yes	0.589	2.841		
248	1-14	1-13	10.000	359.154	0.007	0.743	0.212	Free Surface	3.516	0.579	0.635	0.482	0.478	1.17	No	0.482	3.516		
229	1-28	1-27	8.000	411.125	0.004	0.304	0.079	Free Surface	2.249	0.578	0.635	0.386	0.321	0.48	Yes	0.456	1.85		
73	3-1	2-3	15.000	423.823	0.001	0.703	0.200	Pressurized	1.504	0.571	0.621	0.713	0.411	1.13	Yes	1.25	0.887		

426	1-25	1-24	8.000	403.751	0.005	0.323	0.084	Free Surface	2.465	0.564	0.609	0.376	0.331	0.53	No	0.376	2.465		
165	2-14	2-13	12.000	306.129	0.001	0.485	0.132	Free Surface	1.689	0.552	0.589	0.552	0.362	0.82	No	0.552	1.689		
340	6-6	6-5	8.000	165.579	0.003	0.236	0.059	Free Surface	1.876	0.546	0.579	0.364	0.281	0.41	No	0.364	1.876		
468	1-4	1-3	21.000	177.000	0.002	2.869	0.952	Free Surface	3.328	0.543	0.574	0.95	0.771	5.00	Yes	1.416	2.128		
60	3-17	3-16	12.000	347.677	0.001	0.442	0.119	Free Surface	1.59	0.538	0.565	0.538	0.345	0.78	No	0.538	1.59		
260	10-29	10-28	8.000	312.600	0.003	0.251	0.063	Free Surface	2.023	0.538	0.566	0.359	0.29	0.44	Yes	0.435	1.607		
481	19-6	19-5	8.000	185.195	0.005	0.324	0.084	Free Surface	2.627	0.537	0.564	0.358	0.332	0.58	No	0.358	2.627		
44	3-16	3-15	12.000	320.186	0.001	0.456	0.123	Free Surface	1.652	0.534	0.559	0.534	0.35	0.82	No	0.534	1.652		
106	1-3	1-2	21.000	42.265	0.003	2.875	0.954	Free Surface	3.448	0.529	0.549	0.925	0.772	5.24	Yes	1.695	1.867		
240	1-15	1-14	10.000	141.607	0.009	0.710	0.209	Free Surface	3.808	0.523	0.539	0.436	0.467	1.32	Yes	0.459	3.568		
113	1-7	1-6	12.000	311.423	0.005	0.895	0.261	Free Surface	3.356	0.52	0.534	0.52	0.498	1.68	No	0.52	3.356		
84	2-11	2-10	8.000	460.241	0.016	0.516	0.142	Pressurized	4.397	0.516	0.528	0.344	0.423	0.98	Yes	0.667	2.289		
68	3-6	3-5	12.000	251.654	0.003	0.663	0.187	Pressurized	2.576	0.505	0.509	0.505	0.426	1.30	Yes	1	1.306		
309	6-7	6-6	8.000	224.047	0.003	0.232	0.058	Free Surface	2.04	0.503	0.505	0.335	0.278	0.46	Yes	0.35	1.934		
1549	1-13	1-41	8.000	156.300	0.006	0.309	0.088	Free Surface	2.757	0.498	0.496	0.332	0.323	0.62	Yes	0.531	1.605		
461	11-1	10-29	8.000	424.619	0.002	0.188	0.046	Free Surface	1.68	0.497	0.495	0.331	0.25	0.38	Yes	0.345	1.595		
53	3-22	3-21	12.000	327.527	0.001	0.398	0.106	Free Surface	1.584	0.496	0.493	0.496	0.327	0.81	No	0.496	1.584		
237	1-40	1-39	8.000	295.117	0.008	0.348	0.091	Free Surface	3.153	0.492	0.486	0.328	0.344	0.72	Yes	0.667	1.543		
54	3-21	3-20	12.000	308.945	0.001	0.400	0.107	Free Surface	1.621	0.489	0.481	0.489	0.327	0.83	No	0.489	1.621		
570	3-7	3-6	12.000	362.208	0.004	0.653	0.184	Pressurized	2.662	0.487	0.478	0.487	0.422	1.37	Yes	1	1.287		
568	3-9	3-8	12.000	406.690	0.003	0.592	0.165	Free Surface	2.45	0.481	0.468	0.481	0.401	1.27	No	0.481	2.45		
208	6-3	6-2	8.000	146.658	0.005	0.259	0.066	Free Surface	2.422	0.48	0.466	0.32	0.295	0.56	No	0.32	2.422		
569	3-8	3-7	12.000	423.175	0.003	0.613	0.171	Free Surface	2.557	0.478	0.463	0.478	0.409	1.32	Yes	0.839	1.349		
115	1-24	1-23	8.000	444.002	0.009	0.335	0.088	Free Surface	3.239	0.468	0.446	0.312	0.338	0.75	Yes	0.667	1.487		
69	3-5	3-4	12.000	246.885	0.004	0.670	0.189	Pressurized	2.88	0.467	0.445	0.467	0.428	1.51	Yes	1	1.32		
476	19-12	19-11	8.000	288.472	0.007	0.286	0.073	Free Surface	2.795	0.463	0.438	0.309	0.31	0.65	No	0.309	2.795		
129	9-2	9-1	8.000	225.846	0.009	0.321	0.083	Pressurized	3.228	0.453	0.422	0.302	0.33	0.76	Yes	0.667	1.422		
118	1-1	ASTEWATERPLA	21.000	28.890	0.007	3.593	1.222	Free Surface	5.258	0.452	0.421	0.792	0.867	8.54	No	0.792	5.258		
301	1-48	1-47	8.000	305.000	0.022	0.470	0.127	Free Surface	4.851	0.444	0.407	0.296	0.402	1.15	Yes	0.349	3.927		
119	9-4	9-3	10.000	291.000	0.003	0.299	0.077	Free Surface	1.987	0.442	0.404	0.369	0.297	0.74	Yes	0.682	0.968		
428	1-9	1-8	12.000	175.702	0.010	0.889	0.259	Free Surface	4.182	0.436	0.394	0.436	0.496	2.26	No	0.436	4.182		
123	9-7	9-6	10.000	278.518	0.002	0.226	0.056	Free Surface	1.537	0.435	0.392	0.362	0.257	0.58	Yes	0.443	1.186		
104	1-23	1-22	8.000	372.398	0.013	0.348	0.091	Pressurized	3.703	0.434	0.391	0.29	0.344	0.89	Yes	0.667	1.543		
423	2-12	2-11	8.000	203.428	0.028	0.507	0.139	Free Surface	5.435	0.432	0.387	0.288	0.419	1.31	Yes	0.667	2.249		
1001	HAMPACKAGIN	WW7	6.000	25.000	0.020	0.195	0.048	Free Surface	3.774	0.427	0.379	0.214	0.278	0.51	No	0.214	3.774		
199	5-33	5-5	8.000	241.382	0.025	0.463	0.125	Free Surface	5.065	0.425	0.377	0.284	0.4	1.23	Yes	0.348	3.895		
1049	SELAHHIGH1	3-22	12.000	95.076	0.002	0.397	0.106	Free Surface	1.936	0.424	0.375	0.424	0.326	1.06	Yes	0.46	1.74		
194	5-34	5-33	8.000	243.406	0.025	0.459	0.124	Free Surface	5.063	0.423	0.373	0.282	0.398	1.23	Yes	0.283	5.041		
50	3-20	3-19	12.000	90.015	0.002	0.401	0.107	Free Surface	1.981	0.42	0.369	0.42	0.328	1.09	No	0.42	1.981		
308	6-8	6-7	8.000	116.341	0.006	0.227	0.057	Free Surface	2.549	0.417	0.364	0.278	0.275	0.63	Yes	0.307	2.241		
121	9-5	9-4	10.000	393.000	0.003	0.272	0.069	Free Surface	1.978	0.413	0.357	0.344	0.283	0.76	Yes	0.356	1.888		
72	3-3	3-2	15.000	116.314	0.002	0.687	0.194	Pressurized	2.237	0.411	0.354	0.514	0.406	1.94	Yes	1.25	0.866		
178	4-1	2-15	8.000	395.828	0.007	0.236	0.059	Free Surface	2.704	0.41	0.353	0.273	0.281	0.67	No	0.273	2.704		
484	19-13	19-12	8.000	193.994	0.010	0.280	0.072	Free Surface	3.216	0.41	0.352	0.273	0.307	0.80	Yes	0.291	2.957		
505	5-14	5-13	8.000	171.242	0.010	0.276	0.070	Free Surface	3.173	0.409	0.351	0.273	0.305	0.79	No	0.273	3.173		
1669	1-47	221	12.000	300.000	0.004	0.480	0.130	Free Surface	2.513	0.402	0.34	0.402	0.36	1.41	No	0.402	2.513		
683	9-1	5010	15.000	70.740	0.004	0.842	0.244	Free Surface	2.834	0.401	0.338	0.501	0.451	2.49	No	0.501	2.834		
1671	221	1-12	12.000	350.000	0.004	0.480	0.130	Free Surface	2.53	0.4	0.337	0.4	0.36	1.42	Yes	0.49	1.939		
218	6-1	5-35	8.000	384.111	0.020	0.368	0.097	Free Surface	4.421	0.397	0.332	0.264	0.354	1.11	No	0.264	4.421		
117	9-3	9-2	10.000	232.289	0.005	0.314	0.082	Pressurized	2.428	0.395	0.329	0.329	0.305	0.96	Yes	0.833	0.892		
112	1-8	1-7	12.000	47.625	0.015	0.894	0.260	Free Surface	4.903	0.388	0.319	0.388	0.497	2.80	Yes	0.454	3.984		
464	5-22	5-21	8.000	300.959	0.003	0.143	0.034	Free Surface	1.777	0.387	0.318	0.258	0.217	0.45	No	0.258	1.777		

566	3-10	3-9	12.000	355.253	0.005	0.526	0.145	Free Surface	2.904	0.387	0.317	0.387	0.377	1.66	Yes	0.434	2.491		
203	5-7	5-6	8.000	339.854	0.018	0.321	0.083	Free Surface	4.07	0.381	0.308	0.254	0.33	1.04	No	0.254	4.07		
61	3-12	3-11	12.000	305.515	0.005	0.496	0.135	Free Surface	2.817	0.379	0.305	0.379	0.366	1.63	No	0.379	2.817		
62	3-13	3-12	12.000	233.049	0.005	0.488	0.133	Free Surface	2.83	0.373	0.296	0.373	0.363	1.65	Yes	0.376	2.8		
479	19-4	19-3	8.000	135.940	0.022	0.336	0.088	Free Surface	4.459	0.368	0.288	0.245	0.338	1.16	No	0.245	4.459		
567	3-11	3-10	12.000	310.811	0.006	0.507	0.139	Free Surface	3.017	0.366	0.285	0.366	0.37	1.78	Yes	0.376	2.904		
16	5-20	5-19	8.000	138.442	0.005	0.150	0.036	Free Surface	2.051	0.36	0.278	0.24	0.222	0.54	No	0.24	2.051		
71	3-2	3-1	15.000	191.939	0.004	0.692	0.196	Pressurized	2.702	0.359	0.276	0.449	0.407	2.51	Yes	1.25	0.872		
197	5-35	5-34	8.000	260.182	0.036	0.401	0.107	Free Surface	5.602	0.355	0.269	0.236	0.371	1.49	Yes	0.259	4.949		
485	19-11	19-10	8.000	371.802	0.019	0.290	0.075	Free Surface	4.045	0.355	0.27	0.237	0.313	1.07	No	0.237	4.045		
313	6-9	6-8	8.000	399.719	0.011	0.223	0.056	Free Surface	3.146	0.352	0.266	0.235	0.273	0.84	Yes	0.256	2.792		
74	3-4	3-3	15.000	211.178	0.004	0.679	0.192	Pressurized	2.74	0.35	0.264	0.438	0.403	2.58	Yes	1.25	0.856		
277	7-11	7-10	8.000	155.000	0.025	0.328	0.085	Free Surface	4.666	0.349	0.262	0.233	0.333	1.25	No	0.233	4.666		
49	3-18	3-17	12.000	36.580	0.005	0.437	0.118	Free Surface	2.814	0.345	0.256	0.345	0.343	1.71	Yes	0.441	2.022		
211	6-4	6-3	8.000	348.692	0.017	0.256	0.065	Free Surface	3.743	0.343	0.253	0.229	0.293	1.01	Yes	0.274	2.928		
244	1-13	1-12	12.000	304.500	0.006	0.441	0.126	Free Surface	2.879	0.342	0.251	0.342	0.344	1.76	Yes	0.461	1.93		
255	10-14	10-13	8.000	34.684	0.036	0.373	0.099	Free Surface	5.468	0.342	0.252	0.228	0.357	1.48	Yes	0.32	3.483		
259	10-16	10-15	8.000	290.272	0.004	0.120	0.028	Free Surface	1.809	0.336	0.243	0.224	0.198	0.50	No	0.224	1.809		
686	4-20	4-19	8.000	280.568	0.009	0.183	0.045	Free Surface	2.746	0.336	0.243	0.224	0.246	0.75	No	0.224	2.746		
160	4-21	4-20	8.000	305.290	0.009	0.175	0.043	Free Surface	2.658	0.334	0.24	0.222	0.241	0.73	Yes	0.223	2.645		
216	5-10	5-9	8.000	262.933	0.027	0.302	0.078	Free Surface	4.655	0.33	0.235	0.22	0.32	1.29	No	0.22	4.655		
478	19-3	19-2	8.000	165.610	0.036	0.342	0.090	Free Surface	5.363	0.326	0.23	0.217	0.341	1.49	No	0.217	5.363		
198	5-6	5-5	8.000	129.799	0.065	0.452	0.122	Free Surface	7.146	0.324	0.227	0.216	0.395	1.99	Yes	0.314	4.332		
477	19-2	19-1	8.000	182.565	0.038	0.343	0.090	Free Surface	5.478	0.322	0.224	0.214	0.342	1.53	No	0.214	5.478		
258	10-5	10-4	8.000	289.357	0.002	0.078	0.017	Free Surface	1.264	0.317	0.218	0.211	0.158	0.36	No	0.211	1.264		
433	11-2	11-1	8.000	320.701	0.011	0.175	0.042	Free Surface	2.858	0.316	0.216	0.211	0.24	0.81	Yes	0.271	2.031		
222	4-22	4-21	8.000	422.288	0.009	0.159	0.038	Free Surface	2.652	0.312	0.211	0.208	0.229	0.75	Yes	0.215	2.531		
432	9-14	9-12	10.000	566.143	0.002	0.126	0.030	Free Surface	1.342	0.312	0.211	0.26	0.19	0.60	No	0.26	1.342		
273	10-17	10-16	8.000	328.457	0.004	0.106	0.024	Free Surface	1.78	0.311	0.21	0.207	0.186	0.51	Yes	0.215	1.686		
363	5-19	5-18	8.000	380.003	0.018	0.218	0.054	Free Surface	3.658	0.31	0.209	0.207	0.27	1.04	No	0.207	3.658		
440	11-4	11-3	8.000	312.554	0.011	0.170	0.041	Free Surface	2.88	0.308	0.206	0.205	0.237	0.83	No	0.205	2.88		
214	5-9	5-8	8.000	57.594	0.038	0.307	0.080	Free Surface	5.286	0.305	0.202	0.203	0.323	1.52	No	0.203	5.286		
6	1-5	1-4	18.000	542.969	0.005	0.925	0.271	Free Surface	3.204	0.3	0.196	0.451	0.449	4.71	Yes	0.863	1.36		
279	7-10	7-9	8.000	390.000	0.049	0.340	0.089	Free Surface	5.957	0.3	0.196	0.2	0.34	1.73	No	0.2	5.957		
51	3-19	3-18	12.000	24.935	0.008	0.403	0.107	Free Surface	3.157	0.299	0.195	0.299	0.329	2.07	Yes	0.322	2.851		
57	3-23	SELAHHIGH1	12.000	204.924	0.008	0.396	0.105	Free Surface	3.111	0.299	0.194	0.299	0.326	2.04	Yes	0.361	2.394		
491	19-22	19-16	8.000	129.000	0.019	0.212	0.053	Free Surface	3.741	0.299	0.194	0.199	0.265	1.09	No	0.199	3.741		
42	3-15	3-14	12.000	184.981	0.012	0.483	0.131	Free Surface	3.808	0.298	0.193	0.298	0.361	2.50	No	0.298	3.808		
278	7-9	7-1	8.000	35.501	0.053	0.346	0.091	Free Surface	6.163	0.297	0.192	0.198	0.343	1.80	Yes	0.336	3.028		
434	11-3	11-2	8.000	243.446	0.014	0.170	0.041	Free Surface	3.113	0.291	0.185	0.194	0.237	0.92	Yes	0.202	2.938		
413	5-11	5-10	8.000	380.010	0.041	0.293	0.075	Free Surface	5.381	0.29	0.184	0.194	0.314	1.59	Yes	0.207	4.908		
321	5-12	5-11	8.000	313.084	0.039	0.282	0.072	Free Surface	5.215	0.289	0.182	0.193	0.308	1.55	Yes	0.193	5.2		
460	9-10	9-9	10.000	215.062	0.005	0.178	0.043	Free Surface	2.1	0.289	0.183	0.241	0.227	0.97	No	0.241	2.1		
128	2-2	2-1	12.000	130.505	0.002	0.199	0.049	Pressurized	1.653	0.287	0.18	0.287	0.229	1.11	Yes	1	0.393		
494	19-16	19-14	8.000	171.100	0.029	0.239	0.060	Free Surface	4.485	0.286	0.178	0.191	0.283	1.34	No	0.191	4.485		
140	19-1	3-28	8.000	78.964	0.066	0.354	0.093	Free Surface	6.706	0.284	0.176	0.189	0.347	2.01	No	0.189	6.706		
126	9-15	9-1	12.000	728.026	0.019	0.550	0.152	Free Surface	4.669	0.283	0.174	0.283	0.386	3.16	Yes	1	1.084		
124	9-9	9-8	10.000	153.016	0.006	0.191	0.047	Free Surface	2.341	0.282	0.173	0.235	0.236	1.10	No	0.235	2.341		
469	1-6	1-5	18.000	156.980	0.006	0.916	0.267	Free Surface	3.46	0.282	0.174	0.423	0.446	5.27	Yes	0.437	3.309		
408	6-5	6-4	8.000	318.873	0.034	0.248	0.063	Free Surface	4.792	0.28	0.171	0.187	0.288	1.45	Yes	0.208	4.132		
482	19-7	19-6	8.000	168.096	0.059	0.318	0.083	Free Surface	6.276	0.276	0.167	0.184	0.328	1.91	Yes	0.271	3.696		
538	19-28	19-24	8.000	43.792	0.023	0.196	0.048	Free Surface	3.879	0.275	0.165	0.183	0.255	1.18	No	0.183	3.879		

431	9-11	9-10	10.000	383.190	0.005	0.159	0.038	Free Surface	2.025	0.274	0.164	0.228	0.214	0.97	Yes	0.235	1.948		
252	10-4	10-3	8.000	314.020	0.006	0.095	0.022	Free Surface	1.94	0.27	0.16	0.18	0.176	0.60	No	0.18	1.94		
13	5-21	5-20	8.000	278.521	0.014	0.147	0.035	Free Surface	3.03	0.268	0.157	0.178	0.22	0.94	Yes	0.209	2.427		
486	19-8	19-7	8.000	153.565	0.065	0.313	0.081	Free Surface	6.451	0.268	0.157	0.178	0.326	2.00	Yes	0.181	6.31		
147	4-7	4-6	8.000	280.230	0.006	0.094	0.021	Free Surface	1.944	0.267	0.156	0.178	0.174	0.60	No	0.178	1.944		
220	5-8	5-7	8.000	315.394	0.068	0.312	0.081	Free Surface	6.55	0.264	0.153	0.176	0.325	2.04	Yes	0.215	4.965		
236	1-42	1-39	8.000	162.145	0.001	0.044	0.009	Pressurized	0.924	0.264	0.153	0.176	0.118	0.29	Yes	0.667	0.195		
207	6-2	6-1	8.000	20.092	0.048	0.261	0.066	Free Surface	5.505	0.263	0.152	0.176	0.296	1.72	Yes	0.22	4.026		
149	4-2	4-1	8.000	340.508	0.034	0.212	0.053	Free Surface	4.59	0.259	0.147	0.173	0.266	1.45	Yes	0.223	3.212		
1563	3-28	3-27	12.000	240.000	0.011	0.354	0.093	Free Surface	3.415	0.258	0.146	0.258	0.307	2.43	No	0.258	3.415		
319	5-13	5-12	8.000	100.432	0.060	0.279	0.071	Free Surface	6.072	0.257	0.145	0.171	0.306	1.92	No	0.171	6.072		
672	10-15	10-14	8.000	12.248	0.011	0.121	0.028	Free Surface	2.641	0.257	0.145	0.171	0.199	0.84	Yes	0.2	2.13		
257	10-3	10-2	8.000	221.446	0.009	0.107	0.025	Free Surface	2.339	0.256	0.144	0.171	0.186	0.74	No	0.171	2.339		
325	6-26	6-25	8.000	102.108	0.005	0.078	0.017	Free Surface	1.72	0.255	0.142	0.17	0.158	0.55	No	0.17	1.72		
487	19-9	19-8	8.000	103.775	0.077	0.307	0.080	Free Surface	6.814	0.254	0.141	0.169	0.322	2.17	Yes	0.174	6.565		
152	4-3	4-2	8.000	320.434	0.037	0.208	0.052	Free Surface	4.685	0.251	0.139	0.168	0.263	1.50	Yes	0.17	4.591		
437	11-5	11-4	8.000	326.410	0.020	0.148	0.035	Free Surface	3.391	0.249	0.135	0.166	0.221	1.10	Yes	0.186	2.894		
480	19-5	19-4	8.000	112.490	0.098	0.332	0.087	Free Surface	7.58	0.249	0.135	0.166	0.336	2.45	Yes	0.205	5.614		
490	19-14	19-13	8.000	256.000	0.059	0.257	0.065	Free Surface	5.868	0.249	0.135	0.166	0.293	1.90	Yes	0.219	3.968		
483	19-10	19-9	8.000	324.655	0.092	0.302	0.078	Free Surface	7.232	0.241	0.127	0.16	0.32	2.38	Yes	0.165	6.957		
164	2-15	2-14	8.000	37.403	0.065	0.243	0.061	Free Surface	5.989	0.236	0.122	0.157	0.285	2.00	Yes	0.354	1.992		
674	19-23	19-22	8.000	10.340	0.048	0.210	0.052	Free Surface	5.172	0.236	0.122	0.157	0.264	1.72	Yes	0.178	4.339		
177	4-15	2-14	8.000	401.606	0.080	0.267	0.068	Free Surface	6.623	0.235	0.121	0.156	0.3	2.21	Yes	-6.934	-1		
266	10-18	10-17	8.000	299.199	0.004	0.062	0.013	Free Surface	1.534	0.235	0.121	0.156	0.141	0.51	Yes	0.182	1.241		
504	5-16	5-15	8.000	23.287	0.082	0.268	0.068	Free Surface	6.698	0.234	0.12	0.156	0.3	2.24	No	0.156	6.698		
564	3-31	3-29	8.000	752.053	0.002	0.043	0.009	Free Surface	1.076	0.233	0.119	0.155	0.117	0.36	No	0.155	1.076		
272	10-6	10-5	8.000	320.240	0.005	0.063	0.014	Free Surface	1.593	0.232	0.118	0.154	0.142	0.54	Yes	0.183	1.255		
371	5-17	5-16	8.000	387.420	0.077	0.257	0.065	Free Surface	6.464	0.232	0.118	0.155	0.294	2.17	Yes	0.155	6.438		
125	9-8	9-7	10.000	96.327	0.016	0.204	0.050	Free Surface	3.402	0.226	0.112	0.189	0.244	1.81	Yes	0.275	2.003		
264	10-36	10-17	8.000	418.528	0.001	0.020	0.004	Free Surface	0.535	0.224	0.11	0.149	0.08	0.18	Yes	0.178	0.416		
493	19-24	19-23	8.000	249.000	0.060	0.208	0.051	Free Surface	5.572	0.222	0.108	0.148	0.263	1.92	Yes	0.153	5.332		
142	4-4	4-3	8.000	95.107	0.041	0.169	0.041	Free Surface	4.586	0.22	0.106	0.147	0.236	1.59	Yes	0.157	4.159		
304	10-19	10-18	8.000	170.009	0.004	0.050	0.010	Free Surface	1.352	0.22	0.106	0.146	0.126	0.47	Yes	0.151	1.288		
292	10-21	10-20	8.000	340.832	0.001	0.025	0.005	Free Surface	0.688	0.218	0.104	0.145	0.089	0.24	No	0.145	0.688		
559	2-29	2-8	8.000	217.175	0.001	0.028	0.006	Pressurized	0.777	0.218	0.104	0.145	0.094	0.27	Yes	0.667	0.125		
342	6-13	6-12	8.000	106.536	0.010	0.079	0.018	Free Surface	2.218	0.216	0.102	0.144	0.16	0.78	No	0.144	2.218		
65	3-30	3-31	8.000	554.672	0.001	0.025	0.005	Free Surface	0.724	0.211	0.097	0.141	0.089	0.26	Yes	0.148	0.675		
522	19-29	19-34	8.000	178.123	0.062	0.191	0.047	Free Surface	5.482	0.211	0.098	0.141	0.251	1.95	No	0.141	5.482		
543	19-53	19-48	8.000	381.101	0.003	0.039	0.008	Free Surface	1.129	0.211	0.098	0.141	0.111	0.40	No	0.141	1.129		
642	8-1	7-12	8.000	52.597	0.062	0.187	0.046	Free Surface	5.467	0.209	0.096	0.139	0.249	1.95	Yes	0.156	4.66		
210	6-37	6-1	8.000	157.148	0.028	0.123	0.029	Free Surface	3.646	0.207	0.094	0.138	0.201	1.31	Yes	0.201	2.148		
201	5-42	5-41	8.000	360.280	0.017	0.094	0.021	Free Surface	2.807	0.206	0.093	0.138	0.175	1.01	No	0.138	2.807		
358	5-18	5-17	8.000	188.155	0.105	0.236	0.059	Free Surface	7.038	0.206	0.093	0.138	0.281	2.53	Yes	0.146	6.453		
406	6-44.5	6-44	8.000	275.342	0.007	0.062	0.013	Free Surface	1.852	0.206	0.093	0.137	0.141	0.67	No	0.137	1.852		
524	19-34	19-28	8.000	12.922	0.077	0.194	0.048	Free Surface	5.968	0.202	0.089	0.134	0.254	2.18	Yes	0.159	4.706		
291	10-20	10-19	8.000	126.766	0.004	0.044	0.009	Free Surface	1.368	0.2	0.088	0.134	0.118	0.50	Yes	0.14	1.279		
368	6-28	6-27	8.000	386.375	0.008	0.061	0.013	Free Surface	1.882	0.2	0.088	0.133	0.139	0.69	No	0.133	1.882		
663	4-19	4-18	8.000	104.072	0.091	0.208	0.052	Free Surface	6.449	0.2	0.088	0.134	0.263	2.36	No	0.134	6.449		
200	5-41	5-6	8.000	252.476	0.053	0.156	0.037	Free Surface	4.901	0.199	0.086	0.132	0.226	1.81	Yes	0.174	3.323		
410	8-4	8-3	8.000	392.979	0.067	0.171	0.042	Free Surface	5.463	0.197	0.085	0.131	0.238	2.02	No	0.131	5.463		
506	3-27	3-26	12.000	206.156	0.033	0.360	0.095	Free Surface	5.077	0.197	0.085	0.197	0.31	4.22	No	0.197	5.077		
8	4-25	4-24	8.000	126.587	0.032	0.115	0.027	Free Surface	3.733	0.195	0.083	0.13	0.194	1.39	No	0.13	3.733		

239	1-44	1-43	8.000	326.193	0.003	0.036	0.007	Pressurized	1.166	0.195	0.084	0.13	0.107	0.43	Yes	0.667	0.161		
265	10-7	10-6	8.000	315.646	0.004	0.040	0.008	Free Surface	1.319	0.193	0.081	0.128	0.113	0.50	Yes	0.141	1.15		
59	3-43	3-40	8.000	182.190	0.001	0.023	0.005	Free Surface	0.771	0.192	0.08	0.128	0.086	0.29	No	0.128	0.771		
664	4-18	4-17	8.000	147.597	0.126	0.225	0.056	Free Surface	7.417	0.192	0.081	0.128	0.274	2.79	No	0.128	7.417		
341	6-25	6-24	8.000	320.419	0.037	0.121	0.028	Free Surface	4.02	0.191	0.08	0.127	0.199	1.52	No	0.127	4.02		
132	3-14	3-13	12.000	93.608	0.070	0.485	0.132	Free Surface	7.202	0.19	0.079	0.19	0.362	6.12	Yes	0.282	4.136		
284	8-3	8-2	8.000	393.985	0.084	0.180	0.044	Free Surface	6.011	0.19	0.079	0.127	0.244	2.27	No	0.127	6.011		
234	1-43	1-42	8.000	48.127	0.005	0.043	0.009	Pressurized	1.477	0.187	0.076	0.125	0.117	0.56	Yes	0.667	0.191		
182	4-26	4-25	8.000	239.981	0.033	0.108	0.025	Free Surface	3.729	0.186	0.075	0.124	0.187	1.43	Yes	0.127	3.606		
367	6-11	6-10	8.000	326.365	0.025	0.094	0.021	Free Surface	3.246	0.186	0.076	0.124	0.175	1.24	No	0.124	3.246		
463	5-23	5-22	8.000	158.446	0.057	0.140	0.033	Free Surface	4.863	0.185	0.075	0.124	0.214	1.87	Yes	0.191	2.626		
537	19-30	19-29	8.000	22.011	0.091	0.176	0.043	Free Surface	6.135	0.185	0.074	0.123	0.241	2.36	Yes	0.132	5.55		
310	6-24	6-9	8.000	187.861	0.052	0.131	0.031	Free Surface	4.616	0.183	0.073	0.122	0.207	1.78	Yes	0.179	2.696		
311	6-10	6-9	8.000	55.771	0.033	0.104	0.024	Free Surface	3.669	0.183	0.073	0.122	0.184	1.42	Yes	0.178	2.139		
669	PUBLICWORKS2	PUBLICWORKS1	8.000	190.540	0.001	0.016	0.003	Pressurized	0.568	0.183	0.073	0.122	0.071	0.22	Yes	0.667	0.071		
372	8-5	8-4	8.000	193.598	0.085	0.164	0.040	Free Surface	5.871	0.182	0.072	0.121	0.233	2.28	Yes	0.126	5.537		
517	19-41	19-30	8.000	220.717	0.063	0.143	0.034	Free Surface	5.088	0.182	0.073	0.122	0.217	1.97	Yes	0.122	5.042		
565	3-29	3-9	8.000	407.429	0.015	0.070	0.015	Free Surface	2.479	0.182	0.072	0.121	0.15	0.96	Yes	0.301	0.704		
55	3-24	3-23	12.000	295.756	0.058	0.394	0.105	Free Surface	6.325	0.18	0.071	0.18	0.325	5.55	Yes	0.239	4.222		
179	4-24	4-23	8.000	353.426	0.048	0.121	0.028	Free Surface	4.373	0.18	0.071	0.12	0.199	1.71	No	0.12	4.373		
180	4-27	4-26	8.000	168.788	0.036	0.102	0.023	Free Surface	3.756	0.178	0.069	0.119	0.182	1.48	Yes	0.121	3.645		
385	7-25	7-24	8.000	174.377	0.006	0.041	0.008	Free Surface	1.507	0.178	0.069	0.119	0.114	0.59	No	0.119	1.507		
443	11-26	11-9	8.000	131.992	0.013	0.062	0.014	Free Surface	2.302	0.178	0.069	0.118	0.141	0.91	No	0.118	2.302		
300	7-5	7-4	8.000	367.418	0.041	0.106	0.024	Free Surface	3.991	0.176	0.067	0.117	0.186	1.58	No	0.117	3.991		
546	8-6	8-5	8.000	191.573	0.084	0.152	0.036	Free Surface	5.717	0.176	0.067	0.117	0.224	2.27	Yes	0.119	5.581		
285	7-4	7-3	8.000	460.243	0.050	0.116	0.027	Free Surface	4.398	0.175	0.066	0.116	0.195	1.75	No	0.116	4.398		
320	5-15	5-14	8.000	190.736	0.090	0.156	0.040	Free Surface	5.901	0.174	0.066	0.116	0.226	2.35	Yes	0.194	2.841		
336	5-15	5-14	8.000	347.692	0.049	0.115	0.029	Free Surface	4.371	0.174	0.066	0.116	0.194	1.74	Yes	0.194	2.104		
459	11-6	11-5	8.000	226.254	0.032	0.092	0.021	Free Surface	3.512	0.174	0.066	0.116	0.173	1.40	Yes	0.141	2.654		
666	4-16	4-15	8.000	118.574	0.253	0.258	0.066	Free Surface	9.857	0.174	0.066	0.116	0.294	3.94	Yes	0.667	1.145		
641	7-12	7-11	12.000	315.000	0.044	0.315	0.082	Free Surface	5.377	0.173	0.065	0.173	0.289	4.85	Yes	0.203	4.268		
289	7-3	7-2	8.000	481.774	0.066	0.130	0.031	Free Surface	5.032	0.172	0.065	0.115	0.207	2.02	No	0.115	5.032		
1035	PUBLICWORKS1	IND-1	15.000	421.482	0.001	0.093	0.021	Pressurized	1.02	0.172	0.064	0.215	0.146	1.44	Yes	1.25	0.117		
425	2-17	2-16	8.000	239.400	0.013	0.056	0.012	Free Surface	2.178	0.171	0.064	0.114	0.134	0.88	No	0.114	2.178		
665	4-17	4-16	8.000	237.965	0.231	0.240	0.060	Free Surface	9.346	0.171	0.064	0.114	0.283	3.77	Yes	0.667	1.064		
80	2-33	2-32	8.000	175.701	0.006	0.037	0.008	Pressurized	1.461	0.17	0.063	0.113	0.109	0.59	Yes	0.667	0.165		
275	10-12	10-4	8.000	337.734	0.001	0.013	0.002	Free Surface	0.515	0.17	0.063	0.113	0.064	0.21	Yes	0.147	0.355		
347	6-12	6-11	8.000	326.639	0.029	0.084	0.019	Free Surface	3.308	0.17	0.063	0.114	0.165	1.34	Yes	0.119	3.095		
17	5-24	5-23	8.000	109.859	0.082	0.139	0.033	Free Surface	5.514	0.169	0.062	0.112	0.213	2.24	Yes	0.118	5.14		
668	PUBLICWORKS3	PUBLICWORKS2	8.000	285.696	0.001	0.011	0.002	Pressurized	0.442	0.169	0.062	0.113	0.059	0.18	Yes	0.667	0.05		
41	3-34	3-15	8.000	224.839	0.004	0.031	0.006	Free Surface	1.275	0.167	0.06	0.111	0.1	0.52	Yes	0.204	0.537		
261	10-30	10-29	8.000	269.648	0.019	0.064	0.014	Free Surface	2.604	0.167	0.06	0.111	0.144	1.07	Yes	0.235	0.905		
621	8-7	8-6	8.000	349.719	0.084	0.137	0.032	Free Surface	5.553	0.167	0.06	0.111	0.212	2.27	Yes	0.114	5.345		
43	3-44	3-43	8.000	417.429	0.001	0.011	0.002	Free Surface	0.467	0.166	0.06	0.111	0.06	0.19	Yes	0.119	0.42		
1007	SCOUNTRYCLU	WW6	10.000	100.000	0.020	0.120	0.028	Free Surface	3.129	0.166	0.06	0.138	0.186	2.01	No	0.138	3.129		
508	3-26	3-25	12.000	66.579	0.070	0.361	0.095	Free Surface	6.578	0.165	0.059	0.165	0.311	6.09	No	0.165	6.578		
1041	PUBLICWORKS4	PUBLICWORKS3	6.000	256.228	0.001	0.006	0.001	Pressurized	0.438	0.165	0.059	0.082	0.046	0.10	Yes	0.5	0.047		
205	5-43	5-42	8.000	290.000	0.031	0.081	0.018	Free Surface	3.34	0.164	0.059	0.109	0.161	1.38	Yes	0.124	2.805		
188	6-44	6-43	8.000	259.842	0.022	0.067	0.015	Free Surface	2.796	0.163	0.058	0.109	0.146	1.16	No	0.109	2.796		
326	6-59	6-58	8.000	114.066	0.009	0.041	0.008	Free Surface	1.751	0.161	0.056	0.107	0.114	0.73	No	0.107	1.751		
526	19-45	19-41	8.000	170.519	0.076	0.122	0.029	Free Surface	5.18	0.161	0.057	0.108	0.2	2.16	Yes	0.115	4.731		
424	2-25.5	2-25	8.000	224.098	0.013	0.049	0.010	Free Surface	2.147	0.159	0.055	0.106	0.125	0.91	Yes	0.667	0.219		

438	11-20	11-19	8.000	227.000	0.004	0.028	0.006	Free Surface	1.229	0.158	0.054	0.105	0.094	0.52	No	0.105	1.229		
144	4-8	4-7	8.000	118.026	0.038	0.081	0.018	Free Surface	3.589	0.157	0.053	0.105	0.162	1.52	Yes	0.141	2.329		
219	5-54	5-53	8.000	338.000	0.018	0.056	0.012	Free Surface	2.46	0.157	0.054	0.105	0.134	1.04	No	0.105	2.46		
253	10-2	10-1	8.000	30.000	0.067	0.109	0.025	Free Surface	4.795	0.157	0.054	0.105	0.188	2.03	Yes	0.277	1.234		
274	10-31	10-30	8.000	328.000	0.015	0.050	0.011	Free Surface	2.253	0.154	0.051	0.103	0.126	0.97	Yes	0.107	2.129		
280	8-2	8-1	8.000	76.648	0.217	0.186	0.046	Free Surface	8.487	0.154	0.051	0.102	0.248	3.65	Yes	0.121	6.673		
303	10-8	10-7	8.000	307.332	0.004	0.025	0.005	Free Surface	1.126	0.154	0.051	0.103	0.089	0.48	Yes	0.116	0.95		
24	5-79	5-78	8.000	288.886	0.017	0.052	0.011	Free Surface	2.39	0.153	0.051	0.102	0.129	1.03	No	0.102	2.39		
202	5-53	5-52	8.000	42.025	0.024	0.061	0.013	Free Surface	2.798	0.153	0.05	0.102	0.14	1.21	No	0.102	2.798		
509	3-25	3-24	12.000	288.678	0.103	0.374	0.099	Free Surface	7.636	0.153	0.05	0.153	0.316	7.42	No	0.153	7.636		
169	2-20	2-18	8.000	336.384	0.006	0.030	0.006	Free Surface	1.393	0.152	0.05	0.101	0.098	0.60	No	0.101	1.393		
518	19-47	19-45	8.000	104.396	0.086	0.113	0.026	Free Surface	5.287	0.151	0.049	0.101	0.192	2.30	Yes	0.104	5.032		
1145	HERITAGE15	HERITAGE14	8.000	82.000	0.006	0.030	0.006	Free Surface	1.409	0.151	0.05	0.101	0.098	0.61	No	0.101	1.409		
39	11-17	11-5	8.000	273.476	0.023	0.058	0.012	Free Surface	2.734	0.15	0.048	0.1	0.136	1.20	Yes	0.133	1.812		
75	IND-9	IND-8	12.000	463.726	0.002	0.052	0.011	Free Surface	1.093	0.15	0.049	0.15	0.116	1.07	No	0.15	1.093		
196	5-60	5-34	8.000	279.523	0.035	0.069	0.015	Free Surface	3.338	0.148	0.047	0.099	0.149	1.47	Yes	0.19	1.308		
445	11-31	11-27	8.000	87.794	0.011	0.039	0.008	Free Surface	1.897	0.148	0.047	0.099	0.112	0.84	No	0.099	1.897		
1107	GOODLANDER8	GOODLANDER1	8.000	156.621	0.003	0.021	0.004	Free Surface	1.007	0.148	0.048	0.099	0.081	0.44	No	0.099	1.007		
605	HERITAGE16	HERITAGE15	8.000	80.088	0.006	0.029	0.006	Free Surface	1.399	0.147	0.047	0.098	0.095	0.62	Yes	0.099	1.369		
251	1-45	1-44	8.000	445.400	0.007	0.029	0.006	Free Surface	1.447	0.146	0.046	0.097	0.097	0.64	Yes	0.575	0.143		
436	11-15	11-4	8.000	267.409	0.003	0.019	0.004	Free Surface	0.937	0.145	0.045	0.097	0.077	0.42	Yes	0.151	0.494		
378	7-24	7-23	8.000	194.449	0.026	0.055	0.012	Free Surface	2.789	0.143	0.044	0.095	0.133	1.26	No	0.095	2.789		
514	19-49	19-48	8.000	219.684	0.036	0.066	0.014	Free Surface	3.325	0.143	0.044	0.095	0.145	1.49	No	0.095	3.325		
11	5-26	5-25	8.000	71.707	0.028	0.057	0.012	Free Surface	2.894	0.142	0.043	0.095	0.135	1.31	No	0.095	2.894		
191	4-28	4-27	8.000	223.474	0.081	0.097	0.022	Free Surface	4.929	0.142	0.044	0.095	0.177	2.22	Yes	0.107	4.15		
345	6-14	6-13	8.000	113.190	0.045	0.073	0.016	Free Surface	3.703	0.142	0.044	0.095	0.153	1.67	Yes	0.119	2.658		
45	3-35	3-34	8.000	303.614	0.003	0.019	0.004	Free Surface	0.986	0.14	0.042	0.093	0.077	0.45	Yes	0.102	0.864		
190	6-43	6-37	8.000	190.502	0.066	0.085	0.019	Free Surface	4.418	0.14	0.042	0.093	0.165	2.02	Yes	0.116	3.226		
516	19-48	19-47	8.000	151.850	0.112	0.110	0.025	Free Surface	5.749	0.14	0.042	0.093	0.189	2.62	Yes	0.097	5.435		
67	IND-10	IND-9	12.000	426.261	0.002	0.046	0.010	Free Surface	1.085	0.139	0.041	0.139	0.109	1.12	Yes	0.145	1.023		
90	2-25	2-7	8.000	217.039	0.031	0.057	0.012	Pressurized	2.99	0.139	0.041	0.093	0.135	1.37	Yes	0.667	0.252		
221	5-44	5-43	8.000	271.290	0.048	0.071	0.016	Free Surface	3.746	0.139	0.042	0.093	0.151	1.71	Yes	0.101	3.303		
327	6-27	6-26	8.000	202.415	0.047	0.070	0.015	Free Surface	3.704	0.139	0.041	0.093	0.15	1.70	Yes	0.131	2.238		
82	2-31	2-9	8.000	147.035	0.019	0.044	0.009	Pressurized	2.352	0.138	0.041	0.092	0.118	1.08	Yes	0.667	0.195		
89	2-16	2-5	8.000	298.560	0.044	0.067	0.015	Free Surface	3.567	0.138	0.041	0.092	0.147	1.64	Yes	0.667	0.297		
418	4-9	4-8	8.000	141.320	0.032	0.057	0.012	Free Surface	3.063	0.138	0.041	0.092	0.135	1.41	Yes	0.098	2.776		
510	19-50	19-49	8.000	230.928	0.035	0.059	0.013	Free Surface	3.168	0.138	0.041	0.092	0.138	1.46	Yes	0.094	3.081		
416	7-23	7-5	8.000	324.589	0.055	0.075	0.016	Free Surface	3.998	0.137	0.04	0.091	0.155	1.84	Yes	0.104	3.305		
18	5-25	5-24	8.000	240.000	0.100	0.099	0.023	Free Surface	5.348	0.136	0.04	0.091	0.179	2.48	Yes	0.102	4.547		
671	10-32	10-31	8.000	45.103	0.022	0.046	0.010	Free Surface	2.505	0.135	0.039	0.09	0.121	1.17	Yes	0.096	2.268		
22	5-93	5-24	8.000	302.875	0.003	0.017	0.003	Free Surface	0.96	0.134	0.038	0.089	0.074	0.45	Yes	0.101	0.804		
393	7-18	RUSHERCANYON	8.000	32.365	0.011	0.032	0.006	Free Surface	1.764	0.134	0.038	0.089	0.1	0.83	Yes	0.108	1.337		
83	2-34	2-33	8.000	305.012	0.010	0.029	0.006	Free Surface	1.648	0.133	0.038	0.088	0.096	0.78	Yes	0.667	0.129		
343	6-15	6-14	8.000	88.161	0.038	0.058	0.012	Free Surface	3.262	0.133	0.038	0.089	0.136	1.54	Yes	0.092	3.097		
359	5-73	5-19	8.000	221.584	0.071	0.079	0.018	Free Surface	4.436	0.133	0.038	0.089	0.16	2.08	Yes	0.148	2.13		
639	RUSHERCANYON	RUSHERCANYON	12.000	247.000	0.027	0.142	0.034	Free Surface	3.565	0.133	0.038	0.133	0.193	3.78	No	0.133	3.565		
217	5-45	5-44	8.000	210.182	0.048	0.063	0.014	Free Surface	3.605	0.131	0.037	0.088	0.142	1.71	Yes	0.09	3.459		
213	5-61	5-60	8.000	334.244	0.045	0.060	0.013	Free Surface	3.482	0.13	0.036	0.087	0.139	1.66	Yes	0.093	3.164		
168	2-18	2-17	8.000	90.818	0.033	0.050	0.011	Free Surface	2.956	0.128	0.035	0.085	0.126	1.42	Yes	0.1	2.354		
204	5-52	5-41	8.000	156.000	0.058	0.065	0.014	Free Surface	3.894	0.127	0.035	0.085	0.145	1.88	Yes	0.109	2.722		
1111	GOODLANDER1	GOODLANDERS	8.000	290.176	0.003	0.016	0.003	Free Surface	0.95	0.127	0.034	0.085	0.07	0.46	No	0.085	0.95		
444	11-9	11-8	8.000	16.779	0.107	0.086	0.019	Free Surface	5.265	0.126	0.034	0.084	0.167	2.57	No	0.084	5.265		

503	6-29	6-28	8.000	376.394	0.035	0.049	0.010	Free Surface	2.986	0.126	0.034	0.084	0.125	1.46	Yes	0.109	2.045		
542	19-31	19-29	8.000	214.000	0.005	0.018	0.003	Free Surface	1.099	0.126	0.034	0.084	0.075	0.54	Yes	0.112	0.718		
629	7-17	RUSHERCANYON	12.000	197.000	0.005	0.056	0.012	Free Surface	1.503	0.126	0.034	0.126	0.12	1.65	No	0.126	1.503		
66	IND-11	IND-10	12.000	324.967	0.002	0.030	0.006	Pressurized	0.824	0.125	0.033	0.125	0.088	0.91	Yes	1	0.06		
282	7-2	7-1	8.000	245.000	0.298	0.142	0.034	Free Surface	8.733	0.125	0.033	0.083	0.215	4.27	No	0.083	8.733		
409	5-62	5-61	8.000	518.081	0.033	0.047	0.010	Free Surface	2.903	0.125	0.033	0.083	0.123	1.42	Yes	0.085	2.818		
687	2-26	2-25.5	8.000	467.116	0.019	0.036	0.007	Free Surface	2.226	0.125	0.033	0.083	0.107	1.09	Yes	0.095	1.856		
47	3-40	3-39	10.000	87.581	0.006	0.035	0.007	Free Surface	1.395	0.124	0.033	0.103	0.099	1.07	No	0.103	1.395		
302	1-46	1-45	8.000	369.014	0.005	0.019	0.004	Free Surface	1.175	0.124	0.033	0.083	0.077	0.58	Yes	0.09	1.041		
650	5-37	5-35	8.000	149.930	0.023	0.039	0.008	Free Surface	2.412	0.124	0.033	0.083	0.111	1.19	Yes	0.159	0.934		
1110	RUSHERCANYON	7-17	8.000	19.120	0.043	0.053	0.011	Pressurized	3.321	0.124	0.033	0.083	0.131	1.63	Yes	0.667	0.237		
52	3-38	3-37	10.000	308.985	0.010	0.045	0.009	Free Surface	1.813	0.123	0.032	0.102	0.113	1.40	Yes	0.224	0.59		
77	2-30	2-29	8.000	85.161	0.006	0.019	0.004	Pressurized	1.216	0.123	0.032	0.082	0.078	0.60	Yes	0.667	0.086		
141	4-5	4-4	12.000	459.427	0.037	0.142	0.034	Free Surface	3.974	0.123	0.032	0.123	0.193	4.41	Yes	0.135	3.476		
209	5-38	5-37	8.000	263.504	0.015	0.031	0.006	Free Surface	1.952	0.123	0.032	0.082	0.099	0.97	Yes	0.082	1.941		
331	6-60	6-59	8.000	91.045	0.022	0.038	0.008	Free Surface	2.355	0.123	0.032	0.082	0.109	1.16	Yes	0.095	1.919		
441	11-7	11-6	8.000	95.514	0.120	0.087	0.020	Free Surface	5.502	0.123	0.032	0.082	0.168	2.72	Yes	0.099	4.187		
612	BRAEBURN1	4-54	8.000	249.323	0.028	0.042	0.009	Free Surface	2.651	0.123	0.032	0.082	0.115	1.31	No	0.082	2.651		
293	10-9	10-8	8.000	145.529	0.005	0.017	0.003	Free Surface	1.104	0.122	0.032	0.082	0.074	0.55	Yes	0.092	0.923		
127	9-15.5	9-15	8.000	160.000	0.018	0.033	0.007	Free Surface	2.125	0.121	0.031	0.081	0.102	1.06	Yes	0.182	0.665		
467	5-27	5-26	8.000	368.020	0.043	0.051	0.011	Free Surface	3.273	0.121	0.031	0.081	0.127	1.63	Yes	0.088	2.901		
620	HERITAGE1	8-7	8.000	146.092	0.113	0.081	0.018	Free Surface	5.257	0.12	0.031	0.08	0.162	2.63	Yes	0.096	4.068		
442	11-8	11-7	8.000	15.000	0.137	0.086	0.019	Free Surface	5.732	0.119	0.03	0.079	0.167	2.90	Yes	0.081	5.582		
206	5-30	5-5	8.000	249.798	0.031	0.041	0.008	Free Surface	2.739	0.118	0.03	0.079	0.114	1.39	Yes	0.245	0.546		
328	6-58	6-25	8.000	180.266	0.039	0.046	0.010	Free Surface	3.051	0.118	0.03	0.079	0.121	1.54	Yes	0.103	2.066		
411	5-46	5-45	8.000	527.850	0.051	0.052	0.011	Free Surface	3.493	0.118	0.029	0.079	0.129	1.77	Yes	0.083	3.22		
636	RUSHERCANYON	RUSHERCANYON	12.000	189.059	0.034	0.126	0.029	Free Surface	3.718	0.118	0.03	0.118	0.181	4.23	No	0.118	3.718		
676	3-37	3-18	10.000	39.944	0.013	0.047	0.010	Free Surface	2.009	0.118	0.03	0.099	0.115	1.59	Yes	0.595	0.175		
1113	GOODLANDER1	GOODLANDER1	8.000	287.490	0.002	0.010	0.002	Free Surface	0.644	0.118	0.029	0.079	0.055	0.33	Yes	0.082	0.608		
64	3-32	3-30	8.000	55.291	0.005	0.017	0.003	Free Surface	1.131	0.117	0.029	0.078	0.072	0.58	Yes	0.109	0.692		
315	5-64	5-63	8.000	389.816	0.003	0.011	0.002	Free Surface	0.773	0.116	0.028	0.077	0.059	0.40	No	0.077	0.773		
376	8-8	8-7	8.000	335.687	0.070	0.059	0.013	Free Surface	4.043	0.116	0.028	0.077	0.137	2.07	Yes	0.094	3.03		
521	19-42	19-41	8.000	230.008	0.009	0.021	0.004	Free Surface	1.422	0.116	0.028	0.077	0.081	0.73	Yes	0.099	0.983		
643	7-11.5	7-11	8.000	75.222	0.002	0.009	0.002	Free Surface	0.637	0.116	0.029	0.078	0.054	0.33	Yes	0.168	0.209		
37	11-21	11-20	8.000	214.000	0.009	0.021	0.004	Free Surface	1.473	0.115	0.028	0.077	0.082	0.76	Yes	0.091	1.151		
143	4-6	4-5	12.000	262.572	0.032	0.116	0.027	Free Surface	3.564	0.115	0.028	0.115	0.174	4.12	Yes	0.119	3.397		
173	5-28	5-3	8.000	378.865	0.031	0.038	0.008	Free Surface	2.662	0.115	0.028	0.077	0.11	1.37	Yes	0.303	0.384		
270	10-33	10-32	8.000	301.270	0.023	0.033	0.007	Free Surface	2.32	0.115	0.028	0.077	0.103	1.19	Yes	0.083	2.053		
402	5-82	5-81	8.000	275.396	0.015	0.026	0.005	Free Surface	1.829	0.115	0.028	0.076	0.091	0.94	No	0.076	1.829		
637	RUSHERCANYON	RUSHERCANYON	12.000	226.009	0.040	0.129	0.030	Free Surface	3.979	0.115	0.028	0.115	0.183	4.62	Yes	0.124	3.564		
670	9-12	9-11	10.000	9.522	0.152	0.153	0.037	Free Surface	6.856	0.114	0.028	0.095	0.21	5.54	Yes	0.162	3.18		
48	3-39	3-38	10.000	204.612	0.010	0.038	0.008	Free Surface	1.724	0.113	0.027	0.094	0.103	1.40	Yes	0.098	1.617		
63	3-33	3-32	8.000	242.000	0.002	0.010	0.002	Free Surface	0.685	0.113	0.027	0.076	0.055	0.36	Yes	0.077	0.67		
649	6-46	6-45	8.000	40.016	0.022	0.031	0.006	Free Surface	2.22	0.113	0.027	0.075	0.099	1.16	No	0.075	2.22		
135	4-11	4-10	8.000	380.036	0.050	0.047	0.010	Free Surface	3.34	0.112	0.027	0.075	0.122	1.75	No	0.075	3.34		
230	1-29	1-28	8.000	192.000	0.004	0.013	0.002	Free Surface	0.915	0.112	0.026	0.075	0.063	0.48	Yes	0.23	0.184		
598	HERITAGE20	HERITAGE19	8.000	175.463	0.006	0.016	0.003	Free Surface	1.129	0.112	0.026	0.075	0.07	0.59	No	0.075	1.129		
27	5-89	5-24	8.000	134.375	0.022	0.030	0.006	Free Surface	2.221	0.111	0.026	0.074	0.098	1.17	Yes	0.093	1.585		
109	1-36	1-35	8.000	51.649	0.004	0.014	0.003	Pressurized	0.994	0.111	0.026	0.074	0.065	0.52	Yes	0.667	0.061		
215	5-55	5-54	8.000	403.817	0.050	0.045	0.009	Free Surface	3.301	0.111	0.026	0.074	0.119	1.74	Yes	0.089	2.493		
276	10-10	10-6	8.000	417.238	0.008	0.018	0.003	Free Surface	1.292	0.111	0.026	0.074	0.075	0.68	Yes	0.114	0.69		
446	11-27	11-26	8.000	252.875	0.067	0.053	0.011	Free Surface	3.866	0.111	0.026	0.074	0.13	2.03	Yes	0.096	2.648		

133	4-10	4-9	8.000	121.467	0.071	0.053	0.011	Free Surface	3.921	0.11	0.025	0.073	0.13	2.08	Yes	0.082	3.291		
307	6-45	6-44.5	8.000	37.975	0.082	0.058	0.012	Free Surface	4.252	0.11	0.026	0.074	0.136	2.25	Yes	0.105	2.515		
7	4-54	4-28	8.000	134.133	0.142	0.073	0.016	Free Surface	5.518	0.109	0.025	0.072	0.153	2.95	Yes	0.084	4.465		
97	IND-6	IND-5	15.000	260.643	0.003	0.061	0.013	Free Surface	1.311	0.109	0.025	0.136	0.118	2.46	No	0.136	1.311		
130	IND-7	IND-6	15.000	315.858	0.003	0.059	0.013	Free Surface	1.256	0.109	0.025	0.136	0.116	2.36	No	0.136	1.256		
675	4-23	4-22	8.000	3.259	0.430	0.130	0.030	Free Surface	9.664	0.109	0.025	0.073	0.206	5.13	Yes	0.141	3.743		
95	IND-4	IND-3	15.000	229.741	0.004	0.067	0.015	Free Surface	1.463	0.108	0.024	0.134	0.124	2.76	No	0.134	1.463		
349	6-17	6-16	8.000	150.603	0.041	0.039	0.008	Free Surface	2.953	0.108	0.024	0.072	0.111	1.59	No	0.072	2.953		
361	5-74	5-73	8.000	159.735	0.144	0.073	0.016	Free Surface	5.555	0.108	0.025	0.072	0.153	2.97	Yes	0.081	4.729		
396	5-80	5-79	8.000	200.721	0.060	0.047	0.010	Free Surface	3.583	0.108	0.025	0.072	0.123	1.92	Yes	0.087	2.725		
360	5-75	5-74	8.000	121.039	0.140	0.070	0.015	Free Surface	5.434	0.107	0.024	0.071	0.15	2.94	Yes	0.072	5.372		
563	LYLE1	19-13	8.000	102.000	0.010	0.018	0.003	Free Surface	1.428	0.106	0.023	0.07	0.076	0.78	Yes	0.172	0.395		
70	IND-8	IND-7	15.000	310.105	0.003	0.055	0.012	Free Surface	1.24	0.105	0.023	0.131	0.112	2.38	Yes	0.134	1.209		
100	IND-2	PUBLICWORKS1	15.000	483.066	0.006	0.077	0.017	Pressurized	1.722	0.105	0.023	0.131	0.132	3.30	Yes	1.25	0.096		
395	5-81	5-80	8.000	217.985	0.032	0.033	0.007	Free Surface	2.579	0.105	0.023	0.07	0.102	1.40	Yes	0.071	2.525		
644	6-46.25	6-46	8.000	267.714	0.022	0.027	0.005	Free Surface	2.153	0.105	0.023	0.07	0.093	1.17	Yes	0.073	2.038		
1065	APPLE3	APPLE2	8.000	327.382	0.018	0.024	0.005	Free Surface	1.941	0.105	0.023	0.07	0.088	1.06	No	0.07	1.941		
1119	HERITAGE2	HERITAGE1	8.000	234.000	0.179	0.077	0.017	Free Surface	6.079	0.105	0.023	0.07	0.157	3.32	Yes	0.075	5.476		
79	2-32	2-31	8.000	19.172	0.052	0.040	0.008	Pressurized	3.25	0.104	0.022	0.069	0.113	1.79	Yes	0.667	0.178		
98	IND-3	IND-2	15.000	348.242	0.006	0.072	0.016	Free Surface	1.648	0.104	0.023	0.13	0.129	3.172	Yes	0.735	0.149		
162	4-41	4-3	8.000	566.663	0.056	0.042	0.009	Free Surface	3.377	0.104	0.023	0.069	0.115	1.86	Yes	0.118	1.545		
403	8-9	8-8	8.000	488.331	0.074	0.048	0.010	Free Surface	3.864	0.104	0.022	0.069	0.123	2.13	Yes	0.073	3.549		
1093	GOODLANDER1	19-51	8.000	33.917	0.088	0.052	0.011	Free Surface	4.225	0.103	0.022	0.069	0.129	2.33	No	0.069	4.225		
134	4-12	4-11	8.000	162.946	0.050	0.038	0.008	Free Surface	3.15	0.102	0.022	0.068	0.11	1.75	Yes	0.071	2.923		
1109	GOODLANDER9	GOODLANDER8	8.000	215.788	0.012	0.018	0.003	Free Surface	1.517	0.102	0.022	0.068	0.076	0.84	Yes	0.083	1.124		
76	IND-12	IND-11	12.000	339.216	0.001	0.019	0.004	Pressurized	0.703	0.101	0.021	0.101	0.069	0.89	Yes	1	0.037		
271	10-26	10-17	8.000	298.300	0.019	0.023	0.004	Free Surface	1.941	0.101	0.021	0.067	0.085	1.09	Yes	0.137	0.69		
451	11-35	11-34	8.000	156.000	0.006	0.013	0.002	Free Surface	1.121	0.101	0.021	0.067	0.065	0.63	No	0.067	1.121		
1116	5-48	5-47	8.000	190.730	0.052	0.038	0.008	Free Surface	3.211	0.101	0.021	0.067	0.11	1.79	No	0.067	3.211		
175	2-21	2-20	8.000	521.723	0.010	0.016	0.003	Free Surface	1.367	0.1	0.021	0.067	0.071	0.77	Yes	0.084	0.979		
317	5-63	5-62	8.000	347.590	0.040	0.033	0.007	Free Surface	2.8	0.1	0.021	0.067	0.102	1.57	Yes	0.075	2.36		
465	5-91	5-90	8.000	223.588	0.009	0.015	0.003	Free Surface	1.314	0.1	0.021	0.066	0.069	0.74	No	0.066	1.314		
609	HERITAGE4	HERITAGE3	8.000	148.819	0.067	0.042	0.009	Free Surface	3.6	0.1	0.021	0.066	0.116	2.03	No	0.066	3.6		
640	RUSHERCANYON	7-12	12.000	76.000	0.089	0.145	0.035	Free Surface	5.453	0.1	0.021	0.1	0.194	6.88	Yes	0.137	3.48		
23	5-95	5-25	8.000	301.007	0.010	0.016	0.003	Free Surface	1.377	0.099	0.02	0.066	0.07	0.78	Yes	0.078	1.064		
1114	5-47	5-46	8.000	96.370	0.073	0.043	0.009	Free Surface	3.733	0.099	0.021	0.066	0.117	2.11	Yes	0.072	3.271		
96	IND-5	IND-4	15.000	172.808	0.006	0.064	0.014	Free Surface	1.59	0.098	0.02	0.122	0.121	3.18	Yes	0.128	1.482		
148	4-55	4-15	6.000	486.689	0.007	0.006	0.001	Free Surface	0.966	0.098	0.02	0.049	0.047	0.31	No	0.049	0.966		
170	5-29	5-28	8.000	240.000	0.029	0.027	0.005	Free Surface	2.348	0.098	0.02	0.065	0.092	1.34	Yes	0.071	2.079		
405	5-77	5-75	8.000	117.646	0.179	0.066	0.014	Free Surface	5.796	0.098	0.02	0.065	0.145	3.31	Yes	0.068	5.43		
631	RUSHERCANYON	RUSHERCANYON	12.000	148.000	0.034	0.085	0.019	Free Surface	3.307	0.098	0.02	0.098	0.148	4.24	No	0.098	3.307		
634	RUSHERCANYON	RUSHERCANYON	12.000	363.020	0.044	0.096	0.022	Free Surface	3.771	0.098	0.02	0.098	0.158	4.85	Yes	0.108	3.251		
645	6-46.5	6-46.25	8.000	282.588	0.011	0.016	0.003	Free Surface	1.415	0.098	0.02	0.065	0.071	0.81	Yes	0.068	1.34		
1108	7-14	RUSHERCANYON	8.000	19.120	0.043	0.033	0.007	Free Surface	2.867	0.098	0.02	0.065	0.102	1.63	Yes	0.092	1.745		
111	1-37	1-36	8.000	209.556	0.005	0.011	0.002	Pressurized	0.941	0.097	0.019	0.064	0.057	0.54	Yes	0.667	0.047		
1118	IND-1	213	15.000	699.000	0.014	0.097	0.022	Pressurized	2.428	0.097	0.02	0.122	0.149	4.88	Yes	1.25	0.122		
31	8-13	8-10	8.000	174.633	0.006	0.011	0.002	Free Surface	1.028	0.096	0.019	0.064	0.06	0.59	No	0.064	1.028		
155	4-42	4-41	8.000	122.058	0.049	0.033	0.007	Free Surface	3.014	0.096	0.019	0.064	0.103	1.74	Yes	0.067	2.85		
530	19-35	19-30	8.000	140.009	0.071	0.040	0.008	Free Surface	3.622	0.096	0.019	0.064	0.113	2.09	Yes	0.093	2.076		
633	7-15	RUSHERCANYON	8.000	20.000	0.005	0.011	0.002	Free Surface	0.96	0.096	0.019	0.064	0.058	0.55	Yes	0.081	0.682		
449	11-10	11-9	8.000	277.933	0.036	0.028	0.006	Free Surface	2.566	0.095	0.019	0.063	0.094	1.49	Yes	0.074	2.062		
1157	HERITAGE21	HERITAGE20	8.000	336.000	0.003	0.008	0.001	Free Surface	0.735	0.095	0.019	0.063	0.05	0.43	Yes	0.069	0.648		

138	4-13	4-12	8.000	257.985	0.048	0.032	0.006	Free Surface	2.928	0.094	0.018	0.063	0.1	1.71	Yes	0.065	2.768		
145	4-47	4-7	8.000	205.675	0.005	0.010	0.002	Free Surface	0.975	0.094	0.018	0.063	0.057	0.57	Yes	0.12	0.377		
146	4-48	4-8	8.000	211.465	0.031	0.025	0.005	Free Surface	2.369	0.094	0.018	0.063	0.089	1.39	Yes	0.084	1.552		
305	10-34	10-33	8.000	265.000	0.019	0.020	0.004	Free Surface	1.841	0.094	0.018	0.063	0.079	1.08	Yes	0.07	1.576		
399	5-78	5-77	8.000	126.765	0.158	0.057	0.012	Free Surface	5.317	0.094	0.018	0.063	0.135	3.11	Yes	0.064	5.165		
512	19-51	19-50	8.000	277.391	0.144	0.055	0.012	Free Surface	5.091	0.094	0.018	0.063	0.132	2.97	Yes	0.077	3.753		
412	5-56	5-55	8.000	360.000	0.053	0.032	0.006	Free Surface	3.048	0.093	0.018	0.062	0.101	1.80	Yes	0.068	2.664		
500	6-33	6-29	8.000	151.000	0.040	0.028	0.006	Free Surface	2.648	0.093	0.018	0.062	0.094	1.56	Yes	0.073	2.088		
535	19-56.25	19-56	4.000	42.041	0.119	0.008	0.001	Free Surface	2.879	0.093	0.018	0.031	0.058	0.43	Yes	0.032	2.785		
34	11-19	11-18	8.000	183.712	0.120	0.048	0.010	Free Surface	4.58	0.092	0.018	0.062	0.123	2.71	No	0.062	4.58		
174	2-27	2-26	8.000	494.084	0.022	0.021	0.004	Free Surface	1.977	0.092	0.018	0.062	0.081	1.17	Yes	0.073	1.556		
324	5-65	5-63	8.000	300.507	0.007	0.011	0.002	Free Surface	1.075	0.092	0.017	0.061	0.059	0.64	Yes	0.064	1.005		
355	5-68	5-67	8.000	234.393	0.017	0.018	0.003	Free Surface	1.727	0.092	0.018	0.061	0.075	1.02	No	0.061	1.727		
159	4-38	4-37	8.000	209.417	0.005	0.009	0.002	Free Surface	0.904	0.091	0.017	0.06	0.054	0.54	No	0.06	0.904		
1087	FIRST2	FIRST1	8.000	175.000	0.006	0.010	0.002	Free Surface	0.989	0.091	0.017	0.06	0.056	0.59	No	0.06	0.989		
176	2-19	2-18	8.000	523.193	0.010	0.013	0.002	Free Surface	1.274	0.09	0.017	0.06	0.063	0.77	Yes	0.073	0.963		
186	6-38	6-37	8.000	281.022	0.111	0.044	0.009	Free Surface	4.353	0.09	0.017	0.06	0.118	2.62	Yes	0.099	2.091		
329	6-61	6-60	8.000	38.376	0.026	0.021	0.004	Free Surface	2.106	0.09	0.017	0.06	0.082	1.26	Yes	0.071	1.644		
330	6-64	6-60	8.000	127.000	0.016	0.017	0.003	Free Surface	1.639	0.09	0.017	0.06	0.072	0.98	Yes	0.071	1.282		
1143	HERITAGE14	HERITAGE13	8.000	82.000	0.061	0.032	0.006	Free Surface	3.21	0.09	0.017	0.06	0.101	1.93	No	0.06	3.21		
383	7-27	7-26	8.000	97.317	0.062	0.032	0.006	Free Surface	3.207	0.089	0.016	0.059	0.1	1.94	No	0.059	3.207		
419	4-51	4-13	8.000	364.317	0.006	0.010	0.002	Free Surface	0.99	0.089	0.016	0.059	0.055	0.60	Yes	0.061	0.95		
529	19-36	19-35	8.000	136.913	0.073	0.035	0.007	Free Surface	3.501	0.089	0.016	0.06	0.105	2.12	Yes	0.062	3.321		
1073	BRAEBURN2	BRAEBURN1	8.000	249.323	0.084	0.037	0.008	Free Surface	3.745	0.089	0.016	0.059	0.108	2.27	Yes	0.07	2.899		
3	6-19	6-18	8.000	123.184	0.041	0.025	0.005	Free Surface	2.6	0.088	0.016	0.059	0.09	1.58	No	0.059	2.6		
88	2-24	2-23	8.000	435.773	0.014	0.015	0.003	Free Surface	1.504	0.088	0.016	0.059	0.068	0.92	No	0.059	1.504		
374	7-44	7-43	8.000	320.347	0.028	0.021	0.004	Free Surface	2.153	0.088	0.016	0.059	0.081	1.31	No	0.059	2.153		
420	4-29	4-28	8.000	252.056	0.028	0.021	0.004	Free Surface	2.135	0.088	0.016	0.058	0.081	1.31	Yes	0.077	1.434		
422	4-31	4-1	8.000	373.663	0.009	0.012	0.002	Free Surface	1.201	0.088	0.016	0.059	0.06	0.73	Yes	0.166	0.265		
495	19-19	19-18	8.000	159.500	0.019	0.017	0.003	Free Surface	1.763	0.088	0.016	0.059	0.073	1.07	No	0.059	1.763		
40	3-36	3-35	8.000	198.992	0.005	0.009	0.001	Free Surface	0.901	0.087	0.015	0.058	0.052	0.56	Yes	0.075	0.607		
185	6-39	6-38	8.000	93.862	0.085	0.036	0.007	Free Surface	3.734	0.087	0.016	0.058	0.107	2.29	Yes	0.059	3.652		
224	4-35	4-34	8.000	409.381	0.020	0.017	0.003	Free Surface	1.788	0.087	0.016	0.058	0.074	1.10	No	0.058	1.788		
466	5-90	5-89	8.000	337.410	0.039	0.024	0.005	Free Surface	2.496	0.087	0.015	0.058	0.087	1.54	Yes	0.066	2.06		
550	11-11	11-10	8.000	327.786	0.034	0.022	0.004	Free Surface	2.348	0.087	0.016	0.058	0.084	1.44	Yes	0.061	2.196		
193	5-31	5-30	8.000	286.192	0.080	0.034	0.007	Free Surface	3.598	0.086	0.015	0.058	0.104	2.22	Yes	0.068	2.81		
350	6-18	6-17	8.000	389.567	0.072	0.032	0.006	Free Surface	3.382	0.086	0.015	0.057	0.1	2.09	Yes	0.065	2.839		
382	7-20	7-19	8.000	47.222	0.042	0.024	0.005	Free Surface	2.602	0.086	0.015	0.057	0.088	1.61	No	0.057	2.602		
595	NACHES5	177TH1	8.000	139.590	0.115	0.041	0.008	Free Surface	4.292	0.086	0.015	0.058	0.114	2.65	Yes	0.058	4.288		
596	177TH1	5-27	8.000	139.589	0.136	0.044	0.009	Free Surface	4.681	0.086	0.015	0.058	0.119	2.89	Yes	0.069	3.579		
290	10-22	10-21	8.000	145.000	0.007	0.010	0.002	Free Surface	1.042	0.085	0.015	0.057	0.055	0.65	Yes	0.101	0.447		
351	6-16	6-15	8.000	82.015	0.177	0.049	0.010	Free Surface	5.291	0.085	0.015	0.057	0.125	3.30	Yes	0.073	3.68		
489	19-18	19-17	8.000	90.000	0.033	0.021	0.004	Free Surface	2.275	0.084	0.014	0.056	0.081	1.43	No	0.056	2.275		
528	19-55	19-53	8.000	55.992	0.036	0.022	0.004	Free Surface	2.363	0.084	0.015	0.056	0.083	1.48	Yes	0.098	1.043		
1069	APPLE1	4-54	8.000	45.000	0.089	0.034	0.007	Free Surface	3.722	0.084	0.015	0.056	0.104	2.34	Yes	0.064	3.052		
1133	HERITAGE9	HERITAGE8	8.000	184.117	0.033	0.021	0.004	Free Surface	2.255	0.084	0.015	0.056	0.08	1.41	No	0.056	2.255		
151	4-40	4-39	8.000	264.979	0.011	0.012	0.002	Free Surface	1.319	0.083	0.014	0.056	0.061	0.83	No	0.056	1.319		
212	5-39	5-38	8.000	285.005	0.039	0.022	0.004	Free Surface	2.429	0.083	0.014	0.055	0.083	1.54	Yes	0.069	1.771		
492	19-17	19-16	8.000	147.160	0.088	0.033	0.007	Free Surface	3.671	0.083	0.014	0.055	0.102	2.33	Yes	0.123	1.143		
386	7-28	7-27	8.000	97.537	0.072	0.029	0.006	Free Surface	3.282	0.082	0.014	0.055	0.095	2.10	Yes	0.057	3.084		
632	7-16	RUSHERCANYON	8.000	42.000	0.066	0.027	0.005	Free Surface	3.146	0.082	0.014	0.054	0.093	2.02	Yes	0.076	1.92		
680	23-1	HAMPACKAGIN	6.000	71.216	0.014	0.006	0.001	Free Surface	1.204	0.082	0.014	0.041	0.046	0.43	Yes	0.127	0.235		

32	8-11	8-10	8.000	232.640	0.034	0.019	0.004	Free Surface	2.259	0.081	0.013	0.054	0.078	1.45	No	0.054	2.259		
536	19-37	19-36	8.000	170.009	0.065	0.027	0.005	Free Surface	3.101	0.081	0.013	0.054	0.092	1.99	Yes	0.057	2.885		
1089	FIRST3	FIRST2	8.000	190.000	0.003	0.005	0.001	Free Surface	0.626	0.081	0.013	0.054	0.041	0.40	Yes	0.057	0.576		
1125	HERITAGE5	HERITAGE4	8.000	57.503	0.139	0.039	0.008	Free Surface	4.531	0.081	0.013	0.054	0.111	2.92	Yes	0.06	3.849		
85	2-23	2-22	8.000	20.166	0.050	0.023	0.004	Free Surface	2.695	0.08	0.013	0.053	0.085	1.74	No	0.053	2.695		
86	2-22	2-6	8.000	119.888	0.064	0.026	0.005	Free Surface	3.064	0.08	0.013	0.053	0.09	1.99	Yes	0.667	0.115		
322	5-58	5-57	8.000	262.000	0.034	0.019	0.004	Free Surface	2.241	0.08	0.013	0.053	0.077	1.45	No	0.053	2.241		
384	7-26	7-25	8.000	572.379	0.115	0.035	0.007	Free Surface	4.108	0.08	0.013	0.053	0.105	2.66	Yes	0.086	2.046		
1067	APPLE2	APPLE1	8.000	209.718	0.081	0.029	0.006	Free Surface	3.436	0.08	0.013	0.053	0.096	2.23	Yes	0.055	3.303		
33	11-18	11-17	8.000	75.442	0.278	0.052	0.011	Free Surface	6.316	0.079	0.013	0.053	0.129	4.13	Yes	0.076	3.663		
183	4-52	4-22	8.000	282.439	0.107	0.032	0.007	Free Surface	3.914	0.079	0.013	0.053	0.101	2.56	Yes	0.13	1.043		
268	10-35	10-32	8.000	233.691	0.009	0.009	0.002	Free Surface	1.109	0.079	0.013	0.053	0.054	0.72	Yes	0.071	0.71		
430	9-13	9-12	10.000	92.260	0.011	0.019	0.004	Free Surface	1.447	0.079	0.013	0.066	0.072	1.48	Yes	0.08	1.075		
462	10-34.5	10-34	8.000	385.500	0.016	0.012	0.002	Free Surface	1.492	0.079	0.013	0.053	0.062	0.98	Yes	0.058	1.301		
1112	5-94	5-93	8.000	256.600	0.008	0.009	0.002	Free Surface	1.057	0.079	0.013	0.053	0.052	0.69	Yes	0.071	0.681		
189	6-50	6-49	8.000	215.000	0.005	0.007	0.001	Free Surface	0.812	0.078	0.012	0.052	0.045	0.53	No	0.052	0.812		
318	5-57	5-56	8.000	46.049	0.065	0.024	0.005	Free Surface	3.025	0.078	0.012	0.052	0.088	2.00	Yes	0.057	2.64		
9	6-47	6-45	8.000	278.327	0.097	0.029	0.006	Free Surface	3.654	0.077	0.012	0.051	0.096	2.43	Yes	0.062	2.731		
299	7-6	7-5	8.000	606.503	0.077	0.026	0.005	Free Surface	3.274	0.077	0.012	0.051	0.091	2.18	Yes	0.084	1.577		
447	11-32	11-31	8.000	154.837	0.019	0.013	0.002	Free Surface	1.636	0.077	0.012	0.051	0.064	1.09	Yes	0.075	0.934		
548	19-15	19-14	8.000	276.000	0.036	0.018	0.003	Free Surface	2.241	0.077	0.012	0.051	0.075	1.49	Yes	0.108	0.749		
1141	HERITAGE13	HERITAGE12	8.000	156.000	0.135	0.034	0.007	Free Surface	4.317	0.077	0.012	0.051	0.104	2.87	No	0.051	4.317		
184	6-41	6-40	8.000	115.600	0.043	0.019	0.004	Free Surface	2.438	0.076	0.012	0.051	0.078	1.63	No	0.051	2.438		
414	7-39	7-38	8.000	410.675	0.005	0.006	0.001	Free Surface	0.819	0.076	0.012	0.051	0.045	0.55	No	0.051	0.819		
154	4-43	4-42	8.000	254.756	0.067	0.023	0.004	Free Surface	2.988	0.075	0.011	0.05	0.085	2.02	Yes	0.057	2.45		
161	4-33	4-32	8.000	253.310	0.037	0.017	0.003	Free Surface	2.236	0.075	0.011	0.05	0.073	1.51	No	0.05	2.236		
454	11-34	11-31	8.000	128.214	0.086	0.026	0.005	Free Surface	3.402	0.075	0.011	0.05	0.091	2.29	Yes	0.074	1.908		
601	HERITAGE19	HERITAGE18	8.000	256.000	0.047	0.019	0.004	Free Surface	2.505	0.075	0.011	0.05	0.078	1.70	No	0.05	2.505		
1081	BRAEBURN7	BRAEBURN4	8.000	205.000	0.024	0.014	0.003	Free Surface	1.817	0.075	0.012	0.05	0.066	1.22	No	0.05	1.817		
288	7-37	7-36	8.000	496.953	0.038	0.017	0.003	Free Surface	2.241	0.074	0.011	0.049	0.073	1.53	No	0.049	2.241		
610	HERITAGE3	HERITAGE2	8.000	30.000	0.267	0.044	0.009	Free Surface	5.913	0.074	0.011	0.049	0.119	4.04	Yes	0.059	4.451		
662	4-34	4-19	8.000	182.832	0.122	0.030	0.006	Free Surface	4.008	0.074	0.011	0.049	0.097	2.74	Yes	0.091	1.613		
1077	BRAEBURN6	BRAEBURN3	8.000	418.657	0.002	0.004	0.001	Free Surface	0.561	0.074	0.011	0.049	0.036	0.38	No	0.049	0.561		
269	10-27	10-26	8.000	135.000	0.015	0.010	0.002	Free Surface	1.382	0.073	0.011	0.048	0.056	0.95	Yes	0.058	1.063		
338	5-50.5	5-48	8.000	257.852	0.062	0.021	0.004	Free Surface	2.836	0.073	0.011	0.049	0.081	1.95	Yes	0.058	2.186		
394	7-19	7-18	8.000	254.612	0.112	0.028	0.006	Free Surface	3.817	0.073	0.011	0.049	0.094	2.63	Yes	0.069	2.282		
499	6-34	6-33	8.000	320.350	0.078	0.023	0.005	Free Surface	3.18	0.073	0.011	0.049	0.086	2.19	Yes	0.055	2.633		
1075	BRAEBURN3	BRAEBURN2	8.000	120.999	0.124	0.030	0.006	Free Surface	4.011	0.073	0.011	0.049	0.097	2.76	Yes	0.054	3.45		
1173	NACHES1	5-25	8.000	293.554	0.140	0.031	0.006	Free Surface	4.244	0.073	0.011	0.048	0.099	2.93	Yes	0.07	2.486		
335	6-65	6-64	8.000	216.869	0.014	0.010	0.002	Free Surface	1.33	0.072	0.011	0.048	0.055	0.92	Yes	0.054	1.117		
353	5-67	5-17	8.000	329.081	0.085	0.024	0.005	Free Surface	3.302	0.072	0.01	0.048	0.087	2.29	Yes	0.101	1.105		
581	HERITAGE12	HERITAGE2	8.000	103.412	0.203	0.037	0.007	Free Surface	5.077	0.072	0.01	0.048	0.108	3.53	Yes	0.059	3.739		
181	4-53	4-52	8.000	125.303	0.072	0.021	0.004	Free Surface	3	0.071	0.01	0.047	0.082	2.10	Yes	0.05	2.772		
397	8-10	8-9	8.000	171.039	0.170	0.033	0.007	Free Surface	4.617	0.071	0.01	0.048	0.102	3.22	Yes	0.058	3.416		
435	11-16	11-15	8.000	118.914	0.008	0.007	0.001	Free Surface	1.022	0.071	0.01	0.047	0.047	0.72	Yes	0.072	0.548		
502	6-30	6-29	8.000	89.474	0.056	0.019	0.004	Free Surface	2.648	0.071	0.01	0.047	0.077	1.85	Yes	0.066	1.643		
1095	GOODLANDER2	GOODLANDER1	8.000	132.381	0.144	0.030	0.006	Free Surface	4.237	0.071	0.01	0.047	0.097	2.97	Yes	0.058	3.133		
1149	HERITAGE17	HERITAGE16	8.000	76.045	0.118	0.028	0.005	Free Surface	3.862	0.071	0.01	0.048	0.093	2.69	Yes	0.073	2.067		
1171	YAKIMA4	177TH4	8.000	290.000	0.003	0.005	0.001	Free Surface	0.658	0.071	0.01	0.047	0.038	0.46	No	0.047	0.658		
158	4-37	4-17	8.000	190.536	0.039	0.015	0.003	Free Surface	2.196	0.07	0.01	0.047	0.069	1.55	Yes	0.08	0.986		
163	4-49	4-48	8.000	298.857	0.064	0.019	0.004	Free Surface	2.792	0.07	0.01	0.047	0.078	1.97	Yes	0.055	2.207		
195	5-32	5-31	8.000	221.595	0.104	0.025	0.005	Free Surface	3.564	0.07	0.01	0.047	0.088	2.52	Yes	0.052	3.017		

369	6-62	6-61	8.000	282.529	0.053	0.018	0.003	Free Surface	2.556	0.07	0.01	0.047	0.075	1.80	Yes	0.053	2.095		
501	6-31	6-30	8.000	298.905	0.030	0.013	0.002	Free Surface	1.927	0.07	0.01	0.047	0.065	1.36	Yes	0.047	1.908		
1115	GOODLANDER15	GOODLANDER15	8.000	247.886	0.006	0.006	0.001	Free Surface	0.862	0.07	0.01	0.047	0.043	0.61	Yes	0.063	0.559		
294	10-24	10-23	8.000	105.000	0.019	0.010	0.002	Free Surface	1.516	0.069	0.01	0.046	0.057	1.08	No	0.046	1.516		
390	7-29	7-28	8.000	286.383	0.010	0.008	0.001	Free Surface	1.124	0.069	0.01	0.046	0.049	0.80	Yes	0.05	0.986		
541	19-25	19-24	8.000	184.000	0.038	0.015	0.003	Free Surface	2.145	0.069	0.01	0.046	0.068	1.53	Yes	0.097	0.719		
606	HERITAGE8	HERITAGE7	8.000	145.515	0.124	0.027	0.005	Free Surface	3.875	0.069	0.01	0.046	0.091	2.75	No	0.046	3.875		
685	7-36	7-14	8.000	282.616	0.142	0.028	0.006	Free Surface	4.15	0.069	0.01	0.046	0.095	2.95	Yes	0.056	3.137		
263	10-37	10-36	8.000	90.000	0.006	0.005	0.001	Free Surface	0.81	0.068	0.009	0.045	0.041	0.58	Yes	0.097	0.264		
1097	GOODLANDER3	GOODLANDER2	8.000	190.021	0.126	0.025	0.005	Free Surface	3.856	0.068	0.009	0.045	0.09	2.78	Yes	0.046	3.722		
296	10-23	10-20	8.000	181.300	0.035	0.013	0.002	Free Surface	2.016	0.067	0.009	0.045	0.064	1.46	Yes	0.089	0.733		
519	19-43	19-42	8.000	190.196	0.053	0.016	0.003	Free Surface	2.466	0.067	0.009	0.045	0.071	1.80	Yes	0.061	1.557		
534	19-56.5	19-56.25	4.000	90.000	0.144	0.004	0.001	Free Surface	2.575	0.067	0.009	0.022	0.043	0.47	Yes	0.027	1.984		
607	HERITAGE7	HERITAGE6	8.000	120.000	0.183	0.030	0.006	Free Surface	4.636	0.067	0.009	0.045	0.098	3.35	No	0.045	4.636		
1012	5-88	5-77	8.000	363.000	0.011	0.007	0.001	Free Surface	1.132	0.067	0.009	0.045	0.048	0.82	Yes	0.055	0.835		
1099	GOODLANDER4	GOODLANDER3	8.000	340.073	0.091	0.021	0.004	Free Surface	3.238	0.067	0.009	0.044	0.081	2.36	Yes	0.045	3.196		
192	6-40	6-39	8.000	124.441	0.225	0.033	0.007	Free Surface	5.084	0.066	0.009	0.044	0.102	3.72	Yes	0.051	4.091		
392	7-45	7-44	8.000	129.061	0.070	0.017	0.003	Free Surface	2.781	0.065	0.008	0.043	0.073	2.07	Yes	0.051	2.173		
594	177TH2	NACHES5	8.000	280.004	0.161	0.026	0.005	Free Surface	4.217	0.065	0.008	0.043	0.09	3.14	Yes	0.05	3.349		
608	HERITAGE6	HERITAGE5	8.000	39.542	0.253	0.033	0.007	Free Surface	5.307	0.065	0.008	0.043	0.102	3.94	Yes	0.049	4.474		
46	3-41	3-40	10.000	212.174	0.012	0.013	0.002	Free Surface	1.321	0.064	0.008	0.054	0.059	1.54	Yes	0.078	0.753		
295	10-25	10-24	8.000	104.592	0.010	0.006	0.001	Free Surface	1.028	0.064	0.008	0.043	0.044	0.77	Yes	0.045	0.977		
1083	BRAEBURN4	BRAEBURN3	8.000	113.001	0.115	0.021	0.004	Free Surface	3.533	0.064	0.008	0.042	0.082	2.66	Yes	0.046	3.176		
157	4-32	4-18	8.000	153.309	0.120	0.021	0.004	Free Surface	3.58	0.063	0.008	0.042	0.082	2.71	Yes	0.085	1.265		
356	5-70	5-18	8.000	308.006	0.105	0.020	0.004	Free Surface	3.345	0.063	0.008	0.042	0.079	2.54	Yes	0.09	1.086		
552	11-13	11-12	8.000	254.244	0.063	0.016	0.003	Free Surface	2.608	0.063	0.008	0.042	0.07	1.96	No	0.042	2.608		
589	NACHES7	NACHES5	8.000	125.000	0.032	0.011	0.002	Free Surface	1.861	0.063	0.008	0.042	0.059	1.40	Yes	0.05	1.456		
602	HERITAGE18	HERITAGE17	8.000	275.789	0.160	0.024	0.005	Free Surface	4.122	0.063	0.008	0.042	0.087	3.13	Yes	0.045	3.732		
166	2-28	2-12	8.000	85.000	0.079	0.017	0.003	Free Surface	2.879	0.062	0.008	0.041	0.072	2.20	Yes	0.165	0.384		
401	5-83	5-82	8.000	174.309	0.109	0.020	0.004	Free Surface	3.397	0.062	0.008	0.042	0.079	2.59	Yes	0.059	2.027		
677	19-46.5	19-46	8.000	152.886	0.026	0.010	0.002	Free Surface	1.655	0.062	0.008	0.041	0.055	1.27	No	0.041	1.655		
1101	GOODLANDER5	GOODLANDER4	8.000	339.930	0.074	0.016	0.003	Free Surface	2.778	0.062	0.008	0.041	0.071	2.12	Yes	0.043	2.633		
5	6-20	6-19	8.000	227.000	0.066	0.015	0.003	Free Surface	2.605	0.061	0.007	0.041	0.068	2.01	Yes	0.05	1.929		
421	2-35	2-34	8.000	312.925	0.022	0.009	0.002	Free Surface	1.524	0.061	0.007	0.041	0.052	1.17	Yes	0.161	0.207		
1163	LYLE2	LYLE1	8.000	312.000	0.032	0.010	0.002	Free Surface	1.82	0.061	0.007	0.041	0.057	1.40	Yes	0.056	1.151		
15	5-96	5-95	8.000	290.154	0.014	0.007	0.001	Free Surface	1.18	0.06	0.007	0.04	0.045	0.92	Yes	0.053	0.784		
387	7-31	7-28	8.000	296.705	0.040	0.011	0.002	Free Surface	2.012	0.06	0.007	0.04	0.059	1.58	Yes	0.047	1.565		
404	5-49	5-48	8.000	170.852	0.059	0.013	0.002	Free Surface	2.432	0.06	0.007	0.04	0.065	1.89	Yes	0.054	1.577		
551	11-12	11-11	8.000	77.501	0.110	0.018	0.003	Free Surface	3.324	0.06	0.007	0.04	0.076	2.59	No	0.04	3.324		
1159	HERITAGE22	HERITAGE21	8.000	55.000	0.009	0.005	0.001	Free Surface	0.956	0.06	0.007	0.04	0.04	0.75	Yes	0.052	0.655		
344	6-54	6-14	8.000	122.208	0.098	0.017	0.003	Free Surface	3.113	0.059	0.007	0.039	0.073	2.45	Yes	0.067	1.416		
365	6-55	6-54	8.000	193.850	0.052	0.012	0.002	Free Surface	2.262	0.059	0.007	0.04	0.062	1.78	No	0.04	2.262		
373	7-43	7-16	8.000	98.964	0.235	0.026	0.005	Free Surface	4.805	0.059	0.007	0.039	0.09	3.79	Yes	0.047	3.707		
391	7-21	7-20	8.000	354.626	0.135	0.020	0.004	Free Surface	3.651	0.059	0.007	0.039	0.079	2.88	Yes	0.048	2.692		
439	11-23	11-22	8.000	162.000	0.012	0.006	0.001	Free Surface	1.105	0.059	0.007	0.039	0.043	0.87	No	0.039	1.105		
539	19-32	19-31	8.000	210.009	0.057	0.013	0.002	Free Surface	2.369	0.059	0.007	0.039	0.063	1.87	Yes	0.062	1.22		
38	11-24	11-19	8.000	265.000	0.094	0.016	0.003	Free Surface	3.027	0.058	0.007	0.039	0.071	2.41	Yes	0.05	2.074		
377	8-16	8-6	8.000	327.925	0.070	0.014	0.003	Free Surface	2.61	0.058	0.007	0.039	0.066	2.07	Yes	0.078	0.938		
496	19-20	19-19	8.000	190.000	0.074	0.014	0.003	Free Surface	2.655	0.058	0.007	0.038	0.066	2.13	Yes	0.049	1.875		
646	6-53.25	6-46.5	8.000	301.192	0.040	0.010	0.002	Free Surface	1.953	0.058	0.007	0.038	0.056	1.56	Yes	0.052	1.256		
10	6-48	6-47	8.000	235.000	0.115	0.017	0.003	Free Surface	3.301	0.057	0.006	0.038	0.073	2.65	Yes	0.045	2.618		
187	6-49	6-43	8.000	186.193	0.111	0.017	0.003	Free Surface	3.246	0.057	0.006	0.038	0.072	2.61	Yes	0.066	1.457		

332	5-66	5-16	8.000	154.000	0.077	0.014	0.003	Free Surface	2.706	0.057	0.006	0.038	0.066	2.18	Yes	0.097	0.688		
584	HERITAGE10	HERITAGE9	8.000	81.675	0.073	0.013	0.002	Free Surface	2.63	0.057	0.006	0.038	0.065	2.12	Yes	0.047	1.913		
1091	FIRST4	177TH2	8.000	290.000	0.028	0.008	0.001	Free Surface	1.618	0.057	0.006	0.038	0.051	1.30	Yes	0.041	1.477		
25	5-85	5-80	8.000	62.000	0.097	0.015	0.003	Free Surface	2.984	0.056	0.006	0.037	0.068	2.44	Yes	0.055	1.689		
136	4-14	4-13	8.000	303.000	0.065	0.012	0.002	Free Surface	2.462	0.056	0.006	0.038	0.062	2.00	Yes	0.05	1.606		
153	4-44	4-43	8.000	139.792	0.086	0.014	0.003	Free Surface	2.807	0.056	0.006	0.037	0.066	2.29	Yes	0.044	2.226		
316	6-51	6-5	8.000	136.217	0.054	0.011	0.002	Free Surface	2.213	0.056	0.006	0.037	0.058	1.81	Yes	0.112	0.439		
346	6-56	6-15	8.000	368.932	0.029	0.008	0.001	Free Surface	1.622	0.056	0.006	0.037	0.05	1.33	Yes	0.063	0.746		
364	5-72	5-71	8.000	265.691	0.019	0.007	0.001	Free Surface	1.322	0.056	0.006	0.038	0.045	1.07	No	0.038	1.322		
630	RUSERCANYON	RUSERCANYON	12.000	138.000	0.174	0.058	0.013	Free Surface	5.23	0.056	0.006	0.056	0.122	9.63	Yes	0.077	3.258		
1085	FIRST1	NACHES1	8.000	342.576	0.163	0.019	0.004	Free Surface	3.878	0.056	0.006	0.037	0.078	3.17	Yes	0.043	3.155		
314	6-52	6-51	8.000	127.401	0.024	0.007	0.001	Free Surface	1.454	0.055	0.006	0.037	0.047	1.20	Yes	0.037	1.439		
337	5-59	5-58	8.000	336.485	0.048	0.010	0.002	Free Surface	2.067	0.055	0.006	0.037	0.056	1.71	Yes	0.045	1.523		
30	5-86	5-85	8.000	151.000	0.066	0.012	0.002	Free Surface	2.427	0.054	0.006	0.036	0.06	2.02	Yes	0.037	2.379		
137	4-30	4-29	8.000	251.148	0.108	0.014	0.003	Free Surface	3.061	0.054	0.006	0.036	0.067	2.57	Yes	0.047	2.036		
407	5-40	5-39	8.000	241.006	0.058	0.011	0.002	Free Surface	2.25	0.054	0.006	0.036	0.057	1.89	Yes	0.046	1.573		
558	4-46	4-45	8.000	308.166	0.055	0.011	0.002	Free Surface	2.213	0.054	0.006	0.036	0.057	1.84	Yes	0.04	1.896		
1167	YAKIMA2	YAKIMA1	8.000	173.000	0.006	0.003	0.001	Free Surface	0.71	0.054	0.006	0.036	0.032	0.60	No	0.036	0.71		
35	11-25	11-24	8.000	184.000	0.043	0.009	0.002	Free Surface	1.922	0.053	0.005	0.035	0.052	1.63	Yes	0.037	1.776		
366	6-57.5	6-57	8.000	145.192	0.014	0.005	0.001	Free Surface	1.086	0.053	0.005	0.035	0.039	0.92	No	0.035	1.086		
417	4-45	4-6	10.000	322.840	0.021	0.011	0.002	Free Surface	1.556	0.053	0.005	0.044	0.056	2.05	Yes	0.08	0.651		
498	6-36	6-34	8.000	187.016	0.048	0.009	0.002	Free Surface	2.037	0.053	0.005	0.035	0.054	1.72	Yes	0.042	1.583		
540	19-26	19-25	8.000	165.000	0.067	0.011	0.002	Free Surface	2.396	0.053	0.005	0.035	0.059	2.02	Yes	0.041	1.948		
36	11-22	11-21	8.000	262.000	0.134	0.015	0.003	Free Surface	3.346	0.052	0.005	0.035	0.069	2.86	Yes	0.056	1.657		
156	4-50	4-49	8.000	208.464	0.072	0.011	0.002	Free Surface	2.45	0.052	0.005	0.035	0.058	2.10	Yes	0.041	1.934		
334	5-51	5-50.5	8.000	236.112	0.102	0.013	0.002	Free Surface	2.92	0.052	0.005	0.035	0.064	2.50	Yes	0.042	2.228		
150	4-39	4-16	8.000	198.112	0.225	0.019	0.004	Free Surface	4.307	0.051	0.005	0.034	0.077	3.71	Yes	0.667	0.084		
453	11-39	11-34	8.000	239.927	0.088	0.012	0.002	Free Surface	2.667	0.051	0.005	0.034	0.06	2.32	Yes	0.042	1.938		
457	11-36	11-35	8.000	154.000	0.058	0.010	0.002	Free Surface	2.185	0.051	0.005	0.034	0.054	1.89	Yes	0.051	1.213		
593	177TH4	177TH2	8.000	266.391	0.086	0.012	0.002	Free Surface	2.654	0.051	0.005	0.034	0.06	2.30	Yes	0.039	2.206		
625	USHERCANYON	USHERCANYON	12.000	308.000	0.019	0.016	0.003	Free Surface	1.65	0.051	0.005	0.051	0.064	3.22	No	0.051	1.65		
1169	YAKIMA3	177TH4	8.000	155.000	0.006	0.003	0.000	Free Surface	0.726	0.051	0.005	0.034	0.031	0.63	No	0.034	0.726		
348	6-57	6-16	8.000	157.088	0.083	0.011	0.002	Free Surface	2.56	0.05	0.005	0.033	0.058	2.26	Yes	0.045	1.63		
379	7-33	7-23	8.000	457.570	0.140	0.014	0.003	Free Surface	3.344	0.05	0.005	0.033	0.067	2.93	Yes	0.062	1.33		
515	19-54	19-53	8.000	370.191	0.097	0.012	0.002	Free Surface	2.781	0.05	0.005	0.033	0.061	2.44	Yes	0.087	0.677		
531	19-38	19-37	8.000	279.405	0.222	0.018	0.003	Free Surface	4.186	0.05	0.005	0.033	0.074	3.69	Yes	0.044	2.787		
647	6-53.5	6-53.25	8.000	205.000	0.034	0.007	0.001	Free Surface	1.643	0.05	0.005	0.033	0.046	1.45	Yes	0.036	1.466		
223	4-36	4-21	8.000	134.844	0.060	0.009	0.002	Free Surface	2.162	0.049	0.005	0.033	0.053	1.92	Yes	0.123	0.312		
352	6-63	6-62	8.000	295.931	0.051	0.008	0.001	Free Surface	1.99	0.049	0.005	0.033	0.051	1.76	Yes	0.04	1.5		
398	8-12	8-11	8.000	221.091	0.077	0.010	0.002	Free Surface	2.449	0.049	0.005	0.033	0.056	2.17	Yes	0.043	1.619		
455	11-28	11-27	8.000	257.783	0.101	0.011	0.002	Free Surface	2.793	0.049	0.005	0.033	0.06	2.49	Yes	0.053	1.345		
545	8-14	8-5	8.000	417.073	0.072	0.010	0.002	Free Surface	2.365	0.049	0.005	0.033	0.055	2.10	Yes	0.077	0.672		
1175	NACHES2	NACHES1	8.000	125.000	0.080	0.010	0.002	Free Surface	2.485	0.049	0.005	0.033	0.056	2.22	Yes	0.041	1.799		
29	5-87	5-86	8.000	120.000	0.033	0.006	0.001	Free Surface	1.589	0.048	0.004	0.032	0.044	1.43	Yes	0.034	1.446		
246	10-11	10-10	8.000	85.014	0.012	0.004	0.001	Free Surface	0.948	0.048	0.004	0.032	0.034	0.85	Yes	0.053	0.453		
298	7-7	7-6	8.000	261.061	0.065	0.009	0.002	Free Surface	2.225	0.048	0.004	0.032	0.053	2.00	Yes	0.042	1.519		
415	7-40	7-45	8.000	225.145	0.071	0.009	0.002	Free Surface	2.299	0.048	0.004	0.032	0.053	2.09	Yes	0.037	1.799		
527	19-56	19-55	8.000	242.447	0.194	0.015	0.003	Free Surface	3.843	0.048	0.004	0.032	0.07	3.45	Yes	0.044	2.402		
333	5-51.5	5-51	8.000	76.857	0.052	0.008	0.001	Free Surface	1.96	0.047	0.004	0.031	0.049	1.79	Yes	0.033	1.818		
375	5-50	5-49	8.000	322.000	0.062	0.008	0.001	Free Surface	2.128	0.047	0.004	0.031	0.05	1.95	Yes	0.036	1.745		
452	11-40	11-39	8.000	226.266	0.040	0.006	0.001	Free Surface	1.7	0.047	0.004	0.031	0.045	1.56	Yes	0.033	1.593		
525	19-46	19-45	8.000	17.045	0.117	0.011	0.002	Free Surface	2.906	0.046	0.004	0.031	0.058	2.68	Yes	0.069	0.882		

627	RUSHERCANYON	RUSHERCANYON	12.000	307.093	0.072	0.024	0.005	Free Surface	2.95	0.046	0.004	0.046	0.079	6.18	Yes	0.086	1.152		
1079	BRAEBURN8	BRAEBURN7	8.000	195.000	0.036	0.006	0.001	Free Surface	1.602	0.046	0.004	0.031	0.043	1.48	Yes	0.041	1.063		
283	7-35	7-13	8.000	152.531	0.144	0.011	0.002	Free Surface	3.144	0.045	0.004	0.03	0.059	2.97	No	0.03	3.144		
312	6-53	6-10	8.000	113.310	0.140	0.011	0.002	Free Surface	3.101	0.045	0.004	0.03	0.059	2.93	Yes	0.076	0.777		
380	7-34	7-24	8.000	446.126	0.134	0.011	0.002	Free Surface	3.057	0.045	0.004	0.03	0.059	2.87	Yes	0.063	1.033		
233	1-49	1-43	8.000	155.904	0.051	0.006	0.001	Free Surface	1.86	0.044	0.004	0.029	0.045	1.77	Yes	0.667	0.029		
400	5-84	5-83	8.000	109.427	0.110	0.010	0.002	Free Surface	2.731	0.044	0.004	0.03	0.055	2.59	Yes	0.036	2.076		
513	19-44	19-43	8.000	292.358	0.099	0.009	0.002	Free Surface	2.596	0.044	0.004	0.03	0.053	2.47	Yes	0.037	1.857		
549	11-14	11-13	8.000	275.180	0.058	0.007	0.001	Free Surface	1.971	0.044	0.004	0.029	0.046	1.89	Yes	0.036	1.46		
1063	APPLE4	APPLE3	8.000	145.000	0.159	0.011	0.002	Free Surface	3.248	0.044	0.004	0.029	0.059	3.12	Yes	0.049	1.477		
287	7-38	7-37	8.000	35.317	0.142	0.010	0.002	Free Surface	3.018	0.043	0.003	0.028	0.056	2.95	Yes	0.039	1.896		
357	5-71	5-70	8.000	125.050	0.168	0.011	0.002	Free Surface	3.333	0.043	0.004	0.029	0.06	3.21	Yes	0.035	2.48		
456	11-33	11-32	8.000	227.118	0.079	0.008	0.001	Free Surface	2.283	0.043	0.004	0.029	0.049	2.21	Yes	0.04	1.406		
561	6-42	6-41	8.000	12.687	0.079	0.008	0.001	Free Surface	2.261	0.043	0.003	0.029	0.049	2.20	Yes	0.04	1.383		
4	6-23	6-19	8.000	203.824	0.083	0.008	0.001	Free Surface	2.314	0.042	0.003	0.028	0.049	2.26	Yes	0.044	1.219		
28	5-92	5-91	8.000	231.247	0.099	0.008	0.001	Free Surface	2.509	0.042	0.003	0.028	0.05	2.47	Yes	0.047	1.156		
388	7-22	7-21	8.000	248.062	0.113	0.009	0.002	Free Surface	2.683	0.042	0.003	0.028	0.052	2.63	Yes	0.034	2.052		
560	6-32	6-31	8.000	164.433	0.079	0.007	0.001	Free Surface	2.226	0.042	0.003	0.028	0.047	2.20	Yes	0.037	1.438		
638	7-13	RUSHERCANYON	8.000	43.247	0.310	0.014	0.003	Free Surface	4.419	0.042	0.003	0.028	0.067	4.36	Yes	0.08	0.928		
26	5-83.5	5-83	8.000	163.864	0.098	0.008	0.001	Free Surface	2.443	0.041	0.003	0.027	0.049	2.45	Yes	0.034	1.727		
297	7-32	7-6	8.000	177.052	0.119	0.008	0.001	Free Surface	2.7	0.041	0.003	0.027	0.051	2.70	Yes	0.039	1.58		
370	5-66.5	5-66	8.000	218.400	0.092	0.007	0.001	Free Surface	2.366	0.041	0.003	0.027	0.048	2.37	Yes	0.033	1.804		
448	11-30	11-26	8.000	134.970	0.074	0.007	0.001	Free Surface	2.128	0.041	0.003	0.027	0.045	2.13	Yes	0.073	0.498		
544	19-52	19-48	8.000	218.639	0.146	0.009	0.002	Free Surface	3.004	0.041	0.003	0.027	0.054	3.00	Yes	0.06	0.935		
1105	GOODLANDER7	GOODLANDER6	8.000	290.717	0.058	0.006	0.001	Free Surface	1.898	0.041	0.003	0.027	0.043	1.89	No	0.027	1.898		
1137	HERITAGE11	HERITAGE10	8.000	82.628	0.109	0.008	0.001	Free Surface	2.57	0.041	0.003	0.027	0.05	2.58	Yes	0.033	1.958		
58	3-42	3-41	10.000	289.346	0.021	0.006	0.001	Free Surface	1.298	0.04	0.003	0.034	0.042	2.05	Yes	0.044	0.886		
286	7-42	7-15	8.000	155.451	0.134	0.009	0.002	Free Surface	2.834	0.04	0.003	0.027	0.052	2.87	Yes	0.045	1.295		
354	5-69	5-68	8.000	238.176	0.134	0.009	0.002	Free Surface	2.838	0.04	0.003	0.027	0.052	2.87	Yes	0.044	1.358		
362	5-76	5-75	8.000	148.041	0.027	0.004	0.001	Free Surface	1.273	0.04	0.003	0.027	0.035	1.29	Yes	0.049	0.523		
488	19-21	19-20	8.000	203.500	0.118	0.008	0.001	Free Surface	2.643	0.04	0.003	0.027	0.05	2.69	Yes	0.033	1.961		
557	7-41	7-40	8.000	28.983	0.069	0.006	0.001	Free Surface	2.016	0.04	0.003	0.026	0.043	2.06	Yes	0.029	1.755		
1	6-21	6-20	8.000	247.304	0.093	0.007	0.001	Free Surface	2.326	0.039	0.003	0.026	0.046	2.39	Yes	0.033	1.624		
624	USHERCANYON	USHERCANYON	12.000	230.000	0.030	0.011	0.002	Free Surface	1.724	0.039	0.003	0.039	0.053	4.03	Yes	0.045	1.386		
626	USHERCANYON	USHERCANYON	12.000	140.000	0.107	0.021	0.004	Free Surface	3.229	0.039	0.003	0.039	0.073	7.56	Yes	0.042	2.832		
673	19-38.5	19-38	8.000	90.037	0.111	0.007	0.001	Free Surface	2.506	0.039	0.003	0.026	0.047	2.61	Yes	0.029	2.048		
497	6-35	6-34	8.000	325.682	0.126	0.007	0.001	Free Surface	2.642	0.038	0.003	0.025	0.048	2.78	Yes	0.037	1.504		
554	11-37	11-36	8.000	79.000	0.089	0.006	0.001	Free Surface	2.223	0.038	0.003	0.025	0.044	2.33	Yes	0.03	1.76		
523	19-27	19-26	8.000	260.000	0.127	0.007	0.001	Free Surface	2.591	0.037	0.002	0.024	0.046	2.79	Yes	0.03	1.913		
1165	YAKIMA1	FIRST1	8.000	273.420	0.084	0.006	0.001	Free Surface	2.137	0.037	0.003	0.025	0.043	2.27	Yes	0.031	1.535		
520	19-33	19-32	8.000	160.000	0.181	0.008	0.001	Free Surface	3.043	0.036	0.002	0.024	0.049	3.33	Yes	0.031	2.001		
227	1-30	1-27	8.000	53.695	0.193	0.008	0.001	Free Surface	3.109	0.035	0.002	0.023	0.049	3.44	Yes	0.275	0.088		
648	6-53.75	6-53.5	8.000	168.343	0.048	0.004	0.001	Free Surface	1.538	0.035	0.002	0.023	0.034	1.71	Yes	0.028	1.154		
1104	GOODLANDER6	GOODLANDER5	8.000	290.520	0.396	0.011	0.002	Free Surface	4.461	0.035	0.002	0.023	0.059	4.93	Yes	0.667	0.05		
1177	NACHES3	NACHES2	8.000	103.000	0.078	0.005	0.001	Free Surface	1.986	0.035	0.002	0.024	0.04	2.18	Yes	0.028	1.535		
1185	NACHES8	NACHES7	8.000	215.000	0.079	0.005	0.001	Free Surface	1.997	0.035	0.002	0.024	0.039	2.20	Yes	0.033	1.213		
450	11-29	11-28	8.000	222.927	0.094	0.005	0.001	Free Surface	2.143	0.034	0.002	0.023	0.04	2.40	Yes	0.028	1.609		
1053	HERITAGEHILLS	HERITAGE22	8.000	172.538	0.038	0.003	0.001	Free Surface	1.355	0.034	0.002	0.023	0.032	1.52	Yes	0.031	0.846		
1061	APPLE5	APPLE4	8.000	117.000	0.162	0.006	0.001	Free Surface	2.706	0.032	0.002	0.022	0.043	3.16	Yes	0.025	2.135		
2	6-22	6-20	8.000	53.000	0.094	0.004	0.001	Free Surface	2.022	0.031	0.002	0.021	0.036	2.41	Yes	0.031	1.141		
381	7-46	7-45	8.000	128.022	0.133	0.005	0.001	Free Surface	2.366	0.031	0.002	0.021	0.039	2.85	Yes	0.032	1.233		
553	11-38	11-37	8.000	104.000	0.077	0.004	0.001	Free Surface	1.805	0.031	0.002	0.021	0.034	2.17	Yes	0.023	1.531		

532	19-40	19-39	8.000	225.000	0.071	0.003	0.001	Free Surface	1.721	0.03	0.002	0.02	0.033	2.09	No	0.02	1.721		
533	19-39	19-38	8.000	120.000	0.200	0.006	0.001	Free Surface	2.862	0.03	0.002	0.02	0.042	3.50	Yes	0.027	1.88		
547	8-15	8-14	8.000	231.604	0.121	0.004	0.001	Free Surface	2.178	0.029	0.002	0.019	0.036	2.72	Yes	0.026	1.403		
684	7-8	7-7	8.000	144.626	0.152	0.005	0.001	Free Surface	2.438	0.029	0.002	0.019	0.038	3.05	Yes	0.026	1.592		
1179	NACHES4	NACHES5	8.000	104.046	0.106	0.004	0.001	Free Surface	2.051	0.029	0.002	0.02	0.035	2.55	Yes	0.039	0.752		
389	7-30	7-29	8.000	14.928	0.134	0.004	0.001	Free Surface	2.254	0.028	0.001	0.019	0.036	2.87	Yes	0.032	1.01		
555	7-22.5	7-22	8.000	89.478	0.112	0.003	0.001	Free Surface	1.997	0.027	0.001	0.018	0.032	2.62	Yes	0.023	1.384		
1033	USHERCANYON	USHERCANYON	12.000	205.000	0.054	0.006	0.001	Free Surface	1.734	0.025	0.001	0.025	0.039	5.35	Yes	0.032	1.224		
458	11-41	11-40	8.000	109.883	0.064	0.000	0.000	Free Surface	0	0	0	0	0	1.98	Yes	0.016	0		

Current Peak plus Crusher Canyon Gravity Main Report with Wixson Project Completed																		
ID	From ID	To ID	Diameter (in)	Length (ft)	Slope	Total Flow (mgd)	Unpeakable Flow (mgd)	Peakable Flow (mgd)	Flow Type	Velocity (ft/s)	d/D	q/Q	Water Depth (ft)	Critical Depth (ft)	Full Flow (mgd)	Backwater Adjustment	Adjusted Depth (ft)	Adjusted Velocity (ft/s)
78	2-8	2-7	8.000	358.850	0.004	0.585	0.000	0.163	Pressurized	2.592	1.00	1.209	0.667	0.409	0.484	Yes	0.033	1.624
81	2-10	2-9	8.000	82.063	0.003	0.522	0.000	0.143	Pressurized	2.314	1.00	1.318	0.667	0.368	0.396	Yes	0.045	2.618
87	2-6	2-5	8.000	377.669	0.004	0.663	0.000	0.187	Pressurized	2.937	1.00	1.405	0.667	0.403	0.472	Yes	1.25	0.096
91	2-9	2-8	8.000	321.950	0.005	0.556	0.000	0.154	Pressurized	2.464	1.00	1.058	0.667	0.427	0.526	No	0.214	3.774
92	2-7	2-6	8.000	357.453	0.003	0.638	0.000	0.179	Pressurized	2.826	1.00	1.468	0.667	0.386	0.434	No	0.138	3.129
101	2-1	1-22	12.000	184.192	0.003	1.498	0.000	0.462	Pressurized	2.951	1.00	1.127	1	0.612	1.329	Yes	1	2.951
102	1-21	1-20	12.000	61.606	0.000	2.104	0.000	0.674	Pressurized	4.146	1.00	4.13	1	0.371	0.509	Yes	0.055	0.835
103	1-22	1-21	12.000	366.650	0.002	1.768	0.000	0.556	Pressurized	3.484	1.00	1.943	1	0.502	0.91	Yes	1	4.146
107	1-2	1-1	21.000	232.000	0.000	2.895	0.000	0.961	Pressurized	1.862	1.00	1.358	1.75	0.66	2.132	Yes	1	3.484
226	1-26	1-25	8.000	31.422	0.001	0.317	0.000	0.082	Pressurized	1.403	1.00	1.133	0.667	0.307	0.279	Yes	0.063	2.555
232	1-39	1-38	8.000	49.837	0.001	0.382	0.000	0.101	Pressurized	1.692	1.00	1.987	0.667	0.252	0.192	Yes	1.25	0.117
242	1-17	1-16	8.000	306.551	0.014	0.947	0.000	0.278	Pressurized	4.195	1.00	1.03	0.667	0.56	0.919	Yes	0.667	1.543
249	1-41	1-40	8.000	315.131	0.002	0.342	0.000	0.09	Pressurized	1.515	1.00	1.055	0.667	0.332	0.324	Yes	0.5	0.047
306	5-2	5-1	8.000	372.009	0.011	0.927	0.000	0.271	Pressurized	4.108	1.00	1.111	0.667	0.537	0.834	Yes	0.46	1.74
470	1-18	1-4	12.000	142.748	0.002	2.118	0.000	0.679	Pressurized	4.172	1.00	1.879	1	0.562	1.127	Yes	0.667	1.924
474	1-19	1-18	12.000	74.000	0.002	2.113	0.000	0.677	Pressurized	4.163	1.00	2.273	1	0.508	0.93	Yes	0.031	0.846
475	1-20	1-19	12.000	220.684	0.002	2.108	0.000	0.676	Pressurized	4.153	1.00	2	1	0.542	1.054	Yes	1.698	1.876
1667	2-5	2-4	8.000	477.000	0.007	0.720	0.000	0.205	Pressurized	3.19	1.00	1.097	0.667	0.478	0.656	Yes	0.025	2.135
241	1-16	1-15	8.000	296.811	0.015	0.956	0.000	0.281	Free Surface	4.867	0.81	0.992	0.542	0.569	0.963	Yes	0.049	1.477
243	5-1	1-17	8.000	334.470	0.015	0.940	0.000	0.275	Free Surface	4.814	0.81	0.986	0.538	0.565	0.953	No	0.07	1.941
172	5-3	5-2	8.000	296.739	0.015	0.918	0.000	0.268	Free Surface	4.777	0.79	0.971	0.53	0.56	0.946	Yes	0.055	3.303
228	1-27	1-26	8.000	157.026	0.002	0.313	0.000	0.081	Free Surface	1.64	0.79	0.965	0.527	0.326	0.325	Yes	0.064	3.052
110	1-35	1-34	8.000	224.632	0.003	0.396	0.000	0.105	Pressurized	2.108	0.78	0.948	0.518	0.368	0.418	No	1.75	1.862
262	10-28	10-14	8.000	293.815	0.001	0.273	0.000	0.07	Free Surface	1.473	0.77	0.935	0.511	0.303	0.293	Yes	0.07	2.899
94	2-4	2-3	10.000	440.535	0.003	0.735	0.000	0.209	Pressurized	2.631	0.74	0.896	0.616	0.475	0.82	Yes	0.054	3.45
281	7-1	1-48	8.000	140.768	0.005	0.483	0.000	0.131	Free Surface	2.707	0.74	0.893	0.491	0.408	0.54	No	0.049	0.561
235	1-10	1-9	12.000	56.251	0.002	0.906	0.000	0.264	Free Surface	2.358	0.71	0.85	0.708	0.501	1.066	Yes	0.041	1.063
116	1-32	1-31	8.000	321.743	0.004	0.423	0.000	0.114	Pressurized	2.501	0.70	0.841	0.468	0.381	0.503	Yes	0.667	1.828
108	1-33	1-32	8.000	314.000	0.004	0.413	0.000	0.11	Pressurized	2.491	0.69	0.819	0.459	0.376	0.504	No	0.05	1.817
105	1-31	1-21	8.000	304.429	0.005	0.434	0.000	0.117	Pressurized	2.633	0.69	0.814	0.457	0.386	0.533	Yes	0.046	3.176
114	1-34	1-33	8.000	264.972	0.004	0.404	0.000	0.108	Pressurized	2.494	0.68	0.797	0.45	0.372	0.507	Yes	0.043	3.155
254	10-1	9-17	8.000	39.231	0.006	0.465	0.000	0.126	Free Surface	2.883	0.67	0.793	0.448	0.4	0.586	No	0.06	0.989
1545	213	1-1	15.000	388.000	0.001	0.910	0.000	0.266	Free Surface	1.624	0.67	0.782	0.832	0.469	1.164	Yes	0.057	0.576
1553	1-15	1-28	8.000	320.000	0.002	0.252	0.000	0.074	Free Surface	1.613	0.65	0.762	0.436	0.291	0.33	Yes	0.667	0.061
167	2-13	2-12	8.000	231.517	0.008	0.494	0.000	0.135	Free Surface	3.282	0.63	0.727	0.422	0.413	0.679	Yes	0.041	1.477
120	9-6	9-5	10.000	446.793	0.001	0.237	0.000	0.06	Free Surface	1.016	0.63	0.721	0.524	0.264	0.329	No	0.069	4.225
427	1-38	1-35	8.000	156.573	0.005	0.385	0.000	0.102	Pressurized	2.579	0.63	0.72	0.419	0.363	0.535	Yes	0.058	3.133
256	10-13	10-1	8.000	90.524	0.005	0.380	0.000	0.101	Free Surface	2.591	0.62	0.704	0.412	0.36	0.54	Yes	0.046	3.722
225	5-5	5-4	8.000	162.225	0.026	0.883	0.000	0.257	Free Surface	6.045	0.62	0.701	0.411	0.551	1.26	Yes	0.045	3.196
171	5-4	5-3	8.000	171.996	0.027	0.888	0.000	0.259	Free Surface	6.119	0.61	0.695	0.409	0.552	1.278	No	0.095	2.894
429	9-17	9-16	12.000	187.189	0.001	0.467	0.000	0.127	Free Surface	1.435	0.61	0.692	0.612	0.355	0.675	Yes	0.667	1.756
122	9-16	9-15	12.000	455.978	0.001	0.506	0.000	0.138	Free Surface	1.558	0.61	0.689	0.61	0.37	0.733	Yes	0.043	2.633
238	1-11	1-10	12.000	306.550	0.003	0.905	0.000	0.264	Free Surface	2.81	0.61	0.683	0.606	0.501	1.325	Yes	0.667	0.05
131	2-3	2-1	15.000	263.000	0.002	1.350	0.000	0.412	Pressurized	2.741	0.60	0.664	0.744	0.576	2.033	No	0.027	1.898
250	1-12	1-11	12.000	288.390	0.004	0.902	0.000	0.263	Free Surface	2.909	0.59	0.651	0.588	0.5	1.386	No	0.099	1.007
248	1-14	1-13	10.000	359.154	0.007	0.743	0.000	0.212	Free Surface	3.516	0.58	0.635	0.482	0.478	1.17	Yes	0.097	1.618
229	1-28	1-27	8.000	411.125	0.004	0.304	0.000	0.079	Free Surface	2.249	0.58	0.635	0.386	0.321	0.479	Yes	0.083	1.124
73	3-1	2-3	15.000	423.823	0.001	0.703	0.000	0.2	Pressurized	1.504	0.57	0.621	0.713	0.411	1.132	Yes	0.667	0.047
426	1-25	1-24	8.000	403.751	0.005	0.323	0.000	0.084	Free Surface	2.465	0.56	0.609	0.376	0.331	0.53	Yes	0.667	0.346

165	2-14	2-13	12.000	306.129	0.001	0.485	0.000	0.132	Free Surface	1.689	0.55	0.589	0.552	0.362	0.824	No	0.085	0.95
340	6-6	6-5	8.000	165.579	0.003	0.236	0.000	0.059	Free Surface	1.876	0.55	0.579	0.364	0.281	0.408	Yes	0.071	0.681
468	1-4	1-3	21.000	177.000	0.002	2.885	0.000	0.958	Free Surface	3.332	0.55	0.577	0.954	0.773	5.002	Yes	0.082	0.608
60	3-17	3-16	12.000	347.677	0.001	0.442	0.000	0.119	Free Surface	1.59	0.54	0.565	0.538	0.345	0.783	Yes	0.072	3.271
260	10-29	10-28	8.000	312.600	0.003	0.251	0.000	0.063	Free Surface	2.023	0.54	0.566	0.359	0.29	0.443	Yes	0.063	0.559
481	19-6	19-5	8.000	185.195	0.005	0.324	0.000	0.084	Free Surface	2.627	0.54	0.564	0.358	0.332	0.575	No	0.067	3.211
44	3-16	3-15	12.000	320.186	0.001	0.456	0.000	0.123	Free Surface	1.652	0.53	0.559	0.534	0.35	0.816	Yes	1.25	0.122
106	1-3	1-2	21.000	42.265	0.003	2.891	0.000	0.96	Free Surface	3.453	0.53	0.552	0.928	0.774	5.238	Yes	0.075	5.476
113	1-7	1-6	12.000	311.423	0.005	0.914	0.000	0.267	Free Surface	3.372	0.53	0.545	0.527	0.503	1.675	Yes	0.46	4.005
240	1-15	1-14	10.000	141.607	0.009	0.710	0.000	0.209	Free Surface	3.808	0.52	0.539	0.436	0.467	1.318	Yes	0.06	3.849
84	2-11	2-10	8.000	460.241	0.016	0.516	0.000	0.142	Pressurized	4.397	0.52	0.528	0.344	0.423	0.979	No	0.527	3.372
68	3-6	3-5	12.000	251.654	0.003	0.663	0.000	0.187	Pressurized	2.576	0.51	0.509	0.505	0.426	1.302	No	0.056	2.255
309	6-7	6-6	8.000	224.047	0.003	0.232	0.000	0.058	Free Surface	2.04	0.50	0.505	0.335	0.278	0.459	Yes	0.033	1.958
1549	1-13	1-41	8.000	156.300	0.006	0.309	0.000	0.088	Free Surface	2.757	0.50	0.496	0.332	0.323	0.623	Yes	0.667	1.79
461	11-1	10-29	8.000	424.619	0.002	0.188	0.000	0.046	Free Surface	1.68	0.50	0.495	0.331	0.25	0.38	No	0.051	4.317
53	3-22	3-21	12.000	327.527	0.001	0.398	0.000	0.106	Free Surface	1.584	0.50	0.493	0.496	0.327	0.807	No	0.06	3.21
237	1-40	1-39	8.000	295.117	0.008	0.348	0.000	0.091	Free Surface	3.153	0.49	0.486	0.328	0.344	0.716	No	0.101	1.409
54	3-21	3-20	12.000	308.945	0.001	0.400	0.000	0.107	Free Surface	1.621	0.49	0.481	0.489	0.327	0.831	Yes	0.073	2.067
570	3-7	3-6	12.000	362.208	0.004	0.653	0.000	0.184	Pressurized	2.662	0.49	0.478	0.487	0.422	1.367	Yes	0.667	1.487
568	3-9	3-8	12.000	406.690	0.003	0.592	0.000	0.165	Free Surface	2.45	0.48	0.468	0.481	0.401	1.265	Yes	0.069	0.648
208	6-3	6-2	8.000	146.658	0.005	0.259	0.000	0.066	Free Surface	2.422	0.48	0.466	0.32	0.295	0.556	Yes	0.052	0.655
569	3-8	3-7	12.000	423.175	0.003	0.613	0.000	0.171	Free Surface	2.557	0.48	0.463	0.478	0.409	1.323	Yes	0.667	1.877
115	1-24	1-23	8.000	444.002	0.009	0.335	0.000	0.088	Free Surface	3.239	0.47	0.446	0.312	0.338	0.752	Yes	0.056	1.151
69	3-5	3-4	12.000	246.885	0.004	0.670	0.000	0.189	Pressurized	2.88	0.47	0.445	0.467	0.428	1.506	Yes	0.031	1.535
476	19-12	19-11	8.000	288.472	0.007	0.286	0.000	0.073	Free Surface	2.795	0.46	0.438	0.309	0.31	0.652	No	0.036	0.71
301	1-48	1-47	8.000	305.000	0.022	0.489	0.000	0.133	Free Surface	4.904	0.46	0.424	0.303	0.411	1.154	No	0.034	0.726
118	1-1	WASTEWATERPLANT	21.000	28.890	0.007	3.609	0.000	1.228	Free Surface	5.264	0.45	0.422	0.794	0.869	8.544	Yes	0.833	0.892
129	9-2	9-1	8.000	225.846	0.009	0.321	0.000	0.083	Pressurized	3.228	0.45	0.422	0.302	0.33	0.76	No	0.047	0.658
119	9-4	9-3	10.000	291.000	0.003	0.299	0.000	0.077	Free Surface	1.987	0.44	0.404	0.369	0.297	0.74	Yes	0.07	2.486
428	1-9	1-8	12.000	175.702	0.010	0.907	0.000	0.265	Free Surface	4.205	0.44	0.402	0.441	0.501	2.258	Yes	0.041	1.799
123	9-7	9-6	10.000	278.518	0.002	0.226	0.000	0.056	Free Surface	1.537	0.44	0.392	0.362	0.257	0.577	Yes	0.028	1.535
104	1-23	1-22	8.000	372.398	0.013	0.348	0.000	0.091	Pressurized	3.703	0.43	0.391	0.29	0.344	0.89	Yes	0.039	0.752
423	2-12	2-11	8.000	203.428	0.028	0.507	0.000	0.139	Free Surface	5.435	0.43	0.387	0.288	0.419	1.31	No	0.794	5.264
1001	GRAHAMPACKAGINGLS	WW7	6.000	25.000	0.020	0.195	0.000	0.048	Free Surface	3.774	0.43	0.379	0.214	0.278	0.514	Yes	0.033	1.213
199	5-33	5-5	8.000	241.382	0.025	0.463	0.000	0.125	Free Surface	5.065	0.43	0.377	0.284	0.4	1.229	Yes	0.682	0.968
1049	SELAHHIGH1	3-22	12.000	95.076	0.002	0.397	0.000	0.106	Free Surface	1.936	0.42	0.375	0.424	0.326	1.059	No	0.524	1.016
194	5-34	5-33	8.000	243.406	0.025	0.459	0.000	0.124	Free Surface	5.063	0.42	0.373	0.282	0.398	1.233	Yes	0.356	1.888
50	3-20	3-19	12.000	90.015	0.002	0.401	0.000	0.107	Free Surface	1.981	0.42	0.369	0.42	0.328	1.088	No	0.61	1.558
308	6-8	6-7	8.000	116.341	0.006	0.227	0.000	0.057	Free Surface	2.549	0.42	0.364	0.278	0.275	0.625	Yes	0.443	1.186
121	9-5	9-4	10.000	393.000	0.003	0.272	0.000	0.069	Free Surface	1.978	0.41	0.357	0.344	0.283	0.761	No	0.235	2.341
72	3-3	3-2	15.000	116.314	0.002	0.687	0.000	0.194	Pressurized	2.237	0.41	0.354	0.514	0.406	1.941	Yes	0.275	2.003
1669	1-47	221	12.000	300.000	0.004	0.500	0.000	0.136	Free Surface	2.541	0.41	0.354	0.411	0.367	1.411	Yes	1	1.084
178	4-1	2-15	8.000	395.828	0.007	0.236	0.000	0.059	Free Surface	2.704	0.41	0.353	0.273	0.281	0.668	Yes	0.182	0.665
484	19-13	19-12	8.000	193.994	0.010	0.280	0.000	0.072	Free Surface	3.216	0.41	0.352	0.273	0.307	0.795	Yes	1	0.393
505	5-14	5-13	8.000	171.242	0.010	0.276	0.000	0.07	Free Surface	3.173	0.41	0.351	0.273	0.305	0.785	Yes	0.667	1.422
1671	221	1-12	12.000	350.000	0.004	0.500	0.000	0.136	Free Surface	2.557	0.41	0.351	0.409	0.367	1.423	Yes	0.209	2.427
683	9-1	5010	15.000	70.740	0.004	0.842	0.000	0.244	Free Surface	2.834	0.40	0.338	0.501	0.451	2.489	No	0.136	1.256
218	6-1	5-35	8.000	384.111	0.020	0.368	0.000	0.097	Free Surface	4.421	0.40	0.332	0.264	0.354	1.11	Yes	1.25	1.701
117	9-3	9-2	10.000	232.289	0.005	0.314	0.000	0.082	Pressurized	2.428	0.40	0.329	0.329	0.305	0.955	Yes	0.282	4.136
112	1-8	1-7	12.000	47.625	0.015	0.912	0.000	0.266	Free Surface	4.93	0.39	0.326	0.393	0.503	2.799	Yes	0.082	3.291
464	5-22	5-21	8.000	300.959	0.003	0.143	0.000	0.034	Free Surface	1.777	0.39	0.318	0.258	0.217	0.451	Yes	0.071	2.923
566	3-10	3-9	12.000	355.253	0.005	0.526	0.000	0.145	Free Surface	2.904	0.39	0.317	0.387	0.377	1.662	No	0.075	3.34
203	5-7	5-6	8.000	339.854	0.018	0.321	0.000	0.083	Free Surface	4.07	0.38	0.308	0.254	0.33	1.043	Yes	0.05	1.606

61	3-12	3-11	12.000	305.515	0.005	0.496	0.000	0.135	Free Surface	2.817	0.38	0.305	0.379	0.366	1.629	Yes	0.047	2.036
62	3-13	3-12	12.000	233.049	0.005	0.488	0.000	0.133	Free Surface	2.83	0.37	0.296	0.373	0.363	1.65	Yes	0.065	2.768
479	19-4	19-3	8.000	135.940	0.022	0.336	0.000	0.088	Free Surface	4.459	0.37	0.288	0.245	0.338	1.163	No	0.189	6.706
567	3-11	3-10	12.000	310.811	0.006	0.507	0.000	0.139	Free Surface	3.017	0.37	0.285	0.366	0.37	1.776	Yes	0.135	3.476
277	7-11	7-10	8.000	155.000	0.025	0.348	0.000	0.091	Free Surface	4.746	0.36	0.279	0.241	0.344	1.25	Yes	0.157	4.159
16	5-20	5-19	8.000	138.442	0.005	0.150	0.000	0.036	Free Surface	2.051	0.36	0.278	0.24	0.222	0.541	Yes	0.119	3.397
71	3-2	3-1	15.000	191.939	0.004	0.692	0.000	0.196	Pressurized	2.702	0.36	0.276	0.449	0.407	2.51	Yes	0.141	2.329
197	5-35	5-34	8.000	260.182	0.036	0.401	0.000	0.107	Free Surface	5.602	0.36	0.269	0.236	0.371	1.489	Yes	0.12	0.377
485	19-11	19-10	8.000	371.802	0.019	0.290	0.000	0.075	Free Surface	4.045	0.36	0.27	0.237	0.313	1.074	Yes	0.084	1.552
313	6-9	6-8	8.000	399.719	0.011	0.223	0.000	0.056	Free Surface	3.146	0.35	0.266	0.235	0.273	0.839	No	0.178	1.944
74	3-4	3-3	15.000	211.178	0.004	0.679	0.000	0.192	Pressurized	2.74	0.35	0.264	0.438	0.403	2.577	No	0.049	0.966
49	3-18	3-17	12.000	36.580	0.005	0.437	0.000	0.118	Free Surface	2.814	0.35	0.256	0.345	0.343	1.707	Yes	0.223	3.212
211	6-4	6-3	8.000	348.692	0.017	0.256	0.000	0.065	Free Surface	3.743	0.34	0.253	0.229	0.293	1.013	Yes	0.053	0.784
244	1-13	1-12	12.000	304.500	0.006	0.441	0.000	0.126	Free Surface	2.879	0.34	0.251	0.342	0.344	1.755	Yes	0.667	0.084
255	10-14	10-13	8.000	34.684	0.036	0.373	0.000	0.099	Free Surface	5.468	0.34	0.252	0.228	0.357	1.481	No	0.056	1.319
259	10-16	10-15	8.000	290.272	0.004	0.120	0.000	0.028	Free Surface	1.809	0.34	0.243	0.224	0.198	0.495	Yes	0.17	4.591
686	4-20	4-19	8.000	280.568	0.009	0.183	0.000	0.045	Free Surface	2.746	0.34	0.243	0.224	0.246	0.751	Yes	0.044	2.226
160	4-21	4-20	8.000	305.290	0.009	0.175	0.000	0.043	Free Surface	2.658	0.33	0.24	0.222	0.241	0.73	Yes	0.057	2.45
216	5-10	5-9	8.000	262.933	0.027	0.302	0.000	0.078	Free Surface	4.655	0.33	0.235	0.22	0.32	1.285	No	0.832	1.624
478	19-3	19-2	8.000	165.610	0.036	0.342	0.000	0.09	Free Surface	5.363	0.33	0.23	0.217	0.341	1.491	Yes	0.531	1.605
198	5-6	5-5	8.000	129.799	0.065	0.452	0.000	0.122	Free Surface	7.146	0.32	0.227	0.216	0.395	1.993	Yes	0.067	2.85
477	19-2	19-1	8.000	182.565	0.038	0.343	0.000	0.09	Free Surface	5.478	0.32	0.224	0.214	0.342	1.533	No	0.436	1.613
258	10-5	10-4	8.000	289.357	0.002	0.078	0.000	0.017	Free Surface	1.264	0.32	0.218	0.211	0.158	0.357	Yes	0.041	1.934
433	11-2	11-1	8.000	320.701	0.011	0.175	0.000	0.042	Free Surface	2.858	0.32	0.216	0.211	0.24	0.807	No	0.258	3.415
222	4-22	4-21	8.000	422.288	0.009	0.159	0.000	0.038	Free Surface	2.652	0.31	0.211	0.208	0.229	0.754	Yes	0.085	1.265
432	9-14	9-12	10.000	566.143	0.002	0.126	0.000	0.03	Free Surface	1.342	0.31	0.211	0.26	0.19	0.597	Yes	0.08	0.986
273	10-17	10-16	8.000	328.457	0.004	0.106	0.000	0.024	Free Surface	1.78	0.31	0.21	0.207	0.186	0.508	No	0.06	0.904
279	7-10	7-9	8.000	390.000	0.049	0.360	0.000	0.095	Free Surface	6.057	0.31	0.208	0.206	0.35	1.73	No	0.24	2.051
363	5-19	5-18	8.000	380.003	0.018	0.218	0.000	0.054	Free Surface	3.658	0.31	0.209	0.207	0.27	1.044	Yes	0.223	2.645
440	11-4	11-3	8.000	312.554	0.011	0.170	0.000	0.041	Free Surface	2.88	0.31	0.206	0.205	0.237	0.825	No	0.05	2.236
278	7-9	7-1	8.000	35.501	0.053	0.366	0.000	0.097	Free Surface	6.264	0.31	0.203	0.204	0.353	1.802	Yes	0.118	1.545
214	5-9	5-8	8.000	57.594	0.038	0.307	0.000	0.08	Free Surface	5.286	0.31	0.202	0.203	0.323	1.523	Yes	0.055	2.207
6	1-5	1-4	18.000	542.969	0.005	0.944	0.000	0.277	Free Surface	3.222	0.30	0.2	0.455	0.453	4.711	Yes	0.354	1.992
51	3-19	3-18	12.000	24.935	0.008	0.403	0.000	0.107	Free Surface	3.157	0.30	0.195	0.299	0.329	2.068	No	0.552	1.689
57	3-23	SELAHHIGH1	12.000	204.924	0.008	0.396	0.000	0.105	Free Surface	3.111	0.30	0.194	0.299	0.326	2.04	Yes	0.165	0.384
491	19-22	19-16	8.000	129.000	0.019	0.212	0.000	0.053	Free Surface	3.741	0.30	0.194	0.199	0.265	1.09	Yes	0.667	3.19
42	3-15	3-14	12.000	184.981	0.012	0.483	0.000	0.131	Free Surface	3.808	0.30	0.193	0.298	0.361	2.501	No	0.411	2.541
434	11-3	11-2	8.000	243.446	0.014	0.170	0.000	0.041	Free Surface	3.113	0.29	0.185	0.194	0.237	0.92	No	0.422	3.282
413	5-11	5-10	8.000	380.010	0.041	0.293	0.000	0.075	Free Surface	5.381	0.29	0.184	0.194	0.314	1.593	Yes	0.498	1.976
321	5-12	5-11	8.000	313.084	0.039	0.282	0.000	0.072	Free Surface	5.215	0.29	0.182	0.193	0.308	1.547	Yes	0.1	2.354
460	9-10	9-9	10.000	215.062	0.005	0.178	0.000	0.043	Free Surface	2.1	0.29	0.183	0.241	0.227	0.973	No	0.101	1.393
128	2-2	2-1	12.000	130.505	0.002	0.199	0.000	0.049	Pressurized	1.653	0.29	0.18	0.287	0.229	1.107	Yes	0.118	5.14
494	19-16	19-14	8.000	171.100	0.029	0.239	0.000	0.06	Free Surface	4.485	0.29	0.178	0.191	0.283	1.339	Yes	0.071	2.079
469	1-6	1-5	18.000	156.980	0.006	0.934	0.000	0.273	Free Surface	3.48	0.29	0.177	0.428	0.451	5.268	Yes	0.469	5.233
140	19-1	3-28	8.000	78.964	0.066	0.354	0.000	0.093	Free Surface	6.706	0.28	0.176	0.189	0.347	2.01	Yes	0.667	4.07
126	9-15	9-1	12.000	728.026	0.019	0.550	0.000	0.152	Free Surface	4.669	0.283	0.174	0.283	0.386	3.157	Yes	0.303	0.384
124	9-9	9-8	10.000	153.016	0.006	0.191	0.000	0.047	Free Surface	2.341	0.28	0.173	0.235	0.236	1.101	Yes	0.073	1.556
408	6-5	6-4	8.000	318.873	0.034	0.248	0.000	0.063	Free Surface	4.792	0.28	0.171	0.187	0.288	1.447	Yes	0.084	0.979
482	19-7	19-6	8.000	168.096	0.059	0.318	0.000	0.083	Free Surface	6.276	0.28	0.167	0.184	0.328	1.91	Yes	0.073	0.963
538	19-28	19-24	8.000	43.792	0.023	0.196	0.000	0.048	Free Surface	3.879	0.28	0.165	0.183	0.255	1.183	Yes	-6.934	-1
431	9-11	9-10	10.000	383.190	0.005	0.159	0.000	0.038	Free Surface	2.025	0.27	0.164	0.228	0.214	0.968	No	0.273	2.704
252	10-4	10-3	8.000	314.020	0.006	0.095	0.000	0.022	Free Surface	1.94	0.27	0.16	0.18	0.176	0.598	No	0.12	4.373
13	5-21	5-20	8.000	278.521	0.014	0.147	0.000	0.035	Free Surface	3.03	0.27	0.157	0.178	0.22	0.938	Yes	0.102	4.547

486	19-8	19-7	8.000	153.565	0.065	0.313	0.000	0.081	Free Surface	6.451	0.27	0.157	0.178	0.326	1.998	Yes	0.121	3.645
147	4-7	4-6	8.000	280.230	0.006	0.094	0.000	0.021	Free Surface	1.944	0.27	0.156	0.178	0.174	0.603	Yes	0.05	2.772
220	5-8	5-7	8.000	315.394	0.068	0.312	0.000	0.081	Free Surface	6.55	0.26	0.153	0.176	0.325	2.044	Yes	0.127	3.606
236	1-42	1-39	8.000	162.145	0.001	0.044	0.000	0.009	Pressurized	0.924	0.26	0.153	0.176	0.118	0.288	Yes	0.13	1.043
207	6-2	6-1	8.000	20.092	0.048	0.261	0.000	0.066	Free Surface	5.505	0.26	0.152	0.176	0.296	1.721	No	0.051	2.438
149	4-2	4-1	8.000	340.508	0.034	0.212	0.000	0.053	Free Surface	4.59	0.26	0.147	0.173	0.266	1.449	Yes	0.059	3.652
1563	3-28	3-27	12.000	240.000	0.011	0.354	0.000	0.093	Free Surface	3.415	0.26	0.146	0.258	0.307	2.431	Yes	0.099	2.091
319	5-13	5-12	8.000	100.432	0.060	0.279	0.000	0.071	Free Surface	6.072	0.26	0.145	0.171	0.306	1.924	Yes	0.066	1.457
672	10-15	10-14	8.000	12.248	0.011	0.121	0.000	0.028	Free Surface	2.641	0.26	0.145	0.171	0.199	0.837	No	0.109	2.796
257	10-3	10-2	8.000	221.446	0.009	0.107	0.000	0.025	Free Surface	2.339	0.26	0.144	0.171	0.186	0.742	No	0.052	0.812
325	6-26	6-25	8.000	102.108	0.005	0.078	0.000	0.017	Free Surface	1.72	0.26	0.142	0.17	0.158	0.548	Yes	0.116	3.226
487	19-9	19-8	8.000	103.775	0.077	0.307	0.000	0.08	Free Surface	6.814	0.25	0.141	0.169	0.322	2.174	Yes	0.107	4.15
152	4-3	4-2	8.000	320.434	0.037	0.208	0.000	0.052	Free Surface	4.685	0.25	0.139	0.168	0.263	1.503	Yes	0.051	4.091
437	11-5	11-4	8.000	326.410	0.020	0.148	0.000	0.035	Free Surface	3.391	0.25	0.135	0.166	0.221	1.096	Yes	0.068	2.81
480	19-5	19-4	8.000	112.490	0.098	0.332	0.000	0.087	Free Surface	7.58	0.25	0.135	0.166	0.336	2.449	Yes	0.283	5.041
490	19-14	19-13	8.000	256.000	0.059	0.257	0.000	0.065	Free Surface	5.868	0.25	0.135	0.166	0.293	1.896	Yes	0.052	3.017
483	19-10	19-9	8.000	324.655	0.092	0.302	0.000	0.078	Free Surface	7.232	0.24	0.127	0.16	0.32	2.38	Yes	0.19	1.308
164	2-15	2-14	8.000	37.403	0.065	0.243	0.000	0.061	Free Surface	5.989	0.24	0.122	0.157	0.285	1.996	Yes	0.259	4.949
674	19-23	19-22	8.000	10.340	0.048	0.210	0.000	0.052	Free Surface	5.172	0.24	0.122	0.157	0.264	1.722	Yes	0.314	4.332
177	4-15	2-14	8.000	401.606	0.080	0.267	0.000	0.068	Free Surface	6.623	0.24	0.121	0.156	0.3	2.213	Yes	0.348	3.895
266	10-18	10-17	8.000	299.199	0.004	0.062	0.000	0.013	Free Surface	1.534	0.24	0.121	0.156	0.141	0.512	Yes	0.031	1.141
504	5-16	5-15	8.000	23.287	0.082	0.268	0.000	0.068	Free Surface	6.698	0.23	0.12	0.156	0.3	2.243	Yes	0.174	3.323
564	3-31	3-29	8.000	752.053	0.002	0.043	0.000	0.009	Free Surface	1.076	0.23	0.119	0.155	0.117	0.361	No	0.138	2.807
272	10-6	10-5	8.000	320.240	0.005	0.063	0.000	0.014	Free Surface	1.593	0.23	0.118	0.154	0.142	0.536	No	0.102	2.798
371	5-17	5-16	8.000	387.420	0.077	0.257	0.000	0.065	Free Surface	6.464	0.23	0.118	0.155	0.294	2.171	No	0.254	4.07
125	9-8	9-7	10.000	96.327	0.016	0.204	0.000	0.05	Free Surface	3.402	0.23	0.112	0.189	0.244	1.813	Yes	0.109	2.722
264	10-36	10-17	8.000	418.528	0.001	0.020	0.000	0.004	Free Surface	0.535	0.22	0.11	0.149	0.08	0.184	Yes	0.124	2.805
493	19-24	19-23	8.000	249.000	0.060	0.208	0.000	0.051	Free Surface	5.572	0.22	0.108	0.148	0.263	1.922	Yes	0.245	0.546
142	4-4	4-3	8.000	95.107	0.041	0.169	0.000	0.041	Free Surface	4.586	0.22	0.106	0.147	0.236	1.59	Yes	0.22	4.026
304	10-19	10-18	8.000	170.009	0.004	0.050	0.000	0.01	Free Surface	1.352	0.22	0.106	0.146	0.126	0.469	No	0.32	2.422
292	10-21	10-20	8.000	340.832	0.001	0.025	0.000	0.005	Free Surface	0.688	0.22	0.104	0.145	0.089	0.24	Yes	0.082	1.941
559	2-29	2-8	8.000	217.175	0.001	0.028	0.000	0.006	Pressurized	0.777	0.22	0.104	0.145	0.094	0.271	Yes	0.201	2.148
342	6-13	6-12	8.000	106.536	0.010	0.079	0.000	0.018	Free Surface	2.218	0.22	0.102	0.144	0.16	0.777	Yes	0.274	2.928
65	3-30	3-31	8.000	554.672	0.001	0.025	0.000	0.005	Free Surface	0.724	0.21	0.097	0.141	0.089	0.258	Yes	0.069	1.771
522	19-29	19-34	8.000	178.123	0.062	0.191	0.000	0.047	Free Surface	5.482	0.21	0.098	0.141	0.251	1.946	Yes	0.093	3.164
543	19-53	19-48	8.000	381.101	0.003	0.039	0.000	0.008	Free Surface	1.129	0.21	0.098	0.141	0.111	0.401	No	0.203	5.286
642	8-1	7-12	8.000	52.597	0.062	0.187	0.000	0.046	Free Surface	5.467	0.21	0.096	0.139	0.249	1.953	Yes	0.089	2.493
210	6-37	6-1	8.000	157.148	0.028	0.123	0.000	0.029	Free Surface	3.646	0.21	0.094	0.138	0.201	1.309	No	0.22	4.655
201	5-42	5-41	8.000	360.280	0.017	0.094	0.000	0.021	Free Surface	2.807	0.21	0.093	0.138	0.175	1.011	Yes	0.09	3.459
358	5-18	5-17	8.000	188.155	0.105	0.236	0.000	0.059	Free Surface	7.038	0.21	0.093	0.138	0.281	2.534	No	0.264	4.421
406	6-44.5	6-44	8.000	275.342	0.007	0.062	0.000	0.013	Free Surface	1.852	0.21	0.093	0.137	0.141	0.667	No	0.105	2.46
524	19-34	19-28	8.000	12.922	0.077	0.194	0.000	0.048	Free Surface	5.968	0.20	0.089	0.134	0.254	2.178	Yes	0.101	0.804
291	10-20	10-19	8.000	126.766	0.004	0.044	0.000	0.009	Free Surface	1.368	0.20	0.088	0.134	0.118	0.502	Yes	0.215	4.965
368	6-28	6-27	8.000	386.375	0.008	0.061	0.000	0.013	Free Surface	1.882	0.20	0.088	0.133	0.139	0.69	Yes	0.101	3.303
663	4-19	4-18	8.000	104.072	0.091	0.208	0.000	0.052	Free Surface	6.449	0.20	0.088	0.134	0.263	2.362	Yes	0.215	2.531
200	5-41	5-6	8.000	252.476	0.053	0.156	0.000	0.037	Free Surface	4.901	0.20	0.086	0.132	0.226	1.805	Yes	0.123	0.312
410	8-4	8-3	8.000	392.979	0.067	0.171	0.000	0.042	Free Surface	5.463	0.20	0.085	0.131	0.238	2.024	No	0.058	1.788
506	3-27	3-26	12.000	206.156	0.033	0.360	0.000	0.095	Free Surface	5.077	0.20	0.085	0.197	0.31	4.224	No	0.411	6.045
8	4-25	4-24	8.000	126.587	0.032	0.115	0.000	0.027	Free Surface	3.733	0.20	0.083	0.13	0.194	1.392	No	0.667	1.403
239	1-44	1-43	8.000	326.193	0.003	0.036	0.000	0.007	Pressurized	1.166	0.20	0.084	0.13	0.107	0.434	Yes	0.275	0.088
265	10-7	10-6	8.000	315.646	0.004	0.040	0.000	0.008	Free Surface	1.319	0.19	0.081	0.128	0.113	0.495	Yes	0.602	1.461
59	3-43	3-40	8.000	182.190	0.001	0.023	0.000	0.005	Free Surface	0.771	0.19	0.08	0.128	0.086	0.29	Yes	0.456	1.85
664	4-18	4-17	8.000	147.597	0.126	0.225	0.000	0.056	Free Surface	7.417	0.19	0.081	0.128	0.274	2.785	Yes	0.078	1.064

341	6-25	6-24	8.000	320.419	0.037	0.121	0.000	0.028	Free Surface	4.02	0.19	0.08	0.127	0.199	1.515	Yes	0.23	0.184
132	3-14	3-13	12.000	93.608	0.070	0.485	0.000	0.132	Free Surface	7.202	0.19	0.079	0.19	0.362	6.121	Yes	0.667	1.692
284	8-3	8-2	8.000	393.985	0.084	0.180	0.000	0.044	Free Surface	6.011	0.19	0.079	0.127	0.244	2.27	Yes	0.667	0.029
234	1-43	1-42	8.000	48.127	0.005	0.043	0.000	0.009	Pressurized	1.477	0.19	0.076	0.125	0.117	0.564	Yes	0.667	0.191
182	4-26	4-25	8.000	239.981	0.033	0.108	0.000	0.025	Free Surface	3.729	0.19	0.075	0.124	0.187	1.43	No	0.708	2.358
367	6-11	6-10	8.000	326.365	0.025	0.094	0.000	0.021	Free Surface	3.246	0.19	0.076	0.124	0.175	1.242	Yes	0.667	0.195
463	5-23	5-22	8.000	158.446	0.057	0.140	0.000	0.033	Free Surface	4.863	0.19	0.075	0.124	0.214	1.866	Yes	0.667	1.543
537	19-30	19-29	8.000	22.011	0.091	0.176	0.000	0.043	Free Surface	6.135	0.19	0.074	0.123	0.241	2.36	Yes	0.657	2.558
310	6-24	6-9	8.000	187.861	0.052	0.131	0.000	0.031	Free Surface	4.616	0.18	0.073	0.122	0.207	1.783	Yes	0.667	0.161
311	6-10	6-9	8.000	55.771	0.033	0.104	0.000	0.024	Free Surface	3.669	0.18	0.073	0.122	0.184	1.418	No	0.102	2.39
669	PUBLICWORKS2	PUBLICWORKS1	8.000	190.540	0.001	0.016	0.000	0.003	Pressurized	0.568	0.18	0.073	0.122	0.071	0.22	Yes	0.459	3.568
372	8-5	8-4	8.000	193.598	0.085	0.164	0.000	0.04	Free Surface	5.871	0.18	0.072	0.121	0.233	2.282	No	0.542	4.867
517	19-41	19-30	8.000	220.717	0.063	0.143	0.000	0.034	Free Surface	5.088	0.18	0.073	0.122	0.217	1.972	No	0.667	4.195
565	3-29	3-9	8.000	407.429	0.015	0.070	0.000	0.015	Free Surface	2.479	0.18	0.072	0.121	0.15	0.961	Yes	0.667	4.165
55	3-24	3-23	12.000	295.756	0.058	0.394	0.000	0.105	Free Surface	6.325	0.18	0.071	0.18	0.325	5.552	Yes	0.465	1.909
179	4-24	4-23	8.000	353.426	0.048	0.121	0.000	0.028	Free Surface	4.373	0.18	0.071	0.12	0.199	1.707	Yes	0.053	0.453
180	4-27	4-26	8.000	168.788	0.036	0.102	0.000	0.023	Free Surface	3.756	0.18	0.069	0.119	0.182	1.476	No	0.482	3.516
385	7-25	7-24	8.000	174.377	0.006	0.041	0.000	0.008	Free Surface	1.507	0.18	0.069	0.119	0.114	0.593	No	0.667	1.515
443	11-26	11-9	8.000	131.992	0.013	0.062	0.000	0.014	Free Surface	2.302	0.18	0.069	0.118	0.141	0.907	Yes	0.055	1.689
641	7-12	7-11	12.000	315.000	0.044	0.335	0.000	0.088	Free Surface	5.479	0.18	0.069	0.178	0.299	4.846	Yes	0.597	2.855
300	7-5	7-4	8.000	367.418	0.041	0.106	0.000	0.024	Free Surface	3.991	0.18	0.067	0.117	0.186	1.582	Yes	0.577	0.142
546	8-6	8-5	8.000	191.573	0.084	0.152	0.000	0.036	Free Surface	5.717	0.18	0.067	0.117	0.224	2.267	No	0.18	1.94
285	7-4	7-3	8.000	460.243	0.050	0.116	0.000	0.027	Free Surface	4.398	0.18	0.066	0.116	0.195	1.751	Yes	0.277	1.234
320	5-15	5-14	8.000	190.736	0.090	0.156	0.000	0.04	Free Surface	5.901	0.17	0.066	0.116	0.226	2.352	Yes	0.53	2.418
336	5-15	5-14	8.000	347.692	0.049	0.115	0.000	0.029	Free Surface	4.371	0.17	0.066	0.116	0.194	1.742	Yes	0.32	3.483
459	11-6	11-5	8.000	226.254	0.032	0.092	0.000	0.021	Free Surface	3.512	0.17	0.066	0.116	0.173	1.402	Yes	0.43	2.466
666	4-16	4-15	8.000	118.574	0.253	0.258	0.000	0.066	Free Surface	9.857	0.17	0.066	0.116	0.294	3.937	No	0.171	2.339
289	7-3	7-2	8.000	481.774	0.066	0.130	0.000	0.031	Free Surface	5.032	0.17	0.065	0.115	0.207	2.018	No	0.211	1.264
1035	PUBLICWORKS1	IND-1	15.000	421.482	0.001	0.093	0.000	0.021	Pressurized	1.02	0.17	0.064	0.215	0.146	1.442	No	0.224	1.809
425	2-17	2-16	8.000	239.400	0.013	0.056	0.000	0.012	Free Surface	2.178	0.17	0.064	0.114	0.134	0.877	Yes	0.034	1.727
665	4-17	4-16	8.000	237.965	0.231	0.240	0.000	0.06	Free Surface	9.346	0.17	0.064	0.114	0.283	3.765	Yes	0.435	1.607
80	2-33	2-32	8.000	175.701	0.006	0.037	0.000	0.008	Pressurized	1.461	0.17	0.063	0.113	0.109	0.591	Yes	0.235	0.905
275	10-12	10-4	8.000	337.734	0.001	0.013	0.000	0.002	Free Surface	0.515	0.17	0.063	0.113	0.064	0.209	No	0.511	1.473
347	6-12	6-11	8.000	326.639	0.029	0.084	0.000	0.019	Free Surface	3.308	0.17	0.063	0.114	0.165	1.336	Yes	0.097	0.264
17	5-24	5-23	8.000	109.859	0.082	0.139	0.000	0.033	Free Surface	5.514	0.17	0.062	0.112	0.213	2.241	Yes	0.178	0.416
668	PUBLICWORKS3	PUBLICWORKS2	8.000	285.696	0.001	0.011	0.000	0.002	Pressurized	0.442	0.17	0.062	0.113	0.059	0.179	Yes	0.141	1.15
41	3-34	3-15	8.000	224.839	0.004	0.031	0.000	0.006	Free Surface	1.275	0.17	0.06	0.111	0.1	0.522	Yes	0.182	1.241
261	10-30	10-29	8.000	269.648	0.019	0.064	0.000	0.014	Free Surface	2.604	0.17	0.06	0.111	0.144	1.066	Yes	0.071	0.71
621	8-7	8-6	8.000	349.719	0.084	0.137	0.000	0.032	Free Surface	5.553	0.17	0.06	0.111	0.212	2.273	Yes	0.058	1.063
43	3-44	3-43	8.000	417.429	0.001	0.011	0.000	0.002	Free Surface	0.467	0.17	0.06	0.111	0.06	0.192	Yes	0.093	1.585
1007	ELKSCOUNTRYCLUBLS	WW6	10.000	100.000	0.020	0.120	0.000	0.028	Free Surface	3.129	0.17	0.06	0.138	0.186	2.008	Yes	0.083	2.053
508	3-26	3-25	12.000	66.579	0.070	0.361	0.000	0.095	Free Surface	6.578	0.17	0.059	0.165	0.311	6.088	Yes	0.137	0.69
1041	PUBLICWORKS4	PUBLICWORKS3	6.000	256.228	0.001	0.006	0.000	0.001	Pressurized	0.438	0.17	0.059	0.082	0.046	0.102	Yes	0.183	1.255
205	5-43	5-42	8.000	290.000	0.031	0.081	0.000	0.018	Free Surface	3.34	0.16	0.059	0.109	0.161	1.38	Yes	0.215	1.686
188	6-44	6-43	8.000	259.842	0.022	0.067	0.000	0.015	Free Surface	2.796	0.16	0.058	0.109	0.146	1.161	Yes	0.107	2.129
326	6-59	6-58	8.000	114.066	0.009	0.041	0.000	0.008	Free Surface	1.751	0.16	0.056	0.107	0.114	0.733	Yes	0.147	0.355
526	19-45	19-41	8.000	170.519	0.076	0.122	0.000	0.029	Free Surface	5.18	0.16	0.057	0.108	0.2	2.162	Yes	0.114	0.69
424	2-25.5	2-25	8.000	224.098	0.013	0.049	0.000	0.01	Free Surface	2.147	0.16	0.055	0.106	0.125	0.906	No	0.241	4.746
438	11-20	11-19	8.000	227.000	0.004	0.028	0.000	0.006	Free Surface	1.229	0.16	0.054	0.105	0.094	0.52	Yes	0.348	3.078
144	4-8	4-7	8.000	118.026	0.038	0.081	0.000	0.018	Free Surface	3.589	0.16	0.053	0.105	0.162	1.524	No	0.206	6.057
219	5-54	5-53	8.000	338.000	0.018	0.056	0.000	0.012	Free Surface	2.46	0.16	0.054	0.105	0.134	1.043	Yes	0.047	1.156
253	10-2	10-1	8.000	30.000	0.067	0.109	0.000	0.025	Free Surface	4.795	0.16	0.054	0.105	0.188	2.032	Yes	0.121	6.673
274	10-31	10-30	8.000	328.000	0.015	0.050	0.000	0.011	Free Surface	2.253	0.15	0.051	0.103	0.126	0.967	No	0.491	2.707

280	8-2	8-1	8.000	76.648	0.217	0.186	0.000	0.046	Free Surface	8.487	0.15	0.051	0.102	0.248	3.652	No	0.083	8.733
303	10-8	10-7	8.000	307.332	0.004	0.025	0.000	0.005	Free Surface	1.126	0.15	0.051	0.103	0.089	0.483	No	0.03	3.144
24	5-79	5-78	8.000	288.886	0.017	0.052	0.000	0.011	Free Surface	2.39	0.15	0.051	0.102	0.129	1.03	No	0.127	6.011
202	5-53	5-52	8.000	42.025	0.024	0.061	0.000	0.013	Free Surface	2.798	0.15	0.05	0.102	0.14	1.208	No	0.116	4.398
509	3-25	3-24	12.000	288.678	0.103	0.374	0.000	0.099	Free Surface	7.636	0.15	0.05	0.153	0.316	7.422	Yes	0.045	1.295
169	2-20	2-18	8.000	336.384	0.006	0.030	0.000	0.006	Free Surface	1.393	0.15	0.05	0.101	0.098	0.604	Yes	0.039	1.896
518	19-47	19-45	8.000	104.396	0.086	0.113	0.000	0.026	Free Surface	5.287	0.15	0.049	0.101	0.192	2.299	No	0.049	2.241
1145	HERITAGE15	HERITAGE14	8.000	82.000	0.006	0.030	0.000	0.006	Free Surface	1.409	0.15	0.05	0.101	0.098	0.611	No	0.115	5.032
39	11-17	11-5	8.000	273.476	0.023	0.058	0.000	0.012	Free Surface	2.734	0.15	0.048	0.1	0.136	1.195	Yes	0.034	1.446
75	IND-9	IND-8	12.000	463.726	0.002	0.052	0.000	0.011	Free Surface	1.093	0.15	0.049	0.15	0.116	1.072	Yes	0.101	0.447
629	7-17	CRUSHERCANYON7	12.000	197.000	0.005	0.080	0.000	0.018	Free Surface	1.677	0.15	0.049	0.15	0.144	1.645	Yes	0.14	1.279
1110	CRUSHERCANYON8	7-17	8.000	19.120	0.043	0.078	0.000	0.017	Pressurized	3.721	0.15	0.048	0.099	0.159	1.632	No	0.145	0.688
196	5-60	5-34	8.000	279.523	0.035	0.069	0.000	0.015	Free Surface	3.338	0.15	0.047	0.099	0.149	1.47	Yes	0.092	0.923
445	11-31	11-27	8.000	87.794	0.011	0.039	0.000	0.008	Free Surface	1.897	0.15	0.047	0.099	0.112	0.836	No	0.046	1.516
1107	GOODLANDER8	GOODLANDER1	8.000	156.621	0.003	0.021	0.000	0.004	Free Surface	1.007	0.15	0.048	0.099	0.081	0.442	Yes	0.045	0.977
605	HERITAGE16	HERITAGE15	8.000	80.088	0.006	0.029	0.000	0.006	Free Surface	1.399	0.15	0.047	0.098	0.095	0.619	Yes	0.089	0.733
251	1-45	1-44	8.000	445.400	0.007	0.029	0.000	0.006	Free Surface	1.447	0.15	0.046	0.097	0.097	0.643	Yes	0.039	1.58
436	11-15	11-4	8.000	267.409	0.003	0.019	0.000	0.004	Free Surface	0.937	0.15	0.045	0.097	0.077	0.417	Yes	0.042	1.519
378	7-24	7-23	8.000	194.449	0.026	0.055	0.000	0.012	Free Surface	2.789	0.14	0.044	0.095	0.133	1.256	Yes	0.084	1.577
514	19-49	19-48	8.000	219.684	0.036	0.066	0.000	0.014	Free Surface	3.325	0.14	0.044	0.095	0.145	1.494	No	0.059	2.6
11	5-26	5-25	8.000	71.707	0.028	0.057	0.000	0.012	Free Surface	2.894	0.14	0.043	0.095	0.135	1.308	Yes	0.037	2.379
191	4-28	4-27	8.000	223.474	0.081	0.097	0.000	0.022	Free Surface	4.929	0.14	0.044	0.095	0.177	2.222	No	0.117	3.991
345	6-14	6-13	8.000	113.190	0.045	0.073	0.000	0.016	Free Surface	3.703	0.14	0.044	0.095	0.153	1.669	Yes	0.357	3.978
639	CRUSHERCANYON2	CRUSHERCANYON1	12.000	247.000	0.027	0.165	0.000	0.04	Free Surface	3.724	0.14	0.044	0.142	0.208	3.777	Yes	0.09	1.041
45	3-35	3-34	8.000	303.614	0.003	0.019	0.000	0.004	Free Surface	0.986	0.14	0.042	0.093	0.077	0.449	Yes	0.116	0.95
190	6-43	6-37	8.000	190.502	0.066	0.085	0.000	0.019	Free Surface	4.418	0.14	0.042	0.093	0.165	2.016	Yes	0.151	1.288
516	19-48	19-47	8.000	151.850	0.112	0.110	0.000	0.025	Free Surface	5.749	0.14	0.042	0.093	0.189	2.62	Yes	0.07	1.576
67	IND-10	IND-9	12.000	426.261	0.002	0.046	0.000	0.01	Free Surface	1.085	0.14	0.041	0.139	0.109	1.118	No	0.667	4.108
90	2-25	2-7	8.000	217.039	0.031	0.057	0.000	0.012	Pressurized	2.99	0.14	0.041	0.093	0.135	1.369	Yes	0.105	2.515
221	5-44	5-43	8.000	271.290	0.048	0.071	0.000	0.016	Free Surface	3.746	0.14	0.042	0.093	0.151	1.714	Yes	0.307	2.241
327	6-27	6-26	8.000	202.415	0.047	0.070	0.000	0.015	Free Surface	3.704	0.14	0.041	0.093	0.15	1.696	Yes	0.35	1.934
82	2-31	2-9	8.000	147.035	0.019	0.044	0.000	0.009	Pressurized	2.352	0.14	0.041	0.092	0.118	1.083	No	0.064	1.028
89	2-16	2-5	8.000	298.560	0.044	0.067	0.000	0.015	Free Surface	3.567	0.14	0.041	0.092	0.147	1.64	Yes	0.179	2.696
418	4-9	4-8	8.000	141.320	0.032	0.057	0.000	0.012	Free Surface	3.063	0.14	0.041	0.092	0.135	1.41	Yes	0.178	2.139
510	19-50	19-49	8.000	230.928	0.035	0.059	0.000	0.013	Free Surface	3.168	0.14	0.041	0.092	0.138	1.458	Yes	0.076	0.777
416	7-23	7-5	8.000	324.589	0.055	0.075	0.000	0.016	Free Surface	3.998	0.14	0.04	0.091	0.155	1.844	Yes	0.256	2.792
18	5-25	5-24	8.000	240.000	0.100	0.099	0.000	0.023	Free Surface	5.348	0.14	0.04	0.091	0.179	2.476	Yes	0.037	1.439
671	10-32	10-31	8.000	45.103	0.022	0.046	0.000	0.01	Free Surface	2.505	0.14	0.039	0.09	0.121	1.166	No	0.077	0.773
22	5-93	5-24	8.000	302.875	0.003	0.017	0.000	0.003	Free Surface	0.96	0.13	0.038	0.089	0.074	0.45	Yes	0.112	0.439
393	7-18	CRUSHERCANYON8	8.000	32.365	0.011	0.032	0.000	0.006	Free Surface	1.764	0.13	0.038	0.089	0.1	0.826	Yes	0.075	2.36
83	2-34	2-33	8.000	305.012	0.010	0.029	0.000	0.006	Free Surface	1.648	0.13	0.038	0.088	0.096	0.777	Yes	0.057	2.64
343	6-15	6-14	8.000	88.161	0.038	0.058	0.000	0.012	Free Surface	3.262	0.13	0.038	0.089	0.136	1.536	No	0.171	6.072
359	5-73	5-19	8.000	221.584	0.071	0.079	0.000	0.018	Free Surface	4.436	0.13	0.038	0.089	0.16	2.082	No	0.054	2.259
217	5-45	5-44	8.000	210.182	0.048	0.063	0.000	0.014	Free Surface	3.605	0.13	0.037	0.088	0.142	1.708	Yes	0.194	2.841
213	5-61	5-60	8.000	334.244	0.045	0.060	0.000	0.013	Free Surface	3.482	0.13	0.036	0.087	0.139	1.659	Yes	0.193	5.2
168	2-18	2-17	8.000	90.818	0.033	0.050	0.000	0.011	Free Surface	2.956	0.13	0.035	0.085	0.126	1.423	No	0.053	2.241
636	CRUSHERCANYON4	CRUSHERCANYON3	12.000	189.059	0.034	0.149	0.000	0.035	Free Surface	3.909	0.13	0.035	0.128	0.197	4.231	Yes	0.064	1.005
204	5-52	5-41	8.000	156.000	0.058	0.065	0.000	0.014	Free Surface	3.894	0.13	0.035	0.085	0.145	1.881	No	0.17	1.72
1111	GOODLANDER10	GOODLANDER9	8.000	290.176	0.003	0.016	0.000	0.003	Free Surface	0.95	0.13	0.034	0.085	0.07	0.46	No	0.107	1.751
444	11-9	11-8	8.000	16.779	0.107	0.086	0.000	0.019	Free Surface	5.265	0.13	0.034	0.084	0.167	2.565	Yes	0.131	2.238
503	6-29	6-28	8.000	376.394	0.035	0.049	0.000	0.01	Free Surface	2.986	0.13	0.034	0.084	0.125	1.455	Yes	0.103	2.066
542	19-31	19-29	8.000	214.000	0.005	0.018	0.000	0.003	Free Surface	1.099	0.13	0.034	0.084	0.075	0.535	Yes	0.071	1.644
66	IND-11	IND-10	12.000	324.967	0.002	0.030	0.000	0.006	Pressurized	0.824	0.13	0.033	0.125	0.088	0.906	Yes	0.076	3.663

282	7-2	7-1	8.000	245.000	0.298	0.142	0.000	0.034	Free Surface	8.733	0.13	0.033	0.083	0.215	4.274	Yes	0.071	1.282
409	5-62	5-61	8.000	518.081	0.033	0.047	0.000	0.01	Free Surface	2.903	0.13	0.033	0.083	0.123	1.419	Yes	0.095	1.919
687	2-26	2-25.5	8.000	467.116	0.019	0.036	0.000	0.007	Free Surface	2.226	0.13	0.033	0.083	0.107	1.087	Yes	0.097	0.688
47	3-40	3-39	10.000	87.581	0.006	0.035	0.000	0.007	Free Surface	1.395	0.12	0.033	0.103	0.099	1.073	Yes	0.033	1.818
302	1-46	1-45	8.000	369.014	0.005	0.019	0.000	0.004	Free Surface	1.175	0.12	0.033	0.083	0.077	0.576	Yes	0.042	2.228
637	CRUSHERCANYON3	CRUSHERCANYON2	12.000	226.009	0.040	0.151	0.000	0.036	Free Surface	4.179	0.12	0.033	0.124	0.199	4.618	Yes	0.054	1.117
650	5-37	5-35	8.000	149.930	0.023	0.039	0.000	0.008	Free Surface	2.412	0.12	0.033	0.083	0.111	1.186	Yes	0.194	2.104
52	3-38	3-37	10.000	308.985	0.010	0.045	0.000	0.009	Free Surface	1.813	0.12	0.032	0.102	0.113	1.399	Yes	0.045	1.523
77	2-30	2-29	8.000	85.161	0.006	0.019	0.000	0.004	Pressurized	1.216	0.12	0.032	0.082	0.078	0.6	Yes	0.058	2.186
141	4-5	4-4	12.000	459.427	0.037	0.142	0.000	0.034	Free Surface	3.974	0.12	0.032	0.123	0.193	4.412	No	0.062	4.58
209	5-38	5-37	8.000	263.504	0.015	0.031	0.000	0.006	Free Surface	1.952	0.12	0.032	0.082	0.099	0.965	No	0.364	1.876
331	6-60	6-59	8.000	91.045	0.022	0.038	0.000	0.008	Free Surface	2.355	0.12	0.032	0.082	0.109	1.161	No	0.127	4.02
441	11-7	11-6	8.000	95.514	0.120	0.087	0.000	0.02	Free Surface	5.502	0.12	0.032	0.082	0.168	2.717	No	0.144	2.218
612	BRAEBURN1	4-54	8.000	249.323	0.028	0.042	0.000	0.009	Free Surface	2.651	0.12	0.032	0.082	0.115	1.312	Yes	0.092	3.097
293	10-9	10-8	8.000	145.529	0.005	0.017	0.000	0.003	Free Surface	1.104	0.12	0.032	0.082	0.074	0.547	Yes	0.067	1.416
127	9-15.5	9-15	8.000	160.000	0.018	0.033	0.000	0.007	Free Surface	2.125	0.12	0.031	0.081	0.102	1.058	Yes	0.119	2.658
467	5-27	5-26	8.000	368.020	0.043	0.051	0.000	0.011	Free Surface	3.273	0.12	0.031	0.081	0.127	1.633	Yes	0.063	0.746
620	HERITAGE1	8-7	8.000	146.092	0.113	0.081	0.000	0.018	Free Surface	5.257	0.12	0.031	0.08	0.162	2.631	Yes	0.119	3.095
442	11-8	11-7	8.000	15.000	0.137	0.086	0.000	0.019	Free Surface	5.732	0.12	0.03	0.079	0.167	2.895	Yes	0.045	1.63
206	5-30	5-5	8.000	249.798	0.031	0.041	0.000	0.008	Free Surface	2.739	0.12	0.03	0.079	0.114	1.386	No	0.072	2.953
328	6-58	6-25	8.000	180.266	0.039	0.046	0.000	0.01	Free Surface	3.051	0.12	0.03	0.079	0.121	1.543	Yes	0.037	1.776
411	5-46	5-45	8.000	527.850	0.051	0.052	0.000	0.011	Free Surface	3.493	0.12	0.029	0.079	0.129	1.771	Yes	0.065	2.839
676	3-37	3-18	10.000	39.944	0.013	0.047	0.000	0.01	Free Surface	2.009	0.12	0.03	0.099	0.115	1.589	Yes	0.073	3.68
1113	GOODLANDER11	GOODLANDER10	8.000	287.490	0.002	0.010	0.000	0.002	Free Surface	0.644	0.12	0.029	0.079	0.055	0.327	Yes	0.04	1.5
64	3-32	3-30	8.000	55.291	0.005	0.017	0.000	0.003	Free Surface	1.131	0.12	0.029	0.078	0.072	0.577	Yes	0.101	1.105
315	5-64	5-63	8.000	389.816	0.003	0.011	0.000	0.002	Free Surface	0.773	0.12	0.028	0.077	0.059	0.397	Yes	0.044	1.358
376	8-8	8-7	8.000	335.687	0.070	0.059	0.000	0.013	Free Surface	4.043	0.12	0.028	0.077	0.137	2.071	No	0.061	1.727
521	19-42	19-41	8.000	230.008	0.009	0.021	0.000	0.004	Free Surface	1.422	0.12	0.028	0.077	0.081	0.73	Yes	0.09	1.086
643	7-11.5	7-11	8.000	75.222	0.002	0.009	0.000	0.002	Free Surface	0.637	0.12	0.029	0.078	0.054	0.326	Yes	0.035	2.48
37	11-21	11-20	8.000	214.000	0.009	0.021	0.000	0.004	Free Surface	1.473	0.12	0.028	0.077	0.082	0.757	Yes	0.146	6.453
143	4-6	4-5	12.000	262.572	0.032	0.116	0.000	0.027	Free Surface	3.564	0.12	0.028	0.115	0.174	4.12	Yes	0.148	2.13
173	5-28	5-3	8.000	378.865	0.031	0.038	0.000	0.008	Free Surface	2.662	0.12	0.028	0.077	0.11	1.371	Yes	0.056	1.657
270	10-33	10-32	8.000	301.270	0.023	0.033	0.000	0.007	Free Surface	2.32	0.12	0.028	0.077	0.103	1.194	Yes	0.072	5.372
402	5-82	5-81	8.000	275.396	0.015	0.026	0.000	0.005	Free Surface	1.829	0.12	0.028	0.076	0.091	0.944	Yes	0.081	4.729
670	9-12	9-11	10.000	9.522	0.152	0.153	0.000	0.037	Free Surface	6.856	0.11	0.028	0.095	0.21	5.541	Yes	0.049	0.523
48	3-39	3-38	10.000	204.612	0.010	0.038	0.000	0.008	Free Surface	1.724	0.11	0.027	0.094	0.103	1.404	No	0.207	3.658
63	3-33	3-32	8.000	242.000	0.002	0.010	0.000	0.002	Free Surface	0.685	0.11	0.027	0.076	0.055	0.356	No	0.038	1.322
649	6-46	6-45	8.000	40.016	0.022	0.031	0.000	0.006	Free Surface	2.22	0.11	0.027	0.075	0.099	1.155	No	0.04	2.262
135	4-11	4-10	8.000	380.036	0.050	0.047	0.000	0.01	Free Surface	3.34	0.11	0.027	0.075	0.122	1.746	No	0.035	1.086
230	1-29	1-28	8.000	192.000	0.004	0.013	0.000	0.002	Free Surface	0.915	0.11	0.026	0.075	0.063	0.48	No	0.124	3.246
598	HERITAGE20	HERITAGE19	8.000	175.463	0.006	0.016	0.000	0.003	Free Surface	1.129	0.11	0.026	0.075	0.07	0.591	No	0.133	1.882
27	5-89	5-24	8.000	134.375	0.022	0.030	0.000	0.006	Free Surface	2.221	0.11	0.026	0.074	0.098	1.17	Yes	0.053	2.095
109	1-36	1-35	8.000	51.649	0.004	0.014	0.000	0.003	Pressurized	0.994	0.11	0.026	0.074	0.065	0.523	Yes	0.091	1.151
215	5-55	5-54	8.000	403.817	0.050	0.045	0.000	0.009	Free Surface	3.301	0.11	0.026	0.074	0.119	1.743	Yes	0.033	1.804
276	10-10	10-6	8.000	417.238	0.008	0.018	0.000	0.003	Free Surface	1.292	0.11	0.026	0.074	0.075	0.679	Yes	0.155	6.438
446	11-27	11-26	8.000	252.875	0.067	0.053	0.000	0.011	Free Surface	3.866	0.11	0.026	0.074	0.13	2.03	Yes	0.126	5.537
133	4-10	4-9	8.000	121.467	0.071	0.053	0.000	0.011	Free Surface	3.921	0.11	0.025	0.073	0.13	2.08	Yes	0.047	3.707
307	6-45	6-44.5	8.000	37.975	0.082	0.058	0.000	0.012	Free Surface	4.252	0.11	0.026	0.074	0.136	2.248	No	0.059	2.153
631	CRUSHERCANYON6	CRUSHERCANYON5	12.000	148.000	0.034	0.108	0.000	0.025	Free Surface	3.563	0.11	0.026	0.11	0.168	4.244	Yes	0.036	1.745
7	4-54	4-28	8.000	134.133	0.142	0.073	0.000	0.016	Free Surface	5.518	0.11	0.025	0.072	0.153	2.947	Yes	0.094	3.03
97	IND-6	IND-5	15.000	260.643	0.003	0.061	0.000	0.013	Free Surface	1.311	0.11	0.025	0.136	0.118	2.46	Yes	0.078	0.938
130	IND-7	IND-6	15.000	315.858	0.003	0.059	0.000	0.013	Free Surface	1.256	0.11	0.025	0.136	0.116	2.355	No	0.095	2.789
675	4-23	4-22	8.000	3.259	0.430	0.130	0.000	0.03	Free Surface	9.664	0.11	0.025	0.073	0.206	5.133	Yes	0.062	1.33

95	IND-4	IND-3	15.000	229.741	0.004	0.067	0.000	0.015	Free Surface	1.463	0.11	0.024	0.134	0.124	2.762	Yes	0.05	2.074
349	6-17	6-16	8.000	150.603	0.041	0.039	0.000	0.008	Free Surface	2.953	0.11	0.024	0.072	0.111	1.585	Yes	0.063	1.033
361	5-74	5-73	8.000	159.735	0.144	0.073	0.000	0.016	Free Surface	5.555	0.11	0.025	0.072	0.153	2.971	Yes	0.032	1.233
396	5-80	5-79	8.000	200.721	0.060	0.047	0.000	0.01	Free Surface	3.583	0.11	0.025	0.072	0.123	1.915	No	0.057	2.602
634	CRUSHERCANYON5	CRUSHERCANYON4	12.000	363.020	0.044	0.120	0.000	0.028	Free Surface	4.027	0.11	0.025	0.108	0.176	4.847	No	0.059	3.207
640	CRUSHERCANYON1	7-12	12.000	76.000	0.089	0.167	0.000	0.041	Free Surface	5.694	0.11	0.024	0.108	0.209	6.881	Yes	0.086	2.046
360	5-75	5-74	8.000	121.039	0.140	0.070	0.000	0.015	Free Surface	5.434	0.11	0.024	0.071	0.15	2.935	No	0.119	1.507
563	LYLE1	19-13	8.000	102.000	0.010	0.018	0.000	0.003	Free Surface	1.428	0.11	0.023	0.07	0.076	0.775	Yes	0.057	3.084
70	IND-8	IND-7	15.000	310.105	0.003	0.055	0.000	0.012	Free Surface	1.24	0.11	0.023	0.131	0.112	2.377	Yes	0.047	1.565
100	IND-2	PUBLICWORKS1	15.000	483.066	0.006	0.077	0.000	0.017	Pressurized	1.722	0.11	0.023	0.131	0.132	3.299	Yes	0.034	2.052
395	5-81	5-80	8.000	217.985	0.032	0.033	0.000	0.007	Free Surface	2.579	0.11	0.023	0.07	0.102	1.403	Yes	0.032	1.01
644	6-46.25	6-46	8.000	267.714	0.022	0.027	0.000	0.005	Free Surface	2.153	0.11	0.023	0.07	0.093	1.172	Yes	0.133	1.812
1065	APPLE3	APPLE2	8.000	327.382	0.018	0.024	0.000	0.005	Free Surface	1.941	0.11	0.023	0.07	0.088	1.06	Yes	0.05	0.986
1119	HERITAGE2	HERITAGE1	8.000	234.000	0.179	0.077	0.000	0.017	Free Surface	6.079	0.11	0.023	0.07	0.157	3.318	Yes	0.048	2.692
79	2-32	2-31	8.000	19.172	0.052	0.040	0.000	0.008	Pressurized	3.25	0.10	0.022	0.069	0.113	1.788	Yes	0.051	2.173
98	IND-3	IND-2	15.000	348.242	0.006	0.072	0.000	0.016	Free Surface	1.648	0.10	0.023	0.13	0.129	3.172	Yes	0.121	1.139
162	4-41	4-3	8.000	566.663	0.056	0.042	0.000	0.009	Free Surface	3.377	0.10	0.023	0.069	0.115	1.855	Yes	0.069	2.282
403	8-9	8-8	8.000	488.331	0.074	0.048	0.000	0.01	Free Surface	3.864	0.10	0.022	0.069	0.123	2.126	Yes	0.071	2.525
1093	GOODLANDER1	19-51	8.000	33.917	0.088	0.052	0.000	0.011	Free Surface	4.225	0.10	0.022	0.069	0.129	2.329	Yes	0.087	2.725
134	4-12	4-11	8.000	162.946	0.050	0.038	0.000	0.008	Free Surface	3.15	0.10	0.022	0.068	0.11	1.752	Yes	0.058	3.416
1109	GOODLANDER9	GOODLANDER8	8.000	215.788	0.012	0.018	0.000	0.003	Free Surface	1.517	0.10	0.022	0.068	0.076	0.843	Yes	0.043	1.619
76	IND-12	IND-11	12.000	339.216	0.001	0.019	0.000	0.004	Pressurized	0.703	0.10	0.021	0.101	0.069	0.886	Yes	0.064	5.165
271	10-26	10-17	8.000	298.300	0.019	0.023	0.000	0.004	Free Surface	1.941	0.10	0.021	0.067	0.085	1.085	Yes	0.044	1.219
451	11-35	11-34	8.000	156.000	0.006	0.013	0.000	0.002	Free Surface	1.121	0.10	0.021	0.067	0.065	0.627	Yes	0.075	0.607
1116	5-48	5-47	8.000	190.730	0.052	0.038	0.000	0.008	Free Surface	3.211	0.10	0.021	0.067	0.11	1.793	Yes	0.036	2.076
175	2-21	2-20	8.000	521.723	0.010	0.016	0.000	0.003	Free Surface	1.367	0.10	0.021	0.067	0.071	0.767	Yes	0.059	2.027
317	5-63	5-62	8.000	347.590	0.040	0.033	0.000	0.007	Free Surface	2.8	0.10	0.021	0.067	0.102	1.572	No	0.076	1.829
465	5-91	5-90	8.000	223.588	0.009	0.015	0.000	0.003	Free Surface	1.314	0.10	0.021	0.066	0.069	0.741	Yes	0.073	3.549
609	HERITAGE4	HERITAGE3	8.000	148.819	0.067	0.042	0.000	0.009	Free Surface	3.6	0.10	0.021	0.066	0.116	2.03	Yes	0.054	1.577
23	5-95	5-25	8.000	301.007	0.010	0.016	0.000	0.003	Free Surface	1.377	0.10	0.02	0.066	0.07	0.782	Yes	0.068	5.43
1114	5-47	5-46	8.000	96.370	0.073	0.043	0.000	0.009	Free Surface	3.733	0.10	0.021	0.066	0.117	2.11	No	0.137	1.852
96	IND-5	IND-4	15.000	172.808	0.006	0.064	0.000	0.014	Free Surface	1.59	0.10	0.02	0.122	0.121	3.184	Yes	0.046	1.573
148	4-55	4-15	6.000	486.689	0.007	0.006	0.000	0.001	Free Surface	0.966	0.10	0.02	0.049	0.047	0.31	Yes	0.208	4.132
170	5-29	5-28	8.000	240.000	0.029	0.027	0.000	0.005	Free Surface	2.348	0.10	0.02	0.065	0.092	1.337	Yes	0.085	2.818
405	5-77	5-75	8.000	117.646	0.179	0.066	0.000	0.014	Free Surface	5.796	0.10	0.02	0.065	0.145	3.308	Yes	0.204	0.537
645	6-46.5	6-46.25	8.000	282.588	0.011	0.016	0.000	0.003	Free Surface	1.415	0.10	0.02	0.065	0.071	0.807	No	0.131	5.463
1108	7-14	CRUSHERCANYON4	8.000	19.120	0.043	0.033	0.000	0.007	Free Surface	2.867	0.10	0.02	0.065	0.102	1.632	Yes	0.083	3.22
111	1-37	1-36	8.000	209.556	0.005	0.011	0.000	0.002	Pressurized	0.941	0.10	0.019	0.064	0.057	0.541	Yes	0.068	2.664
1118	IND-1	213	15.000	699.000	0.014	0.097	0.000	0.022	Pressurized	2.428	0.10	0.02	0.122	0.149	4.88	Yes	0.207	4.908
31	8-13	8-10	8.000	174.633	0.006	0.011	0.000	0.002	Free Surface	1.028	0.10	0.019	0.064	0.06	0.593	No	0.051	0.819
155	4-42	4-41	8.000	122.058	0.049	0.033	0.000	0.007	Free Surface	3.014	0.10	0.019	0.064	0.103	1.736	Yes	0.037	1.799
530	19-35	19-30	8.000	140.009	0.071	0.040	0.000	0.008	Free Surface	3.622	0.10	0.019	0.064	0.113	2.093	Yes	0.104	3.305
633	7-15	CRUSHERCANYON5	8.000	20.000	0.005	0.011	0.000	0.002	Free Surface	0.96	0.10	0.019	0.064	0.058	0.554	Yes	0.08	0.651
449	11-10	11-9	8.000	277.933	0.036	0.028	0.000	0.006	Free Surface	2.566	0.10	0.019	0.063	0.094	1.489	Yes	0.098	2.776
1157	HERITAGE21	HERITAGE20	8.000	336.000	0.003	0.008	0.000	0.001	Free Surface	0.735	0.10	0.019	0.063	0.05	0.427	Yes	0.061	0.95
138	4-13	4-12	8.000	257.985	0.048	0.032	0.000	0.006	Free Surface	2.928	0.09	0.018	0.063	0.1	1.709	No	0.298	3.808
145	4-47	4-7	8.000	205.675	0.005	0.010	0.000	0.002	Free Surface	0.975	0.09	0.018	0.063	0.057	0.57	Yes	0.077	1.434
146	4-48	4-8	8.000	211.465	0.031	0.025	0.000	0.005	Free Surface	2.369	0.09	0.018	0.063	0.089	1.386	Yes	0.161	0.207
305	10-34	10-33	8.000	265.000	0.019	0.020	0.000	0.004	Free Surface	1.841	0.09	0.018	0.063	0.079	1.076	Yes	0.166	0.265
399	5-78	5-77	8.000	126.765	0.158	0.057	0.000	0.012	Free Surface	5.317	0.09	0.018	0.063	0.135	3.11	Yes	0.667	2.249
512	19-51	19-50	8.000	277.391	0.144	0.055	0.000	0.012	Free Surface	5.091	0.09	0.018	0.063	0.132	2.974	Yes	0.667	0.219
412	5-56	5-55	8.000	360.000	0.053	0.032	0.000	0.006	Free Surface	3.048	0.09	0.018	0.062	0.101	1.799	No	0.114	2.178
500	6-33	6-29	8.000	151.000	0.040	0.028	0.000	0.006	Free Surface	2.648	0.09	0.018	0.062	0.094	1.561	No	0.376	2.465

535	19-56.25	19-56	4.000	42.041	0.119	0.008	0.000	0.001	Free Surface	2.879	0.09	0.018	0.031	0.058	0.425	Yes	0.667	1.706
34	11-19	11-18	8.000	183.712	0.120	0.048	0.000	0.01	Free Surface	4.58	0.09	0.018	0.062	0.123	2.71	No	0.441	4.205
174	2-27	2-26	8.000	494.084	0.022	0.021	0.000	0.004	Free Surface	1.977	0.09	0.018	0.062	0.081	1.168	No	0.612	1.435
324	5-65	5-63	8.000	300.507	0.007	0.011	0.000	0.002	Free Surface	1.075	0.09	0.017	0.061	0.059	0.639	Yes	0.119	0.42
355	5-68	5-67	8.000	234.393	0.017	0.018	0.000	0.003	Free Surface	1.727	0.09	0.018	0.061	0.075	1.023	Yes	0.08	1.075
159	4-38	4-37	8.000	209.417	0.005	0.009	0.000	0.002	Free Surface	0.904	0.09	0.017	0.06	0.054	0.541	Yes	0.235	1.948
1087	FIRST2	FIRST1	8.000	175.000	0.006	0.010	0.000	0.002	Free Surface	0.989	0.09	0.017	0.06	0.056	0.592	No	0.26	1.342
176	2-19	2-18	8.000	523.193	0.010	0.013	0.000	0.002	Free Surface	1.274	0.09	0.017	0.06	0.063	0.766	Yes	0.271	2.031
186	6-38	6-37	8.000	281.022	0.111	0.044	0.000	0.009	Free Surface	4.353	0.09	0.017	0.06	0.118	2.615	Yes	0.202	2.938
329	6-61	6-60	8.000	38.376	0.026	0.021	0.000	0.004	Free Surface	2.106	0.09	0.017	0.06	0.082	1.264	Yes	0.072	0.548
330	6-64	6-60	8.000	127.000	0.016	0.017	0.000	0.003	Free Surface	1.639	0.09	0.017	0.06	0.072	0.983	Yes	0.151	0.494
1143	HERITAGE14	HERITAGE13	8.000	82.000	0.061	0.032	0.000	0.006	Free Surface	3.21	0.09	0.017	0.06	0.101	1.934	Yes	0.186	2.894
383	7-27	7-26	8.000	97.317	0.062	0.032	0.000	0.006	Free Surface	3.207	0.09	0.016	0.059	0.1	1.944	No	0.105	1.229
419	4-51	4-13	8.000	364.317	0.006	0.010	0.000	0.002	Free Surface	0.99	0.09	0.016	0.059	0.055	0.599	No	0.039	1.105
529	19-36	19-35	8.000	136.913	0.073	0.035	0.000	0.007	Free Surface	3.501	0.09	0.016	0.06	0.105	2.116	No	0.534	1.652
1073	BRAEBURN2	BRAEBURN1	8.000	249.323	0.084	0.037	0.000	0.008	Free Surface	3.745	0.09	0.016	0.059	0.108	2.273	No	0.205	2.88
3	6-19	6-18	8.000	123.184	0.041	0.025	0.000	0.005	Free Surface	2.6	0.09	0.016	0.059	0.09	1.582	Yes	0.099	4.187
88	2-24	2-23	8.000	435.773	0.014	0.015	0.000	0.003	Free Surface	1.504	0.09	0.016	0.059	0.068	0.919	Yes	0.081	5.582
374	7-44	7-43	8.000	320.347	0.028	0.021	0.000	0.004	Free Surface	2.153	0.09	0.016	0.059	0.081	1.313	No	0.118	2.302
420	4-29	4-28	8.000	252.056	0.028	0.021	0.000	0.004	Free Surface	2.135	0.09	0.016	0.058	0.081	1.305	No	0.084	5.265
422	4-31	4-1	8.000	373.663	0.009	0.012	0.000	0.002	Free Surface	1.201	0.09	0.016	0.059	0.06	0.734	No	0.099	1.897
495	19-19	19-18	8.000	159.500	0.019	0.017	0.000	0.003	Free Surface	1.763	0.09	0.016	0.059	0.073	1.074	Yes	0.096	2.648
40	3-36	3-35	8.000	198.992	0.005	0.009	0.000	0.001	Free Surface	0.901	0.09	0.015	0.058	0.052	0.555	Yes	0.075	0.934
185	6-39	6-38	8.000	93.862	0.085	0.036	0.000	0.007	Free Surface	3.734	0.09	0.016	0.058	0.107	2.286	Yes	0.073	0.498
224	4-35	4-34	8.000	409.381	0.020	0.017	0.000	0.003	Free Surface	1.788	0.09	0.016	0.058	0.074	1.095	Yes	0.074	2.062
466	5-90	5-89	8.000	337.410	0.039	0.024	0.000	0.005	Free Surface	2.496	0.09	0.015	0.058	0.087	1.537	Yes	0.102	0.864
550	11-11	11-10	8.000	327.786	0.034	0.022	0.000	0.004	Free Surface	2.348	0.09	0.016	0.058	0.084	1.443	Yes	0.028	1.609
193	5-31	5-30	8.000	286.192	0.080	0.034	0.000	0.007	Free Surface	3.598	0.09	0.015	0.058	0.104	2.22	No	0.067	1.121
350	6-18	6-17	8.000	389.567	0.072	0.032	0.000	0.006	Free Surface	3.382	0.09	0.015	0.057	0.1	2.094	Yes	0.033	1.593
382	7-20	7-19	8.000	47.222	0.042	0.024	0.000	0.005	Free Surface	2.602	0.09	0.015	0.057	0.088	1.612	Yes	0.042	1.938
595	NACHES5	177TH1	8.000	139.590	0.115	0.041	0.000	0.008	Free Surface	4.292	0.09	0.015	0.058	0.114	2.651	Yes	0.074	1.908
596	177TH1	5-27	8.000	139.589	0.136	0.044	0.000	0.009	Free Surface	4.681	0.09	0.015	0.058	0.119	2.889	Yes	0.053	1.345
290	10-22	10-21	8.000	145.000	0.007	0.010	0.000	0.002	Free Surface	1.042	0.09	0.015	0.057	0.055	0.65	Yes	0.04	1.406
351	6-16	6-15	8.000	82.015	0.177	0.049	0.000	0.01	Free Surface	5.291	0.09	0.015	0.057	0.125	3.298	Yes	0.051	1.213
489	19-18	19-17	8.000	90.000	0.033	0.021	0.000	0.004	Free Surface	2.275	0.08	0.014	0.056	0.081	1.43	Yes	0.016	0
528	19-55	19-53	8.000	55.992	0.036	0.022	0.000	0.004	Free Surface	2.363	0.08	0.015	0.056	0.083	1.48	Yes	0.141	2.654
1069	APPLE1	4-54	8.000	45.000	0.089	0.034	0.000	0.007	Free Surface	3.722	0.08	0.015	0.056	0.104	2.335	Yes	0.078	0.753
1133	HERITAGE9	HERITAGE8	8.000	184.117	0.033	0.021	0.000	0.004	Free Surface	2.255	0.08	0.015	0.056	0.08	1.414	No	0.241	2.1
151	4-40	4-39	8.000	264.979	0.011	0.012	0.000	0.002	Free Surface	1.319	0.08	0.014	0.056	0.061	0.833	Yes	0.345	1.595
212	5-39	5-38	8.000	285.005	0.039	0.022	0.000	0.004	Free Surface	2.429	0.08	0.014	0.055	0.083	1.538	Yes	0.058	1.301
492	19-17	19-16	8.000	147.160	0.088	0.033	0.000	0.007	Free Surface	3.671	0.08	0.014	0.055	0.102	2.327	Yes	0.191	2.626
386	7-28	7-27	8.000	97.537	0.072	0.029	0.000	0.006	Free Surface	3.282	0.08	0.014	0.055	0.095	2.098	No	0.258	1.777
632	7-16	CRUSHERCANYON6	8.000	42.000	0.066	0.027	0.000	0.005	Free Surface	3.146	0.08	0.014	0.054	0.093	2.015	No	0.066	1.314
680	23-1	GRAHAMPACKAGINGLS	6.000	71.216	0.014	0.006	0.000	0.001	Free Surface	1.204	0.08	0.014	0.041	0.046	0.431	Yes	0.066	2.06
32	8-11	8-10	8.000	232.640	0.034	0.019	0.000	0.004	Free Surface	2.259	0.08	0.013	0.054	0.078	1.452	Yes	0.088	2.901
536	19-37	19-36	8.000	170.009	0.065	0.027	0.000	0.005	Free Surface	3.101	0.08	0.013	0.054	0.092	1.992	Yes	1.42	2.136
625	CRUSHERCANYON11	CRUSHERCANYON10	12.000	308.000	0.019	0.043	0.000	0.009	Free Surface	2.228	0.08	0.013	0.081	0.105	3.222	Yes	0.441	3.329
1089	FIRST3	FIRST2	8.000	190.000	0.003	0.005	0.000	0.001	Free Surface	0.626	0.08	0.013	0.054	0.041	0.402	No	0.103	1.395
1125	HERITAGE5	HERITAGE4	8.000	57.503	0.139	0.039	0.000	0.008	Free Surface	4.531	0.08	0.013	0.054	0.111	2.921	Yes	1	4.172
85	2-23	2-22	8.000	20.166	0.050	0.023	0.000	0.004	Free Surface	2.695	0.08	0.013	0.053	0.085	1.744	Yes	1	4.163
86	2-22	2-6	8.000	119.888	0.064	0.026	0.000	0.005	Free Surface	3.064	0.08	0.013	0.053	0.09	1.988	Yes	1	4.153
322	5-58	5-57	8.000	262.000	0.034	0.019	0.000	0.004	Free Surface	2.241	0.08	0.013	0.053	0.077	1.451	No	0.309	2.795
384	7-26	7-25	8.000	572.379	0.115	0.035	0.000	0.007	Free Surface	4.108	0.08	0.013	0.053	0.105	2.659	No	0.214	5.478

1067	APPLE2	APPLE1	8.000	209.718	0.081	0.029	0.000	0.006	Free Surface	3.436	0.08	0.013	0.053	0.096	2.23	No	0.217	5.363
33	11-18	11-17	8.000	75.442	0.278	0.052	0.000	0.011	Free Surface	6.316	0.08	0.013	0.053	0.129	4.131	No	0.245	4.459
183	4-52	4-22	8.000	282.439	0.107	0.032	0.000	0.007	Free Surface	3.914	0.08	0.013	0.053	0.101	2.561	Yes	0.098	1.617
268	10-35	10-32	8.000	233.691	0.009	0.009	0.000	0.002	Free Surface	1.109	0.08	0.013	0.053	0.054	0.724	Yes	0.205	5.614
430	9-13	9-12	10.000	92.260	0.011	0.019	0.000	0.004	Free Surface	1.447	0.08	0.013	0.066	0.072	1.478	No	0.358	2.627
462	10-34.5	10-34	8.000	385.500	0.016	0.012	0.000	0.002	Free Surface	1.492	0.08	0.013	0.053	0.062	0.977	Yes	0.271	3.696
1112	5-94	5-93	8.000	256.600	0.008	0.009	0.000	0.002	Free Surface	1.057	0.08	0.013	0.053	0.052	0.691	Yes	0.165	6.957
189	6-50	6-49	8.000	215.000	0.005	0.007	0.000	0.001	Free Surface	0.812	0.08	0.012	0.052	0.045	0.534	Yes	0.291	2.957
318	5-57	5-56	8.000	46.049	0.065	0.024	0.000	0.005	Free Surface	3.025	0.08	0.012	0.052	0.088	1.999	No	0.237	4.045
9	6-47	6-45	8.000	278.327	0.097	0.029	0.000	0.006	Free Surface	3.654	0.08	0.012	0.051	0.096	2.433	Yes	0.181	6.31
299	7-6	7-5	8.000	606.503	0.077	0.026	0.000	0.005	Free Surface	3.274	0.08	0.012	0.051	0.091	2.18	Yes	0.174	6.565
447	11-32	11-31	8.000	154.837	0.019	0.013	0.000	0.002	Free Surface	1.636	0.08	0.012	0.051	0.064	1.09	Yes	0.033	1.961
548	19-15	19-14	8.000	276.000	0.036	0.018	0.000	0.003	Free Surface	2.241	0.08	0.012	0.051	0.075	1.491	No	0.056	2.275
1141	HERITAGE13	HERITAGE12	8.000	156.000	0.135	0.034	0.000	0.007	Free Surface	4.317	0.08	0.012	0.051	0.104	2.873	Yes	0.441	2.022
184	6-41	6-40	8.000	115.600	0.043	0.019	0.000	0.004	Free Surface	2.438	0.08	0.012	0.051	0.078	1.629	Yes	0.219	3.968
414	7-39	7-38	8.000	410.675	0.005	0.006	0.000	0.001	Free Surface	0.819	0.08	0.012	0.051	0.045	0.546	No	0.199	3.741
154	4-43	4-42	8.000	254.756	0.067	0.023	0.000	0.004	Free Surface	2.988	0.08	0.011	0.05	0.085	2.023	Yes	0.123	1.143
161	4-33	4-32	8.000	253.310	0.037	0.017	0.000	0.003	Free Surface	2.236	0.08	0.011	0.05	0.073	1.514	Yes	0.153	5.332
454	11-34	11-31	8.000	128.214	0.086	0.026	0.000	0.005	Free Surface	3.402	0.08	0.011	0.05	0.091	2.294	No	0.191	4.485
601	HERITAGE19	HERITAGE18	8.000	256.000	0.047	0.019	0.000	0.004	Free Surface	2.505	0.08	0.011	0.05	0.078	1.695	No	0.059	1.763
1081	BRAEBURN7	BRAEBURN4	8.000	205.000	0.024	0.014	0.000	0.003	Free Surface	1.817	0.08	0.012	0.05	0.066	1.223	Yes	0.049	1.875
288	7-37	7-36	8.000	496.953	0.038	0.017	0.000	0.003	Free Surface	2.241	0.07	0.011	0.049	0.073	1.531	Yes	0.037	1.504
610	HERITAGE3	HERITAGE2	8.000	30.000	0.267	0.044	0.000	0.009	Free Surface	5.913	0.07	0.011	0.049	0.119	4.044	Yes	0.042	1.583
662	4-34	4-19	8.000	182.832	0.122	0.030	0.000	0.006	Free Surface	4.008	0.07	0.011	0.049	0.097	2.738	Yes	0.055	2.633
1077	BRAEBURN6	BRAEBURN3	8.000	418.657	0.002	0.004	0.000	0.001	Free Surface	0.561	0.07	0.011	0.049	0.036	0.383	Yes	0.05	1.929
269	10-27	10-26	8.000	135.000	0.015	0.010	0.000	0.002	Free Surface	1.382	0.07	0.011	0.048	0.056	0.953	No	0.42	1.981
338	5-50.5	5-48	8.000	257.852	0.062	0.021	0.000	0.004	Free Surface	2.836	0.07	0.011	0.049	0.081	1.951	Yes	0.073	2.088
394	7-19	7-18	8.000	254.612	0.112	0.028	0.000	0.006	Free Surface	3.817	0.07	0.011	0.049	0.094	2.626	Yes	0.047	1.908
499	6-34	6-33	8.000	320.350	0.078	0.023	0.000	0.005	Free Surface	3.18	0.07	0.011	0.049	0.086	2.188	Yes	0.066	1.643
1075	BRAEBURN3	BRAEBURN2	8.000	120.999	0.124	0.030	0.000	0.006	Free Surface	4.011	0.07	0.011	0.049	0.097	2.757	Yes	0.109	2.045
1173	NACHES1	5-25	8.000	293.554	0.140	0.031	0.000	0.006	Free Surface	4.244	0.07	0.011	0.048	0.099	2.927	No	0.156	6.698
335	6-65	6-64	8.000	216.869	0.014	0.010	0.000	0.002	Free Surface	1.33	0.07	0.011	0.048	0.055	0.921	No	0.273	3.173
353	5-67	5-17	8.000	329.081	0.085	0.024	0.000	0.005	Free Surface	3.302	0.07	0.01	0.048	0.087	2.289	No	0.197	5.077
581	HERITAGE12	HERITAGE2	8.000	103.412	0.203	0.037	0.000	0.007	Free Surface	5.077	0.07	0.01	0.048	0.108	3.529	No	0.165	6.578
181	4-53	4-52	8.000	125.303	0.072	0.021	0.000	0.004	Free Surface	3	0.07	0.01	0.047	0.082	2.099	No	0.153	7.636
397	8-10	8-9	8.000	171.039	0.170	0.033	0.000	0.007	Free Surface	4.617	0.07	0.01	0.048	0.102	3.224	Yes	0.322	2.851
435	11-16	11-15	8.000	118.914	0.008	0.007	0.000	0.001	Free Surface	1.022	0.07	0.01	0.047	0.047	0.718	Yes	0.094	3.081
502	6-30	6-29	8.000	89.474	0.056	0.019	0.000	0.004	Free Surface	2.648	0.07	0.01	0.047	0.077	1.851	Yes	0.077	3.753
1095	GOODLANDER2	GOODLANDER1	8.000	132.381	0.144	0.030	0.000	0.006	Free Surface	4.237	0.07	0.01	0.047	0.097	2.967	Yes	0.037	1.857
1149	HERITAGE17	HERITAGE16	8.000	76.045	0.118	0.028	0.000	0.005	Free Surface	3.862	0.07	0.01	0.048	0.093	2.694	No	0.095	3.325
1171	YAKIMA4	177TH4	8.000	290.000	0.003	0.005	0.000	0.001	Free Surface	0.658	0.07	0.01	0.047	0.038	0.46	Yes	0.087	0.677
158	4-37	4-17	8.000	190.536	0.039	0.015	0.000	0.003	Free Surface	2.196	0.07	0.01	0.047	0.069	1.553	Yes	0.097	5.435
163	4-49	4-48	8.000	298.857	0.064	0.019	0.000	0.004	Free Surface	2.792	0.07	0.01	0.047	0.078	1.974	Yes	0.122	5.042
195	5-32	5-31	8.000	221.595	0.104	0.025	0.000	0.005	Free Surface	3.564	0.07	0.01	0.047	0.088	2.523	Yes	0.104	5.032
369	6-62	6-61	8.000	282.529	0.053	0.018	0.000	0.003	Free Surface	2.556	0.07	0.01	0.047	0.075	1.804	Yes	0.061	1.557
501	6-31	6-30	8.000	298.905	0.030	0.013	0.000	0.002	Free Surface	1.927	0.07	0.01	0.047	0.065	1.359	Yes	0.224	0.59
1115	GOODLANDER12	GOODLANDER11	8.000	247.886	0.006	0.006	0.000	0.001	Free Surface	0.862	0.07	0.01	0.047	0.043	0.609	Yes	0.031	2.001
294	10-24	10-23	8.000	105.000	0.019	0.010	0.000	0.002	Free Surface	1.516	0.07	0.01	0.046	0.057	1.081	Yes	0.099	0.983
390	7-29	7-28	8.000	286.383	0.010	0.008	0.000	0.001	Free Surface	1.124	0.07	0.01	0.046	0.049	0.801	No	0.141	5.482
541	19-25	19-24	8.000	184.000	0.038	0.015	0.000	0.003	Free Surface	2.145	0.07	0.01	0.046	0.068	1.527	Yes	0.03	1.913
606	HERITAGE8	HERITAGE7	8.000	145.515	0.124	0.027	0.000	0.005	Free Surface	3.875	0.07	0.01	0.046	0.091	2.754	Yes	0.159	4.706
624	CRUSHERCANYON12	CRUSHERCANYON11	12.000	230.000	0.030	0.039	0.000	0.008	Free Surface	2.521	0.07	0.01	0.069	0.1	4.028	Yes	0.069	0.882
685	7-36	7-14	8.000	282.616	0.142	0.028	0.000	0.006	Free Surface	4.15	0.07	0.01	0.046	0.095	2.952	Yes	0.115	4.731

263	10-37	10-36	8.000	90.000	0.006	0.005	0.000	0.001	Free Surface	0.81	0.07	0.009	0.045	0.041	0.584	Yes	0.044	2.402
1097	GOODLANDER3	GOODLANDER2	8.000	190.021	0.126	0.025	0.000	0.005	Free Surface	3.856	0.07	0.009	0.045	0.09	2.783	Yes	0.098	1.043
296	10-23	10-20	8.000	181.300	0.035	0.013	0.000	0.002	Free Surface	2.016	0.07	0.009	0.045	0.064	1.462	Yes	0.062	3.321
519	19-43	19-42	8.000	190.196	0.053	0.016	0.000	0.003	Free Surface	2.466	0.07	0.009	0.045	0.071	1.796	No	0.496	1.584
534	19-56.5	19-56.25	4.000	90.000	0.144	0.004	0.000	0.001	Free Surface	2.575	0.07	0.009	0.022	0.043	0.469	Yes	0.093	2.076
607	HERITAGE7	HERITAGE6	8.000	120.000	0.183	0.030	0.000	0.006	Free Surface	4.636	0.07	0.009	0.045	0.098	3.353	Yes	0.044	2.787
1012	5-88	5-77	8.000	363.000	0.011	0.007	0.000	0.001	Free Surface	1.132	0.07	0.009	0.045	0.048	0.822	No	0.02	1.721
1099	GOODLANDER4	GOODLANDER3	8.000	340.073	0.091	0.021	0.000	0.004	Free Surface	3.238	0.07	0.009	0.044	0.081	2.364	Yes	0.027	1.88
192	6-40	6-39	8.000	124.441	0.225	0.033	0.000	0.007	Free Surface	5.084	0.07	0.009	0.044	0.102	3.715	Yes	0.027	1.984
630	CRUSHERCANYON7	CRUSHERCANYON6	12.000	138.000	0.174	0.083	0.000	0.019	Free Surface	5.82	0.07	0.009	0.066	0.146	9.628	Yes	0.032	2.785
392	7-45	7-44	8.000	129.061	0.070	0.017	0.000	0.003	Free Surface	2.781	0.07	0.008	0.043	0.073	2.068	Yes	0.057	2.885
594	177TH2	NACHES5	8.000	280.004	0.161	0.026	0.000	0.005	Free Surface	4.217	0.07	0.008	0.043	0.09	3.139	Yes	0.132	5.55
608	HERITAGE6	HERITAGE5	8.000	39.542	0.253	0.033	0.000	0.007	Free Surface	5.307	0.07	0.008	0.043	0.102	3.938	No	0.183	3.879
46	3-41	3-40	10.000	212.174	0.012	0.013	0.000	0.002	Free Surface	1.321	0.06	0.008	0.054	0.059	1.541	Yes	0.062	1.22
295	10-25	10-24	8.000	104.592	0.010	0.006	0.000	0.001	Free Surface	1.028	0.06	0.008	0.043	0.044	0.766	No	0.489	1.621
627	CRUSHERCANYON9	CRUSHERCANYON8	12.000	307.093	0.072	0.051	0.000	0.011	Free Surface	3.685	0.06	0.008	0.064	0.114	6.18	Yes	0.041	1.948
1083	BRAEBURN4	BRAEBURN3	8.000	113.001	0.115	0.021	0.000	0.004	Free Surface	3.533	0.06	0.008	0.042	0.082	2.656	Yes	0.097	0.719
157	4-32	4-18	8.000	153.309	0.120	0.021	0.000	0.004	Free Surface	3.58	0.06	0.008	0.042	0.082	2.709	Yes	0.112	0.718
356	5-70	5-18	8.000	308.006	0.105	0.020	0.000	0.004	Free Surface	3.345	0.06	0.008	0.042	0.079	2.54	No	0.141	1.129
552	11-13	11-12	8.000	254.244	0.063	0.016	0.000	0.003	Free Surface	2.608	0.06	0.008	0.042	0.07	1.964	Yes	0.06	0.935
589	NACHES7	NACHES5	8.000	125.000	0.032	0.011	0.000	0.002	Free Surface	1.861	0.06	0.008	0.042	0.059	1.401	Yes	0.077	0.672
602	HERITAGE18	HERITAGE17	8.000	275.789	0.160	0.024	0.000	0.005	Free Surface	4.122	0.06	0.008	0.042	0.087	3.128	Yes	0.119	5.581
166	2-28	2-12	8.000	85.000	0.079	0.017	0.000	0.003	Free Surface	2.879	0.06	0.008	0.041	0.072	2.202	Yes	0.026	1.403
401	5-83	5-82	8.000	174.309	0.109	0.020	0.000	0.004	Free Surface	3.397	0.06	0.008	0.042	0.079	2.585	Yes	0.108	0.749
677	19-46.5	19-46	8.000	152.886	0.026	0.010	0.000	0.002	Free Surface	1.655	0.06	0.008	0.041	0.055	1.267	Yes	0.036	1.46
1101	GOODLANDER5	GOODLANDER4	8.000	339.930	0.074	0.016	0.000	0.003	Free Surface	2.778	0.06	0.008	0.041	0.071	2.124	Yes	0.239	4.222
5	6-20	6-19	8.000	227.000	0.066	0.015	0.000	0.003	Free Surface	2.605	0.06	0.007	0.041	0.068	2.013	Yes	0.061	2.196
421	2-35	2-34	8.000	312.925	0.022	0.009	0.000	0.002	Free Surface	1.524	0.06	0.007	0.041	0.052	1.171	No	0.04	3.324
1163	LYLE2	LYLE1	8.000	312.000	0.032	0.010	0.000	0.002	Free Surface	1.82	0.06	0.007	0.041	0.057	1.402	No	0.042	2.608
15	5-96	5-95	8.000	290.154	0.014	0.007	0.000	0.001	Free Surface	1.18	0.06	0.007	0.04	0.045	0.919	Yes	0.023	1.531
387	7-31	7-28	8.000	296.705	0.040	0.011	0.000	0.002	Free Surface	2.012	0.06	0.007	0.04	0.059	1.575	Yes	0.03	1.76
404	5-49	5-48	8.000	170.852	0.059	0.013	0.000	0.002	Free Surface	2.432	0.06	0.007	0.04	0.065	1.894	Yes	0.023	1.384
551	11-12	11-11	8.000	77.501	0.110	0.018	0.000	0.003	Free Surface	3.324	0.06	0.007	0.04	0.076	2.592	Yes	0.029	1.755
1159	HERITAGE22	HERITAGE21	8.000	55.000	0.009	0.005	0.000	0.001	Free Surface	0.956	0.06	0.007	0.04	0.04	0.747	Yes	0.04	1.896
344	6-54	6-14	8.000	122.208	0.098	0.017	0.000	0.003	Free Surface	3.113	0.06	0.007	0.039	0.073	2.454	Yes	0.667	0.125
365	6-55	6-54	8.000	193.850	0.052	0.012	0.000	0.002	Free Surface	2.262	0.06	0.007	0.04	0.062	1.779	Yes	0.037	1.438
373	7-43	7-16	8.000	98.964	0.235	0.026	0.000	0.005	Free Surface	4.805	0.06	0.007	0.039	0.09	3.793	Yes	0.04	1.383
391	7-21	7-20	8.000	354.626	0.135	0.020	0.000	0.004	Free Surface	3.651	0.06	0.007	0.039	0.079	2.881	Yes	0.172	0.395
439	11-23	11-22	8.000	162.000	0.012	0.006	0.000	0.001	Free Surface	1.105	0.06	0.007	0.039	0.043	0.87	No	0.155	1.076
539	19-32	19-31	8.000	210.009	0.057	0.013	0.000	0.002	Free Surface	2.369	0.06	0.007	0.039	0.063	1.872	Yes	0.301	0.704
38	11-24	11-19	8.000	265.000	0.094	0.016	0.000	0.003	Free Surface	3.027	0.06	0.007	0.039	0.071	2.405	Yes	0.434	2.491
377	8-16	8-6	8.000	327.925	0.070	0.014	0.000	0.003	Free Surface	2.61	0.06	0.007	0.039	0.066	2.072	Yes	0.376	2.904
496	19-20	19-19	8.000	190.000	0.074	0.014	0.000	0.003	Free Surface	2.655	0.06	0.007	0.038	0.066	2.126	No	0.481	2.45
646	6-53.25	6-46.5	8.000	301.192	0.040	0.010	0.000	0.002	Free Surface	1.953	0.06	0.007	0.038	0.056	1.563	Yes	0.839	1.349
10	6-48	6-47	8.000	235.000	0.115	0.017	0.000	0.003	Free Surface	3.301	0.06	0.006	0.038	0.073	2.654	Yes	0.361	2.394
187	6-49	6-43	8.000	186.193	0.111	0.017	0.000	0.003	Free Surface	3.246	0.06	0.006	0.038	0.072	2.612	Yes	1	1.287
332	5-66	5-16	8.000	154.000	0.077	0.014	0.000	0.003	Free Surface	2.706	0.06	0.006	0.038	0.066	2.176	Yes	0.044	0.886
584	HERITAGE10	HERITAGE9	8.000	81.675	0.073	0.013	0.000	0.002	Free Surface	2.63	0.06	0.006	0.038	0.065	2.122	Yes	0.059	3.739
626	CRUSHERCANYON10	CRUSHERCANYON9	12.000	140.000	0.107	0.048	0.000	0.01	Free Surface	4.152	0.06	0.006	0.057	0.11	7.557	Yes	0.047	1.913
1033	CRUSHERCANYON13	CRUSHERCANYON12	12.000	205.000	0.054	0.034	0.000	0.007	Free Surface	2.961	0.06	0.006	0.057	0.094	5.348	Yes	0.05	1.456
1091	FIRST4	177TH2	8.000	290.000	0.028	0.008	0.000	0.001	Free Surface	1.618	0.06	0.006	0.038	0.051	1.301	No	0.128	0.771
25	5-85	5-80	8.000	62.000	0.097	0.015	0.000	0.003	Free Surface	2.984	0.06	0.006	0.037	0.068	2.436	Yes	0.039	2.206
136	4-14	4-13	8.000	303.000	0.065	0.012	0.000	0.002	Free Surface	2.462	0.06	0.006	0.038	0.062	1.998	Yes	0.05	3.349

153	4-44	4-43	8.000	139.792	0.086	0.014	0.000	0.003	Free Surface	2.807	0.06	0.006	0.037	0.066	2.294	Yes	0.058	4.288
316	6-51	6-5	8.000	136.217	0.054	0.011	0.000	0.002	Free Surface	2.213	0.06	0.006	0.037	0.058	1.812	Yes	0.069	3.579
346	6-56	6-15	8.000	368.932	0.029	0.008	0.000	0.001	Free Surface	1.622	0.06	0.006	0.037	0.05	1.328	No	0.075	1.129
364	5-72	5-71	8.000	265.691	0.019	0.007	0.000	0.001	Free Surface	1.322	0.06	0.006	0.038	0.045	1.074	Yes	0.868	1.378
1085	FIRST1	NACHES1	8.000	342.576	0.163	0.019	0.000	0.004	Free Surface	3.878	0.06	0.006	0.037	0.078	3.166	No	0.538	1.59
314	6-52	6-51	8.000	127.401	0.024	0.007	0.000	0.001	Free Surface	1.454	0.06	0.006	0.037	0.047	1.202	No	0.05	2.505
337	5-59	5-58	8.000	336.485	0.048	0.010	0.000	0.002	Free Surface	2.067	0.06	0.006	0.037	0.056	1.708	Yes	0.045	3.732
30	5-86	5-85	8.000	151.000	0.066	0.012	0.000	0.002	Free Surface	2.427	0.05	0.006	0.036	0.06	2.015	Yes	0.099	1.369
137	4-30	4-29	8.000	251.148	0.108	0.014	0.000	0.003	Free Surface	3.061	0.05	0.006	0.036	0.067	2.568	No	0.046	3.875
407	5-40	5-39	8.000	241.006	0.058	0.011	0.000	0.002	Free Surface	2.25	0.05	0.006	0.036	0.057	1.887	No	0.045	4.636
558	4-46	4-45	8.000	308.166	0.055	0.011	0.000	0.002	Free Surface	2.213	0.05	0.006	0.036	0.057	1.839	Yes	0.049	4.474
1167	YAKIMA2	YAKIMA1	8.000	173.000	0.006	0.003	0.000	0.001	Free Surface	0.71	0.05	0.006	0.036	0.032	0.595	No	0.066	3.6
35	11-25	11-24	8.000	184.000	0.043	0.009	0.000	0.002	Free Surface	1.922	0.05	0.005	0.035	0.052	1.633	No	0.379	2.817
366	6-57.5	6-57	8.000	145.192	0.014	0.005	0.000	0.001	Free Surface	1.086	0.05	0.005	0.035	0.039	0.919	Yes	0.059	4.451
417	4-45	4-6	10.000	322.840	0.021	0.011	0.000	0.002	Free Surface	1.556	0.05	0.005	0.044	0.056	2.053	No	0.082	2.651
498	6-36	6-34	8.000	187.016	0.048	0.009	0.000	0.002	Free Surface	2.037	0.05	0.005	0.035	0.054	1.718	Yes	0.376	2.8
540	19-26	19-25	8.000	165.000	0.067	0.011	0.000	0.002	Free Surface	2.396	0.05	0.005	0.035	0.059	2.022	Yes	0.096	4.068
36	11-22	11-21	8.000	262.000	0.134	0.015	0.000	0.003	Free Surface	3.346	0.05	0.005	0.035	0.069	2.862	Yes	0.114	5.345
156	4-50	4-49	8.000	208.464	0.072	0.011	0.000	0.002	Free Surface	2.45	0.05	0.005	0.035	0.058	2.101	Yes	0.075	2.238
334	5-51	5-50.5	8.000	236.112	0.102	0.013	0.000	0.002	Free Surface	2.92	0.05	0.005	0.035	0.064	2.497	No	0.081	2.228
150	4-39	4-16	8.000	198.112	0.225	0.019	0.000	0.004	Free Surface	4.307	0.05	0.005	0.034	0.077	3.711	Yes	0.061	3.77
453	11-39	11-34	8.000	239.927	0.088	0.012	0.000	0.002	Free Surface	2.667	0.05	0.005	0.034	0.06	2.317	Yes	0.108	1.713
457	11-36	11-35	8.000	154.000	0.058	0.010	0.000	0.002	Free Surface	2.185	0.05	0.005	0.034	0.054	1.893	No	0.15	1.677
593	177TH4	177TH2	8.000	266.391	0.086	0.012	0.000	0.002	Free Surface	2.654	0.05	0.005	0.034	0.06	2.301	Yes	0.077	0.67
1169	YAKIMA3	177TH4	8.000	155.000	0.006	0.003	0.000	0	Free Surface	0.726	0.05	0.005	0.034	0.031	0.629	Yes	0.088	3.793
348	6-57	6-16	8.000	157.088	0.083	0.011	0.000	0.002	Free Surface	2.56	0.05	0.005	0.033	0.058	2.258	No	0.11	3.563
379	7-33	7-23	8.000	457.570	0.140	0.014	0.000	0.003	Free Surface	3.344	0.05	0.005	0.033	0.067	2.929	Yes	0.082	1.715
515	19-54	19-53	8.000	370.191	0.097	0.012	0.000	0.002	Free Surface	2.781	0.05	0.005	0.033	0.061	2.442	Yes	0.086	0.621
531	19-38	19-37	8.000	279.405	0.222	0.018	0.000	0.003	Free Surface	4.186	0.05	0.005	0.033	0.074	3.689	Yes	0.118	3.54
647	6-53.5	6-53.25	8.000	205.000	0.034	0.007	0.000	0.001	Free Surface	1.643	0.05	0.005	0.033	0.046	1.447	No	0.128	3.909
223	4-36	4-21	8.000	134.844	0.060	0.009	0.000	0.002	Free Surface	2.162	0.05	0.005	0.033	0.053	1.92	Yes	0.133	3.765
352	6-63	6-62	8.000	295.931	0.051	0.008	0.000	0.001	Free Surface	1.99	0.05	0.005	0.033	0.051	1.763	Yes	0.085	0.852
398	8-12	8-11	8.000	221.091	0.077	0.010	0.000	0.002	Free Surface	2.449	0.05	0.005	0.033	0.056	2.171	No	0.142	3.724
455	11-28	11-27	8.000	257.783	0.101	0.011	0.000	0.002	Free Surface	2.793	0.05	0.005	0.033	0.06	2.487	Yes	0.109	0.692
545	8-14	8-5	8.000	417.073	0.072	0.010	0.000	0.002	Free Surface	2.365	0.05	0.005	0.033	0.055	2.1	Yes	0.143	3.764
1175	NACHES2	NACHES1	8.000	125.000	0.080	0.010	0.000	0.002	Free Surface	2.485	0.05	0.005	0.033	0.056	2.215	Yes	0.209	4.347
29	5-87	5-86	8.000	120.000	0.033	0.006	0.000	0.001	Free Surface	1.589	0.05	0.004	0.032	0.044	1.43	Yes	0.159	4.546
246	10-11	10-10	8.000	85.014	0.012	0.004	0.000	0.001	Free Surface	0.948	0.05	0.004	0.032	0.034	0.849	Yes	0.176	0.197
298	7-7	7-6	8.000	261.061	0.065	0.009	0.000	0.002	Free Surface	2.225	0.05	0.004	0.032	0.053	1.998	Yes	0.073	2.038
415	7-40	7-45	8.000	225.145	0.071	0.009	0.000	0.002	Free Surface	2.299	0.05	0.004	0.032	0.053	2.088	Yes	0.068	1.34
527	19-56	19-55	8.000	242.447	0.194	0.015	0.000	0.003	Free Surface	3.843	0.05	0.004	0.032	0.07	3.448	Yes	0.052	1.256
333	5-51.5	5-51	8.000	76.857	0.052	0.008	0.000	0.001	Free Surface	1.96	0.05	0.004	0.031	0.049	1.786	Yes	0.036	1.466
375	5-50	5-49	8.000	322.000	0.062	0.008	0.000	0.001	Free Surface	2.128	0.05	0.004	0.031	0.05	1.952	Yes	0.028	1.154
452	11-40	11-39	8.000	226.266	0.040	0.006	0.000	0.001	Free Surface	1.7	0.05	0.004	0.031	0.045	1.562	No	0.075	2.22
525	19-46	19-45	8.000	17.045	0.117	0.011	0.000	0.002	Free Surface	2.906	0.05	0.004	0.031	0.058	2.682	Yes	0.148	0.675
1079	BRAEBURN8	BRAEBURN7	8.000	195.000	0.036	0.006	0.000	0.001	Free Surface	1.602	0.05	0.004	0.031	0.043	1.484	Yes	0.159	0.934
283	7-35	7-13	8.000	152.531	0.144	0.011	0.000	0.002	Free Surface	3.144	0.05	0.004	0.03	0.059	2.974	Yes	1	0.06
312	6-53	6-10	8.000	113.310	0.140	0.011	0.000	0.002	Free Surface	3.101	0.05	0.004	0.03	0.059	2.934	Yes	0.091	1.613
380	7-34	7-24	8.000	446.126	0.134	0.011	0.000	0.002	Free Surface	3.057	0.05	0.004	0.03	0.059	2.872	No	0.134	6.449
233	1-49	1-43	8.000	155.904	0.051	0.006	0.000	0.001	Free Surface	1.86	0.04	0.004	0.029	0.045	1.774	No	0.128	7.417
400	5-84	5-83	8.000	109.427	0.110	0.010	0.000	0.002	Free Surface	2.731	0.04	0.004	0.03	0.055	2.593	Yes	0.667	1.064
513	19-44	19-43	8.000	292.358	0.099	0.009	0.000	0.002	Free Surface	2.596	0.04	0.004	0.03	0.053	2.466	Yes	0.667	1.145
549	11-14	11-13	8.000	275.180	0.058	0.007	0.000	0.001	Free Surface	1.971	0.04	0.004	0.029	0.046	1.888	Yes	0.667	0.05

1063	APPLE4	APPLE3	8.000	145.000	0.159	0.011	0.000	0.002	Free Surface	3.248	0.04	0.004	0.029	0.059	3.119	Yes	0.667	0.071
287	7-38	7-37	8.000	35.317	0.142	0.010	0.000	0.002	Free Surface	3.018	0.04	0.003	0.028	0.056	2.946	Yes	0.145	1.023
357	5-71	5-70	8.000	125.050	0.168	0.011	0.000	0.002	Free Surface	3.333	0.04	0.004	0.029	0.06	3.209	Yes	0.162	3.18
456	11-33	11-32	8.000	227.118	0.079	0.008	0.000	0.001	Free Surface	2.283	0.04	0.004	0.029	0.049	2.205	Yes	0.096	2.268
561	6-42	6-41	8.000	12.687	0.079	0.008	0.000	0.001	Free Surface	2.261	0.04	0.003	0.029	0.049	2.199	Yes	0.2	2.13
4	6-23	6-19	8.000	203.824	0.083	0.008	0.000	0.001	Free Surface	2.314	0.04	0.003	0.028	0.049	2.262	Yes	0.029	2.048
28	5-92	5-91	8.000	231.247	0.099	0.008	0.000	0.001	Free Surface	2.509	0.04	0.003	0.028	0.05	2.47	Yes	0.178	4.339
388	7-22	7-21	8.000	248.062	0.113	0.009	0.000	0.002	Free Surface	2.683	0.04	0.003	0.028	0.052	2.631	Yes	0.141	3.743
560	6-32	6-31	8.000	164.433	0.079	0.007	0.000	0.001	Free Surface	2.226	0.04	0.003	0.028	0.047	2.202	Yes	0.595	0.175
638	7-13	CRUSHERCANYON2	8.000	43.247	0.310	0.014	0.000	0.003	Free Surface	4.419	0.04	0.003	0.028	0.067	4.357	No	0.041	1.655
26	5-83.5	5-83	8.000	163.864	0.098	0.008	0.000	0.001	Free Surface	2.443	0.04	0.003	0.027	0.049	2.447	Yes	1	1.306
297	7-32	7-6	8.000	177.052	0.119	0.008	0.000	0.001	Free Surface	2.7	0.04	0.003	0.027	0.051	2.697	Yes	0.127	0.235
370	5-66.5	5-66	8.000	218.400	0.092	0.007	0.000	0.001	Free Surface	2.366	0.04	0.003	0.027	0.048	2.37	No	0.501	2.834
448	11-30	11-26	8.000	134.970	0.074	0.007	0.000	0.001	Free Surface	2.128	0.04	0.003	0.027	0.045	2.132	Yes	0.026	1.592
544	19-52	19-48	8.000	218.639	0.146	0.009	0.000	0.002	Free Surface	3.004	0.04	0.003	0.027	0.054	2.996	Yes	0.056	3.137
1105	GOODLANDER7	GOODLANDER6	8.000	290.717	0.058	0.006	0.000	0.001	Free Surface	1.898	0.04	0.003	0.027	0.043	1.894	No	0.224	2.746
1137	HERITAGE11	HERITAGE10	8.000	82.628	0.109	0.008	0.000	0.001	Free Surface	2.57	0.04	0.003	0.027	0.05	2.584	Yes	0.095	1.856
58	3-42	3-41	10.000	289.346	0.021	0.006	0.000	0.001	Free Surface	1.298	0.04	0.003	0.034	0.042	2.045	Yes	1	1.32
286	7-42	7-15	8.000	155.451	0.134	0.009	0.000	0.002	Free Surface	2.834	0.04	0.003	0.027	0.052	2.871	Yes	0.084	4.465
354	5-69	5-68	8.000	238.176	0.134	0.009	0.000	0.002	Free Surface	2.838	0.04	0.003	0.027	0.052	2.87	Yes	0.134	1.209
362	5-76	5-75	8.000	148.041	0.027	0.004	0.000	0.001	Free Surface	1.273	0.04	0.003	0.027	0.035	1.287	Yes	1.25	0.872
488	19-21	19-20	8.000	203.500	0.118	0.008	0.000	0.001	Free Surface	2.643	0.04	0.003	0.027	0.05	2.689	Yes	1.25	0.866
557	7-41	7-40	8.000	28.983	0.069	0.006	0.000	0.001	Free Surface	2.016	0.04	0.003	0.026	0.043	2.057	Yes	1.25	0.887
1	6-21	6-20	8.000	247.304	0.093	0.007	0.000	0.001	Free Surface	2.326	0.04	0.003	0.026	0.046	2.388	Yes	1.25	0.856
673	19-38.5	19-38	8.000	90.037	0.111	0.007	0.000	0.001	Free Surface	2.506	0.04	0.003	0.026	0.047	2.61	No	0.15	1.093
497	6-35	6-34	8.000	325.682	0.126	0.007	0.000	0.001	Free Surface	2.642	0.04	0.003	0.025	0.048	2.778	Yes	1	0.037
554	11-37	11-36	8.000	79.000	0.089	0.006	0.000	0.001	Free Surface	2.223	0.04	0.003	0.025	0.044	2.331	Yes	0.667	0.086
523	19-27	19-26	8.000	260.000	0.127	0.007	0.000	0.001	Free Surface	2.591	0.04	0.002	0.024	0.046	2.79	Yes	0.667	2.592
1165	YAKIMA1	FIRST1	8.000	273.420	0.084	0.006	0.000	0.001	Free Surface	2.137	0.04	0.003	0.025	0.043	2.271	Yes	0.667	0.178
520	19-33	19-32	8.000	160.000	0.181	0.008	0.000	0.001	Free Surface	3.043	0.04	0.002	0.024	0.049	3.334	No	0.13	3.733
227	1-30	1-27	8.000	53.695	0.193	0.008	0.000	0.001	Free Surface	3.109	0.04	0.002	0.023	0.049	3.443	Yes	0.667	0.165
648	6-53.75	6-53.5	8.000	168.343	0.048	0.004	0.000	0.001	Free Surface	1.538	0.04	0.002	0.023	0.034	1.707	Yes	0.667	2.314
1104	GOODLANDER6	GOODLANDERS5	8.000	290.520	0.396	0.011	0.000	0.002	Free Surface	4.461	0.04	0.002	0.023	0.059	4.927	Yes	0.667	0.195
1177	NACHES3	NACHES2	8.000	103.000	0.078	0.005	0.000	0.001	Free Surface	1.986	0.04	0.002	0.024	0.04	2.182	Yes	0.667	0.129
1185	NACHES8	NACHES7	8.000	215.000	0.079	0.005	0.000	0.001	Free Surface	1.997	0.04	0.002	0.024	0.039	2.202	Yes	0.667	2.289
450	11-29	11-28	8.000	222.927	0.094	0.005	0.000	0.001	Free Surface	2.143	0.03	0.002	0.023	0.04	2.403	No	0.053	2.695
1053	HERITAGEHILLS	HERITAGE22	8.000	172.538	0.038	0.003	0.000	0.001	Free Surface	1.355	0.03	0.002	0.023	0.032	1.52	Yes	0.667	0.115
1061	APPLE5	APPLE4	8.000	117.000	0.162	0.006	0.000	0.001	Free Surface	2.706	0.03	0.002	0.022	0.043	3.156	Yes	0.667	2.937
2	6-22	6-20	8.000	53.000	0.094	0.004	0.000	0.001	Free Surface	2.022	0.03	0.002	0.021	0.036	2.405	No	0.059	1.504
381	7-46	7-45	8.000	128.022	0.133	0.005	0.000	0.001	Free Surface	2.366	0.03	0.002	0.021	0.039	2.854	Yes	0.667	0.297
553	11-38	11-37	8.000	104.000	0.077	0.004	0.000	0.001	Free Surface	1.805	0.03	0.002	0.021	0.034	2.172	Yes	0.062	2.731
532	19-40	19-39	8.000	225.000	0.071	0.003	0.000	0.001	Free Surface	1.721	0.03	0.002	0.02	0.033	2.088	Yes	0.667	0.252
533	19-39	19-38	8.000	120.000	0.200	0.006	0.000	0.001	Free Surface	2.862	0.03	0.002	0.02	0.042	3.502	Yes	0.667	2.464
547	8-15	8-14	8.000	231.604	0.121	0.004	0.000	0.001	Free Surface	2.178	0.03	0.002	0.019	0.036	2.723	Yes	0.667	2.826
684	7-8	7-7	8.000	144.626	0.152	0.005	0.000	0.001	Free Surface	2.438	0.03	0.002	0.019	0.038	3.054	Yes	0.833	2.084
1179	NACHES4	NACHES5	8.000	104.046	0.106	0.004	0.000	0.001	Free Surface	2.051	0.03	0.002	0.02	0.035	2.546	No	0.134	1.463
389	7-30	7-29	8.000	14.928	0.134	0.004	0.000	0.001	Free Surface	2.254	0.03	0.001	0.019	0.036	2.866	Yes	0.128	1.482
555	7-22.5	7-22	8.000	89.478	0.112	0.003	0.000	0.001	Free Surface	1.997	0.03	0.001	0.018	0.032	2.618	No	0.136	1.311
458	11-41	11-40	8.000	109.883	0.064	0.000	0.000	0	Free Surface	0	0.00	0	0	0	1.976	Yes	0.735	0.149

Existing Peak Loading Manhole Report

Number	ID	Rim Elevation (ft)	Base Flow (mgd)	Total Flow (mgd)	Grade (ft)	Status	Hydraulic Jump	Surcharge Depth (ft)	Unfilled Depth (ft)
1.00	1-1	1,094.600	0.001	0.006	1,088.992	Not Full	No	-0.958	5.608
2.00	1-2	1,094.500	0.001	0.008	1,090.134	Not Full	No	0.084	4.366
3.00	1-3	1,094.300	0.002	0.011	1,090.167	Not Full	No	-0.093	4.133
4.00	1-4	1,094.230	0.002	0.011	1,090.306	Not Full	No	-0.474	3.924
5.00	1-5	1,095.070	0.003	0.017	1,092.041	Not Full	Yes	-1.089	3.029
6.00	1-6	1,100.770	0.007	0.032	1,092.955	Not Full	No	-1.115	7.815
7.00	1-7	1,102.610	0.001	0.003	1,094.676	Not Full	Yes	-0.534	7.934
8.00	1-8	1,102.610	0.002	0.009	1,095.261	Not Full	No	-0.649	7.349
9.00	1-9	1,104.890	0.000	0.002	1,096.982	Not Full	No	-0.608	7.908
10.00	1-10	1,104.310	0.000	0.002	1,097.319	Not Full	No	-0.391	6.991
11.00	1-11	1,106.370	0.001	0.005	1,098.251	Not Full	No	-0.469	8.119
12.00	1-12	1,109.040	0.001	0.004	1,099.275	Not Full	No	-0.485	9.765
13.00	1-13	1,112.720	0.002	0.012	1,106.871	Not Full	No	5.351	5.849
14.00	1-14	1,116.760	0.004	0.019	1,107.859	Not Full	Yes	4.066	8.901
15.00	1-15	1,115.180	0.002	0.011	1,108.215	Not Full	Yes	3.202	6.965
16.00	1-16	1,120.170	0.003	0.016	1,109.212	Not Full	No	-0.125	10.958
17.00	1-17	1,123.790	0.002	0.012	1,113.832	Not Full	Yes	0.275	9.958
18.00	1-18	1,095.070	0.002	0.009	1,091.676	Not Full	No	1.306	3.394
19.00	1-19	1,096.390	0.002	0.010	1,092.383	Not Full	No	1.893	4.007
20.00	1-20	1,099.250	0.001	0.007	1,094.482	Not Full	No	3.532	4.768
21.00	1-21	1,099.180	0.002	0.010	1,095.066	Not Full	No	4.086	4.114
22.00	1-22	1,099.550	0.002	0.013	1,097.228	Not Full	Yes	5.678	2.322
23.00	1-23	1,105.260	0.004	0.019	1,097.967	Not Full	No	1.940	7.293
24.00	1-24	1,109.160	0.004	0.019	1,099.772	Not Full	No	-0.355	9.388
25.00	1-25	1,115.510	0.002	0.011	1,101.686	Not Full	No	-0.291	13.824
26.00	1-26	1,115.000	0.001	0.006	1,102.028	Not Full	No	0.012	12.972
27.00	1-27	1,117.020	0.001	0.008	1,102.147	Not Full	Yes	-0.140	14.873
28.00	1-28	1,112.960	0.002	0.013	1,103.546	Not Full	No	-0.281	9.414
29.00	1-29	1,109.000	0.002	0.013	1,103.955	Not Full	No	-0.592	5.045
30.00	1-30	1,118.000	0.001	0.008	1,112.023	Not Full	No	-0.643	5.977
31.00	1-31	1,102.890	0.003	0.017	1,096.839	Not Full	No	4.782	6.051
32.00	1-32	1,105.620	0.003	0.017	1,098.649	Not Full	No	5.263	6.971
33.00	1-33	1,108.720	0.003	0.014	1,100.353	Not Full	No	5.666	8.367
34.00	1-34	1,105.630	0.002	0.012	1,101.749	Not Full	No	5.952	3.881
35.00	1-35	1,103.370	0.001	0.005	1,102.902	Not Full	No	6.465	0.468
36.00	1-36	1,102.000	0.001	0.004	1,102.000	Full	No	5.333	0.000
37.00	1-37	1,103.000	0.002	0.011	1,102.000	Not Full	No	4.334	1.000
38.00	1-38	1,105.930	0.001	0.006	1,103.675	Not Full	No	6.508	2.255
39.00	1-39	1,105.930	0.001	0.004	1,103.918	Not Full	Yes	6.721	2.012
40.00	1-40	1,105.000	0.002	0.010	1,105.000	Full	No	5.333	0.000
41.00	1-41	1,111.240	0.001	0.007	1,106.331	Not Full	No	6.124	4.909
42.00	1-42	1,111.000	0.000	0.002	1,103.923	Not Full	No	6.506	7.077
43.00	1-43	1,111.000	0.000	0.003	1,103.925	Not Full	Yes	6.258	7.075
44.00	1-44	1,104.000	0.002	0.009	1,103.932	Not Full	No	5.265	0.068
45.00	1-45	1,107.000	0.002	0.013	1,103.938	Not Full	No	2.271	3.062
46.00	1-46	1,109.000	0.004	0.019	1,103.940	Not Full	No	0.273	5.060
47.00	1-47	1,112.860	0.003	0.016	1,107.008	Not Full	Yes	4.798	5.852
48.00	1-48	1,112.930	0.002	0.011	1,108.126	Not Full	No	-0.371	4.804
49.00	1-49	1,111.000	0.001	0.006	1,105.029	Not Full	No	-0.637	5.971
50.00	2-1	1,099.960	0.001	0.008	1,098.007	Not Full	No	5.847	1.953
51.00	2-2	1,098.060	0.001	0.007	1,098.017	Not Full	No	5.557	0.043
52.00	2-3	1,097.480	0.003	0.014	1,097.480	Full	No	4.150	0.000
53.00	2-4	1,104.950	0.005	0.024	1,098.665	Not Full	No	4.281	6.285
54.00	2-5	1,109.600	0.003	0.018	1,102.708	Not Full	Yes	5.141	6.892
55.00	2-6	1,109.870	0.003	0.015	1,105.422	Not Full	Yes	6.485	4.448
56.00	2-7	1,109.170	0.004	0.022	1,107.800	Not Full	Yes	7.764	1.370
57.00	2-8	1,108.640	0.003	0.018	1,108.640	Full	No	7.233	0.000
58.00	2-9	1,112.360	0.001	0.007	1,110.268	Not Full	Yes	7.412	2.092
59.00	2-10	1,113.300	0.002	0.010	1,110.634	Not Full	Yes	7.568	2.666
60.00	2-11	1,118.810	0.003	0.015	1,112.642	Not Full	No	2.386	6.168
61.00	2-12	1,124.680	0.001	0.006	1,115.568	Not Full	No	-0.379	9.112
62.00	2-13	1,126.120	0.003	0.014	1,117.442	Not Full	No	-0.245	8.678
63.00	2-14	1,124.110	0.003	0.016	1,117.962	Not Full	Yes	-0.448	6.148
64.00	2-15	1,124.040	0.002	0.011	1,119.997	Not Full	No	-0.510	4.043
65.00	2-16	1,116.000	0.003	0.014	1,110.092	Not Full	No	-0.575	5.908
66.00	2-17	1,119.000	0.001	0.009	1,113.114	Not Full	No	-0.552	5.886
67.00	2-18	1,122.000	0.002	0.012	1,116.085	Not Full	No	-0.581	5.915
68.00	2-19	1,127.000	0.002	0.013	1,121.060	Not Full	No	-0.607	5.940
69.00	2-20	1,124.000	0.003	0.016	1,118.101	Not Full	Yes	-0.565	5.899
70.00	2-21	1,129.000	0.003	0.016	1,123.067	Not Full	No	-0.600	5.933
71.00	2-22	1,112.000	0.001	0.004	1,106.053	Not Full	No	-0.613	5.947
72.00	2-23	1,113.000	0.002	0.010	1,107.053	Not Full	No	-0.613	5.947
73.00	2-24	1,119.000	0.003	0.015	1,113.059	Not Full	No	-0.608	5.941
74.00	2-25	1,112.000	0.002	0.010	1,107.812	Not Full	No	1.145	4.188
75.00	2-25.5	1,115.000	0.003	0.016	1,109.106	Not Full	No	-0.561	5.894
76.00	2-26	1,124.000	0.003	0.018	1,118.083	Not Full	No	-0.583	5.917
77.00	2-27	1,135.000	0.004	0.021	1,129.062	Not Full	No	-0.605	5.938
78.00	2-28	1,128.000	0.003	0.017	1,122.041	Not Full	No	-0.625	5.959
79.00	2-29	1,107.000	0.002	0.011	1,107.000	Full	No	5.333	0.000
80.00	2-30	1,107.000	0.004	0.019	1,107.000	Full	No	4.833	0.000
81.00	2-31	1,111.000	0.001	0.005	1,110.273	Not Full	No	4.606	0.727

82.00	2-32	1,112.000	0.001	0.004	1,110.274	Not Full	No	3.607	1.726
83.00	2-33	1,112.000	0.002	0.010	1,110.278	Not Full	Yes	2.611	1.722
84.00	2-34	1,116.000	0.004	0.022	1,110.282	Not Full	No	-0.385	5.718
85.00	2-35	1,123.000	0.002	0.009	1,117.041	Not Full	No	-0.626	5.959
86.00	3-1	1,097.890	0.004	0.019	1,097.600	Not Full	No	3.960	0.290
87.00	3-2	1,098.250	0.001	0.008	1,097.653	Not Full	No	3.323	0.597
88.00	3-3	1,099.000	0.002	0.014	1,097.685	Not Full	No	3.105	1.315
89.00	3-4	1,100.000	0.003	0.016	1,097.740	Not Full	No	2.360	2.260
90.00	3-5	1,101.000	0.002	0.012	1,097.949	Not Full	No	1.769	3.051
91.00	3-6	1,102.000	0.003	0.016	1,098.158	Not Full	No	1.178	3.842
92.00	3-7	1,104.000	0.012	0.058	1,098.449	Not Full	No	0.199	5.551
93.00	3-8	1,111.000	0.007	0.032	1,099.118	Not Full	No	-0.522	11.882
94.00	3-9	1,111.000	0.005	0.025	1,100.341	Not Full	Yes	-0.519	10.659
95.00	3-10	1,110.000	0.006	0.029	1,102.087	Not Full	Yes	-0.613	7.913
96.00	3-11	1,110.000	0.003	0.017	1,103.906	Not Full	No	-0.634	6.094
97.00	3-12	1,115.000	0.002	0.014	1,105.439	Not Full	No	-0.621	9.561
98.00	3-13	1,118.000	0.001	0.006	1,106.623	Not Full	Yes	-0.627	11.377
99.00	3-14	1,119.000	0.001	0.005	1,113.020	Not Full	No	-0.810	5.980
100.00	3-15	1,121.000	0.002	0.010	1,115.298	Not Full	No	-0.702	5.702
101.00	3-16	1,122.000	0.004	0.021	1,115.934	Not Full	No	-0.466	6.066
102.00	3-17	1,121.000	0.002	0.009	1,116.338	Not Full	No	-0.462	4.662
103.00	3-18	1,121.000	0.000	0.002	1,116.345	Not Full	Yes	-0.655	4.655
104.00	3-19	1,121.000	0.000	0.003	1,116.499	Not Full	No	-0.701	4.501
105.00	3-20	1,121.000	0.000	0.003	1,116.820	Not Full	No	-0.580	4.180
106.00	3-21	1,120.000	0.001	0.004	1,117.289	Not Full	No	-0.511	2.711
107.00	3-22	1,120.000	0.000	0.003	1,117.696	Not Full	No	-0.504	2.304
108.00	3-23	1,125.000	0.000	0.003	1,119.299	Not Full	No	-0.701	5.701
109.00	3-24	1,150.000	0.006	0.030	1,136.280	Not Full	No	-0.820	13.720
110.00	3-25	1,172.000	0.004	0.019	1,166.153	Not Full	No	-0.847	5.847
111.00	3-26	1,179.000	0.000	0.003	1,170.795	Not Full	No	-0.835	8.205
112.00	3-27	1,184.000	0.002	0.010	1,177.727	Not Full	No	-0.803	6.273
113.00	3-28	1,188.000	0.000	0.001	1,180.548	Not Full	No	-0.742	7.452
114.00	3-29	1,112.000	0.006	0.032	1,106.121	Not Full	No	-0.545	5.879
115.00	3-30	1,113.000	0.002	0.010	1,108.341	Not Full	No	-0.526	4.659
116.00	3-31	1,113.000	0.004	0.021	1,107.755	Not Full	No	-0.512	5.245
117.00	3-32	1,113.000	0.001	0.008	1,108.578	Not Full	No	-0.589	4.422
118.00	3-33	1,115.000	0.002	0.010	1,109.076	Not Full	No	-0.591	5.924
119.00	3-34	1,122.000	0.003	0.015	1,116.111	Not Full	No	-0.556	5.889
120.00	3-35	1,122.000	0.002	0.012	1,117.093	Not Full	No	-0.573	4.907
121.00	3-36	1,124.000	0.001	0.009	1,118.058	Not Full	No	-0.609	5.942
122.00	3-37	1,122.000	0.000	0.003	1,116.345	Not Full	No	-0.488	5.655
123.00	3-38	1,125.000	0.002	0.009	1,119.102	Not Full	No	-0.731	5.898
124.00	3-39	1,127.000	0.001	0.004	1,121.094	Not Full	No	-0.739	5.906
125.00	3-40	1,128.000	0.000	0.002	1,121.603	Not Full	Yes	-0.730	6.397
126.00	3-41	1,130.000	0.001	0.007	1,124.054	Not Full	No	-0.780	5.946
127.00	3-42	1,136.000	0.001	0.006	1,130.034	Not Full	No	-0.800	5.966
128.00	3-43	1,129.000	0.002	0.013	1,121.878	Not Full	No	-0.539	7.122
129.00	3-44	1,128.000	0.002	0.011	1,122.111	Not Full	No	-0.556	5.889
130.00	4-1	1,129.020	0.004	0.023	1,122.993	Not Full	No	-0.393	6.027
131.00	4-2	1,142.580	0.001	0.007	1,134.553	Not Full	No	-0.494	8.027
132.00	4-3	1,153.490	0.002	0.012	1,146.358	Not Full	No	-0.499	7.132
133.00	4-4	1,157.710	0.007	0.035	1,150.257	Not Full	No	-0.520	7.453
134.00	4-5	1,174.690	0.007	0.034	1,167.013	Not Full	No	-0.877	7.677
135.00	4-6	1,184.750	0.004	0.019	1,175.365	Not Full	No	-0.885	9.385
136.00	4-7	1,185.730	0.001	0.008	1,177.088	Not Full	Yes	-0.489	8.642
137.00	4-8	1,188.480	0.001	0.005	1,181.485	Not Full	No	-0.562	6.995
138.00	4-9	1,194.160	0.001	0.007	1,186.052	Not Full	No	-0.575	8.108
139.00	4-10	1,204.730	0.001	0.008	1,194.603	Not Full	No	-0.594	10.127
140.00	4-11	1,220.320	0.002	0.011	1,213.495	Not Full	No	-0.592	6.825
141.00	4-12	1,226.880	0.001	0.008	1,221.648	Not Full	No	-0.599	5.232
142.00	4-13	1,240.070	0.002	0.013	1,233.933	Not Full	No	-0.604	6.137
143.00	4-14	1,263.080	0.002	0.012	1,253.628	Not Full	No	-0.629	9.452
144.00	4-15	1,135.050	0.001	0.008	1,135.050	Full	No	-15.087	0.000
145.00	4-16	1,159.770	0.002	0.009	1,149.586	Not Full	No	-0.551	10.184
146.00	4-17	1,183.830	0.001	0.008	1,174.624	Not Full	No	-0.553	9.206
147.00	4-18	1,199.680	0.001	0.004	1,193.308	Not Full	No	-0.538	6.372
148.00	4-19	1,209.060	0.001	0.005	1,202.784	Not Full	No	-0.533	6.276
149.00	4-20	1,216.110	0.002	0.011	1,205.454	Not Full	No	-0.443	10.656
150.00	4-21	1,215.880	0.003	0.015	1,208.102	Not Full	No	-0.444	7.778
151.00	4-22	1,223.000	0.001	0.008	1,212.008	Not Full	No	-0.459	10.992
152.00	4-23	1,221.700	0.002	0.012	1,213.273	Not Full	No	-0.594	8.427
153.00	4-24	1,236.000	0.001	0.008	1,230.120	Not Full	No	-0.547	5.880
154.00	4-25	1,240.000	0.002	0.011	1,234.130	Not Full	No	-0.537	5.870
155.00	4-26	1,248.000	0.001	0.008	1,242.124	Not Full	No	-0.543	5.876
156.00	4-27	1,254.000	0.001	0.008	1,248.119	Not Full	No	-0.548	5.881
157.00	4-28	1,272.000	0.002	0.011	1,266.095	Not Full	No	-0.572	5.905
158.00	4-29	1,279.000	0.001	0.008	1,273.058	Not Full	No	-0.608	5.942
159.00	4-30	1,306.000	0.003	0.014	1,300.036	Not Full	No	-0.631	5.964
160.00	4-31	1,132.000	0.002	0.012	1,126.059	Not Full	No	-0.608	5.941
161.00	4-32	1,217.530	0.001	0.005	1,211.572	Not Full	No	-0.625	5.958
162.00	4-33	1,227.000	0.003	0.017	1,221.050	Not Full	No	-0.617	5.950
163.00	4-34	1,231.000	0.003	0.015	1,225.049	Not Full	No	-0.618	5.951
164.00	4-35	1,239.000	0.003	0.017	1,233.058	Not Full	No	-0.608	5.942

165.00	4-36	1,222.000	0.002	0.009	1,216.033	Not Full	No	-0.634	5.967
166.00	4-37	1,188.000	0.001	0.007	1,182.047	Not Full	No	-0.620	5.953
167.00	4-38	1,189.000	0.002	0.009	1,183.060	Not Full	No	-0.606	5.940
168.00	4-39	1,170.000	0.001	0.008	1,164.034	Not Full	No	-0.632	5.966
169.00	4-40	1,173.000	0.002	0.012	1,167.056	Not Full	No	-0.611	5.944
170.00	4-41	1,184.000	0.002	0.011	1,178.069	Not Full	No	-0.597	5.931
171.00	4-42	1,190.000	0.002	0.013	1,184.064	Not Full	No	-0.602	5.936
172.00	4-43	1,207.000	0.002	0.011	1,201.050	Not Full	No	-0.617	5.950
173.00	4-44	1,219.000	0.003	0.014	1,213.037	Not Full	No	-0.629	5.963
174.00	4-45	1,188.000	0.000	0.001	1,182.044	Not Full	No	-0.789	5.956
175.00	4-46	1,205.000	0.002	0.011	1,199.036	Not Full	No	-0.630	5.964
176.00	4-47	1,184.000	0.002	0.010	1,178.063	Not Full	No	-0.604	5.937
177.00	4-48	1,194.000	0.001	0.008	1,188.063	Not Full	No	-0.604	5.937
178.00	4-49	1,213.000	0.002	0.010	1,207.047	Not Full	No	-0.620	5.953
179.00	4-50	1,228.000	0.002	0.011	1,222.035	Not Full	No	-0.632	5.965
180.00	4-51	1,242.000	0.002	0.010	1,236.059	Not Full	No	-0.607	5.941
181.00	4-52	1,248.000	0.002	0.013	1,242.053	Not Full	No	-0.614	5.947
182.00	4-53	1,257.000	0.004	0.021	1,251.047	Not Full	No	-0.619	5.953
183.00	4-54	1,291.000	0.001	0.003	1,285.072	Not Full	No	-0.594	5.928
184.00	4-55	1,159.000	0.001	0.006	1,153.049	Not Full	No	-0.451	5.951
185.00	5-1	1,127.760	0.004	0.022	1,118.378	Not Full	No	-0.128	9.382
186.00	5-2	1,133.260	0.003	0.015	1,123.736	Not Full	Yes	1.010	9.524
187.00	5-3	1,138.630	0.002	0.010	1,126.920	Not Full	No	-0.137	11.710
188.00	5-4	1,144.170	0.002	0.009	1,131.379	Not Full	No	-0.258	12.791
189.00	5-5	1,149.500	0.001	0.006	1,135.581	Not Full	No	-0.255	13.919
190.00	5-6	1,155.710	0.001	0.007	1,143.796	Not Full	No	-0.451	11.914
191.00	5-7	1,159.810	0.002	0.014	1,149.864	Not Full	No	-0.413	9.946
192.00	5-8	1,181.170	0.001	0.008	1,171.266	Not Full	No	-0.490	9.904
193.00	5-9	1,179.140	0.001	0.008	1,173.473	Not Full	No	-0.464	5.667
194.00	5-10	1,189.580	0.003	0.015	1,180.570	Not Full	No	-0.447	9.010
195.00	5-11	1,203.290	0.003	0.016	1,196.264	Not Full	No	-0.473	7.026
196.00	5-12	1,219.620	0.001	0.006	1,208.483	Not Full	No	-0.474	11.137
197.00	5-13	1,225.450	0.001	0.006	1,220.451	Not Full	No	-0.495	4.999
198.00	5-14	1,228.000	0.001	0.008	1,222.273	Not Full	No	-0.394	5.727
199.00	5-15	1,247.240	0.001	0.004	1,239.316	Not Full	No	-0.551	7.924
200.00	5-16	1,248.710	0.001	0.004	1,241.266	Not Full	No	-0.511	7.444
201.00	5-17	1,277.780	0.001	0.006	1,271.045	Not Full	No	-0.512	6.735
202.00	5-18	1,294.370	0.001	0.007	1,290.728	Not Full	No	-0.529	3.642
203.00	5-19	1,304.320	0.001	0.005	1,297.547	Not Full	No	-0.460	6.773
204.00	5-20	1,304.000	0.001	0.005	1,298.240	Not Full	Yes	-0.427	5.760
205.00	5-21	1,308.000	0.001	0.006	1,302.178	Not Full	No	-0.488	5.822
206.00	5-22	1,307.000	0.001	0.005	1,303.258	Not Full	Yes	-0.408	3.742
207.00	5-23	1,318.000	0.000	0.003	1,312.124	Not Full	No	-0.543	5.876
208.00	5-24	1,327.000	0.001	0.006	1,321.112	Not Full	No	-0.554	5.888
209.00	5-25	1,351.000	0.001	0.007	1,345.091	Not Full	No	-0.576	5.909
210.00	5-26	1,353.000	0.001	0.008	1,347.095	Not Full	No	-0.572	5.905
211.00	5-27	1,369.000	0.002	0.009	1,363.081	Not Full	No	-0.586	5.919
212.00	5-28	1,144.000	0.003	0.014	1,138.077	Not Full	No	-0.590	5.923
213.00	5-29	1,151.000	0.005	0.027	1,145.065	Not Full	No	-0.601	5.935
214.00	5-30	1,149.000	0.002	0.009	1,143.079	Not Full	No	-0.588	5.921
215.00	5-31	1,172.000	0.002	0.012	1,166.058	Not Full	No	-0.609	5.942
216.00	5-32	1,195.000	0.005	0.025	1,189.047	Not Full	No	-0.620	5.953
217.00	5-33	1,152.750	0.001	0.007	1,141.404	Not Full	No	-0.383	11.346
218.00	5-34	1,157.810	0.002	0.011	1,147.432	Not Full	No	-0.385	10.378
219.00	5-35	1,162.810	0.002	0.010	1,156.796	Not Full	No	-0.430	6.014
220.00	5-37	1,166.000	0.002	0.010	1,160.083	Not Full	No	-0.584	5.917
221.00	5-38	1,170.000	0.002	0.011	1,164.082	Not Full	No	-0.585	5.918
222.00	5-39	1,181.000	0.002	0.013	1,175.055	Not Full	No	-0.611	5.945
223.00	5-40	1,195.000	0.002	0.011	1,189.036	Not Full	No	-0.631	5.964
224.00	5-41	1,163.000	0.002	0.010	1,157.132	Not Full	No	-0.534	5.868
225.00	5-42	1,169.000	0.003	0.018	1,163.138	Not Full	No	-0.529	5.862
226.00	5-43	1,178.000	0.002	0.013	1,172.109	Not Full	No	-0.557	5.891
227.00	5-44	1,191.000	0.002	0.011	1,185.093	Not Full	No	-0.574	5.907
228.00	5-45	1,201.000	0.003	0.014	1,195.088	Not Full	No	-0.579	5.912
229.00	5-46	1,228.000	0.002	0.012	1,222.079	Not Full	No	-0.588	5.921
230.00	5-47	1,235.000	0.001	0.007	1,229.066	Not Full	No	-0.601	5.934
231.00	5-48	1,245.000	0.001	0.008	1,239.067	Not Full	No	-0.599	5.933
232.00	5-49	1,255.000	0.001	0.006	1,249.040	Not Full	No	-0.627	5.960
233.00	5-50	1,275.000	0.001	0.008	1,269.031	Not Full	No	-0.635	5.969
234.00	5-50.5	1,261.000	0.002	0.009	1,255.049	Not Full	No	-0.618	5.951
235.00	5-51	1,285.000	0.001	0.006	1,279.035	Not Full	No	-0.632	5.965
236.00	5-51.5	1,289.000	0.001	0.008	1,283.031	Not Full	No	-0.635	5.969
237.00	5-52	1,172.000	0.001	0.006	1,166.085	Not Full	No	-0.582	5.915
238.00	5-53	1,173.000	0.001	0.007	1,167.102	Not Full	No	-0.565	5.898
239.00	5-54	1,179.000	0.003	0.014	1,173.105	Not Full	No	-0.562	5.895
240.00	5-55	1,199.000	0.003	0.016	1,193.074	Not Full	No	-0.593	5.926
241.00	5-56	1,218.000	0.002	0.009	1,212.062	Not Full	No	-0.605	5.938
242.00	5-57	1,221.000	0.001	0.007	1,215.052	Not Full	No	-0.615	5.948
243.00	5-58	1,230.000	0.002	0.010	1,224.053	Not Full	No	-0.613	5.947
244.00	5-59	1,246.000	0.002	0.010	1,240.037	Not Full	No	-0.630	5.963
245.00	5-60	1,163.000	0.002	0.012	1,157.099	Not Full	No	-0.568	5.901
246.00	5-61	1,178.000	0.003	0.016	1,172.087	Not Full	No	-0.580	5.913
247.00	5-62	1,195.000	0.003	0.017	1,189.083	Not Full	No	-0.583	5.917

248.00	5-63	1,213.000	0.003	0.014	1,203.067	Not Full	No	-0.600	9.933
249.00	5-64	1,210.000	0.002	0.011	1,204.077	Not Full	No	-0.590	5.923
250.00	5-65	1,211.000	0.002	0.011	1,205.061	Not Full	No	-0.606	5.939
251.00	5-66	1,259.000	0.001	0.008	1,253.038	Not Full	No	-0.628	5.962
252.00	5-66.5	1,279.000	0.001	0.007	1,273.027	Not Full	No	-0.639	5.973
253.00	5-67	1,305.000	0.001	0.007	1,299.048	Not Full	No	-0.619	5.952
254.00	5-68	1,309.000	0.002	0.011	1,303.061	Not Full	No	-0.605	5.939
255.00	5-69	1,341.000	0.002	0.009	1,335.027	Not Full	No	-0.640	5.973
256.00	5-70	1,329.000	0.002	0.010	1,323.042	Not Full	No	-0.625	5.958
257.00	5-71	1,350.000	0.001	0.006	1,344.029	Not Full	No	-0.638	5.971
258.00	5-72	1,355.000	0.001	0.007	1,349.038	Not Full	No	-0.629	5.962
259.00	5-73	1,319.000	0.002	0.009	1,313.089	Not Full	No	-0.578	5.911
260.00	5-74	1,342.000	0.001	0.005	1,336.072	Not Full	No	-0.594	5.928
261.00	5-75	1,359.000	0.000	0.003	1,353.071	Not Full	No	-0.596	5.929
262.00	5-76	1,363.000	0.001	0.004	1,357.027	Not Full	No	-0.640	5.973
263.00	5-77	1,380.000	0.001	0.005	1,374.065	Not Full	No	-0.602	5.935
264.00	5-78	1,400.000	0.001	0.007	1,394.063	Not Full	No	-0.604	5.937
265.00	5-79	1,405.000	0.001	0.007	1,399.102	Not Full	No	-0.565	5.898
266.00	5-80	1,417.000	0.001	0.004	1,411.072	Not Full	No	-0.594	5.928
267.00	5-81	1,424.000	0.001	0.008	1,418.070	Not Full	No	-0.596	5.930
268.00	5-82	1,428.000	0.001	0.008	1,422.076	Not Full	No	-0.590	5.924
269.00	5-83	1,447.000	0.001	0.005	1,441.042	Not Full	No	-0.625	5.958
270.00	5-83.5	1,463.000	0.001	0.008	1,457.027	Not Full	No	-0.639	5.973
271.00	5-84	1,459.000	0.002	0.010	1,453.030	Not Full	No	-0.637	5.970
272.00	5-85	1,423.000	0.001	0.004	1,417.037	Not Full	No	-0.629	5.963
273.00	5-86	1,433.000	0.001	0.006	1,427.036	Not Full	No	-0.630	5.964
274.00	5-87	1,437.000	0.001	0.006	1,431.032	Not Full	No	-0.635	5.968
275.00	5-88	1,384.000	0.001	0.007	1,378.045	Not Full	No	-0.622	5.955
276.00	5-89	1,330.000	0.001	0.008	1,324.074	Not Full	No	-0.593	5.926
277.00	5-90	1,343.000	0.002	0.010	1,337.058	Not Full	No	-0.609	5.942
278.00	5-91	1,345.000	0.001	0.008	1,339.066	Not Full	No	-0.600	5.934
279.00	5-92	1,368.000	0.001	0.008	1,362.028	Not Full	No	-0.639	5.972
280.00	5-93	1,328.000	0.002	0.010	1,322.089	Not Full	No	-0.577	5.911
281.00	5-94	1,330.000	0.002	0.009	1,324.053	Not Full	No	-0.614	5.947
282.00	5-95	1,354.000	0.002	0.010	1,348.066	Not Full	No	-0.601	5.934
283.00	5-96	1,358.000	0.001	0.007	1,352.040	Not Full	No	-0.627	5.960
284.00	6-1	1,174.280	0.002	0.011	1,164.544	Not Full	No	-0.402	9.736
285.00	6-2	1,172.680	0.001	0.004	1,165.426	Not Full	No	-0.491	7.254
286.00	6-3	1,176.440	0.001	0.005	1,166.310	Not Full	Yes	-0.347	10.130
287.00	6-4	1,178.310	0.002	0.013	1,172.049	Not Full	No	-0.438	6.261
288.00	6-5	1,191.410	0.001	0.007	1,182.897	Not Full	No	-0.480	8.513
289.00	6-6	1,187.860	0.001	0.008	1,183.524	Not Full	No	-0.303	4.336
290.00	6-7	1,195.930	0.001	0.008	1,184.265	Not Full	No	-0.331	11.665
291.00	6-8	1,190.640	0.001	0.006	1,184.948	Not Full	Yes	-0.389	5.692
292.00	6-9	1,201.450	0.001	0.006	1,189.495	Not Full	No	-0.432	11.955
293.00	6-10	1,203.360	0.000	0.003	1,191.212	Not Full	No	-0.545	12.148
294.00	6-11	1,207.880	0.002	0.014	1,199.424	Not Full	No	-0.542	8.456
295.00	6-12	1,220.110	0.001	0.007	1,208.924	Not Full	No	-0.553	11.186
296.00	6-13	1,218.810	0.002	0.009	1,210.004	Not Full	No	-0.523	8.806
297.00	6-14	1,221.000	0.000	0.003	1,215.095	Not Full	No	-0.572	5.905
298.00	6-15	1,232.250	0.001	0.005	1,218.479	Not Full	No	-0.578	13.771
299.00	6-16	1,241.830	0.000	0.003	1,232.997	Not Full	No	-0.610	8.833
300.00	6-17	1,246.000	0.002	0.009	1,239.182	Not Full	No	-0.595	6.818
301.00	6-18	1,274.620	0.001	0.008	1,267.027	Not Full	No	-0.609	7.593
302.00	6-19	1,278.000	0.001	0.006	1,272.059	Not Full	No	-0.608	5.941
303.00	6-20	1,293.000	0.001	0.005	1,287.041	Not Full	No	-0.626	5.959
304.00	6-21	1,316.000	0.001	0.007	1,310.026	Not Full	No	-0.640	5.974
305.00	6-22	1,298.000	0.001	0.004	1,292.021	Not Full	No	-0.646	5.979
306.00	6-23	1,295.000	0.001	0.008	1,289.028	Not Full	No	-0.638	5.972
307.00	6-24	1,205.000	0.003	0.014	1,199.122	Not Full	No	-0.544	5.878
308.00	6-25	1,217.000	0.001	0.008	1,211.127	Not Full	No	-0.539	5.873
309.00	6-26	1,217.000	0.002	0.011	1,211.670	Not Full	Yes	-0.497	5.330
310.00	6-27	1,227.000	0.002	0.013	1,221.093	Not Full	No	-0.574	5.907
311.00	6-28	1,230.000	0.003	0.015	1,224.133	Not Full	No	-0.533	5.867
312.00	6-29	1,243.000	0.001	0.007	1,237.084	Not Full	No	-0.583	5.916
313.00	6-30	1,248.000	0.001	0.007	1,242.047	Not Full	No	-0.619	5.953
314.00	6-31	1,257.000	0.001	0.007	1,251.047	Not Full	No	-0.620	5.953
315.00	6-32	1,270.000	0.001	0.007	1,264.028	Not Full	No	-0.639	5.972
316.00	6-33	1,249.000	0.001	0.006	1,243.062	Not Full	No	-0.605	5.938
317.00	6-34	1,274.000	0.002	0.009	1,268.049	Not Full	No	-0.618	5.951
318.00	6-35	1,315.000	0.001	0.007	1,309.025	Not Full	No	-0.641	5.975
319.00	6-36	1,283.000	0.002	0.009	1,277.035	Not Full	No	-0.631	5.965
320.00	6-37	1,180.050	0.001	0.005	1,168.808	Not Full	No	-0.528	11.242
321.00	6-38	1,206.000	0.002	0.010	1,200.060	Not Full	No	-0.607	5.940
322.00	6-39	1,214.000	0.001	0.005	1,208.058	Not Full	No	-0.608	5.942
323.00	6-40	1,242.000	0.003	0.016	1,236.044	Not Full	No	-0.622	5.956
324.00	6-41	1,247.000	0.002	0.013	1,241.051	Not Full	No	-0.616	5.949
325.00	6-42	1,248.000	0.001	0.008	1,242.029	Not Full	No	-0.638	5.971
326.00	6-43	1,187.380	0.001	0.007	1,181.383	Not Full	No	-0.574	5.997
327.00	6-44	1,193.000	0.001	0.007	1,187.109	Not Full	No	-0.558	5.891
328.00	6-44.5	1,195.000	0.001	0.006	1,189.137	Not Full	No	-0.529	5.863
329.00	6-45	1,197.430	0.000	0.002	1,192.204	Not Full	No	-0.593	5.226
330.00	6-46	1,199.000	0.001	0.005	1,193.075	Not Full	No	-0.591	5.925

331.00	6-46.25	1,205.000	0.002	0.013	1,199.070	Not Full	No	-0.597	5.930
332.00	6-46.5	1,208.000	0.001	0.007	1,202.065	Not Full	No	-0.601	5.935
333.00	6-47	1,225.000	0.003	0.014	1,219.051	Not Full	No	-0.616	5.949
334.00	6-48	1,252.000	0.003	0.017	1,246.038	Not Full	No	-0.628	5.962
335.00	6-49	1,208.000	0.002	0.011	1,202.038	Not Full	No	-0.629	5.962
336.00	6-50	1,209.000	0.001	0.007	1,203.052	Not Full	No	-0.615	5.948
337.00	6-51	1,196.000	0.001	0.005	1,190.037	Not Full	No	-0.630	5.963
338.00	6-52	1,199.000	0.001	0.007	1,193.037	Not Full	No	-0.630	5.963
339.00	6-53	1,213.000	0.002	0.011	1,207.030	Not Full	No	-0.637	5.970
340.00	6-53.25	1,220.000	0.001	0.004	1,214.038	Not Full	No	-0.628	5.962
341.00	6-53.5	1,227.000	0.001	0.004	1,221.033	Not Full	No	-0.633	5.967
342.00	6-53.75	1,235.000	0.001	0.004	1,229.023	Not Full	No	-0.643	5.977
343.00	6-54	1,233.000	0.001	0.006	1,227.039	Not Full	No	-0.627	5.961
344.00	6-55	1,243.000	0.002	0.012	1,237.040	Not Full	No	-0.627	5.960
345.00	6-56	1,235.000	0.001	0.008	1,229.037	Not Full	No	-0.630	5.963
346.00	6-57	1,252.000	0.001	0.006	1,246.033	Not Full	No	-0.634	5.967
347.00	6-57.5	1,254.000	0.001	0.005	1,248.035	Not Full	No	-0.631	5.965
348.00	6-58	1,224.000	0.001	0.007	1,218.079	Not Full	No	-0.588	5.921
349.00	6-59	1,225.000	0.001	0.005	1,219.107	Not Full	No	-0.560	5.893
350.00	6-60	1,227.000	0.001	0.003	1,221.082	Not Full	No	-0.584	5.918
351.00	6-61	1,228.000	0.001	0.005	1,222.060	Not Full	No	-0.606	5.940
352.00	6-62	1,243.000	0.002	0.011	1,237.047	Not Full	No	-0.620	5.953
353.00	6-63	1,258.000	0.001	0.008	1,252.033	Not Full	No	-0.634	5.967
354.00	6-64	1,229.000	0.001	0.008	1,223.060	Not Full	No	-0.606	5.940
355.00	6-65	1,232.000	0.002	0.010	1,226.048	Not Full	No	-0.619	5.952
356.00	7-1	1,115.200	0.001	0.006	1,108.975	Not Full	Yes	-0.192	6.225
357.00	7-2	1,192.000	0.003	0.016	1,186.083	Not Full	No	-0.584	5.917
358.00	7-3	1,224.000	0.004	0.019	1,218.115	Not Full	No	-0.552	5.885
359.00	7-4	1,247.000	0.003	0.014	1,241.116	Not Full	No	-0.550	5.884
360.00	7-5	1,262.000	0.003	0.016	1,256.117	Not Full	No	-0.550	5.883
361.00	7-6	1,309.000	0.002	0.012	1,303.051	Not Full	No	-0.616	5.949
362.00	7-7	1,326.000	0.001	0.005	1,320.032	Not Full	No	-0.634	5.968
363.00	7-8	1,348.000	0.001	0.005	1,342.019	Not Full	No	-0.647	5.981
364.00	7-9	1,117.780	0.002	0.009	1,110.578	Not Full	No	-0.469	7.202
365.00	7-10	1,134.720	0.004	0.019	1,129.620	Not Full	No	-0.466	5.100
366.00	7-11	1,140.170	0.002	0.012	1,133.603	Not Full	No	-0.434	6.567
367.00	7-11.5	1,139.500	0.002	0.009	1,133.603	Not Full	No	-0.564	5.897
368.00	7-12	1,159.100	0.001	0.007	1,147.423	Not Full	No	-0.827	11.677
369.00	7-13	1,180.000	0.001	0.004	1,174.028	Not Full	No	-0.639	5.972
370.00	7-14	1,189.100	0.001	0.006	1,176.895	Not Full	No	-0.601	12.205
371.00	7-15	1,202.600	0.000	0.003	1,192.164	Not Full	Yes	-0.603	10.436
372.00	7-16	1,208.900	0.000	0.002	1,199.834	Not Full	No	-0.612	9.066
373.00	7-17	1,231.000	0.001	0.003	1,222.126	Not Full	Yes	-0.874	8.874
374.00	7-18	1,232.500	0.001	0.005	1,222.449	Not Full	No	-0.577	10.051
375.00	7-19	1,257.000	0.001	0.005	1,251.049	Not Full	No	-0.618	5.951
376.00	7-20	1,259.000	0.001	0.006	1,253.057	Not Full	No	-0.609	5.943
377.00	7-21	1,307.000	0.002	0.012	1,301.039	Not Full	No	-0.627	5.961
378.00	7-22	1,335.000	0.001	0.006	1,329.028	Not Full	No	-0.639	5.972
379.00	7-22.5	1,345.000	0.001	0.003	1,339.018	Not Full	No	-0.649	5.982
380.00	7-23	1,280.000	0.002	0.012	1,274.091	Not Full	No	-0.575	5.909
381.00	7-24	1,285.000	0.001	0.008	1,279.095	Not Full	No	-0.572	5.905
382.00	7-25	1,286.000	0.001	0.008	1,280.119	Not Full	Yes	-0.548	5.881
383.00	7-26	1,352.000	0.001	0.004	1,346.053	Not Full	No	-0.613	5.947
384.00	7-27	1,358.000	0.001	0.004	1,352.059	Not Full	No	-0.607	5.941
385.00	7-28	1,365.000	0.002	0.013	1,359.055	Not Full	No	-0.612	5.945
386.00	7-29	1,368.000	0.001	0.004	1,362.046	Not Full	No	-0.621	5.954
387.00	7-30	1,370.000	0.001	0.004	1,364.019	Not Full	No	-0.648	5.981
388.00	7-31	1,377.000	0.002	0.011	1,371.040	Not Full	No	-0.627	5.960
389.00	7-32	1,330.000	0.001	0.008	1,324.027	Not Full	No	-0.639	5.973
390.00	7-33	1,344.000	0.003	0.014	1,338.033	Not Full	No	-0.633	5.967
391.00	7-34	1,345.000	0.002	0.011	1,339.030	Not Full	No	-0.637	5.970
392.00	7-35	1,202.000	0.002	0.011	1,196.030	Not Full	No	-0.637	5.970
393.00	7-36	1,223.000	0.002	0.014	1,217.046	Not Full	No	-0.621	5.954
394.00	7-37	1,242.000	0.001	0.008	1,236.049	Not Full	No	-0.618	5.951
395.00	7-38	1,247.000	0.001	0.004	1,241.028	Not Full	No	-0.638	5.972
396.00	7-39	1,249.000	0.001	0.006	1,243.051	Not Full	No	-0.616	5.949
397.00	7-40	1,263.000	0.001	0.004	1,257.032	Not Full	No	-0.635	5.968
398.00	7-41	1,265.000	0.001	0.006	1,259.026	Not Full	No	-0.640	5.974
399.00	7-42	1,219.000	0.002	0.009	1,213.027	Not Full	No	-0.640	5.973
400.00	7-43	1,229.000	0.001	0.006	1,223.039	Not Full	No	-0.627	5.961
401.00	7-44	1,238.000	0.001	0.005	1,232.059	Not Full	No	-0.608	5.941
402.00	7-45	1,247.000	0.001	0.005	1,241.043	Not Full	No	-0.624	5.957
403.00	7-46	1,264.000	0.001	0.005	1,258.021	Not Full	No	-0.646	5.979
404.00	8-1	1,155.520	0.000	0.002	1,150.659	Not Full	No	-0.527	4.861
405.00	8-2	1,177.270	0.002	0.010	1,167.292	Not Full	No	-0.564	9.978
406.00	8-3	1,211.970	0.002	0.013	1,200.437	Not Full	No	-0.540	11.533
407.00	8-4	1,237.310	0.002	0.011	1,226.691	Not Full	No	-0.536	10.619
408.00	8-5	1,249.000	0.001	0.008	1,243.121	Not Full	No	-0.546	5.879
409.00	8-6	1,265.410	0.001	0.008	1,259.167	Not Full	No	-0.550	6.243
410.00	8-7	1,300.140	0.002	0.010	1,288.621	Not Full	No	-0.556	11.519
411.00	8-8	1,318.000	0.003	0.014	1,312.077	Not Full	No	-0.589	5.923
412.00	8-9	1,354.000	0.003	0.018	1,348.069	Not Full	No	-0.598	5.931
413.00	8-10	1,383.000	0.001	0.005	1,377.048	Not Full	No	-0.619	5.952

414.00	8-11	1,391.000	0.002	0.011	1,385.054	Not Full	No	-0.613	5.946
415.00	8-12	1,408.000	0.002	0.010	1,402.033	Not Full	No	-0.634	5.967
416.00	8-13	1,384.000	0.002	0.011	1,378.064	Not Full	No	-0.603	5.936
417.00	8-14	1,279.000	0.001	0.006	1,273.033	Not Full	No	-0.634	5.967
418.00	8-15	1,307.000	0.001	0.004	1,301.019	Not Full	No	-0.647	5.981
419.00	8-16	1,288.000	0.003	0.014	1,282.039	Not Full	No	-0.628	5.961
420.00	9-1	1,092.370	0.008	0.041	1,076.151	Not Full	Yes	-0.749	16.219
421.00	9-2	1,090.200	0.002	0.010	1,076.532	Not Full	No	1.265	13.668
422.00	9-3	1,090.350	0.004	0.023	1,076.646	Not Full	No	0.163	13.704
423.00	9-4	1,089.540	0.008	0.038	1,076.809	Not Full	No	-0.465	12.731
424.00	9-5	1,088.870	0.010	0.046	1,077.914	Not Full	No	-0.489	10.956
425.00	9-6	1,087.210	0.003	0.017	1,078.334	Not Full	No	-0.309	8.876
426.00	9-7	1,085.270	0.006	0.031	1,078.632	Not Full	Yes	-0.471	6.638
427.00	9-8	1,088.240	0.004	0.019	1,080.029	Not Full	No	-0.645	8.211
428.00	9-9	1,096.460	0.004	0.019	1,080.995	Not Full	No	-0.599	15.465
429.00	9-10	1,093.470	0.005	0.026	1,082.011	Not Full	No	-0.592	11.459
430.00	9-11	1,093.380	0.002	0.009	1,083.778	Not Full	Yes	-0.605	9.602
431.00	9-12	1,092.000	0.003	0.018	1,085.095	Not Full	No	-0.738	6.905
432.00	9-13	1,092.000	0.004	0.019	1,086.066	Not Full	No	-0.768	5.934
433.00	9-14	1,092.000	0.002	0.009	1,089.821	Not Full	No	2.988	2.179
434.00	9-15	1,099.280	0.007	0.034	1,086.363	Not Full	No	-0.717	12.917
435.00	9-15.5	1,095.000	0.007	0.033	1,089.081	Not Full	No	-0.586	5.919
436.00	9-16	1,096.540	0.012	0.055	1,087.150	Not Full	No	-0.390	9.390
437.00	9-17	1,097.500	0.001	0.004	1,087.312	Not Full	No	-0.388	10.188
438.00	10-1	1,097.340	0.000	0.002	1,087.368	Not Full	Yes	-0.219	9.972
439.00	10-2	1,096.950	0.001	0.004	1,089.045	Not Full	No	-0.562	7.905
440.00	10-3	1,098.230	0.003	0.016	1,091.101	Not Full	No	-0.496	7.129
441.00	10-4	1,099.800	0.002	0.012	1,092.940	Not Full	No	-0.487	6.860
442.00	10-5	1,100.460	0.004	0.019	1,093.571	Not Full	No	-0.455	6.889
443.00	10-6	1,102.190	0.002	0.011	1,095.014	Not Full	Yes	-0.512	7.176
444.00	10-7	1,101.870	0.003	0.018	1,096.248	Not Full	No	-0.538	5.622
445.00	10-8	1,101.680	0.002	0.009	1,097.393	Not Full	No	-0.564	4.287
446.00	10-9	1,104.000	0.003	0.017	1,098.082	Not Full	No	-0.585	5.918
447.00	10-10	1,104.000	0.003	0.015	1,098.074	Not Full	No	-0.592	5.926
448.00	10-11	1,105.000	0.001	0.004	1,099.032	Not Full	No	-0.634	5.968
449.00	10-12	1,098.000	0.002	0.013	1,093.113	Not Full	No	-0.554	4.887
450.00	10-13	1,097.150	0.002	0.011	1,087.762	Not Full	Yes	-0.254	9.388
451.00	10-14	1,096.990	0.001	0.004	1,088.818	Not Full	No	-0.438	8.172
452.00	10-15	1,096.910	0.000	0.002	1,088.901	Not Full	No	-0.495	8.009
453.00	10-16	1,097.640	0.004	0.019	1,090.114	Not Full	No	-0.443	7.526
454.00	10-17	1,099.870	0.003	0.015	1,091.477	Not Full	Yes	-0.459	8.393
455.00	10-18	1,099.980	0.003	0.016	1,092.706	Not Full	No	-0.510	7.274
456.00	10-19	1,100.000	0.001	0.008	1,093.306	Not Full	No	-0.520	6.694
457.00	10-20	1,100.000	0.002	0.011	1,093.814	Not Full	Yes	-0.533	6.186
458.00	10-21	1,100.000	0.003	0.017	1,094.145	Not Full	No	-0.521	5.855
459.00	10-22	1,101.000	0.002	0.010	1,095.057	Not Full	No	-0.610	5.943
460.00	10-23	1,106.000	0.001	0.004	1,100.045	Not Full	No	-0.622	5.955
461.00	10-24	1,108.000	0.001	0.005	1,102.046	Not Full	No	-0.621	5.954
462.00	10-25	1,109.000	0.001	0.006	1,103.043	Not Full	No	-0.624	5.957
463.00	10-26	1,103.000	0.003	0.015	1,097.067	Not Full	No	-0.599	5.933
464.00	10-27	1,105.000	0.002	0.010	1,099.048	Not Full	No	-0.618	5.952
465.00	10-28	1,095.000	0.006	0.032	1,089.511	Not Full	No	-0.156	5.489
466.00	10-29	1,096.000	0.003	0.018	1,090.359	Not Full	Yes	-0.308	5.641
467.00	10-30	1,101.000	0.003	0.018	1,095.111	Not Full	No	-0.556	5.889
468.00	10-31	1,106.000	0.001	0.006	1,100.103	Not Full	No	-0.564	5.897
469.00	10-32	1,107.000	0.001	0.007	1,101.090	Not Full	No	-0.577	5.910
470.00	10-33	1,114.000	0.003	0.016	1,108.077	Not Full	No	-0.590	5.923
471.00	10-34	1,119.000	0.002	0.009	1,113.063	Not Full	No	-0.604	5.937
472.00	10-34.5	1,125.000	0.002	0.012	1,119.053	Not Full	No	-0.614	5.947
473.00	10-35	1,109.000	0.002	0.009	1,103.053	Not Full	No	-0.614	5.947
474.00	10-36	1,096.000	0.003	0.016	1,091.649	Not Full	No	-0.518	4.351
475.00	10-37	1,097.000	0.001	0.005	1,092.045	Not Full	No	-0.621	4.955
476.00	11-1	1,097.000	0.004	0.019	1,091.331	Not Full	Yes	-0.335	5.669
477.00	11-2	1,098.310	0.001	0.008	1,094.621	Not Full	No	-0.456	3.689
478.00	11-3	1,101.770	0.000	0.000	1,097.964	Not Full	No	-0.473	3.806
479.00	11-4	1,107.590	0.002	0.012	1,101.445	Not Full	No	-0.461	6.145
480.00	11-5	1,112.650	0.002	0.012	1,107.796	Not Full	No	-0.501	4.854
481.00	11-6	1,120.630	0.001	0.007	1,114.996	Not Full	No	-0.551	5.634
482.00	11-7	1,134.630	0.000	0.002	1,126.462	Not Full	No	-0.585	8.168
483.00	11-8	1,137.040	0.000	0.000	1,128.509	Not Full	No	-0.588	8.531
484.00	11-9	1,138.630	0.000	0.002	1,130.314	Not Full	No	-0.583	8.316
485.00	11-10	1,150.080	0.001	0.007	1,140.343	Not Full	No	-0.603	9.737
486.00	11-11	1,162.060	0.001	0.005	1,151.468	Not Full	No	-0.609	10.592
487.00	11-12	1,166.000	0.001	0.004	1,160.040	Not Full	No	-0.627	5.960
488.00	11-13	1,182.000	0.002	0.010	1,176.042	Not Full	No	-0.624	5.958
489.00	11-14	1,198.000	0.001	0.007	1,192.029	Not Full	No	-0.638	5.971
490.00	11-15	1,108.000	0.002	0.013	1,102.097	Not Full	Yes	-0.570	5.903
491.00	11-16	1,109.000	0.001	0.007	1,103.047	Not Full	No	-0.620	5.953
492.00	11-17	1,120.000	0.001	0.008	1,114.100	Not Full	No	-0.567	5.900
493.00	11-18	1,141.000	0.001	0.006	1,135.053	Not Full	No	-0.614	5.947
494.00	11-19	1,163.000	0.001	0.009	1,157.062	Not Full	No	-0.605	5.938
495.00	11-20	1,164.000	0.001	0.008	1,158.105	Not Full	Yes	-0.561	5.895
496.00	11-21	1,166.000	0.001	0.008	1,160.077	Not Full	No	-0.590	5.923

497.00	11-22	1,201.000	0.002	0.010	1,195.035	Not Full	No	-0.632	5.965
498.00	11-23	1,203.000	0.001	0.006	1,197.039	Not Full	No	-0.627	5.961
499.00	11-24	1,188.000	0.001	0.008	1,182.039	Not Full	No	-0.628	5.961
500.00	11-25	1,196.000	0.002	0.009	1,190.035	Not Full	No	-0.632	5.965
501.00	11-26	1,138.000	0.001	0.006	1,132.118	Not Full	No	-0.548	5.882
502.00	11-27	1,155.000	0.001	0.007	1,149.074	Not Full	No	-0.592	5.926
503.00	11-28	1,181.000	0.001	0.007	1,175.033	Not Full	No	-0.634	5.967
504.00	11-29	1,202.000	0.001	0.005	1,196.023	Not Full	No	-0.644	5.977
505.00	11-30	1,148.000	0.001	0.007	1,142.027	Not Full	No	-0.639	5.973
506.00	11-31	1,156.000	0.001	0.004	1,150.099	Not Full	No	-0.568	5.901
507.00	11-32	1,159.000	0.001	0.006	1,153.051	Not Full	No	-0.616	5.949
508.00	11-33	1,177.000	0.001	0.008	1,171.029	Not Full	No	-0.638	5.971
509.00	11-34	1,167.000	0.001	0.004	1,161.050	Not Full	No	-0.616	5.950
510.00	11-35	1,168.000	0.001	0.005	1,162.067	Not Full	Yes	-0.599	5.933
511.00	11-36	1,177.000	0.001	0.004	1,171.034	Not Full	No	-0.633	5.966
512.00	11-37	1,184.000	0.000	0.003	1,178.025	Not Full	No	-0.641	5.975
513.00	11-38	1,192.000	0.001	0.004	1,186.021	Not Full	No	-0.646	5.979
514.00	11-39	1,188.000	0.001	0.006	1,182.034	Not Full	No	-0.633	5.966
515.00	11-40	1,197.000	0.001	0.006	1,191.031	Not Full	No	-0.636	5.969
516.00	11-41	1,204.000	0.000	0.000	1,198.000	Not Full	No	-0.667	6.000
517.00	19-1	1,192.000	0.003	0.016	1,186.189	Not Full	No	-0.477	5.811
518.00	19-2	1,199.000	0.000	0.002	1,193.214	Not Full	No	-0.452	5.786
519.00	19-3	1,205.000	0.002	0.011	1,199.217	Not Full	No	-0.449	5.783
520.00	19-4	1,208.000	0.001	0.007	1,202.245	Not Full	No	-0.422	5.755
521.00	19-5	1,219.000	0.002	0.012	1,213.166	Not Full	No	-0.501	5.834
522.00	19-6	1,219.000	0.002	0.010	1,214.358	Not Full	Yes	-0.309	4.642
523.00	19-7	1,230.000	0.002	0.009	1,224.184	Not Full	No	-0.483	5.816
524.00	19-8	1,240.000	0.002	0.010	1,234.178	Not Full	No	-0.488	5.822
525.00	19-9	1,248.000	0.001	0.009	1,242.169	Not Full	No	-0.497	5.831
526.00	19-10	1,278.000	0.003	0.018	1,272.160	Not Full	No	-0.506	5.840
527.00	19-11	1,285.000	0.001	0.007	1,279.237	Not Full	No	-0.430	5.763
528.00	19-12	1,287.000	0.002	0.010	1,281.309	Not Full	No	-0.358	5.691
529.00	19-13	1,289.000	0.003	0.017	1,283.273	Not Full	No	-0.394	5.727
530.00	19-14	1,304.000	0.002	0.009	1,298.166	Not Full	No	-0.501	5.834
531.00	19-15	1,314.000	0.003	0.018	1,308.051	Not Full	No	-0.615	5.949
532.00	19-16	1,309.000	0.001	0.006	1,303.191	Not Full	No	-0.476	5.809
533.00	19-17	1,322.000	0.003	0.014	1,316.055	Not Full	No	-0.611	5.945
534.00	19-18	1,325.000	0.001	0.004	1,319.056	Not Full	No	-0.611	5.944
535.00	19-19	1,328.000	0.001	0.004	1,322.059	Not Full	No	-0.608	5.941
536.00	19-20	1,342.000	0.001	0.007	1,336.038	Not Full	No	-0.628	5.962
537.00	19-21	1,366.000	0.001	0.008	1,360.027	Not Full	No	-0.640	5.973
538.00	19-22	1,313.000	0.000	0.002	1,305.699	Not Full	No	-0.468	7.301
539.00	19-23	1,312.000	0.001	0.004	1,306.157	Not Full	No	-0.509	5.843
540.00	19-24	1,327.000	0.001	0.004	1,321.148	Not Full	No	-0.519	5.852
541.00	19-25	1,334.000	0.001	0.004	1,328.046	Not Full	No	-0.621	5.954
542.00	19-26	1,345.000	0.001	0.005	1,339.035	Not Full	No	-0.631	5.965
543.00	19-27	1,378.000	0.001	0.007	1,372.024	Not Full	No	-0.642	5.976
544.00	19-28	1,328.000	0.000	0.003	1,322.183	Not Full	No	-0.483	5.817
545.00	19-29	1,340.000	0.001	0.004	1,334.141	Not Full	No	-0.526	5.859
546.00	19-30	1,342.000	0.000	0.003	1,336.123	Not Full	No	-0.544	5.877
547.00	19-31	1,340.000	0.001	0.006	1,335.084	Not Full	Yes	-0.583	4.916
548.00	19-32	1,353.000	0.001	0.006	1,347.039	Not Full	No	-0.627	5.961
549.00	19-33	1,382.000	0.001	0.008	1,376.024	Not Full	No	-0.643	5.976
550.00	19-34	1,329.000	0.001	0.006	1,323.134	Not Full	No	-0.532	5.866
551.00	19-35	1,352.000	0.001	0.007	1,346.064	Not Full	No	-0.603	5.936
552.00	19-36	1,362.000	0.002	0.010	1,356.060	Not Full	No	-0.607	5.940
553.00	19-37	1,373.000	0.002	0.011	1,367.054	Not Full	No	-0.613	5.946
554.00	19-38	1,435.000	0.001	0.007	1,429.033	Not Full	No	-0.634	5.967
555.00	19-38.5	1,445.000	0.001	0.007	1,439.026	Not Full	No	-0.641	5.974
556.00	19-39	1,459.000	0.000	0.003	1,453.020	Not Full	No	-0.647	5.980
557.00	19-40	1,475.000	0.001	0.003	1,469.020	Not Full	No	-0.646	5.980
558.00	19-41	1,356.000	0.002	0.009	1,350.122	Not Full	No	-0.545	5.878
559.00	19-42	1,358.000	0.001	0.006	1,352.077	Not Full	No	-0.590	5.923
560.00	19-43	1,368.000	0.001	0.008	1,362.045	Not Full	No	-0.622	5.955
561.00	19-44	1,397.000	0.002	0.009	1,391.030	Not Full	No	-0.637	5.970
562.00	19-45	1,369.000	0.000	0.003	1,363.108	Not Full	No	-0.559	5.892
563.00	19-46	1,371.000	0.000	0.002	1,365.031	Not Full	No	-0.636	5.969
564.00	19-46.5	1,375.000	0.002	0.010	1,369.041	Not Full	No	-0.625	5.959
565.00	19-47	1,378.000	0.001	0.005	1,372.101	Not Full	No	-0.566	5.899
566.00	19-48	1,396.000	0.001	0.008	1,389.093	Not Full	No	-0.573	6.907
567.00	19-49	1,403.000	0.002	0.009	1,397.095	Not Full	No	-0.571	5.905
568.00	19-50	1,411.000	0.001	0.007	1,405.092	Not Full	No	-0.575	5.908
569.00	19-51	1,451.000	0.001	0.004	1,445.063	Not Full	No	-0.604	5.937
570.00	19-52	1,427.000	0.002	0.009	1,421.027	Not Full	No	-0.639	5.973
571.00	19-53	1,395.000	0.002	0.010	1,390.141	Not Full	Yes	-0.526	4.859
572.00	19-54	1,432.000	0.002	0.012	1,426.033	Not Full	No	-0.633	5.967
573.00	19-55	1,398.000	0.001	0.008	1,392.056	Not Full	No	-0.610	5.944
574.00	19-56	1,445.000	0.002	0.009	1,439.032	Not Full	No	-0.634	5.968
575.00	19-56.25	1,450.000	0.001	0.004	1,444.031	Not Full	No	-0.302	5.969
576.00	19-56.5	1,463.000	0.001	0.004	1,457.022	Not Full	No	-0.311	5.978
577.00	23-1	1,095.000	0.001	0.006	1,089.041	Not Full	No	-0.459	5.959
578.00	IND-1	1,091.000	0.001	0.006	1,089.335	Not Full	No	3.585	1.665
579.00	IND-2	1,094.000	0.001	0.006	1,089.339	Not Full	No	0.089	4.661

580.00	IND-3	1,096.000	0.001	0.007	1,090.130	Not Full	No	-1.120	5.870
581.00	IND-4	1,097.000	0.001	0.005	1,091.134	Not Full	No	-1.116	5.866
582.00	IND-5	1,098.000	0.001	0.004	1,092.122	Not Full	No	-1.128	5.878
583.00	IND-6	1,099.000	0.001	0.004	1,093.136	Not Full	No	-1.114	5.864
584.00	IND-7	1,100.000	0.001	0.005	1,094.136	Not Full	No	-1.114	5.864
585.00	IND-8	1,101.000	0.001	0.004	1,095.131	Not Full	No	-1.119	5.869
586.00	IND-9	1,102.000	0.001	0.008	1,096.150	Not Full	No	-0.850	5.850
587.00	IND-10	1,103.000	0.004	0.019	1,097.139	Not Full	No	-0.861	5.861
588.00	IND-11	1,099.000	0.003	0.014	1,097.139	Not Full	No	2.639	1.861
589.00	IND-12	1,099.000	0.004	0.019	1,097.140	Not Full	No	2.140	1.860
590.00	APPLE1	1,295.000	0.001	0.007	1,289.056	Not Full	No	-0.611	5.944
591.00	APPLE2	1,312.000	0.001	0.006	1,306.053	Not Full	No	-0.613	5.947
592.00	APPLE3	1,318.000	0.003	0.015	1,312.070	Not Full	No	-0.597	5.930
593.00	APPLE4	1,341.000	0.001	0.006	1,335.029	Not Full	No	-0.638	5.971
594.00	APPLE5	1,360.000	0.001	0.006	1,354.022	Not Full	No	-0.645	5.978
595.00	BRAEBURN1	1,298.000	0.001	0.007	1,292.082	Not Full	No	-0.585	5.918
596.00	BRAEBURN2	1,319.000	0.002	0.009	1,313.059	Not Full	No	-0.608	5.941
597.00	BRAEBURN3	1,334.000	0.001	0.007	1,328.049	Not Full	No	-0.618	5.951
598.00	BRAEBURN4	1,347.000	0.001	0.009	1,341.042	Not Full	No	-0.624	5.958
599.00	BRAEBURN6	1,335.000	0.001	0.004	1,329.049	Not Full	No	-0.617	5.951
600.00	BRAEBURN7	1,352.000	0.002	0.009	1,346.050	Not Full	No	-0.616	5.950
601.00	BRAEBURN8	1,359.000	0.001	0.006	1,353.031	Not Full	No	-0.636	5.969
602.00	CRUSHERCANYON1	1,160.000	0.001	0.004	1,154.100	Not Full	No	-0.900	5.900
603.00	CRUSHERCANYON11	1,265.000	0.001	0.006	1,259.039	Not Full	No	-0.961	5.961
604.00	CRUSHERCANYON11	1,271.000	0.001	0.006	1,265.051	Not Full	No	-0.949	5.949
605.00	CRUSHERCANYON11	1,278.000	0.001	0.006	1,272.039	Not Full	No	-0.961	5.961
606.00	CRUSHERCANYON11	1,289.000	0.001	0.006	1,283.025	Not Full	No	-0.975	5.975
607.00	CRUSHERCANYON2	1,172.000	0.001	0.006	1,160.743	Not Full	No	-0.867	11.257
608.00	CRUSHERCANYON3	1,185.000	0.001	0.005	1,169.765	Not Full	No	-0.885	15.235
609.00	CRUSHERCANYON4	1,188.000	0.001	0.006	1,176.118	Not Full	No	-0.882	11.882
610.00	CRUSHERCANYON5	1,202.000	0.001	0.006	1,192.098	Not Full	No	-0.902	9.902
611.00	CRUSHERCANYON6	1,213.000	0.001	0.006	1,197.098	Not Full	No	-0.902	15.902
612.00	CRUSHERCANYON7	1,227.000	0.001	0.004	1,221.056	Not Full	No	-0.944	5.944
613.00	CRUSHERCANYON8	1,230.000	0.000	0.001	1,222.127	Not Full	No	44.630	7.873
614.00	CRUSHERCANYON9	1,250.000	0.001	0.005	1,244.046	Not Full	No	-0.954	5.954
615.00	ELKSCOUNTRYCLUB	1,083.000	0.028	0.120	1,077.138	Not Full	No	-0.695	5.862
616.00	FIRST1	1,448.000	0.001	0.006	1,442.037	Not Full	No	-0.629	5.963
617.00	FIRST2	1,449.000	0.001	0.005	1,443.060	Not Full	No	-0.606	5.940
618.00	FIRST3	1,449.000	0.001	0.005	1,443.554	Not Full	No	-0.613	5.446
619.00	FIRST4	1,457.000	0.001	0.008	1,451.038	Not Full	No	-0.628	5.962
620.00	GOODLANDER1	1,455.000	0.001	0.006	1,448.069	Not Full	No	-0.598	6.931
621.00	GOODLANDER10	1,458.000	0.001	0.007	1,452.085	Not Full	No	-0.582	5.915
622.00	GOODLANDER11	1,458.000	0.001	0.004	1,452.579	Not Full	No	-0.588	5.421
623.00	GOODLANDER12	1,460.000	0.001	0.006	1,454.047	Not Full	No	-0.620	5.953
624.00	GOODLANDER2	1,473.000	0.001	0.006	1,467.047	Not Full	No	-0.619	5.953
625.00	GOODLANDER3	1,497.000	0.001	0.006	1,491.045	Not Full	No	-0.622	5.955
626.00	GOODLANDER4	1,528.000	0.001	0.006	1,522.044	Not Full	No	-0.622	5.956
627.00	GOODLANDER5	1,553.000	0.001	0.006	1,547.041	Not Full	No	-0.625	5.959
628.00	GOODLANDER6	1,568.000	0.001	0.006	1,562.023	Not Full	No	-0.643	5.977
629.00	GOODLANDER7	1,585.000	0.001	0.006	1,579.027	Not Full	No	-0.639	5.973
630.00	GOODLANDER8	1,454.000	0.001	0.004	1,448.599	Not Full	Yes	-0.568	5.401
631.00	GOODLANDER9	1,462.000	0.001	0.003	1,451.068	Not Full	No	-0.599	10.932
632.00	GRAHAMPACKAGING	1,094.000	0.047	0.191	1,088.214	Not Full	No	-0.286	5.786
633.00	HERITAGE1	1,311.000	0.001	0.007	1,305.080	Not Full	No	-0.586	5.920
634.00	HERITAGE10	1,441.000	0.001	0.006	1,435.038	Not Full	No	-0.629	5.962
635.00	HERITAGE11	1,450.000	0.001	0.008	1,444.027	Not Full	No	-0.640	5.973
636.00	HERITAGE12	1,374.000	0.000	0.003	1,368.048	Not Full	No	-0.619	5.952
637.00	HERITAGE13	1,395.000	0.000	0.003	1,389.051	Not Full	No	-0.615	5.949
638.00	HERITAGE14	1,402.000	0.000	0.003	1,394.060	Not Full	No	-0.607	7.940
639.00	HERITAGE15	1,402.000	0.000	0.002	1,394.601	Not Full	No	-0.566	7.399
640.00	HERITAGE16	1,402.000	0.000	0.002	1,395.098	Not Full	Yes	-0.569	6.902
641.00	HERITAGE17	1,410.000	0.001	0.004	1,404.048	Not Full	No	-0.619	5.952
642.00	HERITAGE18	1,454.000	0.001	0.006	1,448.042	Not Full	No	-0.625	5.958
643.00	HERITAGE19	1,470.000	0.001	0.005	1,460.050	Not Full	No	-0.617	9.950
644.00	HERITAGE2	1,353.000	0.000	0.002	1,347.070	Not Full	No	-0.597	5.930
645.00	HERITAGE20	1,467.000	0.002	0.009	1,461.075	Not Full	No	-0.592	5.925
646.00	HERITAGE21	1,468.000	0.001	0.003	1,462.063	Not Full	Yes	-0.603	5.937
647.00	HERITAGE22	1,467.000	0.000	0.002	1,462.540	Not Full	No	-0.627	4.460
648.00	HERITAGE3	1,361.000	0.001	0.003	1,355.049	Not Full	No	-0.618	5.951
649.00	HERITAGE4	1,371.000	0.001	0.005	1,365.066	Not Full	No	-0.600	5.934
650.00	HERITAGE5	1,379.000	0.001	0.008	1,373.054	Not Full	No	-0.613	5.946
651.00	HERITAGE6	1,389.000	0.001	0.003	1,383.043	Not Full	No	-0.623	5.957
652.00	HERITAGE7	1,411.000	0.001	0.005	1,405.045	Not Full	No	-0.622	5.955
653.00	HERITAGE8	1,429.000	0.001	0.007	1,423.046	Not Full	No	-0.620	5.954
654.00	HERITAGE9	1,435.000	0.001	0.009	1,429.056	Not Full	No	-0.610	5.944
655.00	HERITAGEHILLS	1,475.000	0.001	0.003	1,469.023	Not Full	No	-0.644	5.977
656.00	LYLE1	1,290.000	0.002	0.009	1,284.070	Not Full	No	-0.596	5.930
657.00	LYLE2	1,300.000	0.002	0.010	1,294.041	Not Full	No	-0.626	5.959
658.00	NACHES1	1,392.000	0.001	0.005	1,386.048	Not Full	No	-0.618	5.952
659.00	NACHES2	1,402.000	0.001	0.006	1,396.033	Not Full	No	-0.634	5.967
660.00	NACHES3	1,410.000	0.001	0.005	1,404.024	Not Full	No	-0.643	5.976
661.00	NACHES4	1,415.000	0.001	0.004	1,409.020	Not Full	No	-0.647	5.980
662.00	NACHES5	1,411.000	0.001	0.004	1,398.058	Not Full	No	-0.609	12.942

663.00	NACHES7	1,408.000	0.001	0.007	1,402.042	Not Full	No	-0.624	5.958
664.00	NACHES8	1,425.000	0.001	0.005	1,419.024	Not Full	No	-0.643	5.976
665.00	PUBLICWORKS1	1,091.000	0.001	0.006	1,089.337	Not Full	Yes	3.087	1.663
666.00	PUBLICWORKS2	1,091.000	0.001	0.006	1,089.338	Not Full	No	3.522	1.662
667.00	PUBLICWORKS3	1,091.000	0.001	0.006	1,089.339	Not Full	No	3.372	1.661
668.00	PUBLICWORKS4	1,091.000	0.001	0.006	1,089.340	Not Full	No	3.340	1.660
669.00	SELAHHIGH1	1,120.000	0.000	0.002	1,117.824	Not Full	Yes	-0.576	2.176
670.00	YAKIMA1	1,474.000	0.000	0.003	1,465.025	Not Full	No	-0.642	8.975
671.00	YAKIMA2	1,473.000	0.001	0.003	1,466.036	Not Full	No	-0.631	6.964
672.00	YAKIMA3	1,472.000	0.000	0.003	1,467.034	Not Full	No	-0.633	4.966
673.00	YAKIMA4	1,472.000	0.001	0.005	1,467.047	Not Full	No	-0.619	4.953
674.00	177TH1	1,388.000	0.001	0.005	1,382.058	Not Full	No	-0.609	5.942
675.00	177TH2	1,447.000	0.002	0.009	1,443.043	Not Full	No	-0.624	3.957
676.00	177TH4	1,472.000	0.001	0.005	1,466.034	Not Full	No	-0.633	5.966
677.00	213	1,091.000	0.000	0.000	1,089.332	Not Full	Yes	-0.418	1.668

City of Selah Sewer System Existing Peak Forcemain Report

ID	From ID	To ID	Diameter (in)	Length (ft)	Total Flow (mgd)	Peakable Flow (mgd)	Velocity (ft/s)	Headloss (ft)
1537	209	213	6	50	0.842	0.244	13.049	4.804
678	16	9-14	6	1,098.82	0.12	0.028	2.269	4.137
679	18	2-2	6	689.732	0.195	0.048	3.625	6.181

Future Buildout Flow with Wixson Project Completed																	
ID	From ID	To ID	Diameter (in)	Length (ft)	Slope	Total Flow (mgd)	Peakable Flow (mgd)	Flow Type	Velocity (ft/s)	d/D	q/Q	Water Depth (ft)	Critical Depth (ft)	Full Flow (mgd)	Backwater Adjustment	Adjusted Depth (ft)	Adjusted Velocity (ft/s)
1	6-21	6-20	8.000	247.304	0.093	0.007	0.001	Free Sur	2.326	0.039	0.003	0.026	0.046	2.388	Yes	0.16	0.165
2	6-22	6-20	8.000	53.000	0.094	0.805	0.232	Free Sur	9.599	0.398	0.334	0.266	0.528	2.405	Yes	0.28	8.947
3	6-19	6-18	8.000	123.184	0.041	0.818	0.236	Free Sur	7.072	0.51	0.517	0.34	0.532	1.582	No	0.34	7.072
4	6-23	6-19	8.000	203.824	0.083	0.008	0.001	Free Sur	2.314	0.042	0.003	0.028	0.049	2.262	Yes	0.184	0.151
5	6-20	6-19	8.000	227.000	0.066	0.811	0.234	Free Sur	8.441	0.442	0.403	0.294	0.53	2.013	Yes	0.317	7.661
6	1-5	1-4	18.000	542.969	0.005	2.069	0.662	Free Sur	3.991	0.464	0.439	0.696	0.681	4.711	Yes	1.5	1.812
7	4-54	4-28	8.000	134.133	0.142	0.073	0.016	Free Sur	5.518	0.109	0.025	0.072	0.153	2.947	Yes	0.084	4.465
8	4-25	4-24	8.000	126.587	0.032	0.115	0.027	Free Sur	3.733	0.195	0.083	0.13	0.194	1.392	No	0.13	3.733
9	6-47	6-45	8.000	278.327	0.097	0.029	0.006	Free Sur	3.654	0.077	0.012	0.051	0.096	2.433	Yes	0.062	2.731
10	6-48	6-47	8.000	235.000	0.115	0.017	0.003	Free Sur	3.301	0.057	0.006	0.038	0.073	2.654	Yes	0.045	2.618
11	5-26	5-25	8.000	71.707	0.028	0.057	0.012	Free Sur	2.894	0.142	0.043	0.095	0.135	1.308	No	0.095	2.894
13	5-21	5-20	8.000	278.521	0.014	0.538	0.148	Free Sur	4.301	0.543	0.573	0.362	0.432	0.938	Yes	0.454	3.288
15	5-96	5-95	8.000	290.154	0.014	0.007	0.001	Free Sur	1.18	0.06	0.007	0.04	0.045	0.919	Yes	0.053	0.784
16	5-20	5-19	8.000	138.442	0.005	0.540	0.149	Free Sur	2.732	0.819	0.999	0.546	0.433	0.541	No	0.546	2.732
17	5-24	5-23	8.000	109.859	0.082	0.139	0.033	Free Sur	5.514	0.169	0.062	0.112	0.213	2.241	Yes	0.118	5.14
18	5-25	5-24	8.000	240.000	0.100	0.099	0.023	Free Sur	5.348	0.136	0.04	0.091	0.179	2.476	Yes	0.102	4.547
22	5-93	5-24	8.000	302.875	0.003	0.017	0.003	Free Sur	0.96	0.134	0.038	0.089	0.074	0.45	Yes	0.101	0.804
23	5-95	5-25	8.000	301.007	0.010	0.016	0.003	Free Sur	1.377	0.099	0.02	0.066	0.07	0.782	Yes	0.078	1.064
24	5-79	5-78	8.000	288.886	0.017	0.052	0.011	Free Sur	2.39	0.153	0.051	0.102	0.129	1.03	No	0.102	2.39
25	5-85	5-80	8.000	62.000	0.097	0.015	0.003	Free Sur	2.984	0.056	0.006	0.037	0.068	2.436	Yes	0.055	1.689
26	5-83.5	5-83	8.000	163.864	0.098	0.008	0.001	Free Sur	2.443	0.041	0.003	0.027	0.049	2.447	Yes	0.034	1.727
27	5-89	5-24	8.000	134.375	0.022	0.030	0.006	Free Sur	2.221	0.111	0.026	0.074	0.098	1.17	Yes	0.093	1.585
28	5-92	5-91	8.000	231.247	0.099	0.008	0.001	Free Sur	2.509	0.042	0.003	0.028	0.05	2.47	Yes	0.047	1.156
29	5-87	5-86	8.000	120.000	0.033	0.006	0.001	Free Sur	1.589	0.048	0.004	0.032	0.044	1.43	Yes	0.034	1.446
30	5-86	5-85	8.000	151.000	0.066	0.012	0.002	Free Sur	2.427	0.054	0.006	0.036	0.06	2.015	Yes	0.037	2.379
31	8-13	8-10	8.000	174.633	0.006	0.011	0.002	Free Sur	1.028	0.096	0.019	0.064	0.06	0.593	No	0.064	1.028
32	8-11	8-10	8.000	232.640	0.034	0.019	0.004	Free Sur	2.259	0.081	0.013	0.054	0.078	1.452	No	0.054	2.259
33	11-18	11-17	8.000	75.442	0.278	0.048	0.010	Free Sur	6.155	0.076	0.012	0.051	0.124	4.131	Yes	0.073	3.555
34	11-19	11-18	8.000	183.712	0.120	0.044	0.009	Free Sur	4.451	0.088	0.016	0.059	0.118	2.71	No	0.059	4.451
35	11-25	11-24	8.000	184.000	0.043	0.009	0.002	Free Sur	1.922	0.053	0.005	0.035	0.052	1.633	Yes	0.037	1.776
36	11-22	11-21	8.000	262.000	0.134	0.010	0.002	Free Sur	2.96	0.043	0.004	0.029	0.056	2.862	Yes	0.049	1.363
37	11-21	11-20	8.000	214.000	0.009	0.017	0.003	Free Sur	1.366	0.102	0.022	0.068	0.072	0.757	Yes	0.082	1.037
38	11-24	11-19	8.000	265.000	0.094	0.016	0.003	Free Sur	3.027	0.058	0.007	0.039	0.071	2.405	Yes	0.049	2.159
39	11-17	11-5	8.000	273.476	0.023	0.054	0.011	Free Sur	2.673	0.144	0.045	0.096	0.131	1.195	Yes	0.667	0.238
40	3-36	3-35	8.000	198.992	0.005	0.009	0.001	Free Sur	0.901	0.087	0.015	0.058	0.052	0.555	Yes	0.667	0.038
41	3-34	3-15	8.000	224.839	0.004	0.031	0.006	Pressur	1.275	0.167	0.06	0.111	0.1	0.522	Yes	0.667	0.139
42	3-15	3-14	12.000	184.981	0.012	2.353	0.763	Pressur	5.602	0.771	0.941	0.771	0.814	2.501	Yes	1	4.635
43	3-44	3-43	8.000	417.429	0.001	0.011	0.002	Pressur	0.467	0.166	0.06	0.111	0.06	0.192	Yes	0.667	0.051
44	3-16	3-15	12.000	320.186	0.001	2.330	0.755	Pressur	4.591	1	2.856	1	0.474	0.816	Yes	1	4.591
45	3-35	3-34	8.000	303.614	0.003	0.019	0.004	Pressur	0.986	0.14	0.042	0.093	0.077	0.449	Yes	0.667	0.084
46	3-41	3-40	10.000	212.174	0.012	1.022	0.302	Free Sur	4.675	0.595	0.663	0.496	0.564	1.541	Yes	0.833	2.9
47	3-40	3-39	10.000	87.581	0.006	1.037	0.307	Pressur	3.467	0.791	0.966	0.659	0.568	1.073	Yes	0.833	2.941
48	3-39	3-38	10.000	204.612	0.010	1.039	0.308	Pressur	4.358	0.64	0.74	0.533	0.568	1.404	Yes	0.833	2.947
49	3-18	3-17	12.000	36.580	0.005	2.314	0.750	Pressur	4.559	1	1.356	1	0.697	1.707	Yes	1	4.559
50	3-20	3-19	12.000	90.015	0.002	1.430	0.439	Pressur	2.817	1	1.314	1	0.552	1.088	Yes	1	2.817

51	3-19	3-18	12.000	24.935	0.008	1.431	0.439	Pressur	4.396	0.612	0.692	0.612	0.636	2.068	Yes	1	2.82
52	3-38	3-37	10.000	308.985	0.010	1.044	0.309	Pressur	4.351	0.644	0.746	0.536	0.57	1.399	Yes	0.833	2.961
53	3-22	3-21	12.000	327.527	0.001	1.427	0.438	Pressur	2.811	1	1.769	1	0.472	0.807	Yes	1	2.811
54	3-21	3-20	12.000	308.945	0.001	1.429	0.439	Pressur	2.815	1	1.72	1	0.479	0.831	Yes	1	2.815
55	3-24	3-23	12.000	295.756	0.058	1.424	0.437	Free Su	9.156	0.345	0.256	0.345	0.635	5.552	Yes	1	2.805
57	3-23	SELAHHIGH1	12.000	204.924	0.008	1.425	0.437	Pressur	4.347	0.616	0.699	0.616	0.635	2.04	Yes	1	2.808
58	3-42	3-41	10.000	289.346	0.021	1.018	0.301	Free Su	5.795	0.499	0.498	0.416	0.563	2.045	Yes	0.456	5.162
59	3-43	3-40	8.000	182.190	0.001	0.023	0.005	Pressur	0.771	0.192	0.08	0.128	0.086	0.29	Yes	0.667	0.103
60	3-17	3-16	12.000	347.677	0.001	2.319	0.751	Pressur	4.568	1	2.961	1	0.464	0.783	Yes	1	4.568
61	3-12	3-11	12.000	305.515	0.005	2.364	0.767	Pressur	4.657	1	1.452	1	0.68	1.629	Yes	1	4.657
62	3-13	3-12	12.000	233.049	0.005	2.357	0.765	Pressur	4.644	1	1.429	1	0.685	1.65	Yes	1	4.644
63	3-33	3-32	8.000	242.000	0.002	0.010	0.002	Pressur	0.685	0.113	0.027	0.076	0.055	0.356	Yes	0.667	0.043
64	3-32	3-30	8.000	55.291	0.005	0.017	0.003	Pressur	1.131	0.117	0.029	0.078	0.072	0.577	Yes	0.667	0.074
65	3-30	3-31	8.000	554.672	0.001	0.025	0.005	Pressur	0.724	0.211	0.097	0.141	0.089	0.258	Yes	0.667	0.111
66	IND-11	IND-10	12.000	324.967	0.002	0.030	0.006	Pressur	0.824	0.125	0.033	0.125	0.088	0.906	Yes	1	0.06
67	IND-10	IND-9	12.000	426.261	0.002	0.046	0.010	Free Su	1.085	0.139	0.041	0.139	0.109	1.118	Yes	0.145	1.023
68	3-6	3-5	12.000	251.654	0.003	2.506	0.819	Pressur	4.937	1	1.925	1	0.606	1.302	Yes	1	4.937
69	3-5	3-4	12.000	246.885	0.004	2.512	0.821	Pressur	4.949	1	1.668	1	0.653	1.506	Yes	1	4.949
70	IND-8	IND-7	15.000	310.105	0.003	0.055	0.012	Free Su	1.24	0.105	0.023	0.131	0.112	2.377	Yes	0.134	1.209
71	3-2	3-1	15.000	191.939	0.004	2.531	0.828	Pressur	3.191	1	1.008	1.25	0.797	2.51	Yes	1.25	3.191
72	3-3	3-2	15.000	116.314	0.002	2.527	0.826	Pressur	3.186	1	1.302	1.25	0.697	1.941	Yes	1.25	3.186
73	3-1	2-3	15.000	423.823	0.001	2.541	0.832	Pressur	3.204	1	2.244	1.25	0.526	1.132	Yes	1.25	3.204
74	3-4	3-3	15.000	211.178	0.004	2.520	0.824	Pressur	3.702	0.801	0.978	1.001	0.799	2.577	Yes	1.25	3.177
75	IND-9	IND-8	12.000	463.726	0.002	0.052	0.011	Free Su	1.093	0.15	0.049	0.15	0.116	1.072	No	0.15	1.093
76	IND-12	IND-11	12.000	339.216	0.001	0.019	0.004	Pressur	0.703	0.101	0.021	0.101	0.069	0.886	Yes	1	0.037
77	2-30	2-29	8.000	85.161	0.006	0.087	0.020	Pressur	1.897	0.258	0.146	0.172	0.168	0.6	Yes	0.667	0.388
78	2-8	2-7	8.000	358.850	0.004	0.636	0.179	Pressur	2.821	1	1.315	0.667	0.409	0.484	Yes	0.667	2.821
79	2-32	2-31	8.000	19.172	0.052	0.040	0.008	Pressur	3.25	0.104	0.022	0.069	0.113	1.788	Yes	0.667	0.178
80	2-33	2-32	8.000	175.701	0.006	0.037	0.008	Pressur	1.461	0.17	0.063	0.113	0.109	0.591	Yes	0.667	0.165
81	2-10	2-9	8.000	82.063	0.003	0.522	0.143	Pressur	2.314	1	1.318	0.667	0.368	0.396	Yes	0.667	2.314
82	2-31	2-9	8.000	147.035	0.019	0.044	0.009	Pressur	2.352	0.138	0.041	0.092	0.118	1.083	Yes	0.667	0.195
83	2-34	2-33	8.000	305.012	0.010	0.029	0.006	Free Su	1.648	0.133	0.038	0.088	0.096	0.777	Yes	0.667	0.129
84	2-11	2-10	8.000	460.241	0.016	0.516	0.142	Pressur	4.397	0.516	0.528	0.344	0.423	0.979	Yes	0.667	2.289
85	2-23	2-22	8.000	20.166	0.050	0.023	0.004	Free Su	2.695	0.08	0.013	0.053	0.085	1.744	Yes	0.332	0.204
86	2-22	2-6	8.000	119.888	0.064	0.026	0.005	Free Su	3.064	0.08	0.013	0.053	0.09	1.988	Yes	0.667	0.115
87	2-6	2-5	8.000	377.669	0.004	0.713	0.203	Pressur	3.162	1	1.513	0.667	0.403	0.472	Yes	0.667	3.162
88	2-24	2-23	8.000	435.773	0.014	0.015	0.003	Free Su	1.504	0.088	0.016	0.059	0.068	0.919	No	0.059	1.504
89	2-16	2-5	8.000	298.560	0.044	0.067	0.015	Free Su	3.567	0.138	0.041	0.092	0.147	1.64	Yes	0.667	0.297
90	2-25	2-7	8.000	217.039	0.031	0.057	0.012	Pressur	2.99	0.139	0.041	0.093	0.135	1.369	Yes	0.667	0.252
91	2-9	2-8	8.000	321.950	0.005	0.556	0.154	Pressur	2.464	1	1.058	0.667	0.427	0.526	Yes	0.667	2.464
92	2-7	2-6	8.000	357.453	0.003	0.689	0.195	Pressur	3.053	1	1.586	0.667	0.386	0.434	Yes	0.667	3.053
94	2-4	2-3	10.000	440.535	0.003	0.785	0.225	Pressur	2.649	0.784	0.957	0.653	0.492	0.82	Yes	0.833	2.227
95	IND-4	IND-3	15.000	229.741	0.004	0.067	0.015	Free Su	1.463	0.108	0.024	0.134	0.124	2.762	Yes	0.569	0.191
96	IND-5	IND-4	15.000	172.808	0.006	0.064	0.014	Free Su	1.59	0.098	0.02	0.122	0.121	3.184	Yes	0.128	1.482
97	IND-6	IND-5	15.000	260.643	0.003	0.061	0.013	Free Su	1.311	0.109	0.025	0.136	0.118	2.46	No	0.136	1.311
98	IND-3	IND-2	15.000	348.242	0.006	0.072	0.016	Free Su	1.648	0.104	0.023	0.13	0.129	3.172	Yes	1.25	0.091
100	IND-2	PUBLICWORKS1	15.000	483.066	0.006	0.077	0.017	Pressur	1.722	0.105	0.023	0.131	0.132	3.299	Yes	1.25	0.096
101	2-1	1-22	12.000	184.192	0.003	3.583	1.218	Pressur	7.059	1	2.697	1	0.612	1.329	Yes	1	7.059
102	1-21	1-20	12.000	61.606	0.000	4.539	1.584	Pressur	8.942	1	8.909	1	0.371	0.509	Yes	1	8.942
103	1-22	1-21	12.000	366.650	0.002	3.966	1.364	Pressur	7.812	1	4.356	1	0.502	0.91	Yes	1	7.812

104	1-23	1-22	8.000	372.398	0.013	0.521	0.143	Pressur	4.099	0.55	0.585	0.367	0.425	0.89	Yes	0.667	2.309
105	1-31	1-21	8.000	304.429	0.005	0.765	0.219	Pressur	3.389	1	1.435	0.667	0.43	0.533	Yes	0.667	3.389
106	1-3	1-2	21.000	42.265	0.003	6.236	2.255	Pressur	4.011	1	1.19	1.75	1.056	5.238	Yes	1.75	4.011
107	1-2	1-1	21.000	232.000	0.000	6.239	2.256	Pressur	4.013	1	2.927	1.75	0.66	2.132	Yes	1.75	4.013
108	1-33	1-32	8.000	314.000	0.004	0.744	0.213	Pressur	3.3	1	1.477	0.667	0.418	0.504	Yes	0.667	3.3
109	1-36	1-35	8.000	51.649	0.004	0.014	0.003	Pressur	0.994	0.111	0.026	0.074	0.065	0.523	Yes	0.667	0.061
110	1-35	1-34	8.000	224.632	0.003	0.729	0.208	Pressur	3.232	1	1.744	0.667	0.379	0.418	Yes	0.667	3.232
111	1-37	1-36	8.000	209.556	0.005	0.011	0.002	Pressur	0.941	0.097	0.019	0.064	0.057	0.541	Yes	0.667	0.047
112	1-8	1-7	12.000	47.625	0.015	2.040	0.652	Pressur	6.016	0.634	0.729	0.634	0.761	2.799	Yes	1	4.019
113	1-7	1-6	12.000	311.423	0.005	2.042	0.652	Pressur	4.022	1	1.219	1	0.69	1.675	No	1	4.022
114	1-34	1-33	8.000	264.972	0.004	0.736	0.210	Pressur	3.263	1	1.453	0.667	0.419	0.507	Yes	0.667	3.263
115	1-24	1-23	8.000	444.002	0.009	0.509	0.139	Pressur	3.582	0.603	0.676	0.402	0.42	0.752	Yes	0.667	2.256
116	1-32	1-31	8.000	321.743	0.004	0.755	0.216	Pressur	3.345	1	1.499	0.667	0.417	0.503	Yes	0.667	3.345
117	9-3	9-2	10.000	232.289	0.005	0.549	0.152	Pressur	2.802	0.544	0.575	0.453	0.408	0.955	Yes	0.833	1.558
118	1-1	WASTEWATERPLANT	21.000	28.890	0.007	8.661	3.248	Pressur	5.571	1	1.014	1.75	1.354	8.544	No	1.75	5.571
119	9-4	9-3	10.000	291.000	0.003	0.535	0.147	Pressur	2.286	0.63	0.723	0.525	0.402	0.74	Yes	0.833	1.517
120	9-6	9-5	10.000	446.793	0.001	0.477	0.130	Pressur	1.354	1	1.45	0.833	0.312	0.329	Yes	0.833	1.354
121	9-5	9-4	10.000	393.000	0.003	0.509	0.139	Pressur	2.314	0.598	0.669	0.498	0.392	0.761	Yes	0.833	1.444
122	9-16	9-15	12.000	455.978	0.001	2.082	0.666	Pressur	4.101	1	2.839	1	0.449	0.733	No	1	4.101
123	9-7	9-6	10.000	278.518	0.002	0.467	0.126	Pressur	1.822	0.682	0.809	0.568	0.375	0.577	Yes	0.833	1.324
124	9-9	9-8	10.000	153.016	0.006	0.434	0.117	Free Su	2.939	0.436	0.395	0.364	0.361	1.101	Yes	0.399	2.609
125	9-8	9-7	10.000	96.327	0.016	0.446	0.120	Free Su	4.256	0.338	0.246	0.282	0.366	1.813	Yes	0.833	1.266
126	9-15	9-1	12.000	728.026	0.019	2.120	0.680	Free Su	6.668	0.6	0.672	0.6	0.775	3.157	Yes	1	4.176
127	9-15.5	9-15	8.000	160.000	0.018	0.033	0.007	Free Su	2.125	0.121	0.031	0.081	0.102	1.058	Yes	0.34	0.286
128	2-2	2-1	12.000	130.505	0.002	0.567	0.157	Pressur	2.194	0.507	0.512	0.507	0.392	1.107	Yes	1	1.118
129	9-2	9-1	8.000	225.846	0.009	0.555	0.153	Pressur	3.679	0.634	0.73	0.423	0.439	0.76	Yes	0.667	2.461
130	IND-7	IND-6	15.000	315.858	0.003	0.059	0.013	Free Su	1.256	0.109	0.025	0.136	0.116	2.355	No	0.136	1.256
131	2-3	2-1	15.000	263.000	0.002	3.161	1.060	Pressur	3.985	1	1.555	1.25	0.714	2.033	Yes	1.25	3.985
132	3-14	3-13	12.000	93.608	0.070	2.355	0.764	Pressur	11.27	0.43	0.385	0.43	0.814	6.121	Yes	1	4.639
133	4-10	4-9	8.000	121.467	0.071	0.053	0.011	Free Su	3.921	0.11	0.025	0.073	0.13	2.08	Yes	0.082	3.291
134	4-12	4-11	8.000	162.946	0.050	0.038	0.008	Free Su	3.15	0.102	0.022	0.068	0.11	1.752	Yes	0.071	2.923
135	4-11	4-10	8.000	380.036	0.050	0.047	0.010	Free Su	3.34	0.112	0.027	0.075	0.122	1.746	No	0.075	3.34
136	4-14	4-13	8.000	303.000	0.065	0.012	0.002	Free Su	2.462	0.056	0.006	0.038	0.062	1.998	Yes	0.05	1.606
137	4-30	4-29	8.000	251.148	0.108	0.014	0.003	Free Su	3.061	0.054	0.006	0.036	0.067	2.568	Yes	0.047	2.036
138	4-13	4-12	8.000	257.985	0.048	0.032	0.006	Free Su	2.928	0.094	0.018	0.063	0.1	1.709	Yes	0.065	2.768
140	19-1	3-28	8.000	78.964	0.066	1.133	0.339	Free Su	9.173	0.537	0.564	0.358	0.605	2.01	No	0.358	9.173
141	4-5	4-4	12.000	459.427	0.037	0.142	0.034	Free Su	3.974	0.123	0.032	0.123	0.193	4.412	Yes	0.135	3.476
142	4-4	4-3	8.000	95.107	0.041	0.169	0.041	Free Su	4.586	0.22	0.106	0.147	0.236	1.59	Yes	0.157	4.159
143	4-6	4-5	12.000	262.572	0.032	0.116	0.027	Free Su	3.564	0.115	0.028	0.115	0.174	4.12	Yes	0.119	3.397
144	4-8	4-7	8.000	118.026	0.038	0.081	0.018	Free Su	3.589	0.157	0.053	0.105	0.162	1.524	Yes	0.141	2.329
145	4-47	4-7	8.000	205.675	0.005	0.010	0.002	Free Su	0.975	0.094	0.018	0.063	0.057	0.57	Yes	0.12	0.377
146	4-48	4-8	8.000	211.465	0.031	0.025	0.005	Free Su	2.369	0.094	0.018	0.063	0.089	1.386	Yes	0.084	1.552
147	4-7	4-6	8.000	280.230	0.006	0.094	0.021	Free Su	1.944	0.267	0.156	0.178	0.174	0.603	No	0.178	1.944
148	4-55	4-15	6.000	486.689	0.007	0.006	0.001	Free Su	0.966	0.098	0.02	0.049	0.047	0.31	No	0.049	0.966
149	4-2	4-1	8.000	340.508	0.034	0.212	0.053	Free Su	4.59	0.259	0.147	0.173	0.266	1.449	Yes	0.223	3.212
150	4-39	4-16	8.000	198.112	0.225	0.019	0.004	Free Su	4.307	0.051	0.005	0.034	0.077	3.711	Yes	0.667	0.084
151	4-40	4-39	8.000	264.979	0.011	0.012	0.002	Free Su	1.319	0.083	0.014	0.056	0.061	0.833	No	0.056	1.319
152	4-3	4-2	8.000	320.434	0.037	0.208	0.052	Free Su	4.685	0.251	0.139	0.168	0.263	1.503	Yes	0.17	4.591
153	4-44	4-43	8.000	139.792	0.086	0.014	0.003	Free Su	2.807	0.056	0.006	0.037	0.066	2.294	Yes	0.044	2.226
154	4-43	4-42	8.000	254.756	0.067	0.023	0.004	Free Su	2.988	0.075	0.011	0.05	0.085	2.023	Yes	0.057	2.45

155	4-42	4-41	8.000	122.058	0.049	0.033	0.007	Free Su	3.014	0.096	0.019	0.064	0.103	1.736	Yes	0.067	2.85
156	4-50	4-49	8.000	208.464	0.072	0.011	0.002	Free Su	2.45	0.052	0.005	0.035	0.058	2.101	Yes	0.041	1.934
157	4-32	4-18	8.000	153.309	0.120	0.021	0.004	Free Su	3.58	0.063	0.008	0.042	0.082	2.709	Yes	0.085	1.265
158	4-37	4-17	8.000	190.536	0.039	0.015	0.003	Free Su	2.196	0.07	0.01	0.047	0.069	1.553	Yes	0.08	0.986
159	4-38	4-37	8.000	209.417	0.005	0.009	0.002	Free Su	0.904	0.091	0.017	0.06	0.054	0.541	No	0.06	0.904
160	4-21	4-20	8.000	305.290	0.009	0.175	0.043	Free Su	2.658	0.334	0.24	0.222	0.241	0.73	Yes	0.223	2.645
161	4-33	4-32	8.000	253.310	0.037	0.017	0.003	Free Su	2.236	0.075	0.011	0.05	0.073	1.514	No	0.05	2.236
162	4-41	4-3	8.000	566.663	0.056	0.042	0.009	Free Su	3.377	0.104	0.023	0.069	0.115	1.855	Yes	0.118	1.545
163	4-49	4-48	8.000	298.857	0.064	0.019	0.004	Free Su	2.792	0.07	0.01	0.047	0.078	1.974	Yes	0.055	2.207
164	2-15	2-14	8.000	37.403	0.065	0.243	0.061	Free Su	5.989	0.236	0.122	0.157	0.285	1.996	Yes	0.354	1.992
165	2-14	2-13	12.000	306.129	0.001	0.485	0.132	Free Su	1.689	0.552	0.589	0.552	0.362	0.824	No	0.552	1.689
166	2-28	2-12	8.000	85.000	0.079	0.017	0.003	Free Su	2.879	0.062	0.008	0.041	0.072	2.202	Yes	0.165	0.384
167	2-13	2-12	8.000	231.517	0.008	0.494	0.135	Free Su	3.282	0.633	0.727	0.422	0.413	0.679	No	0.422	3.282
168	2-18	2-17	8.000	90.818	0.033	0.050	0.011	Free Su	2.956	0.128	0.035	0.085	0.126	1.423	Yes	0.1	2.354
169	2-20	2-18	8.000	336.384	0.006	0.030	0.006	Free Su	1.393	0.152	0.05	0.101	0.098	0.604	No	0.101	1.393
170	5-29	5-28	8.000	240.000	0.029	0.027	0.005	Free Su	2.348	0.098	0.02	0.065	0.092	1.337	Yes	0.352	0.221
171	5-4	5-3	8.000	171.996	0.027	1.902	0.603	Pressur	8.43	1	1.488	0.667	0.625	1.278	Yes	0.667	8.43
172	5-3	5-2	8.000	296.739	0.015	1.929	0.612	Pressur	8.552	1	2.04	0.667	0.567	0.946	Yes	0.667	8.552
173	5-28	5-3	8.000	378.865	0.031	0.038	0.008	Free Su	2.662	0.115	0.028	0.077	0.11	1.371	Yes	0.667	0.17
174	2-27	2-26	8.000	494.084	0.022	0.021	0.004	Free Su	1.977	0.092	0.018	0.062	0.081	1.168	Yes	0.073	1.556
175	2-21	2-20	8.000	521.723	0.010	0.016	0.003	Free Su	1.367	0.1	0.021	0.067	0.071	0.767	Yes	0.084	0.979
176	2-19	2-18	8.000	523.193	0.010	0.013	0.002	Free Su	1.274	0.09	0.017	0.06	0.063	0.766	Yes	0.073	0.963
177	4-15	2-14	8.000	401.606	0.080	0.267	0.068	Free Su	6.623	0.235	0.121	0.156	0.3	2.213	Yes	-6.934	-1
178	4-1	2-15	8.000	395.828	0.007	0.236	0.059	Free Su	2.704	0.41	0.353	0.273	0.281	0.668	No	0.273	2.704
179	4-24	4-23	8.000	353.426	0.048	0.121	0.028	Free Su	4.373	0.18	0.071	0.12	0.199	1.707	No	0.12	4.373
180	4-27	4-26	8.000	168.788	0.036	0.102	0.023	Free Su	3.756	0.178	0.069	0.119	0.182	1.476	Yes	0.121	3.645
181	4-53	4-52	8.000	125.303	0.072	0.021	0.004	Free Su	3	0.071	0.01	0.047	0.082	2.099	Yes	0.05	2.772
182	4-26	4-25	8.000	239.981	0.033	0.108	0.025	Free Su	3.729	0.186	0.075	0.124	0.187	1.43	Yes	0.127	3.606
183	4-52	4-22	8.000	282.439	0.107	0.032	0.007	Free Su	3.914	0.079	0.013	0.053	0.101	2.561	Yes	0.13	1.043
184	6-41	6-40	8.000	115.600	0.043	0.019	0.004	Free Su	2.438	0.076	0.012	0.051	0.078	1.629	No	0.051	2.438
185	6-39	6-38	8.000	93.862	0.085	0.036	0.007	Free Su	3.734	0.087	0.016	0.058	0.107	2.286	Yes	0.059	3.652
186	6-38	6-37	8.000	281.022	0.111	0.044	0.009	Free Su	4.353	0.09	0.017	0.06	0.118	2.615	Yes	0.099	2.091
187	6-49	6-43	8.000	186.193	0.111	0.017	0.003	Free Su	3.246	0.057	0.006	0.038	0.072	2.612	Yes	0.066	1.457
188	6-44	6-43	8.000	259.842	0.022	0.067	0.015	Free Su	2.796	0.163	0.058	0.109	0.146	1.161	No	0.109	2.796
189	6-50	6-49	8.000	215.000	0.005	0.007	0.001	Free Su	0.812	0.078	0.012	0.052	0.045	0.534	No	0.052	0.812
190	6-43	6-37	8.000	190.502	0.066	0.085	0.019	Free Su	4.418	0.14	0.042	0.093	0.165	2.016	Yes	0.116	3.226
191	4-28	4-27	8.000	223.474	0.081	0.097	0.022	Free Su	4.929	0.142	0.044	0.095	0.177	2.222	Yes	0.107	4.15
192	6-40	6-39	8.000	124.441	0.225	0.033	0.007	Free Su	5.084	0.066	0.009	0.044	0.102	3.715	Yes	0.051	4.091
193	5-31	5-30	8.000	286.192	0.080	0.034	0.007	Free Su	3.598	0.086	0.015	0.058	0.104	2.22	Yes	0.667	0.151
194	5-34	5-33	8.000	243.406	0.025	1.182	0.355	Pressur	6.221	0.785	0.959	0.523	0.613	1.233	Yes	0.667	5.239
195	5-32	5-31	8.000	221.595	0.104	0.025	0.005	Free Su	3.564	0.07	0.01	0.047	0.088	2.523	Yes	0.052	3.017
196	5-60	5-34	8.000	279.523	0.035	0.069	0.015	Pressur	3.338	0.148	0.047	0.099	0.149	1.47	Yes	0.667	0.308
197	5-35	5-34	8.000	260.182	0.036	1.130	0.338	Pressur	7.261	0.651	0.759	0.434	0.605	1.489	Yes	0.667	5.009
198	5-6	5-5	8.000	129.799	0.065	0.815	0.235	Pressur	8.392	0.445	0.409	0.297	0.531	1.993	Yes	0.667	3.613
199	5-33	5-5	8.000	241.382	0.025	1.186	0.356	Pressur	6.207	0.789	0.964	0.526	0.613	1.229	Yes	0.667	5.255
200	5-41	5-6	8.000	252.476	0.053	0.156	0.037	Free Su	4.901	0.199	0.086	0.132	0.226	1.805	Yes	0.667	0.691
201	5-42	5-41	8.000	360.280	0.017	0.094	0.021	Free Su	2.807	0.206	0.093	0.138	0.175	1.011	No	0.138	2.807
202	5-53	5-52	8.000	42.025	0.024	0.061	0.013	Free Su	2.798	0.153	0.05	0.102	0.14	1.208	No	0.102	2.798
203	5-7	5-6	8.000	339.854	0.018	0.694	0.196	Pressur	4.947	0.596	0.665	0.397	0.492	1.043	Yes	0.667	3.074
204	5-52	5-41	8.000	156.000	0.058	0.065	0.014	Free Su	3.894	0.127	0.035	0.085	0.145	1.881	Yes	0.109	2.722

205	5-43	5-42	8.000	290.000	0.031	0.081	0.018	Free Su	3.34	0.164	0.059	0.109	0.161	1.38	Yes	0.124	2.805
206	5-30	5-5	8.000	249.798	0.031	0.041	0.008	Pressur	2.739	0.118	0.03	0.079	0.114	1.386	Yes	0.667	0.182
207	6-2	6-1	8.000	20.092	0.048	1.007	0.297	Free Su	7.926	0.55	0.585	0.367	0.581	1.721	Yes	0.454	6.157
208	6-3	6-2	8.000	146.658	0.005	1.006	0.297	Pressur	4.457	1	1.808	0.667	0.439	0.556	No	0.667	4.457
209	5-38	5-37	8.000	263.504	0.015	0.031	0.006	Free Su	1.952	0.123	0.032	0.082	0.099	0.965	Yes	0.667	0.137
210	6-37	6-1	8.000	157.148	0.028	0.123	0.029	Free Su	3.646	0.207	0.094	0.138	0.201	1.309	Yes	0.34	1.068
211	6-4	6-3	8.000	348.692	0.017	1.003	0.296	Free Su	5.117	0.811	0.99	0.541	0.58	1.013	Yes	0.667	4.445
212	5-39	5-38	8.000	285.005	0.039	0.022	0.004	Free Su	2.429	0.083	0.014	0.055	0.083	1.538	Yes	0.069	1.771
213	5-61	5-60	8.000	334.244	0.045	0.060	0.013	Free Su	3.482	0.13	0.036	0.087	0.139	1.659	Yes	0.459	0.363
214	5-9	5-8	8.000	57.594	0.038	0.681	0.193	Free Su	6.564	0.469	0.447	0.312	0.487	1.523	No	0.312	6.564
215	5-55	5-54	8.000	403.817	0.050	0.045	0.009	Free Su	3.301	0.111	0.026	0.074	0.119	1.743	Yes	0.089	2.493
216	5-10	5-9	8.000	262.933	0.027	0.677	0.191	Free Su	5.769	0.516	0.526	0.344	0.485	1.285	No	0.344	5.769
217	5-45	5-44	8.000	210.182	0.048	0.063	0.014	Free Su	3.605	0.131	0.037	0.088	0.142	1.708	Yes	0.09	3.459
218	6-1	5-35	8.000	384.111	0.020	1.101	0.328	Free Su	5.61	0.812	0.992	0.541	0.6	1.11	Yes	0.667	4.879
219	5-54	5-53	8.000	338.000	0.018	0.056	0.012	Free Su	2.46	0.157	0.054	0.105	0.134	1.043	No	0.105	2.46
220	5-8	5-7	8.000	315.394	0.068	0.686	0.194	Free Su	8.162	0.399	0.336	0.266	0.489	2.044	Yes	0.667	3.039
221	5-44	5-43	8.000	271.290	0.048	0.071	0.016	Free Su	3.746	0.139	0.042	0.093	0.151	1.714	Yes	0.101	3.303
222	4-22	4-21	8.000	422.288	0.009	0.159	0.038	Free Su	2.652	0.312	0.211	0.208	0.229	0.754	Yes	0.215	2.531
223	4-36	4-21	8.000	134.844	0.060	0.009	0.002	Free Su	2.162	0.049	0.005	0.033	0.053	1.92	Yes	0.123	0.312
224	4-35	4-34	8.000	409.381	0.020	0.017	0.003	Free Su	1.788	0.087	0.016	0.058	0.074	1.095	No	0.058	1.788
225	5-5	5-4	8.000	162.225	0.026	1.897	0.601	Pressur	8.41	1	1.506	0.667	0.623	1.26	Yes	0.667	8.41
226	1-26	1-25	8.000	31.422	0.001	0.491	0.134	Pressur	2.176	1	1.757	0.667	0.307	0.279	Yes	0.667	2.176
227	1-30	1-27	8.000	53.695	0.193	0.008	0.001	Free Su	3.109	0.035	0.002	0.023	0.049	3.443	Yes	0.667	0.034
228	1-27	1-26	8.000	157.026	0.002	0.488	0.133	Pressur	2.163	1	1.503	0.667	0.332	0.325	Yes	0.667	2.163
229	1-28	1-27	8.000	411.125	0.004	0.479	0.130	Pressur	2.421	0.82	1	0.546	0.407	0.479	Yes	0.667	2.124
230	1-29	1-28	8.000	192.000	0.004	0.013	0.002	Pressur	0.915	0.112	0.026	0.075	0.063	0.48	Yes	0.667	0.056
232	1-39	1-38	8.000	49.837	0.001	0.716	0.203	Pressur	3.172	1	3.725	0.667	0.252	0.192	Yes	0.667	3.172
233	1-49	1-43	8.000	155.904	0.051	0.006	0.001	Free Su	1.86	0.044	0.004	0.029	0.045	1.774	Yes	0.667	0.029
234	1-43	1-42	8.000	48.127	0.005	0.043	0.009	Pressur	1.477	0.187	0.076	0.125	0.117	0.564	Yes	0.667	0.191
235	1-10	1-9	12.000	56.251	0.002	2.034	0.649	Pressur	4.008	1	1.908	1	0.546	1.066	No	1	4.008
236	1-42	1-39	8.000	162.145	0.001	0.044	0.009	Pressur	0.924	0.264	0.153	0.176	0.118	0.288	Yes	0.667	0.195
237	1-40	1-39	8.000	295.117	0.008	0.684	0.194	Pressur	3.615	0.782	0.955	0.521	0.488	0.716	Yes	0.667	3.034
238	1-11	1-10	12.000	306.550	0.003	2.033	0.649	Pressur	4.006	1	1.534	1	0.611	1.325	Yes	1	4.006
239	1-44	1-43	8.000	326.193	0.003	0.036	0.007	Pressur	1.166	0.195	0.084	0.13	0.107	0.434	Yes	0.667	0.161
240	1-15	1-14	10.000	141.607	0.009	1.575	0.501	Pressur	4.467	1	1.195	0.833	0.64	1.318	Yes	0.833	4.467
241	1-16	1-15	8.000	296.811	0.015	1.964	0.625	Pressur	8.705	1	2.039	0.667	0.571	0.963	Yes	0.667	8.705
242	1-17	1-16	8.000	306.551	0.014	1.955	0.622	Pressur	8.668	1	2.128	0.667	0.56	0.919	Yes	0.667	8.668
243	5-1	1-17	8.000	334.470	0.015	1.949	0.619	Pressur	8.64	1	2.046	0.667	0.569	0.953	Yes	0.667	8.64
244	1-13	1-12	12.000	304.500	0.006	1.015	0.316	Pressur	3.583	0.546	0.578	0.546	0.532	1.755	Yes	1	2
246	10-11	10-10	8.000	85.014	0.012	0.004	0.001	Free Su	0.948	0.048	0.004	0.032	0.034	0.849	Yes	0.053	0.453
248	1-14	1-13	10.000	359.154	0.007	1.621	0.504	Pressur	4.597	1	1.385	0.833	0.604	1.17	Yes	0.833	4.597
249	1-41	1-40	8.000	315.131	0.002	0.679	0.192	Pressur	3.008	1	2.093	0.667	0.332	0.324	Yes	0.667	3.008
250	1-12	1-11	12.000	288.390	0.004	2.031	0.648	Pressur	4.001	1	1.465	1	0.626	1.386	Yes	1	4.001
251	1-45	1-44	8.000	445.400	0.007	0.029	0.006	Pressur	1.447	0.146	0.046	0.097	0.097	0.643	Yes	0.667	0.131
252	10-4	10-3	8.000	314.020	0.006	0.095	0.022	Pressur	1.94	0.27	0.16	0.18	0.176	0.598	Yes	0.667	0.423
253	10-2	10-1	8.000	30.000	0.067	0.109	0.025	Pressur	4.795	0.157	0.054	0.105	0.188	2.032	Yes	0.667	0.484
254	10-1	9-17	8.000	39.231	0.006	2.047	0.654	Pressur	9.074	1	3.491	0.667	0.452	0.586	Yes	0.667	9.074
255	10-14	10-13	8.000	34.684	0.036	1.970	0.627	Pressur	8.733	1	1.331	0.667	0.642	1.481	Yes	0.667	8.733
256	10-13	10-1	8.000	90.524	0.005	1.975	0.629	Pressur	8.756	1	3.66	0.667	0.433	0.54	Yes	0.667	8.756
257	10-3	10-2	8.000	221.446	0.009	0.107	0.025	Pressur	2.339	0.256	0.144	0.171	0.186	0.742	Yes	0.667	0.474

258	10-5	10-4	8.000	289.357	0.002	0.078	0.017	Pressur	1.264	0.317	0.218	0.211	0.158	0.357	Yes	0.667	0.344
259	10-16	10-15	8.000	290.272	0.004	0.120	0.028	Pressur	1.809	0.336	0.243	0.224	0.198	0.495	Yes	0.667	0.533
260	10-29	10-28	8.000	312.600	0.003	1.870	0.591	Pressur	8.288	1	4.222	0.667	0.39	0.443	Yes	0.667	8.288
261	10-30	10-29	8.000	269.648	0.019	0.064	0.014	Pressur	2.604	0.167	0.06	0.111	0.144	1.066	Yes	0.667	0.285
262	10-28	10-14	8.000	293.815	0.001	1.888	0.598	Pressur	8.369	1	6.455	0.667	0.314	0.293	Yes	0.667	8.369
263	10-37	10-36	8.000	90.000	0.006	0.005	0.001	Pressur	0.81	0.068	0.009	0.045	0.041	0.584	Yes	0.667	0.024
264	10-36	10-17	8.000	418.528	0.001	0.020	0.004	Pressur	0.535	0.224	0.11	0.149	0.08	0.184	Yes	0.667	0.089
265	10-7	10-6	8.000	315.646	0.004	0.040	0.008	Free Su	1.319	0.193	0.081	0.128	0.113	0.495	Yes	0.195	0.734
266	10-18	10-17	8.000	299.199	0.004	0.062	0.013	Pressur	1.534	0.235	0.121	0.156	0.141	0.512	Yes	0.667	0.274
268	10-35	10-32	8.000	233.691	0.009	0.009	0.002	Free Su	1.109	0.079	0.013	0.053	0.054	0.724	Yes	0.071	0.71
269	10-27	10-26	8.000	135.000	0.015	0.010	0.002	Free Su	1.382	0.073	0.011	0.048	0.056	0.953	Yes	0.058	1.063
270	10-33	10-32	8.000	301.270	0.023	0.033	0.007	Free Su	2.32	0.115	0.028	0.077	0.103	1.194	Yes	0.083	2.053
271	10-26	10-17	8.000	298.300	0.019	0.023	0.004	Free Su	1.941	0.101	0.021	0.067	0.085	1.085	Yes	0.667	0.102
272	10-6	10-5	8.000	320.240	0.005	0.063	0.014	Free Su	1.593	0.232	0.118	0.154	0.142	0.536	Yes	0.667	0.28
273	10-17	10-16	8.000	328.457	0.004	0.106	0.024	Pressur	1.78	0.311	0.21	0.207	0.186	0.508	Yes	0.667	0.472
274	10-31	10-30	8.000	328.000	0.015	0.050	0.011	Free Su	2.253	0.154	0.051	0.103	0.126	0.967	Yes	0.561	0.246
275	10-12	10-4	8.000	337.734	0.001	0.013	0.002	Pressur	0.515	0.17	0.063	0.113	0.064	0.209	Yes	0.667	0.058
276	10-10	10-6	8.000	417.238	0.008	0.018	0.003	Free Su	1.292	0.111	0.026	0.074	0.075	0.679	Yes	0.167	0.4
277	7-11	7-10	8.000	155.000	0.025	0.974	0.286	Free Su	6.125	0.664	0.779	0.442	0.573	1.25	No	0.442	6.125
278	7-9	7-1	8.000	35.501	0.053	0.990	0.292	Pressur	8.174	0.529	0.549	0.352	0.577	1.802	Yes	0.667	4.386
279	7-10	7-9	8.000	390.000	0.049	0.984	0.290	Free Su	7.916	0.54	0.569	0.36	0.576	1.73	Yes	0.667	4.363
280	8-2	8-1	8.000	76.648	0.217	0.216	0.054	Free Su	8.861	0.165	0.059	0.11	0.268	3.652	Yes	0.13	6.966
281	7-1	1-48	8.000	140.768	0.005	1.095	0.326	Pressur	4.853	1	2.027	0.667	0.433	0.54	No	0.667	4.853
282	7-2	7-1	8.000	245.000	0.298	0.142	0.034	Free Su	8.733	0.125	0.033	0.083	0.215	4.274	No	0.083	8.733
283	7-35	7-13	8.000	152.531	0.144	0.011	0.002	Free Su	3.144	0.045	0.004	0.03	0.059	2.974	No	0.03	3.144
284	8-3	8-2	8.000	393.985	0.084	0.180	0.044	Free Su	6.011	0.19	0.079	0.127	0.244	2.27	No	0.127	6.011
285	7-4	7-3	8.000	460.243	0.050	0.116	0.027	Free Su	4.398	0.175	0.066	0.116	0.195	1.751	No	0.116	4.398
286	7-42	7-15	8.000	155.451	0.134	0.009	0.002	Free Su	2.834	0.04	0.003	0.027	0.052	2.871	Yes	0.097	0.428
287	7-38	7-37	8.000	35.317	0.142	0.010	0.002	Free Su	3.018	0.043	0.003	0.028	0.056	2.946	Yes	0.039	1.896
288	7-37	7-36	8.000	496.953	0.038	0.017	0.003	Free Su	2.241	0.074	0.011	0.049	0.073	1.531	No	0.049	2.241
289	7-3	7-2	8.000	481.774	0.066	0.130	0.031	Free Su	5.032	0.172	0.065	0.115	0.207	2.018	No	0.115	5.032
290	10-22	10-21	8.000	145.000	0.007	0.010	0.002	Pressur	1.042	0.085	0.015	0.057	0.055	0.65	Yes	0.667	0.043
291	10-20	10-19	8.000	126.766	0.004	0.044	0.009	Pressur	1.368	0.2	0.088	0.134	0.118	0.502	Yes	0.667	0.195
292	10-21	10-20	8.000	340.832	0.001	0.025	0.005	Pressur	0.688	0.218	0.104	0.145	0.089	0.24	Yes	0.667	0.111
293	10-9	10-8	8.000	145.529	0.005	0.017	0.003	Free Su	1.104	0.122	0.032	0.082	0.074	0.547	Yes	0.092	0.923
294	10-24	10-23	8.000	105.000	0.019	0.010	0.002	Free Su	1.516	0.069	0.01	0.046	0.057	1.081	No	0.046	1.516
295	10-25	10-24	8.000	104.592	0.010	0.006	0.001	Free Su	1.028	0.064	0.008	0.043	0.044	0.766	Yes	0.045	0.977
296	10-23	10-20	8.000	181.300	0.035	0.013	0.002	Free Su	2.016	0.067	0.009	0.045	0.064	1.462	Yes	0.667	0.058
297	7-32	7-6	8.000	177.052	0.119	0.008	0.001	Free Su	2.7	0.041	0.003	0.027	0.051	2.697	Yes	0.039	1.58
298	7-7	7-6	8.000	261.061	0.065	0.009	0.002	Free Su	2.225	0.048	0.004	0.032	0.053	1.998	Yes	0.042	1.519
299	7-6	7-5	8.000	606.503	0.077	0.026	0.005	Free Su	3.274	0.077	0.012	0.051	0.091	2.18	Yes	0.084	1.577
300	7-5	7-4	8.000	367.418	0.041	0.106	0.024	Free Su	3.991	0.176	0.067	0.117	0.186	1.582	No	0.117	3.991
301	1-48	1-47	8.000	305.000	0.022	1.101	0.328	Free Su	5.821	0.781	0.954	0.521	0.6	1.154	Yes	0.667	4.881
302	1-46	1-45	8.000	369.014	0.005	0.019	0.004	Pressur	1.175	0.124	0.033	0.083	0.077	0.576	Yes	0.667	0.084
303	10-8	10-7	8.000	307.332	0.004	0.025	0.005	Free Su	1.126	0.154	0.051	0.103	0.089	0.483	Yes	0.116	0.95
304	10-19	10-18	8.000	170.009	0.004	0.050	0.010	Pressur	1.352	0.22	0.106	0.146	0.126	0.469	Yes	0.667	0.22
305	10-34	10-33	8.000	265.000	0.019	0.020	0.004	Free Su	1.841	0.094	0.018	0.063	0.079	1.076	Yes	0.07	1.576
306	5-2	5-1	8.000	372.009	0.011	1.937	0.615	Pressur	8.587	1	2.323	0.667	0.537	0.834	Yes	0.667	8.587
307	6-45	6-44.5	8.000	37.975	0.082	0.058	0.012	Free Su	4.252	0.11	0.026	0.074	0.136	2.248	Yes	0.105	2.515
308	6-8	6-7	8.000	116.341	0.006	0.978	0.288	Pressur	4.335	1	1.566	0.667	0.466	0.625	Yes	0.667	4.335

309	6-7	6-6	8.000	224.047	0.003	0.982	0.289	Pressur	4.353	1	2.139	0.667	0.398	0.459	Yes	0.667	4.353
310	6-24	6-9	8.000	187.861	0.052	0.131	0.031	Free Sur	4.616	0.183	0.073	0.122	0.207	1.783	Yes	0.667	0.581
311	6-10	6-9	8.000	55.771	0.033	0.876	0.255	Pressur	6.617	0.569	0.618	0.379	0.549	1.418	Yes	0.667	3.885
312	6-53	6-10	8.000	113.310	0.140	0.011	0.002	Free Sur	3.101	0.045	0.004	0.03	0.059	2.934	Yes	0.667	0.049
313	6-9	6-8	8.000	399.719	0.011	0.975	0.287	Pressur	4.32	1	1.162	0.667	0.538	0.839	Yes	0.667	4.32
314	6-52	6-51	8.000	127.401	0.024	0.007	0.001	Free Sur	1.454	0.055	0.006	0.037	0.047	1.202	Yes	0.037	1.439
315	5-64	5-63	8.000	389.816	0.003	0.011	0.002	Free Sur	0.773	0.116	0.028	0.077	0.059	0.397	No	0.077	0.773
316	6-51	6-5	8.000	136.217	0.054	0.011	0.002	Free Sur	2.213	0.056	0.006	0.037	0.058	1.812	Yes	0.222	0.167
317	5-63	5-62	8.000	347.590	0.040	0.033	0.007	Free Sur	2.8	0.1	0.021	0.067	0.102	1.572	Yes	0.075	2.36
318	5-57	5-56	8.000	46.049	0.065	0.024	0.005	Free Sur	3.025	0.078	0.012	0.052	0.088	1.999	Yes	0.057	2.64
319	5-13	5-12	8.000	100.432	0.060	0.655	0.184	Free Sur	7.713	0.402	0.341	0.268	0.478	1.924	No	0.268	7.713
320	5-15	5-14	8.000	190.736	0.090	0.372	0.105	Free Sur	7.612	0.269	0.158	0.179	0.356	2.352	Yes	0.322	3.453
321	5-12	5-11	8.000	313.084	0.039	0.658	0.185	Free Sur	6.58	0.455	0.425	0.304	0.479	1.547	No	0.304	6.58
322	5-58	5-57	8.000	262.000	0.034	0.019	0.004	Free Sur	2.241	0.08	0.013	0.053	0.077	1.451	No	0.053	2.241
324	5-65	5-63	8.000	300.507	0.007	0.011	0.002	Free Sur	1.075	0.092	0.017	0.061	0.059	0.639	Yes	0.064	1.005
325	6-26	6-25	8.000	102.108	0.005	0.078	0.017	Free Sur	1.72	0.255	0.142	0.17	0.158	0.548	No	0.17	1.72
326	6-59	6-58	8.000	114.066	0.009	0.041	0.008	Free Sur	1.751	0.161	0.056	0.107	0.114	0.733	No	0.107	1.751
327	6-27	6-26	8.000	202.415	0.047	0.070	0.015	Free Sur	3.704	0.139	0.041	0.093	0.15	1.696	Yes	0.131	2.238
328	6-58	6-25	8.000	180.266	0.039	0.046	0.010	Free Sur	3.051	0.118	0.03	0.079	0.121	1.543	Yes	0.103	2.066
329	6-61	6-60	8.000	38.376	0.026	0.021	0.004	Free Sur	2.106	0.09	0.017	0.06	0.082	1.264	Yes	0.071	1.644
330	6-64	6-60	8.000	127.000	0.016	0.017	0.003	Free Sur	1.639	0.09	0.017	0.06	0.072	0.983	Yes	0.071	1.282
331	6-60	6-59	8.000	91.045	0.022	0.038	0.008	Free Sur	2.355	0.123	0.032	0.082	0.109	1.161	Yes	0.095	1.919
332	5-66	5-16	8.000	154.000	0.077	0.014	0.003	Free Sur	2.706	0.057	0.006	0.038	0.066	2.176	Yes	0.142	0.399
333	5-51.5	5-51	8.000	76.857	0.052	0.008	0.001	Free Sur	1.96	0.047	0.004	0.031	0.049	1.786	Yes	0.033	1.818
334	5-51	5-50.5	8.000	236.112	0.102	0.013	0.002	Free Sur	2.92	0.052	0.005	0.035	0.064	2.497	Yes	0.042	2.228
335	6-65	6-64	8.000	216.869	0.014	0.010	0.002	Free Sur	1.33	0.072	0.011	0.048	0.055	0.921	Yes	0.054	1.117
336	5-15	5-14	8.000	347.692	0.049	0.276	0.077	Free Sur	5.638	0.269	0.158	0.179	0.305	1.742	Yes	0.322	2.557
337	5-59	5-58	8.000	336.485	0.048	0.010	0.002	Free Sur	2.067	0.055	0.006	0.037	0.056	1.708	Yes	0.045	1.523
338	5-50.5	5-48	8.000	257.852	0.062	0.021	0.004	Free Sur	2.836	0.073	0.011	0.049	0.081	1.951	Yes	0.058	2.186
340	6-6	6-5	8.000	165.579	0.003	0.986	0.290	Pressur	4.37	1	2.415	0.667	0.374	0.408	No	0.667	4.37
341	6-25	6-24	8.000	320.419	0.037	0.121	0.028	Free Sur	4.02	0.191	0.08	0.127	0.199	1.515	No	0.127	4.02
342	6-13	6-12	8.000	106.536	0.010	0.857	0.249	Pressur	3.801	1	1.103	0.667	0.519	0.777	No	0.667	3.801
343	6-15	6-14	8.000	88.161	0.038	0.841	0.243	Free Sur	6.961	0.528	0.548	0.352	0.539	1.536	No	0.352	6.961
344	6-54	6-14	8.000	122.208	0.098	0.017	0.003	Free Sur	3.113	0.059	0.007	0.039	0.073	2.454	Yes	0.188	0.321
345	6-14	6-13	8.000	113.190	0.045	0.852	0.247	Free Sur	7.436	0.506	0.511	0.338	0.542	1.669	Yes	0.618	3.906
346	6-56	6-15	8.000	368.932	0.029	0.008	0.001	Free Sur	1.622	0.056	0.006	0.037	0.05	1.328	Yes	0.195	0.146
347	6-12	6-11	8.000	326.639	0.029	0.861	0.250	Free Sur	6.293	0.584	0.645	0.389	0.545	1.336	Yes	0.4	6.091
348	6-57	6-16	8.000	157.088	0.083	0.011	0.002	Free Sur	2.56	0.05	0.005	0.033	0.058	2.258	Yes	0.131	0.342
349	6-17	6-16	8.000	150.603	0.041	0.827	0.239	Free Sur	7.101	0.513	0.522	0.342	0.535	1.585	No	0.342	7.101
350	6-18	6-17	8.000	389.567	0.072	0.822	0.237	Free Sur	8.723	0.435	0.393	0.29	0.533	2.094	Yes	0.316	7.805
351	6-16	6-15	8.000	82.015	0.177	0.835	0.241	Free Sur	12.193	0.343	0.253	0.229	0.537	3.298	Yes	0.29	8.848
352	6-63	6-62	8.000	295.931	0.051	0.008	0.001	Free Sur	1.99	0.049	0.005	0.033	0.051	1.763	Yes	0.04	1.5
353	5-67	5-17	8.000	329.081	0.085	0.024	0.005	Free Sur	3.302	0.072	0.01	0.048	0.087	2.289	Yes	0.148	0.645
354	5-69	5-68	8.000	238.176	0.134	0.009	0.002	Free Sur	2.838	0.04	0.003	0.027	0.052	2.87	Yes	0.044	1.358
355	5-68	5-67	8.000	234.393	0.017	0.018	0.003	Free Sur	1.727	0.092	0.018	0.061	0.075	1.023	No	0.061	1.727
356	5-70	5-18	8.000	308.006	0.105	0.020	0.004	Free Sur	3.345	0.063	0.008	0.042	0.079	2.54	Yes	0.133	0.615
357	5-71	5-70	8.000	125.050	0.168	0.011	0.002	Free Sur	3.333	0.043	0.004	0.029	0.06	3.209	Yes	0.035	2.48
358	5-18	5-17	8.000	188.155	0.105	0.617	0.172	Free Sur	9.267	0.336	0.243	0.224	0.463	2.534	Yes	0.236	8.653
359	5-73	5-19	8.000	221.584	0.071	0.079	0.018	Free Sur	4.436	0.133	0.038	0.089	0.16	2.082	Yes	0.226	1.18
360	5-75	5-74	8.000	121.039	0.140	0.070	0.015	Free Sur	5.434	0.107	0.024	0.071	0.15	2.935	Yes	0.072	5.372

361	5-74	5-73	8.000	159.735	0.144	0.073	0.016	Free Su	5.555	0.108	0.025	0.072	0.153	2.971	Yes	0.081	4.729
362	5-76	5-75	8.000	148.041	0.027	0.004	0.001	Free Su	1.273	0.04	0.003	0.027	0.035	1.287	Yes	0.049	0.523
363	5-19	5-18	8.000	380.003	0.018	0.601	0.167	Free Su	4.788	0.544	0.575	0.363	0.457	1.044	No	0.363	4.788
364	5-72	5-71	8.000	265.691	0.019	0.007	0.001	Free Su	1.322	0.056	0.006	0.038	0.045	1.074	No	0.038	1.322
365	6-55	6-54	8.000	193.850	0.052	0.012	0.002	Free Su	2.262	0.059	0.007	0.04	0.062	1.779	No	0.04	2.262
366	6-57.5	6-57	8.000	145.192	0.014	0.005	0.001	Free Su	1.086	0.053	0.005	0.035	0.039	0.919	No	0.035	1.086
367	6-11	6-10	8.000	326.365	0.025	0.869	0.252	Free Su	5.956	0.616	0.7	0.411	0.547	1.242	Yes	0.667	3.851
368	6-28	6-27	8.000	386.375	0.008	0.061	0.013	Free Su	1.882	0.2	0.088	0.133	0.139	0.69	No	0.133	1.882
369	6-62	6-61	8.000	282.529	0.053	0.018	0.003	Free Su	2.556	0.07	0.01	0.047	0.075	1.804	Yes	0.053	2.095
370	5-66.5	5-66	8.000	218.400	0.092	0.007	0.001	Free Su	2.366	0.041	0.003	0.027	0.048	2.37	Yes	0.033	1.804
371	5-17	5-16	8.000	387.420	0.077	0.635	0.178	Free Su	8.354	0.371	0.293	0.247	0.47	2.171	No	0.247	8.354
372	8-5	8-4	8.000	193.598	0.085	0.164	0.040	Free Su	5.871	0.182	0.072	0.121	0.233	2.282	Yes	0.126	5.537
373	7-43	7-16	8.000	98.964	0.235	0.026	0.005	Free Su	4.805	0.059	0.007	0.039	0.09	3.793	Yes	0.047	3.707
374	7-44	7-43	8.000	320.347	0.028	0.021	0.004	Free Su	2.153	0.088	0.016	0.059	0.081	1.313	No	0.059	2.153
375	5-50	5-49	8.000	322.000	0.062	0.008	0.001	Free Su	2.128	0.047	0.004	0.031	0.05	1.952	Yes	0.036	1.745
376	8-8	8-7	8.000	335.687	0.070	0.059	0.013	Free Su	4.043	0.116	0.028	0.077	0.137	2.071	Yes	0.094	3.03
377	8-16	8-6	8.000	327.925	0.070	0.014	0.003	Free Su	2.61	0.058	0.007	0.039	0.066	2.072	Yes	0.078	0.938
378	7-24	7-23	8.000	194.449	0.026	0.055	0.012	Free Su	2.789	0.143	0.044	0.095	0.133	1.256	No	0.095	2.789
379	7-33	7-23	8.000	457.570	0.140	0.014	0.003	Free Su	3.344	0.05	0.005	0.033	0.067	2.929	Yes	0.062	1.33
380	7-34	7-24	8.000	446.126	0.134	0.011	0.002	Free Su	3.057	0.045	0.004	0.03	0.059	2.872	Yes	0.063	1.033
381	7-46	7-45	8.000	128.022	0.133	0.005	0.001	Free Su	2.366	0.031	0.002	0.021	0.039	2.854	Yes	0.032	1.233
382	7-20	7-19	8.000	47.222	0.042	0.024	0.005	Free Su	2.602	0.086	0.015	0.057	0.088	1.612	No	0.057	2.602
383	7-27	7-26	8.000	97.317	0.062	0.032	0.006	Free Su	3.207	0.089	0.016	0.059	0.1	1.944	No	0.059	3.207
384	7-26	7-25	8.000	572.379	0.115	0.035	0.007	Free Su	4.108	0.08	0.013	0.053	0.105	2.659	Yes	0.086	2.046
385	7-25	7-24	8.000	174.377	0.006	0.041	0.008	Free Su	1.507	0.178	0.069	0.119	0.114	0.593	No	0.119	1.507
386	7-28	7-27	8.000	97.537	0.072	0.029	0.006	Free Su	3.282	0.082	0.014	0.055	0.095	2.098	Yes	0.057	3.084
387	7-31	7-28	8.000	296.705	0.040	0.011	0.002	Free Su	2.012	0.06	0.007	0.04	0.059	1.575	Yes	0.047	1.565
388	7-22	7-21	8.000	248.062	0.113	0.009	0.002	Free Su	2.683	0.042	0.003	0.028	0.052	2.631	Yes	0.034	2.052
389	7-30	7-29	8.000	14.928	0.134	0.004	0.001	Free Su	2.254	0.028	0.001	0.019	0.036	2.866	Yes	0.032	1.01
390	7-29	7-28	8.000	286.383	0.010	0.008	0.001	Free Su	1.124	0.069	0.01	0.046	0.049	0.801	Yes	0.05	0.986
391	7-21	7-20	8.000	354.626	0.135	0.020	0.004	Free Su	3.651	0.059	0.007	0.039	0.079	2.881	Yes	0.048	2.692
392	7-45	7-44	8.000	129.061	0.070	0.017	0.003	Free Su	2.781	0.065	0.008	0.043	0.073	2.068	Yes	0.051	2.173
393	7-18	CRUSHERCANYON8	8.000	32.365	0.011	0.032	0.006	Free Su	1.764	0.134	0.038	0.089	0.1	0.826	Yes	0.445	0.198
394	7-19	7-18	8.000	254.612	0.112	0.028	0.006	Free Su	3.817	0.073	0.011	0.049	0.094	2.626	Yes	0.157	0.695
395	5-81	5-80	8.000	217.985	0.032	0.033	0.007	Free Su	2.579	0.105	0.023	0.07	0.102	1.403	Yes	0.071	2.525
396	5-80	5-79	8.000	200.721	0.060	0.047	0.010	Free Su	3.583	0.108	0.025	0.072	0.123	1.915	Yes	0.087	2.725
397	8-10	8-9	8.000	171.039	0.170	0.033	0.007	Free Su	4.617	0.071	0.01	0.048	0.102	3.224	Yes	0.058	3.416
398	8-12	8-11	8.000	221.091	0.077	0.010	0.002	Free Su	2.449	0.049	0.005	0.033	0.056	2.171	Yes	0.043	1.619
399	5-78	5-77	8.000	126.765	0.158	0.057	0.012	Free Su	5.317	0.094	0.018	0.063	0.135	3.11	Yes	0.064	5.165
400	5-84	5-83	8.000	109.427	0.110	0.010	0.002	Free Su	2.731	0.044	0.004	0.03	0.055	2.593	Yes	0.036	2.076
401	5-83	5-82	8.000	174.309	0.109	0.020	0.004	Free Su	3.397	0.062	0.008	0.042	0.079	2.585	Yes	0.059	2.027
402	5-82	5-81	8.000	275.396	0.015	0.026	0.005	Free Su	1.829	0.115	0.028	0.076	0.091	0.944	No	0.076	1.829
403	8-9	8-8	8.000	488.331	0.074	0.048	0.010	Free Su	3.864	0.104	0.022	0.069	0.123	2.126	Yes	0.073	3.549
404	5-49	5-48	8.000	170.852	0.059	0.013	0.002	Free Su	2.432	0.06	0.007	0.04	0.065	1.894	Yes	0.054	1.577
405	5-77	5-75	8.000	117.646	0.179	0.066	0.014	Free Su	5.796	0.098	0.02	0.065	0.145	3.308	Yes	0.068	5.43
406	6-44.5	6-44	8.000	275.342	0.007	0.062	0.013	Free Su	1.852	0.206	0.093	0.137	0.141	0.667	No	0.137	1.852
407	5-40	5-39	8.000	241.006	0.058	0.011	0.002	Free Su	2.25	0.054	0.006	0.036	0.057	1.887	Yes	0.046	1.573
408	6-5	6-4	8.000	318.873	0.034	0.996	0.294	Free Su	6.915	0.609	0.688	0.406	0.579	1.447	Yes	0.473	5.81
409	5-62	5-61	8.000	518.081	0.033	0.047	0.010	Free Su	2.903	0.125	0.033	0.083	0.123	1.419	Yes	0.085	2.818
410	8-4	8-3	8.000	392.979	0.067	0.171	0.042	Free Su	5.463	0.197	0.085	0.131	0.238	2.024	No	0.131	5.463

411	5-46	5-45	8.000	527.850	0.051	0.052	0.011	Free Su	3.493	0.118	0.029	0.079	0.129	1.771	Yes	0.083	3.22
412	5-56	5-55	8.000	360.000	0.053	0.032	0.006	Free Su	3.048	0.093	0.018	0.062	0.101	1.799	Yes	0.068	2.664
413	5-11	5-10	8.000	380.010	0.041	0.668	0.188	Free Su	6.749	0.452	0.419	0.301	0.482	1.593	Yes	0.322	6.177
414	7-39	7-38	8.000	410.675	0.005	0.006	0.001	Free Su	0.819	0.076	0.012	0.051	0.045	0.546	No	0.051	0.819
415	7-40	7-45	8.000	225.145	0.071	0.009	0.002	Free Su	2.299	0.048	0.004	0.032	0.053	2.088	Yes	0.037	1.799
416	7-23	7-5	8.000	324.589	0.055	0.075	0.016	Free Su	3.998	0.137	0.04	0.091	0.155	1.844	Yes	0.104	3.305
417	4-45	4-6	10.000	322.840	0.021	0.011	0.002	Free Su	1.556	0.053	0.005	0.044	0.056	2.053	Yes	0.08	0.651
418	4-9	4-8	8.000	141.320	0.032	0.057	0.012	Free Su	3.063	0.138	0.041	0.092	0.135	1.41	Yes	0.098	2.776
419	4-51	4-13	8.000	364.317	0.006	0.010	0.002	Free Su	0.99	0.089	0.016	0.059	0.055	0.599	Yes	0.061	0.95
420	4-29	4-28	8.000	252.056	0.028	0.021	0.004	Free Su	2.135	0.088	0.016	0.058	0.081	1.305	Yes	0.077	1.434
421	2-35	2-34	8.000	312.925	0.022	0.009	0.002	Free Su	1.524	0.061	0.007	0.041	0.052	1.171	Yes	0.161	0.207
422	4-31	4-1	8.000	373.663	0.009	0.012	0.002	Free Su	1.201	0.088	0.016	0.059	0.06	0.734	Yes	0.166	0.265
423	2-12	2-11	8.000	203.428	0.028	0.507	0.139	Free Su	5.435	0.432	0.387	0.288	0.419	1.31	Yes	0.667	2.249
424	2-25.5	2-25	8.000	224.098	0.013	0.049	0.010	Free Su	2.147	0.159	0.055	0.106	0.125	0.906	Yes	0.667	0.219
425	2-17	2-16	8.000	239.400	0.013	0.056	0.012	Free Su	2.178	0.171	0.064	0.114	0.134	0.877	No	0.114	2.178
426	1-25	1-24	8.000	403.751	0.005	0.497	0.136	Pressur	2.671	0.769	0.938	0.513	0.415	0.53	Yes	0.667	2.203
427	1-38	1-35	8.000	156.573	0.005	0.719	0.204	Pressur	3.185	1	1.344	0.667	0.431	0.535	Yes	0.667	3.185
428	1-9	1-8	12.000	175.702	0.010	2.035	0.650	Free Su	5.034	0.743	0.902	0.743	0.76	2.258	Yes	1	4.01
429	9-17	9-16	12.000	187.189	0.001	2.049	0.655	Pressur	4.036	1	3.035	1	0.43	0.675	Yes	1	4.036
430	9-13	9-12	10.000	92.260	0.011	0.019	0.004	Free Su	1.447	0.079	0.013	0.066	0.072	1.478	Yes	0.109	0.693
431	9-11	9-10	10.000	383.190	0.005	0.405	0.108	Free Su	2.624	0.451	0.419	0.376	0.348	0.968	Yes	0.38	2.588
432	9-14	9-12	10.000	566.143	0.002	0.376	0.100	Free Su	1.79	0.576	0.63	0.48	0.335	0.597	No	0.48	1.79
433	11-2	11-1	8.000	320.701	0.011	1.810	0.570	Pressur	8.024	1	2.242	0.667	0.529	0.807	Yes	0.667	8.024
434	11-3	11-2	8.000	243.446	0.014	1.807	0.569	Pressur	8.008	1	1.964	0.667	0.56	0.92	Yes	0.667	8.008
435	11-16	11-15	8.000	118.914	0.008	0.007	0.001	Pressur	1.022	0.071	0.01	0.047	0.047	0.718	Yes	0.667	0.032
436	11-15	11-4	8.000	267.409	0.003	0.019	0.004	Pressur	0.937	0.145	0.045	0.097	0.077	0.417	Yes	0.667	0.084
437	11-5	11-4	8.000	326.410	0.020	1.790	0.563	Pressur	7.934	1	1.634	0.667	0.599	1.096	Yes	0.667	7.934
438	11-20	11-19	8.000	227.000	0.004	0.024	0.005	Free Su	1.166	0.145	0.045	0.097	0.086	0.52	No	0.097	1.166
439	11-23	11-22	8.000	162.000	0.012	0.000	0.000	Free Su	0	0	0	0	0	0.87	Yes	0.014	0
440	11-4	11-3	8.000	312.554	0.011	1.807	0.569	Pressur	8.008	1	2.19	0.667	0.534	0.825	Yes	0.667	8.008
441	11-7	11-6	8.000	95.514	0.120	1.748	0.549	Free Su	12.791	0.583	0.643	0.389	0.654	2.717	Yes	0.667	7.747
442	11-8	11-7	8.000	15.000	0.137	1.747	0.548	Free Su	13.431	0.56	0.604	0.374	0.654	2.895	Yes	0.381	13.1
443	11-26	11-9	8.000	131.992	0.013	0.646	0.182	Free Su	4.365	0.624	0.712	0.416	0.474	0.907	No	0.416	4.365
444	11-9	11-8	8.000	16.779	0.107	1.747	0.548	Free Su	12.228	0.605	0.681	0.404	0.654	2.565	No	0.404	12.228
445	11-31	11-27	8.000	87.794	0.011	0.039	0.008	Free Su	1.897	0.148	0.047	0.099	0.112	0.836	Yes	0.178	0.816
446	11-27	11-26	8.000	252.875	0.067	0.639	0.179	Free Su	7.969	0.385	0.315	0.257	0.472	2.03	Yes	0.336	5.599
447	11-32	11-31	8.000	154.837	0.019	0.013	0.002	Free Su	1.636	0.077	0.012	0.051	0.064	1.09	Yes	0.075	0.934
448	11-30	11-26	8.000	134.970	0.074	0.007	0.001	Free Su	2.128	0.041	0.003	0.027	0.045	2.132	Yes	0.222	0.101
449	11-10	11-9	8.000	277.933	0.036	1.216	0.367	Free Su	7.359	0.687	0.816	0.458	0.617	1.489	No	0.458	7.359
450	11-29	11-28	8.000	222.927	0.094	0.605	0.169	Free Su	8.873	0.342	0.252	0.228	0.459	2.403	No	0.228	8.873
451	11-35	11-34	8.000	156.000	0.006	0.013	0.002	Free Su	1.121	0.101	0.021	0.067	0.065	0.627	No	0.067	1.121
452	11-40	11-39	8.000	226.266	0.040	0.006	0.001	Free Su	1.7	0.047	0.004	0.031	0.045	1.562	Yes	0.033	1.593
453	11-39	11-34	8.000	239.927	0.088	0.012	0.002	Free Su	2.667	0.051	0.005	0.034	0.06	2.317	Yes	0.042	1.938
454	11-34	11-31	8.000	128.214	0.086	0.026	0.005	Free Su	3.402	0.075	0.011	0.05	0.091	2.294	Yes	0.074	1.908
455	11-28	11-27	8.000	257.783	0.101	0.609	0.170	Free Su	9.11	0.337	0.245	0.225	0.46	2.487	Yes	0.241	8.29
456	11-33	11-32	8.000	227.118	0.079	0.008	0.001	Free Su	2.283	0.043	0.004	0.029	0.049	2.205	Yes	0.04	1.406
457	11-36	11-35	8.000	154.000	0.058	0.010	0.002	Free Su	2.185	0.051	0.005	0.034	0.054	1.893	Yes	0.051	1.213
458	11-41	11-40	8.000	109.883	0.064	0.000	0.000	Free Su	0	0	0	0	0	1.976	Yes	0.016	0
459	11-6	11-5	8.000	226.254	0.032	1.751	0.550	Pressur	7.762	1	1.249	0.667	0.636	1.402	Yes	0.667	7.762
460	9-10	9-9	10.000	215.062	0.005	0.422	0.113	Free Su	2.663	0.461	0.434	0.384	0.356	0.973	No	0.384	2.663

461	11-1	10-29	8.000	424.619	0.002	1.820	0.574	Pressur	8.069	1	4.79	0.667	0.36	0.38	Yes	0.667	8.069
462	10-34.5	10-34	8.000	385.500	0.016	0.012	0.002	Free Su	1.492	0.079	0.013	0.053	0.062	0.977	Yes	0.058	1.301
463	5-23	5-22	8.000	158.446	0.057	0.140	0.033	Free Su	4.863	0.185	0.075	0.124	0.214	1.866	Yes	0.599	0.656
464	5-22	5-21	8.000	300.959	0.003	0.535	0.147	Pressur	2.37	1	1.184	0.667	0.394	0.451	No	0.667	2.37
465	5-91	5-90	8.000	223.588	0.009	0.015	0.003	Free Su	1.314	0.1	0.021	0.066	0.069	0.741	No	0.066	1.314
466	5-90	5-89	8.000	337.410	0.039	0.024	0.005	Free Su	2.496	0.087	0.015	0.058	0.087	1.537	Yes	0.066	2.06
467	5-27	5-26	8.000	368.020	0.043	0.051	0.011	Free Su	3.273	0.121	0.031	0.081	0.127	1.633	Yes	0.088	2.901
468	1-4	1-3	21.000	177.000	0.002	6.231	2.253	Pressur	4.008	1	1.246	1.75	1.031	5.002	Yes	1.75	4.008
469	1-6	1-5	18.000	156.980	0.006	2.060	0.659	Free Su	4.329	0.434	0.391	0.651	0.68	5.268	Yes	0.674	4.144
470	1-18	1-4	12.000	142.748	0.002	4.551	1.589	Pressur	8.966	1	4.039	1	0.562	1.127	Yes	1	8.966
474	1-19	1-18	12.000	74.000	0.002	4.547	1.587	Pressur	8.957	1	4.891	1	0.508	0.93	Yes	1	8.957
475	1-20	1-19	12.000	220.684	0.002	4.542	1.585	Pressur	8.948	1	4.309	1	0.542	1.054	Yes	1	8.948
476	19-12	19-11	8.000	288.472	0.007	1.056	0.313	Pressur	4.68	1	1.619	0.667	0.477	0.652	No	0.667	4.68
477	19-2	19-1	8.000	182.565	0.038	1.106	0.330	Free Su	7.399	0.629	0.721	0.419	0.6	1.533	No	0.419	7.399
478	19-3	19-2	8.000	165.610	0.036	1.105	0.330	Free Su	7.233	0.641	0.741	0.427	0.6	1.491	No	0.427	7.233
479	19-4	19-3	8.000	135.940	0.022	1.099	0.328	Free Su	5.865	0.774	0.945	0.516	0.599	1.163	No	0.516	5.865
480	19-5	19-4	8.000	112.490	0.098	1.096	0.327	Free Su	10.552	0.469	0.447	0.313	0.599	2.449	Yes	0.414	7.437
481	19-6	19-5	8.000	185.195	0.005	1.089	0.324	Pressur	4.828	1	1.893	0.667	0.447	0.575	No	0.667	4.828
482	19-7	19-6	8.000	168.096	0.059	1.084	0.323	Free Su	8.733	0.539	0.568	0.36	0.597	1.91	Yes	0.667	4.805
483	19-10	19-9	8.000	324.655	0.092	1.070	0.318	Free Su	10.27	0.47	0.449	0.313	0.594	2.38	Yes	0.322	9.907
484	19-13	19-12	8.000	193.994	0.010	1.051	0.312	Pressur	4.657	1	1.321	0.667	0.525	0.795	Yes	0.667	4.657
485	19-11	19-10	8.000	371.802	0.019	1.060	0.315	Free Su	5.429	0.807	0.986	0.538	0.592	1.074	No	0.538	5.429
486	19-8	19-7	8.000	153.565	0.065	1.080	0.321	Free Su	9.029	0.524	0.54	0.349	0.596	1.998	Yes	0.354	8.859
487	19-9	19-8	8.000	103.775	0.077	1.074	0.320	Free Su	9.609	0.497	0.494	0.331	0.595	2.174	Yes	0.34	9.287
488	19-21	19-20	8.000	203.500	0.118	0.008	0.001	Free Su	2.643	0.04	0.003	0.027	0.05	2.689	Yes	0.033	1.961
489	19-18	19-17	8.000	90.000	0.033	0.021	0.004	Free Su	2.275	0.084	0.014	0.056	0.081	1.43	No	0.056	2.275
490	19-14	19-13	8.000	256.000	0.059	1.031	0.305	Free Su	8.577	0.526	0.544	0.35	0.586	1.896	Yes	0.667	4.568
491	19-22	19-16	8.000	129.000	0.019	0.965	0.284	Free Su	5.456	0.731	0.885	0.488	0.571	1.09	No	0.488	5.456
492	19-17	19-16	8.000	147.160	0.088	0.033	0.007	Free Su	3.671	0.083	0.014	0.055	0.102	2.327	Yes	0.241	0.445
493	19-24	19-23	8.000	249.000	0.060	0.962	0.282	Free Su	8.52	0.5	0.5	0.333	0.571	1.922	Yes	0.345	8.16
494	19-16	19-14	8.000	171.100	0.029	0.988	0.291	Free Su	6.491	0.639	0.738	0.426	0.577	1.339	No	0.426	6.491
495	19-19	19-18	8.000	159.500	0.019	0.017	0.003	Free Su	1.763	0.088	0.016	0.059	0.073	1.074	No	0.059	1.763
496	19-20	19-19	8.000	190.000	0.074	0.014	0.003	Free Su	2.655	0.058	0.007	0.038	0.066	2.126	Yes	0.049	1.875
497	6-35	6-34	8.000	325.682	0.126	0.007	0.001	Free Su	2.642	0.038	0.003	0.025	0.048	2.778	Yes	0.037	1.504
498	6-36	6-34	8.000	187.016	0.048	0.009	0.002	Free Su	2.037	0.053	0.005	0.035	0.054	1.718	Yes	0.042	1.583
499	6-34	6-33	8.000	320.350	0.078	0.023	0.005	Free Su	3.18	0.073	0.011	0.049	0.086	2.188	Yes	0.055	2.633
500	6-33	6-29	8.000	151.000	0.040	0.028	0.006	Free Su	2.648	0.093	0.018	0.062	0.094	1.561	Yes	0.073	2.088
501	6-31	6-30	8.000	298.905	0.030	0.013	0.002	Free Su	1.927	0.07	0.01	0.047	0.065	1.359	Yes	0.047	1.908
502	6-30	6-29	8.000	89.474	0.056	0.019	0.004	Free Su	2.648	0.071	0.01	0.047	0.077	1.851	Yes	0.066	1.643
503	6-29	6-28	8.000	376.394	0.035	0.049	0.010	Free Su	2.986	0.126	0.034	0.084	0.125	1.455	Yes	0.109	2.045
504	5-16	5-15	8.000	23.287	0.082	0.646	0.181	Free Su	8.592	0.367	0.288	0.245	0.474	2.243	No	0.245	8.592
505	5-14	5-13	8.000	171.242	0.010	0.652	0.183	Free Su	3.89	0.696	0.831	0.464	0.477	0.785	No	0.464	3.89
506	3-27	3-26	12.000	206.156	0.033	1.139	0.341	Free Su	7.063	0.355	0.27	0.355	0.565	4.224	No	0.355	7.063
508	3-26	3-25	12.000	66.579	0.070	1.140	0.341	Free Su	9.191	0.293	0.187	0.293	0.565	6.088	No	0.293	9.191
509	3-25	3-24	12.000	288.678	0.103	1.151	0.345	Free Su	10.617	0.266	0.155	0.266	0.568	7.422	Yes	0.271	10.364
510	19-50	19-49	8.000	230.928	0.035	0.842	0.244	Free Su	6.693	0.545	0.578	0.364	0.539	1.458	No	0.364	6.693
512	19-51	19-50	8.000	277.391	0.144	0.839	0.243	Free Su	11.329	0.363	0.282	0.242	0.538	2.974	Yes	0.303	8.411
513	19-44	19-43	8.000	292.358	0.099	0.009	0.002	Free Su	2.596	0.044	0.004	0.03	0.053	2.466	Yes	0.037	1.857
514	19-49	19-48	8.000	219.684	0.036	0.847	0.245	Free Su	6.831	0.539	0.567	0.359	0.541	1.494	No	0.359	6.831
515	19-54	19-53	8.000	370.191	0.097	0.012	0.002	Free Su	2.781	0.05	0.005	0.033	0.061	2.442	Yes	0.087	0.677

516	19-48	19-47	8.000	151.850	0.112	0.882	0.256	Free Su	10.472	0.4	0.336	0.266	0.55	2.62	Yes	0.277	9.963
517	19-41	19-30	8.000	220.717	0.063	0.908	0.265	Free Su	8.561	0.477	0.46	0.318	0.557	1.972	No	0.318	8.561
518	19-47	19-45	8.000	104.396	0.086	0.884	0.257	Free Su	9.523	0.43	0.384	0.287	0.551	2.299	Yes	0.293	9.279
519	19-43	19-42	8.000	190.196	0.053	0.016	0.003	Free Su	2.466	0.067	0.009	0.045	0.071	1.796	Yes	0.061	1.557
520	19-33	19-32	8.000	160.000	0.181	0.008	0.001	Free Su	3.043	0.036	0.002	0.024	0.049	3.334	Yes	0.031	2.001
521	19-42	19-41	8.000	230.008	0.009	0.021	0.004	Free Su	1.422	0.116	0.028	0.077	0.081	0.73	Yes	0.197	0.37
522	19-29	19-34	8.000	178.123	0.062	0.947	0.278	Free Su	8.567	0.492	0.487	0.328	0.567	1.946	No	0.328	8.567
523	19-27	19-26	8.000	260.000	0.127	0.007	0.001	Free Su	2.591	0.037	0.002	0.024	0.046	2.79	Yes	0.03	1.913
524	19-34	19-28	8.000	12.922	0.077	0.950	0.279	Free Su	9.325	0.462	0.436	0.308	0.568	2.178	Yes	0.38	7.144
525	19-46	19-45	8.000	17.045	0.117	0.011	0.002	Free Su	2.906	0.046	0.004	0.031	0.058	2.682	Yes	0.165	0.253
526	19-45	19-41	8.000	170.519	0.076	0.891	0.260	Free Su	9.12	0.447	0.412	0.298	0.553	2.162	Yes	0.308	8.747
527	19-56	19-55	8.000	242.447	0.194	0.015	0.003	Free Su	3.843	0.048	0.004	0.032	0.07	3.448	Yes	0.044	2.402
528	19-55	19-53	8.000	55.992	0.036	0.022	0.004	Free Su	2.363	0.084	0.015	0.056	0.083	1.48	Yes	0.098	1.043
529	19-36	19-35	8.000	136.913	0.073	0.035	0.007	Free Su	3.501	0.089	0.016	0.06	0.105	2.116	Yes	0.062	3.321
530	19-35	19-30	8.000	140.009	0.071	0.040	0.008	Free Su	3.622	0.096	0.019	0.064	0.113	2.093	Yes	0.178	0.827
531	19-38	19-37	8.000	279.405	0.222	0.018	0.003	Free Su	4.186	0.05	0.005	0.033	0.074	3.689	Yes	0.044	2.787
532	19-40	19-39	8.000	225.000	0.071	0.003	0.001	Free Su	1.721	0.03	0.002	0.02	0.033	2.088	No	0.02	1.721
533	19-39	19-38	8.000	120.000	0.200	0.006	0.001	Free Su	2.862	0.03	0.002	0.02	0.042	3.502	Yes	0.027	1.88
534	19-56.5	19-56.25	4.000	90.000	0.144	0.004	0.001	Free Su	2.575	0.067	0.009	0.022	0.043	0.469	Yes	0.027	1.984
535	19-56.25	19-56	4.000	42.041	0.119	0.008	0.001	Free Su	2.879	0.093	0.018	0.031	0.058	0.425	Yes	0.032	2.785
536	19-37	19-36	8.000	170.009	0.065	0.027	0.005	Free Su	3.101	0.081	0.013	0.054	0.092	1.992	Yes	0.057	2.885
537	19-30	19-29	8.000	22.011	0.091	0.935	0.274	Free Su	9.854	0.437	0.396	0.292	0.564	2.36	Yes	0.31	9.103
538	19-28	19-24	8.000	43.792	0.023	0.951	0.279	Free Su	5.832	0.679	0.804	0.453	0.568	1.183	No	0.453	5.832
539	19-32	19-31	8.000	210.009	0.057	0.013	0.002	Free Su	2.369	0.059	0.007	0.039	0.063	1.872	Yes	0.062	1.22
540	19-26	19-25	8.000	165.000	0.067	0.011	0.002	Free Su	2.396	0.053	0.005	0.035	0.059	2.022	Yes	0.041	1.948
541	19-25	19-24	8.000	184.000	0.038	0.015	0.003	Free Su	2.145	0.069	0.01	0.046	0.068	1.527	Yes	0.19	0.276
542	19-31	19-29	8.000	214.000	0.005	0.018	0.003	Free Su	1.099	0.126	0.034	0.084	0.075	0.535	Yes	0.206	0.304
543	19-53	19-48	8.000	381.101	0.003	0.039	0.008	Free Su	1.129	0.211	0.098	0.141	0.111	0.401	Yes	0.204	0.671
544	19-52	19-48	8.000	218.639	0.146	0.009	0.002	Free Su	3.004	0.041	0.003	0.027	0.054	2.996	Yes	0.147	0.257
545	8-14	8-5	8.000	417.073	0.072	0.010	0.002	Free Su	2.365	0.049	0.005	0.033	0.055	2.1	Yes	0.077	0.672
546	8-6	8-5	8.000	191.573	0.084	0.152	0.036	Free Su	5.717	0.176	0.067	0.117	0.224	2.267	Yes	0.119	5.581
547	8-15	8-14	8.000	231.604	0.121	0.004	0.001	Free Su	2.178	0.029	0.002	0.019	0.036	2.723	Yes	0.026	1.403
548	19-15	19-14	8.000	276.000	0.036	0.058	0.012	Free Su	3.188	0.134	0.039	0.089	0.136	1.491	Yes	0.22	0.887
549	11-14	11-13	8.000	275.180	0.058	0.007	0.001	Free Su	1.971	0.044	0.004	0.029	0.046	1.888	Yes	0.036	1.46
550	11-11	11-10	8.000	327.786	0.034	1.212	0.365	Free Su	7.166	0.702	0.84	0.468	0.617	1.443	No	0.468	7.166
551	11-12	11-11	8.000	77.501	0.110	1.210	0.364	Free Su	11.29	0.48	0.467	0.32	0.616	2.592	Yes	0.344	10.302
552	11-13	11-12	8.000	254.244	0.063	0.016	0.003	Free Su	2.608	0.063	0.008	0.042	0.07	1.964	Yes	0.181	0.315
553	11-38	11-37	8.000	104.000	0.077	0.004	0.001	Free Su	1.805	0.031	0.002	0.021	0.034	2.172	Yes	0.023	1.531
554	11-37	11-36	8.000	79.000	0.089	0.006	0.001	Free Su	2.223	0.038	0.003	0.025	0.044	2.331	Yes	0.03	1.76
555	7-22.5	7-22	8.000	89.478	0.112	0.003	0.001	Free Su	1.997	0.027	0.001	0.018	0.032	2.618	Yes	0.023	1.384
557	7-41	7-40	8.000	28.983	0.069	0.006	0.001	Free Su	2.016	0.04	0.003	0.026	0.043	2.057	Yes	0.029	1.755
558	4-46	4-45	8.000	308.166	0.055	0.011	0.002	Free Su	2.213	0.054	0.006	0.036	0.057	1.839	Yes	0.04	1.896
559	2-29	2-8	8.000	217.175	0.001	0.095	0.022	Pressur	1.095	0.409	0.351	0.273	0.175	0.271	Yes	0.667	0.421
560	6-32	6-31	8.000	164.433	0.079	0.007	0.001	Free Su	2.226	0.042	0.003	0.028	0.047	2.202	Yes	0.037	1.438
561	6-42	6-41	8.000	12.687	0.079	0.008	0.001	Free Su	2.261	0.043	0.003	0.029	0.049	2.199	Yes	0.04	1.383
563	LYLE1	19-13	8.000	102.000	0.010	0.018	0.003	Pressur	1.428	0.106	0.023	0.07	0.076	0.775	Yes	0.667	0.081
564	3-31	3-29	8.000	752.053	0.002	0.043	0.009	Pressur	1.076	0.233	0.119	0.155	0.117	0.361	Yes	0.667	0.19
565	3-29	3-9	8.000	407.429	0.015	0.070	0.015	Pressur	2.479	0.182	0.072	0.121	0.15	0.961	Yes	0.667	0.309
566	3-10	3-9	12.000	355.253	0.005	2.389	0.777	Pressur	4.707	1	1.438	1	0.687	1.662	Yes	1	4.707
567	3-11	3-10	12.000	310.811	0.006	2.373	0.771	Pressur	4.675	1	1.336	1	0.711	1.776	Yes	1	4.675

568	3-9	3-8	12.000	406.690	0.003	2.445	0.797	Pressur	4.817	1	1.934	1	0.597	1.265	Yes	1	4.817
569	3-8	3-7	12.000	423.175	0.003	2.463	0.803	Pressur	4.853	1	1.862	1	0.611	1.323	Yes	1	4.853
570	3-7	3-6	12.000	362.208	0.004	2.498	0.816	Pressur	4.921	1	1.827	1	0.621	1.367	Yes	1	4.921
581	HERITAGE12	HERITAGE2	8.000	103.412	0.203	0.037	0.007	Free Su	5.077	0.072	0.01	0.048	0.108	3.529	Yes	0.059	3.739
584	HERITAGE10	HERITAGE9	8.000	81.675	0.073	0.013	0.002	Free Su	2.63	0.057	0.006	0.038	0.065	2.122	Yes	0.047	1.913
589	NACHES7	NACHES5	8.000	125.000	0.032	0.011	0.002	Free Su	1.861	0.063	0.008	0.042	0.059	1.401	Yes	0.05	1.456
593	177TH4	177TH2	8.000	266.391	0.086	0.012	0.002	Free Su	2.654	0.051	0.005	0.034	0.06	2.301	Yes	0.039	2.206
594	177TH2	NACHES5	8.000	280.004	0.161	0.026	0.005	Free Su	4.217	0.065	0.008	0.043	0.09	3.139	Yes	0.05	3.349
595	NACHES5	177TH1	8.000	139.590	0.115	0.041	0.008	Free Su	4.292	0.086	0.015	0.058	0.114	2.651	Yes	0.058	4.288
596	177TH1	5-27	8.000	139.589	0.136	0.044	0.009	Free Su	4.681	0.086	0.015	0.058	0.119	2.889	Yes	0.069	3.579
598	HERITAGE20	HERITAGE19	8.000	175.463	0.006	0.016	0.003	Free Su	1.129	0.112	0.026	0.075	0.07	0.591	No	0.075	1.129
601	HERITAGE19	HERITAGE18	8.000	256.000	0.047	0.019	0.004	Free Su	2.505	0.075	0.011	0.05	0.078	1.695	No	0.05	2.505
602	HERITAGE18	HERITAGE17	8.000	275.789	0.160	0.024	0.005	Free Su	4.122	0.063	0.008	0.042	0.087	3.128	Yes	0.045	3.732
605	HERITAGE16	HERITAGE15	8.000	80.088	0.006	0.029	0.006	Free Su	1.399	0.147	0.047	0.098	0.095	0.619	Yes	0.099	1.369
606	HERITAGE8	HERITAGE7	8.000	145.515	0.124	0.027	0.005	Free Su	3.875	0.069	0.01	0.046	0.091	2.754	No	0.046	3.875
607	HERITAGE7	HERITAGE6	8.000	120.000	0.183	0.030	0.006	Free Su	4.636	0.067	0.009	0.045	0.098	3.353	No	0.045	4.636
608	HERITAGE6	HERITAGE5	8.000	39.542	0.253	0.033	0.007	Free Su	5.307	0.065	0.008	0.043	0.102	3.938	Yes	0.049	4.474
609	HERITAGE4	HERITAGE3	8.000	148.819	0.067	0.042	0.009	Free Su	3.6	0.1	0.021	0.066	0.116	2.03	No	0.066	3.6
610	HERITAGE3	HERITAGE2	8.000	30.000	0.267	0.044	0.009	Free Su	5.913	0.074	0.011	0.049	0.119	4.044	Yes	0.059	4.451
612	BRAEBURN1	4-54	8.000	249.323	0.028	0.042	0.009	Free Su	2.651	0.123	0.032	0.082	0.115	1.312	No	0.082	2.651
620	HERITAGE1	8-7	8.000	146.092	0.113	0.081	0.018	Free Su	5.257	0.12	0.031	0.08	0.162	2.631	Yes	0.096	4.068
621	8-7	8-6	8.000	349.719	0.084	0.137	0.032	Free Su	5.553	0.167	0.06	0.111	0.212	2.273	Yes	0.114	5.345
624	CRUSHERCANYON12	CRUSHERCANYON11	12.000	230.000	0.030	0.689	0.195	Free Su	5.925	0.28	0.171	0.28	0.434	4.028	Yes	0.297	5.447
625	CRUSHERCANYON11	CRUSHERCANYON10	12.000	308.000	0.019	0.692	0.196	Free Su	5.057	0.315	0.215	0.315	0.435	3.222	No	0.315	5.057
626	CRUSHERCANYON10	CRUSHERCANYON9	12.000	140.000	0.107	0.695	0.197	Free Su	9.291	0.205	0.092	0.205	0.436	7.557	Yes	0.216	8.624
627	CRUSHERCANYON9	CRUSHERCANYON8	12.000	307.093	0.072	0.698	0.198	Free Su	8.065	0.227	0.113	0.227	0.437	6.18	Yes	0.426	3.387
629	7-17	CRUSHERCANYON7	12.000	197.000	0.005	0.720	0.205	Free Su	3.133	0.463	0.438	0.463	0.444	1.645	No	0.463	3.133
630	CRUSHERCANYON7	CRUSHERCANYON6	12.000	138.000	0.174	0.722	0.206	Free Su	11.148	0.185	0.075	0.185	0.445	9.628	Yes	0.234	7.981
631	CRUSHERCANYON6	CRUSHERCANYON5	12.000	148.000	0.034	0.743	0.212	Free Su	6.284	0.283	0.175	0.283	0.452	4.244	No	0.283	6.284
632	7-16	CRUSHERCANYON6	8.000	42.000	0.066	0.027	0.005	Free Su	3.146	0.082	0.014	0.054	0.093	2.015	Yes	0.169	0.61
633	7-15	CRUSHERCANYON5	8.000	20.000	0.005	0.011	0.002	Free Su	0.96	0.096	0.019	0.064	0.058	0.554	Yes	0.216	0.167
634	CRUSHERCANYON5	CRUSHERCANYON4	12.000	363.020	0.044	0.752	0.215	Free Su	6.934	0.266	0.155	0.266	0.454	4.847	Yes	0.278	6.523
636	CRUSHERCANYON4	CRUSHERCANYON3	12.000	189.059	0.034	0.776	0.222	Free Su	6.35	0.29	0.183	0.29	0.462	4.231	No	0.29	6.35
637	CRUSHERCANYON3	CRUSHERCANYON2	12.000	226.009	0.040	0.778	0.223	Free Su	6.764	0.278	0.168	0.278	0.463	4.618	Yes	0.294	6.247
638	7-13	CRUSHERCANYON2	8.000	43.247	0.310	0.014	0.003	Free Su	4.419	0.042	0.003	0.028	0.067	4.357	Yes	0.169	0.318
639	CRUSHERCANYON2	CRUSHERCANYON1	12.000	247.000	0.027	0.789	0.227	Free Su	5.882	0.31	0.209	0.31	0.466	3.777	No	0.31	5.882
640	CRUSHERCANYON1	7-12	12.000	76.000	0.089	0.791	0.228	Free Su	9.029	0.229	0.115	0.229	0.467	6.881	Yes	0.266	7.325
641	7-12	7-11	12.000	315.000	0.044	0.962	0.283	Free Su	7.439	0.302	0.199	0.302	0.517	4.846	Yes	0.372	5.589
642	8-1	7-12	8.000	52.597	0.062	0.216	0.054	Free Su	5.703	0.225	0.111	0.15	0.269	1.953	Yes	0.226	3.213
643	7-11.5	7-11	8.000	75.222	0.002	0.009	0.002	Free Su	0.637	0.116	0.029	0.078	0.054	0.326	Yes	0.377	0.071
644	6-46.25	6-46	8.000	267.714	0.022	0.027	0.005	Free Su	2.153	0.105	0.023	0.07	0.093	1.172	Yes	0.073	2.038
645	6-46.5	6-46.25	8.000	282.588	0.011	0.016	0.003	Free Su	1.415	0.098	0.02	0.065	0.071	0.807	Yes	0.068	1.34
646	6-53.25	6-46.5	8.000	301.192	0.040	0.010	0.002	Free Su	1.953	0.058	0.007	0.038	0.056	1.563	Yes	0.052	1.256
647	6-53.5	6-53.25	8.000	205.000	0.034	0.007	0.001	Free Su	1.643	0.05	0.005	0.033	0.046	1.447	Yes	0.036	1.466
648	6-53.75	6-53.5	8.000	168.343	0.048	0.004	0.001	Free Su	1.538	0.035	0.002	0.023	0.034	1.707	Yes	0.028	1.154
649	6-46	6-45	8.000	40.016	0.022	0.031	0.006	Free Su	2.22	0.113	0.027	0.075	0.099	1.155	No	0.075	2.22
650	5-37	5-35	8.000	149.930	0.023	0.039	0.008	Pressur	2.412	0.124	0.033	0.083	0.111	1.186	Yes	0.667	0.172
662	4-34	4-19	8.000	182.832	0.122	0.030	0.006	Free Su	4.008	0.074	0.011	0.049	0.097	2.738	Yes	0.091	1.613
663	4-19	4-18	8.000	104.072	0.091	0.208	0.052	Free Su	6.449	0.2	0.088	0.134	0.263	2.362	No	0.134	6.449
664	4-18	4-17	8.000	147.597	0.126	0.225	0.056	Free Su	7.417	0.192	0.081	0.128	0.274	2.785	No	0.128	7.417

665	4-17	4-16	8.000	237.965	0.231	0.240	0.060	Free Su	9.346	0.171	0.064	0.114	0.283	3.765	Yes	0.667	1.064
666	4-16	4-15	8.000	118.574	0.253	0.258	0.066	Free Su	9.857	0.174	0.066	0.116	0.294	3.937	Yes	0.667	1.145
668	PUBLICWORKS3	PUBLICWORKS2	8.000	285.696	0.001	0.011	0.002	Pressur	0.442	0.169	0.062	0.113	0.059	0.179	Yes	0.667	0.05
669	PUBLICWORKS2	PUBLICWORKS1	8.000	190.540	0.001	0.016	0.003	Pressur	0.568	0.183	0.073	0.122	0.071	0.22	Yes	0.667	0.071
670	9-12	9-11	10.000	9.522	0.152	0.400	0.107	Free Su	9.133	0.182	0.072	0.152	0.346	5.541	Yes	0.264	4.174
671	10-32	10-31	8.000	45.103	0.022	0.046	0.010	Free Su	2.505	0.135	0.039	0.09	0.121	1.166	Yes	0.096	2.268
672	10-15	10-14	8.000	12.248	0.011	0.121	0.028	Pressur	2.641	0.257	0.145	0.171	0.199	0.837	Yes	0.667	0.537
673	19-38.5	19-38	8.000	90.037	0.111	0.007	0.001	Free Su	2.506	0.039	0.003	0.026	0.047	2.61	Yes	0.029	2.048
674	19-23	19-22	8.000	10.340	0.048	0.964	0.283	Free Su	7.847	0.535	0.56	0.357	0.571	1.722	Yes	0.422	6.399
675	4-23	4-22	8.000	3.259	0.430	0.130	0.030	Free Su	9.664	0.109	0.025	0.073	0.206	5.133	Yes	0.141	3.743
676	3-37	3-18	10.000	39.944	0.013	1.045	0.310	Pressur	4.811	0.592	0.658	0.493	0.57	1.589	Yes	0.833	2.965
677	19-46.5	19-46	8.000	152.886	0.026	0.010	0.002	Free Su	1.655	0.062	0.008	0.041	0.055	1.267	No	0.041	1.655
680	23-1	GRAHAMPACKAGINGLS	6.000	71.216	0.014	0.006	0.001	Free Su	1.204	0.082	0.014	0.041	0.046	0.431	Yes	0.281	0.081
683	9-1	5010	15.000	70.740	0.004	2.758	0.911	Pressur	3.477	1	1.108	1.25	0.793	2.489	No	1.25	3.477
684	7-8	7-7	8.000	144.626	0.152	0.005	0.001	Free Su	2.438	0.029	0.002	0.019	0.038	3.054	Yes	0.026	1.592
685	7-36	7-14	8.000	282.616	0.142	0.028	0.006	Free Su	4.15	0.069	0.01	0.046	0.095	2.952	Yes	0.056	3.137
686	4-20	4-19	8.000	280.568	0.009	0.183	0.045	Free Su	2.746	0.336	0.243	0.224	0.246	0.751	No	0.224	2.746
687	2-26	2-25.5	8.000	467.116	0.019	0.036	0.007	Free Su	2.226	0.125	0.033	0.083	0.107	1.087	Yes	0.137	1.089
1001	GRAHAMPACKAGINGLS	WW7	6.000	25.000	0.020	0.524	0.144	Pressur	4.132	1	1.02	0.5	0.443	0.514	No	0.5	4.132
1007	ELKSCOUNTRYCLUBLS	WW6	10.000	100.000	0.020	0.371	0.098	Free Su	4.347	0.291	0.185	0.243	0.332	2.008	No	0.243	4.347
1012	5-88	5-77	8.000	363.000	0.011	0.007	0.001	Free Su	1.132	0.067	0.009	0.045	0.048	0.822	Yes	0.055	0.835
1033	CRUSHERCANYON13	CRUSHERCANYON12	12.000	205.000	0.054	0.686	0.194	Free Su	7.242	0.242	0.128	0.242	0.433	5.348	Yes	0.261	6.509
1035	PUBLICWORKS1	IND-1	15.000	421.482	0.001	0.093	0.021	Pressur	1.02	0.172	0.064	0.215	0.146	1.442	Yes	1.25	0.117
1041	PUBLICWORKS4	PUBLICWORKS3	6.000	256.228	0.001	0.006	0.001	Pressur	0.438	0.165	0.059	0.082	0.046	0.102	Yes	0.5	0.047
1049	SELAHHIGH1	3-22	12.000	95.076	0.002	1.426	0.438	Pressur	2.809	1	1.347	1	0.544	1.059	Yes	1	2.809
1053	HERITAGEHILLS	HERITAGE22	8.000	172.538	0.038	0.003	0.001	Free Su	1.355	0.034	0.002	0.023	0.032	1.52	Yes	0.031	0.846
1061	APPLE5	APPLE4	8.000	117.000	0.162	0.006	0.001	Free Su	2.706	0.032	0.002	0.022	0.043	3.156	Yes	0.025	2.135
1063	APPLE4	APPLE3	8.000	145.000	0.159	0.011	0.002	Free Su	3.248	0.044	0.004	0.029	0.059	3.119	Yes	0.049	1.477
1065	APPLE3	APPLE2	8.000	327.382	0.018	0.024	0.005	Free Su	1.941	0.105	0.023	0.07	0.088	1.06	No	0.07	1.941
1067	APPLE2	APPLE1	8.000	209.718	0.081	0.029	0.006	Free Su	3.436	0.08	0.013	0.053	0.096	2.23	Yes	0.055	3.303
1069	APPLE1	4-54	8.000	45.000	0.089	0.034	0.007	Free Su	3.722	0.084	0.015	0.056	0.104	2.335	Yes	0.064	3.052
1073	BRAEBURN2	BRAEBURN1	8.000	249.323	0.084	0.037	0.008	Free Su	3.745	0.089	0.016	0.059	0.108	2.273	Yes	0.07	2.899
1075	BRAEBURN3	BRAEBURN2	8.000	120.999	0.124	0.030	0.006	Free Su	4.011	0.073	0.011	0.049	0.097	2.757	Yes	0.054	3.45
1077	BRAEBURN6	BRAEBURN3	8.000	418.657	0.002	0.004	0.001	Free Su	0.561	0.074	0.011	0.049	0.036	0.383	No	0.049	0.561
1079	BRAEBURN8	BRAEBURN7	8.000	195.000	0.036	0.006	0.001	Free Su	1.602	0.046	0.004	0.031	0.043	1.484	Yes	0.041	1.063
1081	BRAEBURN7	BRAEBURN4	8.000	205.000	0.024	0.014	0.003	Free Su	1.817	0.075	0.012	0.05	0.066	1.223	No	0.05	1.817
1083	BRAEBURN4	BRAEBURN3	8.000	113.001	0.115	0.021	0.004	Free Su	3.533	0.064	0.008	0.042	0.082	2.656	Yes	0.046	3.176
1085	FIRST1	NACHES1	8.000	342.576	0.163	0.019	0.004	Free Su	3.878	0.056	0.006	0.037	0.078	3.166	Yes	0.043	3.155
1087	FIRST2	FIRST1	8.000	175.000	0.006	0.010	0.002	Free Su	0.989	0.091	0.017	0.06	0.056	0.592	No	0.06	0.989
1089	FIRST3	FIRST2	8.000	190.000	0.003	0.005	0.001	Free Su	0.626	0.081	0.013	0.054	0.041	0.402	Yes	0.057	0.576
1091	FIRST4	177TH2	8.000	290.000	0.028	0.008	0.001	Free Su	1.618	0.057	0.006	0.038	0.051	1.301	Yes	0.041	1.477
1093	GOODLANDER1	19-51	8.000	33.917	0.088	0.837	0.242	Free Su	9.475	0.414	0.359	0.276	0.538	2.329	No	0.276	9.475
1095	GOODLANDER2	GOODLANDER1	8.000	132.381	0.144	0.030	0.006	Free Su	4.237	0.071	0.01	0.047	0.097	2.967	Yes	0.162	0.71
1097	GOODLANDER3	GOODLANDER2	8.000	190.021	0.126	0.025	0.005	Free Su	3.856	0.068	0.009	0.045	0.09	2.783	Yes	0.046	3.722
1099	GOODLANDER4	GOODLANDER3	8.000	340.073	0.091	0.021	0.004	Free Su	3.238	0.067	0.009	0.044	0.081	2.364	Yes	0.045	3.196
1101	GOODLANDER5	GOODLANDER4	8.000	339.930	0.074	0.016	0.003	Free Su	2.778	0.062	0.008	0.041	0.071	2.124	Yes	0.043	2.633
1104	GOODLANDER6	GOODLANDER5	8.000	290.520	0.396	0.011	0.002	Free Su	4.461	0.035	0.002	0.023	0.059	4.927	Yes	0.667	0.05
1105	GOODLANDER7	GOODLANDER6	8.000	290.717	0.058	0.006	0.001	Free Su	1.898	0.041	0.003	0.027	0.043	1.894	No	0.027	1.898
1107	GOODLANDER8	GOODLANDER1	8.000	156.621	0.003	0.815	0.235	Pressur	3.612	1	1.842	0.667	0.39	0.442	No	0.667	3.612
1108	7-14	CRUSHERCANYON4	8.000	19.120	0.043	0.033	0.007	Free Su	2.867	0.098	0.02	0.065	0.102	1.632	Yes	0.178	0.679

1109	GOODLANDER9	GOODLANDER8	8.000	215.788	0.012	0.813	0.234	Free Su	4.256	0.79	0.965	0.526	0.531	0.843	Yes	0.667	3.604
1110	CRUSHERCANYON8	7-17	8.000	19.120	0.043	0.719	0.204	Pressur	7.002	0.465	0.44	0.31	0.5	1.632	Yes	0.667	3.185
1111	GOODLANDER10	GOODLANDER9	8.000	290.176	0.003	0.812	0.234	Pressur	3.597	1	1.765	0.667	0.398	0.46	No	0.667	3.597
1112	5-94	5-93	8.000	256.600	0.008	0.009	0.002	Free Su	1.057	0.079	0.013	0.053	0.052	0.691	Yes	0.071	0.681
1113	GOODLANDER11	GOODLANDER10	8.000	287.490	0.002	0.808	0.233	Pressur	3.58	1	2.473	0.667	0.333	0.327	Yes	0.667	3.58
1114	5-47	5-46	8.000	96.370	0.073	0.043	0.009	Free Su	3.733	0.099	0.021	0.066	0.117	2.11	Yes	0.072	3.271
1115	GOODLANDER12	GOODLANDER11	8.000	247.886	0.006	0.805	0.232	Pressur	3.57	1	1.322	0.667	0.46	0.609	Yes	0.667	3.57
1116	5-48	5-47	8.000	190.730	0.052	0.038	0.008	Free Su	3.211	0.101	0.021	0.067	0.11	1.793	No	0.067	3.211
1118	IND-1	213	15.000	699.000	0.014	0.097	0.022	Pressur	2.428	0.097	0.02	0.122	0.149	4.88	Yes	1.25	0.122
1119	HERITAGE2	HERITAGE1	8.000	234.000	0.179	0.077	0.017	Free Su	6.079	0.105	0.023	0.07	0.157	3.318	Yes	0.075	5.476
1125	HERITAGE5	HERITAGE4	8.000	57.503	0.139	0.039	0.008	Free Su	4.531	0.081	0.013	0.054	0.111	2.921	Yes	0.06	3.849
1133	HERITAGE9	HERITAGE8	8.000	184.117	0.033	0.021	0.004	Free Su	2.255	0.084	0.015	0.056	0.08	1.414	No	0.056	2.255
1137	HERITAGE11	HERITAGE10	8.000	82.628	0.109	0.008	0.001	Free Su	2.57	0.041	0.003	0.027	0.05	2.584	Yes	0.033	1.958
1141	HERITAGE13	HERITAGE12	8.000	156.000	0.135	0.034	0.007	Free Su	4.317	0.077	0.012	0.051	0.104	2.873	No	0.051	4.317
1143	HERITAGE14	HERITAGE13	8.000	82.000	0.061	0.032	0.006	Free Su	3.21	0.09	0.017	0.06	0.101	1.934	No	0.06	3.21
1145	HERITAGE15	HERITAGE14	8.000	82.000	0.006	0.030	0.006	Free Su	1.409	0.151	0.05	0.101	0.098	0.611	No	0.101	1.409
1149	HERITAGE17	HERITAGE16	8.000	76.045	0.118	0.028	0.005	Free Su	3.862	0.071	0.01	0.048	0.093	2.694	Yes	0.073	2.067
1157	HERITAGE21	HERITAGE20	8.000	336.000	0.003	0.008	0.001	Free Su	0.735	0.095	0.019	0.063	0.05	0.427	Yes	0.069	0.648
1159	HERITAGE22	HERITAGE21	8.000	55.000	0.009	0.005	0.001	Free Su	0.956	0.06	0.007	0.04	0.04	0.747	Yes	0.052	0.655
1163	LYLE2	LYLE1	8.000	312.000	0.032	0.010	0.002	Free Su	1.82	0.061	0.007	0.041	0.057	1.402	Yes	0.667	0.046
1165	YAKIMA1	FIRST1	8.000	273.420	0.084	0.006	0.001	Free Su	2.137	0.037	0.003	0.025	0.043	2.271	Yes	0.031	1.535
1167	YAKIMA2	YAKIMA1	8.000	173.000	0.006	0.003	0.001	Free Su	0.71	0.054	0.006	0.036	0.032	0.595	No	0.036	0.71
1169	YAKIMA3	177TH4	8.000	155.000	0.006	0.003	0.000	Free Su	0.726	0.051	0.005	0.034	0.031	0.629	No	0.034	0.726
1171	YAKIMA4	177TH4	8.000	290.000	0.003	0.005	0.001	Free Su	0.658	0.071	0.01	0.047	0.038	0.46	No	0.047	0.658
1173	NACHES1	5-25	8.000	293.554	0.140	0.031	0.006	Free Su	4.244	0.073	0.011	0.048	0.099	2.927	Yes	0.07	2.486
1175	NACHES2	NACHES1	8.000	125.000	0.080	0.010	0.002	Free Su	2.485	0.049	0.005	0.033	0.056	2.215	Yes	0.041	1.799
1177	NACHES3	NACHES2	8.000	103.000	0.078	0.005	0.001	Free Su	1.986	0.035	0.002	0.024	0.04	2.182	Yes	0.028	1.535
1179	NACHES4	NACHES5	8.000	104.046	0.106	0.004	0.001	Free Su	2.051	0.029	0.002	0.02	0.035	2.546	Yes	0.039	0.752
1185	NACHES8	NACHES7	8.000	215.000	0.079	0.005	0.001	Free Su	1.997	0.035	0.002	0.024	0.039	2.202	Yes	0.033	1.213
1545	213	1-1	15.000	388.000	0.001	2.975	0.991	Pressur	3.751	1	2.556	1.25	0.533	1.164	Yes	1.25	3.751
1549	1-13	1-41	8.000	156.300	0.006	0.612	0.191	Pressur	3.149	0.804	0.982	0.536	0.461	0.623	Yes	0.667	2.712
1553	1-15	1-28	8.000	320.000	0.002	0.395	0.126	Pressur	1.75	1	1.195	0.667	0.335	0.33	Yes	0.667	1.75
1563	3-28	3-27	12.000	240.000	0.011	1.133	0.339	Free Su	4.705	0.48	0.466	0.48	0.563	2.431	No	0.48	4.705
1667	2-5	2-4	8.000	477.000	0.007	0.770	0.221	Pressur	3.414	1	1.174	0.667	0.478	0.656	Yes	0.667	3.414
1669	1-47	221	12.000	300.000	0.004	1.110	0.331	Pressur	3.078	0.669	0.787	0.669	0.557	1.411	Yes	1	2.187
1671	221	1-12	12.000	350.000	0.004	1.110	0.331	Pressur	3.1	0.664	0.78	0.664	0.557	1.423	Yes	1	2.187

Full Buildout Peak Gravity Main Report

Naches Avenue Interceptor

12/13/2017

ID	From ID	To ID	Diameter (in)	Length (ft)	Slope	Total Flow (mgd)	Peakable Flow (mgd)	Flow Type	Velocity (ft/s)	d/D	q/Q	Water Depth (ft)	Critical Depth (ft)	Full Flow (mgd)	Backwater Adjust	Adjusted Depth (ft)	Adjusted Velocity (ft/s)
1	6-21	6-20	8	247.304	0.093	0.001	0	Free Surface	1.351	0.017	0	0.011	0.019	2.388	Yes	0.082	0.073
10	6-48	6-47	8	235	0.115	0.003	0	Free Surface	1.981	0.026	0.001	0.017	0.031	2.654	Yes	0.021	1.535
100	IND-2	PUBLICWORKS1	15	483.066	0.006	0.017	0	Pressurized	1.091	0.052	0.005	0.065	0.062	3.299	Yes	1.25	0.021
1001	GRAHAMPACKAGINGLS	WW7	6	25	0.02	0.144	0	Free Surface	3.476	0.362	0.28	0.181	0.237	0.514	No	0.181	3.476
1007	ELKSCOUNTRYCLUBLS	WW6	10	100	0.02	0.098	0	Free Surface	2.946	0.15	0.049	0.125	0.167	2.008	No	0.125	2.946
101	2-1	1-22	21	184.192	0.003	2.12	0	Free Surface	3.488	0.414	0.359	0.725	0.658	5.909	Yes	0.815	2.99
1012	5-88	5-77	8	363	0.011	0.001	0	Free Surface	0.661	0.029	0.002	0.02	0.02	0.822	Yes	0.026	0.441
102	1-21	1-20	21	61.606	0	2.193	0	Free Surface	1.661	0.792	0.968	1.386	0.67	2.266	No	1.386	1.661
103	1-22	1-21	21	366.65	0.002	2.141	0	Free Surface	2.641	0.517	0.529	0.905	0.662	4.049	Yes	1.145	1.986
1033	CRUSHERCANYON13	CRUSHERCANYON12	12	205	0.054	0.188	0	Free Surface	4.942	0.128	0.035	0.128	0.222	5.348	Yes	0.138	4.45
1035	PUBLICWORKS1	IND-1	15	421.482	0.001	0.021	0	Pressurized	0.654	0.084	0.015	0.105	0.069	1.442	Yes	1.25	0.026
104	1-23	1-22	8	372.398	0.013	0.019	0	Free Surface	1.587	0.1	0.021	0.067	0.077	0.89	Yes	0.486	0.107
1041	PUBLICWORKS4	PUBLICWORKS3	6	256.228	0.001	0.001	0	Pressurized	0.256	0.07	0.01	0.035	0.019	0.102	Yes	0.5	0.008
1049	SELAHHIGH1	3-22	12	95.076	0.002	0.438	0	Free Surface	1.987	0.448	0.413	0.448	0.343	1.059	Yes	0.487	1.785
105	1-31	1-21	8	304.429	0.005	0.05	0	Free Surface	1.482	0.207	0.094	0.138	0.126	0.533	Yes	0.667	0.221
1053	HERITAGEHILLS	HERITAGE22	8	172.538	0.038	0.001	0	Free Surface	0.767	0.015	0	0.01	0.013	1.52	Yes	0.013	0.469
106	1-3	1-2	21	42.265	0.003	2.249	0	Free Surface	3.241	0.458	0.429	0.801	0.679	5.238	Yes	1.617	1.498
1061	APPLE5	APPLE4	8	117	0.162	0.001	0	Free Surface	1.564	0.014	0	0.009	0.018	3.156	Yes	0.011	1.201
1063	APPLE4	APPLE3	8	145	0.159	0.002	0	Free Surface	1.919	0.02	0.001	0.013	0.025	3.119	Yes	0.023	0.84
1065	APPLE3	APPLE2	8	327.382	0.018	0.005	0	Free Surface	1.183	0.048	0.004	0.032	0.038	1.06	No	0.032	1.183
1067	APPLE2	APPLE1	8	209.718	0.081	0.006	0	Free Surface	2.102	0.037	0.003	0.025	0.042	2.23	Yes	0.026	2.009
1069	APPLE1	4-54	8	45	0.089	0.007	0	Free Surface	2.29	0.04	0.003	0.027	0.046	2.335	Yes	0.031	1.819
107	1-2	1-1	21	232	0	2.25	0	Pressurized	1.447	1	1.055	1.75	0.66	2.132	No	1.75	1.447
1073	BRAEBURN2	BRAEBURN1	8	249.323	0.084	0.008	0	Free Surface	2.312	0.042	0.003	0.028	0.048	2.273	Yes	0.033	1.783
1075	BRAEBURN3	BRAEBURN2	8	120.999	0.124	0.006	0	Free Surface	2.455	0.034	0.002	0.023	0.043	2.757	Yes	0.025	2.094
1077	BRAEBURN6	BRAEBURN3	8	418.657	0.002	0.001	0	Free Surface	0.321	0.031	0.002	0.021	0.014	0.383	Yes	0.022	0.3
1079	BRAEBURN8	BRAEBURN7	8	195	0.036	0.001	0	Free Surface	0.927	0.02	0.001	0.013	0.018	1.484	Yes	0.018	0.591
108	1-33	1-32	8	314	0.004	0.044	0	Free Surface	1.368	0.199	0.086	0.133	0.118	0.504	Yes	0.135	1.333
1081	BRAEBURN7	BRAEBURN4	8	205	0.024	0.003	0	Free Surface	1.085	0.034	0.002	0.023	0.028	1.223	No	0.023	1.085
1083	BRAEBURN4	BRAEBURN3	8	113.001	0.115	0.004	0	Free Surface	2.137	0.029	0.002	0.02	0.036	2.656	Yes	0.021	1.895
1085	FIRST1	NACHES1	8	342.576	0.163	0.004	0	Free Surface	2.336	0.026	0.001	0.017	0.034	3.166	Yes	0.02	1.863
1087	FIRST2	FIRST1	8	175	0.006	0.002	0	Free Surface	0.584	0.04	0.003	0.027	0.023	0.592	No	0.027	0.584
1089	FIRST3	FIRST2	8	190	0.003	0.001	0	Free Surface	0.362	0.035	0.002	0.023	0.017	0.402	Yes	0.025	0.325
109	1-36	1-35	8	51.649	0.004	0.003	0	Free Surface	0.595	0.05	0.005	0.033	0.028	0.523	Yes	0.085	0.149
1091	FIRST4	177TH2	8	290	0.028	0.001	0	Free Surface	0.947	0.025	0.001	0.017	0.021	1.301	Yes	0.018	0.826
1093	GOODLANDER1	19-51	8	33.917	0.088	0.242	0	Free Surface	6.675	0.218	0.104	0.145	0.285	2.329	No	0.145	6.675
1095	GOODLANDER2	GOODLANDER1	8	132.381	0.144	0.006	0	Free Surface	2.594	0.033	0.002	0.022	0.043	2.967	Yes	0.084	0.366
1097	GOODLANDER3	GOODLANDER2	8	190.021	0.126	0.005	0	Free Surface	2.347	0.032	0.002	0.021	0.039	2.783	Yes	0.022	2.251
1099	GOODLANDER4	GOODLANDER3	8	340.073	0.091	0.004	0	Free Surface	1.958	0.031	0.002	0.02	0.035	2.364	Yes	0.021	1.917
11	5-26	5-25	8	71.707	0.028	0.012	0	Free Surface	1.82	0.068	0.009	0.045	0.062	1.308	No	0.045	1.82
110	1-35	1-34	8	224.632	0.003	0.039	0	Free Surface	1.158	0.206	0.093	0.137	0.111	0.418	No	0.137	1.158
1101	GOODLANDER5	GOODLANDER4	8	339.93	0.074	0.003	0	Free Surface	1.664	0.028	0.001	0.019	0.03	2.124	Yes	0.02	1.561
1104	GOODLANDER6	GOODLANDER5	8	290.52	0.396	0.002	0	Free Surface	2.634	0.016	0	0.011	0.025	4.927	Yes	0.667	0.009
1105	GOODLANDER7	GOODLANDER6	8	290.717	0.058	0.001	0	Free Surface	1.098	0.018	0.001	0.012	0.018	1.894	No	0.012	1.098
1107	GOODLANDER8	GOODLANDER1	8	156.621	0.003	0.235	0	Free Surface	1.991	0.518	0.531	0.346	0.28	0.442	No	0.346	1.991
1108	7-14	CRUSHERCANYON4	8	19.12	0.043	0.007	0	Free Surface	1.764	0.046	0.004	0.031	0.045	1.632	Yes	0.092	0.35
1109	GOODLANDER9	GOODLANDER8	8	215.788	0.012	0.234	0	Free Surface	3.199	0.361	0.278	0.24	0.28	0.843	Yes	0.293	2.456
111	1-37	1-36	8	209.556	0.005	0.002	0	Free Surface	0.557	0.043	0.003	0.029	0.024	0.541	Yes	0.031	0.495

1110	CRUSHERCANYON8	7-17	8	19.12	0.043	0.198	0	Pressurized	4.895	0.235	0.122	0.157	0.257	1.632	Yes	0.667	0.879
1111	GOODLANDER10	GOODLANDER9	8	290.176	0.003	0.234	0	Free Surf	2.047	0.505	0.509	0.337	0.28	0.46	No	0.337	2.047
1112	5-94	5-93	8	256.6	0.008	0.002	0	Free Surf	0.621	0.035	0.002	0.023	0.022	0.691	Yes	0.032	0.389
1113	GOODLANDER11	GOODLANDER10	8	287.49	0.002	0.233	0	Free Surf	1.572	0.624	0.713	0.416	0.279	0.327	No	0.416	1.572
1114	5-47	5-46	8	96.37	0.073	0.009	0	Free Surf	2.319	0.047	0.004	0.032	0.053	2.11	Yes	0.035	2.017
1115	GOODLANDER12	GOODLANDER11	8	247.886	0.006	0.232	0	Free Surf	2.517	0.428	0.381	0.285	0.278	0.609	Yes	0.351	1.929
1116	5-48	5-47	8	190.73	0.052	0.008	0	Free Surf	1.986	0.048	0.004	0.032	0.05	1.793	No	0.032	1.986
1118	IND-1	213	15	699	0.014	0.022	0	Pressurized	1.55	0.049	0.005	0.061	0.071	4.88	Yes	1.25	0.028
1119	HERITAGE2	HERITAGE1	8	234	0.179	0.017	0	Free Surf	3.85	0.051	0.005	0.034	0.073	3.318	Yes	0.037	3.463
112	1-8	1-7	12	47.625	0.015	0.037	0	Free Surf	1.922	0.08	0.013	0.08	0.097	2.799	Yes	0.092	1.58
1125	HERITAGE5	HERITAGE4	8	57.503	0.139	0.008	0	Free Surf	2.8	0.038	0.003	0.026	0.05	2.921	Yes	0.029	2.373
113	1-7	1-6	12	311.423	0.005	0.037	0	Free Surf	1.35	0.103	0.022	0.103	0.098	1.675	No	0.103	1.35
1133	HERITAGE9	HERITAGE8	8	184.117	0.033	0.004	0	Free Surf	1.364	0.039	0.003	0.026	0.035	1.414	No	0.026	1.364
1137	HERITAGE11	HERITAGE10	8	82.628	0.109	0.001	0	Free Surf	1.501	0.018	0.001	0.012	0.021	2.584	Yes	0.015	1.117
114	1-34	1-33	8	264.972	0.004	0.041	0	Free Surf	1.35	0.192	0.081	0.128	0.114	0.507	Yes	0.13	1.318
1141	HERITAGE13	HERITAGE12	8	156	0.135	0.007	0	Free Surf	2.656	0.036	0.002	0.024	0.047	2.873	No	0.024	2.656
1143	HERITAGE14	HERITAGE13	8	82	0.061	0.006	0	Free Surf	1.973	0.042	0.003	0.028	0.045	1.934	No	0.028	1.973
1145	HERITAGE15	HERITAGE14	8	82	0.006	0.006	0	Free Surf	0.868	0.07	0.01	0.047	0.043	0.611	No	0.047	0.868
1149	HERITAGE17	HERITAGE16	8	76.045	0.118	0.005	0	Free Surf	2.357	0.033	0.002	0.022	0.041	2.694	Yes	0.034	1.267
115	1-24	1-23	8	444.002	0.009	0.015	0	Free Surf	1.322	0.098	0.02	0.065	0.069	0.752	Yes	0.066	1.299
1157	HERITAGE21	HERITAGE20	8	336	0.003	0.001	0	Free Surf	0.431	0.042	0.003	0.028	0.021	0.427	Yes	0.031	0.37
1159	HERITAGE22	HERITAGE21	8	55	0.009	0.001	0	Free Surf	0.551	0.026	0.001	0.017	0.016	0.747	Yes	0.022	0.371
116	1-32	1-31	8	321.743	0.004	0.047	0	Free Surf	1.397	0.206	0.093	0.137	0.122	0.503	Yes	0.138	1.393
1163	LYLE2	LYLE1	8	312	0.032	0.002	0	Free Surf	1.074	0.027	0.001	0.018	0.024	1.402	Yes	0.025	0.663
1165	YAKIMA1	FIRST1	8	273.42	0.084	0.001	0	Free Surf	1.235	0.016	0	0.011	0.017	2.271	Yes	0.014	0.84
1167	YAKIMA2	YAKIMA1	8	173	0.006	0.001	0	Free Surf	0.403	0.023	0.001	0.015	0.013	0.595	No	0.015	0.403
1169	YAKIMA3	177TH4	8	155	0.006	0	0	Free Surf	0.411	0.021	0.001	0.014	0.012	0.629	Yes	0.015	0.391
117	9-3	9-2	10	232.289	0.005	0.152	0	Free Surf	1.98	0.269	0.159	0.225	0.209	0.955	Yes	0.833	0.43
1171	YAKIMA4	177TH4	8	290	0.003	0.001	0	Free Surf	0.378	0.03	0.002	0.02	0.015	0.46	No	0.02	0.378
1173	NACHES1	5-25	8	293.554	0.14	0.006	0	Free Surf	2.602	0.034	0.002	0.023	0.044	2.927	Yes	0.034	1.444
1175	NACHES2	NACHES1	8	125	0.08	0.002	0	Free Surf	1.464	0.022	0.001	0.015	0.024	2.215	Yes	0.019	1.007
1177	NACHES3	NACHES2	8	103	0.078	0.001	0	Free Surf	1.141	0.015	0	0.01	0.016	2.182	Yes	0.012	0.855
1179	NACHES4	NACHES5	8	104.046	0.106	0.001	0	Free Surf	1.168	0.013	0	0.008	0.014	2.546	Yes	0.018	0.376
118	1-1	WASTEWATERPLANT	21	28.89	0.007	3.242	0	Free Surf	5.118	0.427	0.379	0.747	0.822	8.544	No	0.747	5.118
1185	NACHES8	NACHES7	8	215	0.079	0.001	0	Free Surf	1.147	0.015	0	0.01	0.016	2.202	Yes	0.015	0.671
119	9-4	9-3	10	291	0.003	0.147	0	Free Surf	1.636	0.302	0.199	0.252	0.206	0.74	Yes	0.444	0.77
120	9-6	9-5	10	446.793	0.001	0.13	0	Free Surf	0.878	0.436	0.394	0.363	0.193	0.329	No	0.363	0.878
121	9-5	9-4	10	393	0.003	0.139	0	Free Surf	1.644	0.29	0.183	0.241	0.2	0.761	Yes	0.247	1.595
122	9-16	9-15	12	455.978	0.001	0.666	0	Free Surf	1.637	0.748	0.909	0.748	0.427	0.733	No	0.748	1.637
123	9-7	9-6	10	278.518	0.002	0.126	0	Free Surf	1.312	0.318	0.219	0.265	0.191	0.577	Yes	0.314	1.04
124	9-9	9-8	10	153.016	0.006	0.117	0	Free Surf	2.032	0.22	0.106	0.183	0.183	1.101	No	0.183	2.032
125	9-8	9-7	10	96.327	0.016	0.12	0	Free Surf	2.915	0.175	0.066	0.145	0.186	1.813	Yes	0.205	1.783
126	9-15	9-1	12	728.026	0.019	0.68	0	Free Surf	4.958	0.315	0.215	0.315	0.431	3.157	Yes	1	1.339
127	9-15.5	9-15	8	160	0.018	0.007	0	Free Surf	1.31	0.057	0.006	0.038	0.046	1.058	Yes	0.177	0.14
128	2-2	2-1	12	130.505	0.002	0.157	0	Free Surf	1.544	0.255	0.142	0.255	0.203	1.107	Yes	1	0.31
129	9-2	9-1	8	225.846	0.009	0.153	0	Pressurized	2.638	0.305	0.202	0.203	0.225	0.76	Yes	0.667	0.68
13	5-21	5-20	8	278.521	0.014	0.148	0	Free Surf	3.036	0.269	0.158	0.179	0.22	0.938	Yes	0.209	2.446
130	IND-7	IND-6	15	315.858	0.003	0.013	0	Free Surf	0.789	0.053	0.005	0.066	0.053	2.355	Yes	0.066	0.788
131	2-3	2-1	15	263	0.002	0.839	0	Free Surf	2.44	0.448	0.413	0.56	0.45	2.033	No	0.56	2.44
132	3-14	3-13	12	93.608	0.07	0.764	0	Free Surf	8.224	0.239	0.125	0.239	0.458	6.121	Yes	0.359	4.67
133	4-10	4-9	8	121.467	0.071	0.011	0	Free Surf	2.454	0.053	0.005	0.035	0.059	2.08	Yes	0.04	2.055
134	4-12	4-11	8	162.946	0.05	0.008	0	Free Surf	1.948	0.048	0.004	0.032	0.049	1.752	Yes	0.034	1.794
135	4-11	4-10	8	380.036	0.05	0.01	0	Free Surf	2.082	0.054	0.006	0.036	0.055	1.746	No	0.036	2.082

136	4-14	4-13	8	303	0.065	0.002	0	Free Surf	1.461	0.025	0.001	0.017	0.026	1.998	Yes	0.023	0.913
137	4-30	4-29	8	251.148	0.108	0.003	0	Free Surf	1.826	0.024	0.001	0.016	0.029	2.568	Yes	0.022	1.196
138	4-13	4-12	8	257.985	0.048	0.006	0	Free Surf	1.799	0.044	0.004	0.03	0.044	1.709	Yes	0.031	1.688
140	19-1	3-28	8	78.964	0.066	0.339	0	Free Surf	6.626	0.278	0.169	0.185	0.339	2.01	No	0.185	6.626
141	4-5	4-4	12	459.427	0.037	0.034	0	Free Surf	2.574	0.062	0.008	0.062	0.093	4.412	Yes	0.068	2.261
142	4-4	4-3	8	95.107	0.041	0.041	0	Free Surf	3.01	0.11	0.026	0.074	0.114	1.59	Yes	0.079	2.71
143	4-6	4-5	12	262.572	0.032	0.027	0	Free Surf	2.291	0.058	0.007	0.058	0.083	4.12	Yes	0.06	2.167
144	4-8	4-7	8	118.026	0.038	0.018	0	Free Surf	2.287	0.077	0.012	0.051	0.075	1.524	Yes	0.068	1.487
145	4-47	4-7	8	205.675	0.005	0.002	0	Free Surf	0.577	0.042	0.003	0.028	0.024	0.57	Yes	0.057	0.2
146	4-48	4-8	8	211.465	0.031	0.005	0	Free Surf	1.445	0.044	0.004	0.029	0.039	1.386	Yes	0.04	0.898
147	4-7	4-6	8	280.23	0.006	0.021	0	Free Surf	1.256	0.129	0.035	0.086	0.082	0.603	No	0.086	1.256
148	4-55	4-15	6	486.689	0.007	0.001	0	Free Surf	0.561	0.042	0.003	0.021	0.019	0.31	No	0.021	0.561
149	4-2	4-1	8	340.508	0.034	0.053	0	Free Surf	3.045	0.13	0.036	0.087	0.13	1.449	Yes	0.111	2.15
15	5-96	5-95	8	290.154	0.014	0.001	0	Free Surf	0.685	0.026	0.001	0.017	0.018	0.919	Yes	0.024	0.437
150	4-39	4-16	8	198.112	0.225	0.004	0	Free Surf	2.592	0.024	0.001	0.016	0.033	3.711	Yes	0.667	0.016
151	4-40	4-39	8	264.979	0.011	0.002	0	Free Surf	0.783	0.037	0.003	0.025	0.026	0.833	No	0.025	0.783
152	4-3	4-2	8	320.434	0.037	0.052	0	Free Surf	3.104	0.127	0.034	0.085	0.128	1.503	Yes	0.086	3.041
153	4-44	4-43	8	139.792	0.086	0.003	0	Free Surf	1.672	0.025	0.001	0.017	0.028	2.294	Yes	0.02	1.299
154	4-43	4-42	8	254.756	0.067	0.004	0	Free Surf	1.813	0.035	0.002	0.023	0.037	2.023	Yes	0.027	1.464
1545	213	1-1	15	388	0.001	0.991	0	Free Surf	1.648	0.709	0.851	0.886	0.49	1.164	No	0.886	1.648
1549	1-13	1-41	8	156.3	0.006	0.022	0	Free Surf	1.29	0.127	0.035	0.085	0.082	0.623	Yes	0.102	0.984
155	4-42	4-41	8	122.058	0.049	0.007	0	Free Surf	1.856	0.045	0.004	0.03	0.046	1.736	Yes	0.032	1.74
1553	1-15	1-28	8	320	0.002	0.001	0	Free Surf	0.364	0.047	0.004	0.032	0.021	0.33	No	0.032	0.364
156	4-50	4-49	8	208.464	0.072	0.002	0	Free Surf	1.448	0.023	0.001	0.015	0.025	2.101	Yes	0.018	1.115
1563	3-28	3-27	12	240	0.011	0.339	0	Free Surf	3.373	0.252	0.14	0.252	0.301	2.431	No	0.252	3.373
157	4-32	4-18	8	153.309	0.12	0.004	0	Free Surf	2.165	0.029	0.002	0.019	0.036	2.709	Yes	0.043	0.674
158	4-37	4-17	8	190.536	0.039	0.003	0	Free Surf	1.314	0.032	0.002	0.021	0.03	1.553	Yes	0.04	0.51
159	4-38	4-37	8	209.417	0.005	0.002	0	Free Surf	0.533	0.04	0.003	0.027	0.022	0.541	No	0.027	0.533
16	5-20	5-19	8	138.442	0.005	0.149	0	Free Surf	2.046	0.359	0.275	0.239	0.221	0.541	No	0.239	2.046
160	4-21	4-20	8	305.29	0.009	0.043	0	Free Surf	1.764	0.164	0.058	0.109	0.116	0.73	Yes	0.11	1.753
161	4-33	4-32	8	253.31	0.037	0.003	0	Free Surf	1.343	0.034	0.002	0.023	0.032	1.514	No	0.023	1.343
162	4-41	4-3	8	566.663	0.056	0.009	0	Free Surf	2.096	0.049	0.005	0.033	0.052	1.855	Yes	0.059	0.89
163	4-49	4-48	8	298.857	0.064	0.004	0	Free Surf	1.684	0.032	0.002	0.021	0.034	1.974	Yes	0.025	1.317
164	2-15	2-14	8	37.403	0.065	0.061	0	Free Surf	3.984	0.12	0.031	0.08	0.14	1.996	Yes	0.175	1.291
165	2-14	2-13	12	306.129	0.001	0.132	0	Free Surf	1.19	0.271	0.16	0.271	0.185	0.824	No	0.271	1.19
166	2-28	2-12	8	85	0.079	0.003	0	Free Surf	1.726	0.028	0.001	0.019	0.031	2.202	Yes	0.083	0.194
1665	1-47	1-13	12	315	0.002	0.045	0	Free Surf	1.051	0.139	0.042	0.139	0.107	1.081	No	0.139	1.051
167	2-13	2-12	8	231.517	0.008	0.135	0	Free Surf	2.344	0.302	0.198	0.201	0.21	0.679	No	0.201	2.344
168	2-18	2-17	8	90.818	0.033	0.011	0	Free Surf	1.848	0.061	0.007	0.041	0.057	1.423	Yes	0.048	1.468
169	2-20	2-18	8	336.384	0.006	0.006	0	Free Surf	0.858	0.07	0.01	0.047	0.043	0.604	No	0.047	0.858
17	5-24	5-23	8	109.859	0.082	0.033	0	Free Surf	3.581	0.085	0.015	0.056	0.102	2.241	Yes	0.059	3.339
170	5-29	5-28	8	240	0.029	0.005	0	Free Surf	1.435	0.046	0.004	0.03	0.04	1.337	Yes	0.033	1.252
171	5-4	5-3	8	171.996	0.027	0.603	0	Free Surf	5.581	0.483	0.472	0.322	0.458	1.278	Yes	0.356	4.911
172	5-3	5-2	8	296.739	0.015	0.612	0	Free Surf	4.459	0.586	0.647	0.391	0.462	0.946	Yes	0.408	4.23
173	5-28	5-3	8	378.865	0.031	0.008	0	Free Surf	1.648	0.054	0.006	0.036	0.05	1.371	Yes	0.213	0.126
174	2-27	2-26	8	494.084	0.022	0.004	0	Free Surf	1.197	0.043	0.003	0.028	0.035	1.168	Yes	0.034	0.92
175	2-21	2-20	8	521.723	0.01	0.003	0	Free Surf	0.821	0.046	0.004	0.03	0.031	0.767	Yes	0.039	0.573
176	2-19	2-18	8	523.193	0.01	0.002	0	Free Surf	0.759	0.04	0.003	0.027	0.027	0.766	Yes	0.034	0.54
177	4-15	2-14	8	401.606	0.08	0.068	0	Free Surf	4.419	0.12	0.031	0.08	0.148	2.213	Yes	-7.075	-1
178	4-1	2-15	8	395.828	0.007	0.059	0	Free Surf	1.828	0.201	0.089	0.134	0.138	0.668	No	0.134	1.828
179	4-24	4-23	8	353.426	0.048	0.028	0	Free Surf	2.829	0.09	0.017	0.06	0.094	1.707	No	0.06	2.829
18	5-25	5-24	8	240	0.1	0.023	0	Free Surf	3.425	0.068	0.009	0.045	0.084	2.476	Yes	0.051	2.875
180	4-27	4-26	8	168.788	0.036	0.023	0	Free Surf	2.416	0.088	0.016	0.059	0.086	1.476	Yes	0.06	2.34

181	4-53	4-52	8	125.303	0.072	0.004	0	Free Surf	1.815	0.033	0.002	0.022	0.036	2.099	Yes	0.023	1.649
182	4-26	4-25	8	239.981	0.033	0.025	0	Free Surf	2.404	0.092	0.017	0.061	0.088	1.43	Yes	0.063	2.319
183	4-52	4-22	8	282.439	0.107	0.007	0	Free Surf	2.404	0.037	0.003	0.025	0.045	2.561	Yes	0.064	0.598
184	6-41	6-40	8	115.6	0.043	0.004	0	Free Surf	1.471	0.035	0.002	0.023	0.034	1.629	No	0.023	1.471
185	6-39	6-38	8	93.862	0.085	0.007	0	Free Surf	2.303	0.041	0.003	0.028	0.048	2.286	Yes	0.028	2.235
186	6-38	6-37	8	281.022	0.111	0.009	0	Free Surf	2.703	0.043	0.003	0.029	0.053	2.615	Yes	0.049	1.241
187	6-49	6-43	8	186.193	0.111	0.003	0	Free Surf	1.946	0.026	0.001	0.017	0.031	2.612	Yes	0.032	0.805
188	6-44	6-43	8	259.842	0.022	0.015	0	Free Surf	1.77	0.079	0.013	0.052	0.068	1.161	No	0.052	1.77
189	6-50	6-49	8	215	0.005	0.001	0	Free Surf	0.473	0.034	0.002	0.023	0.019	0.534	No	0.023	0.473
190	6-43	6-37	8	190.502	0.066	0.019	0	Free Surf	2.816	0.069	0.009	0.046	0.077	2.016	Yes	0.057	2.029
191	4-28	4-27	8	223.474	0.081	0.022	0	Free Surf	3.156	0.07	0.01	0.047	0.083	2.222	Yes	0.053	2.656
192	6-40	6-39	8	124.441	0.225	0.007	0	Free Surf	3.12	0.031	0.002	0.021	0.045	3.715	Yes	0.024	2.502
193	5-31	5-30	8	286.192	0.08	0.007	0	Free Surf	2.215	0.041	0.003	0.027	0.046	2.22	Yes	0.032	1.718
194	5-34	5-33	8	243.406	0.025	0.355	0	Free Surf	4.723	0.368	0.288	0.245	0.348	1.233	Yes	0.245	4.713
195	5-32	5-31	8	221.595	0.104	0.005	0	Free Surf	2.168	0.032	0.002	0.022	0.039	2.523	Yes	0.024	1.811
196	5-60	5-34	8	279.523	0.035	0.015	0	Free Surf	2.115	0.072	0.01	0.048	0.069	1.47	Yes	0.146	0.415
197	5-35	5-34	8	260.182	0.036	0.338	0	Free Surf	5.34	0.324	0.227	0.216	0.339	1.489	Yes	0.23	4.884
198	5-6	5-5	8	129.799	0.065	0.235	0	Free Surf	5.928	0.232	0.118	0.155	0.28	1.993	Yes	0.239	3.225
199	5-33	5-5	8	241.382	0.025	0.356	0	Free Surf	4.72	0.369	0.29	0.246	0.348	1.229	Yes	0.285	3.871
2	6-22	6-20	8	53	0.094	0.232	0	Free Surf	6.743	0.21	0.096	0.14	0.278	2.405	Yes	0.147	6.301
200	5-41	5-6	8	252.476	0.053	0.037	0	Free Surf	3.203	0.1	0.021	0.066	0.109	1.805	Yes	0.111	1.525
201	5-42	5-41	8	360.28	0.017	0.021	0	Free Surf	1.805	0.101	0.021	0.067	0.082	1.011	No	0.067	1.805
202	5-53	5-52	8	42.025	0.024	0.013	0	Free Surf	1.765	0.074	0.011	0.049	0.064	1.208	No	0.049	1.765
203	5-7	5-6	8	339.854	0.018	0.196	0	Free Surf	3.549	0.294	0.188	0.196	0.255	1.043	No	0.196	3.549
204	5-52	5-41	8	156	0.058	0.014	0	Free Surf	2.457	0.062	0.008	0.041	0.067	1.881	Yes	0.054	1.656
205	5-43	5-42	8	290	0.031	0.018	0	Free Surf	2.129	0.08	0.013	0.053	0.075	1.38	Yes	0.06	1.781
206	5-30	5-5	8	249.798	0.031	0.008	0	Free Surf	1.7	0.056	0.006	0.037	0.051	1.386	Yes	0.181	0.172
207	6-2	6-1	8	20.092	0.048	0.297	0	Free Surf	5.713	0.281	0.173	0.188	0.317	1.721	Yes	0.218	4.639
208	6-3	6-2	8	146.658	0.005	0.297	0	Free Surf	2.506	0.52	0.534	0.346	0.317	0.556	No	0.346	2.506
209	5-38	5-37	8	263.504	0.015	0.006	0	Free Surf	1.201	0.057	0.006	0.038	0.044	0.965	Yes	0.039	1.184
210	6-37	6-1	8	157.148	0.028	0.029	0	Free Surf	2.366	0.103	0.022	0.068	0.095	1.309	Yes	0.158	0.703
211	6-4	6-3	8	348.692	0.017	0.296	0	Free Surf	3.895	0.37	0.292	0.247	0.316	1.013	Yes	0.297	3.05
212	5-39	5-38	8	285.005	0.039	0.004	0	Free Surf	1.472	0.038	0.003	0.026	0.036	1.538	Yes	0.032	1.058
213	5-61	5-60	8	334.244	0.045	0.013	0	Free Surf	2.192	0.063	0.008	0.042	0.064	1.659	Yes	0.045	1.982
214	5-9	5-8	8	57.594	0.038	0.193	0	Free Surf	4.623	0.24	0.126	0.16	0.253	1.523	No	0.16	4.623
215	5-55	5-54	8	403.817	0.05	0.009	0	Free Surf	2.054	0.053	0.005	0.035	0.054	1.743	Yes	0.043	1.541
216	5-10	5-9	8	262.933	0.027	0.191	0	Free Surf	4.087	0.261	0.149	0.174	0.252	1.285	No	0.174	4.087
217	5-45	5-44	8	210.182	0.048	0.014	0	Free Surf	2.273	0.064	0.008	0.042	0.065	1.708	Yes	0.044	2.171
218	6-1	5-35	8	384.111	0.02	0.328	0	Free Surf	4.284	0.373	0.296	0.248	0.334	1.11	No	0.248	4.284
219	5-54	5-53	8	338	0.018	0.012	0	Free Surf	1.548	0.075	0.011	0.05	0.061	1.043	No	0.05	1.548
22	5-93	5-24	8	302.875	0.003	0.003	0	Free Surf	0.58	0.06	0.007	0.04	0.032	0.45	Yes	0.048	0.443
220	5-8	5-7	8	315.394	0.068	0.194	0	Free Surf	5.705	0.208	0.095	0.139	0.254	2.044	Yes	0.167	4.371
221	5-44	5-43	8	271.29	0.048	0.016	0	Free Surf	2.373	0.068	0.009	0.045	0.07	1.714	Yes	0.049	2.084
222	4-22	4-21	8	422.288	0.009	0.038	0	Free Surf	1.751	0.153	0.051	0.102	0.11	0.754	Yes	0.106	1.667
223	4-36	4-21	8	134.844	0.06	0.002	0	Free Surf	1.268	0.022	0.001	0.015	0.022	1.92	Yes	0.057	0.167
224	4-35	4-34	8	409.381	0.02	0.003	0	Free Surf	1.075	0.04	0.003	0.027	0.032	1.095	No	0.027	1.075
225	5-5	5-4	8	162.225	0.026	0.601	0	Free Surf	5.519	0.486	0.477	0.324	0.457	1.26	No	0.324	5.519
226	1-26	1-25	8	31.422	0.001	0.01	0	Free Surf	0.578	0.127	0.034	0.085	0.055	0.279	No	0.085	0.578
227	1-30	1-27	8	53.695	0.193	0.001	0	Free Surf	1.813	0.015	0	0.01	0.02	3.443	Yes	0.043	0.218
228	1-27	1-26	8	157.026	0.002	0.009	0	Free Surf	0.623	0.113	0.027	0.075	0.052	0.325	Yes	0.08	0.569
229	1-28	1-27	8	411.125	0.004	0.006	0	Free Surf	0.733	0.079	0.013	0.053	0.044	0.479	Yes	0.064	0.552
23	5-95	5-25	8	301.007	0.01	0.003	0	Free Surf	0.826	0.045	0.004	0.03	0.03	0.782	Yes	0.037	0.589
230	1-29	1-28	8	192	0.004	0.002	0	Free Surf	0.546	0.05	0.005	0.033	0.027	0.48	Yes	0.043	0.374

232	1-39	1-38	8	49.837	0.001	0.034	0	Free Surfac	0.645	0.287	0.179	0.191	0.104	0.192	No	0.191	0.645
233	1-49	1-43	8	155.904	0.051	0.001	0	Free Surfac	1.079	0.019	0.001	0.013	0.018	1.774	Yes	0.036	0.235
234	1-43	1-42	8	48.127	0.005	0.009	0	Free Surfac	0.923	0.088	0.016	0.058	0.053	0.564	Yes	0.07	0.709
235	1-10	1-9	12	56.251	0.002	0.035	0	Free Surfac	0.963	0.124	0.033	0.124	0.094	1.066	No	0.124	0.963
236	1-42	1-39	8	162.145	0.001	0.009	0	Free Surfac	0.582	0.122	0.032	0.082	0.054	0.288	Yes	0.136	0.277
237	1-40	1-39	8	295.117	0.008	0.025	0	Free Surfac	1.48	0.127	0.034	0.085	0.088	0.716	Yes	0.138	0.731
238	1-11	1-10	12	306.55	0.003	0.034	0	Free Surfac	1.118	0.111	0.026	0.111	0.094	1.325	Yes	0.117	1.029
239	1-44	1-43	8	326.193	0.003	0.007	0	Free Surfac	0.725	0.091	0.017	0.061	0.048	0.434	No	0.061	0.725
24	5-79	5-78	8	288.886	0.017	0.011	0	Free Surfac	1.5	0.073	0.011	0.049	0.059	1.03	No	0.049	1.5
240	1-15	1-14	10	141.607	0.009	0.004	0	Free Surfac	0.802	0.038	0.003	0.032	0.031	1.318	Yes	0.039	0.585
241	1-16	1-15	8	296.811	0.015	0.003	0	Free Surfac	0.958	0.041	0.003	0.027	0.03	0.963	Yes	0.029	0.85
243	5-1	1-17	15	334.47	0.015	0.9	0	Free Surfac	4.84	0.285	0.177	0.356	0.466	5.093	No	0.356	4.84
244	1-13	1-12	12	304.5	0.006	0.033	0	Free Surfac	1.342	0.095	0.019	0.095	0.092	1.755	Yes	0.101	1.223
246	10-11	10-10	8	85.014	0.012	0.001	0	Free Surfac	0.54	0.021	0.001	0.014	0.014	0.849	Yes	0.024	0.239
248	1-14	1-13	10	359.154	0.007	0.007	0	Free Surfac	0.917	0.056	0.006	0.047	0.044	1.17	Yes	0.071	0.494
249	1-41	1-40	8	315.131	0.002	0.023	0	Free Surfac	0.828	0.18	0.07	0.12	0.085	0.324	No	0.12	0.828
25	5-85	5-80	8	62	0.097	0.003	0	Free Surfac	1.781	0.025	0.001	0.017	0.029	2.436	Yes	0.026	0.954
250	1-12	1-11	12	288.39	0.004	0.034	0	Free Surfac	1.146	0.107	0.024	0.107	0.093	1.386	Yes	0.109	1.119
251	1-45	1-44	8	445.4	0.007	0.006	0	Free Surfac	0.89	0.068	0.009	0.045	0.043	0.643	Yes	0.053	0.705
252	10-4	10-3	8	314.02	0.006	0.022	0	Free Surfac	1.255	0.13	0.036	0.087	0.083	0.598	No	0.087	1.255
253	10-2	10-1	8	30	0.067	0.025	0	Free Surfac	3.086	0.078	0.012	0.052	0.089	2.032	Yes	0.45	0.155
254	10-1	9-17	8	39.231	0.006	0.654	0	Pressurized	2.899	1	1.115	0.667	0.452	0.586	Yes	0.667	2.899
255	10-14	10-13	8	34.684	0.036	0.627	0	Free Surfac	6.29	0.454	0.423	0.303	0.467	1.481	Yes	0.653	2.791
256	10-13	10-1	8	90.524	0.005	0.629	0	Pressurized	2.786	1	1.165	0.667	0.433	0.54	Yes	0.667	2.786
257	10-3	10-2	8	221.446	0.009	0.025	0	Free Surfac	1.516	0.125	0.033	0.083	0.088	0.742	No	0.083	1.516
258	10-5	10-4	8	289.357	0.002	0.017	0	Free Surfac	0.815	0.15	0.048	0.1	0.074	0.357	No	0.1	0.815
259	10-16	10-15	8	290.272	0.004	0.028	0	Free Surfac	1.186	0.162	0.057	0.108	0.094	0.495	Yes	0.135	0.854
26	5-83.5	5-83	8	163.864	0.098	0.001	0	Free Surfac	1.425	0.018	0.001	0.012	0.02	2.447	Yes	0.016	0.964
260	10-29	10-28	8	312.6	0.003	0.591	0	Pressurized	2.621	1	1.335	0.667	0.39	0.443	Yes	0.667	2.621
261	10-30	10-29	8	269.648	0.019	0.014	0	Free Surfac	1.648	0.08	0.013	0.053	0.066	1.066	Yes	0.667	0.062
262	10-28	10-14	8	293.815	0.001	0.598	0	Pressurized	2.65	1	2.044	0.667	0.314	0.293	No	0.667	2.65
263	10-37	10-36	8	90	0.006	0.001	0	Free Surfac	0.468	0.029	0.002	0.019	0.017	0.584	Yes	0.043	0.143
264	10-36	10-17	8	418.528	0.001	0.004	0	Free Surfac	0.327	0.1	0.021	0.067	0.035	0.184	Yes	0.083	0.237
265	10-7	10-6	8	315.646	0.004	0.008	0	Free Surfac	0.823	0.09	0.017	0.06	0.051	0.495	Yes	0.067	0.706
266	10-18	10-17	8	299.199	0.004	0.013	0	Free Surfac	0.975	0.111	0.026	0.074	0.065	0.512	Yes	0.087	0.774
268	10-35	10-32	8	233.691	0.009	0.002	0	Free Surfac	0.653	0.035	0.002	0.023	0.022	0.724	Yes	0.033	0.388
269	10-27	10-26	8	135	0.015	0.002	0	Free Surfac	0.815	0.032	0.002	0.022	0.024	0.953	Yes	0.026	0.606
27	5-89	5-24	8	134.375	0.022	0.006	0	Free Surfac	1.364	0.052	0.005	0.035	0.043	1.17	Yes	0.045	0.909
270	10-33	10-32	8	301.27	0.023	0.007	0	Free Surfac	1.43	0.054	0.006	0.036	0.046	1.194	Yes	0.039	1.25
271	10-26	10-17	8	298.3	0.019	0.004	0	Free Surfac	1.18	0.047	0.004	0.031	0.037	1.085	Yes	0.065	0.393
272	10-6	10-5	8	320.24	0.005	0.014	0	Free Surfac	1.013	0.11	0.026	0.073	0.065	0.536	Yes	0.087	0.796
273	10-17	10-16	8	328.457	0.004	0.024	0	Free Surfac	1.16	0.149	0.048	0.1	0.088	0.508	Yes	0.104	1.095
274	10-31	10-30	8	328	0.015	0.011	0	Free Surfac	1.412	0.073	0.011	0.049	0.057	0.967	Yes	0.051	1.321
275	10-12	10-4	8	337.734	0.001	0.002	0	Free Surfac	0.309	0.075	0.011	0.05	0.027	0.209	Yes	0.068	0.195
276	10-10	10-6	8	417.238	0.008	0.003	0	Free Surfac	0.78	0.051	0.005	0.034	0.032	0.679	Yes	0.054	0.393
278	7-9	7-1	8	35.501	0.053	0.005	0	Free Surfac	1.759	0.039	0.003	0.026	0.04	1.802	Yes	0.074	0.378
279	7-10	7-9	8	390	0.049	0.004	0	Free Surfac	1.52	0.034	0.002	0.022	0.033	1.73	Yes	0.024	1.343
28	5-92	5-91	8	231.247	0.099	0.001	0	Free Surfac	1.466	0.019	0.001	0.012	0.021	2.47	Yes	0.021	0.656
280	8-2	8-1	8	76.648	0.217	0.054	0	Free Surfac	5.838	0.085	0.015	0.056	0.131	3.652	Yes	0.066	4.605
281	7-1	1-48	8	140.768	0.005	0.04	0	Free Surfac	1.401	0.184	0.074	0.123	0.113	0.54	No	0.123	1.401
282	7-2	7-1	8	245	0.298	0.034	0	Free Surfac	5.656	0.063	0.008	0.042	0.103	4.274	No	0.042	5.656
283	7-35	7-13	8	152.531	0.144	0.002	0	Free Surfac	1.858	0.02	0.001	0.013	0.025	2.974	No	0.013	1.858
284	8-3	8-2	8	393.985	0.084	0.044	0	Free Surfac	3.944	0.096	0.019	0.064	0.118	2.27	No	0.064	3.944

285	7-4	7-3	8	460.243	0.05	0.027	0	Free Surf	2.841	0.087	0.015	0.058	0.092	1.751	No	0.058	2.841
286	7-42	7-15	8	155.451	0.134	0.002	0	Free Surf	1.659	0.018	0.001	0.012	0.022	2.871	Yes	0.027	0.496
287	7-38	7-37	8	35.317	0.142	0.002	0	Free Surf	1.776	0.019	0.001	0.013	0.023	2.946	Yes	0.018	1.09
288	7-37	7-36	8	496.953	0.038	0.003	0	Free Surf	1.346	0.034	0.002	0.022	0.031	1.531	No	0.022	1.346
289	7-3	7-2	8	481.774	0.066	0.031	0	Free Surf	3.261	0.086	0.015	0.057	0.099	2.018	No	0.057	3.261
29	5-87	5-86	8	120	0.033	0.001	0	Free Surf	0.921	0.021	0.001	0.014	0.018	1.43	Yes	0.015	0.818
290	10-22	10-21	8	145	0.007	0.002	0	Free Surf	0.615	0.038	0.003	0.025	0.023	0.65	Yes	0.046	0.254
291	10-20	10-19	8	126.766	0.004	0.009	0	Free Surf	0.857	0.094	0.018	0.063	0.054	0.502	Yes	0.066	0.798
292	10-21	10-20	8	340.832	0.001	0.005	0	Free Surf	0.424	0.099	0.02	0.066	0.039	0.24	No	0.066	0.424
293	10-9	10-8	8	145.529	0.005	0.003	0	Free Surf	0.666	0.055	0.006	0.037	0.032	0.547	Yes	0.042	0.549
294	10-24	10-23	8	105	0.019	0.002	0	Free Surf	0.895	0.031	0.002	0.02	0.024	1.081	No	0.02	0.895
295	10-25	10-24	8	104.592	0.01	0.001	0	Free Surf	0.597	0.028	0.001	0.019	0.018	0.766	Yes	0.02	0.556
296	10-23	10-20	8	181.3	0.035	0.002	0	Free Surf	1.2	0.03	0.002	0.02	0.027	1.462	Yes	0.041	0.413
297	7-32	7-6	8	177.052	0.119	0.001	0	Free Surf	1.58	0.018	0.001	0.012	0.021	2.697	Yes	0.018	0.876
298	7-7	7-6	8	261.061	0.065	0.002	0	Free Surf	1.305	0.021	0.001	0.014	0.022	1.998	Yes	0.019	0.848
299	7-6	7-5	8	606.503	0.077	0.005	0	Free Surf	1.995	0.036	0.002	0.024	0.04	2.18	Yes	0.041	0.898
3	6-19	6-18	8	123.184	0.041	0.236	0	Free Surf	5.036	0.261	0.149	0.174	0.281	1.582	No	0.174	5.036
30	5-86	5-85	8	151	0.066	0.002	0	Free Surf	1.437	0.024	0.001	0.016	0.025	2.015	Yes	0.017	1.395
300	7-5	7-4	8	367.418	0.041	0.024	0	Free Surf	2.57	0.087	0.015	0.058	0.088	1.582	No	0.058	2.57
301	1-48	1-47	8	305	0.022	0.042	0	Free Surf	2.424	0.13	0.036	0.087	0.116	1.154	Yes	0.113	1.655
302	1-46	1-45	8	369.014	0.005	0.004	0	Free Surf	0.711	0.057	0.006	0.038	0.033	0.576	Yes	0.041	0.619
303	10-8	10-7	8	307.332	0.004	0.005	0	Free Surf	0.689	0.071	0.01	0.047	0.039	0.483	Yes	0.054	0.571
304	10-19	10-18	8	170.009	0.004	0.01	0	Free Surf	0.851	0.103	0.022	0.069	0.057	0.469	Yes	0.072	0.805
305	10-34	10-33	8	265	0.019	0.004	0	Free Surf	1.113	0.043	0.004	0.029	0.034	1.076	Yes	0.032	0.933
306	5-2	5-1	8	372.009	0.011	0.615	0	Free Surf	4.044	0.639	0.738	0.426	0.463	0.848	No	0.426	4.044
307	6-45	6-44.5	8	37.975	0.082	0.012	0	Free Surf	2.669	0.053	0.006	0.036	0.062	2.248	Yes	0.051	1.585
308	6-8	6-7	8	116.341	0.006	0.288	0	Free Surf	2.712	0.477	0.461	0.318	0.312	0.625	Yes	0.351	2.392
309	6-7	6-6	8	224.047	0.003	0.289	0	Free Surf	2.151	0.576	0.63	0.384	0.312	0.459	Yes	0.4	2.048
31	8-13	8-10	8	174.633	0.006	0.002	0	Free Surf	0.61	0.043	0.003	0.029	0.025	0.593	No	0.029	0.61
310	6-24	6-9	8	187.861	0.052	0.031	0	Free Surf	2.995	0.091	0.017	0.061	0.099	1.783	Yes	0.165	0.71
311	6-10	6-9	8	55.771	0.033	0.255	0	Free Surf	4.762	0.287	0.18	0.191	0.292	1.418	Yes	0.23	3.693
312	6-53	6-10	8	113.31	0.14	0.002	0	Free Surf	1.831	0.02	0.001	0.013	0.025	2.934	Yes	0.102	0.09
313	6-9	6-8	8	399.719	0.011	0.287	0	Free Surf	3.368	0.403	0.342	0.269	0.311	0.839	Yes	0.293	3
314	6-52	6-51	8	127.401	0.024	0.001	0	Free Surf	0.846	0.024	0.001	0.016	0.019	1.202	Yes	0.016	0.823
315	5-64	5-63	8	389.816	0.003	0.002	0	Free Surf	0.459	0.051	0.005	0.034	0.025	0.397	No	0.034	0.459
316	6-51	6-5	8	136.217	0.054	0.002	0	Free Surf	1.308	0.025	0.001	0.017	0.025	1.812	Yes	0.11	0.08
317	5-63	5-62	8	347.59	0.04	0.007	0	Free Surf	1.723	0.047	0.004	0.031	0.046	1.572	Yes	0.036	1.432
318	5-57	5-56	8	46.049	0.065	0.005	0	Free Surf	1.84	0.036	0.002	0.024	0.039	1.999	Yes	0.027	1.589
319	5-13	5-12	8	100.432	0.06	0.184	0	Free Surf	5.385	0.209	0.096	0.139	0.247	1.924	No	0.139	5.385
32	8-11	8-10	8	232.64	0.034	0.004	0	Free Surf	1.364	0.037	0.003	0.025	0.034	1.452	No	0.025	1.364
320	5-15	5-14	8	190.736	0.09	0.105	0	Free Surf	5.246	0.144	0.044	0.096	0.184	2.352	Yes	0.158	2.568
321	5-12	5-11	8	313.084	0.039	0.185	0	Free Surf	4.622	0.234	0.12	0.156	0.248	1.547	No	0.156	4.622
322	5-58	5-57	8	262	0.034	0.004	0	Free Surf	1.351	0.037	0.002	0.024	0.033	1.451	No	0.024	1.351
324	5-65	5-63	8	300.507	0.007	0.002	0	Free Surf	0.637	0.041	0.003	0.027	0.025	0.639	Yes	0.029	0.57
325	6-26	6-25	8	102.108	0.005	0.017	0	Free Surf	1.103	0.122	0.032	0.081	0.074	0.548	No	0.081	1.103
326	6-59	6-58	8	114.066	0.009	0.008	0	Free Surf	1.091	0.076	0.012	0.05	0.051	0.733	No	0.05	1.091
327	6-27	6-26	8	202.415	0.047	0.015	0	Free Surf	2.345	0.067	0.009	0.045	0.07	1.696	Yes	0.063	1.423
328	6-58	6-25	8	180.266	0.039	0.01	0	Free Surf	1.901	0.056	0.006	0.038	0.055	1.543	Yes	0.05	1.235
329	6-61	6-60	8	38.376	0.026	0.004	0	Free Surf	1.276	0.042	0.003	0.028	0.036	1.264	Yes	0.033	0.973
33	11-18	11-17	8	75.442	0.278	0.01	0	Free Surf	3.83	0.036	0.002	0.024	0.056	4.131	Yes	0.035	2.212
330	6-64	6-60	8	127	0.016	0.003	0	Free Surf	0.985	0.041	0.003	0.027	0.031	0.983	Yes	0.033	0.744
331	6-60	6-59	8	91.045	0.022	0.008	0	Free Surf	1.459	0.058	0.007	0.039	0.049	1.161	Yes	0.045	1.187
332	5-66	5-16	8	154	0.077	0.003	0	Free Surf	1.612	0.026	0.001	0.017	0.028	2.176	Yes	0.073	0.192

333	5-51.5	5-51	8	76.857	0.052	0.001	0	Free Surf	1.143	0.021	0.001	0.014	0.02	1.786	Yes	0.015	1.038
334	5-51	5-50.5	8	236.112	0.102	0.002	0	Free Surf	1.735	0.024	0.001	0.016	0.027	2.497	Yes	0.019	1.298
335	6-65	6-64	8	216.869	0.014	0.002	0	Free Surf	0.784	0.032	0.002	0.021	0.023	0.921	Yes	0.024	0.643
336	5-15	5-14	8	347.692	0.049	0.077	0	Free Surf	3.886	0.144	0.044	0.096	0.158	1.742	Yes	0.158	1.902
337	5-59	5-58	8	336.485	0.048	0.002	0	Free Surf	1.218	0.024	0.001	0.016	0.023	1.708	Yes	0.02	0.872
338	5-50.5	5-48	8	257.852	0.062	0.004	0	Free Surf	1.715	0.034	0.002	0.022	0.035	1.951	Yes	0.027	1.289
34	11-19	11-18	8	183.712	0.12	0.009	0	Free Surf	2.763	0.042	0.003	0.028	0.053	2.71	No	0.028	2.763
340	6-6	6-5	8	165.579	0.003	0.29	0	Free Surf	1.965	0.623	0.711	0.415	0.313	0.408	No	0.415	1.965
341	6-25	6-24	8	320.419	0.037	0.028	0	Free Surf	2.603	0.095	0.019	0.063	0.094	1.515	No	0.063	2.603
342	6-13	6-12	8	106.536	0.01	0.249	0	Free Surf	3.065	0.389	0.32	0.259	0.289	0.777	No	0.259	3.065
343	6-15	6-14	8	88.161	0.038	0.243	0	Free Surf	4.974	0.269	0.159	0.179	0.285	1.536	No	0.179	4.974
344	6-54	6-14	8	122.208	0.098	0.003	0	Free Surf	1.867	0.027	0.001	0.018	0.031	2.454	Yes	0.096	0.158
345	6-14	6-13	8	113.19	0.045	0.247	0	Free Surf	5.3	0.26	0.148	0.173	0.288	1.669	Yes	0.216	3.895
346	6-56	6-15	8	368.932	0.029	0.001	0	Free Surf	0.948	0.025	0.001	0.016	0.021	1.328	Yes	0.098	0.067
347	6-12	6-11	8	326.639	0.029	0.25	0	Free Surf	4.537	0.293	0.187	0.195	0.289	1.336	Yes	0.2	4.403
348	6-57	6-16	8	157.088	0.083	0.002	0	Free Surf	1.511	0.022	0.001	0.015	0.024	2.258	Yes	0.068	0.156
349	6-17	6-16	8	150.603	0.041	0.239	0	Free Surf	5.06	0.262	0.151	0.175	0.283	1.585	No	0.175	5.06
35	11-25	11-24	8	184	0.043	0.002	0	Free Surf	1.127	0.023	0.001	0.016	0.022	1.633	Yes	0.017	1.016
350	6-18	6-17	8	389.567	0.072	0.237	0	Free Surf	6.156	0.227	0.113	0.152	0.282	2.094	Yes	0.163	5.541
351	6-16	6-15	8	82.015	0.177	0.241	0	Free Surf	8.529	0.183	0.073	0.122	0.284	3.298	Yes	0.151	6.306
352	6-63	6-62	8	295.931	0.051	0.001	0	Free Surf	1.164	0.022	0.001	0.015	0.021	1.763	Yes	0.018	0.848
353	5-67	5-17	8	329.081	0.085	0.005	0	Free Surf	2.007	0.034	0.002	0.022	0.038	2.289	Yes	0.076	0.33
354	5-69	5-68	8	238.176	0.134	0.002	0	Free Surf	1.662	0.018	0.001	0.012	0.022	2.87	Yes	0.02	0.768
355	5-68	5-67	8	234.393	0.017	0.003	0	Free Surf	1.04	0.042	0.003	0.028	0.032	1.023	No	0.028	1.04
356	5-70	5-18	8	308.006	0.105	0.004	0	Free Surf	2.017	0.029	0.001	0.019	0.034	2.54	Yes	0.069	0.307
357	5-71	5-70	8	125.05	0.168	0.002	0	Free Surf	1.971	0.02	0.001	0.013	0.025	3.209	Yes	0.016	1.432
358	5-18	5-17	8	188.155	0.105	0.172	0	Free Surf	6.413	0.177	0.068	0.118	0.239	2.534	Yes	0.123	5.994
359	5-73	5-19	8	221.584	0.071	0.018	0	Free Surf	2.819	0.065	0.008	0.044	0.074	2.082	Yes	0.112	0.707
36	11-22	11-21	8	262	0.134	0.002	0	Free Surf	1.742	0.019	0.001	0.013	0.023	2.862	Yes	0.022	0.785
360	5-75	5-74	8	121.039	0.14	0.015	0	Free Surf	3.432	0.052	0.005	0.035	0.069	2.935	Yes	0.035	3.388
361	5-74	5-73	8	159.735	0.144	0.016	0	Free Surf	3.514	0.053	0.005	0.035	0.071	2.971	Yes	0.039	2.986
362	5-76	5-75	8	148.041	0.027	0.001	0	Free Surf	0.726	0.017	0	0.011	0.014	1.287	Yes	0.023	0.254
363	5-19	5-18	8	380.003	0.018	0.167	0	Free Surf	3.392	0.271	0.16	0.181	0.235	1.044	No	0.181	3.392
364	5-72	5-71	8	265.691	0.019	0.001	0	Free Surf	0.768	0.025	0.001	0.016	0.019	1.074	No	0.016	0.768
365	6-55	6-54	8	193.85	0.052	0.002	0	Free Surf	1.342	0.027	0.001	0.018	0.026	1.779	Yes	0.018	1.33
366	6-57.5	6-57	8	145.192	0.014	0.001	0	Free Surf	0.624	0.023	0.001	0.015	0.016	0.919	No	0.015	0.624
367	6-11	6-10	8	326.365	0.025	0.252	0	Free Surf	4.318	0.306	0.203	0.204	0.291	1.242	No	0.204	4.318
368	6-28	6-27	8	386.375	0.008	0.013	0	Free Surf	1.192	0.096	0.019	0.064	0.064	0.69	No	0.064	1.192
369	6-62	6-61	8	282.529	0.053	0.003	0	Free Surf	1.537	0.032	0.002	0.021	0.032	1.804	Yes	0.025	1.251
37	11-21	11-20	8	214	0.009	0.003	0	Free Surf	0.822	0.046	0.004	0.031	0.031	0.757	Yes	0.038	0.615
370	5-66.5	5-66	8	218.4	0.092	0.001	0	Free Surf	1.378	0.018	0.001	0.012	0.02	2.37	Yes	0.015	1.022
371	5-17	5-16	8	387.42	0.077	0.178	0	Free Surf	5.807	0.194	0.082	0.129	0.243	2.171	No	0.129	5.807
372	8-5	8-4	8	193.598	0.085	0.04	0	Free Surf	3.838	0.092	0.017	0.061	0.112	2.282	Yes	0.064	3.616
373	7-43	7-16	8	98.964	0.235	0.005	0	Free Surf	2.925	0.028	0.001	0.018	0.04	3.793	Yes	0.022	2.253
374	7-44	7-43	8	320.347	0.028	0.004	0	Free Surf	1.304	0.041	0.003	0.027	0.035	1.313	No	0.027	1.304
375	5-50	5-49	8	322	0.062	0.001	0	Free Surf	1.244	0.021	0.001	0.014	0.021	1.952	Yes	0.016	0.998
376	8-8	8-7	8	335.687	0.07	0.013	0	Free Surf	2.541	0.056	0.006	0.037	0.063	2.071	Yes	0.047	1.837
377	8-16	8-6	8	327.925	0.07	0.003	0	Free Surf	1.555	0.026	0.001	0.018	0.028	2.072	Yes	0.038	0.491
378	7-24	7-23	8	194.449	0.026	0.012	0	Free Surf	1.752	0.068	0.009	0.046	0.061	1.256	No	0.046	1.752
379	7-33	7-23	8	457.57	0.14	0.003	0	Free Surf	1.993	0.023	0.001	0.015	0.028	2.929	Yes	0.03	0.727
38	11-24	11-19	8	265	0.094	0.003	0	Free Surf	1.812	0.027	0.001	0.018	0.03	2.405	Yes	0.023	1.236
380	7-34	7-24	8	446.126	0.134	0.002	0	Free Surf	1.805	0.02	0.001	0.013	0.025	2.872	Yes	0.03	0.561
381	7-46	7-45	8	128.022	0.133	0.001	0	Free Surf	1.358	0.013	0	0.009	0.016	2.854	Yes	0.014	0.664

382	7-20	7-19	8	47.222	0.042	0.005	0	Free Surf	1.584	0.04	0.003	0.027	0.039	1.612	No	0.027	1.584
383	7-27	7-26	8	97.317	0.062	0.006	0	Free Surf	1.97	0.042	0.003	0.028	0.044	1.944	No	0.028	1.97
384	7-26	7-25	8	572.379	0.115	0.007	0	Free Surf	2.53	0.038	0.003	0.025	0.047	2.659	Yes	0.04	1.26
385	7-25	7-24	8	174.377	0.006	0.008	0	Free Surf	0.94	0.083	0.014	0.056	0.051	0.593	No	0.056	0.94
386	7-28	7-27	8	97.537	0.072	0.006	0	Free Surf	2.008	0.038	0.003	0.026	0.042	2.098	Yes	0.027	1.88
387	7-31	7-28	8	296.705	0.04	0.002	0	Free Surf	1.19	0.027	0.001	0.018	0.025	1.575	Yes	0.022	0.888
388	7-22	7-21	8	248.062	0.113	0.002	0	Free Surf	1.573	0.019	0.001	0.012	0.022	2.631	Yes	0.015	1.16
389	7-30	7-29	8	14.928	0.134	0.001	0	Free Surf	1.285	0.012	0	0.008	0.014	2.866	Yes	0.014	0.559
39	11-17	11-5	8	273.476	0.023	0.011	0	Free Surf	1.678	0.069	0.01	0.046	0.06	1.195	Yes	0.192	0.212
390	7-29	7-28	8	286.383	0.01	0.001	0	Free Surf	0.657	0.03	0.002	0.02	0.02	0.801	Yes	0.023	0.545
391	7-21	7-20	8	354.626	0.135	0.004	0	Free Surf	2.202	0.027	0.001	0.018	0.034	2.881	Yes	0.022	1.609
392	7-45	7-44	8	129.061	0.07	0.003	0	Free Surf	1.67	0.03	0.002	0.02	0.032	2.068	Yes	0.023	1.295
393	7-18	CRUSHERCANYON8	8	32.365	0.011	0.006	0	Free Surf	1.087	0.063	0.008	0.042	0.045	0.826	Yes	0.144	0.177
394	7-19	7-18	8	254.612	0.112	0.006	0	Free Surf	2.332	0.034	0.002	0.023	0.042	2.626	Yes	0.032	1.392
395	5-81	5-80	8	217.985	0.032	0.007	0	Free Surf	1.588	0.05	0.005	0.033	0.045	1.403	Yes	0.034	1.532
396	5-80	5-79	8	200.721	0.06	0.01	0	Free Surf	2.234	0.052	0.005	0.035	0.056	1.915	Yes	0.042	1.696
397	8-10	8-9	8	171.039	0.17	0.007	0	Free Surf	2.836	0.034	0.002	0.022	0.045	3.224	Yes	0.028	2.066
398	8-12	8-11	8	221.091	0.077	0.002	0	Free Surf	1.443	0.022	0.001	0.015	0.024	2.171	Yes	0.02	0.926
399	5-78	5-77	8	126.765	0.158	0.012	0	Free Surf	3.332	0.046	0.004	0.03	0.062	3.11	Yes	0.031	3.219
4	6-23	6-19	8	203.824	0.083	0.001	0	Free Surf	1.35	0.019	0.001	0.012	0.02	2.262	Yes	0.093	0.069
40	3-36	3-35	8	198.992	0.005	0.001	0	Free Surf	0.529	0.038	0.003	0.025	0.021	0.555	Yes	0.034	0.345
400	5-84	5-83	8	109.427	0.11	0.002	0	Free Surf	1.606	0.02	0.001	0.013	0.023	2.593	Yes	0.016	1.182
401	5-83	5-82	8	174.309	0.109	0.004	0	Free Surf	2.05	0.029	0.001	0.019	0.034	2.585	Yes	0.027	1.211
402	5-82	5-81	8	275.396	0.015	0.005	0	Free Surf	1.118	0.053	0.005	0.035	0.04	0.944	No	0.035	1.118
403	8-9	8-8	8	488.331	0.074	0.01	0	Free Surf	2.409	0.05	0.005	0.033	0.056	2.126	Yes	0.035	2.195
404	5-49	5-48	8	170.852	0.059	0.002	0	Free Surf	1.448	0.027	0.001	0.018	0.028	1.894	Yes	0.025	0.895
405	5-77	5-75	8	117.646	0.179	0.014	0	Free Surf	3.651	0.048	0.004	0.032	0.067	3.308	Yes	0.033	3.413
406	6-44.5	6-44	8	275.342	0.007	0.013	0	Free Surf	1.174	0.098	0.02	0.066	0.065	0.667	No	0.066	1.174
407	5-40	5-39	8	241.006	0.058	0.002	0	Free Surf	1.328	0.024	0.001	0.016	0.024	1.887	Yes	0.021	0.899
408	6-5	6-4	8	318.873	0.034	0.294	0	Free Surf	5.028	0.306	0.203	0.204	0.315	1.447	Yes	0.225	4.377
409	5-62	5-61	8	518.081	0.033	0.01	0	Free Surf	1.812	0.06	0.007	0.04	0.056	1.419	Yes	0.041	1.743
41	3-34	3-15	8	224.839	0.004	0.006	0	Free Surf	0.788	0.077	0.012	0.051	0.044	0.522	Yes	0.215	0.1
410	8-4	8-3	8	392.979	0.067	0.042	0	Free Surf	3.58	0.099	0.021	0.066	0.115	2.024	No	0.066	3.58
411	5-46	5-45	8	527.85	0.051	0.011	0	Free Surf	2.186	0.057	0.006	0.038	0.059	1.771	Yes	0.04	2.001
412	5-56	5-55	8	360	0.053	0.006	0	Free Surf	1.873	0.044	0.004	0.029	0.045	1.799	Yes	0.032	1.615
413	5-11	5-10	8	380.01	0.041	0.188	0	Free Surf	4.74	0.232	0.118	0.155	0.25	1.593	Yes	0.164	4.358
414	7-39	7-38	8	410.675	0.005	0.001	0	Free Surf	0.476	0.033	0.002	0.022	0.018	0.546	No	0.022	0.476
415	7-40	7-45	8	225.145	0.071	0.002	0	Free Surf	1.349	0.021	0.001	0.014	0.022	2.088	Yes	0.017	1.026
416	7-23	7-5	8	324.589	0.055	0.016	0	Free Surf	2.537	0.067	0.009	0.045	0.072	1.844	Yes	0.051	2.069
417	4-45	4-6	10	322.84	0.021	0.002	0	Free Surf	0.92	0.024	0.001	0.02	0.024	2.053	Yes	0.039	0.338
418	4-9	4-8	8	141.32	0.032	0.012	0	Free Surf	1.926	0.066	0.009	0.044	0.062	1.41	Yes	0.048	1.722
419	4-51	4-13	8	364.317	0.006	0.002	0	Free Surf	0.585	0.039	0.003	0.026	0.023	0.599	Yes	0.028	0.535
42	3-15	3-14	12	184.981	0.012	0.763	0	Free Surf	4.326	0.379	0.305	0.379	0.458	2.501	No	0.379	4.326
420	4-29	4-28	8	252.056	0.028	0.004	0	Free Surf	1.292	0.04	0.003	0.027	0.035	1.305	Yes	0.037	0.808
421	2-35	2-34	8	312.925	0.022	0.002	0	Free Surf	0.894	0.027	0.001	0.018	0.022	1.171	Yes	0.03	0.43
422	4-31	4-1	8	373.663	0.009	0.002	0	Free Surf	0.713	0.039	0.003	0.026	0.025	0.734	Yes	0.08	0.136
423	2-12	2-11	8	203.428	0.028	0.139	0	Free Surf	3.775	0.22	0.106	0.147	0.213	1.31	Yes	0.159	3.366
424	2-25.5	2-25	8	224.098	0.013	0.01	0	Free Surf	1.346	0.075	0.012	0.05	0.057	0.906	No	0.05	1.346
425	2-17	2-16	8	239.4	0.013	0.012	0	Free Surf	1.372	0.082	0.014	0.055	0.061	0.877	No	0.055	1.372
426	1-25	1-24	8	403.751	0.005	0.012	0	Free Surf	0.954	0.102	0.022	0.068	0.06	0.53	No	0.068	0.954
427	1-38	1-35	8	156.573	0.005	0.035	0	Free Surf	1.342	0.174	0.066	0.116	0.106	0.535	Yes	0.127	1.187
428	1-9	1-8	12	175.702	0.01	0.035	0	Free Surf	1.632	0.087	0.016	0.087	0.095	2.258	No	0.087	1.632
429	9-17	9-16	12	187.189	0.001	0.655	0	Free Surf	1.515	0.794	0.97	0.794	0.423	0.675	No	0.794	1.515

43	3-44	3-43	8	417.429	0.001	0.002	0	Free Surf	0.279	0.073	0.011	0.049	0.025	0.192	Yes	0.053	0.244
430	9-13	9-12	10	92.26	0.011	0.004	0	Free Surf	0.872	0.036	0.002	0.03	0.031	1.478	Yes	0.055	0.356
431	9-11	9-10	10	383.19	0.005	0.108	0	Free Surf	1.813	0.226	0.112	0.188	0.176	0.968	Yes	0.19	1.787
432	9-14	9-12	10	566.143	0.002	0.1	0	Free Surf	1.255	0.276	0.167	0.23	0.169	0.597	No	0.23	1.255
433	11-2	11-1	8	320.701	0.011	0.57	0	Pressurized	3.88	0.62	0.707	0.414	0.445	0.807	Yes	0.667	2.529
434	11-3	11-2	8	243.446	0.014	0.569	0	Free Surf	4.293	0.569	0.619	0.379	0.445	0.92	Yes	0.667	2.523
435	11-16	11-15	8	118.914	0.008	0.001	0	Free Surf	0.596	0.031	0.002	0.021	0.019	0.718	Yes	0.032	0.306
436	11-15	11-4	8	267.409	0.003	0.004	0	Free Surf	0.568	0.066	0.009	0.044	0.033	0.417	Yes	0.225	0.054
437	11-5	11-4	8	326.41	0.02	0.563	0	Free Surf	4.89	0.508	0.514	0.339	0.442	1.096	Yes	0.373	4.339
438	11-20	11-19	8	227	0.004	0.005	0	Free Surf	0.712	0.066	0.009	0.044	0.038	0.52	No	0.044	0.712
439	11-23	11-22	8	162	0.012	0	0	Free Surf	0	0	0	0	0	0.87	Yes	0.006	0
44	3-16	3-15	12	320.186	0.001	0.755	0	Free Surf	1.825	0.76	0.926	0.76	0.456	0.816	No	0.76	1.825
440	11-4	11-3	8	312.554	0.011	0.569	0	Free Surf	3.945	0.611	0.69	0.407	0.445	0.825	No	0.407	3.945
441	11-7	11-6	8	95.514	0.12	0.549	0	Free Surf	9.429	0.305	0.202	0.203	0.436	2.717	Yes	0.247	7.232
442	11-8	11-7	8	15	0.137	0.548	0	Free Surf	9.865	0.295	0.189	0.197	0.436	2.895	Yes	0.2	9.641
443	11-26	11-9	8	131.992	0.013	0.182	0	Free Surf	3.139	0.303	0.2	0.202	0.245	0.907	Yes	0.206	3.065
444	11-9	11-8	8	16.779	0.107	0.548	0	Free Surf	9.045	0.314	0.214	0.209	0.436	2.565	No	0.209	9.045
445	11-31	11-27	8	87.794	0.011	0.008	0	Free Surf	1.179	0.07	0.01	0.046	0.05	0.836	Yes	0.09	0.445
446	11-27	11-26	8	252.875	0.067	0.179	0	Free Surf	5.549	0.201	0.088	0.134	0.243	2.03	Yes	0.168	4.018
447	11-32	11-31	8	154.837	0.019	0.002	0	Free Surf	0.974	0.034	0.002	0.023	0.027	1.09	Yes	0.035	0.528
448	11-30	11-26	8	134.97	0.074	0.001	0	Free Surf	1.235	0.018	0.001	0.012	0.019	2.132	Yes	0.107	0.048
449	11-10	11-9	8	277.933	0.036	0.367	0	Free Surf	5.463	0.338	0.246	0.225	0.354	1.489	No	0.225	5.463
45	3-35	3-34	8	303.614	0.003	0.004	0	Free Surf	0.597	0.063	0.008	0.042	0.033	0.449	Yes	0.047	0.513
450	11-29	11-28	8	222.927	0.094	0.169	0	Free Surf	6.141	0.179	0.07	0.12	0.236	2.403	No	0.12	6.141
451	11-35	11-34	8	156	0.006	0.002	0	Free Surf	0.669	0.045	0.004	0.03	0.027	0.627	No	0.03	0.669
452	11-40	11-39	8	226.266	0.04	0.001	0	Free Surf	0.986	0.02	0.001	0.014	0.018	1.562	Yes	0.014	0.903
453	11-39	11-34	8	239.927	0.088	0.002	0	Free Surf	1.578	0.023	0.001	0.015	0.025	2.317	Yes	0.019	1.106
454	11-34	11-31	8	128.214	0.086	0.005	0	Free Surf	2.074	0.035	0.002	0.023	0.04	2.294	Yes	0.035	1.146
455	11-28	11-27	8	257.783	0.101	0.17	0	Free Surf	6.304	0.177	0.068	0.118	0.237	2.487	Yes	0.126	5.742
456	11-33	11-32	8	227.118	0.079	0.001	0	Free Surf	1.332	0.019	0.001	0.013	0.02	2.205	Yes	0.018	0.802
457	11-36	11-35	8	154	0.058	0.002	0	Free Surf	1.284	0.023	0.001	0.015	0.023	1.893	Yes	0.023	0.704
458	11-41	11-40	8	109.883	0.064	0	0	Free Surf	0	0	0	0	0	1.976	Yes	0.007	0
459	11-6	11-5	8	226.254	0.032	0.55	0	Free Surf	5.837	0.435	0.392	0.29	0.437	1.402	Yes	0.314	5.253
46	3-41	3-40	10	212.174	0.012	0.302	0	Free Surf	3.395	0.3	0.196	0.25	0.299	1.541	Yes	0.278	2.94
460	9-10	9-9	10	215.062	0.005	0.113	0	Free Surf	1.845	0.23	0.116	0.192	0.18	0.973	No	0.192	1.845
461	11-1	10-29	8	424.619	0.002	0.574	0	Pressurized	2.544	1	1.511	0.667	0.36	0.38	Yes	0.667	2.544
462	10-34.5	10-34	8	385.5	0.016	0.002	0	Free Surf	0.887	0.035	0.002	0.024	0.026	0.977	Yes	0.026	0.759
463	5-23	5-22	8	158.446	0.057	0.033	0	Free Surf	3.164	0.093	0.018	0.062	0.103	1.866	Yes	0.162	0.786
464	5-22	5-21	8	300.959	0.003	0.147	0	Free Surf	1.789	0.393	0.326	0.262	0.22	0.451	No	0.262	1.789
465	5-91	5-90	8	223.588	0.009	0.003	0	Free Surf	0.788	0.045	0.004	0.03	0.03	0.741	No	0.03	0.788
466	5-90	5-89	8	337.41	0.039	0.005	0	Free Surf	1.518	0.04	0.003	0.027	0.038	1.537	Yes	0.031	1.241
467	5-27	5-26	8	368.02	0.043	0.011	0	Free Surf	2.048	0.058	0.007	0.039	0.058	1.633	Yes	0.042	1.808
468	1-4	1-3	21	177	0.002	2.247	0	Free Surf	3.131	0.47	0.449	0.822	0.679	5.002	Yes	1.305	1.807
469	1-6	1-5	18	156.98	0.006	0.044	0	Free Surf	1.4	0.065	0.008	0.097	0.095	5.268	Yes	0.101	1.312
47	3-40	3-39	10	87.581	0.006	0.307	0	Free Surf	2.626	0.366	0.286	0.305	0.301	1.073	No	0.305	2.626
470	1-18	1-4	21	142.748	0.002	2.198	0	Free Surf	3.118	0.463	0.439	0.811	0.671	5.011	Yes	0.974	2.471
474	1-19	1-18	21	74	0.002	2.196	0	Free Surf	2.7	0.518	0.531	0.907	0.671	4.135	No	0.907	2.7
475	1-20	1-19	21	220.684	0.002	2.194	0	Free Surf	2.966	0.481	0.468	0.842	0.67	4.688	Yes	0.874	2.825
476	19-12	19-11	8	288.472	0.007	0.313	0	Free Surf	2.862	0.489	0.481	0.326	0.326	0.652	No	0.326	2.862
477	19-2	19-1	8	182.565	0.038	0.33	0	Free Surf	5.417	0.315	0.215	0.21	0.335	1.533	No	0.21	5.417
478	19-3	19-2	8	165.61	0.036	0.33	0	Free Surf	5.307	0.32	0.221	0.213	0.334	1.491	No	0.213	5.307
479	19-4	19-3	8	135.94	0.022	0.328	0	Free Surf	4.43	0.363	0.282	0.242	0.333	1.163	No	0.242	4.43
48	3-39	3-38	10	204.612	0.01	0.308	0	Free Surf	3.191	0.318	0.219	0.265	0.302	1.404	Yes	0.266	3.181

480	19-5	19-4	8	112.49	0.098	0.327	0	Free Surfad	7.546	0.247	0.133	0.164	0.333	2.449	Yes	0.203	5.61
481	19-6	19-5	8	185.195	0.005	0.324	0	Free Surfad	2.627	0.537	0.564	0.358	0.332	0.575	No	0.358	2.627
482	19-7	19-6	8	168.096	0.059	0.323	0	Free Surfad	6.3	0.278	0.169	0.185	0.331	1.91	Yes	0.272	3.733
483	19-10	19-9	8	324.655	0.092	0.318	0	Free Surfad	7.339	0.247	0.134	0.165	0.328	2.38	Yes	0.169	7.092
484	19-13	19-12	8	193.994	0.01	0.312	0	Free Surfad	3.31	0.435	0.392	0.29	0.325	0.795	Yes	0.308	3.061
485	19-11	19-10	8	371.802	0.019	0.315	0	Free Surfad	4.136	0.371	0.293	0.247	0.326	1.074	No	0.247	4.136
486	19-8	19-7	8	153.565	0.065	0.321	0	Free Surfad	6.498	0.271	0.161	0.181	0.33	1.998	Yes	0.183	6.383
487	19-9	19-8	8	103.775	0.077	0.32	0	Free Surfad	6.89	0.259	0.147	0.173	0.329	2.174	Yes	0.177	6.671
488	19-21	19-20	8	203.5	0.118	0.001	0	Free Surfad	1.543	0.018	0.001	0.012	0.021	2.689	Yes	0.015	1.118
489	19-18	19-17	8	90	0.033	0.004	0	Free Surfad	1.376	0.039	0.003	0.026	0.035	1.43	Yes	0.026	1.366
49	3-18	3-17	12	36.58	0.005	0.75	0	Free Surfad	3.254	0.464	0.439	0.464	0.454	1.707	Yes	0.705	1.961
490	19-14	19-13	8	256	0.059	0.305	0	Free Surfad	6.166	0.271	0.161	0.181	0.321	1.896	Yes	0.235	4.284
491	19-22	19-16	8	129	0.019	0.284	0	Free Surfad	4.061	0.348	0.26	0.232	0.309	1.09	No	0.232	4.061
492	19-17	19-16	8	147.16	0.088	0.007	0	Free Surfad	2.256	0.039	0.003	0.026	0.045	2.327	Yes	0.119	0.243
493	19-24	19-23	8	249	0.06	0.282	0	Free Surfad	6.091	0.259	0.147	0.173	0.309	1.922	Yes	0.178	5.849
494	19-16	19-14	8	171.1	0.029	0.291	0	Free Surfad	4.743	0.317	0.217	0.211	0.313	1.339	No	0.211	4.743
495	19-19	19-18	8	159.5	0.019	0.003	0	Free Surfad	1.06	0.04	0.003	0.027	0.032	1.074	No	0.027	1.06
496	19-20	19-19	8	190	0.074	0.003	0	Free Surfad	1.582	0.026	0.001	0.017	0.028	2.126	Yes	0.022	1.108
497	6-35	6-34	8	325.682	0.126	0.001	0	Free Surfad	1.539	0.017	0	0.011	0.02	2.778	Yes	0.017	0.828
498	6-36	6-34	8	187.016	0.048	0.002	0	Free Surfad	1.197	0.024	0.001	0.016	0.023	1.718	Yes	0.019	0.894
499	6-34	6-33	8	320.35	0.078	0.005	0	Free Surfad	1.931	0.034	0.002	0.023	0.038	2.188	Yes	0.026	1.589
5	6-20	6-19	8	227	0.066	0.234	0	Free Surfad	5.959	0.23	0.116	0.153	0.279	2.013	Yes	0.164	5.435
50	3-20	3-19	12	90.015	0.002	0.439	0	Free Surfad	2.029	0.442	0.403	0.442	0.343	1.088	No	0.442	2.029
500	6-33	6-29	8	151	0.04	0.006	0	Free Surfad	1.62	0.043	0.004	0.029	0.041	1.561	Yes	0.034	1.248
501	6-31	6-30	8	298.905	0.03	0.002	0	Free Surfad	1.148	0.032	0.002	0.021	0.028	1.359	Yes	0.021	1.122
502	6-30	6-29	8	89.474	0.056	0.004	0	Free Surfad	1.595	0.033	0.002	0.022	0.033	1.851	Yes	0.031	0.948
503	6-29	6-28	8	376.394	0.035	0.01	0	Free Surfad	1.866	0.06	0.007	0.04	0.057	1.455	Yes	0.052	1.272
504	5-16	5-15	8	23.287	0.082	0.181	0	Free Surfad	5.973	0.192	0.081	0.128	0.245	2.243	No	0.128	5.973
505	5-14	5-13	8	171.242	0.01	0.183	0	Free Surfad	2.838	0.329	0.234	0.219	0.246	0.785	No	0.219	2.838
506	3-27	3-26	12	206.156	0.033	0.341	0	Free Surfad	4.996	0.192	0.081	0.192	0.301	4.224	No	0.192	4.996
508	3-26	3-25	12	66.579	0.07	0.341	0	Free Surfad	6.466	0.161	0.056	0.161	0.302	6.088	No	0.161	6.466
509	3-25	3-24	12	288.678	0.103	0.345	0	Free Surfad	7.455	0.147	0.046	0.147	0.303	7.422	No	0.147	7.455
51	3-19	3-18	12	24.935	0.008	0.439	0	Free Surfad	3.235	0.313	0.213	0.313	0.344	2.068	Yes	0.529	1.614
510	19-50	19-49	8	230.928	0.035	0.244	0	Free Surfad	4.794	0.277	0.167	0.184	0.286	1.458	No	0.184	4.794
512	19-51	19-50	8	277.391	0.144	0.243	0	Free Surfad	7.941	0.193	0.082	0.129	0.285	2.974	Yes	0.157	6.008
513	19-44	19-43	8	292.358	0.099	0.002	0	Free Surfad	1.524	0.02	0.001	0.013	0.022	2.466	Yes	0.017	1.064
514	19-49	19-48	8	219.684	0.036	0.245	0	Free Surfad	4.889	0.274	0.164	0.183	0.287	1.494	No	0.183	4.889
515	19-54	19-53	8	370.191	0.097	0.002	0	Free Surfad	1.647	0.022	0.001	0.015	0.026	2.442	Yes	0.04	0.379
516	19-48	19-47	8	151.85	0.112	0.256	0	Free Surfad	7.379	0.211	0.098	0.141	0.293	2.62	Yes	0.146	7.033
517	19-41	19-30	8	220.717	0.063	0.265	0	Free Surfad	6.091	0.248	0.134	0.165	0.298	1.972	No	0.165	6.091
518	19-47	19-45	8	104.396	0.086	0.257	0	Free Surfad	6.733	0.226	0.112	0.151	0.294	2.299	Yes	0.153	6.566
519	19-43	19-42	8	190.196	0.053	0.003	0	Free Surfad	1.477	0.03	0.002	0.02	0.03	1.796	Yes	0.028	0.925
52	3-38	3-37	10	308.985	0.01	0.309	0	Free Surfad	3.188	0.32	0.221	0.266	0.302	1.399	Yes	0.455	1.573
520	19-33	19-32	8	160	0.181	0.001	0	Free Surfad	1.775	0.016	0	0.01	0.02	3.334	Yes	0.014	1.141
521	19-42	19-41	8	230.008	0.009	0.004	0	Free Surfad	0.863	0.053	0.005	0.035	0.035	0.73	Yes	0.1	0.186
522	19-29	19-34	8	178.123	0.062	0.278	0	Free Surfad	6.116	0.255	0.143	0.17	0.306	1.946	No	0.17	6.116
523	19-27	19-26	8	260	0.127	0.001	0	Free Surfad	1.505	0.016	0	0.011	0.019	2.79	Yes	0.013	1.088
524	19-34	19-28	8	12.922	0.077	0.279	0	Free Surfad	6.633	0.242	0.128	0.161	0.306	2.178	Yes	0.191	5.232
525	19-46	19-45	8	17.045	0.117	0.002	0	Free Surfad	1.716	0.021	0.001	0.014	0.025	2.682	Yes	0.085	0.117
526	19-45	19-41	8	170.519	0.076	0.26	0	Free Surfad	6.463	0.234	0.12	0.156	0.295	2.162	Yes	0.161	6.206
527	19-56	19-55	8	242.447	0.194	0.003	0	Free Surfad	2.296	0.022	0.001	0.015	0.03	3.448	Yes	0.02	1.415
528	19-55	19-53	8	55.992	0.036	0.004	0	Free Surfad	1.432	0.039	0.003	0.026	0.036	1.48	Yes	0.046	0.62
529	19-36	19-35	8	136.913	0.073	0.007	0	Free Surfad	2.157	0.042	0.003	0.028	0.047	2.116	Yes	0.029	2.035

53	3-22	3-21	12	327.527	0.001	0.438	0	Free Surf	1.622	0.525	0.543	0.525	0.343	0.807	No	0.525	1.622
530	19-35	19-30	8	140.009	0.071	0.008	0	Free Surf	2.243	0.046	0.004	0.03	0.051	2.093	Yes	0.092	0.439
531	19-38	19-37	8	279.405	0.222	0.003	0	Free Surf	2.513	0.023	0.001	0.015	0.032	3.689	Yes	0.02	1.643
532	19-40	19-39	8	225	0.071	0.001	0	Free Surf	0.976	0.013	0	0.009	0.013	2.088	Yes	0.009	0.967
533	19-39	19-38	8	120	0.2	0.001	0	Free Surf	1.651	0.013	0	0.009	0.017	3.502	Yes	0.012	1.028
534	19-56.5	19-56.25	4	90	0.144	0.001	0	Free Surf	1.474	0.028	0.001	0.009	0.017	0.469	Yes	0.011	1.108
535	19-56.25	19-56	4	42.041	0.119	0.001	0	Free Surf	1.685	0.04	0.003	0.013	0.024	0.425	Yes	0.014	1.574
536	19-37	19-36	8	170.009	0.065	0.005	0	Free Surf	1.892	0.038	0.003	0.025	0.041	1.992	Yes	0.027	1.743
537	19-30	19-29	8	22.011	0.091	0.274	0	Free Surf	6.985	0.23	0.116	0.153	0.304	2.36	Yes	0.162	6.475
538	19-28	19-24	8	43.792	0.023	0.279	0	Free Surf	4.29	0.331	0.236	0.22	0.307	1.183	No	0.22	4.29
539	19-32	19-31	8	210.009	0.057	0.002	0	Free Surf	1.408	0.027	0.001	0.018	0.027	1.872	Yes	0.028	0.716
54	3-21	3-20	12	308.945	0.001	0.439	0	Free Surf	1.659	0.516	0.528	0.516	0.343	0.831	No	0.516	1.659
540	19-26	19-25	8	165	0.067	0.002	0	Free Surf	1.416	0.024	0.001	0.016	0.025	2.022	Yes	0.018	1.138
541	19-25	19-24	8	184	0.038	0.003	0	Free Surf	1.281	0.031	0.002	0.021	0.029	1.527	Yes	0.097	0.133
542	19-31	19-29	8	214	0.005	0.003	0	Free Surf	0.664	0.057	0.006	0.038	0.032	0.535	Yes	0.104	0.151
543	19-53	19-48	8	381.101	0.003	0.008	0	Free Surf	0.705	0.098	0.02	0.065	0.05	0.401	Yes	0.103	0.363
544	19-52	19-48	8	218.639	0.146	0.002	0	Free Surf	1.765	0.018	0.001	0.012	0.023	2.996	Yes	0.077	0.116
545	8-14	8-5	8	417.073	0.072	0.002	0	Free Surf	1.391	0.022	0.001	0.015	0.023	2.1	Yes	0.038	0.337
546	8-6	8-5	8	191.573	0.084	0.036	0	Free Surf	3.726	0.088	0.016	0.059	0.108	2.267	Yes	0.06	3.628
547	8-15	8-14	8	231.604	0.121	0.001	0	Free Surf	1.242	0.012	0	0.008	0.014	2.723	Yes	0.011	0.768
548	19-15	19-14	8	276	0.036	0.012	0	Free Surf	2.005	0.065	0.008	0.043	0.062	1.491	Yes	0.112	0.495
549	11-14	11-13	8	275.18	0.058	0.001	0	Free Surf	1.145	0.019	0.001	0.013	0.019	1.888	Yes	0.016	0.817
55	3-24	3-23	12	295.756	0.058	0.437	0	Free Surf	6.519	0.19	0.079	0.19	0.343	5.552	Yes	0.252	4.352
550	11-11	11-10	8	327.786	0.034	0.365	0	Free Surf	5.335	0.343	0.253	0.229	0.353	1.443	No	0.229	5.335
551	11-12	11-11	8	77.501	0.11	0.364	0	Free Surf	8.111	0.253	0.141	0.169	0.353	2.592	No	0.169	8.111
552	11-13	11-12	8	254.244	0.063	0.003	0	Free Surf	1.56	0.029	0.001	0.019	0.03	1.964	Yes	0.094	0.149
553	11-38	11-37	8	104	0.077	0.001	0	Free Surf	1.026	0.013	0	0.009	0.013	2.172	Yes	0.01	0.851
554	11-37	11-36	8	79	0.089	0.001	0	Free Surf	1.287	0.017	0	0.011	0.018	2.331	Yes	0.013	1.001
555	7-22.5	7-22	8	89.478	0.112	0.001	0	Free Surf	1.131	0.011	0	0.008	0.013	2.618	Yes	0.01	0.75
557	7-41	7-40	8	28.983	0.069	0.001	0	Free Surf	1.166	0.017	0	0.012	0.018	2.057	Yes	0.013	0.999
558	4-46	4-45	8	308.166	0.055	0.002	0	Free Surf	1.306	0.024	0.001	0.016	0.024	1.839	Yes	0.018	1.115
559	2-29	2-8	8	217.175	0.001	0.022	0	Free Surf	0.719	0.191	0.08	0.127	0.082	0.271	Yes	0.204	0.37
560	6-32	6-31	8	164.433	0.079	0.001	0	Free Surf	1.295	0.018	0.001	0.012	0.019	2.202	Yes	0.017	0.813
561	6-42	6-41	8	12.687	0.079	0.001	0	Free Surf	1.318	0.019	0.001	0.013	0.02	2.199	Yes	0.018	0.771
563	LYLE1	19-13	8	102	0.01	0.003	0	Free Surf	0.862	0.048	0.004	0.032	0.033	0.775	Yes	0.161	0.082
564	3-31	3-29	8	752.053	0.002	0.009	0	Free Surf	0.675	0.108	0.025	0.072	0.053	0.361	No	0.072	0.675
565	3-29	3-9	8	407.429	0.015	0.015	0	Free Surf	1.575	0.088	0.016	0.059	0.069	0.961	Yes	0.317	0.144
566	3-10	3-9	12	355.253	0.005	0.777	0	Free Surf	3.218	0.481	0.467	0.481	0.462	1.662	Yes	0.528	2.855
567	3-11	3-10	12	310.811	0.006	0.771	0	Free Surf	3.376	0.461	0.434	0.461	0.46	1.776	Yes	0.471	3.282
568	3-9	3-8	12	406.69	0.003	0.797	0	Free Surf	2.634	0.576	0.63	0.576	0.468	1.265	No	0.576	2.634
569	3-8	3-7	12	423.175	0.003	0.803	0	Free Surf	2.732	0.562	0.607	0.562	0.47	1.323	No	0.562	2.732
57	3-23	SELAHHIGH1	12	204.924	0.008	0.437	0	Free Surf	3.2	0.314	0.214	0.314	0.343	2.04	Yes	0.381	2.46
570	3-7	3-6	12	362.208	0.004	0.816	0	Free Surf	2.811	0.556	0.597	0.556	0.474	1.367	Yes	0.566	2.754
58	3-42	3-41	10	289.346	0.021	0.301	0	Free Surf	4.149	0.259	0.147	0.216	0.298	2.045	Yes	0.233	3.73
581	HERITAGE12	HERITAGE2	8	103.412	0.203	0.007	0	Free Surf	3.129	0.034	0.002	0.023	0.048	3.529	Yes	0.029	2.232
584	HERITAGE10	HERITAGE9	8	81.675	0.073	0.002	0	Free Surf	1.565	0.026	0.001	0.017	0.028	2.122	Yes	0.022	1.118
589	NACHES7	NACHES5	8	125	0.032	0.002	0	Free Surf	1.101	0.028	0.001	0.019	0.025	1.401	Yes	0.023	0.814
59	3-43	3-40	8	182.19	0.001	0.005	0	Free Surf	0.472	0.087	0.016	0.058	0.037	0.29	Yes	0.182	0.091
593	177TH4	177TH2	8	266.391	0.086	0.002	0	Free Surf	1.57	0.023	0.001	0.015	0.025	2.301	Yes	0.018	1.261
594	177TH2	NACHES5	8	280.004	0.161	0.005	0	Free Surf	2.568	0.03	0.002	0.02	0.04	3.139	Yes	0.024	2.002
595	NACHES5	177TH1	8	139.59	0.115	0.008	0	Free Surf	2.658	0.041	0.003	0.027	0.051	2.651	Yes	0.027	2.646
596	177TH1	5-27	8	139.589	0.136	0.009	0	Free Surf	2.907	0.041	0.003	0.028	0.054	2.889	Yes	0.033	2.213
598	HERITAGE20	HERITAGE19	8	175.463	0.006	0.003	0	Free Surf	0.678	0.051	0.005	0.034	0.03	0.591	No	0.034	0.678

6	1-5	1-4	18	542.969	0.005	0.047	0	Free Surf	1.324	0.071	0.01	0.106	0.099	4.711	Yes	0.622	0.105
60	3-17	3-16	12	347.677	0.001	0.751	0	Free Surf	1.757	0.785	0.959	0.785	0.454	0.783	No	0.785	1.757
601	HERITAGE19	HERITAGE18	8	256	0.047	0.004	0	Free Surf	1.511	0.034	0.002	0.023	0.034	1.695	No	0.023	1.511
602	HERITAGE18	HERITAGE17	8	275.789	0.16	0.005	0	Free Surf	2.504	0.029	0.002	0.019	0.038	3.128	Yes	0.021	2.256
605	HERITAGE16	HERITAGE15	8	80.088	0.006	0.006	0	Free Surf	0.86	0.068	0.009	0.045	0.042	0.619	Yes	0.046	0.84
606	HERITAGE8	HERITAGE7	8	145.515	0.124	0.005	0	Free Surf	2.362	0.032	0.002	0.022	0.04	2.754	No	0.022	2.362
607	HERITAGE7	HERITAGE6	8	120	0.183	0.006	0	Free Surf	2.839	0.032	0.002	0.021	0.044	3.353	No	0.021	2.839
608	HERITAGE6	HERITAGE5	8	39.542	0.253	0.007	0	Free Surf	3.257	0.031	0.002	0.02	0.045	3.938	Yes	0.023	2.729
609	HERITAGE4	HERITAGE3	8	148.819	0.067	0.009	0	Free Surf	2.234	0.047	0.004	0.032	0.052	2.03	No	0.032	2.234
61	3-12	3-11	12	305.515	0.005	0.767	0	Free Surf	3.161	0.483	0.471	0.483	0.459	1.629	No	0.483	3.161
610	HERITAGE3	HERITAGE2	8	30	0.267	0.009	0	Free Surf	3.668	0.035	0.002	0.024	0.054	4.044	Yes	0.029	2.698
612	BRAEBURN1	4-54	8	249.323	0.028	0.009	0	Free Surf	1.648	0.058	0.007	0.039	0.052	1.312	No	0.039	1.648
62	3-13	3-12	12	233.049	0.005	0.765	0	Free Surf	3.189	0.478	0.464	0.478	0.459	1.65	Yes	0.481	3.17
620	HERITAGE1	8-7	8	146.092	0.113	0.018	0	Free Surf	3.34	0.059	0.007	0.039	0.075	2.631	Yes	0.048	2.531
621	8-7	8-6	8	349.719	0.084	0.032	0	Free Surf	3.604	0.084	0.014	0.056	0.101	2.273	Yes	0.057	3.456
624	CRUSHERCANYON12	CRUSHERCANYON11	12	230	0.03	0.189	0	Free Surf	4.058	0.147	0.047	0.147	0.223	4.028	Yes	0.156	3.736
625	CRUSHERCANYON11	CRUSHERCANYON10	12	308	0.019	0.19	0	Free Surf	3.474	0.165	0.059	0.165	0.223	3.222	No	0.165	3.474
626	CRUSHERCANYON10	CRUSHERCANYON9	12	140	0.107	0.191	0	Free Surf	6.326	0.11	0.025	0.11	0.224	7.557	Yes	0.115	5.877
627	CRUSHERCANYON9	CRUSHERCANYON8	12	307.093	0.072	0.192	0	Free Surf	5.502	0.121	0.031	0.121	0.224	6.18	Yes	0.184	2.991
629	7-17	CRUSHERCANYON7	12	197	0.005	0.199	0	Free Surf	2.19	0.235	0.121	0.235	0.228	1.645	No	0.235	2.19
63	3-33	3-32	8	242	0.002	0.002	0	Free Surf	0.405	0.05	0.005	0.033	0.023	0.356	Yes	0.034	0.387
630	CRUSHERCANYON7	CRUSHERCANYON6	12	138	0.174	0.2	0	Free Surf	7.592	0.1	0.021	0.1	0.229	9.628	Yes	0.125	5.463
631	CRUSHERCANYON6	CRUSHERCANYON5	12	148	0.034	0.206	0	Free Surf	4.318	0.15	0.049	0.15	0.233	4.244	No	0.15	4.318
632	7-16	CRUSHERCANYON6	8	42	0.066	0.005	0	Free Surf	1.921	0.038	0.003	0.025	0.041	2.015	Yes	0.088	0.309
633	7-15	CRUSHERCANYON5	8	20	0.005	0.002	0	Free Surf	0.568	0.043	0.003	0.028	0.024	0.554	Yes	0.092	0.101
634	CRUSHERCANYON5	CRUSHERCANYON4	12	363.02	0.044	0.209	0	Free Surf	4.76	0.142	0.043	0.142	0.234	4.847	Yes	0.148	4.476
636	CRUSHERCANYON4	CRUSHERCANYON3	12	189.059	0.034	0.216	0	Free Surf	4.374	0.154	0.051	0.154	0.239	4.231	No	0.154	4.374
637	CRUSHERCANYON3	CRUSHERCANYON2	12	226.009	0.04	0.217	0	Free Surf	4.655	0.148	0.047	0.148	0.239	4.618	Yes	0.156	4.304
638	7-13	CRUSHERCANYON2	8	43.247	0.31	0.003	0	Free Surf	2.633	0.019	0.001	0.013	0.029	4.357	Yes	0.088	0.149
639	CRUSHERCANYON2	CRUSHERCANYON1	12	247	0.027	0.221	0	Free Surf	4.062	0.164	0.058	0.164	0.241	3.777	No	0.164	4.062
64	3-32	3-30	8	55.291	0.005	0.003	0	Free Surf	0.681	0.053	0.005	0.035	0.031	0.577	Yes	0.05	0.411
640	CRUSHERCANYON1	7-12	12	76	0.089	0.222	0	Free Surf	6.193	0.123	0.032	0.123	0.241	6.881	Yes	0.143	4.994
641	7-12	7-11	12	315	0.044	0.277	0	Free Surf	5.175	0.162	0.057	0.162	0.271	4.846	Yes	0.169	4.879
642	8-1	7-12	8	52.597	0.062	0.054	0	Free Surf	3.776	0.114	0.028	0.076	0.131	1.953	Yes	0.119	1.971
643	7-11.5	7-11	8	75.222	0.002	0.002	0	Free Surf	0.376	0.051	0.005	0.034	0.023	0.326	Yes	0.111	0.067
644	6-46.25	6-46	8	267.714	0.022	0.005	0	Free Surf	1.317	0.049	0.005	0.033	0.041	1.172	Yes	0.034	1.24
645	6-46.5	6-46.25	8	282.588	0.011	0.003	0	Free Surf	0.85	0.044	0.004	0.03	0.03	0.807	Yes	0.031	0.788
646	6-53.25	6-46.5	8	301.192	0.04	0.002	0	Free Surf	1.152	0.026	0.001	0.017	0.024	1.563	Yes	0.023	0.726
647	6-53.5	6-53.25	8	205	0.034	0.001	0	Free Surf	0.955	0.022	0.001	0.015	0.019	1.447	Yes	0.016	0.839
648	6-53.75	6-53.5	8	168.343	0.048	0.001	0	Free Surf	0.875	0.015	0	0.01	0.014	1.707	Yes	0.012	0.64
649	6-46	6-45	8	40.016	0.022	0.006	0	Free Surf	1.365	0.053	0.005	0.035	0.044	1.155	Yes	0.035	1.36
65	3-30	3-31	8	554.672	0.001	0.005	0	Free Surf	0.446	0.096	0.019	0.064	0.039	0.258	Yes	0.068	0.407
650	5-37	5-35	8	149.93	0.023	0.008	0	Free Surf	1.496	0.058	0.007	0.039	0.05	1.186	Yes	0.127	0.264
66	IND-11	IND-10	12	324.967	0.002	0.006	0	Pressurized	0.507	0.058	0.007	0.058	0.039	0.906	Yes	1	0.012
662	4-34	4-19	8	182.832	0.122	0.006	0	Free Surf	2.454	0.035	0.002	0.023	0.043	2.738	Yes	0.046	0.895
663	4-19	4-18	8	104.072	0.091	0.052	0	Free Surf	4.255	0.102	0.022	0.068	0.128	2.362	No	0.068	4.255
664	4-18	4-17	8	147.597	0.126	0.056	0	Free Surf	4.904	0.098	0.02	0.066	0.134	2.785	No	0.066	4.904
665	4-17	4-16	8	237.965	0.231	0.06	0	Free Surf	6.183	0.088	0.016	0.059	0.139	3.765	Yes	0.667	0.268
666	4-16	4-15	8	118.574	0.253	0.066	0	Free Surf	6.539	0.09	0.017	0.06	0.145	3.937	Yes	0.667	0.291
668	PUBLICWORKS3	PUBLICWORKS2	8	285.696	0.001	0.002	0	Pressurized	0.264	0.074	0.011	0.05	0.025	0.179	Yes	0.667	0.009
669	PUBLICWORKS2	PUBLICWORKS1	8	190.54	0.001	0.003	0	Pressurized	0.344	0.082	0.014	0.054	0.03	0.22	Yes	0.667	0.013
67	IND-10	IND-9	12	426.261	0.002	0.01	0	Free Surf	0.678	0.066	0.009	0.066	0.05	1.118	Yes	0.069	0.636
670	9-12	9-11	10	9.522	0.152	0.107	0	Free Surf	6.152	0.096	0.019	0.08	0.175	5.541	Yes	0.134	2.903

671	10-32	10-31	8	45.103	0.022	0.01	0	Free Surf	1.563	0.064	0.008	0.043	0.055	1.166	Yes	0.046	1.411
672	10-15	10-14	8	12.248	0.011	0.028	0	Free Surf	1.72	0.126	0.034	0.084	0.094	0.837	Yes	0.233	0.403
673	19-38.5	19-38	8	90.037	0.111	0.001	0	Free Surf	1.458	0.017	0	0.011	0.019	2.61	Yes	0.013	1.146
674	19-23	19-22	8	10.34	0.048	0.283	0	Free Surf	5.636	0.274	0.164	0.183	0.309	1.722	Yes	0.207	4.73
675	4-23	4-22	8	3.259	0.43	0.03	0	Free Surf	6.234	0.055	0.006	0.037	0.098	5.133	Yes	0.07	2.441
676	3-37	3-18	10	39.944	0.013	0.31	0	Free Surf	3.494	0.299	0.195	0.25	0.303	1.589	Yes	0.833	0.879
677	19-46.5	19-46	8	152.886	0.026	0.002	0	Free Surf	0.974	0.027	0.001	0.018	0.023	1.267	No	0.018	0.974
68	3-6	3-5	12	251.654	0.003	0.819	0	Free Surf	2.71	0.575	0.629	0.575	0.475	1.302	No	0.575	2.71
680	23-1	GRAHAMPACKAGINGLS	6	71.216	0.014	0.001	0	Free Surf	0.699	0.036	0.002	0.018	0.019	0.431	Yes	0.099	0.056
683	9-1	5010	15	70.74	0.004	0.911	0	Free Surf	2.894	0.419	0.366	0.523	0.469	2.489	No	0.523	2.894
684	7-8	7-7	8	144.626	0.152	0.001	0	Free Surf	1.396	0.012	0	0.008	0.015	3.054	Yes	0.011	0.884
685	7-36	7-14	8	282.616	0.142	0.006	0	Free Surf	2.536	0.032	0.002	0.022	0.042	2.952	Yes	0.026	1.907
686	4-20	4-19	8	280.568	0.009	0.045	0	Free Surf	1.826	0.165	0.059	0.11	0.119	0.751	No	0.11	1.826
687	2-26	2-25.5	8	467.116	0.019	0.007	0	Free Surf	1.377	0.059	0.007	0.039	0.048	1.087	Yes	0.045	1.135
69	3-5	3-4	12	246.885	0.004	0.821	0	Free Surf	3.031	0.526	0.545	0.526	0.476	1.506	No	0.526	3.031
7	4-54	4-28	8	134.133	0.142	0.016	0	Free Surf	3.491	0.053	0.005	0.035	0.071	2.947	Yes	0.041	2.795
70	IND-8	IND-7	15	310.105	0.003	0.012	0	Free Surf	0.777	0.051	0.005	0.063	0.052	2.377	Yes	0.065	0.756
71	3-2	3-1	15	191.939	0.004	0.828	0	Free Surf	2.839	0.395	0.33	0.494	0.447	2.51	Yes	0.645	2.005
72	3-3	3-2	15	116.314	0.002	0.826	0	Free Surf	2.349	0.456	0.426	0.57	0.446	1.941	No	0.57	2.349
73	3-1	2-3	15	423.823	0.001	0.832	0	Free Surf	1.56	0.637	0.734	0.796	0.448	1.132	No	0.796	1.56
74	3-4	3-3	15	211.178	0.004	0.824	0	Free Surf	2.889	0.389	0.32	0.486	0.446	2.577	Yes	0.528	2.588
75	IND-9	IND-8	12	463.726	0.002	0.011	0	Free Surf	0.686	0.072	0.01	0.072	0.053	1.072	No	0.072	0.686
76	IND-12	IND-11	12	339.216	0.001	0.004	0	Pressurized	0.424	0.046	0.004	0.046	0.03	0.886	Yes	1	0.007
77	2-30	2-29	8	85.161	0.006	0.02	0	Free Surf	1.222	0.124	0.033	0.083	0.079	0.6	Yes	0.105	0.864
78	2-8	2-7	8	358.85	0.004	0.179	0	Free Surf	1.982	0.421	0.369	0.28	0.243	0.484	Yes	0.297	1.84
79	2-32	2-31	8	19.172	0.052	0.008	0	Free Surf	2.015	0.049	0.005	0.033	0.051	1.788	Yes	0.038	1.607
8	4-25	4-24	8	126.587	0.032	0.027	0	Free Surf	2.414	0.096	0.019	0.064	0.092	1.392	No	0.064	2.414
80	2-33	2-32	8	175.701	0.006	0.008	0	Free Surf	0.907	0.079	0.013	0.053	0.049	0.591	No	0.053	0.907
81	2-10	2-9	8	82.063	0.003	0.143	0	Free Surf	1.614	0.416	0.362	0.277	0.217	0.396	No	0.277	1.614
82	2-31	2-9	8	147.035	0.019	0.009	0	Free Surf	1.466	0.065	0.008	0.044	0.054	1.083	Yes	0.145	0.253
822	7-11	5-1	15	625	0.025	0.28	0	Free Surf	4.13	0.141	0.042	0.176	0.256	6.599	Yes	0.266	2.276
824	221	7-10	8	155	0.025	0	0	Free Surf	0	0	0	0	0	1.25	Yes	0.011	0
826	225	1-16	8	306.551	0.014	0	0	Free Surf	0	0	0	0	0	0.919	Yes	0.014	0
828	1-17	223	15	1,050.00	0.016	0.902	0	Free Surf	4.989	0.279	0.17	0.349	0.467	5.309	Yes	0.426	3.784
83	2-34	2-33	8	305.012	0.01	0.006	0	Free Surf	1.012	0.062	0.007	0.041	0.043	0.777	Yes	0.047	0.829
830	2-5	223	12	185	0.005	0.221	0	Free Surf	2.223	0.25	0.137	0.25	0.241	1.61	Yes	0.376	1.263
832	227	2-4	8	477	0.007	0	0	Free Surf	0	0	0	0	0	0.656	Yes	0.023	0
834	223	2-1	15	780	0.006	1.123	0	Free Surf	3.761	0.402	0.34	0.503	0.523	3.298	Yes	0.614	2.898
84	2-11	2-10	8	460.241	0.016	0.142	0	Free Surf	3.088	0.257	0.145	0.171	0.215	0.979	Yes	0.224	2.123
85	2-23	2-22	8	20.166	0.05	0.004	0	Free Surf	1.636	0.037	0.003	0.025	0.037	1.744	Yes	0.025	1.633
86	2-22	2-6	8	119.888	0.064	0.005	0	Free Surf	1.868	0.037	0.003	0.025	0.04	1.988	Yes	0.165	0.117
87	2-6	2-5	8	377.669	0.004	0.203	0	Free Surf	2.012	0.458	0.43	0.305	0.26	0.472	No	0.305	2.012
88	2-24	2-23	8	435.773	0.014	0.003	0	Free Surf	0.9	0.04	0.003	0.026	0.029	0.919	No	0.026	0.9
89	2-16	2-5	8	298.56	0.044	0.015	0	Free Surf	2.255	0.067	0.009	0.045	0.068	1.64	Yes	0.147	0.395
9	6-47	6-45	8	278.327	0.097	0.006	0	Free Surf	2.235	0.036	0.002	0.024	0.042	2.433	Yes	0.03	1.622
90	2-25	2-7	8	217.039	0.031	0.012	0	Free Surf	1.88	0.067	0.009	0.045	0.062	1.369	Yes	0.179	0.25
91	2-9	2-8	8	321.95	0.005	0.154	0	Free Surf	2.022	0.37	0.292	0.247	0.225	0.526	Yes	0.264	1.851
92	2-7	2-6	8	357.453	0.003	0.195	0	Free Surf	1.873	0.47	0.449	0.313	0.254	0.434	No	0.313	1.873
94	2-4	2-3	10	440.535	0.003	0.005	0	Free Surf	0.632	0.055	0.006	0.045	0.036	0.82	Yes	0.303	0.041
95	IND-4	IND-3	15	229.741	0.004	0.015	0	Free Surf	0.923	0.052	0.005	0.066	0.058	2.762	No	0.066	0.923
96	IND-5	IND-4	15	172.808	0.006	0.014	0	Free Surf	1.001	0.048	0.004	0.06	0.056	3.184	Yes	0.063	0.931
97	IND-6	IND-5	15	260.643	0.003	0.013	0	Free Surf	0.824	0.053	0.005	0.066	0.055	2.46	No	0.066	0.824
98	IND-3	IND-2	15	348.242	0.006	0.016	0	Free Surf	1.042	0.051	0.005	0.064	0.06	3.172	Yes	0.725	0.033

Future Buildout Peak Forcemain Report

ID	From ID	To ID	Diameter (in)	Length (ft)	Total Flow (mgd)	Peakable Flow (mgd)	Velocity (ft/s)	Headloss (ft)
1537	209	213	6	50	2.758	0.911	13.049	4.804
678	16	9-14	6	1,098.82	0.371	0.098	2.269	4.137
679	18	2-2	6	689.732	0.524	0.144	3.625	6.181
1565	221	3-42	6	25.00	0.515	0.141	4.082	0.279

Future Buildout Peak Loading Manhole Report

Number	ID	Rim Elevation (ft)	Base Flow (mgd)	Total Flow (mgd)	Grade (ft)	Status	Hydraulic Jump	Surcharge Depth (ft)	Unfilled Depth (ft)
1	1-1	1,094.600	0.001	0.006	1,089.956	Not Full	No	0.006	4.644
2	1-2	1,094.500	0.001	0.008	1,090.815	Not Full	No	0.765	3.685
3	1-3	1,094.300	0.002	0.011	1,090.971	Not Full	No	0.711	3.329
4	1-4	1,094.230	0.002	0.011	1,091.624	Not Full	Yes	0.844	2.606
5	1-5	1,095.070	0.003	0.017	1,092.307	Not Full	Yes	-0.823	2.763
6	1-6	1,100.770	0.007	0.032	1,093.205	Not Full	No	-0.865	7.565
7	1-7	1,102.610	0.001	0.003	1,095.796	Not Full	Yes	0.586	6.814
8	1-8	1,102.610	0.002	0.009	1,096.135	Not Full	No	0.225	6.475
9	1-9	1,104.890	0.000	0.002	1,097.304	Not Full	No	-0.286	7.586
10	1-10	1,104.310	0.000	0.002	1,097.989	Not Full	No	0.279	6.321
11	1-11	1,106.370	0.001	0.005	1,100.161	Not Full	No	1.441	6.209
12	1-12	1,109.040	0.001	0.004	1,102.200	Not Full	No	2.440	6.840
13	1-13	1,112.720	0.002	0.012	1,109.158	Not Full	No	7.638	3.562
14	1-14	1,116.760	0.004	0.019	1,113.858	Not Full	No	10.064	2.902
15	1-15	1,115.180	0.002	0.011	1,115.180	Full	Yes	10.167	0.000
16	1-16	1,120.170	0.003	0.016	1,120.170	Full	No	10.833	0.000
17	1-17	1,123.790	0.002	0.012	1,123.790	Full	No	10.233	0.000
18	1-18	1,095.070	0.002	0.009	1,095.070	Full	No	4.700	0.000
19	1-19	1,096.390	0.002	0.010	1,096.390	Full	No	5.900	0.000
20	1-20	1,099.250	0.001	0.007	1,099.250	Full	No	8.300	0.000
21	1-21	1,099.180	0.002	0.010	1,099.180	Full	No	8.200	0.000
22	1-22	1,099.550	0.002	0.013	1,099.550	Full	No	8.000	0.000
23	1-23	1,105.260	0.004	0.019	1,101.204	Not Full	No	5.178	4.056
24	1-24	1,109.160	0.004	0.019	1,103.086	Not Full	No	2.960	6.074
25	1-25	1,115.510	0.002	0.011	1,104.719	Not Full	No	2.742	10.791
26	1-26	1,115.000	0.001	0.006	1,104.843	Not Full	No	2.826	10.157
27	1-27	1,117.020	0.001	0.008	1,105.455	Not Full	Yes	3.168	11.565
28	1-28	1,112.960	0.002	0.013	1,107.000	Not Full	No	3.173	5.960
29	1-29	1,109.000	0.002	0.013	1,107.000	Not Full	No	2.454	2.000
30	1-30	1,118.000	0.001	0.008	1,112.023	Not Full	No	-0.643	5.977
31	1-31	1,102.890	0.003	0.017	1,102.783	Not Full	No	10.727	0.107
32	1-32	1,105.620	0.003	0.017	1,105.620	Full	No	12.233	0.000
33	1-33	1,108.720	0.003	0.014	1,108.720	Full	No	14.033	0.000
34	1-34	1,105.630	0.002	0.012	1,105.630	Full	No	9.833	0.000
35	1-35	1,103.370	0.001	0.005	1,103.370	Full	No	6.933	0.000
36	1-36	1,102.000	0.001	0.004	1,102.000	Full	No	5.333	0.000
37	1-37	1,103.000	0.002	0.011	1,102.000	Not Full	No	4.334	1.000
38	1-38	1,105.930	0.001	0.006	1,105.031	Not Full	No	7.864	0.899
39	1-39	1,105.930	0.001	0.004	1,105.556	Not Full	No	8.359	0.374
40	1-40	1,105.000	0.002	0.010	1,105.000	Full	No	5.333	0.000
41	1-41	1,111.240	0.001	0.007	1,108.023	Not Full	No	7.816	3.217
42	1-42	1,111.000	0.000	0.002	1,105.561	Not Full	No	8.144	5.439
43	1-43	1,111.000	0.000	0.003	1,105.562	Not Full	Yes	7.896	5.438
44	1-44	1,104.000	0.002	0.009	1,104.000	Full	No	5.333	0.000
45	1-45	1,107.000	0.002	0.013	1,104.006	Not Full	No	2.340	2.994
46	1-46	1,109.000	0.004	0.019	1,104.009	Not Full	No	0.342	4.991
47	1-47	1,112.860	0.003	0.016	1,109.867	Not Full	Yes	7.657	2.993
48	1-48	1,112.930	0.002	0.011	1,112.930	Full	No	4.433	0.000
49	1-49	1,111.000	0.001	0.006	1,105.562	Not Full	No	-0.104	5.438
50	2-1	1,099.960	0.001	0.008	1,099.960	Full	No	7.800	0.000
51	2-2	1,098.060	0.013	0.061	1,098.060	Full	No	5.600	0.000
52	2-3	1,097.480	0.003	0.014	1,097.480	Full	No	4.150	0.000

53	2-4	1,104.950	0.005	0.024	1,098.832	Not Full	No	4.449	6.118
54	2-5	1,109.600	0.003	0.018	1,103.462	Not Full	Yes	5.896	6.138
55	2-6	1,109.870	0.003	0.015	1,106.609	Not Full	Yes	7.672	3.261
56	2-7	1,109.170	0.004	0.022	1,109.170	Full	Yes	9.133	0.000
57	2-8	1,108.640	0.003	0.018	1,108.640	Full	No	7.233	0.000
58	2-9	1,112.360	0.001	0.007	1,110.268	Not Full	Yes	7.412	2.092
59	2-10	1,113.300	0.002	0.010	1,110.634	Not Full	Yes	7.568	2.666
60	2-11	1,118.810	0.003	0.015	1,112.642	Not Full	No	2.386	6.168
61	2-12	1,124.680	0.001	0.006	1,115.568	Not Full	No	-0.379	9.112
62	2-13	1,126.120	0.003	0.014	1,117.442	Not Full	No	-0.245	8.678
63	2-14	1,124.110	0.003	0.016	1,117.962	Not Full	Yes	-0.448	6.148
64	2-15	1,124.040	0.002	0.011	1,119.997	Not Full	No	-0.510	4.043
65	2-16	1,116.000	0.003	0.014	1,110.092	Not Full	No	-0.575	5.908
66	2-17	1,119.000	0.001	0.009	1,113.114	Not Full	No	-0.552	5.886
67	2-18	1,122.000	0.002	0.012	1,116.085	Not Full	No	-0.581	5.915
68	2-19	1,127.000	0.002	0.013	1,121.060	Not Full	No	-0.607	5.940
69	2-20	1,124.000	0.003	0.016	1,118.101	Not Full	Yes	-0.565	5.899
70	2-21	1,129.000	0.003	0.016	1,123.067	Not Full	No	-0.600	5.933
71	2-22	1,112.000	0.001	0.004	1,106.610	Not Full	No	-0.057	5.390
72	2-23	1,113.000	0.002	0.010	1,107.053	Not Full	No	-0.613	5.947
73	2-24	1,119.000	0.003	0.015	1,113.059	Not Full	No	-0.608	5.941
74	2-25	1,112.000	0.002	0.010	1,109.181	Not Full	No	2.515	2.819
75	2-25.5	1,115.000	0.003	0.016	1,109.190	Not Full	No	-0.476	5.810
76	2-26	1,124.000	0.003	0.018	1,118.083	Not Full	No	-0.583	5.917
77	2-27	1,135.000	0.004	0.021	1,129.062	Not Full	No	-0.605	5.938
78	2-28	1,128.000	0.003	0.017	1,122.041	Not Full	No	-0.625	5.959
79	2-29	1,107.000	0.002	0.011	1,107.000	Full	No	5.333	0.000
80	2-30	1,107.000	0.020	0.087	1,107.000	Full	No	4.833	0.000
81	2-31	1,111.000	0.001	0.005	1,110.273	Not Full	No	4.606	0.727
82	2-32	1,112.000	0.001	0.004	1,110.274	Not Full	No	3.607	1.726
83	2-33	1,112.000	0.002	0.010	1,110.278	Not Full	Yes	2.611	1.722
84	2-34	1,116.000	0.004	0.022	1,110.282	Not Full	No	-0.385	5.718
85	2-35	1,123.000	0.002	0.009	1,117.041	Not Full	No	-0.626	5.959
86	3-1	1,097.890	0.004	0.019	1,097.890	Full	No	4.250	0.000
87	3-2	1,098.250	0.001	0.008	1,098.250	Full	No	3.920	0.000
88	3-3	1,099.000	0.002	0.014	1,098.676	Not Full	No	4.096	0.324
89	3-4	1,100.000	0.003	0.016	1,099.446	Not Full	No	4.066	0.554
90	3-5	1,101.000	0.002	0.012	1,101.000	Full	No	4.820	0.000
91	3-6	1,102.000	0.003	0.016	1,102.000	Full	No	5.020	0.000
92	3-7	1,104.000	0.012	0.058	1,104.000	Full	No	5.750	0.000
93	3-8	1,111.000	0.007	0.032	1,108.841	Not Full	No	9.201	2.159
94	3-9	1,111.000	0.005	0.025	1,111.000	Full	Yes	10.140	0.000
95	3-10	1,110.000	0.006	0.029	1,110.000	Full	No	7.300	0.000
96	3-11	1,110.000	0.003	0.017	1,110.000	Full	No	5.460	0.000
97	3-12	1,115.000	0.002	0.014	1,113.219	Not Full	No	7.159	1.781
98	3-13	1,118.000	0.001	0.006	1,115.661	Not Full	Yes	8.411	2.339
99	3-14	1,119.000	0.001	0.005	1,116.639	Not Full	No	2.809	2.361
100	3-15	1,121.000	0.002	0.010	1,118.570	Not Full	No	2.570	2.430
101	3-16	1,122.000	0.004	0.021	1,121.848	Not Full	No	5.448	0.152
102	3-17	1,121.000	0.002	0.009	1,121.000	Full	No	4.200	0.000
103	3-18	1,121.000	0.000	0.002	1,121.000	Full	Yes	4.000	0.000
104	3-19	1,121.000	0.000	0.003	1,121.000	Full	No	3.800	0.000
105	3-20	1,121.000	0.000	0.003	1,121.000	Full	No	3.600	0.000
106	3-21	1,120.000	0.001	0.004	1,120.000	Full	No	2.200	0.000
107	3-22	1,120.000	0.000	0.003	1,120.000	Full	No	1.800	0.000
108	3-23	1,125.000	0.000	0.003	1,120.785	Not Full	No	0.785	4.215

109	3-24	1,150.000	0.092	0.351	1,136.445	Not Full	No	-0.655	13.555
110	3-25	1,172.000	0.004	0.019	1,166.266	Not Full	No	-0.734	5.734
111	3-26	1,179.000	0.000	0.003	1,170.923	Not Full	No	-0.707	8.077
112	3-27	1,184.000	0.002	0.010	1,177.885	Not Full	No	-0.645	6.115
113	3-28	1,191.600	0.000	0.001	1,180.770	Not Full	No	-0.520	10.830
114	3-29	1,112.000	0.006	0.032	1,111.032	Not Full	No	4.366	0.968
115	3-30	1,113.000	0.002	0.010	1,111.061	Not Full	No	2.194	1.939
116	3-31	1,113.000	0.004	0.021	1,111.055	Not Full	No	2.788	1.945
117	3-32	1,113.000	0.001	0.008	1,111.061	Not Full	No	1.894	1.939
118	3-33	1,115.000	0.002	0.010	1,111.061	Not Full	No	1.395	3.939
119	3-34	1,122.000	0.003	0.015	1,118.573	Not Full	No	1.907	3.427
120	3-35	1,122.000	0.002	0.012	1,118.575	Not Full	No	0.908	3.425
121	3-36	1,124.000	0.001	0.009	1,118.575	Not Full	No	-0.091	5.425
122	3-37	1,122.000	0.000	0.003	1,121.217	Not Full	No	4.384	0.783
123	3-38	1,125.000	0.002	0.009	1,122.894	Not Full	No	3.061	2.106
124	3-39	1,127.000	0.001	0.004	1,123.994	Not Full	No	2.161	3.006
125	3-40	1,128.000	0.000	0.002	1,124.463	Not Full	Yes	2.130	3.537
126	3-41	1,130.000	0.001	0.007	1,124.496	Not Full	No	-0.338	5.504
127	3-42	1,136.000	0.301	1.018	1,130.416	Not Full	No	-0.418	5.584
128	3-43	1,129.000	0.002	0.013	1,124.465	Not Full	No	2.048	4.535
129	3-44	1,128.000	0.002	0.011	1,124.466	Not Full	No	1.799	3.534
130	4-1	1,129.020	0.004	0.023	1,122.993	Not Full	No	-0.393	6.027
131	4-2	1,142.580	0.001	0.007	1,134.553	Not Full	No	-0.494	8.027
132	4-3	1,153.490	0.002	0.012	1,146.358	Not Full	No	-0.499	7.132
133	4-4	1,157.710	0.007	0.035	1,150.257	Not Full	No	-0.520	7.453
134	4-5	1,174.690	0.007	0.034	1,167.013	Not Full	No	-0.877	7.677
135	4-6	1,184.750	0.004	0.019	1,175.365	Not Full	No	-0.885	9.385
136	4-7	1,185.730	0.001	0.008	1,177.088	Not Full	Yes	-0.489	8.642
137	4-8	1,188.480	0.001	0.005	1,181.485	Not Full	No	-0.562	6.995
138	4-9	1,194.160	0.001	0.007	1,186.052	Not Full	No	-0.575	8.108
139	4-10	1,204.730	0.001	0.008	1,194.603	Not Full	No	-0.594	10.127
140	4-11	1,220.320	0.002	0.011	1,213.495	Not Full	No	-0.592	6.825
141	4-12	1,226.880	0.001	0.008	1,221.648	Not Full	No	-0.599	5.232
142	4-13	1,240.070	0.002	0.013	1,233.933	Not Full	No	-0.604	6.137
143	4-14	1,263.080	0.002	0.012	1,253.628	Not Full	No	-0.629	9.452
144	4-15	1,135.050	0.001	0.008	1,135.050	Full	No	-15.087	0.000
145	4-16	1,159.770	0.002	0.009	1,149.586	Not Full	No	-0.551	10.184
146	4-17	1,183.830	0.001	0.008	1,174.624	Not Full	No	-0.553	9.206
147	4-18	1,199.680	0.001	0.004	1,193.308	Not Full	No	-0.538	6.372
148	4-19	1,209.060	0.001	0.005	1,202.784	Not Full	No	-0.533	6.276
149	4-20	1,216.110	0.002	0.011	1,205.454	Not Full	No	-0.443	10.656
150	4-21	1,215.880	0.003	0.015	1,208.102	Not Full	No	-0.444	7.778
151	4-22	1,223.000	0.001	0.008	1,212.008	Not Full	No	-0.459	10.992
152	4-23	1,221.700	0.002	0.012	1,213.273	Not Full	No	-0.594	8.427
153	4-24	1,236.000	0.001	0.008	1,230.120	Not Full	No	-0.547	5.880
154	4-25	1,240.000	0.002	0.011	1,234.130	Not Full	No	-0.537	5.870
155	4-26	1,248.000	0.001	0.008	1,242.124	Not Full	No	-0.543	5.876
156	4-27	1,254.000	0.001	0.008	1,248.119	Not Full	No	-0.548	5.881
157	4-28	1,272.000	0.002	0.011	1,266.095	Not Full	No	-0.572	5.905
158	4-29	1,279.000	0.001	0.008	1,273.058	Not Full	No	-0.608	5.942
159	4-30	1,306.000	0.003	0.014	1,300.036	Not Full	No	-0.631	5.964
160	4-31	1,132.000	0.002	0.012	1,126.059	Not Full	No	-0.608	5.941
161	4-32	1,217.530	0.001	0.005	1,211.572	Not Full	No	-0.625	5.958
162	4-33	1,227.000	0.003	0.017	1,221.050	Not Full	No	-0.617	5.950
163	4-34	1,231.000	0.003	0.015	1,225.049	Not Full	No	-0.618	5.951
164	4-35	1,239.000	0.003	0.017	1,233.058	Not Full	No	-0.608	5.942

165	4-36	1,222.000	0.002	0.009	1,216.033	Not Full	No	-0.634	5.967
166	4-37	1,188.000	0.001	0.007	1,182.047	Not Full	No	-0.620	5.953
167	4-38	1,189.000	0.002	0.009	1,183.060	Not Full	No	-0.606	5.940
168	4-39	1,170.000	0.001	0.008	1,164.034	Not Full	No	-0.632	5.966
169	4-40	1,173.000	0.002	0.012	1,167.056	Not Full	No	-0.611	5.944
170	4-41	1,184.000	0.002	0.011	1,178.069	Not Full	No	-0.597	5.931
171	4-42	1,190.000	0.002	0.013	1,184.064	Not Full	No	-0.602	5.936
172	4-43	1,207.000	0.002	0.011	1,201.050	Not Full	No	-0.617	5.950
173	4-44	1,219.000	0.003	0.014	1,213.037	Not Full	No	-0.629	5.963
174	4-45	1,188.000	0.000	0.001	1,182.044	Not Full	No	-0.789	5.956
175	4-46	1,205.000	0.002	0.011	1,199.036	Not Full	No	-0.630	5.964
176	4-47	1,184.000	0.002	0.010	1,178.063	Not Full	No	-0.604	5.937
177	4-48	1,194.000	0.001	0.008	1,188.063	Not Full	No	-0.604	5.937
178	4-49	1,213.000	0.002	0.010	1,207.047	Not Full	No	-0.620	5.953
179	4-50	1,228.000	0.002	0.011	1,222.035	Not Full	No	-0.632	5.965
180	4-51	1,242.000	0.002	0.010	1,236.059	Not Full	No	-0.607	5.941
181	4-52	1,248.000	0.002	0.013	1,242.053	Not Full	No	-0.614	5.947
182	4-53	1,257.000	0.004	0.021	1,251.047	Not Full	No	-0.619	5.953
183	4-54	1,291.000	0.001	0.003	1,285.072	Not Full	No	-0.594	5.928
184	4-55	1,159.000	0.001	0.006	1,153.049	Not Full	No	-0.451	5.951
185	5-1	1,127.760	0.004	0.022	1,127.760	Full	No	9.253	0.000
186	5-2	1,133.260	0.003	0.015	1,133.260	Full	No	10.533	0.000
187	5-3	1,138.630	0.002	0.010	1,138.630	Full	No	11.573	0.000
188	5-4	1,144.170	0.002	0.009	1,144.170	Full	No	12.533	0.000
189	5-5	1,149.500	0.001	0.006	1,149.500	Full	No	13.663	0.000
190	5-6	1,155.710	0.001	0.007	1,150.911	Not Full	No	6.665	4.799
191	5-7	1,159.810	0.002	0.014	1,153.587	Not Full	No	3.310	6.223
192	5-8	1,181.170	0.001	0.008	1,171.356	Not Full	No	-0.401	9.814
193	5-9	1,179.140	0.001	0.008	1,173.582	Not Full	No	-0.354	5.558
194	5-10	1,189.580	0.003	0.015	1,180.694	Not Full	No	-0.323	8.886
195	5-11	1,203.290	0.003	0.016	1,196.371	Not Full	No	-0.366	6.919
196	5-12	1,219.620	0.001	0.006	1,208.594	Not Full	No	-0.363	11.026
197	5-13	1,225.450	0.001	0.006	1,220.548	Not Full	No	-0.398	4.902
198	5-14	1,228.000	0.001	0.008	1,222.464	Not Full	No	-0.203	5.536
199	5-15	1,247.240	0.001	0.004	1,239.379	Not Full	No	-0.487	7.861
200	5-16	1,248.710	0.001	0.004	1,241.355	Not Full	No	-0.422	7.355
201	5-17	1,277.780	0.001	0.006	1,271.137	Not Full	No	-0.420	6.643
202	5-18	1,294.370	0.001	0.007	1,290.814	Not Full	No	-0.443	3.556
203	5-19	1,304.320	0.001	0.005	1,297.703	Not Full	No	-0.304	6.617
204	5-20	1,304.000	0.001	0.005	1,298.546	Not Full	Yes	-0.121	5.454
205	5-21	1,308.000	0.001	0.006	1,302.362	Not Full	No	-0.305	5.638
206	5-22	1,307.000	0.114	0.425	1,304.074	Not Full	Yes	0.408	2.926
207	5-23	1,318.000	0.000	0.003	1,312.124	Not Full	No	-0.543	5.876
208	5-24	1,327.000	0.001	0.006	1,321.112	Not Full	No	-0.554	5.888
209	5-25	1,351.000	0.001	0.007	1,345.091	Not Full	No	-0.576	5.909
210	5-26	1,353.000	0.001	0.008	1,347.095	Not Full	No	-0.572	5.905
211	5-27	1,369.000	0.002	0.009	1,363.081	Not Full	No	-0.586	5.919
212	5-28	1,144.000	0.003	0.014	1,138.639	Not Full	No	-0.028	5.361
213	5-29	1,151.000	0.005	0.027	1,145.065	Not Full	No	-0.601	5.935
214	5-30	1,149.000	0.002	0.009	1,149.000	Full	No	5.333	0.000
215	5-31	1,172.000	0.002	0.012	1,166.058	Not Full	No	-0.609	5.942
216	5-32	1,195.000	0.005	0.025	1,189.047	Not Full	No	-0.620	5.953
217	5-33	1,152.750	0.001	0.007	1,152.750	Full	No	10.963	0.000
218	5-34	1,157.810	0.002	0.011	1,157.810	Full	No	9.993	0.000
219	5-35	1,162.810	0.002	0.010	1,162.810	Full	No	5.583	0.000
220	5-37	1,166.000	0.002	0.010	1,162.814	Not Full	No	2.147	3.186

221	5-38	1,170.000	0.002	0.011	1,164.082	Not Full	No	-0.585	5.918
222	5-39	1,181.000	0.002	0.013	1,175.055	Not Full	No	-0.611	5.945
223	5-40	1,195.000	0.002	0.011	1,189.036	Not Full	No	-0.631	5.964
224	5-41	1,163.000	0.002	0.010	1,157.132	Not Full	No	-0.534	5.868
225	5-42	1,169.000	0.003	0.018	1,163.138	Not Full	No	-0.529	5.862
226	5-43	1,178.000	0.002	0.013	1,172.109	Not Full	No	-0.557	5.891
227	5-44	1,191.000	0.002	0.011	1,185.093	Not Full	No	-0.574	5.907
228	5-45	1,201.000	0.003	0.014	1,195.088	Not Full	No	-0.579	5.912
229	5-46	1,228.000	0.002	0.012	1,222.079	Not Full	No	-0.588	5.921
230	5-47	1,235.000	0.001	0.007	1,229.066	Not Full	No	-0.601	5.934
231	5-48	1,245.000	0.001	0.008	1,239.067	Not Full	No	-0.599	5.933
232	5-49	1,255.000	0.001	0.006	1,249.040	Not Full	No	-0.627	5.960
233	5-50	1,275.000	0.001	0.008	1,269.031	Not Full	No	-0.635	5.969
234	5-50.5	1,261.000	0.002	0.009	1,255.049	Not Full	No	-0.618	5.951
235	5-51	1,285.000	0.001	0.006	1,279.035	Not Full	No	-0.632	5.965
236	5-51.5	1,289.000	0.001	0.008	1,283.031	Not Full	No	-0.635	5.969
237	5-52	1,172.000	0.001	0.006	1,166.085	Not Full	No	-0.582	5.915
238	5-53	1,173.000	0.001	0.007	1,167.102	Not Full	No	-0.565	5.898
239	5-54	1,179.000	0.003	0.014	1,173.105	Not Full	No	-0.562	5.895
240	5-55	1,199.000	0.003	0.016	1,193.074	Not Full	No	-0.593	5.926
241	5-56	1,218.000	0.002	0.009	1,212.062	Not Full	No	-0.605	5.938
242	5-57	1,221.000	0.001	0.007	1,215.052	Not Full	No	-0.615	5.948
243	5-58	1,230.000	0.002	0.010	1,224.053	Not Full	No	-0.613	5.947
244	5-59	1,246.000	0.002	0.010	1,240.037	Not Full	No	-0.630	5.963
245	5-60	1,163.000	0.002	0.012	1,157.832	Not Full	No	0.165	5.168
246	5-61	1,178.000	0.003	0.016	1,172.087	Not Full	No	-0.580	5.913
247	5-62	1,195.000	0.003	0.017	1,189.083	Not Full	No	-0.583	5.917
248	5-63	1,213.000	0.003	0.014	1,203.067	Not Full	No	-0.600	9.933
249	5-64	1,210.000	0.002	0.011	1,204.077	Not Full	No	-0.590	5.923
250	5-65	1,211.000	0.002	0.011	1,205.061	Not Full	No	-0.606	5.939
251	5-66	1,259.000	0.001	0.008	1,253.038	Not Full	No	-0.628	5.962
252	5-66.5	1,279.000	0.001	0.007	1,273.027	Not Full	No	-0.639	5.973
253	5-67	1,305.000	0.001	0.007	1,299.048	Not Full	No	-0.619	5.952
254	5-68	1,309.000	0.002	0.011	1,303.061	Not Full	No	-0.605	5.939
255	5-69	1,341.000	0.002	0.009	1,335.027	Not Full	No	-0.640	5.973
256	5-70	1,329.000	0.002	0.010	1,323.042	Not Full	No	-0.625	5.958
257	5-71	1,350.000	0.001	0.006	1,344.029	Not Full	No	-0.638	5.971
258	5-72	1,355.000	0.001	0.007	1,349.038	Not Full	No	-0.629	5.962
259	5-73	1,319.000	0.002	0.009	1,313.089	Not Full	No	-0.578	5.911
260	5-74	1,342.000	0.001	0.005	1,336.072	Not Full	No	-0.594	5.928
261	5-75	1,359.000	0.000	0.003	1,353.071	Not Full	No	-0.596	5.929
262	5-76	1,363.000	0.001	0.004	1,357.027	Not Full	No	-0.640	5.973
263	5-77	1,380.000	0.001	0.005	1,374.065	Not Full	No	-0.602	5.935
264	5-78	1,400.000	0.001	0.007	1,394.063	Not Full	No	-0.604	5.937
265	5-79	1,405.000	0.001	0.007	1,399.102	Not Full	No	-0.565	5.898
266	5-80	1,417.000	0.001	0.004	1,411.072	Not Full	No	-0.594	5.928
267	5-81	1,424.000	0.001	0.008	1,418.070	Not Full	No	-0.596	5.930
268	5-82	1,428.000	0.001	0.008	1,422.076	Not Full	No	-0.590	5.924
269	5-83	1,447.000	0.001	0.005	1,441.042	Not Full	No	-0.625	5.958
270	5-83.5	1,463.000	0.001	0.008	1,457.027	Not Full	No	-0.639	5.973
271	5-84	1,459.000	0.002	0.010	1,453.030	Not Full	No	-0.637	5.970
272	5-85	1,423.000	0.001	0.004	1,417.037	Not Full	No	-0.629	5.963
273	5-86	1,433.000	0.001	0.006	1,427.036	Not Full	No	-0.630	5.964
274	5-87	1,437.000	0.001	0.006	1,431.032	Not Full	No	-0.635	5.968
275	5-88	1,384.000	0.001	0.007	1,378.045	Not Full	No	-0.622	5.955
276	5-89	1,330.000	0.001	0.008	1,324.074	Not Full	No	-0.593	5.926

277	5-90	1,343.000	0.002	0.010	1,337.058	Not Full	No	-0.609	5.942
278	5-91	1,345.000	0.001	0.008	1,339.066	Not Full	No	-0.600	5.934
279	5-92	1,368.000	0.001	0.008	1,362.028	Not Full	No	-0.639	5.972
280	5-93	1,328.000	0.002	0.010	1,322.089	Not Full	No	-0.577	5.911
281	5-94	1,330.000	0.002	0.009	1,324.053	Not Full	No	-0.614	5.947
282	5-95	1,354.000	0.002	0.010	1,348.066	Not Full	No	-0.601	5.934
283	5-96	1,358.000	0.001	0.007	1,352.040	Not Full	No	-0.627	5.960
284	6-1	1,174.280	0.002	0.011	1,164.821	Not Full	No	-0.125	9.459
285	6-2	1,172.680	0.001	0.004	1,165.617	Not Full	No	-0.300	7.063
286	6-3	1,176.440	0.001	0.005	1,168.343	Not Full	Yes	1.687	8.097
287	6-4	1,178.310	0.002	0.013	1,172.361	Not Full	No	-0.126	5.949
288	6-5	1,191.410	0.001	0.007	1,183.116	Not Full	No	-0.260	8.294
289	6-6	1,187.860	0.001	0.008	1,186.011	Not Full	No	2.184	1.849
290	6-7	1,195.930	0.001	0.008	1,189.547	Not Full	No	4.950	6.383
291	6-8	1,190.640	0.001	0.006	1,190.640	Full	No	5.303	0.000
292	6-9	1,201.450	0.001	0.006	1,196.855	Not Full	Yes	6.929	4.595
293	6-10	1,203.360	0.000	0.003	1,197.557	Not Full	No	5.800	5.803
294	6-11	1,207.880	0.002	0.014	1,199.711	Not Full	No	-0.256	8.169
295	6-12	1,220.110	0.001	0.007	1,209.199	Not Full	No	-0.277	10.911
296	6-13	1,218.810	0.002	0.009	1,210.759	Not Full	Yes	0.232	8.051
297	6-14	1,221.000	0.000	0.003	1,215.338	Not Full	No	-0.329	5.662
298	6-15	1,232.250	0.001	0.005	1,218.742	Not Full	No	-0.315	13.508
299	6-16	1,241.830	0.000	0.003	1,233.169	Not Full	No	-0.438	8.661
300	6-17	1,246.000	0.002	0.009	1,239.452	Not Full	No	-0.325	6.548
301	6-18	1,274.620	0.001	0.008	1,267.260	Not Full	No	-0.376	7.360
302	6-19	1,278.000	0.001	0.006	1,272.340	Not Full	No	-0.327	5.660
303	6-20	1,293.000	0.001	0.005	1,287.294	Not Full	No	-0.372	5.706
304	6-21	1,316.000	0.001	0.007	1,310.026	Not Full	No	-0.640	5.974
305	6-22	1,298.000	0.232	0.805	1,292.266	Not Full	No	-0.401	5.734
306	6-23	1,295.000	0.001	0.008	1,289.028	Not Full	No	-0.638	5.972
307	6-24	1,205.000	0.003	0.014	1,199.122	Not Full	No	-0.544	5.878
308	6-25	1,217.000	0.001	0.008	1,211.127	Not Full	No	-0.539	5.873
309	6-26	1,217.000	0.002	0.011	1,211.670	Not Full	Yes	-0.497	5.330
310	6-27	1,227.000	0.002	0.013	1,221.093	Not Full	No	-0.574	5.907
311	6-28	1,230.000	0.003	0.015	1,224.133	Not Full	No	-0.533	5.867
312	6-29	1,243.000	0.001	0.007	1,237.084	Not Full	No	-0.583	5.916
313	6-30	1,248.000	0.001	0.007	1,242.047	Not Full	No	-0.619	5.953
314	6-31	1,257.000	0.001	0.007	1,251.047	Not Full	No	-0.620	5.953
315	6-32	1,270.000	0.001	0.007	1,264.028	Not Full	No	-0.639	5.972
316	6-33	1,249.000	0.001	0.006	1,243.062	Not Full	No	-0.605	5.938
317	6-34	1,274.000	0.002	0.009	1,268.049	Not Full	No	-0.618	5.951
318	6-35	1,315.000	0.001	0.007	1,309.025	Not Full	No	-0.641	5.975
319	6-36	1,283.000	0.002	0.009	1,277.035	Not Full	No	-0.631	5.965
320	6-37	1,180.050	0.001	0.005	1,168.808	Not Full	No	-0.528	11.242
321	6-38	1,206.000	0.002	0.010	1,200.060	Not Full	No	-0.607	5.940
322	6-39	1,214.000	0.001	0.005	1,208.058	Not Full	No	-0.608	5.942
323	6-40	1,242.000	0.003	0.016	1,236.044	Not Full	No	-0.622	5.956
324	6-41	1,247.000	0.002	0.013	1,241.051	Not Full	No	-0.616	5.949
325	6-42	1,248.000	0.001	0.008	1,242.029	Not Full	No	-0.638	5.971
326	6-43	1,187.380	0.001	0.007	1,181.383	Not Full	No	-0.574	5.997
327	6-44	1,193.000	0.001	0.007	1,187.109	Not Full	No	-0.558	5.891
328	6-44.5	1,195.000	0.001	0.006	1,189.137	Not Full	No	-0.529	5.863
329	6-45	1,197.430	0.000	0.002	1,192.204	Not Full	No	-0.593	5.226
330	6-46	1,199.000	0.001	0.005	1,193.075	Not Full	No	-0.591	5.925
331	6-46.25	1,205.000	0.002	0.013	1,199.070	Not Full	No	-0.597	5.930
332	6-46.5	1,208.000	0.001	0.007	1,202.065	Not Full	No	-0.601	5.935

333	6-47	1,225.000	0.003	0.014	1,219.051	Not Full	No	-0.616	5.949
334	6-48	1,252.000	0.003	0.017	1,246.038	Not Full	No	-0.628	5.962
335	6-49	1,208.000	0.002	0.011	1,202.038	Not Full	No	-0.629	5.962
336	6-50	1,209.000	0.001	0.007	1,203.052	Not Full	No	-0.615	5.948
337	6-51	1,196.000	0.001	0.005	1,190.037	Not Full	No	-0.630	5.963
338	6-52	1,199.000	0.001	0.007	1,193.037	Not Full	No	-0.630	5.963
339	6-53	1,213.000	0.002	0.011	1,207.030	Not Full	No	-0.637	5.970
340	6-53.25	1,220.000	0.001	0.004	1,214.038	Not Full	No	-0.628	5.962
341	6-53.5	1,227.000	0.001	0.004	1,221.033	Not Full	No	-0.633	5.967
342	6-53.75	1,235.000	0.001	0.004	1,229.023	Not Full	No	-0.643	5.977
343	6-54	1,233.000	0.001	0.006	1,227.039	Not Full	No	-0.627	5.961
344	6-55	1,243.000	0.002	0.012	1,237.040	Not Full	No	-0.627	5.960
345	6-56	1,235.000	0.001	0.008	1,229.037	Not Full	No	-0.630	5.963
346	6-57	1,252.000	0.001	0.006	1,246.033	Not Full	No	-0.634	5.967
347	6-57.5	1,254.000	0.001	0.005	1,248.035	Not Full	No	-0.631	5.965
348	6-58	1,224.000	0.001	0.007	1,218.079	Not Full	No	-0.588	5.921
349	6-59	1,225.000	0.001	0.005	1,219.107	Not Full	No	-0.560	5.893
350	6-60	1,227.000	0.001	0.003	1,221.082	Not Full	No	-0.584	5.918
351	6-61	1,228.000	0.001	0.005	1,222.060	Not Full	No	-0.606	5.940
352	6-62	1,243.000	0.002	0.011	1,237.047	Not Full	No	-0.620	5.953
353	6-63	1,258.000	0.001	0.008	1,252.033	Not Full	No	-0.634	5.967
354	6-64	1,229.000	0.001	0.008	1,223.060	Not Full	No	-0.606	5.940
355	6-65	1,232.000	0.002	0.010	1,226.048	Not Full	No	-0.619	5.952
356	7-1	1,119.000	0.001	0.006	1,115.601	Not Full	No	6.434	3.399
357	7-2	1,192.000	0.003	0.016	1,186.083	Not Full	No	-0.584	5.917
358	7-3	1,224.000	0.004	0.019	1,218.115	Not Full	No	-0.552	5.885
359	7-4	1,247.000	0.003	0.014	1,241.116	Not Full	No	-0.550	5.884
360	7-5	1,262.000	0.003	0.016	1,256.117	Not Full	No	-0.550	5.883
361	7-6	1,309.000	0.002	0.012	1,303.051	Not Full	No	-0.616	5.949
362	7-7	1,326.000	0.001	0.005	1,320.032	Not Full	No	-0.634	5.968
363	7-8	1,348.000	0.001	0.005	1,342.019	Not Full	No	-0.647	5.981
364	7-9	1,125.000	0.002	0.009	1,116.149	Not Full	No	5.102	8.851
365	7-10	1,134.720	0.004	0.019	1,129.776	Not Full	No	-0.311	4.944
366	7-11	1,140.170	0.002	0.012	1,133.806	Not Full	No	-0.230	6.364
367	7-11.5	1,139.500	0.002	0.009	1,133.807	Not Full	No	-0.360	5.693
368	7-12	1,159.100	0.001	0.007	1,147.549	Not Full	No	-0.701	11.551
369	7-13	1,180.000	0.001	0.004	1,174.028	Not Full	No	-0.639	5.972
370	7-14	1,189.100	0.001	0.006	1,176.895	Not Full	No	-0.601	12.205
371	7-15	1,202.600	0.000	0.003	1,192.263	Not Full	Yes	-0.504	10.337
372	7-16	1,208.900	0.000	0.002	1,199.834	Not Full	No	-0.612	9.066
373	7-17	1,231.000	0.001	0.003	1,222.456	Not Full	Yes	-0.544	8.544
374	7-18	1,232.500	0.001	0.005	1,222.610	Not Full	No	-0.417	9.890
375	7-19	1,257.000	0.001	0.005	1,251.049	Not Full	No	-0.618	5.951
376	7-20	1,259.000	0.001	0.006	1,253.057	Not Full	No	-0.609	5.943
377	7-21	1,307.000	0.002	0.012	1,301.039	Not Full	No	-0.627	5.961
378	7-22	1,335.000	0.001	0.006	1,329.028	Not Full	No	-0.639	5.972
379	7-22.5	1,345.000	0.001	0.003	1,339.018	Not Full	No	-0.649	5.982
380	7-23	1,280.000	0.002	0.012	1,274.091	Not Full	No	-0.575	5.909
381	7-24	1,285.000	0.001	0.008	1,279.095	Not Full	No	-0.572	5.905
382	7-25	1,286.000	0.001	0.008	1,280.119	Not Full	Yes	-0.548	5.881
383	7-26	1,352.000	0.001	0.004	1,346.053	Not Full	No	-0.613	5.947
384	7-27	1,358.000	0.001	0.004	1,352.059	Not Full	No	-0.607	5.941
385	7-28	1,365.000	0.002	0.013	1,359.055	Not Full	No	-0.612	5.945
386	7-29	1,368.000	0.001	0.004	1,362.046	Not Full	No	-0.621	5.954
387	7-30	1,370.000	0.001	0.004	1,364.019	Not Full	No	-0.648	5.981
388	7-31	1,377.000	0.002	0.011	1,371.040	Not Full	No	-0.627	5.960

389	7-32	1,330.000	0.001	0.008	1,324.027	Not Full	No	-0.639	5.973
390	7-33	1,344.000	0.003	0.014	1,338.033	Not Full	No	-0.633	5.967
391	7-34	1,345.000	0.002	0.011	1,339.030	Not Full	No	-0.637	5.970
392	7-35	1,202.000	0.002	0.011	1,196.030	Not Full	No	-0.637	5.970
393	7-36	1,223.000	0.002	0.014	1,217.046	Not Full	No	-0.621	5.954
394	7-37	1,242.000	0.001	0.008	1,236.049	Not Full	No	-0.618	5.951
395	7-38	1,247.000	0.001	0.004	1,241.028	Not Full	No	-0.638	5.972
396	7-39	1,249.000	0.001	0.006	1,243.051	Not Full	No	-0.616	5.949
397	7-40	1,263.000	0.001	0.004	1,257.032	Not Full	No	-0.635	5.968
398	7-41	1,265.000	0.001	0.006	1,259.026	Not Full	No	-0.640	5.974
399	7-42	1,219.000	0.002	0.009	1,213.027	Not Full	No	-0.640	5.973
400	7-43	1,229.000	0.001	0.006	1,223.039	Not Full	No	-0.627	5.961
401	7-44	1,238.000	0.001	0.005	1,232.059	Not Full	No	-0.608	5.941
402	7-45	1,247.000	0.001	0.005	1,241.043	Not Full	No	-0.624	5.957
403	7-46	1,264.000	0.001	0.005	1,258.021	Not Full	No	-0.646	5.979
404	8-1	1,155.520	0.000	0.002	1,150.670	Not Full	No	-0.517	4.850
405	8-2	1,177.270	0.010	0.046	1,167.300	Not Full	No	-0.557	9.970
406	8-3	1,211.970	0.002	0.013	1,200.437	Not Full	No	-0.540	11.533
407	8-4	1,237.310	0.002	0.011	1,226.691	Not Full	No	-0.536	10.619
408	8-5	1,249.000	0.001	0.008	1,243.121	Not Full	No	-0.546	5.879
409	8-6	1,265.410	0.001	0.008	1,259.167	Not Full	No	-0.550	6.243
410	8-7	1,300.140	0.002	0.010	1,288.621	Not Full	No	-0.556	11.519
411	8-8	1,318.000	0.003	0.014	1,312.077	Not Full	No	-0.589	5.923
412	8-9	1,354.000	0.003	0.018	1,348.069	Not Full	No	-0.598	5.931
413	8-10	1,383.000	0.001	0.005	1,377.048	Not Full	No	-0.619	5.952
414	8-11	1,391.000	0.002	0.011	1,385.054	Not Full	No	-0.613	5.946
415	8-12	1,408.000	0.002	0.010	1,402.033	Not Full	No	-0.634	5.967
416	8-13	1,384.000	0.002	0.011	1,378.064	Not Full	No	-0.603	5.936
417	8-14	1,279.000	0.001	0.006	1,273.033	Not Full	No	-0.634	5.967
418	8-15	1,307.000	0.001	0.004	1,301.019	Not Full	No	-0.647	5.981
419	8-16	1,288.000	0.003	0.014	1,282.039	Not Full	No	-0.628	5.961
420	9-1	1,092.370	0.077	0.300	1,076.959	Not Full	Yes	0.059	15.411
421	9-2	1,090.200	0.002	0.010	1,078.098	Not Full	No	2.831	12.102
422	9-3	1,090.350	0.004	0.023	1,078.447	Not Full	No	1.964	11.903
423	9-4	1,089.540	0.008	0.038	1,078.862	Not Full	No	1.588	10.678
424	9-5	1,088.870	0.010	0.046	1,079.369	Not Full	No	0.965	9.501
425	9-6	1,087.210	0.003	0.017	1,079.876	Not Full	No	1.232	7.334
426	9-7	1,085.270	0.006	0.031	1,080.178	Not Full	Yes	1.074	5.092
427	9-8	1,088.240	0.004	0.019	1,080.273	Not Full	No	-0.400	7.967
428	9-9	1,096.460	0.004	0.019	1,081.124	Not Full	No	-0.470	15.336
429	9-10	1,093.470	0.005	0.026	1,082.154	Not Full	No	-0.449	11.316
430	9-11	1,093.380	0.002	0.009	1,083.926	Not Full	Yes	-0.457	9.454
431	9-12	1,092.000	0.003	0.018	1,085.152	Not Full	No	-0.682	6.848
432	9-13	1,092.000	0.004	0.019	1,086.066	Not Full	No	-0.768	5.934
433	9-14	1,092.000	0.002	0.009	1,086.480	Not Full	No	-0.353	5.520
434	9-15	1,099.280	0.007	0.034	1,086.680	Not Full	No	-0.400	12.600
435	9-15.5	1,095.000	0.007	0.033	1,089.081	Not Full	No	-0.586	5.919
436	9-16	1,096.540	0.012	0.055	1,090.805	Not Full	No	3.265	5.735
437	9-17	1,097.500	0.001	0.004	1,092.286	Not Full	Yes	4.586	5.214
438	10-1	1,097.340	0.000	0.002	1,094.977	Not Full	No	7.391	2.363
439	10-2	1,096.950	0.001	0.004	1,094.983	Not Full	No	5.376	1.967
440	10-3	1,098.230	0.003	0.016	1,095.024	Not Full	No	3.428	3.206
441	10-4	1,099.800	0.002	0.012	1,095.071	Not Full	No	1.645	4.729
442	10-5	1,100.460	0.004	0.019	1,095.100	Not Full	No	1.073	5.360
443	10-6	1,102.190	0.002	0.011	1,095.121	Not Full	Yes	-0.406	7.069
444	10-7	1,101.870	0.003	0.018	1,096.248	Not Full	No	-0.538	5.622

445	10-8	1,101.680	0.002	0.009	1,097.393	Not Full	No	-0.564	4.287
446	10-9	1,104.000	0.003	0.017	1,098.082	Not Full	No	-0.585	5.918
447	10-10	1,104.000	0.003	0.015	1,098.074	Not Full	No	-0.592	5.926
448	10-11	1,105.000	0.001	0.004	1,099.032	Not Full	No	-0.634	5.968
449	10-12	1,098.000	0.002	0.013	1,095.072	Not Full	No	1.406	2.928
450	10-13	1,097.150	0.002	0.011	1,097.150	Full	No	9.133	0.000
451	10-14	1,096.990	0.001	0.004	1,096.990	Full	No	7.733	0.000
452	10-15	1,096.910	0.000	0.002	1,096.910	Full	No	7.513	0.000
453	10-16	1,097.640	0.004	0.019	1,096.979	Not Full	No	6.422	0.661
454	10-17	1,099.870	0.003	0.015	1,097.039	Not Full	Yes	5.103	2.831
455	10-18	1,099.980	0.003	0.016	1,097.058	Not Full	No	3.842	2.922
456	10-19	1,100.000	0.001	0.008	1,097.065	Not Full	No	3.238	2.935
457	10-20	1,100.000	0.002	0.011	1,097.069	Not Full	Yes	2.722	2.931
458	10-21	1,100.000	0.003	0.017	1,097.073	Not Full	No	2.406	2.927
459	10-22	1,101.000	0.002	0.010	1,097.073	Not Full	No	1.406	3.927
460	10-23	1,106.000	0.001	0.004	1,100.045	Not Full	No	-0.622	5.955
461	10-24	1,108.000	0.001	0.005	1,102.046	Not Full	No	-0.621	5.954
462	10-25	1,109.000	0.001	0.006	1,103.043	Not Full	No	-0.624	5.957
463	10-26	1,103.000	0.003	0.015	1,097.067	Not Full	No	-0.599	5.933
464	10-27	1,105.000	0.002	0.010	1,099.048	Not Full	No	-0.618	5.952
465	10-28	1,095.000	0.006	0.032	1,095.000	Full	No	5.333	0.000
466	10-29	1,096.000	0.003	0.018	1,096.000	Full	No	5.333	0.000
467	10-30	1,101.000	0.003	0.018	1,096.018	Not Full	No	0.352	4.982
468	10-31	1,106.000	0.001	0.006	1,100.103	Not Full	No	-0.564	5.897
469	10-32	1,107.000	0.001	0.007	1,101.090	Not Full	No	-0.577	5.910
470	10-33	1,114.000	0.003	0.016	1,108.077	Not Full	No	-0.590	5.923
471	10-34	1,119.000	0.002	0.009	1,113.063	Not Full	No	-0.604	5.937
472	10-34.5	1,125.000	0.002	0.012	1,119.053	Not Full	No	-0.614	5.947
473	10-35	1,109.000	0.002	0.009	1,103.053	Not Full	No	-0.614	5.947
474	10-36	1,096.000	0.003	0.016	1,096.000	Full	No	3.833	0.000
475	10-37	1,097.000	0.001	0.005	1,096.000	Not Full	No	3.333	1.000
476	11-1	1,097.000	0.004	0.019	1,097.000	Full	No	5.333	0.000
477	11-2	1,098.310	0.001	0.008	1,098.310	Full	No	3.233	0.000
478	11-3	1,101.770	0.000	0.000	1,101.770	Full	No	3.333	0.000
479	11-4	1,107.590	0.002	0.012	1,107.590	Full	No	5.683	0.000
480	11-5	1,112.650	0.002	0.012	1,112.650	Full	No	4.353	0.000
481	11-6	1,120.630	0.001	0.007	1,120.630	Full	No	5.083	0.000
482	11-7	1,134.630	0.000	0.002	1,126.769	Not Full	No	-0.278	7.861
483	11-8	1,137.040	0.000	0.000	1,128.804	Not Full	No	-0.293	8.236
484	11-9	1,138.630	0.000	0.002	1,130.634	Not Full	No	-0.263	7.996
485	11-10	1,150.080	0.001	0.007	1,140.738	Not Full	No	-0.209	9.342
486	11-11	1,162.060	0.001	0.005	1,151.878	Not Full	No	-0.199	10.182
487	11-12	1,166.000	0.362	1.201	1,160.320	Not Full	No	-0.346	5.680
488	11-13	1,182.000	0.002	0.010	1,176.042	Not Full	No	-0.624	5.958
489	11-14	1,198.000	0.001	0.007	1,192.029	Not Full	No	-0.638	5.971
490	11-15	1,108.000	0.002	0.013	1,107.592	Not Full	Yes	4.925	0.408
491	11-16	1,109.000	0.001	0.007	1,107.592	Not Full	No	3.925	1.408
492	11-17	1,120.000	0.001	0.008	1,114.096	Not Full	No	-0.570	5.904
493	11-18	1,141.000	0.001	0.006	1,135.051	Not Full	No	-0.616	5.949
494	11-19	1,163.000	0.001	0.009	1,157.059	Not Full	No	-0.608	5.941
495	11-20	1,164.000	0.001	0.008	1,158.097	Not Full	Yes	-0.570	5.903
496	11-21	1,166.000	0.001	0.008	1,160.068	Not Full	No	-0.598	5.932
497	11-22	1,201.000	0.002	0.010	1,195.029	Not Full	No	-0.638	5.971
498	11-23	1,203.000	0.000	0.000	1,197.000	Not Full	No	-0.667	6.000
499	11-24	1,188.000	0.001	0.008	1,182.039	Not Full	No	-0.628	5.961
500	11-25	1,196.000	0.002	0.009	1,190.035	Not Full	No	-0.632	5.965

501	11-26	1,138.000	0.001	0.006	1,132.416	Not Full	No	-0.251	5.584
502	11-27	1,155.000	0.001	0.007	1,149.257	Not Full	No	-0.410	5.743
503	11-28	1,181.000	0.001	0.007	1,175.225	Not Full	No	-0.442	5.775
504	11-29	1,202.000	0.169	0.605	1,196.228	Not Full	No	-0.439	5.772
505	11-30	1,148.000	0.001	0.007	1,142.027	Not Full	No	-0.639	5.973
506	11-31	1,156.000	0.001	0.004	1,150.099	Not Full	No	-0.568	5.901
507	11-32	1,159.000	0.001	0.006	1,153.051	Not Full	No	-0.616	5.949
508	11-33	1,177.000	0.001	0.008	1,171.029	Not Full	No	-0.638	5.971
509	11-34	1,167.000	0.001	0.004	1,161.050	Not Full	No	-0.616	5.950
510	11-35	1,168.000	0.001	0.005	1,162.067	Not Full	Yes	-0.599	5.933
511	11-36	1,177.000	0.001	0.004	1,171.034	Not Full	No	-0.633	5.966
512	11-37	1,184.000	0.000	0.003	1,178.025	Not Full	No	-0.641	5.975
513	11-38	1,192.000	0.001	0.004	1,186.021	Not Full	No	-0.646	5.979
514	11-39	1,188.000	0.001	0.006	1,182.034	Not Full	No	-0.633	5.966
515	11-40	1,197.000	0.001	0.006	1,191.031	Not Full	No	-0.636	5.969
516	11-41	1,204.000	0.000	0.000	1,198.000	Not Full	No	-0.667	6.000
517	19-1	1,192.000	0.009	0.043	1,186.358	Not Full	No	-0.308	5.642
518	19-2	1,199.000	0.000	0.002	1,193.419	Not Full	No	-0.247	5.581
519	19-3	1,205.000	0.002	0.011	1,199.427	Not Full	No	-0.239	5.573
520	19-4	1,208.000	0.001	0.007	1,202.516	Not Full	No	-0.151	5.484
521	19-5	1,219.000	0.002	0.012	1,213.313	Not Full	No	-0.354	5.688
522	19-6	1,219.000	0.002	0.010	1,217.263	Not Full	No	2.596	1.737
523	19-7	1,230.000	0.002	0.009	1,224.360	Not Full	No	-0.307	5.640
524	19-8	1,240.000	0.002	0.010	1,234.349	Not Full	No	-0.318	5.651
525	19-9	1,248.000	0.001	0.009	1,242.331	Not Full	No	-0.336	5.669
526	19-10	1,278.000	0.003	0.018	1,272.313	Not Full	No	-0.353	5.687
527	19-11	1,285.000	0.001	0.007	1,279.538	Not Full	No	-0.128	5.462
528	19-12	1,287.000	0.002	0.010	1,284.929	Not Full	No	3.263	2.071
529	19-13	1,289.000	0.003	0.017	1,288.434	Not Full	No	4.767	0.566
530	19-14	1,304.000	0.002	0.009	1,298.350	Not Full	No	-0.316	5.650
531	19-15	1,314.000	0.012	0.058	1,308.089	Not Full	No	-0.577	5.911
532	19-16	1,309.000	0.001	0.006	1,303.426	Not Full	No	-0.241	5.574
533	19-17	1,322.000	0.003	0.014	1,316.055	Not Full	No	-0.611	5.945
534	19-18	1,325.000	0.001	0.004	1,319.056	Not Full	No	-0.611	5.944
535	19-19	1,328.000	0.001	0.004	1,322.059	Not Full	No	-0.608	5.941
536	19-20	1,342.000	0.001	0.007	1,336.038	Not Full	No	-0.628	5.962
537	19-21	1,366.000	0.001	0.008	1,360.027	Not Full	No	-0.640	5.973
538	19-22	1,313.000	0.000	0.002	1,305.988	Not Full	No	-0.179	7.012
539	19-23	1,312.000	0.001	0.004	1,306.357	Not Full	No	-0.310	5.643
540	19-24	1,327.000	0.001	0.004	1,321.333	Not Full	No	-0.333	5.667
541	19-25	1,334.000	0.001	0.004	1,328.046	Not Full	No	-0.621	5.954
542	19-26	1,345.000	0.001	0.005	1,339.035	Not Full	No	-0.631	5.965
543	19-27	1,378.000	0.001	0.007	1,372.024	Not Full	No	-0.642	5.976
544	19-28	1,328.000	0.000	0.003	1,322.453	Not Full	No	-0.214	5.547
545	19-29	1,340.000	0.001	0.004	1,334.328	Not Full	No	-0.339	5.672
546	19-30	1,342.000	0.000	0.003	1,336.292	Not Full	No	-0.375	5.708
547	19-31	1,340.000	0.001	0.006	1,335.084	Not Full	Yes	-0.583	4.916
548	19-32	1,353.000	0.001	0.006	1,347.039	Not Full	No	-0.627	5.961
549	19-33	1,382.000	0.001	0.008	1,376.024	Not Full	No	-0.643	5.976
550	19-34	1,329.000	0.001	0.006	1,323.308	Not Full	No	-0.359	5.692
551	19-35	1,352.000	0.001	0.007	1,346.064	Not Full	No	-0.603	5.936
552	19-36	1,362.000	0.002	0.010	1,356.060	Not Full	No	-0.607	5.940
553	19-37	1,373.000	0.002	0.011	1,367.054	Not Full	No	-0.613	5.946
554	19-38	1,435.000	0.001	0.007	1,429.033	Not Full	No	-0.634	5.967
555	19-38.5	1,445.000	0.001	0.007	1,439.026	Not Full	No	-0.641	5.974
556	19-39	1,459.000	0.000	0.003	1,453.020	Not Full	No	-0.647	5.980

557	19-40	1,475.000	0.001	0.003	1,469.020	Not Full	No	-0.646	5.980
558	19-41	1,356.000	0.002	0.009	1,350.318	Not Full	No	-0.349	5.682
559	19-42	1,358.000	0.001	0.006	1,352.077	Not Full	No	-0.590	5.923
560	19-43	1,368.000	0.001	0.008	1,362.045	Not Full	No	-0.622	5.955
561	19-44	1,397.000	0.002	0.009	1,391.030	Not Full	No	-0.637	5.970
562	19-45	1,369.000	0.000	0.003	1,363.298	Not Full	No	-0.368	5.702
563	19-46	1,371.000	0.000	0.002	1,365.031	Not Full	No	-0.636	5.969
564	19-46.5	1,375.000	0.002	0.010	1,369.041	Not Full	No	-0.625	5.959
565	19-47	1,378.000	0.001	0.005	1,372.287	Not Full	No	-0.380	5.713
566	19-48	1,396.000	0.001	0.008	1,389.266	Not Full	No	-0.400	6.734
567	19-49	1,403.000	0.002	0.009	1,397.359	Not Full	No	-0.307	5.641
568	19-50	1,411.000	0.001	0.007	1,405.364	Not Full	No	-0.303	5.636
569	19-51	1,451.000	0.001	0.004	1,445.242	Not Full	No	-0.424	5.758
570	19-52	1,427.000	0.002	0.009	1,421.027	Not Full	No	-0.639	5.973
571	19-53	1,395.000	0.002	0.010	1,390.141	Not Full	Yes	-0.526	4.859
572	19-54	1,432.000	0.002	0.012	1,426.033	Not Full	No	-0.633	5.967
573	19-55	1,398.000	0.001	0.008	1,392.056	Not Full	No	-0.610	5.944
574	19-56	1,445.000	0.002	0.009	1,439.032	Not Full	No	-0.634	5.968
575	19-56.25	1,450.000	0.001	0.004	1,444.031	Not Full	No	-0.302	5.969
576	19-56.5	1,463.000	0.001	0.004	1,457.022	Not Full	No	-0.311	5.978
577	23-1	1,095.000	0.001	0.006	1,089.041	Not Full	No	-0.459	5.959
578	IND-1	1,091.000	0.001	0.006	1,091.000	Full	No	5.250	0.000
579	IND-2	1,094.000	0.001	0.006	1,091.002	Not Full	No	1.752	2.998
580	IND-3	1,096.000	0.001	0.007	1,091.003	Not Full	No	-0.247	4.997
581	IND-4	1,097.000	0.001	0.005	1,091.134	Not Full	No	-1.116	5.866
582	IND-5	1,098.000	0.001	0.004	1,092.122	Not Full	No	-1.128	5.878
583	IND-6	1,098.000	0.001	0.004	1,093.136	Not Full	No	-1.114	4.864
584	IND-7	1,098.000	0.001	0.005	1,094.136	Not Full	No	-1.114	3.864
585	IND-8	1,098.000	0.001	0.004	1,095.131	Not Full	No	-1.119	2.869
586	IND-9	1,098.000	0.001	0.008	1,096.150	Not Full	No	-0.850	1.850
587	IND-10	1,100.000	0.004	0.019	1,097.139	Not Full	No	-0.861	2.861
588	IND-11	1,099.000	0.003	0.014	1,097.139	Not Full	No	2.639	1.861
589	IND-12	1,099.000	0.004	0.019	1,097.140	Not Full	No	2.140	1.860
590	APPLE1	1,295.000	0.001	0.007	1,289.056	Not Full	No	-0.611	5.944
591	APPLE2	1,312.000	0.001	0.006	1,306.053	Not Full	No	-0.613	5.947
592	APPLE3	1,318.000	0.003	0.015	1,312.070	Not Full	No	-0.597	5.930
593	APPLE4	1,341.000	0.001	0.006	1,335.029	Not Full	No	-0.638	5.971
594	APPLE5	1,360.000	0.001	0.006	1,354.022	Not Full	No	-0.645	5.978
595	BRAEBURN1	1,298.000	0.001	0.007	1,292.082	Not Full	No	-0.585	5.918
596	BRAEBURN2	1,319.000	0.002	0.009	1,313.059	Not Full	No	-0.608	5.941
597	BRAEBURN3	1,334.000	0.001	0.007	1,328.049	Not Full	No	-0.618	5.951
598	BRAEBURN4	1,347.000	0.001	0.009	1,341.042	Not Full	No	-0.624	5.958
599	BRAEBURN6	1,335.000	0.001	0.004	1,329.049	Not Full	No	-0.617	5.951
600	BRAEBURN7	1,352.000	0.002	0.009	1,346.050	Not Full	No	-0.616	5.950
601	BRAEBURN8	1,359.000	0.001	0.006	1,353.031	Not Full	No	-0.636	5.969
602	CRUSHERCANYON1	1,160.000	0.001	0.004	1,154.226	Not Full	No	-0.774	5.774
603	CRUSHERCANYON10	1,265.000	0.001	0.006	1,259.202	Not Full	No	-0.798	5.798
604	CRUSHERCANYON11	1,271.000	0.001	0.006	1,265.310	Not Full	No	-0.690	5.690
605	CRUSHERCANYON12	1,278.000	0.001	0.006	1,272.276	Not Full	No	-0.724	5.724
606	CRUSHERCANYON13	1,289.000	0.188	0.667	1,283.238	Not Full	No	-0.762	5.762
607	CRUSHERCANYON2	1,172.000	0.001	0.006	1,160.916	Not Full	No	-0.694	11.084
608	CRUSHERCANYON3	1,185.000	0.001	0.005	1,169.924	Not Full	No	-0.726	15.076
609	CRUSHERCANYON4	1,188.000	0.001	0.006	1,176.286	Not Full	No	-0.714	11.714
610	CRUSHERCANYON5	1,202.000	0.001	0.006	1,192.263	Not Full	No	-0.737	9.737
611	CRUSHERCANYON6	1,213.000	0.001	0.006	1,197.279	Not Full	No	-0.721	15.721
612	CRUSHERCANYON7	1,227.000	0.001	0.004	1,221.183	Not Full	No	-0.817	5.817

613	CRUSHERCANYON8	1,230.000	0.000	0.001	1,222.609	Not Full	No	45.112	7.391
614	CRUSHERCANYON9	1,250.000	0.001	0.005	1,244.224	Not Full	No	-0.776	5.776
615	ELKSCOUNTRYCLUB	1,083.000	0.098	0.371	1,077.243	Not Full	No	-0.591	5.757
616	FIRST1	1,448.000	0.001	0.006	1,442.037	Not Full	No	-0.629	5.963
617	FIRST2	1,449.000	0.001	0.005	1,443.060	Not Full	No	-0.606	5.940
618	FIRST3	1,449.000	0.001	0.005	1,443.554	Not Full	No	-0.613	5.446
619	FIRST4	1,457.000	0.001	0.008	1,451.038	Not Full	No	-0.628	5.962
620	GOODLANDER1	1,455.000	0.001	0.006	1,448.276	Not Full	No	-0.390	6.724
621	GOODLANDER10	1,458.000	0.001	0.007	1,454.795	Not Full	No	2.128	3.205
622	GOODLANDER11	1,458.000	0.001	0.004	1,457.864	Not Full	No	4.697	0.136
623	GOODLANDER12	1,460.000	0.232	0.805	1,460.000	Full	No	5.333	0.000
624	GOODLANDER2	1,473.000	0.001	0.006	1,467.047	Not Full	No	-0.619	5.953
625	GOODLANDER3	1,497.000	0.001	0.006	1,491.045	Not Full	No	-0.622	5.955
626	GOODLANDER4	1,528.000	0.001	0.006	1,522.044	Not Full	No	-0.622	5.956
627	GOODLANDER5	1,553.000	0.001	0.006	1,547.041	Not Full	No	-0.625	5.959
628	GOODLANDER6	1,568.000	0.001	0.006	1,562.023	Not Full	No	-0.643	5.977
629	GOODLANDER7	1,585.000	0.001	0.006	1,579.027	Not Full	No	-0.639	5.973
630	GOODLANDER8	1,454.000	0.001	0.004	1,450.369	Not Full	Yes	1.202	3.631
631	GOODLANDER9	1,462.000	0.001	0.003	1,451.526	Not Full	No	-0.140	10.474
632	GRAHAMPACKAGIN	1,094.000	0.143	0.521	1,088.521	Not Full	No	0.021	5.479
633	HERITAGE1	1,311.000	0.001	0.007	1,305.080	Not Full	No	-0.586	5.920
634	HERITAGE10	1,441.000	0.001	0.006	1,435.038	Not Full	No	-0.629	5.962
635	HERITAGE11	1,450.000	0.001	0.008	1,444.027	Not Full	No	-0.640	5.973
636	HERITAGE12	1,374.000	0.000	0.003	1,368.048	Not Full	No	-0.619	5.952
637	HERITAGE13	1,395.000	0.000	0.003	1,389.051	Not Full	No	-0.615	5.949
638	HERITAGE14	1,402.000	0.000	0.003	1,394.060	Not Full	No	-0.607	7.940
639	HERITAGE15	1,402.000	0.000	0.002	1,394.601	Not Full	No	-0.566	7.399
640	HERITAGE16	1,402.000	0.000	0.002	1,395.098	Not Full	Yes	-0.569	6.902
641	HERITAGE17	1,410.000	0.001	0.004	1,404.048	Not Full	No	-0.619	5.952
642	HERITAGE18	1,454.000	0.001	0.006	1,448.042	Not Full	No	-0.625	5.958
643	HERITAGE19	1,470.000	0.001	0.005	1,460.050	Not Full	No	-0.617	9.950
644	HERITAGE2	1,353.000	0.000	0.002	1,347.070	Not Full	No	-0.597	5.930
645	HERITAGE20	1,467.000	0.002	0.009	1,461.075	Not Full	No	-0.592	5.925
646	HERITAGE21	1,468.000	0.001	0.003	1,462.063	Not Full	Yes	-0.603	5.937
647	HERITAGE22	1,467.000	0.000	0.002	1,462.540	Not Full	No	-0.627	4.460
648	HERITAGE3	1,361.000	0.001	0.003	1,355.049	Not Full	No	-0.618	5.951
649	HERITAGE4	1,371.000	0.001	0.005	1,365.066	Not Full	No	-0.600	5.934
650	HERITAGE5	1,379.000	0.001	0.008	1,373.054	Not Full	No	-0.613	5.946
651	HERITAGE6	1,389.000	0.001	0.003	1,383.043	Not Full	No	-0.623	5.957
652	HERITAGE7	1,411.000	0.001	0.005	1,405.045	Not Full	No	-0.622	5.955
653	HERITAGE8	1,429.000	0.001	0.007	1,423.046	Not Full	No	-0.620	5.954
654	HERITAGE9	1,435.000	0.001	0.009	1,429.056	Not Full	No	-0.610	5.944
655	HERITAGEHILLS	1,475.000	0.001	0.003	1,469.023	Not Full	No	-0.644	5.977
656	LYLE1	1,290.000	0.002	0.009	1,288.434	Not Full	No	3.767	1.566
657	LYLE2	1,300.000	0.002	0.010	1,294.041	Not Full	No	-0.626	5.959
658	NACHES1	1,392.000	0.001	0.005	1,386.048	Not Full	No	-0.618	5.952
659	NACHES2	1,402.000	0.001	0.006	1,396.033	Not Full	No	-0.634	5.967
660	NACHES3	1,410.000	0.001	0.005	1,404.024	Not Full	No	-0.643	5.976
661	NACHES4	1,415.000	0.001	0.004	1,409.020	Not Full	No	-0.647	5.980
662	NACHES5	1,411.000	0.001	0.004	1,398.058	Not Full	No	-0.609	12.942
663	NACHES7	1,408.000	0.001	0.007	1,402.042	Not Full	No	-0.624	5.958
664	NACHES8	1,425.000	0.001	0.005	1,419.024	Not Full	No	-0.643	5.976
665	PUBLICWORKS1	1,091.000	0.001	0.006	1,091.000	Full	Yes	4.750	0.000
666	PUBLICWORKS2	1,091.000	0.001	0.006	1,091.000	Full	No	5.183	0.000
667	PUBLICWORKS3	1,091.000	0.001	0.006	1,091.000	Full	No	5.033	0.000
668	PUBLICWORKS4	1,091.000	0.001	0.006	1,091.000	Full	No	5.000	0.000

669	SELAHHIGH1	1,120.000	0.000	0.002	1,120.000	Full	Yes	1.600	0.000
670	YAKIMA1	1,474.000	0.000	0.003	1,465.025	Not Full	No	-0.642	8.975
671	YAKIMA2	1,473.000	0.001	0.003	1,466.036	Not Full	No	-0.631	6.964
672	YAKIMA3	1,472.000	0.000	0.003	1,467.034	Not Full	No	-0.633	4.966
673	YAKIMA4	1,472.000	0.001	0.005	1,467.047	Not Full	No	-0.619	4.953
674	177TH1	1,388.000	0.001	0.005	1,382.058	Not Full	No	-0.609	5.942
675	177TH2	1,447.000	0.002	0.009	1,443.043	Not Full	No	-0.624	3.957
676	177TH4	1,472.000	0.001	0.005	1,466.034	Not Full	No	-0.633	5.966
677	213	1,182.000	0.058	0.231	1,091.927	Not Full	Yes	2.177	90.073

2037 Peak flows with Wixson Park Project Completed

ID	From ID	To ID	Diameter (in)	Length (ft)	Slope	Total Flow (mgd)	Peakable Flow (mgd)	Flow Type	Velocity (ft/s)	d/D	q/Q	Water Depth (ft)	Critical Depth (ft)	Full Flow (mgd)	Backwater Adjustm	Adjusted Depth (ft)	Adjusted Velocity (ft/s)
1	6-21	6-20	8.000	247.304	0.093	0.007	0.001	Free Surface	2.326	0.039	0.003	0.026	0.046	2.388	Yes	0.091	0.371
2	6-22	6-20	8.000	53.000	0.094	0.234	0.059	Free Surface	6.76	0.211	0.097	0.14	0.28	2.405	Yes	0.148	6.266
3	6-19	6-18	8.000	123.184	0.041	0.249	0.063	Free Surface	5.115	0.268	0.157	0.179	0.289	1.582	No	0.179	5.115
4	6-23	6-19	8.000	203.824	0.083	0.008	0.001	Free Surface	2.314	0.042	0.003	0.028	0.049	2.262	Yes	0.104	0.343
5	6-20	6-19	8.000	227.000	0.066	0.241	0.061	Free Surface	6.012	0.234	0.12	0.156	0.284	2.013	Yes	0.167	5.435
6	1-5	1-4	18.000	542.969	0.005	1.243	0.376	Free Surface	3.48	0.351	0.264	0.526	0.522	4.711	Yes	1.101	1.383
7	4-54	4-28	8.000	134.133	0.142	0.073	0.016	Free Surface	5.518	0.109	0.025	0.072	0.153	2.947	Yes	0.084	4.465
8	4-25	4-24	8.000	126.587	0.032	0.115	0.027	Free Surface	3.733	0.195	0.083	0.13	0.194	1.392	No	0.13	3.733
9	6-47	6-45	8.000	278.327	0.097	0.029	0.006	Free Surface	3.654	0.077	0.012	0.051	0.096	2.433	Yes	0.062	2.731
10	6-48	6-47	8.000	235.000	0.115	0.017	0.003	Free Surface	3.301	0.057	0.006	0.038	0.073	2.654	Yes	0.045	2.618
11	5-26	5-25	8.000	71.707	0.028	0.057	0.012	Free Surface	2.894	0.142	0.043	0.095	0.135	1.308	No	0.095	2.894
13	5-21	5-20	8.000	278.521	0.014	0.271	0.069	Free Surface	3.597	0.368	0.288	0.245	0.302	0.938	Yes	0.29	2.869
15	5-96	5-95	8.000	290.154	0.014	0.007	0.001	Free Surface	1.18	0.06	0.007	0.04	0.045	0.919	Yes	0.053	0.784
16	5-20	5-19	8.000	138.442	0.005	0.273	0.070	Free Surface	2.403	0.503	0.506	0.336	0.303	0.541	No	0.336	2.403
17	5-24	5-23	8.000	109.859	0.082	0.139	0.033	Free Surface	5.514	0.169	0.062	0.112	0.213	2.241	Yes	0.118	5.14
18	5-25	5-24	8.000	240.000	0.100	0.099	0.023	Free Surface	5.348	0.136	0.04	0.091	0.179	2.476	Yes	0.102	4.547
22	5-93	5-24	8.000	302.875	0.003	0.017	0.003	Free Surface	0.96	0.134	0.038	0.089	0.074	0.45	Yes	0.101	0.804
23	5-95	5-25	8.000	301.007	0.010	0.016	0.003	Free Surface	1.377	0.099	0.02	0.066	0.07	0.782	Yes	0.078	1.064
24	5-79	5-78	8.000	288.886	0.017	0.052	0.011	Free Surface	2.39	0.153	0.051	0.102	0.129	1.03	No	0.102	2.39
25	5-85	5-80	8.000	62.000	0.097	0.015	0.003	Free Surface	2.984	0.056	0.006	0.037	0.068	2.436	Yes	0.055	1.689
26	5-83.5	5-83	8.000	163.864	0.098	0.008	0.001	Free Surface	2.443	0.041	0.003	0.027	0.049	2.447	Yes	0.034	1.727
27	5-89	5-24	8.000	134.375	0.022	0.030	0.006	Free Surface	2.221	0.111	0.026	0.074	0.098	1.17	Yes	0.093	1.585
28	5-92	5-91	8.000	231.247	0.099	0.008	0.001	Free Surface	2.509	0.042	0.003	0.028	0.05	2.47	Yes	0.047	1.156
29	5-87	5-86	8.000	120.000	0.033	0.006	0.001	Free Surface	1.589	0.048	0.004	0.032	0.044	1.43	Yes	0.034	1.446
30	5-86	5-85	8.000	151.000	0.066	0.012	0.002	Free Surface	2.427	0.054	0.006	0.036	0.06	2.015	Yes	0.037	2.379
31	8-13	8-10	8.000	174.633	0.006	0.011	0.002	Free Surface	1.028	0.096	0.019	0.064	0.06	0.593	No	0.064	1.028
32	8-11	8-10	8.000	232.640	0.034	0.019	0.004	Free Surface	2.259	0.081	0.013	0.054	0.078	1.452	No	0.054	2.259
33	11-18	11-17	8.000	75.442	0.278	0.048	0.010	Free Surface	6.155	0.076	0.012	0.051	0.124	4.131	Yes	0.073	3.555
34	11-19	11-18	8.000	183.712	0.120	0.044	0.009	Free Surface	4.451	0.088	0.016	0.059	0.118	2.71	No	0.059	4.451
35	11-25	11-24	8.000	184.000	0.043	0.009	0.002	Free Surface	1.922	0.053	0.005	0.035	0.052	1.633	Yes	0.037	1.776
36	11-22	11-21	8.000	262.000	0.134	0.010	0.002	Free Surface	2.96	0.043	0.004	0.029	0.056	2.862	Yes	0.049	1.363
37	11-21	11-20	8.000	214.000	0.009	0.017	0.003	Free Surface	1.366	0.102	0.022	0.068	0.072	0.757	Yes	0.082	1.037
38	11-24	11-19	8.000	265.000	0.094	0.016	0.003	Free Surface	3.027	0.058	0.007	0.039	0.071	2.405	Yes	0.049	2.159
39	11-17	11-5	8.000	273.476	0.023	0.054	0.011	Free Surface	2.673	0.144	0.045	0.096	0.131	1.195	Yes	0.234	0.76
40	3-36	3-35	8.000	198.992	0.005	0.009	0.001	Free Surface	0.901	0.087	0.015	0.058	0.052	0.555	Yes	0.075	0.607
41	3-34	3-15	8.000	224.839	0.004	0.031	0.006	Free Surface	1.275	0.167	0.06	0.111	0.1	0.522	Yes	0.321	0.292
42	3-15	3-14	12.000	184.981	0.012	1.387	0.424	Free Surface	5.054	0.532	0.555	0.532	0.626	2.501	No	0.532	5.054
43	3-44	3-43	8.000	417.429	0.001	0.011	0.002	Free Surface	0.467	0.166	0.06	0.111	0.06	0.192	Yes	0.119	0.42
44	3-16	3-15	12.000	320.186	0.001	1.363	0.416	Pressurized	2.685	1	1.67	1	0.474	0.816	No	1	2.685
45	3-35	3-34	8.000	303.614	0.003	0.019	0.004	Free Surface	0.986	0.14	0.042	0.093	0.077	0.449	Yes	0.102	0.864
46	3-41	3-40	10.000	212.174	0.012	0.049	0.010	Free Surface	1.988	0.122	0.032	0.102	0.117	1.541	Yes	0.122	1.517
47	3-40	3-39	10.000	87.581	0.006	0.069	0.015	Free Surface	1.708	0.172	0.064	0.143	0.14	1.073	No	0.143	1.708
48	3-39	3-38	10.000	204.612	0.010	0.072	0.016	Free Surface	2.087	0.153	0.051	0.128	0.143	1.404	Yes	0.131	2.018
49	3-18	3-17	12.000	36.580	0.005	1.346	0.411	Pressurized	3.727	0.67	0.789	0.67	0.616	1.707	Yes	1	2.652
50	3-20	3-19	12.000	90.015	0.002	1.291	0.392	Pressurized	2.544	1	1.187	1	0.552	1.088	Yes	1	2.544
51	3-19	3-18	12.000	24.935	0.008	1.293	0.392	Pressurized	4.298	0.573	0.625	0.573	0.603	2.068	Yes	1	2.547
52	3-38	3-37	10.000	308.985	0.010	0.078	0.017	Free Surface	2.139	0.161	0.056	0.134	0.149	1.399	Yes	0.833	0.222
53	3-22	3-21	12.000	327.527	0.001	1.289	0.391	Pressurized	2.538	1	1.597	1	0.472	0.807	Yes	1	2.538
54	3-21	3-20	12.000	308.945	0.001	1.290	0.392	Pressurized	2.542	1	1.553	1	0.479	0.831	Yes	1	2.542
55	3-24	3-23	12.000	295.756	0.058	1.285	0.390	Free Surface	8.898	0.327	0.232	0.327	0.602	5.552	Yes	0.983	2.541
57	3-23	SELAHHIGH1	12.000	204.924	0.008	1.287	0.390	Pressurized	4.249	0.576	0.631	0.576	0.602	2.04	Yes	1	2.534
58	3-42	3-41	10.000	289.346	0.021	0.043	0.009	Free Surface	2.339	0.101	0.021	0.084	0.111	2.045	Yes	0.093	2.022
59	3-43	3-40	8.000	182.190	0.001	0.023	0.005	Free Surface	0.771	0.192	0.08	0.128	0.086	0.29	Yes	0.135	0.708

60	3-17	3-16	12.000	347.677	0.001	1.351	0.412	Pressurized	2.662	1	1.725	1	0.464	0.783	Yes	1	2.662
61	3-12	3-11	12.000	305.515	0.005	1.399	0.428	Pressurized	3.607	0.714	0.859	0.714	0.629	1.629	Yes	1	2.756
62	3-13	3-12	12.000	233.049	0.005	1.392	0.426	Pressurized	3.644	0.704	0.844	0.704	0.627	1.65	Yes	1	2.742
63	3-33	3-32	8.000	242.000	0.002	0.010	0.002	Free Surface	0.685	0.113	0.027	0.076	0.055	0.356	Yes	0.077	0.67
64	3-32	3-30	8.000	55.291	0.005	0.017	0.003	Free Surface	1.131	0.117	0.029	0.078	0.072	0.577	Yes	0.109	0.692
65	3-30	3-31	8.000	554.672	0.001	0.025	0.005	Free Surface	0.724	0.211	0.097	0.141	0.089	0.258	Yes	0.148	0.675
66	IND-11	IND-10	12.000	324.967	0.002	0.030	0.006	Pressurized	0.824	0.125	0.033	0.125	0.088	0.906	Yes	1	0.06
67	IND-10	IND-9	12.000	426.261	0.002	0.046	0.010	Free Surface	1.085	0.139	0.041	0.139	0.109	1.118	Yes	0.145	1.023
68	3-6	3-5	12.000	251.654	0.003	1.549	0.480	Pressurized	3.052	1	1.19	1	0.606	1.302	Yes	1	3.052
69	3-5	3-4	12.000	246.885	0.004	1.556	0.482	Pressurized	3.064	1	1.033	1	0.653	1.506	Yes	1	3.064
70	IND-8	IND-7	15.000	310.105	0.003	0.055	0.012	Free Surface	1.24	0.105	0.023	0.131	0.112	2.377	Yes	0.134	1.209
71	3-2	3-1	15.000	191.939	0.004	1.575	0.489	Pressurized	3.342	0.574	0.628	0.718	0.625	2.51	Yes	1.25	1.986
72	3-3	3-2	15.000	116.314	0.002	1.571	0.487	Pressurized	2.724	0.682	0.81	0.853	0.624	1.941	Yes	1.25	1.981
73	3-1	2-3	15.000	423.823	0.001	1.586	0.493	Pressurized	2	1	1.401	1.25	0.526	1.132	Yes	1.25	2
74	3-4	3-3	15.000	211.178	0.004	1.564	0.485	Pressurized	3.405	0.562	0.607	0.703	0.622	2.577	Yes	1.25	1.972
75	IND-9	IND-8	12.000	463.726	0.002	0.052	0.011	Free Surface	1.093	0.15	0.049	0.15	0.116	1.072	No	0.15	1.093
76	IND-12	IND-11	12.000	339.216	0.001	0.019	0.004	Pressurized	0.703	0.101	0.021	0.101	0.069	0.886	Yes	1	0.037
77	2-30	2-29	8.000	85.161	0.006	0.087	0.020	Pressurized	1.897	0.258	0.146	0.172	0.168	0.6	Yes	0.667	0.388
78	2-8	2-7	8.000	358.850	0.004	0.636	0.179	Pressurized	2.821	1	1.315	0.667	0.409	0.484	Yes	0.667	2.821
79	2-32	2-31	8.000	19.172	0.052	0.040	0.008	Pressurized	3.25	0.104	0.022	0.069	0.113	1.788	Yes	0.667	0.178
80	2-33	2-32	8.000	175.701	0.006	0.037	0.008	Pressurized	1.461	0.17	0.063	0.113	0.109	0.591	Yes	0.667	0.165
81	2-10	2-9	8.000	82.063	0.003	0.522	0.143	Pressurized	2.314	1	1.318	0.667	0.368	0.396	Yes	0.667	2.314
82	2-31	2-9	8.000	147.035	0.019	0.044	0.009	Pressurized	2.352	0.138	0.041	0.092	0.118	1.083	Yes	0.667	0.195
83	2-34	2-33	8.000	305.012	0.010	0.029	0.006	Free Surface	1.648	0.133	0.038	0.088	0.096	0.777	Yes	0.667	0.129
84	2-11	2-10	8.000	460.241	0.016	0.516	0.142	Pressurized	4.397	0.516	0.528	0.344	0.423	0.979	Yes	0.667	2.289
85	2-23	2-22	8.000	20.166	0.050	0.023	0.004	Free Surface	2.695	0.08	0.013	0.053	0.085	1.744	Yes	0.332	0.204
86	2-22	2-6	8.000	119.888	0.064	0.026	0.005	Free Surface	3.064	0.08	0.013	0.053	0.09	1.988	Yes	0.667	0.115
87	2-6	2-5	8.000	377.669	0.004	0.713	0.203	Pressurized	3.162	1	1.513	0.667	0.403	0.472	Yes	0.667	3.162
88	2-24	2-23	8.000	435.773	0.014	0.015	0.003	Free Surface	1.504	0.088	0.016	0.059	0.068	0.919	No	0.059	1.504
89	2-16	2-5	8.000	298.560	0.044	0.067	0.015	Free Surface	3.567	0.138	0.041	0.092	0.147	1.64	Yes	0.667	0.297
90	2-25	2-7	8.000	217.039	0.031	0.057	0.012	Pressurized	2.99	0.139	0.041	0.093	0.135	1.369	Yes	0.667	0.252
91	2-9	2-8	8.000	321.950	0.005	0.556	0.154	Pressurized	2.464	1	1.058	0.667	0.427	0.526	Yes	0.667	2.464
92	2-7	2-6	8.000	357.453	0.003	0.689	0.195	Pressurized	3.053	1	1.586	0.667	0.386	0.434	Yes	0.667	3.053
94	2-4	2-3	10.000	440.535	0.003	0.785	0.225	Pressurized	2.649	0.784	0.957	0.653	0.492	0.82	Yes	0.833	2.227
95	IND-4	IND-3	15.000	229.741	0.004	0.067	0.015	Free Surface	1.463	0.108	0.024	0.134	0.124	2.762	No	0.134	1.463
96	IND-5	IND-4	15.000	172.808	0.006	0.064	0.014	Free Surface	1.59	0.098	0.02	0.122	0.121	3.184	Yes	0.128	1.482
97	IND-6	IND-5	15.000	260.643	0.003	0.061	0.013	Free Surface	1.311	0.109	0.025	0.136	0.118	2.46	No	0.136	1.311
98	IND-3	IND-2	15.000	348.242	0.006	0.072	0.016	Free Surface	1.648	0.104	0.023	0.13	0.129	3.172	Yes	1.035	0.103
100	IND-2	PUBLICWORKS1	15.000	483.066	0.006	0.077	0.017	Pressurized	1.722	0.105	0.023	0.131	0.132	3.299	Yes	1.25	0.096
101	2-1	1-22	12.000	184.192	0.003	2.466	0.804	Pressurized	4.857	1	1.856	1	0.612	1.329	Yes	1	4.857
102	1-21	1-20	12.000	61.606	0.000	3.173	1.064	Pressurized	6.251	1	6.229	1	0.371	0.509	Yes	1	6.251
103	1-22	1-21	12.000	366.650	0.002	2.778	0.918	Pressurized	5.473	1	3.052	1	0.502	0.91	Yes	1	5.473
104	1-23	1-22	8.000	372.398	0.013	0.417	0.112	Pressurized	3.88	0.481	0.468	0.321	0.378	0.89	Yes	0.667	1.848
105	1-31	1-21	8.000	304.429	0.005	0.526	0.144	Pressurized	2.693	0.808	0.987	0.539	0.427	0.533	Yes	0.667	2.331
106	1-3	1-2	21.000	42.265	0.003	4.188	1.449	Pressurized	3.743	0.676	0.799	1.183	0.94	5.238	Yes	1.75	2.694
107	1-2	1-1	21.000	232.000	0.000	4.191	1.450	Pressurized	2.696	1	1.966	1.75	0.66	2.132	No	1.75	2.696
108	1-33	1-32	8.000	314.000	0.004	0.505	0.138	Pressurized	2.238	1	1.002	0.667	0.418	0.504	Yes	0.667	2.238
109	1-36	1-35	8.000	51.649	0.004	0.014	0.003	Pressurized	0.994	0.111	0.026	0.074	0.065	0.523	Yes	0.667	0.061
110	1-35	1-34	8.000	224.632	0.003	0.489	0.133	Pressurized	2.167	1	1.17	0.667	0.379	0.418	Yes	0.667	2.167
111	1-37	1-36	8.000	209.556	0.005	0.011	0.002	Pressurized	0.941	0.097	0.019	0.064	0.057	0.541	Yes	0.667	0.047
112	1-8	1-7	12.000	47.625	0.015	1.212	0.365	Free Surface	5.316	0.46	0.433	0.46	0.584	2.799	Yes	0.545	4.281
113	1-7	1-6	12.000	311.423	0.005	1.214	0.366	Free Surface	3.597	0.631	0.724	0.631	0.584	1.675	No	0.631	3.597
114	1-34	1-33	8.000	264.972	0.004	0.496	0.135	Pressurized	2.56	0.802	0.979	0.534	0.414	0.507	Yes	0.667	2.2
115	1-24	1-23	8.000	444.002	0.009	0.405	0.108	Pressurized	3.396	0.522	0.538	0.348	0.372	0.752	Yes	0.667	1.793
116	1-32	1-31	8.000	321.743	0.004	0.516	0.141	Pressurized	2.285	1	1.024	0.667	0.417	0.503	Yes	0.667	2.285
117	9-3	9-2	10.000	232.289	0.005	0.328	0.086	Pressurized	2.456	0.404	0.344	0.337	0.312	0.955	Yes	0.833	0.931
118	1-1	WASTEWATERPLANT	21.000	28.890	0.007	5.355	1.904	Free Surface	5.802	0.574	0.627	1.004	1.068	8.544	No	1.004	5.802

119	9-4	9-3	10.000	291.000	0.003	0.313	0.081	Free Surface	2.011	0.454	0.423	0.378	0.304	0.74	Yes	0.833	0.888
120	9-6	9-5	10.000	446.793	0.001	0.252	0.064	Free Surface	1.028	0.655	0.765	0.546	0.272	0.329	No	0.546	1.028
121	9-5	9-4	10.000	393.000	0.003	0.286	0.073	Free Surface	2.005	0.424	0.375	0.354	0.29	0.761	Yes	0.448	1.477
122	9-16	9-15	12.000	455.978	0.001	0.976	0.287	Pressurized	1.923	1	1.331	1	0.449	0.733	No	1	1.923
123	9-7	9-6	10.000	278.518	0.002	0.240	0.060	Free Surface	1.562	0.45	0.416	0.375	0.265	0.577	Yes	0.46	1.203
124	9-9	9-8	10.000	153.016	0.006	0.205	0.051	Free Surface	2.391	0.293	0.187	0.244	0.245	1.101	No	0.244	2.391
125	9-8	9-7	10.000	96.327	0.016	0.218	0.054	Free Surface	3.47	0.234	0.12	0.195	0.252	1.813	Yes	0.285	2.047
126	9-15	9-1	12.000	728.026	0.019	1.018	0.301	Free Surface	5.544	0.391	0.322	0.391	0.533	3.157	Yes	1	2.005
127	9-15.5	9-15	8.000	160.000	0.018	0.033	0.007	Free Surface	2.125	0.121	0.031	0.081	0.102	1.058	Yes	0.236	0.465
128	2-2	2-1	12.000	130.505	0.002	0.316	0.082	Pressurized	1.881	0.366	0.286	0.366	0.29	1.107	Yes	1	0.623
129	9-2	9-1	8.000	225.846	0.009	0.335	0.087	Pressurized	3.263	0.464	0.44	0.31	0.337	0.76	Yes	0.667	1.483
130	IND-7	IND-6	15.000	315.858	0.003	0.059	0.013	Free Surface	1.256	0.109	0.025	0.136	0.116	2.355	No	0.136	1.256
131	2-3	2-1	15.000	263.000	0.002	2.234	0.721	Pressurized	2.817	1	1.099	1.25	0.714	2.033	Yes	1.25	2.817
132	3-14	3-13	12.000	93.608	0.070	1.389	0.425	Free Surface	9.756	0.324	0.227	0.324	0.626	6.121	Yes	1	2.736
133	4-10	4-9	8.000	121.467	0.071	0.053	0.011	Free Surface	3.921	0.11	0.025	0.073	0.13	2.08	Yes	0.082	3.291
134	4-12	4-11	8.000	162.946	0.050	0.038	0.008	Free Surface	3.15	0.102	0.022	0.068	0.11	1.752	Yes	0.071	2.923
135	4-11	4-10	8.000	380.036	0.050	0.047	0.010	Free Surface	3.34	0.112	0.027	0.075	0.122	1.746	No	0.075	3.34
136	4-14	4-13	8.000	303.000	0.065	0.012	0.002	Free Surface	2.462	0.056	0.006	0.038	0.062	1.998	Yes	0.05	1.606
137	4-30	4-29	8.000	251.148	0.108	0.014	0.003	Free Surface	3.061	0.054	0.006	0.036	0.067	2.568	Yes	0.047	2.036
138	4-13	4-12	8.000	257.985	0.048	0.032	0.006	Free Surface	2.928	0.094	0.018	0.063	0.1	1.709	Yes	0.065	2.768
140	19-1	3-28	8.000	78.964	0.066	1.121	0.335	Free Surface	9.15	0.534	0.558	0.356	0.603	2.01	No	0.356	9.15
141	4-5	4-4	12.000	459.427	0.037	0.142	0.034	Free Surface	3.974	0.123	0.032	0.123	0.193	4.412	Yes	0.135	3.476
142	4-4	4-3	8.000	95.107	0.041	0.169	0.041	Free Surface	4.586	0.22	0.106	0.147	0.236	1.59	Yes	0.157	4.159
143	4-6	4-5	12.000	262.572	0.032	0.116	0.027	Free Surface	3.564	0.115	0.028	0.115	0.174	4.12	Yes	0.119	3.397
144	4-8	4-7	8.000	118.026	0.038	0.081	0.018	Free Surface	3.589	0.157	0.053	0.105	0.162	1.524	Yes	0.141	2.329
145	4-47	4-7	8.000	205.675	0.005	0.010	0.002	Free Surface	0.975	0.094	0.018	0.063	0.057	0.57	Yes	0.12	0.377
146	4-48	4-8	8.000	211.465	0.031	0.025	0.005	Free Surface	2.369	0.094	0.018	0.063	0.089	1.386	Yes	0.084	1.552
147	4-7	4-6	8.000	280.230	0.006	0.094	0.021	Free Surface	1.944	0.267	0.156	0.178	0.174	0.603	No	0.178	1.944
148	4-55	4-15	6.000	486.689	0.007	0.006	0.001	Free Surface	0.966	0.098	0.02	0.049	0.047	0.31	No	0.049	0.966
149	4-2	4-1	8.000	340.508	0.034	0.212	0.053	Free Surface	4.59	0.259	0.147	0.173	0.266	1.449	Yes	0.223	3.212
150	4-39	4-16	8.000	198.112	0.225	0.019	0.004	Free Surface	4.307	0.051	0.005	0.034	0.077	3.711	Yes	0.667	0.084
151	4-40	4-39	8.000	264.979	0.011	0.012	0.002	Free Surface	1.319	0.083	0.014	0.056	0.061	0.833	No	0.056	1.319
152	4-3	4-2	8.000	320.434	0.037	0.208	0.052	Free Surface	4.685	0.251	0.139	0.168	0.263	1.503	Yes	0.17	4.591
153	4-44	4-43	8.000	139.792	0.086	0.014	0.003	Free Surface	2.807	0.056	0.006	0.037	0.066	2.294	Yes	0.044	2.226
154	4-43	4-42	8.000	254.756	0.067	0.023	0.004	Free Surface	2.988	0.075	0.011	0.05	0.085	2.023	Yes	0.057	2.45
155	4-42	4-41	8.000	122.058	0.049	0.033	0.007	Free Surface	3.014	0.096	0.019	0.064	0.103	1.736	Yes	0.067	2.85
156	4-50	4-49	8.000	208.464	0.072	0.011	0.002	Free Surface	2.45	0.052	0.005	0.035	0.058	2.101	Yes	0.041	1.934
157	4-32	4-18	8.000	153.309	0.120	0.021	0.004	Free Surface	3.58	0.063	0.008	0.042	0.082	2.709	Yes	0.085	1.265
158	4-37	4-17	8.000	190.536	0.039	0.015	0.003	Free Surface	2.196	0.07	0.01	0.047	0.069	1.553	Yes	0.08	0.986
159	4-38	4-37	8.000	209.417	0.005	0.009	0.002	Free Surface	0.904	0.091	0.017	0.06	0.054	0.541	No	0.06	0.904
160	4-21	4-20	8.000	305.290	0.009	0.175	0.043	Free Surface	2.658	0.334	0.24	0.222	0.241	0.73	Yes	0.223	2.645
161	4-33	4-32	8.000	253.310	0.037	0.017	0.003	Free Surface	2.236	0.075	0.011	0.05	0.073	1.514	No	0.05	2.236
162	4-41	4-3	8.000	566.663	0.056	0.042	0.009	Free Surface	3.377	0.104	0.023	0.069	0.115	1.855	Yes	0.118	1.545
163	4-49	4-48	8.000	298.857	0.064	0.019	0.004	Free Surface	2.792	0.07	0.01	0.047	0.078	1.974	Yes	0.055	2.207
164	2-15	2-14	8.000	37.403	0.065	0.243	0.061	Free Surface	5.989	0.236	0.122	0.157	0.285	1.996	Yes	0.354	1.992
165	2-14	2-13	12.000	306.129	0.001	0.485	0.132	Free Surface	1.689	0.552	0.589	0.552	0.362	0.824	No	0.552	1.689
166	2-28	2-12	8.000	85.000	0.079	0.017	0.003	Free Surface	2.879	0.062	0.008	0.041	0.072	2.202	Yes	0.165	0.384
167	2-13	2-12	8.000	231.517	0.008	0.494	0.135	Free Surface	3.282	0.633	0.727	0.422	0.413	0.679	No	0.422	3.282
168	2-18	2-17	8.000	90.818	0.033	0.050	0.011	Free Surface	2.956	0.128	0.035	0.085	0.126	1.423	Yes	0.1	2.354
169	2-20	2-18	8.000	336.384	0.006	0.030	0.006	Free Surface	1.393	0.152	0.05	0.101	0.098	0.604	No	0.101	1.393
170	5-29	5-28	8.000	240.000	0.029	0.027	0.005	Free Surface	2.348	0.098	0.02	0.065	0.092	1.337	Yes	0.352	0.221
171	5-4	5-3	8.000	171.996	0.027	1.168	0.351	Pressurized	6.422	0.752	0.914	0.501	0.611	1.278	Yes	0.667	5.178
172	5-3	5-2	8.000	296.739	0.015	1.197	0.360	Pressurized	5.307	1	1.266	0.667	0.567	0.946	Yes	0.667	5.307
173	5-28	5-3	8.000	378.865	0.031	0.038	0.008	Free Surface	2.662	0.115	0.028	0.077	0.11	1.371	Yes	0.667	0.17
174	2-27	2-26	8.000	494.084	0.022	0.021	0.004	Free Surface	1.977	0.092	0.018	0.062	0.081	1.168	Yes	0.073	1.556
175	2-21	2-20	8.000	521.723	0.010	0.016	0.003	Free Surface	1.367	0.1	0.021	0.067	0.071	0.767	Yes	0.084	0.979
176	2-19	2-18	8.000	523.193	0.010	0.013	0.002	Free Surface	1.274	0.09	0.017	0.06	0.063	0.766	Yes	0.073	0.963

177	4-15	2-14	8.000	401.606	0.080	0.267	0.068	Free Surface	6.623	0.235	0.121	0.156	0.3	2.213	Yes	-6.934	-1
178	4-1	2-15	8.000	395.828	0.007	0.236	0.059	Free Surface	2.704	0.41	0.353	0.273	0.281	0.668	No	0.273	2.704
179	4-24	4-23	8.000	353.426	0.048	0.121	0.028	Free Surface	4.373	0.18	0.071	0.12	0.199	1.707	No	0.12	4.373
180	4-27	4-26	8.000	168.788	0.036	0.102	0.023	Free Surface	3.756	0.178	0.069	0.119	0.182	1.476	Yes	0.121	3.645
181	4-53	4-52	8.000	125.303	0.072	0.021	0.004	Free Surface	3	0.071	0.01	0.047	0.082	2.099	Yes	0.05	2.772
182	4-26	4-25	8.000	239.981	0.033	0.108	0.025	Free Surface	3.729	0.186	0.075	0.124	0.187	1.43	Yes	0.127	3.606
183	4-52	4-22	8.000	282.439	0.107	0.032	0.007	Free Surface	3.914	0.079	0.013	0.053	0.101	2.561	Yes	0.13	1.043
184	6-41	6-40	8.000	115.600	0.043	0.019	0.004	Free Surface	2.438	0.076	0.012	0.051	0.078	1.629	No	0.051	2.438
185	6-39	6-38	8.000	93.862	0.085	0.036	0.007	Free Surface	3.734	0.087	0.016	0.058	0.107	2.286	Yes	0.059	3.652
186	6-38	6-37	8.000	281.022	0.111	0.044	0.009	Free Surface	4.353	0.09	0.017	0.06	0.118	2.615	Yes	0.099	2.091
187	6-49	6-43	8.000	186.193	0.111	0.017	0.003	Free Surface	3.246	0.057	0.006	0.038	0.072	2.612	Yes	0.066	1.457
188	6-44	6-43	8.000	259.842	0.022	0.067	0.015	Free Surface	2.796	0.163	0.058	0.109	0.146	1.161	No	0.109	2.796
189	6-50	6-49	8.000	215.000	0.005	0.007	0.001	Free Surface	0.812	0.078	0.012	0.052	0.045	0.534	No	0.052	0.812
190	6-43	6-37	8.000	190.502	0.066	0.085	0.019	Free Surface	4.418	0.14	0.042	0.093	0.165	2.016	Yes	0.116	3.226
191	4-28	4-27	8.000	223.474	0.081	0.097	0.022	Free Surface	4.929	0.142	0.044	0.095	0.177	2.222	Yes	0.107	4.15
192	6-40	6-39	8.000	124.441	0.225	0.033	0.007	Free Surface	5.084	0.066	0.009	0.044	0.102	3.715	Yes	0.051	4.091
193	5-31	5-30	8.000	286.192	0.080	0.034	0.007	Free Surface	3.598	0.086	0.015	0.058	0.104	2.22	Yes	0.667	0.151
194	5-34	5-33	8.000	243.406	0.025	0.648	0.182	Pressurized	5.532	0.515	0.526	0.343	0.475	1.233	Yes	0.667	2.873
195	5-32	5-31	8.000	221.595	0.104	0.025	0.005	Free Surface	3.564	0.07	0.01	0.047	0.088	2.523	Yes	0.052	3.017
196	5-60	5-34	8.000	279.523	0.035	0.069	0.015	Free Surface	3.338	0.148	0.047	0.099	0.149	1.47	Yes	0.667	0.308
197	5-35	5-34	8.000	260.182	0.036	0.593	0.165	Free Surface	6.225	0.439	0.398	0.292	0.454	1.489	Yes	0.667	2.627
198	5-6	5-5	8.000	129.799	0.065	0.564	0.156	Pressurized	7.6	0.364	0.283	0.243	0.443	1.993	Yes	0.667	2.499
199	5-33	5-5	8.000	241.382	0.025	0.652	0.183	Pressurized	5.53	0.518	0.53	0.345	0.477	1.229	Yes	0.667	2.891
200	5-41	5-6	8.000	252.476	0.053	0.156	0.037	Free Surface	4.901	0.199	0.086	0.132	0.226	1.805	Yes	0.667	0.691
201	5-42	5-41	8.000	360.280	0.017	0.094	0.021	Free Surface	2.807	0.206	0.093	0.138	0.175	1.011	No	0.138	2.807
202	5-53	5-52	8.000	42.025	0.024	0.061	0.013	Free Surface	2.798	0.153	0.05	0.102	0.14	1.208	No	0.102	2.798
203	5-7	5-6	8.000	339.854	0.018	0.437	0.117	Free Surface	4.418	0.451	0.419	0.301	0.388	1.043	Yes	0.667	1.935
204	5-52	5-41	8.000	156.000	0.058	0.065	0.014	Free Surface	3.894	0.127	0.035	0.085	0.145	1.881	Yes	0.109	2.722
205	5-43	5-42	8.000	290.000	0.031	0.081	0.018	Free Surface	3.34	0.164	0.059	0.109	0.161	1.38	Yes	0.124	2.805
206	5-30	5-5	8.000	249.798	0.031	0.041	0.008	Pressurized	2.739	0.118	0.03	0.079	0.114	1.386	Yes	0.667	0.182
207	6-2	6-1	8.000	20.092	0.048	0.460	0.124	Free Surface	6.458	0.353	0.267	0.235	0.398	1.721	Yes	0.285	4.986
208	6-3	6-2	8.000	146.658	0.005	0.458	0.124	Free Surface	2.753	0.691	0.823	0.461	0.397	0.556	No	0.461	2.753
209	5-38	5-37	8.000	263.504	0.015	0.031	0.006	Free Surface	1.952	0.123	0.032	0.082	0.099	0.965	Yes	0.082	1.941
210	6-37	6-1	8.000	157.148	0.028	0.123	0.029	Free Surface	3.646	0.207	0.094	0.138	0.201	1.309	Yes	0.237	1.719
211	6-4	6-3	8.000	348.692	0.017	0.455	0.123	Free Surface	4.368	0.47	0.449	0.313	0.396	1.013	Yes	0.387	3.35
212	5-39	5-38	8.000	285.005	0.039	0.022	0.004	Free Surface	2.429	0.083	0.014	0.055	0.083	1.538	Yes	0.069	1.771
213	5-61	5-60	8.000	334.244	0.045	0.060	0.013	Free Surface	3.482	0.13	0.036	0.087	0.139	1.659	Yes	0.093	3.164
214	5-9	5-8	8.000	57.594	0.038	0.423	0.114	Free Surface	5.781	0.361	0.278	0.24	0.381	1.523	No	0.24	5.781
215	5-55	5-54	8.000	403.817	0.050	0.045	0.009	Free Surface	3.301	0.111	0.026	0.074	0.119	1.743	Yes	0.089	2.493
216	5-10	5-9	8.000	262.933	0.027	0.419	0.112	Free Surface	5.092	0.393	0.326	0.262	0.379	1.285	No	0.262	5.092
217	5-45	5-44	8.000	210.182	0.048	0.063	0.014	Free Surface	3.605	0.131	0.037	0.088	0.142	1.708	Yes	0.09	3.459
218	6-1	5-35	8.000	384.111	0.020	0.561	0.155	Free Surface	4.934	0.503	0.505	0.335	0.441	1.11	No	0.335	4.934
219	5-54	5-53	8.000	338.000	0.018	0.056	0.012	Free Surface	2.46	0.157	0.054	0.105	0.134	1.043	No	0.105	2.46
220	5-8	5-7	8.000	315.394	0.068	0.428	0.115	Free Surface	7.166	0.311	0.21	0.207	0.384	2.044	Yes	0.254	5.425
221	5-44	5-43	8.000	271.290	0.048	0.071	0.016	Free Surface	3.746	0.139	0.042	0.093	0.151	1.714	Yes	0.101	3.303
222	4-22	4-21	8.000	422.288	0.009	0.159	0.038	Free Surface	2.652	0.312	0.211	0.208	0.229	0.754	Yes	0.215	2.531
223	4-36	4-21	8.000	134.844	0.060	0.009	0.002	Free Surface	2.162	0.049	0.005	0.033	0.053	1.92	Yes	0.123	0.312
224	4-35	4-34	8.000	409.381	0.020	0.017	0.003	Free Surface	1.788	0.087	0.016	0.058	0.074	1.095	No	0.058	1.788
225	5-5	5-4	8.000	162.225	0.026	1.163	0.349	Pressurized	6.339	0.758	0.923	0.506	0.61	1.26	Yes	0.667	5.157
226	1-26	1-25	8.000	31.422	0.001	0.386	0.102	Pressurized	1.711	1	1.382	0.667	0.307	0.279	Yes	0.667	1.711
227	1-30	1-27	8.000	53.695	0.193	0.008	0.001	Free Surface	3.109	0.035	0.002	0.023	0.049	3.443	Yes	0.667	0.034
228	1-27	1-26	8.000	157.026	0.002	0.383	0.102	Pressurized	1.697	1	1.179	0.667	0.332	0.325	Yes	0.667	1.697
229	1-28	1-27	8.000	411.125	0.004	0.374	0.099	Free Surface	2.349	0.665	0.78	0.443	0.357	0.479	Yes	0.667	1.658
230	1-29	1-28	8.000	192.000	0.004	0.013	0.002	Free Surface	0.915	0.112	0.026	0.075	0.063	0.48	Yes	0.259	0.157
232	1-39	1-38	8.000	49.837	0.001	0.475	0.129	Pressurized	2.104	1	2.471	0.667	0.252	0.192	Yes	0.667	2.104
233	1-49	1-43	8.000	155.904	0.051	0.006	0.001	Free Surface	1.86	0.044	0.004	0.029	0.045	1.774	Yes	0.667	0.029
234	1-43	1-42	8.000	48.127	0.005	0.043	0.009	Pressurized	1.477	0.187	0.076	0.125	0.117	0.564	Yes	0.667	0.191

235	1-10	1-9	12.000	56.251	0.002	1.206	0.363	Pressurized	2.376	1	1.131	1	0.546	1.066	No	1	2.376
236	1-42	1-39	8.000	162.145	0.001	0.044	0.009	Pressurized	0.924	0.264	0.153	0.176	0.118	0.288	Yes	0.667	0.195
237	1-40	1-39	8.000	295.117	0.008	0.442	0.119	Pressurized	3.341	0.568	0.617	0.379	0.39	0.716	Yes	0.667	1.959
238	1-11	1-10	12.000	306.550	0.003	1.205	0.363	Free Surface	2.958	0.748	0.909	0.748	0.582	1.325	Yes	0.891	2.522
239	1-44	1-43	8.000	326.193	0.003	0.036	0.007	Pressurized	1.166	0.195	0.084	0.13	0.107	0.434	Yes	0.667	0.161
240	1-15	1-14	10.000	141.607	0.009	0.927	0.280	Pressurized	4.05	0.619	0.704	0.516	0.536	1.318	Yes	0.833	2.631
241	1-16	1-15	8.000	296.811	0.015	1.234	0.373	Pressurized	5.468	1	1.281	0.667	0.571	0.963	Yes	0.667	5.468
242	1-17	1-16	8.000	306.551	0.014	1.225	0.370	Pressurized	5.428	1	1.333	0.667	0.56	0.919	Yes	0.667	5.428
243	5-1	1-17	8.000	334.470	0.015	1.218	0.367	Pressurized	5.399	1	1.279	0.667	0.569	0.953	Yes	0.667	5.399
244	1-13	1-12	12.000	304.500	0.006	0.578	0.170	Pressurized	3.1	0.395	0.329	0.395	0.396	1.755	Yes	1	1.139
246	10-11	10-10	8.000	85.014	0.012	0.004	0.001	Free Surface	0.948	0.048	0.004	0.032	0.034	0.849	Yes	0.053	0.453
248	1-14	1-13	10.000	359.154	0.007	0.966	0.284	Pressurized	3.709	0.692	0.825	0.577	0.548	1.17	Yes	0.833	2.74
249	1-41	1-40	8.000	315.131	0.002	0.436	0.117	Pressurized	1.932	1	1.345	0.667	0.332	0.324	Yes	0.667	1.932
250	1-12	1-11	12.000	288.390	0.004	1.203	0.362	Free Surface	3.076	0.72	0.867	0.72	0.581	1.386	Yes	0.734	3.012
251	1-45	1-44	8.000	445.400	0.007	0.029	0.006	Pressurized	1.447	0.146	0.046	0.097	0.097	0.643	Yes	0.667	0.131
252	10-4	10-3	8.000	314.020	0.006	0.095	0.022	Free Surface	1.94	0.27	0.16	0.18	0.176	0.598	No	0.18	1.94
253	10-2	10-1	8.000	30.000	0.067	0.109	0.025	Free Surface	4.795	0.157	0.054	0.105	0.188	2.032	Yes	0.667	0.484
254	10-1	9-17	8.000	39.231	0.006	0.939	0.275	Pressurized	4.161	1	1.601	0.667	0.452	0.586	Yes	0.667	4.161
255	10-14	10-13	8.000	34.684	0.036	0.854	0.248	Pressurized	6.797	0.545	0.577	0.363	0.543	1.481	Yes	0.667	3.787
256	10-13	10-1	8.000	90.524	0.005	0.860	0.250	Pressurized	3.813	1	1.594	0.667	0.433	0.54	Yes	0.667	3.813
257	10-3	10-2	8.000	221.446	0.009	0.107	0.025	Free Surface	2.339	0.256	0.144	0.171	0.186	0.742	No	0.171	2.339
258	10-5	10-4	8.000	289.357	0.002	0.078	0.017	Free Surface	1.264	0.317	0.218	0.211	0.158	0.357	No	0.211	1.264
259	10-16	10-15	8.000	290.272	0.004	0.120	0.028	Free Surface	1.809	0.336	0.243	0.224	0.198	0.495	Yes	0.667	0.533
260	10-29	10-28	8.000	312.600	0.003	0.744	0.212	Pressurized	3.297	1	1.68	0.667	0.39	0.443	Yes	0.667	3.297
261	10-30	10-29	8.000	269.648	0.019	0.064	0.014	Pressurized	2.604	0.167	0.06	0.111	0.144	1.066	Yes	0.667	0.285
262	10-28	10-14	8.000	293.815	0.001	0.764	0.219	Pressurized	3.387	1	2.613	0.667	0.314	0.293	Yes	0.667	3.387
263	10-37	10-36	8.000	90.000	0.006	0.005	0.001	Free Surface	0.81	0.068	0.009	0.045	0.041	0.584	Yes	0.097	0.264
264	10-36	10-17	8.000	418.528	0.001	0.020	0.004	Free Surface	0.535	0.224	0.11	0.149	0.08	0.184	Yes	0.178	0.416
265	10-7	10-6	8.000	315.646	0.004	0.040	0.008	Free Surface	1.319	0.193	0.081	0.128	0.113	0.495	Yes	0.141	1.15
266	10-18	10-17	8.000	299.199	0.004	0.062	0.013	Free Surface	1.534	0.235	0.121	0.156	0.141	0.512	Yes	0.182	1.241
268	10-35	10-32	8.000	233.691	0.009	0.009	0.002	Free Surface	1.109	0.079	0.013	0.053	0.054	0.724	Yes	0.071	0.71
269	10-27	10-26	8.000	135.000	0.015	0.010	0.002	Free Surface	1.382	0.073	0.011	0.048	0.056	0.953	Yes	0.058	1.063
270	10-33	10-32	8.000	301.270	0.023	0.033	0.007	Free Surface	2.32	0.115	0.028	0.077	0.103	1.194	Yes	0.083	2.053
271	10-26	10-17	8.000	298.300	0.019	0.023	0.004	Free Surface	1.941	0.101	0.021	0.067	0.085	1.085	Yes	0.137	0.69
272	10-6	10-5	8.000	320.240	0.005	0.063	0.014	Free Surface	1.593	0.232	0.118	0.154	0.142	0.536	Yes	0.183	1.255
273	10-17	10-16	8.000	328.457	0.004	0.106	0.024	Free Surface	1.78	0.311	0.21	0.207	0.186	0.508	Yes	0.339	0.925
274	10-31	10-30	8.000	328.000	0.015	0.050	0.011	Free Surface	2.253	0.154	0.051	0.103	0.126	0.967	Yes	0.525	0.261
275	10-12	10-4	8.000	337.734	0.001	0.013	0.002	Free Surface	0.515	0.17	0.063	0.113	0.064	0.209	Yes	0.147	0.355
276	10-10	10-6	8.000	417.238	0.008	0.018	0.003	Free Surface	1.292	0.111	0.026	0.074	0.075	0.679	Yes	0.114	0.69
277	7-11	7-10	8.000	155.000	0.025	0.532	0.146	Free Surface	5.318	0.456	0.426	0.304	0.43	1.25	No	0.304	5.318
278	7-9	7-1	8.000	35.501	0.053	0.549	0.152	Free Surface	7.012	0.379	0.305	0.253	0.437	1.802	Yes	0.628	2.492
279	7-10	7-9	8.000	390.000	0.049	0.544	0.150	Free Surface	6.789	0.385	0.314	0.257	0.434	1.73	No	0.257	6.789
280	8-2	8-1	8.000	76.648	0.217	0.216	0.054	Free Surface	8.861	0.165	0.059	0.11	0.268	3.652	Yes	0.13	6.966
281	7-1	1-48	8.000	140.768	0.005	0.661	0.186	Pressurized	2.931	1	1.224	0.667	0.433	0.54	No	0.667	2.931
282	7-2	7-1	8.000	245.000	0.298	0.142	0.034	Free Surface	8.733	0.125	0.033	0.083	0.215	4.274	No	0.083	8.733
283	7-35	7-13	8.000	152.531	0.144	0.011	0.002	Free Surface	3.144	0.045	0.004	0.03	0.059	2.974	No	0.03	3.144
284	8-3	8-2	8.000	393.985	0.084	0.180	0.044	Free Surface	6.011	0.19	0.079	0.127	0.244	2.27	No	0.127	6.011
285	7-4	7-3	8.000	460.243	0.050	0.116	0.027	Free Surface	4.398	0.175	0.066	0.116	0.195	1.751	No	0.116	4.398
286	7-42	7-15	8.000	155.451	0.134	0.009	0.002	Free Surface	2.834	0.04	0.003	0.027	0.052	2.871	Yes	0.047	1.25
287	7-38	7-37	8.000	35.317	0.142	0.010	0.002	Free Surface	3.018	0.043	0.003	0.028	0.056	2.946	Yes	0.039	1.896
288	7-37	7-36	8.000	496.953	0.038	0.017	0.003	Free Surface	2.241	0.074	0.011	0.049	0.073	1.531	No	0.049	2.241
289	7-3	7-2	8.000	481.774	0.066	0.130	0.031	Free Surface	5.032	0.172	0.065	0.115	0.207	2.018	No	0.115	5.032
290	10-22	10-21	8.000	145.000	0.007	0.010	0.002	Free Surface	1.042	0.085	0.015	0.057	0.055	0.65	Yes	0.101	0.447
291	10-20	10-19	8.000	126.766	0.004	0.044	0.009	Free Surface	1.368	0.2	0.088	0.134	0.118	0.502	Yes	0.14	1.279
292	10-21	10-20	8.000	340.832	0.001	0.025	0.005	Free Surface	0.688	0.218	0.104	0.145	0.089	0.24	No	0.145	0.688
293	10-9	10-8	8.000	145.529	0.005	0.017	0.003	Free Surface	1.104	0.122	0.032	0.082	0.074	0.547	Yes	0.092	0.923
294	10-24	10-23	8.000	105.000	0.019	0.010	0.002	Free Surface	1.516	0.069	0.01	0.046	0.057	1.081	No	0.046	1.516

295	10-25	10-24	8.000	104.592	0.010	0.006	0.001	Free Surface	1.028	0.064	0.008	0.043	0.044	0.766	Yes	0.045	0.977
296	10-23	10-20	8.000	181.300	0.035	0.013	0.002	Free Surface	2.016	0.067	0.009	0.045	0.064	1.462	Yes	0.089	0.733
297	7-32	7-6	8.000	177.052	0.119	0.008	0.001	Free Surface	2.7	0.041	0.003	0.027	0.051	2.697	Yes	0.039	1.58
298	7-7	7-6	8.000	261.061	0.065	0.009	0.002	Free Surface	2.225	0.048	0.004	0.032	0.053	1.998	Yes	0.042	1.519
299	7-6	7-5	8.000	606.503	0.077	0.026	0.005	Free Surface	3.274	0.077	0.012	0.051	0.091	2.18	Yes	0.084	1.577
300	7-5	7-4	8.000	367.418	0.041	0.106	0.024	Free Surface	3.991	0.176	0.067	0.117	0.186	1.582	No	0.117	3.991
301	1-48	1-47	8.000	305.000	0.022	0.668	0.188	Free Surface	5.299	0.546	0.579	0.364	0.482	1.154	Yes	0.426	4.385
302	1-46	1-45	8.000	369.014	0.005	0.019	0.004	Pressurized	1.175	0.124	0.033	0.083	0.077	0.576	Yes	0.667	0.084
303	10-8	10-7	8.000	307.332	0.004	0.025	0.005	Free Surface	1.126	0.154	0.051	0.103	0.089	0.483	Yes	0.116	0.95
304	10-19	10-18	8.000	170.009	0.004	0.050	0.010	Free Surface	1.352	0.22	0.106	0.146	0.126	0.469	Yes	0.151	1.288
305	10-34	10-33	8.000	265.000	0.019	0.020	0.004	Free Surface	1.841	0.094	0.018	0.063	0.079	1.076	Yes	0.07	1.576
306	5-2	5-1	8.000	372.009	0.011	1.206	0.363	Pressurized	5.343	1	1.445	0.667	0.537	0.834	Yes	0.667	5.343
307	6-45	6-44.5	8.000	37.975	0.082	0.058	0.012	Free Surface	4.252	0.11	0.026	0.074	0.136	2.248	Yes	0.105	2.515
308	6-8	6-7	8.000	116.341	0.006	0.428	0.115	Free Surface	2.981	0.608	0.685	0.405	0.383	0.625	Yes	0.46	2.578
309	6-7	6-6	8.000	224.047	0.003	0.432	0.116	Free Surface	2.314	0.771	0.941	0.514	0.385	0.459	Yes	0.624	1.969
310	6-24	6-9	8.000	187.861	0.052	0.131	0.031	Free Surface	4.616	0.183	0.073	0.122	0.207	1.783	Yes	0.229	1.911
311	6-10	6-9	8.000	55.771	0.033	0.315	0.082	Free Surface	5.057	0.32	0.222	0.214	0.327	1.418	Yes	0.275	3.599
312	6-53	6-10	8.000	113.310	0.140	0.011	0.002	Free Surface	3.101	0.045	0.004	0.03	0.059	2.934	Yes	0.122	0.392
313	6-9	6-8	8.000	399.719	0.011	0.424	0.114	Free Surface	3.73	0.503	0.505	0.335	0.382	0.839	Yes	0.37	3.296
314	6-52	6-51	8.000	127.401	0.024	0.007	0.001	Free Surface	1.454	0.055	0.006	0.037	0.047	1.202	Yes	0.037	1.439
315	5-64	5-63	8.000	389.816	0.003	0.011	0.002	Free Surface	0.773	0.116	0.028	0.077	0.059	0.397	No	0.077	0.773
316	6-51	6-5	8.000	136.217	0.054	0.011	0.002	Free Surface	2.213	0.056	0.006	0.037	0.058	1.812	Yes	0.146	0.3
317	5-63	5-62	8.000	347.590	0.040	0.033	0.007	Free Surface	2.8	0.1	0.021	0.067	0.102	1.572	Yes	0.075	2.36
318	5-57	5-56	8.000	46.049	0.065	0.024	0.005	Free Surface	3.025	0.078	0.012	0.052	0.088	1.999	Yes	0.057	2.64
319	5-13	5-12	8.000	100.432	0.060	0.396	0.105	Free Surface	6.711	0.308	0.206	0.205	0.368	1.924	No	0.205	6.711
320	5-15	5-14	8.000	190.736	0.090	0.223	0.059	Free Surface	6.562	0.208	0.095	0.139	0.273	2.352	Yes	0.236	3.118
321	5-12	5-11	8.000	313.084	0.039	0.399	0.106	Free Surface	5.749	0.346	0.258	0.231	0.37	1.547	No	0.231	5.749
322	5-58	5-57	8.000	262.000	0.034	0.019	0.004	Free Surface	2.241	0.08	0.013	0.053	0.077	1.451	No	0.053	2.241
324	5-65	5-63	8.000	300.507	0.007	0.011	0.002	Free Surface	1.075	0.092	0.017	0.061	0.059	0.639	Yes	0.064	1.005
325	6-26	6-25	8.000	102.108	0.005	0.078	0.017	Free Surface	1.72	0.255	0.142	0.17	0.158	0.548	No	0.17	1.72
326	6-59	6-58	8.000	114.066	0.009	0.041	0.008	Free Surface	1.751	0.161	0.056	0.107	0.114	0.733	No	0.107	1.751
327	6-27	6-26	8.000	202.415	0.047	0.070	0.015	Free Surface	3.704	0.139	0.041	0.093	0.15	1.696	Yes	0.131	2.238
328	6-58	6-25	8.000	180.266	0.039	0.046	0.010	Free Surface	3.051	0.118	0.03	0.079	0.121	1.543	Yes	0.103	2.066
329	6-61	6-60	8.000	38.376	0.026	0.021	0.004	Free Surface	2.106	0.09	0.017	0.06	0.082	1.264	Yes	0.071	1.644
330	6-64	6-60	8.000	127.000	0.016	0.017	0.003	Free Surface	1.639	0.09	0.017	0.06	0.072	0.983	Yes	0.071	1.282
331	6-60	6-59	8.000	91.045	0.022	0.038	0.008	Free Surface	2.355	0.123	0.032	0.082	0.109	1.161	Yes	0.095	1.919
332	5-66	5-16	8.000	154.000	0.077	0.014	0.003	Free Surface	2.706	0.057	0.006	0.038	0.066	2.176	Yes	0.113	0.553
333	5-51.5	5-51	8.000	76.857	0.052	0.008	0.001	Free Surface	1.96	0.047	0.004	0.031	0.049	1.786	Yes	0.033	1.818
334	5-51	5-50.5	8.000	236.112	0.102	0.013	0.002	Free Surface	2.92	0.052	0.005	0.035	0.064	2.497	Yes	0.042	2.228
335	6-65	6-64	8.000	216.869	0.014	0.010	0.002	Free Surface	1.33	0.072	0.011	0.048	0.055	0.921	Yes	0.054	1.117
336	5-15	5-14	8.000	347.692	0.049	0.165	0.044	Free Surface	4.86	0.208	0.095	0.139	0.233	1.742	Yes	0.236	2.309
337	5-59	5-58	8.000	336.485	0.048	0.010	0.002	Free Surface	2.067	0.055	0.006	0.037	0.056	1.708	Yes	0.045	1.523
338	5-50.5	5-48	8.000	257.852	0.062	0.021	0.004	Free Surface	2.836	0.073	0.011	0.049	0.081	1.951	Yes	0.058	2.186
340	6-6	6-5	8.000	165.579	0.003	0.436	0.117	Pressurized	1.934	1	1.069	0.667	0.374	0.408	No	0.667	1.934
341	6-25	6-24	8.000	320.419	0.037	0.121	0.028	Free Surface	4.02	0.191	0.08	0.127	0.199	1.515	No	0.127	4.02
342	6-13	6-12	8.000	106.536	0.010	0.294	0.076	Free Surface	3.206	0.426	0.378	0.284	0.315	0.777	No	0.284	3.206
343	6-15	6-14	8.000	88.161	0.038	0.276	0.070	Free Surface	5.154	0.287	0.179	0.191	0.305	1.536	No	0.191	5.154
344	6-54	6-14	8.000	122.208	0.098	0.017	0.003	Free Surface	3.113	0.059	0.007	0.039	0.073	2.454	Yes	0.113	0.66
345	6-14	6-13	8.000	113.190	0.045	0.288	0.074	Free Surface	5.54	0.281	0.173	0.188	0.312	1.669	Yes	0.236	4.038
346	6-56	6-15	8.000	368.932	0.029	0.008	0.001	Free Surface	1.622	0.056	0.006	0.037	0.05	1.328	Yes	0.114	0.312
347	6-12	6-11	8.000	326.639	0.029	0.298	0.077	Free Surface	4.769	0.321	0.223	0.214	0.317	1.336	Yes	0.22	4.595
348	6-57	6-16	8.000	157.088	0.083	0.011	0.002	Free Surface	2.56	0.05	0.005	0.033	0.058	2.258	Yes	0.081	0.687
349	6-17	6-16	8.000	150.603	0.041	0.260	0.066	Free Surface	5.182	0.274	0.164	0.182	0.295	1.585	No	0.182	5.182
350	6-18	6-17	8.000	389.567	0.072	0.254	0.064	Free Surface	6.28	0.235	0.121	0.157	0.292	2.094	Yes	0.17	5.619
351	6-16	6-15	8.000	82.015	0.177	0.268	0.068	Free Surface	8.798	0.193	0.081	0.129	0.3	3.298	Yes	0.16	6.447
352	6-63	6-62	8.000	295.931	0.051	0.008	0.001	Free Surface	1.99	0.049	0.005	0.033	0.051	1.763	Yes	0.04	1.5
353	5-67	5-17	8.000	329.081	0.085	0.024	0.005	Free Surface	3.302	0.072	0.01	0.048	0.087	2.289	Yes	0.118	0.891

354	5-69	5-68	8.000	238.176	0.134	0.009	0.002	Free Surface	2.838	0.04	0.003	0.027	0.052	2.87	Yes	0.044	1.358
355	5-68	5-67	8.000	234.393	0.017	0.018	0.003	Free Surface	1.727	0.092	0.018	0.061	0.075	1.023	No	0.061	1.727
356	5-70	5-18	8.000	308.006	0.105	0.020	0.004	Free Surface	3.345	0.063	0.008	0.042	0.079	2.54	Yes	0.105	0.861
357	5-71	5-70	8.000	125.050	0.168	0.011	0.002	Free Surface	3.333	0.043	0.004	0.029	0.06	3.209	Yes	0.035	2.48
358	5-18	5-17	8.000	188.155	0.105	0.355	0.093	Free Surface	7.923	0.253	0.14	0.169	0.348	2.534	Yes	0.178	7.34
359	5-73	5-19	8.000	221.584	0.071	0.079	0.018	Free Surface	4.436	0.133	0.038	0.089	0.16	2.082	Yes	0.175	1.681
360	5-75	5-74	8.000	121.039	0.140	0.070	0.015	Free Surface	5.434	0.107	0.024	0.071	0.15	2.935	Yes	0.072	5.372
361	5-74	5-73	8.000	159.735	0.144	0.073	0.016	Free Surface	5.555	0.108	0.025	0.072	0.153	2.971	Yes	0.081	4.729
362	5-76	5-75	8.000	148.041	0.027	0.004	0.001	Free Surface	1.273	0.04	0.003	0.027	0.035	1.287	Yes	0.049	0.523
363	5-19	5-18	8.000	380.003	0.018	0.338	0.088	Free Surface	4.129	0.391	0.324	0.261	0.339	1.044	No	0.261	4.129
364	5-72	5-71	8.000	265.691	0.019	0.007	0.001	Free Surface	1.322	0.056	0.006	0.038	0.045	1.074	No	0.038	1.322
365	6-55	6-54	8.000	193.850	0.052	0.012	0.002	Free Surface	2.262	0.059	0.007	0.04	0.062	1.779	No	0.04	2.262
366	6-57.5	6-57	8.000	145.192	0.014	0.005	0.001	Free Surface	1.086	0.053	0.005	0.035	0.039	0.919	No	0.035	1.086
367	6-11	6-10	8.000	326.365	0.025	0.307	0.079	Free Surface	4.561	0.339	0.247	0.226	0.322	1.242	No	0.226	4.561
368	6-28	6-27	8.000	386.375	0.008	0.061	0.013	Free Surface	1.882	0.2	0.088	0.133	0.139	0.69	No	0.133	1.882
369	6-62	6-61	8.000	282.529	0.053	0.018	0.003	Free Surface	2.556	0.07	0.01	0.047	0.075	1.804	Yes	0.053	2.095
370	5-66.5	5-66	8.000	218.400	0.092	0.007	0.001	Free Surface	2.366	0.041	0.003	0.027	0.048	2.37	Yes	0.033	1.804
371	5-17	5-16	8.000	387.420	0.077	0.375	0.099	Free Surface	7.207	0.281	0.173	0.187	0.358	2.171	No	0.187	7.207
372	8-5	8-4	8.000	193.598	0.085	0.164	0.040	Free Surface	5.871	0.182	0.072	0.121	0.233	2.282	Yes	0.126	5.537
373	7-43	7-16	8.000	98.964	0.235	0.026	0.005	Free Surface	4.805	0.059	0.007	0.039	0.09	3.793	Yes	0.047	3.707
374	7-44	7-43	8.000	320.347	0.028	0.021	0.004	Free Surface	2.153	0.088	0.016	0.059	0.081	1.313	No	0.059	2.153
375	5-50	5-49	8.000	322.000	0.062	0.008	0.001	Free Surface	2.128	0.047	0.004	0.031	0.05	1.952	Yes	0.036	1.745
376	8-8	8-7	8.000	335.687	0.070	0.059	0.013	Free Surface	4.043	0.116	0.028	0.077	0.137	2.071	Yes	0.094	3.03
377	8-16	8-6	8.000	327.925	0.070	0.014	0.003	Free Surface	2.61	0.058	0.007	0.039	0.066	2.072	Yes	0.078	0.938
378	7-24	7-23	8.000	194.449	0.026	0.055	0.012	Free Surface	2.789	0.143	0.044	0.095	0.133	1.256	No	0.095	2.789
379	7-33	7-23	8.000	457.570	0.140	0.014	0.003	Free Surface	3.344	0.05	0.005	0.033	0.067	2.929	Yes	0.062	1.33
380	7-34	7-24	8.000	446.126	0.134	0.011	0.002	Free Surface	3.057	0.045	0.004	0.03	0.059	2.872	Yes	0.063	1.033
381	7-46	7-45	8.000	128.022	0.133	0.005	0.001	Free Surface	2.366	0.031	0.002	0.021	0.039	2.854	Yes	0.032	1.233
382	7-20	7-19	8.000	47.222	0.042	0.024	0.005	Free Surface	2.602	0.086	0.015	0.057	0.088	1.612	No	0.057	2.602
383	7-27	7-26	8.000	97.317	0.062	0.032	0.006	Free Surface	3.207	0.089	0.016	0.059	0.1	1.944	No	0.059	3.207
384	7-26	7-25	8.000	572.379	0.115	0.035	0.007	Free Surface	4.108	0.08	0.013	0.053	0.105	2.659	Yes	0.086	2.046
385	7-25	7-24	8.000	174.377	0.006	0.041	0.008	Free Surface	1.507	0.178	0.069	0.119	0.114	0.593	No	0.119	1.507
386	7-28	7-27	8.000	97.537	0.072	0.029	0.006	Free Surface	3.282	0.082	0.014	0.055	0.095	2.098	Yes	0.057	3.084
387	7-31	7-28	8.000	296.705	0.040	0.011	0.002	Free Surface	2.012	0.06	0.007	0.04	0.059	1.575	Yes	0.047	1.565
388	7-22	7-21	8.000	248.062	0.113	0.009	0.002	Free Surface	2.683	0.042	0.003	0.028	0.052	2.631	Yes	0.034	2.052
389	7-30	7-29	8.000	14.928	0.134	0.004	0.001	Free Surface	2.254	0.028	0.001	0.019	0.036	2.866	Yes	0.032	1.01
390	7-29	7-28	8.000	286.383	0.010	0.008	0.001	Free Surface	1.124	0.069	0.01	0.046	0.049	0.801	Yes	0.05	0.986
391	7-21	7-20	8.000	354.626	0.135	0.020	0.004	Free Surface	3.651	0.059	0.007	0.039	0.079	2.881	Yes	0.048	2.692
392	7-45	7-44	8.000	129.061	0.070	0.017	0.003	Free Surface	2.781	0.065	0.008	0.043	0.073	2.068	Yes	0.051	2.173
393	7-18	CRUSHERCANYON8	8.000	32.365	0.011	0.032	0.006	Free Surface	1.764	0.134	0.038	0.089	0.1	0.826	Yes	0.188	0.607
394	7-19	7-18	8.000	254.612	0.112	0.028	0.006	Free Surface	3.817	0.073	0.011	0.049	0.094	2.626	Yes	0.069	2.282
395	5-81	5-80	8.000	217.985	0.032	0.033	0.007	Free Surface	2.579	0.105	0.023	0.07	0.102	1.403	Yes	0.071	2.525
396	5-80	5-79	8.000	200.721	0.060	0.047	0.010	Free Surface	3.583	0.108	0.025	0.072	0.123	1.915	Yes	0.087	2.725
397	8-10	8-9	8.000	171.039	0.170	0.033	0.007	Free Surface	4.617	0.071	0.01	0.048	0.102	3.224	Yes	0.058	3.416
398	8-12	8-11	8.000	221.091	0.077	0.010	0.002	Free Surface	2.449	0.049	0.005	0.033	0.056	2.171	Yes	0.043	1.619
399	5-78	5-77	8.000	126.765	0.158	0.057	0.012	Free Surface	5.317	0.094	0.018	0.063	0.135	3.11	Yes	0.064	5.165
400	5-84	5-83	8.000	109.427	0.110	0.010	0.002	Free Surface	2.731	0.044	0.004	0.03	0.055	2.593	Yes	0.036	2.076
401	5-83	5-82	8.000	174.309	0.109	0.020	0.004	Free Surface	3.397	0.062	0.008	0.042	0.079	2.585	Yes	0.059	2.027
402	5-82	5-81	8.000	275.396	0.015	0.026	0.005	Free Surface	1.829	0.115	0.028	0.076	0.091	0.944	No	0.076	1.829
403	8-9	8-8	8.000	488.331	0.074	0.048	0.010	Free Surface	3.864	0.104	0.022	0.069	0.123	2.126	Yes	0.073	3.549
404	5-49	5-48	8.000	170.852	0.059	0.013	0.002	Free Surface	2.432	0.06	0.007	0.04	0.065	1.894	Yes	0.054	1.577
405	5-77	5-75	8.000	117.646	0.179	0.066	0.014	Free Surface	5.796	0.098	0.02	0.065	0.145	3.308	Yes	0.068	5.43
406	6-44.5	6-44	8.000	275.342	0.007	0.062	0.013	Free Surface	1.852	0.206	0.093	0.137	0.141	0.667	No	0.137	1.852
407	5-40	5-39	8.000	241.006	0.058	0.011	0.002	Free Surface	2.25	0.054	0.006	0.036	0.057	1.887	Yes	0.046	1.573
408	6-5	6-4	8.000	318.873	0.034	0.447	0.121	Free Surface	5.652	0.382	0.309	0.254	0.392	1.447	Yes	0.284	4.884
409	5-62	5-61	8.000	518.081	0.033	0.047	0.010	Free Surface	2.903	0.125	0.033	0.083	0.123	1.419	Yes	0.085	2.818
410	8-4	8-3	8.000	392.979	0.067	0.171	0.042	Free Surface	5.463	0.197	0.085	0.131	0.238	2.024	No	0.131	5.463

411	5-46	5-45	8.000	527.850	0.051	0.052	0.011	Free Surface	3.493	0.118	0.029	0.079	0.129	1.771	Yes	0.083	3.22
412	5-56	5-55	8.000	360.000	0.053	0.032	0.006	Free Surface	3.048	0.093	0.018	0.062	0.101	1.799	Yes	0.068	2.664
413	5-11	5-10	8.000	380.010	0.041	0.409	0.109	Free Surface	5.913	0.346	0.257	0.23	0.375	1.593	Yes	0.246	5.408
414	7-39	7-38	8.000	410.675	0.005	0.006	0.001	Free Surface	0.819	0.076	0.012	0.051	0.045	0.546	No	0.051	0.819
415	7-40	7-45	8.000	225.145	0.071	0.009	0.002	Free Surface	2.299	0.048	0.004	0.032	0.053	2.088	Yes	0.037	1.799
416	7-23	7-5	8.000	324.589	0.055	0.075	0.016	Free Surface	3.998	0.137	0.04	0.091	0.155	1.844	Yes	0.104	3.305
417	4-45	4-6	10.000	322.840	0.021	0.011	0.002	Free Surface	1.556	0.053	0.005	0.044	0.056	2.053	Yes	0.08	0.651
418	4-9	4-8	8.000	141.320	0.032	0.057	0.012	Free Surface	3.063	0.138	0.041	0.092	0.135	1.41	Yes	0.098	2.776
419	4-51	4-13	8.000	364.317	0.006	0.010	0.002	Free Surface	0.99	0.089	0.016	0.059	0.055	0.599	Yes	0.061	0.95
420	4-29	4-28	8.000	252.056	0.028	0.021	0.004	Free Surface	2.135	0.088	0.016	0.058	0.081	1.305	Yes	0.077	1.434
421	2-35	2-34	8.000	312.925	0.022	0.009	0.002	Free Surface	1.524	0.061	0.007	0.041	0.052	1.171	Yes	0.161	0.207
422	4-31	4-1	8.000	373.663	0.009	0.012	0.002	Free Surface	1.201	0.088	0.016	0.059	0.06	0.734	Yes	0.166	0.265
423	2-12	2-11	8.000	203.428	0.028	0.507	0.139	Free Surface	5.435	0.432	0.387	0.288	0.419	1.31	Yes	0.667	2.249
424	2-25.5	2-25	8.000	224.098	0.013	0.049	0.010	Free Surface	2.147	0.159	0.055	0.106	0.125	0.906	Yes	0.667	0.219
425	2-17	2-16	8.000	239.400	0.013	0.056	0.012	Free Surface	2.178	0.171	0.064	0.114	0.134	0.877	No	0.114	2.178
426	1-25	1-24	8.000	403.751	0.005	0.392	0.104	Pressurized	2.572	0.64	0.74	0.427	0.366	0.53	Yes	0.667	1.739
427	1-38	1-35	8.000	156.573	0.005	0.478	0.130	Pressurized	2.68	0.737	0.894	0.492	0.406	0.535	Yes	0.667	2.118
428	1-9	1-8	12.000	175.702	0.010	1.207	0.364	Free Surface	4.522	0.52	0.535	0.52	0.582	2.258	No	0.52	4.522
429	9-17	9-16	12.000	187.189	0.001	0.941	0.276	Pressurized	1.853	1	1.393	1	0.43	0.675	Yes	1	1.853
430	9-13	9-12	10.000	92.260	0.011	0.019	0.004	Free Surface	1.447	0.079	0.013	0.066	0.072	1.478	Yes	0.083	1.034
431	9-11	9-10	10.000	383.190	0.005	0.174	0.042	Free Surface	2.078	0.287	0.179	0.239	0.224	0.968	Yes	0.245	2.006
432	9-14	9-12	10.000	566.143	0.002	0.141	0.034	Free Surface	1.386	0.331	0.237	0.276	0.202	0.597	No	0.276	1.386
433	11-2	11-1	8.000	320.701	0.011	0.678	0.191	Pressurized	4.01	0.701	0.839	0.468	0.486	0.807	Yes	0.667	3.004
434	11-3	11-2	8.000	243.446	0.014	0.674	0.190	Pressurized	4.454	0.635	0.732	0.424	0.484	0.92	Yes	0.667	2.986
435	11-16	11-15	8.000	118.914	0.008	0.007	0.001	Free Surface	1.022	0.071	0.01	0.047	0.047	0.718	Yes	0.072	0.548
436	11-15	11-4	8.000	267.409	0.003	0.019	0.004	Free Surface	0.937	0.145	0.045	0.097	0.077	0.417	Yes	0.277	0.214
437	11-5	11-4	8.000	326.410	0.020	0.655	0.184	Free Surface	5.072	0.557	0.598	0.371	0.478	1.096	Yes	0.415	4.442
438	11-20	11-19	8.000	227.000	0.004	0.024	0.005	Free Surface	1.166	0.145	0.045	0.097	0.086	0.52	No	0.097	1.166
439	11-23	11-22	8.000	162.000	0.012	0.000	0.000	Free Surface	0	0	0	0	0	0.87	Yes	0.014	0
440	11-4	11-3	8.000	312.554	0.011	0.674	0.190	Free Surface	4.078	0.687	0.816	0.458	0.484	0.825	Yes	0.667	2.986
441	11-7	11-6	8.000	95.514	0.120	0.608	0.170	Free Surface	9.705	0.321	0.224	0.214	0.46	2.717	Yes	0.261	7.417
442	11-8	11-7	8.000	15.000	0.137	0.607	0.169	Free Surface	10.154	0.311	0.21	0.207	0.46	2.895	Yes	0.211	9.918
443	11-26	11-9	8.000	131.992	0.013	0.222	0.056	Free Surface	3.323	0.337	0.245	0.225	0.272	0.907	No	0.225	3.323
444	11-9	11-8	8.000	16.779	0.107	0.607	0.169	Free Surface	9.306	0.331	0.237	0.221	0.46	2.565	No	0.221	9.306
445	11-31	11-27	8.000	87.794	0.011	0.039	0.008	Free Surface	1.897	0.148	0.047	0.099	0.112	0.836	Yes	0.122	1.386
446	11-27	11-26	8.000	252.875	0.067	0.215	0.053	Free Surface	5.847	0.22	0.106	0.146	0.267	2.03	Yes	0.186	4.181
447	11-32	11-31	8.000	154.837	0.019	0.013	0.002	Free Surface	1.636	0.077	0.012	0.051	0.064	1.09	Yes	0.075	0.934
448	11-30	11-26	8.000	134.970	0.074	0.007	0.001	Free Surface	2.128	0.041	0.003	0.027	0.045	2.132	Yes	0.126	0.224
449	11-10	11-9	8.000	277.933	0.036	0.423	0.114	Free Surface	5.685	0.365	0.284	0.243	0.381	1.489	No	0.243	5.685
450	11-29	11-28	8.000	222.927	0.094	0.176	0.043	Free Surface	6.218	0.183	0.073	0.122	0.241	2.403	No	0.122	6.218
451	11-35	11-34	8.000	156.000	0.006	0.013	0.002	Free Surface	1.121	0.101	0.021	0.067	0.065	0.627	No	0.067	1.121
452	11-40	11-39	8.000	226.266	0.040	0.006	0.001	Free Surface	1.7	0.047	0.004	0.031	0.045	1.562	Yes	0.033	1.593
453	11-39	11-34	8.000	239.927	0.088	0.012	0.002	Free Surface	2.667	0.051	0.005	0.034	0.06	2.317	Yes	0.042	1.938
454	11-34	11-31	8.000	128.214	0.086	0.026	0.005	Free Surface	3.402	0.075	0.011	0.05	0.091	2.294	Yes	0.074	1.908
455	11-28	11-27	8.000	257.783	0.101	0.181	0.044	Free Surface	6.416	0.182	0.073	0.122	0.244	2.487	Yes	0.134	5.584
456	11-33	11-32	8.000	227.118	0.079	0.008	0.001	Free Surface	2.283	0.043	0.004	0.029	0.049	2.205	Yes	0.04	1.406
457	11-36	11-35	8.000	154.000	0.058	0.010	0.002	Free Surface	2.185	0.051	0.005	0.034	0.054	1.893	Yes	0.051	1.213
458	11-41	11-40	8.000	109.883	0.064	0.000	0.000	Free Surface	0	0	0	0	0	1.976	Yes	0.016	0
459	11-6	11-5	8.000	226.254	0.032	0.612	0.171	Free Surface	6.001	0.462	0.436	0.308	0.461	1.402	Yes	0.34	5.293
460	9-10	9-9	10.000	215.062	0.005	0.192	0.047	Free Surface	2.148	0.301	0.198	0.251	0.237	0.973	No	0.251	2.148
461	11-1	10-29	8.000	424.619	0.002	0.689	0.195	Pressurized	3.054	1	1.813	0.667	0.36	0.38	Yes	0.667	3.054
462	10-34.5	10-34	8.000	385.500	0.016	0.012	0.002	Free Surface	1.492	0.079	0.013	0.053	0.062	0.977	Yes	0.058	1.301
463	5-23	5-22	8.000	158.446	0.057	0.140	0.033	Free Surface	4.863	0.185	0.075	0.124	0.214	1.866	Yes	0.246	1.85
464	5-22	5-21	8.000	300.959	0.003	0.267	0.068	Free Surface	2.085	0.554	0.592	0.369	0.3	0.451	No	0.369	2.085
465	5-91	5-90	8.000	223.588	0.009	0.015	0.003	Free Surface	1.314	0.1	0.021	0.066	0.069	0.741	No	0.066	1.314
466	5-90	5-89	8.000	337.410	0.039	0.024	0.005	Free Surface	2.496	0.087	0.015	0.058	0.087	1.537	Yes	0.066	2.06
467	5-27	5-26	8.000	368.020	0.043	0.051	0.011	Free Surface	3.273	0.121	0.031	0.081	0.127	1.633	Yes	0.088	2.901

468	1-4	1-3	21.000	177.000	0.002	4.183	1.447	Free Surface	3.602	0.699	0.836	1.224	0.939	5.002	Yes	1.738	2.693
469	1-6	1-5	18.000	156.980	0.006	1.233	0.372	Free Surface	3.764	0.329	0.234	0.494	0.52	5.268	Yes	0.51	3.603
470	1-18	1-4	12.000	142.748	0.002	3.186	1.069	Pressurized	6.276	1	2.828	1	0.562	1.127	Yes	1	6.276
474	1-19	1-18	12.000	74.000	0.002	3.182	1.067	Pressurized	6.268	1	3.422	1	0.508	0.93	Yes	1	6.268
475	1-20	1-19	12.000	220.684	0.002	3.177	1.066	Pressurized	6.258	1	3.014	1	0.542	1.054	Yes	1	6.258
476	19-12	19-11	8.000	288.472	0.007	1.044	0.309	Pressurized	4.626	1	1.601	0.667	0.477	0.652	No	0.667	4.626
477	19-2	19-1	8.000	182.565	0.038	1.094	0.326	Free Surface	7.383	0.624	0.713	0.416	0.598	1.533	No	0.416	7.383
478	19-3	19-2	8.000	165.610	0.036	1.093	0.326	Free Surface	7.217	0.636	0.733	0.424	0.598	1.491	No	0.424	7.217
479	19-4	19-3	8.000	135.940	0.022	1.087	0.324	Free Surface	5.86	0.766	0.934	0.511	0.597	1.163	No	0.511	5.86
480	19-5	19-4	8.000	112.490	0.098	1.084	0.323	Free Surface	10.523	0.466	0.443	0.311	0.596	2.449	Yes	0.411	7.431
481	19-6	19-5	8.000	185.195	0.005	1.077	0.320	Pressurized	4.775	1	1.872	0.667	0.447	0.575	No	0.667	4.775
482	19-7	19-6	8.000	168.096	0.059	1.072	0.319	Free Surface	8.709	0.536	0.561	0.357	0.594	1.91	Yes	0.667	4.752
483	19-10	19-9	8.000	324.655	0.092	1.058	0.314	Free Surface	10.24	0.467	0.444	0.311	0.592	2.38	Yes	0.32	9.878
484	19-13	19-12	8.000	193.994	0.010	1.038	0.308	Pressurized	4.603	1	1.306	0.667	0.525	0.795	Yes	0.667	4.603
485	19-11	19-10	8.000	371.802	0.019	1.047	0.311	Free Surface	5.428	0.798	0.975	0.532	0.589	1.074	No	0.532	5.428
486	19-8	19-7	8.000	153.565	0.065	1.067	0.317	Free Surface	9.004	0.52	0.534	0.347	0.593	1.998	Yes	0.352	8.835
487	19-9	19-8	8.000	103.775	0.077	1.062	0.316	Free Surface	9.582	0.493	0.489	0.329	0.592	2.174	Yes	0.338	9.261
488	19-21	19-20	8.000	203.500	0.118	0.008	0.001	Free Surface	2.643	0.04	0.003	0.027	0.05	2.689	Yes	0.033	1.961
489	19-18	19-17	8.000	90.000	0.033	0.021	0.004	Free Surface	2.275	0.084	0.014	0.056	0.081	1.43	No	0.056	2.275
490	19-14	19-13	8.000	256.000	0.059	1.019	0.301	Free Surface	8.553	0.522	0.537	0.348	0.583	1.896	Yes	0.667	4.515
491	19-22	19-16	8.000	129.000	0.019	0.965	0.284	Free Surface	5.456	0.731	0.885	0.488	0.571	1.09	No	0.488	5.456
492	19-17	19-16	8.000	147.160	0.088	0.033	0.007	Free Surface	3.671	0.083	0.014	0.055	0.102	2.327	Yes	0.241	0.445
493	19-24	19-23	8.000	249.000	0.060	0.962	0.282	Free Surface	8.52	0.5	0.5	0.333	0.571	1.922	Yes	0.345	8.16
494	19-16	19-14	8.000	171.100	0.029	0.988	0.291	Free Surface	6.491	0.639	0.738	0.426	0.577	1.339	No	0.426	6.491
495	19-19	19-18	8.000	159.500	0.019	0.017	0.003	Free Surface	1.763	0.088	0.016	0.059	0.073	1.074	No	0.059	1.763
496	19-20	19-19	8.000	190.000	0.074	0.014	0.003	Free Surface	2.655	0.058	0.007	0.038	0.066	2.126	Yes	0.049	1.875
497	6-35	6-34	8.000	325.682	0.126	0.007	0.001	Free Surface	2.642	0.038	0.003	0.025	0.048	2.778	Yes	0.037	1.504
498	6-36	6-34	8.000	187.016	0.048	0.009	0.002	Free Surface	2.037	0.053	0.005	0.035	0.054	1.718	Yes	0.042	1.583
499	6-34	6-33	8.000	320.350	0.078	0.023	0.005	Free Surface	3.18	0.073	0.011	0.049	0.086	2.188	Yes	0.055	2.633
500	6-33	6-29	8.000	151.000	0.040	0.028	0.006	Free Surface	2.648	0.093	0.018	0.062	0.094	1.561	Yes	0.073	2.088
501	6-31	6-30	8.000	298.905	0.030	0.013	0.002	Free Surface	1.927	0.07	0.01	0.047	0.065	1.359	Yes	0.047	1.908
502	6-30	6-29	8.000	89.474	0.056	0.019	0.004	Free Surface	2.648	0.071	0.01	0.047	0.077	1.851	Yes	0.066	1.643
503	6-29	6-28	8.000	376.394	0.035	0.049	0.010	Free Surface	2.986	0.126	0.034	0.084	0.125	1.455	Yes	0.109	2.045
504	5-16	5-15	8.000	23.287	0.082	0.386	0.102	Free Surface	7.437	0.281	0.172	0.187	0.363	2.243	No	0.187	7.437
505	5-14	5-13	8.000	171.242	0.010	0.393	0.104	Free Surface	3.479	0.5	0.5	0.333	0.367	0.785	No	0.333	3.479
506	3-27	3-26	12.000	206.156	0.033	1.127	0.337	Free Surface	7.042	0.353	0.267	0.353	0.562	4.224	No	0.353	7.042
508	3-26	3-25	12.000	66.579	0.070	1.128	0.337	Free Surface	9.163	0.292	0.185	0.292	0.562	6.088	No	0.292	9.163
509	3-25	3-24	12.000	288.678	0.103	1.139	0.341	Free Surface	10.584	0.265	0.153	0.265	0.565	7.422	No	0.265	10.584
510	19-50	19-49	8.000	230.928	0.035	0.842	0.244	Free Surface	6.693	0.545	0.578	0.364	0.539	1.458	No	0.364	6.693
512	19-51	19-50	8.000	277.391	0.144	0.839	0.243	Free Surface	11.329	0.363	0.282	0.242	0.538	2.974	Yes	0.303	8.411
513	19-44	19-43	8.000	292.358	0.099	0.009	0.002	Free Surface	2.596	0.044	0.004	0.03	0.053	2.466	Yes	0.037	1.857
514	19-49	19-48	8.000	219.684	0.036	0.847	0.245	Free Surface	6.831	0.539	0.567	0.359	0.541	1.494	No	0.359	6.831
515	19-54	19-53	8.000	370.191	0.097	0.012	0.002	Free Surface	2.781	0.05	0.005	0.033	0.061	2.442	Yes	0.087	0.677
516	19-48	19-47	8.000	151.850	0.112	0.882	0.256	Free Surface	10.472	0.4	0.336	0.266	0.55	2.62	Yes	0.277	9.963
517	19-41	19-30	8.000	220.717	0.063	0.908	0.265	Free Surface	8.561	0.477	0.46	0.318	0.557	1.972	No	0.318	8.561
518	19-47	19-45	8.000	104.396	0.086	0.884	0.257	Free Surface	9.523	0.43	0.384	0.287	0.551	2.299	Yes	0.293	9.279
519	19-43	19-42	8.000	190.196	0.053	0.016	0.003	Free Surface	2.466	0.067	0.009	0.045	0.071	1.796	Yes	0.061	1.557
520	19-33	19-32	8.000	160.000	0.181	0.008	0.001	Free Surface	3.043	0.036	0.002	0.024	0.049	3.334	Yes	0.031	2.001
521	19-42	19-41	8.000	230.008	0.009	0.021	0.004	Free Surface	1.422	0.116	0.028	0.077	0.081	0.73	Yes	0.197	0.37
522	19-29	19-34	8.000	178.123	0.062	0.947	0.278	Free Surface	8.567	0.492	0.487	0.328	0.567	1.946	No	0.328	8.567
523	19-27	19-26	8.000	260.000	0.127	0.007	0.001	Free Surface	2.591	0.037	0.002	0.024	0.046	2.79	Yes	0.03	1.913
524	19-34	19-28	8.000	12.922	0.077	0.950	0.279	Free Surface	9.325	0.462	0.436	0.308	0.568	2.178	Yes	0.38	7.144
525	19-46	19-45	8.000	17.045	0.117	0.011	0.002	Free Surface	2.906	0.046	0.004	0.031	0.058	2.682	Yes	0.165	0.253
526	19-45	19-41	8.000	170.519	0.076	0.891	0.260	Free Surface	9.12	0.447	0.412	0.298	0.553	2.162	Yes	0.308	8.747
527	19-56	19-55	8.000	242.447	0.194	0.015	0.003	Free Surface	3.843	0.048	0.004	0.032	0.07	3.448	Yes	0.044	2.402
528	19-55	19-53	8.000	55.992	0.036	0.022	0.004	Free Surface	2.363	0.084	0.015	0.056	0.083	1.48	Yes	0.098	1.043
529	19-36	19-35	8.000	136.913	0.073	0.035	0.007	Free Surface	3.501	0.089	0.016	0.06	0.105	2.116	Yes	0.062	3.321

530	19-35	19-30	8.000	140.009	0.071	0.040	0.008	Free Surface	3.622	0.096	0.019	0.064	0.113	2.093	Yes	0.178	0.827
531	19-38	19-37	8.000	279.405	0.222	0.018	0.003	Free Surface	4.186	0.05	0.005	0.033	0.074	3.689	Yes	0.044	2.787
532	19-40	19-39	8.000	225.000	0.071	0.003	0.001	Free Surface	1.721	0.03	0.002	0.02	0.033	2.088	No	0.02	1.721
533	19-39	19-38	8.000	120.000	0.200	0.006	0.001	Free Surface	2.862	0.03	0.002	0.02	0.042	3.502	Yes	0.027	1.88
534	19-56.5	19-56.25	4.000	90.000	0.144	0.004	0.001	Free Surface	2.575	0.067	0.009	0.022	0.043	0.469	Yes	0.027	1.984
535	19-56.25	19-56	4.000	42.041	0.119	0.008	0.001	Free Surface	2.879	0.093	0.018	0.031	0.058	0.425	Yes	0.032	2.785
536	19-37	19-36	8.000	170.009	0.065	0.027	0.005	Free Surface	3.101	0.081	0.013	0.054	0.092	1.992	Yes	0.057	2.885
537	19-30	19-29	8.000	22.011	0.091	0.935	0.274	Free Surface	9.854	0.437	0.396	0.292	0.564	2.36	Yes	0.31	9.103
538	19-28	19-24	8.000	43.792	0.023	0.951	0.279	Free Surface	5.832	0.679	0.804	0.453	0.568	1.183	No	0.453	5.832
539	19-32	19-31	8.000	210.009	0.057	0.013	0.002	Free Surface	2.369	0.059	0.007	0.039	0.063	1.872	Yes	0.062	1.22
540	19-26	19-25	8.000	165.000	0.067	0.011	0.002	Free Surface	2.396	0.053	0.005	0.035	0.059	2.022	Yes	0.041	1.948
541	19-25	19-24	8.000	184.000	0.038	0.015	0.003	Free Surface	2.145	0.069	0.01	0.046	0.068	1.527	Yes	0.19	0.276
542	19-31	19-29	8.000	214.000	0.005	0.018	0.003	Free Surface	1.099	0.126	0.034	0.084	0.075	0.535	Yes	0.206	0.304
543	19-53	19-48	8.000	381.101	0.003	0.039	0.008	Free Surface	1.129	0.211	0.098	0.141	0.111	0.401	Yes	0.204	0.671
544	19-52	19-48	8.000	218.639	0.146	0.009	0.002	Free Surface	3.004	0.041	0.003	0.027	0.054	2.996	Yes	0.147	0.257
545	8-14	8-5	8.000	417.073	0.072	0.010	0.002	Free Surface	2.365	0.049	0.005	0.033	0.055	2.1	Yes	0.077	0.672
546	8-6	8-5	8.000	191.573	0.084	0.152	0.036	Free Surface	5.717	0.176	0.067	0.117	0.224	2.267	Yes	0.119	5.581
547	8-15	8-14	8.000	231.604	0.121	0.004	0.001	Free Surface	2.178	0.029	0.002	0.019	0.036	2.723	Yes	0.026	1.403
548	19-15	19-14	8.000	276.000	0.036	0.041	0.008	Free Surface	2.869	0.113	0.027	0.076	0.113	1.491	Yes	0.212	0.658
549	11-14	11-13	8.000	275.180	0.058	0.007	0.001	Free Surface	1.971	0.044	0.004	0.029	0.046	1.888	Yes	0.036	1.46
550	11-11	11-10	8.000	327.786	0.034	0.419	0.112	Free Surface	5.543	0.369	0.291	0.246	0.379	1.443	No	0.246	5.543
551	11-12	11-11	8.000	77.501	0.110	0.416	0.111	Free Surface	8.428	0.271	0.161	0.181	0.378	2.592	No	0.181	8.428
552	11-13	11-12	8.000	254.244	0.063	0.016	0.003	Free Surface	2.608	0.063	0.008	0.042	0.07	1.964	Yes	0.111	0.629
553	11-38	11-37	8.000	104.000	0.077	0.004	0.001	Free Surface	1.805	0.031	0.002	0.021	0.034	2.172	Yes	0.023	1.531
554	11-37	11-36	8.000	79.000	0.089	0.006	0.001	Free Surface	2.223	0.038	0.003	0.025	0.044	2.331	Yes	0.03	1.76
555	7-22.5	7-22	8.000	89.478	0.112	0.003	0.001	Free Surface	1.997	0.027	0.001	0.018	0.032	2.618	Yes	0.023	1.384
557	7-41	7-40	8.000	28.983	0.069	0.006	0.001	Free Surface	2.016	0.04	0.003	0.026	0.043	2.057	Yes	0.029	1.755
558	4-46	4-45	8.000	308.166	0.055	0.011	0.002	Free Surface	2.213	0.054	0.006	0.036	0.057	1.839	Yes	0.04	1.896
559	2-29	2-8	8.000	217.175	0.001	0.095	0.022	Pressurized	1.095	0.409	0.351	0.273	0.175	0.271	Yes	0.667	0.421
560	6-32	6-31	8.000	164.433	0.079	0.007	0.001	Free Surface	2.226	0.042	0.003	0.028	0.047	2.202	Yes	0.037	1.438
561	6-42	6-41	8.000	12.687	0.079	0.008	0.001	Free Surface	2.261	0.043	0.003	0.029	0.049	2.199	Yes	0.04	1.383
563	LYLE1	19-13	8.000	102.000	0.010	0.018	0.003	Pressurized	1.428	0.106	0.023	0.07	0.076	0.775	Yes	0.667	0.081
564	3-31	3-29	8.000	752.053	0.002	0.043	0.009	Free Surface	1.076	0.233	0.119	0.155	0.117	0.361	No	0.155	1.076
565	3-29	3-9	8.000	407.429	0.015	0.070	0.015	Free Surface	2.479	0.182	0.072	0.121	0.15	0.961	Yes	0.667	0.309
566	3-10	3-9	12.000	355.253	0.005	1.426	0.438	Pressurized	3.68	0.714	0.858	0.714	0.635	1.662	Yes	1	2.809
567	3-11	3-10	12.000	310.811	0.006	1.409	0.432	Pressurized	3.882	0.672	0.793	0.672	0.631	1.776	Yes	1	2.775
568	3-9	3-8	12.000	406.690	0.003	1.485	0.458	Pressurized	2.925	1	1.174	1	0.597	1.265	Yes	1	2.925
569	3-8	3-7	12.000	423.175	0.003	1.504	0.464	Pressurized	2.963	1	1.137	1	0.611	1.323	Yes	1	2.963
570	3-7	3-6	12.000	362.208	0.004	1.540	0.477	Pressurized	3.035	1	1.127	1	0.621	1.367	Yes	1	3.035
581	HERITAGE12	HERITAGE2	8.000	103.412	0.203	0.037	0.007	Free Surface	5.077	0.072	0.01	0.048	0.108	3.529	Yes	0.059	3.739
584	HERITAGE10	HERITAGE9	8.000	81.675	0.073	0.013	0.002	Free Surface	2.63	0.057	0.006	0.038	0.065	2.122	Yes	0.047	1.913
589	NACHES7	NACHES5	8.000	125.000	0.032	0.011	0.002	Free Surface	1.861	0.063	0.008	0.042	0.059	1.401	Yes	0.05	1.456
593	177TH4	177TH2	8.000	266.391	0.086	0.012	0.002	Free Surface	2.654	0.051	0.005	0.034	0.06	2.301	Yes	0.039	2.206
594	177TH2	NACHES5	8.000	280.004	0.161	0.026	0.005	Free Surface	4.217	0.065	0.008	0.043	0.09	3.139	Yes	0.05	3.349
595	NACHES5	177TH1	8.000	139.590	0.115	0.041	0.008	Free Surface	4.292	0.086	0.015	0.058	0.114	2.651	Yes	0.058	4.288
596	177TH1	5-27	8.000	139.589	0.136	0.044	0.009	Free Surface	4.681	0.086	0.015	0.058	0.119	2.889	Yes	0.069	3.579
598	HERITAGE20	HERITAGE19	8.000	175.463	0.006	0.016	0.003	Free Surface	1.129	0.112	0.026	0.075	0.07	0.591	No	0.075	1.129
601	HERITAGE19	HERITAGE18	8.000	256.000	0.047	0.019	0.004	Free Surface	2.505	0.075	0.011	0.05	0.078	1.695	No	0.05	2.505
602	HERITAGE18	HERITAGE17	8.000	275.789	0.160	0.024	0.005	Free Surface	4.122	0.063	0.008	0.042	0.087	3.128	Yes	0.045	3.732
605	HERITAGE16	HERITAGE15	8.000	80.088	0.006	0.029	0.006	Free Surface	1.399	0.147	0.047	0.098	0.095	0.619	Yes	0.099	1.369
606	HERITAGE8	HERITAGE7	8.000	145.515	0.124	0.027	0.005	Free Surface	3.875	0.069	0.01	0.046	0.091	2.754	No	0.046	3.875
607	HERITAGE7	HERITAGE6	8.000	120.000	0.183	0.030	0.006	Free Surface	4.636	0.067	0.009	0.045	0.098	3.353	No	0.045	4.636
608	HERITAGE6	HERITAGE5	8.000	39.542	0.253	0.033	0.007	Free Surface	5.307	0.065	0.008	0.043	0.102	3.938	Yes	0.049	4.474
609	HERITAGE4	HERITAGE3	8.000	148.819	0.067	0.042	0.009	Free Surface	3.6	0.1	0.021	0.066	0.116	2.03	No	0.066	3.6
610	HERITAGE3	HERITAGE2	8.000	30.000	0.267	0.044	0.009	Free Surface	5.913	0.074	0.011	0.049	0.119	4.044	Yes	0.059	4.451
612	BRAEBURN1	4-54	8.000	249.323	0.028	0.042	0.009	Free Surface	2.651	0.123	0.032	0.082	0.115	1.312	No	0.082	2.651
620	HERITAGE1	8-7	8.000	146.092	0.113	0.081	0.018	Free Surface	5.257	0.12	0.031	0.08	0.162	2.631	Yes	0.096	4.068

621	8-7	8-6	8.000	349.719	0.084	0.137	0.032	Free Surface	5.553	0.167	0.06	0.111	0.212	2.273	Yes	0.114	5.345
624	CRUSHERCANYON12	CRUSHERCANYON11	12.000	230.000	0.030	0.221	0.055	Free Surface	4.248	0.159	0.055	0.159	0.241	4.028	Yes	0.169	3.895
625	CRUSHERCANYON11	CRUSHERCANYON10	12.000	308.000	0.019	0.224	0.056	Free Surface	3.648	0.179	0.07	0.179	0.243	3.222	No	0.179	3.648
626	CRUSHERCANYON10	CRUSHERCANYON9	12.000	140.000	0.107	0.228	0.057	Free Surface	6.669	0.119	0.03	0.119	0.245	7.557	Yes	0.126	6.176
627	CRUSHERCANYON9	CRUSHERCANYON8	12.000	307.093	0.072	0.231	0.058	Free Surface	5.814	0.132	0.037	0.132	0.246	6.18	Yes	0.209	2.986
629	7-17	CRUSHERCANYON7	12.000	197.000	0.005	0.256	0.065	Free Surface	2.356	0.267	0.156	0.267	0.26	1.645	No	0.267	2.356
630	CRUSHERCANYON7	CRUSHERCANYON6	12.000	138.000	0.174	0.258	0.066	Free Surface	8.205	0.113	0.027	0.113	0.261	9.628	Yes	0.143	5.768
631	CRUSHERCANYON6	CRUSHERCANYON5	12.000	148.000	0.034	0.281	0.072	Free Surface	4.735	0.174	0.066	0.174	0.273	4.244	No	0.174	4.735
632	7-16	CRUSHERCANYON6	8.000	42.000	0.066	0.027	0.005	Free Surface	3.146	0.082	0.014	0.054	0.093	2.015	Yes	0.114	1.062
633	7-15	CRUSHERCANYON5	8.000	20.000	0.005	0.011	0.002	Free Surface	0.96	0.096	0.019	0.064	0.058	0.554	Yes	0.116	0.403
634	CRUSHERCANYON5	CRUSHERCANYON4	12.000	363.020	0.044	0.291	0.075	Free Surface	5.254	0.166	0.06	0.166	0.278	4.847	Yes	0.176	4.846
636	CRUSHERCANYON4	CRUSHERCANYON3	12.000	189.059	0.034	0.318	0.082	Free Surface	4.899	0.185	0.075	0.185	0.291	4.231	No	0.185	4.899
637	CRUSHERCANYON3	CRUSHERCANYON2	12.000	226.009	0.040	0.320	0.083	Free Surface	5.223	0.178	0.069	0.178	0.292	4.618	Yes	0.189	4.787
638	7-13	CRUSHERCANYON2	8.000	43.247	0.310	0.014	0.003	Free Surface	4.419	0.042	0.003	0.028	0.067	4.357	Yes	0.114	0.556
639	CRUSHERCANYON2	CRUSHERCANYON1	12.000	247.000	0.027	0.333	0.087	Free Surface	4.584	0.201	0.088	0.201	0.298	3.777	No	0.201	4.584
640	CRUSHERCANYON1	7-12	12.000	76.000	0.089	0.335	0.088	Free Surface	7.008	0.15	0.049	0.15	0.299	6.881	Yes	0.186	5.157
641	7-12	7-11	12.000	315.000	0.044	0.520	0.143	Free Surface	6.232	0.221	0.107	0.221	0.375	4.846	Yes	0.262	4.893
642	8-1	7-12	8.000	52.597	0.062	0.216	0.054	Free Surface	5.703	0.225	0.111	0.15	0.269	1.953	Yes	0.186	4.222
643	7-11.5	7-11	8.000	75.222	0.002	0.009	0.002	Free Surface	0.637	0.116	0.029	0.078	0.054	0.326	Yes	0.239	0.129
644	6-46.25	6-46	8.000	267.714	0.022	0.027	0.005	Free Surface	2.153	0.105	0.023	0.07	0.093	1.172	Yes	0.073	2.038
645	6-46.5	6-46.25	8.000	282.588	0.011	0.016	0.003	Free Surface	1.415	0.098	0.02	0.065	0.071	0.807	Yes	0.068	1.34
646	6-53.25	6-46.5	8.000	301.192	0.040	0.010	0.002	Free Surface	1.953	0.058	0.007	0.038	0.056	1.563	Yes	0.052	1.256
647	6-53.5	6-53.25	8.000	205.000	0.034	0.007	0.001	Free Surface	1.643	0.05	0.005	0.033	0.046	1.447	Yes	0.036	1.466
648	6-53.75	6-53.5	8.000	168.343	0.048	0.004	0.001	Free Surface	1.538	0.035	0.002	0.023	0.034	1.707	Yes	0.028	1.154
649	6-46	6-45	8.000	40.016	0.022	0.031	0.006	Free Surface	2.22	0.113	0.027	0.075	0.099	1.155	No	0.075	2.22
650	5-37	5-35	8.000	149.930	0.023	0.039	0.008	Free Surface	2.412	0.124	0.033	0.083	0.111	1.186	Yes	0.187	0.744
662	4-34	4-19	8.000	182.832	0.122	0.030	0.006	Free Surface	4.008	0.074	0.011	0.049	0.097	2.738	Yes	0.091	1.613
663	4-19	4-18	8.000	104.072	0.091	0.208	0.052	Free Surface	6.449	0.2	0.088	0.134	0.263	2.362	No	0.134	6.449
664	4-18	4-17	8.000	147.597	0.126	0.225	0.056	Free Surface	7.417	0.192	0.081	0.128	0.274	2.785	No	0.128	7.417
665	4-17	4-16	8.000	237.965	0.231	0.240	0.060	Free Surface	9.346	0.171	0.064	0.114	0.283	3.765	Yes	0.667	1.064
666	4-16	4-15	8.000	118.574	0.253	0.258	0.066	Free Surface	9.857	0.174	0.066	0.116	0.294	3.937	Yes	0.667	1.145
668	PUBLICWORKS3	PUBLICWORKS2	8.000	285.696	0.001	0.011	0.002	Pressurized	0.442	0.169	0.062	0.113	0.059	0.179	Yes	0.667	0.05
669	PUBLICWORKS2	PUBLICWORKS1	8.000	190.540	0.001	0.016	0.003	Pressurized	0.568	0.183	0.073	0.122	0.071	0.22	Yes	0.667	0.071
670	9-12	9-11	10.000	9.522	0.152	0.168	0.041	Free Surface	7.051	0.119	0.03	0.1	0.22	5.541	Yes	0.169	3.271
671	10-32	10-31	8.000	45.103	0.022	0.046	0.010	Free Surface	2.505	0.135	0.039	0.09	0.121	1.166	Yes	0.096	2.268
672	10-15	10-14	8.000	12.248	0.011	0.121	0.028	Pressurized	2.641	0.257	0.145	0.171	0.199	0.837	Yes	0.667	0.537
673	19-38.5	19-38	8.000	90.037	0.111	0.007	0.001	Free Surface	2.506	0.039	0.003	0.026	0.047	2.61	Yes	0.029	2.048
674	19-23	19-22	8.000	10.340	0.048	0.964	0.283	Free Surface	7.847	0.535	0.56	0.357	0.571	1.722	Yes	0.422	6.399
675	4-23	4-22	8.000	3.259	0.430	0.130	0.030	Free Surface	9.664	0.109	0.025	0.073	0.206	5.133	Yes	0.141	3.743
676	3-37	3-18	10.000	39.944	0.013	0.080	0.018	Pressurized	2.356	0.153	0.051	0.127	0.151	1.589	Yes	0.833	0.228
677	19-46.5	19-46	8.000	152.886	0.026	0.010	0.002	Free Surface	1.655	0.062	0.008	0.041	0.055	1.267	No	0.041	1.655
680	23-1	GRAHAMPACKAGINGLS	6.000	71.216	0.014	0.006	0.001	Free Surface	1.204	0.082	0.014	0.041	0.046	0.431	Yes	0.149	0.188
683	9-1	5010	15.000	70.740	0.004	1.338	0.408	Free Surface	3.194	0.522	0.538	0.653	0.574	2.489	No	0.653	3.194
684	7-8	7-7	8.000	144.626	0.152	0.005	0.001	Free Surface	2.438	0.029	0.002	0.019	0.038	3.054	Yes	0.026	1.592
685	7-36	7-14	8.000	282.616	0.142	0.028	0.006	Free Surface	4.15	0.069	0.01	0.046	0.095	2.952	Yes	0.056	3.137
686	4-20	4-19	8.000	280.568	0.009	0.183	0.045	Free Surface	2.746	0.336	0.243	0.224	0.246	0.751	No	0.224	2.746
687	2-26	2-25.5	8.000	467.116	0.019	0.036	0.007	Free Surface	2.226	0.125	0.033	0.083	0.107	1.087	Yes	0.137	1.089
1001	GRAHAMPACKAGINGLS	WW7	6.000	25.000	0.020	0.270	0.069	Free Surface	4.103	0.515	0.526	0.258	0.329	0.514	No	0.258	4.103
1007	ELKSCOUNTRYCLUBLS	WW6	10.000	100.000	0.020	0.135	0.032	Free Surface	3.242	0.176	0.067	0.146	0.197	2.008	No	0.146	3.242
1012	5-88	5-77	8.000	363.000	0.011	0.007	0.001	Free Surface	1.132	0.067	0.009	0.045	0.048	0.822	Yes	0.055	0.835
1033	CRUSHERCANYON13	CRUSHERCANYON12	12.000	205.000	0.054	0.217	0.054	Free Surface	5.158	0.137	0.041	0.137	0.239	5.348	Yes	0.148	4.624
1035	PUBLICWORKS1	IND-1	15.000	421.482	0.001	0.093	0.021	Pressurized	1.02	0.172	0.064	0.215	0.146	1.442	Yes	1.25	0.117
1041	PUBLICWORKS4	PUBLICWORKS3	6.000	256.228	0.001	0.006	0.001	Pressurized	0.438	0.165	0.059	0.082	0.046	0.102	Yes	0.5	0.047
1049	SELAHHIGH1	3-22	12.000	95.076	0.002	1.287	0.391	Pressurized	2.536	1	1.216	1	0.544	1.059	Yes	1	2.536
1053	HERITAGEHILLS	HERITAGE22	8.000	172.538	0.038	0.003	0.001	Free Surface	1.355	0.034	0.002	0.023	0.032	1.52	Yes	0.031	0.846
1061	APPLE5	APPLE4	8.000	117.000	0.162	0.006	0.001	Free Surface	2.706	0.032	0.002	0.022	0.043	3.156	Yes	0.025	2.135
1063	APPLE4	APPLE3	8.000	145.000	0.159	0.011	0.002	Free Surface	3.248	0.044	0.004	0.029	0.059	3.119	Yes	0.049	1.477

1065	APPLE3	APPLE2	8.000	327.382	0.018	0.024	0.005	Free Surface	1.941	0.105	0.023	0.07	0.088	1.06	No	0.07	1.941
1067	APPLE2	APPLE1	8.000	209.718	0.081	0.029	0.006	Free Surface	3.436	0.08	0.013	0.053	0.096	2.23	Yes	0.055	3.303
1069	APPLE1	4-54	8.000	45.000	0.089	0.034	0.007	Free Surface	3.722	0.084	0.015	0.056	0.104	2.335	Yes	0.064	3.052
1073	BRAEBURN2	BRAEBURN1	8.000	249.323	0.084	0.037	0.008	Free Surface	3.745	0.089	0.016	0.059	0.108	2.273	Yes	0.07	2.899
1075	BRAEBURN3	BRAEBURN2	8.000	120.999	0.124	0.030	0.006	Free Surface	4.011	0.073	0.011	0.049	0.097	2.757	Yes	0.054	3.45
1077	BRAEBURN6	BRAEBURN3	8.000	418.657	0.002	0.004	0.001	Free Surface	0.561	0.074	0.011	0.049	0.036	0.383	No	0.049	0.561
1079	BRAEBURN8	BRAEBURN7	8.000	195.000	0.036	0.006	0.001	Free Surface	1.602	0.046	0.004	0.031	0.043	1.484	Yes	0.041	1.063
1081	BRAEBURN7	BRAEBURN4	8.000	205.000	0.024	0.014	0.003	Free Surface	1.817	0.075	0.012	0.05	0.066	1.223	No	0.05	1.817
1083	BRAEBURN4	BRAEBURN3	8.000	113.001	0.115	0.021	0.004	Free Surface	3.533	0.064	0.008	0.042	0.082	2.656	Yes	0.046	3.176
1085	FIRST1	NACHES1	8.000	342.576	0.163	0.019	0.004	Free Surface	3.878	0.056	0.006	0.037	0.078	3.166	Yes	0.043	3.155
1087	FIRST2	FIRST1	8.000	175.000	0.006	0.010	0.002	Free Surface	0.989	0.091	0.017	0.06	0.056	0.592	No	0.06	0.989
1089	FIRST3	FIRST2	8.000	190.000	0.003	0.005	0.001	Free Surface	0.626	0.081	0.013	0.054	0.041	0.402	Yes	0.057	0.576
1091	FIRST4	177TH2	8.000	290.000	0.028	0.008	0.001	Free Surface	1.618	0.057	0.006	0.038	0.051	1.301	Yes	0.041	1.477
1093	GOODLANDER1	19-51	8.000	33.917	0.088	0.837	0.242	Free Surface	9.475	0.414	0.359	0.276	0.538	2.329	No	0.276	9.475
1095	GOODLANDER2	GOODLANDER1	8.000	132.381	0.144	0.030	0.006	Free Surface	4.237	0.071	0.01	0.047	0.097	2.967	Yes	0.162	0.71
1097	GOODLANDER3	GOODLANDER2	8.000	190.021	0.126	0.025	0.005	Free Surface	3.856	0.068	0.009	0.045	0.09	2.783	Yes	0.046	3.722
1099	GOODLANDER4	GOODLANDER3	8.000	340.073	0.091	0.021	0.004	Free Surface	3.238	0.067	0.009	0.044	0.081	2.364	Yes	0.045	3.196
1101	GOODLANDER5	GOODLANDER4	8.000	339.930	0.074	0.016	0.003	Free Surface	2.778	0.062	0.008	0.041	0.071	2.124	Yes	0.043	2.633
1104	GOODLANDER6	GOODLANDER5	8.000	290.520	0.396	0.011	0.002	Free Surface	4.461	0.035	0.002	0.023	0.059	4.927	Yes	0.667	0.05
1105	GOODLANDER7	GOODLANDER6	8.000	290.717	0.058	0.006	0.001	Free Surface	1.898	0.041	0.003	0.027	0.043	1.894	No	0.027	1.898
1107	GOODLANDER8	GOODLANDER1	8.000	156.621	0.003	0.815	0.235	Pressurized	3.612	1	1.842	0.667	0.39	0.442	No	0.667	3.612
1108	7-14	CRUSHERCANYON4	8.000	19.120	0.043	0.033	0.007	Free Surface	2.867	0.098	0.02	0.065	0.102	1.632	Yes	0.125	1.114
1109	GOODLANDER9	GOODLANDER8	8.000	215.788	0.012	0.813	0.234	Free Surface	4.256	0.79	0.965	0.526	0.531	0.843	Yes	0.667	3.604
1110	CRUSHERCANYON8	7-17	8.000	19.120	0.043	0.254	0.064	Pressurized	5.257	0.267	0.156	0.178	0.292	1.632	Yes	0.667	1.126
1111	GOODLANDER10	GOODLANDER9	8.000	290.176	0.003	0.812	0.234	Pressurized	3.597	1	1.765	0.667	0.398	0.46	No	0.667	3.597
1112	5-94	5-93	8.000	256.600	0.008	0.009	0.002	Free Surface	1.057	0.079	0.013	0.053	0.052	0.691	Yes	0.071	0.681
1113	GOODLANDER11	GOODLANDER10	8.000	287.490	0.002	0.808	0.233	Pressurized	3.58	1	2.473	0.667	0.333	0.327	Yes	0.667	3.58
1114	5-47	5-46	8.000	96.370	0.073	0.043	0.009	Free Surface	3.733	0.099	0.021	0.066	0.117	2.11	Yes	0.072	3.271
1115	GOODLANDER12	GOODLANDER11	8.000	247.886	0.006	0.805	0.232	Pressurized	3.57	1	1.322	0.667	0.46	0.609	Yes	0.667	3.57
1116	5-48	5-47	8.000	190.730	0.052	0.038	0.008	Free Surface	3.211	0.101	0.021	0.067	0.11	1.793	No	0.067	3.211
1118	IND-1	213	15.000	699.000	0.014	0.097	0.022	Pressurized	2.428	0.097	0.02	0.122	0.149	4.88	Yes	1.25	0.122
1119	HERITAGE2	HERITAGE1	8.000	234.000	0.179	0.077	0.017	Free Surface	6.079	0.105	0.023	0.07	0.157	3.318	Yes	0.075	5.476
1125	HERITAGE5	HERITAGE4	8.000	57.503	0.139	0.039	0.008	Free Surface	4.531	0.081	0.013	0.054	0.111	2.921	Yes	0.06	3.849
1133	HERITAGE9	HERITAGE8	8.000	184.117	0.033	0.021	0.004	Free Surface	2.255	0.084	0.015	0.056	0.08	1.414	No	0.056	2.255
1137	HERITAGE11	HERITAGE10	8.000	82.628	0.109	0.008	0.001	Free Surface	2.57	0.041	0.003	0.027	0.05	2.584	Yes	0.033	1.958
1141	HERITAGE13	HERITAGE12	8.000	156.000	0.135	0.034	0.007	Free Surface	4.317	0.077	0.012	0.051	0.104	2.873	No	0.051	4.317
1143	HERITAGE14	HERITAGE13	8.000	82.000	0.061	0.032	0.006	Free Surface	3.21	0.09	0.017	0.06	0.101	1.934	No	0.06	3.21
1145	HERITAGE15	HERITAGE14	8.000	82.000	0.006	0.030	0.006	Free Surface	1.409	0.151	0.05	0.101	0.098	0.611	No	0.101	1.409
1149	HERITAGE17	HERITAGE16	8.000	76.045	0.118	0.028	0.005	Free Surface	3.862	0.071	0.01	0.048	0.093	2.694	Yes	0.073	2.067
1157	HERITAGE21	HERITAGE20	8.000	336.000	0.003	0.008	0.001	Free Surface	0.735	0.095	0.019	0.063	0.05	0.427	Yes	0.069	0.648
1159	HERITAGE22	HERITAGE21	8.000	55.000	0.009	0.005	0.001	Free Surface	0.956	0.06	0.007	0.04	0.04	0.747	Yes	0.052	0.655
1163	LYLE2	LYLE1	8.000	312.000	0.032	0.010	0.002	Free Surface	1.82	0.061	0.007	0.041	0.057	1.402	Yes	0.667	0.046
1165	YAKIMA1	FIRST1	8.000	273.420	0.084	0.006	0.001	Free Surface	2.137	0.037	0.003	0.025	0.043	2.271	Yes	0.031	1.535
1167	YAKIMA2	YAKIMA1	8.000	173.000	0.006	0.003	0.001	Free Surface	0.71	0.054	0.006	0.036	0.032	0.595	No	0.036	0.71
1169	YAKIMA3	177TH4	8.000	155.000	0.006	0.003	0.000	Free Surface	0.726	0.051	0.005	0.034	0.031	0.629	No	0.034	0.726
1171	YAKIMA4	177TH4	8.000	290.000	0.003	0.005	0.001	Free Surface	0.658	0.071	0.01	0.047	0.038	0.46	No	0.047	0.658
1173	NACHES1	5-25	8.000	293.554	0.140	0.031	0.006	Free Surface	4.244	0.073	0.011	0.048	0.099	2.927	Yes	0.07	2.486
1175	NACHES2	NACHES1	8.000	125.000	0.080	0.010	0.002	Free Surface	2.485	0.049	0.005	0.033	0.056	2.215	Yes	0.041	1.799
1177	NACHES3	NACHES2	8.000	103.000	0.078	0.005	0.001	Free Surface	1.986	0.035	0.002	0.024	0.04	2.182	Yes	0.028	1.535
1179	NACHES4	NACHES5	8.000	104.046	0.106	0.004	0.001	Free Surface	2.051	0.029	0.002	0.02	0.035	2.546	Yes	0.039	0.752
1185	NACHES8	NACHES7	8.000	215.000	0.079	0.005	0.001	Free Surface	1.997	0.035	0.002	0.024	0.039	2.202	Yes	0.033	1.213
1545	213	1-1	15.000	388.000	0.001	1.470	0.453	Pressurized	1.853	1	1.263	1.25	0.533	1.164	No	1.25	1.853
1549	1-13	1-41	8.000	156.300	0.006	0.395	0.116	Pressurized	2.924	0.578	0.633	0.385	0.368	0.623	Yes	0.667	1.749
1553	1-15	1-28	8.000	320.000	0.002	0.312	0.094	Free Surface	1.666	0.773	0.944	0.516	0.325	0.33	No	0.516	1.666
1563	3-28	3-27	12.000	240.000	0.011	1.121	0.335	Free Surface	4.692	0.477	0.461	0.477	0.56	2.431	No	0.477	4.692
1667	2-5	2-4	8.000	477.000	0.007	0.770	0.221	Pressurized	3.414	1	1.174	0.667	0.478	0.656	Yes	0.667	3.414
1669	1-47	221	12.000	300.000	0.004	0.678	0.191	Free Surface	2.751	0.488	0.48	0.488	0.43	1.411	No	0.488	2.751

1671	221	1-12	12.000	350.000	0.004	0.678	0.191	Free Surface	2.769	0.486	0.476	0.486	0.43	1.423	Yes	0.603	2.119
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2037 Peak Gravity Main Report Naches Avenue Interceptor

12/13/2017

ID	From ID	To ID	Diameter (in)	Length (ft)	Slope	Total Flow (mgd)	Peakable Flow (mgd)	Flow Type	Velocity (ft/s)	d/D	q/Q	Water Depth (ft)	Critical Depth (ft)	Full Flow (mgd)	Backwater Adjust	Adjusted Depth (ft)	Adjusted Velocity (ft/s)
1	6-21	6-20	8	247	0.093	0.001	0	Free Surface	1.351	0.017	0	0.011	0.019	2.388	Yes	0.045	0.174
10	6-48	6-47	8	235	0.115	0.003	0	Free Surface	1.981	0.026	0.001	0.017	0.031	2.654	Yes	0.021	1.535
100	IND-2	PUBLICWORKS1	15	483	0.006	0.017	0	Free Surface	1.091	0.052	0.005	0.065	0.062	3.299	Yes	1.25	0.021
1001	GRAHAMPACKAGINGLS	WW7	6	25	0.02	0.069	0	Free Surface	2.822	0.247	0.134	0.124	0.162	0.514	No	0.124	2.822
1007	ELKSCOUNTRYCLUBLS	WW6	10	100	0.02	0.032	0	Free Surface	2.105	0.088	0.016	0.073	0.095	2.008	No	0.073	2.105
101	2-1	1-22	21	184	0.003	1.314	0	Free Surface	3.058	0.32	0.222	0.561	0.514	5.909	Yes	0.626	2.629
1012	5-88	5-77	8	363	0.011	0.001	0	Free Surface	0.661	0.029	0.002	0.02	0.02	0.822	Yes	0.026	0.441
102	1-21	1-20	21	62	0	1.387	0	Free Surface	1.531	0.565	0.612	0.989	0.529	2.266	No	0.989	1.531
103	1-22	1-21	21	367	0.002	1.335	0	Free Surface	2.336	0.395	0.33	0.692	0.518	4.049	Yes	0.841	1.808
1033	CRUSHERCANYON13	CRUSHERCANYON12	12	205	0.054	0.048	0	Free Surface	3.274	0.067	0.009	0.067	0.111	5.348	Yes	0.072	2.933
1035	PUBLICWORKS1	IND-1	15	421	0.001	0.021	0	Pressurized	0.654	0.084	0.015	0.105	0.069	1.442	Yes	1.25	0.026
104	1-23	1-22	8	372	0.013	0.019	0	Free Surface	1.587	0.1	0.021	0.067	0.077	0.89	Yes	0.379	0.142
1041	PUBLICWORKS4	PUBLICWORKS3	6	256	0.001	0.001	0	Pressurized	0.256	0.07	0.01	0.035	0.019	0.102	Yes	0.5	0.008
1049	SELAHHIGH1	3-22	12	95	0.002	0.391	0	Free Surface	1.928	0.42	0.369	0.42	0.323	1.059	Yes	0.456	1.735
105	1-31	1-21	8	304	0.005	0.05	0	Free Surface	1.482	0.207	0.094	0.138	0.126	0.533	Yes	0.564	0.246
1053	HERITAGEHILLS	HERITAGE22	8	173	0.038	0.001	0	Free Surface	0.767	0.015	0	0.01	0.013	1.52	Yes	0.013	0.469
106	1-3	1-2	21	42	0.003	1.443	0	Free Surface	2.877	0.359	0.275	0.628	0.539	5.238	Yes	0.905	1.779
1061	APPLE5	APPLE4	8	117	0.162	0.001	0	Free Surface	1.564	0.014	0	0.009	0.018	3.156	Yes	0.011	1.201
1063	APPLE4	APPLE3	8	145	0.159	0.002	0	Free Surface	1.919	0.02	0.001	0.013	0.025	3.119	Yes	0.023	0.84
1065	APPLE3	APPLE2	8	327	0.018	0.005	0	Free Surface	1.183	0.048	0.004	0.032	0.038	1.06	No	0.032	1.183
1067	APPLE2	APPLE1	8	210	0.081	0.006	0	Free Surface	2.102	0.037	0.003	0.025	0.042	2.23	Yes	0.026	2.009
1069	APPLE1	4-54	8	45	0.089	0.007	0	Free Surface	2.29	0.04	0.003	0.027	0.046	2.335	Yes	0.031	1.819
107	1-2	1-1	21	232	0	1.444	0	Free Surface	1.473	0.603	0.677	1.056	0.54	2.132	No	1.056	1.473
1073	BRAEBURN2	BRAEBURN1	8	249	0.084	0.008	0	Free Surface	2.312	0.042	0.003	0.028	0.048	2.273	Yes	0.033	1.783
1075	BRAEBURN3	BRAEBURN2	8	121	0.124	0.006	0	Free Surface	2.455	0.034	0.002	0.023	0.043	2.757	Yes	0.025	2.094
1077	BRAEBURN6	BRAEBURN3	8	419	0.002	0.001	0	Free Surface	0.321	0.031	0.002	0.021	0.014	0.383	Yes	0.022	0.3
1079	BRAEBURN8	BRAEBURN7	8	195	0.036	0.001	0	Free Surface	0.927	0.02	0.001	0.013	0.018	1.484	Yes	0.018	0.591
108	1-33	1-32	8	314	0.004	0.044	0	Free Surface	1.368	0.199	0.086	0.133	0.118	0.504	Yes	0.135	1.333
1081	BRAEBURN7	BRAEBURN4	8	205	0.024	0.003	0	Free Surface	1.085	0.034	0.002	0.023	0.028	1.223	No	0.023	1.085
1083	BRAEBURN4	BRAEBURN3	8	113	0.115	0.004	0	Free Surface	2.137	0.029	0.002	0.02	0.036	2.656	Yes	0.021	1.895
1085	FIRST1	NACHES1	8	343	0.163	0.004	0	Free Surface	2.336	0.026	0.001	0.017	0.034	3.166	Yes	0.02	1.863
1087	FIRST2	FIRST1	8	175	0.006	0.002	0	Free Surface	0.584	0.04	0.003	0.027	0.023	0.592	No	0.027	0.584
1089	FIRST3	FIRST2	8	190	0.003	0.001	0	Free Surface	0.362	0.035	0.002	0.023	0.017	0.402	Yes	0.025	0.325
109	1-36	1-35	8	52	0.004	0.003	0	Free Surface	0.595	0.05	0.005	0.033	0.028	0.523	Yes	0.085	0.149
1091	FIRST4	177TH2	8	290	0.028	0.001	0	Free Surface	0.947	0.025	0.001	0.017	0.021	1.301	Yes	0.018	0.826
1093	GOODLANDER1	19-51	8	34	0.088	0.242	0	Free Surface	6.675	0.218	0.104	0.145	0.285	2.329	No	0.145	6.675
1095	GOODLANDER2	GOODLANDER1	8	132	0.144	0.006	0	Free Surface	2.594	0.033	0.002	0.022	0.043	2.967	Yes	0.084	0.366
1097	GOODLANDER3	GOODLANDER2	8	190	0.126	0.005	0	Free Surface	2.347	0.032	0.002	0.021	0.039	2.783	Yes	0.022	2.251
1099	GOODLANDER4	GOODLANDER3	8	340	0.091	0.004	0	Free Surface	1.958	0.031	0.002	0.02	0.035	2.364	Yes	0.021	1.917
11	5-26	5-25	8	72	0.028	0.012	0	Free Surface	1.82	0.068	0.009	0.045	0.062	1.308	No	0.045	1.82
110	1-35	1-34	8	225	0.003	0.039	0	Free Surface	1.158	0.206	0.093	0.137	0.111	0.418	No	0.137	1.158
1101	GOODLANDERS	GOODLANDER4	8	340	0.074	0.003	0	Free Surface	1.664	0.028	0.001	0.019	0.03	2.124	Yes	0.02	1.561
1104	GOODLANDER6	GOODLANDERS	8	291	0.396	0.002	0	Free Surface	2.634	0.016	0	0.011	0.025	4.927	Yes	0.667	0.009
1105	GOODLANDER7	GOODLANDER6	8	291	0.058	0.001	0	Free Surface	1.098	0.018	0.001	0.012	0.018	1.894	No	0.012	1.098
1107	GOODLANDER8	GOODLANDER1	8	157	0.003	0.235	0	Free Surface	1.991	0.518	0.531	0.346	0.28	0.442	No	0.346	1.991
1108	7-14	CRUSHERCANYON4	8	19	0.043	0.007	0	Free Surface	1.764	0.046	0.004	0.031	0.045	1.632	Yes	0.062	0.625
1109	GOODLANDER9	GOODLANDER8	8	216	0.012	0.234	0	Free Surface	3.199	0.361	0.278	0.24	0.28	0.843	Yes	0.293	2.456
111	1-37	1-36	8	210	0.005	0.002	0	Free Surface	0.557	0.043	0.003	0.029	0.024	0.541	Yes	0.031	0.495
1110	CRUSHERCANYON8	7-17	8	19	0.043	0.058	0	Pressurized	3.411	0.129	0.036	0.086	0.137	1.632	Yes	0.667	0.259

1111	GOODLANDER10	GOODLANDER9	8	290	0.003	0.234	0	Free Surface	2.047	0.505	0.509	0.337	0.28	0.46	No	0.337	2.047
1112	5-94	5-93	8	257	0.008	0.002	0	Free Surface	0.621	0.035	0.002	0.023	0.022	0.691	Yes	0.032	0.389
1113	GOODLANDER11	GOODLANDER10	8	287	0.002	0.233	0	Free Surface	1.572	0.624	0.713	0.416	0.279	0.327	No	0.416	1.572
1114	5-47	5-46	8	96	0.073	0.009	0	Free Surface	2.319	0.047	0.004	0.032	0.053	2.11	Yes	0.035	2.017
1115	GOODLANDER12	GOODLANDER11	8	248	0.006	0.232	0	Free Surface	2.517	0.428	0.381	0.285	0.278	0.609	Yes	0.351	1.929
1116	5-48	5-47	8	191	0.052	0.008	0	Free Surface	1.986	0.048	0.004	0.032	0.05	1.793	No	0.032	1.986
1118	IND-1	213	15	699	0.014	0.022	0	Pressurized	1.55	0.049	0.005	0.061	0.071	4.88	Yes	1.25	0.028
1119	HERITAGE2	HERITAGE1	8	234	0.179	0.017	0	Free Surface	3.85	0.051	0.005	0.034	0.073	3.318	Yes	0.037	3.463
112	1-8	1-7	12	48	0.015	0.037	0	Free Surface	1.922	0.08	0.013	0.08	0.097	2.799	Yes	0.092	1.58
1125	HERITAGE5	HERITAGE4	8	58	0.139	0.008	0	Free Surface	2.8	0.038	0.003	0.026	0.05	2.921	Yes	0.029	2.373
113	1-7	1-6	12	311	0.005	0.037	0	Free Surface	1.35	0.103	0.022	0.103	0.098	1.675	No	0.103	1.35
1133	HERITAGE9	HERITAGE8	8	184	0.033	0.004	0	Free Surface	1.364	0.039	0.003	0.026	0.035	1.414	No	0.026	1.364
1137	HERITAGE11	HERITAGE10	8	83	0.109	0.001	0	Free Surface	1.501	0.018	0.001	0.012	0.021	2.584	Yes	0.015	1.117
114	1-34	1-33	8	265	0.004	0.041	0	Free Surface	1.35	0.192	0.081	0.128	0.114	0.507	Yes	0.13	1.318
1141	HERITAGE13	HERITAGE12	8	156	0.135	0.007	0	Free Surface	2.656	0.036	0.002	0.024	0.047	2.873	No	0.024	2.656
1143	HERITAGE14	HERITAGE13	8	82	0.061	0.006	0	Free Surface	1.973	0.042	0.003	0.028	0.045	1.934	No	0.028	1.973
1145	HERITAGE15	HERITAGE14	8	82	0.006	0.006	0	Free Surface	0.868	0.07	0.01	0.047	0.043	0.611	No	0.047	0.868
1149	HERITAGE17	HERITAGE16	8	76	0.118	0.005	0	Free Surface	2.357	0.033	0.002	0.022	0.041	2.694	Yes	0.034	1.267
115	1-24	1-23	8	444	0.009	0.015	0	Free Surface	1.322	0.098	0.02	0.065	0.069	0.752	Yes	0.066	1.299
1157	HERITAGE21	HERITAGE20	8	336	0.003	0.001	0	Free Surface	0.431	0.042	0.003	0.028	0.021	0.427	Yes	0.031	0.37
1159	HERITAGE22	HERITAGE21	8	55	0.009	0.001	0	Free Surface	0.551	0.026	0.001	0.017	0.016	0.747	Yes	0.022	0.371
116	1-32	1-31	8	322	0.004	0.047	0	Free Surface	1.397	0.206	0.093	0.137	0.122	0.503	Yes	0.138	1.393
1163	LYLE2	LYLE1	8	312	0.032	0.002	0	Free Surface	1.074	0.027	0.001	0.018	0.024	1.402	Yes	0.025	0.663
1165	YAKIMA1	FIRST1	8	273	0.084	0.001	0	Free Surface	1.235	0.016	0	0.011	0.017	2.271	Yes	0.014	0.84
1167	YAKIMA2	YAKIMA1	8	173	0.006	0.001	0	Free Surface	0.403	0.023	0.001	0.015	0.013	0.595	No	0.015	0.403
1169	YAKIMA3	177TH4	8	155	0.006	0	0	Free Surface	0.411	0.021	0.001	0.014	0.012	0.629	Yes	0.015	0.391
117	9-3	9-2	10	232	0.005	0.086	0	Free Surface	1.677	0.202	0.09	0.169	0.156	0.955	Yes	0.833	0.243
1171	YAKIMA4	177TH4	8	290	0.003	0.001	0	Free Surface	0.378	0.03	0.002	0.02	0.015	0.46	No	0.02	0.378
1173	NACHES1	5-25	8	294	0.14	0.006	0	Free Surface	2.602	0.034	0.002	0.023	0.044	2.927	Yes	0.034	1.444
1175	NACHES2	NACHES1	8	125	0.08	0.002	0	Free Surface	1.464	0.022	0.001	0.015	0.024	2.215	Yes	0.019	1.007
1177	NACHES3	NACHES2	8	103	0.078	0.001	0	Free Surface	1.141	0.015	0	0.01	0.016	2.182	Yes	0.012	0.855
1179	NACHES4	NACHES5	8	104	0.106	0.001	0	Free Surface	1.168	0.013	0	0.008	0.014	2.546	Yes	0.018	0.376
118	1-1	WASTEWATERPLANT	21	29	0.007	1.898	0	Free Surface	4.42	0.32	0.222	0.56	0.622	8.544	No	0.56	4.42
1185	NACHES8	NACHES7	8	215	0.079	0.001	0	Free Surface	1.147	0.015	0	0.01	0.016	2.202	Yes	0.015	0.671
119	9-4	9-3	10	291	0.003	0.081	0	Free Surface	1.379	0.224	0.11	0.186	0.152	0.74	Yes	0.283	0.77
120	9-6	9-5	10	447	0.001	0.064	0	Free Surface	0.722	0.298	0.194	0.248	0.134	0.329	No	0.248	0.722
121	9-5	9-4	10	393	0.003	0.073	0	Free Surface	1.366	0.21	0.096	0.175	0.144	0.761	Yes	0.181	1.303
122	9-16	9-15	12	456	0.001	0.287	0	Free Surface	1.357	0.435	0.392	0.435	0.276	0.733	No	0.435	1.357
123	9-7	9-6	10	279	0.002	0.06	0	Free Surface	1.061	0.219	0.105	0.182	0.131	0.577	Yes	0.215	0.838
124	9-9	9-8	10	153	0.006	0.051	0	Free Surface	1.589	0.146	0.046	0.122	0.12	1.101	No	0.122	1.589
125	9-8	9-7	10	96	0.016	0.054	0	Free Surface	2.3	0.119	0.03	0.099	0.124	1.813	Yes	0.141	1.382
126	9-15	9-1	12	728	0.019	0.301	0	Free Surface	3.921	0.209	0.095	0.209	0.283	3.157	Yes	1	0.593
127	9-15.5	9-15	8	160	0.018	0.007	0	Free Surface	1.31	0.057	0.006	0.038	0.046	1.058	Yes	0.123	0.233
128	2-2	2-1	12	131	0.002	0.082	0	Free Surface	1.278	0.184	0.074	0.184	0.146	1.107	Yes	1	0.162
129	9-2	9-1	8	226	0.009	0.087	0	Pressurized	2.245	0.229	0.115	0.153	0.168	0.76	Yes	0.667	0.388
13	5-21	5-20	8	279	0.014	0.069	0	Free Surface	2.431	0.184	0.074	0.122	0.149	0.938	Yes	0.142	1.963
130	IND-7	IND-6	15	316	0.003	0.013	0	Free Surface	0.789	0.053	0.005	0.066	0.053	2.355	Yes	0.066	0.788
131	2-3	2-1	15	263	0.002	0.5	0	Free Surface	2.121	0.338	0.246	0.422	0.344	2.033	No	0.422	2.121
132	3-14	3-13	12	94	0.07	0.425	0	Free Surface	6.927	0.178	0.069	0.178	0.338	6.121	Yes	0.263	3.998
133	4-10	4-9	8	121	0.071	0.011	0	Free Surface	2.454	0.053	0.005	0.035	0.059	2.08	Yes	0.04	2.055
134	4-12	4-11	8	163	0.05	0.008	0	Free Surface	1.948	0.048	0.004	0.032	0.049	1.752	Yes	0.034	1.794
135	4-11	4-10	8	380	0.05	0.01	0	Free Surface	2.082	0.054	0.006	0.036	0.055	1.746	No	0.036	2.082
136	4-14	4-13	8	303	0.065	0.002	0	Free Surface	1.461	0.025	0.001	0.017	0.026	1.998	Yes	0.023	0.913

137	4-30	4-29	8	251	0.108	0.003	0	Free Surfac	1.826	0.024	0.001	0.016	0.029	2.568	Yes	0.022	1.196
138	4-13	4-12	8	258	0.048	0.006	0	Free Surfac	1.799	0.044	0.004	0.03	0.044	1.709	Yes	0.031	1.688
140	19-1	3-28	8	79	0.066	0.335	0	Free Surfac	6.603	0.276	0.167	0.184	0.337	2.01	No	0.184	6.603
141	4-5	4-4	12	459	0.037	0.034	0	Free Surfac	2.574	0.062	0.008	0.062	0.093	4.412	Yes	0.068	2.261
142	4-4	4-3	8	95	0.041	0.041	0	Free Surfac	3.01	0.11	0.026	0.074	0.114	1.59	Yes	0.079	2.71
143	4-6	4-5	12	263	0.032	0.027	0	Free Surfac	2.291	0.058	0.007	0.058	0.083	4.12	Yes	0.06	2.167
144	4-8	4-7	8	118	0.038	0.018	0	Free Surfac	2.287	0.077	0.012	0.051	0.075	1.524	Yes	0.068	1.487
145	4-47	4-7	8	206	0.005	0.002	0	Free Surfac	0.577	0.042	0.003	0.028	0.024	0.57	Yes	0.057	0.2
146	4-48	4-8	8	211	0.031	0.005	0	Free Surfac	1.445	0.044	0.004	0.029	0.039	1.386	Yes	0.04	0.898
147	4-7	4-6	8	280	0.006	0.021	0	Free Surfac	1.256	0.129	0.035	0.086	0.082	0.603	No	0.086	1.256
148	4-55	4-15	6	487	0.007	0.001	0	Free Surfac	0.561	0.042	0.003	0.021	0.019	0.31	No	0.021	0.561
149	4-2	4-1	8	341	0.034	0.053	0	Free Surfac	3.045	0.13	0.036	0.087	0.13	1.449	Yes	0.111	2.15
15	5-96	5-95	8	290	0.014	0.001	0	Free Surfac	0.685	0.026	0.001	0.017	0.018	0.919	Yes	0.024	0.437
150	4-39	4-16	8	198	0.225	0.004	0	Free Surfac	2.592	0.024	0.001	0.016	0.033	3.711	Yes	0.667	0.016
151	4-40	4-39	8	265	0.011	0.002	0	Free Surfac	0.783	0.037	0.003	0.025	0.026	0.833	No	0.025	0.783
152	4-3	4-2	8	320	0.037	0.052	0	Free Surfac	3.104	0.127	0.034	0.085	0.128	1.503	Yes	0.086	3.041
153	4-44	4-43	8	140	0.086	0.003	0	Free Surfac	1.672	0.025	0.001	0.017	0.028	2.294	Yes	0.02	1.299
154	4-43	4-42	8	255	0.067	0.004	0	Free Surfac	1.813	0.035	0.002	0.023	0.037	2.023	Yes	0.027	1.464
1545	213	1-1	15	388	0.001	0.453	0	Free Surfac	1.376	0.433	0.389	0.541	0.327	1.164	Yes	0.551	1.344
1549	1-13	1-41	8	156	0.006	0.022	0	Free Surfac	1.29	0.127	0.035	0.085	0.082	0.623	Yes	0.102	0.984
155	4-42	4-41	8	122	0.049	0.007	0	Free Surfac	1.856	0.045	0.004	0.03	0.046	1.736	Yes	0.032	1.74
1553	1-15	1-28	8	320	0.002	0.001	0	Free Surfac	0.364	0.047	0.004	0.032	0.021	0.33	No	0.032	0.364
156	4-50	4-49	8	208	0.072	0.002	0	Free Surfac	1.448	0.023	0.001	0.015	0.025	2.101	Yes	0.018	1.115
1563	3-28	3-27	12	240	0.011	0.335	0	Free Surfac	3.361	0.251	0.138	0.251	0.299	2.431	No	0.251	3.361
157	4-32	4-18	8	153	0.12	0.004	0	Free Surfac	2.165	0.029	0.002	0.019	0.036	2.709	Yes	0.043	0.674
158	4-37	4-17	8	191	0.039	0.003	0	Free Surfac	1.314	0.032	0.002	0.021	0.03	1.553	Yes	0.04	0.51
159	4-38	4-37	8	209	0.005	0.002	0	Free Surfac	0.533	0.04	0.003	0.027	0.022	0.541	No	0.027	0.533
16	5-20	5-19	8	138	0.005	0.07	0	Free Surfac	1.651	0.243	0.129	0.162	0.15	0.541	No	0.162	1.651
160	4-21	4-20	8	305	0.009	0.043	0	Free Surfac	1.764	0.164	0.058	0.109	0.116	0.73	Yes	0.11	1.753
161	4-33	4-32	8	253	0.037	0.003	0	Free Surfac	1.343	0.034	0.002	0.023	0.032	1.514	No	0.023	1.343
162	4-41	4-3	8	567	0.056	0.009	0	Free Surfac	2.096	0.049	0.005	0.033	0.052	1.855	Yes	0.059	0.89
163	4-49	4-48	8	299	0.064	0.004	0	Free Surfac	1.684	0.032	0.002	0.021	0.034	1.974	Yes	0.025	1.317
164	2-15	2-14	8	37	0.065	0.061	0	Free Surfac	3.984	0.12	0.031	0.08	0.14	1.996	Yes	0.175	1.291
165	2-14	2-13	12	306	0.001	0.132	0	Free Surfac	1.19	0.271	0.16	0.271	0.185	0.824	No	0.271	1.19
166	2-28	2-12	8	85	0.079	0.003	0	Free Surfac	1.726	0.028	0.001	0.019	0.031	2.202	Yes	0.083	0.194
1665	1-47	1-13	12	315	0.002	0.045	0	Free Surfac	1.051	0.139	0.042	0.139	0.107	1.081	No	0.139	1.051
167	2-13	2-12	8	232	0.008	0.135	0	Free Surfac	2.344	0.302	0.198	0.201	0.21	0.679	No	0.201	2.344
168	2-18	2-17	8	91	0.033	0.011	0	Free Surfac	1.848	0.061	0.007	0.041	0.057	1.423	Yes	0.048	1.468
169	2-20	2-18	8	336	0.006	0.006	0	Free Surfac	0.858	0.07	0.01	0.047	0.043	0.604	No	0.047	0.858
17	5-24	5-23	8	110	0.082	0.033	0	Free Surfac	3.581	0.085	0.015	0.056	0.102	2.241	Yes	0.059	3.339
170	5-29	5-28	8	240	0.029	0.005	0	Free Surfac	1.435	0.046	0.004	0.03	0.04	1.337	Yes	0.033	1.252
171	5-4	5-3	8	172	0.027	0.351	0	Free Surfac	4.831	0.358	0.274	0.239	0.345	1.278	Yes	0.262	4.26
172	5-3	5-2	8	297	0.015	0.36	0	Free Surfac	3.909	0.428	0.381	0.285	0.35	0.946	Yes	0.296	3.716
173	5-28	5-3	8	379	0.031	0.008	0	Free Surfac	1.648	0.054	0.006	0.036	0.05	1.371	Yes	0.161	0.188
174	2-27	2-26	8	494	0.022	0.004	0	Free Surfac	1.197	0.043	0.003	0.028	0.035	1.168	Yes	0.034	0.92
175	2-21	2-20	8	522	0.01	0.003	0	Free Surfac	0.821	0.046	0.004	0.03	0.031	0.767	Yes	0.039	0.573
176	2-19	2-18	8	523	0.01	0.002	0	Free Surfac	0.759	0.04	0.003	0.027	0.027	0.766	Yes	0.034	0.54
177	4-15	2-14	8	402	0.08	0.068	0	Free Surfac	4.419	0.12	0.031	0.08	0.148	2.213	Yes	-7.075	-1
178	4-1	2-15	8	396	0.007	0.059	0	Free Surfac	1.828	0.201	0.089	0.134	0.138	0.668	No	0.134	1.828
179	4-24	4-23	8	353	0.048	0.028	0	Free Surfac	2.829	0.09	0.017	0.06	0.094	1.707	No	0.06	2.829
18	5-25	5-24	8	240	0.1	0.023	0	Free Surfac	3.425	0.068	0.009	0.045	0.084	2.476	Yes	0.051	2.875
180	4-27	4-26	8	169	0.036	0.023	0	Free Surfac	2.416	0.088	0.016	0.059	0.086	1.476	Yes	0.06	2.34
181	4-53	4-52	8	125	0.072	0.004	0	Free Surfac	1.815	0.033	0.002	0.022	0.036	2.099	Yes	0.023	1.649

182	4-26	4-25	8	240	0.033	0.025	0	Free Surfac	2.404	0.092	0.017	0.061	0.088	1.43	Yes	0.063	2.319
183	4-52	4-22	8	282	0.107	0.007	0	Free Surfac	2.404	0.037	0.003	0.025	0.045	2.561	Yes	0.064	0.598
184	6-41	6-40	8	116	0.043	0.004	0	Free Surfac	1.471	0.035	0.002	0.023	0.034	1.629	No	0.023	1.471
185	6-39	6-38	8	94	0.085	0.007	0	Free Surfac	2.303	0.041	0.003	0.028	0.048	2.286	Yes	0.028	2.235
186	6-38	6-37	8	281	0.111	0.009	0	Free Surfac	2.703	0.043	0.003	0.029	0.053	2.615	Yes	0.049	1.241
187	6-49	6-43	8	186	0.111	0.003	0	Free Surfac	1.946	0.026	0.001	0.017	0.031	2.612	Yes	0.032	0.805
188	6-44	6-43	8	260	0.022	0.015	0	Free Surfac	1.77	0.079	0.013	0.052	0.068	1.161	No	0.052	1.77
189	6-50	6-49	8	215	0.005	0.001	0	Free Surfac	0.473	0.034	0.002	0.023	0.019	0.534	No	0.023	0.473
190	6-43	6-37	8	191	0.066	0.019	0	Free Surfac	2.816	0.069	0.009	0.046	0.077	2.016	Yes	0.057	2.029
191	4-28	4-27	8	223	0.081	0.022	0	Free Surfac	3.156	0.07	0.01	0.047	0.083	2.222	Yes	0.053	2.656
192	6-40	6-39	8	124	0.225	0.007	0	Free Surfac	3.12	0.031	0.002	0.021	0.045	3.715	Yes	0.024	2.502
193	5-31	5-30	8	286	0.08	0.007	0	Free Surfac	2.215	0.041	0.003	0.027	0.046	2.22	Yes	0.032	1.718
194	5-34	5-33	8	243	0.025	0.182	0	Free Surfac	3.913	0.26	0.148	0.173	0.246	1.233	Yes	0.174	3.9
195	5-32	5-31	8	222	0.104	0.005	0	Free Surfac	2.168	0.032	0.002	0.022	0.039	2.523	Yes	0.024	1.811
196	5-60	5-34	8	280	0.035	0.015	0	Free Surfac	2.115	0.072	0.01	0.048	0.069	1.47	Yes	0.111	0.621
197	5-35	5-34	8	260	0.036	0.165	0	Free Surfac	4.349	0.225	0.111	0.15	0.233	1.489	Yes	0.162	3.909
198	5-6	5-5	8	130	0.065	0.156	0	Free Surfac	5.258	0.189	0.078	0.126	0.227	1.993	Yes	0.183	3.102
199	5-33	5-5	8	241	0.025	0.183	0	Free Surfac	3.914	0.261	0.149	0.174	0.246	1.229	Yes	0.207	3.074
2	6-22	6-20	8	53	0.094	0.059	0	Free Surfac	4.482	0.108	0.024	0.072	0.137	2.405	Yes	0.076	4.154
200	5-41	5-6	8	252	0.053	0.037	0	Free Surfac	3.203	0.1	0.021	0.066	0.109	1.805	Yes	0.096	1.862
201	5-42	5-41	8	360	0.017	0.021	0	Free Surfac	1.805	0.101	0.021	0.067	0.082	1.011	No	0.067	1.805
202	5-53	5-52	8	42	0.024	0.013	0	Free Surfac	1.765	0.074	0.011	0.049	0.064	1.208	No	0.049	1.765
203	5-7	5-6	8	340	0.018	0.117	0	Free Surfac	3.061	0.227	0.113	0.151	0.196	1.043	No	0.151	3.061
204	5-52	5-41	8	156	0.058	0.014	0	Free Surfac	2.457	0.062	0.008	0.041	0.067	1.881	Yes	0.054	1.656
205	5-43	5-42	8	290	0.031	0.018	0	Free Surfac	2.129	0.08	0.013	0.053	0.075	1.38	Yes	0.06	1.781
206	5-30	5-5	8	250	0.031	0.008	0	Free Surfac	1.7	0.056	0.006	0.037	0.051	1.386	Yes	0.139	0.25
207	6-2	6-1	8	20	0.048	0.124	0	Free Surfac	4.434	0.182	0.072	0.121	0.202	1.721	Yes	0.145	3.441
208	6-3	6-2	8	147	0.005	0.124	0	Free Surfac	1.984	0.321	0.223	0.214	0.201	0.556	No	0.214	1.984
209	5-38	5-37	8	264	0.015	0.006	0	Free Surfac	1.201	0.057	0.006	0.038	0.044	0.965	Yes	0.039	1.184
210	6-37	6-1	8	157	0.028	0.029	0	Free Surfac	2.366	0.103	0.022	0.068	0.095	1.309	Yes	0.118	1.065
211	6-4	6-3	8	349	0.017	0.123	0	Free Surfac	3.037	0.235	0.121	0.157	0.2	1.013	Yes	0.185	2.402
212	5-39	5-38	8	285	0.039	0.004	0	Free Surfac	1.472	0.038	0.003	0.026	0.036	1.538	Yes	0.032	1.058
213	5-61	5-60	8	334	0.045	0.013	0	Free Surfac	2.192	0.063	0.008	0.042	0.064	1.659	Yes	0.045	1.982
214	5-9	5-8	8	58	0.038	0.114	0	Free Surfac	3.961	0.185	0.075	0.123	0.192	1.523	No	0.123	3.961
215	5-55	5-54	8	404	0.05	0.009	0	Free Surfac	2.054	0.053	0.005	0.035	0.054	1.743	Yes	0.043	1.541
216	5-10	5-9	8	263	0.027	0.112	0	Free Surfac	3.499	0.2	0.087	0.133	0.191	1.285	No	0.133	3.499
217	5-45	5-44	8	210	0.048	0.014	0	Free Surfac	2.273	0.064	0.008	0.042	0.065	1.708	Yes	0.044	2.171
218	6-1	5-35	8	384	0.02	0.155	0	Free Surfac	3.468	0.253	0.14	0.168	0.226	1.11	No	0.168	3.468
219	5-54	5-53	8	338	0.018	0.012	0	Free Surfac	1.548	0.075	0.011	0.05	0.061	1.043	No	0.05	1.548
22	5-93	5-24	8	303	0.003	0.003	0	Free Surfac	0.58	0.06	0.007	0.04	0.032	0.45	Yes	0.048	0.443
220	5-8	5-7	8	315	0.068	0.115	0	Free Surfac	4.889	0.161	0.056	0.107	0.193	2.044	Yes	0.129	3.744
221	5-44	5-43	8	271	0.048	0.016	0	Free Surfac	2.373	0.068	0.009	0.045	0.07	1.714	Yes	0.049	2.084
222	4-22	4-21	8	422	0.009	0.038	0	Free Surfac	1.751	0.153	0.051	0.102	0.11	0.754	Yes	0.106	1.667
223	4-36	4-21	8	135	0.06	0.002	0	Free Surfac	1.268	0.022	0.001	0.015	0.022	1.92	Yes	0.057	0.167
224	4-35	4-34	8	409	0.02	0.003	0	Free Surfac	1.075	0.04	0.003	0.027	0.032	1.095	No	0.027	1.075
225	5-5	5-4	8	162	0.026	0.349	0	Free Surfac	4.777	0.36	0.277	0.24	0.345	1.26	No	0.24	4.777
226	1-26	1-25	8	31	0.001	0.01	0	Free Surfac	0.578	0.127	0.034	0.085	0.055	0.279	No	0.085	0.578
227	1-30	1-27	8	54	0.193	0.001	0	Free Surfac	1.813	0.015	0	0.01	0.02	3.443	Yes	0.043	0.218
228	1-27	1-26	8	157	0.002	0.009	1-26	Free Surfac	0.623	0.113	0.027	0.075	0.052	0.325	Yes	0.08	0.569
229	1-28	1-27	8	411	0.004	0.006	0	Free Surfac	0.733	0.079	0.013	0.053	0.044	0.479	Yes	0.064	0.552
23	5-95	5-25	8	301	0.01	0.003	0	Free Surfac	0.826	0.045	0.004	0.03	0.03	0.782	Yes	0.037	0.589
230	1-29	1-28	8	192	0.004	0.002	0	Free Surfac	0.546	0.05	0.005	0.033	0.027	0.48	Yes	0.043	0.374
232	1-39	1-38	8	50	0.001	0.034	0	Free Surfac	0.645	0.287	0.179	0.191	0.104	0.192	No	0.191	0.645

233	1-49	1-43	8	156	0.051	0.001	0	Free Surfac	1.079	0.019	0.001	0.013	0.018	1.774	Yes	0.036	0.235
234	1-43	1-42	8	48	0.005	0.009	0	Free Surfac	0.923	0.088	0.016	0.058	0.053	0.564	Yes	0.07	0.709
235	1-10	1-9	12	56	0.002	0.035	0	Free Surfac	0.963	0.124	0.033	0.124	0.094	1.066	No	0.124	0.963
236	1-42	1-39	8	162	0.001	0.009	0	Free Surfac	0.582	0.122	0.032	0.082	0.054	0.288	Yes	0.136	0.277
237	1-40	1-39	8	295	0.008	0.025	0	Free Surfac	1.48	0.127	0.034	0.085	0.088	0.716	Yes	0.138	0.731
238	1-11	1-10	12	307	0.003	0.034	0	Free Surfac	1.118	0.111	0.026	0.111	0.094	1.325	Yes	0.117	1.029
239	1-44	1-43	8	326	0.003	0.007	0	Free Surfac	0.725	0.091	0.017	0.061	0.048	0.434	No	0.061	0.725
24	5-79	5-78	8	289	0.017	0.011	0	Free Surfac	1.5	0.073	0.011	0.049	0.059	1.03	No	0.049	1.5
240	1-15	1-14	10	142	0.009	0.004	0	Free Surfac	0.802	0.038	0.003	0.032	0.031	1.318	Yes	0.039	0.585
241	1-16	1-15	8	297	0.015	0.003	0	Free Surfac	0.958	0.041	0.003	0.027	0.03	0.963	Yes	0.029	0.85
243	5-1	1-17	15	334	0.015	0.508	0	Free Surfac	4.102	0.213	0.1	0.267	0.347	5.093	No	0.267	4.102
244	1-13	1-12	12	305	0.006	0.033	0	Free Surfac	1.342	0.095	0.019	0.095	0.092	1.755	Yes	0.101	1.223
246	10-11	10-10	8	85	0.012	0.001	0	Free Surfac	0.54	0.021	0.001	0.014	0.014	0.849	Yes	0.024	0.239
248	1-14	1-13	10	359	0.007	0.007	0	Free Surfac	0.917	0.056	0.006	0.047	0.044	1.17	Yes	0.071	0.494
249	1-41	1-40	8	315	0.002	0.023	0	Free Surfac	0.828	0.18	0.07	0.12	0.085	0.324	No	0.12	0.828
25	5-85	5-80	8	62	0.097	0.003	0	Free Surfac	1.781	0.025	0.001	0.017	0.029	2.436	Yes	0.026	0.954
250	1-12	1-11	12	288	0.004	0.034	0	Free Surfac	1.146	0.107	0.024	0.107	0.093	1.386	Yes	0.109	1.119
251	1-45	1-44	8	445	0.007	0.006	0	Free Surfac	0.89	0.068	0.009	0.045	0.043	0.643	Yes	0.053	0.705
252	10-4	10-3	8	314	0.006	0.022	0	Free Surfac	1.255	0.13	0.036	0.087	0.083	0.598	No	0.087	1.255
253	10-2	10-1	8	30	0.067	0.025	0	Free Surfac	3.086	0.078	0.012	0.052	0.089	2.032	Yes	0.187	0.487
254	10-1	9-17	8	39	0.006	0.275	0	Free Surfac	2.557	0.482	0.469	0.321	0.304	0.586	Yes	0.383	2.05
255	10-14	10-13	8	35	0.036	0.248	0	Free Surfac	4.871	0.277	0.167	0.184	0.288	1.481	Yes	0.251	3.18
256	10-13	10-1	8	91	0.005	0.25	0	Free Surfac	2.345	0.478	0.463	0.319	0.289	0.54	Yes	0.32	2.333
257	10-3	10-2	8	221	0.009	0.025	0	Free Surfac	1.516	0.125	0.033	0.083	0.088	0.742	No	0.083	1.516
258	10-5	10-4	8	289	0.002	0.017	0	Free Surfac	0.815	0.15	0.048	0.1	0.074	0.357	No	0.1	0.815
259	10-16	10-15	8	290	0.004	0.028	0	Free Surfac	1.186	0.162	0.057	0.108	0.094	0.495	No	0.108	1.186
26	5-83.5	5-83	8	164	0.098	0.001	0	Free Surfac	1.425	0.018	0.001	0.012	0.02	2.447	Yes	0.016	0.964
260	10-29	10-28	8	313	0.003	0.212	0	Free Surfac	1.943	0.488	0.479	0.325	0.266	0.443	Yes	0.378	1.611
261	10-30	10-29	8	270	0.019	0.014	0	Free Surfac	1.648	0.08	0.013	0.053	0.066	1.066	Yes	0.189	0.265
262	10-28	10-14	8	294	0.001	0.219	0	Free Surfac	1.422	0.645	0.748	0.43	0.27	0.293	No	0.43	1.422
263	10-37	10-36	8	90	0.006	0.001	0	Free Surfac	0.468	0.029	0.002	0.019	0.017	0.584	Yes	0.043	0.143
264	10-36	10-17	8	419	0.001	0.004	0	Free Surfac	0.327	0.1	0.021	0.067	0.035	0.184	Yes	0.083	0.237
265	10-7	10-6	8	316	0.004	0.008	0	Free Surfac	0.823	0.09	0.017	0.06	0.051	0.495	Yes	0.067	0.706
266	10-18	10-17	8	299	0.004	0.013	0	Free Surfac	0.975	0.111	0.026	0.074	0.065	0.512	Yes	0.087	0.774
268	10-35	10-32	8	234	0.009	0.002	0	Free Surfac	0.653	0.035	0.002	0.023	0.022	0.724	Yes	0.033	0.388
269	10-27	10-26	8	135	0.015	0.002	0	Free Surfac	0.815	0.032	0.002	0.022	0.024	0.953	Yes	0.026	0.606
27	5-89	5-24	8	134	0.022	0.006	0	Free Surfac	1.364	0.052	0.005	0.035	0.043	1.17	Yes	0.045	0.909
270	10-33	10-32	8	301	0.023	0.007	0	Free Surfac	1.43	0.054	0.006	0.036	0.046	1.194	Yes	0.039	1.25
271	10-26	10-17	8	298	0.019	0.004	0	Free Surfac	1.18	0.047	0.004	0.031	0.037	1.085	Yes	0.065	0.393
272	10-6	10-5	8	320	0.005	0.014	0	Free Surfac	1.013	0.11	0.026	0.073	0.065	0.536	Yes	0.087	0.796
273	10-17	10-16	8	328	0.004	0.024	0	Free Surfac	1.16	0.149	0.048	0.1	0.088	0.508	Yes	0.104	1.095
274	10-31	10-30	8	328	0.015	0.011	0	Free Surfac	1.412	0.073	0.011	0.049	0.057	0.967	Yes	0.051	1.321
275	10-12	10-4	8	338	0.001	0.002	0	Free Surfac	0.309	0.075	0.011	0.05	0.027	0.209	Yes	0.068	0.195
276	10-10	10-6	8	417	0.008	0.003	0	Free Surfac	0.78	0.051	0.005	0.034	0.032	0.679	Yes	0.054	0.393
278	7-9	7-1	8	36	0.053	0.005	0	Free Surfac	1.759	0.039	0.003	0.026	0.04	1.802	Yes	0.074	0.378
279	7-10	7-9	8	390	0.049	0.004	0	Free Surfac	1.52	0.034	0.002	0.022	0.033	1.73	Yes	0.024	1.343
28	5-92	5-91	8	231	0.099	0.001	0	Free Surfac	1.466	0.019	0.001	0.012	0.021	2.47	Yes	0.021	0.656
280	8-2	8-1	8	77	0.217	0.054	0	Free Surfac	5.838	0.085	0.015	0.056	0.131	3.652	Yes	0.066	4.605
281	7-1	1-48	8	141	0.005	0.04	0	Free Surfac	1.401	0.184	0.074	0.123	0.113	0.54	No	0.123	1.401
282	7-2	7-1	8	245	0.298	0.034	0	Free Surfac	5.656	0.063	0.008	0.042	0.103	4.274	No	0.042	5.656
283	7-35	7-13	8	153	0.144	0.002	0	Free Surfac	1.858	0.02	0.001	0.013	0.025	2.974	No	0.013	1.858
284	8-3	8-2	8	394	0.084	0.044	0	Free Surfac	3.944	0.096	0.019	0.064	0.118	2.27	No	0.064	3.944
285	7-4	7-3	8	460	0.05	0.027	0	Free Surfac	2.841	0.087	0.015	0.058	0.092	1.751	No	0.058	2.841

286	7-42	7-15	8	155	0.134	0.002	0	Free Surfac	1.659	0.018	0.001	0.012	0.022	2.871	Yes	0.02	0.754
287	7-38	7-37	8	35	0.142	0.002	0	Free Surfac	1.776	0.019	0.001	0.013	0.023	2.946	Yes	0.018	1.09
288	7-37	7-36	8	497	0.038	0.003	0	Free Surfac	1.346	0.034	0.002	0.022	0.031	1.531	No	0.022	1.346
289	7-3	7-2	8	482	0.066	0.031	0	Free Surfac	3.261	0.086	0.015	0.057	0.099	2.018	No	0.057	3.261
29	5-87	5-86	8	120	0.033	0.001	0	Free Surfac	0.921	0.021	0.001	0.014	0.018	1.43	Yes	0.015	0.818
290	10-22	10-21	8	145	0.007	0.002	0	Free Surfac	0.615	0.038	0.003	0.025	0.023	0.65	Yes	0.046	0.254
291	10-20	10-19	8	127	0.004	0.009	0	Free Surfac	0.857	0.094	0.018	0.063	0.054	0.502	Yes	0.066	0.798
292	10-21	10-20	8	341	0.001	0.005	0	Free Surfac	0.424	0.099	0.02	0.066	0.039	0.24	No	0.066	0.424
293	10-9	10-8	8	146	0.005	0.003	0	Free Surfac	0.666	0.055	0.006	0.037	0.032	0.547	Yes	0.042	0.549
294	10-24	10-23	8	105	0.019	0.002	0	Free Surfac	0.895	0.031	0.002	0.02	0.024	1.081	No	0.02	0.895
295	10-25	10-24	8	105	0.01	0.001	0	Free Surfac	0.597	0.028	0.001	0.019	0.018	0.766	Yes	0.02	0.556
296	10-23	10-20	8	181	0.035	0.002	0	Free Surfac	1.2	0.03	0.002	0.02	0.027	1.462	Yes	0.041	0.413
297	7-32	7-6	8	177	0.119	0.001	0	Free Surfac	1.58	0.018	0.001	0.012	0.021	2.697	Yes	0.018	0.876
298	7-7	7-6	8	261	0.065	0.002	0	Free Surfac	1.305	0.021	0.001	0.014	0.022	1.998	Yes	0.019	0.848
299	7-6	7-5	8	607	0.077	0.005	0	Free Surfac	1.995	0.036	0.002	0.024	0.04	2.18	Yes	0.041	0.898
3	6-19	6-18	8	123	0.041	0.063	0	Free Surfac	3.415	0.136	0.04	0.091	0.142	1.582	No	0.091	3.415
30	5-86	5-85	8	151	0.066	0.002	0	Free Surfac	1.437	0.024	0.001	0.016	0.025	2.015	Yes	0.017	1.395
300	7-5	7-4	8	367	0.041	0.024	0	Free Surfac	2.57	0.087	0.015	0.058	0.088	1.582	No	0.058	2.57
301	1-48	1-47	8	305	0.022	0.042	0	Free Surfac	2.424	0.13	0.036	0.087	0.116	1.154	Yes	0.113	1.655
302	1-46	1-45	8	369	0.005	0.004	0	Free Surfac	0.711	0.057	0.006	0.038	0.033	0.576	Yes	0.041	0.619
303	10-8	10-7	8	307	0.004	0.005	0	Free Surfac	0.689	0.071	0.01	0.047	0.039	0.483	Yes	0.054	0.571
304	10-19	10-18	8	170	0.004	0.01	0	Free Surfac	0.851	0.103	0.022	0.069	0.057	0.469	Yes	0.072	0.805
305	10-34	10-33	8	265	0.019	0.004	0	Free Surfac	1.113	0.043	0.004	0.029	0.034	1.076	Yes	0.032	0.933
306	5-2	5-1	8	372	0.011	0.363	0	Free Surfac	3.569	0.461	0.435	0.308	0.352	0.834	No	0.308	3.569
307	6-45	6-44.5	8	38	0.082	0.012	0	Free Surfac	2.669	0.053	0.006	0.036	0.062	2.248	Yes	0.051	1.585
308	6-8	6-7	8	116	0.006	0.115	0	Free Surfac	2.11	0.29	0.184	0.194	0.193	0.625	Yes	0.211	1.872
309	6-7	6-6	8	224	0.003	0.116	0	Free Surfac	1.697	0.343	0.253	0.229	0.194	0.459	Yes	0.237	1.618
31	8-13	8-10	8	175	0.006	0.002	0	Free Surfac	0.61	0.043	0.003	0.029	0.025	0.593	No	0.029	0.61
310	6-24	6-9	8	188	0.052	0.031	0	Free Surfac	2.995	0.091	0.017	0.061	0.099	1.783	Yes	0.113	1.212
311	6-10	6-9	8	56	0.033	0.082	0	Free Surfac	3.419	0.163	0.058	0.109	0.162	1.418	Yes	0.137	2.445
312	6-53	6-10	8	113	0.14	0.002	0	Free Surfac	1.831	0.02	0.001	0.013	0.025	2.934	Yes	0.061	0.191
313	6-9	6-8	8	400	0.011	0.114	0	Free Surfac	2.598	0.249	0.136	0.166	0.192	0.839	Yes	0.18	2.32
314	6-52	6-51	8	127	0.024	0.001	0	Free Surfac	0.846	0.024	0.001	0.016	0.019	1.202	Yes	0.016	0.823
315	5-64	5-63	8	390	0.003	0.002	0	Free Surfac	0.459	0.051	0.005	0.034	0.025	0.397	No	0.034	0.459
316	6-51	6-5	8	136	0.054	0.002	0	Free Surfac	1.308	0.025	0.001	0.017	0.025	1.812	Yes	0.073	0.145
317	5-63	5-62	8	348	0.04	0.007	0	Free Surfac	1.723	0.047	0.004	0.031	0.046	1.572	Yes	0.036	1.432
318	5-57	5-56	8	46	0.065	0.005	0	Free Surfac	1.84	0.036	0.002	0.024	0.039	1.999	Yes	0.027	1.589
319	5-13	5-12	8	100	0.06	0.105	0	Free Surfac	4.565	0.159	0.055	0.106	0.185	1.924	No	0.106	4.565
32	8-11	8-10	8	233	0.034	0.004	0	Free Surfac	1.364	0.037	0.003	0.025	0.034	1.452	No	0.025	1.364
320	5-15	5-14	8	191	0.09	0.059	0	Free Surfac	4.424	0.109	0.025	0.073	0.138	2.352	Yes	0.119	2.182
321	5-12	5-11	8	313	0.039	0.106	0	Free Surfac	3.926	0.178	0.069	0.118	0.186	1.547	No	0.118	3.926
322	5-58	5-57	8	262	0.034	0.004	0	Free Surfac	1.351	0.037	0.002	0.024	0.033	1.451	No	0.024	1.351
324	5-65	5-63	8	301	0.007	0.002	0	Free Surfac	0.637	0.041	0.003	0.027	0.025	0.639	Yes	0.029	0.57
325	6-26	6-25	8	102	0.005	0.017	0	Free Surfac	1.103	0.122	0.032	0.081	0.074	0.548	No	0.081	1.103
326	6-59	6-58	8	114	0.009	0.008	0	Free Surfac	1.091	0.076	0.012	0.05	0.051	0.733	No	0.05	1.091
327	6-27	6-26	8	202	0.047	0.015	0	Free Surfac	2.345	0.067	0.009	0.045	0.07	1.696	Yes	0.063	1.423
328	6-58	6-25	8	180	0.039	0.01	0	Free Surfac	1.901	0.056	0.006	0.038	0.055	1.543	Yes	0.05	1.235
329	6-61	6-60	8	38	0.026	0.004	0	Free Surfac	1.276	0.042	0.003	0.028	0.036	1.264	Yes	0.033	0.973
33	11-18	11-17	8	75	0.278	0.01	0	Free Surfac	3.83	0.036	0.002	0.024	0.056	4.131	Yes	0.035	2.212
330	6-64	6-60	8	127	0.016	0.003	0	Free Surfac	0.985	0.041	0.003	0.027	0.031	0.983	Yes	0.033	0.744
331	6-60	6-59	8	91	0.022	0.008	0	Free Surfac	1.459	0.058	0.007	0.039	0.049	1.161	Yes	0.045	1.187
332	5-66	5-16	8	154	0.077	0.003	0	Free Surfac	1.612	0.026	0.001	0.017	0.028	2.176	Yes	0.057	0.273
333	5-51.5	5-51	8	77	0.052	0.001	0	Free Surfac	1.143	0.021	0.001	0.014	0.02	1.786	Yes	0.015	1.038

334	5-51	5-50.5	8	236	0.102	0.002	0	Free Surfac	1.735	0.024	0.001	0.016	0.027	2.497	Yes	0.019	1.298
335	6-65	6-64	8	217	0.014	0.002	0	Free Surfac	0.784	0.032	0.002	0.021	0.023	0.921	Yes	0.024	0.643
336	5-15	5-14	8	348	0.049	0.044	0	Free Surfac	3.277	0.109	0.025	0.073	0.118	1.742	Yes	0.119	1.616
337	5-59	5-58	8	336	0.048	0.002	0	Free Surfac	1.218	0.024	0.001	0.016	0.023	1.708	Yes	0.02	0.872
338	5-50.5	5-48	8	258	0.062	0.004	0	Free Surfac	1.715	0.034	0.002	0.022	0.035	1.951	Yes	0.027	1.289
34	11-19	11-18	8	184	0.12	0.009	0	Free Surfac	2.763	0.042	0.003	0.028	0.053	2.71	No	0.028	2.763
340	6-6	6-5	8	166	0.003	0.117	0	Free Surfac	1.564	0.367	0.288	0.245	0.196	0.408	No	0.245	1.564
341	6-25	6-24	8	320	0.037	0.028	0	Free Surfac	2.603	0.095	0.019	0.063	0.094	1.515	No	0.063	2.603
342	6-13	6-12	8	107	0.01	0.076	0	Free Surfac	2.186	0.211	0.097	0.141	0.156	0.777	No	0.141	2.186
343	6-15	6-14	8	88	0.038	0.07	0	Free Surfac	3.458	0.146	0.046	0.097	0.15	1.536	No	0.097	3.458
344	6-54	6-14	8	122	0.098	0.003	0	Free Surfac	1.867	0.027	0.001	0.018	0.031	2.454	Yes	0.057	0.339
345	6-14	6-13	8	113	0.045	0.074	0	Free Surfac	3.72	0.144	0.044	0.096	0.154	1.669	Yes	0.118	2.744
346	6-56	6-15	8	369	0.029	0.001	0	Free Surfac	0.948	0.025	0.001	0.016	0.021	1.328	Yes	0.057	0.149
347	6-12	6-11	8	327	0.029	0.077	0	Free Surfac	3.218	0.163	0.058	0.109	0.157	1.336	Yes	0.111	3.1
348	6-57	6-16	8	157	0.083	0.002	0	Free Surfac	1.511	0.022	0.001	0.015	0.024	2.258	Yes	0.041	0.337
349	6-17	6-16	8	151	0.041	0.066	0	Free Surfac	3.466	0.139	0.042	0.093	0.145	1.585	No	0.093	3.466
35	11-25	11-24	8	184	0.043	0.002	0	Free Surfac	1.127	0.023	0.001	0.016	0.022	1.633	Yes	0.017	1.016
350	6-18	6-17	8	390	0.072	0.064	0	Free Surfac	4.183	0.12	0.031	0.08	0.144	2.094	Yes	0.086	3.748
351	6-16	6-15	8	82	0.177	0.068	0	Free Surfac	5.851	0.1	0.021	0.066	0.148	3.298	Yes	0.082	4.311
352	6-63	6-62	8	296	0.051	0.001	0	Free Surfac	1.164	0.022	0.001	0.015	0.021	1.763	Yes	0.018	0.848
353	5-67	5-17	8	329	0.085	0.005	0	Free Surfac	2.007	0.034	0.002	0.022	0.038	2.289	Yes	0.06	0.468
354	5-69	5-68	8	238	0.134	0.002	0	Free Surfac	1.662	0.018	0.001	0.012	0.022	2.87	Yes	0.02	0.768
355	5-68	5-67	8	234	0.017	0.003	0	Free Surfac	1.04	0.042	0.003	0.028	0.032	1.023	No	0.028	1.04
356	5-70	5-18	8	308	0.105	0.004	0	Free Surfac	2.017	0.029	0.001	0.019	0.034	2.54	Yes	0.053	0.443
357	5-71	5-70	8	125	0.168	0.002	0	Free Surfac	1.971	0.02	0.001	0.013	0.025	3.209	Yes	0.016	1.432
358	5-18	5-17	8	188	0.105	0.093	0	Free Surfac	5.345	0.131	0.037	0.088	0.174	2.534	Yes	0.092	4.948
359	5-73	5-19	8	222	0.071	0.018	0	Free Surfac	2.819	0.065	0.008	0.044	0.074	2.082	Yes	0.087	1.014
36	11-22	11-21	8	262	0.134	0.002	0	Free Surfac	1.742	0.019	0.001	0.013	0.023	2.862	Yes	0.022	0.785
360	5-75	5-74	8	121	0.14	0.015	0	Free Surfac	3.432	0.052	0.005	0.035	0.069	2.935	Yes	0.035	3.388
361	5-74	5-73	8	160	0.144	0.016	0	Free Surfac	3.514	0.053	0.005	0.035	0.071	2.971	Yes	0.039	2.986
362	5-76	5-75	8	148	0.027	0.001	0	Free Surfac	0.726	0.017	0	0.011	0.014	1.287	Yes	0.023	0.254
363	5-19	5-18	8	380	0.018	0.088	0	Free Surfac	2.818	0.197	0.085	0.131	0.169	1.044	No	0.131	2.818
364	5-72	5-71	8	266	0.019	0.001	0	Free Surfac	0.768	0.025	0.001	0.016	0.019	1.074	No	0.016	0.768
365	6-55	6-54	8	194	0.052	0.002	0	Free Surfac	1.342	0.027	0.001	0.018	0.026	1.779	Yes	0.018	1.33
366	6-57.5	6-57	8	145	0.014	0.001	0	Free Surfac	0.624	0.023	0.001	0.015	0.016	0.919	No	0.015	0.624
367	6-11	6-10	8	326	0.025	0.079	0	Free Surfac	3.085	0.171	0.064	0.114	0.16	1.242	No	0.114	3.085
368	6-28	6-27	8	386	0.008	0.013	0	Free Surfac	1.192	0.096	0.019	0.064	0.064	0.69	No	0.064	1.192
369	6-62	6-61	8	283	0.053	0.003	0	Free Surfac	1.537	0.032	0.002	0.021	0.032	1.804	Yes	0.025	1.251
37	11-21	11-20	8	214	0.009	0.003	0	Free Surfac	0.822	0.046	0.004	0.031	0.031	0.757	Yes	0.038	0.615
370	5-66.5	5-66	8	218	0.092	0.001	0	Free Surfac	1.378	0.018	0.001	0.012	0.02	2.37	Yes	0.015	1.022
371	5-17	5-16	8	387	0.077	0.099	0	Free Surfac	4.882	0.146	0.046	0.097	0.179	2.171	No	0.097	4.882
372	8-5	8-4	8	194	0.085	0.04	0	Free Surfac	3.838	0.092	0.017	0.061	0.112	2.282	Yes	0.064	3.616
373	7-43	7-16	8	99	0.235	0.005	0	Free Surfac	2.925	0.028	0.001	0.018	0.04	3.793	Yes	0.022	2.253
374	7-44	7-43	8	320	0.028	0.004	0	Free Surfac	1.304	0.041	0.003	0.027	0.035	1.313	No	0.027	1.304
375	5-50	5-49	8	322	0.062	0.001	0	Free Surfac	1.244	0.021	0.001	0.014	0.021	1.952	Yes	0.016	0.998
376	8-8	8-7	8	336	0.07	0.013	0	Free Surfac	2.541	0.056	0.006	0.037	0.063	2.071	Yes	0.047	1.837
377	8-16	8-6	8	328	0.07	0.003	0	Free Surfac	1.555	0.026	0.001	0.018	0.028	2.072	Yes	0.038	0.491
378	7-24	7-23	8	194	0.026	0.012	0	Free Surfac	1.752	0.068	0.009	0.046	0.061	1.256	No	0.046	1.752
379	7-33	7-23	8	458	0.14	0.003	0	Free Surfac	1.993	0.023	0.001	0.015	0.028	2.929	Yes	0.03	0.727
38	11-24	11-19	8	265	0.094	0.003	0	Free Surfac	1.812	0.027	0.001	0.018	0.03	2.405	Yes	0.023	1.236
380	7-34	7-24	8	446	0.134	0.002	0	Free Surfac	1.805	0.02	0.001	0.013	0.025	2.872	Yes	0.03	0.561
381	7-46	7-45	8	128	0.133	0.001	0	Free Surfac	1.358	0.013	0	0.009	0.016	2.854	Yes	0.014	0.664
382	7-20	7-19	8	47	0.042	0.005	0	Free Surfac	1.584	0.04	0.003	0.027	0.039	1.612	No	0.027	1.584

383	7-27	7-26	8	97	0.062	0.006	0	Free Surfac	1.97	0.042	0.003	0.028	0.044	1.944	No	0.028	1.97
384	7-26	7-25	8	572	0.115	0.007	0	Free Surfac	2.53	0.038	0.003	0.025	0.047	2.659	Yes	0.04	1.26
385	7-25	7-24	8	174	0.006	0.008	0	Free Surfac	0.94	0.083	0.014	0.056	0.051	0.593	No	0.056	0.94
386	7-28	7-27	8	98	0.072	0.006	0	Free Surfac	2.008	0.038	0.003	0.026	0.042	2.098	Yes	0.027	1.88
387	7-31	7-28	8	297	0.04	0.002	0	Free Surfac	1.19	0.027	0.001	0.018	0.025	1.575	Yes	0.022	0.888
388	7-22	7-21	8	248	0.113	0.002	0	Free Surfac	1.573	0.019	0.001	0.012	0.022	2.631	Yes	0.015	1.16
389	7-30	7-29	8	15	0.134	0.001	0	Free Surfac	1.285	0.012	0	0.008	0.014	2.866	Yes	0.014	0.559
39	11-17	11-5	8	273	0.023	0.011	0	Free Surfac	1.678	0.069	0.01	0.046	0.06	1.195	Yes	0.116	0.437
390	7-29	7-28	8	286	0.01	0.001	0	Free Surfac	0.657	0.03	0.002	0.02	0.02	0.801	Yes	0.023	0.545
391	7-21	7-20	8	355	0.135	0.004	0	Free Surfac	2.202	0.027	0.001	0.018	0.034	2.881	Yes	0.022	1.609
392	7-45	7-44	8	129	0.07	0.003	0	Free Surfac	1.67	0.03	0.002	0.02	0.032	2.068	Yes	0.023	1.295
393	7-18	CRUSHERCANYON8	8	32	0.011	0.006	0	Free Surfac	1.087	0.063	0.008	0.042	0.045	0.826	Yes	0.086	0.374
394	7-19	7-18	8	255	0.112	0.006	0	Free Surfac	2.332	0.034	0.002	0.023	0.042	2.626	Yes	0.032	1.392
395	5-81	5-80	8	218	0.032	0.007	0	Free Surfac	1.588	0.05	0.005	0.033	0.045	1.403	Yes	0.034	1.532
396	5-80	5-79	8	201	0.06	0.01	0	Free Surfac	2.234	0.052	0.005	0.035	0.056	1.915	Yes	0.042	1.696
397	8-10	8-9	8	171	0.17	0.007	0	Free Surfac	2.836	0.034	0.002	0.022	0.045	3.224	Yes	0.028	2.066
398	8-12	8-11	8	221	0.077	0.002	0	Free Surfac	1.443	0.022	0.001	0.015	0.024	2.171	Yes	0.02	0.926
399	5-78	5-77	8	127	0.158	0.012	0	Free Surfac	3.332	0.046	0.004	0.03	0.062	3.11	Yes	0.031	3.219
4	6-23	6-19	8	204	0.083	0.001	0	Free Surfac	1.35	0.019	0.001	0.012	0.02	2.262	Yes	0.052	0.163
40	3-36	3-35	8	199	0.005	0.001	0	Free Surfac	0.529	0.038	0.003	0.025	0.021	0.555	Yes	0.034	0.345
400	5-84	5-83	8	109	0.11	0.002	0	Free Surfac	1.606	0.02	0.001	0.013	0.023	2.593	Yes	0.016	1.182
401	5-83	5-82	8	174	0.109	0.004	0	Free Surfac	2.05	0.029	0.001	0.019	0.034	2.585	Yes	0.027	1.211
402	5-82	5-81	8	275	0.015	0.005	0	Free Surfac	1.118	0.053	0.005	0.035	0.04	0.944	No	0.035	1.118
403	8-9	8-8	8	488	0.074	0.01	0	Free Surfac	2.409	0.05	0.005	0.033	0.056	2.126	Yes	0.035	2.195
404	5-49	5-48	8	171	0.059	0.002	0	Free Surfac	1.448	0.027	0.001	0.018	0.028	1.894	Yes	0.025	0.895
405	5-77	5-75	8	118	0.179	0.014	0	Free Surfac	3.651	0.048	0.004	0.032	0.067	3.308	Yes	0.033	3.413
406	6-44.5	6-44	8	275	0.007	0.013	0	Free Surfac	1.174	0.098	0.02	0.066	0.065	0.667	No	0.066	1.174
407	5-40	5-39	8	241	0.058	0.002	0	Free Surfac	1.328	0.024	0.001	0.016	0.024	1.887	Yes	0.021	0.899
408	6-5	6-4	8	319	0.034	0.121	0	Free Surfac	3.888	0.195	0.083	0.13	0.198	1.447	Yes	0.143	3.381
409	5-62	5-61	8	518	0.033	0.01	0	Free Surfac	1.812	0.06	0.007	0.04	0.056	1.419	Yes	0.041	1.743
41	3-34	3-15	8	225	0.004	0.006	0	Free Surfac	0.788	0.077	0.012	0.051	0.044	0.522	Yes	0.165	0.145
410	8-4	8-3	8	393	0.067	0.042	0	Free Surfac	3.58	0.099	0.021	0.066	0.115	2.024	No	0.066	3.58
411	5-46	5-45	8	528	0.051	0.011	0	Free Surfac	2.186	0.057	0.006	0.038	0.059	1.771	Yes	0.04	2.001
412	5-56	5-55	8	360	0.053	0.006	0	Free Surfac	1.873	0.044	0.004	0.029	0.045	1.799	Yes	0.032	1.615
413	5-11	5-10	8	380	0.041	0.109	0	Free Surfac	4.042	0.177	0.069	0.118	0.189	1.593	Yes	0.126	3.704
414	7-39	7-38	8	411	0.005	0.001	0	Free Surfac	0.476	0.033	0.002	0.022	0.018	0.546	No	0.022	0.476
415	7-40	7-45	8	225	0.071	0.002	0	Free Surfac	1.349	0.021	0.001	0.014	0.022	2.088	Yes	0.017	1.026
416	7-23	7-5	8	325	0.055	0.016	0	Free Surfac	2.537	0.067	0.009	0.045	0.072	1.844	Yes	0.051	2.069
417	4-45	4-6	10	323	0.021	0.002	0	Free Surfac	0.92	0.024	0.001	0.02	0.024	2.053	Yes	0.039	0.338
418	4-9	4-8	8	141	0.032	0.012	0	Free Surfac	1.926	0.066	0.009	0.044	0.062	1.41	Yes	0.048	1.722
419	4-51	4-13	8	364	0.006	0.002	0	Free Surfac	0.585	0.039	0.003	0.026	0.023	0.599	Yes	0.028	0.535
42	3-15	3-14	12	185	0.012	0.424	0	Free Surfac	3.671	0.279	0.17	0.279	0.337	2.501	No	0.279	3.671
420	4-29	4-28	8	252	0.028	0.004	0	Free Surfac	1.292	0.04	0.003	0.027	0.035	1.305	Yes	0.037	0.808
421	2-35	2-34	8	313	0.022	0.002	0	Free Surfac	0.894	0.027	0.001	0.018	0.022	1.171	Yes	0.03	0.43
422	4-31	4-1	8	374	0.009	0.002	0	Free Surfac	0.713	0.039	0.003	0.026	0.025	0.734	Yes	0.08	0.136
423	2-12	2-11	8	203	0.028	0.139	0	Free Surfac	3.775	0.22	0.106	0.147	0.213	1.31	Yes	0.159	3.366
424	2-25.5	2-25	8	224	0.013	0.01	0	Free Surfac	1.346	0.075	0.012	0.05	0.057	0.906	No	0.05	1.346
425	2-17	2-16	8	239	0.013	0.012	0	Free Surfac	1.372	0.082	0.014	0.055	0.061	0.877	No	0.055	1.372
426	1-25	1-24	8	404	0.005	0.012	0	Free Surfac	0.954	0.102	0.022	0.068	0.06	0.53	No	0.068	0.954
427	1-38	1-35	8	157	0.005	0.035	0	Free Surfac	1.342	0.174	0.066	0.116	0.106	0.535	Yes	0.127	1.187
428	1-9	1-8	12	176	0.01	0.035	0	Free Surfac	1.632	0.087	0.016	0.087	0.095	2.258	No	0.087	1.632
429	9-17	9-16	12	187	0.001	0.276	0	Free Surfac	1.263	0.445	0.408	0.445	0.27	0.675	No	0.445	1.263
43	3-44	3-43	8	417	0.001	0.002	0	Free Surfac	0.279	0.073	0.011	0.049	0.025	0.192	Yes	0.053	0.244

430	9-13	9-12	10	92	0.011	0.004	0	Free Surfac	0.872	0.036	0.002	0.03	0.031	1.478	Yes	0.04	0.563
431	9-11	9-10	10	383	0.005	0.042	0	Free Surfac	1.373	0.142	0.044	0.119	0.109	0.968	Yes	0.122	1.321
432	9-14	9-12	10	566	0.002	0.034	0	Free Surfac	0.914	0.161	0.056	0.134	0.097	0.597	No	0.134	0.914
433	11-2	11-1	8	321	0.011	0.191	0	Free Surfac	2.932	0.331	0.237	0.221	0.252	0.807	Yes	0.28	2.132
434	11-3	11-2	8	243	0.014	0.19	0	Free Surfac	3.214	0.309	0.207	0.206	0.251	0.92	Yes	0.213	3.056
435	11-16	11-15	8	119	0.008	0.001	0	Free Surfac	0.596	0.031	0.002	0.021	0.019	0.718	Yes	0.032	0.306
436	11-15	11-4	8	267	0.003	0.004	0	Free Surfac	0.568	0.066	0.009	0.044	0.033	0.417	Yes	0.131	0.115
437	11-5	11-4	8	326	0.02	0.184	0	Free Surfac	3.61	0.278	0.168	0.185	0.247	1.096	Yes	0.201	3.209
438	11-20	11-19	8	227	0.004	0.005	0	Free Surfac	0.712	0.066	0.009	0.044	0.038	0.52	No	0.044	0.712
439	11-23	11-22	8	162	0.012	0	0	Free Surfac	0	0	0	0	0	0.87	Yes	0.006	0
44	3-16	3-15	12	320	0.001	0.416	0	Free Surfac	1.616	0.506	0.51	0.506	0.334	0.816	No	0.506	1.616
440	11-4	11-3	8	313	0.011	0.19	0	Free Surfac	2.972	0.327	0.231	0.218	0.251	0.825	No	0.218	2.972
441	11-7	11-6	8	96	0.12	0.17	0	Free Surfac	6.704	0.169	0.062	0.113	0.237	2.717	Yes	0.135	5.186
442	11-8	11-7	8	15	0.137	0.169	0	Free Surfac	7.007	0.164	0.059	0.109	0.236	2.895	Yes	0.111	6.848
443	11-26	11-9	8	132	0.013	0.056	0	Free Surfac	2.225	0.168	0.061	0.112	0.133	0.907	Yes	0.114	2.165
444	11-9	11-8	8	17	0.107	0.169	0	Free Surfac	6.435	0.174	0.066	0.116	0.236	2.565	No	0.116	6.435
445	11-31	11-27	8	88	0.011	0.008	0	Free Surfac	1.179	0.07	0.01	0.046	0.05	0.836	Yes	0.06	0.799
446	11-27	11-26	8	253	0.067	0.053	0	Free Surfac	3.869	0.112	0.026	0.074	0.131	2.03	Yes	0.093	2.787
447	11-32	11-31	8	155	0.019	0.002	0	Free Surfac	0.974	0.034	0.002	0.023	0.027	1.09	Yes	0.035	0.528
448	11-30	11-26	8	135	0.074	0.001	0	Free Surfac	1.235	0.018	0.001	0.012	0.019	2.132	Yes	0.062	0.107
449	11-10	11-9	8	278	0.036	0.114	0	Free Surfac	3.898	0.187	0.076	0.125	0.192	1.489	No	0.125	3.898
45	3-35	3-34	8	304	0.003	0.004	0	Free Surfac	0.597	0.063	0.008	0.042	0.033	0.449	Yes	0.047	0.513
450	11-29	11-28	8	223	0.094	0.043	0	Free Surfac	4.075	0.093	0.018	0.062	0.117	2.403	No	0.062	4.075
451	11-35	11-34	8	156	0.006	0.002	0	Free Surfac	0.669	0.045	0.004	0.03	0.027	0.627	No	0.03	0.669
452	11-40	11-39	8	226	0.04	0.001	0	Free Surfac	0.986	0.02	0.001	0.014	0.018	1.562	Yes	0.014	0.903
453	11-39	11-34	8	240	0.088	0.002	0	Free Surfac	1.578	0.023	0.001	0.015	0.025	2.317	Yes	0.019	1.106
454	11-34	11-31	8	128	0.086	0.005	0	Free Surfac	2.074	0.035	0.002	0.023	0.04	2.294	Yes	0.035	1.146
455	11-28	11-27	8	258	0.101	0.044	0	Free Surfac	4.208	0.092	0.018	0.062	0.118	2.487	Yes	0.068	3.642
456	11-33	11-32	8	227	0.079	0.001	0	Free Surfac	1.332	0.019	0.001	0.013	0.02	2.205	Yes	0.018	0.802
457	11-36	11-35	8	154	0.058	0.002	0	Free Surfac	1.284	0.023	0.001	0.015	0.023	1.893	Yes	0.023	0.704
458	11-41	11-40	8	110	0.064	0	0	Free Surfac	0	0	0	0	0	1.976	Yes	0.007	0
459	11-6	11-5	8	226	0.032	0.171	0	Free Surfac	4.209	0.236	0.122	0.157	0.237	1.402	Yes	0.171	3.733
46	3-41	3-40	10	212	0.012	0.01	0	Free Surfac	1.242	0.058	0.007	0.049	0.053	1.541	Yes	0.059	0.936
460	9-10	9-9	10	215	0.005	0.047	0	Free Surfac	1.426	0.15	0.049	0.125	0.115	0.973	No	0.125	1.426
461	11-1	10-29	8	425	0.002	0.195	0	Free Surfac	1.695	0.508	0.513	0.339	0.254	0.38	No	0.339	1.695
462	10-34.5	10-34	8	386	0.016	0.002	0	Free Surfac	0.887	0.035	0.002	0.024	0.026	0.977	Yes	0.026	0.759
463	5-23	5-22	8	158	0.057	0.033	0	Free Surfac	3.164	0.093	0.018	0.062	0.103	1.866	Yes	0.118	1.227
464	5-22	5-21	8	301	0.003	0.068	0	Free Surfac	1.442	0.263	0.151	0.175	0.148	0.451	No	0.175	1.442
465	5-91	5-90	8	224	0.009	0.003	0	Free Surfac	0.788	0.045	0.004	0.03	0.03	0.741	No	0.03	0.788
466	5-90	5-89	8	337	0.039	0.005	0	Free Surfac	1.518	0.04	0.003	0.027	0.038	1.537	Yes	0.031	1.241
467	5-27	5-26	8	368	0.043	0.011	0	Free Surfac	2.048	0.058	0.007	0.039	0.058	1.633	Yes	0.042	1.808
468	1-4	1-3	21	177	0.002	1.441	0	Free Surfac	2.781	0.367	0.288	0.643	0.539	5.002	Yes	0.699	2.488
469	1-6	1-5	18	157	0.006	0.044	0	Free Surfac	1.4	0.065	0.008	0.097	0.095	5.268	Yes	0.101	1.312
47	3-40	3-39	10	88	0.006	0.015	0	Free Surfac	1.084	0.083	0.014	0.069	0.065	1.073	No	0.069	1.084
470	1-18	1-4	21	143	0.002	1.392	0	Free Surfac	2.759	0.36	0.278	0.631	0.53	5.011	Yes	0.637	2.722
474	1-19	1-18	21	74	0.002	1.39	0	Free Surfac	2.398	0.399	0.336	0.699	0.529	4.135	No	0.699	2.398
475	1-20	1-19	21	221	0.002	1.388	0	Free Surfac	2.627	0.373	0.296	0.653	0.529	4.688	Yes	0.676	2.506
476	19-12	19-11	8	288	0.007	0.309	0	Free Surfac	2.852	0.485	0.474	0.323	0.324	0.652	No	0.323	2.852
477	19-2	19-1	8	183	0.038	0.326	0	Free Surfac	5.399	0.313	0.213	0.209	0.333	1.533	No	0.209	5.399
478	19-3	19-2	8	166	0.036	0.326	0	Free Surfac	5.288	0.318	0.218	0.212	0.332	1.491	No	0.212	5.288
479	19-4	19-3	8	136	0.022	0.324	0	Free Surfac	4.415	0.361	0.278	0.24	0.331	1.163	No	0.24	4.415
48	3-39	3-38	10	205	0.01	0.016	0	Free Surfac	1.324	0.074	0.011	0.062	0.066	1.404	Yes	0.064	1.276
480	19-5	19-4	8	112	0.098	0.323	0	Free Surfac	7.519	0.245	0.132	0.163	0.331	2.449	Yes	0.202	5.591

481	19-6	19-5	8	185	0.005	0.32	0	Free Surfac	2.619	0.533	0.557	0.356	0.33	0.575	No	0.356	2.619
482	19-7	19-6	8	168	0.059	0.319	0	Free Surfac	6.278	0.276	0.167	0.184	0.329	1.91	Yes	0.27	3.722
483	19-10	19-9	8	325	0.092	0.314	0	Free Surfac	7.313	0.245	0.132	0.164	0.326	2.38	Yes	0.168	7.066
484	19-13	19-12	8	194	0.01	0.308	0	Free Surfac	3.299	0.432	0.387	0.288	0.323	0.795	Yes	0.306	3.051
485	19-11	19-10	8	372	0.019	0.311	0	Free Surfac	4.121	0.368	0.289	0.245	0.324	1.074	No	0.245	4.121
486	19-8	19-7	8	154	0.065	0.317	0	Free Surfac	6.476	0.269	0.159	0.18	0.328	1.998	Yes	0.182	6.36
487	19-9	19-8	8	104	0.077	0.316	0	Free Surfac	6.865	0.257	0.145	0.172	0.327	2.174	Yes	0.176	6.647
488	19-21	19-20	8	204	0.118	0.001	0	Free Surfac	1.543	0.018	0.001	0.012	0.021	2.689	Yes	0.015	1.118
489	19-18	19-17	8	90	0.033	0.004	0	Free Surfac	1.376	0.039	0.003	0.026	0.035	1.43	Yes	0.026	1.366
49	3-18	3-17	12	37	0.005	0.411	0	Free Surfac	2.766	0.334	0.24	0.334	0.332	1.707	Yes	0.425	2
490	19-14	19-13	8	256	0.059	0.301	0	Free Surfac	6.144	0.269	0.159	0.18	0.319	1.896	Yes	0.234	4.269
491	19-22	19-16	8	129	0.019	0.284	0	Free Surfac	4.061	0.348	0.26	0.232	0.309	1.09	No	0.232	4.061
492	19-17	19-16	8	147	0.088	0.007	0	Free Surfac	2.256	0.039	0.003	0.026	0.045	2.327	Yes	0.119	0.243
493	19-24	19-23	8	249	0.06	0.282	0	Free Surfac	6.091	0.259	0.147	0.173	0.309	1.922	Yes	0.178	5.849
494	19-16	19-14	8	171	0.029	0.291	0	Free Surfac	4.743	0.317	0.217	0.211	0.313	1.339	No	0.211	4.743
495	19-19	19-18	8	160	0.019	0.003	0	Free Surfac	1.06	0.04	0.003	0.027	0.032	1.074	No	0.027	1.06
496	19-20	19-19	8	190	0.074	0.003	0	Free Surfac	1.582	0.026	0.001	0.017	0.028	2.126	Yes	0.022	1.108
497	6-35	6-34	8	326	0.126	0.001	0	Free Surfac	1.539	0.017	0	0.011	0.02	2.778	Yes	0.017	0.828
498	6-36	6-34	8	187	0.048	0.002	0	Free Surfac	1.197	0.024	0.001	0.016	0.023	1.718	Yes	0.019	0.894
499	6-34	6-33	8	320	0.078	0.005	0	Free Surfac	1.931	0.034	0.002	0.023	0.038	2.188	Yes	0.026	1.589
5	6-20	6-19	8	227	0.066	0.061	0	Free Surfac	3.998	0.119	0.03	0.079	0.139	2.013	Yes	0.085	3.616
50	3-20	3-19	12	90	0.002	0.392	0	Free Surfac	1.969	0.415	0.36	0.415	0.324	1.088	No	0.415	1.969
500	6-33	6-29	8	151	0.04	0.006	0	Free Surfac	1.62	0.043	0.004	0.029	0.041	1.561	Yes	0.034	1.248
501	6-31	6-30	8	299	0.03	0.002	0	Free Surfac	1.148	0.032	0.002	0.021	0.028	1.359	Yes	0.021	1.122
502	6-30	6-29	8	89	0.056	0.004	0	Free Surfac	1.595	0.033	0.002	0.022	0.033	1.851	Yes	0.031	0.948
503	6-29	6-28	8	376	0.035	0.01	0	Free Surfac	1.866	0.06	0.007	0.04	0.057	1.455	Yes	0.052	1.272
504	5-16	5-15	8	23	0.082	0.102	0	Free Surfac	5.043	0.146	0.046	0.097	0.182	2.243	No	0.097	5.043
505	5-14	5-13	8	171	0.01	0.104	0	Free Surfac	2.417	0.246	0.133	0.164	0.184	0.785	No	0.164	2.417
506	3-27	3-26	12	206	0.033	0.337	0	Free Surfac	4.979	0.191	0.08	0.191	0.3	4.224	No	0.191	4.979
508	3-26	3-25	12	67	0.07	0.337	0	Free Surfac	6.444	0.16	0.055	0.16	0.3	6.088	No	0.16	6.444
509	3-25	3-24	12	289	0.103	0.341	0	Free Surfac	7.429	0.146	0.046	0.146	0.301	7.422	No	0.146	7.429
51	3-19	3-18	12	25	0.008	0.392	0	Free Surfac	3.133	0.295	0.19	0.295	0.324	2.068	Yes	0.315	2.87
510	19-50	19-49	8	231	0.035	0.244	0	Free Surfac	4.794	0.277	0.167	0.184	0.286	1.458	No	0.184	4.794
512	19-51	19-50	8	277	0.144	0.243	0	Free Surfac	7.941	0.193	0.082	0.129	0.285	2.974	Yes	0.157	6.008
513	19-44	19-43	8	292	0.099	0.002	0	Free Surfac	1.524	0.02	0.001	0.013	0.022	2.466	Yes	0.017	1.064
514	19-49	19-48	8	220	0.036	0.245	0	Free Surfac	4.889	0.274	0.164	0.183	0.287	1.494	No	0.183	4.889
515	19-54	19-53	8	370	0.097	0.002	0	Free Surfac	1.647	0.022	0.001	0.015	0.026	2.442	Yes	0.04	0.379
516	19-48	19-47	8	152	0.112	0.256	0	Free Surfac	7.379	0.211	0.098	0.141	0.293	2.62	Yes	0.146	7.033
517	19-41	19-30	8	221	0.063	0.265	0	Free Surfac	6.091	0.248	0.134	0.165	0.298	1.972	No	0.165	6.091
518	19-47	19-45	8	104	0.086	0.257	0	Free Surfac	6.733	0.226	0.112	0.151	0.294	2.299	Yes	0.153	6.566
519	19-43	19-42	8	190	0.053	0.003	0	Free Surfac	1.477	0.03	0.002	0.02	0.03	1.796	Yes	0.028	0.925
52	3-38	3-37	10	309	0.01	0.017	0	Free Surfac	1.361	0.078	0.012	0.065	0.07	1.399	Yes	0.2	0.268
520	19-33	19-32	8	160	0.181	0.001	0	Free Surfac	1.775	0.016	0	0.01	0.02	3.334	Yes	0.014	1.141
521	19-42	19-41	8	230	0.009	0.004	0	Free Surfac	0.863	0.053	0.005	0.035	0.035	0.73	Yes	0.1	0.186
522	19-29	19-34	8	178	0.062	0.278	0	Free Surfac	6.116	0.255	0.143	0.17	0.306	1.946	No	0.17	6.116
523	19-27	19-26	8	260	0.127	0.001	0	Free Surfac	1.505	0.016	0	0.011	0.019	2.79	Yes	0.013	1.088
524	19-34	19-28	8	13	0.077	0.279	0	Free Surfac	6.633	0.242	0.128	0.161	0.306	2.178	Yes	0.191	5.232
525	19-46	19-45	8	17	0.117	0.002	0	Free Surfac	1.716	0.021	0.001	0.014	0.025	2.682	Yes	0.085	0.117
526	19-45	19-41	8	171	0.076	0.26	0	Free Surfac	6.463	0.234	0.12	0.156	0.295	2.162	Yes	0.161	6.206
527	19-56	19-55	8	242	0.194	0.003	0	Free Surfac	2.296	0.022	0.001	0.015	0.03	3.448	Yes	0.02	1.415
528	19-55	19-53	8	56	0.036	0.004	0	Free Surfac	1.432	0.039	0.003	0.026	0.036	1.48	Yes	0.046	0.62
529	19-36	19-35	8	137	0.073	0.007	0	Free Surfac	2.157	0.042	0.003	0.028	0.047	2.116	Yes	0.029	2.035
53	3-22	3-21	12	328	0.001	0.391	0	Free Surfac	1.577	0.491	0.485	0.491	0.324	0.807	No	0.491	1.577

530	19-35	19-30	8	140	0.071	0.008	0	Free Surf	2.243	0.046	0.004	0.03	0.051	2.093	Yes	0.092	0.439
531	19-38	19-37	8	279	0.222	0.003	0	Free Surf	2.513	0.023	0.001	0.015	0.032	3.689	Yes	0.02	1.643
532	19-40	19-39	8	225	0.071	0.001	0	Free Surf	0.976	0.013	0	0.009	0.013	2.088	Yes	0.009	0.967
533	19-39	19-38	8	120	0.2	0.001	0	Free Surf	1.651	0.013	0	0.009	0.017	3.502	Yes	0.012	1.028
534	19-56.5	19-56.25	4	90	0.144	0.001	0	Free Surf	1.474	0.028	0.001	0.009	0.017	0.469	Yes	0.011	1.108
535	19-56.25	19-56	4	42	0.119	0.001	0	Free Surf	1.685	0.04	0.003	0.013	0.024	0.425	Yes	0.014	1.574
536	19-37	19-36	8	170	0.065	0.005	0	Free Surf	1.892	0.038	0.003	0.025	0.041	1.992	Yes	0.027	1.743
537	19-30	19-29	8	22	0.091	0.274	0	Free Surf	6.985	0.23	0.116	0.153	0.304	2.36	Yes	0.162	6.475
538	19-28	19-24	8	44	0.023	0.279	0	Free Surf	4.29	0.331	0.236	0.22	0.307	1.183	No	0.22	4.29
539	19-32	19-31	8	210	0.057	0.002	0	Free Surf	1.408	0.027	0.001	0.018	0.027	1.872	Yes	0.028	0.716
54	3-21	3-20	12	309	0.001	0.392	0	Free Surf	1.612	0.483	0.471	0.483	0.324	0.831	No	0.483	1.612
540	19-26	19-25	8	165	0.067	0.002	0	Free Surf	1.416	0.024	0.001	0.016	0.025	2.022	Yes	0.018	1.138
541	19-25	19-24	8	184	0.038	0.003	0	Free Surf	1.281	0.031	0.002	0.021	0.029	1.527	Yes	0.097	0.133
542	19-31	19-29	8	214	0.005	0.003	0	Free Surf	0.664	0.057	0.006	0.038	0.032	0.535	Yes	0.104	0.151
543	19-53	19-48	8	381	0.003	0.008	0	Free Surf	0.705	0.098	0.02	0.065	0.05	0.401	Yes	0.103	0.363
544	19-52	19-48	8	219	0.146	0.002	0	Free Surf	1.765	0.018	0.001	0.012	0.023	2.996	Yes	0.077	0.116
545	8-14	8-5	8	417	0.072	0.002	0	Free Surf	1.391	0.022	0.001	0.015	0.023	2.1	Yes	0.038	0.337
546	8-6	8-5	8	192	0.084	0.036	0	Free Surf	3.726	0.088	0.016	0.059	0.108	2.267	Yes	0.06	3.628
547	8-15	8-14	8	232	0.121	0.001	0	Free Surf	1.242	0.012	0	0.008	0.014	2.723	Yes	0.011	0.768
548	19-15	19-14	8	276	0.036	0.008	0	Free Surf	1.78	0.054	0.006	0.036	0.051	1.491	Yes	0.108	0.354
549	11-14	11-13	8	275	0.058	0.001	0	Free Surf	1.145	0.019	0.001	0.013	0.019	1.888	Yes	0.016	0.817
55	3-24	3-23	12	296	0.058	0.39	0	Free Surf	6.303	0.179	0.07	0.179	0.323	5.552	Yes	0.238	4.213
550	11-11	11-10	8	328	0.034	0.112	0	Free Surf	3.8	0.189	0.078	0.126	0.191	1.443	No	0.126	3.8
551	11-12	11-11	8	78	0.11	0.111	0	Free Surf	5.724	0.141	0.043	0.094	0.19	2.592	No	0.094	5.724
552	11-13	11-12	8	254	0.063	0.003	0	Free Surf	1.56	0.029	0.001	0.019	0.03	1.964	Yes	0.057	0.313
553	11-38	11-37	8	104	0.077	0.001	0	Free Surf	1.026	0.013	0	0.009	0.013	2.172	Yes	0.01	0.851
554	11-37	11-36	8	79	0.089	0.001	0	Free Surf	1.287	0.017	0	0.011	0.018	2.331	Yes	0.013	1.001
555	7-22.5	7-22	8	89	0.112	0.001	0	Free Surf	1.131	0.011	0	0.008	0.013	2.618	Yes	0.01	0.75
557	7-41	7-40	8	29	0.069	0.001	0	Free Surf	1.166	0.017	0	0.012	0.018	2.057	Yes	0.013	0.999
558	4-46	4-45	8	308	0.055	0.002	0	Free Surf	1.306	0.024	0.001	0.016	0.024	1.839	Yes	0.018	1.115
559	2-29	2-8	8	217	0.001	0.022	0	Free Surf	0.719	0.191	0.08	0.127	0.082	0.271	Yes	0.204	0.37
560	6-32	6-31	8	164	0.079	0.001	0	Free Surf	1.295	0.018	0.001	0.012	0.019	2.202	Yes	0.017	0.813
561	6-42	6-41	8	13	0.079	0.001	0	Free Surf	1.318	0.019	0.001	0.013	0.02	2.199	Yes	0.018	0.771
563	LYLE1	19-13	8	102	0.01	0.003	0	Free Surf	0.862	0.048	0.004	0.032	0.033	0.775	Yes	0.16	0.083
564	3-31	3-29	8	752	0.002	0.009	0	Free Surf	0.675	0.108	0.025	0.072	0.053	0.361	No	0.072	0.675
565	3-29	3-9	8	407	0.015	0.015	0	Free Surf	1.575	0.088	0.016	0.059	0.069	0.961	Yes	0.237	0.212
566	3-10	3-9	12	355	0.005	0.438	0	Free Surf	2.761	0.35	0.263	0.35	0.343	1.662	Yes	0.383	2.445
567	3-11	3-10	12	311	0.006	0.432	0	Free Surf	2.886	0.336	0.243	0.336	0.341	1.776	Yes	0.343	2.803
568	3-9	3-8	12	407	0.003	0.458	0	Free Surf	2.291	0.416	0.362	0.416	0.351	1.265	No	0.416	2.291
569	3-8	3-7	12	423	0.003	0.464	0	Free Surf	2.377	0.409	0.351	0.409	0.354	1.323	No	0.409	2.377
57	3-23	SELAHHIGH1	12	205	0.008	0.39	0	Free Surf	3.099	0.296	0.191	0.296	0.323	2.04	Yes	0.358	2.387
570	3-7	3-6	12	362	0.004	0.477	0	Free Surf	2.452	0.408	0.349	0.408	0.359	1.367	Yes	0.414	2.403
58	3-42	3-41	10	289	0.021	0.009	0	Free Surf	1.453	0.048	0.004	0.04	0.05	2.045	Yes	0.044	1.251
581	HERITAGE12	HERITAGE2	8	103	0.203	0.007	0	Free Surf	3.129	0.034	0.002	0.023	0.048	3.529	Yes	0.029	2.232
584	HERITAGE10	HERITAGE9	8	82	0.073	0.002	0	Free Surf	1.565	0.026	0.001	0.017	0.028	2.122	Yes	0.022	1.118
589	NACHES7	NACHES5	8	125	0.032	0.002	0	Free Surf	1.101	0.028	0.001	0.019	0.025	1.401	Yes	0.023	0.814
59	3-43	3-40	8	182	0.001	0.005	0	Free Surf	0.472	0.087	0.016	0.058	0.037	0.29	Yes	0.064	0.413
593	177TH4	177TH2	8	266	0.086	0.002	0	Free Surf	1.57	0.023	0.001	0.015	0.025	2.301	Yes	0.018	1.261
594	177TH2	NACHES5	8	280	0.161	0.005	0	Free Surf	2.568	0.03	0.002	0.02	0.04	3.139	Yes	0.024	2.002
595	NACHES5	177TH1	8	140	0.115	0.008	0	Free Surf	2.658	0.041	0.003	0.027	0.051	2.651	Yes	0.027	2.646
596	177TH1	5-27	8	140	0.136	0.009	0	Free Surf	2.907	0.041	0.003	0.028	0.054	2.889	Yes	0.033	2.213
598	HERITAGE20	HERITAGE19	8	175	0.006	0.003	0	Free Surf	0.678	0.051	0.005	0.034	0.03	0.591	No	0.034	0.678
6	1-5	1-4	18	543	0.005	0.047	0	Free Surf	1.324	0.071	0.01	0.106	0.099	4.711	Yes	0.374	0.211

60	3-17	3-16	12	348	0.001	0.412	0	Free Surf	1.563	0.515	0.526	0.515	0.332	0.783	No	0.515	1.563
601	HERITAGE19	HERITAGE18	8	256	0.047	0.004	0	Free Surf	1.511	0.034	0.002	0.023	0.034	1.695	No	0.023	1.511
602	HERITAGE18	HERITAGE17	8	276	0.16	0.005	0	Free Surf	2.504	0.029	0.002	0.019	0.038	3.128	Yes	0.021	2.256
605	HERITAGE16	HERITAGE15	8	80	0.006	0.006	0	Free Surf	0.86	0.068	0.009	0.045	0.042	0.619	Yes	0.046	0.84
606	HERITAGE8	HERITAGE7	8	146	0.124	0.005	0	Free Surf	2.362	0.032	0.002	0.022	0.04	2.754	No	0.022	2.362
607	HERITAGE7	HERITAGE6	8	120	0.183	0.006	0	Free Surf	2.839	0.032	0.002	0.021	0.044	3.353	No	0.021	2.839
608	HERITAGE6	HERITAGE5	8	40	0.253	0.007	0	Free Surf	3.257	0.031	0.002	0.02	0.045	3.938	Yes	0.023	2.729
609	HERITAGE4	HERITAGE3	8	149	0.067	0.009	0	Free Surf	2.234	0.047	0.004	0.032	0.052	2.03	No	0.032	2.234
61	3-12	3-11	12	306	0.005	0.428	0	Free Surf	2.705	0.35	0.263	0.35	0.339	1.629	No	0.35	2.705
610	HERITAGE3	HERITAGE2	8	30	0.267	0.009	0	Free Surf	3.668	0.035	0.002	0.024	0.054	4.044	Yes	0.029	2.698
612	BRAEBURN1	4-54	8	249	0.028	0.009	0	Free Surf	1.648	0.058	0.007	0.039	0.052	1.312	No	0.039	1.648
62	3-13	3-12	12	233	0.005	0.426	0	Free Surf	2.726	0.347	0.258	0.347	0.338	1.65	Yes	0.348	2.707
620	HERITAGE1	8-7	8	146	0.113	0.018	0	Free Surf	3.34	0.059	0.007	0.039	0.075	2.631	Yes	0.048	2.531
621	8-7	8-6	8	350	0.084	0.032	0	Free Surf	3.604	0.084	0.014	0.056	0.101	2.273	Yes	0.057	3.456
624	CRUSHERCANYON12	CRUSHERCANYON11	12	230	0.03	0.049	0	Free Surf	2.704	0.077	0.012	0.077	0.112	4.028	Yes	0.082	2.478
625	CRUSHERCANYON11	CRUSHERCANYON10	12	308	0.019	0.05	0	Free Surf	2.328	0.087	0.016	0.087	0.113	3.222	No	0.087	2.328
626	CRUSHERCANYON10	CRUSHERCANYON9	12	140	0.107	0.051	0	Free Surf	4.242	0.059	0.007	0.059	0.114	7.557	Yes	0.062	3.926
627	CRUSHERCANYON9	CRUSHERCANYON8	12	307	0.072	0.052	0	Free Surf	3.705	0.065	0.008	0.065	0.115	6.18	Yes	0.098	2.027
629	7-17	CRUSHERCANYON7	12	197	0.005	0.059	0	Free Surf	1.529	0.129	0.036	0.129	0.123	1.645	No	0.129	1.529
63	3-33	3-32	8	242	0.002	0.002	0	Free Surf	0.405	0.05	0.005	0.033	0.023	0.356	Yes	0.034	0.387
630	CRUSHERCANYON7	CRUSHERCANYON6	12	138	0.174	0.06	0	Free Surf	5.263	0.056	0.006	0.056	0.124	9.628	Yes	0.072	3.686
631	CRUSHERCANYON6	CRUSHERCANYON5	12	148	0.034	0.066	0	Free Surf	3.068	0.087	0.016	0.087	0.13	4.244	No	0.087	3.068
632	7-16	CRUSHERCANYON6	8	42	0.066	0.005	0	Free Surf	1.921	0.038	0.003	0.025	0.041	2.015	Yes	0.056	0.593
633	7-15	CRUSHERCANYON5	8	20	0.005	0.002	0	Free Surf	0.568	0.043	0.003	0.028	0.024	0.554	Yes	0.056	0.209
634	CRUSHERCANYON5	CRUSHERCANYON4	12	363	0.044	0.069	0	Free Surf	3.41	0.083	0.014	0.083	0.133	4.847	Yes	0.088	3.128
636	CRUSHERCANYON4	CRUSHERCANYON3	12	189	0.034	0.076	0	Free Surf	3.201	0.093	0.018	0.093	0.14	4.231	No	0.093	3.201
637	CRUSHERCANYON3	CRUSHERCANYON2	12	226	0.04	0.077	0	Free Surf	3.412	0.09	0.017	0.09	0.141	4.618	Yes	0.096	3.122
638	7-13	CRUSHERCANYON2	8	43	0.31	0.003	0	Free Surf	2.633	0.019	0.001	0.013	0.029	4.357	Yes	0.057	0.283
639	CRUSHERCANYON2	CRUSHERCANYON1	12	247	0.027	0.081	0	Free Surf	3.007	0.101	0.021	0.101	0.144	3.777	No	0.101	3.007
64	3-32	3-30	8	55	0.005	0.003	0	Free Surf	0.681	0.053	0.005	0.035	0.031	0.577	Yes	0.05	0.411
640	CRUSHERCANYON1	7-12	12	76	0.089	0.082	0	Free Surf	4.581	0.076	0.012	0.076	0.145	6.881	Yes	0.096	3.279
641	7-12	7-11	12	315	0.044	0.137	0	Free Surf	4.192	0.115	0.028	0.115	0.189	4.846	Yes	0.121	3.923
642	8-1	7-12	8	53	0.062	0.054	0	Free Surf	3.776	0.114	0.028	0.076	0.131	1.953	Yes	0.096	2.703
643	7-11.5	7-11	8	75	0.002	0.002	0	Free Surf	0.376	0.051	0.005	0.034	0.023	0.326	Yes	0.08	0.107
644	6-46.25	6-46	8	268	0.022	0.005	0	Free Surf	1.317	0.049	0.005	0.033	0.041	1.172	Yes	0.034	1.24
645	6-46.5	6-46.25	8	283	0.011	0.003	0	Free Surf	0.85	0.044	0.004	0.03	0.03	0.807	Yes	0.031	0.788
646	6-53.25	6-46.5	8	301	0.04	0.002	0	Free Surf	1.152	0.026	0.001	0.017	0.024	1.563	Yes	0.023	0.726
647	6-53.5	6-53.25	8	205	0.034	0.001	0	Free Surf	0.955	0.022	0.001	0.015	0.019	1.447	Yes	0.016	0.839
648	6-53.75	6-53.5	8	168	0.048	0.001	0	Free Surf	0.875	0.015	0	0.01	0.014	1.707	Yes	0.012	0.64
649	6-46	6-45	8	40	0.022	0.006	0	Free Surf	1.365	0.053	0.005	0.035	0.044	1.155	Yes	0.035	1.36
65	3-30	3-31	8	555	0.001	0.005	0	Free Surf	0.446	0.096	0.019	0.064	0.039	0.258	Yes	0.068	0.407
650	5-37	5-35	8	150	0.023	0.008	0	Free Surf	1.496	0.058	0.007	0.039	0.05	1.186	Yes	0.094	0.408
66	IND-11	IND-10	12	325	0.002	0.006	0	Pressurized	0.507	0.058	0.007	0.058	0.039	0.906	Yes	1	0.012
662	4-34	4-19	8	183	0.122	0.006	0	Free Surf	2.454	0.035	0.002	0.023	0.043	2.738	Yes	0.046	0.895
663	4-19	4-18	8	104	0.091	0.052	0	Free Surf	4.255	0.102	0.022	0.068	0.128	2.362	No	0.068	4.255
664	4-18	4-17	8	148	0.126	0.056	0	Free Surf	4.904	0.098	0.02	0.066	0.134	2.785	No	0.066	4.904
665	4-17	4-16	8	238	0.231	0.06	0	Free Surf	6.183	0.088	0.016	0.059	0.139	3.765	Yes	0.667	0.268
666	4-16	4-15	8	119	0.253	0.066	0	Free Surf	6.539	0.09	0.017	0.06	0.145	3.937	Yes	0.667	0.291
668	PUBLICWORKS3	PUBLICWORKS2	8	286	0.001	0.002	0	Pressurized	0.264	0.074	0.011	0.05	0.025	0.179	Yes	0.667	0.009
669	PUBLICWORKS2	PUBLICWORKS1	8	191	0.001	0.003	0	Pressurized	0.344	0.082	0.014	0.054	0.03	0.22	Yes	0.667	0.013
67	IND-10	IND-9	12	426	0.002	0.01	0	Free Surf	0.678	0.066	0.009	0.066	0.05	1.118	Yes	0.069	0.636
670	9-12	9-11	10	10	0.152	0.041	0	Free Surf	4.592	0.061	0.007	0.051	0.107	5.541	Yes	0.085	2.162
671	10-32	10-31	8	45	0.022	0.01	0	Free Surf	1.563	0.064	0.008	0.043	0.055	1.166	Yes	0.046	1.411

672	10-15	10-14	8	12	0.011	0.028	0	Free Surf	1.72	0.126	0.034	0.084	0.094	0.837	Yes	0.134	0.872
673	19-38.5	19-38	8	90	0.111	0.001	0	Free Surf	1.458	0.017	0	0.011	0.019	2.61	Yes	0.013	1.146
674	19-23	19-22	8	10	0.048	0.283	0	Free Surf	5.636	0.274	0.164	0.183	0.309	1.722	Yes	0.207	4.73
675	4-23	4-22	8	3	0.43	0.03	0	Free Surf	6.234	0.055	0.006	0.037	0.098	5.133	Yes	0.07	2.441
676	3-37	3-18	10	40	0.013	0.018	0	Free Surf	1.5	0.075	0.011	0.062	0.071	1.589	Yes	0.584	0.068
677	19-46.5	19-46	8	153	0.026	0.002	0	Free Surf	0.974	0.027	0.001	0.018	0.023	1.267	No	0.018	0.974
68	3-6	3-5	12	252	0.003	0.48	0	Free Surf	2.37	0.42	0.369	0.42	0.36	1.302	No	0.42	2.37
680	23-1	GRAHAMPACKAGINGLS	6	71	0.014	0.001	0	Free Surf	0.699	0.036	0.002	0.018	0.019	0.431	Yes	0.071	0.091
683	9-1	5010	15	71	0.004	0.408	0	Free Surf	2.315	0.274	0.164	0.342	0.31	2.489	No	0.342	2.315
684	7-8	7-7	8	145	0.152	0.001	0	Free Surf	1.396	0.012	0	0.008	0.015	3.054	Yes	0.011	0.884
685	7-36	7-14	8	283	0.142	0.006	0	Free Surf	2.536	0.032	0.002	0.022	0.042	2.952	Yes	0.026	1.907
686	4-20	4-19	8	281	0.009	0.045	0	Free Surf	1.826	0.165	0.059	0.11	0.119	0.751	No	0.11	1.826
687	2-26	2-25.5	8	467	0.019	0.007	0	Free Surf	1.377	0.059	0.007	0.039	0.048	1.087	Yes	0.045	1.135
69	3-5	3-4	12	247	0.004	0.482	0	Free Surf	2.639	0.389	0.32	0.389	0.361	1.506	No	0.389	2.639
7	4-54	4-28	8	134	0.142	0.016	0	Free Surf	3.491	0.053	0.005	0.035	0.071	2.947	Yes	0.041	2.795
70	IND-8	IND-7	15	310	0.003	0.012	0	Free Surf	0.777	0.051	0.005	0.063	0.052	2.377	Yes	0.065	0.756
71	3-2	3-1	15	192	0.004	0.489	0	Free Surf	2.452	0.299	0.195	0.374	0.34	2.51	Yes	0.475	1.766
72	3-3	3-2	15	116	0.002	0.487	0	Free Surf	2.036	0.342	0.251	0.427	0.34	1.941	No	0.427	2.036
73	3-1	2-3	15	424	0.001	0.493	0	Free Surf	1.378	0.461	0.435	0.577	0.342	1.132	No	0.577	1.378
74	3-4	3-3	15	211	0.004	0.485	0	Free Surf	2.493	0.294	0.188	0.367	0.339	2.577	Yes	0.397	2.238
75	IND-9	IND-8	12	464	0.002	0.011	0	Free Surf	0.686	0.072	0.01	0.072	0.053	1.072	No	0.072	0.686
76	IND-12	IND-11	12	339	0.001	0.004	0	Pressurized	0.424	0.046	0.004	0.046	0.03	0.886	Yes	1	0.007
77	2-30	2-29	8	85	0.006	0.02	0	Free Surf	1.222	0.124	0.033	0.083	0.079	0.6	Yes	0.105	0.864
78	2-8	2-7	8	359	0.004	0.179	0	Free Surf	1.982	0.421	0.369	0.28	0.243	0.484	Yes	0.297	1.84
79	2-32	2-31	8	19	0.052	0.008	0	Free Surf	2.015	0.049	0.005	0.033	0.051	1.788	Yes	0.038	1.607
8	4-25	4-24	8	127	0.032	0.027	0	Free Surf	2.414	0.096	0.019	0.064	0.092	1.392	No	0.064	2.414
80	2-33	2-32	8	176	0.006	0.008	0	Free Surf	0.907	0.079	0.013	0.053	0.049	0.591	No	0.053	0.907
81	2-10	2-9	8	82	0.003	0.143	0	Free Surf	1.614	0.416	0.362	0.277	0.217	0.396	No	0.277	1.614
82	2-31	2-9	8	147	0.019	0.009	0	Free Surf	1.466	0.065	0.008	0.044	0.054	1.083	Yes	0.145	0.253
822	7-11	5-1	15	625	0.025	0.14	0	Free Surf	3.356	0.101	0.021	0.126	0.18	6.599	Yes	0.196	1.76
824	221	7-10	8	155	0.025	0	0	Free Surf	0	0	0	0	0	1.25	Yes	0.011	0
826	225	1-16	8	307	0.014	0	0	Free Surf	0	0	0	0	0	0.919	Yes	0.014	0
828	1-17	223	15	1050	0.016	0.51	0	Free Surf	4.23	0.209	0.096	0.262	0.348	5.309	Yes	0.331	3.036
83	2-34	2-33	8	305	0.01	0.006	0	Free Surf	1.012	0.062	0.007	0.041	0.043	0.777	Yes	0.047	0.829
830	2-5	223	12	185	0.005	0.221	0	Free Surf	2.223	0.25	0.137	0.25	0.241	1.61	Yes	0.325	1.543
832	227	2-4	8	477	0.007	0	0	Free Surf	0	0	0	0	0	0.656	Yes	0.023	0
834	223	2-1	15	780	0.006	0.731	0	Free Surf	3.341	0.32	0.222	0.4	0.419	3.298	Yes	0.48	2.603
84	2-11	2-10	8	460	0.016	0.142	0	Free Surf	3.088	0.257	0.145	0.171	0.215	0.979	Yes	0.224	2.123
85	2-23	2-22	8	20	0.05	0.004	0	Free Surf	1.636	0.037	0.003	0.025	0.037	1.744	Yes	0.025	1.633
86	2-22	2-6	8	120	0.064	0.005	0	Free Surf	1.868	0.037	0.003	0.025	0.04	1.988	Yes	0.165	0.117
87	2-6	2-5	8	378	0.004	0.203	0	Free Surf	2.012	0.458	0.43	0.305	0.26	0.472	No	0.305	2.012
88	2-24	2-23	8	436	0.014	0.003	0	Free Surf	0.9	0.04	0.003	0.026	0.029	0.919	No	0.026	0.9
89	2-16	2-5	8	299	0.044	0.015	0	Free Surf	2.255	0.067	0.009	0.045	0.068	1.64	Yes	0.147	0.395
9	6-47	6-45	8	278	0.097	0.006	0	Free Surf	2.235	0.036	0.002	0.024	0.042	2.433	Yes	0.03	1.622
90	2-25	2-7	8	217	0.031	0.012	0	Free Surf	1.88	0.067	0.009	0.045	0.062	1.369	Yes	0.179	0.25
91	2-9	2-8	8	322	0.005	0.154	0	Free Surf	2.022	0.37	0.292	0.247	0.225	0.526	Yes	0.264	1.851
92	2-7	2-6	8	357	0.003	0.195	0	Free Surf	1.873	0.47	0.449	0.313	0.254	0.434	No	0.313	1.873
94	2-4	2-3	10	441	0.003	0.005	0	Free Surf	0.632	0.055	0.006	0.045	0.036	0.82	Yes	0.234	0.058
95	IND-4	IND-3	15	230	0.004	0.015	0	Free Surf	0.923	0.052	0.005	0.066	0.058	2.762	No	0.066	0.923
96	IND-5	IND-4	15	173	0.006	0.014	0	Free Surf	1.001	0.048	0.004	0.06	0.056	3.184	Yes	0.063	0.931
97	IND-6	IND-5	15	261	0.003	0.013	0	Free Surf	0.824	0.053	0.005	0.066	0.055	2.46	No	0.066	0.824
98	IND-3	IND-2	15	348	0.006	0.016	0	Free Surf	1.042	0.051	0.005	0.064	0.06	3.172	Yes	0.553	0.047

Selah Sewer 2037 Forcemain Report

ID	From ID	To ID	Diameter (in)	Length (ft)	Total Flow (mgd)	Peakable Flow (mgd)	Velocity (ft/s)	Headloss (ft)
1537	209	213	6	50	1.341	0.409	13.049	4.804
678	16	9-14	6	1,098.82	0.135	0.032	2.269	4.137
679	18	2-2	6	689.732	0.27	0.069	3.625	6.181

2037 Peak Loading Manhole Report

Number	ID	Rim Elevation (ft)	Base Flow (mgd)	Total Flow (mgd)	Grade (ft)	Status	Hydraulic Jump	Surcharge Depth (ft)	Unfilled Depth (ft)
1	1-1	1,094.600	0.001	0.006	1,089.128	Not Full	No	-0.822	5.472
2	1-2	1,094.500	0.001	0.008	1,090.225	Not Full	No	0.175	4.275
3	1-3	1,094.300	0.002	0.011	1,090.275	Not Full	No	0.015	4.025
4	1-4	1,094.230	0.002	0.011	1,090.484	Not Full	No	-0.296	3.746
5	1-5	1,095.070	0.003	0.017	1,092.104	Not Full	Yes	-1.026	2.966
6	1-6	1,100.770	0.007	0.032	1,093.015	Not Full	No	-1.055	7.755
7	1-7	1,102.610	0.001	0.003	1,094.763	Not Full	Yes	-0.447	7.847
8	1-8	1,102.610	0.002	0.009	1,095.321	Not Full	No	-0.589	7.289
9	1-9	1,104.890	0.000	0.002	1,097.052	Not Full	No	-0.538	7.838
10	1-10	1,104.310	0.000	0.002	1,097.467	Not Full	No	-0.243	6.843
11	1-11	1,106.370	0.001	0.005	1,098.361	Not Full	No	-0.359	8.009
12	1-12	1,109.040	0.001	0.004	1,099.380	Not Full	No	-0.380	9.660
13	1-13	1,112.720	0.002	0.012	1,107.975	Not Full	No	6.455	4.745
14	1-14	1,116.760	0.004	0.019	1,109.644	Not Full	Yes	5.851	7.116
15	1-15	1,115.180	0.002	0.011	1,110.251	Not Full	Yes	5.238	4.929
16	1-16	1,120.170	0.003	0.016	1,112.238	Not Full	No	2.902	7.932
17	1-17	1,123.790	0.002	0.012	1,119.764	Not Full	No	6.207	4.026
18	1-18	1,095.070	0.002	0.009	1,092.443	Not Full	No	2.073	2.627
19	1-19	1,096.390	0.002	0.010	1,093.455	Not Full	No	2.965	2.935
20	1-20	1,099.250	0.001	0.007	1,096.463	Not Full	No	5.513	2.787
21	1-21	1,099.180	0.002	0.010	1,097.300	Not Full	No	6.320	1.880
22	1-22	1,099.550	0.002	0.013	1,099.550	Full	Yes	8.000	0.000
23	1-23	1,105.260	0.004	0.019	1,100.609	Not Full	No	4.583	4.651
24	1-24	1,109.160	0.004	0.019	1,101.799	Not Full	No	1.672	7.361
25	1-25	1,115.510	0.002	0.011	1,102.816	Not Full	No	0.839	12.694
26	1-26	1,115.000	0.001	0.006	1,102.893	Not Full	No	0.876	12.107
27	1-27	1,117.020	0.001	0.008	1,103.269	Not Full	Yes	0.983	13.751
28	1-28	1,112.960	0.002	0.013	1,103.603	Not Full	No	-0.224	9.357
29	1-29	1,109.000	0.002	0.013	1,103.955	Not Full	No	-0.592	5.045
30	1-30	1,118.000	0.001	0.008	1,112.023	Not Full	No	-0.643	5.977
31	1-31	1,102.890	0.003	0.017	1,099.936	Not Full	No	7.880	2.954
32	1-32	1,105.620	0.003	0.017	1,102.647	Not Full	No	9.260	2.973
33	1-33	1,108.720	0.003	0.014	1,105.216	Not Full	No	10.530	3.504
34	1-34	1,105.630	0.002	0.012	1,105.630	Full	No	9.833	0.000
35	1-35	1,103.370	0.001	0.005	1,103.370	Full	No	6.933	0.000
36	1-36	1,102.000	0.001	0.004	1,102.000	Full	No	5.333	0.000
37	1-37	1,103.000	0.002	0.011	1,102.000	Not Full	No	4.334	1.000
38	1-38	1,105.930	0.001	0.006	1,104.559	Not Full	No	7.393	1.371
39	1-39	1,105.930	0.001	0.004	1,104.934	Not Full	No	7.738	0.996
40	1-40	1,105.000	0.002	0.010	1,105.000	Full	No	5.333	0.000
41	1-41	1,111.240	0.001	0.007	1,107.118	Not Full	No	6.912	4.122
42	1-42	1,111.000	0.000	0.002	1,104.939	Not Full	No	7.523	6.061
43	1-43	1,111.000	0.000	0.003	1,104.941	Not Full	Yes	7.274	6.059
44	1-44	1,104.000	0.002	0.009	1,104.000	Full	No	5.333	0.000
45	1-45	1,107.000	0.002	0.013	1,104.006	Not Full	No	2.340	2.994
46	1-46	1,109.000	0.004	0.019	1,104.009	Not Full	No	0.342	4.991
47	1-47	1,112.860	0.003	0.016	1,108.220	Not Full	Yes	6.010	4.640
48	1-48	1,112.930	0.002	0.011	1,110.218	Not Full	No	1.721	2.712
49	1-49	1,111.000	0.001	0.006	1,105.029	Not Full	No	-0.637	5.971
50	2-1	1,099.960	0.001	0.008	1,099.960	Full	No	7.800	0.000
51	2-2	1,098.060	0.001	0.007	1,098.060	Full	No	5.600	0.000
52	2-3	1,097.480	0.003	0.014	1,097.480	Full	No	4.150	0.000
53	2-4	1,104.950	0.005	0.024	1,098.832	Not Full	No	4.449	6.118
54	2-5	1,109.600	0.003	0.018	1,103.462	Not Full	Yes	5.896	6.138
55	2-6	1,109.870	0.003	0.015	1,106.609	Not Full	Yes	7.672	3.261

56	2-7	1,109.170	0.004	0.022	1,109.170	Full	Yes	9.133	0.000
57	2-8	1,108.640	0.003	0.018	1,108.640	Full	No	7.233	0.000
58	2-9	1,112.360	0.001	0.007	1,110.268	Not Full	Yes	7.412	2.092
59	2-10	1,113.300	0.002	0.010	1,110.634	Not Full	Yes	7.568	2.666
60	2-11	1,118.810	0.003	0.015	1,112.642	Not Full	No	2.386	6.168
61	2-12	1,124.680	0.001	0.006	1,115.568	Not Full	No	-0.379	9.112
62	2-13	1,126.120	0.003	0.014	1,117.442	Not Full	No	-0.245	8.678
63	2-14	1,124.110	0.003	0.016	1,117.962	Not Full	Yes	-0.448	6.148
64	2-15	1,124.040	0.002	0.011	1,119.997	Not Full	No	-0.510	4.043
65	2-16	1,116.000	0.003	0.014	1,110.092	Not Full	No	-0.575	5.908
66	2-17	1,119.000	0.001	0.009	1,113.114	Not Full	No	-0.552	5.886
67	2-18	1,122.000	0.002	0.012	1,116.085	Not Full	No	-0.581	5.915
68	2-19	1,127.000	0.002	0.013	1,121.060	Not Full	No	-0.607	5.940
69	2-20	1,124.000	0.003	0.016	1,118.101	Not Full	Yes	-0.565	5.899
70	2-21	1,129.000	0.003	0.016	1,123.067	Not Full	No	-0.600	5.933
71	2-22	1,112.000	0.001	0.004	1,106.610	Not Full	No	-0.057	5.390
72	2-23	1,113.000	0.002	0.010	1,107.053	Not Full	No	-0.613	5.947
73	2-24	1,119.000	0.003	0.015	1,113.059	Not Full	No	-0.608	5.941
74	2-25	1,112.000	0.002	0.010	1,109.181	Not Full	No	2.515	2.819
75	2-25.5	1,115.000	0.003	0.016	1,109.190	Not Full	No	-0.476	5.810
76	2-26	1,124.000	0.003	0.018	1,118.083	Not Full	No	-0.583	5.917
77	2-27	1,135.000	0.004	0.021	1,129.062	Not Full	No	-0.605	5.938
78	2-28	1,128.000	0.003	0.017	1,122.041	Not Full	No	-0.625	5.959
79	2-29	1,107.000	0.002	0.011	1,107.000	Full	No	5.333	0.000
80	2-30	1,107.000	0.020	0.087	1,107.000	Full	No	4.833	0.000
81	2-31	1,111.000	0.001	0.005	1,110.273	Not Full	No	4.606	0.727
82	2-32	1,112.000	0.001	0.004	1,110.274	Not Full	No	3.607	1.726
83	2-33	1,112.000	0.002	0.010	1,110.278	Not Full	Yes	2.611	1.722
84	2-34	1,116.000	0.004	0.022	1,110.282	Not Full	No	-0.385	5.718
85	2-35	1,123.000	0.002	0.009	1,117.041	Not Full	No	-0.626	5.959
86	3-1	1,097.890	0.004	0.019	1,097.676	Not Full	No	4.036	0.214
87	3-2	1,098.250	0.001	0.008	1,097.762	Not Full	No	3.432	0.488
88	3-3	1,099.000	0.002	0.014	1,097.814	Not Full	No	3.234	1.186
89	3-4	1,100.000	0.003	0.016	1,097.907	Not Full	No	2.527	2.093
90	3-5	1,101.000	0.002	0.012	1,098.255	Not Full	No	2.075	2.745
91	3-6	1,102.000	0.003	0.016	1,098.604	Not Full	No	1.624	3.396
92	3-7	1,104.000	0.012	0.058	1,099.096	Not Full	No	0.846	4.904
93	3-8	1,111.000	0.007	0.032	1,099.205	Not Full	No	-0.435	11.795
94	3-9	1,111.000	0.005	0.025	1,100.432	Not Full	Yes	-0.428	10.568
95	3-10	1,110.000	0.006	0.029	1,102.162	Not Full	Yes	-0.538	7.838
96	3-11	1,110.000	0.003	0.017	1,103.979	Not Full	No	-0.561	6.021
97	3-12	1,115.000	0.002	0.014	1,105.517	Not Full	No	-0.543	9.483
98	3-13	1,118.000	0.001	0.006	1,106.701	Not Full	Yes	-0.549	11.299
99	3-14	1,119.000	0.001	0.005	1,113.056	Not Full	No	-0.774	5.944
100	3-15	1,121.000	0.002	0.010	1,115.357	Not Full	No	-0.643	5.643
101	3-16	1,122.000	0.004	0.021	1,116.080	Not Full	No	-0.320	5.920
102	3-17	1,121.000	0.002	0.009	1,116.491	Not Full	No	-0.309	4.509
103	3-18	1,121.000	0.000	0.002	1,116.519	Not Full	Yes	-0.481	4.481
104	3-19	1,121.000	0.000	0.003	1,116.563	Not Full	No	-0.637	4.437
105	3-20	1,121.000	0.000	0.003	1,116.919	Not Full	No	-0.481	4.081
106	3-21	1,120.000	0.001	0.004	1,117.414	Not Full	No	-0.386	2.586
107	3-22	1,120.000	0.000	0.003	1,117.825	Not Full	No	-0.375	2.175
108	3-23	1,125.000	0.000	0.003	1,119.363	Not Full	No	-0.637	5.637
109	3-24	1,150.000	0.049	0.199	1,136.317	Not Full	No	-0.783	13.683
110	3-25	1,172.000	0.004	0.019	1,166.160	Not Full	No	-0.840	5.840
111	3-26	1,179.000	0.000	0.003	1,170.803	Not Full	No	-0.827	8.197
112	3-27	1,184.000	0.002	0.010	1,177.737	Not Full	No	-0.793	6.263
113	3-28	1,188.000	0.000	0.001	1,180.561	Not Full	No	-0.729	7.439
114	3-29	1,112.000	0.006	0.032	1,106.121	Not Full	No	-0.545	5.879

115	3-30	1,113.000	0.002	0.010	1,108.341	Not Full	No	-0.526	4.659
116	3-31	1,113.000	0.004	0.021	1,107.755	Not Full	No	-0.512	5.245
117	3-32	1,113.000	0.001	0.008	1,108.578	Not Full	No	-0.589	4.422
118	3-33	1,115.000	0.002	0.010	1,109.076	Not Full	No	-0.591	5.924
119	3-34	1,122.000	0.003	0.015	1,116.111	Not Full	No	-0.556	5.889
120	3-35	1,122.000	0.002	0.012	1,117.093	Not Full	No	-0.573	4.907
121	3-36	1,124.000	0.001	0.009	1,118.058	Not Full	No	-0.609	5.942
122	3-37	1,122.000	0.000	0.003	1,116.521	Not Full	No	-0.313	5.479
123	3-38	1,125.000	0.002	0.009	1,119.134	Not Full	No	-0.700	5.866
124	3-39	1,127.000	0.001	0.004	1,121.128	Not Full	No	-0.705	5.872
125	3-40	1,128.000	0.000	0.002	1,121.643	Not Full	Yes	-0.690	6.357
126	3-41	1,130.000	0.001	0.007	1,124.102	Not Full	No	-0.732	5.898
127	3-42	1,136.000	0.009	0.043	1,130.084	Not Full	No	-0.749	5.916
128	3-43	1,129.000	0.002	0.013	1,121.878	Not Full	No	-0.539	7.122
129	3-44	1,128.000	0.002	0.011	1,122.111	Not Full	No	-0.556	5.889
130	4-1	1,129.020	0.004	0.023	1,122.993	Not Full	No	-0.393	6.027
131	4-2	1,142.580	0.001	0.007	1,134.553	Not Full	No	-0.494	8.027
132	4-3	1,153.490	0.002	0.012	1,146.358	Not Full	No	-0.499	7.132
133	4-4	1,157.710	0.007	0.035	1,150.257	Not Full	No	-0.520	7.453
134	4-5	1,174.690	0.007	0.034	1,167.013	Not Full	No	-0.877	7.677
135	4-6	1,184.750	0.004	0.019	1,175.365	Not Full	No	-0.885	9.385
136	4-7	1,185.730	0.001	0.008	1,177.088	Not Full	Yes	-0.489	8.642
137	4-8	1,188.480	0.001	0.005	1,181.485	Not Full	No	-0.562	6.995
138	4-9	1,194.160	0.001	0.007	1,186.052	Not Full	No	-0.575	8.108
139	4-10	1,204.730	0.001	0.008	1,194.603	Not Full	No	-0.594	10.127
140	4-11	1,220.320	0.002	0.011	1,213.495	Not Full	No	-0.592	6.825
141	4-12	1,226.880	0.001	0.008	1,221.648	Not Full	No	-0.599	5.232
142	4-13	1,240.070	0.002	0.013	1,233.933	Not Full	No	-0.604	6.137
143	4-14	1,263.080	0.002	0.012	1,253.628	Not Full	No	-0.629	9.452
144	4-15	1,135.050	0.001	0.008	1,135.050	Full	No	-15.087	0.000
145	4-16	1,159.770	0.002	0.009	1,149.586	Not Full	No	-0.551	10.184
146	4-17	1,183.830	0.001	0.008	1,174.624	Not Full	No	-0.553	9.206
147	4-18	1,199.680	0.001	0.004	1,193.308	Not Full	No	-0.538	6.372
148	4-19	1,209.060	0.001	0.005	1,202.784	Not Full	No	-0.533	6.276
149	4-20	1,216.110	0.002	0.011	1,205.454	Not Full	No	-0.443	10.656
150	4-21	1,215.880	0.003	0.015	1,208.102	Not Full	No	-0.444	7.778
151	4-22	1,223.000	0.001	0.008	1,212.008	Not Full	No	-0.459	10.992
152	4-23	1,221.700	0.002	0.012	1,213.273	Not Full	No	-0.594	8.427
153	4-24	1,236.000	0.001	0.008	1,230.120	Not Full	No	-0.547	5.880
154	4-25	1,240.000	0.002	0.011	1,234.130	Not Full	No	-0.537	5.870
155	4-26	1,248.000	0.001	0.008	1,242.124	Not Full	No	-0.543	5.876
156	4-27	1,254.000	0.001	0.008	1,248.119	Not Full	No	-0.548	5.881
157	4-28	1,272.000	0.002	0.011	1,266.095	Not Full	No	-0.572	5.905
158	4-29	1,279.000	0.001	0.008	1,273.058	Not Full	No	-0.608	5.942
159	4-30	1,306.000	0.003	0.014	1,300.036	Not Full	No	-0.631	5.964
160	4-31	1,132.000	0.002	0.012	1,126.059	Not Full	No	-0.608	5.941
161	4-32	1,217.530	0.001	0.005	1,211.572	Not Full	No	-0.625	5.958
162	4-33	1,227.000	0.003	0.017	1,221.050	Not Full	No	-0.617	5.950
163	4-34	1,231.000	0.003	0.015	1,225.049	Not Full	No	-0.618	5.951
164	4-35	1,239.000	0.003	0.017	1,233.058	Not Full	No	-0.608	5.942
165	4-36	1,222.000	0.002	0.009	1,216.033	Not Full	No	-0.634	5.967
166	4-37	1,188.000	0.001	0.007	1,182.047	Not Full	No	-0.620	5.953
167	4-38	1,189.000	0.002	0.009	1,183.060	Not Full	No	-0.606	5.940
168	4-39	1,170.000	0.001	0.008	1,164.034	Not Full	No	-0.632	5.966
169	4-40	1,173.000	0.002	0.012	1,167.056	Not Full	No	-0.611	5.944
170	4-41	1,184.000	0.002	0.011	1,178.069	Not Full	No	-0.597	5.931
171	4-42	1,190.000	0.002	0.013	1,184.064	Not Full	No	-0.602	5.936
172	4-43	1,207.000	0.002	0.011	1,201.050	Not Full	No	-0.617	5.950
173	4-44	1,219.000	0.003	0.014	1,213.037	Not Full	No	-0.629	5.963

174	4-45	1,188.000	0.000	0.001	1,182.044	Not Full	No	-0.789	5.956
175	4-46	1,205.000	0.002	0.011	1,199.036	Not Full	No	-0.630	5.964
176	4-47	1,184.000	0.002	0.010	1,178.063	Not Full	No	-0.604	5.937
177	4-48	1,194.000	0.001	0.008	1,188.063	Not Full	No	-0.604	5.937
178	4-49	1,213.000	0.002	0.010	1,207.047	Not Full	No	-0.620	5.953
179	4-50	1,228.000	0.002	0.011	1,222.035	Not Full	No	-0.632	5.965
180	4-51	1,242.000	0.002	0.010	1,236.059	Not Full	No	-0.607	5.941
181	4-52	1,248.000	0.002	0.013	1,242.053	Not Full	No	-0.614	5.947
182	4-53	1,257.000	0.004	0.021	1,251.047	Not Full	No	-0.619	5.953
183	4-54	1,291.000	0.001	0.003	1,285.072	Not Full	No	-0.594	5.928
184	4-55	1,159.000	0.001	0.006	1,153.049	Not Full	No	-0.451	5.951
185	5-1	1,127.760	0.004	0.022	1,127.760	Full	No	9.253	0.000
186	5-2	1,133.260	0.003	0.015	1,133.260	Full	No	10.533	0.000
187	5-3	1,138.630	0.002	0.010	1,138.630	Full	No	11.573	0.000
188	5-4	1,144.170	0.002	0.009	1,142.471	Not Full	No	10.834	1.699
189	5-5	1,149.500	0.001	0.006	1,146.065	Not Full	No	10.228	3.435
190	5-6	1,155.710	0.001	0.007	1,146.740	Not Full	No	2.494	8.970
191	5-7	1,159.810	0.002	0.014	1,149.911	Not Full	No	-0.366	9.899
192	5-8	1,181.170	0.001	0.008	1,171.297	Not Full	No	-0.460	9.873
193	5-9	1,179.140	0.001	0.008	1,173.510	Not Full	No	-0.426	5.630
194	5-10	1,189.580	0.003	0.015	1,180.612	Not Full	No	-0.405	8.968
195	5-11	1,203.290	0.003	0.016	1,196.300	Not Full	No	-0.436	6.990
196	5-12	1,219.620	0.001	0.006	1,208.521	Not Full	No	-0.436	11.099
197	5-13	1,225.450	0.001	0.006	1,220.485	Not Full	No	-0.461	4.965
198	5-14	1,228.000	0.001	0.008	1,222.333	Not Full	No	-0.333	5.667
199	5-15	1,247.240	0.001	0.004	1,239.339	Not Full	No	-0.528	7.901
200	5-16	1,248.710	0.001	0.004	1,241.297	Not Full	No	-0.480	7.413
201	5-17	1,277.780	0.001	0.006	1,271.077	Not Full	No	-0.479	6.703
202	5-18	1,294.370	0.001	0.007	1,290.759	Not Full	No	-0.498	3.611
203	5-19	1,304.320	0.001	0.005	1,297.601	Not Full	No	-0.406	6.719
204	5-20	1,304.000	0.001	0.005	1,298.336	Not Full	Yes	-0.331	5.664
205	5-21	1,308.000	0.001	0.006	1,302.245	Not Full	No	-0.422	5.755
206	5-22	1,307.000	0.035	0.146	1,303.369	Not Full	Yes	-0.297	3.631
207	5-23	1,318.000	0.000	0.003	1,312.124	Not Full	No	-0.543	5.876
208	5-24	1,327.000	0.001	0.006	1,321.112	Not Full	No	-0.554	5.888
209	5-25	1,351.000	0.001	0.007	1,345.091	Not Full	No	-0.576	5.909
210	5-26	1,353.000	0.001	0.008	1,347.095	Not Full	No	-0.572	5.905
211	5-27	1,369.000	0.002	0.009	1,363.081	Not Full	No	-0.586	5.919
212	5-28	1,144.000	0.003	0.014	1,138.639	Not Full	No	-0.028	5.361
213	5-29	1,151.000	0.005	0.027	1,145.065	Not Full	No	-0.601	5.935
214	5-30	1,149.000	0.002	0.009	1,146.072	Not Full	No	2.405	2.928
215	5-31	1,172.000	0.002	0.012	1,166.058	Not Full	No	-0.609	5.942
216	5-32	1,195.000	0.005	0.025	1,189.047	Not Full	No	-0.620	5.953
217	5-33	1,152.750	0.001	0.007	1,147.745	Not Full	No	5.958	5.005
218	5-34	1,157.810	0.002	0.011	1,149.419	Not Full	No	1.602	8.391
219	5-35	1,162.810	0.002	0.010	1,156.852	Not Full	No	-0.374	5.958
220	5-37	1,166.000	0.002	0.010	1,160.083	Not Full	No	-0.584	5.917
221	5-38	1,170.000	0.002	0.011	1,164.082	Not Full	No	-0.585	5.918
222	5-39	1,181.000	0.002	0.013	1,175.055	Not Full	No	-0.611	5.945
223	5-40	1,195.000	0.002	0.011	1,189.036	Not Full	No	-0.631	5.964
224	5-41	1,163.000	0.002	0.010	1,157.132	Not Full	No	-0.534	5.868
225	5-42	1,169.000	0.003	0.018	1,163.138	Not Full	No	-0.529	5.862
226	5-43	1,178.000	0.002	0.013	1,172.109	Not Full	No	-0.557	5.891
227	5-44	1,191.000	0.002	0.011	1,185.093	Not Full	No	-0.574	5.907
228	5-45	1,201.000	0.003	0.014	1,195.088	Not Full	No	-0.579	5.912
229	5-46	1,228.000	0.002	0.012	1,222.079	Not Full	No	-0.588	5.921
230	5-47	1,235.000	0.001	0.007	1,229.066	Not Full	No	-0.601	5.934
231	5-48	1,245.000	0.001	0.008	1,239.067	Not Full	No	-0.599	5.933
232	5-49	1,255.000	0.001	0.006	1,249.040	Not Full	No	-0.627	5.960

233	5-50	1,275.000	0.001	0.008	1,269.031	Not Full	No	-0.635	5.969
234	5-50.5	1,261.000	0.002	0.009	1,255.049	Not Full	No	-0.618	5.951
235	5-51	1,285.000	0.001	0.006	1,279.035	Not Full	No	-0.632	5.965
236	5-51.5	1,289.000	0.001	0.008	1,283.031	Not Full	No	-0.635	5.969
237	5-52	1,172.000	0.001	0.006	1,166.085	Not Full	No	-0.582	5.915
238	5-53	1,173.000	0.001	0.007	1,167.102	Not Full	No	-0.565	5.898
239	5-54	1,179.000	0.003	0.014	1,173.105	Not Full	No	-0.562	5.895
240	5-55	1,199.000	0.003	0.016	1,193.074	Not Full	No	-0.593	5.926
241	5-56	1,218.000	0.002	0.009	1,212.062	Not Full	No	-0.605	5.938
242	5-57	1,221.000	0.001	0.007	1,215.052	Not Full	No	-0.615	5.948
243	5-58	1,230.000	0.002	0.010	1,224.053	Not Full	No	-0.613	5.947
244	5-59	1,246.000	0.002	0.010	1,240.037	Not Full	No	-0.630	5.963
245	5-60	1,163.000	0.002	0.012	1,157.099	Not Full	No	-0.568	5.901
246	5-61	1,178.000	0.003	0.016	1,172.087	Not Full	No	-0.580	5.913
247	5-62	1,195.000	0.003	0.017	1,189.083	Not Full	No	-0.583	5.917
248	5-63	1,213.000	0.003	0.014	1,203.067	Not Full	No	-0.600	9.933
249	5-64	1,210.000	0.002	0.011	1,204.077	Not Full	No	-0.590	5.923
250	5-65	1,211.000	0.002	0.011	1,205.061	Not Full	No	-0.606	5.939
251	5-66	1,259.000	0.001	0.008	1,253.038	Not Full	No	-0.628	5.962
252	5-66.5	1,279.000	0.001	0.007	1,273.027	Not Full	No	-0.639	5.973
253	5-67	1,305.000	0.001	0.007	1,299.048	Not Full	No	-0.619	5.952
254	5-68	1,309.000	0.002	0.011	1,303.061	Not Full	No	-0.605	5.939
255	5-69	1,341.000	0.002	0.009	1,335.027	Not Full	No	-0.640	5.973
256	5-70	1,329.000	0.002	0.010	1,323.042	Not Full	No	-0.625	5.958
257	5-71	1,350.000	0.001	0.006	1,344.029	Not Full	No	-0.638	5.971
258	5-72	1,355.000	0.001	0.007	1,349.038	Not Full	No	-0.629	5.962
259	5-73	1,319.000	0.002	0.009	1,313.089	Not Full	No	-0.578	5.911
260	5-74	1,342.000	0.001	0.005	1,336.072	Not Full	No	-0.594	5.928
261	5-75	1,359.000	0.000	0.003	1,353.071	Not Full	No	-0.596	5.929
262	5-76	1,363.000	0.001	0.004	1,357.027	Not Full	No	-0.640	5.973
263	5-77	1,380.000	0.001	0.005	1,374.065	Not Full	No	-0.602	5.935
264	5-78	1,400.000	0.001	0.007	1,394.063	Not Full	No	-0.604	5.937
265	5-79	1,405.000	0.001	0.007	1,399.102	Not Full	No	-0.565	5.898
266	5-80	1,417.000	0.001	0.004	1,411.072	Not Full	No	-0.594	5.928
267	5-81	1,424.000	0.001	0.008	1,418.070	Not Full	No	-0.596	5.930
268	5-82	1,428.000	0.001	0.008	1,422.076	Not Full	No	-0.590	5.924
269	5-83	1,447.000	0.001	0.005	1,441.042	Not Full	No	-0.625	5.958
270	5-83.5	1,463.000	0.001	0.008	1,457.027	Not Full	No	-0.639	5.973
271	5-84	1,459.000	0.002	0.010	1,453.030	Not Full	No	-0.637	5.970
272	5-85	1,423.000	0.001	0.004	1,417.037	Not Full	No	-0.629	5.963
273	5-86	1,433.000	0.001	0.006	1,427.036	Not Full	No	-0.630	5.964
274	5-87	1,437.000	0.001	0.006	1,431.032	Not Full	No	-0.635	5.968
275	5-88	1,384.000	0.001	0.007	1,378.045	Not Full	No	-0.622	5.955
276	5-89	1,330.000	0.001	0.008	1,324.074	Not Full	No	-0.593	5.926
277	5-90	1,343.000	0.002	0.010	1,337.058	Not Full	No	-0.609	5.942
278	5-91	1,345.000	0.001	0.008	1,339.066	Not Full	No	-0.600	5.934
279	5-92	1,368.000	0.001	0.008	1,362.028	Not Full	No	-0.639	5.972
280	5-93	1,328.000	0.002	0.010	1,322.089	Not Full	No	-0.577	5.911
281	5-94	1,330.000	0.002	0.009	1,324.053	Not Full	No	-0.614	5.947
282	5-95	1,354.000	0.002	0.010	1,348.066	Not Full	No	-0.601	5.934
283	5-96	1,358.000	0.001	0.007	1,352.040	Not Full	No	-0.627	5.960
284	6-1	1,174.280	0.002	0.011	1,164.615	Not Full	No	-0.331	9.665
285	6-2	1,172.680	0.001	0.004	1,165.485	Not Full	No	-0.431	7.195
286	6-3	1,176.440	0.001	0.005	1,166.451	Not Full	Yes	-0.206	9.989
287	6-4	1,178.310	0.002	0.013	1,172.133	Not Full	No	-0.353	6.177
288	6-5	1,191.410	0.001	0.007	1,182.964	Not Full	No	-0.412	8.446
289	6-6	1,187.860	0.001	0.008	1,183.893	Not Full	No	0.066	3.967
290	6-7	1,195.930	0.001	0.008	1,184.444	Not Full	No	-0.152	11.486
291	6-8	1,190.640	0.001	0.006	1,185.075	Not Full	Yes	-0.262	5.565

292	6-9	1,201.450	0.001	0.006	1,189.595	Not Full	No	-0.331	11.855
293	6-10	1,203.360	0.000	0.003	1,191.304	Not Full	No	-0.453	12.056
294	6-11	1,207.880	0.002	0.014	1,199.526	Not Full	No	-0.441	8.354
295	6-12	1,220.110	0.001	0.007	1,209.024	Not Full	No	-0.453	11.086
296	6-13	1,218.810	0.002	0.009	1,210.144	Not Full	No	-0.383	8.666
297	6-14	1,221.000	0.000	0.003	1,215.188	Not Full	No	-0.479	5.812
298	6-15	1,232.250	0.001	0.005	1,218.581	Not Full	No	-0.475	13.669
299	6-16	1,241.830	0.000	0.003	1,233.069	Not Full	No	-0.538	8.761
300	6-17	1,246.000	0.002	0.009	1,239.292	Not Full	No	-0.484	6.708
301	6-18	1,274.620	0.001	0.008	1,267.127	Not Full	No	-0.510	7.493
302	6-19	1,278.000	0.001	0.006	1,272.179	Not Full	No	-0.488	5.821
303	6-20	1,293.000	0.001	0.005	1,287.156	Not Full	No	-0.511	5.844
304	6-21	1,316.000	0.001	0.007	1,310.026	Not Full	No	-0.640	5.974
305	6-22	1,298.000	0.059	0.234	1,292.140	Not Full	No	-0.526	5.860
306	6-23	1,295.000	0.001	0.008	1,289.028	Not Full	No	-0.638	5.972
307	6-24	1,205.000	0.003	0.014	1,199.122	Not Full	No	-0.544	5.878
308	6-25	1,217.000	0.001	0.008	1,211.127	Not Full	No	-0.539	5.873
309	6-26	1,217.000	0.002	0.011	1,211.670	Not Full	Yes	-0.497	5.330
310	6-27	1,227.000	0.002	0.013	1,221.093	Not Full	No	-0.574	5.907
311	6-28	1,230.000	0.003	0.015	1,224.133	Not Full	No	-0.533	5.867
312	6-29	1,243.000	0.001	0.007	1,237.084	Not Full	No	-0.583	5.916
313	6-30	1,248.000	0.001	0.007	1,242.047	Not Full	No	-0.619	5.953
314	6-31	1,257.000	0.001	0.007	1,251.047	Not Full	No	-0.620	5.953
315	6-32	1,270.000	0.001	0.007	1,264.028	Not Full	No	-0.639	5.972
316	6-33	1,249.000	0.001	0.006	1,243.062	Not Full	No	-0.605	5.938
317	6-34	1,274.000	0.002	0.009	1,268.049	Not Full	No	-0.618	5.951
318	6-35	1,315.000	0.001	0.007	1,309.025	Not Full	No	-0.641	5.975
319	6-36	1,283.000	0.002	0.009	1,277.035	Not Full	No	-0.631	5.965
320	6-37	1,180.050	0.001	0.005	1,168.808	Not Full	No	-0.528	11.242
321	6-38	1,206.000	0.002	0.010	1,200.060	Not Full	No	-0.607	5.940
322	6-39	1,214.000	0.001	0.005	1,208.058	Not Full	No	-0.608	5.942
323	6-40	1,242.000	0.003	0.016	1,236.044	Not Full	No	-0.622	5.956
324	6-41	1,247.000	0.002	0.013	1,241.051	Not Full	No	-0.616	5.949
325	6-42	1,248.000	0.001	0.008	1,242.029	Not Full	No	-0.638	5.971
326	6-43	1,187.380	0.001	0.007	1,181.383	Not Full	No	-0.574	5.997
327	6-44	1,193.000	0.001	0.007	1,187.109	Not Full	No	-0.558	5.891
328	6-44.5	1,195.000	0.001	0.006	1,189.137	Not Full	No	-0.529	5.863
329	6-45	1,197.430	0.000	0.002	1,192.204	Not Full	No	-0.593	5.226
330	6-46	1,199.000	0.001	0.005	1,193.075	Not Full	No	-0.591	5.925
331	6-46.25	1,205.000	0.002	0.013	1,199.070	Not Full	No	-0.597	5.930
332	6-46.5	1,208.000	0.001	0.007	1,202.065	Not Full	No	-0.601	5.935
333	6-47	1,225.000	0.003	0.014	1,219.051	Not Full	No	-0.616	5.949
334	6-48	1,252.000	0.003	0.017	1,246.038	Not Full	No	-0.628	5.962
335	6-49	1,208.000	0.002	0.011	1,202.038	Not Full	No	-0.629	5.962
336	6-50	1,209.000	0.001	0.007	1,203.052	Not Full	No	-0.615	5.948
337	6-51	1,196.000	0.001	0.005	1,190.037	Not Full	No	-0.630	5.963
338	6-52	1,199.000	0.001	0.007	1,193.037	Not Full	No	-0.630	5.963
339	6-53	1,213.000	0.002	0.011	1,207.030	Not Full	No	-0.637	5.970
340	6-53.25	1,220.000	0.001	0.004	1,214.038	Not Full	No	-0.628	5.962
341	6-53.5	1,227.000	0.001	0.004	1,221.033	Not Full	No	-0.633	5.967
342	6-53.75	1,235.000	0.001	0.004	1,229.023	Not Full	No	-0.643	5.977
343	6-54	1,233.000	0.001	0.006	1,227.039	Not Full	No	-0.627	5.961
344	6-55	1,243.000	0.002	0.012	1,237.040	Not Full	No	-0.627	5.960
345	6-56	1,235.000	0.001	0.008	1,229.037	Not Full	No	-0.630	5.963
346	6-57	1,252.000	0.001	0.006	1,246.033	Not Full	No	-0.634	5.967
347	6-57.5	1,254.000	0.001	0.005	1,248.035	Not Full	No	-0.631	5.965
348	6-58	1,224.000	0.001	0.007	1,218.079	Not Full	No	-0.588	5.921
349	6-59	1,225.000	0.001	0.005	1,219.107	Not Full	No	-0.560	5.893
350	6-60	1,227.000	0.001	0.003	1,221.082	Not Full	No	-0.584	5.918

351	6-61	1,228.000	0.001	0.005	1,222.060	Not Full	No	-0.606	5.940
352	6-62	1,243.000	0.002	0.011	1,237.047	Not Full	No	-0.620	5.953
353	6-63	1,258.000	0.001	0.008	1,252.033	Not Full	No	-0.634	5.967
354	6-64	1,229.000	0.001	0.008	1,223.060	Not Full	No	-0.606	5.940
355	6-65	1,232.000	0.002	0.010	1,226.048	Not Full	No	-0.619	5.952
356	7-1	1,115.200	0.001	0.006	1,111.120	Not Full	Yes	1.954	4.080
357	7-2	1,192.000	0.003	0.016	1,186.083	Not Full	No	-0.584	5.917
358	7-3	1,224.000	0.004	0.019	1,218.115	Not Full	No	-0.552	5.885
359	7-4	1,247.000	0.003	0.014	1,241.116	Not Full	No	-0.550	5.884
360	7-5	1,262.000	0.003	0.016	1,256.117	Not Full	No	-0.550	5.883
361	7-6	1,309.000	0.002	0.012	1,303.051	Not Full	No	-0.616	5.949
362	7-7	1,326.000	0.001	0.005	1,320.032	Not Full	No	-0.634	5.968
363	7-8	1,348.000	0.001	0.005	1,342.019	Not Full	No	-0.647	5.981
364	7-9	1,117.780	0.002	0.009	1,111.273	Not Full	No	0.227	6.507
365	7-10	1,134.720	0.004	0.019	1,129.667	Not Full	No	-0.419	5.053
366	7-11	1,140.170	0.002	0.012	1,133.662	Not Full	No	-0.375	6.508
367	7-11.5	1,139.500	0.002	0.009	1,133.662	Not Full	No	-0.505	5.838
368	7-12	1,159.100	0.001	0.007	1,147.463	Not Full	No	-0.787	11.637
369	7-13	1,180.000	0.001	0.004	1,174.028	Not Full	No	-0.639	5.972
370	7-14	1,189.100	0.001	0.006	1,176.895	Not Full	No	-0.601	12.205
371	7-15	1,202.600	0.000	0.003	1,192.164	Not Full	Yes	-0.603	10.436
372	7-16	1,208.900	0.000	0.002	1,199.834	Not Full	No	-0.612	9.066
373	7-17	1,231.000	0.001	0.003	1,222.255	Not Full	Yes	-0.745	8.745
374	7-18	1,232.500	0.001	0.005	1,222.449	Not Full	No	-0.577	10.051
375	7-19	1,257.000	0.001	0.005	1,251.049	Not Full	No	-0.618	5.951
376	7-20	1,259.000	0.001	0.006	1,253.057	Not Full	No	-0.609	5.943
377	7-21	1,307.000	0.002	0.012	1,301.039	Not Full	No	-0.627	5.961
378	7-22	1,335.000	0.001	0.006	1,329.028	Not Full	No	-0.639	5.972
379	7-22.5	1,345.000	0.001	0.003	1,339.018	Not Full	No	-0.649	5.982
380	7-23	1,280.000	0.002	0.012	1,274.091	Not Full	No	-0.575	5.909
381	7-24	1,285.000	0.001	0.008	1,279.095	Not Full	No	-0.572	5.905
382	7-25	1,286.000	0.001	0.008	1,280.119	Not Full	Yes	-0.548	5.881
383	7-26	1,352.000	0.001	0.004	1,346.053	Not Full	No	-0.613	5.947
384	7-27	1,358.000	0.001	0.004	1,352.059	Not Full	No	-0.607	5.941
385	7-28	1,365.000	0.002	0.013	1,359.055	Not Full	No	-0.612	5.945
386	7-29	1,368.000	0.001	0.004	1,362.046	Not Full	No	-0.621	5.954
387	7-30	1,370.000	0.001	0.004	1,364.019	Not Full	No	-0.648	5.981
388	7-31	1,377.000	0.002	0.011	1,371.040	Not Full	No	-0.627	5.960
389	7-32	1,330.000	0.001	0.008	1,324.027	Not Full	No	-0.639	5.973
390	7-33	1,344.000	0.003	0.014	1,338.033	Not Full	No	-0.633	5.967
391	7-34	1,345.000	0.002	0.011	1,339.030	Not Full	No	-0.637	5.970
392	7-35	1,202.000	0.002	0.011	1,196.030	Not Full	No	-0.637	5.970
393	7-36	1,223.000	0.002	0.014	1,217.046	Not Full	No	-0.621	5.954
394	7-37	1,242.000	0.001	0.008	1,236.049	Not Full	No	-0.618	5.951
395	7-38	1,247.000	0.001	0.004	1,241.028	Not Full	No	-0.638	5.972
396	7-39	1,249.000	0.001	0.006	1,243.051	Not Full	No	-0.616	5.949
397	7-40	1,263.000	0.001	0.004	1,257.032	Not Full	No	-0.635	5.968
398	7-41	1,265.000	0.001	0.006	1,259.026	Not Full	No	-0.640	5.974
399	7-42	1,219.000	0.002	0.009	1,213.027	Not Full	No	-0.640	5.973
400	7-43	1,229.000	0.001	0.006	1,223.039	Not Full	No	-0.627	5.961
401	7-44	1,238.000	0.001	0.005	1,232.059	Not Full	No	-0.608	5.941
402	7-45	1,247.000	0.001	0.005	1,241.043	Not Full	No	-0.624	5.957
403	7-46	1,264.000	0.001	0.005	1,258.021	Not Full	No	-0.646	5.979
404	8-1	1,155.520	0.000	0.002	1,150.663	Not Full	No	-0.523	4.857
405	8-2	1,177.270	0.002	0.010	1,167.295	Not Full	No	-0.561	9.975
406	8-3	1,211.970	0.002	0.013	1,200.441	Not Full	No	-0.536	11.529
407	8-4	1,237.310	0.002	0.011	1,226.695	Not Full	No	-0.531	10.615
408	8-5	1,249.000	0.001	0.008	1,243.125	Not Full	No	-0.542	5.875
409	8-6	1,265.410	0.004	0.023	1,259.171	Not Full	No	-0.545	6.239

410	8-7	1,300.140	0.002	0.010	1,288.621	Not Full	No	-0.556	11.519
411	8-8	1,318.000	0.003	0.014	1,312.077	Not Full	No	-0.589	5.923
412	8-9	1,354.000	0.003	0.018	1,348.069	Not Full	No	-0.598	5.931
413	8-10	1,383.000	0.001	0.005	1,377.048	Not Full	No	-0.619	5.952
414	8-11	1,391.000	0.002	0.011	1,385.054	Not Full	No	-0.613	5.946
415	8-12	1,408.000	0.002	0.010	1,402.033	Not Full	No	-0.634	5.967
416	8-13	1,384.000	0.002	0.011	1,378.064	Not Full	No	-0.603	5.936
417	8-14	1,279.000	0.001	0.006	1,273.033	Not Full	No	-0.634	5.967
418	8-15	1,307.000	0.001	0.004	1,301.019	Not Full	No	-0.647	5.981
419	8-16	1,288.000	0.003	0.014	1,282.039	Not Full	No	-0.628	5.961
420	9-1	1,092.370	0.019	0.086	1,076.303	Not Full	Yes	-0.597	16.067
421	9-2	1,090.200	0.002	0.010	1,076.717	Not Full	No	1.451	13.483
422	9-3	1,090.350	0.004	0.023	1,076.842	Not Full	No	0.359	13.508
423	9-4	1,089.540	0.008	0.038	1,076.984	Not Full	No	-0.289	12.556
424	9-5	1,088.870	0.010	0.046	1,077.924	Not Full	No	-0.480	10.946
425	9-6	1,087.210	0.003	0.017	1,078.356	Not Full	No	-0.288	8.854
426	9-7	1,085.270	0.006	0.031	1,078.645	Not Full	Yes	-0.458	6.625
427	9-8	1,088.240	0.004	0.019	1,080.035	Not Full	No	-0.638	8.205
428	9-9	1,096.460	0.004	0.019	1,081.004	Not Full	No	-0.590	15.456
429	9-10	1,093.470	0.005	0.026	1,082.021	Not Full	No	-0.582	11.449
430	9-11	1,093.380	0.002	0.009	1,083.789	Not Full	Yes	-0.594	9.591
431	9-12	1,092.000	0.003	0.018	1,085.100	Not Full	No	-0.734	6.900
432	9-13	1,092.000	0.004	0.019	1,086.066	Not Full	No	-0.768	5.934
433	9-14	1,092.000	0.002	0.009	1,089.617	Not Full	No	2.784	2.383
434	9-15	1,099.280	0.007	0.034	1,086.471	Not Full	No	-0.609	12.809
435	9-15.5	1,095.000	0.007	0.033	1,089.081	Not Full	No	-0.586	5.919
436	9-16	1,096.540	0.012	0.055	1,087.905	Not Full	No	0.365	8.635
437	9-17	1,097.500	0.001	0.004	1,088.219	Not Full	No	0.519	9.281
438	10-1	1,097.340	0.000	0.002	1,088.788	Not Full	Yes	1.202	8.552
439	10-2	1,096.950	0.001	0.004	1,089.045	Not Full	No	-0.562	7.905
440	10-3	1,098.230	0.003	0.016	1,091.101	Not Full	No	-0.496	7.129
441	10-4	1,099.800	0.002	0.012	1,092.940	Not Full	No	-0.487	6.860
442	10-5	1,100.460	0.004	0.019	1,093.571	Not Full	No	-0.455	6.889
443	10-6	1,102.190	0.002	0.011	1,095.014	Not Full	Yes	-0.512	7.176
444	10-7	1,101.870	0.003	0.018	1,096.248	Not Full	No	-0.538	5.622
445	10-8	1,101.680	0.002	0.009	1,097.393	Not Full	No	-0.564	4.287
446	10-9	1,104.000	0.003	0.017	1,098.082	Not Full	No	-0.585	5.918
447	10-10	1,104.000	0.003	0.015	1,098.074	Not Full	No	-0.592	5.926
448	10-11	1,105.000	0.001	0.004	1,099.032	Not Full	No	-0.634	5.968
449	10-12	1,098.000	0.002	0.013	1,093.113	Not Full	No	-0.554	4.887
450	10-13	1,097.150	0.002	0.011	1,089.893	Not Full	Yes	1.876	7.257
451	10-14	1,096.990	0.001	0.004	1,090.310	Not Full	No	1.054	6.680
452	10-15	1,096.910	0.000	0.002	1,090.313	Not Full	No	0.916	6.597
453	10-16	1,097.640	0.004	0.019	1,090.382	Not Full	No	-0.175	7.258
454	10-17	1,099.870	0.003	0.015	1,091.477	Not Full	Yes	-0.459	8.393
455	10-18	1,099.980	0.003	0.016	1,092.706	Not Full	No	-0.510	7.274
456	10-19	1,100.000	0.001	0.008	1,093.306	Not Full	No	-0.520	6.694
457	10-20	1,100.000	0.002	0.011	1,093.814	Not Full	Yes	-0.533	6.186
458	10-21	1,100.000	0.003	0.017	1,094.145	Not Full	No	-0.521	5.855
459	10-22	1,101.000	0.002	0.010	1,095.057	Not Full	No	-0.610	5.943
460	10-23	1,106.000	0.001	0.004	1,100.045	Not Full	No	-0.622	5.955
461	10-24	1,108.000	0.001	0.005	1,102.046	Not Full	No	-0.621	5.954
462	10-25	1,109.000	0.001	0.006	1,103.043	Not Full	No	-0.624	5.957
463	10-26	1,103.000	0.003	0.015	1,097.067	Not Full	No	-0.599	5.933
464	10-27	1,105.000	0.002	0.010	1,099.048	Not Full	No	-0.618	5.952
465	10-28	1,095.000	0.006	0.032	1,093.142	Not Full	No	3.475	1.858
466	10-29	1,096.000	0.003	0.018	1,095.997	Not Full	Yes	5.330	0.003
467	10-30	1,101.000	0.003	0.018	1,096.015	Not Full	No	0.349	4.985
468	10-31	1,106.000	0.001	0.006	1,100.103	Not Full	No	-0.564	5.897

469	10-32	1,107.000	0.001	0.007	1,101.090	Not Full	No	-0.577	5.910
470	10-33	1,114.000	0.003	0.016	1,108.077	Not Full	No	-0.590	5.923
471	10-34	1,119.000	0.002	0.009	1,113.063	Not Full	No	-0.604	5.937
472	10-34.5	1,125.000	0.002	0.012	1,119.053	Not Full	No	-0.614	5.947
473	10-35	1,109.000	0.002	0.009	1,103.053	Not Full	No	-0.614	5.947
474	10-36	1,096.000	0.003	0.016	1,091.649	Not Full	No	-0.518	4.351
475	10-37	1,097.000	0.001	0.005	1,092.045	Not Full	No	-0.621	4.955
476	11-1	1,097.000	0.004	0.019	1,097.000	Full	Yes	5.333	0.000
477	11-2	1,098.310	0.001	0.008	1,098.310	Full	No	3.233	0.000
478	11-3	1,101.770	0.000	0.000	1,100.135	Not Full	No	1.698	1.635
479	11-4	1,107.590	0.002	0.012	1,101.699	Not Full	No	-0.207	5.891
480	11-5	1,112.650	0.002	0.012	1,108.003	Not Full	No	-0.294	4.647
481	11-6	1,120.630	0.001	0.007	1,115.188	Not Full	No	-0.359	5.442
482	11-7	1,134.630	0.000	0.002	1,126.594	Not Full	No	-0.452	8.036
483	11-8	1,137.040	0.000	0.000	1,128.637	Not Full	No	-0.459	8.403
484	11-9	1,138.630	0.000	0.002	1,130.451	Not Full	No	-0.446	8.179
485	11-10	1,150.080	0.001	0.007	1,140.523	Not Full	No	-0.423	9.557
486	11-11	1,162.060	0.001	0.005	1,151.656	Not Full	No	-0.421	10.404
487	11-12	1,166.000	0.109	0.407	1,160.181	Not Full	No	-0.486	5.819
488	11-13	1,182.000	0.002	0.010	1,176.042	Not Full	No	-0.624	5.958
489	11-14	1,198.000	0.001	0.007	1,192.029	Not Full	No	-0.638	5.971
490	11-15	1,108.000	0.002	0.013	1,102.097	Not Full	Yes	-0.570	5.903
491	11-16	1,109.000	0.001	0.007	1,103.047	Not Full	No	-0.620	5.953
492	11-17	1,120.000	0.001	0.008	1,114.100	Not Full	No	-0.567	5.900
493	11-18	1,141.000	0.001	0.006	1,135.053	Not Full	No	-0.614	5.947
494	11-19	1,163.000	0.001	0.009	1,157.062	Not Full	No	-0.605	5.938
495	11-20	1,164.000	0.001	0.008	1,158.105	Not Full	Yes	-0.561	5.895
496	11-21	1,166.000	0.001	0.008	1,160.077	Not Full	No	-0.590	5.923
497	11-22	1,201.000	0.002	0.010	1,195.035	Not Full	No	-0.632	5.965
498	11-23	1,203.000	0.001	0.006	1,197.039	Not Full	No	-0.627	5.961
499	11-24	1,188.000	0.001	0.008	1,182.039	Not Full	No	-0.628	5.961
500	11-25	1,196.000	0.002	0.009	1,190.035	Not Full	No	-0.632	5.965
501	11-26	1,138.000	0.001	0.006	1,132.225	Not Full	No	-0.442	5.775
502	11-27	1,155.000	0.001	0.007	1,149.146	Not Full	No	-0.520	5.854
503	11-28	1,181.000	0.001	0.007	1,175.122	Not Full	No	-0.545	5.878
504	11-29	1,202.000	0.043	0.176	1,196.122	Not Full	No	-0.545	5.878
505	11-30	1,148.000	0.001	0.007	1,142.027	Not Full	No	-0.639	5.973
506	11-31	1,156.000	0.001	0.004	1,150.099	Not Full	No	-0.568	5.901
507	11-32	1,159.000	0.001	0.006	1,153.051	Not Full	No	-0.616	5.949
508	11-33	1,177.000	0.001	0.008	1,171.029	Not Full	No	-0.638	5.971
509	11-34	1,167.000	0.001	0.004	1,161.050	Not Full	No	-0.616	5.950
510	11-35	1,168.000	0.001	0.005	1,162.067	Not Full	Yes	-0.599	5.933
511	11-36	1,177.000	0.001	0.004	1,171.034	Not Full	No	-0.633	5.966
512	11-37	1,184.000	0.000	0.003	1,178.025	Not Full	No	-0.641	5.975
513	11-38	1,192.000	0.001	0.004	1,186.021	Not Full	No	-0.646	5.979
514	11-39	1,188.000	0.001	0.006	1,182.034	Not Full	No	-0.633	5.966
515	11-40	1,197.000	0.001	0.006	1,191.031	Not Full	No	-0.636	5.969
516	11-41	1,204.000	0.000	0.000	1,198.000	Not Full	No	-0.667	6.000
517	19-1	1,192.000	0.009	0.043	1,186.199	Not Full	No	-0.467	5.801
518	19-2	1,199.000	0.000	0.002	1,193.220	Not Full	No	-0.447	5.780
519	19-3	1,205.000	0.002	0.011	1,199.223	Not Full	No	-0.444	5.777
520	19-4	1,208.000	0.001	0.007	1,202.252	Not Full	No	-0.415	5.748
521	19-5	1,219.000	0.002	0.012	1,213.170	Not Full	No	-0.497	5.830
522	19-6	1,219.000	0.002	0.010	1,214.370	Not Full	Yes	-0.297	4.630
523	19-7	1,230.000	0.002	0.009	1,224.189	Not Full	No	-0.477	5.811
524	19-8	1,240.000	0.002	0.010	1,234.183	Not Full	No	-0.483	5.817
525	19-9	1,248.000	0.001	0.009	1,242.174	Not Full	No	-0.493	5.826
526	19-10	1,278.000	0.003	0.018	1,272.165	Not Full	No	-0.502	5.835
527	19-11	1,285.000	0.001	0.007	1,279.244	Not Full	No	-0.422	5.756

528	19-12	1,287.000	0.002	0.010	1,281.320	Not Full	No	-0.347	5.680
529	19-13	1,289.000	0.003	0.017	1,283.282	Not Full	No	-0.384	5.718
530	19-14	1,304.000	0.002	0.009	1,298.171	Not Full	No	-0.495	5.829
531	19-15	1,314.000	0.008	0.041	1,308.076	Not Full	No	-0.591	5.924
532	19-16	1,309.000	0.001	0.006	1,303.191	Not Full	No	-0.476	5.809
533	19-17	1,322.000	0.003	0.014	1,316.055	Not Full	No	-0.611	5.945
534	19-18	1,325.000	0.001	0.004	1,319.056	Not Full	No	-0.611	5.944
535	19-19	1,328.000	0.001	0.004	1,322.059	Not Full	No	-0.608	5.941
536	19-20	1,342.000	0.001	0.007	1,336.038	Not Full	No	-0.628	5.962
537	19-21	1,366.000	0.001	0.008	1,360.027	Not Full	No	-0.640	5.973
538	19-22	1,313.000	0.000	0.002	1,305.699	Not Full	No	-0.468	7.301
539	19-23	1,312.000	0.001	0.004	1,306.157	Not Full	No	-0.509	5.843
540	19-24	1,327.000	0.001	0.004	1,321.148	Not Full	No	-0.519	5.852
541	19-25	1,334.000	0.001	0.004	1,328.046	Not Full	No	-0.621	5.954
542	19-26	1,345.000	0.001	0.005	1,339.035	Not Full	No	-0.631	5.965
543	19-27	1,378.000	0.001	0.007	1,372.024	Not Full	No	-0.642	5.976
544	19-28	1,328.000	0.000	0.003	1,322.183	Not Full	No	-0.483	5.817
545	19-29	1,340.000	0.001	0.004	1,334.141	Not Full	No	-0.526	5.859
546	19-30	1,342.000	0.000	0.003	1,336.123	Not Full	No	-0.544	5.877
547	19-31	1,340.000	0.001	0.006	1,335.084	Not Full	Yes	-0.583	4.916
548	19-32	1,353.000	0.001	0.006	1,347.039	Not Full	No	-0.627	5.961
549	19-33	1,382.000	0.001	0.008	1,376.024	Not Full	No	-0.643	5.976
550	19-34	1,329.000	0.001	0.006	1,323.134	Not Full	No	-0.532	5.866
551	19-35	1,352.000	0.001	0.007	1,346.064	Not Full	No	-0.603	5.936
552	19-36	1,362.000	0.002	0.010	1,356.060	Not Full	No	-0.607	5.940
553	19-37	1,373.000	0.002	0.011	1,367.054	Not Full	No	-0.613	5.946
554	19-38	1,435.000	0.001	0.007	1,429.033	Not Full	No	-0.634	5.967
555	19-38.5	1,445.000	0.001	0.007	1,439.026	Not Full	No	-0.641	5.974
556	19-39	1,459.000	0.000	0.003	1,453.020	Not Full	No	-0.647	5.980
557	19-40	1,475.000	0.001	0.003	1,469.020	Not Full	No	-0.646	5.980
558	19-41	1,356.000	0.002	0.009	1,350.122	Not Full	No	-0.545	5.878
559	19-42	1,358.000	0.001	0.006	1,352.077	Not Full	No	-0.590	5.923
560	19-43	1,368.000	0.001	0.008	1,362.045	Not Full	No	-0.622	5.955
561	19-44	1,397.000	0.002	0.009	1,391.030	Not Full	No	-0.637	5.970
562	19-45	1,369.000	0.000	0.003	1,363.108	Not Full	No	-0.559	5.892
563	19-46	1,371.000	0.000	0.002	1,365.031	Not Full	No	-0.636	5.969
564	19-46.5	1,375.000	0.002	0.010	1,369.041	Not Full	No	-0.625	5.959
565	19-47	1,378.000	0.001	0.005	1,372.101	Not Full	No	-0.566	5.899
566	19-48	1,396.000	0.001	0.008	1,389.093	Not Full	No	-0.573	6.907
567	19-49	1,403.000	0.002	0.009	1,397.095	Not Full	No	-0.571	5.905
568	19-50	1,411.000	0.001	0.007	1,405.092	Not Full	No	-0.575	5.908
569	19-51	1,451.000	0.001	0.004	1,445.063	Not Full	No	-0.604	5.937
570	19-52	1,427.000	0.002	0.009	1,421.027	Not Full	No	-0.639	5.973
571	19-53	1,395.000	0.002	0.010	1,390.141	Not Full	Yes	-0.526	4.859
572	19-54	1,432.000	0.002	0.012	1,426.033	Not Full	No	-0.633	5.967
573	19-55	1,398.000	0.001	0.008	1,392.056	Not Full	No	-0.610	5.944
574	19-56	1,445.000	0.002	0.009	1,439.032	Not Full	No	-0.634	5.968
575	19-56.25	1,450.000	0.001	0.004	1,444.031	Not Full	No	-0.302	5.969
576	19-56.5	1,463.000	0.001	0.004	1,457.022	Not Full	No	-0.311	5.978
577	23-1	1,095.000	0.001	0.006	1,089.041	Not Full	No	-0.459	5.959
578	IND-1	1,091.000	0.001	0.006	1,089.937	Not Full	No	4.187	1.063
579	IND-2	1,094.000	0.001	0.006	1,089.941	Not Full	No	0.691	4.059
580	IND-3	1,096.000	0.001	0.007	1,090.130	Not Full	No	-1.120	5.870
581	IND-4	1,097.000	0.001	0.005	1,091.134	Not Full	No	-1.116	5.866
582	IND-5	1,098.000	0.001	0.004	1,092.122	Not Full	No	-1.128	5.878
583	IND-6	1,099.000	0.001	0.004	1,093.136	Not Full	No	-1.114	5.864
584	IND-7	1,100.000	0.001	0.005	1,094.136	Not Full	No	-1.114	5.864
585	IND-8	1,101.000	0.001	0.004	1,095.131	Not Full	No	-1.119	5.869
586	IND-9	1,102.000	0.001	0.008	1,096.150	Not Full	No	-0.850	5.850

587	IND-10	1,103.000	0.004	0.019	1,097.139	Not Full	No	-0.861	5.861
588	IND-11	1,099.000	0.003	0.014	1,097.139	Not Full	No	2.639	1.861
589	IND-12	1,099.000	0.004	0.019	1,097.140	Not Full	No	2.140	1.860
590	APPLE1	1,295.000	0.001	0.007	1,289.056	Not Full	No	-0.611	5.944
591	APPLE2	1,312.000	0.001	0.006	1,306.053	Not Full	No	-0.613	5.947
592	APPLE3	1,318.000	0.003	0.015	1,312.070	Not Full	No	-0.597	5.930
593	APPLE4	1,341.000	0.001	0.006	1,335.029	Not Full	No	-0.638	5.971
594	APPLE5	1,360.000	0.001	0.006	1,354.022	Not Full	No	-0.645	5.978
595	BRAEBURN1	1,298.000	0.001	0.007	1,292.082	Not Full	No	-0.585	5.918
596	BRAEBURN2	1,319.000	0.002	0.009	1,313.059	Not Full	No	-0.608	5.941
597	BRAEBURN3	1,334.000	0.001	0.007	1,328.049	Not Full	No	-0.618	5.951
598	BRAEBURN4	1,347.000	0.001	0.009	1,341.042	Not Full	No	-0.624	5.958
599	BRAEBURN6	1,335.000	0.001	0.004	1,329.049	Not Full	No	-0.617	5.951
600	BRAEBURN7	1,352.000	0.002	0.009	1,346.050	Not Full	No	-0.616	5.950
601	BRAEBURN8	1,359.000	0.001	0.006	1,353.031	Not Full	No	-0.636	5.969
602	CRUSHERCANYON1	1,160.000	0.001	0.004	1,154.146	Not Full	No	-0.854	5.854
603	CRUSHERCANYON10	1,265.000	0.001	0.006	1,259.114	Not Full	No	-0.886	5.886
604	CRUSHERCANYON11	1,271.000	0.001	0.006	1,265.170	Not Full	No	-0.830	5.830
605	CRUSHERCANYON12	1,278.000	0.001	0.006	1,272.151	Not Full	No	-0.849	5.849
606	CRUSHERCANYON13	1,289.000	0.048	0.195	1,283.131	Not Full	No	-0.869	5.869
607	CRUSHERCANYON2	1,172.000	0.001	0.006	1,160.804	Not Full	No	-0.806	11.196
608	CRUSHERCANYON3	1,185.000	0.001	0.005	1,169.823	Not Full	No	-0.827	15.177
609	CRUSHERCANYON4	1,188.000	0.001	0.006	1,176.179	Not Full	No	-0.821	11.821
610	CRUSHERCANYON5	1,202.000	0.001	0.006	1,192.160	Not Full	No	-0.840	9.840
611	CRUSHERCANYON6	1,213.000	0.001	0.006	1,197.168	Not Full	No	-0.832	15.832
612	CRUSHERCANYON7	1,227.000	0.001	0.004	1,221.108	Not Full	No	-0.892	5.892
613	CRUSHERCANYON8	1,230.000	0.000	0.001	1,222.272	Not Full	No	44.775	7.728
614	CRUSHERCANYON9	1,250.000	0.001	0.005	1,244.126	Not Full	No	-0.874	5.874
615	ELKSCOUNTRYCLUBLS	1,083.000	0.032	0.135	1,077.146	Not Full	No	-0.687	5.854
616	FIRST1	1,448.000	0.001	0.006	1,442.037	Not Full	No	-0.629	5.963
617	FIRST2	1,449.000	0.001	0.005	1,443.060	Not Full	No	-0.606	5.940
618	FIRST3	1,449.000	0.001	0.005	1,443.554	Not Full	No	-0.613	5.446
619	FIRST4	1,457.000	0.001	0.008	1,451.038	Not Full	No	-0.628	5.962
620	GOODLANDER1	1,455.000	0.001	0.006	1,448.069	Not Full	No	-0.598	6.931
621	GOODLANDER10	1,458.000	0.001	0.007	1,452.085	Not Full	No	-0.582	5.915
622	GOODLANDER11	1,458.000	0.001	0.004	1,452.579	Not Full	No	-0.588	5.421
623	GOODLANDER12	1,460.000	0.001	0.006	1,454.047	Not Full	No	-0.620	5.953
624	GOODLANDER2	1,473.000	0.001	0.006	1,467.047	Not Full	No	-0.619	5.953
625	GOODLANDER3	1,497.000	0.001	0.006	1,491.045	Not Full	No	-0.622	5.955
626	GOODLANDER4	1,528.000	0.001	0.006	1,522.044	Not Full	No	-0.622	5.956
627	GOODLANDER5	1,553.000	0.001	0.006	1,547.041	Not Full	No	-0.625	5.959
628	GOODLANDER6	1,568.000	0.001	0.006	1,562.023	Not Full	No	-0.643	5.977
629	GOODLANDER7	1,585.000	0.001	0.006	1,579.027	Not Full	No	-0.639	5.973
630	GOODLANDER8	1,454.000	0.001	0.004	1,448.599	Not Full	Yes	-0.568	5.401
631	GOODLANDER9	1,462.000	0.001	0.003	1,451.068	Not Full	No	-0.599	10.932
632	GRAHAMPACKAGINGLS	1,094.000	0.068	0.267	1,088.258	Not Full	No	-0.242	5.742
633	HERITAGE1	1,311.000	0.001	0.007	1,305.080	Not Full	No	-0.586	5.920
634	HERITAGE10	1,441.000	0.001	0.006	1,435.038	Not Full	No	-0.629	5.962
635	HERITAGE11	1,450.000	0.001	0.008	1,444.027	Not Full	No	-0.640	5.973
636	HERITAGE12	1,374.000	0.000	0.003	1,368.048	Not Full	No	-0.619	5.952
637	HERITAGE13	1,395.000	0.000	0.003	1,389.051	Not Full	No	-0.615	5.949
638	HERITAGE14	1,402.000	0.000	0.003	1,394.060	Not Full	No	-0.607	7.940
639	HERITAGE15	1,402.000	0.000	0.002	1,394.601	Not Full	No	-0.566	7.399
640	HERITAGE16	1,402.000	0.000	0.002	1,395.098	Not Full	Yes	-0.569	6.902
641	HERITAGE17	1,410.000	0.001	0.004	1,404.048	Not Full	No	-0.619	5.952
642	HERITAGE18	1,454.000	0.001	0.006	1,448.042	Not Full	No	-0.625	5.958
643	HERITAGE19	1,470.000	0.001	0.005	1,460.050	Not Full	No	-0.617	9.950
644	HERITAGE2	1,353.000	0.000	0.002	1,347.070	Not Full	No	-0.597	5.930
645	HERITAGE20	1,467.000	0.002	0.009	1,461.075	Not Full	No	-0.592	5.925

646	HERITAGE21	1,468.000	0.001	0.003	1,462.063	Not Full	Yes	-0.603	5.937
647	HERITAGE22	1,467.000	0.000	0.002	1,462.540	Not Full	No	-0.627	4.460
648	HERITAGE3	1,361.000	0.001	0.003	1,355.049	Not Full	No	-0.618	5.951
649	HERITAGE4	1,371.000	0.001	0.005	1,365.066	Not Full	No	-0.600	5.934
650	HERITAGE5	1,379.000	0.001	0.008	1,373.054	Not Full	No	-0.613	5.946
651	HERITAGE6	1,389.000	0.001	0.003	1,383.043	Not Full	No	-0.623	5.957
652	HERITAGE7	1,411.000	0.001	0.005	1,405.045	Not Full	No	-0.622	5.955
653	HERITAGE8	1,429.000	0.001	0.007	1,423.046	Not Full	No	-0.620	5.954
654	HERITAGE9	1,435.000	0.001	0.009	1,429.056	Not Full	No	-0.610	5.944
655	HERITAGEHILLS	1,475.000	0.001	0.003	1,469.023	Not Full	No	-0.644	5.977
656	LYLE1	1,290.000	0.002	0.009	1,284.070	Not Full	No	-0.596	5.930
657	LYLE2	1,300.000	0.002	0.010	1,294.041	Not Full	No	-0.626	5.959
658	NACHES1	1,392.000	0.001	0.005	1,386.048	Not Full	No	-0.618	5.952
659	NACHES2	1,402.000	0.001	0.006	1,396.033	Not Full	No	-0.634	5.967
660	NACHES3	1,410.000	0.001	0.005	1,404.024	Not Full	No	-0.643	5.976
661	NACHES4	1,415.000	0.001	0.004	1,409.020	Not Full	No	-0.647	5.980
662	NACHES5	1,411.000	0.001	0.004	1,398.058	Not Full	No	-0.609	12.942
663	NACHES7	1,408.000	0.001	0.007	1,402.042	Not Full	No	-0.624	5.958
664	NACHES8	1,425.000	0.001	0.005	1,419.024	Not Full	No	-0.643	5.976
665	PUBLICWORKS1	1,091.000	0.001	0.006	1,089.939	Not Full	Yes	3.689	1.061
666	PUBLICWORKS2	1,091.000	0.001	0.006	1,089.940	Not Full	No	4.123	1.060
667	PUBLICWORKS3	1,091.000	0.001	0.006	1,089.940	Not Full	No	3.974	1.060
668	PUBLICWORKS4	1,091.000	0.001	0.006	1,089.941	Not Full	No	3.941	1.059
669	SELAHHIGH1	1,120.000	0.000	0.002	1,117.925	Not Full	Yes	-0.475	2.075
670	YAKIMA1	1,474.000	0.000	0.003	1,465.025	Not Full	No	-0.642	8.975
671	YAKIMA2	1,473.000	0.001	0.003	1,466.036	Not Full	No	-0.631	6.964
672	YAKIMA3	1,472.000	0.000	0.003	1,467.034	Not Full	No	-0.633	4.966
673	YAKIMA4	1,472.000	0.001	0.005	1,467.047	Not Full	No	-0.619	4.953
674	177TH1	1,388.000	0.001	0.005	1,382.058	Not Full	No	-0.609	5.942
675	177TH2	1,447.000	0.002	0.009	1,443.043	Not Full	No	-0.624	3.957
676	177TH4	1,472.000	0.001	0.005	1,466.034	Not Full	No	-0.633	5.966
677	213	1,091.000	0.023	0.101	1,089.933	Not Full	Yes	0.183	1.067