APPENDIX P

WATER SUPPLY CONCEPT REPORT

Engineer's Report

Water Supply Concept Report

Blue Point Overlay District

191-200 Blue Point Road
Town of Lloyd
Ulster County, New York 12528

July 5, 2013
Revised December 30, 2013

THE Chazen COMPANIES®
Engineers
Environmental Professionals
Land Surveyors
Landscape Architects
Planners

Prepared for:

Hudson Valley Wine Village, Inc.
17 East 74th Street
New York, New York 10021

Engineer's Report

Water Supply Concept Report

Blue Point Overlay District

191-200 Blue Point Road
Town of Lloyd
Ulster County, New York 12528

July 5, 2013
Revised December 30, 2013

THE Chazen COMPANIES®
Engineers
Environmental Professionals
Land Surveyors
Landscape Architects
Planners

Prepared by:
Chazen Engineering, Land Surveying & Landscape Architecture Co., P.C.
547 River Street
Troy, New York 12180
(518) 273-0055

Hudson Valley Office
(845) 454-3980

North Country Office
(518) 812-0513

Engineer's Report

Water Supply Concept Report

Blue Point Overlay District

191-200 Blue Point Road
Town of Lloyd
Ulster County, New York 12528

July 5, 2013
Revised December 30, 2013

THE Chazen COMPANIES®
Engineers
Environmental Professionals
Land Surveyors
Landscape Architects
Planners

TABLE OF CONTENTS

APPENDICES

EXECUTIVE SUMMARY

The Hudson Valley Wine Village, Inc. (HVWV) proposes the re-development of a 429± acre property along NYS Route 9W near Blue Point Road in the Town of Lloyd in Ulster County, New York. The development of the property includes the construction of 916 residential housing units of diverse types (apartment, townhouse, single family dwelling), a 103-suite hotel with conference center and restaurant, commercial retail and office space, light industrial and manufacturing space, and public recreation facilities.

The property is currently not served by public water and sewer systems and lies outside the boundaries of the existing Town of Lloyd Highland Water and Sewer Districts. HVWV will enter into an agreement with the Town of Lloyd to connect the proposed development to the nearby Highland Water District by extending the existing Town water mains south on NYS Route 9W to the project site. Wastewater generated by the project will be conveyed and treated at a new wastewater treatment facility to be constructed on site.

The project is expected to use approximately 314,273 gallons of water per day (gpd) on average with an anticipated maximum daily usage of 628,547 gpd.

Connection of the project site to the Highland Water District will entail the installation of approximately 6,500 linear feet (1.2 miles) of 12-inch water mains along the NYS Route 9W to the southern entrance of the project site. The on-site water distribution line will consist of a network of water mains of various sizes totaling approximately 35,000 linear feet. The overall water distribution system will be divided into two distinct pressure zones to accommodate the wide range of elevation within the service area and provide acceptable working pressures. The first pressure zone encompasses the northern portion of the proposed development while the second pressure zone serves the southern portion of the proposed development through a pressure reducing valve (PRV) installed on the proposed 12-inch water main along NYS Route 9W.

Preliminary hydraulic analysis revealed that the proposed water distribution system will provide an adequate level of service within the proposed service area and will provide significant fire flows in the range of 385 gpm to 860 gpm.

The existing Town of Lloyd filtration plant has sufficient treatment and pumping capacity to satisfy the anticipated combined water demand of the Water District and proposed HVWV development project. The existing filtration plant also has adequate chemical storage facilities and sufficient sludge dewatering and disposal capacity to serve the proposed development. However, improvements to the plant's sludge holding and pumping capacity may be required in order to meet the additional water demand associated with the proposed HVWV project. The District's existing 2 MG water storage tank has adequate reserve capacity to accommodate the proposed development.

1.0 INTRODUCTION

The Hudson Valley Wine Village, Inc. (HVWV) proposes the re-development of a 429± acre property along NYS Route 9W near Blue Point Road in the Town of Lloyd in Ulster County, New York. The project sponsor HVWV is also proposing the creation of a Planned Development District (PDD) which is to be known as the Blue Point Overlay District.

The property consists of several land parcels totaling approximately 429± acres of primarily undeveloped land, a portion of which is located on a bluff overlooking the Hudson River. These parcels owned by Hudson Valley Wine Village, Inc. are directly adjacent to NYS Route 9W at the intersection of Blue Point Road.

The development of the property, which is anticipated to occur over a period of twenty (20) years, includes the construction of 916 residential housing units of diverse types (apartment, townhouse, single family dwelling), a 103-suite hotel with conference center and restaurant, commercial retail and office space, light industrial and manufacturing space, and public recreation facilities.

The property is currently not served by public water and sewer systems and lies outside the boundaries of the existing Town of Lloyd Highland Water and Sewer Districts. It is the intent of the project sponsor to connect the proposed development to the nearby Highland Water District by extending the existing Town water mains south on NYS Route 9W to the project site. The Town of Lloyd wastewater treatment facilities located on River Road have limited reserve capacity to accept sewage from the proposed development. As a result, sewage generated from the development is proposed to be conveyed to a central on-site wastewater treatment plant facility for treatment and disposal.

This water supply concept report has been prepared as part of several technical studies completed in support of the Draft Generic Environmental Impact Statement (DGEIS) for the Hudson Valley Wine Village (HVWV) project. The water supply concept report provides a brief description of the existing condition at the project site, an evaluation of the ability of the Highland Water District to supply municipal water to the project, and a basis of design for the proposed water system improvements.

2.0 PROJECT SITE

2.1 Location

The HVWV project site is located on the west shore of the Hudson River just east of NYS Route 9W near Blue Point Road in the Town of Lloyd, Ulster County, NY. The project site encompasses approximately 429± acres on six (6) contiguous parcels identified as Ulster County tax map parcels 96.3-2-8, 96.3-1-29.1, 96.3-1-28, 96.3-2-21, 96.3-1-18, and 96.3-2-9. The site is bordered

by NYS Route 9W to the west, the Hudson River to the east, the existing Apple Ridge Subdivision and Franny Reese State Park to the north and a large orchard to the south.

A tax map illustrating the location of the site and an ortho-photograph of the subject site are provided in Appendix A.

2.2 Description

The project site is primarily undeveloped land consisting of forest and meadows overlooking the Hudson River.

The property contains a number of structures and buildings that were originally built by the Hudson Valley Wine Company which operated a winery on site starting in the early 1900's. Many of these structures still remain. The property continued to be used as a winery for many years until the 1990's when the previous owner ceased operation. The site is now a mix of overgrown orchards, vineyards, woodland, and open lawn areas. Dirt roads and trails provide access to the former vineyards, orchards and fields.

2.3 Topography

The project site consists of irregular undulating and rolling hill tops and several water bodies, wetland areas, and a 200-foot high bluff over the Hudson River along its eastern boundary.

Surface elevations on the project site range from 10 feet above mean sea level (amsl) at the edge of the Hudson River to 385 feet amsl along the northern edge of the property.

2.4 Soils

The site generally consists of surficial soils over shale bedrock formations. According to the United States Department of Agriculture (USDA) Ulster County Soil Survey maps[1], six (6) soil types are present on site: bath-Nassau-Rock outcrop complex, hilly (BOD), Bath-Nassau complex, 8-25 percent slopes (BnC), Mardin-Nassau complex, 3-8 percent slopes (MgB), Volusio very stony soils, gently sloping (VSB), Nassau-Bath-Rock outcrop complex, very steep (NBF) and Lyons-Atherton complex, very stony (LY).

The BOD, BnC and MgB soil types cover nearly 340 acres or approximately 80% of the project site. These soils belongs to the hydrologic group C and are characterized by a shallow depth to bedrock (depth <4 feet), rock outcrops and seasonal high water table (depth <6 feet). A map showing the soil types encountered on the project site is included in Appendix B.

[1] USDA Natural Resource Conservation Service. Soil map for Ulster County, New York.

2.4 Hydrology

Review of available NYSDEC water body mapping and classification information indicated the presence of a Class C stream on site flowing in a northeasterly direction towards the Hudson River. This stream originates from a small on-site pond north of Blue Point Road and flows in a northerly direction to a large 2.3-acre pond located north of the site. The stream then meanders through forested land in a northeasterly direction before discharging over the bluff into the Hudson River. A map of NYSDEC regulated streams is included in Appendix B.

According to the National Wetland Inventory (NWI), there are numerous small wetlands and ponds on the property ranging in size from approximately 0.5 to 5 acres. A delineation of wetlands on the property can be found in the DGEIS.

3.0 PROJECT DESCRIPTION

The project sponsor proposes the development of residential housing of various types, the Tuscan Village Conference Center consisting of a hotel, restaurant, conference center and office/commercial retail space, and a light industrial/manufacturing park area.

More specifically, the project will include the following:

Residential

Residential properties will be comprised of apartments, townhouses, and single-family homes in a range of unit sizes dispersed throughout the project site as follows:

- 584 apartments in a mix of one (1) and two (2) bedroom units (912 bedrooms)
- 282 townhouses in a mix of two (2) and three (3) bedroom units (612 bedrooms)
- 50 single-family dwellings consisting of three-bedroom homes (150 bedrooms)

Tuscan Village Conference Center

- 103-room suite hotel overlooking the Hudson River
- 34,048 sf conference center
- 8,222 sf restaurant
- 104,871 sf of commercial office and retail space

Light Industrial/Manufacturing

- (8) buildings totaling 435,262 sf of light industrial, manufacturing, and/or institutional space

4.0 PROJECT PHASING

Development of the property is expected to proceed in several phases of construction over a 20-year period in the following order:

- Site preparation and infrastructure improvements (site clearing, grading, roadway, paving, drainage, electric utilities, water distribution, sanitary sewer, wastewater treatment plant);
- Industrial Park area;
- Tuscan Village Conference Center area; and,
- Residential housing.

The residential housing development phase is anticipated to occur concurrently with the other phases of development over the 20-year construction period based on market demand.

5.0 PROJECTED WATER DEMAND

The proposed development includes a mix of residential, commercial and light industrial development. Projected water demand is based on the preliminary Density Analysis table dated August 10, 2012 prepared by Tinkelman Architecture for the HVWV project. The Density Analysis table provides a summary of the number of units for each housing types, bedroom count, restaurant seats, and square footage information for all commercial, retail and industrial buildings. A copy of this table can be found in Appendix C.

Water use was taken as 1.25 times the estimated wastewater flow estimated using the typical hydraulic loading rate values presented in Table B.3 of the draft 2012 NYS Department of Environmental Conservation (NYSDEC) guidance manual[2] to take into account that only 80% of the water utilized is typically returned as sewage. The average daily water demand for the project is estimated at 314,273 gallons per day (gpd) or 218 gallons per minute (gpm). The anticipated maximum daily flow is estimated at 628,547 gpd or 436 gpm using a peak factor of 2.0. A table detailing water demand calculations is provided in Appendix C.

6.0 CONNECTION TO HIGHLAND WATER DISTRICT

It is the Owner's intent to connect to the existing Highland Water District to supply water for the project. The Owner will have to petition and enter into an agreement with the Town of Lloyd to extend municipal water service from the established Highland Water District to the project site.

[2] *Design Standards for Intermediate-Sized Wastewater Treatment Systems*, 2012 Draft, NYSEDC – Division of Water, Bureau of Water Permits

According to the Town, the existing Highland Water District has adequate water supply, treatment and storage capacity to serve to the proposed development. The nearest limit of the Highland Water District is located approximately half a mile north of the project site. The boundaries of the existing Water District will have to be extended to include the project site.

6.1 Highland Water District

Highland is a small hamlet with a population of approximately 4,000 to 5,000 located in the Town of Lloyd. The Highland Water District is a community water system which provides municipal water to the residents of the hamlet.

The Highland Water District use both surface and groundwater supply to meet its water demand. The Water District relies on four (4) upland surface reservoirs near Illinois Mountain and an intake near the Hudson River as the primary water sources. The District also uses one (1) horizontal and three (3) vertical wells, drilled into Illinois Mountain as supplemental sources for the reservoirs. The Town relies on the upland reservoirs for a period of 4 to 5 months throughout the year to supply water to the District and the Hudson River intake for 6 to 7 months in the year.

The existing Town of Lloyd filtration plant has capacity to treat up to 3.5-4.0 million gallons of water a day (MGD). The water is chemically conditioned, clarified, filtered and chlorinated prior to distribution. According to the 2010 Annual Drinking Water Quality report, the amount of water produced in 2010 was 537,000 gallons per day on average with a maximum single day production of 889,000 gallons. The unaccounted for water represents 29% of the total amount produced.

The Water District also operates and maintains a 2 MG welded steel finished water storage tank on Illinois Mountain adjacent to the existing filtration plant.

6.2 Water District Improvements

Connection of the project site to the Highland Water District requires extension of the existing water main along NYS Route 9W and improvements at the water treatment plant to accommodate the anticipated water demand associated with the project. The contemplated water system improvements necessary to support the proposed development were discussed with the Town of Lloyd Engineer and Town Water Department. These improvements can be described as follows.

6.2.1 Extension of Town Water Main

An existing 12-inch diameter water main terminates near the newly constructed Rite Aid Pharmacy at the intersection of Macks Lane and NYS Route 9W in Highland. Extension of the District water distribution system will entail the installation of approximately 6,500 linear feet

(1.2 miles) of 12-inch diameter ductile iron pipe along the NYS Route 9W from Macks Lane to the southern entrance of the project site. The projected length of 12-inch main along Route 9W from Macks Lane to the northern entrance just south of Blue Point Road is approximately 3,350 linear feet.

The Town of Lloyd will likely require the extension of the water main along NYS Route 9W to the southern property limit based on discussion with Town of Lloyd Engineer. This would require the installation of an additional 550± linear feet of 12-inch water main.

When feasible, the proposed water mains will be installed in the unpaved shoulder of NYS Route 9W within the public right-of-way (R.O.W.). Where installation of the water mains in the unpaved shoulder is impractical due to the steepness of the road embankment or existing aerial and underground utilities, proposed water mains will be installed within the paved shoulder outside the travel lane. Flushing hydrants and isolation valves will also be installed along the water main at appropriate locations for proper operation and maintenance of the water system.

In addition to Town review and approval, the installation of water mains within the NYS Route 9W corridor will require formal NYSDOT review and approval before any NYSDOT Highway Work Permits for utility work can be issued.

6.2.2 Water Plant Improvements

The existing filtration plant has sufficient treatment and pumping capacity to satisfy the anticipated combined water demand of the Water District and proposed HVWV development project. The existing 2 MG water storage tank has adequate reserve capacity to accommodate the proposed development. The existing filtration plant has adequate chemical storage facilities and sufficient sludge dewatering and disposal capacity to serve the proposed development. However, improvements to the plant's sludge holding and pumping capacity may be required in order to meet the additional water demand associated with the proposed HVWV project. The contemplated improvements may include operational changes and installation of additional tankage and pumps for the storage and handling of sludge.

7.0 ON-SITE WATER DISTRIBUTION SYSTEM

The proposed HVWV project will have two (2) entrances. Primary access to the residential uses and Tuscan Village Conference Center and Hotel will come from Route 9W just south of Blue Point Road at the north end of the site. The second entrance will be a new access boulevard that will primarily serve the industrial component of the HVWV project. The two (2) entrances are connected via 7,700±-foot long loop road which meanders through the project site. A series of internal roadways will then connect the various areas of development to the major loop road.

The on-site water distribution system should be designed and sized to deliver the required quantity of water at adequate pressure to provide a satisfactory level of service to all areas of the proposed development. This section of the report describes the conceptual basis of design for the proposed on-site water distribution and provides the results of a preliminary hydraulic analysis.

7.1 Water Distribution Piping

It is envisioned that the on-site water distribution system will consist of a primary water distribution main installed along the loop road and several secondary water distribution systems to provide water to the contemplated areas of development.

The primary on-site water distribution line will consist of approximately 7,700 linear feet of 10-inch water mains installed under the loop road. The primary water main loop will connect to the 12-inch water main on Route 9W at the proposed northern entrance near Blue Point Road and at the proposed southern entrance.

Water will be delivered to the contemplated areas of development within the project site by secondary water distribution systems. These secondary systems will generally consist of a network of smaller diameter water mains (6-inch or 8-inch) totaling approximately 25,500 linear feet in length. In some instances, these secondary systems have been interconnected or looped to increase the capacity and reliability of the overall water distribution system.

The proposed water mains will be ductile iron cement lined (D.I.C.L.) Class 52 pipes complying with AWWA C151 and AWWA C104 standards. Water mains will be generally installed with a minimum earthen cover of five (5) feet. Main isolation valves will be installed at all water main intersections and at a maximum spacing of 800 feet between valves. Hydrants will be installed throughout the distribution system at all road intersections, dead end lines and all high points, and will be spaced at intervals between 300 and 600 feet.

The presence of very shallow rock on-site will considerably impact the construction cost associated with the installation of all buried utilities including water, sewer, communications and electric.

7.2 Service Area and Pressure Zones

The contemplated areas of development are situated west of the bluff which is roughly defined by the 200-foot contour line. Surface elevations for the areas contemplated to be developed vary between 200 and 380 feet above mean sea level (amsl).

The water distribution system should be designed and operated to maintain a minimum residual pressure of 20 psi at ground level at all points in the distribution system under all

conditions of flow. In addition, normal working pressures in the distribution system should be maintained between 35 and 100 psi at ground level.

The Water District operates and maintains a 2 MG welded steel finished water storage tank on Illinois Mountain next to the water plant located at the end of Reservoir Road. The steel tank is approximately 85 feet in diameter and 45 feet tall. The elevation at the base of the tank is 448'± amsl. This tank "floats" over the entire District's water distribution system. The hydraulic grade elevation of the tank is 493 feet amsl assuming that the tank is full with 45 feet of water.

The highest elevation that can be served by this tank with a minimum working pressure of 35 psi is 412 feet amsl [493 – (35 psi x 2.31 feet/psi) = 412]. Similarly, the lowest elevation that can be served by this tank to maintain the 100 psi maximum pressure is 262 feet amsl [493 – (100 psi x 2.31 feet/psi) = 262].

Areas of development located at an elevation below 262 feet amsl would normally experience unacceptable pressure exceeding 100 psi. Such areas should be served through pressure reducing valve (PRV) stations installed at specific locations to reduce pressure within the normal working range. PRVs will be located in an underground concrete vault in the road right of way or on parcels deeded to the water company.

The overall water distribution system will be divided into two distinct pressure zones, denoted PZ-1 and PZ-2, to accommodate the wide range of elevation within the service area and provide acceptable working pressures. Pressure zone PZ-1 serves the northern portion of the proposed development and is an extension of the tank core atmospheric pressure zone. Pressure zone PZ-2 serves the southern portion of the proposed development through a PRV installed on the proposed 12-inch water main along NYS Route 9W. A map showing the boundaries of each pressure zone and the associated area served can be found in Appendix D.

7.3 Fire Suppression System and Fire Flow

7.3.1 Fire Suppression System

In accordance with the Building Code of New York State, buildings requiring fire protection and suppression systems shall comply with Chapter 9 "*Fire Protection Systems*" and related provisions of the Fire Code of New York State. Buildings requiring automatic fire sprinkler systems shall comply with Section 903 of the Building Code, in required areas as defined in Section 903.2.

Where provisions of the code require that a building or portion thereof be equipped throughout with an automatic sprinkler system, sprinklers shall comply with NFPA 13 except as provided for in the Building Code. Automatic sprinkler systems, where required for residential buildings, shall comply with NFPA 13R.

Where provisions of the Building Code of New York State require that a building or portion thereof be equipped with fire protection and suppression systems including automatic sprinkler system, such systems should be designed by the building's Mechanical/Electrical/Plumbing (MEP) engineer according to the Town Code, NYS Building Code, Fire Code of New York State and applicable NFPA Standards.

7.3.2 Fire Flow

Although water supply systems are not required to be designed to meet fire flow requirements, attempts should be made to design water distribution and storage facilities capable of providing significant fire flows adequate to meet needed fire flows (NFF) recommended by the Insurance Services Office (ISO). We anticipate that the existing Highland Water District has adequate facilities to provide significant fire flows to the proposed development.

The *Guide for Determination of Needed Fire Flow* prepared by ISO provides a method to determine needed fire flows for buildings based upon the type of construction, occupancy, exposure and location. Needed fire flows for one- and two-family dwellings not exceeding two stories in height can be estimated using recommended values presented in Chapter 7 of ISO *Guide for Determination of Needed Fire Flow.* The needed fire flows recommended by ISO for such structures are based on the distance between the buildings and vary between 500 and 1,500 gpm. For other types of habitational buildings, the needed fire flow has to be calculated using the method presented in the ISO Guide and will vary from 500 gpm to a maximum value of 3,500 gpm.

For commercial and industrial structures, the needed fire flows are calculated per the methodology presented in the ISO Guide. Needed fire flows for light commercial and industrial structures can range from 500 to 3,500 gpm depending on the building size, location and type of construction. Higher fire flows may be required for large commercial and industrial structures.

It should be noted that ISO does not determine needed fire flows for buildings provided with automatic fire suppression systems compliant with applicable NFPA Standards. Installation of automatic fire suppression systems in a building can also significantly reduce the demand for fire flow.

A detailed analysis of needed fire flow (NFF) and Fire Code requirements applicable to the proposed HVWV development project is outside the scope of this report.

7.4 Hydraulic Analysis

A complete hydraulic model of the conceptual water distribution system has been developed to evaluate working pressures and available fire flows within the system.

7.4.1 Model Assumptions and Simulations

The proposed water distribution system was modeled using the proprietary computer software WaterCAD version V8i developed by Bentley Systems. This software is based on the Hardy-Cross equation. The water system model was laid out using a scaled drawing of the proposed Site Development Plan provided by the Architect. Node elevations were determined by interpolation from existing or proposed contour lines.

In addition to pipe friction losses, the model considered minor losses resulting from valves and fittings such as bends, reducers, tees and crosses. Valves were assumed at all branches of tees and crosses. Each node in the model was allocated a fraction of the total anticipated water demand based on the number of dwellings or residential units served by each node.

The simulations were performed assuming that the water level in the finished water storage tank on Illinois Mountain is at its normal operating level of 493 feet amsl. For modeling purposes, we assumed a 2.3-mile long 12-inch water main between the tank and the point of connection near Macks Lane since the Town of Lloyd was unable to provide pertinent information in time for preparation of this report. Fire hydrants were modeled using a flow emitter coefficient K value of 150.

The following two scenarios were modeled:

- Maximum Day Demand
- Fire Flow under Maximum Day Demand

The model scenarios were simulated using the computer software to evaluate the dynamic pressures in the water distribution system during maximum day condition, and determine the maximum available fire flow while maintaining a minimum 20 psi residual pressure in the system.

7.4.2 Simulation Results

Simulation results for maximum day and fire flow scenarios are provided in Appendix E. A map of the overall water system model is also included therein. The hydraulic analysis revealed that the proposed water distribution system will provide an adequate level of service within the proposed service area under maximum day condition. Simulation results indicated that dynamic pressures in the water distribution system vary between 42 and 91 psi under the maximum day scenario. According to simulation results, available fire flows vary between 385 gpm and 860 gpm.

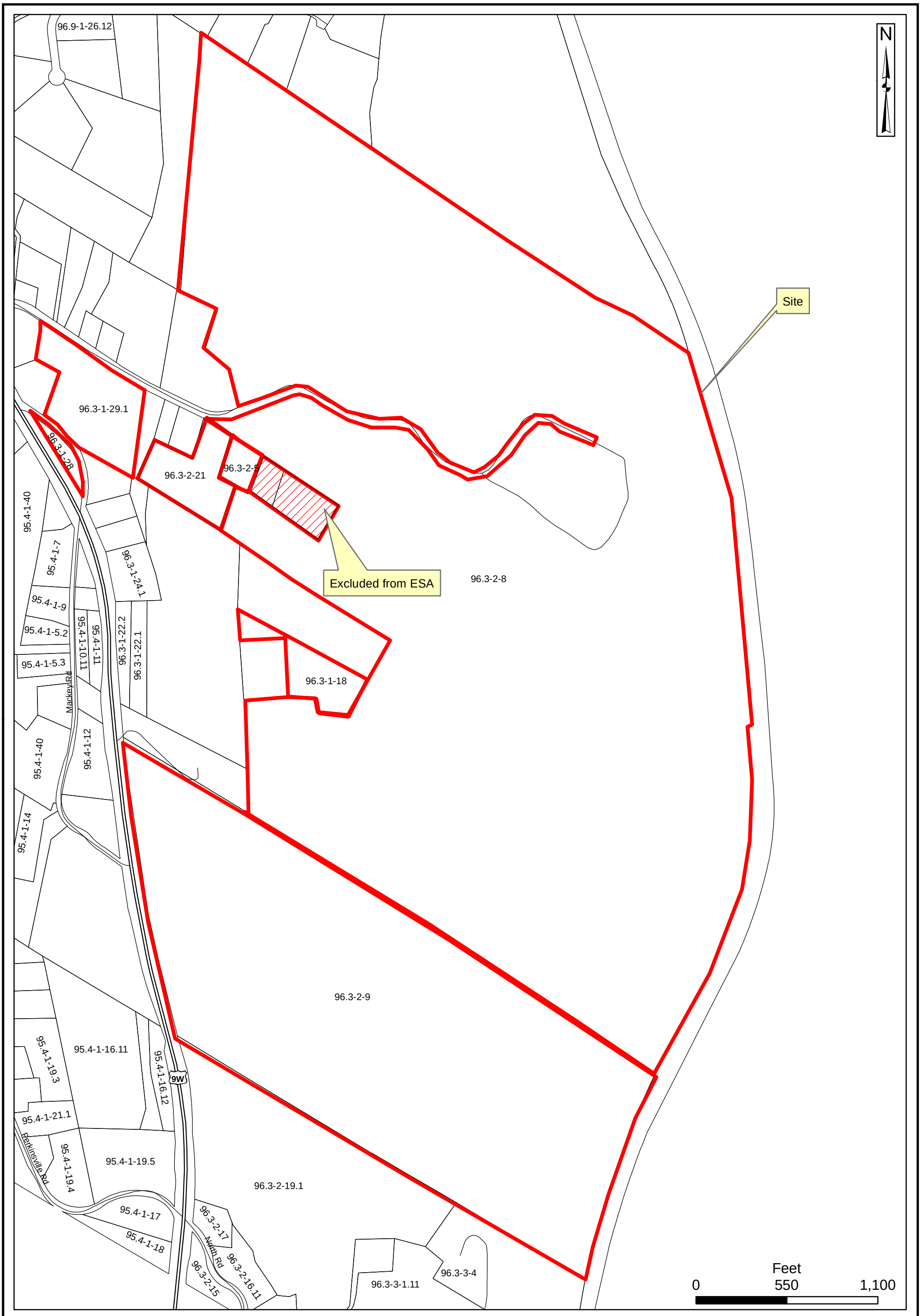
8.0 DEDICATION TO HIGHLAND WATER DISTRICT

Once constructed to the satisfaction of the Town, and certified by the State and County Departments of Health, the Town will request that the water line extension on Route 9W be

dedicated to the Highland Water District, which will assume responsibility for operation and maintenance of the water main and associated appurtenances within the public right of way. It is also expected that the Town will request that the on-site water main loop and secondary water distribution system located within public right-of-ways be dedicated to the Highland Water District.

It is also possible that portions of the secondary water distribution system installed beyond the public right-of-way may remain under private ownership (Homeowners Association or a Transportation Corporation established for this project). Access easement may have to be granted to the Town for portions of the water distribution system within internal roadways proposed to remain under HOA ownership.

Appendix A:
HVWV Project – Site Location Maps



THE Chazen COMPANIES
Engineers/Surveyors
Planners
Environmental Scientists
Landscape Architects

CHAZEN ENGINEERING, LAND SURVEYING & LANDSCAPE ARCHITECTS CO., P.C.

Dutchess County Office:
21 Fox Street
Poughkeepsie, NY. 12601
Phone: (845) 454-3980

Capital District Office:
547 River Street
Troy, NY. 12180
Phone: (518) 273-0055

North Country Office:
100 Glen Street
Glens Falls, NY. 12801
Phone: (518) 812-0513

Hudson Valley Wine Village Property

Figure 2 - Tax Map

Blue Point Road and Route 9W
Town of Lloyd, Ulster County, New York

Source: Ulster County Office of Real Property Services 2007 Tax Parcel Data, NYS Department of Transportation 2009 Roads Dataset.

Drawn:	JLK
Date:	May 2012
Scale:	1:6,300
Project:	31024.01
Figure:	2

THE Chazen COMPANIES

Engineers/Surveyors
Planners
Environmental Scientists
Landscape Architects

CHAZEN ENGINEERING, LAND SURVEYING & LANDSCAPE ARCHITECTS CO., P.C.

Dutchess County Office:
21 Fox Street
Poughkeepsie, NY. 12601
Phone: (845) 454-3980

Capital District Office:
547 River Street
Troy, NY. 12180
Phone: (518) 273-0055

North Country Office:
100 Glen Street
Glens Falls, NY. 12801
Phone: (518) 812-0513

Hudson Valley Wine Village Property

Figure 3 - Orthophoto

Blue Point Road and Route 9W
Town of Lloyd, Ulster County, New York

Source: NYS Department of Homeland Security and Emergency Services 2009 Orthoimagery; NYS Department of Transportation 2009 Roads Dataset.

Drawn:	JLK
Date:	May 2012
Scale:	1:6,300
Project:	31024.01
Figure:	3

Appendix B:
HVWV Project – Soil & Stream Maps

THE Chazen COMPANIES
ENGINEERS/SURVEYORS
PLANNERS
ENVIRONMENTAL SCIENTISTS
LANDSCAPE ARCHITECTS

Dutchess County Office:
21 Fox Street, Poughkeepsie, NY 12601
Phone: (845) 454-3980

Capital District Office:
547 River Street, Troy, NY 12180
Phone: (518) 273-0055

Glens Falls Office:
100 Glen Street, Glens Falls, NY 12801
Phone: (518) 812-0513

Hudson Valley Wine Village

Soils Map

Town of Lloyd - Ulster County, New York

Drawn:	GHM
Date:	09/05/2012
Scale:	1:12,000
Project:	31024.01
Figure:	

Map Document: (R:\0\standards\Gis\ChazenGIS\8X11P_MinimalChazenAddress.mxt)
2/16/2010 -- 1:11:34 PM

THE Chazen COMPANIES
Engineers/Surveyors
Planners
Environmental Scientists
Landscape Architects

CHAZEN ENGINEERING, LAND SURVEYING & LANDSCAPE ARCHITECTS CO., P.C.

Dutchess County Office:
21 Fox Street
Poughkeepsie, NY. 12601
Phone: (845) 454-3980

Capital District Office:
547 River Street
Troy, NY. 12180
Phone: (518) 273-0055

North Country Office:
100 Glen Street
Glens Falls, NY. 12801
Phone: (518) 812-0513

Hudson Valley Winery

NYSDEC Stream Classification

Blue Point Road
Town of Lloyd
Ulster County, New York

Drawn:	CLC
Date:	04/26/2010
Scale:	1 inch = 600 feet
Project:	PC10-XXX
Figure:	X

Map Document: (R:\0\proposal\2010_Proposals\HudsonValleyWinery\GIS\maps\PC10-XXX_HudsonValleyWinery_NYSDECstream_11x17.mxd)
4/26/2010 - 3:49:07 AM

Appendix C:
HVWV Project – Water Demand Table

Hudson Valley Wine Village
aka Blue Point Conservation Development District
Table
Estimate of Project Wastewater and Water Demands

USE/DESCRIPTION	SIZE (SF)	NUMBER OF UNITS	UNIT	UNIT FLOW [1] (gpd)	WASTEWATER (gpd)	WATER AVERAGE (gpd)	PEAK DEMAND [6] (gpd)
WASTEWATER/WATER FRACTION = 0.8							
Date: August 10, 2012							
Residential							
Unit Type 1:							
Apartment (1 BR)		96	DU	110	10,560	13,200	26,400
Apartment (2 BR)		168	DU	220	36,960	46,200	92,400
Apartment (3 BR)		0	DU	330	0	0	0
Unit Type 2:							
Apartment (1 BR)		160	DU	110	17,600	22,000	44,000
Apartment (2 BR)		160	DU	220	35,200	44,000	88,000
Apartment (3 BR)		0	DU	330	0	0	0
Unit Type 3:							
Townhouse (1 BR)		0	DU	110	0	0	0
Townhouse (2 BR)		148	DU	220	32,560	40,700	81,400
Townhouse (3 BR)		0	DU	330	0	0	0
Unit Type 4:							
Townhouse (1 BR)		0	DU	110	0	0	0
Townhouse (2 BR)		86	DU	220	18,920	23,650	47,300
Townhouse (3 BR)		0	DU	330	0	0	0
Unit Type 5:							
Townhouse (1 BR)		0	DU	110	0	0	0
Townhouse (2 BR)		0	DU	220	0	0	0
Townhouse (3 BR)		48	DU	330	15,840	19,800	39,600
Unit Type 6:							
Single Family Dwelling (1 BR)		0	DU	110	0	0	0
Single Family Dwelling (2 BR)		0	DU	220	0	0	0
Single Family Dwelling (3 BR)		50	DU	330	16,500	20,625	41,250
TOTAL		916			**184,140**	**230,175**	**460,350**
				Average per Unit:	**201**	**251**	**503**
General Commercial/Retail/Office							
Light Industrial-North (2)	210,375	383	550 SFPC	15	5,738	7,172	14,344
Light Industrial-South (2)	224,887	409	550 SFPC	15	6,133	7,667	15,333
New Office Use (2)	53,144	97	550 SFPC	15	1,449	1,812	3,623
Existing Office Use (2)	51,727	94	550 SFPC	15	1,411	1,763	3,527
Total	540,133	982			**14,731**	**18,414**	**36,827**
Civic/Community							
Conference Center (3)	34,048	2,270		16	**36,318**	**45,397**	**90,795**
Hotel (4)	89,906	103		110	**11,330**	**14,163**	**28,325**
Total	123,954				**47,648**	**59,560**	**119,120**
Food Service Operations							
Restaurant (5)	8,222	140		35	**4,900**	**6,125**	**12,250**
Total Project Flow (gpd)					**251,419**	**314,273**	**628,547**

(1) Unit Flow Rates based on NYSDEC Design Standards for Wastewater Treatment Works *(2012 DRAFT)
(2) Each SF is divided by 550 Net Sq. Ft. Per Employee to get Building Population or "Number of Units"
(3) Table 1004.1.1 Building Code of NYS (2010) estimate 15 Sq. Ft. Per Occupant for an Assembly without fixed seats
(4) Flow Rate based on Per Sleeping Unit (103 Sleeping Units) *Reference Note (1)
(5) Flow Rate based on Per Seat in an Ordinary Restaurant (103-140 seats) *Reference Note (1)
(6) Two Times the Average Daily Flow (Per NYSDOH Requirements)

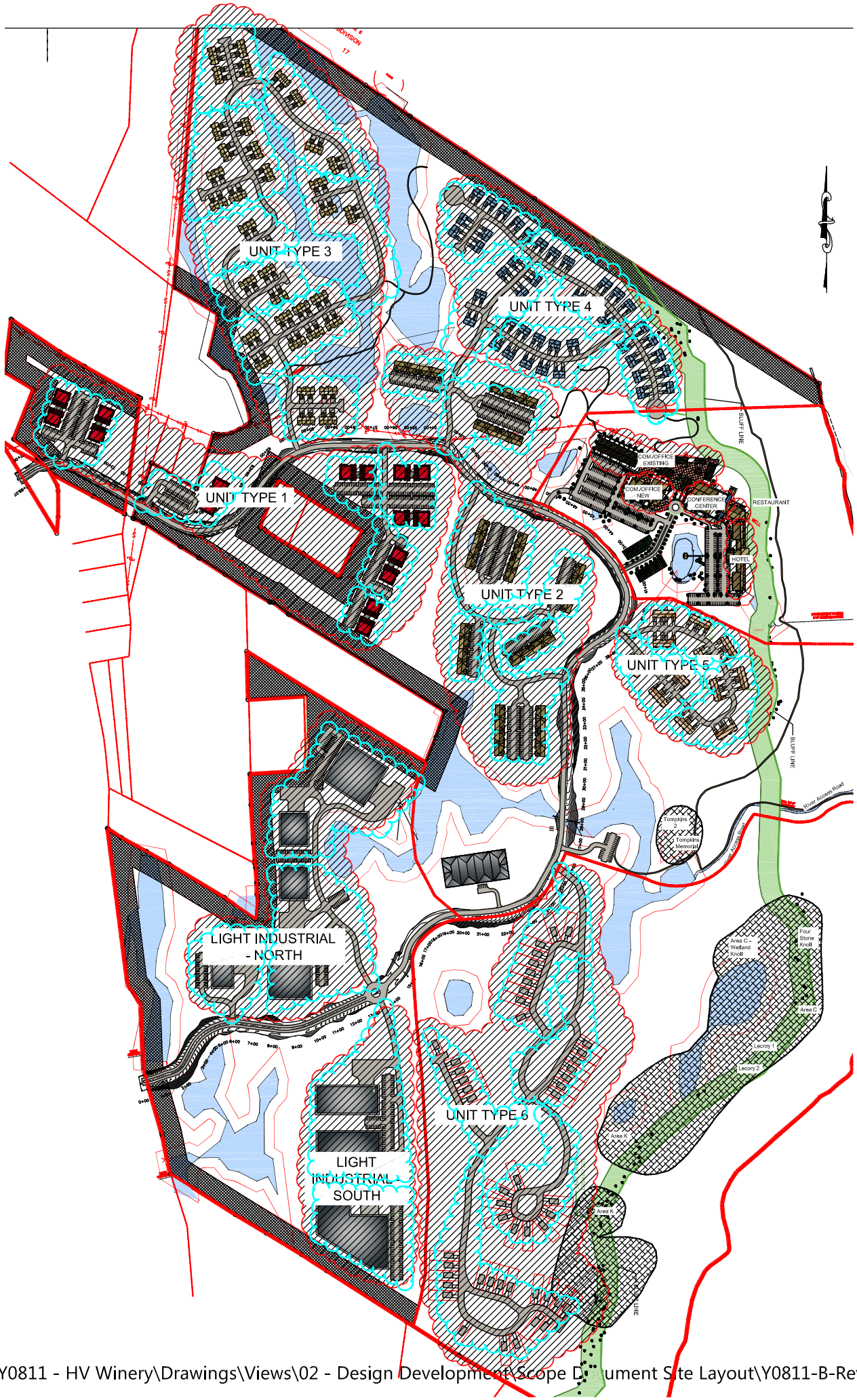
HUDSON VALLEY WINE VILLAGE:
BLUE POINT CONSERVATION DISTRICT DEVELOPMENT
HIGHLAND, NEW YORK
ULSTER COUNTY

Revised - August 10, 2012

SUMMARY OF SITE DEVELOPMENT:

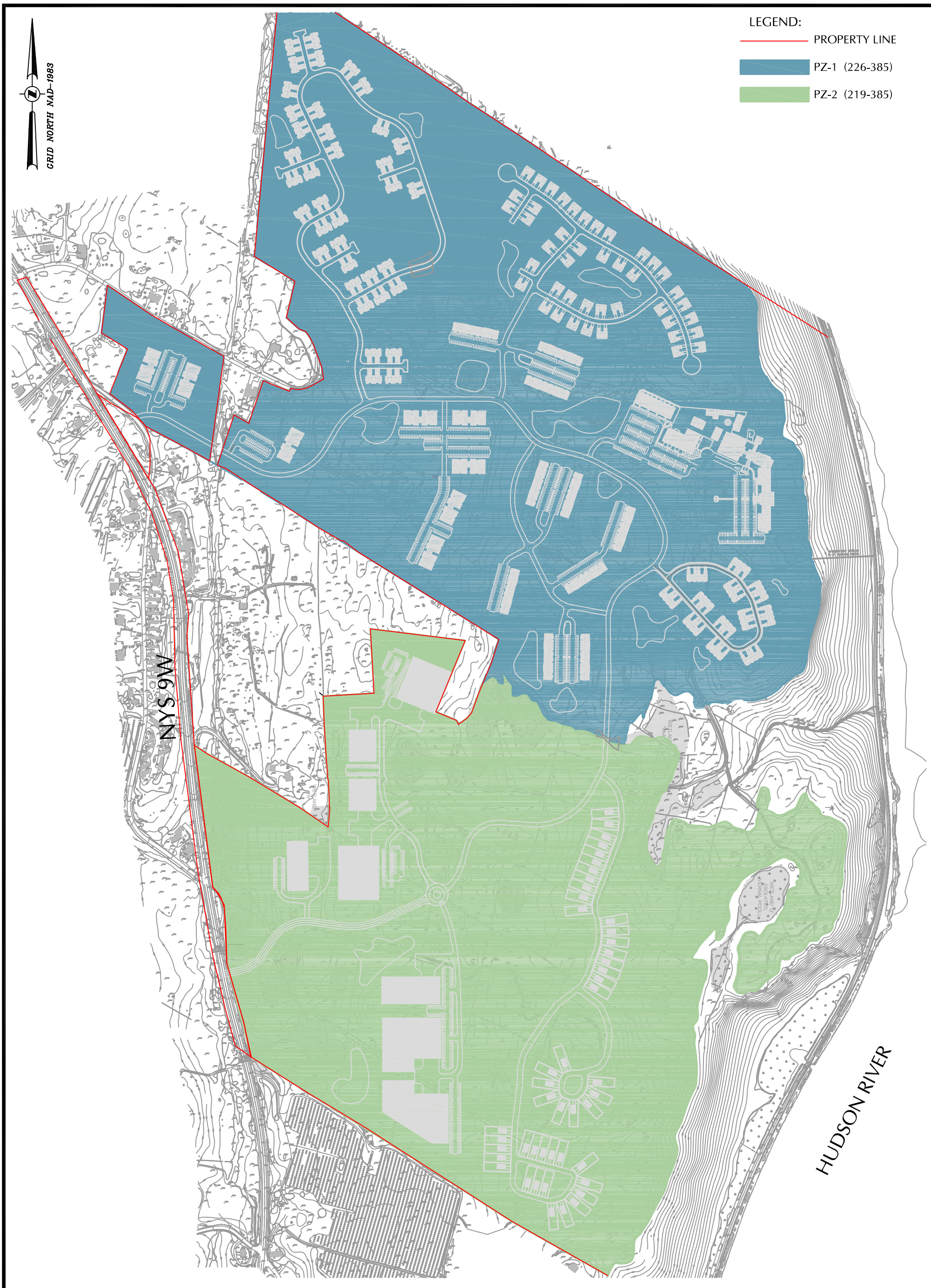
Units:	Unit Type 1	Unit Type 2	Unit Type 3	Unit Type 4	Unit Type 5	Unit Type 6	Conference Center	Hotel	Restaurant	Commercial / Office - Existing	Commercial / Office - New	Light Industrial - North	Light Industrial - South
Unit Type	Apartment	Apartment	Townhouse	Townhouse	Townhouse	Single Family Dwelling	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Building Footprint (SF)	13,274.00	11,875.00	4,388.00	2,763.00	5,674.00	1,460.00	18,466	21,038	6,062	n/a	n/a	n/a	n/a
Total Area of all Buildings Footprint (SF)	106,192.00	118,750.00	162,356.00	118,809.00	68,088.00	73,000.00	18,466	21,038	6,062	27,475	17,716	197,400	207,812
Total Square Footage per Building (SF)	39,822.00	35,625.00	6,768.00	4,095.00	8,538.00	2,656.00	34,048	89,906	8,222	51,727	53,144	210,375	224,887
Number of Units per Building	33	32	4	2	4	1	2						
Number of Buildings	8	10	37	43	12	n/a	1	1	1	6	1	5	3
Number of Total Units	264	320	148	86	48	50		103 suites	103 to 140 seats				
Number of Bedrooms:													
One Bedroom Units	96	160	0	0	0	0							
Two Bedroom Units	168	160	148	86	0	0							
Three Bedroom Units	0	0	0	0	48	50							
Number of Bathrooms per Unit	1	1	1.5	2	2	2	ND	Min. 1 per suite	ND	ND	ND	ND	ND
Stories (FT)	3	3	2	2	2	2	2	4	2	1 to 2	3	1 to 2	1 to 2
Size of Units:													
Single Floor Unit (SF)	ND	720	n/a	n/a	n/a	n/a							
1st Floor of Unit (SF)	ND	720	844.5	1,034	1,084	1,196							
2nd Floor of Unit (SF)	ND	480	595.5	667	716	1,196							
Garages (SF)	n/a	n/a	252.5	347.5	334.5	264							
Paved Surfaces - Roads, Parking Lots & Driveways (SF)	67,752.00	261,897.00	158,862.00	185344.00 **	38,338.00	213,923.00	148,058.00 - drives & parking lots / 51,974.0 plazas & patios					183,552.00	134,549.00
Circulation Blvd (SF)	198,215.00												

ND - Not Determined n/a - Not Applicable ** The paving area includes the section that passes through apartment area to get to main road.



P:\TA Jobs\Y0811 - HV Winery\Drawings\Views\02 - Design Development\Scope Document Site Layout\Y0811-B-Revise Developn

Appendix D:
HVWV Project – Pressure Zone Map



ALTERATION OF THIS DRAWING, EXCEPT BY A LICENSED P.E. IS ILLEGAL. ANY ALTERATION BY A P.E. MUST BE INDICATED AND BEAR THE APPROPRIATE SEAL, SIGNATURE AND DATE OF ALTERATION.

THE Chazen COMPANIES®
Engineers/Surveyors
Planners
Environmental Scientists
Landscape Architects

Dutchess County Office:
21 Fox Street Poughkeepsie, NY 12601
Phone: (845) 454-3980

Capital District Office:
547 River Street Troy, NY 12180
Phone: (518) 273-0055

North Country Office:
100 Glen Street Glens Falls, NY 12801
Phone: (518) 812-0513

HUDSON VALLEY WINERY

WATER SERVICE PRESSURE ZONE MAP

TOWN OF LLOYD, ULSTER COUNTY, NEW YORK

drawn	checked
SCP	PB
date	scale
10/15/12	1"=500'
project no.	
31024.01	
sheet no.	
FIG 5	
1 OF 1	

Drawing Name: C:\Users\pbrissette\Documents\31024.01 – FIG 5 PRESSURE ZONE MAP.dwg Date Printed: Oct 16, 2012, 6:56pm

Appendix E:
HVWV Project – WaterCad Hydraulic Analysis Simulation Results

HUDSON VALLEY WINERY - PEAK DAY WATERCAD OUTPUT (PROPOSED WATER LINE)

FlexTable: Junction Table (Proposed Water Layout (101012).wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	366.17	0.00	472.77	46.1
J-2	348.05	0.00	472.31	53.8
J-3	340.11	0.00	471.84	57.0
J-4	348.90	0.00	471.37	53.0
J-5	341.43	0.00	470.92	56.0
J-6	326.00	0.00	470.51	62.5
J-7	301.10	0.00	470.18	73.2
J-8	302.21	0.00	470.17	72.7
J-9	287.30	0.00	420.51	57.6
J-10	266.72	0.00	420.51	66.5
J-11	242.01	0.00	420.50	77.2
J-12	223.74	0.00	420.50	85.1
J-13	219.39	0.00	420.49	87.0
J-14	199.07	0.00	420.49	95.8
J-15	290.39	0.00	469.81	77.6
J-16	278.49	0.00	469.11	82.5
J-17	304.56	0.00	468.28	70.8
J-18	325.55	0.00	467.74	61.5
J-19	328.00	0.00	467.23	60.2
J-20	319.67	0.00	466.97	63.7
J-21	310.00	0.00	466.68	67.8
J-22	293.35	0.00	466.49	74.9
J-23	288.91	0.00	466.39	76.8
J-24	284.82	0.00	466.39	78.6
J-25	280.00	0.00	466.39	80.6
J-26	266.87	0.00	466.39	86.3
J-27	255.14	0.00	420.45	71.5
J-28	280.19	0.00	420.46	60.7
J-29	296.00	0.00	420.46	53.8
J-30	298.06	0.00	420.46	53.0
J-31	250.62	0.00	420.48	73.5
J-32	270.41	0.00	420.47	64.9
J-33	320.53	3.76	467.65	63.6
J-34	312.50	3.76	467.56	67.1
J-35	314.88	3.76	467.54	66.0
J-36	324.70	3.76	467.53	61.8
J-37	330.25	0.00	467.52	59.4
J-38	328.69	3.76	467.52	60.1
J-39	332.00	3.76	467.51	58.6
J-40	336.50	0.00	467.51	56.7
J-41	334.01	3.76	467.51	57.8
J-42	334.00	3.76	467.52	57.8
J-43	334.04	3.76	467.53	57.8
J-44	323.09	3.76	467.54	62.5
J-45	318.00	3.76	467.51	64.7
J-46	340.00	3.76	467.51	55.2
J-47	334.00	3.76	467.52	57.8

FlexTable: Junction Table (Proposed Water Layout (101012).wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-48	328.00	7.52	467.64	60.4
J-49	330.24	2.52	466.92	59.1
J-50	355.09	2.52	466.89	48.4
J-51	365.59	2.52	466.88	43.8
J-52	345.93	2.52	466.88	52.3
J-53	338.00	2.52	466.88	55.8
J-54	353.86	2.52	466.89	48.9
J-55	335.54	2.52	466.88	56.8
J-56	332.50	2.52	466.88	58.1
J-57	370.51	2.52	466.88	41.7
J-58	358.80	2.52	466.88	46.8
J-59	361.50	2.52	466.88	45.6
J-60	336.00	2.52	466.92	56.6
J-61	330.00	2.52	466.92	59.2
J-62	334.66	10.70	467.14	57.3
J-63	342.53	10.70	467.12	53.9
J-64	333.63	10.70	467.11	57.8
J-65	330.97	10.70	467.14	58.9
J-66	322.60	10.70	467.14	62.5
J-67	297.49	7.64	466.56	73.1
J-68	293.95	7.64	466.45	74.6
J-69	292.00	0.00	466.51	75.5
J-70	257.10	0.00	466.51	90.6
J-71	285.48	30.56	466.39	78.3
J-72	279.00	30.56	466.38	81.1
J-73	275.26	7.64	466.45	82.7
J-74	302.74	7.64	466.47	70.8
J-75	284.19	135.12	465.10	78.3
J-76	293.00	4.82	465.10	74.5
J-77	268.00	8.50	465.07	85.3
J-78	266.63	19.68	465.05	85.8
J-79	274.00	9.16	466.38	83.2
J-80	289.06	9.16	466.38	76.7
J-81	278.00	9.16	466.38	81.5
J-82	244.00	2.86	420.41	76.3
J-83	251.72	2.86	420.38	73.0
J-84	270.10	2.86	420.36	65.0
J-85	287.54	2.86	420.34	57.5
J-86	306.79	2.86	420.34	49.1
J-87	309.81	2.86	420.33	47.8
J-88	292.40	2.86	420.33	55.3
J-89	280.87	2.86	420.33	60.3
J-90	323.54	5.72	420.34	41.9
J-91	264.45	3.28	420.46	67.5
J-92	260.68	3.28	420.45	69.1
J-93	260.35	3.28	420.45	69.3
J-94	290.24	1.86	420.46	56.3

FlexTable: Junction Table (Proposed Water Layout (101012).wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-95	282.25	1.86	420.46	59.8
J-96	290.25	1.86	420.46	56.3
J-97	273.00	1.86	420.46	63.8
J-98	261.75	1.86	420.48	68.7
J-99	295.40	18.34	469.80	75.5
J-100	289.55	10.70	469.11	77.7

HUDSON VALLEY WINERY - PEAK DAY WATERCAD OUTPUT (PROPOSED WATER LINE)

FlexTable: Pipe Table (Proposed Water Layout (101012).wtg)

Current Time: 0.000 hours

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Minor Loss Coefficient (Derived)
P-1	12,500	J-1	T-2	12.0	Ductile Iron	130.0	-506.73	1.44	7.300
P-2	603	J-1	J-2	12.0	Ductile Iron	130.0	506.73	1.44	0.750
P-3	604	J-2	J-3	12.0	Ductile Iron	130.0	506.73	1.44	0.750
P-4	600	J-3	J-4	12.0	Ductile Iron	130.0	506.73	1.44	0.750
P-5	592	J-4	J-5	12.0	Ductile Iron	130.0	506.73	1.44	0.800
P-6	521	J-5	J-6	12.0	Ductile Iron	130.0	506.73	1.44	0.750
P-7	409	J-6	J-7	12.0	Ductile Iron	130.0	506.73	1.44	0.750
P-8	596	J-7	J-8	12.0	Ductile Iron	130.0	47.75	0.14	0.800
P-9	354	J-8	PRV-1	12.0	Ductile Iron	130.0	47.75	0.14	1.000
P-10	242	PRV-1	J-9	12.0	Ductile Iron	130.0	47.74	0.14	1.000
P-11	459	J-9	J-10	12.0	Ductile Iron	130.0	47.74	0.14	0.750
P-12	457	J-10	J-11	12.0	Ductile Iron	130.0	47.74	0.14	0.750
P-13	545	J-11	J-12	12.0	Ductile Iron	130.0	47.74	0.14	0.700
P-14	508	J-12	J-13	12.0	Ductile Iron	130.0	47.74	0.14	0.700
P-15	553	J-13	J-14	12.0	Ductile Iron	130.0	0.00	0.00	0.700
P-16	206	J-7	J-15	10.0	Ductile Iron	130.0	458.98	1.87	0.800
P-17	479	J-15	J-16	10.0	Ductile Iron	130.0	440.64	1.80	0.700
P-18	586	J-16	J-17	10.0	Ductile Iron	130.0	429.94	1.76	1.100
P-19	376	J-17	J-18	10.0	Ductile Iron	130.0	429.94	1.76	0.800
P-20	465	J-18	J-19	10.0	Ductile Iron	130.0	373.54	1.53	0.900
P-21	308	J-19	J-20	10.0	Ductile Iron	130.0	320.04	1.31	0.900
P-22	433	J-20	J-21	10.0	Ductile Iron	130.0	287.28	1.17	0.800
P-23	408	J-21	J-22	10.0	Ductile Iron	130.0	237.18	0.97	0.750
P-24	233	J-22	J-23	10.0	Ductile Iron	130.0	209.95	0.86	0.750
P-25	313	J-23	J-24	10.0	Ductile Iron	130.0	41.83	0.17	0.950
P-26	387	J-24	J-25	10.0	Ductile Iron	130.0	14.35	0.06	1.050
P-27	464	J-25	J-26	10.0	Ductile Iron	130.0	14.35	0.06	0.700
P-28	459	J-26	J-27	10.0	Ductile Iron	130.0	0.00	0.00	0.900
P-29	395	J-27	J-28	10.0	Ductile Iron	130.0	-28.60	0.12	0.850
P-30	522	J-28	J-29	10.0	Ductile Iron	130.0	-28.60	0.12	0.900
P-31	338	J-29	J-30	10.0	Ductile Iron	130.0	-28.60	0.12	0.900
P-32	376	J-30	J-32	10.0	Ductile Iron	130.0	-45.88	0.19	0.950
P-33	374	J-32	J-31	10.0	Ductile Iron	130.0	-45.88	0.19	0.800
P-34	553	J-31	J-13	10.0	Ductile Iron	130.0	-47.74	0.20	1.000
P-35	239	J-18	J-33	6.0	Ductile Iron	130.0	56.40	0.64	0.900
P-36	348	J-33	J-34	6.0	Ductile Iron	130.0	45.12	0.51	0.950
P-37	252	J-34	J-35	6.0	Ductile Iron	130.0	23.60	0.27	0.900
P-38	313	J-35	J-36	6.0	Ductile Iron	130.0	16.08	0.18	1.200
P-39	255	J-36	J-37	6.0	Ductile Iron	130.0	12.32	0.14	1.200
P-40	243	J-37	J-38	6.0	Ductile Iron	130.0	12.32	0.14	1.200
P-41	490	J-38	J-39	6.0	Ductile Iron	130.0	4.80	0.05	1.150
P-42	288	J-39	J-40	6.0	Ductile Iron	130.0	-2.72	0.03	1.000
P-43	236	J-40	J-41	6.0	Ductile Iron	130.0	-2.72	0.03	1.000
P-44	313	J-41	J-42	6.0	Ductile Iron	130.0	-6.48	0.07	0.950
P-45	566	J-42	J-43	6.0	Ductile Iron	130.0	-14.00	0.16	0.850
P-46	588	J-43	J-34	6.0	Ductile Iron	130.0	-17.76	0.20	0.800

FlexTable: Pipe Table (Proposed Water Layout (101012).wtg)

Current Time: 0.000 hours

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Minor Loss Coefficient (Derived)
P-47	249	J-35	J-44	6.0	Ductile Iron	130.0	3.76	0.04	0.700
P-48	289	J-38	J-45	6.0	Ductile Iron	130.0	3.76	0.04	0.700
P-49	258	J-39	J-46	6.0	Ductile Iron	130.0	3.76	0.04	0.700
P-50	221	J-42	J-47	6.0	Ductile Iron	130.0	3.76	0.04	0.700
P-51	288	J-33	J-48	6.0	Ductile Iron	130.0	7.52	0.09	0.700
P-52	317	J-20	J-49	6.0	Ductile Iron	130.0	32.76	0.37	0.750
P-53	378	J-49	J-50	6.0	Ductile Iron	130.0	25.20	0.29	0.800
P-54	422	J-50	J-51	6.0	Ductile Iron	130.0	12.46	0.14	0.800
P-55	297	J-51	J-52	6.0	Ductile Iron	130.0	2.38	0.03	0.750
P-56	259	J-52	J-53	6.0	Ductile Iron	130.0	-0.14	0.00	0.800
P-57	395	J-53	J-54	6.0	Ductile Iron	130.0	-7.70	0.09	0.800
P-58	394	J-54	J-50	6.0	Ductile Iron	130.0	-10.22	0.12	0.750
P-59	248	J-53	J-55	6.0	Ductile Iron	130.0	5.04	0.06	0.800
P-60	264	J-55	J-56	6.0	Ductile Iron	130.0	2.52	0.03	0.800
P-61	342	J-51	J-57	6.0	Ductile Iron	130.0	7.56	0.09	0.750
P-62	232	J-57	J-58	6.0	Ductile Iron	130.0	2.52	0.03	0.700
P-63	222	J-57	J-59	6.0	Ductile Iron	130.0	2.52	0.03	0.700
P-64	432	J-49	J-60	6.0	Ductile Iron	130.0	2.52	0.03	0.700
P-65	322	J-49	J-61	6.0	Ductile Iron	130.0	2.52	0.03	0.700
P-66	245	J-19	J-62	6.0	Ductile Iron	130.0	53.50	0.61	0.700
P-67	356	J-62	J-63	6.0	Ductile Iron	130.0	21.40	0.24	0.950
P-68	370	J-63	J-64	6.0	Ductile Iron	130.0	10.70	0.12	0.700
P-69	269	J-62	J-65	6.0	Ductile Iron	130.0	10.70	0.12	0.700
P-70	244	J-62	J-66	6.0	Ductile Iron	130.0	10.70	0.12	0.700
P-71	398	J-21	J-67	6.0	Ductile Iron	130.0	50.10	0.57	0.700
P-72	221	J-67	J-69	6.0	Ductile Iron	130.0	42.46	0.48	1.200
P-73	248	J-69	J-68	6.0	Ductile Iron	130.0	42.46	0.48	1.200
P-74	439	J-69	J-70	6.0	Ductile Iron	130.0	0.00	0.00	0.900
P-75	208	J-68	J-71	6.0	Ductile Iron	130.0	46.77	0.53	0.950
P-76	350	J-71	J-72	6.0	Ductile Iron	130.0	16.21	0.18	0.700
P-77	270	J-72	J-26	6.0	Ductile Iron	130.0	-14.35	0.16	0.900
P-78	362	J-68	J-73	6.0	Ductile Iron	130.0	-11.95	0.14	0.900
P-79	286	J-73	J-74	6.0	Ductile Iron	130.0	-19.59	0.22	0.700
P-80	156	J-74	J-22	6.0	Ductile Iron	130.0	-27.23	0.31	0.700
P-81	449	J-23	J-75	6.0	Ductile Iron	130.0	168.12	1.91	0.850
P-82	587	J-75	J-76	6.0	Ductile Iron	130.0	4.82	0.05	1.350
P-83	244	J-75	J-77	6.0	Ductile Iron	130.0	28.18	0.32	0.700
P-84	379	J-77	J-78	6.0	Ductile Iron	130.0	19.68	0.22	0.700
P-85	342	J-24	J-79	6.0	Ductile Iron	130.0	13.57	0.15	1.200
P-86	508	J-79	J-80	6.0	Ductile Iron	130.0	4.41	0.05	0.900
P-87	541	J-80	J-81	6.0	Ductile Iron	130.0	-4.75	0.05	1.200
P-88	323	J-81	J-24	6.0	Ductile Iron	130.0	-13.91	0.16	0.700
P-89	413	J-27	J-82	6.0	Ductile Iron	130.0	28.60	0.32	1.000
P-90	308	J-82	J-83	6.0	Ductile Iron	130.0	25.74	0.29	1.150
P-91	303	J-83	J-84	6.0	Ductile Iron	130.0	22.88	0.26	1.100
P-92	287	J-84	J-85	6.0	Ductile Iron	130.0	20.02	0.23	0.750

FlexTable: Pipe Table (Proposed Water Layout (101012).wtg)

Current Time: 0.000 hours

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Minor Loss Coefficient (Derived)
P-93	317	J-85	J-86	6.0	Ductile Iron	130.0	11.44	0.13	0.750
P-94	431	J-86	J-87	6.0	Ductile Iron	130.0	8.58	0.10	0.850
P-95	329	J-87	J-88	6.0	Ductile Iron	130.0	5.72	0.06	0.800
P-96	360	J-88	J-89	6.0	Ductile Iron	130.0	3.06	0.03	1.200
P-97	392	J-89	J-88	6.0	Ductile Iron	130.0	0.20	0.00	1.400
P-98	637	J-85	J-90	6.0	Ductile Iron	130.0	5.72	0.06	1.100
P-99	524	J-30	J-91	6.0	Ductile Iron	130.0	9.84	0.11	0.800
P-100	501	J-91	J-92	6.0	Ductile Iron	130.0	6.56	0.07	0.800
P-101	432	J-92	J-93	6.0	Ductile Iron	130.0	3.28	0.04	0.700
P-102	451	J-30	J-94	6.0	Ductile Iron	130.0	7.44	0.08	0.800
P-103	352	J-94	J-95	6.0	Ductile Iron	130.0	3.72	0.04	0.850
P-104	291	J-95	J-96	6.0	Ductile Iron	130.0	1.86	0.02	1.000
P-105	364	J-94	J-97	6.0	Ductile Iron	130.0	1.86	0.02	0.800
P-106	239	J-31	J-98	6.0	Ductile Iron	130.0	1.86	0.02	0.700
P-107	349	J-15	J-99	6.0	Ductile Iron	130.0	18.34	0.21	0.700
P-108	331	J-16	J-100	6.0	Ductile Iron	130.0	10.70	0.12	1.150
P-109	20	J-1	H-1	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-110	20	J-2	H-2	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-111	20	J-3	H-3	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-112	20	J-4	H-4	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-113	20	J-5	H-5	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-114	20	J-6	H-6	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-115	20	J-7	H-7	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-116	20	J-8	H-8	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-117	20	J-9	H-9	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-118	20	J-10	H-10	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-119	20	J-11	H-11	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-120	20	J-12	H-12	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-121	20	J-13	H-13	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-122	20	J-14	H-14	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-123	20	J-15	H-15	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-124	20	J-16	H-16	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-125	20	J-17	H-17	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-126	20	J-18	H-18	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-127	20	J-19	H-19	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-128	20	J-20	H-20	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-129	20	J-21	H-21	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-130	20	J-22	H-22	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-131	20	J-23	H-23	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-132	20	J-24	H-24	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-133	20	J-25	H-25	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-134	20	J-26	H-26	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-135	20	J-27	H-27	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-136	20	J-28	H-28	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-137	20	J-29	H-29	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-138	20	J-30	H-30	6.0	Ductile Iron	130.0	0.00	0.00	2.040

FlexTable: Pipe Table (Proposed Water Layout (101012).wtg)

Current Time: 0.000 hours

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Minor Loss Coefficient (Derived)
P-139	20	J-32	H-31	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-140	20	J-31	H-32	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-141	20	J-33	H-33	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-142	20	J-48	H-34	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-143	20	J-34	H-35	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-144	20	J-35	H-36	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-145	20	J-44	H-37	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-146	20	J-36	H-38	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-147	24	J-37	H-39	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-148	20	J-38	H-40	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-149	20	J-45	H-41	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-150	20	J-39	H-42	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-151	20	J-46	H-43	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-152	20	J-41	H-44	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-153	28	J-40	H-45	6.0	Ductile Iron	130.0	0.00	0.00	3.320
P-154	20	J-42	H-46	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-155	20	J-43	H-47	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-156	20	J-47	H-48	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-157	20	J-49	H-49	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-158	20	J-60	H-50	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-159	20	J-61	H-51	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-160	20	J-50	H-52	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-161	20	J-51	H-53	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-162	20	J-52	H-54	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-163	20	J-53	H-55	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-164	20	J-55	H-56	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-165	20	J-56	H-57	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-166	20	J-57	H-58	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-167	20	J-59	H-59	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-168	20	J-58	H-60	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-169	20	J-54	H-61	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-170	20	J-62	H-63	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-171	20	J-65	H-64	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-172	20	J-66	H-62	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-173	20	J-63	H-65	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-174	20	J-64	H-66	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-175	20	J-67	H-67	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-176	20	J-68	H-68	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-177	35	J-70	H-69	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-178	20	J-73	H-70	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-179	20	J-74	H-71	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-180	20	J-71	H-72	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-181	20	J-72	H-73	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-182	20	J-75	H-74	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-183	20	J-77	H-75	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-184	20	J-78	H-76	6.0	Ductile Iron	130.0	0.00	0.00	2.040

FlexTable: Pipe Table (Proposed Water Layout (101012).wtg)

Current Time: 0.000 hours

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Minor Loss Coefficient (Derived)
P-185	20	J-76	H-77	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-186	20	J-79	H-78	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-187	20	J-80	H-79	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-188	20	J-81	H-80	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-189	20	J-82	H-81	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-190	20	J-83	H-82	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-191	20	J-84	H-83	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-192	20	J-85	H-84	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-193	20	J-90	H-85	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-194	20	J-86	H-86	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-195	20	J-87	H-87	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-196	20	J-88	H-88	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-197	20	J-89	H-89	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-198	20	J-91	H-90	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-199	20	J-92	H-91	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-200	20	J-93	H-92	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-201	20	J-94	H-93	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-202	20	J-97	H-94	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-203	20	J-95	H-95	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-204	20	J-96	H-96	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-205	20	J-98	H-97	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-206	20	J-99	H-98	6.0	Ductile Iron	130.0	0.00	0.00	2.040
P-207	20	J-100	H-99	6.0	Ductile Iron	130.0	0.00	0.00	2.040

HUDSON VALLEY WINERY - PEAK DAY WATERCAD OUTPUT (PROPOSED WATER LINE)

FlexTable: Isolation Valve Table (Proposed Water Layout (101012).wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Is Operable?	Diameter (Valve) (in)	Referenced Pipe	Minor Loss Coefficient
ISO-1	345.31	True	12.0	P-3	0.390
ISO-2	349.54	True	12.0	P-4	0.390
ISO-3	0.00	True	12.0	P-6	0.390
ISO-4	310.39	True	12.0	P-7	0.390
ISO-5	302.17	True	12.0	P-9	0.390
ISO-6	258.99	True	12.0	P-12	0.390
ISO-7	216.10	True	12.0	P-14	0.390
ISO-8	201.09	True	12.0	P-15	0.390
ISO-9	301.00	True	10.0	P-16	0.390
ISO-10	278.07	True	10.0	P-17	0.390
ISO-11	301.59	True	10.0	P-18	0.390
ISO-12	323.36	True	10.0	P-19	0.390
ISO-13	328.48	True	10.0	P-20	0.390
ISO-14	321.08	True	10.0	P-21	0.390
ISO-15	310.00	True	10.0	P-22	0.390
ISO-16	297.59	True	10.0	P-23	0.390
ISO-17	290.11	True	10.0	P-24	0.390
ISO-18	286.00	True	10.0	P-25	0.390
ISO-19	267.80	True	10.0	P-27	0.390
ISO-20	254.00	True	10.0	P-28	0.390
ISO-21	288.34	True	10.0	P-30	0.390
ISO-22	298.64	True	10.0	P-31	0.390
ISO-23	251.75	True	10.0	P-33	0.390
ISO-24	216.10	True	10.0	P-34	0.390
ISO-25	291.90	True	6.0	P-107	0.390
ISO-26	280.32	True	6.0	P-108	0.390
ISO-27	200.48	True	6.0	P-35	0.390
ISO-28	309.47	True	6.0	P-36	0.390
ISO-29	314.00	True	6.0	P-46	0.390
ISO-30	320.68	True	6.0	P-38	0.390
ISO-31	329.23	True	6.0	P-40	0.390
ISO-32	328.14	True	6.0	P-48	0.390
ISO-33	330.64	True	6.0	P-41	0.390
ISO-34	332.00	True	6.0	P-49	0.390
ISO-35	332.00	True	6.0	P-44	0.390
ISO-36	125.22	True	6.0	P-50	0.390
ISO-37	334.64	True	6.0	P-45	0.390
ISO-38	315.78	True	6.0	P-47	0.390
ISO-39	321.34	True	6.0	P-51	0.390
ISO-40	328.97	True	6.0	P-66	0.390
ISO-41	333.70	True	6.0	P-69	0.390
ISO-42	336.59	True	6.0	P-70	0.390
ISO-43	332.91	True	6.0	P-66	0.390
ISO-44	338.38	True	6.0	P-68	0.390

FlexTable: Isolation Valve Table (Proposed Water Layout (101012).wtg)

Current Time: 0.000 hours

Label	Elevation (ft)	Is Operable?	Diameter (Valve) (in)	Referenced Pipe	Minor Loss Coefficient
ISO-45	320.00	True	6.0	P-52	0.390
ISO-46	329.57	True	6.0	P-65	0.390
ISO-47	330.62	True	6.0	P-64	0.390
ISO-48	354.00	True	6.0	P-58	0.390
ISO-49	352.18	True	6.0	P-53	0.390
ISO-50	366.35	True	6.0	P-54	0.390
ISO-51	367.16	True	6.0	P-61	0.390
ISO-52	359.49	True	6.0	P-55	0.390
ISO-53	369.90	True	6.0	P-63	0.390
ISO-54	338.94	True	6.0	P-56	0.390
ISO-55	339.62	True	6.0	P-57	0.390
ISO-56	306.34	True	6.0	P-71	0.390
ISO-57	293.44	True	6.0	P-73	0.390
ISO-58	290.99	True	6.0	P-74	0.390
ISO-59	293.51	True	6.0	P-78	0.390
ISO-60	268.00	True	6.0	P-77	0.390
ISO-61	299.09	True	6.0	P-80	0.390
ISO-62	287.61	True	6.0	P-81	0.390
ISO-63	279.07	True	6.0	P-83	0.390
ISO-64	285.67	True	6.0	P-82	0.390
ISO-65	285.23	True	6.0	P-85	0.390
ISO-66	280.24	True	6.0	P-87	0.390
ISO-67	253.13	True	6.0	P-89	0.390
ISO-68	249.01	True	6.0	P-90	0.390
ISO-69	303.65	True	6.0	P-93	0.390
ISO-70	284.35	True	6.0	P-98	0.390
ISO-71	285.38	True	6.0	P-92	0.390
ISO-72	295.64	True	6.0	P-95	0.390
ISO-73	280.85	True	6.0	P-97	0.390
ISO-74	296.50	True	6.0	P-99	0.390
ISO-75	266.00	True	6.0	P-100	0.390
ISO-76	297.74	True	6.0	P-102	0.390
ISO-77	282.00	True	6.0	P-103	0.390
ISO-78	288.42	True	6.0	P-105	0.390
ISO-79	253.00	True	6.0	P-106	0.390

HUDSON VALLEY WINERY - PEAK DAY WATERCAD OUTPUT (PROPOSED WATER LINE)

Fire Flow Node FlexTable: Fire Flow Report (Proposed Water Layout (101012).wtg)

Current Time: 0.000 hours

Label	Emitter Coefficient (gpm/psi^n)	Fire Flow (Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/ Minimum Pressure (System)
H-1	150.000	858.03	20.0	20.0	H-58
H-2	150.000	828.06	20.0	20.0	H-58
H-3	150.000	799.46	20.0	20.0	H-58
H-4	150.000	773.48	20.0	20.0	H-58
H-5	150.000	750.03	20.0	20.0	H-58
H-6	150.000	730.02	20.0	20.0	H-58
H-7	150.000	714.95	20.0	20.0	H-58
H-8	150.000	714.92	20.0	20.0	H-58
H-9	150.000	714.87	20.0	20.0	H-58
H-10	150.000	715.37	20.0	20.0	H-58
H-11	150.000	715.37	20.0	20.0	H-58
H-12	150.000	715.37	20.0	20.0	H-58
H-13	150.000	715.37	20.0	20.0	H-58
H-14	150.000	715.37	20.0	20.0	H-58
H-15	150.000	696.70	20.0	20.0	H-58
H-16	150.000	662.63	20.0	20.0	H-58
H-17	150.000	625.29	20.0	20.0	H-58
H-18	150.000	603.08	20.0	20.0	H-58
H-19	150.000	580.62	20.0	20.0	H-58
H-20	150.000	566.87	20.0	20.0	H-58
H-21	150.000	566.80	20.0	20.0	H-58
H-22	150.000	566.79	20.0	20.0	H-58
H-23	150.000	566.79	20.0	20.0	H-58
H-24	150.000	566.78	20.0	20.0	H-58
H-25	150.000	566.77	20.0	20.0	H-58
H-26	150.000	567.20	20.0	20.0	H-58
H-27	150.000	714.79	20.0	20.0	H-58
H-28	150.000	715.01	20.0	20.0	H-58
H-29	150.000	714.73	20.0	20.0	H-58
H-30	150.000	715.05	20.0	20.0	H-58
H-31	150.000	714.89	20.0	20.0	H-58
H-32	150.000	715.37	20.0	20.0	H-58
H-33	150.000	603.24	20.0	20.0	H-58
H-34	150.000	603.07	20.0	20.0	H-58
H-35	150.000	603.55	20.0	20.0	H-58
H-36	150.000	603.72	20.0	20.0	H-58
H-37	150.000	603.61	20.0	20.0	H-58
H-38	150.000	603.78	20.0	20.0	H-58
H-39	150.000	603.10	20.0	20.0	H-43
H-40	150.000	591.64	20.0	20.0	H-43
H-41	150.000	591.61	20.0	20.0	H-43
H-42	150.000	571.93	20.0	20.0	H-43

Fire Flow Node FlexTable: Fire Flow Report (Proposed Water Layout (101012).wtg)

Current Time: 0.000 hours

Label	Emitter Coefficient (gpm/psi^n)	Fire Flow (Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/ Minimum Pressure (System)
H-43	150.000	531.56	20.0	21.2	J-46
H-44	150.000	589.68	20.0	20.0	H-43
H-45	150.000	578.32	20.0	20.3	H-43
H-46	150.000	601.30	20.0	20.0	H-43
H-47	150.000	603.67	20.0	20.0	H-58
H-48	150.000	580.23	20.0	20.0	J-47
H-49	150.000	495.76	20.0	20.0	H-58
H-50	150.000	495.51	20.0	20.0	H-58
H-51	150.000	495.69	20.0	20.0	H-58
H-52	150.000	439.97	20.0	20.0	H-58
H-53	150.000	419.26	20.0	20.0	H-58
H-54	150.000	423.58	20.0	20.1	H-58
H-55	150.000	427.40	20.0	20.0	H-58
H-56	150.000	427.57	20.0	20.0	H-58
H-57	150.000	427.26	20.0	20.1	H-58
H-58	150.000	384.25	20.0	20.9	J-57
H-59	150.000	388.39	20.0	20.0	H-58
H-60	150.000	388.86	20.0	20.0	H-58
H-61	150.000	433.28	20.0	20.0	H-58
H-62	150.000	580.35	20.0	20.0	H-58
H-63	150.000	580.45	20.0	20.0	H-58
H-64	150.000	580.31	20.0	20.0	H-58
H-65	150.000	580.74	20.0	20.0	H-58
H-66	150.000	580.83	20.0	20.0	H-58
H-67	150.000	566.86	20.0	20.0	H-58
H-68	150.000	566.83	20.0	20.0	H-58
H-69	150.000	566.47	20.0	20.0	H-58
H-70	150.000	566.90	20.0	20.0	H-58
H-71	150.000	566.87	20.0	20.0	H-58
H-72	150.000	566.82	20.0	20.0	H-58
H-73	150.000	566.78	20.0	20.0	H-58
H-74	150.000	566.53	20.0	20.0	H-58
H-75	150.000	566.60	20.0	20.0	H-58
H-76	150.000	566.80	20.0	20.0	H-58
H-77	150.000	566.53	20.0	20.0	H-58
H-78	150.000	566.80	20.0	20.0	H-58
H-79	150.000	566.90	20.0	20.0	H-58
H-80	150.000	566.81	20.0	20.0	H-58
H-81	150.000	715.10	20.0	20.0	H-58
H-82	150.000	704.23	20.0	20.0	H-85
H-83	150.000	613.77	20.0	20.0	H-85
H-84	150.000	550.87	20.0	20.0	H-85
H-85	150.000	457.71	20.0	22.0	J-90

Fire Flow Node FlexTable: Fire Flow Report (Proposed Water Layout (101012).wtg)

Current Time: 0.000 hours

Label	Emitter Coefficient (gpm/psi^n)	Fire Flow (Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/ Minimum Pressure (System)
H-86	150.000	550.87	20.0	20.0	H-85
H-87	150.000	502.20	20.0	23.1	H-85
H-88	150.000	509.26	20.0	20.0	H-87
H-89	150.000	509.26	20.0	20.0	H-87
H-90	150.000	714.87	20.0	20.0	H-58
H-91	150.000	714.76	20.0	20.0	H-58
H-92	150.000	715.37	20.0	20.0	H-58
H-93	150.000	714.74	20.0	20.0	H-58
H-94	150.000	714.85	20.0	20.0	H-58
H-95	150.000	714.88	20.0	20.0	H-58
H-96	150.000	714.92	20.0	20.0	H-58
H-97	150.000	714.97	20.0	20.0	H-58
H-98	150.000	696.40	20.0	20.0	H-58
H-99	150.000	661.93	20.0	20.0	H-58