Appendix F

Hydrology Study (Applicant Prepared)

HYDROLOGY STUDY

Former San Luis Obispo Tank Farm
276 Tank Farm Road
San Luis Obispo, California

January 26, 2009

PREPARED FOR

Chevron Environment Management Company
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Project No. 1212.005

AVOCET ENVIRONMENTAL, INC.

January 26, 2009 Project No. 1212.005

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Hydrology Study
Former San Luis Obispo Tank Farm
276 Tank Farm Road
San Luis Obispo, California

Dear Ms. Harmon:

Enclosed is the Hydrology Study for the Former San Luis Obispo Tank Farm. If you have any questions or require additional information, please do not hesitate to call.

Respectfully submitted,

AVOCET ENVIRONMENTAL, INC.

Robert Van Hyning, P.E.
Principal

RVH:sh
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LIST OF ABBREVIATIONS AND ACRONYMS

AMC	antecedent moisture condition
amsl	above mean sea level
AST	aboveground storage tank
BMP	Best Management Practices
CEMC	Chevron Environmental Management Company
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CN	SCS curve number
DDM	Waterway Management Plan Volume III Drainage Design Manual
DWR	State of California, Department of Water Resources
ET	evapotranspiration
FEMA	Federal Emergency Management Agency
ft/sec	feet per second
HA	Cambria Hydrologic Area
HSA	San Luis Obispo Creek Hydrologic Study Area
LID	Low Impact Development
RWQCB	California Regional Water Quality Control Board
SCS	U.S. Soil Conservation Service

1.0 INTRODUCTION

Union Oil Company of California (Union Oil) owns a 333-acre former tank farm property south of the city of San Luis Obispo (Figure 1) that was constructed in 1910 to serve as the tidewater accumulation point for a petroleum pipeline from San Joaquin Valley. This property, commonly referred to as the San Luis Obispo Tank Farm, SLO Tank Farm, or Tank Farm, was slowly withdrawn from operation during the latter decades of the twentieth century, and by the late 1990s, was formally decommissioned. Chevron Environmental Management Company (CEMC) currently manages the property for Union Oil and they desire to convert the property to alternative uses that are consistent with local planning, community needs, good environmental stewardship, regulatory requirements, and efficient asset management.

CEMC has prepared a multi-use plan for the property that is illustrated in Figure 2. It includes remediation of environmental concerns, restoration of riparian corridors, bike paths, 270 acres of community-accessible open space, and 64 acres of commercial development. On June 16, 2008, CEMC submitted applications for vesting tentative tract maps, specific and general plan amendments, and began negotiations with the City of San Luis Obispo on a development agreement. The application included a *Remedial Action Plan* (Avocet, December 18, 2007) addressing environmental issues, a *Project Execution Plan* (Padre, 2007) that provided extensive supporting documentation for environmental review under the California Environmental Quality Act (CEQA), and development maps (RRM, 2008). Although each plan contained or referenced some preliminary hydrologic evaluations, it was recognized that further detailed analysis was required to support the application. This report presents that detailed analysis.

1.1 PURPOSE AND SCOPE

CEMC proposes to develop approximately 19 percent of the SLO Tank Farm in a manner that implements the regional objectives of the City of San Luis Obispo's *Airport Area Specific Plan*, particularly in regard to basic infrastructure (e.g., water, sewer, flood control). The balance of the property will be transformed into high-quality open space supporting a diverse and complex habitat area. An important element of the project that overlaps these two goals is the site hydrology and the approach for stormwater management.

To the degree practical, the City of San Luis Obispo and San Luis Obispo County have an institutional preference for natural or natural-like waterways as a means of managing stormwater and preserving important ecological resources. Remediation of the SLO Tank Farm provides an opportunity to locally satisfy this preference while reducing area-wide flooding during heavy precipitation events.

A key element of the remediation project is restoration of the riparian condition of the drainages, particularly Tank Farm Creek; improving ecological function; and mitigating the unavoidable disturbances to important habitat that are a collateral effect of the site's transformation. Where possible, the restoration plan attempts to recreate the riparian conditions that existed on the Tank

Farm property prior to development. However, in the 100 years following original construction of the Tank Farm, the surrounding area has been irreversibly developed. This includes essential public transportation corridors such as Tank Farm Road. Tank Farm Creek is an important component of the local flood management system and the restoration must, therefore, also ensure public safety and preserve property.

A detailed Restoration Plan, including exhaustive supporting inventories of natural resources, has been prepared by Padre Associates, Inc. (Padre) and WSP Environmental Strategies (WSP). This report presents a comprehensive analysis of the hydrologic conditions associated with the current, post-remediation/restoration, and post-development conditions. Although stand-alone documents, these reports are complementary studies that are best used together to fully understand restoration and stormwater management at the SLO Tank Farm.

This study is, however, an engineering report intended primarily for an engineering audience. Consequently, its focus is on evaluations of peak flow and storage, flood stage, and long-term water balance. The purposes of these evaluations are to:

- Identify hydrologic changes resulting from necessary site remediation and the proposed development;
- Provide hydraulic data needed to design stormwater management infrastructure;
- Prepare preliminary engineering drawings for the stormwater management infrastructure;
- Provide hydrologic and water balance information needed to engineer habitat restoration and to improve ecologic function; and
- Ensure that hydrologic impacts due to development are properly mitigated.

This analysis addresses the hydrologic setting within the property boundary under current conditions and for the reasonably foreseeable future. This includes two distinct future situations; post-remediation, which includes restoration, and post-development. After remediation, much of the mass grading for development will have been completed, including the rough surface for the extension of Santa Fe Road. Construction in the development areas will immediately follow remediation, but will be spread over 25 years or more. Over this period, the proportion of the development area that is impervious will increase, resulting in changes to quantity and timing of runoff. Development-related stormwater management infrastructure must be sized to address these changes. This study identifies the changes that occur after remediation of the site and after development. However, for purposes of analysis under CEQA, we believe that the relevant differences are between the existing (baseline) condition and post-development, which represents conclusion of the project. Post-remediation is only an interim step to the end of the project.

Another important consideration for the future scenarios is the effect of planned upstream development. To the extent that information is available, changes due to known or expected development have been included in the evaluation. The analysis does not analyze conditions downstream of the property in any detail, but does provide suggestions on possible regional approaches to managing stormwater.

The report provides general recommendations on maintaining and improving surface water quality from the site, but does not include fate and transport analyses such as total maximum daily load estimates for potential pollutants.

Erosion control measures are generally discussed in this report, although detailed information on restoration of the riparian corridors is provided in the *Restoration Plan* (WSP, December 2008). The *Remedial Action Plan* (Avocet, December 18, 2007) describes the proposed erosion control measures that will be used during remediation, and also includes specific information on the drainage of particular portions of the remediation such as cap perimeter ditches.

1.2 BACKGROUND AND EXISTING SITE CONDITIONS

The following provides a brief history of site operations and an overview of the existing site conditions. More detailed information can be found in the *Remedial Action Plan* (Avocet, December 18, 2007), *Feasibility Study* (Avocet, March 15, 2007), or the various assessment reports listed in the references.

Union Oil's 333-acre SLO Tank Farm is located at 276 Tank Farm Road in western San Luis Obispo County, south of the city of San Luis Obispo and northwest of the San Luis Obispo regional airport. As shown in Figure 3, the site is divided into north and south sections by Tank Farm Road and is bordered by light commercial and industrial development, the San Luis Obispo regional airport, agricultural and pastoral lands, with scattered residences and a trailer park. The existing buildings in the northwest part of the site are currently unoccupied and will be removed from the site in the near future. Aside from the existing buildings (with approximately 2 acres of impervious pavement) and scattered remnants from historical oil storage operations, the site is otherwise undeveloped land that contains a variety of flora and fauna, including natural and man-made wetlands, the latter resulting from water accumulating in artificial operations-related depressions.

From 1910 until the early 1980s, the Tank Farm was used for storing crude oil transported via pipeline from the San Joaquin Valley. Although the site no longer handles petroleum, the remnants of that use are still found across the site. The most prominent features are the vestiges of the former storage facilities. There were six large earthen reservoirs (numbered 2 through 7) ranging in capacity between 775,000 and 1,350,000 barrels. The reservoirs were constructed by excavating a circular or elliptical depression, which was then lined with wire-mesh-reinforced concrete. The walls were also reinforced concrete but were variously constructed either vertically or integrated into the sloping sides of the depression. Initially, 21 steel aboveground

storage tanks (ASTs) capable of holding 55,000 barrels each were located north of Tank Farm Road. Their historical locations are also shown in Figure 3.

On April 7, 1926, a series of lightning strikes resulted in a massive fire at the Tank Farm. By April 11, 1926, all but a few thousand barrels in inventory had been burned to coke or spread across the site. Following the 1926 fire, four large reservoirs were repaired and continued in service for several more decades. Ten of the ASTs were rebuilt and used through the 1980s. The last AST, which was used most recently to store fire water, was removed from the site in August 2000. The reconstruction effort included expanding fire breaks and enlarging the containment areas surrounding the reservoirs and ASTs. This created numerous hydraulically closed depressions across the site, many of which became wetlands and habitat for environmentally protected species.

1.3 WATERSHED OVERVIEW

This section provides the reader with a brief orientation to the important hydrologic elements of the SLO Tank Farm. Detailed discussions of the watersheds, including changes resulting from remediation, restoration, and development, are provided in later sections of this report. Watersheds are defined by the design points selected for analysis. Watershed design points were selected based on key existing and proposed hydraulic structures and points of interest such as runon locations entering the site and discharge locations for runoff exiting the site.

1.3.1 Regional Hydrologic Setting

Figure 4 shows the location of the site relative to the hydrologic boundaries of the central coast. The State of California, Department of Water Resources (DWR) initially described these boundaries in a 1958 study of San Luis Obispo and Santa Barbara Counties (DWR, 1958). The California Regional Water Quality Control Board, Central Coast Region (RWQCB) defines slightly different hydrologic units in the *Water Quality Control Plan, Central Coast Region* (RWQCB, 1994). The table below presents the names of the various hydrologic units, their sources, and how they correspond.

Regional Hydrologic Units and Areas

DWR Name	Area	RWQCB Name	Area
Central Coast Hydrologic Area	6,600 miles^2	Central Coast Hydrologic Planning Area	11,274 miles^2
No corresponding unit		Estero Bay Hydrologic Unit	490,205 ac
San Luis Obispo Hydrologic	168,680 ac	Point Buchon Hydrologic Area	145,448 ac
San Luis Obispo Hydrologic Subunit	54,292 ac	San Luis Obispo Creek Hydrologic Study Area	54,292 ac

This study will use the RWQCB names in describing the various hydrologic units. The Tank Farm is located within the San Luis Obispo Creek Hydrologic Study Area (HSA). This unit

comprises approximately 37 percent of the Point Buchon Hydrologic Area (HA) but is only 0.7 percent of the total Central Coast Hydrologic Planning Area.

The eponymously named San Luis Obispo Creek HSA is drained by San Luis Obispo Creek. The creek starts in the foothills of the Lopez Mountains and discharges to the Pacific Ocean at Avila Beach. Its course is approximately 1,500 feet from the Tank Farm site at its closest point. The Tank Farm itself lies across or adjacent to tributaries to San Luis Obispo Creek. This is relevant since the site lies within the special management zone that the City of San Luis Obispo and San Luis Obispo County have established for managing San Luis Obispo Creek.

The SLO Tank Farm, in its current condition, has three primary watersheds or catchments, as shown in Figure 5. The first is Tank Farm Creek, the second is the small portion of the site tributary to the East Fork of San Luis Obispo Creek, and the third is the collection of isolated depressions and basins created during the historical petroleum storage operations. A small portion of the site along the east property line (Watershed D) drains via sheet flow onto the adjoining property. Other minor catchments formed by the berm along the southeast property line account for the remainder of the site area. Remediation, restoration and development will alter the catchments in both configuration and hydrologic characteristics. Table 1 summarizes the current catchment areas and the areas estimated for the post-remediation site condition.

1.3.2 Tank Farm Creek Watershed

Tank Farm Creek is a tributary to the East Fork of San Luis Obispo Creek. Approximately 4,000 feet of the creek (31 percent of its total length) is on the SLO Tank Farm. This includes a branching of the creek that occurs just north of Tank Farm Road. The watershed area (Watershed A) tributary to the headwall where Tank Farm Creek leaves the site is approximately 636 acres. It is estimated that 160 acres of this watershed is located within the property boundary of the SLO Tank Farm.

Most of the site development will occur on the eastern portion of the property (Figure 2), and most of the grading that supports it will occur during remediation. To analyze the post-remediation and development conditions, it was, therefore, necessary to subdivide Watershed C, as shown in Figure 6. The analysis also considers the eventual pavement of the identified development areas.

1.3.3 Onsite Tributary to the East Fork of San Luis Obispo Creek

Approximately 19 acres south of Tank Farm Road discharge to the East Fork of San Luis Obispo Creek. This is a strip of land surrounding the southeast and southwest quadrants of Reservoir 3. It includes an old meander of the East Fork of San Luis Obispo Creek and is connected to the active channel by a12-inch-diameter gate valve that appears to have rusted open.

Restoration activities propose to engage the old oxbow during higher-than-average storm events. This will be accomplished by opening the berm at an elevation approximately 4 feet above the adjacent channel bottom.

1.3.4 Onsite Isolated Catchments

As described previously, the historical oil storage operations left numerous depressions that have no hydrologic connection to either Tank Farm Creek or the East Fork of San Luis Obispo Creek. In effect, changes in storage occur only from direct precipitation, evapotranspiration, or infiltration. Except under extraordinary circumstances there is no runon or runoff.

As shown in Figure 5 the isolated catchments are estimated to measure approximately 140 acres, or nearly 40 percent of the entire site. Most of the isolated catchments will continue to function in the same manner after remediation and restoration, as they did prior to any disturbance. It is proposed, however, to remove the berms surrounding some of the former AST rings located north of Tank Farm Road. Those areas will be engaged during storm events, providing additional storage and allowing them to participate more fully in the hydrologic cycle. It will also reduce the isolated catchments by approximately 7 acres.

Development, particularly the extension of Santa Fe Road envisioned by the *Airport Area Specific Plan*, connects 3.0 acres of isolated catchment (Watershed E) with the East Fork of San Luis Obispo Creek (Figure 6). The proposed development also requires a separate evaluation of 22.9 acres located on the east portion of the site south of Tank Farm Road, identified as Catchment C_2 on Figure 6. Runoff from this area will be retained onsite but could be discharged to the East Fork of San Luis Obispo Creek, or one of the adjacent oxbows, if that were deemed to be ecologically advantageous.

1.4 RELEVANT REGULATIONS AND GUIDANCE

Numerous documents were consulted for guidance in this analysis (a complete listing is provided in the reference section). A few of these, however, either defined the structural framework for the study, or provided essential information.

Key among these was the *Waterway Management Plan Volume III Drainage Design Manual* (DDM) developed cooperatively between the City of San Luis Obispo Public Works Department and the County of San Luis Obispo Flood Control District (SLOPWD, February 2003). The site is currently in San Luis Obispo County, but it is anticipated that it will ultimately be annexed into the city of San Luis Obispo. As noted above, the site is within the San Luis Obispo Creek Watershed. Accordingly, the DDM requirements are the underlying basis for many of the analyses.

Another important consideration in preparation of this report has been the Low Impact Development (LID) standards compiled by the RWQCB. These are being enacted through the City of San Luis Obispo (the City) by a draft ordinance, and have been implemented by the County of San Luis Obispo (the County) through their *Storm Water Management Plan* (SLOCo, 2006)

Other important resources have been two hydrologic analyses performed by adjacent landowners. One was performed by TEC Civil Engineering Consultants in support of the

proposed King Ventures and Sierra Gardens development north of the western portion of the SLO Tank Farm (TEC, 2008). The other was by Mead & Hunt, Inc. (Mead & Hunt, 2006) in support of the San Luis Obispo County Regional Airport runway extension.

1.5 ENHANCEMENT AND MITIGATION

This project includes substantial enhancement and mitigation. Most of this effort is concentrated in the Riparian corridor associated with Tank Farm Creek. More focused activities are proposed adjacent to the East Fork of San Luis Obispo Creek. A thorough description of the proposed enhancement and mitigation actions is found in *Landscape Restoration for the San Luis Obispo Tank Farm* (*Restoration Plan*) prepared by WSP (December 2008).

An important consideration for hydrology studies within the San Luis Obispo Creek Watershed are bank stability and erosion issues. In general, the terrain is so flat on the SLO Tank Farm that banks are limited in size. However, the issue is specifically addressed in the *Restoration Plan*.

1.6 UNUSUAL OR SPECIAL CONDITIONS

Remediation and restoration of the SLO Tank Farm is a significant local project. It is believed that the project will be of substantial benefit to the community, but its implementation is complex and requires permitting through multiple agencies. Beyond grading and development approvals, the project requires permits for various disturbances, working in rivers and streams, authorization to disturb federally protected habitat, and operating conditions that will be imposed by regulatory agencies such as the RWQCB.

To the degree practical, the flood management components of the site will be configured in as natural a condition as possible. Nevertheless, certain aspects of the site will require long-term maintenance, especially where water is temporarily impounded or routed through artificial conduits. Those components directly related to development (e.g., storm drains, catch basins) will be operated and maintained by the developer or the successor. Operation and maintenance of regional infrastructure will be addressed in an open space management plan that will be prepared to support dedication of the open space.

Another unusual condition is associated with the outlet to Tank Farm Creek. At present, the creek downstream of the SLO Tank Farm outlet is routed through an existing industrial development, across land slated for future development, and finally across agricultural lands until joining the East Fork of San Luis Obispo Creek. It is believed that superior hydraulic performance and better flood management could be achieved by routing Tank Farm Creek through the southern property line (Figure 6) and establishing a riparian corridor that continues the SLO Tank Farm restoration project to the downstream confluence. However, developing and implementing that proposal requires a regional working group that would include land owners tributary to Tank Farm Creek, the City of San Luis Obispo, and the Flood Management Department of San Luis Obispo County, as well as various regulatory agencies. Chevron is willing to actively participate and contribute to such a group, but the required analysis and

coordination is beyond the scope of this study, and outside the immediate requirements of the proposed project.

1.7 REPORT ORGANIZATION

Including the introduction, this report is organized into seven sections. The next section, Section 2.0, discusses the analysis requirements and general methodology used in this study. Sections 3.0, 4.0, 5.0, and 6.0 address Tank Farm Creek, the onsite catchments tributary to the East Fork of San Luis Obispo Creek, the isolated onsite catchments, and other minor catchments, respectively. As necessary, these sections include detailed discussions of the existing, post-remediation, and post-development conditions. Section 7.0 presents concluding remarks for the report, and the signature and stamp of the principal author.

Figures and tables are attached at the end of this report. Appendix A is a CD that contains a bookmarked PDF version of this report. The other supporting appendices are included with the PDF. They are not reproduced in hard copies of this report.

2.0 ANALYSIS REQUIREMENTS AND METHODOLOGY

This section describes the analytical requirements stipulated in the regulatory documents (primarily the DDM) that are applicable to this project, and presents the general approach employed in the hydrologic, flood stage, and long-term wetland water balance analyses that were used to satisfy those requirements.

As described previously, the site lies within the greater San Luis Obispo Creek Watershed. It is also within a Special Floodplain Management Zone defined in the DDM, which makes the objectives of that document particularly important. The DDM identifies the following as its core objectives:

- Maintaining discharge at natural locations.
- Proper engineering of onsite conveyances.
- Developing stormwater infrastructure that ensures no adverse downstream impacts, including maintaining peak flows within 5 percent of current levels.
- Channel impact assessment, design, and mitigation for channel modifications within a Federal Emergency Management Agency (FEMA)-designated 100-year floodplain.
- Compliance with floodplain management requirements, including In-Fill and Managed Fill floodplain regulations for the Special Floodplain Management Zones. This includes limiting increases in floodwater elevations to less than 2.5 inches or limiting increases in discharge velocities to 0.3 feet per second (ft/sec), and ensuring that the net precipitation storage volume within the floodplain does not decrease for any flood stage up to the 100-year event.
- Ensuring stabilized stream banks.
- Controlling erosion and managing stormwater quality.
- Supporting future channel maintenance and management.

The SLO Tank Farm has features beyond what is typical for a development-only project. Its historical use to store petroleum necessitates substantial disturbance in the form of grading in order to mitigate various environmental impacts. A further objective of the project is to at least restore, and if possible improve upon, the original riparian and ecological function of the creek systems found onsite. Consequently, the study considers three conditions (where applicable): the current environment, post-remediation (including restoration), and post-development.

The study also includes four distinct analyses: hydrology, hydraulics, flood-stage, and water balance. The first three are essential to meeting the core objectives of the DDM. The latter analysis is used to support plant selection and maintenance planning for the restoration effort. Although the water balance evaluation is limited to the North Marsh, it does provide information regarding groundwater levels that are useful for engineering floodplain management infrastructure.

The following sections describe the general approach used for each analysis. This includes software, the basis for selecting certain parameters, and other considerations relevant to evaluating hydrologic conditions at the site. The results of each analysis for the specific watersheds are discussed in subsequent chapters.

2.1 HYDROLOGIC ANALYSES

Hydrologic analysis is the process of apportioning precipitation within a given watershed into runoff, infiltration, and storage. In defining catchments and channels within the watershed, it is also possible to calculate peak flow, velocity, and changes in storage. The hydrologic analysis provides the fundamental data for developing most of the information required by the DDM.

The first task in the hydrologic analysis is to identify the design points. A watershed is, by definition, the area contributing runoff to a given design point. Once the design points were known, it was a simple task to delineate the watersheds. As described in Section 1.3, the design points were either obvious existing natural discharge points or were more subtle discharge points that were identified in the field during a March 2008 precipitation event. The only added discharge point for the site is necessitated by the northern extension of Santa Fe Road, which diverts runoff from approximately 2 acres of the SLO Tank Farm into Acacia Creek.

In February 2007, a new topographic map of the SLO Tank Farm was created to support preparation of the *Remedial Action Plan* (Avocet, December 18, 2007). That topographic map has also been used to prepare this Hydrology Study. Caution should be used in extrapolating contours beyond the site. The map was created using the North American Vertical Datum of 1929, since this tied into the historical groundwater monitoring data that was relevant to the design of various remediation structures.

Avocet has used Bentley's CivilStorm v8 XM for the hydrology and hydraulic calculations since many of the watersheds exceed 100 acres in size. It is similar to HEC-HMS, but offers several advantages that were considered essential to this analysis. First the program has an easy to use graphical interface, which makes building the model much simpler. Analytically, the model has a variety of solution options. Most importantly, the software allows the user to model looped networks, an unusual, but prominent feature of the SLO Tank Farm. The model also features numerous graphical profiling tools and comprehensive tabulation tools that speed validation and make report preparation more efficient.

Due to the size of the Tank Farm Creek Watershed, the Soil Conservation Service (SCS) unit hydrograph method was used to estimate runoff. It was most appropriate, given the catchment sizes and the degree of storage that occurs within the catchments. Since no stream gauge data are available for this area, the SCS synthetic method was used.

Each hydrologic evaluation was considered as a 24-hour storm. Results were computed for the 2-, 10-, 25-, 50-, and 100-year recurrence events. Total precipitation quantities for the storms were taken from the hydrology report prepared for the proposed adjacent upstream development (TEC, 2008) and are tabulated in the following table:

Precipitation Event	**Cumulative Rainfall** (inches)
2-Year 24-Hour Storm	2.9
10-Year 24-Hour Storm	4.7
25-Year 24-Hour Storm	5.7
50-Year 24-Hour Storm	6.4
100-Year 24-Hour Storm	7.1

Beyond the watershed area, there are a few fundamental parameters that must be defined to create the model. The first task is to determine what portions of a given watershed are served by urban infrastructure (e.g., paved ditches, conduits), and what portions route stormwater overland. The next task is to define the physical features of the relevant stormwater infrastructure, such as ditches, ponds, conduits, and the like. Those parameters include channel geometry, length, slope, inlet and outlet elevations, and storage capacity, and are either measured directly in the field or taken from topographical surveys. Finally, values are selected that define the cover and soil type in the model (the SCS curve number) for each catchment. Those factors affect the degree of infiltration and the speed at which runoff travels across a given catchment. Catchment definition and parameter selection for the model are discussed in greater detail in the sections for each watershed. Tabulations of the watershed parameters are found in Appendix C.

The analysis produces hydrographs for each catchment (or design point) and for each feature with storage capacity. Those hydrographs are discussed in the sections corresponding to each watershed following this one, and the detailed output for the hydrologic analyses is provided in Appendix D. Summary hydrographs for the design points are provided as figures. Peak flow, total offsite discharge (in 24 hours), and changes in storage are tabulated. Tabulations for other results are also provided for each catchment, including water surface elevations and velocity.

2.2 HYDRAULIC ANALYSES

The proposed project includes construction of new hydraulic structures or modification of existing structures. Design of these structures is performed in conjunction with the various hydrologic analyses, which define the level of service each hydraulic structure must provide. The analyses are frequently iterative as the designer attempts to optimize the size of various structures balancing size and capacity against cost.

The purpose and function of the various structures, or proposed modifications, are described in the sections for each watershed. Those sections also discuss the results of the hydraulic analyses. Detailed calculations from the CivilStorm software package are provided in Appendix D, Hydrology Analyses.

Tabulations of the hydraulic structures show physical geometry (e.g., width, depth), slope (if applicable), storage capacity, and hydrographs for each of the design storm events. Where hydraulic structures are inadequate for a particular storm event, the analysis shows the peak flow escaping the structure and the quantity of water lost.

2.3 FLOODPLAIN ANALYSIS

A 100-year floodplain analysis was performed for the Tank Farm Creek Watershed. The grade of this area will be substantially modified to accommodate the remediation and restoration efforts. Further modification, though of a lesser extent, will occur due to the development activities. Floodplain analysis was not deemed necessary for the other watersheds. There is no proposed change to the onsite tributary to the East Fork of San Luis Obispo Creek, other than opening the berm to engage the oxbows and historical meanders. Since this will not significantly increase peak flow contributions but will increase the potential flood storage volume, a detailed floodplain analysis was not considered necessary. A small portion of the isolated catchments will contribute to the East Fork of San Luis Obispo Creek following the extension of Santa Fe Road; rough grading for this occurs as part of remediation. The area is less than 2 acres and contributes little flow to the creek. Precipitation onto the other isolated catchments continues to be retained onsite.

Floodplain calculations were performed using a version of HEC-HMS supplied with a graphical interface by Haested Methods. Cross sections for the floodplain analysis are provided in Appendix E, Hydraulics Analyses.

An important consideration of the engineering effort has been to ensure that the project does not exacerbate flood conditions. Consequently, there is no loss of storage capacity within the floodplain; rather there is a net increase in capacity both above and below Tank Farm Road. Fill within the floodplain is offset by expanding the boundaries of the floodplain or by providing greater effective depth. Figures 14 and 20 illustrate the floodplains corresponding to the existing, post-remediation, and post-development conditions, and are discussed in Section 3.0.

2.4 LONG-TERM WATER BALANCE

The long-term water balance evaluates changes in water storage within a defined control volume over a period of approximately 12 months. Of particular interest are the monthly changes in surface water storage in the North Marsh. This is used in the restoration effort to gauge the viability of certain floral species based on their sensitivity to water supply.

A detailed description of the calculation methodology for the water balance evaluation is provided in Appendix F, Floodplain Analyses.

In general, the analysis accounts for gains into and losses from the control volume. Gains include precipitation, runon and rising groundwater, whereas losses include runoff, infiltration, and evapotranspiration. Changes are calculated on a daily basis but are reported as monthly totals.

The calculations for this report are based on site-specific climate data that were collected from June 1999 to April 2002 using an onsite weather station. Those data are presented in Appendix B, Climate Data. The analysis included in this report was originally published in *Hydrology Data Report and Water Balance Analysis (June 1999-April 2002)* (England Geosystem, Inc., May 2002), but is updated to reflect changes in the upstream watershed.

3.0 TANK FARM CREEK WATERSHED

This section addresses the Tank Farm Creek Watershed. The first part describes delineation of the watershed in detail. After defining the existing watershed, the section lists the changes that will occur due to remediation and restoration, and then illustrates the additional incremental changes that will occur due to either onsite or upstream development. The sections following the watershed discussion present the results of the hydrology, hydraulic, flood stage, and water balance analyses, including the differences that occur due to either remediation or development.

3.1 EXISTING CONDITION

An overview of the Tank Farm Creek watershed was provided in Section 1.3.2. As noted in the overview discussion, Tank Farm Creek is an approximately two-mile long tributary of the East Fork of San Luis Obispo Creek, which is, in turn, a tributary to San Luis Obispo Creek. Tank Farm Creek splits into two separate reaches onsite (East Fork and West Fork), north of Tank Farm Road (Figure 7). The West Fork of Tank Farm Creek extends almost due north and is, for the most part, channelized and serves both urban and natural catchments. The East Fork of Tank Farm Creek is a southwest trending reach that begins in the South Hills that border Broad Street.

Of particular interest to this project is the point at which Tank Farm Creek discharges off the Tank Farm property (the headwall) and the contributing watershed to that point (Figure 7). Approximately 4,000 feet of Tank Farm Creek, slightly more than 30 percent of its total length, is upstream of the discharge point and is fed by a total runoff area of approximately 628 acres. This is the principal watershed for this project. Changes that occur due to remediation or development alter the watershed internally, but no portion of the watershed is diverted to a separate discharge point.

3.1.1 Watershed Delineation

Figure 7 is a detailed illustration of the Tank Farm Creek watershed in its existing condition. It has been divided into 25 separate subcatchments that range in size from 4.0 acres to 95 acres. One hundred fifty acres of the watershed are onsite, while the remaining 478.3 acres are offsite. The highpoint and low point of the watershed are at 592 feet above mean sea level (amsl) and 113 feet amsl, respectively. This is an overall slope of 6 percent. However, onsite the watershed is relatively flat with a slope of only 0.3 percent. It is estimated that 13 percent of the watershed is urban and relatively impervious. Unpaved areas are characterized by pasture or naturally vegetated ground consisting of sands, silts, and clays. Appendix C provides a detailed breakdown of each catchment, including size, SCS runoff coefficient, time of concentration, and a brief discussion of relevant characteristics or special considerations.

Former San Luis Obispo Tank Farm

It has been established that the watershed, from the perspective of this analysis, begins at the headwall where Tank Farm Creek discharges from the site. The adjacent image shows the condition of the headwall in the spring of 1999. The headwall with its two 36-inch-diameter gate valves was constructed as part of the petroleum storage operation, and provided a means of retaining a catastrophic release of oil onsite.

Union Oil sold the downstream portion of this land in 2001, and subsequently, the eastern channel had been filled to the headwall. This has the practical effect of halving the discharge capacity of Tank Farm Creek at this location, which, other factors being equal, increases the likelihood of local flooding in this area. The current invert elevation of the remaining valve is 113.07 feet amsl. The top of the headwall is at elevation 119.5 feet amsl, which provides a total flood detention capacity of 73 acre-feet.

On this portion of the site, Tank Farm Creek runs along the western property boundary in a channel. It is connected to the greater part of the watershed by two 48-inch-diameter steel culverts that cross beneath Tank Farm Road. Approximately 7 acres of this part of the watershed south of Tank Farm Road (Catchment A22) is comprised of offsite land, primarily the adjacent wrecking yard.

Another adjacent catchment, A21, is nearly 7 acres of commercial development. Stormwater from this area collects in a basin that discharges onto the Tank Farm property through a small PVC pipe under the perimeter berm. Although the pipe was likely constructed concurrently with the basin, Chevron has no documentation or agreements (e.g., easement, right-of-entry) regarding this structure.

A secondary channel joins Tank Farm Creek just upstream of the headwall. It drains approximately 55.2 acres (Catchments A14, A24, and A25). The greater portion of this area, 35 acres, is north of Tank Farm Road. Conveyance for this subdrainage under Tank Farm Road is provided by two 4-foot-high by 6-foot-wide (48 square feet total flow area) box culverts. Although the topography north of Tank Farm Road is flat, the relatively low invert elevation of the box culverts (116 feet amsl) prevents the structure from effectively decreasing peak stormwater flows. Further, high groundwater levels can reach 115 feet amsl, the combination of which is estimated to limit detention capacity at this location to a meager 1 acre-foot.

This geometry prevents the North Marsh from providing any detention service to the remaining portion of the watershed (nearly 580 acres). Approximately 36.1 acres (Catchments A17, A19,

and A20) drain to Tank Farm Creek from the west. Catchment A18 is the northwest operations area of the site, where the local headquarters was formerly housed. This area is partially paved and the remaining land has a hardpack surface that is remnant of the operational period of the site. The other two catchments (Catchments A19 and A20) are offsite and drain to a local depression adjacent to the western property boundary. Given a moderate precipitation event or saturated soil conditions from antecedent storms, the depression fills and sheet flows onto the former operations area. However, this area has been excavated to construct the new sewer lift station by the City of San Luis Obispo.

At the eastern point of the operations area (Figure 7), Tank Farm Creek splits into its east and west forks. Following the forks upstream, the West Fork runs nearly due north, while the East Fork branches to the northeast. The onsite configuration of the forks has been altered from the pre-development past through the use of berms and containment structures that were used to minimize the migration of petroleum spills.

The East Fork drains an area of approximately 169 acres, which is shown in Figure 7. This portion of the Tank Farm Creek Watershed is almost entirely overland flow; only 0.6 acre (0.4 percent) is paved. In the lower part of the basin, the slope is relatively flat and consists of a greater proportion of silt or clay soils. Offsite, the slope is generally steeper (about 16 percent) as this (Catchments A11 and A12) is the local headland of the watershed. The ground is also somewhat more impervious, as the bedrock daylights in this area forming the upland hills.

The West Fork drains approximately 336 acres, as shown in Figure 7. From its branch off the Tank Farm Creek to the point where it enters the site along the north property line, the West Fork follows a poorly defined channel that has a slope of just 0.4 percent and only 4 feet of relief. Offsite the main course of the West Fork is channelized in one form or another. Approximately 70 acres of the West Fork watershed are urbanized. Overland conditions (land use and soil type) are similar to the East Fork, with silt and clay soils in the relatively flat downstream areas, changing to steeper exposed bedrock in the headwater areas.

Another feature of the onsite portion of the Tank Farm Creek watershed is the series of closed circular berms north of Tank Farm Road. These seven berms surrounded 55,000-barrel ASTs during the operational past of the facility. In total, there are approximately 9.2 acres within the berms that are isolated from the greater catchment. Without ongoing operations or maintenance occurring, wetlands of low ecologic function (WSP, December 2008) have established themselves in these areas. Some of the wetlands support vernal pool fairy shrimp and are, therefore, federally protected habitat.

3.1.2 Hydrology and Hydraulics

The existing site conditions were evaluated for a 24-hour storm with recurrence intervals of 2, 10, 25, 50 and 100 years. The key design points and pond features considered in the Existing Conditions analysis are shown in Figure 7. Design Point DP-1 is where the West Fork of Tank Farm Creek enters the SLO Tank Farm along the north property line. DP-2 is where the East

Fork of Tank Farm Creek crosses the north property line. DP-3 is the confluence of the East Fork and the reach that drains former Reservoir 4. This point is later used to assess the transition between development and the restored Tank Farm Creek. DP-4 and DP-5 represent the two 48-inch-diameter round culverts and the two 4-foot by 6-foot box culverts, respectively. Design point DP-6 is the discharge point through the headwall for Tank Farm Creek.

Individual hydrographs for each catchment, pond, or outlet structure used in the model are found in Appendix D. Supporting calculations for the hydraulic structures regarding capacity and velocity are presented in Appendix E. Table 3 provides the peak flow from the design points shown in Figure 7. Table 5 summarizes the available and engaged capacities of the selected onsite ponds and detention features, and Table 5 lists the peak flows and velocities of selected onsite channels for the 2-year precipitation event. Figure 8 through Figure 12 present flow or storage hydrographs for the key design points and the North Marsh. Figure 9 illustrates the relationship between storage and outflow at the headwall.

A quick review of the tables and hydrographs illustrates the inadequacy of the existing storm water management infrastructure for storms exceeding the 10-year recurrence interval (4.7 inches in a 24-hour period). As shown in Figure 8, the hydrograph for Design Point DP-6 (the offsite discharge point for Tank Farm Creek), approximately 10.5 hours into the 100-year design, stormwater levels rise above the spill elevation for the headwall structure and begin an uncontrolled discharge. The total volume and peak flow rates (outlet and overtopping) are 163 cubic feet per second (cfs) and 189 acre-feet, 250 cfs and 223 acre-feet, and 373 cfs and 257 acre-feet for the 25-year, 50-year, and 100-year storms, respectively.

As a system, the existing infrastructure functions poorly. Individual components are undersized, or grossly oversized, and generally do not complement one another. The majority of stormwater is routed directly to Design Point DP-6 to discharge offsite. Consequently, the limited storage capacity south of Tank Farm Road is quickly exceeded, and the substantially greater storage capacity north of Tank Farm Road is never mobilized.

Both forks of Tank Farm Creek are nominally routed to Design Point DP-4, the pair of round 48-inch-diameter culverts (Figure 7). The flow of stormwater through the East Fork is constrained by a 12-inch culvert under an onsite access road. Water in excess of the capacity of this pipe overtops the road, with some of that flow discharging into the North Marsh. Once the flood stage reaches an elevation of 120 feet amsl, the conduits are fully engaged and are surcharged. As shown in Figure 10, peak flows at this location range between 115 cfs for the 2-year storm and 433 cfs for the 100-year storm. It is expected that the conduits will be fully engaged for any storm at or above the 25-year intensity.

From this point, stormwater flows towards the offsite outlet. Before discharging, however, it is forced to pond in a series of awkwardly connected ersatz storage basins. It seems by their layout and function that the basins were not engineered to manage stormwater, but are, rather, an

artifact of the operational history of the site. The relationship of these basins and the offsite discharge are illustrated in Figure 9.

The invert elevation of the headwall outlet (113.07 feet amsl) forces water to accumulate in the small-capacity pond within Tank Farm Creek, but the storage volume is only about 0.03 acre-foot before water is discharged through the headwall outlet. As the flood stage passes elevation 115.00 feet amsl, water is not only discharging through the headwall outlet but also spilling into the pond feature within the parallel channel that drains the North Marsh (PA-5). However, only 0.6 acre-feet of the first pond's capacity has been used at this point. Once the water level in the second pond reaches an elevation of 115.00 feet amsl, it is hydraulically continuous with the first pond.

Once the flood stage reaches an elevation of 116.07 feet amsl, the outlet is fully engaged. Water begins to spill to the South Pond, PA-7 (Figure 7), as the flood stage passes an elevation of 117.0 feet amsl. And, at an elevation of 119.5 feet amsl the ponds are completely full and the headwall is subject to overtopping. Although inefficient, the existing stormwater infrastructure will accommodate storms up to the 10-year event (4.7 inches over 24 hours). Storms of greater intensity, however, induce overtopping within 10 to 11 hours of the start of precipitation.

As it is used currently, and in its existing configuration, the North Marsh (Figure 7) is an ineffective hydraulic structure. Its storage capacity is not used for relatively small storms since flow is routed directly to the round culverts. However, even if stormwater was routed into the North Marsh, its utility would be impaired by the relatively low invert elevation of the box culverts and the high level of groundwater. This relationship is illustrated in Figure 13. As shown in the figure, the North Marsh in its current configuration provides approximately 2.5 acre-feet of detention capacity prior to passing water through the box culverts.

The box culverts themselves (DP-5) are vastly oversized. As will be discussed further in Section 3.2.2, even if all stormwater is routed through them, they do not function as culverts, and at best just flow full. Consequently they do not slow the passage of the peak flow, which exacerbates the limited storage capacity south of Tank Farm Road. As the system functions currently, the box culverts pass between 72 cfs for the 2-year storm and 395 cfs for the 100-year storm (Figure 11). At the same time, maximum storage in the North Marsh ranges between 9.23 acre-feet and 48.18 acre-feet for the 2-year and 100-year storms, respectively (Figure 12). Full capacity of the North Marsh is engaged by runoff from the 10-year storm.

The existing round culverts (DP-4) are positioned at approximately the same elevation as the existing box culverts. Runoff is routed through the round culverts via Tank Farm Creek; however, during a moderately sized storm, as runoff accumulates north of Tank Farm Road, runoff overtops the low flow capacity of the existing East Fork of Tank Farm Creek and spills into the North Marsh. From this point, runoff is passed immediately south of Tank Farm Road due to the current design of the existing box culverts. During large flood events, the entire North Marsh and surrounding areas are inundated. Currently, 100-year flood waters around both of the

round and box culverts reach an elevation approximately 2.5 to 3-feet lower than that of Tank Farm Road and subsequently, when the culverts are properly maintained, never overtop the road.

Inspection of the site does not suggest that erosion is a major concern under the existing condition. Observations during March 2008 precipitation events indicate that some erosion occurs in the flat areas between the East and West Forks of Tank Farm Creek. However, these are quickly attenuated by the heavy vegetation in the North Marsh. During large storm events, the channels quickly spread across the relatively flat site. Consequently, velocity calculations are limited to the 2-year storm event and are summarized in Table 5. Review of the table shows that the calculated velocities for the various reaches do not appear to exceed 5 feet per second.

3.1.3 Floodplain Analysis

A 100-year floodplain analysis was performed using the HEC-RAS program developed by the U.S. Army Corps of Engineers. Figure 14 shows cross section locations used in the analysis and the estimated lateral extent of the floodplain. The cross sections developed for the analysis and the computer-generated results are provided in Appendix F.

The entire flood plain within the property boundary occupies approximately 57 acres. At the northern property boundary, the flood stage is at an approximate elevation of 122.8 feet amsl. At Tank Farm Road, it is estimated that the flood stage is at 120.2 feet amsl, and at the headwall, the flood stage has decreased to an estimated 119.5 feet amsl.

North of Tank Farm Road, it appears that the flood stays within the limits of the SLO Tank Farm property boundary. South of Tank Farm Road, the flood stage is nominally within the property boundary. However, the hydrology analysis also shows that 56 acre-feet of water overtop the headwall during a 100-year storm. However, without detailed downstream analysis, it is not possible to state what the impacts of this uncontrolled discharge are relative to offsite flooding.

3.1.4 Water Balance

In May, 2002, England Geosystem, Inc. (EGI) issued a report titled *Water Balance Analysis, San Luis Obispo Tank Farm*. It was a comprehensive evaluation of site-wide hydrologic issues, including variations in groundwater storage. It also included, however, a focused analysis of the changes in storage of the North Marsh over a typical water cycle. An overview of this analysis is included in this section, with relevant background information supplied in Appendix G.

The water balance analysis considered the movement of water into and out of the nominal 10 acres that form the North Marsh in its current condition (Figure 7) that result in changes to the volume stored. The control volume was formed by that lateral boundary, the nominal bottom of the pond at an elevation of 115.5 feet amsl and the top of the pond at an elevation of 125 feet amsl. Although specific contributions occurred daily (e.g., precipitation, evapotranspiration), changes were reported on a monthly basis over a 12-month period.

Inflows to the control volume were direct precipitation, runon, and seepage from rising groundwater. Losses from the control volume were runoff, evapotranspiration, and infiltration. The monthly balances between these gains and losses are illustrated in Figure 15, which is based on the climate data collected between August 1999 and June 2000. Figure 16 shows the volume in storage in the North Marsh based on extending average monthly water levels across the nominal storage area of the pond. The measurement or calculation of the inflows and losses is described in detail in the EGI report (May 2002).

The hydrologic operation of the North Marsh portrayed in Figure 15 and Figure 16 is considered typical. Storage occurs in relation to precipitation events, but is limited in overall volume by the geometry of the pond. Storage is further limited by groundwater seepage into the pond. Figure 17 shows transducer readings from the August 1999-June 2000 climate data juxtaposed with precipitation data from the same period. Water levels respond rapidly to precipitation events. Even between precipitation events, or the end of the rainy season, groundwater levels clearly sustain surface water elevations within the pond, essentially offsetting losses due to evapotranspiration.

This condition bears upon the selection of plants that will be used in the restoration project, as the North Marsh will retain its nominal vertical profile (i.e., bottom of pond relative to top of pond). Second, additional storage capacity cannot be developed for the pond by excavating deeper, as it would be occupied by rising groundwater.

3.2 CHANGES DUE TO REMEDIATION AND RESTORATION

The conceptual project plan shown in Figure 2 helps to illustrate the proposed remediation and restoration activities. The principal activities considered in this section are capping of the Northwest Operations Area, remediation of the North Marsh, and restoration of the riparian function of Tank Farm Creek. Additional hydrologic analyses for caps, and other parts of the remediation, are found in the *Remedial Action Plan*. In evaluating changes due to remediation and restoration, this report also incorporates effects that are expected to occur due to upstream development. From a hydrologic perspective, this significantly alters the watershed, but it also provides an opportunity to address many of the hydrologic shortcomings of the onsite stormwater management system.

3.2.1 Watershed Delineation

One objective of remediation will be to restore as much of the original ecological function to the Tank Farm Creek corridor as possible. This will entail substantial changes to the topography, as well as to the stormwater management infrastructure. It is also anticipated that upstream development will increase runon and will also occur within a similar timeframe as remediation, and, therefore, must be considered as part of the post-remediation analysis. Another objective of the remediation and restoration effort is to ensure that the site effectively manages flood waters onsite to the maximum degree possible.

These objectives are achieved by the proposed changes to the watershed illustrated in Figure 18. The modifications more closely replicate a natural channel and, to the degree possible, the original channel that existed prior to development in the early 1900s. The restored channel will also be more effective in managing flood waters. Additional detail regarding restoration is provided in the *Restoration Plan*.

South of Tank Farm Road, the existing property line channel and auxiliary channel are combined into a single sinuous streambed. This has the advantage of providing a greater effective channel area and more closely replicating existing natural channels. A typical cross section of the channel is shown in Figure 19. The channel has an overall slope of 0.2 percent and about 3 feet of relief. Channel hydraulic performance is discussed in Section 3.2.2.

It is proposed to bore two 12-inch-diameter outlets near the bottom of the existing headwall as shown in the lower illustration in Figure 9. As discussed in Section 3.1.2, the area south of Tank Farm Road has limited detention capacity that is quickly consumed during a large storm event. This modification discharges water in a controlled manner that should not exceed the downstream creek capacity[1], but also prevents overtopping of the berm system. The new outlet inverts will be set at an elevation of 112.5 feet amsl, the local pond bottom. The existing 36-inch-diameter outlet will remain as is.

The area south of Tank Farm Creek (Figure 18) will be used as a borrow source for up to 41,000 cubic yards of soil. Borrowing this soil, and consolidation and expansion of the channels, also consolidates the three small basins identified as PA-4, PA-5, and PA-7 on Figure 7 into a single basin referred to as PA-7 on Figure 18. The overall detention capacity south of Tank Farm Road is thereby increased by approximately 14 acre-feet, a 19 percent increase over the existing condition.

A cap will be constructed over the former operations area as part of remediation, but will also serve as a pad for future development. As shown in Figure 18, a channel running parallel to Tank Farm Road will capture stormwater from offsite catchments (A19 and A20) that used to flow across the operations area and discharge it into the North Marsh. Runoff from the cap will be routed into ditches along the upper perimeter and discharged to adjacent drainage features via hardened drops. Detailed descriptions, including engineering drawings, for these components are found in the *Remedial Action Plan*.

One of the most significant restoration-driven changes is the reconfiguration of the North Marsh and Tank Farm Creek. As depicted, the East and West Forks of Tank Farm Creek will merge in the North Marsh rather than being routed around it. The typical channel sections will be similar to the illustration shown in Figure 19. Flows associated with storms between the 2-year and 10-year intensity are routed in the bottom portion of the channel. As discussed in the Restoration

[1] Originally, there were two 36-inch-diameter outlets through the headwall. Since the overall area of the remaining outlet plus the two 12-inch-diameter outlets is less than the original outlet area, it is presumed that the resulting flow will be less than what has been historically accommodated by the channel.

Plan (WSP, December 2008), the bottom is sinuous, and supplied with natural features such as wood and stone to limit water velocity and thereby control erosion. Larger storms utilize proportionally higher sections of the surrounding bank until maximum flood stage is reached.

The North Marsh increases in area by approximately 8 acres, mostly through removing historical debris. The creek is routed through a single barrel of the box culvert beneath Tank Farm Road. The two 48-inch-diameter round culverts to the west and the other barrel of the box culvert are abandoned. A weir is constructed in the remaining box culvert barrel, raising its invert elevation by 2 feet (Figure 13). These modifications create an additional 17.5 acre-feet of storage capacity within the North Marsh that is engaged as a storm begins. The peak flow of a given storm is both reduced and delayed (Figure 11), easing demand on the limited storage and discharge capacities of the creek system south of Tank Farm Road.

The unused barrel of the box culvert will be retained as an emergency outlet for the North Marsh. An overflow structure will be built around the barrel as shown conceptually in Figure 13. Water will enter the structure at the estimated 100-year flood stage at elevation 121.5 amsl. The top of the overflow structure would be provided with a trash rack to screen debris and to prevent accidental falls into the structure.

Supplemental storage capacity is created by lowering the berms surrounding five of the former ASTs. Vernal pool fairy shrimp, a federally protected species, are known to occupy several of these sites. Consequently, the interiors of the former tank sites will be protected during construction. Lowering of the berms provides approximately 6.7 acres that engage during flooding above approximately elevation 120 amsl, and approximately 10 acre-feet of capacity at maximum flood stage.

Another significant topographic alteration will be capping of former Reservoir 4, and the rock and soil that will be borrowed from the Flower Mound. As shown in Figure 2, that area is proposed for future development. Remediation is, therefore, designed to facilitate that end use. Grading of the area will produce large, gently sloped preliminary pads. It will also establish the alignment and rough grade of the Santa Fe Road extension and the interior local roads. New ditches are established in the area to manage runoff. These are shown and discussed in detail in the *Remedial Action Plan*. The new ditches are routed to a small detention pond, which is used to define the beginning of the riparian corridor. Treatment (e.g., sediment removal) of runoff from the cap and the future development area will occur at or before this pond. Grading also temporarily increases the size of Subcatchment A12 and reduces the size of Subcatchment A13, as discussed in Section 6.0.

Future development is anticipated to occur west, north, and east of the SLO Tank Farm north of Tank Farm Road. The particular areas of development are described in the *Margarita Area Specific Plan* or the *Airport Area Specific Plan*, both of which were prepared by the City of San Luis Obispo (October 12, 2004 and August 2005, respectively). As this study was being prepared, we were aware of only one project, the King Venture and Sierra Gardens development

(see Figure 2), that had received approval. However, three other projects adjacent to the SLO Tank Farm (referred to as *Future Development*), also shown in Figure 2, are in the process of preliminary design.

This study has used the output hydrograph for the proposed detention basin that was defined in the hydrology study prepared for King Ventures and Sierra Gardens. This hydrograph is used in place of assessing runoff from the greater watershed and making assumptions regarding the development. It is why the watershed shown in Figure 18 has been truncated north of the SLO Tank Farm property line. Details of this input hydrograph are found in Appendix D.

3.2.2 Hydrology and Hydraulics

Details of the hydrologic and hydraulic analyses for the post-remediation condition are provided in Appendix D and Appendix E, respectively. Summaries of peak flow and storage volumes are presented in Tables 3 and 4, respectively. Figure 8 and Figure 11 are hydrographs of selected design points following remediation (including restoration of Tank Farm Creek).

The most notable change relative to the existing conditions is the ability of the site to internally retain the 100-year flood. As shown in Table 2, under the existing condition it is estimated that more than 56 acre-feet of water overflow the outlet headwall in an uncontrolled manner. Total discharge for the 100-year storm for the existing condition was estimated at 372 cfs (including overflow). Assuming that the remediation changes are effective, total flow out of the headwall (DP-6) will be approximately 88 cfs with no uncontrolled overflow. It will, however, take longer to fully evacuate the storage capacity of the system. It is estimated that approximately five days is required to recover most of the storage capacity of the system.

Overall, the system appears to efficiently use discharge capacity and available storage volume. Peak flows are reduced, relative to the existing condition for all storm events (Table 3). However, this requires substantial increases in onsite storage, as shown in Table 4. Overall storage within the onsite Tank Farm Creek Watershed increases from approximately 138 ac-ft to 222 ac-ft for the 100-year storm, nearly 61 percent. In the short-term, after a large storm event, surface water area will be larger, though the specific area will vary depending on the size of the storm. Low-flow outlets in the weir and in the headwall will ensure that inundated areas are no larger than they are presently over the long-term.

Contrasting the hydrographs in Figure 9, one observes that the new Tank Farm Creek corridor is much more effective in managing flood waters than the poorly connected series of ponds it replaced. Controlled discharge through the low-flow outlet delays filling of the pond, and the increased storage capacity prevents overtopping as the delayed peak from the North Marsh finally arrives.

The box culvert, with its new weir, and the enlarged North Marsh detention area also work to more efficiently manage stormwater. The weir forces the North Marsh to begin impounding water at the storm onset, rather than immediately conveying to the outlet. This initial storage not

only delays the peak flow, but also decreases its intensity as seen by comparing the hydrographs in Figure 11. As noted above, the reductions in peak flow and preventing overtopping require substantial increases in storage (see Tables 2 and 4).

Capping the northwest operations area prevents run-on from sheet flowing into the culvert inlet as currently occurs. The design includes a frontage channel that conveys water from the offsite properties to the North Marsh. It also includes an 18-inch-diameter culvert that allows access to the capped Northwest Operations area at its current ingress point. The original engineering work was performed in the *Remedial Action Plan*, but was validated as part of this study (see Appendix E).

The East Fork continues to collect runoff from the easternmost portions of the Tank Farm Creek Watershed, including the future development area over Reservoir 4 and the Flower Mound. It also collects runoff from Catchment A14, which used to discharge directly into the North Marsh. Overall, the tributary area of the East Fork has increased by 30 acres (17 percent).

Grading of the Flower Mound and Reservoir 4 slightly increases peak flow from these areas over the current conditions. The polishing/sedimentation basin is used to restore these peak flows to within 4.5 percent of their existing condition values, and to delay arrival of that peak into the North Marsh (see Table 3 and reference Design Point DP-3). Details of the grades, swales and Best Management Practices (BMPs) for the Reservoir 4 and Flower Mound areas are provided in the *Remedial Action Plan*.

The widened low-flow channel lowers flow velocities (Table 5). It is anticipated that overall erosion will be minimal, although various BMPs will be used, as described in the *Remedial Action Plan*, to ensure that erosion is limited while vegetation is allowed to establish itself.

The catchment area tributary to the West Fork remains approximately the same compared to the existing condition. The West Fork includes several tributaries that ensure runoff from separated parts of the watershed flow efficiently to the new channel and then into the North Marsh. The hydrograph provided by TEC Civil Engineering Consultants for the King and Sierra Garden development identifies an increased peak runon to the site ranging between 210 cfs to 920 cfs for the 2-year and 100-year storms, respectively. The increased channel width maintains flow velocities to within 1.05 ft/sec of the existing condition (see Table 5) for the 2-year storm.

Performance of the channels and ponds is described further in the following section on the 100-year flood analysis.

3.2.3 Floodplain Analysis

Figure 20 depicts the expected alterations to the 100-year floodplain from the changes discussed in Section 3.2.1. In the post remediation condition the floodplain covers 74 acres, a 30 percent increase over the existing condition. Although approximately 6 acre-feet of floodplain capacity was lost due to capping the northwest operations area, approximately 93 acre-feet of capacity

was gained through remediation of the North Marsh, realignment of Tank Farm Creek, and restoration and expansion of the riparian corridor. Further, the analysis indicates that the site can now manage the entire 100-year flood, whereas overtopping and uncontrolled flooding previously occurred for any event in excess of the 10-year flood.

3.3 CHANGES DUE TO ON-SITE DEVELOPMENT

Development will not alter watershed area. It will, however, alter the character of portions of the watershed and the means by how some of the water is conveyed across the site. The two most significant changes will be construction of a storm drain system with drop inlets, catch basins, and other urban type infrastructure, and the degree to which the 43 acres zoned for development within this watershed are paved.

3.3.1 Watershed Delineation

Figure 2 shows the proposed development areas for the SLO Tank Farm. The former Northwest Operations Area and the eastern development (former Reservoir 4 and Flower Mound) north of Tank Farm Road are relevant to the Tank Farm Creek Watershed. The Northwest Operations Area development will likely include modification of the grades and the installation of catch basins and storm drains. These changes are expected to be minor relative to the degree of paving that will occur. For modeling purposes, it is assumed that 80 percent of the development area is paved or converted to impervious rooftop, and 20 percent remains as landscaping.

Figure 21 shows the proposed development-related infrastructure to manage stormwater. Only backbone or tract-level infrastructure is shown. Lot-level infrastructure has not been developed at this time. For modeling purposes, the same proportion of pavement and landscaping as was assumed for the Northwest Operations Area is used here. Although the naturally vegetated channel along Tank Farm Road is still used to manage runoff from the southernmost parcels and the road, approximately 48 acres of stormwater will be collected into catch basins and storm drains.

3.3.2 Hydrology and Hydraulics

Paving the eastern development area will substantially increase runoff through DP3 (Table 3) relative to the existing and post-remediation conditions. However, the detention and sedimentation pond at this location will be engineered as part of remediation to accommodate this volume and flow rate. Its purpose is to augment other BMPs such as the vegetated swale along Tank Farm Road or the lot-level stormwater infrastructure (e.g., catch basin trash and oil/water separators) that will be designed during development.

The increased runoff from the development area following paving is, however, easily absorbed by the improvements to the detention capacity of the North Marsh. Consequently, flow rates at DP5 and DP6 remain substantially less than the existing condition and are similar to those for the post-remediation condition, especially for larger storms (Table 3).

3.3.3 Floodplain Analysis

While there are some changes in peak flow resulting from development, it is not anticipated that there will be any significant alteration of the 100-year floodplain relative to the post-remediation condition. Remediation-established cap or pad grades are well out of the floodplain and more than replaced the lost capacity with additional capacity elsewhere in the onsite system. Further, the pads are sufficiently elevated that in the event of a catastrophic flood or poor performance by the culverts or outlets, buildings would not be inundated.

4.0 ONSITE CATCHMENTS TRIBUTARY TO THE EAST FORK OF SAN LUIS OBISPO CREEK

As described in Section 2.0, there are three primary watersheds of interest at the SLO Tank Farm in its existing condition. This section addresses the small onsite watershed that is tributary to an old gate valve that has rusted open in the berm adjacent to the East Fork of San Luis Obispo Creek.

None of the planned remediation activities affect this area, shown in Figure 5. However, two interesting features of this catchment are the auxiliary channel and oxbow that were cut-off from the East Fork of San Luis Obispo Creek by construction of the containment berm along the southeast property line. As part of the site-wide restoration efforts, it is proposed to restore flow to these features by breaching the berm in two locations.

The following section describes the existing catchment, storage characteristics, and the estimated outflow through the gate valve. The subsequent section discusses the proposed breaching of the berm and what changes are expected to occur. The discussion is qualitative, given the small scope of the changes relative to the large watershed tributary to the East Fork of San Luis Obispo Creek.

4.1 EXISTING CONDITIONS

Figure 22 is a detailed depiction of this watershed, referred to as Watershed B in Figure 5. The entire watershed is 19 acres, wholly within the SLO Tank Farm property. It is divided into four subcatchments, ranging between 1.8 and 7.1 acres. The subcatchments generally define the limits of ponds within the watershed that will temporarily store water. The upstream ponds spill into the adjacent downstream ponds during large storm events and then ultimately discharge to the East Fork of San Luis Obispo Creek through the old gate valve.

Access to the area is difficult, generally limited to foot traffic. It is also heavily overgrown with thick brush. The heavy vegetation tends to slow water flow and limits erosion. Inspections of these ponds did not detect any significant erosion or geotechnical issues.

The ponds are able to store between 0.8 and 4 acre-feet of water (Table 4). It is estimated that peak discharge from the gate valve (Design Point DP-7) ranges between 0.4 cfs and 5 cfs for the 2-year and 100-year storms, respectively (Table 3).

Development is not proposed for this area, and the planned restoration efforts (see next section) are anticipated to have a small, though positive, effect on a very large watershed. Consequently, the effort required to perform a flood stage analysis did not seem warranted. However, a few observations can be made. A review of nearby hydrology studies suggests that the connection to the SLO Tank Farm through the valve is not generally understood. Nevertheless, during a 100-year storm, this watershed is open to flooding since the gate valve cannot be closed. It is

also true, however, that the availability of this storage capacity is limited due to the relatively small size (approximately 12 inches) of the valve.

4.2 CHANGES DUE TO REMEDIATION OR RESTORATION

The proposed changes to this watershed are shown in Figure 23, which illustrates the grading that would breach the berm and fully open the area to flows from the East Fork of San Luis Obispo Creek. One opening occurs at the upstream point of the southern oxbow. The second opening occurs at the current location of the gate valve. Each is approximately 100 feet wide. Invert elevations for the breaches are set at 127 and 119 feet amsl, which are approximately 2 to 3 feet above the adjacent invert elevations of the East Fork of San Luis Obispo Creek. Consequently, the channels are not anticipated to engage during non-storm events, but rather at times when the creek is flowing at approximately 40 percent capacity.

Clearly, runoff from this watershed will contribute quickly and directly to the East Fork of San Luis Obispo Creek. However, as observed before, the contribution from this 19-acre catchment has insignificant effect on a watershed that is measured in square miles. The direct connection will increase the potential floodplain storage. As above, the total amount of storage gained is small compared to the overall storage required for the entire drainage. We believe that on balance, the changes are a net hydrologic benefit to the larger East Fork watershed. In addition, the changes are expected to improve the ecologic function of the oxbow and the auxiliary channel. These benefits are discussed more fully in the *Restoration Plan*.

5.0 ONSITE ISOLATED CATCHMENTS

One of the significant physical characteristics of the SLO Tank Farm that is a relic of its operational past is the degree to which much of the site is hydrologically isolated from the surrounding land. Nearly 42 percent of the site consists of closed catchments. The proposed extension of Santa Fe Road across the site will alter this condition. Since the finished remedial grading includes establishing the rough grade for this road, those alterations will occur as part of remediation.

5.1 EXISTING CONDITION

The existing condition of the isolated onsite catchments is depicted in Figure 24. Isolated catchments occur both north and south of Tank Farm Road, 9 and 131 acres, respectively. The relatively small area of closed catchments north of Tank Farm Road is formed from the remnants of the containment berms of the seven most northwestern of the old ASTs. The larger area south of Tank Farm Road consists of the various containment features constructed to ensure petroleum releases from the large reservoirs were contained onsite.

Within the overall bounds of the isolated catchments (Watershed C in Figure 5) there is no hydrologic communication with other watersheds, although there is some communication between certain subcatchments. Further details on the subcatchment delineation and their internal connections are available in Appendix C.

Water is stored in the closed catchments in proportion to the total depth of precipitation. The nominal storage values for the isolated catchment ponds analyzed in this study are listed in Table 4. There are no hydraulic structures within the isolated catchments. North of Tank Farm Road, the storage capacity of the former AST containment rings is not available to Tank Farm Creek during a 100-year flood. Similarly, the storage capacity south of Tank Farm Road is not available to the East Fork of San Luis Obispo Creek.

5.2 CHANGES DUE TO REMEDIATION AND RESTORATION

Some of the isolated catchments will be disturbed by remediation and restoration efforts. Most of that work will not significantly alter the overall hydrologic function within the closed watershed. A thorough discussion of particular hydrologic and hydraulic features of the remediation work in this area is provided in the *Remedial Action Plan.* However, there are a few actions that will result in changes to the hydrologic character of portions of the isolated catchments and, therefore, warrant more detailed discussion.

5.2.1 Watershed Delineation

The anticipated configuration of the isolated catchments after remediation is shown in Figure 25. North of Tank Farm Road, five of the seven containment rings for the former ASTs are now part

of the Tank Farm Creek Watershed and are no longer considered isolated. The basis for this change and the ecological and hydrologic benefits are discussed in detail in Section 3.2.

As was first shown in Figure 2, the eastern portion of the isolated catchments, that part south of Tank Farm Road, has been dedicated for development. It will also be used as a borrow source for topsoil during remediation.

One of the final tasks during remediation will be restoration of the borrow areas. In this case, that activity specifically includes backfilling to establish rough grade pads for future development. This area has been broken into separate watersheds that will be addressed individually in this section (Figure 25). The larger section is a portion of Watershed C (Subcatchment C3, 15.9 acres) in the future development area. Watershed E, after remediation and restoration grading activities, consists of a portion of the future development area just east and west of the extension to Santa Fe Road and is comprised of approximately 10 acres.

5.2.2 Hydrology and Hydraulics

The developed portion of Watershed C will remain, at least initially, an isolated catchment. However, the altered grades and its future development warrant constructing a detention and sedimentation basin to minimize erosion of the soil cover. Runoff from the pads will occur as sheet flow, but will be concentrated into small channels and directed to the basin. The sizing of the basin and the hydraulic function of the ditches are presented in the *Remedial Action Plan*. Water in the basin will be allowed to infiltrate, or may be discharged to the wetland portion of the isolated catchment after treatment.

Alternatively, water in the basin could be discharged into the oxbow in a controlled manner. There are no engineering factors that would prevent this, and any pollutants (e.g., sediment) could be readily removed prior to discharge into the oxbow. Selection of this alternative is, therefore, a regulatory consideration based on the most beneficial use of the collected stormwater.

Watershed E is separated from its original isolated catchment by the extension of Santa Fe Road. With this change in grade, this 10-acre catchment will now drain, via a naturally vegetated perimeter ditch, to Acacia Creek. Peak flows will range between 14 and 43 cfs, for the 2-year and 100-year storms, respectively. Total discharge for the 100-year storm is estimated to be 5 acre-feet, while the total discharge from the 2-year storm is anticipated to be less than 2 acre-feet. These volumes and flow rates are insignificant compared to those for Acacia Creek and the East Fork of San Luis Obispo Creek. Consequently, no extraordinary measures for detention or flow control are recommended at this time.

5.2.3 Floodplain Analysis

Neither Watershed C nor Watershed E is currently within the estimated 100-year floodplain. The grading changes within Watershed C will not alter that condition. With the new hydraulic connection to Acacia Creek, Watershed E could potentially be impacted by a 100-year flood.

However, the future building pads within each watershed have been set at elevations believed to be above the 100-year flood, based on the analysis performed by Mead & Hunt (March 2006) for the San Luis Obispo County Runway Expansion. Consequently, neither watershed is removing storage capacity that would otherwise be available to the floodplain, and the design ensures that any structures will be well above the potential flood stage in the event the watersheds are engaged.

5.3 CHANGES DUE TO DEVELOPMENT

Development within the isolated catchments is limited to those catchments located on the eastern portion of the site just south of Tank Farm Road. Similar to development north of Tank Farm Road, development in this area will consist of the construction of a storm drain system with drop inlets, catch basins and other urban-type infrastructure, a detention/sedimentation basin, and a particular amount of pavement and other impermeable surfaces.

5.3.1 Watershed Delineation

Figure 2 shows the proposed development areas for the SLO Tank Farm. The areas designated for development south of Tank Farm Road on the eastern portion of the site are relevant to the isolated catchments and the Acacia Creek watershed. Figure 21 shows the proposed extent of developmental grading and related infrastructure to manage stormwater. For modeling purposes, it is assumed, as with development elsewhere onsite, that 80 percent of the development area is paved or converted to impervious rooftop and 20 percent remains as landscaping.

As part of the proposed development in this area, a new detention/sedimentation basin will be constructed for the treatment of runoff before discharging to the existing isolated ponds onsite. As an alternative, treated runoff can also be routed directly into the existing oxbow and ultimately discharged into the East Fork of San Luis Obispo Creek. However, this scenario has not been addressed in this study. The basin will collect runoff from approximately 8.5 acres of developed property west of the proposed Santa Fe Road extension. The remaining development east of the Santa Fe Road extension (approximately 2 acres) drains via sheet flow to Acacia Creek.

5.3.2 Hydrology and Hydraulics

Paving the eastern development area will substantially increase runoff collecting within Pond PC1 (Table 4) relative to existing conditions. Currently, Pond PC1 stores approximately 0.06 and 2.5 acre-feet of runoff for the 2-year and 100-year storms, respectively. After development, Pond PC1 is anticipated to store approximately 2 and 6.2 acre-feet of runoff for the 2-year and 100-year storms, respectively. The added runoff is a direct result of paving and other impermeable surfaces that coincide with development activities and a slightly larger catchment area generated as a result of developmental grading.

Runoff discharging to Acacia Creek from Watershed E will be greatly reduced (Table 3, Design Point DP9) relative to the post-remediation condition due to catchment reconfiguration from

grading and storm drain construction activities. Runoff is expected to discharge to Acacia Creek via sheet flow at a rate of approximately 3.5 and 9.5 cfs for the 2-year and 100-year storms, respectively.

5.3.3 Floodplain Analysis

As with the post-remediation and post-restoration conditions, after development neither Watershed C nor Watershed E will be within the estimated 100-year floodplain as a result of grading changes. Future building pads within each watershed have been set at elevations believed to be above the 100-year flood, based on the analysis performed for the San Luis Obispo County Runway Expansion (Mead & Hunt, March 2006). Consequently, neither watershed is removing storage capacity that would otherwise be available to the floodplain, and the design ensures that any structures will be well above the potential flood stage in the event the watersheds are engaged.

6.0 MINOR WATERSHEDS

Minor watersheds are those catchments at the site that are relatively small, do not possess clearly defined channels, or are not otherwise easily addressed in the previous sections. There are two minor watersheds described in this study. The first includes approximately 11 acres of berm slope that drains into Acacia Creek and the East Fork of San Luis Obispo Creek. This area is negligible with respect to the overall watershed and is not changed by either remediation and restoration or development, and is not discussed further in this study.

The second minor watershed is referred to as Watershed D in Figure 5 and 6. In its existing condition, it is approximately 4 acres that drains east via sheet flow to the adjacent property. Peak runoff flow rates range from 3.5 cfs for the 2-year storm up to 14 cfs for the 100-year storm. Total runoff volume is estimated to be between 0.4 acre-feet and 1.5 acre-feet for the 2-year and 100-year storms, respectively (Figure 26). Extensive hydrographs for the watershed are provided in Appendix D. Watershed D is not within the 100-year floodplain.

Remediation includes substantial grading of the Flower Mound and Reservoir 4. At the conclusion of these activities, Watershed D will have increased to 7 acres (Figure 25). Runoff will no longer be allowed to sheet-flow across the property line. Rather, it will be collected in a ditch along the property line that will discharge into the shoulder ditch that runs along Tank Farm Creek and from there into Acacia Creek. A small basin located just before the ditch along Tank Farm Road will be used to attenuate the peak flow and to reduce sediment load.

This is, however, a temporary condition. It is anticipated that development of this area will occur within a few years following remediation. As is shown in Figure 21 the finished grades in Watershed D will drain to catch basins connected to a storm drain system. That storm drain will discharge to the natural swale along the west side of the development area. The hydrology and hydraulics of Watershed D in the post development condition are included in the Tank Farm Creek Watershed discussion in Section 3.3.

7.0 CLOSING REMARKS

Avocet appreciates the opportunity to assist Chevron and the project team on this project. As mentioned previously, this document has been prepared in conjunction with the *Restoration Plan*, and that these documents support the proposed remediation and development of the SLO Tank Farm.

Given that the project is in the early stages of permitting it is recognized that changes may be necessary as the project is refined. This includes the potential routing of Tank Farm Creek through the southern property line, assuming that a regional working group can be established to address the various administrative challenges associated with that proposition. It is also understood that further evaluation will be needed for particular design elements such as the Santa Fe Bridge, which are not included in this document.

We believe, however, that this study provides a detailed evaluation of the existing and proposed conditions of the site, but also presents realistic solutions to address hydrologic and hydraulic issues associated with the remediation, restoration and development aspects of this project.

Respectfully submitted,

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Tables

Table 1
Summary of Current and Post-Remediation Catchment Areas
San Luis Obispo Tank Farm
San Luis Obispo, California

Catchment ID	Area (acres)	SCS Curve Number (Composite)	Time of Concentration (*Tc*) (minutes)
Existing Conditions			
A1	43.4	95.6	20.9
A2	94.7	85.3	19.4
A3	31.3	83.0	17.9
A4	4.5	98.0	4.6
A5	6.8	98.0	4.2
A6	4.0	98.0	10.1
A7	4.5	87.1	43.3
A8	73.3	83.0	17.8
A9	41.1	86.8	42.1
A10	19.5	65.0	39.3
A11	61.3	83.0	24.0
A12	51.4	84.2	19.6
A13	56.5	77.0	32.5
A14	35.0	48.0	53.0
A15	11.1	48.0	50.0
A16	7.7	55.5	60.2
A17	5.3	63.0	48.1
A18	7.4	79.9	65.0
A19	25.2	79.0	54.2
A20	5.7	98.0	4.9
A21	6.9	91.0	5.9
A22	11.3	69.8	37.4
A23	9.8	48.0	33.0
A24	10.5	51.5	63.3
A25	9.7	48.0	57.1
B1	4.4	71.0	9.8
B2	5.8	71.0	28.3
B3	1.8	71.0	3.2
B4	7.1	65.0	58.0
C1	1.8	48.0	18.3
C2	2.4	48.0	27.0
C3	21.0	48.0	48.5
C4	9.3	60.8	39.4
C5	10.9	48.0	39.4
D1	3.6	83.0	5.5

Catchment ID	Area (acres)	SCS Curve Number (Composite)	Time of Concentration (*Tc*) (minutes)
Post-Remediation Conditions			
A1	Catchments A1 through A9 contribute to the proposed detention basin located north of the property. Onsite flow is assumed to be that which is discharged from the detention basin and was provided by the hydrologic report for the King Ventures & Sierra Gardens (TEC, 2008).		
A2			
A3			
A4			
A5			
A6			
A7			
A8			
A9			
A10	17.8	65.0	39.3
A11	61.3	81.2	24.0
A12	57.3	85.6	19.6
A13	49.1	84.9	57.0
A14	35.0	48.0	53.0
A15	8.2	48.0	50.8
A16	13.6	48.0	60.2
A17	9.9	63.0	48.1
A18	7.4	91.0	65.0
A19	25.2	79.0	54.2
A20	5.7	98.0	4.9
A21	6.9	91.0	5.9
A22[(1)]	32.6	80.1	63.3
A25	14.7	48.0	57.1
B1	4.4	71.0	9.8
B2	5.8	71.0	28.3
B3	1.8	71.0	3.2
B4	7.1	65.0	58.0
-	-	-	-
C3[(2)]	22.9	79.0	42.1
C4	9.3	60.8	39.4
C5	11.4	48.0	39.4
D1	7.8	83.0	48.1
E1	3.0	91.0	8.4

Notes:
(1) Existing catchments A22 through A24 are combined (A22) in the post-remediation condition.
(2) Existing closed catchments C2 and C3 are combined (C3) in the post-remediation condition.

Table 2
Comparison of Tank Farm Creek Watershed Offsite Discharge Peak Flows and Volumes, and Onsite Storage for the Existing and Post-Remediation Conditions
San Luis Obispo Tank Farm
San Luis Obispo, California

Storm Event	Volumes (ac-ft)				Peak Flow[1] (cfs)			
	Discharge[2]	Storage[3]	Overflow	Total	Existing 36"	Two 12"	Overflow	Total
2-Year 24-Hour Storm								
Existing Conditions	40.4	27.2	0.0	**67.6**	57.8	-	0.0	**57.8**
Post-Remediation	19.6	46.7	0.0	**66.2**	11.1	9.7	0.0	**20.8**
10-Year 24-Hour Storm								
Existing Conditions	72.1	71.1	0.0	**143.2**	77.7	-	0.0	**77.7**
Post-Remediation	58.5	93.0	0.0	**151.5**	42.5	14.6	0.0	**57.2**
25-Year 24-hour Storm								
Existing Conditions	92.1	92.3	4.7	**189.2**	83.3	-	79.2	**162.5**
Post-Remediation	75.9	130.5	0.0	**206.4**	57.9	16.5	0.0	**74.3**
50-Year 24-hour Storm								
Existing Conditions	95.9	98.4	28.3	**222.5**	84.2	-	166.1	**250.2**
Post-Remediation	82.7	161.7	0.0	**244.4**	63.9	17.5	0.0	**81.5**
100-Yer 24-hour Storm								
Existing Conditions	97.1	103.3	56.2	**256.5**	85.2	-	287.2	**372.5**
Post-Remediation	91.0	190.8	0.0	**281.8**	69.4	18.5	0.0	**87.9**

Notes:
ac-ft = acre feet
cfs = cubic feet per second
(1) Table compares existing and post-remediation conditions at the offsite outlet for Tank Farm Creek.
(2) Discharge volumes are time-integrated flow through the engineered orifice only.
(3) Storage includes all features capable of storing water hydraulically upstream of the outlet.

Table 3
Summary of Peak Flows
San Luis Obispo Tank Farm
San Luis Obispo, California

Design Point ID	2-Year Peak Flow (cfs)			10-Year Peak Flow (cfs)			25-Year Peak Flow (cfs)		
	Existing Condition	Post-Remediation	Post-Development	Existing Condition	Post-Remediation	Post-Development	Existing Condition	Post-Remediation	Post-Development
Watershed A									
DP-1	214.7	203.66	203.7	432.02	480.51	480.55	548.07	664.97	664.98
DP-2	39.14	47.4	36.73	85.03	99.38	82.27	111.92	129.01	108.77
DP-3	57.77	22.76	51.93	135.91	90.18	140.72	182.4	127.7	178.02
DP-4(1)	114.63	-	-	255.77	-	-	324.79	-	-
DP-5	72.42	20.7	22.74	205.72	65.94	68.42	286.79	86.16	88.55
DP-6	57.81	20.75	22.47	77.65	57.15	58.3	83.28	74.31	75.03
Watershed B									
DP-7	0.41	-	-	2.07	-	-	3.19	-	-
Watershed D									
DP-8	3.53	6.16	-	7.83	10.84	-	10.36	13.41	-
Watershed E									
DP-9	-	14.35	3.5	-	26.74	6.09	-	33.58	7.52

Design Point ID	50-Year Peak Flow (cfs)			100-Year Peak Flow (cfs)		
	Existing Condition	Post-Remediation	Post-Development	Existing Condition	Post-Remediation	Post-Development
Watershed A						
DP-1	623.03	787.2	787.21	690.7	902.53	902.57
DP-2	130.9	149.82	127.49	149.91	170.67	149.29
DP-3	215.97	150.87	202.52	249.84	174.73	226.62
DP-4[1]	377.57	-	-	433.41	-	-
DP-5	340.58	98.06	100.23	395.47	107.43	109.2
DP-6	84.16	81.47	81.46	85.24	87.87	86.78
Watershed B						
DP-7	4.01	-	-	4.83	-	-
Watershed D						
DP-8	12.18	15.2	-	14.0	16.99	-
Watershed E						
DP-9	-	38.35	8.51	-	43.1	9.5

Notes:
cfs = cubic feet per second
(1) The round culverts beneath Tank Farm Road, represented as design point DP4, are removed in the Post-Remediation and Post-Development conditions.

Table 4
Summary of 24-Hour Peak Storage Volumes at Selected Ponds
San Luis Obispo Tank Farm
San Luis Obispo, California

Pond or Storage Basin ID	2-Year Storage Volume (ac-ft)			10-Year Storage Volume (ac-ft)			25-Year Storage Volume (ac-ft)		
	Existing Condition	Post-Remediation	Post-Development	Existing Condition	Post-Remediation	Post-Development	Existing Condition	Post-Remediation	Post-Development
Watershed A									
PA1	9.23	37.43	39.42	28.08	71.89	75.51	39.74	100.1	104.37
PA2	3.91	-	-	6.38	-	-	7.52	-	-
PA3	0.03	0.05	0.05	0.34	0.67	0.65	0.79	1.15	1.13
PA4(1)	7.63	-	-	20.2	-	-	25.94	-	-
PA5(1)	12.05	-	-	29.34	-	-	34.09	-	-
PA6	0.63	0.63	0.63	1.42	1.42	1.42	1.42	1.42	1.42
PA7(1)	2.99	8.15	8.83	6.69	28.35	59.22	8.12	41.54	42.54
PA8	-	4.44	5.11	-	6.05	7.11	-	6.84	7.91
Watershed B									
PB1	0.26	-	-	0.69	-	-	0.95	-	-
PB2	0.39	-	-	0.87	-	-	1.26	-	-
PB3	0.11	-	-	0.28	-	-	0.38	-	-
PB4	0.02	-	-	0.1	-	-	0.15	-	-
Watershed C									
PC1	0.06	1.54	2.02	0.74	3.49	3.69	1.38	4.56	4.66

Pond or Storage Basin ID	50-Year Storage Volume (ac-ft)			100-Year Storage Volume (ac-ft)		
	Existing Condition	Post-Remediation	Post-Development	Existing Condition	Post-Remediation	Post-Development
Watershed A						
PA1	45.17	121.39	125.38	48.18	141.24	145.12
PA2	8.29	-	-	9.05	-	-
PA3	1.04	1.42	1.4	1.26	1.99	1.65
PA4(1)	27.72	-	-	28.67	-	-
PA5(1)	34.24	-	-	34.4	-	-
PA6	1.42	1.42	1.42	1.42	1.42	1.42
PA7(1)	8.36	51.43	51.45	8.65	60.72	58.89
PA8	-	7.35	8.4	-	7.84	8.89
Watershed B						
PB1	1.11	-	-	1.41	-	-
PB2	1.52	-	-	1.78	-	-
PB3	0.46	-	-	0.55	-	-
PB4	0.19	-	-	0.23	-	-
Watershed C						
PC1	1.91	5.5	5.47	2.51	6.35	6.21

Notes:
ac-ft = acre feet
(1) Ponds PA4, PA5, and PA7 are combined into one pond (Pond PA7) for the Post-Remediation and Post-Development scenarios.

Table 5
Summary of Peak Flows and Velocities in
Selected Tank Farm Creek Watershed Channel Reaches
San Luis Obispo Tank Farm
San Luis Obispo, California

Channel Reach	Existing Condition 2-Year Storm		Post-Remediation 2-Year Storm		Post-Development 2-Year Storm	
	Flow Volume (cfs)	**Velocity** (ft/sec)	**Flow Volume** (cfs)	**Velocity** (ft/sec)	**Flow Volume** (cfs)	**Velocity** (ft/sec)
West Fork Tank Farm Creek						
Reach 1	196.65	1.48	203.66	2.53	203.66	2.53
Reach 2	189.87	2.01	200.87	3.18	200.87	3.18
Reach 3	-	-	1.34	0.67	1.34	0.67
East Fork Tank Farm Creek						
Reach 1	57.77	3.08	22.76	1.24	51.93	1.61
Reach 2(1)	14.85	0.82	36.26	1.68	74.86	2.11
Tank Farm Creek South of Tank Farm Road						
Reach 1	112.51	1.51	20.7	2.7	22.74	3.42

Notes:
cfs = cubic feet per second
ft/sec = feet per second
(1) Flow through Reach 2 of the East Fork Tank Farm Creek for the existing condition is limited by the size of the existing culvert beneath the access road. Excess flow not passing through the culvert is routed directly into the North Marsh.

Figures

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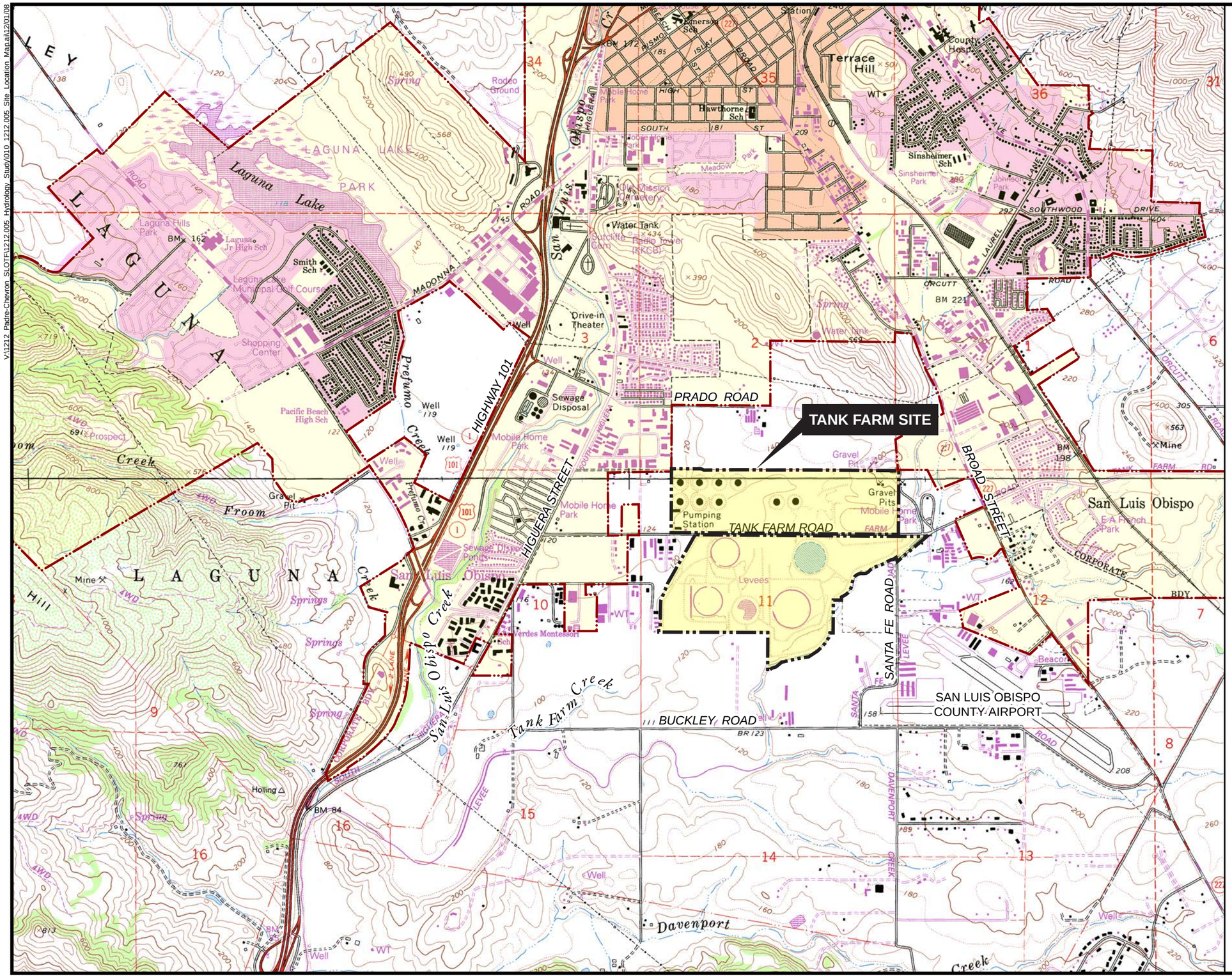

EXPLANATION

CITY OF SAN LUIS OBISPO BOUNDARY

REFERENCE:
7.5 MINUTE U.S.G.S. TOPOGRAPHIC MAPS OF
OF PISMO BEACH AND SAN LUIS OBISPO, CALIFORNIA
DATED: 1965
PHOTOREVISED: 1994

0 2,000 4,000 FEET
APPROXIMATE SCALE

FIGURE 1

SITE LOCATION MAP

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

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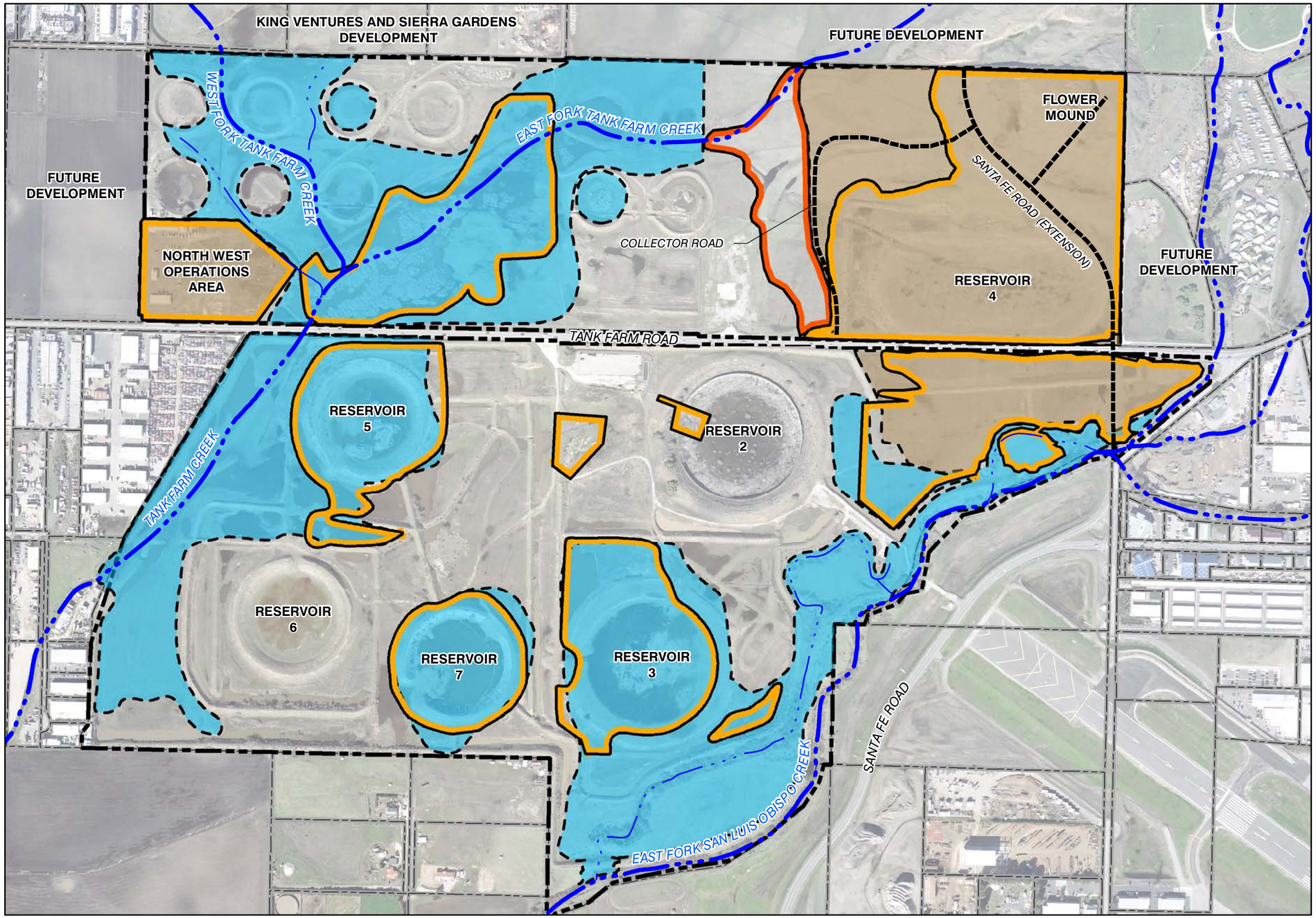

REFERENCE:
AERIAL PHOTOGRAPH PROVIDED BY WSP.
DATED FEBUARY 4, 2008.

ONSITE LAND USE AREA

OPEN SPACE	265 ac
DEVELOPMENT	53 ac
PUBLIC DEDICATION (I.E. ROADS)	14 ac
TOTAL	332 ac

ONSITE DISTURBANCE AREA

REMEDIATION	124.9 ac
RESTORATION	82.6 ac
DEVELOPMENT	16.2 ac
UNDISTURBED	109.6 ac
TOTAL	333.3 ac

NOTE:
RESTORATION DISTURBANCE AREA IS THAT WHICH DOES NOT FALL WITHIN REMEDIATION AREAS. DEVELOPMENT DISTURBANCE AREA IS THAT WHICH DOES NOT FALL WITHIN REMEDIATION AND RESTORATION AREAS.

N

LEGEND

- PRIMARY CREEK
- SECONDARY CREEK
- PROPOSED ROADS
- REMEDIATION
- DEVELOPMENT
- RESTORATION
- LIMIT OF GRADING TO SUPPORT DEVELOPMENT NOT OTHERWISE DISTURBED
- PROPERTY BOUNDARY
- PARCEL BOUNDARY

0 250 500 1,000 FEET

APPROXIMATE SCALE

FIGURE 2

PROPOSED LAND USE ACTIVITIES

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM
PREPARED FOR
CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

S:\GIS\1212_Chevron_Padre_SLOTF\005_Hydrology_Study\ArcMapDocuments\016_1212.005_Existing_Site_Condition.mxd\11/19/08

REFERENCE:
AERIAL PHOTOGRAPH BY CENTRAL COAST AERIAL MAPPING.
DATED MARCH 2, 2007.

N

EXPLANATION

PROJECT AREA BOUNDARY

FORMER AST LOCATION

0 250 500 1,000 FEET

APPROXIMATE SCALE

FIGURE 3

EXISTING SITE CONDITIONS

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM
PREPARED FOR
CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

V:\1212 Padre-Chevron SLOTF\1212.005 Hydrology Study\037 1212.005 Regional Hydrologic Basins.ai\12/22/08

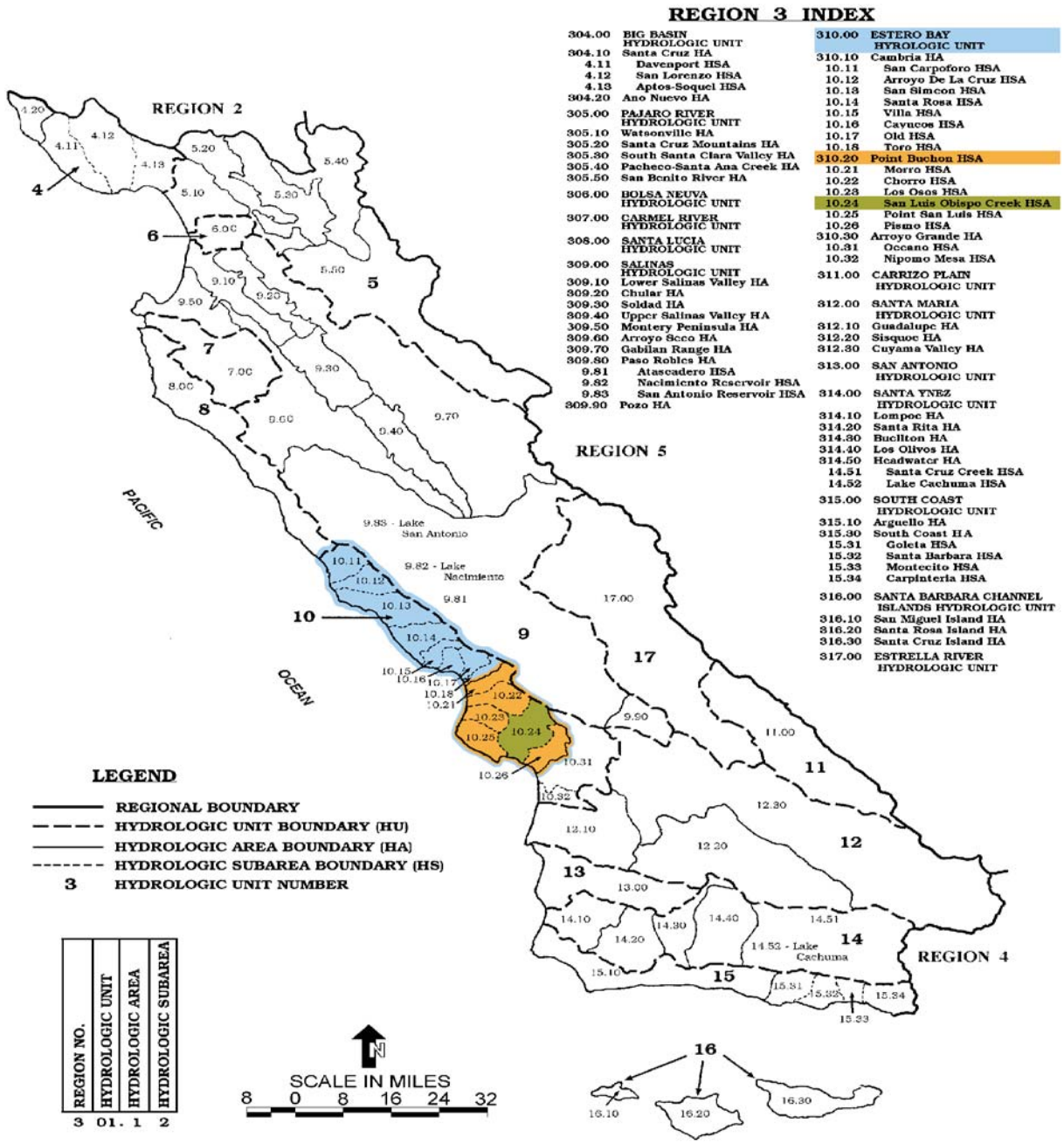

FIGURE 4

REGIONAL HYDROLOGIC BASINS

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

REFERENCE:
CENTRAL COAST REGION - BASIN PLAN,
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION, AUGUST 2006.

AVOCET ENVIRONMENTAL, INC.

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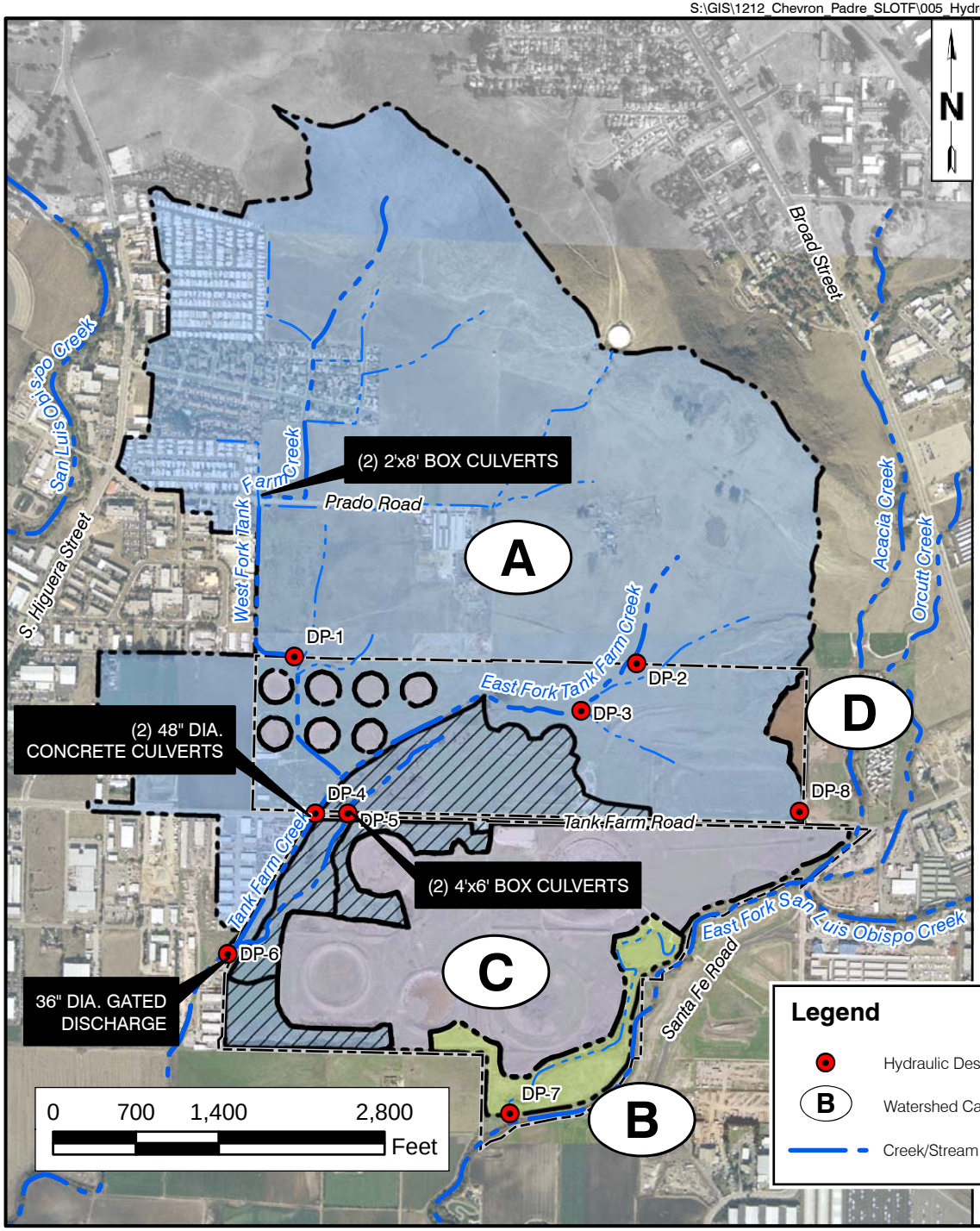

WATERSHED ID	ONSITE (ac)	OFFSITE (ac)	TOTAL (ac)
WATERSHED A TANK FARM CREEK WATERSHED	160.1	476.5	636.6
WATERSHED B ONSITE TRIBUTARY TO THE EAST FORK OF SAN LUIS OBISPO CREEK	19.1	0.0	19.1
WATERSHED C ONSITE HYDROLICALLY ISOLATED DEPRESSIONS	139.1	0.8	139.9
WATERSHED D ONSITE AREA TO THE EAST WHICH DRAINS OFFSITE	4.0	0.0	4.0
OTHER OTHER MINOR OFFSITE DRAINAGE	11.0	0.0	11.0
TOTAL	333.3	477.3	810.6

NOTES:

1) DIAGONAL HATCHED AREAS ARE TRIBUTARY TO THE NORTH MARSH AND AUXILIARY TANK FARM CREEK AND ARE NOT ENGAGED IMMEDIATELY DURING A STORM,

FIGURE 5

WATERSHEDS OVERVIEW EXISTING CONDITIONS

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM
PREPARED FOR
CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

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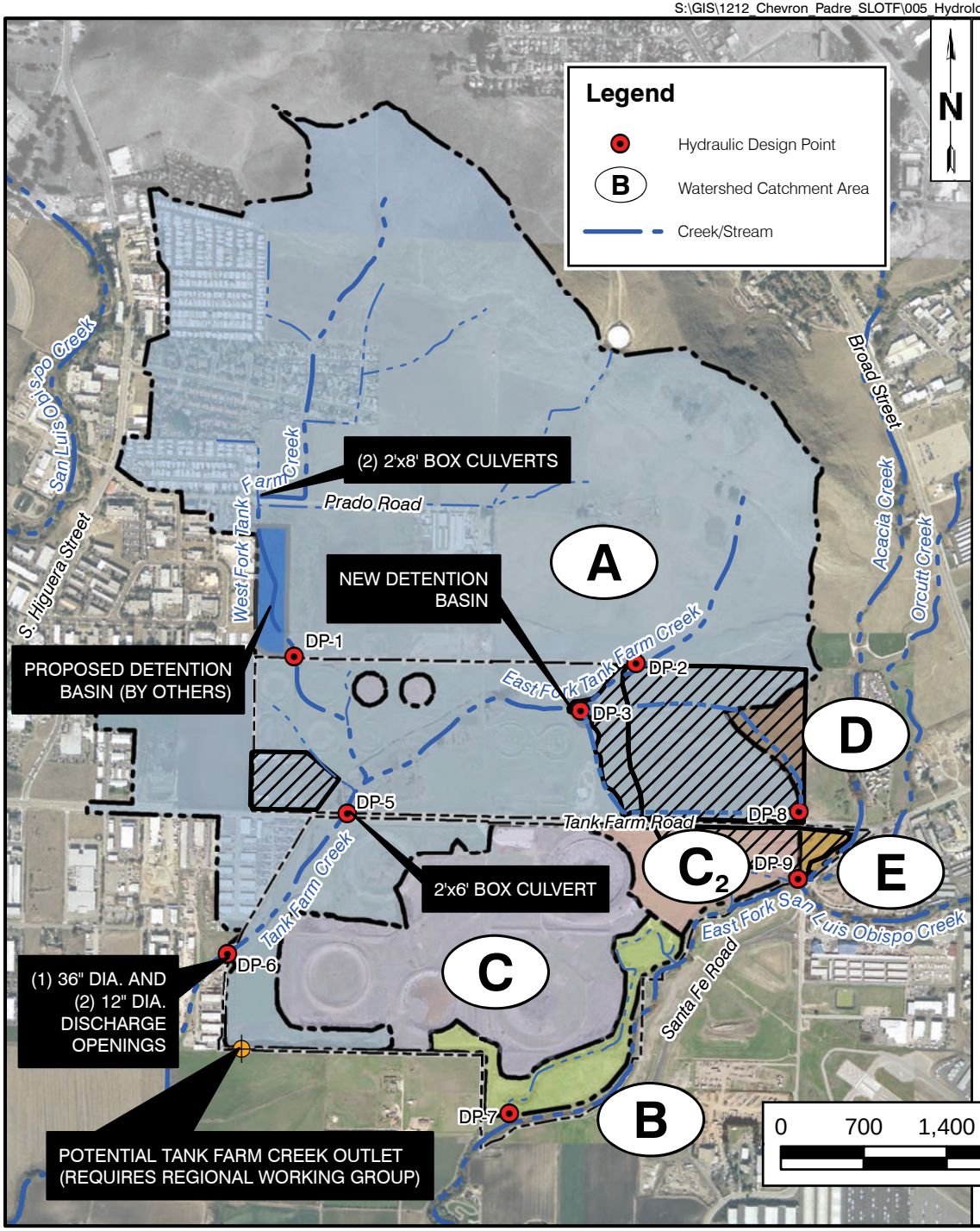


WATERSHED ID	ON-SITE (ac)	OFF-SITE (ac)	TOTAL (ac)
WATERSHED A TANK FARM CREEK WATERSHED	164.1	476.5	640.7
WATERSHED B ON-SITE TRIBUTARY TO THE EAST FORK OF SAN LUIS OBISPO CREEK	19.1	0.0	19.1
WATERSHED C ON-SITE HYDROLICALLY ISOLATED DEPRESSIONS	107.9	0.0	107.9
WATERSHED C_2 EAST FORK SAN LUIS OBISPO CREEK WATERSHED	22.3	0.6	22.9
WATERSHED D ON-SITE AREA TO THE EAST WHICH DRAINS OFF-SITE	7.0	0.0	7.0
WATERSHED E EAST FORK SAN LUIS OBISPO CREEK WATERSHED	2.8	0.2	3.0
OTHER OTHER MINOR OFFSITE DRAINAGE	10.1	0.0	10.1
TOTAL	333.3	477.3	810.6

NOTES:
1) DIAGONAL HATCHED AREAS ARE AREAS DESIGNATED FOR DEVELOPMENT.

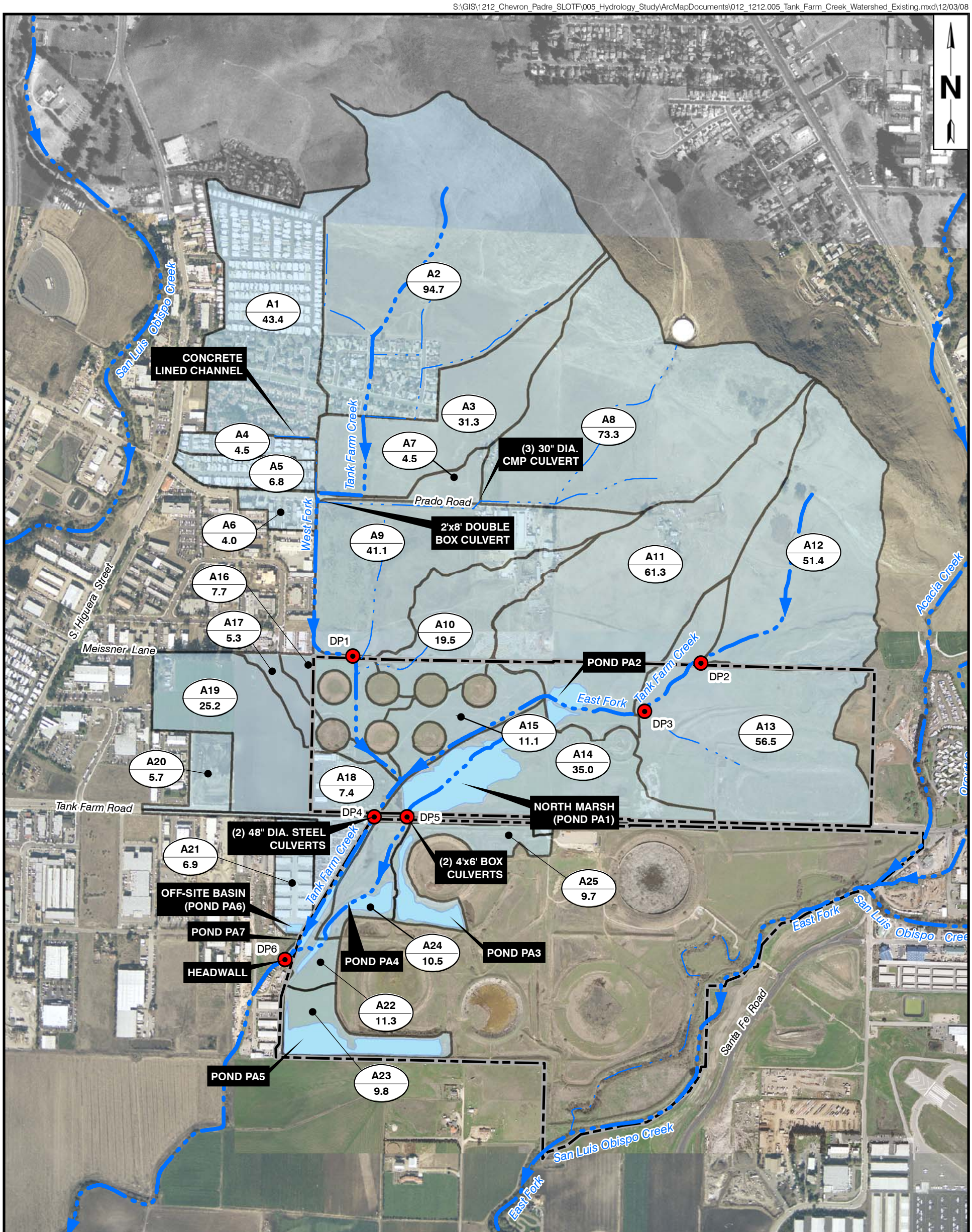
FIGURE 6

WATERSHEDS OVERVIEW POST-REMEDIATION AND POST-DEVELOPMENT CONDITIONS

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM
PREPARED FOR
CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

S:\GIS\1212_Chevron_Padre_SLOTF\005_Hydrology_Study\ArcMapDocuments\012_1212.005_Tank_Farm_Creek_Watershed_Existing.mxd\12/03/08



LEGEND

- HYDRAULIC DESIGN POINT
- PRIMARY CREEK
- SECONDARY CREEK
- SITE PROPERTY BOUNDARY
- EXISTING HYDROLOGIC CATCHMENT A
- EXISTING POND

A4 — SUBCATCHMENT I.D.
4.5 — SUBCATCHMENT AREA (ACRES)

0 400 800 1,600 FEET

FIGURE 7

TANK FARM CREEK WATERSHED EXISTING CONDITIONS

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

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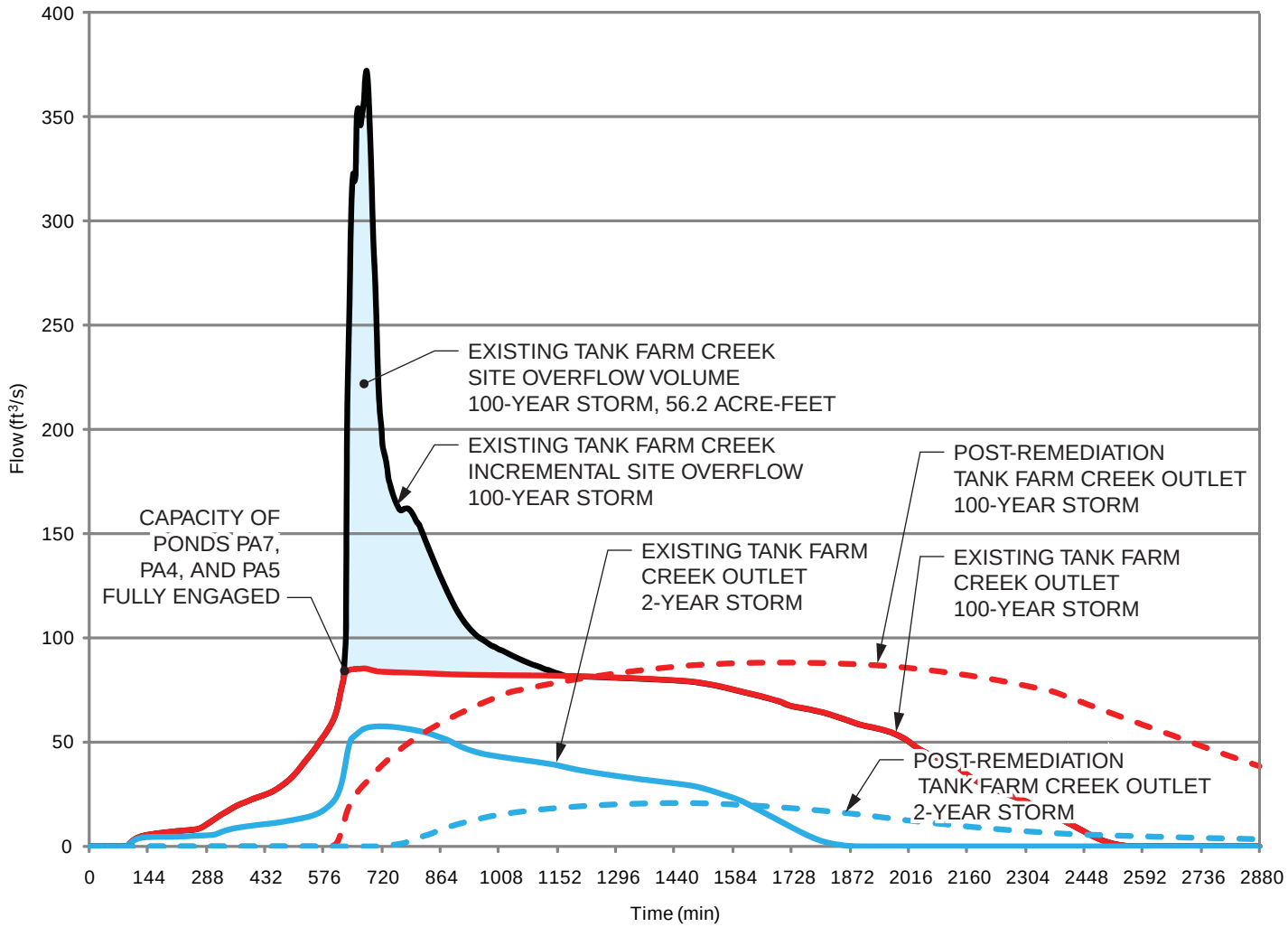

FIGURE 8

TANK FARM CREEK (DP-6) HYDROGRAPHS

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

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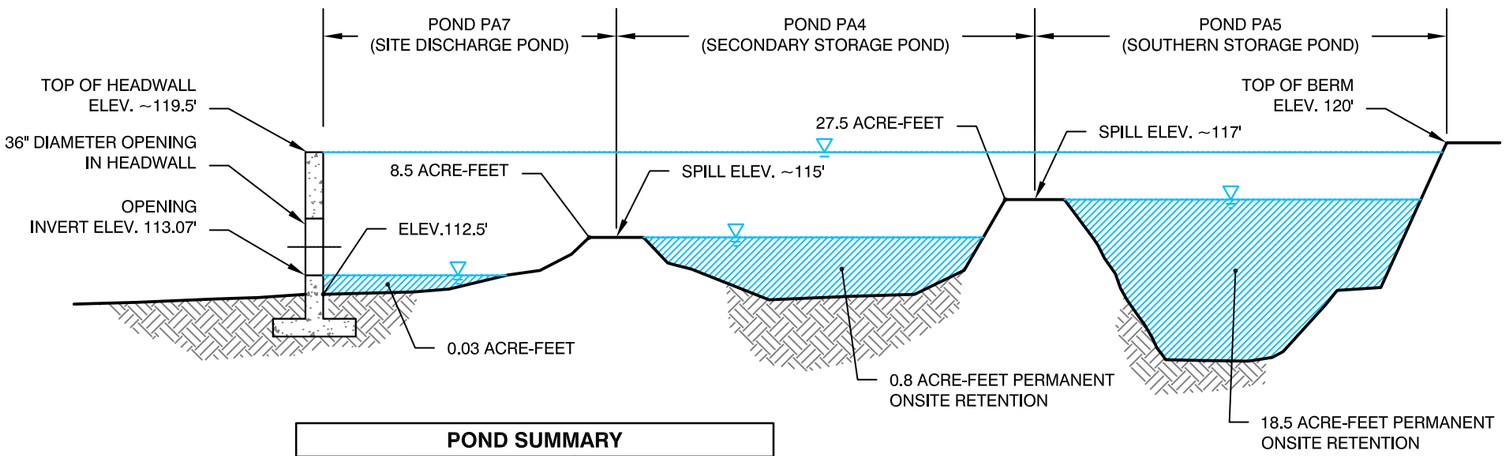
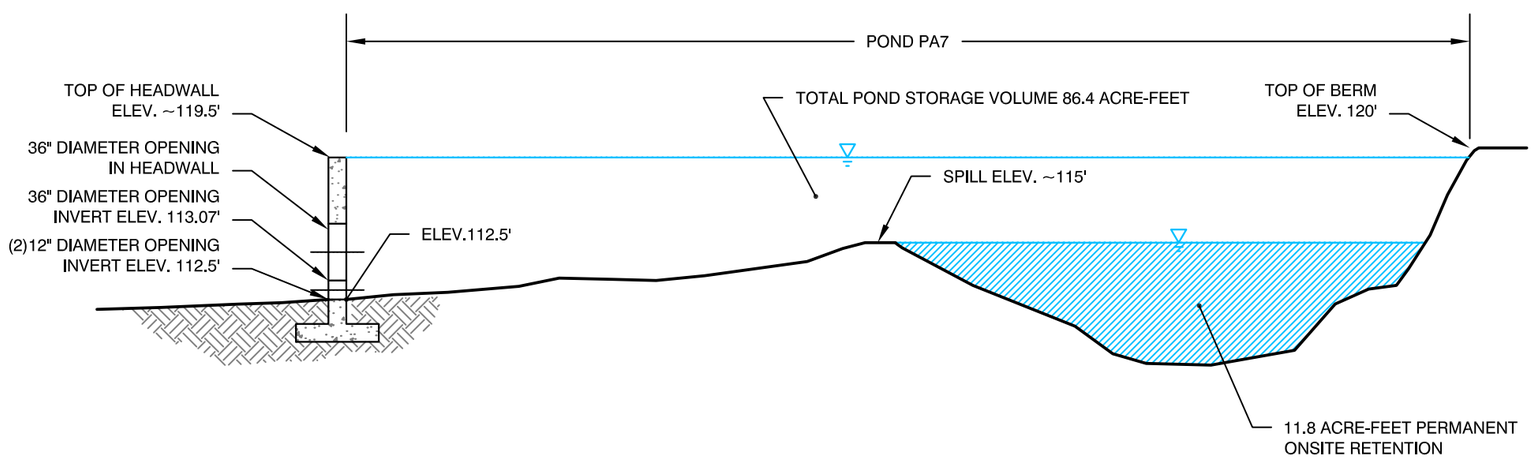


EXISTING CONDITION

NOT TO SCALE

POND SUMMARY		
POND ID	POND LOW POINT (ft)	POND STORAGE VOLUME (ac-ft)
PA7	112.5	8.51
PA4	112.5	27.5
PA5	111.0	36.72



POST-REMEDIATION CONDITION

NOT TO SCALE

FIGURE 9

HEADWALL STORAGE AND OUTFLOW RELATIONSHIP

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

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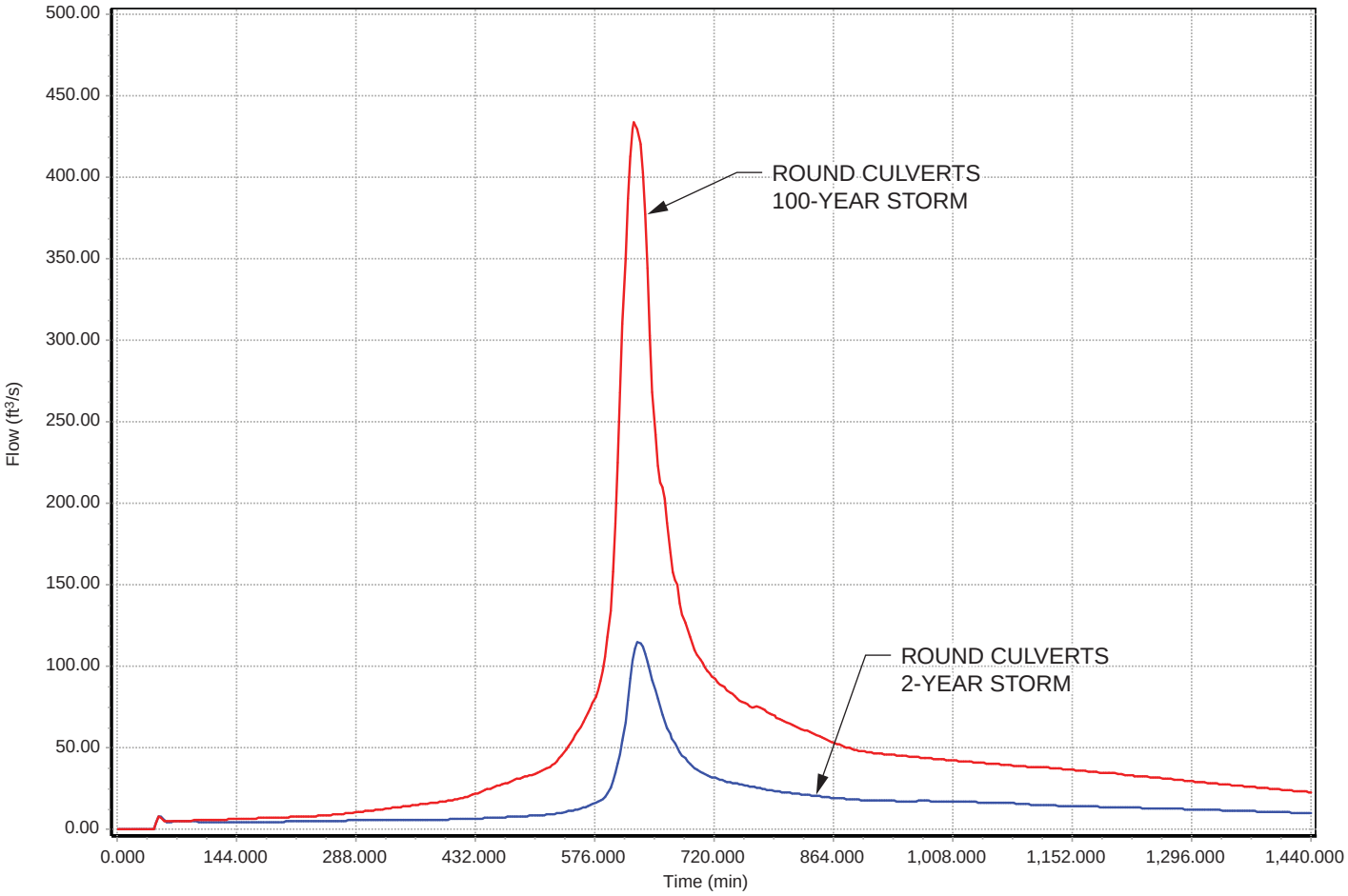

FIGURE 10

ROUND CULVERTS (DP-4) HYDROGRAPHS

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

NOTE:
THE ROUND CULVERTS ARE ABANDONED AS PART OF REMEDIATION AND RESTORATION.

AVOCET ENVIRONMENTAL, INC.

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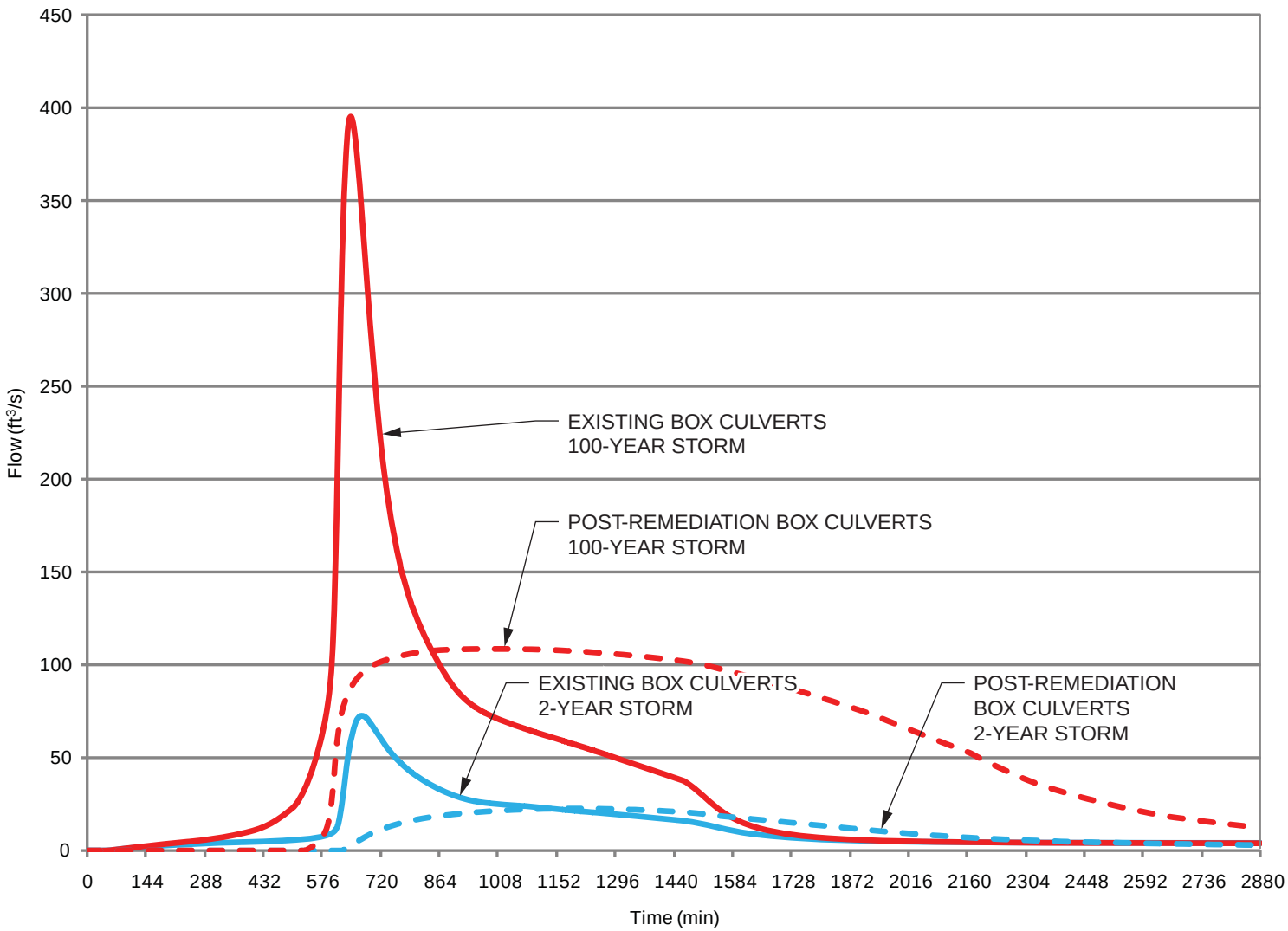

FIGURE 11

BOX CULVERTS (DP-5)
HYDROGRAPHS

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

NOTE:
POST-REMEDIATION HYDROGRAPHS REFLECT RESTORATION CHANGES INCLUDING ENLARGEMENT OF NORTH MARSH, REMOVING THE ROUND CULVERTS, BLOCKING ONE OF THE BOX CULVERTS AND INSTALLING A 24" WEIR IN THE REMAINING BARREL.

AVOCET ENVIRONMENTAL, INC.

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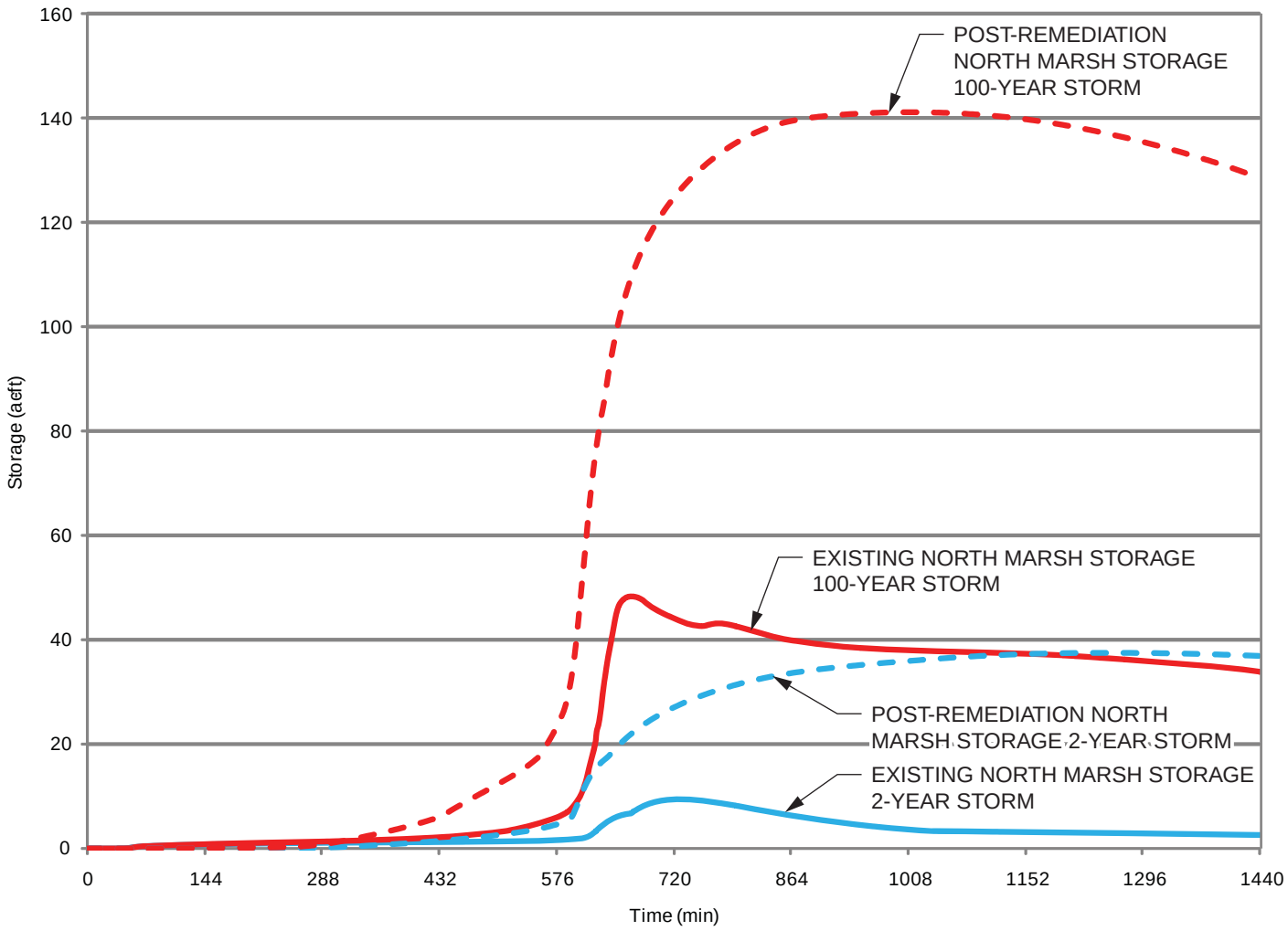

FIGURE 12

NORTH MARSH STORAGE HYDROGRAPHS

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

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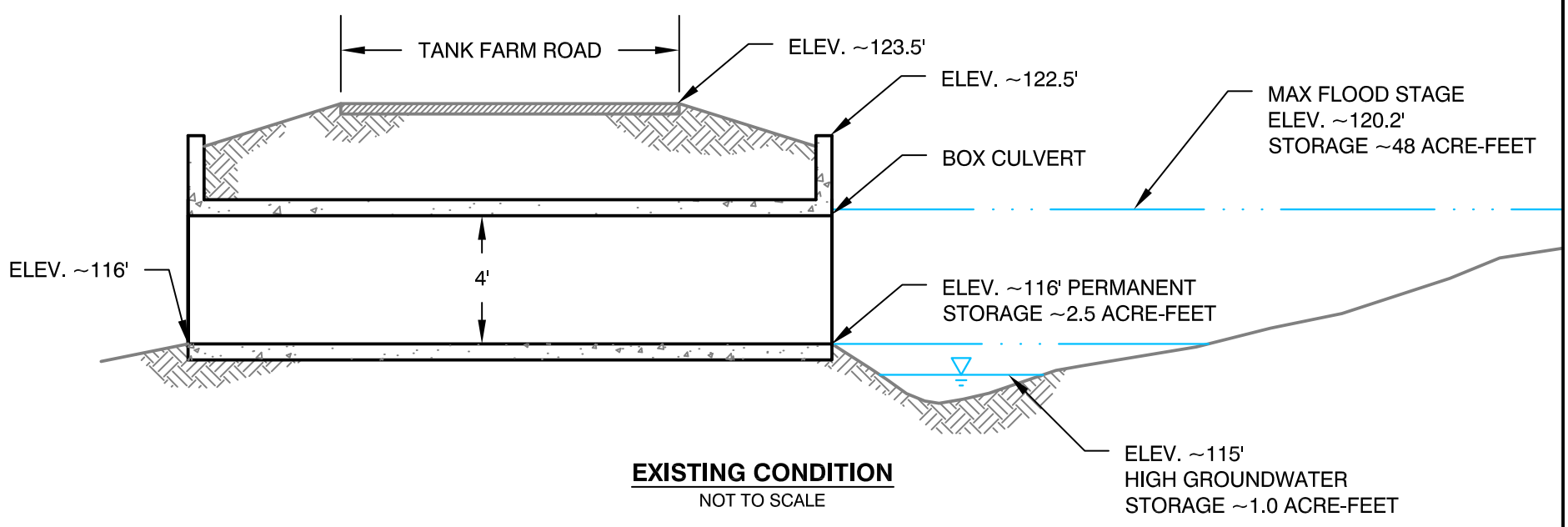
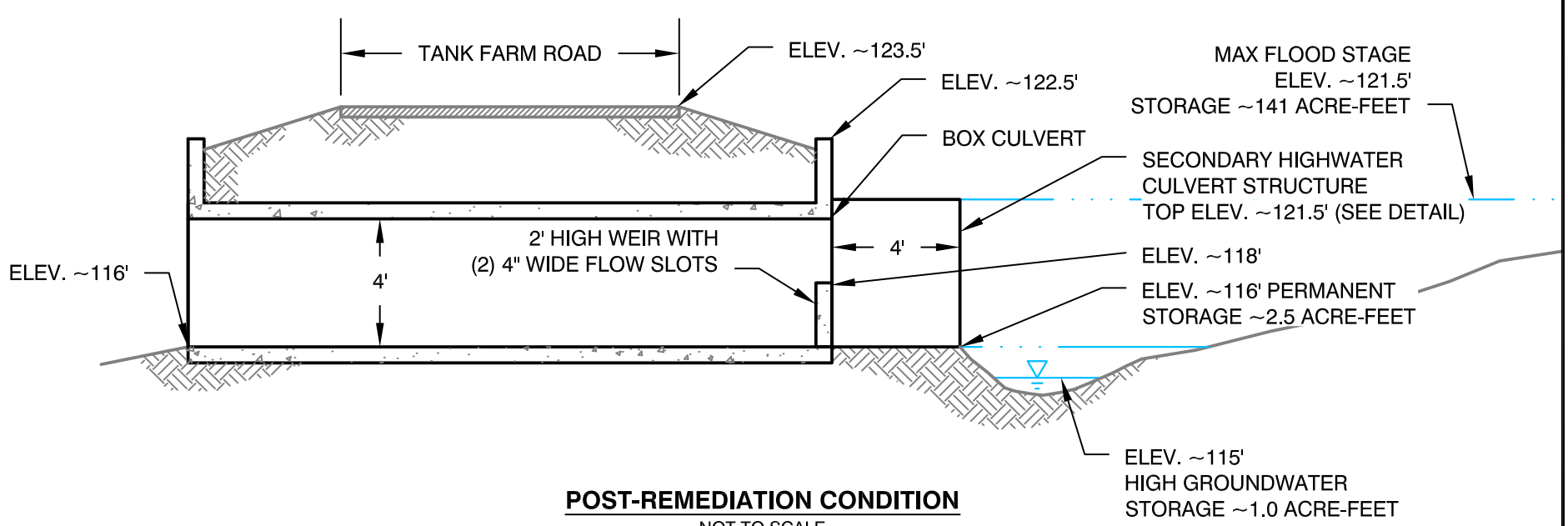
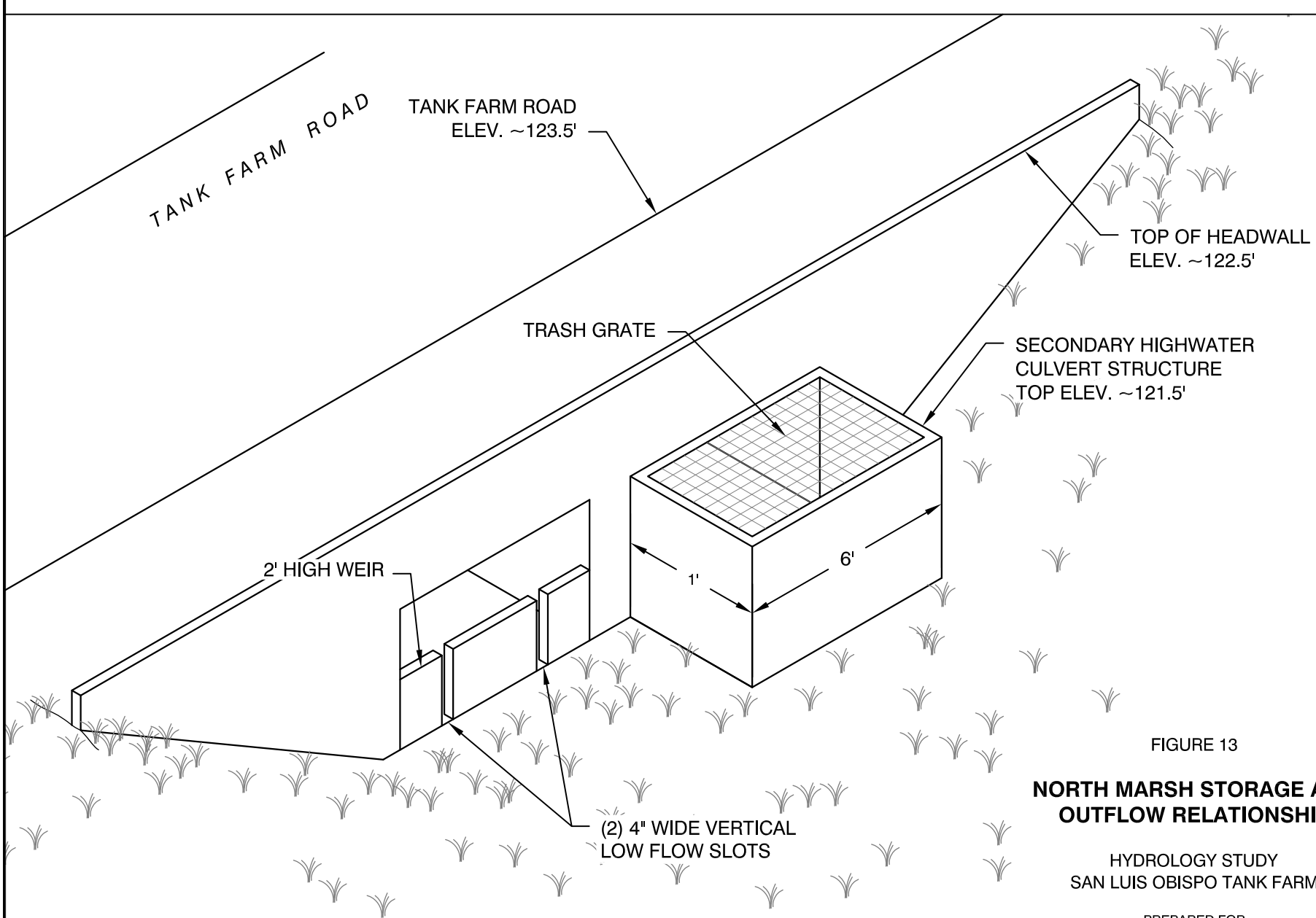


EXISTING CONDITION
NOT TO SCALE



POST-REMEDIATION CONDITION
NOT TO SCALE



DETAIL
NOT TO SCALE

FIGURE 13

NORTH MARSH STORAGE AND OUTFLOW RELATIONSHIP

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

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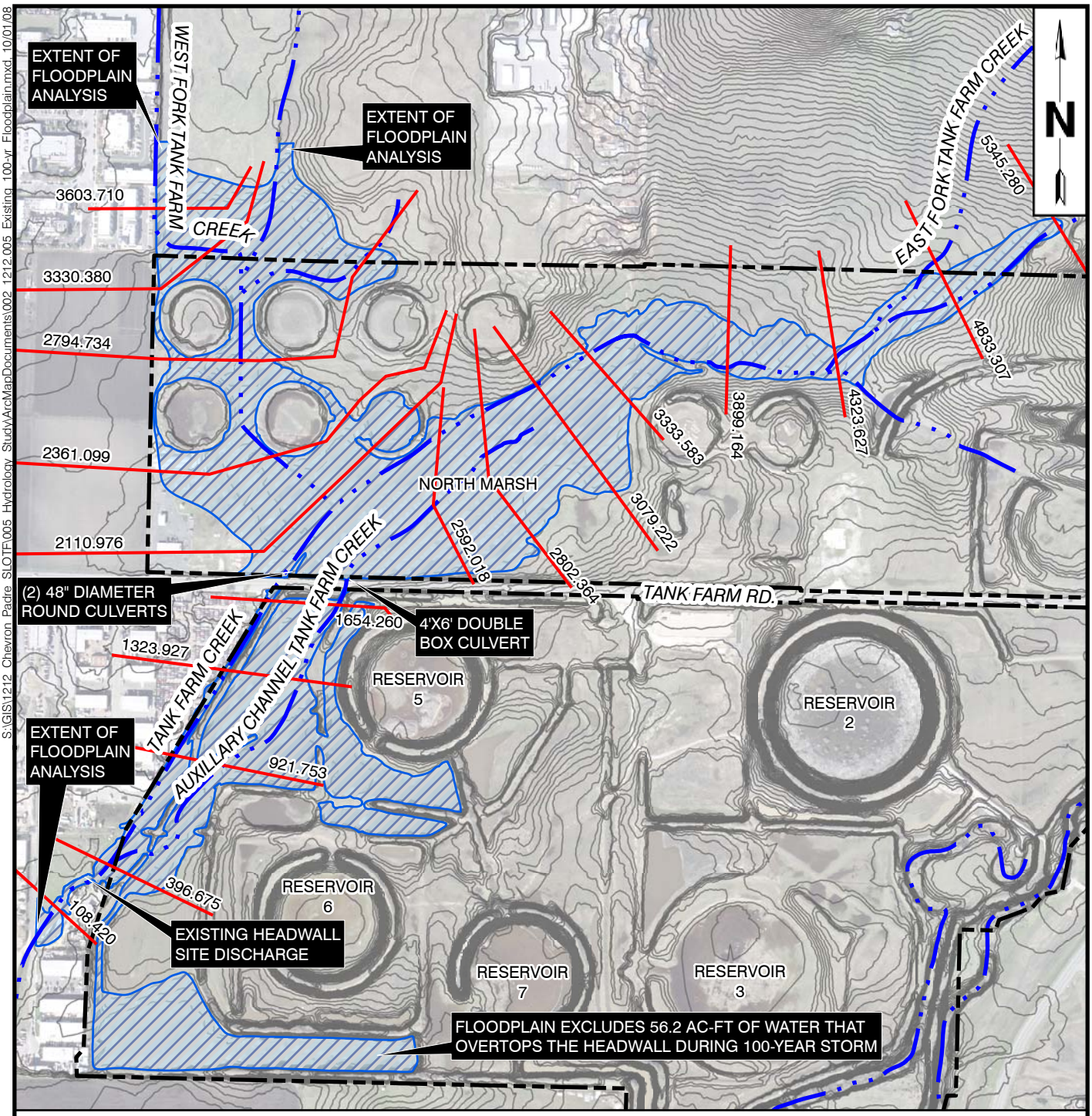

FIGURE 14

100-YEAR FLOODPLAIN AND ANALYSIS CROSS SECTION LOCATIONS EXISTING CONDITIONS

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM
PREPARED FOR
CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

LEGEND

108.420 FLOODPLAIN CROSS SECTION AND STATION NUMBER

PROPERTY BOUNDARY

CREEK/STREAM

EXISTING 100-YEAR FLOODPLAIN

AVOCET ENVIRONMENTAL, INC.

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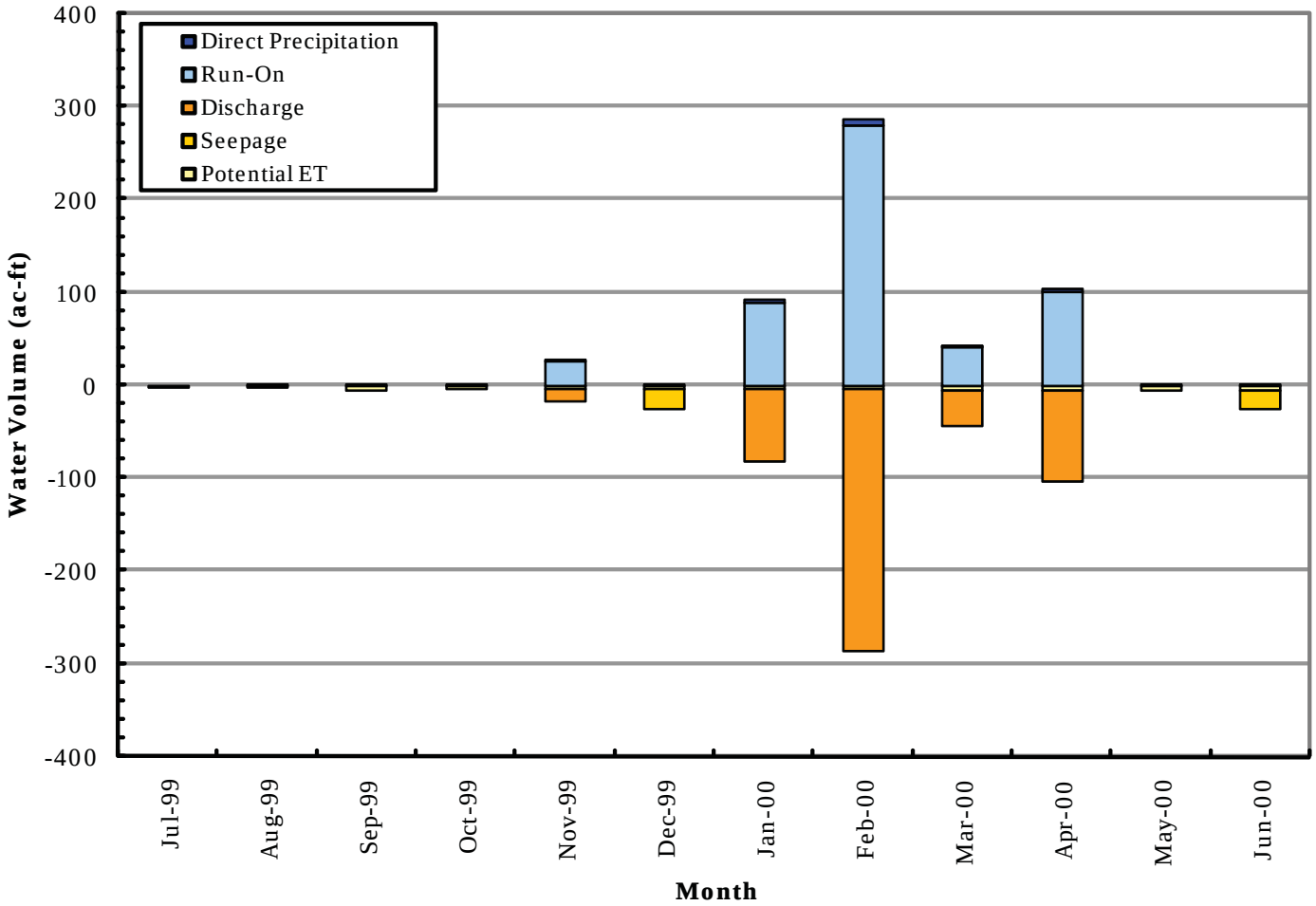

FIGURE 15

ESTIMATED MONTHLY WATER GAINS AND LOSSES IN THE NORTH MARSH

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

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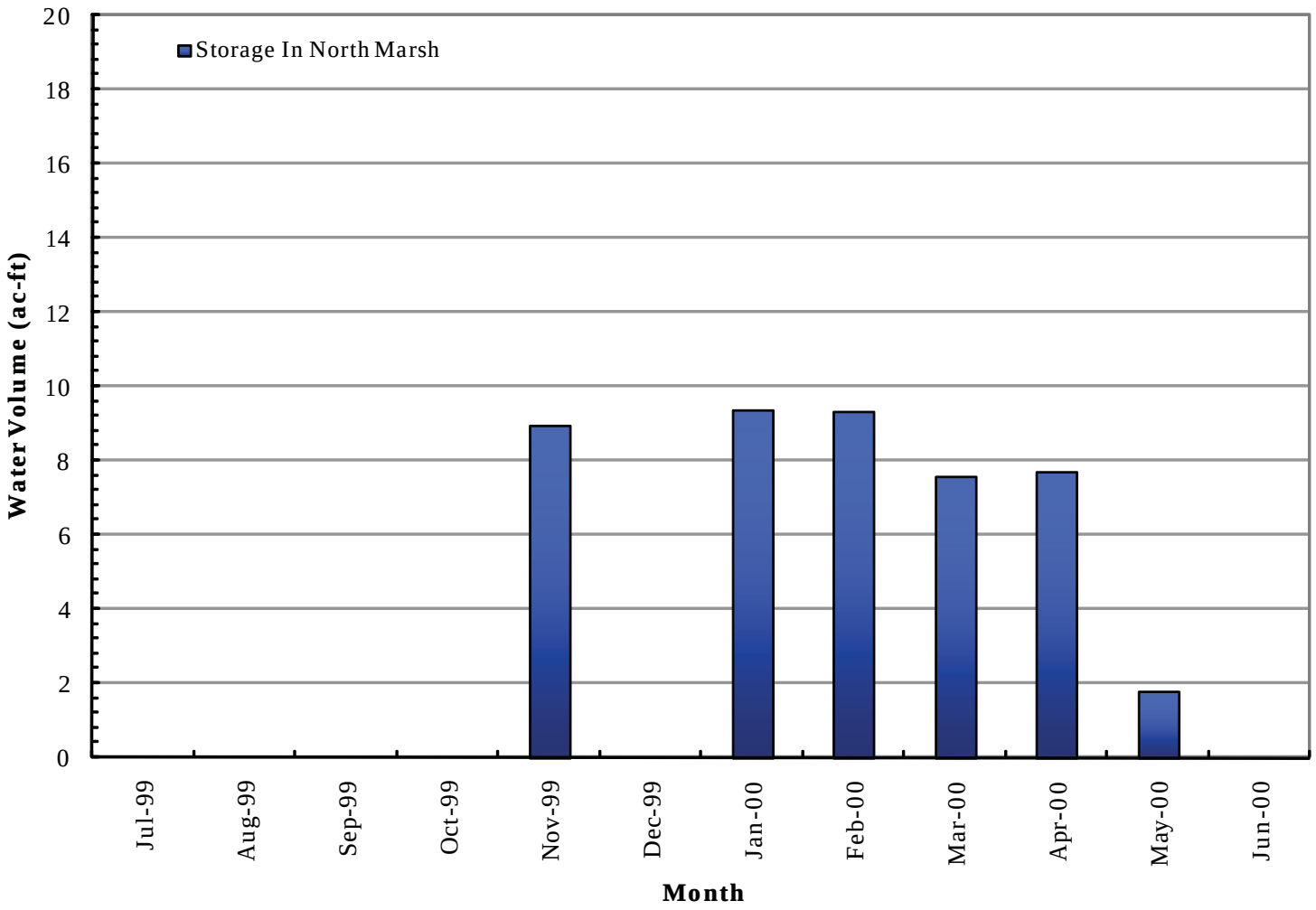


FIGURE 16

ESTIMATED MONTHLY STORAGE VOLUMES IN THE NORTH MARSH

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

V:\1212_Padre-Chevron_SLOTF\1212.005_Hydrology_Study\029_1212.005_North_Marsh_Groundwater.ai\11/25/08

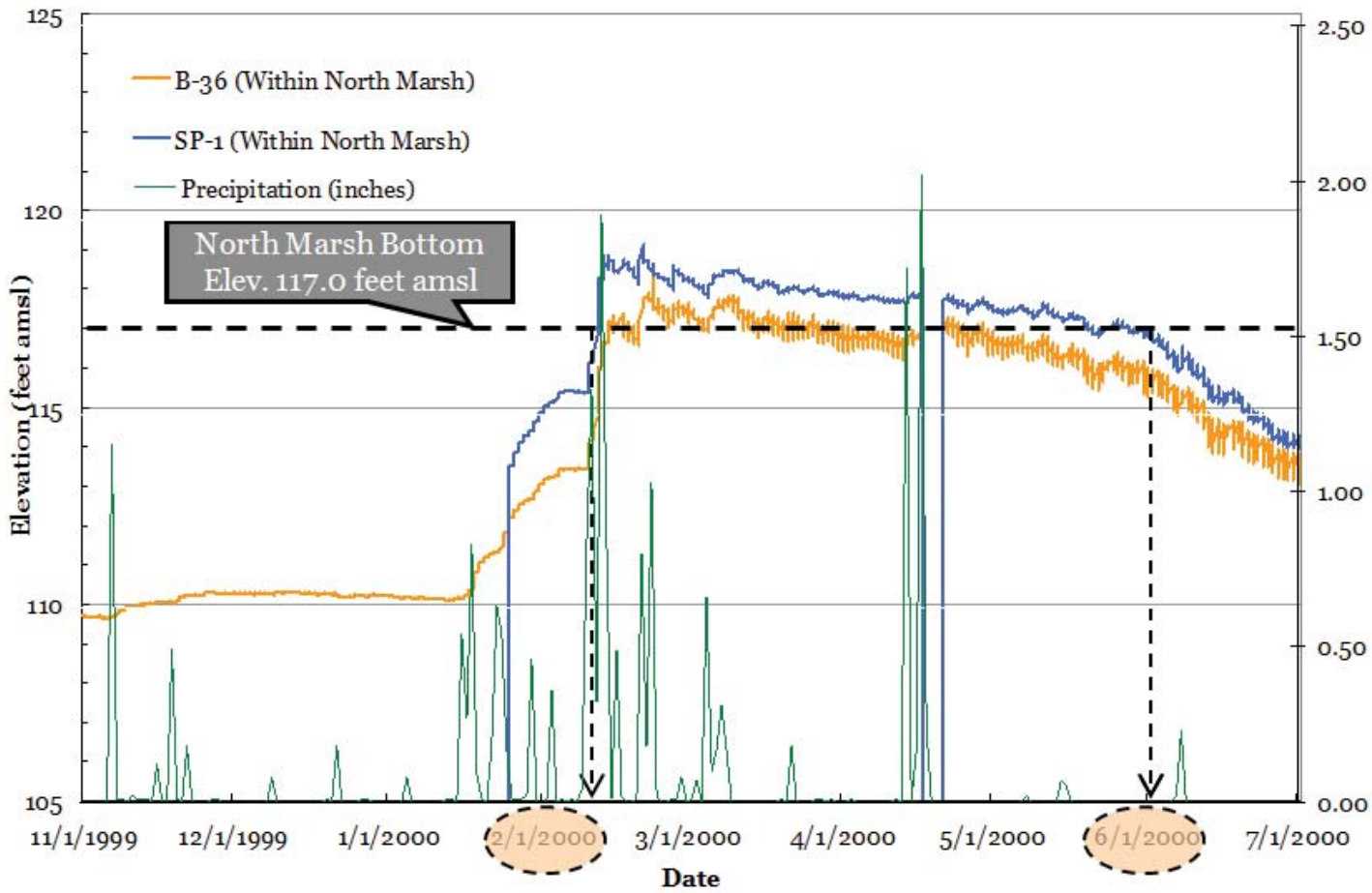


FIGURE 17

WATER LEVELS AND PRECIPITATION DEPTHS AT THE NORTH MARSH

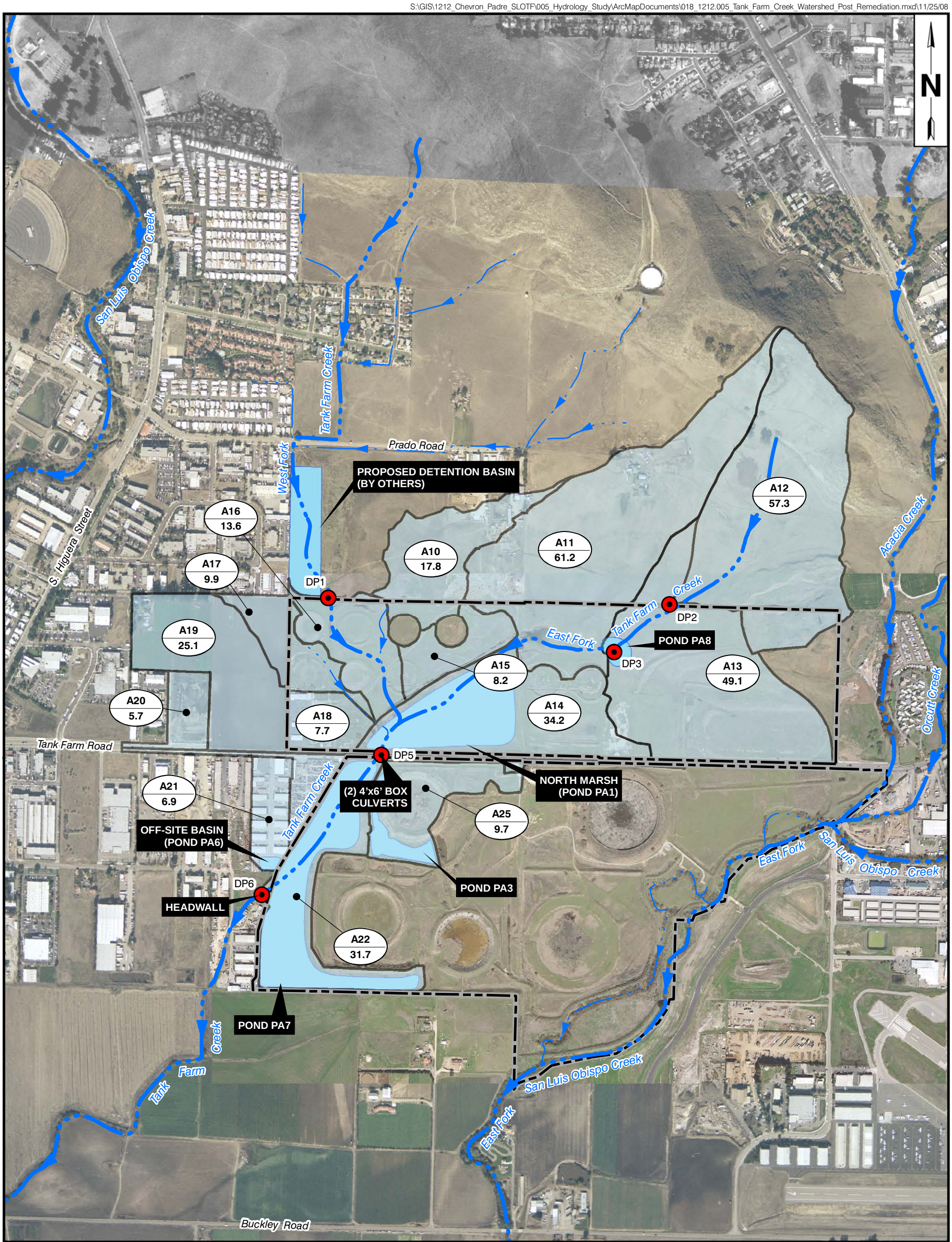
HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

S:\GIS\1212_Chevron_Padre_SLOTF\005_Hydrology_Study\ArcMapDocuments\018_1212.005_Tank_Farm_Creek_Watershed_Post_Remediation.mxd\11/25/08



Legend

- DesignPoints
- Primary Creek
- Secondary Creek
- Site Property Boundary
- Post-Remediation Hydrologic Catchment A
- Post-Remediation Pond

A4 — Subcatchment I.D.
4.5 — Subcatchment Area (Acres)

0 400 800 1,600 FEET

FIGURE 18

TANK FARM CREEK WATERSHED POST-REMEDIATION CONDITIONS

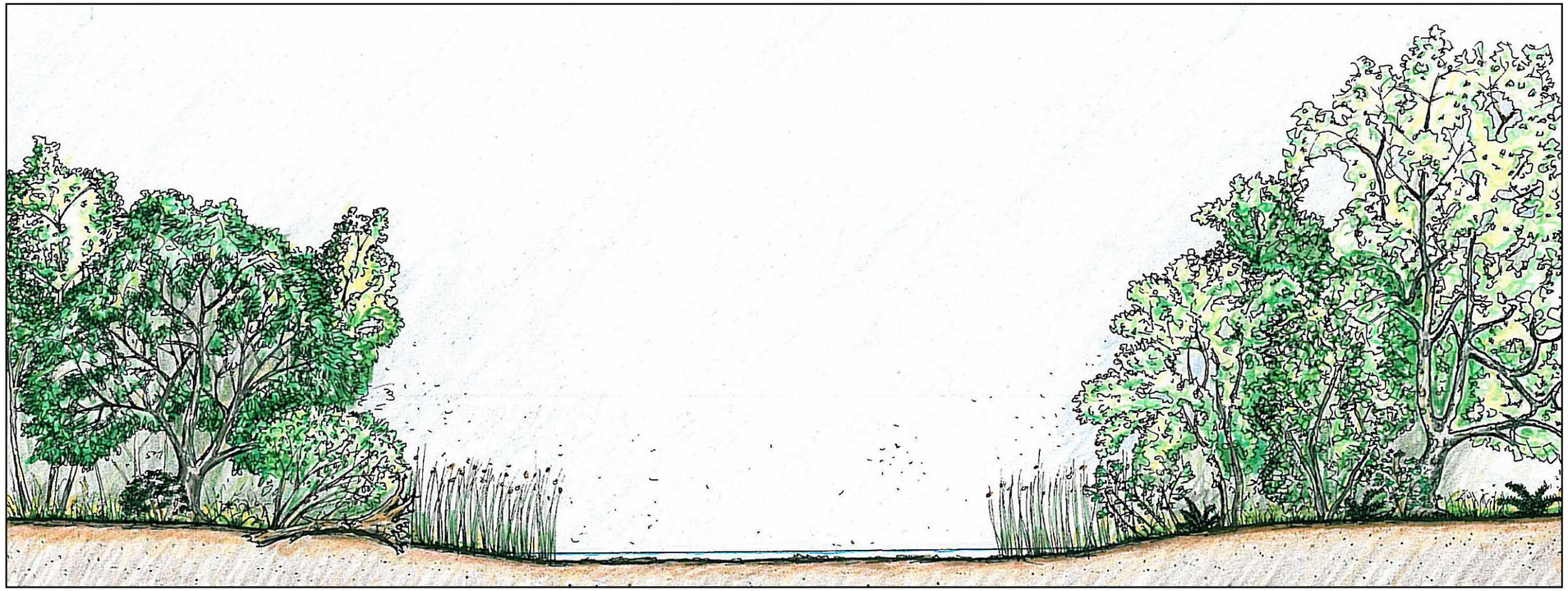
HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

V:\1212 Padre-Chevron SLOTF\1212.005 Hydrology Study\036 1212.005 Typ Post Remediation Tank Farm Creek Channel.ai\12/19/08



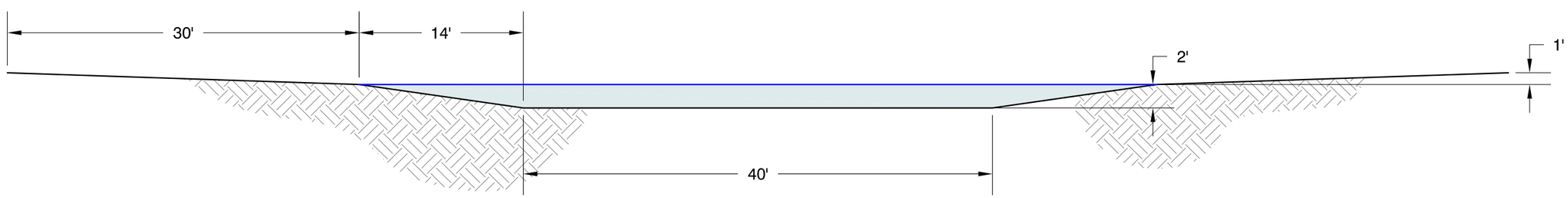


FIGURE 19

TYPICAL POST-REMEDIATION TANK FARM CREEK CHANNEL

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

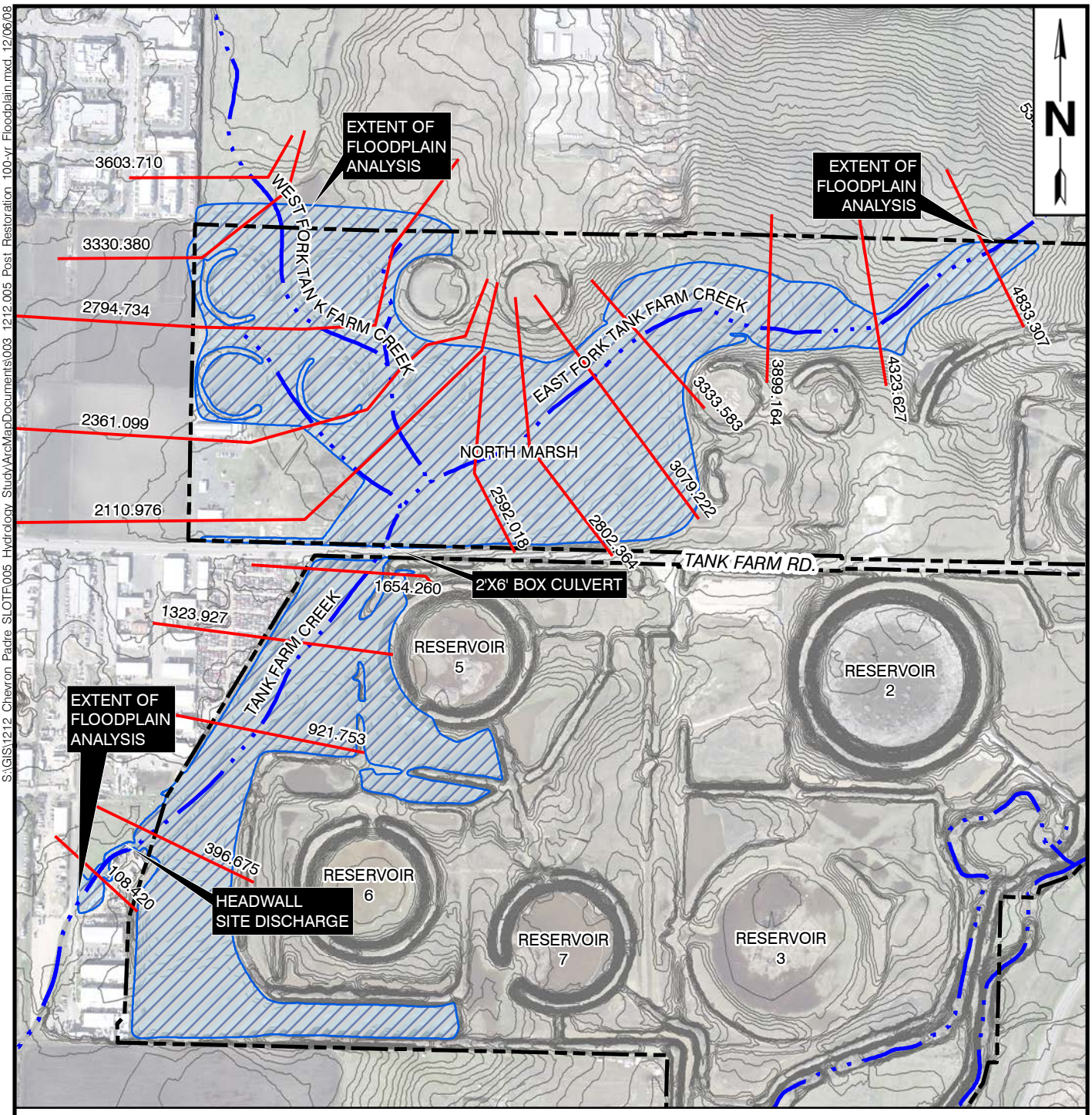
PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

REFERENCE: ILLUSTRATION PROVIDED BY WSP.

S:\GIS\1212 Chevron Padre SLOTF\005 Hydrology Study\ArcMapDocuments\003 1212.005 Post Restoration 100-yr Floodplain.mxd, 12/06/08



LEGEND

108.420 FLOODPLAIN CROSS SECTION AND STATION NUMBER

PROPERTY BOUNDARY

CREEK/STREAM

100-YEAR FLOODPLAIN

FIGURE 20

100-YEAR FLOODPLAIN POST-REMEDIATION AND POST-DEVELOPMENT

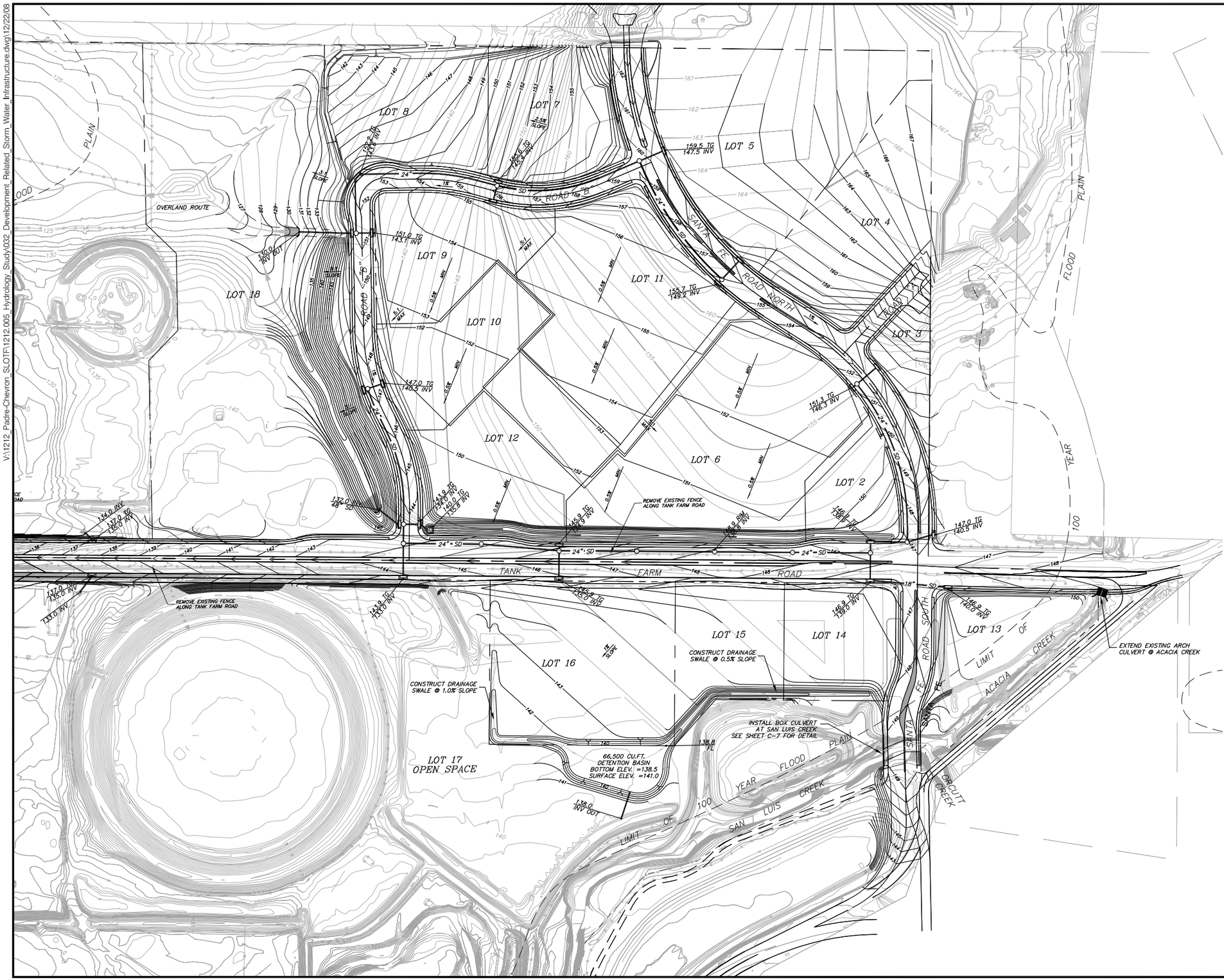
HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

V:\1212_Padre-Chevron_SLOT\1212.005_Hydrology_Study\032_Development_Related_Storm_Water_Infrastructure.dwg\12/22/08



REFERENCE:
GRADING AND DRAINAGE PLAN RRM DESIGN GROUP, NOVEMBER 2008.

FIGURE 21

DEVELOPMENT-RELATED STORMWATER INFRASTRUCTURE

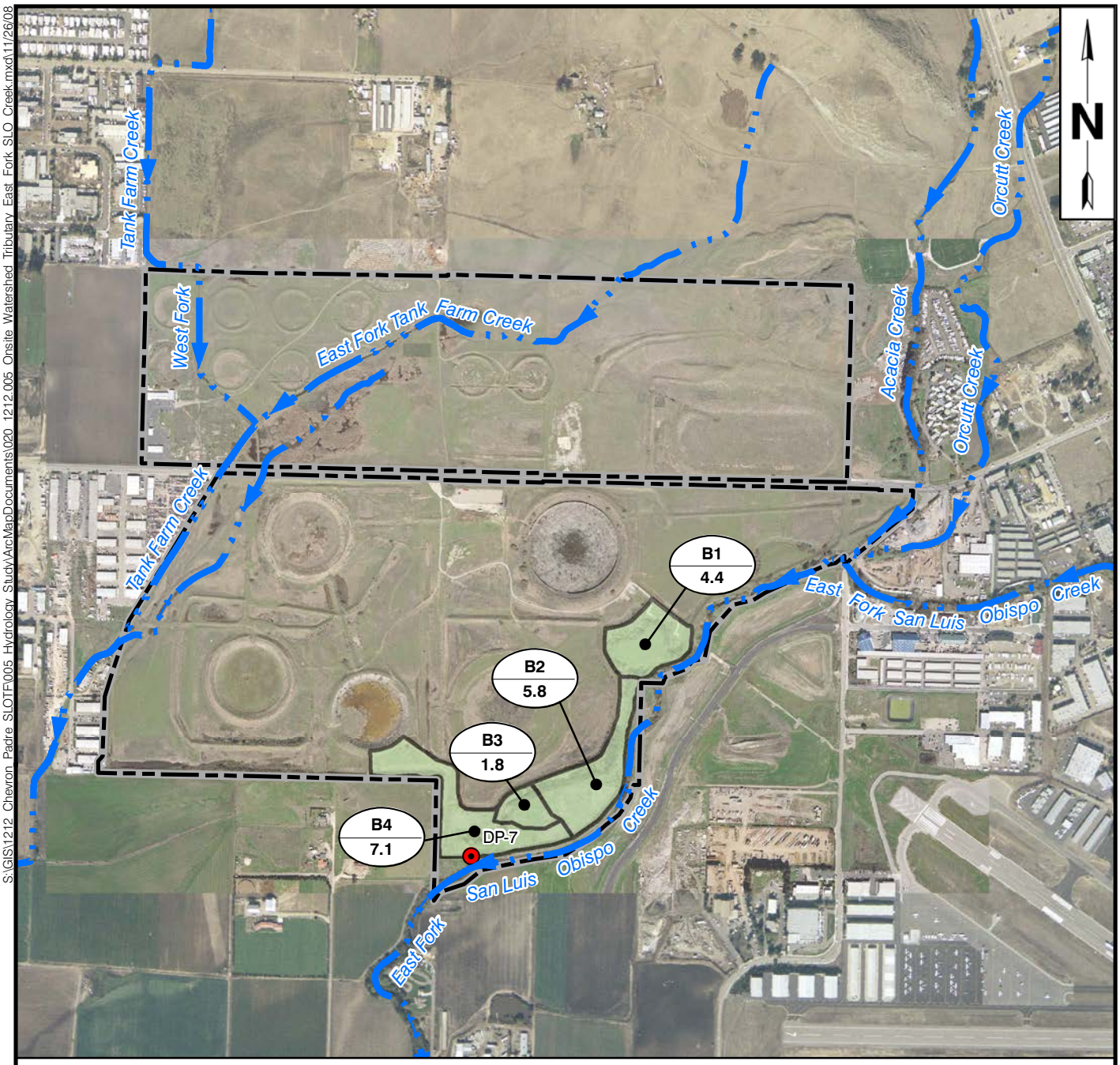
HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

S:\GIS\1212_Chevron_Padre_SLOTF\005_Hydrology_Study\ArcMapDocuments\020_1212.005_Onsite_Watershed_Tributary_East_Fork_SLO_Creek.mxd\11/26/08



0 500 1,000 2,000 FEET

Legend

- Existing Stream/Creek
- Site Property Boundary
- Watershed B
- Watershed Design Point
- B4 / 7.1 — Subcatchment I.D. / Subcatchment Area (Acres)

FIGURE 22

ONSITE WATERSHED TRIBUTARY TO THE EAST FORK OF SAN LUIS OBISPO CREEK EXISTING CONDITIONS

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

V:\1212_Padre-Chevron_SLOTF\1212.005_Hydrology_Study\030_1212.005_SLO_Creek_Aux_Channel_and_Oxbow.dwg\12/22/08

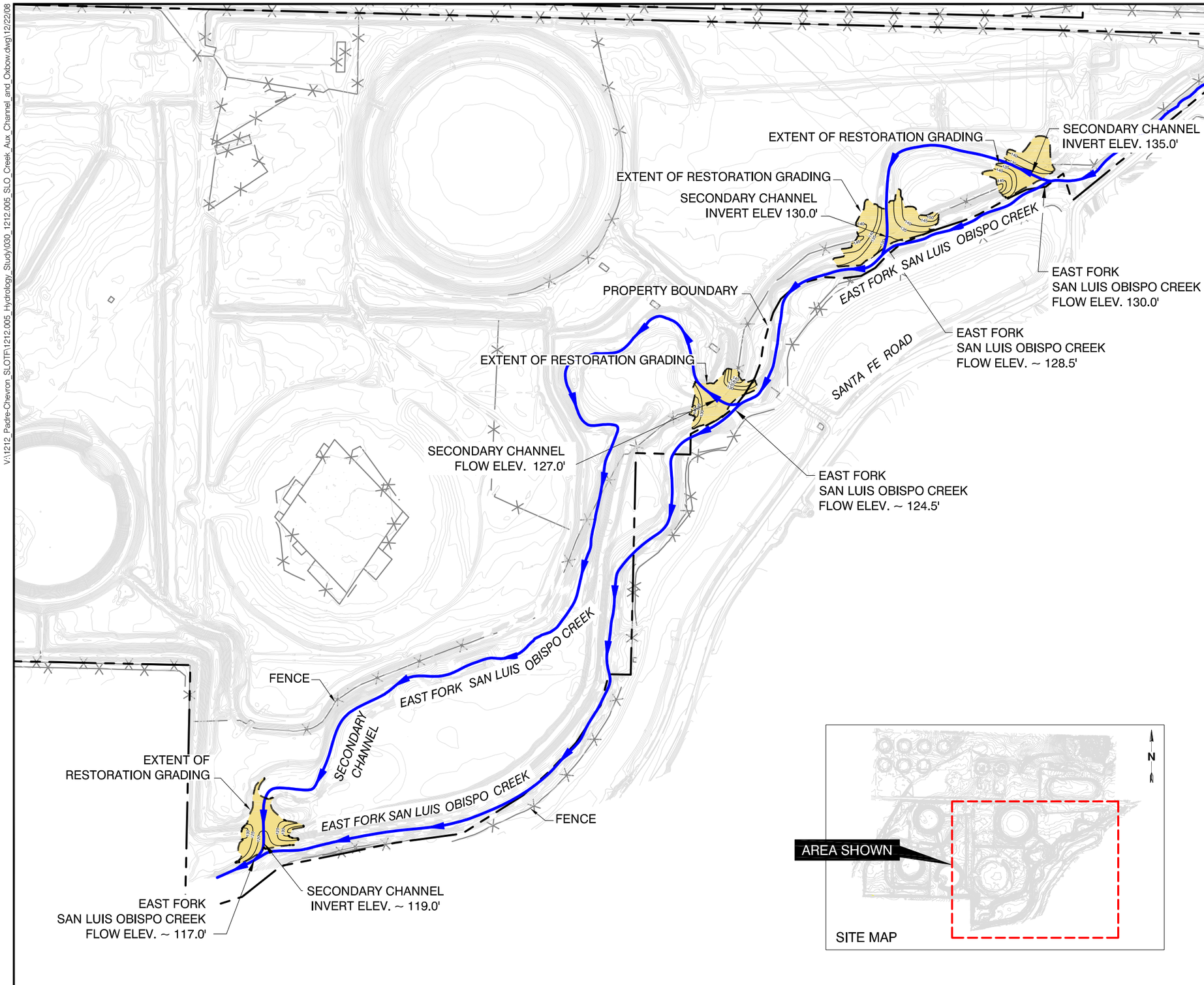


FIGURE 23

GRADING PLAN TO CONNECT THE OXBOW AND AUXILLARY CHANNEL TO THE EAST FORK OF SAN LUIS OBISPO CREEK

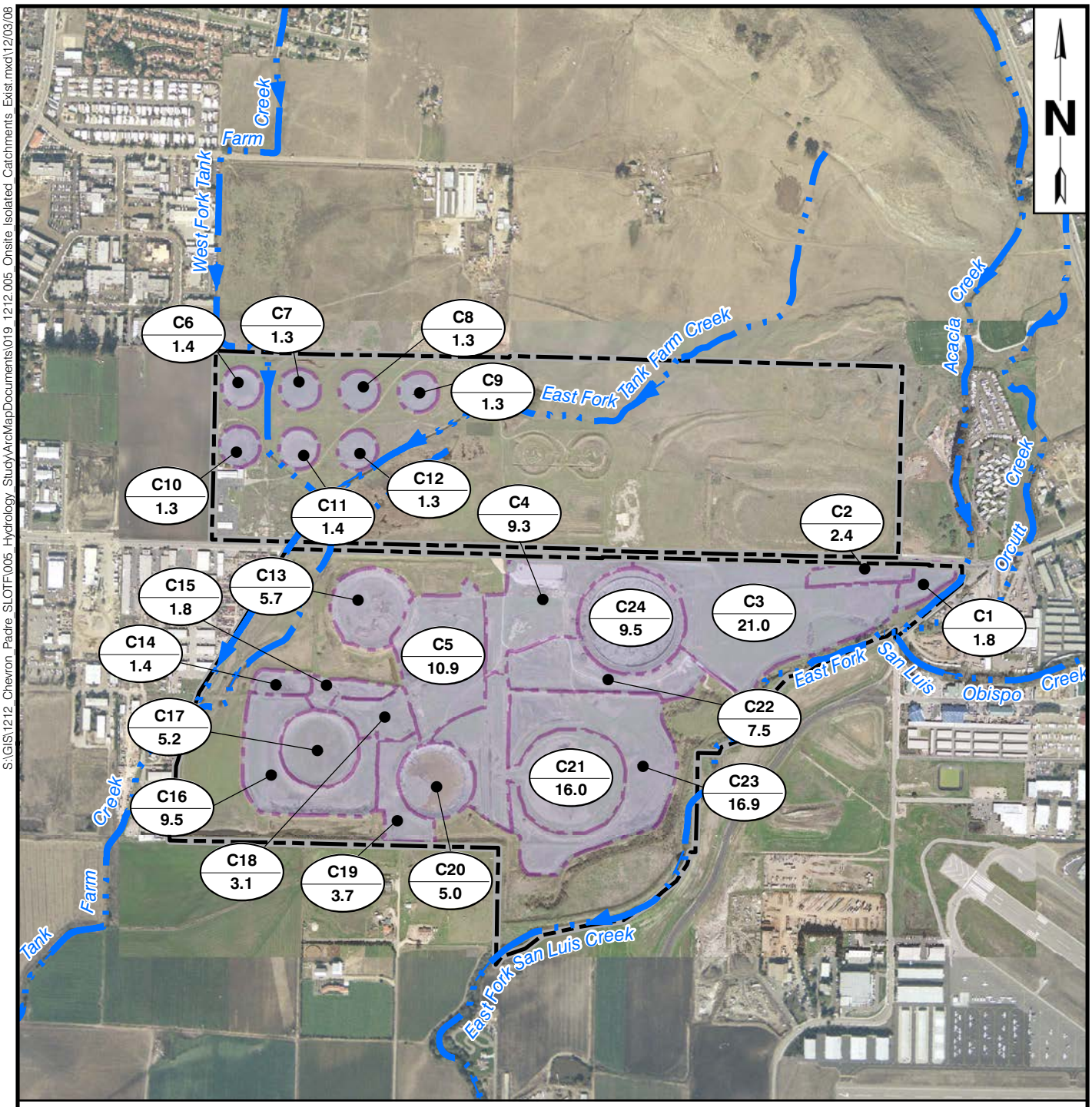
HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

S:\GIS\1212_Chevron_Padre_SLOTF\005_Hydrology_Study\ArcMapDocuments\019_1212.005_Onsite_Isolated_Catchments_Exist.mxd\12/03/08



0 500 1,000 2,000 FEET

FIGURE 24

ONSITE ISOLATED CATCHMENTS EXISTING CONDITIONS

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

Legend

Existing Stream/Creek

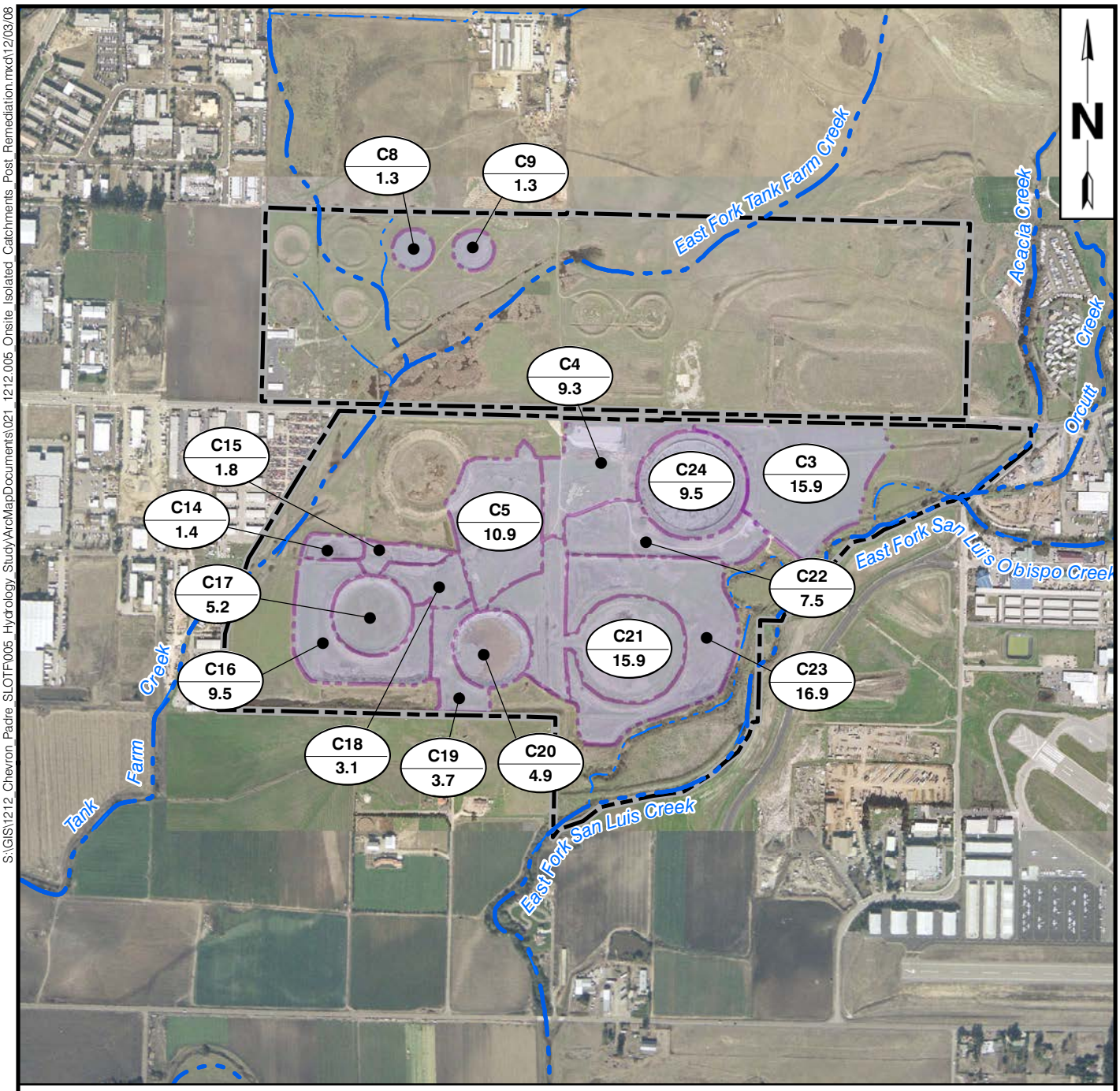
Site Property Boundary

Isolated Catchment C

C4 — Subcatchment I.D.
9.3 — Subcatchment Area (Acres)

AVOCET ENVIRONMENTAL, INC.

S:\GIS\1212_Chevron_Padre_SLOTF\005_Hydrology_Study\ArcMapDocuments\021_1212.005_Onsite_Isolated_Catchments_Post_Remediation.mxd\12/03/08



0 500 1,000 2,000 FEET

Legend

Existing Stream/Creek

Site Property Boundary

Isolated Catchment C

C4 — Subcatchment I.D.
9.3 — Subcatchment Area (Acres)

FIGURE 25

ONSITE ISOLATED CATCHMENTS POST-REMEDIATION CONDITIONS

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

V:\1212_Padre-Chevron_SLOTF\1212.005_Hydrology_Study\031_1212.005_Outflow_Hydrograph_Watershed_D_Post-Remediation.ai\12/29/08

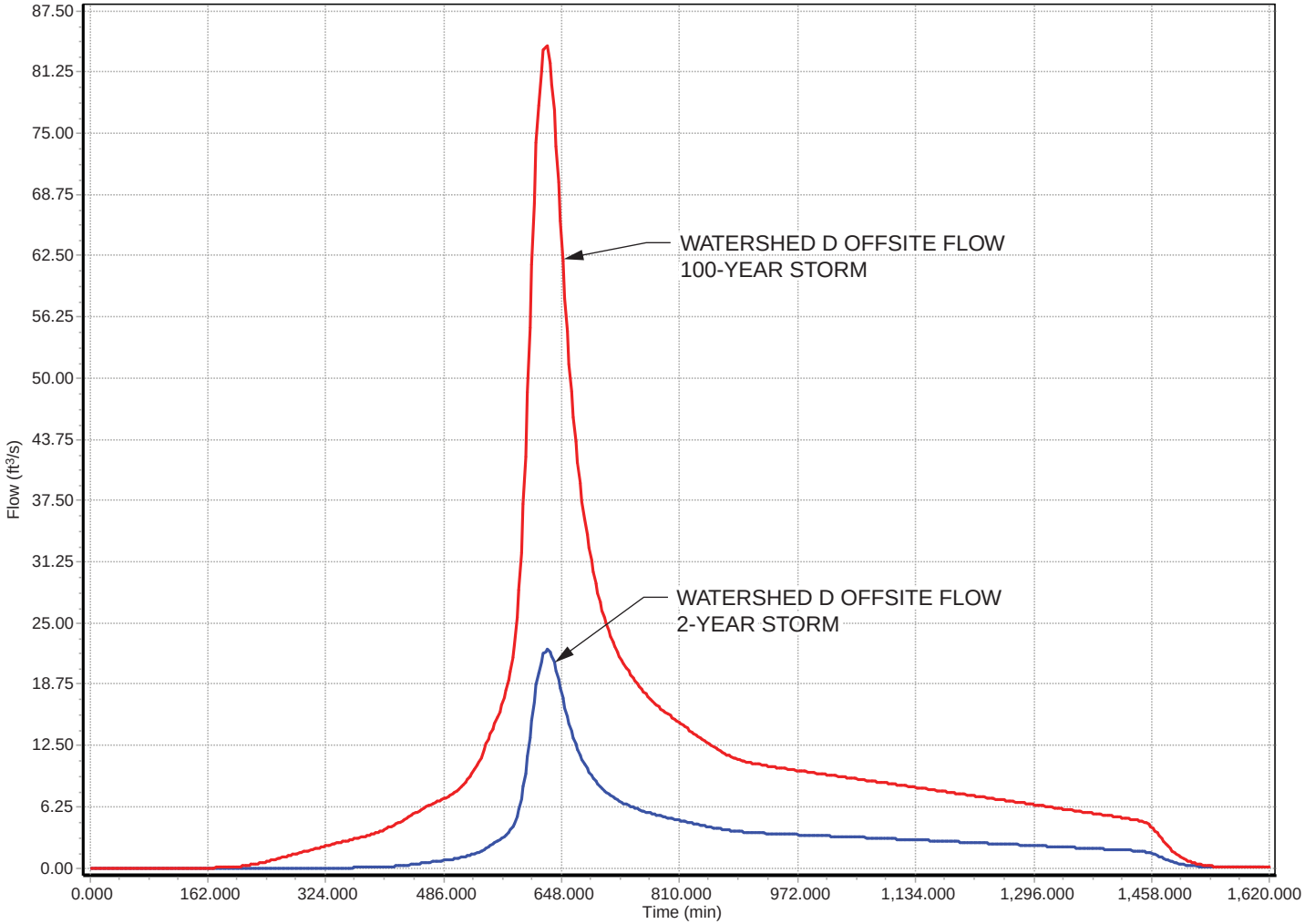


FIGURE 26

OUTFLOW HYDROGRAPH FOR WATERSHED D CHANNEL (DP-8) POST-REMEDIATION CONDITIONS

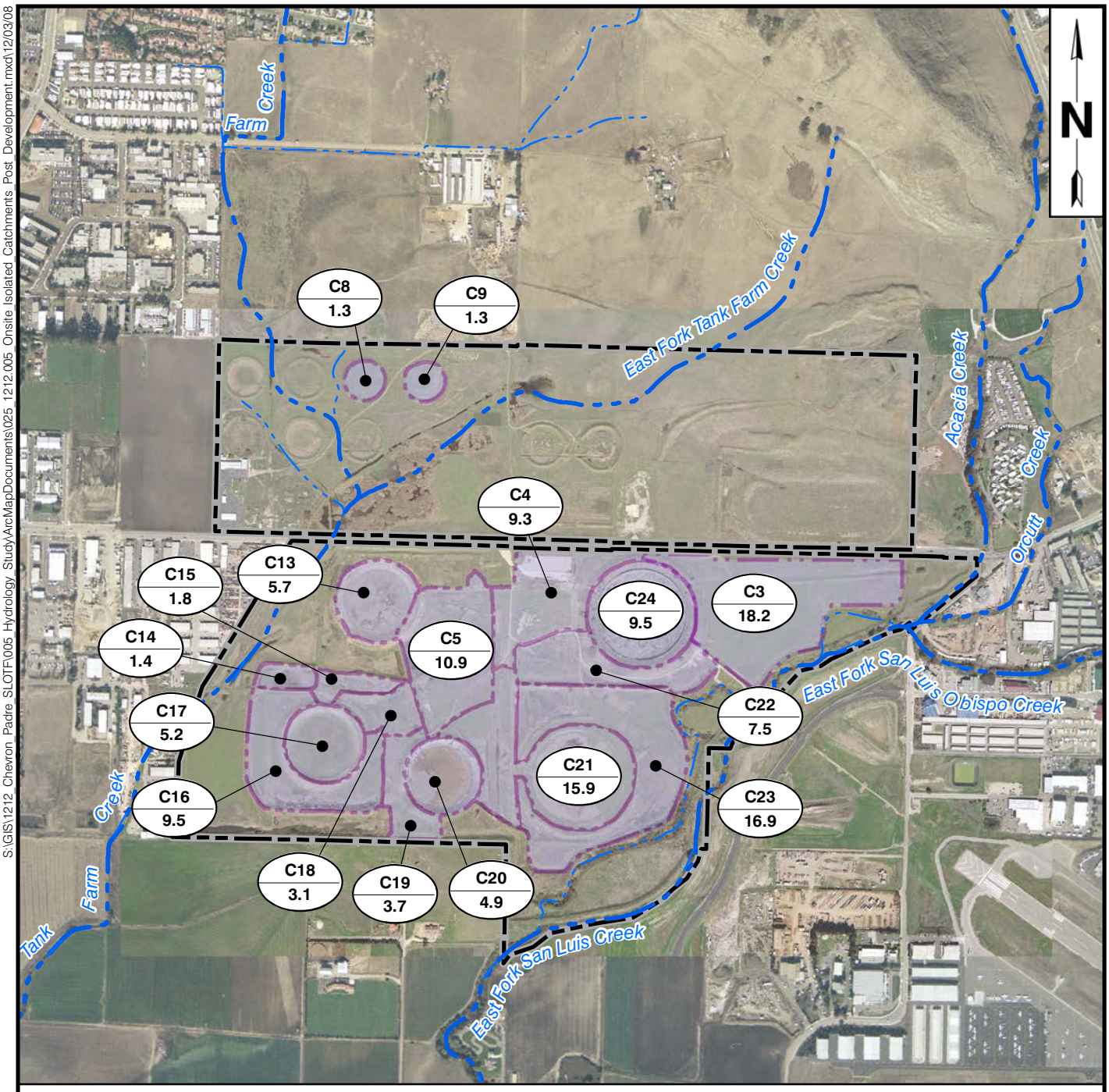
HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

S:\GIS\1212_Chevron_Padre_SLOTF\005_Hydrology_Study\ArcMapDocuments\025_1212.005_Onsite_Isolated_Catchments_Post_Development.mxd\12/03/08



0 500 1,000 2,000 FEET

Legend

Existing Stream/Creek

Site Property Boundary

Isolated Catchment C

C4 — Subcatchment I.D.
9.3 — Subcatchment Area (Acres)

FIGURE 27

ONSITE ISOLATED CATCHMENTS POST-DEVELOPMENT CONDITIONS

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

Appendix A

Report CD

Appendix B

Climate Data

Table B.1
Summary of Monthly Recorded Precipitation
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Precipitation (inches)	Evapotranspiration (inches)	Evaporation (inches)	Average	Standard Deviation	2σ	10-Year Precipitation (inches)	100-Year Precipitation (inches)
Jun-99	0.00	1.72	2.30	0.1	0.3	0.6	0.4	1.1
Jul-99	0.00	4.50	4.57	0.0	0.1	0.2	0.1	0.4
Aug-99	0.03	3.57	4.41	0.0	0.2	0.4	0.2	0.9
Sep-99	0.23	7.79	5.11	0.3	0.6	1.2	1.0	2.5
Oct-99	0.27	6.77	2.13	0.8	0.9	1.7	1.8	3.9
Nov-99	2.04	5.37	2.04	2.0	2.1	4.1	4.6	9.4
Dec-99	0.29	6.05	3.22	3.9	3.1	6.1	7.7	14.6
Jan-00	3.87	4.78	0.75	5.2	4.7	9.4	11.2	22.2
Feb-00	8.29	4.81	0.00	4.7	4.0	7.9	9.6	18.6
Mar-00	1.70	7.28	1.35	3.6	3.1	6.2	7.9	15.4
Apr-00	4.17	7.10	4.08	1.5	1.6	3.2	3.5	7.2
May-00	0.14	8.52	6.99	0.5	0.9	1.7	1.6	3.6
Jun-00	0.25	7.81	5.83	0.1	0.3	0.6	0.4	1.1
Jul-00	0.00	8.45	5.45	0.0	0.1	0.2	0.1	0.4
Aug-00	0.01	8.63	7.20	0.0	0.2	0.4	0.2	0.9
Sep-00	0.03	7.42	0.00	0.3	0.6	1.2	1.0	2.5
Oct-00	2.44	6.08	1.20	0.8	0.9	1.7	1.8	3.9
Nov-00	0.01	4.49	1.95	2.0	2.1	4.1	4.6	9.4
Dec-00	0.20	3.99	1.27	3.9	3.1	6.1	7.7	14.6
Jan-01	6.09	4.17	1.20	5.2	4.7	9.4	11.2	22.2
Feb-01	4.72	4.60	1.20	4.7	4.0	7.9	9.6	18.6
Mar-01	4.02	7.32	1.55	3.6	3.1	6.2	7.9	15.4
Apr-01	2.05	7.73	2.85	1.5	1.6	3.2	3.5	7.2
May-01	0.00	10.31	7.22	0.5	0.9	1.7	1.6	3.6
Jun-01	0.02	10.59	5.65	0.1	0.3	0.6	0.4	1.1
Jul-01	0.00	8.82	5.25	0.0	0.1	0.2	0.1	0.4
Aug-01	0.02	9.14		0.0	0.2	0.4	0.2	0.9
Sep-01	0.01	7.80		0.3	0.6	1.2	1.0	2.5
Oct-01	0.46	6.13		0.8	0.9	1.7	1.8	3.9
Nov-01	5.08	4.26		2.0	2.1	4.1	4.6	9.4
Dec-01	3.08	3.34		3.9	3.1	6.1	7.7	14.6
Jan-02	0.71	1.76		5.2	4.7	9.4	11.2	22.2
Feb-02	0.50	3.82		4.7	4.0	7.9	9.6	18.6
Mar-02	1.46	5.58		3.6	3.1	6.2	7.9	15.4
Apr-02	0.44	7.26		1.5	1.6	3.2	3.5	7.2
May-02				0.5	0.9	1.7	1.6	3.6

Month	Cumulative 1999-2000 (inches)	Cumulative 2000-2001 (inches)	Cumulative 2001-2002 (inches)	Average (inches)
June	0.0	0.25	0.02	0.1
July	0.0	0.25	0.02	0.13
August	0.03	0.26	0.04	0.18
September	0.26	0.29	0.05	0.44
October	0.53	2.73	0.51	1.2
November	2.57	2.74	5.59	3.21
December	2.86	2.94	8.67	7.14
January	6.73	9.03	9.38	12.3
February	15.02	13.75	9.88	16.97
March	16.72	17.77	11.34	20.53
April	20.89	19.82	11.78	22.04
May	21.03	19.82	11.78	22.56
June	21.28	19.84	11.78	22.66

Table B.2
Summary of Daily Recorded Wind Speed
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Wind		
	Minimum Speed (mph)	**Average Speed** (mph)	**Maximum Speed** (mph)
06/18/99	0.0	2.9	11.7
06/19/99	0.0	1.2	8.1
06/20/99	0.0	1.5	5.1
06/21/99	0.0	1.2	6.3
06/22/99	0.0	1.2	5.3
06/23/99	0.0	1.3	5.6
06/24/99	0.0	2.3	7.6
06/25/99	0.0	2.3	9.9
06/26/99	0.0	0.9	2.3
06/27/99	0.0	1.0	4.5
06/28/99	0.0	0.9	4.0
06/29/99	0.0	0.8	4.8
06/30/99	0.0	0.8	6.1
07/01/99	0.0	1.0	4.4
07/02/99	0.0	1.9	9.4
07/03/99	0.0	2.8	8.6
07/04/99	0.0	3.5	13.5
07/05/99	0.0	2.4	9.3
07/06/99	0.0	2.9	8.1
07/07/99	0.0	1.0	5.6
07/08/99	0.0	1.7	10.7
07/09/99	0.0	1.7	6.6
07/10/99	0.0	0.8	4.0
07/11/99	0.0	1.1	5.9
07/12/99	0.0	1.4	4.9
07/13/99	0.0	1.3	4.3
07/14/99	0.0	0.9	5.0
07/15/99	0.0	1.6	8.5
07/16/99	0.0	1.7	6.3
07/17/99	0.0	1.5	7.0
07/18/99	0.0	2.5	8.6
07/19/99	0.0	3.1	10.9
07/20/99	0.0	2.6	9.7
07/21/99	0.0	2.6	9.7
07/22/99	0.1	3.1	9.7
07/23/99	0.0	4.6	12.2
07/24/99	0.0	4.1	8.4
07/25/99	0.0	2.1	12.9
07/26/99	0.0	1.7	8.7
07/27/99	0.1	2.5	8.4
07/28/99	0.0	3.3	11.7
07/29/99	0.0	3.3	11.2
07/30/99	0.0	3.1	9.1
07/31/99	0.0	2.9	12.2
08/01/99	0.0	3.0	13.1
08/02/99	0.0	3.8	14.4
08/03/99	0.0	2.4	10.1
08/04/99	0.0	1.7	12.9
08/05/99	0.0	0.7	5.1

Table B.2
Summary of Daily Recorded Wind Speed
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Wind		
	Minimum Speed (mph)	**Average Speed** (mph)	**Maximum Speed** (mph)
08/06/99	0.0	1.9	9.4
08/07/99	0.0	2.9	12.6
08/08/99	0.0	2.0	7.4
08/09/99	0.0	2.0	8.0
08/10/99	0.0	3.3	11.6
08/11/99	0.0	3.6	9.1
08/12/99	0.0	3.9	12.8
08/13/99	0.0	2.5	12.4
08/14/99	0.0	1.7	7.3
08/15/99	0.0	2.2	8.7
08/16/99	0.0	2.6	7.1
08/17/99	0.0	3.1	9.6
08/18/99	0.0	1.9	8.0
08/19/99	0.0	5.7	17.3
08/20/99	0.0	1.6	9.2
08/21/99	0.0	1.1	4.4
08/22/99	0.0	4.2	9.2
08/23/99	0.0	4.8	13.8
08/24/99	0.0	0.9	4.2
08/25/99	0.0	1.1	5.6
08/26/99	0.0	1.2	8.6
08/27/99	0.0	1.4	6.2
08/28/99	0.0	1.4	7.0
08/29/99	0.0	1.2	7.0
08/30/99	0.0	2.4	11.5
08/31/99	0.0	4.8	15.9
09/01/99	0.0	3.0	13.1
09/02/99	0.0	3.8	14.4
09/03/99	0.0	2.4	10.1
09/04/99	0.0	1.7	12.9
09/05/99	0.0	0.7	5.1
09/06/99	0.0	1.9	9.4
09/07/99	0.0	2.9	12.6
09/08/99	0.0	2.0	7.4
09/09/99	0.0	2.0	8.0
09/10/99	0.0	3.3	11.6
09/11/99	0.0	5.4	17.3
09/12/99	0.0	7.4	13.8
09/13/99	4.6	10.7	18.4
09/14/99	6.9	12.6	21.9
09/15/99	0.0	5.4	10.4
09/16/99	0.0	6.1	12.7
09/17/99	0.0	5.5	13.8
09/18/99	0.0	3.1	6.9
09/19/99	0.0	3.7	12.7
09/20/99	0.0	6.1	17.3
09/21/99	0.0	5.1	15.0
09/22/99	0.0	8.0	20.7
09/23/99	0.0	7.2	19.6

Table B.2
Summary of Daily Recorded Wind Speed
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Wind		
	Minimum Speed (mph)	**Average Speed** (mph)	**Maximum Speed** (mph)
09/24/99	0.0	5.5	15.0
09/25/99	0.0	4.3	12.7
09/26/99	0.0	4.3	12.7
09/27/99	0.0	3.0	8.1
09/28/99	0.0	3.9	11.5
09/29/99	0.0	4.0	13.8
09/30/99	0.0	5.2	15.0
10/01/99	0.0	3.9	12.7
10/02/99	0.0	4.6	13.8
10/03/99	0.0	6.4	13.8
10/04/99	0.0	9.7	20.7
10/05/99	0.0	5.3	24.2
10/06/99	0.0	9.7	26.5
10/07/99	0.0	9.3	20.7
10/08/99	0.0	6.5	16.1
10/09/99	0.0	4.2	13.8
10/10/99	0.0	3.6	11.5
10/11/99	0.0	5.0	13.8
10/12/99	0.0	5.1	17.3
10/13/99	0.0	6.6	18.4
10/14/99	0.0	5.7	13.8
10/15/99	0.0	3.5	9.2
10/16/99	0.0	3.2	9.2
10/17/99	0.0	5.0	15.0
10/18/99	0.0	4.9	16.1
10/19/99	0.0	4.6	13.8
10/20/99	0.0	3.6	15.0
10/21/99	0.0	3.3	12.7
10/22/99	0.0	5.7	12.7
10/23/99	0.0	7.1	16.1
10/24/99	0.0	4.3	13.8
10/25/99	0.0	4.3	16.1
10/26/99	0.0	4.6	15.0
10/27/99	0.0	4.1	17.3
10/28/99	0.0	8.7	20.7
10/29/99	0.0	6.2	12.7
10/30/99	0.0	4.8	17.3
10/31/99	0.0	4.6	15.0
11/01/99	0.0	4.2	11.5
11/02/99	0.0	7.2	16.1
11/03/99	0.0	8.8	18.4
11/04/99	0.0	4.0	8.1
11/05/99	0.0	3.6	6.9
11/06/99	0.0	3.8	12.7
11/07/99	0.0	12.1	23.0
11/08/99	0.0	5.4	17.3
11/09/99	0.0	5.3	16.1
11/10/99	0.0	5.3	15.0
11/11/99	0.0	3.8	12.7

Table B.2
Summary of Daily Recorded Wind Speed
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Wind		
	Minimum Speed (mph)	**Average Speed** (mph)	**Maximum Speed** (mph)
11/12/99	0.0	3.2	11.5
11/13/99	0.0	3.1	16.1
11/14/99	0.0	4.4	9.2
11/15/99	0.0	2.9	9.2
11/16/99	0.0	4.6	10.4
11/17/99	0.0	6.2	17.3
11/18/99	0.0	3.5	9.2
11/19/99	0.0	5.9	15.0
11/20/99	0.0	6.8	17.3
11/21/99	3.5	10.4	18.4
11/22/99	0.0	8.8	16.1
11/23/99	0.0	5.2	18.4
11/24/99	0.0	5.8	23.0
11/25/99	0.0	6.7	17.3
11/26/99	0.0	6.4	18.4
11/27/99	0.0	4.0	11.5
11/28/99	0.0	2.8	10.4
11/29/99	0.0	3.8	8.1
11/30/99	0.0	6.4	17.3
12/01/99	0.0	9.5	17.3
12/02/99	0.0	10.2	17.3
12/03/99	0.0	8.3	17.3
12/04/99	0.0	3.8	11.5
12/05/99	0.0	4.9	17.3
12/06/99	0.0	6.5	16.1
12/07/99	6.9	11.8	17.3
12/08/99	0.0	6.4	12.7
12/09/99	0.0	3.6	10.4
12/10/99	0.0	5.6	12.7
12/11/99	0.0	5.8	13.8
12/12/99	0.0	4.3	12.7
12/13/99	0.0	7.3	15.0
12/14/99	0.0	7.9	13.8
12/15/99	0.0	6.7	15.0
12/16/99	0.0	4.6	13.8
12/17/99	0.0	5.0	13.8
12/18/99	0.0	11.4	19.6
12/19/99	0.0	6.3	13.8
12/20/99	0.0	2.9	9.2
12/21/99	0.0	3.9	12.7
12/22/99	0.0	5.7	17.3
12/23/99	0.0	4.4	11.5
12/24/99	0.0	5.0	13.8
12/25/99	0.0	3.6	12.7
12/26/99	0.0	3.2	10.4
12/27/99	0.0	4.4	18.4
12/28/99	0.0	3.2	10.4
12/29/99	0.0	5.3	17.3
12/30/99	0.0	3.1	9.2

Table B.2
Summary of Daily Recorded Wind Speed
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Wind		
	Minimum Speed (mph)	**Average Speed** (mph)	**Maximum Speed** (mph)
12/31/99	0.0	4.2	12.7
01/01/00	0.0	5.6	12.7
01/02/00	0.0	8.9	17.3
01/03/00	0.0	5.9	11.5
01/04/00	0.0	7.3	17.3
01/05/00	0.0	5.9	15.0
01/06/00	0.0	5.1	13.8
01/07/00	0.0	5.6	16.1
01/08/00	0.0	6.9	15.0
01/09/00	0.0	8.7	17.3
01/10/00	0.0	8.7	17.3
01/11/00	0.0	5.9	17.3
01/12/00	0.0	4.3	13.8
01/13/00	0.0	2.6	13.8
01/14/00	0.0	4.0	11.5
01/15/00	0.0	4.2	11.5
01/16/00	0.0	4.8	13.8
01/17/00	0.0	2.1	11.5
01/18/00	0.0	3.2	10.4
01/19/00	0.0	3.5	6.9
01/20/00	0.0	6.6	12.7
01/21/00	0.0	7.1	12.7
01/22/00	0.0	3.2	9.2
01/23/00	0.0	3.6	6.9
01/24/00	0.0	6.0	11.5
01/25/00	0.0	7.1	16.1
01/26/00	0.0	5.2	12.7
01/27/00	0.0	3.9	12.7
01/28/00	0.0	4.3	9.2
01/29/00	0.0	3.5	13.8
01/30/00	0.0	5.6	18.4
01/31/00	0.0	7.0	15.0
02/01/00	0.0	4.1	16.1
02/02/00	0.0	4.5	15.0
02/03/00	0.0	10.1	26.5
02/04/00	0.0	3.9	8.1
02/05/00	0.0	3.6	11.5
02/06/00	0.0	2.3	10.4
02/07/00	0.0	3.9	13.8
02/08/00	0.0	6.0	18.4
02/09/00	0.0	6.3	10.4
02/10/00	0.0	10.6	17.3
02/11/00	0.0	9.9	23.0
02/12/00	0.0	6.9	13.8
02/13/00	8.1	11.9	16.1
02/14/00	0.0	8.7	15.0
02/15/00	0.0	3.8	9.2
02/16/00	0.0	5.4	11.5
02/17/00	0.0	5.0	15.0

Table B.2
Summary of Daily Recorded Wind Speed
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Wind		
	Minimum Speed (mph)	**Average Speed** (mph)	**Maximum Speed** (mph)
02/18/00	0.0	3.7	12.7
02/19/00	0.0	2.3	8.1
02/20/00	0.0	15.1	28.8
02/21/00	5.8	15.1	26.5
02/22/00	0.0	8.6	15.0
02/23/00	0.0	11.6	23.0
02/24/00	0.0	4.6	12.7
02/25/00	0.0	3.8	12.7
02/26/00	0.0	4.5	10.4
02/27/00	0.0	8.3	15.0
02/28/00	0.0	7.2	18.4
02/29/00	0.0	3.7	9.2
03/01/00	0.0	7.2	11.5
03/02/00	0.0	7.7	15.0
03/03/00	0.0	6.3	17.3
03/04/00	0.0	2.6	9.2
03/05/00	0.0	13.7	31.1
03/06/00	0.0	6.4	15.0
03/07/00	0.0	7.7	16.1
03/08/00	0.0	6.6	16.1
03/09/00	0.0	5.4	15.0
03/10/00	0.0	8.0	24.2
03/11/00	0.0	8.7	21.9
03/12/00	0.0	7.2	16.1
03/13/00	0.0	10.0	21.9
03/14/00	0.0	11.3	20.7
03/15/00	0.0	8.4	17.3
03/16/00	3.5	12.8	21.9
03/17/00	3.5	8.9	16.1
03/18/00	0.0	7.8	17.3
03/19/00	0.0	12.8	24.2
03/20/00	4.6	11.2	17.3
03/21/00	0.0	7.3	19.6
03/22/00	0.0	4.8	11.5
03/23/00	0.0	5.1	12.7
03/24/00	0.0	6.3	16.1
03/25/00	0.0	5.9	15.0
03/26/00	0.0	7.8	17.3
03/27/00	0.0	8.6	20.7
03/28/00	0.0	11.3	23.0
03/29/00	0.0	8.8	23.0
03/30/00	0.0	6.8	20.7
03/31/00	0.0	5.5	19.6
04/01/00	0.1	1.1	5.8
04/02/00	0.1	1.0	5.5
04/03/00	0.1	0.9	5.3
04/04/00	0.1	2.0	7.8
04/05/00	0.3	2.6	6.8
04/06/00	0.1	1.6	6.2

Table B.2
Summary of Daily Recorded Wind Speed
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Wind		
	Minimum Speed (mph)	**Average Speed** (mph)	**Maximum Speed** (mph)
04/07/00	0.2	2.4	11.8
04/08/00	0.2	2.3	8.8
04/09/00	0.1	5.3	18.3
04/10/00	0.1	4.9	15.5
04/11/00	0.1	1.3	6.7
04/12/00	0.1	1.5	7.5
04/13/00	0.1	1.9	8.7
04/14/00	0.2	0.8	3.2
04/15/00	0.1	0.5	3.0
04/16/00	0.2	2.1	12.6
04/17/00	0.1	2.3	13.6
04/18/00	0.1	1.2	6.9
04/19/00	0.1	2.1	9.2
04/20/00	0.2	3.3	12.3
04/21/00	0.2	3.5	12.6
04/22/00	0.2	3.0	13.3
04/23/00	0.3	6.2	14.4
04/24/00	0.1	4.4	16.4
04/25/00	0.1	5.1	11.6
04/26/00	0.1	2.6	13.6
04/27/00	0.2	2.0	8.8
04/28/00	0.2	6.9	14.8
04/29/00	0.2	4.7	14.7
04/30/00	0.1	2.4	9.4
05/01/00	0.1	3.7	11.6
05/02/00	0.2	5.2	18.0
05/03/00	0.2	4.0	13.4
05/04/00	0.2	4.1	14.8
05/05/00	0.1	3.6	13.5
05/06/00	0.1	2.2	12.5
05/07/00	0.1	1.6	8.1
05/08/00	0.1	2.3	10.0
05/09/00	0.9	5.4	14.8
05/10/00	0.2	5.0	17.3
05/11/00	0.1	4.4	12.8
05/12/00	0.1	3.6	12.5
05/13/00	0.1	1.6	5.6
05/14/00	0.1	0.9	4.4
05/15/00	0.2	1.1	7.7
05/16/00	0.1	3.4	13.0
05/17/00	0.2	4.9	19.4
05/18/00	0.2	3.9	10.7
05/19/00	0.2	2.1	13.3
05/20/00	0.2	2.7	11.1
05/21/00	0.1	1.5	8.4
05/22/00	0.2	2.1	10.5
05/23/00	0.2	1.7	13.1
05/24/00	0.2	0.9	6.6
05/25/00	0.1	2.0	8.9

Table B.2
Summary of Daily Recorded Wind Speed
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Wind		
	Minimum Speed (mph)	**Average Speed** (mph)	**Maximum Speed** (mph)
05/26/00	0.1	4.5	14.7
05/27/00	0.1	3.7	11.5
05/28/00	0.1	4.4	8.9
05/29/00	0.1	3.3	14.0
05/30/00	0.1	4.0	22.3
05/31/00	0.1	1.4	6.2
06/01/00	0.1	1.0	3.7
06/02/00	0.1	1.3	6.4
06/03/00	0.2	2.0	9.6
06/04/00	0.1	2.2	9.6
06/05/00	0.1	3.3	9.8
06/06/00	0.1	2.2	7.4
06/07/00	0.1	2.1	8.3
06/08/00	0.2	3.7	12.5
06/09/00	0.3	4.6	15.2
06/10/00	0.7	5.8	13.8
06/11/00	0.2	6.1	17.3
06/12/00	0.2	3.7	11.8
06/13/00	0.2	2.8	10.4
06/14/00	0.2	1.3	4.9
06/15/00	0.2	0.8	3.1
06/16/00	0.1	1.4	6.2
06/17/00	0.2	1.2	5.4
06/18/00	0.1	1.1	5.4
06/19/00	0.1	1.1	6.9
06/20/00	0.1	1.1	7.2
06/21/00	0.1	0.7	3.3
06/22/00	0.1	0.6	2.5
06/23/00	0.1	1.0	5.4
06/24/00	0.2	1.0	6.2
06/25/00	0.2	2.6	10.6
06/26/00	0.1	1.4	4.8
06/27/00	0.2	1.3	4.9
06/28/00	0.1	1.4	6.4
06/29/00	0.0	0.1	0.4
06/30/00	0.0	0.0	0.0
07/01/00	0.1	1.8	8.1
07/02/00	0.1	2.9	14.0
07/03/00	0.1	2.1	7.3
07/04/00	0.1	2.1	8.9
07/05/00	0.1	3.5	15.2
07/06/00	0.1	1.8	5.6
07/07/00	0.1	1.6	9.3
07/08/00	0.2	2.3	10.9
07/09/00	0.1	1.0	4.9
07/10/00	0.2	0.9	5.8
07/11/00	0.2	0.8	3.8
07/12/00	0.1	1.2	6.1
07/13/00	0.1	2.3	7.4

Table B.2
Summary of Daily Recorded Wind Speed
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Wind		
	Minimum Speed (mph)	**Average Speed** (mph)	**Maximum Speed** (mph)
07/14/00	0.1	2.0	7.2
07/15/00	0.2	1.9	8.4
07/16/00	0.1	1.8	8.1
07/17/00	0.2	3.1	10.6
07/18/00	0.1	4.2	11.9
07/19/00	0.2	5.4	17.4
07/20/00	0.2	4.3	8.9
07/21/00	0.1	1.0	5.7
07/22/00	0.1	1.5	5.9
07/23/00	0.1	1.3	7.2
07/24/00	0.1	1.8	9.3
07/25/00	0.1	1.8	7.1
07/26/00	0.1	3.2	16.1
07/27/00	0.1	1.9	6.6
07/28/00	0.1	0.7	4.3
07/29/00	0.1	1.4	5.2
07/30/00	0.1	1.5	5.9
07/31/00	0.1	0.7	2.7
08/01/00	0.1	0.8	3.5
08/02/00	0.1	0.9	4.3
08/03/00	0.1	0.8	5.2
08/04/00	0.1	2.2	9.6
08/05/00	0.1	2.9	10.4
08/06/00	0.1	2.3	12.4
08/07/00	0.1	1.4	5.8
08/08/00	0.1	1.7	10.4
08/09/00	0.1	2.4	7.0
08/10/00	0.1	2.8	12.0
08/11/00	0.1	3.0	17.8
08/12/00	0.1	1.6	5.7
08/13/00	0.1	2.5	10.3
08/14/00	0.1	2.1	9.3
08/15/00	0.1	1.0	4.7
08/16/00	0.1	0.8	6.4
08/17/00	0.1	1.0	7.0
08/18/00	0.0	1.2	6.4
08/19/00	0.1	2.4	10.3
08/20/00	0.1	3.6	15.2
08/21/00	0.1	1.3	6.2
08/22/00	0.1	1.3	5.4
08/23/00	0.1	1.5	6.5
08/24/00	0.1	0.8	3.5
08/25/00	0.1	0.9	7.4
08/26/00	0.1	2.0	7.5
08/27/00	0.1	1.0	5.1
08/28/00	0.1	0.7	3.3
08/29/00	0.1	1.9	10.5
08/30/00	0.2	1.3	4.9
08/31/00	0.2	0.9	4.0

Table B.2
Summary of Daily Recorded Wind Speed
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Wind		
	Minimum Speed (mph)	**Average Speed** (mph)	**Maximum Speed** (mph)
09/01/00	0.1	1.4	5.4
09/02/00	0.1	2.0	8.4
09/03/00	0.1	3.0	12.2
09/04/00	0.1	4.9	17.5
09/05/00	0.2	4.8	11.8
09/06/00	0.1	2.3	7.1
09/07/00	0.1	0.9	3.8
09/08/00	0.1	1.3	6.2
09/09/00	0.1	1.8	10.1
09/10/00	0.1	1.6	6.7
09/11/00	0.1	1.0	5.1
09/12/00	0.0	0.7	4.7
09/13/00	0.2	1.3	5.3
09/14/00	0.2	2.2	7.8
09/15/00	0.2	6.1	16.4
09/16/00	0.2	4.2	16.5
09/17/00	0.1	0.8	4.2
09/18/00	0.1	1.5	7.0
09/19/00	0.1	0.8	4.6
09/20/00	0.1	1.2	6.5
09/21/00	0.1	0.2	0.6
09/22/00	0.1	1.4	8.2
09/23/00	0.1	1.9	15.7
09/24/00	0.1	1.6	8.9
09/25/00	0.1	1.7	7.1
09/26/00	0.1	2.1	8.0
09/27/00	0.1	1.8	9.4
09/28/00	0.1	1.9	7.2
09/29/00	0.1	3.1	9.5
09/30/00	0.1	1.1	6.4
10/01/00	0.1	0.8	4.2
10/02/00	0.1	0.9	5.2
10/03/00	0.1	0.6	2.8
10/04/00	0.1	0.4	2.4
10/05/00	0.1	1.4	8.4
10/06/00	0.1	0.2	1.1
10/07/00	0.1	0.6	3.7
10/08/00	0.1	0.8	5.0
10/09/00	0.1	1.3	9.8
10/10/00	0.1	0.6	4.3
10/11/00	0.1	0.6	4.2
10/12/00	0.1	0.5	3.6
10/13/00	0.1	2.2	8.7
10/14/00	0.1	3.0	8.9
10/15/00	0.1	1.2	7.5
10/16/00	0.1	0.8	6.9
10/17/00	0.1	1.0	4.8
10/18/00	0.1	1.4	7.7
10/19/00	0.1	2.5	10.9

Table B.2
Summary of Daily Recorded Wind Speed
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Wind		
	Minimum Speed (mph)	**Average Speed** (mph)	**Maximum Speed** (mph)
10/20/00	0.1	1.4	5.5
10/21/00	0.1	4.2	9.2
10/22/00	0.1	1.9	6.3
10/23/00	0.1	1.0	5.4
10/24/00	0.1	0.6	2.7
10/25/00	0.1	0.9	5.4
10/26/00	0.1	1.9	9.3
10/27/00	0.1	1.1	6.2
10/28/00	0.1	1.0	4.8
10/29/00	0.1	0.9	5.4
10/30/00	0.1	1.2	9.1
10/31/00	0.1	1.6	7.2
11/01/00	0.0	1.6	7.4
11/02/00	0.1	1.7	10.6
11/03/00	0.0	1.1	6.3
11/04/00	0.1	1.2	5.2
11/05/00	0.1	1.7	8.2
11/06/00	0.1	1.9	8.3
11/07/00	0.0	0.8	5.2
11/08/00	0.1	1.1	6.2
11/09/00	0.1	0.8	5.7
11/10/00	0.0	0.4	4.4
11/11/00	0.0	1.2	4.9
11/12/00	0.1	1.5	6.8
11/13/00	0.1	1.0	7.2
11/14/00	0.1	1.4	7.3
11/15/00	0.0	1.3	5.5
11/16/00	0.0	0.5	2.3
11/17/00	0.1	1.2	6.2
11/18/00	0.1	0.6	3.1
11/19/00	0.1	0.6	4.5
11/20/00	0.0	0.6	3.3
11/21/00	0.0	1.3	7.3
11/22/00	0.0	1.5	7.9
11/23/00	0.1	3.1	10.6
11/24/00	0.2	3.2	7.6
11/25/00	0.1	1.9	7.0
11/26/00	0.1	1.8	8.3
11/27/00	0.1	1.4	9.8
11/28/00	0.1	0.7	4.6
11/29/00	0.1	0.3	1.7
11/30/00	0.1	1.7	8.3
12/01/00	0.1	0.5	5.0
12/02/00	0.0	0.8	6.7
12/03/00	0.0	0.2	1.0
12/04/00	0.0	0.1	0.3
12/05/00	0.1	0.2	0.6
12/06/00	0.1	0.2	1.6
12/07/00	0.1	0.5	4.1

Table B.2
Summary of Daily Recorded Wind Speed
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Wind		
	Minimum Speed (mph)	**Average Speed** (mph)	**Maximum Speed** (mph)
12/08/00	0.1	0.5	1.8
12/09/00	0.1	0.4	3.2
12/10/00	0.1	1.3	5.6
12/11/00	0.0	0.9	6.2
12/12/00	0.0	1.1	5.3
12/13/00	0.0	0.4	5.1
12/14/00	0.1	1.1	6.0
12/15/00	0.0	1.8	10.9
12/16/00	0.1	3.0	17.9
12/17/00	0.1	2.6	10.1
12/18/00	0.1	0.7	3.8
12/19/00	0.1	0.6	4.3
12/20/00	0.0	0.4	3.1
12/21/00	0.0	0.7	4.4
12/22/00	0.1	3.0	6.9
12/23/00	0.1	2.3	12.4
12/24/00	0.1	2.4	8.1
12/25/00	0.1	0.6	2.8
12/26/00	0.0	0.7	4.9
12/27/00	0.1	0.6	6.0
12/28/00	0.1	1.0	5.9
12/29/00	0.1	0.7	4.7
12/30/00	0.1	0.3	1.9
12/31/00	0.0	0.5	5.0
01/01/01	0.0	0.5	3.0
01/02/01	0.1	0.4	2.2
01/03/01	0.1	0.6	3.8
01/04/01	0.1	0.5	3.3
01/05/01	0.1	0.2	0.8
01/06/01	0.1	0.7	5.2
01/07/01	0.1	0.3	1.9
01/08/01	0.1	1.2	5.4
01/09/01	0.0	1.0	4.6
01/10/01	0.0	2.4	8.8
01/11/01	0.0	3.1	16.4
01/12/01	0.0	1.2	8.4
01/13/01	0.0	1.0	5.7
01/14/01	0.0	1.1	7.1
01/15/01	0.1	1.2	4.1
01/16/01	0.0	1.5	8.0
01/17/01	0.1	0.9	6.8
01/18/01	0.0	0.6	4.2
01/19/01	0.0	0.3	3.3
01/20/01	0.1	1.4	20.3
01/21/01	0.1	0.3	3.6
01/22/01	0.0	0.5	5.9
01/23/01	0.0	2.1	12.1
01/24/01	0.0	1.0	7.0
01/25/01	0.1	1.2	4.5

Table B.2
Summary of Daily Recorded Wind Speed
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Wind		
	Minimum Speed (mph)	**Average Speed** (mph)	**Maximum Speed** (mph)
01/26/01	0.0	0.7	5.7
01/27/01	0.0	1.2	5.0
01/28/01	0.0	0.5	4.1
01/29/01	0.0	1.5	7.2
01/30/01	0.0	1.5	11.2
01/31/01	0.0	0.9	6.7
02/01/01	0.0	0.8	4.7
02/02/01	0.0	1.6	12.8
02/03/01	0.4	4.6	14.1
02/04/01	0.1	1.3	7.6
02/05/01	0.1	2.0	7.6
02/06/01	0.1	3.8	15.0
02/07/01	0.0	0.9	8.1
02/08/01	0.0	1.4	7.5
02/09/01	0.0	2.0	9.4
02/10/01	0.1	0.7	5.8
02/11/01	0.1	1.8	8.9
02/12/01	0.0	0.6	2.4
02/13/01	0.1	1.4	5.7
02/14/01	0.0	0.6	6.3
02/15/01	0.0	0.4	3.9
02/16/01	0.0	0.7	4.0
02/17/01	0.0	0.6	4.6
02/18/01	0.1	1.1	6.0
02/19/01	0.1	3.4	12.2
02/20/01	0.1	0.9	3.1
02/21/01	0.0	0.4	2.5
02/22/01	0.1	1.2	7.6
02/23/01	0.0	1.5	9.4
02/24/01	0.0	1.3	8.1
02/25/01	0.0	0.4	1.8
02/26/01	0.1	0.5	2.9
02/27/01	0.0	1.6	8.2
02/28/01	0.1	1.2	6.4
03/01/01	0.0	1.6	8.2
03/02/01	0.1	0.7	4.0
03/03/01	0.0	1.1	5.8
03/04/01	0.6	8.1	30.0
03/05/01	0.1	3.8	16.5
03/06/01	0.0	1.1	4.0
03/07/01	0.1	1.5	8.8
03/08/01	0.1	0.8	4.6
03/09/01	0.1	2.6	11.1
03/10/01	0.1	1.7	9.1
03/11/01	0.1	0.8	4.2
03/12/01	0.1	1.5	10.8
03/13/01	0.0	3.8	21.1
03/14/01	0.1	2.1	6.4
03/15/01	0.2	4.4	10.1

Table B.2
Summary of Daily Recorded Wind Speed
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Wind		
	Minimum Speed (mph)	**Average Speed** (mph)	**Maximum Speed** (mph)
03/16/01	0.1	3.8	14.4
03/17/01	0.1	2.9	11.6
03/18/01	0.1	1.2	7.0
03/19/01	0.1	1.0	5.3
03/20/01	0.1	1.1	5.6
03/21/01	0.1	0.3	2.4
03/22/01	0.1	0.9	4.9
03/23/01	0.1	0.9	4.6
03/24/01	0.1	1.7	7.9
03/25/01	0.1	3.3	12.2
03/26/01	0.2	6.4	15.2
03/27/01	0.1	3.4	8.6
03/28/01	0.2	5.7	16.6
03/29/01	0.1	5.9	19.2
03/30/01	0.1	3.1	12.6
03/31/01	0.0	0.6	3.3
04/01/01	0.1	1.0	7.4
04/02/01	0.1	3.9	13.0
04/03/01	0.1	5.1	16.3
04/04/01	0.1	1.8	5.6
04/05/01	0.1	2.2	9.0
04/06/01	0.0	1.3	4.5
04/07/01	0.1	3.1	10.3
04/08/01	0.0	1.1	5.9
04/09/01	0.0	1.0	4.7
04/10/01	0.0	2.3	14.2
04/11/01	0.1	2.1	9.9
04/12/01	0.1	3.1	14.5
04/13/01	0.1	3.6	16.7
04/14/01	0.0	3.3	14.0
04/15/01	0.0	1.9	9.3
04/16/01	0.0	2.1	9.5
04/17/01	0.1	3.9	13.6
04/18/01	0.1	1.4	5.4
04/19/01	0.1	1.9	6.2
04/20/01	0.0	2.6	9.5
04/21/01	0.1	3.0	8.2
04/22/01	0.0	3.9	13.7
04/23/01	0.1	3.5	14.2
04/24/01	0.0	2.0	9.9
04/25/01	0.0	1.0	7.6
04/26/01	0.1	1.3	7.2
04/27/01	0.1	1.4	10.8
04/28/01	0.1	4.2	13.6
04/29/01	0.0	5.7	18.0
04/30/01	0.1	3.0	11.3
05/01/01	0.1	4.1	14.0
05/02/01	0.2	4.6	13.8
05/03/01	0.1	1.6	5.8

Table B.2
Summary of Daily Recorded Wind Speed
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Wind		
	Minimum Speed (mph)	**Average Speed** (mph)	**Maximum Speed** (mph)
05/04/01	0.1	2.0	12.2
05/05/01	0.1	1.6	7.9
05/06/01	0.1	2.1	8.4
05/07/01	0.0	0.4	2.0
05/08/01	0.1	1.0	5.7
05/09/01	0.1	0.9	4.0
05/10/01	0.1	0.7	3.1
05/11/01	0.1	0.8	5.3
05/12/01	0.1	1.3	7.1
05/13/01	0.1	2.0	7.3
05/14/01	0.1	2.5	6.6
05/15/01	0.0	2.5	11.3
05/16/01	0.1	4.4	11.8
05/17/01	0.1	2.3	10.3
05/18/01	0.1	1.2	6.5
05/19/01	0.1	0.8	4.3
05/20/01	0.1	0.9	3.9
05/21/01	0.1	0.7	3.9
05/22/01	0.1	1.9	11.5
05/23/01	0.1	3.6	11.1
05/24/01	0.1	1.9	6.7
05/25/01	0.1	1.1	7.7
05/26/01	0.1	1.0	4.2
05/27/01	0.1	1.6	6.7
05/28/01	0.1	3.5	14.5
05/29/01	0.1	3.7	13.3
05/30/01	0.1	0.6	3.8
05/31/01	0.1	0.9	3.1
06/01/01	0.1	1.2	3.7
06/02/01	0.1	2.0	9.2
06/03/01	0.0	2.2	8.9
06/04/01	0.1	2.5	9.1
06/05/01	0.1	4.3	17.7
06/06/01	0.1	3.9	13.0
06/07/01	0.1	3.5	13.6
06/08/01	0.1	3.2	12.1
06/09/01	0.1	3.4	12.0
06/10/01	0.1	2.9	9.0
06/11/01	0.1	4.1	14.7
06/12/01	0.1	3.7	13.7
06/13/01	0.1	3.0	15.8
06/14/01	0.1	1.3	7.3
06/15/01	0.1	1.3	7.6
06/16/01	0.1	1.2	5.4
06/17/01	0.1	1.2	5.4
06/18/01	0.1	1.5	7.2
06/19/01	0.1	1.2	5.0
06/20/01	0.1	1.8	6.9
06/21/01	0.1	1.2	6.8

Table B.2
Summary of Daily Recorded Wind Speed
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Wind		
	Minimum Speed (mph)	**Average Speed** (mph)	**Maximum Speed** (mph)
06/22/01	0.1	1.1	5.9
06/23/01	0.1	1.0	5.9
06/24/01	0.1	1.8	8.9
06/25/01	0.1	2.2	7.7
06/26/01	0.1	1.3	7.2
06/27/01	0.1	1.4	7.3
06/28/01	0.1	4.3	14.0
06/29/01	0.1	2.2	7.8
06/30/01	0.1	1.2	6.5
07/01/01	0.1	1.0	4.6
07/02/01	0.1	0.9	2.7
07/03/01	0.1	1.5	9.5
07/04/01	0.2	1.3	5.5
07/05/01	0.1	0.7	2.1
07/06/01	0.1	0.4	2.5
07/07/01	0.1	1.0	5.7
07/08/01	0.1	2.1	9.3
07/09/01	0.1	1.7	6.3
07/10/01	0.1	1.2	5.8
07/11/01	0.2	1.9	8.3
07/12/01	0.1	2.8	9.8
07/13/01	0.1	3.2	8.0
07/14/01	0.1	3.4	14.9
07/15/01	0.1	1.3	8.5
07/16/01	0.1	1.0	4.9
07/17/01	0.1	1.7	5.8
07/18/01	0.1	2.5	8.2
07/19/01	0.1	2.4	10.6
07/20/01	0.1	2.0	11.3
07/21/01	0.1	2.1	9.0
07/22/01	0.1	1.8	7.3
07/23/01	0.1	1.4	5.1
07/24/01	0.1	1.1	5.6
07/25/01	0.1	1.3	4.5
07/26/01	0.1	1.1	3.9
07/27/01	0.1	1.5	5.0
07/28/01	0.1	1.3	4.6
07/29/01	0.1	2.5	10.7
07/30/01	0.1	2.6	7.7
07/31/01	0.1	1.4	5.5
08/01/01	0.1	1.3	5.0
08/02/01	0.1	1.3	4.8
08/03/01	0.1	2.1	7.5
08/04/01	0.1	2.5	13.2
08/05/01	0.1	1.9	11.1
08/06/01	0.1	2.0	7.9
08/07/01	0.1	1.3	4.7
08/08/01	0.1	1.0	6.9
08/09/01	0.1	1.5	5.1

Table B.2
Summary of Daily Recorded Wind Speed
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Wind		
	Minimum Speed (mph)	**Average Speed** (mph)	**Maximum Speed** (mph)
08/10/01	0.1	2.3	8.8
08/11/01	0.1	2.6	10.8
08/12/01	0.1	2.4	10.1
08/13/01	0.1	2.6	11.1
08/14/01	0.1	1.2	4.5
08/15/01	0.1	1.2	9.6
08/16/01	0.1	1.2	5.2
08/17/01	0.1	0.8	4.6
08/18/01	0.1	0.6	2.1
08/19/01	0.1	1.3	6.1
08/20/01	0.1	1.9	11.3
08/21/01	0.1	1.6	8.7
08/22/01	0.1	3.1	10.7
08/23/01	0.1	3.7	13.7
08/24/01	0.1	3.9	12.3
08/25/01	0.1	3.3	15.6
08/26/01	0.1	1.3	6.7
08/27/01	0.1	2.5	12.6
08/28/01	0.1	1.1	7.4
08/29/01	0.1	0.6	2.9
08/30/01	0.1	1.0	6.2
08/31/01	0.1	1.1	5.6
09/01/01	0.1	0.8	4.6
09/02/01	0.1	1.6	9.1
09/03/01	0.1	1.2	6.3
09/04/01	0.1	1.3	6.7
09/05/01	0.1	1.9	7.8
09/06/01	0.0	1.1	5.4
09/07/01	0.1	0.8	8.0
09/08/01	0.1	0.4	2.1
09/09/01	0.1	0.5	4.4
09/10/01	0.0	2.4	12.1
09/11/01	0.1	1.5	6.7
09/12/01	0.1	2.2	8.6
09/13/01	0.0	2.4	11.8
09/14/01	0.1	1.4	5.5
09/15/01	0.1	1.7	9.7
09/16/01	0.1	0.9	5.9
09/17/01	0.1	1.0	3.7
09/18/01	0.1	1.0	4.3
09/19/01	0.1	0.8	3.5
09/20/01	0.1	1.1	4.9
09/21/01	0.1	1.3	4.4
09/22/01	0.1	0.4	1.9
09/23/01	0.1	1.3	6.7
09/24/01	0.1	2.6	9.1
09/25/01	0.1	3.7	11.3
09/26/01	0.1	2.6	10.7
09/27/01	0.1	4.7	12.6

Table B.2
Summary of Daily Recorded Wind Speed
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Wind		
	Minimum Speed (mph)	**Average Speed** (mph)	**Maximum Speed** (mph)
09/28/01	0.1	4.9	15.9
09/29/01	0.1	3.4	8.9
09/30/01	0.2	1.0	4.0
10/01/01	0.1	1.7	10.8
10/02/01	0.1	1.1	5.0
10/03/01	0.1	0.5	1.7
10/04/01	0.1	0.7	2.9
10/05/01	0.1	0.7	2.8
10/06/01	0.1	1.1	4.5
10/07/01	0.1	1.7	6.7
10/08/01	0.1	0.7	4.1
10/09/01	0.1	1.9	10.3
10/10/01	0.1	1.0	5.5
10/11/01	0.0	1.8	7.7
10/12/01	0.1	1.1	4.8
10/13/01	0.1	1.5	10.2
10/14/01	0.1	0.4	2.0
10/15/01	0.0	0.7	3.6
10/16/01	0.1	1.4	7.8
10/17/01	0.1	1.2	6.0
10/18/01	0.1	1.4	5.7
10/19/01	0.1	0.7	5.9
10/20/01	0.1	0.5	3.4
10/21/01	0.1	1.6	6.8
10/22/01	0.1	2.5	14.6
10/23/01	0.1	4.1	21.2
10/24/01	0.1	1.8	7.1
10/25/01	0.1	0.7	4.4
10/26/01	0.1	0.5	5.4
10/27/01	0.1	0.2	0.9
10/28/01	0.0	0.8	5.9
10/29/01	0.1	0.9	6.3
10/30/01	0.1	0.3	2.1
10/31/01	0.1	1.7	8.6
11/01/01	0.0	1.0	7.2
11/02/01	0.1	0.6	2.5
11/03/01	0.1	0.8	4.7
11/04/01	0.1	0.8	3.3
11/05/01	0.1	2.6	11.1
11/06/01	0.1	0.2	0.9
11/07/01	0.1	0.4	2.2
11/08/01	0.0	0.6	4.5
11/09/01	0.0	0.5	5.4
11/10/01	0.1	1.0	4.9
11/11/01	0.1	1.7	5.1
11/12/01	0.1	1.6	10.1
11/13/01	0.1	1.4	6.7
11/14/01	0.1	1.6	8.9
11/15/01	0.1	1.5	5.4

Table B.2
Summary of Daily Recorded Wind Speed
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Wind		
	Minimum Speed (mph)	**Average Speed** (mph)	**Maximum Speed** (mph)
11/16/01	0.1	1.0	4.3
11/17/01	0.1	1.1	7.3
11/18/01	0.1	1.4	6.9
11/19/01	0.0	1.2	8.6
11/20/01	0.1	1.2	10.3
11/21/01	0.1	0.6	4.8
11/22/01	0.1	1.5	8.3
11/23/01	0.1	1.6	5.1
11/24/01	0.1	0.9	7.7
11/25/01	0.1	0.1	0.2
11/26/01	0.1	0.1	0.2
11/27/01	0.1	0.1	0.2
11/28/01	0.1	0.2	0.2
11/29/01	0.1	0.1	0.2
11/30/01	0.1	0.3	2.3
12/01/01	0.1	0.5	2.5
12/02/01	0.1	2.4	12.4
12/03/01	0.0	0.7	4.7
12/04/01	0.1	1.3	7.1
12/05/01	0.0	0.8	3.7
12/06/01	0.1	2.0	7.0
12/07/01	0.1	2.6	9.6
12/08/01	0.0	0.4	3.6
12/09/01	0.1	2.0	8.7
12/10/01	0.1	1.6	8.2
12/11/01	0.1	1.2	4.7
12/12/01	0.0	1.2	4.3
12/13/01	0.0	0.4	2.4
12/14/01	0.1	1.1	7.2
12/15/01	0.1	1.1	4.9
12/16/01	0.1	0.5	2.5
12/17/01	0.1	0.4	2.9
12/18/01	0.1	1.8	6.4
12/19/01	0.0	0.6	8.1
12/20/01	0.1	1.5	7.9
12/21/01	0.1	1.4	4.3
12/22/01	0.1	0.6	5.3
12/23/01	0.1	1.2	4.4
12/24/01	0.1	0.2	1.1
12/25/01	0.1	0.5	7.6
12/26/01	0.1	1.0	7.8
12/27/01	0.1	0.1	0.2
12/28/01	0.1	1.3	10.5
12/29/01	0.1	2.1	9.1
12/30/01	0.1	0.2	0.4
12/31/01	0.1	0.8	4.3
01/01/02	0.1	0.3	1.6
01/02/02	0.1	0.3	1.6
01/03/02	0.1	1.9	7.0

Table B.2
Summary of Daily Recorded Wind Speed
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Wind		
	Minimum Speed (mph)	**Average Speed** (mph)	**Maximum Speed** (mph)
01/04/02	0.1	0.2	1.1
01/05/02	0.1	0.2	0.9
01/06/02	0.1	0.4	2.6
01/07/02	0.1	0.8	4.4
01/08/02	0.0	0.4	4.0
01/09/02	0.1	2.0	6.2
01/10/02	0.1	0.9	5.7
01/11/02	0.0	0.3	1.6
01/12/02	0.0	1.3	5.7
01/13/02	0.1	3.1	10.8
01/14/02	0.1	1.8	7.8
01/15/02	0.0	0.0	0.0
01/16/02	0.0	0.0	0.0
01/17/02	0.0	0.0	0.0
01/18/02	0.0	0.0	0.0
01/19/02	0.0	0.0	0.0
01/20/02	0.0	0.0	0.0
01/21/02	0.0	0.0	0.0
01/22/02	0.0	0.0	0.0
01/23/02	0.0	0.0	0.0
01/24/02	0.0	0.0	0.0
01/25/02	0.0	0.0	0.0
01/26/02	0.0	0.0	0.0
01/27/02	0.0	0.0	0.0
01/28/02	0.0	0.0	0.0
01/29/02	0.0	0.0	0.0
01/30/02	0.0	0.0	0.0
01/31/02	0.0	0.0	0.0
02/01/02	0.0	0.0	0.0
02/02/02	0.0	0.0	0.0
02/03/02	0.0	0.0	0.0
02/04/02	0.0	0.0	0.0
02/05/02	0.0	0.0	0.0
02/06/02	0.0	0.0	0.0
02/07/02	0.0	0.0	0.0
02/08/02	0.2	3.1	7.9
02/09/02	0.1	0.9	5.8
02/10/02	0.0	0.6	3.7
02/11/02	0.0	1.1	7.7
02/12/02	0.1	2.0	8.7
02/13/02	0.1	1.3	11.0
02/14/02	0.1	0.9	5.9
02/15/02	0.1	0.8	4.3
02/16/02	0.1	1.0	4.8
02/17/02	0.1	1.5	6.4
02/18/02	0.0	1.1	6.9
02/19/02	0.1	0.9	4.7
02/20/02	0.1	3.2	11.5
02/21/02	0.1	1.0	7.8

Table B.2
Summary of Daily Recorded Wind Speed
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Wind		
	Minimum Speed (mph)	**Average Speed** (mph)	**Maximum Speed** (mph)
02/22/02	0.1	1.3	10.6
02/23/02	0.1	4.1	10.6
02/24/02	0.1	3.4	11.4
02/25/02	0.1	1.1	6.0
02/26/02	0.1	0.7	4.7
02/27/02	0.1	0.4	3.0
02/28/02	0.0	1.0	6.9
03/01/02	0.1	1.0	8.2
03/02/02	0.0	1.3	10.6
03/03/02	0.0	1.0	8.2
03/04/02	0.1	1.2	6.0
03/05/02	0.1	1.5	10.1
03/06/02	0.1	0.4	2.2
03/07/02	0.1	1.1	5.4
03/08/02	0.1	2.2	6.4
03/09/02	0.0	0.9	3.6
03/10/02	0.0	2.1	9.9
03/11/02	0.1	3.0	11.7
03/12/02	0.1	5.5	18.3
03/13/02	0.2	7.6	21.2
03/14/02	0.0	2.8	10.4
03/15/02	0.0	2.8	15.8
03/16/02	0.0	3.0	11.2
03/17/02	0.0	0.4	3.4
03/18/02	0.0	0.1	0.2
03/19/02	0.1	0.3	2.8
03/20/02	0.0	0.6	3.3
03/21/02	0.0	1.5	8.1
03/22/02	0.1	1.0	5.0
03/23/02	0.1	1.1	6.5
03/24/02	0.1	2.9	10.2
03/25/02	0.1	1.3	7.0
03/26/02	0.1	1.1	4.7
03/27/02	0.1	1.2	6.3
03/28/02	0.1	0.4	2.8
03/29/02	0.1	0.7	7.3
03/30/02	0.1	0.9	5.1
03/31/02	0.1	0.7	4.1
04/01/02	0.1	0.3	1.7
04/02/02	0.1	0.4	2.1
04/03/02	0.1	0.2	0.8
04/04/02	0.1	0.4	3.9
04/05/02	0.1	0.6	2.6
04/06/02	0.1	3.1	14.5
04/07/02	0.1	2.6	7.6
04/08/02	0.1	0.9	4.6
04/09/02	0.1	1.6	14.0
04/10/02	0.2	4.7	14.0
04/11/02	0.1	4.5	14.1

Table B.2
Summary of Daily Recorded Wind Speed
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Wind		
	Minimum Speed (mph)	**Average Speed** (mph)	**Maximum Speed** (mph)
04/12/02	0.1	4.1	11.2
04/13/02	0.1	3.1	10.9
04/14/02	0.1	5.4	15.4
04/15/02	0.1	5.3	14.2
04/16/02	0.1	1.9	8.9
04/17/02	0.0	2.3	11.9
04/18/02	0.2	3.3	15.2
04/19/02	0.0	2.2	9.3
04/20/02	0.1	2.0	12.0
04/21/02	0.1	2.2	9.8
04/22/02	0.0	1.1	4.9
04/23/02	0.0	1.4	7.3
04/24/02	0.1	1.3	7.3
04/25/02	0.1	2.2	8.9
04/26/02	0.1	1.5	7.5
04/27/02	0.1	1.8	5.7
04/28/02	0.1	1.3	7.8
04/29/02	0.1	1.3	5.5
04/30/02	0.1	3.3	12.3
05/01/02	0.2	4.2	14.7
05/02/02	0.2	3.7	14.1
05/03/02	0.1	2.8	10.3
05/04/02	0.2	2.5	9.6
05/05/02	0.1	1.5	5.4
05/06/02	0.1	2.1	8.6
05/07/02	0.1	2.7	12.0
05/08/02	0.1	2.6	14.0
05/09/02	0.1	4.1	13.6
05/10/02	0.1	5.0	18.5
05/11/02	0.1	3.5	15.4
05/12/02	0.1	1.6	8.0
05/13/02	0.2	4.5	16.4

Notes: mph = mile per hour

Table B.3
Summary of Daily Recorded Solar
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Solar	
	KWh/m^2-day	MJ/m^2-day
06/18/99	4.57	16.45
06/19/99	3.51	12.64
06/20/99	3.77	13.59
06/21/99	4.28	15.40
06/22/99	4.55	16.38
06/23/99	4.24	15.28
06/24/99	4.68	16.85
06/25/99	4.43	15.94
06/26/99	4.33	15.59
06/27/99	4.48	16.12
06/28/99	4.36	15.68
06/29/99	4.42	15.90
06/30/99	3.93	14.16
07/01/99	3.03	10.91
07/02/99	3.95	14.22
07/03/99	4.87	17.53
07/04/99	4.86	17.50
07/05/99	4.57	16.45
07/06/99	4.77	17.17
07/07/99	4.64	16.70
07/08/99	4.68	16.85
07/09/99	4.10	14.76
07/10/99	4.44	15.98
07/11/99	4.51	16.24
07/12/99	3.85	13.86
07/13/99	3.75	13.50
07/14/99	3.37	12.13
07/15/99	3.23	11.63
07/16/99	3.88	13.97
07/17/99	3.61	13.00
07/18/99	3.94	14.18
07/19/99	4.24	15.26
07/20/99	4.28	15.41
07/21/99	3.96	14.26
07/22/99	4.03	14.51
07/23/99	4.41	15.88
07/24/99	4.40	15.84
07/25/99	3.66	13.18
07/26/99	3.35	12.06
07/27/99	4.21	15.16
07/28/99	4.35	15.66
07/29/99	4.26	15.34
07/30/99	3.93	14.15
07/31/99	4.30	15.48
08/01/99	4.07	14.65
08/02/99	4.17	15.01
08/03/99	3.73	13.43
08/04/99	3.03	10.91
08/05/99	1.46	5.26
08/06/99	3.31	11.92

Table B.3
Summary of Daily Recorded Solar
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Solar	
	KWh/m^2-day	MJ/m^2-day
08/07/99	3.63	13.07
08/08/99	2.58	9.29
08/09/99	2.51	9.04
08/10/99	3.88	13.97
08/11/99	3.92	14.11
08/12/99	4.05	14.58
08/13/99	3.86	13.90
08/14/99	3.75	13.50
08/15/99	3.91	14.08
08/16/99	3.87	13.93
08/17/99	3.88	13.97
08/18/99	4.08	14.69
08/19/99	3.87	13.93
08/20/99	3.98	14.33
08/21/99	4.05	14.58
08/22/99	1.15	4.14
08/23/99	1.65	5.94
08/24/99	3.56	12.82
08/25/99	3.54	12.74
08/26/99	1.28	4.61
08/27/99	3.29	11.84
08/28/99	3.52	12.67
08/29/99	3.45	12.42
08/30/99	3.43	12.35
08/31/99	3.72	13.39
09/01/99	6.47	23.29
09/02/99	6.45	23.22
09/03/99	6.27	22.57
09/04/99	6.15	22.14
09/05/99	6.29	22.64
09/06/99	6.31	22.72
09/07/99	6.35	22.86
09/08/99	6.07	21.85
09/09/99	5.89	21.20
09/10/99	6.16	22.18
09/11/99	6.34	22.82
09/12/99	6.14	22.10
09/13/99	4.60	16.56
09/14/99	5.99	21.56
09/15/99	6.06	21.82
09/16/99	6.20	22.32
09/17/99	6.09	21.92
09/18/99	6.01	21.64
09/19/99	5.96	21.46
09/20/99	6.10	21.96
09/21/99	6.22	22.39
09/22/99	6.25	22.50
09/23/99	6.35	22.86
09/24/99	6.20	22.32
09/25/99	5.94	21.38

Table B.3
Summary of Daily Recorded Solar
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Solar	
	KWh/m^2-day	MJ/m^2-day
09/26/99	5.72	20.59
09/27/99	6.29	22.64
09/28/99	6.25	22.50
09/29/99	6.16	22.18
09/30/99	6.33	22.79
10/01/99	5.90	21.24
10/02/99	5.75	20.70
10/03/99	5.70	20.52
10/04/99	5.52	19.87
10/05/99	5.28	19.01
10/06/99	5.81	20.92
10/07/99	5.60	20.16
10/08/99	5.74	20.66
10/09/99	5.79	20.84
10/10/99	5.54	19.94
10/11/99	5.67	20.41
10/12/99	5.71	20.56
10/13/99	5.79	20.84
10/14/99	5.82	20.95
10/15/99	5.55	19.98
10/16/99	5.34	19.22
10/17/99	5.91	21.28
10/18/99	5.99	21.56
10/19/99	5.74	20.66
10/20/99	5.87	21.13
10/21/99	5.55	19.98
10/22/99	6.07	21.85
10/23/99	5.55	19.98
10/24/99	5.64	20.30
10/25/99	5.68	20.45
10/26/99	5.99	21.56
10/27/99	5.91	21.28
10/28/99	5.92	21.31
10/29/99	5.65	20.34
10/30/99	5.42	19.51
10/31/99	5.81	20.92
11/01/99	5.13	18.47
11/02/99	5.13	18.47
11/03/99	5.06	18.22
11/04/99	5.10	18.36
11/05/99	5.40	19.44
11/06/99	4.90	17.64
11/07/99	4.80	17.28
11/08/99	5.11	18.40
11/09/99	4.95	17.82
11/10/99	5.00	18.00
11/11/99	4.39	15.80
11/12/99	4.53	16.31
11/13/99	4.71	16.96
11/14/99	4.35	15.66

Table B.3
Summary of Daily Recorded Solar
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Solar	
	KWh/m^2-day	MJ/m^2-day
11/15/99	4.82	17.35
11/16/99	4.68	16.85
11/17/99	4.85	17.46
11/18/99	4.90	17.64
11/19/99	4.99	17.96
11/20/99	5.46	19.66
11/21/99	4.94	17.78
11/22/99	4.95	17.82
11/23/99	5.11	18.40
11/24/99	4.87	17.53
11/25/99	5.40	19.44
11/26/99	5.18	18.65
11/27/99	5.15	18.54
11/28/99	5.08	18.29
11/29/99	5.16	18.58
11/30/99	5.39	19.40
12/01/99	5.00	18.00
12/02/99	4.90	17.64
12/03/99	5.03	18.11
12/04/99	4.70	16.92
12/05/99	4.93	17.75
12/06/99	5.01	18.04
12/07/99	4.82	17.35
12/08/99	4.73	17.03
12/09/99	4.88	17.57
12/10/99	5.04	18.14
12/11/99	5.19	18.68
12/12/99	4.80	17.28
12/13/99	5.13	18.47
12/14/99	5.11	18.40
12/15/99	4.83	17.39
12/16/99	4.82	17.35
12/17/99	5.17	18.61
12/18/99	4.70	16.92
12/19/99	4.99	17.96
12/20/99	4.69	16.88
12/21/99	4.75	17.10
12/22/99	5.43	19.55
12/23/99	4.57	16.45
12/24/99	4.83	17.39
12/25/99	4.58	16.49
12/26/99	4.88	17.57
12/27/99	4.95	17.82
12/28/99	5.10	18.36
12/29/99	4.44	15.98
12/30/99	4.86	17.50
12/31/99	4.85	17.46
01/01/00	4.85	17.46
01/02/00	5.02	18.07
01/03/00	4.72	16.99

Table B.3
Summary of Daily Recorded Solar
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Solar	
	KWh/m^2-day	MJ/m^2-day
01/04/00	5.07	18.25
01/05/00	4.77	17.17
01/06/00	4.99	17.96
01/07/00	5.13	18.47
01/08/00	4.81	17.32
01/09/00	5.16	18.58
01/10/00	4.96	17.86
01/11/00	4.14	14.90
01/12/00	5.10	18.36
01/13/00	4.37	15.73
01/14/00	4.45	16.02
01/15/00	4.60	16.56
01/16/00	4.70	16.92
01/17/00	4.81	17.32
01/18/00	4.78	17.21
01/19/00	4.82	17.35
01/20/00	4.77	17.17
01/21/00	4.89	17.60
01/22/00	5.17	18.61
01/23/00	5.06	18.22
01/24/00	4.52	16.27
01/25/00	4.96	17.86
01/26/00	4.96	17.86
01/27/00	4.14	14.90
01/28/00	4.99	17.96
01/29/00	4.70	16.92
01/30/00	5.04	18.14
01/31/00	4.80	17.28
02/01/00	5.42	19.51
02/02/00	5.26	18.94
02/03/00	5.52	19.87
02/04/00	5.69	20.48
02/05/00	4.97	17.89
02/06/00	5.39	19.40
02/07/00	5.69	20.48
02/08/00	5.12	18.43
02/09/00	5.73	20.63
02/10/00	5.17	18.61
02/11/00	5.07	18.25
02/12/00	5.37	19.33
02/13/00	5.06	18.22
02/14/00	5.21	18.76
02/15/00	5.03	18.11
02/16/00	5.32	19.15
02/17/00	5.28	19.01
02/18/00	4.81	17.32
02/19/00	4.96	17.86
02/20/00	5.09	18.32
02/21/00	5.25	18.90
02/22/00	5.22	18.79

Table B.3
Summary of Daily Recorded Solar
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Solar	
	KWh/m^2-day	MJ/m^2-day
02/23/00	5.30	19.08
02/24/00	5.12	18.43
02/25/00	5.24	18.86
02/26/00	5.27	18.97
02/27/00	5.03	18.11
02/28/00	5.69	20.48
02/29/00	5.19	18.68
03/01/00	5.89	21.20
03/02/00	5.88	21.17
03/03/00	6.09	21.92
03/04/00	5.51	19.84
03/05/00	5.95	21.42
03/06/00	5.75	20.70
03/07/00	6.25	22.50
03/08/00	6.04	21.74
03/09/00	5.87	21.13
03/10/00	5.17	18.61
03/11/00	6.46	23.26
03/12/00	7.20	25.92
03/13/00	7.22	25.99
03/14/00	7.15	25.74
03/15/00	7.52	27.07
03/16/00	7.79	28.04
03/17/00	7.60	27.36
03/18/00	7.60	27.36
03/19/00	7.16	25.78
03/20/00	7.35	26.46
03/21/00	7.95	28.62
03/22/00	7.78	28.01
03/23/00	7.46	26.86
03/24/00	7.03	25.31
03/25/00	6.83	24.59
03/26/00	7.20	25.92
03/27/00	7.19	25.88
03/28/00	8.07	29.05
03/29/00	7.94	28.58
03/30/00	8.08	29.09
03/31/00	8.38	30.17
04/01/00	8.41	30.28
04/02/00	8.36	30.10
04/03/00	8.26	29.74
04/04/00	7.18	25.85
04/05/00	7.70	27.72
04/06/00	7.17	25.81
04/07/00	7.92	28.51
04/08/00	8.70	31.32
04/09/00	8.83	31.79
04/10/00	8.77	31.57
04/11/00	8.32	29.95
04/12/00	8.55	30.78

Table B.3
Summary of Daily Recorded Solar
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Solar	
	KWh/m^2-day	MJ/m^2-day
04/13/00	7.33	26.39
04/14/00	3.22	11.59
04/15/00	4.32	15.55
04/16/00	2.36	8.50
04/17/00	4.12	14.83
04/18/00	6.55	23.58
04/19/00	8.98	32.33
04/20/00	8.72	31.39
04/21/00	7.01	25.24
04/22/00	8.73	31.43
04/23/00	9.38	33.77
04/24/00	9.39	33.80
04/25/00	9.35	33.66
04/26/00	9.23	33.23
04/27/00	9.43	33.95
04/28/00	9.53	34.31
04/29/00	9.70	34.92
04/30/00	9.61	34.60
05/01/00	9.67	34.81
05/02/00	8.88	31.97
05/03/00	9.64	34.70
05/04/00	9.51	34.24
05/05/00	9.08	32.69
05/06/00	8.78	31.61
05/07/00	8.12	29.23
05/08/00	7.89	28.40
05/09/00	9.72	34.99
05/10/00	9.86	35.50
05/11/00	9.98	35.93
05/12/00	9.93	35.75
05/13/00	9.70	34.92
05/14/00	6.55	23.58
05/15/00	6.43	23.15
05/16/00	9.05	32.58
05/17/00	9.72	34.99
05/18/00	9.70	34.92
05/19/00	9.77	35.17
05/20/00	9.66	34.78
05/21/00	9.74	35.06
05/22/00	9.75	35.10
05/23/00	7.86	28.30
05/24/00	2.98	10.73
05/25/00	6.62	23.83
05/26/00	9.99	35.96
05/27/00	10.02	36.07
05/28/00	10.12	36.43
05/29/00	10.24	36.86
05/30/00	10.33	37.19
05/31/00	10.20	36.72
06/01/00	10.17	36.61

Table B.3
Summary of Daily Recorded Solar
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Solar	
	KWh/m^2-day	MJ/m^2-day
06/02/00	8.95	32.22
06/03/00	9.53	34.31
06/04/00	8.91	32.08
06/05/00	10.31	37.12
06/06/00	10.09	36.32
06/07/00	9.31	33.52
06/08/00	7.64	27.50
06/09/00	10.14	36.50
06/10/00	10.17	36.61
06/11/00	10.19	36.68
06/12/00	9.32	33.55
06/13/00	9.88	35.57
06/14/00	9.94	35.78
06/15/00	9.61	34.60
06/16/00	8.55	30.78
06/17/00	4.27	15.37
06/18/00	8.34	30.02
06/19/00	5.87	21.13
06/20/00	9.50	34.20
06/21/00	8.61	31.00
06/22/00	8.04	28.94
06/23/00	6.10	21.96
06/24/00	8.12	29.23
06/25/00	9.28	33.41
06/26/00	9.98	35.93
06/27/00	9.52	34.27
06/28/00	9.15	32.94
06/29/00	1.37	4.93
06/30/00	0.00	0.00
07/01/00	9.54	34.34
07/02/00	8.41	30.28
07/03/00	9.75	35.10
07/04/00	10.21	36.76
07/05/00	9.68	34.85
07/06/00	9.17	33.01
07/07/00	8.96	32.26
07/08/00	9.66	34.78
07/09/00	9.65	34.74
07/10/00	7.69	27.68
07/11/00	5.56	20.02
07/12/00	6.34	22.82
07/13/00	10.11	36.40
07/14/00	9.35	33.66
07/15/00	8.80	31.68
07/16/00	8.20	29.52
07/17/00	9.53	34.31
07/18/00	9.82	35.35
07/19/00	10.01	36.04
07/20/00	10.08	36.29
07/21/00	8.74	31.46

Table B.3
Summary of Daily Recorded Solar
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Solar	
	KWh/m^2-day	MJ/m^2-day
07/22/00	9.93	35.75
07/23/00	9.30	33.48
07/24/00	9.26	33.34
07/25/00	9.10	32.76
07/26/00	9.48	34.13
07/27/00	9.66	34.78
07/28/00	8.91	32.08
07/29/00	8.80	31.68
07/30/00	9.03	32.51
07/31/00	8.38	30.17
08/01/00	7.26	26.14
08/02/00	9.01	32.44
08/03/00	8.91	32.08
08/04/00	8.92	32.11
08/05/00	9.25	33.30
08/06/00	8.94	32.18
08/07/00	8.13	29.27
08/08/00	8.79	31.64
08/09/00	8.74	31.46
08/10/00	9.30	33.48
08/11/00	9.27	33.37
08/12/00	9.14	32.90
08/13/00	9.23	33.23
08/14/00	9.18	33.05
08/15/00	8.75	31.50
08/16/00	8.68	31.25
08/17/00	8.90	32.04
08/18/00	9.09	32.72
08/19/00	8.66	31.18
08/20/00	9.01	32.44
08/21/00	7.88	28.37
08/22/00	7.49	26.96
08/23/00	7.79	28.04
08/24/00	8.17	29.41
08/25/00	8.18	29.45
08/26/00	7.97	28.69
08/27/00	7.58	27.29
08/28/00	6.45	23.22
08/29/00	6.58	23.69
08/30/00	5.91	21.28
08/31/00	4.67	16.81
09/01/00	7.16	25.78
09/02/00	7.95	28.62
09/03/00	8.12	29.23
09/04/00	8.17	29.41
09/05/00	8.22	29.59
09/06/00	8.21	29.56
09/07/00	8.18	29.45
09/08/00	7.25	26.10
09/09/00	7.13	25.67

Table B.3
Summary of Daily Recorded Solar
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Solar	
	KWh/m^2-day	MJ/m^2-day
09/10/00	7.22	25.99
09/11/00	7.53	27.11
09/12/00	4.61	16.60
09/13/00	0.20	0.72
09/14/00	6.80	24.48
09/15/00	7.28	26.21
09/16/00	7.49	26.96
09/17/00	7.37	26.53
09/18/00	7.38	26.57
09/19/00	7.08	25.49
09/20/00	6.19	22.28
09/21/00	0.80	2.88
09/22/00	5.00	18.00
09/23/00	6.21	22.36
09/24/00	6.86	24.70
09/25/00	6.58	23.69
09/26/00	6.38	22.97
09/27/00	4.33	15.59
09/28/00	6.54	23.54
09/29/00	6.51	23.44
09/30/00	6.21	22.36
10/01/00	5.82	20.95
10/02/00	5.66	20.38
10/03/00	5.57	20.05
10/04/00	3.88	13.97
10/05/00	5.50	19.80
10/06/00	1.08	3.89
10/07/00	1.98	7.13
10/08/00	5.97	21.49
10/09/00	4.10	14.76
10/10/00	3.47	12.49
10/11/00	2.70	9.72
10/12/00	3.15	11.34
10/13/00	5.99	21.56
10/14/00	5.90	21.24
10/15/00	5.32	19.15
10/16/00	5.77	20.77
10/17/00	5.37	19.33
10/18/00	4.42	15.91
10/19/00	5.60	20.16
10/20/00	5.13	18.47
10/21/00	5.45	19.62
10/22/00	5.48	19.73
10/23/00	5.35	19.26
10/24/00	5.19	18.68
10/25/00	4.15	14.94
10/26/00	2.30	8.28
10/27/00	2.47	8.89
10/28/00	4.57	16.45
10/29/00	2.45	8.82

Table B.3
Summary of Daily Recorded Solar
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Solar	
	KWh/m^2-day	MJ/m^2-day
10/30/00	4.56	16.42
10/31/00	4.98	17.93
11/01/00	4.46	16.06
11/02/00	4.70	16.92
11/03/00	4.71	16.96
11/04/00	4.76	17.14
11/05/00	4.63	16.67
11/06/00	4.36	15.70
11/07/00	4.62	16.63
11/08/00	4.47	16.09
11/09/00	4.56	16.42
11/10/00	2.19	7.88
11/11/00	4.50	16.20
11/12/00	4.45	16.02
11/13/00	4.18	15.05
11/14/00	4.36	15.70
11/15/00	4.26	15.34
11/16/00	4.23	15.23
11/17/00	4.30	15.48
11/18/00	4.27	15.37
11/19/00	4.18	15.05
11/20/00	3.36	12.10
11/21/00	4.00	14.40
11/22/00	3.69	13.28
11/23/00	3.94	14.18
11/24/00	3.74	13.46
11/25/00	3.90	14.04
11/26/00	3.89	14.00
11/27/00	3.64	13.10
11/28/00	3.81	13.72
11/29/00	1.01	3.64
11/30/00	3.69	13.28
12/01/00	2.51	9.04
12/02/00	3.40	12.24
12/03/00	3.62	13.03
12/04/00	2.26	8.14
12/05/00	2.46	8.86
12/06/00	0.84	3.02
12/07/00	3.30	11.88
12/08/00	1.23	4.43
12/09/00	1.10	3.96
12/10/00	3.35	12.06
12/11/00	2.69	9.68
12/12/00	3.42	12.31
12/13/00	3.19	11.48
12/14/00	3.30	11.88
12/15/00	3.73	13.43
12/16/00	3.55	12.78
12/17/00	3.69	13.28
12/18/00	3.62	13.03

Table B.3
Summary of Daily Recorded Solar
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Solar	
	KWh/m^2-day	MJ/m^2-day
12/19/00	3.55	12.78
12/20/00	3.74	13.46
12/21/00	3.19	11.48
12/22/00	3.46	12.46
12/23/00	3.39	12.20
12/24/00	3.37	12.13
12/25/00	3.42	12.31
12/26/00	3.67	13.21
12/27/00	3.47	12.49
12/28/00	3.65	13.14
12/29/00	3.73	13.43
12/30/00	3.33	11.99
12/31/00	3.18	11.45
01/01/01	3.73	13.43
01/02/01	3.80	13.68
01/03/01	3.73	13.43
01/04/01	3.77	13.57
01/05/01	2.79	10.04
01/06/01	3.47	12.49
01/07/01	1.94	6.98
01/08/01	1.98	7.13
01/09/01	2.61	9.40
01/10/01	0.34	1.22
01/11/01	1.74	6.26
01/12/01	2.26	8.14
01/13/01	3.95	14.22
01/14/01	4.09	14.72
01/15/01	4.03	14.51
01/16/01	4.09	14.72
01/17/01	4.10	14.76
01/18/01	4.03	14.51
01/19/01	3.61	13.00
01/20/01	4.17	15.01
01/21/01	2.49	8.96
01/22/01	4.15	14.94
01/23/01	2.08	7.49
01/24/01	2.15	7.74
01/25/01	4.64	16.70
01/26/01	3.89	14.00
01/27/01	4.18	15.05
01/28/01	3.80	13.68
01/29/01	3.70	13.32
01/30/01	4.44	15.98
01/31/01	4.43	15.95
02/01/01	4.66	16.78
02/02/01	3.88	13.97
02/03/01	4.56	16.42
02/04/01	4.67	16.81
02/05/01	4.76	17.14
02/06/01	4.66	16.78

Table B.3
Summary of Daily Recorded Solar
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Solar	
	KWh/m^2-day	MJ/m^2-day
02/07/01	4.11	14.80
02/08/01	4.95	17.82
02/09/01	1.32	4.75
02/10/01	3.86	13.90
02/11/01	1.43	5.15
02/12/01	3.42	12.31
02/13/01	1.38	4.97
02/14/01	5.28	19.01
02/15/01	4.90	17.64
02/16/01	5.39	19.40
02/17/01	3.24	11.66
02/18/01	4.62	16.63
02/19/01	3.30	11.88
02/20/01	2.64	9.50
02/21/01	2.77	9.97
02/22/01	3.09	11.12
02/23/01	5.40	19.44
02/24/01	0.92	3.31
02/25/01	3.44	12.38
02/26/01	2.84	10.22
02/27/01	6.26	22.54
02/28/01	5.01	18.04
03/01/01	5.88	21.17
03/02/01	3.09	11.12
03/03/01	3.69	13.28
03/04/01	1.67	6.01
03/05/01	2.16	7.78
03/06/01	4.79	17.24
03/07/01	6.78	24.41
03/08/01	3.92	14.11
03/09/01	1.98	7.13
03/10/01	7.21	25.96
03/11/01	3.56	12.82
03/12/01	7.27	26.17
03/13/01	7.27	26.17
03/14/01	7.02	25.27
03/15/01	6.04	21.74
03/16/01	7.42	26.71
03/17/01	6.98	25.13
03/18/01	7.39	26.60
03/19/01	7.39	26.60
03/20/01	7.79	28.04
03/21/01	2.76	9.94
03/22/01	4.08	14.69
03/23/01	3.52	12.67
03/24/01	5.45	19.62
03/25/01	7.67	27.61
03/26/01	7.88	28.37
03/27/01	7.93	28.55
03/28/01	7.78	28.01

Table B.3
Summary of Daily Recorded Solar
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Solar	
	KWh/m^2-day	MJ/m^2-day
03/29/01	7.97	28.69
03/30/01	7.87	28.33
03/31/01	7.43	26.75
04/01/01	3.06	11.02
04/02/01	8.29	29.84
04/03/01	7.98	28.73
04/04/01	3.40	12.24
04/05/01	7.68	27.65
04/06/01	4.00	14.40
04/07/01	6.99	25.16
04/08/01	8.47	30.49
04/09/01	5.72	20.59
04/10/01	8.50	30.60
04/11/01	4.83	17.39
04/12/01	8.53	30.71
04/13/01	6.53	23.51
04/14/01	8.40	30.24
04/15/01	8.49	30.56
04/16/01	8.78	31.61
04/17/01	8.46	30.46
04/18/01	6.05	21.78
04/19/01	4.10	14.76
04/20/01	4.09	14.72
04/21/01	8.48	30.53
04/22/01	9.06	32.62
04/23/01	9.00	32.40
04/24/01	8.97	32.29
04/25/01	8.94	32.18
04/26/01	6.76	24.34
04/27/01	7.54	27.14
04/28/01	9.12	32.83
04/29/01	9.33	33.59
04/30/01	9.25	33.30
05/01/01	9.33	33.59
05/02/01	9.57	34.45
05/03/01	9.55	34.38
05/04/01	9.49	34.16
05/05/01	9.44	33.98
05/06/01	9.48	34.13
05/07/01	9.43	33.95
05/08/01	9.29	33.44
05/09/01	9.48	34.13
05/10/01	8.52	30.67
05/11/01	8.33	29.99
05/12/01	7.47	26.89
05/13/01	6.38	22.97
05/14/01	9.43	33.95
05/15/01	8.76	31.54
05/16/01	9.53	34.31
05/17/01	9.58	34.49

Table B.3
Summary of Daily Recorded Solar
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Solar	
	KWh/m^2-day	MJ/m^2-day
05/18/01	7.69	27.68
05/19/01	7.67	27.61
05/20/01	7.85	28.26
05/21/01	8.60	30.96
05/22/01	8.94	32.18
05/23/01	9.62	34.63
05/24/01	9.33	33.59
05/25/01	9.05	32.58
05/26/01	7.76	27.94
05/27/01	4.50	16.20
05/28/01	9.85	35.46
05/29/01	10.03	36.11
05/30/01	9.87	35.53
05/31/01	9.71	34.96
06/01/01	9.08	32.69
06/02/01	8.85	31.86
06/03/01	10.00	36.00
06/04/01	10.11	36.40
06/05/01	9.88	35.57
06/06/01	10.01	36.04
06/07/01	9.82	35.35
06/08/01	10.00	36.00
06/09/01	10.05	36.18
06/10/01	9.70	34.92
06/11/01	9.87	35.53
06/12/01	9.98	35.93
06/13/01	9.90	35.64
06/14/01	9.85	35.46
06/15/01	9.95	35.82
06/16/01	9.93	35.75
06/17/01	9.57	34.45
06/18/01	9.82	35.35
06/19/01	9.84	35.42
06/20/01	9.71	34.96
06/21/01	9.56	34.42
06/22/01	9.41	33.88
06/23/01	8.92	32.11
06/24/01	9.18	33.05
06/25/01	9.43	33.95
06/26/01	9.32	33.55
06/27/01	9.64	34.70
06/28/01	9.66	34.78
06/29/01	9.52	34.27
06/30/01	9.62	34.63
07/01/01	9.40	33.84
07/02/01	9.09	32.72
07/03/01	9.32	33.55
07/04/01	4.97	17.89
07/05/01	4.34	15.62
07/06/01	2.61	9.40

Table B.3
Summary of Daily Recorded Solar
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Solar	
	KWh/m^2-day	MJ/m^2-day
07/07/01	7.88	28.37
07/08/01	7.57	27.25
07/09/01	8.16	29.38
07/10/01	8.11	29.20
07/11/01	9.09	32.72
07/12/01	9.81	35.32
07/13/01	9.64	34.70
07/14/01	9.14	32.90
07/15/01	4.94	17.78
07/16/01	5.52	19.87
07/17/01	7.85	28.26
07/18/01	8.83	31.79
07/19/01	8.49	30.56
07/20/01	7.79	28.04
07/21/01	9.64	34.70
07/22/01	9.09	32.72
07/23/01	8.53	30.71
07/24/01	8.03	28.91
07/25/01	8.61	31.00
07/26/01	8.60	30.96
07/27/01	8.75	31.50
07/28/01	8.80	31.68
07/29/01	8.54	30.74
07/30/01	8.05	28.98
07/31/01	7.98	28.73
08/01/01	8.28	29.81
08/02/01	8.61	31.00
08/03/01	8.47	30.49
08/04/01	9.19	33.08
08/05/01	9.21	33.16
08/06/01	8.97	32.29
08/07/01	8.75	31.50
08/08/01	8.79	31.64
08/09/01	7.54	27.14
08/10/01	8.37	30.13
08/11/01	8.85	31.86
08/12/01	8.58	30.89
08/13/01	8.62	31.03
08/14/01	8.45	30.42
08/15/01	7.82	28.15
08/16/01	8.22	29.59
08/17/01	8.42	30.31
08/18/01	8.56	30.82
08/19/01	8.59	30.92
08/20/01	7.12	25.63
08/21/01	8.59	30.92
08/22/01	8.58	30.89
08/23/01	8.69	31.28
08/24/01	8.54	30.74
08/25/01	8.54	30.74

Table B.3
Summary of Daily Recorded Solar
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Solar	
	KWh/m^2-day	MJ/m^2-day
08/26/01	8.45	30.42
08/27/01	8.49	30.56
08/28/01	8.31	29.92
08/29/01	3.49	12.56
08/30/01	3.65	13.14
08/31/01	7.37	26.53
09/01/01	7.33	26.39
09/02/01	7.95	28.62
09/03/01	7.78	28.01
09/04/01	7.83	28.19
09/05/01	7.64	27.50
09/06/01	7.46	26.86
09/07/01	5.86	21.10
09/08/01	2.96	10.66
09/09/01	5.16	18.58
09/10/01	7.83	28.19
09/11/01	7.43	26.75
09/12/01	7.69	27.68
09/13/01	7.56	27.22
09/14/01	6.88	24.77
09/15/01	6.73	24.23
09/16/01	6.38	22.97
09/17/01	6.10	21.96
09/18/01	6.52	23.47
09/19/01	6.35	22.86
09/20/01	6.20	22.32
09/21/01	6.32	22.75
09/22/01	5.67	20.41
09/23/01	5.30	19.08
09/24/01	6.92	24.91
09/25/01	7.18	25.85
09/26/01	7.06	25.42
09/27/01	6.99	25.16
09/28/01	6.89	24.80
09/29/01	6.96	25.06
09/30/01	6.56	23.62
10/01/01	6.57	23.65
10/02/01	6.19	22.28
10/03/01	6.05	21.78
10/04/01	4.22	15.19
10/05/01	3.06	11.02
10/06/01	5.63	20.27
10/07/01	5.93	21.35
10/08/01	4.45	16.02
10/09/01	6.10	21.96
10/10/01	6.34	22.82
10/11/01	5.18	18.65
10/12/01	6.13	22.07
10/13/01	6.19	22.28
10/14/01	5.93	21.35

Table B.3
Summary of Daily Recorded Solar
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Solar	
	KWh/m^2-day	MJ/m^2-day
10/15/01	5.97	21.49
10/16/01	5.20	18.72
10/17/01	4.78	17.21
10/18/01	5.55	19.98
10/19/01	4.22	15.19
10/20/01	2.84	10.22
10/21/01	5.16	18.58
10/22/01	5.55	19.98
10/23/01	5.50	19.80
10/24/01	4.77	17.17
10/25/01	4.29	15.44
10/26/01	3.15	11.34
10/27/01	3.32	11.95
10/28/01	4.69	16.88
10/29/01	3.55	12.78
10/30/01	0.89	3.20
10/31/01	5.11	18.40
11/01/01	4.72	16.99
11/02/01	2.57	9.25
11/03/01	4.51	16.24
11/04/01	3.61	13.00
11/05/01	4.66	16.78
11/06/01	1.26	4.54
11/07/01	4.57	16.45
11/08/01	4.55	16.38
11/09/01	4.53	16.31
11/10/01	3.17	11.41
11/11/01	3.50	12.60
11/12/01	0.79	2.84
11/13/01	4.45	16.02
11/14/01	4.52	16.27
11/15/01	4.42	15.91
11/16/01	2.19	7.88
11/17/01	3.61	13.00
11/18/01	4.19	15.08
11/19/01	4.04	14.54
11/20/01	2.18	7.85
11/21/01	2.81	10.12
11/22/01	2.70	9.72
11/23/01	4.17	15.01
11/24/01	0.44	1.58
11/25/01	0.99	3.56
11/26/01	0.86	3.10
11/27/01	0.94	3.38
11/28/01	0.87	3.13
11/29/01	0.78	2.81
11/30/01	3.09	11.12
12/01/01	1.30	4.68
12/02/01	0.76	2.74
12/03/01	3.88	13.97

Table B.3
Summary of Daily Recorded Solar
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Solar	
	KWh/m^2-day	MJ/m^2-day
12/04/01	3.28	11.81
12/05/01	3.06	11.02
12/06/01	3.27	11.77
12/07/01	3.42	12.31
12/08/01	3.41	12.28
12/09/01	2.28	8.21
12/10/01	3.54	12.74
12/11/01	3.23	11.63
12/12/01	3.22	11.59
12/13/01	2.87	10.33
12/14/01	1.91	6.88
12/15/01	3.17	11.41
12/16/01	2.97	10.69
12/17/01	1.96	7.06
12/18/01	3.22	11.59
12/19/01	2.84	10.22
12/20/01	1.95	7.02
12/21/01	2.81	10.12
12/22/01	2.52	9.07
12/23/01	3.17	11.41
12/24/01	2.53	9.11
12/25/01	2.68	9.65
12/26/01	2.86	10.30
12/27/01	2.55	9.18
12/28/01	1.17	4.21
12/29/01	0.79	2.84
12/30/01	1.06	3.82
12/31/01	2.76	9.94
01/01/02	1.77	6.37
01/02/02	0.66	2.38
01/03/02	3.54	12.74
01/04/02	3.21	11.56
01/05/02	3.21	11.56
01/06/02	2.25	8.10
01/07/02	2.06	7.42
01/08/02	2.26	8.14
01/09/02	3.30	11.88
01/10/02	3.61	13.00
01/11/02	3.69	13.28
01/12/02	2.81	10.12
01/13/02	4.65	16.74
01/14/02	4.53	16.31
01/15/02	0.00	0.00
01/16/02	0.00	0.00
01/17/02	0.00	0.00
01/18/02	0.00	0.00
01/19/02	0.00	0.00
01/20/02	0.00	0.00
01/21/02	0.00	0.00
01/22/02	0.00	0.00

Table B.3
Summary of Daily Recorded Solar
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Solar	
	KWh/m^2-day	MJ/m^2-day
01/23/02	0.00	0.00
01/24/02	0.00	0.00
01/25/02	0.00	0.00
01/26/02	0.00	0.00
01/27/02	0.00	0.00
01/28/02	0.00	0.00
01/29/02	0.00	0.00
01/30/02	0.00	0.00
01/31/02	0.00	0.00
02/01/02	0.00	0.00
02/02/02	0.00	0.00
02/03/02	0.00	0.00
02/04/02	0.00	0.00
02/05/02	0.00	0.00
02/06/02	0.00	0.00
02/07/02	0.00	0.00
02/08/02	4.73	17.03
02/09/02	5.24	18.86
02/10/02	5.38	19.37
02/11/02	5.25	18.90
02/12/02	5.01	18.04
02/13/02	3.59	12.92
02/14/02	5.17	18.61
02/15/02	3.14	11.30
02/16/02	4.67	16.81
02/17/02	3.66	13.18
02/18/02	4.74	17.06
02/19/02	4.67	16.81
02/20/02	5.42	19.51
02/21/02	5.47	19.69
02/22/02	5.16	18.58
02/23/02	5.26	18.94
02/24/02	5.46	19.66
02/25/02	5.48	19.73
02/26/02	5.10	18.36
02/27/02	5.27	18.97
02/28/02	5.60	20.16
03/01/02	5.60	20.16
03/02/02	5.79	20.84
03/03/02	5.96	21.46
03/04/02	5.99	21.56
03/05/02	5.92	21.31
03/06/02	1.47	5.29
03/07/02	3.41	12.28
03/08/02	5.87	21.13
03/09/02	5.59	20.12
03/10/02	5.93	21.35
03/11/02	6.24	22.46
03/12/02	6.41	23.08
03/13/02	6.47	23.29

Table B.3
Summary of Daily Recorded Solar
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Solar	
	KWh/m^2-day	MJ/m^2-day
03/14/02	7.30	26.28
03/15/02	6.88	24.77
03/16/02	6.70	24.12
03/17/02	1.76	6.34
03/18/02	1.51	5.44
03/19/02	2.31	8.32
03/20/02	5.93	21.35
03/21/02	7.63	27.47
03/22/02	3.90	14.04
03/23/02	2.92	10.51
03/24/02	6.86	24.70
03/25/02	6.49	23.36
03/26/02	6.72	24.19
03/27/02	7.90	28.44
03/28/02	5.94	21.38
03/29/02	5.86	21.10
03/30/02	5.48	19.73
03/31/02	5.16	18.58
04/01/02	4.60	16.56
04/02/02	2.31	8.32
04/03/02	2.06	7.42
04/04/02	4.44	15.98
04/05/02	5.15	18.54
04/06/02	8.30	29.88
04/07/02	8.53	30.71
04/08/02	3.92	14.11
04/09/02	6.29	22.64
04/10/02	7.99	28.76
04/11/02	8.28	29.81
04/12/02	8.17	29.41
04/13/02	8.61	31.00
04/14/02	8.60	30.96
04/15/02	9.04	32.54
04/16/02	8.79	31.64
04/17/02	8.82	31.75
04/18/02	9.92	35.71
04/19/02	9.06	32.62
04/20/02	8.10	29.16
04/21/02	8.85	31.86
04/22/02	9.07	32.65
04/23/02	8.17	29.41
04/24/02	9.08	32.69
04/25/02	7.23	26.03
04/26/02	1.76	6.34
04/27/02	8.14	29.30
04/28/02	8.31	29.92
04/29/02	7.19	25.88
04/30/02	9.21	33.16
05/01/02	5.27	18.97
05/02/02	9.26	33.34

Table B.3
Summary of Daily Recorded Solar
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Solar	
	KWh/m^2-day	MJ/m^2-day
05/03/02	8.99	32.36
05/04/02	8.95	32.22
05/05/02	8.48	30.53
05/06/02	8.76	31.54
05/07/02	9.35	33.66
05/08/02	9.41	33.88
05/09/02	9.32	33.55
05/10/02	9.56	34.42
05/11/02	9.59	34.52
05/12/02	9.37	33.73
05/13/02	9.06	32.62

Table B.4
Summary of Daily Recorded Temperatures
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Temperature (°Centigrade)			Temperature (°Fahrenheit)		
	Minimum	Average	Maximum	Maximum	Average	Minimum
06/18/99	20.9	14.4	9.6	69.7	58.0	49.4
06/19/99	20.2	13.7	8.8	68.4	56.6	47.9
06/20/99	19.6	14.2	10.9	67.3	57.5	51.7
06/21/99	23.1	16.5	12.9	73.5	61.6	55.3
06/22/99	22.1	16.6	11.6	71.8	61.8	52.9
06/23/99	22.1	15.8	12.3	71.8	60.5	54.1
06/24/99	20.5	14.7	10.6	68.9	58.4	51.1
06/25/99	20.5	13.9	7.9	68.9	57.0	46.3
06/26/99	22.2	14.6	8.6	71.9	58.3	47.5
06/27/99	22.6	15.4	9.7	72.7	59.8	49.4
06/28/99	24.3	16.2	11.4	75.8	61.2	52.5
06/29/99	22.7	16.1	11.6	72.9	61.1	52.9
06/30/99	21.7	16.0	12.7	71.0	60.9	54.8
07/01/99	19.9	16.0	13.4	67.8	60.8	56.1
07/02/99	21.1	15.8	13.3	70.0	60.4	55.9
07/03/99	21.3	15.0	7.4	70.3	59.0	45.3
07/04/99	27.4	18.1	11.0	81.3	64.6	51.8
07/05/99	20.9	15.2	11.3	69.6	59.4	52.3
07/06/99	23.4	16.7	11.5	74.1	62.1	52.7
07/07/99	26.9	18.7	10.8	80.4	65.7	51.4
07/08/99	26.0	18.9	11.1	78.8	66.0	52.0
07/09/99	23.6	17.3	12.5	74.5	63.1	54.5
07/10/99	28.6	18.4	11.1	83.5	65.1	52.0
07/11/99	31.0	21.9	15.3	87.8	71.4	59.5
07/12/99	31.0	22.7	16.6	87.8	72.9	61.9
07/13/99	27.5	20.3	14.7	81.5	68.5	58.5
07/14/99	23.7	17.6	14.6	74.7	63.7	58.3
07/15/99	22.6	17.8	15.1	72.7	64.0	59.2
07/16/99	22.5	16.6	13.2	72.5	61.9	55.8
07/17/99	21.1	15.8	12.4	70.0	60.4	54.3
07/18/99	20.8	16.0	13.0	69.4	60.8	55.4
07/19/99	20.2	16.3	13.4	68.4	61.3	56.1
07/20/99	20.8	16.8	13.5	69.4	62.2	56.3
07/21/99	21.3	16.3	12.3	70.3	61.3	54.1
07/22/99	20.8	16.0	13.6	69.4	60.8	56.5
07/23/99	22.3	16.3	12.2	72.1	61.3	54.0
07/24/99	20.4	15.7	12.2	68.7	60.3	54.0
07/25/99	21.7	15.4	12.7	71.1	59.7	54.9
07/26/99	21.3	15.8	13.5	70.3	60.4	56.3
07/27/99	20.7	16.6	14.1	69.3	61.9	57.4
07/28/99	21.5	15.9	9.1	70.7	60.6	48.4
07/29/99	21.3	16.4	11.6	70.3	61.5	52.9
07/30/99	19.8	15.2	10.3	67.6	59.4	50.5
07/31/99	21.4	14.9	8.9	70.5	58.8	48.0
08/01/99	23.4	15.9	12.0	74.1	60.6	53.6
08/02/99	24.8	16.4	11.8	76.6	61.5	53.2
08/03/99	22.0	15.4	11.6	71.6	59.7	52.9
08/04/99	21.7	15.7	13.0	71.1	60.3	55.4
08/05/99	21.3	16.1	13.9	70.3	61.0	57.0
08/06/99	20.9	16.2	11.0	69.6	61.2	51.8

Table B.4
Summary of Daily Recorded Temperatures
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Temperature (°Centigrade)			Temperature (°Fahrenheit)		
	Minimum	Average	Maximum	Maximum	Average	Minimum
08/07/99	21.5	17.2	14.8	70.7	63.0	58.6
08/08/99	21.8	17.1	13.9	71.2	62.8	57.0
08/09/99	21.4	17.2	14.9	70.5	63.0	58.8
08/10/99	23.9	18.0	12.6	75.0	64.4	54.7
08/11/99	23.6	17.7	12.9	74.5	63.9	55.2
08/12/99	22.7	16.6	10.7	72.9	61.9	51.3
08/13/99	24.4	16.2	11.2	75.9	61.2	52.2
08/14/99	22.4	14.4	8.6	72.3	57.9	47.5
08/15/99	22.5	16.3	13.1	72.5	61.3	55.6
08/16/99	21.2	16.1	12.9	70.2	61.0	55.2
08/17/99	21.2	16.2	13.4	70.2	61.2	56.1
08/18/99	25.2	15.5	8.7	77.4	59.9	47.7
08/19/99	26.7	15.7	8.9	80.1	60.3	48.0
08/20/99	22.9	15.0	10.6	73.2	59.0	51.1
08/21/99	23.2	15.2	9.3	73.8	59.4	48.7
08/22/99	25.6	16.5	10.0	78.1	61.7	50.0
08/23/99	26.1	15.5	11.1	79.0	59.9	52.0
08/24/99	19.7	12.3	8.0	67.5	54.1	46.4
08/25/99	21.3	13.7	9.0	70.3	56.7	48.2
08/26/99	24.2	14.8	10.3	75.6	58.6	50.5
08/27/99	20.9	13.6	10.0	69.6	56.5	50.0
08/28/99	20.7	13.7	10.4	69.3	56.7	50.7
08/29/99	21.6	13.6	9.8	70.9	56.5	49.6
08/30/99	20.9	14.0	10.4	69.6	57.2	50.7
08/31/99	25.1	16.5	10.3	77.2	61.7	50.5
09/01/99	23.4	15.9	12.0	74.1	60.6	53.6
09/02/99	24.8	16.4	11.8	76.6	61.5	53.2
09/03/99	22.0	15.4	11.6	71.6	59.7	52.9
09/04/99	21.7	15.7	13.0	71.1	60.3	55.4
09/05/99	21.3	16.1	13.9	70.3	61.0	57.0
09/06/99	20.9	16.2	11.0	69.6	61.2	51.8
09/07/99	21.5	17.2	14.8	70.7	63.0	58.6
09/08/99	21.8	17.1	13.9	71.2	62.8	57.0
09/09/99	21.4	17.2	14.9	70.5	63.0	58.8
09/10/99	23.9	18.0	12.6	75.0	64.4	54.7
09/11/99	21.1	15.3	12.9	70.0	59.5	55.2
09/12/99	22.2	15.6	12.8	72.0	60.1	55.0
09/13/99	21.1	15.7	10.7	70.0	60.3	51.3
09/14/99	21.7	16.2	13.3	71.1	61.2	55.9
09/15/99	22.2	15.8	13.3	72.0	60.4	55.9
09/16/99	20.6	14.9	12.2	69.1	58.8	54.0
09/17/99	21.7	15.2	12.8	71.1	59.4	55.0
09/18/99	17.2	14.7	12.8	63.0	58.5	55.0
09/19/99	20.6	15.1	10.0	69.1	59.2	50.0
09/20/99	23.3	14.9	7.2	73.9	58.8	45.0
09/21/99	21.1	14.5	8.3	70.0	58.1	46.9
09/22/99	31.1	17.2	12.8	88.0	63.0	55.0
09/23/99	26.1	17.4	14.4	79.0	63.3	57.9
09/24/99	21.1	16.1	13.3	70.0	61.0	55.9
09/25/99	23.3	15.6	12.2	73.9	60.1	54.0

Table B.4
Summary of Daily Recorded Temperatures
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Temperature (°Centigrade)			Temperature (°Fahrenheit)		
	Minimum	Average	Maximum	Maximum	Average	Minimum
09/26/99	24.4	16.1	12.2	75.9	61.0	54.0
09/27/99	23.9	15.6	11.1	75.0	60.1	52.0
09/28/99	23.9	15.6	10.6	75.0	60.1	51.1
09/29/99	32.2	18.2	8.9	90.0	64.8	48.0
09/30/99	35.6	18.3	9.4	96.1	64.9	48.9
10/01/99	24.4	14.6	10.0	75.9	58.3	50.0
10/02/99	20.6	14.2	10.6	69.1	57.6	51.1
10/03/99	21.1	14.3	0.0	70.0	57.7	32.0
10/04/99	20.6	14.3	0.0	69.1	57.7	32.0
10/05/99	22.8	9.8	0.0	73.0	49.6	32.0
10/06/99	21.7	11.4	0.0	71.1	52.5	32.0
10/07/99	28.9	18.5	11.1	84.0	65.3	52.0
10/08/99	34.4	21.2	8.9	93.9	70.2	48.0
10/09/99	37.2	22.6	12.2	99.0	72.7	54.0
10/10/99	32.8	19.9	11.1	91.0	67.8	52.0
10/11/99	29.4	15.9	8.3	84.9	60.6	46.9
10/12/99	28.3	15.2	10.0	82.9	59.4	50.0
10/13/99	24.4	14.9	10.6	75.9	58.8	51.1
10/14/99	21.1	15.7	12.2	70.0	60.3	54.0
10/15/99	20.6	14.8	12.2	69.1	58.6	54.0
10/16/99	23.3	14.8	9.4	73.9	58.6	48.9
10/17/99	25.0	14.0	8.9	77.0	57.2	48.0
10/18/99	28.3	15.1	6.7	82.9	59.2	44.1
10/19/99	25.6	14.8	8.9	78.1	58.6	48.0
10/20/99	29.4	15.9	6.1	84.9	60.6	43.0
10/21/99	31.7	15.9	7.2	89.1	60.6	45.0
10/22/99	22.8	14.0	9.4	73.0	57.2	48.9
10/23/99	19.4	13.3	7.8	66.9	55.9	46.0
10/24/99	23.3	13.5	6.7	73.9	56.3	44.1
10/25/99	22.2	13.5	10.0	72.0	56.3	50.0
10/26/99	18.9	12.8	10.0	66.0	55.0	50.0
10/27/99	21.1	14.4	11.1	70.0	57.9	52.0
10/28/99	20.0	16.4	13.9	68.0	61.5	57.0
10/29/99	26.7	18.1	11.7	80.1	64.6	53.1
10/30/99	29.4	16.6	6.7	84.9	61.9	44.1
10/31/99	32.2	18.9	6.7	90.0	66.0	44.1
11/01/99	31.7	18.7	8.9	89.1	65.7	48.0
11/02/99	22.2	12.9	5.0	72.0	55.2	41.0
11/03/99	19.4	13.8	10.0	66.9	56.8	50.0
11/04/99	22.8	13.2	6.1	73.0	55.8	43.0
11/05/99	20.0	14.1	11.7	68.0	57.4	53.1
11/06/99	20.0	15.4	10.6	68.0	59.7	51.1
11/07/99	21.1	16.3	12.2	70.0	61.3	54.0
11/08/99	19.4	14.1	10.0	66.9	57.4	50.0
11/09/99	20.6	13.0	7.2	69.1	55.4	45.0
11/10/99	20.6	11.8	5.0	69.1	53.2	41.0
11/11/99	20.6	11.9	5.6	69.1	53.4	42.1
11/12/99	24.4	11.6	5.0	75.9	52.9	41.0
11/13/99	19.4	11.3	6.7	66.9	52.3	44.1
11/14/99	18.9	13.7	9.4	66.0	56.7	48.9

Table B.4
Summary of Daily Recorded Temperatures
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Temperature (°Centigrade)			Temperature (°Fahrenheit)		
	Minimum	Average	Maximum	Maximum	Average	Minimum
11/15/99	22.2	15.9	11.7	72.0	60.6	53.1
11/16/99	18.3	15.0	12.8	64.9	59.0	55.0
11/17/99	18.3	12.6	6.7	64.9	54.7	44.1
11/18/99	17.8	11.0	5.6	64.0	51.8	42.1
11/19/99	18.9	12.3	4.4	66.0	54.1	39.9
11/20/99	18.3	13.9	10.6	64.9	57.0	51.1
11/21/99	16.7	12.6	8.9	62.1	54.7	48.0
11/22/99	18.3	11.3	5.0	64.9	52.3	41.0
11/23/99	18.9	9.7	2.2	66.0	49.5	36.0
11/24/99	21.1	12.8	5.6	70.0	55.0	42.1
11/25/99	23.3	15.6	7.8	73.9	60.1	46.0
11/26/99	23.9	14.5	7.8	75.0	58.1	46.0
11/27/99	22.2	11.5	6.7	72.0	52.7	44.1
11/28/99	17.2	11.8	7.2	63.0	53.2	45.0
11/29/99	17.2	12.1	8.3	63.0	53.8	46.9
11/30/99	15.6	11.7	5.0	60.1	53.1	41.0
12/01/99	18.9	12.8	7.2	66.0	55.0	45.0
12/02/99	17.8	12.6	8.9	64.0	54.7	48.0
12/03/99	16.7	11.6	3.3	62.1	52.9	37.9
12/04/99	19.4	8.7	0.6	66.9	47.7	33.1
12/05/99	19.4	8.9	1.7	66.9	48.0	35.1
12/06/99	20.6	11.2	2.2	69.1	52.2	36.0
12/07/99	16.7	12.7	8.9	62.1	54.9	48.0
12/08/99	17.8	10.2	2.8	64.0	50.4	37.0
12/09/99	11.7	6.3	0.6	53.1	43.3	33.1
12/10/99	13.3	8.1	2.8	55.9	46.6	37.0
12/11/99	17.8	8.7	1.1	64.0	47.7	34.0
12/12/99	21.1	9.0	1.1	70.0	48.2	34.0
12/13/99	16.1	10.5	5.6	61.0	50.9	42.1
12/14/99	16.7	11.9	7.8	62.1	53.4	46.0
12/15/99	21.7	13.4	5.6	71.1	56.1	42.1
12/16/99	22.8	12.5	3.9	73.0	54.5	39.0
12/17/99	25.6	13.7	3.9	78.1	56.7	39.0
12/18/99	22.2	15.8	10.6	72.0	60.4	51.1
12/19/99	23.9	15.7	7.8	75.0	60.3	46.0
12/20/99	26.1	13.1	6.1	79.0	55.6	43.0
12/21/99	23.9	12.0	3.3	75.0	53.6	37.9
12/22/99	20.0	10.8	2.2	68.0	51.4	36.0
12/23/99	25.6	14.7	6.1	78.1	58.5	43.0
12/24/99	24.4	12.5	5.6	75.9	54.5	42.1
12/25/99	25.6	11.0	2.8	78.1	51.8	37.0
12/26/99	23.9	11.6	3.9	75.0	52.9	39.0
12/27/99	23.3	10.9	3.9	73.9	51.6	39.0
12/28/99	25.0	12.2	2.8	77.0	54.0	37.0
12/29/99	23.9	10.8	2.8	75.0	51.4	37.0
12/30/99	15.0	8.6	1.1	59.0	47.5	34.0
12/31/99	14.4	9.8	5.0	57.9	49.6	41.0
01/01/00	13.3	10.0	5.6	55.9	50.0	42.1
01/02/00	15.0	9.3	1.1	59.0	48.7	34.0
01/03/00	18.9	11.5	5.0	66.0	52.7	41.0

Table B.4
Summary of Daily Recorded Temperatures
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	**Temperature** (°Centigrade)			**Temperature** (°Fahrenheit)		
	Minimum	**Average**	**Maximum**	**Maximum**	**Average**	**Minimum**
01/04/00	18.9	10.3	2.2	66.0	50.5	36.0
01/05/00	17.2	11.6	6.7	63.0	52.9	44.1
01/06/00	21.1	9.8	1.7	70.0	49.6	35.1
01/07/00	18.9	8.1	0.6	66.0	46.6	33.1
01/08/00	21.1	11.5	4.4	70.0	52.7	39.9
01/09/00	20.0	10.7	2.8	68.0	51.3	37.0
01/10/00	17.2	9.8	3.9	63.0	49.6	39.0
01/11/00	16.1	11.1	8.3	61.0	52.0	46.9
01/12/00	18.3	11.7	5.0	64.9	53.1	41.0
01/13/00	19.4	8.5	2.8	66.9	47.3	37.0
01/14/00	21.1	11.1	2.2	70.0	52.0	36.0
01/15/00	19.4	14.6	10.6	66.9	58.3	51.1
01/16/00	15.0	11.7	10.6	59.0	53.1	51.1
01/17/00	16.1	13.3	11.1	61.0	55.9	52.0
01/18/00	16.7	15.2	12.2	62.1	59.4	54.0
01/19/00	18.9	15.1	11.7	66.0	59.2	53.1
01/20/00	15.0	13.1	10.6	59.0	55.6	51.1
01/21/00	16.1	11.0	6.1	61.0	51.8	43.0
01/22/00	17.2	10.4	5.0	63.0	50.7	41.0
01/23/00	13.9	12.5	10.6	57.0	54.5	51.1
01/24/00	17.8	14.5	13.3	64.0	58.1	55.9
01/25/00	14.4	13.0	11.1	57.9	55.4	52.0
01/26/00	16.7	11.5	7.8	62.1	52.7	46.0
01/27/00	18.9	10.2	3.9	66.0	50.4	39.0
01/28/00	17.2	9.0	2.2	63.0	48.2	36.0
01/29/00	15.0	9.1	3.3	59.0	48.4	37.9
01/30/00	15.6	12.0	10.0	60.1	53.6	50.0
01/31/00	16.7	11.9	7.8	62.1	53.4	46.0
02/01/00	23.3	14.0	6.7	73.9	57.2	44.1
02/02/00	25.0	14.6	5.6	77.0	58.3	42.1
02/03/00	21.7	13.7	8.3	71.1	56.7	46.9
02/04/00	15.0	11.9	9.4	59.0	53.4	48.9
02/05/00	17.8	11.9	7.8	64.0	53.4	46.0
02/06/00	17.2	11.5	6.1	63.0	52.7	43.0
02/07/00	18.3	12.3	8.9	64.9	54.1	48.0
02/08/00	18.9	13.2	8.9	66.0	55.8	48.0
02/09/00	13.9	11.9	9.4	57.0	53.4	48.9
02/10/00	13.9	12.2	10.6	57.0	54.0	51.1
02/11/00	13.3	11.6	10.0	55.9	52.9	50.0
02/12/00	13.9	11.6	9.4	57.0	52.9	48.9
02/13/00	13.9	12.6	11.1	57.0	54.7	52.0
02/14/00	16.1	12.8	7.8	61.0	55.0	46.0
02/15/00	17.2	11.2	6.1	63.0	52.2	43.0
02/16/00	12.2	10.0	6.7	54.0	50.0	44.1
02/17/00	15.0	9.1	3.3	59.0	48.4	37.9
02/18/00	18.9	10.6	4.4	66.0	51.1	39.9
02/19/00	21.7	12.8	5.0	71.1	55.0	41.0
02/20/00	16.1	12.8	9.4	61.0	55.0	48.9
02/21/00	13.3	11.3	10.6	55.9	52.3	51.1
02/22/00	13.3	11.6	10.0	55.9	52.9	50.0

Table B.4
Summary of Daily Recorded Temperatures
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	**Temperature** (°Centigrade)			**Temperature** (°Fahrenheit)		
	Minimum	**Average**	**Maximum**	**Maximum**	**Average**	**Minimum**
02/23/00	13.9	10.5	3.3	57.0	50.9	37.9
02/24/00	13.3	7.6	1.7	55.9	45.7	35.1
02/25/00	16.1	12.0	8.3	61.0	53.6	46.9
02/26/00	16.7	12.5	9.4	62.1	54.5	48.9
02/27/00	13.3	11.1	7.2	55.9	52.0	45.0
02/28/00	15.0	9.7	3.9	59.0	49.5	39.0
02/29/00	12.2	9.3	5.6	54.0	48.7	42.1
03/01/00	18.3	11.4	4.4	64.9	52.5	39.9
03/02/00	13.3	10.7	6.1	55.9	51.3	43.0
03/03/00	17.8	11.5	8.9	64.0	52.7	48.0
03/04/00	13.3	11.0	8.9	55.9	51.8	48.0
03/05/00	11.1	9.1	5.6	52.0	48.4	42.1
03/06/00	12.8	8.4	5.6	55.0	47.1	42.1
03/07/00	12.2	8.4	2.8	54.0	47.1	37.0
03/08/00	13.3	10.2	6.7	55.9	50.4	44.1
03/09/00	14.4	10.9	7.8	57.9	51.6	46.0
03/10/00	19.4	11.8	5.0	66.9	53.2	41.0
03/11/00	21.7	13.1	7.2	71.1	55.6	45.0
03/12/00	22.2	15.0	9.4	72.0	59.0	48.9
03/13/00	20.6	14.5	8.3	69.1	58.1	46.9
03/14/00	23.3	14.8	9.4	73.9	58.6	48.9
03/15/00	25.0	17.1	10.0	77.0	62.8	50.0
03/16/00	22.2	15.0	8.3	72.0	59.0	46.9
03/17/00	23.9	16.7	10.6	75.0	62.1	51.1
03/18/00	26.7	17.3	8.9	80.1	63.1	48.0
03/19/00	18.3	12.1	8.3	64.9	53.8	46.9
03/20/00	19.4	12.9	8.9	66.9	55.2	48.0
03/21/00	22.8	11.3	2.2	73.0	52.3	36.0
03/22/00	21.1	11.7	2.8	70.0	53.1	37.0
03/23/00	18.9	11.4	6.1	66.0	52.5	43.0
03/24/00	16.1	10.5	4.4	61.0	50.9	39.9
03/25/00	16.7	11.7	5.6	62.1	53.1	42.1
03/26/00	17.2	10.4	2.8	63.0	50.7	37.0
03/27/00	15.0	10.7	6.1	59.0	51.3	43.0
03/28/00	16.1	10.7	6.1	61.0	51.3	43.0
03/29/00	15.6	9.5	3.3	60.1	49.1	37.9
03/30/00	21.1	12.0	3.9	70.0	53.6	39.0
03/31/00	26.1	14.5	5.0	79.0	58.1	41.0
04/01/00	26.2	14.2	3.4	79.2	57.6	38.1
04/02/00	26.0	14.6	4.7	78.8	58.3	40.5
04/03/00	19.7	13.7	8.3	67.5	56.7	46.9
04/04/00	16.1	12.8	11.1	61.0	55.0	52.0
04/05/00	16.2	12.4	9.9	61.2	54.3	49.8
04/06/00	16.7	12.0	7.8	62.1	53.6	46.0
04/07/00	22.4	12.3	9.2	72.3	54.1	48.6
04/08/00	15.6	11.6	8.7	60.1	52.9	47.7
04/09/00	17.5	12.1	7.8	63.5	53.8	46.0
04/10/00	18.0	12.8	7.9	64.4	55.0	46.2
04/11/00	23.9	13.6	5.8	75.0	56.5	42.4
04/12/00	23.6	14.3	7.0	74.5	57.7	44.6

Table B.4
Summary of Daily Recorded Temperatures
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	**Temperature** (°Centigrade)			**Temperature** (°Fahrenheit)		
	Minimum	**Average**	**Maximum**	**Maximum**	**Average**	**Minimum**
04/13/00	19.2	14.7	12.0	66.6	58.5	53.6
04/14/00	14.9	12.5	9.5	58.8	54.5	49.1
04/15/00	16.5	12.7	8.9	61.7	54.9	48.0
04/16/00	15.4	13.4	11.2	59.7	56.1	52.2
04/17/00	15.2	12.5	9.7	59.4	54.5	49.5
04/18/00	17.2	12.0	8.2	63.0	53.6	46.8
04/19/00	19.5	12.2	4.5	67.1	54.0	40.1
04/20/00	20.7	14.0	7.6	69.3	57.2	45.7
04/21/00	15.4	13.3	11.6	59.7	55.9	52.9
04/22/00	18.5	13.4	10.8	65.3	56.1	51.4
04/23/00	17.8	13.2	10.1	64.0	55.8	50.2
04/24/00	23.5	15.8	9.8	74.3	60.4	49.6
04/25/00	23.6	16.0	11.2	74.5	60.8	52.2
04/26/00	29.3	19.4	11.3	84.7	66.9	52.3
04/27/00	18.4	12.5	8.0	65.1	54.5	46.4
04/28/00	16.9	12.0	8.5	62.4	53.6	47.3
04/29/00	18.0	13.3	8.8	64.4	55.9	47.8
04/30/00	26.7	16.3	8.4	80.1	61.3	47.1
05/01/00	24.3	13.4	6.3	75.7	56.1	43.3
05/02/00	21.9	14.8	10.5	71.4	58.6	50.9
05/03/00	22.6	14.2	9.4	72.7	57.6	48.9
05/04/00	20.0	13.6	8.7	68.0	56.5	47.7
05/05/00	17.8	12.4	6.9	64.0	54.3	44.4
05/06/00	17.1	11.9	6.7	62.8	53.4	44.1
05/07/00	20.2	14.5	7.8	68.4	58.1	46.0
05/08/00	19.7	15.2	11.7	67.5	59.4	53.1
05/09/00	20.0	14.0	11.1	68.0	57.2	52.0
05/10/00	16.7	12.7	9.4	62.1	54.9	48.9
05/11/00	17.5	12.3	7.9	63.5	54.1	46.2
05/12/00	23.5	13.9	6.4	74.3	57.0	43.5
05/13/00	19.0	11.0	3.2	66.2	51.8	37.8
05/14/00	17.8	13.0	5.5	64.0	55.4	41.9
05/15/00	18.4	14.3	10.6	65.1	57.7	51.1
05/16/00	17.0	13.4	9.6	62.6	56.1	49.3
05/17/00	19.7	13.8	9.5	67.5	56.8	49.1
05/18/00	20.9	14.8	9.8	69.6	58.6	49.6
05/19/00	25.7	15.7	7.5	78.3	60.3	45.5
05/20/00	26.2	17.0	9.3	79.2	62.6	48.7
05/21/00	34.6	21.6	8.9	94.3	70.9	48.0
05/22/00	30.8	19.8	11.9	87.4	67.6	53.4
05/23/00	21.7	15.5	10.6	71.1	59.9	51.1
05/24/00	19.5	16.2	14.8	67.1	61.2	58.6
05/25/00	17.2	14.1	9.8	63.0	57.4	49.6
05/26/00	18.7	13.3	6.9	65.7	55.9	44.4
05/27/00	25.9	16.5	10.6	78.6	61.7	51.1
05/28/00	25.5	19.4	10.8	77.9	66.9	51.4
05/29/00	19.7	14.2	7.7	67.5	57.6	45.9
05/30/00	18.3	11.5	4.7	64.9	52.7	40.5
05/31/00	22.2	13.5	3.6	72.0	56.3	38.5
06/01/00	20.9	13.8	5.7	69.6	56.8	42.3

Table B.4
Summary of Daily Recorded Temperatures
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	**Temperature** (°Centigrade)			**Temperature** (°Fahrenheit)		
	Minimum	**Average**	**Maximum**	**Maximum**	**Average**	**Minimum**
06/02/00	19.8	13.6	10.3	67.6	56.5	50.5
06/03/00	20.0	14.1	9.9	68.0	57.4	49.8
06/04/00	19.3	13.5	10.4	66.7	56.3	50.7
06/05/00	20.0	14.8	9.0	68.0	58.6	48.2
06/06/00	21.5	15.4	10.1	70.7	59.7	50.2
06/07/00	20.6	15.0	9.3	69.1	59.0	48.7
06/08/00	17.1	14.4	11.8	62.8	57.9	53.2
06/09/00	21.4	14.6	10.8	70.5	58.3	51.4
06/10/00	19.7	15.0	11.3	67.5	59.0	52.3
06/11/00	22.9	16.1	11.2	73.2	61.0	52.2
06/12/00	25.5	19.7	14.2	77.9	67.5	57.6
06/13/00	29.7	21.2	11.9	85.5	70.2	53.4
06/14/00	29.1	20.5	13.4	84.4	68.9	56.1
06/15/00	25.7	17.7	12.7	78.3	63.9	54.9
06/16/00	21.9	16.6	12.6	71.4	61.9	54.7
06/17/00	20.2	16.9	14.7	68.4	62.4	58.5
06/18/00	24.0	18.6	14.6	75.2	65.5	58.3
06/19/00	22.1	16.2	13.1	71.8	61.2	55.6
06/20/00	22.6	16.8	12.4	72.7	62.2	54.3
06/21/00	23.4	17.3	12.9	74.1	63.1	55.2
06/22/00	24.2	17.2	13.7	75.6	63.0	56.7
06/23/00	22.6	16.8	14.2	72.7	62.2	57.6
06/24/00	25.3	19.1	15.1	77.5	66.4	59.2
06/25/00	24.9	17.9	14.5	76.8	64.2	58.1
06/26/00	24.4	18.1	13.8	75.9	64.6	56.8
06/27/00	24.6	18.1	14.2	76.3	64.6	57.6
06/28/00	24.6	17.8	13.8	76.3	64.0	56.8
06/29/00	19.1	6.2	0.0	66.4	43.2	32.0
06/30/00	0.0	0.0	0.0	32.0	32.0	32.0
07/01/00	22.9	16.7	12.6	73.2	62.1	54.7
07/02/00	19.9	15.0	10.0	67.8	59.0	50.0
07/03/00	18.6	15.3	11.6	65.5	59.5	52.9
07/04/00	18.4	13.7	7.6	65.1	56.7	45.7
07/05/00	20.7	15.3	11.3	69.3	59.5	52.3
07/06/00	19.6	15.3	12.5	67.3	59.5	54.5
07/07/00	22.1	15.9	13.3	71.8	60.6	55.9
07/08/00	21.0	15.9	11.6	69.8	60.6	52.9
07/09/00	21.4	16.5	13.7	70.5	61.7	56.7
07/10/00	20.9	16.5	14.2	69.6	61.7	57.6
07/11/00	21.1	16.2	13.1	70.0	61.2	55.6
07/12/00	21.9	16.4	10.8	71.4	61.5	51.4
07/13/00	21.3	15.2	6.7	70.3	59.4	44.1
07/14/00	22.9	15.8	10.0	73.2	60.4	50.0
07/15/00	22.4	15.9	12.5	72.3	60.6	54.5
07/16/00	19.8	15.9	13.7	67.6	60.6	56.7
07/17/00	21.9	17.1	13.5	71.4	62.8	56.3
07/18/00	21.9	15.8	9.4	71.4	60.4	48.9
07/19/00	20.4	16.0	12.1	68.7	60.8	53.8
07/20/00	19.7	14.7	11.3	67.5	58.5	52.3
07/21/00	23.9	15.9	11.8	75.0	60.6	53.2

Table B.4
Summary of Daily Recorded Temperatures
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	**Temperature** (°Centigrade)			**Temperature** (°Fahrenheit)		
	Minimum	**Average**	**Maximum**	**Maximum**	**Average**	**Minimum**
07/22/00	22.9	16.5	10.6	73.2	61.7	51.1
07/23/00	28.2	17.7	10.0	82.8	63.9	50.0
07/24/00	23.9	15.0	10.6	75.0	59.0	51.1
07/25/00	22.6	15.0	11.1	72.7	59.0	52.0
07/26/00	23.1	15.1	8.6	73.6	59.2	47.5
07/27/00	22.6	16.2	11.3	72.7	61.2	52.3
07/28/00	24.5	16.1	11.6	76.1	61.0	52.9
07/29/00	22.8	15.8	11.7	73.0	60.4	53.1
07/30/00	26.8	16.0	11.5	80.2	60.8	52.7
07/31/00	24.7	16.7	11.4	76.5	62.1	52.5
08/01/00	29.9	20.9	13.2	85.8	69.6	55.8
08/02/00	28.2	19.4	13.5	82.8	66.9	56.3
08/03/00	25.4	18.0	12.5	77.7	64.4	54.5
08/04/00	25.2	18.0	13.5	77.4	64.4	56.3
08/05/00	23.8	17.0	12.9	74.8	62.6	55.2
08/06/00	22.4	15.4	10.9	72.3	59.7	51.6
08/07/00	23.2	16.5	13.5	73.8	61.7	56.3
08/08/00	23.3	16.5	12.8	73.9	61.7	55.0
08/09/00	21.2	15.6	12.1	70.2	60.1	53.8
08/10/00	22.4	16.5	11.9	72.3	61.7	53.4
08/11/00	23.9	15.4	9.4	75.0	59.7	48.9
08/12/00	25.3	15.8	7.6	77.5	60.4	45.7
08/13/00	24.8	15.9	8.7	76.6	60.6	47.7
08/14/00	25.0	16.1	9.0	77.0	61.0	48.2
08/15/00	28.5	17.3	9.6	83.3	63.1	49.3
08/16/00	28.0	18.4	10.4	82.4	65.1	50.7
08/17/00	29.5	18.6	10.7	85.1	65.5	51.3
08/18/00	26.9	16.0	7.5	80.4	60.8	45.5
08/19/00	23.4	14.9	8.1	74.1	58.8	46.6
08/20/00	21.1	14.7	9.1	70.0	58.5	48.4
08/21/00	20.9	14.1	7.8	69.6	57.4	46.0
08/22/00	21.8	15.8	12.7	71.2	60.4	54.9
08/23/00	21.9	16.4	12.1	71.4	61.5	53.8
08/24/00	24.9	16.4	11.0	76.8	61.5	51.8
08/25/00	24.2	16.0	11.7	75.6	60.8	53.1
08/26/00	23.5	15.6	11.1	74.3	60.1	52.0
08/27/00	22.6	16.1	12.7	72.7	61.0	54.9
08/28/00	21.9	15.8	12.9	71.4	60.4	55.2
08/29/00	21.9	16.6	13.7	71.4	61.9	56.7
08/30/00	23.0	17.6	13.3	73.4	63.7	55.9
08/31/00	22.9	17.7	11.3	73.2	63.9	52.3
09/01/00	23.1	16.9	11.1	73.6	62.4	52.0
09/02/00	24.3	18.2	14.8	75.7	64.8	58.6
09/03/00	21.8	16.5	11.2	71.2	61.7	52.2
09/04/00	24.3	17.2	9.5	75.7	63.0	49.1
09/05/00	25.3	18.3	11.1	77.5	64.9	52.0
09/06/00	31.0	22.2	11.8	87.8	72.0	53.2
09/07/00	26.6	15.9	6.7	79.9	60.6	44.1
09/08/00	22.0	14.2	10.4	71.6	57.6	50.7
09/09/00	23.2	14.7	10.5	73.8	58.5	50.9

Table B.4
Summary of Daily Recorded Temperatures
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	**Temperature** (°Centigrade)			**Temperature** (°Fahrenheit)		
	Minimum	**Average**	**Maximum**	**Maximum**	**Average**	**Minimum**
09/10/00	21.1	14.5	9.6	70.0	58.1	49.3
09/11/00	27.1	16.1	7.8	80.8	61.0	46.0
09/12/00	26.4	16.2	6.3	79.5	61.2	43.3
09/13/00	32.5	22.2	1.3	90.5	72.0	34.3
09/14/00	27.3	20.1	15.5	81.1	68.2	59.9
09/15/00	26.3	18.8	14.7	79.3	65.8	58.5
09/16/00	27.6	18.3	11.6	81.7	64.9	52.9
09/17/00	32.1	19.3	8.9	89.8	66.7	48.0
09/18/00	28.1	17.7	9.9	82.6	63.9	49.8
09/19/00	25.4	16.3	10.1	77.7	61.3	50.2
09/20/00	22.6	16.9	11.9	72.7	62.4	53.4
09/21/00	17.3	16.5	15.8	63.1	61.7	60.4
09/22/00	22.5	17.8	15.1	72.5	64.0	59.2
09/23/00	25.5	18.1	11.6	77.9	64.6	52.9
09/24/00	24.6	16.1	7.5	76.3	61.0	45.5
09/25/00	22.8	16.4	12.3	73.0	61.5	54.1
09/26/00	22.2	17.1	14.2	72.0	62.8	57.6
09/27/00	20.2	16.5	13.9	68.4	61.7	57.0
09/28/00	21.8	14.9	8.5	71.2	58.8	47.3
09/29/00	23.9	16.6	10.8	75.0	61.9	51.4
09/30/00	22.2	15.0	8.1	72.0	59.0	46.6
10/01/00	23.0	17.3	14.8	73.4	63.1	58.6
10/02/00	22.4	16.9	14.4	72.3	62.4	57.9
10/03/00	21.1	15.9	9.1	70.0	60.6	48.4
10/04/00	20.0	14.1	8.8	68.0	57.4	47.8
10/05/00	21.2	15.9	12.9	70.2	60.6	55.2
10/06/00	17.0	15.2	14.1	62.6	59.4	57.4
10/07/00	17.7	15.6	14.1	63.9	60.1	57.4
10/08/00	22.1	15.4	10.9	71.8	59.7	51.6
10/09/00	20.6	15.9	13.3	69.1	60.6	55.9
10/10/00	16.3	13.2	11.1	61.3	55.8	52.0
10/11/00	17.0	13.9	11.0	62.6	57.0	51.8
10/12/00	18.5	14.0	12.0	65.3	57.2	53.6
10/13/00	23.6	15.6	9.0	74.5	60.1	48.2
10/14/00	25.8	16.5	8.6	78.4	61.7	47.5
10/15/00	23.5	13.7	7.6	74.3	56.7	45.7
10/16/00	23.7	13.7	7.6	74.7	56.7	45.7
10/17/00	23.9	13.8	5.1	75.0	56.8	41.2
10/18/00	19.3	13.4	10.5	66.7	56.1	50.9
10/19/00	21.5	13.4	8.2	70.7	56.1	46.8
10/20/00	21.2	13.4	7.8	70.2	56.1	46.0
10/21/00	20.0	14.8	9.6	68.0	58.6	49.3
10/22/00	25.7	16.9	5.9	78.3	62.4	42.6
10/23/00	26.6	14.5	4.6	79.9	58.1	40.3
10/24/00	22.8	12.3	3.8	73.0	54.1	38.8
10/25/00	18.9	11.5	3.6	66.0	52.7	38.5
10/26/00	16.0	13.2	9.8	60.8	55.8	49.6
10/27/00	18.1	13.4	8.2	64.6	56.1	46.8
10/28/00	17.7	13.2	8.0	63.9	55.8	46.4
10/29/00	16.6	13.3	9.8	61.9	55.9	49.6

Table B.4
Summary of Daily Recorded Temperatures
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Temperature (°Centigrade)			Temperature (°Fahrenheit)		
	Minimum	Average	Maximum	Maximum	Average	Minimum
10/30/00	17.5	10.1	3.2	63.5	50.2	37.8
10/31/00	18.4	12.1	6.3	65.1	53.8	43.3
11/01/00	19.7	12.1	5.6	67.5	53.8	42.1
11/02/00	22.1	14.1	7.0	71.8	57.4	44.6
11/03/00	24.7	12.4	2.7	76.5	54.3	36.9
11/04/00	23.8	12.4	2.1	74.8	54.3	35.8
11/05/00	15.7	12.3	8.0	60.3	54.1	46.4
11/06/00	19.3	13.0	9.1	66.7	55.4	48.4
11/07/00	22.1	12.0	2.2	71.8	53.6	36.0
11/08/00	19.0	9.4	1.1	66.2	48.9	34.0
11/09/00	15.0	8.7	1.3	59.0	47.7	34.3
11/10/00	12.8	5.8	- 0.2	55.0	42.4	31.6
11/11/00	14.2	5.7	- 2.9	57.6	42.3	26.8
11/12/00	17.5	8.0	0.0	63.5	46.4	32.0
11/13/00	14.6	4.9	- 4.8	58.3	40.8	23.4
11/14/00	14.4	7.4	- 0.7	57.9	45.3	30.7
11/15/00	15.0	7.7	0.5	59.0	45.9	32.9
11/16/00	17.0	7.5	- 0.7	62.6	45.5	30.7
11/17/00	19.8	10.5	1.4	67.6	50.9	34.5
11/18/00	19.6	7.1	- 2.7	67.3	44.8	27.1
11/19/00	21.3	6.3	- 3.7	70.3	43.3	25.3
11/20/00	18.2	6.8	- 4.9	64.8	44.2	23.2
11/21/00	17.0	9.7	2.7	62.6	49.5	36.9
11/22/00	15.7	9.7	2.7	60.3	49.5	36.9
11/23/00	18.9	11.9	4.5	66.0	53.4	40.1
11/24/00	20.7	15.3	8.9	69.3	59.5	48.0
11/25/00	23.0	12.8	4.7	73.4	55.0	40.5
11/26/00	23.2	12.9	2.4	73.8	55.2	36.3
11/27/00	23.0	11.8	1.9	73.4	53.2	35.4
11/28/00	22.7	14.1	7.2	72.9	57.4	45.0
11/29/00	14.5	10.9	6.7	58.1	51.6	44.1
11/30/00	21.3	13.3	5.1	70.3	55.9	41.2
12/01/00	20.4	9.4	3.0	68.7	48.9	37.4
12/02/00	22.7	9.2	- 0.7	72.9	48.6	30.7
12/03/00	21.6	8.3	0.0	70.9	46.9	32.0
12/04/00	18.5	8.6	1.1	65.3	47.5	34.0
12/05/00	27.1	12.4	3.2	80.8	54.3	37.8
12/06/00	17.8	12.4	7.6	64.0	54.3	45.7
12/07/00	22.7	13.9	9.9	72.9	57.0	49.8
12/08/00	15.6	12.6	9.3	60.1	54.7	48.7
12/09/00	15.7	13.1	9.4	60.3	55.6	48.9
12/10/00	18.6	12.4	6.5	65.5	54.3	43.7
12/11/00	17.6	9.4	1.8	63.7	48.9	35.2
12/12/00	14.6	10.1	4.5	58.3	50.2	40.1
12/13/00	15.3	7.5	0.2	59.5	45.5	32.4
12/14/00	16.4	11.9	8.4	61.5	53.4	47.1
12/15/00	18.2	12.1	7.3	64.8	53.8	45.1
12/16/00	21.9	14.5	6.3	71.4	58.1	43.3
12/17/00	21.7	16.4	5.6	71.1	61.5	42.1
12/18/00	25.4	13.2	3.4	77.7	55.8	38.1

Table B.4
Summary of Daily Recorded Temperatures
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Temperature (°Centigrade)			Temperature (°Fahrenheit)		
	Minimum	Average	Maximum	Maximum	Average	Minimum
12/19/00	24.8	10.5	1.4	76.6	50.9	34.5
12/20/00	25.1	9.0	- 2.2	77.2	48.2	28.0
12/21/00	17.5	9.0	1.5	63.5	48.2	34.7
12/22/00	19.4	13.3	7.7	66.9	55.9	45.9
12/23/00	18.5	13.0	4.2	65.3	55.4	39.6
12/24/00	15.8	13.7	12.1	60.4	56.7	53.8
12/25/00	20.3	11.6	1.1	68.5	52.9	34.0
12/26/00	20.2	6.8	- 3.0	68.4	44.2	26.6
12/27/00	23.0	6.7	- 4.2	73.4	44.1	24.4
12/28/00	25.4	9.9	- 2.8	77.7	49.8	27.0
12/29/00	25.2	9.0	- 2.2	77.4	48.2	28.0
12/30/00	22.1	7.0	- 2.6	71.8	44.6	27.3
12/31/00	21.0	7.3	- 2.6	69.8	45.1	27.3
01/01/01	24.7	8.4	- 2.4	76.5	47.1	27.7
01/02/01	24.9	8.7	- 3.2	76.8	47.7	26.2
01/03/01	26.8	9.3	- 2.8	80.2	48.7	27.0
01/04/01	28.2	9.1	- 2.9	82.8	48.4	26.8
01/05/01	23.2	7.9	- 1.8	73.8	46.2	28.8
01/06/01	21.8	7.4	- 3.2	71.2	45.3	26.2
01/07/01	14.1	8.8	3.1	57.4	47.8	37.6
01/08/01	13.7	10.5	7.6	56.7	50.9	45.7
01/09/01	13.3	8.5	2.1	55.9	47.3	35.8
01/10/01	11.6	8.8	3.6	52.9	47.8	38.5
01/11/01	13.2	9.6	7.2	55.8	49.3	45.0
01/12/01	15.0	10.0	5.3	59.0	50.0	41.5
01/13/01	15.6	9.1	3.2	60.1	48.4	37.8
01/14/01	14.8	8.5	1.8	58.6	47.3	35.2
01/15/01	13.3	8.6	3.6	55.9	47.5	38.5
01/16/01	12.6	5.3	- 1.5	54.7	41.5	29.3
01/17/01	15.0	6.0	- 2.2	59.0	42.8	28.0
01/18/01	17.2	6.2	- 3.6	63.0	43.2	25.5
01/19/01	17.2	7.6	0.8	63.0	45.7	33.4
01/20/01	19.7	7.4	- 1.9	67.5	45.3	28.6
01/21/01	15.9	7.2	- 0.3	60.6	45.0	31.5
01/22/01	17.3	8.0	0.3	63.1	46.4	32.5
01/23/01	15.3	8.3	1.2	59.5	46.9	34.2
01/24/01	11.6	8.9	4.0	52.9	48.0	39.2
01/25/01	12.6	6.7	- 0.1	54.7	44.1	31.8
01/26/01	11.8	7.8	3.8	53.2	46.0	38.8
01/27/01	12.7	7.5	2.6	54.9	45.5	36.7
01/28/01	14.1	6.5	- 0.9	57.4	43.7	30.4
01/29/01	13.8	9.5	5.7	56.8	49.1	42.3
01/30/01	16.6	9.9	3.4	61.9	49.8	38.1
01/31/01	17.7	7.8	- 0.6	63.9	46.0	30.9
02/01/01	20.3	8.0	- 2.2	68.5	46.4	28.0
02/02/01	21.1	11.5	0.1	70.0	52.7	32.2
02/03/01	23.4	20.1	16.4	74.1	68.2	61.5
02/04/01	28.9	18.5	8.6	84.0	65.3	47.5
02/05/01	26.8	15.5	9.1	80.2	59.9	48.4
02/06/01	13.8	10.0	2.2	56.8	50.0	36.0

Table B.4
Summary of Daily Recorded Temperatures
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Temperature (°Centigrade)			Temperature (°Fahrenheit)		
	Minimum	Average	Maximum	Maximum	Average	Minimum
02/07/01	11.3	5.5	- 2.5	52.3	41.9	27.5
02/08/01	15.0	5.7	- 2.4	59.0	42.3	27.7
02/09/01	11.0	5.6	- 1.0	51.8	42.1	30.2
02/10/01	10.2	7.5	4.7	50.4	45.5	40.5
02/11/01	10.0	8.0	6.5	50.0	46.4	43.7
02/12/01	11.8	7.3	3.2	53.2	45.1	37.8
02/13/01	9.1	6.3	4.1	48.4	43.3	39.4
02/14/01	13.8	7.4	1.3	56.8	45.3	34.3
02/15/01	14.1	6.6	- 1.1	57.4	43.9	30.0
02/16/01	13.5	7.1	- 0.2	56.3	44.8	31.6
02/17/01	14.0	8.9	3.0	57.2	48.0	37.4
02/18/01	14.6	11.1	8.4	58.3	52.0	47.1
02/19/01	14.1	11.7	9.9	57.4	53.1	49.8
02/20/01	14.8	11.1	6.4	58.6	52.0	43.5
02/21/01	16.7	9.9	5.7	62.1	49.8	42.3
02/22/01	12.7	10.3	4.9	54.9	50.5	40.8
02/23/01	12.2	7.9	5.0	54.0	46.2	41.0
02/24/01	9.4	7.4	4.7	48.9	45.3	40.5
02/25/01	14.1	10.0	5.7	57.4	50.0	42.3
02/26/01	15.0	11.6	7.9	59.0	52.9	46.2
02/27/01	17.8	11.8	5.8	64.0	53.2	42.4
02/28/01	13.1	10.5	8.0	55.6	50.9	46.4
03/01/01	16.5	10.0	2.9	61.7	50.0	37.2
03/02/01	13.0	10.9	9.0	55.4	51.6	48.2
03/03/01	13.8	9.6	3.1	56.8	49.3	37.6
03/04/01	14.9	12.3	10.4	58.8	54.1	50.7
03/05/01	16.5	13.7	11.8	61.7	56.7	53.2
03/06/01	16.9	12.8	9.7	62.4	55.0	49.5
03/07/01	17.0	12.5	7.6	62.6	54.5	45.7
03/08/01	14.7	12.1	10.9	58.5	53.8	51.6
03/09/01	11.4	10.1	8.8	52.5	50.2	47.8
03/10/01	14.7	10.3	5.2	58.5	50.5	41.4
03/11/01	13.5	10.8	7.7	56.3	51.4	45.9
03/12/01	18.2	12.0	6.2	64.8	53.6	43.2
03/13/01	17.1	10.2	3.5	62.8	50.4	38.3
03/14/01	16.2	11.6	8.9	61.2	52.9	48.0
03/15/01	14.4	11.3	8.6	57.9	52.3	47.5
03/16/01	16.5	12.0	9.5	61.7	53.6	49.1
03/17/01	18.7	13.7	9.7	65.7	56.7	49.5
03/18/01	26.5	16.6	9.4	79.7	61.9	48.9
03/19/01	26.2	15.8	7.3	79.2	60.4	45.1
03/20/01	22.3	14.2	8.7	72.1	57.6	47.7
03/21/01	14.3	11.4	7.3	57.7	52.5	45.1
03/22/01	16.6	11.5	6.2	61.9	52.7	43.2
03/23/01	16.2	12.1	7.7	61.2	53.8	45.9
03/24/01	17.8	13.5	11.2	64.0	56.3	52.2
03/25/01	17.4	14.1	11.4	63.3	57.4	52.5
03/26/01	18.2	13.1	10.3	64.8	55.6	50.5
03/27/01	21.2	14.5	9.5	70.2	58.1	49.1
03/28/01	21.0	14.4	9.9	69.8	57.9	49.8

Table B.4
Summary of Daily Recorded Temperatures
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	**Temperature** (°Centigrade)			**Temperature** (°Fahrenheit)		
	Minimum	**Average**	**Maximum**	**Maximum**	**Average**	**Minimum**
03/29/01	15.5	11.9	9.3	59.9	53.4	48.7
03/30/01	27.2	17.9	10.7	81.0	64.2	51.3
03/31/01	18.6	12.3	7.1	65.5	54.1	44.8
04/01/01	14.4	11.4	9.8	57.9	52.5	49.6
04/02/01	14.1	10.8	8.6	57.4	51.4	47.5
04/03/01	12.6	9.3	5.3	54.7	48.7	41.5
04/04/01	12.7	9.6	7.0	54.9	49.3	44.6
04/05/01	15.3	9.9	4.7	59.5	49.8	40.5
04/06/01	13.3	9.6	4.2	55.9	49.3	39.6
04/07/01	11.7	9.6	5.2	53.1	49.3	41.4
04/08/01	12.8	7.2	0.4	55.0	45.0	32.7
04/09/01	11.6	7.5	3.7	52.9	45.5	38.7
04/10/01	14.1	9.7	4.4	57.4	49.5	39.9
04/11/01	13.5	11.1	8.9	56.3	52.0	48.0
04/12/01	16.4	11.0	6.3	61.5	51.8	43.3
04/13/01	14.4	10.3	5.7	57.9	50.5	42.3
04/14/01	16.2	10.4	4.7	61.2	50.7	40.5
04/15/01	15.1	9.2	3.2	59.2	48.6	37.8
04/16/01	15.1	9.4	2.7	59.2	48.9	36.9
04/17/01	22.5	14.7	6.2	72.5	58.5	43.2
04/18/01	15.9	11.9	8.9	60.6	53.4	48.0
04/19/01	13.5	11.2	7.3	56.3	52.2	45.1
04/20/01	13.6	9.7	6.4	56.5	49.5	43.5
04/21/01	13.3	9.4	4.7	55.9	48.9	40.5
04/22/01	16.5	10.9	5.2	61.7	51.6	41.4
04/23/01	22.0	13.8	6.6	71.6	56.8	43.9
04/24/01	29.3	16.4	6.7	84.7	61.5	44.1
04/25/01	29.8	16.1	8.4	85.6	61.0	47.1
04/26/01	17.4	12.0	9.9	63.3	53.6	49.8
04/27/01	17.5	11.7	9.2	63.5	53.1	48.6
04/28/01	16.9	12.5	9.6	62.4	54.5	49.3
04/29/01	20.4	13.8	7.9	68.7	56.8	46.2
04/30/01	21.3	15.1	8.2	70.3	59.2	46.8
05/01/01	18.6	12.9	8.4	65.5	55.2	47.1
05/02/01	22.3	17.3	8.6	72.1	63.1	47.5
05/03/01	22.2	14.8	6.0	72.0	58.6	42.8
05/04/01	26.2	14.7	3.9	79.2	58.5	39.0
05/05/01	20.6	12.0	4.8	69.1	53.6	40.6
05/06/01	21.8	13.3	5.2	71.2	55.9	41.4
05/07/01	24.8	16.3	5.7	76.6	61.3	42.3
05/08/01	28.8	17.9	8.9	83.8	64.2	48.0
05/09/01	24.2	15.5	9.2	75.6	59.9	48.6
05/10/01	20.2	13.0	8.0	68.4	55.4	46.4
05/11/01	19.0	13.0	7.2	66.2	55.4	45.0
05/12/01	18.5	14.1	11.3	65.3	57.4	52.3
05/13/01	18.2	13.7	10.5	64.8	56.7	50.9
05/14/01	21.2	13.8	9.1	70.2	56.8	48.4
05/15/01	26.3	15.4	7.3	79.3	59.7	45.1
05/16/01	23.4	15.3	10.3	74.1	59.5	50.5
05/17/01	19.0	12.5	6.7	66.2	54.5	44.1

Table B.4
Summary of Daily Recorded Temperatures
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	**Temperature** (°Centigrade)			**Temperature** (°Fahrenheit)		
	Minimum	**Average**	**Maximum**	**Maximum**	**Average**	**Minimum**
05/18/01	18.5	13.3	9.9	65.3	55.9	49.8
05/19/01	20.3	15.1	11.4	68.5	59.2	52.5
05/20/01	19.9	14.8	11.9	67.8	58.6	53.4
05/21/01	21.5	15.1	11.0	70.7	59.2	51.8
05/22/01	20.9	14.6	11.6	69.6	58.3	52.9
05/23/01	23.4	15.7	10.7	74.1	60.3	51.3
05/24/01	33.0	19.5	10.2	91.4	67.1	50.4
05/25/01	23.9	16.4	12.6	75.0	61.5	54.7
05/26/01	20.6	15.7	12.8	69.1	60.3	55.0
05/27/01	20.1	14.9	12.3	68.2	58.8	54.1
05/28/01	18.9	14.2	11.0	66.0	57.6	51.8
05/29/01	21.0	14.8	8.3	69.8	58.6	46.9
05/30/01	26.5	17.9	7.2	79.7	64.2	45.0
05/31/01	23.7	17.0	10.6	74.7	62.6	51.1
06/01/01	21.3	16.0	11.8	70.3	60.8	53.2
06/02/01	19.9	14.4	7.6	67.8	57.9	45.7
06/03/01	17.0	11.8	4.8	62.6	53.2	40.6
06/04/01	20.2	12.4	4.9	68.4	54.3	40.8
06/05/01	25.0	15.2	5.2	77.0	59.4	41.4
06/06/01	27.4	19.5	13.8	81.3	67.1	56.8
06/07/01	35.1	23.1	13.8	95.2	73.6	56.8
06/08/01	26.5	16.6	10.1	79.7	61.9	50.2
06/09/01	18.9	13.1	8.0	66.0	55.6	46.4
06/10/01	18.3	13.3	8.1	64.9	55.9	46.6
06/11/01	16.4	12.1	6.1	61.5	53.8	43.0
06/12/01	17.1	13.0	9.8	62.8	55.4	49.6
06/13/01	26.2	15.5	6.7	79.2	59.9	44.1
06/14/01	27.0	17.7	7.5	80.6	63.9	45.5
06/15/01	27.8	16.2	7.1	82.0	61.2	44.8
06/16/01	24.4	14.3	5.8	75.9	57.7	42.4
06/17/01	24.1	14.7	8.8	75.4	58.5	47.8
06/18/01	25.1	15.6	6.5	77.2	60.1	43.7
06/19/01	27.0	17.0	6.6	80.6	62.6	43.9
06/20/01	23.8	16.2	8.1	74.8	61.2	46.6
06/21/01	29.0	19.0	9.0	84.2	66.2	48.2
06/22/01	28.3	18.7	10.4	82.9	65.7	50.7
06/23/01	23.4	15.4	10.6	74.1	59.7	51.1
06/24/01	21.4	14.9	9.8	70.5	58.8	49.6
06/25/01	22.6	14.3	7.6	72.7	57.7	45.7
06/26/01	21.4	16.2	11.0	70.5	61.2	51.8
06/27/01	21.7	15.8	7.9	71.1	60.4	46.2
06/28/01	19.8	15.9	12.6	67.6	60.6	54.7
06/29/01	20.9	15.7	12.1	69.6	60.3	53.8
06/30/01	25.6	16.7	9.3	78.1	62.1	48.7
07/01/01	27.8	18.6	10.6	82.0	65.5	51.1
07/02/01	30.8	20.1	11.7	87.4	68.2	53.1
07/03/01	31.4	21.7	13.9	88.5	71.1	57.0
07/04/01	25.9	19.9	14.5	78.6	67.8	58.1
07/05/01	23.2	16.5	12.3	73.8	61.7	54.1
07/06/01	21.3	16.9	12.3	70.3	62.4	54.1

Table B.4
Summary of Daily Recorded Temperatures
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	**Temperature** (°Centigrade)			**Temperature** (°Fahrenheit)		
	Minimum	**Average**	**Maximum**	**Maximum**	**Average**	**Minimum**
07/07/01	23.5	17.3	13.4	74.3	63.1	56.1
07/08/01	22.7	16.6	13.6	72.9	61.9	56.5
07/09/01	20.1	15.8	13.0	68.2	60.4	55.4
07/10/01	20.9	16.4	13.3	69.6	61.5	55.9
07/11/01	20.3	16.4	12.8	68.5	61.5	55.0
07/12/01	20.4	15.8	11.9	68.7	60.4	53.4
07/13/01	20.6	15.6	11.6	69.1	60.1	52.9
07/14/01	19.0	14.1	9.6	66.2	57.4	49.3
07/15/01	18.7	14.5	12.5	65.7	58.1	54.5
07/16/01	18.5	15.0	12.5	65.3	59.0	54.5
07/17/01	20.8	15.5	12.0	69.4	59.9	53.6
07/18/01	20.2	15.2	11.6	68.4	59.4	52.9
07/19/01	22.5	15.1	12.1	72.5	59.2	53.8
07/20/01	20.8	14.7	11.1	69.4	58.5	52.0
07/21/01	21.8	15.2	10.1	71.2	59.4	50.2
07/22/01	19.7	13.8	8.7	67.5	56.8	47.7
07/23/01	20.4	14.8	11.1	68.7	58.6	52.0
07/24/01	21.1	15.8	12.3	70.0	60.4	54.1
07/25/01	21.4	16.6	13.5	70.5	61.9	56.3
07/26/01	23.3	16.9	13.6	73.9	62.4	56.5
07/27/01	23.6	16.6	12.9	74.5	61.9	55.2
07/28/01	23.1	16.0	11.8	73.6	60.8	53.2
07/29/01	21.9	15.1	11.8	71.4	59.2	53.2
07/30/01	20.7	16.0	13.3	69.3	60.8	55.9
07/31/01	22.3	16.1	13.6	72.1	61.0	56.5
08/01/01	22.0	16.0	12.9	71.6	60.8	55.2
08/02/01	23.7	16.3	12.3	74.7	61.3	54.1
08/03/01	20.8	15.2	12.4	69.4	59.4	54.3
08/04/01	20.5	15.7	12.1	68.9	60.3	53.8
08/05/01	24.3	16.5	10.4	75.7	61.7	50.7
08/06/01	23.8	16.1	11.2	74.8	61.0	52.2
08/07/01	24.9	16.9	11.7	76.8	62.4	53.1
08/08/01	24.0	16.3	11.6	75.2	61.3	52.9
08/09/01	23.0	16.2	12.7	73.4	61.2	54.9
08/10/01	21.4	16.7	12.7	70.5	62.1	54.9
08/11/01	22.2	15.6	9.9	72.0	60.1	49.8
08/12/01	20.8	15.3	9.8	69.4	59.5	49.6
08/13/01	20.4	15.5	10.9	68.7	59.9	51.6
08/14/01	22.9	15.5	11.1	73.2	59.9	52.0
08/15/01	24.9	15.5	11.6	76.8	59.9	52.9
08/16/01	23.7	15.2	11.3	74.7	59.4	52.3
08/17/01	24.4	15.1	10.4	75.9	59.2	50.7
08/18/01	25.4	15.8	11.1	77.7	60.4	52.0
08/19/01	25.5	15.7	11.1	77.9	60.3	52.0
08/20/01	19.7	14.5	11.7	67.5	58.1	53.1
08/21/01	21.4	15.3	10.7	70.5	59.5	51.3
08/22/01	21.7	15.9	9.6	71.1	60.6	49.3
08/23/01	24.0	16.4	9.5	75.2	61.5	49.1
08/24/01	20.2	14.8	12.1	68.4	58.6	53.8
08/25/01	22.6	16.7	11.2	72.7	62.1	52.2

Table B.4
Summary of Daily Recorded Temperatures
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Temperature (°Centigrade)			Temperature (°Fahrenheit)		
	Minimum	Average	Maximum	Maximum	Average	Minimum
08/26/01	25.6	16.1	9.4	78.1	61.0	48.9
08/27/01	26.2	16.3	9.2	79.2	61.3	48.6
08/28/01	23.8	16.2	9.5	74.8	61.2	49.1
08/29/01	18.2	14.9	12.1	64.8	58.8	53.8
08/30/01	20.0	16.2	13.1	68.0	61.2	55.6
08/31/01	23.1	15.8	12.0	73.6	60.4	53.6
09/01/01	24.2	15.8	12.0	75.6	60.4	53.6
09/02/01	25.4	17.2	10.6	77.7	63.0	51.1
09/03/01	25.3	17.9	11.8	77.5	64.2	53.2
09/04/01	24.9	16.8	12.3	76.8	62.2	54.1
09/05/01	24.6	15.8	9.6	76.3	60.4	49.3
09/06/01	22.0	14.3	7.4	71.6	57.7	45.3
09/07/01	20.9	15.1	11.4	69.6	59.2	52.5
09/08/01	18.9	15.6	13.1	66.0	60.1	55.6
09/09/01	21.5	16.3	10.4	70.7	61.3	50.7
09/10/01	22.4	15.7	6.6	72.3	60.3	43.9
09/11/01	23.7	18.3	13.0	74.7	64.9	55.4
09/12/01	21.0	15.2	8.4	69.8	59.4	47.1
09/13/01	22.2	16.5	13.1	72.0	61.7	55.6
09/14/01	24.2	15.9	12.0	75.6	60.6	53.6
09/15/01	22.4	15.2	12.1	72.3	59.4	53.8
09/16/01	22.8	15.8	13.1	73.0	60.4	55.6
09/17/01	20.9	15.5	13.4	69.6	59.9	56.1
09/18/01	21.7	15.2	12.6	71.1	59.4	54.7
09/19/01	21.2	15.4	12.4	70.2	59.7	54.3
09/20/01	22.4	15.6	13.0	72.3	60.1	55.4
09/21/01	20.9	15.4	12.5	69.6	59.7	54.5
09/22/01	23.1	15.6	12.3	73.6	60.1	54.1
09/23/01	23.1	14.8	11.6	73.6	58.6	52.9
09/24/01	23.6	15.7	11.7	74.5	60.3	53.1
09/25/01	21.9	16.7	12.1	71.4	62.1	53.8
09/26/01	33.4	21.3	12.4	92.1	70.3	54.3
09/27/01	23.7	16.9	11.2	74.7	62.4	52.2
09/28/01	25.9	17.0	9.4	78.6	62.6	48.9
09/29/01	32.5	22.0	13.6	90.5	71.6	56.5
09/30/01	33.3	22.2	11.6	91.9	72.0	52.9
10/01/01	26.6	16.2	12.1	79.9	61.2	53.8
10/02/01	22.7	14.2	11.4	72.9	57.6	52.5
10/03/01	20.9	14.1	10.6	69.6	57.4	51.1
10/04/01	18.0	13.6	11.6	64.4	56.5	52.9
10/05/01	18.9	14.8	12.6	66.0	58.6	54.7
10/06/01	19.9	15.4	10.4	67.8	59.7	50.7
10/07/01	20.9	13.6	6.6	69.6	56.5	43.9
10/08/01	20.0	14.3	10.8	68.0	57.7	51.4
10/09/01	21.6	14.9	9.4	70.9	58.8	48.9
10/10/01	27.3	14.6	4.5	81.1	58.3	40.1
10/11/01	22.9	12.8	4.4	73.2	55.0	39.9
10/12/01	32.4	19.8	10.1	90.3	67.6	50.2
10/13/01	33.5	18.0	7.2	92.3	64.4	45.0
10/14/01	27.0	14.4	6.2	80.6	57.9	43.2

Table B.4
Summary of Daily Recorded Temperatures
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	**Temperature** (°Centigrade)			**Temperature** (°Fahrenheit)		
	Minimum	**Average**	**Maximum**	**Maximum**	**Average**	**Minimum**
10/15/01	20.9	12.9	6.0	69.6	55.2	42.8
10/16/01	19.6	13.1	10.0	67.3	55.6	50.0
10/17/01	19.8	13.5	8.6	67.6	56.3	47.5
10/18/01	19.2	11.8	4.5	66.6	53.2	40.1
10/19/01	21.3	13.4	10.1	70.3	56.1	50.2
10/20/01	17.4	12.7	10.3	63.3	54.9	50.5
10/21/01	18.3	13.6	11.6	64.9	56.5	52.9
10/22/01	18.7	13.3	9.6	65.7	55.9	49.3
10/23/01	23.0	16.4	10.2	73.4	61.5	50.4
10/24/01	28.0	18.1	7.4	82.4	64.6	45.3
10/25/01	20.8	12.5	6.6	69.4	54.5	43.9
10/26/01	18.0	12.0	9.6	64.4	53.6	49.3
10/27/01	19.4	12.1	6.5	66.9	53.8	43.7
10/28/01	19.9	12.2	6.1	67.8	54.0	43.0
10/29/01	20.5	12.9	4.9	68.9	55.2	40.8
10/30/01	16.3	14.5	12.9	61.3	58.1	55.2
10/31/01	20.6	14.2	10.0	69.1	57.6	50.0
11/01/01	21.7	12.9	6.5	71.1	55.2	43.7
11/02/01	16.2	13.1	11.4	61.2	55.6	52.5
11/03/01	20.1	13.6	11.1	68.2	56.5	52.0
11/04/01	19.7	13.7	10.7	67.5	56.7	51.3
11/05/01	21.5	13.9	9.7	70.7	57.0	49.5
11/06/01	15.0	12.5	10.8	59.0	54.5	51.4
11/07/01	19.8	11.3	5.4	67.6	52.3	41.7
11/08/01	27.7	12.4	3.4	81.9	54.3	38.1
11/09/01	23.4	12.6	5.0	74.1	54.7	41.0
11/10/01	19.5	14.5	8.9	67.1	58.1	48.0
11/11/01	20.0	16.5	14.2	68.0	61.7	57.6
11/12/01	16.2	13.0	9.4	61.2	55.4	48.9
11/13/01	17.3	11.8	6.2	63.1	53.2	43.2
11/14/01	20.2	15.3	8.7	68.4	59.5	47.7
11/15/01	20.0	13.4	8.2	68.0	56.1	46.8
11/16/01	16.5	12.6	10.7	61.7	54.7	51.3
11/17/01	18.9	12.8	10.4	66.0	55.0	50.7
11/18/01	21.4	13.5	7.6	70.5	56.3	45.7
11/19/01	22.4	11.4	2.8	72.3	52.5	37.0
11/20/01	19.9	12.1	6.6	67.8	53.8	43.9
11/21/01	18.5	13.2	8.4	65.3	55.8	47.1
11/22/01	18.6	13.8	10.6	65.5	56.8	51.1
11/23/01	18.6	13.4	10.5	65.5	56.1	50.9
11/24/01	14.8	11.1	5.6	58.6	52.0	42.1
11/25/01	14.6	9.0	3.0	58.3	48.2	37.4
11/26/01	16.0	10.4	5.2	60.8	50.7	41.4
11/27/01	17.7	8.1	1.0	63.9	46.6	33.8
11/28/01	15.1	8.1	- 0.2	59.2	46.6	31.6
11/29/01	14.3	10.8	8.3	57.7	51.4	46.9
11/30/01	16.3	9.2	3.7	61.3	48.6	38.7
12/01/01	12.7	9.2	4.7	54.9	48.6	40.5
12/02/01	13.2	11.7	10.4	55.8	53.1	50.7
12/03/01	13.8	9.2	4.4	56.8	48.6	39.9

Table B.4
Summary of Daily Recorded Temperatures
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	**Temperature** (°Centigrade)			**Temperature** (°Fahrenheit)		
	Minimum	**Average**	**Maximum**	**Maximum**	**Average**	**Minimum**
12/04/01	13.5	7.4	2.5	56.3	45.3	36.5
12/05/01	14.2	6.8	0.0	57.6	44.2	32.0
12/06/01	18.0	12.4	3.9	64.4	54.3	39.0
12/07/01	18.7	14.0	4.6	65.7	57.2	40.3
12/08/01	24.3	9.8	0.8	75.7	49.6	33.4
12/09/01	11.0	7.6	2.9	51.8	45.7	37.2
12/10/01	12.8	7.2	1.5	55.0	45.0	34.7
12/11/01	12.9	6.7	1.0	55.2	44.1	33.8
12/12/01	15.8	7.4	- 0.3	60.4	45.3	31.5
12/13/01	16.0	7.0	- 0.6	60.8	44.6	30.9
12/14/01	11.0	8.6	6.4	51.8	47.5	43.5
12/15/01	12.1	7.0	2.5	53.8	44.6	36.5
12/16/01	14.1	6.4	- 1.2	57.4	43.5	29.8
12/17/01	14.5	9.2	3.1	58.1	48.6	37.6
12/18/01	15.9	9.7	2.5	60.6	49.5	36.5
12/19/01	14.0	5.8	- 1.0	57.2	42.4	30.2
12/20/01	13.8	9.3	6.3	56.8	48.7	43.3
12/21/01	13.9	10.6	6.5	57.0	51.1	43.7
12/22/01	13.6	8.4	2.9	56.5	47.1	37.2
12/23/01	16.4	10.9	7.9	61.5	51.6	46.2
12/24/01	16.9	8.2	1.7	62.4	46.8	35.1
12/25/01	17.8	7.0	- 1.0	64.0	44.6	30.2
12/26/01	19.0	9.0	1.7	66.2	48.2	35.1
12/27/01	17.2	11.2	6.0	63.0	52.2	42.8
12/28/01	16.6	12.1	10.3	61.9	53.8	50.5
12/29/01	14.3	12.5	10.2	57.7	54.5	50.4
12/30/01	14.5	12.0	9.9	58.1	53.6	49.8
12/31/01	17.2	13.0	10.9	63.0	55.4	51.6
01/01/02	18.0	12.9	10.0	64.4	55.2	50.0
01/02/02	16.0	13.3	11.1	60.8	55.9	52.0
01/03/02	17.5	12.8	5.7	63.5	55.0	42.3
01/04/02	18.0	9.4	2.7	64.4	48.9	36.9
01/05/02	18.8	8.5	1.7	65.8	47.3	35.1
01/06/02	18.2	10.1	4.3	64.8	50.2	39.7
01/07/02	15.5	8.6	3.7	59.9	47.5	38.7
01/08/02	16.3	10.5	6.9	61.3	50.9	44.4
01/09/02	16.0	12.1	6.7	60.8	53.8	44.1
01/10/02	20.9	12.7	4.8	69.6	54.9	40.6
01/11/02	23.2	9.2	0.4	73.8	48.6	32.7
01/12/02	17.4	8.3	- 0.5	63.3	46.9	31.1
01/13/02	19.5	11.9	4.7	67.1	53.4	40.5
01/14/02	14.3	7.4	0.2	57.7	45.3	32.4
01/15/02	0.0	0.0	0.0	32.0	32.0	32.0
01/16/02	0.0	0.0	0.0	32.0	32.0	32.0
01/17/02	0.0	0.0	0.0	32.0	32.0	32.0
01/18/02	0.0	0.0	0.0	32.0	32.0	32.0
01/19/02	0.0	0.0	0.0	32.0	32.0	32.0
01/20/02	0.0	0.0	0.0	32.0	32.0	32.0
01/21/02	0.0	0.0	0.0	32.0	32.0	32.0
01/22/02	0.0	0.0	0.0	32.0	32.0	32.0

Table B.4
Summary of Daily Recorded Temperatures
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Temperature (°Centigrade)			Temperature (°Fahrenheit)		
	Minimum	Average	Maximum	Maximum	Average	Minimum
01/23/02	0.0	0.0	0.0	32.0	32.0	32.0
01/24/02	0.0	0.0	0.0	32.0	32.0	32.0
01/25/02	0.0	0.0	0.0	32.0	32.0	32.0
01/26/02	0.0	0.0	0.0	32.0	32.0	32.0
01/27/02	0.0	0.0	0.0	32.0	32.0	32.0
01/28/02	0.0	0.0	0.0	32.0	32.0	32.0
01/29/02	0.0	0.0	0.0	32.0	32.0	32.0
01/30/02	0.0	0.0	0.0	32.0	32.0	32.0
01/31/02	0.0	0.0	0.0	32.0	32.0	32.0
02/01/02	0.0	0.0	0.0	32.0	32.0	32.0
02/02/02	0.0	0.0	0.0	32.0	32.0	32.0
02/03/02	0.0	0.0	0.0	32.0	32.0	32.0
02/04/02	0.0	0.0	0.0	32.0	32.0	32.0
02/05/02	0.0	0.0	0.0	32.0	32.0	32.0
02/06/02	0.0	0.0	0.0	32.0	32.0	32.0
02/07/02	0.0	0.0	0.0	32.0	32.0	32.0
02/08/02	16.8	13.3	10.9	62.2	55.9	51.6
02/09/02	22.4	12.5	3.5	72.3	54.5	38.3
02/10/02	21.5	8.2	- 1.6	70.7	46.8	29.1
02/11/02	21.8	8.6	- 2.3	71.2	47.5	27.9
02/12/02	23.1	11.4	4.3	73.6	52.5	39.7
02/13/02	16.8	9.3	3.7	62.2	48.7	38.7
02/14/02	14.8	10.2	3.7	58.6	50.4	38.7
02/15/02	14.2	8.2	2.7	57.6	46.8	36.9
02/16/02	14.0	7.9	0.9	57.2	46.2	33.6
02/17/02	11.6	9.4	4.0	52.9	48.9	39.2
02/18/02	13.6	7.0	- 0.2	56.5	44.6	31.6
02/19/02	16.1	9.6	3.4	61.0	49.3	38.1
02/20/02	19.3	14.5	10.0	66.7	58.1	50.0
02/21/02	28.7	16.7	7.1	83.7	62.1	44.8
02/22/02	29.1	14.1	4.7	84.4	57.4	40.5
02/23/02	16.0	11.4	9.0	60.8	52.5	48.2
02/24/02	19.7	13.3	6.9	67.5	55.9	44.4
02/25/02	23.7	14.5	6.1	74.7	58.1	43.0
02/26/02	25.8	12.3	2.3	78.4	54.1	36.1
02/27/02	25.5	12.1	5.3	77.9	53.8	41.5
02/28/02	17.6	10.1	3.7	63.7	50.2	38.7
03/01/02	17.3	11.2	4.4	63.1	52.2	39.9
03/02/02	17.3	8.2	- 0.7	63.1	46.8	30.7
03/03/02	18.8	8.1	- 1.3	65.8	46.6	29.7
03/04/02	20.6	7.6	- 2.9	69.1	45.7	26.8
03/05/02	15.6	8.2	0.7	60.1	46.8	33.3
03/06/02	12.1	9.4	4.9	53.8	48.9	40.8
03/07/02	13.4	10.4	7.1	56.1	50.7	44.8
03/08/02	14.0	7.9	3.0	57.2	46.2	37.4
03/09/02	16.4	7.1	- 1.0	61.5	44.8	30.2
03/10/02	16.6	9.6	2.2	61.9	49.3	36.0
03/11/02	21.9	13.5	6.7	71.4	56.3	44.1
03/12/02	17.5	13.1	8.5	63.5	55.6	47.3
03/13/02	13.5	9.8	5.0	56.3	49.6	41.0

Table B.4
Summary of Daily Recorded Temperatures
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Temperature (°Centigrade)			Temperature (°Fahrenheit)		
	Minimum	Average	Maximum	Maximum	Average	Minimum
03/14/02	12.1	7.4	2.4	53.8	45.3	36.3
03/15/02	12.0	6.0	- 1.4	53.6	42.8	29.5
03/16/02	11.1	5.8	- 1.8	52.0	42.4	28.8
03/17/02	10.8	5.8	0.8	51.4	42.4	33.4
03/18/02	17.0	7.6	0.5	62.6	45.7	32.9
03/19/02	26.0	10.0	- 1.3	78.8	50.0	29.7
03/20/02	17.4	8.0	0.0	63.3	46.4	32.0
03/21/02	18.2	7.4	0.8	64.8	45.3	33.4
03/22/02	14.8	8.4	0.4	58.6	47.1	32.7
03/23/02	12.8	10.8	9.1	55.0	51.4	48.4
03/24/02	13.1	9.3	5.2	55.6	48.7	41.4
03/25/02	15.5	9.5	3.0	59.9	49.1	37.4
03/26/02	15.9	9.2	2.0	60.6	48.6	35.6
03/27/02	16.7	9.5	1.3	62.1	49.1	34.3
03/28/02	16.2	10.2	4.7	61.2	50.4	40.5
03/29/02	15.0	10.3	6.2	59.0	50.5	43.2
03/30/02	16.3	11.0	8.7	61.3	51.8	47.7
03/31/02	15.9	11.0	8.3	60.6	51.8	46.9
04/01/02	15.1	10.8	8.5	59.2	51.4	47.3
04/02/02	12.8	11.0	9.9	55.0	51.8	49.8
04/03/02	12.8	11.2	10.0	55.0	52.2	50.0
04/04/02	15.5	11.5	6.6	59.9	52.7	43.9
04/05/02	15.9	10.1	3.2	60.6	50.2	37.8
04/06/02	16.1	11.2	4.5	61.0	52.2	40.1
04/07/02	16.5	11.8	8.8	61.7	53.2	47.8
04/08/02	15.5	11.6	10.3	59.9	52.9	50.5
04/09/02	16.4	12.3	9.8	61.5	54.1	49.6
04/10/02	19.3	13.2	9.9	66.7	55.8	49.8
04/11/02	22.3	15.8	9.6	72.1	60.4	49.3
04/12/02	23.3	14.3	9.3	73.9	57.7	48.7
04/13/02	31.0	19.8	9.7	87.8	67.6	49.5
04/14/02	25.1	13.6	7.4	77.2	56.5	45.3
04/15/02	12.8	9.5	7.1	55.0	49.1	44.8
04/16/02	15.1	9.1	3.7	59.2	48.4	38.7
04/17/02	13.3	9.3	6.4	55.9	48.7	43.5
04/18/02	13.4	9.2	5.6	56.1	48.6	42.1
04/19/02	15.6	9.5	2.7	60.1	49.1	36.9
04/20/02	13.7	8.7	3.0	56.7	47.7	37.4
04/21/02	16.2	9.6	2.7	61.2	49.3	36.9
04/22/02	21.4	11.9	1.7	70.5	53.4	35.1
04/23/02	15.4	10.8	6.6	59.7	51.4	43.9
04/24/02	19.0	12.4	5.0	66.2	54.3	41.0
04/25/02	18.2	12.6	8.3	64.8	54.7	46.9
04/26/02	11.1	9.8	8.9	52.0	49.6	48.0
04/27/02	14.4	10.5	5.2	57.9	50.9	41.4
04/28/02	17.7	10.2	3.2	63.9	50.4	37.8
04/29/02	16.6	9.9	3.0	61.9	49.8	37.4
04/30/02	14.1	10.3	5.5	57.4	50.5	41.9
05/01/02	13.3	10.5	8.1	55.9	50.9	46.6
05/02/02	16.0	11.0	6.9	60.8	51.8	44.4

Table B.4
Summary of Daily Recorded Temperatures
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	**Temperature** (°Centigrade)			**Temperature** (°Fahrenheit)		
	Minimum	**Average**	**Maximum**	**Maximum**	**Average**	**Minimum**
05/03/02	16.3	11.5	9.2	61.3	52.7	48.6
05/04/02	16.4	11.5	8.3	61.5	52.7	46.9
05/05/02	17.8	11.5	7.2	64.0	52.7	45.0
05/06/02	16.7	10.5	3.9	62.1	50.9	39.0
05/07/02	15.8	10.8	5.4	60.4	51.4	41.7
05/08/02	18.6	11.2	4.5	65.5	52.2	40.1
05/09/02	17.0	11.2	6.3	62.6	52.2	43.3
05/10/02	15.4	9.2	1.5	59.7	48.6	34.7
05/11/02	18.4	12.0	3.4	65.1	53.6	38.1
05/12/02	24.9	13.5	2.7	76.8	56.3	36.9
05/13/02	17.4	11.0	4.7	63.3	51.8	40.5

Table B.5
Summary of Daily Recorded Humidity
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Humidity (%)		
	Minimum	Average	Maximum
06/18/99	54.3	84.1	100.0
06/19/99	56.7	85.9	100.0
06/20/99	62.4	87.6	100.0
06/21/99	55.0	83.0	100.0
06/22/99	56.9	81.4	100.0
06/23/99	54.2	85.0	100.0
06/24/99	57.5	85.8	100.0
06/25/99	55.3	83.6	100.0
06/26/99	53.6	83.8	100.0
06/27/99	54.9	83.6	100.0
06/28/99	50.1	83.5	100.0
06/29/99	55.0	85.3	100.0
06/30/99	62.0	87.2	100.0
07/01/99	64.9	87.6	100.0
07/02/99	61.2	84.1	100.0
07/03/99	44.5	74.9	100.0
07/04/99	25.9	67.5	100.0
07/05/99	53.7	83.8	100.0
07/06/99	39.5	75.0	100.0
07/07/99	40.2	71.1	100.0
07/08/99	29.8	69.7	100.0
07/09/99	47.2	76.9	100.0
07/10/99	31.8	74.3	100.0
07/11/99	25.7	62.7	94.8
07/12/99	18.5	59.4	93.1
07/13/99	30.8	74.1	100.0
07/14/99	56.4	85.5	100.0
07/15/99	54.9	81.6	98.1
07/16/99	53.6	83.4	100.0
07/17/99	51.5	84.0	100.0
07/18/99	50.2	77.9	96.7
07/19/99	50.6	74.0	96.9
07/20/99	51.3	77.1	94.3
07/21/99	54.0	81.2	100.0
07/22/99	52.8	80.5	97.1
07/23/99	46.1	79.1	100.0
07/24/99	60.7	85.4	100.0
07/25/99	57.9	87.3	100.0
07/26/99	56.6	84.4	98.2
07/27/99	54.6	76.7	91.8
07/28/99	52.8	79.2	100.0
07/29/99	55.7	81.3	100.0
07/30/99	60.6	85.3	100.0
07/31/99	54.9	84.9	100.0
08/01/99	55.0	86.4	100.0
08/02/99	48.9	83.8	100.0
08/03/99	56.4	86.3	100.0
08/04/99	58.0	90.2	100.0
08/05/99	54.9	90.8	100.0
08/06/99	57.3	84.1	100.0

Table B.5
Summary of Daily Recorded Humidity
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Humidity (%)		
	Minimum	Average	Maximum
08/07/99	58.7	82.9	100.0
08/08/99	59.5	84.2	100.0
08/09/99	58.8	83.5	99.5
08/10/99	53.8	81.1	100.0
08/11/99	58.0	84.0	100.0
08/12/99	49.9	80.4	100.0
08/13/99	44.6	81.6	100.0
08/14/99	51.8	84.9	100.0
08/15/99	52.8	83.4	100.0
08/16/99	57.6	84.9	100.0
08/17/99	57.2	83.1	100.0
08/18/99	42.9	83.0	100.0
08/19/99	42.0	76.8	97.0
08/20/99	53.4	86.6	100.0
08/21/99	53.9	84.6	100.0
08/22/99	47.0	78.1	100.0
08/23/99	44.0	83.8	100.0
08/24/99	52.4	84.9	100.0
08/25/99	44.2	82.1	100.0
08/26/99	43.3	82.2	100.0
08/27/99	54.3	88.1	100.0
08/28/99	53.3	86.6	100.0
08/29/99	51.5	87.1	100.0
08/30/99	50.6	77.9	100.0
08/31/99	18.4	52.5	87.7
09/01/99	55.0	86.4	100.0
09/02/99	48.9	83.8	100.0
09/03/99	56.4	86.3	100.0
09/04/99	58.0	90.2	100.0
09/05/99	54.9	90.8	100.0
09/06/99	57.3	84.1	100.0
09/07/99	58.7	82.9	100.0
09/08/99	59.5	84.2	100.0
09/09/99	58.8	83.5	99.5
09/10/99	53.8	81.1	100.0
09/11/99	57.0	90.6	100.0
09/12/99	55.0	81.3	93.0
09/13/99	57.0	80.5	96.0
09/14/99	59.0	81.7	93.0
09/15/99	59.0	84.2	97.0
09/16/99	61.0	85.1	100.0
09/17/99	57.0	83.0	93.0
09/18/99	73.0	85.2	96.0
09/19/99	57.0	80.2	97.0
09/20/99	50.0	78.2	97.0
09/21/99	61.0	86.6	100.0
09/22/99	35.0	86.4	100.0
09/23/99	52.0	86.8	100.0
09/24/99	68.0	88.2	100.0
09/25/99	59.0	88.9	100.0

Table B.5
Summary of Daily Recorded Humidity
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Humidity (%)		
	Minimum	Average	Maximum
09/26/99	55.0	85.5	100.0
09/27/99	55.0	86.9	100.0
09/28/99	52.0	83.3	100.0
09/29/99	26.0	70.2	96.0
09/30/99	21.0	72.9	100.0
10/01/99	43.0	84.2	100.0
10/02/99	57.0	86.3	100.0
10/03/99	31.0	42.2	100.0
10/04/99	13.0	24.5	100.0
10/05/99	0.0	11.6	23.0
10/06/99	0.0	44.3	84.0
10/07/99	19.0	55.0	86.0
10/08/99	12.0	38.0	71.0
10/09/99	11.0	37.4	62.0
10/10/99	17.0	45.7	72.0
10/11/99	19.0	70.5	100.0
10/12/99	32.0	78.7	100.0
10/13/99	27.0	81.4	100.0
10/14/99	59.0	84.0	96.0
10/15/99	59.0	86.1	100.0
10/16/99	50.0	81.3	100.0
10/17/99	27.0	75.0	100.0
10/18/99	23.0	63.8	97.0
10/19/99	27.0	77.0	100.0
10/20/99	23.0	60.0	93.0
10/21/99	14.0	62.5	100.0
10/22/99	48.0	82.9	100.0
10/23/99	57.0	83.8	97.0
10/24/99	41.0	80.2	100.0
10/25/99	46.0	85.2	100.0
10/26/99	59.0	88.1	100.0
10/27/99	55.0	83.0	96.0
10/28/99	54.0	75.1	96.0
10/29/99	23.0	43.3	64.0
10/30/99	14.0	38.7	68.0
10/31/99	11.0	32.4	58.0
11/01/99	12.0	38.5	63.0
11/02/99	35.0	72.2	90.0
11/03/99	54.0	78.2	97.0
11/04/99	44.0	82.5	100.0
11/05/99	57.0	80.6	96.0
11/06/99	55.0	72.0	83.0
11/07/99	49.0	70.7	97.0
11/08/99	55.0	84.6	97.0
11/09/99	44.0	77.8	100.0
11/10/99	45.0	81.5	97.0
11/11/99	57.0	87.2	100.0
11/12/99	36.0	87.5	100.0
11/13/99	61.0	91.6	100.0
11/14/99	61.0	85.7	100.0

Table B.5
Summary of Daily Recorded Humidity
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Humidity (%)		
	Minimum	Average	Maximum
11/15/99	55.0	80.4	97.0
11/16/99	68.0	86.2	97.0
11/17/99	37.0	75.0	97.0
11/18/99	40.0	72.3	93.0
11/19/99	52.0	85.2	100.0
11/20/99	59.0	85.4	100.0
11/21/99	40.0	61.0	83.0
11/22/99	18.0	47.0	74.0
11/23/99	26.0	56.8	79.0
11/24/99	26.0	45.3	68.0
11/25/99	21.0	41.2	71.0
11/26/99	27.0	60.0	80.0
11/27/99	31.0	76.7	100.0
11/28/99	60.0	86.2	100.0
11/29/99	63.0	84.0	97.0
11/30/99	72.0	85.4	96.0
12/01/99	33.0	58.2	90.0
12/02/99	34.0	61.7	93.0
12/03/99	20.0	41.7	73.0
12/04/99	21.0	54.7	82.0
12/05/99	23.0	62.3	93.0
12/06/99	20.0	56.3	93.0
12/07/99	39.0	58.0	77.0
12/08/99	18.0	53.6	82.0
12/09/99	59.0	80.4	97.0
12/10/99	51.0	72.9	97.0
12/11/99	31.0	59.4	89.0
12/12/99	24.0	65.7	93.0
12/13/99	46.0	68.1	93.0
12/14/99	24.0	33.4	46.0
12/15/99	17.0	36.2	55.0
12/16/99	24.0	41.5	65.0
12/17/99	16.0	42.8	67.0
12/18/99	28.0	49.3	87.0
12/19/99	22.0	39.2	59.0
12/20/99	18.0	50.0	71.0
12/21/99	21.0	50.9	79.0
12/22/99	28.0	52.1	73.0
12/23/99	15.0	33.3	53.0
12/24/99	19.0	43.1	65.0
12/25/99	15.0	48.6	70.0
12/26/99	14.0	42.7	62.0
12/27/99	18.0	48.2	73.0
12/28/99	16.0	45.8	76.0
12/29/99	18.0	49.7	79.0
12/30/99	49.0	74.8	83.0
12/31/99	54.0	77.8	93.0
01/01/00	53.0	75.6	86.0
01/02/00	32.0	62.3	93.0
01/03/00	27.0	45.5	67.0

Table B.5
Summary of Daily Recorded Humidity
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Humidity (%)		
	Minimum	Average	Maximum
01/04/00	29.0	56.5	77.0
01/05/00	30.0	49.8	80.0
01/06/00	17.0	54.6	86.0
01/07/00	23.0	65.0	89.0
01/08/00	23.0	57.5	89.0
01/09/00	22.0	69.9	96.0
01/10/00	48.0	80.5	97.0
01/11/00	65.0	90.8	100.0
01/12/00	56.0	84.1	100.0
01/13/00	43.0	83.8	100.0
01/14/00	32.0	71.5	97.0
01/15/00	39.0	57.3	77.0
01/16/00	64.0	89.4	100.0
01/17/00	72.0	89.6	97.0
01/18/00	86.0	94.1	100.0
01/19/00	70.0	88.5	100.0
01/20/00	86.0	95.0	100.0
01/21/00	58.0	82.7	100.0
01/22/00	43.0	81.3	97.0
01/23/00	89.0	94.2	97.0
01/24/00	73.0	89.6	97.0
01/25/00	83.0	91.0	100.0
01/26/00	52.0	72.0	97.0
01/27/00	42.0	71.7	93.0
01/28/00	47.0	76.5	97.0
01/29/00	51.0	86.0	97.0
01/30/00	72.0	89.3	100.0
01/31/00	46.0	75.8	96.0
02/01/00	37.0	63.6	90.0
02/02/00	24.0	56.4	92.0
02/03/00	23.0	61.3	96.0
02/04/00	72.0	87.6	97.0
02/05/00	54.0	84.2	100.0
02/06/00	63.0	89.0	100.0
02/07/00	61.0	88.9	100.0
02/08/00	63.0	84.8	100.0
02/09/00	81.0	91.8	97.0
02/10/00	78.0	91.4	97.0
02/11/00	80.0	91.3	96.0
02/12/00	81.0	90.8	97.0
02/13/00	89.0	94.1	97.0
02/14/00	58.0	87.0	97.0
02/15/00	52.0	80.9	97.0
02/16/00	77.0	88.1	97.0
02/17/00	51.0	81.3	100.0
02/18/00	41.0	73.8	93.0
02/19/00	30.0	65.4	89.0
02/20/00	60.0	80.1	97.0
02/21/00	77.0	88.3	96.0
02/22/00	77.0	87.0	100.0

Table B.5
Summary of Daily Recorded Humidity
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Humidity (%)		
	Minimum	Average	Maximum
02/23/00	51.0	77.6	97.0
02/24/00	46.0	76.8	97.0
02/25/00	65.0	81.3	93.0
02/26/00	65.0	83.4	97.0
02/27/00	72.0	86.5	97.0
02/28/00	49.0	79.3	100.0
02/29/00	77.0	89.5	97.0
03/01/00	44.0	74.5	97.0
03/02/00	64.0	83.5	97.0
03/03/00	54.0	76.9	93.0
03/04/00	72.0	85.0	93.0
03/05/00	61.0	80.5	97.0
03/06/00	59.0	79.3	93.0
03/07/00	66.0	84.4	97.0
03/08/00	62.0	85.7	100.0
03/09/00	58.0	83.9	97.0
03/10/00	49.0	71.5	93.0
03/11/00	41.0	75.3	97.0
03/12/00	44.0	70.8	90.0
03/13/00	52.0	71.8	93.0
03/14/00	46.0	74.6	97.0
03/15/00	26.0	57.3	93.0
03/16/00	31.0	60.0	83.0
03/17/00	17.0	37.4	66.0
03/18/00	26.0	47.6	93.0
03/19/00	54.0	78.0	96.0
03/20/00	31.0	50.6	68.0
03/21/00	24.0	54.3	82.0
03/22/00	36.0	65.2	89.0
03/23/00	27.0	60.7	97.0
03/24/00	63.0	80.4	96.0
03/25/00	54.0	74.2	93.0
03/26/00	52.0	79.1	97.0
03/27/00	64.0	80.7	93.0
03/28/00	58.0	75.8	89.0
03/29/00	58.0	82.1	97.0
03/30/00	48.0	74.1	97.0
03/31/00	17.0	51.3	86.0
04/01/00	21.5	59.6	100.0
04/02/00	24.1	68.7	100.0
04/03/00	65.3	89.1	100.0
04/04/00	77.1	91.5	100.0
04/05/00	76.3	88.9	100.0
04/06/00	71.4	88.7	100.0
04/07/00	55.3	89.4	100.0
04/08/00	70.7	88.9	100.0
04/09/00	63.1	85.3	100.0
04/10/00	53.6	81.0	100.0
04/11/00	42.1	82.7	100.0
04/12/00	37.3	76.0	100.0

Table B.5
Summary of Daily Recorded Humidity
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Humidity (%)		
	Minimum	Average	Maximum
04/13/00	69.3	83.0	97.6
04/14/00	78.0	93.9	100.0
04/15/00	67.2	86.5	100.0
04/16/00	69.0	84.8	97.6
04/17/00	77.8	96.7	100.0
04/18/00	68.9	90.7	100.0
04/19/00	48.6	83.9	100.0
04/20/00	42.7	78.3	100.0
04/21/00	78.9	87.8	96.7
04/22/00	67.0	86.1	95.1
04/23/00	52.8	72.3	94.2
04/24/00	31.1	62.9	95.4
04/25/00	41.0	63.8	92.8
04/26/00	35.7	60.3	93.9
04/27/00	69.3	90.4	100.0
04/28/00	43.5	68.0	96.9
04/29/00	43.6	66.3	95.4
04/30/00	28.8	64.8	100.0
05/01/00	34.4	79.2	100.0
05/02/00	58.7	81.0	100.0
05/03/00	51.7	84.8	100.0
05/04/00	61.2	82.1	100.0
05/05/00	52.3	84.1	100.0
05/06/00	62.3	83.6	100.0
05/07/00	59.7	87.0	100.0
05/08/00	78.5	94.4	100.0
05/09/00	66.1	87.7	100.0
05/10/00	55.0	77.5	100.0
05/11/00	39.7	66.5	94.7
05/12/00	28.2	63.3	100.0
05/13/00	58.2	81.9	100.0
05/14/00	55.8	81.2	100.0
05/15/00	63.3	87.2	100.0
05/16/00	63.3	85.2	100.0
05/17/00	57.2	80.7	97.7
05/18/00	60.4	83.2	100.0
05/19/00	44.4	78.0	100.0
05/20/00	44.1	77.0	100.0
05/21/00	33.5	64.2	100.0
05/22/00	35.1	71.3	97.5
05/23/00	67.4	89.4	100.0
05/24/00	75.8	90.6	97.6
05/25/00	71.3	89.5	100.0
05/26/00	66.1	87.7	100.0
05/27/00	46.0	80.6	100.0
05/28/00	36.0	63.5	100.0
05/29/00	56.3	81.3	100.0
05/30/00	54.4	83.3	100.0
05/31/00	34.6	74.7	100.0
06/01/00	56.0	83.9	100.0

Table B.5
Summary of Daily Recorded Humidity
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Humidity (%)		
	Minimum	Average	Maximum
06/02/00	67.2	92.1	100.0
06/03/00	70.3	91.2	100.0
06/04/00	75.4	94.9	100.0
06/05/00	59.0	86.1	100.0
06/06/00	67.6	91.0	100.0
06/07/00	55.6	89.0	100.0
06/08/00	94.8	98.4	100.0
06/09/00	76.5	93.7	100.0
06/10/00	81.1	94.3	100.0
06/11/00	52.7	81.4	100.0
06/12/00	46.3	74.5	100.0
06/13/00	40.9	74.5	100.0
06/14/00	47.1	79.6	100.0
06/15/00	73.4	94.8	100.0
06/16/00	100.0	100.0	100.0
06/17/00	100.0	100.0	100.0
06/18/00	- 17.8	82.0	100.0
06/19/00	10.3	73.4	100.0
06/20/00	45.2	78.6	100.0
06/21/00	7.9	71.6	100.0
06/22/00	53.6	86.6	100.0
06/23/00	100.0	100.0	100.0
06/24/00	76.9	96.7	100.0
06/25/00	84.5	97.9	100.0
06/26/00	64.0	94.1	100.0
06/27/00	72.5	94.2	100.0
06/28/00	74.2	93.0	100.0
06/29/00	0.0	37.8	100.0
06/30/00	0.0	0.0	0.0
07/01/00	66.8	93.1	100.0
07/02/00	83.9	96.6	100.0
07/03/00	90.5	98.5	100.0
07/04/00	71.0	96.3	100.0
07/05/00	88.7	97.8	100.0
07/06/00	95.4	99.4	100.0
07/07/00	83.4	97.7	100.0
07/08/00	91.1	98.7	100.0
07/09/00	89.8	98.5	100.0
07/10/00	92.2	98.5	100.0
07/11/00	93.3	99.1	100.0
07/12/00	85.7	97.6	100.0
07/13/00	43.8	90.6	100.0
07/14/00	50.5	90.5	100.0
07/15/00	55.3	96.4	100.0
07/16/00	100.0	100.0	100.0
07/17/00	93.2	99.3	100.0
07/18/00	0.0	84.5	100.0
07/19/00	84.3	97.9	100.0
07/20/00	0.0	85.4	100.0
07/21/00	0.0	75.0	100.0

Table B.5
Summary of Daily Recorded Humidity
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Humidity (%)		
	Minimum	Average	Maximum
07/22/00	0.0	75.2	100.0
07/23/00	14.7	79.2	100.0
07/24/00	0.0	56.8	100.0
07/25/00	0.0	63.8	100.0
07/26/00	0.0	66.2	100.0
07/27/00	0.0	85.2	100.0
07/28/00	0.0	54.3	100.0
07/29/00	0.0	48.5	100.0
07/30/00	0.0	47.3	100.0
07/31/00	0.0	55.3	100.0
08/01/00	0.0	86.6	100.0
08/02/00	0.0	73.2	100.0
08/03/00	0.0	49.8	100.0
08/04/00	0.0	63.0	100.0
08/05/00	0.0	56.2	100.0
08/06/00	0.0	55.8	100.0
08/07/00	5.4	77.9	100.0
08/08/00	0.0	68.0	100.0
08/09/00	0.0	56.7	100.0
08/10/00	0.0	61.1	100.0
08/11/00	0.0	45.9	100.0
08/12/00	0.0	55.1	100.0
08/13/00	0.0	68.0	100.0
08/14/00	0.0	81.7	100.0
08/15/00	0.0	60.8	100.0
08/16/00	0.0	75.2	100.0
08/17/00	0.0	65.0	100.0
08/18/00	0.0	56.2	100.0
08/19/00	0.0	61.1	100.0
08/20/00	0.0	55.4	100.0
08/21/00	0.0	55.4	100.0
08/22/00	1.7	79.9	100.0
08/23/00	0.0	80.3	100.0
08/24/00	0.0	49.1	100.0
08/25/00	0.0	42.2	100.0
08/26/00	0.0	44.8	100.0
08/27/00	0.0	51.7	100.0
08/28/00	0.0	56.9	100.0
08/29/00	0.0	83.3	100.0
08/30/00	54.0	96.0	100.0
08/31/00	41.6	88.2	100.0
09/01/00	0.0	57.8	100.0
09/02/00	0.0	46.4	100.0
09/03/00	0.0	53.0	100.0
09/04/00	0.0	64.7	100.0
09/05/00	0.0	69.7	100.0
09/06/00	0.0	16.7	100.0
09/07/00	0.0	63.3	100.0
09/08/00	0.0	38.2	100.0
09/09/00	0.0	44.3	100.0

Table B.5
Summary of Daily Recorded Humidity
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Humidity (%)		
	Minimum	Average	Maximum
09/10/00	0.0	44.2	100.0
09/11/00	0.0	36.2	100.0
09/12/00	0.0	49.2	100.0
09/13/00	0.0	60.2	100.0
09/14/00	0.0	37.8	100.0
09/15/00	0.0	78.7	100.0
09/16/00	0.0	71.4	100.0
09/17/00	0.0	39.6	100.0
09/18/00	0.0	59.5	100.0
09/19/00	0.0	33.8	100.0
09/20/00	0.0	36.1	100.0
09/21/00	0.0	0.0	0.0
09/22/00	0.0	28.0	100.0
09/23/00	0.0	57.6	100.0
09/24/00	0.0	43.0	100.0
09/25/00	0.0	30.9	100.0
09/26/00	0.0	33.0	100.0
09/27/00	0.0	33.3	100.0
09/28/00	0.0	41.7	100.0
09/29/00	0.0	46.9	100.0
09/30/00	0.0	37.0	100.0
10/01/00	0.0	26.5	100.0
10/02/00	0.0	32.1	100.0
10/03/00	0.0	36.9	100.0
10/04/00	0.0	30.4	100.0
10/05/00	0.0	35.9	100.0
10/06/00	0.0	1.8	30.3
10/07/00	0.0	4.4	37.4
10/08/00	0.0	32.0	100.0
10/09/00	0.0	19.8	100.0
10/10/00	0.0	2.2	53.8
10/11/00	0.0	28.0	100.0
10/12/00	0.0	12.5	100.0
10/13/00	0.0	55.0	100.0
10/14/00	0.0	62.3	100.0
10/15/00	0.0	25.2	100.0
10/16/00	0.0	33.3	100.0
10/17/00	0.0	34.8	100.0
10/18/00	0.0	21.6	100.0
10/19/00	0.0	26.8	100.0
10/20/00	0.0	30.9	100.0
10/21/00	0.0	63.5	100.0
10/22/00	0.0	39.9	100.0
10/23/00	0.0	70.8	100.0
10/24/00	0.0	66.3	100.0
10/25/00	0.0	32.0	100.0
10/26/00	0.0	0.0	0.0
10/27/00	0.0	6.9	79.5
10/28/00	0.0	38.2	100.0
10/29/00	0.0	0.0	0.0

Table B.5
Summary of Daily Recorded Humidity
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Humidity (%)		
	Minimum	Average	Maximum
10/30/00	0.0	26.4	100.0
10/31/00	0.0	27.2	100.0
11/01/00	0.0	31.6	100.0
11/02/00	0.0	57.0	100.0
11/03/00	0.0	42.6	100.0
11/04/00	0.0	30.3	100.0
11/05/00	0.0	11.2	72.3
11/06/00	0.0	44.4	100.0
11/07/00	0.0	49.2	100.0
11/08/00	0.0	32.3	100.0
11/09/00	0.0	41.7	100.0
11/10/00	0.0	39.8	100.0
11/11/00	0.0	45.3	100.0
11/12/00	0.0	59.6	100.0
11/13/00	0.0	58.8	100.0
11/14/00	0.0	65.4	100.0
11/15/00	0.0	64.3	100.0
11/16/00	0.0	57.4	100.0
11/17/00	0.0	53.5	100.0
11/18/00	0.0	68.4	100.0
11/19/00	0.0	35.0	100.0
11/20/00	0.0	31.5	100.0
11/21/00	0.0	27.8	100.0
11/22/00	0.0	35.4	100.0
11/23/00	0.0	83.9	100.0
11/24/00	36.4	72.9	100.0
11/25/00	17.4	88.9	100.0
11/26/00	0.0	62.6	100.0
11/27/00	20.9	89.2	100.0
11/28/00	0.0	47.4	100.0
11/29/00	0.0	0.0	0.0
11/30/00	0.0	53.3	100.0
12/01/00	0.0	38.5	100.0
12/02/00	0.0	28.4	100.0
12/03/00	0.0	27.6	100.0
12/04/00	0.0	23.5	100.0
12/05/00	0.0	37.6	100.0
12/06/00	0.0	75.6	100.0
12/07/00	0.0	24.6	100.0
12/08/00	0.0	0.0	0.0
12/09/00	0.0	7.8	100.0
12/10/00	0.0	28.3	100.0
12/11/00	0.0	24.1	100.0
12/12/00	0.0	29.2	100.0
12/13/00	0.0	27.6	100.0
12/14/00	0.0	20.8	100.0
12/15/00	0.0	28.0	100.0
12/16/00	35.6	86.4	100.0
12/17/00	0.0	24.5	100.0
12/18/00	0.0	54.4	100.0

Table B.5
Summary of Daily Recorded Humidity
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Humidity (%)		
	Minimum	Average	Maximum
12/19/00	0.0	53.5	100.0
12/20/00	0.0	50.6	100.0
12/21/00	0.0	16.9	100.0
12/22/00	0.0	70.7	100.0
12/23/00	44.0	88.0	100.0
12/24/00	60.2	86.4	100.0
12/25/00	0.0	59.3	100.0
12/26/00	0.0	37.9	100.0
12/27/00	0.0	54.8	100.0
12/28/00	0.0	37.5	100.0
12/29/00	0.0	59.9	100.0
12/30/00	0.0	59.9	100.0
12/31/00	0.0	14.8	100.0
01/01/01	0.0	25.2	100.0
01/02/01	0.0	55.6	100.0
01/03/01	0.0	50.7	100.0
01/04/01	0.0	62.6	100.0
01/05/01	0.0	59.6	100.0
01/06/01	0.0	55.5	100.0
01/07/01	0.0	10.2	93.6
01/08/01	0.0	22.6	100.0
01/09/01	0.0	56.1	100.0
01/10/01	0.0	4.0	96.5
01/11/01	0.0	5.4	100.0
01/12/01	0.0	15.9	95.0
01/13/01	0.0	11.2	95.1
01/14/01	0.0	18.7	92.0
01/15/01	0.0	64.4	100.0
01/16/01	0.0	52.6	100.0
01/17/01	0.0	58.1	100.0
01/18/01	0.0	33.9	100.0
01/19/01	0.0	22.3	100.0
01/20/01	0.0	10.1	100.0
01/21/01	0.0	24.6	100.0
01/22/01	0.0	13.6	100.0
01/23/01	0.0	0.0	0.0
01/24/01	0.0	0.0	0.0
01/25/01	0.0	0.0	0.0
01/26/01	0.0	0.3	7.8
01/27/01	0.0	28.4	100.0
01/28/01	0.0	12.5	100.0
01/29/01	0.0	5.1	77.6
01/30/01	0.0	50.0	100.0
01/31/01	0.0	25.4	100.0
02/01/01	0.0	11.2	100.0
02/02/01	0.0	6.1	100.0
02/03/01	0.0	0.0	0.0
02/04/01	0.0	34.3	100.0
02/05/01	0.0	19.5	100.0
02/06/01	0.0	24.7	100.0

Table B.5
Summary of Daily Recorded Humidity
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Humidity (%)		
	Minimum	Average	Maximum
02/07/01	0.0	20.0	100.0
02/08/01	0.0	40.2	100.0
02/09/01	0.0	1.2	29.4
02/10/01	0.0	0.0	0.0
02/11/01	0.0	0.0	0.0
02/12/01	0.0	0.0	0.0
02/13/01	0.0	1.9	46.6
02/14/01	0.0	25.3	100.0
02/15/01	0.0	15.7	100.0
02/16/01	0.0	20.9	100.0
02/17/01	0.0	30.0	100.0
02/18/01	0.0	0.0	0.0
02/19/01	0.0	0.0	0.0
02/20/01	0.0	0.0	0.0
02/21/01	0.0	1.3	9.7
02/22/01	0.0	0.0	0.0
02/23/01	0.0	8.3	77.4
02/24/01	0.0	0.0	0.0
02/25/01	0.0	0.0	0.0
02/26/01	0.0	0.0	0.0
02/27/01	0.0	32.6	100.0
02/28/01	0.0	12.2	84.5
03/01/01	0.0	38.1	100.0
03/02/01	0.0	0.0	0.0
03/03/01	0.0	8.5	70.4
03/04/01	0.0	0.0	0.0
03/05/01	0.0	10.8	89.2
03/06/01	0.0	32.8	100.0
03/07/01	0.0	1.0	18.2
03/08/01	0.0	0.6	13.9
03/09/01	0.0	6.8	70.7
03/10/01	0.0	31.7	100.0
03/11/01	0.0	10.5	65.6
03/12/01	0.0	37.2	100.0
03/13/01	0.0	18.0	100.0
03/14/01	0.0	0.4	9.8
03/15/01	0.0	5.7	66.0
03/16/01	0.0	31.8	100.0
03/17/01	0.0	47.5	100.0
03/18/01	0.0	34.4	100.0
03/19/01	0.0	25.1	100.0
03/20/01	0.0	17.4	100.0
03/21/01	0.0	0.0	0.0
03/22/01	0.0	8.6	62.9
03/23/01	0.0	1.4	29.5
03/24/01	0.0	10.1	67.4
03/25/01	0.0	0.1	1.8
03/26/01	0.0	58.2	100.0
03/27/01	0.0	37.8	100.0
03/28/01	0.0	41.5	100.0

Table B.5
Summary of Daily Recorded Humidity
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Humidity (%)		
	Minimum	Average	Maximum
03/29/01	0.0	0.0	0.0
03/30/01	0.0	32.9	100.0
03/31/01	0.0	1.1	27.1
04/01/01	0.0	0.0	0.0
04/02/01	0.0	58.7	100.0
04/03/01	0.0	48.0	100.0
04/04/01	0.0	72.7	100.0
04/05/01	0.0	26.9	100.0
04/06/01	0.0	19.2	90.0
04/07/01	0.0	0.0	0.0
04/08/01	0.0	40.1	100.0
04/09/01	0.0	0.0	0.0
04/10/01	0.0	0.0	0.0
04/11/01	0.0	4.5	45.7
04/12/01	0.0	40.5	100.0
04/13/01	0.0	48.1	100.0
04/14/01	0.0	55.2	100.0
04/15/01	0.0	25.7	100.0
04/16/01	0.0	35.7	100.0
04/17/01	0.0	22.3	100.0
04/18/01	0.0	0.0	0.0
04/19/01	0.0	14.1	89.0
04/20/01	0.0	9.4	99.4
04/21/01	0.0	25.5	100.0
04/22/01	0.0	9.7	74.9
04/23/01	0.0	41.0	100.0
04/24/01	0.0	28.9	100.0
04/25/01	0.0	27.2	100.0
04/26/01	0.0	0.0	0.0
04/27/01	0.0	0.0	0.0
04/28/01	0.0	9.6	65.1
04/29/01	0.0	62.9	100.0
04/30/01	0.0	35.5	100.0
05/01/01	0.0	1.0	23.4
05/02/01	0.0	10.3	100.0
05/03/01	0.0	28.7	100.0
05/04/01	0.0	13.5	100.0
05/05/01	0.0	36.1	100.0
05/06/01	0.0	27.2	100.0
05/07/01	0.0	37.4	100.0
05/08/01	0.0	18.8	100.0
05/09/01	0.0	20.1	100.0
05/10/01	0.0	0.0	0.0
05/11/01	0.0	0.0	0.0
05/12/01	0.0	0.0	0.0
05/13/01	0.0	0.4	9.0
05/14/01	0.0	4.4	45.8
05/15/01	0.0	12.9	100.0
05/16/01	0.0	2.4	56.8
05/17/01	0.0	0.3	6.6

Table B.5
Summary of Daily Recorded Humidity
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Humidity (%)		
	Minimum	Average	Maximum
05/18/01	0.0	0.0	0.0
05/19/01	0.0	0.0	0.0
05/20/01	0.0	0.0	0.0
05/21/01	0.0	0.0	0.0
05/22/01	0.0	0.0	0.0
05/23/01	0.0	12.5	100.0
05/24/01	0.0	30.6	100.0
05/25/01	0.0	0.7	17.3
05/26/01	0.0	0.0	0.0
05/27/01	0.0	0.3	6.4
05/28/01	0.0	14.9	100.0
05/29/01	0.0	30.3	100.0
05/30/01	0.0	41.4	100.0
05/31/01	0.0	20.2	100.0
06/01/01	0.0	0.3	6.8
06/02/01	0.0	5.0	47.2
06/03/01	0.0	0.2	2.6
06/04/01	0.0	26.8	100.0
06/05/01	0.0	39.5	100.0
06/06/01	0.0	41.4	100.0
06/07/01	0.0	19.4	100.0
06/08/01	0.0	26.8	100.0
06/09/01	0.0	1.8	37.9
06/10/01	0.0	5.3	59.3
06/11/01	0.0	0.0	0.0
06/12/01	0.0	0.0	0.0
06/13/01	0.0	21.9	100.0
06/14/01	0.0	20.4	100.0
06/15/01	0.0	12.2	100.0
06/16/01	0.0	28.4	100.0
06/17/01	0.0	35.7	100.0
06/18/01	0.0	26.9	100.0
06/19/01	0.0	12.4	100.0
06/20/01	0.0	27.1	100.0
06/21/01	0.0	15.7	100.0
06/22/01	0.0	19.6	100.0
06/23/01	0.0	37.9	100.0
06/24/01	0.0	43.6	100.0
06/25/01	0.0	38.1	100.0
06/26/01	0.0	62.8	100.0
06/27/01	0.0	60.2	100.0
06/28/01	0.0	48.0	100.0
06/29/01	0.0	45.1	100.0
06/30/01	0.0	46.0	100.0
07/01/01	0.0	43.3	100.0
07/02/01	0.0	43.7	100.0
07/03/01	0.0	41.7	100.0
07/04/01	0.0	77.0	100.0
07/05/01	0.0	39.7	100.0
07/06/01	0.0	48.2	100.0

Table B.5
Summary of Daily Recorded Humidity
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Humidity (%)		
	Minimum	Average	Maximum
07/07/01	0.0	39.7	100.0
07/08/01	0.0	50.4	100.0
07/09/01	0.0	56.0	100.0
07/10/01	0.0	83.1	100.0
07/11/01	0.0	61.0	100.0
07/12/01	0.0	52.7	100.0
07/13/01	0.0	44.7	100.0
07/14/01	0.0	40.8	100.0
07/15/01	0.0	47.1	100.0
07/16/01	0.0	55.8	100.0
07/17/01	0.0	54.4	100.0
07/18/01	0.0	45.9	100.0
07/19/01	0.0	39.2	100.0
07/20/01	0.0	40.0	100.0
07/21/01	0.0	52.7	100.0
07/22/01	0.0	40.5	100.0
07/23/01	0.0	39.7	100.0
07/24/01	0.0	39.2	100.0
07/25/01	0.0	42.1	100.0
07/26/01	0.0	41.7	100.0
07/27/01	0.0	40.1	100.0
07/28/01	0.0	39.1	100.0
07/29/01	0.0	33.0	100.0
07/30/01	0.0	32.0	100.0
07/31/01	0.0	37.8	100.0
08/01/01	0.0	33.3	100.0
08/02/01	0.0	41.5	100.0
08/03/01	0.0	32.4	100.0
08/04/01	0.0	37.5	100.0
08/05/01	0.0	42.1	100.0
08/06/01	0.0	37.5	100.0
08/07/01	0.0	43.3	100.0
08/08/01	0.0	41.2	100.0
08/09/01	0.0	35.3	100.0
08/10/01	0.0	41.6	100.0
08/11/01	0.0	41.3	100.0
08/12/01	0.0	42.3	100.0
08/13/01	0.0	41.7	100.0
08/14/01	0.0	37.5	100.0
08/15/01	0.0	38.6	100.0
08/16/01	0.0	33.3	100.0
08/17/01	0.0	33.3	100.0
08/18/01	0.0	37.5	100.0
08/19/01	0.0	40.4	100.0
08/20/01	0.0	29.0	100.0
08/21/01	0.0	39.1	100.0
08/22/01	0.0	37.2	100.0
08/23/01	0.0	39.7	100.0
08/24/01	0.0	29.7	100.0
08/25/01	0.0	50.4	100.0

Table B.5
Summary of Daily Recorded Humidity
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Humidity (%)		
	Minimum	Average	Maximum
08/26/01	0.0	44.5	100.0
08/27/01	0.0	44.2	100.0
08/28/01	0.0	45.9	100.0
08/29/01	0.0	15.4	95.5
08/30/01	0.0	38.5	100.0
08/31/01	0.0	34.8	100.0
09/01/01	0.0	29.2	100.0
09/02/01	0.0	41.4	100.0
09/03/01	0.0	45.5	100.0
09/04/01	0.0	35.0	100.0
09/05/01	0.0	36.2	100.0
09/06/01	0.0	41.4	100.0
09/07/01	0.0	27.9	100.0
09/08/01	0.0	29.1	100.0
09/09/01	0.0	41.7	100.0
09/10/01	0.0	64.8	100.0
09/11/01	0.0	60.9	100.0
09/12/01	0.0	36.1	100.0
09/13/01	0.0	35.3	100.0
09/14/01	0.0	29.2	100.0
09/15/01	0.0	26.6	100.0
09/16/01	0.0	24.9	100.0
09/17/01	0.0	23.8	100.0
09/18/01	0.0	31.3	100.0
09/19/01	0.0	32.1	100.0
09/20/01	0.0	25.0	100.0
09/21/01	0.0	31.7	100.0
09/22/01	0.0	32.3	100.0
09/23/01	0.0	33.1	100.0
09/24/01	0.0	32.6	100.0
09/25/01	0.0	36.8	100.0
09/26/01	0.0	32.7	100.0
09/27/01	0.0	66.7	100.0
09/28/01	0.0	48.5	100.0
09/29/01	0.0	18.8	100.0
09/30/01	0.0	45.3	100.0
10/01/01	0.0	38.8	100.0
10/02/01	0.0	29.2	100.0
10/03/01	0.0	25.0	100.0
10/04/01	0.0	26.5	100.0
10/05/01	0.0	48.1	100.0
10/06/01	0.0	41.7	100.0
10/07/01	0.0	33.1	100.0
10/08/01	0.0	23.9	100.0
10/09/01	0.0	37.5	100.0
10/10/01	0.0	17.7	100.0
10/11/01	0.0	31.4	100.0
10/12/01	0.0	37.9	100.0
10/13/01	0.0	36.8	100.0
10/14/01	0.0	54.4	100.0

Table B.5
Summary of Daily Recorded Humidity
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Humidity (%)		
	Minimum	Average	Maximum
10/15/01	0.0	25.0	100.0
10/16/01	0.0	26.1	100.0
10/17/01	0.0	38.7	100.0
10/18/01	0.0	24.1	100.0
10/19/01	0.0	20.8	100.0
10/20/01	0.0	9.7	100.0
10/21/01	0.0	26.8	100.0
10/22/01	0.0	37.0	100.0
10/23/01	0.0	73.5	100.0
10/24/01	0.0	40.5	100.0
10/25/01	0.0	25.0	100.0
10/26/01	0.0	3.4	81.0
10/27/01	0.0	35.6	100.0
10/28/01	0.0	40.7	100.0
10/29/01	0.0	61.7	100.0
10/30/01	0.0	4.4	46.0
10/31/01	0.0	10.7	100.0
11/01/01	0.0	25.0	100.0
11/02/01	0.0	0.0	0.0
11/03/01	0.0	21.8	100.0
11/04/01	0.0	10.9	100.0
11/05/01	0.0	24.8	100.0
11/06/01	0.0	0.0	0.0
11/07/01	0.0	26.4	100.0
11/08/01	0.0	27.0	100.0
11/09/01	0.0	23.4	100.0
11/10/01	0.0	27.7	100.0
11/11/01	0.0	10.3	94.9
11/12/01	0.0	0.0	0.0
11/13/01	0.0	29.2	100.0
11/14/01	0.0	81.6	100.0
11/15/01	0.0	34.6	100.0
11/16/01	0.0	3.2	75.8
11/17/01	0.0	4.2	100.0
11/18/01	0.0	34.3	100.0
11/19/01	0.0	30.9	100.0
11/20/01	0.0	20.8	100.0
11/21/01	0.0	12.3	100.0
11/22/01	0.0	0.0	0.0
11/23/01	0.0	49.7	100.0
11/24/01	0.0	11.5	100.0
11/25/01	0.0	38.7	100.0
11/26/01	0.0	51.0	100.0
11/27/01	0.0	25.0	100.0
11/28/01	0.0	47.3	100.0
11/29/01	0.0	0.0	0.0
11/30/01	0.0	32.1	100.0
12/01/01	0.0	15.9	100.0
12/02/01	0.0	7.5	76.6
12/03/01	0.0	34.9	100.0

Table B.5
Summary of Daily Recorded Humidity
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Humidity (%)		
	Minimum	Average	Maximum
12/04/01	0.0	44.4	100.0
12/05/01	0.0	28.1	100.0
12/06/01	0.0	83.3	100.0
12/07/01	0.0	84.5	100.0
12/08/01	0.0	23.5	100.0
12/09/01	0.0	60.9	100.0
12/10/01	0.0	42.2	100.0
12/11/01	0.0	44.1	100.0
12/12/01	0.0	46.6	100.0
12/13/01	0.0	24.0	100.0
12/14/01	0.0	56.6	100.0
12/15/01	0.0	64.7	100.0
12/16/01	0.0	44.1	100.0
12/17/01	0.0	12.6	100.0
12/18/01	0.0	36.4	100.0
12/19/01	0.0	22.3	100.0
12/20/01	0.0	10.5	93.8
12/21/01	0.0	21.0	100.0
12/22/01	0.0	19.2	100.0
12/23/01	0.0	33.9	100.0
12/24/01	0.0	26.1	100.0
12/25/01	0.0	37.0	100.0
12/26/01	0.0	21.5	100.0
12/27/01	0.0	36.5	100.0
12/28/01	0.0	55.1	100.0
12/29/01	0.0	37.2	100.0
12/30/01	0.0	0.0	0.0
12/31/01	0.0	0.0	0.0
01/01/02	0.0	0.0	0.0
01/02/02	0.0	0.0	0.0
01/03/02	0.0	18.7	100.0
01/04/02	0.0	27.3	100.0
01/05/02	0.0	33.2	100.0
01/06/02	0.0	31.4	100.0
01/07/02	0.0	0.0	0.0
01/08/02	0.0	0.0	0.0
01/09/02	0.0	34.6	100.0
01/10/02	0.0	61.2	100.0
01/11/02	0.0	16.1	100.0
01/12/02	0.0	33.6	100.0
01/13/02	0.0	65.0	100.0
01/14/02	0.0	43.5	100.0
01/15/02	0.0	0.0	0.0
01/16/02	0.0	0.0	0.0
01/17/02	0.0	0.0	0.0
01/18/02	0.0	0.0	0.0
01/19/02	0.0	0.0	0.0
01/20/02	0.0	0.0	0.0
01/21/02	0.0	0.0	0.0
01/22/02	0.0	0.0	0.0

Table B.5
Summary of Daily Recorded Humidity
San Luis Obispo Tank Farm
San Luis Obispo, California

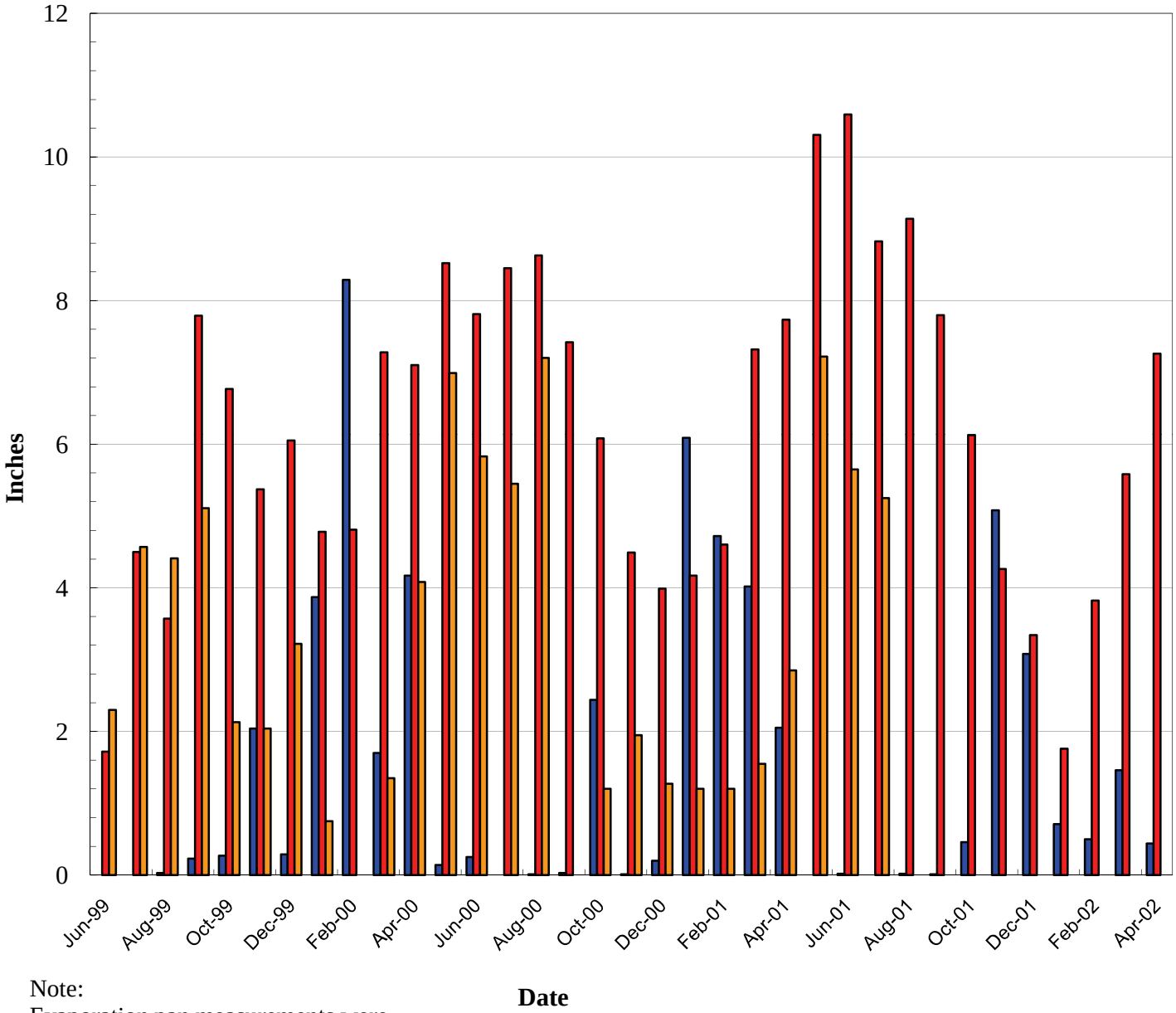
Date	Humidity (%)		
	Minimum	Average	Maximum
01/23/02	0.0	0.0	0.0
01/24/02	0.0	0.0	0.0
01/25/02	0.0	0.0	0.0
01/26/02	0.0	0.0	0.0
01/27/02	0.0	0.0	0.0
01/28/02	0.0	0.0	0.0
01/29/02	0.0	0.0	0.0
01/30/02	0.0	0.0	0.0
01/31/02	0.0	0.0	0.0
02/01/02	0.0	0.0	0.0
02/02/02	0.0	0.0	0.0
02/03/02	0.0	0.0	0.0
02/04/02	0.0	0.0	0.0
02/05/02	0.0	0.0	0.0
02/06/02	0.0	0.0	0.0
02/07/02	0.0	0.0	0.0
02/08/02	0.0	64.0	100.0
02/09/02	0.0	51.3	100.0
02/10/02	0.0	15.4	100.0
02/11/02	0.0	31.2	100.0
02/12/02	0.0	53.0	100.0
02/13/02	0.0	12.5	100.0
02/14/02	0.0	37.5	100.0
02/15/02	0.0	28.6	100.0
02/16/02	0.0	37.7	100.0
02/17/02	0.0	33.6	100.0
02/18/02	0.0	29.2	100.0
02/19/02	0.0	26.0	100.0
02/20/02	0.0	54.5	100.0
02/21/02	0.0	43.5	100.0
02/22/02	0.0	26.2	100.0
02/23/02	0.0	43.1	100.0
02/24/02	0.0	43.3	100.0
02/25/02	0.0	36.6	100.0
02/26/02	0.0	29.5	100.0
02/27/02	0.0	25.2	100.0
02/28/02	0.0	32.6	100.0
03/01/02	0.0	37.0	100.0
03/02/02	0.0	17.5	100.0
03/03/02	0.0	23.6	100.0
03/04/02	0.0	26.2	100.0
03/05/02	0.0	37.5	100.0
03/06/02	0.0	0.0	0.0
03/07/02	0.0	15.8	97.8
03/08/02	0.0	59.8	100.0
03/09/02	0.0	40.6	100.0
03/10/02	0.0	25.6	100.0
03/11/02	0.0	39.4	100.0
03/12/02	0.0	63.6	100.0
03/13/02	0.0	90.3	100.0

Table B.5
Summary of Daily Recorded Humidity
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Humidity (%)		
	Minimum	Average	Maximum
03/14/02	0.0	85.2	100.0
03/15/02	0.0	57.3	100.0
03/16/02	0.0	56.8	100.0
03/17/02	0.0	30.1	100.0
03/18/02	0.0	48.2	100.0
03/19/02	0.0	26.2	100.0
03/20/02	0.0	22.1	100.0
03/21/02	0.0	38.2	100.0
03/22/02	0.0	29.2	100.0
03/23/02	0.0	1.9	45.6
03/24/02	0.0	39.5	100.0
03/25/02	0.0	51.5	100.0
03/26/02	0.0	45.8	100.0
03/27/02	0.0	28.9	100.0
03/28/02	0.0	33.9	100.0
03/29/02	0.0	4.2	59.1
03/30/02	0.0	2.2	41.0
03/31/02	0.0	0.0	0.0
04/01/02	0.0	0.0	0.0
04/02/02	0.0	0.0	0.0
04/03/02	0.0	9.2	71.7
04/04/02	0.0	44.6	100.0
04/05/02	0.0	26.2	100.0
04/06/02	0.0	41.5	100.0
04/07/02	0.0	31.0	100.0
04/08/02	0.0	5.5	85.2
04/09/02	0.0	21.3	100.0
04/10/02	0.0	22.6	100.0
04/11/02	0.0	69.9	100.0
04/12/02	0.0	39.3	100.0
04/13/02	0.0	42.8	100.0
04/14/02	0.0	43.2	100.0
04/15/02	0.0	63.3	100.0
04/16/02	0.0	63.6	100.0
04/17/02	0.0	47.5	100.0
04/18/02	0.0	82.6	100.0
04/19/02	0.0	38.0	100.0
04/20/02	0.0	35.1	100.0
04/21/02	0.0	40.9	100.0
04/22/02	0.0	23.3	100.0
04/23/02	0.0	29.1	100.0
04/24/02	0.0	31.2	100.0
04/25/02	0.0	36.6	100.0
04/26/02	0.0	12.5	100.0
04/27/02	0.0	86.1	100.0
04/28/02	0.0	36.1	100.0
04/29/02	0.0	88.0	100.0
04/30/02	32.3	89.0	100.0
05/01/02	94.5	99.8	100.0
05/02/02	100.0	100.0	100.0

Table B.5
Summary of Daily Recorded Humidity
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Humidity (%)		
	Minimum	Average	Maximum
05/03/02	100.0	100.0	100.0
05/04/02	100.0	100.0	100.0
05/05/02	100.0	100.0	100.0
05/06/02	0.0	78.3	100.0
05/07/02	100.0	100.0	100.0
05/08/02	32.6	86.2	100.0
05/09/02	0.0	83.3	100.0
05/10/02	0.0	93.5	100.0
05/11/02	0.0	63.4	100.0
05/12/02	0.0	54.3	100.0
05/13/02	38.6	96.3	100.0
05/14/02	100.0	100.0	100.0



Note:
Evaporation pan measurements were halted in August, 2001

FIGURE B-1
MONTHLY WEATHER DATA (JUNE 1999 - APRIL 2002)

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

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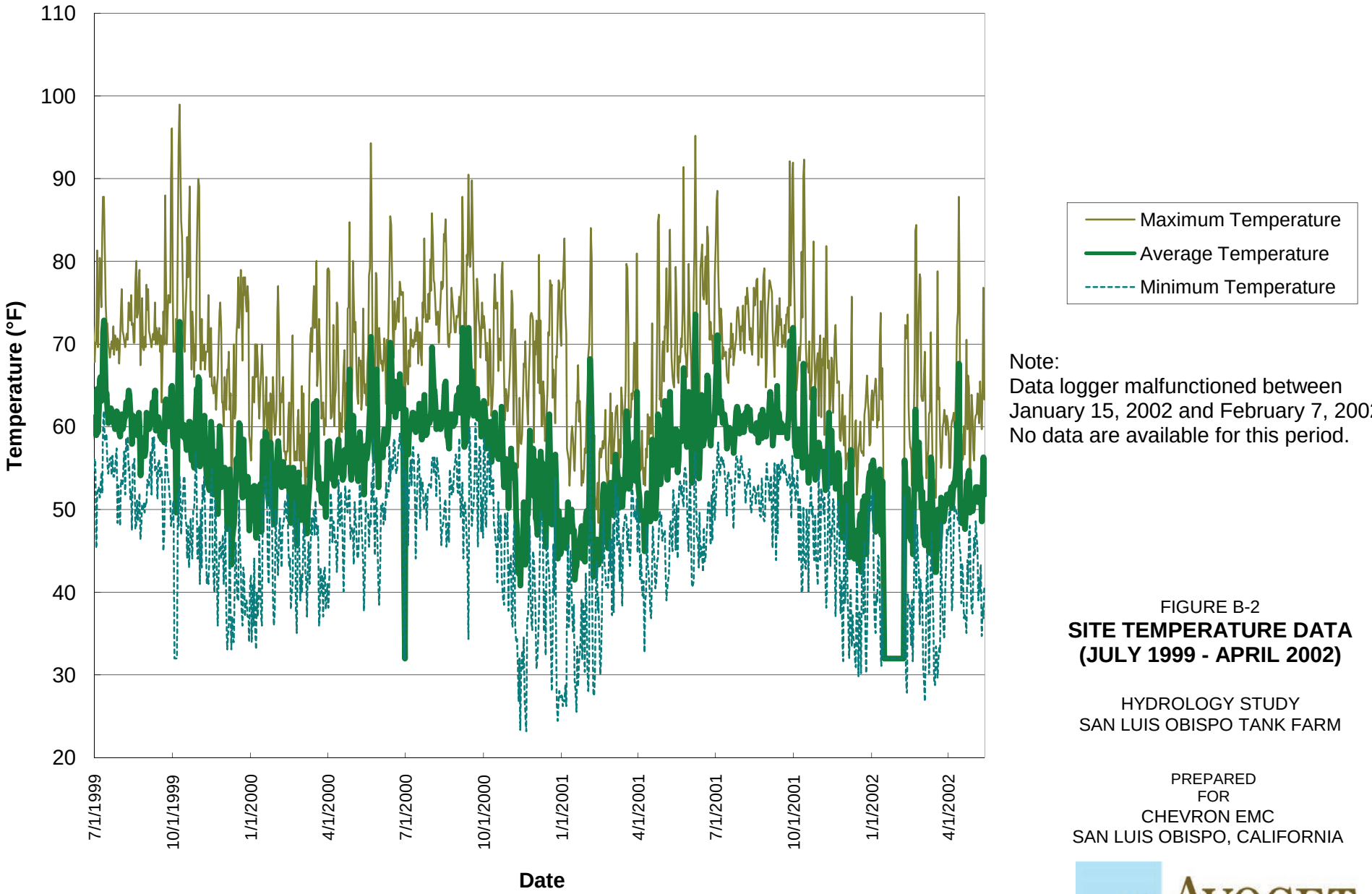

Note:
Data logger malfunctioned between January 15, 2002 and February 7, 2002. No data are available for this period.

FIGURE B-2
SITE TEMPERATURE DATA (JULY 1999 - APRIL 2002)

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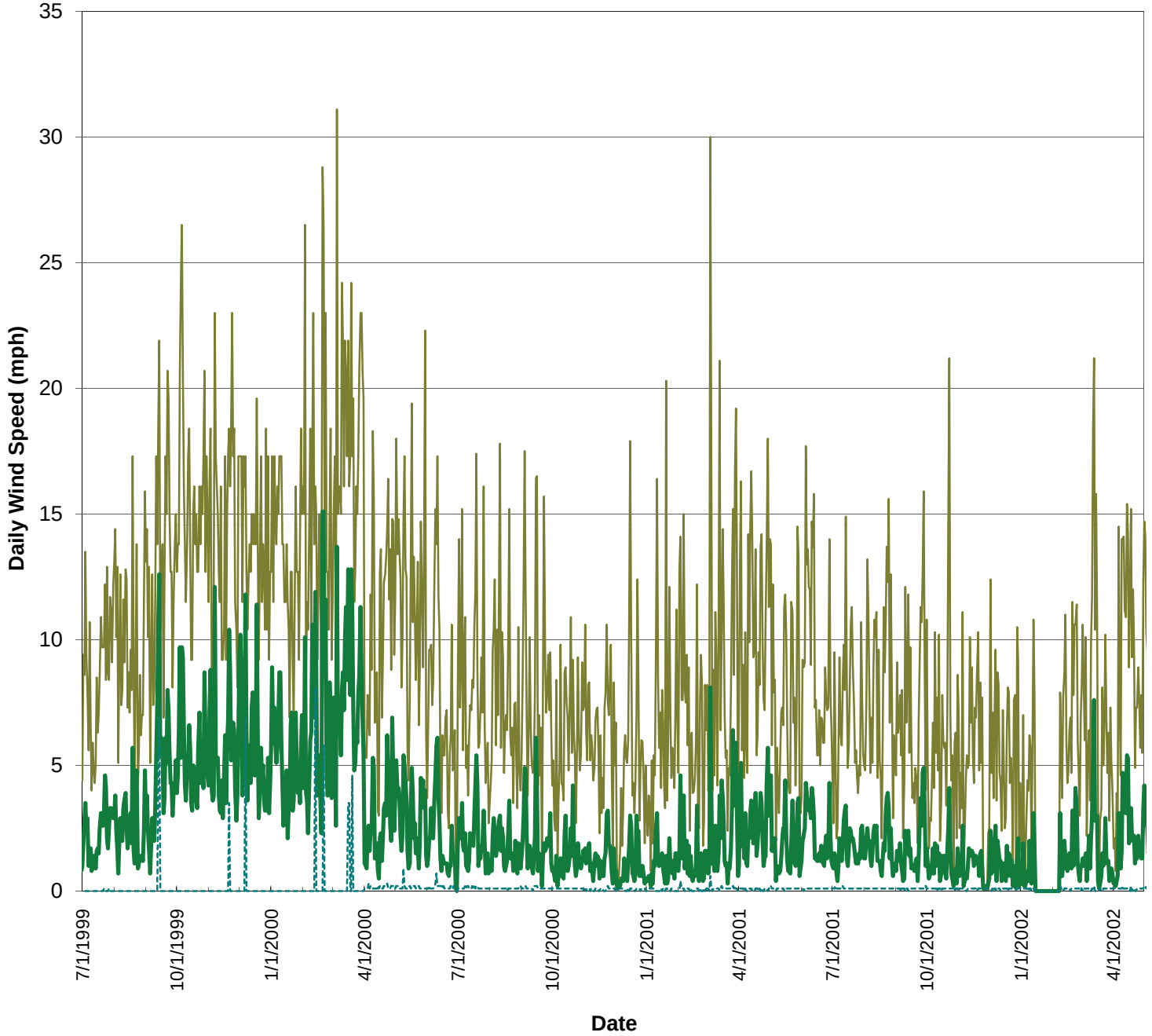

Note:
Data logger malfunctioned between January 15, 2002 and February 7, 2002. No data are available for this period.

FIGURE B-3
SITE WIND SPEED DATA (JULY 1999 - APRIL 2002)

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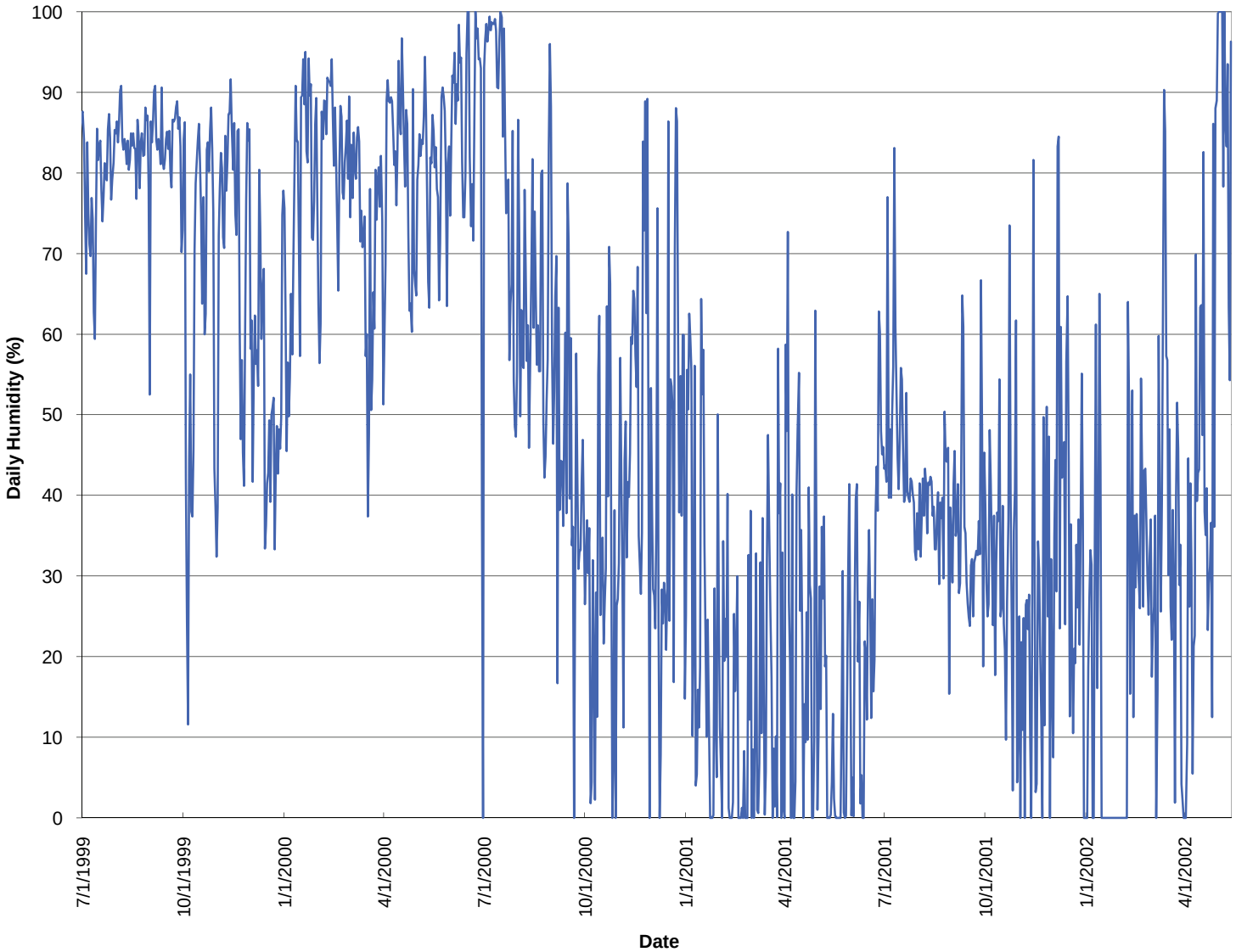

Note:
Data logger malfunctioned between January 15, 2002 and February 7, 2002. No data are available for this period.

FIGURE B-4
SITE HUMIDITY DATA
(JULY 1999 - APRIL 2002)

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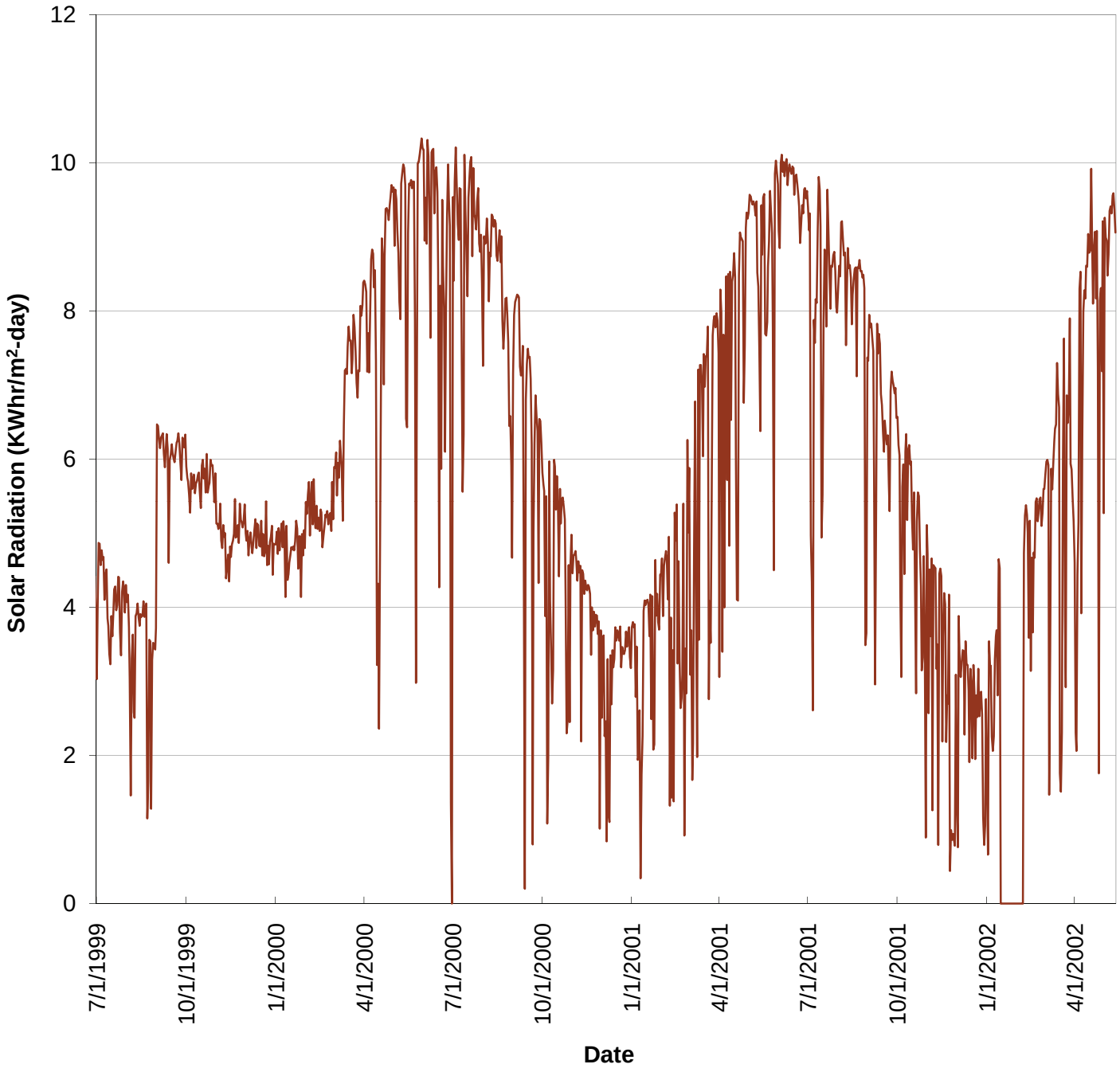

Note:
Data logger malfunctioned between January 15, 2002 and February 7, 2002. No data are available for this period.

FIGURE B-5
SITE SOLAR RADIATION DATA (JULY 1999 - APRIL 2002)

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SAN LUIS OBISPO TANK FARM

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Appendix C

Watershed Analyses

APPENDIX C
WATERSHED DEFINITIONS

This appendix describes the basic assumptions and characteristics of the watersheds that contribute flow into and out of the San Luis Obispo Tank Farm (Tank Farm) for the existing, post-remediation, and post-development conditions.

WATERSHED AND SUBCATCHMENT DEFINITIONS

The subcatchments and overall watershed boundaries are defined using topographic maps of the subject area. For the case of this hydrology study, two separate topographic maps were used to define the catchments. The first consists of a 1-foot contour interval map provided by EDA Design Professionals in July 2007, which provides topographic contours for the Tank Farm only. The second consists of a 0.5-meter contour interval map supplied by the City of San Luis Obispo and provides topographic contours for the areas surrounding the Tank Farm. Using these two topographic sources, the watersheds and corresponding subcatchments were defined using Autodesk's Civil 3D software for existing conditions (Figure C-1) and for post-remediation and post-development conditions (Figure C-2). As discussed previously in this report, catchments contributing runoff to the West Fork of Tank Farm Creek north of the property for the post-remediation and post-development scenarios is assumed to be detained and released by a stormwater detention basin to be constructed as part of future offsite development activities. Discharge from this detention basin is discussed in detail in Appendix D. The calculated rainfall catchment area for each subcatchment for the existing, post-remediation, and post-development condition is summarized in Table C.1.

Once the subcatchment's shape and area were defined, they were transferred into Bentley's CivilStorm v8 XM software so that each subcatchment's physical characteristics could be defined. CivilStorm v8 XM is an all-in-one stormwater modeling program used to accurately model stormwater systems, including rainfall, runoff, inlet capture and bypass, gravity and pressure piping, detention ponds, outlet structures, open channels, and culverts.

After the watershed and subcatchment shapes and areas are imported into the CivilStorm software, the physical properties for each subcatchment can be entered. The physical properties for each subcatchment include total area, runoff method, loss method, U.S. Soil Conservation Service (SCS) curve number (CN), SCS Unit Hydrograph method, and time of concentration. The runoff method used for all subcatchments in this study is the Unit Hydrograph method, the loss method used is the SCS CN method, and the SCS Unit Hydrograph method used is the default curvilinear method.

SCS Curve Number

The CN assigned to each subcatchment is an area-weighted average based on land use and soil type that contribute runoff to each subcatchment. CNs used in this study are based on those provided in Table 2-2 from Technical Release 55 (TR-55), *Urban Hydrology for Small Watersheds* (SCS, 1986). The curve numbers assigned to each subcatchment are summarized in Table C.1.

Appendix C
Watershed Definitions

Time of Concentration

The time of concentration (t_c) for each subcatchment was calculated using a combination of overland sheet flow and shallow concentrated flow equations. Sheet flow is assumed to occur for flow paths up to 300 feet in length. Sheet flow was calculated using Manning's kinematic solution as shown below.

TR-55 Sheet Flow Formula:

$$t_c = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5} S_f^{0.4}}$$

Where:

t_c = sheet flow time (hr)
n = Manning's roughness coefficient
L = flow length (ft)
$P2$ = 2-year, 24-hour rainfall (in)
S_f = slope (ft/ft)

After 300 feet, sheet flow typically becomes shallow concentrated flow by forming localized flow paths within the topography. For the purpose of this study, the Kirpich formula, as shown below, has been selected to generate time of concentrations for shallow concentrated flow. The Kirpich formula was developed from SCS data for several rural basins in Tennessee with well-defined channels and slopes and has been widely accepted as one of the most common methods for determining time of concentration.

Kirpich Formula:

$$t_c = 0.00013 L_f^{0.77} S_f^{-0.385} M_t$$

Where:

t_c = time of concentration (hr)
L_f = flow length (ft)
S_f = slope (ft/ft)
M_t = t_c multiplier
0.4 for overland flow over concrete or asphalt surfaces
0.2 for flow through concrete channels
No adjustment for flow over bare soil or ditches

The total time of concentration for subcatchments containing both sheet flow and shallow concentrated flow is represented by the sum of both the sheet flow and Kirpich equations presented above.

The calculated time of concentration for each subcatchment is summarized in Table C.1.

Tables

Table C.1
Summary of Catchment Areas
San Luis Obispo Tank Farm
San Luis Obispo, California

Catchment ID	Area (acres)	SCS Curve Number (Composite)	Time of Concentration (*Tc*) (minutes)
Existing Conditions			
A1	43.4	95.6	20.9
A2	94.7	85.3	19.4
A3	31.3	83.0	17.9
A4	4.5	98.0	4.6
A5	6.8	98.0	4.2
A6	4.0	98.0	10.1
A7	4.5	87.1	43.3
A8	73.3	83.0	17.8
A9	41.1	86.8	42.1
A10	19.5	65.0	39.3
A11	61.3	83.0	24.0
A12	51.4	84.2	19.6
A13	56.5	77.0	32.5
A14	35.0	48.0	53.0
A15	11.1	48.0	50.0
A16	7.7	55.5	60.2
A17	5.3	63.0	48.1
A18	7.4	79.9	65.0
A19	25.2	79.0	54.2
A20	5.7	98.0	4.9
A21	6.9	91.0	5.9
A22	11.3	69.8	37.4
A23	9.8	48.0	33.0
A24	10.5	51.5	63.3
A25	9.7	48.0	57.1
B1	4.4	71.0	9.8
B2	5.8	71.0	28.3
B3	1.8	71.0	3.2
B4	7.1	65.0	58.0
C1	1.8	48.0	18.3
C2	2.4	48.0	27.0
C3	21.0	48.0	48.5
C4	9.3	60.8	39.4
C5	10.9	48.0	39.4
D1	3.6	83.0	5.5

Catchment ID	Area (acres)	SCS Curve Number (Composite)	Time of Concentration (*Tc*) (minutes)
Post-Remediation Conditions			
A1	Catchments A1 through A9 contribute to the proposed detention basin located north of the property. Onsite flow is assumed to be that which is discharged from the detention basin and was provided by the hydrologic report for the King Ventures & Sierra Gardens (TEC, 2008).		
A2			
A3			
A4			
A5			
A6			
A7			
A8			
A9			
A10	17.8	65.0	39.3
A11	61.3	81.2	24.0
A12	57.3	85.6	19.6
A13	49.1	84.9	57.0
A14	35.0	48.0	53.0
A15	8.2	48.0	50.8
A16	13.6	48.0	60.2
A17	9.9	63.0	48.1
A18	7.4	91.0	65.0
A19	25.2	79.0	54.2
A20	5.7	98.0	4.9
A21	6.9	91.0	5.9
A22[1]	32.6	80.1	63.3
A25	14.7	48.0	57.1
B1	4.4	71.0	9.8
B2	5.8	71.0	28.3
B3	1.8	71.0	3.2
B4	7.1	65.0	58.0
-	-	-	-
C3[2]	22.9	79.0	42.1
C4	9.3	60.8	39.4
C5	11.4	48.0	39.4
D1	7.8	83.0	48.1
E1	3.0	91.0	8.4

Catchment ID	Area (acres)	SCS Curve Number (Composite)	Time of Concentration (*Tc*) (minutes)
Post-Development Conditions			
A1	Catchments A1 through A9 contribute to the proposed detention basin located north of the property. Onsite flow is assumed to be that which is discharged from the detention basin and was provided by the hydrologic report for the King Ventures & Sierra Gardens (TEC, 2008).		
A2			
A3			
A4			
A5			
A6			
A7			
A8			
A9			
A10	17.8	65.0	39.3
A11	61.3	81.2	24.0
A12	57.3	85.6	19.6
A13a	4.3	94.4	9.6
A13b	2.4	94.4	7.7
A13c	4.3	94.4	7.6
A13d	0.9	94.4	3.9
A13e	0.7	98.0	0.7
A13f	0.4	98.0	0.7
A13g	0.5	98.0	0.7
A13h	2.4	95.0	4.2
A13i	6.5	94.4	7.1
A13j	0.4	98.0	0.7
A13k	0.4	98.0	0.7
A13l	1.0	94.4	5.3
A13m	2.3	94.4	7.8
A13n	3.8	94.4	10.1
A13o	7.7	94.4	13.2
A13p	6.0	94.4	12.2
A13q	0.1	98.0	0.7
A13r	0.3	98.0	0.7
A13s	0.4	98.0	0.7
A13t	3.7	95.3	0.7
A13u	1.2	98.0	0.7
A13v	0.6	98.0	0.7
A13w	0.5	98.0	0.7
A13x	0.6	98.0	0.7
A13y	0.5	98.0	0.7
A13z	3.3	80.0	3.7
A13aa	0.8	80.0	8.4
A14	35.0	48.0	53.0
A15	8.2	48.0	50.8
A16	13.6	48.0	60.2
A17	9.9	63.0	48.1
A18	7.4	98.0	65.0
A19	25.2	79.0	54.2
A20	5.7	98.0	4.9
A21	6.9	91.0	5.9
A22[1]	32.6	80.1	63.3
A25	14.7	48.0	57.1
B1	4.4	71.0	9.8
B2	5.8	71.0	28.3
B3	1.8	71.0	3.2
B4	7.1	65.0	58.0
C3-2a[2]	2.2	94.4	9.5
C3-2b[2]	6.3	94.4	9.7
C3-2c[2]	0.8	80.0	5.0
C3-2d[2]	8.2	67.0	4.3
C4	9.3	60.8	39.4
C5	11.4	48.0	39.4
D1	7.8	83.0	48.1
E1	3.0	91.0	8.4

Notes:
(1) Existing catchments A22 through A24 are combined (A22) in the post-remediation and post-development condition.
(2) Existing closed catchments C2 and C3 are combined (C3) in the post-remediation and post-development condition.

Figures

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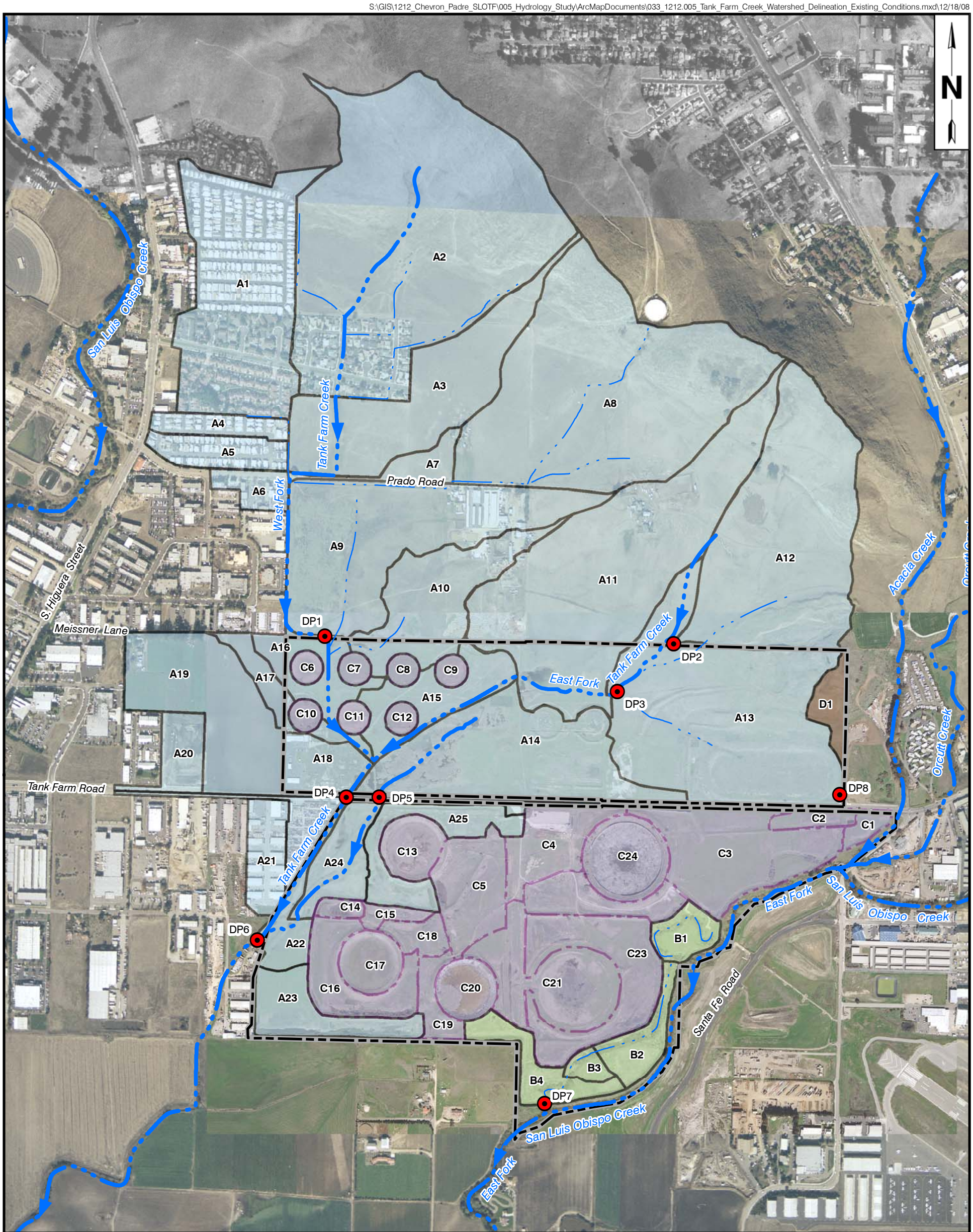

LEGEND

- DESIGN POINTS
- PRIMARY CREEK
- SECONDARY CREEK
- SITE PROPERTY BOUNDARY
- TANK FARM CREEK WATERSHED A
- EAST FORK SAN LUIS OBISPO CREEK WATERSHED B
- ISOLATED WATERSHED C
- OFFSITE DRAINING WATERSHED D

0 400 800 1,600 FEET

FIGURE C-1

TANK FARM CREEK WATERSHED DELINEATION EXISTING CONDITIONS

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

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SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

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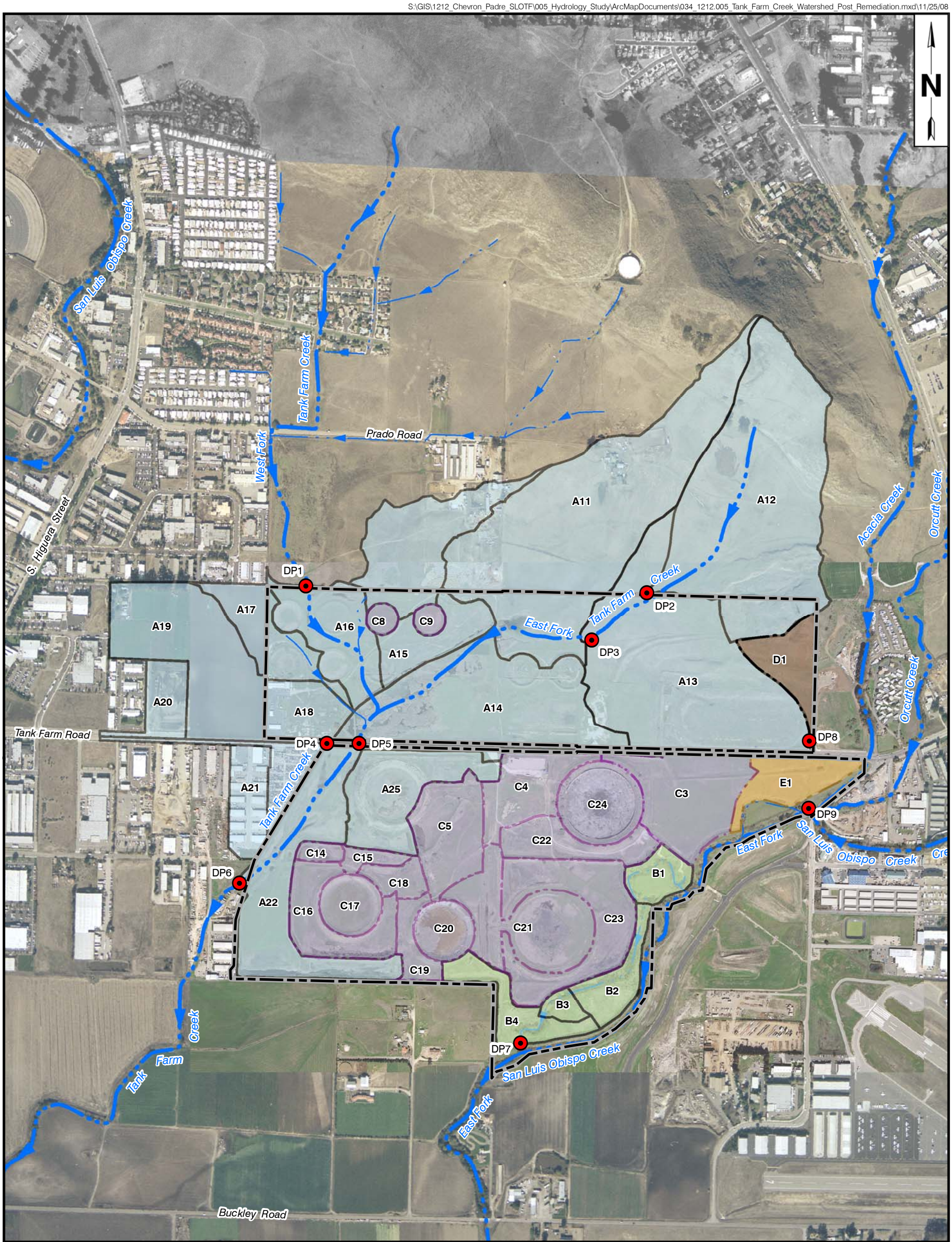

LEGEND

- DESIGN POINTS
- SITE PROPERTY BOUNDARY
- PRIMARY CREEK
- SECONDARY CREEK
- Post-Remediation Hydrologic Catchment A
- EAST FORK SAN LUIS CREEK WATERSHED B
- ISOLATED CATCHMENTS C
- OFFSITE DRAINING WATERSHED D
- ACACIA CREEK WATERSHED E

0 400 800 1,600 FEET

FIGURE C-2

WATERSHED DELINEATION POST-REMEDIATION AND POST-DEVELOPMENT CONDITIONS

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

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Appendix D

Hydrology Analyses

APPENDIX D
HYDROLOGY ANALYSES

This appendix describes the basic assumptions and design parameters used to build the hydrologic model for the existing, post-remediation, and post-development conditions at the San Luis Obispo Tank Farm.

In general terms, Avocet's approach to the development of the hydrologic model for the existing, post-remediation, and post-development conditions at the site is as follows:

- Delineate the various watersheds onsite based on key design point locations using topographic maps and Autodesk's Civil 3D software package.
- Estimate soil characteristics and other catchment parameters based on field investigations, topographic features, and prior knowledge of the site.
- Generate U.S. Soil Conservation Service (SCS) Type I 24-hour synthetic rainfall distribution curves for the 2-, 10-, 25-, 50-, and 100-year recurrence event.
- Estimate size and construction materials of existing and proposed channels and stormwater conveyance structures from field investigations, topographic maps, and design drawings.
- Estimate existing and proposed pond sizes based on topographic maps and design drawings.
- Set up a hydrologic model within CivilStorm v8 XM to model the various design storms required by the city and county.

Each of these aspects of the design process is outlined in the following sections.

MODEL DEVELOPMENT

Watershed Delineation and Catchment Characteristics

Watershed delineation and catchment characteristics have previously been discussed in Appendix C and further discussion is not provided. Refer to Appendix C for information regarding watershed delineation and catchment characteristics.

SCS 24-Hour Synthetic Rainfall Distribution

In rainfall-runoff analysis, it is common practice to develop a synthetic rainfall distribution of storm events in place of measured storm events. The SCS has developed four synthetic 24-hour rainfall distribution curves from duration-frequency data and local storm data throughout the country. The synthetic distributions are labeled Type I, Type IA, Type II, and Type III. Types I and IA represent the Pacific coast, with wet winters and dry summers. Type II represents a majority of the nation, with the most intense short duration rainfall. Type III represents the Gulf

of Mexico and the Atlantic coast, where seasonal hurricanes bring in a large amount of rainfall in a 24-hour period.

The San Luis Obispo Tank Farm lies within the SCS Type I 24-hour synthetic rainfall distribution area. The SCS Type I is a synthetic distribution comparing cumulative rainfall with respect to time over a 24-hour period.

To be consistent with hydrology calculations for adjacent property development, this study will use the 24-hour cumulative rainfall totals used for the proposed adjacent upstream development (TEC, 2008) for the 2-, 10-, 25-, 50-, and 100-year storm events. The precipitation totals are summarized in the table below.

Precipitation Event	**Cumulative Rainfall** (inches)
2-Year 24-Hour Storm	2.9
10-Year 24-Hour Storm	4.7
25-Year 24-Hour Storm	5.7
50-Year 24-Hour Storm	6.4
100-Year 24-Hour Storm	7.1

The SCS Type I 24-hour synthetic rainfall distribution curve for each storm event used in this hydrology study can be seen graphically in Figure D-1.

Channels and Stormwater Conveyance Structures

Existing stormwater conveyance channels throughout the watersheds were modeled to mimic actual conditions. Channel width, depth, side slopes, and cross-sectional invert elevations were estimated using existing topographic maps and field observations. Manning's roughness coefficient (*n*) for each channel was estimated based on existing and proposed channel material construction. Channel parameters, including those mentioned above, are summarized in Tables D.1, D.2, and D.3 for the existing, post-remediation, and post-development conditions, respectively. Channel cross section locations are shown graphically in Figures D-2 and D-3 for the existing, post-remediation, and post-development conditions, respectively.

Culverts and pipes were modeled according to field observations, measurements, and surveyed data. Culvert and pipe parameters used in the model for the existing, post-remediation, and post-development are summarized in Table D.4.

Ponds

Existing and proposed ponds are modeled within CivilStorm by an elevation-area curve. An elevation-area curve represents the water surface area with respect to the corresponding water surface elevation. CivilStorm has the ability to calculate the cumulative volume stored by the pond as the water surface rises, based on the elevation-area curve specified for the pond. The

elevation-area curve for each pond was generated by contours shown on existing and proposed topographic maps. Infiltration for each pond was assumed to be 0.04 inch per hour (in/hr) as reported by England Geosystem, Inc. (EGI) in the *Water Balance Analysis* dated January 2001 (EGI, 2001). Detailed reports of each pond modeled for existing, post-remediation, and post-development conditions are shown in Attachment 1 to this appendix. Pond locations are shown in Figure D-4 for existing conditions and in Figure D-5 for post-remediation and post-development conditions.

CALCULATIONS

Bentley's CivilStorm v8 XM simulates stormwater systems by way of a dynamic stormwater modeling engine. The software is able to calculate runoff hydrographs and analyze the hydraulic response through interdependent systems of inlets, pipes, channels, culverts, and ponds. The hydraulic aspects of the model and the results are discussed and presented in Appendix E. The dynamic modeling engine is capable of calculating a static condition for each element within the model at specific intervals throughout the storm. This hydrology study used an interval of 3 minutes with a rainfall duration of 24 hours and a model simulation of up to 48 hours.

Runoff

This hydrology study used the SCS method for estimating the volume of direct runoff from a specific rainfall event. The SCS method relates the initial abstractions, and retention parameters to watershed properties as described by the curve number (CN). CN values for each subcatchment defined within the models used in this hydrology study are summarized in Appendix C. The potential maximum retention after runoff occurs is related to the CN as follows:

$$S = \frac{1000}{CN} - 10$$

Where:

S = potential maximum retention after runoff begins
CN = SCS curve number

Runoff volume for a given subcatchment is related to precipitation and the potential maximum retention as follows:

$$Q = \frac{(P-0.2S)^2}{(P+0.8S)}$$

Where:

Q = runoff volume (cfs)
P = rainfall
S = potential maximum retention after runoff begins

As mentioned previously in the report, flow from catchments north of the property through the West Fork of Tank Farm Creek will be controlled by a stormwater detention basin to be constructed as part of development of King Ventures & Sierra Gardens. Flow discharging from this basin was estimated by TEC (TEC, 2008) to be approximately 210 cfs for the 2-year storm and 920 cfs for the 100-year storm. Hydrographs produced by TEC were used within the CivilStorm model to simulate flow discharging from the proposed detention basin.

Calculation Summaries and Detailed Results

Calculation summaries for the existing, post-remediation, and post-development scenarios are provided in Attachment 2 to this appendix. Detailed watershed subcatchment hydrographs, design point hydrographs, and pond hydraulic grades for the existing, post-remediation, and post-development scenarios are included as Attachment 3, 4, and 5, respectively. Hydraulic results for channels, culverts, and pipes are presented in Appendix E.

Tables

Table D.1
Summary of Channel Parameters
Existing Conditions
San Luis Obispo Tank Farm
San Luis Obispo, California

Cross Section ID	Invert Elevation (feet)	Bottom Width (feet)	Height (feet)	Left Side Slope (H:V)(1)	Right Side Slope (H:V)(1)	Manning's Roughness Coefficient *(n)*
CS1	132	100	10	3	3	0.045
CS2	133	12	8	2	2	0.015
CS3	127.95	50	8	2	2	0.015
CS4	126.41	50	8	2	2	0.015
CS5	126.31	50	8	2	2	0.015
CS6	127	100	8	2	2	0.013
CS7	124.67	75	8	2	2	0.045
CS8	137.8	10	4	2	2	0.045
CS9	121	75	8	2	2	0.045
CS10	120	50	8	2	2	0.045
CS11	120.5	10	8	2	2	0.045
CS12	119.1	50	8	2	2	0.045
CS13	119	40	8	2	2	0.045
CS14	119	12	8	2	2	0.045
CS15	118.3	12	4	2	2	0.045
CS16	119.5	200	2	2	2	0.045
CS17	118	12	8	2	2	0.045
CS18	123	12	3	2	2	0.045
CS19	122.15	12	3	2	2	0.045
CS20	116.1	12	8	2	2	0.045
CS21	116	50	8	2	2	0.045
CS22	114.8	50	5	2	2	0.045
CS23	119.25	1,000	1	1	1	0.013
CS24	115.5	6	4	2	2	0.03
CS25	143	78	1	1	1	0.045
CS26	142.5	18	1	1	1	0.045
CS27	131	15	1	1	1	0.045
CS28	124.5	6	3	1	1	0.045
CS29	120.5	10	2	1	1	0.045
CS30	118	45	2	1	1	0.045
CS31	115.95	25	6	1	1	0.045
CS32	135	20	2	1	1	0.045
CS33	126	20	2	1	1	0.045
CS34	119.5	1,000	0.5	1	1	0.013

Notes:
(1) H:V = horizontal distance versus vertical distance ratio

Table D.2
Summary of Channel Parameters
Post-Remediation Conditions
San Luis Obispo Tank Farm
San Luis Obispo, California

Cross Section ID	**Invert Elevation** (feet)	**Bottom Width** (feet)	**Height** (feet)	**Left Side Slope (H:V)**[(1)]	**Right Side Slope (H:V)**[(1)]	**Manning's Roughness Coefficient *(n)***
CS9	122	40	2	7	7	0.045
CS18	123	12	3	2	2	0.045
CS19	122.15	12	3	2	2	0.045
CS20	118.49	12	8	2	2	0.045
CS23	119.25	1,000	1	1	1	0.013
CS24	117.5	80	2.5	32	32	0.045
CS27	131	15	1	1	1	0.045
CS28	124.5	6	3	1	1	0.045
CS29	120.5	10	2	1	1	0.045
CS30	118	45	2	1	1	0.045
CS32	126	20	2	1	1	0.045
CS33	122	25	1.5	10	10	0.045
CS34	120	25	1.5	10	10	0.045
CS35	120	40	2	7	7	0.045
CS36	123	13	1.5	7	7	0.045

Notes:
(1) H:V = horizontal distance versus vertical distance ratio

Table D.3
Summary of Channel Parameters
Post-Development Conditions
San Luis Obispo Tank Farm
San Luis Obispo, California

Cross Section ID	**Invert Elevation** (feet)	**Bottom Width** (feet)	**Height** (feet)	**Left Side Slope (H:V)**[(1)]	**Right Side Slope (H:V)**[(1)]	**Manning's Roughness Coefficient *(n)***
CS9	122	40	2	7	7	0.045
CS18	123	12	3	2	2	0.045
CS19	122.15	12	3	2	2	0.045
CS20	118.49	12	8	2	2	0.045
CS23	119.25	1,000	1	1	1	0.013
CS24	117.5	80	2.5	32	32	0.045
CS27	131	15	1	1	1	0.045
CS28	124.5	6	3	1	1	0.045
CS29	120.5	10	2	1	1	0.045
CS30	118	45	2	1	1	0.045
CS32	126	20	2	1	1	0.045
CS33	122	25	1.5	10	10	0.045
CS34	120	25	1.5	10	10	0.045
CS35	120	40	2	7	7	0.045
CS36	123	13	1.5	7	7	0.045
CS37	145	8	4	2.5	2.5	0.045
CS38	143.5	8	4	2.5	2.5	0.045
CS39	142	8	4	2.5	2.5	0.045
CS40	132	10	5	3	3	0.045
CS41	127	10	5	3	3	0.045
CS42	130	5	2	2	2	0.03
CS43	142	5	1	1	1	0.013
CS44	142	5	1	1	1	0.013

Notes:
(1) H:V = horizontal distance versus vertical distance ratio

Table D.4
Summary of Culvert and Pipe Parameters
San Luis Obispo Tank Farm
San Luis Obispo, California

Conduit ID	Start-Node ID	Start Invert (feet)	Stop-Node ID	Stop Invert (feet)	Slope (ft/ft)	Diameter (inches)	Material	Manning's Roughness Coefficient *(n)*
Existing Conditions								
CO-1	CS6	127	CS5	126.31	0.011	48	None	0.013
CO-2	CS5	126.31	CS7	124.67	0.016	18	Concrete	0.013
CO-3	CB2	140	CS8	137.8	0.023	30	CMP	0.024
CO-4	CB1	125.5	CS7	124.67	0.023	18	CMP	0.024
CO-5	OS1	119	CS15	118.3	0.016	18	Steel	0.013
CO-6	CS17	118	OF2	117	0.021	18	Steel	0.013
CO-7	CS20	116.1	CS21	116	0.001	48	Concrete	0.013
CO-8	OS3	116	CS24	115.5	0.008	18	Concrete	0.013
CO-9	OS10	115	OF11	115	0	18	Concrete	0.013
CO-10	OS13	116	OF12	115	0.023	8	PVC	0.01
CO-11	OS12	113.07	Site Discharge	113.07	0.025	36	Concrete	0.013
Post-Remediation Conditions								
P22	OS23	118	CS24	117.5	0.008	18	Concrete	0.013
P23	OS13	116	OF12	115	0.023	8	PVC	0.01
P24	OS12	113.07	Site Discharge	113	0.035	36	Concrete	0.013
Post-Development Conditions								
P22	OS23	118	CS24	117.5	0.008	18	Concrete	0.013
P23	OS13	116	OF12	115	0.023	8	PVC	0.01
P24	OS12	113.07	Site Discharge	113	0.035	36	Concrete	0.013
CO-1	CB-1	147.5	MH-12	147	0.007	18	None	0.013
CO-5	MH-13	145	CB-20	143.6	0.004	24	None	0.013
CO-6	CB-20	143.6	MH-14	142.5	0.007	24	None	0.013
CO-7	MH-14	142.5	CS42	130	0.072	36	None	0.013
CO-8	CB-10	143.1	MH-14	142.5	0.046	18	None	0.013
CO-9	CB-9	143.1	MH-14	142.5	0.015	18	None	0.013
CO-10	CB-7	145.4	MH-13	145	0.028	8	None	0.013
CO-11	CB-8	145.4	MH-13	145	0.009	8	None	0.013
CO-12	MH-12	147	MH-13	145	0.005	24	None	0.013
CO-13	MH-11	148.75	MH-12	147	0.005	18	None	0.013
CO-14	CB-2	149.2	MH-11	148.75	0.007	18	None	0.013
CO-15	CB-5	149.2	MH-11	148.75	0.027	18	None	0.013
CO-16	CB-4	146.3	MH-10	146	0.013	8	None	0.013
CO-17	CB-3	146.3	MH-10	146	0.005	18	None	0.013
CO-18	MH-10	146	MH-9	139.5	0.015	24	None	0.013
CO-19	MH-9	139.5	CB-21	138.9	0.006	30	None	0.013
CO-20	CB-21	138.9	MH-8	138.5	0.014	30	None	0.013
CO-21	MH-8	138.5	MH-7	138	0.002	30	None	0.013
CO-22	MH-7	138	MH-6	137.5	0.002	30	None	0.013
CO-23	MH-6	137.5	MH-5	137	0.002	30	None	0.013
CO-24	MH-5	137	MH-4	136	0.005	30	None	0.013
CO-25	MH-4	136	MH-3	135	0.005	30	None	0.013
CO-26	MH-3	135	MH-2	134	0.005	30	None	0.013
CO-27	MH-2	134	MH-1	133.25	0.015	36	None	0.013
CO-28	MH-1	133.25	CS40	132	0.012	42	None	0.013
CO-29	MH-16	140	MH-1	133.25	0.018	18	None	0.013
CO-30	CB-6	140.5	MH-9	139.5	0.015	8	None	0.013
CO-31	CB-15	137	MH-4	136	0.037	8	None	0.013
CO-32	CB-16	137	MH-4	136	0.014	8	None	0.013
CO-33	CB-19	135	MH-2	134	0.012	8	None	0.013
CO-34	CB-13	134	MH-1	133.25	0.023	18	None	0.013
CO-35	CB-22	135.8	CB-14	134	0.059	18	None	0.013
CO-36	CB-14	134	MH-1	133.25	0.019	18	None	0.013
CO-37	CB-11	140.5	MH-16	140	0.025	8	None	0.013
CO-38	CB-12	140.5	MH-16	140	0.01	8	None	0.013
CO-39	CB-18	140	CB-17	139	0.005	8	None	0.013
CO-40	CB-17	139	MH-8	138.5	0.007	8	None	0.013
CO-41	OS-1	139	C3-2	138	0.021	24	None	0.013

Figures

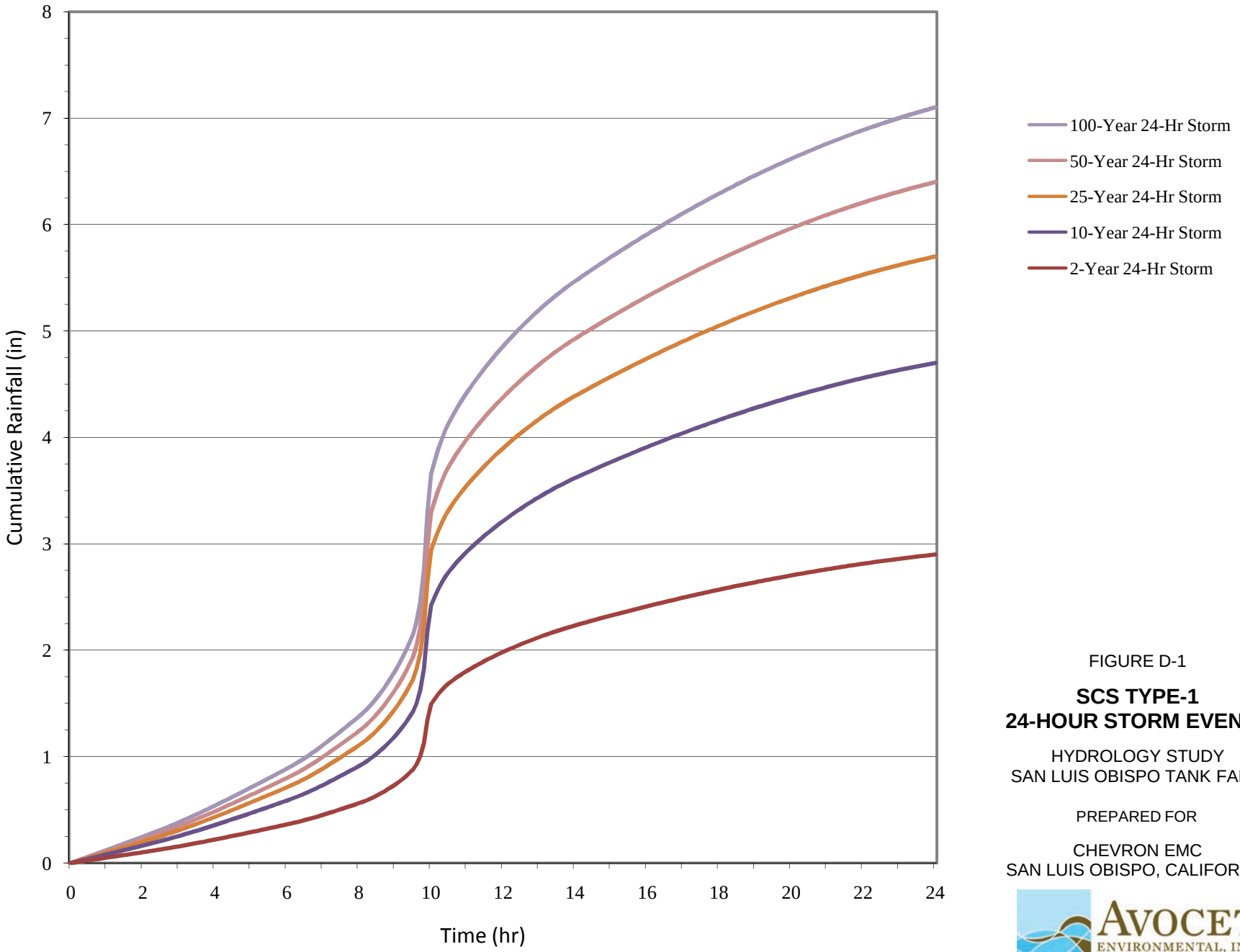


FIGURE D-1

SCS TYPE-1
24-HOUR STORM EVENTS

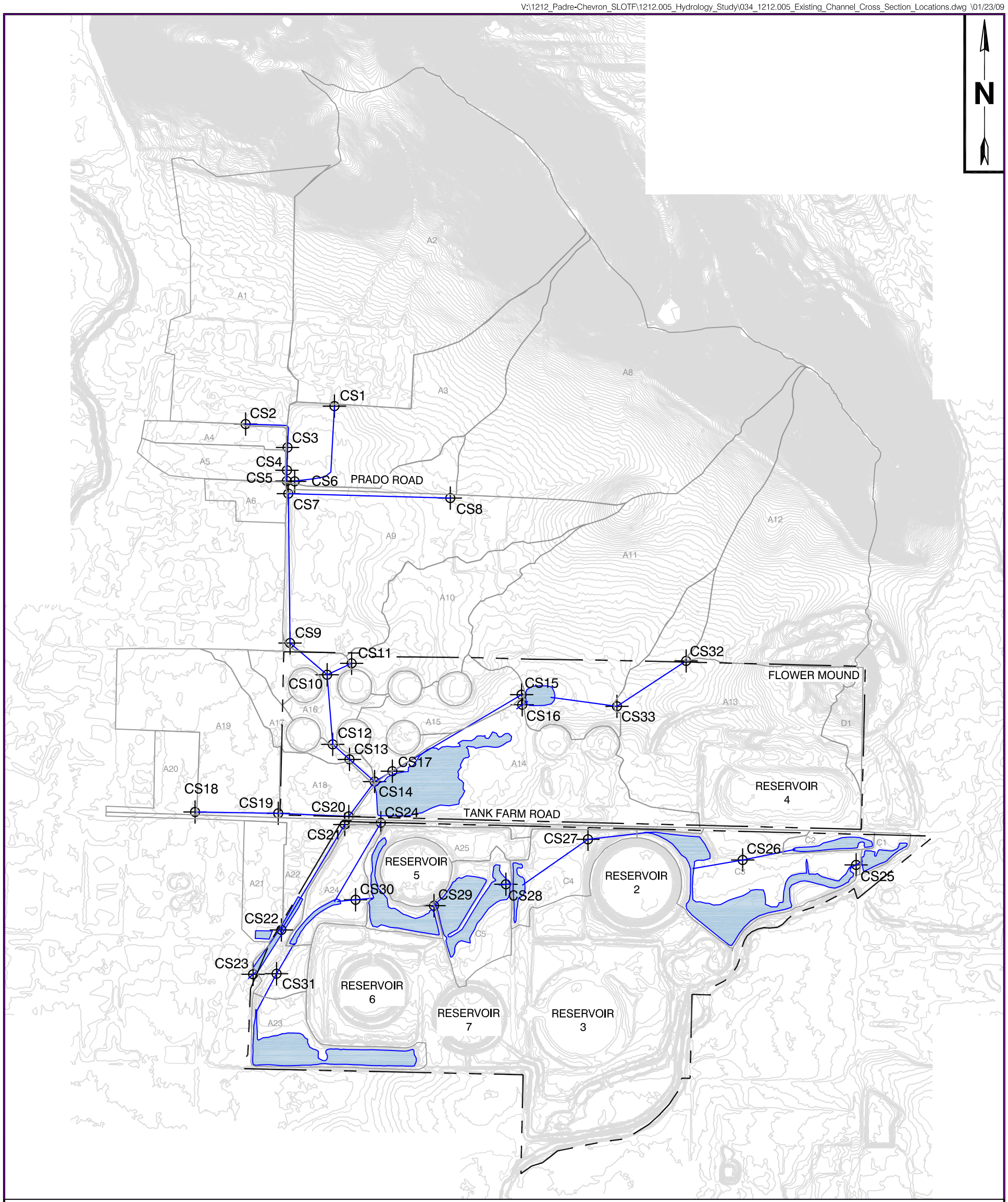
HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

V:\1212_Padre-Chevron_SLOTF\1212.005_Hydrology_Study\034_1212.005_Existing_Channel_Cross_Section_Locations.dwg \01/23/09



LEGEND

- PROPERTY BOUNDARY
- CHANNEL CROSS SECTION LOCATION
- EXISTING POND
- A4 — WATERSHED SUBCATCHMENT WITH I.D.
- STORMWATER CONVEYANCE CHANNEL

FIGURE D-2

CHANNEL CROSS SECTION LOCATIONS EXISTING CONDITIONS

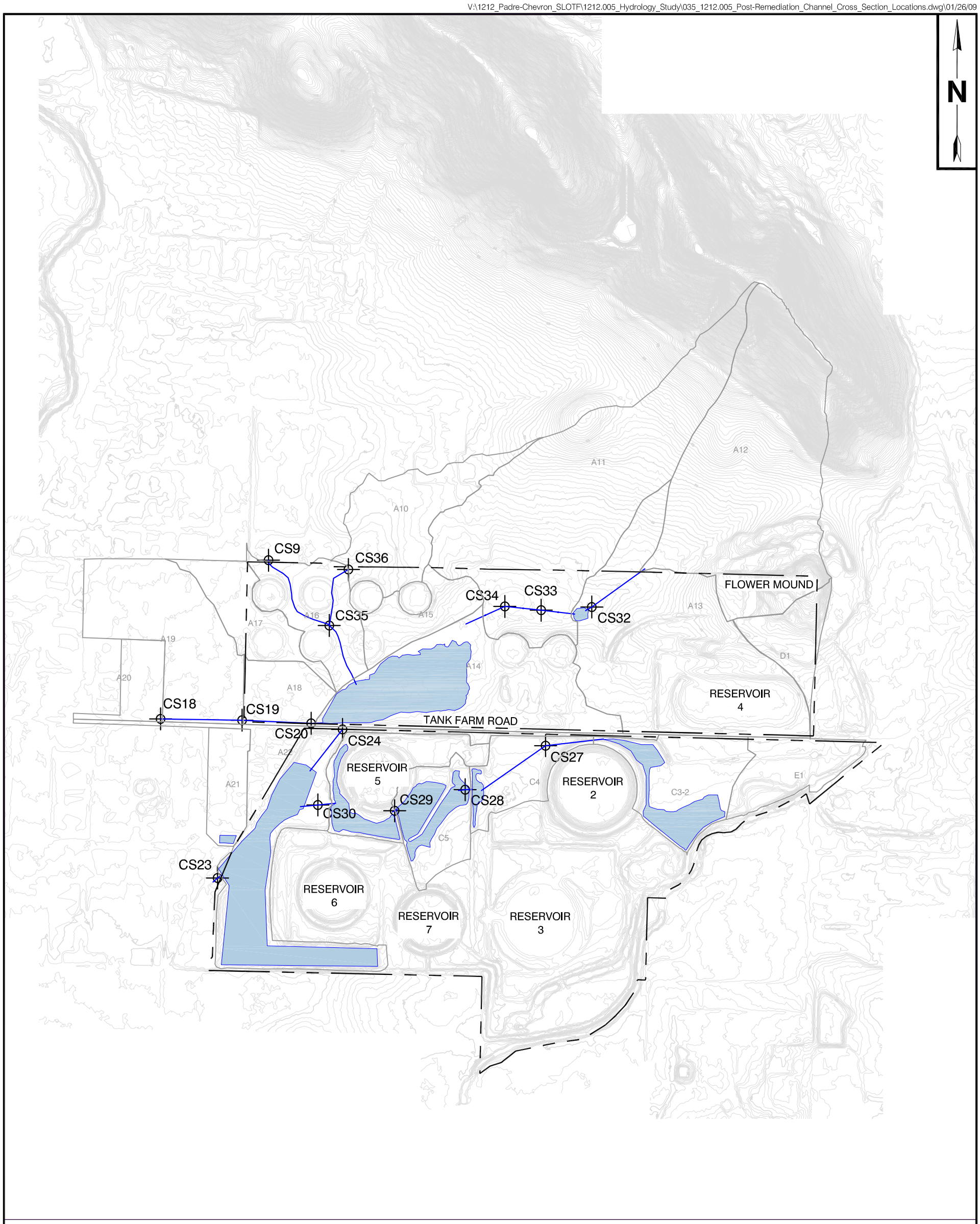
HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

V:\1212_Padre-Chevron_SLOTF\1212.005_Hydrology_Study\035_1212.005_Post-Remediation_Channel_Cross_Section_Locations.dwg\01/26/09



0 800 1600 FEET
SCALE

LEGEND

- PROPERTY BOUNDARY
- CHANNEL CROSS SECTION LOCATION
- EXISTING POND
- A4 WATERSHED SUBCATCHMENT WITH I.D.
- STORMWATER CONVEYANCE CHANNEL

FIGURE D-3

CHANNEL CROSS SECTION LOCATIONS POST-REMEDIATION AND POST-DEVELOPMENT CONDITIONS

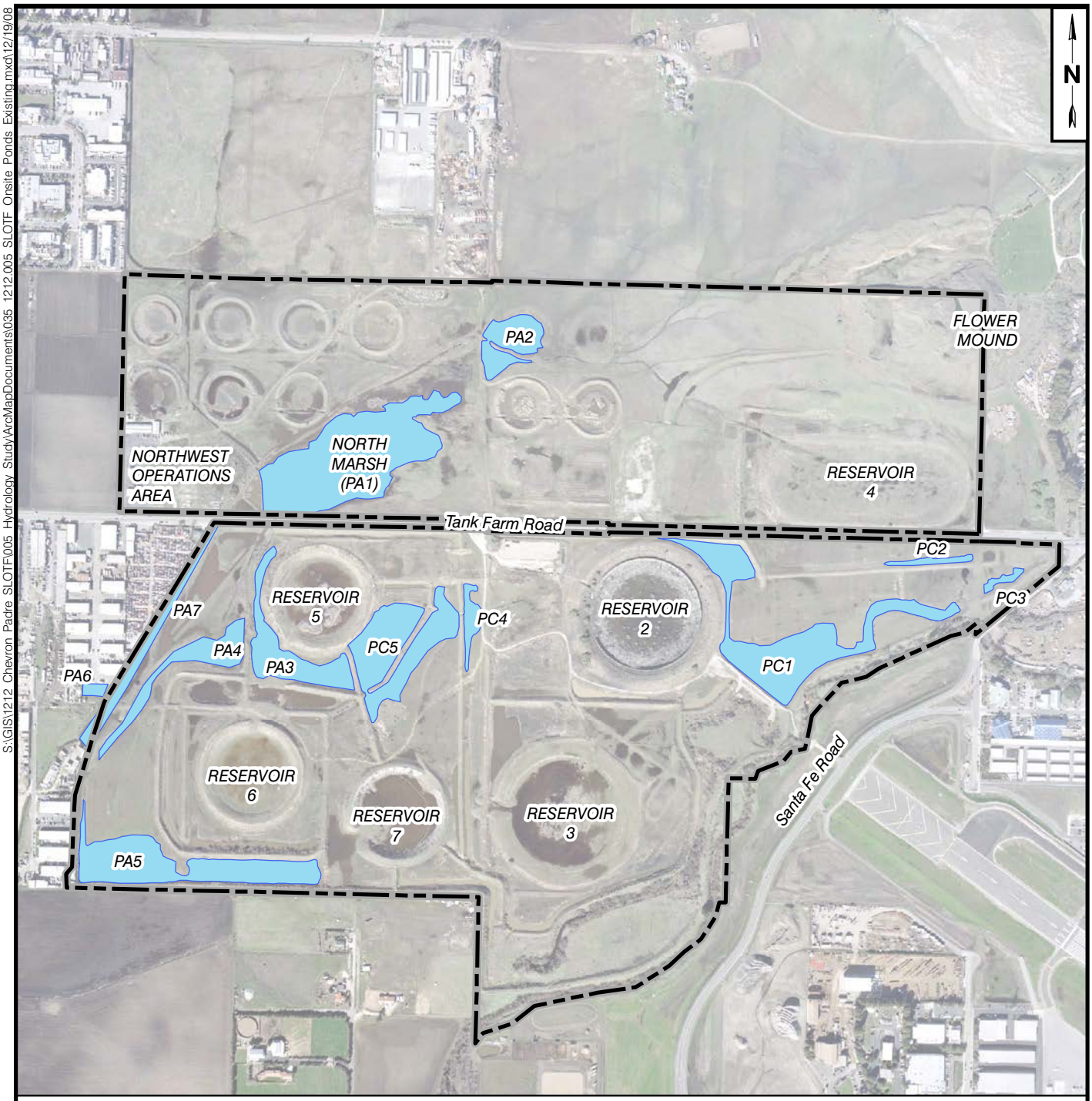
HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

S:\GIS\1212 Chevron Padre SLOTF\005 Hydrology Study\ArcMapDocuments\035 1212.005 SLOTF Onsite Ponds Existing.mxd\12/19/08



0 400 800 1,600 FEET

LEGEND

SITE PROPERTY BOUNDARY

PA1 PONDS

FIGURE D-4

ONSITE POND LOCATIONS EXISTING CONDITIONS

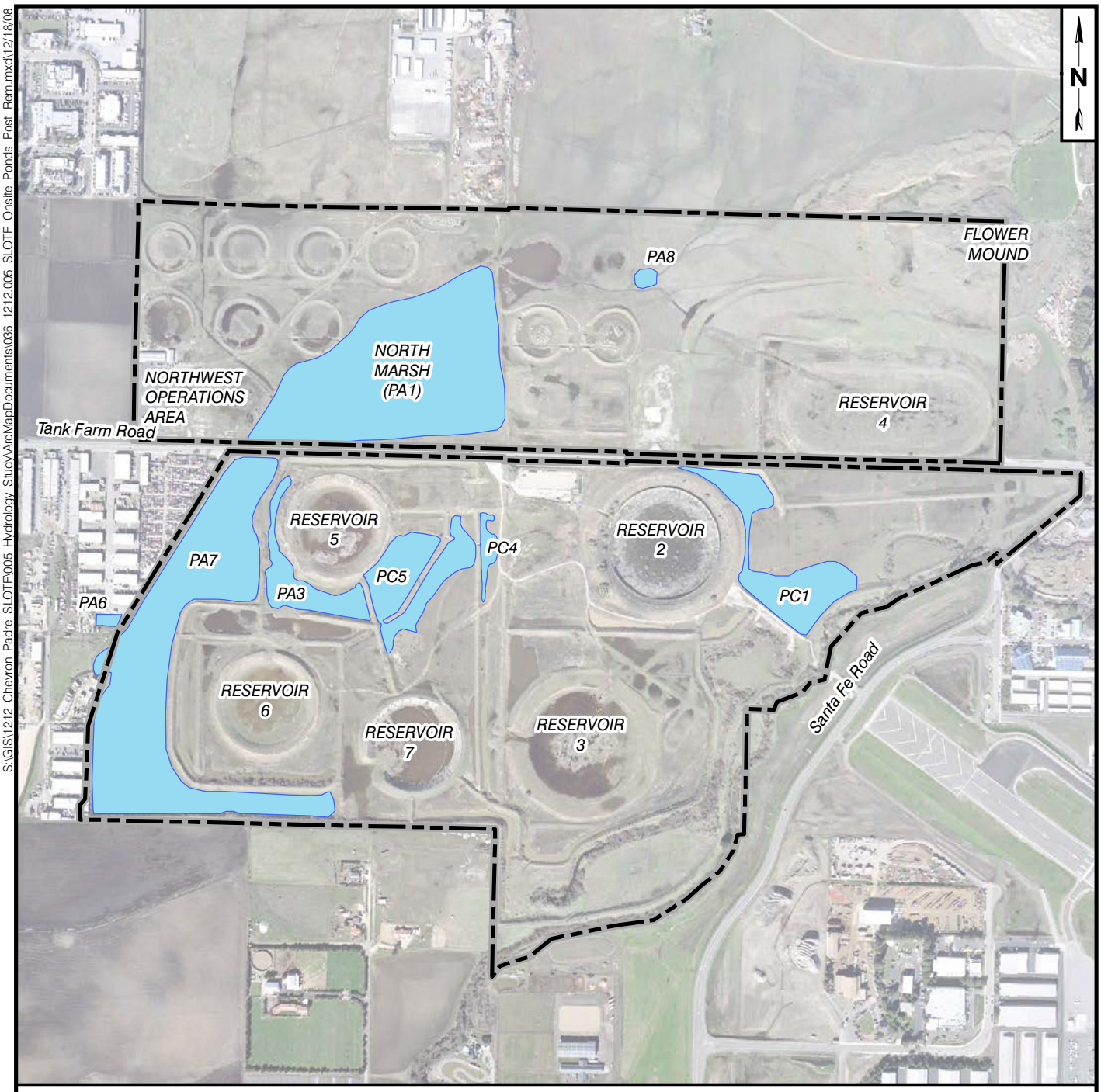
HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

S:\GIS\1212 Chevron Padre SLOTF\005 Hydrology Study\ArcMapDocuments\036 1212.005 SLOTF Onsite Ponds Post Rem.mxd\12/18/08



0 400 800 1,600 FEET

FIGURE D-5

ONSITE POND LOCATIONS POST-REMEDIATION AND POST-DEVELOPMENT CONDITIONS

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

LEGEND

SITE PROPERTY BOUNDARY

PA1 PONDS

AVOCET ENVIRONMENTAL, INC.

Attachment 1

Detailed Pond Reports

Pond Detailed Report: PA1

<General>			
Active Scenario Label	PA1	Label	PA1
ID	385	Notes	

<Geometry>	
Scaled Area	7.089 acres

Geometry

X (ft)	Y (ft)
5766914.61	2286696.46
5766892.71	2286703.69
5766888.19	2286722.44
5766880.09	2286875.78
5766870.20	2286916.72
5766865.26	2286931.54
5766911.49	2286964.71
5766940.08	2286972.48
5766967.25	2287006.36
5767026.19	2287035.65
5767105.95	2287049.76
5767134.53	2287051.53
5767135.94	2287086.47
5767174.06	2287099.52
5767198.76	2287136.93
5767224.17	2287176.46
5767286.63	2287226.57
5767321.57	2287241.04
5767362.51	2287238.21
5767375.21	2287225.51
5767403.80	2287247.74
5767449.68	2287254.10
5767492.38	2287248.10
5767549.90	2287253.39
5767546.02	2287269.62
5767531.90	2287278.80
5767569.66	2287300.33
5767639.19	2287298.21
5767664.24	2287312.33
5767685.77	2287335.26
5767715.77	2287337.38
5767734.47	2287333.85
5767748.94	2287339.50
5767748.94	2287323.27
5767763.41	2287316.56
5767777.53	2287316.91
5767790.94	2287337.03
5767809.99	2287369.50
5767840.70	2287357.14

Pond Detailed Report: PA1

Geometry

X (ft)	Y (ft)
5767849.87	2287339.50
5767862.93	2287327.15
5767881.63	2287332.44
5767896.81	2287345.15
5767908.10	2287353.62
5767923.98	2287356.79
5767936.69	2287355.73
5767961.04	2287332.44
5767957.51	2287306.68
5767950.10	2287295.39
5767921.51	2287283.39
5767890.81	2287262.92
5767855.52	2287247.04
5767825.87	2287244.92
5767804.70	2287247.39
5767771.53	2287251.98
5767736.94	2287250.57
5767712.94	2287245.27
5767674.12	2287237.86
5767661.42	2287247.39
5767637.42	2287249.51
5767612.37	2287253.74
5767599.31	2287244.21
5767610.95	2287234.69
5767614.84	2287217.04
5767615.89	2287205.39
5767623.66	2287174.69
5767612.37	2287163.05
5767594.72	2287161.99
5767578.13	2287154.58
5767565.08	2287130.23
5767555.90	2287112.58
5767550.96	2287100.23
5767555.90	2287087.88
5767559.08	2287084.35
5767548.14	2287075.53
5767531.20	2287049.76
5767536.84	2287030.35
5767536.14	2287014.47
5767531.20	2287005.30
5767539.31	2286994.36
5767545.67	2286986.95
5767564.37	2286976.71
5767568.25	2286967.18
5767577.08	2286961.54
5767572.84	2286923.42
5767574.60	2286906.48

Pond Detailed Report: PA1

Geometry

X (ft)	Y (ft)
5767586.60	2286897.66
5767580.25	2286882.84
5767564.37	2286851.78
5767551.67	2286837.67
5767541.08	2286816.14
5767542.49	2286802.73
5767537.55	2286790.73
5767525.20	2286788.26
5767484.61	2286782.26
5767465.56	2286778.03
5767436.27	2286779.44
5767391.45	2286784.03
5767337.10	2286765.67
5767307.10	2286752.97
5767284.16	2286740.97
5767244.28	2286721.91
5767195.23	2286714.15
5767170.53	2286707.09
5767153.24	2286700.03
5767131.00	2286697.21
5767012.43	2286697.21
5766951.37	2286697.56
5766930.20	2286698.27

Active Topology			
Is Active?	True		

Infiltration			
Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr

Inflow Collection			
Initial Condition			
Initial Elevation Type	Invert		

Physical			
Volume Type	Elevation-Area Curve		

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
116.00	5.140	100.0
117.00	7.050	100.0
118.00	8.490	100.0
119.00	13.400	100.0

Pond Detailed Report: PA1

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
120.00	17.570	100.0
121.00	31.360	100.0

Results (Engine Parsing)			
Branch	4		

Results (Extended)			
Freeboard Height	5.00 ft	Volume	0.00 ac-ft
Depth (Flooding)	-5.00 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	116.00 ft	Flow (Out to links)	0.00 ft³/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pollutants Collection

Pollutant

Pond Detailed Report: PA2

<General>			
Active Scenario Label	PA2	Label	PA2
ID	889	Notes	

<Geometry>	
Scaled Area	0.750 acres

Geometry

X (ft)	Y (ft)
5768074.21	2287680.06
5768083.48	2287707.30
5768128.99	2287733.10
5768173.33	2287737.15
5768248.16	2287737.28
5768283.03	2287726.86
5768300.69	2287691.99
5768307.94	2287658.93
5768302.05	2287619.53
5768279.86	2287593.27
5768224.61	2287581.04
5768156.68	2287578.78
5768105.06	2287580.14
5768080.60	2287594.63
5768072.00	2287654.86

Active Topology	
Is Active?	True

Infiltration	
Pond Infiltration Method	None

Inflow Collection

Initial Condition	
Initial Elevation Type	Invert

Physical	
Volume Type	Elevation-Area Curve

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
119.00	2.174	100.0
120.00	3.175	100.0
121.00	4.745	100.0
122.00	5.000	100.0

Pond Detailed Report: PA2

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
123.00	5.214	100.0

Results (Engine Parsing)	
Branch	9

Results (Extended)			
Freeboard Height	3.94 ft	Volume	0.15 ac-ft
Depth (Flooding)	-3.94 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	119.06 ft	Flow (Out to links)	0.00 ft³/s
Depth (Node)	0.06 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pollutants Collection

Pollutant

Pond Detailed Report: PA3

<General>			
Active Scenario Label	PA3	Label	PA3
ID	301	Notes	

<Geometry>	
Scaled Area	2.495 acres

Geometry

X (ft)	Y (ft)
5766983.83	2285806.90
5766947.94	2285818.23
5766918.19	2285825.32
5766887.49	2285806.90
5766850.65	2285815.40
5766838.84	2285837.12
5766828.45	2285881.04
5766825.15	2285934.88
5766825.62	2285973.14
5766818.54	2286000.06
5766826.09	2286018.95
5766835.54	2286026.03
5766847.82	2286030.75
5766856.79	2286051.06
5766844.98	2286070.90
5766842.62	2286112.93
5766836.01	2286145.51
5766838.37	2286177.16
5766836.48	2286221.55
5766849.23	2286261.69
5766846.40	2286302.78
5766842.62	2286350.01
5766845.93	2286383.07
5766870.01	2286429.82
5766895.04	2286481.77
5766932.35	2286515.77
5766946.05	2286522.39
5766959.75	2286496.41
5766953.13	2286469.96
5766931.41	2286451.07
5766901.18	2286398.18
5766884.18	2286341.98
5766873.79	2286293.34
5766866.71	2286218.72
5766878.04	2286172.91
5766892.68	2286138.90
5766891.74	2286117.18
5766901.18	2286110.57
5766914.88	2286095.45

Pond Detailed Report: PA3

Geometry

X (ft)	Y (ft)
5766936.60	2286072.79
5766965.88	2286035.48
5766969.66	2286005.25
5766974.39	2285968.89
5766997.05	2285955.66
5767023.50	2285958.02
5767048.06	2285944.33
5767092.92	2285911.27
5767124.09	2285901.82
5767159.99	2285886.71
5767192.10	2285876.32
5767221.38	2285883.88
5767255.86	2285895.68
5767277.58	2285910.32
5767300.25	2285920.71
5767306.39	2285936.30
5767318.20	2285943.38
5767327.64	2285945.27
5767343.70	2285916.46
5767353.62	2285872.07
5767372.51	2285797.92
5767382.43	2285747.86
5767377.70	2285744.09
5767329.06	2285751.17
5767214.77	2285769.59
5767096.70	2285790.84
5767055.62	2285799.34
5766987.14	2285805.01

Active Topology			
Is Active?	True		

Infiltration			
Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr

Inflow Collection			
Initial Condition			
Initial Elevation Type	Invert		

Physical			
Volume Type	Elevation-Area Curve		

Elevation-Area Curve

Pond Detailed Report: PA3

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
115.00	0.107	100.0
116.00	0.132	100.0
117.00	0.411	100.0
118.00	2.483	100.0
119.00	3.258	100.0
120.00	3.270	100.0

Results (Engine Parsing)			
Branch	10		

Results (Extended)			
Freeboard Height	5.00 ft	Volume	0.00 ac-ft
Depth (Flooding)	-5.00 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	115.00 ft	Flow (Out to links)	0.00 ft³/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pollutants Collection

Pollutant

Pond Detailed Report: PA4

<General>			
Active Scenario Label	PA4	Label	PA4
ID	317	Notes	

<Geometry>	
Scaled Area	0.408 acres

Geometry

X (ft)	Y (ft)
5766217.50	2285666.88
5766224.19	2285666.18
5766237.23	2285680.27
5766247.44	2285719.38
5766259.77	2285735.94
5766274.57	2285769.41
5766286.20	2285779.98
5766312.97	2285819.44
5766341.16	2285847.27
5766391.89	2285896.59
5766434.17	2285928.66
5766493.01	2285964.24
5766534.93	2285983.97
5766564.53	2285987.49
5766593.77	2285994.54
5766588.13	2286023.43
5766563.47	2286031.89
5766527.18	2286017.09
5766425.01	2285962.13
5766376.74	2285927.25
5766321.43	2285870.17
5766282.32	2285825.43
5766236.52	2285768.35
5766206.93	2285716.21
5766189.66	2285687.67
5766187.20	2285674.99
5766206.57	2285671.82

Active Topology	
Is Active?	True

Infiltration			
Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr

Inflow Collection	
Initial Condition	
Initial Elevation Type	Invert

Pond Detailed Report: PA4

Physical	
Volume Type	Elevation-Area Curve

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
112.00	0.003	100.0
113.00	0.188	100.0
114.00	0.308	100.0
115.00	0.636	100.0
116.00	2.733	100.0
117.00	5.129	100.0
118.00	7.364	100.0
119.00	7.579	100.0
120.00	7.620	100.0
121.00	7.620	100.0

Results (Engine Parsing)	
Branch	4

Results (Extended)			
Freeboard Height	9.00 ft	Volume	0.00 ac-ft
Depth (Flooding)	-9.00 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	-0.05 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	112.00 ft	Flow (Out to links)	0.23 ft³/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pond Detailed Report: PA4

Pollutants Collection

Pollutant

Pond Detailed Report: PA5

<General>			
Active Scenario Label	PA5	Label	PA5
ID	600	Notes	

<Geometry>	
Scaled Area	4.775 acres

Geometry

X (ft)	Y (ft)
5765915.24	2285148.42
5765923.80	2285138.30
5765922.25	2285100.55
5765922.64	2285051.90
5765924.58	2285008.32
5765926.14	2284974.85
5765928.08	2284910.25
5765937.04	2284902.46
5765973.23	2284922.31
5766014.09	2284924.65
5766043.28	2284934.38
5766087.25	2284939.43
5766126.17	2284953.44
5766146.80	2284955.78
5766172.09	2284960.06
5766211.40	2284960.06
5766265.88	2284957.73
5766291.18	2284945.66
5766310.25	2284919.98
5766330.10	2284909.86
5766329.71	2284882.23
5766347.61	2284846.03
5766374.07	2284832.02
5766397.42	2284825.41
5766414.93	2284812.96
5766414.54	2284793.50
5766414.16	2284760.03
5766420.38	2284755.36
5766448.64	2284740.57
5766468.87	2284739.01
5766481.64	2284746.80
5766489.11	2284768.59
5766484.44	2284788.20
5766475.72	2284800.03
5766475.10	2284814.36
5766479.77	2284822.76
5766487.86	2284827.74
5766503.12	2284831.17
5766515.88	2284832.41

Pond Detailed Report: PA5

Geometry

X (ft)	Y (ft)
5766534.25	2284830.86
5766557.60	2284832.41
5766579.40	2284830.86
5766594.65	2284825.88
5766613.02	2284829.92
5766646.02	2284827.12
5766678.48	2284827.04
5766712.11	2284826.08
5766764.08	2284825.45
5766792.13	2284824.97
5766841.23	2284826.24
5766886.50	2284824.49
5766940.22	2284822.58
5766985.96	2284821.14
5767062.96	2284816.84
5767111.42	2284815.25
5767136.44	2284819.71
5767161.15	2284826.72
5767169.76	2284828.00
5767179.64	2284822.58
5767181.07	2284801.54
5767181.39	2284791.33
5767190.21	2284774.23
5767197.99	2284758.29
5767199.65	2284742.99
5767196.97	2284726.16
5767189.06	2284713.41
5767186.51	2284702.69
5767182.30	2284696.45
5767173.63	2284694.79
5767146.47	2284694.40
5767109.49	2284695.55
5767086.79	2284696.96
5767049.81	2284696.45
5767035.02	2284696.45
5767002.24	2284697.85
5766968.07	2284698.61
5766947.53	2284696.57
5766932.87	2284697.47
5766907.62	2284699.00
5766887.47	2284698.74
5766863.11	2284699.12
5766847.81	2284699.25
5766824.99	2284700.14
5766797.70	2284701.55
5766780.35	2284703.20
5766756.12	2284704.61

Pond Detailed Report: PA5

Geometry

X (ft)	Y (ft)
5766726.16	2284705.24
5766701.80	2284706.01
5766675.40	2284707.41
5766652.19	2284708.43
5766630.00	2284710.22
5766608.07	2284709.45
5766588.05	2284709.20
5766567.39	2284709.32
5766550.30	2284709.20
5766539.46	2284709.71
5766518.93	2284709.58
5766500.70	2284710.98
5766483.99	2284713.41
5766473.92	2284715.06
5766449.30	2284714.81
5766434.13	2284714.17
5766416.66	2284709.58
5766399.44	2284707.28
5766379.33	2284706.56
5766352.44	2284702.17
5766317.37	2284702.17
5766276.12	2284701.38
5766240.65	2284699.98
5766205.19	2284698.59
5766137.04	2284697.99
5766110.94	2284699.38
5766022.27	2284705.76
5765961.30	2284705.56
5765916.67	2284701.78
5765898.73	2284705.16
5765891.56	2284717.52
5765889.77	2284739.43
5765890.17	2284769.12
5765892.95	2284805.79
5765891.56	2284859.39
5765895.35	2284920.36
5765898.53	2284953.63
5765899.33	2285021.18
5765905.51	2285048.68
5765912.68	2285083.35

Active Topology	
Is Active?	True

Infiltration

Pond Detailed Report: PA5

Infiltration			
Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr

Inflow Collection	
Initial Condition	
Initial Elevation Type	Invert

Physical	
Volume Type	Elevation-Area Curve

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
111.00	0.791	100.0
112.00	1.200	100.0
113.00	1.972	100.0
114.00	3.147	100.0
115.00	3.963	100.0
116.00	4.805	100.0
117.00	5.662	100.0
118.00	6.190	100.0
119.00	6.479	100.0
120.00	6.700	100.0
121.00	6.700	100.0

Results (Engine Parsing)	
Branch	1

Results (Extended)			
Freeboard Height	10.00 ft	Volume	0.00 ac-ft
Depth (Flooding)	-10.00 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Pond Detailed Report: PA5

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	111.00 ft	Flow (Out to links)	0.00 ft^3/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft^3/s
Is Flooded?	False		

Pollutants Collection

Pollutant

Pond Detailed Report: PA6

<General>			
Active Scenario Label	PA6	Label	PA6
ID	333	Notes	

<Geometry>	
Scaled Area	0.181 acres

Geometry

X (ft)	Y (ft)
5765948.65	2285715.53
5765910.33	2285715.97
5765912.98	2285778.07
5766048.18	2285776.31
5766022.19	2285710.69
5765965.82	2285714.21

Active Topology	
Is Active?	True

Infiltration			
Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr

Inflow Collection	
Initial Condition	
Initial Elevation Type	Invert

Physical	
Volume Type	Elevation-Area Curve

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
116.00	0.255	100.0
117.00	0.405	100.0
118.00	0.527	100.0
119.00	0.725	100.0

Results (Engine Parsing)	
Branch	3

Results (Extended)			
Freeboard Height	3.00 ft	Volume	0.00 ac-ft
Depth (Flooding)	-3.00 ft	Is Flooded Ever?	False

Pond Detailed Report: PA6

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	116.00 ft	Flow (Out to links)	0.00 ft³/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pollutants Collection

Pollutant

Pond Detailed Report: PA7

<General>			
Active Scenario Label	PA7	Label	PA7
ID	342	Notes	

<Geometry>	
Scaled Area	0.664 acres

Geometry

X (ft)	Y (ft)
5766097.40	2285777.81
5766253.87	2286050.16
5766290.35	2286030.88
5766258.40	2285964.41
5765923.20	2285437.18
5765894.36	2285483.30

Active Topology	
Is Active?	True

Infiltration			
Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr

Inflow Collection

Initial Condition	
Initial Elevation Type	Invert

Physical	
Volume Type	Elevation-Area Curve

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
112.50	0.100	100.0
113.00	0.150	100.0
114.70	0.310	100.0
115.00	0.510	100.0
116.00	1.320	100.0
117.00	1.617	100.0
118.00	1.847	100.0
118.90	2.147	100.0
120.00	2.170	100.0
121.00	2.170	100.0

Results (Engine Parsing)

Pond Detailed Report: PA7

Results (Engine Parsing)			
Branch	2		

Results (Extended)			
Freeboard Height	8.50 ft	Volume	0.00 ac-ft
Depth (Flooding)	-8.50 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	112.50 ft	Flow (Out to links)	0.00 ft³/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pollutants Collection

Pollutant

Pond Detailed Report: PB1

<General>			
Active Scenario Label	PB1	Label	PB1
ID	189	Notes	

<Geometry>	
Scaled Area	1.483 acres

Geometry

X (ft)	Y (ft)
5769303.34	2285332.81
5769350.40	2285326.39
5769382.50	2285345.65
5769417.80	2285347.79
5769452.03	2285349.93
5769485.19	2285385.23
5769485.19	2285409.83
5769455.24	2285419.46
5769425.29	2285387.37
5769378.22	2285385.23
5769311.89	2285416.25
5769268.03	2285456.90
5769256.27	2285490.06
5769264.83	2285533.92
5769285.15	2285556.39
5769356.82	2285561.74
5769411.38	2285591.69
5769460.59	2285628.06
5769506.59	2285638.76
5769551.51	2285630.20
5769575.05	2285605.60
5769557.93	2285556.39
5769525.84	2285509.32
5769534.40	2285490.06
5769554.72	2285465.46
5769579.33	2285457.97
5769633.88	2285463.32
5769670.26	2285487.92
5769677.74	2285531.78
5769668.12	2285533.92
5769630.68	2285539.27
5769625.33	2285584.20
5769623.19	2285620.57
5769617.84	2285651.59
5769594.30	2285686.90
5769557.93	2285713.64
5769507.66	2285716.85
5769465.94	2285699.73
5769429.56	2285672.99

Pond Detailed Report: PB1

Geometry

X (ft)	Y (ft)
5769399.61	2285640.90
5769376.08	2285622.71
5769336.50	2285612.01
5769277.66	2285605.60
5769239.15	2285603.46
5769226.31	2285594.90
5769205.99	2285563.88
5769193.15	2285540.34
5769192.08	2285507.18
5769198.50	2285453.69
5769210.27	2285431.23
5769225.24	2285407.69
5769251.99	2285367.04
5769270.17	2285352.07
5769285.15	2285341.37

Active Topology			
Is Active?	True		

Infiltration			
Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr

Inflow Collection	
Initial Condition	
Initial Elevation Type	Invert

Physical	
Volume Type	Elevation-Area Curve

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
131.23	0.137	100.0
132.87	0.334	100.0
134.51	0.609	100.0
136.15	1.657	100.0
136.70	2.096	100.0
137.80	2.569	100.0
139.44	3.655	100.0

Results (Engine Parsing)	
Branch	1

Pond Detailed Report: PB1

Results (Extended)			
Freeboard Height	8.21 ft	Volume	0.00 ac-ft
Depth (Flooding)	-8.21 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	131.23 ft	Flow (Out to links)	0.00 ft³/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pollutants Collection

Pollutant

Pond Detailed Report: PB2

<General>

Active Scenario Label	PB2	Label	PB2
ID	126	Notes	

<Geometry>

Scaled Area	1.691 acres

Geometry

X (ft)	Y (ft)
5768690.07	2284600.68
5768703.23	2284571.40
5768731.03	2284547.15
5768794.91	2284553.36
5768906.55	2284583.23
5768952.54	2284602.45
5769027.51	2284623.30
5769107.80	2284654.06
5769172.42	2284671.66
5769213.68	2284689.10
5769227.28	2284737.61
5769248.57	2284770.14
5769260.99	2284787.29
5769272.23	2284857.09
5769307.99	2285044.89
5769333.15	2285211.13
5769303.83	2285220.56
5769249.74	2285010.66
5769208.10	2284855.47
5769199.54	2284832.43
5769152.61	2284779.90
5769103.96	2284751.51
5769035.20	2284725.92
5768943.22	2284695.02
5768860.26	2284665.15
5768818.12	2284652.58
5768750.10	2284627.59
5768717.27	2284615.02

Active Topology

Is Active?	True

Infiltration

Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr

Inflow Collection

Initial Condition

Pond Detailed Report: PB2

Initial Condition	
Initial Elevation Type	Invert

Physical	
Volume Type	Elevation-Area Curve

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
127.95	0.210	100.0
129.59	0.665	100.0
131.23	0.964	100.0
132.87	1.268	100.0
134.51	1.629	100.0
136.16	2.087	100.0

Results (Engine Parsing)	
Branch	3

Results (Extended)			
Freeboard Height	8.20 ft	Volume	0.00 ac-ft
Depth (Flooding)	-8.20 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	127.95 ft	Flow (Out to links)	0.00 ft³/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pollutants Collection

Pond Detailed Report: PB2

Pollutants Collection

Pollutant

Pond Detailed Report: PB3

<General>			
Active Scenario Label	PB3	Label	PB3
ID	125	Notes	

<Geometry>	
Scaled Area	0.677 acres

Geometry

X (ft)	Y (ft)
5768443.69	2284399.11
5768471.09	2284359.20
5768524.06	2284354.99
5768559.40	2284385.29
5768565.87	2284416.71
5768597.29	2284446.28
5768629.64	2284481.40
5768654.59	2284492.49
5768689.22	2284510.12
5768706.11	2284525.87
5768717.44	2284546.09
5768706.35	2284567.35
5768688.79	2284584.91
5768678.62	2284593.23
5768666.61	2284592.13
5768628.36	2284577.05
5768567.88	2284549.03
5768510.62	2284508.95
5768469.01	2284460.96
5768458.30	2284448.56

Active Topology	
Is Active?	True

Infiltration			
Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr

Inflow Collection

Initial Condition	
Initial Elevation Type	Invert

Physical	
Volume Type	Elevation-Area Curve

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)

Pond Detailed Report: PB3

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
126.31	0.232	100.0
127.95	0.320	100.0
129.59	0.423	100.0
131.23	0.514	100.0
132.87	0.631	100.0

Results (Engine Parsing)			
Branch	4		

Results (Extended)			
Freeboard Height	6.56 ft	Volume	0.00 ac-ft
Depth (Flooding)	-6.56 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	126.31 ft	Flow (Out to links)	0.00 ft³/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pollutants Collection

Pollutant

Pond Detailed Report: PB4

<General>			
Active Scenario Label	PB4	Label	PB4
ID	128	Notes	

<Geometry>	
Scaled Area	3.335 acres

Geometry

X (ft)	Y (ft)
5768329.41	2284334.58
5768459.71	2284337.66
5768480.04	2284300.69
5768456.01	2284242.47
5768428.28	2284211.97
5768436.60	2284177.78
5768428.28	2284162.06
5768383.00	2284143.58
5768088.03	2284130.54
5768082.47	2284215.76
5768116.44	2284665.85
5767859.28	2284675.84
5767627.03	2284678.60
5767632.20	2284782.20
5767841.42	2284851.07
5768150.72	2284693.26
5768156.18	2284322.94
5768211.98	2284298.42

Active Topology	
Is Active?	True

Infiltration			
Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr

Inflow Collection

Initial Condition	
Initial Elevation Type	Invert

Physical	
Volume Type	Elevation-Area Curve

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
124.67	0.110	100.0
126.31	0.382	100.0

Pond Detailed Report: PB4

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
127.95	1.228	100.0
129.59	1.781	100.0
131.23	2.785	100.0

Results (Engine Parsing)			
Branch	2		

Results (Extended)			
Freeboard Height	6.56 ft	Volume	0.00 ac-ft
Depth (Flooding)	-6.56 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	124.67 ft	Flow (Out to links)	0.00 ft³/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pollutants Collection

Pollutant

Pond Detailed Report: PC1

<General>			
Active Scenario Label	PC1	Label	PC1
ID	147	Notes	

<Geometry>	
Scaled Area	5.941 acres

Geometry

X (ft)	Y (ft)
5769023.46	2286565.31
5769112.45	2286565.93
5769167.88	2286558.69
5769257.57	2286547.38
5769383.71	2286534.28
5769465.04	2286528.77
5769506.40	2286472.25
5769547.75	2286392.29
5769548.44	2286355.76
5769497.44	2286341.98
5769447.81	2286341.98
5769424.38	2286330.95
5769423.00	2286307.51
5769411.28	2286212.39
5769407.14	2286137.95
5769411.28	2286026.98
5769436.09	2286008.37
5769467.80	2286009.75
5769511.22	2285998.72
5769542.24	2285996.65
5769573.95	2285983.56
5769630.47	2285986.31
5769698.02	2286022.15
5769751.09	2286039.39
5769812.43	2286058.69
5769859.30	2286084.88
5769874.47	2286100.73
5769915.14	2286107.62
5769975.10	2286104.18
5769986.13	2286072.47
5769992.33	2286025.60
5769990.95	2285989.07
5770011.63	2285981.49
5770037.14	2285969.08
5770083.32	2285969.08
5770096.41	2285986.31
5770100.55	2286002.17
5770129.50	2286005.61
5770133.63	2286016.64

Pond Detailed Report: PC1

Geometry

X (ft)	Y (ft)
5770137.77	2286089.01
5770154.31	2286164.14
5770177.06	2286202.05
5770203.25	2286220.66
5770263.22	2286235.14
5770305.95	2286238.59
5770319.74	2286238.59
5770315.60	2286319.23
5770319.74	2286350.25
5770329.39	2286315.09
5770331.45	2286275.81
5770340.41	2286230.31
5770364.54	2286231.69
5770390.04	2286229.62
5770407.96	2286235.83
5770420.37	2286224.80
5770445.18	2286209.64
5770548.57	2286181.38
5770577.52	2286175.86
5770606.47	2286207.57
5770635.42	2286232.38
5770660.65	2286280.35
5770674.85	2286291.93
5770669.47	2286254.71
5770696.77	2286236.52
5770691.94	2286210.33
5770673.33	2286201.36
5770658.86	2286178.62
5770655.41	2286167.59
5770634.73	2286159.32
5770616.81	2286146.22
5770588.55	2286133.13
5770547.20	2286118.65
5770496.19	2286126.23
5770453.45	2286142.78
5770409.34	2286153.12
5770362.47	2286166.21
5770327.32	2286174.48
5770301.82	2286176.55
5770268.73	2286172.42
5770200.49	2286142.78
5770183.95	2286115.90
5770187.40	2286049.04
5770188.78	2286016.64
5770198.42	2285991.14
5770201.87	2285980.11
5770197.05	2285964.95

Pond Detailed Report: PC1

Geometry

X (ft)	Y (ft)
5770149.49	2285949.09
5770013.70	2285921.52
5769939.26	2285897.40
5769873.09	2285856.73
5769821.39	2285806.41
5769784.86	2285760.23
5769741.44	2285689.24
5769721.45	2285660.98
5769702.84	2285663.05
5769642.18	2285709.23
5769559.47	2285776.09
5769480.21	2285840.88
5769403.01	2285904.29
5769363.03	2285949.78
5769357.52	2285971.15
5769360.27	2285993.21
5769375.44	2286009.06
5769383.71	2286029.74
5769390.60	2286081.43
5769391.98	2286181.38
5769392.67	2286271.67
5769376.82	2286319.92
5769356.14	2286359.21
5769318.92	2286384.71
5769290.66	2286422.62
5769247.92	2286472.25
5769201.74	2286503.95
5769140.40	2286536.35
5769088.84	2286555.15

Active Topology			
Is Active?	True		
Infiltration			
Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr
Inflow Collection			
Initial Condition			
Initial Elevation Type	Invert		
Physical			
Volume Type	Elevation-Area Curve		

Elevation-Area Curve

Pond Detailed Report: PC1

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
131.00	0.003	100.0
132.00	0.094	100.0
133.00	0.174	100.0
134.00	0.301	100.0
135.00	0.634	100.0
136.00	0.940	100.0
137.00	1.228	100.0
138.00	1.508	100.0
139.00	2.455	100.0
140.00	4.020	100.0
141.00	5.939	100.0
142.00	8.535	100.0

Results (Engine Parsing)			
Branch	15		

Results (Extended)			
Freeboard Height	11.00 ft	Volume	0.00 ac-ft
Depth (Flooding)	-11.00 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	131.00 ft	Flow (Out to links)	0.00 ft³/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pollutants Collection

Pond Detailed Report: PC1

Pollutants Collection

Pollutant

Pond Detailed Report: PC2

<General>			
Active Scenario Label	PC2	Label	PC2
ID	148	Notes	

<Geometry>	
Scaled Area	0.813 acres

Geometry

X (ft)	Y (ft)
5770211.28	2286429.52
5770225.76	2286439.86
5770256.77	2286444.68
5770361.54	2286449.51
5770420.13	2286457.78
5770453.90	2286479.84
5770543.51	2286501.89
5770603.48	2286522.57
5770652.41	2286526.71
5770701.35	2286527.39
5770738.57	2286524.64
5770814.81	2286502.58
5770839.95	2286491.55
5770844.80	2286483.17
5770847.91	2286464.54
5770846.10	2286455.51
5770841.36	2286451.90
5770821.26	2286449.19
5770792.12	2286445.12
5770784.44	2286446.02
5770781.28	2286456.64
5770782.19	2286472.90
5770781.51	2286482.84
5770771.80	2286487.81
5770751.02	2286487.36
5770735.43	2286476.97
5770732.50	2286463.42
5770730.01	2286451.22
5770727.08	2286443.31
5770716.01	2286440.15
5770680.78	2286437.22
5770620.92	2286434.96
5770545.71	2286431.34
5770505.51	2286428.86
5770445.71	2286421.90
5770388.34	2286416.93
5770326.91	2286411.51
5770270.22	2286411.51
5770214.66	2286418.96

Pond Detailed Report: PC2

Geometry

X (ft)	Y (ft)
5770211.50	2286423.93

Active Topology	
Is Active?	True

Infiltration			
Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr

Inflow Collection	
Initial Condition	
Initial Elevation Type	Invert

Physical	
Volume Type	Elevation-Area Curve

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
141.00	0.008	100.0
142.00	0.092	100.0
143.00	0.181	100.0
144.00	0.440	100.0
145.00	0.927	100.0

Results (Engine Parsing)	
Branch	14

Results (Extended)			
Freeboard Height	4.00 ft	Volume	0.00 ac-ft
Depth (Flooding)	-4.00 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pond Detailed Report: PC2

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	141.00 ft	Flow (Out to links)	0.00 ft^3/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft^3/s
Is Flooded?	False		

Pollutants Collection

Pollutant

Pond Detailed Report: PC3

<General>			
Active Scenario Label	PC3	Label	PC3
ID	149	Notes	

<Geometry>	
Scaled Area	0.681 acres

Geometry

X (ft)	Y (ft)
5770762.40	2286317.34
5770761.95	2286359.24
5770765.04	2286368.95
5770776.07	2286369.83
5770780.04	2286379.54
5770783.13	2286391.01
5770784.89	2286411.74
5770789.31	2286417.47
5770801.66	2286417.91
5770823.71	2286416.59
5770835.18	2286417.03
5770850.62	2286411.74
5770862.53	2286410.42
5770868.27	2286408.21
5770868.71	2286401.15
5770863.42	2286391.89
5770865.62	2286378.21
5770867.83	2286374.68
5770876.21	2286376.01
5770879.30	2286387.92
5770889.00	2286406.89
5770894.74	2286419.24
5770902.68	2286425.41
5770910.18	2286425.85
5770921.64	2286425.41
5770928.70	2286422.33
5770939.29	2286421.88
5770960.02	2286420.56
5770977.23	2286417.91
5770997.52	2286416.59
5771007.22	2286416.59
5771027.52	2286425.85
5771047.37	2286436.44
5771057.51	2286455.41
5771064.13	2286477.03
5771086.63	2286479.23
5771108.68	2286479.67
5771124.12	2286476.59
5771125.45	2286470.41

Pond Detailed Report: PC3

Geometry

X (ft)	Y (ft)
5771122.80	2286464.23
5771121.04	2286456.73
5771110.45	2286448.79
5771098.10	2286443.50
5771081.33	2286432.47
5771072.95	2286428.06
5771061.92	2286423.21
5771034.13	2286403.10
5771014.98	2286387.92
5770981.55	2286357.57
5770965.29	2286340.04
5770958.06	2286333.90
5770930.96	2286321.97
5770916.33	2286318.00
5770890.85	2286306.79
5770858.14	2286291.25
5770836.28	2286280.05
5770814.96	2286269.39
5770792.73	2286258.19
5770777.92	2286253.85
5770775.21	2286256.02
5770770.69	2286280.05
5770769.06	2286294.15
5770764.55	2286310.41

Active Topology			
Is Active?	True		

Infiltration			
Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr

Inflow Collection			
Initial Condition			
Initial Elevation Type	Invert		

Physical			
Volume Type	Elevation-Area Curve		

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
142.00	0.129	100.0
143.00	0.289	100.0
144.00	0.453	100.0

Pond Detailed Report: PC3

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
145.00	0.679	100.0
146.00	0.877	100.0

Results (Engine Parsing)			
Branch	13		

Results (Extended)			
Freeboard Height	4.00 ft	Volume	0.00 ac-ft
Depth (Flooding)	-4.00 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	142.00 ft	Flow (Out to links)	0.00 ft³/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pollutants Collection

Pollutant

Pond Detailed Report: PC4

<General>			
Active Scenario Label	PC4	Label	PC4
ID	235	Notes	

<Geometry>	
Scaled Area	0.552 acres

Geometry

X (ft)	Y (ft)
5767970.72	2286154.40
5767974.88	2286159.64
5767975.78	2286168.50
5767974.52	2286183.13
5767975.06	2286210.60
5767974.52	2286246.92
5767974.16	2286289.20
5767971.09	2286309.25
5767972.71	2286318.29
5767985.18	2286321.72
5768002.89	2286318.83
5768009.39	2286315.04
5768025.65	2286309.98
5768037.76	2286312.33
5768047.88	2286302.57
5768047.88	2286285.04
5768042.10	2286279.26
5768035.59	2286278.54
5768021.14	2286281.97
5768010.11	2286281.25
5768004.69	2286273.84
5768003.07	2286260.47
5768004.87	2286245.83
5768005.96	2286236.08
5768012.82	2286225.23
5768026.01	2286215.30
5768036.49	2286208.43
5768047.52	2286208.07
5768057.82	2286196.14
5768063.78	2286186.39
5768065.40	2286168.68
5768066.85	2286152.24
5768068.48	2286125.86
5768067.21	2286105.98
5768063.60	2286089.72
5768057.09	2286067.67
5768046.25	2286056.65
5768036.31	2286048.16
5768031.07	2286046.35

Pond Detailed Report: PC4

Geometry

X (ft)	Y (ft)
5768022.94	2286043.46
5768014.99	2286030.63
5768010.48	2286002.27
5768008.67	2285980.94
5768003.07	2285949.69
5768000.18	2285929.81
5767999.81	2285913.19
5768000.36	2285902.53
5767997.83	2285887.78
5767998.19	2285864.65
5767996.38	2285857.61
5767989.88	2285844.42
5767986.81	2285842.43
5767981.02	2285859.78
5767979.94	2285874.59
5767981.38	2285913.44
5767982.47	2285942.35
5767980.66	2285966.20
5767979.58	2286006.67
5767977.41	2286029.08
5767976.33	2286074.79
5767974.16	2286106.23
5767974.36	2286139.74
5767972.92	2286148.84

Active Topology			
Is Active?	True		

Infiltration			
Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr

Inflow Collection			
Initial Condition			
Initial Elevation Type	Invert		

Physical			
Volume Type	Elevation-Area Curve		

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
123.00	0.094	100.0
124.00	0.137	100.0
125.00	0.185	100.0

Pond Detailed Report: PC4

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
126.00	0.317	100.0
127.00	0.553	100.0
128.00	0.738	100.0
129.00	0.987	100.0

Results (Engine Parsing)			
Branch	12		

Results (Extended)			
Freeboard Height	6.00 ft	Volume	0.00 ac-ft
Depth (Flooding)	-6.00 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	123.00 ft	Flow (Out to links)	0.00 ft³/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pollutants Collection

Pollutant

Pond Detailed Report: PC5

<General>			
Active Scenario Label	PC5	Label	PC5
ID	298	Notes	

<Geometry>	
Scaled Area	4.296 acres

Geometry

X (ft)	Y (ft)
5767344.88	2285985.36
5767359.05	2286000.47
5767418.55	2286052.90
5767470.98	2286126.57
5767490.81	2286165.30
5767511.59	2286177.10
5767521.98	2286193.63
5767542.76	2286203.08
5767557.87	2286196.94
5767600.38	2286217.72
5767667.91	2286211.11
5767737.34	2286195.99
5767759.53	2286183.71
5767757.64	2286169.55
5767694.83	2286061.40
5767643.83	2285981.58
5767578.65	2285871.54
5767527.65	2285788.42
5767465.31	2285754.42
5767453.03	2285745.92
5767453.97	2285735.06
5767459.17	2285728.92
5767472.39	2285728.45
5767523.87	2285760.09
5767562.60	2285787.01
5767594.71	2285838.01
5767643.21	2285920.02
5767713.25	2286033.53
5767778.90	2286126.10
5767801.56	2286162.93
5767820.46	2286173.80
5767833.68	2286178.52
5767832.26	2286188.44
5767814.32	2286202.60
5767809.59	2286220.55
5767819.04	2286292.34
5767835.57	2286306.03
5767868.63	2286302.25
5767863.90	2286262.11

Pond Detailed Report: PC5

Geometry

X (ft)	Y (ft)
5767877.60	2286235.66
5767904.99	2286207.33
5767926.72	2286182.77
5767943.25	2286162.93
5767947.97	2286145.46
5767947.02	2286084.54
5767936.16	2286043.92
5767921.99	2286027.87
5767873.82	2286021.73
5767839.82	2286005.20
5767777.95	2285956.55
5767742.53	2285908.38
5767718.92	2285874.38
5767684.91	2285836.12
5767665.08	2285786.54
5767641.47	2285749.70
5767626.35	2285717.58
5767630.60	2285679.80
5767594.24	2285688.78
5767559.76	2285698.69
5767534.73	2285687.36
5767513.48	2285661.86
5767505.45	2285636.35
5767506.40	2285612.27
5767500.73	2285592.43
5767486.09	2285569.29
5767474.28	2285567.40
5767446.42	2285655.72
5767436.03	2285699.64
5767441.70	2285716.17
5767440.75	2285723.72
5767436.50	2285730.34
5767429.89	2285734.11
5767422.33	2285742.14
5767418.55	2285750.17
5767396.83	2285827.62
5767383.61	2285888.55
5767374.63	2285929.63
5767357.16	2285968.83
5767350.55	2285980.64
5767344.88	2285983.94

Active Topology	
Is Active?	True

Pond Detailed Report: PC5

Infiltration			
Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr

Inflow Collection	
Initial Condition	
Initial Elevation Type	Invert

Physical	
Volume Type	Elevation-Area Curve

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
116.00	0.271	100.0
117.00	0.303	100.0
118.00	0.392	100.0
119.00	0.704	100.0
120.00	1.104	100.0
121.00	1.491	100.0
122.00	2.072	100.0
123.00	2.617	100.0
124.00	3.086	100.0
125.00	3.763	100.0
126.00	4.523	100.0

Results (Engine Parsing)	
Branch	11

Results (Extended)			
Freeboard Height	10.00 ft	Volume	0.00 ac-ft
Depth (Flooding)	-10.00 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Pond Detailed Report: PC5

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	116.00 ft	Flow (Out to links)	0.00 ft^3/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft^3/s
Is Flooded?	False		

Pollutants Collection

Pollutant

Pond Detailed Report: PA1

<General>			
Active Scenario Label	PA1	Label	PA1
ID	385	Notes	

<Geometry>	
Scaled Area	11.367 acres

Geometry

X (ft)	Y (ft)
5766914.61	2286696.46
5766882.99	2286693.98
5766815.34	2286690.87
5766753.81	2286696.08
5766750.00	2286727.30
5766865.26	2286931.54
5766911.49	2286964.71
5766940.08	2286972.48
5766967.25	2287006.36
5767026.19	2287035.65
5767105.95	2287049.76
5767134.53	2287051.53
5767135.94	2287086.47
5767174.06	2287099.52
5767198.76	2287136.93
5767224.17	2287176.46
5767286.63	2287226.57
5767321.57	2287241.04
5767362.51	2287238.21
5767375.21	2287225.51
5767403.80	2287247.74
5767449.68	2287254.10
5767492.38	2287248.10
5767549.90	2287253.39
5767546.02	2287269.62
5767531.90	2287278.80
5767569.66	2287300.33
5767639.19	2287298.21
5767664.24	2287312.33
5767685.77	2287335.26
5767715.77	2287337.38
5767734.47	2287333.85
5767748.94	2287339.50
5767748.94	2287323.27
5767763.41	2287316.56
5767777.53	2287316.91
5767790.94	2287337.03
5767809.99	2287369.50
5767840.70	2287357.14

Pond Detailed Report: PA1

Geometry

X (ft)	Y (ft)
5767849.87	2287339.50
5767862.93	2287327.15
5767881.63	2287332.44
5767896.81	2287345.15
5767908.10	2287353.62
5767923.98	2287356.79
5767936.69	2287355.73
5767961.04	2287332.44
5767957.51	2287306.68
5767965.27	2287278.69
5767960.97	2287240.89
5767957.59	2287214.35
5767929.89	2287180.26
5767927.56	2287118.95
5767930.67	2287080.44
5767927.85	2287059.23
5767926.66	2287030.49
5767929.90	2287022.10
5767935.85	2287017.17
5767941.17	2287009.91
5767942.04	2287003.95
5767945.58	2286998.24
5767948.68	2286993.68
5767949.14	2286990.99
5767950.54	2286985.16
5767950.35	2286980.35
5767951.28	2286974.52
5767949.93	2286970.33
5767949.69	2286966.78
5767948.46	2286966.38
5767942.99	2286957.20
5767939.89	2286942.59
5767933.43	2286927.21
5767923.19	2286919.41
5767926.37	2286906.77
5767926.05	2286893.40
5767919.74	2286882.81
5767919.31	2286867.96
5767918.61	2286855.11
5767907.60	2286842.90
5767897.50	2286831.96
5767885.64	2286823.03
5767870.95	2286812.80
5767853.59	2286804.79
5767830.54	2286797.62
5767808.09	2286800.49
5767779.50	2286803.28

Pond Detailed Report: PA1

Geometry

X (ft)	Y (ft)
5767755.07	2286797.49
5767744.17	2286797.85
5767719.18	2286792.59
5767700.40	2286795.17
5767680.71	2286793.37
5767659.36	2286790.59
5767595.22	2286780.11
5767525.20	2286788.26
5767484.61	2286782.26
5767465.56	2286778.03
5767436.27	2286779.44
5767391.45	2286784.03
5767337.10	2286765.67
5767307.10	2286752.97
5767284.16	2286740.97
5767244.28	2286721.91
5767195.23	2286714.15
5767170.53	2286707.09
5767153.24	2286700.03
5767131.00	2286697.21
5767012.43	2286697.21
5766951.37	2286697.56
5766930.20	2286698.27

Active Topology			
Is Active?	True		

Infiltration			
Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr

Inflow Collection			
Initial Condition			
Initial Elevation Type	Invert		

Physical			
Volume Type	Elevation-Area Curve		

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
116.00	5.140	100.0
117.00	7.050	100.0
118.00	16.600	100.0
119.00	20.170	100.0

Pond Detailed Report: PA1

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
120.00	23.440	100.0
121.00	32.600	100.0
122.75	46.124	100.0

Results (Engine Parsing)			
Branch	3		

Results (Extended)			
Freeboard Height	6.75 ft	Volume	0.00 ac-ft
Depth (Flooding)	-6.75 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.01 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	116.00 ft	Flow (Out to links)	0.00 ft³/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pollutants Collection

Pollutant

Pond Detailed Report: PA3

<General>			
Active Scenario Label	PA3	Label	PA3
ID	301	Notes	

<Geometry>	
Scaled Area	2.495 acres

Geometry

X (ft)	Y (ft)
5766983.83	2285806.90
5766947.94	2285818.23
5766918.19	2285825.32
5766887.49	2285806.90
5766850.65	2285815.40
5766838.84	2285837.12
5766828.45	2285881.04
5766825.15	2285934.88
5766825.62	2285973.14
5766818.54	2286000.06
5766826.09	2286018.95
5766835.54	2286026.03
5766847.82	2286030.75
5766856.79	2286051.06
5766844.98	2286070.90
5766842.62	2286112.93
5766836.01	2286145.51
5766838.37	2286177.16
5766836.48	2286221.55
5766849.23	2286261.69
5766846.40	2286302.78
5766842.62	2286350.01
5766845.93	2286383.07
5766870.01	2286429.82
5766895.04	2286481.77
5766932.35	2286515.77
5766946.05	2286522.39
5766959.75	2286496.41
5766953.13	2286469.96
5766931.41	2286451.07
5766901.18	2286398.18
5766884.18	2286341.98
5766873.79	2286293.34
5766866.71	2286218.72
5766878.04	2286172.91
5766892.68	2286138.90
5766891.74	2286117.18
5766901.18	2286110.57
5766914.88	2286095.45

Pond Detailed Report: PA3

Geometry

X (ft)	Y (ft)
5766936.60	2286072.79
5766965.88	2286035.48
5766969.66	2286005.25
5766974.39	2285968.89
5766997.05	2285955.66
5767023.50	2285958.02
5767048.06	2285944.33
5767092.92	2285911.27
5767124.09	2285901.82
5767159.99	2285886.71
5767192.10	2285876.32
5767221.38	2285883.88
5767255.86	2285895.68
5767277.58	2285910.32
5767300.25	2285920.71
5767306.39	2285936.30
5767318.20	2285943.38
5767327.64	2285945.27
5767343.70	2285916.46
5767353.62	2285872.07
5767372.51	2285797.92
5767382.43	2285747.86
5767377.70	2285744.09
5767329.06	2285751.17
5767214.77	2285769.59
5767096.70	2285790.84
5767055.62	2285799.34
5766987.14	2285805.01

Active Topology			
Is Active?	True		

Infiltration			
Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr

Inflow Collection			
Initial Condition			
Initial Elevation Type	Invert		

Physical			
Volume Type	Elevation-Area Curve		

Elevation-Area Curve

Pond Detailed Report: PA3

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
115.00	0.107	100.0
116.00	0.132	100.0
117.00	0.411	100.0
118.00	2.483	100.0
119.00	3.258	100.0
120.00	3.270	100.0

Results (Engine Parsing)			
Branch	8		

Results (Extended)			
Freeboard Height	5.00 ft	Volume	0.00 ac-ft
Depth (Flooding)	-5.00 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	115.00 ft	Flow (Out to links)	0.00 ft³/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pollutants Collection

Pollutant

Pond Detailed Report: PA6

<General>			
Active Scenario Label	PA6	Label	PA6
ID	333	Notes	

<Geometry>	
Scaled Area	0.181 acres

Geometry

X (ft)	Y (ft)
5765948.65	2285715.53
5765910.33	2285715.97
5765912.98	2285778.07
5766048.18	2285776.31
5766022.19	2285710.69
5765965.82	2285714.21

Active Topology	
Is Active?	True

Infiltration			
Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr

Inflow Collection

Initial Condition	
Initial Elevation Type	Invert

Physical	
Volume Type	Elevation-Area Curve

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
116.00	0.255	100.0
117.00	0.405	100.0
118.00	0.527	100.0
119.00	0.725	100.0

Results (Engine Parsing)	
Branch	6

Results (Extended)			
Freeboard Height	3.00 ft	Volume	0.00 ac-ft
Depth (Flooding)	-3.00 ft	Is Flooded Ever?	True

Pond Detailed Report: PA6

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	116.00 ft	Flow (Out to links)	0.00 ft³/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pollutants Collection

Pollutant

Pond Detailed Report: PA7

<General>			
Active Scenario Label	PA7	Label	PA7
ID	317	Notes	

<Geometry>	
Scaled Area	14.448 acres

Geometry

X (ft)	Y (ft)
5765925.21	2284721.07
5767201.21	2284707.63
5767196.35	2284851.93
5766299.91	2284876.25
5766282.62	2285332.34
5766328.94	2285638.62
5766321.69	2285753.54
5766326.57	2285793.00
5766354.75	2285828.39
5766399.45	2285870.16
5766438.70	2285901.47
5766492.25	2285927.99
5766546.26	2285947.72
5766564.53	2285987.49
5766593.77	2285994.54
5766701.47	2286291.56
5766617.63	2286352.11
5766518.88	2286373.72
5766404.33	2286237.45
5766336.78	2286107.50
5766298.15	2285994.44
5766260.71	2285948.11
5766213.99	2285879.57
5766200.82	2285835.67
5766091.48	2285727.70
5765902.91	2285504.48
5765988.66	2285368.52

Active Topology	
Is Active?	True

Infiltration			
Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr

Inflow Collection

Initial Condition	
Initial Elevation Type	Invert

Pond Detailed Report: PA7

Physical	
Volume Type	Elevation-Area Curve

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
111.00	0.791	100.0
112.00	1.200	100.0
113.00	1.972	100.0
114.00	3.147	100.0
115.00	11.510	100.0
116.00	14.970	100.0
117.00	16.400	100.0
118.00	18.880	100.0
119.00	18.950	100.0
120.00	19.010	100.0
121.00	19.011	100.0

Results (Engine Parsing)	
Branch	7

Results (Extended)			
Freeboard Height	10.00 ft	Volume	0.00 ac-ft
Depth (Flooding)	-10.00 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	111.00 ft	Flow (Out to links)	0.00 ft³/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pond Detailed Report: PA7

Pollutants Collection

Pollutant

Pond Detailed Report: PA8

<General>

Active Scenario Label	PA8	Label	PA8
ID	971	Notes	

<Geometry>

Scaled Area	0.242 acres

Geometry

X (ft)	Y (ft)
5768803.46	2287551.46
5768798.73	2287595.74
5768828.25	2287628.80
5768888.46	2287635.29
5768922.11	2287616.40
5768917.39	2287583.34
5768919.16	2287550.87
5768894.96	2287540.84
5768844.19	2287527.85
5768818.21	2287531.98

Active Topology

Is Active?	True

Infiltration

Pond Infiltration Method	None

Inflow Collection

Initial Condition

Initial Elevation Type	Invert

Physical

Volume Type	Elevation-Area Curve

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
121.00	1.250	100.0
122.00	1.500	100.0
123.00	1.750	100.0
124.00	2.000	100.0
125.00	2.250	100.0
126.50	2.500	100.0

Results (Engine Parsing)

Pond Detailed Report: PA8

Results (Engine Parsing)			
Branch	2		

Results (Extended)			
Freeboard Height	5.50 ft	Volume	0.00 ac-ft
Depth (Flooding)	-5.50 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	121.00 ft	Flow (Out to links)	0.00 ft³/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pollutants Collection

Pollutant

Pond Detailed Report: PC1

<General>			
Active Scenario Label	PC1	Label	PC1
ID	1092	Notes	

<Geometry>	
Scaled Area	4.509 acres

Geometry

X (ft)	Y (ft)
5769042.90	2286560.95
5769105.13	2286546.02
5769174.83	2286523.61
5769242.05	2286483.78
5769269.43	2286466.36
5769314.24	2286391.68
5769346.60	2286366.78
5769364.02	2286354.34
5769393.90	2286262.23
5769393.90	2286028.23
5769369.00	2285973.47
5769369.00	2285936.13
5769466.09	2285853.98
5769675.19	2285687.19
5769705.07	2285669.76
5769707.56	2285659.81
5769717.51	2285657.32
5769724.98	2285667.28
5769744.90	2285699.64
5769812.11	2285791.74
5769861.89	2285844.02
5769931.60	2285886.34
5769993.83	2285913.72
5770033.66	2285931.15
5770036.15	2285970.98
5770006.28	2285980.93
5769998.81	2285998.36
5769986.36	2286065.57
5769976.41	2286107.89
5769901.72	2286107.89
5769866.87	2286090.47
5769854.43	2286073.04
5769787.21	2286053.13
5769744.90	2286028.23
5769737.43	2286025.74
5769690.13	2286005.83
5769652.79	2285985.91
5769642.83	2285975.96
5769612.96	2285970.98

Pond Detailed Report: PC1

Geometry

X (ft)	Y (ft)
5769595.53	2285970.98
5769555.70	2285973.47
5769538.28	2285988.40
5769486.00	2285990.89
5769441.19	2286003.34
5769418.79	2286013.30
5769413.81	2286058.10
5769419.29	2286149.71
5769417.55	2286259.66
5769421.03	2286313.86
5769431.24	2286331.93
5769513.39	2286346.87
5769545.75	2286371.76
5769530.81	2286399.15
5769483.51	2286473.83
5769448.66	2286518.63
5769356.56	2286518.63
5769209.68	2286553.49
5769125.05	2286563.44

Active Topology	
Is Active?	True

Infiltration	
Pond Infiltration Method	None

Inflow Collection	
Initial Condition	
Initial Elevation Type	Invert

Physical	
Volume Type	Elevation-Area Curve

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
135.00	0.150	100.0
136.00	0.310	100.0
137.00	0.500	100.0
138.00	0.650	100.0
139.00	1.240	100.0
140.00	2.810	100.0
141.00	4.570	100.0
142.00	6.770	100.0

Pond Detailed Report: PC1

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)

Results (Engine Parsing)			
Branch	1		

Results (Extended)			
Freeboard Height	7.00 ft	Volume	0.00 ac-ft
Depth (Flooding)	-7.00 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	135.00 ft	Flow (Out to links)	0.00 ft³/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pollutants Collection

Pollutant

Pond Detailed Report: PC4

<General>			
Active Scenario Label	PC4	Label	PC4
ID	235	Notes	

<Geometry>	
Scaled Area	0.552 acres

Geometry

X (ft)	Y (ft)
5767970.72	2286154.40
5767974.88	2286159.64
5767975.78	2286168.50
5767974.52	2286183.13
5767975.06	2286210.60
5767974.52	2286246.92
5767974.16	2286289.20
5767971.09	2286309.25
5767972.71	2286318.29
5767985.18	2286321.72
5768002.89	2286318.83
5768009.39	2286315.04
5768025.65	2286309.98
5768037.76	2286312.33
5768047.88	2286302.57
5768047.88	2286285.04
5768042.10	2286279.26
5768035.59	2286278.54
5768021.14	2286281.97
5768010.11	2286281.25
5768004.69	2286273.84
5768003.07	2286260.47
5768004.87	2286245.83
5768005.96	2286236.08
5768012.82	2286225.23
5768026.01	2286215.30
5768036.49	2286208.43
5768047.52	2286208.07
5768057.82	2286196.14
5768063.78	2286186.39
5768065.40	2286168.68
5768066.85	2286152.24
5768068.48	2286125.86
5768067.21	2286105.98
5768063.60	2286089.72
5768057.09	2286067.67
5768046.25	2286056.65
5768036.31	2286048.16
5768031.07	2286046.35

Pond Detailed Report: PC4

Geometry

X (ft)	Y (ft)
5768022.94	2286043.46
5768014.99	2286030.63
5768010.48	2286002.27
5768008.67	2285980.94
5768003.07	2285949.69
5768000.18	2285929.81
5767999.81	2285913.19
5768000.36	2285902.53
5767997.83	2285887.78
5767998.19	2285864.65
5767996.38	2285857.61
5767989.88	2285844.42
5767986.81	2285842.43
5767981.02	2285859.78
5767979.94	2285874.59
5767981.38	2285913.44
5767982.47	2285942.35
5767980.66	2285966.20
5767979.58	2286006.67
5767977.41	2286029.08
5767976.33	2286074.79
5767974.16	2286106.23
5767974.36	2286139.74
5767972.92	2286148.84

Active Topology	
Is Active?	True

Infiltration			
Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr

Inflow Collection	
Initial Condition	
Initial Elevation Type	Invert

Physical	
Volume Type	Elevation-Area Curve

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
123.00	0.094	100.0
124.00	0.137	100.0
125.00	0.185	100.0

Pond Detailed Report: PC4

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
126.00	0.317	100.0
127.00	0.553	100.0
128.00	0.738	100.0
129.00	0.987	100.0

Results (Engine Parsing)			
Branch	10		

Results (Extended)			
Freeboard Height	6.00 ft	Volume	0.00 ac-ft
Depth (Flooding)	-6.00 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	123.00 ft	Flow (Out to links)	0.00 ft³/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pollutants Collection

Pollutant

Pond Detailed Report: PC5

<General>			
Active Scenario Label	PC5	Label	PC5
ID	298	Notes	

<Geometry>	
Scaled Area	4.296 acres

Geometry

X (ft)	Y (ft)
5767344.88	2285985.36
5767359.05	2286000.47
5767418.55	2286052.90
5767470.98	2286126.57
5767490.81	2286165.30
5767511.59	2286177.10
5767521.98	2286193.63
5767542.76	2286203.08
5767557.87	2286196.94
5767600.38	2286217.72
5767667.91	2286211.11
5767737.34	2286195.99
5767759.53	2286183.71
5767757.64	2286169.55
5767694.83	2286061.40
5767643.83	2285981.58
5767578.65	2285871.54
5767527.65	2285788.42
5767465.31	2285754.42
5767453.03	2285745.92
5767453.97	2285735.06
5767459.17	2285728.92
5767472.39	2285728.45
5767523.87	2285760.09
5767562.60	2285787.01
5767594.71	2285838.01
5767643.21	2285920.02
5767713.25	2286033.53
5767778.90	2286126.10
5767801.56	2286162.93
5767820.46	2286173.80
5767833.68	2286178.52
5767832.26	2286188.44
5767814.32	2286202.60
5767809.59	2286220.55
5767819.04	2286292.34
5767835.57	2286306.03
5767868.63	2286302.25
5767863.90	2286262.11

Pond Detailed Report: PC5

Geometry

X (ft)	Y (ft)
5767877.60	2286235.66
5767904.99	2286207.33
5767926.72	2286182.77
5767943.25	2286162.93
5767947.97	2286145.46
5767947.02	2286084.54
5767936.16	2286043.92
5767921.99	2286027.87
5767873.82	2286021.73
5767839.82	2286005.20
5767777.95	2285956.55
5767742.53	2285908.38
5767718.92	2285874.38
5767684.91	2285836.12
5767665.08	2285786.54
5767641.47	2285749.70
5767626.35	2285717.58
5767630.60	2285679.80
5767594.24	2285688.78
5767559.76	2285698.69
5767534.73	2285687.36
5767513.48	2285661.86
5767505.45	2285636.35
5767506.40	2285612.27
5767500.73	2285592.43
5767486.09	2285569.29
5767474.28	2285567.40
5767446.42	2285655.72
5767436.03	2285699.64
5767441.70	2285716.17
5767440.75	2285723.72
5767436.50	2285730.34
5767429.89	2285734.11
5767422.33	2285742.14
5767418.55	2285750.17
5767396.83	2285827.62
5767383.61	2285888.55
5767374.63	2285929.63
5767357.16	2285968.83
5767350.55	2285980.64
5767344.88	2285983.94

Active Topology	
Is Active?	True

Pond Detailed Report: PC5

Infiltration			
Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr

Inflow Collection	
Initial Condition	
Initial Elevation Type	Invert

Physical	
Volume Type	Elevation-Area Curve

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
116.00	0.271	100.0
117.00	0.303	100.0
118.00	0.392	100.0
119.00	0.704	100.0
120.00	1.104	100.0
121.00	1.491	100.0
122.00	2.072	100.0
123.00	2.617	100.0
124.00	3.086	100.0
125.00	3.763	100.0
126.00	4.523	100.0

Results (Engine Parsing)	
Branch	9

Results (Extended)			
Freeboard Height	10.00 ft	Volume	0.00 ac-ft
Depth (Flooding)	-10.00 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Pond Detailed Report: PC5

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	116.00 ft	Flow (Out to links)	0.00 ft^3/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft^3/s
Is Flooded?	False		

Pollutants Collection

Pollutant

Pond Detailed Report: PA1

<General>			
Active Scenario Label	PA1	Label	PA1
ID	385	Notes	

<Geometry>	
Scaled Area	11.367 acres

Geometry

X (ft)	Y (ft)
5766914.61	2286696.46
5766882.99	2286693.98
5766815.34	2286690.87
5766753.81	2286696.08
5766750.00	2286727.30
5766865.26	2286931.54
5766911.49	2286964.71
5766940.08	2286972.48
5766967.25	2287006.36
5767026.19	2287035.65
5767105.95	2287049.76
5767134.53	2287051.53
5767135.94	2287086.47
5767174.06	2287099.52
5767198.76	2287136.93
5767224.17	2287176.46
5767286.63	2287226.57
5767321.57	2287241.04
5767362.51	2287238.21
5767375.21	2287225.51
5767403.80	2287247.74
5767449.68	2287254.10
5767492.38	2287248.10
5767549.90	2287253.39
5767546.02	2287269.62
5767531.90	2287278.80
5767569.66	2287300.33
5767639.19	2287298.21
5767664.24	2287312.33
5767685.77	2287335.26
5767715.77	2287337.38
5767734.47	2287333.85
5767748.94	2287339.50
5767748.94	2287323.27
5767763.41	2287316.56
5767777.53	2287316.91
5767790.94	2287337.03
5767809.99	2287369.50
5767840.70	2287357.14

Pond Detailed Report: PA1

Geometry

X (ft)	Y (ft)
5767849.87	2287339.50
5767862.93	2287327.15
5767881.63	2287332.44
5767896.81	2287345.15
5767908.10	2287353.62
5767923.98	2287356.79
5767936.69	2287355.73
5767961.04	2287332.44
5767957.51	2287306.68
5767965.27	2287278.69
5767960.97	2287240.89
5767957.59	2287214.35
5767929.89	2287180.26
5767927.56	2287118.95
5767930.67	2287080.44
5767927.85	2287059.23
5767926.66	2287030.49
5767929.90	2287022.10
5767935.85	2287017.17
5767941.17	2287009.91
5767942.04	2287003.95
5767945.58	2286998.24
5767948.68	2286993.68
5767949.14	2286990.99
5767950.54	2286985.16
5767950.35	2286980.35
5767951.28	2286974.52
5767949.93	2286970.33
5767949.69	2286966.78
5767948.46	2286966.38
5767942.99	2286957.20
5767939.89	2286942.59
5767933.43	2286927.21
5767923.19	2286919.41
5767926.37	2286906.77
5767926.05	2286893.40
5767919.74	2286882.81
5767919.31	2286867.96
5767918.61	2286855.11
5767907.60	2286842.90
5767897.50	2286831.96
5767885.64	2286823.03
5767870.95	2286812.80
5767853.59	2286804.79
5767830.54	2286797.62
5767808.09	2286800.49
5767779.50	2286803.28

Pond Detailed Report: PA1

Geometry

X (ft)	Y (ft)
5767755.07	2286797.49
5767744.17	2286797.85
5767719.18	2286792.59
5767700.40	2286795.17
5767680.71	2286793.37
5767659.36	2286790.59
5767595.22	2286780.11
5767525.20	2286788.26
5767484.61	2286782.26
5767465.56	2286778.03
5767436.27	2286779.44
5767391.45	2286784.03
5767337.10	2286765.67
5767307.10	2286752.97
5767284.16	2286740.97
5767244.28	2286721.91
5767195.23	2286714.15
5767170.53	2286707.09
5767153.24	2286700.03
5767131.00	2286697.21
5767012.43	2286697.21
5766951.37	2286697.56
5766930.20	2286698.27

Active Topology			
Is Active?	True		

Infiltration			
Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr

Inflow Collection			
Initial Condition			
Initial Elevation Type	Invert		

Physical			
Volume Type	Elevation-Area Curve		

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
116.00	5.140	100.0
117.00	7.050	100.0
118.00	16.600	100.0
119.00	20.170	100.0

Pond Detailed Report: PA1

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
120.00	23.440	100.0
121.00	32.600	100.0
122.75	46.124	100.0

Results (Engine Parsing)			
Branch	3		

Results (Extended)			
Freeboard Height	6.75 ft	Volume	0.00 ac-ft
Depth (Flooding)	-6.75 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.01 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	116.00 ft	Flow (Out to links)	0.00 ft³/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pollutants Collection

Pollutant

Pond Detailed Report: PA3

<General>			
Active Scenario Label	PA3	Label	PA3
ID	301	Notes	

<Geometry>	
Scaled Area	2.495 acres

Geometry

X (ft)	Y (ft)
5766983.83	2285806.90
5766947.94	2285818.23
5766918.19	2285825.32
5766887.49	2285806.90
5766850.65	2285815.40
5766838.84	2285837.12
5766828.45	2285881.04
5766825.15	2285934.88
5766825.62	2285973.14
5766818.54	2286000.06
5766826.09	2286018.95
5766835.54	2286026.03
5766847.82	2286030.75
5766856.79	2286051.06
5766844.98	2286070.90
5766842.62	2286112.93
5766836.01	2286145.51
5766838.37	2286177.16
5766836.48	2286221.55
5766849.23	2286261.69
5766846.40	2286302.78
5766842.62	2286350.01
5766845.93	2286383.07
5766870.01	2286429.82
5766895.04	2286481.77
5766932.35	2286515.77
5766946.05	2286522.39
5766959.75	2286496.41
5766953.13	2286469.96
5766931.41	2286451.07
5766901.18	2286398.18
5766884.18	2286341.98
5766873.79	2286293.34
5766866.71	2286218.72
5766878.04	2286172.91
5766892.68	2286138.90
5766891.74	2286117.18
5766901.18	2286110.57
5766914.88	2286095.45

Pond Detailed Report: PA3

Geometry

X (ft)	Y (ft)
5766936.60	2286072.79
5766965.88	2286035.48
5766969.66	2286005.25
5766974.39	2285968.89
5766997.05	2285955.66
5767023.50	2285958.02
5767048.06	2285944.33
5767092.92	2285911.27
5767124.09	2285901.82
5767159.99	2285886.71
5767192.10	2285876.32
5767221.38	2285883.88
5767255.86	2285895.68
5767277.58	2285910.32
5767300.25	2285920.71
5767306.39	2285936.30
5767318.20	2285943.38
5767327.64	2285945.27
5767343.70	2285916.46
5767353.62	2285872.07
5767372.51	2285797.92
5767382.43	2285747.86
5767377.70	2285744.09
5767329.06	2285751.17
5767214.77	2285769.59
5767096.70	2285790.84
5767055.62	2285799.34
5766987.14	2285805.01

Active Topology			
Is Active?	True		

Infiltration			
Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr

Inflow Collection			
Initial Condition			
Initial Elevation Type	Invert		

Physical			
Volume Type	Elevation-Area Curve		

Elevation-Area Curve

Pond Detailed Report: PA3

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
115.00	0.107	100.0
116.00	0.132	100.0
117.00	0.411	100.0
118.00	2.483	100.0
119.00	3.258	100.0
120.00	3.270	100.0

Results (Engine Parsing)			
Branch	8		

Results (Extended)			
Freeboard Height	5.00 ft	Volume	0.00 ac-ft
Depth (Flooding)	-5.00 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	115.00 ft	Flow (Out to links)	0.00 ft³/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pollutants Collection

Pollutant

Pond Detailed Report: PA6

<General>			
Active Scenario Label	PA6	Label	PA6
ID	333	Notes	

<Geometry>	
Scaled Area	0.181 acres

Geometry

X (ft)	Y (ft)
5765948.65	2285715.53
5765910.33	2285715.97
5765912.98	2285778.07
5766048.18	2285776.31
5766022.19	2285710.69
5765965.82	2285714.21

Active Topology	
Is Active?	True

Infiltration			
Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr

Inflow Collection	
Initial Condition	
Initial Elevation Type	Invert

Physical	
Volume Type	Elevation-Area Curve

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
116.00	0.255	100.0
117.00	0.405	100.0
118.00	0.527	100.0
119.00	0.725	100.0

Results (Engine Parsing)	
Branch	6

Results (Extended)			
Freeboard Height	3.00 ft	Volume	0.00 ac-ft
Depth (Flooding)	-3.00 ft	Is Flooded Ever?	True

Pond Detailed Report: PA6

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	116.00 ft	Flow (Out to links)	0.00 ft³/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pollutants Collection

Pollutant

Pond Detailed Report: PA7

<General>			
Active Scenario Label	PA7	Label	PA7
ID	317	Notes	

<Geometry>	
Scaled Area	14.448 acres

Geometry

X (ft)	Y (ft)
5765925.21	2284721.07
5767201.21	2284707.63
5767196.35	2284851.93
5766299.91	2284876.25
5766282.62	2285332.34
5766328.94	2285638.62
5766321.69	2285753.54
5766326.57	2285793.00
5766354.75	2285828.39
5766399.45	2285870.16
5766438.70	2285901.47
5766492.25	2285927.99
5766546.26	2285947.72
5766564.53	2285987.49
5766593.77	2285994.54
5766701.47	2286291.56
5766617.63	2286352.11
5766518.88	2286373.72
5766404.33	2286237.45
5766336.78	2286107.50
5766298.15	2285994.44
5766260.71	2285948.11
5766213.99	2285879.57
5766200.82	2285835.67
5766091.48	2285727.70
5765902.91	2285504.48
5765988.66	2285368.52

Active Topology	
Is Active?	True

Infiltration			
Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr

Inflow Collection

Initial Condition	
Initial Elevation Type	Invert

Pond Detailed Report: PA7

Physical	
Volume Type	Elevation-Area Curve

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
111.00	0.791	100.0
112.00	1.200	100.0
113.00	1.972	100.0
114.00	3.147	100.0
115.00	11.510	100.0
116.00	14.970	100.0
117.00	16.400	100.0
118.00	18.880	100.0
119.00	18.950	100.0
120.00	19.010	100.0
121.00	19.011	100.0

Results (Engine Parsing)	
Branch	7

Results (Extended)			
Freeboard Height	10.00 ft	Volume	0.00 ac-ft
Depth (Flooding)	-10.00 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	111.00 ft	Flow (Out to links)	0.00 ft³/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pond Detailed Report: PA7

Pollutants Collection

Pollutant

Pond Detailed Report: PA8

<General>			
Active Scenario Label	PA8	Label	PA8
ID	971	Notes	

<Geometry>	
Scaled Area	0.242 acres

Geometry

X (ft)	Y (ft)
5768803.46	2287551.46
5768798.73	2287595.74
5768828.25	2287628.80
5768888.46	2287635.29
5768922.11	2287616.40
5768917.39	2287583.34
5768919.16	2287550.87
5768894.96	2287540.84
5768844.19	2287527.85
5768818.21	2287531.98

Active Topology	
Is Active?	True

Infiltration	
Pond Infiltration Method	None

Inflow Collection

Hydrograph Load

Time (min)	Flow (ft^3/s)
0.000	0.01
3.000	0.01
6.000	0.00
9.000	0.01
12.000	0.01
15.000	0.01
18.000	0.01
21.000	0.02
24.000	0.08
27.000	0.13
30.000	0.16
33.000	0.17
35.983	0.18
38.983	0.19
41.983	0.20
44.983	0.22

Pond Detailed Report: PA8

Hydrograph Load

Time (min)	Flow (ft^3/s)
47.983	0.24
50.983	0.26
53.983	0.28
56.983	0.31
59.983	0.35
62.983	0.39
65.983	0.44
68.983	0.49
71.983	0.54
74.983	0.58
77.983	0.63
80.983	0.69
83.983	0.76
86.983	0.84
89.983	0.92
92.983	1.01
95.983	1.11
98.983	1.21
101.983	1.31
104.983	1.40
107.983	1.49
110.983	1.57
113.983	1.66
116.983	1.74
119.983	1.81
122.983	1.90
125.983	1.98
128.983	2.07
131.983	2.16
134.983	2.25
137.983	2.34
141.000	2.42
144.000	2.51
147.000	2.61
150.000	2.70
153.000	2.78
156.000	2.87
159.000	2.97
162.000	3.06
165.000	3.14
168.000	3.24
171.000	3.32
174.000	3.41
177.000	3.50
180.000	3.59
183.000	3.68
186.000	3.77

Pond Detailed Report: PA8

Hydrograph Load

Time (min)	Flow (ft^3/s)
189.000	3.85
192.000	3.94
195.000	4.03
198.000	4.11
201.000	4.20
204.000	4.28
207.000	4.37
210.000	4.46
213.000	4.54
216.000	4.62
219.000	4.70
222.000	4.79
225.000	4.87
228.000	4.96
231.000	5.04
234.000	5.12
237.000	5.20
240.000	5.29
243.000	5.37
246.000	5.46
249.000	5.53
252.000	5.62
255.000	5.70
258.000	5.77
261.000	5.83
264.000	5.90
267.000	5.96
270.000	6.02
273.000	6.08
276.000	6.15
279.000	6.21
282.000	6.26
285.000	6.31
288.000	6.37
291.000	6.42
294.000	6.47
297.000	6.53
300.000	6.58
303.000	6.63
306.000	6.68
309.000	6.73
312.000	6.78
315.000	6.83
318.000	6.88
321.000	6.92
324.000	6.97
327.000	7.02

Pond Detailed Report: PA8

Hydrograph Load

Time (min)	Flow (ft^3/s)
330.000	7.07
333.000	7.11
336.000	7.16
339.000	7.20
342.000	7.25
345.000	7.30
348.000	7.34
351.000	7.38
354.000	7.43
357.000	7.47
360.000	7.51
363.000	7.56
366.000	7.61
369.000	7.67
372.000	7.76
375.000	7.85
378.000	7.97
381.000	8.10
384.000	8.27
387.000	8.44
390.000	8.62
393.000	8.80
396.000	8.98
399.000	9.18
402.000	9.38
405.000	9.58
408.000	9.78
411.000	9.99
414.000	10.19
417.000	10.39
420.000	10.59
423.000	10.80
426.000	10.99
429.000	11.18
432.000	11.35
435.000	11.51
438.000	11.64
441.000	11.76
444.000	11.88
447.000	11.98
450.000	12.07
453.000	12.16
456.000	12.25
459.000	12.33
462.000	12.41
465.000	12.49
468.000	12.57

Pond Detailed Report: PA8

Hydrograph Load

Time (min)	Flow (ft^3/s)
471.000	12.65
474.000	12.74
477.000	12.82
480.000	12.90
483.000	13.00
486.000	13.14
489.000	13.32
492.000	13.59
495.000	13.94
498.000	14.42
501.000	14.99
504.000	15.62
507.000	16.29
510.000	17.03
513.000	17.75
516.000	18.51
519.000	19.25
522.000	20.01
525.000	20.75
528.000	21.50
531.000	22.24
534.000	22.97
537.000	23.70
541.500	24.86
544.500	25.64
547.500	26.49
550.500	27.42
553.500	28.42
556.500	29.56
559.500	30.80
562.500	32.09
565.483	33.47
568.483	34.86
571.483	36.61
574.483	39.32
577.483	43.35
580.483	50.11
583.483	60.15
586.483	75.18
589.483	95.37
592.483	126.06
595.483	156.86
598.483	165.61
601.483	161.12
604.483	145.67
607.483	125.28
609.367	114.74

Pond Detailed Report: PA8

Hydrograph Load

Time (min)	Flow (ft^3/s)
613.483	97.50
616.483	87.26
619.483	77.91
622.483	68.36
625.483	59.43
628.483	52.51
631.483	48.17
634.483	44.51
637.483	41.34
640.483	38.65
643.483	36.41
646.483	34.61
649.483	33.19
652.483	32.01
655.483	31.02
658.483	30.09
661.483	29.27
664.483	28.44
667.483	27.71
670.483	27.06
673.483	26.51
676.483	26.00
679.483	25.53
682.483	25.13
685.483	24.80
688.483	24.49
691.483	24.16
694.483	23.88
697.483	23.56
700.483	23.28
703.483	22.97
706.483	22.68
709.483	22.38
712.483	22.09
715.483	21.79
718.483	21.51
721.483	21.21
724.483	20.93
727.483	20.64
730.483	20.37
733.483	20.12
736.483	19.89
739.483	19.67
742.483	19.47
745.483	19.27
748.483	19.07
751.483	18.89

Pond Detailed Report: PA8

Hydrograph Load

Time (min)	Flow (ft^3/s)
754.483	18.70
757.483	18.51
760.483	18.32
763.483	18.14
766.483	17.96
769.483	17.77
772.483	17.59
775.483	17.41
778.483	17.21
781.483	17.03
784.483	16.85
787.483	16.66
790.483	16.48
793.483	16.28
796.483	16.10
799.483	15.91
802.483	15.73
805.483	15.54
808.483	15.37
811.483	15.17
814.483	14.99
817.483	14.80
820.483	14.61
823.483	14.44
826.483	14.24
829.483	14.06
832.483	13.88
835.483	13.69
838.483	13.50
841.483	13.32
844.483	13.15
847.483	12.99
850.483	12.83
853.483	12.70
856.483	12.59
859.483	12.50
862.483	12.43
865.483	12.37
868.483	12.32
871.483	12.28
874.483	12.23
877.483	12.19
880.483	12.15
883.483	12.11
886.483	12.08
889.483	12.04
892.483	12.00

Pond Detailed Report: PA8

Hydrograph Load

Time (min)	Flow (ft^3/s)
895.483	11.97
898.483	11.93
901.483	11.89
904.483	11.86
907.483	11.82
910.483	11.78
913.483	11.74
916.483	11.70
919.483	11.67
922.483	11.63
925.483	11.60
928.483	11.56
931.483	11.52
934.483	11.48
937.483	11.44
940.483	11.40
943.483	11.37
946.483	11.34
949.483	11.30
952.483	11.26
955.483	11.22
958.483	11.18
961.483	11.15
964.483	11.11
967.483	11.07
970.483	11.04
973.483	11.00
976.483	10.96
979.483	10.92
982.483	10.89
985.483	10.85
988.483	10.81
991.483	10.78
994.483	10.74
997.483	10.70
1000.483	10.66
1003.483	10.62
1006.483	10.59
1009.483	10.56
1012.483	10.51
1015.483	10.48
1018.483	10.44
1021.483	10.41
1024.483	10.37
1027.483	10.33
1030.483	10.29
1033.483	10.25

Pond Detailed Report: PA8

Hydrograph Load

Time (min)	Flow (ft^3/s)
1036.483	10.21
1039.483	10.18
1042.483	10.14
1045.483	10.10
1048.483	10.07
1051.483	10.03
1054.483	9.99
1057.483	9.95
1060.483	9.91
1063.483	9.88
1066.483	9.84
1069.483	9.80
1072.483	9.77
1075.483	9.73
1078.483	9.69
1081.483	9.65
1084.483	9.62
1087.483	9.58
1090.483	9.54
1093.483	9.50
1096.483	9.47
1099.483	9.43
1102.483	9.40
1105.483	9.36
1108.483	9.32
1111.483	9.28
1114.483	9.24
1117.483	9.20
1120.483	9.17
1123.483	9.13
1126.483	9.09
1129.483	9.05
1132.483	9.02
1135.483	8.98
1138.483	8.94
1141.483	8.91
1144.483	8.87
1147.483	8.83
1150.483	8.79
1153.483	8.75
1156.483	8.72
1159.483	8.68
1162.483	8.64
1165.483	8.60
1168.483	8.57
1171.483	8.53
1174.483	8.49

Pond Detailed Report: PA8

Hydrograph Load

Time (min)	Flow (ft^3/s)
1177.483	8.46
1180.483	8.42
1183.483	8.38
1186.483	8.34
1189.483	8.31
1192.483	8.27
1195.483	8.23
1198.483	8.19
1201.483	8.15
1204.483	8.11
1207.483	8.08
1210.483	8.04
1213.483	8.00
1216.483	7.96
1219.483	7.93
1222.483	7.89
1225.483	7.85
1228.483	7.81
1231.483	7.78
1234.483	7.75
1237.483	7.70
1240.483	7.67
1243.483	7.63
1246.483	7.59
1249.483	7.55
1252.483	7.52
1255.483	7.48
1258.483	7.44
1261.483	7.40
1264.483	7.36
1267.483	7.33
1270.483	7.29
1273.483	7.26
1276.483	7.21
1279.483	7.18
1282.483	7.14
1285.483	7.10
1288.483	7.06
1291.483	7.03
1294.483	6.98
1297.483	6.95
1300.483	6.91
1303.483	6.88
1306.483	6.84
1309.483	6.80
1312.483	6.76
1315.483	6.73

Pond Detailed Report: PA8

Hydrograph Load

Time (min)	Flow (ft^3/s)
1318.483	6.69
1321.483	6.66
1324.483	6.61
1327.483	6.57
1330.483	6.54
1333.483	6.50
1336.483	6.46
1339.483	6.42
1342.483	6.38
1345.483	6.35
1348.483	6.31
1351.483	6.27
1354.483	6.24
1357.483	6.20
1360.483	6.16
1363.483	6.12
1366.483	6.09
1369.483	6.05
1372.483	6.01
1375.483	5.97
1378.483	5.93
1381.483	5.90
1384.483	5.86
1387.483	5.82
1390.483	5.78
1393.483	5.75
1396.483	5.71
1399.483	5.67
1402.483	5.63
1405.483	5.59
1408.483	5.56
1411.483	5.52
1414.483	5.48
1417.483	5.45
1420.483	5.41
1423.483	5.37
1426.483	5.33
1429.483	5.29
1432.483	5.25
1435.483	5.11
1438.483	4.75
1440.000	4.56

Initial Condition

Initial Elevation Type	Invert

Pond Detailed Report: PA8

Initial Condition

Physical

Volume Type	Elevation-Area Curve

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
121.00	1.250	100.0
122.00	1.500	100.0
123.00	1.750	100.0
124.00	2.000	100.0
125.00	2.250	100.0
126.50	2.500	100.0

Results (Engine Parsing)

Branch	2

Results (Extended)

Freeboard Height	5.50 ft	Volume	0.00 ac-ft
Depth (Flooding)	-5.50 ft	Is Flooded Ever?	False

Results (Flow)

Local Inflow?	True	Flow (Local Surface)	0.01 ft³/s
Flow (Local from Inflow Collection)	0.01 ft³/s	Flow (Total In)	0.01 ft³/s

SWMM Extended Data

Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results

Hydraulic Grade	121.00 ft	Flow (Out to links)	0.00 ft³/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pollutants Collection

Pond Detailed Report: PA8

Pollutants Collection

Pollutant

Pond Detailed Report: PC1

<General>			
Active Scenario Label	PC1	Label	PC1
ID	189	Notes	

<Geometry>	
Scaled Area	5.581 acres

Geometry

X (ft)	Y (ft)
5769065.22	2286562.65
5769344.21	2286545.41
5769411.61	2286534.44
5769472.73	2286532.87
5769543.27	2286410.62
5769557.37	2286377.70
5769558.94	2286358.89
5769574.61	2286329.11
5769562.07	2286288.36
5769540.13	2286271.12
5769546.40	2286257.01
5769548.79	2286250.59
5769544.77	2286219.30
5769542.37	2286196.03
5769531.93	2286195.22
5769517.49	2286200.84
5769499.83	2286205.66
5769485.39	2286196.83
5769471.75	2286179.98
5769464.52	2286170.35
5769464.52	2286159.11
5769456.50	2286153.49
5769434.03	2286160.72
5769426.01	2286163.12
5769416.38	2286152.69
5769414.77	2286139.85
5769416.38	2286115.78
5769429.22	2286105.35
5769432.43	2286098.12
5769427.61	2286090.10
5769421.19	2286087.69
5769417.18	2286079.67
5769433.23	2286074.85
5769454.09	2286067.63
5769494.22	2286053.99
5769505.45	2286050.78
5769531.13	2286067.63
5769554.40	2286037.13
5769601.75	2286039.54

Pond Detailed Report: PC1

Geometry

X (ft)	Y (ft)
5769640.27	2286049.17
5769663.54	2286054.79
5769697.25	2286071.64
5769731.75	2286074.05
5769745.39	2286076.46
5769803.98	2286062.01
5769840.89	2286029.91
5769861.72	2286012.32
5769952.11	2285983.56
5769971.83	2285975.75
5770014.56	2285967.13
5770037.57	2285962.61
5770058.94	2285969.18
5770078.66	2285979.04
5770090.16	2285984.79
5770102.59	2285984.28
5770112.35	2285980.68
5770111.84	2285965.79
5770108.24	2285954.49
5770105.16	2285945.25
5770098.48	2285937.54
5770086.67	2285932.41
5770050.72	2285924.19
5770004.50	2285914.43
5769971.11	2285902.62
5769930.03	2285885.16
5769910.00	2285871.80
5769886.88	2285855.37
5769829.17	2285805.41
5769802.85	2285774.60
5769764.97	2285715.54
5769735.44	2285672.52
5769725.81	2285658.40
5769721.96	2285655.19
5769707.19	2285656.47
5769694.35	2285666.10
5769628.23	2285712.97
5769485.91	2285821.10
5769441.77	2285865.24
5769407.66	2285895.33
5769380.58	2285919.41
5769369.55	2285931.44
5769360.52	2285953.51
5769358.51	2285970.56
5769358.51	2285995.64
5769366.54	2286009.69
5769387.60	2286031.75

Pond Detailed Report: PC1

Geometry

X (ft)	Y (ft)
5769394.62	2286060.84
5769394.62	2286087.93
5769396.19	2286204.85
5769388.35	2286267.55
5769374.25	2286325.54
5769353.87	2286360.02
5769335.06	2286372.56
5769313.12	2286399.20
5769280.21	2286435.25
5769248.86	2286469.73
5769214.38	2286499.51
5769183.03	2286519.89
5769138.66	2286536.71
5769091.41	2286551.09
5769065.73	2286557.77
5769062.65	2286560.85

Active Topology	
Is Active?	True

Infiltration	
Pond Infiltration Method	None

Inflow Collection	
Initial Condition	
Initial Elevation Type	Invert

Physical	
Volume Type	Elevation-Area Curve

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
135.00	0.150	100.0
136.00	0.310	100.0
137.00	0.500	100.0
138.00	0.650	100.0
139.00	1.240	100.0
140.00	2.810	100.0
141.00	4.140	100.0
142.00	5.650	100.0

Pond Detailed Report: PC1

Results (Engine Parsing)			
Branch	19		

Results (Extended)			
Freeboard Height	7.00 ft	Volume	0.00 ac-ft
Depth (Flooding)	-7.00 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	135.00 ft	Flow (Out to links)	0.00 ft³/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pollutants Collection

Pollutant

Pond Detailed Report: PC4

<General>			
Active Scenario Label	PC4	Label	PC4
ID	235	Notes	

<Geometry>	
Scaled Area	0.552 acres

Geometry

X (ft)	Y (ft)
5767970.72	2286154.40
5767974.88	2286159.64
5767975.78	2286168.50
5767974.52	2286183.13
5767975.06	2286210.60
5767974.52	2286246.92
5767974.16	2286289.20
5767971.09	2286309.25
5767972.71	2286318.29
5767985.18	2286321.72
5768002.89	2286318.83
5768009.39	2286315.04
5768025.65	2286309.98
5768037.76	2286312.33
5768047.88	2286302.57
5768047.88	2286285.04
5768042.10	2286279.26
5768035.59	2286278.54
5768021.14	2286281.97
5768010.11	2286281.25
5768004.69	2286273.84
5768003.07	2286260.47
5768004.87	2286245.83
5768005.96	2286236.08
5768012.82	2286225.23
5768026.01	2286215.30
5768036.49	2286208.43
5768047.52	2286208.07
5768057.82	2286196.14
5768063.78	2286186.39
5768065.40	2286168.68
5768066.85	2286152.24
5768068.48	2286125.86
5768067.21	2286105.98
5768063.60	2286089.72
5768057.09	2286067.67
5768046.25	2286056.65
5768036.31	2286048.16
5768031.07	2286046.35

Pond Detailed Report: PC4

Geometry

X (ft)	Y (ft)
5768022.94	2286043.46
5768014.99	2286030.63
5768010.48	2286002.27
5768008.67	2285980.94
5768003.07	2285949.69
5768000.18	2285929.81
5767999.81	2285913.19
5768000.36	2285902.53
5767997.83	2285887.78
5767998.19	2285864.65
5767996.38	2285857.61
5767989.88	2285844.42
5767986.81	2285842.43
5767981.02	2285859.78
5767979.94	2285874.59
5767981.38	2285913.44
5767982.47	2285942.35
5767980.66	2285966.20
5767979.58	2286006.67
5767977.41	2286029.08
5767976.33	2286074.79
5767974.16	2286106.23
5767974.36	2286139.74
5767972.92	2286148.84

Active Topology			
Is Active?	True		

Infiltration			
Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr

Inflow Collection			
Initial Condition			
Initial Elevation Type	Invert		

Physical			
Volume Type	Elevation-Area Curve		

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
123.00	0.094	100.0
124.00	0.137	100.0
125.00	0.185	100.0

Pond Detailed Report: PC4

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
126.00	0.317	100.0
127.00	0.553	100.0
128.00	0.738	100.0
129.00	0.987	100.0

Results (Engine Parsing)			
Branch	10		

Results (Extended)			
Freeboard Height	6.00 ft	Volume	0.00 ac-ft
Depth (Flooding)	-6.00 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	123.00 ft	Flow (Out to links)	0.00 ft³/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft³/s
Is Flooded?	False		

Pollutants Collection

Pollutant

Pond Detailed Report: PC5

<General>			
Active Scenario Label	PC5	Label	PC5
ID	298	Notes	

<Geometry>	
Scaled Area	4.296 acres

Geometry

X (ft)	Y (ft)
5767344.88	2285985.36
5767359.05	2286000.47
5767418.55	2286052.90
5767470.98	2286126.57
5767490.81	2286165.30
5767511.59	2286177.10
5767521.98	2286193.63
5767542.76	2286203.08
5767557.87	2286196.94
5767600.38	2286217.72
5767667.91	2286211.11
5767737.34	2286195.99
5767759.53	2286183.71
5767757.64	2286169.55
5767694.83	2286061.40
5767643.83	2285981.58
5767578.65	2285871.54
5767527.65	2285788.42
5767465.31	2285754.42
5767453.03	2285745.92
5767453.97	2285735.06
5767459.17	2285728.92
5767472.39	2285728.45
5767523.87	2285760.09
5767562.60	2285787.01
5767594.71	2285838.01
5767643.21	2285920.02
5767713.25	2286033.53
5767778.90	2286126.10
5767801.56	2286162.93
5767820.46	2286173.80
5767833.68	2286178.52
5767832.26	2286188.44
5767814.32	2286202.60
5767809.59	2286220.55
5767819.04	2286292.34
5767835.57	2286306.03
5767868.63	2286302.25
5767863.90	2286262.11

Pond Detailed Report: PC5

Geometry

X (ft)	Y (ft)
5767877.60	2286235.66
5767904.99	2286207.33
5767926.72	2286182.77
5767943.25	2286162.93
5767947.97	2286145.46
5767947.02	2286084.54
5767936.16	2286043.92
5767921.99	2286027.87
5767873.82	2286021.73
5767839.82	2286005.20
5767777.95	2285956.55
5767742.53	2285908.38
5767718.92	2285874.38
5767684.91	2285836.12
5767665.08	2285786.54
5767641.47	2285749.70
5767626.35	2285717.58
5767630.60	2285679.80
5767594.24	2285688.78
5767559.76	2285698.69
5767534.73	2285687.36
5767513.48	2285661.86
5767505.45	2285636.35
5767506.40	2285612.27
5767500.73	2285592.43
5767486.09	2285569.29
5767474.28	2285567.40
5767446.42	2285655.72
5767436.03	2285699.64
5767441.70	2285716.17
5767440.75	2285723.72
5767436.50	2285730.34
5767429.89	2285734.11
5767422.33	2285742.14
5767418.55	2285750.17
5767396.83	2285827.62
5767383.61	2285888.55
5767374.63	2285929.63
5767357.16	2285968.83
5767350.55	2285980.64
5767344.88	2285983.94

Active Topology	
Is Active?	True

Pond Detailed Report: PC5

Infiltration			
Pond Infiltration Method	Average Infiltration	Infiltration (Average)	0.0400 in/hr

Inflow Collection	
Initial Condition	
Initial Elevation Type	Invert

Physical	
Volume Type	Elevation-Area Curve

Elevation-Area Curve

Elevation (ft)	Area (acres)	Percent Void Space (%)
116.00	0.271	100.0
117.00	0.303	100.0
118.00	0.392	100.0
119.00	0.704	100.0
120.00	1.104	100.0
121.00	1.491	100.0
122.00	2.072	100.0
123.00	2.617	100.0
124.00	3.086	100.0
125.00	3.763	100.0
126.00	4.523	100.0

Results (Engine Parsing)	
Branch	9

Results (Extended)			
Freeboard Height	10.00 ft	Volume	0.00 ac-ft
Depth (Flooding)	-10.00 ft	Is Flooded Ever?	False

Results (Flow)			
Local Inflow?	False	Flow (Local Surface)	0.00 ft³/s
Flow (Local from Inflow Collection)	0.00 ft³/s	Flow (Total In)	0.00 ft³/s

SWMM Extended Data			
Evaporation Factor*	0.000	Apply Treatment?*	False

Pollutograph Collection

Pollutograph

Pond Detailed Report: PC5

Pollutograph Collection

Pollutograph

Results			
Hydraulic Grade	116.00 ft	Flow (Out to links)	0.00 ft^3/s
Depth (Node)	0.00 ft	Flow (Overflow)	0.00 ft^3/s
Is Flooded?	False		

Pollutants Collection

Pollutant

Attachment 2

Summary of Calculations

Calculation Detailed Summary

<General>	
Label	Base Calculation Options

Options			
Calculation Time Step	1.500 min	Hydrologic Time Step	1.500 min
Output Increment	3.000 min	Total Simulation Time	1440.000 min

Options (Advanced)			
Y Iteration Tolerance	0.03 ft	Relaxation Weighting Coefficient	0.600
LPI Coefficient	1.000	Computation Distance	50.00 ft
NR Weighting Coefficient	0.700		

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
C1	Unit Hydrograph	SCS CN	2.900	1.786	0.01	0.01	1236.000
C2	Unit Hydrograph	SCS CN	2.900	2.397	0.01	0.01	1242.000
C3	Unit Hydrograph	SCS CN	2.900	20.965	0.08	0.12	1260.000
C4	Unit Hydrograph	SCS CN	2.900	9.265	0.25	0.29	648.000
A14	Unit Hydrograph	SCS CN	2.900	35.027	0.14	0.20	1263.000
C5	Unit Hydrograph	SCS CN	2.900	10.872	0.04	0.06	1251.000
A25	Unit Hydrograph	SCS CN	2.900	9.656	0.04	0.05	1266.000
A21	Unit Hydrograph	SCS CN	2.900	6.925	1.14	10.38	597.000
A24	Unit Hydrograph	SCS CN	2.900	10.534	0.09	0.10	1170.000
A22	Unit Hydrograph	SCS CN	2.900	11.316	0.61	1.83	621.000
A18	Unit Hydrograph	SCS CN	2.900	7.352	0.71	2.21	639.000
A19	Unit Hydrograph	SCS CN	2.900	25.208	2.34	7.95	630.000
A20	Unit Hydrograph	SCS CN	2.900	5.734	1.28	11.53	594.000

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
A17	Unit Hydrograph	SCS CN	2.900	5.263	0.17	0.25	642.000
A16	Unit Hydrograph	SCS CN	2.900	7.733	0.12	0.12	1068.000
A15	Unit Hydrograph	SCS CN	2.900	11.136	0.04	0.06	1260.000
A10	Unit Hydrograph	SCS CN	2.900	19.529	0.75	1.48	630.000
A9	Unit Hydrograph	SCS CN	2.900	41.089	5.59	24.82	618.000
A6	Unit Hydrograph	SCS CN	2.900	3.962	0.88	6.91	597.000
A3	Unit Hydrograph	SCS CN	2.900	31.315	3.57	23.26	603.000
A1	Unit Hydrograph	SCS CN	2.900	53.320	8.72	56.48	606.000
A12	Unit Hydrograph	SCS CN	2.900	51.435	6.21	39.61	606.000
A11	Unit Hydrograph	SCS CN	2.900	61.279	6.98	40.08	609.000
A8	Unit Hydrograph	SCS CN	2.900	73.274	8.34	54.42	603.000
A7	Unit Hydrograph	SCS CN	2.900	4.454	0.62	2.69	618.000
A5	Unit Hydrograph	SCS CN	2.900	6.809	1.51	14.09	594.000
A4	Unit Hydrograph	SCS CN	2.900	4.525	1.01	9.22	594.000
A2	Unit Hydrograph	SCS CN	2.900	94.677	12.08	78.24	606.000
A23	Unit Hydrograph	SCS CN	2.900	9.813	0.04	0.06	1245.000
D1	Unit Hydrograph	SCS CN	2.900	3.582	0.41	3.53	597.000
A13	Unit Hydrograph	SCS CN	2.900	56.548	4.72	20.45	615.000

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CB1	Catch Basin	7	---	---	---	126.52
CB2	Catch Basin	6	---	---	---	141.30
CO-11	Conduit	29	718.483	57.81	11.59	115.09
CO-5	Conduit	9	631.483	15.46	10.01	119.87

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CO-8	Conduit	4	673.483	72.42	6.70	117.37
CO-3	Conduit	6	604.483	54.30	6.80	140.23
CO-2	Conduit	4	613.483	147.94	4.62	125.89
CO-4	Conduit	7	598.483	6.90	5.45	126.10
CO-7	Conduit	2	628.483	114.63	9.00	117.53
CO-10	Conduit	19	841.483	0.59	1.69	117.05
CO-9	Conduit	20	823.483	27.23	0.38	117.09
CO-6	Conduit	4	631.483	99.05	3.06	118.03
CO-1	Conduit	5	610.483	95.91	12.69	128.98
CH-21	Channel	27	0.000	0.00	0.00	143.25
CH-22	Channel	27	0.000	0.00	0.00	141.75
CH-25	Channel	26	0.000	0.00	0.00	136.56
CH-26	Channel	26	0.000	0.00	0.00	129.50
CH-27	Channel	25	0.000	0.00	0.00	125.25
CH-28	Channel	25	0.000	0.00	0.00	123.75
CH-23	Channel	28	0.000	0.00	0.00	144.00
CH-24	Channel	28	0.000	0.00	0.00	142.00
CH-29	Channel	24	0.000	0.00	0.00	122.25
CH-30	Channel	24	0.000	0.00	0.00	118.75
CH-31	Channel	22	35.983	0.00	0.01	118.04
CH-32	Channel	22	0.000	-0.26	-0.57	118.04
CH-34	Channel	18	727.483	34.34	2.27	116.57
CH-35	Channel	18	727.483	34.34	2.71	116.42
CH-33	Channel	4	673.483	72.42	4.29	117.29
CH-17	Channel	2	598.483	10.19	0.97	123.38
CH-18	Channel	2	604.483	13.21	2.01	119.90
CH-16	Channel	21	628.483	102.05	3.73	119.31
CH-15	Channel	4	628.483	87.33	3.41	120.17
CH-12	Channel	9	643.483	14.85	0.82	119.40
CH-11	Channel	4	628.483	189.87	2.01	121.76

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CH-10	Channel	4	628.483	190.14	1.31	121.92
CH-8	Channel	8	643.483	2.66	0.05	122.28
CH-9	Channel	4	622.483	196.65	1.48	122.10
CH-5	Channel	6	607.483	53.87	2.25	132.06
CH-3	Channel	4	616.483	54.04	0.42	128.82
CH-2	Channel	4	604.483	52.53	0.68	128.90
CH-7	Channel	4	619.483	214.70	1.72	122.48
CH-1	Channel	4	604.483	55.82	4.96	130.83
Site Overflow - 1	Channel	16	0.000	0.00	0.00	119.38
Site Overflow - 2	Channel	16	0.000	0.00	0.00	119.13
CH-19	Channel	2	634.483	112.51	1.51	117.35
CH-20	Channel	2	637.483	111.63	1.23	117.11
CH-6	Channel	4	613.483	202.56	2.09	124.17
CH-4	Channel	5	607.483	77.19	1.55	129.99
CH-13	Channel	23	634.483	36.42	0.98	119.94
CH-14	Channel	23	634.483	36.32	0.96	119.44
CH-36	Channel	9	607.483	39.14	2.82	131.52
CH-37	Channel	9	610.483	57.77	3.08	123.90
Site Overflow - 3	Channel	17	35.983	0.25	0.02	119.54
Site Overflow - 4	Channel	17	0.000	0.00	0.00	119.50
CS26	Cross Section	27	---	---	---	142.50
CS27	Cross Section	26	---	---	---	131.00
CS28	Cross Section	25	---	---	---	124.50
CS25	Cross Section	28	---	---	---	143.00
CS29	Cross Section	24	---	---	---	120.50
CS30	Cross Section	22	---	---	---	118.04

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CS31	Cross Section	18	---	---	---	116.50
CS24	Cross Section	4	---	---	---	117.33
CS18	Cross Section	2	---	---	---	123.82
CS19	Cross Section	2	---	---	---	122.61
CS20	Cross Section	2	---	---	---	118.12
CS14	Cross Section	4	---	---	---	120.91
CS17	Cross Section	4	---	---	---	118.53
CS15	Cross Section	9	---	---	---	119.69
CS13	Cross Section	4	---	---	---	121.87
CS12	Cross Section	4	---	---	---	121.96
CS10	Cross Section	4	---	---	---	122.27
CS11	Cross Section	8	---	---	---	122.28
CS9	Cross Section	4	---	---	---	122.68
CS7	Cross Section	4	---	---	---	125.89
CS8	Cross Section	6	---	---	---	138.71
CS5	Cross Section	4	---	---	---	128.78
CS4	Cross Section	4	---	---	---	128.86
CS3	Cross Section	4	---	---	---	128.94
CS2	Cross Section	4	---	---	---	133.60
CS1	Cross Section	5	---	---	---	132.49
CS21	Cross Section	2	---	---	---	117.53
CS23	Cross Section	16	---	---	---	119.25
CS22	Cross Section	2	---	---	---	117.15
CS6	Cross Section	5	---	---	---	129.32
CS16	Cross Section	23	---	---	---	119.69
CS32	Cross Section	9	---	---	---	135.67
CS33	Cross Section	9	---	---	---	126.83
CS34	Cross Section	17	---	---	---	119.50
PC1	Pond	15	---	---	---	132.11
PC2	Pond	14	---	---	---	141.35

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
PC3	Pond	13	---	---	---	142.05
PC4	Pond	12	---	---	---	124.74
PC5	Pond	11	---	---	---	116.14
PA3	Pond	10	---	---	---	115.29
PA4	Pond	4	---	---	---	117.23
PA6	Pond	3	---	---	---	117.65
PA7	Pond	2	---	---	---	117.05
PA1	Pond	4	---	---	---	117.41
PA5	Pond	1	---	---	---	115.78
PA2	Pond	9	---	---	---	120.32

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)
CB1	Catch Basin	7	598.483	6.90	598.483	6.90	598.483	6.90
CB2	Catch Basin	6	604.483	54.28	604.483	54.28	604.483	54.28
OF4	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF3	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF5	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF6	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF7	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF8	Outfall	0	(N/A)	(N/A)	---	---	---	---
Site Discharge	Outfall	29	(N/A)	(N/A)	---	---	---	---
OF13	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF12	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF9	Outfall	0	(N/A)	(N/A)	---	---	---	---

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)	Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft³/s)
OF10	Outfall	0	(N/A)	(N/A)	---	---	---	---	0.000	0.00
OF11	Outfall	0	(N/A)	(N/A)	---	---	---	---	0.000	0.00
OF2	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
Site Overflow	Outfall	16	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF1	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF16	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF14	Outfall	0	(N/A)	(N/A)	---	---	---	---		
Site Overflow2	Outfall	17	(N/A)	(N/A)	---	---	---	---		
PC1	Pond	15	1258.483	0.12	---	---	---	---		
PC2	Pond	14	1240.483	0.01	---	---	---	---		
PC3	Pond	13	1234.483	0.01	---	---	---	---		
PC4	Pond	12	649.483	0.29	---	---	---	---		
PC5	Pond	11	1249.483	0.06	---	---	---	---		
PA3	Pond	10	1264.483	0.05	---	---	---	---		
PA4	Pond	4	673.483	72.00	---	---	---	---		
PA6	Pond	3	595.483	10.30	---	---	---	---		
PA7	Pond	2	631.483	87.71	---	---	---	---		
PA1	Pond	4	631.483	135.09	---	---	---	---		
PA5	Pond	1	727.483	34.34	---	---	---	---		
PA2	Pond	9	610.483	96.71	---	---	---	---		

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00

Gutter Calculation Summary

Label	Open Cross Section	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)

Calculation Detailed Summary

<General>	
Label	Base Calculation Options

Options			
Calculation Time Step	1.500 min	Hydrologic Time Step	1.500 min
Output Increment	3.000 min	Total Simulation Time	1440.000 min

Options (Advanced)			
Y Iteration Tolerance	0.03 ft	Relaxation Weighting Coefficient	0.600
LPI Coefficient	1.000	Computation Distance	50.00 ft
NR Weighting Coefficient	0.700		

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
C1	Unit Hydrograph	SCS CN	4.700	1.786	0.07	0.08	630.000
C2	Unit Hydrograph	SCS CN	4.700	2.397	0.10	0.11	639.000
C3	Unit Hydrograph	SCS CN	4.700	20.965	0.84	0.90	729.000
C4	Unit Hydrograph	SCS CN	4.700	9.265	0.91	2.90	621.000
A14	Unit Hydrograph	SCS CN	4.700	35.027	1.40	1.50	735.000
C5	Unit Hydrograph	SCS CN	4.700	10.872	0.43	0.47	720.000
A25	Unit Hydrograph	SCS CN	4.700	9.656	0.39	0.41	738.000
A21	Unit Hydrograph	SCS CN	4.700	6.925	2.13	19.21	597.000
A24	Unit Hydrograph	SCS CN	4.700	10.534	0.57	0.77	657.000
A22	Unit Hydrograph	SCS CN	4.700	11.316	1.70	7.18	618.000
A18	Unit Hydrograph	SCS CN	4.700	7.352	1.60	5.50	633.000
A19	Unit Hydrograph	SCS CN	4.700	25.208	5.35	20.21	627.000
A20	Unit Hydrograph	SCS CN	4.700	5.734	2.13	18.93	594.000

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
A17	Unit Hydrograph	SCS CN	4.700	5.263	0.58	1.79	627.000
A16	Unit Hydrograph	SCS CN	4.700	7.733	0.56	1.06	642.000
A15	Unit Hydrograph	SCS CN	4.700	11.136	0.43	0.46	732.000
A10	Unit Hydrograph	SCS CN	4.700	19.529	2.37	8.71	621.000
A9	Unit Hydrograph	SCS CN	4.700	41.089	11.17	51.22	618.000
A6	Unit Hydrograph	SCS CN	4.700	3.962	1.47	11.35	597.000
A3	Unit Hydrograph	SCS CN	4.700	31.315	7.58	52.52	603.000
A1	Unit Hydrograph	SCS CN	4.700	53.320	15.14	96.07	606.000
A12	Unit Hydrograph	SCS CN	4.700	51.435	12.93	86.02	606.000
A11	Unit Hydrograph	SCS CN	4.700	61.279	14.84	89.87	609.000
A8	Unit Hydrograph	SCS CN	4.700	73.274	17.73	122.88	603.000
A7	Unit Hydrograph	SCS CN	4.700	4.454	1.22	5.51	618.000
A5	Unit Hydrograph	SCS CN	4.700	6.809	2.53	23.13	594.000
A4	Unit Hydrograph	SCS CN	4.700	4.525	1.68	15.13	594.000
A2	Unit Hydrograph	SCS CN	4.700	94.677	24.69	165.24	606.000
A23	Unit Hydrograph	SCS CN	4.700	9.813	0.39	0.43	648.000
D1	Unit Hydrograph	SCS CN	4.700	3.582	0.87	7.83	597.000
A13	Unit Hydrograph	SCS CN	4.700	56.548	11.19	55.78	612.000

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CB1	Catch Basin	7	---	---	---	127.15
CB2	Catch Basin	6	---	---	---	143.19
CO-11	Conduit	29	706.483	77.65	12.26	115.61
CO-5	Conduit	9	619.483	19.52	11.05	120.20

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CO-8	Conduit	4	652.483	205.72	9.50	119.18
CO-3	Conduit	6	607.483	116.29	7.90	141.74
CO-2	Conduit	4	610.483	238.34	7.45	126.60
CO-4	Conduit	7	598.483	10.19	5.78	126.61
CO-7	Conduit	2	625.483	255.77	13.07	119.49
CO-10	Conduit	19	619.483	0.94	2.70	119.01
CO-9	Conduit	20	1258.483	47.56	0.34	119.03
CO-6	Conduit	4	625.483	204.88	4.11	119.26
CO-1	Conduit	5	607.483	210.55	16.75	131.24
CH-21	Channel	27	0.000	0.00	0.00	143.25
CH-22	Channel	27	0.000	0.00	0.00	141.75
CH-25	Channel	26	0.000	0.00	0.00	136.56
CH-26	Channel	26	0.000	0.00	0.00	129.50
CH-27	Channel	25	1117.483	0.55	0.89	125.35
CH-28	Channel	25	1117.483	0.55	0.89	123.85
CH-23	Channel	28	0.000	0.00	0.00	144.00
CH-24	Channel	28	0.000	0.00	0.00	142.00
CH-29	Channel	24	0.000	0.00	0.00	122.25
CH-30	Channel	24	0.000	0.00	0.00	118.75
CH-31	Channel	22	35.983	0.00	0.01	119.04
CH-32	Channel	22	0.000	-0.26	-0.57	119.04
CH-34	Channel	18	709.483	132.75	4.27	118.82
CH-35	Channel	18	709.483	132.75	4.87	118.82
CH-33	Channel	4	652.483	205.72	5.37	119.10
CH-17	Channel	2	598.483	16.81	1.17	123.63
CH-18	Channel	2	604.483	26.28	2.58	120.15
CH-16	Channel	21	622.483	218.35	4.70	120.23
CH-15	Channel	4	622.483	186.14	4.58	120.91
CH-12	Channel	9	631.483	18.96	0.89	119.58
CH-11	Channel	4	622.483	407.01	2.85	122.90

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CH-10	Channel	4	622.483	407.41	1.87	123.14
CH-8	Channel	8	625.483	9.74	0.08	123.58
CH-9	Channel	4	619.483	413.86	1.94	123.37
CH-5	Channel	6	607.483	115.83	3.04	132.38
CH-3	Channel	4	613.483	98.23	0.45	130.20
CH-2	Channel	4	610.483	89.80	0.51	130.28
CH-7	Channel	4	616.483	432.02	2.02	123.73
CH-1	Channel	4	604.483	95.15	5.95	130.98
Site Overflow - 1	Channel	16	0.000	0.00	0.00	119.38
Site Overflow - 2	Channel	16	0.000	0.00	0.00	119.13
CH-19	Channel	2	628.483	248.95	1.75	119.31
CH-20	Channel	2	631.483	248.92	1.38	119.07
CH-6	Channel	4	610.483	419.25	2.74	124.89
CH-4	Channel	5	607.483	163.77	0.60	132.08
CH-13	Channel	23	619.483	163.51	1.84	120.19
CH-14	Channel	23	619.483	163.40	1.81	119.70
CH-36	Channel	9	604.483	85.03	3.78	131.91
CH-37	Channel	9	610.483	135.91	4.22	124.50
Site Overflow - 3	Channel	17	35.983	0.25	0.02	119.54
Site Overflow - 4	Channel	17	0.000	0.00	0.00	119.50
CS26	Cross Section	27	---	---	---	142.50
CS27	Cross Section	26	---	---	---	131.00
CS28	Cross Section	25	---	---	---	124.60
CS25	Cross Section	28	---	---	---	143.00
CS29	Cross Section	24	---	---	---	120.50
CS30	Cross Section	22	---	---	---	119.04

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CS31	Cross Section	18	---	---	---	118.82
CS24	Cross Section	4	---	---	---	119.14
CS18	Cross Section	2	---	---	---	124.08
CS19	Cross Section	2	---	---	---	122.83
CS20	Cross Section	2	---	---	---	119.51
CS14	Cross Section	4	---	---	---	121.87
CS17	Cross Section	4	---	---	---	119.30
CS15	Cross Section	9	---	---	---	119.88
CS13	Cross Section	4	---	---	---	123.07
CS12	Cross Section	4	---	---	---	123.20
CS10	Cross Section	4	---	---	---	123.56
CS11	Cross Section	8	---	---	---	123.59
CS9	Cross Section	4	---	---	---	123.88
CS7	Cross Section	4	---	---	---	126.60
CS8	Cross Section	6	---	---	---	139.27
CS5	Cross Section	4	---	---	---	130.16
CS4	Cross Section	4	---	---	---	130.24
CS3	Cross Section	4	---	---	---	130.32
CS2	Cross Section	4	---	---	---	133.81
CS1	Cross Section	5	---	---	---	132.77
CS21	Cross Section	2	---	---	---	119.49
CS23	Cross Section	16	---	---	---	119.25
CS22	Cross Section	2	---	---	---	119.11
CS6	Cross Section	5	---	---	---	131.92
CS16	Cross Section	23	---	---	---	119.95
CS32	Cross Section	9	---	---	---	136.07
CS33	Cross Section	9	---	---	---	127.44
CS34	Cross Section	17	---	---	---	119.51
PC1	Pond	15	---	---	---	134.71
PC2	Pond	14	---	---	---	142.32

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
PC3	Pond	13	---	---	---	142.41
PC4	Pond	12	---	---	---	126.13
PC5	Pond	11	---	---	---	118.18
PA3	Pond	10	---	---	---	116.85
PA4	Pond	4	---	---	---	119.04
PA6	Pond	3	---	---	---	119.00
PA7	Pond	2	---	---	---	119.01
PA1	Pond	4	---	---	---	119.22
PA5	Pond	1	---	---	---	118.82
PA2	Pond	9	---	---	---	120.95

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)
CB1	Catch Basin	7	598.483	11.33	598.483	11.33	598.483	11.33
CB2	Catch Basin	6	604.483	121.69	604.483	121.69	604.483	121.69
OF4	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF3	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF5	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF6	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF7	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF8	Outfall	0	(N/A)	(N/A)	---	---	---	---
Site Discharge	Outfall	29	(N/A)	(N/A)	---	---	---	---
OF13	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF12	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF9	Outfall	0	(N/A)	(N/A)	---	---	---	---

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)	Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft³/s)
OF10	Outfall	0	(N/A)	(N/A)	---	---	---	---	598.483	1.17
OF11	Outfall	0	(N/A)	(N/A)	---	---	---	---	0.000	0.00
OF2	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
Site Overflow	Outfall	16	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF1	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF16	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF14	Outfall	0	(N/A)	(N/A)	---	---	---	---		
Site Overflow2	Outfall	17	(N/A)	(N/A)	---	---	---	---		
PC1	Pond	15	730.483	0.90	---	---	---	---		
PC2	Pond	14	640.483	0.11	---	---	---	---		
PC3	Pond	13	628.483	0.08	---	---	---	---		
PC4	Pond	12	622.483	2.88	---	---	---	---		
PC5	Pond	11	1099.483	0.92	---	---	---	---		
PA3	Pond	10	739.483	0.41	---	---	---	---		
PA4	Pond	4	652.483	206.06	---	---	---	---		
PA6	Pond	3	595.483	19.16	---	---	---	---		
PA7	Pond	2	622.483	164.29	---	---	---	---		
PA1	Pond	4	622.483	367.73	---	---	---	---		
PA5	Pond	1	709.483	133.17	---	---	---	---		
PA2	Pond	9	607.483	223.91	---	---	---	---		

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00

Gutter Calculation Summary

Label	Open Cross Section	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)

Calculation Detailed Summary

<General>	
Label	Base Calculation Options

Options			
Calculation Time Step	1.500 min	Hydrologic Time Step	1.500 min
Output Increment	3.000 min	Total Simulation Time	1440.000 min

Options (Advanced)			
Y Iteration Tolerance	0.03 ft	Relaxation Weighting Coefficient	0.600
LPI Coefficient	1.000	Computation Distance	50.00 ft
NR Weighting Coefficient	0.700		

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
C1	Unit Hydrograph	SCS CN	5.700	1.786	0.13	0.34	609.000
C2	Unit Hydrograph	SCS CN	5.700	2.397	0.17	0.38	618.000
C3	Unit Hydrograph	SCS CN	5.700	20.965	1.52	2.58	639.000
C4	Unit Hydrograph	SCS CN	5.700	9.265	1.38	5.11	621.000
A14	Unit Hydrograph	SCS CN	5.700	35.027	2.54	4.14	642.000
C5	Unit Hydrograph	SCS CN	5.700	10.872	0.79	1.46	630.000
A25	Unit Hydrograph	SCS CN	5.700	9.656	0.70	1.11	648.000
A21	Unit Hydrograph	SCS CN	5.700	6.925	2.69	24.08	597.000
A24	Unit Hydrograph	SCS CN	5.700	10.534	0.97	1.88	648.000
A22	Unit Hydrograph	SCS CN	5.700	11.316	2.41	10.74	618.000
A18	Unit Hydrograph	SCS CN	5.700	7.352	2.14	7.49	633.000
A19	Unit Hydrograph	SCS CN	5.700	25.208	7.17	27.69	627.000
A20	Unit Hydrograph	SCS CN	5.700	5.734	2.61	23.03	594.000

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
A17	Unit Hydrograph	SCS CN	5.700	5.263	0.86	2.99	627.000
A16	Unit Hydrograph	SCS CN	5.700	7.733	0.89	2.18	642.000
A15	Unit Hydrograph	SCS CN	5.700	11.136	0.77	1.29	639.000
A10	Unit Hydrograph	SCS CN	5.700	19.529	3.48	14.04	618.000
A9	Unit Hydrograph	SCS CN	5.700	41.089	14.40	66.24	618.000
A6	Unit Hydrograph	SCS CN	5.700	3.962	1.80	13.81	597.000
A3	Unit Hydrograph	SCS CN	5.700	31.315	9.95	69.63	603.000
A1	Unit Hydrograph	SCS CN	5.700	53.320	18.73	117.83	606.000
A12	Unit Hydrograph	SCS CN	5.700	51.435	16.87	112.81	606.000
A11	Unit Hydrograph	SCS CN	5.700	61.279	19.48	118.96	606.000
A8	Unit Hydrograph	SCS CN	5.700	73.274	23.29	162.89	603.000
A7	Unit Hydrograph	SCS CN	5.700	4.454	1.57	7.11	618.000
A5	Unit Hydrograph	SCS CN	5.700	6.809	3.10	28.12	594.000
A4	Unit Hydrograph	SCS CN	5.700	4.525	2.06	18.40	594.000
A2	Unit Hydrograph	SCS CN	5.700	94.677	32.06	215.03	606.000
A23	Unit Hydrograph	SCS CN	5.700	9.813	0.71	1.43	624.000
D1	Unit Hydrograph	SCS CN	5.700	3.582	1.14	10.36	594.000
A13	Unit Hydrograph	SCS CN	5.700	56.548	15.17	77.72	612.000

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CB1	Catch Basin	7	---	---	---	127.28
CB2	Catch Basin	6	---	---	---	145.24
CO-11	Conduit	29	670.483	83.28	12.57	115.76
CO-5	Conduit	9	628.483	19.95	11.29	120.50

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CO-8	Conduit	4	649.483	286.79	10.22	119.94
CO-3	Conduit	6	610.483	136.76	9.29	143.24
CO-2	Conduit	4	610.483	269.56	8.42	126.90
CO-4	Conduit	7	598.483	10.46	5.92	126.91
CO-7	Conduit	2	625.483	324.79	13.66	120.16
CO-10	Conduit	19	610.483	1.09	3.13	119.68
CO-9	Conduit	20	850.483	53.80	0.28	119.71
CO-6	Conduit	4	625.483	261.56	4.46	120.02
CO-1	Conduit	5	607.483	276.45	22.00	132.87
CH-21	Channel	27	0.000	0.00	0.00	143.25
CH-22	Channel	27	0.000	0.00	0.00	141.75
CH-25	Channel	26	0.000	0.00	0.00	136.56
CH-26	Channel	26	0.000	0.00	0.00	129.50
CH-27	Channel	25	847.483	1.03	1.22	125.39
CH-28	Channel	25	847.483	1.03	1.22	123.89
CH-23	Channel	28	0.000	0.00	0.00	144.00
CH-24	Channel	28	0.000	0.00	0.00	142.00
CH-29	Channel	24	0.000	0.00	0.00	122.25
CH-30	Channel	24	0.000	0.00	0.00	118.75
CH-31	Channel	22	35.983	0.00	0.01	119.80
CH-32	Channel	22	0.000	-0.26	-0.57	119.80
CH-34	Channel	18	685.483	185.20	4.94	119.66
CH-35	Channel	18	685.483	185.18	5.56	119.58
CH-33	Channel	4	649.483	286.79	5.27	119.86
CH-17	Channel	2	598.483	20.49	1.26	123.75
CH-18	Channel	2	604.483	33.89	2.82	120.28
CH-16	Channel	21	622.483	283.33	5.07	120.63
CH-15	Channel	4	622.483	241.56	5.07	121.23
CH-12	Channel	9	634.483	19.64	0.89	120.26
CH-11	Channel	4	622.483	527.60	3.20	123.39

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CH-10	Channel	4	622.483	525.91	2.10	123.66
CH-8	Channel	8	628.483	15.07	0.11	124.15
CH-9	Channel	4	619.483	531.72	2.12	123.91
CH-5	Channel	6	610.483	136.34	3.24	132.47
CH-3	Channel	4	613.483	123.27	0.48	130.80
CH-2	Channel	4	610.483	110.93	0.52	130.88
CH-7	Channel	4	616.483	548.07	2.13	124.28
CH-1	Channel	4	604.483	116.89	6.85	131.02
Site Overflow - 1	Channel	16	670.483	79.20	1.47	119.43
Site Overflow - 2	Channel	16	670.483	79.20	1.47	119.18
CH-19	Channel	2	628.483	321.55	1.64	119.98
CH-20	Channel	2	631.483	330.58	1.39	119.74
CH-6	Channel	4	613.483	527.32	2.87	125.25
CH-4	Channel	5	607.483	213.03	0.41	134.20
CH-13	Channel	23	619.483	237.80	2.14	120.30
CH-14	Channel	23	619.483	237.12	2.12	120.02
CH-36	Channel	9	604.483	111.92	4.18	132.11
CH-37	Channel	9	607.483	182.40	4.69	124.78
Site Overflow - 3	Channel	17	856.483	32.72	0.30	119.69
Site Overflow - 4	Channel	17	901.483	16.85	0.17	119.65
CS26	Cross Section	27	---	---	---	142.50
CS27	Cross Section	26	---	---	---	131.00
CS28	Cross Section	25	---	---	---	124.64
CS25	Cross Section	28	---	---	---	143.00
CS29	Cross Section	24	---	---	---	120.50
CS30	Cross Section	22	---	---	---	119.80

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CS31	Cross Section	18	---	---	---	119.62
CS24	Cross Section	4	---	---	---	119.90
CS18	Cross Section	2	---	---	---	124.20
CS19	Cross Section	2	---	---	---	122.94
CS20	Cross Section	2	---	---	---	120.18
CS14	Cross Section	4	---	---	---	122.27
CS17	Cross Section	4	---	---	---	120.06
CS15	Cross Section	9	---	---	---	120.47
CS13	Cross Section	4	---	---	---	123.58
CS12	Cross Section	4	---	---	---	123.73
CS10	Cross Section	4	---	---	---	124.10
CS11	Cross Section	8	---	---	---	124.18
CS9	Cross Section	4	---	---	---	124.41
CS7	Cross Section	4	---	---	---	126.90
CS8	Cross Section	6	---	---	---	139.42
CS5	Cross Section	4	---	---	---	130.76
CS4	Cross Section	4	---	---	---	130.84
CS3	Cross Section	4	---	---	---	130.92
CS2	Cross Section	4	---	---	---	133.91
CS1	Cross Section	5	---	---	---	134.36
CS21	Cross Section	2	---	---	---	120.16
CS23	Cross Section	16	---	---	---	119.30
CS22	Cross Section	2	---	---	---	119.78
CS6	Cross Section	5	---	---	---	134.04
CS16	Cross Section	23	---	---	---	120.06
CS32	Cross Section	9	---	---	---	136.26
CS33	Cross Section	9	---	---	---	127.74
CS34	Cross Section	17	---	---	---	119.65
PC1	Pond	15	---	---	---	135.64
PC2	Pond	14	---	---	---	142.83

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
PC3	Pond	13	---	---	---	142.66
PC4	Pond	12	---	---	---	126.24
PC5	Pond	11	---	---	---	119.39
PA3	Pond	10	---	---	---	117.31
PA4	Pond	4	---	---	---	119.80
PA6	Pond	3	---	---	---	119.00
PA7	Pond	2	---	---	---	119.68
PA1	Pond	4	---	---	---	119.98
PA5	Pond	1	---	---	---	119.54
PA2	Pond	9	---	---	---	121.19

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)
CB1	Catch Basin	7	598.483	13.78	598.483	13.78	598.483	13.78
CB2	Catch Basin	6	604.483	161.00	604.483	161.00	604.483	161.00
OF4	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF3	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF5	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF6	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF7	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF8	Outfall	0	(N/A)	(N/A)	---	---	---	---
Site Discharge	Outfall	29	(N/A)	(N/A)	---	---	---	---
OF13	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF12	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF9	Outfall	0	(N/A)	(N/A)	---	---	---	---

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)	Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft³/s)
OF10	Outfall	0	(N/A)	(N/A)	---	---	---	---	601.483	3.40
OF11	Outfall	0	(N/A)	(N/A)	---	---	---	---	0.000	0.00
OF2	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
Site Overflow	Outfall	16	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF1	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF16	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF14	Outfall	0	(N/A)	(N/A)	---	---	---	---		
Site Overflow2	Outfall	17	(N/A)	(N/A)	---	---	---	---		
PC1	Pond	15	637.483	2.57	---	---	---	---		
PC2	Pond	14	616.483	0.38	---	---	---	---		
PC3	Pond	13	610.483	0.34	---	---	---	---		
PC4	Pond	12	619.483	5.09	---	---	---	---		
PC5	Pond	11	823.483	1.76	---	---	---	---		
PA3	Pond	10	646.483	1.11	---	---	---	---		
PA4	Pond	4	649.483	288.24	---	---	---	---		
PA6	Pond	3	595.483	24.07	---	---	---	---		
PA7	Pond	2	625.483	189.99	---	---	---	---		
PA1	Pond	4	619.483	498.83	---	---	---	---		
PA5	Pond	1	685.483	186.04	---	---	---	---		
PA2	Pond	9	607.483	300.16	---	---	---	---		

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
661.483	3.42
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00

Gutter Calculation Summary

Label	Open Cross Section	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)

Calculation Detailed Summary

<General>	
Label	Base Calculation Options

Options			
Calculation Time Step	1.500 min	Hydrologic Time Step	1.500 min
Output Increment	3.000 min	Total Simulation Time	1440.000 min

Options (Advanced)			
Y Iteration Tolerance	0.03 ft	Relaxation Weighting Coefficient	0.600
LPI Coefficient	1.000	Computation Distance	50.00 ft
NR Weighting Coefficient	0.700		

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
C1	Unit Hydrograph	SCS CN	6.400	1.786	0.18	0.63	609.000
C2	Unit Hydrograph	SCS CN	6.400	2.397	0.24	0.69	615.000
C3	Unit Hydrograph	SCS CN	6.400	20.965	2.08	4.48	633.000
C4	Unit Hydrograph	SCS CN	6.400	9.265	1.74	6.82	621.000
A14	Unit Hydrograph	SCS CN	6.400	35.027	3.47	7.13	636.000
C5	Unit Hydrograph	SCS CN	6.400	10.872	1.08	2.56	627.000
A25	Unit Hydrograph	SCS CN	6.400	9.656	0.96	1.89	642.000
A21	Unit Hydrograph	SCS CN	6.400	6.925	3.09	27.48	594.000
A24	Unit Hydrograph	SCS CN	6.400	10.534	1.28	2.91	642.000
A22	Unit Hydrograph	SCS CN	6.400	11.316	2.93	13.38	618.000
A18	Unit Hydrograph	SCS CN	6.400	7.352	2.53	8.91	633.000
A19	Unit Hydrograph	SCS CN	6.400	25.208	8.48	33.06	627.000
A20	Unit Hydrograph	SCS CN	6.400	5.734	2.94	25.89	594.000

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
A17	Unit Hydrograph	SCS CN	6.400	5.263	1.08	3.91	624.000
A16	Unit Hydrograph	SCS CN	6.400	7.733	1.16	3.12	636.000
A15	Unit Hydrograph	SCS CN	6.400	11.136	1.05	2.22	633.000
A10	Unit Hydrograph	SCS CN	6.400	19.529	4.31	18.11	618.000
A9	Unit Hydrograph	SCS CN	6.400	41.089	16.69	76.77	618.000
A6	Unit Hydrograph	SCS CN	6.400	3.962	2.03	15.53	597.000
A3	Unit Hydrograph	SCS CN	6.400	31.315	11.65	81.74	603.000
A1	Unit Hydrograph	SCS CN	6.400	53.320	21.24	132.99	606.000
A12	Unit Hydrograph	SCS CN	6.400	51.435	19.69	131.70	606.000
A11	Unit Hydrograph	SCS CN	6.400	61.279	22.81	139.76	606.000
A8	Unit Hydrograph	SCS CN	6.400	73.274	27.26	191.21	603.000
A7	Unit Hydrograph	SCS CN	6.400	4.454	1.82	8.24	618.000
A5	Unit Hydrograph	SCS CN	6.400	6.809	3.50	31.62	594.000
A4	Unit Hydrograph	SCS CN	6.400	4.525	2.32	20.69	594.000
A2	Unit Hydrograph	SCS CN	6.400	94.677	37.30	250.03	606.000
A23	Unit Hydrograph	SCS CN	6.400	9.813	0.97	2.54	621.000
D1	Unit Hydrograph	SCS CN	6.400	3.582	1.33	12.18	594.000
A13	Unit Hydrograph	SCS CN	6.400	56.548	18.05	93.59	612.000

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CB1	Catch Basin	7	---	---	---	127.34
CB2	Catch Basin	6	---	---	---	147.06
CO-11	Conduit	29	670.483	84.16	12.60	115.78
CO-5	Conduit	9	616.483	20.24	11.45	120.76

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CO-8	Conduit	4	646.483	340.58	10.92	120.17
CO-3	Conduit	6	610.483	152.62	10.36	144.56
CO-2	Conduit	4	610.483	292.78	9.15	127.08
CO-4	Conduit	7	598.483	10.62	6.01	127.09
CO-7	Conduit	2	622.483	377.57	15.02	120.27
CO-10	Conduit	19	604.483	1.13	3.23	119.79
CO-9	Conduit	20	676.483	95.24	0.48	119.83
CO-6	Conduit	4	622.483	301.85	4.65	120.25
CO-1	Conduit	5	607.483	322.68	25.68	134.09
CH-21	Channel	27	0.000	0.00	0.00	143.25
CH-22	Channel	27	0.000	0.00	0.00	141.75
CH-25	Channel	26	0.000	0.00	0.00	136.56
CH-26	Channel	26	0.000	0.00	0.00	129.50
CH-27	Channel	25	790.483	1.54	1.43	125.42
CH-28	Channel	25	790.483	1.54	1.48	123.92
CH-23	Channel	28	0.000	0.00	0.00	144.00
CH-24	Channel	28	0.000	0.00	0.00	142.00
CH-29	Channel	24	0.000	0.00	0.00	122.25
CH-30	Channel	24	0.000	0.00	0.00	118.75
CH-31	Channel	22	954.367	0.00	0.00	120.03
CH-32	Channel	22	0.000	-0.26	-0.57	120.03
CH-34	Channel	18	673.483	202.11	5.14	119.69
CH-35	Channel	18	673.483	202.11	5.76	119.61
CH-33	Channel	4	646.483	340.58	5.39	120.09
CH-17	Channel	2	598.483	23.03	1.31	123.83
CH-18	Channel	2	604.483	39.31	2.97	121.67
CH-16	Channel	21	622.483	329.39	4.80	121.61
CH-15	Channel	4	622.483	282.70	5.40	121.43
CH-12	Channel	9	637.483	19.88	0.89	120.51
CH-11	Channel	4	622.483	610.64	3.42	123.68

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CH-10	Channel	4	622.483	608.53	2.25	123.98
CH-8	Channel	8	631.483	20.05	0.13	124.48
CH-9	Channel	4	619.483	610.27	2.24	124.24
CH-5	Channel	6	613.483	151.95	3.38	132.54
CH-3	Channel	4	616.483	150.37	0.56	131.29
CH-2	Channel	4	616.483	127.38	0.58	131.37
CH-7	Channel	4	616.483	623.03	2.20	124.62
CH-1	Channel	4	604.483	131.62	6.16	131.51
Site Overflow - 1	Channel	16	670.483	166.06	2.18	119.45
Site Overflow - 2	Channel	16	670.483	166.06	2.18	119.20
CH-19	Channel	2	628.483	373.15	1.61	120.09
CH-20	Channel	2	628.483	372.83	1.43	119.85
CH-6	Channel	4	613.483	599.54	2.96	125.48
CH-4	Channel	5	607.483	247.59	0.34	135.84
CH-13	Channel	23	619.483	287.51	2.33	120.36
CH-14	Channel	23	619.483	287.40	2.28	120.25
CH-36	Channel	9	604.483	130.90	4.43	132.23
CH-37	Channel	9	607.483	215.97	4.98	124.97
Site Overflow - 3	Channel	17	805.483	47.44	0.39	119.70
Site Overflow - 4	Channel	17	900.083	34.19	0.36	119.66
CS26	Cross Section	27	---	---	---	142.50
CS27	Cross Section	26	---	---	---	131.00
CS28	Cross Section	25	---	---	---	124.67
CS25	Cross Section	28	---	---	---	143.00
CS29	Cross Section	24	---	---	---	120.50
CS30	Cross Section	22	---	---	---	120.03

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CS31	Cross Section	18	---	---	---	119.65
CS24	Cross Section	4	---	---	---	120.13
CS18	Cross Section	2	---	---	---	124.27
CS19	Cross Section	2	---	---	---	123.02
CS20	Cross Section	2	---	---	---	121.55
CS14	Cross Section	4	---	---	---	122.50
CS17	Cross Section	4	---	---	---	120.29
CS15	Cross Section	9	---	---	---	120.72
CS13	Cross Section	4	---	---	---	123.89
CS12	Cross Section	4	---	---	---	124.05
CS10	Cross Section	4	---	---	---	124.44
CS11	Cross Section	8	---	---	---	124.51
CS9	Cross Section	4	---	---	---	124.75
CS7	Cross Section	4	---	---	---	127.08
CS8	Cross Section	6	---	---	---	139.53
CS5	Cross Section	4	---	---	---	131.25
CS4	Cross Section	4	---	---	---	131.33
CS3	Cross Section	4	---	---	---	131.41
CS2	Cross Section	4	---	---	---	133.97
CS1	Cross Section	5	---	---	---	136.00
CS21	Cross Section	2	---	---	---	120.27
CS23	Cross Section	16	---	---	---	119.33
CS22	Cross Section	2	---	---	---	119.89
CS6	Cross Section	5	---	---	---	135.68
CS16	Cross Section	23	---	---	---	120.29
CS32	Cross Section	9	---	---	---	136.39
CS33	Cross Section	9	---	---	---	127.94
CS34	Cross Section	17	---	---	---	119.66
PC1	Pond	15	---	---	---	136.22
PC2	Pond	14	---	---	---	143.15

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
PC3	Pond	13	---	---	---	142.84
PC4	Pond	12	---	---	---	126.36
PC5	Pond	11	---	---	---	120.02
PA3	Pond	10	---	---	---	117.51
PA4	Pond	4	---	---	---	120.03
PA6	Pond	3	---	---	---	119.00
PA7	Pond	2	---	---	---	119.79
PA1	Pond	4	---	---	---	120.21
PA5	Pond	1	---	---	---	119.57
PA2	Pond	9	---	---	---	121.35

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)
CB1	Catch Basin	7	598.483	15.49	598.483	15.49	598.483	15.49
CB2	Catch Basin	6	604.483	188.80	604.483	188.80	604.483	188.80
OF4	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF3	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF5	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF6	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF7	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF8	Outfall	0	(N/A)	(N/A)	---	---	---	---
Site Discharge	Outfall	29	(N/A)	(N/A)	---	---	---	---
OF13	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF12	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF9	Outfall	0	(N/A)	(N/A)	---	---	---	---

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)	Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft³/s)
OF10	Outfall	0	(N/A)	(N/A)	---	---	---	---	598.483	5.16
OF11	Outfall	0	(N/A)	(N/A)	---	---	---	---	0.000	0.00
OF2	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
Site Overflow	Outfall	16	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF1	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF16	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF14	Outfall	0	(N/A)	(N/A)	---	---	---	---		
Site Overflow2	Outfall	17	(N/A)	(N/A)	---	---	---	---		
PC1	Pond	15	634.483	4.46	---	---	---	---		
PC2	Pond	14	613.483	0.69	---	---	---	---		
PC3	Pond	13	607.483	0.63	---	---	---	---		
PC4	Pond	12	619.483	6.81	---	---	---	---		
PC5	Pond	11	766.483	2.64	---	---	---	---		
PA3	Pond	10	640.483	1.89	---	---	---	---		
PA4	Pond	4	646.483	343.03	---	---	---	---		
PA6	Pond	3	594.367	27.48	---	---	---	---		
PA7	Pond	2	670.483	250.63	---	---	---	---		
PA1	Pond	4	622.483	587.56	---	---	---	---		
PA5	Pond	1	673.483	203.41	---	---	---	---		
PA2	Pond	9	607.483	354.39	---	---	---	---		

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
622.483	4.89
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00

Gutter Calculation Summary

Label	Open Cross Section	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)

Calculation Detailed Summary

<General>	
Label	Base Calculation Options

Options			
Calculation Time Step	1.500 min	Hydrologic Time Step	1.500 min
Output Increment	3.000 min	Total Simulation Time	1440.000 min

Options (Advanced)			
Y Iteration Tolerance	0.03 ft	Relaxation Weighting Coefficient	0.600
LPI Coefficient	1.000	Computation Distance	50.00 ft
NR Weighting Coefficient	0.700		

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
C1	Unit Hydrograph	SCS CN	7.100	1.786	0.23	0.98	606.000
C2	Unit Hydrograph	SCS CN	7.100	2.397	0.31	1.07	612.000
C3	Unit Hydrograph	SCS CN	7.100	20.965	2.70	6.79	633.000
C4	Unit Hydrograph	SCS CN	7.100	9.265	2.12	8.65	618.000
A14	Unit Hydrograph	SCS CN	7.100	35.027	4.51	10.80	636.000
C5	Unit Hydrograph	SCS CN	7.100	10.872	1.40	3.92	624.000
A25	Unit Hydrograph	SCS CN	7.100	9.656	1.24	2.85	639.000
A21	Unit Hydrograph	SCS CN	7.100	6.925	3.48	30.90	594.000
A24	Unit Hydrograph	SCS CN	7.100	10.534	1.63	4.10	642.000
A22	Unit Hydrograph	SCS CN	7.100	11.316	3.47	16.12	618.000
A18	Unit Hydrograph	SCS CN	7.100	7.352	2.92	10.36	633.000
A19	Unit Hydrograph	SCS CN	7.100	25.208	9.82	38.50	627.000
A20	Unit Hydrograph	SCS CN	7.100	5.734	3.28	28.75	594.000

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
A17	Unit Hydrograph	SCS CN	7.100	5.263	1.31	4.89	624.000
A16	Unit Hydrograph	SCS CN	7.100	7.733	1.44	4.16	636.000
A15	Unit Hydrograph	SCS CN	7.100	11.136	1.37	3.38	633.000
A10	Unit Hydrograph	SCS CN	7.100	19.529	5.18	22.38	618.000
A9	Unit Hydrograph	SCS CN	7.100	41.089	19.00	87.30	618.000
A6	Unit Hydrograph	SCS CN	7.100	3.962	2.27	17.24	597.000
A3	Unit Hydrograph	SCS CN	7.100	31.315	13.37	93.90	603.000
A1	Unit Hydrograph	SCS CN	7.100	53.320	23.76	148.11	606.000
A12	Unit Hydrograph	SCS CN	7.100	51.435	22.53	150.62	606.000
A11	Unit Hydrograph	SCS CN	7.100	61.279	26.17	160.65	606.000
A8	Unit Hydrograph	SCS CN	7.100	73.274	31.28	219.65	603.000
A7	Unit Hydrograph	SCS CN	7.100	4.454	2.07	9.36	618.000
A5	Unit Hydrograph	SCS CN	7.100	6.809	3.89	35.11	594.000
A4	Unit Hydrograph	SCS CN	7.100	4.525	2.59	22.97	594.000
A2	Unit Hydrograph	SCS CN	7.100	94.677	42.58	285.11	603.000
A23	Unit Hydrograph	SCS CN	7.100	9.813	1.26	3.92	618.000
D1	Unit Hydrograph	SCS CN	7.100	3.582	1.53	14.00	594.000
A13	Unit Hydrograph	SCS CN	7.100	56.548	21.00	109.73	612.000

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CB1	Catch Basin	7	---	---	---	127.40
CB2	Catch Basin	6	---	---	---	149.60
CO-11	Conduit	29	676.483	85.24	12.68	115.81
CO-5	Conduit	9	616.483	20.76	11.75	120.90

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CO-8	Conduit	4	646.483	395.47	12.36	120.29
CO-3	Conduit	6	610.483	172.39	11.71	146.42
CO-2	Conduit	4	613.483	327.91	10.25	127.19
CO-4	Conduit	7	598.483	10.79	6.11	127.20
CO-7	Conduit	2	624.367	433.41	17.24	120.40
CO-10	Conduit	19	604.483	1.14	3.27	119.92
CO-9	Conduit	20	667.483	150.79	0.73	119.96
CO-6	Conduit	4	624.367	343.50	4.50	120.37
CO-1	Conduit	5	607.483	368.88	29.35	135.37
CH-21	Channel	27	0.000	0.00	0.00	143.25
CH-22	Channel	27	0.000	0.00	0.00	141.75
CH-25	Channel	26	0.000	0.00	0.00	136.56
CH-26	Channel	26	0.000	0.00	0.00	129.50
CH-27	Channel	25	739.483	2.15	1.64	125.46
CH-28	Channel	25	739.483	2.15	1.70	123.95
CH-23	Channel	28	0.000	0.00	0.00	144.00
CH-24	Channel	28	0.000	0.00	0.00	142.00
CH-29	Channel	24	0.000	0.00	0.00	122.25
CH-30	Channel	24	0.000	0.00	0.00	118.75
CH-31	Channel	22	35.983	0.00	0.01	120.15
CH-32	Channel	22	0.000	-0.26	-0.57	120.15
CH-34	Channel	18	664.483	211.36	5.24	119.71
CH-35	Channel	18	664.483	211.36	5.87	119.63
CH-33	Channel	4	646.483	395.47	5.42	120.21
CH-17	Channel	2	595.483	25.62	1.42	123.90
CH-18	Channel	2	604.483	44.76	3.10	123.31
CH-16	Channel	21	624.367	376.13	2.82	123.25
CH-15	Channel	4	624.367	320.62	5.67	121.61
CH-12	Channel	9	640.483	20.08	0.63	120.64
CH-11	Channel	4	624.367	700.62	3.64	123.97

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CH-10	Channel	4	624.367	696.23	2.39	124.29
CH-8	Channel	8	631.483	24.03	0.14	124.81
CH-9	Channel	4	622.483	701.46	2.36	124.56
CH-5	Channel	6	613.483	171.84	3.55	132.61
CH-3	Channel	4	619.483	185.25	0.62	132.07
CH-2	Channel	4	619.483	150.15	0.60	132.15
CH-7	Channel	4	619.483	690.70	2.20	124.95
CH-1	Channel	4	604.483	145.12	3.95	132.29
Site Overflow - 1	Channel	16	676.483	287.21	3.04	119.47
Site Overflow - 2	Channel	16	676.483	287.21	3.04	119.22
CH-19	Channel	2	628.483	428.08	1.60	120.22
CH-20	Channel	2	631.483	428.45	1.41	119.98
CH-6	Channel	4	613.483	646.05	2.97	125.72
CH-4	Channel	5	607.483	282.09	0.29	137.61
CH-13	Channel	23	619.483	333.95	2.48	120.45
CH-14	Channel	23	619.483	333.84	2.41	120.37
CH-36	Channel	9	604.483	149.91	4.65	132.35
CH-37	Channel	9	607.483	249.84	5.24	125.15
Site Overflow - 3	Channel	17	781.483	66.28	0.54	119.80
Site Overflow - 4	Channel	17	781.483	49.22	0.50	119.77
CS26	Cross Section	27	---	---	---	142.50
CS27	Cross Section	26	---	---	---	131.00
CS28	Cross Section	25	---	---	---	124.70
CS25	Cross Section	28	---	---	---	143.00
CS29	Cross Section	24	---	---	---	120.50
CS30	Cross Section	22	---	---	---	120.15

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CS31	Cross Section	18	---	---	---	119.67
CS24	Cross Section	4	---	---	---	120.25
CS18	Cross Section	2	---	---	---	124.36
CS19	Cross Section	2	---	---	---	123.40
CS20	Cross Section	2	---	---	---	123.19
CS14	Cross Section	4	---	---	---	122.72
CS17	Cross Section	4	---	---	---	120.41
CS15	Cross Section	9	---	---	---	120.86
CS13	Cross Section	4	---	---	---	124.20
CS12	Cross Section	4	---	---	---	124.37
CS10	Cross Section	4	---	---	---	124.77
CS11	Cross Section	8	---	---	---	124.85
CS9	Cross Section	4	---	---	---	125.09
CS7	Cross Section	4	---	---	---	127.19
CS8	Cross Section	6	---	---	---	139.66
CS5	Cross Section	4	---	---	---	132.03
CS4	Cross Section	4	---	---	---	132.11
CS3	Cross Section	4	---	---	---	132.19
CS2	Cross Section	4	---	---	---	134.03
CS1	Cross Section	5	---	---	---	137.77
CS21	Cross Section	2	---	---	---	120.40
CS23	Cross Section	16	---	---	---	119.34
CS22	Cross Section	2	---	---	---	120.02
CS6	Cross Section	5	---	---	---	137.45
CS16	Cross Section	23	---	---	---	120.41
CS32	Cross Section	9	---	---	---	136.50
CS33	Cross Section	9	---	---	---	128.13
CS34	Cross Section	17	---	---	---	119.77
PC1	Pond	15	---	---	---	136.77
PC2	Pond	14	---	---	---	143.42

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
PC3	Pond	13	---	---	---	143.02
PC4	Pond	12	---	---	---	126.50
PC5	Pond	11	---	---	---	120.58
PA3	Pond	10	---	---	---	117.68
PA4	Pond	4	---	---	---	120.15
PA6	Pond	3	---	---	---	119.00
PA7	Pond	2	---	---	---	119.92
PA1	Pond	4	---	---	---	120.33
PA5	Pond	1	---	---	---	119.59
PA2	Pond	9	---	---	---	121.51

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)
CB1	Catch Basin	7	598.483	17.20	598.483	17.20	598.483	17.20
CB2	Catch Basin	6	604.483	216.71	604.483	216.71	604.483	216.71
OF4	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF3	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF5	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF6	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF7	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF8	Outfall	0	(N/A)	(N/A)	---	---	---	---
Site Discharge	Outfall	29	(N/A)	(N/A)	---	---	---	---
OF13	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF12	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF9	Outfall	0	(N/A)	(N/A)	---	---	---	---

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)	Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft³/s)
OF10	Outfall	0	(N/A)	(N/A)	---	---	---	---	598.483	6.31
OF11	Outfall	0	(N/A)	(N/A)	---	---	---	---	0.000	0.00
OF2	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
Site Overflow	Outfall	16	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF1	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF16	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF14	Outfall	0	(N/A)	(N/A)	---	---	---	---		
Site Overflow2	Outfall	17	(N/A)	(N/A)	---	---	---	---		
PC1	Pond	15	631.483	6.77	---	---	---	---		
PC2	Pond	14	613.483	1.07	---	---	---	---		
PC3	Pond	13	607.483	0.97	---	---	---	---		
PC4	Pond	12	619.483	8.65	---	---	---	---		
PC5	Pond	11	622.483	3.92	---	---	---	---		
PA3	Pond	10	637.483	2.84	---	---	---	---		
PA4	Pond	4	646.483	399.06	---	---	---	---		
PA6	Pond	3	595.483	30.88	---	---	---	---		
PA7	Pond	2	676.483	372.59	---	---	---	---		
PA1	Pond	4	624.367	674.87	---	---	---	---		
PA5	Pond	1	664.483	213.25	---	---	---	---		
PA2	Pond	9	607.483	408.99	---	---	---	---		

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
604.483	17.24
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00

Gutter Calculation Summary

Label	Open Cross Section	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)

Calculation Detailed Summary

<General>	
Label	Base Calculation Options

Options			
Calculation Time Step	1.500 min	Hydrologic Time Step	1.500 min
Output Increment	3.000 min	Total Simulation Time	1440.000 min

Options (Advanced)			
Y Iteration Tolerance	0.03 ft	Relaxation Weighting Coefficient	0.600
LPI Coefficient	1.000	Computation Distance	50.00 ft
NR Weighting Coefficient	0.700		

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
B4	Unit Hydrograph	SCS CN	2.900	7.101	0.27	0.45	648.000
B3	Unit Hydrograph	SCS CN	2.900	1.761	0.10	0.70	594.000
B1	Unit Hydrograph	SCS CN	2.900	4.422	0.26	1.51	600.000
B2	Unit Hydrograph	SCS CN	2.900	5.766	0.34	1.26	615.000

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
Catchment B - Site Discharge	Conduit	8	670.483	0.41	3.76	123.16

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CH-37	Conduit	7	0.000	0.00	0.00	130.58
CH-38	Conduit	5	0.000	0.00	0.00	128.66
CH-36	Conduit	6	0.000	0.00	0.00	133.76
PB3	Pond	4	---	---	---	126.71
PB2	Pond	3	---	---	---	128.89
PB4	Pond	2	---	---	---	124.75
PB1	Pond	1	---	---	---	132.38

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)	Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft³/s)
OF21	Outfall	8	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF18	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF19	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF20	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
PB3	Pond	4	595.483	0.68	---	---	---	---	(N/A)	(N/A)
PB2	Pond	3	613.483	1.26	---	---	---	---	(N/A)	(N/A)
PB4	Pond	2	646.483	0.45	---	---	---	---	(N/A)	(N/A)
PB1	Pond	1	601.483	1.50	---	---	---	---	(N/A)	(N/A)

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
(N/A)	(N/A)
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00

Gutter Calculation Summary

Label	Open Cross Section	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)

Calculation Detailed Summary

<General>	
Label	Base Calculation Options

Options			
Calculation Time Step	1.500 min	Hydrologic Time Step	1.500 min
Output Increment	3.000 min	Total Simulation Time	1440.000 min

Options (Advanced)			
Y Iteration Tolerance	0.03 ft	Relaxation Weighting Coefficient	0.600
LPI Coefficient	1.000	Computation Distance	50.00 ft
NR Weighting Coefficient	0.700		

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
B4	Unit Hydrograph	SCS CN	4.700	7.101	0.86	2.54	633.000
B3	Unit Hydrograph	SCS CN	4.700	1.761	0.28	2.51	594.000
B1	Unit Hydrograph	SCS CN	4.700	4.422	0.70	5.27	600.000
B2	Unit Hydrograph	SCS CN	4.700	5.766	0.91	4.53	612.000

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
Catchment B - Site Discharge	Conduit	8	655.483	2.07	6.58	123.29

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CH-37	Conduit	7	0.000	0.00	0.00	130.58
CH-38	Conduit	5	0.000	0.00	0.00	128.66
CH-36	Conduit	6	0.000	0.00	0.00	133.76
PB3	Pond	4	---	---	---	127.33
PB2	Pond	3	---	---	---	129.83
PB4	Pond	2	---	---	---	125.09
PB1	Pond	1	---	---	---	133.55

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)
OF21	Outfall	8	(N/A)	(N/A)	---	---	---	---
OF18	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF19	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF20	Outfall	0	(N/A)	(N/A)	---	---	---	---
PB3	Pond	4	595.483	2.33	---	---	---	---
PB2	Pond	3	610.483	4.51	---	---	---	---
PB4	Pond	2	634.483	2.53	---	---	---	---
PB1	Pond	1	598.483	5.14	---	---	---	---

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft³/s)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
(N/A)	(N/A)
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00

Gutter Calculation Summary

Label	Open Cross Section	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)

Calculation Detailed Summary

<General>	
Label	Base Calculation Options

Options			
Calculation Time Step	1.500 min	Hydrologic Time Step	1.500 min
Output Increment	3.000 min	Total Simulation Time	1440.000 min

Options (Advanced)			
Y Iteration Tolerance	0.03 ft	Relaxation Weighting Coefficient	0.600
LPI Coefficient	1.000	Computation Distance	50.00 ft
NR Weighting Coefficient	0.700		

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
B4	Unit Hydrograph	SCS CN	5.700	7.101	1.26	4.08	633.000
B3	Unit Hydrograph	SCS CN	5.700	1.761	0.39	3.69	594.000
B1	Unit Hydrograph	SCS CN	5.700	4.422	0.98	7.71	600.000
B2	Unit Hydrograph	SCS CN	5.700	5.766	1.28	6.68	612.000

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
Catchment B - Site Discharge	Conduit	8	655.483	3.19	7.48	123.35

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CH-37	Conduit	7	0.000	0.00	0.00	130.58
CH-38	Conduit	5	0.000	0.00	0.00	128.66
CH-36	Conduit	6	0.000	0.00	0.00	133.76
PB3	Pond	4	---	---	---	127.70
PB2	Pond	3	---	---	---	130.31
PB4	Pond	2	---	---	---	125.32
PB1	Pond	1	---	---	---	134.10

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)	Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft³/s)
OF21	Outfall	8	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF18	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF19	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF20	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
PB3	Pond	4	595.483	3.40	---	---	---	---	(N/A)	(N/A)
PB2	Pond	3	610.483	6.66	---	---	---	---	(N/A)	(N/A)
PB4	Pond	2	634.483	4.06	---	---	---	---	(N/A)	(N/A)
PB1	Pond	1	598.483	7.57	---	---	---	---	(N/A)	(N/A)

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
(N/A)	(N/A)
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00

Gutter Calculation Summary

Label	Open Cross Section	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)

Calculation Detailed Summary

<General>	
Label	Base Calculation Options

Options			
Calculation Time Step	1.500 min	Hydrologic Time Step	1.500 min
Output Increment	3.000 min	Total Simulation Time	1440.000 min

Options (Advanced)			
Y Iteration Tolerance	0.03 ft	Relaxation Weighting Coefficient	0.600
LPI Coefficient	1.000	Computation Distance	50.00 ft
NR Weighting Coefficient	0.700		

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
B4	Unit Hydrograph	SCS CN	6.400	7.101	1.57	5.26	633.000
B3	Unit Hydrograph	SCS CN	6.400	1.761	0.47	4.57	594.000
B1	Unit Hydrograph	SCS CN	6.400	4.422	1.19	9.51	600.000
B2	Unit Hydrograph	SCS CN	6.400	5.766	1.55	8.26	612.000

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
Catchment B - Site Discharge	Conduit	8	655.483	4.01	8.01	123.39

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CH-37	Conduit	7	0.000	0.00	0.00	130.58
CH-38	Conduit	5	0.000	0.00	0.00	128.66
CH-36	Conduit	6	0.000	0.00	0.00	133.76
PB3	Pond	4	---	---	---	127.97
PB2	Pond	3	---	---	---	130.63
PB4	Pond	2	---	---	---	125.48
PB1	Pond	1	---	---	---	134.46

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)	Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft³/s)
OF21	Outfall	8	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF18	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF19	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF20	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
PB3	Pond	4	595.483	4.19	---	---	---	---	(N/A)	(N/A)
PB2	Pond	3	610.483	8.25	---	---	---	---	(N/A)	(N/A)
PB4	Pond	2	631.483	5.24	---	---	---	---	(N/A)	(N/A)
PB1	Pond	1	598.483	9.37	---	---	---	---	(N/A)	(N/A)

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
(N/A)	(N/A)
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00

Gutter Calculation Summary

Label	Open Cross Section	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)

Calculation Detailed Summary

<General>	
Label	Base Calculation Options

Options			
Calculation Time Step	1.500 min	Hydrologic Time Step	1.500 min
Output Increment	3.000 min	Total Simulation Time	1440.000 min

Options (Advanced)			
Y Iteration Tolerance	0.03 ft	Relaxation Weighting Coefficient	0.600
LPI Coefficient	1.000	Computation Distance	50.00 ft
NR Weighting Coefficient	0.700		

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
B4	Unit Hydrograph	SCS CN	7.100	7.101	1.88	6.49	633.000
B3	Unit Hydrograph	SCS CN	7.100	1.761	0.56	5.47	594.000
B1	Unit Hydrograph	SCS CN	7.100	4.422	1.40	11.36	600.000
B2	Unit Hydrograph	SCS CN	7.100	5.766	1.83	9.90	609.000

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
Catchment B - Site Discharge	Conduit	8	658.483	4.83	8.38	123.43

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CH-37	Conduit	7	0.000	0.00	0.00	130.58
CH-38	Conduit	5	0.000	0.00	0.00	128.66
CH-36	Conduit	6	0.000	0.00	0.00	133.76
PB3	Pond	4	---	---	---	128.22
PB2	Pond	3	---	---	---	130.94
PB4	Pond	2	---	---	---	125.65
PB1	Pond	1	---	---	---	134.77

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)	Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft³/s)
OF21	Outfall	8	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF18	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF19	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF20	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
PB3	Pond	4	595.483	5.00	---	---	---	---	(N/A)	(N/A)
PB2	Pond	3	610.483	9.89	---	---	---	---	(N/A)	(N/A)
PB4	Pond	2	631.483	6.47	---	---	---	---	(N/A)	(N/A)
PB1	Pond	1	598.483	11.22	---	---	---	---	(N/A)	(N/A)

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
(N/A)	(N/A)
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00

Gutter Calculation Summary

Label	Open Cross Section	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)

Calculation Detailed Summary

<General>	
Label	Base Calculation Options

Options			
Calculation Time Step	1.500 min	Hydrologic Time Step	1.500 min
Output Increment	3.000 min	Total Simulation Time	2880.000 min

Options (Advanced)			
Y Iteration Tolerance	0.03 ft	Relaxation Weighting Coefficient	0.600
LPI Coefficient	1.000	Computation Distance	50.00 ft
NR Weighting Coefficient	0.700		

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
C4	Unit Hydrograph	SCS CN	2.900	9.265	0.25	0.29	648.000
A14	Unit Hydrograph	SCS CN	2.900	35.027	0.14	0.20	1263.000
C5	Unit Hydrograph	SCS CN	2.900	11.439	0.04	0.06	1251.000
A25	Unit Hydrograph	SCS CN	2.900	14.736	0.06	0.08	1266.000
A21	Unit Hydrograph	SCS CN	2.900	6.925	1.14	10.38	597.000
A18	Unit Hydrograph	SCS CN	2.900	7.352	1.28	4.53	633.000
A19	Unit Hydrograph	SCS CN	2.900	25.208	2.34	7.95	630.000
A20	Unit Hydrograph	SCS CN	2.900	5.734	1.28	11.53	594.000
A17	Unit Hydrograph	SCS CN	2.900	9.906	0.32	0.47	642.000
A10	Unit Hydrograph	SCS CN	2.900	17.799	0.68	1.35	630.000
A11	Unit Hydrograph	SCS CN	2.900	61.287	6.39	35.71	609.000
A12	Unit Hydrograph	SCS CN	2.900	57.306	7.39	47.87	606.000
A13	Unit Hydrograph	SCS CN	2.900	49.056	6.12	22.32	630.000

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
A16	Unit Hydrograph	SCS CN	2.900	13.633	0.05	0.08	1269.000
A15	Unit Hydrograph	SCS CN	2.900	8.183	0.03	0.05	1260.000
A22	Unit Hydrograph	SCS CN	2.900	32.572	3.20	10.13	633.000
D1	Unit Hydrograph	SCS CN	2.900	7.765	0.88	3.45	624.000
C3-2	Unit Hydrograph	SCS CN	2.900	15.890	1.48	10.18	603.000
E1	Unit Hydrograph	SCS CN	2.900	10.000	1.65	14.35	597.000

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CB3	Catch Basin	2	---	---	---	135.70
P24	Conduit	19	1459.483	11.06	8.76	113.74
P22	Conduit	13	1258.483	20.70	6.29	118.30
P23	Conduit	14	847.483	0.58	13.98	115.62
CO-96	Conduit	20	1459.483	9.69	6.17	113.79
CH-60	Channel	18	0.000	0.00	0.00	136.56
CH-61	Channel	18	0.000	0.00	0.00	129.50
CH-62	Channel	17	0.000	0.00	0.00	125.25
CH-63	Channel	17	0.000	0.00	0.00	123.75
CH-66	Channel	16	0.000	0.00	0.00	122.25
CH-67	Channel	16	0.000	0.00	0.00	118.75
CH-68	Channel	15	0.000	0.00	0.00	118.04
CH-69	Channel	15	0.000	0.00	0.00	118.04
CH-73	Channel	13	1258.483	20.70	2.70	116.35
CH-76	Channel	5	598.483	10.18	0.97	123.38
CH-77	Channel	5	604.483	13.10	1.71	121.07

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CH-119	Channel	11	0.000	0.00	0.00	119.38
CH-120	Channel	11	0.000	0.00	0.00	119.13
CH-125	Channel	2	607.483	47.40	3.23	131.21
CH-126	Channel	2	607.483	47.33	4.34	125.03
TF Creek 2	Channel	12	670.483	22.74	1.52	121.50
TF Creek - 1	Channel	12	667.483	22.76	1.24	123.19
TF Creek - 3	Channel	12	610.483	36.26	1.68	119.82
CH-134	Channel	5	607.483	15.71	1.82	119.07
CH-136	Channel	3	604.483	203.66	2.53	122.47
CH-137	Channel	3	607.483	200.87	3.18	119.71
CH-140	Channel	4	634.483	1.34	0.67	121.66
CS27	Cross Section	18	---	---	---	131.00
CS28	Cross Section	17	---	---	---	124.50
CS29	Cross Section	16	---	---	---	120.50
CS30	Cross Section	15	---	---	---	118.04
CS24	Cross Section	13	---	---	---	117.60
CS18	Cross Section	5	---	---	---	123.82
CS19	Cross Section	5	---	---	---	122.70
CS20	Cross Section	5	---	---	---	119.16
CS9	Cross Section	3	---	---	---	123.49
CS23	Cross Section	11	---	---	---	119.25
CS32	Cross Section	2	---	---	---	126.51
CS33	Cross Section	12	---	---	---	122.50
CS34	Cross Section	12	---	---	---	120.59
CS-116	Cross Section	3	---	---	---	121.21
CS-117	Cross Section	4	---	---	---	123.16
PC4	Pond	10	---	---	---	124.77
PC5	Pond	9	---	---	---	116.16
PA3	Pond	8	---	---	---	115.46
PA7	Pond	7	---	---	---	114.44

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
PA6	Pond	6	---	---	---	117.65
PA1	Pond	3	---	---	---	119.07
PA8	Pond	2	---	---	---	123.77
PC1	Pond	1	---	---	---	138.36

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)
CB3	Catch Basin	2	604.483	47.34	604.483	47.34	604.483	47.34
OF5	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF6	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF7	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF8	Outfall	0	(N/A)	(N/A)	---	---	---	---
Site Discharge	Outfall	19	(N/A)	(N/A)	---	---	---	---
OF12	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF9	Outfall	0	(N/A)	(N/A)	---	---	---	---
Site Overflow	Outfall	11	(N/A)	(N/A)	---	---	---	---
OF14	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF17	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF1	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF2	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF15	Outfall	0	(N/A)	(N/A)	---	---	---	---
Site Discharge 2	Outfall	20	(N/A)	(N/A)	---	---	---	---
OF16	Outfall	0	(N/A)	(N/A)	---	---	---	---
PC4	Pond	10	649.483	0.29	---	---	---	---
PC5	Pond	9	1249.483	0.06	---	---	---	---

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)	Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft³/s)
PA3	Pond	8	1264.483	0.08	---	---	---	---	0.000	0.00
PA7	Pond	7	1216.483	22.25	---	---	---	---	(N/A)	(N/A)
PA6	Pond	6	595.483	10.30	---	---	---	---	(N/A)	(N/A)
PA1	Pond	3	610.483	250.24	---	---	---	---	(N/A)	(N/A)
PA8	Pond	2	610.483	61.84	---	---	---	---	(N/A)	(N/A)
PC1	Pond	1	601.483	10.13	---	---	---	---	(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									0.000	0.00
									0.000	0.00
									0.000	0.00

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00

Gutter Calculation Summary

Label	Open Cross Section	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)

Calculation Detailed Summary

<General>	
Label	Base Calculation Options

Options			
Calculation Time Step	1.500 min	Hydrologic Time Step	1.500 min
Output Increment	3.000 min	Total Simulation Time	2880.000 min

Options (Advanced)			
Y Iteration Tolerance	0.03 ft	Relaxation Weighting Coefficient	0.600
LPI Coefficient	1.000	Computation Distance	50.00 ft
NR Weighting Coefficient	0.700		

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
C4	Unit Hydrograph	SCS CN	4.700	9.265	0.91	2.90	621.000
A14	Unit Hydrograph	SCS CN	4.700	35.027	1.40	1.50	735.000
C5	Unit Hydrograph	SCS CN	4.700	11.439	0.46	0.49	720.000
A25	Unit Hydrograph	SCS CN	4.700	14.736	0.59	0.63	738.000
A21	Unit Hydrograph	SCS CN	4.700	6.925	2.13	19.21	597.000
A18	Unit Hydrograph	SCS CN	4.700	7.352	2.38	8.49	633.000
A19	Unit Hydrograph	SCS CN	4.700	25.208	5.35	20.21	627.000
A20	Unit Hydrograph	SCS CN	4.700	5.734	2.13	18.93	594.000
A17	Unit Hydrograph	SCS CN	4.700	9.906	1.09	3.37	627.000
A10	Unit Hydrograph	SCS CN	4.700	17.799	2.16	7.94	621.000
A11	Unit Hydrograph	SCS CN	4.700	61.287	14.00	84.11	609.000
A12	Unit Hydrograph	SCS CN	4.700	57.306	15.04	100.42	606.000
A13	Unit Hydrograph	SCS CN	4.700	49.056	12.60	48.10	630.000

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
A16	Unit Hydrograph	SCS CN	4.700	13.633	0.55	0.58	741.000
A15	Unit Hydrograph	SCS CN	4.700	8.183	0.33	0.35	732.000
A22	Unit Hydrograph	SCS CN	4.700	32.572	7.16	25.05	633.000
D1	Unit Hydrograph	SCS CN	4.700	7.765	1.88	7.81	624.000
C3-2	Unit Hydrograph	SCS CN	4.700	15.890	3.37	25.54	600.000
E1	Unit Hydrograph	SCS CN	4.700	10.000	3.08	26.74	597.000

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CB3	Catch Basin	2	---	---	---	136.10
P24	Conduit	19	1468.483	42.52	12.35	114.50
P22	Conduit	13	913.483	65.94	10.69	118.78
P23	Conduit	14	826.483	1.10	8.94	116.26
CO-96	Conduit	20	1468.483	14.63	9.31	114.16
CH-60	Channel	18	0.000	0.00	0.00	136.56
CH-61	Channel	18	0.000	0.00	0.00	129.50
CH-62	Channel	17	1117.483	0.55	0.89	125.35
CH-63	Channel	17	1117.483	0.55	0.89	123.85
CH-66	Channel	16	0.000	0.00	0.00	122.25
CH-67	Channel	16	0.000	0.00	0.00	118.75
CH-68	Channel	15	0.000	0.00	0.00	118.04
CH-69	Channel	15	0.000	0.00	0.00	118.04
CH-73	Channel	13	913.483	65.94	4.64	116.43
CH-76	Channel	5	598.483	16.79	1.16	123.63
CH-77	Channel	5	604.483	26.01	2.18	121.35

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CH-119	Channel	11	0.000	0.00	0.00	119.38
CH-120	Channel	11	0.000	0.00	0.00	119.13
CH-125	Channel	2	607.483	99.38	4.28	131.60
CH-126	Channel	2	607.483	99.68	5.98	125.30
TF Creek 2	Channel	12	631.483	90.11	2.34	122.08
TF Creek - 1	Channel	12	628.483	90.18	1.94	123.84
TF Creek - 3	Channel	12	619.483	139.86	2.56	120.59
CH-134	Channel	5	628.483	32.36	2.38	120.52
CH-136	Channel	3	604.483	480.51	3.51	123.18
CH-137	Channel	3	607.483	476.17	4.44	120.63
CH-140	Channel	4	622.483	7.92	1.22	121.91
CS27	Cross Section	18	---	---	---	131.00
CS28	Cross Section	17	---	---	---	124.60
CS29	Cross Section	16	---	---	---	120.50
CS30	Cross Section	15	---	---	---	118.04
CS24	Cross Section	13	---	---	---	117.67
CS18	Cross Section	5	---	---	---	124.08
CS19	Cross Section	5	---	---	---	122.97
CS20	Cross Section	5	---	---	---	120.53
CS9	Cross Section	3	---	---	---	124.20
CS23	Cross Section	11	---	---	---	119.25
CS32	Cross Section	2	---	---	---	126.80
CS33	Cross Section	12	---	---	---	123.07
CS34	Cross Section	12	---	---	---	121.39
CS-116	Cross Section	3	---	---	---	121.84
CS-117	Cross Section	4	---	---	---	123.41
PC4	Pond	10	---	---	---	126.13
PC5	Pond	9	---	---	---	118.31
PA3	Pond	8	---	---	---	117.22
PA7	Pond	7	---	---	---	116.20

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
PA6	Pond	6	---	---	---	118.61
PA1	Pond	3	---	---	---	120.51
PA8	Pond	2	---	---	---	124.56
PC1	Pond	1	---	---	---	139.69

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)
CB3	Catch Basin	2	604.483	99.88	604.483	99.88	604.483	99.88
OF5	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF6	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF7	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF8	Outfall	0	(N/A)	(N/A)	---	---	---	---
Site Discharge	Outfall	19	(N/A)	(N/A)	---	---	---	---
OF12	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF9	Outfall	0	(N/A)	(N/A)	---	---	---	---
Site Overflow	Outfall	11	(N/A)	(N/A)	---	---	---	---
OF14	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF17	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF1	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF2	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF15	Outfall	0	(N/A)	(N/A)	---	---	---	---
Site Discharge 2	Outfall	20	(N/A)	(N/A)	---	---	---	---
OF16	Outfall	0	(N/A)	(N/A)	---	---	---	---
PC4	Pond	10	622.483	2.88	---	---	---	---
PC5	Pond	9	1096.483	0.94	---	---	---	---

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)	Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft³/s)
PA3	Pond	8	739.483	0.63	---	---	---	---	0.000	0.00
PA7	Pond	7	847.483	71.05	---	---	---	---	(N/A)	(N/A)
PA6	Pond	6	595.483	19.16	---	---	---	---	(N/A)	(N/A)
PA1	Pond	3	610.483	617.92	---	---	---	---	(N/A)	(N/A)
PA8	Pond	2	607.483	132.01	---	---	---	---	(N/A)	(N/A)
PC1	Pond	1	601.483	25.35	---	---	---	---	(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									0.000	0.00
									0.000	0.00
									0.000	0.00

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00

Gutter Calculation Summary

Label	Open Cross Section	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)

Calculation Detailed Summary

<General>	
Label	Base Calculation Options

Options			
Calculation Time Step	1.500 min	Hydrologic Time Step	1.500 min
Output Increment	3.000 min	Total Simulation Time	2880.000 min

Options (Advanced)			
Y Iteration Tolerance	0.03 ft	Relaxation Weighting Coefficient	0.600
LPI Coefficient	1.000	Computation Distance	50.00 ft
NR Weighting Coefficient	0.700		

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
C4	Unit Hydrograph	SCS CN	5.700	9.265	1.38	5.11	621.000
A14	Unit Hydrograph	SCS CN	5.700	35.027	2.54	4.14	642.000
C5	Unit Hydrograph	SCS CN	5.700	11.439	0.83	1.53	630.000
A25	Unit Hydrograph	SCS CN	5.700	14.736	1.07	1.70	648.000
A21	Unit Hydrograph	SCS CN	5.700	6.925	2.69	24.08	597.000
A18	Unit Hydrograph	SCS CN	5.700	7.352	3.01	10.69	633.000
A19	Unit Hydrograph	SCS CN	5.700	25.208	7.17	27.69	627.000
A20	Unit Hydrograph	SCS CN	5.700	5.734	2.61	23.03	594.000
A17	Unit Hydrograph	SCS CN	5.700	9.906	1.63	5.63	627.000
A10	Unit Hydrograph	SCS CN	5.700	17.799	3.17	12.80	618.000
A11	Unit Hydrograph	SCS CN	5.700	61.287	18.56	112.78	609.000
A12	Unit Hydrograph	SCS CN	5.700	57.306	19.50	130.44	606.000
A13	Unit Hydrograph	SCS CN	5.700	49.056	16.39	62.97	630.000

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
A16	Unit Hydrograph	SCS CN	5.700	13.633	0.99	1.53	651.000
A15	Unit Hydrograph	SCS CN	5.700	8.183	0.59	0.99	642.000
A22	Unit Hydrograph	SCS CN	5.700	32.572	9.55	34.04	633.000
D1	Unit Hydrograph	SCS CN	5.700	7.765	2.47	10.36	624.000
C3-2	Unit Hydrograph	SCS CN	5.700	15.890	4.52	34.90	600.000
E1	Unit Hydrograph	SCS CN	5.700	10.000	3.89	33.58	597.000

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CB3	Catch Basin	2	---	---	---	136.29
P24	Conduit	19	1540.483	57.86	13.32	114.81
P22	Conduit	13	931.483	86.16	12.02	118.94
P23	Conduit	14	709.483	1.25	16.81	117.08
CO-96	Conduit	20	1540.483	16.45	10.47	114.33
CH-60	Channel	18	0.000	0.00	0.00	136.56
CH-61	Channel	18	0.000	0.00	0.00	129.50
CH-62	Channel	17	847.483	1.03	1.22	125.39
CH-63	Channel	17	847.483	1.03	1.22	123.89
CH-66	Channel	16	0.000	0.00	0.00	122.25
CH-67	Channel	16	0.000	0.00	0.00	118.75
CH-68	Channel	15	0.000	0.00	0.00	118.04
CH-69	Channel	15	0.000	0.00	0.00	118.04
CH-73	Channel	13	931.483	86.16	5.30	117.08
CH-76	Channel	5	598.483	20.42	1.24	123.76
CH-77	Channel	5	604.483	33.53	2.38	121.49

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CH-119	Channel	11	0.000	0.00	0.00	119.38
CH-120	Channel	11	0.000	0.00	0.00	119.13
CH-125	Channel	2	607.483	129.01	4.71	131.79
CH-126	Channel	2	607.483	129.52	6.63	125.43
TF Creek 2	Channel	12	625.483	127.70	2.56	122.31
TF Creek - 1	Channel	12	625.483	127.70	2.16	124.08
TF Creek - 3	Channel	12	616.483	205.75	2.87	121.45
CH-134	Channel	5	628.483	42.58	1.58	121.38
CH-136	Channel	3	604.483	664.97	3.96	123.42
CH-137	Channel	3	607.483	660.14	5.02	121.49
CH-140	Channel	4	622.483	12.81	1.32	122.19
CS27	Cross Section	18	---	---	---	131.00
CS28	Cross Section	17	---	---	---	124.64
CS29	Cross Section	16	---	---	---	120.50
CS30	Cross Section	15	---	---	---	118.04
CS24	Cross Section	13	---	---	---	117.70
CS18	Cross Section	5	---	---	---	124.20
CS19	Cross Section	5	---	---	---	123.11
CS20	Cross Section	5	---	---	---	121.39
CS9	Cross Section	3	---	---	---	124.43
CS23	Cross Section	11	---	---	---	119.25
CS32	Cross Section	2	---	---	---	126.93
CS33	Cross Section	12	---	---	---	123.29
CS34	Cross Section	12	---	---	---	121.71
CS-116	Cross Section	3	---	---	---	122.13
CS-117	Cross Section	4	---	---	---	123.54
PC4	Pond	10	---	---	---	126.24
PC5	Pond	9	---	---	---	119.50
PA3	Pond	8	---	---	---	117.59
PA7	Pond	7	---	---	---	117.04

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
PA6	Pond	6	---	---	---	119.00
PA1	Pond	3	---	---	---	121.37
PA8	Pond	2	---	---	---	124.93
PC1	Pond	1	---	---	---	140.13

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)
CB3	Catch Basin	2	604.483	129.93	604.483	129.93	604.483	129.93
OF5	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF6	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF7	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF8	Outfall	0	(N/A)	(N/A)	---	---	---	---
Site Discharge	Outfall	19	(N/A)	(N/A)	---	---	---	---
OF12	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF9	Outfall	0	(N/A)	(N/A)	---	---	---	---
Site Overflow	Outfall	11	(N/A)	(N/A)	---	---	---	---
OF14	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF17	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF1	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF2	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF15	Outfall	0	(N/A)	(N/A)	---	---	---	---
Site Discharge 2	Outfall	20	(N/A)	(N/A)	---	---	---	---
OF16	Outfall	0	(N/A)	(N/A)	---	---	---	---
PC4	Pond	10	619.483	5.09	---	---	---	---
PC5	Pond	9	823.483	1.80	---	---	---	---

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)	Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft³/s)
PA3	Pond	8	646.483	1.69	---	---	---	---	0.000	0.00
PA7	Pond	7	649.483	94.14	---	---	---	---	(N/A)	(N/A)
PA6	Pond	6	595.483	24.07	---	---	---	---	(N/A)	(N/A)
PA1	Pond	3	607.483	885.95	---	---	---	---	(N/A)	(N/A)
PA8	Pond	2	607.483	172.55	---	---	---	---	(N/A)	(N/A)
PC1	Pond	1	601.483	34.52	---	---	---	---	(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									0.000	0.00
									0.000	0.00
									0.000	0.00

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00

Gutter Calculation Summary

Label	Open Cross Section	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)

Calculation Detailed Summary

<General>	
Label	Base Calculation Options

Options			
Calculation Time Step	1.500 min	Hydrologic Time Step	1.500 min
Output Increment	3.000 min	Total Simulation Time	2880.000 min

Options (Advanced)			
Y Iteration Tolerance	0.03 ft	Relaxation Weighting Coefficient	0.600
LPI Coefficient	1.000	Computation Distance	50.00 ft
NR Weighting Coefficient	0.700		

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
C4	Unit Hydrograph	SCS CN	6.400	9.265	1.74	6.82	621.000
A14	Unit Hydrograph	SCS CN	6.400	35.027	3.47	7.13	636.000
C5	Unit Hydrograph	SCS CN	6.400	11.439	1.13	2.69	627.000
A25	Unit Hydrograph	SCS CN	6.400	14.736	1.46	2.88	642.000
A21	Unit Hydrograph	SCS CN	6.400	6.925	3.09	27.48	594.000
A18	Unit Hydrograph	SCS CN	6.400	7.352	3.45	12.22	633.000
A19	Unit Hydrograph	SCS CN	6.400	25.208	8.48	33.06	627.000
A20	Unit Hydrograph	SCS CN	6.400	5.734	2.94	25.89	594.000
A17	Unit Hydrograph	SCS CN	6.400	9.906	2.03	7.36	624.000
A10	Unit Hydrograph	SCS CN	6.400	17.799	3.92	16.50	618.000
A11	Unit Hydrograph	SCS CN	6.400	61.287	21.82	133.21	606.000
A12	Unit Hydrograph	SCS CN	6.400	57.306	22.67	151.52	606.000
A13	Unit Hydrograph	SCS CN	6.400	49.056	19.09	73.45	630.000

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
A16	Unit Hydrograph	SCS CN	6.400	13.633	1.35	2.60	642.000
A15	Unit Hydrograph	SCS CN	6.400	8.183	0.81	1.71	636.000
A22	Unit Hydrograph	SCS CN	6.400	32.572	11.27	40.47	633.000
D1	Unit Hydrograph	SCS CN	6.400	7.765	2.89	12.16	624.000
C3-2	Unit Hydrograph	SCS CN	6.400	15.890	5.35	41.61	600.000
E1	Unit Hydrograph	SCS CN	6.400	10.000	4.46	38.35	597.000

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CB3	Catch Basin	2	---	---	---	136.41
P24	Conduit	19	1624.483	63.93	13.63	114.92
P22	Conduit	13	970.483	98.06	12.71	119.04
P23	Conduit	14	625.483	1.25	16.81	117.64
CO-96	Conduit	20	1624.483	17.54	11.17	114.44
CH-60	Channel	18	0.000	0.00	0.00	136.56
CH-61	Channel	18	0.000	0.00	0.00	129.50
CH-62	Channel	17	790.483	1.54	1.43	125.42
CH-63	Channel	17	790.483	1.54	1.48	123.92
CH-66	Channel	16	0.000	0.00	0.00	122.25
CH-67	Channel	16	0.000	0.00	0.00	118.75
CH-68	Channel	15	0.000	0.00	0.00	118.04
CH-69	Channel	15	0.000	0.00	0.00	118.04
CH-73	Channel	13	970.483	98.06	4.09	117.64
CH-76	Channel	5	598.483	22.96	1.30	123.83
CH-77	Channel	5	604.483	38.87	2.50	121.97

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CH-119	Channel	11	0.000	0.00	0.00	119.38
CH-120	Channel	11	0.000	0.00	0.00	119.13
CH-125	Channel	2	607.483	149.82	4.98	131.91
CH-126	Channel	2	607.483	150.45	7.02	125.52
TF Creek 2	Channel	12	625.483	150.84	2.67	122.44
TF Creek - 1	Channel	12	622.483	150.87	2.28	124.21
TF Creek - 3	Channel	12	613.483	246.96	3.04	121.99
CH-134	Channel	5	628.483	49.84	1.37	121.93
CH-136	Channel	3	604.483	787.20	4.22	123.54
CH-137	Channel	3	607.483	781.84	5.35	122.03
CH-140	Channel	4	622.483	16.50	1.32	122.35
CS27	Cross Section	18	---	---	---	131.00
CS28	Cross Section	17	---	---	---	124.67
CS29	Cross Section	16	---	---	---	120.50
CS30	Cross Section	15	---	---	---	118.04
CS24	Cross Section	13	---	---	---	117.72
CS18	Cross Section	5	---	---	---	124.29
CS19	Cross Section	5	---	---	---	123.20
CS20	Cross Section	5	---	---	---	121.94
CS9	Cross Section	3	---	---	---	124.54
CS23	Cross Section	11	---	---	---	119.25
CS32	Cross Section	2	---	---	---	127.02
CS33	Cross Section	12	---	---	---	123.40
CS34	Cross Section	12	---	---	---	122.05
CS-116	Cross Section	3	---	---	---	122.26
CS-117	Cross Section	4	---	---	---	123.62
PC4	Pond	10	---	---	---	126.36
PC5	Pond	9	---	---	---	120.13
PA3	Pond	8	---	---	---	117.80
PA7	Pond	7	---	---	---	117.60

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
PA6	Pond	6	---	---	---	119.00
PA1	Pond	3	---	---	---	121.91
PA8	Pond	2	---	---	---	125.15
PC1	Pond	1	---	---	---	140.38

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)
CB3	Catch Basin	2	604.483	151.06	604.483	151.06	604.483	151.06
OF5	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF6	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF7	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF8	Outfall	0	(N/A)	(N/A)	---	---	---	---
Site Discharge	Outfall	19	(N/A)	(N/A)	---	---	---	---
OF12	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF9	Outfall	0	(N/A)	(N/A)	---	---	---	---
Site Overflow	Outfall	11	(N/A)	(N/A)	---	---	---	---
OF14	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF17	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF1	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF2	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF15	Outfall	0	(N/A)	(N/A)	---	---	---	---
Site Discharge 2	Outfall	20	(N/A)	(N/A)	---	---	---	---
OF16	Outfall	0	(N/A)	(N/A)	---	---	---	---
PC4	Pond	10	619.483	6.81	---	---	---	---
PC5	Pond	9	763.483	2.70	---	---	---	---

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)	Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft³/s)
PA3	Pond	8	640.483	2.88	---	---	---	---	0.000	0.00
PA7	Pond	7	646.483	111.92	---	---	---	---	(N/A)	(N/A)
PA6	Pond	6	595.483	27.48	---	---	---	---	(N/A)	(N/A)
PA1	Pond	3	607.483	1058.33	---	---	---	---	(N/A)	(N/A)
PA8	Pond	2	607.483	201.08	---	---	---	---	(N/A)	(N/A)
PC1	Pond	1	601.483	41.09	---	---	---	---	(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									0.000	0.00
									0.000	0.00
									0.000	0.00

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
0.000	0.00
622.483	4.23
0.000	0.00
0.000	0.00
0.000	0.00

Gutter Calculation Summary

Label	Open Cross Section	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)

Calculation Detailed Summary

<General>	
Label	Base Calculation Options

Options			
Calculation Time Step	1.500 min	Hydrologic Time Step	1.500 min
Output Increment	3.000 min	Total Simulation Time	2880.000 min

Options (Advanced)			
Y Iteration Tolerance	0.03 ft	Relaxation Weighting Coefficient	0.600
LPI Coefficient	1.000	Computation Distance	50.00 ft
NR Weighting Coefficient	0.700		

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
C4	Unit Hydrograph	SCS CN	7.100	9.265	2.12	8.65	618.000
A14	Unit Hydrograph	SCS CN	7.100	35.027	4.51	10.80	636.000
C5	Unit Hydrograph	SCS CN	7.100	11.439	1.47	4.13	624.000
A25	Unit Hydrograph	SCS CN	7.100	14.736	1.90	4.35	639.000
A21	Unit Hydrograph	SCS CN	7.100	6.925	3.48	30.90	594.000
A18	Unit Hydrograph	SCS CN	7.100	7.352	4.42	14.79	633.000
A19	Unit Hydrograph	SCS CN	7.100	25.208	9.82	38.50	627.000
A20	Unit Hydrograph	SCS CN	7.100	5.734	3.28	28.75	594.000
A17	Unit Hydrograph	SCS CN	7.100	9.906	2.46	9.21	624.000
A10	Unit Hydrograph	SCS CN	7.100	17.799	4.72	20.40	618.000
A11	Unit Hydrograph	SCS CN	7.100	61.287	25.14	154.00	606.000
A12	Unit Hydrograph	SCS CN	7.100	51.820	22.12	147.94	606.000
A16	Unit Hydrograph	SCS CN	7.100	13.633	1.75	3.92	642.000

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
A15	Unit Hydrograph	SCS CN	7.100	8.183	1.05	2.58	636.000
A22	Unit Hydrograph	SCS CN	7.100	32.572	13.01	46.97	633.000
A13	Unit Hydrograph	SCS CN	7.100	9.041	3.52	12.73	633.000

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CB3	Catch Basin	2	---	---	---	136.39
P24	Conduit	19	1723.467	70.24	13.83	115.06
P22	Conduit	13	1006.483	109.20	13.40	119.11
P23	Conduit	14	607.483	1.25	16.81	118.25
CO-96	Conduit	20	1723.467	18.69	11.90	114.57
CH-61	Channel	18	0.000	0.00	0.00	129.50
CH-62	Channel	17	739.483	2.15	1.64	125.46
CH-63	Channel	17	739.483	2.15	1.70	123.95
CH-66	Channel	16	0.000	0.00	0.00	122.25
CH-67	Channel	16	0.000	0.00	0.00	118.75
CH-68	Channel	15	2042.983	1.99	0.41	118.21
CH-69	Channel	15	2042.983	1.54	0.34	118.21
CH-73	Channel	13	1006.483	109.20	1.67	118.25
CH-76	Channel	5	595.483	25.56	1.41	123.91
CH-77	Channel	5	604.483	44.24	2.61	122.58
CH-119	Channel	11	0.000	0.00	0.00	119.38
CH-120	Channel	11	0.000	0.00	0.00	119.13
CH-125	Channel	2	607.483	146.29	4.93	131.89
CH-126	Channel	2	607.483	146.87	5.49	125.86

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
TF Creek 2	Channel	12	616.483	226.72	2.90	122.81
TF Creek - 1	Channel	12	616.483	226.62	2.58	124.57
TF Creek - 3	Channel	12	613.483	360.04	3.40	122.60
CH-134	Channel	5	628.483	58.24	1.17	122.53
CH-136	Channel	3	604.483	902.57	4.46	123.62
CH-137	Channel	3	604.483	899.09	12.07	122.64
CH-140	Channel	4	619.483	20.28	1.64	122.73
CS27	Cross Section	18	---	---	---	131.00
CS28	Cross Section	17	---	---	---	124.70
CS29	Cross Section	16	---	---	---	120.50
CS30	Cross Section	15	---	---	---	118.21
CS24	Cross Section	13	---	---	---	118.29
CS18	Cross Section	5	---	---	---	124.36
CS19	Cross Section	5	---	---	---	123.29
CS20	Cross Section	5	---	---	---	122.55
CS9	Cross Section	3	---	---	---	124.64
CS23	Cross Section	11	---	---	---	119.25
CS32	Cross Section	2	---	---	---	127.00
CS33	Cross Section	12	---	---	---	123.74
CS34	Cross Section	12	---	---	---	122.66
CS-116	Cross Section	3	---	---	---	122.74
CS-117	Cross Section	4	---	---	---	123.69
PC4	Pond	10	---	---	---	126.50
PC5	Pond	9	---	---	---	120.69
PA3	Pond	8	---	---	---	118.20
PA7	Pond	7	---	---	---	118.21
PA6	Pond	6	---	---	---	119.00
PA1	Pond	3	---	---	---	122.52
PA8	Pond	2	---	---	---	125.80

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)	Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft³/s)
CB3	Catch Basin	2	604.483	147.39	604.483	147.39	604.483	147.39	0.000	0.00
OF5	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF6	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF7	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF8	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
Site Discharge	Outfall	19	(N/A)	(N/A)	---	---	---	---		
OF12	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF9	Outfall	0	(N/A)	(N/A)	---	---	---	---		
Site Overflow	Outfall	11	(N/A)	(N/A)	---	---	---	---		
OF14	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF1	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF2	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF15	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF-41	Outfall	20	(N/A)	(N/A)	---	---	---	---		
PC4	Pond	10	619.483	8.65	---	---	---	---		
PC5	Pond	9	622.483	4.13	---	---	---	---		
PA3	Pond	8	637.483	4.33	---	---	---	---		
PA7	Pond	7	643.483	131.53	---	---	---	---		
PA6	Pond	6	595.483	30.88	---	---	---	---		
PA1	Pond	3	607.483	1299.63	---	---	---	---		
PA8	Pond	2	601.483	296.86	---	---	---	---		

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
604.483	17.14
0.000	0.00
0.000	0.00

Gutter Calculation Summary

Label	Open Cross Section	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)

Calculation Detailed Summary

<General>	
Label	Base Calculation Options

Options			
Calculation Time Step	1.500 min	Hydrologic Time Step	1.500 min
Output Increment	3.000 min	Total Simulation Time	2880.000 min

Options (Advanced)			
Y Iteration Tolerance	0.03 ft	Relaxation Weighting Coefficient	0.600
LPI Coefficient	1.000	Computation Distance	50.00 ft
NR Weighting Coefficient	0.700		

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
C4	Unit Hydrograph	SCS CN	2.900	9.265	0.25	0.29	648.000
A14	Unit Hydrograph	SCS CN	2.900	35.027	0.14	0.20	1263.000
C5	Unit Hydrograph	SCS CN	2.900	11.439	0.04	0.06	1251.000
A25	Unit Hydrograph	SCS CN	2.900	14.736	0.06	0.08	1266.000
A21	Unit Hydrograph	SCS CN	2.900	6.925	1.14	10.38	597.000
A18	Unit Hydrograph	SCS CN	2.900	7.352	1.72	5.92	633.000
A19	Unit Hydrograph	SCS CN	2.900	25.208	2.34	7.95	630.000
A20	Unit Hydrograph	SCS CN	2.900	5.734	1.28	11.53	594.000
A17	Unit Hydrograph	SCS CN	2.900	9.906	0.32	0.47	642.000
A10	Unit Hydrograph	SCS CN	2.900	17.799	0.68	1.35	630.000
A11	Unit Hydrograph	SCS CN	2.900	61.287	6.39	35.71	609.000
A12	Unit Hydrograph	SCS CN	2.900	51.820	5.90	37.11	606.000
A16	Unit Hydrograph	SCS CN	2.900	13.633	0.05	0.08	1269.000

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
A15	Unit Hydrograph	SCS CN	2.900	8.183	0.03	0.05	1260.000
A22	Unit Hydrograph	SCS CN	2.900	32.572	3.20	10.13	633.000
A13	Unit Hydrograph	SCS CN	2.900	9.041	0.84	2.61	633.000

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CB3	Catch Basin	2	---	---	---	135.61
P24	Conduit	19	1444.483	12.44	8.98	113.79
P22	Conduit	13	1201.483	22.74	6.29	118.35
P23	Conduit	14	847.483	0.58	13.98	115.62
CO-96	Conduit	20	1444.483	10.03	6.38	113.81
CH-61	Channel	18	0.000	0.00	0.00	129.50
CH-62	Channel	17	0.000	0.00	0.00	125.25
CH-63	Channel	17	0.000	0.00	0.00	123.75
CH-66	Channel	16	0.000	0.00	0.00	122.25
CH-67	Channel	16	0.000	0.00	0.00	118.75
CH-68	Channel	15	0.000	0.00	0.00	118.04
CH-69	Channel	15	0.000	0.00	0.00	118.04
CH-73	Channel	13	1201.483	22.74	3.42	116.34
CH-76	Channel	5	598.483	10.18	0.97	123.38
CH-77	Channel	5	604.483	13.10	1.71	121.07
CH-119	Channel	11	0.000	0.00	0.00	119.38
CH-120	Channel	11	0.000	0.00	0.00	119.13
CH-125	Channel	2	607.483	36.73	2.92	131.11
CH-126	Channel	2	607.483	36.55	3.84	124.96

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
TF Creek 2	Channel	12	622.483	51.93	2.00	121.79
TF Creek - 1	Channel	12	622.483	51.93	1.61	123.54
TF Creek - 3	Channel	12	622.483	74.86	2.11	120.15
CH-134	Channel	5	610.483	16.88	1.87	119.17
CH-136	Channel	3	604.483	203.70	2.53	122.47
CH-137	Channel	3	607.483	202.16	6.78	119.23
CH-140	Channel	4	634.483	1.34	0.62	121.66
CS27	Cross Section	18	---	---	---	131.00
CS28	Cross Section	17	---	---	---	124.50
CS29	Cross Section	16	---	---	---	120.50
CS30	Cross Section	15	---	---	---	118.04
CS24	Cross Section	13	---	---	---	117.58
CS18	Cross Section	5	---	---	---	123.82
CS19	Cross Section	5	---	---	---	122.70
CS20	Cross Section	5	---	---	---	119.19
CS9	Cross Section	3	---	---	---	123.49
CS23	Cross Section	11	---	---	---	119.25
CS32	Cross Section	2	---	---	---	126.44
CS33	Cross Section	12	---	---	---	122.79
CS34	Cross Section	12	---	---	---	121.01
CS-116	Cross Section	3	---	---	---	120.64
CS-117	Cross Section	4	---	---	---	123.16
PC4	Pond	10	---	---	---	124.77
PC5	Pond	9	---	---	---	116.16
PA3	Pond	8	---	---	---	115.46
PA7	Pond	7	---	---	---	114.54
PA6	Pond	6	---	---	---	117.65
PA1	Pond	3	---	---	---	119.16
PA8	Pond	2	---	---	---	124.11

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)	Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft³/s)
CB3	Catch Basin	2	604.483	36.57	604.483	36.57	604.483	36.57	0.000	0.00
OF5	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF6	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF7	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF8	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
Site Discharge	Outfall	19	(N/A)	(N/A)	---	---	---	---		
OF12	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF9	Outfall	0	(N/A)	(N/A)	---	---	---	---		
Site Overflow	Outfall	11	(N/A)	(N/A)	---	---	---	---		
OF14	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF1	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF2	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF15	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF-41	Outfall	20	(N/A)	(N/A)	---	---	---	---		
PC4	Pond	10	649.483	0.29	---	---	---	---		
PC5	Pond	9	1249.483	0.06	---	---	---	---		
PA3	Pond	8	1264.483	0.08	---	---	---	---		
PA7	Pond	7	1171.483	24.84	---	---	---	---		
PA6	Pond	6	595.483	10.30	---	---	---	---		
PA1	Pond	3	610.483	280.80	---	---	---	---		
PA8	Pond	2	604.483	104.60	---	---	---	---		

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00

Gutter Calculation Summary

Label	Open Cross Section	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)

Calculation Detailed Summary

<General>	
Label	Base Calculation Options

Options			
Calculation Time Step	1.500 min	Hydrologic Time Step	1.500 min
Output Increment	3.000 min	Total Simulation Time	2880.000 min

Options (Advanced)			
Y Iteration Tolerance	0.03 ft	Relaxation Weighting Coefficient	0.600
LPI Coefficient	1.000	Computation Distance	50.00 ft
NR Weighting Coefficient	0.700		

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
C4	Unit Hydrograph	SCS CN	4.700	9.265	0.91	2.90	621.000
A14	Unit Hydrograph	SCS CN	4.700	35.027	1.40	1.50	735.000
C5	Unit Hydrograph	SCS CN	4.700	11.439	0.46	0.49	720.000
A25	Unit Hydrograph	SCS CN	4.700	14.736	0.59	0.63	738.000
A21	Unit Hydrograph	SCS CN	4.700	6.925	2.13	19.21	597.000
A18	Unit Hydrograph	SCS CN	4.700	7.352	2.88	9.73	633.000
A19	Unit Hydrograph	SCS CN	4.700	25.208	5.35	20.21	627.000
A20	Unit Hydrograph	SCS CN	4.700	5.734	2.13	18.93	594.000
A17	Unit Hydrograph	SCS CN	4.700	9.906	1.09	3.37	627.000
A10	Unit Hydrograph	SCS CN	4.700	17.799	2.16	7.94	621.000
A11	Unit Hydrograph	SCS CN	4.700	61.287	14.00	84.11	609.000
A12	Unit Hydrograph	SCS CN	4.700	51.820	12.54	83.11	606.000
A16	Unit Hydrograph	SCS CN	4.700	13.633	0.55	0.58	741.000

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
A15	Unit Hydrograph	SCS CN	4.700	8.183	0.33	0.35	732.000
A22	Unit Hydrograph	SCS CN	4.700	32.572	7.16	25.05	633.000
A13	Unit Hydrograph	SCS CN	4.700	9.041	1.92	6.68	633.000

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CB3	Catch Basin	2	---	---	---	135.98
P24	Conduit	19	1453.483	43.56	12.42	114.53
P22	Conduit	13	898.483	68.42	10.87	118.80
P23	Conduit	14	826.483	1.10	7.95	116.30
CO-96	Conduit	20	1453.483	14.75	9.39	114.17
CH-61	Channel	18	0.000	0.00	0.00	129.50
CH-62	Channel	17	1117.483	0.55	0.89	125.35
CH-63	Channel	17	1117.483	0.55	0.89	123.85
CH-66	Channel	16	0.000	0.00	0.00	122.25
CH-67	Channel	16	0.000	0.00	0.00	118.75
CH-68	Channel	15	0.000	0.00	0.00	118.04
CH-69	Channel	15	0.000	0.00	0.00	118.04
CH-73	Channel	13	898.483	68.42	5.86	116.40
CH-76	Channel	5	598.483	16.79	1.16	123.63
CH-77	Channel	5	604.483	26.01	2.18	121.35
CH-119	Channel	11	0.000	0.00	0.00	119.38
CH-120	Channel	11	0.000	0.00	0.00	119.13
CH-125	Channel	2	607.483	82.27	3.99	131.48
CH-126	Channel	2	607.483	82.43	5.53	125.22

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
TF Creek 2	Channel	12	619.483	140.16	2.63	122.37
TF Creek - 1	Channel	12	616.483	140.72	2.23	124.15
TF Creek - 3	Channel	12	613.483	208.27	2.89	120.86
CH-134	Channel	5	628.483	33.63	1.94	120.65
CH-136	Channel	3	604.483	480.55	3.54	123.17
CH-137	Channel	3	607.483	477.13	9.49	120.76
CH-140	Channel	4	622.483	7.92	1.21	121.91
CS27	Cross Section	18	---	---	---	131.00
CS28	Cross Section	17	---	---	---	124.60
CS29	Cross Section	16	---	---	---	120.50
CS30	Cross Section	15	---	---	---	118.04
CS24	Cross Section	13	---	---	---	117.64
CS18	Cross Section	5	---	---	---	124.08
CS19	Cross Section	5	---	---	---	122.97
CS20	Cross Section	5	---	---	---	120.66
CS9	Cross Section	3	---	---	---	124.20
CS23	Cross Section	11	---	---	---	119.25
CS32	Cross Section	2	---	---	---	126.71
CS33	Cross Section	12	---	---	---	123.35
CS34	Cross Section	12	---	---	---	121.72
CS-116	Cross Section	3	---	---	---	121.00
CS-117	Cross Section	4	---	---	---	123.41
PC4	Pond	10	---	---	---	126.13
PC5	Pond	9	---	---	---	118.31
PA3	Pond	8	---	---	---	117.22
PA7	Pond	7	---	---	---	116.26
PA6	Pond	6	---	---	---	118.61
PA1	Pond	3	---	---	---	120.64
PA8	Pond	2	---	---	---	125.05

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)	Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft³/s)
CB3	Catch Basin	2	604.483	82.49	604.483	82.49	604.483	82.49	0.000	0.00
OF5	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF6	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF7	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF8	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
Site Discharge	Outfall	19	(N/A)	(N/A)	---	---	---	---		
OF12	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF9	Outfall	0	(N/A)	(N/A)	---	---	---	---		
Site Overflow	Outfall	11	(N/A)	(N/A)	---	---	---	---		
OF14	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF1	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF2	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF15	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF-41	Outfall	20	(N/A)	(N/A)	---	---	---	---		
PC4	Pond	10	622.483	2.88	---	---	---	---		
PC5	Pond	9	1096.483	0.94	---	---	---	---		
PA3	Pond	8	739.483	0.63	---	---	---	---		
PA7	Pond	7	850.483	74.03	---	---	---	---		
PA6	Pond	6	595.483	19.16	---	---	---	---		
PA1	Pond	3	607.483	692.30	---	---	---	---		
PA8	Pond	2	604.483	195.93	---	---	---	---		

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00

Gutter Calculation Summary

Label	Open Cross Section	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)

Calculation Detailed Summary

<General>	
Label	Base Calculation Options

Options			
Calculation Time Step	1.500 min	Hydrologic Time Step	1.500 min
Output Increment	3.000 min	Total Simulation Time	2880.000 min

Options (Advanced)			
Y Iteration Tolerance	0.03 ft	Relaxation Weighting Coefficient	0.600
LPI Coefficient	1.000	Computation Distance	50.00 ft
NR Weighting Coefficient	0.700		

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
C4	Unit Hydrograph	SCS CN	5.700	9.265	1.38	5.11	621.000
A14	Unit Hydrograph	SCS CN	5.700	35.027	2.54	4.14	642.000
C5	Unit Hydrograph	SCS CN	5.700	11.439	0.83	1.53	630.000
A25	Unit Hydrograph	SCS CN	5.700	14.736	1.07	1.70	648.000
A21	Unit Hydrograph	SCS CN	5.700	6.925	2.69	24.08	597.000
A18	Unit Hydrograph	SCS CN	5.700	7.352	3.52	11.84	633.000
A19	Unit Hydrograph	SCS CN	5.700	25.208	7.17	27.69	627.000
A20	Unit Hydrograph	SCS CN	5.700	5.734	2.61	23.03	594.000
A17	Unit Hydrograph	SCS CN	5.700	9.906	1.63	5.63	627.000
A10	Unit Hydrograph	SCS CN	5.700	17.799	3.17	12.80	618.000
A11	Unit Hydrograph	SCS CN	5.700	61.287	18.56	112.78	609.000
A12	Unit Hydrograph	SCS CN	5.700	51.820	16.47	109.93	606.000
A16	Unit Hydrograph	SCS CN	5.700	13.633	0.99	1.53	651.000

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
A15	Unit Hydrograph	SCS CN	5.700	8.183	0.59	0.99	642.000
A22	Unit Hydrograph	SCS CN	5.700	32.572	9.55	34.04	633.000
A13	Unit Hydrograph	SCS CN	5.700	9.041	2.57	9.16	633.000

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CB3	Catch Basin	2	---	---	---	136.16
P24	Conduit	19	1555.483	58.88	13.37	114.83
P22	Conduit	13	919.483	88.55	12.21	118.96
P23	Conduit	14	709.483	1.25	16.81	117.17
CO-96	Conduit	20	1555.483	16.64	10.59	114.35
CH-61	Channel	18	0.000	0.00	0.00	129.50
CH-62	Channel	17	847.483	1.03	1.22	125.39
CH-63	Channel	17	847.483	1.03	1.22	123.89
CH-66	Channel	16	0.000	0.00	0.00	122.25
CH-67	Channel	16	0.000	0.00	0.00	118.75
CH-68	Channel	15	0.000	0.00	0.00	118.04
CH-69	Channel	15	0.000	0.00	0.00	118.04
CH-73	Channel	13	919.483	88.55	6.71	117.17
CH-76	Channel	5	598.483	20.42	1.24	123.76
CH-77	Channel	5	604.483	33.53	2.38	121.53
CH-119	Channel	11	0.000	0.00	0.00	119.38
CH-120	Channel	11	0.000	0.00	0.00	119.13
CH-125	Channel	2	607.483	108.77	4.43	131.66
CH-126	Channel	2	607.483	109.11	6.20	125.45

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
TF Creek 2	Channel	12	616.483	177.40	2.77	122.57
TF Creek - 1	Channel	12	616.483	178.02	2.40	124.35
TF Creek - 3	Channel	12	613.483	272.45	3.13	121.56
CH-134	Channel	5	628.483	43.76	1.38	121.49
CH-136	Channel	3	604.483	664.98	3.97	123.41
CH-137	Channel	3	607.483	660.04	10.74	121.60
CH-140	Channel	4	622.483	12.72	1.41	122.04
CS27	Cross Section	18	---	---	---	131.00
CS28	Cross Section	17	---	---	---	124.64
CS29	Cross Section	16	---	---	---	120.50
CS30	Cross Section	15	---	---	---	118.04
CS24	Cross Section	13	---	---	---	117.66
CS18	Cross Section	5	---	---	---	124.20
CS19	Cross Section	5	---	---	---	123.11
CS20	Cross Section	5	---	---	---	121.50
CS9	Cross Section	3	---	---	---	124.43
CS23	Cross Section	11	---	---	---	119.25
CS32	Cross Section	2	---	---	---	126.84
CS33	Cross Section	12	---	---	---	123.53
CS34	Cross Section	12	---	---	---	121.98
CS-116	Cross Section	3	---	---	---	121.70
CS-117	Cross Section	4	---	---	---	123.54
PC4	Pond	10	---	---	---	126.24
PC5	Pond	9	---	---	---	119.50
PA3	Pond	8	---	---	---	117.59
PA7	Pond	7	---	---	---	117.13
PA6	Pond	6	---	---	---	119.00
PA1	Pond	3	---	---	---	121.48
PA8	Pond	2	---	---	---	125.39

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)	Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft³/s)
CB3	Catch Basin	2	604.483	109.33	604.483	109.33	604.483	109.33	0.000	0.00
OF5	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF6	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF7	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF8	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
Site Discharge	Outfall	19	(N/A)	(N/A)	---	---	---	---		
OF12	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF9	Outfall	0	(N/A)	(N/A)	---	---	---	---		
Site Overflow	Outfall	11	(N/A)	(N/A)	---	---	---	---		
OF14	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF1	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF2	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF15	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF-41	Outfall	20	(N/A)	(N/A)	---	---	---	---		
PC4	Pond	10	619.483	5.09	---	---	---	---		
PC5	Pond	9	823.483	1.80	---	---	---	---		
PA3	Pond	8	646.483	1.69	---	---	---	---		
PA7	Pond	7	652.483	99.30	---	---	---	---		
PA6	Pond	6	595.483	24.07	---	---	---	---		
PA1	Pond	3	607.483	951.89	---	---	---	---		
PA8	Pond	2	601.483	240.55	---	---	---	---		

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00

Gutter Calculation Summary

Label	Open Cross Section	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)

Calculation Detailed Summary

<General>	
Label	Base Calculation Options

Options			
Calculation Time Step	1.500 min	Hydrologic Time Step	1.500 min
Output Increment	3.000 min	Total Simulation Time	2880.000 min

Options (Advanced)			
Y Iteration Tolerance	0.03 ft	Relaxation Weighting Coefficient	0.600
LPI Coefficient	1.000	Computation Distance	50.00 ft
NR Weighting Coefficient	0.700		

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
C4	Unit Hydrograph	SCS CN	6.400	9.265	1.74	6.82	621.000
A14	Unit Hydrograph	SCS CN	6.400	35.027	3.47	7.13	636.000
C5	Unit Hydrograph	SCS CN	6.400	11.439	1.13	2.69	627.000
A25	Unit Hydrograph	SCS CN	6.400	14.736	1.46	2.88	642.000
A21	Unit Hydrograph	SCS CN	6.400	6.925	3.09	27.48	594.000
A18	Unit Hydrograph	SCS CN	6.400	7.352	3.97	13.32	633.000
A19	Unit Hydrograph	SCS CN	6.400	25.208	8.48	33.06	627.000
A20	Unit Hydrograph	SCS CN	6.400	5.734	2.94	25.89	594.000
A17	Unit Hydrograph	SCS CN	6.400	9.906	2.03	7.36	624.000
A10	Unit Hydrograph	SCS CN	6.400	17.799	3.92	16.50	618.000
A11	Unit Hydrograph	SCS CN	6.400	61.287	21.82	133.21	606.000
A12	Unit Hydrograph	SCS CN	6.400	51.820	19.27	128.90	606.000
A16	Unit Hydrograph	SCS CN	6.400	13.633	1.35	2.60	642.000

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
A15	Unit Hydrograph	SCS CN	6.400	8.183	0.81	1.71	636.000
A22	Unit Hydrograph	SCS CN	6.400	32.572	11.27	40.47	633.000
A13	Unit Hydrograph	SCS CN	6.400	9.041	3.04	10.93	633.000

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CB3	Catch Basin	2	---	---	---	136.28
P24	Conduit	19	1642.483	65.01	13.68	114.95
P22	Conduit	13	958.483	100.23	12.90	119.04
P23	Conduit	14	625.483	1.25	16.81	117.74
CO-96	Conduit	20	1642.483	17.73	11.29	114.46
CH-61	Channel	18	0.000	0.00	0.00	129.50
CH-62	Channel	17	790.483	1.54	1.43	125.42
CH-63	Channel	17	790.483	1.54	1.48	123.92
CH-66	Channel	16	0.000	0.00	0.00	122.25
CH-67	Channel	16	0.000	0.00	0.00	118.75
CH-68	Channel	15	0.000	0.00	0.00	118.04
CH-69	Channel	15	0.000	0.00	0.00	118.04
CH-73	Channel	13	961.483	100.23	3.76	117.74
CH-76	Channel	5	598.483	22.96	1.30	123.83
CH-77	Channel	5	604.483	38.87	2.50	122.08
CH-119	Channel	11	0.000	0.00	0.00	119.38
CH-120	Channel	11	0.000	0.00	0.00	119.13
CH-125	Channel	2	607.483	127.49	4.69	131.78
CH-126	Channel	2	607.483	127.96	5.79	125.65

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
TF Creek 2	Channel	12	616.483	202.25	2.84	122.70
TF Creek - 1	Channel	12	616.483	202.52	2.49	124.46
TF Creek - 3	Channel	12	613.483	316.48	3.27	122.10
CH-134	Channel	5	628.483	50.97	1.24	122.03
CH-136	Channel	3	604.483	787.21	4.23	123.53
CH-137	Channel	3	604.483	781.72	11.46	122.14
CH-140	Channel	4	619.483	16.40	1.53	122.23
CS27	Cross Section	18	---	---	---	131.00
CS28	Cross Section	17	---	---	---	124.67
CS29	Cross Section	16	---	---	---	120.50
CS30	Cross Section	15	---	---	---	118.04
CS24	Cross Section	13	---	---	---	117.78
CS18	Cross Section	5	---	---	---	124.29
CS19	Cross Section	5	---	---	---	123.20
CS20	Cross Section	5	---	---	---	122.04
CS9	Cross Section	3	---	---	---	124.54
CS23	Cross Section	11	---	---	---	119.25
CS32	Cross Section	2	---	---	---	126.92
CS33	Cross Section	12	---	---	---	123.64
CS34	Cross Section	12	---	---	---	122.16
CS-116	Cross Section	3	---	---	---	122.24
CS-117	Cross Section	4	---	---	---	123.62
PC4	Pond	10	---	---	---	126.36
PC5	Pond	9	---	---	---	120.13
PA3	Pond	8	---	---	---	117.80
PA7	Pond	7	---	---	---	117.70
PA6	Pond	6	---	---	---	119.00
PA1	Pond	3	---	---	---	122.02
PA8	Pond	2	---	---	---	125.59

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)	Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft³/s)
CB3	Catch Basin	2	604.483	128.32	604.483	128.32	604.483	128.32	0.000	0.00
OF5	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF6	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF7	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
OF8	Outfall	0	(N/A)	(N/A)	---	---	---	---	(N/A)	(N/A)
Site Discharge	Outfall	19	(N/A)	(N/A)	---	---	---	---		
OF12	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF9	Outfall	0	(N/A)	(N/A)	---	---	---	---		
Site Overflow	Outfall	11	(N/A)	(N/A)	---	---	---	---		
OF14	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF1	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF2	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF15	Outfall	0	(N/A)	(N/A)	---	---	---	---		
OF-41	Outfall	20	(N/A)	(N/A)	---	---	---	---		
PC4	Pond	10	619.483	6.81	---	---	---	---		
PC5	Pond	9	763.483	2.70	---	---	---	---		
PA3	Pond	8	640.483	2.88	---	---	---	---		
PA7	Pond	7	643.483	116.82	---	---	---	---		
PA6	Pond	6	595.483	27.48	---	---	---	---		
PA1	Pond	3	607.483	1126.35	---	---	---	---		
PA8	Pond	2	604.483	267.30	---	---	---	---		

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
622.483	4.23
0.000	0.00
0.000	0.00

Gutter Calculation Summary

Label	Open Cross Section	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)

Calculation Detailed Summary

<General>	
Label	Base Calculation Options

Options			
Calculation Time Step	1.500 min	Hydrologic Time Step	1.500 min
Output Increment	3.000 min	Total Simulation Time	2880.000 min

Options (Advanced)			
Y Iteration Tolerance	0.03 ft	Relaxation Weighting Coefficient	0.600
LPI Coefficient	1.000	Computation Distance	50.00 ft
NR Weighting Coefficient	0.700		

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
C4	Unit Hydrograph	SCS CN	7.100	9.265	2.12	8.65	618.000
A14	Unit Hydrograph	SCS CN	7.100	35.027	4.51	10.80	636.000
C5	Unit Hydrograph	SCS CN	7.100	11.439	1.47	4.13	624.000
A25	Unit Hydrograph	SCS CN	7.100	14.736	1.90	4.35	639.000
A21	Unit Hydrograph	SCS CN	7.100	6.925	3.48	30.90	594.000
A18	Unit Hydrograph	SCS CN	7.100	7.352	3.89	13.75	633.000
A19	Unit Hydrograph	SCS CN	7.100	25.208	9.82	38.50	627.000
A20	Unit Hydrograph	SCS CN	7.100	5.734	3.28	28.75	594.000
A17	Unit Hydrograph	SCS CN	7.100	9.906	2.46	9.21	624.000
A10	Unit Hydrograph	SCS CN	7.100	17.799	4.72	20.40	618.000
A11	Unit Hydrograph	SCS CN	7.100	61.287	25.14	154.00	606.000
A12	Unit Hydrograph	SCS CN	7.100	57.306	25.87	172.60	606.000
A13	Unit Hydrograph	SCS CN	7.100	49.056	21.82	83.96	630.000

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
A16	Unit Hydrograph	SCS CN	7.100	13.633	1.75	3.92	642.000
A15	Unit Hydrograph	SCS CN	7.100	8.183	1.05	2.58	636.000
A22	Unit Hydrograph	SCS CN	7.100	32.572	13.01	46.97	633.000
D1	Unit Hydrograph	SCS CN	7.100	7.765	3.31	13.99	621.000
C3-2	Unit Hydrograph	SCS CN	7.100	15.890	6.19	48.39	600.000
E1	Unit Hydrograph	SCS CN	7.100	10.000	5.03	43.10	597.000

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CB3	Catch Basin	2	---	---	---	136.53
P24	Conduit	19	1702.467	69.35	13.81	115.04
P22	Conduit	13	1012.483	107.43	13.23	119.10
P23	Conduit	14	607.483	1.25	16.81	118.16
CO-96	Conduit	20	1702.467	18.52	11.79	114.55
CH-60	Channel	18	0.000	0.00	0.00	136.56
CH-61	Channel	18	0.000	0.00	0.00	129.50
CH-62	Channel	17	739.483	2.15	1.64	125.46
CH-63	Channel	17	739.483	2.15	1.70	123.95
CH-66	Channel	16	0.000	0.00	0.00	122.25
CH-67	Channel	16	0.000	0.00	0.00	118.75
CH-68	Channel	15	1939.467	1.29	0.32	118.12
CH-69	Channel	15	1939.467	0.85	0.23	118.12
CH-73	Channel	13	1012.483	107.43	1.73	118.16
CH-76	Channel	5	595.483	25.56	1.41	123.91
CH-77	Channel	5	604.483	44.24	2.61	122.48

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CH-119	Channel	11	0.000	0.00	0.00	119.38
CH-120	Channel	11	0.000	0.00	0.00	119.13
CH-125	Channel	2	604.483	170.67	5.22	132.02
CH-126	Channel	2	607.483	171.38	7.38	125.60
TF Creek 2	Channel	12	625.483	174.40	2.76	122.62
TF Creek - 1	Channel	12	622.483	174.73	2.38	124.33
TF Creek - 3	Channel	12	613.483	286.99	3.18	122.50
CH-134	Channel	5	628.483	57.17	1.27	122.44
CH-136	Channel	3	604.483	902.53	4.44	123.63
CH-137	Channel	3	607.483	896.08	5.64	122.54
CH-140	Channel	4	619.483	20.35	1.30	122.63
CS27	Cross Section	18	---	---	---	131.00
CS28	Cross Section	17	---	---	---	124.70
CS29	Cross Section	16	---	---	---	120.50
CS30	Cross Section	15	---	---	---	118.12
CS24	Cross Section	13	---	---	---	118.20
CS18	Cross Section	5	---	---	---	124.36
CS19	Cross Section	5	---	---	---	123.29
CS20	Cross Section	5	---	---	---	122.45
CS9	Cross Section	3	---	---	---	124.64
CS23	Cross Section	11	---	---	---	119.25
CS32	Cross Section	2	---	---	---	127.10
CS33	Cross Section	12	---	---	---	123.52
CS34	Cross Section	12	---	---	---	122.56
CS-116	Cross Section	3	---	---	---	122.64
CS-117	Cross Section	4	---	---	---	123.69
PC4	Pond	10	---	---	---	126.50
PC5	Pond	9	---	---	---	120.69
PA3	Pond	8	---	---	---	118.11
PA7	Pond	7	---	---	---	118.12

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
PA6	Pond	6	---	---	---	119.00
PA1	Pond	3	---	---	---	122.42
PA8	Pond	2	---	---	---	125.36
PC1	Pond	1	---	---	---	140.61

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)
CB3	Catch Basin	2	604.483	172.19	604.483	172.19	604.483	172.19
OF5	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF6	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF7	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF8	Outfall	0	(N/A)	(N/A)	---	---	---	---
Site Discharge	Outfall	19	(N/A)	(N/A)	---	---	---	---
OF12	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF9	Outfall	0	(N/A)	(N/A)	---	---	---	---
Site Overflow	Outfall	11	(N/A)	(N/A)	---	---	---	---
OF14	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF17	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF1	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF2	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF15	Outfall	0	(N/A)	(N/A)	---	---	---	---
Site Discharge 2	Outfall	20	(N/A)	(N/A)	---	---	---	---
OF16	Outfall	0	(N/A)	(N/A)	---	---	---	---
PC4	Pond	10	619.483	8.65	---	---	---	---
PC5	Pond	9	622.483	4.13	---	---	---	---

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)	Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft³/s)
PA3	Pond	8	637.483	4.33	---	---	---	---	0.000	0.00
PA7	Pond	7	643.483	126.79	---	---	---	---	(N/A)	(N/A)
PA6	Pond	6	595.483	30.88	---	---	---	---	(N/A)	(N/A)
PA1	Pond	3	607.483	1222.28	---	---	---	---	(N/A)	(N/A)
PA8	Pond	2	607.483	229.65	---	---	---	---	(N/A)	(N/A)
PC1	Pond	1	601.483	47.73	---	---	---	---	(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									(N/A)	(N/A)
									0.000	0.00
									0.000	0.00
									0.000	0.00

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
0.000	0.00
604.483	17.14
0.000	0.00
0.000	0.00
0.000	0.00

Gutter Calculation Summary

Label	Open Cross Section	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)

Calculation Detailed Summary

<General>	
Label	Base Calculation Options

Options			
Calculation Time Step	1.500 min	Hydrologic Time Step	1.500 min
Output Increment	3.000 min	Total Simulation Time	2880.000 min

Options (Advanced)			
Y Iteration Tolerance	0.03 ft	Relaxation Weighting Coefficient	0.600
LPI Coefficient	1.000	Computation Distance	50.00 ft
NR Weighting Coefficient	0.700		

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
A13a	Unit Hydrograph	SCS CN	2.896	4.319	0.82	6.86	597.000
A13f	Unit Hydrograph	SCS CN	2.896	0.427	0.09	0.92	594.000
A13b	Unit Hydrograph	SCS CN	2.896	2.415	0.46	4.09	597.000
A13c	Unit Hydrograph	SCS CN	2.896	4.307	0.82	7.29	597.000
A13d	Unit Hydrograph	SCS CN	2.896	0.928	0.18	1.74	594.000
A13t	Unit Hydrograph	SCS CN	2.896	3.694	0.24	2.49	594.000
A13u	Unit Hydrograph	SCS CN	2.896	1.159	0.26	2.50	594.000
A13x	Unit Hydrograph	SCS CN	2.896	0.641	0.14	1.38	594.000
A13h	Unit Hydrograph	SCS CN	2.896	2.400	0.47	4.56	594.000
A13g	Unit Hydrograph	SCS CN	2.896	0.472	0.10	1.02	594.000
A13e	Unit Hydrograph	SCS CN	2.896	0.704	0.16	1.52	594.000
A13i	Unit Hydrograph	SCS CN	2.896	6.541	1.25	11.18	597.000
A13p	Unit Hydrograph	SCS CN	2.896	5.957	1.14	9.03	600.000

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
A13o	Unit Hydrograph	SCS CN	2.896	7.694	1.47	11.42	600.000
A13n	Unit Hydrograph	SCS CN	2.896	3.764	0.72	5.91	600.000
A13m	Unit Hydrograph	SCS CN	2.896	2.310	0.44	3.90	597.000
A13l	Unit Hydrograph	SCS CN	2.896	0.974	0.19	1.72	594.000
A13k	Unit Hydrograph	SCS CN	2.896	0.398	0.09	0.86	594.000
A13j	Unit Hydrograph	SCS CN	2.896	0.371	0.08	0.80	594.000
A13v	Unit Hydrograph	SCS CN	2.896	0.583	0.13	1.26	594.000
A13y	Unit Hydrograph	SCS CN	2.896	0.543	0.12	1.17	594.000
A13w	Unit Hydrograph	SCS CN	2.896	0.499	0.11	1.08	594.000
A13z	Unit Hydrograph	SCS CN	2.896	3.306	0.32	2.87	594.000
A13aa'	Unit Hydrograph	SCS CN	2.896	0.815	0.08	0.62	597.000
A13q	Unit Hydrograph	SCS CN	2.896	0.136	0.03	0.29	594.000
A13r	Unit Hydrograph	SCS CN	2.896	0.332	0.07	0.72	594.000
A13s	Unit Hydrograph	SCS CN	2.896	0.399	0.09	0.86	594.000
C3-2a	Unit Hydrograph	SCS CN	2.896	2.204	0.42	3.52	597.000
C3-2b	Unit Hydrograph	SCS CN	2.896	6.260	1.19	9.89	597.000
C3-2c	Unit Hydrograph	SCS CN	2.896	0.765	0.07	0.62	597.000
C3-2d	Unit Hydrograph	SCS CN	2.896	8.200	0.37	1.94	600.000
E1	Unit Hydrograph	SCS CN	2.896	2.000	0.39	3.50	597.000

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
MH-1	Manhole	1	---	---	---	134.91
MH-2	Manhole	1	---	---	---	135.02
MH-3	Manhole	1	---	---	---	136.32

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
MH-4	Manhole	1	---	---	---	137.36
MH-5	Manhole	1	---	---	---	138.23
MH-6	Manhole	1	---	---	---	138.95
MH-7	Manhole	1	---	---	---	139.46
MH-8	Manhole	1	---	---	---	140.02
MH-9	Manhole	1	---	---	---	140.47
MH-10	Manhole	1	---	---	---	146.75
MH-11	Manhole	13	---	---	---	149.66
MH-12	Manhole	12	---	---	---	148.26
MH-13	Manhole	12	---	---	---	146.55
MH-14	Manhole	12	---	---	---	142.94
MH-16	Manhole	10	---	---	---	140.58
CB-1	Catch Basin	12	---	---	---	148.51
CB-2	Catch Basin	14	---	---	---	149.94
CB-3	Catch Basin	1	---	---	---	147.41
CB-4	Catch Basin	2	---	---	---	146.76
CB-5	Catch Basin	13	---	---	---	149.67
CB-6	Catch Basin	3	---	---	---	141.33
CB-7	Catch Basin	15	---	---	---	146.56
CB-8	Catch Basin	16	---	---	---	146.56
CB-9	Catch Basin	17	---	---	---	143.47
CB-10	Catch Basin	18	---	---	---	143.32
CB-11	Catch Basin	11	---	---	---	140.79
CB-12	Catch Basin	10	---	---	---	146.29
CB-13	Catch Basin	9	---	---	---	134.91
CB-14	Catch Basin	8	---	---	---	137.88
CB-15	Catch Basin	6	---	---	---	137.37
CB-16	Catch Basin	5	---	---	---	137.49
CB-17	Catch Basin	4	---	---	---	146.04
CB-18	Catch Basin	4	---	---	---	147.08

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CB-19	Catch Basin	7	---	---	---	135.47
CB-20	Catch Basin	12	---	---	---	144.83
CB-21	Catch Basin	1	---	---	---	140.06
CB-22	Catch Basin	8	---	---	---	137.96
CO-1	Conduit	12	598.483	6.83	5.26	148.28
CO-5	Conduit	12	601.483	12.83	5.20	145.86
CO-6	Conduit	12	601.483	13.24	6.63	144.26
CO-7	Conduit	12	601.483	14.92	33.34	136.59
CO-8	Conduit	18	592.483	0.29	1.11	143.32
CO-9	Conduit	17	595.483	1.71	5.03	143.17
CO-10	Conduit	15	592.483	1.51	4.34	146.55
CO-11	Conduit	16	592.483	0.85	2.45	146.55
CO-12	Conduit	12	601.483	11.21	5.58	147.36
CO-13	Conduit	13	598.483	4.56	4.22	148.88
CO-14	Conduit	14	598.483	4.00	4.32	149.75
CO-15	Conduit	13	592.483	0.91	1.64	149.67
CO-16	Conduit	2	592.483	1.01	3.55	146.76
CO-17	Conduit	1	598.483	7.14	5.24	147.23
CO-18	Conduit	1	598.483	7.96	7.57	143.49
CO-19	Conduit	1	598.483	9.55	5.79	140.12
CO-20	Conduit	1	598.483	10.50	4.05	140.04
CO-21	Conduit	1	595.483	14.37	5.10	139.64
CO-22	Conduit	1	595.483	14.03	5.07	139.13
CO-23	Conduit	1	598.483	13.79	4.96	138.63
CO-24	Conduit	1	598.483	13.82	5.78	137.73
CO-25	Conduit	1	598.483	15.65	5.94	136.82
CO-26	Conduit	1	598.483	15.68	5.99	135.82
CO-27	Conduit	1	598.483	16.51	5.79	134.94
CO-28	Conduit	1	601.483	48.81	11.53	134.21
CO-29	Conduit	10	598.483	4.35	7.05	137.68

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CO-30	Conduit	3	595.483	1.68	4.82	140.68
CO-31	Conduit	6	592.483	1.17	3.37	137.36
CO-32	Conduit	5	592.483	1.25	3.59	137.36
CO-33	Conduit	7	592.483	1.07	4.06	135.02
CO-34	Conduit	9	592.483	0.86	0.77	134.91
CO-35	Conduit	8	601.483	22.75	12.87	137.92
CO-36	Conduit	8	601.483	28.47	16.11	136.79
CO-37	Conduit	11	592.483	0.71	4.91	140.59
CO-38	Conduit	10	598.483	3.78	10.83	143.78
CO-39	Conduit	4	592.483	2.05	5.87	146.37
CO-40	Conduit	4	592.483	4.34	12.42	143.33
CO-41	Conduit	22	613.483	4.46	9.24	139.02
CH-1	Channel	1	601.483	49.54	2.71	130.81
CH-2	Channel	12	601.483	15.50	3.95	128.63
CH-6	Channel	1	604.483	49.51	2.74	127.80
CH-7	Channel	8	598.483	3.98	0.87	144.74
CH-8	Channel	8	601.483	12.05	1.58	143.63
CH-9	Channel	8	601.483	22.77	6.67	139.28
CH-14	Channel	21	598.483	9.91	5.47	140.84
CH-15	Channel	20	598.483	3.48	2.77	140.74
CS-1	Cross Section	8	---	---	---	145.52
CS-2	Cross Section	8	---	---	---	144.22
CS-3	Cross Section	8	---	---	---	142.27
CS-4	Cross Section	1	---	---	---	133.33
CS-5	Cross Section	1	---	---	---	128.34
CS-6	Cross Section	12	---	---	---	130.63
CS-8	Cross Section	21	---	---	---	142.33
CS-10	Cross Section	20	---	---	---	142.24
Development Basin 1	Pond	20	---	---	---	139.84

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
PC1	Pond	19	---	---	---	138.88

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)
MH-1	Manhole	1	601.483	48.91	---	---	---	---
MH-2	Manhole	1	598.483	16.44	---	---	---	---
MH-3	Manhole	1	598.483	15.66	---	---	---	---
MH-4	Manhole	1	598.483	15.51	---	---	---	---
MH-5	Manhole	1	598.483	13.80	---	---	---	---
MH-6	Manhole	1	595.483	13.94	---	---	---	---
MH-7	Manhole	1	595.483	14.29	---	---	---	---
MH-8	Manhole	1	598.483	13.58	---	---	---	---
MH-9	Manhole	1	598.483	9.46	---	---	---	---
MH-10	Manhole	1	598.483	7.84	---	---	---	---
MH-11	Manhole	13	598.483	4.62	---	---	---	---
MH-12	Manhole	12	598.483	11.29	---	---	---	---
MH-13	Manhole	12	601.483	12.60	---	---	---	---
MH-14	Manhole	12	601.483	14.71	---	---	---	---
MH-16	Manhole	10	598.483	4.28	---	---	---	---
CB-1	Catch Basin	12	598.483	6.83	598.483	6.83	598.483	6.83
CB-2	Catch Basin	14	598.483	3.92	598.483	3.92	598.483	3.92
CB-3	Catch Basin	1	598.483	6.99	598.483	6.99	598.483	6.99
CB-4	Catch Basin	2	592.483	1.02	592.483	1.02	592.483	1.02
CB-5	Catch Basin	13	592.483	0.92	592.483	0.92	592.483	0.92
CB-6	Catch Basin	3	595.483	1.62	595.483	1.62	595.483	1.62

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)
CB-7	Catch Basin	15	592.483	1.52	592.483	1.52	592.483	1.52
CB-8	Catch Basin	16	592.483	0.86	592.483	0.86	592.483	0.86
CB-9	Catch Basin	17	595.483	1.69	595.483	1.69	595.483	1.69
CB-10	Catch Basin	18	592.483	0.29	592.483	0.29	592.483	0.29
CB-11	Catch Basin	11	592.483	0.72	592.483	0.72	592.483	0.72
CB-12	Catch Basin	10	598.483	3.75	598.483	3.75	598.483	3.75
CB-13	Catch Basin	9	592.483	0.86	592.483	0.86	592.483	0.86
CB-14	Catch Basin	8	601.483	28.35	598.483	5.88	598.483	5.88
CB-15	Catch Basin	6	592.483	1.17	592.483	1.17	592.483	1.17
CB-16	Catch Basin	5	592.483	1.26	592.483	1.26	592.483	1.26
CB-17	Catch Basin	4	592.483	4.55	592.483	2.50	592.483	2.50
CB-18	Catch Basin	4	592.483	2.47	592.483	2.47	592.483	2.47
CB-19	Catch Basin	7	592.483	1.08	592.483	1.08	592.483	1.08
CB-20	Catch Basin	12	601.483	13.16	592.483	0.80	592.483	0.80
CB-21	Catch Basin	1	598.483	10.51	592.483	1.38	592.483	1.38
CB-22	Catch Basin	8	601.483	22.76	0.000	0.00	0.000	0.00
A13	Outfall	1	(N/A)	(N/A)	---	---	---	---
OF-2	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF-3	Outfall	0	(N/A)	(N/A)	---	---	---	---
C3-2	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF-6	Outfall	0	(N/A)	(N/A)	---	---	---	---
Development Basin 1	Pond	20	598.483	13.86	---	---	---	---
PC1	Pond	19	613.483	5.19	---	---	---	---

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft³/s)
0.000	0.00

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
0.000	0.00
0.000	0.00
595.483	1.52
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
0.000	0.00
0.000	0.00

Gutter Calculation Summary

Label	Open Cross Section	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)

Calculation Detailed Summary

<General>	
Label	Base Calculation Options

Options			
Calculation Time Step	1.500 min	Hydrologic Time Step	1.500 min
Output Increment	3.000 min	Total Simulation Time	2880.000 min

Options (Advanced)			
Y Iteration Tolerance	0.03 ft	Relaxation Weighting Coefficient	0.600
LPI Coefficient	1.000	Computation Distance	50.00 ft
NR Weighting Coefficient	0.700		

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
A13a	Unit Hydrograph	SCS CN	4.694	4.319	1.46	11.95	597.000
A13f	Unit Hydrograph	SCS CN	4.694	0.427	0.16	1.51	594.000
A13b	Unit Hydrograph	SCS CN	4.694	2.415	0.82	7.10	597.000
A13c	Unit Hydrograph	SCS CN	4.694	4.307	1.45	12.65	597.000
A13d	Unit Hydrograph	SCS CN	4.694	0.928	0.31	3.03	594.000
A13t	Unit Hydrograph	SCS CN	4.694	3.694	0.43	4.23	594.000
A13u	Unit Hydrograph	SCS CN	4.694	1.159	0.43	4.10	594.000
A13x	Unit Hydrograph	SCS CN	4.694	0.641	0.24	2.27	594.000
A13h	Unit Hydrograph	SCS CN	4.694	2.400	0.82	7.84	594.000
A13g	Unit Hydrograph	SCS CN	4.694	0.472	0.18	1.67	594.000
A13e	Unit Hydrograph	SCS CN	4.694	0.704	0.26	2.49	594.000
A13i	Unit Hydrograph	SCS CN	4.694	6.541	2.21	19.39	597.000
A13p	Unit Hydrograph	SCS CN	4.694	5.957	2.01	15.69	600.000

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
A13o	Unit Hydrograph	SCS CN	4.694	7.694	2.60	19.86	600.000
A13n	Unit Hydrograph	SCS CN	4.694	3.764	1.27	10.23	600.000
A13m	Unit Hydrograph	SCS CN	4.694	2.310	0.78	6.76	597.000
A13l	Unit Hydrograph	SCS CN	4.694	0.974	0.33	3.00	594.000
A13k	Unit Hydrograph	SCS CN	4.694	0.398	0.15	1.41	594.000
A13j	Unit Hydrograph	SCS CN	4.694	0.371	0.14	1.31	594.000
A13v	Unit Hydrograph	SCS CN	4.694	0.583	0.22	2.06	594.000
A13y	Unit Hydrograph	SCS CN	4.694	0.543	0.20	1.92	594.000
A13w	Unit Hydrograph	SCS CN	4.694	0.499	0.19	1.76	594.000
A13z	Unit Hydrograph	SCS CN	4.694	3.306	0.72	7.02	594.000
A13aa'	Unit Hydrograph	SCS CN	4.694	0.815	0.18	1.52	597.000
A13q	Unit Hydrograph	SCS CN	4.694	0.136	0.05	0.48	594.000
A13r	Unit Hydrograph	SCS CN	4.694	0.332	0.12	1.17	594.000
A13s	Unit Hydrograph	SCS CN	4.694	0.399	0.15	1.41	594.000
C3-2a	Unit Hydrograph	SCS CN	4.694	2.204	0.74	6.12	597.000
C3-2b	Unit Hydrograph	SCS CN	4.694	6.260	2.11	17.23	597.000
C3-2c	Unit Hydrograph	SCS CN	4.694	0.765	0.17	1.53	594.000
C3-2d	Unit Hydrograph	SCS CN	4.694	8.200	1.09	8.72	594.000
E1	Unit Hydrograph	SCS CN	4.694	2.000	0.69	6.09	594.000

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
MH-1	Manhole	1	---	---	---	135.39
MH-2	Manhole	1	---	---	---	135.47
MH-3	Manhole	1	---	---	---	136.76

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
MH-4	Manhole	1	---	---	---	137.81
MH-5	Manhole	1	---	---	---	138.63
MH-6	Manhole	1	---	---	---	139.41
MH-7	Manhole	1	---	---	---	139.91
MH-8	Manhole	1	---	---	---	140.46
MH-9	Manhole	1	---	---	---	140.81
MH-10	Manhole	1	---	---	---	147.02
MH-11	Manhole	13	---	---	---	152.23
MH-12	Manhole	12	---	---	---	151.68
MH-13	Manhole	12	---	---	---	149.08
MH-14	Manhole	12	---	---	---	143.13
MH-16	Manhole	10	---	---	---	140.68
CB-1	Catch Basin	12	---	---	---	152.36
CB-2	Catch Basin	14	---	---	---	152.25
CB-3	Catch Basin	1	---	---	---	148.31
CB-4	Catch Basin	2	---	---	---	147.04
CB-5	Catch Basin	13	---	---	---	152.23
CB-6	Catch Basin	3	---	---	---	144.45
CB-7	Catch Basin	15	---	---	---	149.09
CB-8	Catch Basin	16	---	---	---	149.08
CB-9	Catch Basin	17	---	---	---	143.60
CB-10	Catch Basin	18	---	---	---	143.73
CB-11	Catch Basin	11	---	---	---	140.88
CB-12	Catch Basin	10	---	---	---	147.26
CB-13	Catch Basin	9	---	---	---	135.39
CB-14	Catch Basin	8	---	---	---	144.21
CB-15	Catch Basin	6	---	---	---	137.81
CB-16	Catch Basin	5	---	---	---	138.53
CB-17	Catch Basin	4	---	---	---	147.02
CB-18	Catch Basin	4	---	---	---	147.20

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CB-19	Catch Basin	7	---	---	---	136.52
CB-20	Catch Basin	12	---	---	---	145.80
CB-21	Catch Basin	1	---	---	---	140.53
CB-22	Catch Basin	8	---	---	---	144.29
CO-1	Conduit	12	598.483	11.85	6.71	151.91
CO-5	Conduit	12	598.483	22.26	7.09	147.49
CO-6	Conduit	12	598.483	23.11	7.41	145.02
CO-7	Conduit	12	598.483	26.23	33.49	136.75
CO-8	Conduit	18	592.483	0.48	0.78	143.73
CO-9	Conduit	17	595.483	2.96	5.78	143.30
CO-10	Conduit	15	592.483	2.48	7.10	149.08
CO-11	Conduit	16	592.483	1.40	4.00	149.08
CO-12	Conduit	12	598.483	19.50	6.21	150.39
CO-13	Conduit	13	598.483	7.72	4.37	151.71
CO-14	Conduit	14	598.483	6.97	3.94	152.24
CO-15	Conduit	13	592.483	1.49	1.43	152.23
CO-16	Conduit	2	592.483	1.66	4.75	147.02
CO-17	Conduit	1	598.483	12.37	7.00	147.91
CO-18	Conduit	1	598.483	13.74	8.77	143.75
CO-19	Conduit	1	598.483	16.51	6.03	140.56
CO-20	Conduit	1	598.483	18.08	4.79	140.49
CO-21	Conduit	1	598.483	21.80	5.81	140.04
CO-22	Conduit	1	598.483	21.83	5.82	139.54
CO-23	Conduit	1	598.483	21.80	5.84	139.03
CO-24	Conduit	1	598.483	21.71	6.55	138.10
CO-25	Conduit	1	598.483	24.55	6.74	137.24
CO-26	Conduit	1	598.483	24.51	6.79	136.22
CO-27	Conduit	1	598.483	25.78	5.85	135.43
CO-28	Conduit	1	601.483	76.57	13.49	134.62
CO-29	Conduit	10	592.483	5.61	7.58	137.76

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CO-30	Conduit	3	595.483	2.88	8.25	142.40
CO-31	Conduit	6	592.483	1.92	5.50	137.81
CO-32	Conduit	5	592.483	2.04	5.85	137.81
CO-33	Conduit	7	592.483	1.75	5.01	135.58
CO-34	Conduit	9	592.483	1.41	0.84	135.39
CO-35	Conduit	8	601.483	39.60	22.41	144.25
CO-36	Conduit	8	601.483	45.43	25.71	140.36
CO-37	Conduit	11	592.483	1.17	4.85	140.68
CO-38	Conduit	10	592.483	4.74	13.59	144.40
CO-39	Conduit	4	586.483	1.99	5.71	147.02
CO-40	Conduit	4	586.483	4.13	11.84	143.47
CO-41	Conduit	22	610.483	9.69	10.89	139.81
CH-1	Channel	1	601.483	81.75	3.14	131.22
CH-2	Channel	12	598.483	27.47	4.75	128.86
CH-6	Channel	1	604.483	80.03	3.25	128.15
CH-7	Channel	8	598.483	6.84	1.03	144.93
CH-8	Channel	8	601.483	21.25	1.11	144.45
CH-9	Channel	8	601.483	40.29	0.34	144.33
CH-14	Channel	21	598.483	17.21	6.85	140.96
CH-15	Channel	20	598.483	6.07	3.45	140.83
CS-1	Cross Section	8	---	---	---	145.71
CS-2	Cross Section	8	---	---	---	144.52
CS-3	Cross Section	8	---	---	---	144.37
CS-4	Cross Section	1	---	---	---	133.72
CS-5	Cross Section	1	---	---	---	128.72
CS-6	Cross Section	12	---	---	---	130.87
CS-8	Cross Section	21	---	---	---	142.46
CS-10	Cross Section	20	---	---	---	142.33
Development Basin 1	Pond	20	---	---	---	140.31

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
PC1	Pond	19	---	---	---	139.79

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)
MH-1	Manhole	1	598.483	77.19	---	---	---	---
MH-2	Manhole	1	598.483	25.72	---	---	---	---
MH-3	Manhole	1	598.483	24.55	---	---	---	---
MH-4	Manhole	1	598.483	24.49	---	---	---	---
MH-5	Manhole	1	598.483	21.79	---	---	---	---
MH-6	Manhole	1	598.483	21.83	---	---	---	---
MH-7	Manhole	1	598.483	21.81	---	---	---	---
MH-8	Manhole	1	598.483	21.65	---	---	---	---
MH-9	Manhole	1	598.483	16.30	---	---	---	---
MH-10	Manhole	1	598.483	13.53	---	---	---	---
MH-11	Manhole	13	598.483	8.01	---	---	---	---
MH-12	Manhole	12	598.483	19.49	---	---	---	---
MH-13	Manhole	12	598.483	22.03	---	---	---	---
MH-14	Manhole	12	598.483	26.16	---	---	---	---
MH-16	Manhole	10	592.483	5.91	---	---	---	---
CB-1	Catch Basin	12	598.483	11.86	598.483	11.86	598.483	11.86
CB-2	Catch Basin	14	598.483	6.79	598.483	6.79	598.483	6.79
CB-3	Catch Basin	1	598.483	12.09	598.483	12.09	598.483	12.09
CB-4	Catch Basin	2	592.483	1.67	592.483	1.67	592.483	1.67
CB-5	Catch Basin	13	592.483	1.51	592.483	1.51	592.483	1.51
CB-6	Catch Basin	3	595.483	2.81	595.483	2.81	595.483	2.81

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)
CB-7	Catch Basin	15	592.483	2.49	592.483	2.49	592.483	2.49
CB-8	Catch Basin	16	592.483	1.41	592.483	1.41	592.483	1.41
CB-9	Catch Basin	17	595.483	2.94	595.483	2.94	595.483	2.94
CB-10	Catch Basin	18	592.483	0.48	592.483	0.48	592.483	0.48
CB-11	Catch Basin	11	592.483	1.17	592.483	1.17	592.483	1.17
CB-12	Catch Basin	10	598.483	6.49	598.483	6.49	598.483	6.49
CB-13	Catch Basin	9	592.483	1.41	592.483	1.41	592.483	1.41
CB-14	Catch Basin	8	601.483	49.27	598.483	10.21	598.483	10.21
CB-15	Catch Basin	6	592.483	1.92	592.483	1.92	592.483	1.92
CB-16	Catch Basin	5	592.483	2.06	592.483	2.06	592.483	2.06
CB-17	Catch Basin	4	592.483	4.48	592.483	4.10	592.483	4.10
CB-18	Catch Basin	4	592.483	4.22	592.483	4.22	592.483	4.22
CB-19	Catch Basin	7	592.483	1.76	592.483	1.76	592.483	1.76
CB-20	Catch Basin	12	598.483	23.24	592.483	1.31	592.483	1.31
CB-21	Catch Basin	1	598.483	18.08	592.483	2.27	592.483	2.27
CB-22	Catch Basin	8	601.483	40.28	0.000	0.00	0.000	0.00
A13	Outfall	1	(N/A)	(N/A)	---	---	---	---
OF-2	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF-3	Outfall	0	(N/A)	(N/A)	---	---	---	---
C3-2	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF-6	Outfall	0	(N/A)	(N/A)	---	---	---	---
Development Basin 1	Pond	20	598.483	24.57	---	---	---	---
PC1	Pond	19	598.483	14.92	---	---	---	---

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft³/s)
0.000	0.00

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
595.483	2.98
0.000	0.00
601.483	4.11
0.000	0.00

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
0.000	0.00
592.483	0.79
592.483	3.75
0.000	0.00
0.000	0.00
0.000	0.00
601.483	0.65
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
0.000	0.00
0.000	0.00

Gutter Calculation Summary

Label	Open Cross Section	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)

Calculation Detailed Summary

<General>	
Label	Base Calculation Options

Options			
Calculation Time Step	1.500 min	Hydrologic Time Step	1.500 min
Output Increment	3.000 min	Total Simulation Time	2880.000 min

Options (Advanced)			
Y Iteration Tolerance	0.03 ft	Relaxation Weighting Coefficient	0.600
LPI Coefficient	1.000	Computation Distance	50.00 ft
NR Weighting Coefficient	0.700		

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
A13a	Unit Hydrograph	SCS CN	5.700	4.319	1.82	14.74	597.000
A13f	Unit Hydrograph	SCS CN	5.700	0.427	0.19	1.83	591.000
A13b	Unit Hydrograph	SCS CN	5.700	2.415	1.02	8.76	597.000
A13c	Unit Hydrograph	SCS CN	5.700	4.307	1.81	15.60	597.000
A13d	Unit Hydrograph	SCS CN	5.700	0.928	0.39	3.73	594.000
A13t	Unit Hydrograph	SCS CN	5.700	3.694	0.53	5.18	594.000
A13u	Unit Hydrograph	SCS CN	5.700	1.159	0.53	4.99	591.000
A13x	Unit Hydrograph	SCS CN	5.700	0.641	0.29	2.76	591.000
A13h	Unit Hydrograph	SCS CN	5.700	2.400	1.02	9.64	594.000
A13g	Unit Hydrograph	SCS CN	5.700	0.472	0.21	2.03	591.000
A13e	Unit Hydrograph	SCS CN	5.700	0.704	0.32	3.03	591.000
A13i	Unit Hydrograph	SCS CN	5.700	6.541	2.75	23.90	597.000
A13p	Unit Hydrograph	SCS CN	5.700	5.957	2.50	19.35	600.000

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
A13o	Unit Hydrograph	SCS CN	5.700	7.694	3.23	24.49	600.000
A13n	Unit Hydrograph	SCS CN	5.700	3.764	1.58	12.60	600.000
A13m	Unit Hydrograph	SCS CN	5.700	2.310	0.97	8.34	597.000
A13l	Unit Hydrograph	SCS CN	5.700	0.974	0.41	3.70	594.000
A13k	Unit Hydrograph	SCS CN	5.700	0.398	0.18	1.71	591.000
A13j	Unit Hydrograph	SCS CN	5.700	0.371	0.17	1.59	591.000
A13v	Unit Hydrograph	SCS CN	5.700	0.583	0.27	2.51	591.000
A13y	Unit Hydrograph	SCS CN	5.700	0.543	0.25	2.33	591.000
A13w	Unit Hydrograph	SCS CN	5.700	0.499	0.23	2.15	591.000
A13z	Unit Hydrograph	SCS CN	5.700	3.306	0.97	9.51	594.000
A13aa'	Unit Hydrograph	SCS CN	5.700	0.815	0.24	2.06	597.000
A13q	Unit Hydrograph	SCS CN	5.700	0.136	0.06	0.58	591.000
A13r	Unit Hydrograph	SCS CN	5.700	0.332	0.15	1.43	591.000
A13s	Unit Hydrograph	SCS CN	5.700	0.399	0.18	1.72	591.000
C3-2a	Unit Hydrograph	SCS CN	5.700	2.204	0.93	7.55	597.000
C3-2b	Unit Hydrograph	SCS CN	5.700	6.260	2.63	21.26	597.000
C3-2c	Unit Hydrograph	SCS CN	5.700	0.765	0.22	2.08	594.000
C3-2d	Unit Hydrograph	SCS CN	5.700	8.200	1.58	13.61	594.000
E1	Unit Hydrograph	SCS CN	5.700	2.000	0.86	7.52	594.000

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
MH-1	Manhole	1	---	---	---	135.50
MH-2	Manhole	1	---	---	---	135.58
MH-3	Manhole	1	---	---	---	137.02

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
MH-4	Manhole	1	---	---	---	138.07
MH-5	Manhole	1	---	---	---	138.83
MH-6	Manhole	1	---	---	---	139.65
MH-7	Manhole	1	---	---	---	140.18
MH-8	Manhole	1	---	---	---	140.74
MH-9	Manhole	1	---	---	---	140.98
MH-10	Manhole	1	---	---	---	147.16
MH-11	Manhole	13	---	---	---	156.65
MH-12	Manhole	12	---	---	---	156.58
MH-13	Manhole	12	---	---	---	152.50
MH-14	Manhole	12	---	---	---	143.23
MH-16	Manhole	10	---	---	---	140.67
CB-1	Catch Basin	12	---	---	---	157.69
CB-2	Catch Basin	14	---	---	---	156.68
CB-3	Catch Basin	1	---	---	---	148.74
CB-4	Catch Basin	2	---	---	---	147.31
CB-5	Catch Basin	13	---	---	---	156.66
CB-6	Catch Basin	3	---	---	---	146.01
CB-7	Catch Basin	15	---	---	---	152.50
CB-8	Catch Basin	16	---	---	---	152.50
CB-9	Catch Basin	17	---	---	---	143.65
CB-10	Catch Basin	18	---	---	---	143.98
CB-11	Catch Basin	11	---	---	---	140.93
CB-12	Catch Basin	10	---	---	---	147.31
CB-13	Catch Basin	9	---	---	---	135.50
CB-14	Catch Basin	8	---	---	---	144.34
CB-15	Catch Basin	6	---	---	---	138.08
CB-16	Catch Basin	5	---	---	---	139.46
CB-17	Catch Basin	4	---	---	---	147.08
CB-18	Catch Basin	4	---	---	---	147.24

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CB-19	Catch Basin	7	---	---	---	137.64
CB-20	Catch Basin	12	---	---	---	147.23
CB-21	Catch Basin	1	---	---	---	140.82
CB-22	Catch Basin	8	---	---	---	144.42
CO-1	Conduit	12	598.483	14.63	8.28	157.02
CO-5	Conduit	12	598.483	27.80	8.85	150.05
CO-6	Conduit	12	598.483	28.94	9.21	145.96
CO-7	Conduit	12	598.483	32.87	33.52	136.84
CO-8	Conduit	18	591.083	0.58	0.82	143.98
CO-9	Conduit	17	595.483	3.65	6.29	143.34
CO-10	Conduit	15	591.083	2.86	8.19	152.50
CO-11	Conduit	16	595.483	1.58	4.53	152.50
CO-12	Conduit	12	598.483	24.18	7.70	154.66
CO-13	Conduit	13	598.483	9.58	5.42	156.62
CO-14	Conduit	14	598.483	8.56	4.84	156.67
CO-15	Conduit	13	591.083	1.74	1.45	156.65
CO-16	Conduit	2	591.083	1.91	5.46	147.20
CO-17	Conduit	1	598.483	15.25	8.63	148.12
CO-18	Conduit	1	598.483	16.91	9.22	143.88
CO-19	Conduit	1	598.483	20.29	5.88	140.86
CO-20	Conduit	1	598.483	22.21	5.10	140.78
CO-21	Conduit	1	598.483	25.92	6.07	140.28
CO-22	Conduit	1	598.483	25.96	6.12	139.76
CO-23	Conduit	1	598.483	25.93	6.22	139.23
CO-24	Conduit	1	598.483	25.86	6.88	138.29
CO-25	Conduit	1	598.483	29.41	7.10	137.47
CO-26	Conduit	1	598.483	29.39	7.14	136.45
CO-27	Conduit	1	598.483	31.02	6.52	135.54
CO-28	Conduit	1	598.483	83.62	13.92	134.72
CO-29	Conduit	10	591.083	5.88	7.64	137.78

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CO-30	Conduit	3	595.483	3.53	10.11	143.65
CO-31	Conduit	6	591.083	2.33	6.68	138.07
CO-32	Conduit	5	595.483	2.34	6.70	138.17
CO-33	Conduit	7	595.483	2.00	5.72	136.44
CO-34	Conduit	9	591.083	1.65	0.94	135.50
CO-35	Conduit	8	601.483	41.03	23.22	144.38
CO-36	Conduit	8	598.483	45.75	25.89	140.43
CO-37	Conduit	11	591.083	1.38	5.94	140.67
CO-38	Conduit	10	589.483	4.50	12.90	144.43
CO-39	Conduit	4	583.483	1.81	5.20	147.11
CO-40	Conduit	4	589.483	3.79	10.85	143.59
CO-41	Conduit	22	610.483	12.54	11.32	140.18
CH-1	Channel	1	598.483	90.89	3.24	131.31
CH-2	Channel	12	598.483	34.80	5.09	128.98
CH-6	Channel	1	601.483	90.38	3.39	128.25
CH-7	Channel	8	598.483	8.38	1.08	145.03
CH-8	Channel	8	601.483	26.25	1.24	144.58
CH-9	Channel	8	601.483	49.87	0.41	144.46
CH-14	Channel	21	598.483	21.22	7.39	141.02
CH-15	Channel	20	598.483	7.49	3.73	140.87
CS-1	Cross Section	8	---	---	---	145.80
CS-2	Cross Section	8	---	---	---	144.65
CS-3	Cross Section	8	---	---	---	144.50
CS-4	Cross Section	1	---	---	---	133.83
CS-5	Cross Section	1	---	---	---	128.83
CS-6	Cross Section	12	---	---	---	130.98
CS-8	Cross Section	21	---	---	---	142.52
CS-10	Cross Section	20	---	---	---	142.37
Development Basin 1	Pond	20	---	---	---	140.53

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
PC1	Pond	19	---	---	---	140.16

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)
MH-1	Manhole	1	598.483	83.32	---	---	---	---
MH-2	Manhole	1	598.483	30.88	---	---	---	---
MH-3	Manhole	1	598.483	29.42	---	---	---	---
MH-4	Manhole	1	598.483	29.23	---	---	---	---
MH-5	Manhole	1	598.483	25.91	---	---	---	---
MH-6	Manhole	1	598.483	25.96	---	---	---	---
MH-7	Manhole	1	598.483	25.94	---	---	---	---
MH-8	Manhole	1	598.483	25.87	---	---	---	---
MH-9	Manhole	1	598.483	20.07	---	---	---	---
MH-10	Manhole	1	598.483	16.65	---	---	---	---
MH-11	Manhole	13	595.483	9.92	---	---	---	---
MH-12	Manhole	12	598.483	24.19	---	---	---	---
MH-13	Manhole	12	598.483	27.43	---	---	---	---
MH-14	Manhole	12	598.483	32.76	---	---	---	---
MH-16	Manhole	10	595.483	5.49	---	---	---	---
CB-1	Catch Basin	12	598.483	14.61	598.483	14.61	598.483	14.61
CB-2	Catch Basin	14	598.483	8.37	598.483	8.37	598.483	8.37
CB-3	Catch Basin	1	595.483	14.90	595.483	14.90	595.483	14.90
CB-4	Catch Basin	2	591.083	2.03	591.083	2.03	591.083	2.03
CB-5	Catch Basin	13	591.083	1.83	591.083	1.83	591.083	1.83
CB-6	Catch Basin	3	595.483	3.46	595.483	3.46	595.483	3.46

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)
CB-7	Catch Basin	15	591.083	3.03	591.083	3.03	591.083	3.03
CB-8	Catch Basin	16	591.083	1.71	591.083	1.71	591.083	1.71
CB-9	Catch Basin	17	595.483	3.62	595.483	3.62	595.483	3.62
CB-10	Catch Basin	18	591.083	0.58	591.083	0.58	591.083	0.58
CB-11	Catch Basin	11	591.083	1.43	591.083	1.43	591.083	1.43
CB-12	Catch Basin	10	598.483	7.99	598.483	7.99	598.483	7.99
CB-13	Catch Basin	9	591.083	1.72	591.083	1.72	591.083	1.72
CB-14	Catch Basin	8	598.483	53.22	598.483	12.59	598.483	12.59
CB-15	Catch Basin	6	591.083	2.33	591.083	2.33	591.083	2.33
CB-16	Catch Basin	5	591.083	2.51	591.083	2.51	591.083	2.51
CB-17	Catch Basin	4	591.083	5.40	591.083	4.99	591.083	4.99
CB-18	Catch Basin	4	591.083	5.17	591.083	5.17	591.083	5.17
CB-19	Catch Basin	7	591.083	2.15	591.083	2.15	591.083	2.15
CB-20	Catch Basin	12	598.483	28.93	591.083	1.59	591.083	1.59
CB-21	Catch Basin	1	598.483	22.20	591.083	2.76	591.083	2.76
CB-22	Catch Basin	8	601.483	49.87	0.000	0.00	0.000	0.00
A13	Outfall	1	(N/A)	(N/A)	---	---	---	---
OF-2	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF-3	Outfall	0	(N/A)	(N/A)	---	---	---	---
C3-2	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF-6	Outfall	0	(N/A)	(N/A)	---	---	---	---
Development Basin 1	Pond	20	598.483	30.48	---	---	---	---
PC1	Pond	19	598.483	21.40	---	---	---	---

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft³/s)
0.000	0.00

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
598.483	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
598.483	0.00
0.000	0.00
0.000	0.00
598.483	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
598.483	4.00
0.000	0.00
601.483	7.55
0.000	0.00

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
0.000	0.00
591.083	1.67
591.083	4.85
0.000	0.00
0.000	0.00
0.000	0.00
601.483	8.83
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
0.000	0.00
0.000	0.00

Gutter Calculation Summary

Label	Open Cross Section	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)

Calculation Detailed Summary

<General>	
Label	Base Calculation Options

Options			
Calculation Time Step	1.500 min	Hydrologic Time Step	1.500 min
Output Increment	3.000 min	Total Simulation Time	2880.000 min

Options (Advanced)			
Y Iteration Tolerance	0.03 ft	Relaxation Weighting Coefficient	0.600
LPI Coefficient	1.000	Computation Distance	50.00 ft
NR Weighting Coefficient	0.700		

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
A13a	Unit Hydrograph	SCS CN	6.400	4.319	2.07	16.69	597.000
A13f	Unit Hydrograph	SCS CN	6.400	0.427	0.22	2.06	591.000
A13b	Unit Hydrograph	SCS CN	6.400	2.415	1.16	9.91	597.000
A13c	Unit Hydrograph	SCS CN	6.400	4.307	2.06	17.65	597.000
A13d	Unit Hydrograph	SCS CN	6.400	0.928	0.44	4.22	594.000
A13t	Unit Hydrograph	SCS CN	6.400	3.694	0.60	5.85	594.000
A13u	Unit Hydrograph	SCS CN	6.400	1.159	0.60	5.61	591.000
A13x	Unit Hydrograph	SCS CN	6.400	0.641	0.33	3.10	591.000
A13h	Unit Hydrograph	SCS CN	6.400	2.400	1.16	10.89	594.000
A13g	Unit Hydrograph	SCS CN	6.400	0.472	0.24	2.28	591.000
A13e	Unit Hydrograph	SCS CN	6.400	0.704	0.36	3.40	591.000
A13i	Unit Hydrograph	SCS CN	6.400	6.541	3.13	27.04	597.000
A13p	Unit Hydrograph	SCS CN	6.400	5.957	2.85	21.89	600.000

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
A13o	Unit Hydrograph	SCS CN	6.400	7.694	3.68	27.72	600.000
A13n	Unit Hydrograph	SCS CN	6.400	3.764	1.80	14.26	600.000
A13m	Unit Hydrograph	SCS CN	6.400	2.310	1.10	9.44	597.000
A13l	Unit Hydrograph	SCS CN	6.400	0.974	0.47	4.19	594.000
A13k	Unit Hydrograph	SCS CN	6.400	0.398	0.20	1.93	591.000
A13j	Unit Hydrograph	SCS CN	6.400	0.371	0.19	1.79	591.000
A13v	Unit Hydrograph	SCS CN	6.400	0.583	0.30	2.82	591.000
A13y	Unit Hydrograph	SCS CN	6.400	0.543	0.28	2.62	591.000
A13w	Unit Hydrograph	SCS CN	6.400	0.499	0.26	2.41	591.000
A13z	Unit Hydrograph	SCS CN	6.400	3.306	1.14	11.29	594.000
A13aa'	Unit Hydrograph	SCS CN	6.400	0.815	0.28	2.45	597.000
A13q	Unit Hydrograph	SCS CN	6.400	0.136	0.07	0.66	591.000
A13r	Unit Hydrograph	SCS CN	6.400	0.332	0.17	1.60	591.000
A13s	Unit Hydrograph	SCS CN	6.400	0.399	0.20	1.93	591.000
C3-2a	Unit Hydrograph	SCS CN	6.400	2.204	1.05	8.54	597.000
C3-2b	Unit Hydrograph	SCS CN	6.400	6.260	2.99	24.06	597.000
C3-2c	Unit Hydrograph	SCS CN	6.400	0.765	0.26	2.47	594.000
C3-2d	Unit Hydrograph	SCS CN	6.400	8.200	1.94	17.28	594.000
E1	Unit Hydrograph	SCS CN	6.400	2.000	0.97	8.51	594.000

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
MH-1	Manhole	1	---	---	---	135.56
MH-2	Manhole	1	---	---	---	135.64
MH-3	Manhole	1	---	---	---	137.22

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
MH-4	Manhole	1	---	---	---	138.28
MH-5	Manhole	1	---	---	---	139.00
MH-6	Manhole	1	---	---	---	139.84
MH-7	Manhole	1	---	---	---	140.41
MH-8	Manhole	1	---	---	---	141.01
MH-9	Manhole	1	---	---	---	141.17
MH-10	Manhole	1	---	---	---	147.25
MH-11	Manhole	13	---	---	---	158.56
MH-12	Manhole	12	---	---	---	158.48
MH-13	Manhole	12	---	---	---	153.89
MH-14	Manhole	12	---	---	---	143.27
MH-16	Manhole	10	---	---	---	140.70
CB-1	Catch Basin	12	---	---	---	159.67
CB-2	Catch Basin	14	---	---	---	158.60
CB-3	Catch Basin	1	---	---	---	149.08
CB-4	Catch Basin	2	---	---	---	147.60
CB-5	Catch Basin	13	---	---	---	158.56
CB-6	Catch Basin	3	---	---	---	146.46
CB-7	Catch Basin	15	---	---	---	153.90
CB-8	Catch Basin	16	---	---	---	153.89
CB-9	Catch Basin	17	---	---	---	143.68
CB-10	Catch Basin	18	---	---	---	144.09
CB-11	Catch Basin	11	---	---	---	140.97
CB-12	Catch Basin	10	---	---	---	147.35
CB-13	Catch Basin	9	---	---	---	135.57
CB-14	Catch Basin	8	---	---	---	144.41
CB-15	Catch Basin	6	---	---	---	138.28
CB-16	Catch Basin	5	---	---	---	140.44
CB-17	Catch Basin	4	---	---	---	147.12
CB-18	Catch Basin	4	---	---	---	147.27

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CB-19	Catch Basin	7	---	---	---	137.98
CB-20	Catch Basin	12	---	---	---	147.81
CB-21	Catch Basin	1	---	---	---	141.09
CB-22	Catch Basin	8	---	---	---	144.49
CO-1	Conduit	12	600.367	15.18	8.59	158.95
CO-5	Conduit	12	598.483	29.88	9.51	151.08
CO-6	Conduit	12	598.483	31.13	9.91	146.33
CO-7	Conduit	12	598.483	35.67	33.54	136.87
CO-8	Conduit	18	592.483	0.66	0.66	144.09
CO-9	Conduit	17	595.483	4.14	6.54	143.38
CO-10	Conduit	15	592.483	3.38	9.69	153.89
CO-11	Conduit	16	592.483	1.90	5.45	153.89
CO-12	Conduit	12	600.367	26.00	8.27	156.32
CO-13	Conduit	13	598.483	10.86	6.15	158.53
CO-14	Conduit	14	598.483	9.66	5.46	158.58
CO-15	Conduit	13	592.483	1.89	1.07	158.56
CO-16	Conduit	2	592.483	2.27	6.50	147.25
CO-17	Conduit	1	598.483	17.25	9.76	148.29
CO-18	Conduit	1	598.483	19.12	9.48	143.97
CO-19	Conduit	1	598.483	22.90	5.62	141.13
CO-20	Conduit	1	598.483	25.11	5.24	141.05
CO-21	Conduit	1	598.483	28.78	6.20	140.49
CO-22	Conduit	1	598.483	28.79	6.30	139.95
CO-23	Conduit	1	598.483	28.74	6.48	139.37
CO-24	Conduit	1	598.483	28.68	6.97	138.45
CO-25	Conduit	1	598.483	32.67	7.33	137.63
CO-26	Conduit	1	598.483	32.61	7.37	136.61
CO-27	Conduit	1	598.483	34.43	6.97	135.60
CO-28	Conduit	1	598.483	87.50	14.15	134.77
CO-29	Conduit	10	589.483	5.87	8.46	137.77

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CO-30	Conduit	3	595.483	3.93	11.27	143.92
CO-31	Conduit	6	592.483	2.62	7.51	138.28
CO-32	Conduit	5	592.483	2.75	7.86	138.50
CO-33	Conduit	7	592.483	2.34	6.70	136.38
CO-34	Conduit	9	592.483	1.93	1.09	135.56
CO-35	Conduit	8	600.367	41.58	23.53	144.45
CO-36	Conduit	8	600.367	45.92	25.98	140.47
CO-37	Conduit	11	592.483	1.60	6.11	140.72
CO-38	Conduit	10	589.483	5.07	14.52	144.77
CO-39	Conduit	4	580.483	1.77	5.08	147.14
CO-40	Conduit	4	589.483	3.77	10.79	143.68
CO-41	Conduit	22	610.483	14.39	8.98	140.41
CH-1	Channel	1	598.483	96.65	3.29	131.38
CH-2	Channel	12	598.483	38.19	5.22	129.03
CH-6	Channel	1	600.367	96.01	3.47	128.30
CH-7	Channel	8	598.483	9.43	1.11	145.09
CH-8	Channel	8	600.367	29.41	1.32	144.65
CH-9	Channel	8	600.367	55.99	0.45	144.53
CH-14	Channel	21	598.483	24.01	7.70	141.06
CH-15	Channel	20	598.483	8.48	3.91	140.90
CS-1	Cross Section	8	---	---	---	145.85
CS-2	Cross Section	8	---	---	---	144.74
CS-3	Cross Section	8	---	---	---	144.57
CS-4	Cross Section	1	---	---	---	133.88
CS-5	Cross Section	1	---	---	---	128.88
CS-6	Cross Section	12	---	---	---	131.03
CS-8	Cross Section	21	---	---	---	142.56
CS-10	Cross Section	20	---	---	---	142.40
Development Basin 1	Pond	20	---	---	---	140.68

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
PC1	Pond	19	---	---	---	140.39

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)
MH-1	Manhole	1	598.483	87.21	---	---	---	---
MH-2	Manhole	1	598.483	34.28	---	---	---	---
MH-3	Manhole	1	598.483	32.66	---	---	---	---
MH-4	Manhole	1	598.483	32.49	---	---	---	---
MH-5	Manhole	1	598.483	28.72	---	---	---	---
MH-6	Manhole	1	598.483	28.79	---	---	---	---
MH-7	Manhole	1	598.483	28.79	---	---	---	---
MH-8	Manhole	1	598.483	28.74	---	---	---	---
MH-9	Manhole	1	598.483	22.67	---	---	---	---
MH-10	Manhole	1	598.483	18.83	---	---	---	---
MH-11	Manhole	13	598.483	10.96	---	---	---	---
MH-12	Manhole	12	598.483	25.95	---	---	---	---
MH-13	Manhole	12	600.367	29.54	---	---	---	---
MH-14	Manhole	12	598.483	35.45	---	---	---	---
MH-16	Manhole	10	589.483	6.14	---	---	---	---
CB-1	Catch Basin	12	598.483	16.54	598.483	16.54	598.483	16.54
CB-2	Catch Basin	14	598.483	9.46	598.483	9.46	598.483	9.46
CB-3	Catch Basin	1	595.483	16.86	595.483	16.86	595.483	16.86
CB-4	Catch Basin	2	592.483	2.28	592.483	2.28	592.483	2.28
CB-5	Catch Basin	13	592.483	2.06	592.483	2.06	592.483	2.06
CB-6	Catch Basin	3	595.483	3.91	595.483	3.91	595.483	3.91

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)
CB-7	Catch Basin	15	592.483	3.40	592.483	3.40	592.483	3.40
CB-8	Catch Basin	16	592.483	1.93	592.483	1.93	592.483	1.93
CB-9	Catch Basin	17	595.483	4.10	595.483	4.10	595.483	4.10
CB-10	Catch Basin	18	592.483	0.66	592.483	0.66	592.483	0.66
CB-11	Catch Basin	11	592.483	1.60	592.483	1.60	592.483	1.60
CB-12	Catch Basin	10	598.483	9.04	598.483	9.04	598.483	9.04
CB-13	Catch Basin	9	592.483	1.93	592.483	1.93	592.483	1.93
CB-14	Catch Basin	8	600.367	55.64	598.483	14.25	598.483	14.25
CB-15	Catch Basin	6	592.483	2.62	592.483	2.62	592.483	2.62
CB-16	Catch Basin	5	592.483	2.82	592.483	2.82	592.483	2.82
CB-17	Catch Basin	4	592.483	6.00	592.483	5.61	592.483	5.61
CB-18	Catch Basin	4	592.483	5.84	592.483	5.84	592.483	5.84
CB-19	Catch Basin	7	592.483	2.41	592.483	2.41	592.483	2.41
CB-20	Catch Basin	12	598.483	31.10	592.483	1.79	592.483	1.79
CB-21	Catch Basin	1	598.483	25.06	592.483	3.10	592.483	3.10
CB-22	Catch Basin	8	600.367	55.98	0.000	0.00	0.000	0.00
A13	Outfall	1	(N/A)	(N/A)	---	---	---	---
OF-2	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF-3	Outfall	0	(N/A)	(N/A)	---	---	---	---
C3-2	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF-6	Outfall	0	(N/A)	(N/A)	---	---	---	---
Development Basin 1	Pond	20	598.483	34.59	---	---	---	---
PC1	Pond	19	598.483	26.10	---	---	---	---

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft³/s)
0.000	0.00

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
595.483	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
598.483	1.60
595.483	0.00
0.000	0.00
0.000	0.00
595.483	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
598.483	5.05
0.000	0.00
600.367	9.80
0.000	0.00

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
0.000	0.00
592.483	2.37
592.483	5.59
0.000	0.00
0.000	0.00
0.000	0.00
600.367	14.30
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
0.000	0.00
0.000	0.00

Gutter Calculation Summary

Label	Open Cross Section	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)

Calculation Detailed Summary

<General>	
Label	Base Calculation Options

Options			
Calculation Time Step	1.500 min	Hydrologic Time Step	1.500 min
Output Increment	3.000 min	Total Simulation Time	2880.000 min

Options (Advanced)			
Y Iteration Tolerance	0.03 ft	Relaxation Weighting Coefficient	0.600
LPI Coefficient	1.000	Computation Distance	50.00 ft
NR Weighting Coefficient	0.700		

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
A13a	Unit Hydrograph	SCS CN	7.091	4.319	2.31	18.62	597.000
A13f	Unit Hydrograph	SCS CN	7.091	0.427	0.24	2.29	591.000
A13b	Unit Hydrograph	SCS CN	7.091	2.415	1.29	11.05	597.000
A13c	Unit Hydrograph	SCS CN	7.091	4.307	2.31	19.69	597.000
A13d	Unit Hydrograph	SCS CN	7.091	0.928	0.50	4.71	594.000
A13t	Unit Hydrograph	SCS CN	7.091	3.694	0.67	6.52	594.000
A13u	Unit Hydrograph	SCS CN	7.091	1.159	0.66	6.23	591.000
A13x	Unit Hydrograph	SCS CN	7.091	0.641	0.37	3.44	591.000
A13h	Unit Hydrograph	SCS CN	7.091	2.400	1.30	12.14	594.000
A13g	Unit Hydrograph	SCS CN	7.091	0.472	0.27	2.53	591.000
A13e	Unit Hydrograph	SCS CN	7.091	0.704	0.40	3.78	591.000
A13i	Unit Hydrograph	SCS CN	7.091	6.541	3.50	30.17	597.000
A13p	Unit Hydrograph	SCS CN	7.091	5.957	3.19	24.43	600.000

Catchment Calculation Summary

Label	Runoff Method	Loss Method	Total Rainfall Depth (in)	Area (acres)	Volume (Total Runoff) (ac-ft)	Flow (Peak) (ft³/s)	Time To Peak (min)
A13o	Unit Hydrograph	SCS CN	7.091	7.694	4.12	30.93	600.000
A13n	Unit Hydrograph	SCS CN	7.091	3.764	2.02	15.91	600.000
A13m	Unit Hydrograph	SCS CN	7.091	2.310	1.24	10.53	597.000
A13l	Unit Hydrograph	SCS CN	7.091	0.974	0.52	4.68	594.000
A13k	Unit Hydrograph	SCS CN	7.091	0.398	0.23	2.14	591.000
A13j	Unit Hydrograph	SCS CN	7.091	0.371	0.21	1.99	591.000
A13v	Unit Hydrograph	SCS CN	7.091	0.583	0.33	3.13	591.000
A13y	Unit Hydrograph	SCS CN	7.091	0.543	0.31	2.91	591.000
A13w	Unit Hydrograph	SCS CN	7.091	0.499	0.28	2.68	591.000
A13z	Unit Hydrograph	SCS CN	7.091	3.306	1.32	13.08	594.000
A13aa'	Unit Hydrograph	SCS CN	7.091	0.815	0.32	2.84	597.000
A13q	Unit Hydrograph	SCS CN	7.091	0.136	0.08	0.73	591.000
A13r	Unit Hydrograph	SCS CN	7.091	0.332	0.19	1.78	591.000
A13s	Unit Hydrograph	SCS CN	7.091	0.399	0.23	2.14	591.000
C3-2a	Unit Hydrograph	SCS CN	7.091	2.204	1.18	9.53	597.000
C3-2b	Unit Hydrograph	SCS CN	7.091	6.260	3.35	26.86	597.000
C3-2c	Unit Hydrograph	SCS CN	7.091	0.765	0.30	2.87	594.000
C3-2d	Unit Hydrograph	SCS CN	7.091	8.200	2.32	21.12	594.000
E1	Unit Hydrograph	SCS CN	7.091	2.000	1.09	9.50	594.000

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
MH-1	Manhole	1	---	---	---	135.61
MH-2	Manhole	1	---	---	---	135.69
MH-3	Manhole	1	---	---	---	137.42

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
MH-4	Manhole	1	---	---	---	138.51
MH-5	Manhole	1	---	---	---	139.19
MH-6	Manhole	1	---	---	---	140.03
MH-7	Manhole	1	---	---	---	140.71
MH-8	Manhole	1	---	---	---	141.46
MH-9	Manhole	1	---	---	---	141.62
MH-10	Manhole	1	---	---	---	147.34
MH-11	Manhole	13	---	---	---	158.96
MH-12	Manhole	12	---	---	---	158.87
MH-13	Manhole	12	---	---	---	154.44
MH-14	Manhole	12	---	---	---	143.29
MH-16	Manhole	10	---	---	---	140.70
CB-1	Catch Basin	12	---	---	---	159.84
CB-2	Catch Basin	14	---	---	---	159.00
CB-3	Catch Basin	1	---	---	---	149.47
CB-4	Catch Basin	2	---	---	---	147.86
CB-5	Catch Basin	13	---	---	---	158.97
CB-6	Catch Basin	3	---	---	---	147.05
CB-7	Catch Basin	15	---	---	---	154.46
CB-8	Catch Basin	16	---	---	---	154.45
CB-9	Catch Basin	17	---	---	---	143.72
CB-10	Catch Basin	18	---	---	---	144.12
CB-11	Catch Basin	11	---	---	---	141.01
CB-12	Catch Basin	10	---	---	---	147.39
CB-13	Catch Basin	9	---	---	---	135.62
CB-14	Catch Basin	8	---	---	---	144.46
CB-15	Catch Basin	6	---	---	---	138.52
CB-16	Catch Basin	5	---	---	---	141.26
CB-17	Catch Basin	4	---	---	---	147.15
CB-18	Catch Basin	4	---	---	---	147.29

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CB-19	Catch Basin	7	---	---	---	138.70
CB-20	Catch Basin	12	---	---	---	148.06
CB-21	Catch Basin	1	---	---	---	141.54
CB-22	Catch Basin	8	---	---	---	144.54
CO-1	Conduit	12	604.483	15.09	8.54	159.23
CO-5	Conduit	12	595.483	30.54	9.72	151.50
CO-6	Conduit	12	595.483	32.24	10.26	146.47
CO-7	Conduit	12	595.483	37.28	33.53	136.89
CO-8	Conduit	18	592.483	0.73	0.59	144.12
CO-9	Conduit	17	595.483	4.63	6.76	143.42
CO-10	Conduit	15	592.483	3.76	10.77	154.45
CO-11	Conduit	16	592.483	2.12	6.06	154.45
CO-12	Conduit	12	601.483	26.09	8.30	156.69
CO-13	Conduit	13	598.483	12.22	6.92	158.92
CO-14	Conduit	14	598.483	10.79	6.11	158.98
CO-15	Conduit	13	592.483	2.26	1.28	158.96
CO-16	Conduit	2	592.483	2.52	7.21	147.36
CO-17	Conduit	1	598.483	19.25	10.89	148.48
CO-18	Conduit	1	598.483	21.24	9.69	144.07
CO-19	Conduit	1	598.483	24.98	5.18	141.58
CO-20	Conduit	1	598.483	27.31	5.56	141.50
CO-21	Conduit	1	598.483	30.93	6.30	140.83
CO-22	Conduit	1	598.483	30.90	6.40	140.14
CO-23	Conduit	1	598.483	30.85	6.67	139.48
CO-24	Conduit	1	598.483	30.80	6.88	138.64
CO-25	Conduit	1	598.483	35.23	7.51	137.77
CO-26	Conduit	1	598.483	35.17	7.54	136.76
CO-27	Conduit	1	598.483	37.17	7.32	135.65
CO-28	Conduit	1	598.483	90.61	14.33	134.81
CO-29	Conduit	10	595.483	5.96	7.67	137.79

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
CO-30	Conduit	3	595.483	4.36	12.48	144.31
CO-31	Conduit	6	592.483	2.91	8.34	138.52
CO-32	Conduit	5	592.483	3.04	8.70	139.01
CO-33	Conduit	7	592.483	2.59	7.43	137.03
CO-34	Conduit	9	592.483	2.14	1.21	135.61
CO-35	Conduit	8	601.483	42.09	23.82	144.50
CO-36	Conduit	8	598.483	46.04	26.05	140.50
CO-37	Conduit	11	592.483	1.78	6.23	140.76
CO-38	Conduit	10	586.483	4.43	12.70	144.48
CO-39	Conduit	4	580.483	1.94	5.56	147.17
CO-40	Conduit	4	580.483	3.95	11.30	143.73
CO-41	Conduit	22	609.367	16.03	7.85	140.63
CH-1	Channel	1	598.483	101.41	3.34	131.43
CH-2	Channel	12	595.483	39.77	5.31	129.05
CH-6	Channel	1	601.483	100.52	3.52	128.34
CH-7	Channel	8	598.483	10.48	1.14	145.15
CH-8	Channel	8	601.483	33.16	1.43	144.70
CH-9	Channel	8	601.483	63.14	0.50	144.58
CH-14	Channel	21	598.483	26.79	8.00	141.10
CH-15	Channel	20	598.483	9.47	4.07	140.93
CS-1	Cross Section	8	---	---	---	145.91
CS-2	Cross Section	8	---	---	---	144.82
CS-3	Cross Section	8	---	---	---	144.62
CS-4	Cross Section	1	---	---	---	133.93
CS-5	Cross Section	1	---	---	---	128.93
CS-6	Cross Section	12	---	---	---	131.06
CS-8	Cross Section	21	---	---	---	142.60
CS-10	Cross Section	20	---	---	---	142.43
Development Basin 1	Pond	20	---	---	---	140.83

General Calculation Summary

Label	Element Type	Branch	Time to Maximum Flow (min)	Flow (Maximum) (ft³/s)	Velocity (Maximum) (ft/s)	Hydraulic Grade (Maximum) (ft)
PC1	Pond	19	---	---	---	140.61

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)
MH-1	Manhole	1	598.483	90.30	---	---	---	---
MH-2	Manhole	1	598.483	37.04	---	---	---	---
MH-3	Manhole	1	598.483	35.21	---	---	---	---
MH-4	Manhole	1	598.483	35.03	---	---	---	---
MH-5	Manhole	1	598.483	30.83	---	---	---	---
MH-6	Manhole	1	598.483	30.89	---	---	---	---
MH-7	Manhole	1	598.483	30.92	---	---	---	---
MH-8	Manhole	1	598.483	30.92	---	---	---	---
MH-9	Manhole	1	598.483	24.97	---	---	---	---
MH-10	Manhole	1	598.483	21.00	---	---	---	---
MH-11	Manhole	13	595.483	12.28	---	---	---	---
MH-12	Manhole	12	598.483	26.07	---	---	---	---
MH-13	Manhole	12	595.483	30.18	---	---	---	---
MH-14	Manhole	12	595.483	37.44	---	---	---	---
MH-16	Manhole	10	592.483	5.84	---	---	---	---
CB-1	Catch Basin	12	598.483	18.45	598.483	18.45	598.483	18.45
CB-2	Catch Basin	14	598.483	10.55	598.483	10.55	598.483	10.55
CB-3	Catch Basin	1	595.483	18.82	595.483	18.82	595.483	18.82
CB-4	Catch Basin	2	592.483	2.53	592.483	2.53	592.483	2.53
CB-5	Catch Basin	13	592.483	2.29	592.483	2.29	592.483	2.29
CB-6	Catch Basin	3	595.483	4.36	595.483	4.36	595.483	4.36

Node Calculation Summary

Label	Element Type	Branch	Time to Maximum Inflow (min)	Flow (Total In Maximum) (ft³/s)	Time To Maximum Inlet Flow (min)	Flow (Surface Maximum) (ft³/s)	Time To Maximum Captured Flow (min)	Flow (Captured Maximum) (ft³/s)
CB-7	Catch Basin	15	592.483	3.78	592.483	3.78	592.483	3.78
CB-8	Catch Basin	16	592.483	2.14	592.483	2.14	592.483	2.14
CB-9	Catch Basin	17	595.483	4.57	595.483	4.57	595.483	4.57
CB-10	Catch Basin	18	592.483	0.73	592.483	0.73	592.483	0.73
CB-11	Catch Basin	11	592.483	1.78	592.483	1.78	592.483	1.78
CB-12	Catch Basin	10	598.483	10.09	598.483	10.09	598.483	10.09
CB-13	Catch Basin	9	592.483	2.14	592.483	2.14	592.483	2.14
CB-14	Catch Basin	8	598.483	57.71	598.483	15.90	598.483	15.90
CB-15	Catch Basin	6	592.483	2.91	592.483	2.91	592.483	2.91
CB-16	Catch Basin	5	592.483	3.13	592.483	3.13	592.483	3.13
CB-17	Catch Basin	4	592.483	6.61	592.483	6.22	592.483	6.22
CB-18	Catch Basin	4	592.483	6.51	592.483	6.51	592.483	6.51
CB-19	Catch Basin	7	592.483	2.68	592.483	2.68	592.483	2.68
CB-20	Catch Basin	12	595.483	32.21	592.483	1.99	592.483	1.99
CB-21	Catch Basin	1	598.483	27.34	592.483	3.44	592.483	3.44
CB-22	Catch Basin	8	601.483	63.14	0.000	0.00	0.000	0.00
A13	Outfall	1	(N/A)	(N/A)	---	---	---	---
OF-2	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF-3	Outfall	0	(N/A)	(N/A)	---	---	---	---
C3-2	Outfall	0	(N/A)	(N/A)	---	---	---	---
OF-6	Outfall	0	(N/A)	(N/A)	---	---	---	---
Development Basin 1	Pond	20	598.483	38.70	---	---	---	---
PC1	Pond	19	598.483	30.83	---	---	---	---

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft³/s)
0.000	0.00

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
595.483	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
598.483	4.67
595.483	0.00
0.000	0.00
0.000	0.00
601.483	0.36
598.483	0.22
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
0.000	0.00
598.483	6.11
0.000	0.00
598.483	11.66
0.000	0.00

Node Calculation Summary

Time to Maximum Overflow (min)	Flow (Overflow Maximum) (ft^3/s)
0.000	0.00
592.483	3.03
592.483	6.27
0.000	0.00
0.000	0.00
0.000	0.00
601.483	21.04
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
(N/A)	(N/A)
0.000	0.00
0.000	0.00

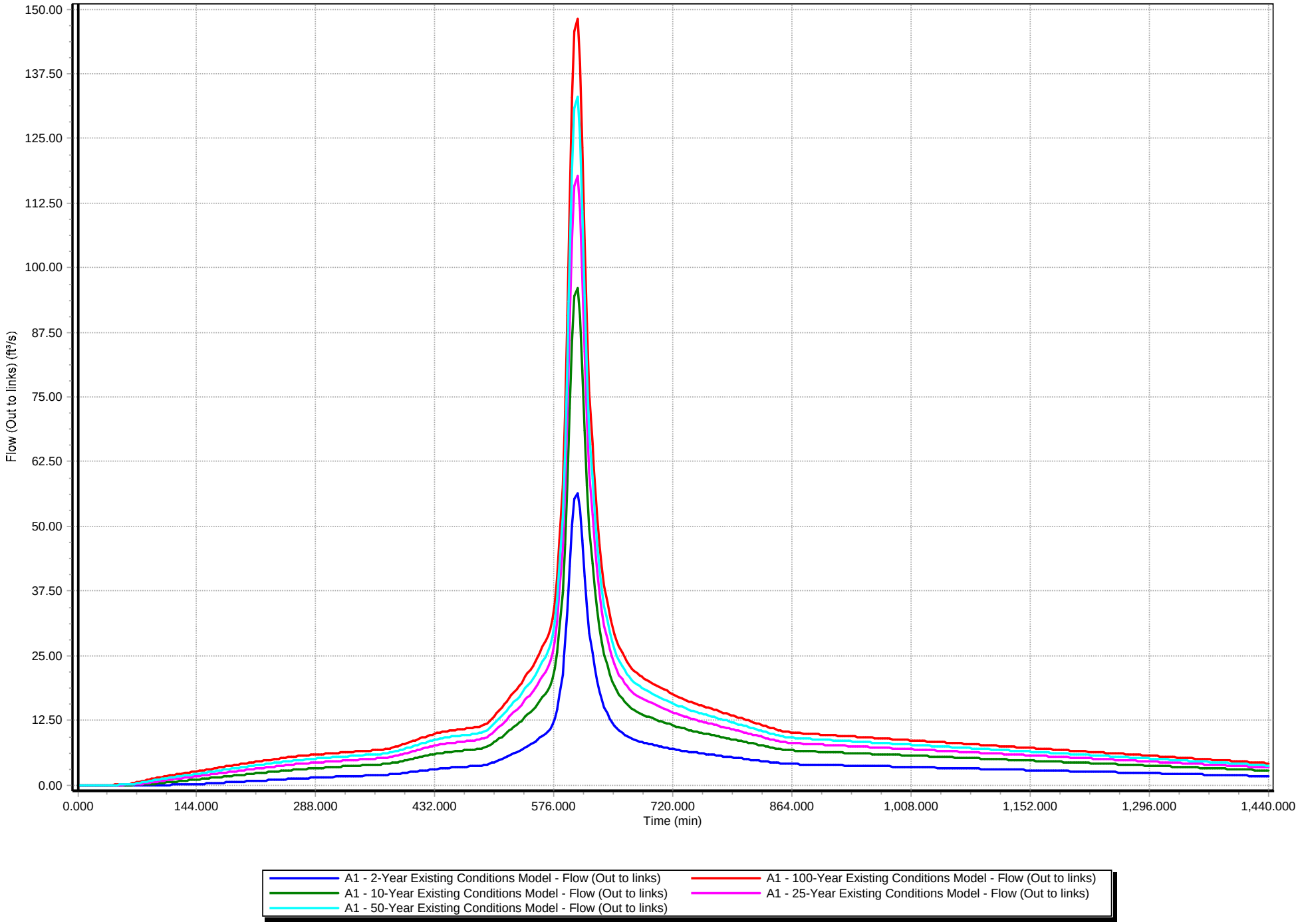
Gutter Calculation Summary

Label	Open Cross Section	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)

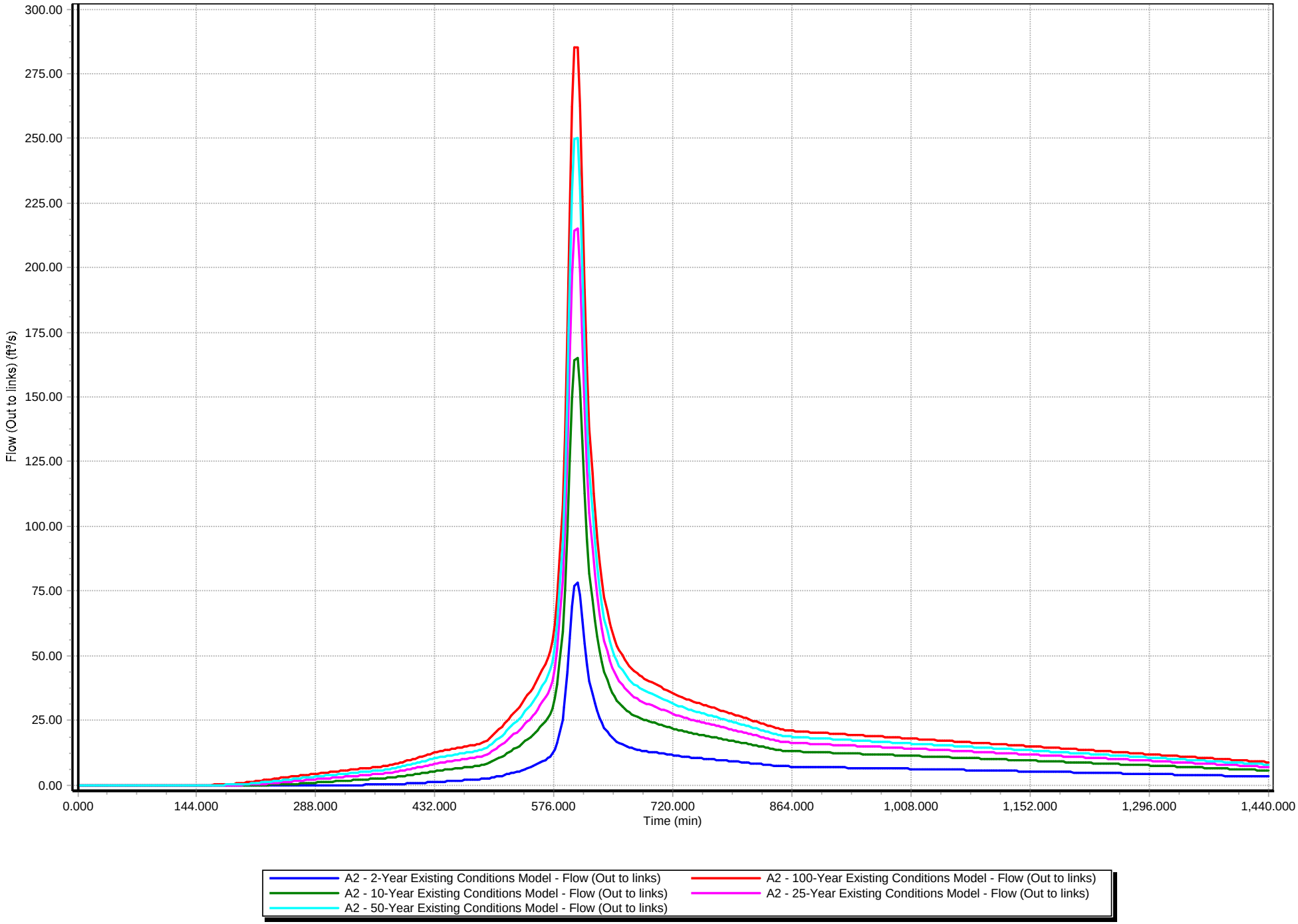
Attachment 3

Catchment Hydrographs

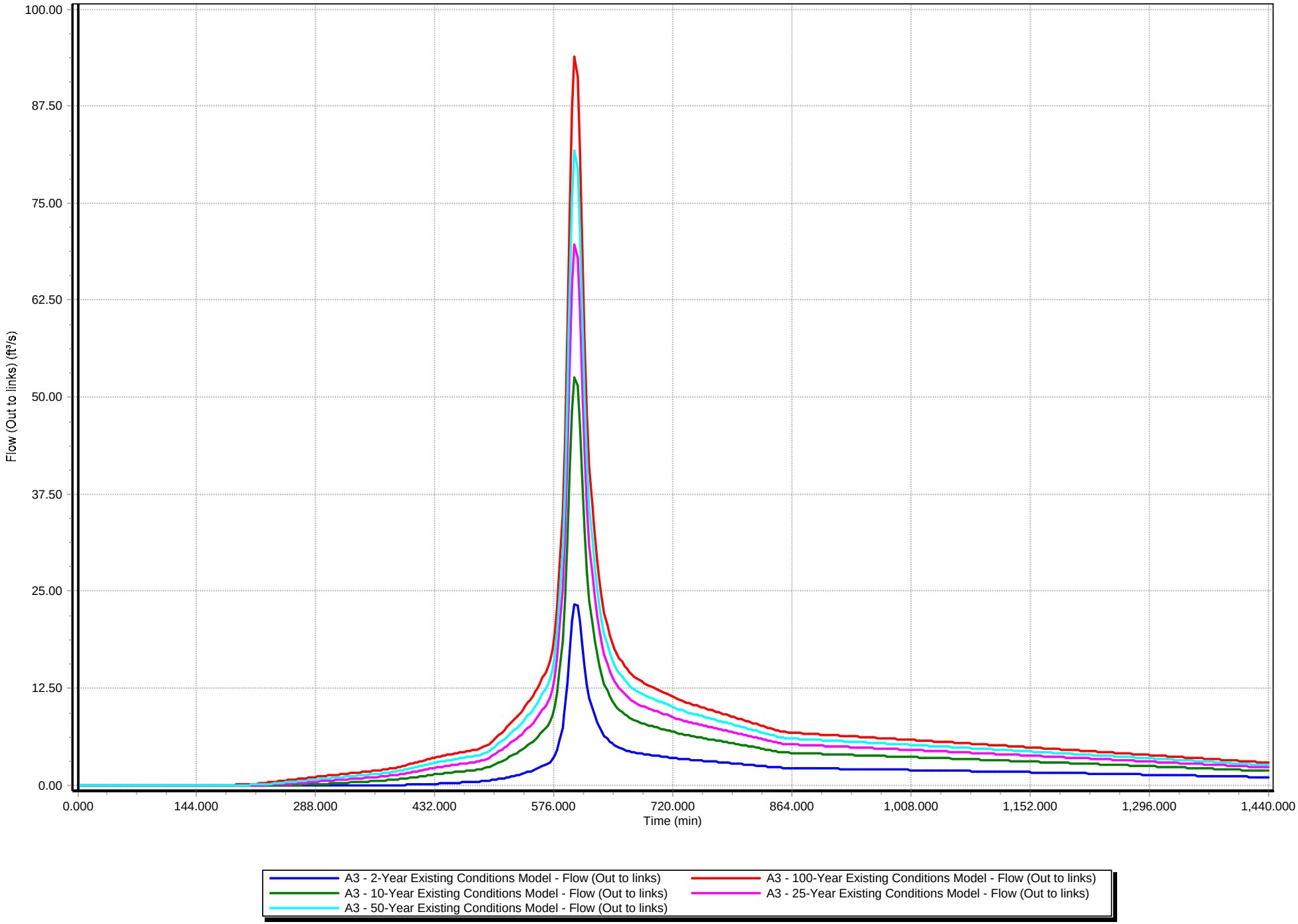
Existing Conditions Subcatchment Rainfall Hydrographs



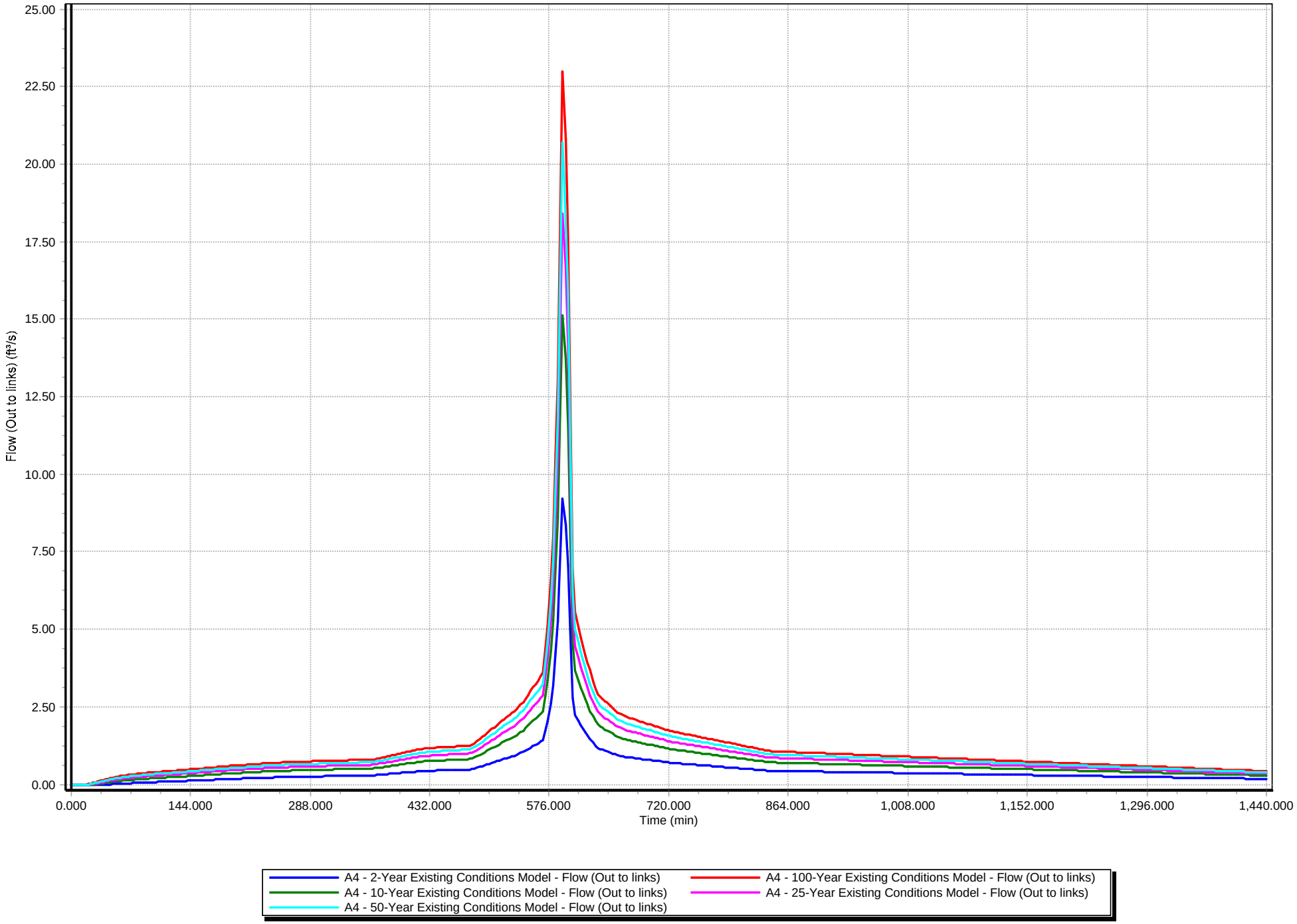
Existing Conditions Subcatchment Rainfall Hydrographs



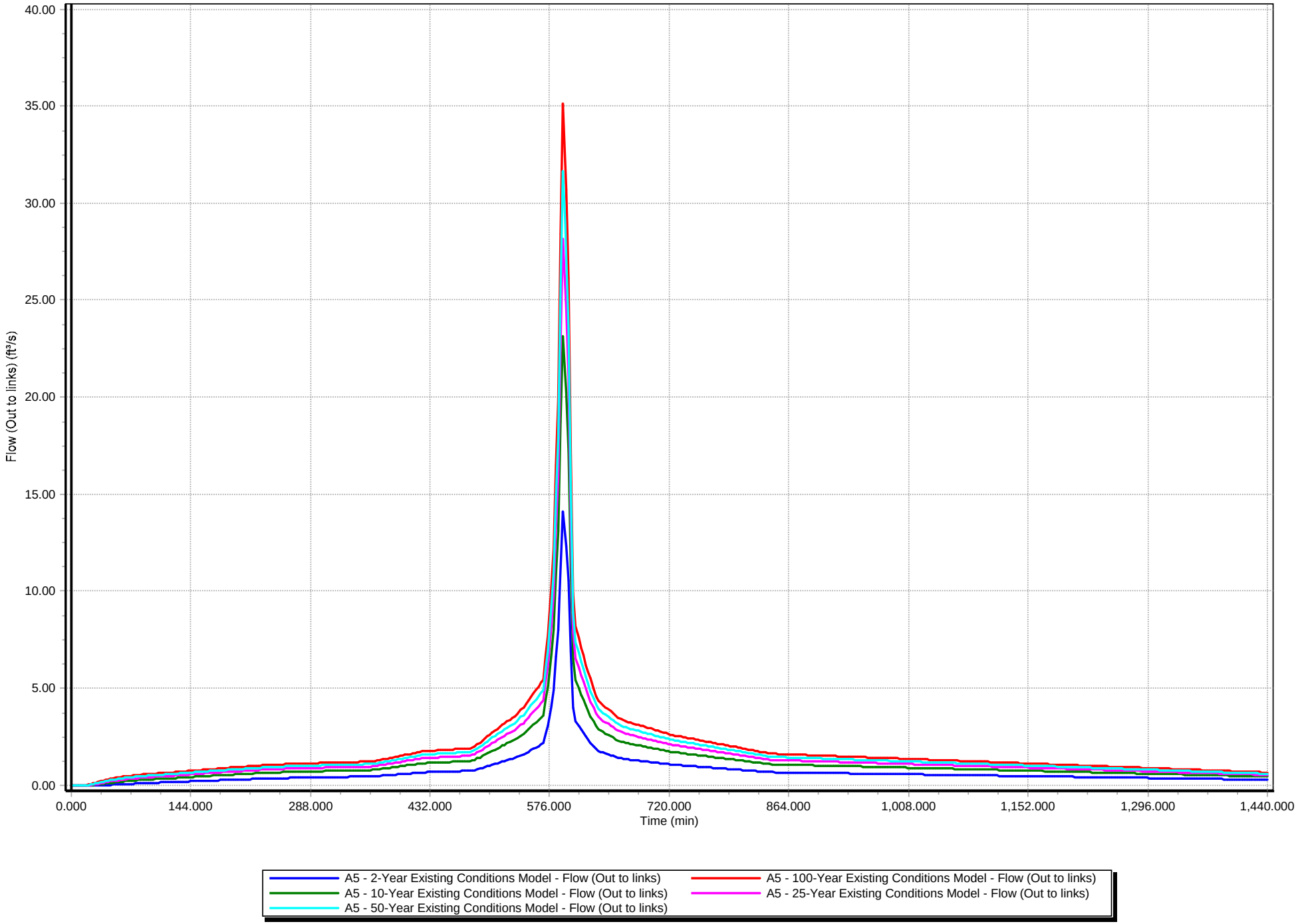
Existing Conditions Subcatchment Rainfall Hydrographs



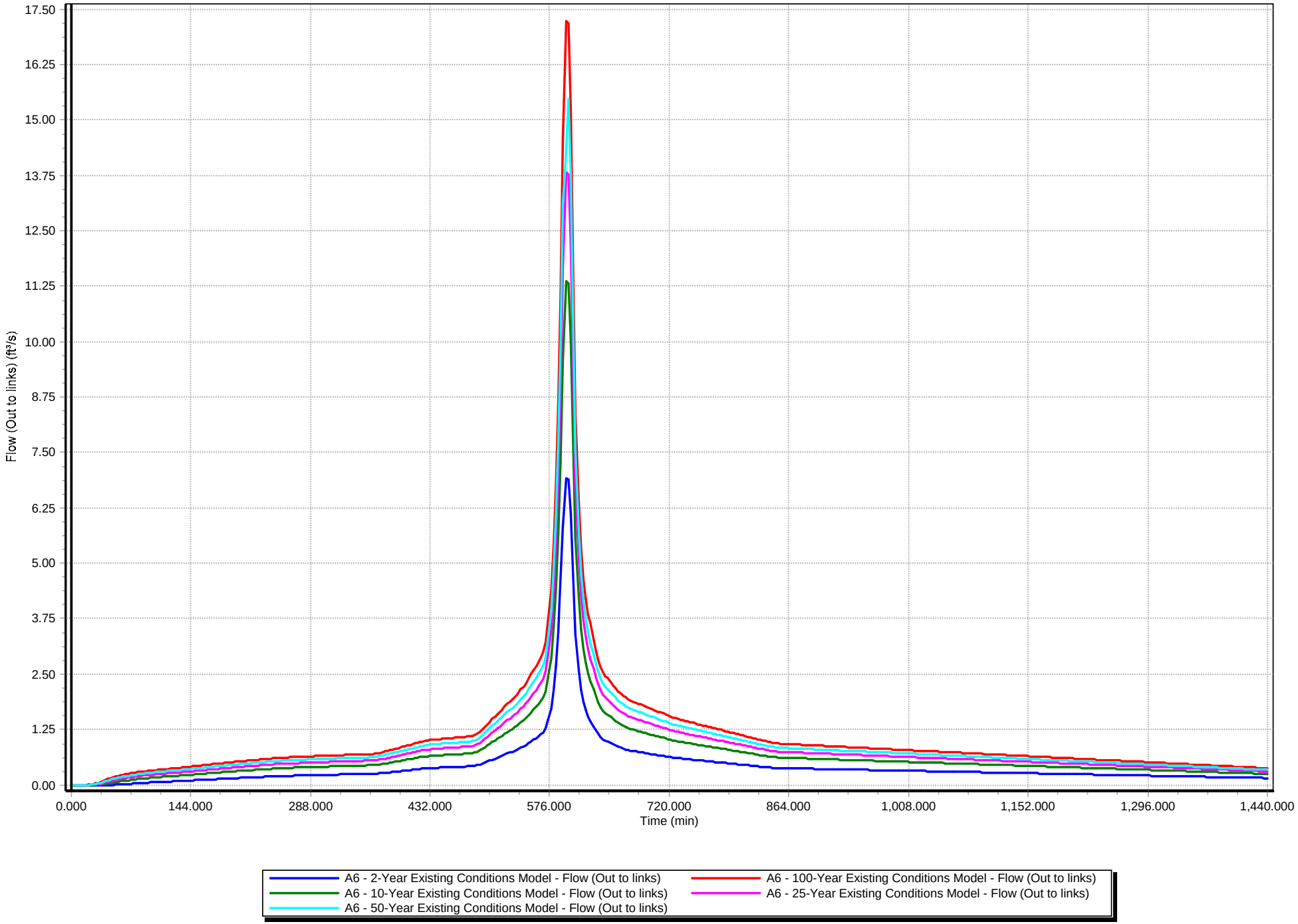
Existing Conditions Subcatchment Rainfall Hydrographs



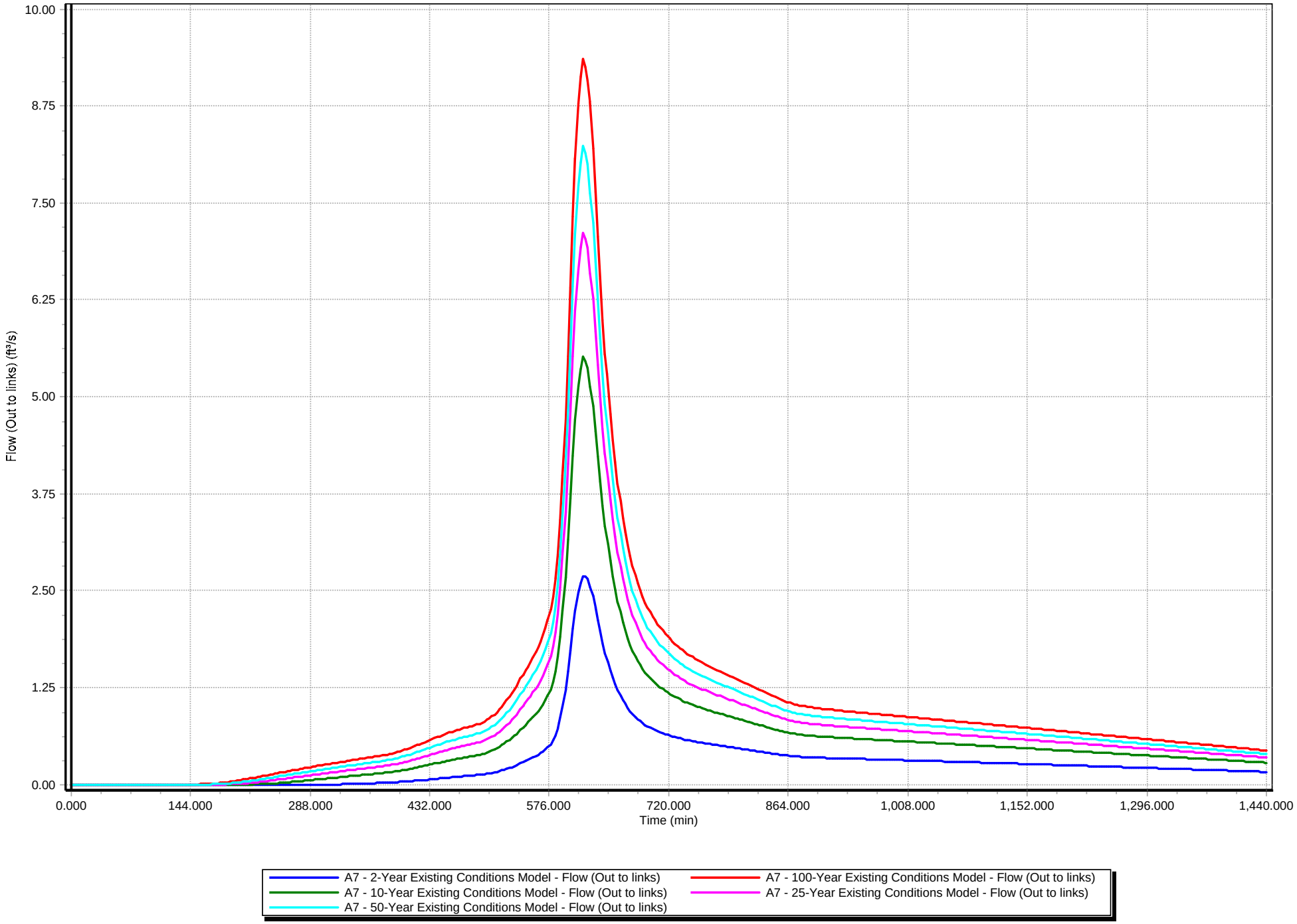
Existing Conditions Subcatchment Rainfall Hydrographs



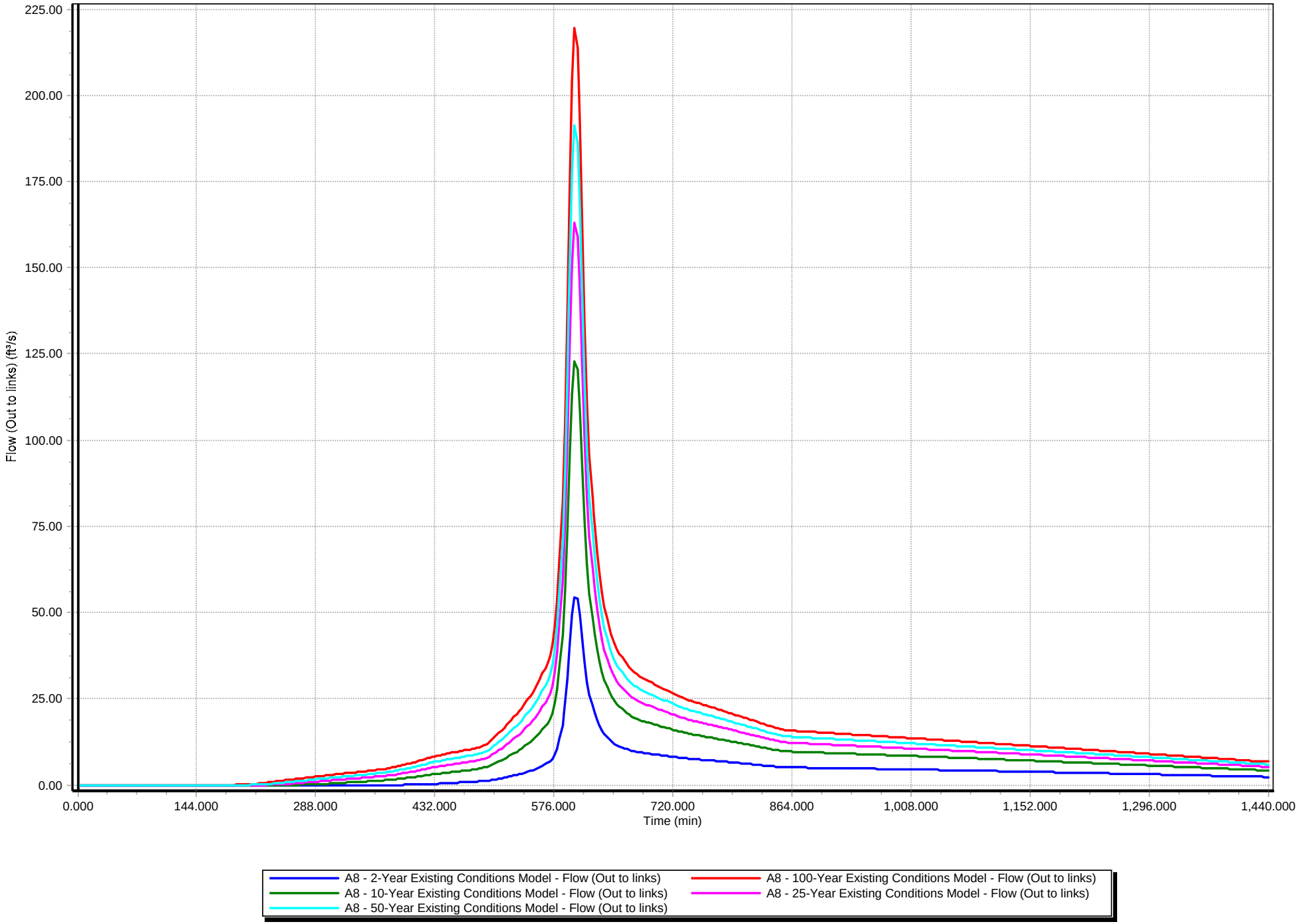
Existing Conditions Subcatchment Rainfall Hydrographs



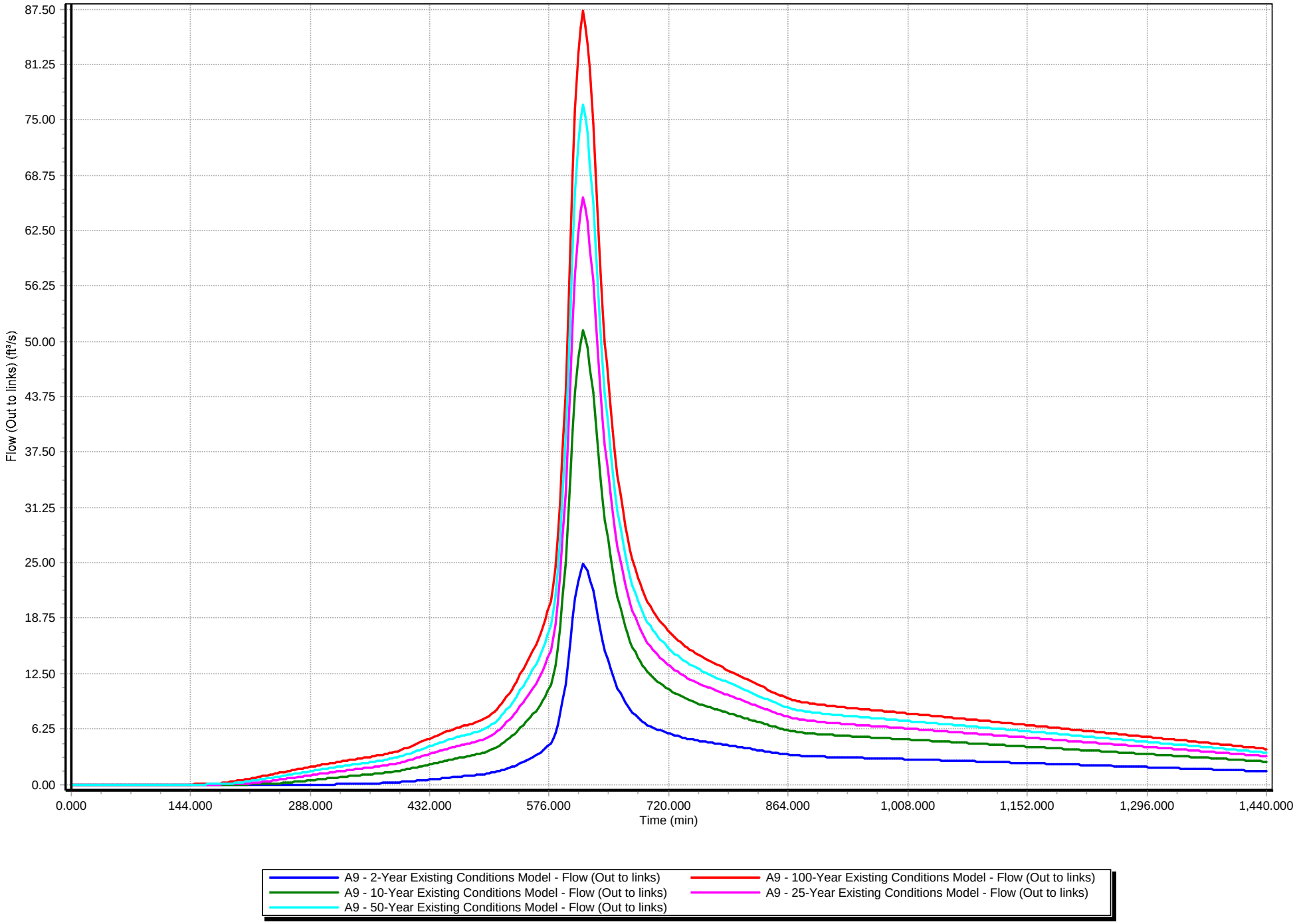
Existing Conditions Subcatchment Rainfall Hydrographs



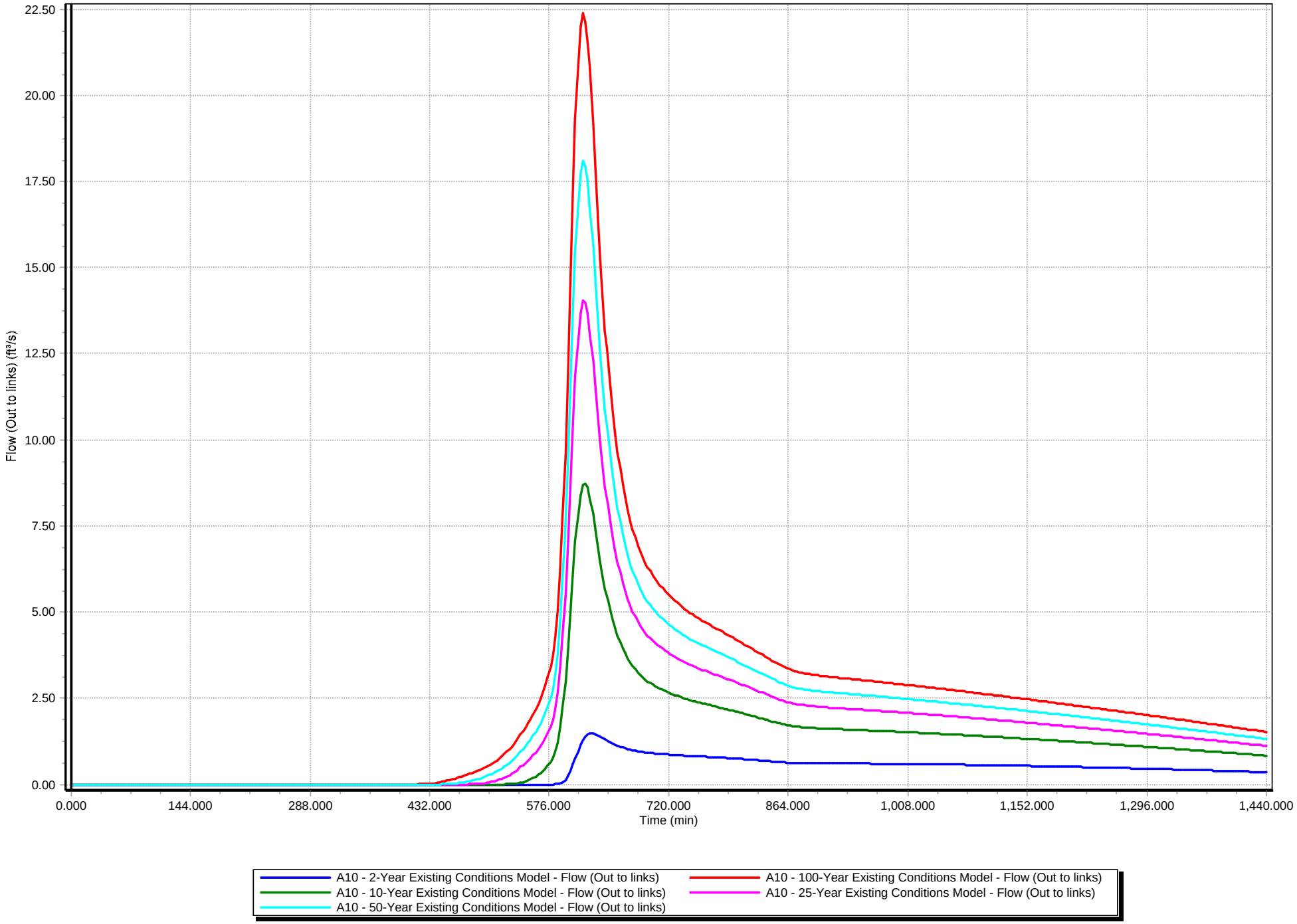
Existing Conditions Subcatchment Rainfall Hydrographs



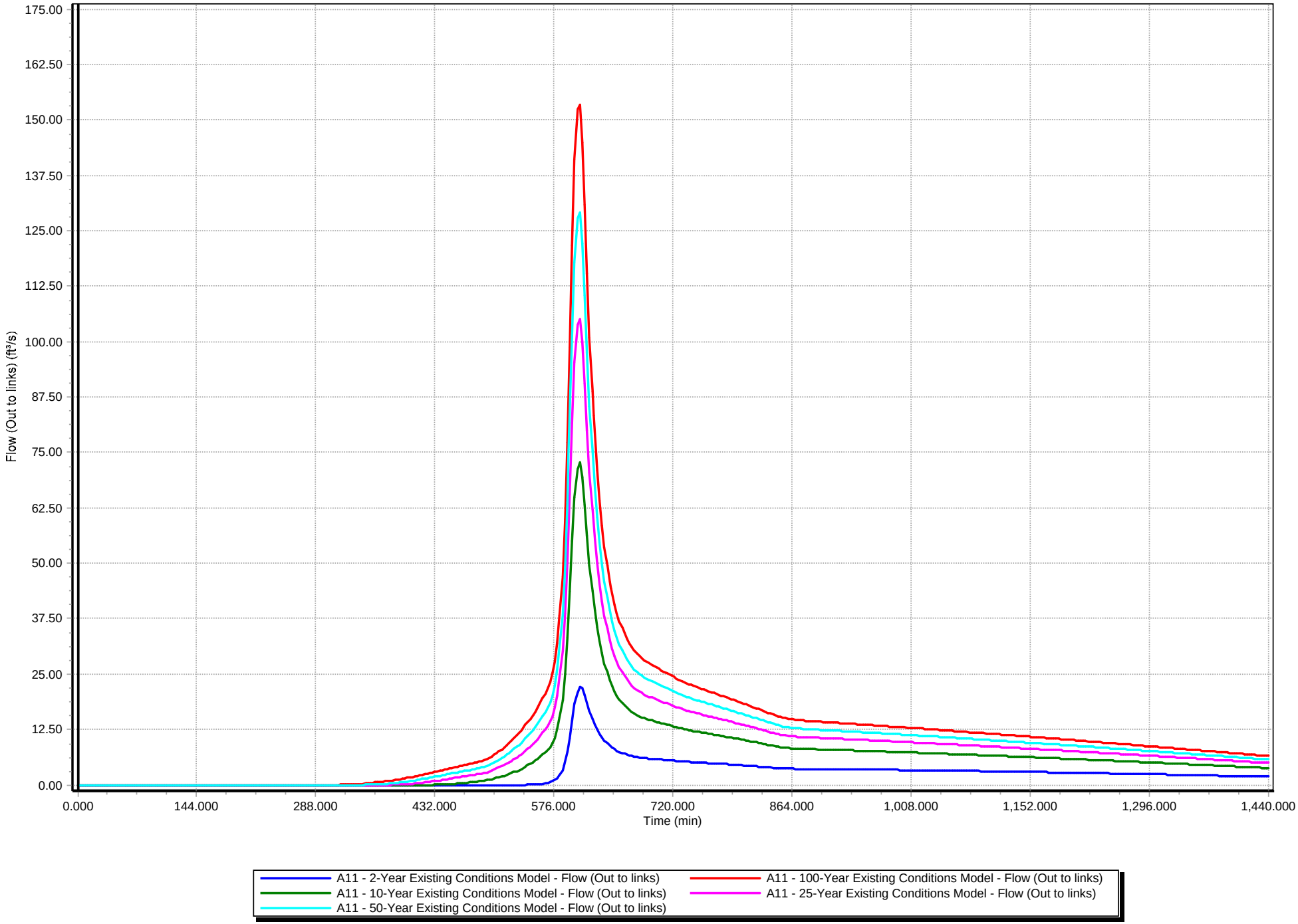
Existing Conditions Subcatchment Rainfall Hydrographs



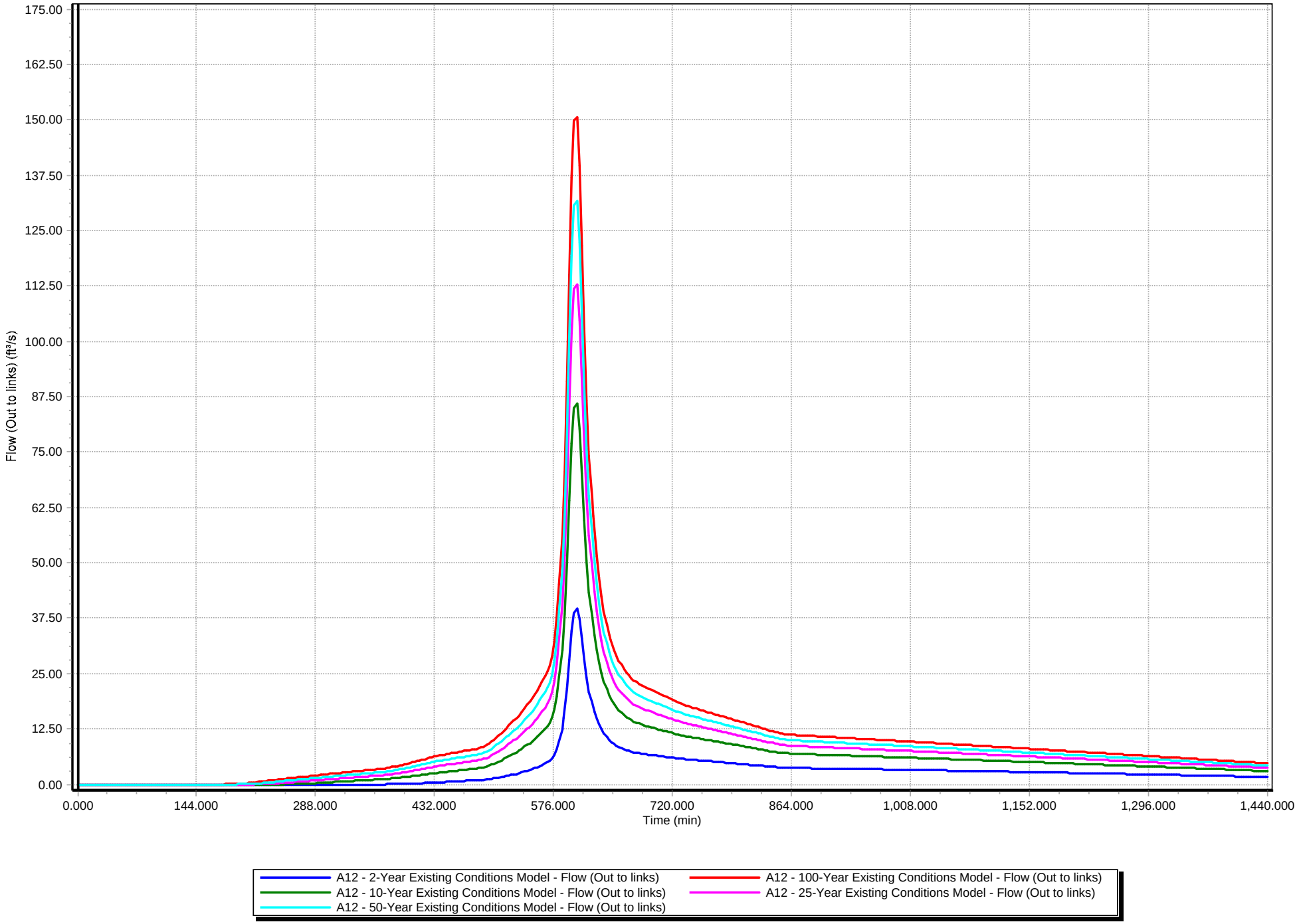
Existing Conditions Subcatchment Rainfall Hydrographs

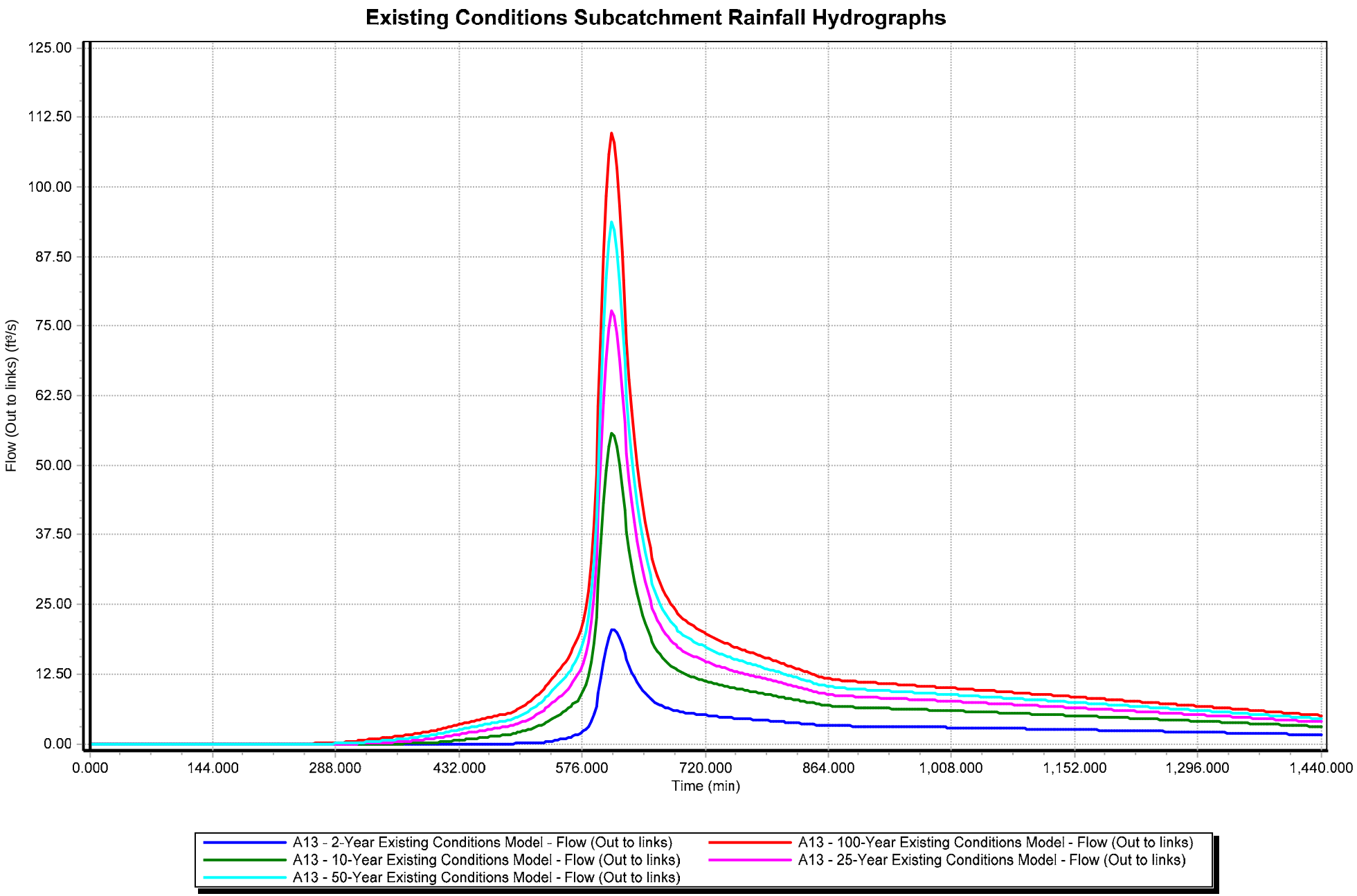


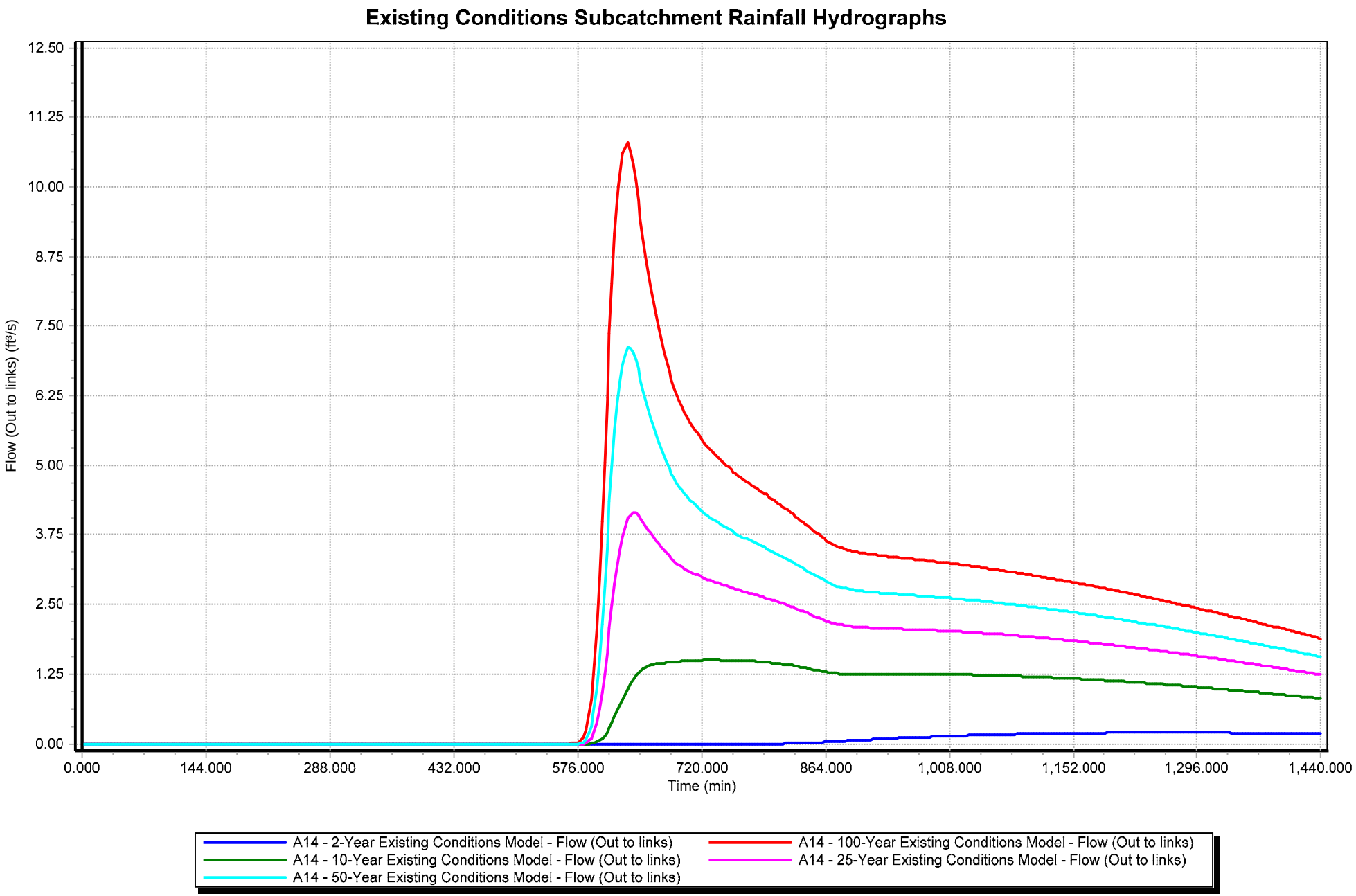
Existing Conditions Subcatchment Rainfall Hydrographs

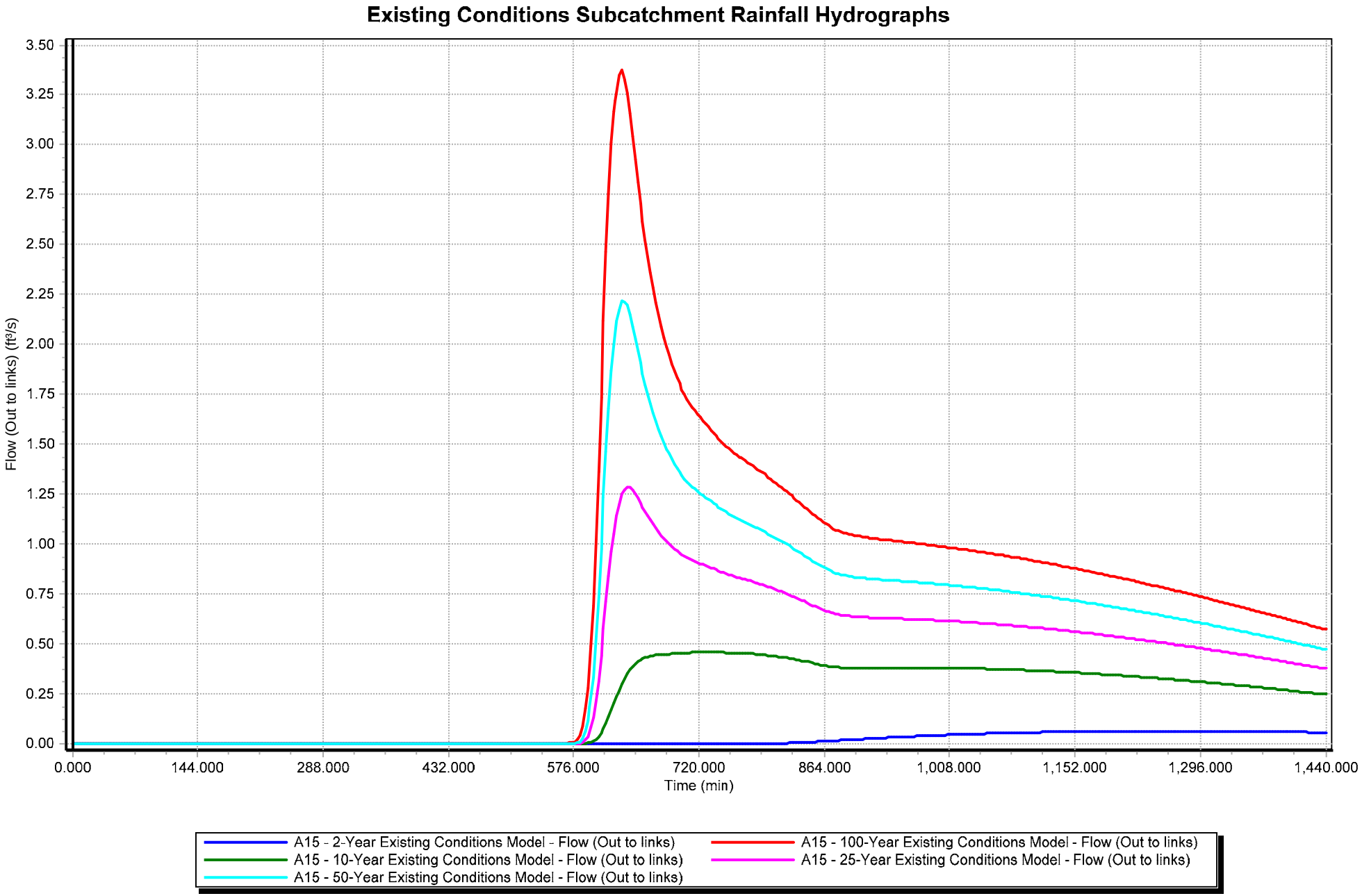


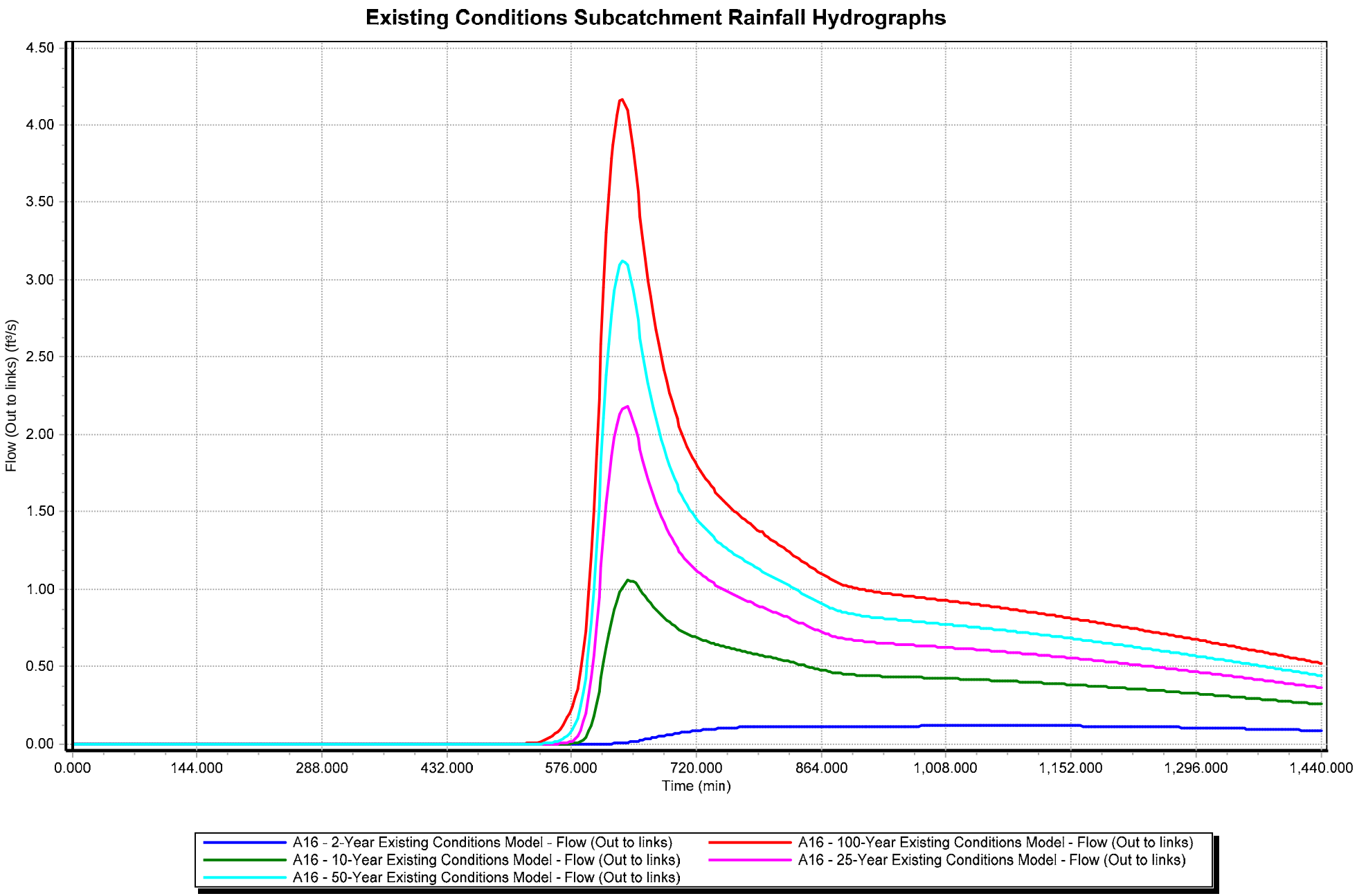
Existing Conditions Subcatchment Rainfall Hydrographs

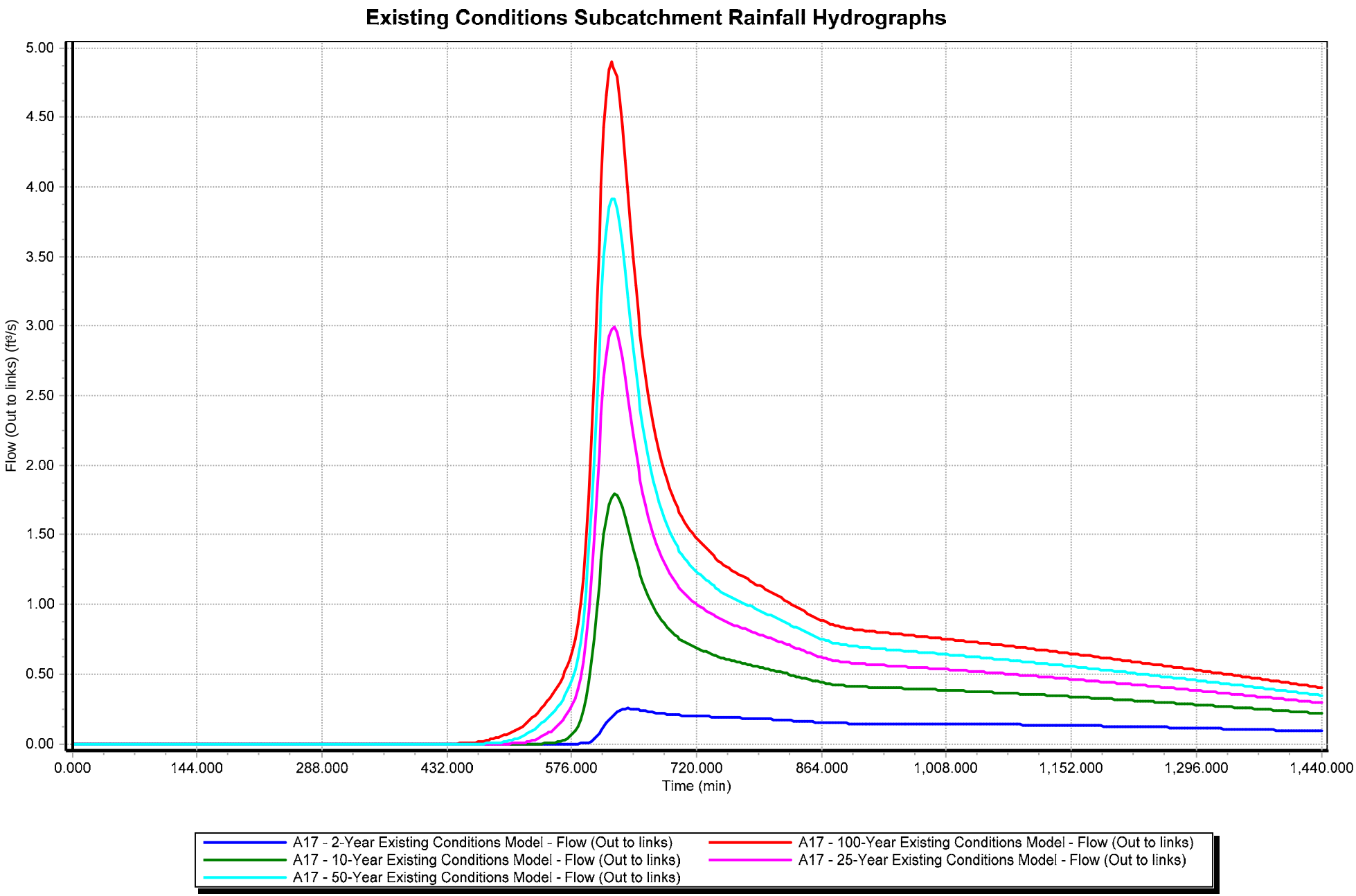


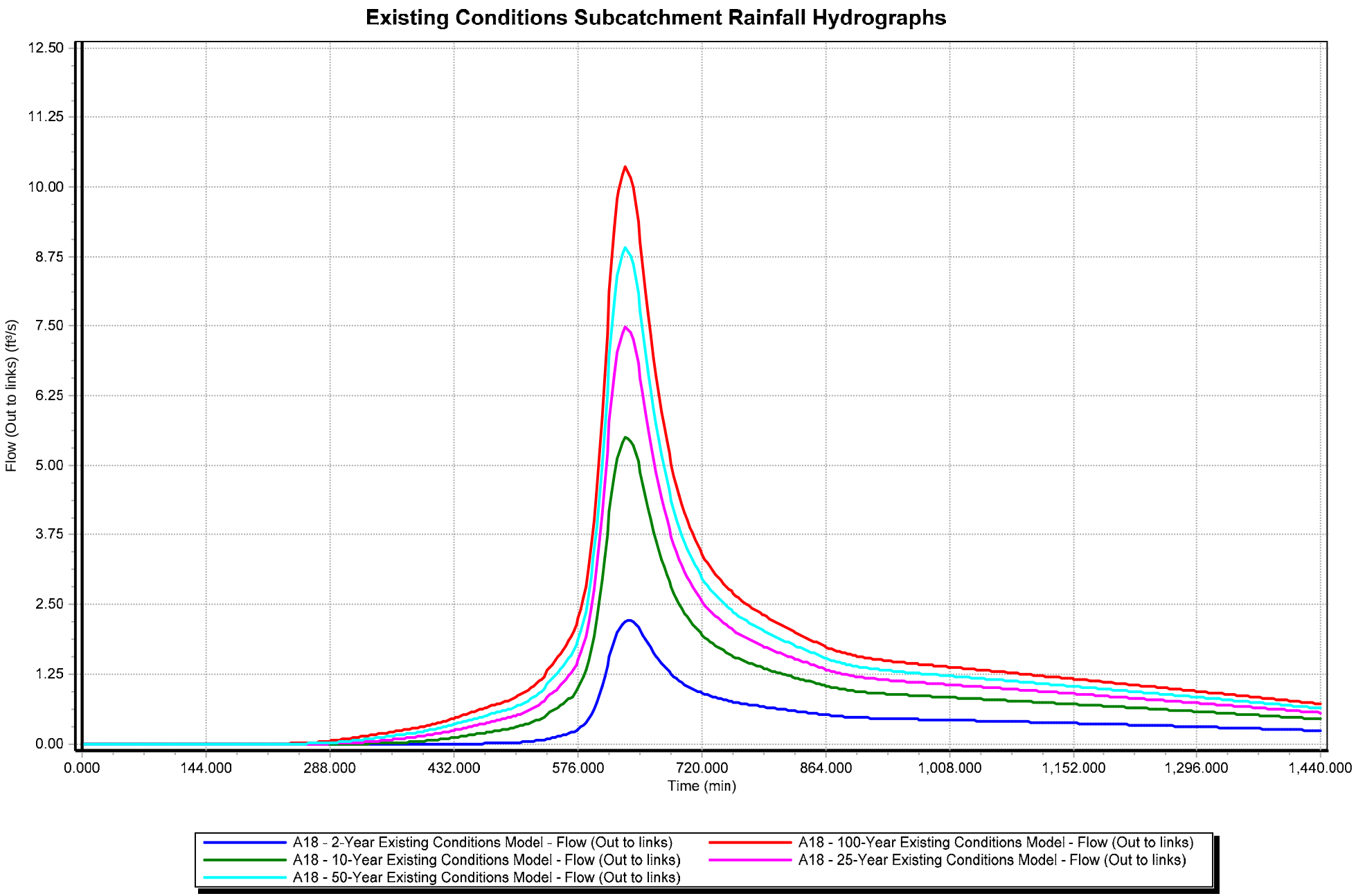

Existing Conditions Subcatchment Rainfall Hydrographs
Flow (Out to links) (ft³/s)
125.00
112.50
100.00
87.50
75.00
62.50
50.00
37.50
25.00
12.50
0.00
0.000
144.000
288.000
432.000
576.000
720.000
864.000
1,008.000
1,152.000
1,296.000
1,440.000
Time (min)
A13 - 2-Year Existing Conditions Model - Flow (Out to links)
A13 - 10-Year Existing Conditions Model - Flow (Out to links)
A13 - 50-Year Existing Conditions Model - Flow (Out to links)
A13 - 100-Year Existing Conditions Model - Flow (Out to links)
A13 - 25-Year Existing Conditions Model - Flow (Out to links)

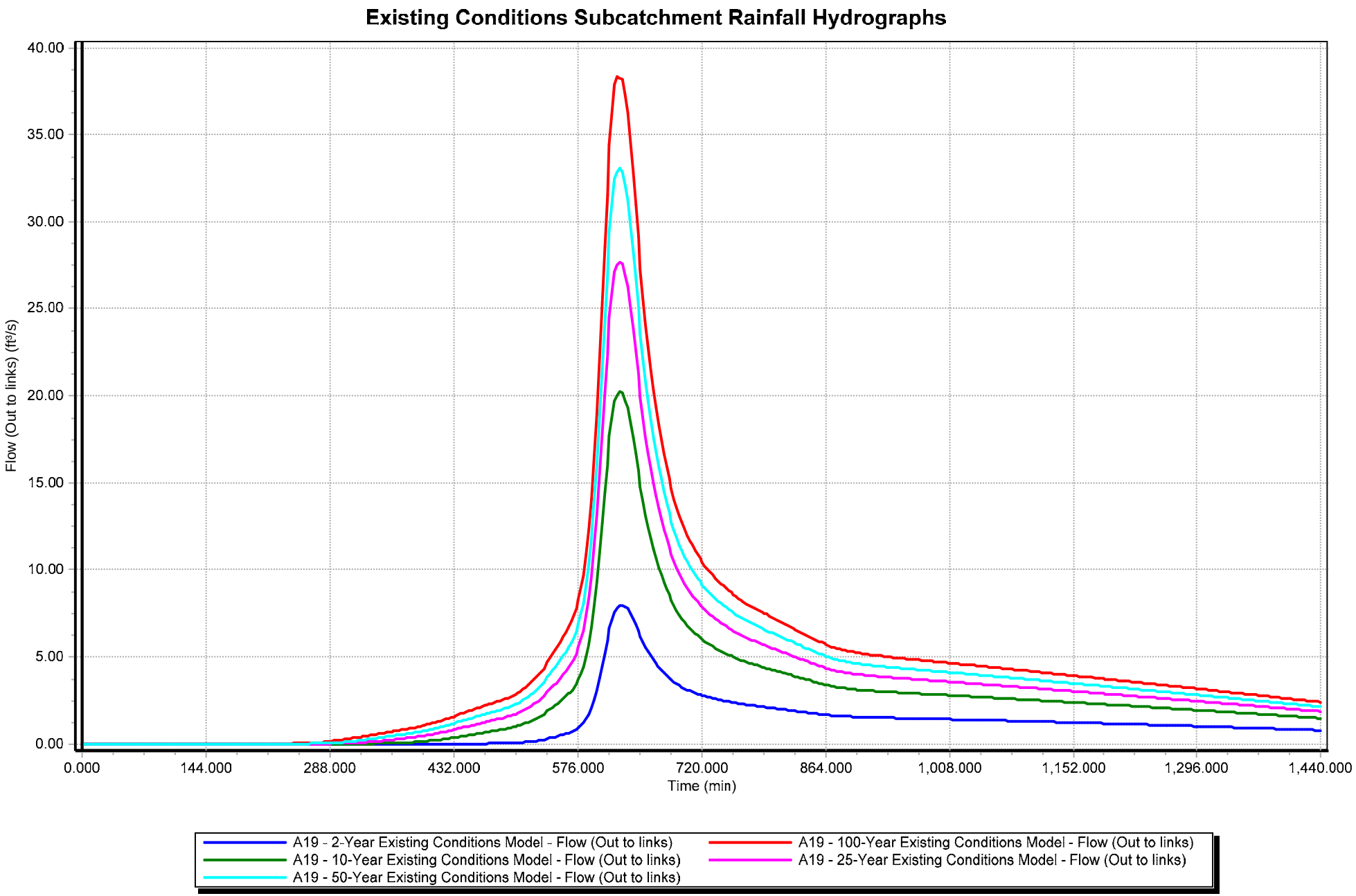

Existing Conditions Subcatchment Rainfall Hydrographs
Flow (Out to links) (ft³/s)
12.50
11.25
10.00
8.75
7.50
6.25
5.00
3.75
2.50
1.25
0.00
0.000
144.000
288.000
432.000
576.000
720.000
864.000
1,008.000
1,152.000
1,296.000
1,440.000
Time (min)
A14 - 2-Year Existing Conditions Model - Flow (Out to links)
A14 - 10-Year Existing Conditions Model - Flow (Out to links)
A14 - 50-Year Existing Conditions Model - Flow (Out to links)
A14 - 100-Year Existing Conditions Model - Flow (Out to links)
A14 - 25-Year Existing Conditions Model - Flow (Out to links)

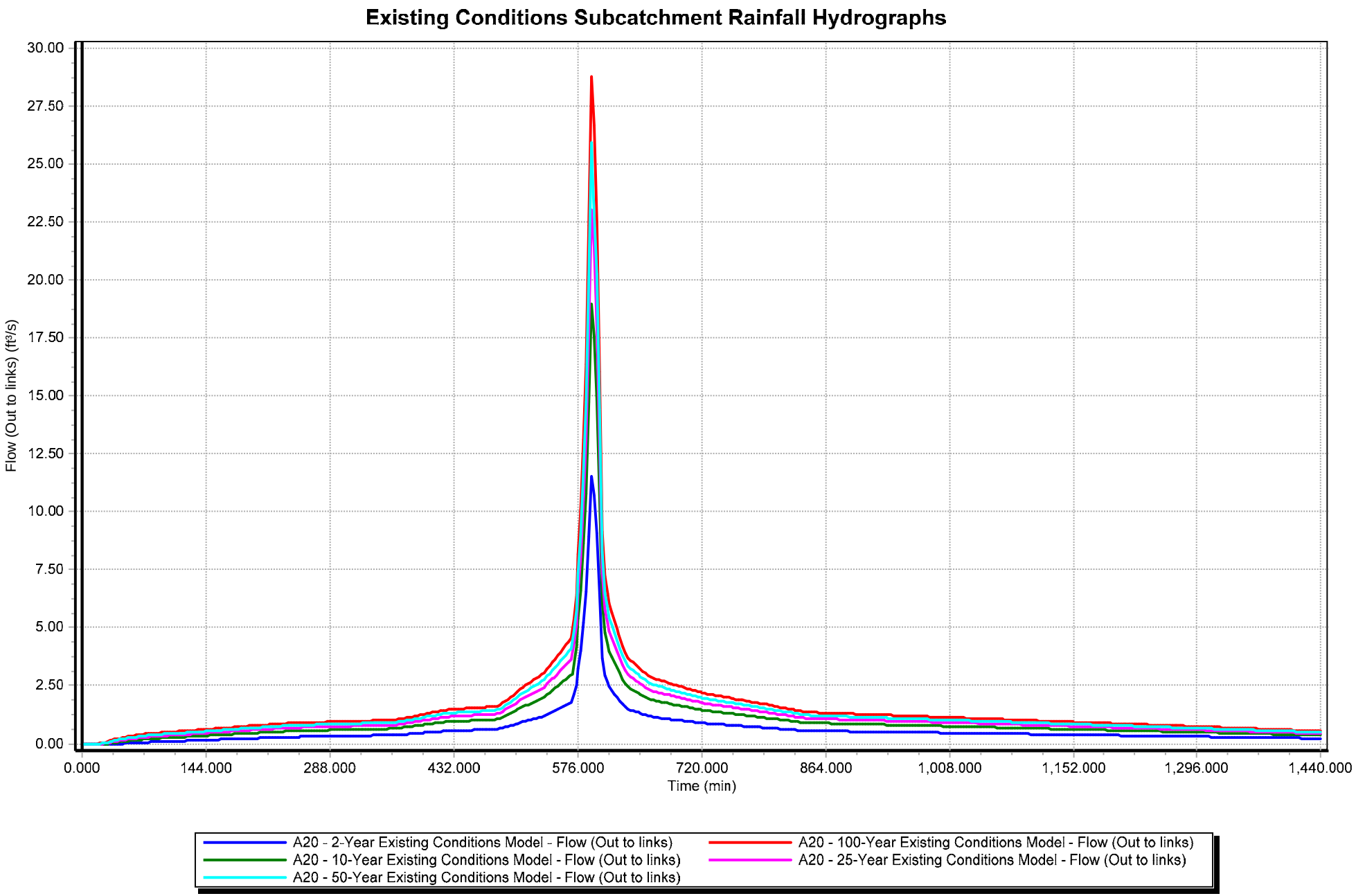

Existing Conditions Subcatchment Rainfall Hydrographs
Flow (Out to links) (ft³/s)
3.50
3.25
3.00
2.75
2.50
2.25
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
0.000
144.000
288.000
432.000
576.000
720.000
864.000
1,008.000
1,152.000
1,296.000
1,440.000
Time (min)
A15 - 2-Year Existing Conditions Model - Flow (Out to links)
A15 - 10-Year Existing Conditions Model - Flow (Out to links)
A15 - 50-Year Existing Conditions Model - Flow (Out to links)
A15 - 100-Year Existing Conditions Model - Flow (Out to links)
A15 - 25-Year Existing Conditions Model - Flow (Out to links)

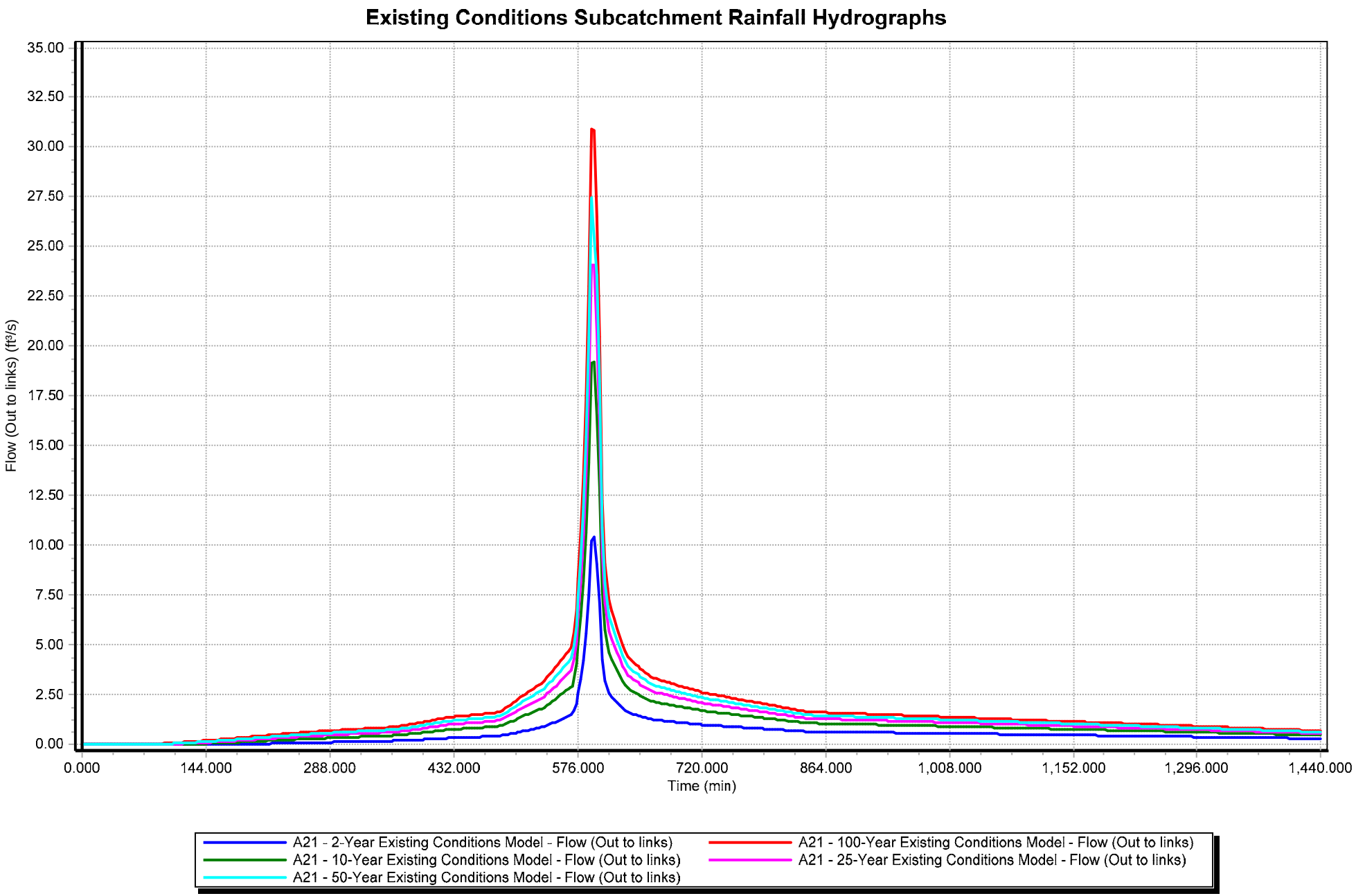

Existing Conditions Subcatchment Rainfall Hydrographs
Flow (Out to links) (ft³/s)
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
0.000
144.000
288.000
432.000
576.000
720.000
864.000
1,008.000
1,152.000
1,296.000
1,440.000
Time (min)
A16 - 2-Year Existing Conditions Model - Flow (Out to links)
A16 - 10-Year Existing Conditions Model - Flow (Out to links)
A16 - 50-Year Existing Conditions Model - Flow (Out to links)
A16 - 100-Year Existing Conditions Model - Flow (Out to links)
A16 - 25-Year Existing Conditions Model - Flow (Out to links)

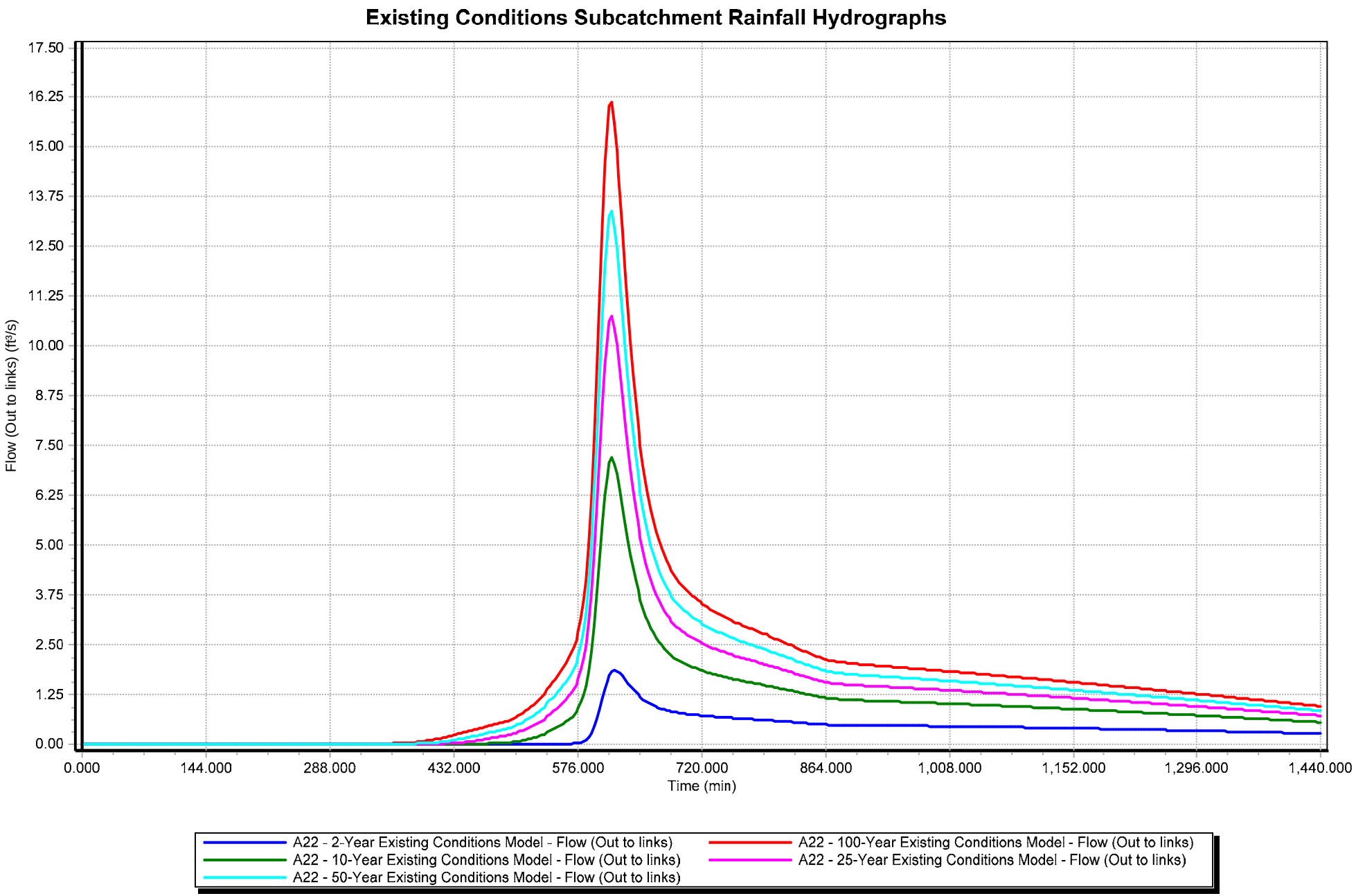

Existing Conditions Subcatchment Rainfall Hydrographs
Flow (Out to links) (ft³/s)
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
0.000
144.000
288.000
432.000
576.000
720.000
864.000
1,008.000
1,152.000
1,296.000
1,440.000
Time (min)
A17 - 2-Year Existing Conditions Model - Flow (Out to links)
A17 - 10-Year Existing Conditions Model - Flow (Out to links)
A17 - 50-Year Existing Conditions Model - Flow (Out to links)
A17 - 100-Year Existing Conditions Model - Flow (Out to links)
A17 - 25-Year Existing Conditions Model - Flow (Out to links)

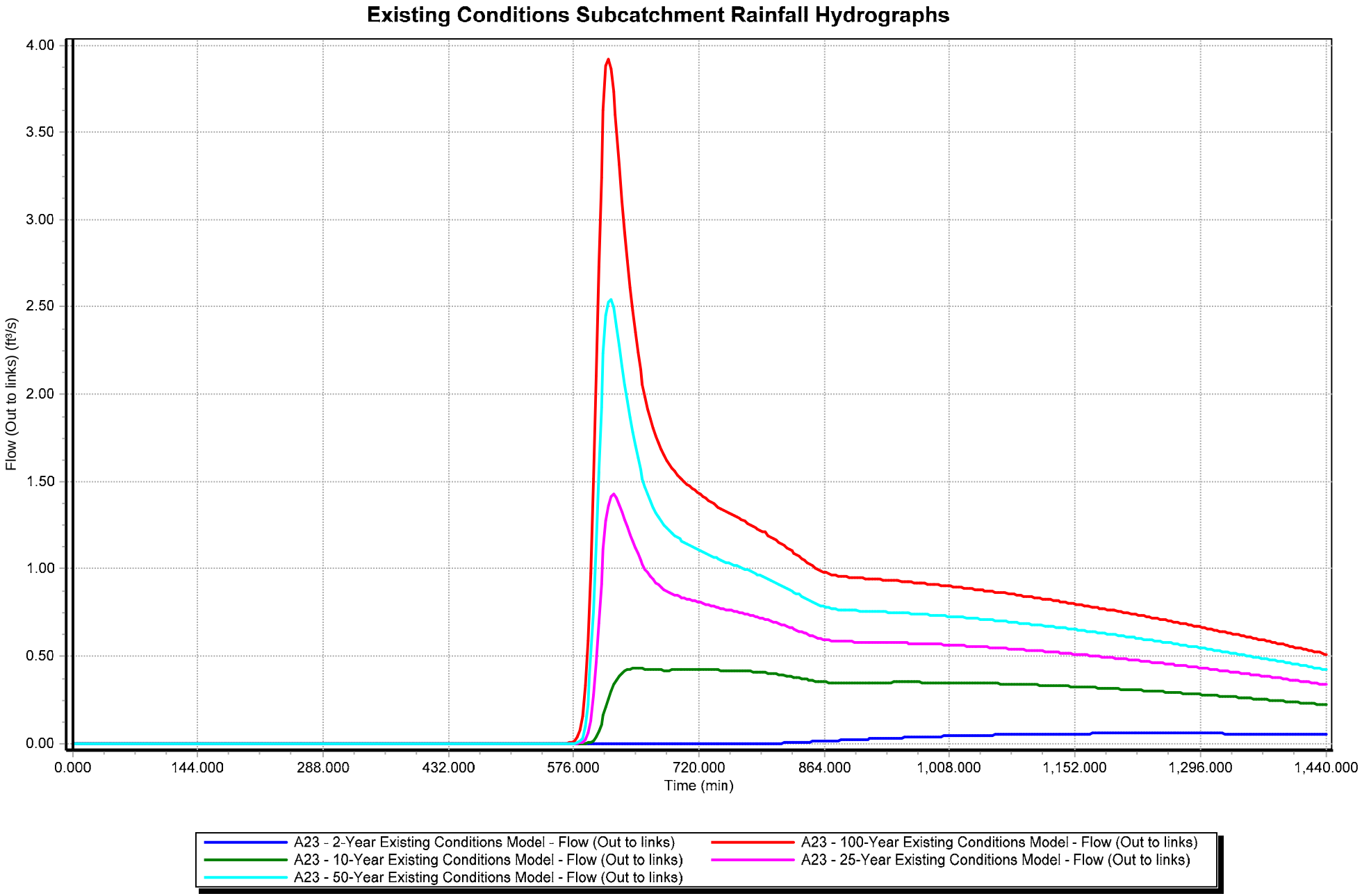

Existing Conditions Subcatchment Rainfall Hydrographs
Flow (Out to links) (ft³/s)
12.50
11.25
10.00
8.75
7.50
6.25
5.00
3.75
2.50
1.25
0.00
0.000
144.000
288.000
432.000
576.000
720.000
864.000
1,008.000
1,152.000
1,296.000
1,440.000
Time (min)
A18 - 2-Year Existing Conditions Model - Flow (Out to links)
A18 - 10-Year Existing Conditions Model - Flow (Out to links)
A18 - 50-Year Existing Conditions Model - Flow (Out to links)
A18 - 100-Year Existing Conditions Model - Flow (Out to links)
A18 - 25-Year Existing Conditions Model - Flow (Out to links)

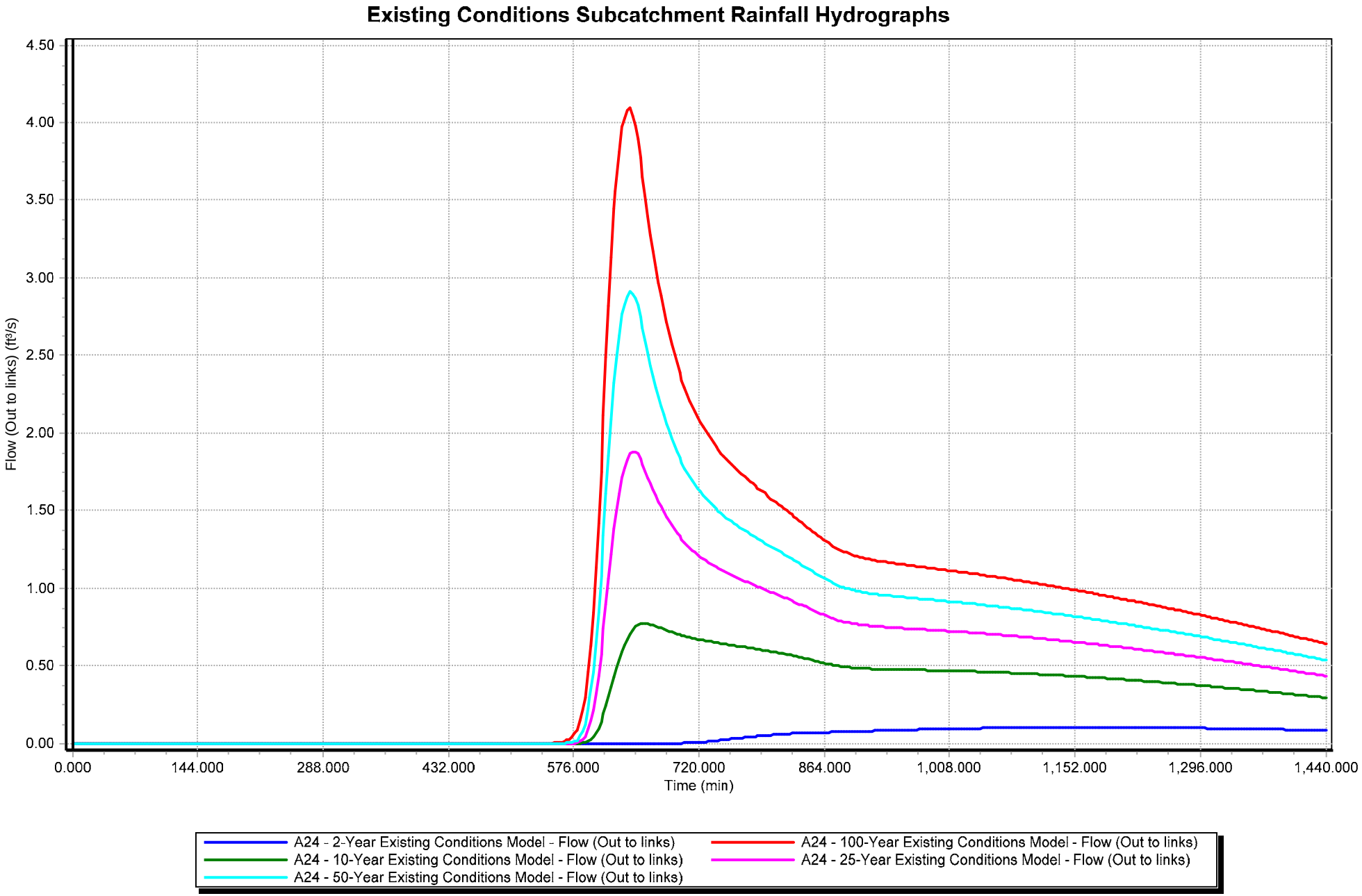

Existing Conditions Subcatchment Rainfall Hydrographs
Flow (Out to links) (ft³/s)
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
0.000
144.000
288.000
432.000
576.000
720.000
864.000
1,008.000
1,152.000
1,296.000
1,440.000
Time (min)
A19 - 2-Year Existing Conditions Model - Flow (Out to links)
A19 - 10-Year Existing Conditions Model - Flow (Out to links)
A19 - 50-Year Existing Conditions Model - Flow (Out to links)
A19 - 100-Year Existing Conditions Model - Flow (Out to links)
A19 - 25-Year Existing Conditions Model - Flow (Out to links)

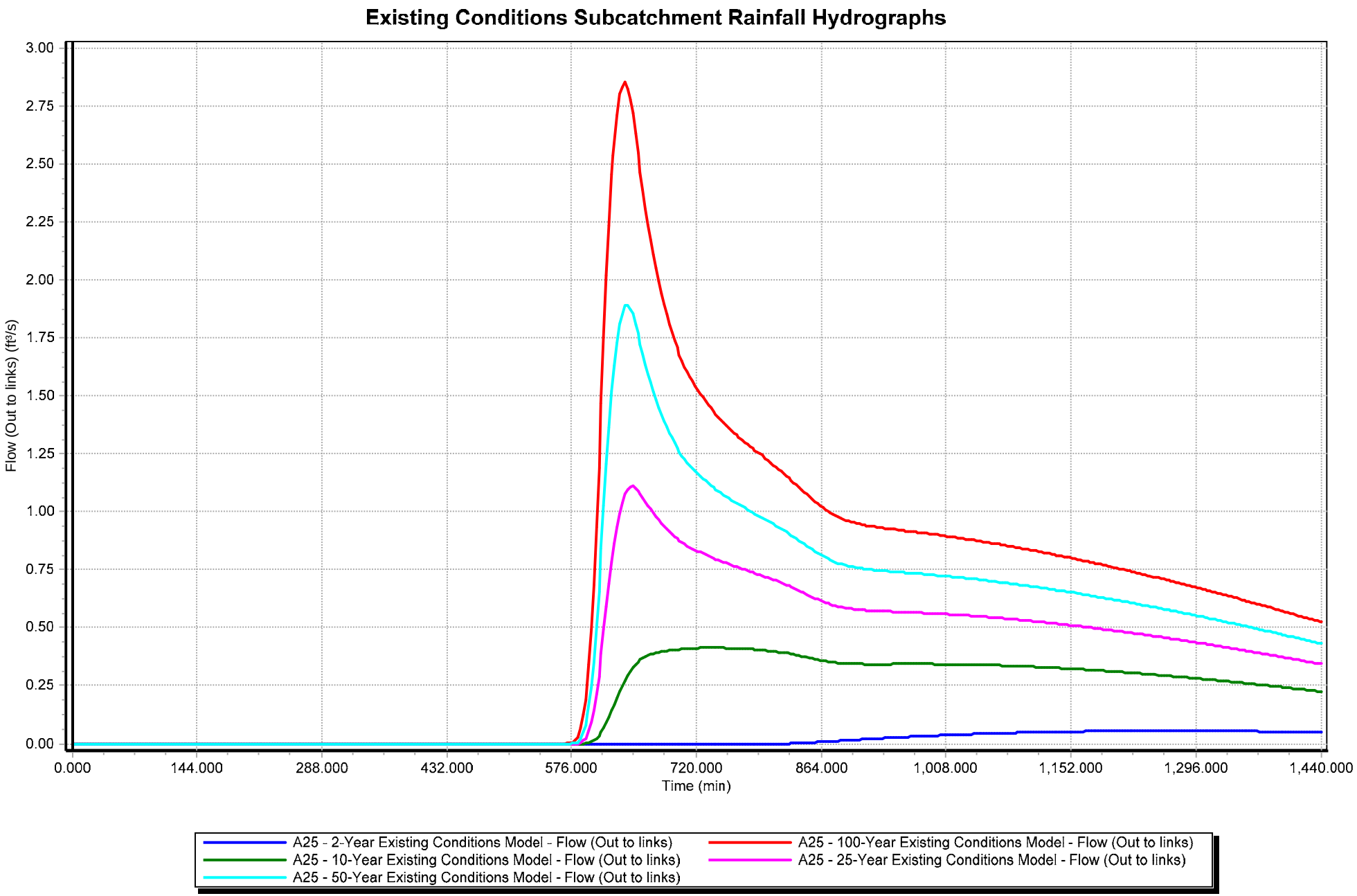

Existing Conditions Subcatchment Rainfall Hydrographs
Flow (Out to links) (ft³/s)
30.00
27.50
25.00
22.50
20.00
17.50
15.00
12.50
10.00
7.50
5.00
2.50
0.00
0.000
144.000
288.000
432.000
576.000
720.000
864.000
1,008.000
1,152.000
1,296.000
1,440.000
Time (min)
A20 - 2-Year Existing Conditions Model - Flow (Out to links)
A20 - 10-Year Existing Conditions Model - Flow (Out to links)
A20 - 50-Year Existing Conditions Model - Flow (Out to links)
A20 - 100-Year Existing Conditions Model - Flow (Out to links)
A20 - 25-Year Existing Conditions Model - Flow (Out to links)


Existing Conditions Subcatchment Rainfall Hydrographs
Flow (Out to links) (ft³/s)
35.00
32.50
30.00
27.50
25.00
22.50
20.00
17.50
15.00
12.50
10.00
7.50
5.00
2.50
0.00
0.000
144.000
288.000
432.000
576.000
720.000
864.000
1,008.000
1,152.000
1,296.000
1,440.000
Time (min)
A21 - 2-Year Existing Conditions Model - Flow (Out to links)
A21 - 10-Year Existing Conditions Model - Flow (Out to links)
A21 - 50-Year Existing Conditions Model - Flow (Out to links)
A21 - 100-Year Existing Conditions Model - Flow (Out to links)
A21 - 25-Year Existing Conditions Model - Flow (Out to links)

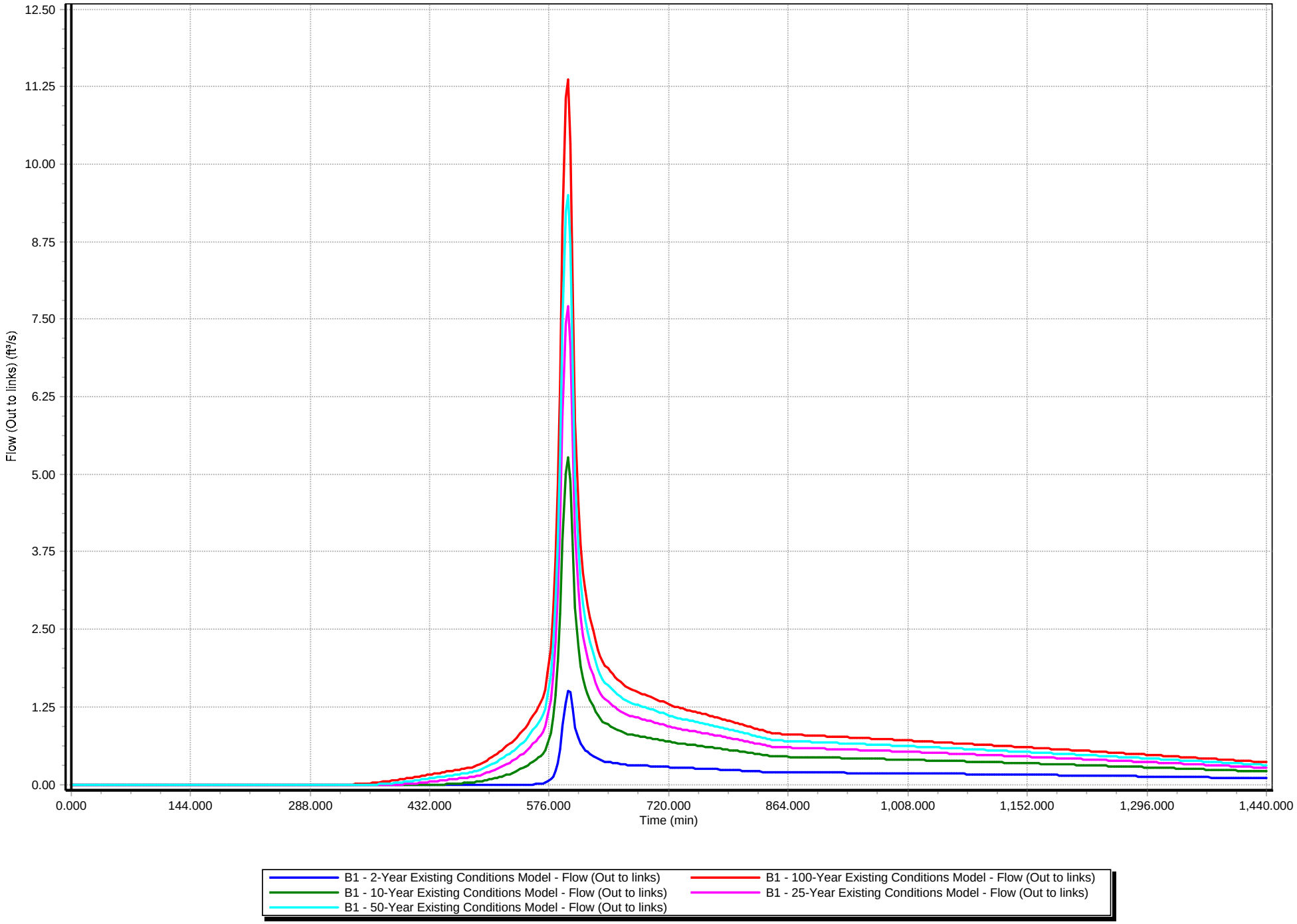

Existing Conditions Subcatchment Rainfall Hydrographs
Flow (Out to links) (ft³/s)
17.50
16.25
15.00
13.75
12.50
11.25
10.00
8.75
7.50
6.25
5.00
3.75
2.50
1.25
0.00
0.000
144.000
288.000
432.000
576.000
720.000
864.000
1,008.000
1,152.000
1,296.000
1,440.000
Time (min)
A22 - 2-Year Existing Conditions Model - Flow (Out to links)
A22 - 10-Year Existing Conditions Model - Flow (Out to links)
A22 - 50-Year Existing Conditions Model - Flow (Out to links)
A22 - 100-Year Existing Conditions Model - Flow (Out to links)
A22 - 25-Year Existing Conditions Model - Flow (Out to links)


Existing Conditions Subcatchment Rainfall Hydrographs
Flow (Out to links) (ft³/s)
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
0.000
144.000
288.000
432.000
576.000
720.000
864.000
1,008.000
1,152.000
1,296.000
1,440.000
Time (min)
A23 - 2-Year Existing Conditions Model - Flow (Out to links)
A23 - 10-Year Existing Conditions Model - Flow (Out to links)
A23 - 50-Year Existing Conditions Model - Flow (Out to links)
A23 - 100-Year Existing Conditions Model - Flow (Out to links)
A23 - 25-Year Existing Conditions Model - Flow (Out to links)

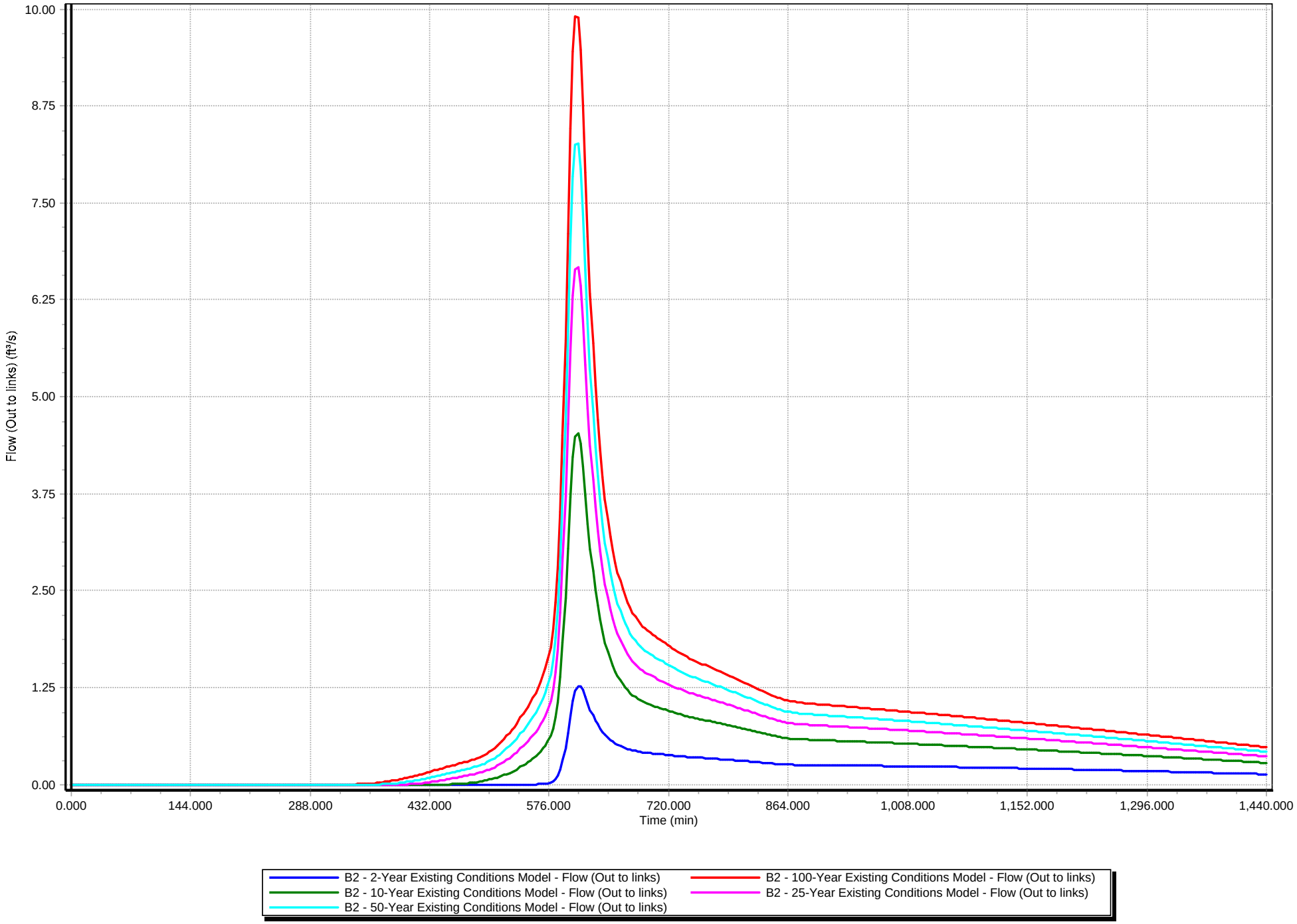

Existing Conditions Subcatchment Rainfall Hydrographs
Flow (Out to links) (ft³/s)
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
0.000
144.000
288.000
432.000
576.000
720.000
864.000
1,008.000
1,152.000
1,296.000
1,440.000
Time (min)
A24 - 2-Year Existing Conditions Model - Flow (Out to links)
A24 - 10-Year Existing Conditions Model - Flow (Out to links)
A24 - 50-Year Existing Conditions Model - Flow (Out to links)
A24 - 100-Year Existing Conditions Model - Flow (Out to links)
A24 - 25-Year Existing Conditions Model - Flow (Out to links)


Existing Conditions Subcatchment Rainfall Hydrographs
Flow (Out to links) (ft³/s)
3.00
2.75
2.50
2.25
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
0.000
144.000
288.000
432.000
576.000
720.000
864.000
1,008.000
1,152.000
1,296.000
1,440.000
Time (min)
A25 - 2-Year Existing Conditions Model - Flow (Out to links)
A25 - 10-Year Existing Conditions Model - Flow (Out to links)
A25 - 50-Year Existing Conditions Model - Flow (Out to links)
A25 - 100-Year Existing Conditions Model - Flow (Out to links)
A25 - 25-Year Existing Conditions Model - Flow (Out to links)

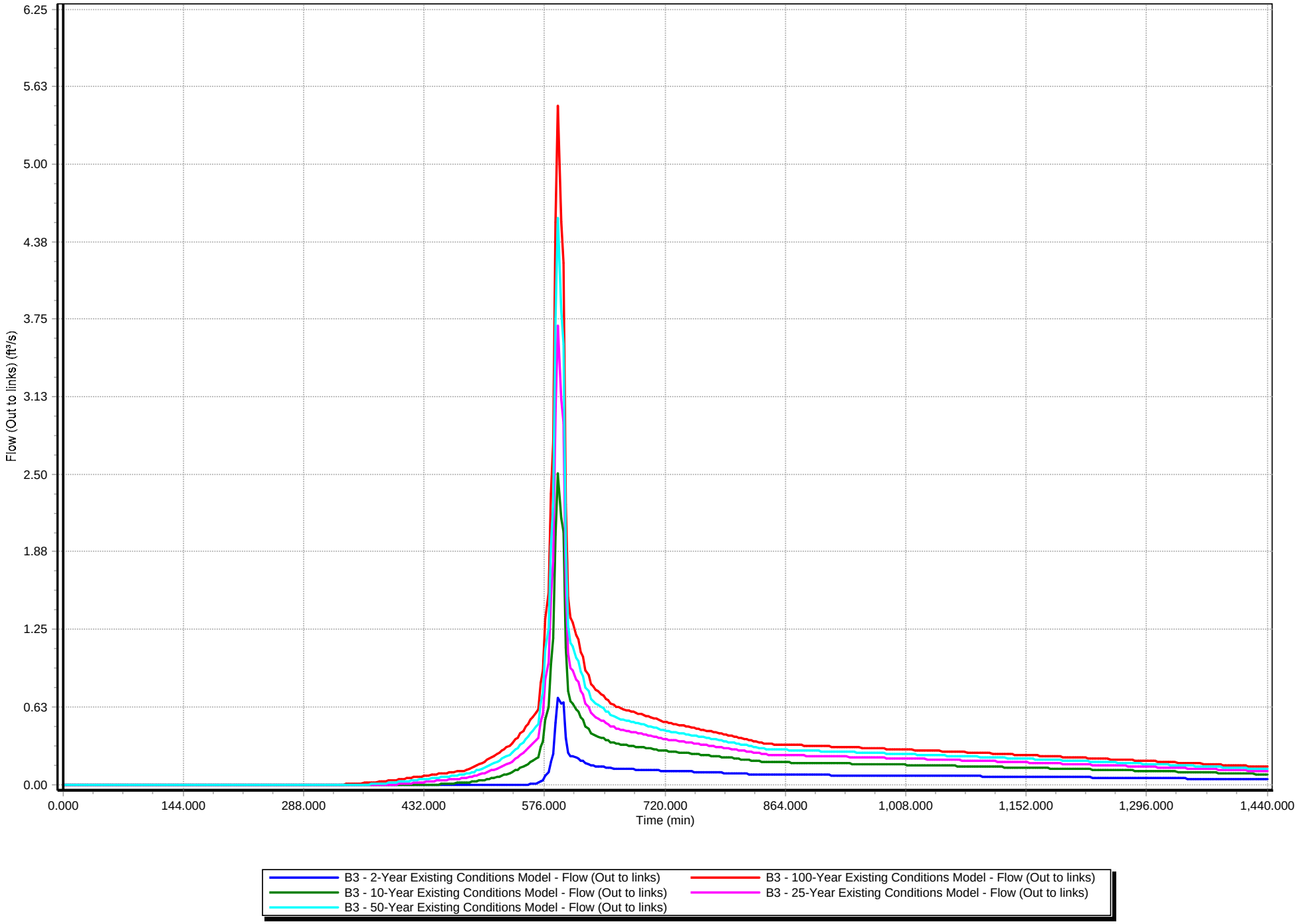
Existing Conditions Subcatchment Rainfall Hydrographs



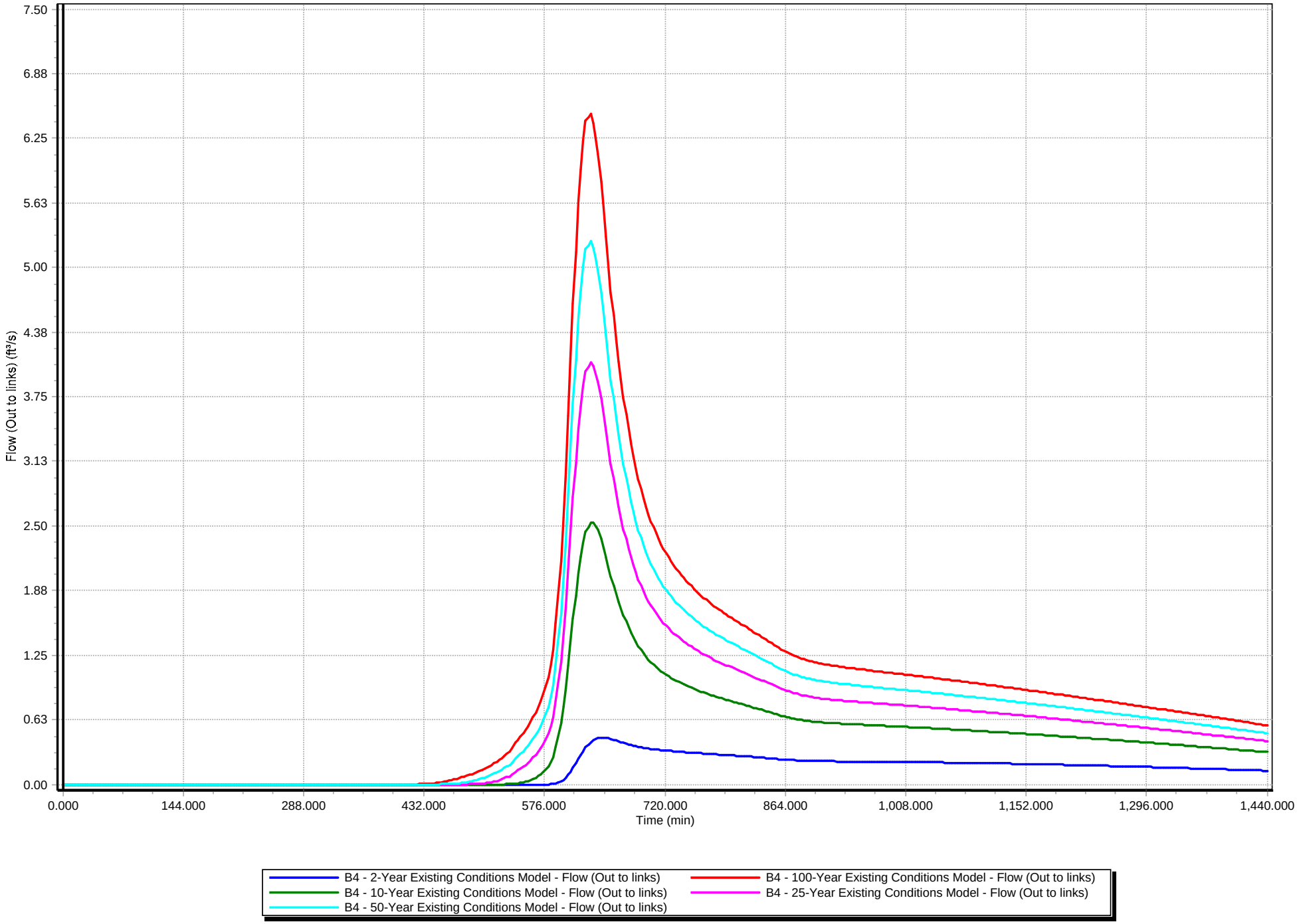
Existing Conditions Subcatchment Rainfall Hydrographs



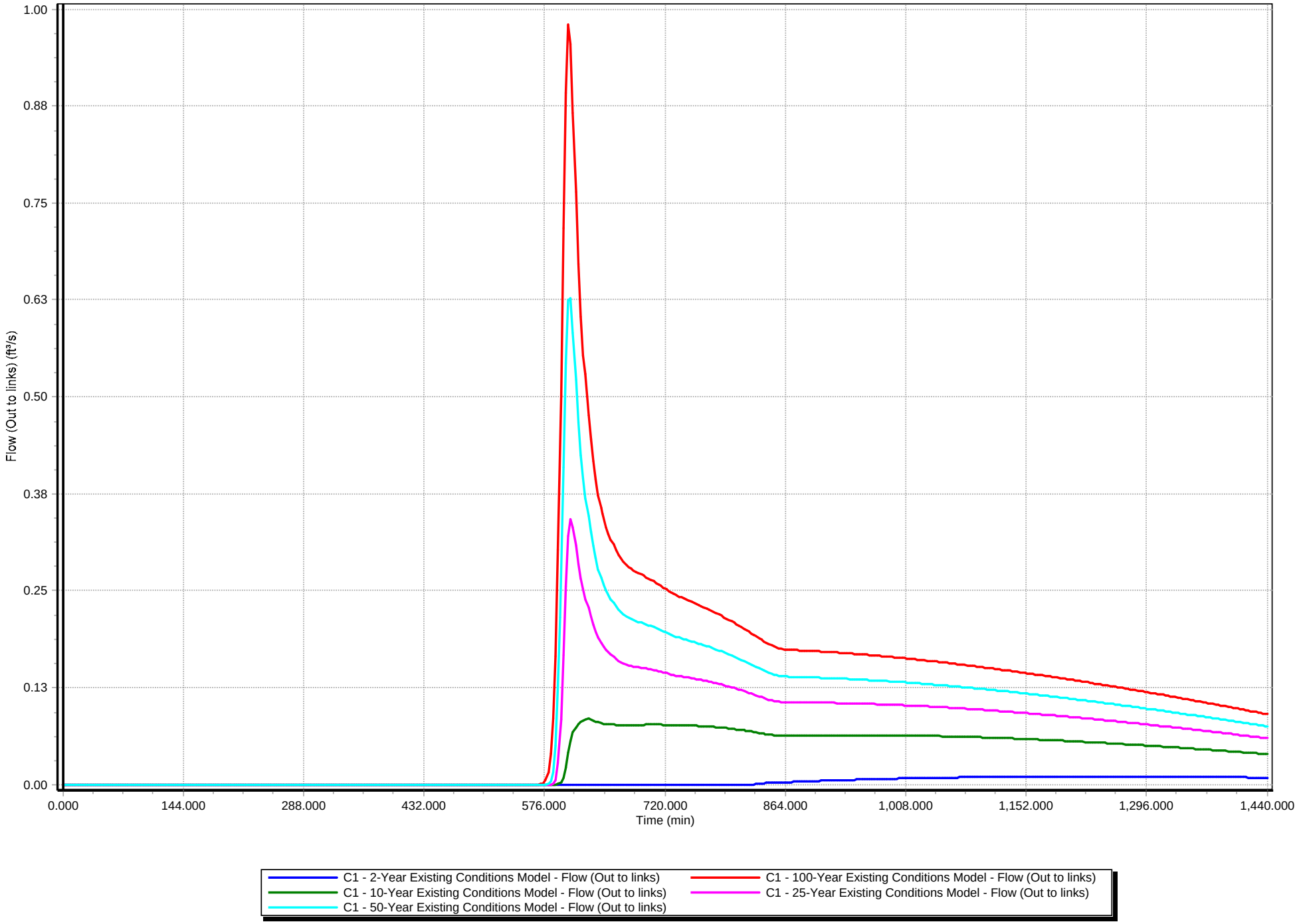
Existing Conditions Subcatchment Rainfall Hydrographs



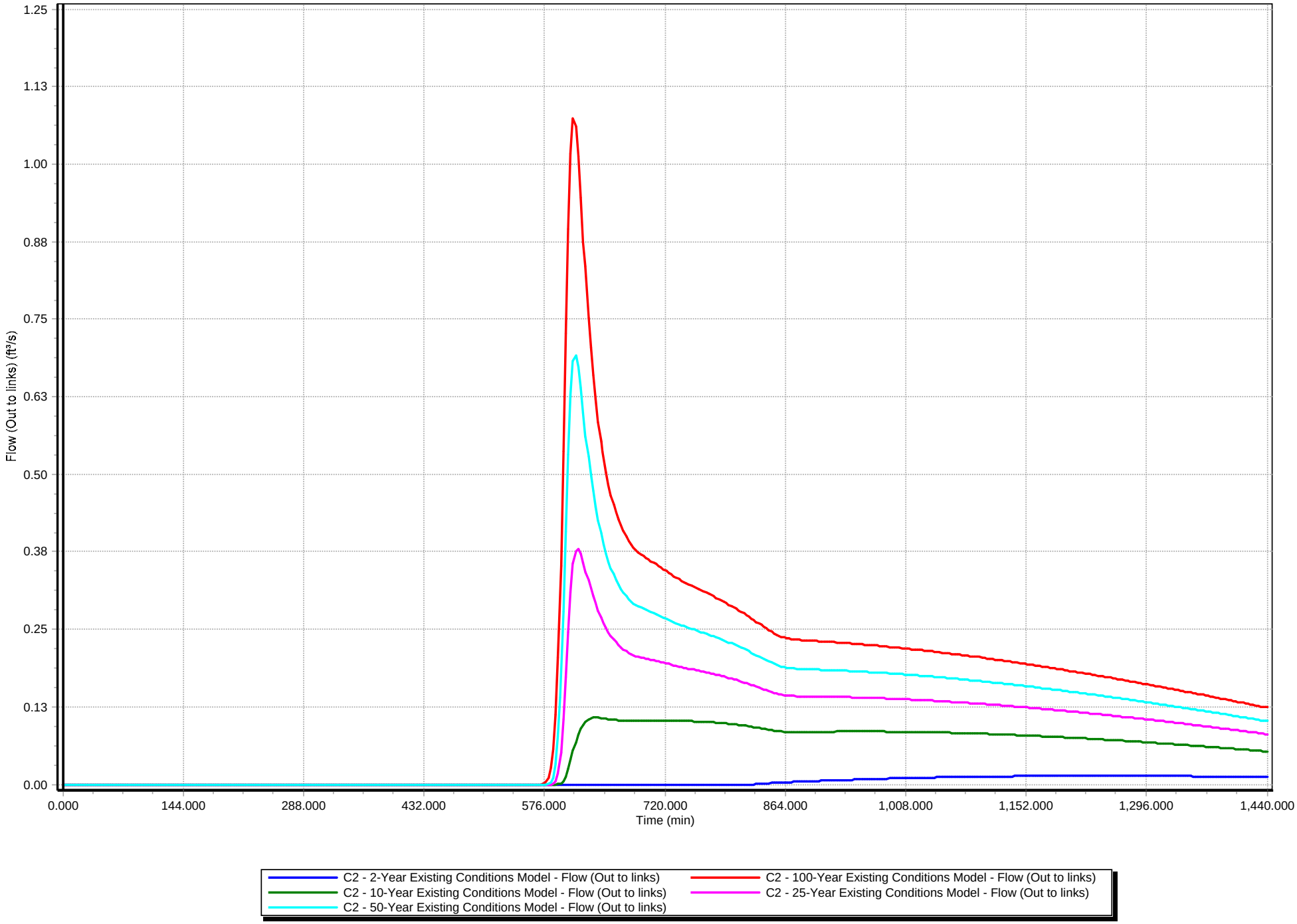
Existing Conditions Subcatchment Rainfall Hydrographs



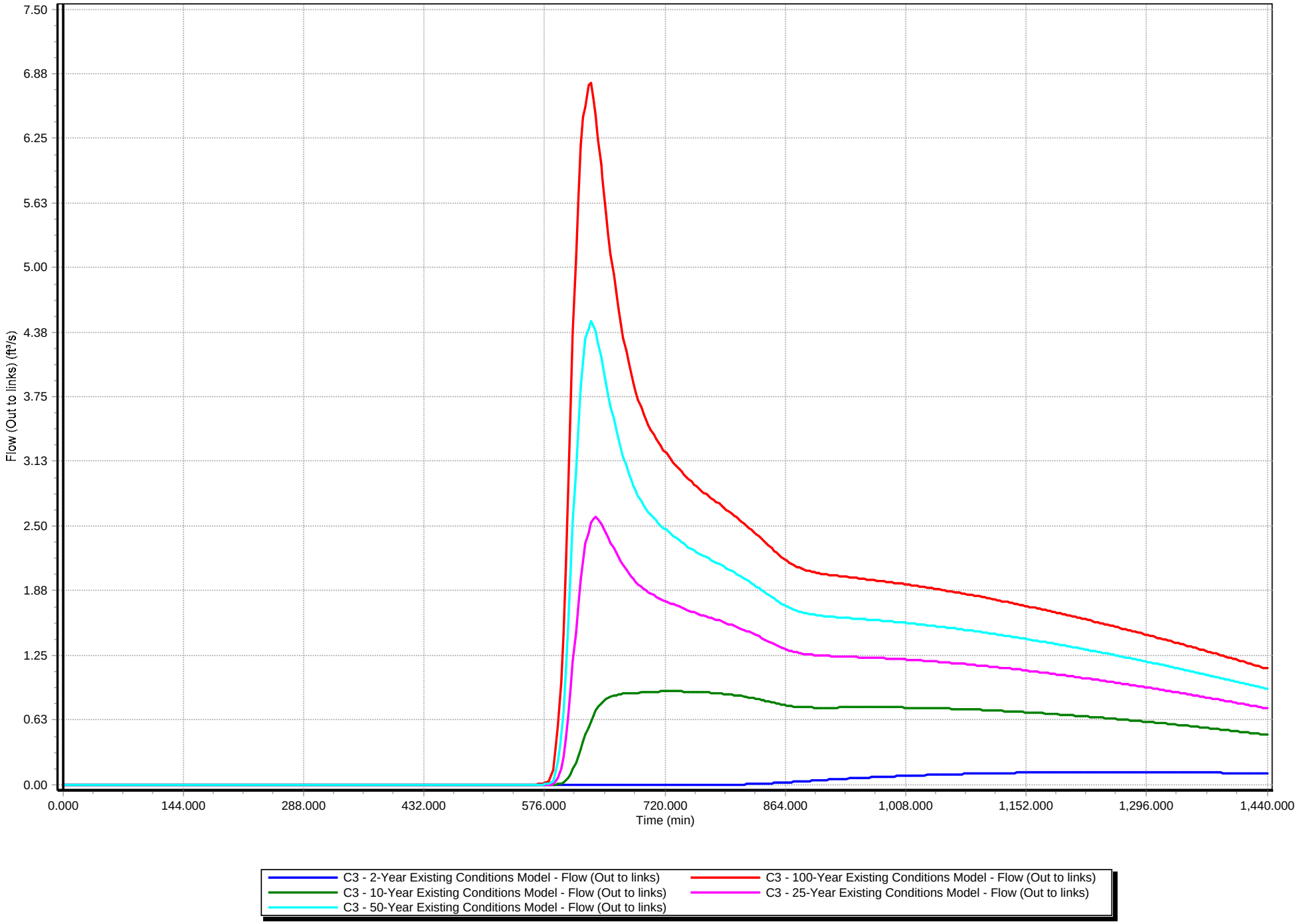
Existing Conditions Subcatchment Rainfall Hydrographs



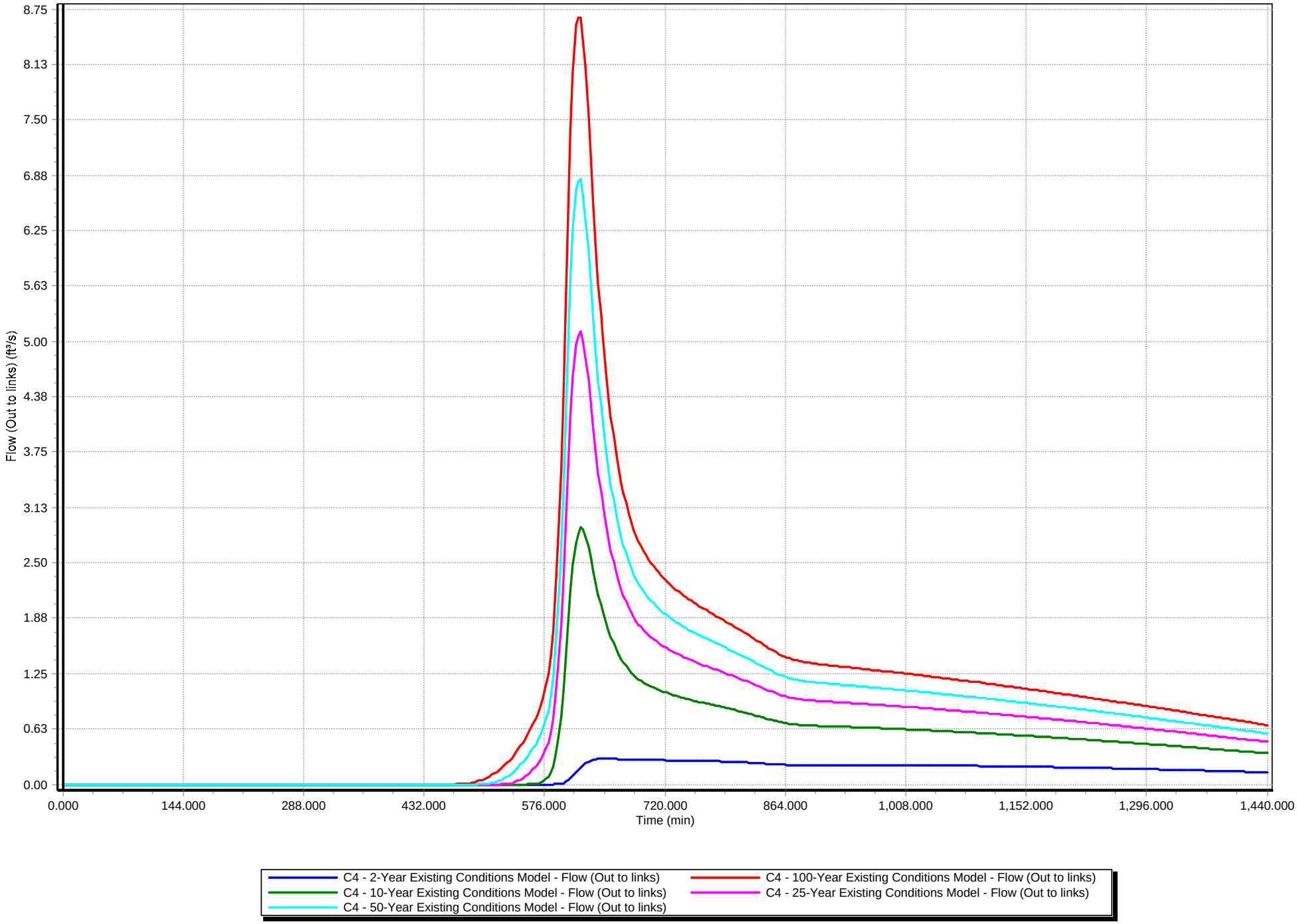
Existing Conditions Subcatchment Rainfall Hydrographs



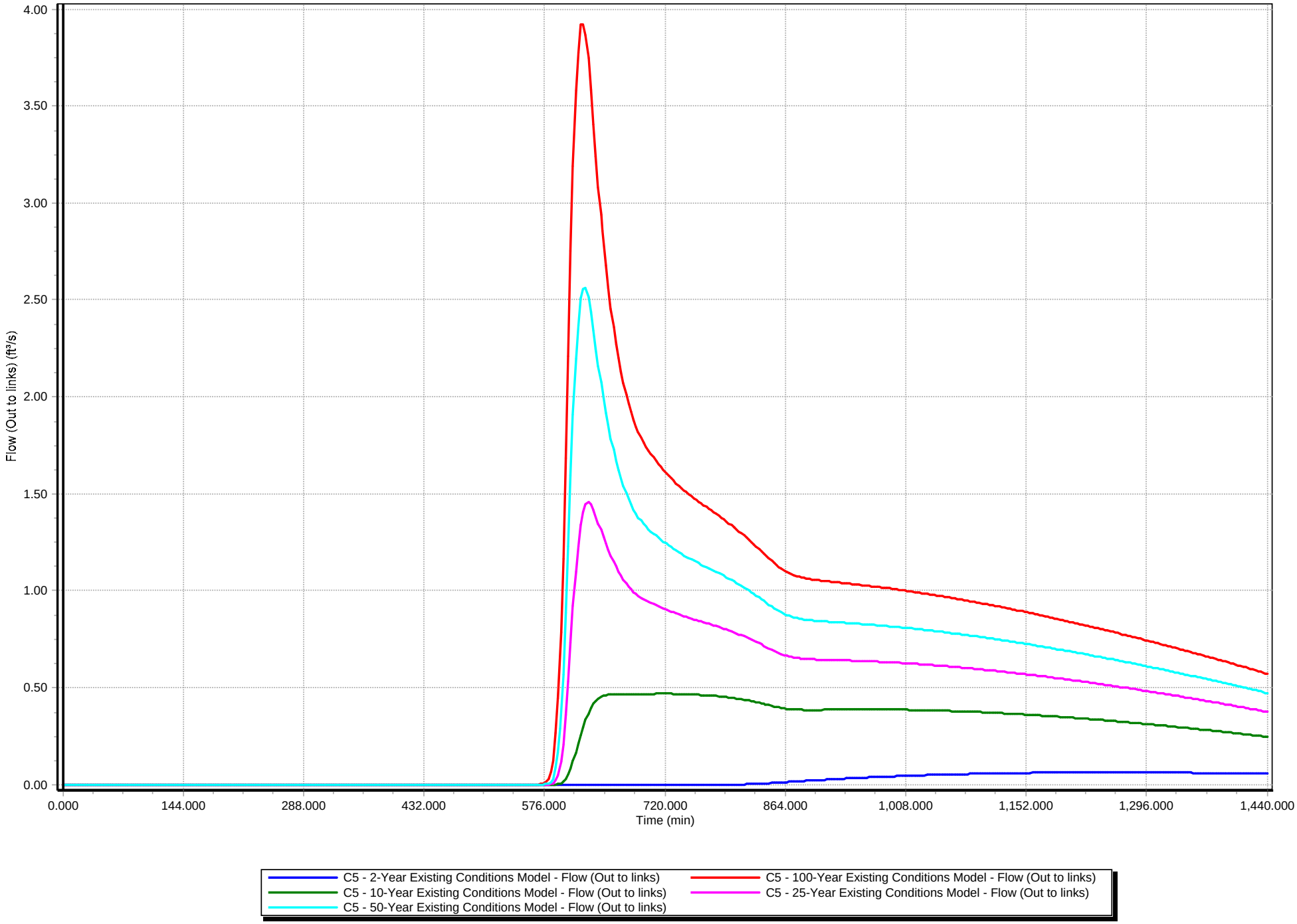
Existing Conditions Subcatchment Rainfall Hydrographs



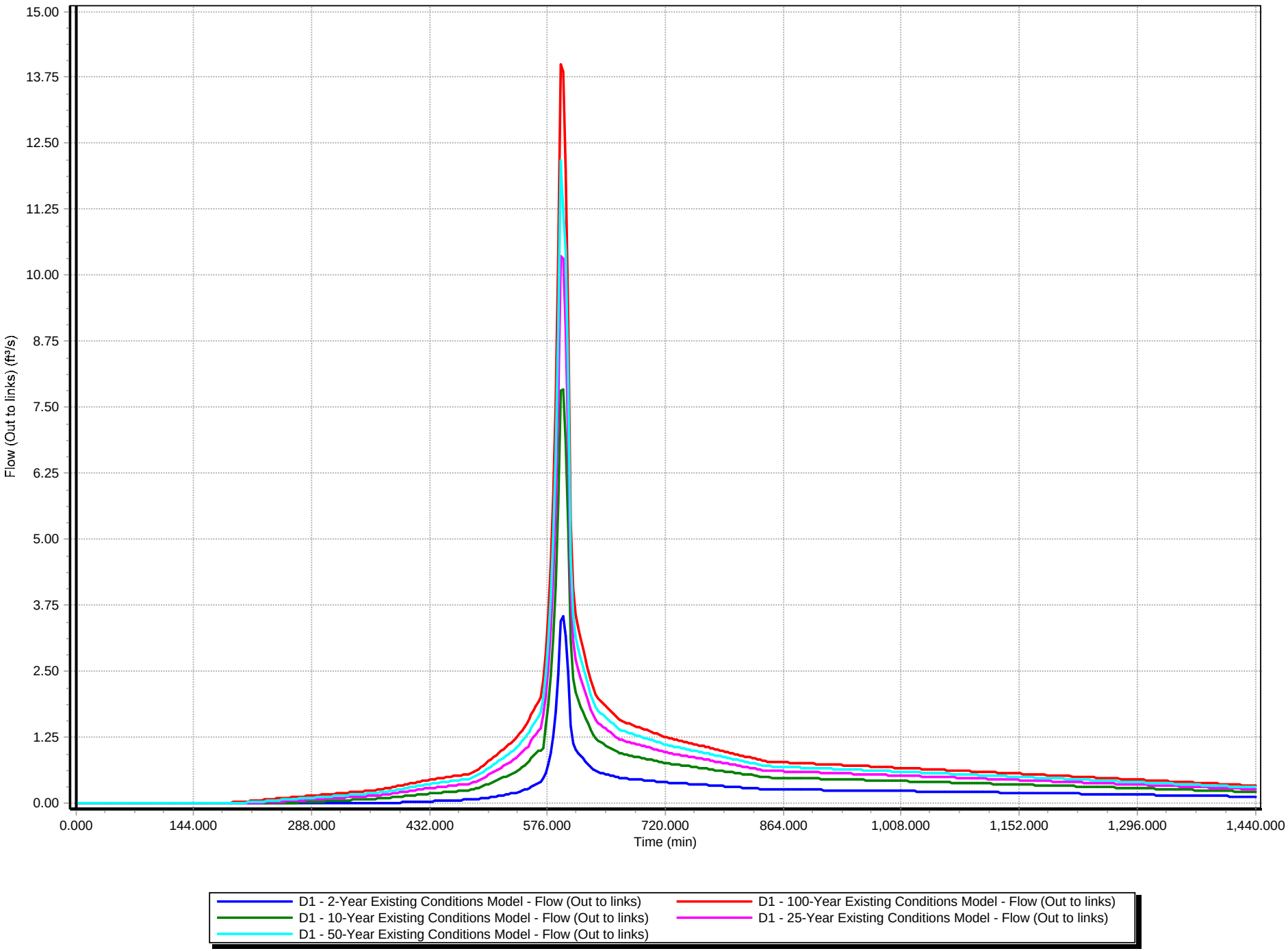
Existing Conditions Subcatchment Rainfall Hydrographs



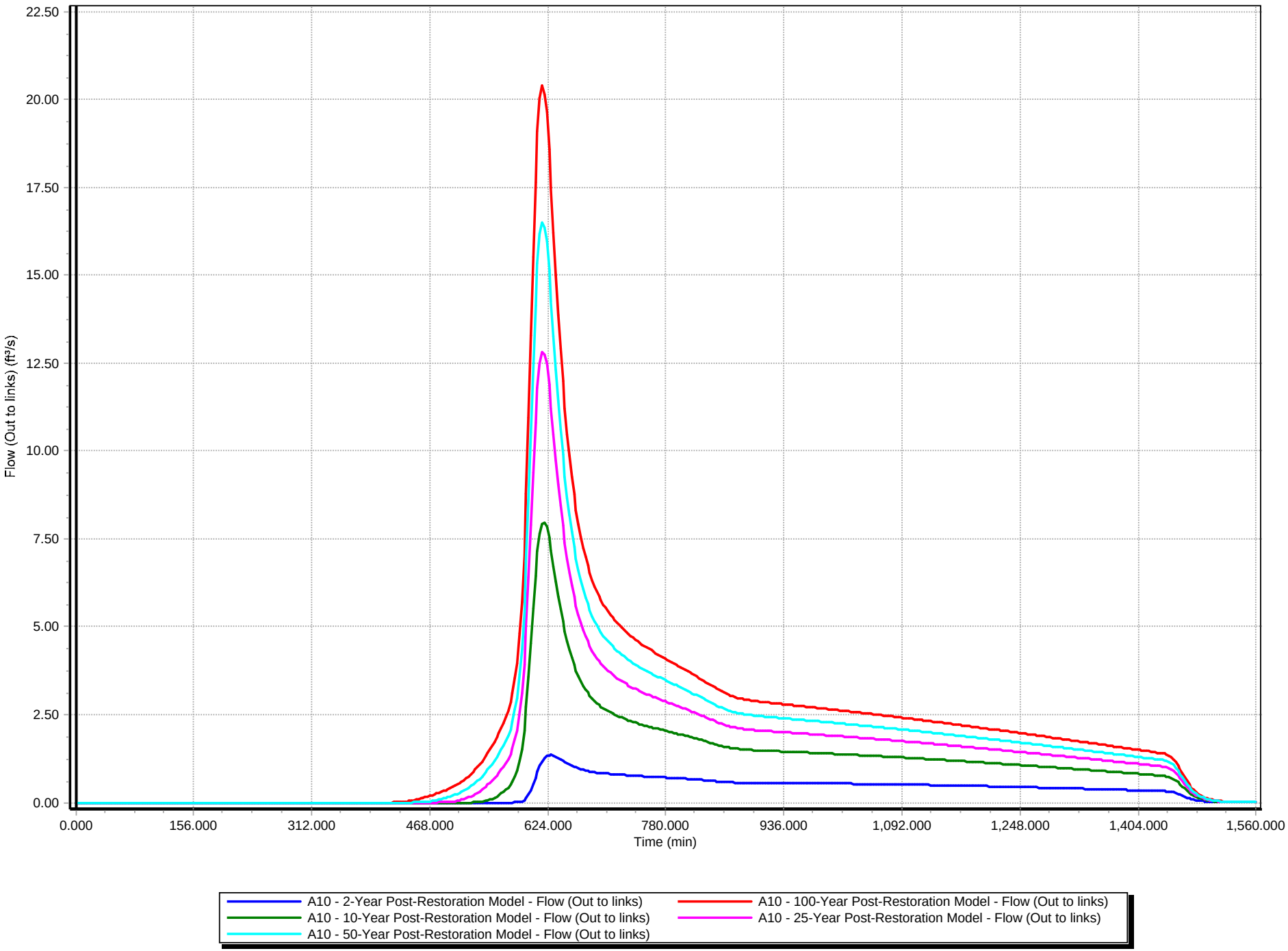
Existing Conditions Subcatchment Rainfall Hydrographs



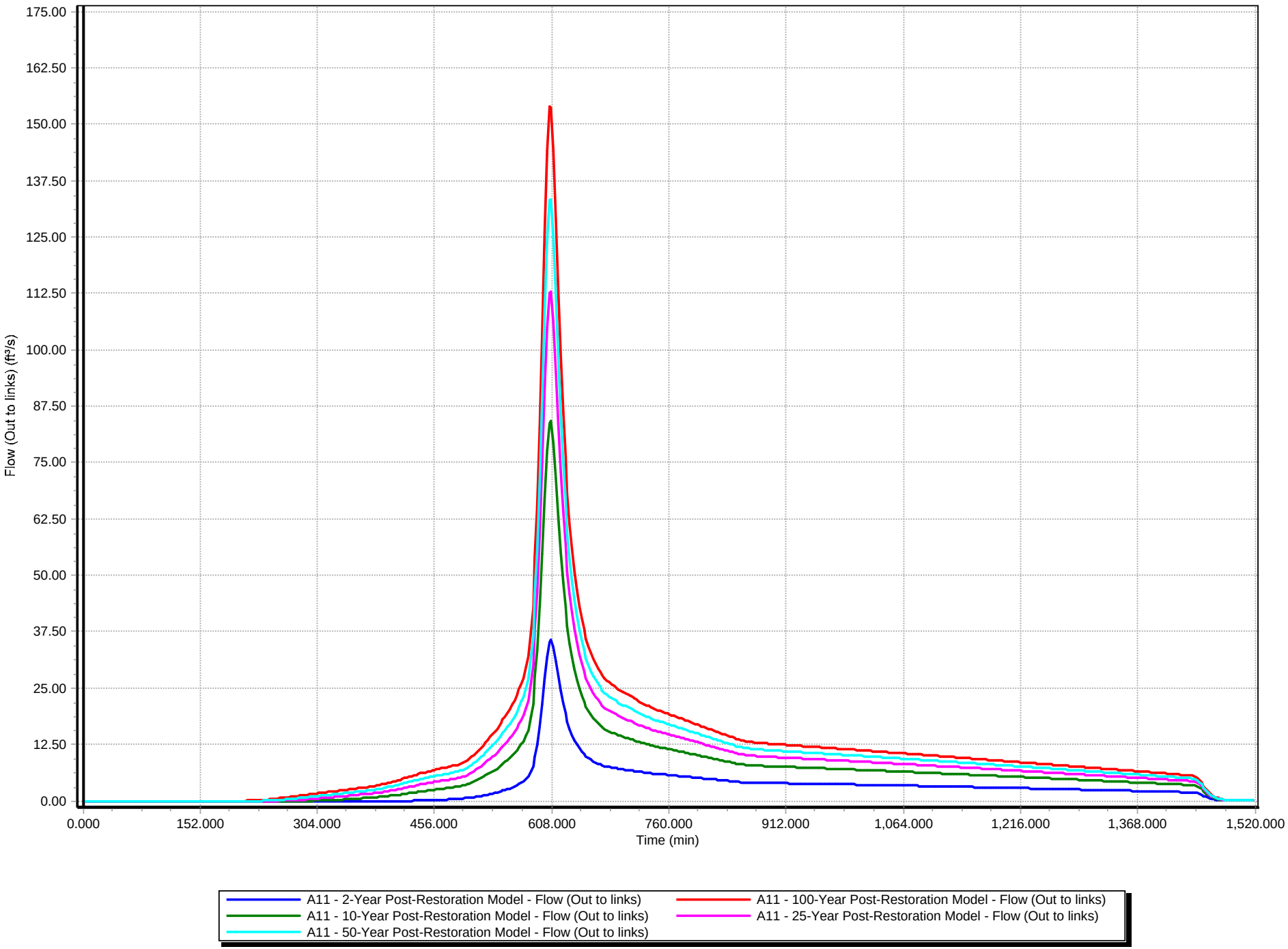
Existing Conditions Subcatchment Rainfall Hydrographs



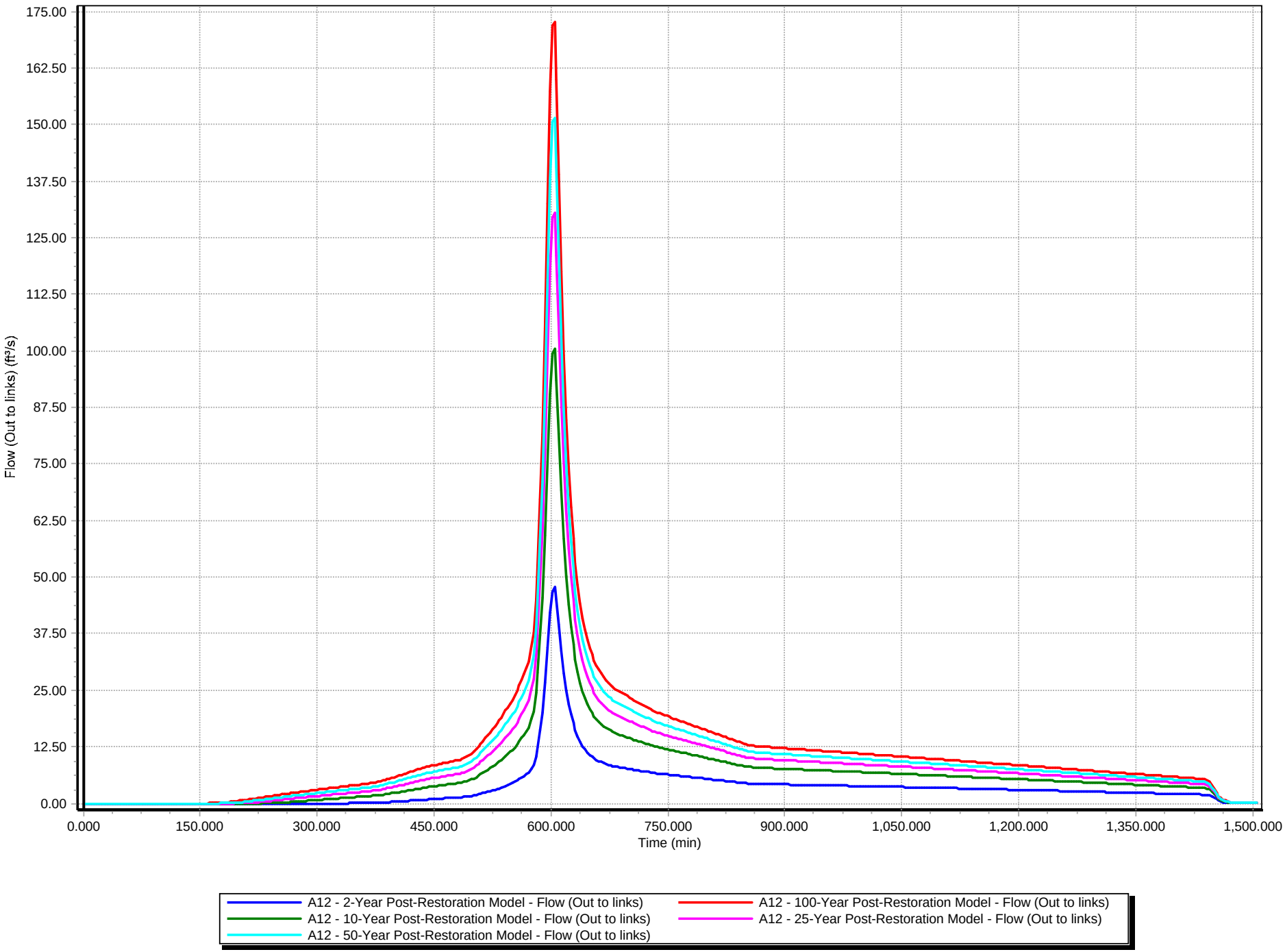
Post-Remediation Conditions Subcatchment Rainfall Hydrographs



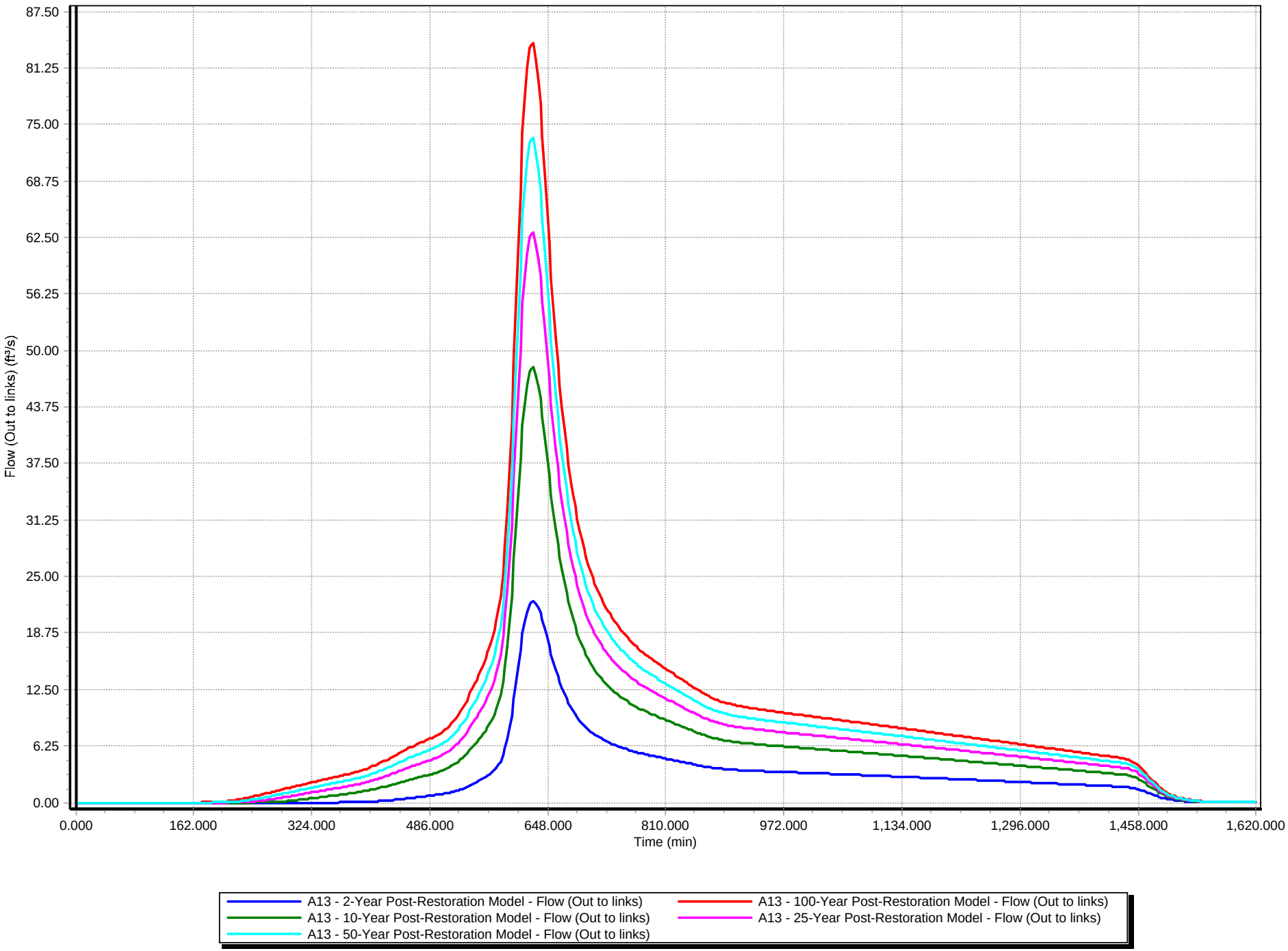
Post-Remediation Conditions Subcatchment Rainfall Hydrographs



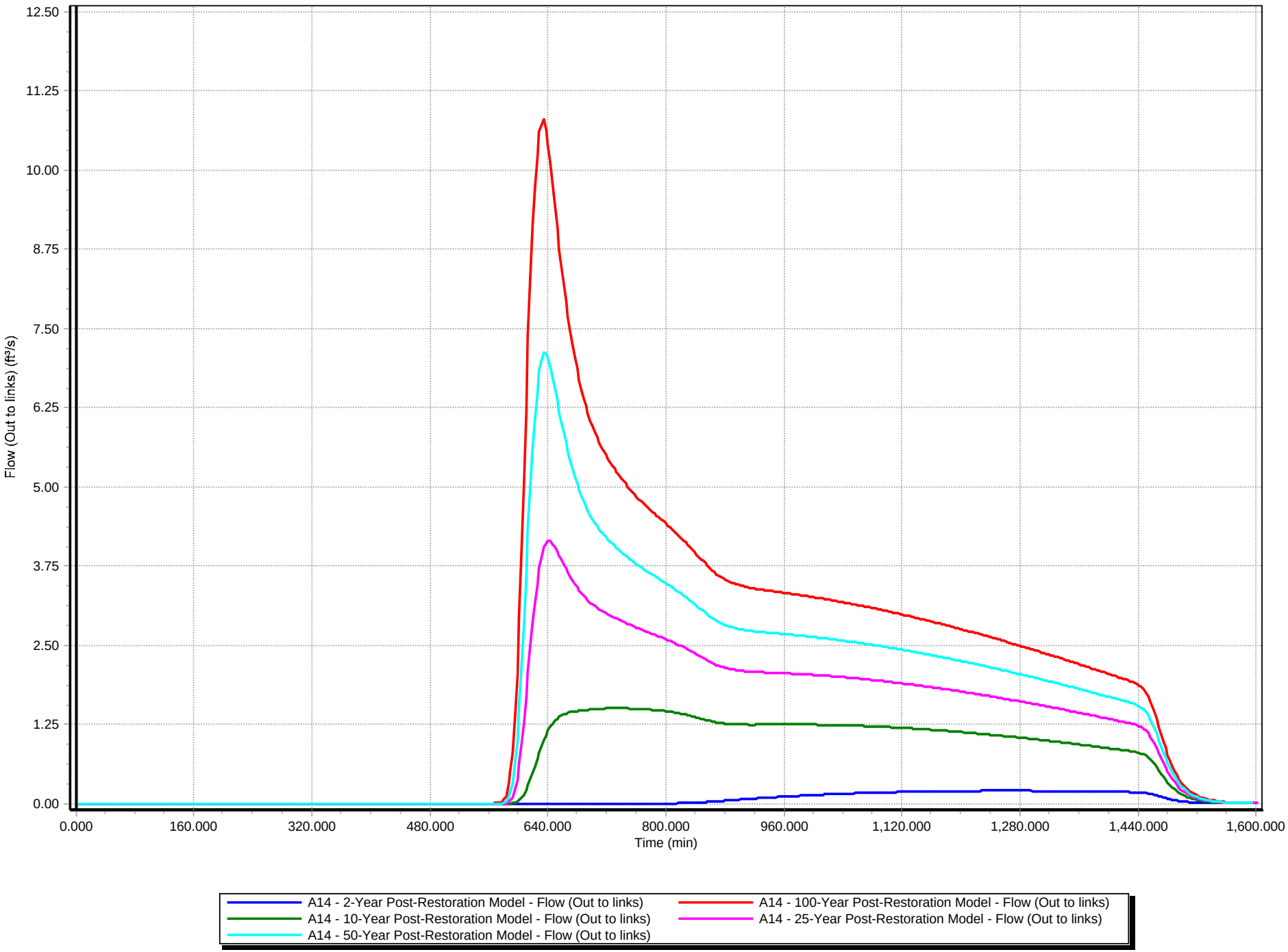
Post-Remediation Conditions Subcatchment Rainfall Hydrographs



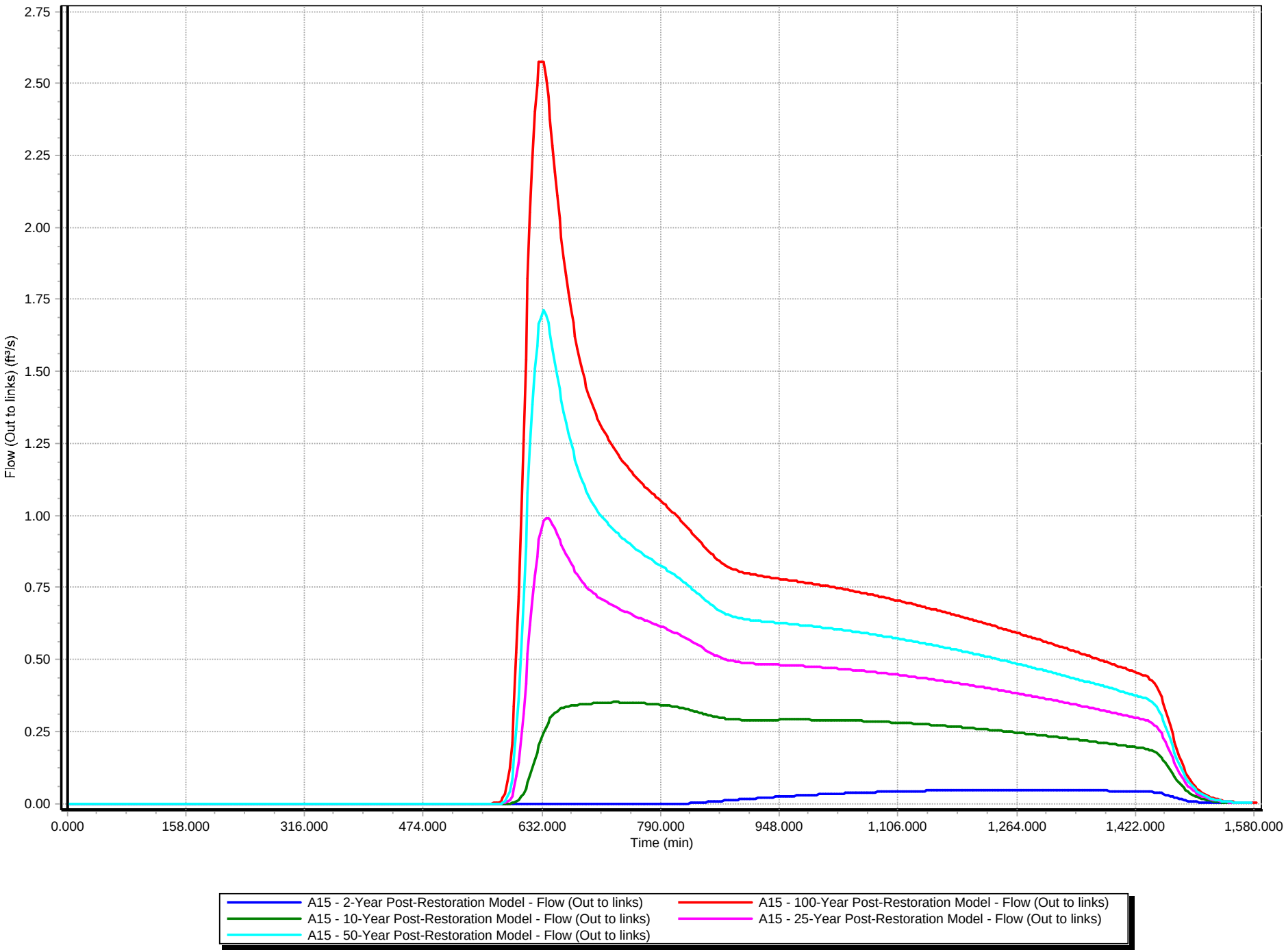
Post-Remediation Conditions Subcatchment Rainfall Hydrographs



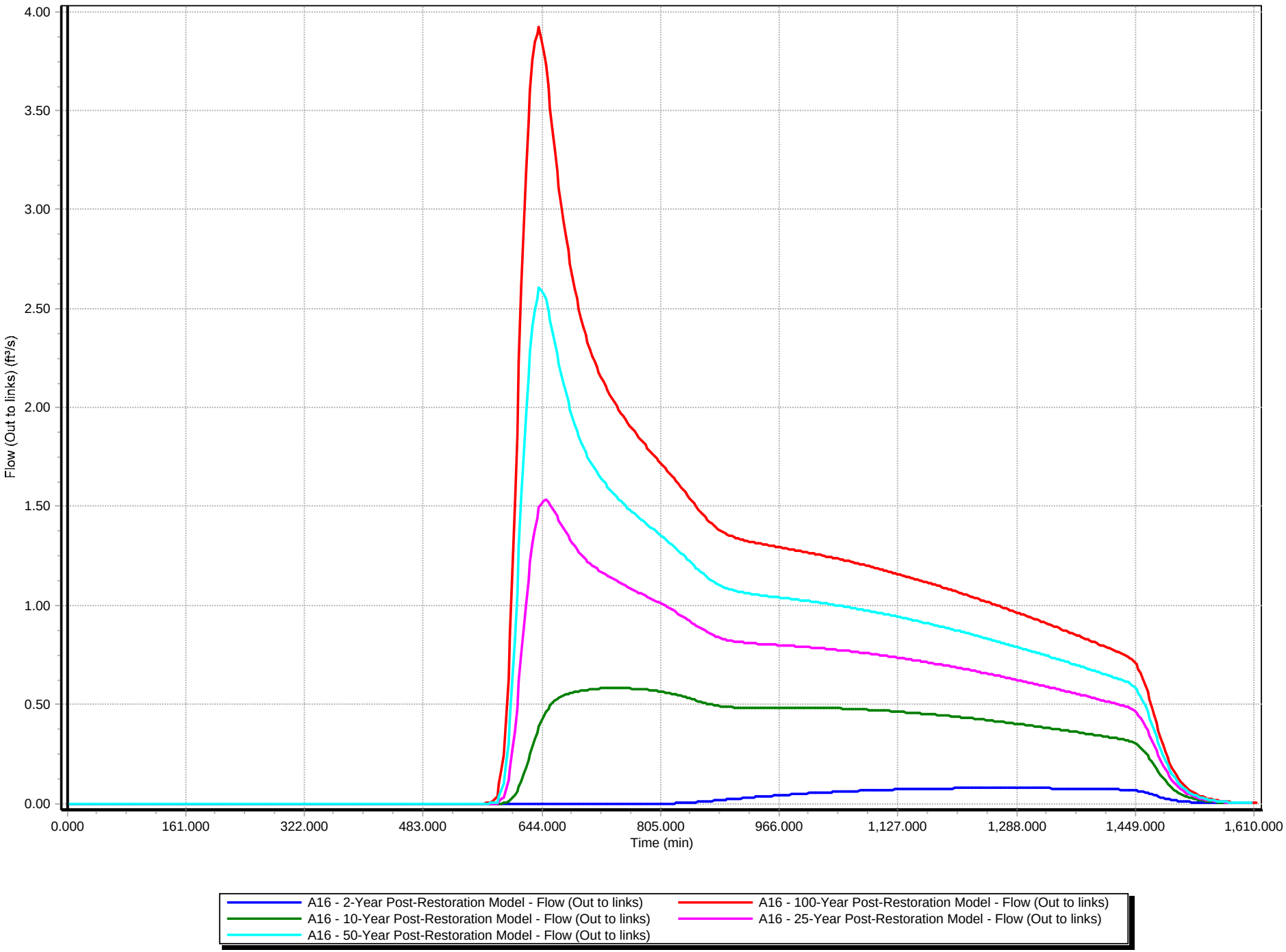
Post-Remediation Conditions Subcatchment Rainfall Hydrographs



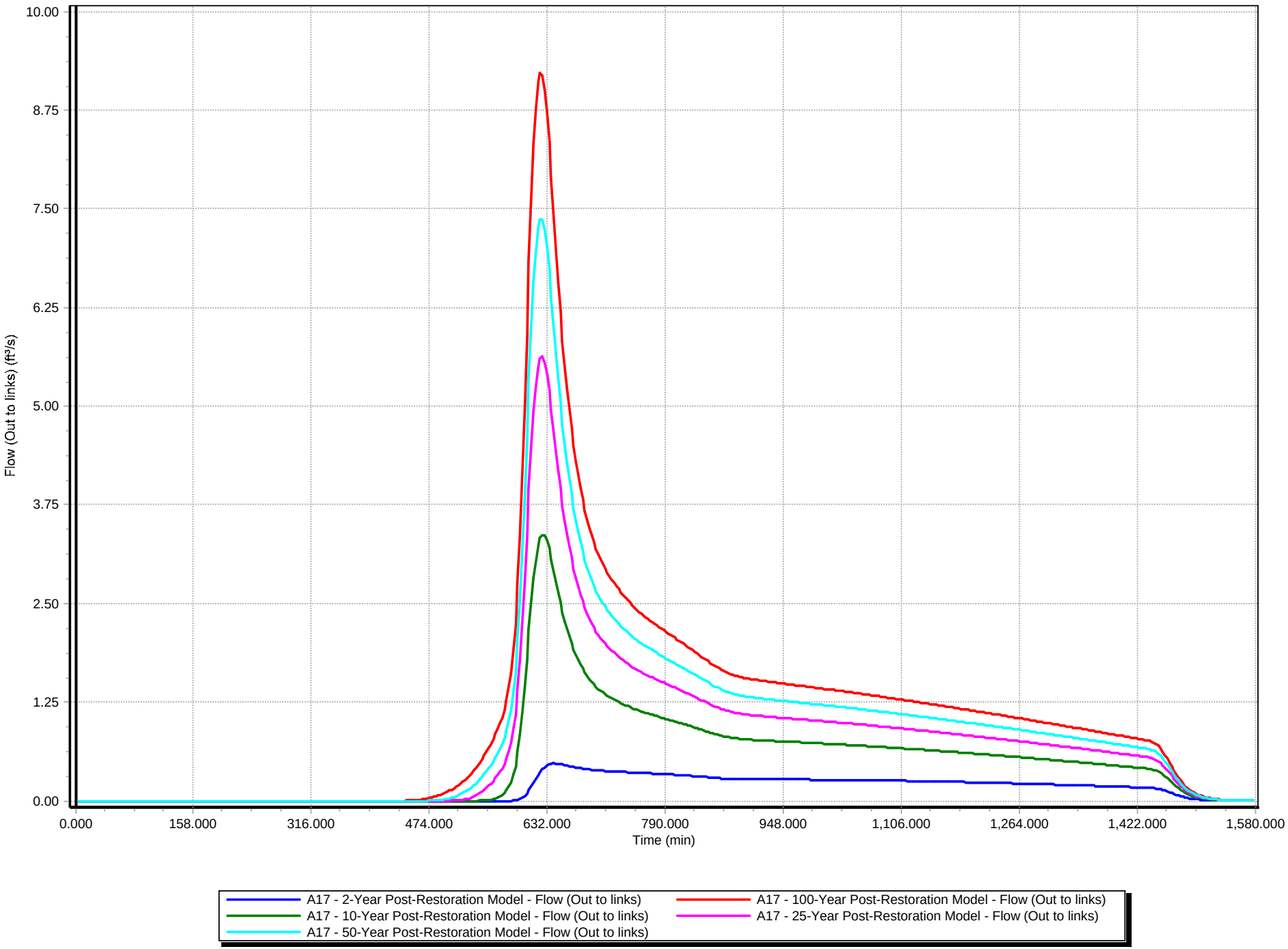
Post-Remediation Conditions Subcatchment Rainfall Hydrographs



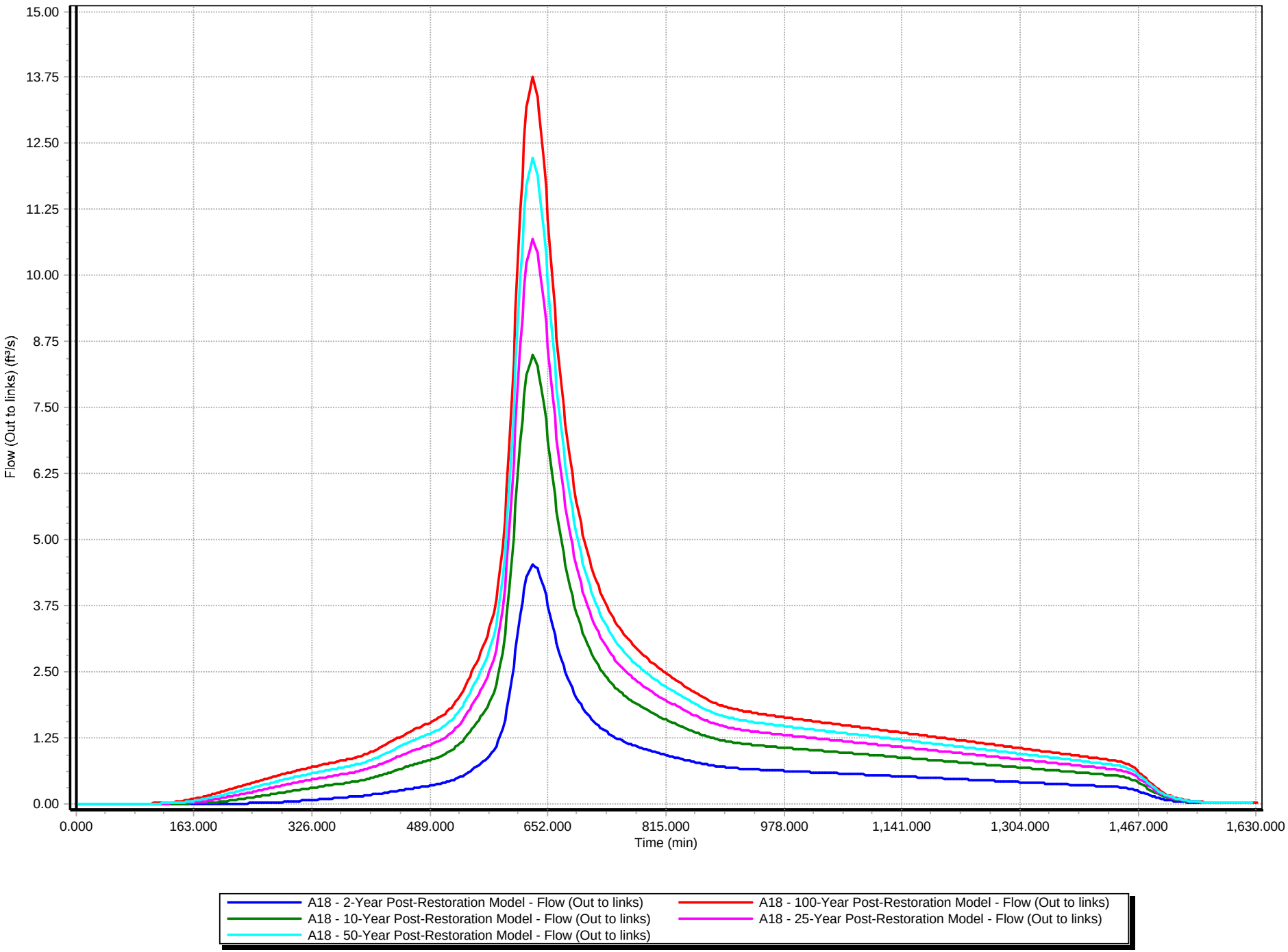
Post-Remediation Conditions Subcatchment Rainfall Hydrographs



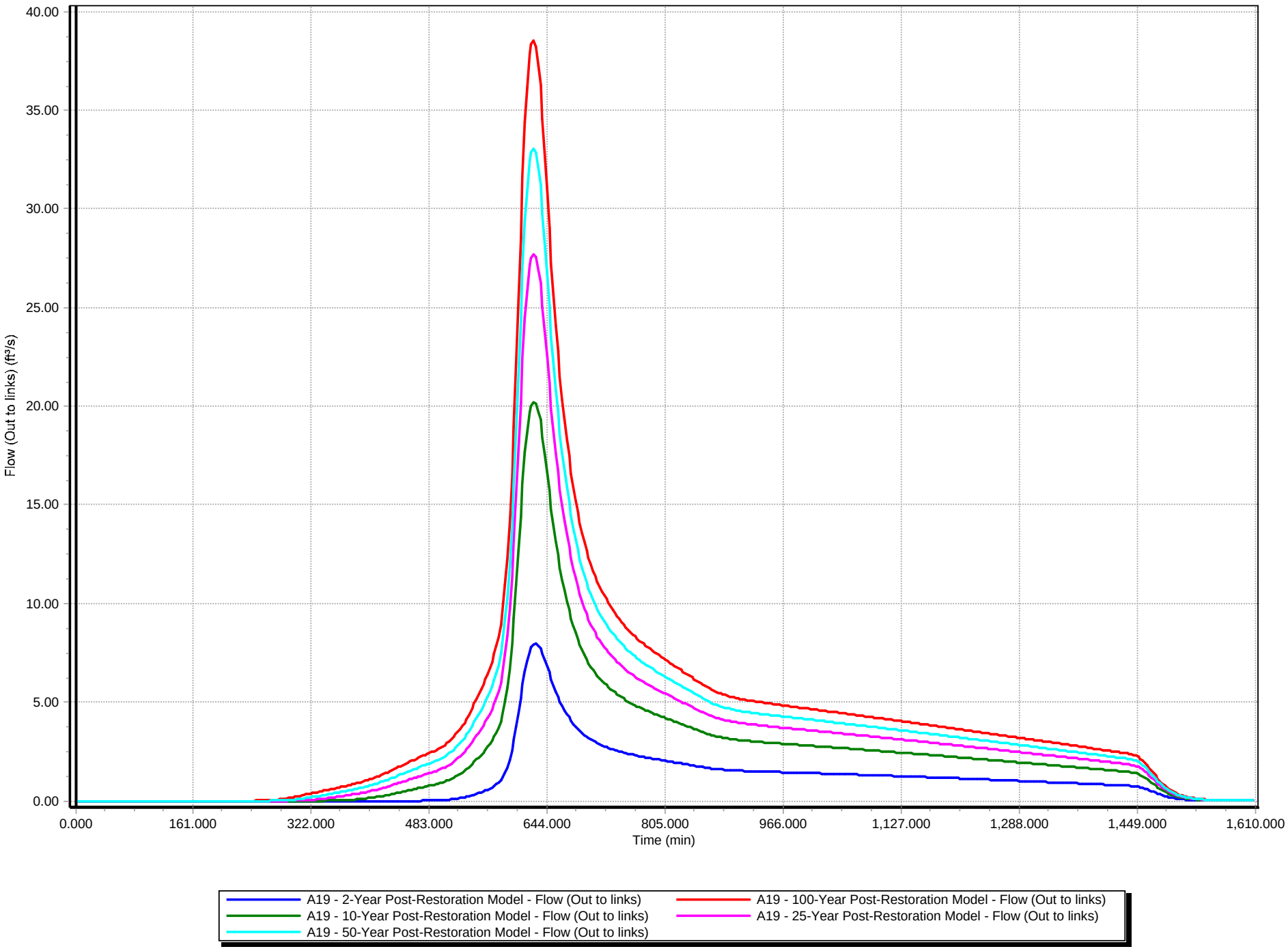
Post-Remediation Conditions Subcatchment Rainfall Hydrographs



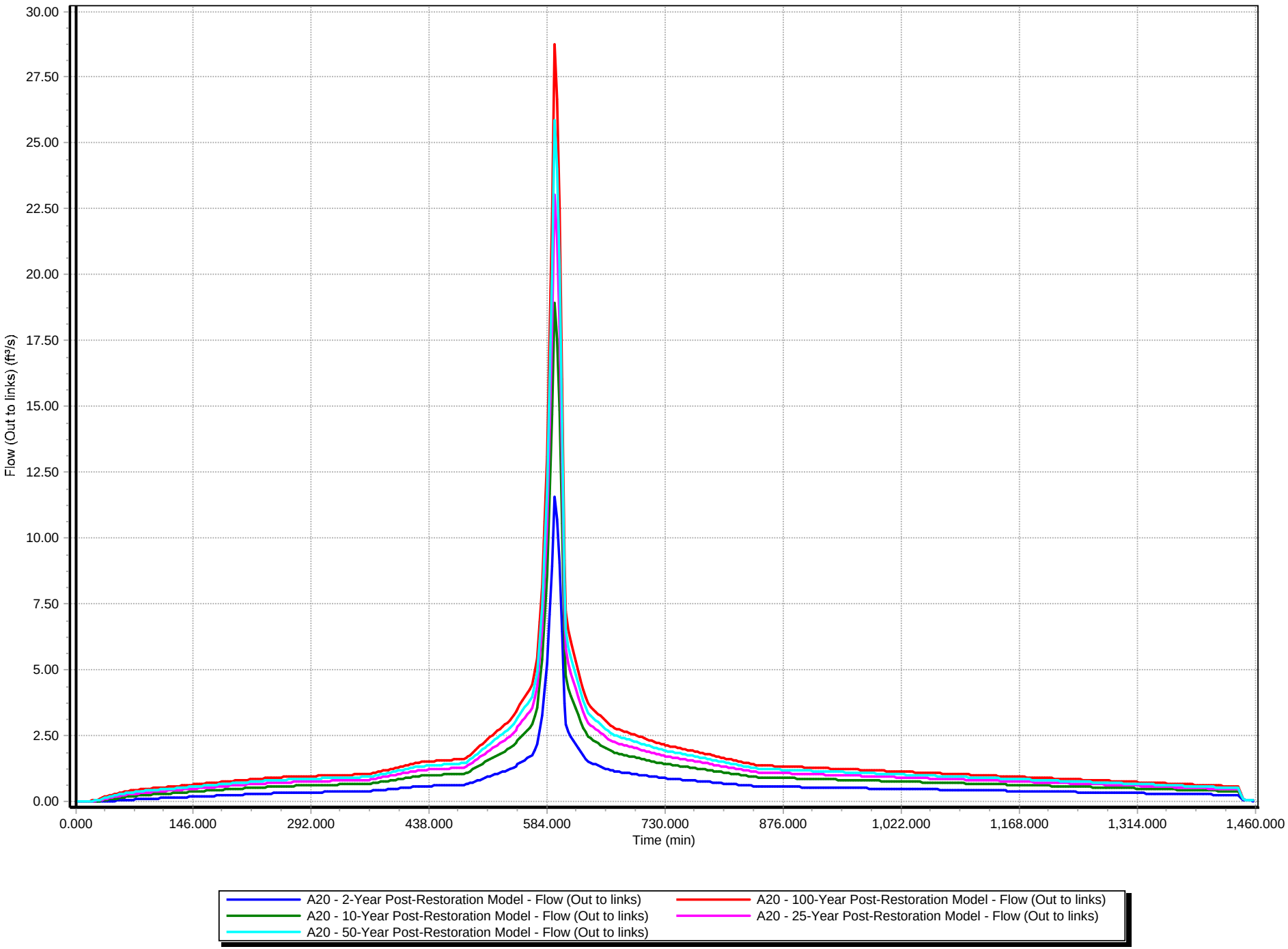
Post-Remediation Conditions Subcatchment Rainfall Hydrographs



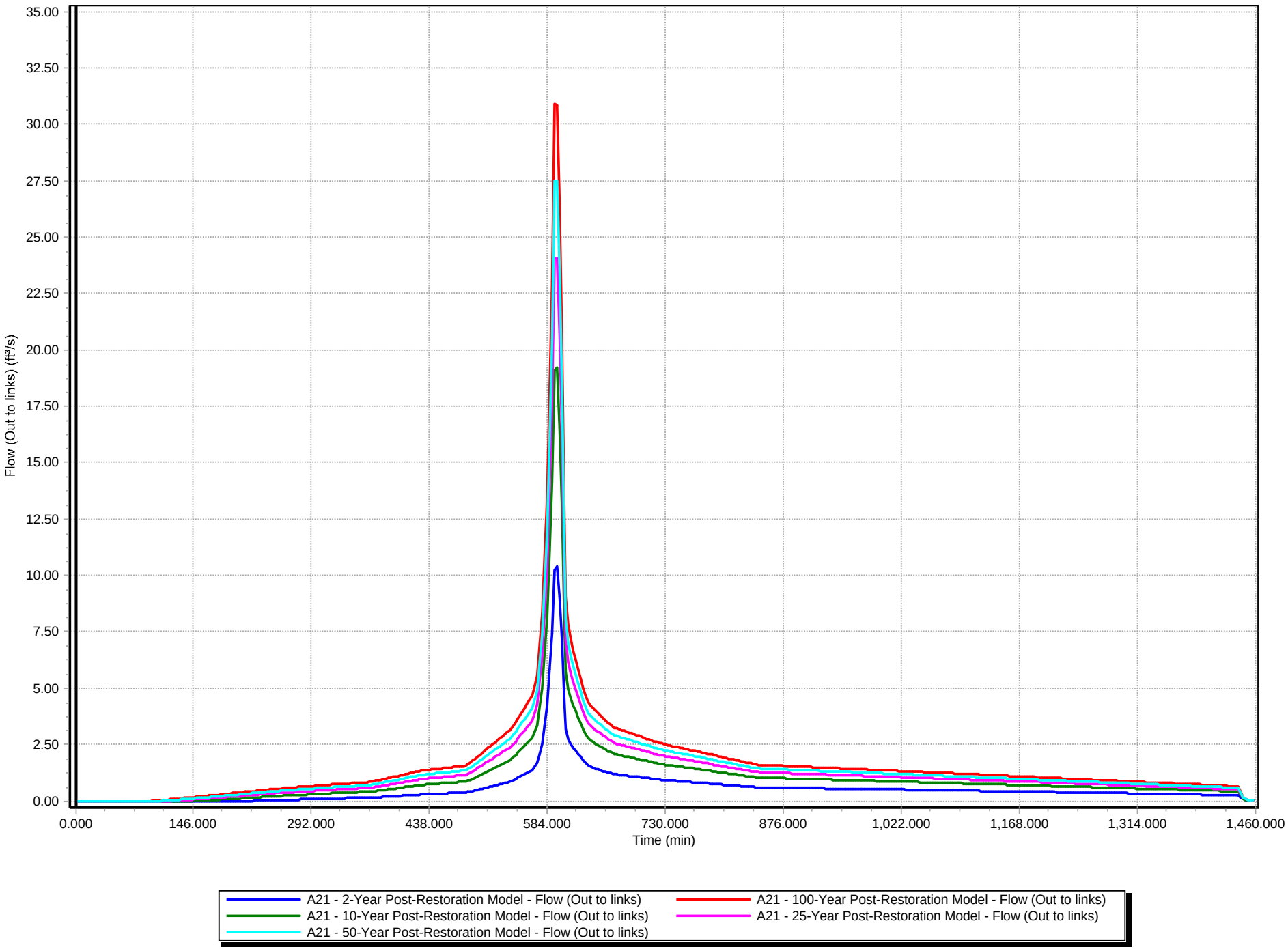
Post-Remediation Conditions Subcatchment Rainfall Hydrographs



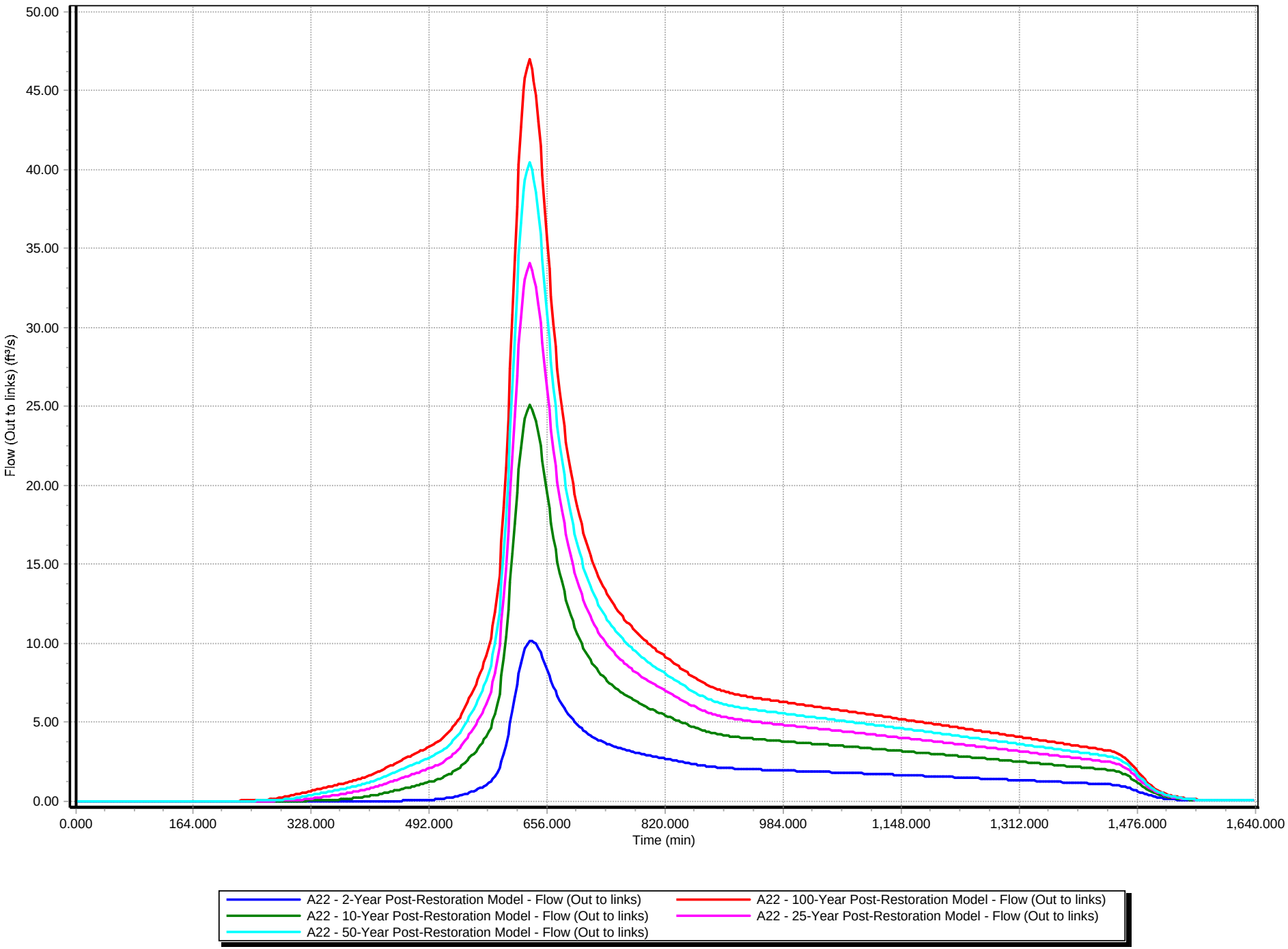
Post-Remediation Conditions Subcatchment Rainfall Hydrographs



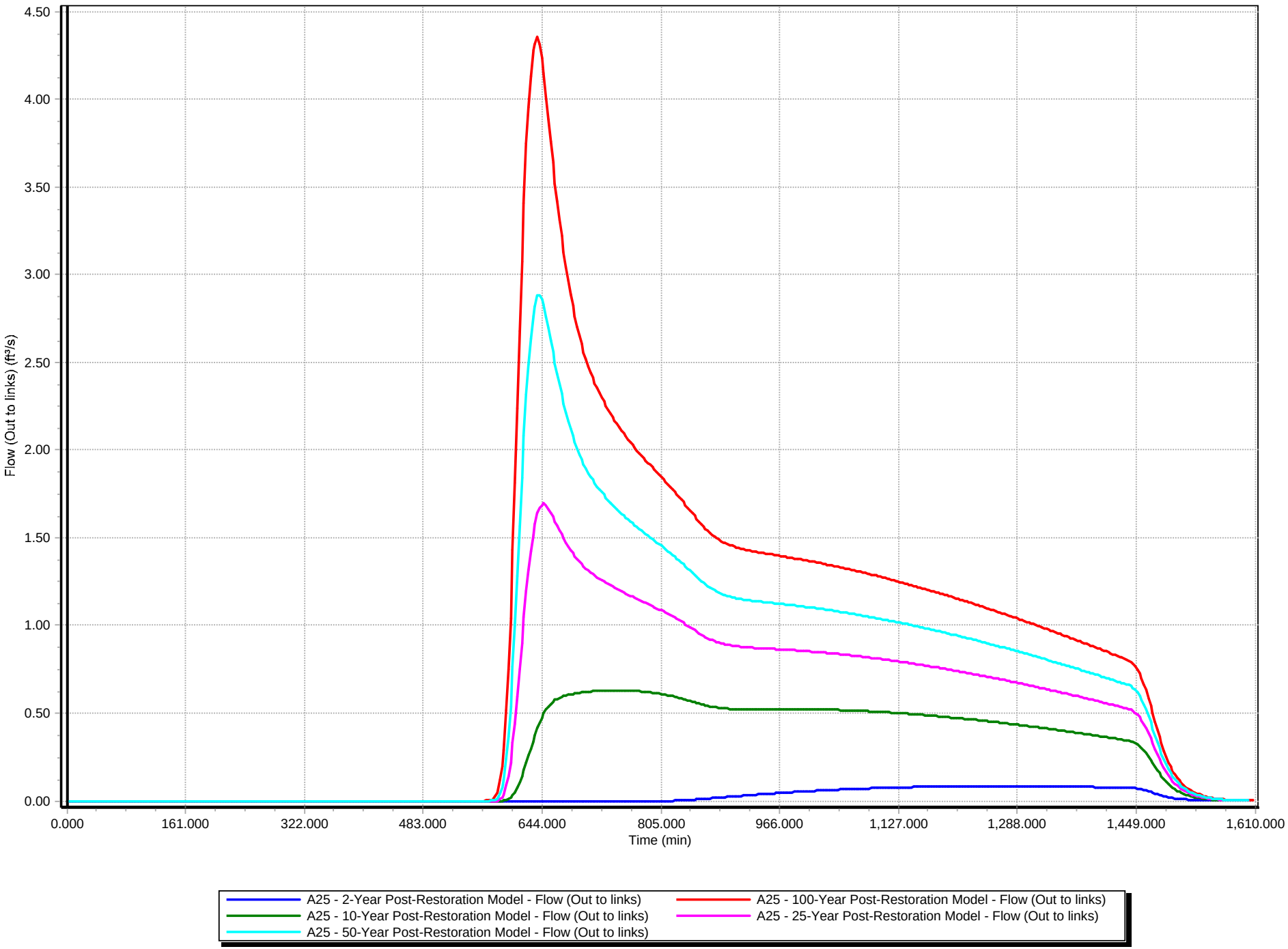
Post-Remediation Conditions Subcatchment Rainfall Hydrographs



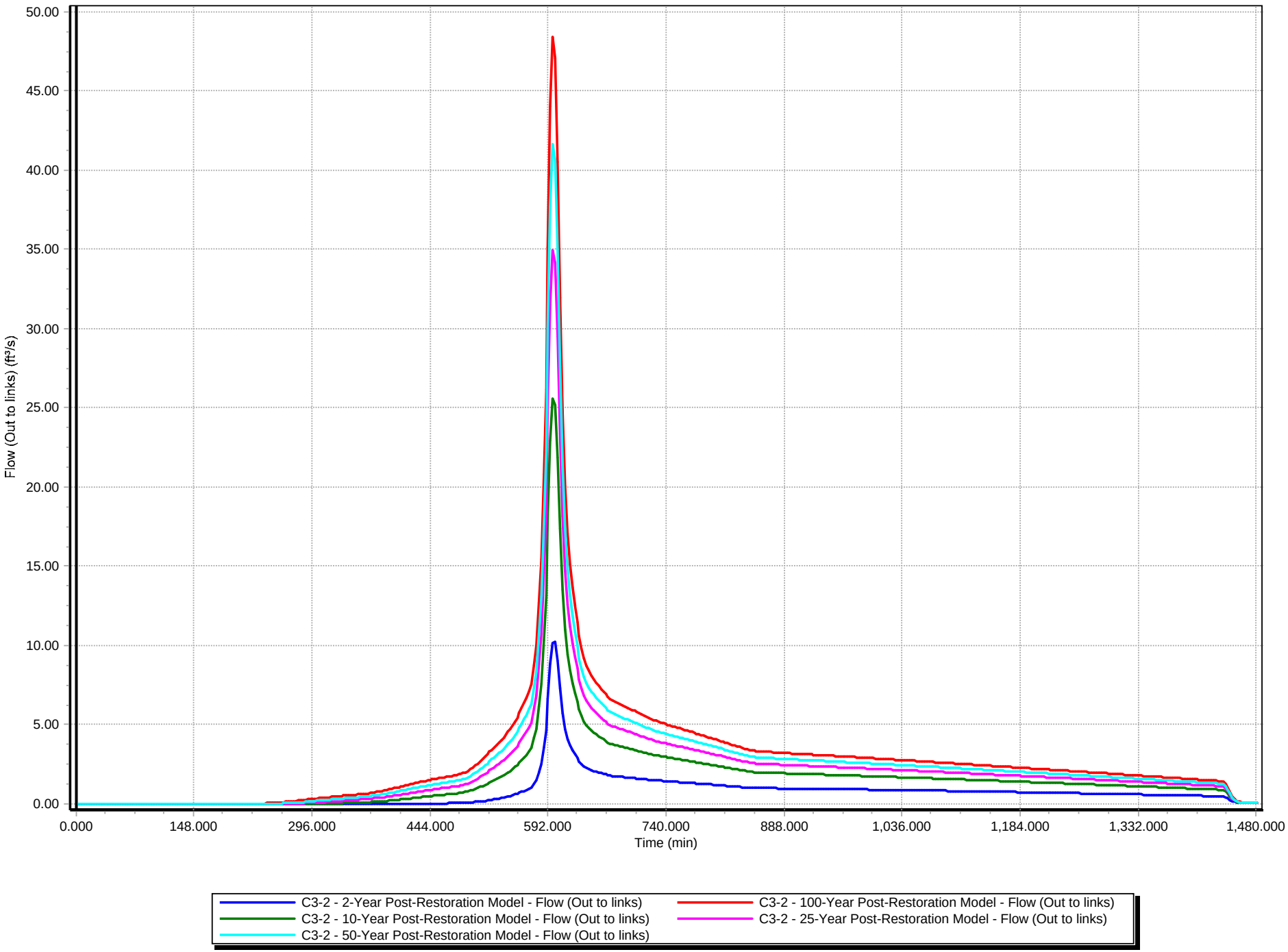
Post-Remediation Conditions Subcatchment Rainfall Hydrographs



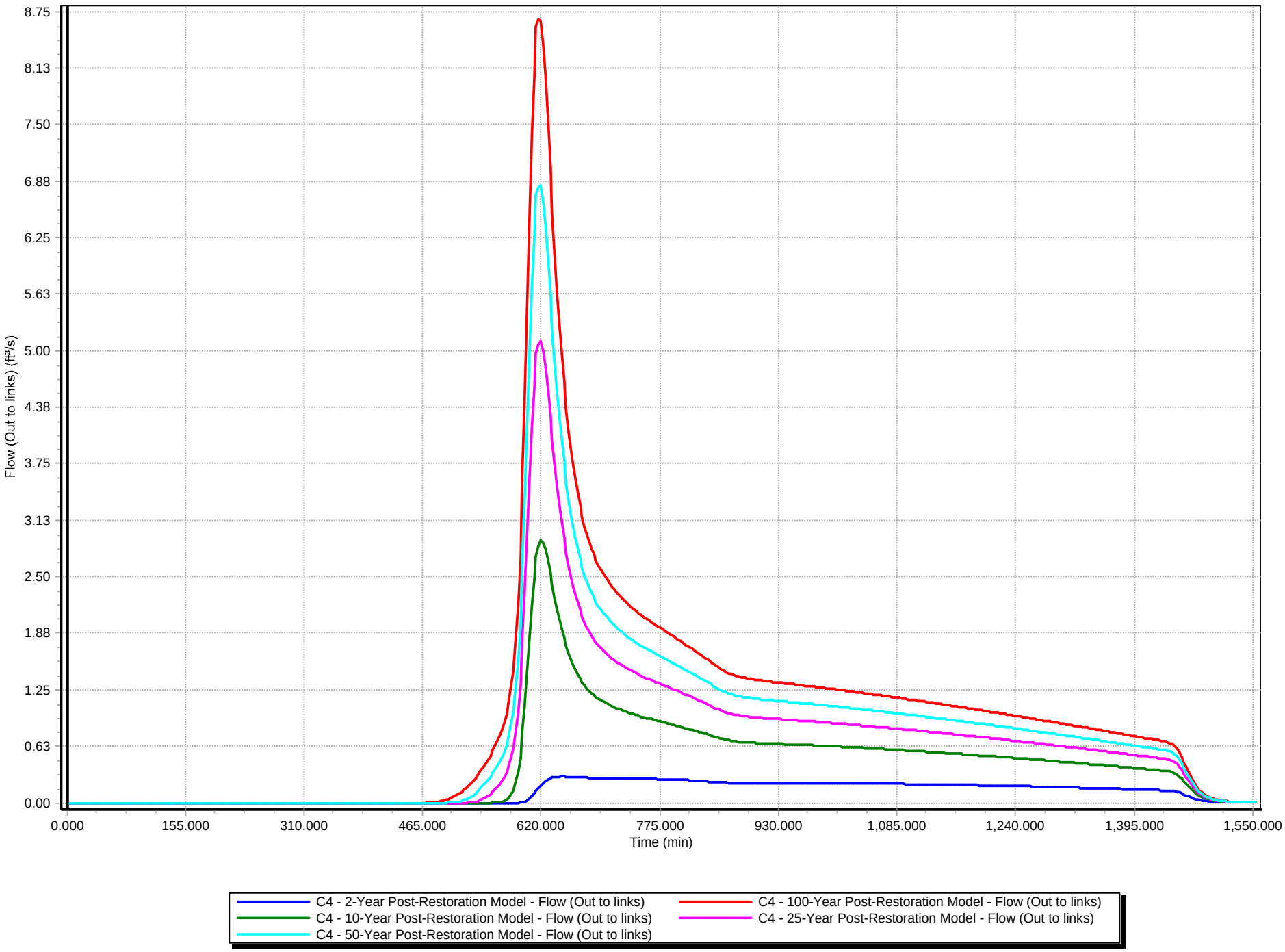
Post-Remediation Conditions Subcatchment Rainfall Hydrographs



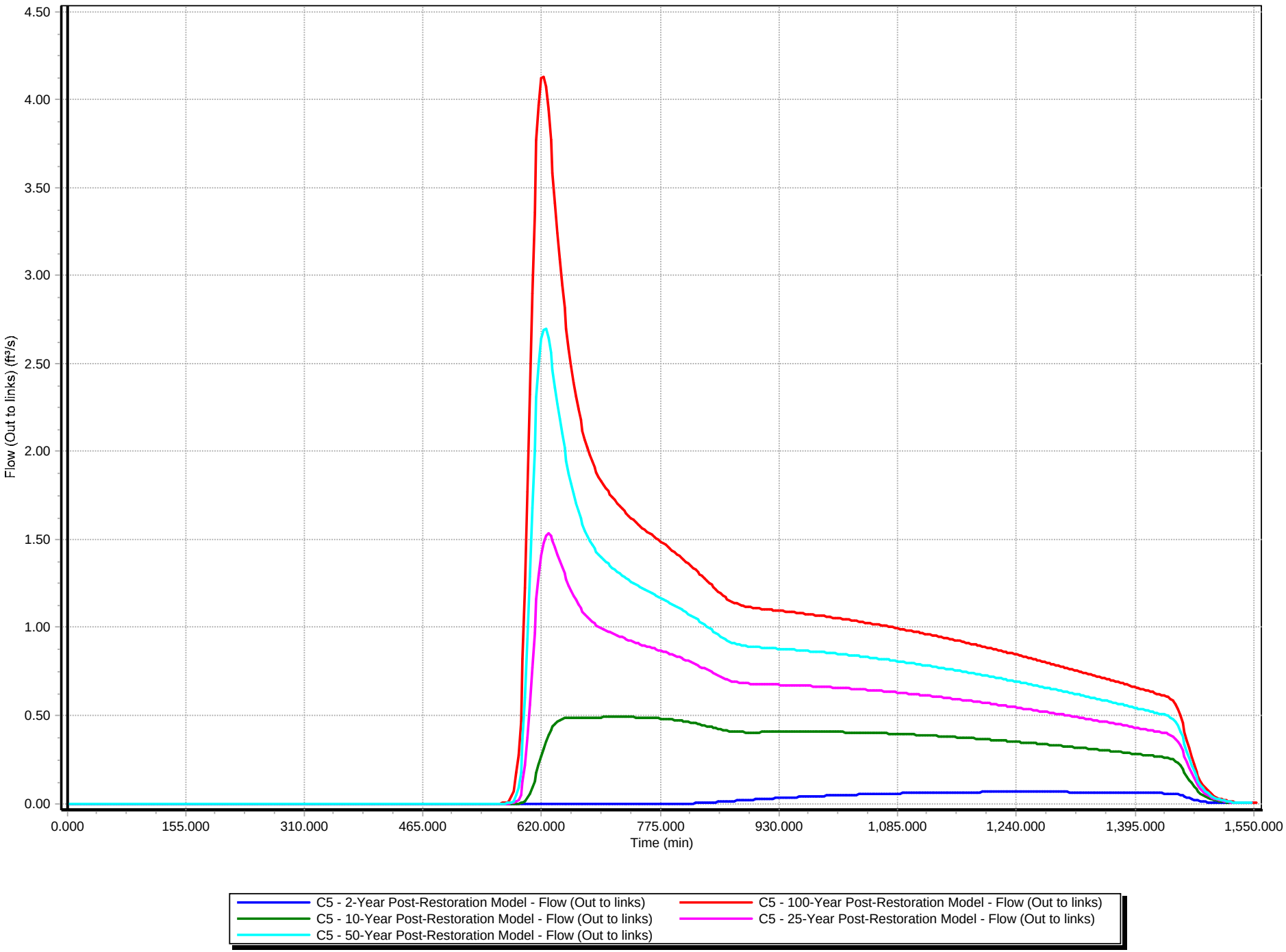
Post-Remediation Conditions Subcatchment Rainfall Hydrographs



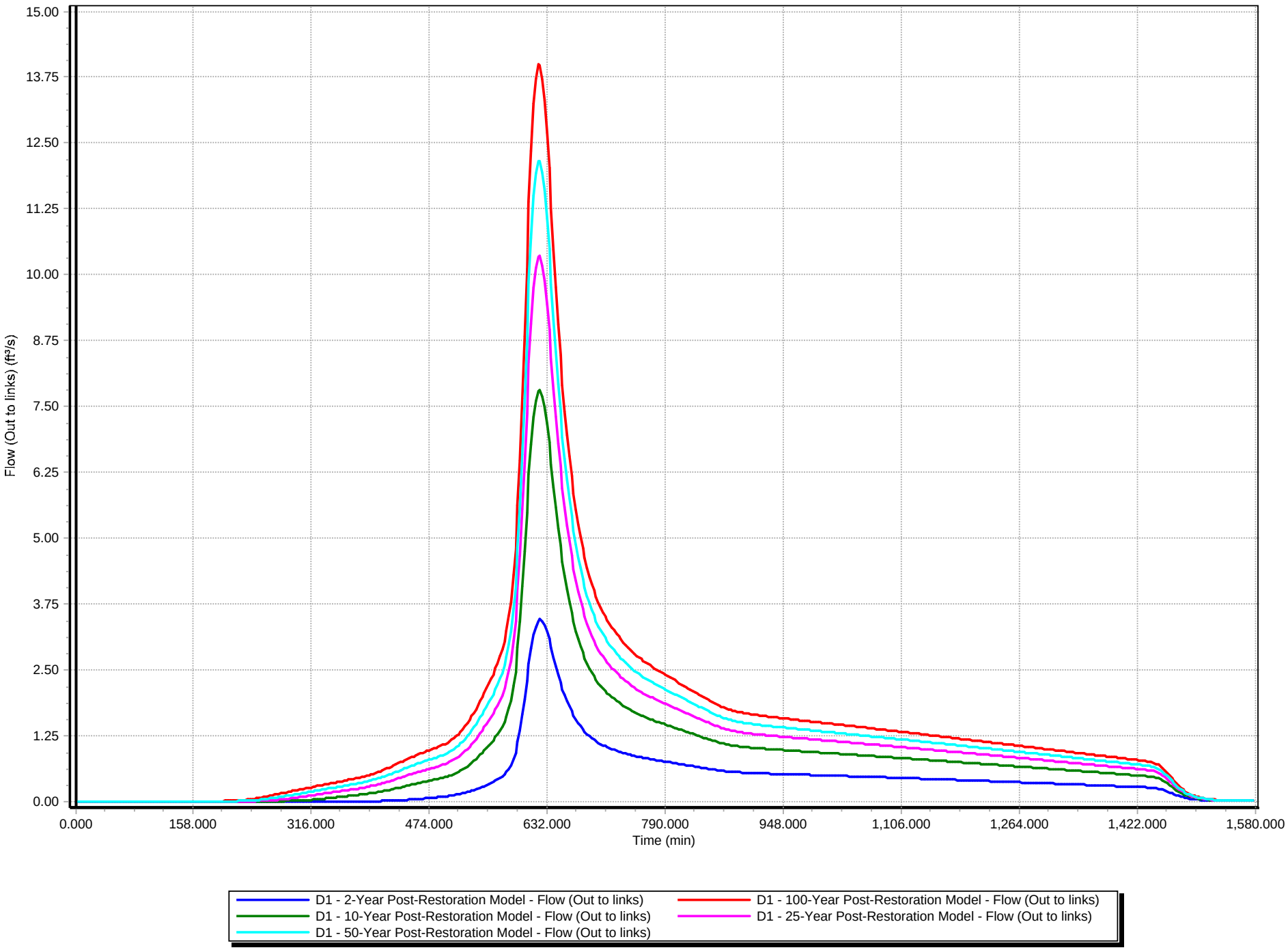
Post-Remediation Conditions Subcatchment Rainfall Hydrographs



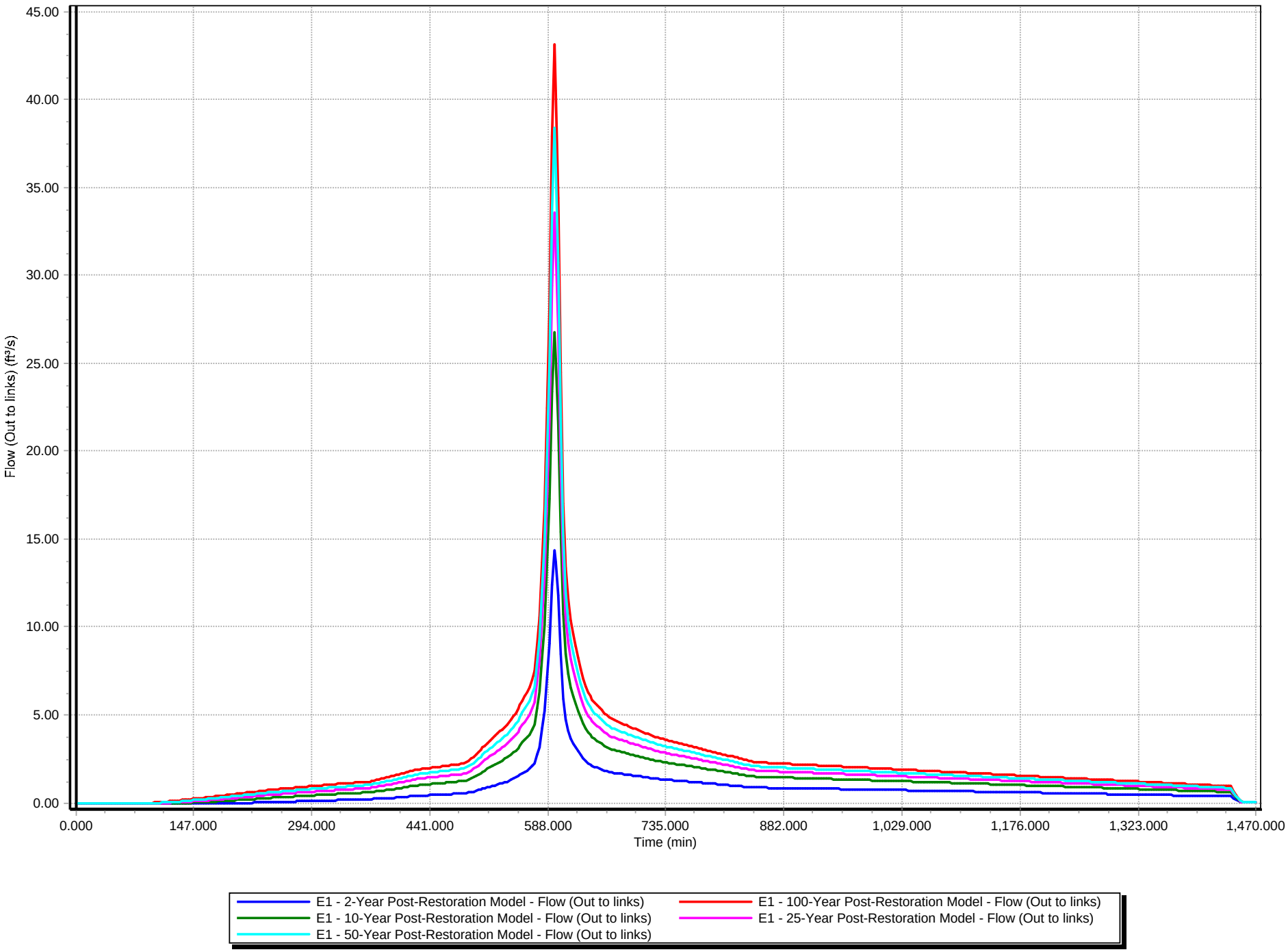
Post-Remediation Conditions Subcatchment Rainfall Hydrographs



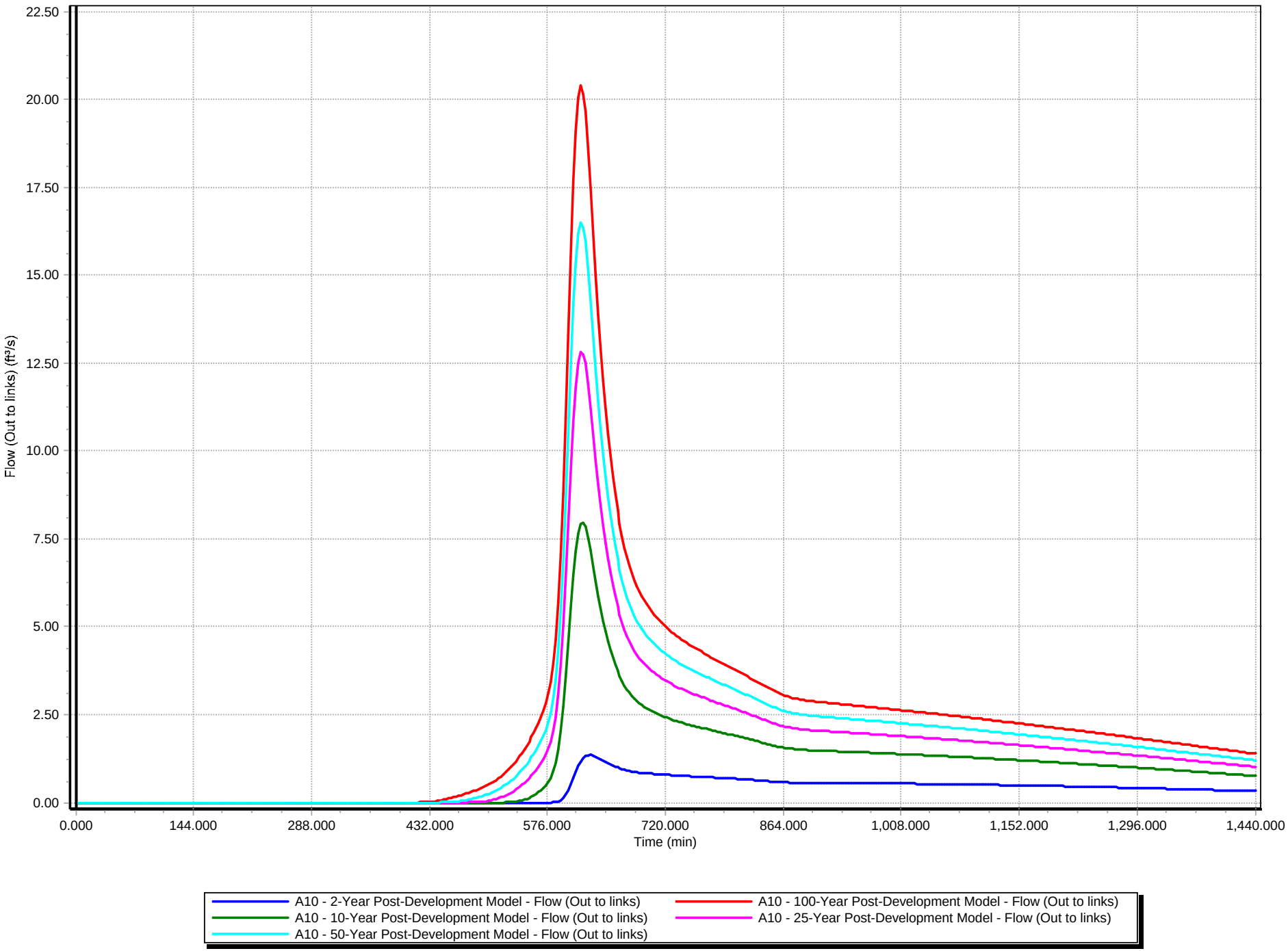
Post-Remediation Subcatchment Rainfall Hydrographs



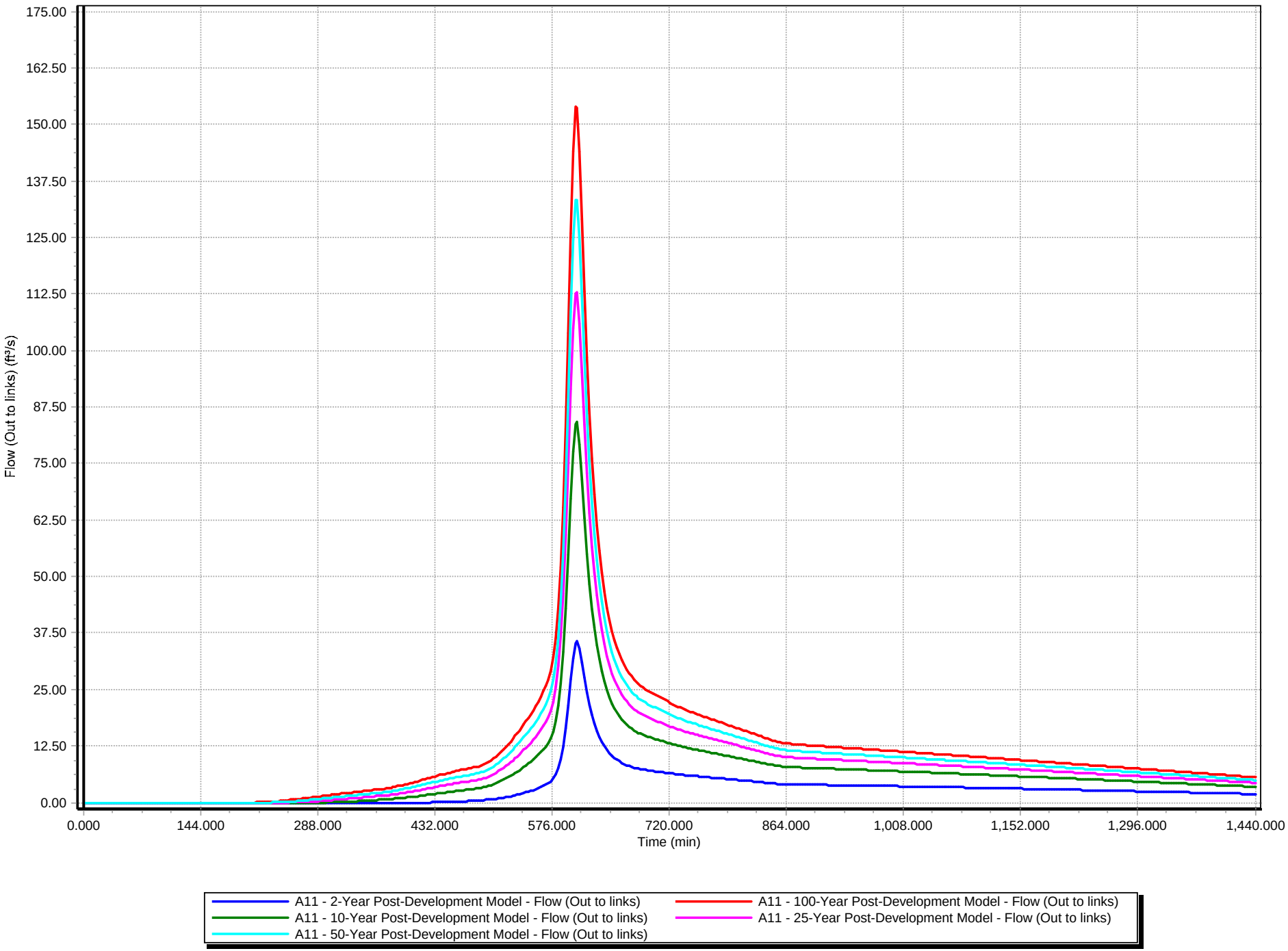
Post-Remediation Conditions Subcatchment Rainfall Hydrographs



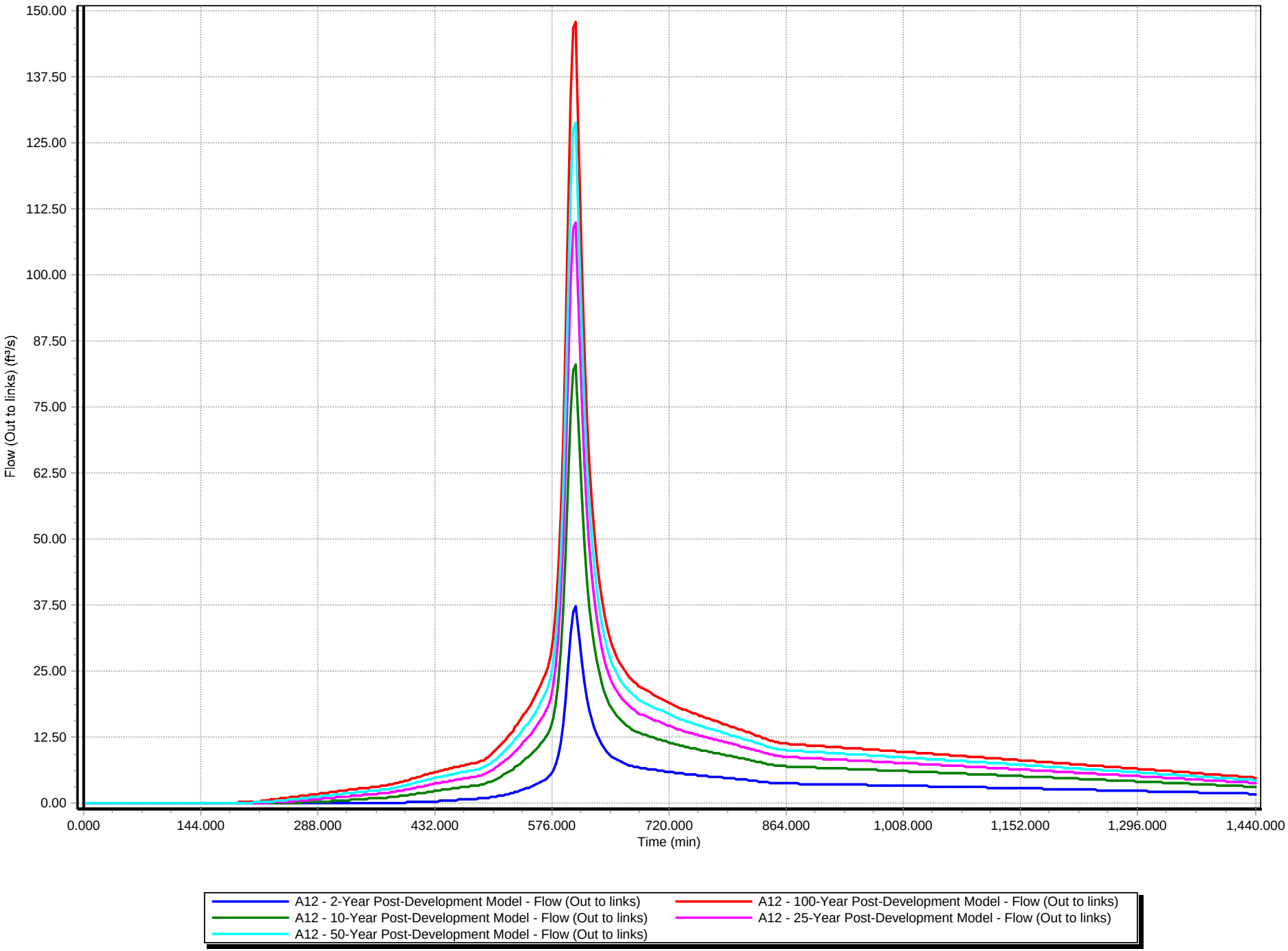
Post-Development Conditions Subcatchment Rainfall Hydrographs



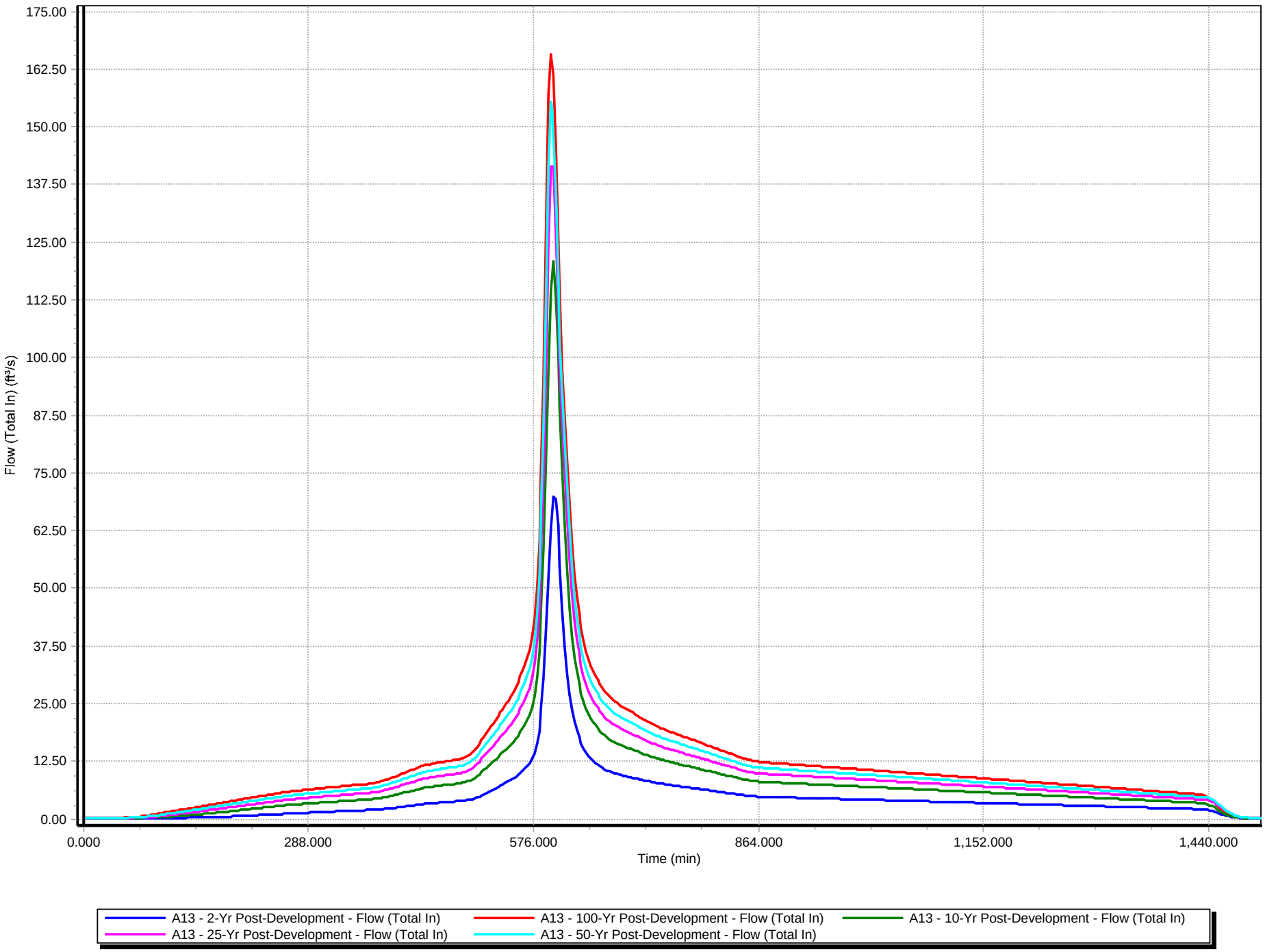
Post-Development Conditions Subcatchment Rainfall Hydrographs



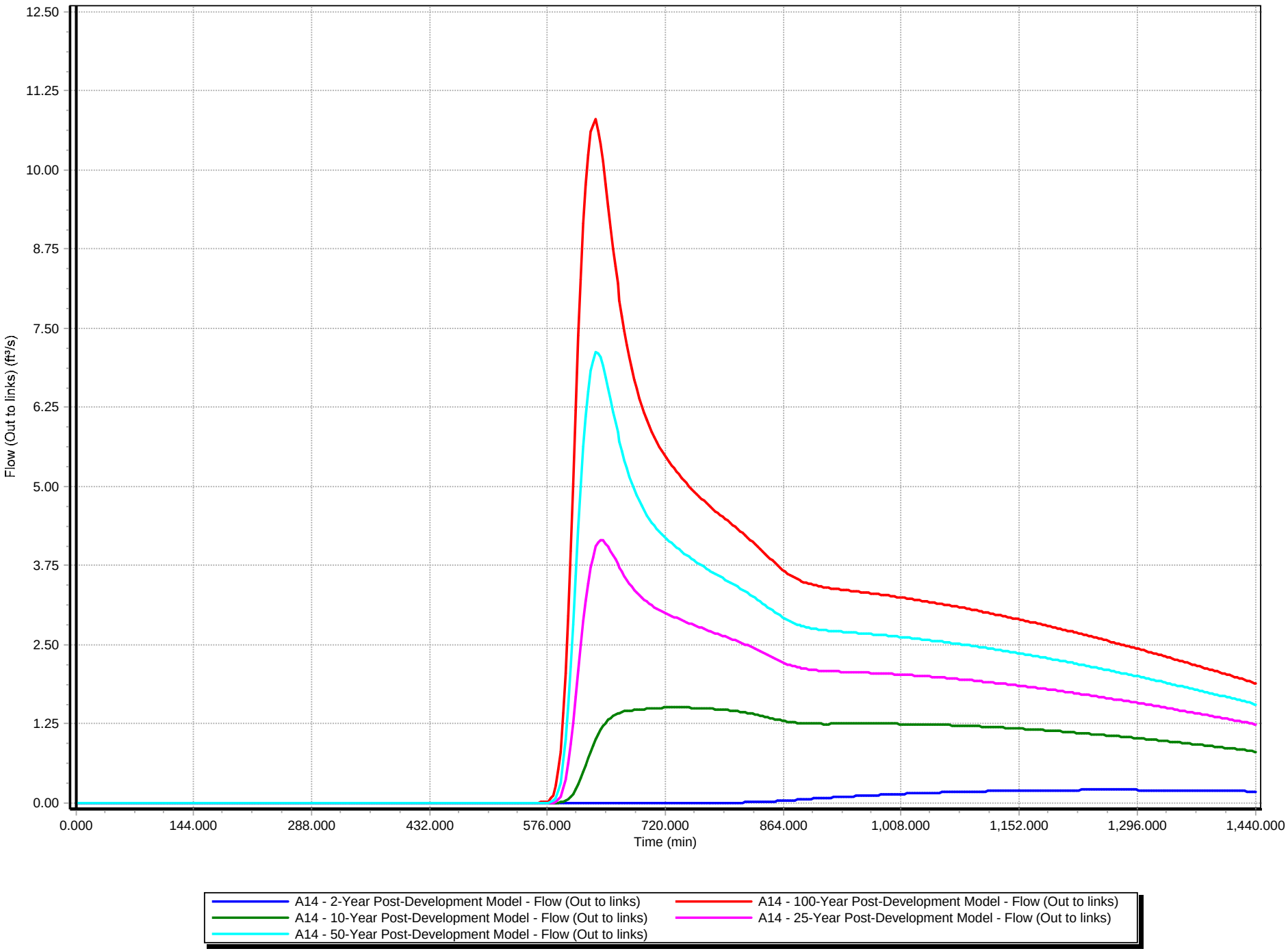
Post-Development Conditions Subcatchment Rainfall Hydrographs



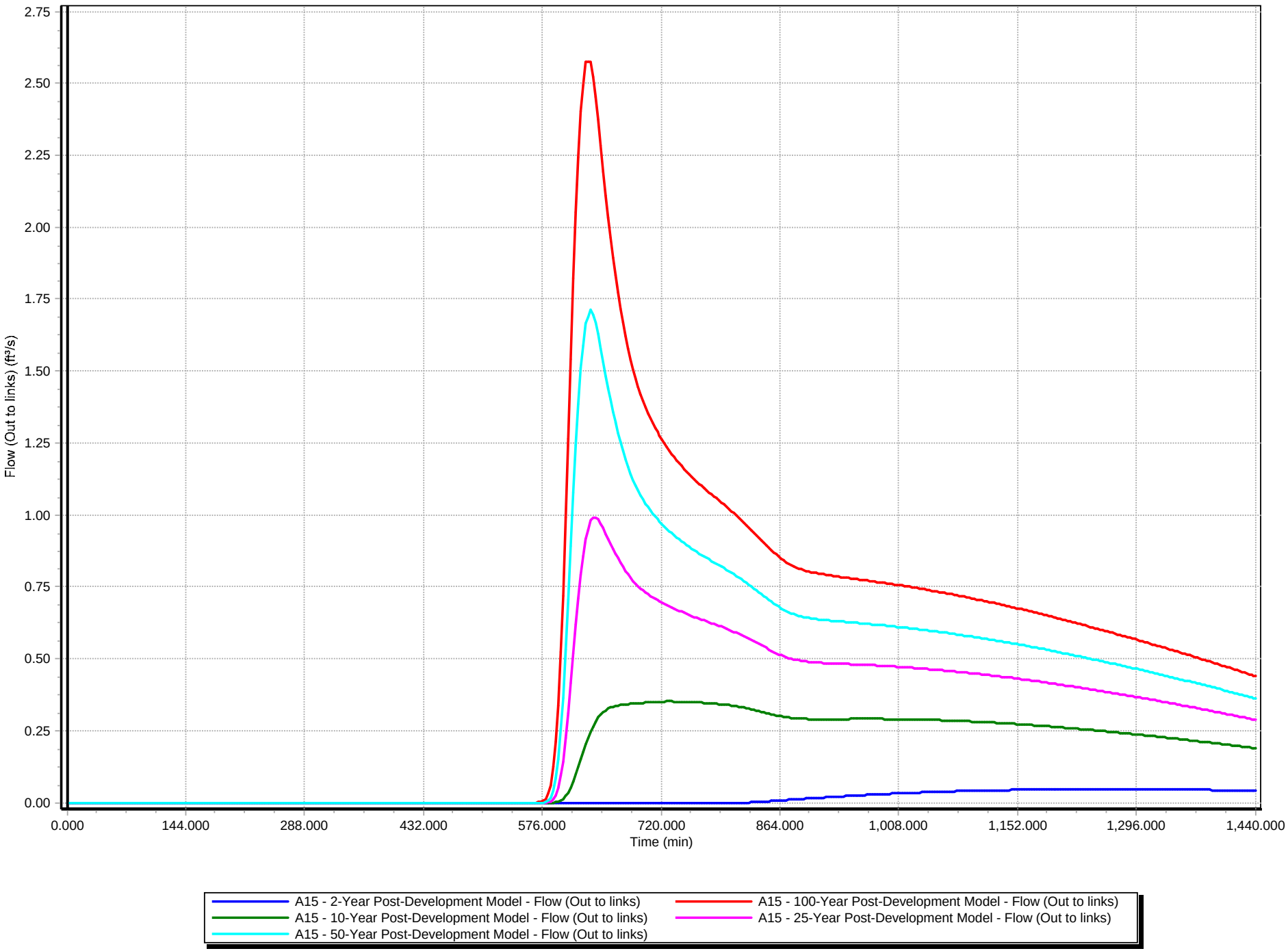
Post-Development Conditions Subcatchment Rainfall Hydrographs



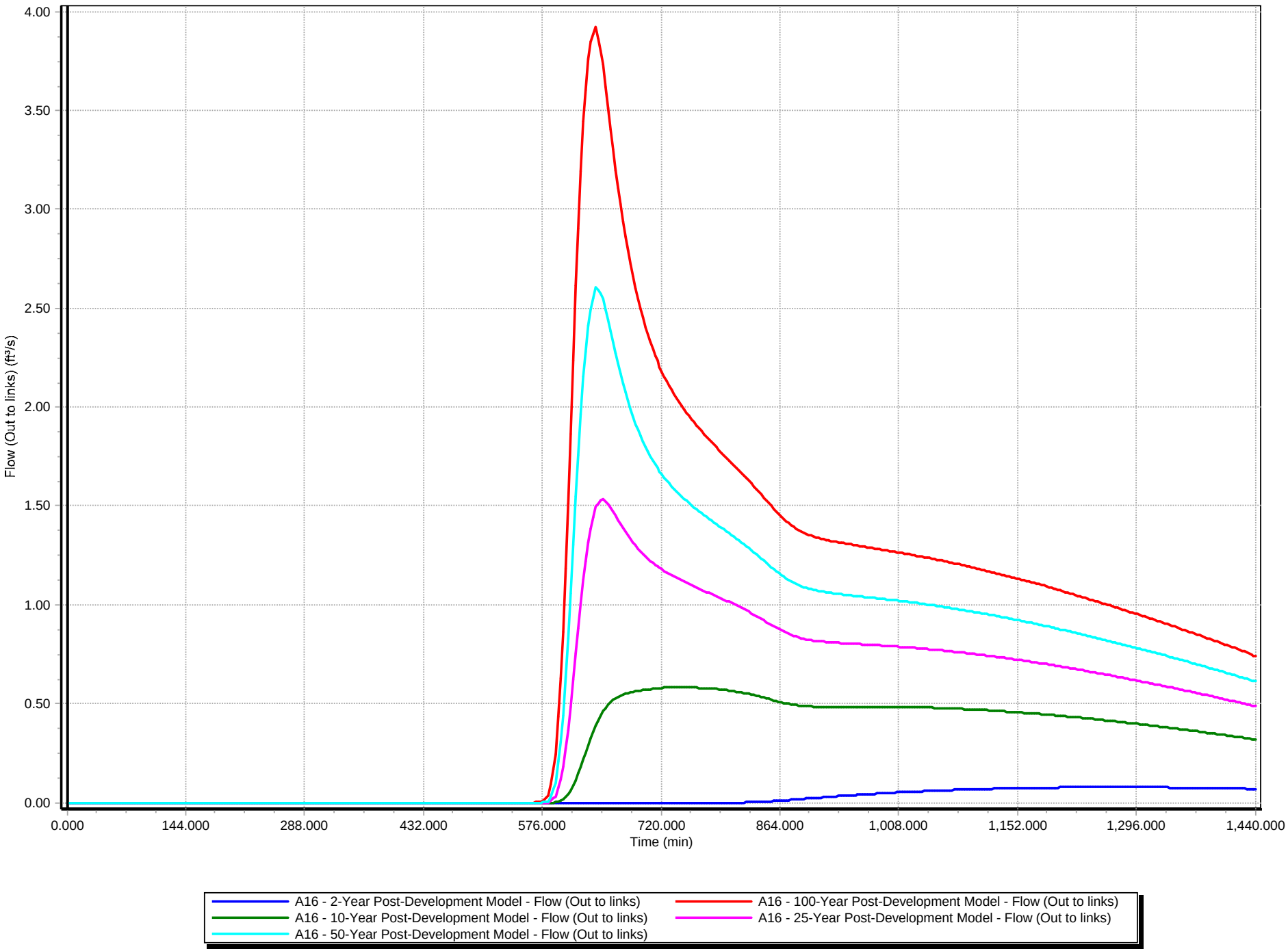
Post-Development Conditions Subcatchment Rainfall Hydrographs



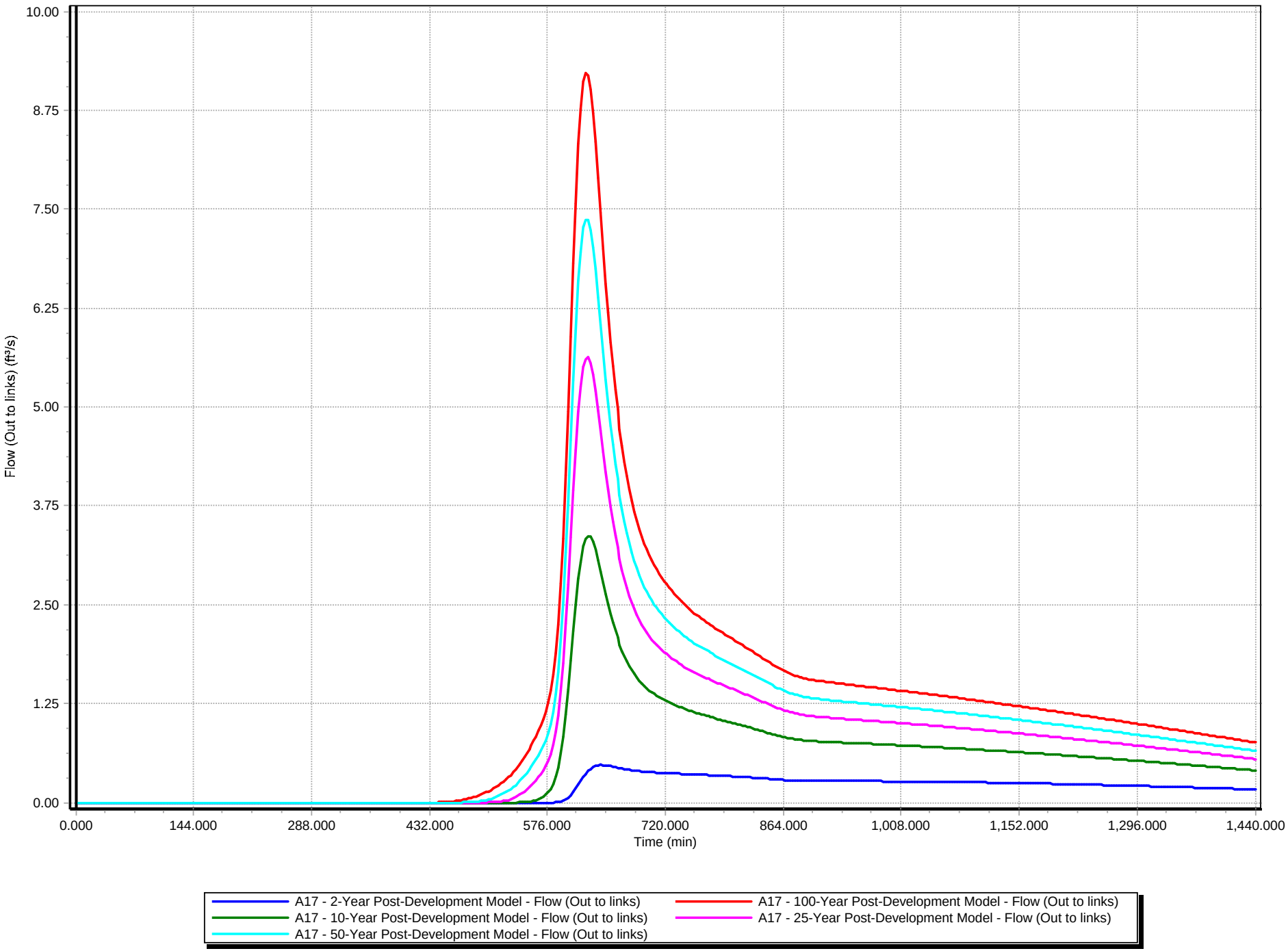
Post-Development Conditions Subcatchment Rainfall Hydrographs



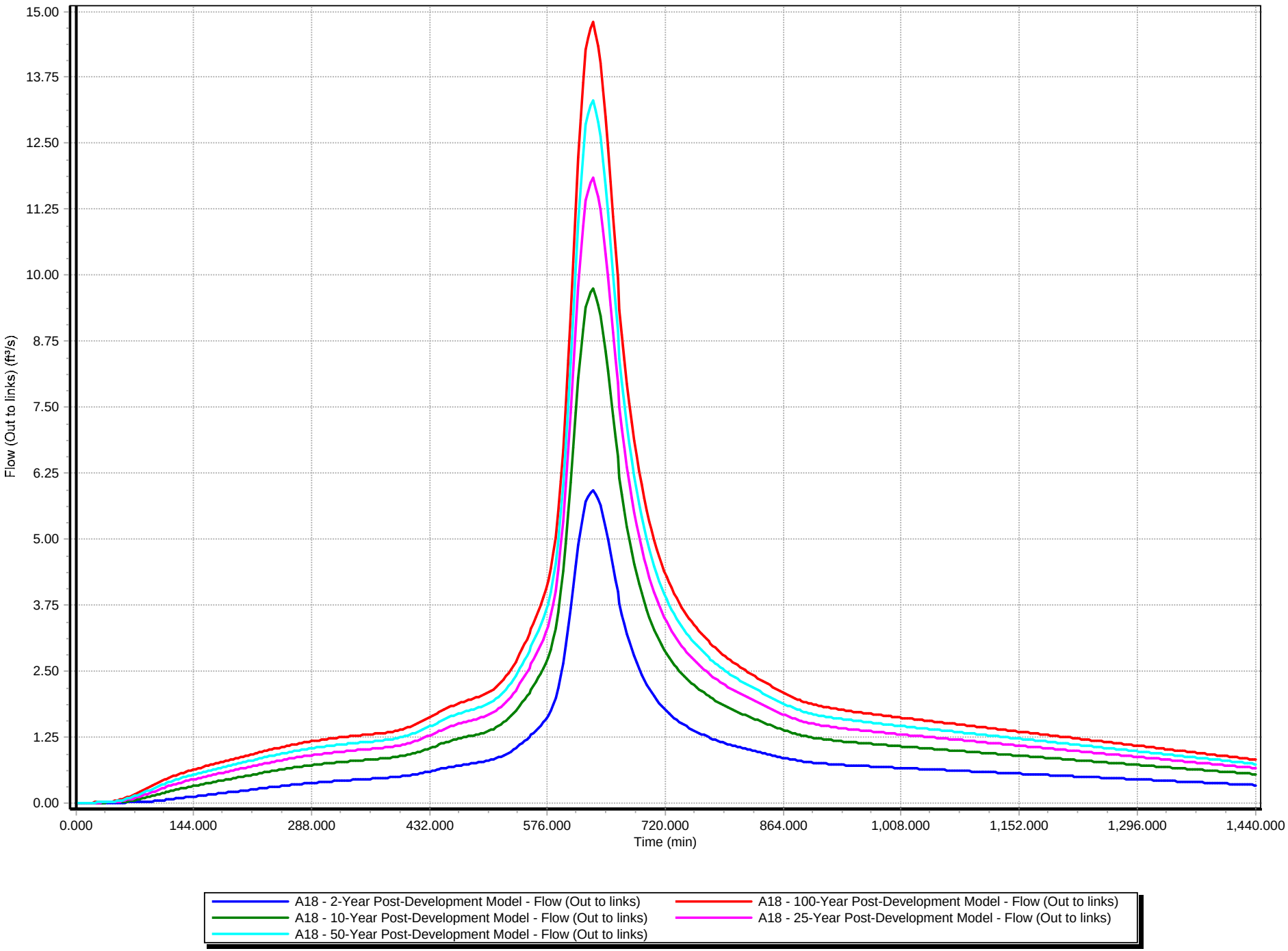
Post-Development Conditions Subcatchment Rainfall Hydrographs



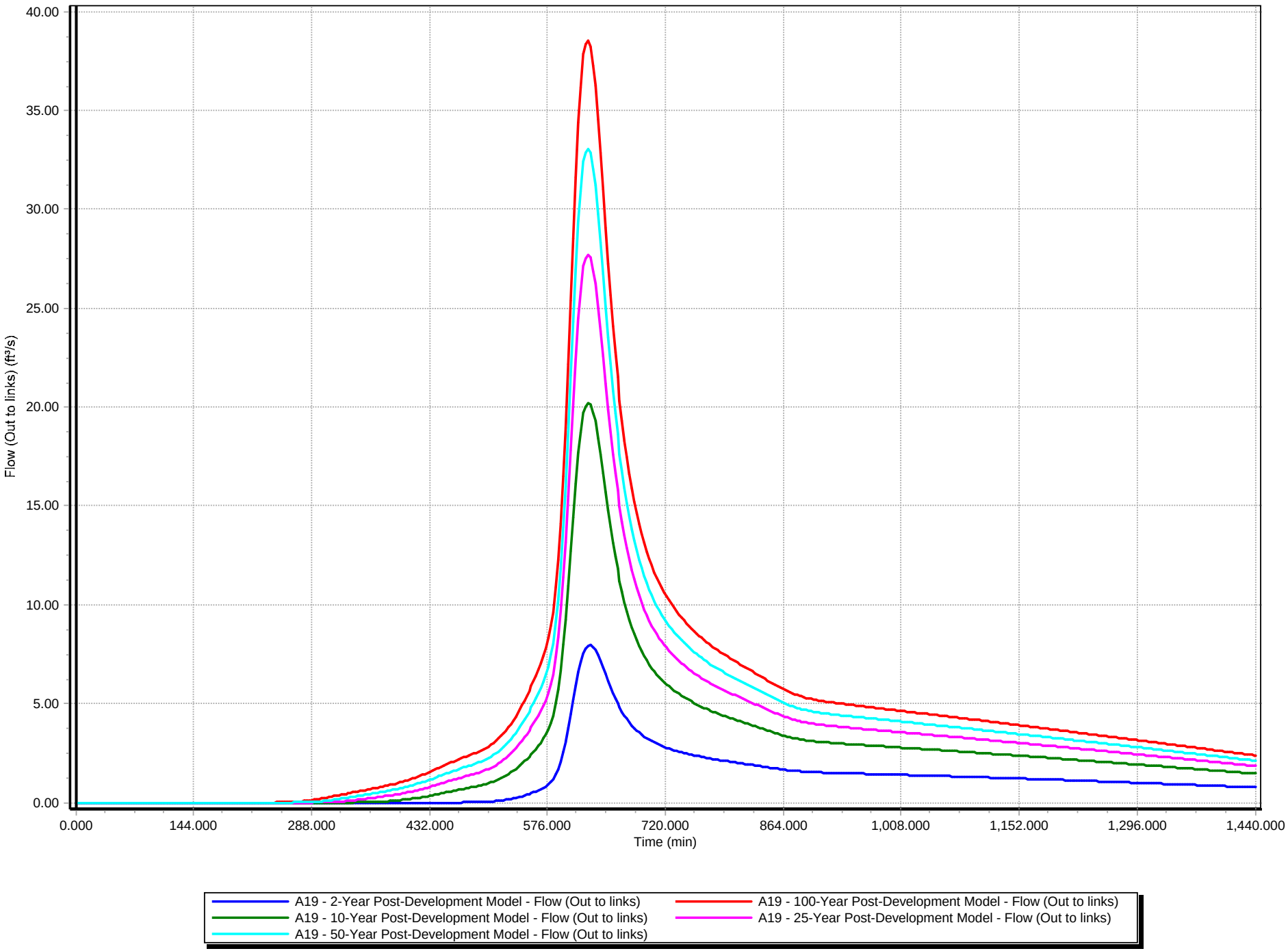
Post-Development Conditions Subcatchment Rainfall Hydrographs



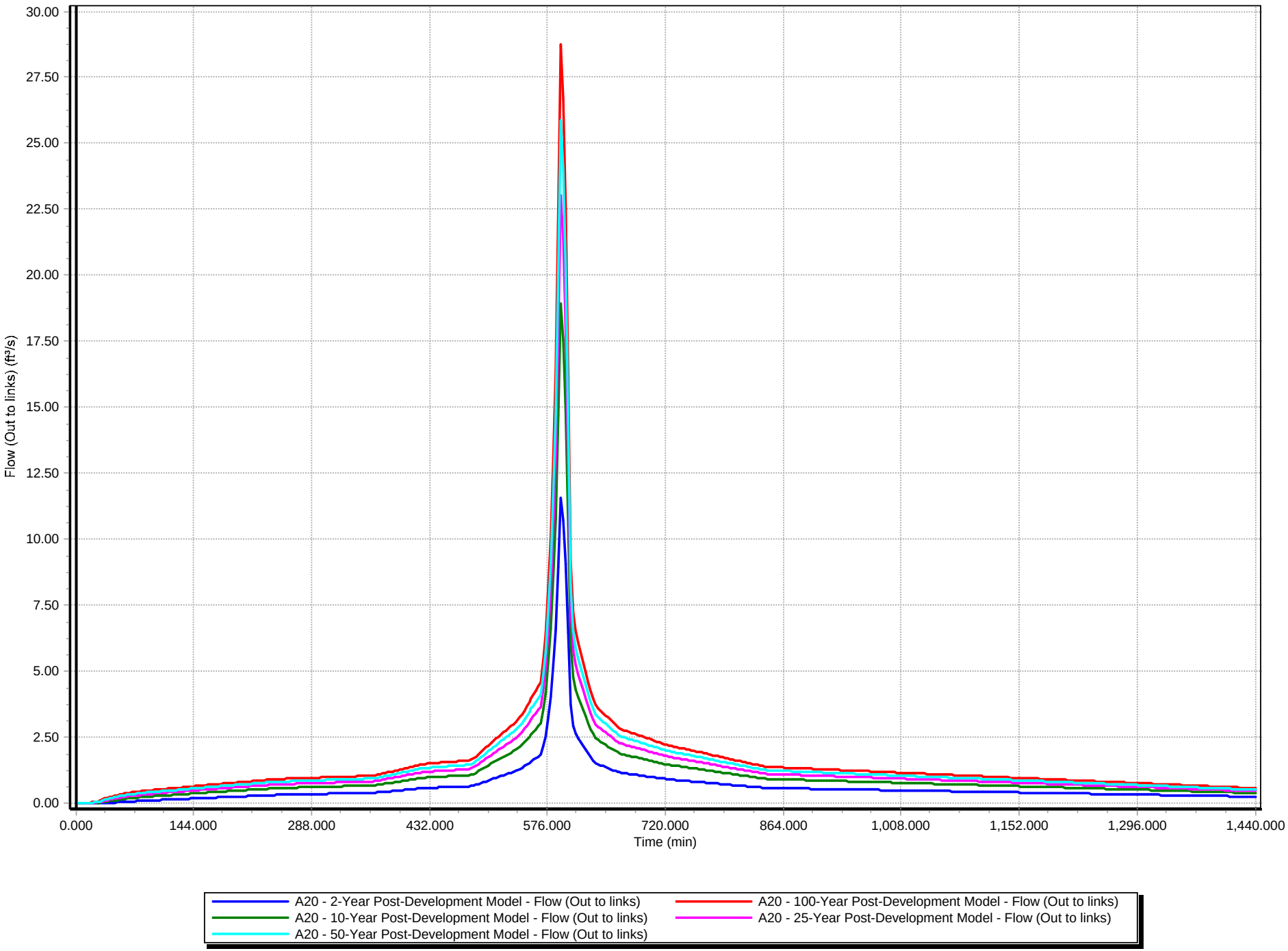
Post-Development Conditions Subcatchment Rainfall Hydrographs



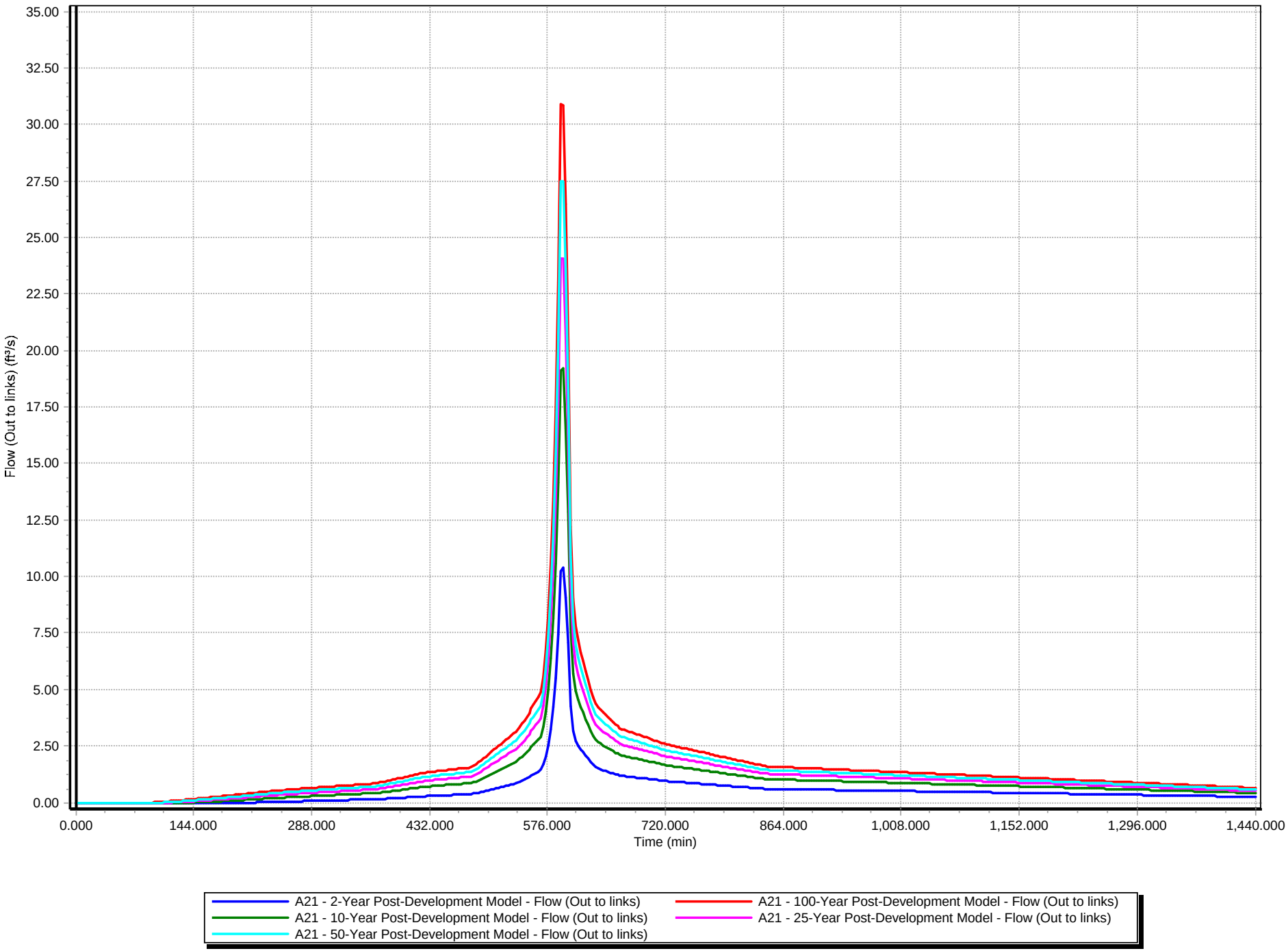
Post-Development Conditions Subcatchment Rainfall Hydrographs



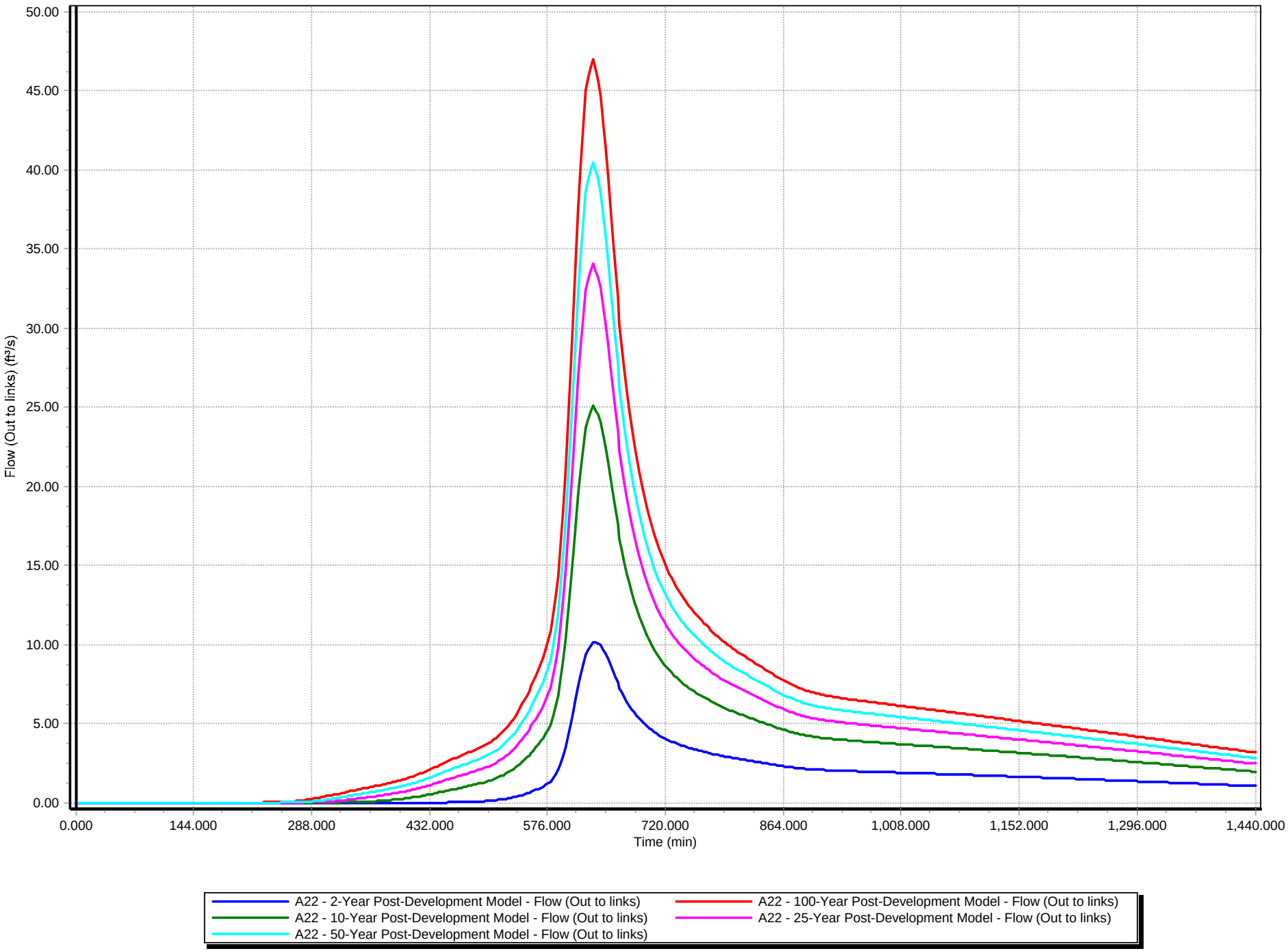
Post-Development Conditions Subcatchment Rainfall Hydrographs



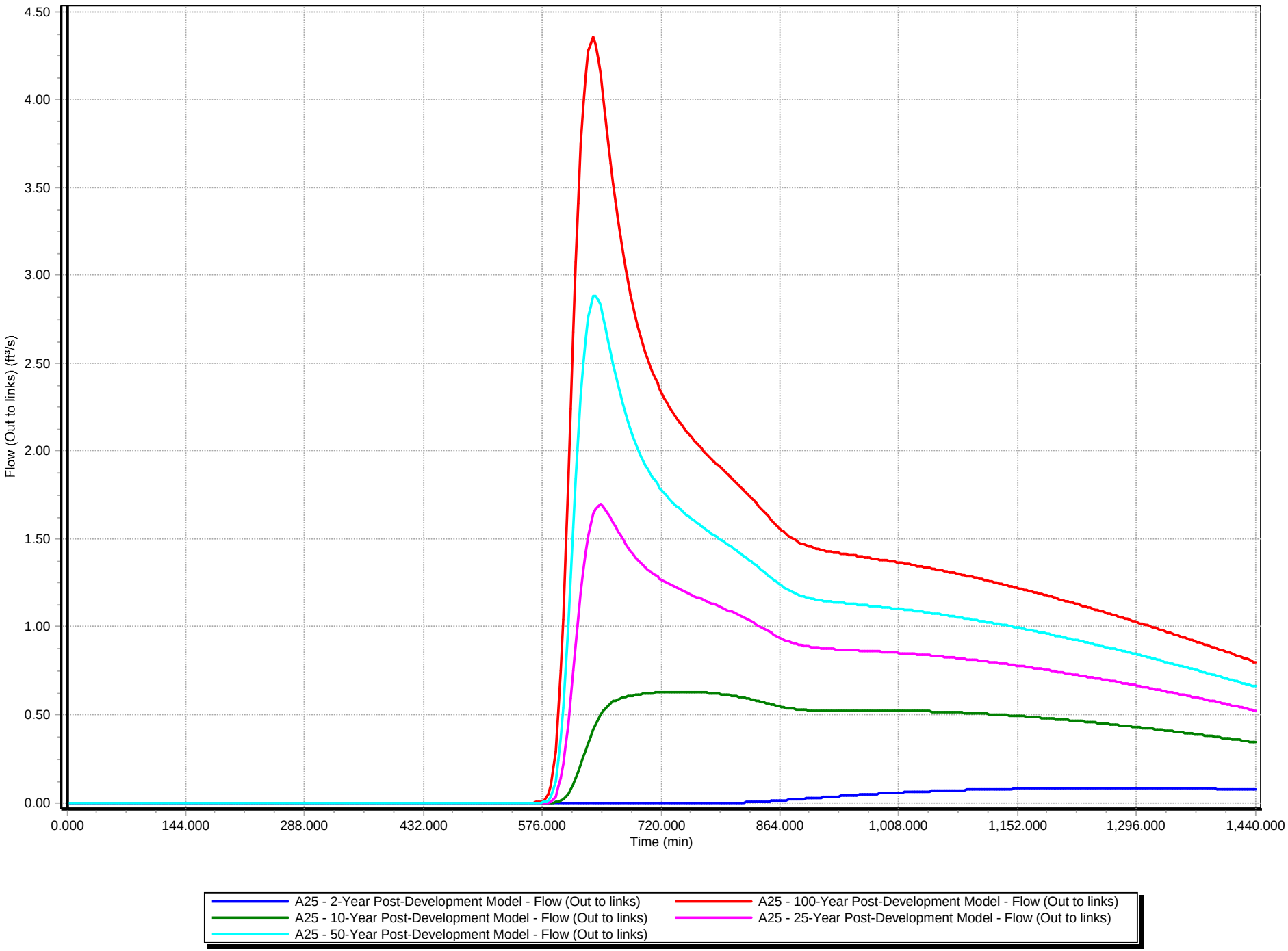
Post-Development Conditions Subcatchment Rainfall Hydrographs



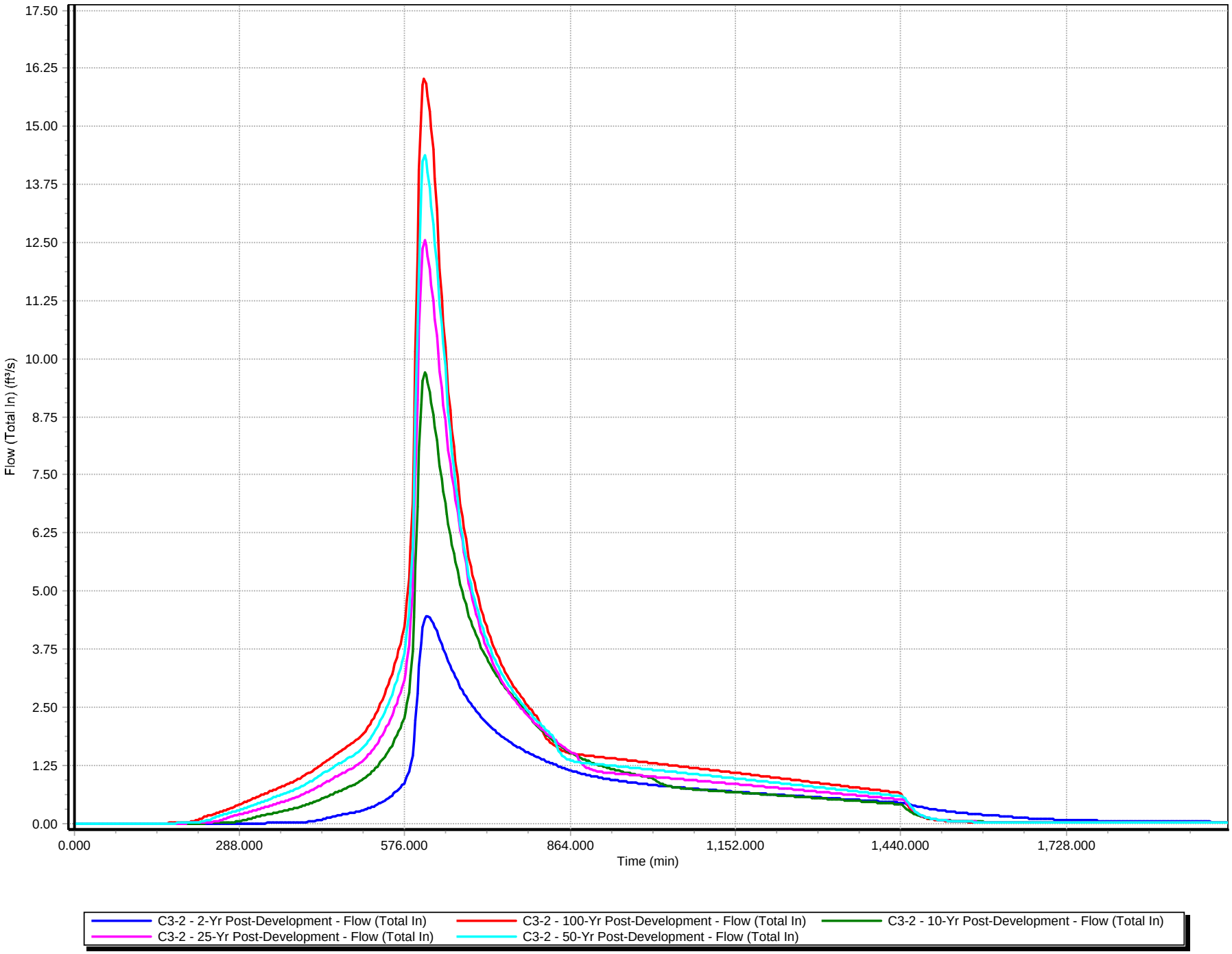
Post-Development Conditions Subcatchment Rainfall Hydrographs



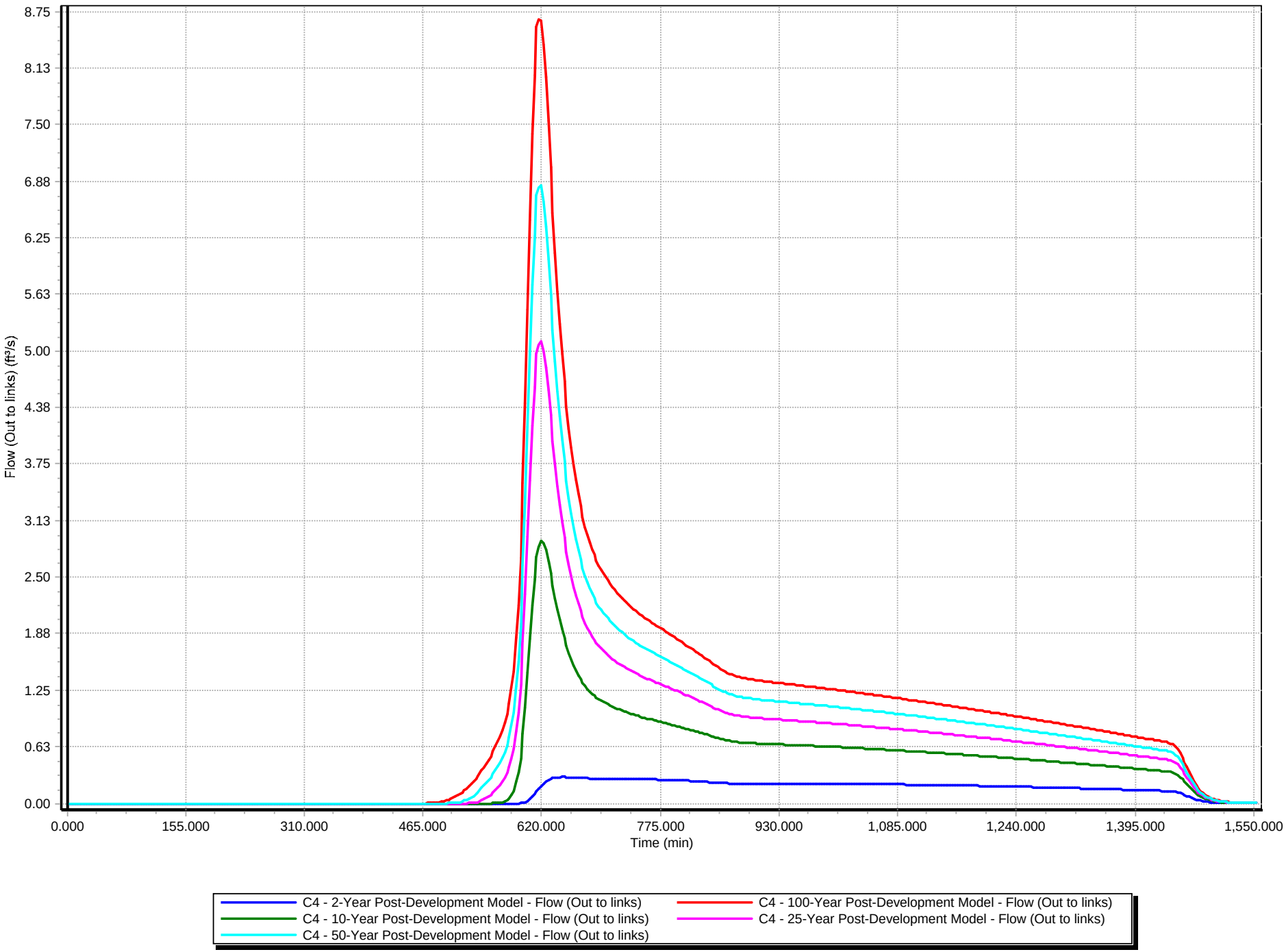
Post-Development Conditions Subcatchment Rainfall Hydrographs



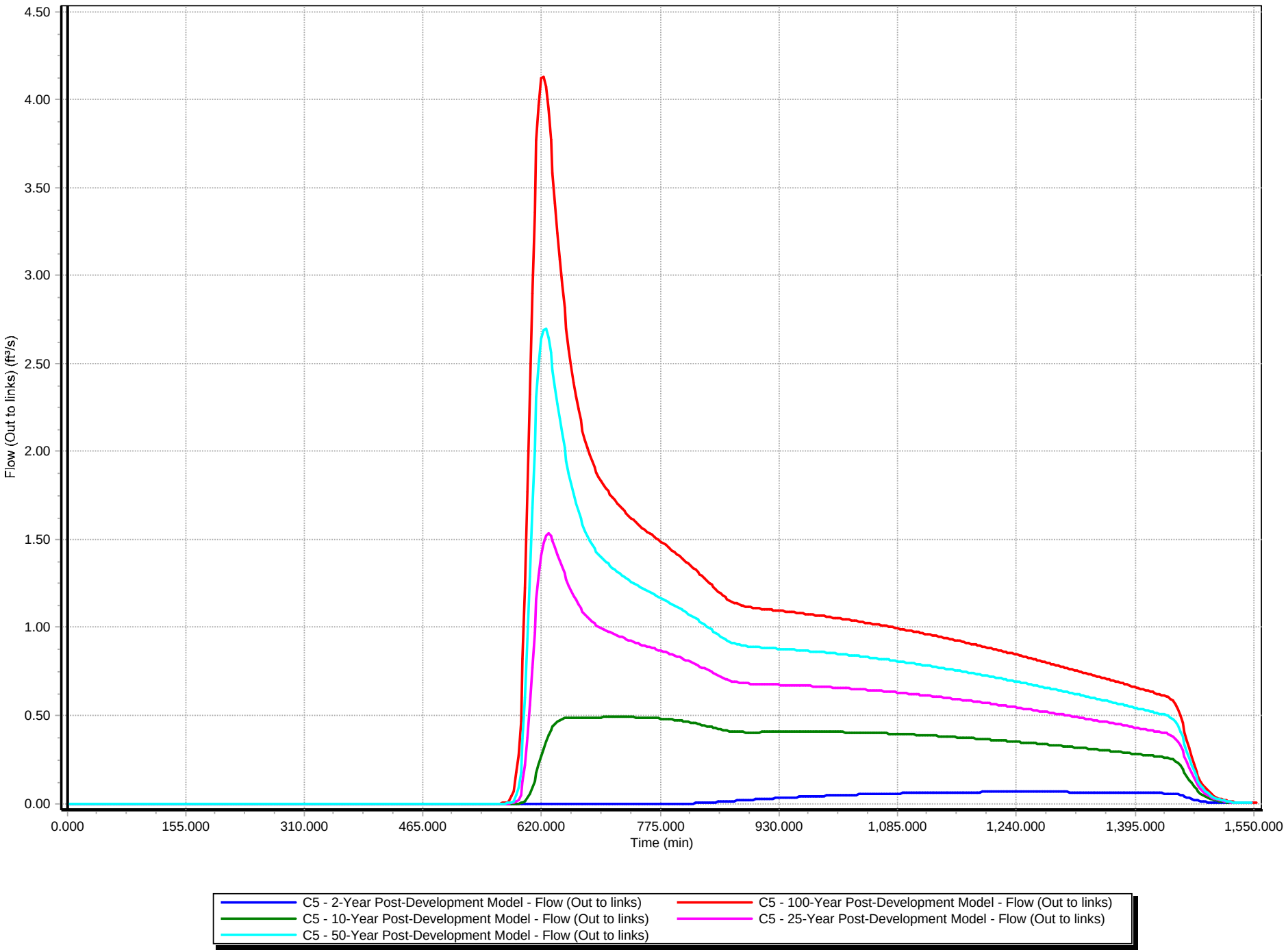
Post-Development Conditions Subcatchment Rainfall Hydrographs



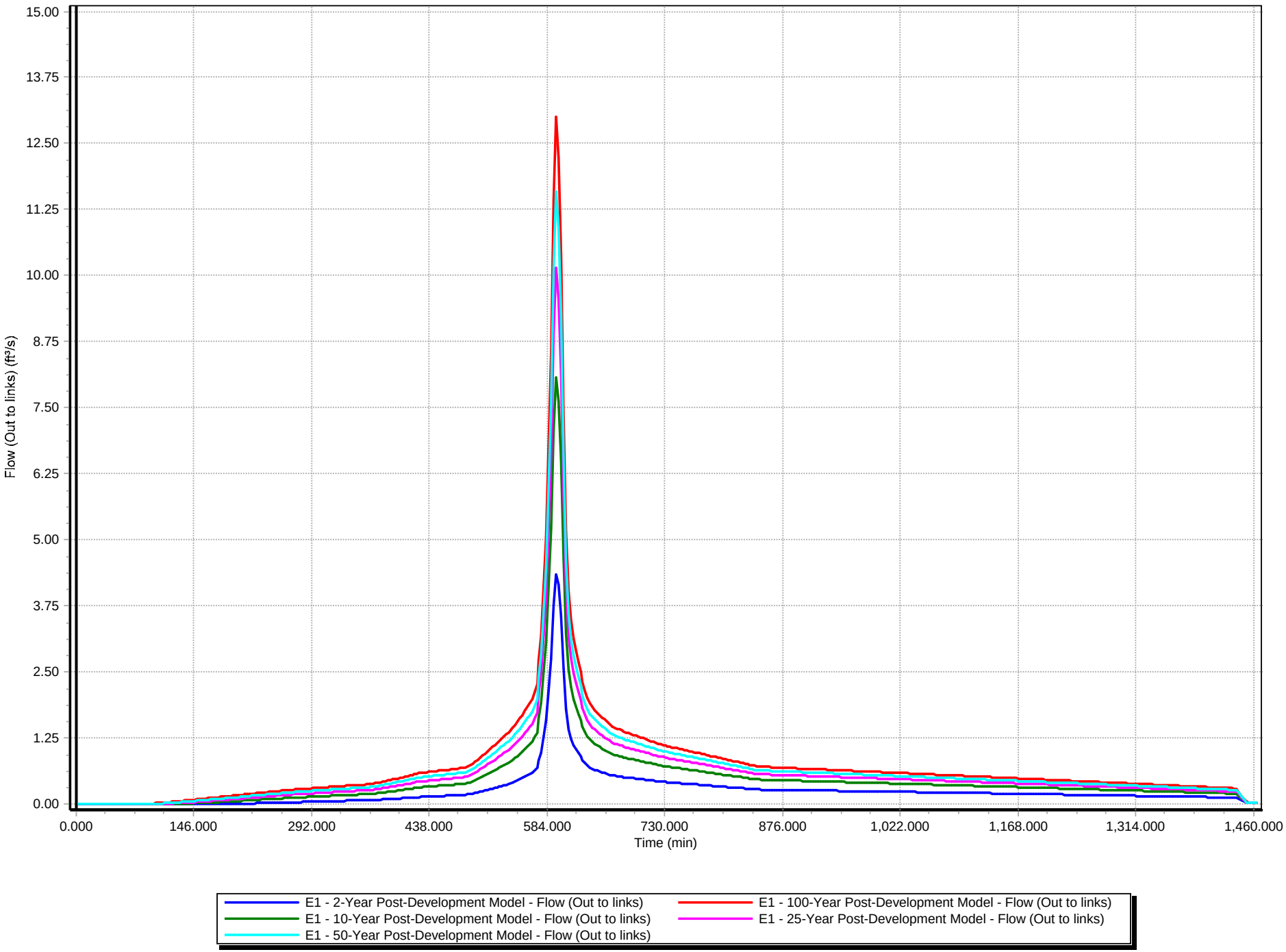
Post-Development Conditions Subcatchment Rainfall Hydrographs



Post-Development Conditions Subcatchment Rainfall Hydrographs



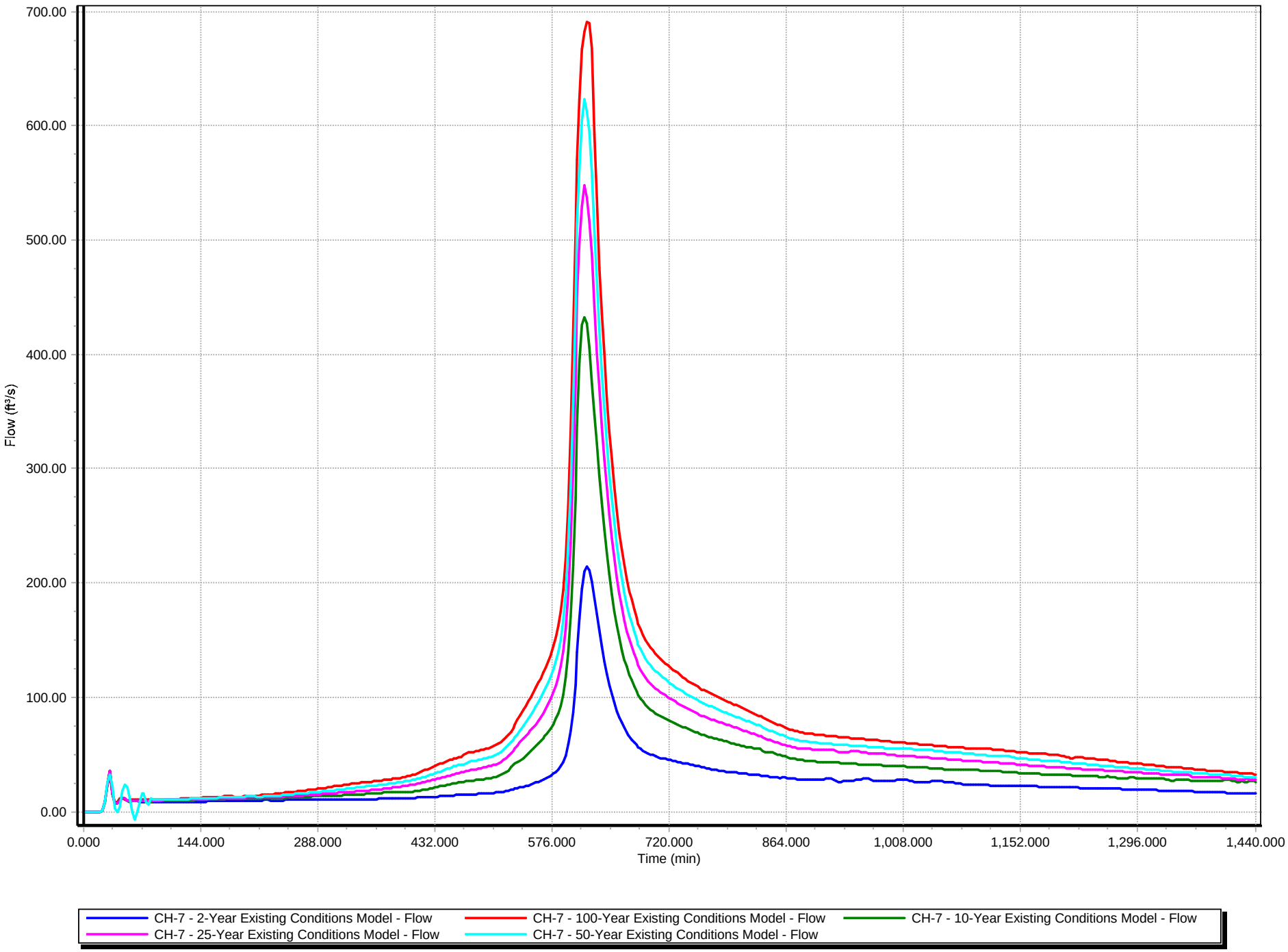
Post-Development Conditions Subcatchment Rainfall Hydrographs



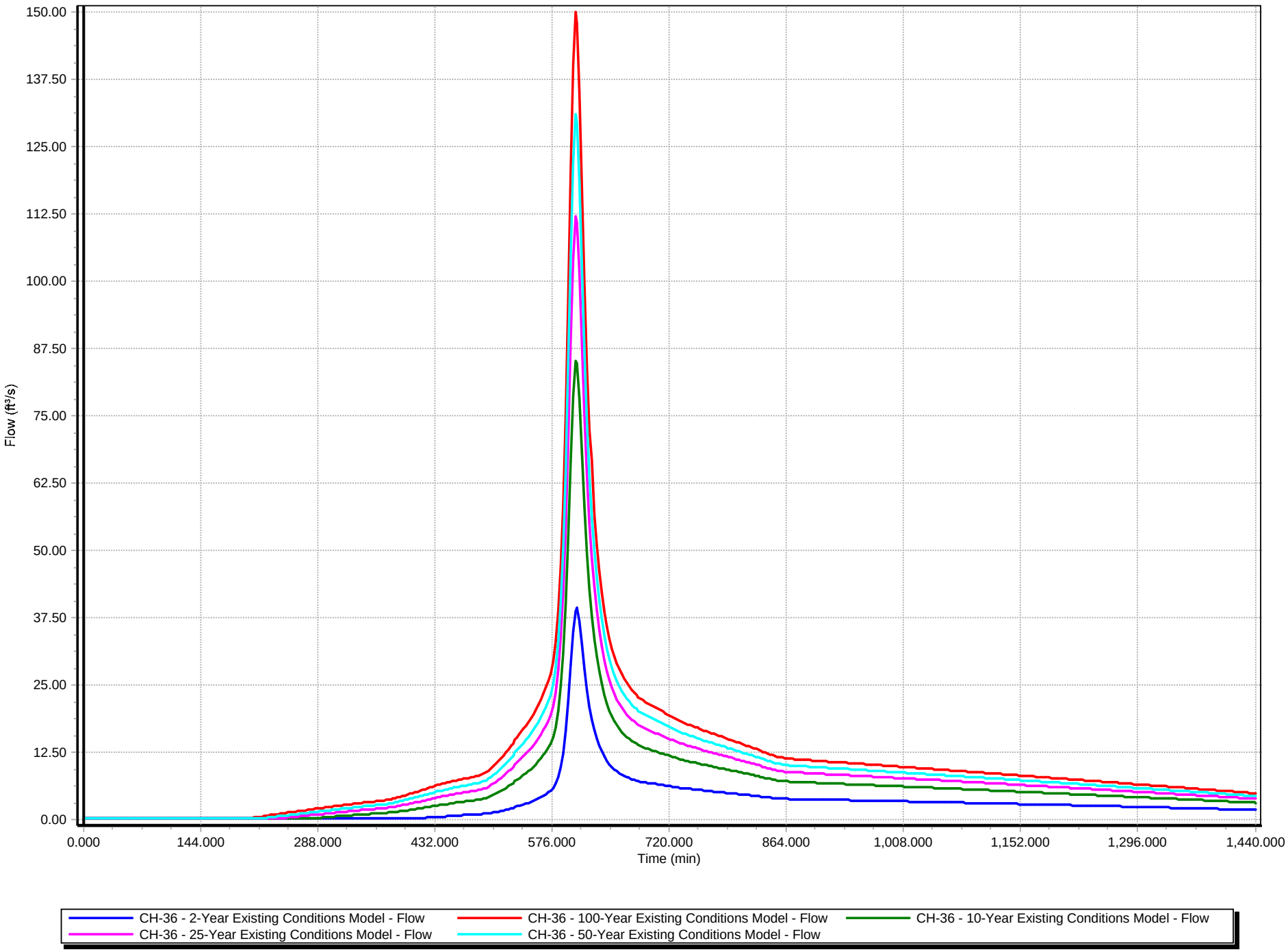
Attachment 4

Design Point Hydrographs

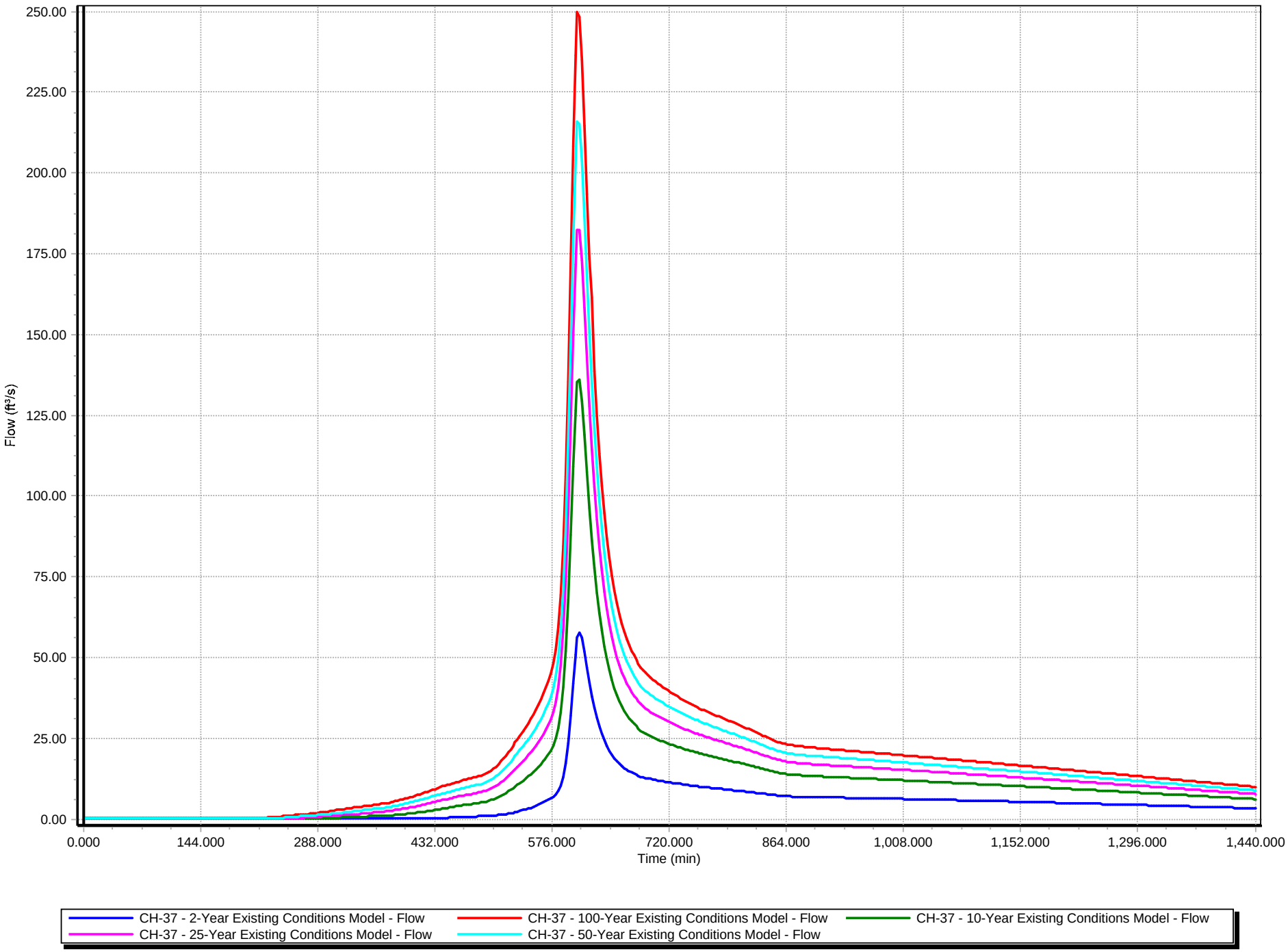
Design Point DP-1 Existing Conditions Flow Rate



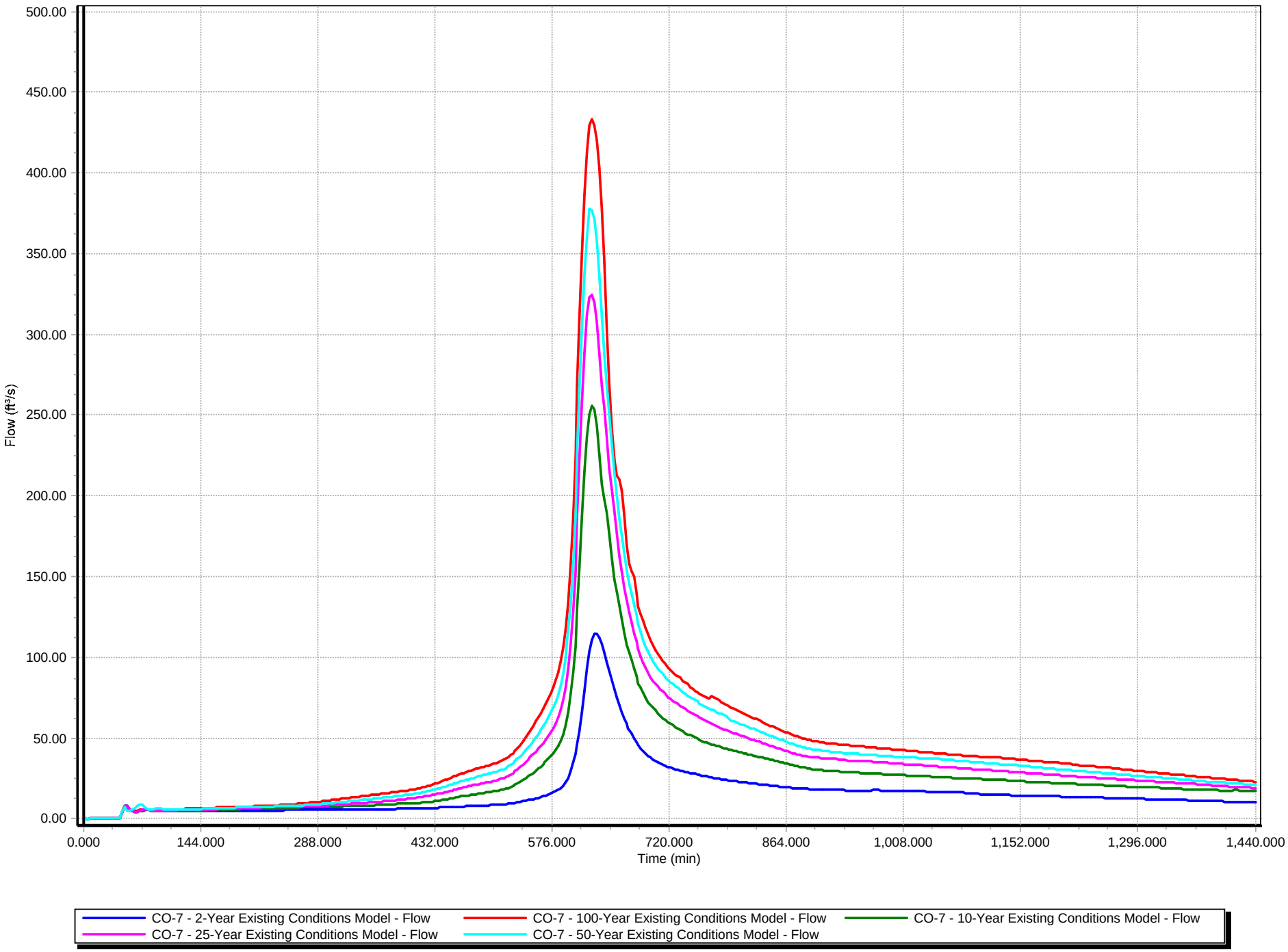
Design Point DP-2 Existing Conditions Flow Rate



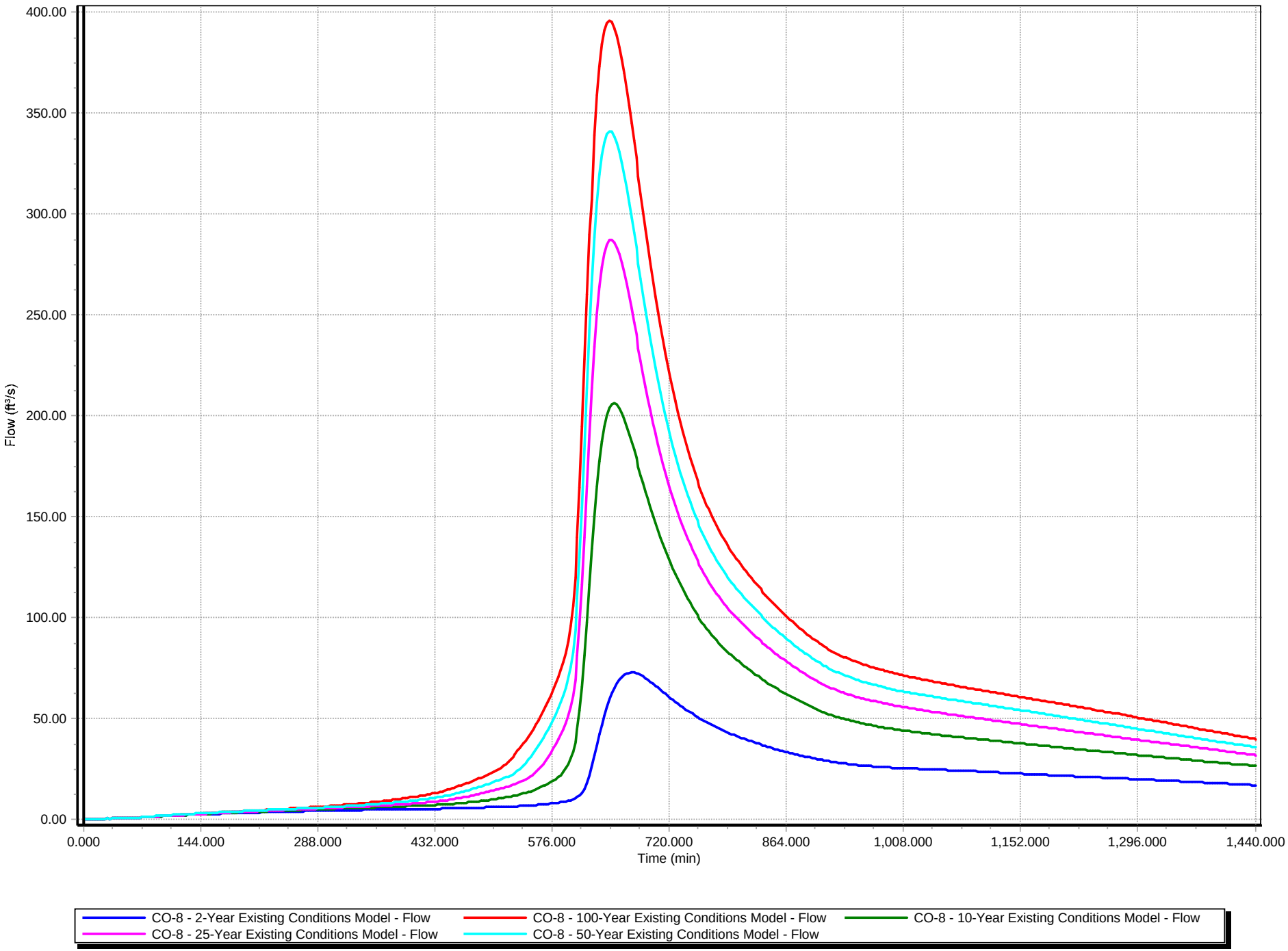
Design Point DP-3 Existing Conditions Flow Rate



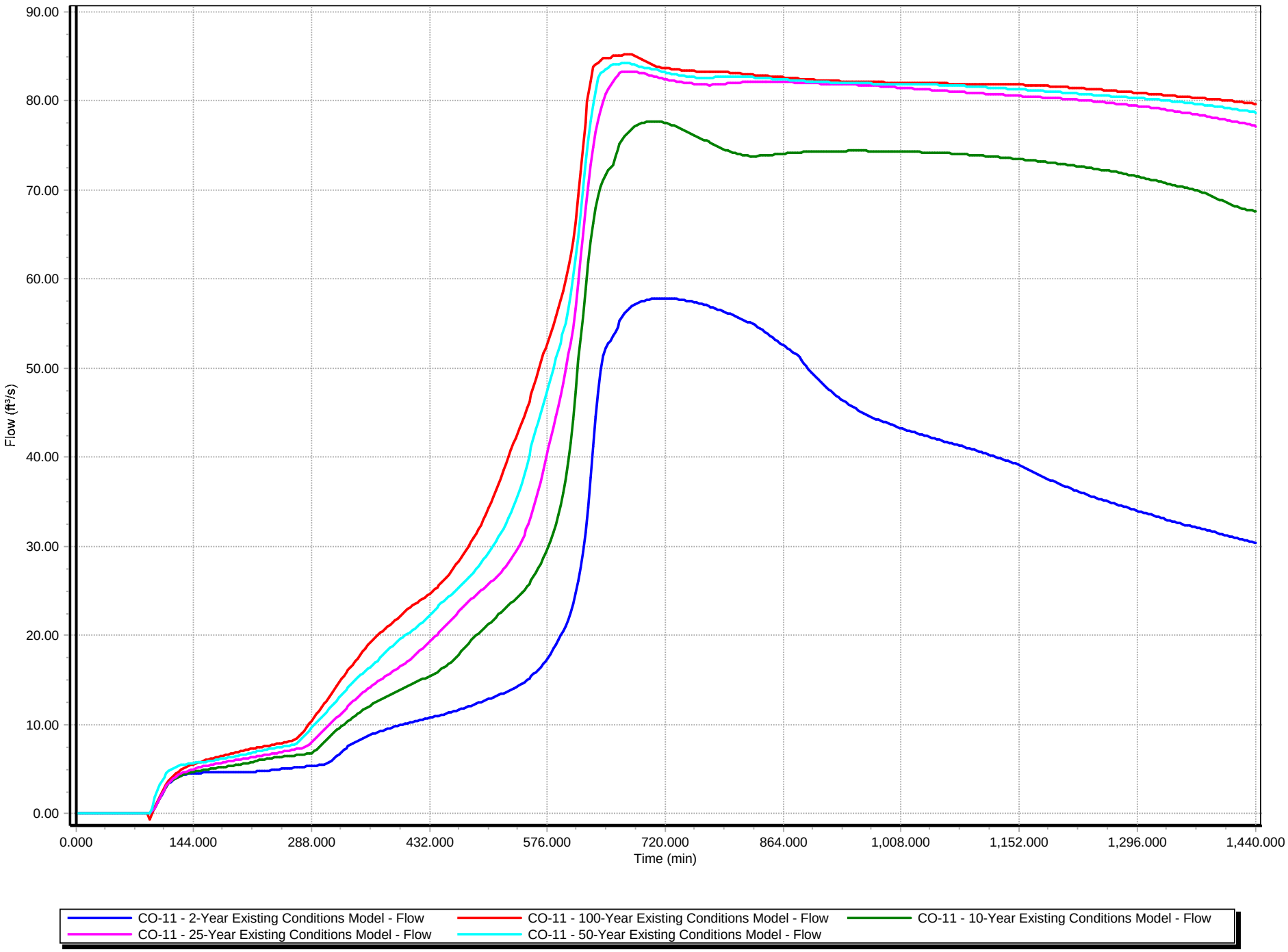
Design Point DP-4 Existing Conditions Flow Rate



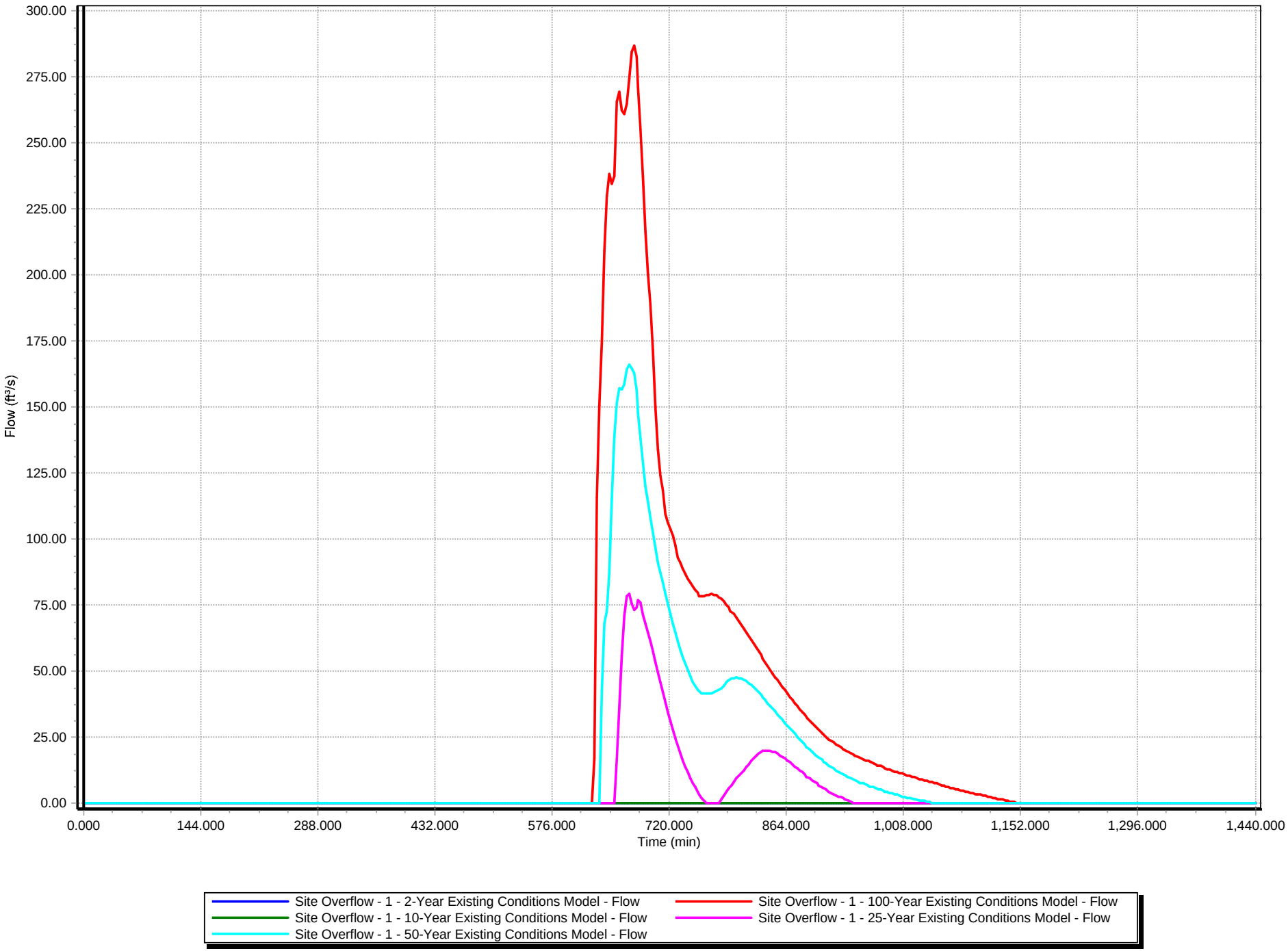
Design Point DP-5 Existing Conditions Flow Rate



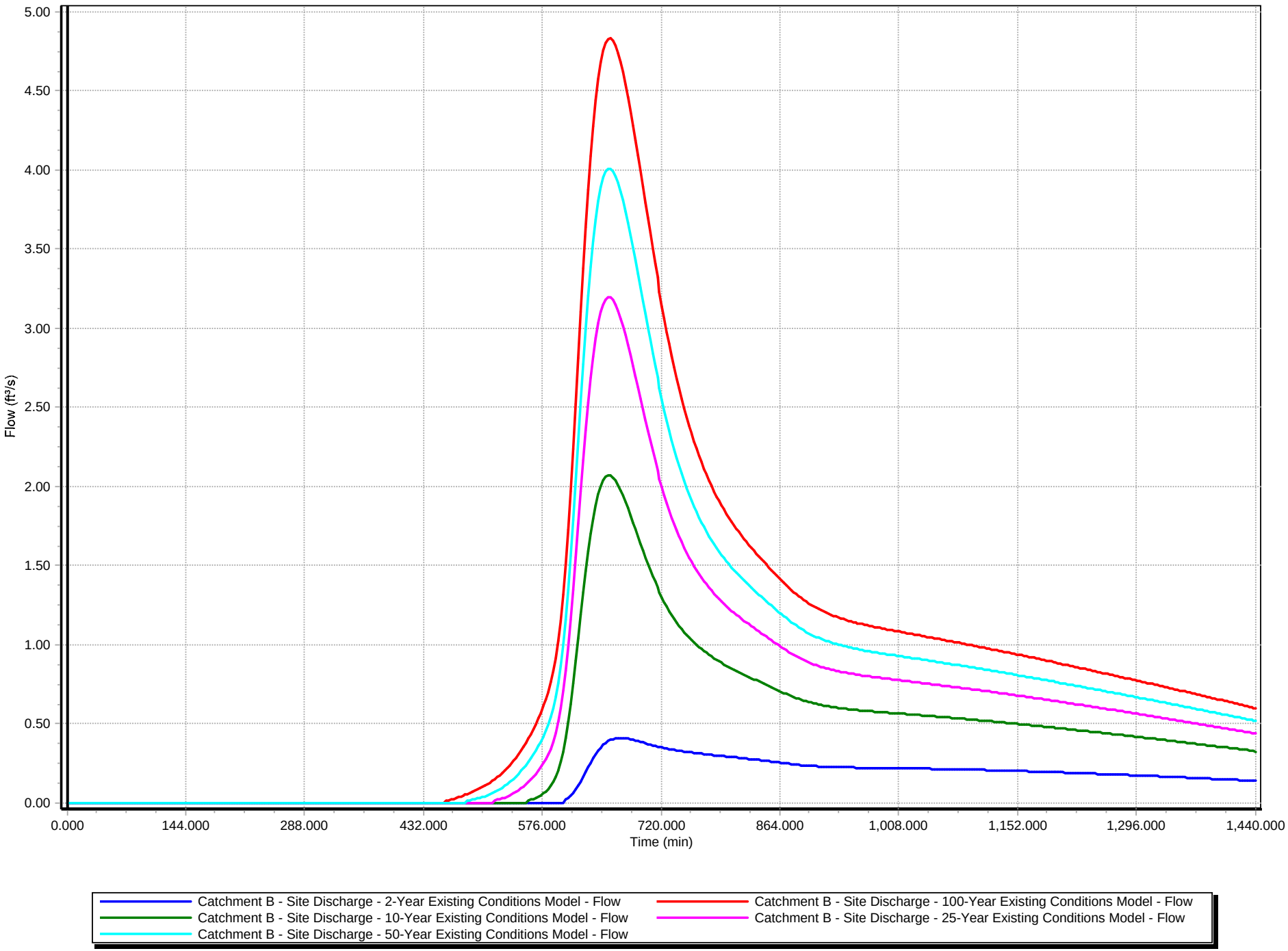
Design Point DP-6 Existing Conditions Flow Rate



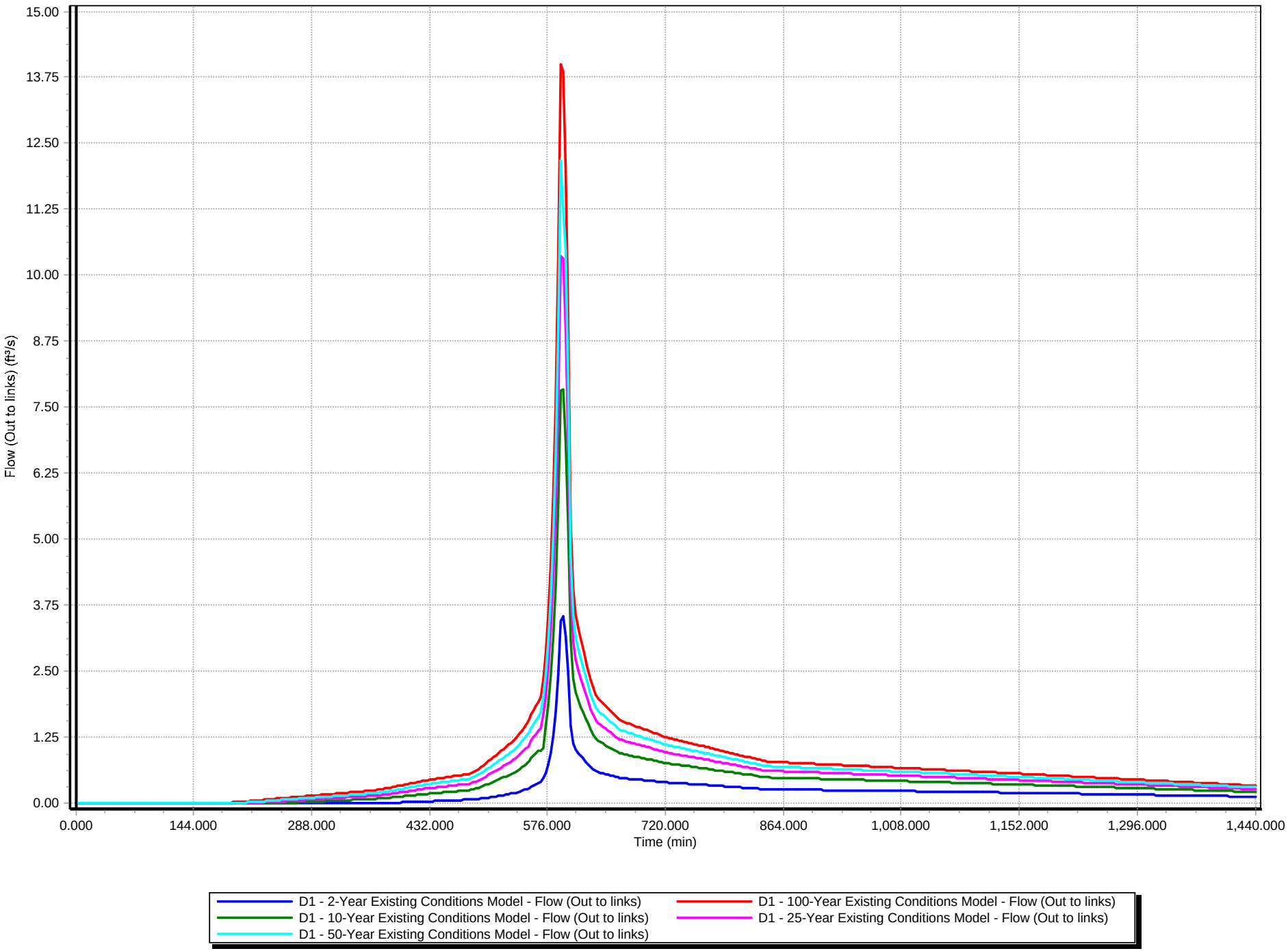
Site Overflow at Design Point DP-6 Existing Conditions Flow Rate



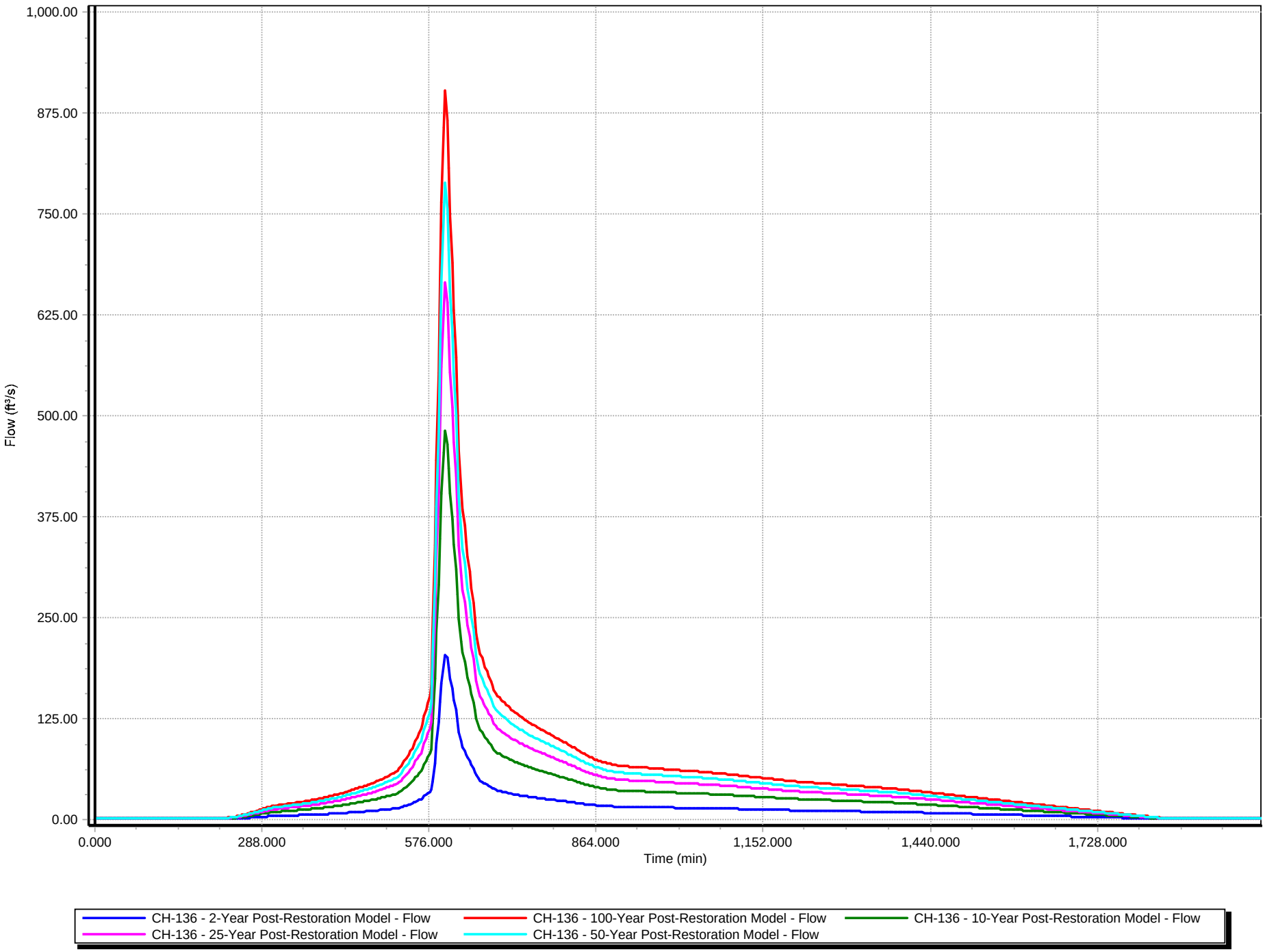
Design Point DP-7 Existing Condition Flow Rate



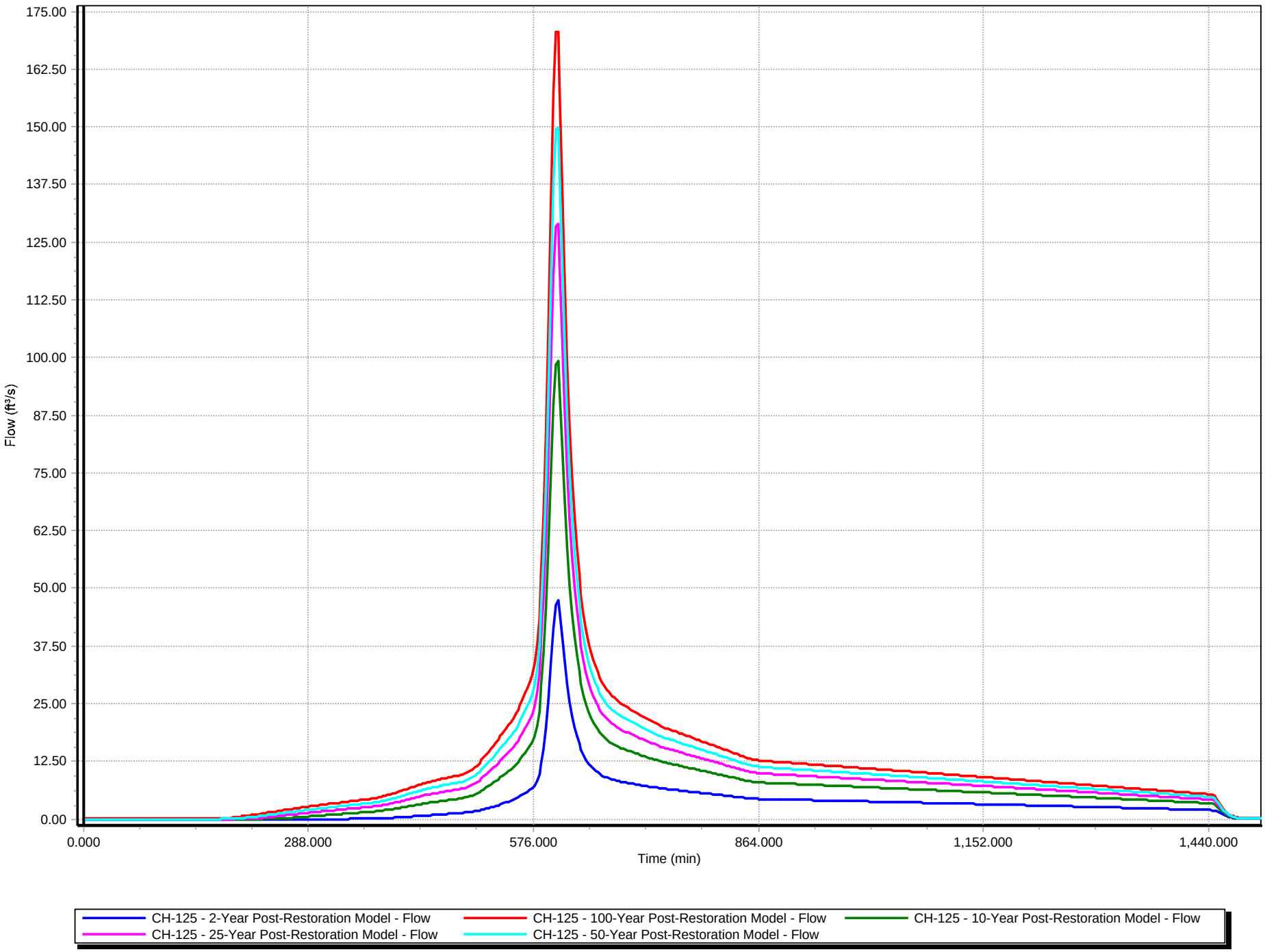
Design Point DP-8 Existing Conditions Flow Rate



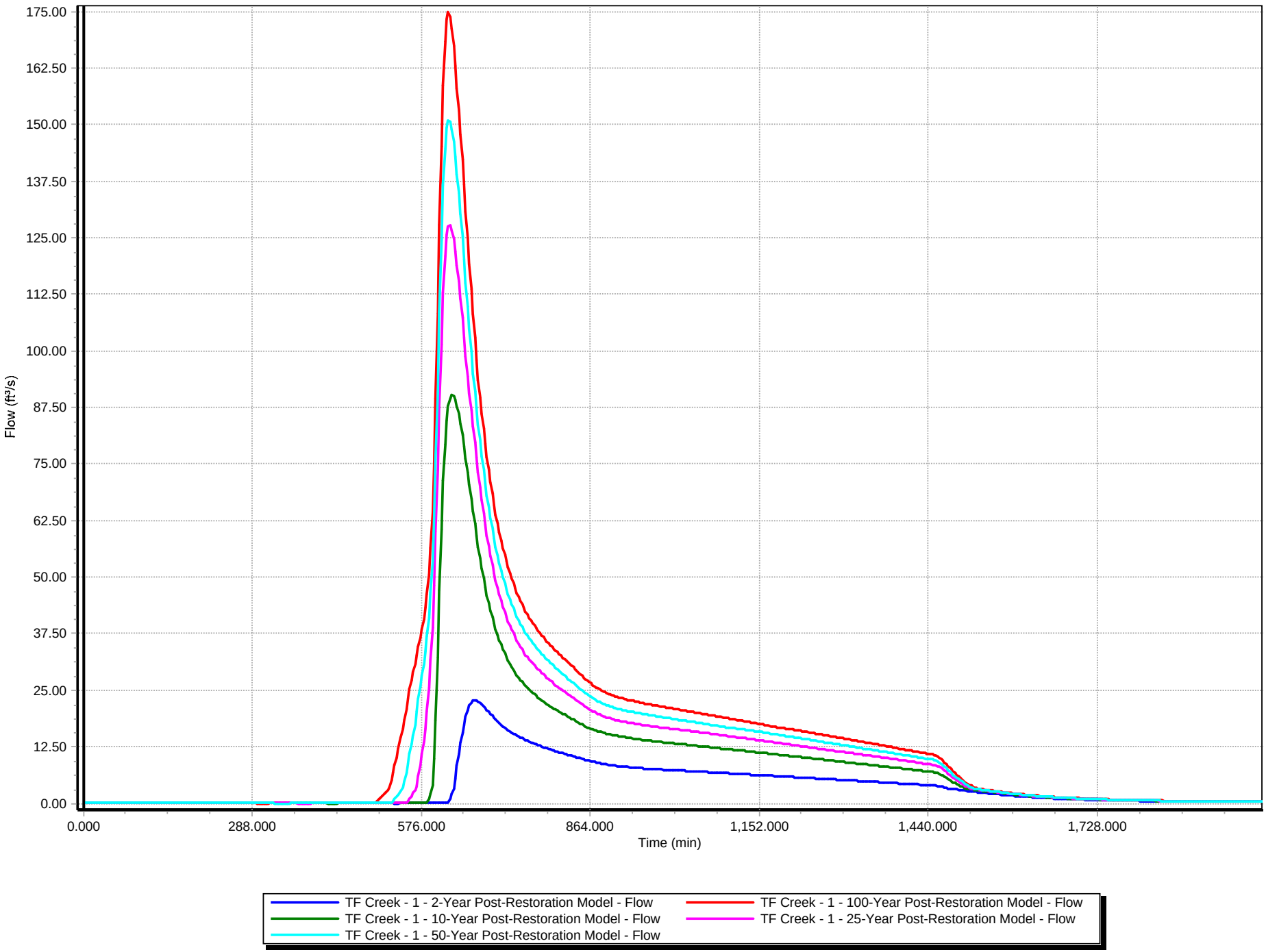
Design Point DP-1 Post-Remediation Conditions Flow Rate



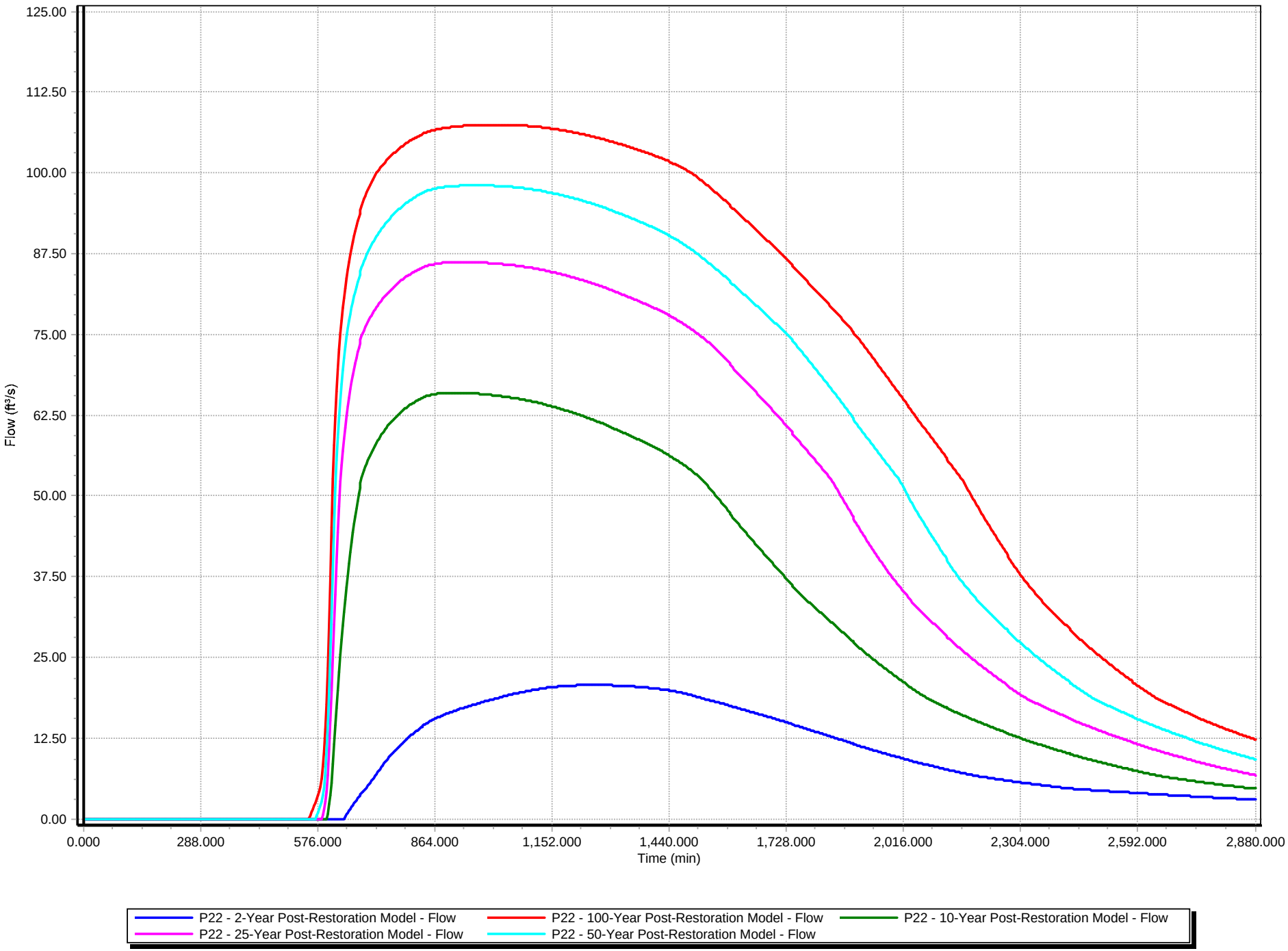
Design Point DP-2 Post-Remediation Conditions Flow Rate



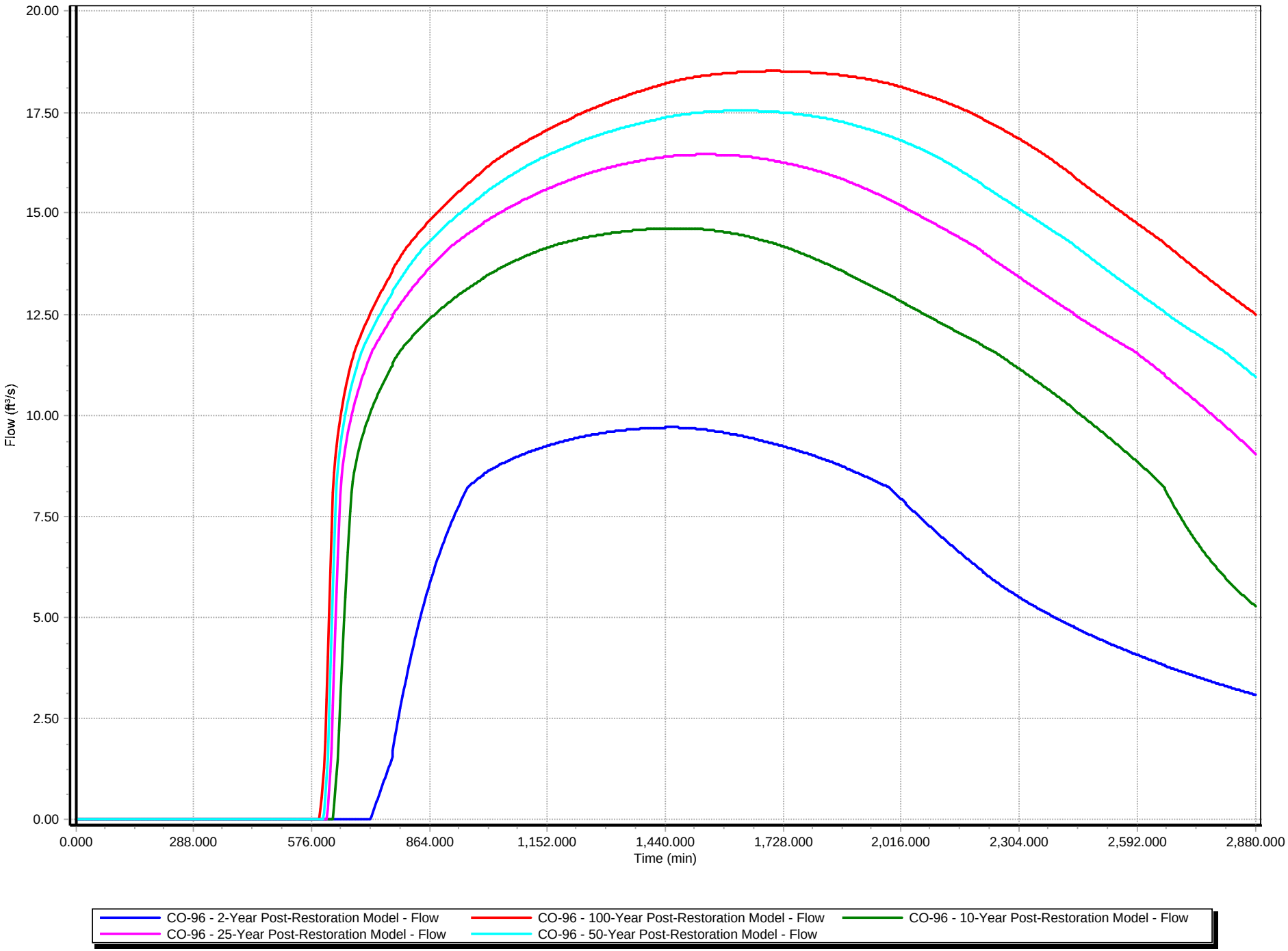
Design Point DP-3 Post-Remediation Conditions Flow Rate



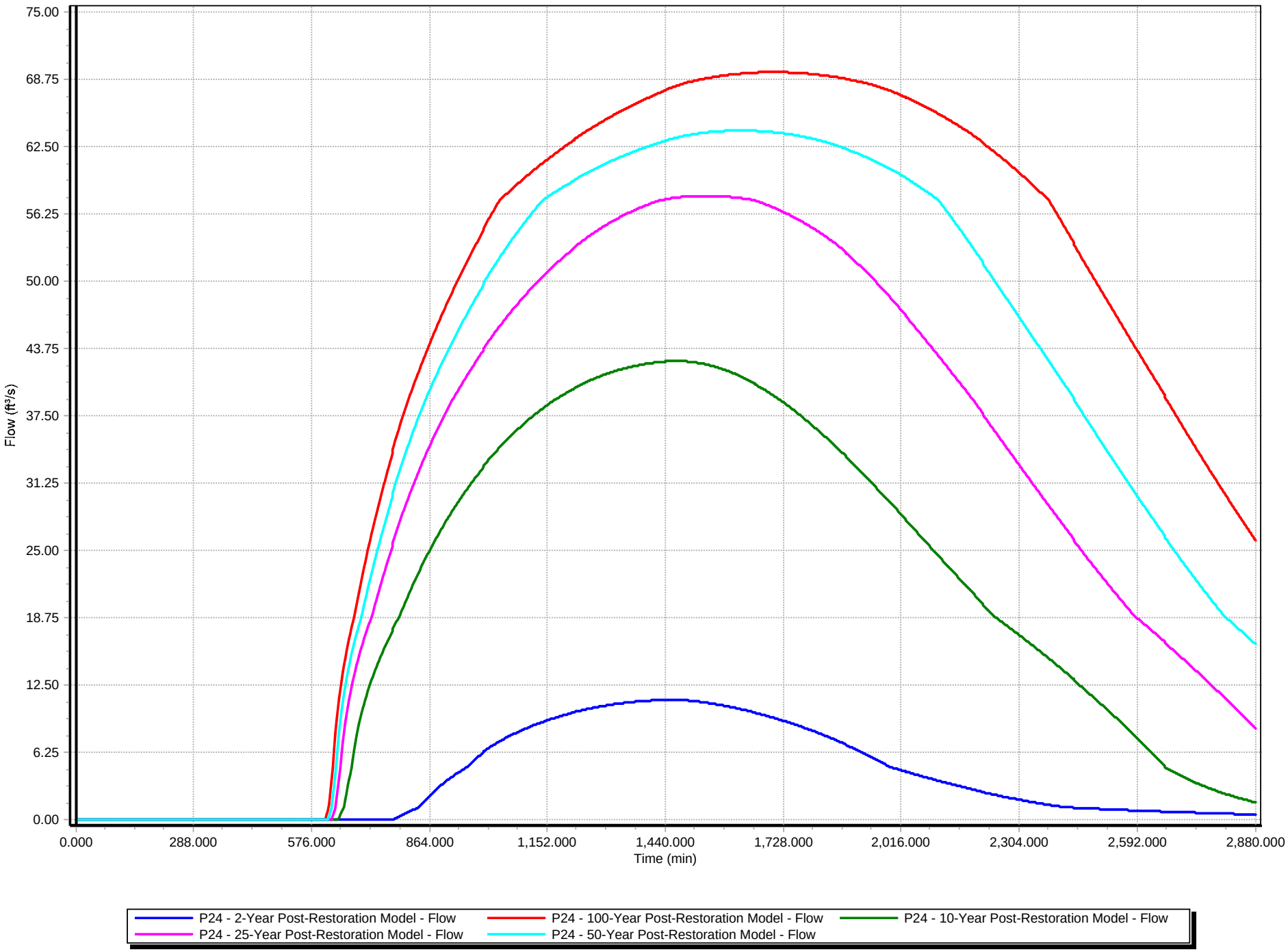
Design Point DP-5 Post-Remediation Conditions Flow Rate



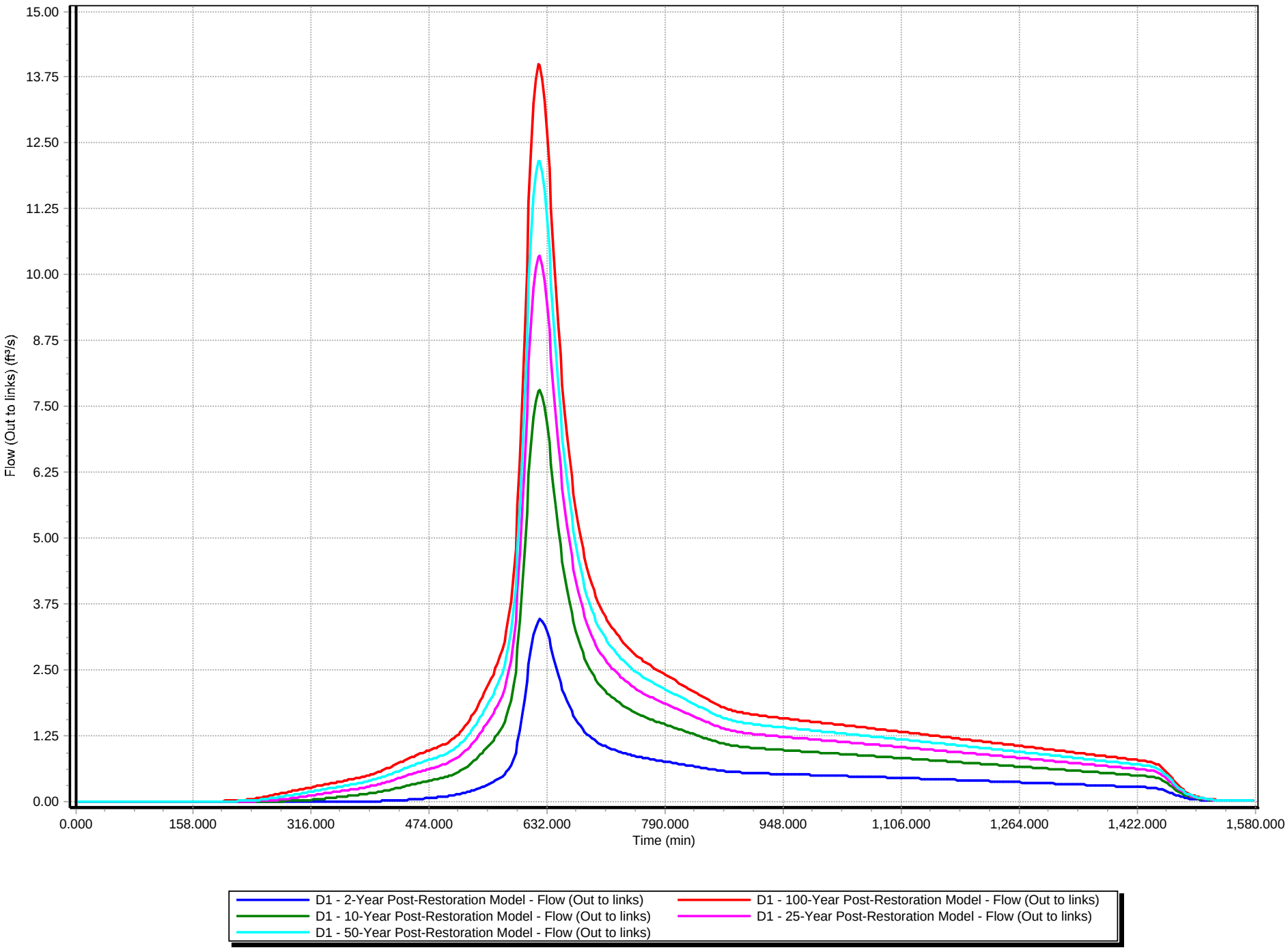
Design Point DP-6 (12-inch Openings) Post-Remediation Conditions Flow Rate



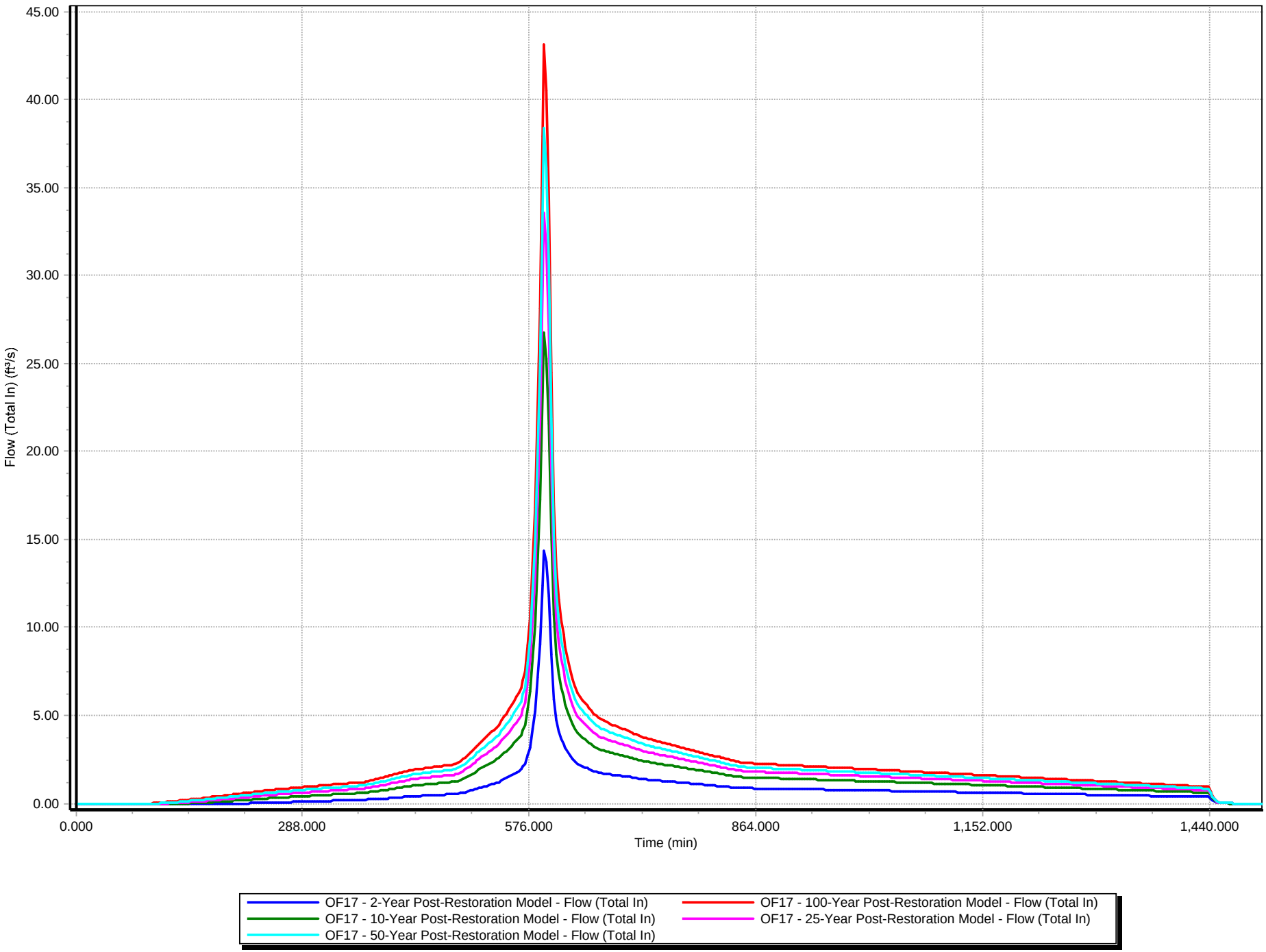
Design Point DP-6 (36" Opening) Post-Remediation Conditions Flow Rate



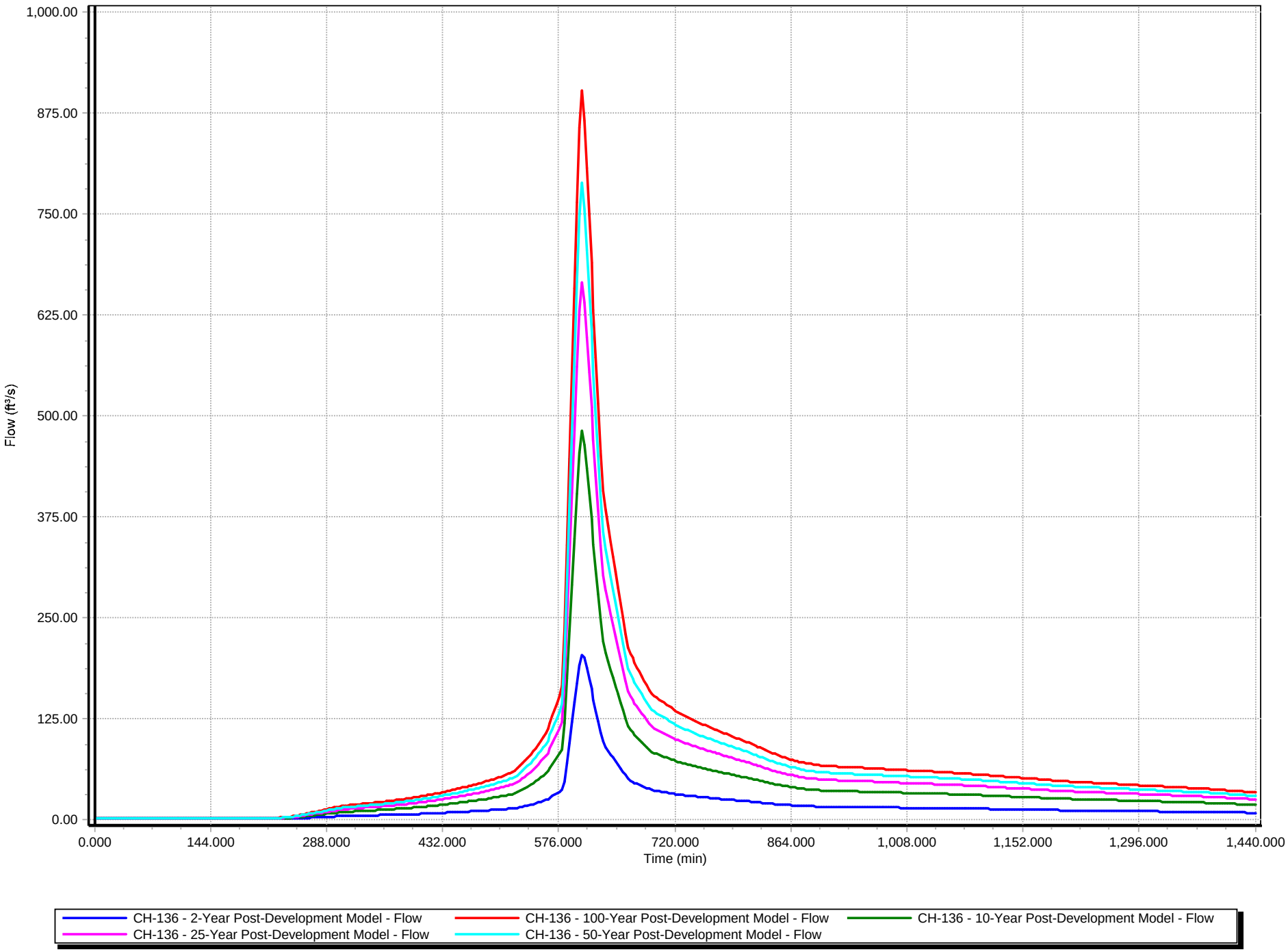
Design Point DP-8 Post-Remediation Conditions Flow Rate



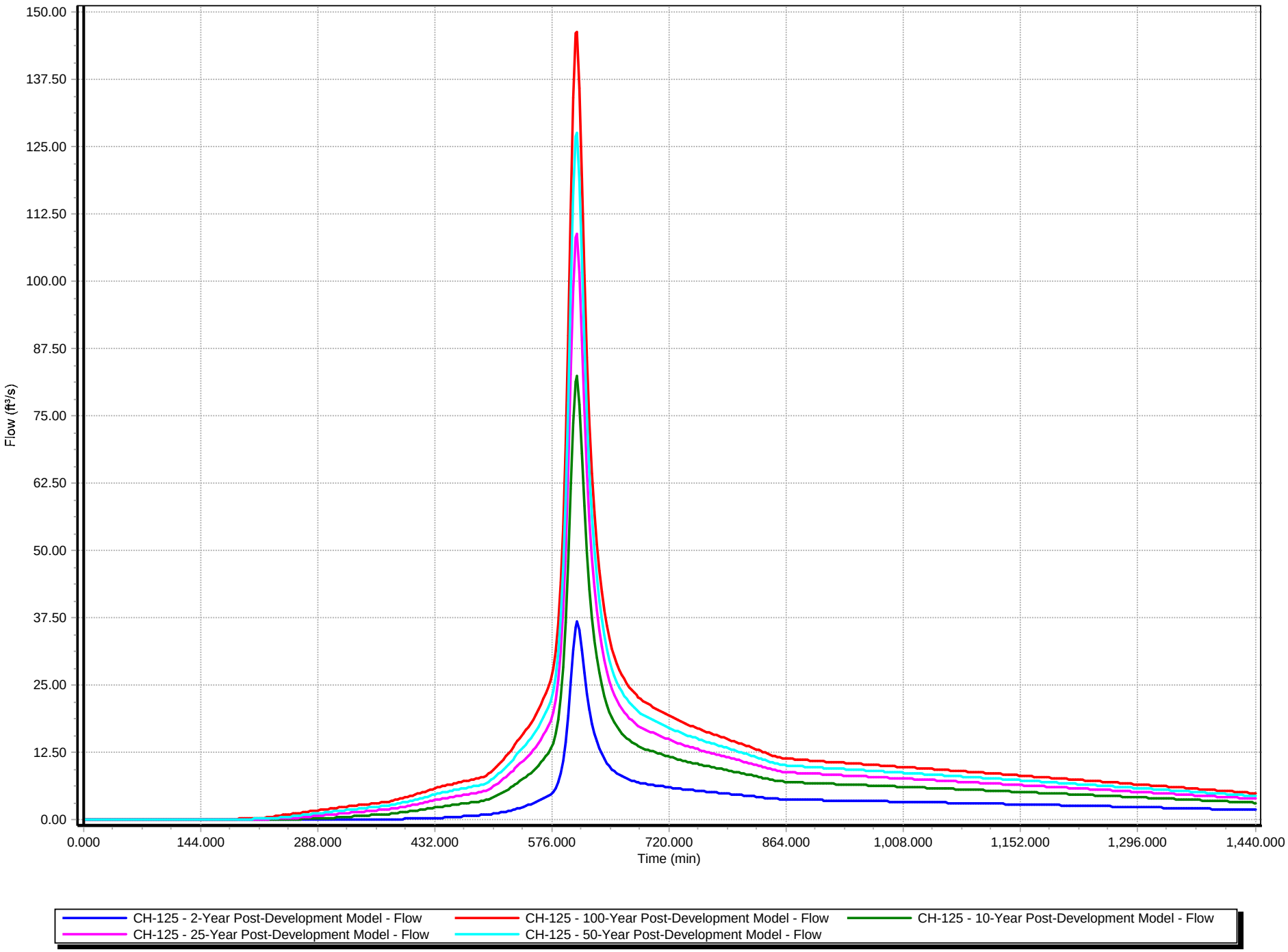
Design Point DP-9 Post-Remediation Conditions Flow Rate



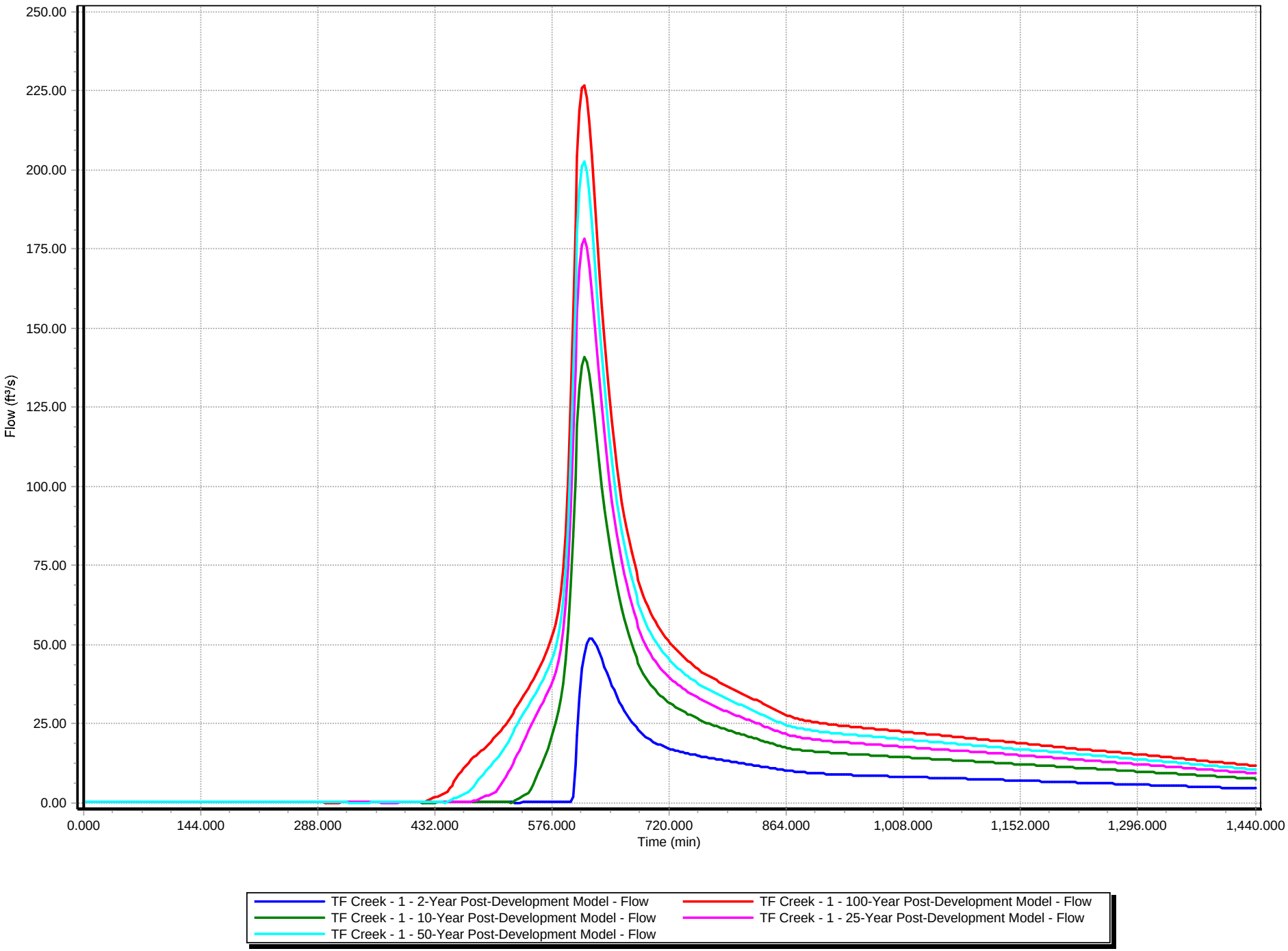
Design Point DP-1 Post-Development Conditions Flow Rate



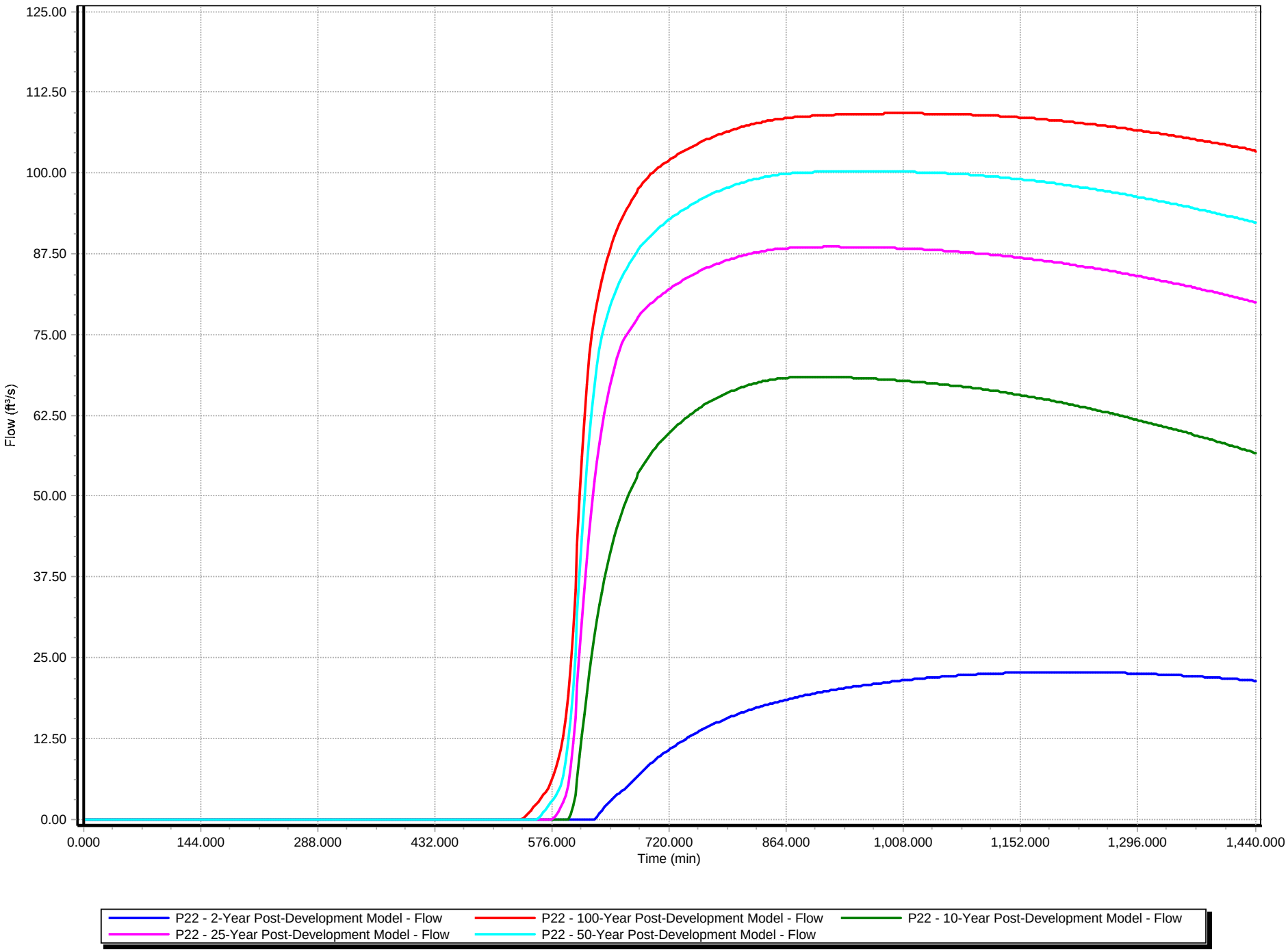
Design Point DP-2 Post-Development Conditions Flow Rate



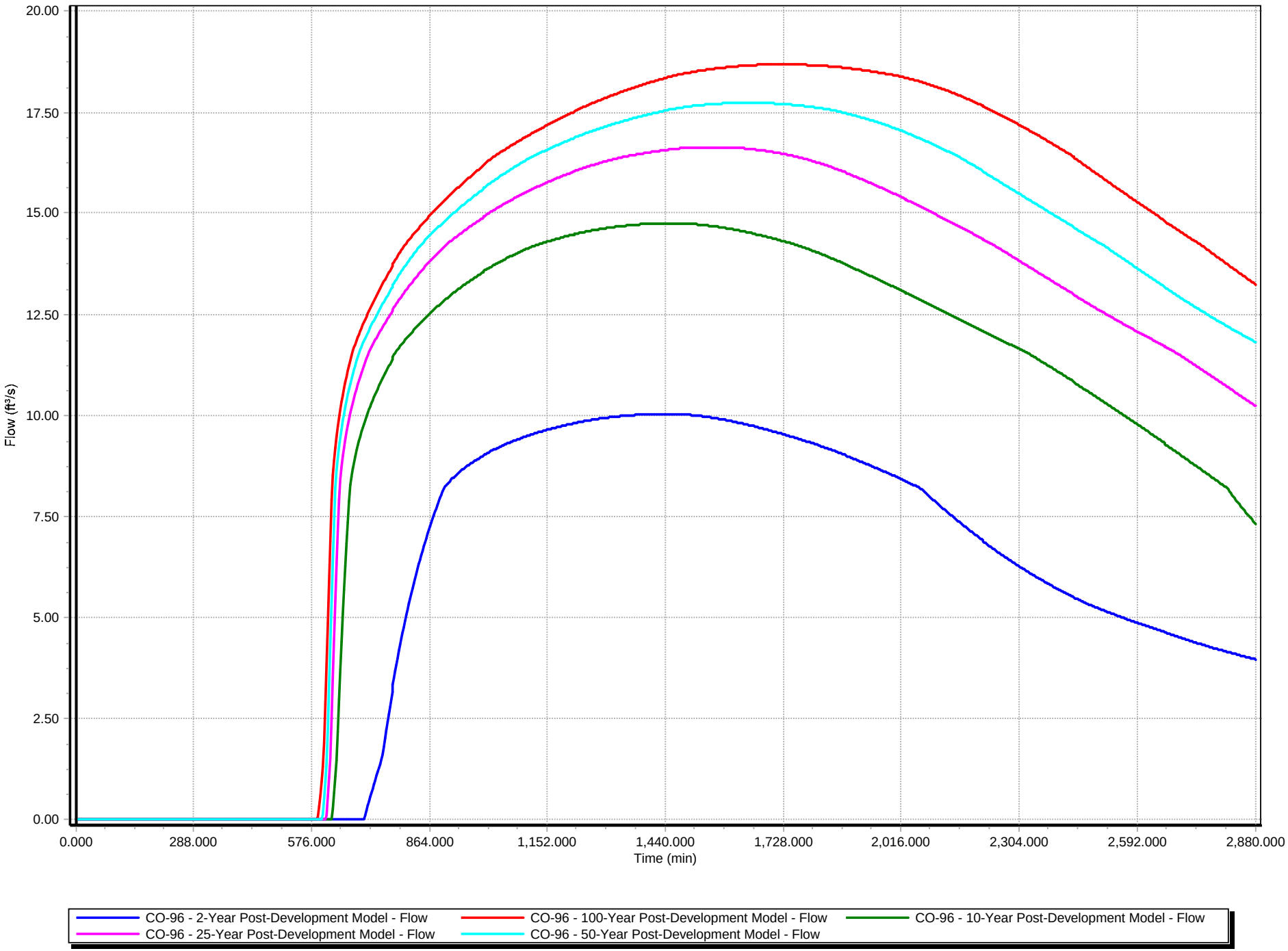
Design Point DP-3 Post-Development Conditions Flow Rate



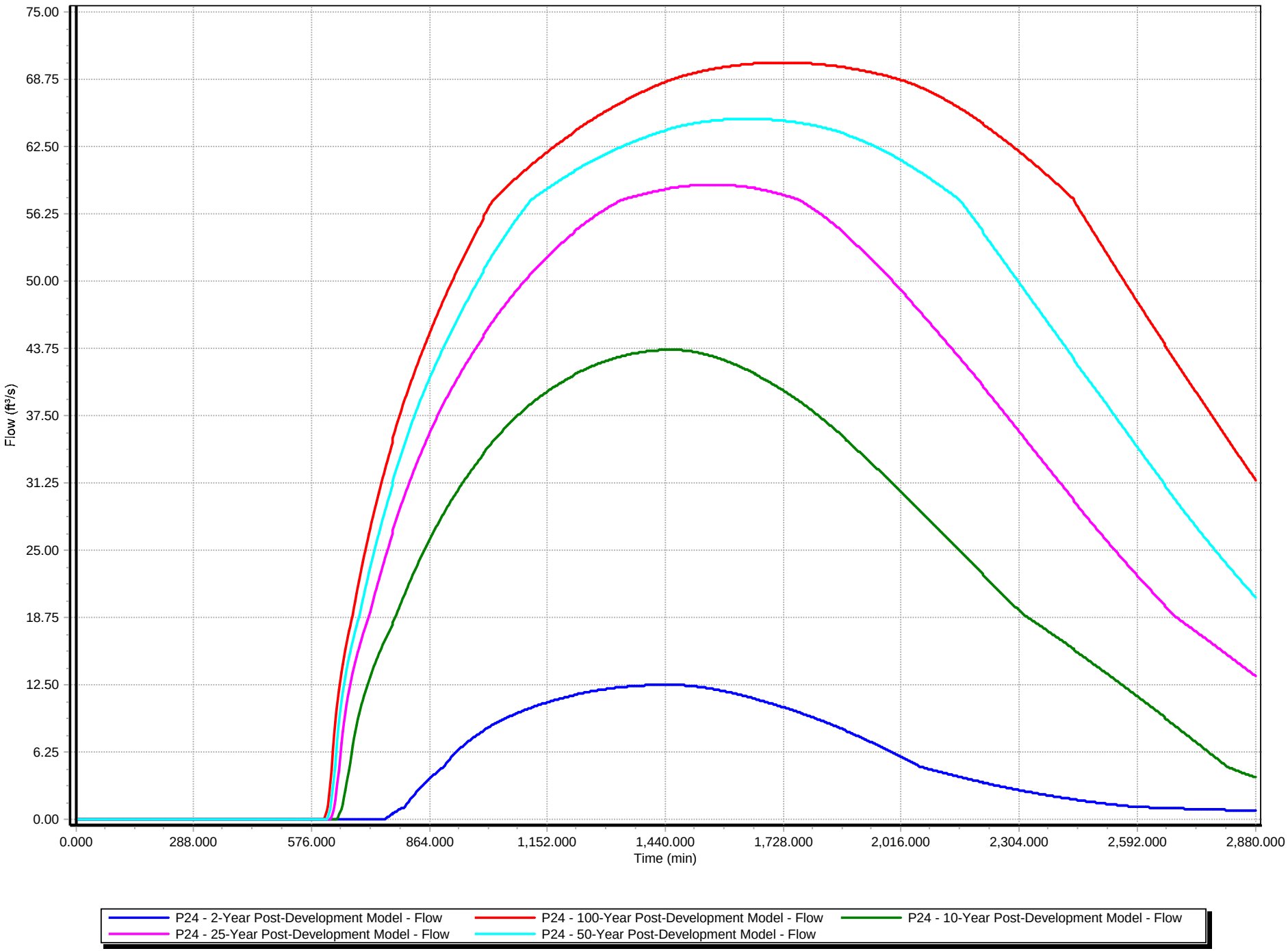
Design Point DP-5 Post-Development Conditions Flow Rate



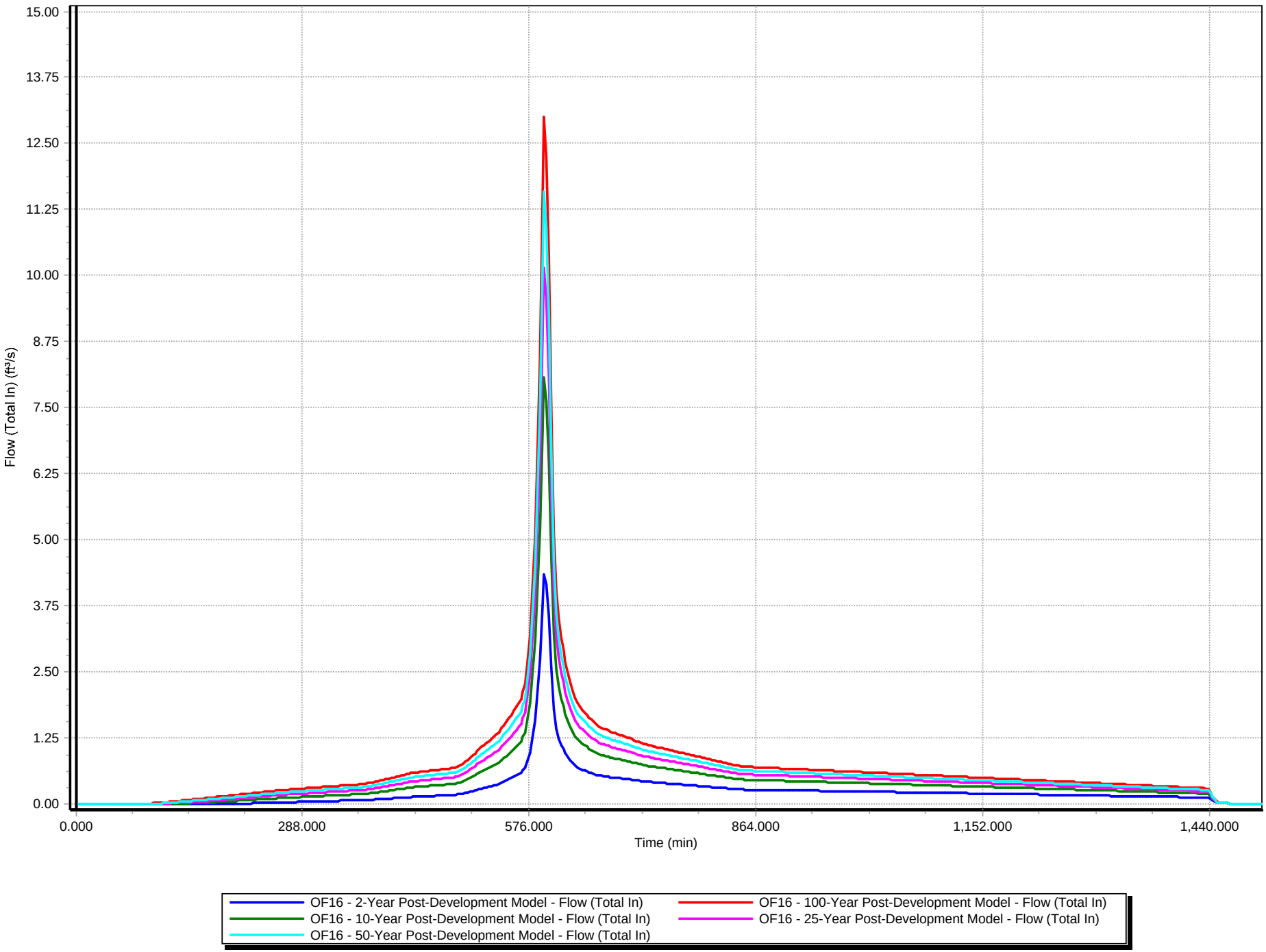
Design Point DP-6 (12-inch Openings) Post-Development Conditions Flow Rate



Design Point DP-6 (36-inch Opening) Post-Development Conditions Flow Rate



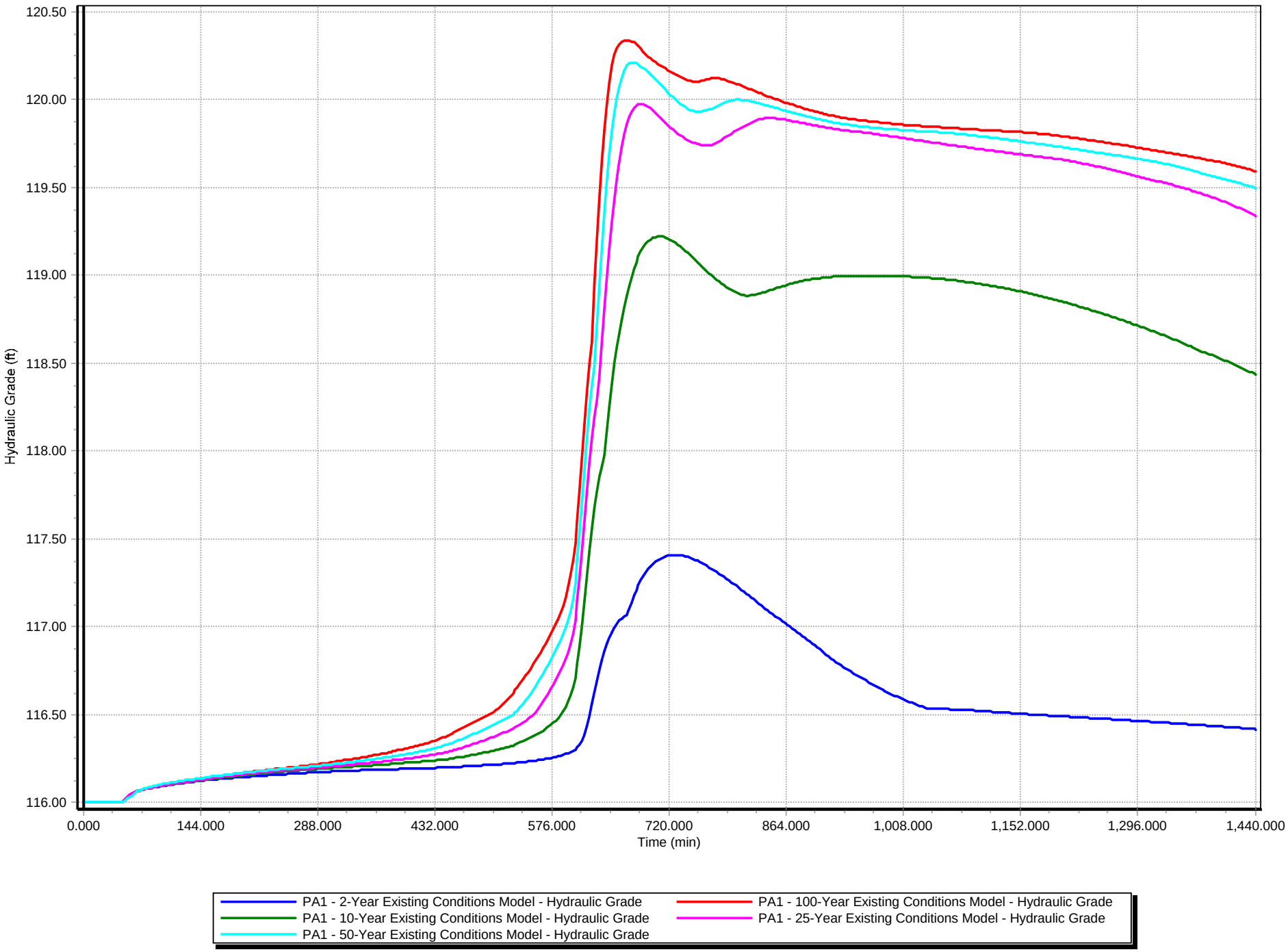
Design Point DP-9 Post-Development Conditions Flow Rate

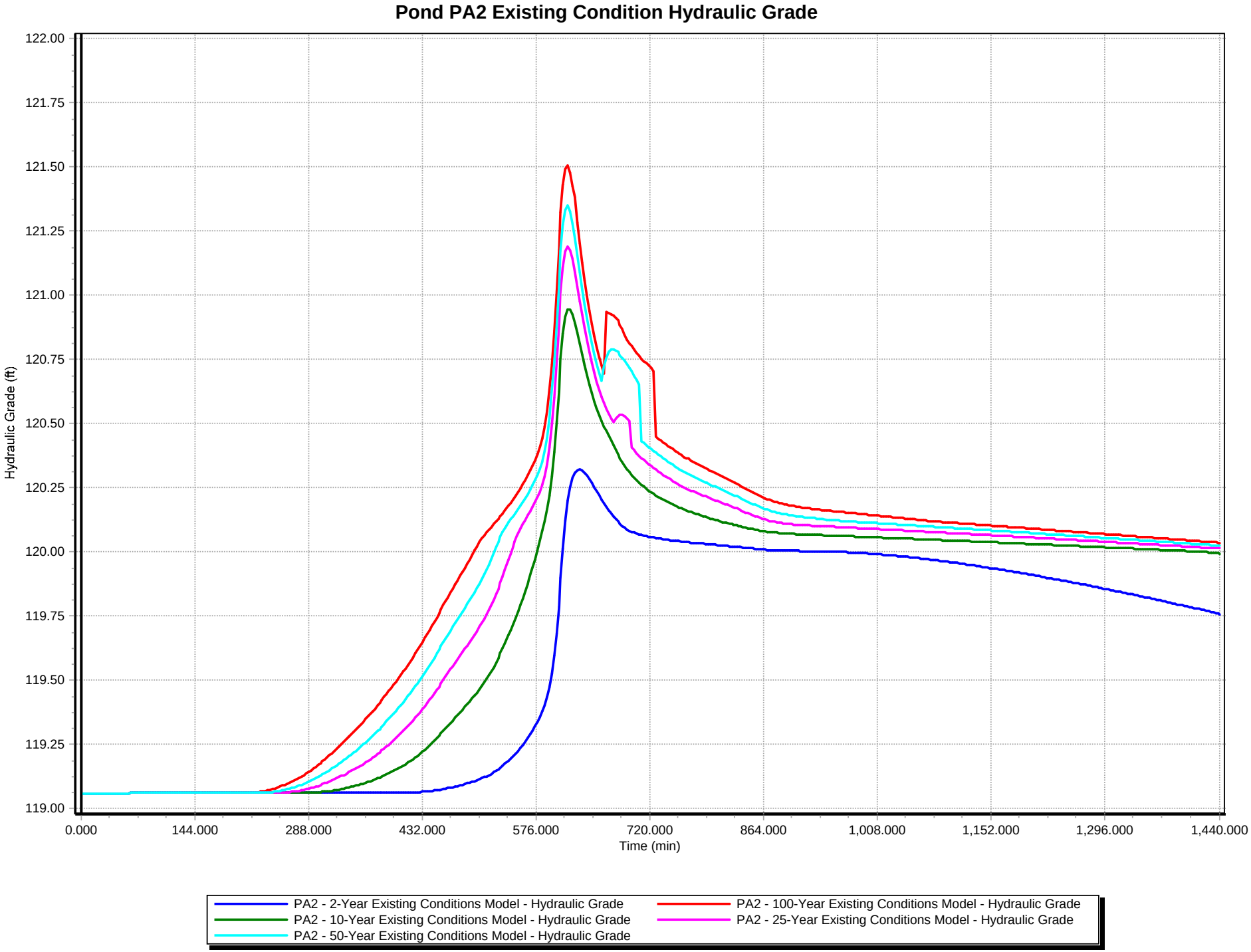


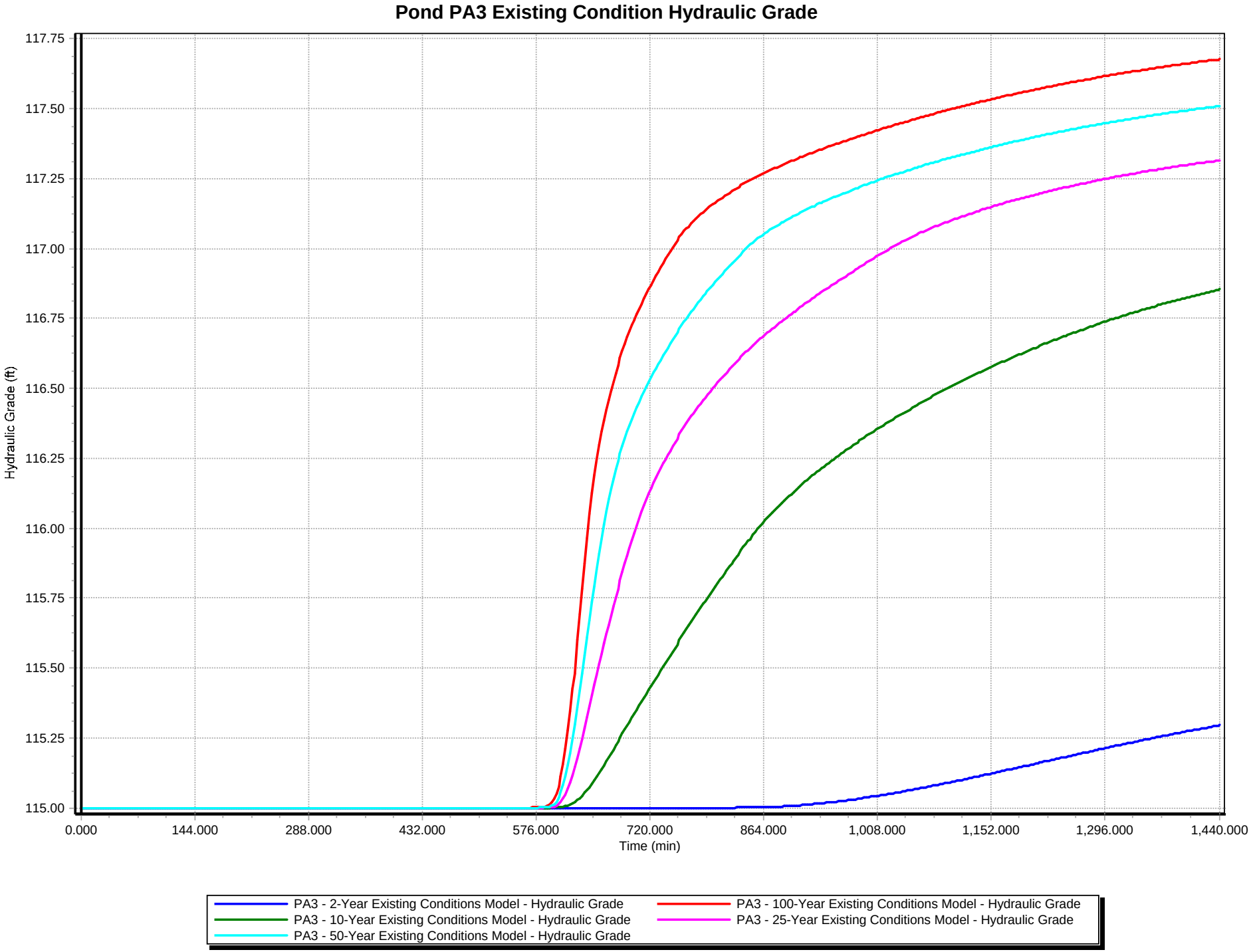
Attachment 5

Pond Hydraulic Grades

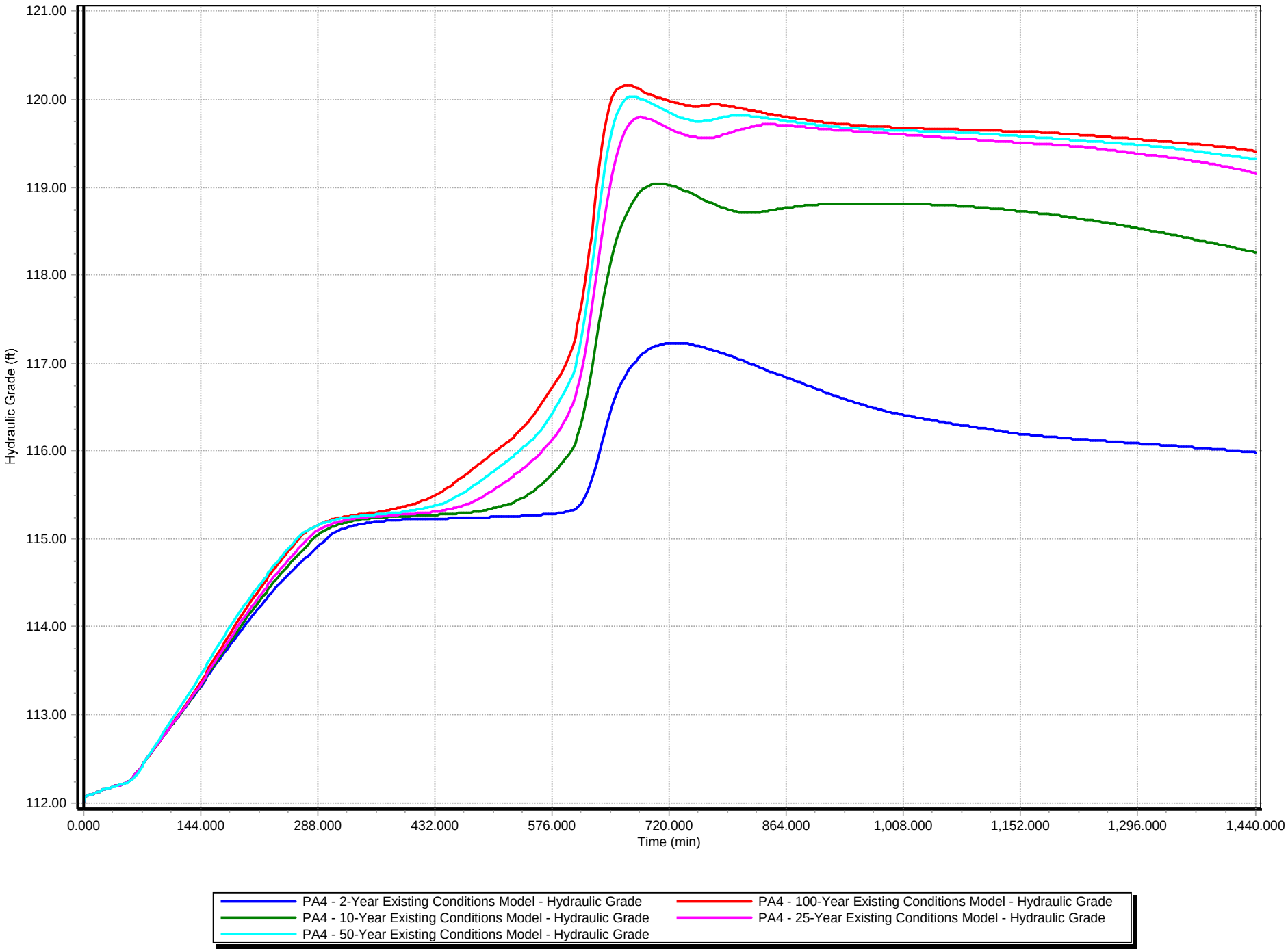
Pond PA1 Existing Condition Hydraulic Grade

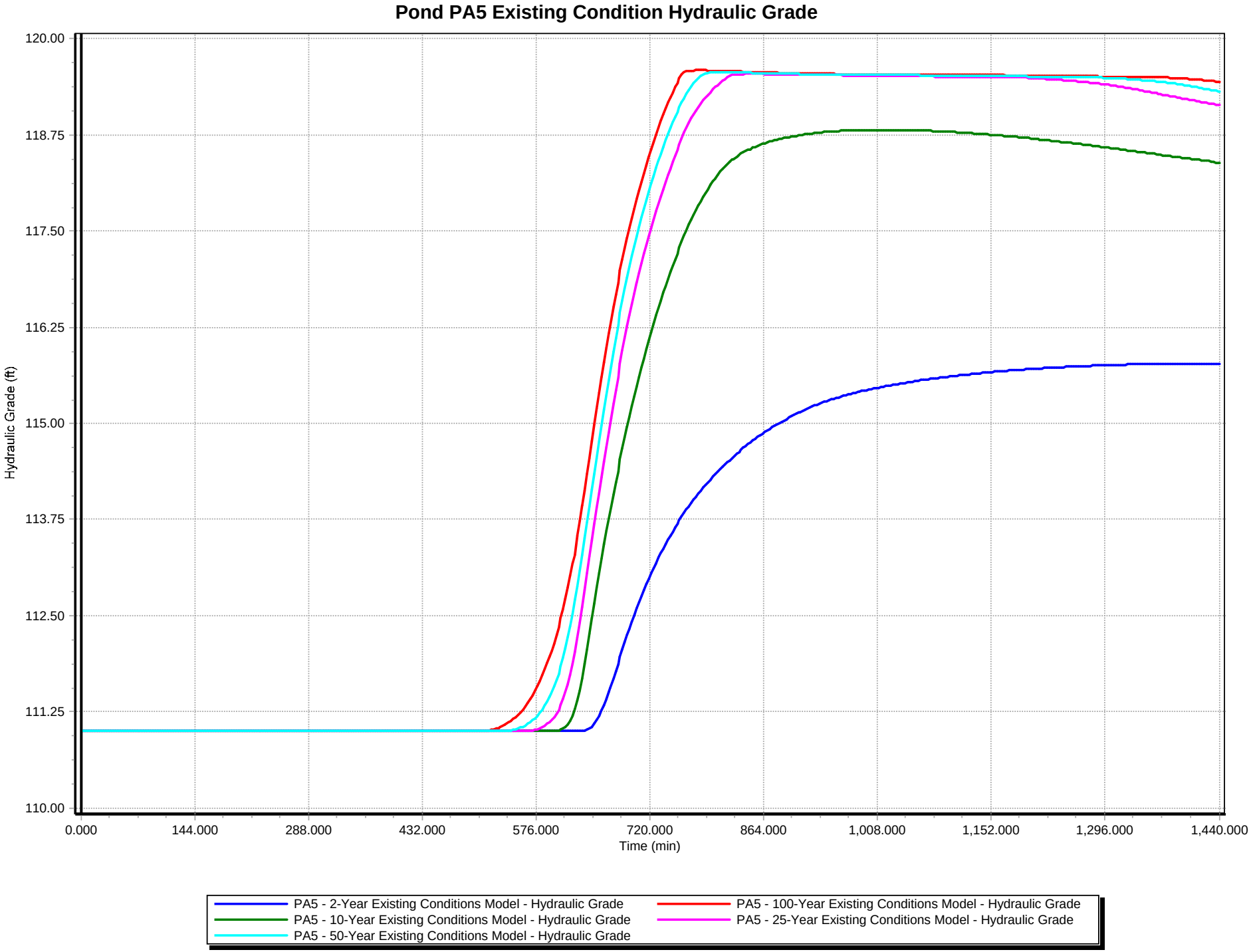



Pond PA2 Existing Condition Hydraulic Grade
Hydraulic Grade (ft)
122.00
121.75
121.50
121.25
121.00
120.75
120.50
120.25
120.00
119.75
119.50
119.25
119.00
0.000
144.000
288.000
432.000
576.000
720.000
864.000
1,008.000
1,152.000
1,296.000
1,440.000
Time (min)
PA2 - 2-Year Existing Conditions Model - Hydraulic Grade
PA2 - 10-Year Existing Conditions Model - Hydraulic Grade
PA2 - 50-Year Existing Conditions Model - Hydraulic Grade
PA2 - 100-Year Existing Conditions Model - Hydraulic Grade
PA2 - 25-Year Existing Conditions Model - Hydraulic Grade

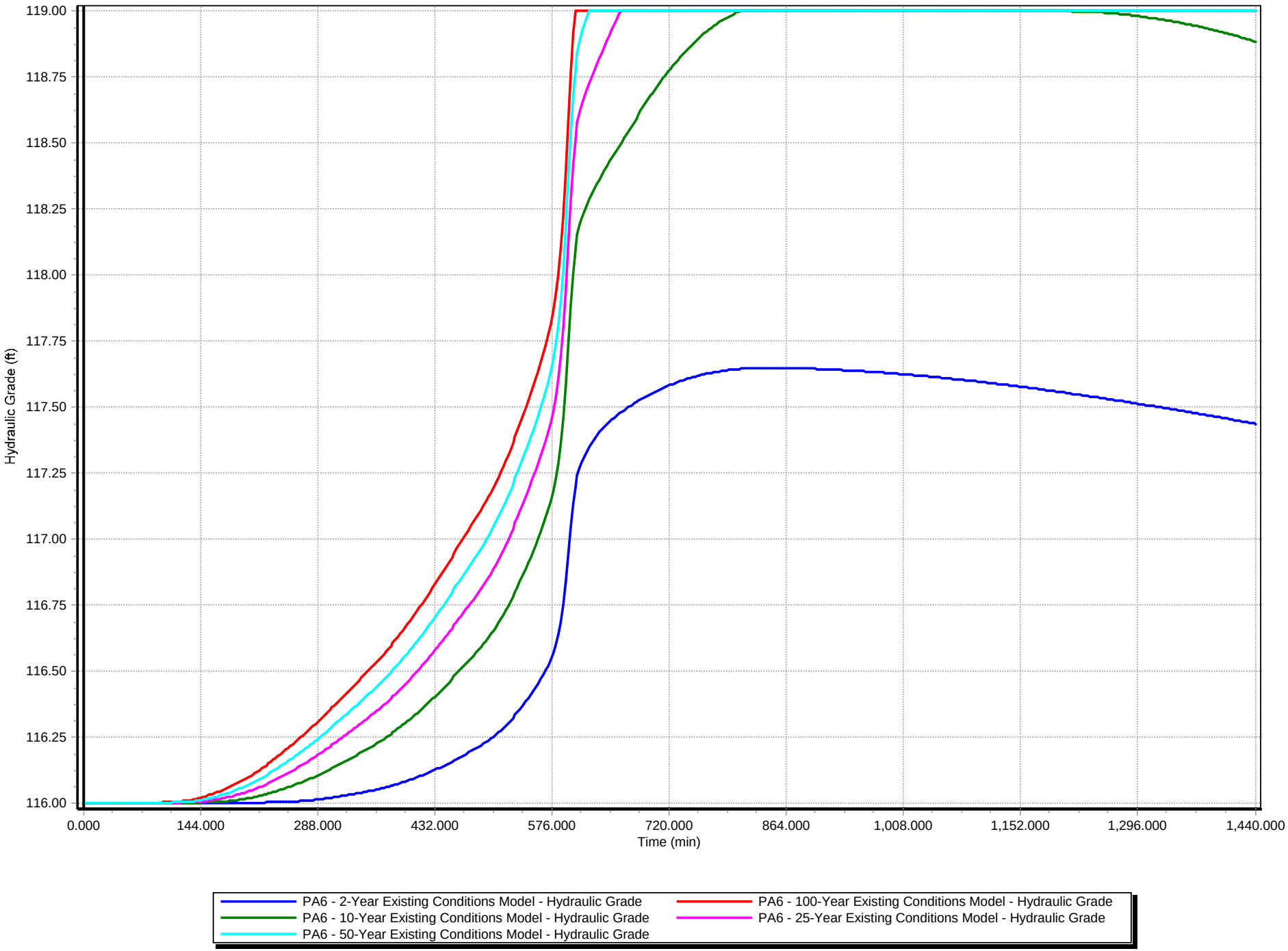

Pond PA3 Existing Condition Hydraulic Grade
Hydraulic Grade (ft)
117.75
117.50
117.25
117.00
116.75
116.50
116.25
116.00
115.75
115.50
115.25
115.00
0.000
144.000
288.000
432.000
576.000
720.000
864.000
1,008.000
1,152.000
1,296.000
1,440.000
Time (min)
PA3 - 2-Year Existing Conditions Model - Hydraulic Grade
PA3 - 10-Year Existing Conditions Model - Hydraulic Grade
PA3 - 50-Year Existing Conditions Model - Hydraulic Grade
PA3 - 100-Year Existing Conditions Model - Hydraulic Grade
PA3 - 25-Year Existing Conditions Model - Hydraulic Grade

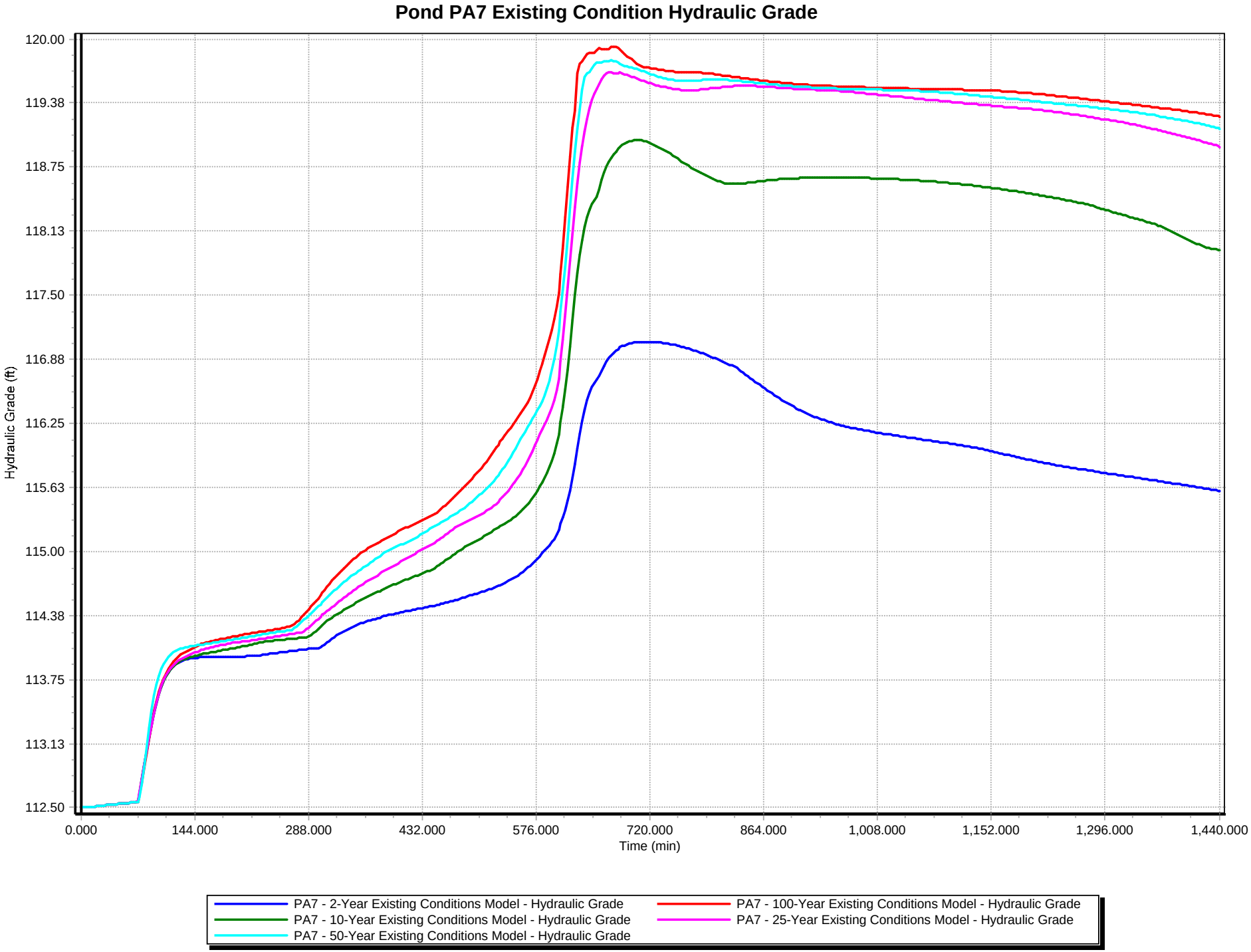
Pond PA4 Existing Condition Hydraulic Grade

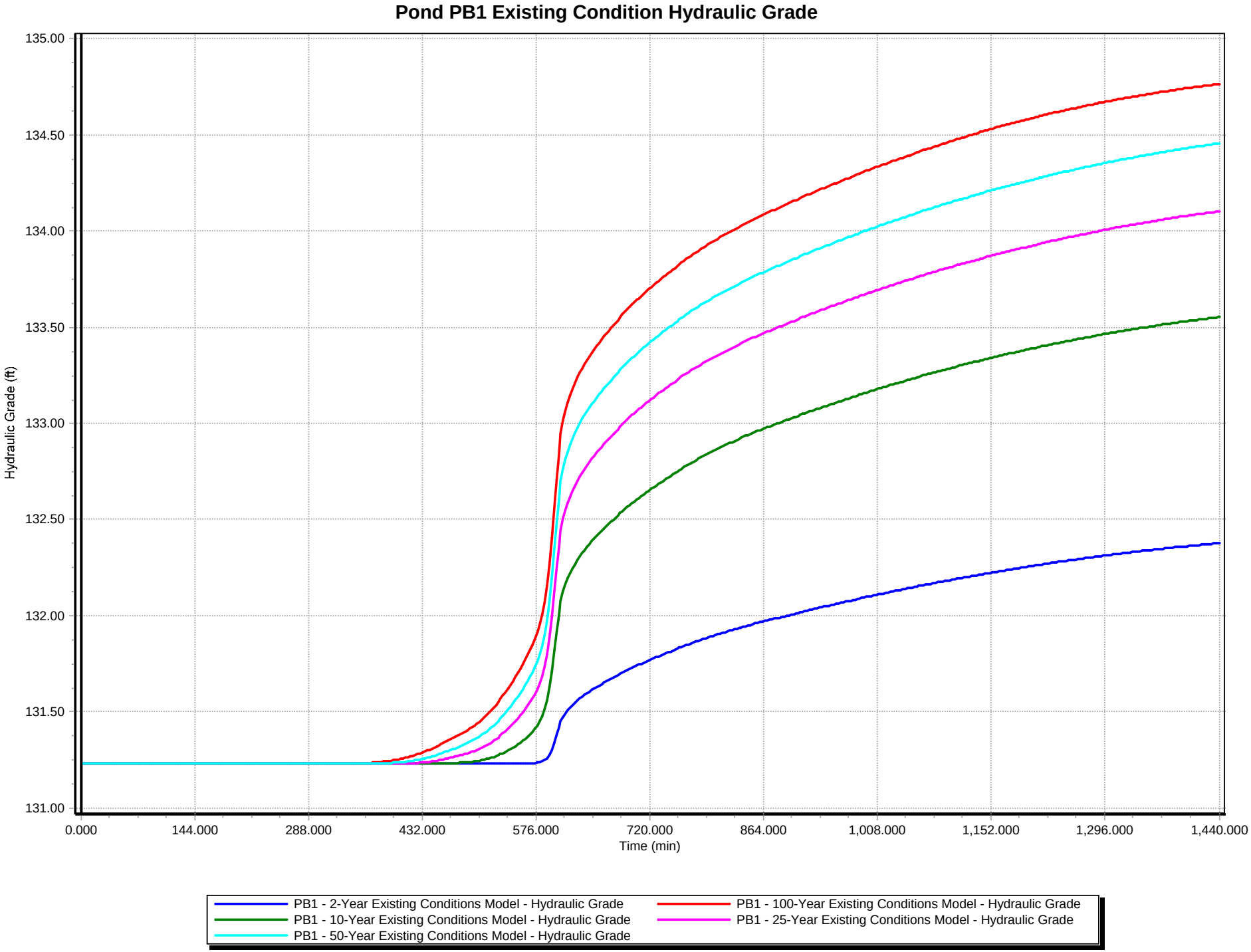


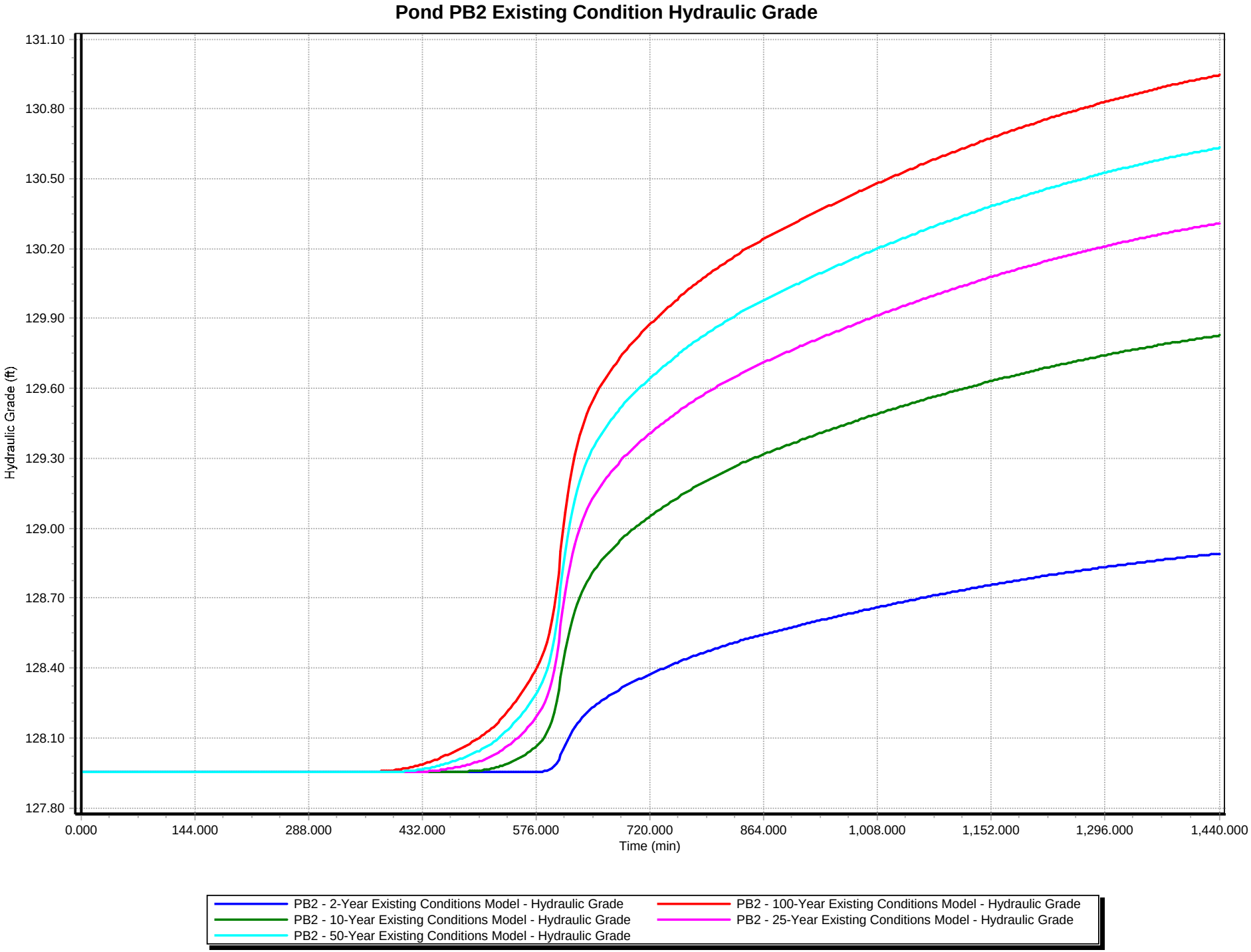

Pond PA5 Existing Condition Hydraulic Grade
Hydraulic Grade (ft)
120.00
118.75
117.50
116.25
115.00
113.75
112.50
111.25
110.00
0.000
144.000
288.000
432.000
576.000
720.000
864.000
1,008.000
1,152.000
1,296.000
1,440.000
Time (min)
PA5 - 2-Year Existing Conditions Model - Hydraulic Grade
PA5 - 10-Year Existing Conditions Model - Hydraulic Grade
PA5 - 50-Year Existing Conditions Model - Hydraulic Grade
PA5 - 100-Year Existing Conditions Model - Hydraulic Grade
PA5 - 25-Year Existing Conditions Model - Hydraulic Grade

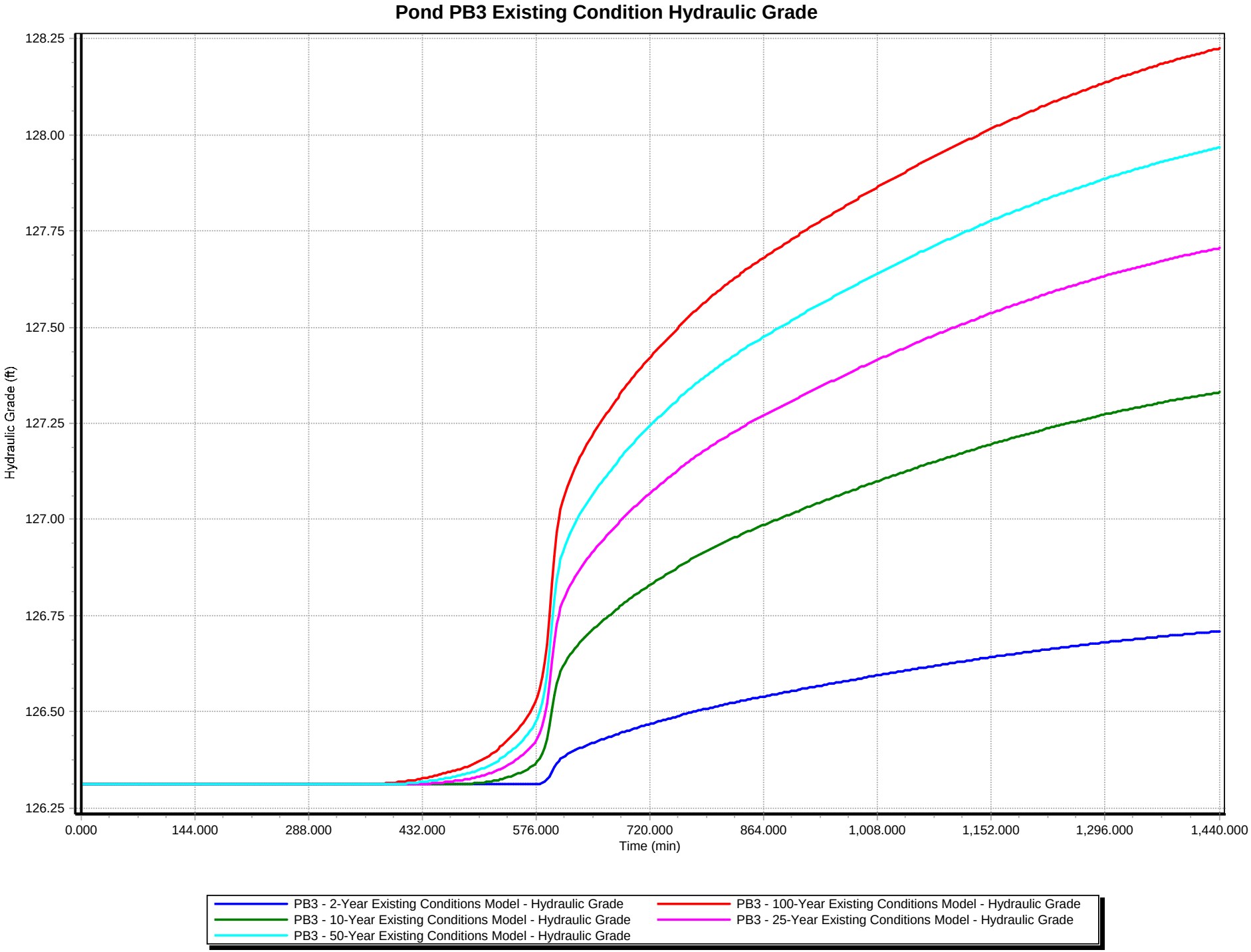
Pond PA6 Existing Condition Hydraulic Grade

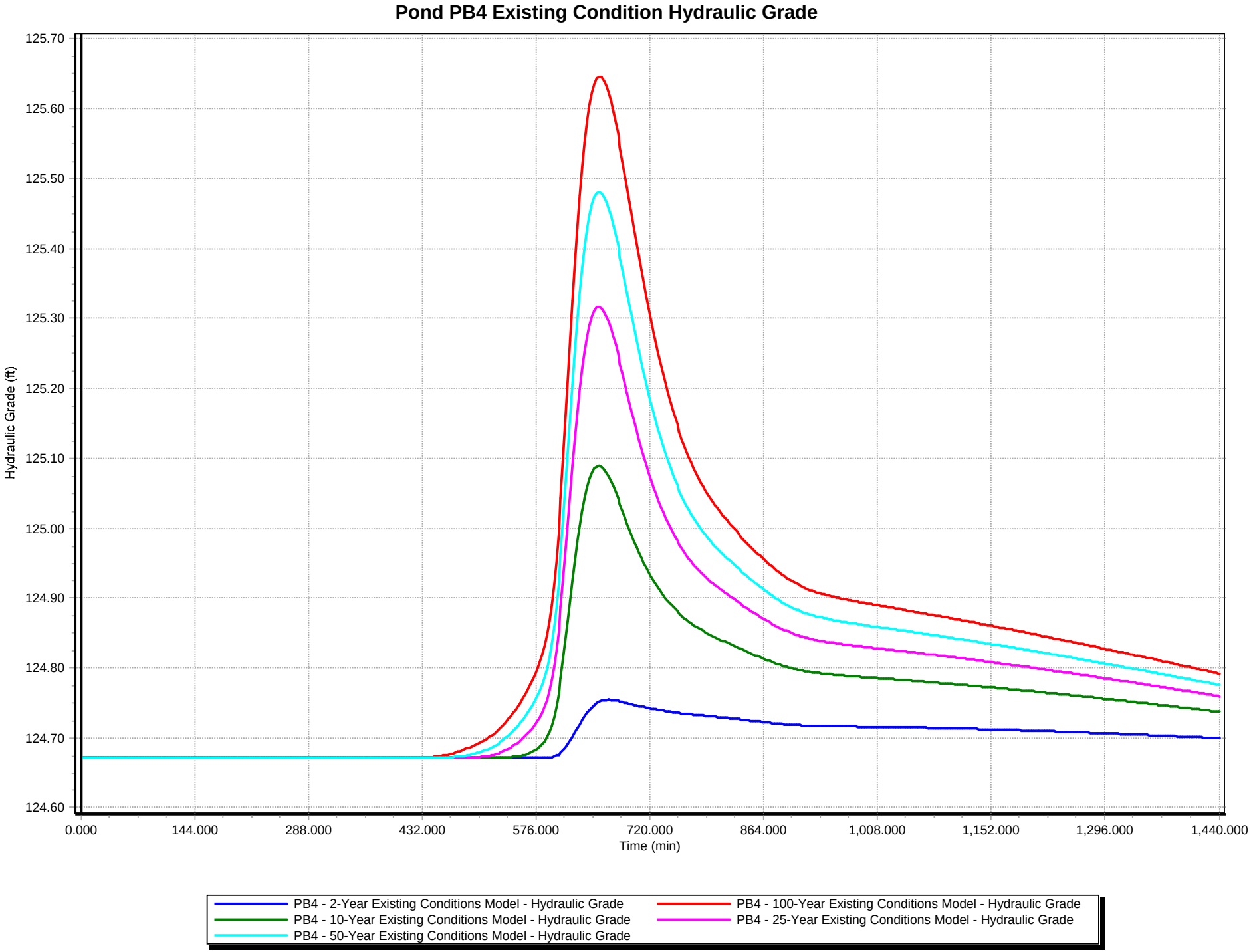


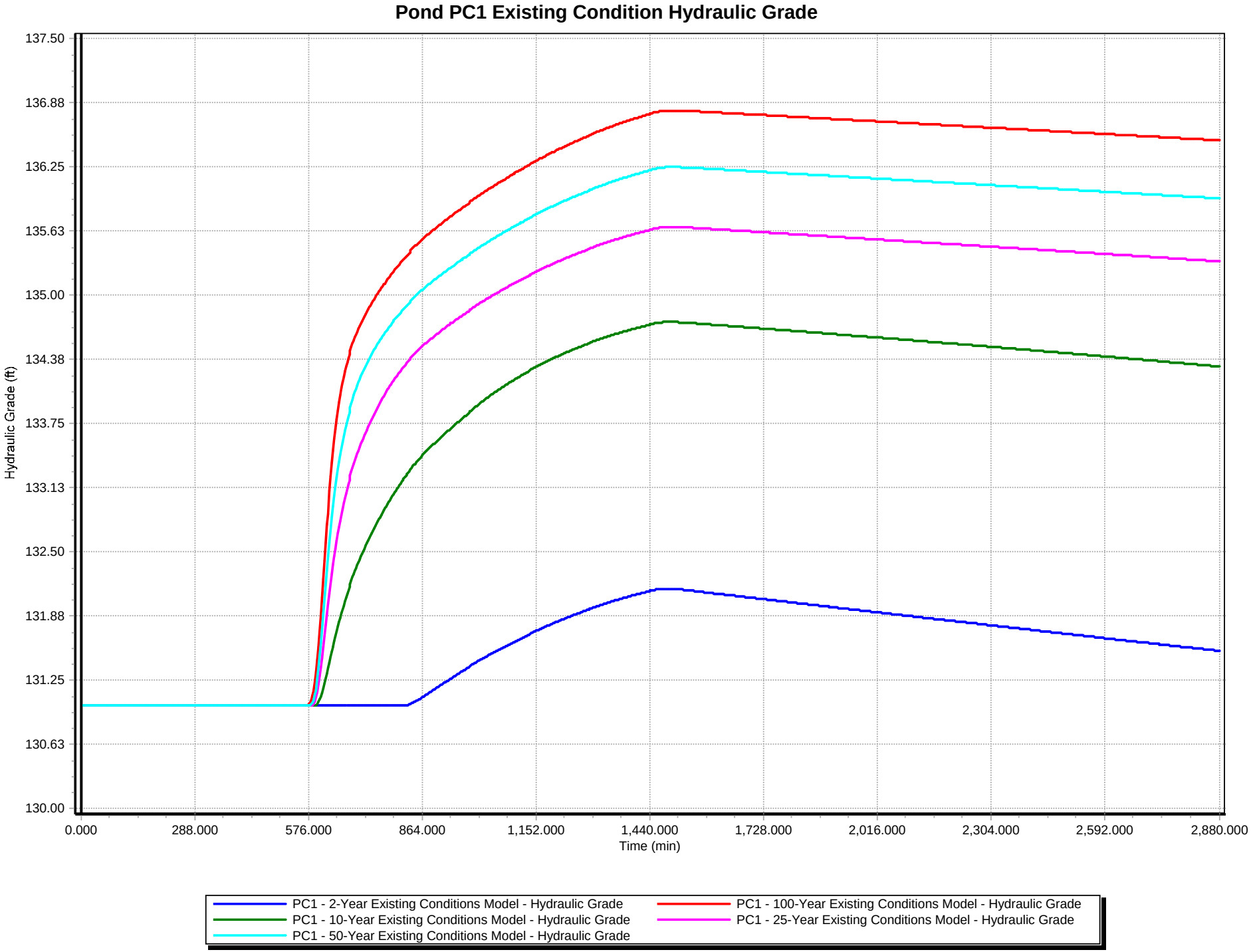

Pond PA7 Existing Condition Hydraulic Grade
Hydraulic Grade (ft)
120.00
119.38
118.75
118.13
117.50
116.88
116.25
115.63
115.00
114.38
113.75
113.13
112.50
0.000
144.000
288.000
432.000
576.000
720.000
864.000
1,008.000
1,152.000
1,296.000
1,440.000
Time (min)
PA7 - 2-Year Existing Conditions Model - Hydraulic Grade
PA7 - 10-Year Existing Conditions Model - Hydraulic Grade
PA7 - 50-Year Existing Conditions Model - Hydraulic Grade
PA7 - 100-Year Existing Conditions Model - Hydraulic Grade
PA7 - 25-Year Existing Conditions Model - Hydraulic Grade

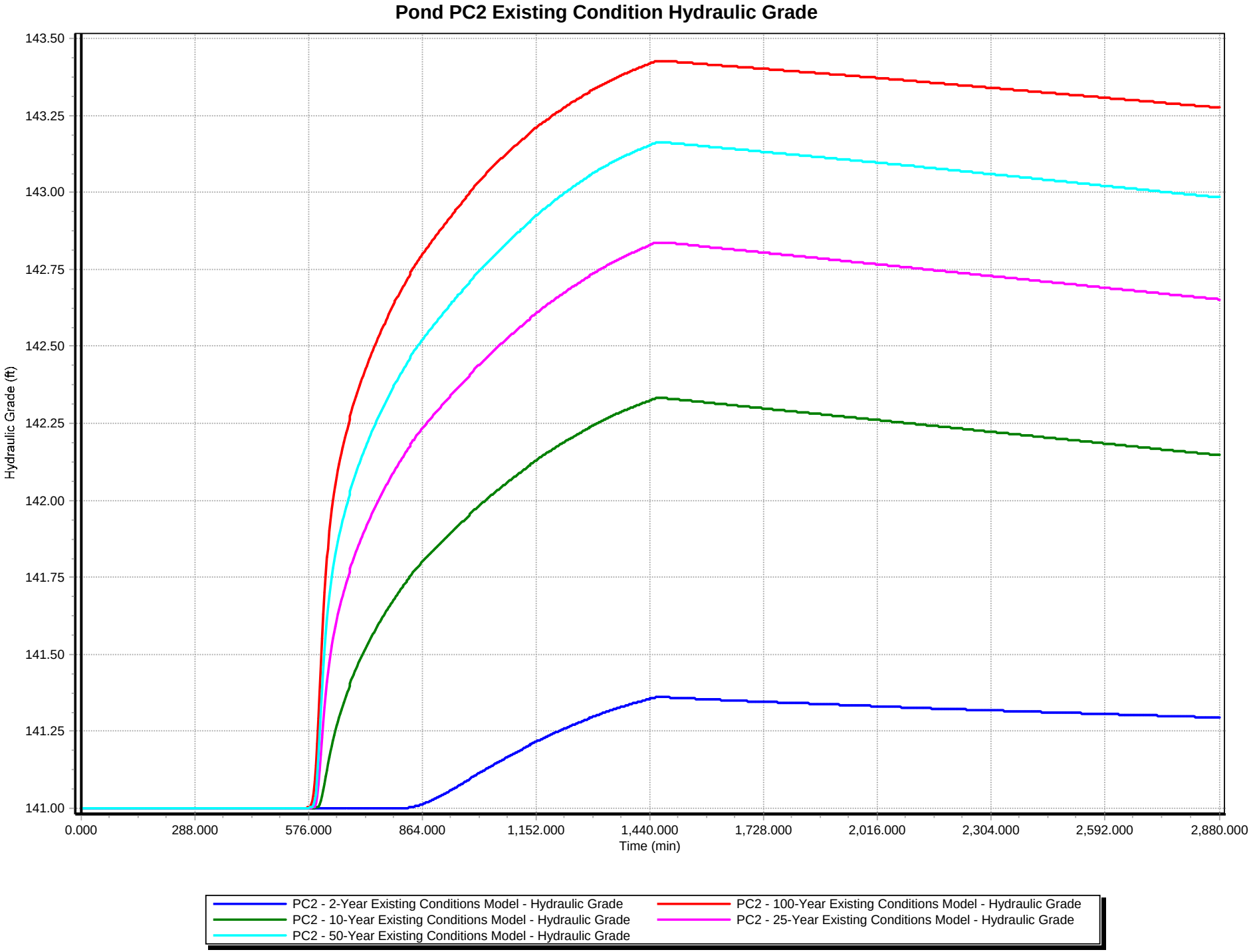

Pond PB1 Existing Condition Hydraulic Grade
Hydraulic Grade (ft)
135.00
134.50
134.00
133.50
133.00
132.50
132.00
131.50
131.00
0.000
144.000
288.000
432.000
576.000
720.000
864.000
1,008.000
1,152.000
1,296.000
1,440.000
Time (min)
PB1 - 2-Year Existing Conditions Model - Hydraulic Grade
PB1 - 10-Year Existing Conditions Model - Hydraulic Grade
PB1 - 50-Year Existing Conditions Model - Hydraulic Grade
PB1 - 100-Year Existing Conditions Model - Hydraulic Grade
PB1 - 25-Year Existing Conditions Model - Hydraulic Grade

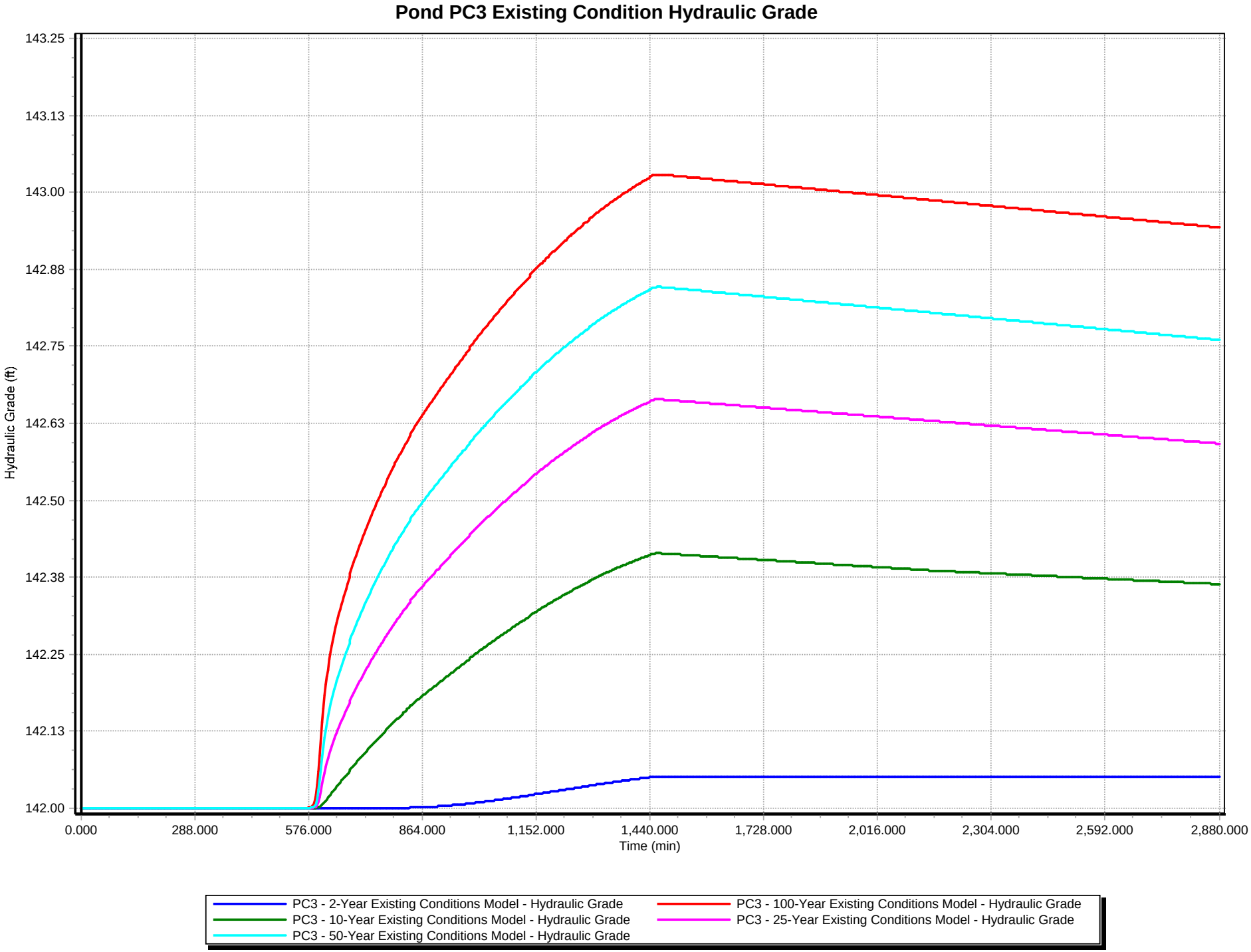

Pond PB2 Existing Condition Hydraulic Grade
Hydraulic Grade (ft)
131.10
130.80
130.50
130.20
129.90
129.60
129.30
129.00
128.70
128.40
128.10
127.80
0.000
144.000
288.000
432.000
576.000
720.000
864.000
1,008.000
1,152.000
1,296.000
1,440.000
Time (min)
PB2 - 2-Year Existing Conditions Model - Hydraulic Grade
PB2 - 10-Year Existing Conditions Model - Hydraulic Grade
PB2 - 50-Year Existing Conditions Model - Hydraulic Grade
PB2 - 100-Year Existing Conditions Model - Hydraulic Grade
PB2 - 25-Year Existing Conditions Model - Hydraulic Grade

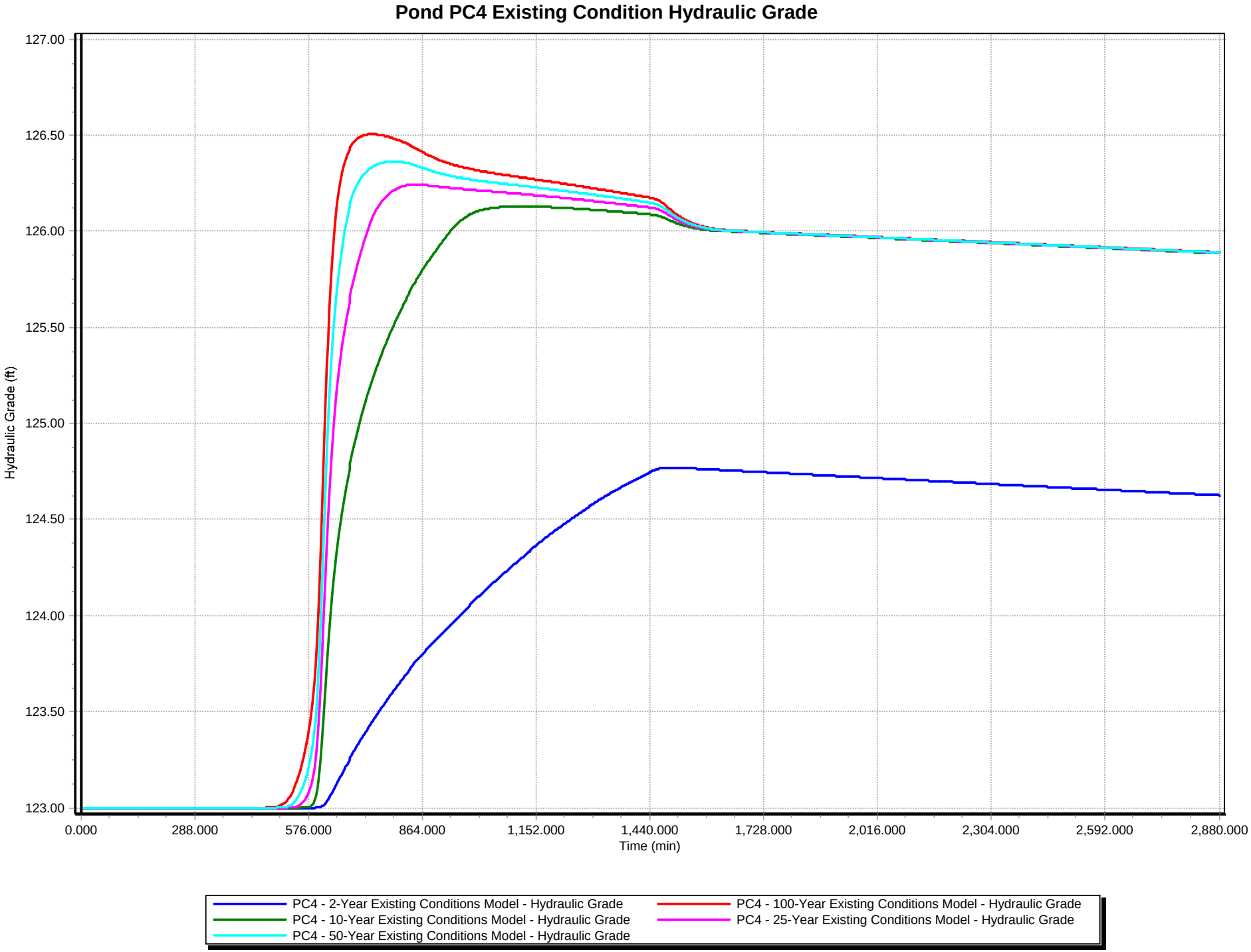

Pond PB3 Existing Condition Hydraulic Grade
Hydraulic Grade (ft)
128.25
128.00
127.75
127.50
127.25
127.00
126.75
126.50
126.25
0.000
144.000
288.000
432.000
576.000
720.000
864.000
1,008.000
1,152.000
1,296.000
1,440.000
Time (min)
PB3 - 2-Year Existing Conditions Model - Hydraulic Grade
PB3 - 10-Year Existing Conditions Model - Hydraulic Grade
PB3 - 50-Year Existing Conditions Model - Hydraulic Grade
PB3 - 100-Year Existing Conditions Model - Hydraulic Grade
PB3 - 25-Year Existing Conditions Model - Hydraulic Grade

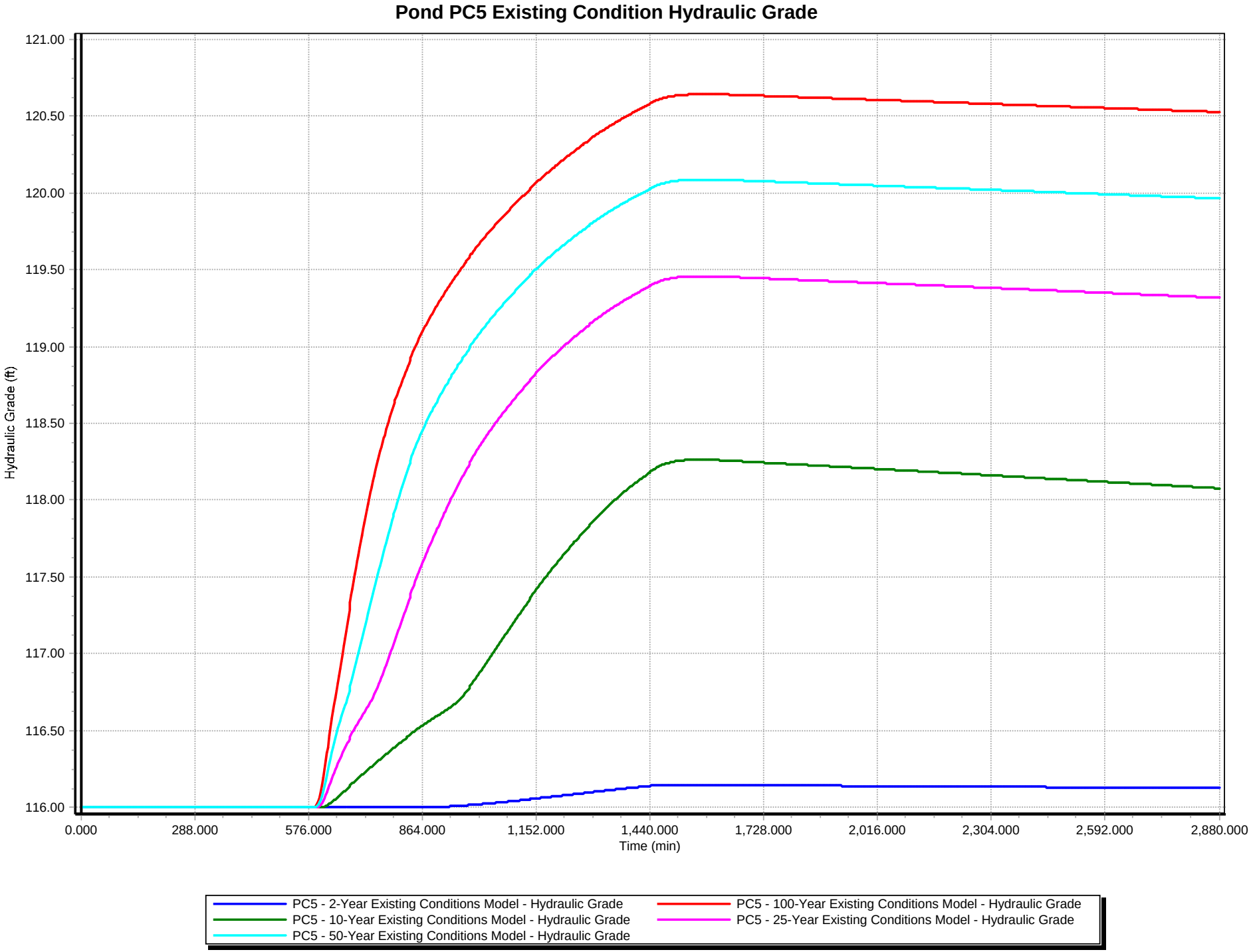

Pond PB4 Existing Condition Hydraulic Grade
Hydraulic Grade (ft)
125.70
125.60
125.50
125.40
125.30
125.20
125.10
125.00
124.90
124.80
124.70
124.60
0.000
144.000
288.000
432.000
576.000
720.000
864.000
1,008.000
1,152.000
1,296.000
1,440.000
Time (min)
PB4 - 2-Year Existing Conditions Model - Hydraulic Grade
PB4 - 10-Year Existing Conditions Model - Hydraulic Grade
PB4 - 50-Year Existing Conditions Model - Hydraulic Grade
PB4 - 100-Year Existing Conditions Model - Hydraulic Grade
PB4 - 25-Year Existing Conditions Model - Hydraulic Grade


Pond PC1 Existing Condition Hydraulic Grade
Hydraulic Grade (ft)
137.50
136.88
136.25
135.63
135.00
134.38
133.75
133.13
132.50
131.88
131.25
130.63
130.00
0.000
288.000
576.000
864.000
1,152.000
1,440.000
1,728.000
2,016.000
2,304.000
2,592.000
2,880.000
Time (min)
PC1 - 2-Year Existing Conditions Model - Hydraulic Grade
PC1 - 10-Year Existing Conditions Model - Hydraulic Grade
PC1 - 50-Year Existing Conditions Model - Hydraulic Grade
PC1 - 100-Year Existing Conditions Model - Hydraulic Grade
PC1 - 25-Year Existing Conditions Model - Hydraulic Grade

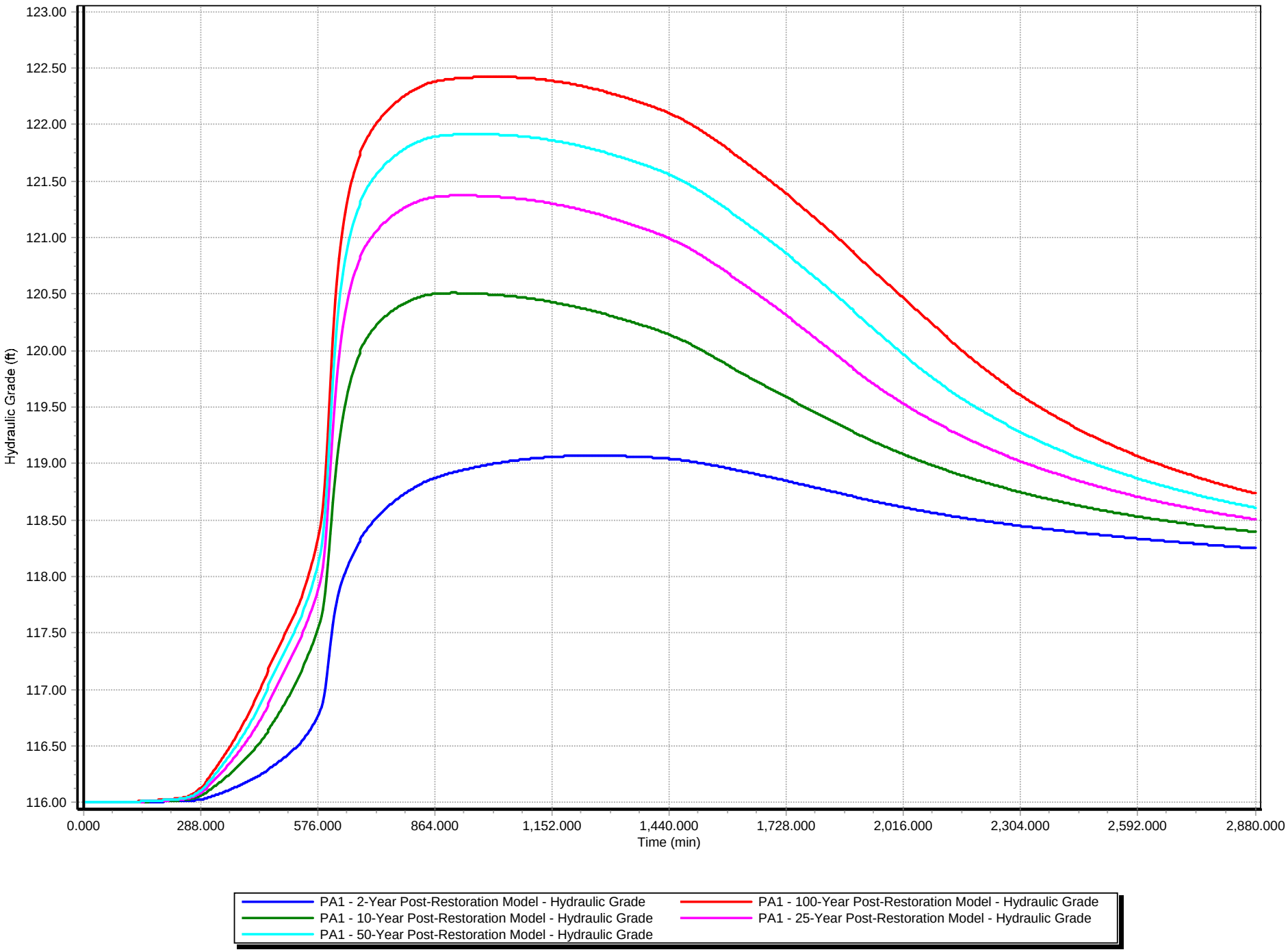

Pond PC2 Existing Condition Hydraulic Grade
Hydraulic Grade (ft)
143.50
143.25
143.00
142.75
142.50
142.25
142.00
141.75
141.50
141.25
141.00
0.000
288.000
576.000
864.000
1,152.000
1,440.000
1,728.000
2,016.000
2,304.000
2,592.000
2,880.000
Time (min)
PC2 - 2-Year Existing Conditions Model - Hydraulic Grade
PC2 - 10-Year Existing Conditions Model - Hydraulic Grade
PC2 - 50-Year Existing Conditions Model - Hydraulic Grade
PC2 - 100-Year Existing Conditions Model - Hydraulic Grade
PC2 - 25-Year Existing Conditions Model - Hydraulic Grade


Pond PC3 Existing Condition Hydraulic Grade
Hydraulic Grade (ft)
143.25
143.13
143.00
142.88
142.75
142.63
142.50
142.38
142.25
142.13
142.00
0.000
288.000
576.000
864.000
1,152.000
1,440.000
1,728.000
2,016.000
2,304.000
2,592.000
2,880.000
Time (min)
PC3 - 2-Year Existing Conditions Model - Hydraulic Grade
PC3 - 10-Year Existing Conditions Model - Hydraulic Grade
PC3 - 50-Year Existing Conditions Model - Hydraulic Grade
PC3 - 100-Year Existing Conditions Model - Hydraulic Grade
PC3 - 25-Year Existing Conditions Model - Hydraulic Grade

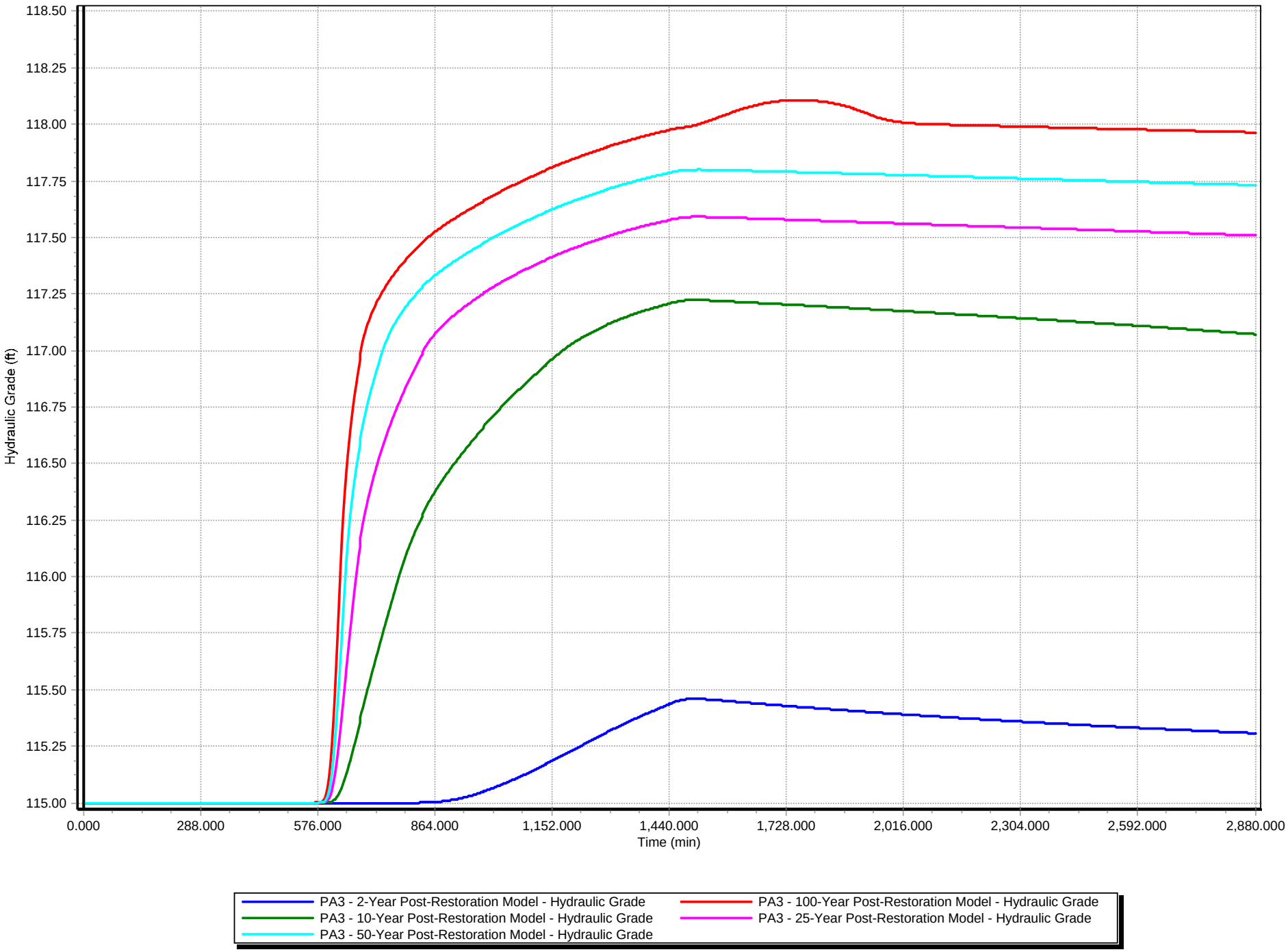

Pond PC4 Existing Condition Hydraulic Grade
Hydraulic Grade (ft)
127.00
126.50
126.00
125.50
125.00
124.50
124.00
123.50
123.00
0.000
288.000
576.000
864.000
1,152.000
1,440.000
1,728.000
2,016.000
2,304.000
2,592.000
2,880.000
Time (min)
PC4 - 2-Year Existing Conditions Model - Hydraulic Grade
PC4 - 10-Year Existing Conditions Model - Hydraulic Grade
PC4 - 50-Year Existing Conditions Model - Hydraulic Grade
PC4 - 100-Year Existing Conditions Model - Hydraulic Grade
PC4 - 25-Year Existing Conditions Model - Hydraulic Grade


Pond PC5 Existing Condition Hydraulic Grade
Hydraulic Grade (ft)
121.00
120.50
120.00
119.50
119.00
118.50
118.00
117.50
117.00
116.50
116.00
0.000
288.000
576.000
864.000
1,152.000
1,440.000
1,728.000
2,016.000
2,304.000
2,592.000
2,880.000
Time (min)
PC5 - 2-Year Existing Conditions Model - Hydraulic Grade
PC5 - 10-Year Existing Conditions Model - Hydraulic Grade
PC5 - 50-Year Existing Conditions Model - Hydraulic Grade
PC5 - 100-Year Existing Conditions Model - Hydraulic Grade
PC5 - 25-Year Existing Conditions Model - Hydraulic Grade

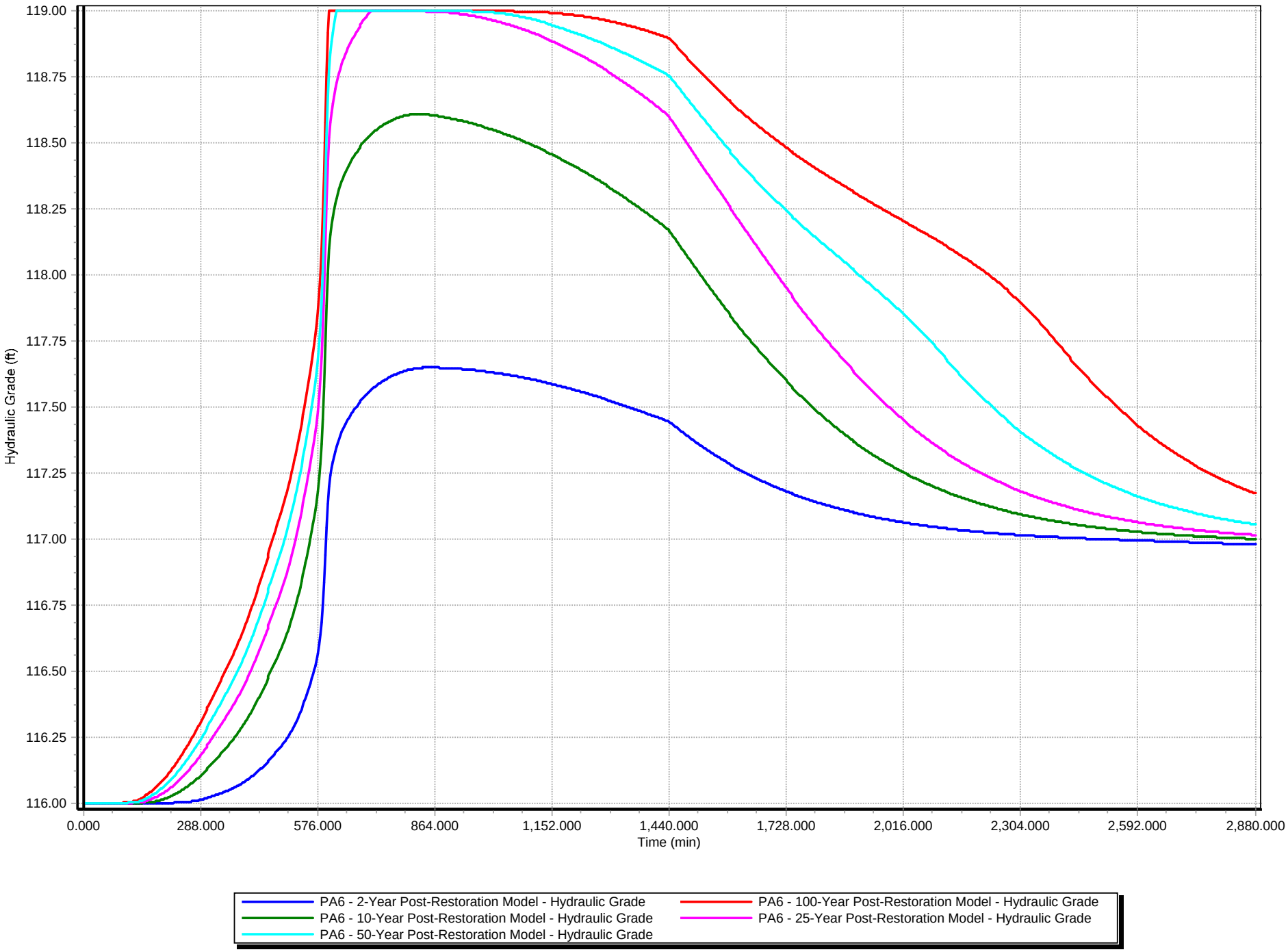
Pond PA1 Post-Remediation Condition Hydraulic Grade

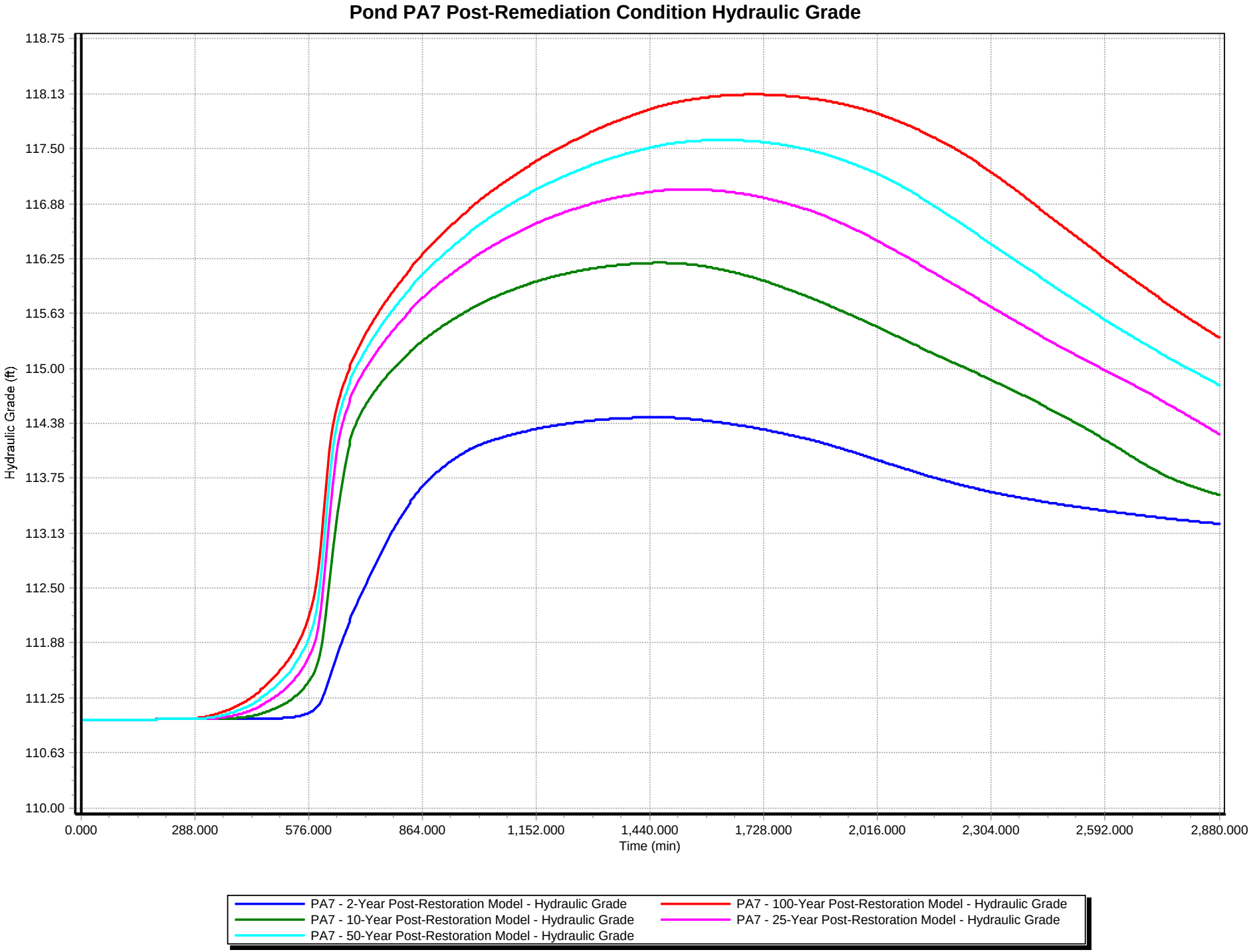


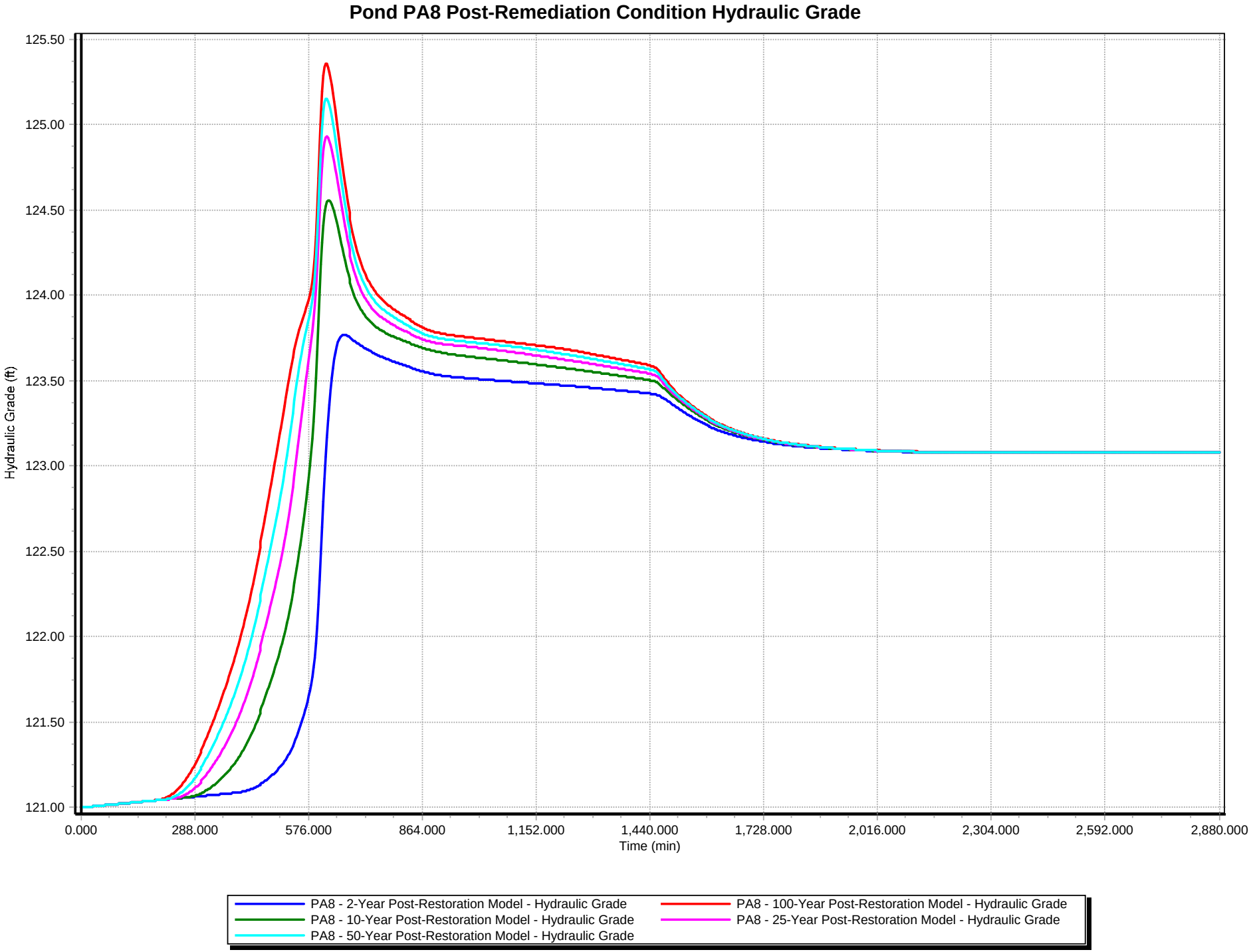
Pond PA3 Post-Remediation Condition Hydraulic Grade



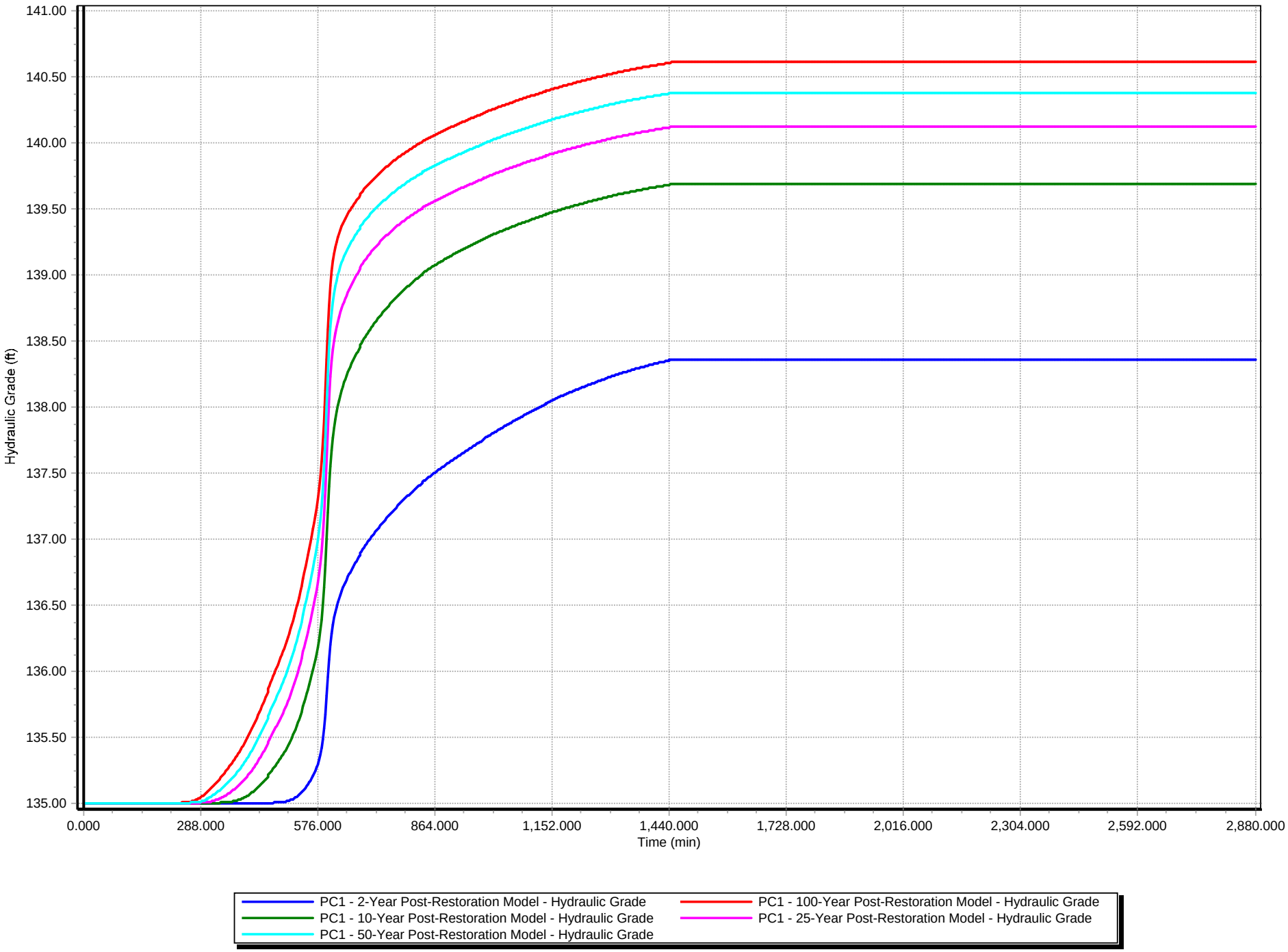
Pond PA6 Post-Remediation Condition Hydraulic Grade

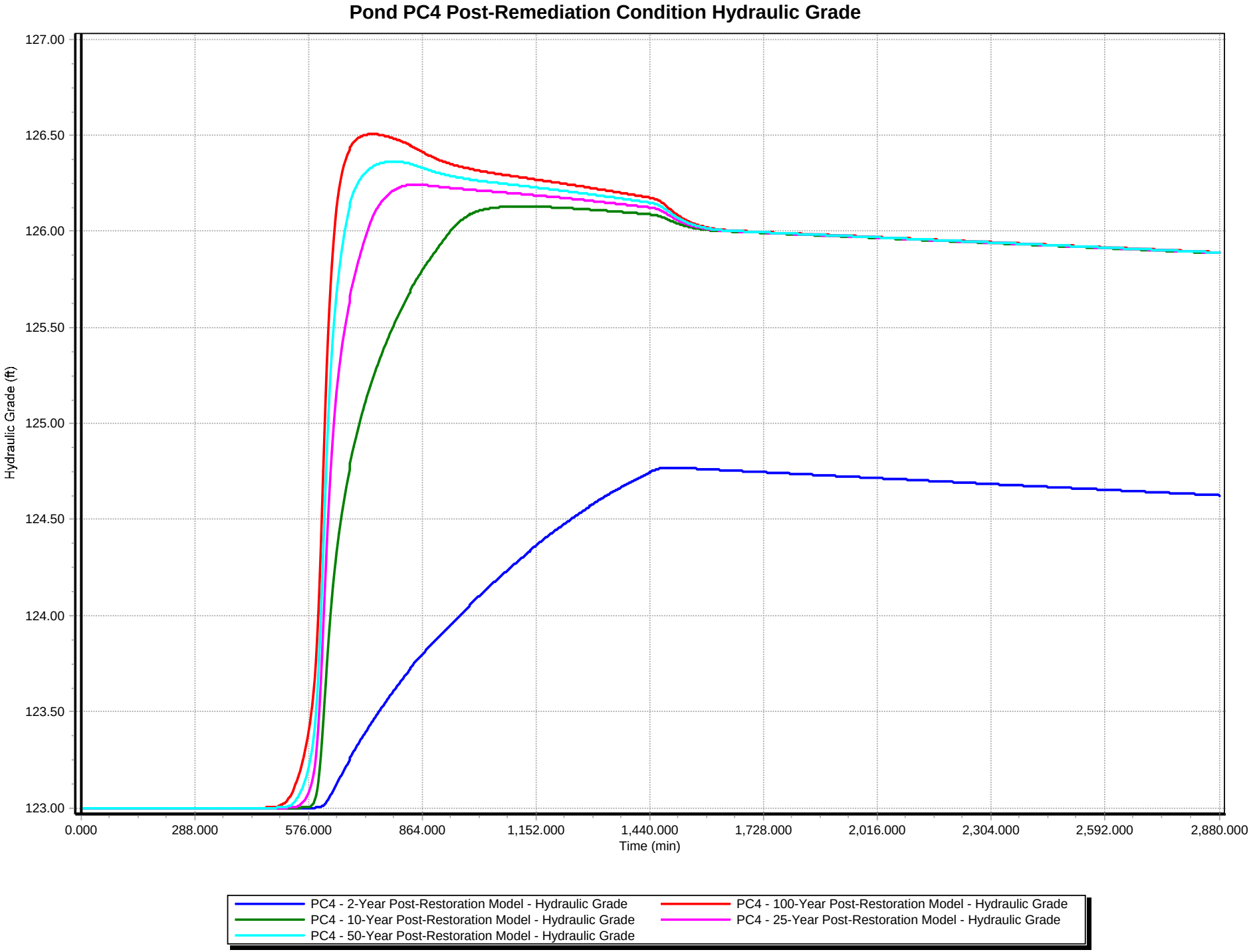



Pond PA7 Post-Remediation Condition Hydraulic Grade
Hydraulic Grade (ft)
118.75
118.13
117.50
116.88
116.25
115.63
115.00
114.38
113.75
113.13
112.50
111.88
111.25
110.63
110.00
0.000
288.000
576.000
864.000
1,152.000
1,440.000
1,728.000
2,016.000
2,304.000
2,592.000
2,880.000
Time (min)
PA7 - 2-Year Post-Restoration Model - Hydraulic Grade
PA7 - 10-Year Post-Restoration Model - Hydraulic Grade
PA7 - 50-Year Post-Restoration Model - Hydraulic Grade
PA7 - 100-Year Post-Restoration Model - Hydraulic Grade
PA7 - 25-Year Post-Restoration Model - Hydraulic Grade

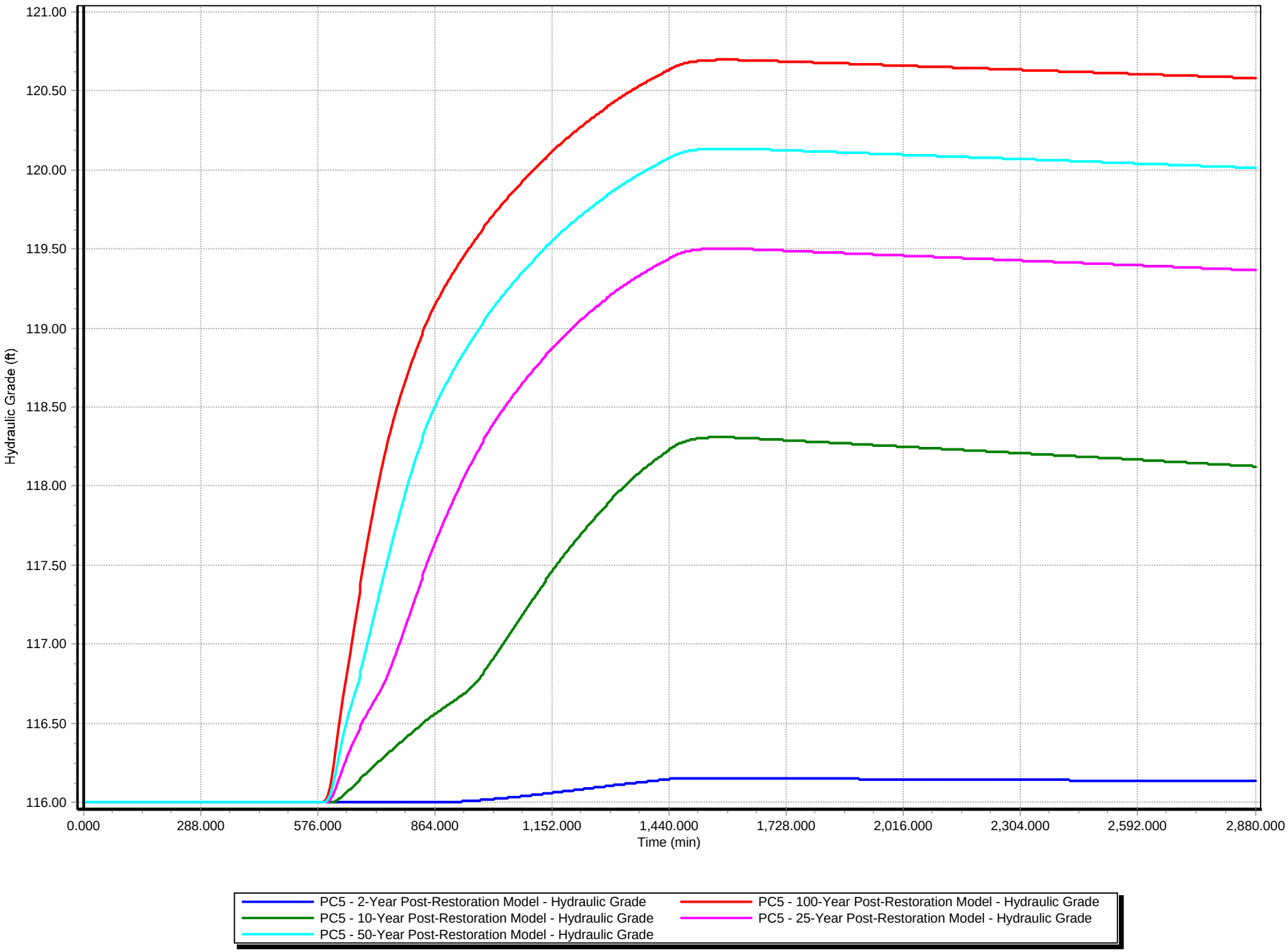

Pond PA8 Post-Remediation Condition Hydraulic Grade
Hydraulic Grade (ft)
125.50
125.00
124.50
124.00
123.50
123.00
122.50
122.00
121.50
121.00
0.000
288.000
576.000
864.000
1,152.000
1,440.000
1,728.000
2,016.000
2,304.000
2,592.000
2,880.000
Time (min)
PA8 - 2-Year Post-Restoration Model - Hydraulic Grade
PA8 - 10-Year Post-Restoration Model - Hydraulic Grade
PA8 - 50-Year Post-Restoration Model - Hydraulic Grade
PA8 - 100-Year Post-Restoration Model - Hydraulic Grade
PA8 - 25-Year Post-Restoration Model - Hydraulic Grade

Pond PC1 Post-Remediation Condition Hydraulic Grade

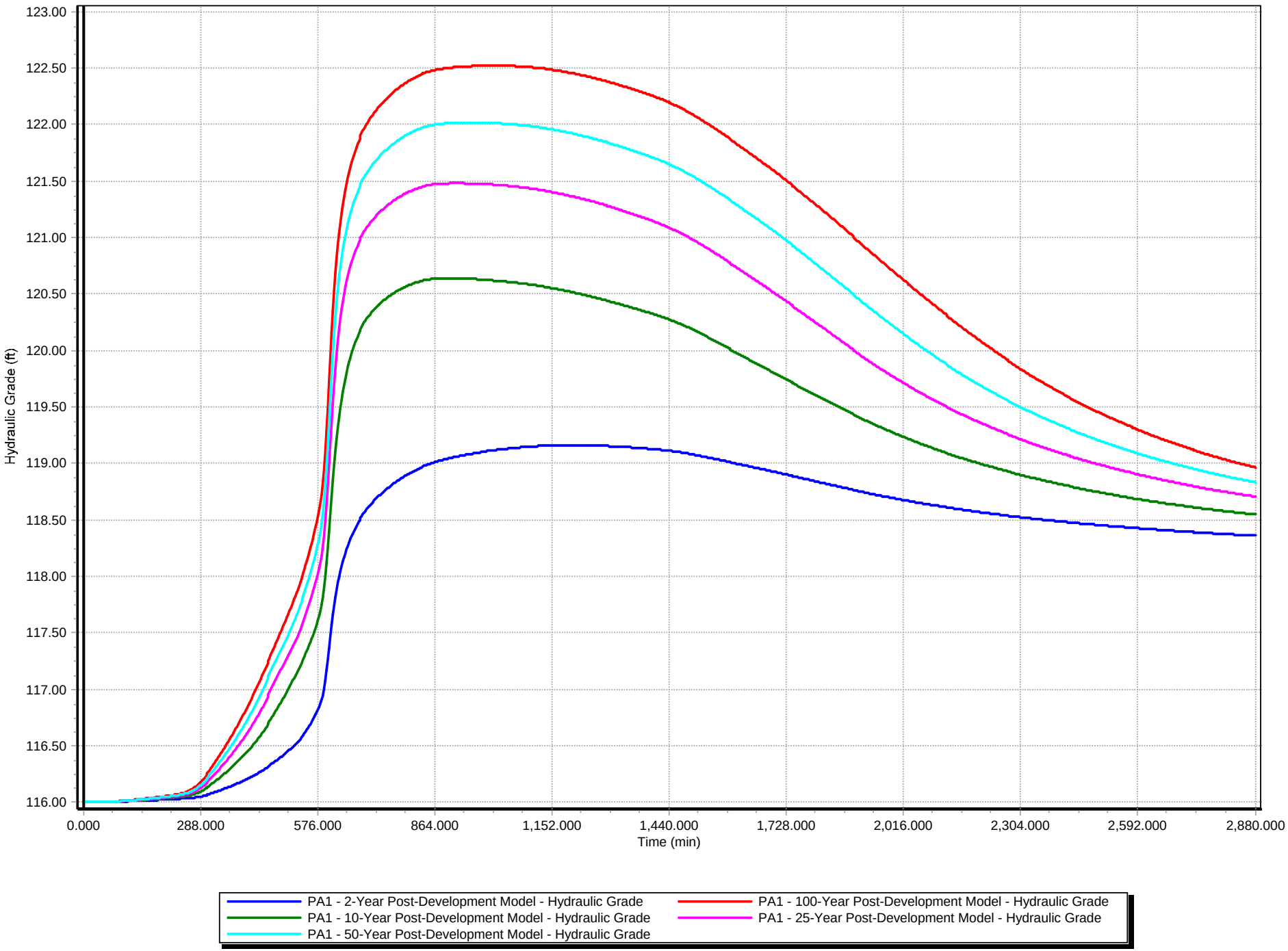



Pond PC4 Post-Remediation Condition Hydraulic Grade
Hydraulic Grade (ft)
127.00
126.50
126.00
125.50
125.00
124.50
124.00
123.50
123.00
0.000
288.000
576.000
864.000
1,152.000
1,440.000
1,728.000
2,016.000
2,304.000
2,592.000
2,880.000
Time (min)
PC4 - 2-Year Post-Restoration Model - Hydraulic Grade
PC4 - 10-Year Post-Restoration Model - Hydraulic Grade
PC4 - 50-Year Post-Restoration Model - Hydraulic Grade
PC4 - 100-Year Post-Restoration Model - Hydraulic Grade
PC4 - 25-Year Post-Restoration Model - Hydraulic Grade

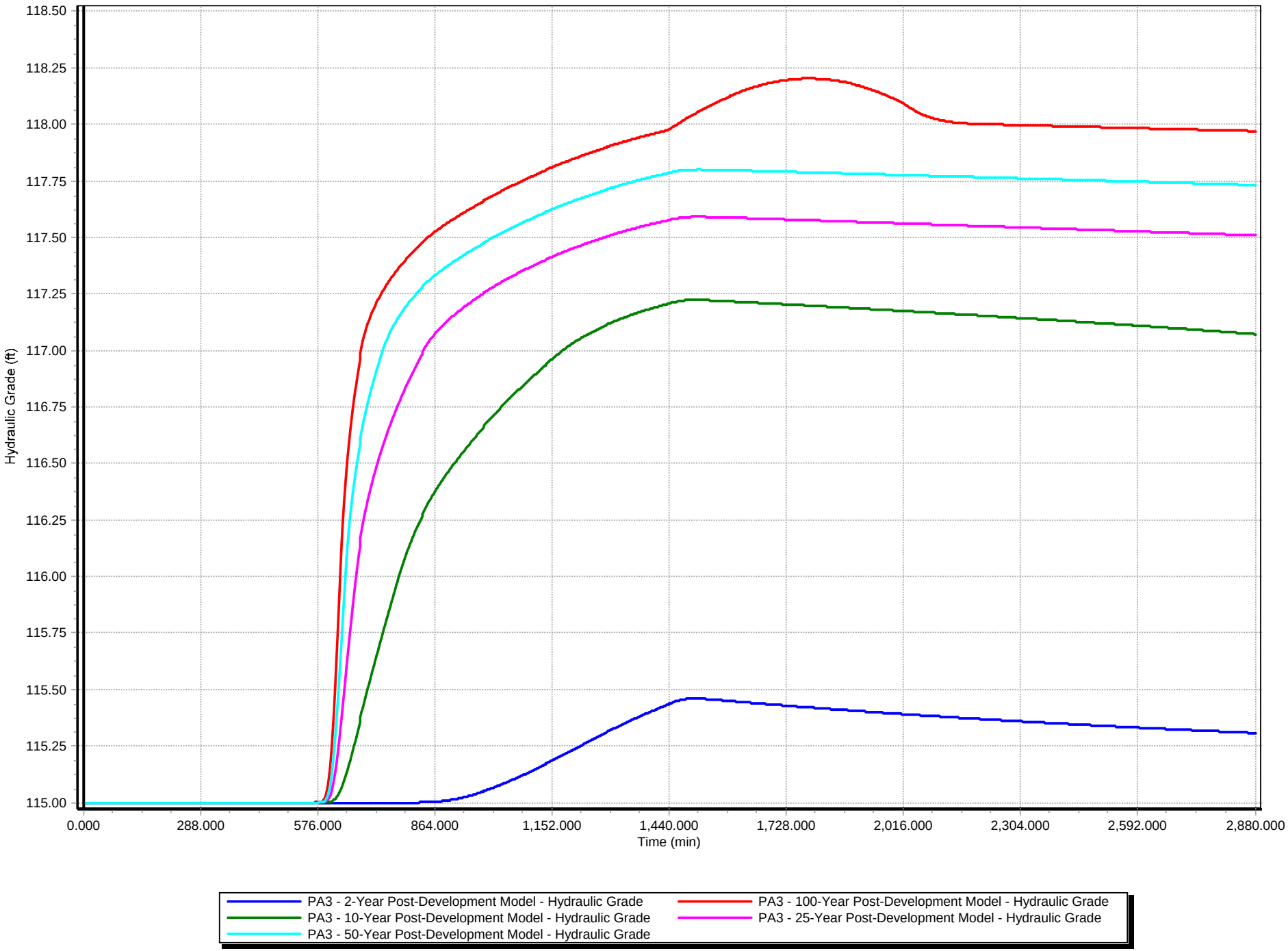
Pond PC5 Post-Remediation Condition Hydraulic Grade



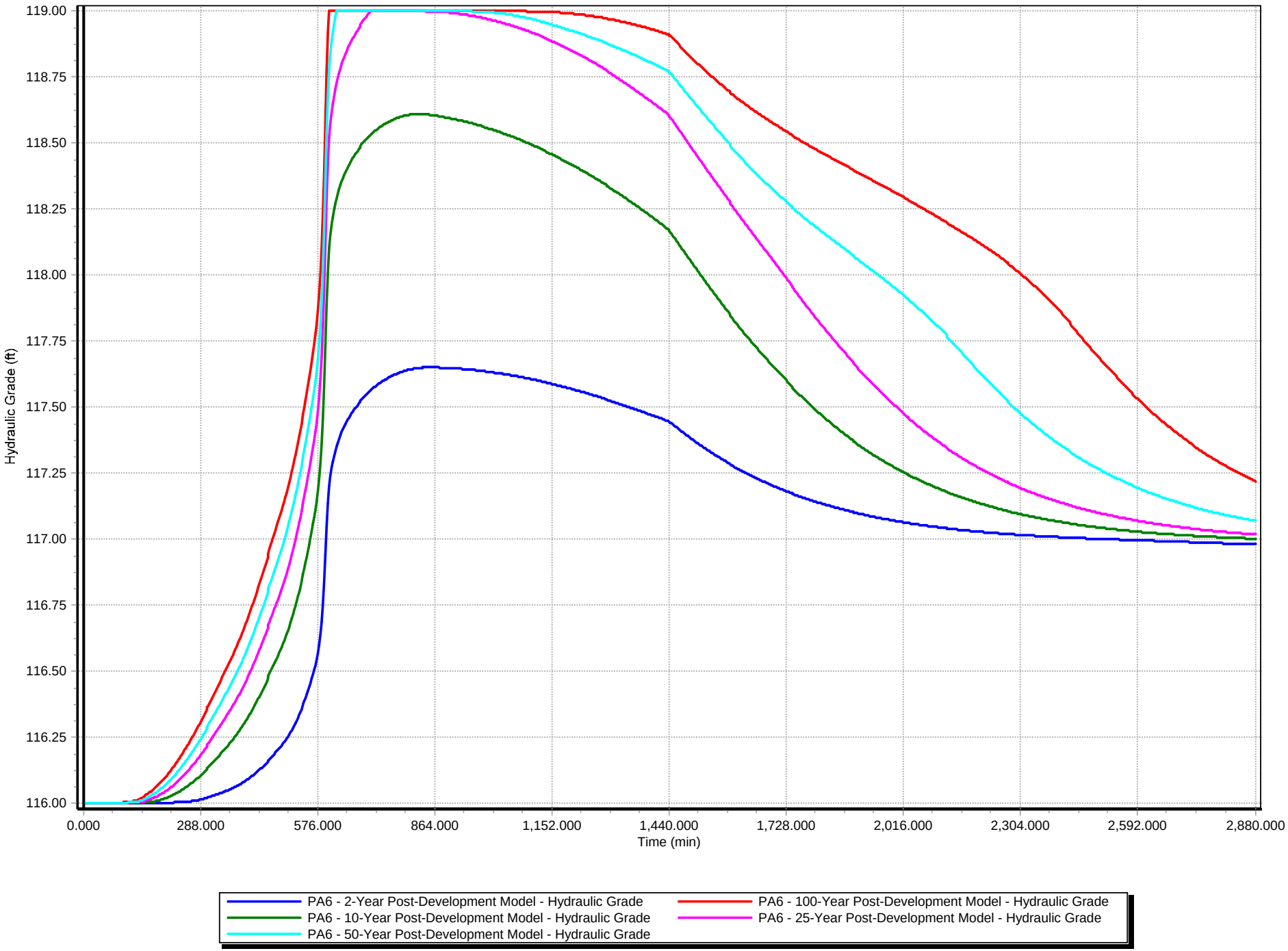
Pond PA1 Post-Development Condition Hydraulic Grade

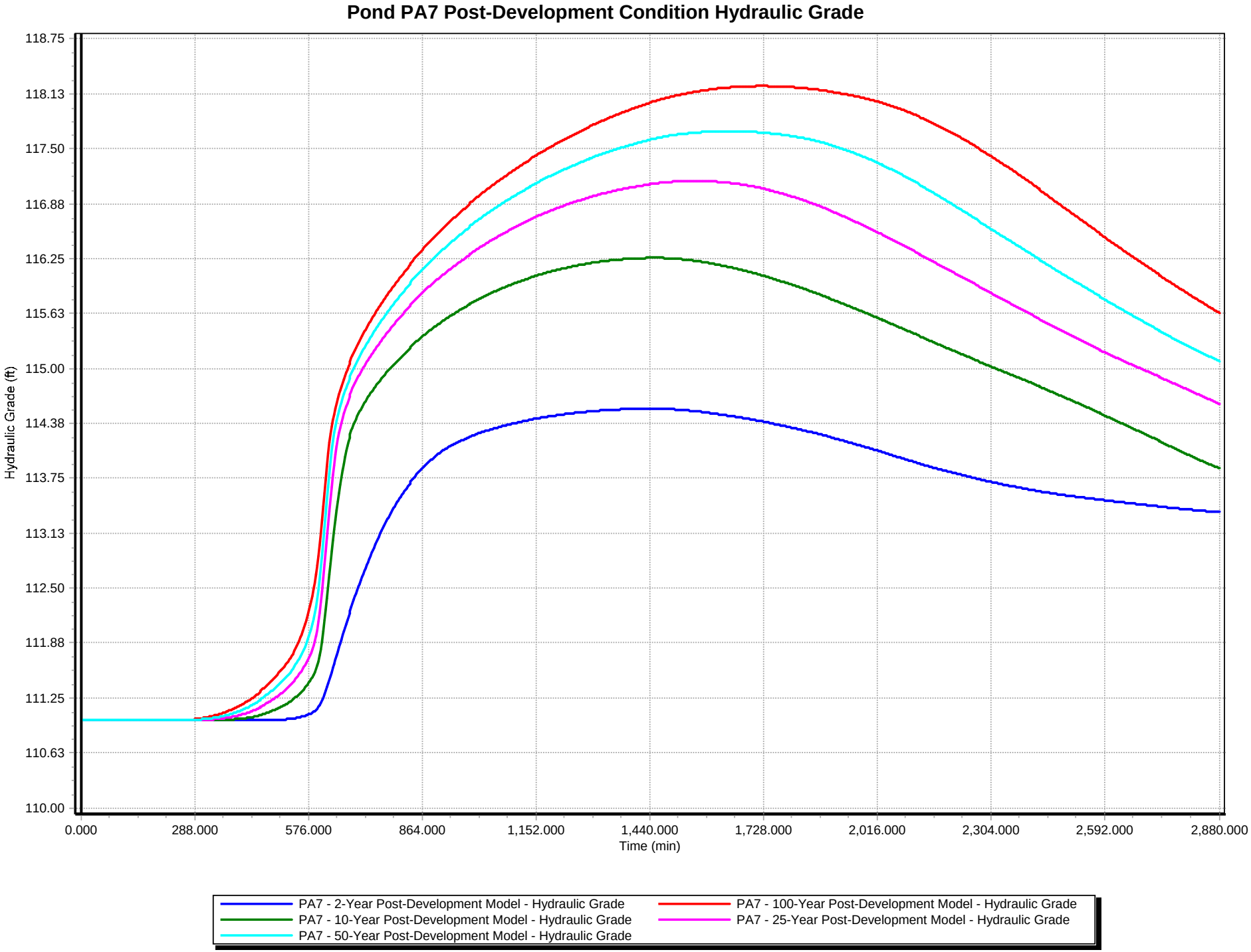


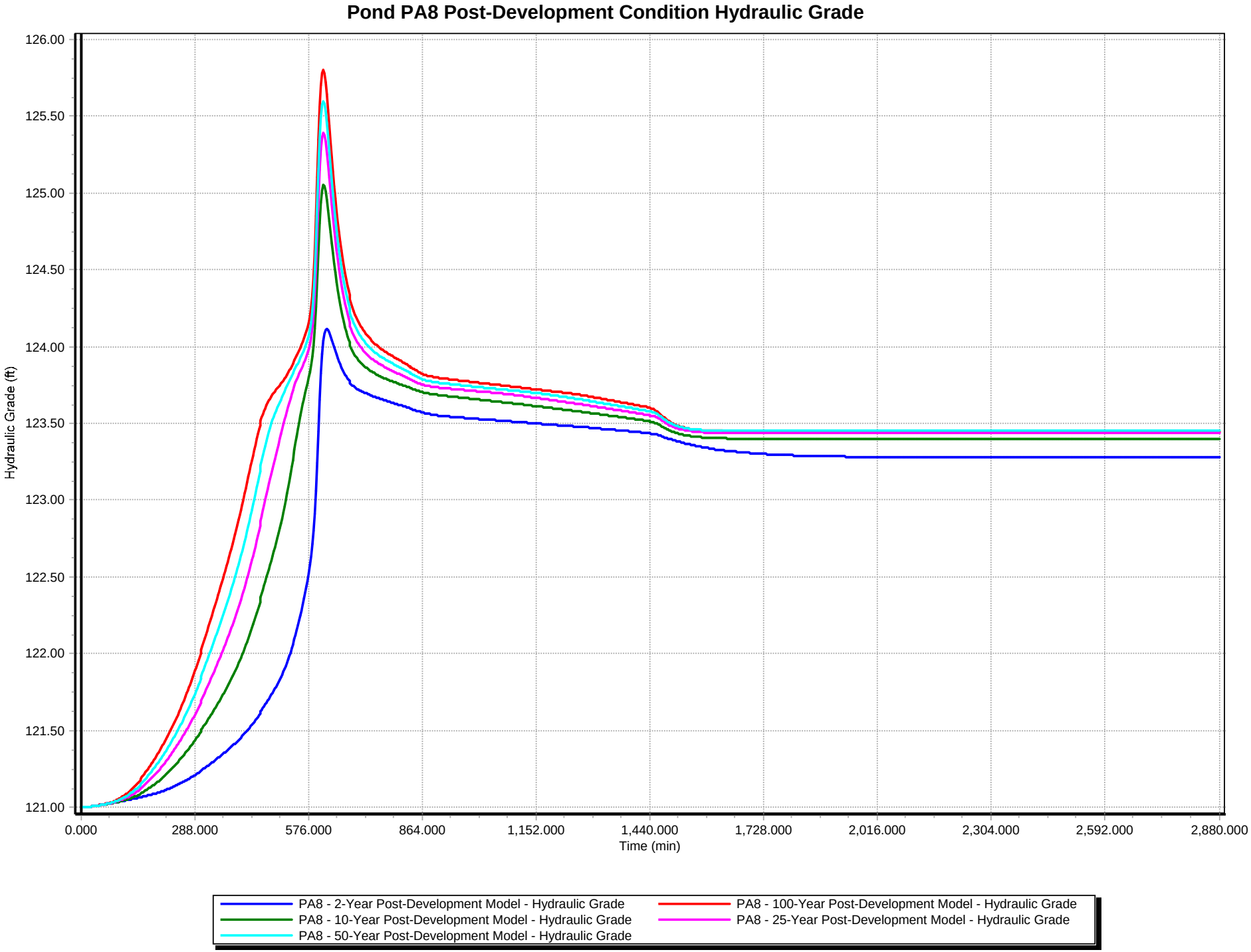
Pond PA3 Post-Development Condition Hydraulic Grade

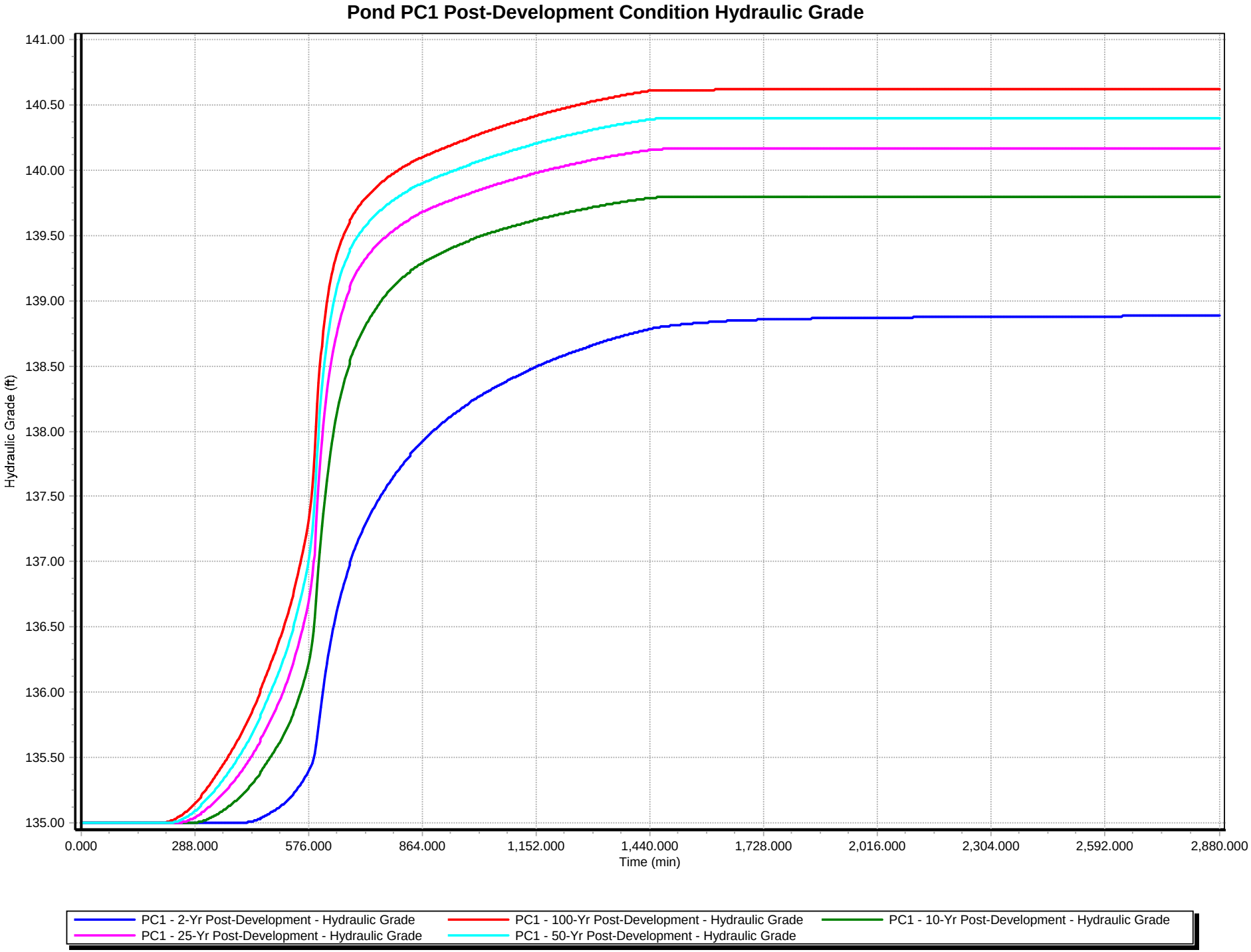


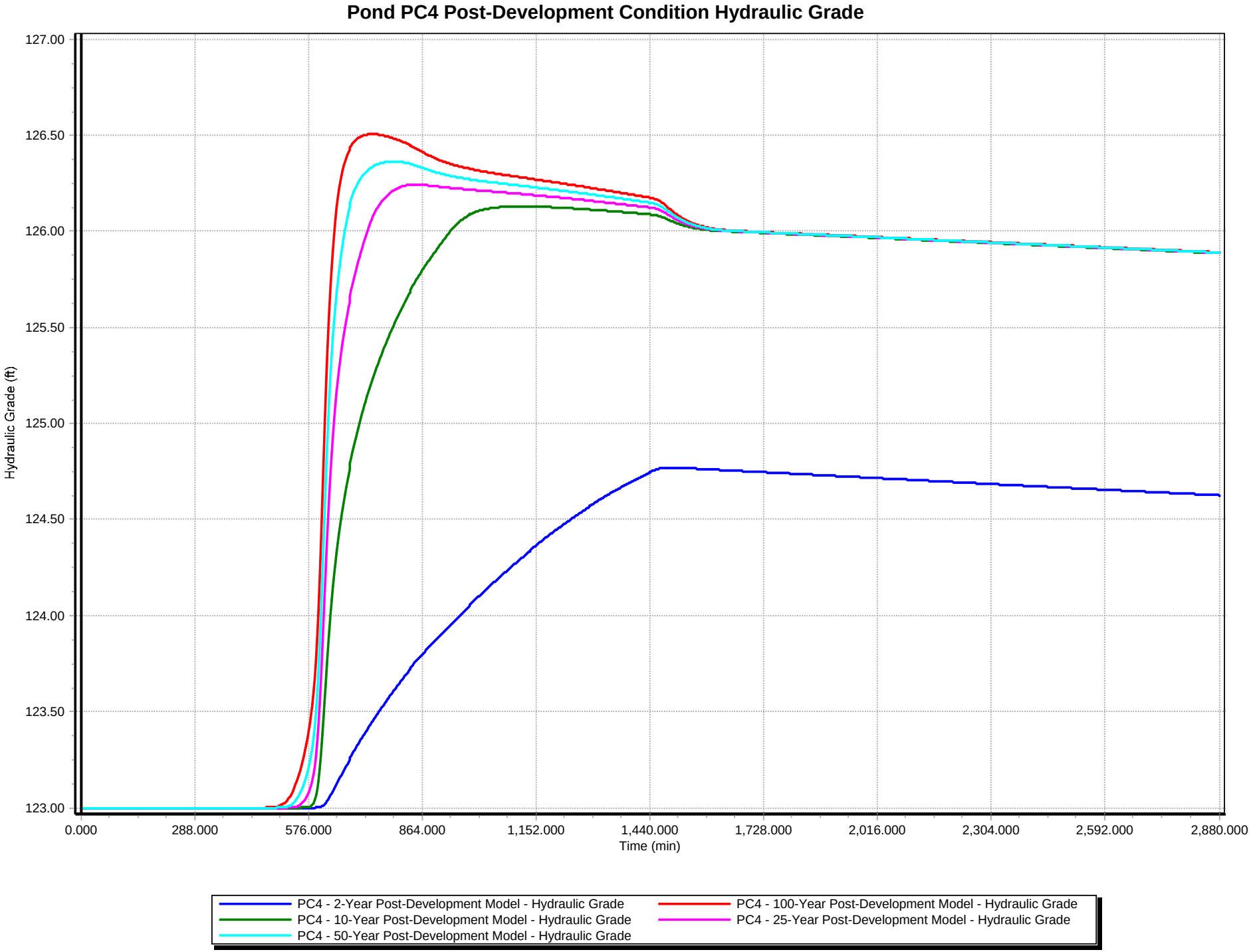
Pond PA6 Post-Development Condition Hydraulic Grade



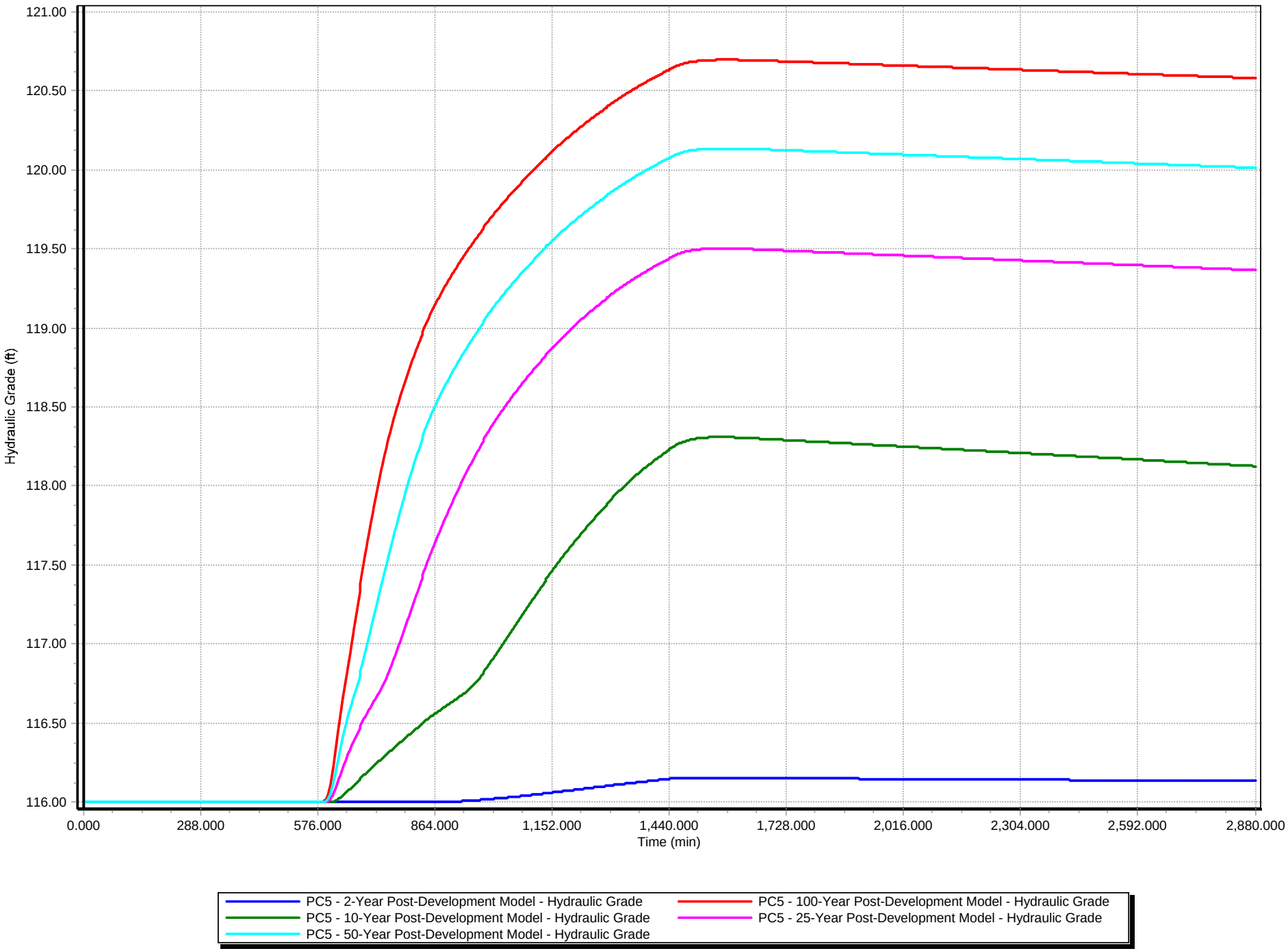

Pond PA7 Post-Development Condition Hydraulic Grade
Hydraulic Grade (ft)
118.75
118.13
117.50
116.88
116.25
115.63
115.00
114.38
113.75
113.13
112.50
111.88
111.25
110.63
110.00
0.000
288.000
576.000
864.000
1,152.000
1,440.000
1,728.000
2,016.000
2,304.000
2,592.000
2,880.000
Time (min)
PA7 - 2-Year Post-Development Model - Hydraulic Grade
PA7 - 10-Year Post-Development Model - Hydraulic Grade
PA7 - 50-Year Post-Development Model - Hydraulic Grade
PA7 - 100-Year Post-Development Model - Hydraulic Grade
PA7 - 25-Year Post-Development Model - Hydraulic Grade


Pond PA8 Post-Development Condition Hydraulic Grade
Hydraulic Grade (ft)
126.00
125.50
125.00
124.50
124.00
123.50
123.00
122.50
122.00
121.50
121.00
0.000
288.000
576.000
864.000
1,152.000
1,440.000
1,728.000
2,016.000
2,304.000
2,592.000
2,880.000
Time (min)
PA8 - 2-Year Post-Development Model - Hydraulic Grade
PA8 - 10-Year Post-Development Model - Hydraulic Grade
PA8 - 50-Year Post-Development Model - Hydraulic Grade
PA8 - 100-Year Post-Development Model - Hydraulic Grade
PA8 - 25-Year Post-Development Model - Hydraulic Grade


Pond PC1 Post-Development Condition Hydraulic Grade
Hydraulic Grade (ft)
141.00
140.50
140.00
139.50
139.00
138.50
138.00
137.50
137.00
136.50
136.00
135.50
135.00
0.000
288.000
576.000
864.000
1,152.000
1,440.000
1,728.000
2,016.000
2,304.000
2,592.000
2,880.000
Time (min)
PC1 - 2-Yr Post-Development - Hydraulic Grade
PC1 - 100-Yr Post-Development - Hydraulic Grade
PC1 - 10-Yr Post-Development - Hydraulic Grade
PC1 - 25-Yr Post-Development - Hydraulic Grade
PC1 - 50-Yr Post-Development - Hydraulic Grade


Pond PC4 Post-Development Condition Hydraulic Grade
Hydraulic Grade (ft)
127.00
126.50
126.00
125.50
125.00
124.50
124.00
123.50
123.00
0.000
288.000
576.000
864.000
1,152.000
1,440.000
1,728.000
2,016.000
2,304.000
2,592.000
2,880.000
Time (min)
PC4 - 2-Year Post-Development Model - Hydraulic Grade
PC4 - 10-Year Post-Development Model - Hydraulic Grade
PC4 - 50-Year Post-Development Model - Hydraulic Grade
PC4 - 100-Year Post-Development Model - Hydraulic Grade
PC4 - 25-Year Post-Development Model - Hydraulic Grade

Pond PC5 Post-Development Condition Hydraulic Grade



Appendix E

Hydraulics Analyses

APPENDIX E
HYDRAULICS ANALYSES

This appendix describes the basic assumptions and design parameters used in the computer model for the various hydraulic structures for the existing, post-remediation, and post-development conditions at the San Luis Obispo Tank Farm.

MODEL DEVELOPMENT

Channel Characteristics

For the purpose of this study channels were defined by an average cross-sectional area for each reach. Channel flow elevations were estimated from topographical maps of the area and were used within the model to simulate the average slope of each reach. A Manning's roughness coefficient (*n*) was assigned to each reach based on field observations and prior knowledge of the site. Summaries of channel and cross section characteristics can be found in Attachment 1. The location for each channel and cross section can be found graphically in Figure E-1 for the existing conditions and in Figure E-2 for the post-remediation and post-development conditions.

Culvert Characteristics

The two existing sets of culverts beneath Tank Farm Road (two 36-inch-diameter round culverts, and two 4-foot by 6-foot box culverts) were modeled within CivilStorm using an inlet controlled method based on field and topographic observations. Parameters used in the culvert calculations were based on the type of culvert, field observations, and topographic data for the surrounding area. Summaries of culvert characteristics can be found in Attachment 2. The location of each culvert is shown in Figure E-3.

Pipe Characteristics

Pipes and conduits are modeled within CivilStorm similar to culverts. Pipes are given a diameter, Manning's roughness coefficient based on the pipe material, and a slope. The diameter of each pipe is entered based on existing or proposed design. The slope for each pipe is estimated from existing topographical data of the site. Summaries of pipe characteristics can be found in Attachment 3 to this appendix. The location for each pipe can be found graphically in Figures E-4 and E-5 for the existing conditions and for the post-remediation and post-development conditions, respectively.

CALCULATIONS

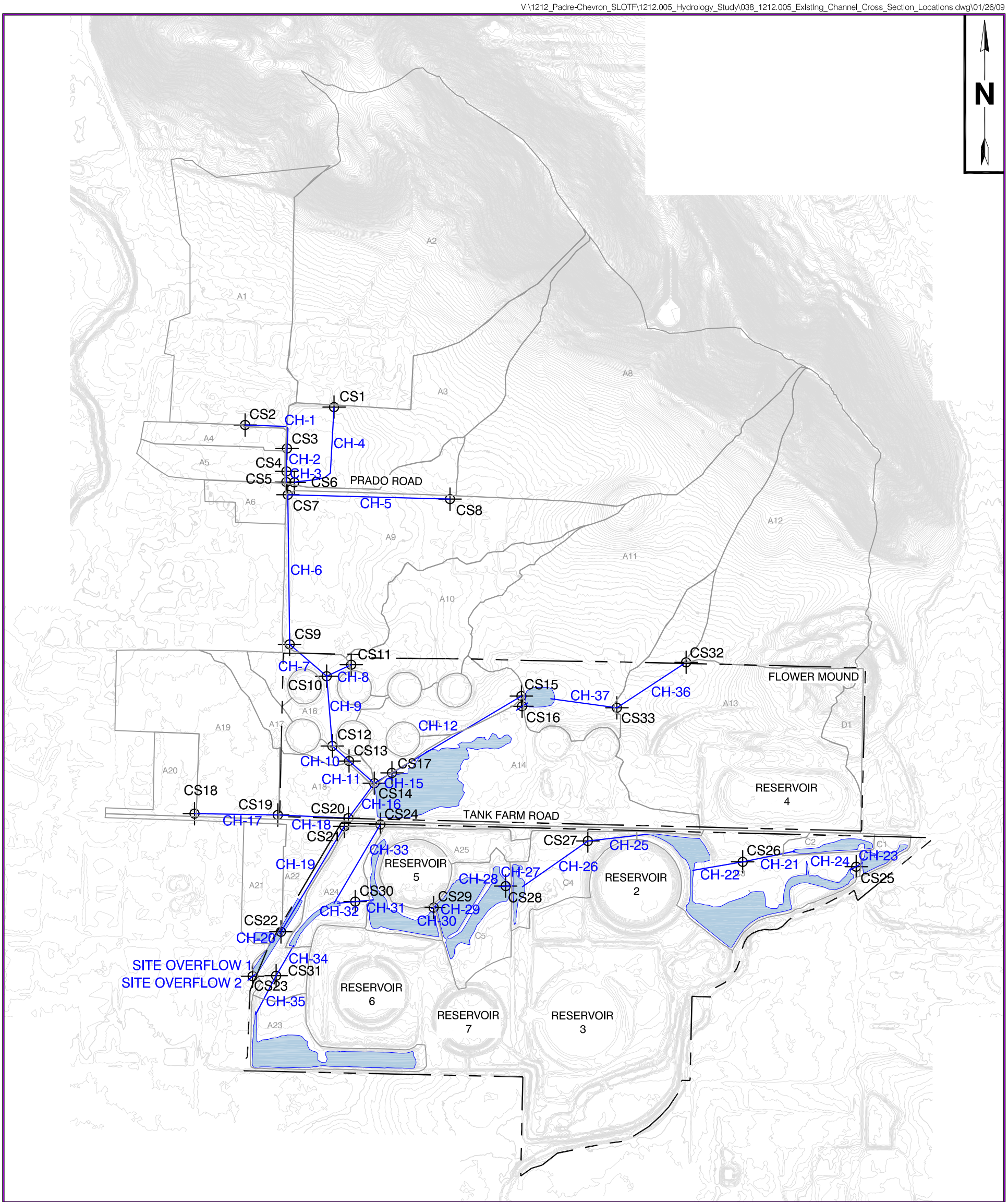
Like the hydrologic portion of the model, Bentley's CivilStorm v8 XM calculates hydraulic results by way of a dynamic stormwater modeling engine. The software is able to calculate runoff hydrographs and analyze the hydraulic response through interdependent systems of inlets, pipes, channels, culverts, and ponds.

Calculation Summaries and Detailed Results

Calculation summaries of channels, culverts, and pipes for the existing, post-remediation, and post-development scenarios are provided in Attachment 4 to this appendix.

Figures

V:\1212_Padre-Chevron_SLOTF\1212.005_Hydrology_Study\038_1212.005_Existing_Channel_Cross_Section_Locations.dwg\01/26/09



LEGEND

- PROPERTY BOUNDARY
- CHANNEL CROSS SECTION LOCATION
- EXISTING POND
- A4 WATERSHED SUBCATCHMENT WITH I.D.
- STORMWATER CONVEYANCE CHANNEL

FIGURE E-1

CHANNEL CROSS SECTION AND CHANNEL LOCATIONS EXISTING CONDITIONS

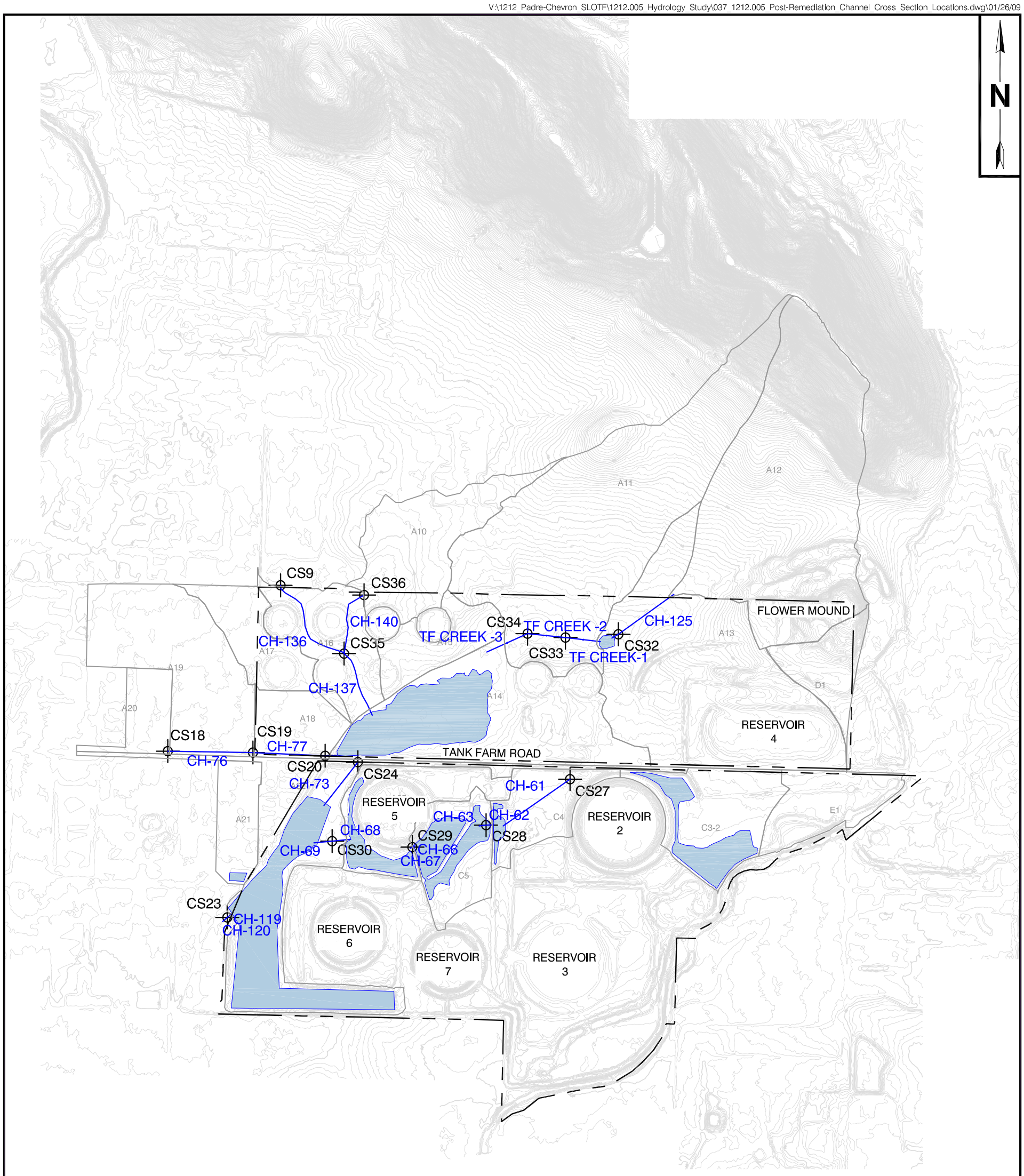
HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

V:\1212_Padre-Chevron_SLOTF\1212.005_Hydrology_Study\037_1212.005_Post-Remediation_Channel_Cross_Section_Locations.dwg\01/26/09



0 800 1600 FEET
SCALE

LEGEND

- PROPERTY BOUNDARY
- CHANNEL CROSS SECTION LOCATION
- EXISTING POND
- A4 WATERSHED SUBCATCHMENT WITH I.D.
- STORMWATER CONVEYANCE CHANNEL

FIGURE E-2

CHANNEL CROSS SECTION AND CHANNEL LOCATIONS POST-REMEDIATION AND POST-DEVELOPMENT CONDITIONS

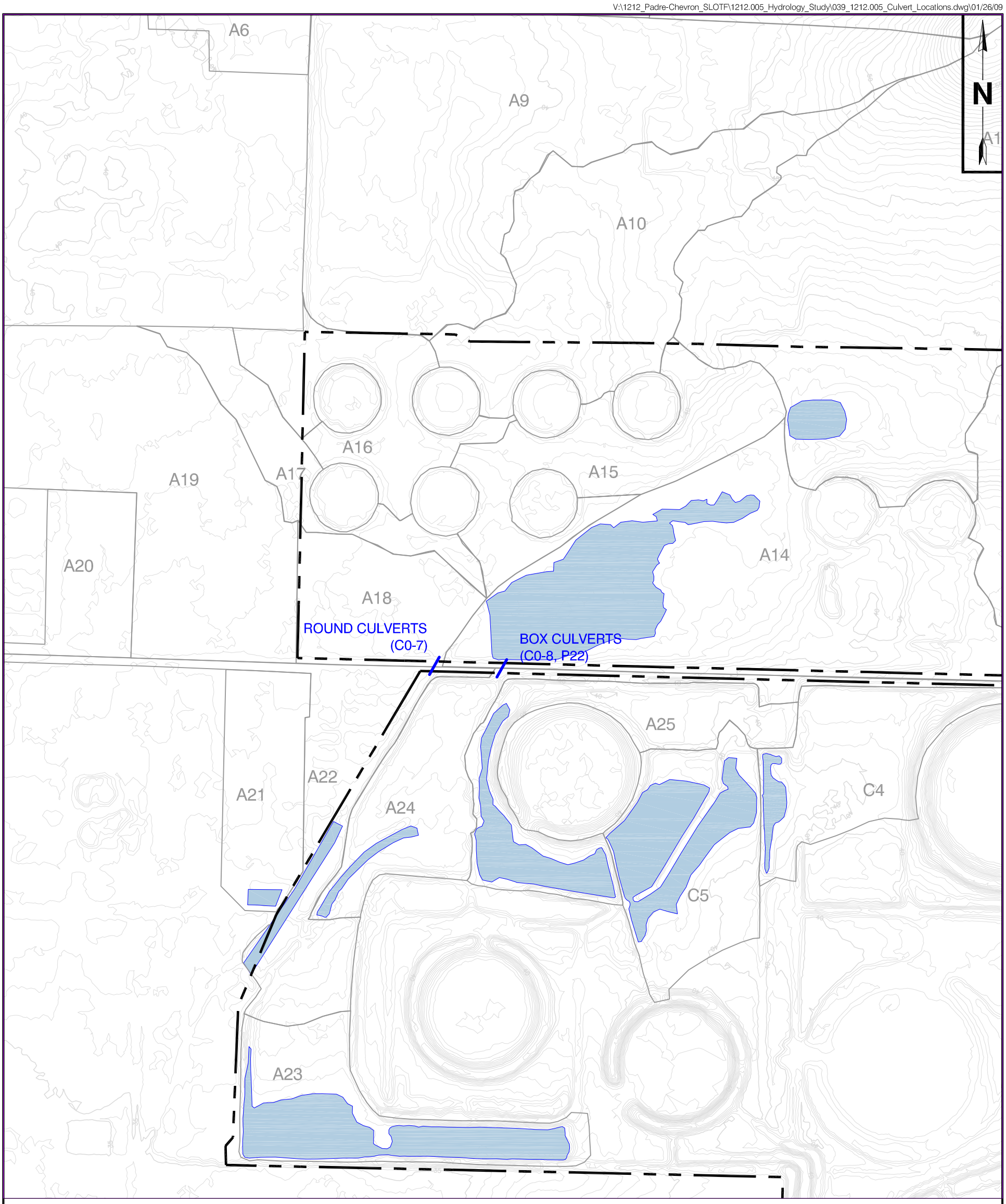
HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

V:\1212_Padre-Chevron_SLOTF\1212.005_Hydrology_Study\039_1212.005_Culvert_Locations.dwg\01/26/09



LEGEND

- PROPERTY BOUNDARY
- EXISTING POND
- A4 WATERSHED SUBCATCHMENT WITH I.D.
- CULVERT LOCATION

FIGURE E-3

CULVERT LOCATIONS

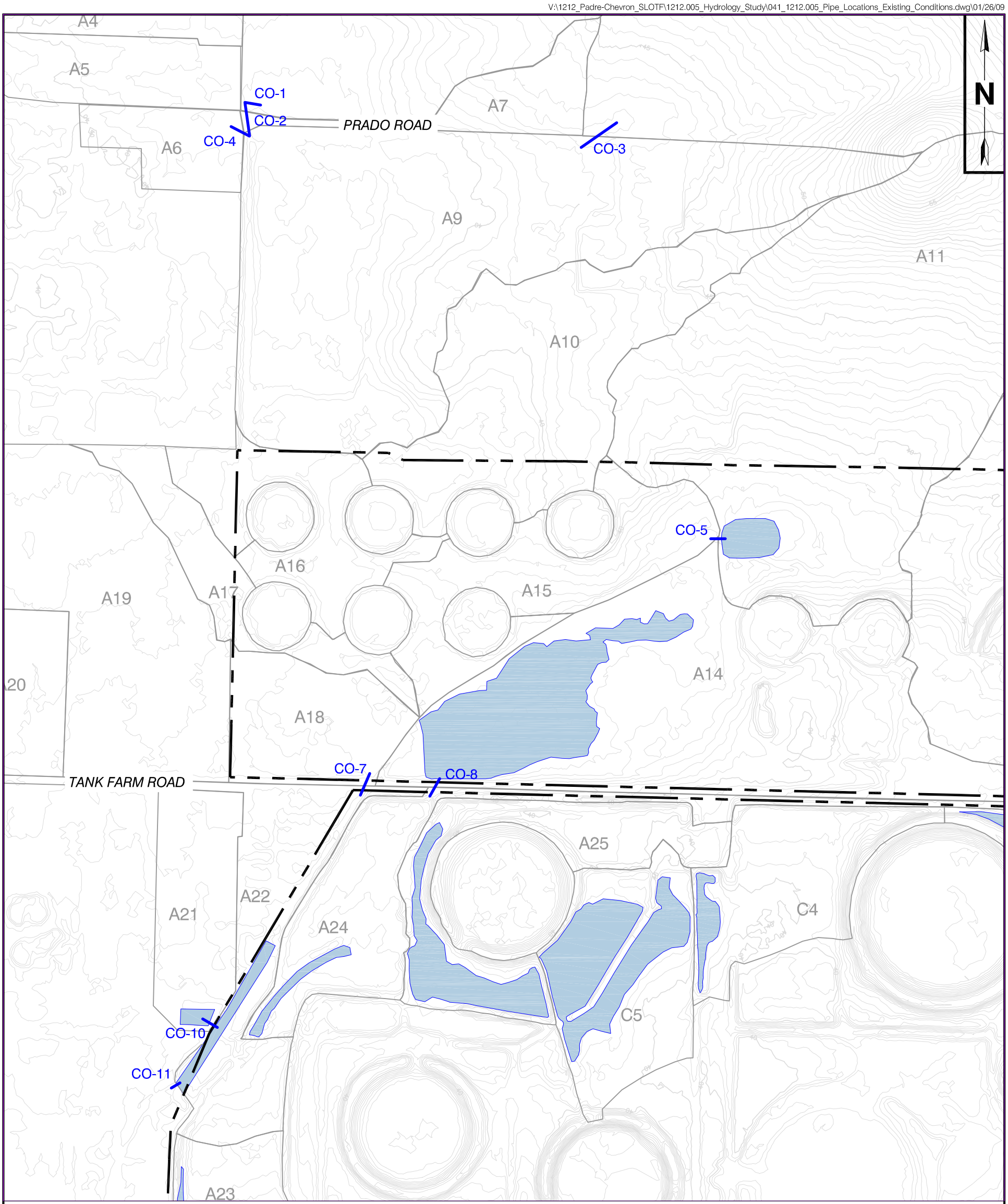
HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

V:\1212_Padre-Chevron_SLOTF\1212.005_Hydrology_Study\041_1212.005_Pipe_Locations_Existing_Conditions.dwg\01/26/09



LEGEND

- PROPERTY BOUNDARY
- EXISTING POND
- A4 WATERSHED SUBCATCHMENT WITH I.D.
- STORMWATER CONVEYANCE PIPE

FIGURE E-4

PIPE LOCATIONS
EXISTING CONDITIONS

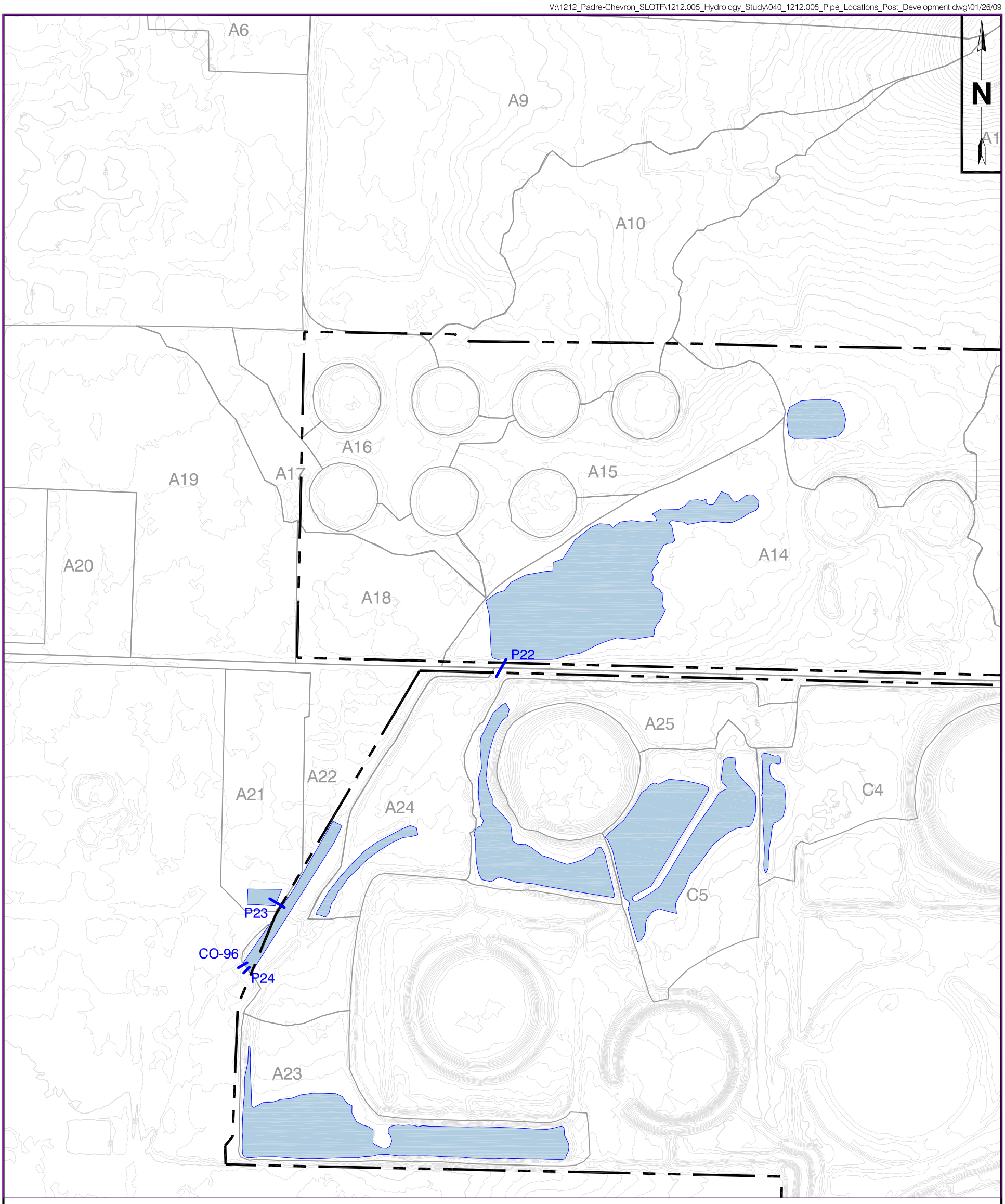
HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

V:\1212_Padre-Chevron_SLOTF\1212.005_Hydrology_Study\040_1212.005_Pipe_Locations_Post_Development.dwg\01/26/09



LEGEND

- PROPERTY BOUNDARY
- EXISTING POND
- A4 WATERSHED SUBCATCHMENT WITH I.D.
- STORMWATER CONVEYANCE PIPE

FIGURE E-5

PIPE LOCATIONS POST-REMEDIATION AND POST-DEVELOPMENT CONDITIONS

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

Attachment 1

Channel and Cross Section Characteristics

FlexTable: Channel Table (SLOTF Existing Hydrology Model - 112308.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Elevation (Start Invert) (ft)	Elevation (Stop Invert) (ft)	Slope (ft/ft)
CH-1	CS2	CS3	133.00	127.95	0.010
CH-2	CS3	CS4	127.95	126.41	0.008
CH-3	CS4	CS5	126.41	126.31	0.001
CH-4	CS1	CS6	132.00	127.00	0.006
CH-5	CS8	CS7	137.80	124.67	0.010
CH-6	CS7	CS9	124.67	121.00	0.003
CH-7	CS9	CS10	121.00	120.00	0.003
CH-8	CS11	CS10	120.50	120.00	0.002
CH-9	CS10	CS12	120.00	119.10	0.002
CH-10	CS12	CS13	119.10	119.00	0.001
CH-11	CS13	CS14	119.00	119.00	0.000
CH-12	CS15	CS17	118.30	118.00	0.000
CH-13	OS2	CS16	120.00	119.50	0.010
CH-14	CS16	OF1	119.50	119.00	0.009
CH-15	CS14	CS17	119.00	118.00	0.006
CH-16	CS14	CS20	119.00	116.10	0.008
CH-17	CS18	CS19	123.00	122.15	0.001
CH-18	CS19	CS20	122.15	116.10	0.011
CH-19	CS21	CS22	116.00	114.80	0.001
CH-20	CS22	OF10	114.80	114.70	0.006
CH-21	OS5	CS26	144.00	142.50	0.004
CH-22	CS26	OF4	142.50	141.00	0.004
CH-23	OS4	CS25	145.00	143.00	0.034
CH-24	CS25	OF3	143.00	141.00	0.036
CH-25	OS6	CS27	141.00	131.00	0.021
CH-26	CS27	OF5	131.00	128.00	0.005
CH-27	OS7	CS28	126.00	124.50	0.025
CH-28	CS28	OF6	124.50	123.00	0.027
CH-29	OS8	CS29	124.00	120.50	0.157
CH-30	CS29	OF7	120.50	117.00	0.176
CH-31	OS9	CS30	118.00	118.00	0.005
CH-32	CS30	OF8	118.00	118.00	0.000
CH-33	CS24	OF9	115.50	115.00	0.050
CH-34	OS11	CS31	116.00	115.95	0.005
CH-35	CS31	OF13	115.95	115.90	0.005
CH-36	CS32	CS33	135.00	126.00	0.014
CH-37	CS33	OF14	126.00	120.00	0.011
Site Overflow - 1	OS14	CS23	119.50	119.25	0.025
Site Overflow - 2	CS23	Site Overflow	119.25	119.00	0.025
Site Overflow - 3	OS-34	CS34	119.50	119.50	0.002
Site Overflow - 4	CS34	Site Overflow2	119.50	119.50	0.000

FlexTable: Cross Section Table (SLOTF Existing Hydrology Model - 112308.csd)

Current Time: 0.000 min

Label	Elevation (Invert) (ft)	Bottom Width (ft)	Height (ft)	Slope (Left Side) (H:V)	Slope (Right Side) (H:V)	Manning's n
CS1	132.00	100.00	10.00	3.000	3.000	0.045
CS2	133.00	12.00	8.00	2.000	2.000	0.015
CS3	127.95	50.00	8.00	2.000	2.000	0.015
CS4	126.41	50.00	8.00	2.000	2.000	0.015
CS5	126.31	50.00	8.00	2.000	2.000	0.015
CS6	127.00	100.00	8.00	2.000	2.000	0.013
CS7	124.67	75.00	8.00	2.000	2.000	0.045
CS8	137.80	10.00	4.00	2.000	2.000	0.045
CS9	121.00	75.00	8.00	2.000	2.000	0.045
CS10	120.00	50.00	8.00	2.000	2.000	0.045
CS11	120.50	10.00	8.00	2.000	2.000	0.045
CS12	119.10	50.00	8.00	2.000	2.000	0.045
CS13	119.00	40.00	8.00	2.000	2.000	0.045
CS14	119.00	12.00	8.00	2.000	2.000	0.045
CS15	118.30	12.00	4.00	2.000	2.000	0.045
CS16	119.50	200.00	2.00	2.000	2.000	0.045
CS17	118.00	12.00	8.00	2.000	2.000	0.045
CS18	123.00	12.00	3.00	2.000	2.000	0.045
CS19	122.15	12.00	3.00	2.000	2.000	0.045
CS20	116.10	12.00	8.00	2.000	2.000	0.045
CS21	116.00	50.00	8.00	2.000	2.000	0.045
CS22	114.80	50.00	5.00	2.000	2.000	0.045
CS23	119.25	1000.00	1.00	1.000	1.000	0.013
CS24	115.50	6.00	4.00	2.000	2.000	0.030
CS25	143.00	78.00	1.00	1.000	1.000	0.045
CS26	142.50	18.00	1.00	1.000	1.000	0.045
CS27	131.00	15.00	1.00	1.000	1.000	0.045
CS28	124.50	6.00	3.00	1.000	1.000	0.045
CS29	120.50	10.00	2.00	1.000	1.000	0.045
CS30	118.00	45.00	2.00	1.000	1.000	0.045
CS31	115.95	25.00	6.00	1.000	1.000	0.045
CS32	135.00	20.00	2.00	1.000	1.000	0.045
CS33	126.00	20.00	2.00	1.000	1.000	0.045
CS34	119.50	1000.00	0.50	1.000	1.000	0.013

FlexTable: Channel Table (SLOTF Post-Restoration Hydrology Model - 120308 larger pond.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Elevation (Start Invert) (ft)	Elevation (Stop Invert) (ft)	Slope (ft/ft)
CH-60	OS6	CS27	141.00	131.00	0.021
CH-61	CS27	OF5	131.00	128.00	0.005
CH-62	OS7	CS28	126.00	124.50	0.025
CH-63	CS28	OF6	124.50	123.00	0.027
CH-66	OS8	CS29	124.00	120.50	0.157
CH-67	CS29	OF7	120.50	117.00	0.176
CH-68	OS9	CS30	118.00	118.00	0.005
CH-69	CS30	OF8	118.00	118.00	0.000
CH-73	CS24	OF9	117.50	115.00	0.250
CH-76	CS18	CS19	123.00	122.15	0.001
CH-77	CS19	CS20	122.15	118.49	0.006
CH-119	OS14	CS23	119.50	119.25	0.008
CH-120	CS23	Site Overflow	119.25	119.00	0.008
CH-125	CB3	CS32	135.00	126.00	0.017
CH-126	CS32	OF14	126.00	123.00	0.050
CH-134	CS20	OF15	118.49	118.00	0.006
CH-136	CS9	CS35	122.00	120.00	0.002
CH-137	CS35	OF2	120.00	117.00	0.006
CH-140	CS36	CS35	123.00	120.00	0.006
TF Creek - 1	OS15	CS33	123.00	122.00	0.004
TF Creek - 3	CS34	OF1	120.00	118.00	0.006
TF Creek 2	CS33	CS34	122.00	120.00	0.007

FlexTable: Cross Section Table (SLOTF Post-Restoration Hydrology Model - 120308 larger pond.csd)

Current Time: 0.000 min

Label	Elevation (Invert) (ft)	Bottom Width (ft)	Height (ft)	Slope (Left Side) (H:V)	Slope (Right Side) (H:V)	Manning's n
CS9	122.00	40.00	2.00	7.000	7.000	0.045
CS18	123.00	12.00	3.00	2.000	2.000	0.045
CS19	122.15	12.00	3.00	2.000	2.000	0.045
CS20	118.49	12.00	8.00	2.000	2.000	0.045
CS23	119.25	1000.00	1.00	1.000	1.000	0.013
CS24	117.50	80.00	2.50	32.000	32.000	0.045
CS27	131.00	15.00	1.00	1.000	1.000	0.045
CS28	124.50	6.00	3.00	1.000	1.000	0.045
CS29	120.50	10.00	2.00	1.000	1.000	0.045
CS30	118.00	45.00	2.00	1.000	1.000	0.045
CS32	126.00	20.00	2.00	1.000	1.000	0.045
CS33	122.00	25.00	1.50	10.000	10.000	0.045
CS34	120.00	25.00	1.50	10.000	10.000	0.045
CS35	120.00	40.00	2.00	7.000	7.000	0.045
CS36	123.00	13.00	1.50	7.000	7.000	0.045

FlexTable: Channel Table (SLOTF Post-Development Hydrology Model - 120208 larger pond.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Elevation (Start Invert) (ft)	Elevation (Stop Invert) (ft)	Slope (ft/ft)
CH-61	CS27	OF5	131.00	128.00	0.005
CH-62	OS7	CS28	126.00	124.50	0.025
CH-63	CS28	OF6	124.50	123.00	0.027
CH-66	OS8	CS29	124.00	120.50	0.157
CH-67	CS29	OF7	120.50	117.00	0.176
CH-68	OS9	CS30	118.00	118.00	0.005
CH-69	CS30	OF8	118.00	118.00	0.000
CH-73	CS24	OF9	117.50	115.00	0.250
CH-76	CS18	CS19	123.00	122.15	0.001
CH-77	CS19	CS20	122.15	118.49	0.006
CH-119	OS14	CS23	119.50	119.25	0.008
CH-120	CS23	Site Overflow	119.25	119.00	0.008
CH-125	CB3	CS32	135.00	126.00	0.017
CH-126	CS32	OF14	126.00	123.00	0.050
CH-134	CS20	OF15	118.49	118.00	0.006
CH-136	CS9	CS35	122.00	120.00	0.002
CH-137	CS35	OF2	120.00	117.00	0.006
CH-140	CS36	CS35	123.00	120.00	0.006
TF Creek - 1	OS15	CS33	123.00	122.00	0.004
TF Creek - 3	CS34	OF1	120.00	118.00	0.006
TF Creek 2	CS33	CS34	122.00	120.00	0.007

FlexTable: Cross Section Table (SLOTF Post-Development Hydrology Model - 120208 larger pond.csd)

Current Time: 0.000 min

Label	Elevation (Invert) (ft)	Bottom Width (ft)	Height (ft)	Slope (Left Side) (H:V)	Slope (Right Side) (H:V)	Manning's n
CS9	122.00	40.00	2.00	7.000	7.000	0.045
CS18	123.00	12.00	3.00	2.000	2.000	0.045
CS19	122.15	12.00	3.00	2.000	2.000	0.045
CS20	118.49	12.00	8.00	2.000	2.000	0.045
CS23	119.25	1000.00	1.00	1.000	1.000	0.013
CS24	117.50	80.00	2.50	32.000	32.000	0.030
CS27	131.00	15.00	1.00	1.000	1.000	0.045
CS28	124.50	6.00	3.00	1.000	1.000	0.045
CS29	120.50	10.00	2.00	1.000	1.000	0.045
CS30	118.00	45.00	2.00	1.000	1.000	0.045
CS32	126.00	20.00	2.00	1.000	1.000	0.045
CS33	122.00	25.00	1.50	10.000	10.000	0.045
CS34	120.00	25.00	1.50	10.000	10.000	0.045
CS35	120.00	40.00	2.00	7.000	7.000	0.045
CS36	123.00	13.00	1.50	7.000	7.000	0.045

Attachment 2

Culvert Characteristics

Multiple Element Report

Conduit Detailed Report: CO-8

<General>

Active Scenario Label	CO-8	Notes	
ID	471	Start Node	OS3
Label	CO-8	Stop Node	CS24

<Geometry>

Has User Defined Length?	False	Length (Scaled)	60.23 ft

Geometry

X (ft)	Y (ft)
5766916.79	2286702.13
5766915.09	2286641.93

Active Topology

Is Active?	True

Output

Output Options	Summary Results

Physical

Section Type	Box	Manning's n	0.013
Rise	4.00 ft	Elevation (Start Invert)	116.00 ft
Span	4.00 ft	Set Invert to Stop Node?	True
Number Of Barrels	2	Elevation (Stop Invert)	115.50 ft
Roughness Type	Single Manning's n	Slope	0.008 ft/ft
Material	Concrete		

Multiple Element Report

Physical (Additional Losses)

Entrance Loss Coefficient	0.000	Exit Loss Coefficient	0.000

Physical (Control Structure)

Flap Gate?	False

Physical (Culvert)

Is Culvert?	True	Y	0.6900
Inlet Description	90° headwall	Ke	0.000
Culvert Equation Form	Form 1	Kr	0.000
C	0.0379	Slope Correction Factor	-0.500
M	2.0000	Has Overtopping Weir?	False
K	0.0083		

Results (Capacities)

Capacity (Full)	166.64 ft³/s	Capacity (Calculated Design)	0.00 ft³/s
Capacity (Excess Full)	-166.56 ft³/s	Capacity (Excess Design)	0.07 ft³/s
Capacity (Flow / Full Flow)	0.0 %	Capacity (Flow /Design)	Infinity %
Design Percent Full	0.0 %		

Results (Engine Parsing)

Branch	4	Section Count <Count>	3

Results

Flow	0.07 ft³/s	Ever Overflowing/Surcharged ?	False
Velocity	0.35 ft/s	Froude Number	0.388
Depth/Rise	0.6 %	Flow (Roadway Overtopping)	(N/A) ft³/s

Multiple Element Report

Results			
Depth	0.03 ft	Flow-Area (Middle)	0.2 ft²
Is Overflowing/Surcharged ?	False	Flow-Width (Middle)	8.00 ft

Sections Results

Section Distance (ft)	Section Velocity (ft/s)	Section Flow (ft³/s)	Section Hydraulic Grade (ft)	Section Depth (ft)	Section Flow-Width (ft)
0.00	0.00	0.00	116.00	0.00	8.00
30.11	0.35	0.07	115.78	0.03	8.00
60.23	1.01	0.18	115.52	0.02	8.00

Section Flow-Area (ft²)	Section Is Overflowing?	Section Froude Number
0.1	False	0.000
0.2	False	0.388
0.2	False	1.209

Pollutants Collection

Pollutant

Multiple Element Report

Conduit Detailed Report: CO-7

<General>			
Active Scenario Label	CO-7	Notes	
ID	644	Start Node	CS20
Label	CO-7	Stop Node	CS21

<Geometry>			
Has User Defined Length?	False	Length (Scaled)	72.39 ft

Geometry

X (ft)	Y (ft)
5766659.08	2286692.43
5766626.81	2286627.63

Active Topology	
Is Active?	True

Output	
Output Options	Summary Results

Physical			
Section Type	Circle	Manning's n	0.013
Diameter	48.0 in	Set Invert to Start Node?	True
Fill Depth*	0.00 ft	Elevation (Start Invert)	116.10 ft
Number Of Barrels	2	Set Invert to Stop Node?	True
Roughness Type	Single Manning's n	Elevation (Stop Invert)	116.00 ft
Material	Concrete	Slope	0.001 ft/ft

Multiple Element Report

Physical (Additional Losses)

Entrance Loss Coefficient	0.000	Exit Loss Coefficient	0.000

Physical (Control Structure)

Flap Gate?	False

Physical (Culvert)

Is Culvert?	True	Y	0.6900
Inlet Description	CMP - Headwall	Ke	0.500
Culvert Equation Form	Form 1	Kr	0.000
C	0.0379	Slope Correction Factor	-0.500
M	2.0000	Has Overtopping Weir?	False
K	0.0078		

Results (Capacities)

Capacity (Full)	53.38 ft³/s	Capacity (Calculated Design)	0.00 ft³/s
Capacity (Excess Full)	-53.38 ft³/s	Capacity (Excess Design)	0.00 ft³/s
Capacity (Flow / Full Flow)	0.0 %	Capacity (Flow /Design)	0.0 %
Design Percent Full	0.0 %		

Results (Engine Parsing)

Branch	2	Section Count <Count>	2

Results

Flow	0.00 ft³/s	Ever Overflowing/Surcharged ?	False
Velocity	0.00 ft/s	Froude Number	0.000
Depth/Rise	-1.2 %	Flow (Roadway Overtopping)	(N/A) ft³/s

Multiple Element Report

Results			
Depth	-0.05 ft	Flow-Area (Middle)	0.0 ft²
Is Overflowing/Surcharged ?	False	Flow-Width (Middle)	0.07 ft

Sections Results

Section Distance (ft)	Section Velocity (ft/s)	Section Flow (ft³/s)	Section Hydraulic Grade (ft)	Section Depth (ft)	Section Flow-Width (ft)
0.00	0.00	0.00	116.10	0.00	0.07
72.39	0.00	0.00	116.00	0.00	0.07

Section Flow-Area (ft²)	Section Is Overflowing?	Section Froude Number
0.0	False	0.000
0.0	False	0.000

Pollutants Collection

Pollutant

Conduit Detailed Report: P22

<General>

Active Scenario Label	P22	Notes	
ID	471	Start Node	OS23
Label	P22	Stop Node	CS24

<Geometry>

Has User Defined Length?	False	Length (Scaled)	60.23 ft

Geometry

X (ft)	Y (ft)
5766916.79	2286702.13
5766915.09	2286641.93

Active Topology

Is Active?	True

Output

Output Options	Summary Results

Physical

Section Type	Box	Manning's n	0.013
Rise	2.00 ft	Elevation (Start Invert)	118.00 ft
Span	6.00 ft	Set Invert to Stop Node?	True
Number Of Barrels	1	Elevation (Stop Invert)	117.50 ft
Roughness Type	Single Manning's n	Slope	0.008 ft/ft
Material	Concrete		

Physical (Additional Losses)

Conduit Detailed Report: P22

Physical (Additional Losses)

Entrance Loss Coefficient	0.000	Exit Loss Coefficient	0.000

Physical (Control Structure)

Flap Gate?	False

Physical (Culvert)

Is Culvert?	True	Y	0.6900
Inlet Description	90° headwall	Ke	0.000
Culvert Equation Form	Form 2	Kr	0.000
C	0.0379	Slope Correction Factor	-0.500
M	2.0000	Has Overtopping Weir?	False
K	0.0083		

Results (Capacities)

Capacity (Full)	103.17 ft³/s	Capacity (Calculated Design)	0.00 ft³/s
Capacity (Excess Full)	-103.17 ft³/s	Capacity (Excess Design)	0.00 ft³/s
Capacity (Flow / Full Flow)	0.0 %	Capacity (Flow /Design)	0.0 %
Design Percent Full	0.0 %		

Results (Engine Parsing)

Branch	13	Section Count <Count>	3

Results

Flow	0.00 ft³/s	Ever Overflowing/Surcharged ?	False
Velocity	0.00 ft/s	Froude Number	0.000
Depth/Rise	0.0 %	Flow (Roadway Overtopping)	(N/A) ft³/s

Conduit Detailed Report: P22

Results			
Depth	0.00 ft	Flow-Area (Middle)	0.1 ft²
Is Overflowing/Surcharged ?	False	Flow-Width (Middle)	6.00 ft

Sections Results

Section Distance (ft)	Section Velocity (ft/s)	Section Flow (ft³/s)	Section Hydraulic Grade (ft)	Section Depth (ft)	Section Flow-Width (ft)
0.00	0.00	0.00	118.00	0.00	6.00
30.11	0.00	0.00	117.75	0.00	6.00
60.23	0.00	0.00	117.50	0.00	6.00

Section Flow-Area (ft²)	Section Is Overflowing?	Section Froude Number
0.1	False	0.000
0.1	False	0.000
0.1	False	0.000

Pollutants Collection

Pollutant

Conduit Detailed Report: P22

<General>

Active Scenario Label	P22	Notes	
ID	471	Start Node	OS23
Label	P22	Stop Node	CS24

<Geometry>

Has User Defined Length?	False	Length (Scaled)	60.23 ft

Geometry

X (ft)	Y (ft)
5766916.79	2286702.13
5766915.09	2286641.93

Active Topology

Is Active?	True

Output

Output Options	Summary Results

Physical

Section Type	Box	Manning's n	0.013
Rise	2.00 ft	Elevation (Start Invert)	118.00 ft
Span	6.00 ft	Set Invert to Stop Node?	True
Number Of Barrels	1	Elevation (Stop Invert)	117.50 ft
Roughness Type	Single Manning's n	Slope	0.008 ft/ft
Material	Concrete		

Physical (Additional Losses)

Conduit Detailed Report: P22

Physical (Additional Losses)

Entrance Loss Coefficient	0.000	Exit Loss Coefficient	0.000

Physical (Control Structure)

Flap Gate?	False

Physical (Culvert)

Is Culvert?	True	Y	0.6900
Inlet Description	90° headwall	Ke	0.000
Culvert Equation Form	Form 1	Kr	0.000
C	0.0379	Slope Correction Factor	-0.500
M	2.0000	Has Overtopping Weir?	False
K	0.0083		

Results (Capacities)

Capacity (Full)	103.17 ft³/s	Capacity (Calculated Design)	0.00 ft³/s
Capacity (Excess Full)	-103.17 ft³/s	Capacity (Excess Design)	0.00 ft³/s
Capacity (Flow / Full Flow)	0.0 %	Capacity (Flow /Design)	0.0 %
Design Percent Full	0.0 %		

Results (Engine Parsing)

Branch	13	Section Count <Count>	3

Results

Flow	0.00 ft³/s	Ever Overflowing/Surcharged ?	False
Velocity	0.00 ft/s	Froude Number	0.000
Depth/Rise	0.0 %	Flow (Roadway Overtopping)	(N/A) ft³/s

Conduit Detailed Report: P22

Results			
Depth	0.00 ft	Flow-Area (Middle)	0.1 ft²
Is Overflowing/Surcharged ?	False	Flow-Width (Middle)	6.00 ft

Sections Results

Section Distance (ft)	Section Velocity (ft/s)	Section Flow (ft³/s)	Section Hydraulic Grade (ft)	Section Depth (ft)	Section Flow-Width (ft)
0.00	0.00	0.00	118.00	0.00	6.00
30.11	0.00	0.00	117.75	0.00	6.00
60.23	0.00	0.00	117.50	0.00	6.00

Section Flow-Area (ft²)	Section Is Overflowing?	Section Froude Number
0.1	False	0.000
0.1	False	0.000
0.1	False	0.000

Pollutants Collection

Pollutant

Attachment 3

Pipe Characteristics

FlexTable: Conduit Table (SLOTF Existing Hydrology Model -112308.csd)

Current Time: 0.000 min

Label	Start Node	Elevation (Start Invert) (ft)	Stop Node	Elevation (Stop Invert) (ft)	Slope (ft/ft)	Diameter (in)	Material	Manning's n
CO-1	CS6	127.00	CS5	126.31	0.011	48.0	Steel	0.013
CO-2	CS5	126.31	CS7	124.67	0.016	18.0	Concrete	0.013
CO-3	CB2	140.00	CS8	137.80	0.023	30.0	CMP	0.024
CO-4	CB1	125.50	CS7	124.67	0.023	18.0	CMP	0.024
CO-5	OS1	119.00	CS15	118.30	0.016	18.0	Steel	0.013
CO-6	CS17	118.00	OF2	117.00	0.021	18.0	Natural stream, weedy	0.045
CO-7	CS20	116.10	CS21	116.00	0.001	48.0	Concrete	0.013
CO-8	OS3	116.00	CS24	115.50	0.008	18.0	Concrete	0.013
CO-9	OS10	115.00	OF11	115.00	0.000	18.0	Natural stream, weedy	0.045
CO-10	OS13	116.00	OF12	115.00	0.023	8.0	PVC	0.010
CO-11	OS12	113.07	Site Discharge	113.07	0.025	36.0	Concrete	0.013

FlexTable: Conduit Table (SLOTF Post-Restoration Hydrology Model - 120308 larger pond.csd)

Current Time: 0.000 min

Label	Start Node	Elevation (Start Invert) (ft)	Stop Node	Elevation (Stop Invert) (ft)	Slope (ft/ft)	Diameter (in)	Material	Manning's n
CO-96	OS-35	112.50	Site Discharge 2	112.50	0.002	12.0	Concrete	0.013
P22	OS23	118.00	CS24	117.50	0.008	18.0	Concrete	0.013
P23	OS13	116.00	OF12	115.00	0.023	8.0	PVC	0.010
P24	OS12	113.07	Site Discharge	113.00	0.035	36.0	Concrete	0.013

FlexTable: Conduit Table (SLOTF Post-Development Hydrology Model - 120208 larger pond.csd)

Current Time: 0.000 min

Label	Start Node	Elevation (Start Invert) (ft)	Stop Node	Elevation (Stop Invert) (ft)	Slope (ft/ft)	Diameter (in)	Material	Manning's n
CO-96	OS-35	112.50	OF-41	112.50	0.002	12.0	Concrete	0.013
P22	OS23	118.00	CS24	117.50	0.008	18.0	Concrete	0.013
P23	OS13	116.00	OF12	115.00	0.023	8.0	PVC	0.010
P24	OS12	113.07	Site Discharge	113.00	0.035	36.0	Concrete	0.013

Attachment 4

Calculation Results

FlexTable: Channel Table (SLOTF Existing Hydrology Model -112308.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/ Surcharged?	Flow (Maximum) (ft³/s)	Time to Maximum Flow (min)	Hydraulic Grade (Maximum) (ft)	Time to Maximum Hydraulic Grade (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CH-1	CS2	CS3	False	55.82	604.483	130.83	607.483	4.96	604.483
CH-2	CS3	CS4	False	52.53	604.483	128.90	613.483	0.68	604.483
CH-3	CS4	CS5	False	54.04	616.483	128.82	613.483	0.42	616.483
CH-4	CS1	CS6	False	77.19	607.483	129.99	607.483	1.55	607.483
CH-5	CS8	CS7	False	53.87	607.483	132.06	607.483	2.25	607.483
CH-6	CS7	CS9	False	202.56	613.483	124.17	616.483	2.09	613.483
CH-7	CS9	CS10	False	214.70	619.483	122.48	625.483	1.72	619.483
CH-8	CS11	CS10	False	2.66	643.483	122.28	628.483	0.05	643.483
CH-9	CS10	CS12	False	196.65	622.483	122.10	628.483	1.48	622.483
CH-10	CS12	CS13	False	190.14	628.483	121.92	628.483	1.31	628.483
CH-11	CS13	CS14	False	189.87	628.483	121.76	628.483	2.01	628.483
CH-12	CS15	CS17	False	14.85	643.483	119.40	646.483	0.82	643.483
CH-13	OS2	CS16	False	36.42	634.483	119.94	634.483	0.98	634.483
CH-14	CS16	OF1	False	36.32	634.483	119.44	634.483	0.96	634.483
CH-15	CS14	CS17	False	87.33	628.483	120.17	628.483	3.41	628.483
CH-16	CS14	CS20	False	102.05	628.483	119.31	628.483	3.73	628.483
CH-17	CS18	CS19	False	10.19	598.483	123.38	598.483	0.97	598.483
CH-18	CS19	CS20	False	13.21	604.483	119.90	604.483	2.01	604.483
CH-19	CS21	CS22	False	112.51	634.483	117.35	715.483	1.51	634.483
CH-20	CS22	OF10	False	111.63	637.483	117.11	715.483	1.23	637.483
CH-21	OS5	CS26	False	0.00	0.000	143.25	0.000	0.00	0.000
CH-22	CS26	OF4	False	0.00	0.000	141.75	0.000	0.00	0.000
CH-23	OS4	CS25	False	0.00	0.000	144.00	0.000	0.00	0.000
CH-24	CS25	OF3	False	0.00	0.000	142.00	0.000	0.00	0.000
CH-25	OS6	CS27	False	0.00	0.000	136.56	0.000	0.00	0.000
CH-26	CS27	OF5	False	0.00	0.000	129.50	0.000	0.00	0.000
CH-27	OS7	CS28	False	0.00	0.000	125.25	0.000	0.00	0.000
CH-28	CS28	OF6	False	0.00	0.000	123.75	0.000	0.00	0.000

FlexTable: Channel Table (SLOTF Existing Hydrology Model -112308.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/ Surcharged?	Flow (Maximum) (ft³/s)	Time to Maximum Flow (min)	Hydraulic Grade (Maximum) (ft)	Time to Maximum Hydraulic Grade (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CH-29	OS8	CS29	False	0.00	0.000	122.25	0.000	0.00	0.000
CH-30	CS29	OF7	False	0.00	0.000	118.75	0.000	0.00	0.000
CH-31	OS9	CS30	False	0.00	35.983	118.04	3.000	0.01	35.983
CH-32	CS30	OF8	False	-0.26	0.000	118.04	3.000	-0.57	0.000
CH-33	CS24	OF9	False	72.42	673.483	117.29	727.483	4.29	673.483
CH-34	OS11	CS31	False	34.34	727.483	116.57	727.483	2.27	727.483
CH-35	CS31	OF13	False	34.34	727.483	116.42	730.483	2.71	727.483
CH-36	CS32	CS33	False	39.14	607.483	131.52	607.483	2.82	607.483
CH-37	CS33	OF14	False	57.77	610.483	123.90	610.483	3.08	610.483
Site Overflow - 1	OS14	CS23	False	0.00	0.000	119.38	0.000	0.00	0.000
Site Overflow - 2	CS23	Site Overflow	False	0.00	0.000	119.13	0.000	0.00	0.000
Site Overflow - 3	OS-34	CS34	False	0.25	35.983	119.54	589.483	0.02	35.983
Site Overflow - 4	CS34	Site Overflow 2	False	0.00	0.000	119.50	35.983	0.00	0.000

FlexTable: Channel Table (SLOTF Existing Hydrology Model -112308.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing /Surcharged?	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Hydraulic Grade (Maximum) (ft)	Time to Maximum Hydraulic Grade (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CH-1	CS2	CS3	False	95.15	604.483	130.98	607.483	5.95	604.483
CH-2	CS3	CS4	False	89.80	610.483	130.28	610.483	0.51	610.483
CH-3	CS4	CS5	False	98.23	613.483	130.20	610.483	0.45	613.483
CH-4	CS1	CS6	False	163.77	607.483	132.08	607.483	0.60	607.483
CH-5	CS8	CS7	False	115.83	607.483	132.38	607.483	3.04	607.483
CH-6	CS7	CS9	False	419.25	610.483	124.89	613.483	2.74	610.483
CH-7	CS9	CS10	False	432.02	616.483	123.73	622.483	2.02	616.483
CH-8	CS11	CS10	False	9.74	625.483	123.58	622.483	0.08	625.483
CH-9	CS10	CS12	False	413.86	619.483	123.37	622.483	1.94	619.483
CH-10	CS12	CS13	False	407.41	622.483	123.14	622.483	1.87	622.483
CH-11	CS13	CS14	False	407.01	622.483	122.90	622.483	2.85	622.483
CH-12	CS15	CS17	False	18.96	631.483	119.58	631.483	0.89	631.483
CH-13	OS2	CS16	False	163.51	619.483	120.19	619.483	1.84	619.483
CH-14	CS16	OF1	False	163.40	619.483	119.70	619.483	1.81	619.483
CH-15	CS14	CS17	False	186.14	622.483	120.91	622.483	4.58	622.483
CH-16	CS14	CS20	False	218.35	622.483	120.23	622.483	4.70	622.483
CH-17	CS18	CS19	False	16.81	598.483	123.63	598.483	1.17	598.483
CH-18	CS19	CS20	False	26.28	604.483	120.15	604.483	2.58	604.483
CH-19	CS21	CS22	False	248.95	628.483	119.31	703.483	1.75	628.483
CH-20	CS22	OF10	False	248.92	631.483	119.07	703.483	1.38	631.483
CH-21	OS5	CS26	False	0.00	0.000	143.25	0.000	0.00	0.000
CH-22	CS26	OF4	False	0.00	0.000	141.75	0.000	0.00	0.000
CH-23	OS4	CS25	False	0.00	0.000	144.00	0.000	0.00	0.000
CH-24	CS25	OF3	False	0.00	0.000	142.00	0.000	0.00	0.000
CH-25	OS6	CS27	False	0.00	0.000	136.56	0.000	0.00	0.000
CH-26	CS27	OF5	False	0.00	0.000	129.50	0.000	0.00	0.000
CH-27	OS7	CS28	False	0.55	1117.483	125.35	1042.483	0.89	1117.483
CH-28	CS28	OF6	False	0.55	1117.483	123.85	1060.483	0.89	1117.483

FlexTable: Channel Table (SLOTF Existing Hydrology Model -112308.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing /Surcharged?	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Hydraulic Grade (Maximum) (ft)	Time to Maximum Hydraulic Grade (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CH-29	OS8	CS29	False	0.00	0.000	122.25	0.000	0.00	0.000
CH-30	CS29	OF7	False	0.00	0.000	118.75	0.000	0.00	0.000
CH-31	OS9	CS30	False	0.00	35.983	119.04	709.483	0.01	35.983
CH-32	CS30	OF8	False	-0.26	0.000	119.04	709.483	-0.57	0.000
CH-33	CS24	OF9	False	205.72	652.483	119.10	709.483	5.37	652.483
CH-34	OS11	CS31	False	132.75	709.483	118.82	970.483	4.27	709.483
CH-35	CS31	OF13	False	132.75	709.483	118.82	1012.483	4.87	709.483
CH-36	CS32	CS33	False	85.03	604.483	131.91	604.483	3.78	604.483
CH-37	CS33	OF14	False	135.91	610.483	124.50	610.483	4.22	610.483
Site Overflow - 1	OS14	CS23	False	0.00	0.000	119.38	0.000	0.00	0.000
Site Overflow - 2	CS23	Site Overflow	False	0.00	0.000	119.13	0.000	0.00	0.000
Site Overflow - 3	OS-34	CS34	False	0.25	35.983	119.54	38.983	0.02	35.983
Site Overflow - 4	CS34	Site Overflow2	False	0.00	0.000	119.50	35.983	0.00	0.000

FlexTable: Channel Table (SLOTF Existing Hydrology Model -112308.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing /Surcharged?	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Hydraulic Grade (Maximum) (ft)	Time to Maximum Hydraulic Grade (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CH-1	CS2	CS3	False	116.89	604.483	131.02	601.483	6.85	604.483
CH-2	CS3	CS4	False	110.93	610.483	130.88	610.483	0.52	610.483
CH-3	CS4	CS5	False	123.27	613.483	130.80	610.483	0.48	613.483
CH-4	CS1	CS6	False	213.03	607.483	134.20	607.483	0.41	607.483
CH-5	CS8	CS7	False	136.34	610.483	132.47	610.483	3.24	610.483
CH-6	CS7	CS9	False	527.32	613.483	125.25	616.483	2.87	613.483
CH-7	CS9	CS10	False	548.07	616.483	124.28	622.483	2.13	616.483
CH-8	CS11	CS10	False	15.07	628.483	124.15	622.483	0.11	628.483
CH-9	CS10	CS12	False	531.72	619.483	123.91	622.483	2.12	619.483
CH-10	CS12	CS13	False	525.91	622.483	123.66	622.483	2.10	622.483
CH-11	CS13	CS14	False	527.60	622.483	123.39	622.483	3.20	622.483
CH-12	CS15	CS17	False	19.64	634.483	120.26	685.483	0.89	634.483
CH-13	OS2	CS16	False	237.80	619.483	120.30	619.483	2.14	619.483
CH-14	CS16	OF1	False	237.12	619.483	120.02	685.483	2.12	619.483
CH-15	CS14	CS17	False	241.56	622.483	121.23	622.483	5.07	622.483
CH-16	CS14	CS20	False	283.33	622.483	120.63	622.483	5.07	622.483
CH-17	CS18	CS19	False	20.49	598.483	123.75	598.483	1.26	598.483
CH-18	CS19	CS20	False	33.89	604.483	120.28	667.483	2.82	604.483
CH-19	CS21	CS22	False	321.55	628.483	119.98	667.483	1.64	628.483
CH-20	CS22	OF10	False	330.58	631.483	119.74	667.483	1.39	631.483
CH-21	OS5	CS26	False	0.00	0.000	143.25	0.000	0.00	0.000
CH-22	CS26	OF4	False	0.00	0.000	141.75	0.000	0.00	0.000
CH-23	OS4	CS25	False	0.00	0.000	144.00	0.000	0.00	0.000
CH-24	CS25	OF3	False	0.00	0.000	142.00	0.000	0.00	0.000
CH-25	OS6	CS27	False	0.00	0.000	136.56	0.000	0.00	0.000
CH-26	CS27	OF5	False	0.00	0.000	129.50	0.000	0.00	0.000
CH-27	OS7	CS28	False	1.03	847.483	125.39	808.483	1.22	847.483
CH-28	CS28	OF6	False	1.03	847.483	123.89	820.483	1.22	847.483

FlexTable: Channel Table (SLOTF Existing Hydrology Model -112308.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing /Surcharged?	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Hydraulic Grade (Maximum) (ft)	Time to Maximum Hydraulic Grade (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CH-29	OS8	CS29	False	0.00	0.000	122.25	0.000	0.00	0.000
CH-30	CS29	OF7	False	0.00	0.000	118.75	0.000	0.00	0.000
CH-31	OS9	CS30	False	0.00	35.983	119.80	685.483	0.01	35.983
CH-32	CS30	OF8	False	-0.26	0.000	119.80	685.483	-0.57	0.000
CH-33	CS24	OF9	True	286.79	649.483	119.86	685.483	5.27	649.483
CH-34	OS11	CS31	False	185.20	685.483	119.66	850.483	4.94	685.483
CH-35	CS31	OF13	False	185.18	685.483	119.58	850.483	5.56	685.483
CH-36	CS32	CS33	False	111.92	604.483	132.11	604.483	4.18	604.483
CH-37	CS33	OF14	False	182.40	607.483	124.78	610.483	4.69	607.483
Site Overflow - 1	OS14	CS23	False	79.20	670.483	119.43	664.483	1.47	670.483
Site Overflow - 2	CS23	Site Overflow	False	79.20	670.483	119.18	664.483	1.47	670.483
Site Overflow - 3	OS-34	CS34	False	32.72	856.483	119.69	898.483	0.30	856.483
Site Overflow - 4	CS34	Site Overflow2	False	16.85	901.483	119.65	898.483	0.17	901.483

FlexTable: Channel Table (SLOTF Existing Hydrology Model -112308.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft³/s)	Time to Maximum Flow (min)	Hydraulic Grade (Maximum) (ft)	Time to Maximum Hydraulic Grade (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CH-1	CS2	CS3	False	131.62	604.483	131.51	610.483	6.16	604.483
CH-2	CS3	CS4	False	127.38	616.483	131.37	610.483	0.58	616.483
CH-3	CS4	CS5	False	150.37	616.483	131.29	610.483	0.56	616.483
CH-4	CS1	CS6	False	247.59	607.483	135.84	607.483	0.34	607.483
CH-5	CS8	CS7	False	151.95	613.483	132.54	613.483	3.38	613.483
CH-6	CS7	CS9	False	599.54	613.483	125.48	616.483	2.96	613.483
CH-7	CS9	CS10	False	623.03	616.483	124.62	622.483	2.20	616.483
CH-8	CS11	CS10	False	20.05	631.483	124.48	622.483	0.13	631.483
CH-9	CS10	CS12	False	610.27	619.483	124.24	622.483	2.24	619.483
CH-10	CS12	CS13	False	608.53	622.483	123.98	622.483	2.25	622.483
CH-11	CS13	CS14	False	610.64	622.483	123.68	622.483	3.42	622.483
CH-12	CS15	CS17	False	19.88	637.483	120.51	673.483	0.89	637.483
CH-13	OS2	CS16	False	287.51	619.483	120.36	619.483	2.33	619.483
CH-14	CS16	OF1	False	287.40	619.483	120.25	673.483	2.28	619.483
CH-15	CS14	CS17	False	282.70	622.483	121.43	622.483	5.40	622.483
CH-16	CS14	CS20	False	329.39	622.483	121.61	625.483	4.80	622.483
CH-17	CS18	CS19	False	23.03	598.483	123.83	598.483	1.31	598.483
CH-18	CS19	CS20	False	39.31	604.483	121.67	625.483	2.97	604.483
CH-19	CS21	CS22	False	373.15	628.483	120.09	670.483	1.61	628.483
CH-20	CS22	OF10	True	372.83	628.483	119.85	670.483	1.43	628.483
CH-21	OS5	CS26	False	0.00	0.000	143.25	0.000	0.00	0.000
CH-22	CS26	OF4	False	0.00	0.000	141.75	0.000	0.00	0.000
CH-23	OS4	CS25	False	0.00	0.000	144.00	0.000	0.00	0.000
CH-24	CS25	OF3	False	0.00	0.000	142.00	0.000	0.00	0.000
CH-25	OS6	CS27	False	0.00	0.000	136.56	0.000	0.00	0.000
CH-26	CS27	OF5	False	0.00	0.000	129.50	0.000	0.00	0.000
CH-27	OS7	CS28	False	1.54	790.483	125.42	766.483	1.43	790.483
CH-28	CS28	OF6	False	1.54	790.483	123.92	751.483	1.48	790.483
CH-29	OS8	CS29	False	0.00	0.000	122.25	0.000	0.00	0.000

FlexTable: Channel Table (SLOTF Existing Hydrology Model -112308.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft³/s)	Time to Maximum Flow (min)	Hydraulic Grade (Maximum) (ft)	Time to Maximum Hydraulic Grade (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CH-30	CS29	OF7	False	0.00	0.000	118.75	0.000	0.00	0.000
CH-31	OS9	CS30	True	0.00	954.367	120.03	673.483	0.00	954.367
CH-32	CS30	OF8	True	-0.26	0.000	120.03	673.483	-0.57	0.000
CH-33	CS24	OF9	True	340.58	646.483	120.09	673.483	5.39	646.483
CH-34	OS11	CS31	False	202.11	673.483	119.69	811.483	5.14	673.483
CH-35	CS31	OF13	False	202.11	673.483	119.61	811.483	5.76	673.483
CH-36	CS32	CS33	False	130.90	604.483	132.23	604.483	4.43	604.483
CH-37	CS33	OF14	False	215.97	607.483	124.97	607.483	4.98	607.483
Site Overflow - 1	OS14	CS23	False	166.06	670.483	119.45	655.483	2.18	670.483
Site Overflow - 2	CS23	Site Overflow	False	166.06	670.483	119.20	655.483	2.18	670.483
Site Overflow - 3	OS-34	CS34	False	47.44	805.483	119.70	898.483	0.39	805.483
Site Overflow - 4	CS34	Site Overflow2	False	34.19	900.083	119.66	895.483	0.36	900.083

FlexTable: Channel Table (SLOTF Existing Hydrology Model -112308.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft³/s)	Time to Maximum Flow (min)	Hydraulic Grade (Maximum) (ft)	Time to Maximum Hydraulic Grade (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CH-1	CS2	CS3	False	145.12	604.483	132.29	613.483	3.95	604.483
CH-2	CS3	CS4	False	150.15	619.483	132.15	613.483	0.60	619.483
CH-3	CS4	CS5	False	185.25	619.483	132.07	613.483	0.62	619.483
CH-4	CS1	CS6	False	282.09	607.483	137.61	607.483	0.29	607.483
CH-5	CS8	CS7	False	171.84	613.483	132.61	613.483	3.55	613.483
CH-6	CS7	CS9	False	646.05	613.483	125.72	619.483	2.97	613.483
CH-7	CS9	CS10	False	690.70	619.483	124.95	622.483	2.20	619.483
CH-8	CS11	CS10	False	24.03	631.483	124.81	624.367	0.14	631.483
CH-9	CS10	CS12	False	701.46	622.483	124.56	624.367	2.36	622.483
CH-10	CS12	CS13	False	696.23	624.367	124.29	624.367	2.39	624.367
CH-11	CS13	CS14	False	700.62	624.367	123.97	624.367	3.64	624.367
CH-12	CS15	CS17	False	20.08	640.483	120.64	664.483	0.63	640.483
CH-13	OS2	CS16	False	333.95	619.483	120.45	667.483	2.48	619.483
CH-14	CS16	OF1	False	333.84	619.483	120.37	667.483	2.41	619.483
CH-15	CS14	CS17	False	320.62	624.367	121.61	624.367	5.67	624.367
CH-16	CS14	CS20	False	376.13	624.367	123.25	624.367	2.82	624.367
CH-17	CS18	CS19	False	25.62	595.483	123.90	598.483	1.42	595.483
CH-18	CS19	CS20	False	44.76	604.483	123.31	624.367	3.10	604.483
CH-19	CS21	CS22	False	428.08	628.483	120.22	673.483	1.60	628.483
CH-20	CS22	OF10	True	428.45	631.483	119.98	673.483	1.41	631.483
CH-21	OS5	CS26	False	0.00	0.000	143.25	0.000	0.00	0.000
CH-22	CS26	OF4	False	0.00	0.000	141.75	0.000	0.00	0.000
CH-23	OS4	CS25	False	0.00	0.000	144.00	0.000	0.00	0.000
CH-24	CS25	OF3	False	0.00	0.000	142.00	0.000	0.00	0.000
CH-25	OS6	CS27	False	0.00	0.000	136.56	0.000	0.00	0.000
CH-26	CS27	OF5	False	0.00	0.000	129.50	0.000	0.00	0.000
CH-27	OS7	CS28	False	2.15	739.483	125.46	733.483	1.64	739.483
CH-28	CS28	OF6	False	2.15	739.483	123.95	718.483	1.70	739.483
CH-29	OS8	CS29	False	0.00	0.000	122.25	0.000	0.00	0.000

FlexTable: Channel Table (SLOTF Existing Hydrology Model -112308.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft³/s)	Time to Maximum Flow (min)	Hydraulic Grade (Maximum) (ft)	Time to Maximum Hydraulic Grade (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CH-30	CS29	OF7	False	0.00	0.000	118.75	0.000	0.00	0.000
CH-31	OS9	CS30	True	0.00	35.983	120.15	667.483	0.01	35.983
CH-32	CS30	OF8	True	-0.26	0.000	120.15	667.483	-0.57	0.000
CH-33	CS24	OF9	True	395.47	646.483	120.21	667.483	5.42	646.483
CH-34	OS11	CS31	False	211.36	664.483	119.71	784.483	5.24	664.483
CH-35	CS31	OF13	False	211.36	664.483	119.63	784.483	5.87	664.483
CH-36	CS32	CS33	False	149.91	604.483	132.35	604.483	4.65	604.483
CH-37	CS33	OF14	True	249.84	607.483	125.15	607.483	5.24	607.483
Site Overflow - 1	OS14	CS23	False	287.21	676.483	119.47	655.483	3.04	676.483
Site Overflow - 2	CS23	Site Overflow	False	287.21	676.483	119.22	655.483	3.04	676.483
Site Overflow - 3	OS-34	CS34	False	66.28	781.483	119.80	1267.483	0.54	781.483
Site Overflow - 4	CS34	Site Overflow2	False	49.22	781.483	119.77	1267.483	0.50	781.483

FlexTable: Conduit Table (SLOTF Existing Hydrology Model -112308.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CO-1	CS6	CS5	False	95.91	610.483	12.69	610.483
CO-2	CS5	CS7	True	147.94	613.483	4.62	613.483
CO-3	CB2	CS8	False	54.30	604.483	6.80	604.483
CO-4	CB1	CS7	False	6.90	598.483	5.45	598.483
CO-5	OS1	CS15	False	15.46	631.483	10.01	631.483
CO-6	CS17	OF2	False	99.05	631.483	3.06	631.483
CO-7	CS20	CS21	False	114.63	628.483	9.00	628.483
CO-8	OS3	CS24	False	72.42	673.483	6.70	673.483
CO-9	OS10	OF11	False	27.23	823.483	0.38	823.483
CO-10	OS13	OF12	True	0.59	841.483	1.69	841.483
CO-11	OS12	Site Discharge	False	57.81	718.483	11.59	718.483

FlexTable: Conduit Table (SLOTF Existing Hydrology Model -112308.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CO-1	CS6	CS5	True	210.55	607.483	16.75	607.483
CO-2	CS5	CS7	True	238.34	610.483	7.45	610.483
CO-3	CB2	CS8	True	116.29	607.483	7.90	607.483
CO-4	CB1	CS7	True	10.19	598.483	5.78	598.483
CO-5	OS1	CS15	True	19.52	619.483	11.05	619.483
CO-6	CS17	OF2	False	204.88	625.483	4.11	625.483
CO-7	CS20	CS21	False	255.77	625.483	13.07	625.483
CO-8	OS3	CS24	False	205.72	652.483	9.50	652.483
CO-9	OS10	OF11	False	47.56	1258.483	0.34	1258.483
CO-10	OS13	OF12	True	0.94	619.483	2.70	619.483
CO-11	OS12	Site Discharge	False	77.65	706.483	12.26	706.483

FlexTable: Conduit Table (SLOTF Existing Hydrology Model -112308.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CO-1	CS6	CS5	True	276.45	607.483	22.00	607.483
CO-2	CS5	CS7	True	269.56	610.483	8.42	610.483
CO-3	CB2	CS8	True	136.76	610.483	9.29	610.483
CO-4	CB1	CS7	True	10.46	598.483	5.92	598.483
CO-5	OS1	CS15	True	19.95	628.483	11.29	628.483
CO-6	CS17	OF2	False	261.56	625.483	4.46	625.483
CO-7	CS20	CS21	True	324.79	625.483	13.66	625.483
CO-8	OS3	CS24	True	286.79	649.483	10.22	649.483
CO-9	OS10	OF11	False	53.80	850.483	0.28	850.483
CO-10	OS13	OF12	True	1.09	610.483	3.13	610.483
CO-11	OS12	Site Discharge	False	83.28	670.483	12.57	670.483

FlexTable: Conduit Table (SLOTF Existing Hydrology Model -112308.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CO-1	CS6	CS5	True	322.68	607.483	25.68	607.483
CO-2	CS5	CS7	True	292.78	610.483	9.15	610.483
CO-3	CB2	CS8	True	152.62	610.483	10.36	610.483
CO-4	CB1	CS7	True	10.62	598.483	6.01	598.483
CO-5	OS1	CS15	True	20.24	616.483	11.45	616.483
CO-6	CS17	OF2	False	301.85	622.483	4.65	622.483
CO-7	CS20	CS21	True	377.57	622.483	15.02	622.483
CO-8	OS3	CS24	True	340.58	646.483	10.92	646.483
CO-9	OS10	OF11	False	95.24	676.483	0.48	676.483
CO-10	OS13	OF12	True	1.13	604.483	3.23	604.483
CO-11	OS12	Site Discharge	False	84.16	670.483	12.60	670.483

FlexTable: Conduit Table (SLOTF Existing Hydrology Model -112308.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CO-1	CS6	CS5	True	368.88	607.483	29.35	607.483
CO-2	CS5	CS7	True	327.91	613.483	10.25	613.483
CO-3	CB2	CS8	True	172.39	610.483	11.71	610.483
CO-4	CB1	CS7	True	10.79	598.483	6.11	598.483
CO-5	OS1	CS15	True	20.76	616.483	11.75	616.483
CO-6	CS17	OF2	False	343.50	624.367	4.50	624.367
CO-7	CS20	CS21	True	433.41	624.367	17.24	624.367
CO-8	OS3	CS24	True	395.47	646.483	12.36	646.483
CO-9	OS10	OF11	False	150.79	667.483	0.73	667.483
CO-10	OS13	OF12	True	1.14	604.483	3.27	604.483
CO-11	OS12	Site Discharge	False	85.24	676.483	12.68	676.483

FlexTable: Channel Table (SLOTF Post-Restoration Hydrology Model - 120308 larger pond.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft³/s)	Time to Maximum Flow (min)	Hydraulic Grade (Maximum) (ft)	Time to Maximum Hydraulic Grade (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CH-60	OS6	CS27	False	0.00	0.000	136.56	0.000	0.00	0.000
CH-61	CS27	OF5	False	0.00	0.000	129.50	0.000	0.00	0.000
CH-62	OS7	CS28	False	0.00	0.000	125.25	0.000	0.00	0.000
CH-63	CS28	OF6	False	0.00	0.000	123.75	0.000	0.00	0.000
CH-66	OS8	CS29	False	0.00	0.000	122.25	0.000	0.00	0.000
CH-67	CS29	OF7	False	0.00	0.000	118.75	0.000	0.00	0.000
CH-68	OS9	CS30	False	0.00	0.000	118.04	3.000	0.00	0.000
CH-69	CS30	OF8	False	0.00	0.000	118.04	3.000	0.00	0.000
CH-73	CS24	OF9	False	20.70	1258.483	116.35	1015.483	2.70	1258.483
CH-76	CS18	CS19	False	10.18	598.483	123.38	598.483	0.97	598.483
CH-77	CS19	CS20	False	13.10	604.483	121.07	604.483	1.71	604.483
CH-119	OS14	CS23	False	0.00	0.000	119.38	0.000	0.00	0.000
CH-120	CS23	Site Overflow	False	0.00	0.000	119.13	0.000	0.00	0.000
CH-125	CB3	CS32	False	47.40	607.483	131.21	607.483	3.23	607.483
CH-126	CS32	OF14	False	47.33	607.483	125.03	607.483	4.34	607.483
CH-134	CS20	OF15	False	15.71	607.483	119.07	1252.483	1.82	607.483
CH-136	CS9	CS35	False	203.66	604.483	122.47	604.483	2.53	604.483
CH-137	CS35	OF2	False	200.87	607.483	119.71	607.483	3.18	607.483
CH-140	CS36	CS35	True	1.34	634.483	121.66	616.483	0.67	634.483
TF Creek - 1	OS15	CS33	False	22.76	667.483	123.19	667.483	1.24	667.483
TF Creek - 3	CS34	OF1	False	36.26	610.483	119.82	610.483	1.68	610.483
TF Creek 2	CS33	CS34	False	22.74	670.483	121.50	670.483	1.52	670.483

FlexTable: Channel Table (SLOTF Post-Restoration Hydrology Model - 120308 larger pond.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft³/s)	Time to Maximum Flow (min)	Hydraulic Grade (Maximum) (ft)	Time to Maximum Hydraulic Grade (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CH-60	OS6	CS27	False	0.00	0.000	136.56	0.000	0.00	0.000
CH-61	CS27	OF5	False	0.00	0.000	129.50	0.000	0.00	0.000
CH-62	OS7	CS28	False	0.55	1117.483	125.35	1042.483	0.89	1117.483
CH-63	CS28	OF6	False	0.55	1117.483	123.85	1060.483	0.89	1117.483
CH-66	OS8	CS29	False	0.00	0.000	122.25	0.000	0.00	0.000
CH-67	CS29	OF7	False	0.00	0.000	118.75	0.000	0.00	0.000
CH-68	OS9	CS30	False	0.00	0.000	118.04	3.000	0.00	0.000
CH-69	CS30	OF8	False	0.00	0.000	118.04	3.000	0.00	0.000
CH-73	CS24	OF9	False	65.94	913.483	116.43	805.483	4.64	913.483
CH-76	CS18	CS19	False	16.79	598.483	123.63	598.483	1.16	598.483
CH-77	CS19	CS20	False	26.01	604.483	121.35	604.483	2.18	604.483
CH-119	OS14	CS23	False	0.00	0.000	119.38	0.000	0.00	0.000
CH-120	CS23	Site Overflow	False	0.00	0.000	119.13	0.000	0.00	0.000
CH-125	CB3	CS32	False	99.38	607.483	131.60	607.483	4.28	607.483
CH-126	CS32	OF14	False	99.68	607.483	125.30	607.483	5.98	607.483
CH-134	CS20	OF15	False	32.36	628.483	120.52	907.483	2.38	628.483
CH-136	CS9	CS35	False	480.51	604.483	123.18	604.483	3.51	604.483
CH-137	CS35	OF2	False	476.17	607.483	120.63	910.483	4.44	607.483
CH-140	CS36	CS35	True	7.92	622.483	121.91	622.483	1.22	622.483
TF Creek - 1	OS15	CS33	False	90.18	628.483	123.84	628.483	1.94	628.483
TF Creek - 3	CS34	OF1	False	139.86	619.483	120.59	910.483	2.56	619.483
TF Creek 2	CS33	CS34	False	90.11	631.483	122.08	631.483	2.34	631.483

FlexTable: Channel Table (SLOTF Post-Restoration Hydrology Model - 120308 larger pond.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft³/s)	Time to Maximum Flow (min)	Hydraulic Grade (Maximum) (ft)	Time to Maximum Hydraulic Grade (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CH-60	OS6	CS27	False	0.00	0.000	136.56	0.000	0.00	0.000
CH-61	CS27	OF5	False	0.00	0.000	129.50	0.000	0.00	0.000
CH-62	OS7	CS28	False	1.03	847.483	125.39	808.483	1.22	847.483
CH-63	CS28	OF6	False	1.03	847.483	123.89	820.483	1.22	847.483
CH-66	OS8	CS29	False	0.00	0.000	122.25	0.000	0.00	0.000
CH-67	CS29	OF7	False	0.00	0.000	118.75	0.000	0.00	0.000
CH-68	OS9	CS30	False	0.00	0.000	118.04	3.000	0.00	0.000
CH-69	CS30	OF8	False	0.00	0.000	118.04	3.000	0.00	0.000
CH-73	CS24	OF9	False	86.16	931.483	117.08	1537.483	5.30	931.483
CH-76	CS18	CS19	False	20.42	598.483	123.76	598.483	1.24	598.483
CH-77	CS19	CS20	False	33.53	604.483	121.49	604.483	2.38	604.483
CH-119	OS14	CS23	False	0.00	0.000	119.38	0.000	0.00	0.000
CH-120	CS23	Site Overflow	False	0.00	0.000	119.13	0.000	0.00	0.000
CH-125	CB3	CS32	False	129.01	607.483	131.79	607.483	4.71	607.483
CH-126	CS32	OF14	False	129.52	607.483	125.43	607.483	6.63	607.483
CH-134	CS20	OF15	False	42.58	628.483	121.38	925.483	1.58	628.483
CH-136	CS9	CS35	False	664.97	604.483	123.42	604.483	3.96	604.483
CH-137	CS35	OF2	True	660.14	607.483	121.49	931.483	5.02	607.483
CH-140	CS36	CS35	True	12.81	622.483	122.19	607.483	1.32	622.483
TF Creek - 1	OS15	CS33	False	127.70	625.483	124.08	625.483	2.16	625.483
TF Creek - 3	CS34	OF1	True	205.75	616.483	121.45	931.483	2.87	616.483
TF Creek 2	CS33	CS34	False	127.70	625.483	122.31	625.483	2.56	625.483

FlexTable: Channel Table (SLOTF Post-Restoration Hydrology Model - 120308 larger pond.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft³/s)	Time to Maximum Flow (min)	Hydraulic Grade (Maximum) (ft)	Time to Maximum Hydraulic Grade (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CH-60	OS6	CS27	False	0.00	0.000	136.56	0.000	0.00	0.000
CH-61	CS27	OF5	False	0.00	0.000	129.50	0.000	0.00	0.000
CH-62	OS7	CS28	False	1.54	790.483	125.42	766.483	1.43	790.483
CH-63	CS28	OF6	False	1.54	790.483	123.92	751.483	1.48	790.483
CH-66	OS8	CS29	False	0.00	0.000	122.25	0.000	0.00	0.000
CH-67	CS29	OF7	False	0.00	0.000	118.75	0.000	0.00	0.000
CH-68	OS9	CS30	False	0.00	0.000	118.04	3.000	0.00	0.000
CH-69	CS30	OF8	False	0.00	0.000	118.04	3.000	0.00	0.000
CH-73	CS24	OF9	False	98.06	970.483	117.64	1621.483	4.09	970.483
CH-76	CS18	CS19	False	22.96	598.483	123.83	598.483	1.30	598.483
CH-77	CS19	CS20	False	38.87	604.483	121.97	943.483	2.50	604.483
CH-119	OS14	CS23	False	0.00	0.000	119.38	0.000	0.00	0.000
CH-120	CS23	Site Overflow	False	0.00	0.000	119.13	0.000	0.00	0.000
CH-125	CB3	CS32	False	149.82	607.483	131.91	607.483	4.98	607.483
CH-126	CS32	OF14	False	150.45	607.483	125.52	607.483	7.02	607.483
CH-134	CS20	OF15	False	49.84	628.483	121.93	961.483	1.37	628.483
CH-136	CS9	CS35	False	787.20	604.483	123.54	604.483	4.22	604.483
CH-137	CS35	OF2	True	781.84	607.483	122.03	967.483	5.35	607.483
CH-140	CS36	CS35	True	16.50	622.483	122.35	607.483	1.32	622.483
TF Creek - 1	OS15	CS33	True	150.87	622.483	124.21	622.483	2.28	622.483
TF Creek - 3	CS34	OF1	True	246.96	613.483	121.99	967.483	3.04	613.483
TF Creek 2	CS33	CS34	False	150.84	625.483	122.44	622.483	2.67	625.483

FlexTable: Channel Table (SLOTF Post-Restoration Hydrology Model - 120308 larger pond.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft³/s)	Time to Maximum Flow (min)	Hydraulic Grade (Maximum) (ft)	Time to Maximum Hydraulic Grade (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CH-60	OS6	CS27	False	0.00	0.000	136.56	0.000	0.00	0.000
CH-61	CS27	OF5	False	0.00	0.000	129.50	0.000	0.00	0.000
CH-62	OS7	CS28	False	2.15	739.483	125.46	733.483	1.64	739.483
CH-63	CS28	OF6	False	2.15	739.483	123.95	718.483	1.70	739.483
CH-66	OS8	CS29	False	0.00	0.000	122.25	0.000	0.00	0.000
CH-67	CS29	OF7	False	0.00	0.000	118.75	0.000	0.00	0.000
CH-68	OS9	CS30	False	1.29	1939.467	118.12	1702.467	0.32	1939.467
CH-69	CS30	OF8	False	0.85	1939.467	118.12	1702.467	0.23	1939.467
CH-73	CS24	OF9	False	107.43	1012.483	118.16	1702.467	1.73	1012.483
CH-76	CS18	CS19	False	25.56	595.483	123.91	598.483	1.41	595.483
CH-77	CS19	CS20	False	44.24	604.483	122.48	988.483	2.61	604.483
CH-119	OS14	CS23	False	0.00	0.000	119.38	0.000	0.00	0.000
CH-120	CS23	Site Overflow	False	0.00	0.000	119.13	0.000	0.00	0.000
CH-125	CB3	CS32	False	170.67	604.483	132.02	607.483	5.22	604.483
CH-126	CS32	OF14	False	171.38	607.483	125.60	607.483	7.38	607.483
CH-134	CS20	OF15	False	57.17	628.483	122.44	1006.483	1.27	628.483
CH-136	CS9	CS35	True	902.53	604.483	123.63	604.483	4.44	604.483
CH-137	CS35	OF2	True	896.08	607.483	122.54	1009.483	5.64	607.483
CH-140	CS36	CS35	True	20.35	619.483	122.63	1006.483	1.30	619.483
TF Creek - 1	OS15	CS33	True	174.73	622.483	124.33	622.483	2.38	622.483
TF Creek - 3	CS34	OF1	True	286.99	613.483	122.50	1009.483	3.18	613.483
TF Creek 2	CS33	CS34	True	174.40	625.483	122.62	1009.483	2.76	625.483

FlexTable: Conduit Table (SLOTF Post-Restoration Hydrology Model - 120308 larger pond.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CO-96	OS-35	Site Discharge 2	True	9.69	1459.483	6.17	1459.483
P22	OS23	CS24	False	20.70	1258.483	6.29	1258.483
P23	OS13	OF12	False	0.58	847.483	13.98	847.483
P24	OS12	Site Discharge	False	11.06	1459.483	8.76	1459.483

FlexTable: Conduit Table (SLOTF Post-Restoration Hydrology Model - 120308 larger pond.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CO-96	OS-35	Site Discharge 2	True	14.63	1468.483	9.31	1468.483
P22	OS23	CS24	False	65.94	913.483	10.69	913.483
P23	OS13	OF12	True	1.10	826.483	8.94	826.483
P24	OS12	Site Discharge	False	42.52	1468.483	12.35	1468.483

FlexTable: Conduit Table (SLOTF Post-Restoration Hydrology Model - 120308 larger pond.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CO-96	OS-35	Site Discharge 2	True	16.45	1540.483	10.47	1540.483
P22	OS23	CS24	False	86.16	931.483	12.02	931.483
P23	OS13	OF12	True	1.25	709.483	16.81	709.483
P24	OS12	Site Discharge	False	57.86	1540.483	13.32	1540.483

FlexTable: Conduit Table (SLOTF Post-Restoration Hydrology Model - 120308 larger pond.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CO-96	OS-35	Site Discharge 2	True	17.54	1624.483	11.17	1624.483
P22	OS23	CS24	False	98.06	970.483	12.71	970.483
P23	OS13	OF12	True	1.25	625.483	16.81	625.483
P24	OS12	Site Discharge	False	63.93	1624.483	13.63	1624.483

FlexTable: Conduit Table (SLOTF Post-Restoration Hydrology Model - 120308 larger pond.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CO-96	OS-35	Site Discharge 2	True	18.52	1702.467	11.79	1702.467
P22	OS23	CS24	False	107.43	1012.483	13.23	1012.483
P23	OS13	OF12	True	1.25	607.483	16.81	607.483
P24	OS12	Site Discharge	False	69.35	1702.467	13.81	1702.467

FlexTable: Channel Table (SLOTF Post-Development Hydrology Model - 120208 larger pond.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft³/s)	Time to Maximum Flow (min)	Hydraulic Grade (Maximum) (ft)	Time to Maximum Hydraulic Grade (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CH-61	CS27	OF5	False	0.00	0.000	129.50	0.000	0.00	0.000
CH-62	OS7	CS28	False	0.00	0.000	125.25	0.000	0.00	0.000
CH-63	CS28	OF6	False	0.00	0.000	123.75	0.000	0.00	0.000
CH-66	OS8	CS29	False	0.00	0.000	122.25	0.000	0.00	0.000
CH-67	CS29	OF7	False	0.00	0.000	118.75	0.000	0.00	0.000
CH-68	OS9	CS30	False	0.00	0.000	118.04	3.000	0.00	0.000
CH-69	CS30	OF8	False	0.00	0.000	118.04	3.000	0.00	0.000
CH-73	CS24	OF9	False	22.74	1201.483	116.34	922.483	3.42	1201.483
CH-76	CS18	CS19	False	10.18	598.483	123.38	598.483	0.97	598.483
CH-77	CS19	CS20	False	13.10	604.483	121.07	604.483	1.71	604.483
CH-119	OS14	CS23	False	0.00	0.000	119.38	0.000	0.00	0.000
CH-120	CS23	Site Overflow	False	0.00	0.000	119.13	0.000	0.00	0.000
CH-125	CB3	CS32	False	36.73	607.483	131.11	607.483	2.92	607.483
CH-126	CS32	OF14	False	36.55	607.483	124.96	607.483	3.84	607.483
CH-134	CS20	OF15	False	16.88	610.483	119.17	1195.483	1.87	610.483
CH-136	CS9	CS35	False	203.70	604.483	122.47	604.483	2.53	604.483
CH-137	CS35	OF2	False	202.16	607.483	119.23	1159.483	6.78	607.483
CH-140	CS36	CS35	True	1.34	634.483	121.66	628.483	0.62	634.483
TF Creek - 1	OS15	CS33	False	51.93	622.483	123.54	622.483	1.61	622.483
TF Creek - 3	CS34	OF1	False	74.86	622.483	120.15	622.483	2.11	622.483
TF Creek 2	CS33	CS34	False	51.93	622.483	121.79	622.483	2.00	622.483

FlexTable: Channel Table (SLOTF Post-Development Hydrology Model - 120208 larger pond.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft³/s)	Time to Maximum Flow (min)	Hydraulic Grade (Maximum) (ft)	Time to Maximum Hydraulic Grade (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CH-61	CS27	OF5	False	0.00	0.000	129.50	0.000	0.00	0.000
CH-62	OS7	CS28	False	0.55	1117.483	125.35	1042.483	0.89	1117.483
CH-63	CS28	OF6	False	0.55	1117.483	123.85	1060.483	0.89	1117.483
CH-66	OS8	CS29	False	0.00	0.000	122.25	0.000	0.00	0.000
CH-67	CS29	OF7	False	0.00	0.000	118.75	0.000	0.00	0.000
CH-68	OS9	CS30	False	0.00	0.000	118.04	3.000	0.00	0.000
CH-69	CS30	OF8	False	0.00	0.000	118.04	3.000	0.00	0.000
CH-73	CS24	OF9	False	68.42	898.483	116.40	805.483	5.86	898.483
CH-76	CS18	CS19	False	16.79	598.483	123.63	598.483	1.16	598.483
CH-77	CS19	CS20	False	26.01	604.483	121.35	604.483	2.18	604.483
CH-119	OS14	CS23	False	0.00	0.000	119.38	0.000	0.00	0.000
CH-120	CS23	Site Overflow	False	0.00	0.000	119.13	0.000	0.00	0.000
CH-125	CB3	CS32	False	82.27	607.483	131.48	607.483	3.99	607.483
CH-126	CS32	OF14	False	82.43	607.483	125.22	607.483	5.53	607.483
CH-134	CS20	OF15	False	33.63	628.483	120.65	892.483	1.94	628.483
CH-136	CS9	CS35	False	480.55	604.483	123.17	604.483	3.54	604.483
CH-137	CS35	OF2	False	477.13	607.483	120.76	898.483	9.49	607.483
CH-140	CS36	CS35	True	7.92	622.483	121.91	622.483	1.21	622.483
TF Creek - 1	OS15	CS33	True	140.72	616.483	124.15	616.483	2.23	616.483
TF Creek - 3	CS34	OF1	True	208.27	613.483	120.86	613.483	2.89	613.483
TF Creek 2	CS33	CS34	False	140.16	619.483	122.37	619.483	2.63	619.483

FlexTable: Channel Table (SLOTF Post-Development Hydrology Model - 120208 larger pond.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft³/s)	Time to Maximum Flow (min)	Hydraulic Grade (Maximum) (ft)	Time to Maximum Hydraulic Grade (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CH-61	CS27	OF5	False	0.00	0.000	129.50	0.000	0.00	0.000
CH-62	OS7	CS28	False	1.03	847.483	125.39	808.483	1.22	847.483
CH-63	CS28	OF6	False	1.03	847.483	123.89	820.483	1.22	847.483
CH-66	OS8	CS29	False	0.00	0.000	122.25	0.000	0.00	0.000
CH-67	CS29	OF7	False	0.00	0.000	118.75	0.000	0.00	0.000
CH-68	OS9	CS30	False	0.00	0.000	118.04	3.000	0.00	0.000
CH-69	CS30	OF8	False	0.00	0.000	118.04	3.000	0.00	0.000
CH-73	CS24	OF9	False	88.55	919.483	117.17	1552.483	6.71	919.483
CH-76	CS18	CS19	False	20.42	598.483	123.76	598.483	1.24	598.483
CH-77	CS19	CS20	False	33.53	604.483	121.53	895.483	2.38	604.483
CH-119	OS14	CS23	False	0.00	0.000	119.38	0.000	0.00	0.000
CH-120	CS23	Site Overflow	False	0.00	0.000	119.13	0.000	0.00	0.000
CH-125	CB3	CS32	False	108.77	607.483	131.66	607.483	4.43	607.483
CH-126	CS32	OF14	False	109.11	607.483	125.45	613.483	6.20	607.483
CH-134	CS20	OF15	False	43.76	628.483	121.49	913.483	1.38	628.483
CH-136	CS9	CS35	False	664.98	604.483	123.41	604.483	3.97	604.483
CH-137	CS35	OF2	True	660.04	607.483	121.60	916.483	10.74	607.483
CH-140	CS36	CS35	True	12.72	622.483	122.04	622.483	1.41	622.483
TF Creek - 1	OS15	CS33	True	178.02	616.483	124.35	616.483	2.40	616.483
TF Creek - 3	CS34	OF1	True	272.45	613.483	121.56	916.483	3.13	613.483
TF Creek 2	CS33	CS34	True	177.40	616.483	122.57	616.483	2.77	616.483

FlexTable: Channel Table (SLOTF Post-Development Hydrology Model - 120208 larger pond.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft³/s)	Time to Maximum Flow (min)	Hydraulic Grade (Maximum) (ft)	Time to Maximum Hydraulic Grade (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CH-61	CS27	OF5	False	0.00	0.000	129.50	0.000	0.00	0.000
CH-62	OS7	CS28	False	1.54	790.483	125.42	766.483	1.43	790.483
CH-63	CS28	OF6	False	1.54	790.483	123.92	751.483	1.48	790.483
CH-66	OS8	CS29	False	0.00	0.000	122.25	0.000	0.00	0.000
CH-67	CS29	OF7	False	0.00	0.000	118.75	0.000	0.00	0.000
CH-68	OS9	CS30	False	0.00	0.000	118.04	3.000	0.00	0.000
CH-69	CS30	OF8	False	0.00	0.000	118.04	3.000	0.00	0.000
CH-73	CS24	OF9	False	100.23	961.483	117.74	1639.483	3.76	961.483
CH-76	CS18	CS19	False	22.96	598.483	123.83	598.483	1.30	598.483
CH-77	CS19	CS20	False	38.87	604.483	122.08	931.483	2.50	604.483
CH-119	OS14	CS23	False	0.00	0.000	119.38	0.000	0.00	0.000
CH-120	CS23	Site Overflow	False	0.00	0.000	119.13	0.000	0.00	0.000
CH-125	CB3	CS32	False	127.49	607.483	131.78	607.483	4.69	607.483
CH-126	CS32	OF14	False	127.96	607.483	125.65	613.483	5.79	607.483
CH-134	CS20	OF15	False	50.97	628.483	122.03	952.483	1.24	628.483
CH-136	CS9	CS35	False	787.21	604.483	123.53	604.483	4.23	604.483
CH-137	CS35	OF2	True	781.72	604.483	122.14	955.483	11.46	604.483
CH-140	CS36	CS35	True	16.40	619.483	122.23	952.483	1.53	619.483
TF Creek - 1	OS15	CS33	True	202.52	616.483	124.46	616.483	2.49	616.483
TF Creek - 3	CS34	OF1	True	316.48	613.483	122.10	955.483	3.27	613.483
TF Creek 2	CS33	CS34	True	202.25	616.483	122.70	616.483	2.84	616.483

FlexTable: Channel Table (SLOTF Post-Development Hydrology Model - 120208 larger pond.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft³/s)	Time to Maximum Flow (min)	Hydraulic Grade (Maximum) (ft)	Time to Maximum Hydraulic Grade (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CH-61	CS27	OF5	False	0.00	0.000	129.50	0.000	0.00	0.000
CH-62	OS7	CS28	False	2.15	739.483	125.46	733.483	1.64	739.483
CH-63	CS28	OF6	False	2.15	739.483	123.95	718.483	1.70	739.483
CH-66	OS8	CS29	False	0.00	0.000	122.25	0.000	0.00	0.000
CH-67	CS29	OF7	False	0.00	0.000	118.75	0.000	0.00	0.000
CH-68	OS9	CS30	False	1.99	2042.983	118.21	1723.467	0.41	2042.983
CH-69	CS30	OF8	False	1.54	2042.983	118.21	1723.467	0.34	2042.983
CH-73	CS24	OF9	False	109.20	1006.483	118.25	1723.467	1.67	1006.483
CH-76	CS18	CS19	False	25.56	595.483	123.91	598.483	1.41	595.483
CH-77	CS19	CS20	False	44.24	604.483	122.58	985.483	2.61	604.483
CH-119	OS14	CS23	False	0.00	0.000	119.38	0.000	0.00	0.000
CH-120	CS23	Site Overflow	False	0.00	0.000	119.13	0.000	0.00	0.000
CH-125	CB3	CS32	False	146.29	607.483	131.89	607.483	4.93	607.483
CH-126	CS32	OF14	False	146.87	607.483	125.86	613.483	5.49	607.483
CH-134	CS20	OF15	False	58.24	628.483	122.53	1003.483	1.17	628.483
CH-136	CS9	CS35	True	902.57	604.483	123.62	604.483	4.46	604.483
CH-137	CS35	OF2	True	899.09	604.483	122.64	1006.483	12.07	604.483
CH-140	CS36	CS35	True	20.28	619.483	122.73	1003.483	1.64	619.483
TF Creek - 1	OS15	CS33	True	226.62	616.483	124.57	616.483	2.58	616.483
TF Creek - 3	CS34	OF1	True	360.04	613.483	122.60	1006.483	3.40	613.483
TF Creek 2	CS33	CS34	True	226.72	616.483	122.81	616.483	2.90	616.483

FlexTable: Conduit Table (SLOTF Post-Development Hydrology Model - 120208 larger pond.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CO-96	OS-35	OF-41	True	10.03	1444.483	6.38	1444.483
P22	OS23	CS24	False	22.74	1201.483	6.29	1201.483
P23	OS13	OF12	False	0.58	847.483	13.98	847.483
P24	OS12	Site Discharge	False	12.44	1444.483	8.98	1444.483

FlexTable: Conduit Table (SLOTF Post-Development Hydrology Model - 120208 larger pond.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CO-96	OS-35	OF-41	True	14.75	1453.483	9.39	1453.483
P22	OS23	CS24	False	68.42	898.483	10.87	898.483
P23	OS13	OF12	True	1.10	826.483	7.95	826.483
P24	OS12	Site Discharge	False	43.56	1453.483	12.42	1453.483

FlexTable: Conduit Table (SLOTF Post-Development Hydrology Model - 120208 larger pond.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CO-96	OS-35	OF-41	True	16.64	1555.483	10.59	1555.483
P22	OS23	CS24	False	88.55	919.483	12.21	919.483
P23	OS13	OF12	True	1.25	709.483	16.81	709.483
P24	OS12	Site Discharge	False	58.88	1555.483	13.37	1555.483

FlexTable: Conduit Table (SLOTF Post-Development Hydrology Model - 120208 larger pond.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CO-96	OS-35	OF-41	True	17.73	1642.483	11.29	1642.483
P22	OS23	CS24	False	100.23	958.483	12.90	958.483
P23	OS13	OF12	True	1.25	625.483	16.81	625.483
P24	OS12	Site Discharge	False	65.01	1642.483	13.68	1642.483

FlexTable: Conduit Table (SLOTF Post-Development Hydrology Model - 120208 larger pond.csd)

Current Time: 0.000 min

Label	Start Node	Stop Node	Ever Overflowing/Surcharged?	Flow (Maximum) (ft^3/s)	Time to Maximum Flow (min)	Velocity (Maximum) (ft/s)	Time to Maximum Velocity (min)
CO-96	OS-35	OF-41	True	18.69	1723.467	11.90	1723.467
P22	OS23	CS24	False	109.20	1006.483	13.40	1006.483
P23	OS13	OF12	True	1.25	607.483	16.81	607.483
P24	OS12	Site Discharge	False	70.24	1723.467	13.83	1723.467

Appendix F

Floodplain Analyses

APPENDIX F
FLOODPLAIN ANALYSES

This appendix describes the basic assumptions and design parameters used to build the flood stage model for the existing and post-development conditions at the San Luis Obispo Tank Farm.

In general terms, Avocet's approach to the development of the hydrologic model for the existing and post-development conditions at the site is as follows:

- Generate cross-sectional profiles of the existing and post-development onsite Tank Farm Creek system from existing topographic maps and proposed design drawings.
- Generate Tank Farm Creek centerlines and banks based on topographic observations and proposed design.
- Determine 100-year peak flow rates for the three Tank Farm Creek reaches based on the hydrologic and hydraulic analyses performed as part of this hydrology study.
- Incorporate the cross-sectional profiles, creek centerlines and banks, and the appropriate parameters into the computer modeling software to generate the 100-year flood stage for the existing and post-development scenarios.

Each of these aspects of the design process is outlined in the following sections.

MODEL DEVELOPMENT

The latest stable version of the HEC-RAS River Analysis System developed by the U.S. Army Corps of Engineers was used to perform the floodplain analyses on Tank Farm Creek for this hydrology study. Parameters used in the development of the model are explained in detail below.

Tank Farm Creek Cross Sectional Profiles

Cross-sectional profiles for Tank Farm Creek were developed for the existing and post-development scenarios. Autodesk's AutoCAD Civil 3D software platform was used to create a digital elevation model (DEM) of the existing conditions topographic map generated in 2007 and the proposed post-development Tank Farm Creek restoration grading. The DEM for each of the two conditions was loaded into Environmental Modeling Systems' WMS v8.1 (Watershed Modeling System) software and cross sections were generated for the various reaches of Tank Farm Creek. The computed cross sections are shown in Figure F-1 for the existing conditions and Figure F-2 for the post-development conditions.

Cross sections were extended to cover areas that were anticipated to be inundated during the 100-year storm event. Due to the nature of the HEC-RAS modeling software, some areas south of Tank Farm Road were not included in the cross-sectional profiles even though they experience

APPENDIX G
WATER BALANCE ANALYSES

This appendix describes the basic assumptions and design parameters used in the computer model for the water balance analysis of the North Marsh for existing and post-development conditions at the San Luis Obispo Tank Farm.

METHODOLOGY

A water balance evaluation was performed on the open catchment of the north marsh at the San Luis Obispo Tank Farm. The conceptual water balance model is shown in Figure G-1. Each of the applicable parameters shown was measured or calculated.

APPROACH

The first step was to determine the limit of the catchment and the geometric parameters of the control boundary. The onsite portion of the watersheds and pond areas for each catchment are tabulated below.

Water Balance Open Catchment	
Watershed ID	**Area** (acre)
NW Marsh	8.5
Total Contributing	599.3

Calculations of the water balance for the open catchment are provided in Table G.1 for existing conditions and in Table G.2 for post-development conditions. The following sections describe, in detail, how each of the parameters were measured and calculated.

Rainfall

Rainfall was measured at the site using a tipping bucket rain gauge. The data used in this analysis were taken directly from the Hydrology Data Report for June 1999-September 2000 (England Geosystem, Inc. [EGI], 2000). Also provided by this report are the calculations of evapotranspiration that were used in this evaluation. The evapotranspiration values were calculated from measurements of climate data at the site.

The starting pond volume was evaluated in acre-feet. It is the estimated volume of water to be found as surface storage at the beginning of the month of interest. It should be noted that for the open catchment, the starting pond volume may be greater than the actual available static storage (i.e., storage without discharge).

Direct precipitation is the volume of water that falls directly on the area of the ponds. This area is estimated to be 8.5 acres for the open catchment. For example, 8.29 inches of precipitation was measured at the site during the month of January 2000. This corresponds to 5.9 acre-feet of water being added to the open catchment ponds in that month.

Appendix G
Water Balance Analyses

Runon

Runon was calculated using the U.S. Soil Conservation Service (SCS) curve method to determine the portion of precipitation that infiltrates into the ground and the portion that runs off, which is the volume of water that consequently runs into the ponds (i.e., runon). The total watershed area discharging into the NW Marsh Area is approximately 599.3 acres. This includes 8.5 acres corresponding to the marsh itself.

The first step in the SCS method was to determine the soil type and identify the appropriate SCS curve number (CN). The soils at and surrounding the site have been characterized as Type C for most of the onsite and offsite areas and as Type D for the marsh area. The land was considered to be consistent with pasture or range, in fair to good condition in most areas, with intermittent areas that are paved. The CNs for the various subcatchment areas are provided in Table G.1.

The SCS CN was used to factor the amount of precipitation in inches. The factored value multiplied by the watershed area produces the volume of runoff. The formula for factoring precipitation (SCS, 1986) is as follows:

$$Q = \frac{(P - I_a)^2}{(P - I_a + S)}$$

Where:

Q = runoff (inches)
P = precipitation (inches)
I_a = initial abstraction (typically taken as 0.2S)
S = dimensionless coefficient

$$S = \left(\frac{1000}{CN}\right) - 10$$

Where:

CN = SCS curve number

Substituting the values for I_a yields:

$$Q = \frac{(P - 0.2S)^2}{(P + 0.8S)}$$

Antecedent Moisture Condition

The other consideration in calculating runoff is the antecedent moisture condition (AMC). This factor has the effect of either raising or lowering the CN and thereby changing the *S* value. That is, it increases or decreases the quantity of runoff. It is used to reflect the condition of the ground

prior to the precipitation event. A Type II AMC is used to represent the base case. A Type I AMC is used to represent dry conditions, and a Type III is used to represent unusually wet or saturated conditions. For this calculation, the assumed AMC condition is noted in Table G.1 for existing conditions and in Table G.2 for post-development conditions. Based on a calculated CN of 71, the AMC I factor is taken as 0.77 and the AMC III factor is taken as 1.14, as shown in Table 4.9 on page 76 of *Introduction to Hydrology* (Viessman, 1996).

Since the calculation of Q uses a second order equation, the value of Q is meaningless for values of P less than $0.2S$. Consequently, Q was set equal to zero for values of P less than 0.2 inches.

NW Marsh Discharge Elevation

The NW Marsh discharges into the existing stream via a culvert that is located at its southwestern corner. The inlet of the culvert is at 116 feet above mean sea level (amsl). This defines the top edge of the marsh area. As water flows through the marsh area, it rapidly rises, coincident with the heavy rains. The water level then rapidly declines until it reaches an elevation of 116 feet amsl.

Potential Evapotranspiration

Potential evapotranspiration (ET) is the maximum amount of evapotranspiration that could occur over the ponded surface in the marsh. This value was obtained from the Hydrology Data Report by converting the monthly value in inches to a value in feet. The potential loss of water through evapotranspiration was obtained by multiplying the potential ET by the nominal marsh area. Evapotranspiration was used in lieu of evaporation values since there is a significant amount of wetland-type vegetation in these ponds, which has the potential to remove large amounts of water. The potential ET is shown in Table G.1 for the existing conditions and in Table G.2 for the post-development conditions.

Seepage

Seepage from the marsh was the last parameter evaluated. This value was nominally assumed to be approximately 0.04 inch per hour. This was based on a long-term percolation test that was performed in July and August of 1999 (EGI, 2000). The level of seepage was adjusted until the water in storage estimated by the water balance model matches the transducer observations of the seepage test.

Tables

Table G.1
Existing Condition Water Balance Evaluation
for Northwest Marsh Area
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Precipitation *P* (inches)	*ET* (inches)	Starting Pond Volume (ac-ft)	Direct Precipitation *P* (ac-ft)	Precipitation *P* (ac-ft)	Runon			Discharge *D* (ac-ft)	Potential *ET* (ac-ft)	Seepage *I* (ac-ft)	End Pond Volume (ac-ft)	ΔStorage (ac-ft)
						AMC	Q2 (in)	Q2 (af)					
Jul-99	0.00	4.50	**0.0**	0.0	00.0	II	0.0	0.0	0.0	-3.2	0.0	**0.0**	-3.2
Aug-99	0.03	3.57	**0.0**	0.0	01.5	II	0.0	0.0	0.0	-2.5	0.0	**0.0**	-2.5
Sep-99	0.23	7.79	**0.0**	0.2	11.3	II	0.0	0.0	0.0	-5.5	0.0	**0.0**	-5.4
Oct-99	0.27	6.77	**0.0**	0.2	13.3	II	0.0	0.0	0.0	-4.8	0.0	**0.0**	-4.6
Nov-99	2.04	5.37	**0.0**	1.4	100.4	II	0.9	42.2	-30.9	-3.8	0.0	**8.9**	8.9
Dec-99	0.29	6.05	**8.9**	0.2	14.3	II	0.0	0.0	0.0	-4.3	-21.1	**0.0**	-16.2
Jan-00	3.87	4.78	**0.0**	2.7	190.5	II	2.4	117.9	-107.8	-3.4	0.0	**9.4**	9.4
Feb-00	8.29	4.81	**9.4**	5.9	408.1	II	6.6	323.2	-325.7	-3.4	0.0	**9.3**	9.3
Mar-00	1.70	7.28	**9.3**	1.2	83.7	III	1.2	57.4	-55.2	-5.2	0.0	**7.6**	7.6
Apr-00	4.17	7.10	**7.6**	3.0	205.3	II	2.7	131.2	-129.0	-5.0	0.0	**7.7**	7.7
May-00	0.14	8.52	**7.7**	0.1	06.9	II	0.0	0.0	0.0	-6.0	0.0	**1.8**	1.8
Jun-00	0.25	7.81	**1.8**	0.2	12.3	II	0.0	0.2	0.0	-5.5	-20.4	**0.0**	-23.7
	21.28	**74.35**		**15.1**	**1,047.7**			**672.0**	**-648.6**	**-52.7**	**-41.5**		**-10.9**

Constants

Pond Storage Area (ac)	8.5	SCS Curve No	85.6
Infiltration Rate (in/hr):	0.04	AMC I Factor	0.82
Pond Volume (af):	12.75	AMC I S value	4.25
ET Adjustment Factor	1	AMC II Factor	1.00
Area Open Catchment(ac):	599.3	AMC II S value	1.68
		AMC III Factor	1.105
		AMC III S value	0.57

Note:

No seepage during the months of February through May because the groundwater table is at the marsh ground elevation of 115.00 feet amsl.

Table G.2
Post-Remediation Water Balance Evaluation
for Northwest Marsh Area
San Luis Obispo Tank Farm
San Luis Obispo, California

Date	Precipitation *P* (inches)	*ET* (inches)	Starting Pond Volume (ac-ft)	Direct Precipitation *P* (ac-ft)	Precipitation *P* (ac-ft)	Runon			Discharge *D* (ac-ft)	Potential *ET* (ac-ft)	Seepage *I* (ac-ft)	End Pond Volume (ac-ft)	ΔStorage (ac-ft)
						AMC	Q2 (in)	Q2 (af)					
Jul-99	0.00	4.50	**0.0**	0.0	00.0	II	0.0	0.0	0.0	-3.2	0.0	**0.0**	-3.2
Aug-99	0.03	3.57	**0.0**	0.0	01.5	II	0.0	0.0	0.0	-2.5	0.0	**0.0**	-2.5
Sep-99	0.23	7.79	**0.0**	0.2	11.3	II	0.0	0.0	0.0	-5.5	0.0	**0.0**	-5.4
Oct-99	0.27	6.77	**0.0**	0.2	13.3	II	0.0	0.0	0.0	-4.8	0.0	**0.0**	-4.6
Nov-99	2.04	5.37	**0.0**	1.4	100.4	II	0.5	25.5	-14.2	-3.8	0.0	**8.9**	8.9
Dec-99	0.29	6.05	**8.9**	0.2	14.3	II	0.0	0.0	0.0	-4.3	-21.1	**0.0**	-16.2
Jan-00	3.87	4.78	**0.0**	2.7	190.5	II	1.8	88.9	-78.9	-3.4	0.0	**9.4**	9.4
Feb-00	8.29	4.81	**9.4**	5.9	408.1	II	5.7	280.4	-282.9	-3.4	0.0	**9.3**	9.3
Mar-00	1.70	7.28	**9.3**	1.2	83.7	III	0.8	41.7	-39.5	-5.2	0.0	**7.6**	7.6
Apr-00	4.17	7.10	**7.6**	3.0	205.3	II	2.0	100.8	-98.6	-5.0	0.0	**7.7**	7.7
May-00	0.14	8.52	**7.7**	0.1	06.9	II	0.0	0.0	0.0	-6.0	0.0	**1.8**	1.8
Jun-00	0.25	7.81	**1.8**	0.2	12.3	II	0.0	0.0	0.0	-5.5	-20.4	**0.0**	-24.0
	21.28	**74.35**		**15.1**	**1,047.7**			**537.3**	**-514.1**	**-52.7**	**-41.5**		**-11.1**

Constants

Pond Storage Area (ac)	8.5	SCS Curve No	78.3
Infiltration Rate (in/hr):	0.04	AMC I Factor	0.77
Pond Volume (af):	12.75	AMC I S value	6.59
ET Adjustment Factor	1	AMC II Factor	1.00
Area Open Catchment(ac):	599.3	AMC II S value	2.77
		AMC III Factor	1.15
		AMC III S value	1.11

Note:
No seepage during the months of February through May because the groundwater table is at the marsh ground elevation of 115.00 feet amsl.

Figures

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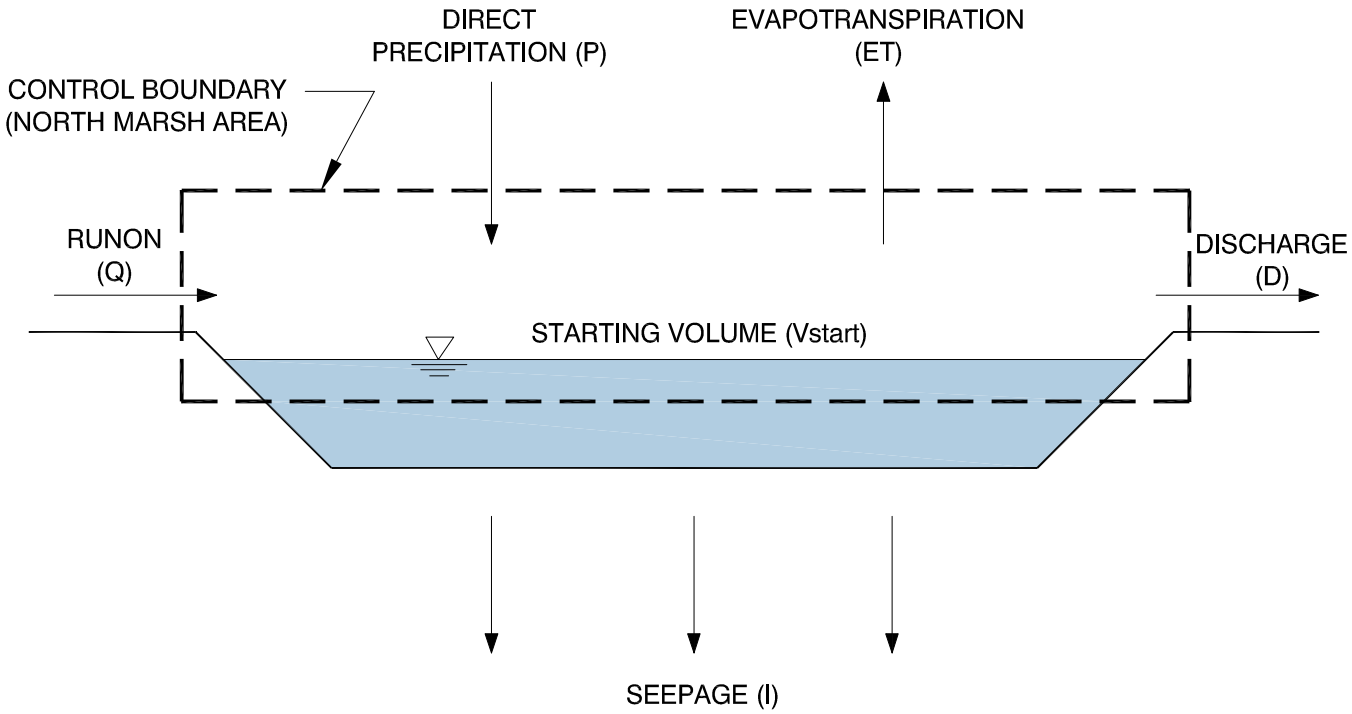

STORAGE = Vstart + P + Q - D - ET - I

FIGURE G-1

CONCEPTUAL WATER BALANCE MODEL

HYDROLOGY STUDY
SAN LUIS OBISPO, CALIFORNIA

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

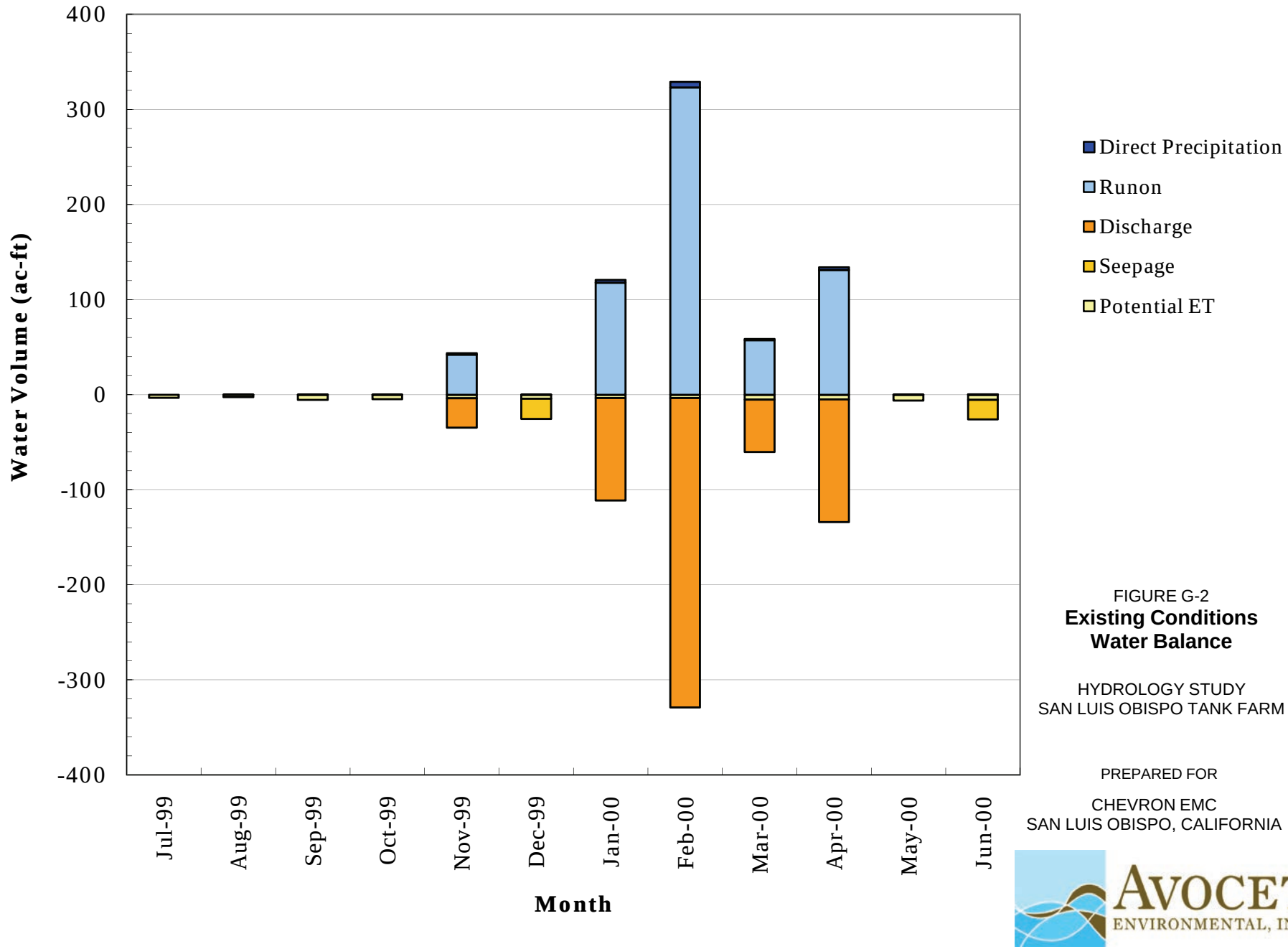

FIGURE G-2
Existing Conditions Water Balance

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

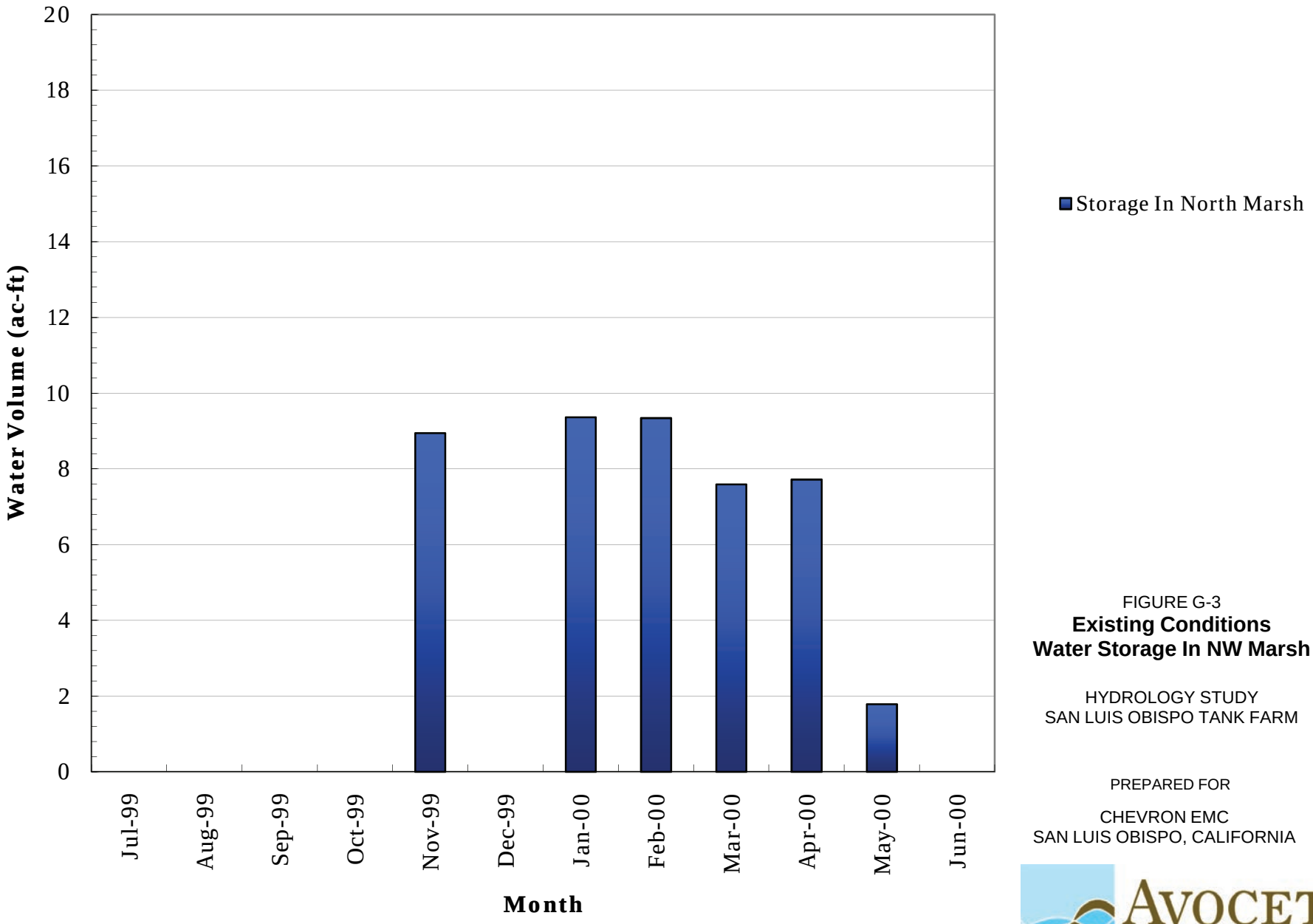

FIGURE G-3
Existing Conditions
Water Storage In NW Marsh

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

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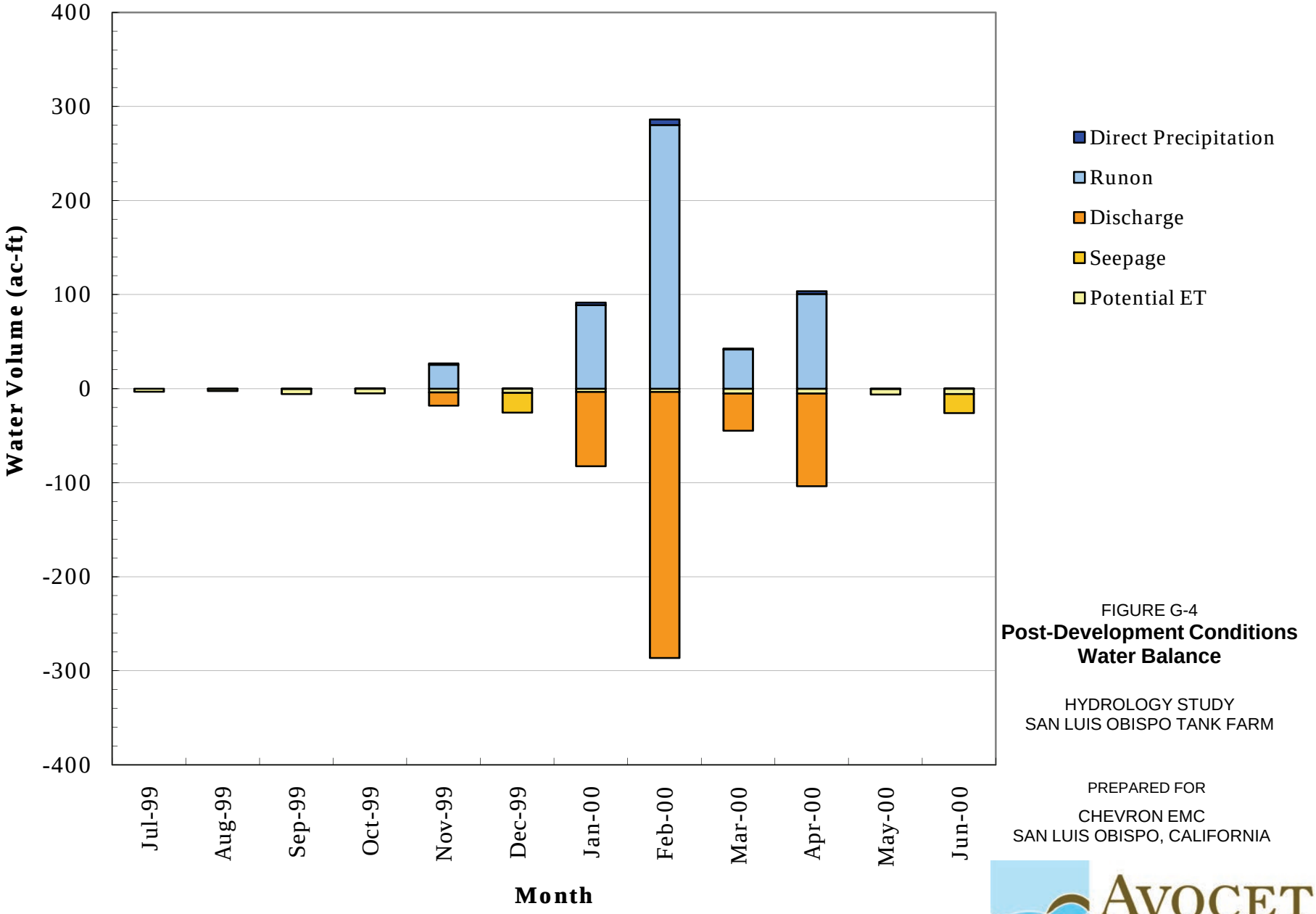

FIGURE G-4
Post-Development Conditions Water Balance

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

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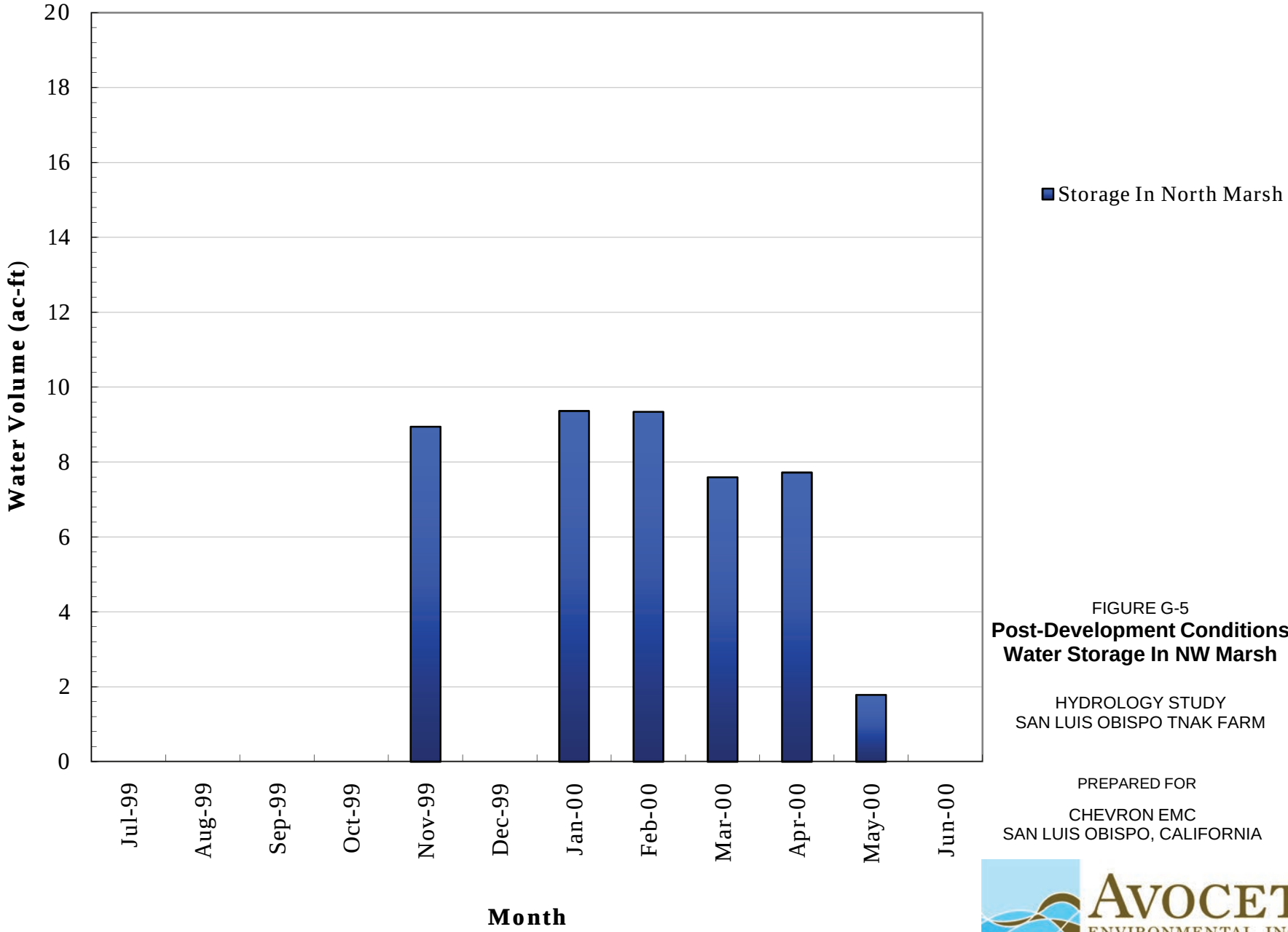

FIGURE G-5

Post-Development Conditions
Water Storage In NW Marsh

HYDROLOGY STUDY
SAN LUIS OBISPO TNAK FARM

PREPARED FOR

CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

flooding during large storm events. The software calculates water elevations through the creek system based primarily on cross-sectional profiles. Omitting lower lying areas outside of the main channel produces a more conservative flood stage result. For the purpose of this analysis, the low lying areas around Reservoir 5 have been omitted from the calculated cross sections.

Creek Centerlines and Banks

Creek centerlines and embankments were estimated from field observations and features present on topographic maps of the site. The creek centerlines and embankments were input into WMS 8.1 as a series of lines and arches for length calculations by the HEC-RAS model. The centerlines and embankments were transferred to the HEC-RAS model through the built-in interface of the WMS 8.1 software package.

Tank Farm Creek Flow Rates

Tank Farm Creek north of Tank Farm Road is split into two reaches. The West Fork runs along the western boundary of the site and collects runoff from a small amount of residential and commercial properties. However, most of the runoff collected is from overland flow. The East Fork extends east across the site and collects runoff from overland flow from properties north and east of the site as well as runoff from areas in the northeast portion of the site. The two forks converge within the North Marsh and extend south beneath Tank Farm Road through a series of culverts. The lower reach of Tank Farm Creek south of Tank Farm Road conveys stormwater into storage areas within the southeast portion of the site and offsite through the existing headwall structure.

The HEC-RAS model requires flow rates for the various reaches of the creek. Both of the existing and post-development models consist of three reaches for Tank Farm Creek (West Fork, East Fork, and Lower Reach). The flow rates for each of these reaches were taken from the hydrologic and hydraulic analyses performed earlier in this study. A summary of the flow rates used in the model is shown below.

Channel Reach	**Existing Conditions Flow Rate** (cfs)	**Post-Development Conditions Flow Rate** (cfs)
West Fork Tank Farm Creek	712	902
East Fork Tank Farm Creek	250	110
Tank Farm Creek - Lower Reach	433	227

Note: cfs = cubic feet per second

HEC-RAS Model

The HEC-RAS model for Tank Farm Creek was constructed using output from WMS 8.1 of the cross-sectional profiles, channel centerlines, and channel embankments for the existing and post-development conditions. The various parameters for the creek, such as flow rates for the

separate reaches, Manning's roughness coefficients for the channel floor, downstream profile reach boundary conditions, and downstream reach lengths, were input into the HEC-RAS model. When all of the required parameters were entered into the model, the model was run and results were recorded. The results of the calculations are explained below.

CALCULATIONS

The HEC-RAS model generates water surface elevations at each cross section location along the creek analyzed. These elevations are taken and plotted onto a topographic map of the existing and post-development conditions to generate a 100-year floodplain map for the site. The existing conditions 100-year floodplain map is shown in Figure F-1 and the post-development conditions 100-year floodplain map is shown in Figure F-2.

A detailed report of the HEC-RAS model results for the existing and post-development conditions scenarios can be found in Attachments 1 and 2 to this appendix, respectively.

Figures

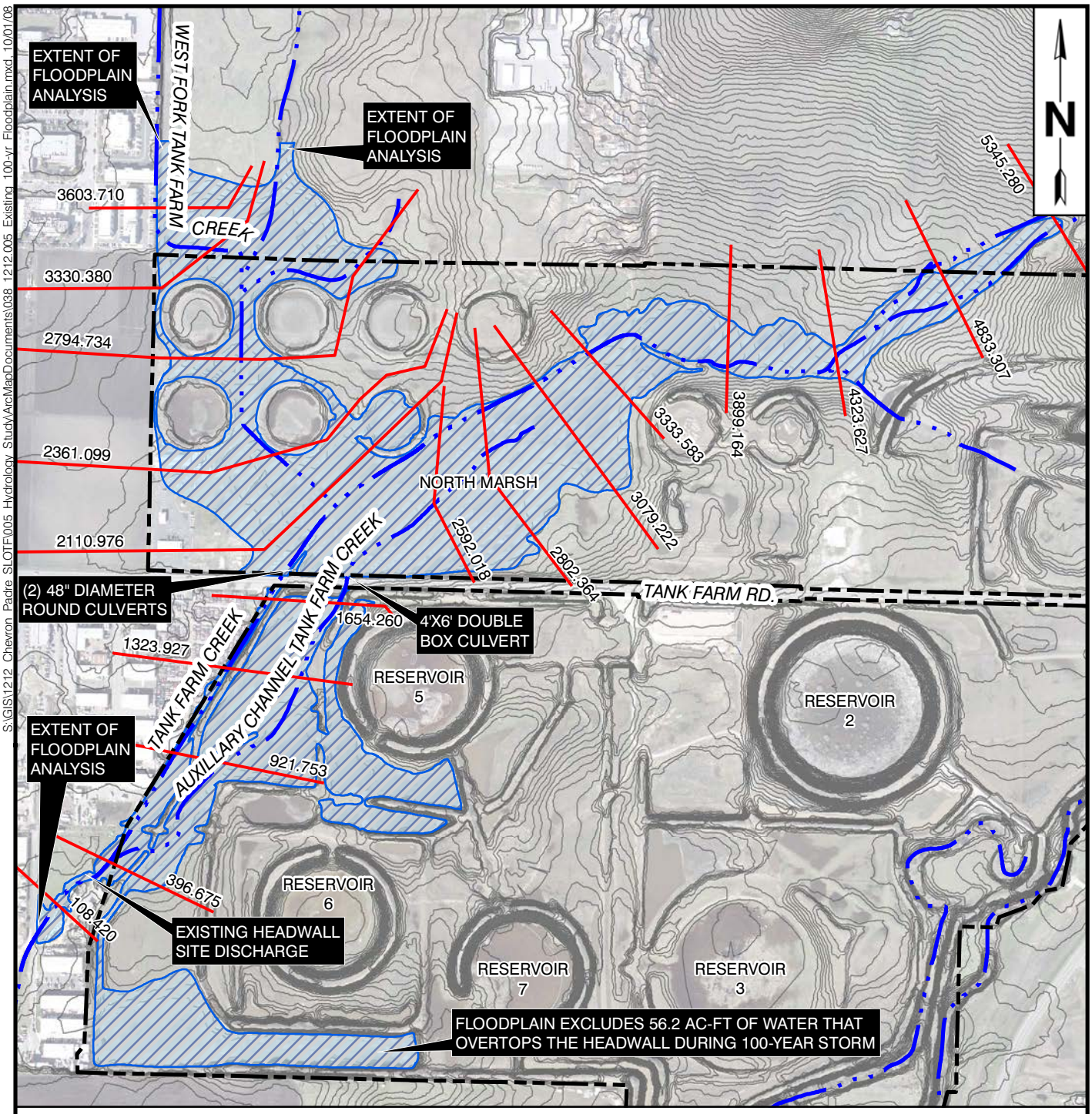

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FIGURE F-1

100-YEAR FLOODPLAIN AND ANALYSIS CROSS SECTION LOCATIONS EXISTING CONDITIONS

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM
PREPARED FOR
CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

LEGEND

108.420 FLOODPLAIN CROSS SECTION AND STATION NUMBER

PROPERTY BOUNDARY

CREEK/STREAM

EXISTING 100-YEAR FLOODPLAIN

AVOCET ENVIRONMENTAL, INC.

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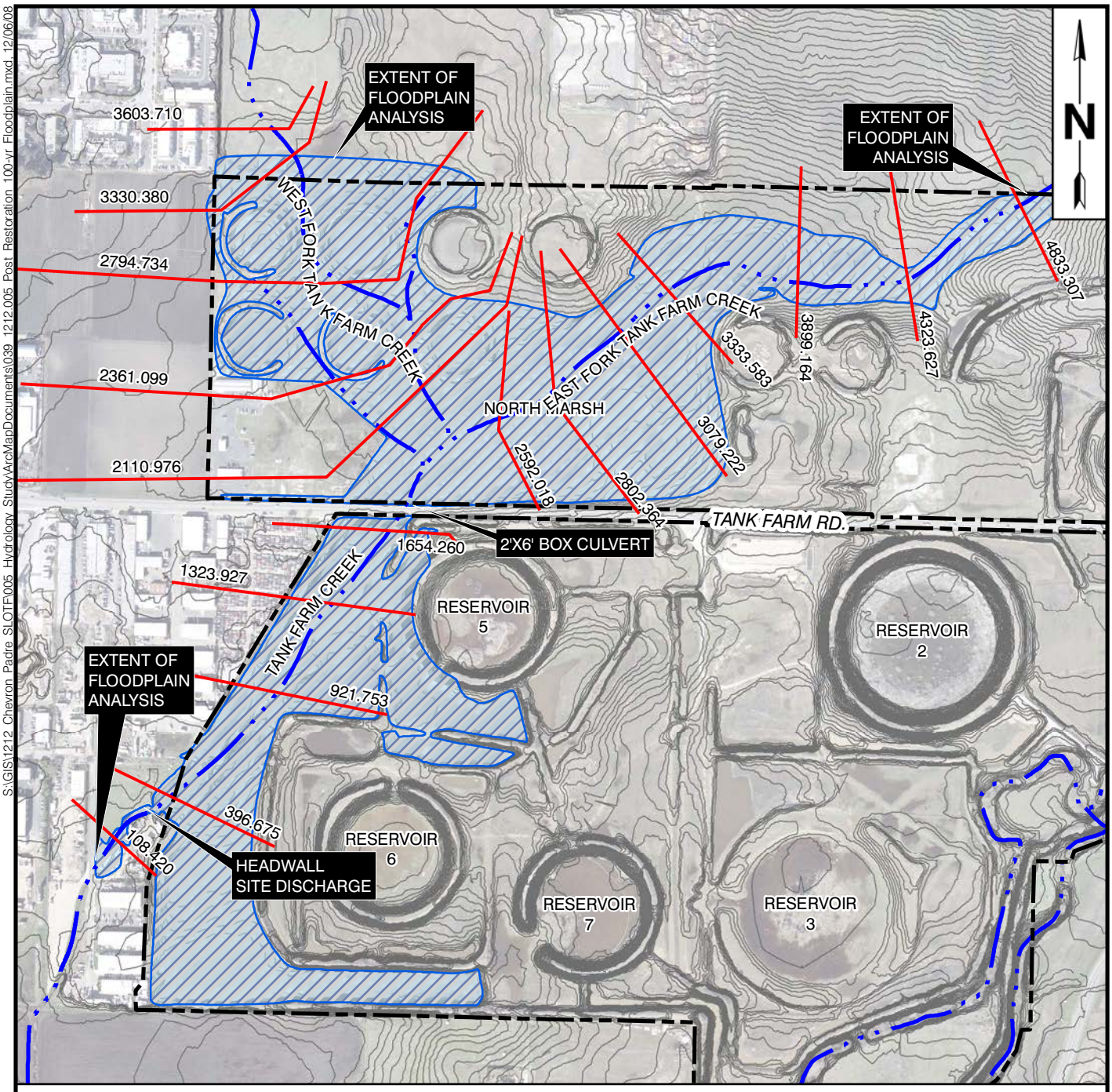


FIGURE F-2

100-YEAR FLOODPLAIN AND ANALYSIS CROSS SECTION LOCATIONS POST-DEVELOPMENT CONDITIONS

HYDROLOGY STUDY
SAN LUIS OBISPO TANK FARM
PREPARED FOR
CHEVRON EMC
SAN LUIS OBISPO, CALIFORNIA

AVOCET ENVIRONMENTAL, INC.

LEGEND

108.420 FLOODPLAIN CROSS SECTION AND STATION NUMBER

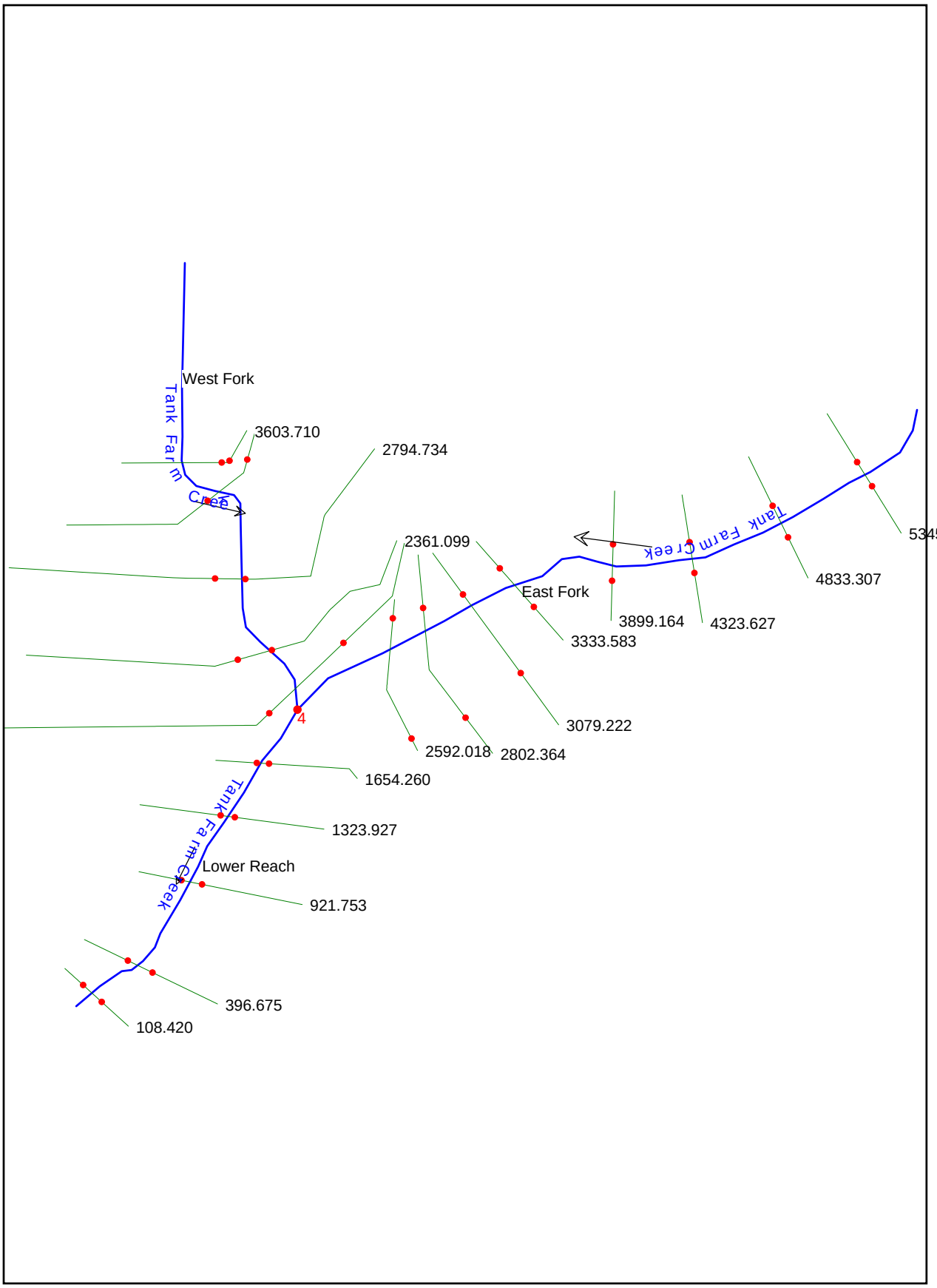
PROPERTY BOUNDARY

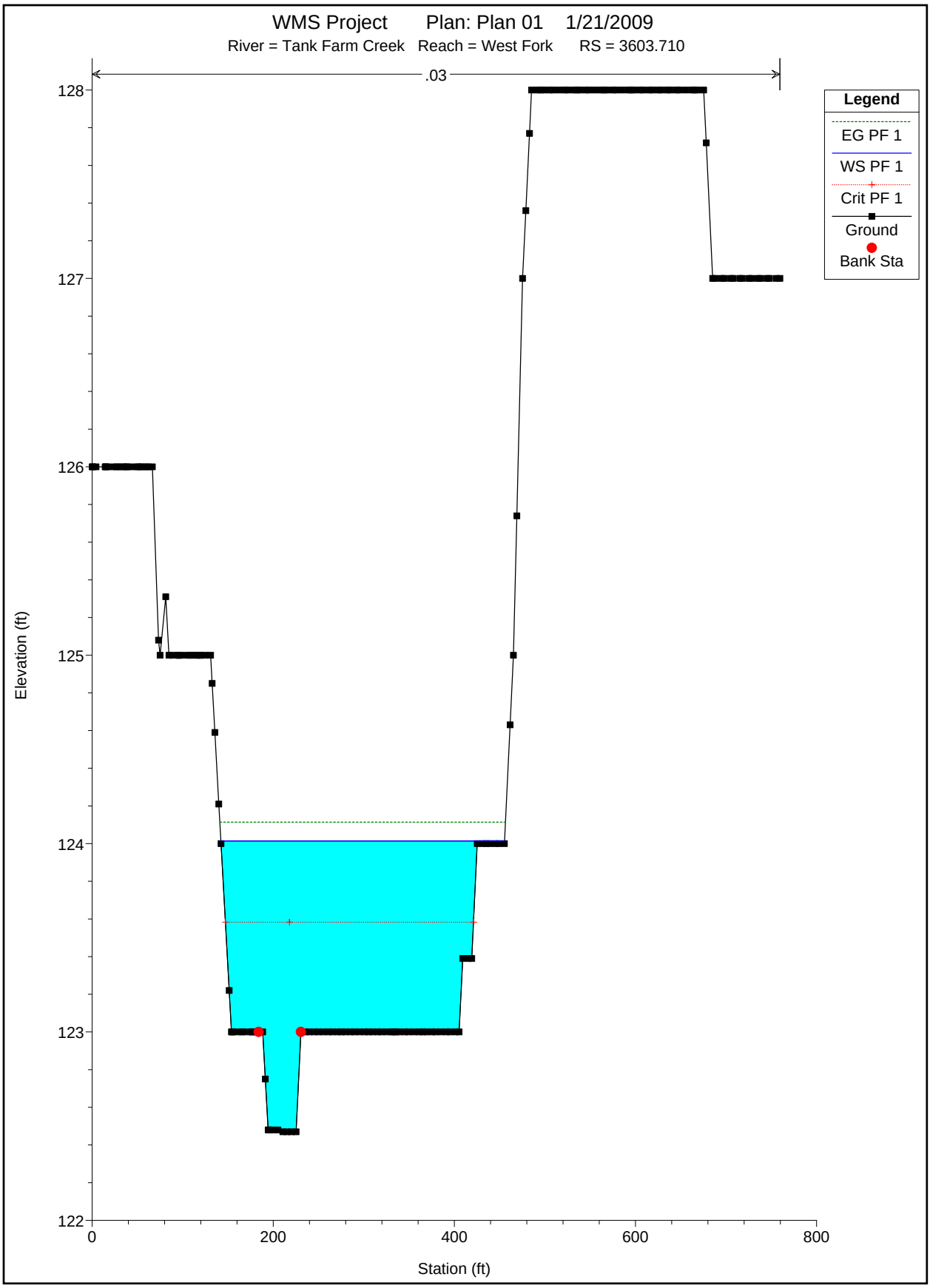
CREEK/STREAM

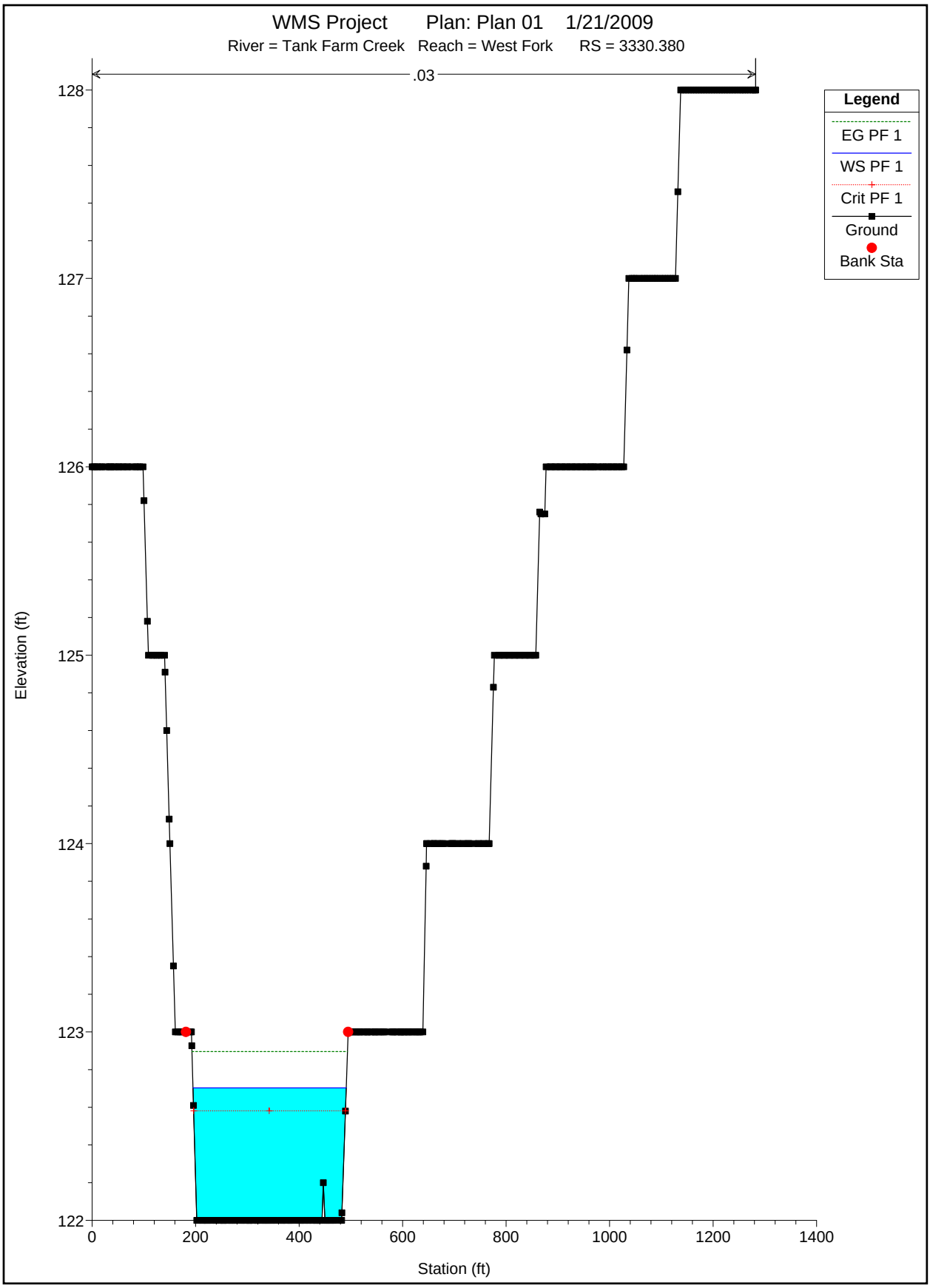
100-YEAR FLOODPLAIN

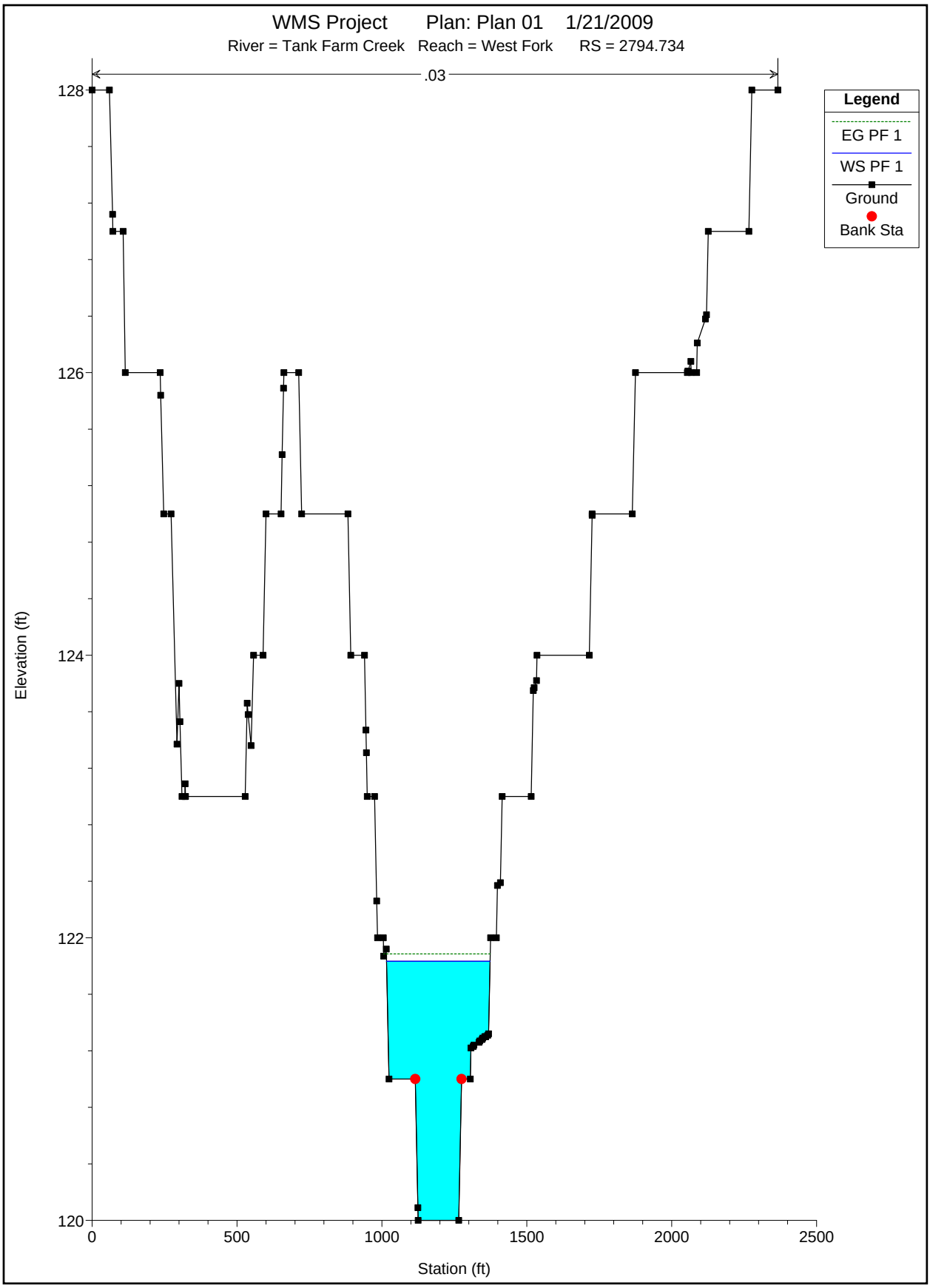
Attachment 1

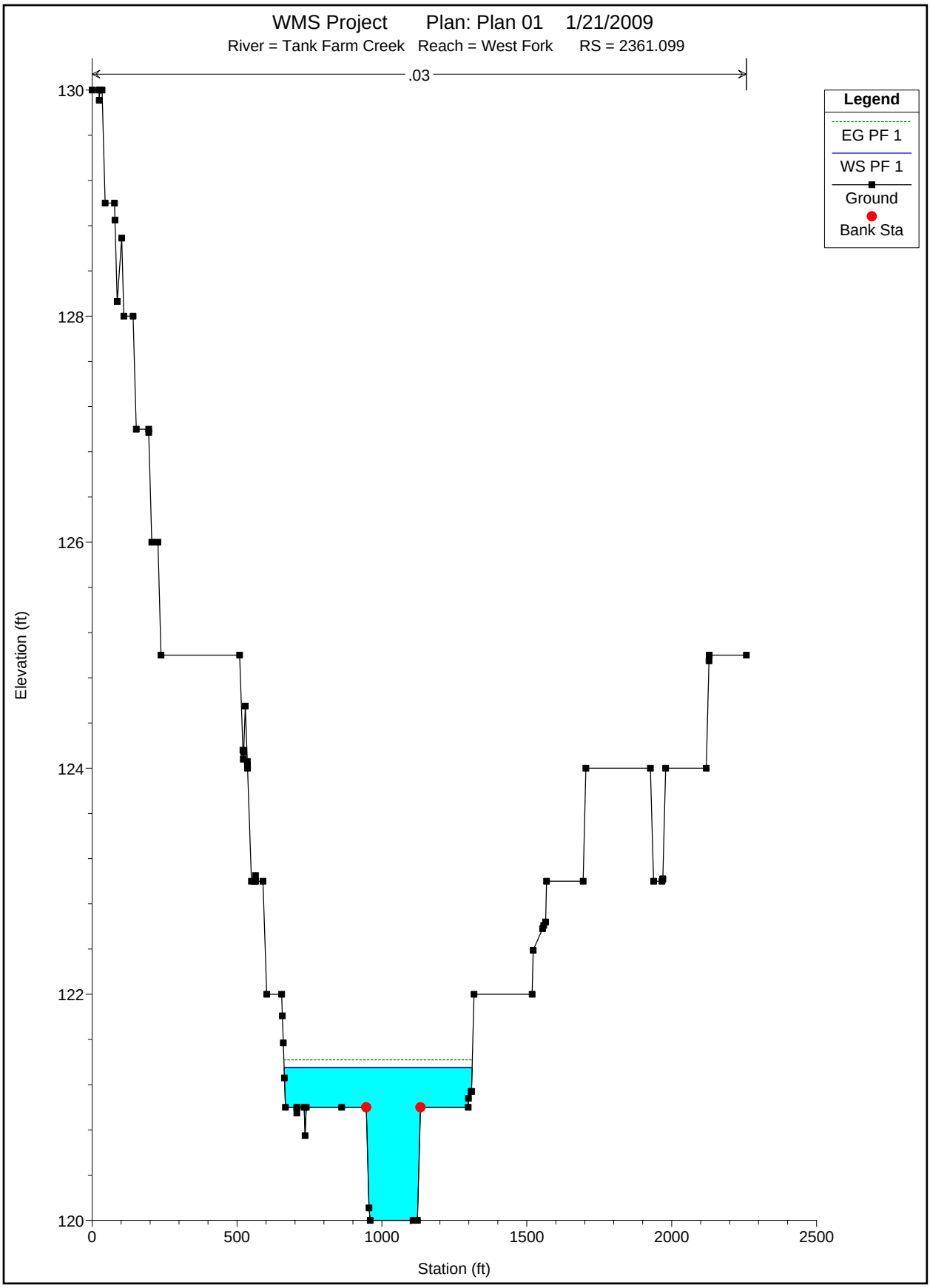
Existing Conditions Floodplain Analysis

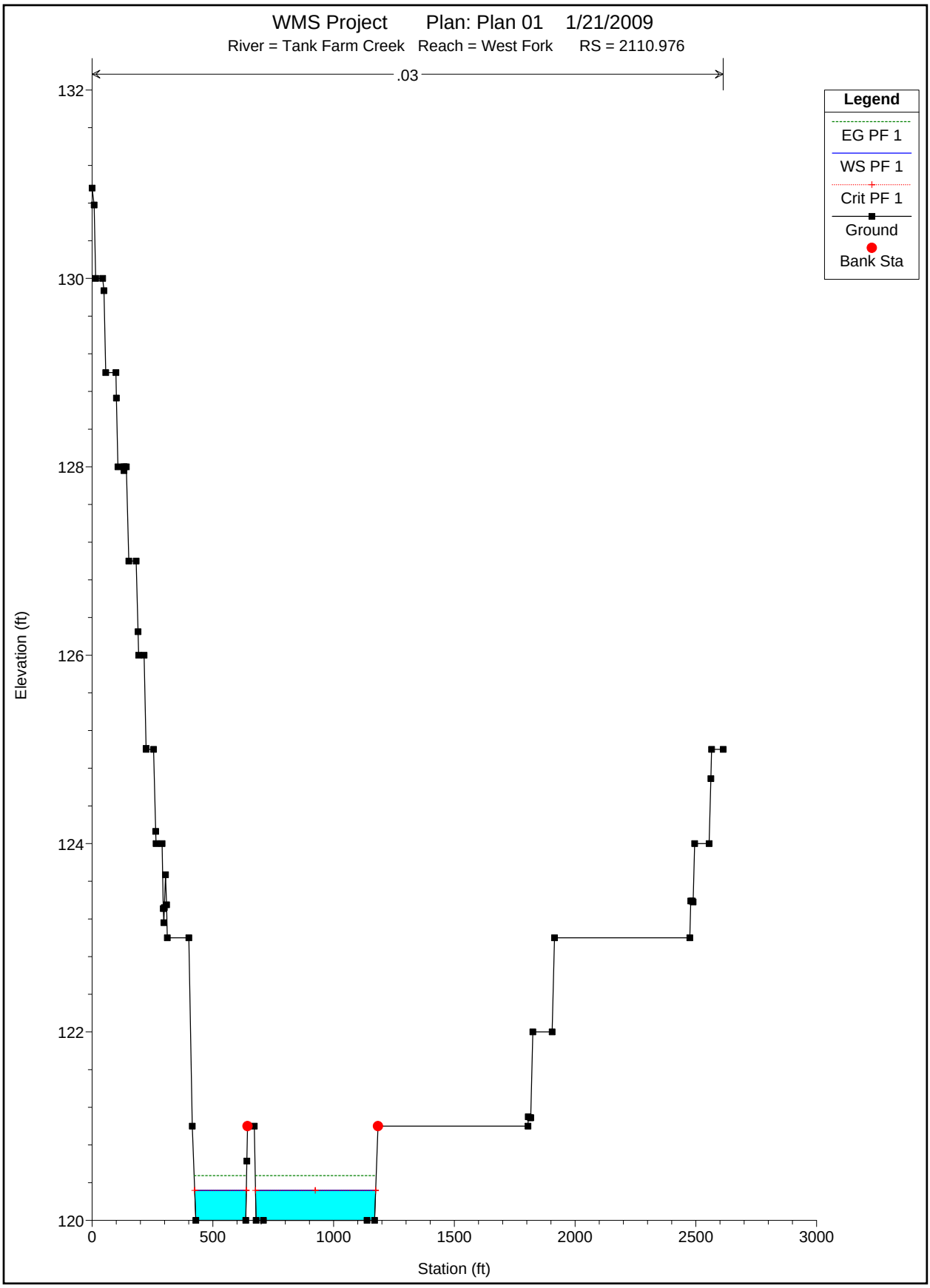

West Fork
Tank Farm Creek
3603.710
2794.734
2361.099
East Fork
Tank Farm Creek
5345.280
4833.307
4323.627
3899.164
3333.583
3079.222
2802.364
2592.018
4
1654.260
1323.927
Lower Reach
921.753
396.675
108.420
Tank Farm Creek

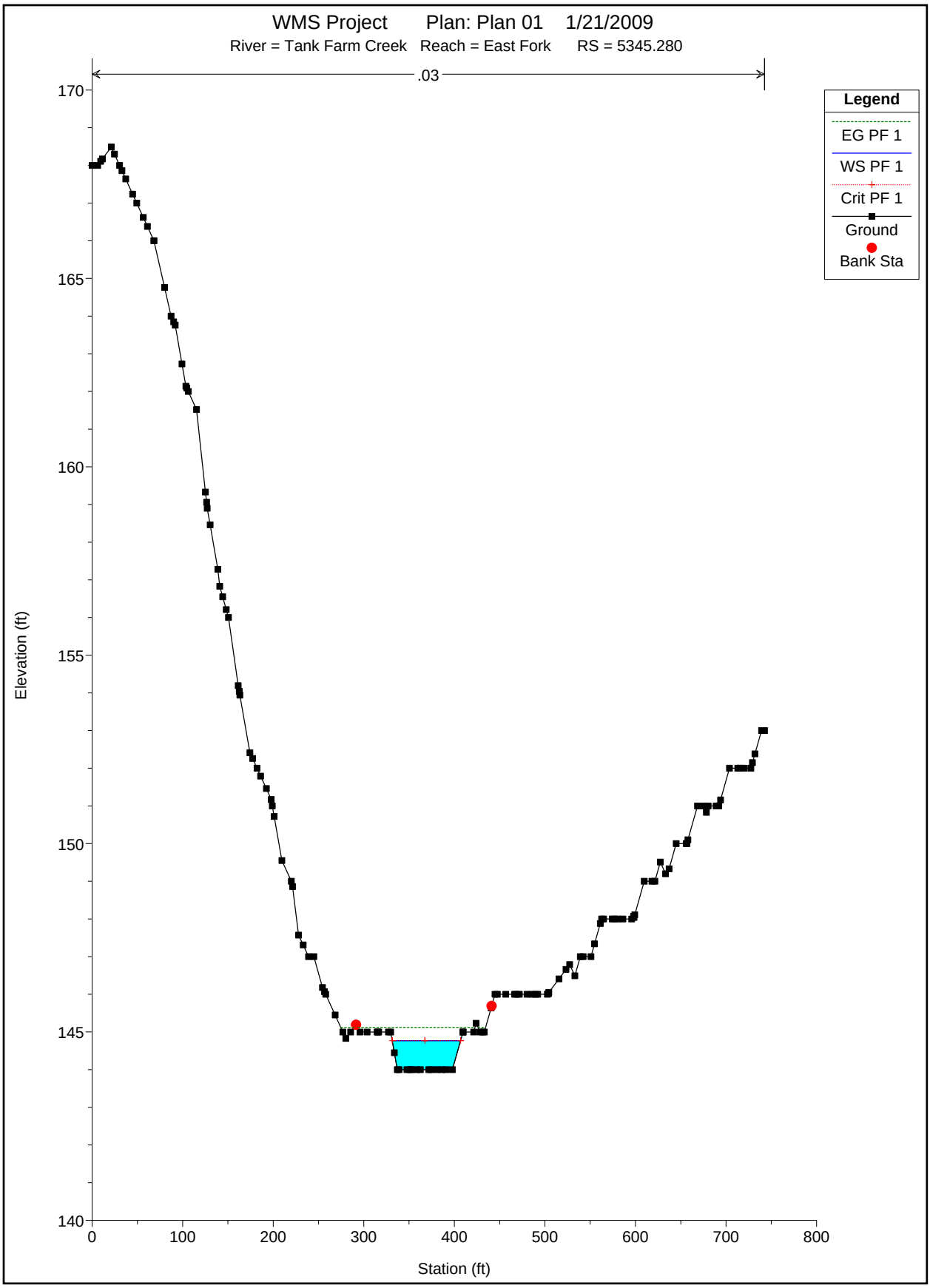

WMS Project Plan: Plan 01 1/21/2009
River = Tank Farm Creek Reach = West Fork RS = 3603.710
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
128
127
126
125
124
123
122
0
200
400
600
800
Station (ft)

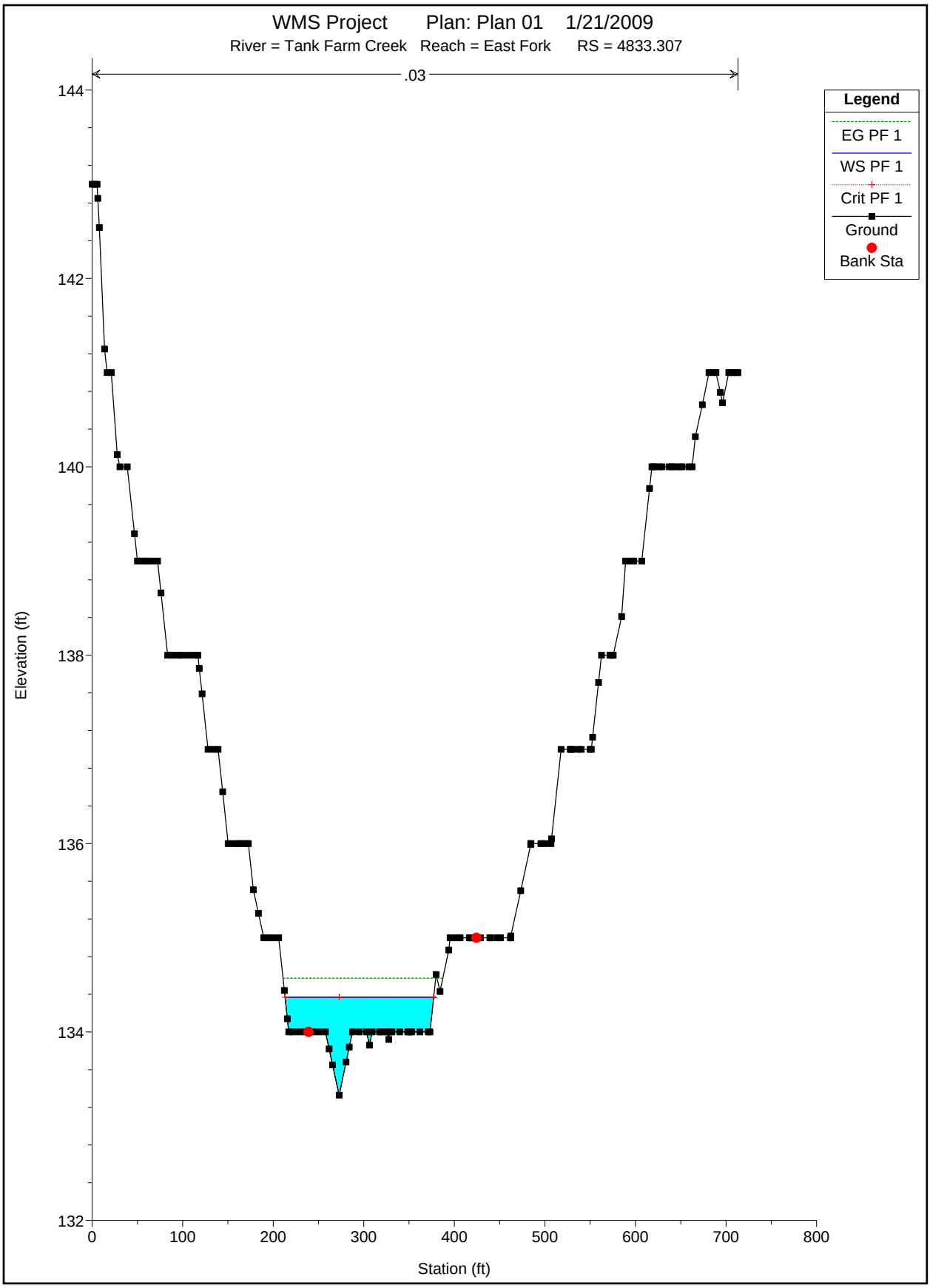

WMS Project Plan: Plan 01 1/21/2009
River = Tank Farm Creek Reach = West Fork RS = 3330.380
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
128
127
126
125
124
123
122
0
200
400
600
800
1000
1200
1400
Station (ft)

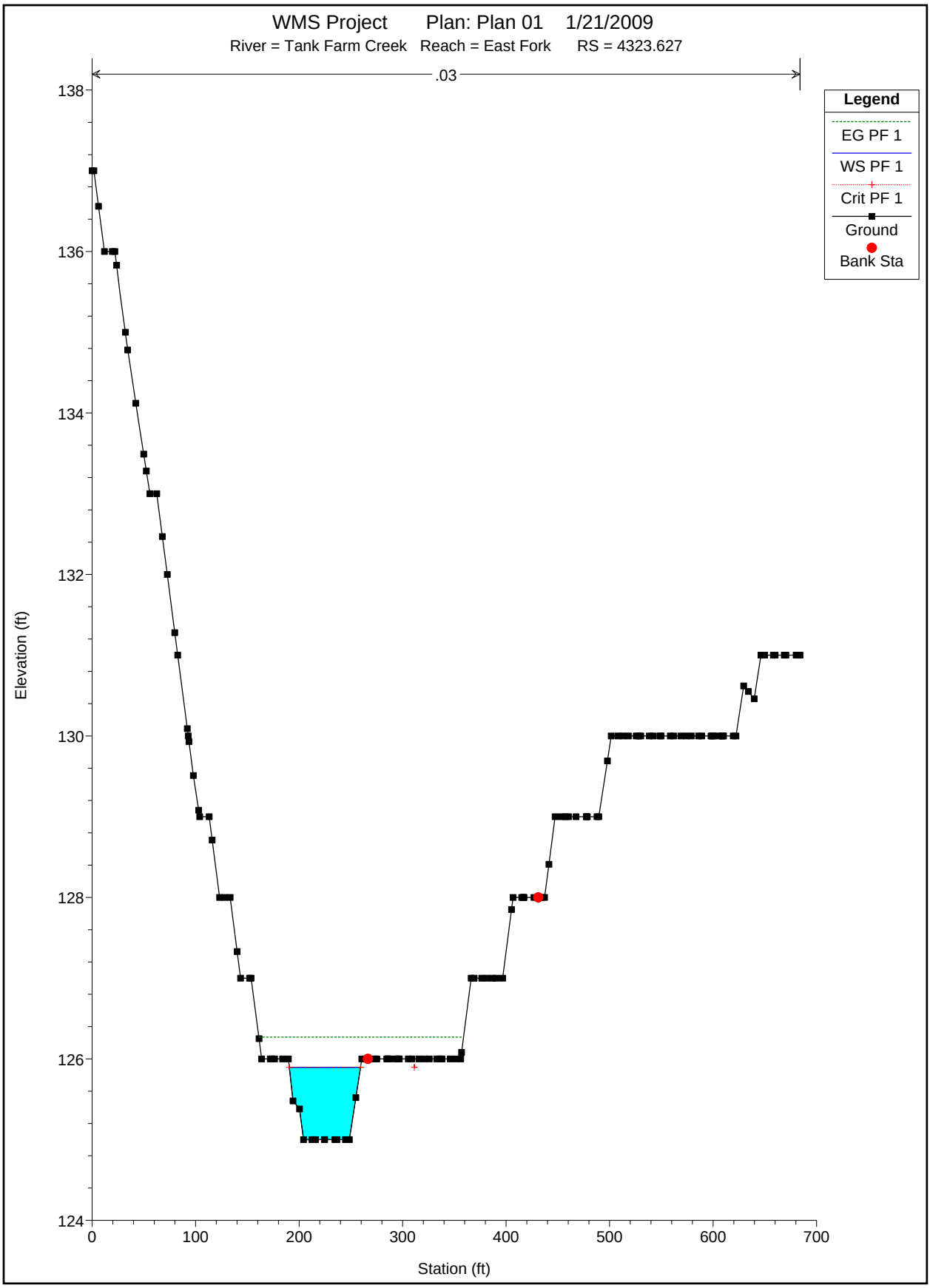

WMS Project Plan: Plan 01 1/21/2009
River = Tank Farm Creek Reach = West Fork RS = 2794.734
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
128
126
124
122
120
0
500
1000
1500
2000
2500
Station (ft)

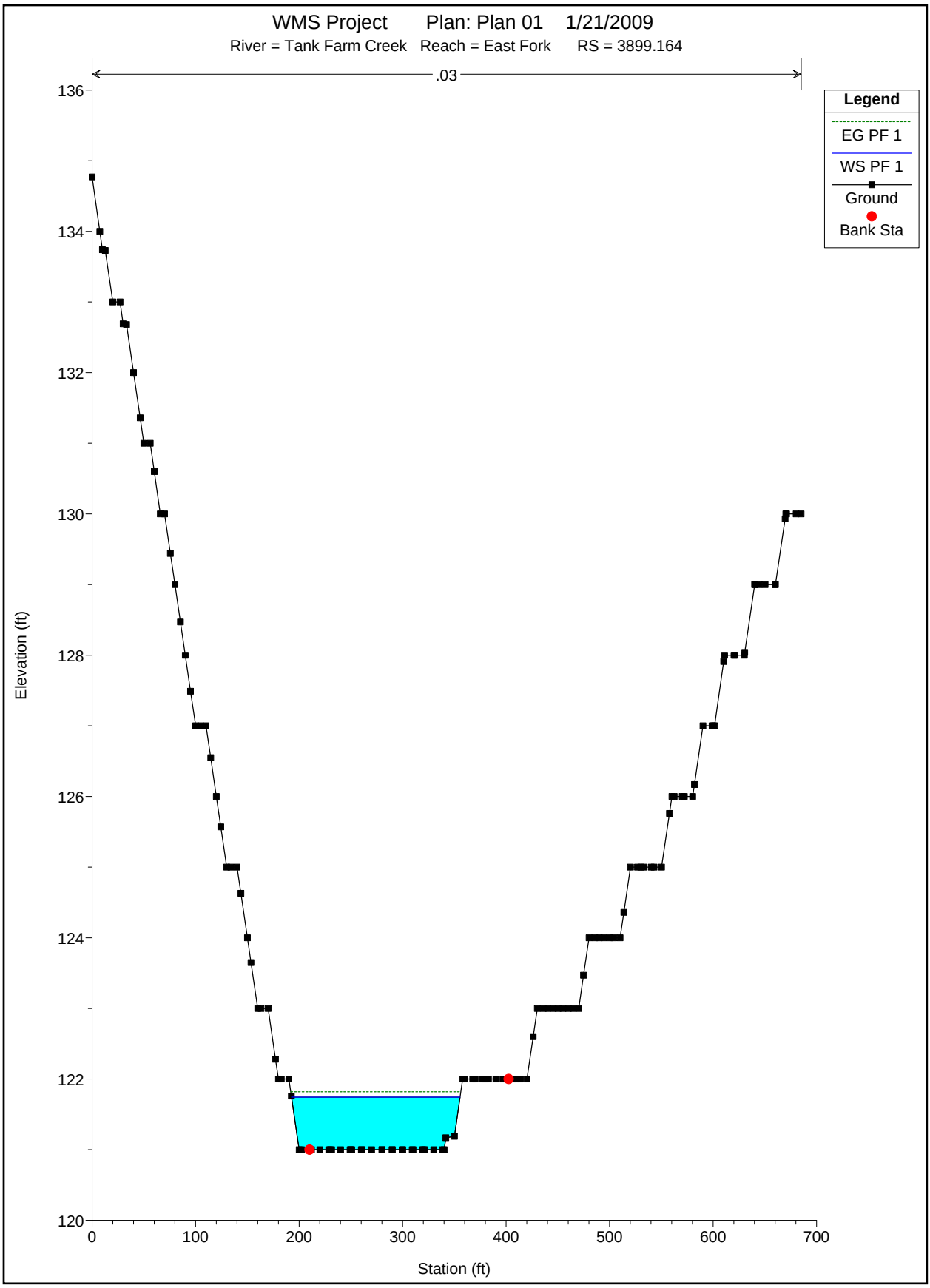

WMS Project Plan: Plan 01 1/21/2009
River = Tank Farm Creek Reach = West Fork RS = 2361.099
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
130
128
126
124
122
120
0
500
1000
1500
2000
2500
Station (ft)

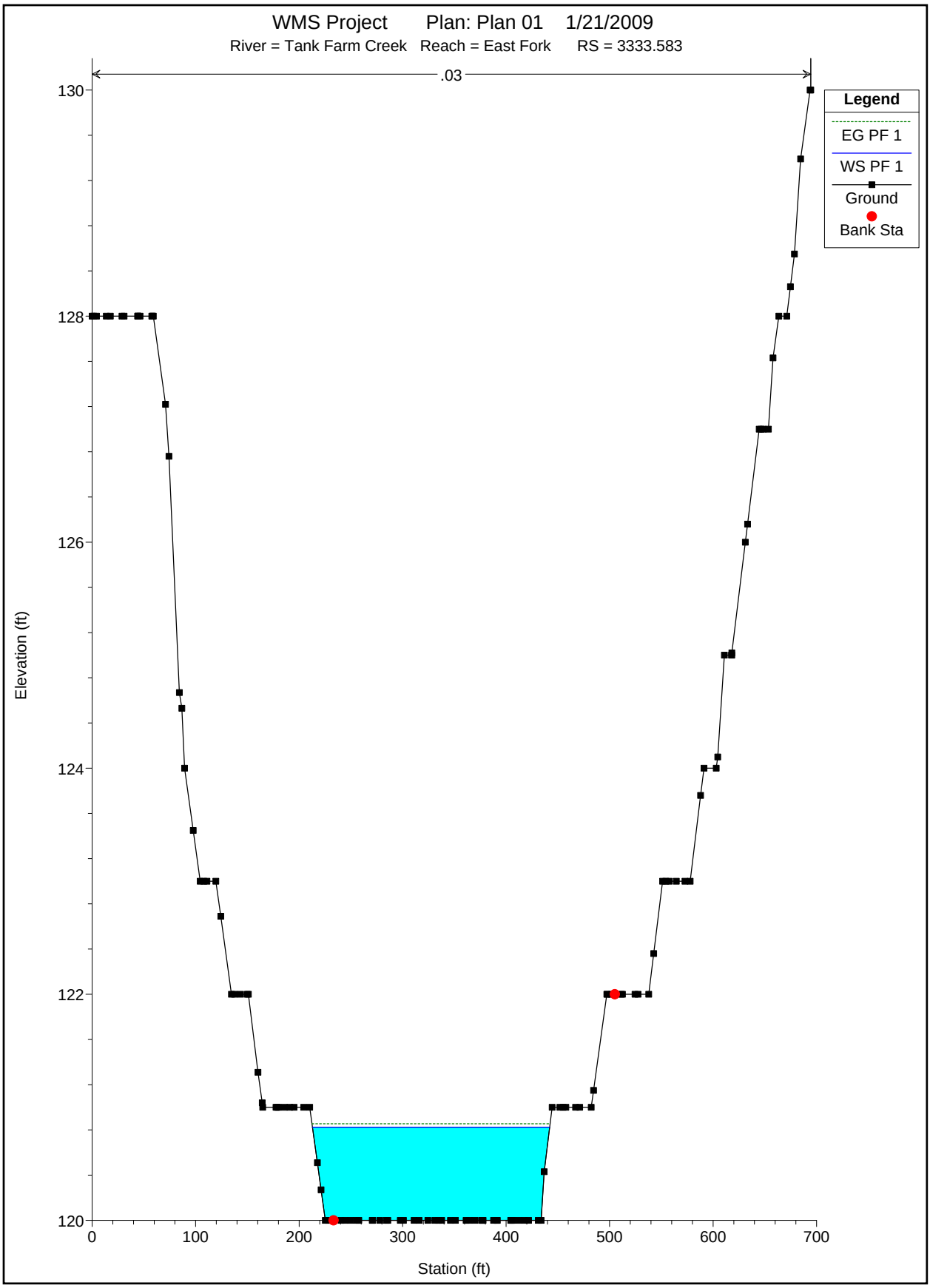

WMS Project Plan: Plan 01 1/21/2009
River = Tank Farm Creek Reach = West Fork RS = 2110.976
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
132
130
128
126
124
122
120
0
500
1000
1500
2000
2500
3000
Station (ft)

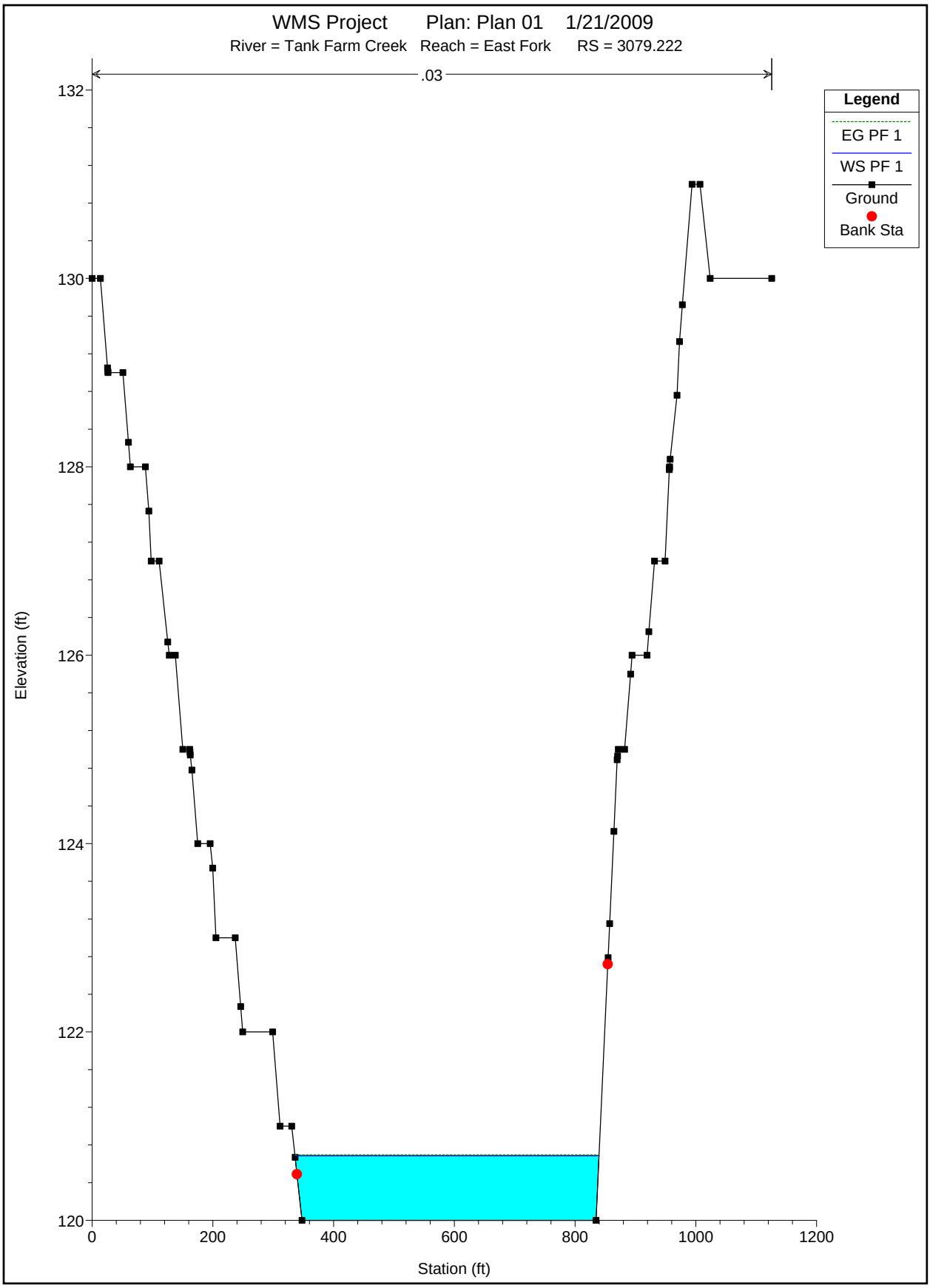

WMS Project Plan: Plan 01 1/21/2009
River = Tank Farm Creek Reach = East Fork RS = 5345.280
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
170
165
160
155
150
145
140
0
100
200
300
400
500
600
700
800
Station (ft)

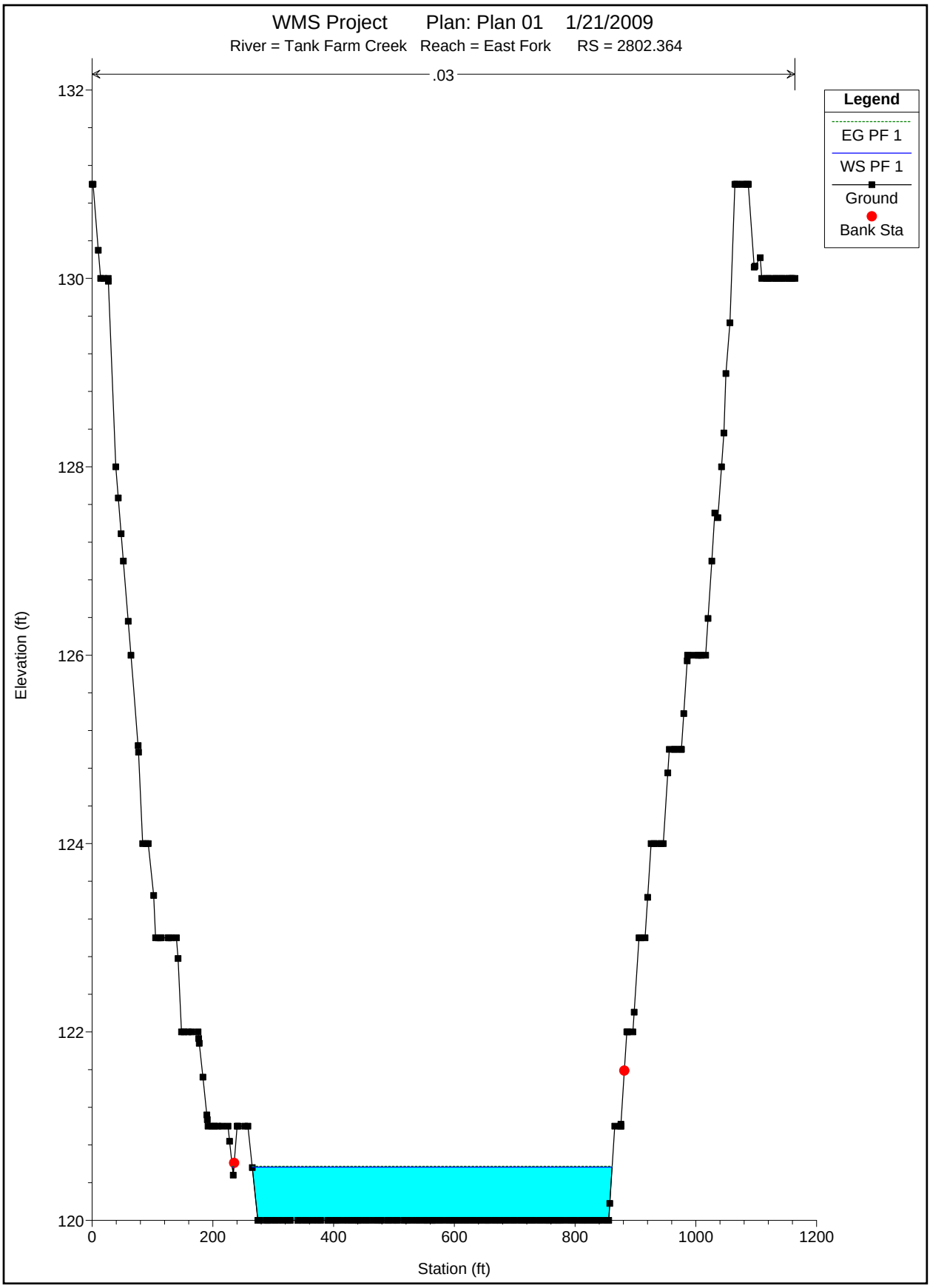

WMS Project Plan: Plan 01 1/21/2009
River = Tank Farm Creek Reach = East Fork RS = 4833.307
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
144
142
140
138
136
134
132
0
100
200
300
400
500
600
700
800
Station (ft)

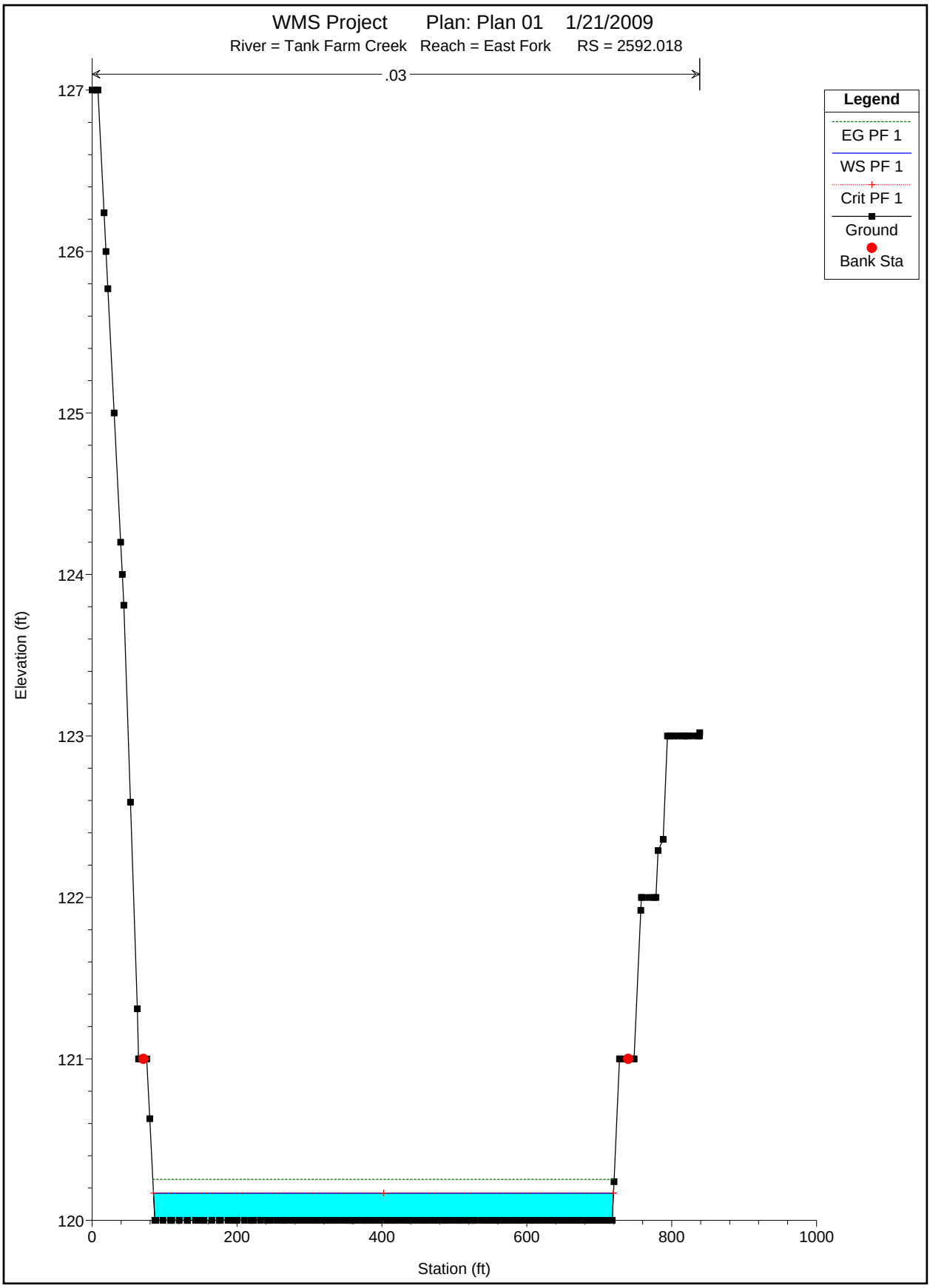

WMS Project Plan: Plan 01 1/21/2009
River = Tank Farm Creek Reach = East Fork RS = 4323.627
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
138
136
134
132
130
128
126
124
0
100
200
300
400
500
600
700
Station (ft)

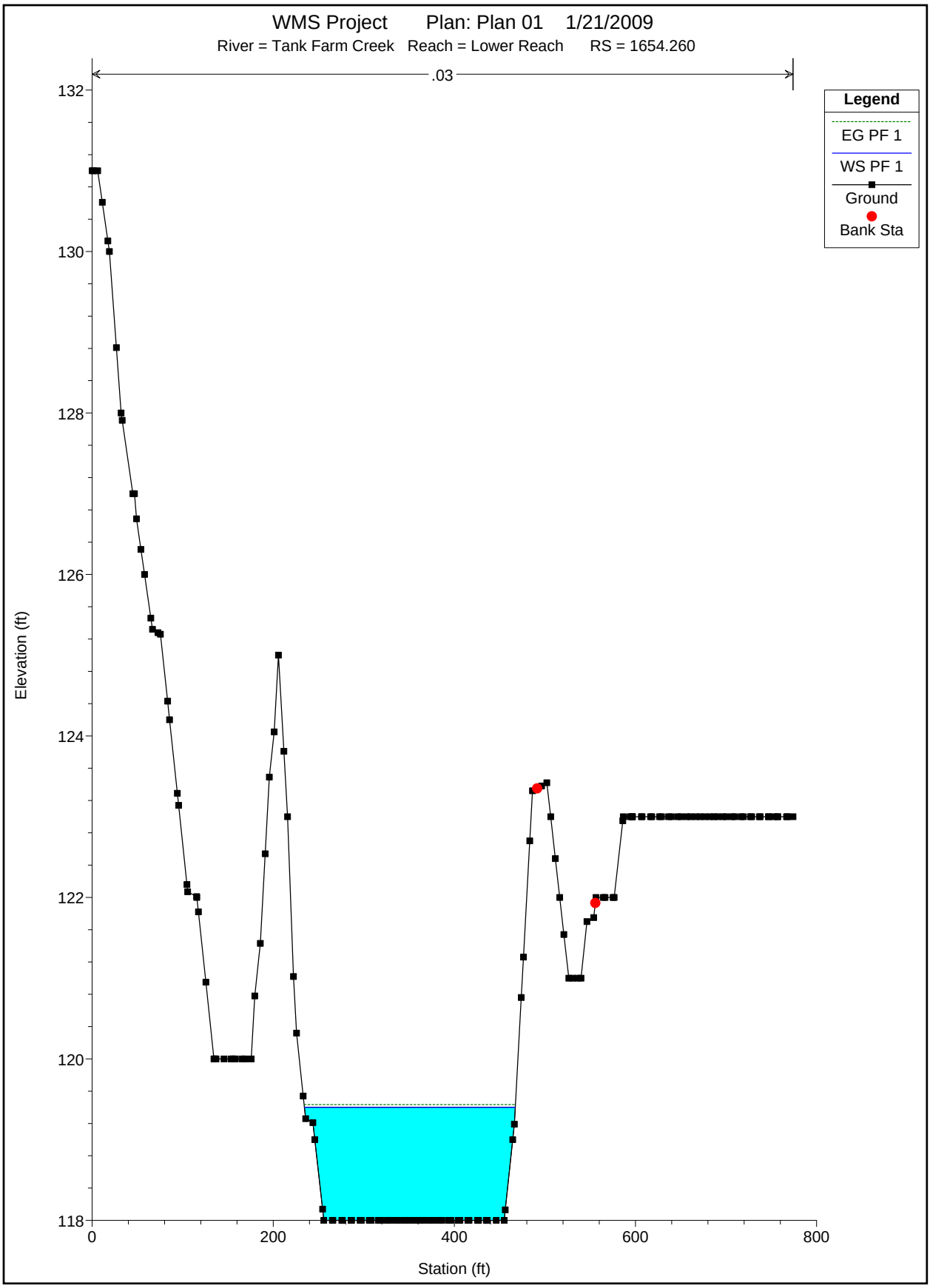

WMS Project Plan: Plan 01 1/21/2009
River = Tank Farm Creek Reach = East Fork RS = 3899.164
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
136
134
132
130
128
126
124
122
120
0
100
200
300
400
500
600
700

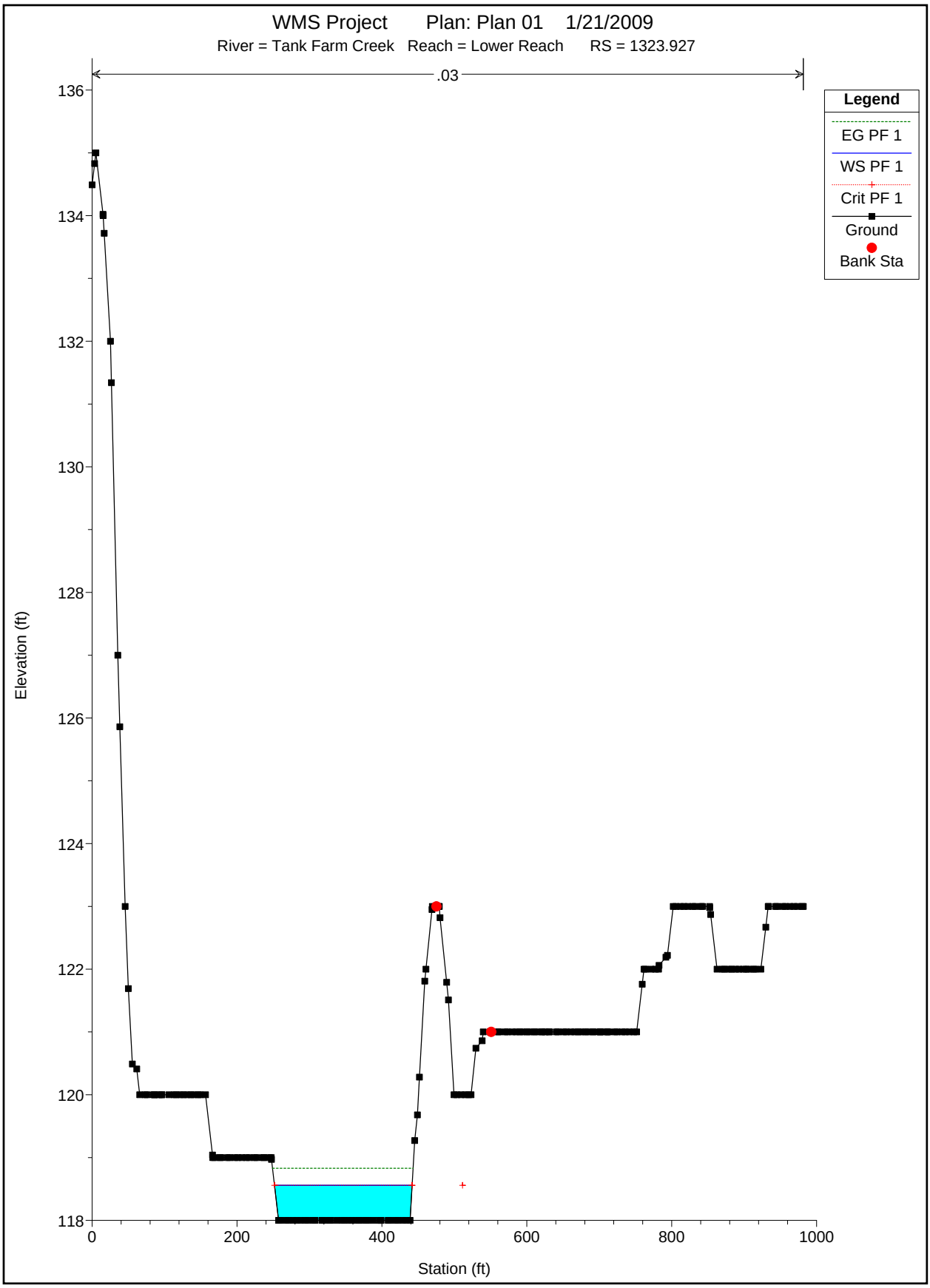

WMS Project Plan: Plan 01 1/21/2009
River = Tank Farm Creek Reach = East Fork RS = 3333.583
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
130
128
126
124
122
120
0
100
200
300
400
500
600
700

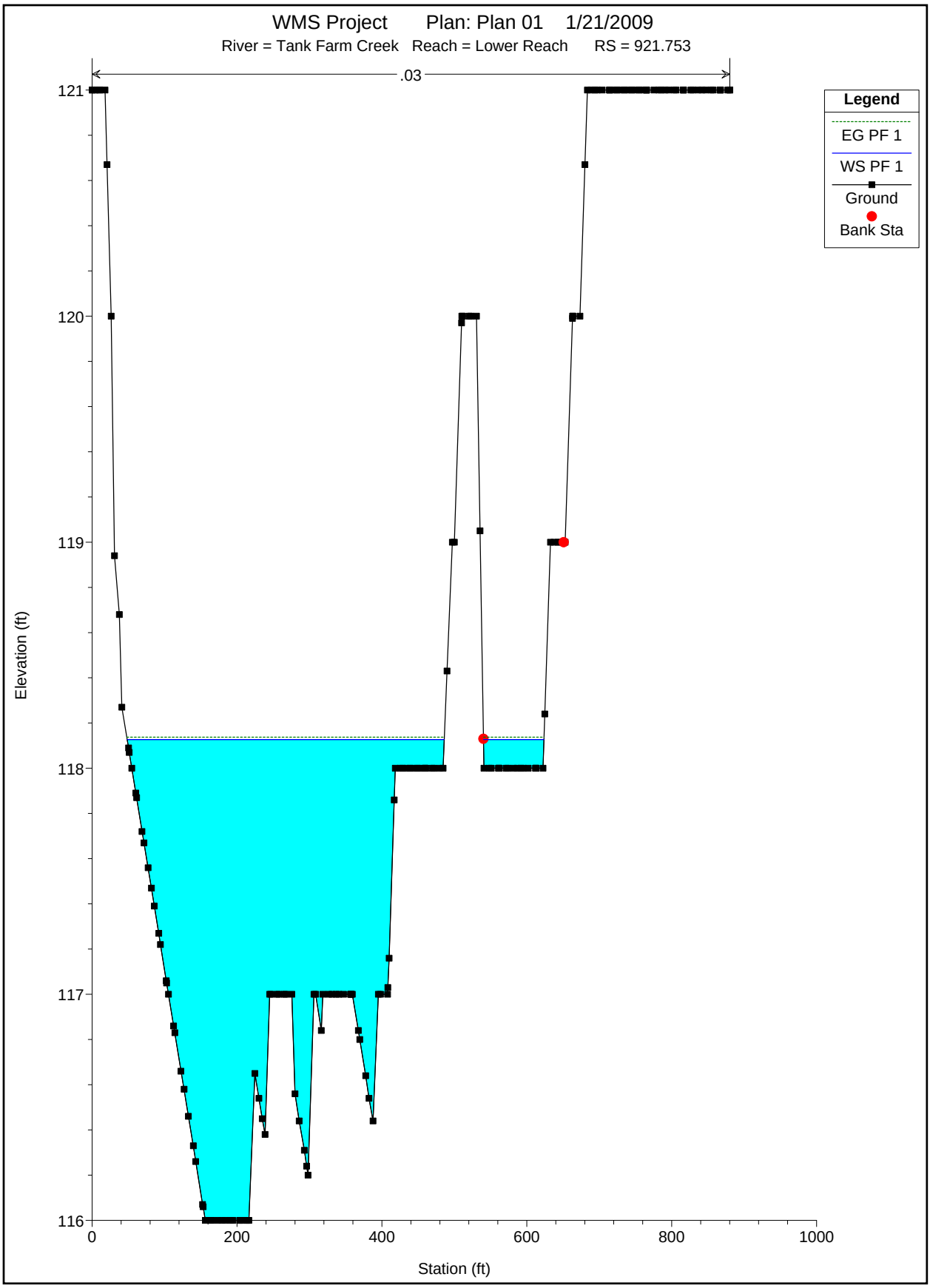

WMS Project Plan: Plan 01 1/21/2009
River = Tank Farm Creek Reach = East Fork RS = 3079.222
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
132
130
128
126
124
122
120
0
200
400
600
800
1000
1200

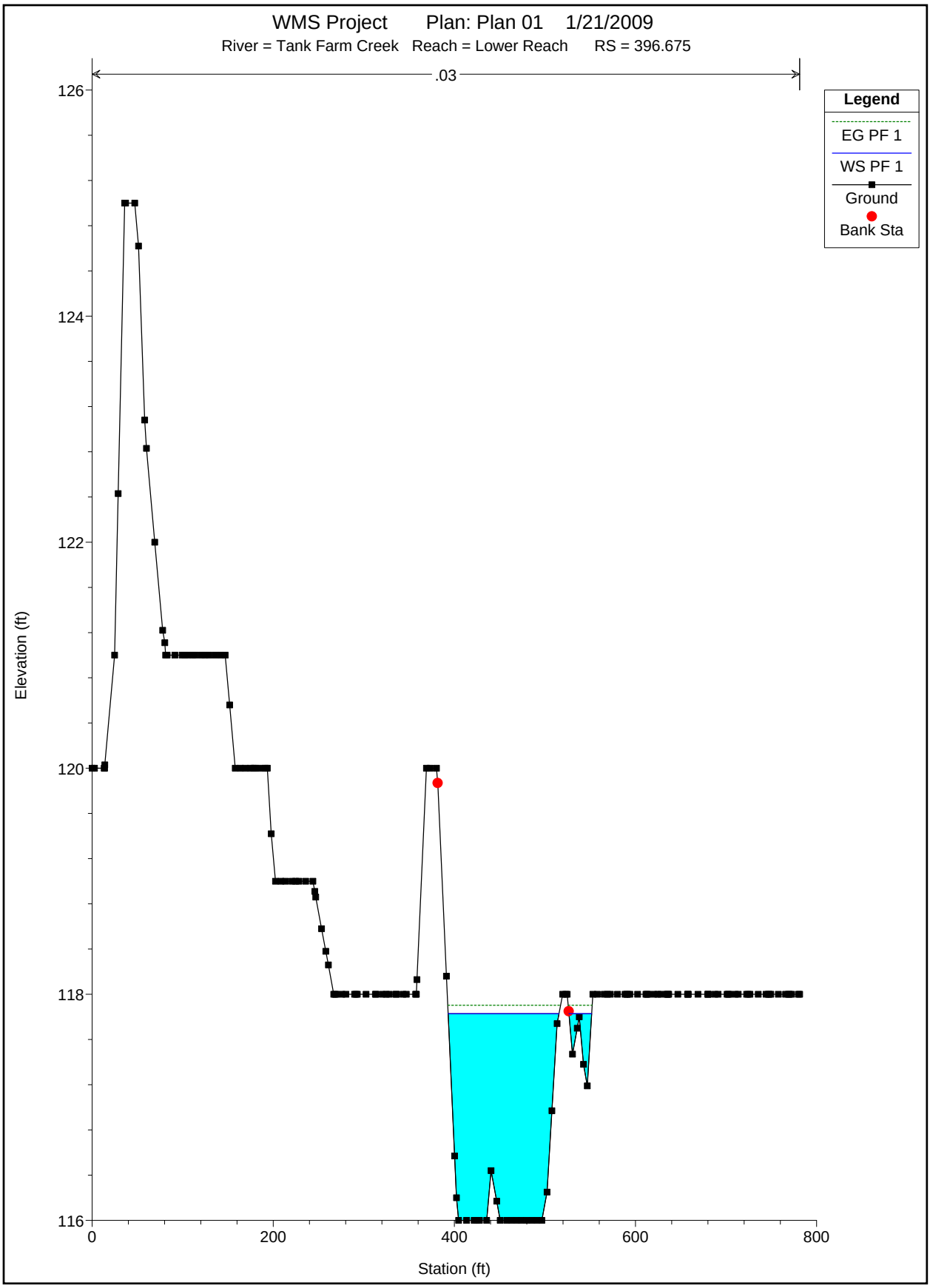

WMS Project Plan: Plan 01 1/21/2009
River = Tank Farm Creek Reach = East Fork RS = 2802.364
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
132
130
128
126
124
122
120
0
200
400
600
800
1000
1200
Station (ft)

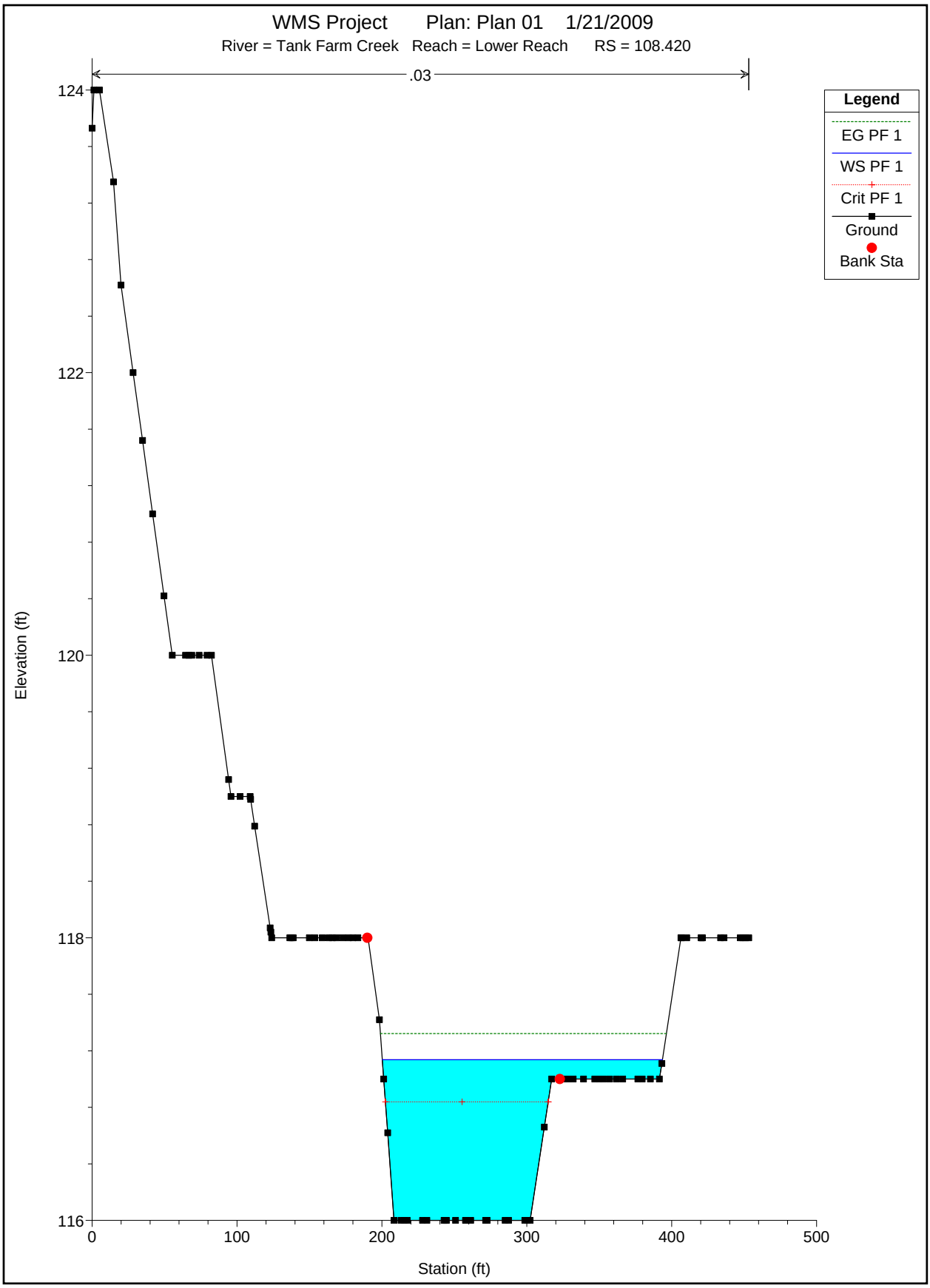

WMS Project Plan: Plan 01 1/21/2009
River = Tank Farm Creek Reach = East Fork RS = 2592.018
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
127
126
125
124
123
122
121
120
0
200
400
600
800
1000
Station (ft)


WMS Project Plan: Plan 01 1/21/2009
River = Tank Farm Creek Reach = Lower Reach RS = 1654.260
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
132
130
128
126
124
122
120
118
0
200
400
600
800
Station (ft)


WMS Project Plan: Plan 01 1/21/2009
River = Tank Farm Creek Reach = Lower Reach RS = 1323.927
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
136
134
132
130
128
126
124
122
120
118
0
200
400
600
800
1000
Station (ft)


WMS Project Plan: Plan 01 1/21/2009
River = Tank Farm Creek Reach = Lower Reach RS = 921.753
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
121
120
119
118
117
116
0
200
400
600
800
1000
Station (ft)


WMS Project Plan: Plan 01 1/21/2009
River = Tank Farm Creek Reach = Lower Reach RS = 396.675
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
126
124
122
120
118
116
0
200
400
600
800
Station (ft)


WMS Project Plan: Plan 01 1/21/2009
River = Tank Farm Creek Reach = Lower Reach RS = 108.420
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
124
122
120
118
116
0
100
200
300
400
500
Station (ft)

File: S:\Projects\1212 Chevron_Padre_SLOTF\005_HydrologyStudy\WMS\hecras-existing.rep 1/21/2009, 9:08:47 AM

```
                         HEC-RAS Version 3.1.3 May 2005
                          U.S. Army Corp of Engineers
                         Hydrologic Engineering Center
                               609 Second Street
                               Davis, California


            X     X  XXXXXX    XXXX        XXXX       XX      XXXX
            X     X  X        X    X       X   X     X  X    X
            X     X  X        X            X   X    X    X   X
            XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
            X     X  X        X            X  X     X    X        X
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            X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
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PROJECT DATA
Project Title: WMS Project
Project File : hecras-existing.prj
Run Date and Time: 1/21/2009 9:04:05 AM

Project in English units

PLAN DATA

Plan Title: Plan 01
Plan File : s:\Projects\1212 Chevron_Padre_SLOTF\005_HydrologyStudy\WMS\hecras-existing.p01

Geometry Title: WMS Project Geometry
Geometry File : s:\Projects\1212
Chevron_Padre_SLOTF\005_HydrologyStudy\WMS\hecras-existing.g01

Flow Title : WMS Project Flow
Flow File : s:\Projects\1212
Chevron_Padre_SLOTF\005_HydrologyStudy\WMS\hecras-existing.f01

Plan Summary Information:

Number of:	Cross Sections	= 18	Multiple Openings	=	0
	Culverts	= 0	Inline Structures	=	0
	Bridges	= 0	Lateral Structures	=	0

Computational Information

Water surface calculation tolerance	=	0.01
Critical depth calculation tolerance	=	0.01
Maximum number of iterations	=	20
Maximum difference tolerance	=	0.3
Flow tolerance factor	=	0.001

Computation Options
Critical depth computed only where necessary

Page: 1

File: S:\Projects\1212 Chevron_Padre_SLOTF\005_HydrologyStudy\WMS\hecras-existing.rep 1/21/2009, 9:08:47 AM

```
    Conveyance Calculation Method: At breaks in n values only
    Friction Slope Method:         Average Conveyance
    Computational Flow Regime:     Subcritical Flow
```

FLOW DATA

Flow Title: WMS Project Flow
Flow File : s:\Projects\1212 Chevron_Padre_SLOTF\005_HydrologyStudy\WMS\hecras-existing.f01

Flow Data (cfs)

River	Reach	RS	PF 1
Tank Farm Creek	West Fork	3603.710	712
Tank Farm Creek	Lower Reach	1654.260	433
Tank Farm Creek	East Fork	5345.280	250

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Tank Farm Creek	Lower Reach	PF 1		Normal S = 0.005

GEOMETRY DATA

Geometry Title: WMS Project Geometry
Geometry File : s:\Projects\1212 Chevron_Padre_SLOTF\005_HydrologyStudy\WMS\hecras-existing.g01

Reach Connection Table

River	Reach	Upstream Boundary	Downstream Boundary
Tank Farm Creek	West Fork		4
Tank Farm Creek	East Fork		4
Tank Farm Creek	Lower Reach	4	

JUNCTION INFORMATION

Name: 4
Description:
Energy computation Method

Length across Junction River	Reach	Tributary River	Reach	Length	Angle
Tank Farm Creek	West Fork	to Tank Farm Creek	Lower Reach	0	0
Tank Farm Creek	East Fork	to Tank Farm Creek	Lower Reach	0	0

File: S:\Projects\1212 Chevron_Padre_SLOTF\005_HydrologyStudy\WMS\hecras-existing.rep 1/21/2009, 9:08:47 AM

CROSS SECTION

RIVER: Tank Farm Creek
REACH: West Fork RS: 3603.710

INPUT
Description:
Station Elevation Data num= 169

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	126	.61	126	4.27	126	14.38	126	15.27	126
15.78	126	22.6	126	27.29	126	29.93	126	34.58	126
37.27	126	38.8	126	44.37	126	50.3	126	51.93	126
54.79	126	59.26	126	61.81	126	66.59	126	73.32	125.08
74.99	125	81.26	125.31	84.83	125	88.59	125	95.2	125
95.92	125	96.34	125	103.26	125	107.85	125	110.59	125
115.4	125	117.92	125	119.35	125	124.58	125	130.86	125
132.58	124.85	135.61	124.59	139.92	124.21	142.37	124	151.32	123.22
153.88	123	154.58	123	155.81	123	161.91	123	165.39	123
169.25	123	176.02	123	176.58	123	176.9	123	183.91	123
188.4	123	191.24	122.75	194.38	122.48	195.29	122.48	200.08	122.48
205.29	122.48	210.54	122.47	215.29	122.47	220	122.47	225.29	122.47
230.63	123	235.29	123	239.92	123	245.29	123	249.88	123
255.29	123	260.75	123	265.29	123	270.79	123	275.29	123
279.75	123	285.29	123	289.71	123	295.29	123	300.91	123
305.29	123	309.63	123	315.29	123	319.59	123	325.29	123
331.04	123	332.98	123	335.29	123	339.51	123	345.29	123
349.47	123	355.29	123	361.16	123	365.29	123	369.39	123
375.29	123	379.35	123	385.29	123	391.28	123	395.29	123
401.32	123	405.29	123	409.23	123.39	415.29	123.39	419.19	123.39
425.29	124	431.44	124	435.29	124	439.11	124	445.29	124
449.07	124	455.29	124	461.57	124.63	465.29	125	468.99	125.74
475.29	127	478.94	127.36	482.98	127.77	485.29	128	491.69	128
495.29	128	498.86	128	505.29	128	508.82	128	515.29	128
521.81	128	525.29	128	531.86	128	535.29	128	538.7	128
545.29	128	548.66	128	555.29	128	561.98	128	565.29	128
568.58	128	575.29	128	578.54	128	585.29	128	592.1	128
595.29	128	598.46	128	605.29	128	608.42	128	615.29	128
618.38	128	625.29	128	628.34	128	635.29	128	638.3	128
645.29	128	648.26	128	655.29	128	662.39	128	665.29	128
668.18	128	675.29	128	678.14	127.72	685.29	127	688.1	127
695.29	127	698.05	127	705.29	127	708.01	127	715.29	127
717.97	127	725.29	127	727.93	127	735.29	127	737.89	127
745.29	127	747.85	127	755.29	127	759.48	127		

Manning's n Values num= 1

Sta	n Val
0	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
183.91	230.63	212.96	273.33	326.87	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

File: S:\Projects\1212 Chevron_Padre_SLOTF\005_HydrologyStudy\WMS\hecras-existing.rep 1/21/2009, 9:08:47 AM

E.G. Elev (ft)	124.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (ft)	124.01	Reach Len. (ft)	212.96	273.33	326.87
Crit W.S. (ft)	123.58	Flow Area (sq ft)	36.37	66.59	188.86
E.G. Slope (ft/ft)	0.002534	Area (sq ft)	36.37	66.59	188.86
Q Total (cfs)	712.00	Flow (cfs)	82.72	210.11	419.17
Top Width (ft)	313.22	Top Width (ft)	41.70	46.72	224.80
Vel Total (ft/s)	2.44	Avg. Vel. (ft/s)	2.27	3.16	2.22
Max Chl Dpth (ft)	1.54	Hydr. Depth (ft)	0.87	1.43	0.84
Conv. Total (cfs)	14145.0	Conv. (cfs)	1643.4	4174.2	8327.4
Length Wtd. (ft)	285.58	Wetted Per. (ft)	41.74	46.77	224.85
Min Ch El (ft)	122.47	Shear (lb/sq ft)	0.14	0.23	0.13
Alpha	1.08	Stream Power (lb/ft s)	0.31	0.71	0.29
Frctn Loss (ft)	1.21	Cum Volume (acre-ft)	2.24	7.59	2.11
C & E Loss (ft)	0.01	Cum SA (acres)	4.57	7.57	3.84

CROSS SECTION

RIVER: Tank Farm Creek
REACH: West Fork RS: 3330.380

INPUT
Description:
Station Elevation Data num= 296

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	126	2.86	126	5	126	10.98	126	15.38	126
19.1	126	25.76	126	32.45	126	35.34	126	36.14	126
43.45	126	46.52	126	51.57	126	56.9	126	59.69	126
67.28	126	69.69	126	77.66	126	84.04	126	88.05	126
92.16	126	98.43	126	100.28	125.82	106.92	125.18	108.81	125
116.52	125	119.19	125	124.63	125	129.57	125	132.75	125
139.95	125	140.87	124.91	144.16	124.6	148.99	124.13	150.33	124
157.1	123.35	160.72	123	165.22	123	171.1	123	173.34	123
181.39	123	181.48	123	189.58	123	191.86	123	192.62	122.927
195.91	122.61	202.24	122	205.81	122	212.62	122	213.93	122
218.63	122	222.05	122	223	122	230.17	122	233.38	122
239.09	122	243.77	122	246.4	122	253.2	122	254.11	122
254.36	122	254.69	122	261.49	122	266.78	122	268.61	122
270.97	122	275.74	122	279.45	122	287.25	122	289.99	122
292.12	122	297.12	122	303.4	122	303.53	122	304.24	122
304.79	122	311.37	122	317.46	122	318.49	122	319.81	122
325.62	122	330.14	122	332.75	122	336.1	122	339.87	122
342.81	122	347	122	352.38	122	355.48	122	366.37	122
368.15	122	368.66	122	375.5	122	380.82	122	382.63	122
384.94	122	393.5	122	396.88	122	401.22	122	404	122
406.17	122	411.13	122	417.51	122	418.84	122	425.38	122
431.51	122	432.51	122	433.79	122	439.63	122	444.18	122
446.76	122.2	450.07	122	453.88	122	456.85	122	461.01	122
466.35	122	469.52	122	480.66	122	482.19	122	482.63	122.04
489.51	122.58	494.87	123	496.64	123	498.92	123	503.76	123
507.54	123	510.89	123	515.2	123	518.02	123	520.21	123

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525.14	123	531.48	123	532.27	123	532.88	123	539.39	123
545.55	123	546.52	123	547.76	123	553.64	123	558.23	123
560.77	123	564.04	123	570.9	123	580.33	123	582.15	123
583.57	123	589.27	123	596.24	123	596.4	123	596.61	123
601.61	123	603.53	123	608.91	123	610.65	123	612.89	123
617.78	123	621.58	123	624.9	123	629.17	123	632.03	123
634.25	123	639.15	123	645.45	123.88	646.28	124	646.93	124
653.41	124	659.6	124	660.53	124	661.74	124	667.66	124
672.27	124	674.78	124	678.02	124	684.94	124	694.3	124
696.07	124	696.2	124	697.29	124	706.12	124	707.29	124
716.04	124	717.29	124	725.96	124	727.29	124	728.64	124
737.29	124	745.8	124	747.29	124	755.72	124	757.29	124
765.64	124	767.29	124	775.56	124.83	777.29	125	785.48	125
787.29	125	795.4	125	797.29	125	805.33	125	807.29	125
815.25	125	817.29	125	825.17	125	827.29	125	835.09	125
837.29	125	845.01	125	847.29	125	854.93	125	857.29	125
864.85	125.76	867.29	125.75	874.77	125.75	877.29	126	884.69	126
887.29	126	894.61	126	897.29	126	904.53	126	907.29	126
914.45	126	917.29	126	924.38	126	927.29	126	934.3	126
937.29	126	944.22	126	947.29	126	954.14	126	957.3	126
964.06	126	967.3	126	970.59	126	977.3	126	983.9	126
987.3	126	993.82	126	997.3	126	1003.74	126	1007.3	126
1013.66	126	1017.3	126	1023.58	126	1027.3	126	1033.5	126.62
1037.3	127	1043.43	127	1047.3	127	1051.23	127	1057.3	127
1063.27	127	1067.3	127	1073.19	127	1077.3	127	1083.11	127
1087.3	127	1091.56	127	1097.3	127	1102.95	127	1107.3	127
1112.87	127	1117.3	127	1122.79	127	1127.3	127	1131.88	127.46
1137.3	128	1142.63	128	1147.3	128	1152.55	128	1157.3	128
1162.47	128	1167.3	128	1172.4	128	1177.3	128	1182.32	128
1187.3	128	1192.24	128	1197.3	128	1202.16	128	1207.3	128
1212.53	128	1217.3	128	1222	128	1227.3	128	1231.92	128
1237.31	128	1241.84	128	1247.31	128	1252.86	128	1257.31	128
1261.68	128	1267.31	128	1271.6	128	1277.31	128	1281.52	128
1282.29	128								

Manning's n Values num= 1

Sta	n Val
0	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
181.39	494.87	667.53	535.65	611.53	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	122.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.		0.030	
W.S. Elev (ft)	122.70	Reach Len. (ft)	667.53	535.65	611.53
Crit W.S. (ft)	122.58	Flow Area (sq ft)		201.90	
E.G. Slope (ft/ft)	0.008450	Area (sq ft)		201.90	
Q Total (cfs)	712.00	Flow (cfs)		712.00	
Top Width (ft)	296.14	Top Width (ft)		296.14	
Vel Total (ft/s)	3.53	Avg. Vel. (ft/s)		3.53	
Max Chl Dpth (ft)	0.70	Hydr. Depth (ft)		0.68	
Conv. Total (cfs)	7745.5	Conv. (cfs)		7745.5	
Length Wtd. (ft)	547.42	Wetted Per. (ft)		296.21	

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Min Ch El (ft)	122.00	Shear (lb/sq ft)		0.36	
Alpha	1.00	Stream Power (lb/ft s)		1.27	
Frctn Loss (ft)	0.96	Cum Volume (acre-ft)	2.15	6.75	1.40
C & E Loss (ft)	0.04	Cum SA (acres)	4.47	6.50	3.00

CROSS SECTION

RIVER: Tank Farm Creek
REACH: West Fork RS: 2794.734

INPUT
Description:
Station Elevation Data num= 89

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	128	59.48	128	70.5	127.12	71.36	127	107.06	127
114.2	126	234.75	126	236.71	125.84	247.27	125	272.31	125
292.72	123.37	299.86	123.8	303.2	123.53	309.87	123	319.82	123
321.28	123.09	322.38	123	528.28	123	535.05	123.66	538.53	123.58
548.79	123.36	557.3	124	589.8	124	600.05	125	652.11	125
655.6	125.42	660.47	125.89	661.57	126	712.83	126	723.08	125
882.9	125	892.39	124	939.82	124	944.81	123.47	946.35	123.31
949.3	123	974.86	123	982.23	122.26	984.87	122	1004.91	122
1006.21	121.87	1014.92	121.92	1024.66	121	1115	121	1124.13	120.09
1125.01	120	1265.02	120	1275.03	121	1305.03	121	1307.21	121.22
1315.03	121.23	1317.38	121.24	1335.03	121.26	1337.72	121.27	1345.04	121.28
1347.89	121.29	1355.04	121.3	1357.66	121.3	1358.06	121.3	1365.04	121.31
1368.23	121.32	1375.04	122	1395.04	122	1398.75	122.37	1408.92	122.39
1415.05	123	1515.11	123	1522.66	123.75	1525.13	123.77	1533.33	123.82
1535.15	124	1715.49	124	1725.43	124.99	1725.51	125	1864.17	125
1874.84	126	2053.93	126	2056.13	126.01	2056.27	126.01	2066.15	126.08
2066.94	126	2086.18	126	2088.29	126.21	2116.24	126.38	2120.3	126.41
2126.26	127	2266.52	127	2276.54	128	2366.59	128		

Manning's n Values num= 1

Sta	n Val
0	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
1115	1275.03	516.97	433.63	524.85	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	121.89	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (ft)	121.83	Reach Len. (ft)	516.97	433.63	524.85
Crit W.S. (ft)		Flow Area (sq ft)	79.04	283.50	62.42
E.G. Slope (ft/ft)	0.000739	Area (sq ft)	79.04	283.50	62.42
Q Total (cfs)	712.00	Flow (cfs)	91.44	558.52	62.03
Top Width (ft)	357.55	Top Width (ft)	99.17	160.03	98.35
Vel Total (ft/s)	1.68	Avg. Vel. (ft/s)	1.16	1.97	0.99
Max Chl Dpth (ft)	1.83	Hydr. Depth (ft)	0.80	1.77	0.63
Conv. Total (cfs)	26197.0	Conv. (cfs)	3364.5	20550.0	2282.5

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Length Wtd. (ft)	452.32	Wetted Per. (ft)	99.21	160.13	98.39
Min Ch El (ft)	120.00	Shear (lb/sq ft)	0.04	0.08	0.03
Alpha	1.18	Stream Power (lb/ft s)	0.04	0.16	0.03
Frctn Loss (ft)	0.46	Cum Volume (acre-ft)	1.55	3.76	0.96
C & E Loss (ft)	0.00	Cum SA (acres)	3.71	3.69	2.31

CROSS SECTION

RIVER: Tank Farm Creek
REACH: West Fork RS: 2361.099

INPUT
Description:
Station Elevation Data num= 73

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	130	23.68	130	24.63	129.91	27.11	130	34.4	130
45.11	129	77.24	129	78.81	128.85	86.56	128.13	102.04	128.69
109.38	128	141.51	128	152.22	127	195.07	127	195.41	126.97
205.78	126	227.2	126	237.91	125	509.15	125	520.57	124.16
521.68	124.08	522.69	124.14	528.76	124.55	535.4	124.06	535.84	124.03
536.23	124	549.77	123	560.54	123	563.85	123.05	564.18	123
589.64	123	602.53	122	654.12	122	656.59	121.81	659.63	121.57
663.7	121.26	667.01	121	705.7	121	706.35	120.95	707.14	121
731.49	121	734.78	120.75	738.81	121	861.04	121	946.08	121
955.3	120.11	959.43	120	1107.26	120	1122.71	120	1133.1	121
1297.92	121	1298.72	121.08	1307.93	121.14	1309.37	121.14	1317.95	122
1518.3	122	1522.23	122.39	1554.16	122.58	1558.37	122.61	1564.8	122.64
1568.38	123	1694.56	123	1704.02	124	1926.67	124	1937.31	123
1966.45	123	1969.07	123.02	1969.24	123.02	1979.09	124	2119.33	124
2128.88	124.95	2129.35	125	2257.96	125				

Manning's n Values num= 1

Sta	n Val
0	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
946.08	1133.1	252.15	250.12	312.03	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	121.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (ft)	121.35	Reach Len. (ft)	252.15	250.12	312.03
Crit W.S. (ft)		Flow Area (sq ft)	100.07	242.37	61.08
E.G. Slope (ft/ft)	0.001527	Area (sq ft)	100.07	242.37	61.08
Q Total (cfs)	712.00	Flow (cfs)	96.70	557.43	57.86
Top Width (ft)	649.00	Top Width (ft)	283.59	187.02	178.39
Vel Total (ft/s)	1.76	Avg. Vel. (ft/s)	0.97	2.30	0.95
Max Chl Dpth (ft)	1.35	Hydr. Depth (ft)	0.35	1.30	0.34
Conv. Total (cfs)	18220.9	Conv. (cfs)	2474.8	14265.4	1480.8
Length Wtd. (ft)	253.08	Wetted Per. (ft)	283.63	187.11	178.40
Min Ch El (ft)	120.00	Shear (lb/sq ft)	0.03	0.12	0.03

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Alpha	1.39	Stream Power (lb/ft s)	0.03	0.28	0.03
Frctn Loss (ft)	0.94	Cum Volume (acre-ft)	0.48	1.15	0.22
C & E Loss (ft)	0.01	Cum SA (acres)	1.44	1.97	0.64

CROSS SECTION

RIVER: Tank Farm Creek
REACH: West Fork RS: 2110.976

INPUT
Description:
Station Elevation Data num= 58

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	130.96	8.21	130.78	14.73	130	43.39	130	49.23	129.87
56.51	129	98.29	129	100.51	128.73	106.65	128	131.28	128
131.71	127.96	133.65	128	141.53	128	151.79	127	182.55	127
190.21	126.25	192.8	126	215.28	126	223.57	125.01	223.63	125
254.33	125	263.28	124.13	264.59	124	289.81	124	294.72	123.31
296.88	123.16	299.14	123.32	303.95	123.67	308.56	123.35	311.03	123
400.35	123	414.81	121	429.27	120	636.37	120	640.86	120.63
643.45	121	671.74	121	678.81	120	709.17	120	1138.09	120
1169.37	120	1183.94	121	1805.05	121	1806.08	121.1	1815.05	121.09
1815.97	121.09	1825.06	122	1905.06	122	1914.93	123	2475.09	123
2479.02	123.39	2485.09	123.39	2488.91	123.38	2495.09	124	2555.09	124
2562.05	124.69	2565.1	125	2613.08	125				

Manning's n Values num= 1

Sta	n Val
0	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
643.45	1183.94	0	0	332.07	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	120.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.030	0.030	
W.S. Elev (ft)	120.32	Reach Len. (ft)	0.00	0.00	0.00
Crit W.S. (ft)	120.32	Flow Area (sq ft)	66.93	157.05	
E.G. Slope (ft/ft)	0.019231	Area (sq ft)	66.93	157.05	
Q Total (cfs)	712.00	Flow (cfs)	211.84	500.16	
Top Width (ft)	711.40	Top Width (ft)	213.96	497.44	
Vel Total (ft/s)	3.18	Avg. Vel. (ft/s)	3.16	3.18	
Max Chl Dpth (ft)	0.32	Hydr. Depth (ft)	0.31	0.32	
Conv. Total (cfs)	5134.3	Conv. (cfs)	1527.6	3606.7	
Length Wtd. (ft)	0.00	Wetted Per. (ft)	214.00	497.47	
Min Ch El (ft)	120.00	Shear (lb/sq ft)	0.38	0.38	
Alpha	1.00	Stream Power (lb/ft s)	1.19	1.21	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)			
C & E Loss (ft)	0.04	Cum SA (acres)			

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CROSS SECTION

RIVER: Tank Farm Creek
REACH: East Fork RS: 5345.280

INPUT
Description:
Station Elevation Data num= 150

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	168	6.13	168	9.4	168.11	11.4	168.17	21.17	168.49
24.69	168.3	30.36	168	32.94	167.86	37.17	167.64	44.71	167.24
49.32	167	56.48	166.62	61	166.38	68.25	166	68.28	166
80.03	164.76	87.24	164	90.05	163.85	91.8	163.76	99.25	162.73
103.57	162.14	104.58	162.09	106.2	162	115.33	161.52	125.16	159.33
126.36	159.06	127.11	158.9	130.29	158.46	138.88	157.28	140.89	156.83
144.12	156.55	148.15	156.21	150.65	156	161.33	154.19	162.42	154.04
163.08	153.94	174.19	152.41	177.2	152.26	182.04	152	185.96	151.79
192.37	151.46	197.73	151.17	198.98	151	201	150.72	209.5	149.55
219.96	149	221.27	148.86	228.03	147.57	233.04	147.31	238.92	147
244.81	147	254.44	146.18	256.58	146.07	257.88	146	268.35	145.45
276.84	145	280.12	144.83	285.48	145	291.44	145.19	291.89	145.21
295.8	145	303.66	145	314.76	145	315.43	145	316.52	145
327.2	145	329.7	145	333.72	144.45	336.96	144	338.97	144
347.56	144	350.74	144	352.68	144	358.75	144	362.51	144
371.64	144	374.28	144	380.53	144	386.05	144	390.6	144
397.82	144	409.56	145	409.59	145	409.64	145	421.36	145
424.1	145.23	428.52	145	431.37	145	433.13	145	440.68	145.64
441.23	145.69	444.9	146	447.48	146	456.67	146	466.44	146
468.44	146	471.72	146	480.21	146	485.4	146	489.46	146
491.98	146	502.76	146	503.75	146.03	503.99	146.02	504.36	146.05
515.52	146.41	523.32	146.66	527.29	146.79	533.03	146.49	539.07	147
542.28	147	550.84	147	554.82	147.34	561.24	147.88	562.61	148
564.84	148	574.38	148	576.61	148	580.2	148	586.15	148
595.88	148	597.92	148.07	598.39	148.04	599.16	148.11	609.69	149
618.12	149	621.46	149	627.44	149.51	633.23	149.2	637.08	149.33
645	150	656.04	150	656.77	150	657.96	150.1	668.54	151
675	151	678.27	150.83	680.31	151	689	151	692.08	151
693.96	151.16	703.85	152	712.92	152	715.62	152	720.04	152
727.39	152	729.11	152.15	731.88	152.38	739.16	153	742.47	153

Manning's n Values num= 1

Sta	n Val
0	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
291.44	441.23	520.16	511.97	502.97	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	145.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.		0.030	
W.S. Elev (ft)	144.77	Reach Len. (ft)	520.16	511.97	502.97
Crit W.S. (ft)	144.77	Flow Area (sq ft)		52.53	

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E.G. Slope (ft/ft)	0.014998	Area (sq ft)			52.53
Q Total (cfs)	250.00	Flow (cfs)			250.00
Top Width (ft)	75.49	Top Width (ft)			75.49
Vel Total (ft/s)	4.76	Avg. Vel. (ft/s)			4.76
Max Chl Dpth (ft)	0.77	Hydr. Depth (ft)			0.70
Conv. Total (cfs)	2041.4	Conv. (cfs)			2041.4
Length Wtd. (ft)	512.42	Wetted Per. (ft)			75.58
Min Ch El (ft)	144.00	Shear (lb/sq ft)			0.65
Alpha	1.00	Stream Power (lb/ft s)			3.10
Frctn Loss (ft)	8.03	Cum Volume (acre-ft)		0.91	7.98
C & E Loss (ft)	0.04	Cum SA (acres)		1.53	13.60

CROSS SECTION

RIVER: Tank Farm Creek
REACH: East Fork RS: 4833.307

INPUT
Description:
Station Elevation Data num= 149

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	143	3.01	143	5.45	143	6.28	142.85	7.98	142.54
13.75	141.25	16.59	141	21.22	141	27.73	140.13	30.68	140
38.86	140	46.76	139.29	50	139	53.37	139	58.59	139
61.14	139	66.06	139	72.28	139	76.07	138.66	83.42	138
88.47	138	94.56	138	98.77	138	105.7	138	112.38	138
116.84	138	118.36	137.86	121.46	137.59	127.98	137	134.26	137
139.12	137	144.16	136.55	150.26	136	156.13	136	161.4	136
163.19	136	166.86	136	170.67	136	172.54	136	178.01	135.51
183.68	135.26	189.56	135	194.82	135	199.89	135	205.96	135
212.25	134.44	215.5	134.14	217.1	134	221.76	134	228.23	134
234.95	134	239.12	134	239.37	134	243.64	134	250.51	134
257.65	134	261.65	133.82	265.51	133.65	272.79	133.33	280.34	133.68
283.93	133.84	287.39	134	295.07	134	303.04	134	306.21	133.86
309.26	134	317.35	134	320.11	134	325.74	134	327.58	133.92
328.49	134	331.14	134	339.63	134	348.44	134	350.77	134
353.02	134	361.91	134	371.13	134	373.05	134	379.89	134.61
384.19	134.43	393.83	134.87	395.33	135	402.31	135	406.46	135
416.53	135	417.61	135	418.64	135	424.41	135	428.74	135
439.23	135	439.88	135	447.14	135	451.02	135	461.92	135
462.16	135	462.39	135.02	473.3	135.5	484.27	135.99	484.44	136
484.62	136	495.58	136	499.44	136	506.72	136	507.32	136.05
517.86	137	528.02	137	529	137	530.01	137	536.8	137
540.14	137	549.9	137	551.28	137	552.71	137.13	559.22	137.71
562.42	138	571.77	138	573.56	138	575.41	138	584.7	138.41
589.11	139	595.84	139	598.11	139	606.98	139	615.52	139.77
618.12	140	619	140	620.8	140	626.47	140	629.25	140
637.4	140	640.39	140	643.5	140	648.89	140	651.53	140
659.27	140	662.67	140	666.2	140.32	673.81	140.66	681.15	141
684.95	141	688.89	141	693.72	140.79	696.09	140.68	703.03	141
707.23	141	708.67	141	711.59	141	713.15	141		

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Manning's n Values num= 1

Sta	n Val
0	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
239.12	424.41	532.57	509.68	480.31	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	134.57	Element			
Vel Head (ft)	0.20	Wt. n-Val.	0.030	0.030	
W.S. Elev (ft)	134.37	Reach Len. (ft)	532.57	509.68	480.31
Crit W.S. (ft)	134.37	Flow Area (sq ft)	8.89	60.71	
E.G. Slope (ft/ft)	0.016388	Area (sq ft)	8.89	60.71	
Q Total (cfs)	250.00	Flow (cfs)	27.48	222.52	
Top Width (ft)	164.17	Top Width (ft)	26.10	138.07	
Vel Total (ft/s)	3.59	Avg. Vel. (ft/s)	3.09	3.67	
Max Chl Dpth (ft)	1.04	Hydr. Depth (ft)	0.34	0.44	
Conv. Total (cfs)	1952.9	Conv. (cfs)	214.6	1738.3	
Length Wtd. (ft)	522.38	Wetted Per. (ft)	26.12	138.13	
Min Ch El (ft)	133.33	Shear (lb/sq ft)	0.35	0.45	
Alpha	1.01	Stream Power (lb/ft s)	1.08	1.65	
Frctn Loss (ft)	8.11	Cum Volume (acre-ft)	0.85	7.31	
C & E Loss (ft)	0.02	Cum SA (acres)	1.37	12.34	

CROSS SECTION

RIVER: Tank Farm Creek
REACH: East Fork RS: 4323.627

INPUT
Description:
Station Elevation Data num= 146

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	137	1.71	137	6.2	136.56	11.84	136	19.61	136
21.96	136	23.67	135.83	32.09	135	34.35	134.78	42.22	134.12
49.87	133.49	52.34	133.28	55.76	133	62.47	133	67.81	132.47
72.6	132	79.86	131.28	82.72	131	91.91	130.09	92.85	130
93.53	129.93	97.8	129.51	102.98	129.08	103.96	129	113.1	129
116.01	128.71	123.23	128	128.06	128	133.36	128	140.11	127.33
143.48	127	152.16	127	153.61	127	161.25	126.25	163.74	126
172.13	126	173.86	126	176.26	126	183.99	126	189.59	126
194.12	125.48	200.36	125.38	204.24	125	212.41	125	214.37	125
215.79	125	224.5	125	224.69	125	234.62	125	236.51	125
244.75	125	248.56	125	254.88	125.52	260.61	126	265	126
266.46	126	272.66	126	275.13	126	284.71	126	285.25	126
285.65	126	288.14	126	294.38	126	295.38	126	296.76	126
305.51	126	308.81	126	315.63	126	320.86	126	325.76	126
332.91	126	335.89	126	338.05	126	346.01	126	351.58	126
356.14	126	357.01	126.08	366.27	127	369.06	127	376.39	127
381.11	127	386.52	127	390.44	127	396.65	127	405.2	127.85
406.77	128	415.03	128	416.64	128	416.9	128	417.26	128

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427.03	128	431.06	128	434.11	128	437.15	128	441.35	128.41
447.28	129	453.4	129	457.41	129	460.31	129	467.53	129
477.5	129	477.66	129	478.48	129	487.79	129	489.55	129
497.91	129.69	501.6	130	508.04	130	512.7	130	518.17	130
525.7	130	528.29	130	530.17	130	538.42	130	541.92	130
548.54	130	549.8	130	558.67	130	561.85	130	568.8	130
573.9	130	578.92	130	585.95	130	589.05	130	598	130
599.18	130	600.03	130	605.37	130	608.76	130	609.3	130
610.05	130	619.43	130	622.1	130	629.56	130.62	634.15	130.55
639.68	130.46	646.2	131	649.81	131	658.25	131	659.94	131
668.82	131	670.06	131	670.3	131	680.19	131	682.35	131
683.95	131								

Manning's n Values num= 1

Sta	n Val
0	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
266.46	431.06	440.88	424.46	407.47	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	126.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.030		
W.S. Elev (ft)	125.90	Reach Len. (ft)	440.88	424.46	407.47
Crit W.S. (ft)	125.90	Flow Area (sq ft)	50.91		
E.G. Slope (ft/ft)	0.014722	Area (sq ft)	50.91		
Q Total (cfs)	250.00	Flow (cfs)	250.00		
Top Width (ft)	68.85	Top Width (ft)	68.85		
Vel Total (ft/s)	4.91	Avg. Vel. (ft/s)	4.91		
Max Chl Dpth (ft)	0.90	Hydr. Depth (ft)	0.74		
Conv. Total (cfs)	2060.5	Conv. (cfs)	2060.5		
Length Wtd. (ft)	433.32	Wetted Per. (ft)	68.93		
Min Ch El (ft)	126.00	Shear (lb/sq ft)	0.68		
Alpha	1.00	Stream Power (lb/ft s)	3.33		
Frctn Loss (ft)	2.53	Cum Volume (acre-ft)	0.49	6.96	
C & E Loss (ft)	0.09	Cum SA (acres)	0.79	11.53	

CROSS SECTION

RIVER: Tank Farm Creek
REACH: East Fork RS: 3899.164

INPUT
Description:
Station Elevation Data num= 141

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	134.77	7.47	134	9.99	133.74	12.66	133.73	20	133
26.95	133	30	132.69	33.23	132.68	40	132	46.42	131.36
50.01	131	56.15	131	60.01	130.6	65.89	130	70.02	130
75.63	129.44	80.02	129	85.36	128.47	90.02	128	95.1	127.49
100.03	127	104.84	127	110.03	127	114.57	126.55	120.03	126

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124.31	125.57	130.04	125	134.05	125	140.04	125	143.78	124.63
150.04	124	153.52	123.65	160.05	123	163.26	123	170.05	123
177.23	122.28	180.06	122	182.73	122	190.06	122	192.47	121.76
200.06	121	202.2	121	210.07	121	210.1	121	211.94	121
220.07	121	228.66	121	230.07	121	231.41	121	240.08	121
249.24	121	250.08	121	250.88	121	260.09	121	260.62	121
270.09	121	280.04	121	280.09	121	289.83	121	290.1	121
299.57	121	300.1	121	309.3	121	310.11	121	319.04	121
320.11	121	321.24	121	330.11	121	338.51	121	340.12	121
341.81	121.17	350.12	121.19	357.99	122	360.12	122	367.72	122
370.13	122	377.46	122	380.13	122	382.96	122	390.14	122
396.93	122	400.14	122	402.5	122	406.67	122	410.14	122
413.82	122	420.15	122	426.14	122.6	430.15	123	435.88	123
440.15	123	445.61	123	450.16	123	454.96	123	460.16	123
465.09	123	470.17	123	474.82	123.47	480.17	124	485.82	124
490.17	124	494.3	124	500.18	124	504.03	124	510.18	124
513.77	124.36	520.18	125	526.96	125	530.19	125	533.24	125
540.19	125	542.98	125	550.2	125	557.82	125.76	560.2	126
562.45	126	570.2	126	572.19	126	580.21	126	581.92	126.17
590.21	127	598.97	127	600.22	127	601.4	127	610.22	127.91
611.13	128	620.22	128	620.87	128	630.23	128	630.61	128.04
640.23	129	640.34	129	644.44	129	650.23	129	659.82	129
660.24	129	669.55	129.93	670.24	130	670.97	130	680.25	130
685.06	130								

Manning's n Values num= 1

Sta	n Val
0	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
210.1	402.5	476.41	565.58	654.93	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	121.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.030	0.030	
W.S. Elev (ft)	121.74	Reach Len. (ft)	476.41	565.58	654.93
Crit W.S. (ft)		Flow Area (sq ft)	10.25	104.14	
E.G. Slope (ft/ft)	0.003110	Area (sq ft)	10.25	104.14	
Q Total (cfs)	250.00	Flow (cfs)	19.80	230.20	
Top Width (ft)	162.89	Top Width (ft)	17.48	145.41	
Vel Total (ft/s)	2.19	Avg. Vel. (ft/s)	1.93	2.21	
Max Chl Dpth (ft)	0.74	Hydr. Depth (ft)	0.59	0.72	
Conv. Total (cfs)	4483.0	Conv. (cfs)	355.0	4128.0	
Length Wtd. (ft)	559.70	Wetted Per. (ft)	17.51	145.45	
Min Ch El (ft)	121.00	Shear (lb/sq ft)	0.11	0.14	
Alpha	1.00	Stream Power (lb/ft s)	0.22	0.31	
Frctn Loss (ft)	0.96	Cum Volume (acre-ft)	0.18	6.45	
C & E Loss (ft)	0.01	Cum SA (acres)	0.35	10.83	

CROSS SECTION

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RIVER: Tank Farm Creek
REACH: East Fork RS: 3333.583

INPUT
Description:
Station Elevation Data num= 131

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	128	1.63	128	4.25	128	13.77	128	17.59	128
28.88	128	30.93	128	43.99	128	44.14	128	44.27	128
46.38	128	57.61	128	58.31	128	59.1	128	70.95	127.22
74.21	126.76	84.29	124.67	86.65	124.53	89.32	124	97.63	123.45
104.43	123	107.9	123	110.97	123	119.54	123	124.31	122.69
134.65	122	137.65	122	143.33	122	149.76	122	150.99	122
160.22	121.31	164.33	121.04	164.87	121	177.66	121	178.75	121
179.98	121	185.84	121	191.01	121	195.09	121	204.34	121
210.2	121	217.68	120.51	221.26	120.27	225.31	120	228.34	120
231.02	120	233.34	120	240.42	120	244.36	120	249.6	120
255.53	120	257.7	120	270.64	120	271.04	120	277.94	120
284.38	120	285.75	120	297.72	120	300.86	120	311.06	120
315.97	120	324.4	120	331.08	120	334.62	120	337.74	120
346.19	120	351.08	120	361.3	120	364.42	120	370.04	120
376.41	120	377.12	120	377.76	120	387.91	120	391.1	120
391.52	120	404.43	120	405.46	120	406.63	120	412.55	120
417.77	120	421.74	120	431.11	120	433.8	120	436.85	120.43
444.45	121	451.96	121	455.06	121	457.79	121	467.07	121
471.13	121	482.18	121	484.47	121.15	497.29	122	497.81	122
501.76	122	505.1	122	511.15	122	512.4	122	524.49	122
527.51	122	537.83	122	542.62	122.36	551.17	123	554.24	123
557.73	123	564.51	123	572.84	123	577.85	123	587.95	123.76
591.18	124	603.05	124	604.52	124.1	610.92	125	617.86	125
618.01	125	618.16	125.02	631.2	126	633.27	126.16	644.54	127
646.34	127	648.38	127	653.43	127	657.88	127.63	663.49	128
671.22	128	674.68	128.26	678.6	128.55	684.56	129.39	693.71	130
694.45	130								

Manning's n Values num= 1

Sta	n Val
0	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
233.34	505.1	405.77	254.36	238.54	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	120.85	Element			
Vel Head (ft)	0.03	Wt. n-Val.	0.030	0.030	
W.S. Elev (ft)	120.82	Reach Len. (ft)	405.77	254.36	238.54
Crit W.S. (ft)		Flow Area (sq ft)	11.72	168.10	
E.G. Slope (ft/ft)	0.001081	Area (sq ft)	11.72	168.10	
Q Total (cfs)	250.00	Flow (cfs)	13.14	236.86	
Top Width (ft)	229.22	Top Width (ft)	20.46	208.77	
Vel Total (ft/s)	1.39	Avg. Vel. (ft/s)	1.12	1.41	
Max Chl Dpth (ft)	0.82	Hydr. Depth (ft)	0.57	0.81	
Conv. Total (cfs)	7605.0	Conv. (cfs)	399.9	7205.2	
Length Wtd. (ft)	258.36	Wetted Per. (ft)	20.48	208.81	

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Min Ch El (ft)	120.00	Shear (lb/sq ft)	0.04	0.05
Alpha	1.01	Stream Power (lb/ft s)	0.04	0.08
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	0.06	4.68
C & E Loss (ft)	0.01	Cum SA (acres)	0.14	8.53

CROSS SECTION

RIVER: Tank Farm Creek
REACH: East Fork RS: 3079.222

INPUT
Description:
Station Elevation Data num= 59

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	130	13.75	130	25.51	129.05	26.16	129.01	26.26	129
50.97	129	60.2	128.26	63.37	128	88.17	128	94.01	127.53
97.8	127	110.91	127	125.39	126.14	127.81	126	137.79	126
150.19	125	161.62	125	162.18	124.97	162.6	124.94	165.29	124.78
175	124	195.42	124	199.81	123.74	205.11	123	237.02	123
246.13	122.27	249.42	122	299.03	122	311.44	121	330.65	121
336.25	120.67	339.19	120.49	347.55	120	834.65	120	854.13	122.72
854.64	122.79	857.19	123.15	864.22	124.13	869.6	124.89	870.42	124.93
871.54	125	882	125	891.88	125.8	894.4	126	919.21	126
922.25	126.25	931.61	127	949.11	127	956.06	127.97	956.27	127.99
956.42	128	957.41	128.08	968.82	128.76	972.96	129.33	977.73	129.72
993.63	131	1006.77	131	1023.67	130	1125.74	130		

Manning's n Values num= 1

Sta	n Val
0	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
339.19	854.13	382.29	276.86	223.84	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	120.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.030	0.030	
W.S. Elev (ft)	120.69	Reach Len. (ft)	382.29	276.86	223.84
Crit W.S. (ft)		Flow Area (sq ft)	0.31	339.57	
E.G. Slope (ft/ft)	0.000370	Area (sq ft)	0.31	339.57	
Q Total (cfs)	250.00	Flow (cfs)	0.06	249.94	
Top Width (ft)	503.59	Top Width (ft)	3.21	500.37	
Vel Total (ft/s)	0.74	Avg. Vel. (ft/s)	0.20	0.74	
Max Chl Dpth (ft)	0.69	Hydr. Depth (ft)	0.10	0.68	
Conv. Total (cfs)	12991.0	Conv. (cfs)	3.3	12987.7	
Length Wtd. (ft)	276.88	Wetted Per. (ft)	3.22	500.44	
Min Ch El (ft)	120.00	Shear (lb/sq ft)	0.00	0.02	
Alpha	1.00	Stream Power (lb/ft s)	0.00	0.01	
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	0.00	3.20	
C & E Loss (ft)	0.00	Cum SA (acres)	0.03	6.46	

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CROSS SECTION

RIVER: Tank Farm Creek
REACH: East Fork RS: 2802.364

INPUT
Description:
Station Elevation Data num= 234

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	131	1.49	131	10.27	130.3	14.06	130	19.56	130
26.62	130	26.79	129.97	39.18	128	43.31	127.67	48.1	127.29
51.75	127	59.83	126.36	64.31	126	76.35	125.04	76.87	124.97
83.78	124	89.44	124	92.87	124	102	123.45	105.19	123
109.39	123	112.33	123	114.56	123	125.91	123	127.13	123
131	123	139.69	123	142.43	122.78	148.01	122	152.25	122
158.95	122	164.82	122	175.47	122	176.55	121.93	177.38	121.88
183.45	121.52	189.94	121.12	190.82	121.07	191.99	121	197.96	121
202.51	121	208.51	121	215.07	121	225.03	121	227.63	120.84
233.64	120.48	235.29	120.61	240.19	121	241.54	121	252.76	121
258.07	121	265.32	120.56	274.58	120	277.88	120	288.36	120
290.45	120	291.11	120	297.87	120	303.01	120	307.63	120
315.57	120	324.14	120	326.41	120	328.14	120	340.67	120
340.7	120	347.82	120	353.26	120	357.19	120	365.83	120
373.7	120	378.39	120	390.23	120	390.95	120	397.77	120
403.52	120	404.91	120	406.74	120	416.08	120	423.26	120
428.64	120	433.46	120	439.78	120	440.59	120	441.21	120
445.72	120	453.77	120	456.3	120	466.33	120	472.82	120
476.27	120	478.9	120	489.34	120	491.46	120	498.18	120
504.02	120	505.86	120	516.59	120	519.09	120	522.38	120
529.15	120	538.9	120	541.71	120	550.63	120	553.91	120
554.2	120	563.44	120	564.18	120	564.25	120	564.34	120
574.29	120	575.46	120	584.34	120	591.66	120	594.39	120
597.69	120	604.43	120	608.81	120	614.48	120	619.93	120
624.53	120	631.05	120	634.57	120	642.17	120	644.62	120
653.29	120	654.67	120	655.8	120	664.71	120	667.57	120
674.76	120	675.53	120	684.81	120	686.65	120	694.85	120
697.77	120	704.9	120	710.78	120	714.95	120	720	120
724.99	120	729.1	120	735.04	120	742.24	120	745.09	120
753.36	120	755.13	120	756.59	120	765.18	120	765.75	120
771.71	120	775.22	120	775.6	120	785.27	120	793.24	120
795.32	120	797.84	120	805.36	120	811.56	120	815.41	120
820.08	120	825.46	120	829.89	120	835.5	120	839.05	120
845.55	120	853.43	120	855.6	120	857.38	120.18	865.64	121
875.67	121	875.69	121	875.7	121	875.84	121.02	881.62	121.59
885.74	122	886.79	122	895.78	122	897.91	122.21	905.83	123
909.03	123	915.87	123	920.15	123.43	925.92	124	930.68	124
935.97	124	942.39	124	946.01	124	953.51	124.75	956.06	125
964.63	125	966.11	125	975.75	125	976.15	125	979.97	125.38
985.65	125.94	986.2	126	986.86	126	996.25	126	1003.98	126
1006.29	126	1009.1	126	1016.34	126	1020.22	126.39	1026.39	127
1031.46	127.51	1036.43	127.46	1042.46	128	1046.48	128.36	1049.79	128.99
1056.52	129.53	1064.7	131	1066.57	131	1068.11	131	1076.62	131
1077.28	131	1084.1	131	1086.66	131	1086.94	131	1096.71	130.12

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1098.06	130.13	1106.76	130.22	1109.18	130	1116.8	130	1120.29	130		
1126.85	130	1132.25	130	1136.9	130	1142.53	130	1146.94	130		
1153.65	130	1156.99	130	1159.74	130	1164.13	130				

Manning's n Values num= 1

Sta	n Val
0	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
235.29	881.62	322.8	210.35	169.02	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	120.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.030	0.030	
W.S. Elev (ft)	120.57	Reach Len. (ft)	322.80	210.35	169.02
Crit W.S. (ft)		Flow Area (sq ft)	0.11	333.09	
E.G. Slope (ft/ft)	0.000499	Area (sq ft)	0.11	333.09	
Q Total (cfs)	250.00	Flow (cfs)	0.01	249.99	
Top Width (ft)	598.57	Top Width (ft)	2.53	596.05	
Vel Total (ft/s)	0.75	Avg. Vel. (ft/s)	0.14	0.75	
Max Chl Dpth (ft)	0.57	Hydr. Depth (ft)	0.04	0.56	
Conv. Total (cfs)	11193.4	Conv. (cfs)	0.7	11192.8	
Length Wtd. (ft)	210.35	Wetted Per. (ft)	2.53	596.09	
Min Ch El (ft)	120.00	Shear (lb/sq ft)	0.00	0.02	
Alpha	1.00	Stream Power (lb/ft s)	0.00	0.01	
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	0.00	1.06	
C & E Loss (ft)	0.01	Cum SA (acres)	0.01	2.97	

CROSS SECTION

RIVER: Tank Farm Creek
REACH: East Fork RS: 2592.018

INPUT
Description:
Station Elevation Data num= 177

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	127	5.21	127	7.96	127	16.47	126.24	19.19	126
21.8	125.77	30.42	125	39.41	124.2	41.65	124	43.78	123.81
52.88	122.59	62.37	121.31	64.1	121	65.77	121	70.75	121
75.33	121	79.53	120.63	86.56	120	87.75	120	97.79	120
108.27	120	109.02	120	109.26	120	109.74	120	120.25	120
131.22	120	131.48	120	131.72	120	142.71	120	146.43	120
153.71	120	153.93	120	154.17	120	165.16	120	175.7	120
176.39	120	177.12	120	187.62	120	191.02	120	197.68	120
198.85	120	200.07	120	210.08	120	219.67	120	220.75	120
221.31	120	223.02	120	232.54	120	241.65	120	243.76	120
245.97	120	254.99	120	263.64	120	265.35	120	266.22	120
272.78	120	277.45	120	285.62	120	288.68	120	295.08	120
299.91	120	307.61	120	311.14	120	314.82	120	322.37	120
324.81	120	329.59	120	333.59	120	337.77	120	344.82	120

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351.58	120	354.54	120	356.05	120	360.72	120	360.78	120
366.59	120	373.56	120	376.63	120	379.2	120	386.67	120
388.42	120	396.71	120	397.64	120	406.75	120	406.87	120
408.17	120	416.09	120	416.79	120	417.63	120	426.83	120
434.53	120	436.87	120	439.66	120	446.91	120	452.97	120
456.94	120	462.19	120	466.98	120	472.7	120	477.02	120
480.64	120	487.06	120	489.86	120	497.1	120	505.75	120
507.14	120	508.3	120	517.18	120	517.52	120	521.41	120
526.75	120	527.22	120	527.78	120	537.26	120	545.19	120
547.3	120	554.41	120	557.34	120	563.63	120	567.38	120
571.85	120	577.42	120	582.08	120	587.46	120	591.3	120
597.49	120	604.89	120	607.53	120	609.74	120	617.57	120
618.96	120	627.61	120	634.65	120	637.65	120	646.63	120
647.69	120	655.85	120	657.73	120	665.07	120	667.77	120
674.29	120	677.81	120	683.51	120	687.85	120	693.02	120
697.89	120	701.96	120	707.93	120	711.18	120	717.97	120
720.4	120.24	728	121	729.62	121	738.04	121	738.85	121
739.99	121	747.89	121	748.08	121	757.29	121.92	758.12	122
759.12	122	768.16	122	775.73	122	778.2	122	781.15	122.29
788.24	122.36	794.17	123	798.28	123	803.18	123	808.32	123
814.2	123	818.36	123	821.84	123	828.4	123	836.23	123
838.43	123	838.65	123.02						

Manning's n Values num= 1

Sta	n Val
0	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
70.75	739.99	0	0	0	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	120.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.030	
W.S. Elev (ft)	120.17	Reach Len. (ft)	0.00	0.00	0.00
Crit W.S. (ft)	120.17	Flow Area (sq ft)		106.80	
E.G. Slope (ft/ft)	0.024060	Area (sq ft)		106.80	
Q Total (cfs)	250.00	Flow (cfs)		250.00	
Top Width (ft)	635.00	Top Width (ft)		635.00	
Vel Total (ft/s)	2.34	Avg. Vel. (ft/s)		2.34	
Max Chl Dpth (ft)	0.17	Hydr. Depth (ft)		0.17	
Conv. Total (cfs)	1611.7	Conv. (cfs)		1611.7	
Length Wtd. (ft)	0.00	Wetted Per. (ft)		635.02	
Min Ch El (ft)	120.00	Shear (lb/sq ft)		0.25	
Alpha	1.00	Stream Power (lb/ft s)		0.59	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)			
C & E Loss (ft)	0.02	Cum SA (acres)			

CROSS SECTION

RIVER: Tank Farm Creek
REACH: Lower Reach RS: 1654.260

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INPUT
Description:
Station Elevation Data num= 163

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	131	1.6	131	6.19	131	11.23	130.61	17.4	130.13
19.11	130	26.76	128.81	32.02	128	33.2	127.91	44.94	127
46.76	127	48.99	126.69	53.87	126.31	57.86	126	64.79	125.46
66.66	125.32	72.67	125.28	75.49	125.26	83.37	124.43	85.51	124.2
94.06	123.29	95.53	123.14	104.76	122.16	105.55	122.07	115.45	122.01
115.57	122	117.34	121.82	125.59	120.95	134.53	120	135.61	120
136.84	120	145.63	120	153.38	120	155.65	120	158.23	120
165.67	120	168.92	120	175.69	120	179.62	120.78	185.71	121.43
191.08	122.54	195.73	123.49	201	124.05	205.75	125	211.7	123.81
215.77	123	222.39	121.02	225.79	120.32	233.09	119.54	235.81	119.26
243.78	119.21	245.83	119	254.47	118.14	255.85	118	265.17	118
265.87	118	275.86	118	275.89	118	276.29	118	285.91	118
286.56	118	295.93	118	297.25	118	305.95	118	307.94	118
315.97	118	318.64	118	325.99	118	329.33	118	336.01	118
340.02	118	346.03	118	350.72	118	356.05	118	361.41	118
366.07	118	372.11	118	376.09	118	382.8	118	386.11	118
393.5	118	396.13	118	404.19	118	406.15	118	414.88	118
416.17	118	425.58	118	426.19	118	426.72	118	435.23	118
436.21	118	436.27	118	446.23	118	455	118	456.25	118.13
464.43	119	466.26	119.19	473.85	120.76	476.29	121.26	483.28	122.7
486.31	123.32	491.48	123.35	492.7	123.36	496.32	123.38	502.13	123.42
506.35	123	511.55	122.48	516.37	122	520.98	121.54	526.38	121
530.4	121	536.4	121	539.83	121	546.42	121.7	553.9	121.75
555.71	121.93	556.44	122	564.6	122	566.46	122	575.29	122
576.48	122	585.99	122.95	586.5	123	594.18	123	596.38	123
596.52	123	596.68	123	606.54	123	607.38	123	616.56	123
618.07	123	626.58	123	628.76	123	636.6	123	639.46	123
646.62	123	650.15	123	656.64	123	660.85	123	666.66	123
671.54	123	676.68	123	682.23	123	686.7	123	690.64	123
696.72	123	700.07	123	706.74	123	709.49	123	716.76	123
718.92	123	726.78	123	728.34	123	736.8	123	737.77	123
746.82	123	747.2	123	753.12	123	756.84	123	757.09	123
766.86	123	767.78	123	773.96	123				

Manning's n Values num= 1

Sta	n Val
0	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
491.48	555.71	337.62	330.33	337.61	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	119.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	0.030		
W.S. Elev (ft)	119.40	Reach Len. (ft)	337.62	330.33	337.61
Crit W.S. (ft)		Flow Area (sq ft)	299.15		
E.G. Slope (ft/ft)	0.000612	Area (sq ft)	299.15		
Q Total (cfs)	433.00	Flow (cfs)	433.00		
Top Width (ft)	232.83	Top Width (ft)	232.83		

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Vel Total (ft/s)	1.45	Avg. Vel. (ft/s)	1.45			
Max Chl Dpth (ft)	1.40	Hydr. Depth (ft)	1.28			
Conv. Total (cfs)	17503.4	Conv. (cfs)	17503.4			
Length Wtd. (ft)	337.62	Wetted Per. (ft)	232.99			
Min Ch El (ft)	121.00	Shear (lb/sq ft)	0.05			
Alpha	1.00	Stream Power (lb/ft s)	0.07			
Frctn Loss (ft)	0.58	Cum Volume (acre-ft)	7.62	2.34	0.09
C & E Loss (ft)	0.02	Cum SA (acres)	7.26	2.44	0.45

CROSS SECTION

RIVER: Tank Farm Creek
REACH: Lower Reach RS: 1323.927

INPUT
Description:
Station Elevation Data num= 205

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	134.49	3.4	134.83	5.16	135	15.03	134.02	15.25	134
16.66	133.72	25.33	132	26.66	131.34	35.42	127	38.29	125.86
45.51	123	49.92	121.69	55.6	120.49	61.55	120.41	65.68	120
73.18	120	75.77	120	84.81	120	85.86	120	86.67	120
92.76	120	95.95	120	96.43	120	106.03	120	113.39	120
116.12	120	122.29	120	126.21	120	131.2	120	136.3	120
140.11	120	146.38	120	149.01	120	156.47	120	166.21	119.04
166.56	119	168.86	119	176.65	119	177.84	119	186.73	119
189.47	119	196.82	119	201.09	119	206.91	119	212.72	119
217	119	224.35	119	227.08	119	235.98	119	237.17	119
244.96	119	247.26	119	247.61	118.97	257.35	118	259.24	118
267.43	118	270.87	118	277.52	118	282.5	118	287.61	118
294.13	118	297.7	118	305.75	118	307.78	118	317.38	118
317.87	118	321.06	118	327.96	118	329.01	118	338.05	118
344.96	118	348.13	118	353.87	118	358.22	118	363.9	118
368.31	118	371.69	118	378.4	118	380.59	118	388.48	118
397.17	118	398.57	118	398.79	118	408.66	118	410.41	118
418.75	118	422.04	118	428.83	118	434.03	118	438.92	118
445.3	119.27	449.01	119.68	451.85	120.28	459.1	121.81	460.75	122
469.18	122.95	469.66	123	473.27	123	475.27	123	478.57	123
479.27	123	480.19	122.82	489.36	121.79	491.82	121.51	499.44	120
503.45	120	509.53	120	515.07	120	519.62	120	523.1	120
529.71	120.74	538.33	120.86	539.79	121	549.37	121	549.88	121
549.96	121	550.99	121	559.97	121	561.59	121	570.06	121
573.22	121	580.14	121	585.45	121	590.23	121	594.36	121
600.32	121	603.26	121	610.41	121	612.17	121	620.5	121
621.08	121	625.47	121	630.58	121	631.36	121	640.67	121
642.99	121	650.76	121	654.62	121	660.85	121	666.25	121
670.93	121	674.52	121	681.02	121	683.42	121	691.11	121
692.33	121	701.2	121	701.24	121	701.57	121	710.15	121
711.28	121	712.77	121	721.37	121	724.39	121	731.46	121
736.02	121	741.54	121	747.65	121	751.63	121	759.28	121.76
761.72	122	763.59	122	771.81	122	777.67	122	781.89	122
782.54	122.06	791.98	122.19	794.17	122.22	802.07	123	805.8	123

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812.16	123	817.03	123	822.24	123	829.05	123	832.33	123
840.68	123	842.42	123	852.31	123	852.51	122.98	853.78	122.87
862.59	122	870.47	122	872.68	122	879.38	122	882.77	122
888.28	122	892.86	122	898.83	122	902.94	122	906.1	122
913.03	122	915	122	923.12	122	929.88	122.67	933.21	123
933.72	123	943.29	123	945.34	123	953.38	123	956.97	123
963.47	123	968.6	123	973.56	123	980.23	123	981.71	123

Manning's n Values num= 1

Sta	n Val
0	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
475.27	550.99	400.26	402.17	401.89	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	118.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.	0.030		
W.S. Elev (ft)	118.56	Reach Len. (ft)	400.26	402.17	401.89
Crit W.S. (ft)	118.56	Flow Area (sq ft)	103.50		
E.G. Slope (ft/ft)	0.016040	Area (sq ft)	103.50		
Q Total (cfs)	433.00	Flow (cfs)	433.00		
Top Width (ft)	189.96	Top Width (ft)	189.96		
Vel Total (ft/s)	4.18	Avg. Vel. (ft/s)	4.18		
Max Chl Dpth (ft)	0.56	Hydr. Depth (ft)	0.54		
Conv. Total (cfs)	3418.9	Conv. (cfs)	3418.9		
Length Wtd. (ft)	400.26	Wetted Per. (ft)	190.05		
Min Ch El (ft)	120.00	Shear (lb/sq ft)	0.55		
Alpha	1.00	Stream Power (lb/ft s)	2.28		
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)	6.06	2.34	0.09
C & E Loss (ft)	0.08	Cum SA (acres)	5.62	2.44	0.45

CROSS SECTION

RIVER: Tank Farm Creek
REACH: Lower Reach RS: 921.753

INPUT
Description:
Station Elevation Data num= 188

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	121	.22	121	4	121	9.35	121	10.42	121
17.84	121	20.62	120.67	26.33	120	30.82	118.94	37.57	118.68
41.02	118.27	50.33	118.09	51.22	118.07	54.74	118	60.3	117.89
61.42	117.87	68.79	117.72	71.62	117.67	77.29	117.56	81.82	117.47
85.78	117.39	92.02	117.27	94.27	117.22	102.22	117.06	102.77	117.05
105.47	117	112.42	116.86	114.17	116.83	122.62	116.66	126.94	116.58
132.82	116.46	139.7	116.33	143.02	116.26	152.47	116.07	153.22	116.06
156.21	116	163.42	116	165.24	116	173.62	116	179.2	116
183.82	116	190.77	116	194.02	116	203.54	116	204.22	116
206.95	116	213.17	116	214.42	116	216.3	116	224.62	116.65

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230.16	116.54	234.82	116.45	238.65	116.38	245.02	117	247.14	117
255.22	117	257.68	117	265.42	117	267.37	117	275.62	117
280.14	116.56	285.82	116.44	292.9	116.31	296.02	116.24	298.1	116.2
306.22	117	308.42	117	316.42	116.84	318.44	117	326.62	117
331.2	117	336.82	117	340.56	117	347.02	117	356.74	117
357.22	117	357.55	117	359.15	117	367.42	116.84	369.5	116.8
377.62	116.64	382.27	116.54	387.82	116.44	395.04	117	398.02	117
407.8	117	408.22	117.03	409.89	117.16	416.99	117.86	418.42	118
425.49	118	428.62	118	433.98	118	438.82	118	442.47	118
449.02	118	450.96	118	459.22	118	459.46	118	460.63	118
469.42	118	471.64	118	479.62	118	484.4	118	489.82	118.43
497.17	119	500.02	119	509.94	119.97	510.22	120	511.36	120
520.42	120	522.7	120	530.62	120	535.47	119.05	540.16	118.13
540.82	118	548.24	118	551.02	118	561	118	561.22	118
562.1	118	571.42	118	573.77	118	581.62	118	586.85	118
591.82	118	595.34	118	602.02	118	612.07	118	612.22	118
612.83	118	622.42	118	624.84	118.24	632.63	119	637.61	119
642.83	119	646.3	119	651.02	119	653.02	119	663.14	119.99
663.23	120	663.57	120	673.42	120	680.27	120.67	683.63	121
688.67	121	693.83	121	697.25	121	704.02	121	714.21	121
714.23	121	714.3	121	722.73	121	724.42	121	731.22	121
734.63	121	739.72	121	744.83	121	748.21	121	755.03	121
756.7	121	765.04	121	765.2	121	765.23	121	765.27	121
775.43	121	782.18	121	785.63	121	790.81	121	795.83	121
803.57	121	806.03	121	815.78	121	816.23	121	816.34	121
826.43	121	829.11	121	836.63	121	841.87	121	846.83	121
854.64	121	857.03	121	866.51	121	867.23	121	867.41	121
877.43	121	880.17	121	880.27	121				

Manning's n Values num= 1

Sta	n Val
0	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
540.16	651.02	545.47	525.08	514.47	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	118.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.030	0.030	
W.S. Elev (ft)	118.13	Reach Len. (ft)	545.47	525.08	514.47
Crit W.S. (ft)		Flow Area (sq ft)	514.26	10.46	
E.G. Slope (ft/ft)	0.000231	Area (sq ft)	514.26	10.46	
Q Total (cfs)	433.00	Flow (cfs)	431.03	1.97	
Top Width (ft)	521.09	Top Width (ft)	437.57	83.52	
Vel Total (ft/s)	0.83	Avg. Vel. (ft/s)	0.84	0.19	
Max Chl Dpth (ft)	2.13	Hydr. Depth (ft)	1.18	0.13	
Conv. Total (cfs)	28486.7	Conv. (cfs)	28357.0	129.7	
Length Wtd. (ft)	535.17	Wetted Per. (ft)	437.80	83.54	
Min Ch El (ft)	118.00	Shear (lb/sq ft)	0.02	0.00	
Alpha	1.03	Stream Power (lb/ft s)	0.01	0.00	
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	3.22	2.29	0.09
C & E Loss (ft)	0.01	Cum SA (acres)	2.74	2.05	0.45

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CROSS SECTION

RIVER: Tank Farm Creek
REACH: Lower Reach RS: 396.675

INPUT
Description:
Station Elevation Data num= 164

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	120	2.57	120	13.38	120	13.68	120	13.99	120.03
24.78	121	28.76	122.43	35.89	125	36.24	125	36.97	125
47	125	51.22	124.62	58.1	123.08	59.95	122.83	69.21	122
77.87	121.22	80.32	121.11	81.17	121	82.94	121	91.42	121
99.36	121	102.53	121	105.92	121	111.12	121	113.64	121
120.86	121	124.74	121	128.9	121	135.85	121	142.35	121
146.96	121	151.88	120.56	158.06	120	163.85	120	169.17	120
174.86	120	178.51	120	180.28	120	186	120	191.38	120
193.49	120	197.84	119.42	202.49	119	208.46	119	213.6	119
220.82	119	224.7	119	228.34	119	235.81	119	243.8	119
245.9	118.91	246.92	118.86	253.39	118.58	258.02	118.38	260.88	118.26
266.78	118	268.37	118	269.13	118	275.85	118	280.24	118
289.76	118	291.34	118	292.82	118	302.45	118	312.75	118
313.56	118	320.78	118	324.66	118	328.27	118	335.73	118
335.77	118	343.24	118	346.88	118	357.31	118	357.98	118
358.71	118.13	369.09	120	373.19	120	380.2	120	381.63	119.87
381.69	119.87	391.3	118.16	400.3	116.57	402.41	116.2	404.67	116
413.52	116	421.79	116	424.62	116	427.65	116	435.73	116
440.58	116.44	446.84	116.17	450.63	116	457.94	116	463.05	116
469.05	116	473.61	116	480.16	116	485.51	116	491.26	116
496.59	116	502.37	116.25	507.77	116.97	513.48	117.74	519.57	118
522.95	118	524.58	118	526.25	117.85	530.44	117.47	535.69	117.7
537.93	117.8	542.55	117.38	546.8	117.19	552.9	118	557.9	118
565.54	118	569.01	118	572.26	118	580.12	118	588.52	118
590.34	118	591.22	118	593.76	118	602.33	118	611.5	118
612.8	118	613.44	118	620.29	118	624.54	118	627.78	118
634.48	118	635.27	118	635.65	118	636.75	118	646.76	118
657.46	118	657.86	118	658.24	118	668.97	118	679.74	118
680.08	118	680.44	118	687.68	118	691.18	118	701.23	118
702.29	118	703.42	118	710.15	118	713.4	118	722.73	118
724.5	118	726.4	118	735.61	118	744.22	118	746.72	118
747.59	118	749.38	118	757.82	118	765.72	118	768.93	118
770.05	118	772.37	118	780.04	118	781.35	118		

Manning's n Values num= 1

Sta	n Val
0	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
381.63	526.25	321.99	288.26	271.7	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 117.90 Element Left OB Channel Right OB

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Vel Head (ft)	0.07	Wt. n-Val.		0.030	0.030
W.S. Elev (ft)	117.83	Reach Len. (ft)	321.99	288.26	271.70
Crit W.S. (ft)		Flow Area (sq ft)		195.45	7.11
E.G. Slope (ft/ft)	0.001051	Area (sq ft)		195.45	7.11
Q Total (cfs)	433.00	Flow (cfs)		428.09	4.91
Top Width (ft)	147.51	Top Width (ft)		122.38	25.12
Vel Total (ft/s)	2.14	Avg. Vel. (ft/s)		2.19	0.69
Max Chl Dpth (ft)	1.83	Hydr. Depth (ft)		1.60	0.28
Conv. Total (cfs)	13358.1	Conv. (cfs)		13206.5	151.6
Length Wtd. (ft)	288.00	Wetted Per. (ft)		122.67	25.21
Min Ch El (ft)	116.00	Shear (lb/sq ft)		0.10	0.02
Alpha	1.04	Stream Power (lb/ft s)		0.23	0.01
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)		1.05	0.05
C & E Loss (ft)	0.01	Cum SA (acres)		0.81	0.30

CROSS SECTION

RIVER: Tank Farm Creek
REACH: Lower Reach RS: 108.420

INPUT
Description:
Station Elevation Data num= 93

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	123.73	1.24	124	5.04	124	14.75	123.35	19.9	122.62
28.27	122	34.77	121.52	41.78	121	49.63	120.42	55.3	120
64.49	120	66.76	120	68.82	120	73.84	120	79.36	120
82.33	120	94.22	119.12	95.85	119	102.15	119	109.08	119
109.37	118.98	112.2	118.79	122.88	118.07	123.39	118.04	123.95	118
136.4	118	137.55	118	138.81	118	149.91	118	153.68	118
158.79	118	163.43	118	165.86	118	168.54	118	172.94	118
176.95	118	180.02	118	183.4	118	189.99	118	190.46	118
198.27	117.42	201.26	117	203.98	116.62	208.34	116	213.13	116
215.42	116	217.5	116	228	116	231.01	116	242.86	116
243.73	116	244.53	116	250.81	116	257.72	116	258.05	116
261.27	116	271.56	116	272.59	116	285.08	116	287.45	116
298.59	116	300.37	116	302.32	116	312.11	116.66	317.18	117
322.78	117	325.63	117	328.68	117	332.04	117	339.14	117
346.91	117	349.92	117	352.66	117	357	117	361.77	117
366.18	117	376.63	117	379.69	117	385.31	117	391.5	117
393.21	117.11	406.36	118	406.72	118	410.35	118	420.24	118
420.71	118	421.23	118	433.76	118	436.09	118	447.27	118
449.03	118	450.95	118	453.2	118				

Manning's n Values num= 1

Sta	n Val
0	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
189.99	322.78	0	0	5478.99	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

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E.G. Elev (ft)	117.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.		0.030	0.030
W.S. Elev (ft)	117.14	Reach Len. (ft)			
Crit W.S. (ft)	116.84	Flow Area (sq ft)		121.67	9.58
E.G. Slope (ft/ft)	0.005005	Area (sq ft)		121.67	9.58
Q Total (cfs)	433.00	Flow (cfs)		424.16	8.84
Top Width (ft)	193.33	Top Width (ft)		122.50	70.83
Vel Total (ft/s)	3.30	Avg. Vel. (ft/s)		3.49	0.92
Max Chl Dpth (ft)	1.14	Hydr. Depth (ft)		0.99	0.14
Conv. Total (cfs)	6120.5	Conv. (cfs)		5995.6	125.0
Length Wtd. (ft)		Wetted Per. (ft)		122.61	70.84
Min Ch El (ft)	116.00	Shear (lb/sq ft)		0.31	0.04
Alpha	1.10	Stream Power (lb/ft s)		1.08	0.04
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

SUMMARY OF MANNING'S N VALUES

River:Tank Farm Creek

Reach	River Sta.	n1
West Fork	3603.710	.03
West Fork	3330.380	.03
West Fork	2794.734	.03
West Fork	2361.099	.03
West Fork	2110.976	.03
East Fork	5345.280	.03
East Fork	4833.307	.03
East Fork	4323.627	.03
East Fork	3899.164	.03
East Fork	3333.583	.03
East Fork	3079.222	.03
East Fork	2802.364	.03
East Fork	2592.018	.03
Lower Reach	1654.260	.03
Lower Reach	1323.927	.03
Lower Reach	921.753	.03
Lower Reach	396.675	.03
Lower Reach	108.420	.03

SUMMARY OF REACH LENGTHS

River: Tank Farm Creek

Reach	River Sta.	Left	Channel	Right
West Fork	3603.710	212.96	273.33	326.87

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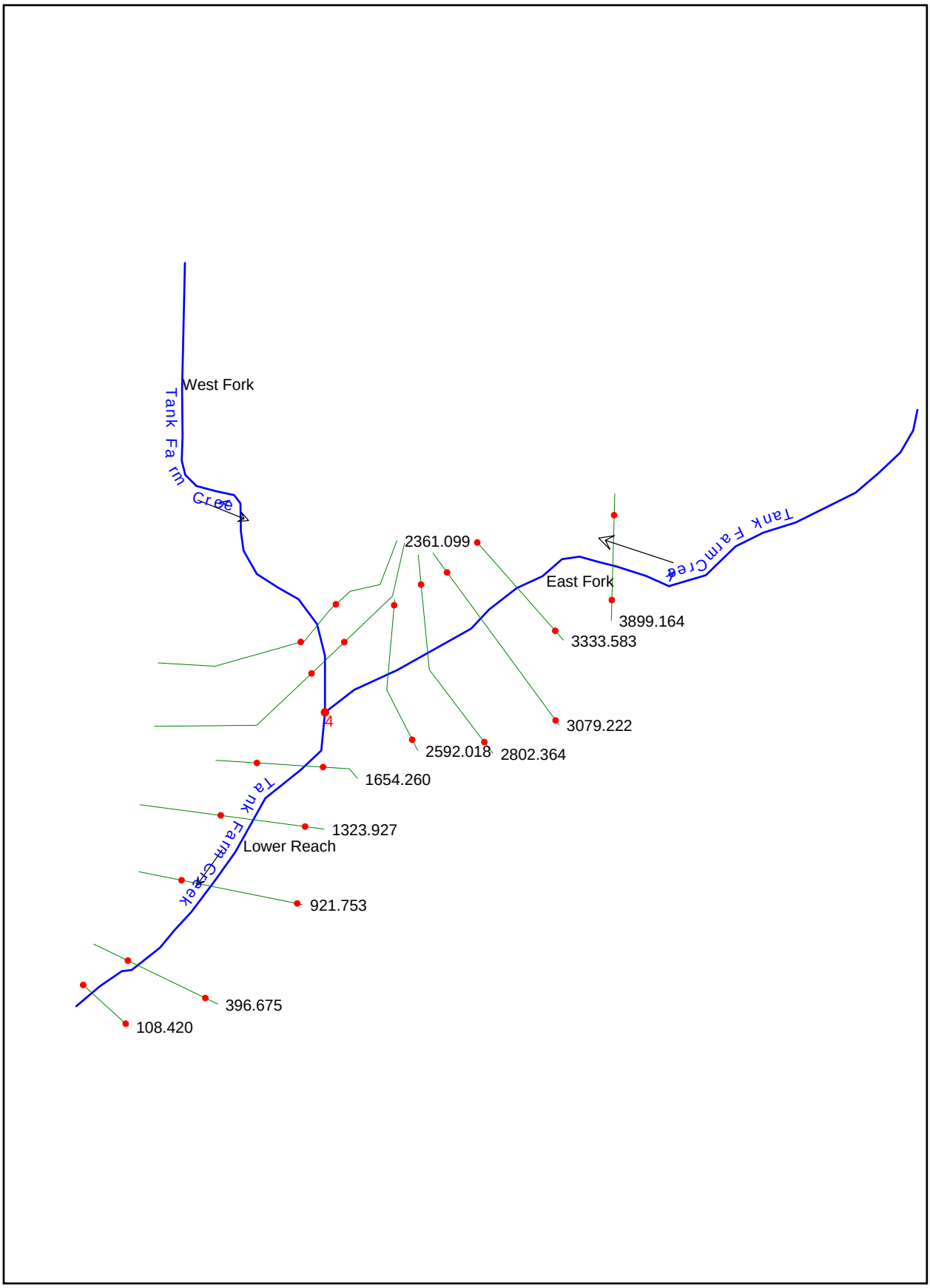
West Fork	3330.380	667.53	535.65	611.53
West Fork	2794.734	516.97	433.63	524.85
West Fork	2361.099	252.15	250.12	312.03
West Fork	2110.976	0	0	332.07
East Fork	5345.280	520.16	511.97	502.97
East Fork	4833.307	532.57	509.68	480.31
East Fork	4323.627	440.88	424.46	407.47
East Fork	3899.164	476.41	565.58	654.93
East Fork	3333.583	405.77	254.36	238.54
East Fork	3079.222	382.29	276.86	223.84
East Fork	2802.364	322.8	210.35	169.02
East Fork	2592.018	0	0	0
Lower Reach	1654.260	337.62	330.33	337.61
Lower Reach	1323.927	400.26	402.17	401.89
Lower Reach	921.753	545.47	525.08	514.47
Lower Reach	396.675	321.99	288.26	271.7
Lower Reach	108.420	0	0	5478.99

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Tank Farm Creek

Reach	River Sta.	Contr.	Expan.
West Fork	3603.710	.1	.3
West Fork	3330.380	.1	.3
West Fork	2794.734	.1	.3
West Fork	2361.099	.1	.3
West Fork	2110.976	.1	.3
East Fork	5345.280	.1	.3
East Fork	4833.307	.1	.3
East Fork	4323.627	.1	.3
East Fork	3899.164	.1	.3
East Fork	3333.583	.1	.3
East Fork	3079.222	.1	.3
East Fork	2802.364	.1	.3
East Fork	2592.018	.1	.3
Lower Reach	1654.260	.1	.3
Lower Reach	1323.927	.1	.3
Lower Reach	921.753	.1	.3
Lower Reach	396.675	.1	.3
Lower Reach	108.420	.1	.3

Attachment 2

Post-Development Conditions Floodplain Analysis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Tank Farm Creek
East Fork
Tank Farm Creek
Tank Farm Creek
Lower Reach
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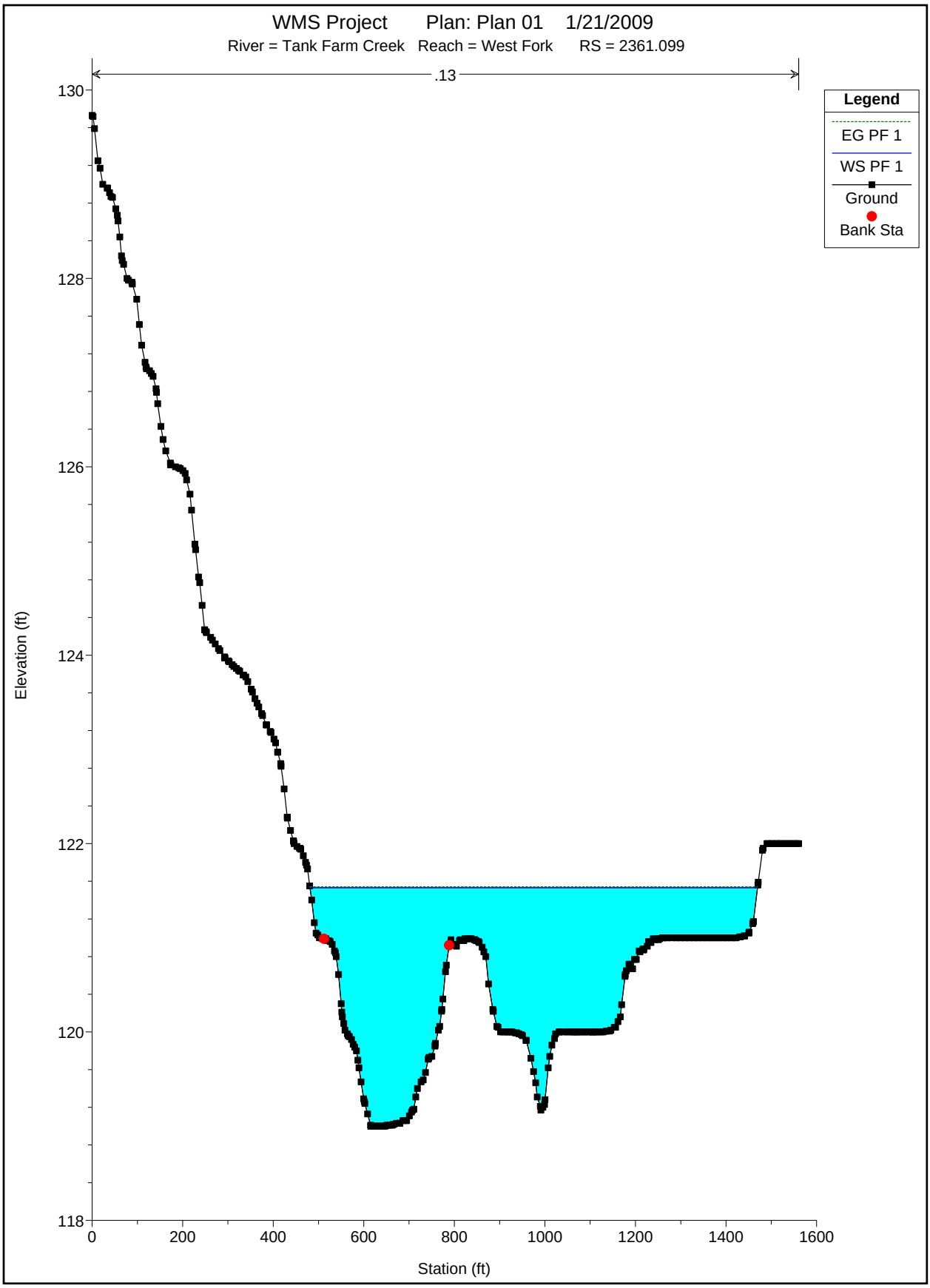
2802.364
1654.260
1323.927
921.753
396.675
108.420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128
126
124
122
120
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600
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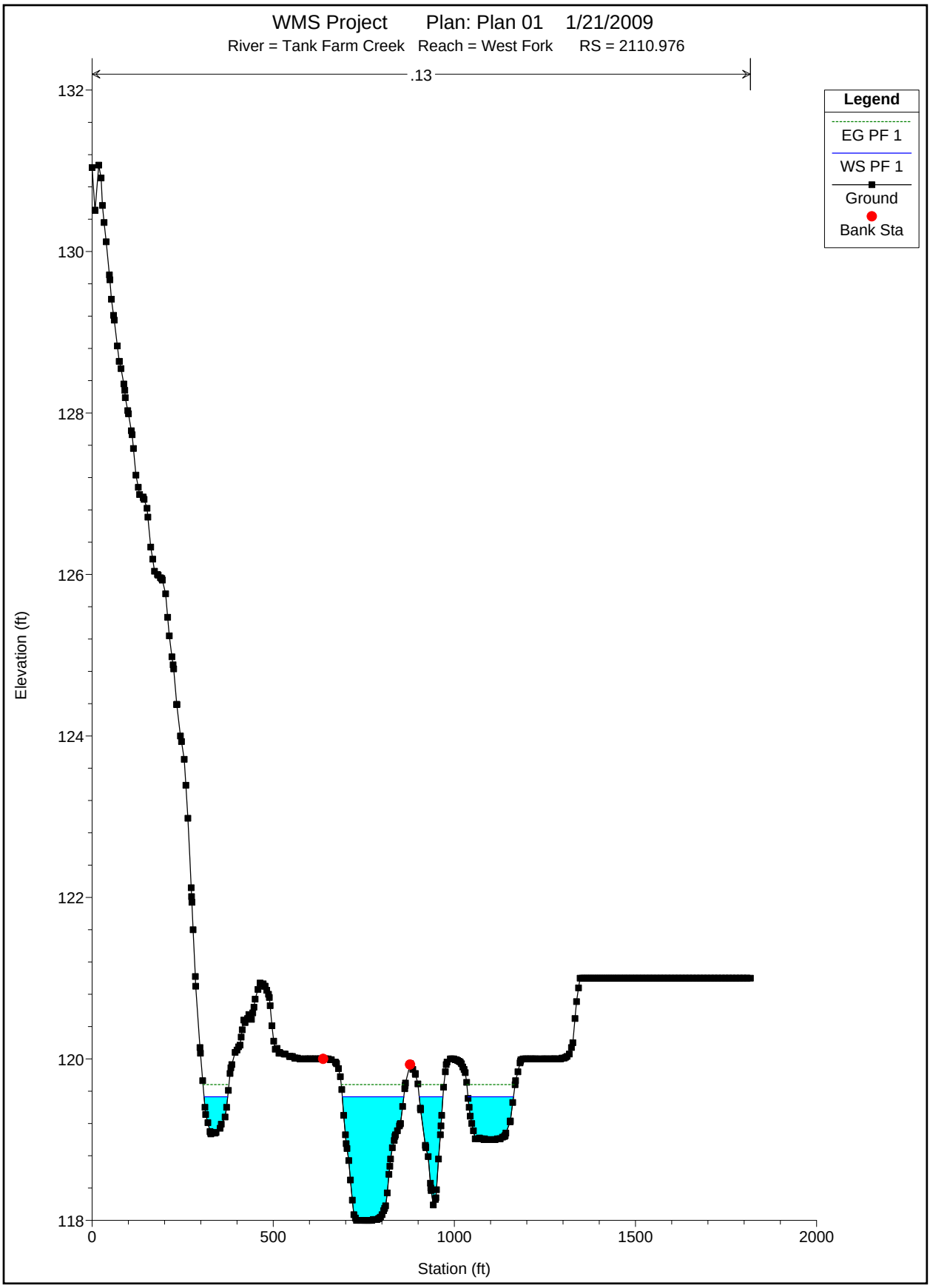
1200
1400
1600
Station (ft)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WS PF 1
Ground
Bank Sta
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130
128
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1000
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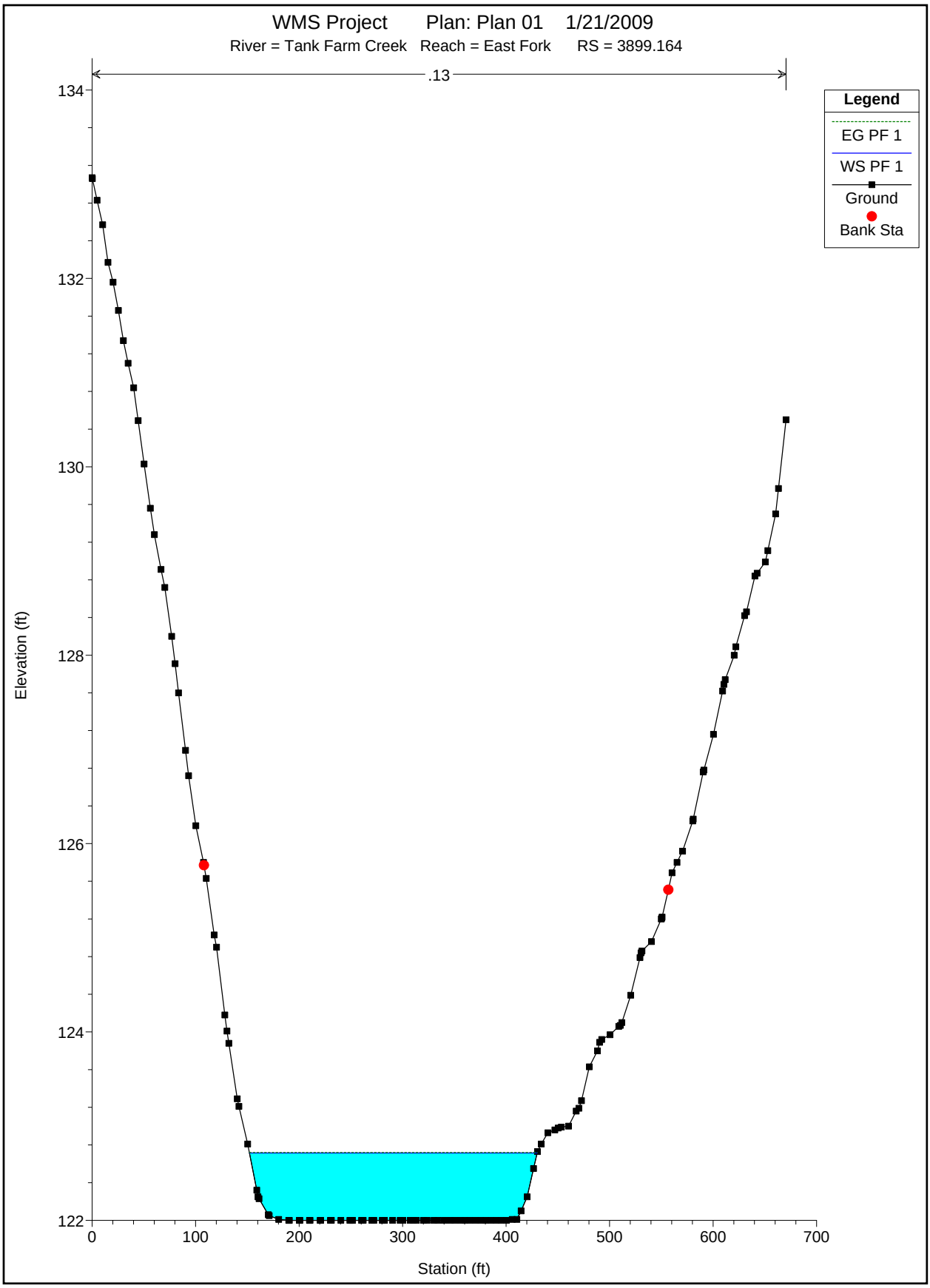
2000
Station (ft)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600
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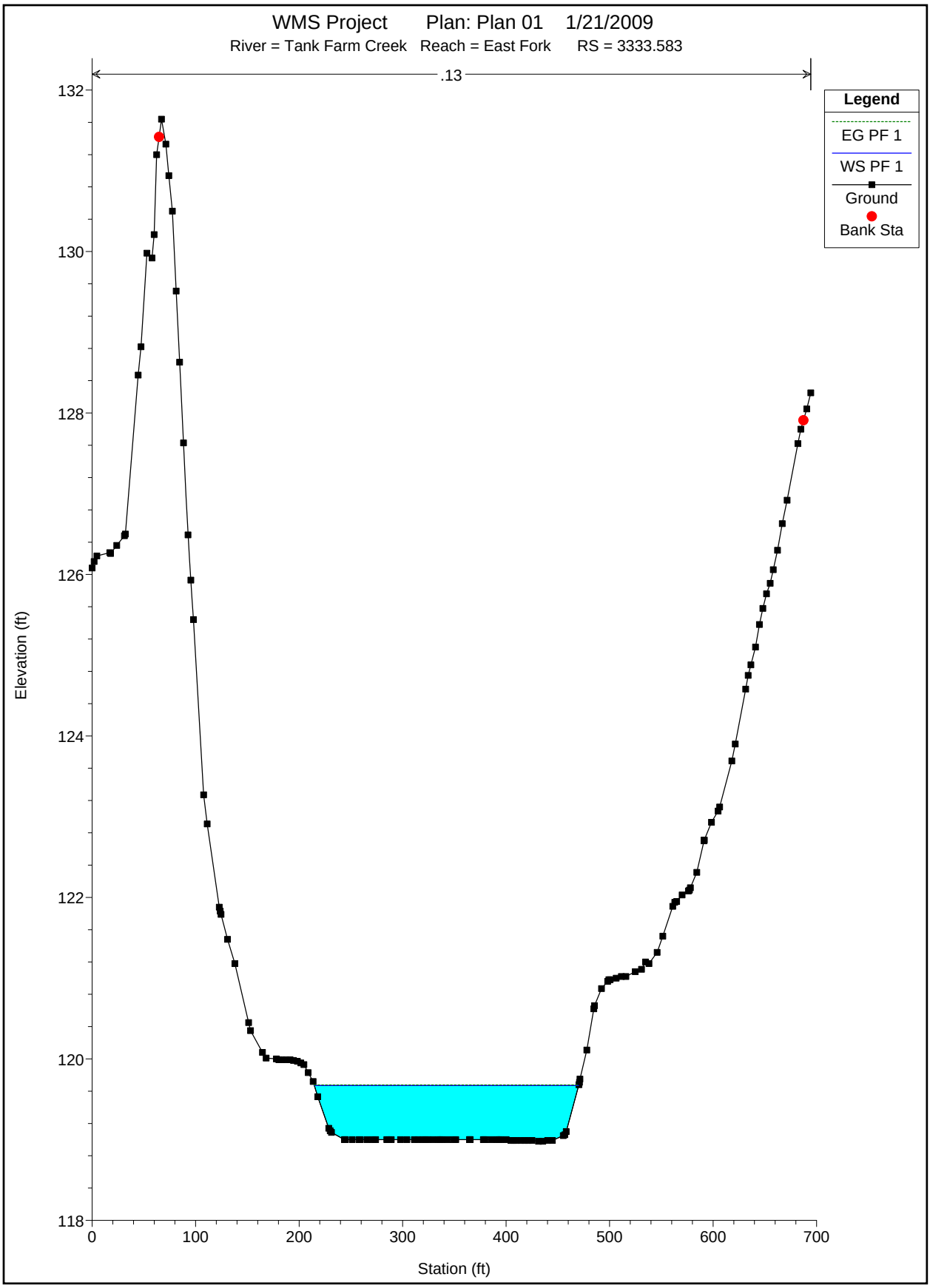
Station (ft)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WS PF 1
Ground
Bank Sta
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Station (ft)
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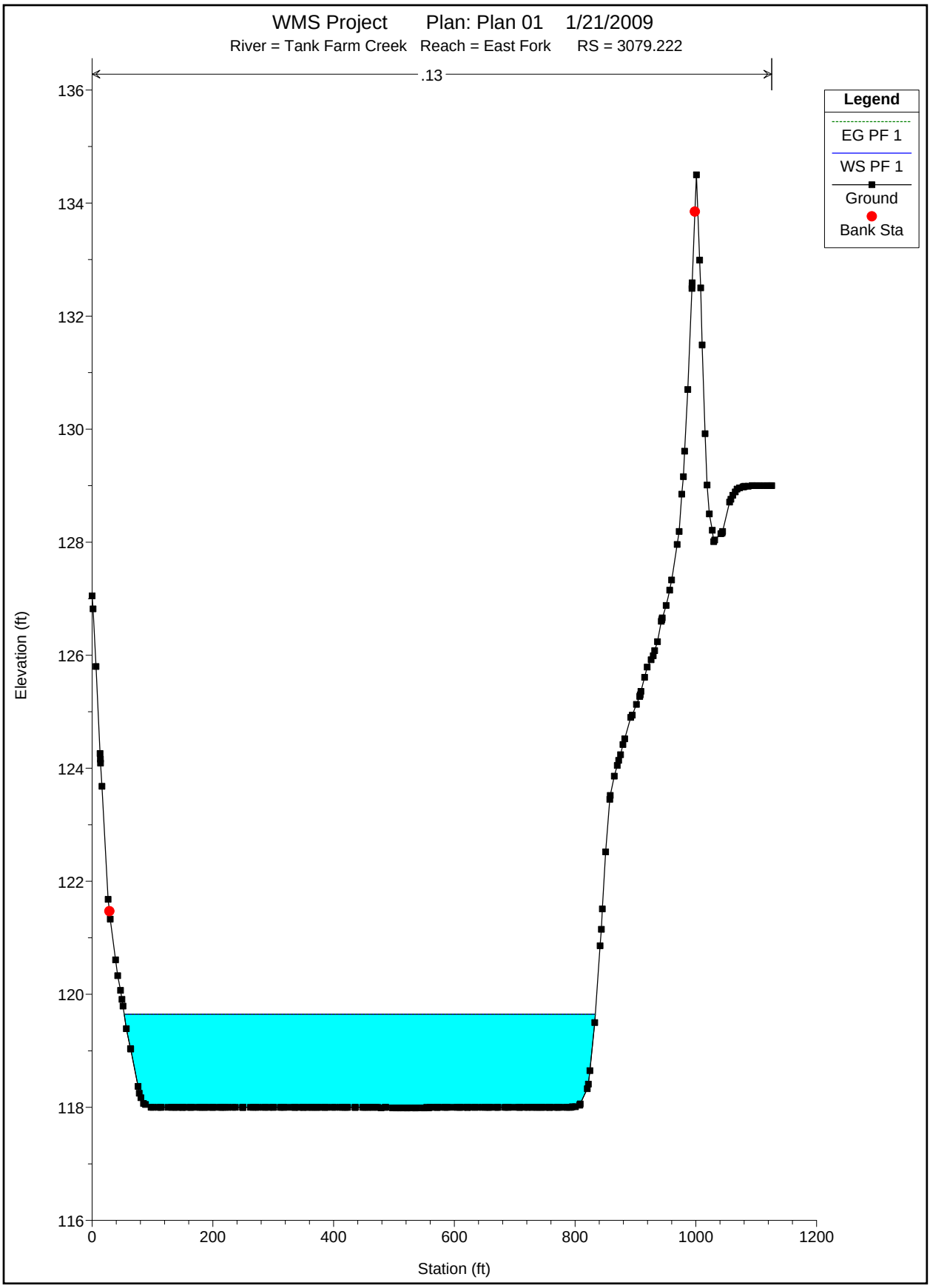
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WS PF 1
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Elevation (ft)
Station (ft)
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600
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1000
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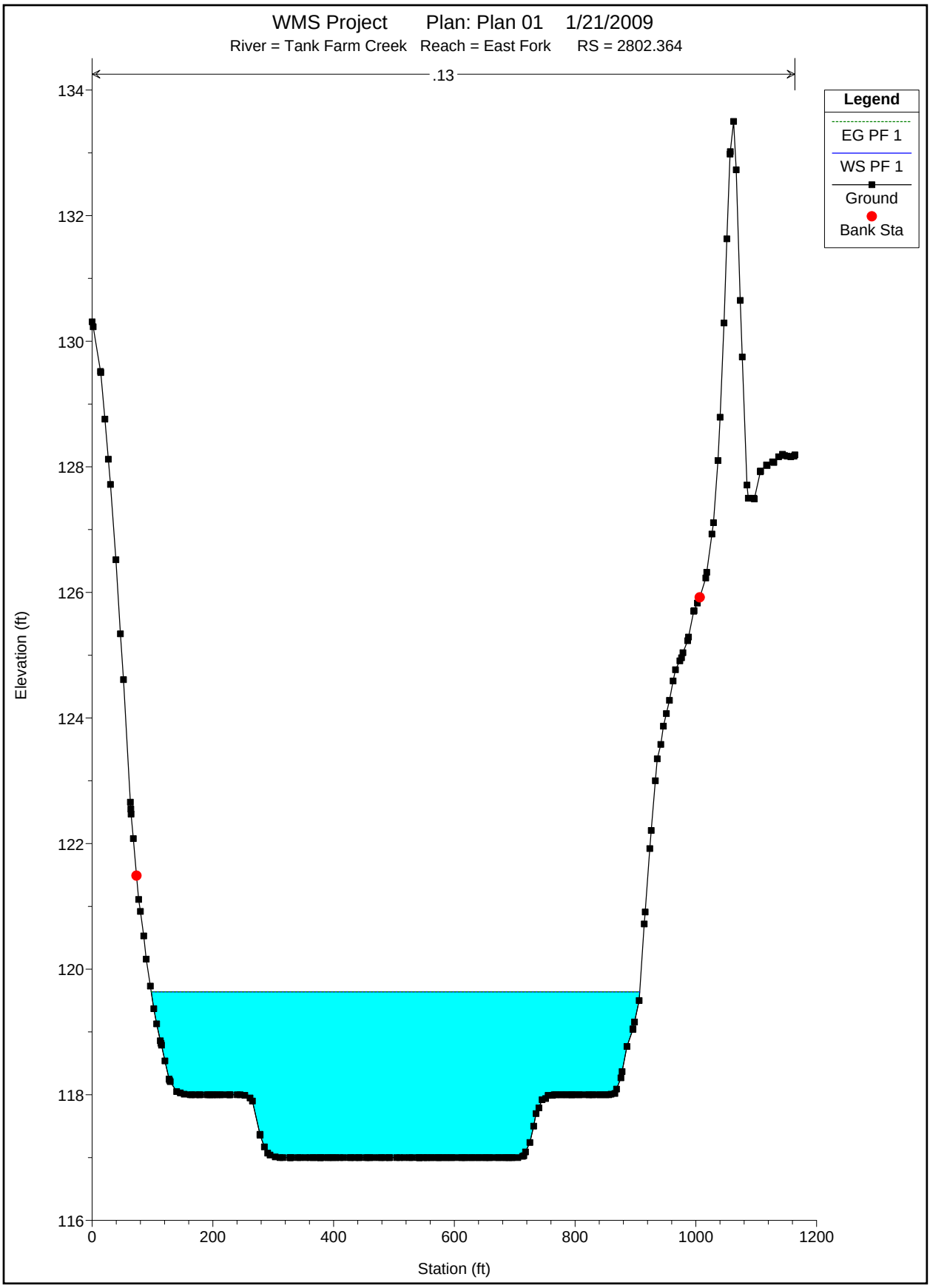
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Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
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130
128
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116
0
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400
600
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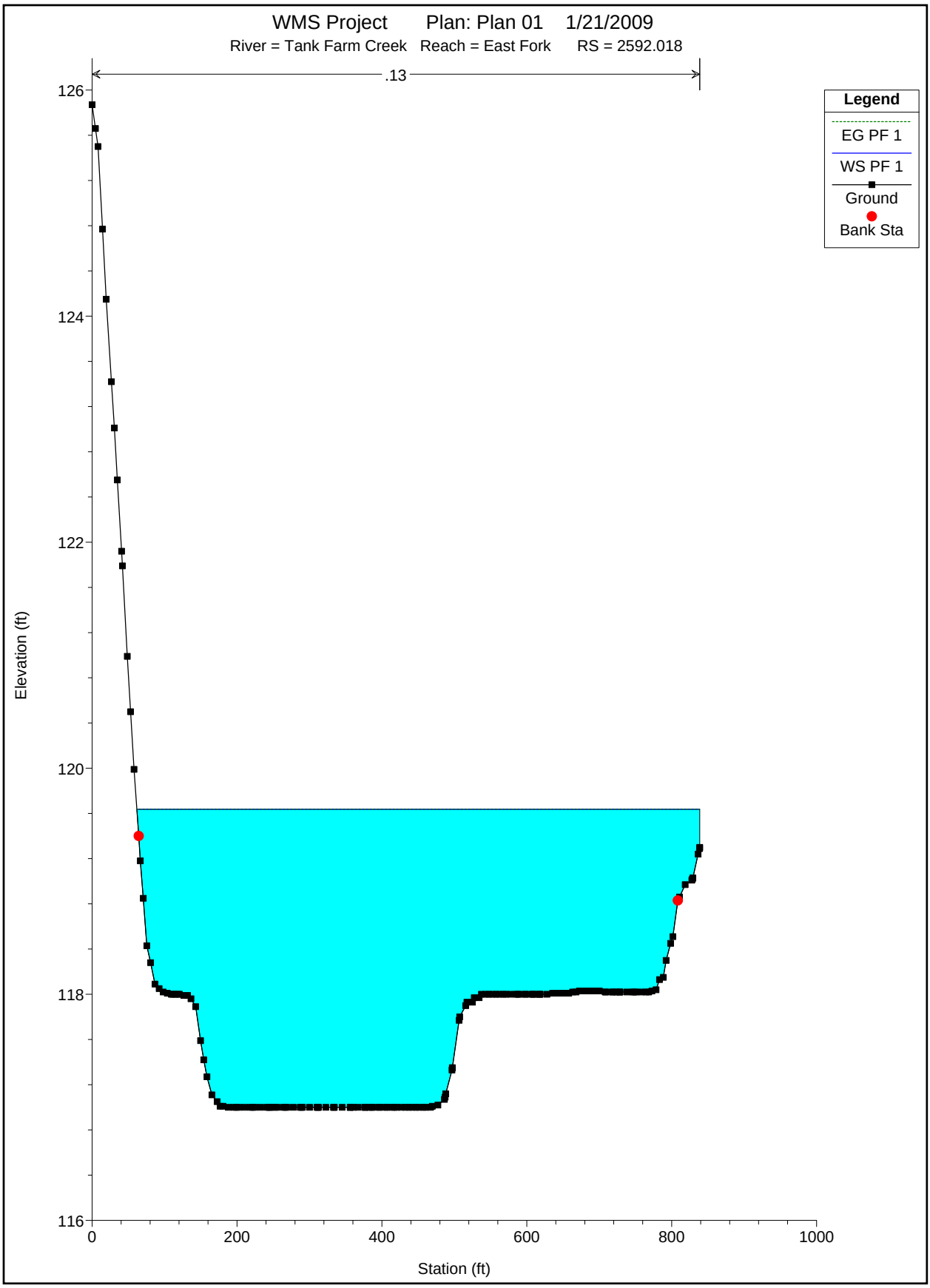
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Legend
EG PF 1
WS PF 1
Ground
Bank Sta
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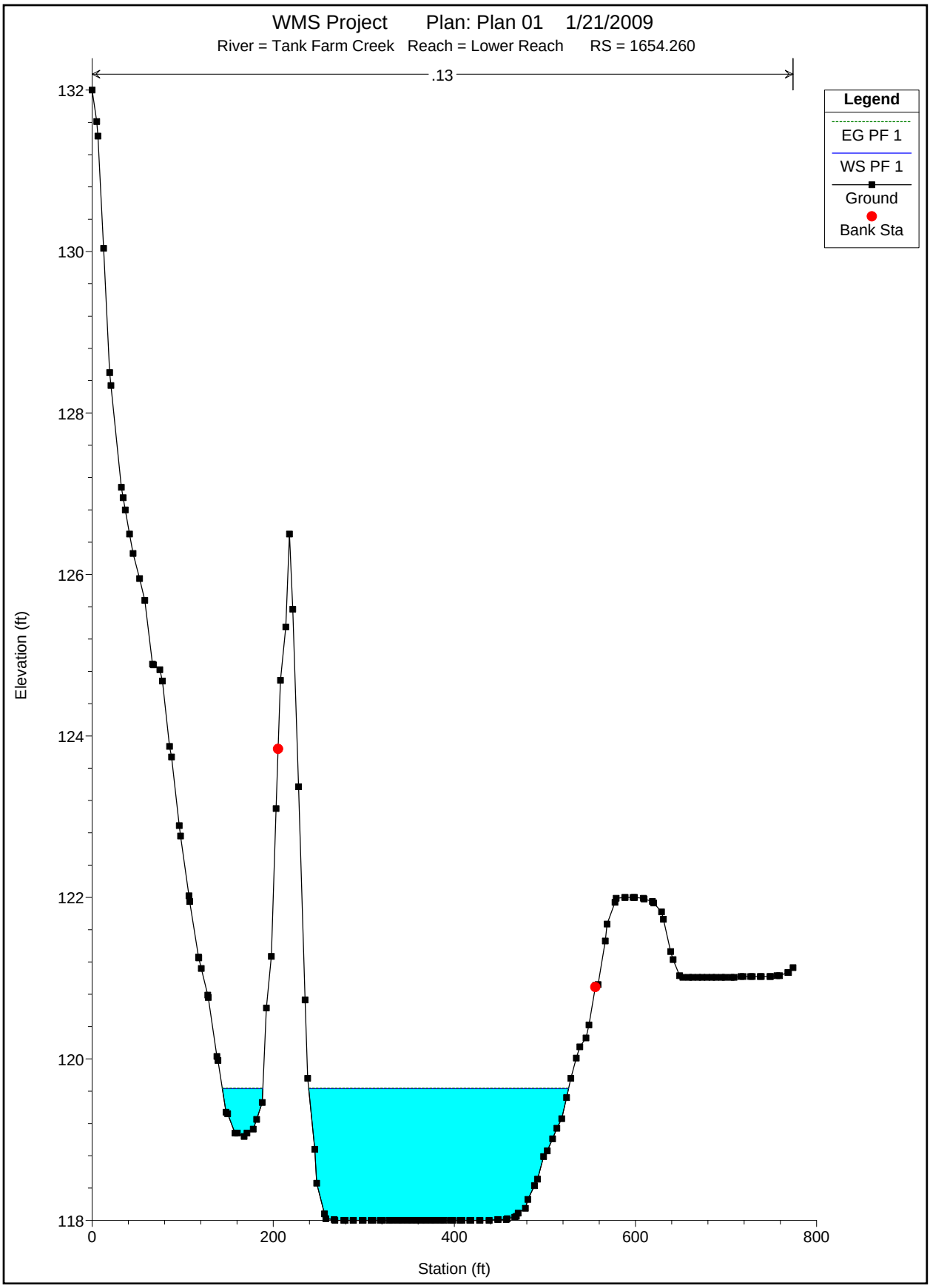
122
120
118
116
0
200
400
600
800
1000
Station (ft)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Legend
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WS PF 1
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Bank Sta
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130
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126
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122
120
118
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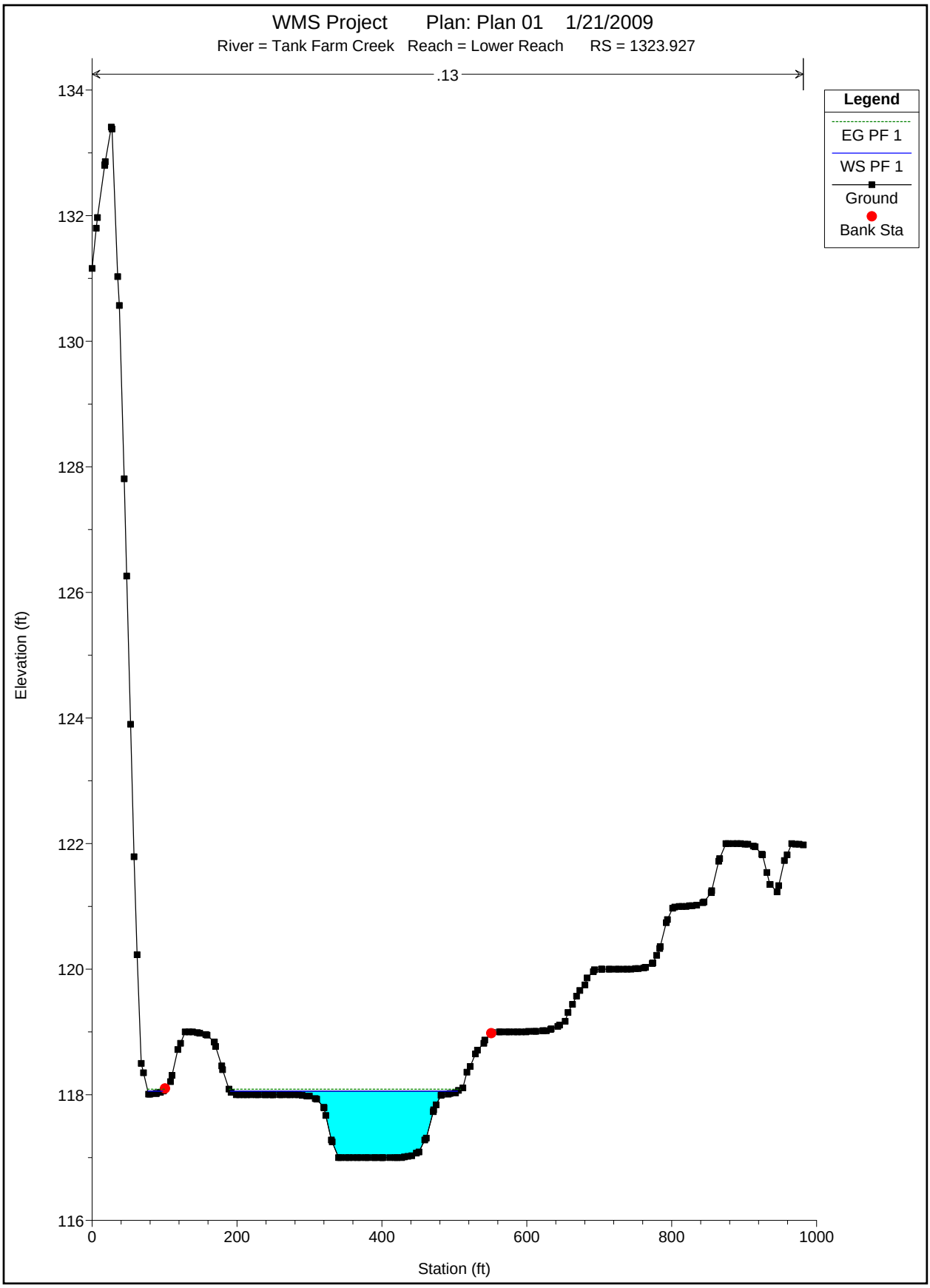
200
400
600
800
Station (ft)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Legend
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WS PF 1
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Bank Sta
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130
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200
400
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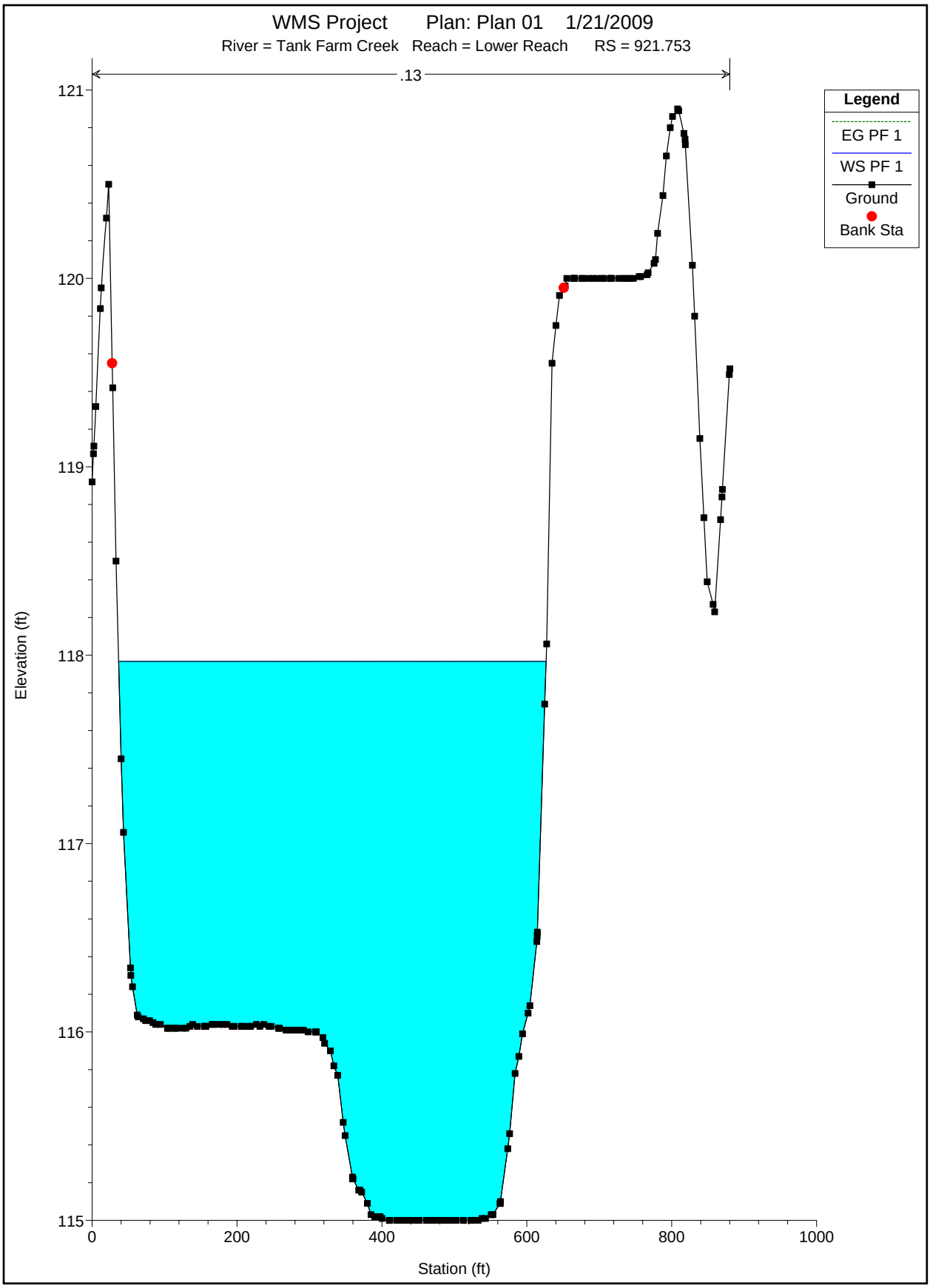
800
1000
Station (ft)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WS PF 1
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117
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600
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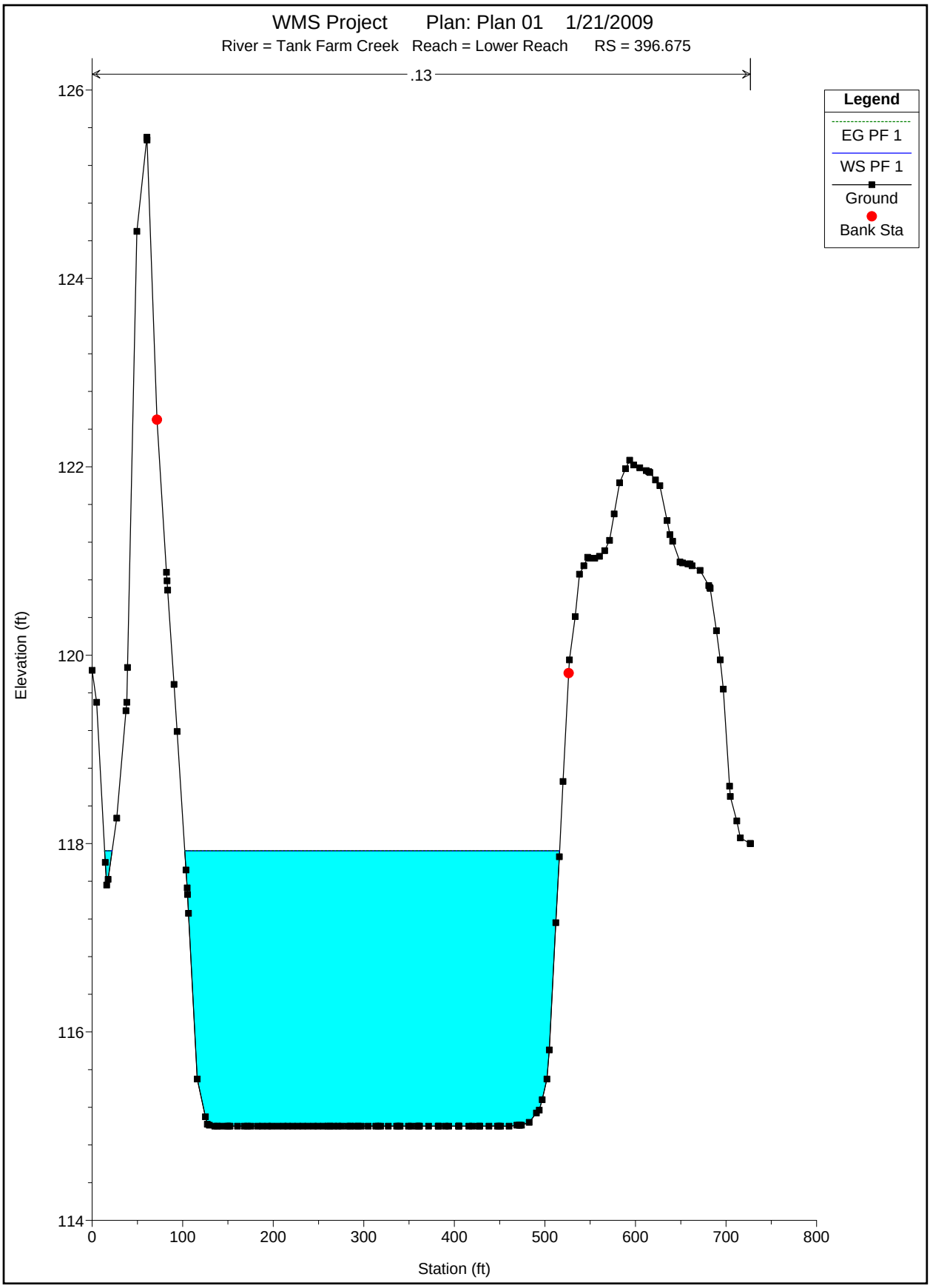
Station (ft)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EG PF 1
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Bank Sta
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Station (ft)
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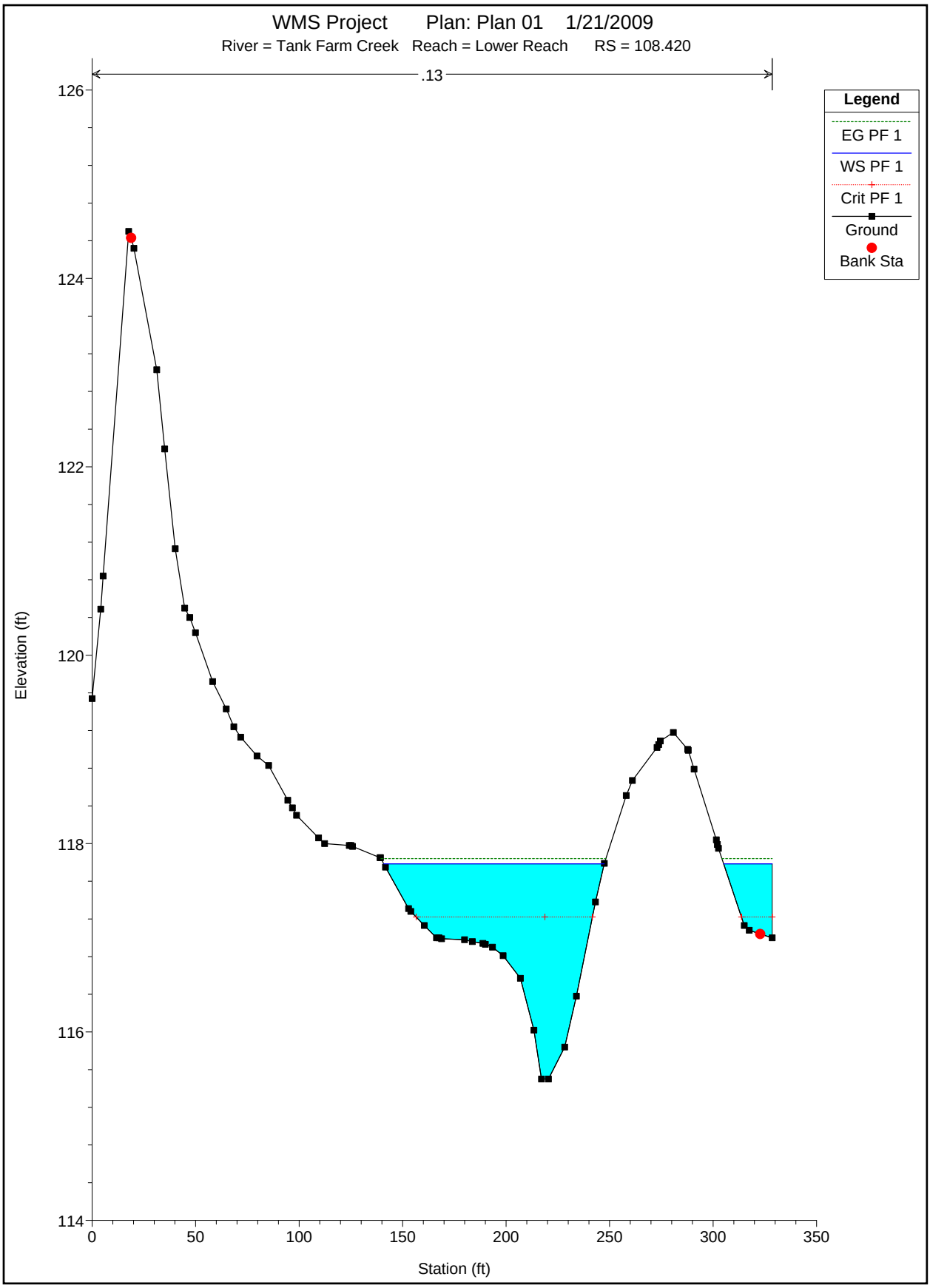
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WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
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124
122
120
118
116
114
0
50
100
150
200
250
300
350
Station (ft)

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                     U.S. Army Corp of Engineers
                    Hydrologic Engineering Center
                          609 Second Street
                          Davis, California


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Project in English units

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Flow Title : WMS Project Flow
Flow File : S:\Projects\1212
Chevron_Padre_SLOTF\005_HydrologyStudy\WMS\hecras-postrem012109.f01

Plan Summary Information:

Number of:	Cross Sections	= 12	Multiple Openings	=	0
	Culverts	= 0	Inline Structures	=	0
	Bridges	= 0	Lateral Structures	=	0

Computational Information

Water surface calculation tolerance	=	0.01
Critical depth calculation tolerance	=	0.01
Maximum number of iterations	=	20
Maximum difference tolerance	=	0.3
Flow tolerance factor	=	0.001

Computation Options
Critical depth computed only where necessary

Page: 1

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Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

FLOW DATA

Flow Title: WMS Project Flow
Flow File : S:\Projects\1212 Chevron_Padre_SLOTF\005_HydrologyStudy\WMS\hecras-postrem012109.f01

Flow Data (cfs)

River	Reach	RS	PF 1
Tank Farm Creek	West Fork	2361.099	902
Tank Farm Creek	Lower Reach	1654.260	227
Tank Farm Creek	East Fork	3899.164	110

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Tank Farm Creek	Lower Reach	PF 1		Normal S = 0.03

GEOMETRY DATA

Geometry Title: WMS Project Geometry
Geometry File : S:\Projects\1212 Chevron_Padre_SLOTF\005_HydrologyStudy\WMS\hecras-postrem012109.g01

Reach Connection Table

River	Reach	Upstream Boundary	Downstream Boundary
Tank Farm Creek	West Fork		4
Tank Farm Creek	Lower Reach	4	
Tank Farm Creek	East Fork		4

JUNCTION INFORMATION

Name: 4
Description:
Energy computation Method

Length across Junction River	Reach	Tributary River	Reach	Length	Angle
Tank Farm Creek	East Fork	to Tank Farm Creek	Lower Reach	0	0

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Tank Farm Creek West Fork to Tank Farm Creek Lower Reach 0 0

CROSS SECTION

RIVER: Tank Farm Creek
REACH: West Fork RS: 2361.099

INPUT
Description:
Station Elevation Data num= 376

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	129.73	.04	129.73	2.05	129.72	5.28	129.59	12.76	129.25
17.43	129.17	23.47	129	33.18	128.96	34.19	128.96	38.38	128.91
41.65	128.87	44.9	128.86	52.2	128.74	55.61	128.67	57.13	128.61
61.08	128.44	64.87	128.24	66.32	128.19	69.58	128.15	77.03	128
80.35	127.98	87.74	127.96	88.09	127.95	88.99	127.94	98.45	127.78
104.35	127.51	109.17	127.29	116.89	127.11	119.05	127.06	119.88	127.04
126.79	127.02	130.59	126.99	134.53	126.96	141.3	126.83	142.27	126.79
144.79	126.67	152.01	126.43	156.51	126.29	162.72	126.17	172.69	126.04
173.44	126.02	173.9	126.02	184.15	126	191.28	125.99	194.86	125.98
200.6	125.96	205.57	125.93	208.67	125.86	216.28	125.71	219.67	125.54
226.99	125.18	228.5	125.12	235.15	124.83	237.7	124.77	242.89	124.53
248.42	124.27	248.62	124.27	251.47	124.25	252.55	124.24	261.72	124.19
265.75	124.16	271.97	124.12	278.96	124.07	282.22	124.05	292.17	123.98
292.47	123.98	292.66	123.97	293.5	123.97	301.03	123.94	302.71	123.93
309.4	123.9	312.96	123.88	318.58	123.86	323.21	123.84	326.14	123.83
333.46	123.79	334.52	123.79	339.24	123.77	343.71	123.72	351.26	123.64
353.95	123.61	359.63	123.54	364.2	123.49	368.01	123.45	374.45	123.38
376.38	123.36	384.7	123.26	384.75	123.26	384.98	123.26	393.12	123.19
394.95	123.18	401.49	123.11	405.19	123.07	409.61	122.97	409.83	122.97
416.45	122.85	416.9	122.84	417.32	122.82	423.98	122.58	430.86	122.28
431.06	122.28	431.29	122.27	438.14	122.14	444.4	122.03	445.22	122.02
446.12	122	452.3	121.97	457.94	121.95	459.38	121.95	460.95	121.94
466.45	121.87	471.48	121.8	473.53	121.77	475.78	121.73	480.61	121.55
485.02	121.4	490.62	121.16	494.77	121.05	498.56	121.03	501.85	121
505.45	121	508.92	120.99	512.1	120.99	516	120.99	520.28	120.97
523.08	120.97	525.64	120.96	530.16	120.93	535.11	120.86	537.24	120.84
539.18	120.8	544.32	120.61	549.94	120.3	551.39	120.21	552.72	120.16
555.71	120.09	558.48	120.02	563.59	119.98	565.59	119.96	568.05	119.95
572.7	119.92	576.49	119.87	579.81	119.84	583.88	119.8	586.92	119.7
589.38	119.62	594.02	119.47	599.72	119.29	601.13	119.26	602.28	119.24
608.24	119.13	615.18	119.01	615.35	119	615.56	119	622.46	119
628.07	119	629.56	119	631.4	119	636.67	119	640.97	119
643.78	119	647.24	119	650.89	119.01	653.86	119.01	658	119.01
663.07	119.01	665.11	119.02	666.76	119.02	672.21	119.03	678.91	119.03
679.32	119.03	679.65	119.03	686.43	119.06	692.55	119.06	693.54	119.06
694.75	119.06	700.64	119.11	705.45	119.15	707.75	119.17	710.59	119.18
714.86	119.31	718.34	119.4	726.42	119.47	731.24	119.49	736.18	119.57
742.26	119.71	743.29	119.72	744.13	119.73	750.4	119.74	757.03	119.85
757.51	119.86	758.1	119.88	764.62	120.02	767.46	120.06	771.71	120.22
772.32	120.24	774.51	120.35	780.43	120.64	782.1	120.71	788.53	120.92
792.49	120.98	796.64	120.92	802.88	120.93	804.74	120.91	811.35	120.97
813.27	120.98	820.95	120.97	823.66	120.99	829.05	120.99	834.05	120.99
837.16	120.99	844.44	120.98	845.26	120.98	848.19	120.97	853.37	120.96

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854.83	120.95	861.47	120.9	865.22	120.85	869.58	120.8	875.61	120.51
885.03	120.24	885.78	120.22	886	120.22	893.89	120.06	896.39	120.05
901.99	120	906.78	120	910.1	120	917.17	120	918.2	120
921.87	120	926.31	120	927.56	120	934.41	119.99	937.95	119.99
942.52	119.98	948.34	119.97	950.62	119.96	958.71	119.91	958.72	119.91
958.73	119.91	958.74	119.91	969.12	119.72	974.93	119.58	979.51	119.46
983.04	119.31	989.9	119.21	991.14	119.17	995.55	119.2	999.25	119.23
1000.29	119.28	1007.35	119.62	1010.68	119.74	1015.46	119.86	1021.07	119.93
1023.56	119.98	1031.46	120	1031.66	120	1032.39	120	1041.85	120
1047.87	120	1052.24	120	1060.04	120	1062.63	120	1064.08	120
1069.23	120	1072.19	120	1073.02	120	1080.29	120	1083.41	120
1088.4	120	1093.8	120	1096.5	120	1104.19	120	1104.6	120
1106.07	120	1107.26	120	1112.71	120	1114.58	120	1120.81	120
1124.97	120	1128.92	120	1135.36	120.01	1137.02	120.01	1142.91	120.01
1145.13	120.02	1145.75	120.02	1153.23	120.05	1156.14	120.05	1161.33	120.11
1166.53	120.16	1169.44	120.29	1176.92	120.59	1177.54	120.61	1179.75	120.65
1185.65	120.72	1187.31	120.72	1193.75	120.67	1197.7	120.77	1201.86	120.77
1208.09	120.86	1209.96	120.85	1216.59	120.88	1218.07	120.87	1218.48	120.88
1226.17	120.91	1228.87	120.96	1234.27	120.95	1239.26	120.99	1242.38	120.98
1249.65	120.99	1250.48	120.98	1253.43	120.99	1259.64	121	1260.03	121
1261.6	121	1270.05	121	1271.06	121	1280.06	121	1288.36	121
1290.08	121	1299.44	121	1300.1	121	1308.91	121	1310.11	121
1318.37	121	1320.13	121	1327.83	121	1330.15	121	1337.29	121
1340.17	121	1346.75	121	1350.18	121	1356.21	121	1360.2	121
1365.67	121	1370.22	121	1375.13	121	1380.23	121	1384.59	121
1390.25	121	1394.06	121	1400.27	121	1403.52	121	1410.29	121
1412.98	121	1420.3	121	1422.44	121	1430.32	121.01	1431.9	121.01
1440.34	121.02	1441.36	121.02	1450.36	121.05	1450.82	121.06	1458.72	121.15
1460.37	121.17	1460.48	121.17	1470.39	121.56	1471.12	121.59	1480.41	121.93
1481.76	121.95	1490.43	122	1492.41	122	1500.44	122	1503.05	122
1510.46	122	1513.69	122	1520.48	122	1524.34	122	1530.49	122
1534.98	122	1540.51	122	1545.62	122	1550.53	122	1556.27	122
1560.55	122								

Manning's n Values num= 1

Sta	n Val
0	.13

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
512.1	788.53	63.38	192.23	312.03	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	121.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.130	0.130	0.130
W.S. Elev (ft)	121.53	Reach Len. (ft)	63.38	192.23	312.03
Crit W.S. (ft)		Flow Area (sq ft)	12.50	515.60	694.82
E.G. Slope (ft/ft)	0.002797	Area (sq ft)	12.50	515.60	694.82
Q Total (cfs)	902.00	Flow (cfs)	4.13	472.25	425.63
Top Width (ft)	988.53	Top Width (ft)	30.95	276.43	681.14
Vel Total (ft/s)	0.74	Avg. Vel. (ft/s)	0.33	0.92	0.61
Max Chl Dpth (ft)	2.53	Hydr. Depth (ft)	0.40	1.87	1.02
Conv. Total (cfs)	17054.2	Conv. (cfs)	78.0	8928.8	8047.4
Length Wtd. (ft)	232.92	Wetted Per. (ft)	30.96	276.49	681.20
Min Ch El (ft)	119.00	Shear (lb/sq ft)	0.07	0.33	0.18

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Alpha	1.13	Stream Power (lb/ft s)	0.02	0.30	0.11
Frctn Loss (ft)	1.85	Cum Volume (acre-ft)	0.02	1.55	2.86
C & E Loss (ft)	0.01	Cum SA (acres)	0.07	0.98	3.12

CROSS SECTION

RIVER: Tank Farm Creek
REACH: West Fork RS: 2110.976

INPUT
Description:
Station Elevation Data num= 417

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	131.04	7.99	130.51	8.01	130.51	8.09	130.51	18.27	131.07
24.74	130.91	28.52	130.57	33.09	130.36	38.78	130.12	47.8	129.71
49.03	129.65	53.21	129.41	59.29	129.21	61.07	129.15	69.54	128.83
74.88	128.64	75.03	128.64	79.8	128.55	87.62	128.36	90.05	128.28
91.59	128.19	98.34	128.03	100.31	127.99	108.3	127.78	110.56	127.73
114.16	127.56	120.82	127.23	127.43	127.08	131.07	126.99	140.7	126.96
141.33	126.95	143.47	126.93	151.58	126.82	153.97	126.71	161.84	126.34
167.24	126.19	172.09	126.04	180.51	126	182.35	125.99	188.6	125.96
191.86	125.95	192.6	125.95	193.78	125.93	202.86	125.76	208.57	125.47
213.11	125.24	220.32	124.98	223.37	124.88	225.29	124.83	233.62	124.39
233.64	124.39	233.73	124.39	243.88	124	246.86	123.93	254.13	123.71
258.71	123.39	264.39	122.98	273.4	122.12	274.64	122.01	275.42	121.94
278.86	121.6	284.9	121.02	286.11	120.9	297.73	120.14	298.86	120.07
305.36	119.73	311.58	119.4	313.32	119.31	319.5	119.21	325.42	119.1
326.57	119.09	327.77	119.07	339.27	119.08	342.23	119.09	353.11	119.14
356.69	119.19	366.96	119.28	371.15	119.4	376.08	119.61	380.81	119.82
383.15	119.89	385.61	119.93	394.65	120.08	400.07	120.11	404.37	120.15
408.5	120.17	411.45	120.27	414.52	120.36	418.52	120.48	422.34	120.45
428.98	120.5	432.66	120.55	436.19	120.53	439.74	120.49	443.44	120.57
446.81	120.64	450.03	120.74	457.9	120.86	463.88	120.94	472.36	120.93
475.1	120.9	477.73	120.9	482.17	120.85	486.82	120.8	489.25	120.76
491.57	120.66	496.32	120.41	501.28	120.22	505.42	120.12	510.46	120.13
515.74	120.07	517.54	120.08	519.26	120.07	530.19	120.06	533.11	120.06
544.65	120.03	545.83	120.03	546.95	120.03	552.9	120.03	559.11	120.01
559.97	120.01	560.8	120.01	567.05	120.01	573.57	120	574.64	120
588.03	120	588.26	120	588.49	120	595.34	120	602.34	120
602.41	120	602.49	120	609.48	120	616.18	120	616.55	120
616.94	120	623.63	120	630.03	120	630.7	120	631.4	120
637.77	120	643.87	120	644.85	120	645.86	120	651.92	120
657.72	119.99	658.99	119.99	660.32	119.99	671.56	119.96	673.14	119.95
674.78	119.94	680.21	119.88	685.41	119.78	689.24	119.62	694.36	119.3
699.26	119.06	701.43	118.95	703.7	118.89	708.5	118.74	713.1	118.5
718.15	118.25	722.65	118.07	726.95	118.03	729.72	118	732.61	118
740.79	118	747.07	118	750.94	118	754.64	118	758.01	118
761.53	118	765.08	118	768.48	118	772.15	118	775.99	118.01
779.23	118.01	782.33	118.01	786.3	118.01	790.45	118.02	793.37	118.03
796.17	118.04	800.45	118.07	804.9	118.12	807.52	118.15	810.02	118.18
814.59	118.34	819.36	118.57	821.8	118.67	823.85	118.76	828.74	118.9
833.92	118.99	835.81	119.04	837.6	119.06	842.89	119.11	848.49	119.17

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849.96	119.19	851.35	119.2	857.03	119.41	863.06	119.63	864.11	119.67
865.1	119.7	877.63	119.93	878.26	119.94	878.84	119.94	885.33	119.87
892.21	119.82	892.4	119.81	892.59	119.81	899.48	119.69	906.34	119.39
906.55	119.38	906.78	119.37	920.09	118.93	920.7	118.91	921.35	118.9
927.77	118.79	933.84	118.46	934.85	118.4	935.92	118.37	941.92	118.19
947.58	118.26	949	118.28	950.5	118.38	956.07	118.76	961.33	119.06
963.14	119.17	965.07	119.3	970.22	119.65	975.08	119.84	977.29	119.93
979.64	119.96	988.83	120	991.44	120	994.21	120	998.51	120
1002.58	119.99	1005.59	119.99	1008.78	119.98	1012.66	119.97	1016.32	119.96
1019.74	119.94	1023.36	119.9	1026.81	119.87	1030.07	119.83	1033.89	119.71
1037.93	119.51	1040.96	119.4	1043.82	119.29	1048.03	119.2	1052.5	119.11
1057.57	119.01	1067.07	119.01	1069.26	119.02	1071.32	119.01	1076.33	119.01
1081.65	119	1083.4	119.01	1085.06	119	1090.48	119	1096.22	119
1097.55	119	1098.81	119	1104.63	119	1110.79	119	1111.7	119
1112.56	119	1118.77	119.01	1125.36	119.01	1125.85	119.01	1126.31	119.01
1132.92	119.03	1138.09	119.04	1139.93	119.05	1140.06	119.05	1142.08	119.08
1153.8	119.22	1154.15	119.23	1154.51	119.23	1161.22	119.46	1167.55	119.68
1169.08	119.73	1175.37	119.84	1181.3	119.95	1182.44	119.97	1183.65	119.99
1189.52	120	1195.05	120	1196.59	120	1198.22	120	1203.66	120
1208.8	120	1210.74	120	1212.8	120	1217.81	120	1222.54	120
1224.89	120	1227.37	120	1236.29	120	1241.94	120	1246.11	120
1250.04	120	1253.18	120	1256.51	120	1263.79	120	1267.33	120
1271.08	120	1274.4	120	1276.31	120	1277.2	120	1283.54	120
1287.2	120	1293.44	120	1297.2	120.01	1303.33	120.01	1307.2	120.02
1311.16	120.03	1317.2	120.06	1323.12	120.14	1327.2	120.2	1333.02	120.5
1337.2	120.71	1342.92	120.88	1347.2	121	1352.81	121	1357.21	121
1362.71	121	1367.21	121	1372.61	121	1377.21	121	1382.5	121
1387.21	121	1392.4	121	1397.21	121	1402.29	121	1407.21	121
1412.19	121	1417.21	121	1422.09	121	1427.21	121	1431.98	121
1437.21	121	1441.88	121	1447.21	121	1451.77	121	1457.21	121
1461.67	121	1467.21	121	1471.57	121	1477.21	121	1481.46	121
1487.21	121	1491.36	121	1497.21	121	1501.26	121	1507.21	121
1511.15	121	1517.21	121	1521.05	121	1527.21	121	1530.94	121
1537.22	121	1540.84	121	1547.22	121	1550.74	121	1557.22	121
1560.63	121	1567.22	121	1570.53	121	1577.22	121	1580.43	121
1587.22	121	1590.32	121	1597.22	121	1600.22	121	1607.22	121
1610.11	121	1617.22	121	1620.01	121	1627.22	121	1629.91	121
1637.22	121	1639.8	121	1647.22	121	1649.7	121	1657.22	121
1659.59	121	1667.22	121	1669.49	121	1677.22	121	1679.39	121
1687.22	121	1689.28	121	1697.22	121	1699.18	121	1707.22	121
1709.08	121	1717.23	121	1718.97	121	1727.23	121	1728.87	121
1737.23	121	1738.76	121	1747.23	121	1748.66	121	1757.23	121
1758.56	121	1767.23	121	1768.45	121	1777.23	121	1778.35	121
1787.23	121	1788.24	121	1797.23	121	1798.14	121	1807.23	121
1808.04	121	1817.23	121						

Manning's n Values num= 1

Sta	n Val
0	.13

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
637.77	877.63	0	0	332.07	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

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E.G. Elev (ft)	119.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.	0.130	0.130	0.130
W.S. Elev (ft)	119.53	Reach Len. (ft)	0.00	0.00	0.00
Crit W.S. (ft)		Flow Area (sq ft)	21.81	186.08	103.11
E.G. Slope (ft/ft)	0.080053	Area (sq ft)	21.81	186.08	103.11
Q Total (cfs)	902.00	Flow (cfs)	34.02	639.86	228.12
Top Width (ft)	425.79	Top Width (ft)	65.09	169.65	191.05
Vel Total (ft/s)	2.90	Avg. Vel. (ft/s)	1.56	3.44	2.21
Max Chl Dpth (ft)	1.53	Hydr. Depth (ft)	0.34	1.10	0.54
Conv. Total (cfs)	3188.0	Conv. (cfs)	120.3	2261.5	806.2
Length Wtd. (ft)	0.00	Wetted Per. (ft)	65.10	169.71	191.13
Min Ch El (ft)	118.00	Shear (lb/sq ft)	1.67	5.48	2.70
Alpha	1.16	Stream Power (lb/ft s)	2.61	18.84	5.96
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)			
C & E Loss (ft)	0.04	Cum SA (acres)			

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: Tank Farm Creek
REACH: Lower Reach RS: 1654.260

INPUT
Description:
Station Elevation Data num= 158

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	132	5.04	131.61	6.44	131.43	12.72	130.04	19.36	128.5
20.84	128.34	32.28	127.08	34.24	126.95	36.63	126.8	41.34	126.5
45.2	126.26	52.43	125.95	58.11	125.68	66.66	124.89	67.65	124.88
74.79	124.82	77.67	124.68	85.49	123.87	87.69	123.74	96.18	122.89
97.71	122.76	106.87	122.02	107.73	121.95	117.57	121.26	117.75	121.25
120.47	121.12	127.77	120.79	128.26	120.76	137.79	120.03	138.96	119.98
147.81	119.34	149.65	119.32	157.83	119.08	160.34	119.08	167.85	119.04
171.04	119.08	177.87	119.13	181.73	119.25	187.89	119.46	192.43	120.63
197.91	121.27	203.12	123.1	205.37	123.84	207.93	124.69	213.81	125.35
217.95	126.5	221.6	125.57	227.97	123.37	235.2	120.73	237.99	119.76
245.9	118.88	248.01	118.46	256.59	118.08	258.03	118.02	267.29	118.01
268.05	118	277.98	118	278.07	118	279.42	118	288.09	118
288.67	118	298.11	118	299.37	118	308.13	118	310.06	118
318.15	118	320.76	118	328.17	118	331.45	118	338.19	118
342.14	118	348.21	118	352.84	118	358.23	118	363.53	118
368.25	118	374.23	118	378.27	118	384.92	118	388.29	118
395.61	118	398.31	118	406.31	118	408.33	118	417	118
418.35	118	427.69	118	428.37	118	438.36	118	438.39	118
447.81	118.01	448.41	118.01	457.24	118.01	458.43	118.02	466.66	118.04
468.45	118.05	470.47	118.09	478.47	118.15	481.17	118.26	488.49	118.43
491.86	118.51	498.51	118.79	502.55	118.86	508.53	119.01	513.25	119.14
518.55	119.26	523.94	119.52	528.57	119.76	534.63	120.01	538.59	120.15
545.33	120.26	548.61	120.42	555.71	120.89	556.02	120.91	558.63	120.92
566.72	121.46	568.64	121.67	577.41	121.94	578.66	121.99	588.11	122
588.68	122	597.31	122	598.7	122	598.8	122	608.72	121.99
609.49	121.98	618.74	121.95	620.19	121.93	628.76	121.82	630.88	121.73

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638.78	121.33	641.58	121.23	648.8	121.03	652.27	121.01	658.82	121.01
662.96	121.01	668.84	121.01	673.66	121.01	678.86	121.01	684.35	121.01
688.88	121.01	695.04	121.01	698.9	121.01	705.74	121.01	708.92	121.01
716.43	121.02	718.94	121.02	727.13	121.02	728.96	121.02	737.82	121.02
738.98	121.02	748.51	121.02	749	121.02	756.25	121.03	759.02	121.03
768.28	121.07	769.04	121.07	773.96	121.13				

Manning's n Values num= 1

Sta	n Val
0	.13

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
205.37	555.71	329.87	400.06	337.61	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	119.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.130	0.130	
W.S. Elev (ft)	119.63	Reach Len. (ft)	329.87	400.06	337.61
Crit W.S. (ft)		Flow Area (sq ft)	19.27	414.13	
E.G. Slope (ft/ft)	0.001354	Area (sq ft)	19.27	414.13	
Q Total (cfs)	227.00	Flow (cfs)	4.61	222.39	
Top Width (ft)	331.76	Top Width (ft)	44.79	286.97	
Vel Total (ft/s)	0.52	Avg. Vel. (ft/s)	0.24	0.54	
Max Chl Dpth (ft)	1.63	Hydr. Depth (ft)	0.43	1.44	
Conv. Total (cfs)	6168.6	Conv. (cfs)	125.4	6043.2	
Length Wtd. (ft)	399.32	Wetted Per. (ft)	44.83	287.09	
Min Ch El (ft)	118.00	Shear (lb/sq ft)	0.04	0.12	
Alpha	1.03	Stream Power (lb/ft s)	0.01	0.07	
Frctn Loss (ft)	1.55	Cum Volume (acre-ft)	0.10	30.41	0.01
C & E Loss (ft)	0.00	Cum SA (acres)	0.47	15.46	0.02

CROSS SECTION

RIVER: Tank Farm Creek
REACH: Lower Reach RS: 1323.927

INPUT
Description:
Station Elevation Data num= 202

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	131.16	5.71	131.8	7.36	131.97	17.33	132.8	17.44	132.81
18.16	132.86	26.43	133.41	27.53	133.38	35.34	131.03	37.62	130.57
44.25	127.81	47.7	126.26	53.15	123.9	57.79	121.79	62.06	120.23
67.88	118.5	70.97	118.35	77.97	118.01	79.87	118.01	88.06	118.02
88.78	118.02	94.26	118.04	98.14	118.06	98.74	118.07	100.65	118.1
108.23	118.21	110.36	118.31	118.32	118.72	121.99	118.82	128.41	119
133.62	119	138.49	119	145.25	118.99	148.58	118.98	156.88	118.96
158.67	118.95	168.51	118.84	168.76	118.84	170.36	118.77	178.84	118.46
180.14	118.4	188.93	118.09	191.77	118.04	199.02	118	203.4	118
209.1	118	213.48	118	219.19	118	226.65	118	229.28	118
238.28	118	239.37	118	246.46	118	249.46	118	249.91	118

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259.54	118	261.54	118	269.63	118	273.17	118	279.72	118
284.8	118	289.81	117.99	296.43	117.98	299.89	117.98	308.06	117.94
309.98	117.93	319.69	117.8	320.07	117.79	322.56	117.67	330.15	117.28
331.31	117.25	340.24	117	342.94	117	350.33	117	354.57	117
360.42	117	366.2	117	370.5	117	377.83	117	380.59	117
389.46	117	390.68	117	398.67	117	400.77	117	401.09	117
410.85	117	418.33	117	420.94	117	427.24	117	431.03	117.01
435.98	117.02	441.12	117.03	447.6	117.07	451.2	117.09	459.23	117.28
461.29	117.31	470.86	117.73	471.38	117.76	474.77	117.84	481.47	117.99
482.49	118	491.55	118.01	494.12	118.02	501.64	118.03	505.75	118.07
511.73	118.11	517.38	118.36	521.82	118.45	529.01	118.65	531.9	118.71
540.63	118.82	541.99	118.87	550.87	118.97	550.99	118.98	552.08	118.99
552.26	118.99	562.17	119	563.89	119	572.25	119	575.52	119
582.34	119	587.15	119	592.43	119	598.78	119	602.52	119.01
610.41	119.01	612.6	119.01	622.04	119.02	622.69	119.02	626.97	119.02
632.78	119.04	633.67	119.05	642.87	119.09	645.29	119.11	652.95	119.17
656.92	119.31	663.04	119.44	668.55	119.57	673.13	119.66	680.18	119.75
683.22	119.86	691.81	119.96	693.3	119.99	703.07	120	703.39	120
703.44	120	713.48	120	715.07	120	723.57	120	726.7	120
733.65	120	738.33	120	743.74	120	749.96	120.01	753.83	120.01
761.58	120.02	763.92	120.03	773.21	120.09	774	120.1	779.17	120.22
783.51	120.33	784.09	120.36	792.42	120.74	794.18	120.79	801.33	120.97
804.26	120.99	810.24	121	814.35	121	819.73	121	824.44	121.01
828.05	121.01	834.53	121.02	842.99	121.06	844.62	121.07	854.62	121.22
854.7	121.22	854.77	121.22	855.28	121.25	864.79	121.72	866.24	121.76
874.88	122	877.87	122	884.97	122	890.4	122	895.05	122
901.13	121.99	905.14	121.99	912.76	121.96	915.23	121.95	924.39	121.83
925.32	121.82	931.38	121.54	935.4	121.35	936.02	121.35	945.49	121.23
947.65	121.33	955.58	121.73	959.27	121.82	965.66	122	970.9	121.99
975.75	121.99	981.71	121.98						

Manning's n Values num= 1

Sta	n Val
0	.13

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
100.65	550.99	408.56	417.57	401.89	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	118.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	0.130	0.130	
W.S. Elev (ft)	118.06	Reach Len. (ft)	408.56	417.57	401.89
Crit W.S. (ft)		Flow Area (sq ft)	0.65	156.67	
E.G. Slope (ft/ft)	0.040480	Area (sq ft)	0.65	156.67	
Q Total (cfs)	227.00	Flow (cfs)	0.15	226.85	
Top Width (ft)	334.07	Top Width (ft)	20.50	313.57	
Vel Total (ft/s)	1.44	Avg. Vel. (ft/s)	0.23	1.45	
Max Chl Dpth (ft)	1.06	Hydr. Depth (ft)	0.03	0.50	
Conv. Total (cfs)	1128.2	Conv. (cfs)	0.8	1127.5	
Length Wtd. (ft)	417.57	Wetted Per. (ft)	20.50	313.60	
Min Ch El (ft)	117.00	Shear (lb/sq ft)	0.08	1.26	
Alpha	1.01	Stream Power (lb/ft s)	0.02	1.83	
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	0.03	27.79	0.01
C & E Loss (ft)	0.01	Cum SA (acres)	0.22	12.70	0.02

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CROSS SECTION

RIVER: Tank Farm Creek
REACH: Lower Reach RS: 921.753

INPUT
Description:
Station Elevation Data num= 189

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	118.92	1.79	119.07	2.44	119.11	5	119.32	11.36	119.84
12.64	119.95	19.85	120.32	22.84	120.5	27.68	119.55	28.35	119.42
33.04	118.5	40.09	117.45	43.24	117.06	52.86	116.34	53.44	116.3
55.74	116.24	62.32	116.09	63.64	116.08	70.81	116.07	73.84	116.06
79.3	116.06	84.04	116.05	87.8	116.04	94.24	116.04	103.93	116.02
104.44	116.02	106.47	116.02	113.27	116.02	114.64	116.02	116.7	116.02
124.84	116.02	129.46	116.02	135.04	116.03	138.75	116.04	145.24	116.03
155	116.03	155.44	116.03	155.74	116.03	157.21	116.03	165.64	116.04
167.76	116.04	175.84	116.04	180.53	116.04	186.04	116.04	193.3	116.03
196.24	116.03	206.06	116.03	206.44	116.03	207.94	116.03	215.19	116.03
216.64	116.03	218.83	116.03	226.84	116.04	231.6	116.03	237.04	116.04
244.36	116.03	247.24	116.03	257.13	116.02	257.44	116.02	258.68	116.02
267.64	116.01	274.63	116.01	277.84	116.01	283.13	116.01	288.04	116.01
291.62	116.01	298.24	116	308.2	116	308.44	116	308.61	116
309.42	116	318.64	115.97	320.96	115.94	328.84	115.9	333.73	115.82
339.04	115.77	346.5	115.52	349.24	115.45	359.26	115.23	359.44	115.22
360.15	115.22	368.05	115.16	369.64	115.16	372.03	115.15	379.84	115.09
385.04	115.03	390.04	115.02	397.56	115.02	400.24	115.01	410.33	115
410.44	115	410.52	115	410.89	115	420.64	115	423.1	115
430.84	115	435.86	115	441.04	115	448.63	115	451.24	115
461.4	115	461.44	115	461.63	115	469.97	115	471.64	115
478.46	115	481.84	115	486.95	115	492.04	115	499.7	115
502.24	115	512.36	115	512.44	115	512.47	115	522.64	115
525.23	115	532.84	115	538	115.01	543.04	115.01	550.76	115.03
553.24	115.03	563.1	115.09	563.44	115.09	563.53	115.1	573.64	115.38
576.3	115.46	583.85	115.78	589.07	115.87	594.04	115.99	601.83	116.1
604.25	116.14	613.83	116.48	614.45	116.51	614.6	116.53	624.64	117.74
627.37	118.06	634.85	119.55	640.13	119.75	645.04	119.91	651.02	119.95
652.9	119.96	655.25	120	664.57	120	665.3	120	665.45	120
665.67	120	675.64	120	678.43	120	685.85	120	690.78	120
696.05	120	703.97	120	706.25	120	715.3	120	716.45	120
716.73	120	726.65	120	733.24	120	736.85	120	741.73	120
747.05	120	755.03	120.01	757.25	120.01	766.04	120.02	767.45	120.03
775.7	120.08	777.65	120.1	780.57	120.24	787.85	120.44	792.69	120.65
798.05	120.8	801.18	120.86	808.25	120.9	809.67	120.89	816.78	120.77
818.45	120.74	818.87	120.71	828.65	120.07	831.63	119.8	838.85	119.15
844.4	118.73	849.05	118.39	857.17	118.27	859.25	118.23	867.51	118.72
869.45	118.84	869.93	118.88	879.65	119.49	880.27	119.52		

Manning's n Values num= 1

Sta	n Val
0	.13

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Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
27.68	651.02	994.91	572.18	514.47	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	117.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.130	
W.S. Elev (ft)	117.97	Reach Len. (ft)	994.91	572.18	514.47
Crit W.S. (ft)		Flow Area (sq ft)		1341.39	
E.G. Slope (ft/ft)	0.000073	Area (sq ft)		1341.39	
Q Total (cfs)	227.00	Flow (cfs)		227.00	
Top Width (ft)	589.95	Top Width (ft)		589.95	
Vel Total (ft/s)	0.17	Avg. Vel. (ft/s)		0.17	
Max Chl Dpth (ft)	2.97	Hydr. Depth (ft)		2.27	
Conv. Total (cfs)	26505.0	Conv. (cfs)		26505.0	
Length Wtd. (ft)	572.23	Wetted Per. (ft)		590.16	
Min Ch El (ft)	115.00	Shear (lb/sq ft)		0.01	
Alpha	1.00	Stream Power (lb/ft s)		0.00	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	0.03	20.61	0.01
C & E Loss (ft)	0.00	Cum SA (acres)	0.13	8.37	0.02

CROSS SECTION

RIVER: Tank Farm Creek
REACH: Lower Reach RS: 396.675

INPUT
Description:
Station Elevation Data num= 148

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	119.84	4.99	119.5	14.45	117.8	16.09	117.56	17.64	117.62
27.2	118.27	37.43	119.41	38.31	119.5	39.13	119.87	49.41	124.5
60.41	125.49	60.52	125.5	60.63	125.47	71.63	122.5	82.12	120.88
82.73	120.79	83.39	120.69	90.44	119.69	93.84	119.19	103.62	117.72
104.95	117.53	105.41	117.46	106.37	117.26	116.06	115.5	125.11	115.1
127.16	115.02	129.35	115.01	135.36	115	138.27	115	142.85	115
149.38	115	150.34	115	152.33	115	160.48	115	168.1	115
171.59	115	175.31	115	182.69	115	187.78	115	193.8	115
198.29	115	204.91	115	211.1	115	216.01	115	221.27	115
227.12	115	232.59	115	238.23	115	244.26	115	249.34	115
255.17	115	260.44	115	262.65	115	267.24	115	271.55	115
275.58	115	282.65	115	285.12	115	290.22	115	293.76	115
297.08	115	304.87	115	313.2	115	315.98	115	318.57	115
327.08	115	336.18	115	338.19	115	340.07	115	349.3	115
352.29	115	359.16	115	360.4	115	361.56	115	371.51	115
382.14	115	382.62	115	389.95	115	393.72	115	404.55	115
404.83	115	405.12	115	415.94	115	419.9	115	427.04	115
428.1	115	438.15	115	447.54	115	449.26	115	451.08	115
460.36	115	469.04	115.01	471.47	115.01	472.31	115.01	474.07	115.01
482.57	115.04	490.53	115.14	493.68	115.17	497.05	115.28	502.26	115.5
504.79	115.81	512.03	117.16	515.89	117.86	520.03	118.66	526.25	119.81
527	119.95	533.52	120.41	538.11	120.86	543.01	120.95	547.19	121.04

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549.22	121.03	555.02	121.03	560.32	121.05	565.99	121.11	571.43	121.22
576.51	121.5	582.53	121.83	588.97	121.98	593.64	122.07	598.01	122.02
604.75	121.99	611.95	121.96	614.58	121.95	615.85	121.94	622.07	121.86
626.96	121.8	634.93	121.43	638.07	121.28	641	121.21	649.17	120.99
652.02	120.98	657.91	120.97	660.28	120.97	662.5	120.95	671.39	120.9
680.89	120.74	681.97	120.72	682.49	120.71	689.46	120.26	693.6	119.95
696.95	119.64	703.87	118.61	704.71	118.5	711.92	118.24	715.81	118.06
726.86	118	726.9	118	726.91	118				

Manning's n Values num= 1

Sta	n Val
0	.13

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
71.63	526.25	339.74	288.26	271.7	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	117.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.130	0.130	
W.S. Elev (ft)	117.92	Reach Len. (ft)	339.74	288.26	271.70
Crit W.S. (ft)		Flow Area (sq ft)	1.64	1155.97	
E.G. Slope (ft/ft)	0.000075	Area (sq ft)	1.64	1155.97	
Q Total (cfs)	227.00	Flow (cfs)	0.05	226.95	
Top Width (ft)	422.30	Top Width (ft)	8.35	413.96	
Vel Total (ft/s)	0.20	Avg. Vel. (ft/s)	0.03	0.20	
Max Chl Dpth (ft)	2.92	Hydr. Depth (ft)	0.20	2.79	
Conv. Total (cfs)	26189.0	Conv. (cfs)	6.3	26182.7	
Length Wtd. (ft)	288.02	Wetted Per. (ft)	8.39	414.40	
Min Ch El (ft)	115.00	Shear (lb/sq ft)	0.00	0.01	
Alpha	1.00	Stream Power (lb/ft s)	0.00	0.00	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	0.01	4.21	0.01
C & E Loss (ft)	0.01	Cum SA (acres)	0.03	1.78	0.02

CROSS SECTION

RIVER: Tank Farm Creek
REACH: Lower Reach RS: 108.420

INPUT
Description:
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	119.54	4.18	120.49	5.33	120.84	17.7	124.5	18.89	124.43
20.19	124.32	31.21	123.03	35.06	122.19	40.12	121.13	44.73	120.5
47.2	120.4	49.92	120.24	58.24	119.72	64.78	119.43	68.44	119.24
71.76	119.13	79.65	118.93	85.28	118.83	94.51	118.46	96.75	118.38
98.79	118.3	109.38	118.06	112.31	118	124.24	117.98	125.07	117.98
125.83	117.97	139.1	117.85	139.34	117.85	141.71	117.75	152.86	117.31
153.97	117.28	160.47	117.13	166.37	117	167.54	117	168.83	116.99
179.89	116.98	183.7	116.96	188.78	116.94	189.99	116.93	193.41	116.9
198.56	116.81	206.92	116.57	213.42	116.02	217.1	115.5	220.44	115.5

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228.29	115.84	233.96	116.38	243.15	117.38	247.47	117.79	258.02	118.51
260.99	118.67	272.88	119.02	273.73	119.05	274.5	119.09	280.81	119.18
287.74	119	288.02	118.99	290.79	118.79	301.54	118.04	302.05	117.99
302.61	117.95	315.05	117.13	317.47	117.08	322.78	117.04	328.57	117

Manning's n Values num= 1

Sta	n Val
0	.13

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
18.89	322.78	0	0	5902.09	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	117.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.		0.130	0.130
W.S. Elev (ft)	117.79	Reach Len. (ft)			
Crit W.S. (ft)	117.22	Flow Area (sq ft)		116.34	4.43
E.G. Slope (ft/ft)	0.030003	Area (sq ft)		116.34	4.43
Q Total (cfs)	227.00	Flow (cfs)		220.26	6.74
Top Width (ft)	130.01	Top Width (ft)		124.22	5.79
Vel Total (ft/s)	1.88	Avg. Vel. (ft/s)		1.89	1.52
Max Chl Dpth (ft)	2.29	Hydr. Depth (ft)		0.94	0.77
Conv. Total (cfs)	1310.5	Conv. (cfs)		1271.6	38.9
Length Wtd. (ft)		Wetted Per. (ft)		124.43	6.58
Min Ch El (ft)	115.50	Shear (lb/sq ft)		1.75	1.26
Alpha	1.00	Stream Power (lb/ft s)		3.32	1.92
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: Tank Farm Creek
REACH: East Fork RS: 3899.164

INPUT
Description:
Station Elevation Data num= 140

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	133.07	.19	133.06	4.81	132.83	10.19	132.57	15.28	132.17
20.19	131.96	25.38	131.66	30.2	131.34	34.75	131.1	40.2	130.84
44.49	130.49	50.2	130.03	56.24	129.56	60.21	129.28	66.53	128.91
70.21	128.72	76.81	128.2	80.22	127.91	83.44	127.6	90.22	126.99
93.17	126.72	100.22	126.19	107.67	125.8	108.14	125.77	110.23	125.63
117.96	125.03	120.23	124.9	128.25	124.18	130.24	124.01	132.12	123.88
140.24	123.29	141.85	123.21	150.24	122.81	159.1	122.32	160.25	122.25
161.33	122.23	170.25	122.06	171.06	122.05	180.25	122.01	189.96	122
190.26	122	190.54	122	200.26	122	200.27	122	200.72	122
210.01	122	210.26	122	210.53	122	220.27	122	220.82	122
230.27	122	231.11	122	240.28	122	248.96	122	250.28	122
251.68	122	260.28	122	261.96	122	270.29	122	272.25	122

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280.29	122	282.54	122	290.3	122	297.64	122	300.3	122
307.38	122	310.3	122	313.4	122	320.31	122	323.68	122
330.31	122	333.97	122	340.31	122	346.32	122	350.32	122
356.06	122	360.32	122	364.83	122	370.32	122	375.53	122
380.33	122	385.4	122	390.33	122	395	122	400.34	122
405.97	122.01	410.34	122.01	414.48	122.1	420.34	122.25	426.54	122.55
430.35	122.73	433.95	122.81	440.35	122.93	447.12	122.96	450.36	122.98
453.42	122.99	460.36	123	467.69	123.16	470.36	123.19	472.89	123.27
480.37	123.63	488.26	123.8	490.37	123.89	492.37	123.92	500.37	123.97
508.83	124.06	510.38	124.07	511.84	124.1	520.38	124.39	529.4	124.79
530.39	124.84	531.31	124.86	540.39	124.96	549.98	125.2	550.39	125.21
550.79	125.22	556.75	125.51	560.4	125.69	565.11	125.8	570.4	125.92
570.55	125.92	580.4	126.24	580.84	126.26	590.41	126.76	591.12	126.78
600.41	127.16	609.21	127.62	610.42	127.69	611.7	127.74	620.42	128
621.98	128.09	630.42	128.42	632.27	128.46	640.43	128.84	642.55	128.87
650.43	128.99	652.84	129.11	660.43	129.5	663.13	129.77	670.44	130.5

Manning's n Values num= 1

Sta	n Val
0	.13

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
108.14	556.75	438.63	559.2	782.54	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	122.72	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.		0.130	
W.S. Elev (ft)	122.72	Reach Len. (ft)	438.63	559.20	782.54
Crit W.S. (ft)		Flow Area (sq ft)		186.90	
E.G. Slope (ft/ft)	0.004504	Area (sq ft)		186.90	
Q Total (cfs)	110.00	Flow (cfs)		110.00	
Top Width (ft)	278.08	Top Width (ft)		278.08	
Vel Total (ft/s)	0.59	Avg. Vel. (ft/s)		0.59	
Max Chl Dpth (ft)	0.72	Hydr. Depth (ft)		0.67	
Conv. Total (cfs)	1639.1	Conv. (cfs)		1639.1	
Length Wtd. (ft)	559.20	Wetted Per. (ft)		278.11	
Min Ch El (ft)	122.00	Shear (lb/sq ft)		0.19	
Alpha	1.00	Stream Power (lb/ft s)		0.11	
Frctn Loss (ft)	3.05	Cum Volume (acre-ft)	0.00	26.71	0.06
C & E Loss (ft)	0.00	Cum SA (acres)	0.01	16.82	0.10

CROSS SECTION

RIVER: Tank Farm Creek
REACH: East Fork RS: 3333.583

INPUT
Description:
Station Elevation Data num= 157

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	126.08	1.95	126.16	4.52	126.23	17.06	126.27	17.86	126.26

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23.84	126.36	31.2	126.48	32.17	126.5	44.53	128.47	47.28	128.82
52.91	129.98	57.87	129.92	59.99	130.21	62.39	131.2	64.69	131.42
67.08	131.64	71.21	131.33	74.16	130.94	77.5	130.5	81.25	129.51
84.55	128.63	88.33	127.63	92.61	126.49	95.42	125.93	97.89	125.44
107.72	123.27	111.23	122.91	122.83	121.88	123.76	121.83	124.57	121.79
130.84	121.48	137.91	121.18	137.92	121.18	137.94	121.18	151.25	120.45
153.05	120.35	164.59	120.08	168.16	120.01	177.93	120	180.43	119.99
183.27	119.99	187.52	119.99	191.27	119.99	194.6	119.98	198.38	119.97
201.69	119.95	204.61	119.93	208.77	119.83	213.49	119.72	217.95	119.53
228.6	119.14	230.03	119.11	231.29	119.09	243.71	119	244.19	119
244.63	119	251.28	119	257.96	119	258.82	119	265.45	119
271.3	119	273.93	119	284.64	119	286.7	119	289.04	119
297.98	119	304.15	119	311.32	119	315.04	119	319.26	119
322.13	119	324.66	119	329.21	119	334.37	119	336.3	119
338	119	343.38	119	349.48	119	351.34	119	364.59	119
364.64	119	364.68	119	365.37	119	378.02	119	378.81	119
379.7	119	385.89	119	391.36	119	392.98	119	394.81	119
400.06	119	404.7	118.99	407.14	118.99	409.92	118.99	414.23	118.99
418.04	118.99	421.31	118.99	425.03	118.99	431.38	118.98	435.48	118.98
440.14	118.99	444.71	118.99	455.25	119.05	456.74	119.06	458.06	119.1
470.36	119.68	470.91	119.71	471.39	119.75	477.99	120.11	484.73	120.62
485.47	120.66	492.16	120.87	498.07	120.96	499.25	120.98	500.57	120.98
506.33	121	511.41	121.02	515.68	121.02	524.75	121.08	530.79	121.11
534.67	121.2	538.09	121.18	545.9	121.32	551.43	121.52	561.01	121.89
563.01	121.94	564.77	121.95	570.09	122.03	576.12	122.08	577.18	122.09
578.11	122.12	584.26	122.31	591.23	122.7	591.35	122.71	591.45	122.71
598.43	122.93	604.79	123.07	606.34	123.12	618.13	123.69	621.45	123.9
631.47	124.58	633.86	124.75	636.56	124.88	640.94	125.1	644.81	125.38
648.03	125.58	651.67	125.76	655.11	125.89	658.14	126.06	662.2	126.3
666.78	126.63	671.48	126.92	681.89	127.62	684.82	127.8	687.35	127.91
690.53	128.05	694.45	128.25						

Manning's n Values num= 1

Sta	n Val
0	.13

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
64.69	687.35	481.71	251.98	233.85	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	119.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.		0.130	
W.S. Elev (ft)	119.67	Reach Len. (ft)	481.71	251.98	233.85
Crit W.S. (ft)		Flow Area (sq ft)		160.05	
E.G. Slope (ft/ft)	0.006745	Area (sq ft)		160.05	
Q Total (cfs)	110.00	Flow (cfs)		110.00	
Top Width (ft)	255.45	Top Width (ft)		255.45	
Vel Total (ft/s)	0.69	Avg. Vel. (ft/s)		0.69	
Max Chl Dpth (ft)	0.69	Hydr. Depth (ft)		0.63	
Conv. Total (cfs)	1339.4	Conv. (cfs)		1339.4	
Length Wtd. (ft)	251.98	Wetted Per. (ft)		255.48	
Min Ch El (ft)	118.98	Shear (lb/sq ft)		0.26	
Alpha	1.00	Stream Power (lb/ft s)		0.18	
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	0.00	24.48	0.06

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C & E Loss (ft) 0.00 Cum SA (acres) 0.01 13.40 0.10

CROSS SECTION

RIVER: Tank Farm Creek
REACH: East Fork RS: 3079.222

INPUT
Description:
Station Elevation Data num= 263

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	127.05	1.6	126.82	6.49	125.8	13.17	124.26	13.65	124.16
14	124.09	16.28	123.68	26.4	121.68	28.64	121.47	30.07	121.33
38.81	120.61	42.26	120.33	46.98	120.07	49.42	119.91	51.21	119.79
56.57	119.39	63.61	119.04	63.88	119.03	76.02	118.37	78.03	118.25
80.78	118.17	85.19	118.07	88.42	118.05	97.69	118	100.82	118
109.47	118	113.23	118	114.59	118	125.63	118	131.49	118
135.26	118	138.03	118	142.42	118	148.39	118	149.57	118
150.44	118	156.07	118	162.84	118	163.88	118	165.3	118
175.24	118	178.19	118	182.2	118	185.34	118	187.65	118
192.5	118	199.1	118	200.05	118	202.66	118	212.45	118
213.96	118	216.01	118	221.11	118	224.86	118	232.91	118
237.26	118	249.26	118	249.66	118	249.73	118	249.81	118
262.07	118	266.72	118	271.19	118	274.47	118	283.62	118
286.88	118	292.65	118	299.28	118	300.52	118	311.68	118
314.11	118	317.43	118	324.09	118	334.33	118	335.57	118
336.49	118	342.73	118	348.89	118	349.88	118	351.23	118
357.04	118	361.3	118	364.19	118	368.13	118	371.34	118
373.7	118	378.5	118	385.04	118	386.1	118	389.04	118
398.51	118	401.94	118	410.91	118	414.27	118	418.84	118
421.42	118	423.31	118	435.64	118	435.72	118	435.75	118
448.12	118	450.04	118	452.65	118	457.19	118	460.52	118
464.35	118	469.55	118	472.93	118	478.65	117.99	485.33	118
486.45	118	497.74	117.99	503.36	117.99	507.27	117.99	510.14	117.99
514.42	117.99	520.26	117.99	521.58	117.99	522.54	117.99	528.83	117.99
534.95	117.99	535.88	117.99	537.16	117.99	547.35	117.99	550.19	117.99
554.07	118	557.35	117.99	559.75	118	564.5	118	570.97	118
571.65	118	572.16	118	575.42	118	584.56	118	585.96	118
587.87	118	596.96	118	604.78	118	607.42	118	609.37	118
614.58	118	621.68	118	621.73	118	621.77	118	628.88	118
634.17	118	638.58	118	646.58	118	650.35	118	655.49	118
657.5	118	658.98	118	668.62	118	671.38	118	672.39	118
683.79	118	686.12	118	689.29	118	696.19	118	706.19	118
707.58	118	708.59	118	715.21	118	721	118	723.1	118
729.04	118	733.4	118	736.19	118	740	118	743.35	118
745.8	118	750.5	118	756.9	118	757.66	118	758.21	118
764.81	118	770.61	118	771.96	118	773.81	118	783.01	118
786.27	118	790.71	118	793.43	118	795.42	118.01	800.58	118.01
807.61	118.04	807.82	118.04	808.4	118.06	820.23	118.33	822.04	118.41
824.51	118.65	832.63	119.5	841.42	120.86	843.5	121.15	845.03	121.51
850.66	122.52	857.44	123.45	858.32	123.52	864.97	123.86	869.84	124.05
872.12	124.14	875.22	124.24	879.27	124.42	882.24	124.52	892.13	124.9

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894.65	124.94	901.59	125.13	907.05	125.27	907.89	125.3	909.03	125.36
915.04	125.61	919.45	125.79	925.93	125.92	929.35	125.99	931.86	126.08
936.5	126.24	942.84	126.6	943.66	126.63	944.26	126.66	950.81	126.88
956.66	127.15	959.74	127.33	969.07	127.96	972.27	128.19	976.64	128.85
979.43	129.16	981.47	129.61	986.58	130.7	993.55	132.49	993.74	132.54
993.88	132.59	998.51	133.85	1000.89	134.5	1006.28	132.99	1008.04	132.5
1010.45	131.49	1015.2	129.92	1018.68	129.01	1022.35	128.5	1027.35	128.21
1029.51	128.01	1031.09	128.04	1041.38	128.15	1043.49	128.16	1044.26	128.19
1055.89	128.71	1058.12	128.76	1061.16	128.83	1065.28	128.89	1068.3	128.94
1072.43	128.96	1078.06	128.98	1079.58	128.98	1080.7	128.99	1086.74	128.99
1093.1	129	1094.96	129	1101.04	129	1105.51	129	1111.87	129
1117.91	129	1122.51	129	1125.74	129				

Manning's n Values num= 1

Sta	n Val
0	.13

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
28.64	998.51	420.71	337.64	146.82	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	119.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.130	
W.S. Elev (ft)	119.65	Reach Len. (ft)	420.71	337.64	146.82
Crit W.S. (ft)		Flow Area (sq ft)		1245.88	
E.G. Slope (ft/ft)	0.000032	Area (sq ft)		1245.88	
Q Total (cfs)	110.00	Flow (cfs)		110.00	
Top Width (ft)	780.44	Top Width (ft)		780.44	
Vel Total (ft/s)	0.09	Avg. Vel. (ft/s)		0.09	
Max Chl Dpth (ft)	1.66	Hydr. Depth (ft)		1.60	
Conv. Total (cfs)	19449.7	Conv. (cfs)		19449.7	
Length Wtd. (ft)	337.64	Wetted Per. (ft)		780.55	
Min Ch El (ft)	117.99	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)		0.00	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	20.41	0.06
C & E Loss (ft)	0.00	Cum SA (acres)	0.01	10.40	0.10

CROSS SECTION

RIVER: Tank Farm Creek
REACH: East Fork RS: 2802.364

INPUT
Description:
Station Elevation Data num= 234

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	130.31	1.74	130.23	13.86	129.52	14.3	129.5	21.25	128.76
26.87	128.12	30.38	127.72	39.43	126.52	46.9	125.34	51.99	124.61
63.42	122.66	64.07	122.55	64.56	122.47	68.16	122.08	73.59	121.49
77.12	121.11	79.94	120.92	85.48	120.53	89.68	120.16	96.46	119.73
102.25	119.37	106.88	119.13	112.98	118.86	114.02	118.82	114.81	118.79

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120.61	118.54	127.37	118.25	128.29	118.23	129.5	118.21	139.94	118.05
146.02	118.03	152.5	118.01	162.54	118	165.06	118	171.11	118
177.63	118	179.06	118	190.19	118	192.52	118	195.58	118
199.66	118	202.75	118	206.79	118	212.1	118	215.32	118
225.52	118	227.88	118	228.62	118	240.44	118	245.14	118
253.01	117.99	261.66	117.95	265.57	117.9	277.98	117.37	278.13	117.36
278.15	117.36	278.18	117.36	285.29	117.17	290.69	117.07	294.7	117.04
303.26	117.01	311.22	117	315.82	117	327.74	117	328.11	117
328.38	117	330.43	117	340.95	117	344.26	117	353.51	117
360.78	117	366.07	117	370.92	117	377.3	117	378.06	117
378.64	117	382.88	117	391.2	117	393.82	117	399.47	117
403.76	117	410.34	117	416.33	117	426.86	117	428.89	117
435.15	117	441.45	117	443.38	117	454.02	117	456.56	117
459.9	117	466.58	117	476.42	117	479.14	117	485.1	117
491.71	117	492.94	117	504.27	117	509.46	117	516.83	117
525.98	117	529.4	117	540.24	117	541.96	117	542.19	117
542.5	117	549.33	117	553.91	117	554.4	117	562.13	117
564.45	117	573.25	117	574.49	117	575.51	117	584.54	117
586.11	117	594.59	117	595.49	117	604.63	117	612.16	117
614.68	117	617.73	117	624.73	117	628.85	117	634.77	117
639.97	117	644.82	117	651.09	117	654.87	117	657.98	117
664.91	117	673.33	117	674.96	117	684.45	117	685	117
690.24	117	695.05	117	695.56	117	705.1	117	712.95	117.02
715.14	117.03	717.8	117.09	725.19	117.24	731.28	117.5	735.24	117.7
740.04	117.79	745.28	117.92	751.16	117.94	755.33	117.99	762.28	117.99
765.38	118	767.93	118	775.42	118	777.09	118	785.47	118
786.25	118	794.37	118	795.51	118	795.64	118	805.56	118
806.76	118	815.61	118	822.9	118	825.65	118	828.99	118
835.7	118	841.23	118	845.75	118	851.23	118	855.79	118
859.55	118.01	865.84	118.02	868.71	118.09	875.89	118.27	877.88	118.37
885.93	118.77	895.71	119.04	895.98	119.05	898.51	119.16	906.03	119.5
914.53	120.72	916.07	120.91	923.69	121.92	926.12	122.21	932.85	123
936.16	123.35	942.01	123.58	946.21	123.87	951.18	124.07	956.26	124.28
962.42	124.59	966.3	124.77	973.54	124.91	976.35	124.96	978.66	125.04
986.4	125.23	987.83	125.29	996.44	125.7	996.99	125.71	1002.64	125.83
1006.49	125.92	1006.9	125.93	1016.54	126.23	1018.02	126.32	1026.58	126.93
1029.14	127.11	1036.63	128.1	1040.26	128.79	1046.68	130.29	1051.38	131.63
1056.72	132.98	1057.12	133.02	1062.5	133.5	1066.77	132.73	1073.62	130.65
1076.82	129.75	1084.73	127.71	1086.86	127.5	1095.85	127.5	1096.91	127.49
1106.77	127.92	1106.95	127.93	1106.97	127.93	1117	128.03	1118.09	128.02
1127.05	128.08	1129.21	128.07	1137.09	128.16	1143.59	128.2	1147.14	128.18
1151.45	128.17	1157.19	128.16	1162.57	128.17	1164.13	128.19		

Manning's n Values num= 1

Sta	n Val
0	.13

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
73.59	1006.49	370.6	237.73	301.2	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	119.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.130	
W.S. Elev (ft)	119.64	Reach Len. (ft)	370.60	237.73	301.20

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Crit W.S. (ft)		Flow Area (sq ft)		1723.84		
E.G. Slope (ft/ft)	0.000011	Area (sq ft)		1723.84		
Q Total (cfs)	110.00	Flow (cfs)		110.00		
Top Width (ft)	809.10	Top Width (ft)		809.10		
Vel Total (ft/s)	0.06	Avg. Vel. (ft/s)		0.06		
Max Chl Dpth (ft)	2.64	Hydr. Depth (ft)		2.13		
Conv. Total (cfs)	32621.6	Conv. (cfs)		32621.6		
Length Wtd. (ft)	237.90	Wetted Per. (ft)		809.21		
Min Ch El (ft)	117.00	Shear (lb/sq ft)		0.00		
Alpha	1.00	Stream Power (lb/ft s)		0.00		
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	8.90	0.06	
C & E Loss (ft)	0.00	Cum SA (acres)	0.01	4.24	0.10	

CROSS SECTION

RIVER: Tank Farm Creek
REACH: East Fork RS: 2592.018

INPUT
Description:
Station Elevation Data num= 180

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	125.87	4.6	125.66	8.18	125.5	14.4	124.77	19.41	124.15
26.58	123.42	30.64	123.01	34.87	122.55	40.72	121.92	41.87	121.79
48.57	120.99	53.1	120.5	57.82	119.99	64.33	119.4	66.43	119.18
70.56	118.85	75.55	118.43	80.77	118.28	86.78	118.09	92.54	118.05
98.01	118.02	103.72	118.01	109.24	118	111.03	118	114.53	118
118.46	118	120.47	118	126.67	117.99	131.7	117.99	136.51	117.96
142.93	117.89	149.62	117.59	154.16	117.42	158.5	117.27	165.38	117.11
172.57	117.05	176.61	117.01	180.48	117.01	187.84	117	195.52	117
199.07	117	202.47	117	210.3	117	218.47	117	221.53	117
224.45	117	232.76	117	241.43	117	243.99	117	244.81	117
246.44	117	252.25	117	255.21	117	264.38	117	266.44	117
268.42	117	277.67	117	287.33	117	288.9	117	290.41	117
300.13	117	310.28	117	311.36	117	311.71	117	312.39	117
322.59	117	333.23	117	333.82	117	334.38	117	345.04	117
356.18	117	356.27	117	356.37	117	360.78	117	366.79	117
376.18	117	376.83	117	377.37	117	383.52	117	386.6	117
386.87	117	395.82	117	396.91	117	405.04	117	406.95	117
414.26	117	416.99	117	420.24	117	427.02	117	432.7	117
437.06	117	441.93	117	447.1	117	451.15	117	457.14	117
460.37	117	467.18	117	469.59	117.01	477.22	117.02	486.34	117.07
487.26	117.09	488.03	117.12	496.76	117.33	497.26	117.35	497.3	117.35
506.48	117.77	507.34	117.8	515.7	117.9	517.38	117.93	524.92	117.93
527.42	117.97	534.14	117.97	537.46	118	543.36	118	547.5	118
552.59	118	557.53	118	561.81	118	567.57	118	571.03	118
577.61	118	585.48	118	587.65	118	589.47	118	597.69	118
598.69	118	607.73	118	607.92	118	610	118	617.14	118
617.77	118	618.53	118	627.81	118	635.58	118.01	637.85	118.01
644.8	118.01	647.89	118.01	654.02	118.01	657.93	118.01	663.25	118.02
667.97	118.02	672.47	118.03	678.01	118.03	684.62	118.03	688.04	118.03
690.91	118.03	698.08	118.03	700.13	118.03	708.12	118.02	709.35	118.02
718.16	118.02	718.58	118.02	723.24	118.02	727.8	118.02	728.2	118.02

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728.68	118.02	738.24	118.02	746.24	118.02	748.28	118.02	750.72	118.02
758.32	118.02	764.68	118.02	768.36	118.02	772.75	118.03	778.4	118.04
783.13	118.13	788.44	118.15	792.35	118.3	798.48	118.45	801.57	118.51
808.51	118.83	810.79	118.86	818.55	118.97	827.83	119.01	828.59	119.02
829.24	119.03	836.48	119.24	838.46	119.29	838.63	119.29	838.65	119.3

Manning's n Values num= 1

Sta	n Val
0	.13

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
64.33	808.51	0	0	0	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	119.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.130	0.130	0.130
W.S. Elev (ft)	119.64	Reach Len. (ft)	0.00	0.00	0.00
Crit W.S. (ft)		Flow Area (sq ft)	0.31	1538.84	18.72
E.G. Slope (ft/ft)	0.000015	Area (sq ft)	0.31	1538.84	18.72
Q Total (cfs)	110.00	Flow (cfs)	0.00	109.40	0.59
Top Width (ft)	776.94	Top Width (ft)	2.62	744.18	30.14
Vel Total (ft/s)	0.07	Avg. Vel. (ft/s)	0.01	0.07	0.03
Max Chl Dpth (ft)	2.64	Hydr. Depth (ft)	0.12	2.07	0.62
Conv. Total (cfs)	28701.9	Conv. (cfs)	0.9	28546.5	154.6
Length Wtd. (ft)	0.00	Wetted Per. (ft)	2.63	744.27	30.48
Min Ch El (ft)	117.00	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.01	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)			
C & E Loss (ft)	0.00	Cum SA (acres)			

SUMMARY OF MANNING'S N VALUES

River:Tank Farm Creek

Reach	River Sta.	n1
West Fork	2361.099	.13
West Fork	2110.976	.13
Lower Reach	1654.260	.13
Lower Reach	1323.927	.13
Lower Reach	921.753	.13
Lower Reach	396.675	.13
Lower Reach	108.420	.13
East Fork	3899.164	.13
East Fork	3333.583	.13
East Fork	3079.222	.13
East Fork	2802.364	.13
East Fork	2592.018	.13

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SUMMARY OF REACH LENGTHS

River: Tank Farm Creek

Reach	River Sta.	Left	Channel	Right
West Fork	2361.099	63.38	192.23	312.03
West Fork	2110.976	0	0	332.07
Lower Reach	1654.260	329.87	400.06	337.61
Lower Reach	1323.927	408.56	417.57	401.89
Lower Reach	921.753	994.91	572.18	514.47
Lower Reach	396.675	339.74	288.26	271.7
Lower Reach	108.420	0	0	5902.09
East Fork	3899.164	438.63	559.2	782.54
East Fork	3333.583	481.71	251.98	233.85
East Fork	3079.222	420.71	337.64	146.82
East Fork	2802.364	370.6	237.73	301.2
East Fork	2592.018	0	0	0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Tank Farm Creek

Reach	River Sta.	Contr.	Expan.
West Fork	2361.099	.1	.3
West Fork	2110.976	.1	.3
Lower Reach	1654.260	.1	.3
Lower Reach	1323.927	.1	.3
Lower Reach	921.753	.1	.3
Lower Reach	396.675	.1	.3
Lower Reach	108.420	.1	.3
East Fork	3899.164	.1	.3
East Fork	3333.583	.1	.3
East Fork	3079.222	.1	.3
East Fork	2802.364	.1	.3
East Fork	2592.018	.1	.3

Appendix G

Water Balance Analyses