State of California
California Natural Resources Agency
DEPARTMENT OF WATER RESOURCES

CALIFORNIA AQUEDUCT HYDRAULIC MODEL DEVELOPMENT

December 2023

Cover photo by Renato Espinoza-Torres, HDR.
Check 17 structure with radial gates open.
November 14, 2017.

State of California
California Natural Resources Agency
DEPARTMENT OF WATER RESOURCES
Division of Engineering
California Aqueduct Subsidence Program

Sergio Escobar P.E. .... Acting Division Manager, DOE
Jeanne Kuttle P.E. ....Assistant Division Manager, DOE
Jesse Dillon P.E..CASP Program Manager

This report was prepared under the supervision of:

James Lopes P.E... CASP Deputy Program Manager
Renato Espinoza Torres P.E., CFM ....CASP Hydraulics Lead

By:

Charles A. Lintz P.E...CASP Lead Hydraulics Modeler
Renato Espinoza Torres P.E., CFM ....CASP Hydraulics Lead

*This report is the result of a much larger team of individuals both within the Department and those consulting for the Department. From each of us listed above, thank you to all those that contributed to the success of this project and your assistance in preparing this report.

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State of California
California Natural Resources Agency
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Division of Engineering

California Aqueduct Subsidence Program
Report Title

ENGINEERING CERTIFICATION

This report has been prepared under my direction as the professional engineer in direct responsible charge of the work, in accordance with the provisions of the Professional Engineers Act of the State of California.

Charles A. Lintz, Water Resources Engineer
HDR
Professional Civil Engineer No. 92271

6/30/2025

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ABBREVIATIONS AND ACRONYMS

1D	one-dimensional
af	acre-foot
Aqueduct	California Aqueduct
BVPP	Buena Vista Pumping Plant
CASP	California Aqueduct Subsidence Program
CASS	California Aqueduct Subsidence Study
cfs	cubic feet per second
CPP	Chrisman Pumping Plant
DAPP	Dos Amigos Pumping Plant
DOE	Division of Engineering
DWR	California Department of Water Resources
EPP	Edmonston Pumping Plant
HDR	HDR Engineering
HEC-RAS	Hydrologic Engineering Center River Analysis System
L21	2021 Towill LiDAR data
LAS files	LiDAR data files
LiDAR	light detection and ranging
NAD 27	North American Datum of 1927
NAVD	North American Vertical Datum
NGVD	National Geodetic Vertical Datum
PS23	2023 Precise Survey Section
SJV	San Joaquin Valley
SLFD	San Luis Field Division
SWP	State Water Project
TPP	Teerink Pump Plant
USACE	United States Army Corps of Engineers
USBR	US Bureau of Reclamation
USGS	United States Geological Survey

1.0 Introduction

1.1 Purpose and Scope

The purpose of this report is to document the development of the California Aqueduct Hydraulic Model L21PS23-V6.2-01[1] (the Model), which is a one-dimensional (1D) HEC-RAS hydraulic model. The Model extends from the Dos Amigos Pumping Plant (DAPP) to the forebay of the Edmonston Pumping Plant (EPP). This segment of the California Aqueduct (hereinafter, Aqueduct) has experienced significant subsidence-induced deformations in its elevation profile; this condition has caused operational challenges. Particularly, the ability to peak flows through the Aqueduct during times of high-water demand has been compromised. Aqueduct operators are not able to maintain the water surface levels necessary at high flow rates and keep the required amount of freeboard to the top of liner for safety.

The Model has been applied to calculate hydraulic conveyance capacity. This is defined as the maximum steady flow rate at which water can be conveyed through an Aqueduct pool while meeting a set of specified operational criteria (HDR, July 2023). The hydraulic conveyance capacity is determined using pump rules, check structure rules, and turnout rules that systematically progress to a solution given a set of criteria. These rule sets are interlinked to collectively estimate hydraulic conveyance capacity. The check structure rules perform the role of the operators, ensuring operational minimums are maintained for water delivery while also maintaining freeboard for safety. The turnout rules perform the role of water contractors and divert water through turnouts to create an ideal delivery pattern to maximize flow through the Aqueduct. The pump rules use the sum of water delivery through turnouts and conveyance through the main stem of the Aqueduct to supply the correct amount of water from Dos Amigos Pumping Plant to satisfy the water balance. The systematic method to calculate hydraulic conveyance capacity is discussed in detail in this report. The method has been applied to analyze current hydraulic conveyance capacity and the results are discussed in the California Aqueduct Hydraulic Conveyance Capacity Report.

This report aims to provide modelers and developers with technical insight into the model development process by detailing the data sources, parameters, methodologies, and algorithms employed in the Model's development. Specifically, this report describes the following:

- Data sources used to develop to the Model.
- Model features and parameters.

[1] Model naming notation. L21 stands for the 2021 LiDAR data collected by Towill Inc. PS23 stands for the 2023 survey conducted by DWR's Precise Survey Section. This is the year the model elevations reflect, and the dataset used to develop the elevations. V6.2-01 stands for HEC-RAS version 6.2 which is the version of HEC-RAS used to develop the Model.

- Simulated flow and operations.
- The Model's limitations and opportunities for enhancement.

1.2 Background

The Aqueduct is a key feature of the California State Water Project (SWP). Subsidence or sinking of the land surface due to underground changes has occurred along the Aqueduct over the last century. In the San Joaquin Valley (SJV), overdraft of groundwater resulted in up to 30 feet of subsidence from the 1920s to the 1960s (DWR 2017b). Part of the intended purpose of the Aqueduct, for which construction began in 1963, is to deliver surface water to the SJV so that groundwater withdrawals are reduced. Additional freeboard was built into the Aqueduct at some strategic locations beyond what would be needed for ongoing standard operations to allow for some residual subsidence to occur after construction (DWR 2017b).

SWP deliveries have been reduced during dry and critically dry years since construction of the Aqueduct was completed by the California Department of Water Resources (DWR) and the US Bureau of Reclamation (Reclamation) in 1967 (DWR 2017b). Groundwater withdrawals increased correspondingly during these years, which resulted in increased rates of subsidence (DWR 2017b). In areas along the Aqueduct, subsidence of up to 6 feet has occurred during the decades after 1967 (DWR 2017b), resulting in loss of conveyance capacity and reduced operational range, as well as increased maintenance, repair, and energy costs (DWR 2017b). During the drought of 2013 to 2016, some areas of the SJV experienced subsidence rates of nearly 1.25 inches/month, which is similar to subsidence rates observed prior to construction of the Aqueduct (DWR 2017b; 2019).

In 2017, DWR conducted the California Aqueduct Subsidence Study (hereinafter, 2017 CASS) to quantify the magnitude, location, and effects of subsidence on the Aqueduct. To conduct the investigations described in the 2017 CASS, a hydraulic model was developed using the United States Army Corps of Engineers (USACE) Hydrologic Engineering Center River Analysis System (HEC-RAS) software. The 2107 hydraulic model, which is documented in the 2017 CASS, was a precursor to the Model described in this report.

Completion of the 2017 CASS prompted additional questions, and new data to inform answers to those questions became available. As a result, in 2019 DWR published the CASS Supplemental Report (hereinafter, 2019 CASS Supplemental). The 2019 CASS Supplemental addressed the following topics:

- Land use within a 10-mile-wide corridor centered on the Aqueduct.
- Subsidence in the Lost Hills oil field, adjacent to the Aqueduct.
- Further hydraulic analyses using the 2019 CASS Supplemental version of the Model.

- Updates to survey data used in the 2017 CASS.
- Predictions of future subsidence based on 50 years of survey data collected along the Aqueduct.

Updates to the hydraulic model that were undertaken in support of the 2019 CASS Supplemental are documented in that report.

Since release of the 2019 CASS Supplemental, additional subsidence has continued to affect factors that influence Aqueduct operations, including the Aqueduct's hydraulic conveyance capacity, available freeboard, and turnout operations. As a result, DWR has conducted further investigations into the effects of subsidence on Aqueduct operations under an initiative called the California Aqueduct Subsidence Program (CASP). The purpose of the CASP is to develop and implement corrective and preventive measures to mitigate the effects of subsidence, while planning the cost-beneficial remediation of anticipated future subsidence of the Aqueduct. In so doing, the CASP intends to improve the resiliency of SWP water delivery via the Aqueduct. The SWP supplies water for drinking, irrigation, and environmental uses. While implementing corrective measures to restore cost beneficial capacity and operational flexibility of the Aqueduct to help meet future water and power needs of California for the next 50 to 100 years, the CASP is also evaluating and recommending preventive measures to minimize future subsidence.

The Model described in this report supports the CASP; in addition, it supports investigations into real-time and short-term challenges faced by Aqueduct operators. While built upon the base model used in the 2017 CASS and the 2019 CASS Supplemental, the Model described herein is essentially a new model. The Model includes the latest terrain data available at the time of this report, refined gate operations, geo-referenced line work, and additional geometric components such as critical overchutes, bridges, pumping plants, forebays, and concrete liner raises.

2.0 Model Features and Parameters

2.1 Model Overview

The Model includes approximately 207 miles of canal, along with the check structures, siphons, and pumping plants located within the Model extents. Table 2-1 provides a summary overview of the Model. The files that comprise the Model are listed in Table 6 in Appendix D.

Table 2-1. California Aqueduct Hydraulic Model Overview

Feature or Parameter (1)	Description (2)
General Model overview	HEC-RAS 1D model of the California Aqueduct.
Model name	California Aqueduct Hydraulic Model L21PS23-V6.2-01.
Software version	HEC-RAS v6.2, released March 2022.
Vertical datum	NAVD88
Horizontal datum	North American Datum of 1927 (NAD 27), State Plane – California IV.
Equation set	Finite Difference Matrix Solver (Skyline/Gaussian).
Model domain	The Model extends from the upstream end of Pool 14 (just downstream of DAPP) to the downstream end of Pool 40 (just upstream of EPP).
Major hydraulic features	• Four (4) pumping plants, represented by HEC-RAS pump stations (Dos Amigos, Buena Vista, Teerink, Chrisman; Dos Amigos PP is the upstream boundary). • 207 miles of canal, represented by 1,163 HEC-RAS cross sections. • 23 check structures, represented by HEC-RAS inline structures. • Aqueduct turnouts, represented by 147 HEC-RAS lateral structures.[2] • 12 bridges (including, overchutes, check 17 trunnion deck and one pipeline crossing).
1D channels	Four (4) reaches separated by inline pumping plants. The reaches include Pools 14 – 30, Pools 31 – 35, Pool 36, and Pools 37 – 40.
1D storage areas	One (1) storage area upstream of the Dos Amigos Pumping Plant. This feature is not a realistic representation of the DAPP forebay. The storage area[3] serves as the source of water provided to the Model and is included for Model functionality.
Manning's *n* values	Manning's 'n' roughness coefficients for the main channel were set to a value of 0.02. This is consistent with recommendations made by the DWR Division of Engineering (DOE) for current conditions (DWR, June 2017). Manning's roughness coefficients for concrete lined channels typically range from 0.011 to 0.027 depending on the smoothness of the finish (USACE, 2016).

[2] The lateral structure profiles do not accurately represent the elevations of the Aqueduct embankments. They are currently in the Model as a placeholder that may be modified to represent embankment overtopping and breaches. These features are currently used to divert water out of the Aqueduct.

[3] The forebay essentially has infinite storage (100,000,000,000 AF of storage). We need this volume to draw from when there are very long simulations.

Feature or Parameter (1)	Description (2)
Topography data	• 2021 LiDAR data collected for the San Joaquin Valley. • DWR annual field survey by Precise Survey Section (2021 & 2023 measurements).
Computation time step	The timestep that is applied is dependent on the simulation being run.
Simulation time window	The time window that is simulated is dependent on the simulation being run.

2.2 Model Extents

The sections of the Aqueduct most affected by subsidence are located within the DWR San Luis Field Division (SLFD) and San Joaquin Field Division (SJFD). These areas of subsidence are reflected in the Model, which extends from the Dos Amigos Pumping Plant (DAPP) (i.e., the upstream end of Pool 14, including the pumping plant) to the forebay of the Edmonston Pumping Plant (EPP) (i.e., the downstream end of Pool 40, excluding the pumping plant). Figure 2-1 shows the extents of the Model.

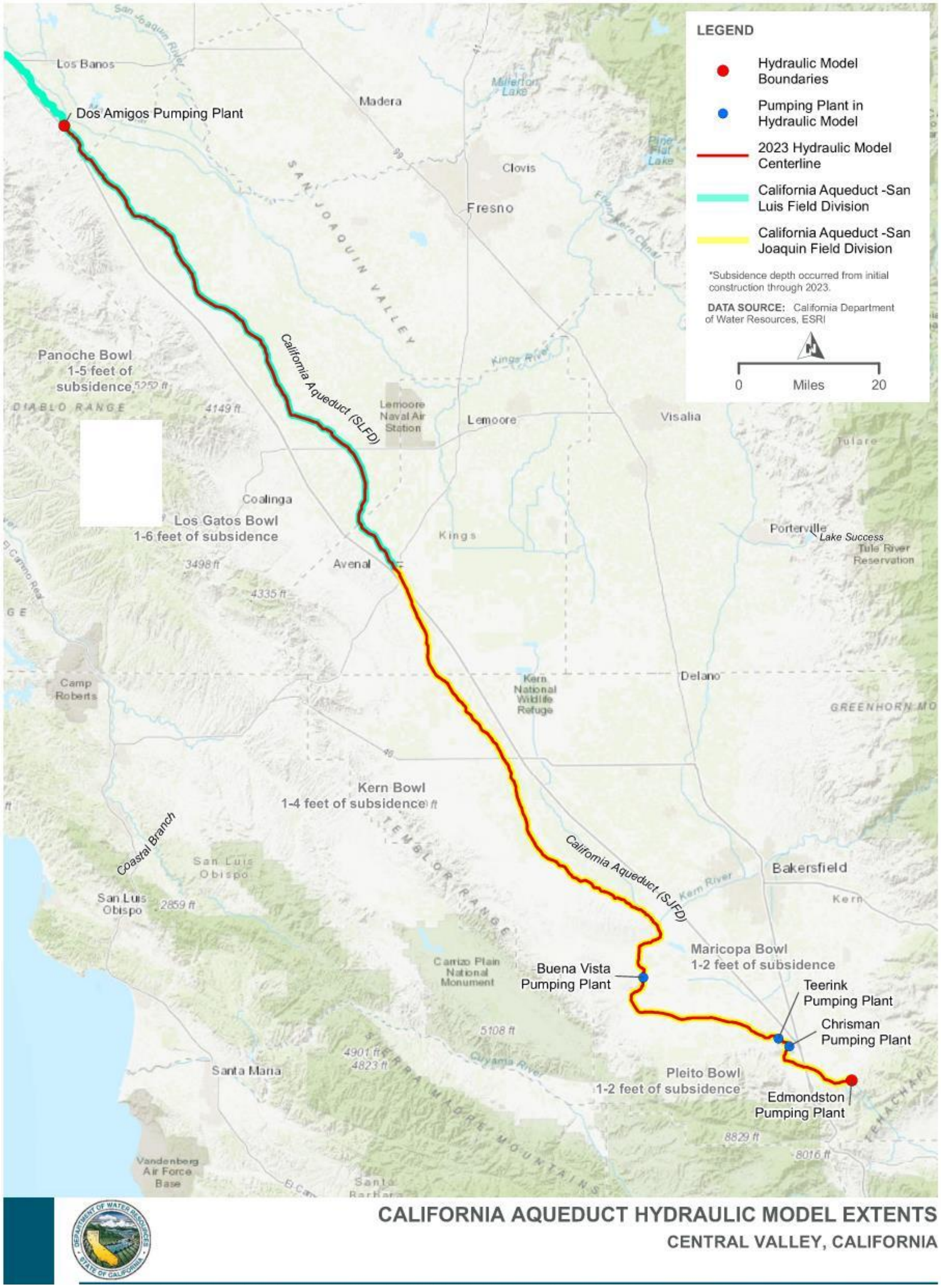

Figure 2-1. California Aqueduct Hydraulic Model Extents

2.3 Data Sources Used in Model Development

Table 2-2 describes data sources used in the Model's development process.

Table 2-2. Data Sources Used in California Aqueduct Hydraulic Model Development

Data Source	Description	How Used in Development of Model
2021 San Joaquin Valley Light Detection and Ranging (LiDAR) classified point cloud	Aerial LiDAR data were collected by Towill Inc., DWR's aerial mapping consultant, over the San Joaquin Valley in 2021. NV5, an engineering and consulting company, processed the raw data and generated a classified point cloud. The classes include default, ground, and bridges. Point density is approximately 20 points per square meter. The LiDAR point cloud data were delivered in NAD83(2011) Epoch 2021.20, California State Plane Zone 4, NAVD88 with Geoid 18, US feet.	DWR Geomatics used this dataset to create 1-foot bare-earth DEM surfaces of the San Joaquin Valley.
1-foot bare-earth DEM surface of the San Joaquin Valley generated from the 2021 San Joaquin Valley Light Detection and Ranging (LiDAR) point cloud	The DEM corresponds to a subset of the LiDAR and not the entire point cloud. The data are considered preliminary pending USGS review and are still being reviewed by DWR to validate they meet project requirements and project specifications. However, Towill Inc., has cleared this dataset to meet project requirements and specifications. The coordinate reference system of the DEM is NAD83(2011) Epoch 2021.20, California State Plane Zone 4, NAVD88 with Geoid 18, US feet.	The DEM was used as the underlying dataset to delineate the 2021 Aqueduct Top of Liner Feature Class.
2021 San Joaquin Valley LiDAR Top of Liner Feature Class	The Aqueduct top of liner was digitized into a GIS feature class by DWR's DOE Geomatics Branch. The 2021 San Joaquin Valley LiDAR DEM was used as the underlying dataset to delineate this feature class. The feature class includes multiple polylines along the top of liner for each Aqueduct pool, accompanied by points established at 10-foot intervals along these polylines. The feature class does not delineate check structures or siphon alignments.	The polylines of the feature class were imported in the Model as banklines and used to calculate cross section top widths. The points of the feature class were used to extract elevations from the 2021 San Joaquin Valley LiDAR DEM. The points were then used to create the 2021 San Joaquin Valley LiDAR Top of Liner Elevation Profiles (see section 3.1.3).

Data Source	Description	How Used in Development of Model
Towill San Joaquin LiDAR Project Geodetic Control Report	This report (Towill, 2021) includes survey results for 233 non-vegetated checkpoints and 160 vegetated checkpoints.	This report was used to verify the elevation of some low points in the top of liner elevations from the 2021 San Joaquin Valley Top of Liner Elevation Profiles. Adjustments to the Model cross sections top-of-liner elevations were made in favor of this report where elevation discrepancies greater than 0.5 feet were observed.
2020 California Aqueduct Bathymetric Survey	Raw LiDAR data files (LAS files) were provided by DWR DOE Geomatics Branch from a bathymetric survey done along the Aqueduct. Multibeam Sonar was collected with an Unmanned Survey Vessel (USV) by DWR DOE Geodetic Branch. The data were processed by the DWR DOE Geodetic Branch into a classified point cloud file that was converted to a 3D terrain surface. The coordinate reference system of the data used by HDR (pools 30, 35, 36, and 40) is NAD83(2011) Epoch 2020.4358, California State Plane Zone 5, NAVD88 with Geoid 12B, US feet.	These data were used to create cross sections at pumping plant forebays in the Model.
California Aqueduct Annual Survey from the Precise Survey Section	These data are in a Microsoft Excel file developed by the DWR Precise Survey Branch containing annual topographic survey measurements at various locations along the Aqueduct. These locations include top-of-liner, check structures decks, stilling wells and other key features.	These data were used to calculate subsidence along the Aqueduct between 2021 and 2023. The data were also used to confirm check structure elevations in the Model.
California Aqueduct Plan Drawings	These files provided by DWR DOE show the original 1965 design, dimensions, and details of the Aqueduct and appurtenant features. Details include typical canal sections, check structures, siphons, overchutes, bridges, turnouts, forebays and pumping plants.	These drawings were used to determine the Model cross section dimensions.

2.4 Model Geometry Features

2.4.1 Horizontal Projection

The Model line work is georeferenced and projected using the North American Datum of 1927 (NAD 27), State Plane – California IV. The line work was processed in Arc-GIS, geo-referenced using Geo-RAS, and then imported into HEC-RAS.

2.4.2 Model Elevation Data

The Model elevations are referenced to the NAVD88 vertical datum.

2.4.3 Top of Liner Elevations

2.4.3.1 Model Elevations Set Using 2021 San Joaquin Valley LiDAR Top of Liner Elevation Profiles

Model elevations were initially set using the 2021 San Joaquin Valley LiDAR Top of Liner Elevation Profiles. In particular, the cross-section bank stations, which represent the top of liner elevations, were set using the top-of-liner points. The Model cross sections do not line up exactly with the points, which were provided every ten feet along the profile of the Aqueduct. The elevations from the 2021 San Joaquin Valley LiDAR Top of Liner Elevation Profiles dataset were linearly interpolated based on milepost stationing to calculate the top of liner elevations at the mileposts corresponding to Model cross sections. This process was implemented for both the east bank and west bank (i.e., left and right top of liner) independently and produce top of liner elevations for both banks at each cross section.

The west bank and east bank top-of-liner elevations are not equal along the length of the canal. The maximum difference between west and east bank top of liner elevations observed in the Model is 1.86 feet. This occurs in Pool 17 at Milepost 132.8125. This difference is due to a liner raise done on the east embankment that was not done on the west embankment. However, not all the elevation differences between the west and east bank top of liner elevations are due to liner raises. In Pool 17 at Milepost 132.1660 a difference of 1.68 feet is observed between west and east bank top of liner elevations. This is the maximum difference that occurs along the Aqueduct that is not due to a one-sided liner raise, but some other type of deformation.

2.4.3.2 Refinements to the Model Cross Section Elevations to Account for Recent Subsidence

The elevation data used to develop the Model geometry elevations were derived from LiDAR collected in 2021. To estimate the amount of subsidence that took place along the Aqueduct between 2021 and 2023, field surveyed elevations from 2021 were compared against field surveyed elevations from 2023. Due to the sparse density of survey measurements from the Precise Survey Section, the calculated subsidence at the surveyed locations was linearly interpolated to develop a subsidence profile along the Aqueduct and to estimate the subsidence at the mileposts corresponding to Model cross sections. This subsidence profile was added to the Model cross section elevations to convert from 2021 elevations to 2023 elevations. These calculations have been provided under separate cover as a Microsoft Excel file; this is Appendix A to this report.

2.4.3.3 Manual Elevation Adjustments Due to Terrain Anomalies

Manual elevation adjustments at select locations were applied due to terrain anomalies caused by the processing of the 2021 LiDAR data or inaccurate representations of the top of liner. Anomalies in the terrain occur due to removal of non-ground points caused by structures in the LiDAR dataset. These occur near structures such as bridges or overchutes. Inaccurate representations of the top of liner can also occur near turnouts. The LiDAR may show dips where the elevations should really be represented by the turnout wingwalls and headwall. Figure 2-2 through Figure 2-5 show typical locations where manual elevation adjustments are necessary due to terrain anomalies and inaccuracies.

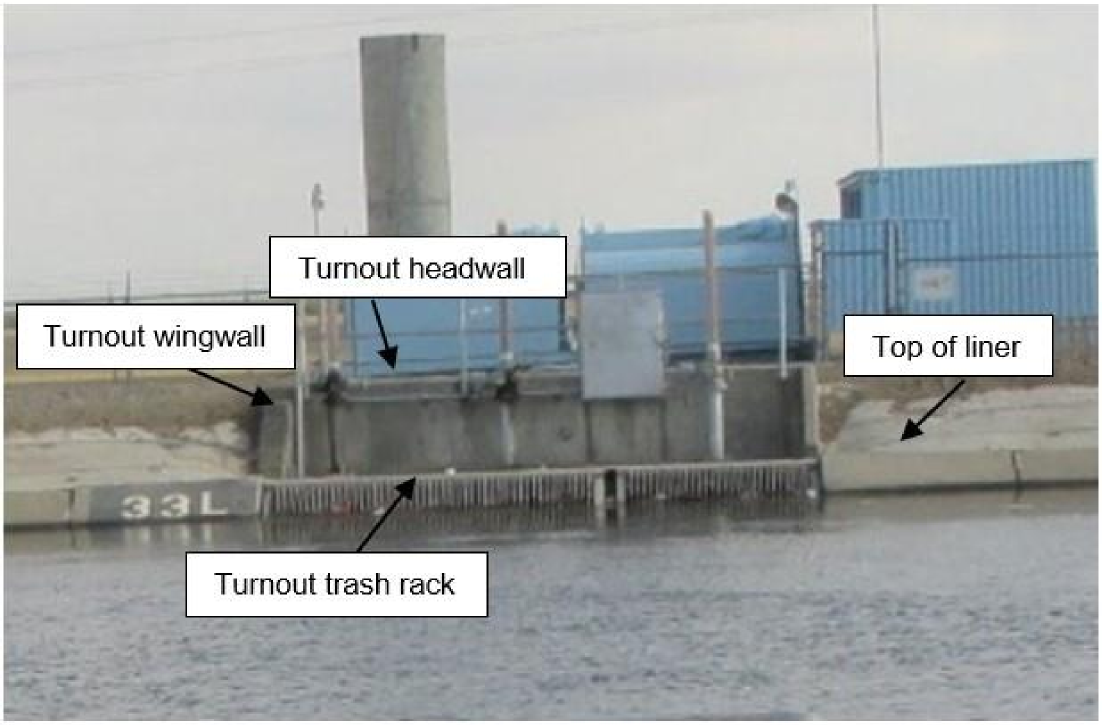

Figure 2-2. Aqueduct Turnout Near MP 160.45
(Trash Rack, Head Wall, Wing Wall, Top of Concrete Liner)

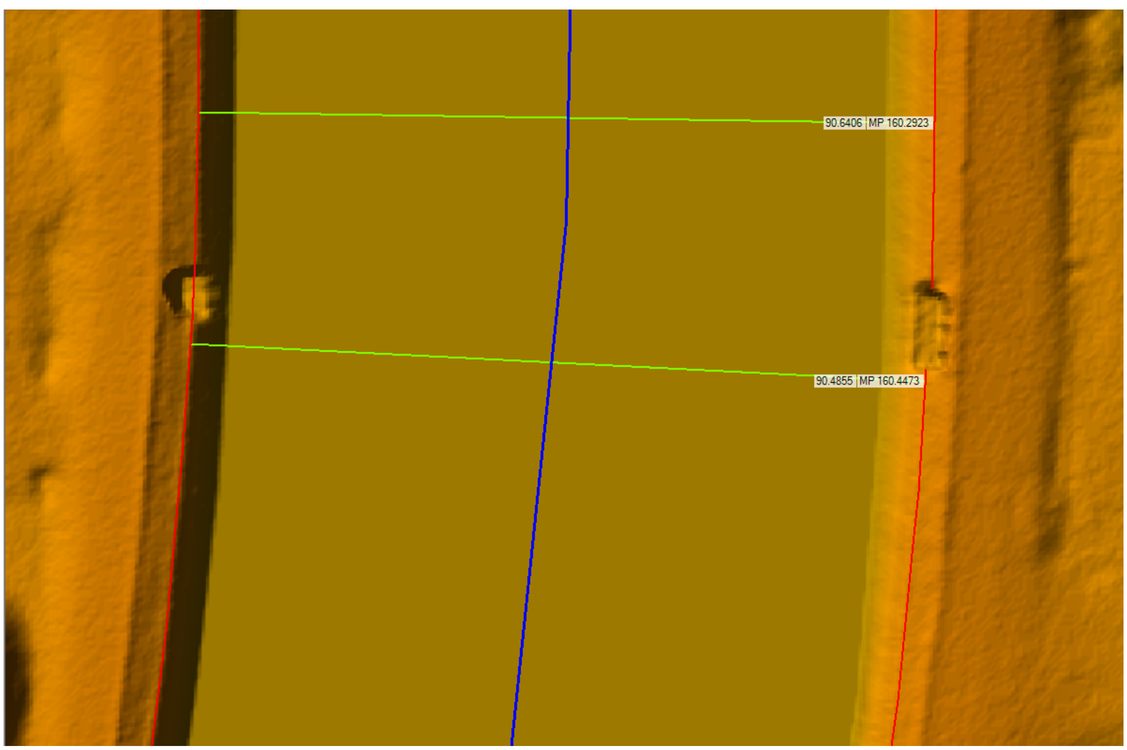

Figure 2-3. Aqueduct Turnout Near MP 160.45 DEM Representation
(Inaccurate Dip in Top of Liner Profile)

Figure 2-4. Aqueduct Overchute Near MP 235.07

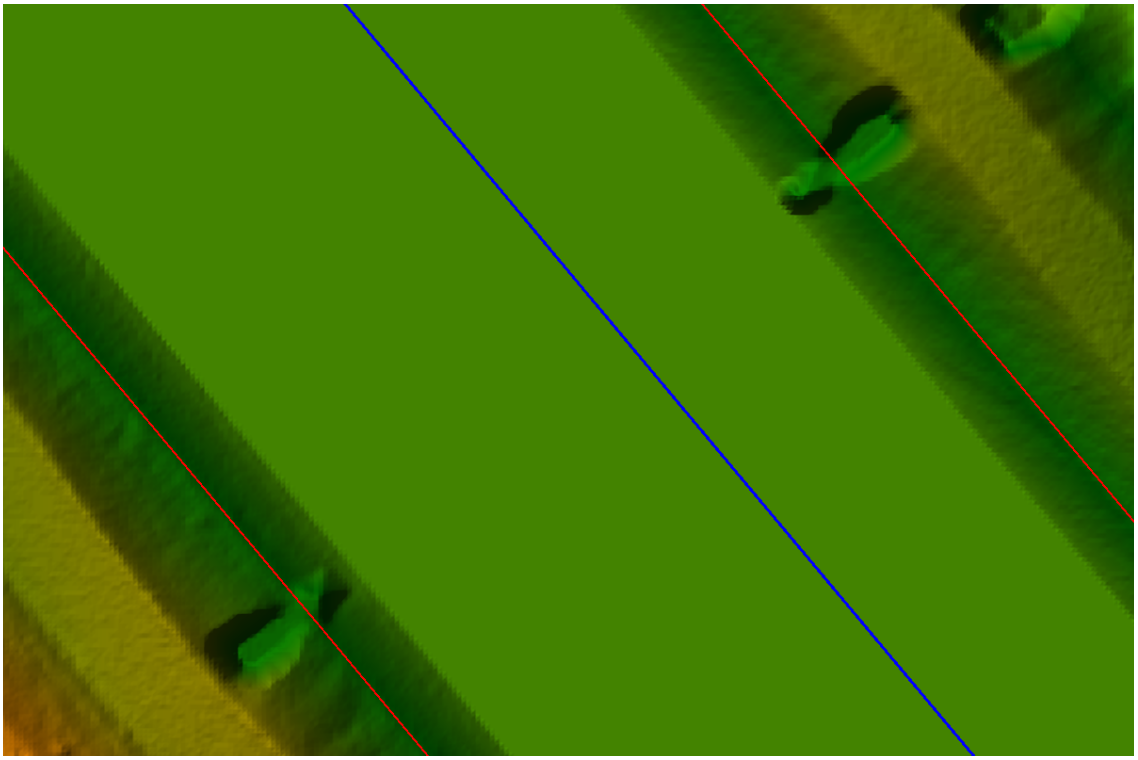

Figure 2-5. Aqueduct Overchute Near MP 235.07 DEM Representation (Terrain Anomaly Due to Removal of Non-ground Feature)

2.4.4 Cross Sections

2.4.4.1 Overview of Model Cross Sections

The Aqueduct is represented in the Model by vertical cross section slices that are positioned perpendicular to the flow direction in the canal. The cross sections are placed at specific locations along the Aqueduct and the canal dimensions at these locations are defined to determine how water flows through these sections. There are a total of 1,163 cross sections in the Model from DAPP to EPP. Most of these cross sections represent the trapezoidal canal of the Aqueduct. A smaller subset of these represents the rectangular channel approaching at check structures, siphons, or pump station forebays. Details about Model cross section elevations and dimensions have been provided under separate cover as a Microsoft Excel file; this file is Appendix D to this report.

2.4.4.2 Manning's n Coefficient for Main Channel

Manning's 'n' roughness coefficients for the main channel were set to a value of 0.02. This is consistent with DWR recommendations for current conditions (DWR, 2017). Although a roughness coefficient of 0.02 may be high for concrete, it was deemed reasonable for the Aqueduct due to sediment/debris deposition and canal lining damage that have occurred since construction. Manning's roughness coefficients for concrete lined channels typically range from 0.011 to 0.027 depending on the smoothness of the finish (USACE, 2016).

2.4.4.3 Cross Section Spacing

Cross section spacing is typically selected based on the characteristics of the channel of interest. Cross sections are laid out to capture variations in the channel which may include widening, narrowing, bends, changes in slope, or depth. The Aqueduct is a generally uniform channel which allows for large distances between cross sections. Cross sectional spacing in the Model varies from tens of feet to over a mile depending on the detail needed or features in a specific section of the Aqueduct. Examples of rapid geometry changes include contractions, expansions, and elevation changes.

2.4.4.4 Trapezoidal Cross Section Geometry

Additional datasets were used to construct the geometry of the trapezoidal cross sections. The 2021 San Joaquin Valley Top of Liner Feature Class polylines were imported as bank lines in the Model and used to calculate the top width from the west side top of liner to the east side top of liner along the Aqueduct. The polylines include all the liner raises done along the Aqueduct through 2021.

As discussed in Section 2.4.3.1, the west bank and east bank top-of-liner elevations are not equal along the Aqueduct. Depending on the deformation mode, the actual cross section in the field could be slightly rotated, differentially subsided, have different side slopes on the east and west embankment due to embankment settlement, or some other unidentified deformation. Since there currently is insufficient information to establish the source of the elevation differences, it was assumed that the cross-section invert would remain horizontal in the Model. The design side slopes were projected down from the west and east bank top of liner elevations until the design base width was achieved. The Aqueduct plan drawings (USBR 1963 & DWR 1965) were used to establish the side slopes and base widths of the cross sections along the canal. (Base widths and slide slopes can vary from pool to pool along the Aqueduct.) Invert elevations were calculated with Microsoft Excel’s Solver optimization tool using the calculated top widths, design base widths, design side slopes, and west/east bank liner elevations.

Potential differences in the cross-sectional area between the Model and existing field conditions may be due to assumptions made in constructing the Model. Once additional knowledge about the canal deformation modes is gained, the Model cross sections can be adjusted to reflect actual field conditions.

Figure 2-6 displays a typical trapezoidal cross section represented in the Model.

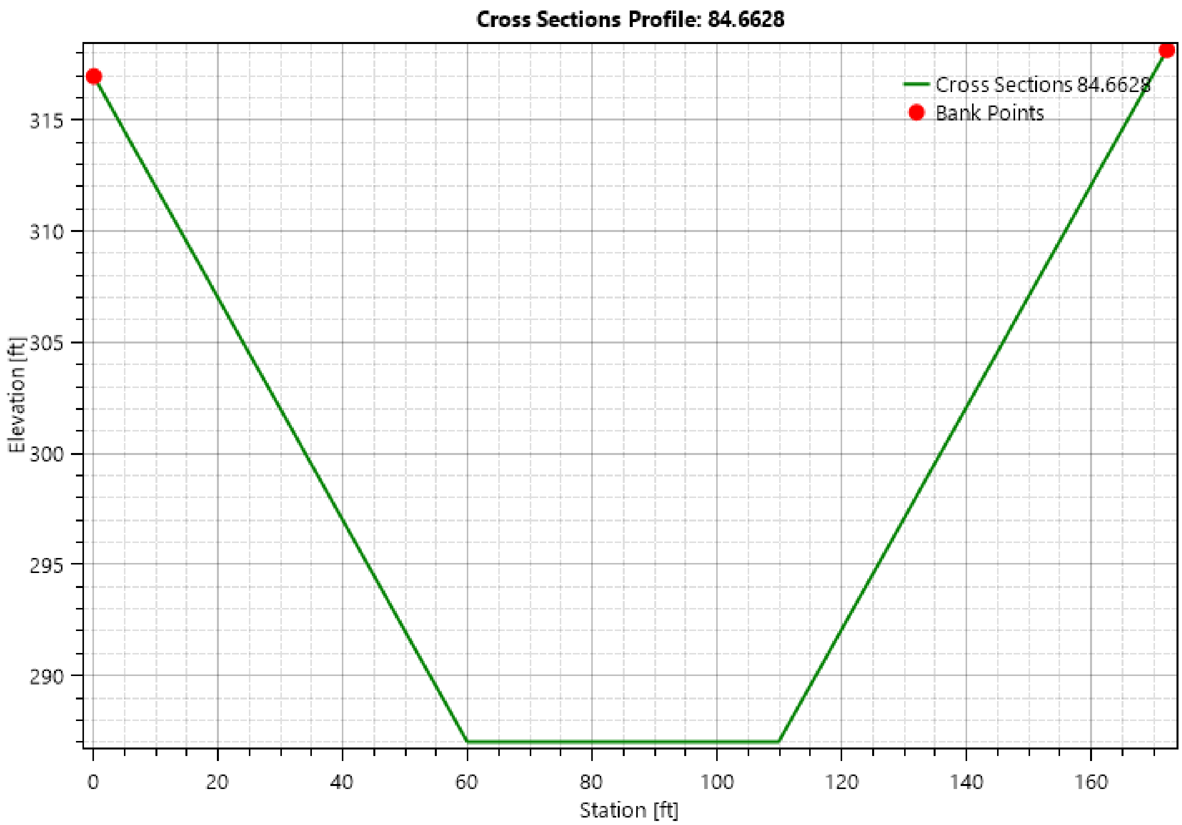

Figure 2-6. Typical California Aqueduct Hydraulic Model Cross Section

2.4.5 Structures

2.4.5.1 Check Structures

A total of 23 check structures (Check No. 14 through 40) are included in the Model. The check structures are modeled as inline structure weirs with radial gate openings. Gate parameters including trunnion exponents, gate opening exponents, and head exponents were set to typical values of 0.16, 0.72 and 0.62, respectively. Radial discharge and orifice coefficient values were set to 0.7 and 0.8, respectively. These typical values are outlined in the HEC-RAS River Analysis System Hydraulic Reference Manual (USACE 2016).

The geometry of the various check structures was developed using the California Aqueduct plan drawings (USBR 1963 & DWR 1965). The elevations at check structures were developed using the relative invert elevation offset from the invert of the cross sections upstream and downstream of the check structure transition to the invert of the check structure. These relative invert elevation offsets are specified in the Aqueduct plan drawings (USBR 1963 & DWR 1965). Figure 2-7 shows an example of the relative invert offset of check 20. The relative invert offset from the invert of the upstream trapezoidal section to the invert of the check structure is 2.8 feet.

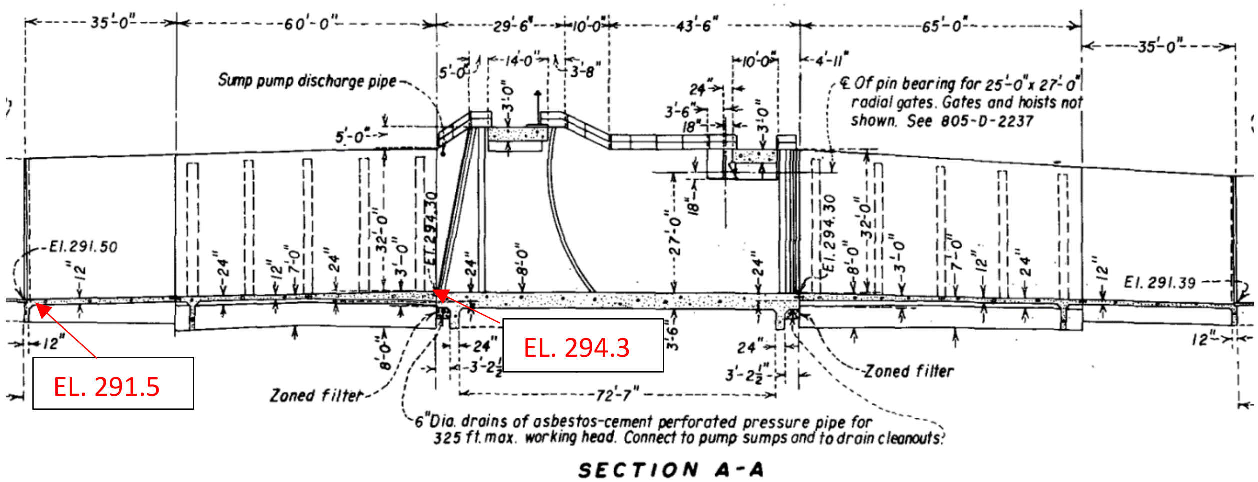

Figure 2-7. Check 20 Invert Transition

The resulting elevations were checked for accuracy using the 2023 field surveys at each check structure. Field surveys are taken on either the main deck, trunnion deck or both decks of each check structure on an annual basis. Using the surveyed deck elevation, the invert of the check structure was calculated using the dimensions from the Aqueduct plan drawings (USBR 1963 & DWR 1965) and compared against the Model's invert elevation. Where the elevations did not match, the values were changed in favor of the field survey calculation.

Figure 2-8 shows an HEC-RAS representation of a typical Aqueduct check structure.

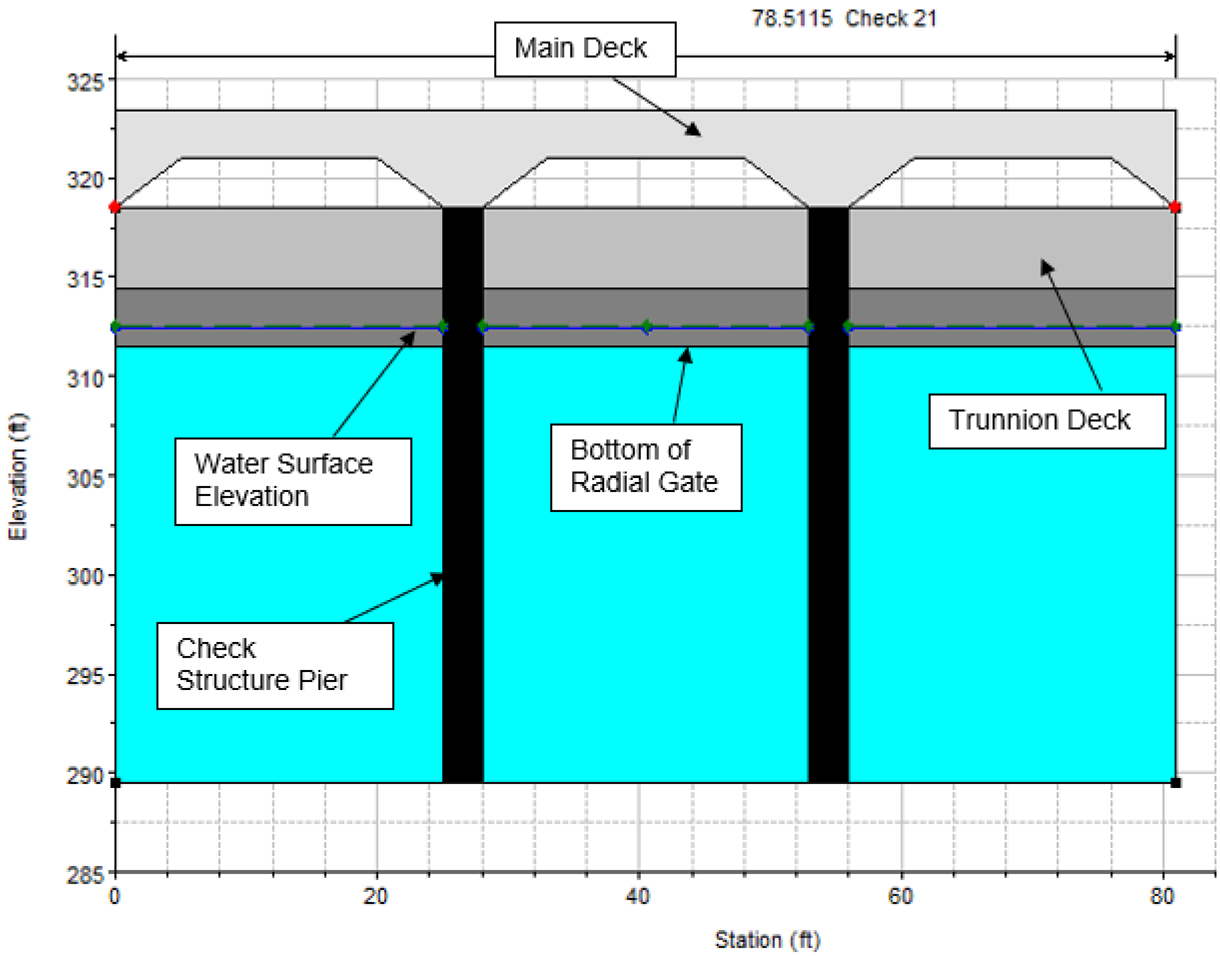

Figure 2-8. HEC-RAS Check 21 Cross Section View

2.4.5.1.1 Siphons

A total of 13 siphons are included in the Model. Lidded cross sections, which are used in HEC-RAS to model pressurized flow, were used to detail the internal geometry of the siphons (i.e., lidded cross sections were used to capture changes in elevation, height, and/or width).

Siphon geometry was developed using the California Aqueduct plan drawings (USBR 1963 & DWR 1965). The elevations inside the siphon structures were developed using the relative invert elevation offset from the cross sections upstream and downstream of the siphon transition to the invert elevations within the siphon. These relative invert elevation offsets are specified in the California Aqueduct plan drawings (USBR 1963 & DWR 1965). Figure 2-9 shows the internal geometry details of Temblor Creek siphon. The relative invert offset from the entrance of the siphon to the invert 50 feet into the siphon is 5 feet.

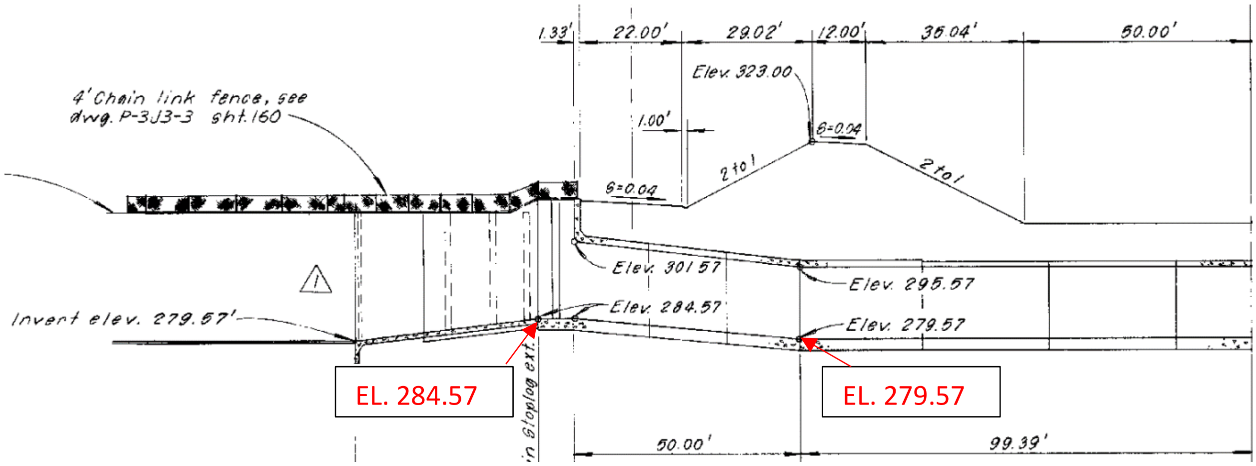

Figure 2-9. Temblor Creek Siphon Invert Transition

Figure 2-10 and Figure 2-11 detail the Panoche Creek siphon in cross section and profile view, respectively.

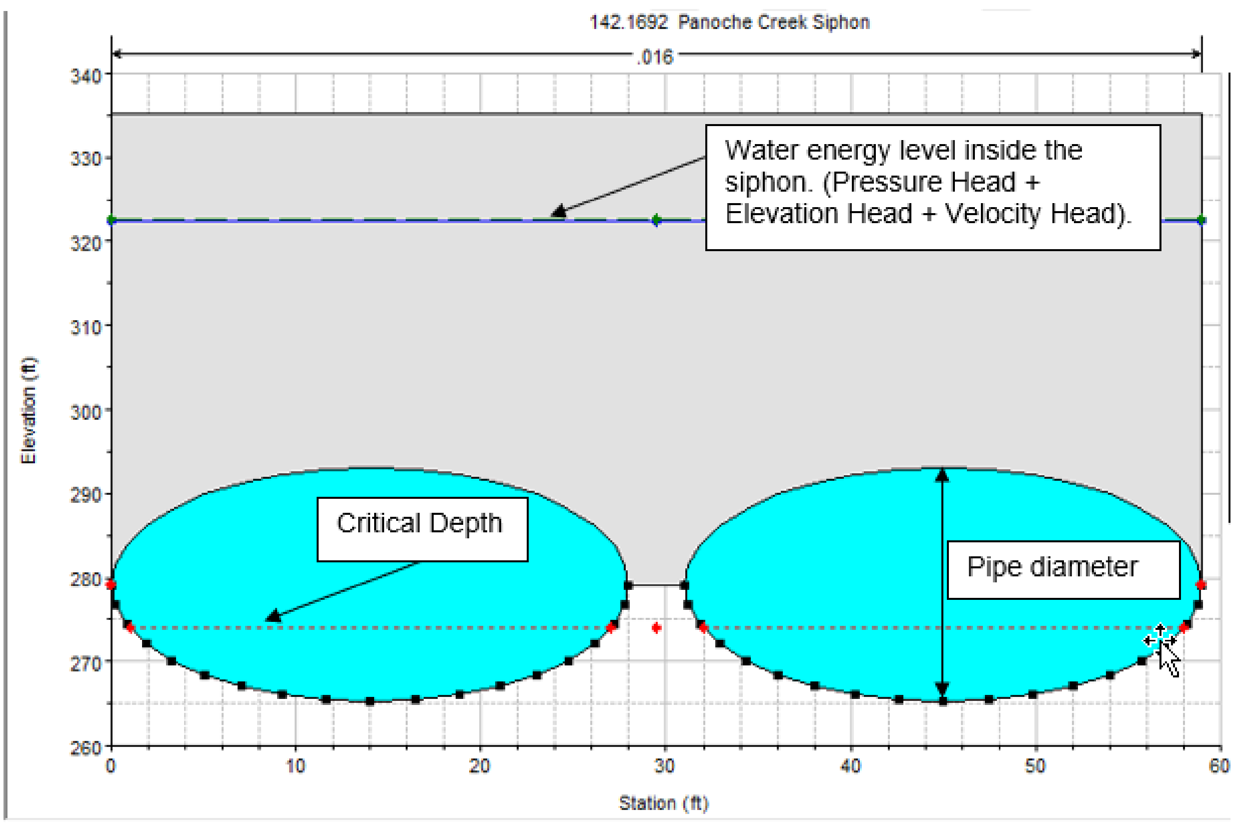

Figure 2-10. Example of a Typical Siphon Modeled with Lidded Cross Section (Panoche Creek Siphon)

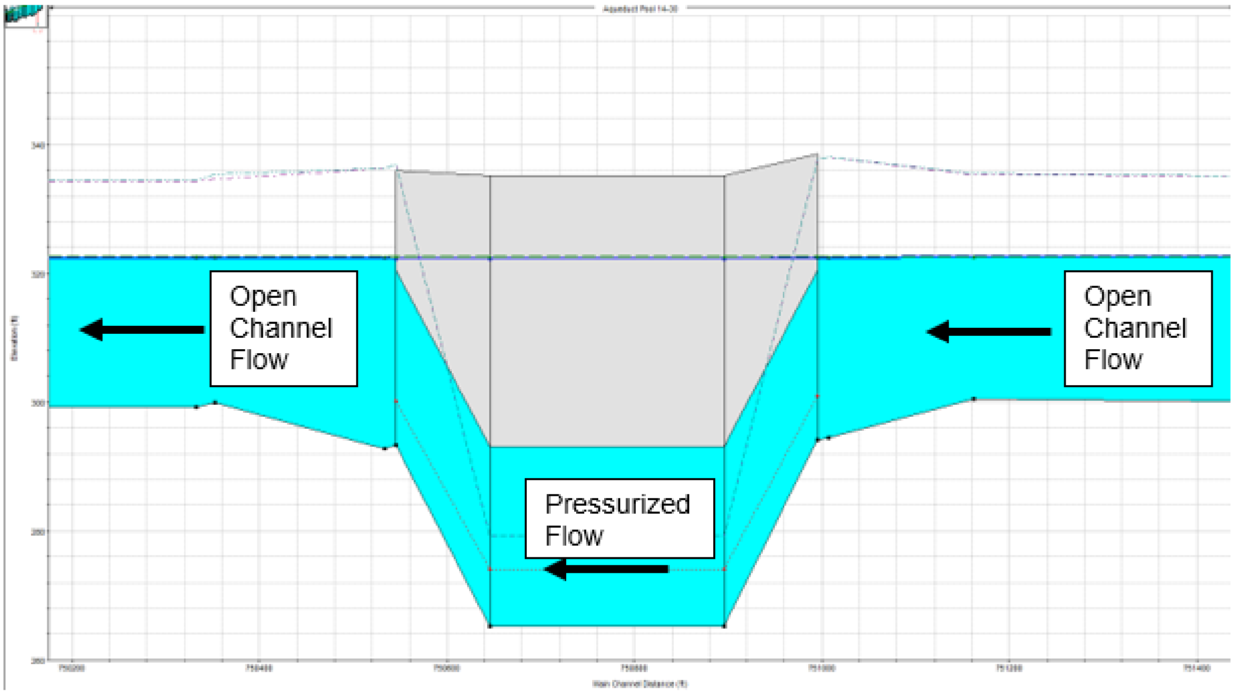

Figure 2-11. HEC-RAS Panoche Creek Siphon Profile View

2.4.5.2 Pumping Plants (Pump Stations)

Four pumping plants (referred to as pump stations within HEC-RAS) were modeled. The pumping plants modeled include DAPP, Buena Vista Pumping Plant (BVPP), Teerink Pump Plant (TPP), and Chrisman Pumping Plant (CPP) (EPP is outside of the Model domain). The pumping plants are modeled in HEC-RAS to convey flow between reaches for unsteady flow simulations.

2.4.5.3 Forebays

Pumping plant forebays were modeled using cross sections. The forebays of BVPP, TPP, CPP, and EPP are included in the Model (the DAPP forebay is outside the Model domain). These forebays are used as the downstream boundary of their respective reach of the Aqueduct.

The cross-section geometries of the forebays were developed using the California Aqueduct plan drawings (USBR 1963 & DWR 1965) and 2020 California Aqueduct Bathymetric Survey. Cross sections were placed just upstream of the transition from canal section to forebay and at the end of the forebays. Where practical, the forebay dimensions from the California Aqueduct plan drawings (USBR 1963 & DWR 1965) were used to develop the cross-section geometries. However, some of the forebay transitions and configurations on the Aqueduct are complex and difficult to interpret using the information gathered from the California Aqueduct plan drawings. At these locations, cross sections were cut across the 2021 San Joaquin Valley LiDAR Digital Elevation Model LiDAR DEM and the 2020 California Aqueduct Bathymetric Survey.

Figure 2-12 displays the most downstream cross section of the CPP forebay.

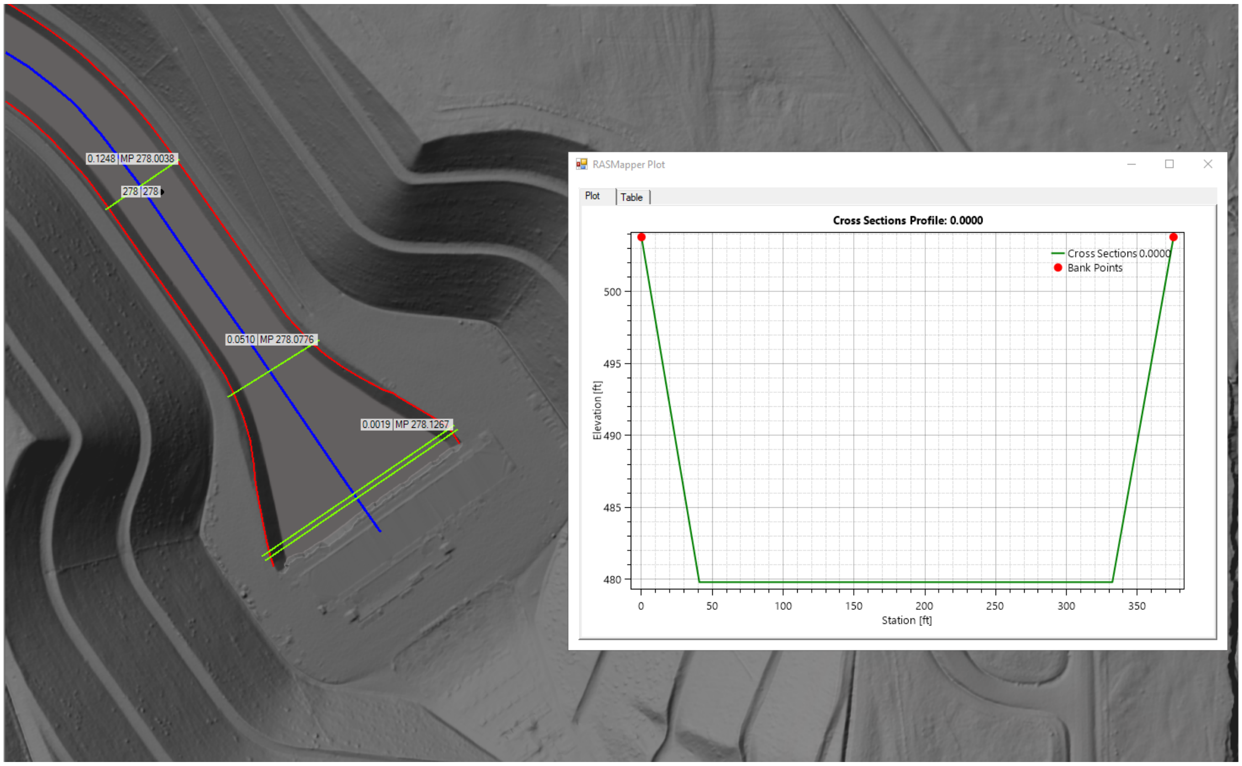

Figure 2-12. Example of a Typical Forebay Cross Section (DEM of the CPP Forebay)

2.4.5.4 Lateral Structures

Lateral structures are included in the Model to allow simulation of turnouts. The profiles (weir elevations) of the lateral structures are not intended to be used for overtopping and do not accurately capture the top of embankments. Turnouts are simulated as gates but are not modeled using weir or orifice equations since the geometries of the turnouts are not included in the Model explicitly. The Model uses turnout gates to specify how much flow is taken out of the system at that location. Figure 2-13 displays the Model representation of a typical lateral structure (turnout).

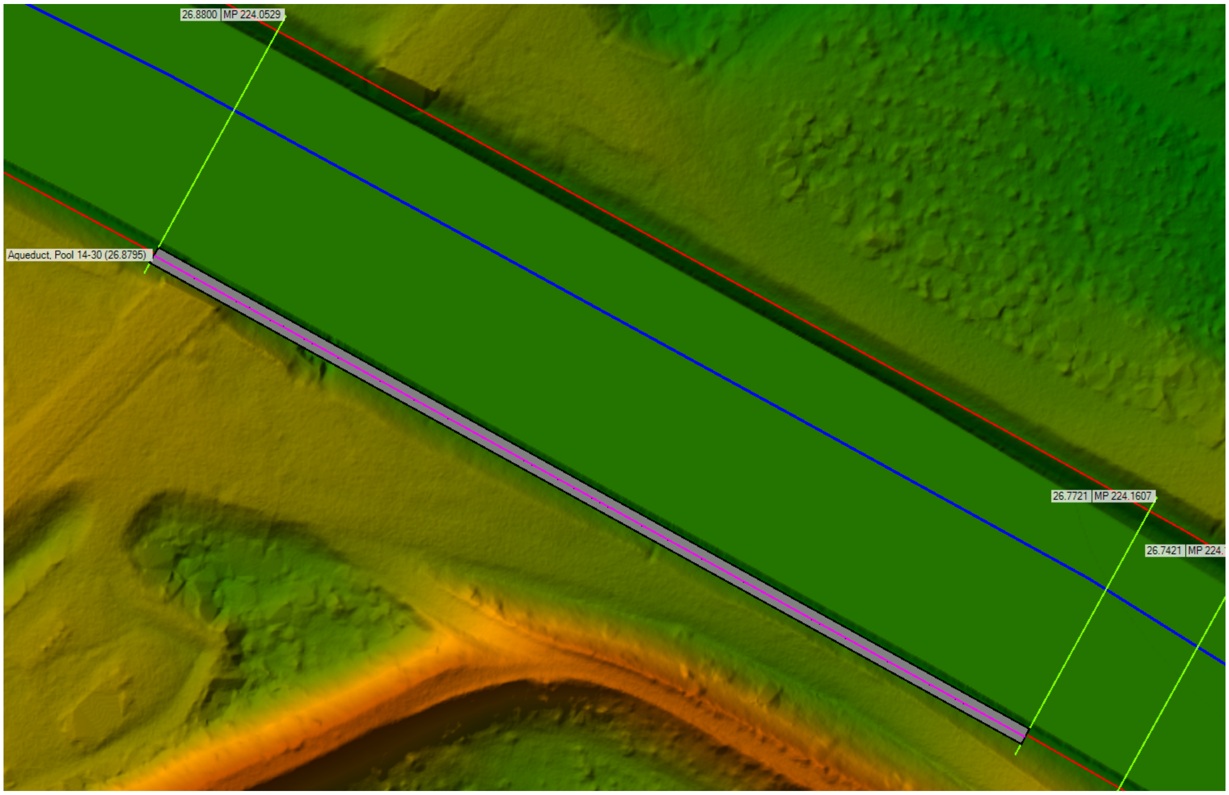

Figure 2-13. HEC-RAS Lateral Structure (Turnout)

2.4.5.5 Overcrossings

Overcrossings include overchutes, bridges, and pipelines. Approximately 70 overcrossings with soffits below the top of liner have been identified through field observations within the Model extents. It has also been observed that the soffits of some of these overcrossings are now below the maximum allowable water surface elevation. Due to subsidence, the low chords of some of these overcrossings are now encroaching below the water surface for some flow conditions. This may create undesirable conditions for the overcrossing including lateral hydrodynamic forces, uplift from buoyancy effects, flow restrictions, and/or backwater effects which can potentially damage the overcrossing or upstream embankment. As part of a 2018 analysis, 12 critically subsided overcrossings were identified. Critical overcrossings are structures that were deemed likely to be partially submerged during high flows. These 12 critical overcrossings are included in the Model using the HEC-RAS bridge modeling tool. The geometry for overcrossings was developed using the California Aqueduct plan drawings (USBR 1963 & DWR 1965).

Table 2-3 lists the overcrossings included in the Model. The need to incorporate additional structures into the Model will be evaluated in future hydraulic conveyance capacity assessments.

Table 2-3. Modeled Overcrossings

Pool	Milepost	RS	Structure	Quantity	Calculated Soffit/Invert Elev. (feet) NAVD 88	# of Piers	Pier Width (feet)
17	132.98	117.9500	Trunnion Deck	1	319.90	3	3.50
22	179.51	71.4167	Overchute	1	316.89	1	1.50
23	196.59	54.3382	Overchute	1	310.67	3	1.50
24	197.85	53.0731	Overchute	1	309.16	2	1.50
24	207.19	43.7330	Overchute	1	306.55	1	1.50
25	208.11	42.8068	Overchute	1	306.64	1	1.50
25	209.38	41.5522	Overchute	1	306.66	1	1.50
26	224.20	26.7319	Overchute	1	305.24	1	1.50
27	225.07	25.8625	Overchute	1	306.09	1	1.50
28	232.97	17.9572	Overchute	1	304.82	1	1.50
29	240.09	10.8416	Pipeline Bridge	1	302.80	2	1.75
30	246.52	4.4065	Overchute	1	300.90	2	1.50

3.0 Model Flow and Operations

The sections below describe the flow data and operations methods used for the hydraulic conveyance capacity analyses. This is a specific application of the model to determine pool flow capacity. Additional information about the hydraulic conveyance capacity analyses is in the California Aqueduct Hydraulic Conveyance Capacity Report (HDR, 2023).

3.1 Boundary Conditions

Boundary conditions allow the user to enter settings at various locations within the Model to calculate hydraulic conditions elsewhere within the system. At a minimum, user defined boundary conditions are necessary at the upstream and downstream end of the modeled reach. Typically, flows are entered at the upstream end of an open channel system and stages are set at the downstream boundary. However, for this Model, internal boundary conditions such as gate settings are also defined.

Simulations executed using the Model are typically unsteady flow simulations with a flow hydrograph as the upstream boundary condition and a steady stage hydrograph as the downstream boundary condition.

3.2 Inline Structure (Check Structure) Operations

Check structures influence the downstream water surface in the pools. This is important in defining how much flow can be conveyed through each pool. A rule set has been defined in the Model to operate the gates of each check structure. The rule set requires the check structure gates to maintain an upstream water surface that is at least equal to the normal minimum water surface. This ensures that turnouts have the elevation head required to divert water. Also, by targeting the normal minimum water surface, the pools stay near the low end of the typical water surface range which allows greater conveyance through the pools. The normal minimum water surface is defined for each pool in the latest Standing Operating Order (DWR, 2020) published by DWR’s Operation and Maintenance branch. The rule set also ensures the gates are always in contact with the water surface by requiring the gate bottom elevation be at least one (1) foot lower than the upstream water surface. This rule set was presented in multiple meetings with DWR field staff and CASP leadership where feedback on the validity of the rule set was sought and received. The logic tree for the rule set is documented in Appendix B. Figure 3-1 is a sample of the inline structure rule set for one particular use case. The green text are comments, the purple text are branches of an if/else statement, and the brown text are variable assignments. Table 3-1 is a list of variables featured in the sample rule set of Figure 3-1.

```
! If the check gates are submerged less than 1 foot in the water then close gates
If ('Head' < 1) Then
    Gate.Opening(Gate #1) = 'GO'-0.005
    Gate.Opening(Gate #2) = 'GO'-0.005
    Gate.Opening(Gate #3) = 'GO'-0.005
    Gate.Opening(Gate #4) = 'GO'-0.005
    ! If the check gates are submerged more than 1 foot in the water and the water surface is greater than 0.1 ft above the lower limit elevation then open the gates
    ! This logic prevents the check structures from artificially propping up water above the lower limit.
ElseIf ('USWSEL' > 'LL' + 0.1) Then
    Gate.Opening(Gate #1) = 'GO' + 0.005
    Gate.Opening(Gate #2) = 'GO' + 0.005
    Gate.Opening(Gate #3) = 'GO' + 0.005
    Gate.Opening(Gate #4) = 'GO' + 0.005
    ! If the check gates are submerged more than 1 foot in the water and the water surface is less than the lower limit elevation then close the gates
    ! This logic gives the check gates responsibility to maintain at least the lower limit elevation.
ElseIf ('USWSEL' < 'LL') Then
    Gate.Opening(Gate #1) = 'GO'-0.005
    Gate.Opening(Gate #2) = 'GO'-0.005
    Gate.Opening(Gate #3) = 'GO'-0.005
    Gate.Opening(Gate #4) = 'GO'-0.005
End If
```

Figure 3-1. Inline Structure Rule Set

Table 3-1. Inline Structure Rule Set Variables

Variable Name	Description
USWSEL	Water surface elevation just upstream of the check structure.
Head	Upstream water surface elevation minus current bottom gate elevation.
LL	Lower limit of the target water surface elevation.
GO	Current gate opening height.

3.3 Lateral Structure (Turnout) Operations

Water contractors exercise control of the turnout facilities and take water on an as-needed basis. The timing and location of these diversions across the length of the Aqueduct play an essential role in maximizing capacity. Strategically placed diversions can have a large effect on capacity through the pools.

The primary purpose of the turnouts along the Aqueduct is to transition from design flow in an upstream pool to design flow in the neighboring pool below it. In modeling scenarios, turnouts are also used to adjust the water surface elevations in pools to meet modeling criteria. When running simulations to determine hydraulic conveyance capacity, a specified freeboard criterion to the top of liner must be maintained. To meet this objective, the lateral structure rule sets have been programmed to adjust the flow rates in the system by engaging turnouts. Turnouts are turned on and ramped up in pools that have a simulated freeboard deficiency (less than the user-defined freeboard criterion). The turnouts are engaged starting with the most downstream turnout in a pool, sequentially moving upstream as necessary until the freeboard criterion is met. As turnouts divert flow, the modeled flow reaching downstream pools will decrease. The reduced flow rate will result in a reduction in water surface elevations which increases freeboard. If all the pool's turnouts have reached their maximum flow rates and freeboard deficiencies still exist in that pool, the rule set begins to turn on upstream pools' turnouts starting from downstream to upstream. As the turnouts systematically engage to eliminate freeboard deficiencies, an ideal diversion pattern develops that maximizes conveyance through the Aqueduct. This approach has been adopted as a way of evaluating hydraulic conveyance capacity consistently for various freeboard criteria. The application of this modeling approach is documented in the California Aqueduct Hydraulic Conveyance Capacity Report (DWR 2023).

The code and logic tree for the rule set is documented in Appendix C.

3.4 Pump Station (Pumping Plant) Operations

Four pumping plants were modeled. The three pumping plants that are positioned in between reaches (BVPP, TPP, and CPP) have a rule set that simply conveys flow from the upstream reach to the downstream reach. The DAPP at the upstream end of the Model is the source of inflow into the Model and regulates the flow rate into Pool 14. A separate rule set has been developed for DAPP to regulate pumping plant flow rate changes.

The DAPP must supply enough water for all turnout diversions and conveyance through the Aqueduct. The DAPP supplies Pool 14 design flow (13,100 cfs) at the beginning of the simulation. The pumping plant will only reduce its flow rate if all Pool 14 turnouts have reached their maximum flow rates, as it is the last upstream option to reduce flows in the Aqueduct. As necessary, the pumping plant reduces its flow rate until the minimum freeboard criterion is achieved.

Figure 3-2 is a sample of the DAPP rule set for one particular use case. The green text are comments, the purple text are branches of an if/else statement and the brown text are variable assignments. Table 3-2 is a list of variables featured in the sample rule set of Figure 3-2.

```
! At time = 0 the pumping plant is turned on and set to a flow rate of 13100 cfs (Pool 14 Design Capacity)
If ('Time' <= 0) Then
    Station.Turn All Pumps On
    Group.Pump Flow(Group #1) = 13100
    ! The variable "Time_Table" regulates the action of the pumping plant. This only allows the pumping plant to make a change every 4 hours
ElseIf ('Time_Table' = 10) Then
    ! If all of Pool 14 turnouts have been maxed out & the simulation has passed 43800 hours (Approximately 5 years) then evaluate TRUE and step into the logic branch
    If ('P14_Q_Flag' = 100) And ('Time' > 43800) Then
        ! Reduce the pumping rate by 0.1 cfs
        Group.Pump Flow(Group #1) = 'DAPP_Flow'-0.1
        ! If the if branch above evaluates to FALSE then: if the Pool 15 turnouts have not been maxed out & Pool 14 has excess freeboard then evaluate TRUE and step into the logic branch
    ElseIf ('P15_Q_Flag' = 0) And ('P14_FB_Flag' > 100) Then
        ! If the pumping rate is less than 13100 then evaluate TRUE and step into the logic branch
        If ('DAPP_Flow' < 13100) Then
            ! Increase the pumping rate by 0.1 cfs
            Group.Pump Flow(Group #1) = 'DAPP_Flow' + 0.1
            ! NOTHING
            'Dummy' = 0
        End If
    Else
        ! NOTHING
        'Dummy' = 0
    End If
End If
```

Figure 3-2. Dos Amigos Pumping Plant Rule Set

Table 3-2. Dos Amigos Pumping Plant Rule Set Variables

Variable Name	Description
Time	Hours since the simulation started.
Time_Table	2-dimensional array containing hour of simulation and a corresponding Boolean (on/off) value.
P14_Q_Flag	Variable signaling the state of the Pool 14 turnouts (100 = maxed out, 0 = not maxed out).
P15_Q_Flag	Variable signaling the state of the Pool 15 turnouts (100 = maxed out, 0 = not maxed out).
DAPP_Flow	The current pumping rate at the Dos Amigos Pumping Plant.
P14_FB_Flag	Variable signaling the state of Pool 14 freeboard (200 = exceeds freeboard criterion, 100 = meets freeboard criterion, 0 = does not meet freeboard criterion).

3.5 Global Variable Modules

In traditional software development environments, global variables are variables that are defined outside of any specific function, rule set, or module that can be accessed by any function, rule set, or module. This is necessary when a variable needs to be shared and accessed by multiple functions, rule sets, or modules. This eliminates the need to define or calculate the variable for many separate instances.

The HEC-RAS rule set environment is not a traditional software development environment and does not have the ability to define global variables within the rule sets. However, HEC-RAS allows users to reference a simulation result in any rule set. As a work-around to global variables, pump stations were created to house variables in the pump rule sets that can be accessed by other rule sets. These pumping plants house variables that signal the state of lined freeboard, unlined freeboard and turnout use in each pool in the Model domain. These variables are accessed by the lateral structure rule sets to determine if a turnout should be ramped up, ramped down, or held steady. The pump group flow rate is the variable that signals the state of lined freeboard, unlined freeboard, and turnout use in each pool. For lined and unlined freeboard, a pump flow rate of 200 cfs indicates the pool has more freeboard than the defined criterion. A pump flow rate of 100 cfs indicates the pool has the proper amount of freeboard as defined by the criterion. A pump flow rate of 0 cfs indicates the pool has less freeboard than the defined criterion. For turnout use, a pump flow rate of 100 cfs indicates that all turnouts in a pool have reached their maximum flow rates and a pump flow rate of 0 cfs indicates that the pool has not used all its turnout capacity. Since the Model is using pump stations as a work-around for global variables, the pump stations must have a hydraulic feature to pump water from and a hydraulic feature to pump water to for Model stability. To satisfy this need, a dummy storage area was used at the upstream end of the pump station to draw water from, and a dummy river reach was used on the downstream end of the pump stations to pump water to. Table 3-3 lists the hydraulic features used in the Model to track these variables.

Table 3-3. Hydraulic Features Used to Track Freeboard and Turnout States in Pools

Hydraulic Feature	Description
Coding_Trick_SA	Storage Area above the Coding Trick pump stations that the pump stations draw water from.
CodingTrick_P2	Pump station that evaluates the state of lined and unlined freeboard in pools 14 – 20.
CodingTrick_Pump	Pump station that evaluates the state of lined and unlined freeboard in pools 21 – 30.
CodingTrick_P3	Pump station that evaluates the state of lined and unlined freeboard in pools 31 – 40.
CodingTrick_QFla	Pump station that evaluates the state of turnouts in use in pools 14 – 20.
CodingTrick_QF2	Pump station that evaluates the state of turnouts in use in pools 21 – 30.
CodingTrick_QF3	Pump station that evaluates the state of turnouts in use in pools 31 – 40.
Coding_Trick	River reach downstream of the Coding Trick pump stations that the pump stations discharge water to.

Figure 3-3 and Figure 3-4 below show the pump flow rate hydrograph of CodingTrick_P2 pump station over the course of a simulation. The pump flow rate is a sum of flow rates based on the freeboard status of each pool that this pump station monitors. At the start of the simulation, pools 14 – 20 all have less freeboard than the defined criteria and therefore the pump station is pumping 0 cfs. At the end of the simulation the pump rate is oscillating between 1200 cfs and 1300 cfs. Pools 14 – 19 evaluate to 200 cfs which indicate they have more freeboard than the defined criteria. Pool 20 oscillates between 0 cfs and 100 cfs. This indicates that Pool 20 is a choke point and the freeboard in the pool is on the cusp of the defined criterion.

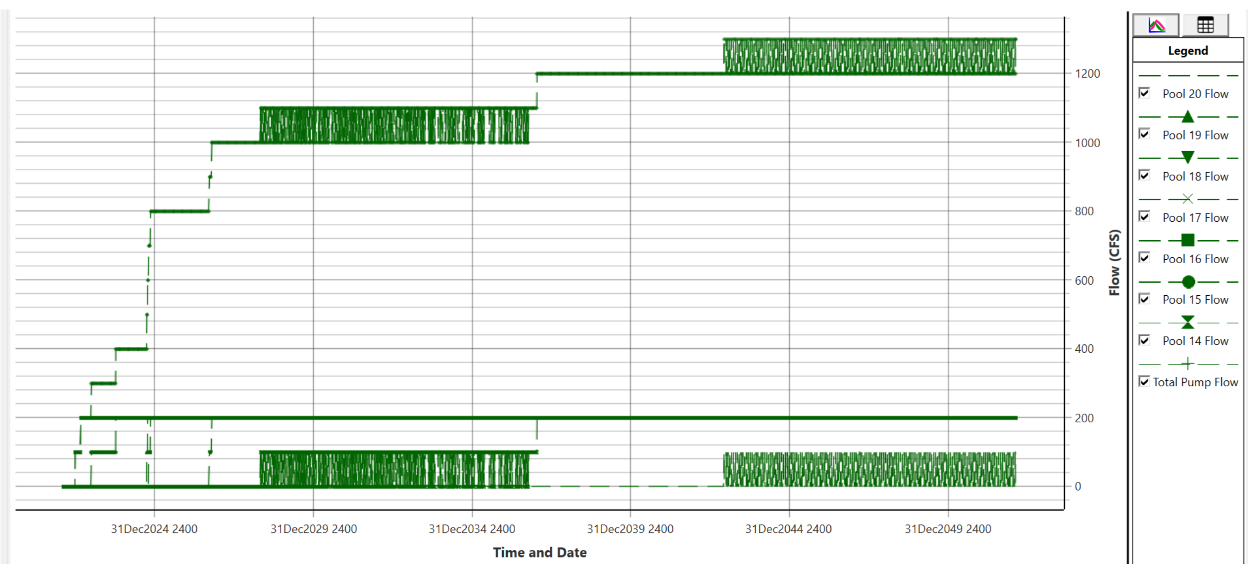

Figure 3-3. CodingTrick_P2 Pump Station Hydrograph (Entire Simulation Time Window)

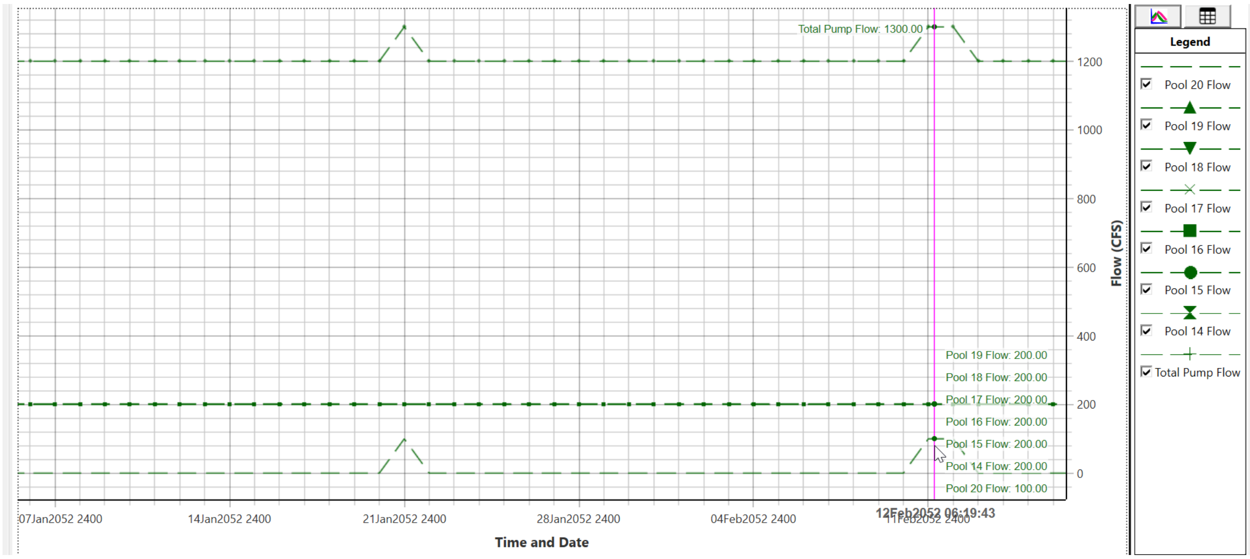

Figure 3-4. CodingTrick_P2 Pump Station Hydrograph (Zoomed View; Final Two Months of Simulation)

4.0 Model Limitations and Recommendations

The following limitations have been identified along with corresponding recommendations for enhancing the Model's performance and usability.

1. No representation of Aqueduct cross section deformation.

   Differences in elevation between the west and east bank top of liner elevations along the canal are evidence that canal deformation has taken place along the Aqueduct. These deformations could include canal rotation, embankment slump, differential lateral subsidence, etc. As data are collected about the type of deformations along the canal, Model cross section representation should be updated to reflect actual field conditions of the Aqueduct including these deformations. This could impact the storage volume of the Model.

2. No representation of embankment alignment.

   The Model only details between the top of liner banks. It does not capture the top of embankment. Therefore, the Model is not suited to simulate flow overtopping the liner. To address this limitation, it is recommended that cross sections be extended to capture the top of embankment and land side of the embankment. This would allow users to model liner overtopping and embankment breaches.

3. No explicit representation of turnout geometries.

   The omission of explicitly developed geometries for turnouts hinders the Model’s ability to represent turnout hydraulics. To address this limitation, it is recommended that turnouts that require detailed analyses have geometries that are explicitly represented within the Model. This improvement would enable users to assess the limitations on diversion capability under both existing and future operational scenarios.

4. Identification of additional submerged structures.

   As subsidence continues, it is likely that the number of overcrossings that encroach into the Aqueduct’s hydraulic grade line will increase. These structures should be identified through analyzing the soffit elevation versus typical water surface elevations in the structure’s vicinity.

5. Regular calibration and validation of Manning’s roughness values.

   The Manning’s n roughness values used in the Model should undergo regular calibration and validation to ensure their accuracy. Over time, changes in the canal below the water surface may lead to variations in surface roughness. To maintain Model precision, it is recommended to conduct flow tests periodically to determine the appropriate roughness values for the Aqueduct.

6. Opportunity for development of additional operational algorithms.

The introduction of the systemwide hydraulic conveyance capacity algorithm presents opportunities for developing new operational algorithms within the HEC-RAS rule sets. While the systemwide algorithm effectively addresses capacity-related questions, the Model can be adapted to answer various other system-related questions, as well. To leverage this potential, it is recommended to explore and design new operational algorithms suited to address specific aspects of the system's behavior and performance.

Addressing these limitations and implementing the suggested recommendations would enhance the Model's accuracy and predictive capabilities. Regular updates and refinements based on the latest data and field verification will ensure the Model remains a reliable tool for supporting informed decision-making about the Aqueduct.

5.0 References

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Appendix A. Model Cross Section Development

Model Geometry (Elevations are referenced in NGVD29 vertical Datum)												
Pool	River	Reach	HEC-RAS Cross-Section River Station	Invert	BaseWidth (ft.)	left bank station	left (east) liner EL	right bank station	right (west) liner EL	Top Width (ft.)	Controlling Elevation (ft.)	MP
14	Aqueduct	Pool_14-30	163.9944	304.04	150	0	339.04	150	339.04	150	339.04	86.9384
14	Aqueduct	Pool_14-30	163.9942	304.04	150	0	339.04	150	339.04	150	339.04	86.9386
14	Aqueduct	Pool_14-30	163.9136	307.85	85	12	337.1	214.8	337.5	202.8	337.1	87.0193
14	Aqueduct	Pool_14-30	163.9132	307.11	85	12	336.05	214.8	337.06	202.8	336.05	87.0197
14	Aqueduct	Pool_14-30	163.7636	307.88	85	12	337.1	214.7	337.51	202.7	337.1	87.1693
14	Aqueduct	Pool_14-30	163.6992	308.19	85	12	337.47	214.5	337.66	202.5	337.47	87.2337
14	Aqueduct	Pool_14-30	163.6409	307.39	85	12	336.64	215	337.14	203	336.64	87.2919
14	Aqueduct	Pool_14-30	163.4957	306.63	85	12	335.61	216.1	337.19	204.1	335.61	87.4371
14	Aqueduct	Pool_14-30	163.3781	307	85	12	336.12	214.6	336.67	202.6	336.12	87.5547
14	Aqueduct	Pool_14-30	163.1575	307.59	85	12	336.51	213.9	337.11	201.9	336.51	87.7753
14	Aqueduct	Pool_14-30	163.0830	307.67	85	12	336.46	213.6	337.19	201.6	336.46	87.8498
14	Aqueduct	Pool_14-30	163.0350	307.6	85	12	336.45	214.1	337.31	202.1	336.45	87.8979
14	Aqueduct	Pool_14-30	162.5445	307.22	85	12	336.72	216.2	337.32	204.2	336.72	88.3883
14	Aqueduct	Pool_14-30	162.4274	306.64	85	12	335.99	216.4	336.99	204.4	335.99	88.5054
14	Aqueduct	Pool_14-30	162.4221	306.66	85	12	336.14	217.1	337.23	205.1	336.14	88.5108
14	Aqueduct	Pool_14-30	162.2913	305.05	85	12	335.76	220.9	336.3	208.9	335.76	88.6415
14	Aqueduct	Pool_14-30	161.8960	305.97	85	12	336.59	219.6	336.64	207.6	336.59	89.0368
14	Aqueduct	Pool_14-30	161.8851	305.63	85	12	336.24	219.9	336.46	207.9	336.24	89.0478
14	Aqueduct	Pool_14-30	161.8294	305.53	85	12	336.47	221.4	336.78	209.4	336.47	89.1035
14	Aqueduct	Pool_14-30	161.7651	306.23	85	12	336.17	217.3	336.45	205.3	336.17	89.1678
14	Aqueduct	Pool_14-30	161.7551	306.35	85	12	336.65	217.4	336.25	205.4	336.25	89.1778
14	Aqueduct	Pool_14-30	161.4391	305.92	85	12	335.66	216.5	335.93	204.5	335.66	89.4938
14	Aqueduct	Pool_14-30	161.3436	303.65	85	12	335.14	223.9	335.62	211.9	335.14	89.5893
14	Aqueduct	Pool_14-30	161.2551	304.14	85	12	335.55	223.4	335.93	211.4	335.55	89.6778
14	Aqueduct	Pool_14-30	161.2451	303.79	85	12	335.73	224.1	335.39	212.1	335.39	89.6878
14	Aqueduct	Pool_14-30	161.2446	304.01	85	12	335.79	224.2	335.82	212.2	335.79	89.6882
14	Aqueduct	Pool_14-30	161.2351	303.9	85	12	335.43	224.5	336.13	212.5	335.43	89.6978
14	Aqueduct	Pool_14-30	161.2151	304.37	85	12	335.94	222.9	335.74	210.9	335.74	89.7178
14	Aqueduct	Pool_14-30	161.0715	305.8	85	12	335.76	217.4	336.03	205.4	335.76	89.8614
14	Aqueduct	Pool_14-30	160.9276	305.63	85	12	335.75	218.1	336.06	206.1	335.75	90.0053
14	Aqueduct	Pool_14-30	160.7652	304.53	85	12	335.4	221	335.67	209	335.4	90.1677
14	Aqueduct	Pool_14-30	160.6254	305.54	85	12	335.76	217.4	335.52	205.4	335.52	90.3075
14	Aqueduct	Pool_14-30	160.4394	304.27	85	12	334.89	220.1	335.21	208.1	334.89	90.4935
14	Aqueduct	Pool_14-30	160.2350	306.19	85	12	335.58	216	336.3	204	335.58	90.6978
14	Aqueduct	Pool_14-30	160.1613	307.02	85	12	336.88	215.2	336.27	203.2	336.27	90.7716
14	Aqueduct	Pool_14-30	160.0373	306.9	85	12	336.23	215.1	336.63	203.1	336.23	90.8956
14	Aqueduct	Pool_14-30	159.7793	307.42	85	12	335.49	209.3	335.5	197.3	335.49	91.1536
14	Aqueduct	Pool_14-30	159.6335	306.92	85	12	335.29	209.3	334.7	197.3	334.7	91.2994
14	Aqueduct	Pool_14-30	158.8549	307.13	85	12	335.46	210	335.3	198	335.3	92.0779
14	Aqueduct	Pool_14-30	158.7688	307.29	85	12	335.2	209.7	335.73	197.7	335.2	92.1641
14	Aqueduct	Pool_14-30	158.7310	307.1	85	12	335.21	209.6	335.3	197.6	335.21	92.2018
14	Aqueduct	Pool_14-30	158.7089	307.35	85	12	335.26	209.3	335.58	197.3	335.26	92.2240
14	Aqueduct	Pool_14-30	158.5797	307.26	85	12	335.4	209.5	335.37	197.5	335.37	92.3532
14	Aqueduct	Pool_14-30	158.3749	307.1	85	12	335.47	211	335.74	199	335.47	92.5579
14	Aqueduct	Pool_14-30	158.3664	307.34	85	12	336.08	212.1	336.14	200.1	336.08	92.5664
14	Aqueduct	Pool_14-30	158.2056	307.21	85	12	336.02	213	336.4	201	336.02	92.7272
14	Aqueduct	Pool_14-30	158.0810	307.32	85	12	336.38	213	336.26	201	336.26	92.8519
14	Aqueduct	Pool_14-30	157.9871	307.23	85	12	336.39	213.4	336.27	201.4	336.27	92.9458
14	Aqueduct	Pool_14-30	157.5089	306.82	85	12	335.72	213.5	336.15	201.5	335.72	93.4239
14	Aqueduct	Pool_14-30	157.4734	306.77	85	12	335.89	214.1	336.19	202.1	335.89	93.4594
14	Aqueduct	Pool_14-30	157.3920	306.98	85	12	335.85	212.9	336.05	200.9	335.85	93.5409
14	Aqueduct	Pool_14-30	156.8734	306.42	85	12	335.33	213.1	335.55	201.1	335.33	94.0594
14	Aqueduct	Pool_14-30	156.1654	306.42	85	12	335.61	213.6	335.53	201.6	335.53	94.7674
14	Aqueduct	Pool_14-30	156.1165	306.61	85	12	336.11	213.4	335.32	201.4	335.32	94.8164
14	Aqueduct	Pool_14-30	155.9723	306.83	85	12	335.92	213.4	335.93	201.4	335.92	94.9605
14	Aqueduct	Pool_14-30	155.9218	307.04	85	12	335.6	211.8	335.88	199.8	335.6	95.0111
14	Aqueduct	Pool_14-30	155.8823	306.87	85	12	336.05	214.1	336.24	202.1	336.05	95.0505
14	Aqueduct	Pool_14-30	155.8776	307	85	12	335.44	211.5	335.8	199.5	335.44	95.0553
14	Aqueduct	Pool_14-30	155.8628	306.9	114	0	339.9	114	339.9	114	339.9	95.0700
14	Aqueduct	Pool_14-30	155.8605	306.9	114	0	339.9	114	339.9	114	339.9	95.0723
15	Aqueduct	Pool_14-30	155.8431	306.39	114	0	339.39	114	339.39	114	339.39	95.0897
15	Aqueduct	Pool_14-30	155.8409	306.39	114	0	339.39	114	339.39	114	339.39	95.0920
15	Aqueduct	Pool_14-30	155.8242	306.38	85	12	335.37	213.5	335.65	201.5	335.37	95.1087
15	Aqueduct	Pool_14-30	155.7261	306.51	85	12	335.27	213.6	336.04	201.6	335.27	95.2068
15	Aqueduct	Pool_14-30	155.1229	305.84	85	12	335.51	215.5	335.43	203.5	335.43	95.8100
15	Aqueduct	Pool_14-30	154.9767	305.92	85	12	335.58	216	335.76	204	335.58	95.9562
15	Aqueduct	Pool_14-30	154.7791	305.87	85	12	335.04	214.6	335.5	202.6	335.04	96.1538
15	Aqueduct	Pool_14-30	154.7156	305.73	85	12	334.95	214.6	335.3	202.6	334.95	96.2172

15 Aqueduct	Pool_14-30	154.4024	306.15	85	12	334.98	214	335.82	202	334.98	96.5304
15 Aqueduct	Pool_14-30	154.3582	305.97	85	12	334.74	213.3	335.34	201.3	334.74	96.5746
15 Aqueduct	Pool_14-30	154.3451	306.07	85	12	334.88	213.2	335.37	201.2	334.88	96.5878
15 Aqueduct	Pool_14-30	154.2919	306.02	85	12	335.18	214	335.35	202	335.18	96.6410
15 Aqueduct	Pool_14-30	154.0651	306.04	85	12	335.14	214.2	335.53	202.2	335.14	96.8678
15 Aqueduct	Pool_14-30	153.7686	306.11	85	12	335.38	213.9	335.29	201.9	335.29	97.1642
15 Aqueduct	Pool_14-30	153.6827	306.05	85	12	335.07	213.2	335.14	201.2	335.07	97.2502
15 Aqueduct	Pool_14-30	153.4185	305.53	85	12	335.03	215.8	335.43	203.8	335.03	97.5144
15 Aqueduct	Pool_14-30	153.4090	305.62	85	12	335.95	218.4	336	206.4	335.95	97.5239
15 Aqueduct	Pool_14-30	153.4086	305.59	85	12	335.95	218.5	335.99	206.5	335.95	97.5242
15 Aqueduct	Pool_14-30	153.3616	305.44	85	12	335.63	218.8	336.15	206.8	335.63	97.5713
15 Aqueduct	Pool_14-30	153.2509	305.14	85	12	335.7	219.7	335.94	207.7	335.7	97.6820
15 Aqueduct	Pool_14-30	152.7783	303.67	85	12	334.08	218.5	334.01	206.5	334.01	98.1545
15 Aqueduct	Pool_14-30	152.4524	302.87	85	12	333.66	219.1	333.14	207.1	333.14	98.4805
15 Aqueduct	Pool_14-30	152.3659	303.03	85	12	333.89	219.3	333.31	207.3	333.31	98.5669
15 Aqueduct	Pool_14-30	152.2290	302.23	85	12	333.32	219.3	332.29	207.3	332.29	98.7038
15 Aqueduct	Pool_14-30	151.8793	302.88	85	12	332.9	218.2	333.46	206.2	332.9	99.0535
15 Aqueduct	Pool_14-30	151.7775	302.6	85	12	332.99	218.7	333.06	206.7	332.99	99.1554
15 Aqueduct	Pool_14-30	151.3653	303.01	85	12	334.54	223	334.48	211	334.48	99.5675
15 Aqueduct	Pool_14-30	151.3183	303.06	85	12	334.5	222.4	334.31	210.4	334.31	99.6146
15 Aqueduct	Pool_14-30	151.2888	302.81	85	12	334.17	222.7	334.31	210.7	334.17	99.6441
15 Aqueduct	Pool_14-30	150.4905	302.45	85	12	334.79	225.5	334.37	213.5	334.37	100.4423
15 Aqueduct	Pool_14-30	150.4484	302.67	85	12	334.91	225.6	334.74	213.6	334.74	100.4845
15 Aqueduct	Pool_14-30	150.4061	302.41	85	12	334.49	225	334.33	213	334.33	100.5267
15 Aqueduct	Pool_14-30	149.6503	302.35	85	12	334.19	224.4	334.21	212.4	334.19	101.2825
15 Aqueduct	Pool_14-30	149.4988	302.74	85	12	334.81	224.1	334.22	212.1	334.22	101.4340
15 Aqueduct	Pool_14-30	149.0852	302.81	85	12	334.83	223.9	334.24	211.9	334.24	101.8476
15 Aqueduct	Pool_14-30	149.0051	302.95	85	12	334.7	223.2	334.31	211.2	334.31	101.9277
15 Aqueduct	Pool_14-30	148.7344	301.72	85	12	333.02	222.4	333.12	210.4	333.02	102.1985
15 Aqueduct	Pool_14-30	148.5615	303.27	85	12	334.72	221.7	334.18	209.7	334.18	102.3714
15 Aqueduct	Pool_14-30	148.3949	303.04	85	12	333.86	221.6	334.52	209.6	333.86	102.5380
15 Aqueduct	Pool_14-30	148.3149	302.27	85	12	334.25	224.5	334.05	212.5	334.05	102.6180
15 Aqueduct	Pool_14-30	148.2950	302.12	85	12	333.45	223.2	333.88	211.2	333.45	102.6379
15 Aqueduct	Pool_14-30	148.1743	303	85	12	334.09	221.3	334.07	209.3	334.07	102.7585
15 Aqueduct	Pool_14-30	147.7021	303.26	85	12	333.38	217.3	333.29	205.3	333.29	103.2307
15 Aqueduct	Pool_14-30	147.5520	303.12	85	12	333.21	217.7	333.39	205.7	333.21	103.3808
15 Aqueduct	Pool_14-30	147.5243	303.82	85	12	333.62	217.3	334.17	205.3	333.62	103.4086
15 Aqueduct	Pool_14-30	147.1791	303.2	85	12	333.5	217.7	333.25	205.7	333.25	103.7537
15 Aqueduct	Pool_14-30	146.8272	302.83	85	12	333.01	217.5	332.9	205.5	332.9	104.1057
15 Aqueduct	Pool_14-30	146.7540	302.75	85	12	332.81	217.4	332.88	205.4	332.81	104.1788
15 Aqueduct	Pool_14-30	146.7351	302.59	85	12	332.82	218.1	332.9	206.1	332.82	104.1978
15 Aqueduct	Pool_14-30	146.6452	302.28	85	12	332.03	218	333.02	206	332.03	104.2876
15 Aqueduct	Pool_14-30	146.2839	301.57	85	12	333.83	226.3	333.96	214.3	333.83	104.6489
15 Aqueduct	Pool_14-30	146.1206	302.06	85	12	334.2	225.4	334.13	213.4	334.13	104.8123
15 Aqueduct	Pool_14-30	146.0732	301.54	85	12	334.34	227.2	333.84	215.2	333.84	104.8596
15 Aqueduct	Pool_14-30	145.9451	300.33	85	12	333.5	230.4	333.86	218.4	333.5	104.9878
15 Aqueduct	Pool_14-30	145.9102	299.67	85	12	333.44	232	333.39	220	333.39	105.0227
15 Aqueduct	Pool_14-30	145.7141	301.16	85	12	334.98	230.5	334.09	218.5	334.09	105.2188
15 Aqueduct	Pool_14-30	145.7101	300.86	85	12	334.32	230.8	334.3	218.8	334.3	105.2228
15 Aqueduct	Pool_14-30	145.7029	300.56	85	12	334.06	230.6	333.87	218.6	333.87	105.2299
15 Aqueduct	Pool_14-30	145.6902	300.66	85	12	334.21	230.2	333.71	218.2	333.71	105.2426
15 Aqueduct	Pool_14-30	145.6110	299.46	85	12	332.54	229.8	332.78	217.8	332.54	105.3218
15 Aqueduct	Pool_14-30	145.4421	300.07	85	12	333.78	230.9	333.31	218.9	333.31	105.4908
15 Aqueduct	Pool_14-30	144.7627	300.66	85	12	333.67	230.1	334.2	218.1	333.67	106.1702
15 Aqueduct	Pool_14-30	144.5938	299.96	85	12	333.04	230.1	333.42	218.1	333.04	106.3391
15 Aqueduct	Pool_14-30	144.5787	299.69	85	12	333.06	230.4	333.02	218.4	333.02	106.3542
15 Aqueduct	Pool_14-30	144.3999	299.67	85	12	332.8	230.1	333.09	218.1	332.8	106.5330
15 Aqueduct	Pool_14-30	144.1288	299.41	85	12	332.65	230.3	332.82	218.3	332.65	106.8041
15 Aqueduct	Pool_14-30	144.0095	299.1	85	12	332.63	230.3	332.23	218.3	332.23	106.9233
15 Aqueduct	Pool_14-30	143.7666	299.97	85	12	332.88	228.6	332.87	216.6	332.87	107.1663
15 Aqueduct	Pool_14-30	143.2579	300.27	85	12	333.47	230.2	333.67	218.2	333.47	107.6750
15 Aqueduct	Pool_14-30	143.2225	300.49	85	12	333.61	229.5	333.62	217.5	333.61	107.7103
15 Aqueduct	Pool_14-30	143.0346	297.45	85	12	330.76	231.1	331.19	219.1	330.76	107.8982
15 Aqueduct	Pool_14-30	142.5408	299.82	85	12	332.73	229.6	333.2	217.6	332.73	108.3921
15 Aqueduct	Pool_14-30	142.4737	299.35	85	12	332.49	228.6	332.01	216.6	332.01	108.4591
15 Aqueduct	Pool_14-30	142.4387	299.38	85	12	332.81	231	332.95	219	332.81	108.4942
15 Aqueduct	Pool_14-30	142.4343	299.84	85	12	332.84	229.5	333.08	217.5	332.84	108.4985
15 Aqueduct	Pool_14-30	142.4167	302.84	114	0	335.84	114	335.84	114	335.84	108.5161
15 Aqueduct	Pool_14-30	142.4145	302.84	114	0	335.84	114	335.84	114	335.84	108.5184
16 Aqueduct	Pool_14-30	142.3970	302.86	114	0	335.86	114	335.86	114	335.86	108.5358
16 Aqueduct	Pool_14-30	142.3948	302.86	114	0	335.86	114	335.86	114	335.86	108.5381
16 Aqueduct	Pool_14-30	142.3762	299.85	75	12	333.1	220.5	333.35	208.5	333.1	108.5567

16 Aqueduct	Pool_14-30	142.3383	299.63	75	12	334.46	227.8	335.21	215.8	334.46	108.5945
16 Aqueduct	Pool_14-30	142.2843	300.1	75	12	335.18	227.2	335.11	215.2	335.11	108.6485
16 Aqueduct	Pool_14-30	142.2199	300.41	75	12	335.33	227.1	335.55	215.1	335.33	108.7129
16 Aqueduct	Pool_14-30	142.1906	294.53	52	0	338.03	52	338.03	52	338.03	108.7423
16 Aqueduct	Pool_14-30	142.1883	294.19	52	0	337.69	52	337.69	52	337.69	108.7445
16 Aqueduct	Pool_14-30	142.1694	265.15	2.43	0	279.15	59	279.15	59	279.15	108.7635
16 Aqueduct	Pool_14-30	142.1220	265.15	2.43	0	279.15	59	279.15	59	279.15	108.8108
16 Aqueduct	Pool_14-30	142.1031	293.39	52	0	336.89	52	336.89	52	336.89	108.8298
16 Aqueduct	Pool_14-30	142.1008	292.79	52	0	336.29	52	336.29	52	336.29	108.8320
16 Aqueduct	Pool_14-30	142.0666	299.87	75	12	334.58	227.5	335.41	215.5	334.58	108.8663
16 Aqueduct	Pool_14-30	142.0629	299.2	75	12	334.31	227.5	334.33	215.5	334.31	108.8700
16 Aqueduct	Pool_14-30	141.9886	299.16	75	12	334.07	227.1	334.3	215.1	334.07	108.9442
16 Aqueduct	Pool_14-30	141.9236	298.81	75	12	333.96	227.7	334.02	215.7	333.96	109.0092
16 Aqueduct	Pool_14-30	141.7602	298.9	75	12	334.23	227.4	333.76	215.4	333.76	109.1726
16 Aqueduct	Pool_14-30	141.6783	299.1	75	12	334.14	227	334.06	215	334.06	109.2546
16 Aqueduct	Pool_14-30	141.0309	297.72	75	12	332.17	226.6	333.08	214.6	332.17	109.9020
16 Aqueduct	Pool_14-30	140.8415	299.56	75	12	334.37	226.6	334.54	214.6	334.37	110.0914
16 Aqueduct	Pool_14-30	140.7062	298.87	75	12	333.49	225.7	333.6	213.7	333.49	110.2267
16 Aqueduct	Pool_14-30	140.6008	299.4	75	12	334.21	226.1	334.14	214.1	334.14	110.3321
16 Aqueduct	Pool_14-30	140.4144	299.37	75	12	334.4	226.9	334.29	214.9	334.29	110.5185
16 Aqueduct	Pool_14-30	139.3927	298.92	75	12	334.02	226.5	333.58	214.5	333.58	111.5401
16 Aqueduct	Pool_14-30	139.2856	298.69	75	12	334.35	228.1	333.57	216.1	333.57	111.6473
16 Aqueduct	Pool_14-30	139.0030	298.92	75	12	333.62	226.4	333.92	214.4	333.62	111.9298
16 Aqueduct	Pool_14-30	138.8999	298.58	75	12	333.36	226.9	333.74	214.9	333.36	112.0330
16 Aqueduct	Pool_14-30	138.8064	298.61	75	12	333.53	226.8	333.58	214.8	333.53	112.1264
16 Aqueduct	Pool_14-30	138.4577	298.23	75	12	333.64	227.9	333.27	215.9	333.27	112.4752
16 Aqueduct	Pool_14-30	138.3482	298.46	75	12	333.43	227.3	333.63	215.3	333.43	112.5846
16 Aqueduct	Pool_14-30	137.9323	297.89	75	12	333.15	227.6	332.92	215.6	332.92	113.0006
16 Aqueduct	Pool_14-30	137.7562	297.75	75	12	332.56	227.4	333.13	215.4	332.56	113.1767
16 Aqueduct	Pool_14-30	137.5668	295.94	75	12	330.93	227.4	331.15	215.4	330.93	113.3661
16 Aqueduct	Pool_14-30	137.5358	295.31	75	12	330.31	227.6	330.61	215.6	330.31	113.3971
16 Aqueduct	Pool_14-30	137.4749	295.68	75	12	330.83	227	330.53	215	330.53	113.4579
16 Aqueduct	Pool_14-30	137.1620	295.28	75	12	330.47	227.6	330.39	215.6	330.39	113.7708
16 Aqueduct	Pool_14-30	137.0403	295.38	75	12	330.48	227.7	330.63	215.7	330.48	113.8926
16 Aqueduct	Pool_14-30	136.9305	295.31	75	12	330.28	227.3	330.5	215.3	330.28	114.0024
16 Aqueduct	Pool_14-30	136.9151	295.37	75	12	330.24	227.1	330.55	215.1	330.24	114.0178
16 Aqueduct	Pool_14-30	136.2933	295.59	75	12	330.53	227.7	331	215.7	330.53	114.6396
16 Aqueduct	Pool_14-30	136.2751	296	75	12	331.41	228	331.09	216	331.09	114.6578
16 Aqueduct	Pool_14-30	136.1174	296.07	75	12	331.11	227.5	331.28	215.5	331.11	114.8154
16 Aqueduct	Pool_14-30	136.0321	296.07	75	12	330.99	227.2	331.26	215.2	330.99	114.9007
16 Aqueduct	Pool_14-30	135.9951	296.05	75	12	331.03	228	331.57	216	331.03	114.9378
16 Aqueduct	Pool_14-30	135.7439	295.93	75	12	330.59	227.2	331.4	215.2	330.59	115.1889
16 Aqueduct	Pool_14-30	135.5001	295.8	75	12	330.85	228.2	331.36	216.2	330.85	115.4328
16 Aqueduct	Pool_14-30	135.4940	295.92	75	12	330.9	227.9	331.38	215.9	330.9	115.4388
16 Aqueduct	Pool_14-30	135.4751	295.91	75	12	330.96	227.9	331.32	215.9	330.96	115.4578
16 Aqueduct	Pool_14-30	134.8951	295.72	75	12	331.06	228.9	331.34	216.9	331.06	116.0378
16 Aqueduct	Pool_14-30	134.7832	295.73	75	12	330.58	227	330.88	215	330.58	116.1496
16 Aqueduct	Pool_14-30	134.6873	295.45	75	12	330.35	227.3	330.71	215.3	330.35	116.2455
16 Aqueduct	Pool_14-30	134.6070	294.74	75	12	329.96	228.3	330.16	216.3	329.96	116.3259
16 Aqueduct	Pool_14-30	134.5951	294.29	75	12	329.61	229.3	330.12	217.3	329.61	116.3378
16 Aqueduct	Pool_14-30	134.4365	294.82	75	12	329.62	227.8	330.41	215.8	329.62	116.4964
16 Aqueduct	Pool_14-30	134.1352	296	75	12	330.53	226.8	331.38	214.8	330.53	116.7977
16 Aqueduct	Pool_14-30	134.0464	295.95	75	12	330.88	227.7	331.36	215.7	330.88	116.8865
16 Aqueduct	Pool_14-30	134.0051	296.2	75	12	330.9	226.8	331.4	214.8	330.9	116.9278
16 Aqueduct	Pool_14-30	133.5137	294.59	75	12	328.93	226.7	330.1	214.7	328.93	117.4191
16 Aqueduct	Pool_14-30	133.4459	294.86	75	12	329.9	226.1	329.36	214.1	329.36	117.4870
16 Aqueduct	Pool_14-30	133.4190	295.59	75	12	331.01	228	330.68	216	330.68	117.5138
16 Aqueduct	Pool_14-30	133.3579	295.79	75	12	330.73	227.4	331.05	215.4	330.73	117.5750
16 Aqueduct	Pool_14-30	132.5676	295.11	75	12	330.21	228	330.52	216	330.21	118.3652
16 Aqueduct	Pool_14-30	132.5076	295.17	75	12	329.47	226.2	330.46	214.2	329.47	118.4253
16 Aqueduct	Pool_14-30	132.4910	295.79	75	12	330.22	226	330.85	214	330.22	118.4418
16 Aqueduct	Pool_14-30	132.4551	295.78	75	12	330.36	226.9	331.15	214.9	330.36	118.4778
16 Aqueduct	Pool_14-30	132.3016	295.53	75	12	328.23	219.3	328.97	207.3	328.23	118.6312
16 Aqueduct	Pool_14-30	132.2637	295.48	75	12	328.32	219.5	328.9	207.5	328.32	118.6691
16 Aqueduct	Pool_14-30	131.7042	294.73	75	12	327.77	219.8	328.1	207.8	327.77	119.2287
16 Aqueduct	Pool_14-30	131.6030	294.79	75	12	328.01	219.7	327.92	207.7	327.92	119.3298
16 Aqueduct	Pool_14-30	131.3551	295.09	75	12	328.04	219.9	328.59	207.9	328.04	119.5778
16 Aqueduct	Pool_14-30	131.3153	294.25	75	12	328.09	222	327.9	210	327.9	119.6176
16 Aqueduct	Pool_14-30	131.3151	294.24	75	12	328.09	222	327.9	210	327.9	119.6178
16 Aqueduct	Pool_14-30	131.3056	294.37	75	12	328	221.2	327.84	209.2	327.84	119.6273
16 Aqueduct	Pool_14-30	131.2575	294.88	75	12	327.89	219.4	328.07	207.4	327.89	119.6754
16 Aqueduct	Pool_14-30	130.3313	293.73	75	12	327.34	220.5	326.87	208.5	326.87	120.6016

16 Aqueduct	Pool_14-30	130.2878	294.09	75	12	327.38	219.9	327.26	207.9	327.26	120.6451
16 Aqueduct	Pool_14-30	130.1603	294.17	75	12	327.01	219.6	327.63	207.6	327.01	120.7725
16 Aqueduct	Pool_14-30	130.0551	294.25	75	12	327.33	220.9	328.12	208.9	327.33	120.8778
16 Aqueduct	Pool_14-30	130.0451	294.22	75	12	327.28	221	328.17	209	327.28	120.8878
16 Aqueduct	Pool_14-30	129.0107	293.31	75	12	326.34	219.4	326.48	207.4	326.34	121.9222
16 Aqueduct	Pool_14-30	128.9051	294.61	75	12	327.17	218.4	327.74	206.4	327.17	122.0277
16 Aqueduct	Pool_14-30	128.8951	294.04	75	12	326.79	218.4	326.99	206.4	326.79	122.0377
16 Aqueduct	Pool_14-30	128.8808	293.78	75	12	326.82	219.3	326.89	207.3	326.82	122.0521
16 Aqueduct	Pool_14-30	128.8639	293.52	75	12	326.66	220.8	327.29	208.8	326.66	122.0689
16 Aqueduct	Pool_14-30	128.8592	293.5	75	12	326.16	217.6	326.14	205.6	326.14	122.0737
16 Aqueduct	Pool_14-30	128.8435	296.3	114	0	329.3	114	329.3	114	329.3	122.0894
16 Aqueduct	Pool_14-30	128.8412	296.3	114	0	329.3	114	329.3	114	329.3	122.0917
17 Aqueduct	Pool_14-30	128.8238	296.11	114	0	329.11	114	329.11	114	329.11	122.1091
17 Aqueduct	Pool_14-30	128.8215	296.11	114	0	329.11	114	329.11	114	329.11	122.1114
17 Aqueduct	Pool_14-30	128.8029	293.2	75	12	326.64	220.8	326.65	208.8	326.64	122.1299
17 Aqueduct	Pool_14-30	128.7077	294.23	75	12	327.13	217.8	326.73	205.8	326.73	122.2252
17 Aqueduct	Pool_14-30	128.3545	293.75	75	12	327.38	219.2	326.21	207.2	326.21	122.5783
17 Aqueduct	Pool_14-30	128.3251	294.24	75	12	327.48	217.9	326.44	205.9	326.44	122.6077
17 Aqueduct	Pool_14-30	128.2818	293.76	75	12	327.62	219.5	326.14	207.5	326.14	122.6511
17 Aqueduct	Pool_14-30	127.3409	293.86	75	12	327.04	219.2	326.78	207.2	326.78	123.5919
17 Aqueduct	Pool_14-30	127.2594	293.36	75	12	326.42	219.8	326.71	207.8	326.42	123.6734
17 Aqueduct	Pool_14-30	127.0251	293.81	75	12	327.16	219.7	326.8	207.7	326.8	123.9078
17 Aqueduct	Pool_14-30	126.9768	293.77	75	12	327.02	219.1	326.56	207.1	326.56	123.9561
17 Aqueduct	Pool_14-30	126.9222	293.69	75	12	326.97	219.1	326.45	207.1	326.45	124.0106
17 Aqueduct	Pool_14-30	126.7569	292.34	75	12	325.81	220	325.38	208	325.38	124.1760
17 Aqueduct	Pool_14-30	126.7551	292.39	75	12	325.77	219.9	325.46	207.9	325.46	124.1778
17 Aqueduct	Pool_14-30	126.7469	292.7	75	12	325.91	219.7	325.84	207.7	325.84	124.1860
17 Aqueduct	Pool_14-30	125.5651	292.02	75	12	326.67	224.7	326.21	212.7	326.21	125.3678
17 Aqueduct	Pool_14-30	125.5551	291.9	75	12	326.49	225.4	326.52	213.4	326.49	125.3778
17 Aqueduct	Pool_14-30	125.4768	291.34	75	12	326.67	227.7	326.37	215.7	326.37	125.4560
17 Aqueduct	Pool_14-30	125.4013	291.58	75	12	326.47	225.8	326.09	213.8	326.09	125.5315
17 Aqueduct	Pool_14-30	125.2477	291.78	75	12	326.69	225.6	326.17	213.6	326.17	125.6852
17 Aqueduct	Pool_14-30	125.1763	292	75	12	326.76	224.1	325.78	212.1	325.78	125.7565
17 Aqueduct	Pool_14-30	124.4917	291.45	75	12	326.44	226	325.96	214	325.96	126.4412
17 Aqueduct	Pool_14-30	124.4306	291.19	75	12	326.38	227.1	326.06	215.1	326.06	126.5023
17 Aqueduct	Pool_14-30	124.2851	289.77	75	12	325.34	229.8	325.59	217.8	325.34	126.6477
17 Aqueduct	Pool_14-30	123.9472	289.73	75	12	325.17	230.1	325.85	218.1	325.17	126.9857
17 Aqueduct	Pool_14-30	123.7906	289.04	75	12	324.82	231.3	325.42	219.3	324.82	127.1422
17 Aqueduct	Pool_14-30	122.4251	287.86	75	12	324.3	233.8	324.82	221.8	324.3	128.5078
17 Aqueduct	Pool_14-30	122.3590	288.12	75	12	324.76	233.8	324.88	221.8	324.76	128.5739
17 Aqueduct	Pool_14-30	122.3450	288.63	75	12	324.75	231.5	324.76	219.5	324.75	128.5878
17 Aqueduct	Pool_14-30	122.2075	288.51	75	12	324.79	232.1	324.78	220.1	324.78	128.7254
17 Aqueduct	Pool_14-30	122.2012	288.27	75	12	324.58	232.4	324.66	220.4	324.58	128.7316
17 Aqueduct	Pool_14-30	122.1696	287.9	75	12	324.48	233.4	324.52	221.4	324.48	128.7633
17 Aqueduct	Pool_14-30	121.6799	289.52	75	12	324.87	228.7	325.02	216.7	324.87	129.2530
17 Aqueduct	Pool_14-30	121.6163	289.45	75	12	324.71	228.4	324.89	216.4	324.71	129.3166
17 Aqueduct	Pool_14-30	121.0559	288.88	75	12	324.78	230.1	324.53	218.1	324.53	129.8769
17 Aqueduct	Pool_14-30	120.0862	289.07	75	12	324.44	228.8	324.59	216.8	324.44	130.8466
17 Aqueduct	Pool_14-30	120.0843	288.92	75	12	324.47	229.7	324.73	217.7	324.47	130.8486
17 Aqueduct	Pool_14-30	120.0005	288.45	75	12	324.39	231.3	324.66	219.3	324.39	130.9323
17 Aqueduct	Pool_14-30	119.8864	288.24	75	12	324.18	231.3	324.46	219.3	324.18	131.0464
17 Aqueduct	Pool_14-30	119.8305	288.13	75	12	324.74	232.8	324.42	220.8	324.42	131.1023
17 Aqueduct	Pool_14-30	119.4928	289.3	75	12	323.53	222.6	322.86	210.6	322.86	131.4400
17 Aqueduct	Pool_14-30	119.3451	289.13	75	12	323.81	222.8	322.34	210.8	322.34	131.5878
17 Aqueduct	Pool_14-30	119.2340	289.16	75	12	323.47	222.6	322.64	210.6	322.64	131.6989
17 Aqueduct	Pool_14-30	118.7669	289.26	75	12	323.95	222.4	322.27	210.4	322.27	132.1660
17 Aqueduct	Pool_14-30	118.7334	288.86	75	12	323.58	225.8	323.54	213.8	323.54	132.1995
17 Aqueduct	Pool_14-30	118.5459	289.8	75	12	324.57	226.8	324.92	214.8	324.57	132.3869
17 Aqueduct	Pool_14-30	118.1923	288.15	75	12	323.63	228	323.17	216	323.17	132.7405
17 Aqueduct	Pool_14-30	118.1405	287.13	75	12	323.39	231.8	323.27	219.8	323.27	132.7923
17 Aqueduct	Pool_14-30	118.1203	287.17	75	12	324.18	231.3	322.32	219.3	322.32	132.8125
17 Aqueduct	Pool_14-30	118.1131	287.24	75	12	324.14	231.9	322.79	219.9	322.79	132.8198
17 Aqueduct	Pool_14-30	118.0069	288.45	75	12	323.68	226.5	322.96	214.5	322.96	132.9259
17 Aqueduct	Pool_14-30	117.9887	288.86	75	12	323.9	226.3	323.46	214.3	323.46	132.9441
17 Aqueduct	Pool_14-30	117.9840	288.82	75	12	323.48	226.1	322.65	214.1	322.65	132.9489
17 Aqueduct	Pool_14-30	117.9692	290.6	114	0	323.6	114	323.6	114	323.6	132.9637
17 Aqueduct	Pool_14-30	117.9669	290.6	114	0	323.6	114	323.6	114	323.6	132.9659
18 Aqueduct	Pool_14-30	117.9523	290.6	114	0	323.6	114	323.6	114	323.6	132.9805
18 Aqueduct	Pool_14-30	117.9516	290.6	114	0	323.6	114	323.6	114	323.6	132.9813
18 Aqueduct	Pool_14-30	117.9495	290.6	114	0	323.6	114	323.6	114	323.6	132.9833
18 Aqueduct	Pool_14-30	117.9472	290.6	114	0	323.6	114	323.6	114	323.6	132.9856
18 Aqueduct	Pool_14-30	117.9296	288.48	75	12	322.56	223.1	322.44	211.1	322.44	133.0032

18 Aqueduct	Pool_14-30	117.8325	288.91	75	12	323.22	223.2	322.69	211.2	322.69	133.1004
18 Aqueduct	Pool_14-30	117.6688	289.18	75	12	323.46	222.3	322.56	210.3	322.56	133.2640
18 Aqueduct	Pool_14-30	117.4954	289.27	75	12	323.42	223.3	323.27	211.3	323.27	133.4375
18 Aqueduct	Pool_14-30	117.2535	288.94	75	12	323.83	223.4	322.25	211.4	322.25	133.6793
18 Aqueduct	Pool_14-30	117.1203	288.68	75	12	322.94	223.5	322.66	211.5	322.66	133.8125
18 Aqueduct	Pool_14-30	116.8215	289.52	75	12	323.39	221.6	322.96	209.6	322.96	134.1114
18 Aqueduct	Pool_14-30	116.6413	289.39	75	12	323.88	223.5	323.15	211.5	323.15	134.2916
18 Aqueduct	Pool_14-30	116.1251	289.5	75	12	323.51	223	323.5	211	323.5	134.8078
18 Aqueduct	Pool_14-30	115.9953	289.64	75	12	323.66	223.3	323.76	211.3	323.66	134.9375
18 Aqueduct	Pool_14-30	115.1476	290.15	75	12	324.51	223.8	324.19	211.8	324.19	135.7852
18 Aqueduct	Pool_14-30	115.0428	290.4	75	12	324.66	223.3	324.29	211.3	324.29	135.8900
18 Aqueduct	Pool_14-30	114.9726	290.06	75	12	324.32	222.1	323.35	210.1	323.35	135.9602
18 Aqueduct	Pool_14-30	114.9151	290.34	75	12	324.6	223.6	324.38	211.6	324.38	136.0178
18 Aqueduct	Pool_14-30	114.8825	290.42	75	12	324.66	223.3	324.33	211.3	324.33	136.0504
18 Aqueduct	Pool_14-30	113.9309	291.6	75	12	326.04	222.8	325.06	210.8	325.06	137.0019
18 Aqueduct	Pool_14-30	113.8173	292.09	75	12	324.73	217.8	324.84	205.8	324.73	137.1155
18 Aqueduct	Pool_14-30	113.2723	292.71	75	12	325.54	217	324.89	205	324.89	137.6606
18 Aqueduct	Pool_14-30	113.1327	292.75	75	12	325.49	217.6	325.31	205.6	325.31	137.8002
18 Aqueduct	Pool_14-30	112.7963	293.01	75	12	325.81	217.5	325.45	205.5	325.45	138.1365
18 Aqueduct	Pool_14-30	112.6966	292.62	75	12	325.68	218.5	325.31	206.5	325.31	138.2362
18 Aqueduct	Pool_14-30	112.6448	292.11	75	12	325.42	219.7	325.16	207.7	325.16	138.2880
18 Aqueduct	Pool_14-30	112.6155	292.51	75	12	325.32	218.5	325.45	206.5	325.32	138.3174
18 Aqueduct	Pool_14-30	111.6600	292.94	75	12	323.59	210.7	324.14	198.7	323.59	139.2729
18 Aqueduct	Pool_14-30	111.5492	293.96	75	12	324.36	208.5	324.31	196.5	324.31	139.3836
18 Aqueduct	Pool_14-30	111.5378	294.08	75	12	324.29	208.1	324.42	196.1	324.29	139.3951
18 Aqueduct	Pool_14-30	111.4448	293.52	75	12	324.19	210.3	324.5	198.3	324.19	139.4880
18 Aqueduct	Pool_14-30	111.1809	293.28	75	12	323.87	210.2	324.29	198.2	323.87	139.7519
18 Aqueduct	Pool_14-30	111.0449	293.31	75	12	323.92	209.5	323.94	197.5	323.92	139.8880
18 Aqueduct	Pool_14-30	110.4478	293.28	75	12	324.14	210.3	324.08	198.3	324.08	140.4850
18 Aqueduct	Pool_14-30	110.3645	293.45	75	12	324.48	210.9	324.38	198.9	324.38	140.5683
18 Aqueduct	Pool_14-30	110.2682	293.68	75	12	324.24	209.6	324.43	197.6	324.24	140.6646
18 Aqueduct	Pool_14-30	110.1230	293.82	75	12	324.53	209.7	324.45	197.7	324.45	140.8099
18 Aqueduct	Pool_14-30	109.9448	294.1	75	12	325.02	209.9	324.63	197.9	324.63	140.9880
18 Aqueduct	Pool_14-30	109.7353	294.4	75	12	325.14	209.7	325	197.7	325	141.1976
18 Aqueduct	Pool_14-30	109.6251	294.14	75	12	325.17	210.1	324.66	198.1	324.66	141.3077
18 Aqueduct	Pool_14-30	109.4062	294.09	75	12	325.14	210.7	324.89	198.7	324.89	141.5267
18 Aqueduct	Pool_14-30	109.3304	294.13	75	12	324.95	210.1	324.86	198.1	324.86	141.6024
18 Aqueduct	Pool_14-30	108.4408	294.05	75	12	324.87	209.9	324.68	197.9	324.68	142.4920
18 Aqueduct	Pool_14-30	108.3451	293.91	75	12	324.75	210.3	324.73	198.3	324.73	142.5877
18 Aqueduct	Pool_14-30	108.3151	293.96	75	12	324.72	209.9	324.64	197.9	324.64	142.6177
18 Aqueduct	Pool_14-30	108.3051	293.92	75	12	324.81	210.5	324.77	198.5	324.77	142.6277
18 Aqueduct	Pool_14-30	108.1057	293.82	75	12	324.74	210.6	324.7	198.6	324.7	142.8272
18 Aqueduct	Pool_14-30	107.9445	292.92	75	12	323.87	210.9	323.92	198.9	323.87	142.9884
18 Aqueduct	Pool_14-30	107.8057	291.86	75	12	323.04	212.2	323.29	200.2	323.04	143.1271
18 Aqueduct	Pool_14-30	107.7738	291.79	75	12	322.86	211.8	323.13	199.8	322.86	143.1591
18 Aqueduct	Pool_14-30	107.7052	291.46	75	12	322.53	212.4	323.09	200.4	322.53	143.2276
18 Aqueduct	Pool_14-30	107.7005	291.95	75	12	322.65	210.6	323.05	198.6	322.65	143.2324
18 Aqueduct	Pool_14-30	107.6810	293.72	82	0	325.72	82	325.72	82	325.72	143.2519
18 Aqueduct	Pool_14-30	107.6787	293.72	82	0	325.72	82	325.72	82	325.72	143.2542
19 Aqueduct	Pool_14-30	107.6630	293.17	82	0	325.17	82	325.17	82	325.17	143.2699
19 Aqueduct	Pool_14-30	107.6607	293.17	82	0	325.17	82	325.17	82	325.17	143.2721
19 Aqueduct	Pool_14-30	107.6412	292.19	60	12	322.89	193.6	323.46	181.6	322.89	143.2917
19 Aqueduct	Pool_14-30	107.5465	293.07	60	12	324.99	200.4	325.36	188.4	324.99	143.3863
19 Aqueduct	Pool_14-30	105.9177	291.41	60	12	323.63	201.1	323.74	189.1	323.63	145.0151
19 Aqueduct	Pool_14-30	105.8798	291.44	60	12	325.51	208.6	325.67	196.6	325.51	145.0530
19 Aqueduct	Pool_14-30	105.6753	291.45	60	12	325.38	208.1	325.56	196.1	325.38	145.2576
19 Aqueduct	Pool_14-30	105.6723	291.2	60	12	325.2	208.6	325.5	196.6	325.2	145.2606
19 Aqueduct	Pool_14-30	105.6086	291.22	60	12	325.45	209.3	325.65	197.3	325.45	145.3242
19 Aqueduct	Pool_14-30	105.5965	291.01	60	12	325.49	209.8	325.43	197.8	325.43	145.3363
19 Aqueduct	Pool_14-30	104.9235	291.16	60	12	325.4	209	325.42	197	325.4	146.0094
19 Aqueduct	Pool_14-30	104.8384	291.36	60	12	325.45	208.2	325.36	196.2	325.36	146.0945
19 Aqueduct	Pool_14-30	104.5272	290.69	60	12	324.94	208.3	324.6	196.3	324.6	146.4056
19 Aqueduct	Pool_14-30	104.2773	290.83	60	12	324.25	206.5	324.65	194.5	324.25	146.6556
19 Aqueduct	Pool_14-30	103.9082	289.81	60	12	323.79	209.7	324.69	197.7	323.79	147.0246
19 Aqueduct	Pool_14-30	103.2847	289.81	60	12	323.52	207.5	323.84	195.5	323.52	147.6481
19 Aqueduct	Pool_14-30	103.1651	289.57	60	12	323.57	208.4	323.76	196.4	323.57	147.7677
19 Aqueduct	Pool_14-30	103.0592	289.67	60	12	324.11	209.4	323.93	197.4	323.93	147.8737
19 Aqueduct	Pool_14-30	102.8769	289.66	60	12	323.94	208.9	323.83	196.9	323.83	148.0559
19 Aqueduct	Pool_14-30	102.6745	289.37	60	12	323.21	207.8	323.42	195.8	323.21	148.2583
19 Aqueduct	Pool_14-30	101.9863	289.54	60	12	323.66	207.8	323.32	195.8	323.32	148.9466
19 Aqueduct	Pool_14-30	101.8160	289.58	60	12	323.57	208.5	323.83	196.5	323.57	149.1169
19 Aqueduct	Pool_14-30	101.6966	290.18	60	12	324.18	208.3	324.33	196.3	324.18	149.2362

19 Aqueduct	Pool_14-30	101.4244	289.75	60	12	323.93	207.9	323.53	195.9	323.53	149.5084
19 Aqueduct	Pool_14-30	101.3798	289.95	60	12	323.99	208.4	324.1	196.4	323.99	149.5530
19 Aqueduct	Pool_14-30	101.3251	289.88	60	12	323.63	207.7	323.98	195.7	323.63	149.6078
19 Aqueduct	Pool_14-30	101.1958	290.02	60	12	323.9	208	324.15	196	323.9	149.7370
19 Aqueduct	Pool_14-30	100.4351	289.74	60	12	323.71	208.4	323.96	196.4	323.71	150.4977
19 Aqueduct	Pool_14-30	100.0474	289.56	60	12	323.46	207.8	323.56	195.8	323.46	150.8854
19 Aqueduct	Pool_14-30	99.7435	288.68	60	12	322.73	207.9	322.57	195.9	322.57	151.1894
19 Aqueduct	Pool_14-30	99.4468	288.66	60	12	322.8	209.3	323.17	197.3	322.8	151.4860
19 Aqueduct	Pool_14-30	99.3893	288.72	60	12	322.79	208.8	323.05	196.8	322.79	151.5436
19 Aqueduct	Pool_14-30	98.6037	288.77	60	12	322.78	208.3	322.9	196.3	322.78	152.3291
19 Aqueduct	Pool_14-30	98.5821	288.45	60	12	322.38	208.6	322.81	196.6	322.38	152.3507
19 Aqueduct	Pool_14-30	98.4522	288.7	60	12	322.62	208	322.77	196	322.62	152.4807
19 Aqueduct	Pool_14-30	98.1663	288.46	60	12	322.59	208	322.33	196	322.33	152.7666
19 Aqueduct	Pool_14-30	98.0489	288.62	60	12	322.99	208.8	322.66	196.8	322.66	152.8840
19 Aqueduct	Pool_14-30	97.3025	288.02	60	12	322.36	208.8	322.07	196.8	322.07	153.6303
19 Aqueduct	Pool_14-30	97.0719	288.89	60	12	322.86	207.6	322.73	195.6	322.73	153.8610
19 Aqueduct	Pool_14-30	96.8268	288.02	60	12	322.01	208.4	322.22	196.4	322.01	154.1061
19 Aqueduct	Pool_14-30	95.2974	287.49	60	12	321.38	208.4	321.79	196.4	321.38	155.6354
19 Aqueduct	Pool_14-30	95.2927	287.84	60	12	322.1	208.7	321.92	196.7	321.92	155.6401
19 Aqueduct	Pool_14-30	95.2741	290.64	82	0	322.64	82	322.64	82	322.64	155.6587
19 Aqueduct	Pool_14-30	95.2719	290.64	82	0	322.64	82	322.64	82	322.64	155.6610
20 Aqueduct	Pool_14-30	95.2532	291.02	82	0	323.02	82	323.02	82	323.02	155.6796
20 Aqueduct	Pool_14-30	95.2509	291.02	82	0	323.02	82	323.02	82	323.02	155.6819
20 Aqueduct	Pool_14-30	95.2314	288.11	50	12	320.78	191.5	320.18	179.5	320.18	155.7014
20 Aqueduct	Pool_14-30	95.1033	287.28	50	12	319.56	190.9	319.44	178.9	319.44	155.8295
20 Aqueduct	Pool_14-30	95.1015	287.3	50	12	319.49	190.8	319.5	178.8	319.49	155.8314
20 Aqueduct	Pool_14-30	95.0296	287.61	50	12	319.84	190.6	319.67	178.6	319.67	155.9032
20 Aqueduct	Pool_14-30	94.5920	287.18	50	12	319.76	190.9	319.06	178.9	319.06	156.3409
20 Aqueduct	Pool_14-30	94.5351	287.09	50	12	319.44	191	319.25	179	319.25	156.3977
20 Aqueduct	Pool_14-30	92.9193	287.21	50	12	319.16	189.9	319.21	177.9	319.16	158.0136
20 Aqueduct	Pool_14-30	92.8085	287.1	50	12	319.09	190.2	319.21	178.2	319.09	158.1243
20 Aqueduct	Pool_14-30	92.5551	286.41	50	12	318.98	191.5	318.59	179.5	318.59	158.3777
20 Aqueduct	Pool_14-30	92.4590	286.53	50	12	318.55	190.7	318.86	178.7	318.55	158.4739
20 Aqueduct	Pool_14-30	90.6406	283.24	50	12	318.05	200.4	317.63	188.4	317.63	160.2923
20 Aqueduct	Pool_14-30	90.4946	283.96	50	12	318.85	200.4	318.28	188.4	318.28	160.4383
20 Aqueduct	Pool_14-30	90.4855	283.58	50	12	318.45	200.3	317.86	188.3	317.86	160.4473
20 Aqueduct	Pool_14-30	90.3533	284.51	50	12	319.12	199.6	318.71	187.6	318.71	160.5795
20 Aqueduct	Pool_14-30	90.0805	285.04	50	12	317.33	190.1	316.8	178.1	316.8	160.8523
20 Aqueduct	Pool_14-30	89.5317	285.18	50	12	317.19	189.8	317.08	177.8	317.08	161.4011
20 Aqueduct	Pool_14-30	89.3857	284.95	50	12	317.09	190.1	316.86	178.1	316.86	161.5472
20 Aqueduct	Pool_14-30	89.3321	284.88	50	12	317.12	189.9	316.59	177.9	316.59	161.6008
20 Aqueduct	Pool_14-30	89.0941	285.02	50	12	317	190	317.03	178	317	161.8388
20 Aqueduct	Pool_14-30	88.8909	284.56	50	12	316.72	190.9	316.84	178.9	316.72	162.0420
20 Aqueduct	Pool_14-30	88.4085	284.25	50	12	316.32	190.4	316.38	178.4	316.32	162.5243
20 Aqueduct	Pool_14-30	88.2999	284.27	50	12	316.35	190.9	316.64	178.9	316.35	162.6330
20 Aqueduct	Pool_14-30	88.0155	284.17	50	12	316.27	190.4	316.26	178.4	316.26	162.9173
20 Aqueduct	Pool_14-30	87.3639	283.3	50	12	315.17	190.1	315.47	178.1	315.17	163.5689
20 Aqueduct	Pool_14-30	87.2440	283.6	50	12	315.5	190.1	315.76	178.1	315.5	163.6888
20 Aqueduct	Pool_14-30	87.1351	283.73	50	12	315.6	189.7	315.72	177.7	315.6	163.7978
20 Aqueduct	Pool_14-30	86.8431	284.01	50	12	315.84	190.1	316.23	178.1	315.84	164.0898
20 Aqueduct	Pool_14-30	86.5235	284.17	50	12	316.06	189.9	316.22	177.9	316.06	164.4093
20 Aqueduct	Pool_14-30	86.3783	284.02	50	12	315.92	189.4	315.81	177.4	315.81	164.5545
20 Aqueduct	Pool_14-30	86.2497	284.05	50	12	316.17	189.9	315.87	177.9	315.87	164.6831
20 Aqueduct	Pool_14-30	86.2450	284.56	50	12	316.44	189.3	316.33	177.3	316.33	164.6879
20 Aqueduct	Pool_14-30	86.2292	287.36	82	0	319.36	82	319.36	82	319.36	164.7036
20 Aqueduct	Pool_14-30	86.2270	287.36	82	0	319.36	82	319.36	82	319.36	164.7059
21 Aqueduct	Pool_14-30	86.2113	287.84	82	0	319.84	82	319.84	82	319.84	164.7216
21 Aqueduct	Pool_14-30	86.2090	287.84	82	0	319.84	82	319.84	82	319.84	164.7239
21 Aqueduct	Pool_14-30	86.1923	284.93	50	12	316.8	188.9	316.51	176.9	316.51	164.7405
21 Aqueduct	Pool_14-30	86.1408	284.25	50	12	316.3	190	316.19	178	316.19	164.7921
21 Aqueduct	Pool_14-30	86.0204	285.21	50	12	317.13	189.2	316.9	177.2	316.9	164.9124
21 Aqueduct	Pool_14-30	85.9067	286.37	50	12	316.88	183.5	316.61	171.5	316.61	165.0261
21 Aqueduct	Pool_14-30	84.8809	286.54	50	12	316.4	184.2	317.78	172.2	316.4	166.0519
21 Aqueduct	Pool_14-30	84.6628	286.71	50	12	316.64	184.1	317.82	172.1	316.64	166.2700
21 Aqueduct	Pool_14-30	84.1773	287.06	50	12	317.61	184.5	317.77	172.5	317.61	166.7556
21 Aqueduct	Pool_14-30	83.6192	287.08	50	12	315.83	178.1	316.39	166.1	315.83	167.3137
21 Aqueduct	Pool_14-30	83.0868	287.57	50	12	316.91	178.4	316.44	166.4	316.44	167.8460
21 Aqueduct	Pool_14-30	82.7552	288.12	50	12	317.47	178.6	317.08	166.6	317.08	168.1776
21 Aqueduct	Pool_14-30	82.7088	288.17	50	12	317.39	178.4	317.15	166.4	317.15	168.2240
21 Aqueduct	Pool_14-30	81.9980	288.35	50	12	317.2	178.5	317.75	166.5	317.2	168.9349
21 Aqueduct	Pool_14-30	81.8858	288.39	50	12	317.31	178.6	317.76	166.6	317.31	169.0470
21 Aqueduct	Pool_14-30	81.7685	288.47	50	12	317.51	178.8	317.83	166.8	317.51	169.1643

21	Aqueduct	Pool_14-30	81.6332	288.33	50	12	317.43	179.1	317.78	167.1	317.43	169.2996
21	Aqueduct	Pool_14-30	81.5158	288.57	50	12	317.19	178.6	318.25	166.6	317.19	169.4171
21	Aqueduct	Pool_14-30	80.8926	288.05	50	12	316.91	178	317.18	166	316.91	170.0402
21	Aqueduct	Pool_14-30	80.8567	287.95	50	12	316.79	178.5	317.35	166.5	316.79	170.0761
21	Aqueduct	Pool_14-30	80.8188	287.94	50	12	316.94	179.2	317.54	167.2	316.94	170.1140
21	Aqueduct	Pool_14-30	79.7272	289.78	50	12	318.09	175.6	318.27	163.6	318.09	171.2056
21	Aqueduct	Pool_14-30	79.4723	289.71	50	12	318.23	175.9	318.14	163.9	318.14	171.4605
21	Aqueduct	Pool_14-30	79.4211	289.98	50	12	318.35	176.1	318.66	164.1	318.35	171.5118
21	Aqueduct	Pool_14-30	79.2451	289.74	50	12	317.67	175.2	318.41	163.2	317.67	171.6878
21	Aqueduct	Pool_14-30	79.2335	289.55	50	12	317.55	175.8	318.45	163.8	317.55	171.6994
21	Aqueduct	Pool_14-30	79.1150	289.67	50	12	317.88	175.6	318.26	163.6	317.88	171.8178
21	Aqueduct	Pool_14-30	78.6749	289.46	50	12	316.49	170.3	316.59	158.3	316.49	172.2580
21	Aqueduct	Pool_14-30	78.5389	289.45	50	12	316.24	170.1	316.71	158.1	316.24	172.3939
21	Aqueduct	Pool_14-30	78.5342	289.57	50	12	316.25	169.7	316.74	157.7	316.25	172.3987
21	Aqueduct	Pool_14-30	78.5213	289.47	81	0	318.47	81	318.47	81	318.47	172.4116
21	Aqueduct	Pool_14-30	78.5190	289.47	81	0	318.47	81	318.47	81	318.47	172.4138
22	Aqueduct	Pool_14-30	78.5044	289.4	81	0	318.4	81	318.4	81	318.4	172.4284
22	Aqueduct	Pool_14-30	78.5022	289.4	81	0	318.4	81	318.4	81	318.4	172.4307
22	Aqueduct	Pool_14-30	78.4893	286.47	32	12	316.04	162.7	316.25	150.7	316.04	172.4436
22	Aqueduct	Pool_14-30	78.4321	286.37	32	12	315.86	162.8	316.28	150.8	315.86	172.5008
22	Aqueduct	Pool_14-30	78.3634	286.35	32	12	315.84	162.8	316.25	150.8	315.84	172.5694
22	Aqueduct	Pool_14-30	78.2703	286.14	32	12	316.2	165	316.58	153	316.2	172.6626
22	Aqueduct	Pool_14-30	77.9908	286.05	32	12	315.41	162.2	315.78	150.2	315.41	172.9421
22	Aqueduct	Pool_14-30	77.9423	286.12	32	12	315.47	162.1	315.81	150.1	315.47	172.9906
22	Aqueduct	Pool_14-30	77.7702	286.01	32	12	315.43	162.3	315.74	150.3	315.43	173.1626
22	Aqueduct	Pool_14-30	77.7355	285.82	31.99	12	315.58	163.2	315.66	151.2	315.58	173.1973
22	Aqueduct	Pool_14-30	77.5585	285.53	31.99	12	315.26	163.2	315.4	151.2	315.26	173.3743
22	Aqueduct	Pool_14-30	77.4085	286.15	31.99	12	315.58	162.9	316.17	150.9	315.58	173.5243
22	Aqueduct	Pool_14-30	77.2715	285.93	31.99	12	315.19	162.1	315.71	150.1	315.19	173.6613
22	Aqueduct	Pool_14-30	77.1756	285.87	32	12	315.25	162.2	315.58	150.2	315.25	173.7573
22	Aqueduct	Pool_14-30	76.8898	286.02	32	12	315.59	162.1	315.5	150.1	315.5	174.0431
22	Aqueduct	Pool_14-30	76.7971	285.52	31.99	12	315.43	162.1	314.66	150.1	314.66	174.1358
22	Aqueduct	Pool_14-30	76.7893	285.66	31.99	12	315.73	163.6	315.41	151.6	315.41	174.1436
22	Aqueduct	Pool_14-30	76.7400	286.06	32	12	315.55	161.9	315.52	149.9	315.52	174.1929
22	Aqueduct	Pool_14-30	75.9903	286.37	31.99	12	316.18	162.5	315.81	150.5	315.81	174.9425
22	Aqueduct	Pool_14-30	75.9829	286.42	32	12	315.91	161.9	315.87	149.9	315.87	174.9500
22	Aqueduct	Pool_14-30	75.7513	285.74	32	12	315.53	163.1	315.51	151.1	315.51	175.1815
22	Aqueduct	Pool_14-30	74.8867	286.26	32	12	315.73	161.6	315.6	149.6	315.6	176.0461
22	Aqueduct	Pool_14-30	74.8598	285.95	32	12	315.75	162.5	315.41	150.5	315.41	176.0731
22	Aqueduct	Pool_14-30	74.6384	285.67	32	12	315.36	162.7	315.32	150.7	315.32	176.2944
22	Aqueduct	Pool_14-30	74.5643	285.73	32	12	315.57	162.4	315.09	150.4	315.09	176.3686
22	Aqueduct	Pool_14-30	74.5150	285.47	32	12	315.37	162.7	314.93	150.7	314.93	176.4178
22	Aqueduct	Pool_14-30	74.4578	285.5	32	12	314.95	161.7	314.89	149.7	314.89	176.4750
22	Aqueduct	Pool_14-30	73.3751	285.46	32	12	314.79	161.9	315.08	149.9	314.79	177.5578
22	Aqueduct	Pool_14-30	72.8411	285.37	32	12	315.14	162.6	314.89	150.6	314.89	178.0917
22	Aqueduct	Pool_14-30	72.6226	285.46	32	12	314.85	161.5	314.81	149.5	314.81	178.3102
22	Aqueduct	Pool_14-30	72.6181	285.4	32	12	314.95	161.8	314.74	149.8	314.74	178.3147
22	Aqueduct	Pool_14-30	72.4800	285.24	32	12	314.98	162.3	314.64	150.3	314.64	178.4528
22	Aqueduct	Pool_14-30	71.4866	284.96	32	12	314.49	162.4	314.63	150.4	314.49	179.4463
22	Aqueduct	Pool_14-30	71.4769	284.86	32	12	314.5	162.9	314.66	150.9	314.5	179.4559
22	Aqueduct	Pool_14-30	71.4269	284.55	32	12	314.1	162.1	314.04	150.1	314.04	179.5059
22	Aqueduct	Pool_14-30	71.4069	285.01	32	12	314.62	162.3	314.55	150.3	314.55	179.5259
22	Aqueduct	Pool_14-30	70.6971	284.79	32	12	314.17	161.7	314.25	149.7	314.17	180.2357
22	Aqueduct	Pool_14-30	70.6472	284.75	32	12	314.22	161.1	313.83	149.1	313.83	180.2856
22	Aqueduct	Pool_14-30	70.4090	284.34	32	12	313.89	162.2	313.88	150.2	313.88	180.5239
22	Aqueduct	Pool_14-30	70.2984	284.33	32	12	313.7	162	313.95	150	313.7	180.6345
22	Aqueduct	Pool_14-30	70.2751	284.54	32	12	314.13	162.4	314.15	150.4	314.13	180.6578
22	Aqueduct	Pool_14-30	70.2651	284.46	31.99	12	314	162.6	314.21	150.6	314	180.6678
22	Aqueduct	Pool_14-30	70.1558	284.74	32	12	313.89	161.1	314.14	149.1	313.89	180.7771
22	Aqueduct	Pool_14-30	70.0201	284.76	31.99	12	314.02	161.6	314.31	149.6	314.02	180.9127
22	Aqueduct	Pool_14-30	69.4209	284.21	32	12	313.7	162.1	313.78	150.1	313.7	181.5119
22	Aqueduct	Pool_14-30	69.4022	284.29	32	12	313.78	162.2	313.9	150.2	313.78	181.5307
22	Aqueduct	Pool_14-30	67.9343	283.77	31.99	12	316.19	174	316.36	162	316.19	182.9985
22	Aqueduct	Pool_14-30	67.9214	283.81	31.99	12	316.23	173.9	316.35	161.9	316.23	183.0114
22	Aqueduct	Pool_14-30	67.9174	283.69	31.99	12	316.18	174.4	316.42	162.4	316.18	183.0154
22	Aqueduct	Pool_14-30	67.7905	284.06	31.99	12	316.05	172	316.07	160	316.05	183.1424
22	Aqueduct	Pool_14-30	67.2355	283.74	31.99	12	316.07	173.3	316.07	161.3	316.07	183.6973
22	Aqueduct	Pool_14-30	67.1031	284.02	31.99	12	315.57	170.8	315.88	158.8	315.57	183.8298
22	Aqueduct	Pool_14-30	66.6623	284.06	32	12	315.82	171.1	315.85	159.1	315.82	184.2705
22	Aqueduct	Pool_14-30	66.6529	284.06	65	0	315.96	65	315.96	65	315.96	184.2800
22	Aqueduct	Pool_14-30	66.6514	284.06	65	0	309.56	65	309.56	65	309.56	184.2815
22	Aqueduct	Pool_14-30	66.6431	281.22	57	0	299.22	57	299.22	57	299.22	184.2897

22 Aqueduct	Pool_14-30	66.6242	281.22	57	0	299.22	57	299.22	57	299.22	184.3087
22 Aqueduct	Pool_14-30	66.6159	284.06	65	0	309.56	65	309.56	65	309.56	184.3169
22 Aqueduct	Pool_14-30	66.6118	284.06	65	0	315.96	65	315.96	65	315.96	184.3211
22 Aqueduct	Pool_14-30	66.5947	283.93	32	12	315.69	171.8	316.07	159.8	315.69	184.3381
22 Aqueduct	Pool_14-30	66.4905	283.81	32	12	315.96	172.7	316	160.7	315.96	184.4423
22 Aqueduct	Pool_14-30	66.3036	283.9	32	12	316.08	172.4	315.93	160.4	315.93	184.6292
22 Aqueduct	Pool_14-30	66.1660	283.86	32	12	315.94	172.5	316.02	160.5	315.94	184.7668
22 Aqueduct	Pool_14-30	66.1491	283.73	32	12	316	172.6	315.76	160.6	315.76	184.7838
22 Aqueduct	Pool_14-30	66.1320	283.76	32.01	12	315.85	172.2	315.76	160.2	315.76	184.8008
22 Aqueduct	Pool_14-30	66.1245	284.15	32.01	12	316.17	172	316.12	160	316.12	184.8084
22 Aqueduct	Pool_14-30	66.1192	291.51	87.5	0	317.51	87.5	317.51	87.5	317.51	184.8137
22 Aqueduct	Pool_14-30	66.1169	291.51	87.5	0	317.51	87.5	317.51	87.5	317.51	184.8160
23 Aqueduct	Pool_14-30	66.1055	291.13	87.5	0	317.13	87.5	317.13	87.5	317.13	184.8273
23 Aqueduct	Pool_14-30	66.1033	291.13	87.5	0	317.13	87.5	317.13	87.5	317.13	184.8296
23 Aqueduct	Pool_14-30	66.0942	285.08	32	12	314.69	162.7	314.81	150.7	314.69	184.8387
23 Aqueduct	Pool_14-30	66.0601	284.81	32	12	314.32	161.6	314.09	149.6	314.09	184.8728
23 Aqueduct	Pool_14-30	66.0410	284.98	32.01	12	314.35	161.5	314.36	149.5	314.35	184.8918
23 Aqueduct	Pool_14-30	65.8581	285.09	31.99	12	314.28	160.4	314.12	148.4	314.12	185.0748
23 Aqueduct	Pool_14-30	65.0450	284.89	31.99	12	313.97	160.6	314.12	148.6	313.97	185.8879
23 Aqueduct	Pool_14-30	64.9435	284.76	31.99	12	313.97	160.7	313.9	148.7	313.9	185.9893
23 Aqueduct	Pool_14-30	64.4756	284.75	31.99	12	313.68	160	313.83	148	313.68	186.4572
23 Aqueduct	Pool_14-30	64.3078	284.53	31.99	12	313.69	161.1	313.92	149.1	313.69	186.6251
23 Aqueduct	Pool_14-30	63.3620	284.56	32	12	313.27	160	313.84	148	313.27	187.5709
23 Aqueduct	Pool_14-30	63.2411	284.38	32.01	12	313.47	160.4	313.49	148.4	313.47	187.6917
23 Aqueduct	Pool_14-30	61.6333	284.23	32.01	12	313.11	160.6	313.64	148.6	313.11	189.2996
23 Aqueduct	Pool_14-30	61.3130	284.39	32	12	313.42	160.3	313.51	148.3	313.42	189.6198
23 Aqueduct	Pool_14-30	61.2384	284.44	31.99	12	313.56	160.3	313.48	148.3	313.48	189.6944
23 Aqueduct	Pool_14-30	59.7541	283.59	31.99	12	312.65	160.8	312.93	148.8	312.65	191.1787
23 Aqueduct	Pool_14-30	59.5937	283.39	32	12	312.63	160	312.14	148	312.14	191.3392
23 Aqueduct	Pool_14-30	59.3831	283.01	32	12	312.32	160.9	312.16	148.9	312.16	191.5498
23 Aqueduct	Pool_14-30	57.9383	282.97	32.01	12	312.62	162	312.33	150	312.33	192.9945
23 Aqueduct	Pool_14-30	57.7976	282.9	32	12	312.43	161.5	312.12	149.5	312.12	193.1352
23 Aqueduct	Pool_14-30	57.4952	282.78	32	12	311.93	160.5	311.88	148.5	311.88	193.4376
23 Aqueduct	Pool_14-30	57.4558	282.64	31.99	12	312.01	161	311.78	149	311.78	193.4771
23 Aqueduct	Pool_14-30	57.1548	282.4	31.99	12	311.91	161.5	311.65	149.5	311.65	193.7780
23 Aqueduct	Pool_14-30	56.9562	282.13	32	12	311.46	160.6	311.09	148.6	311.09	193.9766
23 Aqueduct	Pool_14-30	56.8541	281.89	32	12	311.4	161.1	310.92	149.1	310.92	194.0788
23 Aqueduct	Pool_14-30	56.7047	281.68	32	12	311.4	162.2	311.06	150.2	311.06	194.2281
23 Aqueduct	Pool_14-30	56.5630	281.68	32	12	311.16	161.6	310.99	149.6	310.99	194.3698
23 Aqueduct	Pool_14-30	56.0852	280.71	32	12	309.87	161.1	310.09	149.1	309.87	194.8476
23 Aqueduct	Pool_14-30	55.9527	280.04	32.01	12	311.82	170.8	311.65	158.8	311.65	194.9802
23 Aqueduct	Pool_14-30	55.2144	279.23	31.99	12	310.85	169.5	310.37	157.5	310.37	195.7184
23 Aqueduct	Pool_14-30	55.0443	279.15	31.99	12	310.87	170.3	310.59	158.3	310.59	195.8885
23 Aqueduct	Pool_14-30	54.7172	278.78	31.99	12	310.49	170.6	310.37	158.6	310.37	196.2156
23 Aqueduct	Pool_14-30	54.5151	278.79	31.99	12	310.94	170.8	310.04	158.8	310.04	196.4177
23 Aqueduct	Pool_14-30	54.3684	279.05	32.01	12	310.73	170.7	310.72	158.7	310.72	196.5644
23 Aqueduct	Pool_14-30	54.3484	279.09	32	12	310.88	170.5	310.54	158.5	310.54	196.5844
23 Aqueduct	Pool_14-30	54.3284	279.14	32	12	310.83	170.4	310.64	158.4	310.64	196.6044
23 Aqueduct	Pool_14-30	54.1797	278.53	32	12	310.42	171.6	310.43	159.6	310.42	196.7531
23 Aqueduct	Pool_14-30	53.9013	278.61	32.01	12	310.75	171.7	310.31	159.7	310.31	197.0316
23 Aqueduct	Pool_14-30	53.8937	278.93	32.01	12	311.16	171.5	310.45	159.5	310.45	197.0391
23 Aqueduct	Pool_14-30	53.8884	285.33	87.5	0	311.33	87.5	311.33	87.5	311.33	197.0444
23 Aqueduct	Pool_14-30	53.8861	285.33	87.5	0	311.33	87.5	311.33	87.5	311.33	197.0467
24 Aqueduct	Pool_14-30	53.8748	284.89	87.5	0	310.89	87.5	310.89	87.5	310.89	197.0581
24 Aqueduct	Pool_14-30	53.8725	284.89	87.5	0	310.89	87.5	310.89	87.5	310.89	197.0603
24 Aqueduct	Pool_14-30	53.8634	278.57	32	12	307.82	161.1	307.87	149.1	307.82	197.0694
24 Aqueduct	Pool_14-30	53.8293	278.24	32	12	307.51	161.4	307.66	149.4	307.51	197.1035
24 Aqueduct	Pool_14-30	53.7321	277.6	32.01	12	307.23	162	306.98	150	306.98	197.2008
24 Aqueduct	Pool_14-30	53.5027	277.75	32	12	307.02	160.7	306.82	148.7	306.82	197.4302
24 Aqueduct	Pool_14-30	53.0833	277.72	32	12	307.08	161.1	306.9	149.1	306.9	197.8495
24 Aqueduct	Pool_14-30	53.0633	277.33	32	12	306.91	161.5	306.5	149.5	306.5	197.8695
24 Aqueduct	Pool_14-30	52.8885	277.62	31.99	12	307.13	161.5	306.86	149.5	306.86	198.0444
24 Aqueduct	Pool_14-30	51.9661	278.32	32	12	307.37	160.1	307.32	148.1	307.32	198.9667
24 Aqueduct	Pool_14-30	51.7434	278	32	12	307.24	161.7	307.62	149.7	307.24	199.1894
24 Aqueduct	Pool_14-30	51.1906	276.49	32	12	308.38	170.1	307.65	158.1	307.65	199.7423
24 Aqueduct	Pool_14-30	51.0509	276.08	32	12	308.36	170	306.8	158	306.8	199.8820
24 Aqueduct	Pool_14-30	50.9106	276.45	32	12	305.84	160.4	305.25	148.4	305.25	200.0223
24 Aqueduct	Pool_14-30	50.7519	276.65	32	12	306.13	161.4	305.88	149.4	305.88	200.1810
24 Aqueduct	Pool_14-30	50.1132	277.01	32	12	306.12	160.4	306.11	148.4	306.11	200.8197
24 Aqueduct	Pool_14-30	49.9711	277.12	32	12	306.47	161.6	306.58	149.6	306.47	200.9618
24 Aqueduct	Pool_14-30	49.6751	277.42	32	12	306.68	160.9	306.62	148.9	306.62	201.2577
24 Aqueduct	Pool_14-30	48.9094	277.55	32	12	306.5	160.7	306.94	148.7	306.5	202.0234

24 Aqueduct	Pool_14-30	48.8805	277.51	32	12	306.85	161.4	306.88	149.4	306.85	202.0524
24 Aqueduct	Pool_14-30	48.7887	277.76	32	12	306.64	160.6	307.18	148.6	306.64	202.1441
24 Aqueduct	Pool_14-30	48.6558	277.77	31.99	12	306.7	160.2	306.93	148.2	306.7	202.2771
24 Aqueduct	Pool_14-30	48.4892	277.65	32.01	12	306.9	161.1	306.94	149.1	306.9	202.4437
24 Aqueduct	Pool_14-30	48.0095	278.54	32	12	307.82	160.8	307.66	148.8	307.66	202.9233
24 Aqueduct	Pool_14-30	47.7580	278.77	32	12	308.02	160.8	307.92	148.8	307.92	203.1749
24 Aqueduct	Pool_14-30	47.5506	278.96	31.99	12	308.13	160.4	308.01	148.4	308.01	203.3822
24 Aqueduct	Pool_14-30	47.4421	278.77	32.01	12	308.03	160.7	307.85	148.7	307.85	203.4908
24 Aqueduct	Pool_14-30	46.7302	278.78	32	12	307.87	160.7	308.03	148.7	307.87	204.2026
24 Aqueduct	Pool_14-30	46.6330	278.83	32	12	307.9	160.8	308.15	148.8	307.9	204.2998
24 Aqueduct	Pool_14-30	46.2251	278.6	32	12	307.68	160.6	307.82	148.6	307.68	204.7077
24 Aqueduct	Pool_14-30	45.8366	278.25	32	12	307.22	160.6	307.58	148.6	307.22	205.0962
24 Aqueduct	Pool_14-30	45.6847	277.85	32.01	12	307.06	160.3	306.8	148.3	306.8	205.2482
24 Aqueduct	Pool_14-30	45.6551	277.89	32	12	307.15	160.8	307.04	148.8	307.04	205.2777
24 Aqueduct	Pool_14-30	45.4065	277.56	32	12	306.7	161	306.92	149	306.7	205.5264
24 Aqueduct	Pool_14-30	45.2734	277.37	32	12	306.44	159.9	306.25	147.9	306.25	205.6594
24 Aqueduct	Pool_14-30	45.1689	277.15	32	12	306.35	160.6	306.24	148.6	306.24	205.7640
24 Aqueduct	Pool_14-30	45.0377	277.06	32	12	306.26	160.5	306.1	148.5	306.1	205.8951
24 Aqueduct	Pool_14-30	44.8907	276.52	32	12	305.77	161.2	305.87	149.2	305.77	206.0421
24 Aqueduct	Pool_14-30	44.8795	276.5	32	12	305.86	161.3	305.8	149.3	305.8	206.0533
24 Aqueduct	Pool_14-30	44.8383	276.35	32	12	305.78	161.6	305.72	149.6	305.72	206.0945
24 Aqueduct	Pool_14-30	44.8292	276.64	32	12	308.33	170.3	308.1	158.3	308.1	206.1036
24 Aqueduct	Pool_14-30	44.5623	276.38	31.99	12	307.9	171.1	308.4	159.1	307.9	206.3706
24 Aqueduct	Pool_14-30	44.3982	275.74	32	12	307.57	171.5	307.65	159.5	307.57	206.5346
24 Aqueduct	Pool_14-30	44.1245	274.52	32.01	12	306.45	172.5	306.84	160.5	306.45	206.8083
24 Aqueduct	Pool_14-30	44.0464	274.81	31.99	12	306.56	171.3	306.71	159.3	306.56	206.8865
24 Aqueduct	Pool_14-30	43.7432	275.42	32	12	307.12	170.7	307.07	158.7	307.07	207.1896
24 Aqueduct	Pool_14-30	43.7232	275.03	32	12	307.04	171.3	306.66	159.3	306.66	207.2096
24 Aqueduct	Pool_14-30	43.5607	274.45	32	12	306.56	172.6	306.64	160.6	306.56	207.3722
24 Aqueduct	Pool_14-30	43.4478	274.86	32	12	306.81	172.3	307.06	160.3	306.81	207.4850
24 Aqueduct	Pool_14-30	43.0971	275.29	32	12	306.89	171.2	307.3	159.2	306.89	207.8357
24 Aqueduct	Pool_14-30	43.0112	275.06	31.99	12	307.2	171.7	306.78	159.7	306.78	207.9217
24 Aqueduct	Pool_14-30	43.0036	275.67	32	12	307.46	171.5	307.63	159.5	307.46	207.9293
24 Aqueduct	Pool_14-30	42.9983	281.73	87.5	0	307.73	87.5	307.73	87.5	307.73	207.9346
24 Aqueduct	Pool_14-30	42.9960	281.73	87.5	0	307.73	87.5	307.73	87.5	307.73	207.9368
25 Aqueduct	Pool_14-30	42.9846	282.06	87.5	0	308.06	87.5	308.06	87.5	308.06	207.9482
25 Aqueduct	Pool_14-30	42.9824	282.06	87.5	0	308.06	87.5	308.06	87.5	308.06	207.9505
25 Aqueduct	Pool_14-30	42.9733	275.92	32	12	305.13	161	305.21	149	305.13	207.9596
25 Aqueduct	Pool_14-30	42.9392	275.46	32	12	307.7	173	307.72	161	307.7	207.9937
25 Aqueduct	Pool_14-30	42.8170	275.67	32	12	307.74	172.6	307.89	160.6	307.74	208.1158
25 Aqueduct	Pool_14-30	42.7970	275.88	32	12	305.19	161	305.07	149	305.07	208.1358
25 Aqueduct	Pool_14-30	42.4255	276.21	32.01	12	305.27	161.1	305.69	149.1	305.27	208.5073
25 Aqueduct	Pool_14-30	42.0661	275.4	32.01	12	304.88	162.3	305.06	150.3	304.88	208.8668
25 Aqueduct	Pool_14-30	41.9885	275.55	32	12	305.17	161.9	304.88	149.9	304.88	208.9444
25 Aqueduct	Pool_14-30	41.9508	275.79	32	12	305.16	160.8	304.81	148.8	304.81	208.9821
25 Aqueduct	Pool_14-30	41.7506	275.29	32	12	307.14	171.2	307.05	159.2	307.05	209.1823
25 Aqueduct	Pool_14-30	41.7083	275.49	32	12	306.82	169.8	307.07	157.8	306.82	209.2246
25 Aqueduct	Pool_14-30	41.5625	275.68	32	12	307.07	169.9	307.25	157.9	307.07	209.3704
25 Aqueduct	Pool_14-30	41.5425	275.61	32.01	12	307.16	170.3	307.2	158.3	307.16	209.3904
25 Aqueduct	Pool_14-30	41.4086	275.61	32	12	306.63	169.4	307.29	157.4	306.63	209.5243
25 Aqueduct	Pool_14-30	41.2051	275.5	32	12	306.81	169.4	306.89	157.4	306.81	209.7277
25 Aqueduct	Pool_14-30	41.1490	275.98	32.01	12	307.41	169.2	307.15	157.2	307.15	209.7838
25 Aqueduct	Pool_14-30	41.1221	275.62	32	12	306.6	169	307.14	157	306.6	209.8108
25 Aqueduct	Pool_14-30	41.1151	275.79	32	12	306.75	169.1	307.39	157.1	306.75	209.8177
25 Aqueduct	Pool_14-30	40.9160	275.82	32	12	307.05	168.8	306.99	156.8	306.99	210.0168
25 Aqueduct	Pool_14-30	40.6249	275.92	32	12	307.62	170.2	307.31	158.2	307.31	210.3080
25 Aqueduct	Pool_14-30	40.6209	276.93	32	12	305.92	160.2	306.04	148.2	305.92	210.3119
25 Aqueduct	Pool_14-30	40.6105	277.09	32	12	306.02	160	306.16	148	306.02	210.3223
25 Aqueduct	Pool_14-30	40.5162	277.13	32	12	305.97	159.9	306.24	147.9	305.97	210.4166
25 Aqueduct	Pool_14-30	40.3613	277.31	32	12	306.27	159.8	306.26	147.8	306.26	210.5716
25 Aqueduct	Pool_14-30	40.2249	277.33	32	12	306.32	159.8	306.23	147.8	306.23	210.7080
25 Aqueduct	Pool_14-30	40.1759	277.23	31.99	12	306.41	160.4	306.24	148.4	306.24	210.7569
25 Aqueduct	Pool_14-30	40.1306	277.53	31.99	12	306.32	159.5	306.49	147.5	306.32	210.8022
25 Aqueduct	Pool_14-30	39.8621	277.44	32	12	306.53	160	306.34	148	306.34	211.0707
25 Aqueduct	Pool_14-30	39.7285	277.62	31.99	12	306.67	159.8	306.48	147.8	306.48	211.2043
25 Aqueduct	Pool_14-30	38.3857	276.68	32	12	305.87	159.7	305.34	147.7	305.34	212.5472
25 Aqueduct	Pool_14-30	38.2605	276.58	32.01	12	305.56	159.9	305.55	147.9	305.55	212.6723
25 Aqueduct	Pool_14-30	38.0529	276.65	32	12	305.71	159.5	305.34	147.5	305.34	212.8799
25 Aqueduct	Pool_14-30	37.9040	276.54	31.99	12	305.79	159.6	305.1	147.6	305.1	213.0288
25 Aqueduct	Pool_14-30	37.1476	276.91	31.99	12	305.98	159.7	305.7	147.7	305.7	213.7853
25 Aqueduct	Pool_14-30	36.9892	277.22	32.01	12	305.96	158.5	305.72	146.5	305.72	213.9436
25 Aqueduct	Pool_14-30	36.8074	277.11	32	12	306.28	159.9	305.89	147.9	305.89	214.1255

25 Aqueduct	Pool_14-30	36.7293	277.41	32	12	306.66	160	306.15	148	306.15	214.2035
25 Aqueduct	Pool_14-30	36.6159	277.33	31.99	12	306.6	159.7	305.91	147.7	305.91	214.3170
25 Aqueduct	Pool_14-30	36.0747	277.38	32	12	306.6	159.9	306.11	147.9	306.11	214.8582
25 Aqueduct	Pool_14-30	35.9880	277.42	32	12	306.47	159.7	306.22	147.7	306.22	214.9449
25 Aqueduct	Pool_14-30	35.4932	277.81	32	12	306.8	159.5	306.57	147.5	306.57	215.4397
25 Aqueduct	Pool_14-30	35.3887	277.81	32	12	306.78	159.3	306.49	147.3	306.49	215.5442
25 Aqueduct	Pool_14-30	34.7967	278.09	32	12	307.15	159.1	306.57	147.1	306.57	216.1362
25 Aqueduct	Pool_14-30	34.5924	277.92	31.99	12	306.88	159.5	306.71	147.5	306.71	216.3405
25 Aqueduct	Pool_14-30	34.3049	277.85	32	12	307.13	160	306.57	148	306.57	216.6279
25 Aqueduct	Pool_14-30	33.9754	277.89	31.99	12	307.18	160.3	306.75	148.3	306.75	216.9574
25 Aqueduct	Pool_14-30	33.8761	277.91	32.01	12	307	159.6	306.62	147.6	306.62	217.0567
25 Aqueduct	Pool_14-30	33.7985	277.34	32	12	306.73	159.6	305.75	147.6	305.75	217.1344
25 Aqueduct	Pool_14-30	33.1920	277.44	32	12	306.69	160.5	306.44	148.5	306.44	217.7408
25 Aqueduct	Pool_14-30	33.1627	276.93	32	12	306.21	159.9	305.6	147.9	305.6	217.7702
25 Aqueduct	Pool_14-30	33.1585	277.43	31.99	12	306.37	159.2	306.09	147.2	306.09	217.7744
25 Aqueduct	Pool_14-30	33.1551	277.66	32	12	306.33	158.5	306.24	146.5	306.24	217.7778
25 Aqueduct	Pool_14-30	33.1498	283.41	87.5	0	309.41	87.5	309.41	87.5	309.41	217.7831
25 Aqueduct	Pool_14-30	33.1475	283.41	87.5	0	309.41	87.5	309.41	87.5	309.41	217.7853
26 Aqueduct	Pool_14-30	33.1361	283.36	87.5	0	309.36	87.5	309.36	87.5	309.36	217.7967
26 Aqueduct	Pool_14-30	33.1339	283.36	87.5	0	309.36	87.5	309.36	87.5	309.36	217.7990
26 Aqueduct	Pool_14-30	33.1248	278.29	32	12	306.96	157.9	306.57	145.9	306.57	217.8081
26 Aqueduct	Pool_14-30	33.0907	278.41	32	12	306.94	157.7	306.73	145.7	306.73	217.8422
26 Aqueduct	Pool_14-30	32.1114	278.16	32.01	12	306.82	158	306.5	146	306.5	218.8215
26 Aqueduct	Pool_14-30	32.0452	278.13	32	12	306.69	157.4	306.28	145.4	306.28	218.8876
26 Aqueduct	Pool_14-30	31.6233	278.36	32.01	12	307.02	157.4	306.39	145.4	306.39	219.3095
26 Aqueduct	Pool_14-30	31.5023	278.45	31.99	12	307.03	157.8	306.77	145.8	306.77	219.4306
26 Aqueduct	Pool_14-30	31.3445	278.36	31.99	12	306.86	157.5	306.62	145.5	306.62	219.5884
26 Aqueduct	Pool_14-30	31.0041	278.16	32	12	306.64	157.8	306.57	145.8	306.57	219.9287
26 Aqueduct	Pool_14-30	30.8816	277.87	32	12	306.17	157.1	306.11	145.1	306.11	220.0513
26 Aqueduct	Pool_14-30	30.6868	277.82	32.01	12	306.29	157	305.84	145	305.84	220.2461
26 Aqueduct	Pool_14-30	30.6792	282.82	65	0	311.62	65	311.62	65	311.62	220.2537
26 Aqueduct	Pool_14-30	30.6777	282.82	65	0	299.82	65	299.82	65	299.82	220.2552
26 Aqueduct	Pool_14-30	30.6682	277.82	51	0	293.82	51	293.82	51	293.82	220.2646
26 Aqueduct	Pool_14-30	30.6304	277.82	51	0	293.82	51	293.82	51	293.82	220.3025
26 Aqueduct	Pool_14-30	30.6209	282.3	65	0	299.3	65	299.3	65	299.3	220.3120
26 Aqueduct	Pool_14-30	30.6167	282.3	65	0	311.1	65	311.1	65	311.1	220.3161
26 Aqueduct	Pool_14-30	30.6054	275.85	32	12	304.32	156.7	303.72	144.7	303.72	220.3275
26 Aqueduct	Pool_14-30	30.5250	277.53	32	12	305.81	156.4	305.46	144.4	305.46	220.4079
26 Aqueduct	Pool_14-30	30.3872	277.41	32	12	305.76	157.2	305.66	145.2	305.66	220.5457
26 Aqueduct	Pool_14-30	29.6023	277.23	32	12	305.83	158.1	305.68	146.1	305.68	221.3305
26 Aqueduct	Pool_14-30	29.5095	277.1	32	12	305.78	158.1	305.47	146.1	305.47	221.4234
26 Aqueduct	Pool_14-30	28.8993	277.18	32	12	305.6	157.7	305.61	145.7	305.6	222.0336
26 Aqueduct	Pool_14-30	28.8674	277.14	32	12	305.49	157.6	305.59	145.6	305.49	222.0655
26 Aqueduct	Pool_14-30	28.3170	276.73	32	12	305.34	158.2	305.21	146.2	305.21	222.6159
26 Aqueduct	Pool_14-30	28.1410	276.71	32.01	12	305.28	158	305.13	146	305.13	222.7918
26 Aqueduct	Pool_14-30	27.5903	276.86	32	12	305.43	157.3	304.95	145.3	304.95	223.3425
26 Aqueduct	Pool_14-30	27.4693	276.8	32	12	305.08	157.3	305.17	145.3	305.08	223.4636
26 Aqueduct	Pool_14-30	27.1745	276.73	32	12	305.17	157.5	305.05	145.5	305.05	223.7583
26 Aqueduct	Pool_14-30	26.8800	275.96	32	12	304.26	157.2	304.27	145.2	304.26	224.0529
26 Aqueduct	Pool_14-30	26.7721	276.43	32	12	304.88	158.1	305.03	146.1	304.88	224.1607
26 Aqueduct	Pool_14-30	26.7421	276.21	32	12	304.59	157.8	304.72	145.8	304.59	224.1907
26 Aqueduct	Pool_14-30	26.7221	276.43	32	12	304.98	158.4	305.08	146.4	304.98	224.2107
26 Aqueduct	Pool_14-30	26.6067	276.22	32	12	304.55	157.2	304.49	145.2	304.49	224.3261
26 Aqueduct	Pool_14-30	26.4552	275.62	32	12	303.67	157.8	304.47	145.8	303.67	224.4776
26 Aqueduct	Pool_14-30	26.0347	275.37	32	12	303.94	157.8	303.7	145.8	303.7	224.8981
26 Aqueduct	Pool_14-30	26.0271	275.96	32	12	304.43	157.9	304.43	145.9	304.43	224.9057
26 Aqueduct	Pool_14-30	26.0218	280.96	65	0	306.96	65	306.96	65	306.96	224.9110
26 Aqueduct	Pool_14-30	26.0196	280.96	65	0	306.96	65	306.96	65	306.96	224.9133
27 Aqueduct	Pool_14-30	26.0082	281.98	65	0	307.98	65	307.98	65	307.98	224.9246
27 Aqueduct	Pool_14-30	26.0059	281.98	65	0	307.98	65	307.98	65	307.98	224.9269
27 Aqueduct	Pool_14-30	25.9968	276.86	32.01	12	305.33	157.1	304.93	145.1	304.93	224.9360
27 Aqueduct	Pool_14-30	25.9628	276.42	32	12	304.95	157.1	304.44	145.1	304.44	224.9701
27 Aqueduct	Pool_14-30	25.8728	276.14	32	12	305.13	158.1	304.2	146.1	304.2	225.0601
27 Aqueduct	Pool_14-30	25.8528	276.07	32	12	304.8	157.8	304.24	145.8	304.24	225.0801
27 Aqueduct	Pool_14-30	25.5851	276.01	32	12	304.73	157.6	304.09	145.6	304.09	225.3478
27 Aqueduct	Pool_14-30	25.4840	275.51	32	12	304.3	158.2	303.82	146.2	303.82	225.4489
27 Aqueduct	Pool_14-30	25.2986	275.61	32	12	304.27	157.3	303.59	145.3	303.59	225.6342
27 Aqueduct	Pool_14-30	25.1695	275.82	32	12	304.59	157.5	303.8	145.5	303.8	225.7633
27 Aqueduct	Pool_14-30	24.9902	276.13	31.99	12	304.86	158	304.41	146	304.41	225.9427
27 Aqueduct	Pool_14-30	24.7616	276.15	32.01	12	304.7	158.4	304.79	146.4	304.7	226.1712
27 Aqueduct	Pool_14-30	24.4431	276.05	32	12	304.58	158.7	304.86	146.7	304.58	226.4897
27 Aqueduct	Pool_14-30	24.1838	276.13	31.99	12	304.98	158.5	304.55	146.5	304.55	226.7490

27 Aqueduct	Pool_14-30	23.7687	276.37	32	12	304.98	157.5	304.52	145.5	304.52	227.1642
27 Aqueduct	Pool_14-30	23.4449	276.41	31.99	12	305.18	159.1	305.18	147.1	305.18	227.4879
27 Aqueduct	Pool_14-30	22.9972	276.12	32	12	304.83	158.9	304.86	146.9	304.83	227.9357
27 Aqueduct	Pool_14-30	22.7431	276.13	32	12	304.61	157.8	304.54	145.8	304.54	228.1897
27 Aqueduct	Pool_14-30	22.0501	275.78	31.99	12	304.15	158.1	304.46	146.1	304.15	228.8827
27 Aqueduct	Pool_14-30	21.6842	275.04	32.01	12	303.63	157.7	303.3	145.7	303.3	229.2486
27 Aqueduct	Pool_14-30	21.3277	275.45	32.01	12	303.75	156.5	303.4	144.5	303.4	229.6052
27 Aqueduct	Pool_14-30	21.1014	275.56	32	12	303.85	157.6	304.07	145.6	303.85	229.8314
27 Aqueduct	Pool_14-30	20.6285	275.49	32	12	303.7	157.3	303.93	145.3	303.7	230.3044
27 Aqueduct	Pool_14-30	20.5451	275.25	32	12	303.68	158.1	303.87	146.1	303.68	230.3877
27 Aqueduct	Pool_14-30	20.3373	275.4	32	12	304.03	158	303.78	146	303.78	230.5956
27 Aqueduct	Pool_14-30	20.1749	274.92	32	12	303.48	158.2	303.47	146.2	303.47	230.7580
27 Aqueduct	Pool_14-30	19.8748	275.21	32	12	303.61	158.1	303.85	146.1	303.61	231.0581
27 Aqueduct	Pool_14-30	19.7392	275.05	32.01	12	303.26	157.8	303.73	145.8	303.26	231.1936
27 Aqueduct	Pool_14-30	19.6161	273.09	32	12	301.65	159	302.02	147	301.65	231.3168
27 Aqueduct	Pool_14-30	19.4969	275.14	32	12	303.59	158.2	303.79	146.2	303.59	231.4360
27 Aqueduct	Pool_14-30	19.2227	275.24	32	12	303.66	157.8	303.73	145.8	303.66	231.7102
27 Aqueduct	Pool_14-30	19.2151	275.19	32	12	303.41	157.6	303.76	145.6	303.41	231.7178
27 Aqueduct	Pool_14-30	19.2098	280.19	65	0	306.19	65	306.19	65	306.19	231.7231
27 Aqueduct	Pool_14-30	19.2090	280.19	65	0	306.19	65	306.19	65	306.19	231.7239
28 Aqueduct	Pool_14-30	19.2075	280.52	65	0	306.52	65	306.52	65	306.52	231.7253
28 Aqueduct	Pool_14-30	19.1961	280.52	65	0	306.52	65	306.52	65	306.52	231.7367
28 Aqueduct	Pool_14-30	19.1939	280.52	65	0	306.52	65	306.52	65	306.52	231.7390
28 Aqueduct	Pool_14-30	19.1848	275.4	32	12	303.59	157.6	304.01	145.6	303.59	231.7481
28 Aqueduct	Pool_14-30	19.1507	275.16	32.01	12	303.39	157.3	303.58	145.3	303.39	231.7822
28 Aqueduct	Pool_14-30	19.0026	275.1	32	12	303.54	158.4	303.87	146.4	303.54	231.9303
28 Aqueduct	Pool_14-30	18.9384	275.15	32.01	12	303.51	157.7	303.64	145.7	303.51	231.9944
28 Aqueduct	Pool_14-30	18.1521	275.11	32.01	12	303.77	157.6	303.24	145.6	303.24	232.7808
28 Aqueduct	Pool_14-30	18.0074	274.7	32	12	303.26	158	303.14	146	303.14	232.9254
28 Aqueduct	Pool_14-30	17.9674	274.87	32	12	303.59	158.1	303.2	146.1	303.2	232.9654
28 Aqueduct	Pool_14-30	17.9474	274.68	32	12	303.46	158.6	303.21	146.6	303.21	232.9854
28 Aqueduct	Pool_14-30	17.8156	274.75	32	12	302.87	156.7	302.97	144.7	302.87	233.1173
28 Aqueduct	Pool_14-30	17.4915	274.73	32	12	303.05	157.6	303.21	145.6	303.05	233.4413
28 Aqueduct	Pool_14-30	17.3538	274.88	32	12	303.04	157.8	303.63	145.8	303.04	233.5791
28 Aqueduct	Pool_14-30	17.1379	274.74	32	12	302.86	157	303.13	145	302.86	233.7950
28 Aqueduct	Pool_14-30	16.7280	274.62	32.01	12	303.1	157.7	303	145.7	303	234.2048
28 Aqueduct	Pool_14-30	16.5956	274.56	32	12	302.97	157.9	303.09	145.9	302.97	234.3373
28 Aqueduct	Pool_14-30	16.3404	274.36	32	12	302.91	158.3	302.96	146.3	302.91	234.5925
28 Aqueduct	Pool_14-30	16.1678	274.65	32	12	302.93	156.8	302.77	144.8	302.77	234.7650
28 Aqueduct	Pool_14-30	15.7630	274.56	32	12	302.89	157	302.72	145	302.72	235.1699
28 Aqueduct	Pool_14-30	15.5995	274.46	31.99	12	302.67	157.5	303	145.5	302.67	235.3334
28 Aqueduct	Pool_14-30	15.2267	274.12	32	12	302.43	157.3	302.47	145.3	302.43	235.7061
28 Aqueduct	Pool_14-30	15.1772	274.45	32	12	303.12	157.7	302.62	145.7	302.62	235.7556
28 Aqueduct	Pool_14-30	15.0513	274.35	32.01	12	302.71	157.7	302.83	145.7	302.71	235.8816
28 Aqueduct	Pool_14-30	14.9365	274.48	32	12	303.03	157.7	302.79	145.7	302.79	235.9963
28 Aqueduct	Pool_14-30	14.7614	274.31	32	12	302.81	158	302.82	146	302.81	236.1714
28 Aqueduct	Pool_14-30	14.5673	274.04	32	12	302.62	159	302.97	147	302.62	236.3656
28 Aqueduct	Pool_14-30	14.4924	274.41	32	12	302.47	156.5	302.6	144.5	302.47	236.4404
28 Aqueduct	Pool_14-30	14.4342	274.02	32	12	302.42	157.8	302.52	145.8	302.42	236.4986
28 Aqueduct	Pool_14-30	14.3675	274.15	32	12	302.28	157.5	302.76	145.5	302.28	236.5653
28 Aqueduct	Pool_14-30	14.2786	273.15	32	12	301.77	158.8	301.92	146.8	301.77	236.6542
28 Aqueduct	Pool_14-30	13.9485	275.34	32	12	299.85	166.6	299.88	154.6	299.85	236.9844
28 Aqueduct	Pool_14-30	13.9277	275.61	31.99	12	300.06	166.2	300.04	154.2	300.04	237.0051
28 Aqueduct	Pool_14-30	13.5913	275.46	32	12	300.17	167	299.95	155	299.95	237.3416
28 Aqueduct	Pool_14-30	13.5070	275.72	31.99	12	299.96	165.3	300.01	153.3	299.96	237.4259
28 Aqueduct	Pool_14-30	13.3410	275.37	32	12	299.7	165.9	299.8	153.9	299.7	237.5918
28 Aqueduct	Pool_14-30	13.1914	275.23	32	12	299.75	166.4	299.68	154.4	299.68	237.7414
28 Aqueduct	Pool_14-30	12.9197	275.59	32.01	12	300.14	166.1	299.87	154.1	299.87	238.0131
28 Aqueduct	Pool_14-30	12.8891	275.4	32	12	299.94	165.9	299.62	153.9	299.62	238.0438
28 Aqueduct	Pool_14-30	12.8664	275.28	31.99	12	299.92	166.6	299.69	154.6	299.69	238.0664
28 Aqueduct	Pool_14-30	12.8647	275.34	32	12	300.03	167	299.85	155	299.85	238.0681
28 Aqueduct	Pool_14-30	12.8425	275.36	32	12	299.85	166.4	299.82	154.4	299.82	238.0904
28 Aqueduct	Pool_14-30	12.8349	275.33	32	12	299.93	166.6	299.77	154.6	299.77	238.0979
28 Aqueduct	Pool_14-30	12.8296	276.65	65	0	302.65	65	302.65	65	302.65	238.1032
28 Aqueduct	Pool_14-30	12.8273	276.65	65	0	302.65	65	302.65	65	302.65	238.1055
29 Aqueduct	Pool_14-30	12.8160	276.71	65	0	302.71	65	302.71	65	302.71	238.1169
29 Aqueduct	Pool_14-30	12.8137	276.71	65	0	302.71	65	302.71	65	302.71	238.1192
29 Aqueduct	Pool_14-30	12.8008	276.33	31.99	12	300.85	166.2	300.69	154.2	300.69	238.1320
29 Aqueduct	Pool_14-30	12.7705	276.22	31.99	12	300.62	165.8	300.54	153.8	300.54	238.1623
29 Aqueduct	Pool_14-30	12.6557	276.28	31.99	12	300.72	165.7	300.52	153.7	300.52	238.2772
29 Aqueduct	Pool_14-30	12.5371	276.14	31.99	12	300.55	165.7	300.41	153.7	300.41	238.3957
29 Aqueduct	Pool_14-30	12.4549	276.42	31.99	12	300.79	165.4	300.61	153.4	300.61	238.4780

29	Aqueduct	Pool_14-30	12.2256	276	31.99	12	300.48	166.3	300.45	154.3	300.45	238.7073
29	Aqueduct	Pool_14-30	12.0443	275.91	31.99	12	300.04	165.5	300.37	153.5	300.04	238.8886
29	Aqueduct	Pool_14-30	11.9511	275.81	31.99	12	300.33	166.4	300.26	154.4	300.26	238.9818
29	Aqueduct	Pool_14-30	11.4305	275.93	31.99	12	300.57	165.7	299.98	153.7	299.98	239.5024
29	Aqueduct	Pool_14-30	11.3674	275.68	32	12	300.32	165.9	299.8	153.9	299.8	239.5655
29	Aqueduct	Pool_14-30	11.2934	275.72	32	12	300.31	166.9	300.28	154.9	300.28	239.6395
29	Aqueduct	Pool_14-30	11.2229	276.07	32	12	300.29	165.1	300.29	153.1	300.29	239.7099
29	Aqueduct	Pool_14-30	11.0020	275.99	31.99	12	300.24	165.5	300.34	153.5	300.24	239.9308
29	Aqueduct	Pool_14-30	10.9426	275.8	32	12	300.2	165.6	300.03	153.6	300.03	239.9902
29	Aqueduct	Pool_14-30	10.8518	275.9	32	12	300.53	166.9	300.44	154.9	300.44	240.0810
29	Aqueduct	Pool_14-30	10.8318	275.71	31.99	12	300.12	166.8	300.42	154.8	300.12	240.1010
29	Aqueduct	Pool_14-30	10.6765	275.73	32	12	299.89	165.7	300.25	153.7	299.89	240.2564
29	Aqueduct	Pool_14-30	10.1717	275.58	31.99	12	300.07	166.2	299.98	154.2	299.98	240.7612
29	Aqueduct	Pool_14-30	10.0171	275.77	32.01	12	300.43	166.5	300.1	154.5	300.1	240.9157
29	Aqueduct	Pool_14-30	9.9735	275.63	32	12	300.06	165.8	299.92	153.8	299.92	240.9593
29	Aqueduct	Pool_14-30	9.9265	275.6	31.99	12	299.98	165.6	299.86	153.6	299.86	241.0063
29	Aqueduct	Pool_14-30	9.9116	275.68	31.99	12	300.14	165.8	299.95	153.8	299.95	241.0213
29	Aqueduct	Pool_14-30	9.8642	275.71	32	12	300.28	166.2	300.02	154.2	300.02	241.0686
29	Aqueduct	Pool_14-30	9.8046	275.33	31.99	12	299.89	166.9	299.94	154.9	299.89	241.1282
29	Aqueduct	Pool_14-30	9.7626	275.5	32	12	299.91	165.5	299.68	153.5	299.68	241.1703
29	Aqueduct	Pool_14-30	9.7625	275.5	31.99	12	299.92	165.5	299.68	153.5	299.68	241.1704
29	Aqueduct	Pool_14-30	9.6562	275.5	32.01	12	300.04	166.4	299.91	154.4	299.91	241.2767
29	Aqueduct	Pool_14-30	9.5975	275.26	32	12	299.84	166.2	299.57	154.2	299.57	241.3354
29	Aqueduct	Pool_14-30	9.5038	275.27	32	12	299.57	164.7	299.25	152.7	299.25	241.4290
29	Aqueduct	Pool_14-30	8.8423	274.95	31.99	12	299.29	166	299.4	154	299.29	242.0905
29	Aqueduct	Pool_14-30	8.6577	274.97	32	12	299.65	167.2	299.57	155.2	299.57	242.2752
29	Aqueduct	Pool_14-30	8.2831	275.12	32	12	299.7	166.4	299.51	154.4	299.51	242.6498
29	Aqueduct	Pool_14-30	8.2651	275.09	32	12	299.47	165.6	299.34	153.6	299.34	242.6677
29	Aqueduct	Pool_14-30	8.0879	274.96	32.01	12	299.25	166.5	299.66	154.5	299.25	242.8449
29	Aqueduct	Pool_14-30	8.0819	274.95	32	12	299.32	166.5	299.58	154.5	299.32	242.8510
29	Aqueduct	Pool_14-30	7.8395	275.12	32	12	299.69	166.5	299.55	154.5	299.55	243.0934
29	Aqueduct	Pool_14-30	7.6430	275.36	32	12	299.74	165.5	299.59	153.5	299.59	243.2899
29	Aqueduct	Pool_14-30	7.5704	275.31	32	12	299.6	165.4	299.59	153.4	299.59	243.3625
29	Aqueduct	Pool_14-30	6.9824	275.26	32.01	12	299.77	166.4	299.7	154.4	299.7	243.9505
29	Aqueduct	Pool_14-30	6.7890	275.04	32.01	12	299.75	166.5	299.33	154.5	299.33	244.1439
29	Aqueduct	Pool_14-30	6.6404	274.9	31.99	12	299.64	167.1	299.4	155.1	299.4	244.2924
29	Aqueduct	Pool_14-30	6.4580	275.08	32	12	299.3	166	299.66	154	299.3	244.4748
29	Aqueduct	Pool_14-30	6.4140	274.98	32	12	300.22	168.8	299.67	156.8	299.67	244.5189
29	Aqueduct	Pool_14-30	6.4064	275.25	32	12	300.68	169.2	299.9	157.2	299.9	244.5264
29	Aqueduct	Pool_14-30	6.4011	276.57	65	0	302.57	65	302.57	65	302.57	244.5318
29	Aqueduct	Pool_14-30	6.3988	276.57	65	0	302.57	65	302.57	65	302.57	244.5340
30	Aqueduct	Pool_14-30	6.3875	276.53	65	0	302.53	65	302.53	65	302.53	244.5454
30	Aqueduct	Pool_14-30	6.3852	276.53	65	0	302.53	65	302.53	65	302.53	244.5477
30	Aqueduct	Pool_14-30	6.3723	275.12	32	12	299.63	166.2	299.48	154.2	299.48	244.5605
30	Aqueduct	Pool_14-30	6.3420	275.12	32	12	299.37	166.2	299.76	154.2	299.37	244.5908
30	Aqueduct	Pool_14-30	6.2758	275.21	32	12	299.7	166.2	299.6	154.2	299.6	244.6570
30	Aqueduct	Pool_14-30	6.1505	275.37	32	12	299.89	165.7	299.52	153.7	299.52	244.7824
30	Aqueduct	Pool_14-30	6.0814	275.13	32	12	299.57	166	299.49	154	299.49	244.8515
30	Aqueduct	Pool_14-30	5.8636	275.31	32.01	12	299.62	166.6	300.04	154.6	299.62	245.0693
30	Aqueduct	Pool_14-30	5.7987	275.27	32	12	299.72	165.9	299.58	153.9	299.58	245.1341
30	Aqueduct	Pool_14-30	5.5961	275.15	32	12	299.7	166	299.4	154	299.4	245.3368
30	Aqueduct	Pool_14-30	5.0013	274.95	32	12	299.59	165.6	298.94	153.6	298.94	245.9316
30	Aqueduct	Pool_14-30	4.6067	274.83	32	12	299.34	166	299.12	154	299.12	246.3262
30	Aqueduct	Pool_14-30	4.4167	274.48	32	12	299.09	166.6	298.92	154.6	298.92	246.5162
30	Aqueduct	Pool_14-30	4.3967	274.78	32	12	299.15	166.1	299.25	154.1	299.15	246.5362
30	Aqueduct	Pool_14-30	3.1154	274.14	32	12	298.19	165.3	298.61	153.3	298.19	247.8174
30	Aqueduct	Pool_14-30	3.0023	274.21	32	12	298.19	164.9	298.59	152.9	298.19	247.9306
30	Aqueduct	Pool_14-30	2.6663	274.19	32	12	298.59	165.8	298.52	153.8	298.52	248.2665
30	Aqueduct	Pool_14-30	2.4448	274.38	32	12	298.44	164.8	298.65	152.8	298.44	248.4881
30	Aqueduct	Pool_14-30	2.1801	273.63	32	12	298.22	166.3	297.96	154.3	297.96	248.7528
30	Aqueduct	Pool_14-30	1.9873	273.96	32.01	12	298.43	167.5	298.88	155.5	298.43	248.9456
30	Aqueduct	Pool_14-30	1.7671	274.19	32.01	12	298.54	165.2	298.32	153.2	298.32	249.1657
30	Aqueduct	Pool_14-30	1.6275	274.07	32.01	12	298.42	165.9	298.48	153.9	298.42	249.3053
30	Aqueduct	Pool_14-30	1.4878	274.03	32	12	298.47	166.2	298.46	154.2	298.46	249.4450
30	Aqueduct	Pool_14-30	1.4689	270.8	24	12	297.39	143	297.71	131	297.39	249.4640
30	Aqueduct	Pool_14-30	1.4509	272.03	24	12	297.67	138.6	297.69	126.6	297.67	249.4819
30	Aqueduct	Pool_14-30	1.3845	271.78	24	12	297.63	139.1	297.48	127.1	297.48	249.5483
30	Aqueduct	Pool_14-30	1.3695	271.94	24	12	297.68	139.1	297.74	127.1	297.68	249.5634
30	Aqueduct	Pool_14-30	1.3692	271.69	24	12	296.28	137.3	297.74	125.3	296.28	249.5637
30	Aqueduct	Pool_14-30	1.3228	271.43	24	12	296.43	138.7	297.79	126.7	296.43	249.6101
30	Aqueduct	Pool_14-30	1.3090	271.83	24	12	297.38	138.9	297.73	126.9	297.38	249.6239
30	Aqueduct	Pool_14-30	1.2161	271.77	24	12	297.51	139.2	297.64	127.2	297.51	249.7168

30	Aqueduct	Pool_14-30	1.0836	272.02	24	12	297.9	139.5	297.88	127.5	297.88	249.8492
30	Aqueduct	Pool_14-30	0.8717	272.01	24	12	297.72	138.5	297.55	126.5	297.55	250.0612
30	Aqueduct	Pool_14-30	0.7049	272.08	24	12	297.84	138.5	297.57	126.5	297.57	250.2279
30	Aqueduct	Pool_14-30	0.5042	271.86	24	12	297.53	138.3	297.33	126.3	297.33	250.4286
30	Aqueduct	Pool_14-30	0.4045	271.84	24	12	297.77	138.6	297.2	126.6	297.2	250.5283
30	Aqueduct	Pool_14-30	0.2343	271.79	24	12	297.47	138.4	297.32	126.4	297.32	250.6986
30	Aqueduct	Pool_14-30	0.0000	271.76	1.08	0	297.59	140.29	297.72	140.29	297.59	250.9329
30	Aqueduct	Pool_14-30	-0.0076	271.688	1.99	0	298.083	154.15	298.335	154.15	298.083	250.9405
30	Aqueduct	Pool_14-30	-0.0538	278.79	337.67	0	300.09	438.67	300.09	438.67	300.09	250.9867
30	Aqueduct	Pool_14-30	-0.0539	278.79	337.67	0	300.09	438.67	300.09	438.67	300.09	250.9868
31	Aqueduct	Pool_31-35	26.9600	478.91	24	12	503.73	135.6	503.89	123.6	503.73	251.1653
31	Aqueduct	Pool_31-35	26.9581	478.04	24	12	502.81	135.6	503.07	123.6	502.81	251.1672
31	Aqueduct	Pool_31-35	26.8149	476.9	24	12	502.59	137.5	501.97	125.5	501.97	251.3106
31	Aqueduct	Pool_31-35	26.6694	477.3	24	12	502.6	137	502.5	125	502.5	251.4577
31	Aqueduct	Pool_31-35	26.1586	477.27	24	12	502.53	136.7	502.36	124.7	502.36	251.9688
31	Aqueduct	Pool_31-35	25.9483	477.15	24	12	502.01	135.6	502.09	123.6	502.01	252.1749
31	Aqueduct	Pool_31-35	25.9053	477.23	24	12	502.33	136.4	502.32	124.4	502.32	252.2176
31	Aqueduct	Pool_31-35	25.6427	476.9	24	12	502.22	137.2	502.18	125.2	502.18	252.4835
31	Aqueduct	Pool_31-35	25.4301	476.94	24	12	502.19	136.7	502.04	124.7	502.04	252.6929
31	Aqueduct	Pool_31-35	25.0082	476.7	24	12	502.09	136.9	501.77	124.9	501.77	253.1145
31	Aqueduct	Pool_31-35	24.8639	476.63	24	12	502.05	137.5	501.97	125.5	501.97	253.2578
31	Aqueduct	Pool_31-35	24.7353	476.7	24	12	502.14	137.5	502.02	125.5	502.02	253.3862
31	Aqueduct	Pool_31-35	24.5845	476.71	24	12	502.13	136.6	501.59	124.6	501.59	253.5349
31	Aqueduct	Pool_31-35	24.5141	476.75	24	12	501.91	136.5	501.85	124.5	501.85	253.6055
31	Aqueduct	Pool_31-35	24.3453	476.37	24	12	501.85	137.6	501.7	125.6	501.7	253.7776
31	Aqueduct	Pool_31-35	24.0491	475.43	24	12	501.05	138.8	501.22	126.8	501.05	254.0731
31	Aqueduct	Pool_31-35	24.0425	481.26	65	0	503.01	65	503.01	65	503.01	254.0797
31	Aqueduct	Pool_31-35	24.0424	481.26	65	0	503.01	65	503.01	65	503.01	254.0797
31	Aqueduct	Pool_31-35	24.0410	481.26	65	0	498.56	65	498.56	65	498.56	254.0812
31	Aqueduct	Pool_31-35	24.0309	459.44	51	0	475.44	51	475.44	51	475.44	254.0913
31	Aqueduct	Pool_31-35	24.0281	453.26	51	0	469.26	51	469.26	51	469.26	254.0941
31	Aqueduct	Pool_31-35	24.0180	453.26	51	0	469.26	51	469.26	51	469.26	254.1041
31	Aqueduct	Pool_31-35	24.0152	459.44	51	0	475.44	51	475.44	51	475.44	254.1070
31	Aqueduct	Pool_31-35	24.0052	481.26	65	0	498.56	65	498.56	65	498.56	254.1170
31	Aqueduct	Pool_31-35	24.0010	481.26	65	0	505.67	65	505.67	65	505.67	254.1212
31	Aqueduct	Pool_31-35	24.0000	481.26	65	0	505.67	65	505.67	65	505.67	254.1212
31	Aqueduct	Pool_31-35	23.9915	475.74	24	12	503.62	147.6	503.65	135.6	503.62	254.1306
31	Aqueduct	Pool_31-35	23.8597	476.35	24	12	504.33	147.6	504.17	135.6	504.17	254.2625
31	Aqueduct	Pool_31-35	23.6587	475.54	24	12	504.11	147.6	502.77	135.6	502.77	254.4671
31	Aqueduct	Pool_31-35	23.1012	475.73	24	12	503.62	147.6	503.64	135.6	503.62	255.0246
31	Aqueduct	Pool_31-35	22.9655	475.25	24	12	503.13	147.6	503.17	135.6	503.13	255.1626
31	Aqueduct	Pool_31-35	22.7385	475.11	24	12	502.74	147.6	503.29	135.6	502.74	255.3894
31	Aqueduct	Pool_31-35	22.6775	475.83	24	12	503.8	147.6	503.66	135.6	503.66	255.4511
31	Aqueduct	Pool_31-35	22.3565	473.23	24	12	501.11	147.6	501.14	135.6	501.11	255.7721
31	Aqueduct	Pool_31-35	22.3512	473.53	24	12	501.59	147.6	501.27	135.6	501.27	255.7774
31	Aqueduct	Pool_31-35	22.0026	475.74	24	12	503.61	147.6	503.66	135.6	503.61	256.1260
31	Aqueduct	Pool_31-35	21.9963	475.38	24	12	503.24	147.6	503.31	135.6	503.24	256.1323
31	Aqueduct	Pool_31-35	21.9897	480.53	65	0	506.03	65	506.03	65	506.03	256.1389
31	Aqueduct	Pool_31-35	21.9896	480.53	65	0	506.03	65	506.03	65	506.03	256.1390
31	Aqueduct	Pool_31-35	21.9886	480.53	65	0	506.03	65	506.03	65	506.03	256.1400
32	Aqueduct	Pool_31-35	21.9800	480.53	65	0	506.03	65	506.03	65	506.03	256.1486
32	Aqueduct	Pool_31-35	21.9790	480.53	65	0	506.03	65	506.03	65	506.03	256.1496
32	Aqueduct	Pool_31-35	21.9789	480.53	65	0	506.03	65	506.03	65	506.03	256.1497
32	Aqueduct	Pool_31-35	21.9695	475.34	24	12	503.51	147.6	502.96	135.6	502.96	256.1591
32	Aqueduct	Pool_31-35	21.3533	475.87	24	12	503.7	147.6	503.83	135.6	503.7	256.7753
32	Aqueduct	Pool_31-35	20.8328	474.61	24	12	502.38	147.6	502.65	135.6	502.38	257.2958
32	Aqueduct	Pool_31-35	20.4767	474.27	24	12	501.76	147.6	502.57	135.6	501.76	257.6519
32	Aqueduct	Pool_31-35	19.6506	474.08	24	12	502.06	147.6	501.9	135.6	501.9	258.4779
32	Aqueduct	Pool_31-35	19.4604	474.21	24	12	502	147.6	502.22	135.6	502	258.6682
32	Aqueduct	Pool_31-35	18.5377	474.38	24	12	502.28	147.6	502.28	135.6	502.28	259.5909
32	Aqueduct	Pool_31-35	18.5235	474.1	24	12	501.92	147.6	502.08	135.6	501.92	259.6051
32	Aqueduct	Pool_31-35	18.5169	480	65	0	504.75	65	504.75	65	504.75	259.6117
32	Aqueduct	Pool_31-35	18.5168	480	65	0	504.75	65	504.75	65	504.75	259.6117
32	Aqueduct	Pool_31-35	18.5153	480	65	0	496	65	496	65	496	259.6133
32	Aqueduct	Pool_31-35	18.5053	480	51	0	496	51	496	51	496	259.6233
32	Aqueduct	Pool_31-35	18.4509	480	51	0	496	51	496	51	496	259.6776
32	Aqueduct	Pool_31-35	18.4409	480	65	0	496	65	496	65	496	259.6877
32	Aqueduct	Pool_31-35	18.4368	480	65	0	504.32	65	504.32	65	504.32	259.6918
32	Aqueduct	Pool_31-35	18.4367	480	65	0	504.32	65	504.32	65	504.32	259.6919
32	Aqueduct	Pool_31-35	18.4273	473.75	24	12	501.73	147.6	501.57	135.6	501.57	259.7013
32	Aqueduct	Pool_31-35	17.9466	473.74	24	12	501.25	147.6	502.04	135.6	501.25	260.1820
32	Aqueduct	Pool_31-35	17.8150	474.04	24	12	501.87	147.6	502.01	135.6	501.87	260.3136

32	Aqueduct	Pool_31-35	16.7092	473.75	24	12	501.65	147.6	501.65	135.6	501.65	261.4194
32	Aqueduct	Pool_31-35	16.5919	473.98	24	12	501.68	147.6	502.07	135.6	501.68	261.5367
32	Aqueduct	Pool_31-35	16.4544	473.81	24	12	501.83	147.6	501.58	135.6	501.58	261.6742
32	Aqueduct	Pool_31-35	16.4510	474.14	24	12	501.96	147.6	502.12	135.6	501.96	261.6776
32	Aqueduct	Pool_31-35	16.4444	479.27	65	0	504.77	65	504.77	65	504.77	261.6842
32	Aqueduct	Pool_31-35	16.4443	479.27	65	0	504.77	65	504.77	65	504.77	261.6842
32	Aqueduct	Pool_31-35	16.4433	479.27	65	0	504.77	65	504.77	65	504.77	261.6853
33	Aqueduct	Pool_31-35	16.4336	479.27	65	0	504.77	65	504.77	65	504.77	261.6949
33	Aqueduct	Pool_31-35	16.4316	479.94	65	0	495.94	65	495.94	65	495.94	261.6970
33	Aqueduct	Pool_31-35	16.4216	478.64	51	0	494.64	51	494.64	51	494.64	261.7070
33	Aqueduct	Pool_31-35	16.3985	478.64	51	0	494.64	51	494.64	51	494.64	261.7301
33	Aqueduct	Pool_31-35	16.3884	479.94	65	0	495.94	65	495.94	65	495.94	261.7402
33	Aqueduct	Pool_31-35	16.3869	479.94	65	0	505.95	65	505.95	65	505.95	261.7417
33	Aqueduct	Pool_31-35	16.3868	479.94	65	0	505.95	65	505.95	65	505.95	261.7417
33	Aqueduct	Pool_31-35	16.3774	473.91	24	12	502.98	152.4	503.04	140.4	502.98	261.7512
33	Aqueduct	Pool_31-35	16.2488	474.27	24	12	503.25	152.4	503.49	140.4	503.25	261.8798
33	Aqueduct	Pool_31-35	16.1813	474.49	24	12	503.56	152.4	503.62	140.4	503.56	261.9473
33	Aqueduct	Pool_31-35	15.3980	474.26	24	12	503.54	152.4	503.18	140.4	503.18	262.7306
33	Aqueduct	Pool_31-35	15.3101	474.33	24	12	503.41	152.4	503.46	140.4	503.41	262.8185
33	Aqueduct	Pool_31-35	14.7367	474.37	24	12	503.47	152.4	503.47	140.4	503.47	263.3919
33	Aqueduct	Pool_31-35	14.5848	474.01	24	12	502.95	152.4	503.26	140.4	502.95	263.5438
33	Aqueduct	Pool_31-35	13.7885	473.48	24	12	502.43	152.4	502.73	140.4	502.43	264.3401
33	Aqueduct	Pool_31-35	13.7865	473.52	24	12	502.56	152.4	502.67	140.4	502.56	264.3421
33	Aqueduct	Pool_31-35	13.7799	479.11	65	0	505.37	65	505.37	65	505.37	264.3487
33	Aqueduct	Pool_31-35	13.7798	479.11	65	0	505.37	65	505.37	65	505.37	264.3487
33	Aqueduct	Pool_31-35	13.7784	479.11	65	0	495.11	65	495.11	65	495.11	264.3502
33	Aqueduct	Pool_31-35	13.7684	475.34	51	0	491.34	51	491.34	51	491.34	264.3602
33	Aqueduct	Pool_31-35	13.7458	475.34	51	0	491.34	51	491.34	51	491.34	264.3828
33	Aqueduct	Pool_31-35	13.7358	479.11	65	0	495.11	65	495.11	65	495.11	264.3928
33	Aqueduct	Pool_31-35	13.7316	479.11	65	0	506.05	65	506.05	65	506.05	264.3970
33	Aqueduct	Pool_31-35	13.7315	479.11	65	0	506.05	65	506.05	65	506.05	264.3970
33	Aqueduct	Pool_31-35	13.7221	472.85	24	12	501.91	152.4	501.99	140.4	501.91	264.4065
33	Aqueduct	Pool_31-35	13.6180	472.99	24	12	501.92	152.4	502.25	140.4	501.92	264.5106
33	Aqueduct	Pool_31-35	13.5230	473.35	24	12	502.38	152.4	502.53	140.4	502.38	264.6056
33	Aqueduct	Pool_31-35	11.2828	472.58	24	12	501.4	152.4	501.95	140.4	501.4	266.8458
33	Aqueduct	Pool_31-35	11.2315	473	24	12	501.98	152.4	502.23	140.4	501.98	266.8971
33	Aqueduct	Pool_31-35	10.7766	472.17	24	12	501.04	152.4	501.5	140.4	501.04	267.3520
33	Aqueduct	Pool_31-35	10.7741	472.55	24	12	501.38	152.4	501.93	140.4	501.38	267.3545
33	Aqueduct	Pool_31-35	10.7674	478.9	65	0	504.4	65	504.4	65	504.4	267.3612
33	Aqueduct	Pool_31-35	10.7673	478.9	65	0	504.4	65	504.4	65	504.4	267.3612
33	Aqueduct	Pool_31-35	10.7664	478.9	65	0	504.4	65	504.4	65	504.4	267.3622
34	Aqueduct	Pool_31-35	10.7567	478.9	65	0	504.4	65	504.4	65	504.4	267.3719
34	Aqueduct	Pool_31-35	10.7547	478.07	65	0	494.07	65	494.07	65	494.07	267.3739
34	Aqueduct	Pool_31-35	10.7446	473.64	51	0	489.64	51	489.64	51	489.64	267.3840
34	Aqueduct	Pool_31-35	10.7248	473.64	51	0	489.64	51	489.64	51	489.64	267.4038
34	Aqueduct	Pool_31-35	10.7147	478.07	65	0	494.07	65	494.07	65	494.07	267.4139
34	Aqueduct	Pool_31-35	10.7132	478.07	65	0	504.08	65	504.08	65	504.08	267.4154
34	Aqueduct	Pool_31-35	10.7131	478.07	65	0	504.08	65	504.08	65	504.08	267.4154
34	Aqueduct	Pool_31-35	10.7037	472.08	24	12	501.16	152.4	501.21	140.4	501.16	267.4249
34	Aqueduct	Pool_31-35	10.4301	471.88	24	12	500.76	152.4	501.2	140.4	500.76	267.6985
34	Aqueduct	Pool_31-35	10.3085	471.99	24	12	501.15	152.4	501.02	140.4	501.02	267.8201
34	Aqueduct	Pool_31-35	9.4612	471.54	24	12	500.8	152.4	500.47	140.4	500.47	268.6674
34	Aqueduct	Pool_31-35	9.3936	471.46	24	12	500.82	152.4	500.3	140.4	500.3	268.7350
34	Aqueduct	Pool_31-35	8.3302	470.87	24	12	500.15	152.4	499.79	140.4	499.79	269.7984
34	Aqueduct	Pool_31-35	8.2522	470.72	24	12	499.94	152.4	499.7	140.4	499.7	269.8764
34	Aqueduct	Pool_31-35	7.9951	470.46	24	12	499.59	152.4	499.53	140.4	499.53	270.1335
34	Aqueduct	Pool_31-35	7.9885	476.06	65	0	502.31	65	502.31	65	502.31	270.1401
34	Aqueduct	Pool_31-35	7.9884	476.06	65	0	502.31	65	502.31	65	502.31	270.1402
34	Aqueduct	Pool_31-35	7.9869	476.06	65	0	492.06	65	492.06	65	492.06	270.1417
34	Aqueduct	Pool_31-35	7.9769	470.77	51	0	486.77	51	486.77	51	486.77	270.1517
34	Aqueduct	Pool_31-35	7.9441	470.77	51	0	486.77	51	486.77	51	486.77	270.1845
34	Aqueduct	Pool_31-35	7.9341	476.06	65	0	492.06	65	492.06	65	492.06	270.1945
34	Aqueduct	Pool_31-35	7.9299	476.06	65	0	502.97	65	502.97	65	502.97	270.1987
34	Aqueduct	Pool_31-35	7.9298	476.06	65	0	502.97	65	502.97	65	502.97	270.1987
34	Aqueduct	Pool_31-35	7.9204	470.05	24	12	500.05	156.4	500.25	144.4	500.05	270.2081
34	Aqueduct	Pool_31-35	7.7194	469.61	24	12	499.76	156.4	499.65	144.4	499.65	270.4092
34	Aqueduct	Pool_31-35	7.6073	469.51	24	12	499.59	156.4	499.63	144.4	499.59	270.5213
34	Aqueduct	Pool_31-35	7.4873	469.3	24	12	499.37	156.4	499.44	144.4	499.37	270.6413
34	Aqueduct	Pool_31-35	7.3404	468.65	24	12	498.6	156.4	498.9	144.4	498.6	270.7882
34	Aqueduct	Pool_31-35	6.8681	468.17	24	12	498.45	156.4	498.08	144.4	498.08	271.2605
34	Aqueduct	Pool_31-35	6.8663	468.22	24	12	498.42	156.4	498.21	144.4	498.21	271.2623
34	Aqueduct	Pool_31-35	6.8597	475.56	65	0	501.06	65	501.06	65	501.06	271.2689

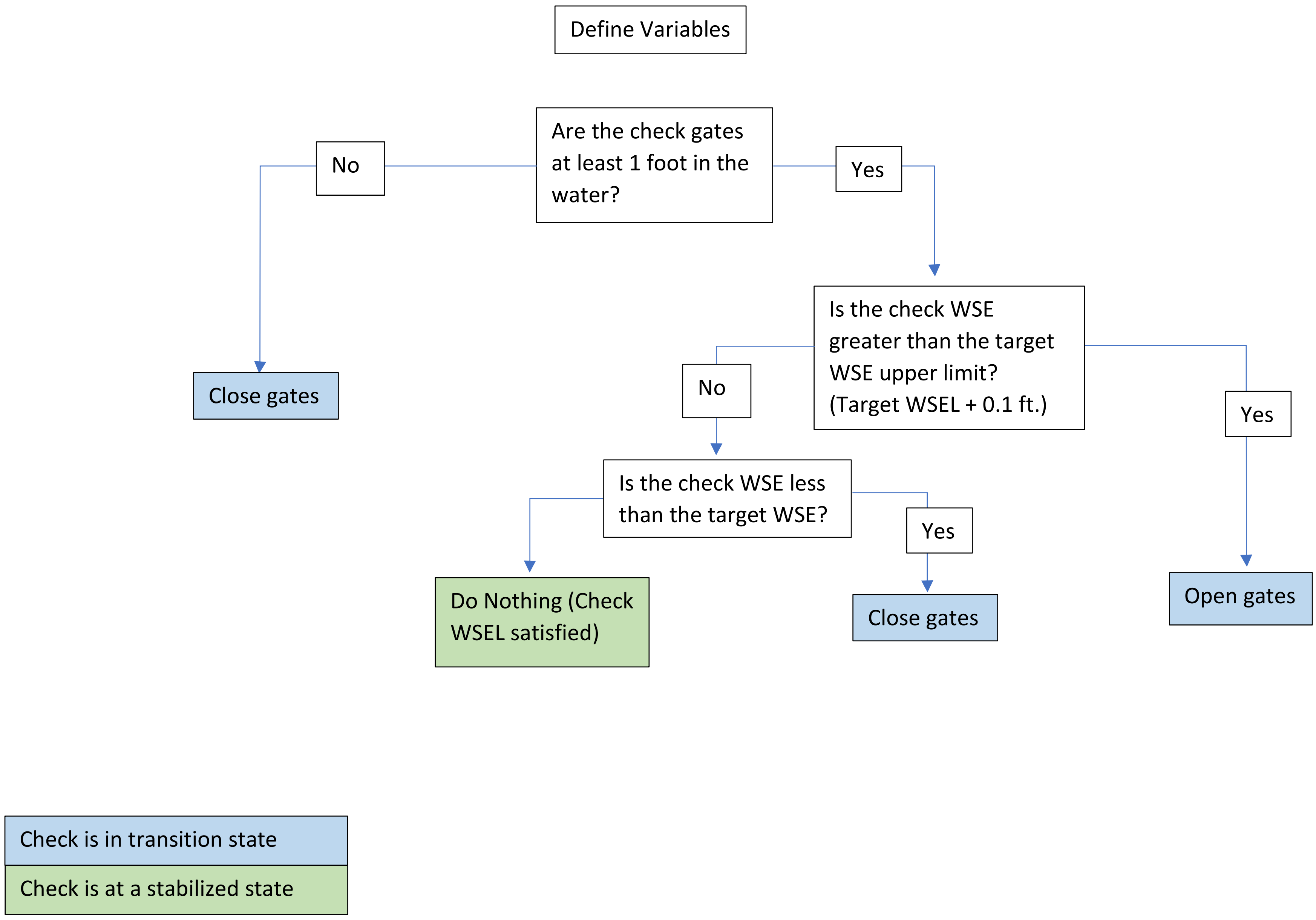
34 Aqueduct	Pool_31-35	6.8596	475.56	65	0	501.06	65	501.06	65	501.06	271.2689
34 Aqueduct	Pool_31-35	6.8586	475.56	65	0	501.06	65	501.06	65	501.06	271.2700
35 Aqueduct	Pool_31-35	6.8490	475.56	65	0	501.06	65	501.06	65	501.06	271.2796
35 Aqueduct	Pool_31-35	6.8469	473.73	65	0	489.73	65	489.73	65	489.73	271.2817
35 Aqueduct	Pool_31-35	6.8369	469.11	51	0	485.11	51	485.11	51	485.11	271.2917
35 Aqueduct	Pool_31-35	6.8212	469.11	51	0	485.11	51	485.11	51	485.11	271.3074
35 Aqueduct	Pool_31-35	6.8111	473.73	65	0	489.73	65	489.73	65	489.73	271.3175
35 Aqueduct	Pool_31-35	6.8096	473.73	65	0	500.73	65	500.73	65	500.73	271.3190
35 Aqueduct	Pool_31-35	6.8095	473.73	65	0	500.73	65	500.73	65	500.73	271.3190
35 Aqueduct	Pool_31-35	6.8001	468.62	24	12	498.69	156.4	498.74	144.4	498.69	271.3285
35 Aqueduct	Pool_31-35	6.7764	468.59	24	12	498.84	156.4	498.55	144.4	498.55	271.3522
35 Aqueduct	Pool_31-35	6.7008	468.71	24	12	498.83	156.4	498.79	144.4	498.79	271.4278
35 Aqueduct	Pool_31-35	5.9943	468.87	24	12	498.86	156.4	499.08	144.4	498.86	272.1343
35 Aqueduct	Pool_31-35	5.8988	468.76	24	12	498.82	156.4	498.9	144.4	498.82	272.2298
35 Aqueduct	Pool_31-35	5.0192	469.26	24	12	499.23	156.4	499.48	144.4	499.23	273.1094
35 Aqueduct	Pool_31-35	4.9462	469.14	24	12	499.19	156.4	499.28	144.4	499.19	273.1824
35 Aqueduct	Pool_31-35	4.7869	468.7	24	12	498.48	156.4	499.12	144.4	498.48	273.3417
35 Aqueduct	Pool_31-35	4.7188	468.58	24	12	498.53	156.4	498.83	144.4	498.53	273.4098
35 Aqueduct	Pool_31-35	4.2944	468.04	24	12	498.19	156.4	498.09	144.4	498.09	273.8342
35 Aqueduct	Pool_31-35	4.0617	468.57	24	12	498.56	156.4	498.78	144.4	498.56	274.0669
35 Aqueduct	Pool_31-35	3.9112	468.63	24	12	498.76	156.4	498.71	144.4	498.71	274.2174
35 Aqueduct	Pool_31-35	3.7873	467.37	24	12	497.58	156.4	497.35	144.4	497.35	274.3413
35 Aqueduct	Pool_31-35	3.5336	467.6	24	12	497.71	156.4	497.68	144.4	497.68	274.5950
35 Aqueduct	Pool_31-35	3.4475	466.9	24	12	497.01	156.4	496.99	144.4	496.99	274.6811
35 Aqueduct	Pool_31-35	2.3649	468.03	24	12	497.94	156.4	498.31	144.4	497.94	275.7637
35 Aqueduct	Pool_31-35	2.2122	468.02	24	12	497.97	156.4	498.26	144.4	497.97	275.9164
35 Aqueduct	Pool_31-35	2.0967	468.49	24	12	498.35	156.4	498.84	144.4	498.35	276.0319
35 Aqueduct	Pool_31-35	1.9585	469.01	24	12	499	156.4	499.23	144.4	499	276.1701
35 Aqueduct	Pool_31-35	1.9008	468.91	24	12	498.77	156.4	499.26	144.4	498.77	276.2278
35 Aqueduct	Pool_31-35	1.8235	468.97	24	12	498.94	156.4	499.21	144.4	498.94	276.3051
35 Aqueduct	Pool_31-35	1.5854	468.9	24	12	498.73	156.4	499.27	144.4	498.73	276.5432
35 Aqueduct	Pool_31-35	1.4828	468.67	24	12	498.71	156.4	498.84	144.4	498.71	276.6458
35 Aqueduct	Pool_31-35	1.2427	467.86	24	12	497.98	156.4	497.94	144.4	497.94	276.8859
35 Aqueduct	Pool_31-35	0.8209	468	24	12	498.02	156.4	498.18	144.4	498.02	277.3077
35 Aqueduct	Pool_31-35	0.5238	468.27	24	12	498.36	156.4	498.37	144.4	498.36	277.6048
35 Aqueduct	Pool_31-35	0.2112	468.84	24	12	499.12	156.4	498.76	144.4	498.76	277.9174
35 Aqueduct	Pool_31-35	0.1248	469.33	24	12	499.65	156.4	499.22	144.4	499.22	278.0038
35 Aqueduct	Pool_31-35	0.0510	469.1	24	12	499.42	156.4	498.98	144.4	498.98	278.0776
35 Aqueduct	Pool_31-35	0.0019	479.8	291.5	12	503.8	387.5	503.8	375.5	503.8	278.1267
35 Aqueduct	Pool_31-35	0.0000	479.8	291.5	12	503.8	387.5	503.8	375.5	503.8	250.9329
37 Aqueduct	Pool_37-40	12.5332	1221.88	52	0	1247.88	52	1247.88	52	1247.88	280.8667
37 Aqueduct	Pool_37-40	12.5313	1221.88	52	0	1247.88	52	1247.88	52	1247.88	280.8686
37 Aqueduct	Pool_37-40	12.5206	1220.88	24	12	1246.51	138	1246.26	126	1246.26	280.8793
37 Aqueduct	Pool_37-40	12.1084	1220.84	24	12	1246.11	138	1246.58	126	1246.11	281.2915
37 Aqueduct	Pool_37-40	12.0079	1221.07	24	12	1246.33	138	1246.81	126	1246.33	281.3920
37 Aqueduct	Pool_37-40	11.8750	1220.61	24	12	1245.96	138	1246.25	126	1245.96	281.5249
37 Aqueduct	Pool_37-40	11.7289	1220.69	24	12	1246.18	138	1246.21	126	1246.18	281.6711
37 Aqueduct	Pool_37-40	11.4903	1219.74	24	12	1244.92	138	1245.55	126	1244.92	281.9096
37 Aqueduct	Pool_37-40	11.3374	1219.71	24	12	1244.68	138	1245.74	126	1244.68	282.0625
37 Aqueduct	Pool_37-40	10.9096	1219.51	24	12	1244.87	138	1245.15	126	1244.87	282.4903
37 Aqueduct	Pool_37-40	10.7842	1220.66	24	12	1245.82	138	1246.49	126	1245.82	282.6157
37 Aqueduct	Pool_37-40	10.6321	1220.67	24	12	1246.14	138	1246.21	126	1246.14	282.7678
37 Aqueduct	Pool_37-40	10.5117	1220.7	24	12	1246.24	138	1246.16	126	1246.16	282.8883
37 Aqueduct	Pool_37-40	10.3441	1220.74	24	12	1246.18	138	1246.29	126	1246.18	283.0558
37 Aqueduct	Pool_37-40	9.6806	1220.24	24	12	1245.84	138	1245.64	126	1245.64	283.7193
37 Aqueduct	Pool_37-40	9.5019	1220.35	24	12	1245.9	138	1245.8	126	1245.8	283.8980
37 Aqueduct	Pool_37-40	9.4580	1220.43	24	12	1245.96	138	1245.91	126	1245.91	283.9420
37 Aqueduct	Pool_37-40	9.4559	1220.69	24	12	1246.06	138	1246.33	126	1246.06	283.9440
37 Aqueduct	Pool_37-40	9.4510	1228.69	65	0	1248.69	65	1248.69	65	1248.69	283.9489
37 Aqueduct	Pool_37-40	9.4500	1228.69	65	0	1248.69	65	1248.69	65	1248.69	283.9490
37 Aqueduct	Pool_37-40	9.4499	1228.69	65	0	1248.69	65	1248.69	65	1248.69	283.9500
38 Aqueduct	Pool_37-40	9.4410	1228.69	65	0	1248.69	65	1248.69	65	1248.69	283.9588
38 Aqueduct	Pool_37-40	9.4381	1225.18	65	0	1241.3	65	1241.3	65	1241.3	283.9618
38 Aqueduct	Pool_37-40	9.4286	1218.54	51	0	1234.54	51	1234.54	51	1234.54	283.9713
38 Aqueduct	Pool_37-40	9.4032	1218.54	51	0	1234.54	51	1234.54	51	1234.54	283.9968
38 Aqueduct	Pool_37-40	9.3937	1224.94	65	0	1241.05	65	1241.05	65	1241.05	284.0062
38 Aqueduct	Pool_37-40	9.3922	1224.94	65	0	1248.69	65	1248.69	65	1248.69	284.0077
38 Aqueduct	Pool_37-40	9.3921	1224.94	65	0	1248.69	65	1248.69	65	1248.69	284.0077
38 Aqueduct	Pool_37-40	9.3823	1220.17	24	12	1245.7	138	1245.63	126	1245.63	284.0176
38 Aqueduct	Pool_37-40	9.0864	1220.15	24	12	1245.85	138	1245.45	126	1245.45	284.3136
38 Aqueduct	Pool_37-40	8.9713	1220.15	24	12	1245.71	138	1245.58	126	1245.58	284.4286
38 Aqueduct	Pool_37-40	7.8432	1219.69	24	12	1245.29	138	1245.09	126	1245.09	285.5567

38	Aqueduct	Pool_37-40	7.7536	1219.72	24	12	1245.3	138	1245.14	126	1245.14	285.6464
38	Aqueduct	Pool_37-40	7.5051	1219.86	24	12	1243.5	130	1243.22	118	1243.22	285.8949
38	Aqueduct	Pool_37-40	7.3632	1219.65	24	12	1243.19	130	1243.11	118	1243.11	286.0368
38	Aqueduct	Pool_37-40	6.5127	1219.57	24	12	1243.12	130	1243.03	118	1243.03	286.8873
38	Aqueduct	Pool_37-40	6.4342	1219.6	24	12	1243.24	130	1242.95	118	1242.95	286.9657
38	Aqueduct	Pool_37-40	6.3113	1219.48	24	12	1243.03	130	1242.93	118	1242.93	287.0886
38	Aqueduct	Pool_37-40	6.3095	1219.67	24	12	1243.22	130	1243.11	118	1243.11	287.0905
38	Aqueduct	Pool_37-40	6.3046	1225.19	65	0	1245.19	65	1245.19	65	1245.19	287.0954
38	Aqueduct	Pool_37-40	6.3045	1225.19	65	0	1245.19	65	1245.19	65	1245.19	287.0954
38	Aqueduct	Pool_37-40	6.3035	1225.19	65	0	1245.19	65	1245.19	65	1245.19	287.0964
39	Aqueduct	Pool_37-40	6.2946	1225.19	65	0	1245.19	65	1245.19	65	1245.19	287.1052
39	Aqueduct	Pool_37-40	6.2928	1223.55	65	0	1240.29	65	1240.29	65	1240.29	287.1071
39	Aqueduct	Pool_37-40	6.2833	1210.58	51	0	1226.58	51	1226.58	51	1226.58	287.1166
39	Aqueduct	Pool_37-40	6.2793	1205.01	51	0	1221.01	51	1221.01	51	1221.01	287.1207
39	Aqueduct	Pool_37-40	6.2745	1205.01	51	0	1221.01	51	1221.01	51	1221.01	287.1255
39	Aqueduct	Pool_37-40	6.2704	1210.58	51	0	1226.58	51	1226.58	51	1226.58	287.1295
39	Aqueduct	Pool_37-40	6.2609	1223.36	65	0	1240.1	65	1240.1	65	1240.1	287.1390
39	Aqueduct	Pool_37-40	6.2594	1223.36	65	0	1245.76	65	1245.76	65	1245.76	287.1405
39	Aqueduct	Pool_37-40	6.2593	1223.36	65	0	1245.76	65	1245.76	65	1245.76	287.1405
39	Aqueduct	Pool_37-40	6.2496	1219.42	24	12	1242.78	130	1243.07	118	1242.78	287.1504
39	Aqueduct	Pool_37-40	5.8971	1219.39	24	12	1242.88	130	1242.89	118	1242.88	287.5028
39	Aqueduct	Pool_37-40	5.3737	1219.22	24	12	1242.81	130	1242.62	118	1242.62	288.0262
39	Aqueduct	Pool_37-40	4.8282	1219.19	24	12	1242.67	130	1242.7	118	1242.67	288.5718
39	Aqueduct	Pool_37-40	4.3643	1219.27	24	12	1242.72	130	1242.82	118	1242.72	289.0357
39	Aqueduct	Pool_37-40	4.0510	1218.92	24	12	1242.41	130	1242.43	118	1242.41	289.3489
39	Aqueduct	Pool_37-40	3.6646	1218.87	24	12	1242.31	130	1242.44	118	1242.31	289.7353
39	Aqueduct	Pool_37-40	3.5388	1218.96	24	12	1242.52	130	1242.39	118	1242.39	289.8612
39	Aqueduct	Pool_37-40	3.1909	1218.93	24	12	1242.54	130	1242.33	118	1242.33	290.2090
39	Aqueduct	Pool_37-40	3.1900	1219.27	24	12	1242.96	130	1242.59	118	1242.59	290.2099
40	Aqueduct	Pool_37-40	3.1851	1225.27	65	0	1245.27	65	1245.27	65	1245.27	290.2148
40	Aqueduct	Pool_37-40	3.1850	1225.27	65	0	1245.27	65	1245.27	65	1245.27	290.2149
40	Aqueduct	Pool_37-40	3.1840	1225.27	65	0	1245.27	65	1245.27	65	1245.27	290.2159
40	Aqueduct	Pool_37-40	3.1752	1225.27	65	0	1245.27	65	1245.27	65	1245.27	290.2247
40	Aqueduct	Pool_37-40	3.1751	1225.27	65	0	1245.27	65	1245.27	65	1245.27	290.2247
40	Aqueduct	Pool_37-40	3.1654	1218.7	24	12	1242.27	130	1242.12	118	1242.12	290.2345
40	Aqueduct	Pool_37-40	2.7545	1218.52	24	12	1241.72	130	1242.32	118	1241.72	290.6454
40	Aqueduct	Pool_37-40	2.6139	1218.57	24	12	1241.98	130	1242.17	118	1241.98	290.7860
40	Aqueduct	Pool_37-40	2.3137	1218.56	24	12	1242.02	130	1242.09	118	1242.02	291.0862
40	Aqueduct	Pool_37-40	2.2221	1218.57	24	12	1241.94	130	1242.2	118	1241.94	291.1778
40	Aqueduct	Pool_37-40	2.0220	1218.5	24	12	1241.84	130	1242.15	118	1241.84	291.3779
40	Aqueduct	Pool_37-40	1.9139	1218.57	24	12	1241.86	130	1242.29	118	1241.86	291.4861
40	Aqueduct	Pool_37-40	1.8927	1218.52	24	12	1241.95	130	1242.09	118	1241.95	291.5073
40	Aqueduct	Pool_37-40	1.7407	1218.62	24	12	1242	130	1242.23	118	1242	291.6593
40	Aqueduct	Pool_37-40	1.6423	1218.5	24	12	1241.97	130	1242.04	118	1241.97	291.7577
40	Aqueduct	Pool_37-40	1.4765	1218.52	24	12	1241.98	130	1242.07	118	1241.98	291.9234
40	Aqueduct	Pool_37-40	1.3479	1218.42	24	12	1242.08	130	1241.75	118	1241.75	292.0520
40	Aqueduct	Pool_37-40	1.2840	1218.56	24	12	1241.92	130	1242.2	118	1241.92	292.1159
40	Aqueduct	Pool_37-40	1.2830	1218.68	24	12	1242.19	130	1242.17	118	1242.17	292.1170
40	Aqueduct	Pool_37-40	1.2781	1222.91	65	0	1247.59	65	1247.59	65	1247.59	292.1219
40	Aqueduct	Pool_37-40	1.2780	1222.91	65	0	1247.59	65	1247.59	65	1247.59	292.1219
40	Aqueduct	Pool_37-40	1.2765	1222.91	65	0	1239.18	65	1239.18	65	1239.18	292.1234
40	Aqueduct	Pool_37-40	1.2671	1214.79	51	0	1230.79	51	1230.79	51	1230.79	292.1329
40	Aqueduct	Pool_37-40	1.2640	1212.17	51	0	1228.17	51	1228.17	51	1228.17	292.1359
40	Aqueduct	Pool_37-40	1.2450	1212.17	51	0	1228.17	51	1228.17	51	1228.17	292.1549
40	Aqueduct	Pool_37-40	1.2419	1214.79	51	0	1230.79	51	1230.79	51	1230.79	292.1580
40	Aqueduct	Pool_37-40	1.2325	1222.72	65	0	1238.99	65	1238.99	65	1238.99	292.1675
40	Aqueduct	Pool_37-40	1.2283	1222.72	65	0	1247.59	65	1247.59	65	1247.59	292.1716
40	Aqueduct	Pool_37-40	1.2282	1222.72	65	0	1247.59	65	1247.59	65	1247.59	292.1716
40	Aqueduct	Pool_37-40	1.2185	1218.23	24	12	1241.67	130	1241.79	118	1241.67	292.1815
40	Aqueduct	Pool_37-40	1.0637	1218.19	24	12	1241.56	130	1241.82	118	1241.56	292.3362
40	Aqueduct	Pool_37-40	0.9715	1218.29	24	12	1241.75	130	1241.84	118	1241.75	292.4284
40	Aqueduct	Pool_37-40	0.8571	1218.32	24	12	1241.77	130	1241.86	118	1241.77	292.5428
40	Aqueduct	Pool_37-40	0.6951	1218.18	24	12	1241.51	130	1241.85	118	1241.51	292.7048
40	Aqueduct	Pool_37-40	0.6406	1218.22	24	12	1241.58	130	1241.85	118	1241.58	292.7593
40	Aqueduct	Pool_37-40	0.5216	1218.14	24	12	1241.67	130	1241.61	118	1241.61	292.8784
40	Aqueduct	Pool_37-40	0.4206	1218.25	24	12	1241.82	130	1241.67	118	1241.67	292.9794
40	Aqueduct	Pool_37-40	0.2802	1217.95	24	12	1241.44	130	1241.47	118	1241.44	293.1198
40	Aqueduct	Pool_37-40	0.0516	1220.87	24	12	1244.7	130	1244.05	118	1244.05	293.3483
40	Aqueduct	Pool_37-40	0.0286	1198.86	0.961	0	1246.2	231.6	1246.77	231.6	1246.2	293.3714
40	Aqueduct	Pool_37-40	0.0000	1179.975	2.12	0	1246.772	364.17	1246.405	364.17	1246.405	293.3999
36	Aqueduct	Pool_36	1.9601	702.09	24	12	729.89	147.6	730.09	135.6	729.89	278.3999
36	Aqueduct	Pool_36	1.9183	702.25	24	12	730.08	147.6	730.22	135.6	730.08	278.4417

36	Aqueduct	Pool_36	1.8765	702.37	24	12	730.28	147.6	730.26	135.6	730.26	278.4835
36	Aqueduct	Pool_36	1.7560	702.42	24	12	730.26	147.6	730.38	135.6	730.26	278.6040
36	Aqueduct	Pool_36	1.7316	702.47	24	12	730.35	147.6	730.39	135.6	730.35	278.6284
36	Aqueduct	Pool_36	1.6685	702.51	24	12	730.4	147.6	730.42	135.6	730.4	278.6915
36	Aqueduct	Pool_36	1.3871	702.66	24	12	730.5	147.6	730.62	135.6	730.5	278.9729
36	Aqueduct	Pool_36	1.2453	702.38	24	12	730.38	147.6	730.17	135.6	730.17	279.1147
36	Aqueduct	Pool_36	1.1890	702.24	24	12	730.1	147.6	730.18	135.6	730.1	279.1710
36	Aqueduct	Pool_36	1.0594	702.12	24	12	730.11	147.6	729.92	135.6	729.92	279.3006
36	Aqueduct	Pool_36	0.8877	702.18	24	12	729.94	147.6	730.23	135.6	729.94	279.4723
36	Aqueduct	Pool_36	0.6198	702.19	24	12	730.03	147.6	730.16	135.6	730.03	279.7402
36	Aqueduct	Pool_36	0.2525	702.11	24	12	730.12	147.6	729.9	135.6	729.9	280.1075
36	Aqueduct	Pool_36	0.0607	702.34	24	12	730.4	147.6	730.09	135.6	730.09	280.2993
36	Aqueduct	Pool_36	0.0233	702.86	181.52	0	731.33	295.33	731.33	295.33	731.33	280.3367
36	Aqueduct	Pool_36	0.0019	702.86	295.33	0	731.33	295.33	731.33	295.33	731.33	280.3581
36	Aqueduct	Pool_36	0.0000	702.86	295.33	0	731.33	295.33	731.33	295.33	731.33	280.3600

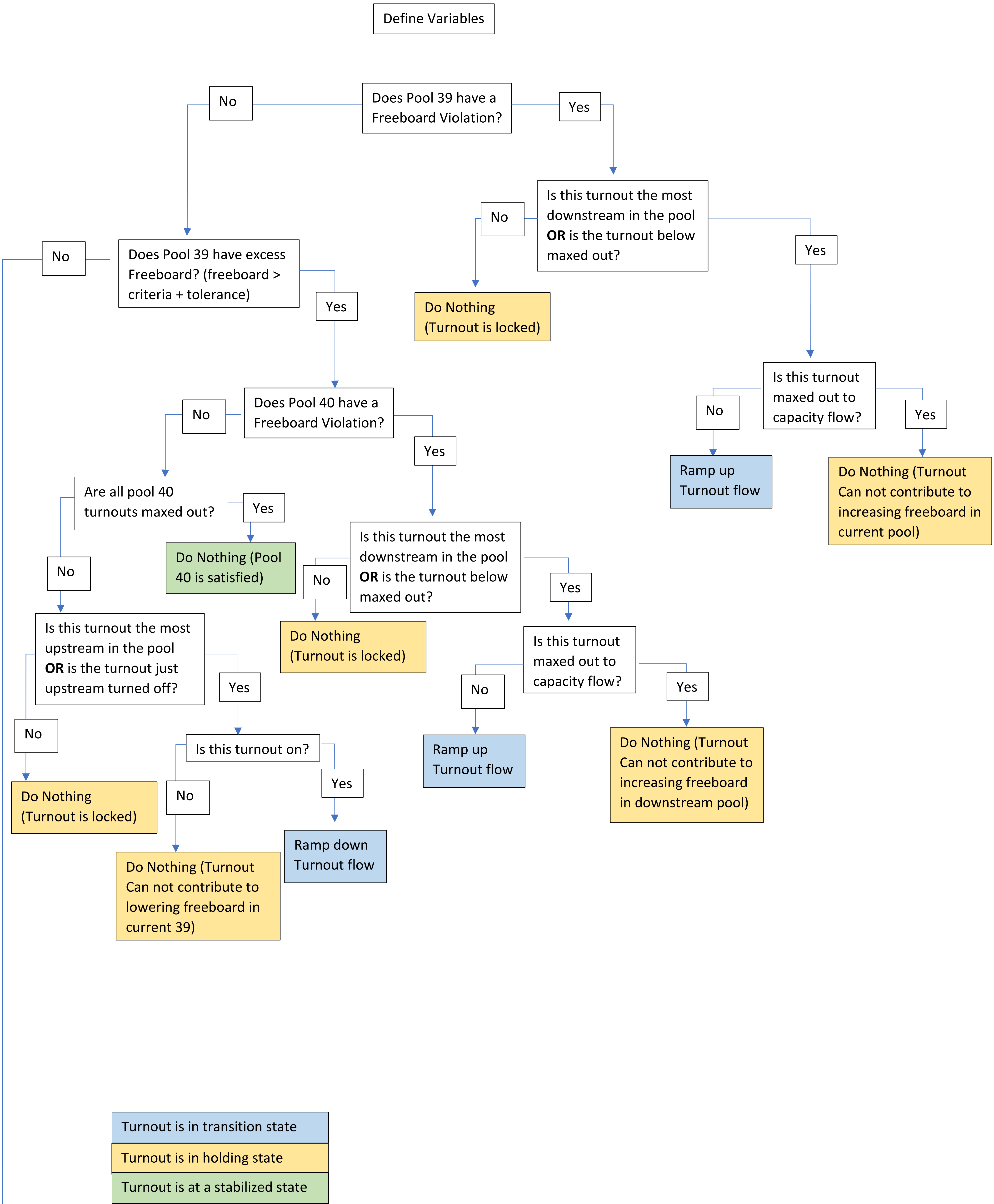
Appendix B. Inline Structure (Check Structure) Operations Logic Tree

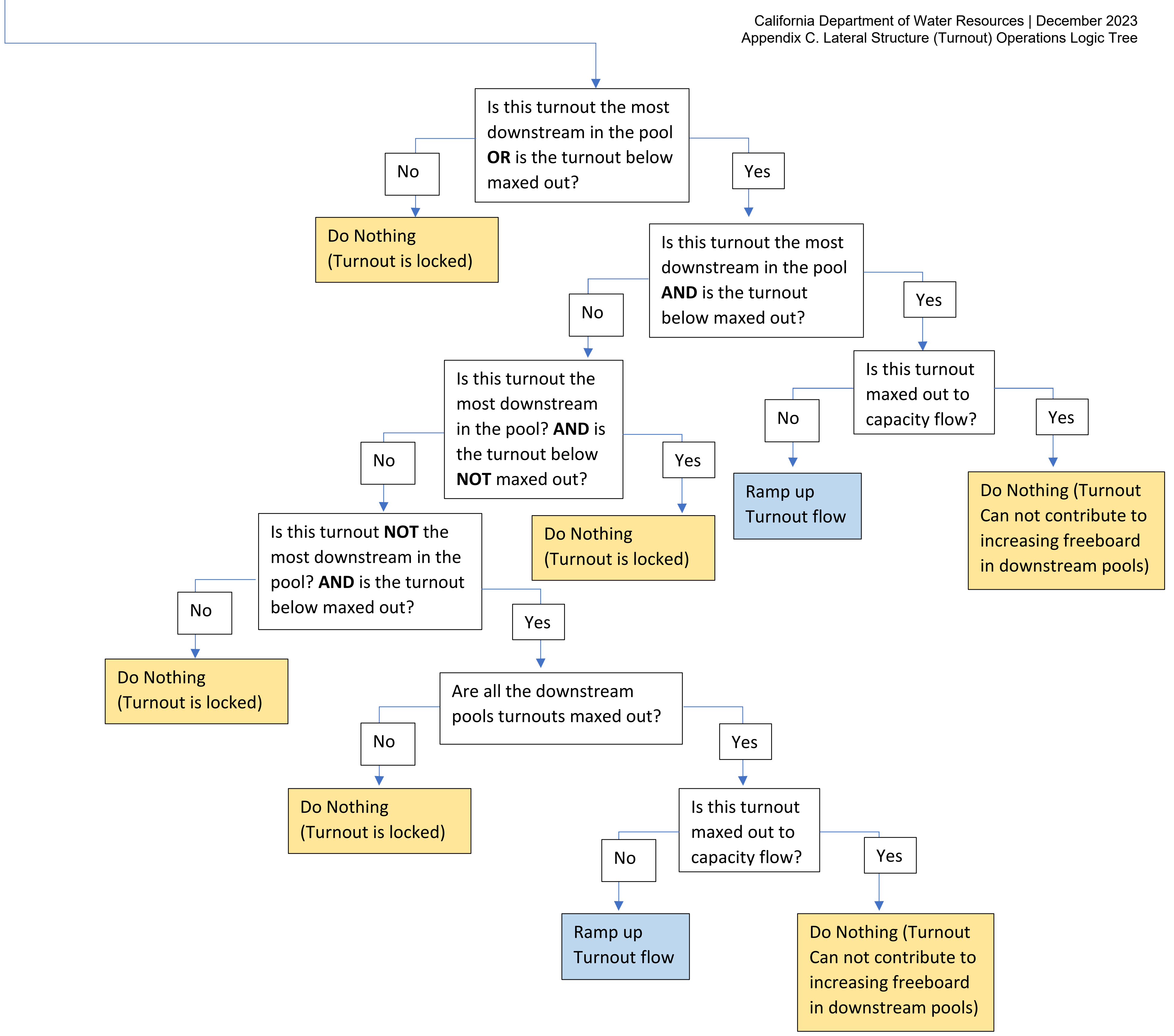
Check Structure gates Logic Tree



Appendix C. Lateral Structure (Turnout) Operations Logic Tree

Logic Tree for turnout in pool 39




Is this turnout the most downstream in the pool OR is the turnout below maxed out?
No
Yes
Do Nothing (Turnout is locked)
Is this turnout the most downstream in the pool AND is the turnout below maxed out?
No
Yes
Is this turnout maxed out to capacity flow?
No
Yes
Ramp up Turnout flow
Do Nothing (Turnout Can not contribute to increasing freeboard in downstream pools)
Is this turnout the most downstream in the pool? AND is the turnout below NOT maxed out?
No
Yes
Do Nothing (Turnout is locked)
Is this turnout NOT the most downstream in the pool? AND is the turnout below maxed out?
No
Yes
Do Nothing (Turnout is locked)
Are all the downstream pools turnouts maxed out?
No
Yes
Do Nothing (Turnout is locked)
Is this turnout maxed out to capacity flow?
No
Yes
Ramp up Turnout flow
Do Nothing (Turnout Can not contribute to increasing freeboard in downstream pools)

Explanation of Logic Tree for turnout in pool 39

This list is meant to explain in more detail the logic of this flow chart. Starting at the initial question "Does pool 39 have a freeboard violation" I will step through the Flow chart and provide detail where needed. A "Y" indicates taking the yes path on the flow chart. An "N" indicates taking the no path on the flow chart. Explanation will be referenced from the initial question. Note that each turnout has logic that is specific to its position in the aqueduct. The flow chart provided above is a sample of how a typical turnout logic tree progresses.

1. Y. Once we identify there is a problem in pool 39, the question is asked to identify the position of the current turnout and what the state of the turnouts adjacent to itself is.

2. Y-Y. We have identified that this turnout is either the most downstream in a pool that has a freeboard violation or that the turnout downstream has maxed out to its capacity to try to remedy the freeboard issue in the pool. Either of these conditions gives this turnout the responsibility to help the pool resolve the freeboard issue if possible.

3. Y-Y-Y. If the current turnout is maxed out to it's capacity it can no longer take additional action to resolve the freeboard issue.

4. Y-Y-N. If the current turnout is not maxed out to it's capacity it can ramp up to resolve the freeboard issue in it's own pool.

5. Y-N. If the turnout is not the most downstream turnout in it's pool, the turnout downstream is not maxed out and a freeboard issue exists in the pool, the turnout is not available for use until the turnouts downstream of it in the same pool have reached maximum capacity.

6. N. If we identify that pool 39 does not violate freeboard criteria, we would like to check if the pool has excess freeboard. Since the goal of the simulation is to maximize flow, there may be an opportunity to ramp down the diversions from the pool while still satisfying freeboard criteria.

7. N-Y. We identified that pool 39 does have excess freeboard. Turnouts have the responsibility to not only help resolve freeboard violations in their own pool, but in any pool downstream of it as well. Because of this, the question must be asked if pool 40 has a freeboard violation before we allow this turnout to ramp down diversions.

    a. *Note: The responsibility to assist with downstream pool freeboard violations makes the logic tree of turnouts more complex as we work upstream.*

8. N-Y-Y. Although pool 39 has excess freeboard, pool 40 has a freeboard violation. This eliminates the possibility of this turnout ramping down diversions. From this point, the logic is identical to the first 5 steps of the logic tree. The only difference is that the freeboard violation exists in pool 40 instead of pool 39.

9. N-Y-N. We've identified that there is excess freeboard in pool 39 and there is not a freeboard violation in pool 40. From this point there is a path to ramp down the diversion of this turnout. However, first the question is asked if all of pool 40's turnouts are maxed out. This question is asked because, logically, if all the downstream pool's turnouts are maxed out, it indicates that this is necessary for one of two reasons.

    a. Pool 40 is at a stable state with all of it's turnouts on (ie. Freeboard criteria is satisfied).
    b. Pool 40 is using its turnouts to assist a downstream pool with freeboard violations. We know that there are no pools within our study domain below Pool 40.

10. N-Y-N-Y. Yes, all of the turnouts in Pool 40 are maxed out. This indicates that 9a. is true. We know this because Pool 40 is the last pool in the domain. If we were analyzing a turnout in pool 38, there would be a logic loop down to Pool 40. This step indicates achievement of a stable state.

11. N-Y-N-N. No, all of the turnouts in Pool 40 are not maxed out. This indicates that Pool 40 can take more flow without violating freeboard criteria. Since Pool 39 has excess freeboard it can ramp down diversions. However, ramping down diversions occurs in order from upstream to downstream (reverse of ramping up diversions). Therefore the question is asked if this turnout is the most upstream in the pool or if the turnout just upstream of this turnout is off (at zero flow).

12. N-Y-N-N-Y. Yes, this turnout is either the most upstream in the pool or the turnout just upstream is at zero flow. The turnout is almost clear to ramp down. First the question must be asked, is this turnout on? If it is not on it can not be ramped down.

13. N-Y-N-N-Y-Y. Yes the turnout is on. It can now ramp down.

14. N-Y-N-N-Y-N. No the turnout is not on. It can not ramp down.

15. N-Y-N-N-N. No, this turnout is not the most upstream in the pool nor is the turnout just upstream is at zero flow. The turnout must wait until the turnout just upstream is at zero flow

16. N-N. The turnout does not have a freeboard violation nor does it have excess freeboard. However, this does not yet mean it is resolved of responsibility. There is a path from this point where the turnout may need to ramp up to assist a downstream pool with a freeboard violation. The question is asked, is this turnout the most downstream in the pool or is the turnout just downstream maxed out?

17. N-N-Y. Yes this turnout is either the most downstream in the pool or the turnout just downstream is maxed out. More information is needed to decide the action of the turnout. The question is asked, is this turnout the most downstream in the pool AND is the turnout just downstream is maxed out?

18. N-N-Y-Y. Yes, both are true, the turnout is the most downstream in the pool and the turnout just downstream is maxed out. The turnout downstream of this turnout is the most upstream turnout in the pool below. If that turnout is maxed out it indicates that there is a freeboard violation in the pool below or the pool below is assisting to resolve a freeboard issue in the pool below it and has run out of diversion capacity. This indicates that this turnout must now pitch in the resolve the issue. Before the turnout is ramped up, the question must be asked, is this turnout maxed out to its capacity?

19. N-N-Y-Y-Y. Yes, the turnout is maxed out. This turnout is unable to ramp up.

20. N-N-Y-Y-N. No, the turnout is not maxed out. This turnout is ramped up.

21. N-N-Y-N. No, both are not true, the turnout is either not the most downstream in the pool or the turnout just downstream is not maxed out. We must identify which is true to determine the action of the turnout. The question is asked, is this turnout the most downstream AND is the turnout just downstream not maxed out?

22. N-N-Y-N-Y. We identify that the issue is that the turnout downstream is not maxed out. To activate this turnout when it's pool is at a stable state, all the resources (turnouts) of the pool below must be exhausted (maxed out). The turnout does not take action.

23. N-N-Y-N-N. We identify that the issue is NOT that the turnout downstream is NOT maxed out. The question is asked, is this turnout NOT the most downstream AND is the turnout just below maxed out?

24. N-N-Y-N-N-Y. We identify that the is not the most downstream in the pool but the turnout just downstream is maxed out. To ensure that the downstream violation has not been resolved before ramping up this turnout, the question is asked, are all the turnouts in the downstream pool maxed out?

25. N-N-Y-N-N-Y-Y. Yes, the downstream pools turnouts are still maxed out. This indicates that a freeboard violation still exists somewhere downstream. Before this turnout is ramped up, the question is asked, is this turnout maxed out to capacity?

26. N-N-Y-N-N-Y-Y-Y. Yes. This turnout is maxed out. Therefore this turnout can not be ramped up.

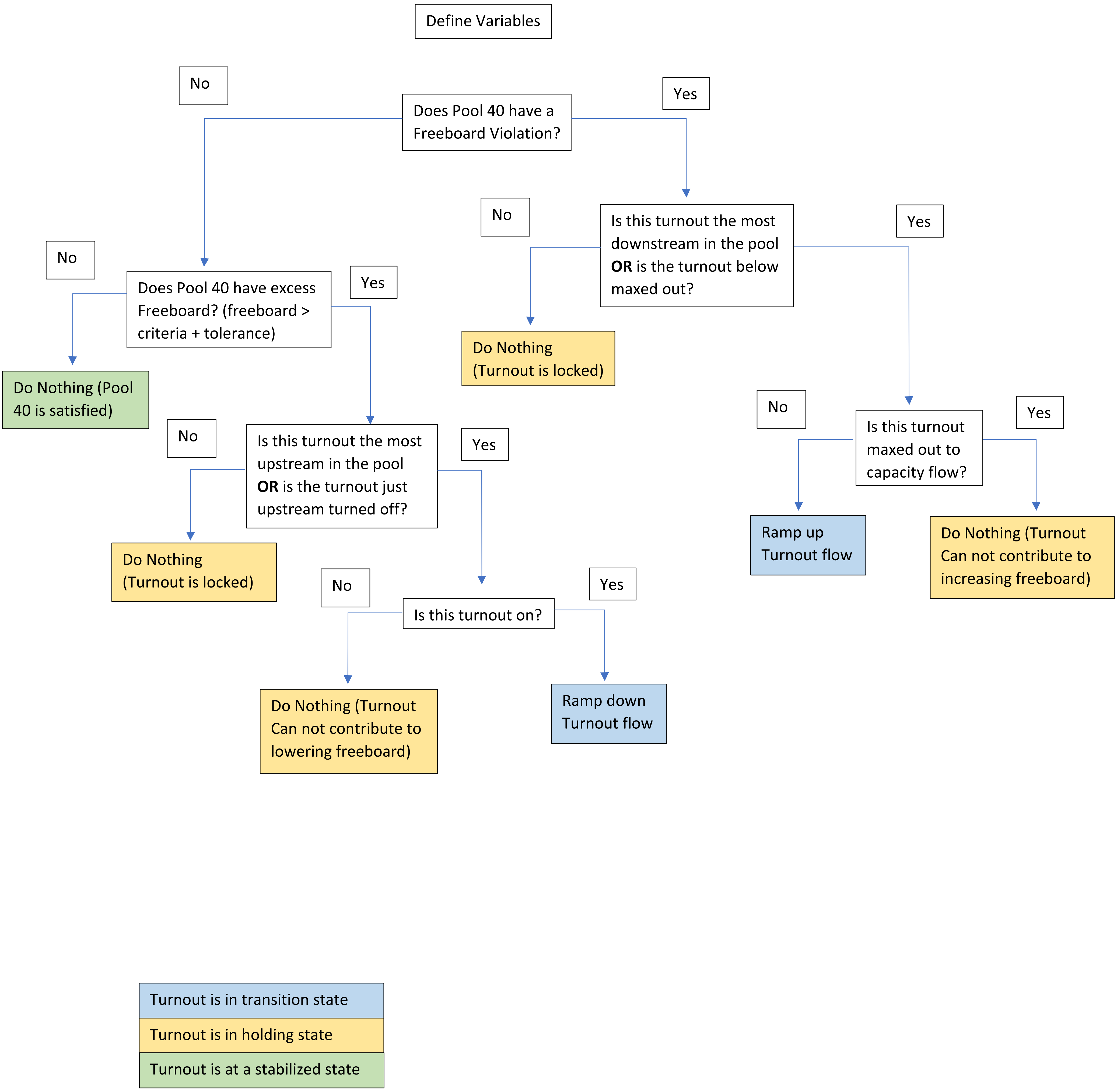
27. N-N-Y-N-N-Y-Y-N. No. This turnout is not maxed out. Therefore this turnout is ramped up.

28. N-N-Y-N-N-Y-N. No, the downstream pools turnouts are not maxed out. This indicates that a freeboard violation no longer exists downstream. Therefore no action is required at this turnout.

29. N-N-Y-N-N-N. We identify that the turnout is not the most downstream in the pool and the turnout just downstream is not maxed out. Therefore this turnout is unavailable to take action.

30. N-N-N. No this turnout is not the most downstream in the pool nor is the turnout just downstream is maxed out. Therefore this turnout is unavailable to take action.

Logic Tree for turnout in pool 40



Explanation of Logic Tree for turnout in pool 40

This list is meant to explain in more detail the logic of this flow chart. Starting at the initial question “Does pool 40 have a freeboard violation” I will step through the Flow chart and provide detail where needed. A “Y” indicates taking the yes path on the flow chart. An “N” indicates taking the no path on the flow chart. Explanation will be referenced from the initial question. Note that each turnout has logic that is specific to its position in the aqueduct. The flow chart provided above is a sample of how a typical turnout logic tree progresses.

1. Y. Once we identify there is a problem in pool 40, the next question is asked to identify the position of the current turnout and what the state of the turnouts adjacent to itself is.
2. Y-Y. We have identified that this turnout is either the most downstream in a pool that has a freeboard violation or that the turnout downstream has maxed out to its capacity to try to remedy the freeboard issue in the pool. Either of these conditions gives this turnout the responsibility to help the pool resolve the freeboard issue if possible.
3. Y-Y-Y. If the current turnout is maxed out to it’s capacity it can no longer take additional action to resolve the freeboard issue.
4. Y-Y-N. If the current turnout is not maxed out to it’s capacity it can ramp up to resolve the freeboard issue in it’s own pool.
5. Y-N. If the turnout is not the most downstream turnout in it’s pool, the turnout downstream is not maxed out and a freeboard issue exists in the pool, the turnout is not available for use until the turnouts downstream of it in the same pool have reached maximum capacity.
6. N. If we identify that pool 40 does not violate freeboard criteria, we would like to check if the pool has excess freeboard. Since the goal of the simulation is to maximize flow, there may be an opportunity to ramp down the diversions from the pool while still satisfying freeboard criteria.
7. N-Y. We identified that pool 40 does have excess freeboard. This indicates that Pool 40 can take more flow without violating freeboard criteria. There is an opportunity to ramp down diversions. However, ramping down diversions occurs in order from upstream to downstream (reverse of ramping up diversions). Therefore the question is asked if this turnout is the most upstream in the pool or if the turnout just upstream of this turnout is off (at zero flow).
8. N-Y-Y. Yes, this turnout is either the most upstream in the pool or the turnout just upstream is at zero flow. The turnout is almost clear to ramp down. First the question must be asked, is this turnout on? If it is not on it can not be ramped down.
9. N-Y-Y-Y. Yes the turnout is on. It can now ramp down.
10. N-Y-Y-N. No the turnout is not on. It can not ramp down.
11. N-Y-N. No, this turnout is not the most upstream in the pool nor is the turnout just upstream is at zero flow. The turnout must wait until the turnout just upstream is at zero flow.
12. N-N. There is no freeboard violation in Pool 40 AND there is not excess freeboard in Pool 40. Pool 40 is at a stable state.

Appendix D. Model Files

Table D-1: California Aqueduct Hydraulic Model Files

Filename	Title	Description
Aqueduct.prj	Aqueduct	Model project file
Aqueduct.g15	2023_Aqueduct_Conds_NGVD29	Geometry file. 2023 Aqueduct Conditions in NGVD29 vertical datum
Aqueduct.g16	2023_Aqueduct_Conds_NAVD88	Geometry file. 2023 Aqueduct Conditions in NAVD88 vertical datum
Aqueduct.p01	2023_HCC_1FB_SW_adj_NAVD88	Plan file. Hydraulic Conveyance Capacity Simulation using a 1-foot lined freeboard criterion. Elevations are referenced in NAVD88
Aqueduct.p02	2023_HCC_SC_1FB_SW_adj_NAVD88	Plan file. Hydraulic Conveyance Capacity Simulation using a 1-foot lined freeboard criterion. Special Conditions are held at pools 18 and 22. Elevations are referenced in NAVD88
Aqueduct.p03	2023_HCC_1FB_SW_adj_NGVD29	Plan file. Hydraulic Conveyance Capacity Simulation using a 1-foot lined freeboard criterion. Elevations are referenced in NGVD29
Aqueduct.p04	2023_HCC_SC_1FB_SW_adj_NGVD29	Plan file. Hydraulic Conveyance Capacity Simulation using a 1-foot lined freeboard criterion. Special Conditions are held at pools 18 and 22. Elevations are referenced in NGVD29
Aqueduct.p05	2023_HCC_PVP_SC_1FB_SW_adj_NGVD29	Plan file. Hydraulic Conveyance Capacity Simulation using a 1-foot lined freeboard criterion. Special Condition is held at pool 18. Elevations are referenced in NGVD29
Aqueduct.p06	2023_HCC_PVP_SC_1FB_SW_adj_NAVD88	Plan file. Hydraulic Conveyance Capacity Simulation using a 1-foot lined freeboard criterion. Special Condition is held at pool 18. Elevations are referenced in NAVD88.
Aqueduct.u01	2023_SW_adjustment_1FB_NAVD88	Unsteady flow file. Hydraulic Conveyance Capacity Simulation using a 1-foot lined freeboard criterion. Elevations are referenced in NAVD88
Aqueduct.u02	2023_SW_adjustment_SC_1FB_NAVD88	Unsteady flow file. Hydraulic Conveyance Capacity Simulation using a 1-foot lined freeboard criterion. Special Conditions are held at pools 18 and 22. Elevations are referenced in NAVD88

Filename	Title	Description
Aqueduct.u03	2023_SW_adjustment_PVP_SC_1FB	Unsteady flow file. Hydraulic Conveyance Capacity Simulation using a 1-foot lined freeboard criterion. Special Condition is held at pool 18. Elevations are referenced in NGVD29
Aqueduct.u04	2023_SW_adjustment_PVP_SC_1FB_NAVD88	Unsteady flow file. Hydraulic Conveyance Capacity Simulation using a 1-foot lined freeboard criterion. Special Condition is held at pool 18. Elevations are referenced in NAVD88
Aqueduct.u05	2023_SW_adjustment_1FB	Unsteady flow file. Hydraulic Conveyance Capacity Simulation using a 1-foot lined freeboard criterion. Elevations are referenced in NGVD29
Aqueduct.u12	2023_SW_adjustment_SC_1FB	Unsteady flow file. Hydraulic Conveyance Capacity Simulation using a 1-foot lined freeboard criterion. Special Conditions are held at pools 18 and 22. Elevations are referenced in NGVD29