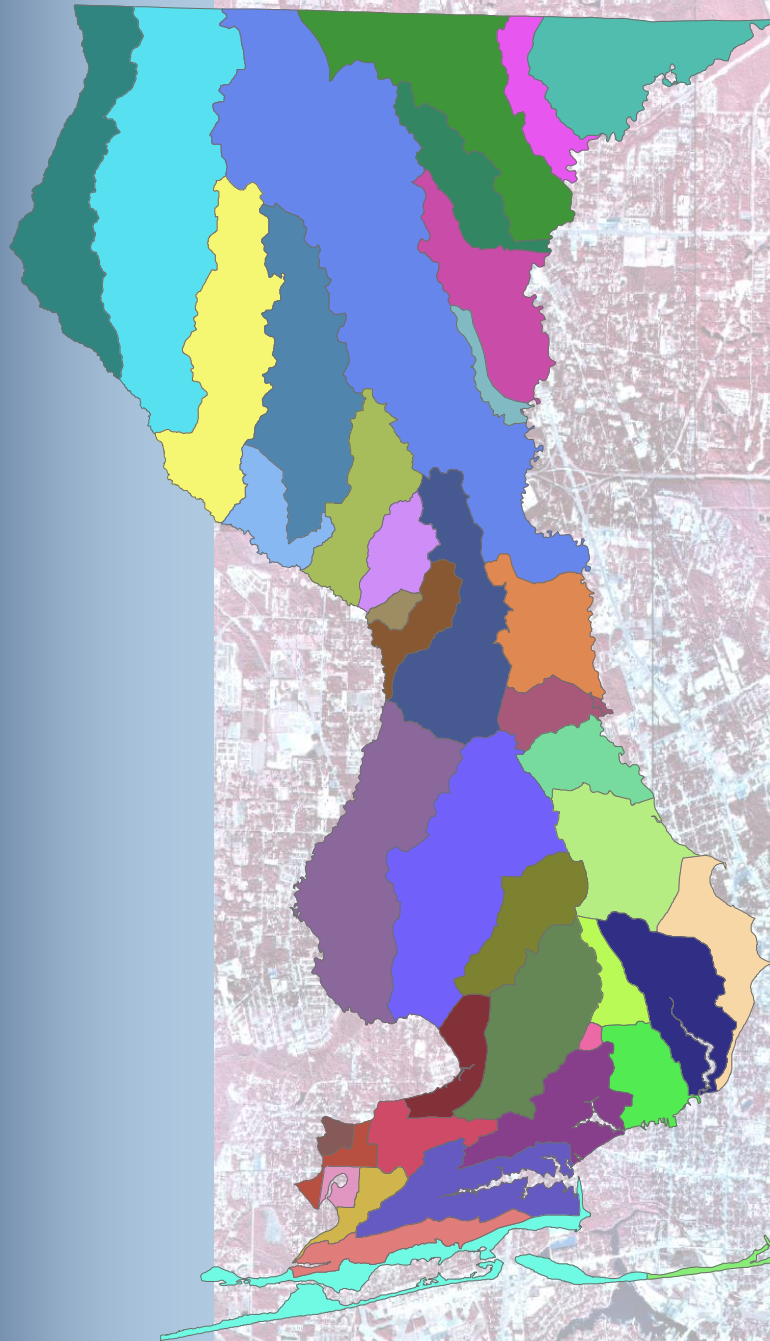


Basin Study Guidelines and Specifications



Escambia County, Florida



September 2013

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MODEL DEVELOPMENT

SECTION 1.0 - INTRODUCTION

The purpose of this document is the definition of "Guidelines and Standards for Conducting Basin Studies in Escambia County". It sets forth procedures for producing consistent and high quality data from a variety of sources and consultants. This document identifies the format and content of data to be used or generated during drainage basin studies as well as modeling assumptions, methods and procedures that are to be used in those studies.

The resulting model and simulation data developed during the basin studies shall eventually be used, in part, for floodplain mapping through the Flood Insurance Rate Program (FIRM) of the Federal Emergency Management Agency (FEMA). As such, several documents of that agency are included in this "Guidelines and Standards" document by reference.

The Interconnected Channel and Pond Routing (ICPR) program is to be used for the basin studies. ICPR calculates runoff hydrographs and routes them through conveyance and drainage systems. It requires a mathematical framework from which numerical calculations are performed. These calculations are accomplished using a link - node concept to idealize real-world systems. They require that the drainage system be discretized into a network of nodes and links. A node is a discrete location in the drainage system where conservation of mass is maintained. Links are the connections between nodes and are used to transfer or convey water through the drainage system. ICPR uses a hydrodynamic routing procedure that considers backwater effects at each node in the drainage network at each computational time step thus allowing consideration of timing effects on flood stage calculations.

While ICPR is generally to be used for basin studies, the County recognizes that conditions may arise where other methodologies are more appropriate (e.g., surge calculations for coastal areas; land locked systems, etc.) Such conditions shall be discussed and evaluated with the County to identify proposed methodology and reasons for that alternate proposed approach prior to beginning analysis.

This document describes an overall basin study process with the following primary components:

- Data collection
- GIS creation, data manipulation and geoprocessing
- Model generation, calibration, design storm simulation
- Results analyses and presentation
- Design Alternative Development

Several deliverables shall be required during the course of the basin study. Critical project milestones are outlined below.

Required Modeling Milestone Submittals

-
- | | |
|---|-----------------------------|
| 1) Inventory / Data Collection & Questionnaires | 5) Existing Condition Model |
| 2) Node Layout | 6) Conceptual Alternatives |
| 3) Basic Model Setup | 7) Draft Final Report |
| 4) Calibration/Verification | 8) Final Deliverables |
-

SECTION 2.0 - INVENTORY / DATA COLLECTION

Section 2.1 - Vertical Datum: The North American Vertical Datum of 1988 (NAVD88) shall be used for all studies. In the event vertical datum of topographic information requires conversion to NAVD88, spatially varied correction factors shall be determined and applied to that information. Conversions shall be performed using software that can be obtained from the National Geodetic Survey (NGS) and the United States Army Corps of Engineers (USACE) to adjust differences in vertical control data. Either the NGS VERTCON or the USACE CORPSCON software can be used for the conversion. Furthermore, procedures provided in the latest version of the FEMA document, *Guidelines and Specifications for Flood Hazard Mapping Partners – Appendix B: Guidance for Converting to North American Vertical Datum of 1988* shall be used to establish the conversion protocol. The County shall be kept informed of all steps involved in the vertical datum conversion.

Section 2.2 - Horizontal Datum for Mapping: All mapped data shall be provided in Florida State Plane North coordinates using U.S. Survey feet, and referenced to the High Accuracy Reference Network (HARN).

Section 2.3 - Data Collection & Sources: Pertinent reference data related to the basin shall be collected from the following agencies and/or organizations including but not necessarily limited to: Escambia County and adjacent counties, Florida Department of Environmental Protection (DEP), Northwest Florida Water Management District (NFWFMD), U.S. Army Corps of Engineers (ACOE), FEMA, National Resource Conservation Service (NRCS), National Oceanic and Atmospheric Administration (NOAA), Florida Department of Transportation (FDOT), West Florida Regional Planning Council, U.S. Weather Bureau, United States Geologic Survey (USGS), Florida Natural Area Inventory (FNAI), U.S. Fish and Wildlife Service (USFWS) and the Florida Fish and Wildlife Conservation Commission (FWC). These reference documents may include but are not necessarily be limited to:

- Comprehensive Plan documents
- Local, state or federal rules, regulations, ordinances and laws
- Engineering reports, basin studies or other pertinent documents
- Existing and future land use and zoning information (including DRI's, PUD's, EIS's, EA's, major subdivision plans)
- Construction plans (e.g., design or As-built) for development
- Control structure information including lake level management schedules
- FDOT, Escambia County and applicable municipality roadway construction plans and survey information
- Most recent NRCS Soil Survey of Escambia County
- Regional Leakage and recharge rates (if applicable) - optional
- Stream flow/elevation and lake level data
- Historic rainfall, evaporation and evapotranspiration data and analysis
- Historic, measured flood levels or flows
- Aquifer recharge and potentiometric data - optional
- Irrigation practices - optional
- Effluent disposal rates - optional
- Escambia County's most recent Vertical Control Point & Elevation data
- Aerial and topographical maps
- Escambia County plat, right-of-way and easement information
- Seasonal high water level determinations
- Tidal information
- FIRM mapping and Flood Insurance Study reports

Section 2.4 - Electronic Reference Documents: The reference information described above shall be included with the study's electronic deliverables to the maximum extent possible. Two hardcopies of the final basin study report shall be submitted including a complete PDF version as well as the native electronic version (including GIS). The submittal shall include supporting data obtained from Citizen Questionnaires and Public Meetings (Refer to **Section 2.11**). Data linking the source information to map features shall be maintained in a reference documents geodatabase (**Name: ReferenceDocuments.gdb**). Refer to Section **Appendix E – Section 1.4** for more details.

Section 2.5 - Electronic Deliverables: Deliverables for the basin study will generally consist of multiple formats, the majority of which can and shall be submitted electronically. This section describes a directory structure shall be used to organize required electronic deliverables for the basin study submittal. The submittal folder shall contain various electronic deliverables for the study (e.g., backup calculations, model files, etc.) including reference documents. Reference documents, such as those identified above, shall be stored in a TSDN directory (Technical Support Data Notebook) in accordance with FEMA's Guidelines and Specifications for Floodplain Mapping.

The purpose of this section is to describe the folder structure to be used for Geographic Information Systems (GIS) deliverables for a basin study. The primary goal of this memo is to establish a standardized directory structure that may be used as the County moves forward in its process of preparing or updating its basin studies. This recommended structure should be considered a preliminary/prototype data structure only that serves as a starting point. Some future revisions may be desirable or necessary.

Deliverables should be contained within a single primary directory identified by the project name (e.g. Jacks_Branch). Within this main project directory, sub-directories shall be created as described below. Note that the contents of the sub-directories may differ from project to project including some directories that may be left completely empty depending on the negotiated scope of work. In all cases, the negotiated scope of work shall take precedence over deliverables described in this document. The deliverables shall include a "Readme" file in empty directories indicating that particular deliverable was not included in the project scope. Appropriate information should be included in each of the directories as required by the negotiated scope of work for any and all delivery submittals (including re-submittals). The following lists the folders and contents of those folders:

- **Aerial_Photos** – contains aerial photographs, scanned aerial maps, rectified images, DOQQs.
- **Comments** – contains Comments.gdb including Citizen Questionnaire results, public meeting comments and County or peer review comments
- **DTM** – contains the Digital Topographic Information data layers including LiDAR mass points, contours, topographic boundaries, waterbody limits, breaklines, etc. and related QA/QC spreadsheets (if applicable)
- **FieldVerification** – Includes reconnaissance files for hyperlinking (e.g., photographs and other documents associated with a feature) including:
 - **Documents** –Recon Forms, Field Reconnaissance Notes or Sketches and any additional documentation associated with field visits to a feature (e.g., MS Word, PDF, etc.). Files are saved using standard nomenclature defined in **Section 2.13**.
 - **Photo_Caption** – Photographs taken at each field-visited hydraulic feature with captions added to each photograph. Files are saved as .pdfs using standard nomenclature defined in **Section 2.13**.

- **Photographs** – Photographs associated with a location in graphic image format (e.g. jpg). Files are saved using standard nomenclature defined in **Section 2.13**.
- **GDB** – contains assorted geodatabases created for a study. A basin study GDB will include:
 - **Study GDB with feature datasets including:**
 - **Field_Recon** – Includes results of field reconnaissance, locations that need to be visited, etc.
 - **Model** – Includes feature classes for the model features (e.g., nodes, links, cross sections and basins). Additionally, model results are provided in data tables that are included in the geodatabase (ICPR_LINK_RESULT and ICPR_NODE_RESULT).
 - **Informational** including cross section (Xsect) lines and Storage Exclusion polygons (delineates limits of channel storage to exclude such areas from stage-storage-area calculations).
 - **Watershed** including soils, existing and future landuse, proposed floodplains, effective FEMA floodplains, etc.
 - **Tc.GDB** – Flow path information for time of concentration calculations
- **Metadata** – Metadata for the project
- **Model** – Hydrologic and hydraulic model files (ICPR data including input and result files)
- **MXD** – ArcMap project file (.mxd) with any associated symbology layers, map logos, templates, etc. including:
 - **ArcMap Templates** – Includes all templates for each required deliverable map product
 - **Logos** – Logos used in creation of the map including the consultants and any cooperators such as the County, NFWFMD, FEMA, etc.
 - **Symbology** – Includes any layer files or symbology files used in the map creation
- **Reports** – Report generated for the study in PDF and “native” (e.g., MSWord, etc.) formats.
 - **Text** – The main body of the report
 - **Spreadsheets** – Summary or support tables included in the report (Excel, DBFs, etc.) and used for the study analyses including but not limited to QC reviews, simulation results, level of service and/or other information tables (.dbf), cost estimates, etc.
 - **Graphics** – Exhibits or Maps in PDF format that were prepared for the report.
- **TSDN_Reports** – TSDN report and associated files in PDF format as required by FEMA standards:
 - **1_General_Documentation** – This directory is used to include general correspondence (including emails, memos, and deliverable transmittals) and meeting minutes.
 - **2_Engineering_Analyses** – This directory includes supporting documentation for the modeling effort including backup of hydrologic and hydraulic calculations, QC checks, etc.
 - **3_Draft_FIS_Report_Text** – This directory is reserved for future use.
 - **4_Mapping** – This directory is reserved for future use.
 - **5_Misc_Ref_Materials** – This directory is used to store the **ReferenceDocuments.gdb**, reference documents and survey data.

Section 2.6 - Existing Land Use: Land use shall be delineated in the study basin based on the latest available aerial information. Consultants shall meet with the County to evaluate the latest available data. Actual land uses shall be field verified during the reconnaissance phase of the project to correct that which appears on the available aerial maps and other collected data. As a minimum, the NFWFMD Florida Land Use / Cover Classification System (FLUCCS) map for 2009-2010 shall be reviewed, however, other more recent sources shall also be evaluated if available including County CIP projects, County permits and/or Environmental Resource Permits (ERP) that have been granted or constructed since the last available land use mapping. The ERP information shall be evaluated and, if necessary, used to identify areas of the basin that require changes in land use mapping as well as drainage infrastructure.

Land use polygons and designations shall be defined or revised as necessary to be in agreement with the NRCS curve numbers (CN) used in the modeling effort. This may require separation of land uses

included within a single FLUCCS code into their component parts. For example, institutional land uses are typically delineated to include buildings as well as ball fields or other open space areas. The amount of open space will tend to vary widely and, therefore, cannot typically be described with a single CN value for that land use. Such areas should be further delineated into homogenous areas which more closely match model CN values (e.g., buildings separated from open space areas). The land use information is to be generated in the GIS using the **Landuse** feature class in the **Watershed** feature data set (See **Appendix E**).

Section 2.7 - Future Land Use: Following determination of the accuracy and adequacy of the existing land uses within the drainage basin, comparisons to the latest Future Land Use Map (FLUM) must be completed to determine significant changes in land use which will potentially impact or modify sub-basin areas and CN values. New CN numbers based on the FLUM shall be utilized in the final phase of the study master planning to examine existing and proposed conditions in a full build-out condition (See **Section 10.2.5**). The future land use information is to be generated in the GIS using the **Fut_Landuse** feature class in the **Watershed** feature data set (See **Appendix E**).

Section 2.8 - Wetland Inventory & Soils Information: A soil map overlay delineating soil classifications (i.e., map units, hydrologic groups) as mapped by the NRCS shall be developed for the study area. This information shall be based on the latest Soil Survey of Escambia County as provided by the County. The soils information is to be generated in the GIS using the **Soil** feature class in the **Watershed** feature data set (See **Appendix E**). Wetlands shall be mapped based on the National Wetland Inventory which shall be added to the Watershed feature data set.

Section 2.9 - Flood Data: All pertinent information related to flooding shall be compiled including the latest available FEMA floodplain map layer (added to the **Watershed** feature dataset), previous studies, interviews with county staff, review of Escambia County Road Operations Department records related to drainage, and field reconnaissance. All work orders and drainage complaints within the basin shall be obtained, reviewed and, if possible, mapped. Work orders outside the primary drainage system shall be field inspected to determine if the problem is a maintenance issue or drainage system insufficiency. Field visits shall be conducted during periods of significant rainfall or soon thereafter, to the greatest extent possible, to further document the extent of flooding. Furthermore, photographs of observed flooding shall be collected and organized by model location. This information shall be organized as described in **Section 2.11**.

Section 2.10 - Rainfall, Stream Flow and Water Quality Data: Stream flow data from gauged locations in or near the area of study shall be collected from agencies identified above. This information shall be evaluated for use in calibration of the model. Average annual rainfall and daily rainfall data shall also be collected. Comparisons of rainfall and gauged flow rates shall be performed to identify significant storm events that are candidates for model calibration or verification.

Section 2.11 - Citizen Questionnaires and Public Meetings: The consultant shall mail a citizen questionnaire to all physical addresses within the defined limits of the study basin at the start of the study. A sample copy of the questionnaire is included in **Appendix A** of this document. Each returned questionnaire shall be assigned a response designation and mapped using the **PublicMtg** feature class in

the Comments.gdb. Refer to **Appendix E – Section 1.4.2** for more details. Response designation nomenclature shall follow guidelines described below:

XX_YYYY_ZZ where:

XX = Code that represents the study basin (e.g. 01 for Alligator Creek)
(Refer to **MODEL DEVELOPMENT - Model Nomenclature**)

YYYY = consecutive number beginning with 0001

ZZ = code that represents the document type where:

CQ = Citizen Questionnaire

EC = Escambia County comment

PR = Peer review

Information included with returned questionnaires by citizens is to be reviewed, scanned and incorporated into the basin study's electronic deliverables as a "Reference Document" and returned to the citizen (if requested by the citizen). This information may include photographs, videos, results of insurance claims, etc.

The consultant shall assist the County in preparing for and will attend a public meeting(s) to be conducted by the County. The purpose of the meeting(s) is to provide the opportunity to meet citizens and collect additional information or, potentially, further clarify comments provided in Questionnaires. It is recommended but not required that the meeting be conducted using a "kiosk" format with each "kiosk" manned by County and consultant staff who have access to a computer station and mapped results of the questionnaires and/or other useful information. The format of the meeting shall be determined during scope of work negotiations.

During the meeting, additional comments or information from citizens who have previously returned a questionnaire shall be recorded using comment cards. The comment card shall include the citizen's contact information (Name, address & phone number) as well as the previously assigned response designation. The comment card will be "bundled" with any information the citizen is willing to provide so that information may be incorporated into the basin study's electronic deliverables as a "Reference Document" and later returned to the citizen if requested. The comment card is intended to help organize supporting documentation provided during the meeting until it can be reviewed, scanned and included in study deliverables.

Citizens who attend the meeting but have not previously submitted a questionnaire and wish to submit comments or information shall be provided a questionnaire to complete. The questionnaire will be "bundled" with any information the citizen is willing to provide so that it may also be reviewed and incorporated into the basin study's electronic deliverables as a "Reference Document". The information will be returned if requested by the citizen.

Information obtained during the public meeting may, depending on the negotiated scope of work, be hyperlinked to the respective respondents' point features which will have been mapped in the Comments.gdb. Point features shall be added to the Comments.gdb for citizens who submit questionnaires during the public meeting. The supporting documentation provided by those citizens shall also be reviewed and may, depending on the negotiated scope of work, be hyperlinked to the respective respondents' point features.

Section 2.12 - Plans, Previous Reports and Other Data: The consultants shall research and review pertinent basin data available from sources identified previously including, but not necessarily limited to, the Escambia County Engineering and Growth Management Departments. This will include maps, plans, reports and project files as well as Florida Department of Transportation construction plans and maps (available on a loan basis), data from the West Florida Regional Planning Council and the NFWFMD, as a minimum. Each plan set collected shall be scanned (if not already in electronic format) and named based on the system of nomenclature defined in **Section 2.13**. In addition, the latest contoured aerials shall be furnished by the County's GIS Department.

Section 2.13 - Inventory of Existing Drainage Structures and Conveyances: From the data and primary drainage system information compiled above, existing drainage structures and conveyances within the basin shall be preliminarily mapped and overlaid on contoured aerial maps. Field visits to these structures and conveyances shall be conducted to catalogue location, dimension and condition as well as accuracy and completeness of the available information. Refer to **Appendix E** for GIS data formats and associated attribute information required for the field reconnaissance effort.

The inventory shall include all pipes or drainage ways with conveyance equal to or greater than a 24-inch pipe as well as locations of identified drainage problems (regardless of conveyance area). Drainage features located downstream of the areas mentioned above which have smaller conveyance area will be included as well. This primary drainage system inventory will be used to establish field reconnaissance efforts and project survey needs.

Field inspection reports shall be organized into a Field Reconnaissance report for subsequent use in FEMA floodplain permitting activities and coordination with the County. Nomenclature of inspected features shall be based on structure identification (GIS Field = STR_DESG) which is to be generated based on a Date/Time/Initials approach as follows:

MMDDYYHHMMSSXX

Where: MM = current month
 DD = current day
 YY = current year
 HH = current hour (military time)
 MM = minutes (military time)
 SS = seconds (military time)
 XX = initials of the person entering data

The County will provide a utility program that can be used to generate the STR_DESG values and allows for cutting/pasting of the generated value into the study GIS. Note that the STR_DESG developed for previous studies was based on the SEC - TWN - RNG in which a particular feature is located and given a sequential number assignment (e.g., 273025_001). These values will be maintained as is. The STR_DESG for newly mapped features (i.e., during a new study or an update) shall be based on the Date/Time format described above. Field Inspection Report forms are included in **Appendix B**.

A minimum of four (4) digital photos shall be taken at structures: looking downstream from the feature, at the downstream side of the feature, looking at the upstream side of the feature and looking upstream from

the feature. The photos shall include a date stamp. Additional photos may be provided as necessary to show details. A minimum of two (2) digital photos shall be taken at cross sections: looking downstream and looking upstream from the section. For large cross sections, additional photos shall be included that look across the section.

Digital photos shall be provided in JPEG format and at a minimum of 150-pixel resolution. The digital photograph filenames shall be labeled to coincide with the STR_DESG described above and include a suffix indicating the photo orientation (e.g., 092711090020MD_DS) where:

US=looking upstream

UP=upstream side of structure

DN=downstream side of structure

DS=looking downstream

The following information shall be collected at each reconnaissance location:

- Location including: section, township, range and, if possible, state plane coordinates representing the center location of the feature; a descriptive location based on distance in feet upstream or downstream from a road or major landmark, or Global Positioning System (GPS) coordinate
- Brief description of structure / facility type (e.g., wet detention pond, cross drain or side drain, etc.)
- Comments regarding overall maintenance condition of conveyance ways (e.g., well maintained vs. overgrown); evaluation of erosion condition (e.g., highly eroded, noticeable sediment buildup, sloughing of embankment); general setting (e.g., natural or channeled/man-made, overhanging trees; spoil areas, steep banks, mild sloping banks, etc.).
- Condition, setting and use of a lake or pond (i.e., well maintained, overgrown, sediment build-up, condition of outlet structure, littoral zone, natural, man-made, used for water supply).
- Condition of Wetland – dry, drained, moderately drained, or wet with a description of the hydraulic control feature.
- Maintenance access (i.e., adequate access via roads vs. obstructions such as large trees, fences, buildings, or residential structures).

Section 2.14 - Topographic Survey of Drainage Structures and Subsurface Systems: Based on the primary drainage system inventory and mapping described above, field surveys shall be identified and conducted. This effort shall include measurements of cross sections, structure dimensions, materials and inverts. Survey designations shall coincide with the field reconnaissance designations to the greatest extent possible.

This effort will effectively complete the mapping and inventory of the existing primary system(s). For existing drainage systems that have available, complete and accurate plans (preferably Record drawings or “As-builts”), the information shown on the plans can be used as an alternative to field surveys. Survey needs and approximate costs shall be reviewed with the County project manager prior to initiation. Criteria for survey shall be based on FEMA’s latest version of *Guidelines and Specifications for Flood Hazard Mapping Partners – Appendix A: Guidance for Aerial Mapping and Surveying* or other requirements as directed by the County. Upon completion, the survey data shall be incorporated into the available contour information as necessary.

Section 2.15 - Topographic Survey(s) of Specific Basin Areas: Specific areas warranting topographic surveys shall be identified based on the limits of channel, stream and creek cross sections for which information is already available or identified field survey requirements (See above). These areas will generally be locations that lack adequate definition from the available contoured aerial maps, compiled

data and/or survey information. Such areas shall require County approval prior to initiation. Upon completion, the surveyed topographic data shall be incorporated into the existing GIS contour information.

Section 2.16 – High Water Mark Database: Information related to high water conditions or high water marks (HWMs) resulting from storms in the basin shall be used to prepare or update the most current High Water Mark Database (HWMDB). A HWMDB is under continued development and is available from the County. It is to be used during model calibration efforts to supplement gage data, if available, or in lieu of gage data if such data do not exist. Refer to **Appendix E – Section 1.4.3** for more details.

High water mark data may be obtained from a variety of sources including data collected from Citizen Questionnaires or Public Meetings (**Section 2.11**), other studies, insurance claims, field observations, results of interviews with County staff or design plans, etc. Whatever the source, care must be taken to verify the reported flood elevation, to the extent possible, to ensure it is genuine. It is also important to establish a date and time for a given observation so that it may be correlated with a known storm event if possible.

Section 2.17 - Data Collection Summary Meeting: The data collection phase of the project shall be concluded with a meeting with County staff to identify significant remaining data gaps, discuss survey needs and obtain County approval to proceed to the next phase of the project: Model Development. This meeting shall include a review of the project map set (e.g., soils, land use, facilities, etc.), the Reconnaissance Report, identified problem areas and other pertinent data. Any missing information shall be discussed along with an approach to remedy those data gaps. Finally, issues regarding key modeling assumptions necessary for the next phase of the project shall be discussed. This shall include the consultant's proposed approach to model issues and other calculations such as initial conditions, curve numbers / DCIA and other pertinent parameter calculations.

SECTION 3.0 - MODEL DEVELOPMENT

Section 3.1 - Model Nomenclature: Elements of the model network shall be labeled as described below to ensure consistency between basin studies. All elements of the model network including sub-basins, nodes, reaches and cross sections are to be labeled with a designation that includes a master index number, a character tributary designation, a sequential sub-system number and a model element type designation.

The master index number serves to identify the major basin of the model in question. A list of the major basins within Escambia County is included in **Table 1**. Tributary designations are to be labeled alphabetically beginning with the main tributary and continuing with lateral tributaries starting with the downstream most outfall. In the case of basins that require more tributary designations than A through Z, the tributary designations shall continue with double letters (i.e. AA, BB, CC, etc.). The sequential portion of the designation indicates relative positioning of the model location within a given tributary beginning at the downstream limit. These designations shall be identified using values that are incremented by 10's (e.g., 010, 020, etc.) thus leaving room for additional elements to be inserted later.

Element designations shall begin with nodes. Sub-basins shall have the same designation as the node to which it drains. If multiple basins are to be assigned to the same node, then designations shall be suffixed with a numeric value. Links leaving the node shall also have the same numeric designation as the node

with the last character changed to reflect the link type. Designations will often need to account for multiple links at a given location. Such situations shall be suffixed with a numeric value (e.g., beginning with the lowest or first flowing link).

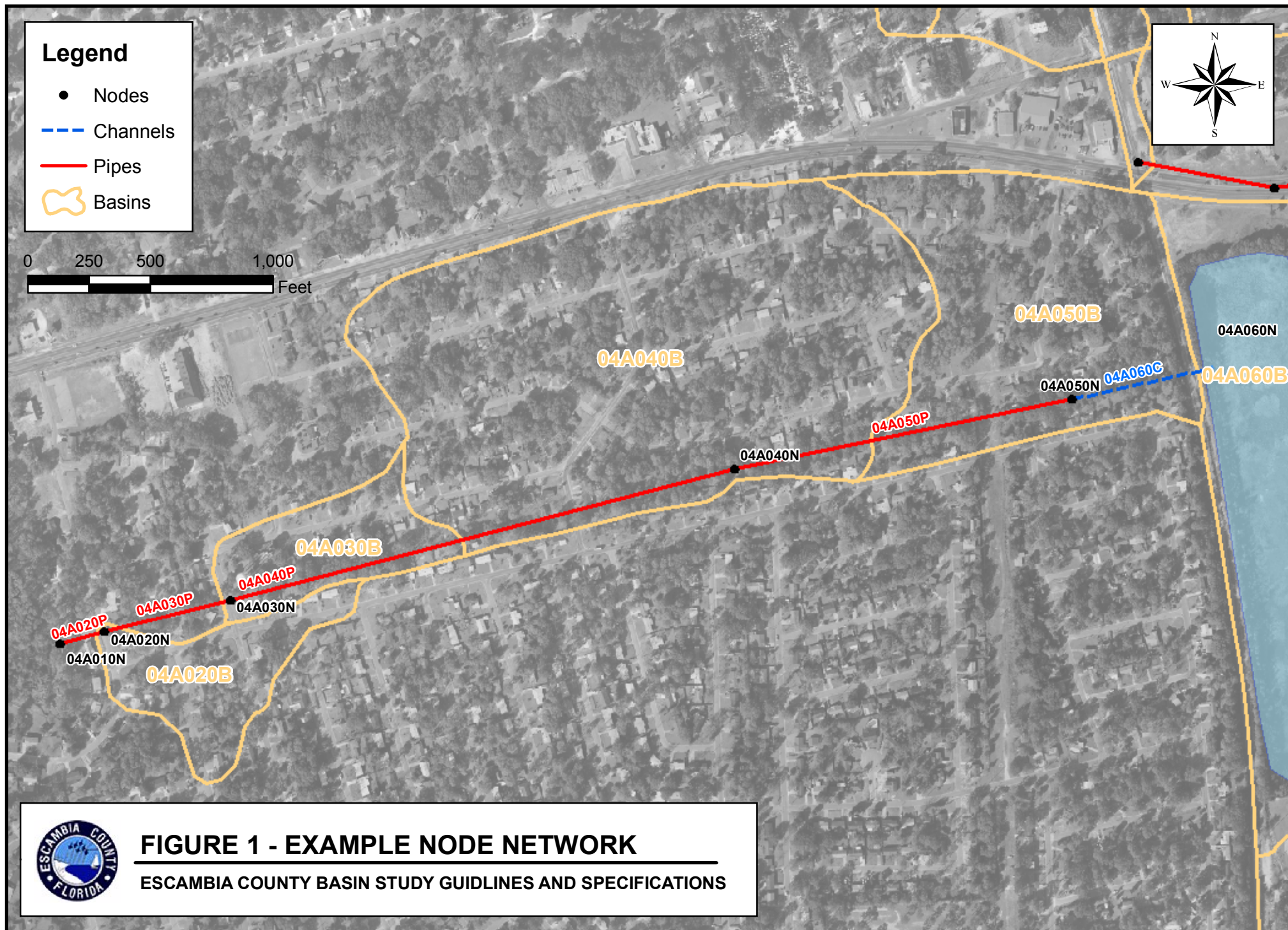
An example model designation would be 01A150P1. The “01” designates the Alligator Creek basin (See **Table 1**). The letter “A” designates tributary “A” of Alligator Creek and represents the main tributary. Succeeding tributary systems would use remaining letters of the alphabet. The number 150 is the number of the element in downstream to upstream order along tributary A. The letter P signifies the type of element; in this case the first pipe (See **Table 2**) of multiple pipes. An overtopping weir would have a designation such as 01A150W. A sample of this approach is depicted in **Figure 1**.

Table 1. Model Prefixes for Escambia County Basin Studies

Basin Name	Model Prefix	Basin Name	Model Prefix
Alligator Creek	01	Bayou Grande	02
Bayou Marcus Creek	03	Beverly Parkway	04
Boggy Creek	05	Bowman Creek	06
Bridge Creek Herron Bayou	07	Bronson Field	08
Brushy Creek	09	Canoe Creek	10
Carpenters Creek	11	Century	12
Catholic High School	13	Churchhouse Branch	14
Cotton Creek	15	Cowdevil Creek	16
Eight Mile Creek	17	Eleven Mile Creek	18
Escambia Bay	19	Fletcher Creek	20
Garcon Swamp	21	Jacks Branch	22
McDavid Creek	23	Millview	24
Mitchell Creek	25	Paradise Beach	26
Penasula Creek	27	Pensacola Bay	28
Williams Creek	29	Perdido River North	30
Perdido River South	31	Pine Barren Creek	32
Pritchett Mill Branch	33	Rock Creek	34
Sandy Creek Weekley Bayou	35	Scenic Hills	36
Southwest Side	37	Spanish Mill Creek	38
Tarkiln Bayou	39	Warrington	40

Table 2. Model Element Type Designations

ICPR Element	Model Code	ICPR Element	Model Code
Sub-basin	B	Node	N
Cross-Section	X	Pipe	P
Channel	C	Weir	W
Drop Structure	D	Bridge	G
Rating Curve	R	Breach	E



Section 3.2 - Hydraulic Model Development

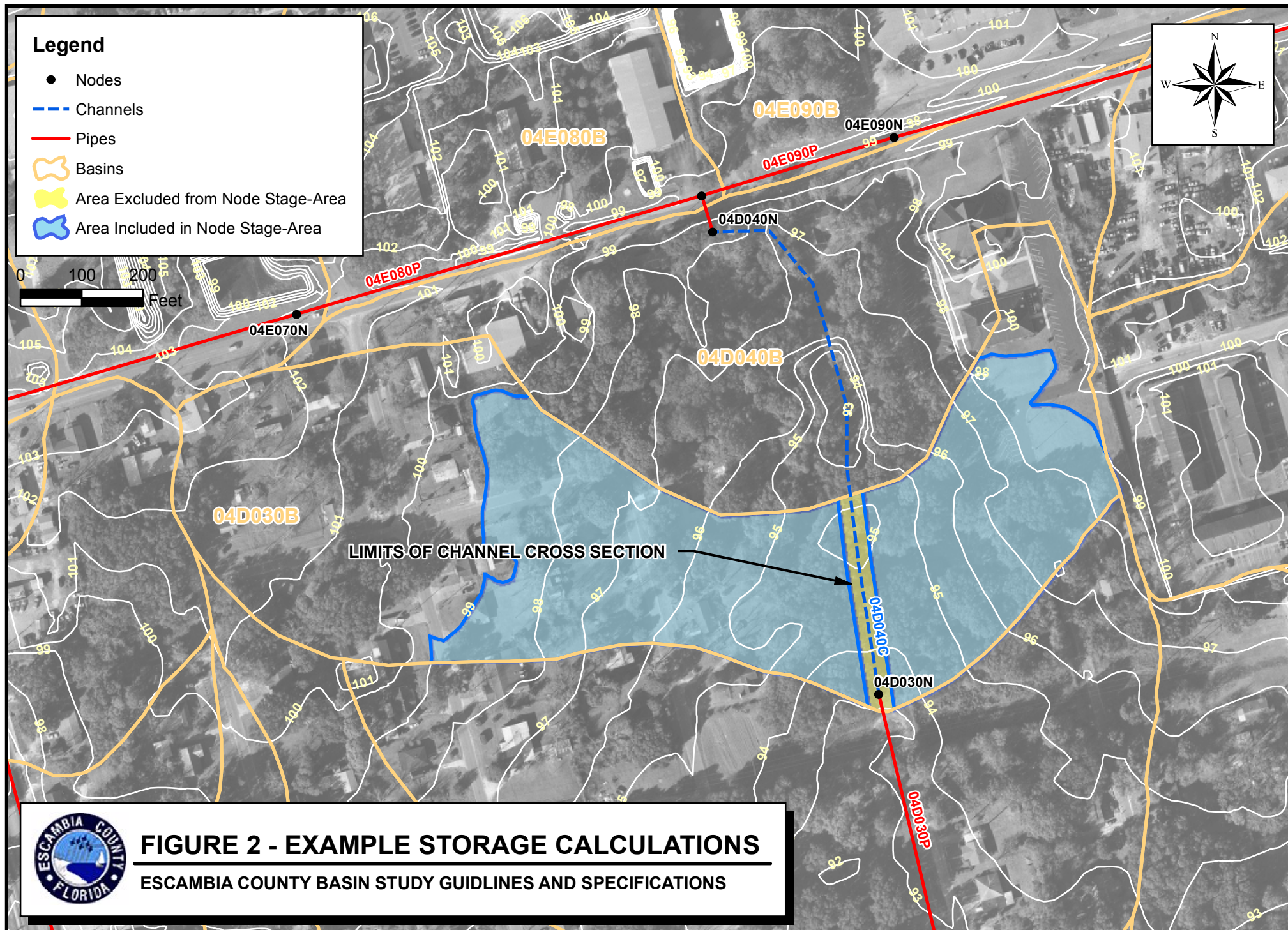
Development of the hydraulic model begins with node and link placement in their respective GIS Model feature classes. Node locations generally dictate how sub-basins are delineated (See **Section 3.4**) which are, in turn, required for development of some node input data. Link data is based on terrain processing and information obtained during the data collection phase. The general GIS workflow is explained in **Appendix E**. The following provides general guidelines for developing node and link model information.

Section 3.2.1 - Node Placement and Input Data: Upon completion of the input data preparation tasks, development of the basin stormwater model commences with the generation of a model node map. Nodes shall be placed at strategic points along the primary drainage system. The consultant should refer to the ICPR Help system for information pertaining to node placement. Generally, nodes shall be placed in areas where stage and flow data is required such as road crossings, ponds, lakes and structures. Furthermore, nodes shall be located so that channel lengths are generally kept to a maximum length of 1000 feet and channel segments are approximately uniform in length to the greatest extent possible. The model network shall be overlaid on aerial photographs to produce a drainage map for subsequent storage calculations and basin delineation (See **Figure 2**). In addition, hydrographic changes in the landscape identified by other information (e.g., ERP data) that is not depicted on aerial topographic maps shall be incorporated into the node placement process.

Stage-area calculations shall be determined either manually or by automated methods (e.g., terrain modeling). In either case, documentation shall be provided that depicts the area identified as storage (e.g., digital polygons overlain on the contour data). In the case of nodes with connecting irregular channels, stage-area takeoff shall exclude the limits of channel cross sections. These excluded areas shall also be saved and depicted in a digital format (See **Figure 2**). In addition, storage calculations in areas where hydrographic changes have occurred (as described above) shall be based on that additional information to the extent possible.

Warning elevations shall be identified and entered into node data along with a description(s) of the feature to which the elevation refers. These elevations are used to identify critical flooding such as at a roadway or home and will be used to evaluate the drainage system's level of service. Multiple elevations shall be identified where appropriate (i.e., include roadway, parking lot and/or lowest building elevations) and can be included in the node comment field. Finally, notes pertaining to documentation of the data source for each entry shall be included in the comment as well. This shall include comments on the source and quality of the corresponding survey, plan data or field reconnaissance information along with the information designation (e.g., Field Reconnaissance ID).

Initial water surface elevations shall be set to seasonal high water levels (SHWL) based on the best available information (i.e., wetland SHWL evaluations, control structure operating schedules, etc.). In cases where documentation of the SHWL or other starting elevations is not available, the overflow elevation for the node shall be assumed for the initial water level in the node. This elevation shall be compared to the limits of wetlands as defined by soils survey information of the National Wetlands Inventory. Downstream conditions (e.g., structure inverts or other water level controls) shall also be considered when establishing initial water surface elevations.



Initial conditions shall be evaluated by inspecting model time series results for unexpected flows in the model at the onset of a simulation (i.e., time = 0 hours). Such flow rates typically result from incorrect and unbalanced initial water surface elevations. If baseflow is intended at the simulation onset, then initial node stages shall be defined in such a way as to produce those baseflows without system drawdown and baseflow rates shall be entered into the appropriate node location(s) to maintain that baseflow rate.

Boundary tailwater conditions shall be based on the best available information. This may include time-stage relationships obtained from other studies, FEMA FIS reports or tidal information. In the event that the basin, or portions of the basin, are tidal in nature, two sets of simulations shall be performed: one set with rainfall/runoff peak rates coincident with high tide and a second set with rainfall/runoff peak rates coincident with low tide.

Section 3.2.2 - Link Placement and Input Data: Model parameters for all required links shall be entered based on collected or surveyed information. Link names shall be designated as described previously. The input data includes model information for drainage structures as well as cross sections and drainage facility operating schedules as necessary. Refer to the ICPR Help system for specific data needs and recommended parameter values for each link type. Rating curves and operating tables may be entered to simulate percolation or pumped rates as needed provided documentation of appropriate geotechnical data is available. Preliminary percolation rates may be taken from the Escambia County Soils Survey in the absence of existing geotechnical data, however, such locations shall be carefully documented. Finally, notes pertaining to documentation of the data source for each entry shall be included in the comment field. This shall include comments on the source and quality of the corresponding survey, plan data or field reconnaissance information along with the information designation (e.g., Field Reconnaissance ID).

It is strongly recommended that over-topping weirs be included in the model setup during the initial model creation phase of the study to allow roadway, pond or channel bank overtopping as necessary. If this approach is not taken, then warning levels must be defined accurately and evaluated carefully after preliminary simulations are completed to ensure overtopping conveyance is provided where necessary and artificially high water levels are not being calculated because of a missing weir.

Section 3.3 - Hydrologic Model Development

Development of the hydrologic model begins with basin delineation of the contributing area to each node in the model network that receives surface runoff. This effort is based on terrain and locations of sub-surface drainage systems. Model parameters are then generated for each delineated basin including area, rainfall excess parameters (e.g., curve numbers) and other related hydrograph parameters (time of concentration). Curve numbers and times of concentration are required for both existing conditions as well as future conditions.

Section 3.4 - Sub-Basin Delineation: Sub-basin delineation shall be based on the node layout (defined as described above) and other hydrographic features including topographic ridge lines, hydraulic control points or constrictions and storage areas. In addition, hydrographic changes in the landscape identified by other information (e.g., ERP data) that is not depicted on aerial topographic maps shall be incorporated into the basin delineation process as necessary. This shall include review and adjustments along

boundaries with neighboring basins. Finally, separate sub-basins shall be delineated to separate significantly different land uses to the greatest extent practicable. For example, undeveloped contributing area on one side of a creek or stream should be separated from urbanized areas that contribute runoff from the opposite side of the stream.

Sub-basins shall be delineated in accordance with ICPR storage calculation requirements. ICPR uses a “control volume” approach to partition drainage network storage among nodes. Storage for a given node is based on the storage in connecting links as well as storage defined in the node data itself (e.g., stage-area). The link storage is based on the downstream half of incoming links and on the upstream half of outgoing links. Sub-basins shall be delineated according to the portion of the network storage to which they drain. Normally, this is the approximate midpoint of links between nodes (See **Figure 2**), however, topographic features may require adjustments to this (e.g., spoil banks, etc.). Basin names shall be designated as described previously.

Finally, other notes pertaining to documentation of data sources (e.g., survey data, plan data or field reconnaissance) that affect basin delineation shall be included in the sub-basin comment field.

Section 3.5 - Hydrologic Parameters and Input Data: Drainage areas, CN numbers and directly connected impervious area (DCIA) for each sub-basin shall be calculated and entered in to the GIS / model. DCIA includes any impervious surfaces that are directly connected to the basin design point without flowing over pervious surfaces. For example, curb and gutter roadways with direct discharges into the drainage system shall be included as DCIA. DCIA may also be delineated separately if sufficient data is available (e.g., Escambia County GIS layers) or values may be assumed for a particular land use. Regardless of which approach is used, any basins that include a DCIA value must use a CN value that is based on a weighted average of the pervious and remaining, non-DCIA areas of the sub-basin only.

Sample lookup tables (LUT) for CN and DCIA are available at the County to help guide preparation of a study-specific lookup table. The study LUTs can then be used to calculate CN values for basins with or without DCIA. The lookup tables are based on land use and soil hydrologic groups. These may be used as a starting point for a given study, however, any land use –soil combinations encountered in the study that are not currently represented in the sample LUTs must be added for future use. CN values can be calculated using the general procedure described in **Appendix E - Section 3.2.2**. An example of CN calculations resulting from this approach is included in **Appendix F**.

Times of concentration (Tc) shall be based on SCS Technical Release 55 (TR-55) procedures for each drainage sub-basin. Where necessary, pipe flow may be assumed to be 3 fps unless other information is available to support a different velocity or travel time. Detailed calculations of the Tc values are required. Sample Tc calculations that may be used as a template for these calculations are included in **Appendix F**.

The SCS Unit hydrograph method shall be used for runoff hydrograph generation. In the absence of adequate rainfall/runoff data or a calculated unit hydrograph for the study basin, the unit hydrograph/peak rate factor shall be based on average overland slopes of the sub-basins as follows: less than 0.5 percent – 256, 0.5 to 1.5 percent – 323, greater than 1.5 percent – 484. Finally, notes pertaining to documentation of the data source for each entry shall be included in the comment field. This shall include comments on the source and quality of the corresponding plan data or field reconnaissance information along with the

information designation (e.g., Field Reconnaissance ID, plan set name).

Section 3.6 - Project Submittals: Upon completion of data entry for the hydrologic and hydraulic model, an evaluation of all numeric parameters shall be conducted and submitted to the County for review. This analysis shall include all parameters available in the ICPR “Browse” listings for all data types including but not necessarily limited to such parameters as CN, DCIA, sub-basin area and Tc, the number of sub-basins, nodes and links as well as inverts, lengths, structure dimensions and so on. The primary goal of this analysis is to identify input errors. Statistics should, as a minimum, include parameter ranges (i.e., min and max values) although averages and standard deviations may be included as well. This analysis can be performed using a spreadsheet program or other suitable analysis tool and serves as a Quality Assurance / Quality Control measure to validate the input data set. “Sample QC” spreadsheets which may be used as a template for this review are included in **Appendix F**. Any discrepancies or outliers shall be reviewed and corrected as necessary or explained.

This effort shall include a submittal of the following information for review by the County:

- ◆ Brief Summary Report
- ◆ A complete listing of all ICPR input data
- ◆ CN “lookup” tables used to perform CN calculations (including adjustments for DCIA)
- ◆ A table of horizontal weirs listing link name and sorted by span and rise dimensions
- ◆ A table listing: weir link name, geometry and structure dimensions (sorted by geometry)
- ◆ A table listing: pipe link name, geometry and structure dimensions (sorted by geometry)
- ◆ A table listing: channel link name, geometry and dimensions (sorted by geometry)
- ◆ Graphs of operating tables including those developed using the WSPRO option for bridges
- ◆ Table listing irregular sections and differences between invert and cross section low points

Section 3.7 - Preliminary Model Setup Meeting: The preliminary model setup phase of the project shall be concluded by meetings with County staff to discuss results of the statistical evaluations described above and identify final model revisions that are required prior to proceeding to the next phase of the project: Model Simulations.

SECTION 4.0 - MODEL SIMULATIONS

Section 4.1 - Hydrology Simulation Control Parameters: Design storm events shall be simulated for the 3, 10, 25, 50 and 100-year frequency, critical duration rainfall events. Rainfall volumes shall be based on the Florida Department of Transportation (FDOT) Rainfall Intensity-Duration-Frequency (IDF) Curves for Florida - Zone 1. To determine the critical duration for the study basin as a whole, the 100-year storm event shall be simulated with durations of 1, 2, 4, 8, 24, 72, 168, and 240 hours. Each node shall be evaluated based on the maximum stage reached for each of these durations. The duration producing the majority of the maximum stages shall be deemed the critical duration for the basin. Problem areas that have critical durations different from the basin as a whole shall require additional simulations based on their particular critical duration.

Hydrology print increments shall be set to a maximum value of 5 minutes. It is recommended that this value be used for the entire simulation, however, it may be varied during the simulation for non-volume sensitive locations to keep file sizes manageable if necessary. Volume sensitive locations are those areas that have limited or no outfall capacity. In any case, a 5 minute increment shall be used for a period of

time that includes the peak runoff time +/- 25% of the storm duration. Furthermore, print increments shall be defined for a time period sufficient to ensure that all sub-basin hydrographs recede completely (i.e., $Q = 0$ cfs).

Section 4.2 - Routing Simulation Control Parameters: Routing control parameters shall be set to ensure stable simulation results are calculated (See **Table 3**).

Table 3. Recommended Routing Control Parameter Values.

Parameter	Value	Units
Max Delta Z	1.0	Ft
Delta Z factor	0.005	N/A
Time Step Optimizer	10	Time steps
Start Time	0	hrs
End Time	As needed	hrs
Min Calc Time	0.5	sec
Max Calc Time	60	sec

These values are only guidelines and may be adjusted if a particular situation warrants it. In any case, specific output reports shall be evaluated to ensure stable simulation results are calculated.

Routing print increments shall be set to a maximum value of 5 minutes. It is recommended that this value be used for the entire simulation, however, it may be varied during the simulation to keep file sizes manageable if necessary. In any case, a 5 minute increment shall be used for a period of time that includes the peak time +/- 25% of the storm duration.

Section 4.3 - Model Calibration

Model calibration typically makes use of historic gage data that represents rainfall, flood stage and discharge rates for specific storms. Unfortunately, such gage data is spatially limited in the County. This limitation is the impetus for developing additional historic flood data in the High Water Mark (HWM) database described in **Section 2.16** above. The HWMDb is under continued development by the County and, in the absence of gage data in a study area, may provide helpful information on specific flooding conditions that can be used to calibrate basin study models.

Section 4.3.1 - Model Calibration Adjustments: Model calibration shall be performed once County approval has been given for the developed model. Model parameters shall be modified based on collected gauge data, historic or measured data (including the High Water Mark Database) and questionnaire responses as furnished by area residents and verified by the consultant. The goal of this process is to produce model output results that are similar to observed conditions in flooding area extent, depth and timing. Storm events considered for possible calibration shall be reviewed relative to both storm rainfall volume and measured stream flow rates. This shall include generation of a chart depicting rainfall volume vs. stream flow rate and stream flow volume.

For gauged basins, available rainfall data shall be used to simulate the calibration storm event. If multiple rainfall stations are available in or around the study basin, appropriate methodology (e.g., Thiessen

polygon analysis) shall be used to develop weighted rainfall distributions for various portions of the basin. The rainfall data shall be entered into a custom ICPR Hydrology Library file and submitted to the County with project deliverables.

Both hydrologic and hydraulic parameters shall be adjusted to achieve calibration. Hydrologic parameters include unit hydrograph / peak rate factors and runoff CN numbers. Adjustments to CN values may be made to define dry (AMC I) or wet (AMC III) conditions. In either case, such adjustments shall be made based on antecedent rainfall in accordance with values shown in **Table 4**.

Table 4. Antecedent Condition Adjustment Information

Condition	Description	Antecedent Rainfall
I	A condition of drainage basin soils where the soils are dry but not to wilting point	Five day antecedent rainfall is less than 0.50 inches
II	The average case	Five day antecedent rainfall varies from 0.5 to 1.5 inches
III	When heavy rainfall or light rainfall with low temps have occurred producing high runoff potential	Five day antecedent rainfall greater than 1.5 inches

Source: Hydrology and Water Quantity Control, Wanielista, 1990.

Hydraulic parameters that are adjusted for calibration include channel roughness coefficients (i.e., Manning's N), initial water surface elevations and baseflow rates. Adjustments to roughness coefficients should consider reports or interviews with County maintenance crews, citizen questionnaire responses and other factors that affect maintenance including accessibility and location. Initial elevations at gauging stations, large lakes or wetlands should also be evaluated relative to conditions that existed at onset of the calibration storm. Similarly, baseflow shall be reviewed and compared to that measured at gauging stations. The resulting baseflow rate shall be included in the modeling such that elevations measured at the gage at the onset of the storm result.

Graphs of stage vs. time and flow vs. time shall be generated for the calibration storm at gauge locations. In addition, modeled and measured flow volumes shall be compared.

Section 4.3.2 - Model Calibration Submittal: The preliminary model setup phase of the project shall be concluded by submittals and/or meetings with County staff to discuss results of the statistical evaluations described above and identify final model revisions that are required prior to proceeding to the next phase of the project: Design Storm Simulations. The model calibration submittals shall include the following:

- ◆ Brief Summary Report
- ◆ Thiessen polygon analysis
- ◆ Rainfall vs. stream flow rate chart at gauged locations
- ◆ Rainfall vs. stream flow volume chart at gauged locations
- ◆ Table of other measured locations with observed and calculated results

SECTION 5.0 - DESIGN STORM SIMULATIONS

Section 5.1 - Model Results: Model simulation results shall be generated for the 3, 25, and 100-year critical storm durations as described previously. Maximum stages for each return frequency shall be

tabulated and compared to warning stages identified for each node. All nodes with flooding conditions shall be identified showing the maximum height reached above the warning stage and the duration of flooding for each of the critical design storms. Profiles shall be developed illustrating nodes, warning stages, and the flood stages of the primary drainage system for the critical design storms. The model results shall be used to develop 100-year flood plain maps which shall provide a means of checking the “reasonableness of the results”. Sample profiles which may be used as a template for these profiles are included in **Appendix F**.

The model results shall also be checked for continuity and stability concerns. This shall be accomplished through inspection of various reports created within ICPR (See below and **Appendix E – Section 5.4**). Nodes or links within the model that exhibit anomalous behavior in stage or flow (e.g., oscillations, divergence, etc.) shall be identified and addressed as necessary. The following reports shall be prepared for submittal to the County:

- ◆ Brief Summary Report
- ◆ A complete listing of all ICPR input data
- ◆ Basin Maximum Comparison Report
- ◆ Routing Simulation Report for Errors and/or Warnings
- ◆ Node Maximum Comparison Report
- ◆ Link Maximum Comparison Report
- ◆ Node extrapolation Report
- ◆ Link extrapolation Report
- ◆ Mass Balance Report
- ◆ Preliminary floodplain maps (used to identify inter-basin connections, “glass walls”, etc.)
- ◆ Table comparing mapped floodplain area within a sub-basin to modeled area as calculated in model simulations including % error (Sample profiles are included in **Appendix F**.)
- ◆ Water surface profiles for all simulations showing bottom profile, top of bank/structure crowns, road elevations and names and node names Sample profiles are included in **Appendix F**.

Section 5.2 - Model Results Submittal: The model results phase of the project shall be concluded by submittals and/or meetings with County staff to discuss results of the findings described above. Revisions required of the model shall be addressed and final model simulations and deliverables shall be prepared for resubmittal to the County. Approval must be granted by the County before proceeding to the next phase of the project: Level of Service Evaluation.

SECTION 6.0 - POLLUTANT LOAD ANALYSIS (OPTIONAL)

Annual pollutant loads for the basin shall be analyzed and shall include the 12 pollutants required by the Environmental Protection Agency (EPA) for the NPDES MS4 Permits. The required pollutants are: five-day biochemical oxygen demand (BOD5), chemical oxygen demand (COD), total dissolved solids (TDS), total suspended solids (TSS), total Kjeldahl nitrogen (TKN), nitrite plus nitrate (NO₃+NO₂), dissolved phosphorus (DP), total phosphorus (TP), cadmium (Cd), copper (Cu), lead (Pb) and zinc (Zn). The NFWMD - FLUCCS map (developed for the hydrologic/hydraulic modeling) shall be used to determine the land use categories for the basin.

Available rainfall records shall be used to determine the average annual rainfall. Annual runoff volumes for each land use category shall be calculated by multiplying the average annual rainfall volume by the

composite runoff coefficient. The pollutant loading analysis is conducted by multiplying the annual runoff volumes for each land use category by land use specific event mean concentrations (EMCs) to produce an annual pollutant load from that land use. The EMCs are taken from current published values and sources include the updated EMC database for the southeastern United States, nationwide EMCs reported by the Federal Highway Administration (FHWA) and EPA's NURP program. The loads for each land use are added together to yield the annual pollutant load for the basin. Reductions to the annual pollutant loads are also calculated by applying removal efficiencies of existing best management practices (BMPs) located within the basin. The resulting information shall be used to identify locations of high pollutant load generation.

SECTION 7.0 - DESIGN ALTERNATIVE DEVELOPMENT

Model Development: Design alternatives shall be evaluated through development of additional ICPR models. These models shall be developed starting with the existing conditions models and incorporating revisions that describe proposed drainage improvements. The revised input data shall be subject to the same submittals and data checks as those described above for the existing condition model development.

The various design alternatives shall address flooding conditions and water quality problems identified in the existing conditions analysis and from Task 6 above, including identified problem areas, and shall provide for the following:

- (1) Eliminate roadway over-toppings at culvert/bridge crossings during the 100-year storm event for all primary arteries and evacuation routes.
- (2) Eliminate roadway over-toppings at culvert/bridge crossings during the 25-year storm event for all secondary arteries and collectors.
- (3) Contain the 25-year storm event within the banks of all open channels.
- (4) Limit flooding during the 100-year storm event to streets and yards.
- (5) Minimize street and yard flooding during the 25-year storm event.
- (6) Provide for future growth/development in the basin where feasible.
- (7) Reduce stormwater pollutant loadings, with special emphasis on locations identified in Task 6, to improve overall surface water quality standards.

The alternatives that are examined shall include, but not necessarily be limited to, increased conveyance through pipe upgrades and/or channel expansions or increased storage in the basin through construction of regional retention/detention facilities. Retention/detention facilities shall be considered in all areas where there is vacant and/or obtainable land in practical locations. Conveyance increases shall be considered in all areas deemed necessary to alleviate the remaining flooding problems so long as the design does not cause or exacerbate any downstream problems. In built-out areas where there is no vacant and/or obtainable land for retention/detention facilities, roadside swales and underground treatment methods such as exfiltration trenches and treatment vaults (i.e. Stormceptors) may be used to treat the runoff.

All of the developed designs shall be evaluated with consideration given to public safety, health and welfare, feasibility, cost, environmental impacts, reduction in overall flooding, and improvements in water quality. The design judged to be the most viable shall be incorporated into the drainage improvement plan. The selected improvements are conceptual solutions to alleviate flooding problems within the basin.

Because budget constraints may not permit funding of improvements for the entire basin, problem areas shall be divided up into reasonably sized projects.

The drainage improvement plan shall also address problem areas outside the primary drainage system that were not originally modeled. This includes all cross drains on paved, County-maintained roads that are not part of the model. These additional structures shall be analyzed for capacity.

The drainage improvement plan shall identify the size and location of all retention/detention facilities and all conveyance improvements. In addition, it shall identify all land and right-of-way acquisitions required to implement the improvements as well as anticipated permitting requirements anticipated difficulties in construction of the improvements.

Annual pollutant loads were identified during the existing condition analysis. These shall be re-calculated with consideration given to removal efficiencies expected from BMPs proposed by the drainage improvement plan. Comparisons of existing and project condition loads shall be provided to identify water quality benefits that would result from the plan.

The recommended improvements shall also be evaluated under future, build-out conditions. This approach must account for future development that has not yet occurred but will be required to provide pre vs. post attenuation (unless a regional system is proposed to provide attenuation for that future development). This future pre vs. post accounting can be accomplished by a number of modifications to the model data which should be made in a copy of the design model (referred to as the “future land use, design conditions model”). The steps include:

- 1) Use the future land use feature class (discussed in **Section 2.7**) to identify sub-basins that would undergo future development or redevelopment.
- 2) Recalculate curve numbers (as described previously and in **Appendix E**) using the future land use and soils mapping information
- 3) Estimate “developed” times of concentration for basins affected by the future development
- 4) Identify the current existing conditions runoff rate for the affected basins for each storm event being considered for the design.
- 5) Enter “future conditions” CN and Tc values in the “future land use, design conditions model” for the affected basins.
- 6) Set the Max Allowable Q for the affected basins to the existing conditions runoff rate for the storm event being simulated.
- 7) Execute simulations.

Section 7.1 - Model Results: Model simulation results shall be generated for the 3, 10, 25, 50 and 100-year critical storm duration as described previously. Maximum stages for each return frequency shall be tabulated and compared to flood stages identified for each node under the existing condition modeling. The basin study report shall include a summary table that compares existing conditions to design conditions at key locations in the study area (e.g., culvert crossings, channel junctions, known flooding areas, etc.). A sample table which may be used as a template for these calculations is included in

Appendix F. Comparisons shall be prepared for each design alternative that was considered. Changes in flood stage as well as flow rate shall be identified for each of the critical design storms. Profiles shall be developed illustrating all nodes, warning stages, and the flood stages of the primary drainage system for the critical design storms under both existing and project conditions. Sample profiles are included in **Appendix F.** The model results shall be used to develop revised 100-year flood plain maps which shall provide a means of demonstrating the provided flood relief.

Section 7.2 - Cost Estimates: Preliminary cost estimates shall be prepared for all the design alternatives that were considered. These estimates shall include construction costs with quantities and unit prices, costs for land acquisition (i.e., pond sites and easements or right-of-way), engineering costs including design, surveying, permitting and inspection, and contingencies such as mobilization, traffic control, and utility relocations. Unit price data shall be obtained from Escambia County.

Section 7.3 - Alternative Evaluations: All proposed design alternatives shall be “scored” using a decision matrix (See **Appendix C**). This matrix is based on eight major categories. Six of the categories are assigned points ranging from 0 to 10 while the remaining two are weighted from 0 to 20. Total points are summed for each alternative. This matrix shall be used to prioritize the proposed improvements within a basin and compare them to proposed improvements from other basins. The following is an explanation of the categories and a summary of the scoring criteria used in the Priority Ranking Matrix:

Based on the total score of each design alternative, the projects shall be broken down into one of four priority classifications. Class I priorities designate projects that have a total score in the range of 80 to 100. These projects shall be added to the County’s Capital Improvement Projects (CIP) list and include improvements that require immediate implementation. Class II priorities include those designs that score in the range of 60 to 79. This includes those that are to be placed on the CIP list and are to be implemented just behind the Class I projects. A Class III priority identifies a project that scores 40 to 59. Such projects shall be placed on the CIP list and are to be implemented with any remaining funds left over after all Class I and Class II projects are completed. Any project scoring less than 40 is considered a Class IV priority and shall be placed at the bottom of the CIP list. Class IV priority projects are typically associated with locations that experience severe flooding problems that are costly to correct. For such locations, it is often more feasible and cost effective to purchase and abandon residences and businesses than to implement proposed improvements.

SECTION 8.0 – DESIGN ALTERNATIVE DECISION MATRIX CRITERIA: Basin studies will typically result in development of proposed drainage system improvements to correct system deficiencies in the basin and/or address water quality problems. The information provided below includes ranges of scores for various criteria that are to be evaluated relative to the various proposed drainage system improvements so that a recommended plan can be determined.

Flooding Improvement: This category rates the improvement on existing flooding problems. The scoring ranges from 0 to 20 based on the following:

16 – 20: Reduces/eliminates the most severe flooding problems such as flooding inside of homes and or businesses and roadway flooding of primary arteries and evacuation routes.

- 11 – 15: Reduces/eliminates severe yard, street and parking lot flooding and roadway flooding of secondary arteries and collectors.
- 6 – 10: Reduces/eliminates moderate yard, street and parking lot flooding.
- 0 – 5: Reduces/eliminates minor drainage conditions such as shallow pools that tend to stand for periods of time after a rainfall event.

Improves Water Quality: This category rates the reduction of pollutants in stormwater runoff from the basin. The scoring ranges from 0 to 10 based on the following:

- 8 – 10: Significant reductions in pollutant loadings from an area that has a direct discharge to a surface water body with known water quality problems.
- 4 – 7: Good to moderate overall reductions in pollutant loadings.
- 0 – 3: Indicates little to no reduction in pollutant loadings.

Provides for Future Growth / Development: This category rates the improvements based on their capacity to provide for future growth and development. The scoring ranges from 0 to 10 based on the following:

- 8 – 10: Provides stormwater treatment and conveyance for the majority of undeveloped areas in the basin.
- 4 – 7: Provides capacity for portions of the undeveloped areas in the basin.
- 0 – 3: Indicates that the area is either completely built-out or the project only provides for minor increases in runoff.

Construct-ability: This category ranks the improvements on the ease or difficulty of building the project. The scoring ranges from 0 to 10 based on the following:

- 8 – 10: Can be built easily using straightforward construction techniques employed by a majority of local contractors that bid County jobs.
- 4 – 7: More difficult but can still be constructed by some of the local contractors with the aid of specialty subcontractors and techniques.
- 0 – 3: Extremely difficult to construct the project; very few or none of the local contractors could build the project; it would require out of town specialist.

Permit-ability: This category refers to the ease or difficulty of obtaining the necessary permits from the various regulatory agencies required to construct the improvements. The scoring ranges from 0 to 10 based on the following:

- 8 – 10: Does not require any permits or requires only general permits that can be easily obtained.
- 4 – 7: Requires permits that are more difficult to obtain but should still be granted by the regulatory agencies.
- 0 – 3: Requires permits that have a good chance of being denied by one or more of the regulatory agencies.

Impacts Environmentally Sensitive Areas: Wetlands, shoreline protection zones, aquatic preserves,

outstanding Florida waters, threatened or endangered species habitats, fishery and marine habitats, floodplains, potable water wells, areas containing endangered or threatened plants or vegetation, and areas identified by the Florida Natural Areas Inventory (FNAI) are all classified as environmentally sensitive areas. The scoring ranges from 0 to 10 based on the following:

- 0: Any project having a negative impact on any of these areas.
- 10: A project that provides positive effects or has no impacts at all on these areas.
- 1 – 9: The potential for negative impacts to these areas based on the probability with nine (9) being the lowest and one (1) the highest.

Dependent / Independent: This category identifies the degree to which proposed improvements are independent of any other projects or are dependent on other projects being built first. The scoring ranges from 0 to 10 based on the following:

- 10: A stand-alone project that can be implemented at any time.
- 0: Cannot be implemented until another project is constructed first.
- 1 – 9: Portions of the project are dependent on other projects based on the percentage of the overall project that is dependent.

Cost Versus Benefit: This category takes several factors into consideration. The project is rated based on the number of residences and businesses that benefit from the improvements, the severity of flooding these residences and businesses are currently experiencing, the appraised values of the residences and businesses, and the cost to implement the proposed improvements. The scoring ranges from 0 to 20 based on the following:

- 16 – 20: Indicates a good rate of benefit for the cost to construct the project.
- 11 – 15: Moderate rate of benefit for the cost to construct the improvements.
- 6 – 10: Low rate of benefit per construction cost.
- 0 – 5: A project that cost more than the value of the residences and businesses that flood.

SECTION 9.0 – PROPOSED LEVEL OF SERVICE RECOMMENDATIONS: The model results will be used to evaluate the function of the existing drainage system relative to Level of Service (LOS) criteria as defined within the County’s Comprehensive Plan and Land Development Code. Evaluations shall be performed for key locations within the study area including but not necessarily limited to primary drainage structures and/or road crossings, regional and local retention/detention areas, and secondary drainage systems (e.g., storm sewers for residential roads, parking lots, etc.). The drainage features shall be evaluated based on the simulation results from the appropriate design storm event as listed in the table below.

Proposed Design Storm Criteria for Level of Service Evaluations.

Storm Event Return Interval	Structure or Drainage System Type
*10-Year	Minor drainage systems, storm sewers (e.g., open or piped systems along neighborhood roads, parking lots, etc.).
25-Year	- Intermediate drainage channels including road crossings at secondary arterial and collector roadways. - Retention /detention facilities.
100-Year	- Major drainage channels including bridges at primary arterial roadways and evacuation routes. - All commercial or residence buildings/structures.

* For use in evaluating conveyance systems for potential retrofit designs. New systems are required to design for the 25-year storm event.

A “grading scale” is to be used to evaluate existing level of service for drainage systems in the County. This scale shall be based on flooding severity for a given location, drainage facility type and the appropriate storm event. The “grading scale” is described below:

- (1) Service Level A: Flow is contained within the system such that no flooding of major roadways, minor roadways, yards or building finished floors occurs. The hydraulic grade line is generally at or below inlet throats and/or top of bank in channels.
- (2) Service Level B: Flow is contained within the right of way such that flooding is limited to the outer lane of major roadways and does not prevent travel; is of limited duration in minor streets; and is generally limited to the right-of-way area with minimal yard flooding. No flooding of building finished occurs. The hydraulic grade line is at or slightly above the inlet throat and/or encroaches on top of curb and/or just breaches top of bank in channels.
- (3) Service Level C: Flooding of major roadways precludes the use of outer lanes and travel on inner lanes is possible but difficult; flooding of minor streets may preclude travel; and flooding of yards is approaching buildings but no structure or building finished flooding occurs. The hydraulic grade line is significantly above the inlet, beyond road rights of way and beyond normal channels in the floodplain.
- (4) Service Level D: Flooding of major roadways including evacuation routes; flooding of minor streets precludes travel and flooding of buildings or other structures occurs.

Modeled flood stages shall be identified at each primary facility and compared to elevations of roadways and finished floor elevations of buildings in each area. Evaluations of each drainage structure’s ability to provide the required level of service (i.e., the level of protection provided) will be based on a review of field surveys or other information obtained during the basin study.

Photographs illustrating the various “grades” for levels of service as described above are depicted in **Appendix D**. The grading scale shall be used to rate the drainage systems within each study basin as appropriate. For example, performance of a road cross-drain will be based on its ability to convey stormwater for the identified critical design storm without flooding the roadway. Similarly, a pond outfall structure will be evaluated based on its ability to convey stormwater without overtopping the pond berm. Most evaluations will be handled in this way, however, in some instances a drainage structure could adequately meet its required level of service for the road while at the same time failing to provide protection for nearby residences. For example, in some locations, homes may be built lower than what would be considered critical for the intended level of service of the structure (i.e., finished floor elevation lower than the road elevation). In these situations, the more critical of the two cases shall be used to evaluate the level of service being provided by the structure.

An overall tabulation of flooding problems shall be generated for the study basin that considers both the required level of service for each drainage structure that is evaluated as well as “collateral” flooding of yards or homes in its vicinity.

GEOGRAPHIC INFORMATION SPECIFICATIONS

SECTION 10.0 - INTRODUCTION

The purpose of this document is the definition of "GIS Guidelines and Standards for Basin Studies in Escambia County". It sets standards for producing consistent, quality mapping data from a variety of sources and consultants. The mapping data will reflect study information from the data collection, field reconnaissance, field inspections, field surveys and modeling input and results. This document identifies the format and content of mapping data to be used or generated during drainage basin studies in the County.

The resulting model and simulation data developed by the basin studies shall eventually be used, in part, for floodplain mapping through the Flood Insurance Rate Program (FIRM) of the Federal Emergency Management Agency (FEMA). As such, documents of that agency are included in this “GIS Guidelines and Standards” document by reference.

Several deliverables shall be developed and required during the course of the basin study. Critical project milestones are outlined below. These maps do not include data provided by the County unless modifications are necessary during the course of the basin study.

Required Mapping Milestone Submittals

- | | |
|-----------------------------------|---------------------------------------|
| 1) Inventory / Data Collection | 4) Basin and Land Use Mapping |
| 2) Environmental Features Mapping | 5) Existing Condition Floodplain Maps |
| 3) Nodal Network Layout | 6) Project Condition Floodplain Maps |

SECTION 10.1 - MAPPING OF INVENTORY AND OTHER STUDY DATA

This section presents specific details pertaining to GIS map preparation of supporting data required by the

study including land use, soils, environmental features, flooding problems, gage and sample site locations, preliminary drainage inventories and field reconnaissance results. The mapping of the nodes and the links must correlate with the field survey in cases where survey data and field reconnaissance results are obtained for the model.

Section 10.1.1 - Vertical Datum for Mapping: The North American Vertical Datum of 1988 (NAVD88) shall be used for all studies. In the event vertical datum of topographic information requires conversion to NAVD88, spatially varied correction factors shall be determined and applied to that information. Conversions shall be performed using software that can be obtained from the National Geodetic Survey (NGS) and the United States Army Corps of Engineers (USACE) to adjust differences in vertical control data. Either the NGS VERTCON or the USACE CORPSCON software can be used for the conversion. Furthermore, procedures provided in the latest version of the FEMA document, *Guidelines and Specifications for Flood Hazard Mapping Partners – Appendix B: Guidance for Converting to North American Vertical Datum of 1988* shall be used to establish the conversion protocol. The County shall be kept informed of all steps involved in the vertical datum conversion.

Section 10.1.2 - Horizontal Datum for Mapping: All mapped data shall be provided in Florida State Plane North coordinates using U.S. Survey feet, and referenced to the High Accuracy Reference Network (HARN).

Section 10.1.3 - Map Data Collection & Sources: Pertinent mapping data related to the basin study shall be collected from the following agencies and/or organizations: Escambia County and adjacent counties, Florida Department of Environmental Protection (DEP), Northwest Florida Water Management District (NFWFMD), FEMA, National Resource Conservation Service (NRCS), National Oceanic and Atmospheric Administration (NOAA), Florida Department of Transportation (FDOT), West Florida Regional Planning Council, U.S. Weather Bureau, United States Geologic Survey (USGS), Florida Natural Area Inventory (FNAI), U.S. Fish and Wildlife Service (USFWS) and the Florida Fish and Wildlife Conservation Commission (FWC). This data shall include but not necessarily be limited to:

- Existing and future land use and zoning maps (including DRI's, PUD's, EIS's, EA's, major subdivisions)
- Municipal boundary map data
- Section, Township and Range map data
- Most recent NRCS Soil Survey of Escambia County
- Hydrographic map data
- Stream gage and rainfall station locations
- Locations of effluent disposal and NPDES or other water quality sampling sites
- Aerial and topographical map data
- Escambia County plat, right-of-way and easement mapping data
- Public or conservation areas
- Threatened or endangered species locations; critical habitats
- Current FEMA FIRM mapping data

Section 10.1.4 - Existing Land Use Mapping: An existing land use polygon layer (See **Landuse** in **Appendix E**) shall be created for the study basin based on the latest available aerial information. Consultants shall meet with the County to evaluate the latest available data. Actual land uses shall be field verified during the reconnaissance phase of the project to correct that which appears on the available aerial maps and other collected data. As a minimum, the most recent NFWFMD Florida Land Use / Cover

Classification System (FLUCCS) map 2009-2010 shall be reviewed, however, other more recent sources should be evaluated if available including Environmental Resource Permits (ERP) that have been granted since the last available land use mapping. The ERP information shall be evaluated and, if necessary, used to identify areas of the basin that require changes in land use mapping. Land use polygon designations shall be based on FLUCCS codes and revised as necessary to be in agreement with the NRCS curve numbers (CN) used in the modeling effort. Refer to the *Basin Study Guidelines – Appendix E* for more information.

Wetlands shall be mapped with the land use based on National Wetland Inventory data.

Section 10.1.5 - Future Land Use Mapping: Following preparation of the existing land use, comparisons to the latest Future Land Use Map (FLUM) shall be completed to determine significant changes which would impact or modify calculated CN numbers (See **FUT Landuse** in **Appendix E**). This information shall be used to prepare a future land use polygon layer as described in the preceding section

Section 10.1.6 - Soils Mapping: A soil map polygon layer shall be prepared based on the latest Soil Survey of Escambia County as provided by the County (See **Soils** in **Appendix E**). This layer shall include data fields (or items) containing the soil map ID as well as the hydrologic soil group designation for each polygon in the layer.

Section 10.1.7 - Problem Area Mapping: Areas identified as having flooding or water quality problems on the Citizen Questionnaires shall be mapped as a point layer using the **PublicMtg** feature class of the **Comments.gdb** (Refer to **Section 2.4** above). Information from other data sources collected during the course of the study including previous studies, interviews with county staff, review of Escambia County Road Operations Department records related to drainage, and field reconnaissance efforts shall be incorporated (See **Appendix E - Section 1.4**). This mapping shall include evaluation of work orders and drainage complaints within the basin. Furthermore, collected photographs of observed flooding and the reconnaissance effort shall be organized by model location. This information shall also be indexed and included in the GIS mapping system reference documents for the basin.

Section 10.1.8 - Rainfall, Stream Flow and Water Quality Site Mapping: A point layer depicting stream flow gauge locations as well as rainfall and water quality sampling stations in or near the area of study shall be prepared based on data collected from agencies identified above. This water quantity information shall be used for Theissen polygon generation during model calibration efforts of the study.

Section 10.1.9 - Drainage Structure Inventory Mapping: Initial maps of drainage structures and conveyances within the basin shall be prepared based on data and primary drainage system information compiled for the study. Results of field reconnaissance and inspections shall be used to verify and revise the inventory maps using data contained within the reconnaissance reports (See **Appendix B**).

Field reconnaissance report forms shall be organized into a Field Reconnaissance Summary report for subsequent use in FEMA floodplain permitting activities and coordination with the County. Nomenclature of inspected features shall be based on standard nomenclature defined in **Section 2.13**. If the study is an update and a previous nomenclature has been used, the existing values may be maintained and new features will use the nomenclature defined in **Section 2.13**. This information shall be used to prepare several point

layer maps for bridges, culverts, control structures and channels/cross sections. Specific data formats, including field descriptions, field types and entry options are included in **Appendix E**.

Section 10.1.10 - Special Topographic Area Survey(s): Specific areas warranting topographic surveys and approved by the County shall be incorporated into the existing GIS contour information provided by the County for the study. This information shall be used to generate terrain models in preparation of stage-area or other calculations required by the study. Should revised topography be acquired for a study, the resulting GIS layer(s) shall be included with project submittals to the County.

SECTION 11.0 - MODEL NETWORK AND RESULTS MAPPING

This section presents specific details pertaining to GIS map preparation of the ICPR model data and resulting simulation results including provisions for linking to the model data itself as well as floodplain information.

Section 11.1 - Model Network Maps: GIS maps of the model network shall be prepared using names of the basins, nodes, links and cross sections as generated during model development. All elements of the model network are to be labeled with designations as described in the Basin Study Guidelines and shall include a master index number, a tributary designation, a sequential sub-system number and a model element type designation (Refer to **Model Development – Model Nomenclature**).

An example model network is depicted in Figure 1 of the Basin Study Guidelines. Point layers shall be used to represent nodes, weirs and breaches. Line layers shall be used to represent cross sections, culverts, channels, control structures (ICPR drop structures), bridges and rating curves. Polygon layers shall be used to represent drainage sub-basins as well as an overall basin watershed limit. Field names and types for these various layers are defined in **Appendix E**.

Section 11.2 - Floodplain Mapping: Floodplain maps shall be prepared and shall include existing floodplains as defined by the appropriate FEMA FIRM map panel as well as floodplains resulting from the basin study (i.e., study floodplains). The maps shall include locations of the FIRM cross sections (if available) as well as cross sections obtained and/or used for the basin model. Delineation of the study floodplains shall not include determination of the floodway. Both sets of maps shall be included as feature classes in the **Watershed** feature data set of the GIS.

Section 11.2.1 - Floodplain Delineation Methodology: The floodplain delineation may be developed in ArcGIS using grid development methodologies or “by hand”. Level pool areas of the floodplains can be generated in GIS using sub-basin boundaries and corresponding modeled 100-year peak stages to create a “level pool” grid (raster) that represents the peak flood elevations within each basin polygon. The **Spatial Analyst – Raster Calculator** can then be used to subtract the “level pool” raster from a terrain DEM. All the resulting positive values (i.e. flood depths > 0) represent the 100-year “level pool” floodplains. The “level pool” floodplain raster can then be converted to polygons using the **Raster to Polygon** tool in ArcGIS. The polygon feature class is then smoothed using the ArcGIS **Smooth Polygon** tool using Bezier Interpolation.

The “level pool” polygon feature class can be used to develop preliminary floodplains. “Spackling” (i.e., areas of isolated depressions and inundated based on the subbasin floodplain elevation) may result if GIS

processing is used to create the level pool polygons. Spackled areas of areas less than 2,500 ft² should be removed from the floodplains. Small gaps (less than 500 ft²) should be filled.

Floodplains along channels must be revised to incorporate the floodplain transitions and account for sloping of the water surface elevations wherever necessary. Additionally, areas with glass walls (i.e., floodplains that are “stacked” along a basin divide without a model link to allow flow at that location) must be identified through visual inspection of the floodplains. “Overland flow” transition areas must be incorporated into the floodplains at these locations as necessary.

All ponds and wetlands shall be shown as floodplain. Wetlands and ponds will fall into two categories: ponds/wetlands that were not included in the model due to limited size or areas where terrain data was not representative of the depression. In both instances, the floodplains will be drawn manually.

The resulting floodplains shall be classified based on the FEMA classification system. Floodplains in the spackled areas that were not included in the modeling fall shall be placed into one of two categories: ❶ average flood depth one foot or less, or ❷ average flood depth greater than one foot. In the first case, the polygon shall be classified as Zone X (shaded). In the second case, the polygon shall be classified as Zone A.

The FEMA Zone A designation should also be used for ponds/wetlands that were not included in the model. These areas may be based on the land use and/or aerial imagery for the study area. In areas under development that have constructed stormwater ponds and roadways but were not included in the modeling effort, floodplains for the stormwater ponds shall be classified as Zone A and “overland flow” transition areas shall be classified as Zone A. The FEMA Zone AE designation shall be used for all other locations that were included in the model.

Section 11.2.2 – Comparison to Effective FIRMs: Final floodplains shall be mapped with effective FEMA FIRM floodplains to show a graphical comparison. Total floodplain area within the study shall be determined and compared to the total area of effective FEMA floodplains. The difference between the mapped and the effective floodplains shall be discussed in the study report. Counts of parcels located within each set of floodplains shall be determined including those that would be removed from floodplains with adoption of the study results, those that would be included that were not within the effective floodplains and parcels that remain unchanged.

SECTION 12 - BASIN STUDY DELIVERABLES

Study deliverables include both electronic and hardcopy materials. All files shall be provided electronically using the directory structure described above.

Section 12.1 – Study Report Format and Sections: A basin study report will be prepared to present the study, methodology, findings, and recommendations. The report shall be provided in native (e.g., Word, Excel, etc.) as well as PDF formats. The report will include the minimum following report sections.

- Executive Summary
- Introduction
- Basin Overview
- Methodology

Results and Discussion

Pollutant Load Analysis

Future Considerations

Summary of Recommendations

Appendices may be provided electronically in native and PDF formats including:

- Hydrologic Information – Backup calculations of existing and future conditions
CNs, Tcs, Lookup tables, etc.
- ICPR Model Data for Existing, Project and Future project conditions including
input and simulation files
- Level of Service Results
- Design Alternatives including Design Alternative Matrix, Cost Estimates and
Summaries
- Graphics including a vicinity map, maps of land use, soils, model basins and
network, existing and project condition flood profiles and floodplains

Section 12.2 – Study GIS: All GIS and related files (e.g., geodatabases, lookup tables, etc.) shall be provided using the directory structure identified previously.

Appendix A

Citizen Questionnaires

ESCAMBIA COUNTY, FLORIDA
<basin name> BASIN DRAINAGE STUDY
QUESTIONNAIRE



For County Use Only

Response Designation: _____

Escambia County is conducting a survey for the <basin name> Drainage Basin to identify drainage problems in your area. These problems can include flooding conditions, erosion problems and/or water quality problems (fish kills, algae blooms, etc.). Please fill the survey out as completely as possible and return it to the address indicated below. Your cooperation is greatly appreciated.

RETURN TO: <firm name>
 Attention: <basin name> Drainage Study
 <firm address>

YOUR NAME (Optional): _____

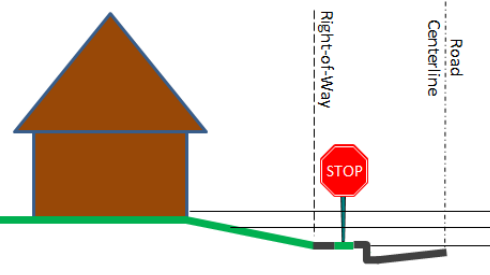
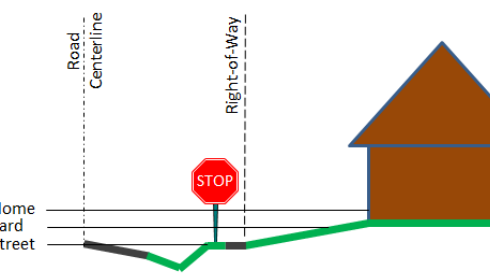
PHONE NUMBER (Optional): _____

ADDRESS (Please include): _____

1. How many years have you lived or conducted business at the above address? _____

2. Have you ever experienced flooding at this location? Yes ☐ No ☐

3. If you have experienced flooding, check boxes in the figures below that apply to drainage conditions at your location and specify flooding duration and frequency.

<u>Streets with Curb & Gutter</u>	<u>Streets with Swale / Ditch</u>
	
☐ Home ☐ Yard ☐ Street ☐ Home ☐ Yard ☐ Street	
<u>How long?</u> ☐hours ☐days ☐weeks <u>How often?</u> ☐monthly ☐6-months ☐yearly ☐2-ys ☐5-ys	

4. Please describe other problems (e.g., septic tank problems, etc.): _____

ESCAMBIA COUNTY, FLORIDA
<basin name> BASIN DRAINAGE STUDY
QUESTIONNAIRE



For County Use Only

Response Designation: _____

4. Do you recall date(s) of the flooding? If you cannot remember exact date(s), please give approximate date(s). If you don't remember dates, please leave blank.

5. What type of rainfall causes flooding at your property? Check any boxes that apply:
☐ Short, intense storms (< 1-2hrs) ☐ Long, steady rains (12-24 hrs or more) ☐ Other (please describe):

9. Please name the streets and describe the locations that flood in your area.

10. What do you think causes the flooding in your area? (Please describe.)

11. Are you aware of any water quality problems associated with stormwater runoff in your area?

Yes ☐ No ☐ If yes, please Describe:

Possible source of pollution: _____

12. Please provide any additional comments about drainage, flooding or water quality in your area. Include results of insurance claims and availability of documentation (e.g., photographs, video, diaries, etc.).

Appendix B

Field Reconnaissance Reports

Bridge

Culvert

Control Structure

Channel / Cross Section

Bridge Recon Key

Field Description	Values	Comment
Location		Direction and distance to nearest intersection
Road crossing name		Roadway name over drainage feature
Material	Concrete Wood Other	
Structure conditions	Good Fair Poor	
Bottom condition	Good Fair Poor	
Abutment type	Vertical / wingwalls Vertical / wingwalls Sloping	
Abutment condition	Good Fair Poor	
Embankment type	Vertical Sloping	
Embankment condition	Good Fair Poor	
Roadway construction	Paved Dirt	
Roadway condition	Good Fair Poor	
General notes		Cite detailed comments in Recon report or other general notes
Photograph file name		
Direction of photograph		Example: enter NE for northeast
Description for photograph		Upstream end of culvert crossing Beulah Rd.

Culvert Recon Key

Field Description	Values	Comment
Structure designation		
Location		Direction and distance to nearest intersection
Road crossing name		Roadway name over drainage feature
Structure type	CD SD SS	CD = Cross drain SD = Side drain SS = Storm sewer
Structure count		Count of duplicate pipes
Structure span (in)		
Structure rise (in)		
Culvert geometry	Circ V Ellip H Ellip Rect Arch	
Culvert Material	RCP CMP PVC ACMP CPP Other	RCP CMP PVC ACMP CPP Other
Structure conditions	Good Fair Poor	
Upstream end treatment	MES HW WW None	MES = Mitered end HW = Headwall WW = Wingwall
Upstream end treatment condition	Good Fair Poor	
Upstream erosion condition	Good Fair Poor	Erosion condition around pipe end
Downstream end treatment	MES HW WW None	
Downstream end treatment condition	Good Fair Poor	
Downstream erosion condition	Good Fair Poor	

Culvert Recon Key (continued)

Field Description	Values	Comment
Roadway construction	Paved Dirt	
Roadway condition	Good Fair Poor	
Control structure flag	Yes No	
General notes		
Photograph file name		
Direction of photograph		
Description for photograph		

Control Structure Recon Key

Field Description	Values	Comment
Location		Direction and distance to nearest intersection
Road crossing name		Roadway name over drainage feature
Structure type	Weir G-Weir DBI SP Other	Weirs = dams or other similar structures G-Weir = gated structure DBI = ditch bottom inlet SP = standpipe
Structure material	Conc Fabriform Earthen Wood Metal Riprap Other	
Structure geometry	Circ H Ellip V Ellip Rect Arch Trap Para Irreg	
Structure conditions	Good Fair Poor	
Side slope stability	Good Fair Poor	Erosion condition around control structure
Skimmer material	Aluminum Fiberglass Wood CM Other None	
Skimmer condition	Good Fair Poor	
Grate type	Cast Iron Reticuline None	
Existence of culverts	Yes No	Indicates structure includes a culvert (i.e., ICPR drop structure)
General notes		Cite detailed comments in Recon report or other general notes
Photograph file name		
Direction of photograph		Example: enter NE for northeast
Description for photograph		Upstream end of culvert crossing Beulah Rd.

Channel Recon Key

Field Description	Values	Comment
Channel designation		
Location		Direction and distance to nearest intersection from point of inspection
Road crossing		Roadway name over drainage feature
Channel type	Manmade Natural	Manmade = minimal meandering, prismatic Natural = meandering, variable xsec
Channel geometry	Trap Para Irreg	Trap = trapezoidal Para = Parabolic Irreg = irregular
Erosion / Silt condition	Good Fair Poor	Overall condition of channel along its length relative to erosion/siltation
Side slope material	Grass Brush Brush/Trees Concrete Bare earth Other	
Side slope stability	Good Fair Poor	Erosion condition on side slopes
Bottom material	Sand Silt Grass Brush Brush/Trees Concrete Bare earth Other	
Side slope stability	Good Fair Poor	Erosion condition on bottom; flat bottom, spoil areas, etc.)
General notes		Cite detailed comments in Recon report or other general notes
Photograph file name		
Direction of photograph		Example: enter NE for northeast
Description for photograph		Upstream end of culvert crossing Beulah Rd.

Field Reconnaissance Report - Bridge

Structure ID:		Inspection Date:	
Location:		Company:	
Street Name:		Inspected by:	
S-T-R:			

STRUCTURE INFORMATION:

Bridge Material:		Structure Condition:		Bottom Condition:	
Abutment Type:			Abutment Condition:		
Embankment Type:			Embankment Condition:		
Road Material:			Road Condition:		
General Notes:					

Reconnaissance Notes:

[illegible]

- Note:**
- 1) File names for photographs must later be renamed in accordance with the County’s Guidelines and Specifications.
 - 2) For “Direction Facing” use abbreviations such as N, NE, ENE, etc.

Field Reconnaissance Report - Culvert

Structure ID:		Inspection Date:	
Location:		Company:	
Street Name:		Inspected by:	
S-T-R:			

STRUCTURE INFORMATION:

Type:		Count:		Span / Rise:	
Pipe Shape:		Material:		Condition:	

UPSTREAM		DOWNSTREAM	
End Treatment:		End Treatment:	
Condition:		Condition:	
Silt Depth:		Silt Depth:	
Erosion / Silt Cond:		Erosion / Silt Cond:	

Road Material:		Road Condition:	
General Notes:			

Reconnaissance Notes:

[illegible]

- Note:**
- 1) File names for photographs must later be renamed in accordance with the County’s Guidelines and Specifications.
 - 2) For “Direction Facing” use abbreviations such as N, NE, ENE, etc.



Field Reconnaissance Report – Control Structure

Structure ID:		Inspection Date:	
Location:		Company:	
Street Name:		Inspected by:	
S-T-R:			

STRUCTURE INFORMATION:

Structure Type:		Material:		Shape:	
Structure Condition:			Side Slope Stability:		
Skimmer Material:			Skimmer Condition:		
Grate Type:					

CULVERT DATA – IF APPLICABLE:

Type:		Count:		Span / Rise:	
Pipe Shape:		Material:		Condition:	

UPSTREAM		DOWNSTREAM	
End Treatment:		End Treatment:	
Condition:		Condition:	
Silt Depth:		Silt Depth:	
Erosion / Silt Cond:		Erosion / Silt Cond:	
General Notes:			

Reconnaissance Notes:

Photo Number	Direction Facing	Description

- Note:** 1) File names for photographs must later be renamed in accordance with the County's Guidelines and Specifications.
2) For "Direction Facing" use abbreviations such as N, NE, ENE, etc.

Field Reconnaissance Report – Channel/Cross Section

Appendix C

Design Alternative Matrix

APPENDIX C

SAMPLE DESIGN ALTERNATIVE DECISION MATRIX

[illegible]

Appendix D

Level of Service



Service Level A: Flow is contained within the system such that no flooding of major roadways, minor roadways, yards or building finished floors occurs. The hydraulic grade line is generally at or below inlet throats and/or top of bank in channels.



Service Level B: Flow is contained within the right of way such that flooding is limited to the outer lane of major roadways and does not prevent travel; is of limited duration in minor streets; and is generally limited to the right-of-way area with minimal yard flooding. No flooding of building finished occurs. The hydraulic grade line is at or slightly above the inlet throat and/or encroaches on top of curb and/or just breaches top of bank in channels.



Service Level C: Flooding of major roadways precludes the use of outer lanes and travel on inner lanes is possible but difficult; flooding of minor streets may preclude travel; and flooding of yards is approaching buildings but no structure or building finished flooding occurs. The hydraulic grade line is significantly above the inlet, beyond road rights of way and beyond normal channels in the floodplain.



Service Level D: Flooding of major roadways including evacuation routes; flooding of minor streets precludes travel and flooding of buildings or other structures occurs.

Appendix E

GIS Data File and Model Development Information

Appendix E

GIS Data File and Model Development Information

- 1.0 Introduction**
- 2.0 GIS Development Workflow**
- 3.0 Model Parameter Development**
- 4.0 ICPR Model Creation**
- 5.0 Model QA/QC and Execution**
- 6.0 Model Update and Maintenance Considerations**

Appendices

- E1. Feature Data Sets and Related Table Information**
- E2. Data Dictionary Field Names and Descriptions (Feature Classes)**
- E3. Field Names and Descriptions (Related Tables)**
- E4. Domains**

1.0 Introduction

1.1 Overview. The county's Basin Studies shall include both GIS and ICPR model files in each set of study deliverables. The GIS consists of an ESRI file geodatabase containing a variety of feature classes that are used to develop and/or manage study related information including reconnaissance information, drainage model parameters and geospatial representation of these data (e.g., the model network). The GIS, in its entirety, is referred to as the Stormwater Model Database (SMD). In addition to providing a means of organizing study data, the SMD can be used to generate the ICPR model input data files that are required for the basin study.

During a study update, information may be available in GIS format from a previous study effort (e.g., recon data, model features, etc.). These data shall be transferred to the SMD prior to beginning the study update. Remaining information will be obtained and incorporated from plans, surveys or other similar data sources or be generated during the study using GIS features (e.g., terrain, soils, etc.) and various geo-processing efforts.

This User's Guide document presents details and procedures that can be used to create GIS features which are used to generate and process attribute data necessary to prepare ICPR drainage model files. It also includes descriptions and contents of some related geodatabases that are used to manage supplemental information collected during the basin study including reference documents, Citizen questionnaires and review comments and so on.

1.2 User's Guide Organization. This User's Guide includes references to several GIS data structures including Feature Data Sets, Feature Classes, Data Tables and Fields. References to specific instances of these GIS data types are highlighted as follows:

- **Feature Data Sets**
- **Feature Classes**
- **Data Tables**
- **Fields**

The User's Guide is organized into four main parts:

- GIS Development
- Model Parameter Development
- Model Creation and Execution
- Model Input and Simulation Results - QA/QC and Review

The **GIS Development** section explains the processes required to generate mapping data consistent with the geodatabase schema that has been developed for the County's Basin Studies Program. It discusses the various feature classes and data sets involved in creating or modifying the drainage model networks and supporting GIS features that are necessary for creating or updating the ICPR models that comprise the County' Basin Studies Program.

The **Model Parameter Development** section explains the processes used to generate and/or enter model parameters into the GIS dataset. The majority of the resulting data forms the basis of the ICPR model input data files, including input parameters for sub-basins, nodes and links.

The **Model Creation and Execution** section explains the processes used to export the GIS data for import into ICPR Version 3.x. It includes step-by-step instructions for exporting the GIS data, processing the exported data and importing the resulting information into the ICPR program.

The **Model Input and Simulation Results - QA/QC and Review** section provides recommended checks that shall be performed for the purpose of checking the ICPR model input and results. Recommendations are also made regarding simulation setup and execution for the purpose of preliminary debugging and QA/QC of the ICPR model data.

1.3 File Structure Considerations and GIS Relationship Classes.

The feature classes and feature class tables included in the GIS contain a portion of the data needed to generate ICPR models. The majority of the remaining information, however, is stored in a series of data tables that are related to the feature classes using indexed fields. The relationship classes that link feature classes and the related data tables (including the index fields for each) are depicted in **Appendix E1**.

Some features in the GIS are hyperlinked to supporting documentation (e.g., photographs, reference documents, survey notes, etc.). The file name and path of the hyperlinked document files are stored in the **HYPERLINK** data table. In addition, a **HYPERLINK_ID** field is included in the attribute table of the feature class or its related data table. The **HYPERLINK_ID** field is populated with a unique long integer which is used to relate the hyperlink document and the feature. The **STORAGE_PATH_ADDR** field in the **HYPERLINK** data table contains the current folders where the hyperlinked documents are located. The **FILE_NAME** field contains the document file names including extension (e.g., .JPG, .PDF, etc.). The **STATIC_FULL_PATH** field is a concatenation of **STORAGE_PATH_ADDR** and **FILE_NAME**. The **STATIC_FULL_PATH** field identifies the full static address of hyperlinked documents.

The folder names entered in the **HYPERLINK** data table for the **RELATIVE_FULL_ADDR** field are defined based upon a specific directory structure. Refer to Section 2.5 of the *Basin Study Guidelines and Specifications* (G&S) for more details. Should the locations of the hyperlinked documents need to be changed, the **STORAGE_PATH_ADDR** must be updated in the GIS using the “find and replace” function to reflect the new location. Once the new folder names are updated, the **STATIC_FULL_PATH** field values must be recalculated to re-establish the hyperlinks.

1.4 Supplemental GIS Data - There are a number of supplemental GIS data sets that will be generated during creation of a basin study or a study update. These are described below.

1.4.1 Reference Document GDB - Data linking the source information to map features shall be maintained in a reference documents geodatabase (**Name: ReferenceDocuments.gdb**). The “RefDoc” geodatabase contains point, line and polygon feature classes that indicate the location or coverage of the source data (e.g., a feature location or sub-division extent). Related information is stored in a reference document table (**RefDocTable**). The **ReferenceDocuments.gdb** feature class includes the following minimum fields:

Field Name	Field Type	Comment
REFDOCID	Text (50)	See below
HYPERLINK_ID	Long Integer	Relates feature to hyperlinked document files (See below)
COMMENT	Text(255)	Comments regarding action required, Review status, etc.

Features in the **ReferenceDocuments.gdb** are hyperlinked to the reference document files by way of a “one to many” related table (**HYPERLINK**) which is contained in the geodatabase. The “relate” is based on the **HYPERLINK_ID** field value assigned to the features. The **HYPERLINK** table includes the following fields:

Field Name	Field Type	Comment
HYPERLINK_ID	Long Integer	Unique identifier
FILENAME	Text(255)	Reference document filename
STORAGE_PATH_ADDR	Text(255)	Full Pathname (including drive, excluding filename)
RELATIVE_FULL_ADDR	Text(255)	Relative pathname (including filename)*
STATIC_FULL_PATH	Text(255)	Full pathname = STORAGE_PATH_ADDR + filename

* Relative path names assume the directory structure defined in Section 2.5 (below) will be maintained should the project directory be moved, intact, to a different drive.

The **RefDocTable** table includes information related to the various source documents (e.g., Author, date, etc.) as well as the means of relating the spatial feature locations to the various data source files if required by the scope of work (i.e., by way of the **REFDOCID** and hyperlinks). Reference document IDs shall be named as follows:

XX_YYYY_ZZ where

XX = Code that represents the study basin (e.g. 01 for Alligator Creek)

(Refer to Section 3.1 **MODEL DEVELOPMENT - Model Nomenclature**)

YYYY = consecutive number beginning with 0001

ZZ = code that represents the document type where:

RD = record drawing

CP = construction plans

MD = data from another model

SD = survey data

GIS = GIS data

MPI = miscellaneous permit information

RPT = report

If a document type is collected during a study or study update that does not have an existing document type code established above, then a new code may be developed. Any such additions The **RefDocTable** may be customized to include any additional fields thought to be useful by the modeler, however, it must include the following fields as a minimum:

Field Name	Field Type	Comment
REFDOCID	Text 50	Reference document ID – See above
TITLE	Text 255	Title or description of the document or data
AUTHOR	Text 255	Author of the document or data
DATE	Text 15	Date of the document or data
VDATUM	Text 15	Vertical datum of source; (e.g. NAVD88, NGVD29, etc.)
USEPLAN	Text 255	Description of how data will be or has been used in model development
ERP_NUM	Text 50	Environmental Resource Permit number

Electronic copies of source documents are to be included with electronic deliverables for the study. Source documents are to be stored in deliverable sub-folder **5_Misc_Ref_Materials** of the

TSDN_Reports (Technical Support Data Notebook) folder (Refer to **Section 2.5 Electronic Deliverables** below). Hard-copy source data/documents shall be scanned to an electronic format (PDF preferred) and placed in the TSDN folder in a directory with the same name as the Reference Document ID.

The TSDN serves as the primary data “receptacle” for the basin study support documentation. It is organized for GIS linkage to the reference data. These data are hyperlinked to the GIS where practical and useful. At a minimum, hydraulic features shall be hyperlinked to the directory containing the corresponding source data (i.e. to the folder identified by the **STORAGE_PATH_ADDR** of the **HYPERLINK** table.

1.4.2 Comments GDB – The Comments geodatabase contains a variety of feature classes including results of the Citizen Questionnaires, public meetings, field observations by the consultant performing the basin study, results of interviews with County staff and review comments from the County or peer reviewers. At this point, a feature class structure is defined for the questionnaire results only. Other feature classes should be reviewed with the County prior to design, creation and addition of those feature classes to the **Comments.gdb**.

Drainage, flooding and water quality observations obtained from the Citizen questionnaires shall be scanned, compiled, organized for submittal. If required by the scope of work, they shall also be mapped and hyperlinked in the **Comments.gdb**. The **Comments.gdb** (submitted in the **Comments** deliverable folder) includes a point feature class called PublicMtg which shall then include the following fields:

Field Name	Field Type	Comment
Name	C50	Respondent’s name
Phone	L11	Respondent’s phone number
Address	C50	Respondent’s street address
ResD_time	L3	Years at address
Status	C3	Flooding experience
Severity	C25	Flooding severity
Duration	L3	Flooding duration (hrs)
Othr_prob	C50	Other flood related problems
Dates	C50	Dates of flooding
Rain_Int	C25	Storm intensity related to flooding
Struc_freq	C25	Frequency of structure flooding
Yard_freq	C25	Frequency of flooding in yards or parking lots
Road_freq	C25	Frequency of flooding in streets
WQ_	C3	Water quality problems
WQ_Desc	C100	Water quality problem description
WQ_Src	C100	Water quality problem source
HYPERLINK_ID	Long Integer	Relates feature to hyperlinked document files (See Section 2.4)

1.4.3 High Water Mark Database GDB – The High Water Mark (HWM) geodatabase contains feature classes that identify confirmed, high water conditions typically resulting from a severe storm event. Elevations of high water marks may be estimated or determined by survey of water stain lines depicted on photographs or based on

personal statements from individuals (e.g. “The water got up to my front step”). This information may be obtained from public meetings and/or questionnaires or other potential sources.

Sources of reported high water conditions may vary considerably depending upon the source. As such, new feature classes may be added to the HWMDB if an existing feature class is not adequate or suitable to represent particular sources of high water information. In such cases, proposed feature classes must be reviewed with the County prior to design, creation and addition of those feature classes to the geodatabase. In any case, the source of the high water mark is to be identified using the HWM_TYPE field and remaining attributes should include the fields shown below as a minimum.

Field Name	Field Type	Comment
address	Text 255	Address related to high water mark location
Xcoord	Double	State plane coordinate (easting)
Ycoord	Double	State plane coordinate (northing)
flood_time	Text 15	Time associated with the high water condition
flood_Date	Text 15	Date associated with the high water condition
Source	Text 255	Source of high water condition (HWM photo @location, repetitive loss, survey, survey from photo, etc.)
Description	Text 255	Description of high water condition (e.g., flooded home 5” deep)
HWM_Type	Text 255	Type of HWM (e.g., Design HW, Observed HW, etc.)
HWM_Datum	Text 25	Datum of HWM elevation
HWM_elev	Double	Elevation of HWM

2.0 GIS Development Workflow

2.1 Introduction. The Basin Studies Program consists of both GIS and related model data files. As mentioned, the GIS data contain a variety of feature classes that are used to develop model parameters, depict the drainage model network and store model parameters. The following sections describe the GIS and procedures used to create the necessary feature classes, process the attribute data and prepare data required for ICPR model files.

2.2 GIS Development - Workflow and Procedures.

The general steps necessary for creating the GIS data and generating the model parameters for ICPR include:

- 1) Creation of GIS features including reference documents, results of the Citizen Questionnaire, High Water Mark database, , land use, soils, terrain and model features (sub-basins, nodes, links, cross sections)
- 2) Geo-processing and manipulation of the GIS data to prepare and/or calculate the necessary model input parameters
- 3) Export CSV delimited intermediate text files for preparation of model files
- 4) Spreadsheet processing of the CSV files to create DBF import files for ICPR

There are four feature datasets that make up the SMD. They are briefly described below.

- A. **Field Reconnaissance** - The **FieldRecon** feature dataset includes features pertaining to field observations or other similar information that pertains to reconnaissance efforts completed for the project. This

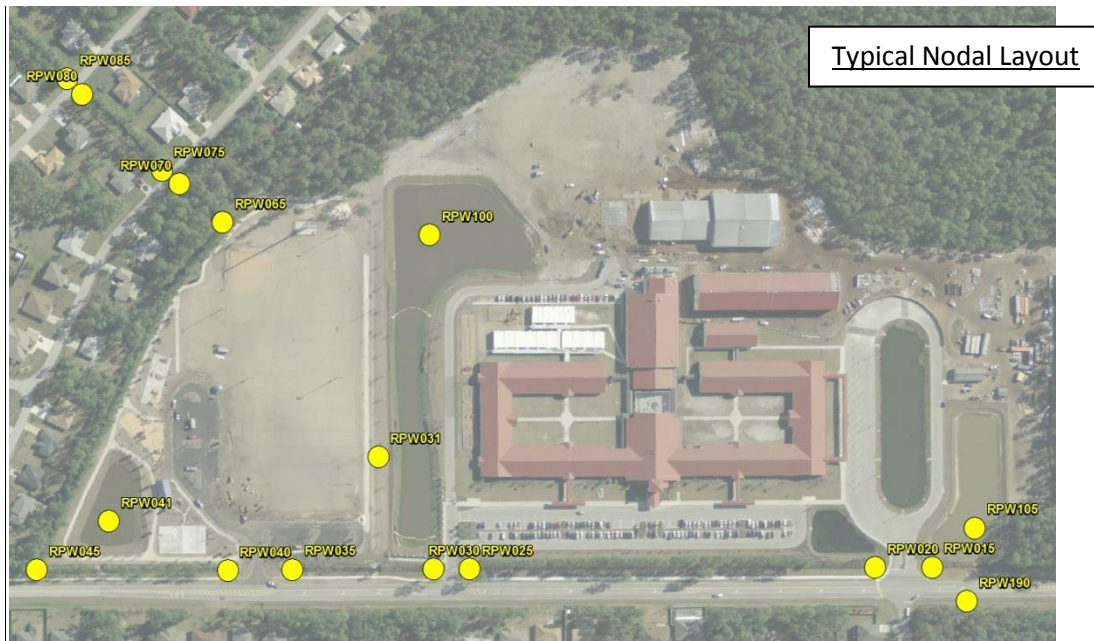
feature data set is primarily used to identify and coordinate field visits and store the results of those visits in one format or another (e.g., photographs, field recon reports, etc.). Note that this information may already be available from previous study efforts, particularly if the work at hand is for a basin study update. If that is the case, then features and related data shall be migrated from those previous data sets to the **FieldRecon** geodatabase feature dataset and corresponding feature classes.

- B. **Informational** - The **Informational** feature dataset contains a collection of feature classes needed to compute model parameters that are not directly entered into the GIS/models from other data sources (e.g., pipe inverts, lengths, etc.). The **Storage_Exclusion** polygon feature class is used to exclude channel storage from the overbank stage area calculations to avoid double counting storage already accounted for internally by ICPR. The **Xsect_Line** line feature class contains cross section locations needed to generate irregular cross section information for related links including channels and weirs.
- C. **Model** - The **Model** feature dataset contains the geospatial nodal network for the basin's ICPR model. It includes the **NODE** (points), **BASIN** (polygons) and **LINK** (lines) feature classes. The GIS also includes a series of related data tables for these feature classes. The related data tables include model data that are ultimately exported from the GIS for creation of the ICPR model input files.
- D. **Watershed** - The **Watershed** feature dataset contains several feature classes. Some feature classes (i.e. land use, future land use and soils) are used to compute hydrologic model parameters such as curve numbers and DCIA, if necessary. Others include reference information such as survey data. Floodplains are also included in the **Watershed** feature dataset.

The following provides discussions and detailed instructions on the steps needed to create or update the GIS data in preparation for model creation.

Step 1: Nodal Network Creation / Modifications

- A. The node feature class is located in the **Model** Feature Dataset of the geodatabase (Feature Class Name: **NODE**). Node locations in the nodal network are represented using a Point Feature Class. The node feature class should typically be generated first during model creation or updates. Node locations are based on specific modeling needs. Refer to Section 3.2.1 of the G&S for recommendations on placing nodes in a drainage network.
- B. Nodes shall be populated with a unique name in the **ICPR_NAME** field located in the **NODE** feature class attribute table. Refer to Section 3.1 of the G&S for nomenclature requirements for model features. Note that the name populated in the **ICPR_NAME** field is used in the ICPR model.

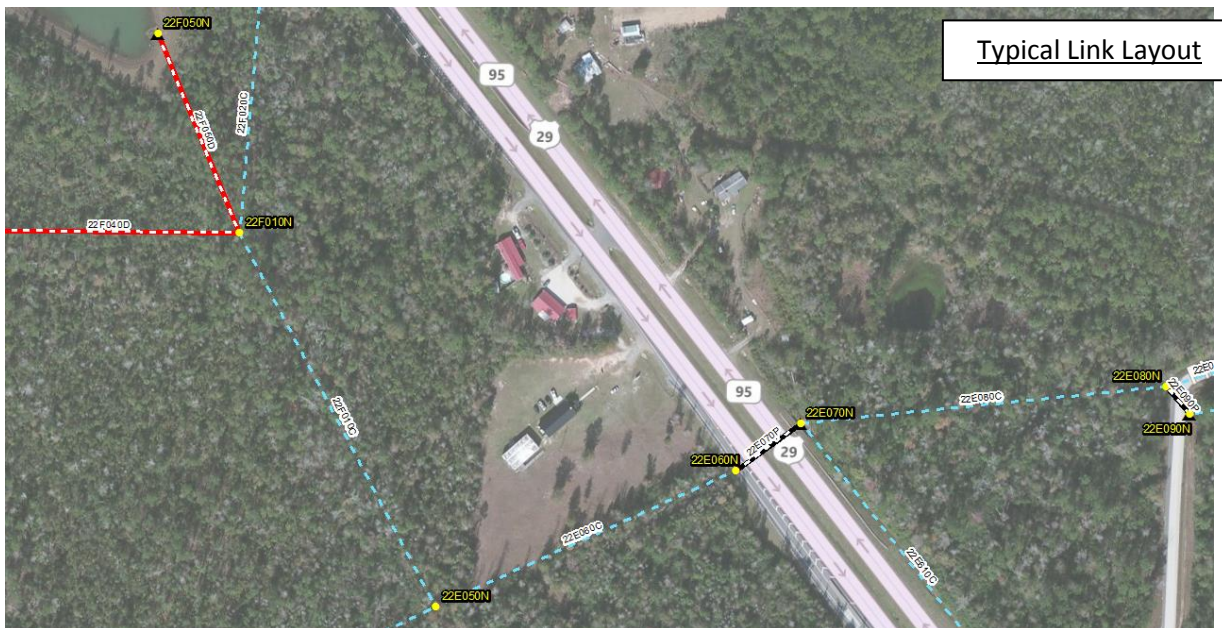


Initial stage information for each node may also be entered during the development of this feature class, if desired. However, it is recommended that the initial stages be assigned after the link information is developed.

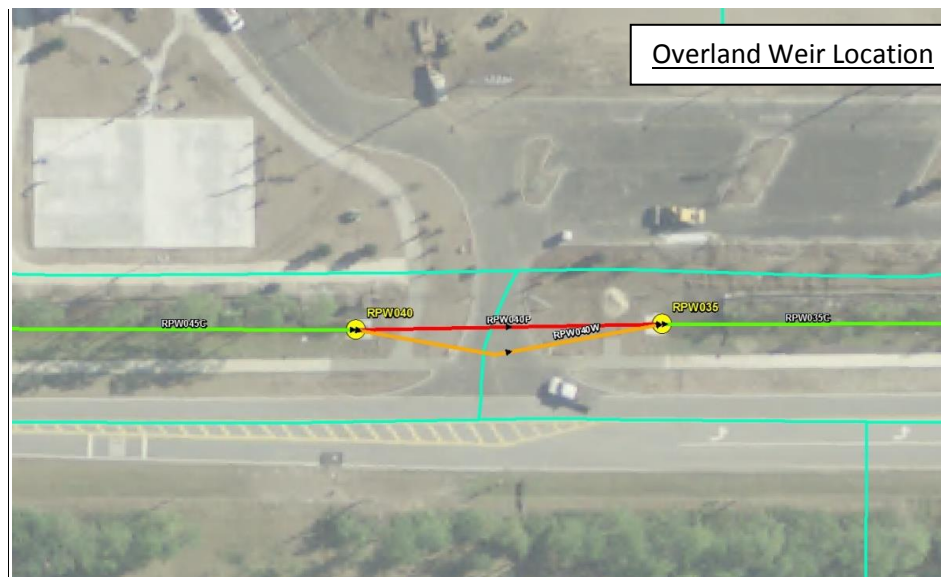
Step 2: Link Network Creation / Modification

- A. The link feature class is located in the **Model** Feature Dataset (Feature Class Name: **LINK**). This feature class includes pipes, channels, weirs, bridges, drop structures, etc. Model link locations in the nodal network are depicted using a Polyline Feature Class. Some links/structures were previously drawn using a point feature; those features will need to be represented using a polyline. Remaining features may be migrated from the shapefiles to the geodatabase. Features should be drawn in the assumed direction for positive flow and snapped to the upstream and downstream nodes at the ends of each link.
- B. Links are named (Field: **ICPR_NAME**) based upon the upstream node name. Refer to Section 3.1 of the G&S for nomenclature requirements for model features. Each link name shall be unique. The link name data entry can be done manually or using spatial joins to semi-automate the naming process. In addition, link names in the County's Basin Studies Program are suffixed to identify the link type. The link type should be assigned for the feature during its creation by selecting its type from the drop down list included in the SMD (Field: **HYDROEDGE_TYPE_DESC**).
- C. Other link input data (i.e. invert, loss coefficients, etc.) may be entered/migrated during **LINK** feature class development including information contained in previously prepared Recon shapefiles or feature classes, data from surveys or plans and/or permit information. The Recon shapefile information can be migrated to the SMD using field calculations if a unique relationship is established between the two datasets (e.g., Shapefile field: **LINK_DESG** to Link Feature Class field: **ICPR_NAME**).

Below is an example of a Node/Link Network layout for an elementary school area.



- D. Overland Flow weirs are recommended at all pipe crossings and topographic saddles. These features are also included in the **LINK** feature class. An example is shown in the following image (Pipe crossing in Red, Overland Weir in Orange).



Step 3: Basin Creation / Modification

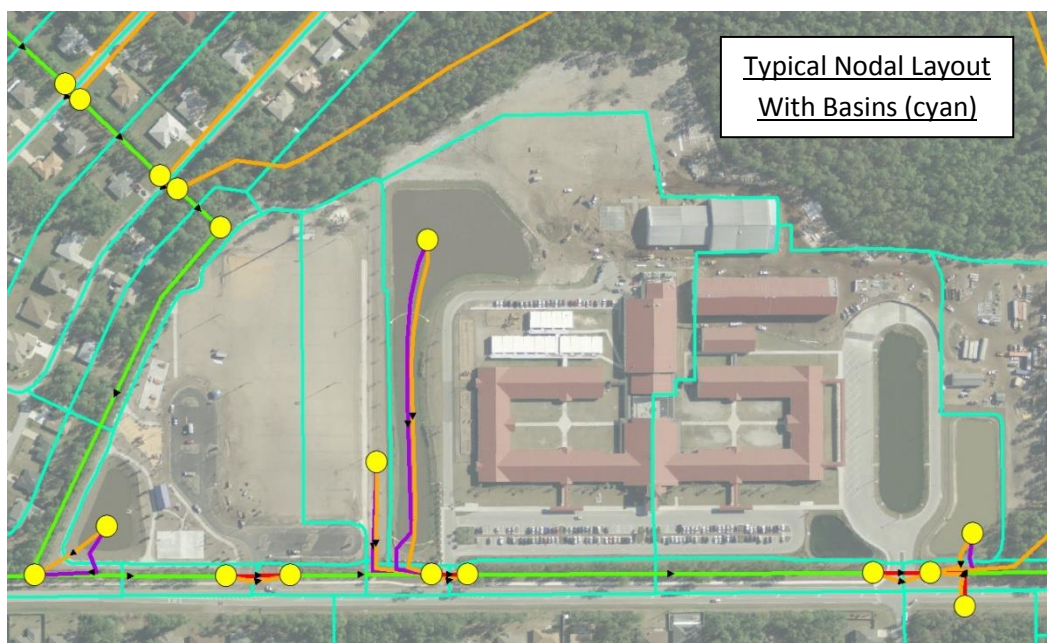
- A. The Basin feature class is created using the **BASIN** Polygon Feature Class within the **Model** Feature Dataset. This feature must be drawn to delineate the limits of surface drainage to each node in the network. Delineations can be based upon terrain data (including the use of tools to semi-automatically generate sub-basin limits) or on other information (e.g., construction plans, permits, etc.). The latter approach is most often used in areas that have been modified since terrain information was generated.

For many locations (including curb or ditch inlets, depressions, lakes or ponds), the sub-basin delineation process is relatively straight-forward. It defines the area that flows to the surface water or inlet. Along

channel links (or depressions, lakes or ponds that have a connected channel), care must be taken to draw the sub-basin lines such that they delineate the area that drains to the “control volume” of the associated node. The node control volume in ICPR extends halfway upstream and downstream along any storage-bearing links that are attached to or from the node in question. Refer to the *ICPR Help system* and Section 3.4 of the G&S for more details on node control volumes in ICPR.

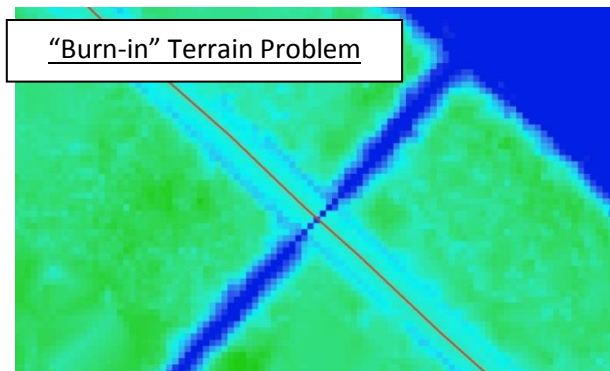
The basin name (Field: **ICPR_NAME**) can be assigned manually or using spatial joins with the node feature class to automate the naming process. Care must also be taken to check the basin feature class for orphan basins (i.e., basins without a node located in them) or other potential problems including topology errors.

An example of a nodal layout including nodes, links and basins is included below. Note that basin lines generally bisect channel-type links.



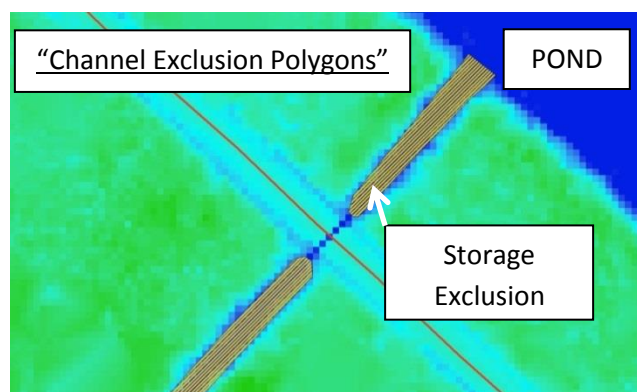
Step 4: Terrain Adjustments

- A. In some instances, terrain adjustments will be required to account for “problems” resulting from “burn-in” processing. These locations usually occur at roadway culverts where the ditch was “burned” through the road during post-flight processing of LiDAR. These artificially low points should not be included in the overland flow cross section used to model roadway overtopping. The “burned-in” points can be corrected by adjusting the terrain itself. A terrain can be adjusted by using a process referred to as “Polygon Leveling”. Leveling is performed by drawing a polygon around the area that needs to be adjusted, assigning an elevation to the polygon and then adjusting the elevation to the terrain.



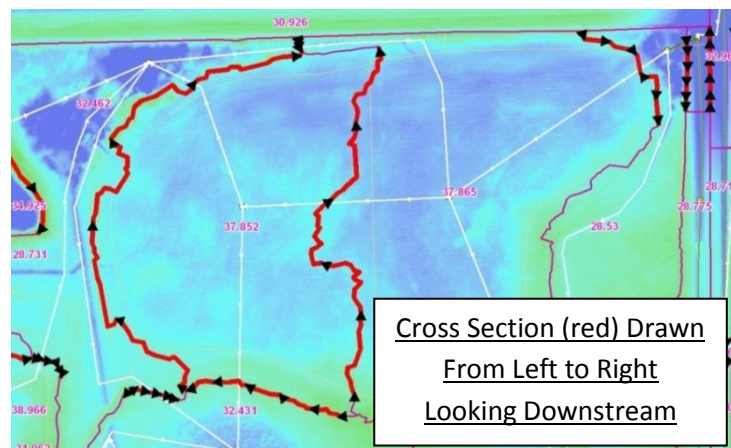
Step 5: Channel Exclusion Polygon Creation

- A. Channel storage must be excluded from stage-area calculations to avoid double counting flood storage. Refer to the *ICPR Help system* and Section 3.2.1 of the G&S for details concerning control volume and mass balance calculations for more information. From a GIS perspective, the channel storage exclusion polygon is used to delineate areas along channels that ICPR will account for internally. It is created using the **Storage_Exclusion** polygon feature class located in the **Informational** Feature Dataset. This should be drawn to the approximate limits of the channel and associated cross sections. Cross sections can be used to delineate the shape in areas where irregular section channels are used. If the channel geometry is trapezoidal, the exclusion polygon is generally drawn at the channel top of bank.



Step 6: Cross Section Creation / Modification

- A. Cross Sections are depicted using a Polyline Feature Class which is located in the **Informational** Feature Dataset (Name: **Xsect_Line**). This feature class includes overland flow weir and channel cross section locations. The cross sections shall be named based on corresponding weir or channel link names suffixed with an "X". Refer to Section 3.1 of the G&S for more information on naming requirements.
- B. Cross section lines may be developed from sub-basin lines or drawn using other information as needed. Care should be taken to draw the sections as perpendicular to flow as possible in most cases and in such a way that controlling grades are included in the section (e.g., avoid edge of pavement "shots" near a road centerline unless they represent a higher, controlling elevation at that location).
- C. Cross Section Delineation Guidelines
 - 1. Cross section extents shall span the entire floodplain (See below, Floodplain in purple):
 - 2. Cross section lines shall be drawn as follows:
 - a) Draw the line from left to right (see below)
 - b) Do not draw cross sections over houses or other major structures
 - c) When drawing XSEC line, follow highpoints of lowest ridge where overtop occurs



- D. Cross section points may be generated by intersecting the cross section lines with the terrain (TIN) using the **Interpolate Shape – 3D Analyst** tool. The resulting data may then be exported to a spreadsheet for processing including calculation of distances between points and cumulative stationing along the length of each cross section. A sample spreadsheet is included with the Basin Studies Program deliverables. The points can then be loaded into the GIS (Table: **CROSSECTION**). ICPR has a maximum limit of 500 points per cross section. The cross section point generation process typically results in large numbers of points which may need to be post-processed to reduce the number for eventual import to ICPR.

3.0 Model Parameter Development

3.1 Introduction. Derivation or determination of the model parameters for the Basin Studies Program consists of both GIS processed and calculated data (as described above) and information that is entered based upon field visits, inspections and plan review. The GIS-based data generally include spatially determined information such as link lengths, basin areas, nodes and so on.

The following sections describe specifics related to the GIS and procedures used to create the necessary features, process the attribute data and prepare ICPR model files.

3.2 Hydrologic Parameterization

3.2.1 Time of Concentration

1. Time of Concentration (TC's) flow paths are drawn in the TC geodatabase using the **TCs** Polyline Feature Class located in the **Hydrology** feature dataset. The following fields are populated in the feature class for each Tc segment of a Tc flowpath (See table below). After the table values are populated, the table is exported for use in MS Excel to complete the Tc calculations.

SEGMENT_ID	FLOWTYPE	SURFCODE	UPSTREAM_E	DOWNSTREAM	Shape_Length	Basin_ID
1	Sheet	e grass, short	26	25	116.071054	BA2175
2	Shallow Concentrated	u unpaved	25	24	907.53333	BA2175
1	Sheet	e grass, short	26	25	136.536489	BA2165

Related Table Field Definitions:

SEGMENT_ID: Segment ID number representing the order of that segment in a given Tc flowpath

FLOWTYPE: Identifies type of flow for determination of velocity in the spreadsheet

SURFCODE: Identifies type of surface for determination of velocity in the spreadsheet

UPSTREAM_E: The upstream elevation of the segment line.

DOWNSTREAM: The downstream elevation of the segment line.

Shape_Length: Length of segment line (calculated in geodatabase)

Basin_ID: Basin associated with segment line and Tc calculation

2. The attribute values of each record in the **TCs** feature class represent the properties of individual flow segments for Tc calculations. An Excel spreadsheet has been provided which includes "lookup" values from which velocities can be assigned to segments based on the TR-55 field values for **FLOWTYPE** and **SURFCODE**. The velocity is used to calculate travel times for each flow segment, which are then grouped and sub-totaled using Excel functions to calculate an overall Tc for each sub-basin. Refer to the notes tab in the provided excel sheet for instructions on importing information to excel and calculating TCs. This calculated information is then used to

populate the **TIME_CONCENTRATION_MS** field in the **NRCS_RAINEXCESS** related data table of the **BASIN** feature class in the SMD.

3.2.2 Curve Number Calculations

1. Curve number (CNs) calculations begin by using GIS “intersect” operations with the following feature classes: **LANDUSE**, **SOIL** (**Watershed** feature dataset) and **BASINS** (**Model** feature dataset). Basin area is determined from the **BASINS** feature class directly, however, CN and/or DCIA values are calculated as described below.
2. A CN lookup table includes CN values for each land use and soil combination that occur in a basin study. CNs for areas whose drainage is primarily comprised of swales will not typically include specification of DCIA and, as a result, CN values obtained directly from TR55 or similar references can be used to perform weighted CN calculations. CNs in areas that do account for DCIA (e.g., drainage systems with curb & gutter, etc.) must use adjusted values for CN weighting calculations in such a way as to exclude the portion of the basin that is DCIA. In other words, the CN values for the remaining portion of a sub-basin shall be adjusted to account for the non-DCIA (impervious) and pervious portions of the sub-basin.

The lookup table is based on a search index that consists of a concatenation of the **LANDUSE** and **SOILTYPE** field values. A sample is available at the County. This field must be created in the feature class resulting from Step 1 above using a field calculation. For illustration purposes, we’ll refer to the name of this new field as **LANDSOIL**.

3. The CN lookup table must be joined to the intersected feature class (Step 1) using the **LANDSOIL** field (Step 2).
4. The resulting tabular information is then exported for use in spreadsheet calculations of weighted CN values. The entire listing is grouped and sub-totaled using Excel functions to calculate an overall weighted CN value for each sub-basin. A sample Excel spreadsheet has been provided which includes the general file structure needed to perform this calculation (See Appendix F). This information is then used to populate the **WEIGHT_CURVENUMBER_VAL** field in the **NRCS_RAINEXCESS** related table of the **BASIN** feature class.

3.3 Hydraulic Parameterization

3.3.1 Nodes

1. Initial stages are entered in the **NODE** feature class (Field: **INITIAL_WATERSURFACE_MS**) based on control elevations (e.g., weir elevations, flashboard elevations, etc.) within the drainage system.
2. Stage-Area Methodology – Flood storage in the Basin Studies Program models is represented using stage vs. area relationships. The relationships are developed by adding planimetric areas between contours for each contour located in a given sub-basin excluding areas within the **Storage_Exclusion** polygons. The resulting stage-area relationship is entered into the **JUNCTION_STORAGE** related table for the corresponding node of each sub-basin. The following procedure may be used to generate the required data:

- a) Contour information can be obtained from the County for use in generating a DEM raster dataset:
- b) A DEM can be used to generate a stage-area polygon feature using a series of processing steps (Name: **Stage_Area_Polygons_DEM1_Half_FT**).
- c) Stage-area information is calculated using the **Storage_Exclusion**, **BASINS** and **Stage_Area_Polygons_DEM1_Half_FT** polygon features with the following steps:

Step 1) Dissolve **BASINS** using Field: **NODENAME**. Call the resulting layer: **DISSOLVE**.

Step 2) Union polygon features: **Storage_Exclusion**, **DISSOLVE** and **Stage_Area_Polygons_DEM1_Half_FT**. Call the resulting feature: **Union**.

Step 3) Repair geometry of feature: **Union** (from Step 2).

Step 4) Dissolve **Union** feature (from Step 3) using the following fields: **ICPR_NAME** (**Union** feature), **Exclusion** (**Storage_Exclusion** feature) and **ELEV** (**Stage_Area_Polygons_DEM1_Half_FT** feature). The Dissolve tool options shall include "Create multi-part features". Call the resulting feature: **DISS2**.

Step 5) Add "**Area**" field to **DISS2** feature (From Step 4)

Step 6) Calculate geometry for "**Area**" field in **DISS2** feature (use appropriate units)

Step 7) Export **DISS2** feature table to DBF for processing in Excel to generate cumulative stage vs. area relationships

Step 8) Use resulting spreadsheet stage-area data to populate the **JUNCTION_STORAGE** Table (**JUNCTION_STAGE_VAL** and **JUNCTION_ACRES_MS** fields).

3.3.2 Links

1. Infrastructure-related or non-irregular section features:
 - a) Migrate all applicable recon data to SMD and populate appropriate fields in the SMD.
 - b) Enter additional model parameters for remaining fields based on the migrated recon data, field reconnaissance, field surveys, plan information, etc. These include such parameters as FHWA Inlet edge description, entrance/exit loss coefficients, weir/orifice discharge coefficients, channel bottom width/side slopes, etc. Please refer to the *ICPR Help System* for more information regarding appropriate model parameter values.
2. Setting Irregular link inverts:
 - a) Use ESRI Summarize or Excel sub-total function to identify cross section low points (after "burn-in" areas are adjusted for)
 - b) Field calculate irregular section link inverts for channels and/or weirs (including drop structure weirs) based on the resulting cross section low points.

3.4 Model / Network Modifications or Additions The Basin Studies Program may require modifications from time to time for any number of reasons. These include changes required for new or updated information and revisions necessary to evaluate new/purposed development or other projects that affect drainage. For example, evaluating a new sub-division will require many of the steps mentioned above in this document to be repeated. These steps should be performed on a copy of the official "Adopted" GIS and model datasets if the evaluation is

for a proposed change in the drainage network. Once the project is approved and constructed, the changes can be made permanently. Refer to **Section 6** for more details regarding model updates and maintenance considerations.

4.0 ICPR Model Creation

4.1 Introduction. The ICPR model can be created once all data are processed and entered into the GIS. The general process includes export of the GIS information to CSV-formatted text files and processing of the CSV files to DBF format for import into ICPR v3.x.

4.2 GIS Data Conversion to ICPR. The following presents steps needed to convert GIS data into ICPR DBF import files:

Step 1) Export GDB information to CSV file format.

Step 2) Export DBFs from a blank ICPR model file. Open DBF's in Excel and "copy/paste" information for each record matching fields from GIS to ICPR. Refer to Appendix E-2 and Appendix E-3 for GIS to ICPR name relationships.

Step 3) Save DBF's as an Excel sheet. Add Excel sheets to GIS and export them into a DBF format.

Step 4) Import DBFs into ICPR to populate model.

Finally, Hydrology and Hydraulics Control data must be entered or copied into newly created ICPR model files prior to execution of any simulations. This will include hydrology and hydraulic settings for any necessary design storms or other events. Refer to Section 4 of the G&S for more details.

5.0 Model QA/QC and Execution

5.1 Introduction. ICPR models shall be checked for potential problems or other issues. This includes QA/QC reviews of both the input data and simulation results. The following sections describe a number of checks that should be performed to ensure models and resulting simulations provide reasonable and reliable results.

5.2 General Review. QA/QC checks can begin with a review of mapping information used to generate the model data. This shall include the following as a minimum:

- Check GIS sub-basin areas (summation of individual areas to the watershed area and that information against model data)
- Review Channel Exclusion Polygon delineation (with consideration of control volume concept)
- Intersect Channel Exclusion Polygons and sub-basin features to determine areas where channel buffer/basin overlap occurs (remove as necessary)
- Check greatest area of node stage-area relationships to ensure none are greater than the basin area for the node.
- Evaluate results of a "spatial join" between sub-basin and node point features to verify basin / node assignments. Note that in some cases, multiple basins may be assigned to the same node. In this

case, one basin will not have a node located within it. The existence of these “orphan” basins shall be confirmed and revisions made if necessary.

- Check cross section locations / lines to ensure correct representation of flow and restrictions to flow (e.g., topographic saddles, etc.)

5.3 Model Input Data Review. As a minimum, checks of input data shall include evaluation of maximum and minimum values for key model parameters. If time/budget permits, average values of the “complete” input data set can be performed. These checks can be done visually using the “browse” forms in ICPR or if time/budget permits, using the DBF files of the input data in a spreadsheet to sort by the parameters of interest or generate statistical calculations. This evaluation is made easier by using the conditional formatting feature in Excel to identify possible input errors that are out of expected ranges.

5.3.1 Link Input Data Review. The following data checks must be performed to ensure the data integrity and validity:

Pipe and Drop Structure (Pipe data only) Link Checks

- Confirm “No flow” pipes are correctly set
- Review maximum, minimum and consistency of coefficients:
 - Evaluate entrance coefficients relative to FHWA inlet edge descriptions
 - Entrance, exit and bend loss coefficients (entrance losses should generally be non-zero)
 - Manning’s n
- Evaluate any culverts with differing upstream and downstream geometry, dimensions or roughness values
- Check Outlet Control (normally **dc** or **tw**)
- Check Inlet control (normally **dc**)

Weir Link Checks (Including drop structure weirs)

- Confirm “No flow” weirs are correctly set
- Compare minimum cross section elevation against weir invert and control elevation for irregular section weirs (differences should be minor unless the section is being used as a “typical template” shape)
- Confirm locations with control elevations set higher than weir invert elevations
- Horizontal weir links (including drop structure weirs)
 - Check span or rise dimensions.
 - Values should not be large for the defined geometry (e.g., 9999 ft)
- All weir links (including drop structure weirs)
 - Verify correct units were entered for defined geometry
 - Evaluate range of weir and orifice discharge coefficients
 - Sharp crest = 3.0 to 3.2
 - Broad crest = 2.4 to 2.8
 - Orifice = 0.6 to 0.7

Channel Link Checks

- Confirm “No flow” channels are correctly set
- Review maximum, minimum and consistency of coefficients:

- Identify unusual entrance or exit loss coefficients (loss coefficients should generally be set to zero)
- Manning's n
- Expansion, contraction coefficients (typically 0.1 for contraction, 0.3 for expansion)
- Check Outlet Control (normally dc or tw)
- Check Inlet control (normally dc)
- Compare minimum cross section elevations against channel invert elevations for irregular section channels. The Link Extrapolation Report is useful for this but it is only available after a simulation has been successfully executed. The elevation differences should be minor unless the section is being used as a "typical template" shape.

Cross Section Checks

- Visual check of "detailed" cross section graphs
 - Check for typographic errors (i.e., unexpected high or low points)
 - Check for "Appropriate" Manning's n (Refer to Chow, etc.) Note that the Manning's value should generally be developed for three portions of a cross section: main channel, left overbank & right overbank. The assigned values are to be weighted using the various segments of the three portions. Example: Channel Mannings value should be weighted based on roughness of the channel bottom as well as the side slopes.

5.4 Simulation Results Review. Review of model simulation results typically begins with two or three primary reports. These include reports for Mass Balance, Node Maximum Conditions/Comparisons and, to some extent, Link Maximum Conditions/Comparisons. The former two are probably the most commonly used reports for evaluating simulation results although other reports are often necessary to evaluate and resolve issues (e.g., hydrograph spikes, flow instabilities, etc.). It is also worth noting that the "Sort" feature provided in the Max Condition reports often allows for easier identification of problem nodes or links.

- Mass Balance Report:
 - A small error should be expected (no greater than 5%).
 - Most problems result from:
 - Initial conditions issues (i.e., initial stage set below minimum critical elevation ~ lowest point of available storage at a node)
 - Rating curve issues where flow is allowed at minimum critical elevation or below. This includes rating curve/operating tables and Bridge operating tables.
 - Extreme link instabilities
- Node Maximum Conditions report
 - Identify max DZ values in excess of the Max DZ value set in the Routing Simulations control settings (usually 1.0 foot)
 - Identify max DZ in results greater than the product of Max DZ and DZfactor
 - Verify that any violations are understood and/or inconsequential
- Compare Max Z vs. Operating table limits (if applicable) This applies to bridge operating tables as well as other "user-defined" tables.
- Compare Max inflow vs Max outflow
 - Expect Inflow = outflow for low storage nodes/systems
 - Expect reduced outflow for high storage node/systems
 - Don't expect outflow > inflow unless timing differences exist (e.g., flow hysteresis)
 - Generally expect overall increases in peak flow from upstream to downstream

- Generally expect increasing peak flow rates with increasing return frequency (for the same duration)
- ◆ Check floodplains for mapping accuracy & “glass walls”
- ◆ Review node graphs
 - Check stage and inflow/outflow graphs for irregularities
 - View node outflow hydrographs to make sure they recede as needed
- ◆ Review water surface profiles; identify locations of excessive head loss; verify weirs are included as necessary(e.g., roadways)
- ◆ Review node extrapolation report for extrapolated stage-area
- ◆ Identify irregular sections and differences between invert and cross section low points
 - Use the Link Extrapolation report (sort by greatest difference between channel invert and cross section lowpoint = Inv-Low Diff column)
 - Identify which irregular channels are extrapolated
 - Check for overbank storage at the connected nodes (from Node Extrapolation report)

6.0 Model Update and Maintenance Considerations

6.1 Adopted and Interim As has been indicated previously, the GIS and resulting ICPR models that have been developed for the Basin Studies Program are intended to support County activities as they relate to development review activities, analyses of interim design conditions and/or functions that necessitate model updates. These model updates will typically involve revisions to account for new information including updated terrain data, new development or other similar changes in the County’s drainage systems. As the County moves forward with the Basin Studies Program, it is recommended that a policy be established to maintain an “Adopted” Basin Studies Program (including all GIS and model data) and an “Interim” Basin Studies Program. The Adopted Basin Studies Program would represent the most current, existing drainage conditions within the County. It would be updated on a regular basis (e.g., semi-annually or annually) depending on the amount and/or significance of changes that have occurred since the last major update.

The Interim Basin Studies Program would start as a copy of the Adopted versions of GIS and model information but the information would be revised to include system changes that are under consideration or review but have not yet been constructed. This version of the Basin Studies Program will be used to evaluate impacts of proposed projects or other changes on the County’s drainage system. Updates to the adopted model (when performed) would be primarily based on the interim Basin Studies Program data for projects that have been either approved and/or constructed, depending upon the County’s policy.

Model updates needed to represent the Interim Basin Studies Program could be handled in a similar manner as that used to prepare the ICPR models described previously. GIS data would be processed using the same procedures to the point where DBF files are generated (per Section 4). To reduce the amount of “manual” changes required in creating the Interim ICPR model (e.g., copying bridge data, stage-time boundary conditions, Simulation control data, etc.), a copy of the Adopted model can be used as a starting point. The Interim DBF files can then be imported directly into this copied model to update the node, link and basin data associated with projects that are under consideration. With that being said, it may be that minor changes (which may or may not have significant impacts on drainage) do not require extensive GIS modifications. These changes may be made directly to the model unless the County deems it necessary to have a spatial record of the revisions.

6.2 Review of Model Changes or Updates It is very common for model updates (or Interim-conditions), such as those described above, to involve comparison of revised simulation results to older (i.e., Adopted) results. There are two general approaches that can be used to evaluate drainage system changes. The first involves the use of advanced modeling techniques involving one or more ICPR groups and Alternative Simulations to evaluate changes in a drainage system. While this approach is perfectly acceptable, the GIS processing involved is a bit more complicated than the procedures mentioned previously. It may, however, be easily implemented should County staff decide to do so.

The second and most “direct” method is to start with a copy of one model (e.g., an “existing” conditions model) and then update the nodes, basins, or links in that copy to represent drainage system changes. Simulations for the modified condition model are added to the existing conditions simulation control pages that already exist in the copied model file (i.e., Hydrology Simulation and/or Routing Simulation control “pages”). During execution, only the newly-added “revised condition” simulations are executed. THE EXISTING CONDITIONS SIMULATIONS MUST NOT BE EXECUTED USING THE MODIFIED MODEL. Using this approach makes the simulation results for both models accessible when reports are to be generated. For example, a Node Max Comparison report or time-stage graph can be generated that includes both existing and modified condition results. This same approach was used to evaluate drainage system changes in the proposed design alternatives that have been prepared for the Basin Studies Program. Of course, any changes to data made in the Interim model and simulation results should be checked using recommended review procedures discussed in Section 5 above.

6.3 Patched Simulations and Alternative Simulations There may be times when a quick response to questions regarding drainage system changes are needed and urgency precludes full updates to the GIS and the subsequent processing that would be needed to prepare a model as described above. Other times, “back of the napkin” answers may be adequate to conceptually answer such questions. In these cases, ICPR may be used with a Patched or Alternative simulation approach. The reader is referred to the *ICPR Help system* for details regarding the use of these features. With that being said, it is important to note that such simulations are to be considered approximate for a couple of reasons.

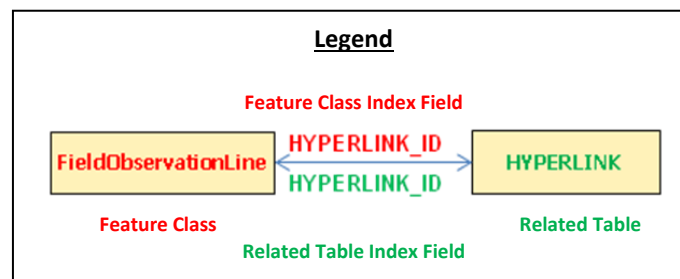
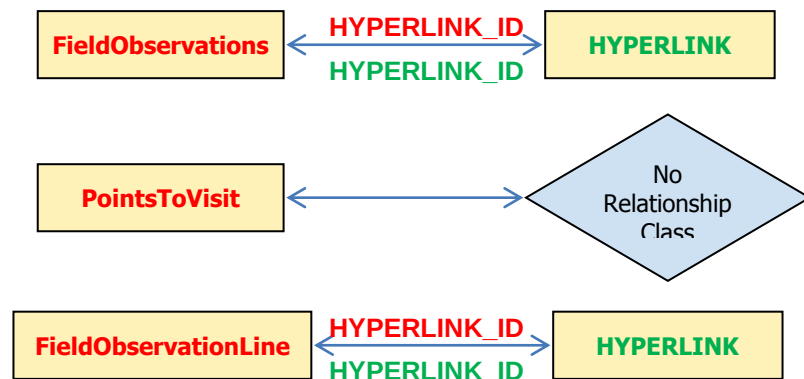
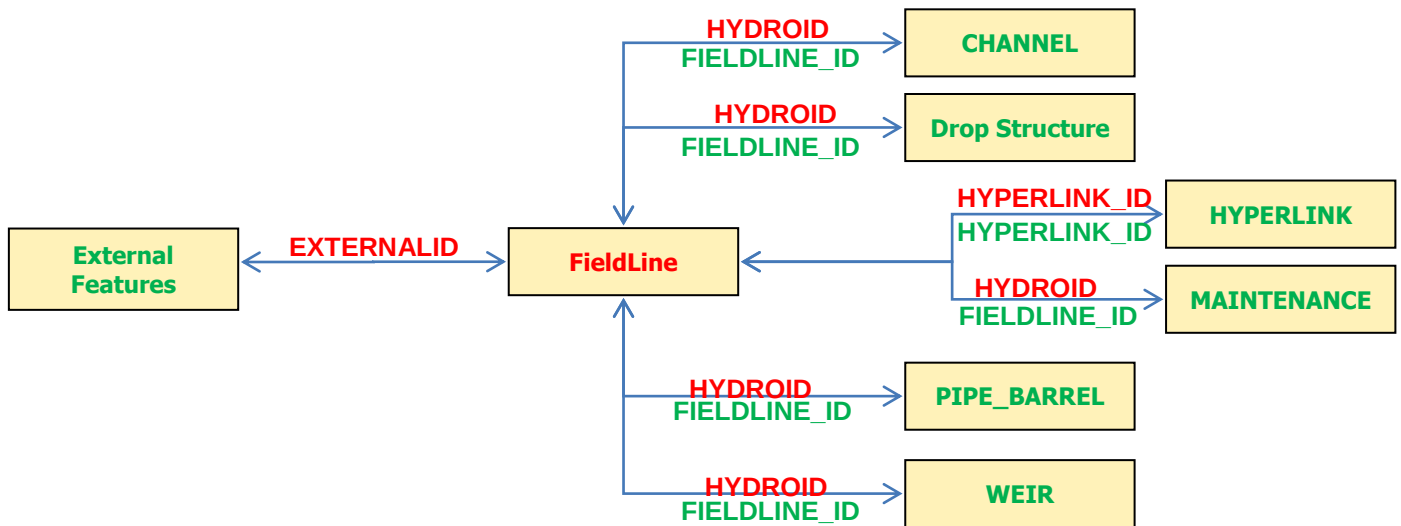
First, patched and alternative simulations rely on boundary conditions that are established at connection points to the other ICPR groups that are not included in the patched simulation. The boundary conditions at those locations are based on the last simulation that updated results for those groups which would have likely included the groups being patched in their unchanged condition. If the changes being evaluated in the patched groups are significant, this assumption may not be realistic. Secondly, it is possible that the time steps that occurred in the full simulation were driven by node locations in an “inactive” group under a patched simulation. This can also affect results of the groups being patched. For these reasons, patches and alternatives should be considered preliminary and approximate. Full simulations including all necessary groups should be executed to produce finalized model results.

Appendix E-1

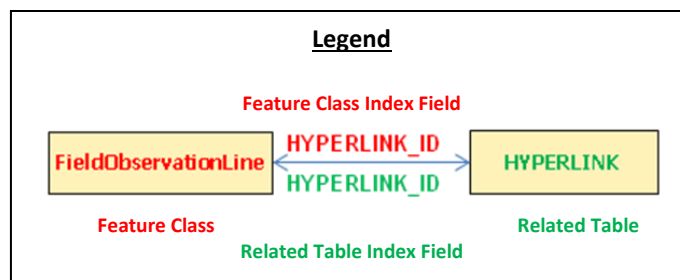
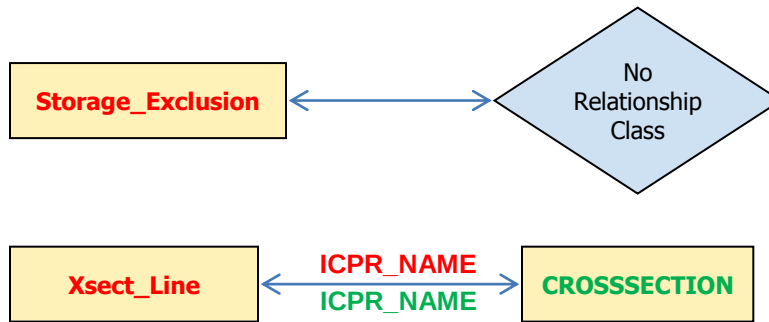
Feature Data Sets and

Related Table Information

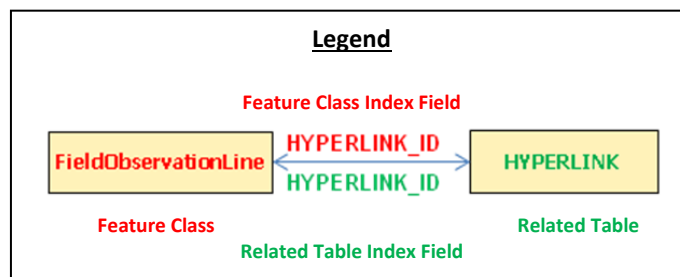
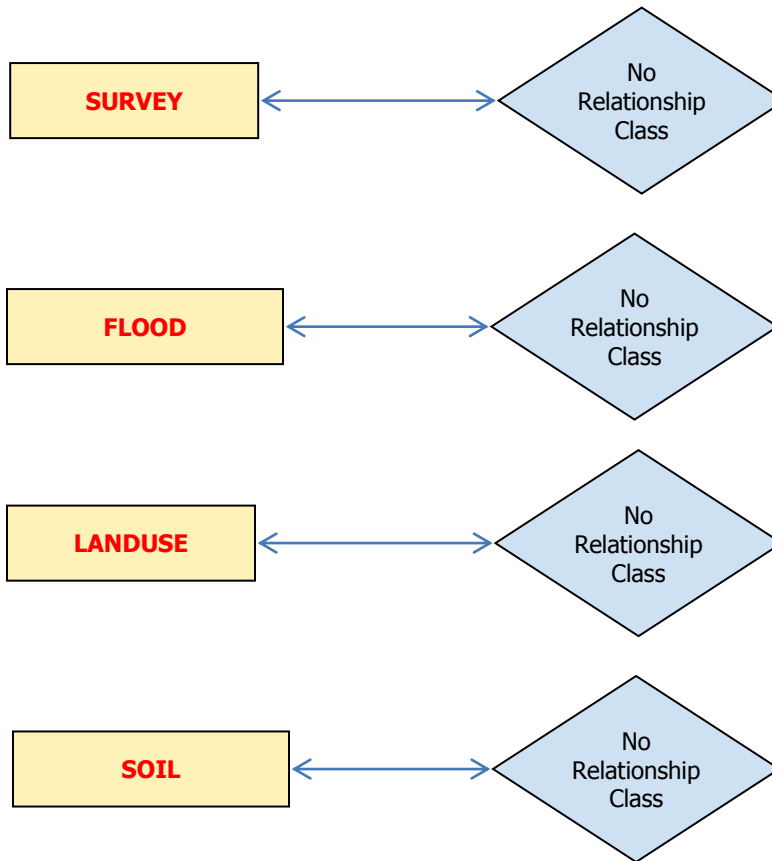
Feature Dataset: FieldRecon



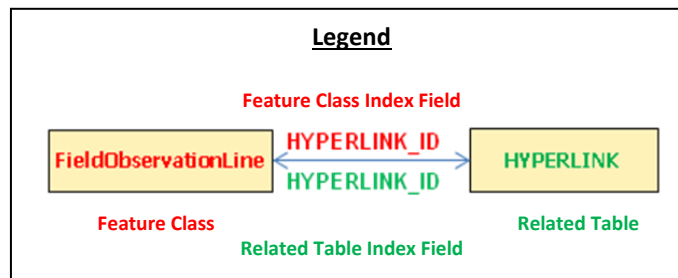
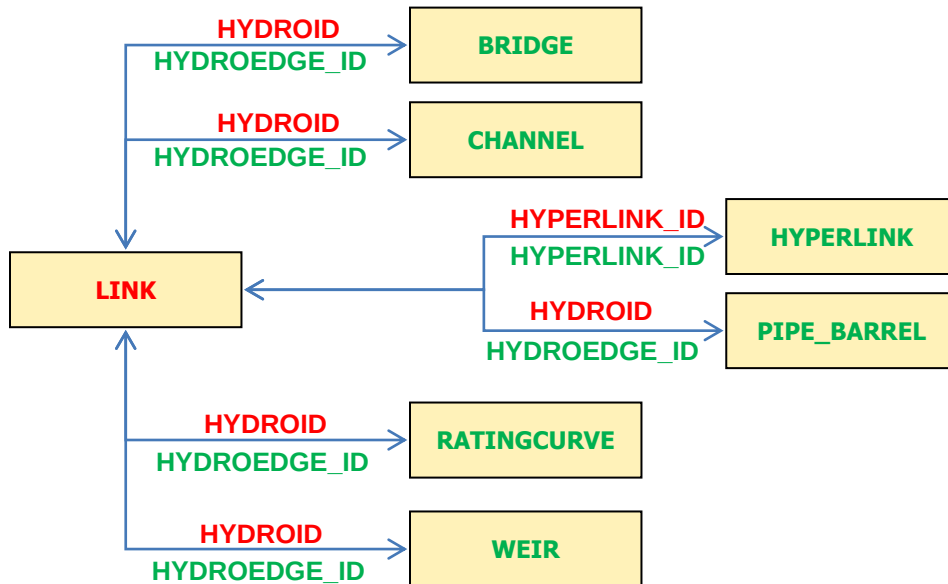
Feature Dataset: Informational



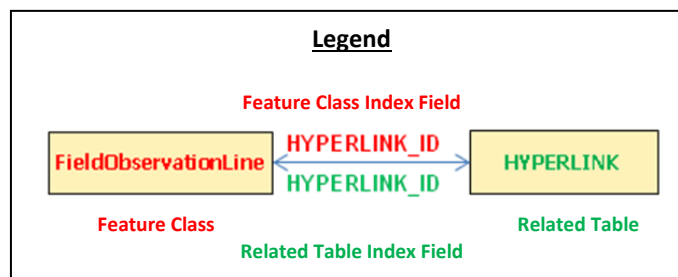
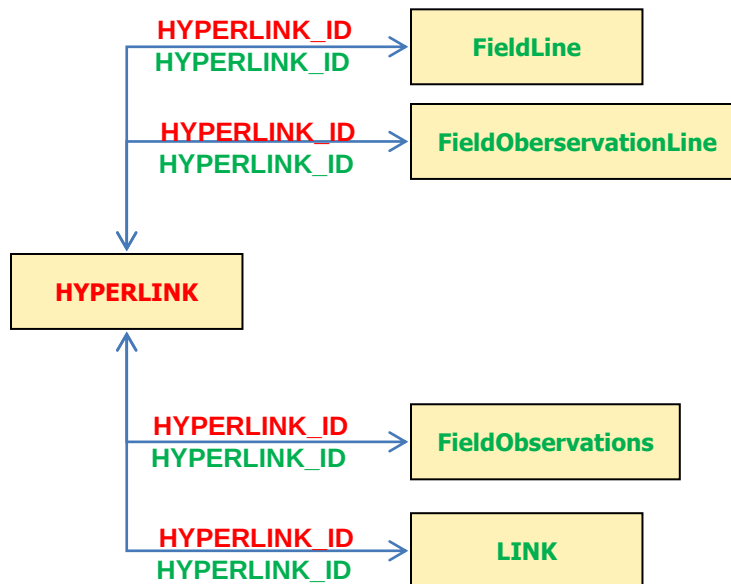
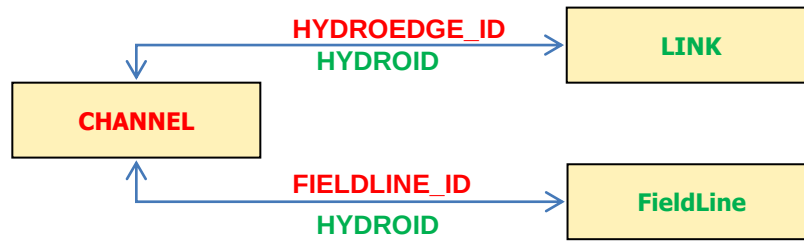
Feature Dataset: Watershed



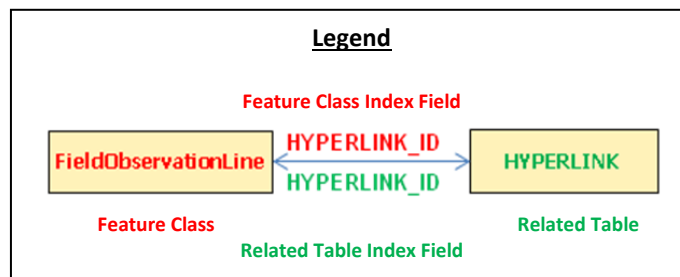
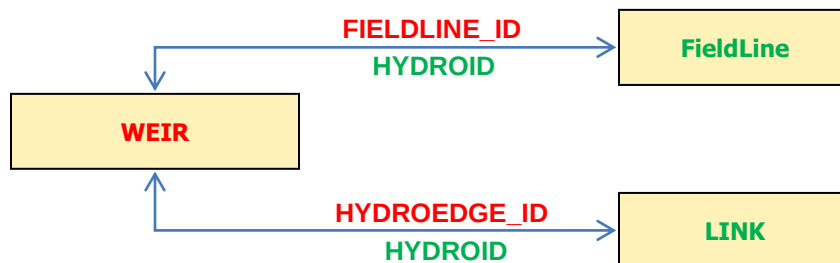
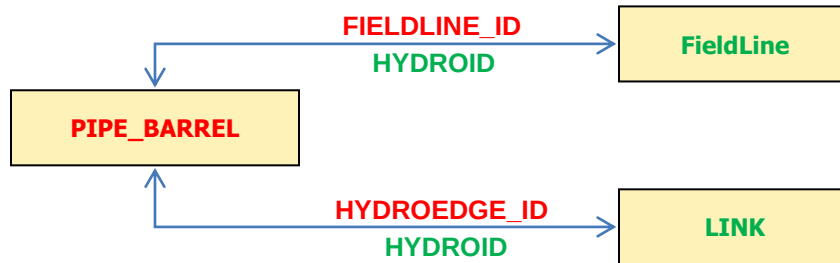
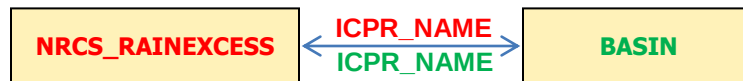
Feature Dataset: Model



Geodatabase Related Tables



Geodatabase Related Tables (cont.)



Appendix E-2
Data Dictionary –
Field Names and Descriptions (Feature Classes)

	Simple feature class						Geometry		<i>Polygon</i>
	BASIN						Contains M Values		<i>No</i>
								Contains Z Values	
Field Name		Data Type	Allow Nulls	Default Value	Domain		Precision	Scale	Length
OBJECTID		Object ID							
Shape		Geometry	Yes						
HYDROID		Long	Yes						
SUBWATERSHED_NAME		String	Yes						55
ICPR_NAME		String	Yes						15
Shape Length		Double	Yes				0	0	
Shape Area		Double	Yes				0	0	

Field Name	Description	ICPR Field
OBJECTID	ESRI Internal Feature Number	
Shape	ESRI Internally Defined Geometric Shape	
HYDROID	Unique Identifier Across the Entire Database (Assigned and Managed by ArchHydro Tools).	
SUBWATERSHED_NAME	Name of Sub Watershed (Major Tributary).	GROUP
ICPR_NAME	Name of Associated ICPR Basin	NAME
Shape Length	ESRI Internally Calculated Length (Perimeter) of the Feature in Internal Units	
Shape Area	ESRI Internally Calculated Area of the Feature in Internal Units Squared	

	Simple feature class						Geometry		<i>Point</i>							
	Node						Contains M Values		<i>No</i>							
								Contains Z Values		<i>No</i>						
Field Name										Data Type	Allow Nulls	Default Value	Domain	Precision	Scale	Length
OBJECTID		Object ID														
Shape		Geometry		Yes												
HYDROID		Long		Yes						0		0				
ICPR_NAME		String		Yes										15		
SUBWATERSHED_NAME		String		Yes										55		
BASE_FLOW_TXT		String		Yes										55		
INITIAL_WATERSURFACE_MS		Double		Yes						0		0				
HYDRAULIC_TYPE_DESC		String		Yes										6		
Comments		String		Yes										255		

Field Name	Description	ICPR Field
OBJECTID	ESRI Internal Feature Number	
Shape	ESRI Internally Defined Geometric Shape	
HYDROID	Unique Identifier Across the Entire Database (Assigned and Managed by ArchHydro Tools).	
ICPR_NAME	Name of Associated ICPR Node	NAME
SUBWATERSHED_NAME	Name of Sub Watershed (Major Tributary)	GROUP
BASE_FLOW_TXT	Base Flow Rate	BASEFLOW
INITIAL_WATERSURFACE_MS	Initial Stage	INITSTG
HYDRAULIC_TYPE_DESC	Node Type (see Domain: dHYDRAULICTYPE)	TYPE
Comments	Comment Containing Useful Information (datasources, assumptions, etc.)	COMMENT1

	Simple feature class						Geometry		<i>Polyline</i>							
	Link						Contains M Values		Yes							
								Contains Z Values		No						
Field Name										Data Type	Allow Nulls	Default Value	Domain	Precision	Scale	Length
OBJECTID		Object ID														
Shape		Geometry		Yes												
Enabled		Short Integer		Yes		1		EnabledDomain		0						
HYDROID		Long		Yes						0		0				
HYDROEDGE_TYPE_DESC		String		Yes				dEDGETYPE						8		
ICPR_NAME		String		Yes										15		
ICPR_FROMNODE		String		Yes										15		
ICPR_TONODE		String		Yes								0		0		15
Shape Length		Double		Yes								0		0		

Field Name	Description	ICPR Field
OBJECTID	ESRI Internal Feature Number	
Shape	ESRI Internally Defined Geometric Shape	
HYDROID	Unique Identifier Across the Entire Database (Assigned and Managed by ArchHydro Tools).	
HYDROEDGE_TYPE_DESC	Link Type (see Domain: dEDGETYPE)	
ICPR_NAME	Name of Associated Link	
ICPR_FROMNODE	Link From Node	FROMNODE
ICPR_TONODE	Link To Node	TONODE
Shape Length	ESRI Internally Calculated Length (Perimeter) of the Feature in Internal Units	

	Simple feature class						Geometry		<i>Polyline</i>
	Xsect_Line						Contains M Values		<i>Yes</i>
							Contains Z Values		<i>No</i>
Field Name									
Field Name		Data Type	Allow Nulls	Default Value	Domain	Precision	Scale	Length	
OBJECTID		Object ID							
Shape		Geometry	Yes						
HYDROID		Long	Yes			0			
TYPE_DESC		String	Yes		dEDGETYPE	0	0	25	
ICPR_NAME		String	Yes					255	
DSOURCE		String	Yes					255	
Shape Length		Double	Yes			0	0		

Field Name	Description	ICPR Field
OBJECTID	ESRI Internal Feature Number	
Shape	ESRI Internally Defined Geometric Shape	
HYDROID	Unique Identifier Across the Entire Database (Assigned and Managed by ArchHydro Tools).	
TYPE_DESC	Xsec Type (Used for Sybology Purposes)	
ICPR_NAME	Name of Associated ICPR Cross Section	NAME
DSOURCE	Comment Containing Useful Information (datasources, assumptions, etc.)	COMMENT1
Shape Length	ESRI Internally Calculated Length (Perimeter) of the Feature in Internal Units	

Appendix E-3
Data Dictionary –
Field Names and Descriptions (Related Tables)

	Table							
	NRCS_RAINEXCESS							
Field Name		Data Type	Allow Nulls	Default Value	Domain	Precision	Scale	Length
OBJECTID		Object ID						
UNIT_HYDROGRAPH_DESC		String	Yes					10
SHAPE_FACTOR_VAL		Double	Yes			0	0	
CATCHMENT_ACRES_MS		Double	Yes			0	0	
WEIGHT_CURVENUMBER_VAL		Double	Yes			0	0	
DIRCON_IMPERV_PCT		Double	Yes			0	0	
TIME_CONCENTRATION_MS		Double	Yes			0	0	
MAX_FLOW_VAL		Double	Yes			0	0	
WATERSHED_LAGTIME_VAL		Double	Yes			0	0	
ICPR_NAME		String	Yes					15
Comments		String	Yes					255
NODENAME		String	Yes					255

Field Name	Description	ICPR Field
OBJECTID	ESRI Internal Feature Number	
UNIT_HYDROGRAPH_DESC	Dimensionless Unit Hydrograph	UNITHYD
SHAPE_FACTOR_VAL	Peaking Factor associated with the Unit Hydrograph	PEAKFACT
CATCHMENT_ACRES_MS	Represents the total drainage area for the basin under consideration.	AREA
WEIGHT_CURVENUMBER_VAL	Curve Number	CURVENUM
DIRCON_IMPERV_PCT	Percent Directly Connected Impervious Area (percent of total basin area)	DCIA
TIME_CONCENTRATION_MS	Time of Concentration	TC
MAX_FLOW_VAL	Maximum Allowable Flow	MAXALLOWEDQ
WATERSHED_LAGTIME_VAL	Lag Time	TIMESHIFT
ICPR_NAME	Name of Associated ICPR Basin	NAME
Comments	Comment Containing Useful Information (datasources, assumptions, etc.)	COMMENT1
NODENAME	Node name associated with the Basin	NODE

Note* - Assumes SCS Unit Hydrograph Method, TimeInc = 5 minutes and Status = Onsite

	Table							
	JUNCTION_STORAGE							
Field Name		Data Type	Allow Nulls	Default Value	Domain	Precision	Scale	Length
OBJECTID		Object ID						
JUNCTIONID		Long	Yes			0	0	
ICPR_NAME		String	Yes					15
JUNCTION_STAGE_VAL		Double	Yes			0	0	
JUNCTION_ACRES_MS		Double	Yes			0	0	

Field Name	Description	ICPR Field
OBJECTID	ESRI Internal Feature Number	
JUNCTIONID	Field that Relates to NODE HYDROID	
ICPR_NAME	Name of Associated ICPR Node	NAME
JUNCTION_STAGE_VAL	Stage of Node	X
JUNCTION_ACRES_MS	Area of Node	Y

Table								
	CHANNEL							
Field Name	Data Type	Allow Nulls	Default Value	Domain	Precision	Scale	Length	
OBJECTID	Object ID							
HYDROID	Long Integer	Yes			0			
HYDROEDGE_ID	Long Integer	Yes			0			
CHANNEL_LENGTH_MS	Double	Yes			0	0		
CHANNEL_COUNT_CNT	Long Integer	Yes			0			
UPSTREAM_SHAPE_DESC	String	Yes		dCSHAPE	0			
DOWNSTREAM_SHAPE_DESC	String	Yes		dCSHAPE	0			
UPSTREAM_INVERT_ELEVATION_MS	Double	Yes			0	0		
DOWNSTREAM_INVERT_ELEVATION_MS	Double	Yes			0	0		
UPSTREAM_TOPCLIP_REFELEV_MS	Double	Yes			0	0		
DOWNSTREAM_TOPCLIP_REFELEV_MS	Double	Yes			0	0		
UPSTREAM_MANNINGSN_VAL	Double	Yes			0	0		
DOWNSTREAM_MANNINGSN_VAL	Double	Yes			0	0		
UPSTREAM_TOPCLIP_MS	Double	Yes			0	0		
DOWNSTREAM_TOPCLIP_MS	Double	Yes			0	0		
UPSTREAM_BOTTOMCLIP_MS	Double	Yes			0	0		
DOWNSTREAM_BOTTOMCLIP_MS	Double	Yes			0	0		
UPSTREAM_TOPWIDTH_MS	Double	Yes			0	0		
UPSTREAM_LEFTSIDE_SLOPE_MS	Double	Yes			0	0		
UPSTREAM_RIGHTSIDE_SLOPE_MS	Double	Yes			0	0		
UPSTREAM_BOTTOM_WIDTH_MS	Double	Yes			0	0		
DOWNSTREAM_TOP_WIDTH_MS	Double	Yes			0	0		
DOWNSTREAM_LEFTSIDE_SLOPE_MS	Double	Yes			0	0		
DOWNSTREAM_RIGHTSIDE_SLOPE_MS	Double	Yes			0	0		
DOWNSTREAM_BOTTOM_WIDTH_MS	Double	Yes			0	0		
FRICTION_EQ_DESC	Long Integer	Yes			0			
SOLUTION_ALGORITHM_DESC	Long Integer	Yes			0			
FLOW_DIRECTION_DESC	String	Yes		dCOMFLOWDIRECTIONS			5	
CONTRACTION_COEF_VAL	Double	Yes			0	0		
EXPANSION_COEF_VAL	Double	Yes			0	0		
ENTRANCE_LOSS_VAL	Double	Yes			0	0		
EXIT_LOSS_VAL	Double	Yes			0	0		
OUTLET_CONTROL_DESC	Short Integer	Yes			0			
INLET_CONTROL_DESC	Short Integer	Yes			0			
STABILIZER_DESC	Short Integer	Yes			0			
COMMENTS	String	Yes					255	
ICPR_NAME	String	Yes					15	
ICPR_GROUP	String	Yes					20	
ICPR_USMAINXSEC	String	Yes					15	
ICPR_DSMAINXSEC	String	Yes					15	
ICPR_USAUXSEC1	String	Yes					15	
ICPR_USAUXSEC2	String	Yes					15	
ICPR_DSAUXSEC1	String	Yes					15	
ICPR_DSAUXSEC2	String	Yes					15	
US_CORRESPONDING_DEPTH_MS	Double	Yes			0	0		
DS CORRESPONDING DEPTH MS	Double	Yes			0	0		

Field Name	Description	ICPR Field
OBJECTID	ESRI Internal Feature Number	
HYDROID	Unique Identifier Across the Entire Database (Assigned and Managed by ArcHydro Tools).	
HYDROEDGE_ID	Used to related Channel record to Geospatial Link (Link Feature Class)	
CHANNEL_LENGTH_MS	Length of Channel	LENGTH
CHANNEL_COUNT_CNT	Count of Channel	COUNT
UPSTREAM_SHAPE_DESC	Upstream Geometry of Cross-Section (see Domain: dCSHAPE)	USGEOM
DOWNSTREAM_SHAPE_DESC	Upstream Geometry of Cross-Section (see Domain: dCSHAPE)	DSGEOM
UPSTREAM_INVERT_ELEVATION_MS	Upstream Invert Elevation	USINVERT
DOWNSTREAM_INVERT_ELEVATION_MS	Downstream Invert Elevation	DSINVERT
UPSTREAM_TOPCLIP_REFELEV_MS	Upstream Top Clip Reference Elevation	USTCLPREF
DOWNSTREAM_TOPCLIP_REFELEV_MS	Downstream Top Clip Reference Elevation	DSTCLPREF
UPSTREAM_MANNINGSN_VAL	Upstream Manning's N	USN
DOWNSTREAM_MANNINGSN_VAL	Downstream Manning's N	DSN
UPSTREAM_TOPCLIP_MS	Upstream Top Clip Dimension	USTOPCLIP
DOWNSTREAM_TOPCLIP_MS	Downstream Top Clip Dimension	DSTOPCLIP
UPSTREAM_BOTTOMCLIP_MS	Upstream Bottom Clip Dimension	USBOTCLIP
DOWNSTREAM_BOTTOMCLIP_MS	Downstream Bottom Clip Dimension	DSBOTCLIP
UPSTREAM_TOPWIDTH_MS	Upstream Top Width	USTOPWIDTH
UPSTREAM_LEFTSIDE_SLOPE_MS	Upstream Left Side Slope (horizontal/vertical)	USLEFTSS
UPSTREAM_RIGHTSIDE_SLOPE_MS	Upstream Right Side Slope (horizontal/vertical)	USRIGHTSS
UPSTREAM_BOTTOM_WIDTH_MS	Upstream Bottom Width	USBOTWIDTH
DOWNSTREAM_TOP_WIDTH_MS	Downstream Top Width	DSTOPWIDTH
DOWNSTREAM_LEFTSIDE_SLOPE_MS	Downstream Left Side Slope (horizontal/vertical)	DSLEFTSS
DOWNSTREAM_RIGHTSIDE_SLOPE_MS	Downstream Right Side Slope (horizontal/vertical)	DSRIGHTSS
DOWNSTREAM_BOTTOM_WIDTH_MS	Downstream Bottom Width	DSBOTWIDTH
FRICITION_EQ_DESC	Friction Loss Averaging Method	EQUATION
SOLUTION_ALGORITHM_DESC	Solution Algorithm Method	SOLNALGO
FLOW_DIRECTION_DESC	Flow direction (see Domain: dCOMFLOWDIRECTIONS)	FLOW
CONTRACTION_COEF_VAL	Eddy Loss Contraction Coefficient	EDDYCONTR
EXPANSION_COEF_VAL	Eddy Loss Expansion Coefficient	EDDYEXPAN
ENTRANCE_LOSS_VAL	Entrance Loss Coefficient	ENTRLOSS
EXIT_LOSS_VAL	Exit Loss Coefficient	EXITLOSS
OUTLET_CONTROL_DESC	Outlet Control Option	OUTLETCTRL
INLET_CONTROL_DESC	Inlet Control Option	INLETCTRL
STABILIZER_DESC	Level pool and conveyance reduction option	STABOPTH
COMMENTS	Comment Containing Useful Information (datasources, assumptions, etc.)	COMMENT1
ICPR_NAME	Name of Associated ICPR Channel	NAME
ICPR_GROUP	Name of Sub Watershed (Major Tributary).	GROUP
ICPR_USMAINXSEC	Name of ICPR Main Upstream Cross Section	USMAINXSEC
ICPR_DSMAINXSEC	Name of ICPR Main Downstream Cross Section	DSMAINXSEC
ICPR_USAUXSEC1	Name of ICPR Auxiliary Upstream Cross Section #1	USAUXSEC1
ICPR_USAUXSEC2	Name of ICPR Auxiliary Upstream Cross Section #2	USAUXSEC2
ICPR_DSAUXSEC1	Name of ICPR Auxiliary Downstream Cross Section #1	DSAUXSEC1
ICPR_DSAUXSEC2	Name of ICPR Auxiliary Downstream Cross Section #2	DSAUXSEC2
US_CORRESPONDING_DEPTH_MS	Upstream Corresponding Depth	USDEPTH
DS_CORRESPONDING_DEPTH_MS	Downstream Corresponding Depth	DSDEPTH

 Table WEIR								
Field Name	Data Type	Allow Nulls	Default Value	Domain	Precision	Scale	Length	
OBJECTID	Object ID							
HYDROID	Long	Yes			0			
HYDROEDGE_ID	Long	Yes			0			
WEIR_COUNT_CNT	Long	Yes			0			
WEIR_FLOW_DESC	String	Yes		dCOMFLOWDIRECTIONS			5	
WEIR_SPAN_MS	Double	Yes			0	0		
WEIR_RISE_MS	Double	Yes			0	0		
LEFTSIDE_SLOPE_VAL	Double	Yes			0	0		
RIGHTSIDE_SLOPE_VAL	Double	Yes			0	0		
WEIR_TOPLENGTH_MS	Double	Yes			0	0		
WEIR_BOTTOM_WIDTH_MS	Double	Yes			0	0		
WEIR_ORIENTATION_DESC	String	Yes		dWEIRORIENTATION			255	
WEIR_SHAPE_DESC	String	Yes		dWEIRSHP			10	
WEIR_INVERT_ELEVATION_MS	Double	Yes			0	0		
CONTROL_ELEVATION_MS	Double	Yes			0	0		
CORRESPONDING_DEPTH_MS	Double	Yes			0	0		
WEIR_BOTTOMCLIP_MS	Double	Yes			0	0		
WEIR_TOPCLIP_MS	Double	Yes			0	0		
WEIR_DISCHARGE_COEF_VAL	Double	Yes			0	0		
ORIFICE_DISCHARGE_COEF_VAL	Double	Yes			0	0		
SUBELEMENT_INDEX_CNT	Long	Yes			0			
COMMENTS	String	Yes					255	
ICPR_NAME	String	Yes					15	
ICPR_GROUP	String	Yes					50	
SECTION_NAME	String	Yes					255	
LINKSUBTYPE	String	Yes					255	
STRUCTURE_OPENING_MS	Double	Yes			0	0		

Field Name	Description	ICPR Field
OBJECTID	ESRI Internal Feature Number	
HYDROID	Unique Identifier Across the Entire Database (Assigned and Managed by ArchHydro Tools).	
HYDROEDGE_ID	Used to related Channel record to Geospatial Link (Link Feature Class)	
WEIR_COUNT_CNT	Count of Weir	COUNT
WEIR_FLOW_DESC	Description of Flow (See Domain: dCOMFLOWDIRECTIONS)	FLOW
WEIR_SPAN_MS	Weir Span	SPAN
WEIR_RISE_MS	Weir Rise	RISE
LEFTSIDE_SLOPE_VAL	Left Side Slope (horizontal/vertical)	LEFTSS
RIGHTSIDE_SLOPE_VAL	Right Side Slope (horizontal/vertical)	RIGHTSS
WEIR_TOPLength_MS	Top Width of Weir	TOPWIDTH
WEIR_BOTTOM_WIDTH_MS	Bottom Width of Weir	BOTWIDTH
WEIR_ORIENTATION_DESC	Orientation of the Weir Opening (see Domain: dWEIRORIENTATION)	TYPE
WEIR_SHAPE_DESC	Weir Shape (see Domain: dWEIRSHP)	GEOM
WEIR_INVERT_ELEVATION_MS	Weir Invert	INVERT
CONTROL_ELEVATION_MS	Weir Control Elevation	CTRLELEV
CORRESPONDING_DEPTH_MS	Corresponding Depth	CORDEPTH
WEIR_BOTTOMCLIP_MS	Weir Bottom Clip	BOTCLIP
WEIR_TOPCLIP_MS	Weir Top Clip	TOPCLIP
WEIR_DISCHARGE_COEF_VAL	Weir Discharge Coefficient	WEIRCOEF
ORIFICE_DISCHARGE_COEF_VAL	Orifice Discharge Coefficient	ORIFCOEF
SUBELEMENT_INDEX_CNT	Sub-Element Index Count (Used When Multiple Structures Exist at a Single Location)	
COMMENTS	Comment Containing Useful Information (datasources, assumptions, etc.)	COMMENT1
ICPR_NAME	Name of Associated ICPR Weir (Or Drop Weir)	NAME
ICPR_GROUP	Name of Sub Watershed (Major Tributary).	GROUP
SECTION_NAME	Name of Related ICPR Cross Section	XSEC
LINKSUBTYPE	Link Subtype	
STRUCTURE_OPENING_MS	Distance (ft) Between the Invert of the Structure and the Top (if it has one, else use 9999)	STRUCTOPEN

Table								
PIPE_BARREL								
Field Name		Data Type	Allow Nulls	Default Value	Domain	Precision	Scale	Length
OBJECTID		Object ID						
HYDROID		Long	Yes			0		
HYDROEDGE_ID		Long	Yes			0		
PIPE_COUNT_CNT		Long	Yes			0		
PIPE_LENGTH_MS		Double	Yes			0	0	
UPSTREAM_SHAPE_DESC		String	Yes					10
DOWNSTREAM_SHAPE_DESC		String	Yes					10
UPSTREAM_RISE_MS		Double	Yes			0	0	
DOWNSTREAM_RISE_MS		Double	Yes			0	0	
UPSTREAM_SPAN_MS		Double	Yes			0	0	
DOWNSTREAM_SPAN_MS		Double	Yes			0	0	
UPSTREAM_INVERT_ELEVATION		Double	Yes			0	0	
DOWNSTREAM_INVERT_ELEVATION		Double	Yes			0	0	
MATERIAL_TYPE_DESC		String	Yes					5
UPSTREAM_MANNINGSN_VAL		Double	Yes			0	0	
DOWNSTREAM_MANNINGSN_VAL		Double	Yes			0	0	
UPSTREAM_TOPCLIP_MS		Double	Yes			0	0	
DOWNSTREAM_TOPCLIP_MS		Double	Yes			0	0	
UPSTREAM_BOTTOMCLIP_MS		Double	Yes			0	0	
DOWNSTREAM_BOTTOMCLIP_MS		Double	Yes			0	0	
UPSTREAM_INLET_DESC		String	Yes					5
DOWNSTREAM_INLET_DESC		String	Yes					5
FRICTION_EQ_DESC		Short	Yes					
SOLUTION_ALGORITHM_DESC		Short	Yes					
FLOW_DIRECTION_DESC		String	Yes					5
ENTRANCE_LOSS_VAL		Double	Yes			0	0	
EXIT_LOSS_VAL		Double	Yes			0	0	
BEND_LOSS_VAL		Double	Yes			0	0	
OUTLET_CONTROL_DESC		Double	Yes			0	0	
INLET_CONTROL_DESC		Double	Yes			0	0	
STABILIZER_DESC		Short	Yes			0		
COMMENTS		String	Yes					255
ICPR_NAME		String	Yes					15
ICPR_GROUP		String	Yes					50
LINKSUBTYPE		String	Yes					255

Field Name	Description	ICPR Field
OBJECTID	ESRI Internal Feature Number	
HYDROID	Unique Identifier Across the Entire Database (Assigned and Managed by ArchHydro Tools).	
HYDROEDGE_ID	Used to related Channel record to Geospatial Link (Link Feature Class)	
PIPE_COUNT_CNT	Pipe Count	COUNT
PIPE_LENGTH_MS	Length of Pipe/Barrel	LENGTH
UPSTREAM_SHAPE_DESC	Upstream Shape (see Domain: dPSHAPE)	USGEOM
DOWNSTREAM_SHAPE_DESC	Downstream Shape (see Domain: dPSHAPE)	DSGEOM
UPSTREAM_RISE_MS	Upstream Rise	USRISE
DOWNSTREAM_RISE_MS	Downstream Rise	DSRISE
UPSTREAM_SPAN_MS	Upstream Span	USSPAN
DOWNSTREAM_SPAN_MS	Downstream Span	DSSPAN
UPSTREAM_INVERT_ELEVATION	Upstream Invert	USINVERT
DOWNSTREAM_INVERT_ELEVATION	Downstream Invert	DSINVERT
MATERIAL_TYPE_DESC	Pipe Material Type (See Domain: dPMATERIAL)(Not Necessary for ICPR Generator)	
UPSTREAM_MANNINGSN_VAL	Upstream Manning's N	USN
DOWNSTREAM_MANNINGSN_VAL	Downstream Manning's N	DSN
UPSTREAM_TOPCLIP_MS	Upstream Top Clip	USTOPCLIP
DOWNSTREAM_TOPCLIP_MS	Downstream Top Clip	DSTOPCLIP
UPSTREAM_BOTTOMCLIP_MS	Upstream Bottom Clip	USBOTCLIP
DOWNSTREAM_BOTTOMCLIP_MS	Downstream Bottom Clip	DSBOTCLIP
UPSTREAM_INLET_DESC	Upstream Inlet (see Domain: dINLETDESC)	USFHWA
DOWNSTREAM_INLET_DESC	Downstream Inlet (see Domain: dINLETDESC)	DSFHWA
FRICTION_EQ_DESC	Friction Loss Averaging Method	EQUATION
SOLUTION_ALGORITHM_DESC	Solution Algorithm Method	SOLNALGO
FLOW_DIRECTION_DESC	Flow direction (see Domain: dCOMFLOWDIRECTIONS)	FLOW
ENTRANCE_LOSS_VAL	Entrance Loss Coefficient; Population is not Necessary (Entrance Loss is set based on USFHWA)	ENTRLOSS
EXIT_LOSS_VAL	Exit Loss Coefficient	EXITLOSS
BEND_LOSS_VAL	Bend Loss Coefficient	BENDLOSS
OUTLET_CONTROL_DESC	Outlet Control Option	OUTLETCTRL
INLET_CONTROL_DESC	Inlet Control Option	INLETCTRL
STABILIZER_DESC	Level pool and conveyance reduction option	STABOPT
COMMENTS	Comment Containing Useful Information (datasources, assumptions, etc.)	COMMENT1
ICPR_NAME	Name of Associated ICPR Pipe (Or Drop Pipe)	NAME
ICPR_GROUP	Name of Sub Watershed (Major Tributary).	GROUP
LINKSUBTYPE	Link Subtype	

	Table							
	CROSSECTION							
Field Name		Data Type	Allow Nulls	Default Value	Domain	Precision	Scale	Length
OBJECTID		Object ID						
HYDROID		Long	Yes			0		
HYDROEDGE_ID		Long	Yes			0		15
CROSSECTION_STATION_NBR		Double	Yes			0	0	
CROSSECTION_ELEVATION_MS		Double	Yes			0	0	
MANNINGSN_VAL		Double	Yes			0	0	
ICPR_NAME		String	Yes					15
ICPR_GROUP		String	Yes					255

Field Name	Description	ICPR Field
OBJECTID	ESRI Internal Feature Number	
HYDROID	Unique Identifier Across the Entire Database (Assigned and Managed by ArchHydro Tools).	
HYDROEDGE_ID	Used to related Channel record to Geospatial Link (Link Feature Class)	
CROSSECTION_STATION_NBR	Cross Section Stationing	X
CROSSECTION_ELEVATION_MS	Cross Section Elevation	Y
MANNINGSN_VAL	Cross Section Manning's N	N
ICPR_NAME	Name of Associated ICPR Cross Section	NAME
ICPR_GROUP	Name of Sub Watershed (Major Tributary).	GROUP

Appendix E-4
Data Dictionary –
Domains

Coded Value Domain

dHYDRAULICTYPE

Description

Field type *STRING*

Split policy *Default Value*

Merge policy *Default Value*

Code	Description
0	Stage / Area
1	Time / Stage
2	Manhole, Flat Floor
3	Manhole, 1/2 Diameter Grooved
4	Manhole, 1 Diameter Grooved
5	Manhole, 1 Diameter Grooved w/ Top

Coded Value Domain

dEDGETYPE

Description

Field type *STRING*

Split policy *Default Value*

Merge policy *Default Value*

Code	Description
1	PUMP\OTHER
2	WEIR
3	CULVERT
4	CHANNEL
5	DROP STRUCTURE
7	BRIDGE

Coded Value Domain

dCSHAPE

Description

Field type *STRING*

Split policy *Default Value*

Merge policy *Default Value*

Code	Description
0	TRAPEZOIDAL
1	PARABOLIC
2	IRREGULAR

Coded Value Domain

dCOMFLOWDIRECTIONS

Description

Field type *STRING*

Split policy *Default Value*

Merge policy *Default Value*

Code	Description
0	Both
1	Positive
2	None

Coded Value Domain

dWEIRORIENTATION

Description

Field type *STRING*

Split policy *Default Value*

Merge policy *Default Value*

Code	Description
0	HORIZONTAL
1	VERTICAL: Mavis
2	VERTICAL: Fread
3	VERTICAL: Paved
4	VERTICAL: Gravel

Coded Value Domain

dWEIRSHp

Description

Field type *STRING*

Split policy *Default Value*

Merge policy *Default Value*

Code	Description
0	CIRCULAR
1	HORIZONTAL ELLIPSE
2	VERTICAL ELLIPSE
3	ARCH
4	RECTANGULAR
5	TRAPEZOIDAL
6	PARABOLIC
7	IRREGULAR

Coded Value Domain

dPMATERIAL

Description

Field type	<i>STRING</i>
Split policy	<i>Default Value</i>
Merge policy	<i>Default Value</i>

Code	Description
CMP	CORRUGATED METAL
RCP	CONCRETE
ABS	ABS
PVC	PVC
STL	STEEL
SRP	SPIRAL RIB
DIP	DUCTILE IRON
HDPE	HDPE SMOOTH BORE
HDPER	HDPE RIBBED

Coded Value Domain

dINLETDESC

Description

Field type	<i>STRING</i>
Split policy	<i>Default Value</i>
Merge policy	<i>Default Value</i>

Code	Description
0	Circular Concrete Square edge w/ headwall
1	Circular Concrete Groove end w/ headwall
2	Circular Concrete Groove end projecting
3	Circular CMP Headwall
4	Circular CMP Mitered to slope
5	Circular CMP Projecting
6	Circular Beveled ring, 45 degrees bevels
7	Circular Beveled ring, 33.7 degrees bevels
8	Rectangular Box 30 to 75 degrees wingwall flares
9	Rectangular Box 90 to 15 degrees wingwall flares
10	Rectangular Box 0 degrees wingwall flares
11	Rectangular Box: 45 degree wingwall flare d=.043D
12	Rectangular Box: 18 degree to 33.7 degree wingwall flare d= .083D
13	Rectangular Box 90 degree headwall w/ 3/4" chamfers
14	Rectangular Box 90 degree headwall w/ 45 degree bevels
15	Rectangular Box 90 degree headwall w/ 33.7 degree bevels
16	Rectangular Box: 3/4" chamfers; 45 degree skewed headwall
17	Rectangular Box: 3/4" chamfers; 30 degree skewed headwall
18	Rectangular Box: 3/4" chamfers; 15 degree skewed headwall
19	Rectangular Box: 45 degree bevels; 10 degree to 45 degree skewed headwall
20	Rectangular Box: 45 degree non-offset wingwall flares

21	Rectangular Box: 18.4 degree non-offset wingwall flares
22	Rectangular Box: 18.4 degree wingwalls w/ 30 degree skewed barrel
23	Rectangular Box: 45 degree wingwall flares - offset
24	Top Bevels: 33.7 degree wingwall flares - offset
25	Rectangular Box: 18.4 degree wingwall flares - offset
26	CM Box: 90 degree headwall
27	CM Box: Thick wall projecting
28	CM Box: Thin wall projecting
29	Horizontal Ellipse Concrete Square edge with headwall
30	Horizontal Ellipse Concrete Groove end with headwall
31	Horizontal Ellipse Concrete: Groove end projecting
32	Vertical Ellipse Concrete: Square edge w/ headwall
33	Vertical Ellipse Concrete: Groove end w/ headwall
34	Vertical Ellipse Concrete: Groove end projecting
35	Pipe Arch 18" Corner Radius CM: 90 degrees headwall
36	Pipe Arch 18" Corner Radius CM: Mitered to slope
37	Pipe Arch 18" Corner Radius CM: Projecting
39	Pipe Arch 18" Corner Radius CM: No bevels
40	Pipe Arch 18" Corner Radius CM: 33.7 degree Bevels
41	Pipe Arch 31" Corner Radius CM: Projecting
42	Pipe Arch 31" Corner Radius CM: No bevels
43	Pipe Arch 31" Corner Radius CM: 33.7 degree Bevels
44	Arch CM: 90 degree headwall
45	Arch CM: Mitered to slope
46	Arch CM: Thin wall projecting
47	Circular: Smooth tapered inlet throat
48	Circular: Rough tapered inlet throat Circular: Rough tapered inlet throat
49	Elliptical Inlet Face: Tapered inlet-beveled edges
50	Elliptical Inlet Face: Tapered inlet-square edges
51	Elliptical Inlet Face: Tapered inlet-thin edge projecting
52	Rectangular: Tapered inlet throat
53	Rectangular Concrete: Side tapered-less favorable edges
54	Rectangular Concrete: Side tapered-more favorable edges
55	Rectangular Concrete: Slope tapered-less favorable edges
56	Rectangular Concrete: Slope tapered-more favorable edges

Appendix F

Submittal Examples

CN Calcs

Field Verification

Flood Profiles

Floodplain Check

Geodatabases

Lookup Tables

QC Spreadsheets

RefDocs

Standard Report Tables

Tc Calcs

Submittal Examples

CN Calcs

Basin ID	Sub Area (sq. ft)	Sub Area (ac.)	Total Basin Area (ac.)	Landuse	Hydro Group	Curve Number	Weighted Curve Number
15	21.28	0.00	192.72	6000	D	98	0.0
15	803795.89	18.45	192.72	6000	D	98	9.4
15	3306970.17	75.92	192.72	6000	D	98	38.6
15	106686.63	2.45	192.72	6000	D	98	1.2
15	218774.06	5.02	192.72	6000	D	98	2.6
15	7524.45	0.17	192.72	6000	D	98	0.1
15	2178.53	0.05	192.72	6000	D	98	0.0
15	341154.60	7.83	192.72	1900	D	95	3.9
15	7733.11	0.18	192.72	1900	D	95	0.1
15	9503.99	0.22	192.72	1900	D	95	0.1
15	793.88	0.02	192.72	1900	D	95	0.0
15	170801.38	3.92	192.72	8100	D	93	1.9
15	83947.24	1.93	192.72	1300	D	92	0.9
15	23716.98	0.54	192.72	1300	D	92	0.3
15	627.44	0.01	192.72	1300	D	92	0.0
15	93387.53	2.14	192.72	2100	D	84	0.9
15	97088.40	2.23	192.72	2100	D	84	1.0
15	6841.86	0.16	192.72	2100	D	84	0.1
15	49260.46	1.13	192.72	2100	D	84	0.5
15	1503.16	0.03	192.72	2100	D	84	0.0
15	2740996.39	62.92	192.72	2100	D	84	27.4
15	62044.72	1.42	192.72	1820	D	80	0.6
15	92944.52	2.13	192.72	1820	D	80	0.9
15	152932.09	3.51	192.72	4340	D	79	1.4
15	13746.61	0.32	192.72	4340	D	79	0.1
15 Total							92.0
1000	8339.78	0.19	18.08	6000	D	98	1.0
1000	267749.71	6.15	18.08	6000	D	98	33.3
1000	283305.99	6.50	18.08	3200	D	84	30.2
1000	228304.53	5.24	18.08	3200	D	84	24.3
1000 Total							88.9
1010	693.49	0.02	14.94	5300	D	98	0.1
1010	4047.11	0.09	14.94	5300	D	98	0.6
1010	164213.70	3.77	14.94	5300	D	98	24.7
1010	2589.04	0.06	14.94	6000	D	98	0.4
1010	11661.83	0.27	14.94	8100	D	93	1.7
1010	28145.27	0.65	14.94	8100	D	93	4.0
1010	7537.48	0.17	14.94	8100	D	93	1.1
1010	127964.23	2.94	14.94	8100	D	93	18.3
1010	23979.07	0.55	14.94	3200	D	84	3.1
1010	273270.03	6.27	14.94	3200	D	84	35.3
1010	6525.21	0.15	14.94	3200	D	84	0.8
1010 Total							90.1
1020	181794.82	4.17	27.08	6000	D	98	15.1
1020	127104.75	2.92	27.08	6000	D	98	10.6
1020	60480.44	1.39	27.08	6000	D	98	5.0
1020	272.53	0.01	27.08	8100	D	93	0.0
1020	4459.96	0.10	27.08	1300	D	92	0.3
1020	135213.35	3.10	27.08	1200	D	87	10.0
1020	610218.19	14.01	27.08	3200	D	84	43.5
1020	17951.98	0.41	27.08	3200	D	84	1.3
1020	41050.44	0.94	27.08	3200	D	84	2.9
1020	1003.54	0.02	27.08	1800	D	80	0.1
1020 Total							88.8
1030	103503.61	2.38	44.65	6000	D	98	5.2
1030	218097.96	5.01	44.65	6000	D	98	11.0
1030	11.85	0.00	44.65	5300	D	98	0.0
1030	510.10	0.01	44.65	1200	D	87	0.0
1030	345871.89	7.94	44.65	3200	D	84	14.9
1030	1276779.59	29.31	44.65	3200	D	84	55.1
1030 Total							86.3
1040	523106.65	12.01	242.15	6000	D	98	4.9
1040	686231.14	15.75	242.15	6000	D	98	6.4
1040	7302401.97	167.64	242.15	6000	D	98	67.8
1040	556.48	0.01	242.15	5300	D	98	0.0
1040	0.34	0.00	242.15	5300	D	98	0.0
1040	27808.78	0.64	242.15	1200	D	87	0.2
1040	1143765.29	26.26	242.15	3200	D	84	9.1
1040	864172.98	19.84	242.15	3200	D	84	6.9
1040 Total							95.3
1050	224988.17	5.17	25.76	6000	D	98	19.7
1050	674034.95	15.47	25.76	6000	D	98	58.9
1050	4816.91	0.11	25.76	1300	D	92	0.4
1050	69039.26	1.58	25.76	1200	D	87	5.4
1050	106514.24	2.45	25.76	3200	D	84	8.0
1050	42506.46	0.98	25.76	3200	D	84	3.2
1050 Total							95.4
1060	403772.26	9.27	161.32	6000	D	98	5.6

Basin ID	Sub Area (sq. ft)	Sub Area (ac.)	Total Basin Area (ac.)	Landuse	Hydro Group	Curve Number	Weighted Curve Number
1060	2789.79	0.06	161.32	6000	D	98	0.0
1060	4238811.34	97.31	161.32	6000	D	98	59.1
1060	129460.10	2.97	161.32	1300	D	92	1.7
1060	55406.48	1.27	161.32	3200	D	84	0.7
1060	1116225.34	25.63	161.32	3200	D	84	13.3
1060	20547.97	0.47	161.32	4340	D	79	0.2
1060	1059936.73	24.33	161.32	4340	D	79	11.9
1060 Total							92.6
1070	1.76	0.00	30.08	6000	D	98	0.0
1070	1308276.95	30.03	30.08	3200	D	84	83.9
1070	1946.29	0.04	30.08	3200	D	84	0.1
1070 Total							84.0
1080	93946.48	2.16	104.45	6000	D	98	2.0
1080	104686.17	2.40	104.45	6000	D	98	2.3
1080	41199.39	0.95	104.45	6000	D	98	0.9
1080	317838.63	7.30	104.45	6000	D	98	6.8
1080	101773.94	2.34	104.45	1700	D	95	2.1
1080	18574.40	0.43	104.45	1300	D	92	0.4
1080	473.26	0.01	104.45	1300	D	92	0.0
1080	3645438.41	83.69	104.45	3200	D	84	67.3
1080	4515.52	0.10	104.45	3200	D	84	0.1
1080	191549.66	4.40	104.45	3200	D	84	3.5
1080	29629.15	0.68	104.45	3200	D	84	0.5
1080 Total							86.0
1090	388852.31	8.93	874.90	6000	D	98	1.0
1090	1385799.94	31.81	874.90	6000	D	98	3.6
1090	11762044.87	270.02	874.90	6000	D	98	30.2
1090	6577.72	0.15	874.90	6000	D	98	0.0
1090	54423.43	1.25	874.90	5300	A	98	0.1
1090	804539.27	18.47	874.90	5300	C	98	2.1
1090	68244.04	1.57	874.90	3200	D	84	0.2
1090	1435004.23	32.94	874.90	3200	D	84	3.2
1090	7307409.63	167.76	874.90	3200	D	84	16.1
1090	1999.40	0.05	874.90	3200	D	84	0.0
1090	466960.71	10.72	874.90	3200	D	84	1.0
1090	807615.59	18.54	874.90	3200	D	84	1.8
1090	2578917.19	59.20	874.90	3200	C	79	5.3
1090	224958.62	5.16	874.90	3200	C	79	0.5
1090	4372.25	0.10	874.90	3200	C	79	0.0
1090	4641221.17	106.55	874.90	4340	D	79	9.6
1090	5290182.64	121.45	874.90	4340	D	79	11.0
1090	58122.30	1.33	874.90	4340	D	79	0.1
1090	82574.55	1.90	874.90	4340	D	79	0.2
1090	480355.34	11.03	874.90	4340	D	79	1.0
1090	258867.56	5.94	874.90	4340	C	73	0.5
1090	1751.70	0.04	874.90	3200	A	49	0.0
1090 Total							87.5
1100	21149.48	0.49	6.09	5300	D	98	7.8
1100	92188.71	2.12	6.09	8100	D	93	32.3
1100	151936.81	3.49	6.09	3200	D	84	48.1
1100 Total							88.2
1110	1707443.16	39.20	74.03	5300	A	98	51.9
1110	1517331.84	34.83	74.03	5300	C	98	46.1
1110 Total							98.0
2000	689429.43	15.83	160.67	6000	D	98	9.7
2000	1348378.47	30.95	160.67	6000	D	98	18.9
2000	2820582.36	64.75	160.67	6000	D	98	39.5
2000	426207.55	9.78	160.67	4340	D	79	4.8
2000	1714377.19	39.36	160.67	4340	D	79	19.4
2000 Total							92.2
2010	336903.22	7.73	45.01	6000	D	98	16.8
2010	748894.50	17.19	45.01	6000	D	98	37.4
2010	260972.05	5.99	45.01	4340	D	79	10.5
2010	593648.04	13.63	45.01	4340	D	79	23.9
2010	20182.18	0.46	45.01	4340	D	79	0.8
2010 Total							89.5
2020	224954.99	5.16	72.76	6000	D	98	7.0
2020	75106.59	1.72	72.76	6000	D	98	2.3
2020	1381.89	0.03	72.76	6000	D	98	0.0
2020	2524115.82	57.95	72.76	6000	D	98	78.0
2020	62699.08	1.44	72.76	2100	D	84	1.7
2020	25306.17	0.58	72.76	4340	D	79	0.6
2020	256010.45	5.88	72.76	4340	D	79	6.4
2020 Total							96.0
2030	605571.52	13.90	101.81	6000	D	98	13.4
2030	160515.67	3.68	101.81	6000	D	98	3.5
2030	58800.55	1.35	101.81	6000	D	98	1.3
2030	1855761.29	42.60	101.81	6000	D	98	41.0

Basin ID	Sub Area (sq. ft)	Sub Area (ac.)	Total Basin Area (ac.)	Landuse	Hydro Group	Curve Number	Weighted Curve Number
2030	3982.62	0.09	101.81	2100	D	84	0.1
2030	746546.45	17.14	101.81	2100	D	84	14.1
2030	918494.98	21.09	101.81	4340	D	79	16.4
2030	39720.74	0.91	101.81	4340	D	79	0.7
2030	45631.18	1.05	101.81	4340	D	79	0.8
2030 Total							91.3
2040	182406.11	4.19	100.02	6000	D	98	4.1
2040	103621.19	2.38	100.02	6000	D	98	2.3
2040	1915962.56	43.98	100.02	6000	D	98	43.1
2040	1480428.71	33.99	100.02	4340	D	79	26.8
2040	574.54	0.01	100.02	4340	D	79	0.0
2040	36393.74	0.84	100.02	4340	D	79	0.7
2040	637663.15	14.64	100.02	4340	D	79	11.6
2040 Total							88.6
2050	248153.99	5.70	109.53	6000	D	98	5.1
2050	2173623.32	49.90	109.53	6000	D	98	44.6
2050	4196.60	0.10	109.53	8100	D	93	0.1
2050	3227.70	0.07	109.53	8100	D	93	0.1
2050	450191.95	10.33	109.53	1800	D	80	7.5
2050	42318.99	0.97	109.53	4340	D	79	0.7
2050	42681.74	0.98	109.53	4340	D	79	0.7
2050	12477.65	0.29	109.53	4340	D	79	0.2
2050	225277.36	5.17	109.53	4340	D	79	3.7
2050	1569100.64	36.02	109.53	4340	D	79	26.0
2050 Total							88.8
2060	8837.65	0.20	3.81	5300	D	98	5.2
2060	24758.91	0.57	3.81	1300	D	92	13.7
2060	132503.43	3.04	3.81	4340	D	79	63.0
2060 Total							81.9
2070	26948.34	0.62	36.76	6000	D	98	1.6
2070	116476.36	2.67	36.76	6000	D	98	7.1
2070	464802.89	10.67	36.76	6000	D	98	28.4
2070	273.23	0.01	36.76	4340	D	79	0.0
2070	992924.18	22.79	36.76	4340	D	79	49.0
2070 Total							86.2
2080	430016.81	9.87	72.91	6000	D	98	13.3
2080	345980.03	7.94	72.91	6000	D	98	10.7
2080	6531.05	0.15	72.91	6000	D	98	0.2
2080	53214.35	1.22	72.91	6000	D	98	1.6
2080	5596.47	0.13	72.91	4340	D	79	0.1
2080	233849.79	5.37	72.91	4340	D	79	5.8
2080	2100861.49	48.23	72.91	4340	D	79	52.3
2080 Total							84.0
2090	1570201.79	36.05	520.23	6000	D	98	6.8
2090	5820027.28	133.61	520.23	6000	D	98	25.2
2090	1163652.25	26.71	520.23	5300	A	98	5.0
2090	90291.71	2.07	520.23	5300	D	98	0.4
2090	632737.34	14.53	520.23	5300	C	98	2.7
2090	290186.85	6.66	520.23	6000	D	98	1.3
2090	714249.50	16.40	520.23	6000	D	98	3.1
2090	27904.13	0.64	520.23	1900	D	95	0.1
2090	203194.45	4.66	520.23	1300	D	92	0.8
2090	493.08	0.01	520.23	4340	D	79	0.0
2090	3708680.81	85.14	520.23	4340	D	79	12.9
2090	2632.39	0.06	520.23	4340	D	79	0.0
2090	7916135.90	181.73	520.23	4340	D	79	27.6
2090	443127.91	10.17	520.23	4340	C	73	1.4
2090	77759.61	1.79	520.23	4340	A	36	0.1
2090 Total							87.5
2100	104587.02	2.40	180.56	5300	A	98	1.3
2100	2634.19	0.06	180.56	5300	D	98	0.0
2100	41023.10	0.94	180.56	5300	C	98	0.5
2100	3649.95	0.08	180.56	1400	D	95	0.0
2100	66989.72	1.54	180.56	1400	D	95	0.8
2100	1093151.40	25.10	180.56	2100	D	84	11.7
2100	57250.22	1.31	180.56	3200	D	84	0.6
2100	26310.47	0.60	180.56	3200	D	84	0.3
2100	53276.47	1.22	180.56	4340	D	79	0.5
2100	428321.94	9.83	180.56	4340	D	79	4.3
2100	137937.79	3.17	180.56	4340	D	79	1.4
2100	128376.41	2.95	180.56	4340	D	79	1.3
2100	65857.38	1.51	180.56	4340	D	79	0.7
2100	1799105.36	41.30	180.56	4340	D	79	18.1
2100	11024.09	0.25	180.56	2100	C	79	0.1
2100	263223.26	6.04	180.56	2100	C	79	2.6
2100	380708.69	8.74	180.56	3200	C	79	3.8
2100	2460266.19	56.48	180.56	4340	C	73	22.8
2100	18957.16	0.44	180.56	2100	A	49	0.1

Basin ID	Sub Area (sq. ft)	Sub Area (ac.)	Total Basin Area (ac.)	Landuse	Hydro Group	Curve Number	Weighted Curve Number
2100	46776.83	1.07	180.56	3200	A	49	0.3
2100	660100.96	15.15	180.56	4340	A	36	3.0
2100	15846.41	0.36	180.56	4340	A	36	0.1
2100 Total							74.4
2110	673723.72	15.47	16.59	5300	A	98	91.3
2110	628.22	0.01	16.59	5300	D	98	0.1
2110	48448.06	1.11	16.59	5300	C	98	6.6
2110 Total							98.0
3000	109566.87	2.52	238.17	6000	D	98	1.0
3000	106167.43	2.44	238.17	6000	D	98	1.0
3000	9173678.91	210.60	238.17	6000	D	98	86.7
3000	3003.60	0.07	238.17	1200	D	87	0.0
3000	696.61	0.02	238.17	1200	D	87	0.0
3000	219314.73	5.03	238.17	1200	D	87	1.8
3000	1676.76	0.04	238.17	2100	D	84	0.0
3000	144770.55	3.32	238.17	2100	D	84	1.2
3000	9239.95	0.21	238.17	1200	C	83	0.1
3000	61616.35	1.41	238.17	1820	D	80	0.5
3000	127886.77	2.94	238.17	1820	D	80	1.0
3000	129308.68	2.97	238.17	4340	D	79	1.0
3000	222387.57	5.11	238.17	4340	D	79	1.7
3000	26730.60	0.61	238.17	1820	C	74	0.2
3000	38479.63	0.88	238.17	1820	C	74	0.3
3000 Total							96.4
3010	1874.96	0.04	43.70	6000	D	98	0.1
3010	884198.88	20.30	43.70	6000	D	98	45.5
3010	218254.91	5.01	43.70	4340	D	79	9.1
3010	719235.16	16.51	43.70	4340	D	79	29.8
3010	80211.07	1.84	43.70	4340	D	79	3.3
3010 Total							87.8
3020	465624.38	10.69	30.35	6000	D	98	34.5
3020	100945.36	2.32	30.35	6000	D	98	7.5
3020	186379.17	4.28	30.35	6000	D	98	13.8
3020	7911.32	0.18	30.35	2100	D	84	0.5
3020	561239.76	12.88	30.35	2100	D	84	35.7
3020 Total							92.0
3030	780726.23	17.92	63.61	6000	D	98	27.6
3030	161479.03	3.71	63.61	6000	D	98	5.7
3030	1425576.41	32.73	63.61	6000	D	98	50.4
3030	37471.93	0.86	63.61	2100	D	84	1.1
3030	361754.17	8.30	63.61	2100	D	84	11.0
3030	3642.23	0.08	63.61	4340	D	79	0.1
3030 Total							96.0
3040	17670.97	0.41	120.15	6000	D	98	0.3
3040	4377979.01	100.50	120.15	6000	D	98	82.0
3040	22240.81	0.51	120.15	1300	D	92	0.4
3040	24252.45	0.56	120.15	2100	D	84	0.4
3040	52739.28	1.21	120.15	1820	D	80	0.8
3040	206875.73	4.75	120.15	4340	D	79	3.1
3040	531841.75	12.21	120.15	4340	D	79	8.0
3040 Total							95.0
3050	62855.64	1.44	150.56	6000	D	98	0.9
3050	3963378.47	90.99	150.56	6000	D	98	59.2
3050	8301.23	0.19	150.56	1800	-	98	0.1
3050	2525.87	0.06	150.56	8100	D	93	0.0
3050	31202.10	0.72	150.56	8100	D	93	0.4
3050	113151.20	2.60	150.56	1800	D	80	1.4
3050	1372083.35	31.50	150.56	1800	D	80	16.7
3050	1167.72	0.03	150.56	4340	D	79	0.0
3050	68515.68	1.57	150.56	4340	D	79	0.8
3050	14187.49	0.33	150.56	4340	D	79	0.2
3050	126668.19	2.91	150.56	4340	D	79	1.5
3050	218429.24	5.01	150.56	4340	D	79	2.6
3050	575833.82	13.22	150.56	4340	D	79	6.9
3050 Total							91.0
4000	51144.11	1.17	104.99	6000	D	98	1.1
4000	129669.04	2.98	104.99	6000	D	98	2.8
4000	3447817.71	79.15	104.99	6000	D	98	73.9
4000	1.30	0.00	104.99	1200	D	87	0.0
4000	348332.28	8.00	104.99	1200	D	87	6.6
4000	555773.73	12.76	104.99	1200	D	87	10.6
4000	40636.83	0.93	104.99	1200	C	83	0.7
4000 Total							95.7
4010	135187.48	3.10	55.71	6000	D	98	5.5
4010	1692196.88	38.85	55.71	6000	D	98	68.3
4010	86842.28	1.99	55.71	1200	D	87	3.1
4010	246699.67	5.66	55.71	1200	D	87	8.8
4010	216938.76	4.98	55.71	2100	D	84	7.5

Basin ID	Sub Area (sq. ft)	Sub Area (ac.)	Total Basin Area (ac.)	Landuse	Hydro Group	Curve Number	Weighted Curve Number
4010	37981.09	0.87	55.71	2100	D	84	1.3
4010	11003.85	0.25	55.71	1200	C	83	0.4
4010 Total							94.9
5000	5678.21	0.13	23.96	6000	D	98	0.5
5000	6840.35	0.16	23.96	6000	D	98	0.6
5000	1942.37	0.04	23.96	6000	D	98	0.2
5000	6868.87	0.16	23.96	6000	D	98	0.6
5000	7356.96	0.17	23.96	6000	D	98	0.7
5000	102394.07	2.35	23.96	6000	D	98	9.6
5000	5982.56	0.14	23.96	6000	D	98	0.6
5000	606294.53	13.92	23.96	6000	D	98	56.9
5000	64337.15	1.48	23.96	1200	D	87	5.4
5000	44725.43	1.03	23.96	1200	D	87	3.7
5000	190397.93	4.37	23.96	1200	D	87	15.9
5000	856.57	0.02	23.96	2100	D	84	0.1
5000 Total							94.8
6000	7967.46	0.18	38.49	1700	D	95	0.5
6000	1637400.77	37.59	38.49	1300	D	92	89.9
6000	5894.13	0.14	38.49	1300	D	92	0.3
6000	81.60	0.00	38.49	3200	D	84	0.0
6000	25139.03	0.58	38.49	1800	D	80	1.2
6000 Total							91.8
7000	510913.97	11.73	11.77	1700	D	95	94.7
7000	1778.03	0.04	11.77	1300	D	92	0.3
7000 Total							95.0
53494	71.13	0.00	18.89	5000	D	98	0.0
53494	29075.74	0.67	18.89	6000	D	98	3.5
53494	591952.06	13.59	18.89	6000	D	98	70.5
53494	50643.13	1.16	18.89	8100	D	93	5.7
53494	78194.16	1.80	18.89	3200	D	84	8.0
53494	72834.20	1.67	18.89	3200	D	84	7.4
53494 Total							95.1
54994	13045.71	0.30	16.43	6000	D	98	1.8
54994	34980.78	0.80	16.43	6000	D	98	4.8
54994	525451.10	12.06	16.43	6000	D	98	72.0
54994	22007.36	0.51	16.43	8100	D	93	2.9
54994	63292.03	1.45	16.43	8100	D	93	8.2
54994	30735.04	0.71	16.43	8100	D	93	4.0
54994	26067.54	0.60	16.43	3200	D	84	3.1
54994 Total							96.7
55544	3261.86	0.07	3.27	6000	D	98	2.2
55544	93484.75	2.15	3.27	6000	D	98	64.2
55544	45878.30	1.05	3.27	3200	D	84	27.0
55544 Total							93.5
56724	123625.55	2.84	2.88	6000	D	98	96.6
56724	1849.54	0.04	2.88	3200	D	84	1.2
56724 Total							97.8
57994	274563.08	6.30	42.72	6000	D	98	14.5
57994	50620.17	1.16	42.72	6000	D	98	2.7
57994	648658.53	14.89	42.72	6000	D	98	34.2
57994	315009.51	7.23	42.72	1700	D	95	16.1
57994	14042.95	0.32	42.72	3200	D	84	0.6
57994	436358.58	10.02	42.72	3200	D	84	19.7
57994	20016.70	0.46	42.72	2100	D	84	0.9
57994	101561.85	2.33	42.72	2100	D	84	4.6
57994 Total							93.2
58794	10379.25	0.24	13.12	6000	D	98	1.8
58794	77058.88	1.77	13.12	6000	D	98	13.2
58794	287578.47	6.60	13.12	6000	D	98	49.3
58794	29314.24	0.67	13.12	1300	D	92	4.7
58794	54885.29	1.26	13.12	2100	D	84	8.1
58794	112288.23	2.58	13.12	2100	D	84	16.5
58794 Total							93.6
59334	1385846.43	31.81	229.15	6000	D	98	13.6
59334	6444922.55	147.96	229.15	6000	D	98	63.3
59334	125449.47	2.88	229.15	6000	D	98	1.2
59334	40461.94	0.93	229.15	6000	D	98	0.4
59334	222410.96	5.11	229.15	6000	D	98	2.2
59334	111519.26	2.56	229.15	6000	D	98	1.1
59334	10646.53	0.24	229.15	1900	D	95	0.1
59334	14808.87	0.34	229.15	1300	D	92	0.1
59334	385.02	0.01	229.15	2100	D	84	0.0
59334	10059.51	0.23	229.15	2100	D	84	0.1
59334	6771.41	0.16	229.15	2100	D	84	0.1
59334	1608413.70	36.92	229.15	2100	D	84	13.5
59334 Total							95.7
15-41	149529.96	3.43	9.61	6000	D	98	35.0
15-41	78198.34	1.80	9.61	6000	D	98	18.3

Basin ID	Sub Area (sq. ft)	Sub Area (ac.)	Total Basin Area (ac.)	Landuse	Hydro Group	Curve Number	Weighted Curve Number
15-41	68683.31	1.58	9.61	2100	D	84	13.8
15-41	122171.82	2.80	9.61	2100	D	84	24.5
15-41 Total							91.6
15-42	100971.42	2.32	26.95	6000	D	98	8.4
15-42	819.51	0.02	26.95	6000	D	98	0.1
15-42	16400.69	0.38	26.95	6000	D	98	1.4
15-42	24736.45	0.57	26.95	6000	D	98	2.1
15-42	1216.48	0.03	26.95	6000	D	98	0.1
15-42	29300.18	0.67	26.95	5000	D	98	2.4
15-42	6902.69	0.16	26.95	6000	D	98	0.6
15-42	112693.99	2.59	26.95	6000	D	98	9.4
15-42	369310.62	8.48	26.95	6000	D	98	30.8
15-42	102432.28	2.35	26.95	1200	D	87	7.6
15-42	14652.98	0.34	26.95	1200	D	87	1.1
15-42	32959.71	0.76	26.95	1200	D	87	2.4
15-42	11395.37	0.26	26.95	2100	D	84	0.8
15-42	150919.19	3.46	26.95	2100	D	84	10.8
15-42	152808.99	3.51	26.95	1820	D	80	10.4
15-42	1418.52	0.03	26.95	1820	D	80	0.1
15-42	489.31	0.01	26.95	1820	D	80	0.0
15-42	13453.70	0.31	26.95	4340	D	79	0.9
15-42	31109.12	0.71	26.95	4340	D	79	2.1
15-42 Total							91.6
LAKE001	35126.74	0.81	1.07	1300	D	92	69.4
LAKE001	11448.26	0.26	1.07	3200	D	84	20.6
LAKE001 Total							90.0
LAKE002	177395.97	4.07	39.23	5300	D	98	10.2
LAKE002	1476215.65	33.89	39.23	1300	D	92	79.5
LAKE002	55163.38	1.27	39.23	1200	D	87	2.8
LAKE002 Total							92.5
LAKE003	68130.39	1.56	17.70	5300	D	98	8.7
LAKE003	619850.19	14.23	17.70	1300	D	92	73.9
LAKE003	42836.45	0.98	17.70	1200	D	87	4.8
LAKE003	40332.97	0.93	17.70	1800	D	80	4.2
LAKE003 Total							91.6
LAKE050	375714.26	8.63	69.16	5300	D	98	12.2
LAKE050	194255.77	4.46	69.16	1300	D	92	5.9
LAKE050	1507395.65	34.61	69.16	1200	D	87	43.5
LAKE050	1866.88	0.04	69.16	3200	D	84	0.1
LAKE050	933167.44	21.42	69.16	1800	D	80	24.8
LAKE050 Total							86.5
LAKE080	220675.45	5.07	125.81	5300	D	98	3.9
LAKE080	965955.57	22.18	125.81	5300	D	98	17.3
LAKE080	3046.22	0.07	125.81	1300	D	92	0.1
LAKE080	1128.73	0.03	125.81	1200	D	87	0.0
LAKE080	3971656.37	91.18	125.81	1200	D	87	63.1
LAKE080	30887.67	0.71	125.81	1200	D	87	0.5
LAKE080	25841.00	0.59	125.81	3200	D	84	0.4
LAKE080	5786.12	0.13	125.81	3200	D	84	0.1
LAKE080	214375.75	4.92	125.81	1800	D	80	3.1
LAKE080	40847.12	0.94	125.81	1800	D	80	0.6
LAKE080 Total							89.0
LAKE526	198183.12	4.55	67.74	5300	D	98	6.6
LAKE526	78742.72	1.81	67.74	5300	D	98	2.6
LAKE526	2432458.41	55.84	67.74	1300	D	92	75.8
LAKE526	69526.84	1.60	67.74	1300	D	92	2.2
LAKE526	131374.96	3.02	67.74	1300	D	92	4.1
LAKE526	1884.76	0.04	67.74	3200	D	84	0.1
LAKE526	1325.89	0.03	67.74	3200	D	84	0.0
LAKE526	37153.31	0.85	67.74	1800	D	80	1.0
LAKE526 Total							92.4

Submittal Examples

Field Verification

Hydraulic Feature Inventory Form

General Information

HYDROCODE_DESC	090911104312MD	Date:	09/08/2011	Sequence ID:	1.1
Structure Type:	DROP STRUCTURE	Time:	0845		
Sub-Type:	DROP_WEIR	Initials:	BRW/MDD		
Notes Filename:	090911104312MD_FN.pdf	Company:	SinghofenAssoc.		
Sub-Watershed:	Hunter's Creek	Tributary/Grp:	Shingle Creek Proper		
Scope:	Field Reconnaissance \ Verificiation			Survey Required:	Eng-Level
Action Rqd:	Field Measure and Survey				

Location Information

Location:	Lake 50 - South Outfall Structure						
STR:	31 24 29						
Northing:	1464498.404817	Easting:	511736.747737	Latitude:	<input n"="" type="text" value="28° 21' 42.346"/>	Longitude:	<input "="" type="text" value="81° 26' 56.714"/>
Coord. Sys.:	NAD_1983_HARN_StatePlane_Florida_East_FIPS_0901_Feet						

GPS and Photograph Information

	<u>Original File Name</u>	<u>New File Name</u>	<u>GPS ID</u>	<u>Date</u>	<u>Time</u>	<u>Dir Facing</u>	<u>Photo Description</u>
A	P1010001.jpg	090911104312MD_PA.jpg	251	9/8/11	0850	NW	Upstream end, facing upstream
B	P1010003.jpg	090911104312MD_PB.jpg	251	9/8/11	0850	E	Upstream end, facing downstream
C	P1010004.jpg	090911104312MD_PC.jpg	251	9/8/11	0850	W	Top of structure
D	No_Photo.jpg	No_Photo.jpg	n/a	n/a	n/a	n/a	n/a
E	No_Photo.jpg	No_Photo.jpg	n/a	n/a	n/a	n/a	n/a
F	No_Photo.jpg	No_Photo.jpg	n/a	n/a	n/a	n/a	n/a
G	No_Photo.jpg	No_Photo.jpg	n/a	n/a	n/a	n/a	n/a
H	No_Photo.jpg	No_Photo.jpg	n/a	n/a	n/a	n/a	n/a
I	No_Photo.jpg	No_Photo.jpg	n/a	n/a	n/a	n/a	n/a
J	No_Photo.jpg	No_Photo.jpg	n/a	n/a	n/a	n/a	n/a

Note: the GPS IDs referenced above refer to GPS waypoints that were collected for quality control purposes at a 10m to 15m accuracy. The points (ReconWaypoints) are located in the "Watershed" feature data set in the project geodatabase.

Field Observations

Comments:	D/S pipe was submerged and unable to measure or survey.
Maintenance Reqmts:	

Specific Structure Information

See additional data forms for specific structure information.

Engineering-Level Survey Conducted ☒ YES ☐ NO

Sketch Provided: ☒ YES ☐ NO

WEIR DATA FORM

HYDROCODE_DESC:	090911104312MD	Date:	9/8/2011	Sequence ID:	
ICPR_LINK_NAME:		Staff Initials:	BRW/MDD	1.1	
Project Name:	Pilot Study for Shingle Creek Watershed	Company:	Singhofen&Assoc.		
Sub-watershed:	Hunter's Creek	Tributary/Grp:	Shingle Creek Proper		
Data Source:	Engineering Level Survey				
Type:	DROP STRUCTURE	Subtype:	DROP_WEIR_STD	Source Type:	Field Measured
Location Description:	Lake 50 - South Outfall Structure				
STR:	31 24 29	NORTHING:	1464498.404817	EASTING:	511736.747737
COORDSYS:	NAD_1983_HARN_StatePlane_Florida_East_FIPS_0901_Feet				
Weir Number:	1	Total Number Weirs in Structure:	2		
Weir Description:	Front slot				
Weir Type:	SHARP	Drop Structure ID:	1		
Weir Shape:	TRAP	Cross Section ID:			
Weir Orientation:	Vertical: Mavis Equation	Cross Section Name:			
Weir Material:	CONCRETE	Weir Discharge Coeff.:	3.2		
		Orifice Coefficient:	0.6		
Invert (ft NGVD29):	77.93	Span (inches):			
Invert (ft NAVD88):	77.01	Rise (inches):			
Control Elev. (ft NGVD29):	77.93	Bottom Width (ft):	0		
Control Elev. (ft NAVD88):	77.01	Top Width (ft):	3.5		
Structure Opening (ft):	1.67	Left Side Slope (H/V):	1		
Bottom Clip (see note):		Right Side Slope (H/V):	1		
Top Clip (see note):		Blockage (%):			
Corresponding Depth (ft):		Vertical Datum Conv. Factor:	-0.92		
Action Required:	NONE				
Comment:	Refer to sketch for more info				
Verified:	YES	Survey Required:	NO		

NOTES:

- 1 - Clip Units: FEET for irregular, trapezoidal, parabolic geometries
- 2 - Clip Units: INCHES for rectangular, circular, elliptical, and arch geometries
- 3 - RECTANGULAR, CIRCULAR, ELLIPTICAL, ARCH: populate SPAN and RISE
- 4 - TRAPEZOIDAL: populate BOTTOM WIDTH, TOPWIDTH, and SIDE SLOPES
- 5 - IRREGULAR: populate CROSS SECTION NAME and OPENING
- 6 - PARABOLIC: populate TOP WIDTH, OPENING, and CORRESPONDING DEPTH
- 7 - Total Number of Weirs in Structure: this represents the total number of weir records (irrespective of contour values)
- 8 - Weir Number: Consecutive numbers starting with 01. For drop structures always start with top grate (if exists).
- 9 - Weir Description: Examples – "top of grate", "front slot", "6ft and right slots combined", "top of grate – 50% blocked by grate material".
- 10 - Blockage: Estimate of the percent of the weir opening that is blocked due to grate or screen.

WEIR DATA FORM

HYDROCODE_DESC:	090911104312MD	Date:	9/8/2011	Sequence ID:	
ICPR_LINK_NAME:		Staff Initials:	BRW/MDD	1.1	
Project Name:	Pilot Study for Shingle Creek Watershed	Company:	Singhofen&Assoc.		
Sub-watershed:	Hunter's Creek	Tributary/Grp:	Shingle Creek Proper		
Data Source:	Engineering Level Survey				
Type:	DROP STRUCTURE	Subtype:	DROP_WEIR_STD	Source Type:	Field Measured
Location Description:	Lake 50 - South Outfall Structure				
STR:	31 24 29	NORTHING:	1464498.404817	EASTING:	511736.747737
COORDSYS:	NAD_1983_HARN_StatePlane_Florida_East_FIPS_0901_Feet				
Weir Number:	2	Total Number Weirs in Structure:	2		
Weir Description:	Top grate				
Weir Type:	SHARP	Drop Structure ID:	1		
Weir Shape:	RECTANGLE	Cross Section ID:			
Weir Orientation:	Horizontal	Cross Section Name:			
Weir Material:	CONCRETE	Weir Discharge Coeff.:	3.2		
Invert (ft NGVD29):	79.6	Orifice Coefficient:	0.6		
Invert (ft NAVD88):	78.68	Span (inches):	37		
Control Elev. (ft NGVD29):	79.6	Rise (inches):	78		
Control Elev. (ft NAVD88):	78.68	Bottom Width (ft):			
Structure Opening (ft):		Top Width (ft):			
Bottom Clip (see note):		Left Side Slope (H/V):			
Top Clip (see note):		Right Side Slope (H/V):			
Corresponding Depth (ft):		Blockage (%):			
		Vertical Datum Conv. Factor:	-0.92		
Action Required:	NONE				
Comment:	see sketch for details				
Verified:	YES	Survey Required:	NO		

NOTES:

- 1 - Clip Units: FEET for irregular, trapezoidal, parabolic geometries
- 2 - Clip Units: INCHES for rectangular, circular, elliptical, and arch geometries
- 3 - RECTANGULAR, CIRCULAR, ELLIPTICAL, ARCH: populate SPAN and RISE
- 4 - TRAPEZOIDAL: populate BOTTOM WIDTH, TOPWIDTH, and SIDE SLOPES
- 5 - IRREGULAR: populate CROSS SECTION NAME and OPENING
- 6 - PARABOLIC: populate TOP WIDTH, OPENING, and CORRESPONDING DEPTH
- 7 - Total Number of Weirs in Structure: this represents the total number of weir records (irrespective of contour values)
- 8 - Weir Number: Consecutive numbers starting with 01. For drop structures always start with top grate (if exists).
- 9 - Weir Description: Examples – "top of grate", "front slot", "6ft and right slots combined", "top of grate – 50% blocked by grate material".
- 10 - Blockage: Estimate of the percent of the weir opening that is blocked due to grate or screen.

Drop Structure ID: _____

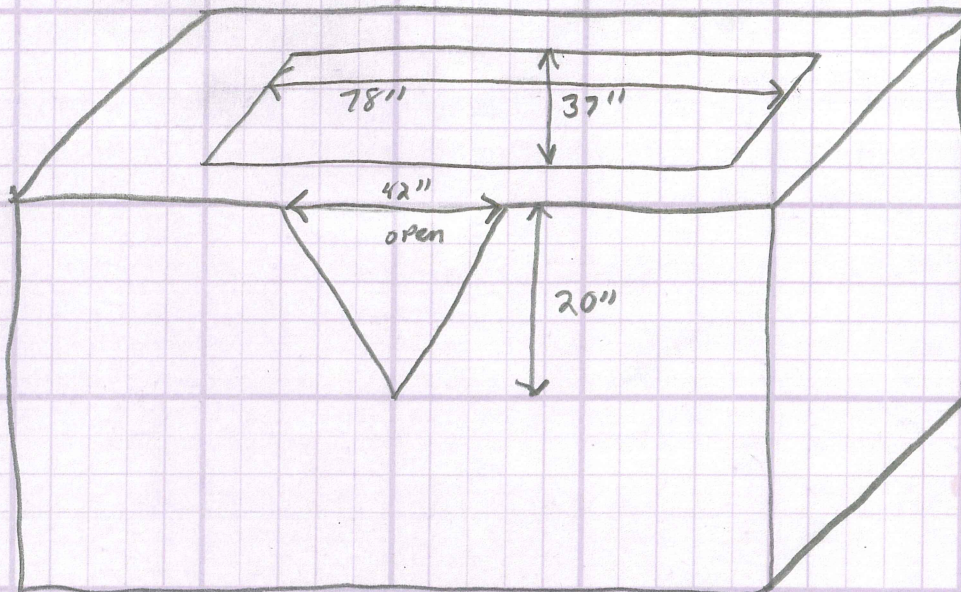
1

Sequence ID: _____

1.1

Hydrocode - Desc: _____

090911104312MD



Engineering-Level Survey Data Form

HYDROCODE_DESC:

090911104312MD

Sequence ID: 1.1

1.1

Project Name:

Pilot Study for Shingle Creek Watershed

Date:

09/08/2011

Subwatershed

Hunter's Creek

Time:

0845

Tributary/Group:

Shingle Creek Proper

Initials:

BRW/MDD

Structure Type:

DROP STRUCTURE

Company:

Singhofen & Assoc.

Location Description:

Lake 50 - South Outfall Structure

TBM Description:

TBM-1 = center of roadway along pipe

TBM Elevation (ft):

79.40

Elevation Source:

Orange Co. Terrain Data Set

Vertical Datum:

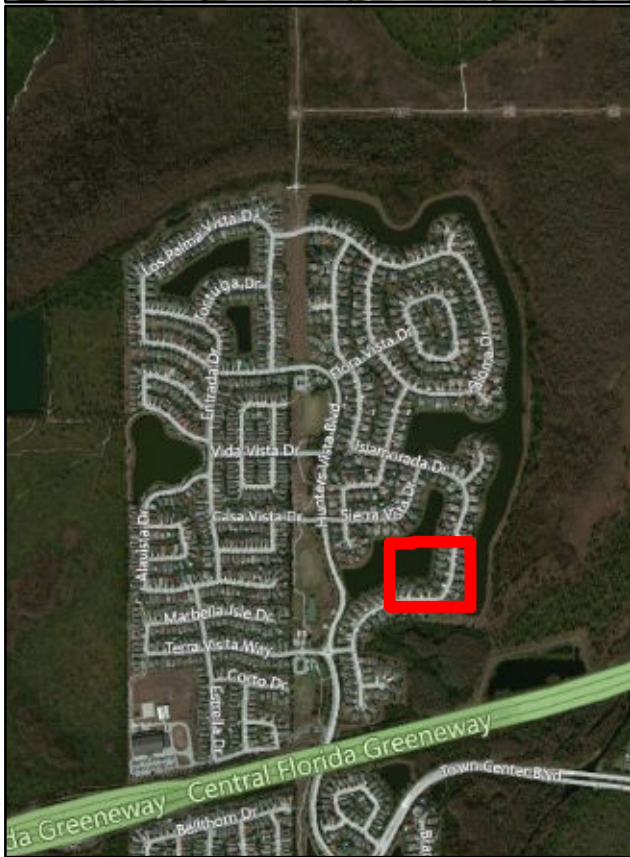
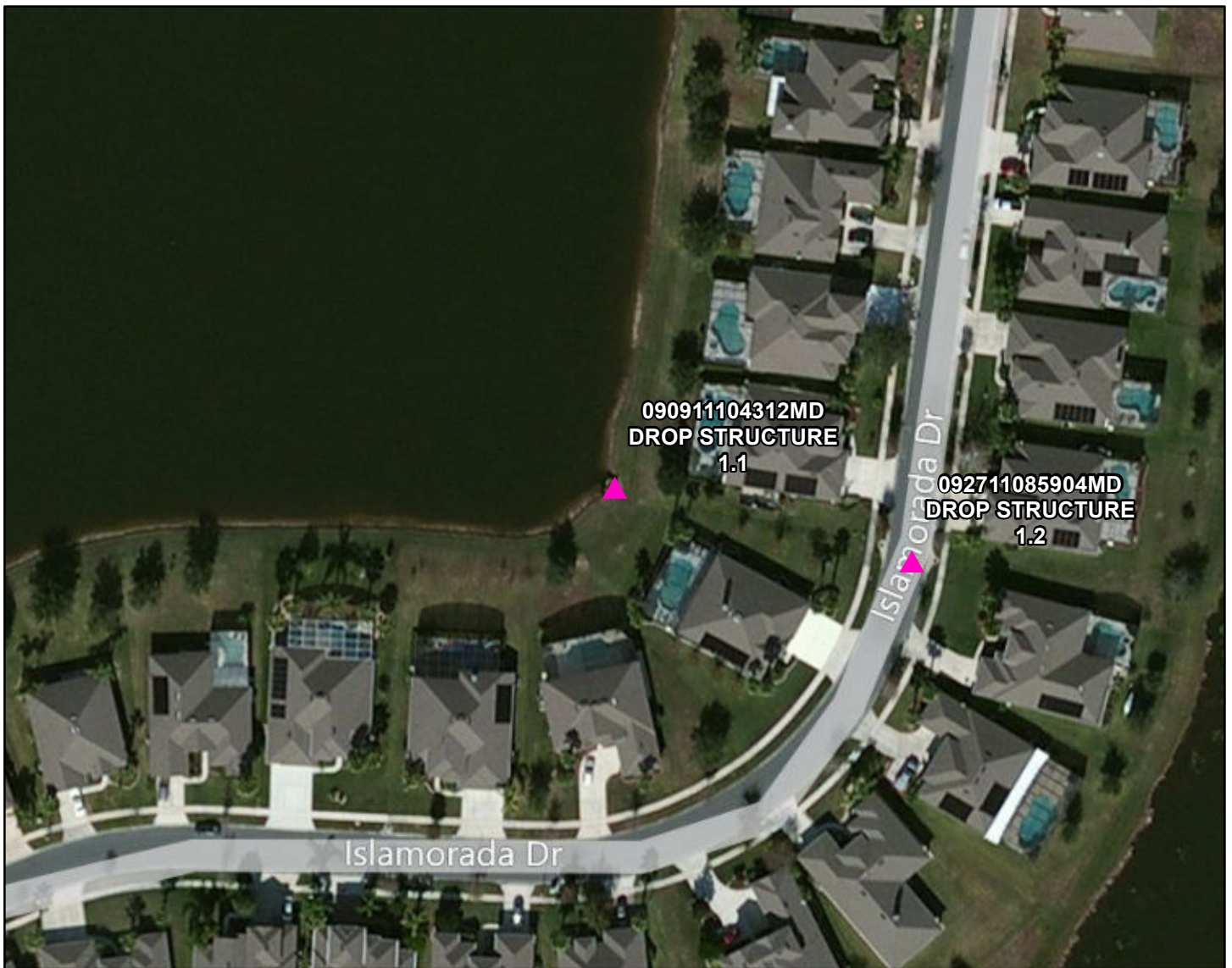
NAVD88

Comments:

[illegible]

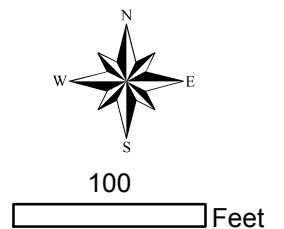
NOTES:

1. This data was collected by field technicians or engineers under the direction of a professional engineer, not a professional land surveyor.
2. This data was collected with the intention of deriving the actual feature elevations from available topographic information (e.g. LiDAR data) relative to one or more temporary bench marks (TBMs).



Field Recon Location ID:
1.1

HYDROCODE DESCRIPTION:
090911104312MD



Single Creek Recon Maps



HYDROCODE_DESC: 090911104312MD

SUBWATERSHED: Hunter's Creek

LOCATION: Lake 50 - South Outfall Structure

NORTHING: 1464498.404817 EASTING: 511736.747737

PHOTO DESCRIPTION: Top of structure

DIRECTION FACING: West



HYDROCODE_DESC: 090911104312MD

SUBWATERSHED: Hunter's Creek

LOCATION: Lake 50 - South Outfall Structure

NORTHING: 1464498.404817 EASTING: 511736.747737

PHOTO DESCRIPTION: Upstream end, facing downstream

DIRECTION FACING: East



HYDROCODE_DESC: 090911104312MD

SUBWATERSHED: Hunter's Creek

LOCATION: Lake 50 - South Outfall Structure

NORTHING: 1464498.404817 EASTING: 511736.747737

PHOTO DESCRIPTION: Upstream end, facing upstream

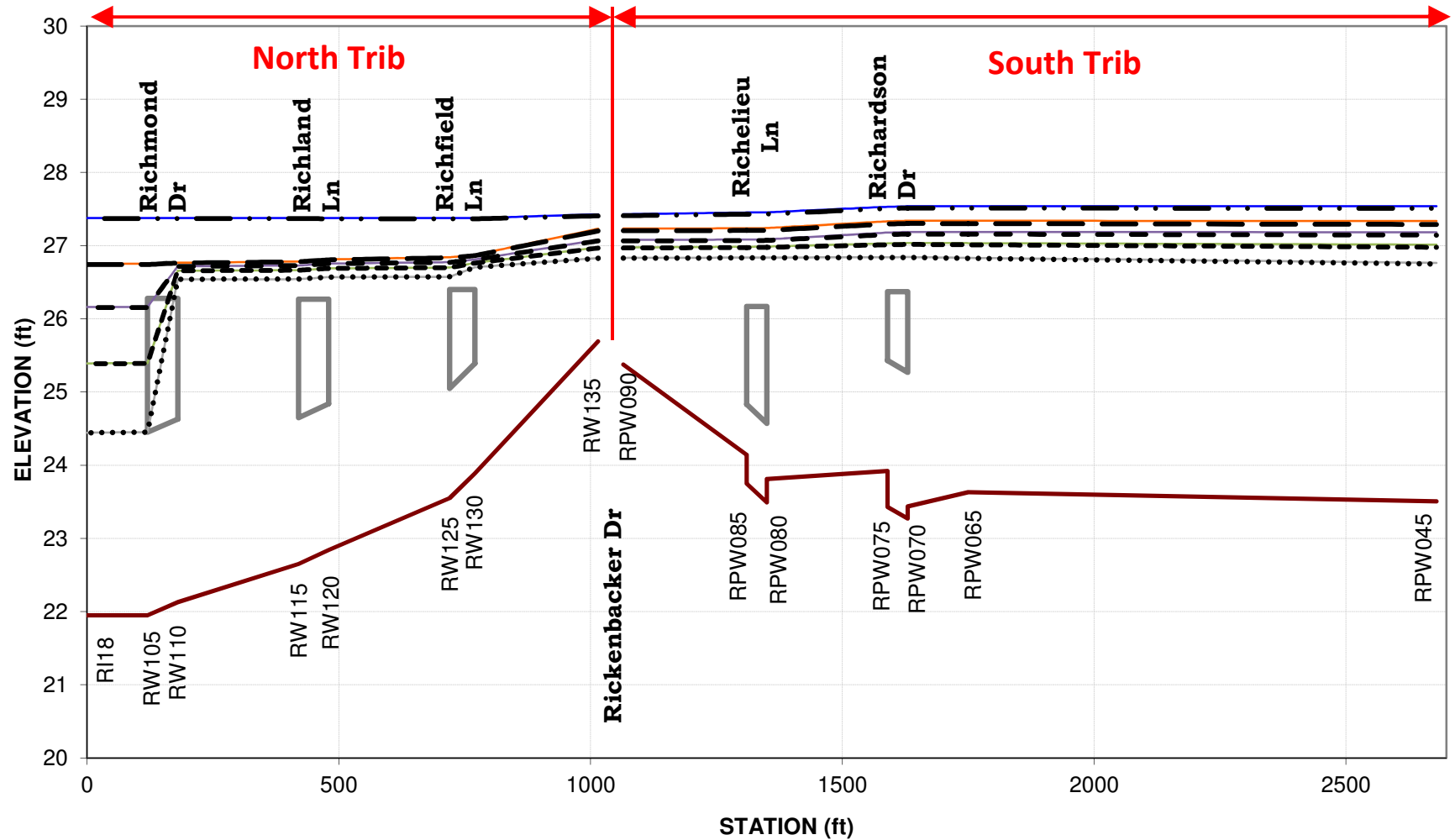
DIRECTION FACING: Northwest

Submittal Examples

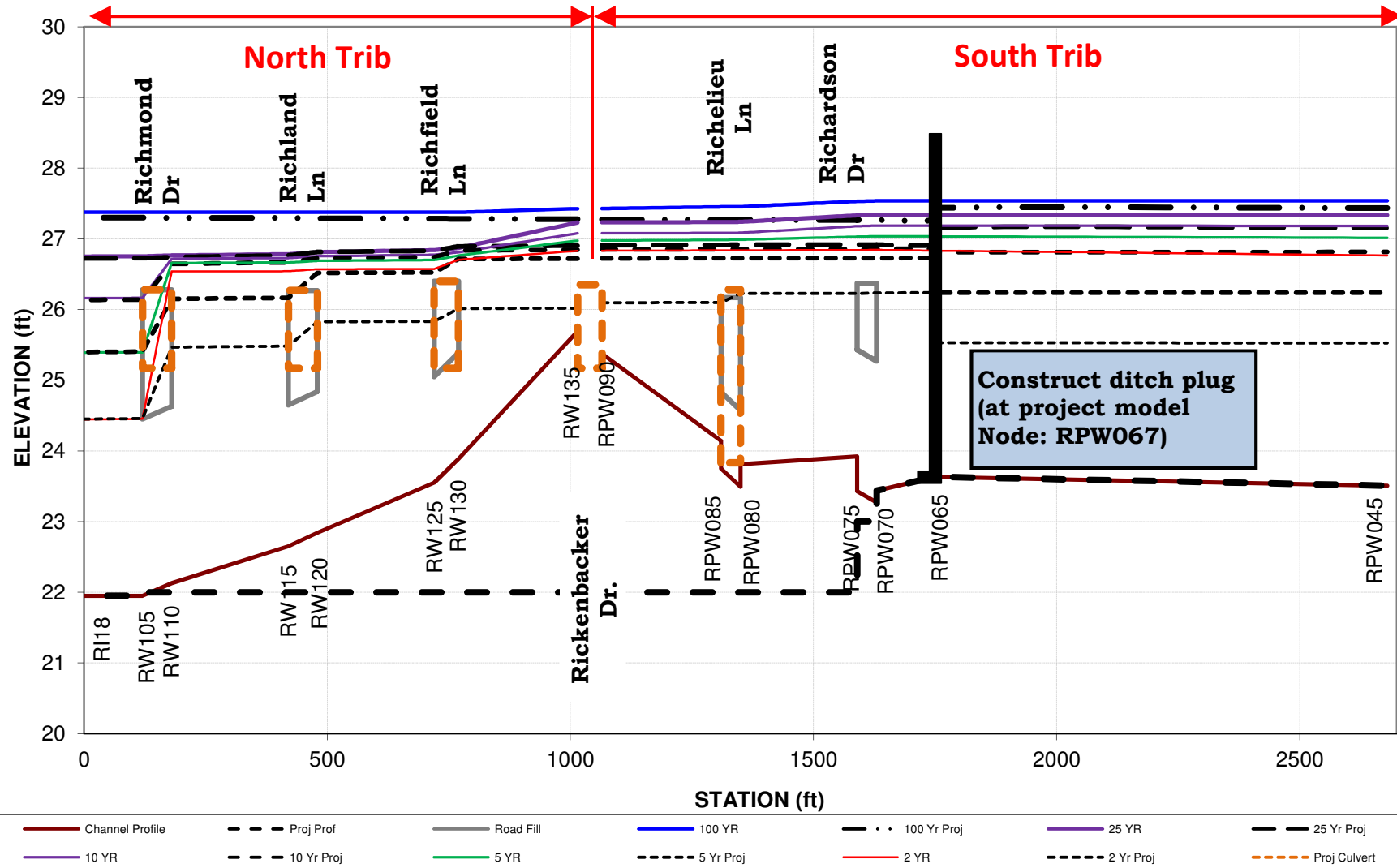
Flood Profiles

STORMWATER MANAGEMENT MASTER PLAN

Existing Conditions



STORMWATER MANAGEMENT MASTER PLAN **Design Alternate 1**



Submittal Examples

Floodplain Check

Accumulated Floodplain Areas - Archie Creek Tributary (100-year 24-Hour Storm)

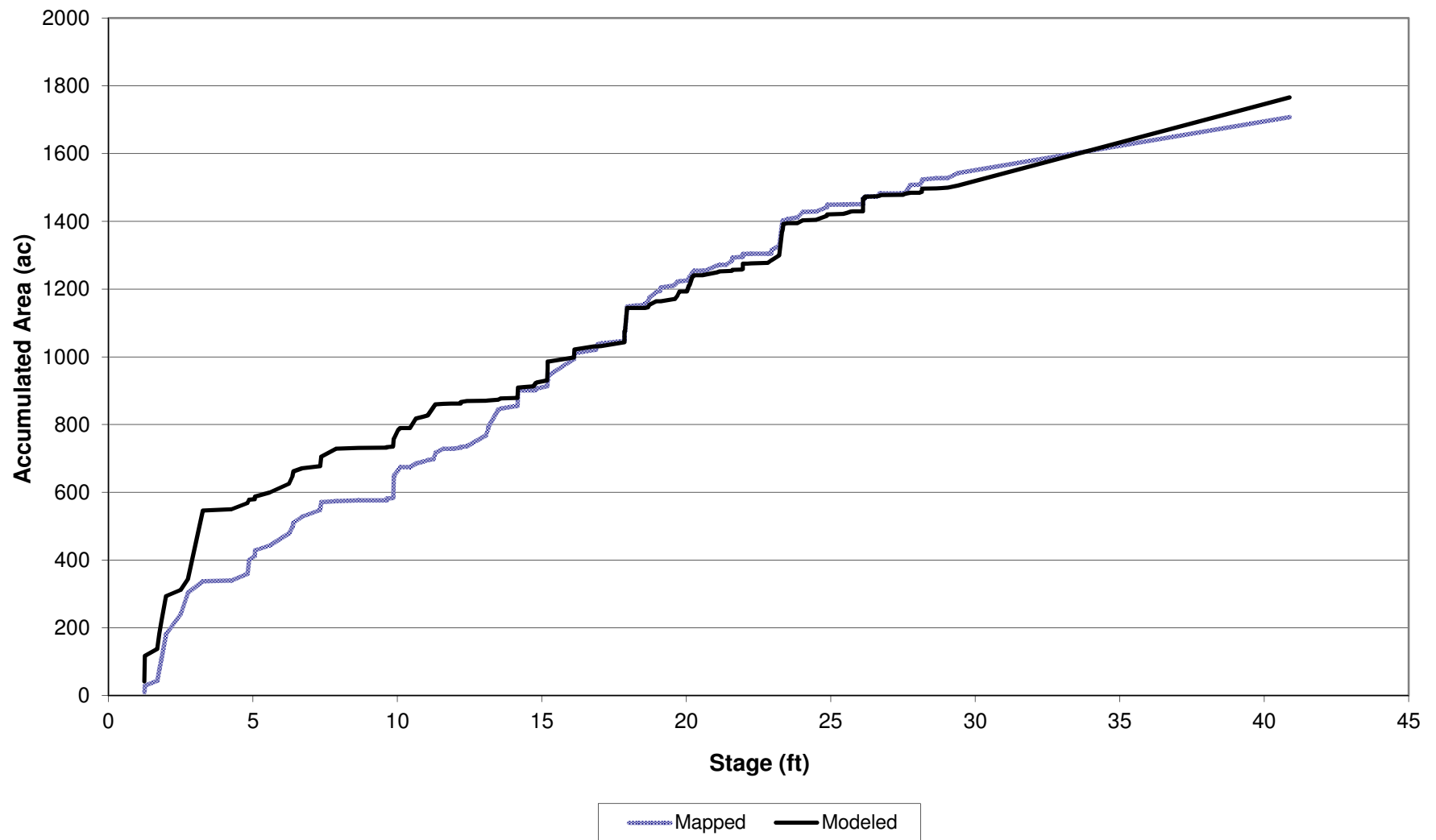


Table 8.1 Modeled vs Mapped Floodplain Areas							
Basin ID	Major Tributary System	Basin Area (ac)	Mapped Area (ac)	Model Area (ac)	% Difference	Modeled Area Exceeds Basin Area (Yes or No)	Multiple Nodes within Basin (Yes or No)
260000	ARCHIE CREEK	66.56	59.006	18.253	223.27%		
260040	ARCHIE CREEK	20.54	16.933	7.773	117.84%		
260050	ARCHIE CREEK	14.52	14.412	12.057	19.53%		
260060	ARCHIE CREEK	36.01	35.626	26.047	36.78%		
260065	ARCHIE CREEK	18.28	18.275	21.368	-14.48%	Yes	Single
260100	ARCHIE CREEK	62.96	59.653	19.516	205.67%		
260110	ARCHIE CREEK	13.80	10.900	28.604	-61.90%	Yes	Single
260120	ARCHIE CREEK	6.91	5.280	5.083	3.88%		
260130	ARCHIE CREEK	6.30	3.903	3.579	9.04%		
260140	ARCHIE CREEK	3.38	3.380	25.060	-86.51%	Yes	Multiple
260160	ARCHIE CREEK	25.44	18.825	8.165	130.55%		
260170	ARCHIE CREEK	16.68	11.851	1.492	694.42%		
260201	ARCHIE CREEK	8.50	8.281	1.677	393.85%		
260210	ARCHIE CREEK	9.46	4.591	0.896	412.69%		
260230	ARCHIE CREEK	50.91	16.988	23.466	-27.61%		
260240	ARCHIE CREEK	62.59	16.182	0.000	No modeled FP		
260290	ARCHIE CREEK	29.81	2.324	0.000	No modeled FP		
260331	ARCHIE CREEK	48.11	24.564	2.759	790.19%		
264000	ARCHIE CREEK	40.86	8.955	2.553	250.81%		
264010	ARCHIE CREEK	15.74	15.611	8.129	92.04%		
272030	ARCHIE CREEK	150.19	13.986	5.980	133.88%		
280003	ARCHIE CREEK	72.16	63.571	31.910	99.22%		
280004	ARCHIE CREEK	439.19	33.201	202.020	-83.57%		
280010	ARCHIE CREEK	6.97	2.525	4.312	-41.43%		
280020	ARCHIE CREEK	23.42	19.419	17.877	8.63%		
280030	ARCHIE CREEK	26.41	11.078	1.118	890.47%		
280040	ARCHIE CREEK	38.93	18.562	8.471	119.13%		
280050	ARCHIE CREEK	83.51	18.997	6.647	185.80%		
280055	ARCHIE CREEK	9.96	6.997	0.000	No modeled FP		
280060	ARCHIE CREEK	36.72	16.715	27.755	-39.78%		
280065	ARCHIE CREEK	11.47	2.984	23.967	-87.55%	Yes	Single
280066	ARCHIE CREEK	81.48	73.468	75.115	-2.19%		
280067	ARCHIE CREEK	37.67	34.435	45.133	-23.70%	Yes	Single
280068	ARCHIE CREEK	15.34	14.233	20.528	-30.66%	Yes	Single
280069	ARCHIE CREEK	10.90	9.912	41.896	-76.34%	Yes	Single
280070	ARCHIE CREEK	43.27	41.614	10.253	305.89%		
280071	ARCHIE CREEK	32.91	29.864	36.111	-17.30%	Yes	Single
280072	ARCHIE CREEK	21.53	19.972	75.092	-73.40%	Yes	Single
280075	ARCHIE CREEK	12.80	1.820	1.719	5.88%		
280080	ARCHIE CREEK	95.74	12.614	15.386	-18.02%		
280081	ARCHIE CREEK	261.21	165.289	260.331	-36.51%		
280085	ARCHIE CREEK	97.59	0.552	1.183	-53.36%		
280086	ARCHIE CREEK	2.61	1.913	1.007	90.02%		
280088	ARCHIE CREEK	3.06	0.000	0.000	No FP		
280089	ARCHIE CREEK	7.89	0.000	0.416	-99.96%		
280100	ARCHIE CREEK	2.09	0.000	1.429	No mapped FP		
280105	ARCHIE CREEK	14.09	1.927	3.301	-41.62%		
280110	ARCHIE CREEK	10.56	4.821	0.239	1919.23%		
280115	ARCHIE CREEK	9.81	5.969	2.576	131.73%		
280120	ARCHIE CREEK	33.26	14.922	23.186	-35.64%		
280128	ARCHIE CREEK	33.14	8.870	6.116	45.03%		
280140	ARCHIE CREEK	31.82	31.820	0.805	3851.19%		
280143	ARCHIE CREEK	19.12	19.054	0.497	3737.26%		
280145	ARCHIE CREEK	5.24	5.240	0.309	1598.32%		
280150	ARCHIE CREEK	45.17	45.165	30.005	50.53%		
280155	ARCHIE CREEK	59.61	45.914	11.329	305.27%		
280160	ARCHIE CREEK	13.67	9.891	9.118	8.47%		
280300	ARCHIE CREEK	3.35	0.152	0.423	-63.99%		
280305	ARCHIE CREEK	7.60	3.214	0.000	No modeled FP		
280310	ARCHIE CREEK	19.27	1.927	4.702	-59.02%		
280312	ARCHIE CREEK	37.76	4.479	0.267	1578.93%		
280313	ARCHIE CREEK	10.44	4.873	1.159	320.38%		
280314	ARCHIE CREEK	4.90	3.703	0.768	381.88%		
280315	ARCHIE CREEK	18.18	1.768	2.594	-31.85%		
280317	ARCHIE CREEK	37.46	2.578	0.251	925.67%		
280320	ARCHIE CREEK	5.73	0.000	1.767	No mapped FP		
280325	ARCHIE CREEK	3.47	0.000	2.303	No mapped FP		
280330	ARCHIE CREEK	17.33	0.713	10.078	-92.93%		
280333	ARCHIE CREEK	86.75	4.205	0.269	1464.34%		

Table 8.1 Modeled vs Mapped Floodplain Areas							
Basin ID	Major Tributary System	Basin Area (ac)	Mapped Area (ac)	Model Area (ac)	% Difference	Modeled Area Exceeds Basin Area (Yes or No)	Multiple Nodes within Basin (Yes or No)
280335	ARCHIE CREEK	15.26	0.000	0.000	No FP		
280340	ARCHIE CREEK	30.08	1.587	13.200	-87.98%		
280350	ARCHIE CREEK	4.98	3.674	4.061	-9.53%		
280357	ARCHIE CREEK	19.77	18.212	35.859	-49.21%	Yes	Single
280360	ARCHIE CREEK	25.85	9.412	19.672	-52.16%		
280365	ARCHIE CREEK	86.68	51.422	2.193	2245.27%		
280370	ARCHIE CREEK	15.25	6.842	6.625	3.27%		
280373	ARCHIE CREEK	10.08	0.000	0.204	No mapped FP		
280375	ARCHIE CREEK	19.06	6.466	0.534	1111.45%		
280380	ARCHIE CREEK	6.80	3.351	0.778	330.59%		
280385	ARCHIE CREEK	19.03	7.367	11.354	-35.12%		
280390	ARCHIE CREEK	17.86	1.138	0.000	No modeled FP		
280392	ARCHIE CREEK	39.15	9.670	6.843	41.30%		
280394	ARCHIE CREEK	12.79	2.984	0.000	No modeled FP		
280397	ARCHIE CREEK	20.90	5.051	6.373	-20.75%		
280398	ARCHIE CREEK	36.53	7.241	9.125	-20.65%		
280400	ARCHIE CREEK	21.29	5.280	0.000	No modeled FP		
280405	ARCHIE CREEK	22.10	6.978	26.809	-73.97%	Yes	Multiple
280410	ARCHIE CREEK	14.43	10.560	0.226	4580.98%		
280415	ARCHIE CREEK	5.94	3.111	1.119	177.92%		
280420	ARCHIE CREEK	2.42	0.000	0.278	No mapped FP		
280425	ARCHIE CREEK	14.19	11.019	4.735	132.73%		
280430	ARCHIE CREEK	21.58	2.057	0.186	1003.29%		
280435	ARCHIE CREEK	65.05	9.402	17.741	-47.00%		
280440	ARCHIE CREEK	26.44	4.821	5.032	-4.20%		
280445	ARCHIE CREEK	28.53	0.000	1.685	No mapped FP		
280500	ARCHIE CREEK	21.36	16.070	10.534	52.55%		
280515	ARCHIE CREEK	47.35	11.940	1.043	1044.34%		
280520	ARCHIE CREEK	29.78	2.755	0.826	233.61%		
280525	ARCHIE CREEK	2.78	0.000	0.708	No mapped FP		
280530	ARCHIE CREEK	17.08	1.301	0.849	53.15%		
280535	ARCHIE CREEK	56.17	7.096	16.129	-56.01%		
290000	ARCHIE CREEK	12.27	2.984	1.656	80.23%		
290003	ARCHIE CREEK	22.40	11.647	23.282	-49.97%	Yes	Multiple
290010	ARCHIE CREEK	40.62	15.361	6.584	133.31%		
290015	ARCHIE CREEK	7.42	0.181	0.955	-80.99%		
290020	ARCHIE CREEK	15.92	5.004	0.219	2182.25%		
290025	ARCHIE CREEK	21.97	1.845	1.890	-2.38%		
290030	ARCHIE CREEK	6.32	3.673	1.330	176.20%		
290035	ARCHIE CREEK	11.75	0.252	0.214	17.62%		
290045	ARCHIE CREEK	15.80	8.936	1.610	454.97%		
290055	ARCHIE CREEK	41.62	0.000	2.780	No mapped FP		
290100	ARCHIE CREEK	28.92	2.563	3.377	-24.11%		
290105	ARCHIE CREEK	45.90	0.841	6.809	-87.65%		
290110	ARCHIE CREEK	7.13	0.000	0.434	No mapped FP		
290115	ARCHIE CREEK	10.84	0.000	1.703	No mapped FP		
290200	ARCHIE CREEK	107.51	67.261	69.697	-3.49%		
290225	ARCHIE CREEK	9.20	1.975	2.104	-6.12%		
290235	ARCHIE CREEK	18.06	1.048	1.267	-17.25%		
290240	ARCHIE CREEK	22.19	5.541	6.786	-18.35%		
290250	ARCHIE CREEK	43.91	0.440	14.010	-96.86%		
290305	ARCHIE CREEK	55.69	2.816	5.493	-48.74%		
290306	ARCHIE CREEK	70.53	0.040	2.840	-98.60%		
290310	ARCHIE CREEK	20.78	0.957	0.286	234.67%		
290315	ARCHIE CREEK	3.54	0.000	0.242	No mapped FP		
290320	ARCHIE CREEK	14.50	0.000	0.934	No mapped FP		
290325	ARCHIE CREEK	57.38	6.608	10.312	-35.92%		
290330	ARCHIE CREEK	27.23	8.607	1.931	345.71%		
290340	ARCHIE CREEK	10.38	0.001	0.104	-99.09%		
290350	ARCHIE CREEK	3.06	1.017	1.590	-36.05%		
290360	ARCHIE CREEK	13.21	3.903	0.691	464.60%		
290370	ARCHIE CREEK	6.02	0.000	0.354	No mapped FP		
290500	ARCHIE CREEK	138.71	72.830	67.995	7.11%		
290570	ARCHIE CREEK	9.35	0.000	0.000	No FP		
290572	ARCHIE CREEK	15.66	0.000	0.458	No mapped FP		
290575	ARCHIE CREEK	7.47	0.000	0.000	No FP		
290580	ARCHIE CREEK	4.85	0.233	0.478	-51.19%		
290585	ARCHIE CREEK	19.79	12.856	14.979	-14.18%		
290587	ARCHIE CREEK	11.07	0.000	0.568	No mapped FP		

Table 8.1 Modeled vs Mapped Floodplain Areas							
Basin ID	Major Tributary System	Basin Area (ac)	Mapped Area (ac)	Model Area (ac)	% Difference	Modeled Area Exceeds Basin Area (Yes or No)	Multiple Nodes within Basin (Yes or No)
290588	ARCHIE CREEK	6.55	0.054	0.199	-72.69%		
290590	ARCHIE CREEK	11.09	9.871	0.562	1655.32%		
290594	ARCHIE CREEK	9.79	0.251	0.000	No modeled FP		
290595	ARCHIE CREEK	52.24	17.432	37.630	-53.68%		
290605	ARCHIE CREEK	13.19	6.947	4.830	43.82%		
290610	ARCHIE CREEK	23.40	12.626	10.927	15.55%		
290612	ARCHIE CREEK	7.29	0.121	4.460	-97.28%		
290616	ARCHIE CREEK	4.66	2.755	0.000	No modeled FP		
290617	ARCHIE CREEK	6.01	0.000	0.215	No mapped FP		
290620	ARCHIE CREEK	4.60	0.000	1.800	No mapped FP		
	ARCHIE CREEK Total	4604.45	1706.750	1765.502	-3.33%		
200100	DELANEY CREEK	61.27	8.232	0.106	7651.14%		
200130	DELANEY CREEK	31.77	5.916	1.887	213.53%		
200140	DELANEY CREEK	87.18	5.849	8.255	-29.15%		
200150	DELANEY CREEK	45.92	0.253	0.105	142.04%		
210010	DELANEY CREEK	384.61	197.918	146.637	34.97%		
210020	DELANEY CREEK	110.46	21.359	12.202	75.05%		
210025	DELANEY CREEK	53.21	29.844	0.120	24742.35%		
210040	DELANEY CREEK	126.65	84.750	10.209	730.16%		
210060	DELANEY CREEK	112.33	52.969	3.271	1519.19%		
210065	DELANEY CREEK	38.04	1.044	1.040	0.42%		
210080	DELANEY CREEK	34.81	18.061	9.552	89.07%		
210090	DELANEY CREEK	73.30	55.363	2.530	2088.41%		
210100	DELANEY CREEK	81.86	69.787	40.707	71.44%		
210120	DELANEY CREEK	101.61	31.719	17.660	79.61%		
210125	DELANEY CREEK	81.03	1.788	0.354	405.42%		
210150	DELANEY CREEK	80.46	6.813	26.107	-73.90%		
210170	DELANEY CREEK	19.34	6.280	0.000	No modeled FP		
210180	DELANEY CREEK	26.32	2.229	5.241	-57.46%		
210190	DELANEY CREEK	75.15	15.760	9.344	68.66%		
210200	DELANEY CREEK	60.61	4.564	1.672	172.97%		
210210	DELANEY CREEK	16.85	2.268	2.929	-22.56%		
210230	DELANEY CREEK	171.06	17.868	4.366	309.24%		
210240	DELANEY CREEK	148.75	56.088	43.458	29.06%		
210260	DELANEY CREEK	210.87	100.807	84.743	18.96%		
210280	DELANEY CREEK	28.82	11.736	3.545	231.06%		
210290	DELANEY CREEK	116.09	57.688	2.594	2123.79%		
210300	DELANEY CREEK	217.43	106.274	6.228	1606.41%		
210332	DELANEY CREEK	51.35	3.402	12.218	-72.15%		
210333	DELANEY CREEK	70.42	3.851	0.107	3503.29%		
210335	DELANEY CREEK	35.49	1.125	2.598	-56.69%		
210336	DELANEY CREEK	42.09	12.598	9.646	30.60%		
210350	DELANEY CREEK	22.78	5.217	6.003	-13.11%		
210360	DELANEY CREEK	22.18	6.388	5.261	21.43%		
211010	DELANEY CREEK	61.05	8.562	16.749	-48.88%		
211030	DELANEY CREEK	49.40	4.288	12.517	-65.74%		
211060	DELANEY CREEK	121.65	1.336	15.604	-91.44%		
211080	DELANEY CREEK	40.05	0.000	33.720	No mapped FP		
211100	DELANEY CREEK	40.28	0.581	10.292	-94.35%		
211110	DELANEY CREEK	15.83	3.444	7.562	-54.46%		
211116	DELANEY CREEK	47.58	0.882	14.143	-93.76%		
211160	DELANEY CREEK	36.87	1.915	11.309	-83.07%		
211165	DELANEY CREEK	44.25	0.000	22.562	No mapped FP		
211185	DELANEY CREEK	29.30	0.209	22.980	-99.09%		
211510	DELANEY CREEK	54.52	9.926	12.505	-20.62%		
211530	DELANEY CREEK	153.05	10.605	11.162	-4.99%		
212000	DELANEY CREEK	60.30	4.997	1.367	265.57%		
212030	DELANEY CREEK	31.02	0.211	1.585	-86.68%		
212040	DELANEY CREEK	28.17	1.967	1.529	28.64%		
212060	DELANEY CREEK	40.74	3.632	1.116	225.54%		
212080	DELANEY CREEK	78.57	6.155	3.116	97.54%		
212100	DELANEY CREEK	58.69	7.128	1.657	330.30%		
212130	DELANEY CREEK	90.41	3.488	1.996	74.78%		
213010	DELANEY CREEK	43.66	1.180	1.880	-37.24%		
213040	DELANEY CREEK	62.19	3.220	2.692	19.61%		
213060	DELANEY CREEK	75.39	1.932	0.113	1609.77%		
213510	DELANEY CREEK	25.70	6.671	1.120	495.61%		
213530	DELANEY CREEK	41.35	2.727	0.103	2552.36%		
213800	DELANEY CREEK	26.11	15.832	12.484	26.82%		

Submittal Examples

Geodatabases

*(Please note this section has been included electronically
and not in hard copy format.)*

Submittal Examples

Lookup Tables

Submittal Examples

QC Spreadsheets

(Please note that only Summary Reports from the QC spreadsheets have been included as hard copies. Complete QC spreadsheets have been included electronically.)

BRIDGE CHECKS

TOTAL NUMBER OF BRIDGES= 14

"Check" Description	"CHECK" Count	Maximum Value	Minimum Value
1) Checks instances where links are Flag if flow is set to "No Flow" or "Positive"	14		
<i>EXIT SECTIONS</i>			
2) Compares minimum cross-elevations to channel invert elevations. Sections are flagged that do not meet the minimum allowable difference.	14	5.30	0.20
3) Checks cross-section stationing. Flag if station > U/S station	0		
4) Identifies sections with skew angles. Flag if skew angle is used	2	21.00	6.00
5) Identifies expansion coefficients not equal to the user specified value below. Flag if <> 0.5	0	0.50	0.00
6) Identifies contraction coefficients not equal to the user specified value below. Flag if <> 0.1	14	0.00	0.00
<i>FULL VALLEY SECTIONS</i>			
7) Compares minimum cross-elevations to channel invert elevations. Sections are flagged that do not meet the minimum allowable difference.	14	19.80	-0.20
8) Checks cross-section stationing. Flag if station < Bridge Opening Station	0		
9) Identifies sections with skew angles. Flag if skew angle is used	5	34.00	6.00
10) Identifies expansion coefficients not equal to the user specified value below. Flag if <> 0.5	0	0.50	0.50
11) Identifies contraction coefficients not equal to the user specified value below. Flag if <> 0.1	14	0.00	0.00
<i>APPROACH SECTIONS</i>			
12) Compares minimum cross-elevations to channel invert elevations. Sections are flagged that do not meet the minimum allowable difference.	12	4.20	-0.60
13) Checks cross-section stationing. Flag if station < U/S station	0		
14) Identifies sections with skew angles. Flag if skew angle is used	3	21.00	6.00
15) Identifies expansion coefficients not equal to the user specified value below. Flag if <> 0.5	0	0.50	0.50
16) Identifies contraction coefficients not equal to the user specified value below. Flag if <> 0.3	14	0.00	0.00
<i>ROADWAY SECTIONS</i>			
17) Compares minimum cross-elevations to channel invert elevations. Sections are flagged that do not meet the minimum allowable difference.	0	0.00	0.00
18) Checks cross-section stationing. Flag if station < greater than U/S station	0		
19) Identifies sections with skew angles. Flag if skew angle is used	0	0.00	0.00
20) Identifies instances where the top width exceeds the maximum specified by user below. Flag if road width < 15	0	0.00	0.00
21) Identifies instances where the minimum or maximum weir discharge coefficients exceed the user specified values below. Minimum Value 2.5 Maximum Value 2.8	0	0.00	0.00

BRIDGE CHECKS

TOTAL NUMBER OF BRIDGES= 14

"Check" Description	"CHECK" Count	Maximum Value	Minimum Value
<i>BRIDGE OPENING DATA</i>			
22) Compares minimum cross-section elevations to channel invert elevations. Sections are flagged that do not meet the minimum allowable difference.	14	19.80	-0.20
23) Identifies sections with skew angles. Flag if skew angle is used	6	34.00	6.00
24) Identifies expansion coefficients not equal to the user specified value below. Flag if <> 0.5	0	0.50	0.50
25) Identifies contraction coefficients not equal to the user specified value below. Flag if <> 0.3	14	0.00	0.00
26) Identifies instances where the maximum total width is exceeded based on the maximum user specified value. Flag if top width < 12	0	300.10	96.40
27) Identifies orifice discharge coefficients not equal to the user specified value below. Flag if <> 0	0	0.00	0.00

WEIR CHECKS

TOTAL NUMBER OF WEIRS= 176

"Check" Description	"CHECK" Count	Maximum Value	Minimum Value
1) Checks instances where links are set to "no flow" Flag if flow is set to "No Flow" or "Positive"	10		
2) Checks instances where the span exceeds the limits specified by the user.	106	34800.00	4.44
3) Checks instances where the rise exceeds the limits specified by the user.	1	99999.00	0.50
4) Compares minimum cross-elevations to weir invert elevations. Sections are flagged that do not meet the minimum allowable difference.	5	146.60	72.70
5) Identifies instances where the distance between the weir crest and control elevation (i.e. control - weir crest) exceeds the maximum allowable. User must specify criteria below. Minimum allowable difference = 0.5	0	0.00	-10.00
6) Identifies instances where the weir bottom width (trapezoidal only) exceeds the limits. User must specify criteria below. Maximum allowable Channel Bottom Width (Trapezoidal) (ft) 100 Minimum allowable Channel Bottom Width (Trapezoidal) (ft) 5	14	0.00	0.00
7) Identifies instances where the minimum allow structure opening dimension is exceed (trapezoidal, parabolic, and irregular). User must specify minimum allowable struture opening below. Minimum Structure Opening (ft) 0.5	1		
8) Identifies instances where the top width exceeds the limits specified by user below. Maximum allowable Top Width (Parabolic) (ft) 35 Minimum allowable Top Width (Parabolic) (ft) 4	0	0.00	0.00
9) Identifies instances where the depth exceeds the limit specified by user below. Maximum allowable Depth (Parabolic) (ft) 10	0	0.00	0.00
10) Identifies instances where the bottom clip exceeds the opening dimension. Flag if clip is > opening dimension	0	2.00	1.00
11) Identifies instances where the top clip exceeds the opening dimension. Flag if clip is > opening dimension	0	2.00	1.00
12) Identifies instances where the weir coefficients exceed the limits specified by user below. Flag if Sharp crested/Horizontal Weir Coeff. Is not between 3 - 3.2	48		
13) Identifies instances where the orifice coefficient is not equal to the user specified value below. Flag if Coeff. <> 0.6	0		
14) Identifies sections not used in rounting calculations. Flag if Section is not used	77		

CHANNEL CHECKS

TOTAL NUMBER OF CHANNELS= 202

"Check" Description	"CHECK" Count	Maximum Value	Minimum Value
1) Checks for instances where flow is set to zero Flag if flow is set to "No Flow" or "Positive"	0		
2) Verify entrance loss coefficients based on aerial converage. If aerial does not support value, the entrance loss coefficients shall be changed to "0". Entrance Loss Coef. <> 0.00	10	0.10	0.00
3) Verify exit loss coefficients based on aerial converage. If aerial does not support value, the entrance loss coefficients shall be changed to "0". Exit Loss Coef. <> 0.00	10	0.10	0.00
4) Review topography and channel sections to verify contraction coefficient. Change values to 0.1 if data does not support specified values. Contraction Loss Coef. <> 0.10	10	0.10	0.00
5) Review topography and channel sections to verify expansion coefficient. Change values to 0.1 if data does not support specified values. Expansion Loss <> 0.30	10	0.30	0.00
6) Checks outlet control setting Outlet Control <> 0	0		
7) Checks inlet control setting Inlet Control <> 1	202		
8) Checks Stabilization option criteria Stablization Option <> 0	0		
<i>UPSTREAM</i>			
9) Verify that section is not a standard section (e.g. trapeziodal, etc.). If not standard, check irregular section versus topography and adjust as neccesary.	42		
10) Check Difference between U/S and D/S inverts. If U/S is less than D/S based on the criteria below, check channel xsecs. The difference must be entered as a negative number.	0	0.00	0.00
11) Check irregular section versus topography and adjust as neccesary.	0	0.00	0.00
12) Check clip reference information Clip Reference El. < 99	109	110.00	83.00
13) Checking Manning's N for standard channel sections. Max N Value > 0.1 Min N Value < 0.013	1	0.045	0.012
14) Check top clip information Flag if used	0	0.00	0.00
15) Check bottom clip information Flag if used	0	0.00	0.00
16) Check irregular section if it is used (Main Xsec) Flag if Section is not used	152		
17) Check irregular section if it is used (Aux Xsec 1) Flag if Section is not used	20	0.00	0.00
18) Check irregular section if it is used (Aux Xsec 2) Flag if Section is not used	4	0.00	0.00
19) Check irregular section versus topography and adjust as neccesary (Aux Elev 1). FLAG if Elevation <> MainXSEC Inv.	0	90.00	72.80
20) Check irregular section versus topography and adjust as neccesary (Aux Elev 2). FLAG if Elevation <> MainXSEC Inv.	0	83	81.2

CHANNEL CHECKS

TOTAL NUMBER OF CHANNELS= 202

"Check" Description	"CHECK" Count	Maximum Value	Minimum Value
21) Checking channel top width for parabolic sections Maximum allowable Channel Top Width (Parabolic) (ft) 35 Minimum allowable Channel Top Width (Parabolic) (ft) 4	0	0.00	0.00
22) Checking channel depth for parabolic sections Maximum allowable Channel Depth (Parabolic) (ft) 10	0	0.00	0.00
23) Checking channel bottom width for trapezoidal sections Maximum allowable Channel Bottom Width (Trapezoidal) (ft) 35 Minimum allowable Channel Bottom Width (Trapezoidal) (ft) 2	1	1500.00	2.00
<i>DOWNSTREAM</i>			
24) Verify that section is not a standard section (e.g. trapezoidal, etc.). If not standard, check irregular section versus topography and adjust as necessary.	47	4.30	-4.20
25) Check irregular section versus topography and adjust as necessary.	2	3.30	0.00
26) Check clip reference information Clip Reference El. < 99	116	110.00	82.00
27) Checking Manning's N for standard channel sections. Max N Value > 0.15 Min N Value < 0.013	1	0.05	0.01
28) Check top clip information Flag if used	0	0.00	0.00
29) Check bottom clip information Flag if used	0	0.00	0.00
30) Check irregular section if it is used (Main Xsec) Flag if Section is not used	152		
31) Check irregular section if it is used (Aux Xsec 1) Flag if Section is not used	19		
32) Check irregular section if it is used (Aux Xsec 2) Flag if Section is not used	3		
33) Check irregular section versus topography and adjust as necessary (Aux Elev 1). FLAG if Elevation < = MainXSEC Inv.	0	90.00	72.80
34) Check irregular section versus topography and adjust as necessary (Aux Elev 2). FLAG if Elevation < = MainXSEC Inv.	0	83.00	82.90
35) Checking channel top width for parabolic sections Maximum allowable Channel Top Width (Parabolic) (ft) 35 Minimum allowable Channel Top Width (Parabolic) (ft) 4	0	0.00	0.00
36) Checking channel depth for parabolic sections Maximum allowable Channel Depth (Parabolic) (ft) 10	0	0.00	0.00
37) Checking channel bottom width for trapezoidal sections Maximum allowable Channel Bottom Width (Trapezoidal) (ft) 35 Minimum allowable Channel Bottom Width (Trapezoidal) (ft) 2	50	0.00	0.00

PIPE CHECKS

TOTAL NUMBER OF PIPES= 141

"Check" Description	"CHECK" Count	Maximum Value	Minimum Value
1) Checks the entrance loss coefficient based on the FHWA inlet edge description. Flag if specified entrance loss coefficients is not consistent with FHWA.	43	0.70	0.50
2) Identifies instances where the exit loss coefficient is not equal to zero. Exit loss coeff. = 0 Note: exit losses are only applied under outlet control	141	0.10	0.10
3) Identifies instances where the bend loss coefficient is not equal to zero. Bend loss coeff. = 0 Note: bend losses are only applied when the D/S node is a manhole.	0	0.00	0.00
4) Checks instances where links are set to "no flow" Flag if flow is set to "No Flow"	0		
5) Checks for instances where the upstream and downstream geometry do not match. U/S GEOM <> D/S GEOM	0		
6) Checks for instances where the upstream and downstream span do not match. U/S Span <> D/S Span	1	144.00	10.00
7) Checks for instances where the upstream and downstream rise do not match. U/S Rise <> D/S Rise	0	96.00	10.00
8) Checks for instances where the upstream and downstream Manning's "N" do not match. U/S N <> D/S N	0	0.03	0.01
9) Identifies instances where the outlet control is not equal to "tc or tw".	0		
10) Identifies instances where the inlet control is not equal to "dn".	141		
UPSTREAM			
11) Identifies pipes with span less than the minimum specified below. Minimum Pipe Size (in.) 18	6	144.00	10.00
12) Identifies pipes with rise less than the minimum specified below. Minimum Pipe Size (in.) 12	2	96.00	10.00
DOWNSTREAM			
13) Identifies pipes with span less than the minimum specified below. Minimum Pipe Size (in.) 18	6	144.00	10.00
14) Identifies pipes with rise less than the minimum specified below. Minimum Pipe Size (in.) 12	2	96.00	10.00

DROP STRUCTURE CHECKS

TOTAL NUMBER OF DROPS= 88

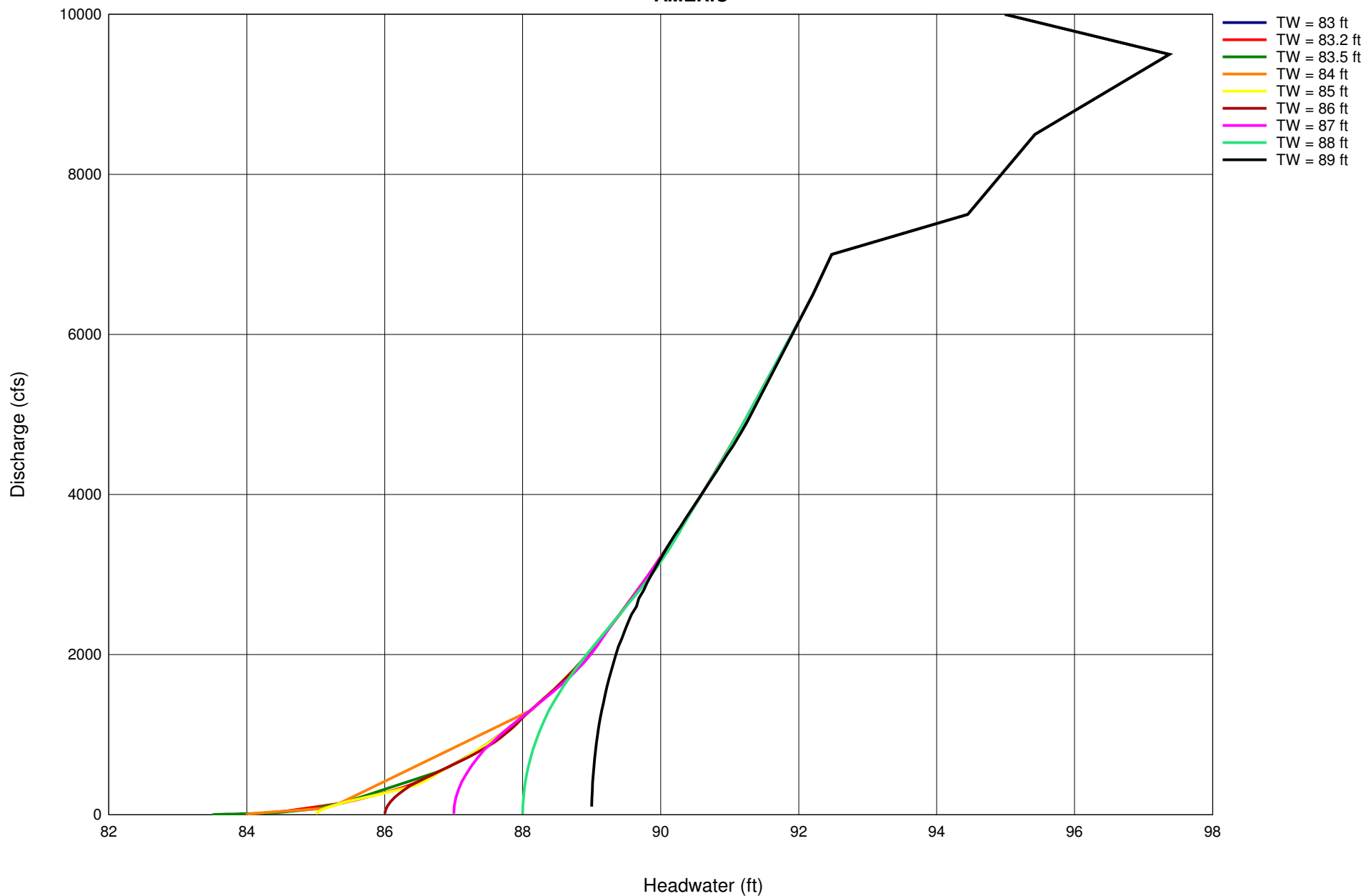
"Check" Description	"CHECK" Count	Maximum Value	Minimum Value
PIPES			
1) Checks the entrance loss coefficient based on the FHWA inlet edge description. Flag if entrance loss coefficient is inconsistent with inlet edge description.	16		
2) Checks for instances where the exit loss coefficient is not equal to zero. Exit Loss Coeff. <> 0 Note: exit losses are only applied under outlet control.	84		
3) Checks for instances where pipe link is set to "no flow". Flag if flow is set to "No Flow"	1		
4) Checks for instances where the upstream and downstream geometry do not match. U/S GEOM <> D/S GEOM	0		
5) Checks for instances where the upstream and downstream span do not match. U/S Span <> D/S Span	0	120.00	10.00
6) Checks for instances where the upstream and downstream rise do not match. U/S Rise <> D/S Rise	0	120.00	10.00
7) Checks for instances where the upstream and downstream Manning's "N" do not match. U/S N <> D/S N	0	0.024	0.011
8) Identifies instances where the outlet control is not equal to "tc or tw".	0		
9) Identifies instances where the inlet control is not equal to "dn".	88		
UPSTREAM			
10) Identifies pipes with span less than the minimum specified below. Minimum Pipe Size (in.) 18	4	120.00	10.00
11) Identifies pipes with rise less than the minimum specified below. Minimum Pipe Size (in.) 12	1	120.00	10.00
DOWNSTREAM			
12) Identifies pipes with span less than the minimum specified below. Minimum Pipe Size (in.) 18	4	120.00	10.00
13) Identifies pipes with rise less than the minimum specified below. Minimum Pipe Size (in.) 12	1	120.00	10.00
WEIRS			
14) Checks for instances where weir link is set to "no flow". Flag if flow is set to "No Flow"	4		
15) Checks instances where the span exceeds the limits specified by the user.	28	99999.00	5.00
16) Checks instances where the rise exceeds the limits specified by the user below.	0	99999.00	5.50
17) Compares minimum cross-elevations to channel invert elevations. Sections are flagged that do not meet the minimum allowable difference.	0	0.00	0.00
18) Identifies instances where the distance between the weir crest and control elevation (i.e. control - weir crest) exceeds the maximum allowable.	0	0.00	-1.00
19) Identifies instances where the weir bottom width (trapezoidal only) exceeds the limits. User must specify criteria below. Maximum allowable Channel Bottom Width (Trapezoidal) (ft) 10 Minimum allowable Channel Bottom Width (Trapezoidal) (ft) 2	0	0.00	0.00
20) Identifies instances where the minimum allowable structure opening dimension is exceeded (trapezoidal, parabolic, and irregular). User must specify minimum allowable structure opening below. Minimum Structure Opening Dim.(ft) 0.5	0		

DROP STRUCTURE CHECKS

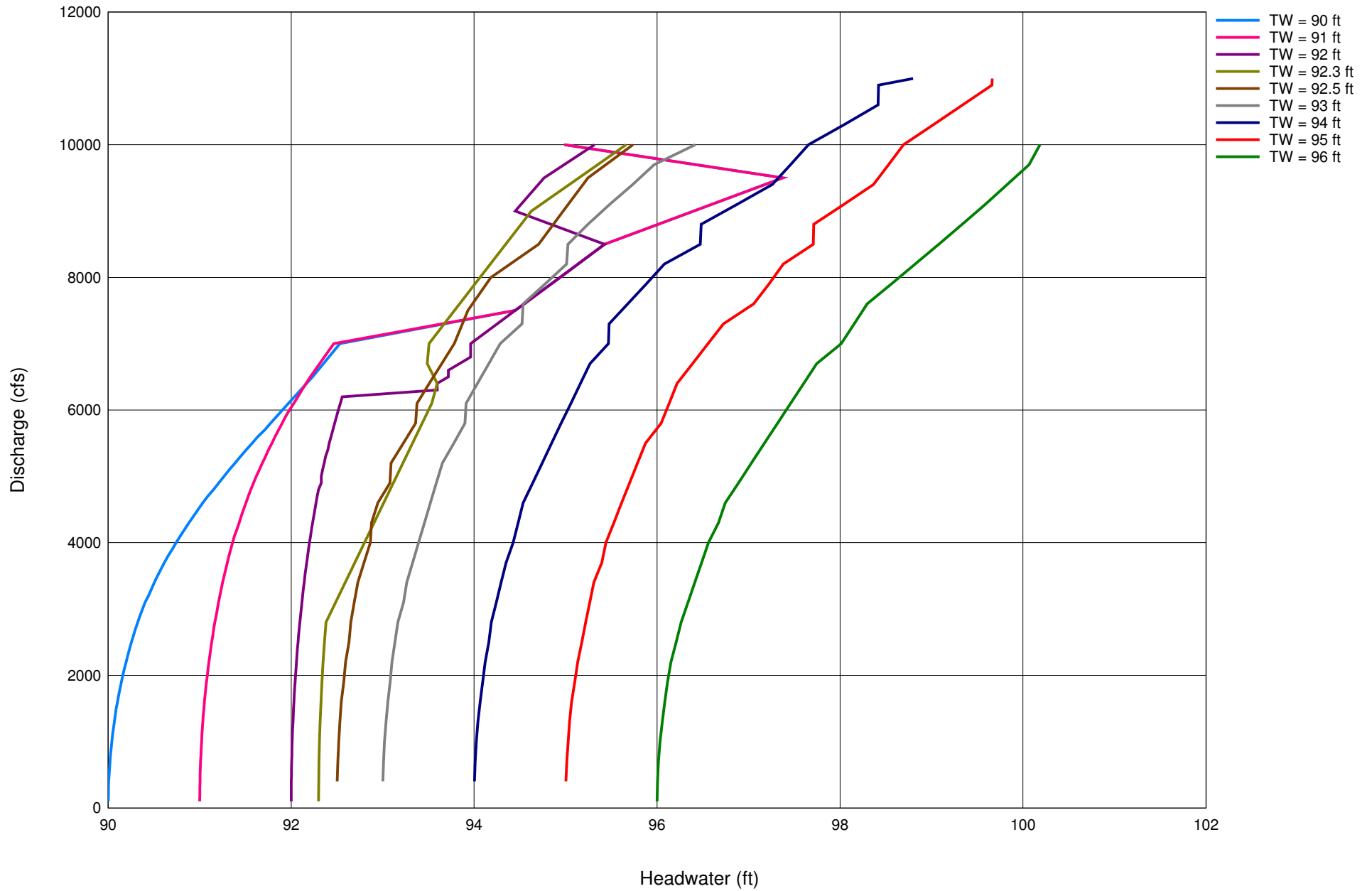
TOTAL NUMBER OF DROPS= 88

"Check" Description	"CHECK" Count	Maximum Value	Minimum Value
21) Identifies instances where the top width exceeds the limits specified by user below. Maximum allowable Top Width (Parabolic) (ft) 35 Minimum allowable Top Width (Parabolic) (ft) 4	0	0.00	0.00
22) Identifies instances where the depth exceeds the limit specified by user below. Maximum allowable Depth (Parabolic) (ft) 10	0	0.00	0.00
23) Identifies instances where the bottom clip exceeds the opening dimension. Flag if clip is > opening dimension	0	2.00	1.00
24) Identifies instances where the top clip exceeds the opening dimension. Flag if clip is > opening dimension	0	2.00	1.00
25) Identifies instances where the weir coefficients exceed the limits specified by user.	98		
26) Identifies instances where the orifice coefficient is not equal to the user specified value below. Flag if Coeff. <> 0.6	1		
27) Identifies sections not used in routing calculations. Flag if Section is not used	16		
28) Identifies instances where the horizontal weir elevation is lower than the top of the vertical weir.	2		

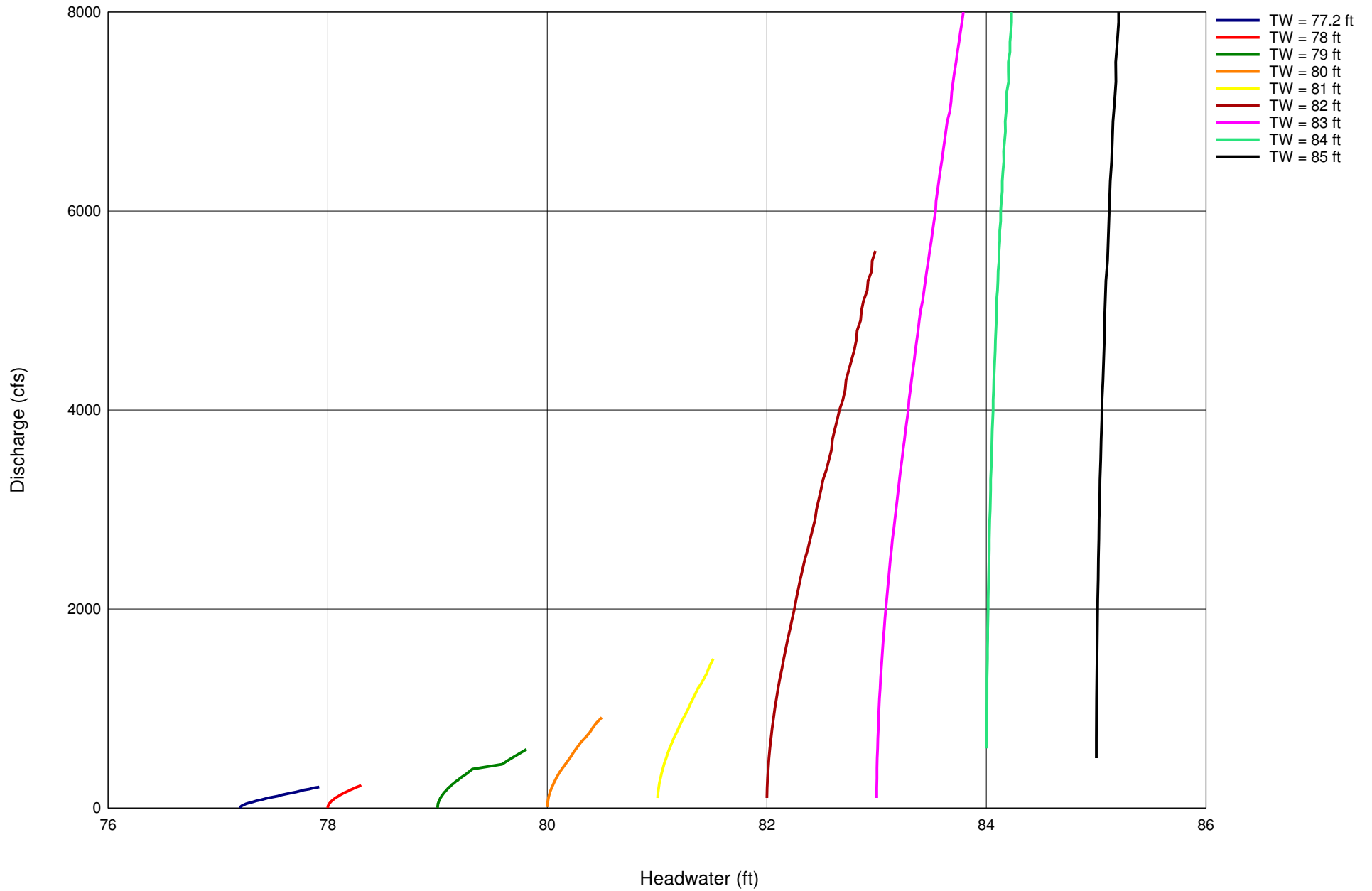
AMERIC



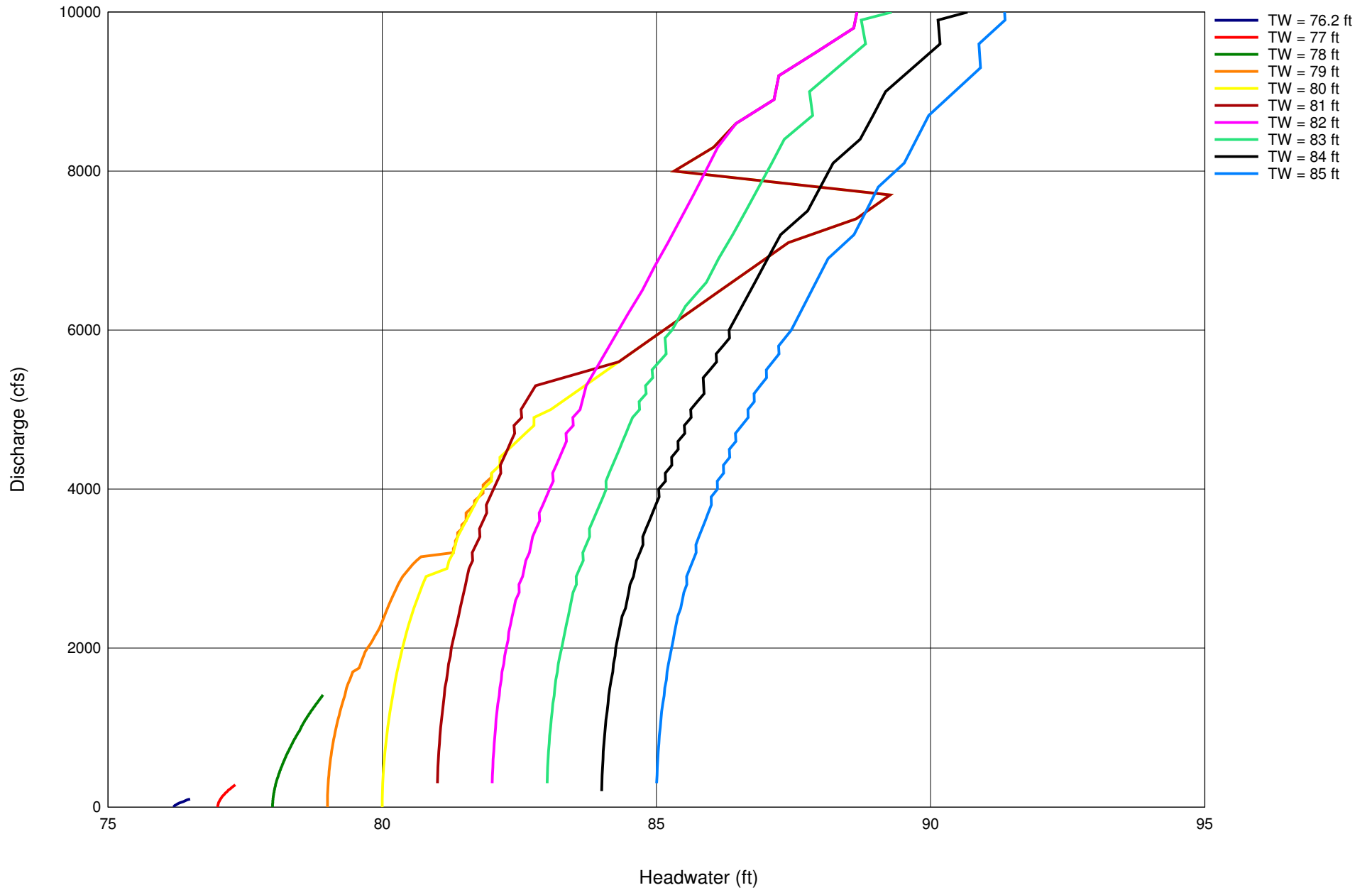
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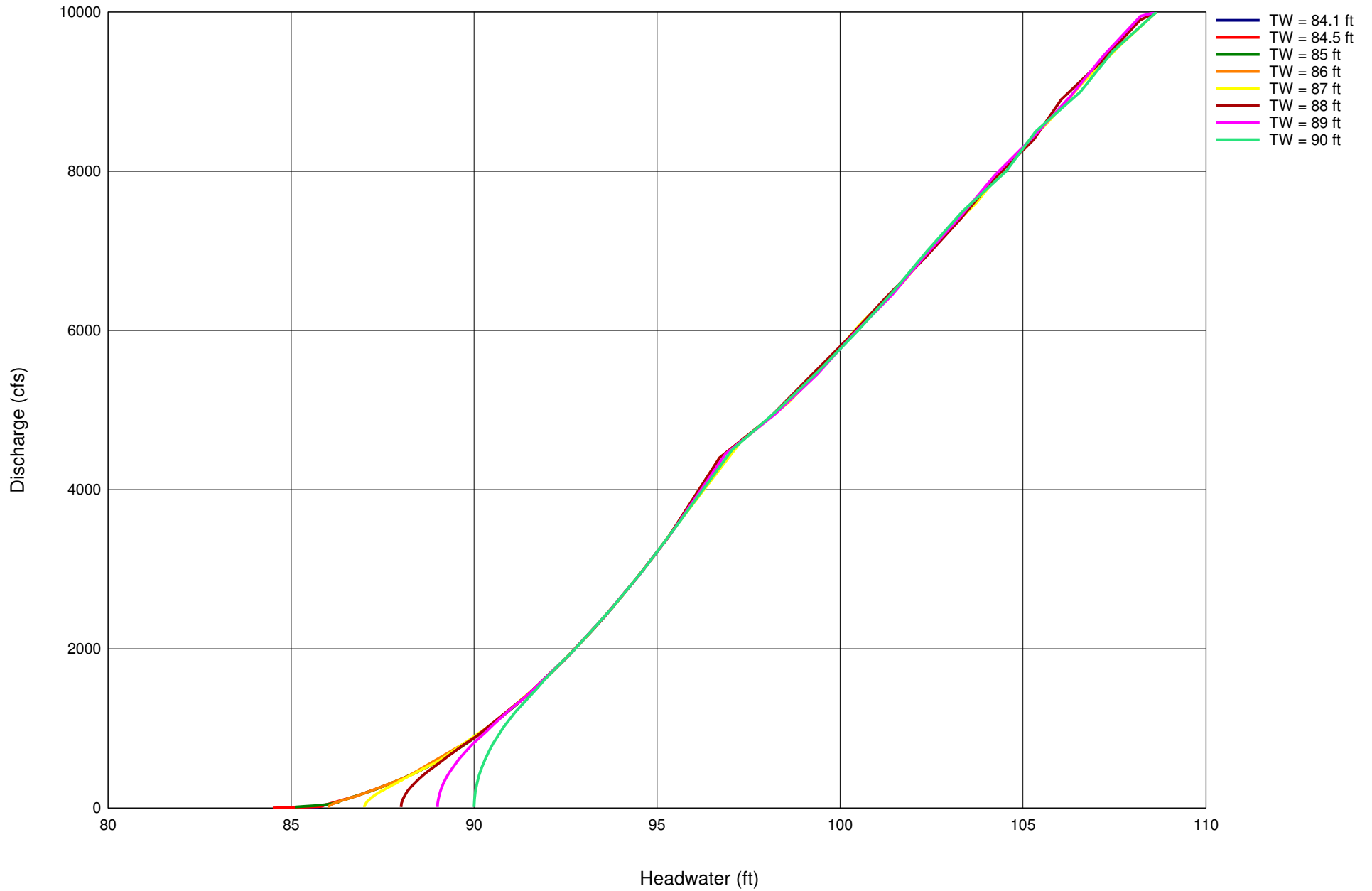
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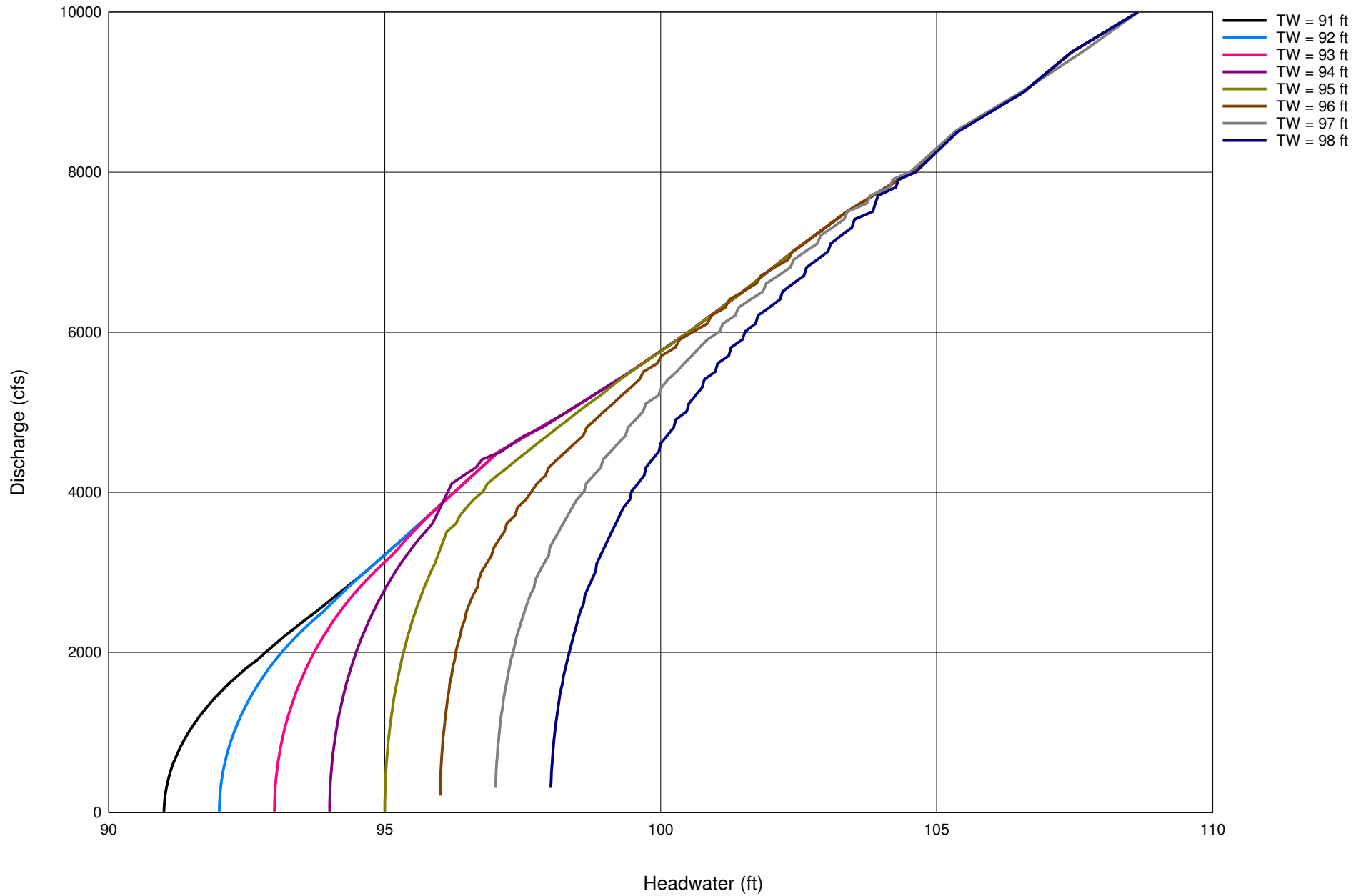
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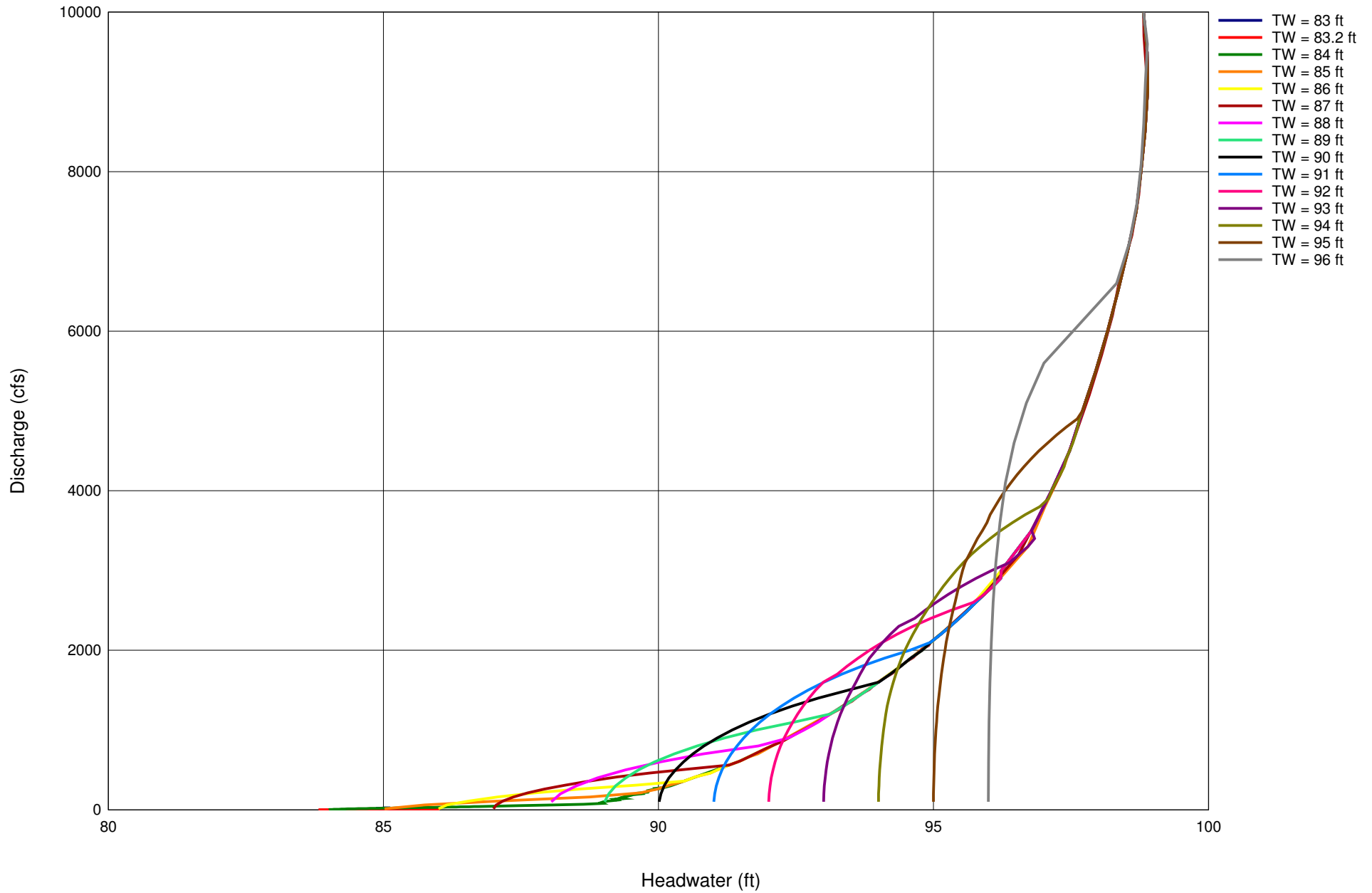
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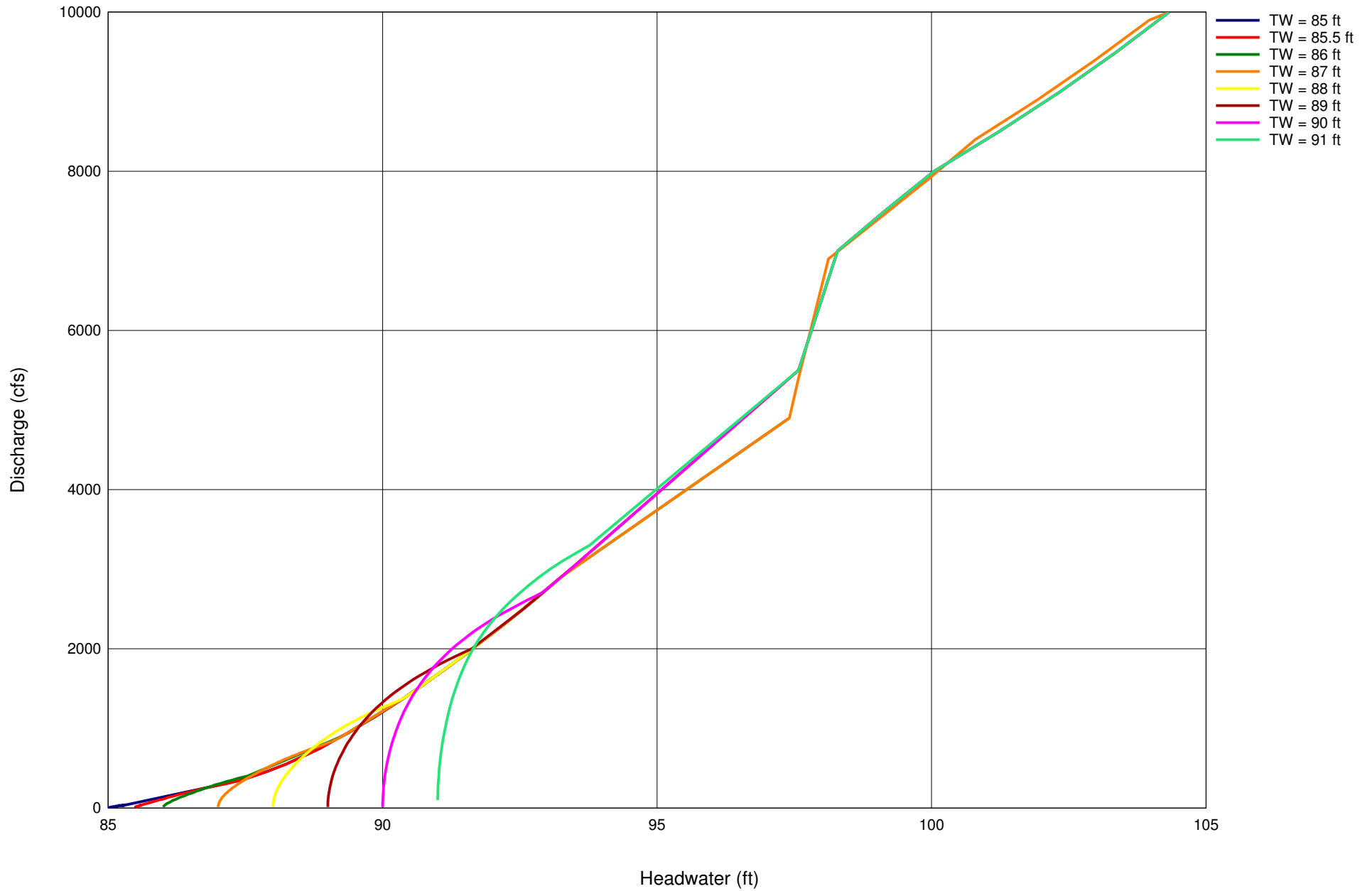
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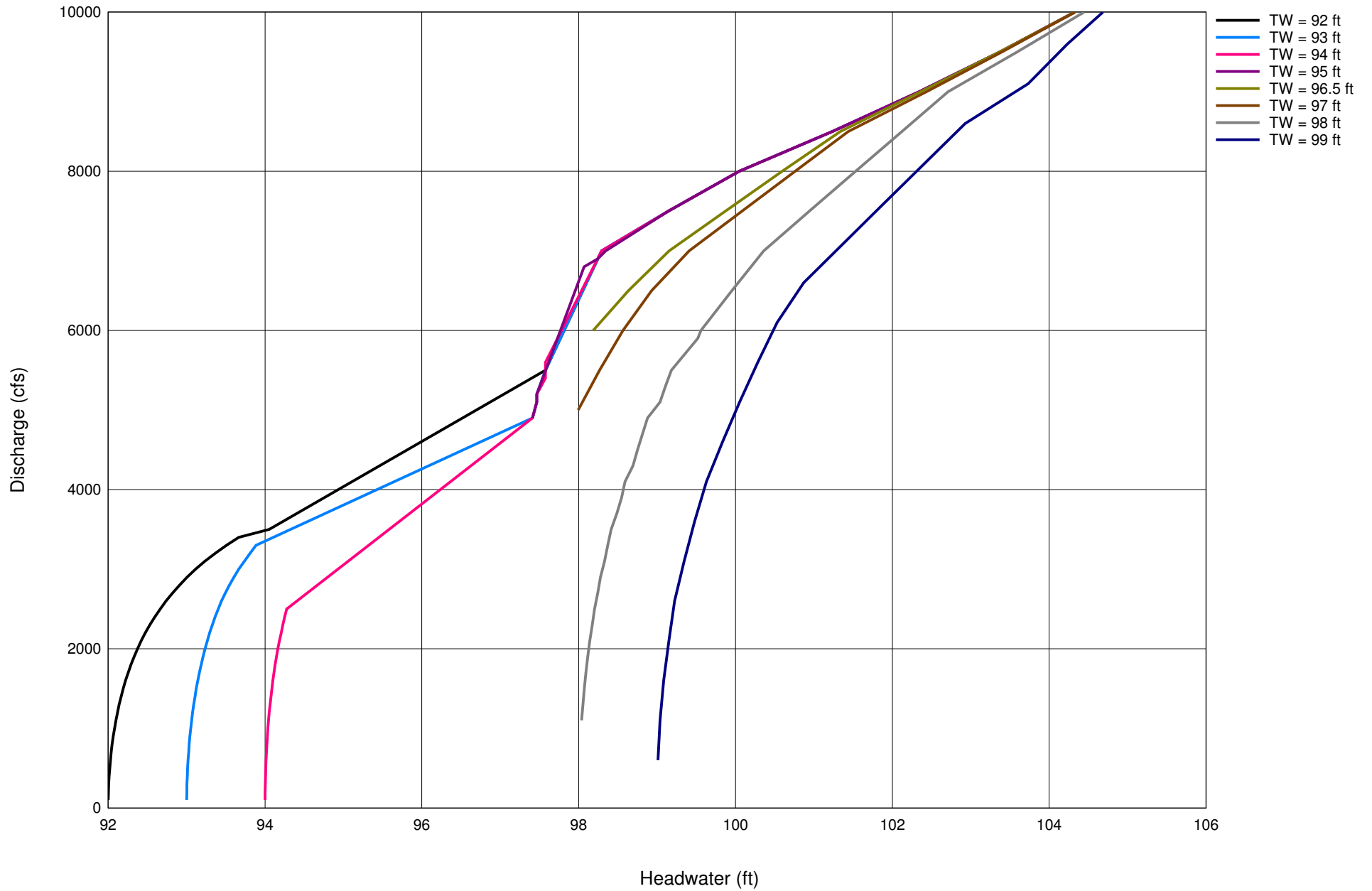
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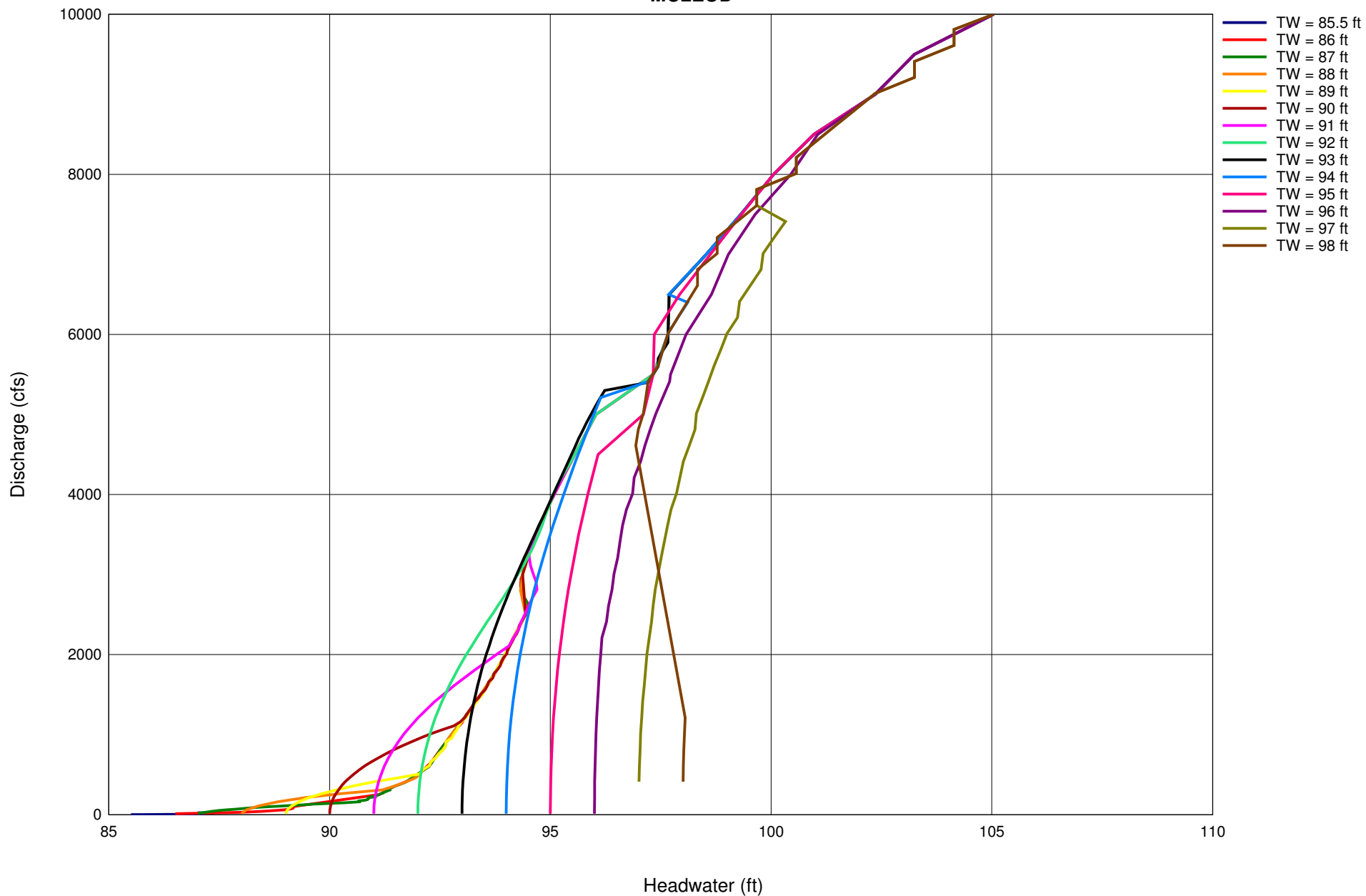
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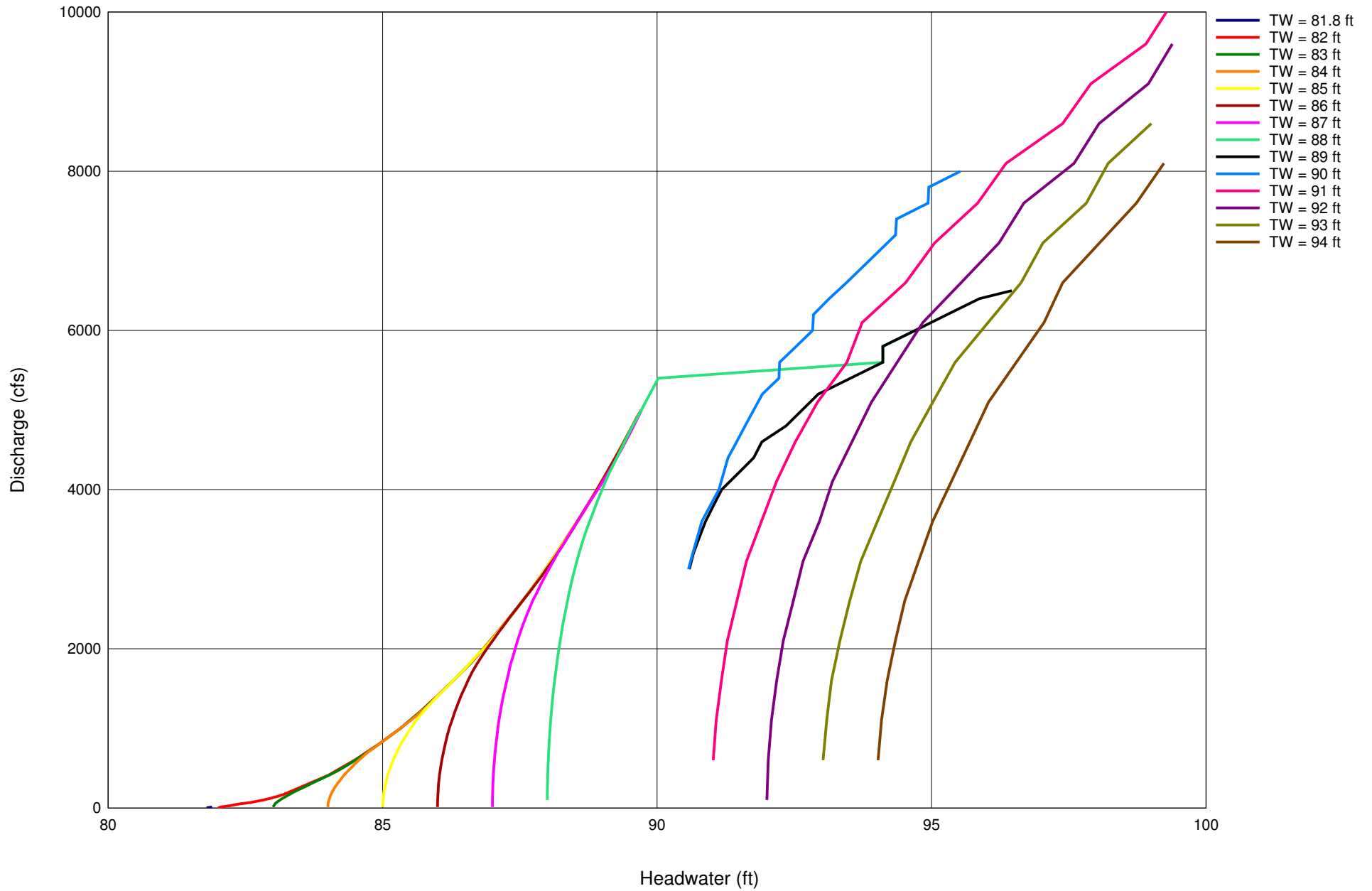
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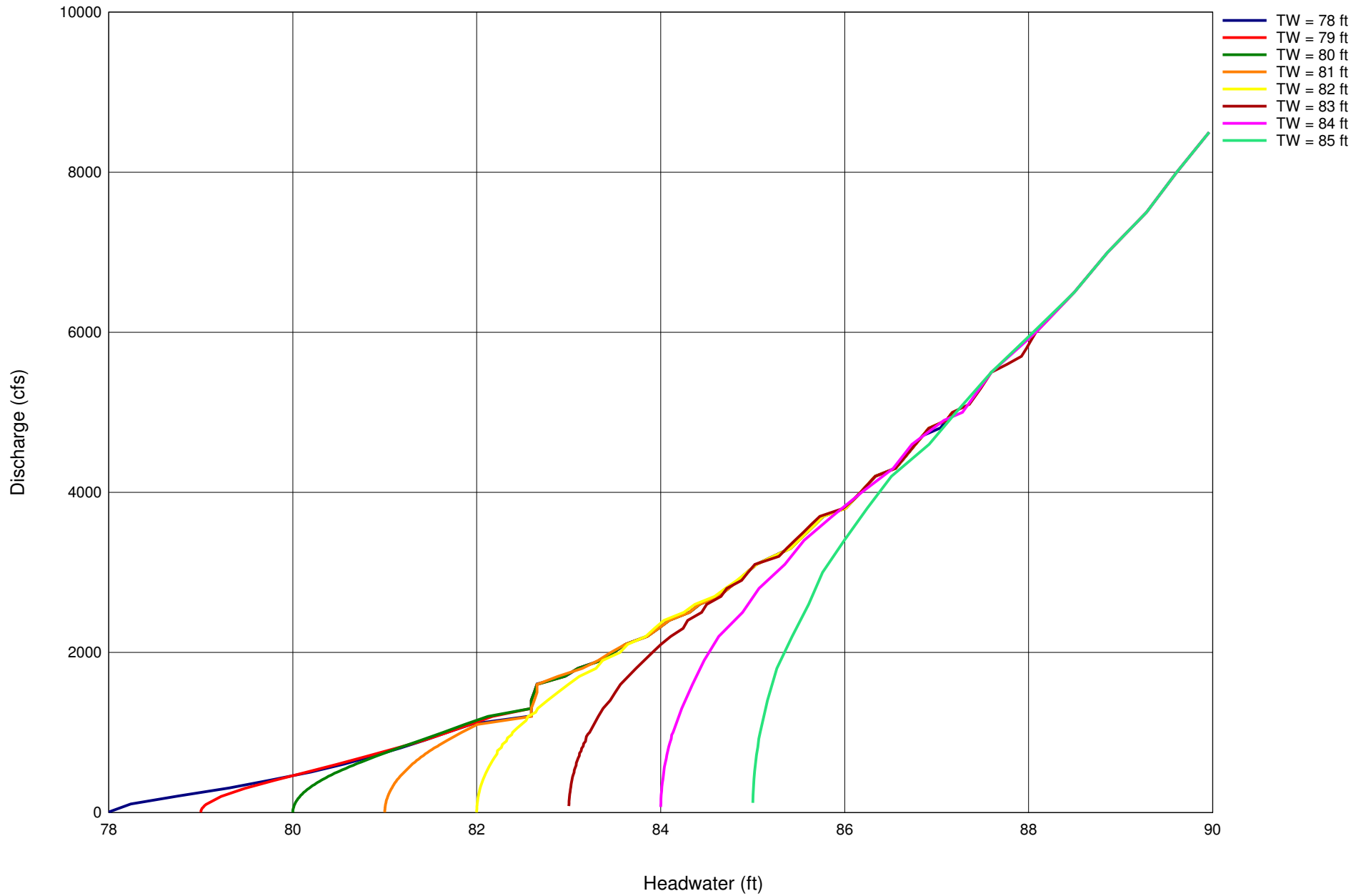
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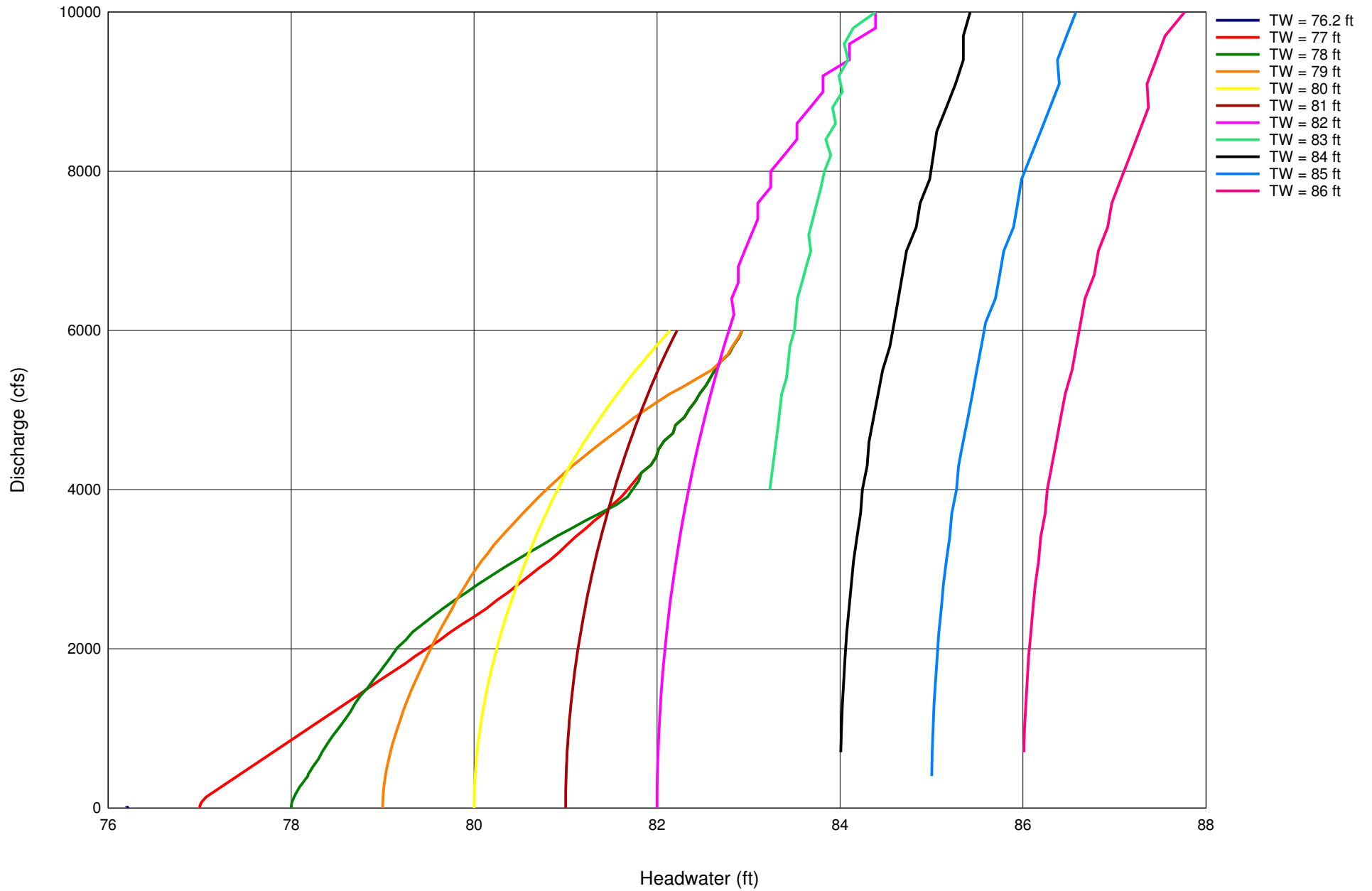
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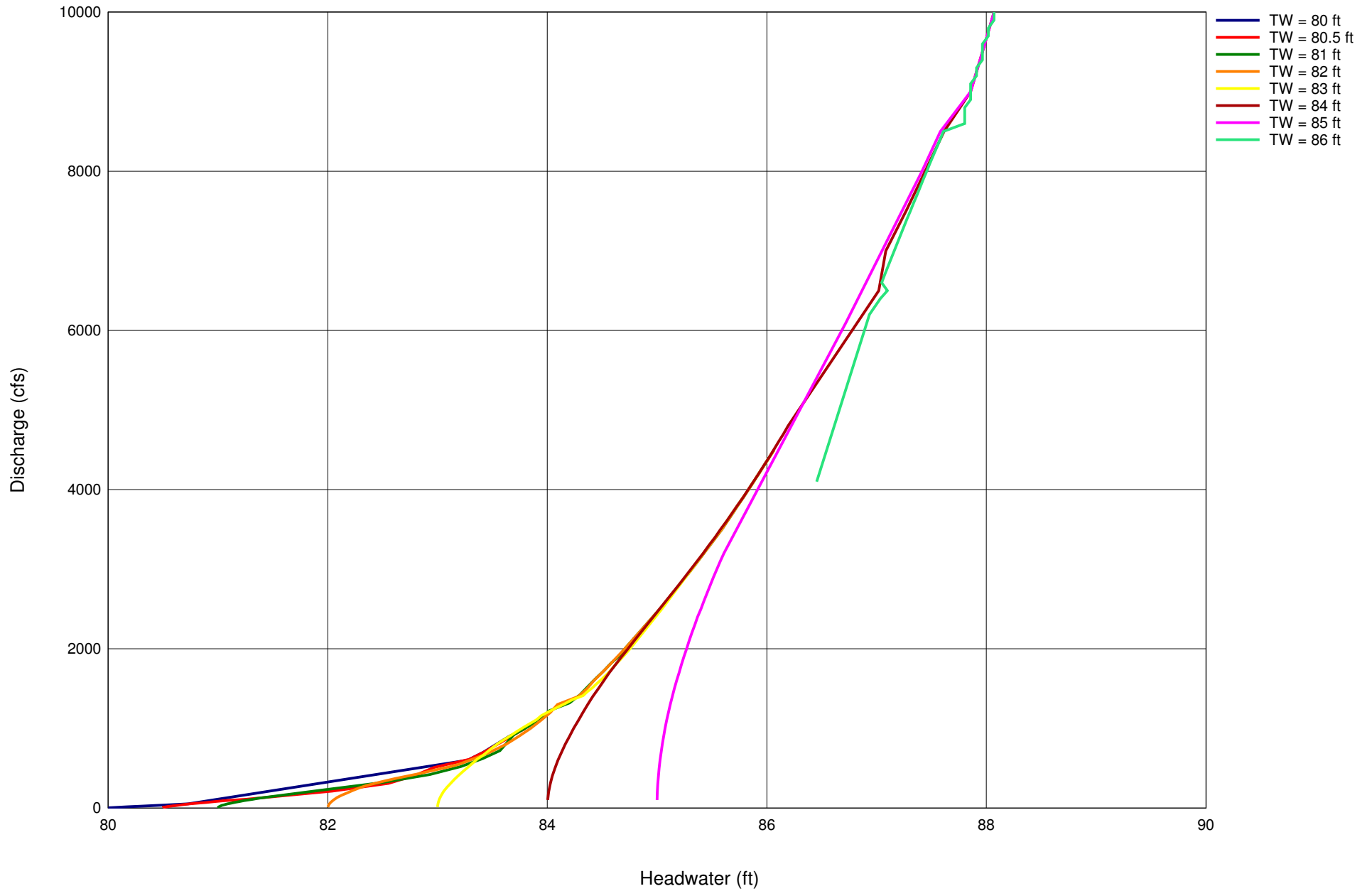
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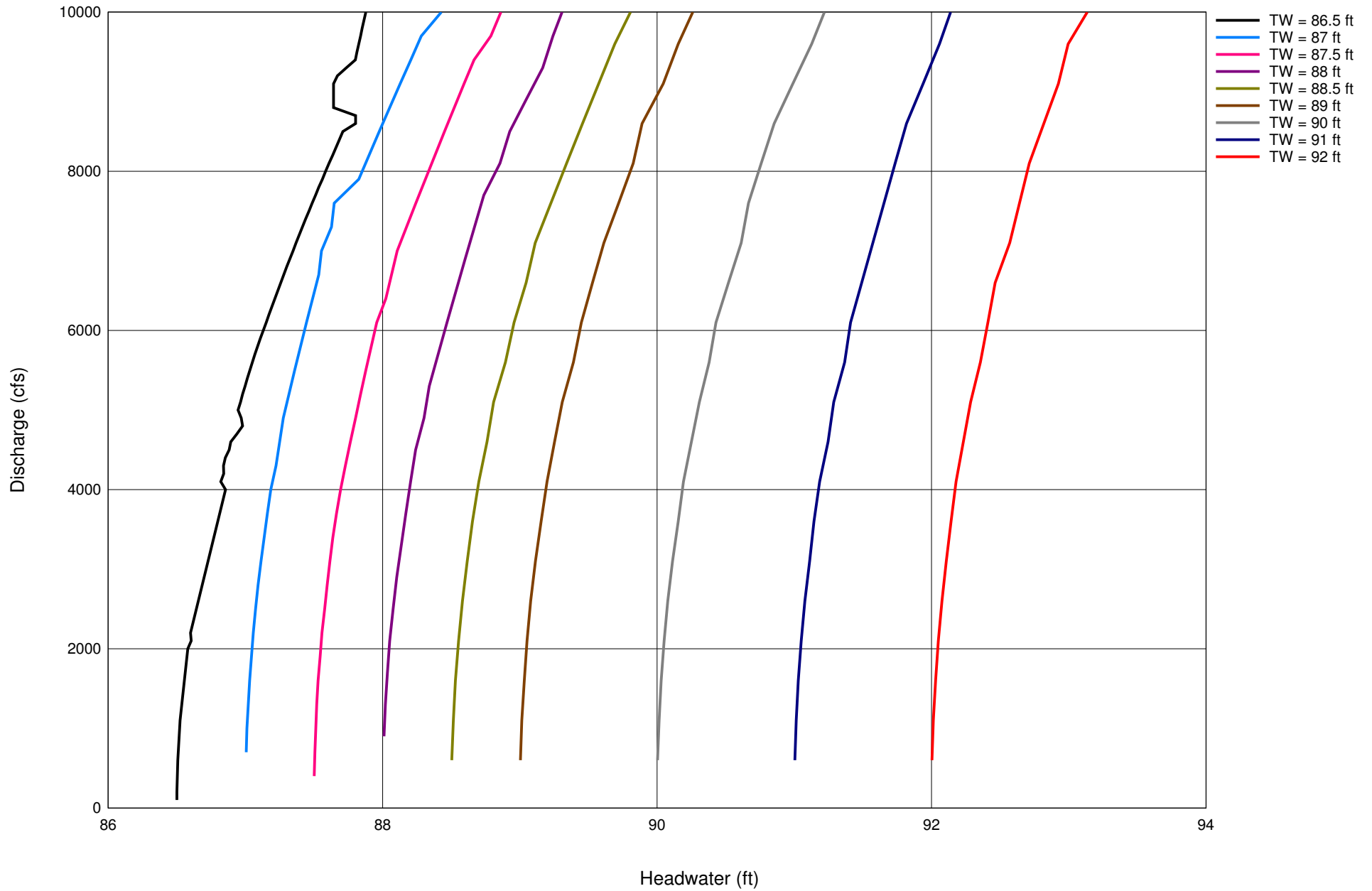
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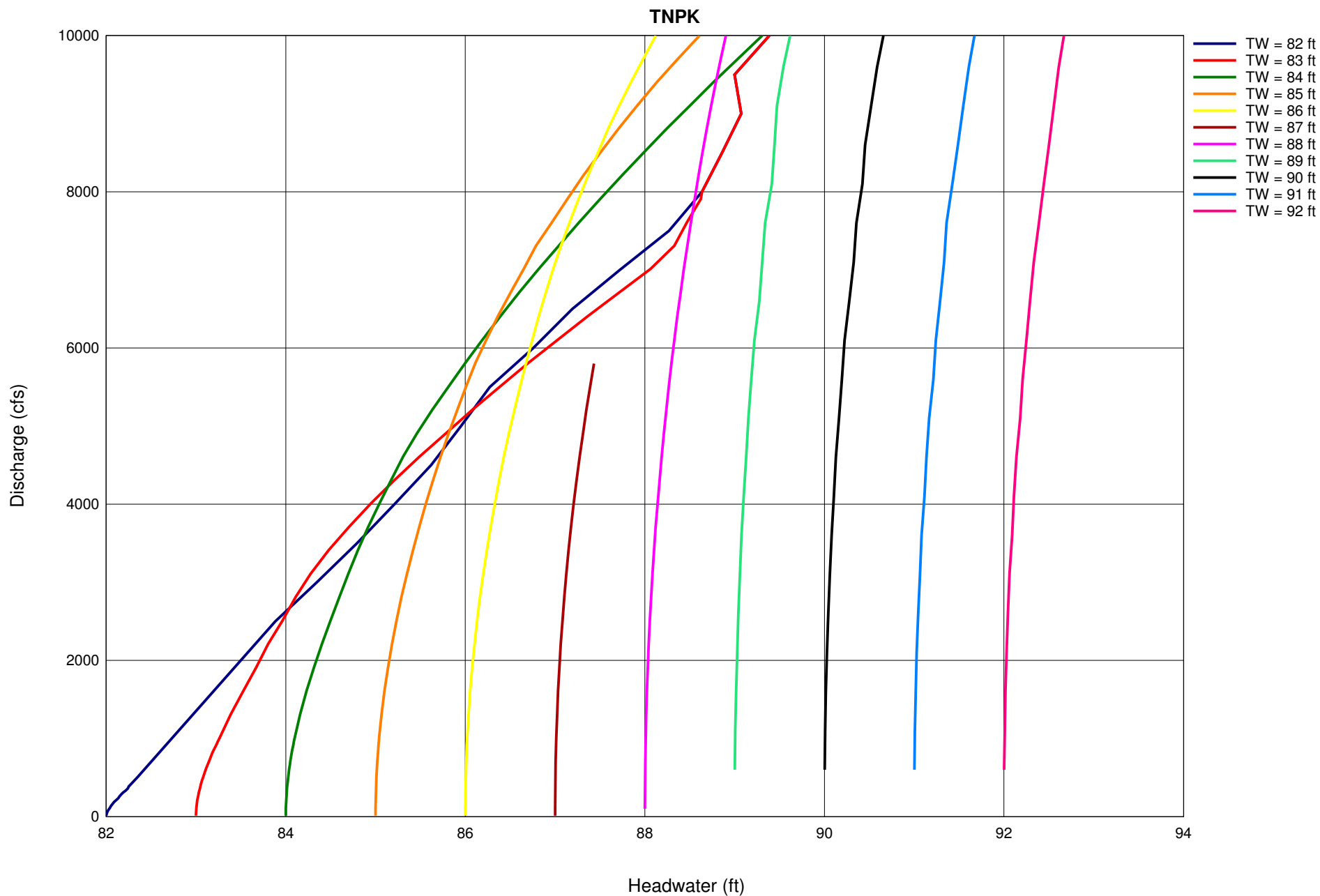


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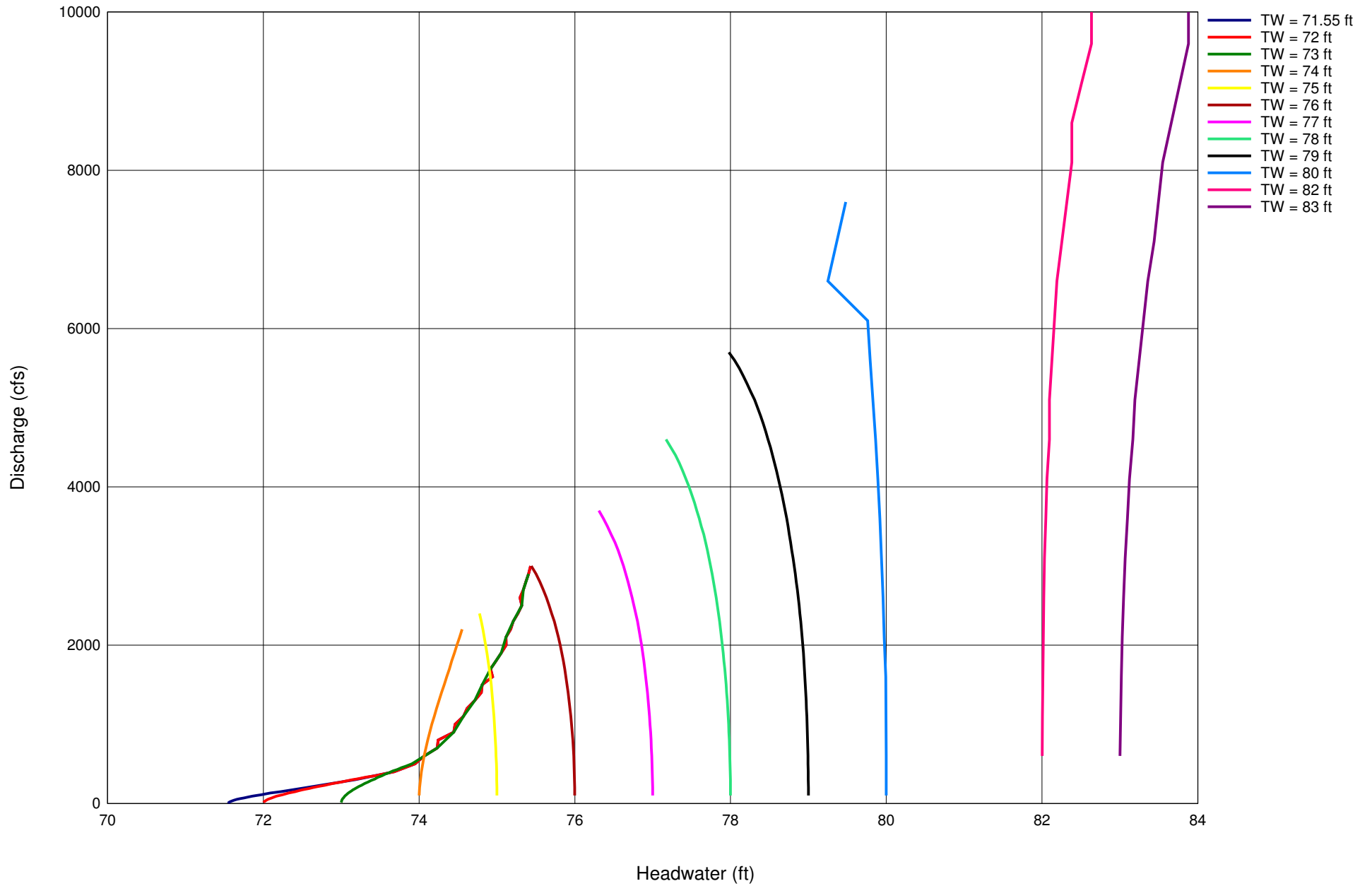


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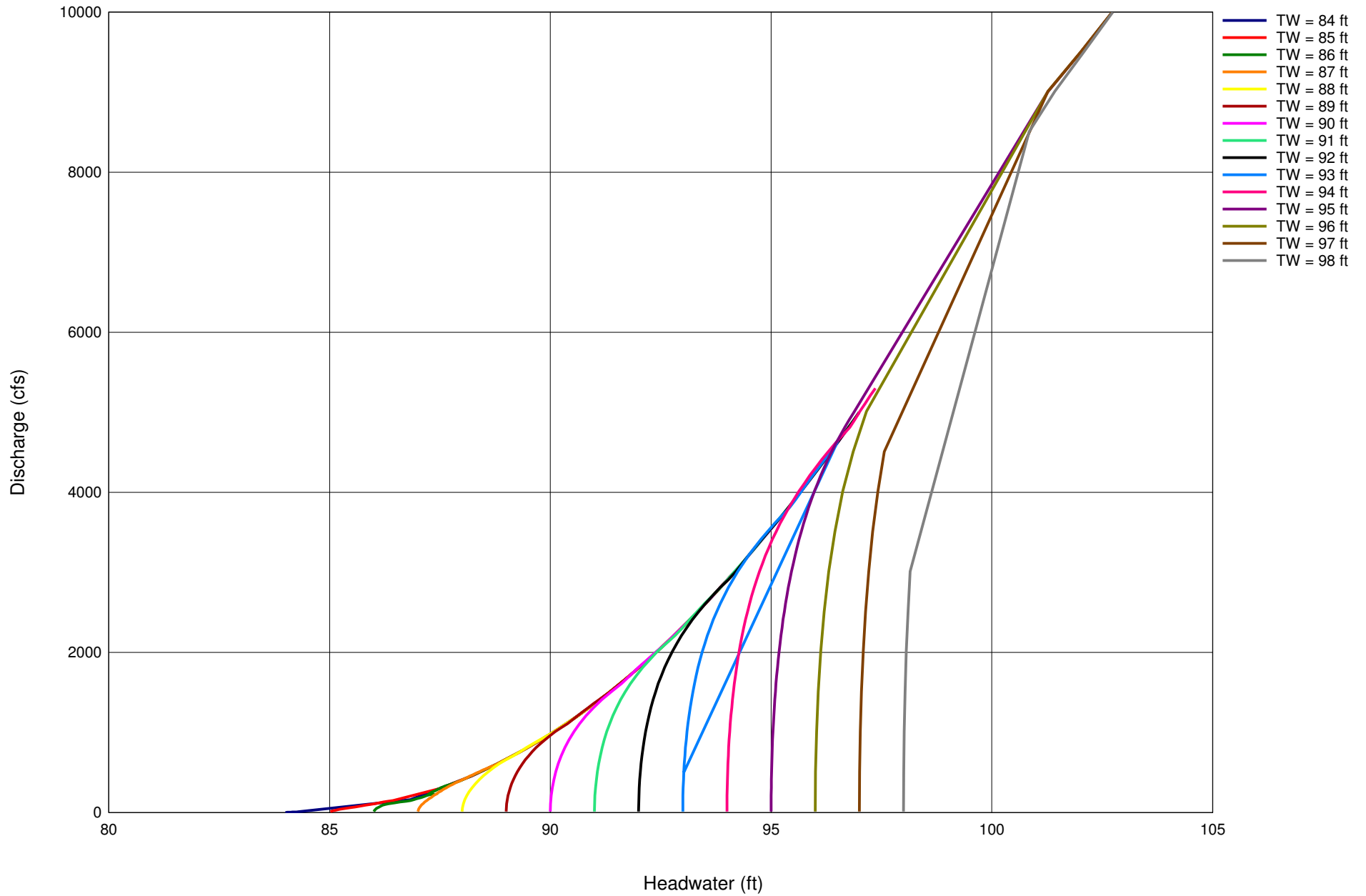




TOWNCB



VINELAND



Submittal Examples

RefDocs

*(Please note this section has been included electronically
and not in hard copy format.)*

Submittal Examples

Standard Report Tables

(Please note that only excerpts from ICPR reports have been included as hard copies. Complete ICPR comparison reports have been included electronically.)

Level Of Service Evaluation

Existing vs. Design Comparison

Basin Max Comparison

Link Max Comparison

Node Max Comparison

Node Name	Group	Drainage Type	Road Name	Storm Frequency	Rd Overflow Elev (NGVD88)	Channel or Pond TOB Elev (NGVD88)	R/W Elev (NGVD88)	10-Year Stage	25-Year Stage	Level of Service
RE05	RE	Primary Drainage	Reidsville Dr	25	32.4	26	26.5	25.463	25.904	A
RE10	RE	Primary Drainage		25	26.45	27	26.5	25.557	26.011	A
RE15	RE	Primary Drainage		25		27	26.5	25.559	26.013	A
RE20	RE	Primary Drainage	Red Mill Dr	25	26.45	28	27	25.695	26.164	A
RE25	RE	Primary Drainage		25				25.696	26.164	A
RI05	RI	Primary Drainage	Royal Palms Pky	25	32.77	28	28	25.454	25.939	A
RI10	RI	Primary Drainage		25		28	28	25.628	26.114	A
RI15	31-RI	Primary Drainage		25		29	29	27.845	27.941	A
RI16	31-RI	Primary Drainage		25		29	29	28.348	28.644	A
RI18	31-RI	Primary Drainage	Riviera Dr	25	28.45	28	28	26.149	26.733	A
RI20	RI	Primary Drainage		25		29	28.5	26.157	26.74	A
RI25	RI	Primary Drainage		25		29	28.5	26.163	26.747	A
RI30	RI	Primary Drainage	Rymfire Dr	25	29.45	27	26.5	26.284	26.902	A
RI35	RI	Primary Drainage		25				26.293	26.91	A
RP05	RP	Primary Drainage		25				14.208	14.397	A
RP07	RP	Primary Drainage		25				14.276	14.467	A
RP10	RP	Primary Drainage		25				14.775	15.044	A
RP15	RP	Primary Drainage		25				15.887	16.162	A
RP20	RP	Primary Drainage		25				18.185	18.58	A
RP25	RP	Primary Drainage		25				21.434	21.862	A
RP30	RP	Primary Drainage		25				21.627	22.059	A
RP35	RP	Primary Drainage		25				22.169	22.618	A
RP37	RP	Primary Drainage		25				22.215	22.666	A
RP40	RP	Primary Drainage		25				22.665	23.116	A
RP45	RP	Primary Drainage		25				22.809	23.264	A
RP50	RP	Primary Drainage		25				22.935	23.392	A
RP55	RP	Primary Drainage	Belle Terre Pky	25	28.95			23.816	24.441	A
RP57	RP	Primary Drainage		25				24.633	24.987	A
RP60	RP	Primary Drainage		25				24.73	25.086	A
RP65	RP	Primary Drainage		25				24.84	25.2	A
RP70	RP	Primary Drainage		25		31	31	24.996	25.364	A
RP80	RP	Primary Drainage		25		31	31	25.023	25.389	A
RP85	RP	Primary Drainage		25		31	31	25.035	25.4	A
RPW015	31-RPW	Secondary Road		10		27	28.5	26.63	26.897	A
RPW016	31-RPW	Natural Drainage		25		28	28	27.659	27.678	A
RPW020	31-RPW	Secondary Road		10	28.38	27	28.5	26.849	27.07	A
RPW025	31-RPW	Secondary Road		10		27	28.5	26.864	27.079	A
RPW030	31-RPW	Secondary Road		10	27.98	27	28.5	27.048	27.216	B
RPW031	31-RPW	Primary Drainage		25		30.27	30.27	28.871	28.987	A
RPW035	31-RPW	Secondary Road		10		27	28.5	27.052	27.219	B
RPW040	31-RPW	Secondary Road		10	27.26	27	28.5	27.139	27.276	B
RPW041	31-RPW	Primary Drainage		25		31.95	31.95	28.268	28.747	A
RPW045	31-RPW	Secondary Road		10		28	28	27.147	27.281	A
RPW050	31-RPW	Secondary Road		10		28	27	27.147	27.279	A
RPW055	31-RPW	Secondary Road		10		29	27	27.142	27.258	A
RPW060	31-RPW	Secondary Road		10		26.53	27.25	27.128	27.22	B
RPW065	31-RPW	Secondary Road		10		27	27.5	27.159	27.294	B
RPW070	31-RPW	Secondary Road		10		27	27.3	27.161	27.296	B
RPW075	31-RPW	Secondary Road	Richardson Dr	10	26.37	28	28	27.153	27.289	B
RPW080	31-RPW	Secondary Road		10		27	27.5	27.072	27.203	B
RPW085	31-RPW	Secondary Road	Richelive	10	26.17	27.3	27.5	27.069	27.201	B
RPW090	31-RPW	Secondary Road		10		27	27.25	27.067	27.198	B
RPW100	31-RPW	Primary Drainage		25		30.5	30.5	28.247	28.476	A
RPW105	31-RPW	Primary Drainage		25		30.4	30.4	29.405	29.602	A
RPW110	31-RPW	Secondary Road	Royal Palms Pky	10		26	27	26.597	26.87	B
RPW115	31-RPW	Secondary Road		10		27	28	26.87	27.066	A
RPW120	31-RPW	Secondary Road		10	26.26	27	28	26.884	27.075	A
RPW125	31-RPW	Secondary Road		10		27	28	27.013	27.125	B
RPW130	31-RPW	Secondary Road		10	26.36	27	28	26.913	27.082	A
RPW135	31-RPW	Secondary Road		10		27	28	26.908	27.077	B
RPW140	31-RPW	Secondary Road	Royal Palms Pky	10		27	28	26.908	27.077	A
RPW145	31-RPW	Primary Drainage		25		31	31	29.311	29.488	A
RPW150	31-RPW	Natural Drainage		25		28	28	27.503	27.539	A
RPW155	31-RPW	Secondary Road		10		26	27.35	26.646	26.68	B
RPW160	31-RPW	Secondary Road	Ridley Ln	10	26.55	27.5	27.5	26.871	27.053	B
RPW165	31-RPW	Secondary Road		10		27	27.5	26.882	27.06	B
RPW170	31-RPW	Secondary Road	Riddle Dr	10	26.68	27.5	27.5	26.884	27.063	B
RPW175	31-RPW	Secondary Road		10		27	27.35	26.907	27.076	B
RPW180	31-RPW	Secondary Road		10		28	28	26.907	27.076	B
RPW185	31-RPW	Secondary Road	Rymfire Dr	10	29.19	28	28	27.476	27.613	A
RPW190	31-RPW	Secondary Road	Rymfire Dr	10	28.09	27	27	26.661	26.972	A
RPW195	31-RPW	Secondary Road	Rickenbacker Dr	10	26.51	27	27.5	27.027	27.177	B
RPW200	31-RPW	Secondary Road		10		28	27.5	26.896	27.151	A
RS05	RS	Primary Drainage		25				26.157	26.741	A

Node Name	Group	Drainage Type	Road Name	Storm Frequency	Rd Overflow Elev (NGVD88)	Channel or Pond TOB Elev (NGVD88)	R/W Elev (NGVD88)	10-Year Stage	25-Year Stage	Level of Service
RS10	RS	Primary Drainage	Rymfire Dr	25	29.12			26.685	27.29	A
RS15	RS	Primary Drainage		25				26.686	27.291	A
RS20	RS	Primary Drainage	Royal Sands Dr	25	29.1			27.143	27.781	A
RS25	RS	Primary Drainage		25				27.144	27.782	A
RS30	RS	Primary Drainage	Whiteview Pky	25	25.55			27.177	27.813	A
RW105	31-RW	Secondary Road		10		27	27	26.151	26.735	B
RW110	31-RW	Secondary Road	Richmond Dr	10	26.28	27	27	26.716	26.761	B
RW115	31-RW	Secondary Road		10		27	27	26.727	26.778	B
RW120	31-RW	Secondary Road	Richland Ln	10	26.27	27	27	26.753	26.805	B
RW125	31-RW	Secondary Road		10		27	27.5	26.771	26.832	B
RW130	31-RW	Secondary Road	Richfield Ln	10	26.4	27	27	26.808	26.861	B
RW135	31-RW	Secondary Road		10		27.5	28	27.066	27.197	B
RW305	31-RW	Secondary Road		10		27	27	26.266	26.751	A
RW310	31-RW	Secondary Road		10		27	27	26.612	26.765	A
RW315	31-RW	Secondary Road		10		27	27	26.875	26.991	A
RW320	31-RW	Secondary Road		10		27	27.5	27.119	27.211	B

Stormwater Management Master Plan – Sections 31, 35 and 37

Table 7. Simulation Results at Selected Locations in
Sections 31 under various Project Conditions

Location	Node Name	2 Yr (ft)	5-Year (ft)	10-Year (ft)	25-Year (ft)	100-Year (ft)
Existing						
Rymfire Ditch						
@ Royal Palms Canal	RP85	24.02	24.61	25.04	25.40	25.95
@ Royal Palms Pkwy	RPW110	25.89	26.36	26.77	27.05	27.37
@ S. School Entrance	RPW020	26.23	26.63	26.99	27.22	27.49
@ N. School Entrance	RPW030	26.61	26.89	27.15	27.33	27.55
@ Park Entrance	RPW040	26.73	27.00	27.18	27.34	27.54
@ Southern tributary junction	RPW045	26.77	27.01	27.18	27.34	27.54
@ Rickenbacker Dr	RPW090	26.83	26.98	27.08	27.23	27.43
Alternate 1 (Secondary Improvements)						
@ Royal Palms Canal	RP85	24.00	24.59	25.02	25.39	25.95
@ Royal Palms Pkwy	RPW110	25.10	25.87	26.41	26.81	27.28
@ S. School Entrance	RPW020	25.28	26.04	26.63	27.01	27.40
@ N. School Entrance	RPW030	25.44	26.19	26.78	27.14	27.45
@ Park Entrance	RPW040	25.47	26.22	26.81	27.15	27.44
@ Southern tributary junction	RPW045	25.53	26.24	26.81	27.16	27.44
@ Rickenbacker Dr	RPW090	26.10	26.73	26.85	26.91	27.27
Alternate 2a						
@ Royal Palms Canal	RP85	24.02	24.62	25.06	25.42	25.98
@ Royal Palms Pkwy	RPW110	24.42	25.23	25.69	25.96	26.35
@ S. School Entrance	RPW020	25.28	26.05	26.46	26.71	26.93
@ N. School Entrance	RPW030	25.54	26.26	26.62	26.84	27.11
@ Park Entrance	RPW040	25.67	26.40	26.73	26.91	27.18
@ Southern tributary junction	RPW045	25.82	26.49	26.79	26.94	27.21
@ Rickenbacker Dr	RPW090	25.88	26.63	26.85	26.94	27.24
Alternate 3						
@ Royal Palms Canal	RP85	23.99	24.59	25.04	25.41	25.98
@ Royal Palms Pkwy	RPW110	25.10	25.87	26.41	26.78	27.18
@ S. School Entrance	RPW020	25.28	26.04	26.62	26.98	27.34
@ N. School Entrance	RPW030	25.44	26.19	26.78	27.13	27.42
@ Park Entrance	RPW040	25.47	26.22	26.81	27.14	27.42
@ Southern tributary junction	RPW045	25.53	26.24	26.81	27.14	27.42
@ Rickenbacker Dr	RPW090	25.31	26.22	26.56	26.68	27.16

Stormwater Management Master Plan
Existing Conditions - Basin Max Comparison Report

Simulation	Basin	Group	Time Max hrs	Flow Max cfs	Volume in	Volume ft3
002YR-EX	BA05B	BASE	15.58	27.72	2.852	1170888
005YR-EX	BA05B	BASE	15.50	41.17	4.188	1719148
010YR-EX	BA05B	BASE	15.50	53.20	5.386	2210866
025YR-EX	BA05B	BASE	15.42	64.49	6.513	2673469
050YR-EX	BA05B	BASE	15.42	73.98	7.463	3063505
100YR-EX	BA05B	BASE	15.42	83.52	8.421	3456650
500YR-EX	BA05B	BASE	15.33	105.56	10.645	4369383
002YR-EX	BA10B	BASE	12.58	59.45	2.324	750626
005YR-EX	BA10B	BASE	12.58	93.04	3.561	1149869
010YR-EX	BA10B	BASE	12.58	123.47	4.692	1515139
025YR-EX	BA10B	BASE	12.58	152.17	5.769	1862840
050YR-EX	BA10B	BASE	12.58	176.35	6.683	2158212
100YR-EX	BA10B	BASE	12.58	200.68	7.610	2457516
500YR-EX	BA10B	BASE	12.58	256.92	9.776	3156873
002YR-EX	BA15B	BASE	15.83	43.16	2.550	1907481
005YR-EX	BA15B	BASE	15.75	65.91	3.833	2866625
010YR-EX	BA15B	BASE	15.67	86.55	4.995	3736136
025YR-EX	BA15B	BASE	15.67	106.06	6.096	4559324
050YR-EX	BA15B	BASE	15.58	122.54	7.028	5256172
100YR-EX	BA15B	BASE	15.58	139.17	7.969	5960551
500YR-EX	BA15B	BASE	15.58	177.76	10.163	7601426
002YR-EX	BA20B	BASE	12.42	76.44	2.665	821246
005YR-EX	BA20B	BASE	12.42	115.02	3.968	1222596
010YR-EX	BA20B	BASE	12.42	149.38	5.144	1584834
025YR-EX	BA20B	BASE	12.42	181.46	6.254	1926882
050YR-EX	BA20B	BASE	12.42	208.31	7.192	2215951
100YR-EX	BA20B	BASE	12.42	235.20	8.139	2507803
500YR-EX	BA20B	BASE	12.42	297.07	10.343	3186715
002YR-EX	BA25B	BASE	12.42	66.03	2.752	671597
005YR-EX	BA25B	BASE	12.42	98.20	4.069	993260
010YR-EX	BA25B	BASE	12.42	126.71	5.255	1282700
025YR-EX	BA25B	BASE	12.42	153.23	6.373	1555524
050YR-EX	BA25B	BASE	12.42	175.41	7.317	1785830
100YR-EX	BA25B	BASE	12.33	197.78	8.268	2018169
500YR-EX	BA25B	BASE	12.33	249.20	10.481	2558126
002YR-EX	BA30B	BASE	13.75	56.95	2.523	1447059
005YR-EX	BA30B	BASE	13.75	87.39	3.800	2179638
010YR-EX	BA30B	BASE	13.67	114.98	4.959	2844474
025YR-EX	BA30B	BASE	13.67	141.00	6.056	3474291
050YR-EX	BA30B	BASE	13.67	162.94	6.986	4007664
100YR-EX	BA30B	BASE	13.67	185.03	7.926	4546956
500YR-EX	BA30B	BASE	13.67	236.14	10.117	5803695
002YR-EX	BA35B	BASE	12.42	83.72	2.994	851716
005YR-EX	BA35B	BASE	12.42	121.71	4.350	1237578
010YR-EX	BA35B	BASE	12.42	155.07	5.561	1582066
025YR-EX	BA35B	BASE	12.42	185.96	6.697	1905299
050YR-EX	BA35B	BASE	12.33	211.71	7.654	2177370
100YR-EX	BA35B	BASE	12.33	237.62	8.617	2451292
500YR-EX	BA35B	BASE	12.33	297.02	10.849	3086344
002YR-EX	BA40B	BASE	12.31	173.47	2.937	1631803
005YR-EX	BA40B	BASE	12.31	253.99	4.285	2381044
010YR-EX	BA40B	BASE	12.31	324.86	5.491	3051170
025YR-EX	BA40B	BASE	12.31	390.56	6.624	3680611
050YR-EX	BA40B	BASE	12.31	445.35	7.578	4210778
100YR-EX	BA40B	BASE	12.31	500.10	8.539	4744796
500YR-EX	BA40B	BASE	12.31	625.64	10.768	5983536
002YR-EX	BA42B	BASE	12.42	67.73	2.948	728906
005YR-EX	BA42B	BASE	12.42	99.17	4.298	1062664
010YR-EX	BA42B	BASE	12.42	126.85	5.505	1361067
025YR-EX	BA42B	BASE	12.42	152.53	6.638	1641293
050YR-EX	BA42B	BASE	12.42	173.95	7.593	1877288
100YR-EX	BA42B	BASE	12.42	195.35	8.554	2114976
500YR-EX	BA42B	BASE	12.42	244.45	10.784	2666266
002YR-EX	BA45B	BASE	13.58	118.99	3.109	2753900
005YR-EX	BA45B	BASE	13.50	172.78	4.483	3971181
010YR-EX	BA45B	BASE	13.50	220.22	5.706	5054422
025YR-EX	BA45B	BASE	13.50	264.30	6.851	6068936
050YR-EX	BA45B	BASE	13.50	301.12	7.814	6921873
100YR-EX	BA45B	BASE	13.50	337.96	8.783	7779918
500YR-EX	BA45B	BASE	13.50	422.63	11.027	9767255
002YR-EX	BELL-EH30B	BelleTerre	12.04	4.89	2.697	25156
005YR-EX	BELL-EH30B	BelleTerre	12.04	7.27	4.006	37370

September, 2011

Singhofen & Associates, Inc.

Stormwater Management Master Plan
Existing Conditions - Basin Max Comparison Report

Simulation	Basin	Group	Time Max hrs	Flow Max cfs	Volume in	Volume ft3
010YR-EX	BELL-EH30B	BelleTerre	12.04	9.37	5.186	48383
025YR-EX	BELL-EH30B	BelleTerre	12.04	11.32	6.300	58776
050YR-EX	BELL-EH30B	BelleTerre	12.04	12.95	7.241	67556
100YR-EX	BELL-EH30B	BelleTerre	12.04	14.58	8.191	76418
500YR-EX	BELL-EH30B	BelleTerre	12.04	18.31	10.401	97028
002YR-EX	BELL04A	BelleTerre	12.04	3.68	3.208	18979
005YR-EX	BELL04A	BelleTerre	12.04	5.23	4.595	27189
010YR-EX	BELL04A	BelleTerre	12.04	6.57	5.827	34476
025YR-EX	BELL04A	BelleTerre	12.04	7.81	6.978	41290
050YR-EX	BELL04A	BelleTerre	12.04	8.84	7.946	47013
100YR-EX	BELL04A	BelleTerre	12.04	9.86	8.918	52766
500YR-EX	BELL04A	BelleTerre	12.04	12.20	11.168	66082
002YR-EX	BELL06A	BelleTerre	12.04	4.33	3.504	22512
005YR-EX	BELL06A	BelleTerre	12.04	6.02	4.927	31654
010YR-EX	BELL06A	BelleTerre	12.04	7.47	6.180	39708
025YR-EX	BELL06A	BelleTerre	12.04	8.80	7.348	47210
050YR-EX	BELL06A	BelleTerre	12.04	9.91	8.326	53494
100YR-EX	BELL06A	BelleTerre	12.04	11.01	9.308	59802
500YR-EX	BELL06A	BelleTerre	12.04	13.54	11.575	74369
002YR-EX	BELL07	BelleTerre	12.04	1.40	2.652	7220
005YR-EX	BELL07	BelleTerre	12.04	2.09	3.953	10763
010YR-EX	BELL07	BelleTerre	12.04	2.71	5.129	13963
025YR-EX	BELL07	BelleTerre	12.04	3.27	6.239	16985
050YR-EX	BELL07	BelleTerre	12.04	3.75	7.177	19540
100YR-EX	BELL07	BelleTerre	12.04	4.23	8.125	22119
500YR-EX	BELL07	BelleTerre	12.04	5.32	10.329	28122
002YR-EX	BELL07A	BelleTerre	12.04	2.26	2.760	11622
005YR-EX	BELL07A	BelleTerre	12.04	3.34	4.080	17182
010YR-EX	BELL07A	BelleTerre	12.04	4.29	5.268	22183
025YR-EX	BELL07A	BelleTerre	12.04	5.17	6.388	26897
050YR-EX	BELL07A	BelleTerre	12.04	5.91	7.333	30876
100YR-EX	BELL07A	BelleTerre	12.04	6.64	8.286	34890
500YR-EX	BELL07A	BelleTerre	12.04	8.33	10.501	44218
002YR-EX	BELL08	BelleTerre	12.07	1.13	1.750	6099
005YR-EX	BELL08	BelleTerre	12.07	1.90	2.846	9916
010YR-EX	BELL08	BelleTerre	12.04	2.62	3.878	13512
025YR-EX	BELL08	BelleTerre	12.04	3.30	4.877	16997
050YR-EX	BELL08	BelleTerre	12.04	3.89	5.737	19991
100YR-EX	BELL08	BelleTerre	12.04	4.48	6.614	23050
500YR-EX	BELL08	BelleTerre	12.04	5.87	8.687	30272
002YR-EX	BELL10	BelleTerre	12.07	0.56	1.540	3074
005YR-EX	BELL10	BelleTerre	12.07	0.97	2.573	5137
010YR-EX	BELL10	BelleTerre	12.07	1.37	3.559	7106
025YR-EX	BELL10	BelleTerre	12.04	1.75	4.523	9030
050YR-EX	BELL10	BelleTerre	12.04	2.08	5.356	10693
100YR-EX	BELL10	BelleTerre	12.04	2.41	6.210	12398
500YR-EX	BELL10	BelleTerre	12.04	3.20	8.236	16443
002YR-EX	BELL11	BelleTerre	12.07	3.15	2.025	16615
005YR-EX	BELL11	BelleTerre	12.04	5.07	3.193	26196
010YR-EX	BELL11	BelleTerre	12.04	6.82	4.277	35086
025YR-EX	BELL11	BelleTerre	12.04	8.49	5.317	43620
050YR-EX	BELL11	BelleTerre	12.04	9.90	6.206	50911
100YR-EX	BELL11	BelleTerre	12.04	11.32	7.110	58327
500YR-EX	BELL11	BelleTerre	12.04	14.60	9.232	75740
002YR-EX	BELL11A	BelleTerre	12.04	1.98	2.448	10221
005YR-EX	BELL11A	BelleTerre	12.04	3.01	3.711	15491
010YR-EX	BELL11A	BelleTerre	12.04	3.94	4.860	20288
025YR-EX	BELL11A	BelleTerre	12.04	4.81	5.950	24840
050YR-EX	BELL11A	BelleTerre	12.04	5.54	6.875	28699
100YR-EX	BELL11A	BelleTerre	12.04	6.27	7.810	32604
500YR-EX	BELL11A	BelleTerre	12.04	7.94	9.993	41714
002YR-EX	BELL11B	BelleTerre	12.04	2.87	2.678	14775
005YR-EX	BELL11B	BelleTerre	12.04	4.27	3.984	21981
010YR-EX	BELL11B	BelleTerre	12.04	5.52	5.162	28482
025YR-EX	BELL11B	BelleTerre	12.04	6.67	6.274	34620
050YR-EX	BELL11B	BelleTerre	12.04	7.63	7.214	39806
100YR-EX	BELL11B	BelleTerre	12.04	8.60	8.163	45042
500YR-EX	BELL11B	BelleTerre	12.04	10.81	10.371	57221
002YR-EX	BELL12	BelleTerre	12.07	0.84	1.680	4574
005YR-EX	BELL12	BelleTerre	12.07	1.43	2.756	7502
010YR-EX	BELL12	BelleTerre	12.04	1.98	3.773	10272
025YR-EX	BELL12	BelleTerre	12.04	2.52	4.761	12963

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Stormwater Management Master Plan
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Simulation	Basin	Group	Time Max hrs	Flow Max cfs	Volume in	Volume ft3
050YR-EX	BELL12	BelleTerre	12.04	2.97	5.612	15279
100YR-EX	BELL12	BelleTerre	12.04	3.43	6.482	17648
500YR-EX	BELL12	BelleTerre	12.04	4.51	8.540	23251
002YR-EX	BELL15	BelleTerre	12.07	1.21	1.628	6619
005YR-EX	BELL15	BelleTerre	12.07	2.08	2.688	10928
010YR-EX	BELL15	BelleTerre	12.04	2.90	3.694	15019
025YR-EX	BELL15	BelleTerre	12.04	3.69	4.674	19001
050YR-EX	BELL15	BelleTerre	12.04	4.36	5.518	22434
100YR-EX	BELL15	BelleTerre	12.04	5.05	6.382	25948
500YR-EX	BELL15	BelleTerre	12.04	6.66	8.429	34268
002YR-EX	BELL18	BelleTerre	12.07	1.76	2.040	9255
005YR-EX	BELL18	BelleTerre	12.04	2.82	3.211	14570
010YR-EX	BELL18	BelleTerre	12.04	3.79	4.297	19498
025YR-EX	BELL18	BelleTerre	12.04	4.71	5.339	24227
050YR-EX	BELL18	BelleTerre	12.04	5.49	6.229	28266
100YR-EX	BELL18	BelleTerre	12.04	6.28	7.135	32373
500YR-EX	BELL18	BelleTerre	12.04	8.10	9.260	42015
002YR-EX	BELL18A	BelleTerre	12.04	5.79	2.403	30010
005YR-EX	BELL18A	BelleTerre	12.04	8.88	3.656	45659
010YR-EX	BELL18A	BelleTerre	12.04	11.65	4.799	59930
025YR-EX	BELL18A	BelleTerre	12.04	14.25	5.885	73487
050YR-EX	BELL18A	BelleTerre	12.04	16.42	6.806	84990
100YR-EX	BELL18A	BelleTerre	12.04	18.60	7.739	96635
500YR-EX	BELL18A	BelleTerre	12.04	23.61	9.915	123815
002YR-EX	BELL18B	BelleTerre	12.04	1.58	2.448	8177
005YR-EX	BELL18B	BelleTerre	12.04	2.41	3.711	12393
010YR-EX	BELL18B	BelleTerre	12.04	3.15	4.860	16230
025YR-EX	BELL18B	BelleTerre	12.04	3.85	5.950	19872
050YR-EX	BELL18B	BelleTerre	12.04	4.43	6.875	22959
100YR-EX	BELL18B	BelleTerre	12.04	5.01	7.810	26083
500YR-EX	BELL18B	BelleTerre	12.04	6.35	9.993	33371
002YR-EX	BELL20	BelleTerre	12.07	1.60	2.191	8349
005YR-EX	BELL20	BelleTerre	12.04	2.51	3.398	12950
010YR-EX	BELL20	BelleTerre	12.04	3.34	4.509	17185
025YR-EX	BELL20	BelleTerre	12.04	4.13	5.570	21231
050YR-EX	BELL20	BelleTerre	12.04	4.79	6.474	24676
100YR-EX	BELL20	BelleTerre	12.04	5.45	7.392	28173
500YR-EX	BELL20	BelleTerre	12.04	6.98	9.540	36361
002YR-EX	EH10B	BASE	12.42	88.52	2.595	943929
005YR-EX	EH10B	BASE	12.42	134.12	3.884	1412980
010YR-EX	EH10B	BASE	12.42	174.85	5.051	1837409
025YR-EX	EH10B	BASE	12.42	212.92	6.155	2238786
050YR-EX	EH10B	BASE	12.42	244.83	7.088	2578323
100YR-EX	EH10B	BASE	12.42	276.82	8.031	2921360
500YR-EX	EH10B	BASE	12.42	350.43	10.226	3719995
002YR-EX	EH15B	BASE	12.67	132.92	2.752	1709676
005YR-EX	EH15B	BASE	12.58	198.32	4.071	2528873
010YR-EX	EH15B	BASE	12.58	256.68	5.258	3266051
025YR-EX	EH15B	BASE	12.58	311.09	6.377	3960934
050YR-EX	EH15B	BASE	12.58	356.63	7.321	4547538
100YR-EX	EH15B	BASE	12.58	402.23	8.274	5139331
500YR-EX	EH15B	BASE	12.58	507.08	10.488	6514683
002YR-EX	EH20B	BASE	12.50	133.10	2.880	1465943
005YR-EX	EH20B	BASE	12.50	195.62	4.221	2147926
010YR-EX	EH20B	BASE	12.42	251.18	5.421	2759014
025YR-EX	EH20B	BASE	12.42	302.92	6.550	3333612
050YR-EX	EH20B	BASE	12.42	346.11	7.502	3817909
100YR-EX	EH20B	BASE	12.42	389.31	8.461	4305954
500YR-EX	EH20B	BASE	12.42	488.47	10.687	5438684
002YR-EX	EH25B	BASE	12.15	130.19	3.205	943433
005YR-EX	EH25B	BASE	12.15	185.85	4.593	1351692
010YR-EX	EH25B	BASE	12.15	234.34	5.824	1714028
025YR-EX	EH25B	BASE	12.15	279.05	6.975	2052859
050YR-EX	EH25B	BASE	12.15	316.21	7.942	2337455
100YR-EX	EH25B	BASE	12.15	353.28	8.914	2623567
500YR-EX	EH25B	BASE	12.15	438.13	11.164	3285720
002YR-EX	EH30B	BASE	12.33	39.10	2.992	377043
005YR-EX	EH30B	BASE	12.33	56.97	4.348	548039
010YR-EX	EH30B	BASE	12.33	72.67	5.560	700721
025YR-EX	EH30B	BASE	12.33	87.21	6.697	843994
050YR-EX	EH30B	BASE	12.33	99.32	7.653	964596
100YR-EX	EH30B	BASE	12.33	111.43	8.617	1086023

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500YR-EX	EH30B	BASE	12.33	139.18	10.851	1367547
002YR-EX	EI10B	BASE	12.67	201.04	3.483	2685214
005YR-EX	EI10B	BASE	12.67	281.70	4.903	3779744
010YR-EX	EI10B	BASE	12.67	351.68	6.155	4744527
025YR-EX	EI10B	BASE	12.67	416.11	7.321	5643246
050YR-EX	EI10B	BASE	12.67	469.65	8.298	6396302
100YR-EX	EI10B	BASE	12.67	523.04	9.278	7152130
500YR-EX	EI10B	BASE	12.67	645.30	11.543	8897949
002YR-EX	EI15B	BASE	12.75	55.78	3.113	805480
005YR-EX	EI15B	BASE	12.75	80.63	4.488	1161148
010YR-EX	EI15B	BASE	12.75	102.42	5.711	1477610
025YR-EX	EI15B	BASE	12.75	122.61	6.857	1773970
050YR-EX	EI15B	BASE	12.75	139.43	7.820	2023119
100YR-EX	EI15B	BASE	12.75	156.23	8.789	2273751
500YR-EX	EI15B	BASE	12.75	194.77	11.033	2854223
002YR-EX	EI20B	BASE	12.40	55.83	2.680	540809
005YR-EX	EI20B	BASE	12.32	83.71	3.986	804441
010YR-EX	EI20B	BASE	12.32	108.65	5.164	1042292
025YR-EX	EI20B	BASE	12.32	131.91	6.277	1266835
050YR-EX	EI20B	BASE	12.32	151.38	7.217	1456572
100YR-EX	EI20B	BASE	12.32	170.87	8.166	1648116
500YR-EX	EI20B	BASE	12.32	215.69	10.373	2093637
002YR-EX	EI25B	BASE	13.33	111.50	2.894	2323216
005YR-EX	EI25B	BASE	13.33	164.81	4.236	3400859
010YR-EX	EI25B	BASE	13.25	212.19	5.438	4366080
025YR-EX	EI25B	BASE	13.25	256.48	6.568	5273447
050YR-EX	EI25B	BASE	13.25	293.56	7.521	6038102
100YR-EX	EI25B	BASE	13.25	330.71	8.481	6808593
500YR-EX	EI25B	BASE	13.25	416.22	10.708	8596641
002YR-EX	EI30B	BASE	12.92	36.49	2.266	584320
005YR-EX	EI30B	BASE	12.83	57.64	3.490	899984
010YR-EX	EI30B	BASE	12.83	76.98	4.612	1189553
025YR-EX	EI30B	BASE	12.83	95.28	5.683	1465629
050YR-EX	EI30B	BASE	12.83	110.75	6.593	1700396
100YR-EX	EI30B	BASE	12.83	126.34	7.516	1938461
500YR-EX	EI30B	BASE	12.83	162.47	9.675	2495221
002YR-EX	FDOT005	FDOT	12.07	9.46	1.685	51369
005YR-EX	FDOT005	FDOT	12.07	16.07	2.761	84196
010YR-EX	FDOT005	FDOT	12.04	22.26	3.780	115248
025YR-EX	FDOT005	FDOT	12.04	28.24	4.769	145407
050YR-EX	FDOT005	FDOT	12.04	33.34	5.620	171367
100YR-EX	FDOT005	FDOT	12.04	38.52	6.491	197920
500YR-EX	FDOT005	FDOT	12.04	50.59	8.550	260695
002YR-EX	FDOT010	FDOT	12.04	7.25	4.762	42001
005YR-EX	FDOT010	FDOT	12.04	9.45	6.259	55212
010YR-EX	FDOT010	FDOT	12.04	11.36	7.558	66666
025YR-EX	FDOT010	FDOT	12.04	13.11	8.757	77242
050YR-EX	FDOT010	FDOT	12.04	14.58	9.756	86056
100YR-EX	FDOT010	FDOT	12.04	16.04	10.755	94871
500YR-EX	FDOT010	FDOT	12.04	19.40	13.054	115146
002YR-EX	FDOT010C	FDOT	12.04	3.64	3.696	19053
005YR-EX	FDOT010C	FDOT	12.04	4.99	5.138	26485
010YR-EX	FDOT010C	FDOT	12.04	6.14	6.404	33008
025YR-EX	FDOT010C	FDOT	12.04	7.21	7.579	39069
050YR-EX	FDOT010C	FDOT	12.04	8.09	8.563	44141
100YR-EX	FDOT010C	FDOT	12.04	8.97	9.550	49225
500YR-EX	FDOT010C	FDOT	12.04	10.98	11.826	60956
002YR-EX	FDOT011	FDOT	12.04	91.26	4.311	499352
005YR-EX	FDOT011	FDOT	12.04	120.76	5.795	671236
010YR-EX	FDOT011	FDOT	12.04	146.17	7.085	820729
025YR-EX	FDOT011	FDOT	12.04	169.53	8.279	958976
050YR-EX	FDOT011	FDOT	12.04	188.94	9.275	1074305
100YR-EX	FDOT011	FDOT	12.04	208.32	10.271	1189714
500YR-EX	FDOT011	FDOT	12.04	252.80	12.564	1455368
002YR-EX	FDOTPONDA	FDOT	12.04	3.10	4.266	16878
005YR-EX	FDOTPONDA	FDOT	12.04	4.11	5.747	22741
010YR-EX	FDOTPONDA	FDOT	12.04	4.98	7.037	27842
025YR-EX	FDOTPONDA	FDOT	12.04	5.78	8.229	32561
050YR-EX	FDOTPONDA	FDOT	12.04	6.44	9.224	36498
100YR-EX	FDOTPONDA	FDOT	12.04	7.10	10.220	40438
500YR-EX	FDOTPONDA	FDOT	12.04	8.62	12.513	49509

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Simulation	Basin	Group	Time Max hrs	Flow Max cfs	Volume in	Volume ft3
002YR-EX	FDOTPOND	FDOT	12.07	2.17	1.551	11988
005YR-EX	FDOTPOND	FDOT	12.07	3.79	2.587	20002
010YR-EX	FDOTPOND	FDOT	12.07	5.32	3.576	27649
025YR-EX	FDOTPOND	FDOT	12.04	6.80	4.542	35115
050YR-EX	FDOTPOND	FDOT	12.04	8.08	5.376	41565
100YR-EX	FDOTPOND	FDOT	12.04	9.38	6.231	48179
500YR-EX	FDOTPOND	FDOT	12.04	12.41	8.260	63864
002YR-EX	GC015B	GC	12.16	65.44	3.048	479797
005YR-EX	GC015B	GC	12.16	94.68	4.414	694737
010YR-EX	GC015B	GC	12.16	120.27	5.631	886343
025YR-EX	GC015B	GC	12.16	143.93	6.773	1065972
050YR-EX	GC015B	GC	12.16	163.62	7.733	1217086
100YR-EX	GC015B	GC	12.16	183.27	8.699	1369172
500YR-EX	GC015B	GC	12.16	228.29	10.938	1721605
002YR-EX	GC020B	GC	12.04	27.60	3.824	145463
005YR-EX	GC020B	GC	12.04	37.50	5.277	200733
010YR-EX	GC020B	GC	12.04	46.01	6.549	249126
025YR-EX	GC020B	GC	12.04	53.83	7.729	294040
050YR-EX	GC020B	GC	12.04	60.31	8.716	331589
100YR-EX	GC020B	GC	12.04	66.77	9.705	369219
500YR-EX	GC020B	GC	12.04	81.57	11.986	455980
002YR-EX	GC025B	GC	12.27	49.65	3.548	425143
005YR-EX	GC025B	GC	12.27	68.99	4.975	596132
010YR-EX	GC025B	GC	12.27	85.71	6.231	746643
025YR-EX	GC025B	GC	12.27	101.08	7.400	886738
050YR-EX	GC025B	GC	12.27	113.84	8.379	1004071
100YR-EX	GC025B	GC	12.27	126.56	9.362	1121797
500YR-EX	GC025B	GC	12.20	155.71	11.630	1393619
002YR-EX	GC05B	GC	12.09	21.41	2.879	125826
005YR-EX	GC05B	GC	12.09	31.31	4.219	184379
010YR-EX	GC05B	GC	12.06	40.04	5.419	236847
025YR-EX	GC05B	GC	12.06	48.15	6.548	286184
050YR-EX	GC05B	GC	12.06	54.92	7.500	327767
100YR-EX	GC05B	GC	12.06	61.67	8.458	369673
500YR-EX	GC05B	GC	12.06	77.14	10.684	466936
002YR-EX	GC10B	GC	12.16	59.52	2.906	429024
005YR-EX	GC10B	GC	12.16	87.21	4.250	627458
010YR-EX	GC10B	GC	12.16	111.56	5.454	805119
025YR-EX	GC10B	GC	12.16	134.13	6.585	972092
050YR-EX	GC10B	GC	12.16	152.95	7.538	1112783
100YR-EX	GC10B	GC	12.16	171.74	8.498	1254532
500YR-EX	GC10B	GC	12.16	214.82	10.726	1583444
002YR-EX	GC30B	GC	12.30	51.73	3.013	469052
005YR-EX	GC30B	GC	12.30	75.14	4.373	680792
010YR-EX	GC30B	GC	12.30	95.68	5.586	869737
025YR-EX	GC30B	GC	12.30	114.69	6.725	1046974
050YR-EX	GC30B	GC	12.30	130.53	7.683	1196133
100YR-EX	GC30B	GC	12.30	146.35	8.647	1346287
500YR-EX	GC30B	GC	12.30	182.60	10.883	1694351
002YR-EX	GC35B	GC	12.58	84.24	2.681	1017260
005YR-EX	GC35B	GC	12.58	126.35	3.987	1512629
010YR-EX	GC35B	GC	12.58	163.82	5.165	1959481
025YR-EX	GC35B	GC	12.50	199.03	6.277	2381292
050YR-EX	GC35B	GC	12.50	228.56	7.216	2737698
100YR-EX	GC35B	GC	12.50	258.15	8.165	3097484
500YR-EX	GC35B	GC	12.50	326.23	10.371	3934280
002YR-EX	GH05	GH	14.08	6.29	1.575	183854
005YR-EX	GH05	GH	13.92	11.02	2.619	305715
010YR-EX	GH05	GH	13.92	15.60	3.613	421808
025YR-EX	GH05	GH	13.92	20.07	4.583	535052
050YR-EX	GH05	GH	13.83	23.95	5.421	632805
100YR-EX	GH05	GH	13.83	27.92	6.279	733001
500YR-EX	GH05	GH	13.83	37.31	8.313	970479
002YR-EX	GH06	GH	12.10	2.52	1.570	16926
005YR-EX	GH06	GH	12.10	4.44	2.612	28164
010YR-EX	GH06	GH	12.10	6.26	3.606	38874
025YR-EX	GH06	GH	12.10	8.03	4.575	49323
050YR-EX	GH06	GH	12.10	9.53	5.412	58344
100YR-EX	GH06	GH	12.10	11.07	6.269	67591
500YR-EX	GH06	GH	12.10	14.67	8.303	89511
002YR-EX	GH07	GH	12.10	3.41	1.749	22219
005YR-EX	GH07	GH	12.10	5.78	2.844	36129

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Simulation	Basin	Group	Time Max hrs	Flow Max cfs	Volume in	Volume ft3
010YR-EX	GH07	GH	12.10	8.00	3.875	49236
025YR-EX	GH07	GH	12.10	10.12	4.875	61935
050YR-EX	GH07	GH	12.10	11.94	5.734	72850
100YR-EX	GH07	GH	12.10	13.77	6.612	84001
500YR-EX	GH07	GH	12.10	18.06	8.684	110326
002YR-EX	GR20A-O	FPL	13.83	8.90	2.284	243326
005YR-EX	GR20A-O	FPL	13.83	13.91	3.472	369865
010YR-EX	GR20A-O	FPL	13.75	18.56	4.567	486585
025YR-EX	GR20A-O	FPL	13.75	23.02	5.616	598299
050YR-EX	GR20A-O	FPL	13.75	26.81	6.510	693557
100YR-EX	GR20A-O	FPL	13.75	30.66	7.418	790352
500YR-EX	GR20A-O	FPL	13.75	39.65	9.549	1017331
002YR-EX	GR20B-O	FPL	14.42	1.74	1.599	57115
005YR-EX	GR20B-O	FPL	14.33	3.01	2.645	94466
010YR-EX	GR20B-O	FPL	14.25	4.25	3.640	130024
025YR-EX	GR20B-O	FPL	14.25	5.46	4.611	164699
050YR-EX	GR20B-O	FPL	14.25	6.50	5.449	194626
100YR-EX	GR20B-O	FPL	14.17	7.58	6.307	225297
500YR-EX	GR20B-O	FPL	14.17	10.12	8.342	297983
002YR-EX	GR25-O	FPL	12.13	1.11	1.299	7967
005YR-EX	GR25-O	FPL	12.10	2.11	2.252	13818
010YR-EX	GR25-O	FPL	12.10	3.09	3.180	19507
025YR-EX	GR25-O	FPL	12.10	4.04	4.096	25126
050YR-EX	GR25-O	FPL	12.10	4.87	4.893	30016
100YR-EX	GR25-O	FPL	12.10	5.71	5.715	35059
500YR-EX	GR25-O	FPL	12.10	7.72	7.678	47100
002YR-EX	GR30-O	FPL	12.75	6.66	2.936	94945
005YR-EX	GR30-O	FPL	12.75	9.78	4.284	138575
010YR-EX	GR30-O	FPL	12.75	12.53	5.491	177601
025YR-EX	GR30-O	FPL	12.75	15.08	6.625	214261
050YR-EX	GR30-O	FPL	12.75	17.22	7.579	245139
100YR-EX	GR30-O	FPL	12.75	19.35	8.541	276244
500YR-EX	GR30-O	FPL	12.67	24.27	10.772	348397
002YR-EX	KING	KING	12.04	9.33	2.754	47982
005YR-EX	KING	KING	12.04	13.79	4.073	70968
010YR-EX	KING	KING	12.04	17.72	5.260	91652
025YR-EX	KING	KING	12.04	21.37	6.379	111149
050YR-EX	KING	KING	12.04	24.41	7.324	127607
100YR-EX	KING	KING	12.04	27.45	8.277	144211
500YR-EX	KING	KING	12.04	34.43	10.491	182799
002YR-EX	PA05B	BASE	12.27	241.81	3.481	2104526
005YR-EX	PA05B	BASE	12.27	337.99	4.901	2963265
010YR-EX	PA05B	BASE	12.27	421.24	6.153	3720291
025YR-EX	PA05B	BASE	12.27	497.82	7.320	4425525
050YR-EX	PA05B	BASE	12.27	561.39	8.297	5016478
100YR-EX	PA05B	BASE	12.27	624.76	9.278	5609621
500YR-EX	PA05B	BASE	12.27	769.79	11.544	6979713
002YR-EX	PA10B	BASE	12.67	40.56	3.235	538380
005YR-EX	PA10B	BASE	12.67	57.95	4.626	769788
010YR-EX	PA10B	BASE	12.67	73.13	5.859	974997
025YR-EX	PA10B	BASE	12.67	87.16	7.012	1166804
050YR-EX	PA10B	BASE	12.67	98.83	7.980	1327862
100YR-EX	PA10B	BASE	12.67	110.47	8.953	1489746
500YR-EX	PA10B	BASE	12.58	137.18	11.204	1864306
002YR-EX	PA15B	BASE	13.08	57.15	2.813	1041219
005YR-EX	PA15B	BASE	13.08	85.06	4.142	1533168
010YR-EX	PA15B	BASE	13.08	109.88	5.336	1974954
025YR-EX	PA15B	BASE	13.00	133.13	6.460	2390894
050YR-EX	PA15B	BASE	13.00	152.61	7.408	2741753
100YR-EX	PA15B	BASE	13.00	172.14	8.364	3095528
500YR-EX	PA15B	BASE	13.00	217.09	10.584	3917188
002YR-EX	PA20B	PA	12.42	85.09	2.770	913017
005YR-EX	PA20B	PA	12.42	126.69	4.091	1348388
010YR-EX	PA20B	PA	12.42	163.57	5.279	1739891
025YR-EX	PA20B	PA	12.42	197.91	6.399	2108778
050YR-EX	PA20B	PA	12.42	226.61	7.343	2420102
100YR-EX	PA20B	PA	12.42	255.34	8.296	2734122
500YR-EX	PA20B	PA	12.42	321.33	10.510	3463755
002YR-EX	PA25B	PA	12.12	95.96	2.580	652660
005YR-EX	PA25B	PA	12.12	145.33	3.867	978499
010YR-EX	PA25B	PA	12.12	189.35	5.034	1273556
025YR-EX	PA25B	PA	12.12	230.46	6.137	1552708

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050YR-EX	PA25B	PA	12.12	264.88	7.071	1788916
100YR-EX	PA25B	PA	12.12	299.35	8.014	2027606
500YR-EX	PA25B	PA	12.12	378.61	10.211	2583439
002YR-EX	PA30B	PA	12.11	95.19	2.263	641468
005YR-EX	PA30B	PA	12.11	149.53	3.486	988236
010YR-EX	PA30B	PA	12.11	198.75	4.609	1306375
025YR-EX	PA30B	PA	12.11	245.12	5.679	1609709
050YR-EX	PA30B	PA	12.11	284.17	6.589	1867668
100YR-EX	PA30B	PA	12.11	323.43	7.511	2129259
500YR-EX	PA30B	PA	12.11	414.08	9.670	2741062
002YR-EX	PA35B	PA	12.75	69.76	2.617	1013463
005YR-EX	PA35B	PA	12.75	105.75	3.912	1514945
010YR-EX	PA35B	PA	12.75	137.94	5.083	1968422
025YR-EX	PA35B	PA	12.75	168.07	6.190	2397104
050YR-EX	PA35B	PA	12.75	193.34	7.126	2759649
100YR-EX	PA35B	PA	12.75	218.70	8.071	3125868
500YR-EX	PA35B	PA	12.75	277.10	10.272	3978296
002YR-EX	PA40B	PA	12.83	63.52	2.908	941551
005YR-EX	PA40B	PA	12.75	93.61	4.252	1376749
010YR-EX	PA40B	PA	12.75	120.23	5.455	1766352
025YR-EX	PA40B	PA	12.75	144.99	6.586	2132498
050YR-EX	PA40B	PA	12.75	165.67	7.539	2440999
100YR-EX	PA40B	PA	12.75	186.37	8.499	2751815
500YR-EX	PA40B	PA	12.75	233.90	10.726	3473005
002YR-EX	PA45B	PA	13.83	56.05	3.202	1472105
005YR-EX	PA45B	PA	13.83	80.77	4.589	2109628
010YR-EX	PA45B	PA	13.83	102.52	5.820	2675491
025YR-EX	PA45B	PA	13.75	122.75	6.971	3204675
050YR-EX	PA45B	PA	13.75	139.65	7.938	3649169
100YR-EX	PA45B	PA	13.75	156.56	8.910	4096043
500YR-EX	PA45B	PA	13.75	195.43	11.160	5130274
002YR-EX	PA50B	PA	12.17	56.35	4.051	437926
005YR-EX	PA50B	PA	12.17	75.79	5.520	596746
010YR-EX	PA50B	PA	12.17	92.50	6.802	735309
025YR-EX	PA50B	PA	12.17	107.84	7.989	863661
050YR-EX	PA50B	PA	12.17	120.58	8.981	970842
100YR-EX	PA50B	PA	12.17	133.28	9.974	1078168
500YR-EX	PA50B	PA	12.17	162.39	12.261	1325403
002YR-EX	PA55	PA	12.04	7.07	2.971	36348
005YR-EX	PA55	PA	12.04	10.24	4.326	52915
010YR-EX	PA55	PA	12.04	13.02	5.536	67718
025YR-EX	PA55	PA	12.04	15.58	6.672	81614
050YR-EX	PA55	PA	12.04	17.71	7.628	93315
100YR-EX	PA55	PA	12.04	19.84	8.591	105097
500YR-EX	PA55	PA	12.04	24.72	10.825	132419
002YR-EX	PBELLE	BelleTerre	12.04	6.36	4.762	36816
005YR-EX	PBELLE	BelleTerre	12.04	8.29	6.259	48396
010YR-EX	PBELLE	BelleTerre	12.04	9.95	7.558	58436
025YR-EX	PBELLE	BelleTerre	12.04	11.49	8.757	67706
050YR-EX	PBELLE	BelleTerre	12.04	12.78	9.756	75432
100YR-EX	PBELLE	BelleTerre	12.04	14.06	10.755	83158
500YR-EX	PBELLE	BelleTerre	12.04	17.00	13.054	100931
002YR-EX	PG05B	BASE	12.92	115.23	2.510	1919753
005YR-EX	PG05B	BASE	12.92	176.95	3.784	2894529
010YR-EX	PG05B	BASE	12.92	232.54	4.941	3779583
025YR-EX	PG05B	BASE	12.92	284.80	6.038	4618256
050YR-EX	PG05B	BASE	12.92	328.73	6.967	5328629
100YR-EX	PG05B	BASE	12.92	372.89	7.906	6046978
500YR-EX	PG05B	BASE	12.92	474.82	10.095	7721240
002YR-EX	PG10B	BASE	12.67	136.46	2.728	1793073
005YR-EX	PG10B	BASE	12.67	204.01	4.043	2656929
010YR-EX	PG10B	BASE	12.67	264.04	5.227	3434925
025YR-EX	PG10B	BASE	12.67	320.03	6.343	4168631
050YR-EX	PG10B	BASE	12.58	367.21	7.286	4788197
100YR-EX	PG10B	BASE	12.58	414.48	8.237	5413374
500YR-EX	PG10B	BASE	12.58	523.20	10.449	6866684
002YR-EX	PG15B	BASE	12.50	86.58	2.770	999956
005YR-EX	PG15B	BASE	12.50	128.93	4.092	1477083
010YR-EX	PG15B	BASE	12.50	166.49	5.280	1906174
025YR-EX	PG15B	BASE	12.50	201.47	6.400	2310501
050YR-EX	PG15B	BASE	12.50	230.71	7.345	2651746
100YR-EX	PG15B	BASE	12.50	259.98	8.299	2995954

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500YR-EX	PG15B	BASE	12.50	327.25	10.514	3795752
002YR-EX	PG20B	BASE	12.58	102.06	2.655	1219604
005YR-EX	PG20B	BASE	12.58	153.40	3.956	1817267
010YR-EX	PG20B	BASE	12.50	199.55	5.131	2356913
025YR-EX	PG20B	BASE	12.50	242.70	6.241	2866606
050YR-EX	PG20B	BASE	12.50	278.85	7.179	3297421
100YR-EX	PG20B	BASE	12.50	315.08	8.126	3732432
500YR-EX	PG20B	BASE	12.50	398.45	10.329	4744497
002YR-EX	PG25B	BASE	13.50	1.42	3.574	33082
005YR-EX	PG25B	BASE	13.50	1.99	5.004	46319
010YR-EX	PG25B	BASE	13.50	2.49	6.262	57964
025YR-EX	PG25B	BASE	13.50	2.94	7.433	68800
050YR-EX	PG25B	BASE	13.50	3.32	8.413	77874
100YR-EX	PG25B	BASE	13.50	3.70	9.396	86978
500YR-EX	PG25B	BASE	13.50	4.57	11.667	107994
002YR-EX	PG30B	BASE	13.33	109.26	2.318	2307909
005YR-EX	PG30B	BASE	13.33	171.52	3.553	3537823
010YR-EX	PG30B	BASE	13.25	228.31	4.683	4663450
025YR-EX	PG30B	BASE	13.25	282.33	5.759	5735143
050YR-EX	PG30B	BASE	13.25	328.01	6.673	6645663
100YR-EX	PG30B	BASE	13.25	374.09	7.600	7568387
500YR-EX	PG30B	BASE	13.25	480.96	9.765	9724667
002YR-EX	PG35B	BASE	12.58	97.83	2.740	1169126
005YR-EX	PG35B	BASE	12.58	145.79	4.056	1730610
010YR-EX	PG35B	BASE	12.50	188.75	5.241	2236051
025YR-EX	PG35B	BASE	12.50	228.82	6.358	2712587
050YR-EX	PG35B	BASE	12.50	262.34	7.301	3114920
100YR-EX	PG35B	BASE	12.50	295.92	8.253	3520848
500YR-EX	PG35B	BASE	12.50	373.10	10.464	4464342
002YR-EX	PG40B	BASE	12.04	21.49	2.939	110414
005YR-EX	PG40B	BASE	12.04	31.21	4.288	161110
010YR-EX	PG40B	BASE	12.04	39.73	5.495	206452
025YR-EX	PG40B	BASE	12.04	47.60	6.629	249041
050YR-EX	PG40B	BASE	12.04	54.15	7.583	284912
100YR-EX	PG40B	BASE	12.04	60.69	8.545	321045
500YR-EX	PG40B	BASE	12.04	75.67	10.776	404860
002YR-EX	PG45B	BASE	12.42	147.43	2.831	1498630
005YR-EX	PG45B	BASE	12.42	217.58	4.162	2203293
010YR-EX	PG45B	BASE	12.42	279.54	5.356	2835664
025YR-EX	PG45B	BASE	12.42	337.10	6.481	3430799
050YR-EX	PG45B	BASE	12.33	385.20	7.429	3932687
100YR-EX	PG45B	BASE	12.33	433.66	8.384	4438655
500YR-EX	PG45B	BASE	12.33	544.94	10.604	5613536
002YR-EX	PG50B	BASE	12.50	157.46	3.445	1809763
005YR-EX	PG50B	BASE	12.50	221.06	4.861	2553525
010YR-EX	PG50B	BASE	12.50	276.23	6.110	3209696
025YR-EX	PG50B	BASE	12.50	327.02	7.274	3821237
050YR-EX	PG50B	BASE	12.50	369.22	8.250	4333815
100YR-EX	PG50B	BASE	12.50	411.30	9.230	4848387
500YR-EX	PG50B	BASE	12.50	507.64	11.493	6037240
002YR-EX	PG55B	BASE	12.83	103.67	2.731	1546018
005YR-EX	PG55B	BASE	12.75	155.25	4.046	2290381
010YR-EX	PG55B	BASE	12.75	201.36	5.230	2960697
025YR-EX	PG55B	BASE	12.75	244.41	6.346	3592819
050YR-EX	PG55B	BASE	12.75	280.47	7.289	4126584
100YR-EX	PG55B	BASE	12.75	316.61	8.240	4665172
500YR-EX	PG55B	BASE	12.75	399.78	10.452	5917153
002YR-EX	RE05B	BASE	13.50	61.70	3.276	1401109
005YR-EX	RE05B	BASE	13.50	88.31	4.672	1998321
010YR-EX	RE05B	BASE	13.50	111.64	5.909	2527388
025YR-EX	RE05B	BASE	13.42	133.28	7.064	3021622
050YR-EX	RE05B	BASE	13.42	151.34	8.034	3436477
100YR-EX	RE05B	BASE	13.42	169.40	9.009	3853357
500YR-EX	RE05B	BASE	13.42	210.86	11.263	4817638
002YR-EX	RE10B	BASE	12.09	18.59	3.333	118676
005YR-EX	RE10B	BASE	12.09	26.25	4.736	168650
010YR-EX	RE10B	BASE	12.09	32.89	5.977	212859
025YR-EX	RE10B	BASE	12.09	39.01	7.136	254125
050YR-EX	RE10B	BASE	12.09	44.08	8.108	288745
100YR-EX	RE10B	BASE	12.09	49.15	9.085	323522
500YR-EX	RE10B	BASE	12.09	60.73	11.343	403933

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002YR-EX	RE15B	BASE	12.09	21.07	3.230	134355
005YR-EX	RE15B	BASE	12.09	29.99	4.620	192200
010YR-EX	RE15B	BASE	12.09	37.75	5.854	243507
025YR-EX	RE15B	BASE	12.09	44.91	7.006	291469
050YR-EX	RE15B	BASE	12.09	50.86	7.975	331744
100YR-EX	RE15B	BASE	12.09	56.78	8.948	372229
500YR-EX	RE15B	BASE	12.09	70.35	11.200	465904
002YR-EX	RE20B	BASE	12.42	134.10	3.427	1392484
005YR-EX	RE20B	BASE	12.42	188.23	4.839	1966321
010YR-EX	RE20B	BASE	12.42	235.16	6.085	2472730
025YR-EX	RE20B	BASE	12.42	278.37	7.247	2944774
050YR-EX	RE20B	BASE	12.42	314.26	8.221	3340470
100YR-EX	RE20B	BASE	12.42	350.05	9.198	3737732
500YR-EX	RE20B	BASE	12.42	431.96	11.457	4655633
002YR-EX	RE25B	BASE	12.42	71.56	2.597	736364
005YR-EX	RE25B	BASE	12.42	108.17	3.887	1102120
010YR-EX	RE25B	BASE	12.42	140.82	5.054	1433057
025YR-EX	RE25B	BASE	12.42	171.34	6.158	1746009
050YR-EX	RE25B	BASE	12.42	196.90	7.092	2010738
100YR-EX	RE25B	BASE	12.42	222.52	8.035	2278190
500YR-EX	RE25B	BASE	12.42	281.46	10.231	2900843
002YR-EX	RE30	BASE	15.00	136.73	3.445	5083745
005YR-EX	RE30	BASE	14.92	193.61	4.861	7173901
010YR-EX	RE30	BASE	14.92	243.46	6.111	9017989
025YR-EX	RE30	BASE	14.83	289.65	7.275	10736693
050YR-EX	RE30	BASE	14.83	328.24	8.252	12177292
100YR-EX	RE30	BASE	14.83	366.83	9.232	13623507
500YR-EX	RE30	BASE	14.83	455.53	11.496	16964849
002YR-EX	RE30B	RE	12.50	263.91	2.444	2936081
005YR-EX	RE30B	RE	12.50	405.72	3.706	4451216
010YR-EX	RE30B	RE	12.50	533.17	4.854	5830492
025YR-EX	RE30B	RE	12.42	653.48	5.944	7139512
050YR-EX	RE30B	RE	12.42	755.05	6.868	8249386
100YR-EX	RE30B	RE	12.42	857.08	7.803	9372508
500YR-EX	RE30B	RE	12.42	1092.48	9.984	11992425
002YR-EX	RI05B	BASE	12.29	127.44	3.444	1120547
005YR-EX	RI05B	BASE	12.29	178.49	4.860	1581288
010YR-EX	RI05B	BASE	12.29	222.72	6.109	1987790
025YR-EX	RI05B	BASE	12.29	263.40	7.273	2366655
050YR-EX	RI05B	BASE	12.29	297.18	8.249	2684216
100YR-EX	RI05B	BASE	12.22	330.94	9.229	3003015
500YR-EX	RI05B	BASE	12.22	408.39	11.492	3739573
002YR-EX	RI10B	BASE	12.67	107.49	3.391	1438276
005YR-EX	RI10B	BASE	12.67	151.71	4.801	2036109
010YR-EX	RI10B	BASE	12.67	190.15	6.046	2564196
025YR-EX	RI10B	BASE	12.67	225.59	7.207	3056709
050YR-EX	RI10B	BASE	12.67	255.05	8.181	3469700
100YR-EX	RI10B	BASE	12.67	284.44	9.159	3884419
500YR-EX	RI10B	BASE	12.67	351.74	11.418	4842910
002YR-EX	RI15	31-RI	12.04	10.34	3.605	53908
005YR-EX	RI15	31-RI	12.04	14.25	5.038	75341
010YR-EX	RI15	31-RI	12.04	17.62	6.298	94185
025YR-EX	RI15	31-RI	12.04	20.72	7.470	111715
050YR-EX	RI15	31-RI	12.04	23.29	8.451	126390
100YR-EX	RI15	31-RI	12.04	25.84	9.435	141111
500YR-EX	RI15	31-RI	12.04	31.70	11.707	175089
002YR-EX	RI16	31-RI	12.04	37.80	3.508	196346
005YR-EX	RI16	31-RI	12.04	52.46	4.931	276010
010YR-EX	RI16	31-RI	12.04	65.11	6.185	346196
025YR-EX	RI16	31-RI	12.04	76.73	7.353	411558
050YR-EX	RI16	31-RI	12.04	86.37	8.331	466317
100YR-EX	RI16	31-RI	12.04	95.97	9.313	521271
500YR-EX	RI16	31-RI	12.04	117.95	11.580	648188
002YR-EX	RI18	31-RI	12.31	22.22	3.703	199500
005YR-EX	RI18	31-RI	12.24	30.59	5.146	277203
010YR-EX	RI18	31-RI	12.24	37.82	6.412	345388
025YR-EX	RI18	31-RI	12.24	44.46	7.588	408745
050YR-EX	RI18	31-RI	12.24	49.97	8.572	461752
100YR-EX	RI18	31-RI	12.24	55.46	9.558	514898
500YR-EX	RI18	31-RI	12.24	68.04	11.834	637507
002YR-EX	RI20B	BASE	12.33	45.21	3.396	446923
005YR-EX	RI20B	BASE	12.33	63.71	4.807	632575

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Simulation	Basin	Group	Time Max hrs	Flow Max cfs	Volume in	Volume ft3
010YR-EX	RI20B	BASE	12.33	79.78	6.053	796555
025YR-EX	RI20B	BASE	12.33	94.57	7.216	949483
050YR-EX	RI20B	BASE	12.33	106.86	8.190	1077716
100YR-EX	RI20B	BASE	12.33	119.12	9.169	1206484
500YR-EX	RI20B	BASE	12.33	147.17	11.430	1504083
002YR-EX	RI25	31-RI	12.04	4.14	3.857	21842
005YR-EX	RI25	31-RI	12.04	5.61	5.313	30085
010YR-EX	RI25	31-RI	12.04	6.87	6.586	37298
025YR-EX	RI25	31-RI	12.04	8.04	7.768	43990
050YR-EX	RI25	31-RI	12.04	9.00	8.756	49584
100YR-EX	RI25	31-RI	12.04	9.96	9.746	55189
500YR-EX	RI25	31-RI	12.04	12.16	12.028	68110
002YR-EX	RI30B	BASE	12.92	113.72	3.453	1881274
005YR-EX	RI30B	BASE	12.92	160.16	4.871	2653450
010YR-EX	RI30B	BASE	12.92	200.54	6.121	3334597
025YR-EX	RI30B	BASE	12.92	237.77	7.286	3969366
050YR-EX	RI30B	BASE	12.92	268.74	8.263	4501388
100YR-EX	RI30B	BASE	12.92	299.63	9.243	5035462
500YR-EX	RI30B	BASE	12.92	370.41	11.508	6269327
002YR-EX	RI35B	BASE	12.83	133.90	2.775	2079453
005YR-EX	RI35B	BASE	12.83	199.90	4.097	3070829
010YR-EX	RI35B	BASE	12.83	258.58	5.287	3962285
025YR-EX	RI35B	BASE	12.83	313.31	6.407	4802232
050YR-EX	RI35B	BASE	12.83	359.12	7.353	5511101
100YR-EX	RI35B	BASE	12.83	405.02	8.307	6226102
500YR-EX	RI35B	BASE	12.83	510.60	10.524	7887407
002YR-EX	RP30B	BASE	12.04	9.77	3.178	50294
005YR-EX	RP30B	BASE	12.04	13.90	4.562	72194
010YR-EX	RP30B	BASE	12.04	17.49	5.791	91645
025YR-EX	RP30B	BASE	12.04	20.80	6.940	109842
050YR-EX	RP30B	BASE	12.04	23.55	7.906	125131
100YR-EX	RP30B	BASE	12.04	26.29	8.878	140504
500YR-EX	RP30B	BASE	12.04	32.57	11.126	176090
002YR-EX	RP40B	BASE	12.42	102.06	2.909	1070236
005YR-EX	RP40B	BASE	12.42	149.74	4.252	1564294
010YR-EX	RP40B	BASE	12.42	191.76	5.454	2006513
025YR-EX	RP40B	BASE	12.42	230.75	6.583	2422065
050YR-EX	RP40B	BASE	12.42	263.27	7.535	2772172
100YR-EX	RP40B	BASE	12.42	295.78	8.494	3124890
500YR-EX	RP40B	BASE	12.42	370.37	10.718	3943261
002YR-EX	RP45B	BASE	13.08	110.48	2.831	1962808
005YR-EX	RP45B	BASE	13.00	164.25	4.163	2886310
010YR-EX	RP45B	BASE	13.00	212.08	5.358	3715143
025YR-EX	RP45B	BASE	13.00	256.68	6.484	4495213
050YR-EX	RP45B	BASE	13.00	294.02	7.432	5153082
100YR-EX	RP45B	BASE	13.00	331.42	8.389	5816314
500YR-EX	RP45B	BASE	13.00	417.47	10.610	7356413
002YR-EX	RP50B	BASE	12.75	69.41	2.589	1019216
005YR-EX	RP50B	BASE	12.75	105.58	3.879	1526857
010YR-EX	RP50B	BASE	12.75	137.99	5.046	1986370
025YR-EX	RP50B	BASE	12.75	168.35	6.150	2421020
050YR-EX	RP50B	BASE	12.75	193.83	7.085	2788752
100YR-EX	RP50B	BASE	12.75	219.40	8.028	3160311
500YR-EX	RP50B	BASE	12.75	278.33	10.226	4025452
002YR-EX	RP55B	BASE	12.04	179.77	2.711	924675
005YR-EX	RP55B	BASE	12.04	266.76	4.023	1372130
010YR-EX	RP55B	BASE	12.04	343.61	5.205	1775377
025YR-EX	RP55B	BASE	12.04	414.99	6.320	2155815
050YR-EX	RP55B	BASE	12.04	474.57	7.262	2477148
100YR-EX	RP55B	BASE	12.04	534.11	8.213	2801448
500YR-EX	RP55B	BASE	12.04	670.70	10.423	3555484
002YR-EX	RP57B	BASE	12.08	18.96	2.741	103583
005YR-EX	RP57B	BASE	12.05	28.11	4.058	153345
010YR-EX	RP57B	BASE	12.05	36.19	5.243	198141
025YR-EX	RP57B	BASE	12.05	43.69	6.361	240377
050YR-EX	RP57B	BASE	12.05	49.95	7.305	276037
100YR-EX	RP57B	BASE	12.05	56.21	8.257	312016
500YR-EX	RP57B	BASE	12.05	70.56	10.470	395642
002YR-EX	RP60B	BASE	12.42	47.94	2.507	506419
005YR-EX	RP60B	BASE	12.42	73.28	3.779	763450
010YR-EX	RP60B	BASE	12.42	96.00	4.934	996807
025YR-EX	RP60B	BASE	12.42	117.28	6.029	1217926

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Simulation	Basin	Group	Time Max hrs	Flow Max cfs	Volume in	Volume ft3
050YR-EX	RP60B	BASE	12.42	135.14	6.956	1405213
100YR-EX	RP60B	BASE	12.42	153.06	7.894	1594600
500YR-EX	RP60B	BASE	12.42	194.34	10.079	2035996
002YR-EX	RP65B	BASE	12.24	20.44	2.604	171452
005YR-EX	RP65B	BASE	12.24	30.91	3.896	256547
010YR-EX	RP65B	BASE	12.24	40.25	5.065	333532
025YR-EX	RP65B	BASE	12.24	48.97	6.171	406328
050YR-EX	RP65B	BASE	12.24	56.26	7.106	467904
100YR-EX	RP65B	BASE	12.24	63.58	8.051	530112
500YR-EX	RP65B	BASE	12.24	80.39	10.250	674931
002YR-EX	RP70B	BASE	14.58	31.96	2.257	1058954
005YR-EX	RP70B	BASE	14.50	50.50	3.478	1632396
010YR-EX	RP70B	BASE	14.42	67.57	4.600	2158647
025YR-EX	RP70B	BASE	14.42	83.82	5.669	2660499
050YR-EX	RP70B	BASE	14.42	97.60	6.579	3087328
100YR-EX	RP70B	BASE	14.33	111.55	7.501	3520202
500YR-EX	RP70B	BASE	14.33	144.08	9.659	4532698
002YR-EX	RP80B	BASE	12.50	124.69	3.091	1392801
005YR-EX	RP80B	BASE	12.50	180.00	4.463	2011152
010YR-EX	RP80B	BASE	12.50	228.44	5.685	2561725
025YR-EX	RP80B	BASE	12.50	273.24	6.829	3077534
050YR-EX	RP80B	BASE	12.50	310.56	7.792	3511280
100YR-EX	RP80B	BASE	12.42	347.96	8.760	3947685
500YR-EX	RP80B	BASE	12.42	433.89	11.004	4958622
002YR-EX	RPW015	31-RPW	12.04	1.93	3.110	9935
005YR-EX	RPW015	31-RPW	12.04	2.76	4.485	14326
010YR-EX	RPW015	31-RPW	12.04	3.49	5.708	18233
025YR-EX	RPW015	31-RPW	12.04	4.16	6.853	21892
050YR-EX	RPW015	31-RPW	12.04	4.71	7.816	24968
100YR-EX	RPW015	31-RPW	12.04	5.27	8.785	28063
500YR-EX	RPW015	31-RPW	12.04	6.54	11.029	35231
002YR-EX	RPW016	31-RPW	12.13	21.89	3.113	153571
005YR-EX	RPW016	31-RPW	12.13	31.50	4.488	221396
010YR-EX	RPW016	31-RPW	12.13	39.89	5.711	281746
025YR-EX	RPW016	31-RPW	12.13	47.64	6.857	338263
050YR-EX	RPW016	31-RPW	12.13	54.09	7.820	385778
100YR-EX	RPW016	31-RPW	12.13	60.52	8.789	433576
500YR-EX	RPW016	31-RPW	12.13	75.24	11.033	544277
002YR-EX	RPW020	31-RPW	12.04	2.51	3.792	13216
005YR-EX	RPW020	31-RPW	12.04	3.42	5.243	18270
010YR-EX	RPW020	31-RPW	12.04	4.20	6.513	22697
025YR-EX	RPW020	31-RPW	12.04	4.92	7.693	26808
050YR-EX	RPW020	31-RPW	12.04	5.51	8.679	30245
100YR-EX	RPW020	31-RPW	12.04	6.10	9.668	33690
500YR-EX	RPW020	31-RPW	12.04	7.46	11.947	41633
002YR-EX	RPW025	31-RPW	12.04	2.22	3.835	11694
005YR-EX	RPW025	31-RPW	12.04	3.01	5.289	16127
010YR-EX	RPW025	31-RPW	12.04	3.69	6.562	20008
025YR-EX	RPW025	31-RPW	12.04	4.32	7.743	23609
050YR-EX	RPW025	31-RPW	12.04	4.84	8.730	26619
100YR-EX	RPW025	31-RPW	12.04	5.36	9.719	29636
500YR-EX	RPW025	31-RPW	12.04	6.54	12.000	36592
002YR-EX	RPW030	31-RPW	12.04	0.75	3.604	3924
005YR-EX	RPW030	31-RPW	12.04	1.04	5.037	5485
010YR-EX	RPW030	31-RPW	12.04	1.28	6.296	6857
025YR-EX	RPW030	31-RPW	12.04	1.51	7.469	8133
050YR-EX	RPW030	31-RPW	12.04	1.70	8.450	9202
100YR-EX	RPW030	31-RPW	12.04	1.88	9.434	10274
500YR-EX	RPW030	31-RPW	12.04	2.31	11.706	12748
002YR-EX	RPW031	31-RPW	12.04	7.89	3.268	40694
005YR-EX	RPW031	31-RPW	12.04	11.15	4.664	58068
010YR-EX	RPW031	31-RPW	12.04	13.97	5.900	73463
025YR-EX	RPW031	31-RPW	12.04	16.57	7.055	87846
050YR-EX	RPW031	31-RPW	12.04	18.73	8.025	99920
100YR-EX	RPW031	31-RPW	12.04	20.88	9.000	112054
500YR-EX	RPW031	31-RPW	12.04	25.80	11.254	140121
002YR-EX	RPW035	31-RPW	12.04	1.04	3.555	5420
005YR-EX	RPW035	31-RPW	12.04	1.44	4.983	7597
010YR-EX	RPW035	31-RPW	12.04	1.78	6.240	9514
025YR-EX	RPW035	31-RPW	12.04	2.10	7.410	11297
050YR-EX	RPW035	31-RPW	12.04	2.36	8.390	12791
100YR-EX	RPW035	31-RPW	12.04	2.62	9.373	14290

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Simulation	Basin	Group	Time Max hrs	Flow Max cfs	Volume in	Volume ft3
500YR-EX	RPW035	31-RPW	12.04	3.22	11.642	17750
002YR-EX	RPW040	31-RPW	12.04	1.22	3.566	6343
005YR-EX	RPW040	31-RPW	12.04	1.68	4.995	8885
010YR-EX	RPW040	31-RPW	12.04	2.09	6.253	11122
025YR-EX	RPW040	31-RPW	12.04	2.45	7.423	13204
050YR-EX	RPW040	31-RPW	12.04	2.76	8.403	14947
100YR-EX	RPW040	31-RPW	12.04	3.06	9.387	16696
500YR-EX	RPW040	31-RPW	12.04	3.76	11.657	20734
002YR-EX	RPW041	31-RPW	12.04	16.75	3.365	86603
005YR-EX	RPW041	31-RPW	12.04	23.49	4.772	122820
010YR-EX	RPW041	31-RPW	12.04	29.32	6.016	154833
025YR-EX	RPW041	31-RPW	12.04	34.68	7.177	184702
050YR-EX	RPW041	31-RPW	12.04	39.13	8.150	209753
100YR-EX	RPW041	31-RPW	12.04	43.57	9.128	234914
500YR-EX	RPW041	31-RPW	12.04	53.72	11.387	293077
002YR-EX	RPW045	31-RPW	12.04	3.44	3.356	17787
005YR-EX	RPW045	31-RPW	12.04	4.83	4.762	25239
010YR-EX	RPW045	31-RPW	12.04	6.03	6.006	31828
025YR-EX	RPW045	31-RPW	12.04	7.13	7.166	37976
050YR-EX	RPW045	31-RPW	12.04	8.05	8.139	43133
100YR-EX	RPW045	31-RPW	12.04	8.96	9.116	48313
500YR-EX	RPW045	31-RPW	12.04	11.05	11.375	60287
002YR-EX	RPW050	31-RPW	12.17	5.07	3.564	36745
005YR-EX	RPW050	31-RPW	12.17	7.02	4.993	51473
010YR-EX	RPW050	31-RPW	12.17	8.72	6.250	64433
025YR-EX	RPW050	31-RPW	12.17	10.27	7.420	76494
050YR-EX	RPW050	31-RPW	12.17	11.56	8.400	86594
100YR-EX	RPW050	31-RPW	12.17	12.85	9.383	96728
500YR-EX	RPW050	31-RPW	12.17	15.79	11.652	120122
002YR-EX	RPW055	31-RPW	12.13	6.41	3.431	43964
005YR-EX	RPW055	31-RPW	12.13	8.98	4.846	62093
010YR-EX	RPW055	31-RPW	12.13	11.21	6.094	78093
025YR-EX	RPW055	31-RPW	12.13	13.26	7.258	93008
050YR-EX	RPW055	31-RPW	12.13	14.96	8.234	105511
100YR-EX	RPW055	31-RPW	12.13	16.65	9.214	118063
500YR-EX	RPW055	31-RPW	12.13	20.53	11.477	147067
002YR-EX	RPW060	31-RPW	12.19	3.58	3.406	26830
005YR-EX	RPW060	31-RPW	12.19	5.03	4.818	37951
010YR-EX	RPW060	31-RPW	12.19	6.28	6.064	47770
025YR-EX	RPW060	31-RPW	12.19	7.43	7.227	56927
050YR-EX	RPW060	31-RPW	12.19	8.39	8.202	64605
100YR-EX	RPW060	31-RPW	12.19	9.34	9.180	72313
500YR-EX	RPW060	31-RPW	12.19	11.52	11.442	90129
002YR-EX	RPW065	31-RPW	12.04	3.53	3.216	18213
005YR-EX	RPW065	31-RPW	12.04	5.01	4.605	26077
010YR-EX	RPW065	31-RPW	12.04	6.30	5.837	33055
025YR-EX	RPW065	31-RPW	12.04	7.48	6.989	39579
050YR-EX	RPW065	31-RPW	12.04	8.47	7.957	45058
100YR-EX	RPW065	31-RPW	12.04	9.45	8.930	50567
500YR-EX	RPW065	31-RPW	12.04	11.69	11.181	63313
002YR-EX	RPW070	31-RPW	12.25	5.52	3.563	48247
005YR-EX	RPW070	31-RPW	12.25	7.67	4.992	67589
010YR-EX	RPW070	31-RPW	12.25	9.53	6.249	84610
025YR-EX	RPW070	31-RPW	12.25	11.24	7.419	100450
050YR-EX	RPW070	31-RPW	12.25	12.66	8.399	113715
100YR-EX	RPW070	31-RPW	12.25	14.08	9.381	127024
500YR-EX	RPW070	31-RPW	12.25	17.32	11.651	157749
002YR-EX	RPW075	31-RPW	12.21	8.56	3.565	67171
005YR-EX	RPW075	31-RPW	12.21	11.88	4.994	94093
010YR-EX	RPW075	31-RPW	12.21	14.75	6.252	117783
025YR-EX	RPW075	31-RPW	12.21	17.39	7.422	139829
050YR-EX	RPW075	31-RPW	12.21	19.57	8.402	158291
100YR-EX	RPW075	31-RPW	12.21	21.75	9.385	176814
500YR-EX	RPW075	31-RPW	12.16	26.74	11.655	219577
002YR-EX	RPW080	31-RPW	12.33	6.63	3.565	61206
005YR-EX	RPW080	31-RPW	12.33	9.20	4.994	85742
010YR-EX	RPW080	31-RPW	12.33	11.43	6.251	107333
025YR-EX	RPW080	31-RPW	12.25	13.48	7.421	127426
050YR-EX	RPW080	31-RPW	12.25	15.19	8.401	144253
100YR-EX	RPW080	31-RPW	12.25	16.89	9.385	161134
500YR-EX	RPW080	31-RPW	12.25	20.78	11.655	200109

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Simulation	Basin	Group	Time Max hrs	Flow Max cfs	Volume in	Volume ft3
002YR-EX	RPW085	31-RPW	12.33	6.87	3.550	68945
005YR-EX	RPW085	31-RPW	12.33	9.57	4.977	96660
010YR-EX	RPW085	31-RPW	12.33	11.91	6.233	121054
025YR-EX	RPW085	31-RPW	12.33	14.06	7.402	143760
050YR-EX	RPW085	31-RPW	12.33	15.84	8.382	162776
100YR-EX	RPW085	31-RPW	12.33	17.62	9.364	181855
500YR-EX	RPW085	31-RPW	12.33	21.69	11.632	225908
002YR-EX	RPW090	31-RPW	12.34	6.96	3.491	68432
005YR-EX	RPW090	31-RPW	12.34	9.74	4.912	96282
010YR-EX	RPW090	31-RPW	12.34	12.14	6.164	120828
025YR-EX	RPW090	31-RPW	12.34	14.34	7.330	143690
050YR-EX	RPW090	31-RPW	12.34	16.18	8.308	162846
100YR-EX	RPW090	31-RPW	12.34	18.00	9.288	182072
500YR-EX	RPW090	31-RPW	12.34	22.19	11.554	226478
002YR-EX	RPW100	31-RPW	12.04	44.03	4.473	245190
005YR-EX	RPW100	31-RPW	12.04	57.88	5.964	326886
010YR-EX	RPW100	31-RPW	12.04	69.82	7.258	397837
025YR-EX	RPW100	31-RPW	12.04	80.81	8.454	463399
050YR-EX	RPW100	31-RPW	12.04	89.96	9.452	518068
100YR-EX	RPW100	31-RPW	12.04	99.09	10.449	572759
500YR-EX	RPW100	31-RPW	12.04	120.07	12.745	698606
002YR-EX	RPW105	31-RPW	12.04	31.95	4.488	178225
005YR-EX	RPW105	31-RPW	12.04	41.98	5.979	237434
010YR-EX	RPW105	31-RPW	12.04	50.62	7.274	288849
025YR-EX	RPW105	31-RPW	12.04	58.58	8.470	336357
050YR-EX	RPW105	31-RPW	12.04	65.21	9.467	375970
100YR-EX	RPW105	31-RPW	12.04	71.82	10.465	415598
500YR-EX	RPW105	31-RPW	12.04	87.01	12.761	506782
002YR-EX	RPW110	31-RPW	12.04	3.02	3.059	15547
005YR-EX	RPW110	31-RPW	12.04	4.35	4.426	22495
010YR-EX	RPW110	31-RPW	12.04	5.50	5.645	28687
025YR-EX	RPW110	31-RPW	12.04	6.56	6.787	34492
050YR-EX	RPW110	31-RPW	12.04	7.45	7.748	39374
100YR-EX	RPW110	31-RPW	12.04	8.33	8.714	44287
500YR-EX	RPW110	31-RPW	12.04	10.35	10.955	55672
002YR-EX	RPW115	31-RPW	12.04	1.57	3.400	8147
005YR-EX	RPW115	31-RPW	12.04	2.20	4.812	11528
010YR-EX	RPW115	31-RPW	12.04	2.74	6.058	14514
025YR-EX	RPW115	31-RPW	12.04	3.24	7.221	17299
050YR-EX	RPW115	31-RPW	12.04	3.66	8.195	19634
100YR-EX	RPW115	31-RPW	12.04	4.07	9.174	21979
500YR-EX	RPW115	31-RPW	12.04	5.01	11.436	27398
002YR-EX	RPW120	31-RPW	12.04	2.59	3.385	13392
005YR-EX	RPW120	31-RPW	12.04	3.62	4.794	18969
010YR-EX	RPW120	31-RPW	12.04	4.52	6.039	23896
025YR-EX	RPW120	31-RPW	12.04	5.35	7.201	28492
050YR-EX	RPW120	31-RPW	12.04	6.03	8.175	32347
100YR-EX	RPW120	31-RPW	12.04	6.71	9.153	36217
500YR-EX	RPW120	31-RPW	12.04	8.27	11.414	45163
002YR-EX	RPW125	31-RPW	12.04	3.24	3.126	16682
005YR-EX	RPW125	31-RPW	12.04	4.63	4.503	24029
010YR-EX	RPW125	31-RPW	12.04	5.84	5.728	30563
025YR-EX	RPW125	31-RPW	12.04	6.96	6.874	36681
050YR-EX	RPW125	31-RPW	12.04	7.89	7.838	41823
100YR-EX	RPW125	31-RPW	12.04	8.81	8.807	46996
500YR-EX	RPW125	31-RPW	12.04	10.93	11.052	58976
002YR-EX	RPW130	31-RPW	12.04	1.88	3.167	9658
005YR-EX	RPW130	31-RPW	12.04	2.67	4.550	13873
010YR-EX	RPW130	31-RPW	12.04	3.36	5.778	17617
025YR-EX	RPW130	31-RPW	12.04	4.00	6.927	21121
050YR-EX	RPW130	31-RPW	12.04	4.53	7.892	24065
100YR-EX	RPW130	31-RPW	12.04	5.06	8.863	27026
500YR-EX	RPW130	31-RPW	12.04	6.27	11.111	33880
002YR-EX	RPW135	31-RPW	12.04	0.53	3.466	2768
005YR-EX	RPW135	31-RPW	12.04	0.74	4.885	3901
010YR-EX	RPW135	31-RPW	12.04	0.92	6.136	4900
025YR-EX	RPW135	31-RPW	12.04	1.09	7.301	5831
050YR-EX	RPW135	31-RPW	12.04	1.23	8.278	6611
100YR-EX	RPW135	31-RPW	12.04	1.36	9.259	7394
500YR-EX	RPW135	31-RPW	12.04	1.68	11.524	9203
002YR-EX	RPW140	31-RPW	12.50	33.70	3.337	376250
005YR-EX	RPW140	31-RPW	12.50	47.67	4.741	534588

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Simulation	Basin	Group	Time Max hrs	Flow Max cfs	Volume in	Volume ft3
010YR-EX	RPW140	31-RPW	12.50	59.81	5.984	674650
025YR-EX	RPW140	31-RPW	12.42	71.03	7.143	805380
050YR-EX	RPW140	31-RPW	12.42	80.39	8.116	915056
100YR-EX	RPW140	31-RPW	12.42	89.73	9.093	1025228
500YR-EX	RPW140	31-RPW	12.42	111.11	11.352	1279957
002YR-EX	RPW145	31-RPW	12.04	9.44	4.358	51884
005YR-EX	RPW145	31-RPW	12.04	12.46	5.844	69576
010YR-EX	RPW145	31-RPW	12.04	15.07	7.135	84957
025YR-EX	RPW145	31-RPW	12.04	17.47	8.330	99177
050YR-EX	RPW145	31-RPW	12.04	19.46	9.326	111038
100YR-EX	RPW145	31-RPW	12.04	21.45	10.323	122906
500YR-EX	RPW145	31-RPW	12.04	26.02	12.617	150222
002YR-EX	RPW150	31-RPW	12.27	82.87	3.152	719918
005YR-EX	RPW150	31-RPW	12.27	118.93	4.532	1035163
010YR-EX	RPW150	31-RPW	12.27	150.41	5.759	1315359
025YR-EX	RPW150	31-RPW	12.27	179.48	6.907	1577599
050YR-EX	RPW150	31-RPW	12.27	203.67	7.872	1797978
100YR-EX	RPW150	31-RPW	12.27	227.79	8.842	2019612
500YR-EX	RPW150	31-RPW	12.27	283.05	11.089	2532763
002YR-EX	RPW155	31-RPW	12.10	12.97	3.179	79157
005YR-EX	RPW155	31-RPW	12.10	18.50	4.563	113617
010YR-EX	RPW155	31-RPW	12.10	23.32	5.792	144223
025YR-EX	RPW155	31-RPW	12.10	27.75	6.942	172856
050YR-EX	RPW155	31-RPW	12.10	31.44	7.908	196912
100YR-EX	RPW155	31-RPW	12.10	35.12	8.879	221101
500YR-EX	RPW155	31-RPW	12.10	43.54	11.127	277093
002YR-EX	RPW160	31-RPW	12.10	10.11	3.318	61786
005YR-EX	RPW160	31-RPW	12.10	14.25	4.720	87887
010YR-EX	RPW160	31-RPW	12.10	17.85	5.960	110984
025YR-EX	RPW160	31-RPW	12.10	21.16	7.118	132548
050YR-EX	RPW160	31-RPW	12.10	23.91	8.089	150642
100YR-EX	RPW160	31-RPW	12.10	26.65	9.066	168819
500YR-EX	RPW160	31-RPW	12.10	32.93	11.323	210853
002YR-EX	RPW165	31-RPW	12.10	12.69	3.415	77731
005YR-EX	RPW165	31-RPW	12.10	17.76	4.828	109891
010YR-EX	RPW165	31-RPW	12.10	22.16	6.076	138285
025YR-EX	RPW165	31-RPW	12.10	26.20	7.239	164759
050YR-EX	RPW165	31-RPW	12.10	29.55	8.214	186954
100YR-EX	RPW165	31-RPW	12.10	32.89	9.193	209240
500YR-EX	RPW165	31-RPW	12.10	40.53	11.456	260738
002YR-EX	RPW170	31-RPW	12.10	7.52	3.453	46125
005YR-EX	RPW170	31-RPW	12.10	10.50	4.870	65057
010YR-EX	RPW170	31-RPW	12.10	13.08	6.120	81758
025YR-EX	RPW170	31-RPW	12.10	15.45	7.285	97321
050YR-EX	RPW170	31-RPW	12.10	17.41	8.262	110365
100YR-EX	RPW170	31-RPW	12.10	19.37	9.242	123460
500YR-EX	RPW170	31-RPW	12.10	23.85	11.507	153712
002YR-EX	RPW175	31-RPW	12.10	9.30	3.342	56903
005YR-EX	RPW175	31-RPW	12.10	13.10	4.747	80815
010YR-EX	RPW175	31-RPW	12.10	16.39	5.989	101963
025YR-EX	RPW175	31-RPW	12.10	19.41	7.148	121700
050YR-EX	RPW175	31-RPW	12.10	21.92	8.121	138258
100YR-EX	RPW175	31-RPW	12.10	24.43	9.098	154889
500YR-EX	RPW175	31-RPW	12.10	30.16	11.357	193342
002YR-EX	RPW180	31-RPW	12.10	2.54	3.486	15564
005YR-EX	RPW180	31-RPW	12.10	3.53	4.907	21908
010YR-EX	RPW180	31-RPW	12.10	4.39	6.159	27500
025YR-EX	RPW180	31-RPW	12.10	5.18	7.326	32709
050YR-EX	RPW180	31-RPW	12.10	5.84	8.303	37073
100YR-EX	RPW180	31-RPW	12.10	6.49	9.284	41454
500YR-EX	RPW180	31-RPW	12.10	7.99	11.551	51573
002YR-EX	RPW185	31-RPW	12.04	3.74	2.814	19206
005YR-EX	RPW185	31-RPW	12.04	5.49	4.144	28278
010YR-EX	RPW185	31-RPW	12.04	7.03	5.338	36425
025YR-EX	RPW185	31-RPW	12.04	8.46	6.461	44096
050YR-EX	RPW185	31-RPW	12.04	9.65	7.410	50566
100YR-EX	RPW185	31-RPW	12.04	10.84	8.365	57089
500YR-EX	RPW185	31-RPW	12.04	13.57	10.586	72241
002YR-EX	RPW190	31-RPW	12.04	2.74	2.919	14090
005YR-EX	RPW190	31-RPW	12.04	3.99	4.265	20590
010YR-EX	RPW190	31-RPW	12.04	5.08	5.470	26406
025YR-EX	RPW190	31-RPW	12.04	6.10	6.602	31872

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Simulation	Basin	Group	Time Max hrs	Flow Max cfs	Volume in	Volume ft3
050YR-EX	RPW190	31-RPW	12.04	6.94	7.555	36476
100YR-EX	RPW190	31-RPW	12.04	7.78	8.516	41115
500YR-EX	RPW190	31-RPW	12.04	9.70	10.745	51877
002YR-EX	RPW195	31-RPW	12.10	40.94	3.318	250277
005YR-EX	RPW195	31-RPW	12.10	57.74	4.720	356001
010YR-EX	RPW195	31-RPW	12.10	72.32	5.960	449561
025YR-EX	RPW195	31-RPW	12.10	85.73	7.118	536910
050YR-EX	RPW195	31-RPW	12.10	96.87	8.089	610202
100YR-EX	RPW195	31-RPW	12.10	107.97	9.066	683834
500YR-EX	RPW195	31-RPW	12.10	133.37	11.323	854098
002YR-EX	RPW200	31-RPW	12.10	23.32	3.282	142484
005YR-EX	RPW200	31-RPW	12.10	32.99	4.679	203141
010YR-EX	RPW200	31-RPW	12.10	41.38	5.917	256868
025YR-EX	RPW200	31-RPW	12.10	49.10	7.073	307054
050YR-EX	RPW200	31-RPW	12.10	55.52	8.043	349178
100YR-EX	RPW200	31-RPW	12.10	61.91	9.018	391505
500YR-EX	RPW200	31-RPW	12.10	76.55	11.273	489408
002YR-EX	RS05B	BASE	12.19	6.84	2.817	51744
005YR-EX	RS05B	BASE	12.19	10.09	4.147	76167
010YR-EX	RS05B	BASE	12.19	12.97	5.341	98097
025YR-EX	RS05B	BASE	12.19	15.64	6.465	118743
050YR-EX	RS05B	BASE	12.19	17.87	7.413	136157
100YR-EX	RS05B	BASE	12.19	20.10	8.369	153715
500YR-EX	RS05B	BASE	12.19	25.21	10.589	194493
002YR-EX	RS10B	BASE	12.24	71.75	2.721	573393
005YR-EX	RS10B	BASE	12.24	106.86	4.034	850183
010YR-EX	RS10B	BASE	12.19	138.00	5.217	1099534
025YR-EX	RS10B	BASE	12.19	167.22	6.333	1334732
050YR-EX	RS10B	BASE	12.19	191.64	7.275	1533362
100YR-EX	RS10B	BASE	12.19	216.08	8.227	1733807
500YR-EX	RS10B	BASE	12.19	272.23	10.438	2199810
002YR-EX	RS15B	BASE	12.29	22.07	2.540	193822
005YR-EX	RS15B	BASE	12.29	33.55	3.821	291515
010YR-EX	RS15B	BASE	12.29	43.80	4.982	380112
025YR-EX	RS15B	BASE	12.29	53.39	6.081	464007
050YR-EX	RS15B	BASE	12.29	61.43	7.012	535037
100YR-EX	RS15B	BASE	12.29	69.49	7.953	606841
500YR-EX	RS15B	BASE	12.23	88.03	10.146	774133
002YR-EX	RS20B	BASE	12.04	6.09	3.140	31341
005YR-EX	RS20B	BASE	12.04	8.69	4.518	45103
010YR-EX	RS20B	BASE	12.04	10.96	5.744	57338
025YR-EX	RS20B	BASE	12.04	13.05	6.891	68792
050YR-EX	RS20B	BASE	12.04	14.78	7.856	78418
100YR-EX	RS20B	BASE	12.04	16.51	8.826	88101
500YR-EX	RS20B	BASE	12.04	20.48	11.071	110520
002YR-EX	RS25B	BASE	12.58	68.76	2.783	849027
005YR-EX	RS25B	BASE	12.58	102.24	4.107	1252868
010YR-EX	RS25B	BASE	12.58	131.93	5.297	1615883
025YR-EX	RS25B	BASE	12.58	159.58	6.418	1957856
050YR-EX	RS25B	BASE	12.58	182.70	7.364	2246425
100YR-EX	RS25B	BASE	12.58	205.83	8.318	2537466
500YR-EX	RS25B	BASE	12.58	259.00	10.534	3213627
002YR-EX	RS30B	BASE	12.50	282.84	2.828	3329798
005YR-EX	RS30B	BASE	12.50	419.20	4.159	4897126
010YR-EX	RS30B	BASE	12.50	539.91	5.353	6303870
025YR-EX	RS30B	BASE	12.50	652.20	6.478	7627897
050YR-EX	RS30B	BASE	12.50	746.03	7.426	8744535
100YR-EX	RS30B	BASE	12.50	839.91	8.382	9870293
500YR-EX	RS30B	BASE	12.50	1055.54	10.602	12484478
002YR-EX	RW105	31-RW	12.50	9.57	3.257	113629
005YR-EX	RW105	31-RW	12.50	13.66	4.650	162225
010YR-EX	RW105	31-RW	12.50	17.22	5.885	205293
025YR-EX	RW105	31-RW	12.50	20.51	7.039	245534
050YR-EX	RW105	31-RW	12.50	23.24	8.007	279317
100YR-EX	RW105	31-RW	12.50	25.97	8.980	313268
500YR-EX	RW105	31-RW	12.50	32.22	11.232	391810
002YR-EX	RW110	31-RW	12.42	7.78	3.349	82670
005YR-EX	RW110	31-RW	12.42	11.00	4.753	117330
010YR-EX	RW110	31-RW	12.42	13.80	5.995	147975
025YR-EX	RW110	31-RW	12.42	16.37	7.153	176572
050YR-EX	RW110	31-RW	12.42	18.52	8.125	200559
100YR-EX	RW110	31-RW	12.42	20.65	9.101	224653

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Simulation	Basin	Group	Time Max hrs	Flow Max cfs	Volume in	Volume ft3
500YR-EX	RW110	31-RW	12.42	25.55	11.358	280353
002YR-EX	RW115	31-RW	12.42	8.65	3.559	89661
005YR-EX	RW115	31-RW	12.42	12.02	4.986	125597
010YR-EX	RW115	31-RW	12.42	14.94	6.241	157218
025YR-EX	RW115	31-RW	12.42	17.62	7.409	186645
050YR-EX	RW115	31-RW	12.42	19.85	8.387	211287
100YR-EX	RW115	31-RW	12.42	22.06	9.368	236010
500YR-EX	RW115	31-RW	12.42	27.14	11.634	293089
002YR-EX	RW120	31-RW	12.50	7.71	3.540	89569
005YR-EX	RW120	31-RW	12.50	10.75	4.966	125642
010YR-EX	RW120	31-RW	12.50	13.38	6.221	157400
025YR-EX	RW120	31-RW	12.50	15.80	7.389	186962
050YR-EX	RW120	31-RW	12.50	17.81	8.368	211722
100YR-EX	RW120	31-RW	12.50	19.81	9.350	236566
500YR-EX	RW120	31-RW	12.50	24.40	11.617	293932
002YR-EX	RW125	31-RW	12.37	8.08	3.451	77921
005YR-EX	RW125	31-RW	12.37	11.32	4.868	109902
010YR-EX	RW125	31-RW	12.29	14.13	6.117	138113
025YR-EX	RW125	31-RW	12.29	16.73	7.281	164403
050YR-EX	RW125	31-RW	12.29	18.88	8.257	186437
100YR-EX	RW125	31-RW	12.29	21.04	9.237	208557
500YR-EX	RW125	31-RW	12.29	25.96	11.500	259659
002YR-EX	RW130	31-RW	12.33	7.43	3.412	70968
005YR-EX	RW130	31-RW	12.33	10.44	4.824	100340
010YR-EX	RW130	31-RW	12.33	13.05	6.071	126274
025YR-EX	RW130	31-RW	12.33	15.46	7.233	150454
050YR-EX	RW130	31-RW	12.33	17.45	8.208	170726
100YR-EX	RW130	31-RW	12.33	19.45	9.187	191081
500YR-EX	RW130	31-RW	12.33	24.01	11.448	238119
002YR-EX	RW135	31-RW	12.50	7.31	3.395	86401
005YR-EX	RW135	31-RW	12.50	10.32	4.805	122277
010YR-EX	RW135	31-RW	12.50	12.93	6.051	153964
025YR-EX	RW135	31-RW	12.50	15.33	7.212	183514
050YR-EX	RW135	31-RW	12.50	17.33	8.186	208292
100YR-EX	RW135	31-RW	12.50	19.32	9.163	233173
500YR-EX	RW135	31-RW	12.50	23.89	11.423	290675
002YR-EX	RW305	31-RW	12.17	5.60	3.204	43260
005YR-EX	RW305	31-RW	12.17	8.00	4.590	61988
010YR-EX	RW305	31-RW	12.17	10.09	5.821	78610
025YR-EX	RW305	31-RW	12.17	12.03	6.973	94155
050YR-EX	RW305	31-RW	12.17	13.63	7.939	107211
100YR-EX	RW305	31-RW	12.17	15.24	8.912	120337
500YR-EX	RW305	31-RW	12.17	18.90	11.161	150716
002YR-EX	RW310	31-RW	12.22	5.87	3.353	49417
005YR-EX	RW310	31-RW	12.22	8.30	4.759	70135
010YR-EX	RW310	31-RW	12.22	10.41	6.002	88454
025YR-EX	RW310	31-RW	12.22	12.35	7.162	105549
050YR-EX	RW310	31-RW	12.22	13.96	8.135	119888
100YR-EX	RW310	31-RW	12.22	15.57	9.112	134290
500YR-EX	RW310	31-RW	12.22	19.25	11.371	167586
002YR-EX	RW315	31-RW	12.12	5.68	3.324	38973
005YR-EX	RW315	31-RW	12.12	8.03	4.726	55413
010YR-EX	RW315	31-RW	12.12	10.07	5.967	69959
025YR-EX	RW315	31-RW	12.12	11.95	7.125	83538
050YR-EX	RW315	31-RW	12.12	13.51	8.097	94932
100YR-EX	RW315	31-RW	12.12	15.06	9.073	106377
500YR-EX	RW315	31-RW	12.12	18.62	11.330	132843
002YR-EX	RW320	31-RW	12.20	3.40	3.382	26888
005YR-EX	RW320	31-RW	12.20	4.78	4.791	38087
010YR-EX	RW320	31-RW	12.20	5.98	6.036	47981
025YR-EX	RW320	31-RW	12.20	7.09	7.197	57211
050YR-EX	RW320	31-RW	12.20	8.01	8.170	64950
100YR-EX	RW320	31-RW	12.20	8.92	9.148	72723
500YR-EX	RW320	31-RW	12.20	11.02	11.408	90688
002YR-EX	TW05	TW	12.10	3.89	1.528	26352
005YR-EX	TW05	TW	12.10	6.93	2.558	44103
010YR-EX	TW05	TW	12.10	9.82	3.542	61069
025YR-EX	TW05	TW	12.10	12.62	4.503	77649
050YR-EX	TW05	TW	12.10	15.02	5.335	91980
100YR-EX	TW05	TW	12.10	17.47	6.187	106683
500YR-EX	TW05	TW	12.10	23.21	8.211	141571

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Simulation	Basin	Group	Time Max hrs	Flow Max cfs	Volume in	Volume ft3
002YR-EX	TW10	TW	12.10	3.18	1.971	20246
005YR-EX	TW10	TW	12.10	5.20	3.125	32103
010YR-EX	TW10	TW	12.10	7.05	4.199	43136
025YR-EX	TW10	TW	12.10	8.81	5.232	53746
050YR-EX	TW10	TW	12.10	10.30	6.115	62820
100YR-EX	TW10	TW	12.10	11.81	7.014	72058
500YR-EX	TW10	TW	12.10	15.30	9.128	93769
002YR-EX	TW15	TW	12.32	1.52	1.089	14514
005YR-EX	TW15	TW	12.26	3.06	1.966	26193
010YR-EX	TW15	TW	12.26	4.61	2.835	37763
025YR-EX	TW15	TW	12.21	6.17	3.702	49319
050YR-EX	TW15	TW	12.21	7.54	4.463	59453
100YR-EX	TW15	TW	12.21	8.95	5.251	69959
500YR-EX	TW15	TW	12.21	12.32	7.147	95219
002YR-EX	TW20-1	TW	12.40	1.27	1.105	13673
005YR-EX	TW20-1	TW	12.40	2.54	1.987	24599
010YR-EX	TW20-1	TW	12.33	3.82	2.860	35408
025YR-EX	TW20-1	TW	12.33	5.11	3.732	46195
050YR-EX	TW20-1	TW	12.33	6.23	4.496	55648
100YR-EX	TW20-1	TW	12.33	7.38	5.287	65445
500YR-EX	TW20-1	TW	12.26	10.15	7.189	88988
002YR-EX	TW20-W	TW	12.04	1.73	4.762	10025
005YR-EX	TW20-W	TW	12.04	2.26	6.259	13178
010YR-EX	TW20-W	TW	12.04	2.71	7.558	15912
025YR-EX	TW20-W	TW	12.04	3.13	8.757	18436
050YR-EX	TW20-W	TW	12.04	3.48	9.756	20540
100YR-EX	TW20-W	TW	12.04	3.83	10.755	22644
500YR-EX	TW20-W	TW	12.04	4.63	13.054	27483
002YR-EX	TW30	TW	12.58	1.50	1.076	20152
005YR-EX	TW30	TW	12.50	3.03	1.947	36470
010YR-EX	TW30	TW	12.50	4.59	2.811	52656
025YR-EX	TW30	TW	12.50	6.15	3.675	68836
050YR-EX	TW30	TW	12.50	7.52	4.433	83031
100YR-EX	TW30	TW	12.50	8.93	5.219	97752
500YR-EX	TW30	TW	12.50	12.32	7.110	133167
002YR-EX	TW30-W	TW	12.04	4.78	4.762	27655
005YR-EX	TW30-W	TW	12.04	6.22	6.259	36354
010YR-EX	TW30-W	TW	12.04	7.48	7.558	43896
025YR-EX	TW30-W	TW	12.04	8.63	8.757	50859
050YR-EX	TW30-W	TW	12.04	9.60	9.756	56662
100YR-EX	TW30-W	TW	12.04	10.56	10.755	62466
500YR-EX	TW30-W	TW	12.04	12.77	13.054	75816
002YR-EX	TW35	TW	13.50	1.22	1.045	30004
005YR-EX	TW35	TW	13.33	2.46	1.904	54681
010YR-EX	TW35	TW	13.33	3.75	2.760	79237
025YR-EX	TW35	TW	13.25	5.05	3.616	103832
050YR-EX	TW35	TW	13.25	6.20	4.369	125437
100YR-EX	TW35	TW	13.25	7.39	5.150	147864
500YR-EX	TW35	TW	13.25	10.27	7.031	201881
002YR-EX	TW35-W	TW	12.04	7.79	4.762	45112
005YR-EX	TW35-W	TW	12.04	10.15	6.259	59302
010YR-EX	TW35-W	TW	12.04	12.20	7.558	71605
025YR-EX	TW35-W	TW	12.04	14.08	8.757	82964
050YR-EX	TW35-W	TW	12.04	15.66	9.756	92430
100YR-EX	TW35-W	TW	12.04	17.23	10.755	101898
500YR-EX	TW35-W	TW	12.04	20.84	13.054	123676
002YR-EX	TW35-W-0	TW	12.12	3.30	2.930	21164
005YR-EX	TW35-W-0	TW	12.12	4.81	4.278	30900
010YR-EX	TW35-W-0	TW	12.12	6.13	5.483	39611
025YR-EX	TW35-W-0	TW	12.12	7.36	6.616	47794
050YR-EX	TW35-W-0	TW	12.12	8.38	7.570	54686
100YR-EX	TW35-W-0	TW	12.12	9.40	8.532	61630
500YR-EX	TW35-W-0	TW	12.08	11.74	10.761	77737
002YR-EX	TW40	TW	12.10	5.14	2.358	31835
005YR-EX	TW40	TW	12.10	7.96	3.601	48630
010YR-EX	TW40	TW	12.10	10.49	4.738	63975
025YR-EX	TW40	TW	12.10	12.87	5.818	78569
050YR-EX	TW40	TW	12.10	14.86	6.736	90961
100YR-EX	TW40	TW	12.10	16.87	7.666	103512
500YR-EX	TW40	TW	12.10	21.49	9.836	132827
002YR-EX	TW50-1	TW	12.75	6.19	1.832	93512
005YR-EX	TW50-1	TW	12.75	10.40	2.950	150568

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Simulation	Basin	Group	Time Max hrs	Flow Max cfs	Volume in	Volume ft3
010YR-EX	TW50-1	TW	12.75	14.36	3.998	204066
025YR-EX	TW50-1	TW	12.75	18.16	5.011	255750
050YR-EX	TW50-1	TW	12.75	21.40	5.880	300081
100YR-EX	TW50-1	TW	12.75	24.69	6.766	345312
500YR-EX	TW50-1	TW	12.75	32.39	8.854	451903
002YR-EX	TW50-2	TW	12.17	4.84	2.154	35342
005YR-EX	TW50-2	TW	12.17	7.70	3.353	55007
010YR-EX	TW50-2	TW	12.17	10.31	4.458	73140
025YR-EX	TW50-2	TW	12.17	12.77	5.515	90481
050YR-EX	TW50-2	TW	12.13	14.85	6.415	105256
100YR-EX	TW50-2	TW	12.13	16.97	7.330	120261
500YR-EX	TW50-2	TW	12.13	21.86	9.472	155413
002YR-EX	TW50-3	TW	12.13	0.71	1.118	5439
005YR-EX	TW50-3	TW	12.10	1.45	2.006	9758
010YR-EX	TW50-3	TW	12.10	2.18	2.883	14025
025YR-EX	TW50-3	TW	12.10	2.90	3.758	18280
050YR-EX	TW50-3	TW	12.10	3.54	4.524	22008
100YR-EX	TW50-3	TW	12.10	4.19	5.318	25869
500YR-EX	TW50-3	TW	12.10	5.74	7.225	35143
002YR-EX	TW50-4	TW	12.12	3.55	2.367	22852
005YR-EX	TW50-4	TW	12.12	5.49	3.612	34879
010YR-EX	TW50-4	TW	12.12	7.23	4.750	45863
025YR-EX	TW50-4	TW	12.09	8.86	5.832	56308
050YR-EX	TW50-4	TW	12.09	10.24	6.750	65175
100YR-EX	TW50-4	TW	12.09	11.63	7.680	74156
500YR-EX	TW50-4	TW	12.09	14.83	9.852	95128
002YR-EX	TW50-W	TW	12.04	80.32	4.762	465125
005YR-EX	TW50-W	TW	12.04	104.68	6.259	611424
010YR-EX	TW50-W	TW	12.04	125.77	7.558	738269
025YR-EX	TW50-W	TW	12.04	145.21	8.757	855383
050YR-EX	TW50-W	TW	12.04	161.41	9.756	952990
100YR-EX	TW50-W	TW	12.04	177.60	10.755	1050604
500YR-EX	TW50-W	TW	12.04	214.84	13.054	1275138
002YR-EX	TW80	TW	12.37	7.24	2.134	66548
005YR-EX	TW80	TW	12.30	11.57	3.328	103775
010YR-EX	TW80	TW	12.30	15.54	4.430	138132
025YR-EX	TW80	TW	12.30	19.29	5.484	171007
050YR-EX	TW80	TW	12.30	22.47	6.383	199030
100YR-EX	TW80	TW	12.30	25.67	7.296	227494
500YR-EX	TW80	TW	12.30	33.08	9.435	294201
002YR-EX	TW85-1	TW	12.13	0.83	1.225	6090
005YR-EX	TW85-1	TW	12.10	1.62	2.152	10703
010YR-EX	TW85-1	TW	12.10	2.39	3.060	15216
025YR-EX	TW85-1	TW	12.10	3.15	3.959	19690
050YR-EX	TW85-1	TW	12.10	3.81	4.744	23594
100YR-EX	TW85-1	TW	12.10	4.49	5.555	27626
500YR-EX	TW85-1	TW	12.10	6.10	7.496	37279
002YR-EX	TW85-2	TW	12.92	0.77	1.540	12799
005YR-EX	TW85-2	TW	12.83	1.37	2.573	21385
010YR-EX	TW85-2	TW	12.83	1.94	3.559	29583
025YR-EX	TW85-2	TW	12.83	2.51	4.522	37591
050YR-EX	TW85-2	TW	12.83	2.99	5.355	44511
100YR-EX	TW85-2	TW	12.83	3.48	6.208	51608
500YR-EX	TW85-2	TW	12.75	4.66	8.234	68444
002YR-EX	TW85-3	TW	12.17	1.24	1.052	9736
005YR-EX	TW85-3	TW	12.10	2.59	1.914	17717
010YR-EX	TW85-3	TW	12.10	3.95	2.771	25653
025YR-EX	TW85-3	TW	12.10	5.31	3.630	33598
050YR-EX	TW85-3	TW	12.10	6.49	4.383	40576
100YR-EX	TW85-3	TW	12.10	7.72	5.166	47817
500YR-EX	TW85-3	TW	12.10	10.65	7.050	65254
002YR-EX	TW85-4	TW	12.33	0.80	1.047	7563
005YR-EX	TW85-4	TW	12.28	1.64	1.907	13776
010YR-EX	TW85-4	TW	12.23	2.50	2.763	19957
025YR-EX	TW85-4	TW	12.23	3.35	3.620	26146
050YR-EX	TW85-4	TW	12.23	4.10	4.372	31583
100YR-EX	TW85-4	TW	12.18	4.88	5.153	37226
500YR-EX	TW85-4	TW	12.18	6.76	7.035	50817
002YR-EX	TW85-W	TW	12.04	68.80	4.762	398407
005YR-EX	TW85-W	TW	12.04	89.67	6.259	523720
010YR-EX	TW85-W	TW	12.04	107.73	7.558	632371
025YR-EX	TW85-W	TW	12.04	124.38	8.757	732686

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Simulation	Basin	Group	Time Max hrs	Flow Max cfs	Volume in	Volume ft3
050YR-EX	TW85-W	TW	12.04	138.26	9.756	816292
100YR-EX	TW85-W	TW	12.04	152.13	10.755	899905
500YR-EX	TW85-W	TW	12.04	184.02	13.054	1092231
002YR-EX	TW86	TW	13.17	4.62	2.486	89962
005YR-EX	TW86	TW	13.17	7.12	3.755	135914
010YR-EX	TW86	TW	13.17	9.38	4.909	177676
025YR-EX	TW86	TW	13.17	11.50	6.003	217272
050YR-EX	TW86	TW	13.17	13.29	6.931	250823
100YR-EX	TW86	TW	13.08	15.10	7.868	284759
500YR-EX	TW86	TW	13.08	19.28	10.054	363879
002YR-EX	TW95	TW	12.83	9.92	1.652	152981
005YR-EX	TW95	TW	12.75	17.24	2.719	251782
010YR-EX	TW95	TW	12.75	24.20	3.730	345433
025YR-EX	TW95	TW	12.75	30.96	4.714	436505
050YR-EX	TW95	TW	12.75	36.75	5.561	514960
100YR-EX	TW95	TW	12.75	42.65	6.428	595258
500YR-EX	TW95	TW	12.75	56.51	8.480	785228
002YR-EX	TW95-W	TW	12.04	4.69	4.762	27137
005YR-EX	TW95-W	TW	12.04	6.11	6.259	35672
010YR-EX	TW95-W	TW	12.04	7.34	7.558	43073
025YR-EX	TW95-W	TW	12.04	8.47	8.757	49905
050YR-EX	TW95-W	TW	12.04	9.42	9.756	55600
100YR-EX	TW95-W	TW	12.04	10.36	10.755	61295
500YR-EX	TW95-W	TW	12.04	12.53	13.054	74395
002YR-EX	TW96	TW	12.50	4.05	1.109	50740
005YR-EX	TW96	TW	12.50	8.10	1.993	91177
010YR-EX	TW96	TW	12.50	12.14	2.868	131155
025YR-EX	TW96	TW	12.42	16.23	3.740	171040
050YR-EX	TW96	TW	12.42	19.82	4.504	205987
100YR-EX	TW96	TW	12.42	23.52	5.295	242195
500YR-EX	TW96	TW	12.42	32.36	7.197	329194
002YR-EX	TW99	TW	12.07	11.86	1.219	70687
005YR-EX	TW99	TW	12.07	22.81	2.145	124345
010YR-EX	TW99	TW	12.07	33.42	3.051	176868
025YR-EX	TW99	TW	12.07	43.85	3.949	228955
050YR-EX	TW99	TW	12.04	52.91	4.734	274411
100YR-EX	TW99	TW	12.04	62.26	5.544	321371
500YR-EX	TW99	TW	12.04	84.41	7.483	433791
002YR-EX	TW99-W	TW	12.04	29.55	4.762	171116
005YR-EX	TW99-W	TW	12.04	38.51	6.259	224938
010YR-EX	TW99-W	TW	12.04	46.27	7.558	271604
025YR-EX	TW99-W	TW	12.04	53.42	8.757	314689
050YR-EX	TW99-W	TW	12.04	59.38	9.756	350598
100YR-EX	TW99-W	TW	12.04	65.34	10.755	386510
500YR-EX	TW99-W	TW	12.04	79.04	13.054	469114
002YR-EX	WA05B	BASE	12.75	164.86	2.645	2303105
005YR-EX	WA05B	BASE	12.75	248.59	3.945	3434829
010YR-EX	WA05B	BASE	12.67	323.84	5.119	4457120
025YR-EX	WA05B	BASE	12.67	394.30	6.228	5422907
050YR-EX	WA05B	BASE	12.67	453.37	7.165	6239362
100YR-EX	WA05B	BASE	12.67	512.61	8.112	7063859
500YR-EX	WA05B	BASE	12.67	649.04	10.315	8982332
002YR-EX	WA10B	BASE	13.25	132.08	2.862	2605138
005YR-EX	WA10B	BASE	13.17	195.78	4.199	3822426
010YR-EX	WA10B	BASE	13.17	252.54	5.398	4913851
025YR-EX	WA10B	BASE	13.17	305.48	6.526	5940475
050YR-EX	WA10B	BASE	13.17	349.81	7.477	6805958
100YR-EX	WA10B	BASE	13.17	394.22	8.435	7678277
500YR-EX	WA10B	BASE	13.17	496.44	10.659	9703278
002YR-EX	WA15B	BASE	13.08	103.01	3.142	1915975
005YR-EX	WA15B	BASE	13.08	148.98	4.521	2756712
010YR-EX	WA15B	BASE	13.08	189.37	5.746	3504175
025YR-EX	WA15B	BASE	13.08	226.82	6.894	4203842
050YR-EX	WA15B	BASE	13.08	258.05	7.858	4791879
100YR-EX	WA15B	BASE	13.08	289.27	8.828	5383302
500YR-EX	WA15B	BASE	13.08	360.93	11.074	6752733
002YR-EX	WA20B	BASE	13.00	82.11	2.769	1432883
005YR-EX	WA20B	BASE	13.00	122.74	4.091	2116724
010YR-EX	WA20B	BASE	13.00	158.92	5.280	2731737
025YR-EX	WA20B	BASE	13.00	192.71	6.400	3311265
050YR-EX	WA20B	BASE	13.00	221.01	7.345	3800382
100YR-EX	WA20B	BASE	13.00	249.37	8.298	4293751

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Simulation	Basin	Group	Time Max hrs	Flow Max cfs	Volume in	Volume ft3
500YR-EX	WA20B	BASE	12.92	314.79	10.514	5440149
002YR-EX	WA25B	BASE	12.92	152.88	2.705	2488324
005YR-EX	WA25B	BASE	12.92	229.73	4.016	3693697
010YR-EX	WA25B	BASE	12.92	298.28	5.197	4780153
025YR-EX	WA25B	BASE	12.92	362.34	6.311	5805251
050YR-EX	WA25B	BASE	12.83	416.30	7.252	6671141
100YR-EX	WA25B	BASE	12.83	470.42	8.203	7545061
500YR-EX	WA25B	BASE	12.83	595.07	10.412	9577130
002YR-EX	WA26B	BASE	12.58	76.91	3.569	939185
005YR-EX	WA26B	BASE	12.58	106.96	4.998	1315208
010YR-EX	WA26B	BASE	12.50	132.98	6.255	1646043
025YR-EX	WA26B	BASE	12.50	157.02	7.425	1953908
050YR-EX	WA26B	BASE	12.50	176.99	8.405	2211710
100YR-EX	WA26B	BASE	12.50	196.89	9.388	2470349
500YR-EX	WA26B	BASE	12.50	242.47	11.657	3067453
002YR-EX	WA30B	BASE	13.92	213.46	2.808	5749222
005YR-EX	WA30B	BASE	13.83	318.37	4.136	8468994
010YR-EX	WA30B	BASE	13.83	412.31	5.329	10911880
025YR-EX	WA30B	BASE	13.83	500.24	6.453	13212095
050YR-EX	WA30B	BASE	13.83	574.03	7.400	15152534
100YR-EX	WA30B	BASE	13.83	648.10	8.356	17109189
500YR-EX	WA30B	BASE	13.83	818.96	10.576	21653872
002YR-EX	WS05	TW	12.07	0.93	1.762	4990
005YR-EX	WS05	TW	12.07	1.55	2.861	8101
010YR-EX	WS05	TW	12.04	2.14	3.895	11029
025YR-EX	WS05	TW	12.04	2.70	4.897	13866
050YR-EX	WS05	TW	12.04	3.17	5.758	16302
100YR-EX	WS05	TW	12.04	3.66	6.637	18792
500YR-EX	WS05	TW	12.04	4.78	8.712	24666
002YR-EX	WS05A	TW	12.04	7.19	4.625	40795
005YR-EX	WS05A	TW	12.04	9.40	6.120	53982
010YR-EX	WS05A	TW	12.04	11.31	7.417	65422
025YR-EX	WS05A	TW	12.04	13.07	8.615	75989
050YR-EX	WS05A	TW	12.04	14.54	9.613	84797
100YR-EX	WS05A	TW	12.04	16.00	10.612	93606
500YR-EX	WS05A	TW	12.04	19.37	12.909	113873
002YR-EX	WS06	TW	12.07	1.34	1.601	7381
005YR-EX	WS06	TW	12.07	2.32	2.653	12230
010YR-EX	WS06	TW	12.04	3.24	3.653	16842
025YR-EX	WS06	TW	12.04	4.14	4.628	21335
050YR-EX	WS06	TW	12.04	4.90	5.469	25212
100YR-EX	WS06	TW	12.04	5.68	6.330	29183
500YR-EX	WS06	TW	12.04	7.50	8.371	38589
002YR-EX	WS07	TW	12.07	1.06	1.330	6130
005YR-EX	WS07	TW	12.07	1.97	2.294	10577
010YR-EX	WS07	TW	12.07	2.83	3.230	14889
025YR-EX	WS07	TW	12.04	3.68	4.152	19142
050YR-EX	WS07	TW	12.04	4.42	4.954	22840
100YR-EX	WS07	TW	12.04	5.17	5.781	26650
500YR-EX	WS07	TW	12.04	6.96	7.753	35740
002YR-EX	WS08	TW	12.07	6.24	1.653	34021
005YR-EX	WS08	TW	12.07	10.67	2.720	55989
010YR-EX	WS08	TW	12.04	14.82	3.732	76810
025YR-EX	WS08	TW	12.04	18.84	4.716	97057
050YR-EX	WS08	TW	12.04	22.28	5.563	114499
100YR-EX	WS08	TW	12.04	25.76	6.430	132350
500YR-EX	WS08	TW	12.04	33.90	8.482	174583
002YR-EX	WS08A	TW	12.04	10.50	3.494	54534
005YR-EX	WS08A	TW	12.04	14.59	4.915	76726
010YR-EX	WS08A	TW	12.04	18.12	6.168	96283
025YR-EX	WS08A	TW	12.04	21.36	7.335	114500
050YR-EX	WS08A	TW	12.04	24.05	8.313	129763
100YR-EX	WS08A	TW	12.04	26.73	9.295	145081
500YR-EX	WS08A	TW	12.04	32.86	11.561	180462
002YR-EX	WS09	TW	12.07	1.90	1.041	12133
005YR-EX	WS09	TW	12.07	3.94	1.899	22130
010YR-EX	WS09	TW	12.07	5.96	2.753	32082
025YR-EX	WS09	TW	12.07	7.97	3.609	42052
050YR-EX	WS09	TW	12.07	9.73	4.361	50812
100YR-EX	WS09	TW	12.04	11.54	5.141	59906
500YR-EX	WS09	TW	12.04	15.89	7.021	81812

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Simulation	Basin	Group	Time Max hrs	Flow Max cfs	Volume in	Volume ft3
002YR-EX	WS10	TW	12.07	0.59	2.273	3053
005YR-EX	WS10	TW	12.04	0.91	3.499	4699
010YR-EX	WS10	TW	12.04	1.21	4.622	6208
025YR-EX	WS10	TW	12.04	1.49	5.694	7647
050YR-EX	WS10	TW	12.04	1.72	6.605	8871
100YR-EX	WS10	TW	12.04	1.95	7.528	10111
500YR-EX	WS10	TW	12.04	2.49	9.688	13012
002YR-EX	WS11	FDOT	12.07	0.86	1.256	5063
005YR-EX	WS11	FDOT	12.07	1.63	2.195	8846
010YR-EX	WS11	FDOT	12.07	2.38	3.111	12537
025YR-EX	WS11	FDOT	12.07	3.11	4.018	16191
050YR-EX	WS11	FDOT	12.04	3.74	4.809	19375
100YR-EX	WS11	FDOT	12.04	4.39	5.624	22662
500YR-EX	WS11	FDOT	12.04	5.94	7.575	30521
002YR-EX	WS12	FDOT	12.07	2.19	1.326	12662
005YR-EX	WS12	FDOT	12.07	4.06	2.290	21859
010YR-EX	WS12	FDOT	12.07	5.86	3.224	30782
025YR-EX	WS12	FDOT	12.07	7.61	4.146	39583
050YR-EX	WS12	FDOT	12.04	9.14	4.948	47235
100YR-EX	WS12	FDOT	12.04	10.70	5.774	55121
500YR-EX	WS12	FDOT	12.04	14.39	7.744	73935
002YR-EX	WS13	FDOT	12.07	6.21	1.434	35025
005YR-EX	WS13	FDOT	12.07	11.16	2.433	59438
010YR-EX	WS13	FDOT	12.07	15.87	3.395	82929
025YR-EX	WS13	FDOT	12.04	20.47	4.338	105981
050YR-EX	WS13	FDOT	12.04	24.44	5.156	125961
100YR-EX	WS13	FDOT	12.04	28.49	5.997	146498
500YR-EX	WS13	FDOT	12.04	38.01	7.996	195353
002YR-EX	WS14	FDOT	12.07	10.23	1.832	54668
005YR-EX	WS14	FDOT	12.07	16.91	2.950	88023
010YR-EX	WS14	FDOT	12.04	23.14	3.998	119299
025YR-EX	WS14	FDOT	12.04	29.09	5.011	149514
050YR-EX	WS14	FDOT	12.04	34.14	5.879	175430
100YR-EX	WS14	FDOT	12.04	39.25	6.765	201873
500YR-EX	WS14	FDOT	12.04	51.14	8.854	264187
002YR-EX	WY05B	WY	12.28	18.83	2.740	162614
005YR-EX	WY05B	WY	12.28	28.04	4.056	240753
010YR-EX	WY05B	WY	12.28	36.19	5.242	311098
025YR-EX	WY05B	WY	12.28	43.78	6.359	377423
050YR-EX	WY05B	WY	12.28	50.12	7.303	433422
100YR-EX	WY05B	WY	12.28	56.46	8.255	489922
500YR-EX	WY05B	WY	12.28	71.03	10.467	621249
002YR-EX	WY10B	WY	12.16	53.15	2.950	395102
005YR-EX	WY10B	WY	12.16	77.65	4.301	575995
010YR-EX	WY10B	WY	12.16	99.18	5.509	737724
025YR-EX	WY10B	WY	12.16	119.12	6.643	889600
050YR-EX	WY10B	WY	12.16	135.73	7.598	1017503
100YR-EX	WY10B	WY	12.16	152.33	8.560	1146323
500YR-EX	WY10B	WY	12.16	190.36	10.792	1445105
002YR-EX	WY15B	WY	12.35	54.93	2.865	540120
005YR-EX	WY15B	WY	12.35	80.95	4.202	792265
010YR-EX	WY15B	WY	12.35	103.91	5.401	1018310
025YR-EX	WY15B	WY	12.35	125.24	6.529	1230917
050YR-EX	WY15B	WY	12.35	143.03	7.479	1410145
100YR-EX	WY15B	WY	12.35	160.83	8.437	1590781
500YR-EX	WY15B	WY	12.35	201.66	10.661	2010095
002YR-EX	WY20B	WY	12.19	19.85	3.939	154563
005YR-EX	WY20B	WY	12.19	26.86	5.400	211908
010YR-EX	WY20B	WY	12.19	32.89	6.677	262023
025YR-EX	WY20B	WY	12.19	38.42	7.861	308486
050YR-EX	WY20B	WY	12.19	43.02	8.851	347306
100YR-EX	WY20B	WY	12.19	47.60	9.842	386193
500YR-EX	WY20B	WY	12.19	58.09	12.125	475808
002YR-EX	WY25B	WY	12.32	41.33	2.981	388310
005YR-EX	WY25B	WY	12.32	60.22	4.337	564844
010YR-EX	WY25B	WY	12.32	76.81	5.547	722524
025YR-EX	WY25B	WY	12.32	92.18	6.684	870515
050YR-EX	WY25B	WY	12.32	104.99	7.640	995104
100YR-EX	WY25B	WY	12.32	117.79	8.603	1120554
500YR-EX	WY25B	WY	12.32	147.12	10.837	1411437
002YR-EX	WY30B	WY	12.13	30.41	3.089	198718
005YR-EX	WY30B	WY	12.10	43.75	4.461	286942

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Simulation	Basin	Group	Time Max hrs	Flow Max cfs	Volume in	Volume ft3
010YR-EX	WY30B	WY	12.10	55.46	5.682	365495
025YR-EX	WY30B	WY	12.10	66.28	6.826	439088
050YR-EX	WY30B	WY	12.10	75.28	7.788	500973
100YR-EX	WY30B	WY	12.10	84.26	8.756	563238
500YR-EX	WY30B	WY	12.10	104.82	10.999	707474
002YR-EX	WY35B	WY	13.33	232.91	2.811	4795648
005YR-EX	WY35B	WY	13.25	347.01	4.140	7062416
010YR-EX	WY35B	WY	13.25	448.86	5.333	9098169
025YR-EX	WY35B	WY	13.25	544.02	6.456	11014892
050YR-EX	WY35B	WY	13.25	623.75	7.404	12631750
100YR-EX	WY35B	WY	13.25	703.69	8.360	14262068
500YR-EX	WY35B	WY	13.25	887.81	10.579	18048630

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Stormwater Management Master Plan
Existing Conditions - Link Max Comparison Report

Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
BA03-C	BA	002YR-EX-Masci	17.88	948.08	-70.063	16.10	20.97	16.10	20.96
BA03-C	BA	005YR-EX-Masci	19.29	1044.21	-70.063	16.35	21.96	16.35	21.96
BA03-C	BA	010YR-EX-Masci	20.49	1132.79	-70.063	16.68	22.67	16.67	22.67
BA03-C	BA	025YR-EX-Masci	21.43	1201.65	312.364	16.96	23.12	16.96	23.12
BA03-C	BA	050YR-EX-Masci	23.13	1216.29	-70.063	17.22	23.43	17.22	23.43
BA03-C	BA	100YR-EX-Masci	20.93	1228.25	-70.063	17.66	23.71	17.65	23.71
BA03-C	BA	500YR-EX-Masci	19.42	1407.57	-628.774	18.53	24.22	18.53	24.22
BA05-C	BA	002YR-EX-Masci	17.76	934.34	7.464	16.12	21.01	16.10	20.97
BA05-C	BA	005YR-EX-Masci	19.18	1022.93	7.464	16.38	21.99	16.35	21.96
BA05-C	BA	010YR-EX-Masci	20.33	1108.01	7.464	16.73	22.69	16.68	22.67
BA05-C	BA	025YR-EX-Masci	21.24	1176.58	11.719	17.01	23.14	16.96	23.12
BA05-C	BA	050YR-EX-Masci	23.08	1190.36	7.464	17.26	23.45	17.22	23.43
BA05-C	BA	100YR-EX-Masci	19.55	1218.36	7.464	17.70	23.74	17.66	23.71
BA05-C	BA	500YR-EX-Masci	19.31	1405.49	53.177	18.56	24.25	18.53	24.22
BA10-C	BA	002YR-EX-Masci	18.73	620.27	-27.860	16.14	21.01	16.12	21.01
BA10-C	BA	005YR-EX-Masci	21.38	674.78	21.785	16.39	21.99	16.38	21.99
BA10-C	BA	010YR-EX-Masci	22.28	686.86	178.935	16.74	22.69	16.73	22.69
BA10-C	BA	025YR-EX-Masci	23.86	702.01	140.223	17.01	23.14	17.01	23.14
BA10-C	BA	050YR-EX-Masci	24.00	662.16	46.257	17.27	23.45	17.26	23.45
BA10-C	BA	100YR-EX-Masci	24.00	546.14	-46.574	17.71	23.74	17.70	23.74
BA10-C	BA	500YR-EX-Masci	19.84	533.63	42.853	18.57	24.26	18.56	24.25
BA15-C	BA	002YR-EX-Masci	18.68	603.03	19.201	16.15	21.02	16.14	21.01
BA15-C	BA	005YR-EX-Masci	19.01	678.90	19.201	16.40	22.00	16.39	21.99
BA15-C	BA	010YR-EX-Masci	21.11	771.29	203.815	16.75	22.70	16.74	22.69
BA15-C	BA	025YR-EX-Masci	23.24	798.14	175.573	17.02	23.15	17.01	23.14
BA15-C	BA	050YR-EX-Masci	24.00	786.31	89.554	17.28	23.46	17.27	23.45
BA15-C	BA	100YR-EX-Masci	24.00	715.53	56.883	17.72	23.75	17.71	23.74
BA15-C	BA	500YR-EX-Masci	18.83	857.57	55.917	18.57	24.26	18.57	24.26
BA20-C	BA	002YR-EX-Masci	18.70	549.29	-26.215	16.16	21.02	16.15	21.02
BA20-C	BA	005YR-EX-Masci	19.02	601.28	24.161	16.42	22.00	16.40	22.00
BA20-C	BA	010YR-EX-Masci	21.17	676.90	35.253	16.76	22.70	16.75	22.70
BA20-C	BA	025YR-EX-Masci	23.30	697.85	197.845	17.04	23.15	17.02	23.15
BA20-C	BA	050YR-EX-Masci	24.00	677.33	-214.898	17.29	23.46	17.28	23.46
BA20-C	BA	100YR-EX-Masci	24.00	578.54	85.385	17.72	23.75	17.72	23.75
BA20-C	BA	500YR-EX-Masci	18.08	723.10	36.317	18.57	24.27	18.57	24.26
BA25-C	BA	002YR-EX-Masci	18.67	528.61	41.009	16.17	21.03	16.16	21.02
BA25-C	BA	005YR-EX-Masci	19.06	568.90	41.009	16.43	22.00	16.42	22.00
BA25-C	BA	010YR-EX-Masci	21.25	628.42	50.672	16.77	22.70	16.76	22.70
BA25-C	BA	025YR-EX-Masci	23.43	642.54	318.390	17.04	23.15	17.04	23.15
BA25-C	BA	050YR-EX-Masci	24.00	614.35	402.069	17.29	23.46	17.29	23.46
BA25-C	BA	100YR-EX-Masci	24.00	507.72	188.540	17.72	23.75	17.72	23.75
BA25-C	BA	500YR-EX-Masci	17.66	710.20	105.552	18.57	24.27	18.57	24.27
BA25-D1	GH	002YR-EX-Masci	16.17	112.24	0.020	16.17	21.03	16.19	16.18
BA25-D1	GH	005YR-EX-Masci	16.43	163.71	4.899	16.43	22.00	16.45	17.05
BA25-D1	GH	010YR-EX-Masci	16.77	206.90	4.898	16.77	22.70	16.80	18.06
BA25-D1	GH	025YR-EX-Masci	17.04	239.24	-4.863	17.04	23.15	17.07	18.73
BA25-D1	GH	050YR-EX-Masci	17.30	263.72	-4.878	17.29	23.46	17.33	19.23
BA25-D1	GH	100YR-EX-Masci	17.72	286.36	-4.878	17.72	23.75	17.73	19.69
BA25-D1	GH	500YR-EX-Masci	18.57	319.00	-4.871	18.57	24.27	18.60	20.36
BA25-D2	BA	002YR-EX-Masci	16.17	125.15	0.020	16.17	21.03	16.19	15.61
BA25-D2	BA	005YR-EX-Masci	16.43	205.34	0.060	16.43	22.00	16.45	16.74
BA25-D2	BA	010YR-EX-Masci	16.77	262.23	0.084	16.77	22.70	16.79	17.79
BA25-D2	BA	025YR-EX-Masci	17.04	294.24	0.100	17.04	23.15	17.07	18.33
BA25-D2	BA	050YR-EX-Masci	17.29	313.44	0.102	17.29	23.46	17.32	18.65
BA25-D2	BA	100YR-EX-Masci	17.72	330.30	0.106	17.72	23.75	17.75	18.92
BA25-D2	BA	500YR-EX-Masci	18.57	359.28	0.111	18.57	24.27	18.59	19.40
BA30-C	BA	002YR-EX-Masci	17.84	710.56	-27.619	16.18	21.04	16.17	21.03
BA30-C	BA	005YR-EX-Masci	18.55	868.45	-34.073	16.44	22.01	16.43	22.00
BA30-C	BA	010YR-EX-Masci	20.71	947.11	-29.114	16.78	22.71	16.77	22.70
BA30-C	BA	025YR-EX-Masci	21.71	982.67	34.232	17.05	23.16	17.04	23.15
BA30-C	BA	050YR-EX-Masci	23.74	987.30	-36.852	17.30	23.47	17.29	23.46
BA30-C	BA	100YR-EX-Masci	17.33	1105.43	-20.781	17.72	23.76	17.72	23.75
BA30-C	BA	500YR-EX-Masci	17.33	1384.90	35.626	18.54	24.28	18.57	24.27
BA35-C	BA	002YR-EX-Masci	17.79	666.39	19.531	16.19	21.05	16.18	21.04
BA35-C	BA	005YR-EX-Masci	18.54	802.28	19.531	16.46	22.02	16.44	22.01
BA35-C	BA	010YR-EX-Masci	20.72	861.02	19.531	16.80	22.72	16.78	22.71
BA35-C	BA	025YR-EX-Masci	21.75	886.98	19.531	17.07	23.16	17.05	23.16
BA35-C	BA	050YR-EX-Masci	23.78	892.09	19.531	17.30	23.48	17.30	23.47
BA35-C	BA	100YR-EX-Masci	17.10	1023.94	19.531	17.71	23.77	17.72	23.76
BA35-C	BA	500YR-EX-Masci	17.20	1298.34	14.458	18.50	24.30	18.54	24.28
BA40-C	BA	002YR-EX-Masci	18.88	280.16	-40.374	16.19	21.05	16.19	21.05

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Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
BA40-C	BA	005YR-EX-Masci	21.56	327.34	-57.831	16.46	22.02	16.46	22.02
BA40-C	BA	010YR-EX-Masci	21.84	365.80	45.391	16.80	22.72	16.80	22.72
BA40-C	BA	025YR-EX-Masci	23.79	382.07	49.105	17.07	23.16	17.07	23.16
BA40-C	BA	050YR-EX-Masci	24.00	325.80	-53.563	17.30	23.48	17.30	23.48
BA40-C	BA	100YR-EX-Masci	24.00	173.33	66.651	17.71	23.77	17.71	23.77
BA40-C	BA	500YR-EX-Masci	11.90	130.52	-57.877	18.50	24.30	18.50	24.30
BA40-D	BA	002YR-EX-Masci	16.19	127.61	0.021	16.19	21.05	16.21	16.35
BA40-D	BA	005YR-EX-Masci	16.46	261.18	0.062	16.46	22.02	16.47	17.74
BA40-D	BA	010YR-EX-Masci	16.80	388.47	0.067	16.80	22.72	16.81	18.77
BA40-D	BA	025YR-EX-Masci	17.07	483.32	0.073	17.07	23.16	17.08	19.83
BA40-D	BA	050YR-EX-Masci	17.31	545.75	138.020	17.30	23.48	17.32	19.95
BA40-D	BA	100YR-EX-Masci	17.71	591.18	165.265	17.71	23.77	17.86	19.96
BA40-D	BA	500YR-EX-Masci	18.50	654.17	201.024	18.50	24.30	18.97	19.96
BA42-C	BA	002YR-EX-Masci	18.23	308.07	10.900	16.20	21.05	16.19	21.05
BA42-C	BA	005YR-EX-Masci	18.93	400.27	10.900	16.47	22.03	16.46	22.02
BA42-C	BA	010YR-EX-Masci	20.78	466.71	-29.838	16.81	22.72	16.80	22.72
BA42-C	BA	025YR-EX-Masci	21.84	486.20	33.612	17.08	23.17	17.07	23.16
BA42-C	BA	050YR-EX-Masci	23.84	491.65	-33.652	17.31	23.48	17.30	23.48
BA42-C	BA	100YR-EX-Masci	24.00	455.00	-33.411	17.72	23.78	17.71	23.77
BA42-C	BA	500YR-EX-Masci	23.37	421.90	33.929	18.51	24.30	18.50	24.30
BA45-C	BA	002YR-EX-Masci	12.38	285.57	-14.676	16.20	21.05	16.20	21.05
BA45-C	BA	005YR-EX-Masci	12.34	361.70	13.599	16.47	22.03	16.47	22.03
BA45-C	BA	010YR-EX-Masci	12.30	408.59	13.727	16.82	22.72	16.81	22.72
BA45-C	BA	025YR-EX-Masci	12.29	449.74	13.796	17.08	23.17	17.08	23.17
BA45-C	BA	050YR-EX-Masci	12.24	476.42	55.322	17.32	23.48	17.31	23.48
BA45-C	BA	100YR-EX-Masci	12.14	478.30	-61.407	17.72	23.78	17.72	23.78
BA45-C	BA	500YR-EX-Masci	11.92	395.82	-46.235	18.51	24.30	18.51	24.30
Belle-Bleed	BelleTerre	002YR-EX-Masci	24.00	0.91	-0.003	24.00	22.97	15.98	21.20
Belle-Bleed	BelleTerre	005YR-EX-Masci	24.00	0.79	-0.002	16.72	23.43	16.62	23.36
Belle-Bleed	BelleTerre	010YR-EX-Masci	11.94	0.65	-0.053	17.52	24.15	17.43	24.12
Belle-Bleed	BelleTerre	025YR-EX-Masci	11.86	0.67	-0.056	15.67	24.66	15.73	24.65
Belle-Bleed	BelleTerre	050YR-EX-Masci	11.79	0.68	-0.060	14.75	24.96	12.23	25.20
Belle-Bleed	BelleTerre	100YR-EX-Masci	11.73	0.69	-0.060	14.30	25.26	12.09	25.79
Belle-Bleed	BelleTerre	500YR-EX-Masci	11.62	0.67	-0.054	14.06	26.16	12.09	27.64
BELLE-W3	BelleTerre	002YR-EX-Masci	24.00	0.04	0.000	24.00	22.97	15.98	21.20
BELLE-W3	BelleTerre	005YR-EX-Masci	19.53	3.61	-0.139	16.90	23.43	16.62	23.36
BELLE-W3	BelleTerre	010YR-EX-Masci	12.04	7.87	0.583	17.55	24.15	17.43	24.12
BELLE-W3	BelleTerre	025YR-EX-Masci	12.06	13.12	5.869	15.70	24.66	15.73	24.65
BELLE-W3	BelleTerre	050YR-EX-Masci	11.97	11.97	4.651	12.22	25.22	12.23	25.20
BELLE-W3	BelleTerre	100YR-EX-Masci	11.91	11.92	4.661	12.09	25.82	12.09	25.79
BELLE-W3	BelleTerre	500YR-EX-Masci	11.81	12.78	5.900	12.09	27.67	12.09	27.64
BELLE-W3a	BelleTerre	002YR-EX-Masci	0.00	0.00	0.000	0.00	0.00	0.00	0.00
BELLE-W3a	BelleTerre	005YR-EX-Masci	0.00	0.00	0.000	0.00	0.00	0.00	0.00
BELLE-W3a	BelleTerre	010YR-EX-Masci	0.00	0.00	0.000	0.00	0.00	0.00	0.00
BELLE-W3a	BelleTerre	025YR-EX-Masci	0.00	0.00	0.000	0.00	0.00	0.00	0.00
BELLE-W3a	BelleTerre	050YR-EX-Masci	0.00	0.00	0.000	0.00	0.00	0.00	0.00
BELLE-W3a	BelleTerre	100YR-EX-Masci	0.00	0.00	0.000	0.00	0.00	0.00	0.00
BELLE-W3a	BelleTerre	500YR-EX-Masci	0.00	0.00	0.000	0.00	0.00	0.00	0.00
BELLE-W4	BelleTerre	002YR-EX-Masci	12.70	3.75	0.001	12.70	24.19	24.00	22.97
BELLE-W4	BelleTerre	005YR-EX-Masci	12.59	6.72	-0.002	12.59	24.39	16.90	23.43
BELLE-W4	BelleTerre	010YR-EX-Masci	12.55	9.35	-0.147	12.55	24.57	17.55	24.15
BELLE-W4	BelleTerre	025YR-EX-Masci	12.67	10.91	-1.803	12.41	24.94	15.70	24.66
BELLE-W4	BelleTerre	050YR-EX-Masci	12.67	9.85	-1.251	12.38	25.35	12.22	25.22
BELLE-W4	BelleTerre	100YR-EX-Masci	12.67	8.37	-1.247	12.37	25.71	12.09	25.82
BELLE-W4	BelleTerre	500YR-EX-Masci	12.81	6.61	-1.233	12.54	26.47	12.09	27.67
BELLE-W5	BelleTerre	002YR-EX-Masci	12.12	1.28	0.000	12.12	24.16	15.95	21.17
BELLE-W5	BelleTerre	005YR-EX-Masci	12.34	2.30	-0.001	12.34	24.26	16.14	22.27
BELLE-W5	BelleTerre	010YR-EX-Masci	12.36	3.55	-0.001	12.36	24.37	16.38	23.01
BELLE-W5	BelleTerre	025YR-EX-Masci	12.39	6.97	0.004	12.39	24.61	16.42	23.57
BELLE-W5	BelleTerre	050YR-EX-Masci	12.38	12.39	0.008	12.38	24.92	16.14	23.97
BELLE-W5	BelleTerre	100YR-EX-Masci	12.40	17.90	0.012	12.40	25.28	15.71	24.35
BELLE-W5	BelleTerre	500YR-EX-Masci	12.39	20.95	-0.576	12.57	26.36	12.82	25.34
BT-N1POND	BelleTerre	002YR-EX-Masci	12.08	28.21	0.436	24.00	22.97	24.00	22.97
BT-N1POND	BelleTerre	005YR-EX-Masci	12.08	42.78	2.683	16.90	23.43	16.72	23.43
BT-N1POND	BelleTerre	010YR-EX-Masci	12.09	48.85	-2.327	17.55	24.15	17.52	24.15
BT-N1POND	BelleTerre	025YR-EX-Masci	12.00	54.90	4.397	15.70	24.66	15.67	24.66
BT-N1POND	BelleTerre	050YR-EX-Masci	12.08	56.83	-3.605	12.22	25.22	14.75	24.96
BT-N1POND	BelleTerre	100YR-EX-Masci	12.08	60.71	-3.619	12.09	25.82	14.30	25.26
BT-N1POND	BelleTerre	500YR-EX-Masci	12.06	71.56	-0.985	12.09	27.67	14.06	26.16
BT-N2CANAL	BelleTerre	002YR-EX-Masci	24.00	0.95	0.017	15.98	21.20	15.95	21.17
BT-N2CANAL	BelleTerre	005YR-EX-Masci	19.87	3.86	0.017	16.62	23.36	16.14	22.27

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Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
BT-N2CANAL	BelleTerre	010YR-EX-Masci	12.09	6.10	0.017	17.43	24.12	16.38	23.01
BT-N2CANAL	BelleTerre	025YR-EX-Masci	12.07	6.42	0.018	15.73	24.65	16.42	23.57
BT-N2CANAL	BelleTerre	050YR-EX-Masci	12.00	6.44	0.017	12.23	25.20	16.14	23.97
BT-N2CANAL	BelleTerre	100YR-EX-Masci	12.00	6.54	0.017	12.09	25.79	15.71	24.35
BT-N2CANAL	BelleTerre	500YR-EX-Masci	11.99	6.68	-0.018	12.09	27.64	12.82	25.34
BT-N3canal	BelleTerre	002YR-EX-Masci	12.15	1.68	-0.089	15.95	21.17	15.95	21.17
BT-N3canal	BelleTerre	005YR-EX-Masci	19.84	3.97	-0.089	16.14	22.27	16.14	22.21
BT-N3canal	BelleTerre	010YR-EX-Masci	12.15	9.12	-0.089	16.38	23.01	16.35	22.94
BT-N3canal	BelleTerre	025YR-EX-Masci	12.34	12.51	-0.089	16.42	23.57	16.61	23.39
BT-N3canal	BelleTerre	050YR-EX-Masci	12.35	17.46	-0.089	16.14	23.97	16.90	23.69
BT-N3canal	BelleTerre	100YR-EX-Masci	12.37	22.12	-0.089	15.71	24.35	17.34	23.95
BT-N3canal	BelleTerre	500YR-EX-Masci	12.24	25.15	-0.091	12.82	25.34	18.18	24.42
BT07C	BelleTerre	002YR-EX-Masci	12.10	1.28	0.000	12.13	25.31	12.36	25.16
BT07C	BelleTerre	005YR-EX-Masci	12.09	1.85	-0.001	12.33	25.47	12.40	25.42
BT07C	BelleTerre	010YR-EX-Masci	12.08	2.27	-0.001	12.39	25.71	12.40	25.69
BT07C	BelleTerre	025YR-EX-Masci	12.02	2.54	0.005	12.41	26.04	12.41	26.04
BT07C	BelleTerre	050YR-EX-Masci	11.99	2.63	-0.005	12.41	26.34	12.41	26.34
BT07C	BelleTerre	100YR-EX-Masci	11.94	2.64	-0.005	12.43	26.64	12.43	26.64
BT07C	BelleTerre	500YR-EX-Masci	12.18	2.70	-0.005	12.48	27.32	12.48	27.32
BT08P	BelleTerre	002YR-EX-Masci	12.14	2.10	0.001	12.36	25.16	12.49	25.08
BT08P	BelleTerre	005YR-EX-Masci	12.12	3.12	-0.001	12.40	25.42	12.49	25.36
BT08P	BelleTerre	010YR-EX-Masci	12.10	3.95	-0.001	12.40	25.69	12.47	25.60
BT08P	BelleTerre	025YR-EX-Masci	12.05	4.42	0.118	12.41	26.04	12.47	25.88
BT08P	BelleTerre	050YR-EX-Masci	12.12	4.79	0.107	12.41	26.34	12.47	26.13
BT08P	BelleTerre	100YR-EX-Masci	12.09	5.05	0.099	12.43	26.64	12.47	26.38
BT08P	BelleTerre	500YR-EX-Masci	12.22	5.78	0.034	12.48	27.32	12.55	26.98
BT10C	BelleTerre	002YR-EX-Masci	12.39	1.87	0.001	12.49	25.08	12.65	24.95
BT10C	BelleTerre	005YR-EX-Masci	12.31	2.83	0.001	12.49	25.36	12.54	25.28
BT10C	BelleTerre	010YR-EX-Masci	12.42	3.68	0.001	12.47	25.60	12.48	25.53
BT10C	BelleTerre	025YR-EX-Masci	12.58	4.57	0.003	12.47	25.88	12.46	25.83
BT10C	BelleTerre	050YR-EX-Masci	12.61	5.42	-0.004	12.47	26.13	12.46	26.09
BT10C	BelleTerre	100YR-EX-Masci	12.67	6.24	-0.010	12.47	26.38	12.47	26.36
BT10C	BelleTerre	500YR-EX-Masci	12.75	7.09	-0.014	12.55	26.98	12.55	26.97
BT11P	BelleTerre	002YR-EX-Masci	12.23	3.89	0.002	12.65	24.95	12.70	24.91
BT11P	BelleTerre	005YR-EX-Masci	12.31	6.20	0.002	12.54	25.28	12.57	25.22
BT11P	BelleTerre	010YR-EX-Masci	12.30	8.54	0.003	12.48	25.53	12.51	25.44
BT11P	BelleTerre	025YR-EX-Masci	12.38	10.29	0.176	12.46	25.83	12.49	25.65
BT11P	BelleTerre	050YR-EX-Masci	12.40	11.87	0.213	12.46	26.09	12.48	25.84
BT11P	BelleTerre	100YR-EX-Masci	12.47	13.19	0.236	12.47	26.36	12.47	26.04
BT11P	BelleTerre	500YR-EX-Masci	12.37	14.75	0.107	12.55	26.97	12.57	26.59
BT15C	BelleTerre	002YR-EX-Masci	12.70	3.45	0.001	12.70	24.91	12.70	24.19
BT15C	BelleTerre	005YR-EX-Masci	12.57	6.47	-0.002	12.57	25.22	12.59	24.39
BT15C	BelleTerre	010YR-EX-Masci	12.51	9.45	0.004	12.51	25.44	12.55	24.57
BT15C	BelleTerre	025YR-EX-Masci	12.50	12.00	0.006	12.49	25.65	12.41	24.94
BT15C	BelleTerre	050YR-EX-Masci	12.52	14.06	0.005	12.48	25.84	12.38	25.35
BT15C	BelleTerre	100YR-EX-Masci	12.55	16.01	0.005	12.47	26.04	12.37	25.71
BT15C	BelleTerre	500YR-EX-Masci	12.68	17.61	-0.006	12.57	26.59	12.54	26.47
BT18C	BelleTerre	002YR-EX-Masci	12.10	0.20	-0.008	12.12	24.16	12.70	24.19
BT18C	BelleTerre	005YR-EX-Masci	12.02	0.27	-0.017	12.34	24.26	12.59	24.39
BT18C	BelleTerre	010YR-EX-Masci	11.96	0.26	-0.021	12.36	24.37	12.55	24.57
BT18C	BelleTerre	025YR-EX-Masci	11.89	0.22	-0.027	12.39	24.61	12.41	24.94
BT18C	BelleTerre	050YR-EX-Masci	11.81	0.18	-0.022	12.38	24.92	12.38	25.35
BT18C	BelleTerre	100YR-EX-Masci	11.74	0.15	-0.013	12.40	25.28	12.37	25.71
BT18C	BelleTerre	500YR-EX-Masci	10.77	0.03	-0.015	12.57	26.36	12.54	26.47
EH10-C	EH	002YR-EX-Masci	15.97	124.24	-2.816	15.03	23.86	15.01	23.85
EH10-C	EH	005YR-EX-Masci	15.55	175.85	-2.828	14.96	24.38	14.95	24.36
EH10-C	EH	010YR-EX-Masci	16.89	213.87	-2.819	15.03	24.75	15.02	24.73
EH10-C	EH	025YR-EX-Masci	12.76	252.31	-2.795	15.42	25.11	15.42	25.09
EH10-C	EH	050YR-EX-Masci	12.70	297.09	-2.765	15.80	25.42	15.80	25.41
EH10-C	EH	100YR-EX-Masci	12.59	335.98	-2.734	16.21	25.71	16.21	25.70
EH10-C	EH	500YR-EX-Masci	12.50	405.96	2.676	17.02	26.28	17.03	26.27
EH15-P	EH	002YR-EX-Masci	16.46	109.70	-1.830	15.22	23.92	15.03	23.86
EH15-P	EH	005YR-EX-Masci	16.19	152.50	-1.839	15.24	24.49	14.96	24.38
EH15-P	EH	010YR-EX-Masci	17.14	191.71	-1.844	15.40	24.91	15.03	24.75
EH15-P	EH	025YR-EX-Masci	19.38	219.89	-1.832	15.76	25.28	15.42	25.11
EH15-P	EH	050YR-EX-Masci	21.37	240.20	1.769	16.08	25.59	15.80	25.42
EH15-P	EH	100YR-EX-Masci	23.37	257.97	1.805	16.38	25.85	16.21	25.71
EH15-P	EH	500YR-EX-Masci	24.00	218.33	1.852	16.96	26.44	17.02	26.28
EH15-W	EH	002YR-EX-Masci	0.00	0.00	0.000	15.22	23.92	15.03	23.86
EH15-W	EH	005YR-EX-Masci	0.00	0.00	0.000	15.24	24.49	14.96	24.38
EH15-W	EH	010YR-EX-Masci	0.00	0.00	0.000	15.40	24.91	15.03	24.75

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Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
EH15-W	EH	025YR-EX-Masci	0.00	0.00	0.000	15.76	25.28	15.42	25.11
EH15-W	EH	050YR-EX-Masci	0.00	0.00	0.000	16.08	25.59	15.80	25.42
EH15-W	EH	100YR-EX-Masci	16.38	12.53	0.002	16.38	25.85	16.21	25.71
EH15-W	EH	500YR-EX-Masci	16.89	91.82	0.011	16.96	26.44	17.02	26.28
EH20-C	EH	002YR-EX-Masci	17.63	76.90	3.151	15.25	23.92	15.22	23.92
EH20-C	EH	005YR-EX-Masci	17.60	101.87	-3.762	15.26	24.50	15.24	24.49
EH20-C	EH	010YR-EX-Masci	17.59	136.71	4.454	15.43	24.92	15.40	24.91
EH20-C	EH	025YR-EX-Masci	19.45	166.21	4.759	15.79	25.29	15.76	25.28
EH20-C	EH	050YR-EX-Masci	21.39	185.50	5.091	16.11	25.59	16.08	25.59
EH20-C	EH	100YR-EX-Masci	23.50	201.20	5.277	16.41	25.85	16.38	25.85
EH20-C	EH	500YR-EX-Masci	22.64	173.65	6.028	17.00	26.44	16.96	26.44
EH25-C	EH	002YR-EX-Masci	18.26	38.48	3.572	15.26	23.92	15.25	23.92
EH25-C	EH	005YR-EX-Masci	18.42	49.50	4.162	15.27	24.50	15.26	24.50
EH25-C	EH	010YR-EX-Masci	17.55	70.03	4.788	15.44	24.92	15.43	24.92
EH25-C	EH	025YR-EX-Masci	19.42	88.09	5.350	15.80	25.29	15.79	25.29
EH25-C	EH	050YR-EX-Masci	21.33	99.90	5.615	16.12	25.60	16.11	25.59
EH25-C	EH	100YR-EX-Masci	23.57	109.29	5.956	16.42	25.85	16.41	25.85
EH25-C	EH	500YR-EX-Masci	22.67	85.35	6.883	17.01	26.44	17.00	26.44
EH30-P	EH	002YR-EX-Masci	12.55	32.84	0.118	12.76	24.35	15.26	23.92
EH30-P	EH	005YR-EX-Masci	12.34	36.57	0.118	13.29	25.07	15.27	24.50
EH30-P	EH	010YR-EX-Masci	12.26	36.12	0.118	13.84	25.56	15.44	24.92
EH30-P	EH	025YR-EX-Masci	12.21	35.21	-0.118	14.20	25.92	15.80	25.29
EH30-P	EH	050YR-EX-Masci	12.34	34.43	-0.117	14.45	26.16	16.12	25.60
EH30-P	EH	100YR-EX-Masci	12.37	33.89	0.117	14.67	26.39	16.42	25.85
EH30-P	EH	500YR-EX-Masci	12.26	32.29	-0.117	14.46	26.66	17.01	26.44
EH30-W	EH	002YR-EX-Masci	0.00	0.00	0.000	12.76	24.35	15.26	23.92
EH30-W	EH	005YR-EX-Masci	0.00	0.00	0.000	13.29	25.07	15.27	24.50
EH30-W	EH	010YR-EX-Masci	0.00	0.00	0.000	13.84	25.56	15.44	24.92
EH30-W	EH	025YR-EX-Masci	0.00	0.00	0.000	14.20	25.92	15.80	25.29
EH30-W	EH	050YR-EX-Masci	0.00	0.00	0.000	14.45	26.16	16.12	25.60
EH30-W	EH	100YR-EX-Masci	0.00	0.00	0.000	14.67	26.39	16.42	25.85
EH30-W	EH	500YR-EX-Masci	14.46	13.83	0.007	14.46	26.66	17.01	26.44
EI10-C	RP	002YR-EX-Masci	15.25	203.05	-2.736	14.97	24.02	14.95	23.99
EI10-C	RP	005YR-EX-Masci	15.61	278.18	-2.773	14.92	24.60	14.90	24.57
EI10-C	RP	010YR-EX-Masci	15.22	354.54	2.772	15.02	25.04	14.99	25.00
EI10-C	RP	025YR-EX-Masci	15.52	405.09	2.786	15.25	25.41	15.23	25.37
EI10-C	RP	050YR-EX-Masci	16.35	413.27	2.716	15.65	25.70	15.62	25.66
EI10-C	RP	100YR-EX-Masci	18.11	409.70	-2.665	16.09	25.96	16.04	25.93
EI10-C	RP	500YR-EX-Masci	23.49	436.08	-2.727	16.92	26.44	16.87	26.43
EI15-P	EI	002YR-EX-Masci	16.15	132.99	-2.121	15.09	24.09	14.97	24.02
EI15-P	EI	005YR-EX-Masci	16.68	194.20	-2.144	15.24	24.74	14.92	24.60
EI15-P	EI	010YR-EX-Masci	18.16	225.96	2.655	15.16	25.13	15.02	25.04
EI15-P	EI	025YR-EX-Masci	20.16	217.26	2.651	15.28	25.43	15.25	25.41
EI15-P	EI	050YR-EX-Masci	22.01	210.23	2.650	15.68	25.71	15.65	25.70
EI15-P	EI	100YR-EX-Masci	24.00	205.48	2.124	16.12	25.97	16.09	25.96
EI15-P	EI	500YR-EX-Masci	24.00	55.53	-2.116	16.93	26.45	16.92	26.44
EI15-W1	EI	002YR-EX-Masci	0.00	0.00	0.000	15.09	24.09	14.97	24.02
EI15-W1	EI	005YR-EX-Masci	0.00	0.00	0.000	15.24	24.74	14.92	24.60
EI15-W1	EI	010YR-EX-Masci	0.00	0.00	0.000	15.16	25.13	15.02	25.04
EI15-W1	EI	025YR-EX-Masci	0.00	0.00	0.000	15.28	25.43	15.25	25.41
EI15-W1	EI	050YR-EX-Masci	15.76	3.99	0.002	15.68	25.71	15.65	25.70
EI15-W1	EI	100YR-EX-Masci	16.76	15.06	0.003	16.12	25.97	16.09	25.96
EI15-W1	EI	500YR-EX-Masci	21.44	68.45	1.330	16.93	26.45	16.92	26.44
EI15-W2	EI	002YR-EX-Masci	0.00	0.00	0.000	15.09	24.09	15.22	23.92
EI15-W2	EI	005YR-EX-Masci	0.00	0.00	0.000	15.24	24.74	15.24	24.49
EI15-W2	EI	010YR-EX-Masci	0.00	0.00	0.000	15.16	25.13	15.40	24.91
EI15-W2	EI	025YR-EX-Masci	0.00	0.00	0.000	15.28	25.43	15.76	25.28
EI15-W2	EI	050YR-EX-Masci	0.00	0.00	0.000	15.68	25.71	16.08	25.59
EI15-W2	EI	100YR-EX-Masci	16.12	0.04	-0.000	16.12	25.97	16.38	25.85
EI15-W2	EI	500YR-EX-Masci	14.41	222.08	-0.383	16.93	26.45	16.96	26.44
EI20-C	EI	002YR-EX-Masci	16.21	108.17	-4.952	15.10	24.10	15.09	24.09
EI20-C	EI	005YR-EX-Masci	16.78	161.51	9.250	15.26	24.75	15.24	24.74
EI20-C	EI	010YR-EX-Masci	18.26	193.58	-14.053	15.17	25.13	15.16	25.13
EI20-C	EI	025YR-EX-Masci	20.10	186.61	-13.442	15.28	25.43	15.28	25.43
EI20-C	EI	050YR-EX-Masci	21.96	179.13	11.909	15.68	25.71	15.68	25.71
EI20-C	EI	100YR-EX-Masci	24.00	173.79	11.435	16.12	25.97	16.12	25.97
EI20-C	EI	500YR-EX-Masci	14.43	126.38	9.258	16.94	26.45	16.93	26.45
EI20-W1	EI	002YR-EX-Masci	0.00	0.00	0.000	15.10	24.10	14.97	24.02
EI20-W1	EI	005YR-EX-Masci	0.00	0.00	0.000	15.26	24.75	14.92	24.60
EI20-W1	EI	010YR-EX-Masci	15.17	91.08	0.042	15.17	25.13	15.02	25.04
EI20-W1	EI	025YR-EX-Masci	16.36	216.19	0.123	15.28	25.43	15.25	25.41

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EI20-W1	EI	050YR-EX-Mascl	17.25	246.99	0.380	15.68	25.71	15.65	25.70
EI20-W1	EI	100YR-EX-Mascl	19.11	260.10	1.123	16.12	25.97	16.09	25.96
EI20-W1	EI	500YR-EX-Mascl	24.00	281.84	6.365	16.94	26.45	16.92	26.44
EI25-C	EI	002YR-EX-Mascl	16.15	97.78	-4.646	15.11	24.10	15.10	24.10
EI25-C	EI	005YR-EX-Mascl	16.74	146.44	-8.521	15.27	24.75	15.26	24.75
EI25-C	EI	010YR-EX-Mascl	18.21	175.40	-8.723	15.19	25.14	15.17	25.13
EI25-C	EI	025YR-EX-Mascl	16.84	218.97	10.831	15.30	25.44	15.28	25.43
EI25-C	EI	050YR-EX-Mascl	17.59	236.55	-10.628	15.72	25.72	15.68	25.71
EI25-C	EI	100YR-EX-Mascl	18.43	251.73	-9.334	16.17	25.97	16.12	25.97
EI25-C	EI	500YR-EX-Mascl	24.00	261.36	8.731	16.97	26.45	16.94	26.45
EI30-P	EI	002YR-EX-Mascl	16.57	20.80	-0.695	15.14	24.11	15.11	24.10
EI30-P	EI	005YR-EX-Mascl	19.33	22.06	-0.695	15.32	24.76	15.27	24.75
EI30-P	EI	010YR-EX-Mascl	18.69	22.80	-0.701	15.25	25.15	15.19	25.14
EI30-P	EI	025YR-EX-Mascl	17.30	23.84	-0.703	15.37	25.46	15.30	25.44
EI30-P	EI	050YR-EX-Mascl	18.34	23.71	-0.700	15.79	25.73	15.72	25.72
EI30-P	EI	100YR-EX-Mascl	21.76	24.79	-0.712	16.25	25.99	16.17	25.97
EI30-P	EI	500YR-EX-Mascl	24.00	25.68	-0.705	17.02	26.47	16.97	26.45
EI30-W	EI	002YR-EX-Mascl	0.00	0.00	0.000	15.14	24.11	15.11	24.10
EI30-W	EI	005YR-EX-Mascl	16.63	13.89	-0.003	15.32	24.76	15.27	24.75
EI30-W	EI	010YR-EX-Mascl	18.04	20.66	0.217	15.25	25.15	15.19	25.14
EI30-W	EI	025YR-EX-Mascl	16.97	29.49	0.313	15.37	25.46	15.30	25.44
EI30-W	EI	050YR-EX-Mascl	18.12	31.96	0.418	15.79	25.73	15.72	25.72
EI30-W	EI	100YR-EX-Mascl	20.70	33.80	0.535	16.25	25.99	16.17	25.97
EI30-W	EI	500YR-EX-Mascl	24.00	42.17	0.768	17.02	26.47	16.97	26.45
FDOT005D1	FDOT	002YR-EX-Mascl	13.18	13.28	-0.305	13.13	24.75	12.80	23.47
FDOT005D1	FDOT	005YR-EX-Mascl	13.58	15.20	-0.305	13.30	25.00	12.64	23.54
FDOT005D1	FDOT	010YR-EX-Mascl	13.89	16.03	-0.305	13.62	25.20	12.57	23.59
FDOT005D1	FDOT	025YR-EX-Mascl	14.26	16.74	-0.305	13.80	25.38	12.53	23.63
FDOT005D1	FDOT	050YR-EX-Mascl	14.64	17.31	-0.305	14.07	25.53	12.53	23.66
FDOT005D1	FDOT	100YR-EX-Mascl	15.00	17.85	-0.305	14.21	25.67	12.51	23.70
FDOT005D1	FDOT	500YR-EX-Mascl	16.10	18.97	-0.305	14.66	25.96	12.64	23.78
FDOTPONDW1	TW	002YR-EX-Mascl	12.10	9.62	0.003	12.10	25.70	12.69	24.27
FDOTPONDW1	TW	005YR-EX-Mascl	12.10	12.69	-0.006	12.10	25.75	12.79	24.39
FDOTPONDW1	TW	010YR-EX-Mascl	12.10	15.34	-0.006	12.10	25.79	12.87	24.51
FDOTPONDW1	TW	025YR-EX-Mascl	12.09	17.79	0.007	12.09	25.82	12.91	24.63
FDOTPONDW1	TW	050YR-EX-Mascl	12.09	19.83	0.010	12.09	25.85	12.94	24.72
FDOTPONDW1	TW	100YR-EX-Mascl	12.09	21.87	0.011	12.09	25.87	12.96	24.81
FDOTPONDW1	TW	500YR-EX-Mascl	12.09	26.56	0.012	12.09	25.93	13.03	25.02
FDOTPONDW1	TW	002YR-EX-Mascl	0.00	0.00	0.000	24.00	25.37	12.76	24.24
FDOTPONDW1	TW	005YR-EX-Mascl	17.50	0.41	0.000	17.50	25.48	12.69	24.38
FDOTPONDW1	TW	010YR-EX-Mascl	13.58	1.26	0.001	13.58	25.51	12.65	24.48
FDOTPONDW1	TW	025YR-EX-Mascl	12.79	3.40	0.003	12.79	25.58	12.92	24.66
FDOTPONDW1	TW	050YR-EX-Mascl	12.63	5.65	0.005	12.63	25.62	12.85	24.79
FDOTPONDW1	TW	100YR-EX-Mascl	12.53	7.98	0.007	12.53	25.67	12.80	24.91
FDOTPONDW1	TW	500YR-EX-Mascl	12.39	13.60	0.009	12.39	25.76	12.71	25.15
FPL Drop	FPL	002YR-EX-Mascl	14.94	11.92	0.003	14.94	23.38	16.13	20.38
FPL Drop	FPL	005YR-EX-Mascl	14.89	18.92	0.006	14.89	23.54	16.36	21.45
FPL Drop	FPL	010YR-EX-Mascl	15.14	24.31	0.006	15.14	23.65	16.67	22.17
FPL Drop	FPL	025YR-EX-Mascl	14.47	27.04	0.005	16.42	23.79	16.97	22.62
FPL Drop	FPL	050YR-EX-Mascl	13.86	26.96	0.006	17.45	23.97	17.23	22.93
FPL Drop	FPL	100YR-EX-Mascl	13.53	26.46	0.005	18.24	24.13	17.66	23.20
FPL Drop	FPL	500YR-EX-Mascl	24.00	26.21	-0.005	19.92	24.51	18.54	23.70
GC04-P	GC	002YR-EX-Mascl	24.00	2.42	0.262	14.30	30.17	14.25	30.98
GC04-P	GC	005YR-EX-Mascl	24.00	1.32	0.206	14.33	33.15	14.29	34.47
GC04-P	GC	010YR-EX-Mascl	0.00	0.00	-0.149	14.38	35.95	14.34	37.74
GC04-P	GC	025YR-EX-Mascl	0.00	0.00	-0.149	14.42	38.62	14.39	40.89
GC04-P	GC	050YR-EX-Mascl	0.00	0.00	-0.149	14.46	40.91	14.43	43.59
GC04-P	GC	100YR-EX-Mascl	0.00	0.00	-0.149	14.49	43.23	14.46	46.33
GC04-P	GC	500YR-EX-Mascl	1.87	0.21	0.137	14.57	48.72	14.54	52.81
GC05-D	GC	002YR-EX-Mascl	24.00	2.42	0.240	22.57	27.07	14.30	30.17
GC05-D	GC	005YR-EX-Mascl	24.00	1.31	0.129	23.84	27.66	14.33	33.15
GC05-D	GC	010YR-EX-Mascl	3.35	0.00	-0.177	24.00	28.11	14.38	35.95
GC05-D	GC	025YR-EX-Mascl	2.95	0.00	-0.229	24.00	28.46	14.42	38.62
GC05-D	GC	050YR-EX-Mascl	2.69	0.00	-0.254	24.00	28.72	14.46	40.91
GC05-D	GC	100YR-EX-Mascl	2.47	0.00	-0.268	24.00	28.96	14.49	43.23
GC05-D	GC	500YR-EX-Mascl	0.00	0.00	-0.283	24.00	29.45	14.57	48.72
GC05-W	GC	002YR-EX-Mascl	0.00	0.00	0.000	22.57	27.07	14.25	30.98
GC05-W	GC	005YR-EX-Mascl	0.00	0.00	0.000	23.84	27.66	14.29	34.47
GC05-W	GC	010YR-EX-Mascl	0.00	0.00	0.000	24.00	28.11	14.34	37.74
GC05-W	GC	025YR-EX-Mascl	0.00	0.00	0.000	24.00	28.46	14.39	40.89
GC05-W	GC	050YR-EX-Mascl	0.00	0.00	0.000	24.00	28.72	14.43	43.59

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Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
GC05-W	GC	100YR-EX-Masci	0.00	0.00	0.000	24.00	28.96	14.46	46.33
GC05-W	GC	500YR-EX-Masci	0.00	0.00	0.000	24.00	29.45	14.54	52.81
GC09-P	GC	002YR-EX-Masci	22.07	21.19	1.168	15.92	27.82	15.79	27.82
GC09-P	GC	005YR-EX-Masci	22.44	24.20	-3.032	15.98	27.94	15.91	27.94
GC09-P	GC	010YR-EX-Masci	22.92	26.73	-0.597	16.10	28.06	16.03	28.06
GC09-P	GC	025YR-EX-Masci	23.59	28.99	0.356	16.18	28.17	16.12	28.16
GC09-P	GC	050YR-EX-Masci	24.00	30.63	0.344	16.24	28.26	16.19	28.25
GC09-P	GC	100YR-EX-Masci	24.00	30.90	0.337	16.42	28.37	16.38	28.36
GC09-P	GC	500YR-EX-Masci	24.00	28.77	0.273	16.42	28.61	16.38	28.60
GC10-D	GC	002YR-EX-Masci	21.95	20.79	-1.934	16.97	27.83	15.92	27.82
GC10-D	GC	005YR-EX-Masci	22.56	23.64	-2.009	17.24	27.98	15.98	27.94
GC10-D	GC	010YR-EX-Masci	23.04	26.24	-1.981	17.60	28.11	16.10	28.06
GC10-D	GC	025YR-EX-Masci	23.62	28.68	-1.675	17.72	28.25	16.18	28.17
GC10-D	GC	050YR-EX-Masci	24.00	30.30	0.713	17.72	28.39	16.24	28.26
GC10-D	GC	100YR-EX-Masci	24.00	30.47	1.590	17.79	28.53	16.42	28.37
GC10-D	GC	500YR-EX-Masci	24.00	28.19	1.981	18.47	28.80	16.42	28.61
GC10-W	GC	002YR-EX-Masci	0.00	0.00	0.000	16.97	27.83	15.92	27.82
GC10-W	GC	005YR-EX-Masci	0.00	0.00	0.000	17.24	27.98	15.98	27.94
GC10-W	GC	010YR-EX-Masci	0.00	0.00	0.000	17.60	28.11	16.10	28.06
GC10-W	GC	025YR-EX-Masci	0.00	0.00	0.000	17.72	28.25	16.18	28.17
GC10-W	GC	050YR-EX-Masci	0.00	0.00	0.000	17.72	28.39	16.24	28.26
GC10-W	GC	100YR-EX-Masci	0.00	0.00	0.000	17.79	28.53	16.42	28.37
GC10-W	GC	500YR-EX-Masci	0.00	0.00	0.000	18.47	28.80	16.42	28.61
GC15-D	GC	002YR-EX-Masci	15.23	12.95	0.298	15.23	27.79	16.18	21.12
GC15-D	GC	005YR-EX-Masci	15.03	13.31	0.299	15.03	27.86	16.45	22.07
GC15-D	GC	010YR-EX-Masci	15.12	13.58	0.299	15.12	27.93	16.79	22.76
GC15-D	GC	025YR-EX-Masci	15.24	13.84	0.298	15.24	27.99	17.04	23.20
GC15-D	GC	050YR-EX-Masci	15.33	14.07	0.298	15.33	28.04	17.27	23.52
GC15-D	GC	100YR-EX-Masci	15.43	14.30	0.297	15.43	28.09	17.65	23.81
GC15-D	GC	500YR-EX-Masci	15.66	14.90	0.298	15.66	28.23	18.36	24.33
GC15-W	GC	002YR-EX-Masci	0.00	0.00	0.000	15.23	27.79	16.18	21.12
GC15-W	GC	005YR-EX-Masci	0.00	0.00	0.000	15.03	27.86	16.45	22.07
GC15-W	GC	010YR-EX-Masci	0.00	0.00	0.000	15.12	27.93	16.79	22.76
GC15-W	GC	025YR-EX-Masci	0.00	0.00	0.000	15.24	27.99	17.04	23.20
GC15-W	GC	050YR-EX-Masci	0.00	0.00	0.000	15.33	28.04	17.27	23.52
GC15-W	GC	100YR-EX-Masci	0.00	0.00	0.000	15.43	28.09	17.65	23.81
GC15-W	GC	500YR-EX-Masci	0.00	0.00	0.000	15.66	28.23	18.36	24.33
GC15-W2	GC	002YR-EX-Masci	13.03	18.19	0.066	15.23	27.79	15.20	27.79
GC15-W2	GC	005YR-EX-Masci	12.60	53.75	0.084	15.03	27.86	15.03	27.87
GC15-W2	GC	010YR-EX-Masci	12.44	86.14	-0.164	15.12	27.93	15.13	27.93
GC15-W2	GC	025YR-EX-Masci	12.36	114.62	-0.227	15.24	27.99	15.24	27.99
GC15-W2	GC	050YR-EX-Masci	12.32	136.65	-0.268	15.33	28.04	15.33	28.04
GC15-W2	GC	100YR-EX-Masci	12.29	158.21	0.296	15.43	28.09	15.43	28.09
GC15-W2	GC	500YR-EX-Masci	12.26	203.17	0.091	15.66	28.23	15.65	28.23
GC20-D	GC	002YR-EX-Masci	24.00	2.22	0.005	21.08	25.73	15.81	27.82
GC20-D	GC	005YR-EX-Masci	24.00	2.54	0.008	21.21	25.92	15.92	27.95
GC20-D	GC	010YR-EX-Masci	24.00	2.73	-0.075	21.44	26.08	16.05	28.06
GC20-D	GC	025YR-EX-Masci	24.00	2.82	0.044	21.64	26.24	16.13	28.17
GC20-D	GC	050YR-EX-Masci	24.00	2.78	0.052	21.83	26.36	16.19	28.26
GC20-D	GC	100YR-EX-Masci	24.00	2.61	-0.064	22.10	26.49	16.38	28.36
GC20-D	GC	500YR-EX-Masci	24.00	1.60	-0.111	22.64	26.80	16.36	28.60
GC20-W	GC	002YR-EX-Masci	0.00	0.00	0.000	21.08	25.73	15.81	27.82
GC20-W	GC	005YR-EX-Masci	0.00	0.00	0.000	21.21	25.92	15.92	27.95
GC20-W	GC	010YR-EX-Masci	0.00	0.00	0.000	21.44	26.08	16.05	28.06
GC20-W	GC	025YR-EX-Masci	0.00	0.00	0.000	21.64	26.24	16.13	28.17
GC20-W	GC	050YR-EX-Masci	0.00	0.00	0.000	21.83	26.36	16.19	28.26
GC20-W	GC	100YR-EX-Masci	0.00	0.00	0.000	22.10	26.49	16.38	28.36
GC20-W	GC	500YR-EX-Masci	0.00	0.00	0.000	22.64	26.80	16.36	28.60
GC25-P	GC	002YR-EX-Masci	0.00	0.00	-0.014	24.00	25.48	21.08	25.73
GC25-P	GC	005YR-EX-Masci	0.00	0.00	-0.014	24.00	25.58	21.21	25.92
GC25-P	GC	010YR-EX-Masci	0.00	0.00	-0.014	24.00	25.66	21.44	26.08
GC25-P	GC	025YR-EX-Masci	0.00	0.00	-0.014	24.00	25.73	21.64	26.24
GC25-P	GC	050YR-EX-Masci	0.00	0.00	-0.014	24.00	25.79	21.83	26.36
GC25-P	GC	100YR-EX-Masci	0.00	0.00	-0.014	24.00	25.84	22.10	26.49
GC25-P	GC	500YR-EX-Masci	0.00	0.00	-0.014	24.00	25.96	22.64	26.80
GC25-W	GC	002YR-EX-Masci	0.00	0.00	0.000	24.00	25.48	21.08	25.73
GC25-W	GC	005YR-EX-Masci	0.00	0.00	0.000	24.00	25.58	21.21	25.92
GC25-W	GC	010YR-EX-Masci	0.00	0.00	0.000	24.00	25.66	21.44	26.08
GC25-W	GC	025YR-EX-Masci	0.00	0.00	0.000	24.00	25.73	21.64	26.24
GC25-W	GC	050YR-EX-Masci	0.00	0.00	0.000	24.00	25.79	21.83	26.36
GC25-W	GC	100YR-EX-Masci	0.00	0.00	0.000	24.00	25.84	22.10	26.49

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Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
GC25-W	GC	500YR-EX-Masci	0.00	0.00	0.000	24.00	25.96	22.64	26.80
GC30-D	GC	002YR-EX-Masci	13.81	10.40	0.356	14.25	30.98	15.81	27.82
GC30-D	GC	005YR-EX-Masci	14.11	14.44	0.208	14.29	34.47	15.92	27.95
GC30-D	GC	010YR-EX-Masci	14.24	17.50	0.070	14.34	37.74	16.05	28.06
GC30-D	GC	025YR-EX-Masci	14.31	20.02	0.017	14.39	40.89	16.13	28.17
GC30-D	GC	050YR-EX-Masci	14.35	21.95	0.008	14.43	43.59	16.19	28.26
GC30-D	GC	100YR-EX-Masci	14.40	23.76	0.003	14.46	46.33	16.38	28.36
GC30-D	GC	500YR-EX-Masci	14.47	27.56	0.003	14.54	52.81	16.36	28.60
GC30-W	GC	002YR-EX-Masci	0.00	0.00	0.000	14.25	30.98	15.81	27.82
GC30-W	GC	005YR-EX-Masci	0.00	0.00	0.000	14.29	34.47	15.92	27.95
GC30-W	GC	010YR-EX-Masci	0.00	0.00	0.000	14.34	37.74	16.05	28.06
GC30-W	GC	025YR-EX-Masci	0.00	0.00	0.000	14.39	40.89	16.13	28.17
GC30-W	GC	050YR-EX-Masci	0.00	0.00	0.000	14.43	43.59	16.19	28.26
GC30-W	GC	100YR-EX-Masci	0.00	0.00	0.000	14.46	46.33	16.38	28.36
GC30-W	GC	500YR-EX-Masci	0.00	0.00	0.000	14.54	52.81	16.36	28.60
GC35-D	GC	002YR-EX-Masci	12.95	60.55	-1.385	13.60	28.05	15.82	27.82
GC35-D	GC	005YR-EX-Masci	13.03	92.84	-1.306	13.25	29.78	15.93	27.95
GC35-D	GC	010YR-EX-Masci	13.07	118.95	-1.312	13.23	31.73	16.05	28.06
GC35-D	GC	025YR-EX-Masci	13.13	141.68	-1.305	13.25	33.77	16.13	28.17
GC35-D	GC	050YR-EX-Masci	13.17	160.01	-1.295	13.26	35.62	16.19	28.26
GC35-D	GC	100YR-EX-Masci	13.22	177.72	1.012	13.28	37.59	16.37	28.37
GC35-D	GC	500YR-EX-Masci	13.29	216.18	0.959	13.34	42.50	16.35	28.61
GC35-W	GC	002YR-EX-Masci	0.00	0.00	0.000	13.60	28.05	15.82	27.82
GC35-W	GC	005YR-EX-Masci	0.00	0.00	0.000	13.25	29.78	15.93	27.95
GC35-W	GC	010YR-EX-Masci	0.00	0.00	0.000	13.23	31.73	16.05	28.06
GC35-W	GC	025YR-EX-Masci	0.00	0.00	0.000	13.25	33.77	16.13	28.17
GC35-W	GC	050YR-EX-Masci	0.00	0.00	0.000	13.26	35.62	16.19	28.26
GC35-W	GC	100YR-EX-Masci	0.00	0.00	0.000	13.28	37.59	16.37	28.37
GC35-W	GC	500YR-EX-Masci	0.00	0.00	0.000	13.34	42.50	16.35	28.61
GH05-P	GH	002YR-EX-Masci	14.58	56.14	0.015	14.58	15.31	14.58	14.44
GH05-P	GH	005YR-EX-Masci	16.33	222.90	0.037	16.33	17.39	16.33	15.69
GH05-P	GH	010YR-EX-Masci	16.83	284.23	0.163	16.83	18.29	16.73	16.02
GH05-P	GH	025YR-EX-Masci	17.01	331.71	0.147	17.01	18.95	16.80	16.25
GH05-P	GH	050YR-EX-Masci	17.28	362.84	0.096	17.28	19.38	16.95	16.39
GH05-P	GH	100YR-EX-Masci	17.66	390.58	0.109	17.66	19.76	17.25	16.52
GH05-P	GH	500YR-EX-Masci	17.94	436.56	0.116	17.94	20.39	17.22	16.71
GH06W1	GH	002YR-EX-Masci	12.71	17.64	0.005	12.71	21.95	14.58	15.31
GH06W1	GH	005YR-EX-Masci	12.51	24.08	0.007	12.51	22.11	16.33	17.39
GH06W1	GH	010YR-EX-Masci	12.44	29.48	0.007	12.44	22.21	16.83	18.29
GH06W1	GH	025YR-EX-Masci	12.41	34.46	0.014	12.41	22.29	17.01	18.95
GH06W1	GH	050YR-EX-Masci	12.40	38.69	0.012	12.40	22.35	17.28	19.38
GH06W1	GH	100YR-EX-Masci	12.40	43.01	0.014	12.40	22.40	17.66	19.76
GH06W1	GH	500YR-EX-Masci	12.41	53.27	0.014	12.41	22.52	17.94	20.39
GH07W1	GH	002YR-EX-Masci	12.80	16.27	0.005	12.80	23.47	12.71	21.95
GH07W1	GH	005YR-EX-Masci	12.64	21.17	0.007	12.64	23.54	12.51	22.11
GH07W1	GH	010YR-EX-Masci	12.57	25.01	0.006	12.57	23.59	12.44	22.21
GH07W1	GH	025YR-EX-Masci	12.53	28.60	0.010	12.53	23.63	12.41	22.29
GH07W1	GH	050YR-EX-Masci	12.53	31.72	0.009	12.53	23.66	12.40	22.35
GH07W1	GH	100YR-EX-Masci	12.51	34.90	0.009	12.51	23.70	12.40	22.40
GH07W1	GH	500YR-EX-Masci	12.64	43.55	0.009	12.64	23.78	12.41	22.52
GH10-P	GH	002YR-EX-Masci	16.19	112.24	0.023	16.19	16.18	16.19	14.75
GH10-P	GH	005YR-EX-Masci	16.45	163.70	0.067	16.45	17.05	16.45	15.21
GH10-P	GH	010YR-EX-Masci	16.80	206.90	0.076	16.80	18.06	16.66	15.55
GH10-P	GH	025YR-EX-Masci	17.07	239.24	0.077	17.07	18.73	16.64	15.78
GH10-P	GH	050YR-EX-Masci	17.33	263.72	0.097	17.33	19.23	16.84	15.94
GH10-P	GH	100YR-EX-Masci	17.73	286.39	0.097	17.73	19.69	17.60	16.08
GH10-P	GH	500YR-EX-Masci	18.60	319.00	0.093	18.60	20.36	18.11	16.27
GH15-P	GH	002YR-EX-Masci	16.19	125.14	0.024	16.19	15.61	16.19	14.21
GH15-P	GH	005YR-EX-Masci	16.45	205.34	0.066	16.45	16.74	16.45	14.85
GH15-P	GH	010YR-EX-Masci	16.79	262.23	0.080	16.79	17.79	16.51	15.24
GH15-P	GH	025YR-EX-Masci	17.07	294.24	0.091	17.07	18.33	16.75	15.43
GH15-P	GH	050YR-EX-Masci	17.32	313.44	0.108	17.32	18.65	16.92	15.55
GH15-P	GH	100YR-EX-Masci	17.75	330.30	0.112	17.75	18.92	17.38	15.64
GH15-P	GH	500YR-EX-Masci	18.59	359.28	0.117	18.59	19.40	17.64	15.80
GH20-P	GH	002YR-EX-Masci	16.21	127.61	0.022	16.21	16.35	16.21	15.57
GH20-P	GH	005YR-EX-Masci	16.47	261.18	6.711	16.47	17.74	16.38	16.62
GH20-P	GH	010YR-EX-Masci	16.81	388.47	6.710	16.81	18.77	14.30	16.85
GH20-P	GH	025YR-EX-Masci	17.08	483.31	-6.643	17.08	19.83	13.60	16.85
GH20-P	GH	050YR-EX-Masci	17.32	493.27	-6.649	17.32	19.95	13.26	16.85
GH20-P	GH	100YR-EX-Masci	17.86	493.58	-6.607	17.86	19.96	13.03	16.85
GH20-P	GH	500YR-EX-Masci	18.97	493.75	-6.622	18.97	19.96	12.69	16.85

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Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
GR30-0-D	FPL	002YR-EX-Masci	15.64	2.43	0.000	15.64	24.28	14.94	23.38
GR30-0-D	FPL	005YR-EX-Masci	15.25	3.83	0.001	15.25	24.40	14.89	23.54
GR30-0-D	FPL	010YR-EX-Masci	15.03	5.12	0.001	15.03	24.49	15.14	23.65
GR30-0-D	FPL	025YR-EX-Masci	14.91	6.32	0.001	14.91	24.57	16.42	23.79
GR30-0-D	FPL	050YR-EX-Masci	14.66	7.23	0.001	14.88	24.64	17.45	23.97
GR30-0-D	FPL	100YR-EX-Masci	14.51	7.94	0.002	14.99	24.70	18.24	24.13
GR30-0-D	FPL	500YR-EX-Masci	14.16	9.27	0.002	15.41	24.85	19.92	24.51
KING-D	KING	002YR-EX-Masci	12.80	2.36	0.002	12.80	21.71	16.15	14.83
KING-D	KING	005YR-EX-Masci	12.41	7.67	0.006	12.41	21.93	16.37	15.46
KING-D	KING	010YR-EX-Masci	12.37	10.83	0.009	12.37	22.15	16.69	15.89
KING-D	KING	025YR-EX-Masci	12.36	13.33	0.009	12.36	22.39	16.97	16.16
KING-D	KING	050YR-EX-Masci	12.36	15.13	0.010	12.36	22.59	17.23	16.35
KING-D	KING	100YR-EX-Masci	12.34	17.50	0.008	12.34	22.77	17.66	16.53
KING-D	KING	500YR-EX-Masci	12.25	25.52	0.013	12.25	23.00	18.55	16.84
PA05-C	BA	002YR-EX-Masci	12.37	334.82	4.262	16.21	21.06	16.20	21.05
PA05-C	BA	005YR-EX-Masci	12.34	433.65	4.262	16.48	22.03	16.47	22.03
PA05-C	BA	010YR-EX-Masci	12.34	506.53	4.262	16.82	22.73	16.82	22.72
PA05-C	BA	025YR-EX-Masci	12.33	574.43	4.262	17.08	23.17	17.08	23.17
PA05-C	BA	050YR-EX-Masci	12.25	619.99	4.262	17.32	23.49	17.32	23.48
PA05-C	BA	100YR-EX-Masci	12.16	622.34	4.262	17.72	23.78	17.72	23.78
PA05-C	BA	500YR-EX-Masci	12.10	561.50	-4.839	18.51	24.31	18.51	24.30
PA10-C	PA	002YR-EX-Masci	13.08	187.23	4.977	16.21	21.06	16.21	21.06
PA10-C	PA	005YR-EX-Masci	13.00	227.43	-5.313	16.48	22.03	16.48	22.03
PA10-C	PA	010YR-EX-Masci	12.78	251.42	-4.965	16.82	22.73	16.82	22.73
PA10-C	PA	025YR-EX-Masci	13.02	269.01	-5.077	17.08	23.17	17.08	23.17
PA10-C	PA	050YR-EX-Masci	13.00	293.48	-5.182	17.31	23.49	17.32	23.49
PA10-C	PA	100YR-EX-Masci	12.88	315.25	-4.993	17.72	23.78	17.72	23.78
PA10-C	PA	500YR-EX-Masci	13.01	365.09	5.779	18.50	24.31	18.51	24.31
PA15-P	PA	002YR-EX-Masci	13.55	175.46	5.425	16.18	21.12	16.21	21.06
PA15-P	PA	005YR-EX-Masci	13.09	206.53	5.425	16.45	22.07	16.48	22.03
PA15-P	PA	010YR-EX-Masci	13.01	225.60	5.425	16.79	22.76	16.82	22.73
PA15-P	PA	025YR-EX-Masci	12.97	243.40	5.425	17.04	23.20	17.08	23.17
PA15-P	PA	050YR-EX-Masci	12.77	252.07	5.425	17.27	23.52	17.31	23.49
PA15-P	PA	100YR-EX-Masci	12.65	252.94	5.425	17.65	23.81	17.72	23.78
PA15-P	PA	500YR-EX-Masci	12.42	239.82	-3.738	18.36	24.33	18.50	24.31
PA15-W	PA	002YR-EX-Masci	0.00	0.00	0.000	16.18	21.12	16.21	21.06
PA15-W	PA	005YR-EX-Masci	16.16	24.88	0.008	16.45	22.07	16.48	22.03
PA15-W	PA	010YR-EX-Masci	14.82	44.45	0.026	16.79	22.76	16.82	22.73
PA15-W	PA	025YR-EX-Masci	14.11	58.78	0.042	17.04	23.20	17.08	23.17
PA15-W	PA	050YR-EX-Masci	13.70	71.88	0.055	17.27	23.52	17.31	23.49
PA15-W	PA	100YR-EX-Masci	13.50	85.27	0.069	17.65	23.81	17.72	23.78
PA15-W	PA	500YR-EX-Masci	13.27	115.20	0.047	18.36	24.33	18.50	24.31
PA17-D	PA	002YR-EX-Masci	14.20	118.42	0.059	15.20	27.79	16.18	21.12
PA17-D	PA	005YR-EX-Masci	13.13	114.78	0.059	15.03	27.87	16.45	22.07
PA17-D	PA	010YR-EX-Masci	12.73	112.17	0.061	15.13	27.93	16.79	22.76
PA17-D	PA	025YR-EX-Masci	12.50	109.84	0.059	15.24	27.99	17.04	23.20
PA17-D	PA	050YR-EX-Masci	12.37	107.70	0.017	15.33	28.04	17.27	23.52
PA17-D	PA	100YR-EX-Masci	12.25	105.24	0.018	15.43	28.09	17.65	23.81
PA17-D	PA	500YR-EX-Masci	12.34	101.20	0.019	15.65	28.23	18.36	24.33
PA17-W	PA	002YR-EX-Masci	0.00	0.00	0.000	15.20	27.79	16.18	21.12
PA17-W	PA	005YR-EX-Masci	0.00	0.00	0.000	15.03	27.87	16.45	22.07
PA17-W	PA	010YR-EX-Masci	0.00	0.00	0.000	15.13	27.93	16.79	22.76
PA17-W	PA	025YR-EX-Masci	0.00	0.00	0.000	15.24	27.99	17.04	23.20
PA17-W	PA	050YR-EX-Masci	0.00	0.00	0.000	15.33	28.04	17.27	23.52
PA17-W	PA	100YR-EX-Masci	0.00	0.00	0.000	15.43	28.09	17.65	23.81
PA17-W	PA	500YR-EX-Masci	0.00	0.00	0.000	15.65	28.23	18.36	24.33
PA20-C	PA	002YR-EX-Masci	12.41	150.91	16.619	15.20	27.79	15.20	27.79
PA20-C	PA	005YR-EX-Masci	12.39	158.90	42.947	15.03	27.87	15.03	27.87
PA20-C	PA	010YR-EX-Masci	12.40	167.58	23.131	15.13	27.93	15.13	27.93
PA20-C	PA	025YR-EX-Masci	12.33	175.65	30.258	15.24	27.99	15.24	27.99
PA20-C	PA	050YR-EX-Masci	12.25	180.32	34.512	15.33	28.04	15.33	28.04
PA20-C	PA	100YR-EX-Masci	12.17	183.86	17.296	15.43	28.09	15.43	28.09
PA20-C	PA	500YR-EX-Masci	12.17	187.30	6.151	15.65	28.23	15.65	28.23
PA25-C	PA	002YR-EX-Masci	12.52	300.40	-77.935	15.20	27.79	15.20	27.79
PA25-C	PA	005YR-EX-Masci	12.93	298.63	-103.092	15.03	27.87	15.03	27.87
PA25-C	PA	010YR-EX-Masci	12.84	291.35	-95.080	15.12	27.93	15.13	27.93
PA25-C	PA	025YR-EX-Masci	12.78	281.34	-93.942	15.24	27.99	15.24	27.99
PA25-C	PA	050YR-EX-Masci	12.77	271.55	-80.017	15.33	28.04	15.33	28.04
PA25-C	PA	100YR-EX-Masci	12.73	261.37	-49.487	15.43	28.09	15.43	28.09
PA25-C	PA	500YR-EX-Masci	12.69	237.13	29.344	15.65	28.23	15.65	28.23

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PA30-C	PA	002YR-EX-Masci	13.07	442.95	61.633	15.19	27.79	15.20	27.79
PA30-C	PA	005YR-EX-Masci	12.91	456.46	-87.132	15.03	27.87	15.03	27.87
PA30-C	PA	010YR-EX-Masci	12.80	456.52	79.645	15.12	27.93	15.12	27.93
PA30-C	PA	025YR-EX-Masci	12.76	449.62	79.153	15.24	27.99	15.24	27.99
PA30-C	PA	050YR-EX-Masci	12.73	440.83	-58.202	15.33	28.04	15.33	28.04
PA30-C	PA	100YR-EX-Masci	12.72	430.92	25.940	15.43	28.09	15.43	28.09
PA30-C	PA	500YR-EX-Masci	12.69	404.43	27.719	15.65	28.23	15.65	28.23
PA35-C	PA	002YR-EX-Masci	12.54	944.19	-120.111	15.20	27.79	15.19	27.79
PA35-C	PA	005YR-EX-Masci	12.78	865.23	32.147	15.01	27.87	15.03	27.87
PA35-C	PA	010YR-EX-Masci	12.76	826.81	-31.588	15.10	27.93	15.12	27.93
PA35-C	PA	025YR-EX-Masci	12.72	784.31	33.901	15.21	27.99	15.24	27.99
PA35-C	PA	050YR-EX-Masci	12.70	746.64	-45.610	15.30	28.04	15.33	28.04
PA35-C	PA	100YR-EX-Masci	12.69	707.49	-36.159	15.39	28.09	15.43	28.09
PA35-C	PA	500YR-EX-Masci	12.67	609.72	33.528	15.62	28.22	15.65	28.23
PA40-C	PA	002YR-EX-Masci	12.50	1058.44	-94.217	15.18	27.80	15.20	27.79
PA40-C	PA	005YR-EX-Masci	12.44	948.52	44.641	14.99	27.87	15.01	27.87
PA40-C	PA	010YR-EX-Masci	12.40	842.58	-54.653	15.07	27.93	15.10	27.93
PA40-C	PA	025YR-EX-Masci	12.68	778.82	41.998	15.18	27.98	15.21	27.99
PA40-C	PA	050YR-EX-Masci	12.65	726.12	31.820	15.26	28.03	15.30	28.04
PA40-C	PA	100YR-EX-Masci	12.63	671.73	-51.605	15.35	28.08	15.39	28.09
PA40-C	PA	500YR-EX-Masci	12.61	538.98	41.790	15.58	28.22	15.62	28.22
PA45-P	PA	002YR-EX-Masci	12.48	1071.09	-10.557	15.11	27.80	15.18	27.80
PA45-P	PA	005YR-EX-Masci	12.43	949.50	-10.117	14.80	27.86	14.99	27.87
PA45-P	PA	010YR-EX-Masci	12.38	833.97	-10.032	14.79	27.91	15.07	27.93
PA45-P	PA	025YR-EX-Masci	12.35	727.76	8.744	14.85	27.95	15.18	27.98
PA45-P	PA	050YR-EX-Masci	12.32	637.59	-10.579	14.90	27.99	15.26	28.03
PA45-P	PA	100YR-EX-Masci	12.60	568.33	-10.188	14.95	28.03	15.35	28.08
PA45-P	PA	500YR-EX-Masci	12.56	400.82	22.438	15.11	28.12	15.58	28.22
PA45-W	PA	002YR-EX-Masci	0.00	0.00	0.000	15.11	27.80	15.18	27.80
PA45-W	PA	005YR-EX-Masci	0.00	0.00	0.000	14.80	27.86	14.99	27.87
PA45-W	PA	010YR-EX-Masci	0.00	0.00	0.000	14.79	27.91	15.07	27.93
PA45-W	PA	025YR-EX-Masci	0.00	0.00	0.000	14.85	27.95	15.18	27.98
PA45-W	PA	050YR-EX-Masci	0.00	0.00	0.000	14.90	27.99	15.26	28.03
PA45-W	PA	100YR-EX-Masci	0.00	0.00	0.000	14.95	28.03	15.35	28.08
PA45-W	PA	500YR-EX-Masci	0.00	0.00	0.000	15.11	28.12	15.58	28.22
PA50-C	PA	002YR-EX-Masci	12.42	1293.47	-20.314	15.07	27.80	15.11	27.80
PA50-C	PA	005YR-EX-Masci	12.35	1190.48	22.018	14.75	27.86	14.80	27.86
PA50-C	PA	010YR-EX-Masci	12.34	1096.06	22.550	14.72	27.90	14.79	27.91
PA50-C	PA	025YR-EX-Masci	12.50	1022.31	24.564	14.77	27.94	14.85	27.95
PA50-C	PA	050YR-EX-Masci	12.50	964.53	-19.579	14.82	27.97	14.90	27.99
PA50-C	PA	100YR-EX-Masci	12.50	906.83	-22.297	14.86	28.01	14.95	28.03
PA50-C	PA	500YR-EX-Masci	12.50	771.41	-20.467	15.00	28.10	15.11	28.12
PA55-P	PA	002YR-EX-Masci	12.42	1365.63	-15.327	13.92	27.88	15.07	27.80
PA55-P	PA	005YR-EX-Masci	12.33	1260.08	-13.967	13.92	27.88	14.75	27.86
PA55-P	PA	010YR-EX-Masci	12.33	1161.44	-13.666	13.92	27.88	14.72	27.90
PA55-P	PA	025YR-EX-Masci	12.50	1075.24	-14.623	13.92	27.88	14.77	27.94
PA55-P	PA	050YR-EX-Masci	12.50	1010.64	-15.350	13.92	27.88	14.82	27.97
PA55-P	PA	100YR-EX-Masci	12.50	946.68	-16.243	13.92	27.88	14.86	28.01
PA55-P	PA	500YR-EX-Masci	12.50	798.78	-18.075	13.92	27.88	15.00	28.10
PA55-W	PA	002YR-EX-Masci	0.00	0.00	0.000	13.92	27.88	15.07	27.80
PA55-W	PA	005YR-EX-Masci	0.00	0.00	0.000	13.92	27.88	14.75	27.86
PA55-W	PA	010YR-EX-Masci	0.00	0.00	0.000	13.92	27.88	14.72	27.90
PA55-W	PA	025YR-EX-Masci	0.00	0.00	0.000	13.92	27.88	14.77	27.94
PA55-W	PA	050YR-EX-Masci	0.00	0.00	0.000	13.92	27.88	14.82	27.97
PA55-W	PA	100YR-EX-Masci	0.00	0.00	0.000	13.92	27.88	14.86	28.01
PA55-W	PA	500YR-EX-Masci	0.00	0.00	0.000	13.92	27.88	15.00	28.10
PG05-C	BA	002YR-EX-Masci	14.12	490.51	-4.324	16.06	21.03	16.12	21.01
PG05-C	BA	005YR-EX-Masci	13.37	712.95	-3.954	16.31	22.02	16.38	21.99
PG05-C	BA	010YR-EX-Masci	13.10	891.53	4.159	16.67	22.72	16.73	22.69
PG05-C	BA	025YR-EX-Masci	12.90	1023.96	3.749	16.95	23.17	17.01	23.14
PG05-C	BA	050YR-EX-Masci	13.00	1122.11	3.744	17.21	23.48	17.26	23.45
PG05-C	BA	100YR-EX-Masci	12.89	1217.62	3.735	17.64	23.77	17.70	23.74
PG05-C	BA	500YR-EX-Masci	12.74	1387.57	3.819	18.52	24.28	18.56	24.25
PG10-C	PG	002YR-EX-Masci	14.12	438.30	-3.687	15.98	21.06	16.06	21.03
PG10-C	PG	005YR-EX-Masci	13.59	622.00	3.170	16.22	22.05	16.31	22.02
PG10-C	PG	010YR-EX-Masci	13.10	758.78	3.094	16.60	22.76	16.67	22.72
PG10-C	PG	025YR-EX-Masci	12.85	862.94	3.119	16.89	23.20	16.95	23.17
PG10-C	PG	050YR-EX-Masci	12.78	923.84	3.130	17.15	23.51	17.21	23.48
PG10-C	PG	100YR-EX-Masci	12.85	992.61	3.133	17.58	23.79	17.64	23.77
PG10-C	PG	500YR-EX-Masci	12.78	1123.65	-3.086	18.48	24.30	18.52	24.28
PG15-C	PG	002YR-EX-Masci	14.05	402.85	-3.604	15.91	21.08	15.98	21.06

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PG15-C	PG	005YR-EX-Masci	13.83	565.04	3.183	16.14	22.08	16.22	22.05
PG15-C	PG	010YR-EX-Masci	13.23	660.12	3.156	16.55	22.78	16.60	22.76
PG15-C	PG	025YR-EX-Masci	12.83	715.93	3.134	16.85	23.23	16.89	23.20
PG15-C	PG	050YR-EX-Masci	12.73	748.46	3.126	17.11	23.54	17.15	23.51
PG15-C	PG	100YR-EX-Masci	12.80	777.54	3.104	17.54	23.82	17.58	23.79
PG15-C	PG	500YR-EX-Masci	12.78	842.52	3.483	18.45	24.32	18.48	24.30
PG20-P	PG	002YR-EX-Masci	13.98	383.15	2.199	14.97	21.70	15.91	21.08
PG20-P	PG	005YR-EX-Masci	14.01	534.01	2.199	14.87	23.42	16.14	22.08
PG20-P	PG	010YR-EX-Masci	13.44	602.12	2.199	15.18	24.41	16.55	22.78
PG20-P	PG	025YR-EX-Masci	13.42	622.41	2.199	15.41	25.04	16.85	23.23
PG20-P	PG	050YR-EX-Masci	13.33	633.68	2.199	15.60	25.46	17.11	23.54
PG20-P	PG	100YR-EX-Masci	13.25	641.29	2.199	15.84	25.87	17.54	23.82
PG20-P	PG	500YR-EX-Masci	15.05	660.29	-1.456	16.78	26.64	18.45	24.32
PG20-W	PG	002YR-EX-Masci	0.00	0.00	0.000	14.97	21.70	15.91	21.08
PG20-W	PG	005YR-EX-Masci	0.00	0.00	0.000	14.87	23.42	16.14	22.08
PG20-W	PG	010YR-EX-Masci	0.00	0.00	0.000	15.18	24.41	16.55	22.78
PG20-W	PG	025YR-EX-Masci	0.00	0.00	0.000	15.41	25.04	16.85	23.23
PG20-W	PG	050YR-EX-Masci	0.00	0.00	0.000	15.60	25.46	17.11	23.54
PG20-W	PG	100YR-EX-Masci	0.00	0.00	0.000	15.84	25.87	17.54	23.82
PG20-W	PG	500YR-EX-Masci	0.00	0.00	0.000	16.78	26.64	18.45	24.32
PG22-D	PG	002YR-EX-Masci	14.22	28.25	0.005	14.22	23.65	14.97	21.70
PG22-D	PG	005YR-EX-Masci	13.60	29.79	0.013	14.42	24.11	14.87	23.42
PG22-D	PG	010YR-EX-Masci	12.69	26.32	-2.683	15.13	24.74	15.18	24.41
PG22-D	PG	025YR-EX-Masci	12.42	24.34	-2.896	15.41	25.32	15.41	25.04
PG22-D	PG	050YR-EX-Masci	12.28	23.73	-2.974	15.61	25.71	15.60	25.46
PG22-D	PG	100YR-EX-Masci	12.18	23.66	-3.032	15.85	26.09	15.84	25.87
PG22-D	PG	500YR-EX-Masci	11.97	24.34	3.452	16.76	26.78	16.78	26.64
PG22-W	PG	002YR-EX-Masci	14.22	309.03	0.059	14.22	23.65	14.97	21.70
PG22-W	PG	005YR-EX-Masci	14.42	443.86	0.142	14.42	24.11	14.87	23.42
PG22-W	PG	010YR-EX-Masci	14.21	486.22	0.133	15.13	24.74	15.18	24.41
PG22-W	PG	025YR-EX-Masci	15.36	498.44	0.122	15.41	25.32	15.41	25.04
PG22-W	PG	050YR-EX-Masci	16.68	504.94	0.089	15.61	25.71	15.60	25.46
PG22-W	PG	100YR-EX-Masci	18.90	487.34	0.092	15.85	26.09	15.84	25.87
PG22-W	PG	500YR-EX-Masci	23.43	455.61	-0.099	16.76	26.78	16.78	26.64
PG25-C	PG	002YR-EX-Masci	14.18	337.34	-10.149	14.22	23.67	14.22	23.65
PG25-C	PG	005YR-EX-Masci	14.30	471.11	7.103	14.41	24.14	14.42	24.11
PG25-C	PG	010YR-EX-Masci	14.12	514.86	7.129	15.12	24.76	15.13	24.74
PG25-C	PG	025YR-EX-Masci	14.41	523.11	7.279	15.41	25.34	15.41	25.32
PG25-C	PG	050YR-EX-Masci	14.58	525.95	7.291	15.61	25.73	15.61	25.71
PG25-C	PG	100YR-EX-Masci	14.16	512.06	7.307	15.85	26.10	15.85	26.09
PG25-C	PG	500YR-EX-Masci	23.45	472.57	-9.784	16.75	26.78	16.76	26.78
PG30-P	PG	002YR-EX-Masci	14.13	336.22	2.130	14.20	23.87	14.22	23.67
PG30-P	PG	005YR-EX-Masci	14.26	469.72	-5.445	14.36	24.55	14.41	24.14
PG30-P	PG	010YR-EX-Masci	14.06	516.37	-5.441	14.97	25.24	15.12	24.76
PG30-P	PG	025YR-EX-Masci	14.14	524.52	-5.445	15.36	25.85	15.41	25.34
PG30-P	PG	050YR-EX-Masci	14.50	526.37	-5.444	15.61	26.25	15.61	25.73
PG30-P	PG	100YR-EX-Masci	14.11	514.02	-5.441	15.80	26.56	15.85	26.10
PG30-P	PG	500YR-EX-Masci	13.48	475.41	2.163	16.47	27.02	16.75	26.78
PG30-W	PG	002YR-EX-Masci	0.00	0.00	0.000	14.20	23.87	14.22	23.67
PG30-W	PG	005YR-EX-Masci	0.00	0.00	0.000	14.36	24.55	14.41	24.14
PG30-W	PG	010YR-EX-Masci	0.00	0.00	0.000	14.97	25.24	15.12	24.76
PG30-W	PG	025YR-EX-Masci	0.00	0.00	0.000	15.36	25.85	15.41	25.34
PG30-W	PG	050YR-EX-Masci	0.00	0.00	0.000	15.61	26.25	15.61	25.73
PG30-W	PG	100YR-EX-Masci	0.00	0.00	0.000	15.80	26.56	15.85	26.10
PG30-W	PG	500YR-EX-Masci	0.00	0.00	0.000	16.47	27.02	16.75	26.78
PG30-W2	PG	002YR-EX-Masci	0.00	0.00	0.000	14.20	23.87	14.97	21.70
PG30-W2	PG	005YR-EX-Masci	0.00	0.00	0.000	14.36	24.55	14.87	23.42
PG30-W2	PG	010YR-EX-Masci	0.00	0.00	0.000	14.97	25.24	15.18	24.41
PG30-W2	PG	025YR-EX-Masci	0.00	0.00	0.000	15.36	25.85	15.41	25.04
PG30-W2	PG	050YR-EX-Masci	15.61	10.01	0.003	15.61	26.25	15.60	25.46
PG30-W2	PG	100YR-EX-Masci	15.80	60.45	0.013	15.80	26.56	15.84	25.87
PG30-W2	PG	500YR-EX-Masci	16.47	244.70	0.046	16.47	27.02	16.78	26.64
PG35-C	PG	002YR-EX-Masci	12.83	277.68	2.900	14.18	23.89	14.20	23.87
PG35-C	PG	005YR-EX-Masci	12.81	378.12	3.082	14.34	24.59	14.36	24.55
PG35-C	PG	010YR-EX-Masci	12.70	452.15	3.084	14.95	25.27	14.97	25.24
PG35-C	PG	025YR-EX-Masci	12.65	509.36	3.081	15.35	25.87	15.36	25.85
PG35-C	PG	050YR-EX-Masci	12.55	547.53	3.079	15.60	26.26	15.61	26.25
PG35-C	PG	100YR-EX-Masci	12.50	575.49	3.082	15.79	26.57	15.80	26.56
PG35-C	PG	500YR-EX-Masci	12.40	616.59	2.892	16.44	27.04	16.47	27.02
PG40-P	PG	002YR-EX-Masci	12.92	227.79	1.680	13.99	24.15	14.18	23.89
PG40-P	PG	005YR-EX-Masci	12.97	303.02	-1.810	14.13	25.05	14.34	24.59

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Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
PG40-P	PG	010YR-EX-Masci	12.88	348.10	-1.810	14.57	25.80	14.95	25.27
PG40-P	PG	025YR-EX-Masci	12.76	377.50	-1.810	15.06	26.38	15.35	25.87
PG40-P	PG	050YR-EX-Masci	12.64	394.00	-1.810	15.48	26.76	15.60	26.26
PG40-P	PG	100YR-EX-Masci	12.53	403.98	-1.810	15.80	27.06	15.79	26.57
PG40-P	PG	500YR-EX-Masci	12.37	413.64	1.680	16.03	27.50	16.44	27.04
PG40-W	PG	002YR-EX-Masci	0.00	0.00	0.000	13.99	24.15	14.18	23.89
PG40-W	PG	005YR-EX-Masci	0.00	0.00	0.000	14.13	25.05	14.34	24.59
PG40-W	PG	010YR-EX-Masci	0.00	0.00	0.000	14.57	25.80	14.95	25.27
PG40-W	PG	025YR-EX-Masci	0.00	0.00	0.000	15.06	26.38	15.35	25.87
PG40-W	PG	050YR-EX-Masci	0.00	0.00	0.000	15.48	26.76	15.60	26.26
PG40-W	PG	100YR-EX-Masci	15.80	4.80	0.001	15.80	27.06	15.79	26.57
PG40-W	PG	500YR-EX-Masci	16.03	57.43	0.007	16.03	27.50	16.44	27.04
PG45-C	PG	002YR-EX-Masci	12.81	241.55	-6.456	13.99	24.15	13.99	24.15
PG45-C	PG	005YR-EX-Masci	12.86	320.26	4.388	14.13	25.06	14.13	25.05
PG45-C	PG	010YR-EX-Masci	12.76	368.82	4.387	14.57	25.80	14.57	25.80
PG45-C	PG	025YR-EX-Masci	12.71	402.35	4.387	15.05	26.39	15.06	26.38
PG45-C	PG	050YR-EX-Masci	12.62	422.49	4.387	15.48	26.76	15.48	26.76
PG45-C	PG	100YR-EX-Masci	12.49	434.46	4.387	15.80	27.06	15.80	27.06
PG45-C	PG	500YR-EX-Masci	12.29	436.02	-6.457	16.02	27.51	16.03	27.50
PG50-P	PG	002YR-EX-Masci	13.15	160.02	-6.809	13.85	24.33	13.99	24.15
PG50-P	PG	005YR-EX-Masci	13.27	215.54	-5.449	13.93	25.40	14.13	25.06
PG50-P	PG	010YR-EX-Masci	13.27	249.40	-4.592	14.20	26.23	14.57	25.80
PG50-P	PG	025YR-EX-Masci	13.26	267.02	-4.275	14.67	26.81	15.05	26.39
PG50-P	PG	050YR-EX-Masci	13.10	271.38	-4.379	14.89	27.16	15.48	26.76
PG50-P	PG	100YR-EX-Masci	12.99	269.14	-4.693	15.01	27.40	15.80	27.06
PG50-P	PG	500YR-EX-Masci	13.10	257.58	-5.305	15.14	27.78	16.02	27.51
PG50-W	PG	002YR-EX-Masci	0.00	0.00	0.000	13.85	24.33	13.99	24.15
PG50-W	PG	005YR-EX-Masci	0.00	0.00	0.000	13.93	25.40	14.13	25.06
PG50-W	PG	010YR-EX-Masci	0.00	0.00	0.000	14.20	26.23	14.57	25.80
PG50-W	PG	025YR-EX-Masci	0.00	0.00	0.000	14.67	26.81	15.05	26.39
PG50-W	PG	050YR-EX-Masci	14.89	13.42	0.006	14.89	27.16	15.48	26.76
PG50-W	PG	100YR-EX-Masci	15.01	41.61	0.015	15.01	27.40	15.80	27.06
PG50-W	PG	500YR-EX-Masci	15.14	105.50	0.033	15.14	27.78	16.02	27.51
PG55-C	PG	002YR-EX-Masci	13.50	72.57	-6.666	13.85	24.34	13.85	24.33
PG55-C	PG	005YR-EX-Masci	13.58	103.03	-8.314	13.93	25.40	13.93	25.40
PG55-C	PG	010YR-EX-Masci	13.48	127.26	8.896	14.20	26.23	14.20	26.23
PG55-C	PG	025YR-EX-Masci	13.25	151.17	-12.331	14.67	26.81	14.67	26.81
PG55-C	PG	050YR-EX-Masci	13.13	166.88	-13.936	14.89	27.16	14.89	27.16
PG55-C	PG	100YR-EX-Masci	13.08	179.87	12.750	15.01	27.40	15.01	27.40
PG55-C	PG	500YR-EX-Masci	13.17	218.95	-16.053	15.14	27.78	15.14	27.78
RE05-P	RE	002YR-EX-Masci	14.63	104.32	0.854	14.88	24.16	14.93	24.02
RE05-P	RE	005YR-EX-Masci	15.03	144.29	0.854	14.92	24.91	14.89	24.61
RE05-P	RE	010YR-EX-Masci	15.34	173.24	0.852	15.04	25.47	14.99	25.04
RE05-P	RE	025YR-EX-Masci	15.56	187.73	0.858	15.31	25.91	15.21	25.41
RE05-P	RE	050YR-EX-Masci	15.73	191.68	0.845	15.63	26.22	15.60	25.69
RE05-P	RE	100YR-EX-Masci	15.85	196.57	0.850	15.96	26.51	16.00	25.95
RE05-P	RE	500YR-EX-Masci	15.31	203.76	0.827	16.38	27.02	16.85	26.45
RE05-W	RE	002YR-EX-Masci	0.00	0.00	0.000	14.88	24.16	14.93	24.02
RE05-W	RE	005YR-EX-Masci	0.00	0.00	0.000	14.92	24.91	14.89	24.61
RE05-W	RE	010YR-EX-Masci	0.00	0.00	0.000	15.04	25.47	14.99	25.04
RE05-W	RE	025YR-EX-Masci	0.00	0.00	0.000	15.31	25.91	15.21	25.41
RE05-W	RE	050YR-EX-Masci	0.00	0.00	0.000	15.63	26.22	15.60	25.69
RE05-W	RE	100YR-EX-Masci	0.00	0.00	0.000	15.96	26.51	16.00	25.95
RE05-W	RE	500YR-EX-Masci	0.00	0.00	0.000	16.38	27.02	16.85	26.45
RE10-P	RE	002YR-EX-Masci	12.61	80.05	0.767	14.86	24.19	14.88	24.16
RE10-P	RE	005YR-EX-Masci	12.58	110.05	-0.694	14.89	24.96	14.92	24.91
RE10-P	RE	010YR-EX-Masci	12.73	136.64	-0.691	15.00	25.56	15.04	25.47
RE10-P	RE	025YR-EX-Masci	12.66	161.22	-0.698	15.24	26.02	15.31	25.91
RE10-P	RE	050YR-EX-Masci	12.57	177.60	-0.702	15.52	26.32	15.63	26.22
RE10-P	RE	100YR-EX-Masci	12.51	191.39	-0.697	15.73	26.60	15.96	26.51
RE10-P	RE	500YR-EX-Masci	12.37	216.72	-0.698	16.24	27.06	16.38	27.02
RE10-W	RE	002YR-EX-Masci	0.00	0.00	0.000	14.86	24.19	14.88	24.16
RE10-W	RE	005YR-EX-Masci	0.00	0.00	0.000	14.89	24.96	14.92	24.91
RE10-W	RE	010YR-EX-Masci	0.00	0.00	0.000	15.00	25.56	15.04	25.47
RE10-W	RE	025YR-EX-Masci	0.00	0.00	0.000	15.24	26.02	15.31	25.91
RE10-W	RE	050YR-EX-Masci	0.00	0.00	0.000	15.52	26.32	15.63	26.22
RE10-W	RE	100YR-EX-Masci	15.73	8.17	0.002	15.73	26.60	15.96	26.51
RE10-W	RE	500YR-EX-Masci	14.70	47.40	0.011	16.24	27.06	16.38	27.02
RE15-C	RE	002YR-EX-Masci	12.67	75.44	2.375	14.86	24.19	14.86	24.19
RE15-C	RE	005YR-EX-Masci	12.70	103.70	2.375	14.89	24.96	14.89	24.96
RE15-C	RE	010YR-EX-Masci	12.82	130.47	2.375	15.00	25.56	15.00	25.56

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RE15-C	RE	025YR-EX-Masci	12.72	152.28	2.375	15.24	26.02	15.24	26.02
RE15-C	RE	050YR-EX-Masci	12.67	165.60	2.375	15.52	26.33	15.52	26.32
RE15-C	RE	100YR-EX-Masci	12.58	176.04	2.375	15.72	26.60	15.73	26.60
RE15-C	RE	500YR-EX-Masci	12.41	188.40	2.375	16.23	27.06	16.24	27.06
RE20-P	RE	002YR-EX-Masci	12.75	69.89	-1.012	14.81	24.24	14.86	24.19
RE20-P	RE	005YR-EX-Masci	12.78	96.71	-1.012	14.82	25.06	14.89	24.96
RE20-P	RE	010YR-EX-Masci	12.91	123.34	-1.012	14.91	25.70	15.00	25.56
RE20-P	RE	025YR-EX-Masci	12.79	141.78	-1.012	15.09	26.17	15.24	26.02
RE20-P	RE	050YR-EX-Masci	12.74	152.44	-1.012	15.28	26.47	15.52	26.33
RE20-P	RE	100YR-EX-Masci	12.64	157.83	-1.012	15.35	26.71	15.72	26.60
RE20-P	RE	500YR-EX-Masci	12.54	157.19	-1.012	15.83	27.11	16.23	27.06
RE20-W	RE	002YR-EX-Masci	0.00	0.00	0.000	14.81	24.24	14.86	24.19
RE20-W	RE	005YR-EX-Masci	0.00	0.00	0.000	14.82	25.06	14.89	24.96
RE20-W	RE	010YR-EX-Masci	0.00	0.00	0.000	14.91	25.70	15.00	25.56
RE20-W	RE	025YR-EX-Masci	0.00	0.00	0.000	15.09	26.17	15.24	26.02
RE20-W	RE	050YR-EX-Masci	15.28	0.53	0.000	15.28	26.47	15.52	26.33
RE20-W	RE	100YR-EX-Masci	15.35	18.63	0.006	15.35	26.71	15.72	26.60
RE20-W	RE	500YR-EX-Masci	14.44	61.77	0.021	15.83	27.11	16.23	27.06
RE25-C	RE	002YR-EX-Masci	16.00	22.65	-2.588	14.81	24.25	14.81	24.24
RE25-C	RE	005YR-EX-Masci	16.00	31.51	-3.835	14.83	25.06	14.82	25.06
RE25-C	RE	010YR-EX-Masci	17.46	37.98	4.440	14.91	25.70	14.91	25.70
RE25-C	RE	025YR-EX-Masci	19.09	42.20	-4.661	15.09	26.17	15.09	26.17
RE25-C	RE	050YR-EX-Masci	13.43	51.08	4.575	15.28	26.47	15.28	26.47
RE25-C	RE	100YR-EX-Masci	13.19	64.70	-4.399	15.34	26.71	15.35	26.71
RE25-C	RE	500YR-EX-Masci	12.87	98.74	-4.350	15.83	27.11	15.83	27.11
RE30-P	RE	002YR-EX-Masci	15.00	11.70	0.004	15.00	25.69	15.00	24.78
RE30-P	RE	005YR-EX-Masci	14.92	25.10	0.009	14.92	26.27	14.92	25.53
RE30-P	RE	010YR-EX-Masci	14.87	36.88	0.014	14.87	26.70	14.87	25.89
RE30-P	RE	025YR-EX-Masci	15.41	49.18	-0.333	15.45	27.11	15.41	26.22
RE30-P	RE	050YR-EX-Masci	15.91	57.53	-0.999	15.93	27.36	15.91	26.43
RE30-P	RE	100YR-EX-Masci	16.31	65.37	-1.731	16.35	27.59	16.31	26.62
RE30-P	RE	500YR-EX-Masci	17.25	79.85	-11.789	17.28	27.99	17.25	26.95
RE30-P1	BASE	002YR-EX-Masci	15.00	112.17	0.018	15.00	25.69	15.00	24.63
RE30-P1	BASE	005YR-EX-Masci	14.92	141.99	0.027	14.92	26.27	14.90	24.97
RE30-P1	BASE	010YR-EX-Masci	14.87	168.23	0.033	14.87	26.70	14.81	25.23
RE30-P1	BASE	025YR-EX-Masci	15.45	193.20	-0.645	15.45	27.11	15.40	25.44
RE30-P1	BASE	050YR-EX-Masci	15.93	208.68	-1.445	15.93	27.36	15.61	25.55
RE30-P1	BASE	100YR-EX-Masci	16.35	222.12	-1.893	16.35	27.59	16.12	25.63
RE30-P1	BASE	500YR-EX-Masci	17.28	244.70	-2.004	17.28	27.99	16.98	25.73
RE30-P2	RE	002YR-EX-Masci	15.00	12.86	0.006	15.00	25.69	15.00	25.17
RE30-P2	RE	005YR-EX-Masci	14.92	26.52	0.013	14.92	26.27	14.92	25.50
RE30-P2	RE	010YR-EX-Masci	15.00	38.37	0.014	14.87	26.70	14.79	26.30
RE30-P2	RE	025YR-EX-Masci	16.19	43.38	-0.712	15.45	27.11	14.83	26.92
RE30-P2	RE	050YR-EX-Masci	17.49	47.97	-2.533	15.93	27.36	14.97	27.27
RE30-P2	RE	100YR-EX-Masci	18.86	53.14	-1.949	16.35	27.59	14.98	27.54
RE30-P2	RE	500YR-EX-Masci	21.23	59.98	3.611	17.28	27.99	15.24	28.05
RE30-W	RE	002YR-EX-Masci	0.00	0.00	0.000	15.00	25.69	14.86	24.49
RE30-W	RE	005YR-EX-Masci	0.00	0.00	0.000	14.92	26.27	14.76	25.47
RE30-W	RE	010YR-EX-Masci	0.00	0.00	0.000	14.87	26.70	14.79	26.30
RE30-W	RE	025YR-EX-Masci	0.00	0.00	0.000	15.45	27.11	14.83	26.92
RE30-W	RE	050YR-EX-Masci	0.00	0.00	0.000	15.93	27.36	14.97	27.27
RE30-W	RE	100YR-EX-Masci	0.00	0.00	0.000	16.35	27.59	14.98	27.54
RE30-W	RE	500YR-EX-Masci	0.00	0.00	0.000	17.28	27.99	15.24	28.05
RE30-W2	RE	002YR-EX-Masci	0.00	0.00	0.000	15.00	25.69	15.82	24.64
RE30-W2	RE	005YR-EX-Masci	0.00	0.00	0.000	14.92	26.27	16.03	25.33
RE30-W2	RE	010YR-EX-Masci	0.00	0.00	0.000	14.87	26.70	16.23	25.77
RE30-W2	RE	025YR-EX-Masci	0.00	0.00	0.000	15.45	27.11	16.87	26.14
RE30-W2	RE	050YR-EX-Masci	0.00	0.00	0.000	15.93	27.36	17.60	26.38
RE30-W2	RE	100YR-EX-Masci	0.00	0.00	0.000	16.35	27.59	18.04	26.57
RE30-W2	RE	500YR-EX-Masci	0.00	0.00	0.000	17.28	27.99	19.23	26.94
RE30B-P	RE	002YR-EX-Masci	15.77	63.98	0.011	15.82	24.64	15.77	24.60
RE30B-P	RE	005YR-EX-Masci	15.98	90.86	0.026	16.03	25.33	15.98	25.40
RE30B-P	RE	010YR-EX-Masci	16.16	109.42	0.027	16.23	25.77	15.49	25.95
RE30B-P	RE	025YR-EX-Masci	19.70	121.83	14.411	16.87	26.14	13.74	25.95
RE30B-P	RE	050YR-EX-Masci	17.60	127.47	14.411	17.60	26.38	13.25	25.95
RE30B-P	RE	100YR-EX-Masci	18.04	137.99	-14.405	18.04	26.57	12.97	25.95
RE30B-P	RE	500YR-EX-Masci	19.23	156.24	-14.400	19.23	26.94	12.61	25.95
RI05-P	RI	002YR-EX-Masci	14.38	334.93	-2.214	14.83	24.16	14.95	23.99
RI05-P	RI	005YR-EX-Masci	13.91	494.11	2.221	14.70	24.88	14.90	24.57
RI05-P	RI	010YR-EX-Masci	13.75	630.27	-2.288	14.63	25.46	14.99	25.00
RI05-P	RI	025YR-EX-Masci	13.58	746.62	2.222	14.48	25.95	15.23	25.37

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Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
RI05-P	RI	050YR-EX-Masci	13.45	820.08	2.288	14.66	26.34	15.62	25.66
RI05-P	RI	100YR-EX-Masci	13.26	873.28	2.159	14.94	26.68	16.04	25.93
RI05-P	RI	500YR-EX-Masci	12.87	940.00	2.195	15.08	27.29	16.87	26.43
RI05-W	RI	002YR-EX-Masci	0.00	0.00	0.000	14.83	24.16	14.95	23.99
RI05-W	RI	005YR-EX-Masci	0.00	0.00	0.000	14.70	24.88	14.90	24.57
RI05-W	RI	010YR-EX-Masci	0.00	0.00	0.000	14.63	25.46	14.99	25.00
RI05-W	RI	025YR-EX-Masci	0.00	0.00	0.000	14.48	25.95	15.23	25.37
RI05-W	RI	050YR-EX-Masci	0.00	0.00	0.000	14.66	26.34	15.62	25.66
RI05-W	RI	100YR-EX-Masci	0.00	0.00	0.000	14.94	26.68	16.04	25.93
RI05-W	RI	500YR-EX-Masci	0.00	0.00	0.000	15.08	27.29	16.87	26.43
RI10-C	RI	002YR-EX-Masci	14.64	313.07	1.667	14.80	24.28	14.83	24.16
RI10-C	RI	005YR-EX-Masci	14.35	455.73	1.677	14.66	25.04	14.70	24.88
RI10-C	RI	010YR-EX-Masci	14.17	572.05	1.672	14.56	25.63	14.63	25.46
RI10-C	RI	025YR-EX-Masci	13.89	659.50	1.692	14.39	26.12	14.48	25.95
RI10-C	RI	050YR-EX-Masci	13.88	703.97	1.695	14.52	26.50	14.66	26.34
RI10-C	RI	100YR-EX-Masci	14.15	709.24	1.683	14.82	26.82	14.94	26.68
RI10-C	RI	500YR-EX-Masci	13.25	673.63	1.705	15.01	27.39	15.08	27.29
RI15-P	31-RI	002YR-EX-Masci	15.29	256.91	-1.956	14.88	24.44	14.80	24.28
RI15-P	31-RI	005YR-EX-Masci	15.06	368.17	2.030	14.79	25.39	14.66	25.04
RI15-P	31-RI	010YR-EX-Masci	15.18	451.38	-1.837	14.81	26.15	14.56	25.63
RI15-P	31-RI	025YR-EX-Masci	15.50	497.67	-1.683	14.83	26.74	14.39	26.12
RI15-P	31-RI	050YR-EX-Masci	17.18	490.72	-1.691	14.90	27.08	14.52	26.50
RI15-P	31-RI	100YR-EX-Masci	17.73	472.92	-1.743	14.96	27.37	14.82	26.82
RI15-P	31-RI	500YR-EX-Masci	17.35	431.83	-1.767	15.23	27.87	15.01	27.39
RI15-W	31-RI	002YR-EX-Masci	0.00	0.00	0.000	14.88	24.44	14.80	24.28
RI15-W	31-RI	005YR-EX-Masci	0.00	0.00	0.000	14.79	25.39	14.66	25.04
RI15-W	31-RI	010YR-EX-Masci	0.00	0.00	0.000	14.81	26.15	14.56	25.63
RI15-W	31-RI	025YR-EX-Masci	0.00	0.00	0.000	14.83	26.74	14.39	26.12
RI15-W	31-RI	050YR-EX-Masci	0.00	0.00	0.000	14.90	27.08	14.52	26.50
RI15-W	31-RI	100YR-EX-Masci	0.00	0.00	0.000	14.96	27.37	14.82	26.82
RI15-W	31-RI	500YR-EX-Masci	0.00	0.00	0.000	15.23	27.87	15.01	27.39
RI15D	31-RI	002YR-EX-Masci	12.38	6.09	0.004	12.38	27.55	14.88	24.45
RI15D	31-RI	005YR-EX-Masci	12.24	10.68	-0.006	12.24	27.72	14.80	25.39
RI15D	31-RI	010YR-EX-Masci	12.18	14.31	-0.006	12.18	27.85	14.81	26.16
RI15D	31-RI	025YR-EX-Masci	12.17	17.09	0.010	12.17	27.94	14.83	26.75
RI15D	31-RI	050YR-EX-Masci	12.18	18.82	0.010	12.18	28.03	14.91	27.09
RI15D	31-RI	100YR-EX-Masci	12.20	20.29	0.011	12.20	28.12	14.97	27.37
RI15D	31-RI	500YR-EX-Masci	12.25	23.27	-0.014	12.25	28.38	15.23	27.88
RI16D	31-RI	002YR-EX-Masci	12.80	8.80	0.003	12.80	27.69	14.88	24.44
RI16D	31-RI	005YR-EX-Masci	12.57	20.24	0.008	12.57	28.05	14.79	25.39
RI16D	31-RI	010YR-EX-Masci	12.50	29.10	-1.228	12.50	28.35	14.81	26.15
RI16D	31-RI	025YR-EX-Masci	12.49	34.87	-8.827	12.49	28.64	14.83	26.74
RI16D	31-RI	050YR-EX-Masci	12.50	38.85	12.543	12.50	28.89	14.90	27.08
RI16D	31-RI	100YR-EX-Masci	12.45	42.25	15.049	12.45	29.11	14.96	27.37
RI16D	31-RI	500YR-EX-Masci	12.33	44.86	16.322	12.33	29.36	15.23	27.87
RI16W	31-RI	002YR-EX-Masci	0.00	0.00	0.000	12.80	27.69	14.88	24.44
RI16W	31-RI	005YR-EX-Masci	0.00	0.00	0.000	12.57	28.05	14.79	25.39
RI16W	31-RI	010YR-EX-Masci	0.00	0.00	0.000	12.50	28.35	14.81	26.15
RI16W	31-RI	025YR-EX-Masci	0.00	0.00	0.000	12.49	28.64	14.83	26.74
RI16W	31-RI	050YR-EX-Masci	0.00	0.00	0.000	12.50	28.89	14.90	27.08
RI16W	31-RI	100YR-EX-Masci	12.45	4.79	0.009	12.45	29.11	14.96	27.37
RI16W	31-RI	500YR-EX-Masci	12.33	30.45	0.034	12.33	29.36	15.23	27.87
RI20-C	31-RI	002YR-EX-Masci	15.19	225.04	5.115	14.88	24.45	14.88	24.44
RI20-C	31-RI	005YR-EX-Masci	14.95	325.20	-5.643	14.80	25.39	14.79	25.39
RI20-C	31-RI	010YR-EX-Masci	15.08	399.28	-6.274	14.81	26.16	14.81	26.15
RI20-C	31-RI	025YR-EX-Masci	15.52	441.15	-6.125	14.83	26.75	14.83	26.74
RI20-C	31-RI	050YR-EX-Masci	16.16	451.48	5.096	14.91	27.09	14.90	27.08
RI20-C	31-RI	100YR-EX-Masci	16.51	446.80	5.158	14.97	27.37	14.96	27.37
RI20-C	31-RI	500YR-EX-Masci	15.36	431.28	-5.778	15.23	27.88	15.23	27.87
RI25-C	RI	002YR-EX-Masci	14.07	149.54	5.784	14.88	24.45	14.88	24.45
RI25-C	RI	005YR-EX-Masci	14.22	227.31	5.897	14.79	25.40	14.80	25.39
RI25-C	RI	010YR-EX-Masci	14.59	286.26	19.352	14.80	26.17	14.81	26.16
RI25-C	RI	025YR-EX-Masci	14.80	321.38	-49.219	14.83	26.75	14.83	26.75
RI25-C	RI	050YR-EX-Masci	15.14	320.53	24.511	14.91	27.10	14.91	27.09
RI25-C	RI	100YR-EX-Masci	16.02	311.09	27.081	14.97	27.38	14.97	27.37
RI25-C	RI	500YR-EX-Masci	15.66	304.21	-7.714	15.23	27.88	15.23	27.88
RI30-P	RI	002YR-EX-Masci	14.20	145.41	-4.421	14.86	24.48	14.88	24.45
RI30-P	RI	005YR-EX-Masci	14.42	217.96	-4.376	14.76	25.46	14.79	25.40
RI30-P	RI	010YR-EX-Masci	14.63	274.62	11.940	14.79	26.29	14.80	26.17
RI30-P	RI	025YR-EX-Masci	14.83	310.79	-15.539	14.83	26.91	14.83	26.75
RI30-P	RI	050YR-EX-Masci	15.13	320.57	-10.903	14.96	27.26	14.91	27.10

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Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
RI30-P	RI	100YR-EX-Masci	15.97	317.57	-8.181	14.97	27.53	14.97	27.38
RI30-P	RI	500YR-EX-Masci	15.30	325.56	-4.262	15.24	28.05	15.23	27.88
RI30-W	RI	002YR-EX-Masci	0.00	0.00	0.000	14.86	24.48	14.88	24.45
RI30-W	RI	005YR-EX-Masci	0.00	0.00	0.000	14.76	25.46	14.79	25.40
RI30-W	RI	010YR-EX-Masci	0.00	0.00	0.000	14.79	26.29	14.80	26.17
RI30-W	RI	025YR-EX-Masci	0.00	0.00	0.000	14.83	26.91	14.83	26.75
RI30-W	RI	050YR-EX-Masci	0.00	0.00	0.000	14.96	27.26	14.91	27.10
RI30-W	RI	100YR-EX-Masci	0.00	0.00	0.000	14.97	27.53	14.97	27.38
RI30-W	RI	500YR-EX-Masci	0.00	0.00	0.000	15.24	28.05	15.23	27.88
RI35-C	RI	002YR-EX-Masci	14.75	80.57	-2.489	14.86	24.49	14.86	24.48
RI35-C	RI	005YR-EX-Masci	14.70	128.04	-3.152	14.76	25.47	14.76	25.46
RI35-C	RI	010YR-EX-Masci	14.81	166.47	-4.874	14.79	26.30	14.79	26.29
RI35-C	RI	025YR-EX-Masci	15.35	186.58	-5.258	14.83	26.92	14.83	26.91
RI35-C	RI	050YR-EX-Masci	15.74	191.21	5.320	14.97	27.27	14.96	27.26
RI35-C	RI	100YR-EX-Masci	16.28	189.40	-5.863	14.98	27.54	14.97	27.53
RI35-C	RI	500YR-EX-Masci	17.18	178.23	6.626	15.24	28.05	15.24	28.05
RP05-C	RP	002YR-EX-Masci	16.20	1904.49	6.039	16.25	13.52	24.00	12.04
RP05-C	RP	005YR-EX-Masci	16.44	2321.87	6.039	16.47	13.92	24.00	12.04
RP05-C	RP	010YR-EX-Masci	16.76	2626.67	6.039	16.79	14.21	24.00	12.04
RP05-C	RP	025YR-EX-Masci	17.04	2829.20	6.039	17.06	14.40	24.00	12.04
RP05-C	RP	050YR-EX-Masci	17.31	2972.11	6.039	17.32	14.53	24.00	12.04
RP05-C	RP	100YR-EX-Masci	17.73	3106.21	6.039	17.73	14.66	24.00	12.04
RP05-C	RP	500YR-EX-Masci	18.61	3353.51	6.039	18.56	14.88	24.00	12.04
RP07-C	RP	002YR-EX-Masci	16.15	1904.77	-282.928	16.25	13.58	16.25	13.52
RP07-C	RP	005YR-EX-Masci	16.38	2322.08	-282.133	16.47	13.99	16.47	13.92
RP07-C	RP	010YR-EX-Masci	16.70	2626.81	283.874	16.78	14.28	16.79	14.21
RP07-C	RP	025YR-EX-Masci	16.99	2829.29	282.131	17.06	14.47	17.06	14.40
RP07-C	RP	050YR-EX-Masci	17.25	2972.18	280.452	17.32	14.60	17.32	14.53
RP07-C	RP	100YR-EX-Masci	17.67	3106.24	274.793	17.73	14.73	17.73	14.66
RP07-C	RP	500YR-EX-Masci	18.56	3353.49	-270.333	18.56	14.96	18.56	14.88
RP10-C	RP	002YR-EX-Masci	16.14	1904.79	184.328	16.17	13.82	16.25	13.58
RP10-C	RP	005YR-EX-Masci	16.38	2322.10	184.328	16.38	14.37	16.47	13.99
RP10-C	RP	010YR-EX-Masci	16.70	2626.83	184.328	16.68	14.78	16.78	14.28
RP10-C	RP	025YR-EX-Masci	16.98	2829.30	184.328	16.96	15.05	17.06	14.47
RP10-C	RP	050YR-EX-Masci	17.24	2972.19	184.328	17.21	15.23	17.32	14.60
RP10-C	RP	100YR-EX-Masci	17.67	3106.25	184.328	17.65	15.40	17.73	14.73
RP10-C	RP	500YR-EX-Masci	18.55	3353.49	184.328	18.55	15.72	18.56	14.96
RP15-C	RP	002YR-EX-Masci	16.14	1904.80	-38.470	16.15	14.83	16.17	13.82
RP15-C	RP	005YR-EX-Masci	16.37	2322.10	-38.470	16.37	15.46	16.38	14.37
RP15-C	RP	010YR-EX-Masci	16.69	2626.83	-38.470	16.69	15.89	16.68	14.78
RP15-C	RP	025YR-EX-Masci	16.98	2829.30	-38.470	16.97	16.16	16.96	15.05
RP15-C	RP	050YR-EX-Masci	17.24	2972.19	-38.470	17.23	16.35	17.21	15.23
RP15-C	RP	100YR-EX-Masci	17.66	3106.25	-38.470	17.66	16.53	17.65	15.40
RP15-C	RP	500YR-EX-Masci	18.55	3353.49	-38.470	18.55	16.84	18.55	15.72
RP20-C	RP	002YR-EX-Masci	16.13	1904.25	-1900.788	16.14	16.66	16.15	14.83
RP20-C	RP	005YR-EX-Masci	16.37	2321.37	-1903.928	16.37	17.57	16.37	15.46
RP20-C	RP	010YR-EX-Masci	16.69	2625.98	-1906.522	16.69	18.19	16.69	15.89
RP20-C	RP	025YR-EX-Masci	16.98	2828.35	-1897.244	16.98	18.58	16.97	16.16
RP20-C	RP	050YR-EX-Masci	17.24	2971.16	-1921.433	17.24	18.85	17.23	16.35
RP20-C	RP	100YR-EX-Masci	17.67	3105.14	-1918.095	17.67	19.10	17.66	16.53
RP20-C	RP	500YR-EX-Masci	18.55	3352.28	-1909.670	18.55	19.55	18.55	16.84
RP25-C	RP	002YR-EX-Masci	16.13	1904.25	-10.522	16.13	19.72	16.13	16.92
RP25-C	RP	005YR-EX-Masci	16.37	2321.38	-10.522	16.37	20.75	16.37	17.80
RP25-C	RP	010YR-EX-Masci	16.69	2625.98	-10.522	16.69	21.44	16.69	18.40
RP25-C	RP	025YR-EX-Masci	16.97	2828.35	-10.522	16.97	21.86	16.97	18.78
RP25-C	RP	050YR-EX-Masci	17.23	2971.16	-10.522	17.23	22.16	17.23	19.03
RP25-C	RP	100YR-EX-Masci	17.67	3105.14	-10.522	17.67	22.42	17.67	19.27
RP25-C	RP	500YR-EX-Masci	18.54	3352.28	-10.522	18.54	22.90	18.54	19.68
RP30-C	RP	002YR-EX-Masci	16.13	1904.25	21.110	16.13	19.90	16.13	19.72
RP30-C	RP	005YR-EX-Masci	16.36	2321.38	21.110	16.37	20.94	16.37	20.75
RP30-C	RP	010YR-EX-Masci	16.68	2625.98	21.110	16.69	21.63	16.69	21.44
RP30-C	RP	025YR-EX-Masci	16.97	2828.35	21.110	16.97	22.06	16.97	21.86
RP30-C	RP	050YR-EX-Masci	17.23	2971.16	21.110	17.23	22.36	17.23	22.16
RP30-C	RP	100YR-EX-Masci	17.66	3105.14	21.110	17.67	22.62	17.67	22.42
RP30-C	RP	500YR-EX-Masci	18.54	3352.28	21.110	18.54	23.10	18.54	22.90
RP35-C	RP	002YR-EX-Masci	16.04	1904.66	-2.497	16.13	20.38	16.13	19.90
RP35-C	RP	005YR-EX-Masci	16.33	2321.18	-2.497	16.36	21.45	16.37	20.94
RP35-C	RP	010YR-EX-Masci	16.64	2625.74	-2.497	16.67	22.17	16.69	21.63
RP35-C	RP	025YR-EX-Masci	16.93	2827.55	-2.497	16.97	22.62	16.97	22.06
RP35-C	RP	050YR-EX-Masci	17.19	2970.25	-2.497	17.23	22.93	17.23	22.36
RP35-C	RP	100YR-EX-Masci	17.64	3104.19	-2.497	17.66	23.20	17.67	22.62

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RP35-C	RP	500YR-EX-Masci	18.51	3351.17	-2.497	18.54	23.70	18.54	23.10
RP37-C	RP	002YR-EX-Masci	15.04	1960.74	143.885	16.12	20.42	16.13	20.38
RP37-C	RP	005YR-EX-Masci	15.52	2367.77	157.726	16.36	21.50	16.36	21.45
RP37-C	RP	010YR-EX-Masci	18.48	2622.25	154.990	16.68	22.22	16.67	22.17
RP37-C	RP	025YR-EX-Masci	18.08	2897.72	163.129	16.96	22.67	16.97	22.62
RP37-C	RP	050YR-EX-Masci	17.14	2946.19	157.879	17.22	22.97	17.23	22.93
RP37-C	RP	100YR-EX-Masci	17.58	3080.54	161.273	17.66	23.25	17.66	23.20
RP37-C	RP	500YR-EX-Masci	18.42	3328.34	150.758	18.54	23.75	18.54	23.70
RP40-D	RP	002YR-EX-Masci	13.53	41.77	-0.178	16.10	20.96	16.12	20.42
RP40-D	RP	005YR-EX-Masci	12.89	45.17	-0.193	16.35	21.96	16.36	21.50
RP40-D	RP	010YR-EX-Masci	12.58	46.80	-0.191	16.67	22.67	16.68	22.22
RP40-D	RP	025YR-EX-Masci	12.37	47.04	-0.198	16.96	23.12	16.96	22.67
RP40-D	RP	050YR-EX-Masci	12.32	46.63	-0.193	17.22	23.43	17.22	22.97
RP40-D	RP	100YR-EX-Masci	12.19	45.94	-0.195	17.65	23.71	17.66	23.25
RP40-D	RP	500YR-EX-Masci	11.92	43.00	-0.171	18.53	24.22	18.54	23.75
RP40-W	RP	002YR-EX-Masci	16.04	1867.96	-7.303	16.10	20.96	16.12	20.42
RP40-W	RP	005YR-EX-Masci	16.06	2285.38	-16.461	16.35	21.96	16.36	21.50
RP40-W	RP	010YR-EX-Masci	16.67	2584.73	-17.578	16.67	22.67	16.68	22.22
RP40-W	RP	025YR-EX-Masci	16.89	2773.04	-20.255	16.96	23.12	16.96	22.67
RP40-W	RP	050YR-EX-Masci	17.14	2916.01	-20.521	17.22	23.43	17.22	22.97
RP40-W	RP	100YR-EX-Masci	17.57	3050.23	-20.460	17.65	23.71	17.66	23.25
RP40-W	RP	500YR-EX-Masci	18.41	3297.73	-21.104	18.53	24.22	18.54	23.75
RP45-C	RP	002YR-EX-Masci	15.15	986.67	-6.970	16.02	21.07	16.10	20.96
RP45-C	RP	005YR-EX-Masci	15.04	1394.87	-6.970	16.24	22.09	16.35	21.96
RP45-C	RP	010YR-EX-Masci	15.09	1708.63	-6.970	16.50	22.81	16.67	22.67
RP45-C	RP	025YR-EX-Masci	14.41	1940.98	-6.970	16.76	23.27	16.96	23.12
RP45-C	RP	050YR-EX-Masci	14.07	2064.07	-6.970	17.04	23.57	17.22	23.43
RP45-C	RP	100YR-EX-Masci	13.68	2164.84	-6.970	17.49	23.84	17.65	23.71
RP45-C	RP	500YR-EX-Masci	13.18	2353.62	10.713	18.31	24.33	18.53	24.22
RP50-C	RP	002YR-EX-Masci	15.07	943.36	-5.349	15.95	21.17	16.02	21.07
RP50-C	RP	005YR-EX-Masci	14.98	1332.65	-5.252	16.14	22.21	16.24	22.09
RP50-C	RP	010YR-EX-Masci	15.01	1632.49	5.215	16.35	22.94	16.50	22.81
RP50-C	RP	025YR-EX-Masci	14.36	1839.59	5.222	16.61	23.39	16.76	23.27
RP50-C	RP	050YR-EX-Masci	14.02	1937.19	5.220	16.90	23.69	17.04	23.57
RP50-C	RP	100YR-EX-Masci	13.69	2006.14	5.219	17.34	23.95	17.49	23.84
RP50-C	RP	500YR-EX-Masci	13.05	2137.13	4.759	18.18	24.42	18.31	24.33
RP55-P	RP	002YR-EX-Masci	15.03	919.67	4.443	15.70	21.54	15.95	21.17
RP55-P	RP	005YR-EX-Masci	14.97	1294.40	4.167	15.74	22.83	16.14	22.21
RP55-P	RP	010YR-EX-Masci	15.02	1584.62	4.426	15.74	23.82	16.35	22.94
RP55-P	RP	025YR-EX-Masci	14.45	1768.52	4.423	15.83	24.45	16.61	23.39
RP55-P	RP	050YR-EX-Masci	14.12	1842.50	4.421	16.09	24.87	16.90	23.69
RP55-P	RP	100YR-EX-Masci	13.69	1881.76	4.421	16.48	25.22	17.34	23.95
RP55-P	RP	500YR-EX-Masci	13.04	1930.77	5.180	17.24	25.87	18.18	24.42
RP55-W	RP	002YR-EX-Masci	0.00	0.00	0.000	15.70	21.54	15.95	21.17
RP55-W	RP	005YR-EX-Masci	0.00	0.00	0.000	15.74	22.83	16.14	22.21
RP55-W	RP	010YR-EX-Masci	0.00	0.00	0.000	15.74	23.82	16.35	22.94
RP55-W	RP	025YR-EX-Masci	0.00	0.00	0.000	15.83	24.45	16.61	23.39
RP55-W	RP	050YR-EX-Masci	0.00	0.00	0.000	16.09	24.87	16.90	23.69
RP55-W	RP	100YR-EX-Masci	0.00	0.00	0.000	16.48	25.22	17.34	23.95
RP55-W	RP	500YR-EX-Masci	0.00	0.00	0.000	17.24	25.87	18.18	24.42
RP57-D	RP	002YR-EX-Masci	15.01	32.34	0.005	15.01	23.81	15.70	21.54
RP57-D	RP	005YR-EX-Masci	14.08	43.56	0.013	14.95	24.28	15.74	22.83
RP57-D	RP	010YR-EX-Masci	13.31	46.87	0.014	15.03	24.64	15.74	23.82
RP57-D	RP	025YR-EX-Masci	13.15	47.36	-0.685	15.49	24.99	15.83	24.45
RP57-D	RP	050YR-EX-Masci	12.87	47.27	-0.971	15.86	25.32	16.09	24.87
RP57-D	RP	100YR-EX-Masci	12.68	46.28	0.014	16.27	25.62	16.48	25.22
RP57-D	RP	500YR-EX-Masci	12.39	40.74	0.009	17.08	26.20	17.24	25.87
RP57-W	RP	002YR-EX-Masci	15.01	877.34	0.137	15.01	23.81	15.70	21.54
RP57-W	RP	005YR-EX-Masci	14.95	1238.55	0.343	14.95	24.28	15.74	22.83
RP57-W	RP	010YR-EX-Masci	15.03	1528.80	0.327	15.03	24.64	15.74	23.82
RP57-W	RP	025YR-EX-Masci	14.42	1710.11	0.304	15.49	24.99	15.83	24.45
RP57-W	RP	050YR-EX-Masci	14.23	1781.68	0.293	15.86	25.32	16.09	24.87
RP57-W	RP	100YR-EX-Masci	13.84	1817.59	0.273	16.27	25.62	16.48	25.22
RP57-W	RP	500YR-EX-Masci	13.17	1842.04	0.258	17.08	26.20	17.24	25.87
RP60-C	RP	002YR-EX-Masci	14.98	908.30	-15.511	15.01	23.85	15.01	23.81
RP60-C	RP	005YR-EX-Masci	14.90	1278.78	-15.511	14.95	24.36	14.95	24.28
RP60-C	RP	010YR-EX-Masci	14.96	1565.43	-15.511	15.02	24.73	15.03	24.64
RP60-C	RP	025YR-EX-Masci	14.36	1745.97	-15.511	15.42	25.09	15.49	24.99
RP60-C	RP	050YR-EX-Masci	14.17	1817.25	-15.511	15.80	25.41	15.86	25.32
RP60-C	RP	100YR-EX-Masci	13.77	1855.15	-15.511	16.21	25.70	16.27	25.62
RP60-C	RP	500YR-EX-Masci	13.17	1883.46	-15.511	17.03	26.27	17.08	26.20

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Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
RP65-C	RP	002YR-EX-Masci	14.80	779.35	7.137	14.99	23.91	15.01	23.85
RP65-C	RP	005YR-EX-Masci	14.80	1087.95	7.137	14.93	24.45	14.95	24.36
RP65-C	RP	010YR-EX-Masci	14.96	1337.27	7.137	15.01	24.84	15.02	24.73
RP65-C	RP	025YR-EX-Masci	14.48	1502.45	7.137	15.35	25.21	15.42	25.09
RP65-C	RP	050YR-EX-Masci	14.28	1563.27	7.137	15.73	25.51	15.80	25.41
RP65-C	RP	100YR-EX-Masci	13.96	1573.20	7.137	16.14	25.79	16.21	25.70
RP65-C	RP	500YR-EX-Masci	13.79	1524.74	7.137	16.97	26.33	17.03	26.27
RP70-C	RP	002YR-EX-Masci	14.68	778.62	7.088	14.95	23.99	14.99	23.91
RP70-C	RP	005YR-EX-Masci	14.68	1085.59	7.048	14.90	24.57	14.93	24.45
RP70-C	RP	010YR-EX-Masci	14.88	1333.32	7.123	14.99	25.00	15.01	24.84
RP70-C	RP	025YR-EX-Masci	14.41	1505.04	7.047	15.23	25.37	15.35	25.21
RP70-C	RP	050YR-EX-Masci	14.21	1569.92	7.098	15.62	25.66	15.73	25.51
RP70-C	RP	100YR-EX-Masci	13.93	1584.60	6.999	16.04	25.93	16.14	25.79
RP70-C	RP	500YR-EX-Masci	13.76	1537.44	7.358	16.87	26.43	16.97	26.33
RP80-C	RP	002YR-EX-Masci	14.26	220.29	3.339	14.93	24.01	14.95	23.99
RP80-C	RP	005YR-EX-Masci	14.55	286.04	3.319	14.88	24.60	14.90	24.57
RP80-C	RP	010YR-EX-Masci	14.07	329.77	3.274	14.98	25.03	14.99	25.00
RP80-C	RP	025YR-EX-Masci	14.31	350.88	3.280	15.21	25.39	15.23	25.37
RP80-C	RP	050YR-EX-Masci	13.18	367.11	3.277	15.59	25.68	15.62	25.66
RP80-C	RP	100YR-EX-Masci	13.02	401.02	3.280	16.00	25.94	16.04	25.93
RP80-C	RP	500YR-EX-Masci	12.77	460.64	3.290	16.85	26.44	16.87	26.43
RP85-C	RP	002YR-EX-Masci	15.04	153.89	-3.658	14.93	24.02	14.93	24.01
RP85-C	RP	005YR-EX-Masci	15.31	200.05	-3.691	14.89	24.61	14.88	24.60
RP85-C	RP	010YR-EX-Masci	15.88	232.83	-3.694	14.99	25.04	14.98	25.03
RP85-C	RP	025YR-EX-Masci	16.17	245.00	-3.713	15.21	25.41	15.21	25.39
RP85-C	RP	050YR-EX-Masci	16.50	247.29	-3.683	15.60	25.69	15.59	25.68
RP85-C	RP	100YR-EX-Masci	16.21	250.03	-3.685	16.00	25.95	16.00	25.94
RP85-C	RP	500YR-EX-Masci	15.50	257.92	-3.675	16.85	26.45	16.85	26.44
RPW015C	31-Masci	002YR-EX-Masci	13.33	50.76	0.008	13.07	25.41	12.99	25.19
RPW015C	31-Masci	005YR-EX-Masci	12.93	58.90	0.012	12.70	25.91	12.68	25.76
RPW015C	31-Masci	010YR-EX-Masci	13.04	65.93	0.015	12.63	26.32	12.62	26.20
RPW015C	31-Masci	025YR-EX-Masci	13.10	70.70	0.019	12.56	26.62	12.55	26.52
RPW015C	31-Masci	050YR-EX-Masci	12.97	72.53	0.016	12.53	26.80	12.53	26.72
RPW015C	31-Masci	100YR-EX-Masci	12.96	73.51	0.016	12.52	26.96	12.52	26.89
RPW015C	31-Masci	500YR-EX-Masci	12.66	78.33	0.013	12.57	27.34	12.56	27.27
RPW016W	31-RPW	002YR-EX-Masci	12.40	4.64	0.004	12.40	27.60	12.99	25.19
RPW016W	31-RPW	005YR-EX-Masci	12.29	7.26	-0.003	12.29	27.64	12.68	25.76
RPW016W	31-RPW	010YR-EX-Masci	12.27	9.29	-0.003	12.27	27.66	12.62	26.20
RPW016W	31-RPW	025YR-EX-Masci	12.26	11.12	0.006	12.26	27.68	12.55	26.52
RPW016W	31-RPW	050YR-EX-Masci	12.26	12.65	0.006	12.26	27.69	12.53	26.72
RPW016W	31-RPW	100YR-EX-Masci	12.26	14.17	0.006	12.26	27.71	12.52	26.89
RPW016W	31-RPW	500YR-EX-Masci	12.25	17.65	0.006	12.25	27.74	12.56	27.27
RPW016W2	31-RPW	002YR-EX-Masci	12.40	4.64	0.004	12.40	27.60	12.41	26.39
RPW016W2	31-RPW	005YR-EX-Masci	12.29	7.26	-0.003	12.29	27.64	12.38	26.60
RPW016W2	31-RPW	010YR-EX-Masci	12.27	9.29	-0.003	12.27	27.66	12.41	26.79
RPW016W2	31-RPW	025YR-EX-Masci	12.26	11.12	0.006	12.26	27.68	12.43	26.95
RPW016W2	31-RPW	050YR-EX-Masci	12.26	12.65	0.006	12.26	27.69	12.43	27.08
RPW016W2	31-RPW	100YR-EX-Masci	12.26	14.17	0.006	12.26	27.71	12.44	27.20
RPW016W2	31-RPW	500YR-EX-Masci	12.25	17.65	0.006	12.25	27.74	12.56	27.47
RPW016W3	31-RPW	002YR-EX-Masci	12.40	4.64	0.004	12.40	27.60	13.07	25.41
RPW016W3	31-RPW	005YR-EX-Masci	12.29	7.26	-0.003	12.29	27.64	12.70	25.91
RPW016W3	31-RPW	010YR-EX-Masci	12.27	9.29	-0.003	12.27	27.66	12.63	26.32
RPW016W3	31-RPW	025YR-EX-Masci	12.26	11.12	0.006	12.26	27.68	12.56	26.62
RPW016W3	31-RPW	050YR-EX-Masci	12.26	12.65	0.006	12.26	27.69	12.53	26.80
RPW016W3	31-RPW	100YR-EX-Masci	12.26	14.17	0.006	12.26	27.71	12.52	26.96
RPW016W3	31-RPW	500YR-EX-Masci	12.25	17.65	0.006	12.25	27.74	12.57	27.34
RPW016W4	31-RPW	002YR-EX-Masci	12.40	4.64	0.004	12.40	27.60	13.24	27.40
RPW016W4	31-RPW	005YR-EX-Masci	12.29	7.26	-0.003	12.29	27.64	13.07	27.46
RPW016W4	31-RPW	010YR-EX-Masci	12.27	9.29	-0.003	12.27	27.66	12.99	27.50
RPW016W4	31-RPW	025YR-EX-Masci	12.26	11.12	0.006	12.26	27.68	12.92	27.54
RPW016W4	31-RPW	050YR-EX-Masci	12.26	12.65	0.006	12.26	27.69	12.87	27.57
RPW016W4	31-RPW	100YR-EX-Masci	12.26	14.17	0.006	12.26	27.71	12.86	27.59
RPW016W4	31-RPW	500YR-EX-Masci	12.25	17.65	-0.028	12.25	27.74	12.96	27.68
RPW020P	31-Masci	002YR-EX-Masci	13.53	45.62	0.010	13.27	26.03	13.07	25.41
RPW020P	31-Masci	005YR-EX-Masci	14.20	46.36	0.006	12.81	26.35	12.70	25.91
RPW020P	31-Masci	010YR-EX-Masci	13.51	47.41	0.006	12.71	26.67	12.63	26.32
RPW020P	31-Masci	025YR-EX-Masci	13.50	47.18	0.006	12.65	26.94	12.56	26.62
RPW020P	31-Masci	050YR-EX-Masci	13.46	46.24	-0.009	12.65	27.10	12.53	26.80
RPW020P	31-Masci	100YR-EX-Masci	13.34	45.44	-0.012	12.64	27.24	12.52	26.96
RPW020P	31-Masci	500YR-EX-Masci	13.82	40.59	-0.011	12.65	27.51	12.57	27.34

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Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
RPW020W	31-RPW	002YR-EX-Masci	0.00	0.00	0.000	13.27	26.03	13.07	25.41
RPW020W	31-RPW	005YR-EX-Masci	0.00	0.00	0.000	12.81	26.35	12.70	25.91
RPW020W	31-RPW	010YR-EX-Masci	0.00	0.00	0.000	12.71	26.67	12.63	26.32
RPW020W	31-RPW	025YR-EX-Masci	0.00	0.00	0.000	12.65	26.94	12.56	26.62
RPW020W	31-RPW	050YR-EX-Masci	0.00	0.00	0.000	12.65	27.10	12.53	26.80
RPW020W	31-RPW	100YR-EX-Masci	0.00	0.00	0.000	12.64	27.24	12.52	26.96
RPW020W	31-RPW	500YR-EX-Masci	0.00	0.00	0.000	12.65	27.51	12.57	27.34
RPW025C	31-Masci	002YR-EX-Masci	13.40	45.15	0.008	13.27	26.16	13.27	26.03
RPW025C	31-Masci	005YR-EX-Masci	14.07	46.20	0.014	12.83	26.43	12.81	26.35
RPW025C	31-Masci	010YR-EX-Masci	13.69	46.02	-0.011	12.72	26.72	12.71	26.67
RPW025C	31-Masci	025YR-EX-Masci	13.64	45.47	-0.010	12.65	26.97	12.65	26.94
RPW025C	31-Masci	050YR-EX-Masci	13.57	44.51	-0.013	12.66	27.13	12.65	27.10
RPW025C	31-Masci	100YR-EX-Masci	13.50	43.60	-0.014	12.65	27.26	12.64	27.24
RPW025C	31-Masci	500YR-EX-Masci	11.78	42.10	-0.013	12.65	27.52	12.65	27.51
RPW030P	31-Masci	002YR-EX-Masci	13.16	44.89	0.007	13.25	26.57	13.27	26.16
RPW030P	31-Masci	005YR-EX-Masci	14.04	46.42	0.052	12.87	26.77	12.83	26.43
RPW030P	31-Masci	010YR-EX-Masci	14.77	45.15	-0.178	12.77	27.03	12.72	26.72
RPW030P	31-Masci	025YR-EX-Masci	13.76	44.19	-0.190	12.73	27.24	12.65	26.97
RPW030P	31-Masci	050YR-EX-Masci	13.66	43.15	-0.200	12.68	27.38	12.66	27.13
RPW030P	31-Masci	100YR-EX-Masci	11.92	43.01	0.242	12.77	27.50	12.65	27.26
RPW030P	31-Masci	500YR-EX-Masci	11.80	44.03	0.355	12.86	27.66	12.65	27.52
RPW030W	31-RPW	002YR-EX-Masci	0.00	0.00	0.000	13.25	26.57	13.27	26.16
RPW030W	31-RPW	005YR-EX-Masci	0.00	0.00	0.000	12.87	26.77	12.83	26.43
RPW030W	31-RPW	010YR-EX-Masci	0.00	0.00	0.000	12.77	27.03	12.72	26.72
RPW030W	31-RPW	025YR-EX-Masci	0.00	0.00	0.000	12.73	27.24	12.65	26.97
RPW030W	31-RPW	050YR-EX-Masci	0.00	0.00	0.000	12.68	27.38	12.66	27.13
RPW030W	31-RPW	100YR-EX-Masci	0.00	0.00	0.000	12.77	27.50	12.65	27.26
RPW030W	31-RPW	500YR-EX-Masci	0.00	0.00	0.000	12.86	27.66	12.65	27.52
RPW031D	31-RPW	002YR-EX-Masci	12.10	7.48	0.002	12.10	28.78	13.25	26.57
RPW031D	31-RPW	005YR-EX-Masci	12.10	10.49	-0.007	12.10	28.83	12.87	26.77
RPW031D	31-RPW	010YR-EX-Masci	12.12	12.61	-0.007	12.12	28.87	12.77	27.03
RPW031D	31-RPW	025YR-EX-Masci	12.21	13.07	-0.017	12.21	28.99	12.73	27.24
RPW031D	31-RPW	050YR-EX-Masci	12.24	13.52	-0.023	12.27	29.12	12.68	27.38
RPW031D	31-RPW	100YR-EX-Masci	12.17	13.84	-0.032	12.34	29.28	12.77	27.50
RPW031D	31-RPW	500YR-EX-Masci	12.18	14.07	-0.035	12.41	29.67	12.86	27.66
RPW031W	31-RPW	002YR-EX-Masci	0.00	0.00	0.000	12.10	28.78	13.25	26.57
RPW031W	31-RPW	005YR-EX-Masci	0.00	0.00	0.000	12.10	28.83	12.87	26.77
RPW031W	31-RPW	010YR-EX-Masci	0.00	0.00	0.000	12.12	28.87	12.77	27.03
RPW031W	31-RPW	025YR-EX-Masci	0.00	0.00	0.000	12.21	28.99	12.73	27.24
RPW031W	31-RPW	050YR-EX-Masci	0.00	0.00	0.000	12.27	29.12	12.68	27.38
RPW031W	31-RPW	100YR-EX-Masci	0.00	0.00	0.000	12.34	29.28	12.77	27.50
RPW031W	31-RPW	500YR-EX-Masci	0.00	0.00	0.000	12.41	29.67	12.86	27.66
RPW035C	31-Masci	002YR-EX-Masci	13.18	43.00	0.007	13.25	26.59	13.25	26.57
RPW035C	31-Masci	005YR-EX-Masci	14.00	44.92	1.408	12.87	26.78	12.87	26.77
RPW035C	31-Masci	010YR-EX-Masci	14.73	40.35	-1.510	12.77	27.04	12.77	27.03
RPW035C	31-Masci	025YR-EX-Masci	15.49	36.96	-1.539	12.74	27.24	12.73	27.24
RPW035C	31-Masci	050YR-EX-Masci	17.23	36.55	1.190	12.69	27.38	12.68	27.38
RPW035C	31-Masci	100YR-EX-Masci	18.96	35.57	4.691	12.78	27.50	12.77	27.50
RPW035C	31-Masci	500YR-EX-Masci	11.52	35.57	26.232	12.86	27.66	12.86	27.66
RPW040P	31-RPW	002YR-EX-Masci	13.03	43.07	-0.013	13.24	26.71	13.25	26.59
RPW040P	31-RPW	005YR-EX-Masci	14.00	53.33	13.919	12.92	26.96	12.87	26.78
RPW040P	31-RPW	010YR-EX-Masci	14.73	47.94	12.525	12.82	27.13	12.77	27.04
RPW040P	31-RPW	025YR-EX-Masci	15.48	43.89	11.457	12.84	27.29	12.74	27.24
RPW040P	31-RPW	050YR-EX-Masci	17.22	43.56	11.491	12.82	27.41	12.69	27.38
RPW040P	31-RPW	100YR-EX-Masci	18.95	42.40	11.185	12.82	27.51	12.78	27.50
RPW040P	31-RPW	500YR-EX-Masci	22.84	38.15	10.063	12.92	27.65	12.86	27.66
RPW040W	31-RPW	002YR-EX-Masci	0.00	0.00	0.000	13.24	26.71	13.25	26.59
RPW040W	31-RPW	005YR-EX-Masci	0.00	0.00	0.000	12.92	26.96	12.87	26.78
RPW040W	31-RPW	010YR-EX-Masci	0.00	0.00	0.000	12.82	27.13	12.77	27.04
RPW040W	31-RPW	025YR-EX-Masci	12.84	0.00	0.000	12.84	27.29	12.74	27.24
RPW040W	31-RPW	050YR-EX-Masci	12.83	0.13	0.000	12.82	27.41	12.69	27.38
RPW040W	31-RPW	100YR-EX-Masci	12.95	0.41	0.003	12.82	27.51	12.78	27.50
RPW040W	31-RPW	500YR-EX-Masci	14.06	1.08	0.074	12.92	27.65	12.86	27.66
RPW041D	31-RPW	002YR-EX-Masci	12.54	7.20	0.293	12.54	27.13	13.23	26.75
RPW041D	31-RPW	005YR-EX-Masci	12.28	9.15	0.284	12.61	27.73	12.92	26.98
RPW041D	31-RPW	010YR-EX-Masci	12.50	9.93	0.273	12.63	28.27	12.82	27.14
RPW041D	31-RPW	025YR-EX-Masci	12.57	11.25	0.258	12.64	28.75	12.85	27.29
RPW041D	31-RPW	050YR-EX-Masci	12.58	12.24	0.188	12.65	29.14	12.83	27.41
RPW041D	31-RPW	100YR-EX-Masci	12.60	13.18	0.294	12.66	29.52	12.83	27.51
RPW041D	31-RPW	500YR-EX-Masci	12.66	15.32	0.539	12.68	30.38	12.92	27.65
RPW041W	31-RPW	002YR-EX-Masci	0.00	0.00	0.000	12.54	27.13	13.23	26.75

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Singhofen & Associates, Inc.

Stormwater Management Master Plan
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Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
RPW041W	31-RPW	005YR-EX-Masci	0.00	0.00	0.000	12.61	27.73	12.92	26.98
RPW041W	31-RPW	010YR-EX-Masci	0.00	0.00	0.000	12.63	28.27	12.82	27.14
RPW041W	31-RPW	025YR-EX-Masci	0.00	0.00	0.000	12.64	28.75	12.85	27.29
RPW041W	31-RPW	050YR-EX-Masci	0.00	0.00	0.000	12.65	29.14	12.83	27.41
RPW041W	31-RPW	100YR-EX-Masci	0.00	0.00	0.000	12.66	29.52	12.83	27.51
RPW041W	31-RPW	500YR-EX-Masci	0.00	0.00	0.000	12.68	30.38	12.92	27.65
RPW045C	31-RPW	002YR-EX-Masci	12.90	43.46	0.007	13.23	26.75	13.24	26.71
RPW045C	31-RPW	005YR-EX-Masci	14.00	46.73	0.861	12.92	26.98	12.92	26.96
RPW045C	31-RPW	010YR-EX-Masci	14.73	41.97	0.698	12.82	27.14	12.82	27.13
RPW045C	31-RPW	025YR-EX-Masci	15.49	38.45	-0.637	12.85	27.29	12.84	27.29
RPW045C	31-RPW	050YR-EX-Masci	17.23	37.86	0.600	12.83	27.41	12.82	27.41
RPW045C	31-RPW	100YR-EX-Masci	18.96	36.85	0.599	12.83	27.51	12.82	27.51
RPW045C	31-RPW	500YR-EX-Masci	11.56	37.55	9.297	12.92	27.65	12.92	27.65
RPW050C	31-RPW	002YR-EX-Masci	12.09	8.95	-0.094	13.23	26.75	13.23	26.75
RPW050C	31-RPW	005YR-EX-Masci	12.01	8.26	-5.925	12.93	26.98	12.92	26.98
RPW050C	31-RPW	010YR-EX-Masci	11.93	7.09	-1.948	12.82	27.14	12.82	27.14
RPW050C	31-RPW	025YR-EX-Masci	12.01	6.04	2.282	12.85	27.29	12.85	27.29
RPW050C	31-RPW	050YR-EX-Masci	15.38	11.86	2.251	12.83	27.41	12.83	27.41
RPW050C	31-RPW	100YR-EX-Masci	16.21	23.11	-2.293	12.83	27.51	12.83	27.51
RPW050C	31-RPW	500YR-EX-Masci	15.32	39.08	2.342	12.92	27.65	12.92	27.65
RPW055C	31-RPW	002YR-EX-Masci	12.09	6.73	3.252	13.23	26.75	13.23	26.75
RPW055C	31-RPW	005YR-EX-Masci	12.01	6.42	3.252	12.93	26.98	12.93	26.98
RPW055C	31-RPW	010YR-EX-Masci	11.94	5.58	3.252	12.82	27.14	12.82	27.14
RPW055C	31-RPW	025YR-EX-Masci	12.01	5.08	3.252	12.85	27.28	12.85	27.29
RPW055C	31-RPW	050YR-EX-Masci	15.40	10.39	3.252	12.84	27.39	12.83	27.41
RPW055C	31-RPW	100YR-EX-Masci	16.25	21.41	3.252	12.84	27.49	12.83	27.51
RPW055C	31-RPW	500YR-EX-Masci	15.35	37.48	3.252	12.94	27.65	12.92	27.65
RPW060C	31-RPW	002YR-EX-Masci	12.12	2.79	-0.285	13.23	26.75	13.23	26.75
RPW060C	31-RPW	005YR-EX-Masci	12.04	2.81	-0.283	12.93	26.97	12.93	26.98
RPW060C	31-RPW	010YR-EX-Masci	11.92	2.45	-0.279	12.81	27.12	12.82	27.14
RPW060C	31-RPW	025YR-EX-Masci	12.01	2.16	-0.267	12.86	27.22	12.85	27.28
RPW060C	31-RPW	050YR-EX-Masci	15.44	8.71	-0.414	12.87	27.33	12.84	27.39
RPW060C	31-RPW	100YR-EX-Masci	16.29	19.51	-0.508	12.86	27.42	12.84	27.49
RPW060C	31-RPW	500YR-EX-Masci	15.37	35.57	-0.664	14.66	27.66	12.94	27.65
RPW060W	31-RPW	002YR-EX-Masci	13.23	2.62	0.002	13.23	26.75	12.41	26.55
RPW060W	31-RPW	005YR-EX-Masci	12.96	8.64	0.015	12.93	26.97	12.93	26.96
RPW060W	31-RPW	010YR-EX-Masci	13.00	11.17	0.026	12.81	27.12	12.81	27.11
RPW060W	31-RPW	025YR-EX-Masci	12.95	13.61	0.035	12.86	27.22	12.86	27.22
RPW060W	31-RPW	050YR-EX-Masci	12.87	17.11	-0.077	12.87	27.33	12.87	27.32
RPW060W	31-RPW	100YR-EX-Masci	12.85	20.79	-0.197	12.86	27.42	12.86	27.41
RPW060W	31-RPW	500YR-EX-Masci	12.67	25.92	-0.739	14.66	27.66	14.67	27.66
RPW060W2	31-RPW	002YR-EX-Masci	0.00	0.00	0.000	13.23	26.75	13.25	26.83
RPW060W2	31-RPW	005YR-EX-Masci	0.00	0.00	0.000	12.93	26.97	12.91	26.97
RPW060W2	31-RPW	010YR-EX-Masci	12.81	4.38	0.006	12.81	27.12	12.80	27.07
RPW060W2	31-RPW	025YR-EX-Masci	12.66	14.64	0.014	12.86	27.22	12.88	27.20
RPW060W2	31-RPW	050YR-EX-Masci	12.46	18.65	0.020	12.87	27.33	12.88	27.32
RPW060W2	31-RPW	100YR-EX-Masci	12.34	21.55	-0.071	12.86	27.42	12.87	27.41
RPW060W2	31-RPW	500YR-EX-Masci	12.19	27.31	0.515	14.66	27.66	14.66	27.66
RPW065C	31-RPW	002YR-EX-Masci	12.51	40.42	0.012	13.25	26.83	13.23	26.75
RPW065C	31-RPW	005YR-EX-Masci	12.37	37.16	0.040	12.94	27.01	12.92	26.98
RPW065C	31-RPW	010YR-EX-Masci	12.23	34.42	-0.040	12.83	27.16	12.82	27.14
RPW065C	31-RPW	025YR-EX-Masci	12.14	32.75	-0.022	12.87	27.30	12.85	27.29
RPW065C	31-RPW	050YR-EX-Masci	12.06	31.07	0.029	12.85	27.42	12.83	27.41
RPW065C	31-RPW	100YR-EX-Masci	11.79	30.94	-1.311	12.84	27.51	12.83	27.51
RPW065C	31-RPW	500YR-EX-Masci	11.51	32.65	-5.117	12.94	27.65	12.92	27.65
RPW070C	31-RPW	002YR-EX-Masci	12.48	45.09	0.103	13.25	26.84	13.25	26.83
RPW070C	31-RPW	005YR-EX-Masci	12.21	42.02	0.067	12.94	27.02	12.94	27.01
RPW070C	31-RPW	010YR-EX-Masci	12.22	38.98	0.054	12.83	27.16	12.83	27.16
RPW070C	31-RPW	025YR-EX-Masci	12.13	37.12	0.048	12.87	27.30	12.87	27.30
RPW070C	31-RPW	050YR-EX-Masci	12.06	34.88	-0.039	12.85	27.42	12.85	27.42
RPW070C	31-RPW	100YR-EX-Masci	11.78	33.69	-3.228	12.84	27.51	12.84	27.51
RPW070C	31-RPW	500YR-EX-Masci	11.49	33.83	12.805	12.95	27.65	12.94	27.65
RPW075P	31-RPW	002YR-EX-Masci	12.18	7.19	0.431	13.25	26.84	13.25	26.84
RPW075P	31-RPW	005YR-EX-Masci	11.92	6.36	-0.458	12.93	27.01	12.94	27.02
RPW075P	31-RPW	010YR-EX-Masci	19.23	6.22	-0.473	12.83	27.15	12.83	27.16
RPW075P	31-RPW	025YR-EX-Masci	20.28	6.15	-0.478	12.87	27.30	12.87	27.30
RPW075P	31-RPW	050YR-EX-Masci	21.42	6.12	-0.480	12.85	27.41	12.85	27.42
RPW075P	31-RPW	100YR-EX-Masci	11.37	6.19	-0.486	12.84	27.51	12.84	27.51
RPW075P	31-RPW	500YR-EX-Masci	10.70	6.12	-0.481	12.95	27.65	12.95	27.65
RPW075W	31-RPW	002YR-EX-Masci	12.48	14.15	0.190	13.25	26.84	13.25	26.84
RPW075W	31-RPW	005YR-EX-Masci	12.21	11.17	-0.213	12.93	27.01	12.94	27.02

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Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
RPW075W	31-RPW	010YR-EX-Masci	12.06	5.82	-0.161	12.83	27.15	12.83	27.16
RPW075W	31-RPW	025YR-EX-Masci	18.27	5.46	-0.151	12.87	27.30	12.87	27.30
RPW075W	31-RPW	050YR-EX-Masci	19.32	5.59	0.187	12.85	27.41	12.85	27.42
RPW075W	31-RPW	100YR-EX-Masci	20.77	5.72	0.262	12.84	27.51	12.84	27.51
RPW075W	31-RPW	500YR-EX-Masci	24.00	4.90	-1.652	12.95	27.65	12.95	27.65
RPW075W2	31-RPW	002YR-EX-Masci	0.00	0.00	0.000	13.25	26.84	12.51	26.72
RPW075W2	31-RPW	005YR-EX-Masci	0.00	0.00	0.000	12.93	27.01	12.89	26.94
RPW075W2	31-RPW	010YR-EX-Masci	12.83	0.91	0.001	12.83	27.15	12.79	27.03
RPW075W2	31-RPW	025YR-EX-Masci	12.87	6.49	0.005	12.87	27.30	12.88	27.18
RPW075W2	31-RPW	050YR-EX-Masci	12.85	16.15	0.009	12.85	27.41	12.88	27.31
RPW075W2	31-RPW	100YR-EX-Masci	12.83	27.43	0.014	12.84	27.51	12.87	27.42
RPW075W2	31-RPW	500YR-EX-Masci	12.78	41.32	0.022	12.95	27.65	12.95	27.59
RPW080C	31-RPW	002YR-EX-Masci	12.47	11.74	-0.956	13.25	26.83	13.25	26.84
RPW080C	31-RPW	005YR-EX-Masci	12.21	6.93	-1.352	12.91	26.98	12.93	27.01
RPW080C	31-RPW	010YR-EX-Masci	17.56	5.39	1.128	12.81	27.07	12.83	27.15
RPW080C	31-RPW	025YR-EX-Masci	18.48	5.42	1.215	12.88	27.21	12.87	27.30
RPW080C	31-RPW	050YR-EX-Masci	19.56	5.50	1.019	12.88	27.33	12.85	27.41
RPW080C	31-RPW	100YR-EX-Masci	20.97	5.67	1.080	12.87	27.43	12.84	27.51
RPW080C	31-RPW	500YR-EX-Masci	10.68	4.54	1.016	12.95	27.61	12.95	27.65
RPW080W	31-RPW	002YR-EX-Masci	13.25	1.25	0.001	13.25	26.83	12.51	26.72
RPW080W	31-RPW	005YR-EX-Masci	12.93	10.43	0.016	12.91	26.98	12.89	26.94
RPW080W	31-RPW	010YR-EX-Masci	12.82	22.19	0.029	12.81	27.07	12.79	27.03
RPW080W	31-RPW	025YR-EX-Masci	12.91	34.15	0.052	12.88	27.21	12.88	27.18
RPW080W	31-RPW	050YR-EX-Masci	12.77	38.15	0.047	12.88	27.33	12.88	27.31
RPW080W	31-RPW	100YR-EX-Masci	12.67	39.02	0.036	12.87	27.43	12.87	27.42
RPW080W	31-RPW	500YR-EX-Masci	13.60	39.77	0.076	12.95	27.61	12.95	27.59
RPW085P	31-RPW	002YR-EX-Masci	17.77	2.76	-0.169	13.25	26.83	13.25	26.83
RPW085P	31-RPW	005YR-EX-Masci	19.07	2.66	-0.160	12.91	26.97	12.91	26.98
RPW085P	31-RPW	010YR-EX-Masci	20.18	2.60	-0.159	12.80	27.07	12.81	27.07
RPW085P	31-RPW	025YR-EX-Masci	21.27	2.56	-0.157	12.88	27.21	12.88	27.21
RPW085P	31-RPW	050YR-EX-Masci	22.46	2.53	-0.160	12.88	27.33	12.88	27.33
RPW085P	31-RPW	100YR-EX-Masci	23.98	2.53	-0.161	12.87	27.43	12.87	27.43
RPW085P	31-RPW	500YR-EX-Masci	9.90	2.51	-0.166	12.95	27.60	12.95	27.61
RPW085W	31-RPW	002YR-EX-Masci	12.48	9.24	-1.189	13.25	26.83	13.25	26.83
RPW085W	31-RPW	005YR-EX-Masci	12.21	7.53	1.248	12.91	26.97	12.91	26.98
RPW085W	31-RPW	010YR-EX-Masci	11.89	4.79	-1.229	12.80	27.07	12.81	27.07
RPW085W	31-RPW	025YR-EX-Masci	11.76	5.00	0.992	12.88	27.21	12.88	27.21
RPW085W	31-RPW	050YR-EX-Masci	11.61	4.57	0.984	12.88	27.33	12.88	27.33
RPW085W	31-RPW	100YR-EX-Masci	11.35	4.07	1.078	12.87	27.43	12.87	27.43
RPW085W	31-RPW	500YR-EX-Masci	10.69	3.80	7.945	12.95	27.60	12.95	27.61
RPW085W2	31-RPW	002YR-EX-Masci	13.25	13.75	0.019	13.25	26.83	12.51	26.72
RPW085W2	31-RPW	005YR-EX-Masci	12.97	41.16	0.105	12.91	26.97	12.89	26.94
RPW085W2	31-RPW	010YR-EX-Masci	12.84	65.02	0.133	12.80	27.07	12.79	27.03
RPW085W2	31-RPW	025YR-EX-Masci	12.46	68.43	0.246	12.88	27.21	12.88	27.18
RPW085W2	31-RPW	050YR-EX-Masci	14.00	65.71	0.190	12.88	27.33	12.88	27.31
RPW085W2	31-RPW	100YR-EX-Masci	14.38	68.50	0.150	12.87	27.43	12.87	27.42
RPW085W2	31-RPW	500YR-EX-Masci	13.64	71.49	-0.162	12.95	27.60	12.95	27.59
RPW090C	31-RPW	002YR-EX-Masci	12.49	5.49	0.204	13.25	26.83	13.25	26.83
RPW090C	31-RPW	005YR-EX-Masci	12.01	2.28	0.193	12.91	26.97	12.91	26.97
RPW090C	31-RPW	010YR-EX-Masci	11.89	2.36	0.185	12.80	27.07	12.80	27.07
RPW090C	31-RPW	025YR-EX-Masci	11.76	2.68	0.183	12.88	27.20	12.88	27.21
RPW090C	31-RPW	050YR-EX-Masci	15.01	19.34	-0.405	12.88	27.32	12.88	27.33
RPW090C	31-RPW	100YR-EX-Masci	15.22	33.38	-0.484	12.87	27.41	12.87	27.43
RPW090C	31-RPW	500YR-EX-Masci	15.18	57.90	-2.407	14.66	27.66	12.95	27.60
RPW090W	31-RPW	002YR-EX-Masci	13.31	7.87	-0.157	13.25	26.83	13.25	26.83
RPW090W	31-RPW	005YR-EX-Masci	12.98	13.15	0.062	12.91	26.97	12.91	26.97
RPW090W	31-RPW	010YR-EX-Masci	12.87	17.70	-0.066	12.80	27.07	12.80	27.06
RPW090W	31-RPW	025YR-EX-Masci	12.85	28.93	-0.077	12.88	27.20	12.88	27.20
RPW090W	31-RPW	050YR-EX-Masci	12.86	38.46	-1.596	12.88	27.32	12.88	27.31
RPW090W	31-RPW	100YR-EX-Masci	12.86	46.27	-3.162	12.87	27.41	12.87	27.41
RPW090W	31-RPW	500YR-EX-Masci	12.66	57.17	11.647	14.66	27.66	14.67	27.66
RPW100D	31-Masci	002YR-EX-Masci	18.64	1.40	0.000	18.64	28.84	13.25	26.57
RPW100D	31-Masci	005YR-EX-Masci	14.93	3.26	0.001	14.93	29.17	12.87	26.77
RPW100D	31-Masci	010YR-EX-Masci	13.22	7.90	0.005	13.21	29.40	12.77	27.03
RPW100D	31-Masci	025YR-EX-Masci	13.15	12.77	0.007	12.95	29.63	12.73	27.24
RPW100D	31-Masci	050YR-EX-Masci	13.87	13.91	0.009	12.98	29.86	12.68	27.38
RPW100D	31-Masci	100YR-EX-Masci	13.82	14.33	0.013	13.02	30.11	12.77	27.50
RPW100D	31-Masci	500YR-EX-Masci	13.46	14.86	0.015	12.88	30.63	12.86	27.66
RPW100W	31-RPW	002YR-EX-Masci	0.00	0.00	0.000	18.64	28.84	13.25	26.57
RPW100W	31-RPW	005YR-EX-Masci	0.00	0.00	0.000	14.93	29.17	12.87	26.77
RPW100W	31-RPW	010YR-EX-Masci	0.00	0.00	0.000	13.21	29.40	12.77	27.03

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Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
RPW100W	31-RPW	025YR-EX-Masci	0.00	0.00	0.000	12.95	29.63	12.73	27.24
RPW100W	31-RPW	050YR-EX-Masci	0.00	0.00	0.000	12.98	29.86	12.68	27.38
RPW100W	31-RPW	100YR-EX-Masci	0.00	0.00	0.000	13.02	30.11	12.77	27.50
RPW100W	31-RPW	500YR-EX-Masci	12.88	6.89	0.006	12.88	30.63	12.86	27.66
RPW105D	31-RPW	002YR-EX-Masci	13.80	2.62	0.001	13.80	29.27	13.07	25.41
RPW105D	31-RPW	005YR-EX-Masci	12.83	8.46	0.004	12.83	29.51	12.70	25.91
RPW105D	31-RPW	010YR-EX-Masci	12.67	14.75	0.008	12.67	29.69	12.63	26.32
RPW105D	31-RPW	025YR-EX-Masci	12.84	17.13	0.013	12.67	29.88	12.56	26.62
RPW105D	31-RPW	050YR-EX-Masci	13.00	17.63	0.013	12.71	30.07	12.53	26.80
RPW105D	31-RPW	100YR-EX-Masci	13.11	17.97	0.024	12.74	30.27	12.52	26.96
RPW105D	31-RPW	500YR-EX-Masci	13.54	17.64	0.024	12.61	30.60	12.57	27.34
RPW105W	31-RPW	002YR-EX-Masci	0.00	0.00	0.000	13.80	29.27	13.07	25.41
RPW105W	31-RPW	005YR-EX-Masci	0.00	0.00	0.000	12.83	29.51	12.70	25.91
RPW105W	31-RPW	010YR-EX-Masci	0.00	0.00	0.000	12.67	29.69	12.63	26.32
RPW105W	31-RPW	025YR-EX-Masci	0.00	0.00	0.000	12.67	29.88	12.56	26.62
RPW105W	31-RPW	050YR-EX-Masci	0.00	0.00	0.000	12.71	30.07	12.53	26.80
RPW105W	31-RPW	100YR-EX-Masci	0.00	0.00	0.000	12.74	30.27	12.52	26.96
RPW105W	31-RPW	500YR-EX-Masci	12.61	12.62	0.011	12.61	30.60	12.57	27.34
RPW110P	31-Masci	002YR-EX-Masci	12.99	57.98	0.058	12.99	25.19	14.93	24.02
RPW110P	31-Masci	005YR-EX-Masci	12.68	75.13	0.058	12.68	25.76	14.89	24.61
RPW110P	31-Masci	010YR-EX-Masci	12.62	88.04	0.058	12.62	26.20	14.99	25.04
RPW110P	31-Masci	025YR-EX-Masci	12.55	98.13	0.058	12.55	26.52	15.21	25.41
RPW110P	31-Masci	050YR-EX-Masci	12.53	104.84	0.058	12.53	26.72	15.60	25.69
RPW110P	31-Masci	100YR-EX-Masci	12.70	110.77	0.058	12.52	26.89	16.00	25.95
RPW110P	31-Masci	500YR-EX-Masci	12.59	126.57	0.058	12.56	27.27	16.85	26.45
RPW115C	31-RPW	002YR-EX-Masci	12.35	8.21	0.003	12.41	26.39	12.99	25.19
RPW115C	31-RPW	005YR-EX-Masci	12.24	12.65	-0.005	12.38	26.60	12.68	25.76
RPW115C	31-RPW	010YR-EX-Masci	12.21	15.72	-0.005	12.41	26.79	12.62	26.20
RPW115C	31-RPW	025YR-EX-Masci	12.21	18.18	0.009	12.43	26.95	12.55	26.52
RPW115C	31-RPW	050YR-EX-Masci	12.21	20.12	0.009	12.43	27.08	12.53	26.72
RPW115C	31-RPW	100YR-EX-Masci	12.23	22.00	0.010	12.44	27.20	12.52	26.89
RPW115C	31-RPW	500YR-EX-Masci	12.23	26.01	0.010	12.56	27.47	12.56	27.27
RPW120P	31-RPW	002YR-EX-Masci	12.13	3.10	-0.002	12.14	26.49	12.41	26.39
RPW120P	31-RPW	005YR-EX-Masci	12.09	3.78	0.003	12.33	26.65	12.38	26.60
RPW120P	31-RPW	010YR-EX-Masci	12.05	4.13	0.001	12.39	26.81	12.41	26.79
RPW120P	31-RPW	025YR-EX-Masci	12.03	4.35	0.001	12.42	26.97	12.43	26.95
RPW120P	31-RPW	050YR-EX-Masci	12.02	4.49	0.002	12.43	27.10	12.43	27.08
RPW120P	31-RPW	100YR-EX-Masci	12.88	4.69	0.002	12.45	27.21	12.44	27.20
RPW120P	31-RPW	500YR-EX-Masci	13.07	6.50	0.002	12.57	27.48	12.56	27.47
RPW120W	31-RPW	002YR-EX-Masci	12.14	0.23	0.000	12.14	26.49	12.41	26.39
RPW120W	31-RPW	005YR-EX-Masci	12.25	0.84	-0.001	12.33	26.65	12.38	26.60
RPW120W	31-RPW	010YR-EX-Masci	12.15	1.40	0.001	12.39	26.81	12.41	26.79
RPW120W	31-RPW	025YR-EX-Masci	12.12	1.84	0.002	12.42	26.97	12.43	26.95
RPW120W	31-RPW	050YR-EX-Masci	12.09	2.12	0.002	12.43	27.10	12.43	27.08
RPW120W	31-RPW	100YR-EX-Masci	12.86	2.49	0.002	12.45	27.21	12.44	27.20
RPW120W	31-RPW	500YR-EX-Masci	13.09	4.34	0.002	12.57	27.48	12.56	27.47
RPW125C1	31-RPW	002YR-EX-Masci	12.23	1.11	0.000	12.23	26.83	12.14	26.49
RPW125C1	31-RPW	005YR-EX-Masci	12.20	1.53	-0.001	12.23	26.92	12.33	26.65
RPW125C1	31-RPW	010YR-EX-Masci	12.17	1.83	-0.001	12.37	27.01	12.39	26.81
RPW125C1	31-RPW	025YR-EX-Masci	12.80	2.25	0.001	12.47	27.10	12.42	26.97
RPW125C1	31-RPW	050YR-EX-Masci	12.91	3.57	0.002	12.71	27.21	12.43	27.10
RPW125C1	31-RPW	100YR-EX-Masci	12.98	5.26	0.002	12.75	27.34	12.45	27.21
RPW125C1	31-RPW	500YR-EX-Masci	13.17	9.11	0.003	12.85	27.62	12.57	27.48
RPW125C2	31-RPW	002YR-EX-Masci	12.23	1.43	0.000	12.23	26.83	12.84	26.34
RPW125C2	31-RPW	005YR-EX-Masci	12.24	2.05	-0.001	12.23	26.92	12.72	26.73
RPW125C2	31-RPW	010YR-EX-Masci	12.18	2.57	-0.001	12.37	27.01	12.67	26.91
RPW125C2	31-RPW	025YR-EX-Masci	12.13	2.97	0.002	12.47	27.10	12.67	27.08
RPW125C2	31-RPW	050YR-EX-Masci	12.11	3.23	-0.071	12.71	27.21	12.72	27.21
RPW125C2	31-RPW	100YR-EX-Masci	12.08	3.42	-0.098	12.75	27.34	12.79	27.35
RPW125C2	31-RPW	500YR-EX-Masci	12.03	3.61	-0.096	12.85	27.62	12.89	27.66
RPW130P	31-RPW	002YR-EX-Masci	12.23	2.89	-0.004	12.84	26.34	12.84	26.33
RPW130P	31-RPW	005YR-EX-Masci	12.22	4.12	-0.065	12.72	26.73	12.72	26.72
RPW130P	31-RPW	010YR-EX-Masci	12.17	5.08	-0.084	12.67	26.91	12.66	26.91
RPW130P	31-RPW	025YR-EX-Masci	12.10	5.65	-0.011	12.67	27.08	12.67	27.08
RPW130P	31-RPW	050YR-EX-Masci	12.05	5.89	0.421	12.72	27.21	12.72	27.21
RPW130P	31-RPW	100YR-EX-Masci	12.01	5.98	-0.440	12.79	27.35	12.79	27.35
RPW130P	31-RPW	500YR-EX-Masci	11.90	5.57	-0.320	12.89	27.66	12.90	27.67
RPW130W	31-RPW	002YR-EX-Masci	0.00	0.00	0.000	12.84	26.34	12.84	26.33
RPW130W	31-RPW	005YR-EX-Masci	12.62	0.35	-0.031	12.72	26.73	12.72	26.72
RPW130W	31-RPW	010YR-EX-Masci	12.46	0.83	-0.075	12.67	26.91	12.66	26.91
RPW130W	31-RPW	025YR-EX-Masci	12.32	1.44	0.006	12.67	27.08	12.67	27.08

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Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
RPW130W	31-RPW	050YR-EX-Masci	12.26	1.94	-0.109	12.72	27.21	12.72	27.21
RPW130W	31-RPW	100YR-EX-Masci	12.21	2.43	-0.112	12.79	27.35	12.79	27.35
RPW130W	31-RPW	500YR-EX-Masci	12.12	3.74	-0.058	12.89	27.66	12.90	27.67
RPW135C	31-RPW	002YR-EX-Masci	12.10	2.53	0.042	12.84	26.33	12.84	26.33
RPW135C	31-RPW	005YR-EX-Masci	12.77	3.90	2.930	12.72	26.72	12.72	26.72
RPW135C	31-RPW	010YR-EX-Masci	12.66	4.21	-2.943	12.66	26.91	12.68	26.91
RPW135C	31-RPW	025YR-EX-Masci	12.10	4.60	0.720	12.67	27.08	12.67	27.07
RPW135C	31-RPW	050YR-EX-Masci	12.05	4.96	4.373	12.72	27.21	12.72	27.21
RPW135C	31-RPW	100YR-EX-Masci	12.01	5.14	-4.568	12.79	27.35	12.79	27.35
RPW135C	31-RPW	500YR-EX-Masci	12.12	5.69	-1.079	12.90	27.67	12.90	27.67
RPW140P	31-RPW	002YR-EX-Masci	12.84	44.48	-0.038	12.84	26.33	12.80	24.02
RPW140P	31-RPW	005YR-EX-Masci	12.72	49.74	0.040	12.72	26.72	14.88	24.60
RPW140P	31-RPW	010YR-EX-Masci	13.01	53.65	0.042	12.68	26.91	14.98	25.03
RPW140P	31-RPW	025YR-EX-Masci	12.79	56.83	0.045	12.67	27.07	15.21	25.39
RPW140P	31-RPW	050YR-EX-Masci	12.72	58.45	0.045	12.72	27.21	15.59	25.68
RPW140P	31-RPW	100YR-EX-Masci	12.63	59.75	0.045	12.79	27.35	16.00	25.94
RPW140P	31-RPW	500YR-EX-Masci	12.40	61.18	0.044	12.90	27.67	16.85	26.44
RPW145D	31-RPW	002YR-EX-Masci	20.09	0.26	0.000	20.09	28.80	13.24	27.40
RPW145D	31-RPW	005YR-EX-Masci	16.86	0.48	0.000	16.86	29.12	13.07	27.46
RPW145D	31-RPW	010YR-EX-Masci	14.66	0.92	0.000	14.66	29.31	12.99	27.50
RPW145D	31-RPW	025YR-EX-Masci	13.76	1.45	0.001	13.76	29.49	12.92	27.54
RPW145D	31-RPW	050YR-EX-Masci	13.42	1.95	0.001	13.42	29.64	12.87	27.57
RPW145D	31-RPW	100YR-EX-Masci	13.29	2.28	0.001	13.29	29.80	12.86	27.59
RPW145D	31-RPW	500YR-EX-Masci	13.80	2.77	0.001	13.37	30.20	12.96	27.68
RPW145W	31-RPW	002YR-EX-Masci	0.00	0.00	0.000	20.09	28.80	13.24	27.40
RPW145W	31-RPW	005YR-EX-Masci	0.00	0.00	0.000	16.86	29.12	13.07	27.46
RPW145W	31-RPW	010YR-EX-Masci	0.00	0.00	0.000	14.66	29.31	12.99	27.50
RPW145W	31-RPW	025YR-EX-Masci	0.00	0.00	0.000	13.76	29.49	12.92	27.54
RPW145W	31-RPW	050YR-EX-Masci	0.00	0.00	0.000	13.42	29.64	12.87	27.57
RPW145W	31-RPW	100YR-EX-Masci	0.00	0.00	0.000	13.29	29.80	12.86	27.59
RPW145W	31-RPW	500YR-EX-Masci	0.00	0.00	0.000	13.37	30.20	12.96	27.68
RPW150W	31-RPW	002YR-EX-Masci	0.00	0.00	0.000	13.24	27.40	12.84	26.34
RPW150W	31-RPW	005YR-EX-Masci	0.00	0.00	0.000	13.07	27.46	12.76	26.72
RPW150W	31-RPW	010YR-EX-Masci	12.99	0.07	0.000	12.99	27.50	12.66	26.91
RPW150W	31-RPW	025YR-EX-Masci	12.92	3.46	0.004	12.92	27.54	12.68	27.07
RPW150W	31-RPW	050YR-EX-Masci	12.87	7.64	0.006	12.87	27.57	12.72	27.21
RPW150W	31-RPW	100YR-EX-Masci	12.86	12.85	0.008	12.86	27.59	12.79	27.35
RPW150W	31-RPW	500YR-EX-Masci	13.19	31.30	0.012	12.96	27.68	12.91	27.66
RPW150W2	31-RPW	002YR-EX-Masci	13.24	41.43	0.006	13.24	27.40	13.25	26.84
RPW150W2	31-RPW	005YR-EX-Masci	13.07	62.00	0.022	13.07	27.46	12.94	27.02
RPW150W2	31-RPW	010YR-EX-Masci	12.99	79.23	0.026	12.99	27.50	12.83	27.16
RPW150W2	31-RPW	025YR-EX-Masci	12.92	94.16	0.029	12.92	27.54	12.87	27.30
RPW150W2	31-RPW	050YR-EX-Masci	12.87	105.88	0.028	12.87	27.57	12.85	27.42
RPW150W2	31-RPW	100YR-EX-Masci	13.03	113.04	0.031	12.86	27.59	12.84	27.51
RPW150W2	31-RPW	500YR-EX-Masci	12.28	102.98	-0.139	12.96	27.68	12.95	27.65
RPW150W3	31-RPW	002YR-EX-Masci	0.00	0.00	0.000	13.24	27.40	12.51	26.72
RPW150W3	31-RPW	005YR-EX-Masci	13.07	4.71	0.005	13.07	27.46	12.89	26.94
RPW150W3	31-RPW	010YR-EX-Masci	12.99	11.23	0.008	12.99	27.50	12.79	27.03
RPW150W3	31-RPW	025YR-EX-Masci	12.92	17.73	0.009	12.92	27.54	12.88	27.18
RPW150W3	31-RPW	050YR-EX-Masci	12.87	23.22	0.010	12.87	27.57	12.88	27.31
RPW150W3	31-RPW	100YR-EX-Masci	12.86	29.25	0.013	12.86	27.59	12.87	27.42
RPW150W3	31-RPW	500YR-EX-Masci	12.96	52.99	0.014	12.96	27.68	12.95	27.59
RPW155C	31-RPW	002YR-EX-Masci	11.91	6.54	1.995	12.37	26.52	12.38	26.52
RPW155C	31-RPW	005YR-EX-Masci	11.79	6.35	1.916	12.38	26.59	12.70	26.66
RPW155C	31-RPW	010YR-EX-Masci	11.72	6.06	1.806	12.60	26.65	12.66	26.87
RPW155C	31-RPW	025YR-EX-Masci	11.66	5.50	1.748	12.55	26.68	12.68	27.05
RPW155C	31-RPW	050YR-EX-Masci	11.61	4.86	1.696	12.66	26.70	12.72	27.19
RPW155C	31-RPW	100YR-EX-Masci	11.01	4.37	1.721	12.80	26.76	12.80	27.33
RPW155C	31-RPW	500YR-EX-Masci	18.01	11.59	1.727	15.06	27.29	12.91	27.64
RPW155W	31-RPW	002YR-EX-Masci	12.37	12.68	0.015	12.37	26.52	14.83	24.16
RPW155W	31-RPW	005YR-EX-Masci	12.38	32.50	0.037	12.38	26.59	14.70	24.88
RPW155W	31-RPW	010YR-EX-Masci	12.60	53.68	0.045	12.60	26.65	14.63	25.46
RPW155W	31-RPW	025YR-EX-Masci	12.55	70.16	0.062	12.55	26.68	14.48	25.95
RPW155W	31-RPW	050YR-EX-Masci	12.66	83.94	0.058	12.66	26.70	14.66	26.34
RPW155W	31-RPW	100YR-EX-Masci	12.75	104.57	0.111	12.75	26.74	14.94	26.68
RPW155W	31-RPW	500YR-EX-Masci	12.88	165.21	0.891	15.06	27.29	15.08	27.29
RPW155W2	31-RPW	002YR-EX-Masci	0.00	0.00	0.000	12.37	26.52	12.51	26.72
RPW155W2	31-RPW	005YR-EX-Masci	0.00	0.00	0.000	12.38	26.59	12.89	26.94
RPW155W2	31-RPW	010YR-EX-Masci	0.00	0.00	0.000	12.60	26.65	12.79	27.03
RPW155W2	31-RPW	025YR-EX-Masci	0.00	0.00	-0.001	12.55	26.68	12.88	27.18
RPW155W2	31-RPW	050YR-EX-Masci	0.00	0.00	-0.005	12.66	26.70	12.88	27.31

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Singhofen & Associates, Inc.

Stormwater Management Master Plan
Existing Conditions - Link Max Comparison Report

Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
RPW155W2	31-RPW	100YR-EX-Masci	0.00	0.00	-0.010	12.75	26.74	12.87	27.42
RPW155W2	31-RPW	500YR-EX-Masci	0.00	0.00	-0.022	15.06	27.29	12.95	27.59
RPW160P	31-RPW	002YR-EX-Masci	11.97	10.01	0.264	12.38	26.52	12.70	26.48
RPW160P	31-RPW	005YR-EX-Masci	11.83	9.70	0.236	12.70	26.66	12.70	26.71
RPW160P	31-RPW	010YR-EX-Masci	11.76	9.04	-0.287	12.66	26.87	12.66	26.88
RPW160P	31-RPW	025YR-EX-Masci	11.70	8.30	-0.293	12.68	27.05	12.68	27.06
RPW160P	31-RPW	050YR-EX-Masci	11.69	7.87	-0.297	12.72	27.19	12.72	27.20
RPW160P	31-RPW	100YR-EX-Masci	11.64	7.59	-0.308	12.80	27.33	12.80	27.33
RPW160P	31-RPW	500YR-EX-Masci	11.47	7.17	-0.304	12.91	27.64	12.91	27.64
RPW160W	31-RPW	002YR-EX-Masci	0.00	0.00	0.000	12.38	26.52	12.70	26.48
RPW160W	31-RPW	005YR-EX-Masci	12.19	0.42	-0.093	12.70	26.66	12.70	26.71
RPW160W	31-RPW	010YR-EX-Masci	12.06	1.09	-0.071	12.66	26.87	12.66	26.88
RPW160W	31-RPW	025YR-EX-Masci	11.99	1.27	-0.098	12.68	27.05	12.68	27.06
RPW160W	31-RPW	050YR-EX-Masci	11.94	1.23	-0.117	12.72	27.19	12.72	27.20
RPW160W	31-RPW	100YR-EX-Masci	15.86	3.25	-0.202	12.80	27.33	12.80	27.33
RPW160W	31-RPW	500YR-EX-Masci	17.36	13.61	1.206	12.91	27.64	12.91	27.64
RPW165C	31-RPW	002YR-EX-Masci	11.96	17.49	0.963	12.70	26.48	12.70	26.48
RPW165C	31-RPW	005YR-EX-Masci	13.61	19.55	28.422	12.70	26.71	12.70	26.71
RPW165C	31-RPW	010YR-EX-Masci	14.03	19.55	-20.547	12.66	26.88	12.66	26.88
RPW165C	31-RPW	025YR-EX-Masci	14.23	17.49	-20.997	12.68	27.06	12.68	27.06
RPW165C	31-RPW	050YR-EX-Masci	11.77	16.62	-18.704	12.72	27.20	12.72	27.20
RPW165C	31-RPW	100YR-EX-Masci	11.73	15.99	-5.202	12.80	27.33	12.80	27.34
RPW165C	31-RPW	500YR-EX-Masci	17.35	16.98	4.422	12.91	27.64	12.91	27.65
RPW170P	31-RPW	002YR-EX-Masci	12.13	21.06	-1.008	12.70	26.48	12.84	26.34
RPW170P	31-RPW	005YR-EX-Masci	12.02	22.32	-2.373	12.70	26.71	12.72	26.72
RPW170P	31-RPW	010YR-EX-Masci	11.95	22.21	-1.184	12.66	26.88	12.68	26.91
RPW170P	31-RPW	025YR-EX-Masci	11.91	21.87	0.960	12.68	27.06	12.68	27.07
RPW170P	31-RPW	050YR-EX-Masci	11.88	21.48	0.930	12.72	27.20	12.72	27.21
RPW170P	31-RPW	100YR-EX-Masci	11.84	21.01	0.566	12.80	27.34	12.79	27.35
RPW170P	31-RPW	500YR-EX-Masci	11.77	19.59	-0.321	12.91	27.65	12.91	27.66
RPW170W	31-RPW	002YR-EX-Masci	0.00	0.00	0.000	12.70	26.48	12.84	26.34
RPW170W	31-RPW	005YR-EX-Masci	12.58	0.03	-0.029	12.70	26.71	12.72	26.72
RPW170W	31-RPW	010YR-EX-Masci	12.35	1.93	-0.342	12.66	26.88	12.68	26.91
RPW170W	31-RPW	025YR-EX-Masci	12.25	6.60	-0.197	12.68	27.06	12.68	27.07
RPW170W	31-RPW	050YR-EX-Masci	12.18	11.38	-0.160	12.72	27.20	12.72	27.21
RPW170W	31-RPW	100YR-EX-Masci	12.13	15.82	-0.261	12.80	27.34	12.79	27.35
RPW170W	31-RPW	500YR-EX-Masci	12.03	20.88	0.364	12.91	27.65	12.91	27.66
RPW175C	31-RPW	002YR-EX-Masci	12.92	57.82	-36.608	12.84	26.34	12.84	26.34
RPW175C	31-RPW	005YR-EX-Masci	13.30	57.00	78.563	12.72	26.72	12.76	26.72
RPW175C	31-RPW	010YR-EX-Masci	14.04	54.96	63.449	12.68	26.91	12.66	26.91
RPW175C	31-RPW	025YR-EX-Masci	14.23	50.86	62.271	12.68	27.07	12.68	27.07
RPW175C	31-RPW	050YR-EX-Masci	14.87	41.01	-30.116	12.72	27.21	12.72	27.21
RPW175C	31-RPW	100YR-EX-Masci	12.02	36.44	-13.538	12.79	27.35	12.79	27.35
RPW175C	31-RPW	500YR-EX-Masci	12.02	38.25	-5.450	12.91	27.66	12.91	27.66
RPW180C	31-RPW	002YR-EX-Masci	12.09	18.41	1.386	12.84	26.34	12.84	26.33
RPW180C	31-RPW	005YR-EX-Masci	12.00	19.78	16.366	12.76	26.72	12.72	26.72
RPW180C	31-RPW	010YR-EX-Masci	12.00	20.12	-16.880	12.66	26.91	12.68	26.91
RPW180C	31-RPW	025YR-EX-Masci	11.92	20.29	-12.514	12.68	27.07	12.68	27.07
RPW180C	31-RPW	050YR-EX-Masci	11.91	20.35	-12.421	12.72	27.21	12.72	27.21
RPW180C	31-RPW	100YR-EX-Masci	11.84	20.38	-6.505	12.79	27.35	12.79	27.35
RPW180C	31-RPW	500YR-EX-Masci	17.00	22.20	2.833	12.91	27.66	12.90	27.67
RPW185P	31-RPW	002YR-EX-Masci	0.00	14.27	14.267	0.00	26.22	12.99	25.19
RPW185P	31-RPW	005YR-EX-Masci	0.00	14.27	14.267	0.00	26.22	12.68	25.76
RPW185P	31-RPW	010YR-EX-Masci	0.00	14.27	14.267	12.46	26.34	12.62	26.20
RPW185P	31-RPW	025YR-EX-Masci	0.00	14.27	14.267	12.35	26.83	12.55	26.52
RPW185P	31-RPW	050YR-EX-Masci	0.00	14.27	14.267	12.36	27.17	12.53	26.72
RPW185P	31-RPW	100YR-EX-Masci	0.00	14.27	14.267	12.40	27.40	12.52	26.89
RPW185P	31-RPW	500YR-EX-Masci	0.00	14.27	14.267	12.51	27.78	12.56	27.27
RPW185W	31-RPW	002YR-EX-Masci	0.00	0.00	0.000	0.00	26.22	12.99	25.19
RPW185W	31-RPW	005YR-EX-Masci	0.00	0.00	0.000	0.00	26.22	12.68	25.76
RPW185W	31-RPW	010YR-EX-Masci	0.00	0.00	0.000	12.46	26.34	12.62	26.20
RPW185W	31-RPW	025YR-EX-Masci	0.00	0.00	0.000	12.35	26.83	12.55	26.52
RPW185W	31-RPW	050YR-EX-Masci	0.00	0.00	0.000	12.36	27.17	12.53	26.72
RPW185W	31-RPW	100YR-EX-Masci	0.00	0.00	0.000	12.40	27.40	12.52	26.89
RPW185W	31-RPW	500YR-EX-Masci	0.00	0.00	0.000	12.51	27.78	12.56	27.27
RPW190P	31-RPW	002YR-EX-Masci	12.08	2.67	0.022	12.08	26.01	13.07	25.41
RPW190P	31-RPW	005YR-EX-Masci	12.08	3.87	-0.243	12.08	26.20	12.70	25.91
RPW190P	31-RPW	010YR-EX-Masci	12.08	4.92	-0.022	12.08	26.36	12.63	26.32
RPW190P	31-RPW	025YR-EX-Masci	12.07	5.89	-0.435	12.47	26.72	12.56	26.62
RPW190P	31-RPW	050YR-EX-Masci	12.05	6.70	0.094	12.39	26.97	12.53	26.80
RPW190P	31-RPW	100YR-EX-Masci	11.99	7.05	0.083	12.39	27.19	12.52	26.96

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Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
RPW190P	31-RPW	500YR-EX-Masci	11.97	6.87	0.025	12.49	27.59	12.57	27.34
RPW190W	31-RPW	002YR-EX-Masci	0.00	0.00	0.000	12.08	26.01	13.07	25.41
RPW190W	31-RPW	005YR-EX-Masci	0.00	0.00	0.000	12.08	26.20	12.70	25.91
RPW190W	31-RPW	010YR-EX-Masci	0.00	0.00	0.000	12.08	26.36	12.63	26.32
RPW190W	31-RPW	025YR-EX-Masci	0.00	0.00	0.000	12.47	26.72	12.56	26.62
RPW190W	31-RPW	050YR-EX-Masci	0.00	0.00	0.000	12.39	26.97	12.53	26.80
RPW190W	31-RPW	100YR-EX-Masci	0.00	0.00	0.000	12.39	27.19	12.52	26.96
RPW190W	31-RPW	500YR-EX-Masci	0.00	0.00	0.000	12.49	27.59	12.57	27.34
RPW195P	31-RPW	002YR-EX-Masci	13.81	19.02	-0.793	12.51	26.72	12.44	25.52
RPW195P	31-RPW	005YR-EX-Masci	14.70	18.03	-0.791	12.89	26.94	12.92	26.29
RPW195P	31-RPW	010YR-EX-Masci	15.17	15.52	-0.784	12.79	27.03	12.88	26.89
RPW195P	31-RPW	025YR-EX-Masci	11.93	15.37	-0.783	12.88	27.18	12.88	27.16
RPW195P	31-RPW	050YR-EX-Masci	11.89	15.37	-0.784	12.88	27.31	12.88	27.29
RPW195P	31-RPW	100YR-EX-Masci	11.85	15.39	-0.783	12.87	27.42	12.87	27.40
RPW195P	31-RPW	500YR-EX-Masci	11.77	15.49	-0.787	12.95	27.59	12.96	27.58
RPW195W	31-RPW	002YR-EX-Masci	12.51	6.91	0.005	12.51	26.72	12.44	25.52
RPW195W	31-RPW	005YR-EX-Masci	12.89	62.93	0.059	12.89	26.94	12.92	26.29
RPW195W	31-RPW	010YR-EX-Masci	12.79	120.99	0.082	12.79	27.03	12.88	26.89
RPW195W	31-RPW	025YR-EX-Masci	12.94	150.19	0.095	12.88	27.18	12.88	27.16
RPW195W	31-RPW	050YR-EX-Masci	12.87	165.39	0.121	12.88	27.31	12.88	27.29
RPW195W	31-RPW	100YR-EX-Masci	12.80	175.87	-0.152	12.87	27.42	12.87	27.40
RPW195W	31-RPW	500YR-EX-Masci	12.78	187.12	-0.260	12.95	27.59	12.96	27.58
RPW200C	31-RPW	002YR-EX-Masci	12.44	39.48	0.014	12.44	25.52	14.80	24.28
RPW200C	31-RPW	005YR-EX-Masci	12.92	86.01	0.044	12.92	26.29	14.66	25.04
RPW200C	31-RPW	010YR-EX-Masci	12.88	139.06	0.066	12.88	26.89	14.56	25.63
RPW200C	31-RPW	025YR-EX-Masci	12.95	169.61	0.070	12.88	27.16	14.39	26.12
RPW200C	31-RPW	050YR-EX-Masci	12.88	186.38	0.084	12.88	27.29	14.52	26.50
RPW200C	31-RPW	100YR-EX-Masci	12.80	199.14	0.099	12.87	27.40	14.82	26.82
RPW200C	31-RPW	500YR-EX-Masci	12.60	216.58	0.106	12.96	27.58	15.01	27.39
RS05-C	RI	002YR-EX-Masci	19.38	98.99	5.399	14.88	24.45	14.88	24.45
RS05-C	RI	005YR-EX-Masci	19.39	134.22	66.760	14.80	25.40	14.80	25.39
RS05-C	RI	010YR-EX-Masci	21.38	159.70	71.263	14.81	26.16	14.81	26.16
RS05-C	RI	025YR-EX-Masci	23.43	174.97	-5.808	14.83	26.75	14.83	26.75
RS05-C	RI	050YR-EX-Masci	24.00	180.07	4.431	14.91	27.09	14.91	27.09
RS05-C	RI	100YR-EX-Masci	24.00	173.88	4.431	14.97	27.37	14.97	27.37
RS05-C	RI	500YR-EX-Masci	24.00	138.00	4.431	15.23	27.88	15.23	27.88
RS10-P	RS	002YR-EX-Masci	19.48	96.90	-0.677	15.72	24.74	14.88	24.45
RS10-P	RS	005YR-EX-Masci	19.49	131.12	-0.677	15.91	25.89	14.80	25.40
RS10-P	RS	010YR-EX-Masci	21.55	156.80	-0.677	15.86	26.69	14.81	26.16
RS10-P	RS	025YR-EX-Masci	23.69	172.27	-0.677	16.24	27.30	14.83	26.75
RS10-P	RS	050YR-EX-Masci	24.00	176.95	0.982	16.40	27.70	14.91	27.09
RS10-P	RS	100YR-EX-Masci	24.00	169.87	-0.677	15.97	27.98	14.97	27.37
RS10-P	RS	500YR-EX-Masci	24.00	132.95	-0.677	14.89	28.40	15.23	27.88
RS10-W	RS	002YR-EX-Masci	0.00	0.00	0.000	15.72	24.74	14.88	24.45
RS10-W	RS	005YR-EX-Masci	0.00	0.00	0.000	15.91	25.89	14.80	25.40
RS10-W	RS	010YR-EX-Masci	0.00	0.00	0.000	15.86	26.69	14.81	26.16
RS10-W	RS	025YR-EX-Masci	0.00	0.00	0.000	16.24	27.30	14.83	26.75
RS10-W	RS	050YR-EX-Masci	0.00	0.00	0.000	16.40	27.70	14.91	27.09
RS10-W	RS	100YR-EX-Masci	0.00	0.00	0.000	15.97	27.98	14.97	27.37
RS10-W	RS	500YR-EX-Masci	0.00	0.00	0.000	14.89	28.40	15.23	27.88
RS15-C	RS	002YR-EX-Masci	19.72	84.05	-3.715	15.73	24.74	15.72	24.74
RS15-C	RS	005YR-EX-Masci	19.28	112.86	-4.085	15.92	25.89	15.91	25.89
RS15-C	RS	010YR-EX-Masci	21.49	139.00	-4.554	15.86	26.69	15.86	26.69
RS15-C	RS	025YR-EX-Masci	24.00	155.50	-2.682	16.24	27.30	16.24	27.30
RS15-C	RS	050YR-EX-Masci	24.00	158.72	-2.684	16.40	27.70	16.40	27.70
RS15-C	RS	100YR-EX-Masci	24.00	149.91	-2.684	15.98	27.98	15.97	27.98
RS15-C	RS	500YR-EX-Masci	24.00	113.21	-2.703	14.89	28.40	14.89	28.40
RS20-P	RS	002YR-EX-Masci	19.87	78.74	0.548	15.95	24.99	15.73	24.74
RS20-P	RS	005YR-EX-Masci	19.23	105.37	0.707	16.22	26.33	15.92	25.89
RS20-P	RS	010YR-EX-Masci	21.46	131.74	0.728	16.62	27.14	15.86	26.69
RS20-P	RS	025YR-EX-Masci	24.00	148.66	-0.577	17.18	27.78	16.24	27.30
RS20-P	RS	050YR-EX-Masci	24.00	151.34	-0.583	16.83	28.17	16.40	27.70
RS20-P	RS	100YR-EX-Masci	24.00	141.86	-0.577	15.97	28.34	15.98	27.98
RS20-P	RS	500YR-EX-Masci	24.00	105.68	0.580	15.30	28.58	14.89	28.40
RS20-W	RS	002YR-EX-Masci	0.00	0.00	0.000	15.95	24.99	15.73	24.74
RS20-W	RS	005YR-EX-Masci	0.00	0.00	0.000	16.22	26.33	15.92	25.89
RS20-W	RS	010YR-EX-Masci	0.00	0.00	0.000	16.62	27.14	15.86	26.69
RS20-W	RS	025YR-EX-Masci	0.00	0.00	0.000	17.18	27.78	16.24	27.30
RS20-W	RS	050YR-EX-Masci	0.00	0.00	0.000	16.83	28.17	16.40	27.70
RS20-W	RS	100YR-EX-Masci	0.00	0.00	0.000	15.97	28.34	15.98	27.98
RS20-W	RS	500YR-EX-Masci	0.00	0.00	0.000	15.30	28.58	14.89	28.40

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Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
RS25-C	RS	002YR-EX-Masci	19.83	75.67	-4.795	15.95	24.99	15.95	24.99
RS25-C	RS	005YR-EX-Masci	19.01	101.26	-5.065	16.22	26.33	16.22	26.33
RS25-C	RS	010YR-EX-Masci	21.22	127.67	-3.770	16.62	27.15	16.62	27.14
RS25-C	RS	025YR-EX-Masci	24.00	144.94	-3.765	17.18	27.78	17.18	27.78
RS25-C	RS	050YR-EX-Masci	24.00	147.88	-3.774	16.83	28.17	16.83	28.17
RS25-C	RS	100YR-EX-Masci	24.00	139.00	-3.772	15.97	28.34	15.97	28.34
RS25-C	RS	500YR-EX-Masci	12.48	107.68	-3.917	15.30	28.58	15.30	28.58
RS30-P	RS	002YR-EX-Masci	20.21	66.23	0.572	16.15	25.11	15.95	24.99
RS30-P	RS	005YR-EX-Masci	21.96	83.13	0.636	16.26	26.37	16.22	26.33
RS30-P	RS	010YR-EX-Masci	24.00	57.48	0.632	16.69	27.18	16.62	27.15
RS30-P	RS	025YR-EX-Masci	24.00	41.29	-0.683	17.30	27.82	17.18	27.78
RS30-P	RS	050YR-EX-Masci	24.00	38.50	-0.678	16.88	28.20	16.83	28.17
RS30-P	RS	100YR-EX-Masci	24.00	35.95	-0.796	16.04	28.36	15.97	28.34
RS30-P	RS	500YR-EX-Masci	24.00	28.46	-0.957	15.51	28.58	15.30	28.58
RS30-W	RS	002YR-EX-Masci	0.00	0.00	0.000	16.15	25.11	15.95	24.99
RS30-W	RS	005YR-EX-Masci	17.71	44.85	0.015	16.26	26.37	16.22	26.33
RS30-W	RS	010YR-EX-Masci	20.71	72.02	0.027	16.69	27.18	16.62	27.15
RS30-W	RS	025YR-EX-Masci	24.00	88.32	-0.016	17.30	27.82	17.18	27.78
RS30-W	RS	050YR-EX-Masci	24.00	92.82	0.654	16.88	28.20	16.83	28.17
RS30-W	RS	100YR-EX-Masci	24.00	86.46	0.935	16.04	28.36	15.97	28.34
RS30-W	RS	500YR-EX-Masci	24.00	59.12	1.404	15.51	28.58	15.30	28.58
RS30-W2	RS	002YR-EX-Masci	0.00	0.00	0.000	16.15	25.11	15.13	23.95
RS30-W2	RS	005YR-EX-Masci	0.00	0.00	0.000	16.26	26.37	15.04	24.56
RS30-W2	RS	010YR-EX-Masci	0.00	0.00	0.000	16.69	27.18	15.35	25.11
RS30-W2	RS	025YR-EX-Masci	0.00	0.00	0.000	17.30	27.82	15.89	25.76
RS30-W2	RS	050YR-EX-Masci	16.88	49.74	0.007	16.88	28.20	16.35	26.25
RS30-W2	RS	100YR-EX-Masci	16.04	125.25	0.022	16.04	28.36	16.23	26.59
RS30-W2	RS	500YR-EX-Masci	15.51	275.46	0.070	15.51	28.58	16.75	27.11
RS30-W3	RS	002YR-EX-Masci	0.00	0.00	0.000	16.15	25.11	15.83	27.82
RS30-W3	RS	005YR-EX-Masci	0.00	0.00	0.000	16.26	26.37	15.95	27.95
RS30-W3	RS	010YR-EX-Masci	0.00	0.00	-0.001	16.69	27.18	16.07	28.06
RS30-W3	RS	025YR-EX-Masci	0.00	0.00	-0.005	17.30	27.82	16.15	28.17
RS30-W3	RS	050YR-EX-Masci	19.19	7.08	0.026	16.88	28.20	16.20	28.26
RS30-W3	RS	100YR-EX-Masci	19.72	14.57	0.050	16.04	28.36	16.38	28.37
RS30-W3	RS	500YR-EX-Masci	14.40	96.48	-0.233	15.51	28.58	16.35	28.61
RW105C	31-RW	002YR-EX-Masci	13.00	47.50	0.010	14.83	24.45	14.88	24.44
RW105C	31-RW	005YR-EX-Masci	12.65	82.22	0.045	14.78	25.39	14.79	25.39
RW105C	31-RW	010YR-EX-Masci	12.58	107.36	-0.146	14.80	26.16	14.81	26.15
RW105C	31-RW	025YR-EX-Masci	12.59	130.64	-1.050	14.82	26.74	14.83	26.74
RW105C	31-RW	050YR-EX-Masci	12.61	153.43	-18.811	14.90	27.09	14.90	27.08
RW105C	31-RW	100YR-EX-Masci	12.59	175.55	-27.206	14.96	27.37	14.96	27.37
RW105C	31-RW	500YR-EX-Masci	12.53	220.23	9.365	15.23	27.87	15.23	27.87
RW110P	31-RW	002YR-EX-Masci	13.40	33.16	0.025	12.99	26.54	14.83	24.45
RW110P	31-RW	005YR-EX-Masci	12.63	34.52	0.027	12.67	26.66	14.78	25.39
RW110P	31-RW	010YR-EX-Masci	12.35	34.61	0.028	12.64	26.72	14.80	26.16
RW110P	31-RW	025YR-EX-Masci	12.23	34.57	0.024	12.71	26.76	14.82	26.74
RW110P	31-RW	050YR-EX-Masci	12.15	34.49	0.066	14.89	27.09	14.90	27.09
RW110P	31-RW	100YR-EX-Masci	12.09	34.37	0.181	14.96	27.37	14.96	27.37
RW110P	31-RW	500YR-EX-Masci	11.95	33.83	-0.133	15.23	27.87	15.23	27.87
RW110W	31-RW	002YR-EX-Masci	12.99	7.70	0.007	12.99	26.54	14.83	24.45
RW110W	31-RW	005YR-EX-Masci	12.67	34.75	0.041	12.67	26.66	14.78	25.39
RW110W	31-RW	010YR-EX-Masci	12.64	59.10	0.119	12.64	26.72	14.80	26.16
RW110W	31-RW	025YR-EX-Masci	12.71	83.71	0.120	12.71	26.76	14.82	26.74
RW110W	31-RW	050YR-EX-Masci	12.74	107.81	-0.194	14.89	27.09	14.90	27.09
RW110W	31-RW	100YR-EX-Masci	12.74	131.58	2.434	14.96	27.37	14.96	27.37
RW110W	31-RW	500YR-EX-Masci	12.67	182.39	-4.972	15.23	27.87	15.23	27.87
RW115C	31-RW	002YR-EX-Masci	13.03	34.17	0.013	12.99	26.54	12.99	26.54
RW115C	31-RW	005YR-EX-Masci	12.68	59.19	0.203	12.67	26.66	12.67	26.66
RW115C	31-RW	010YR-EX-Masci	12.61	77.99	0.317	12.64	26.73	12.64	26.72
RW115C	31-RW	025YR-EX-Masci	12.66	96.57	0.258	12.70	26.78	12.71	26.76
RW115C	31-RW	050YR-EX-Masci	12.67	115.43	3.440	14.89	27.09	14.89	27.09
RW115C	31-RW	100YR-EX-Masci	12.66	133.78	4.947	14.96	27.37	14.96	27.37
RW115C	31-RW	500YR-EX-Masci	12.60	171.71	-7.904	15.22	27.87	15.23	27.87
RW120P	31-RW	002YR-EX-Masci	15.00	13.96	-0.010	13.00	26.57	12.99	26.54
RW120P	31-RW	005YR-EX-Masci	12.13	11.07	0.398	12.68	26.69	12.67	26.66
RW120P	31-RW	010YR-EX-Masci	12.03	11.08	0.393	12.64	26.75	12.64	26.73
RW120P	31-RW	025YR-EX-Masci	11.95	11.16	0.394	12.70	26.81	12.70	26.78
RW120P	31-RW	050YR-EX-Masci	11.95	11.48	0.074	14.88	27.09	14.89	27.09
RW120P	31-RW	100YR-EX-Masci	11.89	11.94	0.130	14.96	27.37	14.96	27.37
RW120P	31-RW	500YR-EX-Masci	11.73	13.09	0.068	15.22	27.87	15.22	27.87

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Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
RW120W	31-RW	002YR-EX-Masci	13.04	25.86	0.012	13.00	26.57	12.99	26.54
RW120W	31-RW	005YR-EX-Masci	12.71	46.48	0.028	12.68	26.69	12.67	26.66
RW120W	31-RW	010YR-EX-Masci	12.64	62.18	0.056	12.64	26.75	12.64	26.73
RW120W	31-RW	025YR-EX-Masci	12.71	78.88	0.087	12.70	26.81	12.70	26.78
RW120W	31-RW	050YR-EX-Masci	12.72	95.85	-0.839	14.88	27.09	14.89	27.09
RW120W	31-RW	100YR-EX-Masci	12.71	112.11	1.844	14.96	27.37	14.96	27.37
RW120W	31-RW	500YR-EX-Masci	12.63	144.54	3.784	15.22	27.87	15.22	27.87
RW125C	31-RW	002YR-EX-Masci	13.08	22.00	-0.010	13.00	26.58	13.00	26.57
RW125C	31-RW	005YR-EX-Masci	12.73	38.39	0.101	12.68	26.70	12.68	26.69
RW125C	31-RW	010YR-EX-Masci	12.65	51.35	0.085	12.64	26.77	12.64	26.75
RW125C	31-RW	025YR-EX-Masci	12.75	66.36	0.065	12.72	26.83	12.70	26.81
RW125C	31-RW	050YR-EX-Masci	12.76	81.64	-2.618	14.88	27.09	14.88	27.09
RW125C	31-RW	100YR-EX-Masci	12.74	96.01	-3.316	14.94	27.37	14.96	27.37
RW125C	31-RW	500YR-EX-Masci	12.65	123.51	-3.343	15.21	27.86	15.22	27.87
RW130P	31-RW	002YR-EX-Masci	16.22	7.62	-0.013	13.14	26.70	13.00	26.58
RW130P	31-RW	005YR-EX-Masci	17.27	5.69	0.425	12.78	26.76	12.68	26.70
RW130P	31-RW	010YR-EX-Masci	11.74	5.17	0.360	12.67	26.81	12.64	26.77
RW130P	31-RW	025YR-EX-Masci	11.63	5.00	0.311	12.74	26.86	12.72	26.83
RW130P	31-RW	050YR-EX-Masci	11.46	4.90	0.297	14.87	27.09	14.88	27.09
RW130P	31-RW	100YR-EX-Masci	11.59	4.92	-0.031	14.94	27.37	14.94	27.37
RW130P	31-RW	500YR-EX-Masci	11.46	5.53	0.050	15.21	27.86	15.21	27.86
RW130W	31-RW	002YR-EX-Masci	13.14	14.47	0.004	13.14	26.70	13.00	26.58
RW130W	31-RW	005YR-EX-Masci	12.80	27.64	0.015	12.78	26.76	12.68	26.70
RW130W	31-RW	010YR-EX-Masci	12.72	38.16	0.030	12.67	26.81	12.64	26.77
RW130W	31-RW	025YR-EX-Masci	12.83	52.30	0.039	12.74	26.86	12.72	26.83
RW130W	31-RW	050YR-EX-Masci	12.83	66.10	-0.566	14.87	27.09	14.88	27.09
RW130W	31-RW	100YR-EX-Masci	12.81	78.71	1.623	14.94	27.37	14.94	27.37
RW130W	31-RW	500YR-EX-Masci	12.66	100.82	8.999	15.21	27.86	15.21	27.86
RW135C	31-RW	002YR-EX-Masci	13.29	13.00	-0.130	13.25	26.83	13.14	26.70
RW135C	31-RW	005YR-EX-Masci	12.94	21.95	-0.145	12.91	26.97	12.78	26.76
RW135C	31-RW	010YR-EX-Masci	12.84	29.42	-0.161	12.80	27.06	12.67	26.81
RW135C	31-RW	025YR-EX-Masci	12.91	42.43	-0.165	12.88	27.20	12.74	26.86
RW135C	31-RW	050YR-EX-Masci	12.91	54.68	-0.203	12.88	27.31	14.87	27.09
RW135C	31-RW	100YR-EX-Masci	12.89	65.66	-0.289	12.87	27.41	14.94	27.37
RW135C	31-RW	500YR-EX-Masci	12.95	88.12	47.974	14.67	27.66	15.21	27.86
RW305C	31-RW	002YR-EX-Masci	12.40	18.46	0.007	12.40	25.88	12.40	25.28
RW305C	31-RW	005YR-EX-Masci	12.40	25.56	0.010	12.40	26.07	12.40	25.44
RW305C	31-RW	010YR-EX-Masci	12.62	34.20	0.013	12.62	26.27	14.80	26.17
RW305C	31-RW	025YR-EX-Masci	12.57	41.39	0.020	14.82	26.76	14.83	26.75
RW305C	31-RW	050YR-EX-Masci	12.54	46.74	-0.961	14.91	27.10	14.91	27.10
RW305C	31-RW	100YR-EX-Masci	12.70	52.02	-1.159	14.96	27.38	14.97	27.38
RW305C	31-RW	500YR-EX-Masci	12.53	64.68	-1.392	15.24	27.87	15.23	27.88
RW310C	31-RW	002YR-EX-Masci	12.41	13.38	0.003	12.41	26.19	12.40	25.88
RW310C	31-RW	005YR-EX-Masci	12.79	20.15	0.004	12.76	26.41	12.40	26.07
RW310C	31-RW	010YR-EX-Masci	12.70	27.19	0.006	12.68	26.61	12.62	26.27
RW310C	31-RW	025YR-EX-Masci	12.64	32.57	0.011	14.73	26.78	14.82	26.76
RW310C	31-RW	050YR-EX-Masci	12.67	36.61	-0.401	14.90	27.10	14.91	27.10
RW310C	31-RW	100YR-EX-Masci	12.75	41.24	-0.496	14.94	27.37	14.96	27.38
RW310C	31-RW	500YR-EX-Masci	12.60	50.25	-0.667	15.25	27.85	15.24	27.87
RW315C	31-RW	002YR-EX-Masci	12.35	7.88	0.002	12.38	26.40	12.41	26.19
RW315C	31-RW	005YR-EX-Masci	12.89	14.73	0.007	12.84	26.69	12.76	26.41
RW315C	31-RW	010YR-EX-Masci	12.76	19.67	0.007	12.72	26.87	12.68	26.61
RW315C	31-RW	025YR-EX-Masci	12.73	23.07	0.008	12.64	26.99	14.73	26.78
RW315C	31-RW	050YR-EX-Masci	12.87	26.67	-0.219	14.82	27.09	14.90	27.10
RW315C	31-RW	100YR-EX-Masci	12.83	30.29	-0.276	14.85	27.36	14.94	27.37
RW315C	31-RW	500YR-EX-Masci	12.75	36.60	-0.380	15.22	27.81	15.25	27.85
RW320C	31-RW	002YR-EX-Masci	13.28	3.96	0.001	12.41	26.55	12.38	26.40
RW320C	31-RW	005YR-EX-Masci	12.98	11.16	0.011	12.93	26.96	12.84	26.69
RW320C	31-RW	010YR-EX-Masci	12.91	14.60	0.012	12.81	27.11	12.72	26.87
RW320C	31-RW	025YR-EX-Masci	12.98	17.27	0.012	12.86	27.22	12.64	26.99
RW320C	31-RW	050YR-EX-Masci	12.96	20.34	-0.105	12.87	27.32	14.82	27.09
RW320C	31-RW	100YR-EX-Masci	12.91	23.18	-0.149	12.86	27.41	14.85	27.36
RW320C	31-RW	500YR-EX-Masci	12.82	29.48	-0.342	14.67	27.66	15.22	27.81
RW320W	31-RW	002YR-EX-Masci	0.00	0.00	0.000	12.41	26.55	13.25	26.83
RW320W	31-RW	005YR-EX-Masci	0.00	0.00	0.000	12.93	26.96	12.91	26.97
RW320W	31-RW	010YR-EX-Masci	0.00	0.00	0.000	12.81	27.11	12.80	27.06
RW320W	31-RW	025YR-EX-Masci	12.86	0.30	-0.000	12.86	27.22	12.88	27.20
RW320W	31-RW	050YR-EX-Masci	12.70	1.37	0.002	12.87	27.32	12.88	27.31
RW320W	31-RW	100YR-EX-Masci	12.74	2.65	0.003	12.86	27.41	12.87	27.41
RW320W	31-RW	500YR-EX-Masci	12.46	4.32	0.778	14.67	27.66	14.67	27.66
TW05P1	TW	002YR-EX-Masci	8.33	2.06	-0.036	15.70	20.03	16.14	21.01

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Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
TW05P1	TW	005YR-EX-Masci	7.62	2.43	-0.032	16.41	21.91	16.39	21.99
TW05P1	TW	010YR-EX-Masci	7.12	2.67	-0.035	16.73	22.66	16.74	22.69
TW05P1	TW	025YR-EX-Masci	6.77	2.86	-0.032	17.00	23.11	17.01	23.14
TW05P1	TW	050YR-EX-Masci	6.50	2.99	-0.035	17.30	23.43	17.27	23.45
TW05P1	TW	100YR-EX-Masci	6.26	3.11	-0.031	17.73	23.72	17.71	23.74
TW05P1	TW	500YR-EX-Masci	5.78	3.32	-0.032	18.60	24.23	18.57	24.26
TW05P2	TW	002YR-EX-Masci	15.70	23.52	0.008	15.70	20.03	15.70	19.51
TW05P2	TW	005YR-EX-Masci	16.41	131.04	0.023	16.41	21.91	14.76	21.95
TW05P2	TW	010YR-EX-Masci	16.73	172.41	17.514	16.73	22.66	13.64	21.95
TW05P2	TW	025YR-EX-Masci	17.00	201.69	17.512	17.00	23.11	13.15	21.95
TW05P2	TW	050YR-EX-Masci	17.30	219.49	-17.500	17.30	23.43	12.89	21.95
TW05P2	TW	100YR-EX-Masci	17.73	234.75	-17.486	17.73	23.72	12.70	21.95
TW05P2	TW	500YR-EX-Masci	18.60	259.77	-17.485	18.60	24.23	12.41	21.95
TW05P3	TW	002YR-EX-Masci	15.70	11.08	0.004	15.70	20.03	15.70	19.48
TW05P3	TW	005YR-EX-Masci	16.41	65.25	0.015	16.41	21.91	16.41	20.69
TW05P3	TW	010YR-EX-Masci	16.73	80.78	8.757	16.73	22.66	14.08	21.95
TW05P3	TW	025YR-EX-Masci	17.00	94.56	8.756	17.00	23.11	13.46	21.95
TW05P3	TW	050YR-EX-Masci	17.30	104.77	-8.750	17.30	23.43	13.15	21.95
TW05P3	TW	100YR-EX-Masci	17.73	114.92	-8.743	17.73	23.72	12.93	21.95
TW05P3	TW	500YR-EX-Masci	18.60	129.88	-8.743	18.60	24.23	12.60	21.95
TW05W1	TW	002YR-EX-Masci	0.00	0.00	-0.002	15.70	20.03	16.14	21.01
TW05W1	TW	005YR-EX-Masci	0.00	0.00	-0.036	16.41	21.91	16.39	21.99
TW05W1	TW	010YR-EX-Masci	0.00	0.00	-0.267	16.73	22.66	16.74	22.69
TW05W1	TW	025YR-EX-Masci	0.00	0.00	0.391	17.00	23.11	17.01	23.14
TW05W1	TW	050YR-EX-Masci	0.00	0.00	-0.289	17.30	23.43	17.27	23.45
TW05W1	TW	100YR-EX-Masci	0.00	0.00	0.292	17.73	23.72	17.71	23.74
TW05W1	TW	500YR-EX-Masci	0.00	0.00	0.240	18.60	24.23	18.57	24.26
TW10C1	TW	002YR-EX-Masci	12.53	4.69	0.001	12.70	20.80	15.70	20.03
TW10C1	TW	005YR-EX-Masci	12.47	8.57	0.491	16.41	21.91	16.41	21.91
TW10C1	TW	010YR-EX-Masci	12.44	12.39	-0.997	16.73	22.66	16.73	22.66
TW10C1	TW	025YR-EX-Masci	12.42	16.14	-0.816	17.00	23.11	17.00	23.11
TW10C1	TW	050YR-EX-Masci	12.46	19.61	-0.029	17.30	23.43	17.30	23.43
TW10C1	TW	100YR-EX-Masci	12.38	22.45	-0.018	17.73	23.72	17.73	23.72
TW10C1	TW	500YR-EX-Masci	12.29	27.50	0.016	18.60	24.23	18.60	24.23
TW20C1	TW	002YR-EX-Masci	12.76	1.64	0.000	12.76	24.24	12.66	23.35
TW20C1	TW	005YR-EX-Masci	12.70	3.05	0.001	12.69	24.38	12.56	23.55
TW20C1	TW	010YR-EX-Masci	12.68	4.49	0.002	12.65	24.48	12.50	23.70
TW20C1	TW	025YR-EX-Masci	12.92	7.46	0.002	12.92	24.66	12.58	23.83
TW20C1	TW	050YR-EX-Masci	12.86	10.29	0.003	12.85	24.79	12.68	23.95
TW20C1	TW	100YR-EX-Masci	12.80	13.14	0.004	12.80	24.91	12.73	24.02
TW20C1	TW	500YR-EX-Masci	12.71	20.07	0.006	12.71	25.15	18.67	24.24
TW20W1	TW	002YR-EX-Masci	12.84	1.47	-0.002	12.76	24.25	12.76	24.24
TW20W1	TW	005YR-EX-Masci	12.77	2.77	-0.003	12.69	24.38	12.69	24.38
TW20W1	TW	010YR-EX-Masci	12.66	4.06	-0.003	12.65	24.49	12.65	24.48
TW20W1	TW	025YR-EX-Masci	13.14	4.11	0.003	12.92	24.66	12.92	24.66
TW20W1	TW	050YR-EX-Masci	13.18	5.56	0.003	12.86	24.80	12.85	24.79
TW20W1	TW	100YR-EX-Masci	13.12	7.19	0.003	12.81	24.91	12.80	24.91
TW20W1	TW	500YR-EX-Masci	13.01	10.95	0.273	12.72	25.15	12.71	25.15
TW30C	TW	002YR-EX-Masci	12.76	0.33	0.000	12.76	24.95	12.76	23.96
TW30C	TW	005YR-EX-Masci	12.75	0.60	0.000	12.75	24.98	12.75	23.97
TW30C	TW	010YR-EX-Masci	12.72	0.89	0.000	12.72	25.01	12.72	23.97
TW30C	TW	025YR-EX-Masci	12.69	1.19	0.000	12.69	25.03	12.69	23.97
TW30C	TW	050YR-EX-Masci	12.67	1.47	0.001	12.67	25.05	12.67	23.98
TW30C	TW	100YR-EX-Masci	12.65	1.77	0.001	12.65	25.07	12.65	23.98
TW30C	TW	500YR-EX-Masci	12.62	2.51	-0.054	12.62	25.11	18.64	24.23
TW30W1	TW	002YR-EX-Masci	12.76	2.21	0.000	12.76	24.95	12.77	23.20
TW30W1	TW	005YR-EX-Masci	12.75	3.74	0.001	12.75	24.98	12.87	23.27
TW30W1	TW	010YR-EX-Masci	12.72	5.33	0.002	12.72	25.01	12.89	23.33
TW30W1	TW	025YR-EX-Masci	12.69	6.95	0.003	12.69	25.03	12.89	23.39
TW30W1	TW	050YR-EX-Masci	12.67	8.40	0.003	12.67	25.05	17.45	23.44
TW30W1	TW	100YR-EX-Masci	12.65	9.90	0.003	12.65	25.07	17.83	23.73
TW30W1	TW	500YR-EX-Masci	12.62	13.53	0.004	12.62	25.11	18.64	24.23
TW30W2	TW	002YR-EX-Masci	0.00	0.00	0.000	12.76	24.95	15.78	24.05
TW30W2	TW	005YR-EX-Masci	0.00	0.00	0.000	12.75	24.98	14.10	24.11
TW30W2	TW	010YR-EX-Masci	0.00	0.00	0.000	12.72	25.01	13.54	24.16
TW30W2	TW	025YR-EX-Masci	0.00	0.00	0.000	12.69	25.03	13.21	24.21
TW30W2	TW	050YR-EX-Masci	0.00	0.00	0.000	12.67	25.05	13.07	24.25
TW30W2	TW	100YR-EX-Masci	0.00	0.00	0.000	12.65	25.07	12.97	24.29
TW30W2	TW	500YR-EX-Masci	0.00	0.00	0.000	12.62	25.11	12.83	24.37
TW33W1	FDOT	002YR-EX-Masci	12.70	9.61	0.002	12.70	24.20	0.00	11.95
TW33W1	FDOT	005YR-EX-Masci	12.80	13.96	0.003	12.80	24.28	0.00	11.95

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Stormwater Management Master Plan
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Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
TW33W1	FDOT	010YR-EX-Masci	12.88	18.12	0.004	12.88	24.34	0.00	11.95
TW33W1	FDOT	025YR-EX-Masci	12.92	22.00	0.007	12.92	24.39	0.00	11.95
TW33W1	FDOT	050YR-EX-Masci	12.95	25.19	0.007	12.95	24.43	0.00	11.95
TW33W1	FDOT	100YR-EX-Masci	12.98	28.32	0.008	12.98	24.47	0.00	11.95
TW33W1	FDOT	500YR-EX-Masci	13.04	35.20	0.007	13.04	24.55	0.00	11.95
TW35C1	TW	002YR-EX-Masci	0.00	0.00	0.000	12.69	24.27	15.78	24.05
TW35C1	TW	005YR-EX-Masci	0.00	0.00	0.000	12.79	24.39	14.10	24.11
TW35C1	TW	010YR-EX-Masci	0.00	0.00	0.000	12.87	24.51	13.54	24.16
TW35C1	TW	025YR-EX-Masci	0.00	0.00	0.000	12.91	24.63	13.21	24.21
TW35C1	TW	050YR-EX-Masci	0.00	0.00	0.000	12.94	24.72	13.07	24.25
TW35C1	TW	100YR-EX-Masci	0.00	0.00	0.000	12.96	24.81	12.97	24.29
TW35C1	TW	500YR-EX-Masci	0.00	0.00	0.000	13.03	25.02	12.83	24.37
TW35P	FDOT	002YR-EX-Masci	12.67	9.62	0.106	12.69	24.27	12.70	24.20
TW35P	FDOT	005YR-EX-Masci	12.78	13.96	0.106	12.79	24.39	12.80	24.28
TW35P	FDOT	010YR-EX-Masci	12.86	18.12	0.106	12.87	24.51	12.88	24.34
TW35P	FDOT	025YR-EX-Masci	12.90	22.00	0.106	12.91	24.63	12.92	24.39
TW35P	FDOT	050YR-EX-Masci	12.93	25.19	0.106	12.94	24.72	12.95	24.43
TW35P	FDOT	100YR-EX-Masci	12.96	28.32	0.106	12.96	24.81	12.98	24.47
TW35P	FDOT	500YR-EX-Masci	13.02	35.20	0.106	13.03	25.02	13.04	24.55
TW35W2	TW	002YR-EX-Masci	0.00	0.00	0.000	12.69	24.27	15.78	24.05
TW35W2	TW	005YR-EX-Masci	0.00	0.00	0.000	12.79	24.39	14.10	24.11
TW35W2	TW	010YR-EX-Masci	0.00	0.00	0.000	12.87	24.51	13.54	24.16
TW35W2	TW	025YR-EX-Masci	0.00	0.00	0.000	12.91	24.63	13.21	24.21
TW35W2	TW	050YR-EX-Masci	0.00	0.00	0.000	12.94	24.72	13.07	24.25
TW35W2	TW	100YR-EX-Masci	0.00	0.00	0.000	12.96	24.81	12.97	24.29
TW35W2	TW	500YR-EX-Masci	0.00	0.00	0.000	13.03	25.02	12.83	24.37
TW45C1	TW	002YR-EX-Masci	12.67	2.87	0.001	12.66	23.35	12.70	20.80
TW45C1	TW	005YR-EX-Masci	12.58	5.58	0.002	12.56	23.55	16.41	21.91
TW45C1	TW	010YR-EX-Masci	12.53	8.36	0.003	12.50	23.70	16.73	22.66
TW45C1	TW	025YR-EX-Masci	12.70	11.56	0.006	12.58	23.83	17.00	23.11
TW45C1	TW	050YR-EX-Masci	12.80	15.77	0.006	12.68	23.95	17.30	23.43
TW45C1	TW	100YR-EX-Masci	12.88	20.05	-0.014	12.73	24.02	17.73	23.72
TW45C1	TW	500YR-EX-Masci	12.74	26.68	0.008	18.67	24.24	18.60	24.23
TW50W1	TW	002YR-EX-Masci	0.00	0.00	0.000	12.77	23.20	15.70	20.03
TW50W1	TW	005YR-EX-Masci	0.00	0.00	0.000	12.87	23.27	16.41	21.91
TW50W1	TW	010YR-EX-Masci	0.00	0.00	0.000	12.89	23.33	16.73	22.66
TW50W1	TW	025YR-EX-Masci	0.00	0.00	0.000	12.89	23.39	17.00	23.11
TW50W1	TW	050YR-EX-Masci	0.00	0.00	0.000	17.45	23.44	17.30	23.43
TW50W1	TW	100YR-EX-Masci	0.00	0.00	0.000	17.83	23.73	17.73	23.72
TW50W1	TW	500YR-EX-Masci	0.00	0.00	0.000	18.64	24.23	18.60	24.23
TW50W2	TW	002YR-EX-Masci	0.00	0.00	0.000	12.77	23.20	12.70	20.80
TW50W2	TW	005YR-EX-Masci	0.00	0.00	0.000	12.87	23.27	16.41	21.91
TW50W2	TW	010YR-EX-Masci	0.00	0.00	0.000	12.89	23.33	16.73	22.66
TW50W2	TW	025YR-EX-Masci	0.00	0.00	0.000	12.89	23.39	17.00	23.11
TW50W2	TW	050YR-EX-Masci	0.00	0.00	0.000	17.45	23.44	17.30	23.43
TW50W2	TW	100YR-EX-Masci	0.00	0.00	0.000	17.83	23.73	17.73	23.72
TW50W2	TW	500YR-EX-Masci	22.34	7.52	0.081	18.64	24.23	18.60	24.23
TW50W3	TW	002YR-EX-Masci	0.00	0.00	0.000	12.77	23.20	16.12	21.01
TW50W3	TW	005YR-EX-Masci	0.00	0.00	0.000	12.87	23.27	16.38	21.99
TW50W3	TW	010YR-EX-Masci	0.00	0.00	0.000	12.89	23.33	16.73	22.69
TW50W3	TW	025YR-EX-Masci	0.00	0.00	0.000	12.89	23.39	17.01	23.14
TW50W3	TW	050YR-EX-Masci	0.00	0.00	0.000	17.45	23.44	17.26	23.45
TW50W3	TW	100YR-EX-Masci	0.00	0.00	0.000	17.83	23.73	17.70	23.74
TW50W3	TW	500YR-EX-Masci	0.00	0.00	0.000	18.64	24.23	18.56	24.25
TW80W1	TW	002YR-EX-Masci	15.77	8.59	0.002	15.77	24.05	16.10	20.96
TW80W1	TW	005YR-EX-Masci	14.10	24.20	0.014	14.10	24.11	16.35	21.96
TW80W1	TW	010YR-EX-Masci	13.53	42.97	0.019	13.53	24.16	16.67	22.67
TW80W1	TW	025YR-EX-Masci	13.21	63.92	0.024	13.21	24.20	16.96	23.12
TW80W1	TW	050YR-EX-Masci	13.07	83.49	0.028	13.07	24.24	17.22	23.43
TW80W1	TW	100YR-EX-Masci	12.97	104.48	0.035	12.97	24.28	17.65	23.71
TW80W1	TW	500YR-EX-Masci	12.83	156.24	0.042	12.83	24.36	18.53	24.22
TW80W2	TW	002YR-EX-Masci	12.68	2.79	-1.498	15.77	24.05	15.78	24.05
TW80W2	TW	005YR-EX-Masci	11.41	0.49	-0.990	14.10	24.11	14.10	24.11
TW80W2	TW	010YR-EX-Masci	11.50	0.53	-1.069	13.53	24.16	13.54	24.16
TW80W2	TW	025YR-EX-Masci	11.50	0.57	-1.144	13.21	24.20	13.21	24.21
TW80W2	TW	050YR-EX-Masci	11.25	0.61	-1.213	13.07	24.24	13.07	24.25
TW80W2	TW	100YR-EX-Masci	11.25	0.80	-1.286	12.97	24.28	12.97	24.29
TW80W2	TW	500YR-EX-Masci	10.51	0.87	-1.388	12.83	24.36	12.83	24.37
TW80W3	TW	002YR-EX-Masci	15.77	6.79	0.001	15.77	24.05	0.00	23.75
TW80W3	TW	005YR-EX-Masci	14.10	13.13	0.006	14.10	24.11	0.00	23.75
TW80W3	TW	010YR-EX-Masci	13.53	19.92	0.007	13.53	24.16	0.00	23.75

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Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
TW80W3	TW	025YR-EX-Masci	13.21	27.07	0.010	13.21	24.20	0.00	23.75
TW80W3	TW	050YR-EX-Masci	13.07	33.51	0.011	13.07	24.24	0.00	23.75
TW80W3	TW	100YR-EX-Masci	12.97	40.23	0.013	12.97	24.28	17.82	23.75
TW80W3	TW	500YR-EX-Masci	12.83	56.30	0.054	12.83	24.36	18.70	24.23
TW85W1	TW	002YR-EX-Masci	12.77	30.70	0.006	12.77	23.20	15.70	20.03
TW85W1	TW	005YR-EX-Masci	12.87	46.84	0.009	12.87	23.27	16.41	21.91
TW85W1	TW	010YR-EX-Masci	12.89	63.34	0.016	12.89	23.33	16.73	22.66
TW85W1	TW	025YR-EX-Masci	12.89	80.09	0.028	12.89	23.39	17.00	23.11
TW85W1	TW	050YR-EX-Masci	12.89	94.98	0.026	17.45	23.44	17.30	23.43
TW85W1	TW	100YR-EX-Masci	12.88	110.61	0.336	17.83	23.73	17.73	23.72
TW85W1	TW	500YR-EX-Masci	12.86	148.82	0.972	18.64	24.23	18.60	24.23
TW86W1	TW	002YR-EX-Masci	0.00	36.40	36.396	0.00	23.75	12.77	23.20
TW86W1	TW	005YR-EX-Masci	0.00	36.40	36.396	0.00	23.75	12.87	23.27
TW86W1	TW	010YR-EX-Masci	0.00	36.40	36.396	0.00	23.75	12.89	23.33
TW86W1	TW	025YR-EX-Masci	0.00	36.40	36.396	0.00	23.75	12.89	23.39
TW86W1	TW	050YR-EX-Masci	0.00	36.40	36.396	0.00	23.75	17.45	23.44
TW86W1	TW	100YR-EX-Masci	0.00	36.40	36.396	17.82	23.75	17.83	23.73
TW86W1	TW	500YR-EX-Masci	13.44	45.26	36.396	18.70	24.23	18.64	24.23
TW86W2	TW	002YR-EX-Masci	0.00	2.44	2.444	0.00	23.75	12.77	23.20
TW86W2	TW	005YR-EX-Masci	0.00	2.44	2.444	0.00	23.75	12.87	23.27
TW86W2	TW	010YR-EX-Masci	0.00	2.44	2.444	0.00	23.75	12.89	23.33
TW86W2	TW	025YR-EX-Masci	0.00	2.44	2.444	0.00	23.75	12.89	23.39
TW86W2	TW	050YR-EX-Masci	0.00	2.44	2.444	0.00	23.75	17.45	23.44
TW86W2	TW	100YR-EX-Masci	0.00	2.44	2.444	17.82	23.75	17.83	23.73
TW86W2	TW	500YR-EX-Masci	22.45	6.28	2.444	18.70	24.23	18.64	24.23
TW95C	TW	002YR-EX-Masci	15.67	1.34	0.090	15.77	24.05	15.78	24.05
TW95C	TW	005YR-EX-Masci	14.06	2.37	0.100	14.10	24.11	14.10	24.11
TW95C	TW	010YR-EX-Masci	13.34	3.38	0.102	13.53	24.17	13.54	24.16
TW95C	TW	025YR-EX-Masci	13.12	4.42	0.110	13.20	24.22	13.21	24.21
TW95C	TW	050YR-EX-Masci	13.00	5.34	0.117	13.06	24.26	13.07	24.25
TW95C	TW	100YR-EX-Masci	12.92	6.29	0.109	12.96	24.31	12.97	24.29
TW95C	TW	500YR-EX-Masci	12.82	8.56	0.104	12.83	24.40	12.83	24.37
TW95W1	TW	002YR-EX-Masci	15.67	6.68	0.523	15.77	24.05	15.78	24.05
TW95W1	TW	005YR-EX-Masci	14.05	17.24	0.558	14.10	24.11	14.10	24.11
TW95W1	TW	010YR-EX-Masci	13.28	30.30	0.583	13.53	24.17	13.54	24.16
TW95W1	TW	025YR-EX-Masci	13.09	45.20	0.613	13.20	24.22	13.21	24.21
TW95W1	TW	050YR-EX-Masci	12.97	58.94	0.626	13.06	24.26	13.07	24.25
TW95W1	TW	100YR-EX-Masci	12.92	73.57	0.628	12.96	24.31	12.97	24.29
TW95W1	TW	500YR-EX-Masci	12.81	109.08	0.600	12.83	24.40	12.83	24.37
TW95W2	TW	002YR-EX-Masci	0.00	0.00	0.000	15.77	24.05	16.10	20.96
TW95W2	TW	005YR-EX-Masci	0.00	0.00	0.000	14.10	24.11	16.35	21.96
TW95W2	TW	010YR-EX-Masci	0.00	0.00	0.000	13.53	24.17	16.67	22.67
TW95W2	TW	025YR-EX-Masci	0.00	0.00	0.000	13.20	24.22	16.96	23.12
TW95W2	TW	050YR-EX-Masci	0.00	0.00	0.000	13.06	24.26	17.22	23.43
TW95W2	TW	100YR-EX-Masci	0.00	0.00	0.000	12.96	24.31	17.65	23.71
TW95W2	TW	500YR-EX-Masci	0.00	0.00	0.000	12.83	24.40	18.53	24.22
TW95W3	TW	002YR-EX-Masci	0.00	0.00	0.000	15.77	24.05	16.13	20.38
TW95W3	TW	005YR-EX-Masci	0.00	0.00	0.000	14.10	24.11	16.36	21.45
TW95W3	TW	010YR-EX-Masci	0.00	0.00	0.000	13.53	24.17	16.67	22.17
TW95W3	TW	025YR-EX-Masci	0.00	0.00	0.000	13.20	24.22	16.97	22.62
TW95W3	TW	050YR-EX-Masci	0.00	0.00	0.000	13.06	24.26	17.23	22.93
TW95W3	TW	100YR-EX-Masci	0.00	0.00	0.000	12.96	24.31	17.66	23.20
TW95W3	TW	500YR-EX-Masci	0.00	0.00	0.000	12.83	24.40	18.54	23.70
TW95W4	TW	002YR-EX-Masci	0.00	0.00	0.000	15.77	24.05	15.77	24.05
TW95W4	TW	005YR-EX-Masci	0.00	0.00	0.000	14.10	24.11	14.10	24.11
TW95W4	TW	010YR-EX-Masci	0.00	0.00	0.000	13.53	24.17	13.53	24.16
TW95W4	TW	025YR-EX-Masci	0.00	0.00	0.000	13.20	24.22	13.21	24.20
TW95W4	TW	050YR-EX-Masci	0.00	0.00	0.000	13.06	24.26	13.07	24.24
TW95W4	TW	100YR-EX-Masci	0.00	0.00	0.000	12.96	24.31	12.97	24.28
TW95W4	TW	500YR-EX-Masci	0.00	0.00	0.000	12.83	24.40	12.83	24.36
TW96W1	TW	002YR-EX-Masci	13.34	1.69	0.000	13.34	26.00	12.69	24.27
TW96W1	TW	005YR-EX-Masci	12.96	3.97	0.002	12.96	26.02	12.79	24.39
TW96W1	TW	010YR-EX-Masci	12.79	6.33	0.003	12.79	26.04	12.87	24.51
TW96W1	TW	025YR-EX-Masci	12.70	8.66	0.004	12.70	26.05	12.91	24.63
TW96W1	TW	050YR-EX-Masci	12.64	10.67	0.004	12.64	26.06	12.94	24.72
TW96W1	TW	100YR-EX-Masci	12.61	12.71	0.005	12.61	26.07	12.96	24.81
TW96W1	TW	500YR-EX-Masci	12.55	17.47	0.006	12.55	26.10	13.03	25.02
TW96W3	TW	002YR-EX-Masci	13.34	2.05	0.000	13.34	26.00	15.77	24.05
TW96W3	TW	005YR-EX-Masci	12.96	4.04	0.002	12.96	26.02	14.10	24.11
TW96W3	TW	010YR-EX-Masci	12.79	5.93	0.003	12.79	26.04	13.53	24.17
TW96W3	TW	025YR-EX-Masci	12.70	7.78	0.003	12.70	26.05	13.20	24.22

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TW96W3	TW	050YR-EX-Masci	12.64	9.37	0.004	12.64	26.06	13.06	24.26
TW96W3	TW	100YR-EX-Masci	12.61	10.98	0.004	12.61	26.07	12.96	24.31
TW96W3	TW	500YR-EX-Masci	12.55	14.71	0.004	12.55	26.10	12.83	24.40
TW96W4	TW	002YR-EX-Masci	13.34	0.00	0.000	13.34	26.00	15.78	24.05
TW96W4	TW	005YR-EX-Masci	12.96	0.26	0.000	12.96	26.02	14.10	24.11
TW96W4	TW	010YR-EX-Masci	12.79	0.65	0.000	12.79	26.04	13.54	24.16
TW96W4	TW	025YR-EX-Masci	12.70	1.08	0.001	12.70	26.05	13.21	24.21
TW96W4	TW	050YR-EX-Masci	12.64	1.47	0.001	12.64	26.06	13.07	24.25
TW96W4	TW	100YR-EX-Masci	12.61	1.88	0.001	12.61	26.07	12.97	24.29
TW96W4	TW	500YR-EX-Masci	12.55	2.91	0.001	12.55	26.10	12.83	24.37
TW99W1	TW	002YR-EX-Masci	12.10	17.78	0.257	15.77	24.05	15.77	24.05
TW99W1	TW	005YR-EX-Masci	12.10	28.08	0.256	14.11	24.12	14.10	24.11
TW99W1	TW	010YR-EX-Masci	12.10	37.92	0.256	13.53	24.17	13.53	24.17
TW99W1	TW	025YR-EX-Masci	12.10	48.14	0.256	13.17	24.23	13.20	24.22
TW99W1	TW	050YR-EX-Masci	12.10	57.79	0.256	13.02	24.27	13.06	24.26
TW99W1	TW	100YR-EX-Masci	12.11	68.23	0.256	12.90	24.32	12.96	24.31
TW99W1	TW	500YR-EX-Masci	12.11	94.56	0.256	12.75	24.42	12.83	24.40
TW99W2	TW	002YR-EX-Masci	0.00	0.00	0.000	15.77	24.05	16.13	20.38
TW99W2	TW	005YR-EX-Masci	0.00	0.00	0.000	14.11	24.12	16.36	21.45
TW99W2	TW	010YR-EX-Masci	0.00	0.00	0.000	13.53	24.17	16.67	22.17
TW99W2	TW	025YR-EX-Masci	0.00	0.00	0.000	13.17	24.23	16.97	22.62
TW99W2	TW	050YR-EX-Masci	0.00	0.00	0.000	13.02	24.27	17.23	22.93
TW99W2	TW	100YR-EX-Masci	0.00	0.00	0.000	12.90	24.32	17.66	23.20
TW99W2	TW	500YR-EX-Masci	0.00	0.00	0.000	12.75	24.42	18.54	23.70
TW99W3	TW	002YR-EX-Masci	0.00	0.00	-0.000	15.77	24.05	13.34	26.00
TW99W3	TW	005YR-EX-Masci	0.00	0.00	-0.001	14.11	24.12	12.96	26.02
TW99W3	TW	010YR-EX-Masci	0.00	0.00	-0.001	13.53	24.17	12.79	26.04
TW99W3	TW	025YR-EX-Masci	0.00	0.00	-0.002	13.17	24.23	12.70	26.05
TW99W3	TW	050YR-EX-Masci	0.00	0.00	-0.002	13.02	24.27	12.64	26.06
TW99W3	TW	100YR-EX-Masci	0.00	0.00	-0.003	12.90	24.32	12.61	26.07
TW99W3	TW	500YR-EX-Masci	0.00	0.00	-0.003	12.75	24.42	12.55	26.10
TW99W4	TW	002YR-EX-Masci	0.00	0.00	0.000	15.77	24.05	16.13	19.90
TW99W4	TW	005YR-EX-Masci	0.00	0.00	0.000	14.11	24.12	16.37	20.94
TW99W4	TW	010YR-EX-Masci	0.00	0.00	0.000	13.53	24.17	16.69	21.63
TW99W4	TW	025YR-EX-Masci	0.00	0.00	0.000	13.17	24.23	16.97	22.06
TW99W4	TW	050YR-EX-Masci	0.00	0.00	0.000	13.02	24.27	17.23	22.36
TW99W4	TW	100YR-EX-Masci	0.00	0.00	0.000	12.90	24.32	17.67	22.62
TW99W4	TW	500YR-EX-Masci	0.00	0.00	0.000	12.75	24.42	18.54	23.10
WA05-C	WA	002YR-EX-Masci	14.49	505.57	6.374	16.15	21.07	16.19	21.05
WA05-C	WA	005YR-EX-Masci	14.46	745.46	5.634	16.40	22.06	16.46	22.02
WA05-C	WA	010YR-EX-Masci	13.89	976.59	5.483	16.74	22.75	16.80	22.72
WA05-C	WA	025YR-EX-Masci	13.45	1155.14	5.289	16.99	23.20	17.07	23.16
WA05-C	WA	050YR-EX-Masci	13.29	1272.98	-6.219	17.20	23.52	17.30	23.48
WA05-C	WA	100YR-EX-Masci	13.43	1375.87	-6.186	17.53	23.82	17.71	23.77
WA05-C	WA	500YR-EX-Masci	13.27	1658.24	-6.951	18.21	24.36	18.50	24.30
WA10-C	WA	002YR-EX-Masci	14.65	452.09	5.078	16.12	21.10	16.15	21.07
WA10-C	WA	005YR-EX-Masci	14.59	667.17	5.078	16.35	22.09	16.40	22.06
WA10-C	WA	010YR-EX-Masci	13.95	850.17	5.078	16.69	22.79	16.74	22.75
WA10-C	WA	025YR-EX-Masci	13.52	973.53	5.078	16.93	23.24	16.99	23.20
WA10-C	WA	050YR-EX-Masci	13.45	1048.67	5.078	17.12	23.56	17.20	23.52
WA10-C	WA	100YR-EX-Masci	13.60	1141.38	5.078	17.38	23.87	17.53	23.82
WA10-C	WA	500YR-EX-Masci	14.77	1451.28	-7.199	18.02	24.42	18.21	24.36
WA15-C	WA	002YR-EX-Masci	14.72	380.98	-22.477	16.10	21.11	16.12	21.10
WA15-C	WA	005YR-EX-Masci	14.66	562.70	-22.477	16.32	22.10	16.35	22.09
WA15-C	WA	010YR-EX-Masci	14.08	697.56	-22.477	16.66	22.81	16.69	22.79
WA15-C	WA	025YR-EX-Masci	13.52	770.00	-22.477	16.90	23.26	16.93	23.24
WA15-C	WA	050YR-EX-Masci	13.42	809.45	-22.477	17.08	23.58	17.12	23.56
WA15-C	WA	100YR-EX-Masci	16.22	933.79	-22.477	17.31	23.90	17.38	23.87
WA15-C	WA	500YR-EX-Masci	15.22	1190.06	-57.678	17.94	24.46	18.02	24.42
WA20-P	WA	002YR-EX-Masci	14.91	324.92	134.834	15.73	21.42	16.10	21.11
WA20-P	WA	005YR-EX-Masci	14.83	484.00	134.834	15.55	22.79	16.32	22.10
WA20-P	WA	010YR-EX-Masci	14.28	585.99	134.834	15.74	23.79	16.66	22.81
WA20-P	WA	025YR-EX-Masci	14.65	619.12	134.834	16.08	24.44	16.90	23.26
WA20-P	WA	050YR-EX-Masci	16.18	671.32	134.834	16.47	25.06	17.08	23.58
WA20-P	WA	100YR-EX-Masci	16.37	816.77	134.834	16.57	26.10	17.31	23.90
WA20-P	WA	500YR-EX-Masci	15.64	888.78	369.653	16.87	27.03	17.94	24.46
WA20-W	WA	002YR-EX-Masci	0.00	0.00	0.000	15.73	21.42	16.10	21.11
WA20-W	WA	005YR-EX-Masci	0.00	0.00	0.000	15.55	22.79	16.32	22.10
WA20-W	WA	010YR-EX-Masci	0.00	0.00	0.000	15.74	23.79	16.66	22.81
WA20-W	WA	025YR-EX-Masci	0.00	0.00	0.000	16.08	24.44	16.90	23.26
WA20-W	WA	050YR-EX-Masci	0.00	0.00	0.000	16.47	25.06	17.08	23.58

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Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
WA20-W	WA	100YR-EX-Masci	16.57	7.82	0.002	16.57	26.10	17.31	23.90
WA20-W	WA	500YR-EX-Masci	16.87	157.14	0.033	16.87	27.03	17.94	24.46
WA23-D	WA	002YR-EX-Masci	15.13	280.39	0.046	15.13	23.93	15.73	21.42
WA23-D	WA	005YR-EX-Masci	15.04	418.41	0.110	15.04	24.53	15.55	22.79
WA23-D	WA	010YR-EX-Masci	14.85	495.86	0.112	15.37	25.07	15.74	23.79
WA23-D	WA	025YR-EX-Masci	15.62	527.38	0.107	15.89	25.74	16.08	24.44
WA23-D	WA	050YR-EX-Masci	14.87	536.88	0.121	16.36	26.22	16.47	25.06
WA23-D	WA	100YR-EX-Masci	14.17	519.18	0.108	16.27	26.56	16.57	26.10
WA23-D	WA	500YR-EX-Masci	23.18	472.60	-0.081	16.83	27.08	16.87	27.03
WA23-W	WA	002YR-EX-Masci	0.00	0.00	0.000	0.00	0.00	0.00	0.00
WA23-W	WA	005YR-EX-Masci	0.00	0.00	0.000	0.00	0.00	0.00	0.00
WA23-W	WA	010YR-EX-Masci	0.00	0.00	0.000	0.00	0.00	0.00	0.00
WA23-W	WA	025YR-EX-Masci	0.00	0.00	0.000	0.00	0.00	0.00	0.00
WA23-W	WA	050YR-EX-Masci	0.00	0.00	0.000	0.00	0.00	0.00	0.00
WA23-W	WA	100YR-EX-Masci	0.00	0.00	0.000	0.00	0.00	0.00	0.00
WA23-W	WA	500YR-EX-Masci	0.00	0.00	0.000	0.00	0.00	0.00	0.00
WA25-C	WA	002YR-EX-Masci	15.04	280.58	-10.416	15.13	23.94	15.13	23.93
WA25-C	WA	005YR-EX-Masci	14.95	418.65	-9.977	15.04	24.55	15.04	24.53
WA25-C	WA	010YR-EX-Masci	14.67	499.42	-9.979	15.36	25.09	15.37	25.07
WA25-C	WA	025YR-EX-Masci	15.29	529.14	-10.264	15.89	25.75	15.89	25.74
WA25-C	WA	050YR-EX-Masci	14.80	544.20	-10.211	16.36	26.23	16.36	26.22
WA25-C	WA	100YR-EX-Masci	14.13	534.39	-10.307	16.26	26.57	16.27	26.56
WA25-C	WA	500YR-EX-Masci	13.48	499.14	-10.325	16.83	27.08	16.83	27.08
WA25-W1	WA	002YR-EX-Masci	0.00	0.00	0.000	15.13	23.94	15.73	21.42
WA25-W1	WA	005YR-EX-Masci	0.00	0.00	0.000	15.04	24.55	15.55	22.79
WA25-W1	WA	010YR-EX-Masci	0.00	0.00	0.000	15.36	25.09	15.74	23.79
WA25-W1	WA	025YR-EX-Masci	0.00	0.00	0.000	15.89	25.75	16.08	24.44
WA25-W1	WA	050YR-EX-Masci	16.36	42.32	0.010	16.36	26.23	16.47	25.06
WA25-W1	WA	100YR-EX-Masci	16.26	218.90	0.030	16.26	26.57	16.57	26.10
WA25-W1	WA	500YR-EX-Masci	14.47	392.35	0.095	16.83	27.08	16.87	27.03
WA25-W2	WA	002YR-EX-Masci	0.00	0.00	0.000	15.13	23.94	15.73	21.42
WA25-W2	WA	005YR-EX-Masci	0.00	0.00	0.000	15.04	24.55	15.55	22.79
WA25-W2	WA	010YR-EX-Masci	0.00	0.00	0.000	15.36	25.09	15.74	23.79
WA25-W2	WA	025YR-EX-Masci	0.00	0.00	0.000	15.89	25.75	16.08	24.44
WA25-W2	WA	050YR-EX-Masci	16.36	37.98	0.009	16.36	26.23	16.47	25.06
WA25-W2	WA	100YR-EX-Masci	16.26	219.35	0.027	16.26	26.57	16.57	26.10
WA25-W2	WA	500YR-EX-Masci	15.56	554.97	0.111	16.83	27.08	16.87	27.03
WA26-C	WA	002YR-EX-Masci	12.58	51.55	-6.319	15.13	23.94	15.13	23.94
WA26-C	WA	005YR-EX-Masci	12.43	74.76	6.234	15.04	24.55	15.04	24.55
WA26-C	WA	010YR-EX-Masci	12.42	88.09	-6.000	15.36	25.09	15.36	25.09
WA26-C	WA	025YR-EX-Masci	12.42	102.08	6.291	15.89	25.75	15.89	25.75
WA26-C	WA	050YR-EX-Masci	12.42	114.00	-6.412	16.36	26.23	16.36	26.23
WA26-C	WA	100YR-EX-Masci	12.42	125.86	-6.738	16.26	26.57	16.26	26.57
WA26-C	WA	500YR-EX-Masci	12.42	153.17	-6.785	16.83	27.08	16.83	27.08
WA30-C	WA	002YR-EX-Masci	15.01	180.57	-5.520	15.13	23.95	15.13	23.94
WA30-C	WA	005YR-EX-Masci	14.94	270.73	-8.327	15.04	24.56	15.04	24.55
WA30-C	WA	010YR-EX-Masci	14.70	330.61	-8.206	15.35	25.11	15.36	25.09
WA30-C	WA	025YR-EX-Masci	14.93	363.08	-8.000	15.89	25.76	15.89	25.75
WA30-C	WA	050YR-EX-Masci	16.21	416.77	-7.840	16.35	26.25	16.36	26.23
WA30-C	WA	100YR-EX-Masci	15.70	561.84	-8.156	16.23	26.59	16.26	26.57
WA30-C	WA	500YR-EX-Masci	14.51	834.91	-4.394	16.75	27.11	16.83	27.08
WS05D1	TW	002YR-EX-Masci	12.28	5.76	0.002	12.28	25.62	15.70	20.03
WS05D1	TW	005YR-EX-Masci	12.26	8.00	-0.004	12.26	25.71	16.41	21.91
WS05D1	TW	010YR-EX-Masci	12.25	9.99	-0.004	12.25	25.78	16.73	22.66
WS05D1	TW	025YR-EX-Masci	12.24	11.85	0.007	12.24	25.85	17.00	23.11
WS05D1	TW	050YR-EX-Masci	12.23	13.42	0.006	12.23	25.90	17.30	23.43
WS05D1	TW	100YR-EX-Masci	12.22	15.01	0.007	12.22	25.95	17.73	23.72
WS05D1	TW	500YR-EX-Masci	12.21	18.67	0.007	12.21	26.06	18.60	24.23
WS06D1	FDOT	002YR-EX-Masci	13.20	2.68	0.001	13.20	25.07	15.70	20.03
WS06D1	FDOT	005YR-EX-Masci	12.99	6.60	0.003	12.99	25.29	16.41	21.91
WS06D1	FDOT	010YR-EX-Masci	12.93	9.85	0.004	12.93	25.44	16.73	22.66
WS06D1	FDOT	025YR-EX-Masci	12.91	11.85	0.006	12.91	25.53	17.00	23.11
WS06D1	FDOT	050YR-EX-Masci	12.91	13.19	0.005	12.91	25.58	17.30	23.43
WS06D1	FDOT	100YR-EX-Masci	12.90	14.49	0.006	12.90	25.63	17.73	23.72
WS06D1	FDOT	500YR-EX-Masci	12.75	17.41	0.005	12.75	25.75	18.60	24.23
WS07D1	FDOT	002YR-EX-Masci	15.87	0.21	0.001	14.48	25.07	13.13	25.09
WS07D1	FDOT	005YR-EX-Masci	14.25	0.59	-0.555	13.58	25.33	12.89	25.37
WS07D1	FDOT	010YR-EX-Masci	14.27	1.01	-0.487	13.30	25.58	12.85	25.61
WS07D1	FDOT	025YR-EX-Masci	14.66	1.40	-0.496	13.24	25.84	12.98	25.84
WS07D1	FDOT	050YR-EX-Masci	14.91	1.60	-0.495	13.27	26.05	13.19	26.04
WS07D1	FDOT	100YR-EX-Masci	14.93	1.78	-0.493	13.32	26.23	13.23	26.22

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Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
WS07D1	FDOT	500YR-EX-Masci	15.48	2.01	-0.494	13.37	26.56	13.23	26.55
WS08AD1	FDOT	002YR-EX-Masci	12.36	6.47	0.002	12.36	26.47	13.13	25.09
WS08AD1	FDOT	005YR-EX-Masci	12.36	9.01	-0.004	12.36	26.57	12.89	25.37
WS08AD1	FDOT	010YR-EX-Masci	12.36	11.06	-0.004	12.36	26.63	12.85	25.61
WS08AD1	FDOT	025YR-EX-Masci	12.36	12.88	0.006	12.36	26.69	12.98	25.84
WS08AD1	FDOT	050YR-EX-Masci	12.31	14.13	0.005	12.38	26.73	13.19	26.04
WS08AD1	FDOT	100YR-EX-Masci	12.23	14.65	0.006	12.42	26.78	13.23	26.22
WS08AD1	FDOT	500YR-EX-Masci	12.12	14.87	0.006	12.56	26.91	13.23	26.55
WS08P1	FDOT	002YR-EX-Masci	12.36	6.09	0.002	13.13	25.09	13.20	25.07
WS08P1	FDOT	005YR-EX-Masci	12.38	6.69	0.002	12.89	25.37	12.99	25.29
WS08P1	FDOT	010YR-EX-Masci	12.66	9.43	0.002	12.85	25.61	12.93	25.44
WS08P1	FDOT	025YR-EX-Masci	13.22	11.08	0.005	12.98	25.84	12.91	25.53
WS08P1	FDOT	050YR-EX-Masci	13.24	12.40	0.005	13.19	26.04	12.91	25.58
WS08P1	FDOT	100YR-EX-Masci	13.26	13.57	0.005	13.23	26.22	12.90	25.63
WS08P1	FDOT	500YR-EX-Masci	13.35	15.92	0.005	13.23	26.55	12.75	25.75
WS09P1	FDOT	002YR-EX-Masci	13.38	0.50	0.048	13.14	25.09	13.13	25.09
WS09P1	FDOT	005YR-EX-Masci	13.08	1.15	0.035	12.90	25.37	12.89	25.37
WS09P1	FDOT	010YR-EX-Masci	13.07	1.70	0.036	12.88	25.62	12.85	25.61
WS09P1	FDOT	025YR-EX-Masci	14.11	2.27	0.064	13.02	25.85	12.98	25.84
WS09P1	FDOT	050YR-EX-Masci	14.38	2.83	-0.068	13.23	26.05	13.19	26.04
WS09P1	FDOT	100YR-EX-Masci	14.99	3.14	-0.066	13.29	26.23	13.23	26.22
WS09P1	FDOT	500YR-EX-Masci	16.51	3.33	-0.065	13.29	26.57	13.23	26.55
WS10D1	FDOT	002YR-EX-Masci	12.28	0.45	0.002	12.28	26.34	12.76	24.24
WS10D1	FDOT	005YR-EX-Masci	12.09	0.89	0.004	12.09	26.40	12.69	24.38
WS10D1	FDOT	010YR-EX-Masci	12.08	1.17	0.003	12.08	26.43	12.65	24.48
WS10D1	FDOT	025YR-EX-Masci	12.08	1.44	0.002	12.08	26.45	12.92	24.66
WS10D1	FDOT	050YR-EX-Masci	12.08	1.67	0.001	12.08	26.47	12.85	24.79
WS10D1	FDOT	100YR-EX-Masci	12.08	1.89	0.001	12.08	26.47	12.80	24.91
WS10D1	FDOT	500YR-EX-Masci	12.08	2.41	0.001	12.08	26.49	12.71	25.15
WS11P1	FDOT	002YR-EX-Masci	12.09	0.84	0.001	12.09	21.27	12.09	20.88
WS11P1	FDOT	005YR-EX-Masci	12.09	1.60	0.001	12.09	21.44	12.09	20.99
WS11P1	FDOT	010YR-EX-Masci	12.09	2.32	0.002	12.09	21.57	12.09	21.08
WS11P1	FDOT	025YR-EX-Masci	12.08	3.04	0.002	12.09	21.68	12.08	21.15
WS11P1	FDOT	050YR-EX-Masci	12.08	3.65	0.003	12.09	21.77	12.08	21.21
WS11P1	FDOT	100YR-EX-Masci	12.08	4.29	0.003	12.08	21.86	12.08	21.27
WS11P1	FDOT	500YR-EX-Masci	12.08	5.78	0.004	12.08	22.05	12.08	21.39
WS12D1	FDOT	002YR-EX-Masci	12.31	1.77	0.001	12.31	25.32	14.58	15.31
WS12D1	FDOT	005YR-EX-Masci	12.22	3.40	-0.002	12.22	25.41	16.33	17.39
WS12D1	FDOT	010YR-EX-Masci	12.18	5.02	-0.002	12.18	25.49	16.83	18.29
WS12D1	FDOT	025YR-EX-Masci	12.16	6.64	0.004	12.16	25.56	17.01	18.95
WS12D1	FDOT	050YR-EX-Masci	12.15	8.03	0.005	12.15	25.61	17.28	19.38
WS12D1	FDOT	100YR-EX-Masci	12.15	9.46	0.005	12.15	25.67	17.66	19.76
WS12D1	FDOT	500YR-EX-Masci	12.13	12.89	0.006	12.13	25.78	17.94	20.39
WS13P1	FDOT	002YR-EX-Masci	12.40	3.89	0.013	12.45	25.25	14.22	25.18
WS13P1	FDOT	005YR-EX-Masci	12.38	7.33	0.013	12.39	25.55	13.57	25.38
WS13P1	FDOT	010YR-EX-Masci	12.37	10.39	0.013	12.37	25.79	13.22	25.56
WS13P1	FDOT	025YR-EX-Masci	12.20	11.97	-1.912	12.43	26.07	12.20	25.95
WS13P1	FDOT	050YR-EX-Masci	12.43	13.66	-1.908	12.43	26.27	12.08	25.95
WS13P1	FDOT	100YR-EX-Masci	12.45	15.34	-1.910	12.45	26.45	13.13	25.99
WS13P1	FDOT	500YR-EX-Masci	12.38	17.73	-1.972	12.61	26.77	13.17	26.20
WS14D1	GH	002YR-EX-Masci	14.22	1.81	0.000	14.22	25.18	12.80	23.47
WS14D1	GH	005YR-EX-Masci	13.57	3.68	0.001	13.57	25.38	12.64	23.54
WS14D1	GH	010YR-EX-Masci	13.22	5.77	0.002	13.22	25.56	12.57	23.59
WS14D1	GH	025YR-EX-Masci	13.16	7.94	0.003	13.16	25.73	12.53	23.63
WS14D1	GH	050YR-EX-Masci	13.15	9.85	0.003	13.15	25.87	12.53	23.66
WS14D1	GH	100YR-EX-Masci	13.13	12.51	0.003	13.13	25.99	12.51	23.70
WS14D1	GH	500YR-EX-Masci	13.17	18.25	0.004	13.17	26.20	12.64	23.78
WY05-C	WY	002YR-EX-Masci	20.26	550.41	-317.090	15.20	27.80	15.19	27.79
WY05-C	WY	005YR-EX-Masci	20.39	612.81	-132.032	15.04	27.87	15.03	27.87
WY05-C	WY	010YR-EX-Masci	20.56	671.59	-209.091	15.13	27.93	15.12	27.93
WY05-C	WY	025YR-EX-Masci	20.59	729.17	-270.219	15.25	27.99	15.24	27.99
WY05-C	WY	050YR-EX-Masci	21.01	777.92	-284.184	15.34	28.04	15.33	28.04
WY05-C	WY	100YR-EX-Masci	21.31	826.17	268.644	15.44	28.09	15.43	28.09
WY05-C	WY	500YR-EX-Masci	22.03	906.07	-229.037	15.66	28.23	15.65	28.23
WY10-P	WY	002YR-EX-Masci	20.17	541.09	35.199	15.77	27.82	15.20	27.80
WY10-P	WY	005YR-EX-Masci	20.44	603.55	14.594	15.89	27.94	15.04	27.87
WY10-P	WY	010YR-EX-Masci	20.64	662.40	25.360	16.01	28.05	15.13	27.93
WY10-P	WY	025YR-EX-Masci	20.59	719.55	30.274	16.11	28.16	15.25	27.99
WY10-P	WY	050YR-EX-Masci	21.02	768.88	31.852	16.18	28.25	15.34	28.04
WY10-P	WY	100YR-EX-Masci	21.34	817.60	30.018	16.37	28.35	15.44	28.09
WY10-P	WY	500YR-EX-Masci	22.05	898.10	23.222	16.38	28.59	15.66	28.23

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Stormwater Management Master Plan
Existing Conditions - Link Max Comparison Report

Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
WY10-W	WY	002YR-EX-Masci	0.00	0.00	0.000	15.77	27.82	15.20	27.80
WY10-W	WY	005YR-EX-Masci	0.00	0.00	0.000	15.89	27.94	15.04	27.87
WY10-W	WY	010YR-EX-Masci	0.00	0.00	0.000	16.01	28.05	15.13	27.93
WY10-W	WY	025YR-EX-Masci	0.00	0.00	0.000	16.11	28.16	15.25	27.99
WY10-W	WY	050YR-EX-Masci	0.00	0.00	0.000	16.18	28.25	15.34	28.04
WY10-W	WY	100YR-EX-Masci	0.00	0.00	0.000	16.37	28.35	15.44	28.09
WY10-W	WY	500YR-EX-Masci	0.00	0.00	0.000	16.38	28.59	15.66	28.23
WY15-C	WY	002YR-EX-Masci	20.15	516.35	112.736	15.79	27.82	15.77	27.82
WY15-C	WY	005YR-EX-Masci	20.42	578.02	-58.084	15.91	27.94	15.89	27.94
WY15-C	WY	010YR-EX-Masci	20.62	635.95	-88.765	16.03	28.06	16.01	28.05
WY15-C	WY	025YR-EX-Masci	20.64	693.40	94.169	16.12	28.16	16.11	28.16
WY15-C	WY	050YR-EX-Masci	21.05	740.24	90.924	16.19	28.25	16.18	28.25
WY15-C	WY	100YR-EX-Masci	21.54	783.24	86.274	16.38	28.36	16.37	28.35
WY15-C	WY	500YR-EX-Masci	22.13	846.28	-71.293	16.38	28.60	16.38	28.59
WY20-P1	WY	002YR-EX-Masci	20.11	206.71	402.763	15.80	27.82	15.79	27.82
WY20-P1	WY	005YR-EX-Masci	22.51	407.58	-292.089	15.92	27.94	15.91	27.94
WY20-P1	WY	010YR-EX-Masci	22.84	390.42	379.322	16.04	28.06	16.03	28.06
WY20-P1	WY	025YR-EX-Masci	23.25	414.85	381.102	16.13	28.17	16.12	28.16
WY20-P1	WY	050YR-EX-Masci	23.67	425.82	373.359	16.19	28.26	16.19	28.25
WY20-P1	WY	100YR-EX-Masci	21.60	315.52	-284.375	16.38	28.36	16.38	28.36
WY20-P1	WY	500YR-EX-Masci	22.69	337.74	-239.139	16.37	28.60	16.38	28.60
WY20-P2	WY	002YR-EX-Masci	20.11	268.18	520.619	15.80	27.82	15.79	27.82
WY20-P2	WY	005YR-EX-Masci	22.51	526.57	-377.363	15.92	27.94	15.91	27.94
WY20-P2	WY	010YR-EX-Masci	22.84	504.67	490.201	16.04	28.06	16.03	28.06
WY20-P2	WY	025YR-EX-Masci	23.25	536.19	492.307	16.13	28.17	16.12	28.16
WY20-P2	WY	050YR-EX-Masci	23.67	550.07	482.517	16.19	28.26	16.19	28.25
WY20-P2	WY	100YR-EX-Masci	21.60	409.35	-367.504	16.38	28.36	16.38	28.36
WY20-P2	WY	500YR-EX-Masci	22.69	438.17	-309.048	16.37	28.60	16.38	28.60
WY20-W	WY	002YR-EX-Masci	0.00	0.00	0.000	15.80	27.82	15.79	27.82
WY20-W	WY	005YR-EX-Masci	0.00	0.00	0.000	15.92	27.94	15.91	27.94
WY20-W	WY	010YR-EX-Masci	0.00	0.00	0.000	16.04	28.06	16.03	28.06
WY20-W	WY	025YR-EX-Masci	0.00	0.00	0.000	16.13	28.17	16.12	28.16
WY20-W	WY	050YR-EX-Masci	0.00	0.00	0.000	16.19	28.26	16.19	28.25
WY20-W	WY	100YR-EX-Masci	0.00	0.00	0.000	16.38	28.36	16.38	28.36
WY20-W	WY	500YR-EX-Masci	0.00	0.00	0.000	16.37	28.60	16.38	28.60
WY25-C	WY	002YR-EX-Masci	20.10	465.31	604.238	15.81	27.82	15.80	27.82
WY25-C	WY	005YR-EX-Masci	20.36	524.17	-492.430	15.92	27.95	15.92	27.94
WY25-C	WY	010YR-EX-Masci	20.55	580.47	-521.503	16.05	28.06	16.04	28.06
WY25-C	WY	025YR-EX-Masci	20.71	635.35	-511.844	16.13	28.17	16.13	28.17
WY25-C	WY	050YR-EX-Masci	21.13	676.13	-505.840	16.19	28.26	16.19	28.26
WY25-C	WY	100YR-EX-Masci	21.62	712.23	-530.995	16.38	28.36	16.38	28.36
WY25-C	WY	500YR-EX-Masci	22.70	761.58	-333.789	16.36	28.60	16.37	28.60
WY30-P1	WY	002YR-EX-Masci	20.07	190.49	235.841	15.82	27.82	15.81	27.82
WY30-P1	WY	005YR-EX-Masci	22.72	220.39	-164.903	15.93	27.95	15.92	27.95
WY30-P1	WY	010YR-EX-Masci	20.43	237.54	208.687	16.05	28.06	16.05	28.06
WY30-P1	WY	025YR-EX-Masci	20.71	260.13	137.744	16.13	28.17	16.13	28.17
WY30-P1	WY	050YR-EX-Masci	21.13	276.37	-201.883	16.19	28.26	16.19	28.26
WY30-P1	WY	100YR-EX-Masci	21.62	290.67	-214.307	16.37	28.37	16.38	28.36
WY30-P1	WY	500YR-EX-Masci	22.70	309.75	-220.991	16.35	28.61	16.36	28.60
WY30-P2	WY	002YR-EX-Masci	20.07	247.14	304.879	15.82	27.82	15.81	27.82
WY30-P2	WY	005YR-EX-Masci	22.72	284.82	-213.939	15.93	27.95	15.92	27.95
WY30-P2	WY	010YR-EX-Masci	20.43	308.17	269.690	16.05	28.06	16.05	28.06
WY30-P2	WY	025YR-EX-Masci	20.71	337.48	177.956	16.13	28.17	16.13	28.17
WY30-P2	WY	050YR-EX-Masci	21.13	358.55	-260.890	16.19	28.26	16.19	28.26
WY30-P2	WY	100YR-EX-Masci	21.62	377.10	-276.951	16.37	28.37	16.38	28.36
WY30-P2	WY	500YR-EX-Masci	22.70	401.86	-285.592	16.35	28.61	16.36	28.60
WY30-W	WY	002YR-EX-Masci	0.00	0.00	0.000	15.82	27.82	15.81	27.82
WY30-W	WY	005YR-EX-Masci	0.00	0.00	0.000	15.93	27.95	15.92	27.95
WY30-W	WY	010YR-EX-Masci	0.00	0.00	0.000	16.05	28.06	16.05	28.06
WY30-W	WY	025YR-EX-Masci	0.00	0.00	0.000	16.13	28.17	16.13	28.17
WY30-W	WY	050YR-EX-Masci	0.00	0.00	0.000	16.19	28.26	16.19	28.26
WY30-W	WY	100YR-EX-Masci	0.00	0.00	0.000	16.37	28.37	16.38	28.36
WY30-W	WY	500YR-EX-Masci	0.00	0.00	0.000	16.35	28.61	16.36	28.60
WY35-C	WY	002YR-EX-Masci	20.05	401.51	166.194	15.83	27.82	15.82	27.82
WY35-C	WY	005YR-EX-Masci	20.30	452.61	-82.956	15.95	27.95	15.93	27.95
WY35-C	WY	010YR-EX-Masci	20.30	504.06	-106.058	16.07	28.06	16.05	28.06
WY35-C	WY	025YR-EX-Masci	20.70	552.88	-45.722	16.15	28.17	16.13	28.17
WY35-C	WY	050YR-EX-Masci	21.13	587.27	34.486	16.20	28.26	16.19	28.26
WY35-C	WY	100YR-EX-Masci	21.62	617.25	-31.394	16.38	28.37	16.37	28.37
WY35-C	WY	500YR-EX-Masci	22.70	656.11	-30.728	16.35	28.61	16.35	28.61

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Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
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Stormwater Management Master Plan
Existing Conditions - Node Max Comparison Report

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
BA03	BA	002YR-EX-Masci	16.10	20.97	0.00	0.0004	293099	17.76	934.34	17.88	948.08
BA03	BA	005YR-EX-Masci	16.35	21.96	0.00	0.0008	309775	19.18	1022.93	19.29	1044.21
BA03	BA	010YR-EX-Masci	16.68	22.67	0.00	0.0008	321640	20.33	1108.01	20.49	1132.79
BA03	BA	025YR-EX-Masci	16.96	23.12	0.00	0.0008	329214	21.24	1176.58	21.43	1201.65
BA03	BA	050YR-EX-Masci	17.22	23.43	0.00	0.0007	334429	23.08	1190.36	23.13	1216.29
BA03	BA	100YR-EX-Masci	17.66	23.71	0.00	0.0006	339210	19.55	1218.36	20.93	1228.25
BA03	BA	500YR-EX-Masci	18.53	24.22	0.00	0.0007	347762	19.31	1405.49	19.42	1407.57
BA05	BA	002YR-EX-Masci	16.12	21.01	0.00	0.0004	535828	17.12	914.58	17.76	934.34
BA05	BA	005YR-EX-Masci	16.38	21.99	0.00	0.0009	636641	18.92	984.26	19.18	1022.93
BA05	BA	010YR-EX-Masci	16.73	22.69	0.00	0.0008	927024	12.99	1060.69	20.33	1108.01
BA05	BA	025YR-EX-Masci	17.01	23.14	0.00	0.0007	1304058	21.20	1116.26	21.24	1176.58
BA05	BA	050YR-EX-Masci	17.26	23.45	0.00	0.0007	1463892	23.12	1120.97	23.08	1190.36
BA05	BA	100YR-EX-Masci	17.70	23.74	0.00	0.0006	2097372	18.77	1185.43	19.55	1218.36
BA05	BA	500YR-EX-Masci	18.56	24.25	0.00	0.0005	2841537	17.97	1397.71	19.31	1405.49
BA10	BA	002YR-EX-Masci	16.14	21.01	0.00	0.0004	310489	18.68	603.36	18.73	620.27
BA10	BA	005YR-EX-Masci	16.39	21.99	0.00	0.0009	417361	21.41	649.38	21.38	674.78
BA10	BA	010YR-EX-Masci	16.74	22.69	0.00	0.0008	600878	23.32	656.96	22.28	686.86
BA10	BA	025YR-EX-Masci	17.01	23.14	0.00	0.0008	827021	24.00	663.80	23.86	702.01
BA10	BA	050YR-EX-Masci	17.27	23.45	0.00	0.0007	940910	24.00	616.76	24.00	662.16
BA10	BA	100YR-EX-Masci	17.71	23.74	0.00	0.0006	1308599	24.00	496.48	24.00	546.14
BA10	BA	500YR-EX-Masci	18.57	24.26	0.00	0.0005	1805077	19.28	520.70	19.84	533.63
BA15	BA	002YR-EX-Masci	16.15	21.02	0.00	0.0004	363106	18.57	583.96	18.68	603.03
BA15	BA	005YR-EX-Masci	16.40	22.00	0.00	0.0009	483356	18.94	651.47	19.01	678.90
BA15	BA	010YR-EX-Masci	16.75	22.70	0.00	0.0008	790675	21.11	730.57	21.11	771.29
BA15	BA	025YR-EX-Masci	17.02	23.15	0.00	0.0008	1236845	23.27	751.42	23.24	798.14
BA15	BA	050YR-EX-Masci	17.28	23.46	0.00	0.0007	1446757	24.00	734.60	24.00	786.31
BA15	BA	100YR-EX-Masci	17.72	23.75	0.00	0.0007	2336879	17.90	643.03	24.00	715.53
BA15	BA	500YR-EX-Masci	18.57	24.26	0.00	0.0005	3559811	17.61	871.54	18.83	857.57
BA20	BA	002YR-EX-Masci	16.16	21.02	0.00	0.0004	257433	18.65	535.84	18.70	549.29
BA20	BA	005YR-EX-Masci	16.42	22.00	0.00	0.0009	486191	19.02	578.30	19.02	601.28
BA20	BA	010YR-EX-Masci	16.76	22.70	0.00	0.0008	723205	21.23	637.57	21.17	676.90
BA20	BA	025YR-EX-Masci	17.04	23.15	0.00	0.0009	995192	23.41	651.84	23.30	697.85
BA20	BA	050YR-EX-Masci	17.29	23.46	0.00	0.0008	1114994	24.00	624.03	24.00	677.33
BA20	BA	100YR-EX-Masci	17.72	23.75	0.00	0.0006	1459703	17.78	523.89	24.00	578.54
BA20	BA	500YR-EX-Masci	18.57	24.27	0.00	0.0005	1899950	17.50	736.51	18.08	723.10
BA25	BA	002YR-EX-Masci	16.17	21.03	0.00	0.0004	271338	17.80	716.96	17.90	728.46
BA25	BA	005YR-EX-Masci	16.43	22.00	0.00	0.0009	476711	18.53	876.47	18.59	898.92
BA25	BA	010YR-EX-Masci	16.77	22.70	0.00	0.0008	733229	20.71	954.74	20.71	994.68
BA25	BA	025YR-EX-Masci	17.04	23.15	0.00	0.0009	1009189	21.71	990.95	21.71	1038.72
BA25	BA	050YR-EX-Masci	17.29	23.46	0.00	0.0008	1123057	23.74	995.29	23.74	1048.71
BA25	BA	100YR-EX-Masci	17.72	23.75	0.00	0.0006	1440421	17.27	1122.81	17.87	1119.93
BA25	BA	500YR-EX-Masci	18.57	24.27	0.00	0.0005	1841120	17.28	1406.23	17.75	1387.18
BA30	BA	002YR-EX-Masci	16.18	21.04	0.00	0.0004	372386	17.61	695.33	17.84	710.56
BA30	BA	005YR-EX-Masci	16.44	22.01	0.00	0.0009	584132	18.46	840.31	18.55	868.45
BA30	BA	010YR-EX-Masci	16.78	22.71	0.00	0.0008	895147	20.70	898.54	20.71	947.11
BA30	BA	025YR-EX-Masci	17.05	23.16	0.00	0.0007	1252409	21.74	925.54	21.71	982.67
BA30	BA	050YR-EX-Masci	17.30	23.47	0.00	0.0007	1402287	17.16	955.66	23.74	987.30
BA30	BA	100YR-EX-Masci	17.72	23.76	0.00	0.0006	1849492	16.69	1124.48	17.33	1105.43
BA30	BA	500YR-EX-Masci	18.54	24.28	0.00	0.0005	2428559	15.15	1465.51	17.33	1384.90
BA35	BA	002YR-EX-Masci	16.19	21.05	0.00	0.0004	391237	17.52	650.98	17.79	666.39

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BA35	BA	005YR-EX-Masci	16.46	22.02	0.00	0.0008	626475	18.45	772.39	18.54	802.28
BA35	BA	010YR-EX-Masci	16.80	22.72	0.00	0.0008	892031	18.99	811.31	20.72	861.02
BA35	BA	025YR-EX-Masci	17.07	23.16	0.00	0.0006	1152811	21.76	826.18	21.75	886.98
BA35	BA	050YR-EX-Masci	17.30	23.48	0.00	0.0007	1258539	18.15	895.85	23.78	892.09
BA35	BA	100YR-EX-Masci	17.71	23.77	0.00	0.0006	1565295	16.58	1047.65	17.10	1023.94
BA35	BA	500YR-EX-Masci	18.50	24.30	0.00	0.0005	1918803	14.87	1395.52	17.20	1298.34
BA40	BA	002YR-EX-Masci	16.19	21.05	0.00	0.0004	1094309	12.36	397.31	18.54	377.08
BA40	BA	005YR-EX-Masci	16.46	22.02	0.00	0.0009	1465514	12.33	535.14	19.16	500.13
BA40	BA	010YR-EX-Masci	16.80	22.72	0.00	0.0008	1935212	12.33	645.78	20.90	605.24
BA40	BA	025YR-EX-Masci	17.07	23.16	0.00	0.0006	2375167	12.29	742.40	22.23	643.16
BA40	BA	050YR-EX-Masci	17.30	23.48	0.00	0.0007	2525630	12.25	815.07	23.82	662.21
BA40	BA	100YR-EX-Masci	17.71	23.77	0.00	0.0006	2975604	12.17	836.61	19.60	624.20
BA40	BA	500YR-EX-Masci	18.50	24.30	0.00	0.0004	3480964	12.07	733.60	22.87	692.59
BA42	BA	002YR-EX-Masci	16.20	21.05	0.00	0.0004	508427	12.42	352.97	18.23	308.07
BA42	BA	005YR-EX-Masci	16.47	22.03	0.00	0.0009	648868	12.35	459.02	18.93	400.27
BA42	BA	010YR-EX-Masci	16.81	22.72	0.00	0.0008	776982	12.35	532.77	20.78	466.71
BA42	BA	025YR-EX-Masci	17.08	23.17	0.00	0.0006	897955	12.33	597.81	21.84	486.20
BA42	BA	050YR-EX-Masci	17.31	23.48	0.00	0.0007	947026	12.25	637.75	23.84	491.65
BA42	BA	100YR-EX-Masci	17.72	23.78	0.00	0.0006	1110151	12.16	637.45	24.00	455.00
BA42	BA	500YR-EX-Masci	18.51	24.30	0.00	0.0005	1301366	12.00	523.58	23.37	421.90
BA45	BA	002YR-EX-Masci	16.20	21.05	0.00	0.0004	758602	12.52	389.09	12.38	285.57
BA45	BA	005YR-EX-Masci	16.47	22.03	0.00	0.0009	1287690	12.43	509.54	12.34	361.70
BA45	BA	010YR-EX-Masci	16.82	22.72	0.00	0.0007	1642453	12.43	606.95	12.30	408.59
BA45	BA	025YR-EX-Masci	17.08	23.17	0.00	0.0006	1960089	12.38	693.78	12.29	449.74
BA45	BA	050YR-EX-Masci	17.32	23.48	0.00	0.0007	2123700	12.25	739.73	12.24	476.42
BA45	BA	100YR-EX-Masci	17.72	23.78	0.00	0.0006	2717790	12.18	744.67	12.14	478.30
BA45	BA	500YR-EX-Masci	18.51	24.30	0.00	0.0004	3401256	12.28	728.25	11.92	395.82
BELLE	BelleTerre	002YR-EX-Masci	24.00	22.97	0.00	0.0003	69374	12.08	34.32	24.00	0.91
BELLE	BelleTerre	005YR-EX-Masci	16.72	23.43	0.00	0.0006	71199	12.08	50.74	24.00	0.79
BELLE	BelleTerre	010YR-EX-Masci	17.52	24.15	0.00	0.0007	73930	12.08	58.40	11.94	0.65
BELLE	BelleTerre	025YR-EX-Masci	15.67	24.66	0.00	0.0010	75714	12.00	66.12	11.86	0.67
BELLE	BelleTerre	050YR-EX-Masci	14.75	24.96	0.00	0.0008	76771	12.07	69.12	11.79	0.68
BELLE	BelleTerre	100YR-EX-Masci	14.30	25.26	0.00	0.0009	77947	12.07	74.23	11.73	0.69
BELLE	BelleTerre	500YR-EX-Masci	14.06	26.16	0.00	0.0008	81478	12.03	88.03	11.62	0.67
Bndy-2	RP	002YR-EX-Masci	24.00	12.04	0.00	0.0000	195476	16.20	1904.49	0.00	0.00
Bndy-2	RP	005YR-EX-Masci	24.00	12.04	0.00	0.0000	196091	16.44	2321.87	0.00	0.00
Bndy-2	RP	010YR-EX-Masci	24.00	12.04	0.00	0.0000	196740	16.76	2626.67	0.00	0.00
Bndy-2	RP	025YR-EX-Masci	24.00	12.04	0.00	0.0000	197189	17.04	2829.20	0.00	0.00
Bndy-2	RP	050YR-EX-Masci	24.00	12.04	0.00	0.0000	197587	17.31	2972.11	0.00	0.00
Bndy-2	RP	100YR-EX-Masci	24.00	12.04	0.00	0.0000	197928	17.73	3106.21	0.00	0.00
Bndy-2	RP	500YR-EX-Masci	24.00	12.04	0.00	0.0000	198497	18.61	3353.51	0.00	0.00
BT-N1	BelleTerre	002YR-EX-Masci	24.00	22.97	0.00	0.0006	185	12.08	28.34	12.08	28.21
BT-N1	BelleTerre	005YR-EX-Masci	16.90	23.43	0.00	0.0050	185	12.08	42.98	12.08	42.78
BT-N1	BelleTerre	010YR-EX-Masci	17.55	24.15	0.00	0.0046	185	12.08	56.19	12.08	55.93
BT-N1	BelleTerre	025YR-EX-Masci	15.70	24.66	0.00	-0.0131	185	12.04	63.20	12.06	67.82
BT-N1	BelleTerre	050YR-EX-Masci	12.22	25.22	0.00	-0.0088	185	12.00	64.38	11.97	66.85
BT-N1	BelleTerre	100YR-EX-Masci	12.09	25.82	0.00	-0.0088	185	12.00	68.52	12.04	68.10
BT-N1	BelleTerre	500YR-EX-Masci	12.09	27.67	0.00	-0.0127	185	12.00	80.07	12.01	79.35
BT-N2	BelleTerre	002YR-EX-Masci	15.98	21.20	0.00	0.0004	173	24.00	0.95	24.00	0.95
BT-N2	BelleTerre	005YR-EX-Masci	16.62	23.36	0.00	0.0009	173	19.83	3.85	19.87	3.86

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BT-N2	BelleTerre	010YR-EX-Masci	17.43	24.12	0.00	0.0064	173	12.04	7.30	12.09	6.10
BT-N2	BelleTerre	025YR-EX-Masci	15.73	24.65	0.00	0.0154	173	12.06	12.34	12.07	6.42
BT-N2	BelleTerre	050YR-EX-Masci	12.23	25.20	0.00	0.0125	173	11.97	11.19	12.00	6.44
BT-N2	BelleTerre	100YR-EX-Masci	12.09	25.79	0.00	0.0127	173	11.91	11.15	12.00	6.54
BT-N2	BelleTerre	500YR-EX-Masci	12.09	27.64	0.00	0.0159	173	11.81	12.08	11.99	6.68
BT-N3	BelleTerre	002YR-EX-Masci	15.95	21.17	0.00	0.0004	181	12.15	1.74	12.15	1.68
BT-N3	BelleTerre	005YR-EX-Masci	16.14	22.27	0.00	0.0009	181	19.83	3.95	19.84	3.97
BT-N3	BelleTerre	010YR-EX-Masci	16.38	23.01	0.00	0.0008	181	12.23	9.21	12.15	9.12
BT-N3	BelleTerre	025YR-EX-Masci	16.42	23.57	0.00	0.0011	181	12.34	12.62	12.34	12.51
BT-N3	BelleTerre	050YR-EX-Masci	16.14	23.97	0.00	0.0014	181	12.34	17.58	12.35	17.46
BT-N3	BelleTerre	100YR-EX-Masci	15.71	24.35	0.00	0.0022	181	12.36	22.25	12.37	22.12
BT-N3	BelleTerre	500YR-EX-Masci	12.82	25.34	0.00	0.0029	181	12.12	25.32	12.24	25.15
EH10	EH	002YR-EX-Masci	15.03	23.86	0.00	0.0002	74260	15.86	122.78	15.97	124.24
EH10	EH	005YR-EX-Masci	14.96	24.38	0.00	0.0005	82515	12.55	178.34	15.55	175.85
EH10	EH	010YR-EX-Masci	15.03	24.75	0.00	0.0005	113641	12.50	229.50	16.89	213.87
EH10	EH	025YR-EX-Masci	15.42	25.11	0.00	0.0004	150316	12.58	277.68	12.76	252.31
EH10	EH	050YR-EX-Masci	15.80	25.42	0.00	0.0004	177150	12.67	325.15	12.70	297.09
EH10	EH	100YR-EX-Masci	16.21	25.71	0.00	0.0004	253117	12.58	370.73	12.59	335.98
EH10	EH	500YR-EX-Masci	17.02	26.28	0.00	0.0004	432344	12.50	459.43	12.50	405.96
EH15	EH	002YR-EX-Masci	15.22	23.92	0.00	0.0002	345251	15.98	102.08	16.46	109.70
EH15	EH	005YR-EX-Masci	15.24	24.49	0.00	0.0005	408921	15.41	144.85	16.19	152.50
EH15	EH	010YR-EX-Masci	15.40	24.91	0.00	0.0005	476467	12.70	180.46	17.14	191.71
EH15	EH	025YR-EX-Masci	15.76	25.28	0.00	0.0005	545899	12.67	223.36	19.38	219.89
EH15	EH	050YR-EX-Masci	16.08	25.59	0.00	0.0004	725301	12.67	260.53	21.37	240.20
EH15	EH	100YR-EX-Masci	16.38	25.85	0.00	0.0004	1083248	12.53	292.23	23.37	257.97
EH15	EH	500YR-EX-Masci	16.96	26.44	0.00	0.0004	1656903	12.42	344.88	16.56	256.55
EH20	EH	002YR-EX-Masci	15.25	23.92	0.00	0.0002	723977	12.17	124.81	17.63	76.90
EH20	EH	005YR-EX-Masci	15.26	24.50	0.00	0.0006	830200	12.25	149.92	17.60	101.87
EH20	EH	010YR-EX-Masci	15.43	24.92	0.00	0.0005	1067155	12.25	187.68	17.59	136.71
EH20	EH	025YR-EX-Masci	15.79	25.29	0.00	0.0005	1211946	12.33	235.68	19.45	166.21
EH20	EH	050YR-EX-Masci	16.11	25.59	0.00	0.0004	1413082	12.33	280.60	21.39	185.50
EH20	EH	100YR-EX-Masci	16.41	25.85	0.00	0.0004	1734450	12.25	322.68	23.50	201.20
EH20	EH	500YR-EX-Masci	17.00	26.44	0.00	0.0004	2224694	12.25	412.50	22.64	173.65
EH25	EH	002YR-EX-Masci	15.26	23.92	0.00	0.0002	778156	12.20	155.59	18.26	38.48
EH25	EH	005YR-EX-Masci	15.27	24.50	0.00	0.0006	826599	12.17	218.62	18.42	49.50
EH25	EH	010YR-EX-Masci	15.44	24.92	0.00	0.0005	1227266	12.17	269.35	17.55	70.03
EH25	EH	025YR-EX-Masci	15.80	25.29	0.00	0.0005	1332707	12.17	313.14	19.42	88.09
EH25	EH	050YR-EX-Masci	16.12	25.60	0.00	0.0004	1440857	12.17	349.25	21.33	99.90
EH25	EH	100YR-EX-Masci	16.42	25.85	0.00	0.0004	1641751	12.17	385.28	23.57	109.29
EH25	EH	500YR-EX-Masci	17.01	26.44	0.00	0.0004	1838575	12.17	468.12	22.67	85.35
EH30	EH	002YR-EX-Masci	12.76	24.35	0.00	0.0005	16200	12.33	39.09	12.55	32.84
EH30	EH	005YR-EX-Masci	13.29	25.07	0.00	0.0006	119126	12.33	56.93	12.34	36.57
EH30	EH	010YR-EX-Masci	13.84	25.56	0.00	0.0007	165822	12.33	72.61	12.26	36.12
EH30	EH	025YR-EX-Masci	14.20	25.92	0.00	0.0012	255764	12.33	87.13	12.21	35.21
EH30	EH	050YR-EX-Masci	14.45	26.16	0.00	0.0011	312122	12.33	99.22	12.34	34.43
EH30	EH	100YR-EX-Masci	14.67	26.39	0.00	0.0011	361015	12.33	111.31	12.37	33.89
EH30	EH	500YR-EX-Masci	14.46	26.66	0.00	0.0007	679982	12.33	139.01	13.97	36.41
EI10	EI	002YR-EX-Masci	14.97	24.02	0.00	0.0003	349169	13.13	220.00	15.25	203.05
EI10	EI	005YR-EX-Masci	14.92	24.60	0.00	0.0006	426050	13.68	292.57	15.61	278.18
EI10	EI	010YR-EX-Masci	15.02	25.04	0.00	0.0006	510808	14.90	353.53	15.22	354.54

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EI10	EI	025YR-EX-Masci	15.25	25.41	0.00	0.0005	656221	14.53	407.37	15.52	405.09
EI10	EI	050YR-EX-Masci	15.65	25.70	0.00	0.0005	880072	13.96	421.62	16.35	413.27
EI10	EI	100YR-EX-Masci	16.09	25.96	0.00	0.0004	1125449	13.54	416.22	18.11	409.70
EI10	EI	500YR-EX-Masci	16.92	26.44	0.00	0.0004	1893689	12.50	466.88	23.49	436.08
EI15	EI	002YR-EX-Masci	15.09	24.09	0.00	0.0003	247409	15.61	127.19	16.15	132.99
EI15	EI	005YR-EX-Masci	15.24	24.74	0.00	0.0007	329351	16.44	183.05	16.68	194.20
EI15	EI	010YR-EX-Masci	15.16	25.13	0.00	0.0006	421921	17.97	209.47	18.16	225.96
EI15	EI	025YR-EX-Masci	15.28	25.43	0.00	0.0005	480291	20.04	198.59	20.16	217.26
EI15	EI	050YR-EX-Masci	15.68	25.71	0.00	0.0005	683049	21.94	189.86	22.01	210.23
EI15	EI	100YR-EX-Masci	16.12	25.97	0.00	0.0004	902708	23.99	183.80	24.00	205.48
EI15	EI	500YR-EX-Masci	16.93	26.45	0.00	0.0004	1094437	14.40	224.41	14.41	170.83
EI20	EI	002YR-EX-Masci	15.10	24.10	0.00	0.0003	123967	15.93	104.85	16.21	108.17
EI20	EI	005YR-EX-Masci	15.26	24.75	0.00	0.0007	187592	16.65	154.96	16.78	161.51
EI20	EI	010YR-EX-Masci	15.17	25.13	0.00	0.0006	251965	15.53	187.38	18.26	193.58
EI20	EI	025YR-EX-Masci	15.28	25.43	0.00	0.0005	284482	16.70	231.28	16.86	240.48
EI20	EI	050YR-EX-Masci	15.68	25.71	0.00	0.0005	463660	17.44	248.93	17.63	261.03
EI20	EI	100YR-EX-Masci	16.12	25.97	0.00	0.0004	661890	18.42	263.65	18.50	280.33
EI20	EI	500YR-EX-Masci	16.94	26.45	0.00	0.0004	860123	24.00	269.79	24.00	297.80
EI25	EI	002YR-EX-Masci	15.11	24.10	0.00	0.0003	671691	13.25	120.68	16.15	97.78
EI25	EI	005YR-EX-Masci	15.27	24.75	0.00	0.0007	1097679	13.42	170.82	16.74	146.44
EI25	EI	010YR-EX-Masci	15.19	25.14	0.00	0.0006	1507058	13.08	205.57	18.21	175.40
EI25	EI	025YR-EX-Masci	15.30	25.44	0.00	0.0006	1739139	13.87	232.66	16.84	218.97
EI25	EI	050YR-EX-Masci	15.72	25.72	0.00	0.0005	2577226	13.89	264.35	17.59	236.55
EI25	EI	100YR-EX-Masci	16.17	25.97	0.00	0.0004	3458440	13.63	295.42	18.43	251.73
EI25	EI	500YR-EX-Masci	16.97	26.45	0.00	0.0004	4221372	13.46	355.60	24.00	261.36
EI30	EI	002YR-EX-Masci	15.14	24.11	0.00	0.0003	229748	12.92	36.49	16.57	20.80
EI30	EI	005YR-EX-Masci	15.32	24.76	0.00	0.0007	489184	12.83	57.64	16.78	34.42
EI30	EI	010YR-EX-Masci	15.25	25.15	0.00	0.0006	704481	12.83	76.98	18.23	43.13
EI30	EI	025YR-EX-Masci	15.37	25.46	0.00	0.0006	760390	12.83	95.28	17.06	53.23
EI30	EI	050YR-EX-Masci	15.79	25.73	0.00	0.0005	1007692	12.83	110.75	18.20	55.60
EI30	EI	100YR-EX-Masci	16.25	25.99	0.00	0.0004	1256820	12.83	126.34	20.73	58.27
EI30	EI	500YR-EX-Masci	17.02	26.47	0.00	0.0004	1495063	12.83	162.47	24.00	67.85
FDOT005	FDOT	002YR-EX-Masci	13.13	24.75	0.00	0.0002	452195	12.00	97.51	13.18	13.28
FDOT005	FDOT	005YR-EX-Masci	13.30	25.00	0.00	0.0002	577080	12.00	132.74	13.58	15.20
FDOT005	FDOT	010YR-EX-Masci	13.62	25.20	0.00	0.0002	598954	12.00	163.59	13.89	16.03
FDOT005	FDOT	025YR-EX-Masci	13.80	25.38	0.00	0.0003	618702	12.00	192.21	14.26	16.74
FDOT005	FDOT	050YR-EX-Masci	14.07	25.53	0.00	0.0003	654074	12.00	216.13	14.64	17.31
FDOT005	FDOT	100YR-EX-Masci	14.21	25.67	0.00	0.0003	704198	12.00	240.10	15.00	17.85
FDOT005	FDOT	500YR-EX-Masci	14.66	25.96	0.00	0.0003	808469	12.00	295.32	16.10	18.97
FDOTPONDA	TW	002YR-EX-Masci	12.10	25.70	0.00	0.0001	15669	12.00	10.09	12.10	9.62
FDOTPONDA	TW	005YR-EX-Masci	12.10	25.75	0.00	-0.0001	16012	12.00	13.23	12.10	12.69
FDOTPONDA	TW	010YR-EX-Masci	12.10	25.79	0.00	-0.0001	16285	12.00	15.94	12.10	15.34
FDOTPONDA	TW	025YR-EX-Masci	12.09	25.82	0.00	-0.0001	16522	12.00	18.44	12.09	17.79
FDOTPONDA	TW	050YR-EX-Masci	12.09	25.85	0.00	0.0001	16710	12.00	20.52	12.09	19.83
FDOTPONDA	TW	100YR-EX-Masci	12.09	25.87	0.00	0.0002	16891	12.00	22.59	12.09	21.87
FDOTPONDA	TW	500YR-EX-Masci	12.09	25.93	0.00	0.0002	17285	12.00	27.36	12.09	26.56
FDOTPONDC	FDOT	002YR-EX-Masci	24.00	25.37	0.00	0.0001	49492	12.08	5.66	0.00	0.00
FDOTPONDC	FDOT	005YR-EX-Masci	17.50	25.48	0.00	0.0001	52857	12.08	8.53	17.50	0.41
FDOTPONDC	FDOT	010YR-EX-Masci	13.58	25.51	0.00	0.0002	53987	12.08	11.14	13.58	1.26
FDOTPONDC	FDOT	025YR-EX-Masci	12.79	25.58	0.00	0.0003	55984	12.08	13.60	12.79	3.40

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FDOTPOND	FDOT	050YR-EX-Masci	12.63	25.62	0.00	0.0003	57629	12.08	15.68	12.63	5.65
FDOTPOND	FDOT	100YR-EX-Masci	12.53	25.67	0.00	0.0003	59108	12.08	17.77	12.53	7.98
FDOTPOND	FDOT	500YR-EX-Masci	12.39	25.76	0.00	0.0003	62139	12.08	22.63	12.39	13.60
FECR	BASE	002YR-EX-Masci	0.00	0.00	0.00	0.0000	38	15.17	175.17	0.00	0.00
FECR	BASE	005YR-EX-Masci	0.00	0.00	0.00	0.0000	38	15.12	231.00	0.00	0.00
FECR	BASE	010YR-EX-Masci	0.00	0.00	0.00	0.0000	38	15.09	274.89	0.00	0.00
FECR	BASE	025YR-EX-Masci	0.00	0.00	0.00	0.0000	38	15.11	314.46	0.00	0.00
FECR	BASE	050YR-EX-Masci	0.00	0.00	0.00	0.0000	38	16.25	334.95	0.00	0.00
FECR	BASE	100YR-EX-Masci	0.00	0.00	0.00	0.0000	38	16.57	359.20	0.00	0.00
FECR	BASE	500YR-EX-Masci	0.00	0.00	0.00	0.0000	38	17.52	400.25	0.00	0.00
FPL	FPL	002YR-EX-Masci	14.94	23.38	0.00	0.0001	92389	14.08	12.80	14.94	11.92
FPL	FPL	005YR-EX-Masci	14.89	23.54	0.00	0.0002	149536	14.00	20.51	14.89	18.92
FPL	FPL	010YR-EX-Masci	15.14	23.65	0.00	0.0001	250101	14.00	27.71	15.14	24.31
FPL	FPL	025YR-EX-Masci	16.42	23.79	0.00	0.0001	373722	13.92	34.64	14.47	27.04
FPL	FPL	050YR-EX-Masci	17.45	23.97	0.00	0.0001	526533	13.92	40.50	13.86	26.96
FPL	FPL	100YR-EX-Masci	18.24	24.13	0.00	0.0001	594647	13.83	46.39	13.53	26.46
FPL	FPL	500YR-EX-Masci	19.92	24.51	0.00	0.0001	728456	13.83	59.60	24.00	26.21
GC04	GC	002YR-EX-Masci	14.30	30.17	0.00	0.0008	148	24.00	2.42	24.00	2.42
GC04	GC	005YR-EX-Masci	14.33	33.15	0.00	0.0025	148	24.00	1.31	24.00	1.32
GC04	GC	010YR-EX-Masci	14.38	35.95	0.00	0.0027	148	3.35	0.00	0.00	0.00
GC04	GC	025YR-EX-Masci	14.42	38.62	0.00	0.0027	148	2.95	0.00	0.00	0.00
GC04	GC	050YR-EX-Masci	14.46	40.91	0.00	0.0026	148	2.69	0.00	0.00	0.00
GC04	GC	100YR-EX-Masci	14.49	43.23	0.00	0.0029	148	2.47	0.00	0.00	0.00
GC04	GC	500YR-EX-Masci	14.57	48.72	0.00	0.0029	148	0.00	0.00	1.87	0.21
GC05	GC	002YR-EX-Masci	22.57	27.07	0.00	0.0003	338815	12.08	21.38	24.00	2.42
GC05	GC	005YR-EX-Masci	23.84	27.66	0.00	0.0003	417996	12.08	31.30	24.00	1.31
GC05	GC	010YR-EX-Masci	24.00	28.11	0.00	0.0003	478055	12.08	40.02	3.35	0.00
GC05	GC	025YR-EX-Masci	24.00	28.46	0.00	0.0004	525369	12.08	48.09	2.95	0.00
GC05	GC	050YR-EX-Masci	24.00	28.72	0.00	0.0003	560723	12.08	54.82	2.69	0.00
GC05	GC	100YR-EX-Masci	24.00	28.96	0.00	0.0003	593222	12.08	61.53	2.47	0.00
GC05	GC	500YR-EX-Masci	24.00	29.45	0.00	0.0003	659613	12.08	76.93	0.00	0.00
GC09	GC	002YR-EX-Masci	15.92	27.82	0.00	0.0005	2236	21.95	20.79	22.07	21.19
GC09	GC	005YR-EX-Masci	15.98	27.94	0.00	0.0010	2236	22.56	23.64	22.44	24.20
GC09	GC	010YR-EX-Masci	16.10	28.06	0.00	0.0008	2236	23.04	26.24	22.92	26.73
GC09	GC	025YR-EX-Masci	16.18	28.17	0.00	0.0008	2236	23.62	28.68	23.59	28.99
GC09	GC	050YR-EX-Masci	16.24	28.26	0.00	0.0007	2236	24.00	30.30	24.00	30.63
GC09	GC	100YR-EX-Masci	16.42	28.37	0.00	0.0007	2236	24.00	30.47	24.00	30.90
GC09	GC	500YR-EX-Masci	16.42	28.61	0.00	0.0006	2236	24.00	28.19	24.00	28.77
GC10	GC	002YR-EX-Masci	16.97	27.83	0.00	0.0004	313905	12.17	59.42	21.95	20.79
GC10	GC	005YR-EX-Masci	17.24	27.98	0.00	0.0008	387781	12.17	86.99	22.56	23.64
GC10	GC	010YR-EX-Masci	17.60	28.11	0.00	0.0010	436709	12.17	111.24	23.04	26.24
GC10	GC	025YR-EX-Masci	17.72	28.25	0.00	0.0012	484824	12.17	133.71	23.62	28.68
GC10	GC	050YR-EX-Masci	17.72	28.39	0.00	0.0011	530885	12.17	152.44	24.00	30.30
GC10	GC	100YR-EX-Masci	17.79	28.53	0.00	0.0012	617267	12.17	171.14	24.00	30.47
GC10	GC	500YR-EX-Masci	18.47	28.80	0.00	0.0011	976768	12.17	214.03	24.00	28.19
GC15	GC	002YR-EX-Masci	15.23	27.79	0.00	0.0003	87098	12.17	65.40	13.03	28.87
GC15	GC	005YR-EX-Masci	15.03	27.86	0.00	0.0005	87098	12.17	94.60	12.60	65.91
GC15	GC	010YR-EX-Masci	15.12	27.93	0.00	0.0006	87098	12.17	120.15	12.44	99.23
GC15	GC	025YR-EX-Masci	15.24	27.99	0.00	0.0010	112821	12.17	143.77	12.36	128.32
GC15	GC	050YR-EX-Masci	15.33	28.04	0.00	0.0007	148790	12.17	163.43	12.32	150.66

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GC15	GC	100YR-EX-Masci	15.43	28.09	0.00	0.0006	186106	12.17	183.05	12.29	172.42
GC15	GC	500YR-EX-Masci	15.66	28.23	0.00	0.0005	282290	12.17	228.00	12.26	217.69
GC20	GC	002YR-EX-Masci	21.08	25.73	0.00	0.0001	194719	12.00	25.05	24.00	2.22
GC20	GC	005YR-EX-Masci	21.21	25.92	0.00	0.0001	194719	12.00	34.37	24.00	2.54
GC20	GC	010YR-EX-Masci	21.44	26.08	0.00	0.0002	194719	12.00	42.42	24.00	2.73
GC20	GC	025YR-EX-Masci	21.64	26.24	0.00	0.0002	194719	12.00	49.83	24.00	2.82
GC20	GC	050YR-EX-Masci	21.83	26.36	0.00	0.0002	194719	12.00	55.98	24.00	2.78
GC20	GC	100YR-EX-Masci	22.10	26.49	0.00	0.0002	194719	12.00	62.13	24.00	2.61
GC20	GC	500YR-EX-Masci	22.64	26.80	0.00	0.0002	194719	12.00	76.23	24.00	1.60
GC25	GC	002YR-EX-Masci	24.00	25.48	0.00	0.0000	230818	0.00	0.00	0.00	0.00
GC25	GC	005YR-EX-Masci	24.00	25.58	0.00	0.0000	231682	0.00	0.00	0.00	0.00
GC25	GC	010YR-EX-Masci	24.00	25.66	0.00	0.0000	232388	0.00	0.00	0.00	0.00
GC25	GC	025YR-EX-Masci	24.00	25.73	0.00	0.0000	233000	0.00	0.00	0.00	0.00
GC25	GC	050YR-EX-Masci	24.00	25.79	0.00	0.0000	233487	0.00	0.00	0.00	0.00
GC25	GC	100YR-EX-Masci	24.00	25.84	0.00	0.0000	233959	0.00	0.00	0.00	0.00
GC25	GC	500YR-EX-Masci	24.00	25.96	0.00	0.0000	234979	0.00	0.00	0.00	0.00
GC30	GC	002YR-EX-Masci	14.25	30.98	0.00	0.0009	54049	12.25	92.39	13.81	10.40
GC30	GC	005YR-EX-Masci	14.29	34.47	0.00	0.0030	54049	12.25	132.62	14.11	14.44
GC30	GC	010YR-EX-Masci	14.34	37.74	0.00	0.0031	54049	12.25	167.82	14.24	17.50
GC30	GC	025YR-EX-Masci	14.39	40.89	0.00	0.0031	54049	12.25	200.39	14.31	20.02
GC30	GC	050YR-EX-Masci	14.43	43.59	0.00	0.0031	54049	12.25	227.57	14.35	21.95
GC30	GC	100YR-EX-Masci	14.46	46.33	0.00	0.0035	54049	12.25	254.74	14.40	23.76
GC30	GC	500YR-EX-Masci	14.54	52.81	0.00	0.0035	54049	12.25	317.19	14.47	27.56
GC35	GC	002YR-EX-Masci	13.60	28.05	0.00	0.0005	32234	12.58	84.24	12.95	60.55
GC35	GC	005YR-EX-Masci	13.25	29.78	0.00	0.0023	32234	12.58	126.35	13.03	92.84
GC35	GC	010YR-EX-Masci	13.23	31.73	0.00	0.0027	32234	12.58	163.82	13.07	118.95
GC35	GC	025YR-EX-Masci	13.25	33.77	0.00	0.0028	32234	12.50	199.03	13.13	141.68
GC35	GC	050YR-EX-Masci	13.26	35.62	0.00	0.0030	32234	12.50	228.56	13.17	160.01
GC35	GC	100YR-EX-Masci	13.28	37.59	0.00	0.0031	32234	12.50	258.15	13.22	177.72
GC35	GC	500YR-EX-Masci	13.34	42.50	0.00	0.0033	32234	12.50	326.23	13.29	216.18
GH05	GH	002YR-EX-Masci	14.58	15.31	0.00	0.0003	4187	14.55	56.14	14.58	56.14
GH05	GH	005YR-EX-Masci	16.33	17.39	0.00	0.0006	16631	16.28	222.92	16.33	222.90
GH05	GH	010YR-EX-Masci	16.83	18.29	0.00	0.0018	39402	16.50	284.89	16.83	284.23
GH05	GH	025YR-EX-Masci	17.01	18.95	0.00	0.0016	120036	16.58	332.49	17.01	331.71
GH05	GH	050YR-EX-Masci	17.28	19.38	0.00	0.0011	154954	16.64	363.99	17.28	362.84
GH05	GH	100YR-EX-Masci	17.66	19.76	0.00	0.0012	211160	16.77	392.14	17.66	390.58
GH05	GH	500YR-EX-Masci	17.94	20.39	0.00	0.0007	295319	16.51	439.29	17.94	436.56
GH06	GH	002YR-EX-Masci	12.71	21.95	0.00	0.0002	12073	12.60	17.72	12.71	17.64
GH06	GH	005YR-EX-Masci	12.51	22.11	0.00	0.0002	16145	12.38	24.34	12.51	24.08
GH06	GH	010YR-EX-Masci	12.44	22.21	0.00	0.0002	19011	12.33	29.85	12.44	29.48
GH06	GH	025YR-EX-Masci	12.41	22.29	0.00	0.0003	21232	12.33	34.83	12.41	34.46
GH06	GH	050YR-EX-Masci	12.40	22.35	0.00	0.0002	22897	12.33	39.07	12.40	38.69
GH06	GH	100YR-EX-Masci	12.40	22.40	0.00	0.0002	24435	12.33	43.40	12.40	43.01
GH06	GH	500YR-EX-Masci	12.41	22.52	0.00	0.0002	29621	12.33	53.69	12.41	53.27
GH07	GH	002YR-EX-Masci	12.80	23.47	0.00	0.0001	17064	12.70	16.29	12.80	16.27
GH07	GH	005YR-EX-Masci	12.64	23.54	0.00	0.0001	23423	12.56	21.20	12.64	21.17
GH07	GH	010YR-EX-Masci	12.57	23.59	0.00	0.0001	29323	12.34	25.14	12.57	25.01
GH07	GH	025YR-EX-Masci	12.53	23.63	0.00	0.0001	34398	12.33	28.83	12.53	28.60
GH07	GH	050YR-EX-Masci	12.53	23.66	0.00	0.0001	38532	12.33	32.03	12.53	31.72
GH07	GH	100YR-EX-Masci	12.51	23.70	0.00	0.0001	42512	12.33	35.30	12.51	34.90

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GH07	GH	500YR-EX-Masci	12.64	23.78	0.00	0.0001	52400	12.46	43.87	12.64	43.55
GH10	GH	002YR-EX-Masci	16.19	16.18	0.00	0.0007	5286	16.17	112.24	16.19	112.24
GH10	GH	005YR-EX-Masci	16.45	17.05	0.00	0.0014	5095	16.43	163.71	16.45	163.70
GH10	GH	010YR-EX-Masci	16.80	18.06	0.00	0.0013	4640	16.77	206.90	16.80	206.90
GH10	GH	025YR-EX-Masci	17.07	18.73	0.00	0.0010	4636	17.04	239.24	17.07	239.24
GH10	GH	050YR-EX-Masci	17.33	19.23	0.00	0.0013	4631	17.30	263.72	17.33	263.72
GH10	GH	100YR-EX-Masci	17.73	19.69	0.00	0.0016	4626	17.72	286.36	17.73	286.39
GH10	GH	500YR-EX-Masci	18.60	20.36	0.00	0.0013	4617	18.57	319.00	18.60	319.00
GH15	GH	002YR-EX-Masci	16.19	15.61	0.00	0.0007	5413	16.17	125.15	16.19	125.14
GH15	GH	005YR-EX-Masci	16.45	16.74	0.00	0.0013	5216	16.43	205.34	16.45	205.34
GH15	GH	010YR-EX-Masci	16.79	17.79	0.00	0.0012	4669	16.77	262.23	16.79	262.23
GH15	GH	025YR-EX-Masci	17.07	18.33	0.00	0.0010	4665	17.04	294.24	17.07	294.24
GH15	GH	050YR-EX-Masci	17.32	18.65	0.00	0.0013	4662	17.29	313.44	17.32	313.44
GH15	GH	100YR-EX-Masci	17.75	18.92	0.00	0.0015	4659	17.72	330.30	17.75	330.30
GH15	GH	500YR-EX-Masci	18.59	19.40	0.00	0.0013	4653	18.57	359.28	18.59	359.28
GH20	GH	002YR-EX-Masci	16.21	16.35	0.00	0.0005	4856	16.19	127.61	16.21	127.61
GH20	GH	005YR-EX-Masci	16.47	17.74	0.00	0.0017	4500	16.46	261.18	16.47	261.18
GH20	GH	010YR-EX-Masci	16.81	18.77	0.00	0.0018	4500	16.80	388.47	16.81	388.47
GH20	GH	025YR-EX-Masci	17.08	19.83	0.00	0.0020	4500	17.07	483.32	17.08	483.31
GH20	GH	050YR-EX-Masci	17.32	19.95	0.00	0.0059	4500	17.31	545.75	17.32	493.27
GH20	GH	100YR-EX-Masci	17.86	19.96	0.00	-0.0084	4500	17.71	591.18	17.86	493.58
GH20	GH	500YR-EX-Masci	18.97	19.96	0.00	-0.0084	4500	18.50	654.17	18.97	493.75
GR30-O	FPL	002YR-EX-Masci	15.64	24.28	0.00	0.0001	133340	12.75	6.66	15.64	2.43
GR30-O	FPL	005YR-EX-Masci	15.25	24.40	0.00	0.0001	141652	12.75	9.78	15.25	3.83
GR30-O	FPL	010YR-EX-Masci	15.03	24.49	0.00	0.0001	148847	12.75	12.53	15.03	5.12
GR30-O	FPL	025YR-EX-Masci	14.91	24.57	0.00	0.0001	165543	12.75	15.08	14.91	6.32
GR30-O	FPL	050YR-EX-Masci	14.88	24.64	0.00	0.0001	178525	12.75	17.22	14.66	7.23
GR30-O	FPL	100YR-EX-Masci	14.99	24.70	0.00	0.0001	191458	12.75	19.35	14.51	7.94
GR30-O	FPL	500YR-EX-Masci	15.41	24.85	0.00	0.0001	221315	12.67	24.27	14.16	9.27
GrandHaven	BNDY	002YR-EX-Masci	0.00	11.95	0.00	0.0000	205	16.10	422.19	0.00	0.00
GrandHaven	BNDY	005YR-EX-Masci	0.00	11.95	0.00	0.0000	205	16.38	858.41	0.00	0.00
GrandHaven	BNDY	010YR-EX-Masci	0.00	11.95	0.00	0.0000	205	16.79	1148.16	0.00	0.00
GrandHaven	BNDY	025YR-EX-Masci	0.00	11.95	0.00	0.0000	205	17.01	1355.85	0.00	0.00
GrandHaven	BNDY	050YR-EX-Masci	0.00	11.95	0.00	0.0000	205	17.14	1441.45	0.00	0.00
GrandHaven	BNDY	100YR-EX-Masci	0.00	11.95	0.00	0.0000	205	17.53	1509.35	0.00	0.00
GrandHaven	BNDY	500YR-EX-Masci	0.00	11.95	0.00	0.0000	205	17.99	1618.27	0.00	0.00
KING	KING	002YR-EX-Masci	12.80	21.71	0.00	0.0003	17454	12.08	9.10	12.80	2.36
KING	KING	005YR-EX-Masci	12.41	21.93	0.00	0.0004	18214	12.08	13.40	12.41	7.67
KING	KING	010YR-EX-Masci	12.37	22.15	0.00	0.0004	18912	12.08	17.18	12.37	10.83
KING	KING	025YR-EX-Masci	12.36	22.39	0.00	0.0006	19628	12.08	20.69	12.36	13.33
KING	KING	050YR-EX-Masci	12.36	22.59	0.00	0.0005	20237	12.08	23.61	12.36	15.13
KING	KING	100YR-EX-Masci	12.34	22.77	0.00	0.0006	20801	12.00	26.56	12.34	17.50
KING	KING	500YR-EX-Masci	12.25	23.00	0.00	0.0006	21524	12.00	33.38	12.25	25.52
NBT07	BelleTerre	002YR-EX-Masci	12.13	25.31	0.00	0.0001	1198	12.08	1.37	12.10	1.28
NBT07	BelleTerre	005YR-EX-Masci	12.33	25.47	0.00	-0.0002	1333	12.08	2.04	12.09	1.85
NBT07	BelleTerre	010YR-EX-Masci	12.39	25.71	0.00	-0.0003	1511	12.08	2.62	12.08	2.27
NBT07	BelleTerre	025YR-EX-Masci	12.41	26.04	0.00	0.0005	1746	12.08	3.17	12.02	2.54
NBT07	BelleTerre	050YR-EX-Masci	12.41	26.34	0.00	0.0006	1955	12.08	3.63	11.99	2.63
NBT07	BelleTerre	100YR-EX-Masci	12.43	26.64	0.00	0.0008	2166	12.08	4.09	11.94	2.64
NBT07	BelleTerre	500YR-EX-Masci	12.48	27.32	0.00	0.0008	2648	12.00	5.15	12.18	2.70

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NBT08	BelleTerre	002YR-EX-Masci	12.36	25.16	0.00	0.0001	2287	12.08	2.39	12.14	2.10
NBT08	BelleTerre	005YR-EX-Masci	12.40	25.42	0.00	-0.0002	2327	12.08	3.71	12.12	3.12
NBT08	BelleTerre	010YR-EX-Masci	12.40	25.69	0.00	-0.0003	1873	12.08	4.83	12.10	3.95
NBT08	BelleTerre	025YR-EX-Masci	12.41	26.04	0.00	0.0006	1935	12.03	5.72	12.05	4.42
NBT08	BelleTerre	050YR-EX-Masci	12.41	26.34	0.00	0.0008	2145	12.00	6.33	12.12	4.79
NBT08	BelleTerre	100YR-EX-Masci	12.43	26.64	0.00	0.0009	2357	12.08	6.85	12.09	5.05
NBT08	BelleTerre	500YR-EX-Masci	12.48	27.32	0.00	0.0009	2839	12.08	8.34	12.22	5.78
NBT10	BelleTerre	002YR-EX-Masci	12.49	25.08	0.00	0.0002	4746	12.13	2.62	12.39	1.87
NBT10	BelleTerre	005YR-EX-Masci	12.49	25.36	0.00	0.0002	5236	12.10	4.04	12.31	2.83
NBT10	BelleTerre	010YR-EX-Masci	12.47	25.60	0.00	0.0003	5151	12.09	5.26	12.42	3.68
NBT10	BelleTerre	025YR-EX-Masci	12.47	25.88	0.00	0.0006	5744	12.05	6.11	12.58	4.57
NBT10	BelleTerre	050YR-EX-Masci	12.47	26.13	0.00	0.0005	6337	12.10	6.74	12.61	5.42
NBT10	BelleTerre	100YR-EX-Masci	12.47	26.38	0.00	0.0007	6937	12.08	7.40	12.67	6.24
NBT10	BelleTerre	500YR-EX-Masci	12.55	26.98	0.00	0.0008	8367	12.08	8.73	12.75	7.09
NBT11	BelleTerre	002YR-EX-Masci	12.65	24.95	0.00	0.0002	7023	12.23	4.93	12.23	3.89
NBT11	BelleTerre	005YR-EX-Masci	12.54	25.28	0.00	0.0002	7482	12.08	8.39	12.31	6.20
NBT11	BelleTerre	010YR-EX-Masci	12.48	25.53	0.00	0.0003	7304	12.08	11.44	12.30	8.54
NBT11	BelleTerre	025YR-EX-Masci	12.46	25.83	0.00	0.0006	6036	12.08	14.14	12.38	10.29
NBT11	BelleTerre	050YR-EX-Masci	12.46	26.09	0.00	0.0006	6644	12.08	15.97	12.40	11.87
NBT11	BelleTerre	100YR-EX-Masci	12.47	26.36	0.00	0.0009	7255	12.02	17.35	12.47	13.19
NBT11	BelleTerre	500YR-EX-Masci	12.55	26.97	0.00	0.0009	8700	12.08	20.43	12.37	14.75
NBT15	BelleTerre	002YR-EX-Masci	12.70	24.91	0.00	0.0002	9658	12.21	4.91	12.70	3.45
NBT15	BelleTerre	005YR-EX-Masci	12.57	25.22	0.00	0.0003	10418	12.21	7.84	12.57	6.47
NBT15	BelleTerre	010YR-EX-Masci	12.51	25.44	0.00	0.0003	10288	12.22	10.81	12.51	9.45
NBT15	BelleTerre	025YR-EX-Masci	12.49	25.65	0.00	0.0006	9691	12.11	13.42	12.50	12.00
NBT15	BelleTerre	050YR-EX-Masci	12.48	25.84	0.00	0.0006	10671	12.08	15.11	12.52	14.06
NBT15	BelleTerre	100YR-EX-Masci	12.47	26.04	0.00	0.0006	11634	12.28	16.36	12.55	16.01
NBT15	BelleTerre	500YR-EX-Masci	12.57	26.59	0.00	0.0006	14099	12.09	19.73	12.68	17.61
NBT18	BelleTerre	002YR-EX-Masci	12.70	24.19	0.00	0.0001	7921	12.53	3.92	12.70	3.75
NBT18	BelleTerre	005YR-EX-Masci	12.59	24.39	0.00	0.0001	9366	12.38	7.06	12.59	6.72
NBT18	BelleTerre	010YR-EX-Masci	12.55	24.57	0.00	0.0002	10575	12.33	10.07	12.55	9.35
NBT18	BelleTerre	025YR-EX-Masci	12.41	24.94	0.00	0.0008	12843	12.27	10.15	12.67	10.91
NBT18	BelleTerre	050YR-EX-Masci	12.38	25.35	0.00	0.0010	15294	11.99	9.59	12.67	9.85
NBT18	BelleTerre	100YR-EX-Masci	12.37	25.71	0.00	0.0011	17542	11.93	9.57	12.67	8.37
NBT18	BelleTerre	500YR-EX-Masci	12.54	26.47	0.00	0.0012	22704	11.85	9.38	12.81	6.61
NBT20	BelleTerre	002YR-EX-Masci	12.12	24.16	0.00	0.0001	2546	12.08	1.57	12.12	1.48
NBT20	BelleTerre	005YR-EX-Masci	12.34	24.26	0.00	-0.0001	2970	12.08	2.46	12.10	2.28
NBT20	BelleTerre	010YR-EX-Masci	12.36	24.37	0.00	-0.0001	3309	12.08	3.26	12.05	2.84
NBT20	BelleTerre	025YR-EX-Masci	12.39	24.61	0.00	0.0003	4069	12.08	4.01	11.97	2.95
NBT20	BelleTerre	050YR-EX-Masci	12.38	24.92	0.00	0.0005	4966	12.08	4.65	12.40	2.87
NBT20	BelleTerre	100YR-EX-Masci	12.40	25.28	0.00	0.0006	5943	12.08	5.28	12.52	3.42
NBT20	BelleTerre	500YR-EX-Masci	12.57	26.36	0.00	0.0008	8649	12.08	6.75	12.69	3.09
PA05	PA	002YR-EX-Masci	16.21	21.06	0.00	0.0004	641402	12.42	383.54	12.37	334.82
PA05	PA	005YR-EX-Masci	16.48	22.03	0.00	0.0008	1024077	12.38	503.97	12.34	433.65
PA05	PA	010YR-EX-Masci	16.82	22.73	0.00	0.0007	1248650	12.37	609.13	12.34	506.53
PA05	PA	025YR-EX-Masci	17.08	23.17	0.00	0.0006	1445412	12.41	706.36	12.33	574.43
PA05	PA	050YR-EX-Masci	17.32	23.49	0.00	0.0006	1485138	12.33	787.63	12.25	619.99
PA05	PA	100YR-EX-Masci	17.72	23.78	0.00	0.0006	1598017	12.33	859.95	12.16	622.34
PA05	PA	500YR-EX-Masci	18.51	24.31	0.00	0.0004	1741274	12.33	1020.94	12.10	561.50

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PA10	PA	002YR-EX-Masci	16.21	21.06	0.00	0.0004	114431	13.00	207.76	13.08	187.23
PA10	PA	005YR-EX-Masci	16.48	22.03	0.00	0.0008	145897	12.99	257.70	13.00	227.43
PA10	PA	010YR-EX-Masci	16.82	22.73	0.00	0.0007	174099	12.78	292.92	12.78	251.42
PA10	PA	025YR-EX-Masci	17.08	23.17	0.00	0.0006	198281	12.84	324.44	13.02	269.01
PA10	PA	050YR-EX-Masci	17.31	23.49	0.00	0.0006	213766	12.92	351.57	13.00	293.48
PA10	PA	100YR-EX-Masci	17.72	23.78	0.00	0.0006	243432	12.84	379.67	12.88	315.25
PA10	PA	500YR-EX-Masci	18.50	24.31	0.00	0.0004	302322	12.76	438.62	13.01	365.09
PA15	PA	002YR-EX-Masci	16.18	21.12	0.00	0.0004	16827	13.50	178.34	13.55	175.46
PA15	PA	005YR-EX-Masci	16.45	22.07	0.00	0.0009	25430	13.08	211.29	13.09	206.53
PA15	PA	010YR-EX-Masci	16.79	22.76	0.00	0.0007	41859	13.00	232.12	13.01	225.60
PA15	PA	025YR-EX-Masci	17.04	23.20	0.00	0.0006	58966	13.00	252.62	13.08	244.42
PA15	PA	050YR-EX-Masci	17.27	23.52	0.00	0.0007	70787	13.00	270.38	13.01	261.67
PA15	PA	100YR-EX-Masci	17.65	23.81	0.00	0.0005	92714	13.00	288.30	13.00	277.37
PA15	PA	500YR-EX-Masci	18.36	24.33	0.00	0.0005	129878	13.00	329.51	13.01	311.79
PA17	PA	002YR-EX-Masci	15.20	27.79	0.00	0.0004	97022	12.41	150.91	14.20	118.42
PA17	PA	005YR-EX-Masci	15.03	27.87	0.00	0.0010	97536	12.39	158.90	13.13	114.78
PA17	PA	010YR-EX-Masci	15.13	27.93	0.00	0.0008	97964	12.40	167.58	12.73	112.17
PA17	PA	025YR-EX-Masci	15.24	27.99	0.00	0.0008	98376	12.33	175.65	12.50	109.84
PA17	PA	050YR-EX-Masci	15.33	28.04	0.00	0.0007	98732	12.25	180.32	12.37	107.70
PA17	PA	100YR-EX-Masci	15.43	28.09	0.00	0.0007	99106	12.17	183.86	12.25	105.24
PA17	PA	500YR-EX-Masci	15.65	28.23	0.00	0.0007	100070	12.17	187.30	12.34	101.20
PA20	PA	002YR-EX-Masci	15.20	27.79	0.00	0.0004	1935553	12.51	384.95	12.41	150.91
PA20	PA	005YR-EX-Masci	15.03	27.87	0.00	0.0009	2108111	12.79	445.68	12.39	158.90
PA20	PA	010YR-EX-Masci	15.13	27.93	0.00	0.0008	2252046	12.69	500.02	12.40	167.58
PA20	PA	025YR-EX-Masci	15.24	27.99	0.00	0.0008	2390374	12.63	546.33	12.33	175.65
PA20	PA	050YR-EX-Masci	15.33	28.04	0.00	0.0007	2428550	12.61	585.97	12.25	180.32
PA20	PA	100YR-EX-Masci	15.43	28.09	0.00	0.0007	2464548	12.56	624.36	12.17	183.86
PA20	PA	500YR-EX-Masci	15.65	28.23	0.00	0.0007	2557476	12.47	711.81	12.17	187.30
PA25	PA	002YR-EX-Masci	15.20	27.79	0.00	0.0004	1332335	13.02	480.03	12.52	300.40
PA25	PA	005YR-EX-Masci	15.03	27.87	0.00	0.0009	1445177	12.89	520.61	12.93	298.63
PA25	PA	010YR-EX-Masci	15.12	27.93	0.00	0.0008	1539356	12.77	550.22	12.84	291.35
PA25	PA	025YR-EX-Masci	15.24	27.99	0.00	0.0008	1629892	12.69	571.79	12.78	281.34
PA25	PA	050YR-EX-Masci	15.33	28.04	0.00	0.0007	1659074	12.64	587.30	12.77	271.55
PA25	PA	100YR-EX-Masci	15.43	28.09	0.00	0.0007	1687322	12.60	602.21	12.73	261.37
PA25	PA	500YR-EX-Masci	15.65	28.23	0.00	0.0007	1760251	12.53	630.81	12.69	237.13
PA30	PA	002YR-EX-Masci	15.19	27.79	0.00	0.0004	1122562	12.50	581.03	13.07	442.95
PA30	PA	005YR-EX-Masci	15.03	27.87	0.00	0.0009	1255207	12.88	603.62	12.91	456.46
PA30	PA	010YR-EX-Masci	15.12	27.93	0.00	0.0008	1366127	13.75	647.75	12.80	456.52
PA30	PA	025YR-EX-Masci	15.24	27.99	0.00	0.0008	1472795	13.48	699.99	12.76	449.62
PA30	PA	050YR-EX-Masci	15.33	28.04	0.00	0.0007	1506600	13.33	726.38	12.73	440.83
PA30	PA	100YR-EX-Masci	15.43	28.09	0.00	0.0007	1539304	13.23	740.19	12.72	430.92
PA30	PA	500YR-EX-Masci	15.65	28.23	0.00	0.0007	1623750	13.03	713.15	12.69	404.43
PA35	PA	002YR-EX-Masci	15.20	27.79	0.00	0.0004	667490	12.51	1122.00	12.54	944.19
PA35	PA	005YR-EX-Masci	15.01	27.87	0.00	0.0009	719352	12.45	1041.07	12.78	865.23
PA35	PA	010YR-EX-Masci	15.10	27.93	0.00	0.0008	762363	12.68	977.16	12.76	826.81
PA35	PA	025YR-EX-Masci	15.21	27.99	0.00	0.0009	803657	12.68	946.26	12.72	784.31
PA35	PA	050YR-EX-Masci	15.30	28.04	0.00	0.0007	829020	12.67	918.54	12.70	746.64
PA35	PA	100YR-EX-Masci	15.39	28.09	0.00	0.0008	854633	12.65	888.41	12.69	707.49
PA35	PA	500YR-EX-Masci	15.62	28.22	0.00	0.0007	920779	12.62	812.16	12.67	609.72
PA40	PA	002YR-EX-Masci	15.18	27.80	0.00	0.0004	435442	12.49	1127.37	12.50	1058.44

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PA40	PA	005YR-EX-Masci	14.99	27.87	0.00	0.0009	493132	12.44	1028.74	12.44	948.52
PA40	PA	010YR-EX-Masci	15.07	27.93	0.00	0.0008	540535	12.39	931.40	12.40	842.58
PA40	PA	025YR-EX-Masci	15.18	27.98	0.00	0.0009	585969	12.64	846.99	12.68	778.82
PA40	PA	050YR-EX-Masci	15.26	28.03	0.00	0.0007	615077	12.63	799.23	12.65	726.12
PA40	PA	100YR-EX-Masci	15.35	28.08	0.00	0.0008	643839	12.61	749.85	12.63	671.73
PA40	PA	500YR-EX-Masci	15.58	28.22	0.00	0.0007	718142	12.59	627.53	12.61	538.98
PA45	PA	002YR-EX-Masci	15.11	27.80	0.00	0.0004	1747279	12.42	1314.80	12.48	1071.09
PA45	PA	005YR-EX-Masci	14.80	27.86	0.00	0.0008	1910971	12.42	1221.38	12.43	949.50
PA45	PA	010YR-EX-Masci	14.79	27.91	0.00	0.0008	2029334	12.51	1141.72	12.38	833.97
PA45	PA	025YR-EX-Masci	14.85	27.95	0.00	0.0009	2137721	12.51	1080.31	12.35	727.76
PA45	PA	050YR-EX-Masci	14.90	27.99	0.00	0.0008	2231643	12.51	1031.38	12.32	637.59
PA45	PA	100YR-EX-Masci	14.95	28.03	0.00	0.0008	2272245	12.50	982.47	12.60	568.33
PA45	PA	500YR-EX-Masci	15.11	28.12	0.00	0.0007	2362029	12.50	867.53	12.56	400.82
PA50	PA	002YR-EX-Masci	15.07	27.80	0.00	0.0004	399520	12.33	1416.23	12.42	1293.47
PA50	PA	005YR-EX-Masci	14.75	27.86	0.00	0.0008	420788	12.33	1330.09	12.35	1190.48
PA50	PA	010YR-EX-Masci	14.72	27.90	0.00	0.0008	435508	12.33	1246.76	12.34	1096.06
PA50	PA	025YR-EX-Masci	14.77	27.94	0.00	0.0010	448802	12.33	1165.71	12.50	1022.31
PA50	PA	050YR-EX-Masci	14.82	27.97	0.00	0.0008	460331	12.50	1104.55	12.50	964.53
PA50	PA	100YR-EX-Masci	14.86	28.01	0.00	0.0008	469732	12.50	1050.41	12.50	906.83
PA50	PA	500YR-EX-Masci	15.00	28.10	0.00	0.0007	488183	12.50	924.99	12.50	771.41
PA55	PA	002YR-EX-Masci	13.92	27.88	0.00	0.0006	75	12.08	6.88	12.42	1365.63
PA55	PA	005YR-EX-Masci	13.92	27.88	0.00	0.0007	75	12.08	9.93	12.33	1260.08
PA55	PA	010YR-EX-Masci	13.92	27.88	0.00	0.0010	75	12.08	12.60	12.33	1161.44
PA55	PA	025YR-EX-Masci	13.92	27.88	0.00	0.0011	75	12.00	15.07	12.50	1075.24
PA55	PA	050YR-EX-Masci	13.92	27.88	0.00	0.0009	75	12.00	17.15	12.50	1010.64
PA55	PA	100YR-EX-Masci	13.92	27.88	0.00	0.0009	75	12.00	19.23	12.50	946.68
PA55	PA	500YR-EX-Masci	13.92	27.88	0.00	0.0007	75	12.00	24.00	12.50	798.78
PG05	PG	002YR-EX-Masci	16.06	21.03	0.00	0.0004	258929	13.54	527.30	14.12	490.51
PG05	PG	005YR-EX-Masci	16.31	22.02	0.00	0.0009	327327	13.26	781.24	13.37	712.95
PG05	PG	010YR-EX-Masci	16.67	22.72	0.00	0.0008	510101	13.02	987.92	13.10	891.53
PG05	PG	025YR-EX-Masci	16.95	23.17	0.00	0.0007	741382	12.86	1147.02	12.90	1023.96
PG05	PG	050YR-EX-Masci	17.21	23.48	0.00	0.0006	860706	12.88	1252.12	13.00	1122.11
PG05	PG	100YR-EX-Masci	17.64	23.77	0.00	0.0006	1581976	12.85	1364.95	12.89	1217.62
PG05	PG	500YR-EX-Masci	18.52	24.28	0.00	0.0005	2379774	12.83	1595.75	12.74	1387.57
PG10	PG	002YR-EX-Masci	15.98	21.06	0.00	0.0004	341942	13.43	488.16	14.12	438.30
PG10	PG	005YR-EX-Masci	16.22	22.05	0.00	0.0009	408004	13.23	705.28	13.59	622.00
PG10	PG	010YR-EX-Masci	16.60	22.76	0.00	0.0008	504896	12.93	884.22	13.10	758.78
PG10	PG	025YR-EX-Masci	16.89	23.20	0.00	0.0007	603909	12.75	1027.41	12.85	862.94
PG10	PG	050YR-EX-Masci	17.15	23.51	0.00	0.0006	679479	12.67	1114.12	12.78	923.84
PG10	PG	100YR-EX-Masci	17.58	23.79	0.00	0.0006	941729	12.67	1189.22	12.85	992.61
PG10	PG	500YR-EX-Masci	18.48	24.30	0.00	0.0005	1287157	12.67	1362.25	12.78	1123.65
PG15	PG	002YR-EX-Masci	15.91	21.08	0.00	0.0004	170941	13.72	426.72	14.05	402.85
PG15	PG	005YR-EX-Masci	16.14	22.08	0.00	0.0009	196220	13.62	598.47	13.83	565.04
PG15	PG	010YR-EX-Masci	16.55	22.78	0.00	0.0008	219586	13.15	714.21	13.23	660.12
PG15	PG	025YR-EX-Masci	16.85	23.23	0.00	0.0007	236861	12.74	795.46	12.83	715.93
PG15	PG	050YR-EX-Masci	17.11	23.54	0.00	0.0006	249458	12.58	844.23	12.73	748.46
PG15	PG	100YR-EX-Masci	17.54	23.82	0.00	0.0007	267337	12.58	880.94	12.80	777.54
PG15	PG	500YR-EX-Masci	18.45	24.32	0.00	0.0005	304495	12.54	958.54	12.78	842.52
PG20	PG	002YR-EX-Masci	14.97	21.70	0.00	0.0006	19323	13.93	385.80	13.98	383.15
PG20	PG	005YR-EX-Masci	14.87	23.42	0.00	0.0015	41906	13.94	539.78	14.01	534.01

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PG20	PG	010YR-EX-Masci	15.18	24.41	0.00	0.0016	91649	13.32	618.64	13.44	602.12
PG20	PG	025YR-EX-Masci	15.41	25.04	0.00	0.0015	149965	13.14	646.15	13.42	622.41
PG20	PG	050YR-EX-Masci	15.60	25.46	0.00	0.0015	197565	13.26	666.78	13.33	633.68
PG20	PG	100YR-EX-Masci	15.84	25.87	0.00	0.0017	457932	13.06	686.74	13.25	641.29
PG20	PG	500YR-EX-Masci	16.78	26.64	0.00	0.0013	1389030	13.55	749.20	15.05	660.29
PG22	PG	002YR-EX-Masci	14.22	23.65	0.00	0.0002	43617	14.18	337.34	14.22	337.28
PG22	PG	005YR-EX-Masci	14.42	24.11	0.00	0.0006	45944	14.30	471.11	14.34	470.83
PG22	PG	010YR-EX-Masci	15.13	24.74	0.00	0.0005	49077	14.12	514.86	14.20	511.33
PG22	PG	025YR-EX-Masci	15.41	25.32	0.00	0.0005	51990	14.41	523.11	15.36	521.89
PG22	PG	050YR-EX-Masci	15.61	25.71	0.00	0.0006	53959	14.58	525.95	16.73	527.64
PG22	PG	100YR-EX-Masci	15.85	26.09	0.00	0.0006	55817	14.16	512.06	18.91	509.30
PG22	PG	500YR-EX-Masci	16.76	26.78	0.00	0.0005	59249	23.45	472.57	23.44	476.71
PG25	PG	002YR-EX-Masci	14.22	23.67	0.00	0.0002	43705	14.13	337.53	14.18	337.34
PG25	PG	005YR-EX-Masci	14.41	24.14	0.00	0.0006	46057	14.25	471.51	14.30	471.11
PG25	PG	010YR-EX-Masci	15.12	24.76	0.00	0.0005	49175	14.05	518.69	14.12	514.86
PG25	PG	025YR-EX-Masci	15.41	25.34	0.00	0.0005	52074	14.12	527.21	14.41	523.11
PG25	PG	050YR-EX-Masci	15.61	25.73	0.00	0.0006	54034	14.47	529.16	14.58	525.95
PG25	PG	100YR-EX-Masci	15.85	26.10	0.00	0.0006	55882	14.10	517.43	14.16	512.06
PG25	PG	500YR-EX-Masci	16.75	26.78	0.00	0.0005	61714	13.48	479.98	23.45	472.57
PG30	PG	002YR-EX-Masci	14.20	23.87	0.00	0.0003	559469	13.16	379.54	14.13	336.22
PG30	PG	005YR-EX-Masci	14.36	24.55	0.00	0.0007	636384	13.08	539.11	14.26	469.72
PG30	PG	010YR-EX-Masci	14.97	25.24	0.00	0.0007	744526	13.05	657.93	14.06	516.37
PG30	PG	025YR-EX-Masci	15.36	25.85	0.00	0.0006	1077303	12.91	744.65	14.14	524.52
PG30	PG	050YR-EX-Masci	15.61	26.25	0.00	0.0007	1347419	12.83	798.57	15.56	532.83
PG30	PG	100YR-EX-Masci	15.80	26.56	0.00	0.0007	1778488	12.75	844.63	15.41	552.05
PG30	PG	500YR-EX-Masci	16.47	27.02	0.00	0.0005	3720608	12.70	936.57	16.10	608.96
PG35	PG	002YR-EX-Masci	14.18	23.89	0.00	0.0003	174223	12.73	318.83	12.83	277.68
PG35	PG	005YR-EX-Masci	14.34	24.59	0.00	0.0007	206673	12.72	436.38	12.81	378.12
PG35	PG	010YR-EX-Masci	14.95	25.27	0.00	0.0006	262640	12.67	527.49	12.70	452.15
PG35	PG	025YR-EX-Masci	15.35	25.87	0.00	0.0006	431897	12.61	599.45	12.65	509.36
PG35	PG	050YR-EX-Masci	15.60	26.26	0.00	0.0006	568074	12.58	653.74	12.55	547.53
PG35	PG	100YR-EX-Masci	15.79	26.57	0.00	0.0006	808892	12.52	699.47	12.50	575.49
PG35	PG	500YR-EX-Masci	16.44	27.04	0.00	0.0005	1735781	12.44	779.20	12.40	616.59
PG40	PG	002YR-EX-Masci	13.99	24.15	0.00	0.0003	72391	12.76	246.99	12.92	227.79
PG40	PG	005YR-EX-Masci	14.13	25.05	0.00	0.0008	77960	12.79	327.22	12.97	303.02
PG40	PG	010YR-EX-Masci	14.57	25.80	0.00	0.0008	93814	12.67	379.77	12.88	348.10
PG40	PG	025YR-EX-Masci	15.06	26.38	0.00	0.0008	112336	12.62	416.98	12.76	377.50
PG40	PG	050YR-EX-Masci	15.48	26.76	0.00	0.0007	171229	12.56	442.25	12.64	394.00
PG40	PG	100YR-EX-Masci	15.80	27.06	0.00	0.0008	223640	12.49	462.46	12.53	403.98
PG40	PG	500YR-EX-Masci	16.03	27.50	0.00	0.0006	259430	12.29	488.55	12.37	413.64
PG45	PG	002YR-EX-Masci	13.99	24.15	0.00	0.0003	132714	12.72	272.81	12.81	241.55
PG45	PG	005YR-EX-Masci	14.13	25.06	0.00	0.0008	230652	12.67	375.95	12.86	320.26
PG45	PG	010YR-EX-Masci	14.57	25.80	0.00	0.0008	481688	12.67	458.85	12.76	368.82
PG45	PG	025YR-EX-Masci	15.05	26.39	0.00	0.0008	753703	12.60	532.71	12.71	402.35
PG45	PG	050YR-EX-Masci	15.48	26.76	0.00	0.0007	1381290	12.55	589.25	12.62	422.49
PG45	PG	100YR-EX-Masci	15.80	27.06	0.00	0.0008	1942493	12.53	643.16	12.49	434.46
PG45	PG	500YR-EX-Masci	16.02	27.51	0.00	0.0006	2451612	12.50	766.86	12.29	436.02
PG50	PG	002YR-EX-Masci	13.85	24.33	0.00	0.0003	150711	12.77	196.07	13.15	160.02
PG50	PG	005YR-EX-Masci	13.93	25.40	0.00	0.0010	202089	12.75	271.34	13.27	215.54
PG50	PG	010YR-EX-Masci	14.20	26.23	0.00	0.0010	402590	12.77	335.45	13.27	249.40

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PG50	PG	025YR-EX-Masci	14.67	26.81	0.00	0.0010	786701	12.85	405.01	13.26	267.02
PG50	PG	050YR-EX-Masci	14.89	27.16	0.00	0.0009	1168800	12.78	469.93	13.10	271.38
PG50	PG	100YR-EX-Masci	15.01	27.40	0.00	0.0009	1496995	12.75	531.89	13.75	275.13
PG50	PG	500YR-EX-Masci	15.14	27.78	0.00	0.0008	2239908	12.67	659.44	13.75	322.49
PG55	PG	002YR-EX-Masci	13.85	24.34	0.00	0.0003	163043	12.83	103.67	13.50	72.57
PG55	PG	005YR-EX-Masci	13.93	25.40	0.00	0.0010	212682	12.75	155.25	13.58	103.03
PG55	PG	010YR-EX-Masci	14.20	26.23	0.00	0.0010	278254	12.75	201.36	13.48	127.26
PG55	PG	025YR-EX-Masci	14.67	26.81	0.00	0.0010	426840	12.75	244.41	13.25	151.17
PG55	PG	050YR-EX-Masci	14.89	27.16	0.00	0.0009	601966	12.75	280.47	13.13	166.88
PG55	PG	100YR-EX-Masci	15.01	27.40	0.00	0.0009	757082	12.75	316.61	13.08	179.87
PG55	PG	500YR-EX-Masci	15.14	27.78	0.00	0.0008	1118871	12.75	399.78	13.17	218.95
RE05	RE	002YR-EX-Masci	14.88	24.16	0.00	0.0003	252601	13.00	126.87	14.63	104.32
RE05	RE	005YR-EX-Masci	14.92	24.91	0.00	0.0007	375949	13.17	183.88	15.03	144.29
RE05	RE	010YR-EX-Masci	15.04	25.47	0.00	0.0006	461549	13.03	232.00	15.34	173.24
RE05	RE	025YR-EX-Masci	15.31	25.91	0.00	0.0005	650110	12.95	267.36	15.56	187.73
RE05	RE	050YR-EX-Masci	15.63	26.22	0.00	0.0006	873688	13.00	290.01	15.73	191.68
RE05	RE	100YR-EX-Masci	15.96	26.51	0.00	0.0005	1117293	13.08	310.47	15.85	196.57
RE05	RE	500YR-EX-Masci	16.38	27.02	0.00	0.0004	1803222	13.33	367.70	15.31	203.76
RE10	RE	002YR-EX-Masci	14.86	24.19	0.00	0.0003	21763	12.60	85.70	12.61	80.05
RE10	RE	005YR-EX-Masci	14.89	24.96	0.00	0.0007	25507	12.56	117.96	12.58	110.05
RE10	RE	010YR-EX-Masci	15.00	25.56	0.00	0.0006	32157	12.69	145.22	12.73	136.64
RE10	RE	025YR-EX-Masci	15.24	26.02	0.00	0.0006	41127	12.65	171.51	12.66	161.22
RE10	RE	050YR-EX-Masci	15.52	26.32	0.00	0.0005	56915	12.57	189.76	12.57	177.60
RE10	RE	100YR-EX-Masci	15.73	26.60	0.00	0.0005	76699	12.52	205.10	12.51	191.39
RE10	RE	500YR-EX-Masci	16.24	27.06	0.00	0.0005	129211	12.36	234.15	12.37	216.72
RE15	RE	002YR-EX-Masci	14.86	24.19	0.00	0.0003	21320	12.67	80.64	12.67	75.44
RE15	RE	005YR-EX-Masci	14.89	24.96	0.00	0.0007	24773	12.68	110.93	12.70	103.70
RE15	RE	010YR-EX-Masci	15.00	25.56	0.00	0.0006	29373	12.78	138.26	12.82	130.47
RE15	RE	025YR-EX-Masci	15.24	26.02	0.00	0.0006	37318	12.71	162.05	12.72	152.28
RE15	RE	050YR-EX-Masci	15.52	26.33	0.00	0.0005	48785	12.65	176.92	12.67	165.60
RE15	RE	100YR-EX-Masci	15.72	26.60	0.00	0.0005	62905	12.58	188.94	12.58	176.04
RE15	RE	500YR-EX-Masci	16.23	27.06	0.00	0.0005	101055	12.42	204.55	12.41	188.40
RE20	RE	002YR-EX-Masci	14.81	24.24	0.00	0.0003	147495	12.58	104.07	12.75	69.89
RE20	RE	005YR-EX-Masci	14.82	25.06	0.00	0.0007	199308	12.58	151.27	12.78	96.71
RE20	RE	010YR-EX-Masci	14.91	25.70	0.00	0.0007	387289	12.58	193.99	12.91	123.34
RE20	RE	025YR-EX-Masci	15.09	26.17	0.00	0.0007	718937	12.71	241.99	12.79	141.78
RE20	RE	050YR-EX-Masci	15.28	26.47	0.00	0.0007	1017569	12.63	288.12	12.74	152.44
RE20	RE	100YR-EX-Masci	15.35	26.71	0.00	0.0007	1276798	12.66	345.53	12.64	157.83
RE20	RE	500YR-EX-Masci	15.83	27.11	0.00	0.0006	1736762	12.58	482.96	12.54	157.19
RE25	RE	002YR-EX-Masci	14.81	24.25	0.00	0.0003	306914	12.42	71.56	16.00	22.65
RE25	RE	005YR-EX-Masci	14.83	25.06	0.00	0.0007	332355	12.42	108.17	16.00	31.51
RE25	RE	010YR-EX-Masci	14.91	25.70	0.00	0.0007	357738	12.42	140.82	17.46	37.98
RE25	RE	025YR-EX-Masci	15.09	26.17	0.00	0.0007	392490	12.42	171.34	19.09	42.20
RE25	RE	050YR-EX-Masci	15.28	26.47	0.00	0.0007	428265	12.42	196.90	13.43	51.08
RE25	RE	100YR-EX-Masci	15.34	26.71	0.00	0.0007	508528	12.42	222.52	13.19	64.70
RE25	RE	500YR-EX-Masci	15.83	27.11	0.00	0.0006	689978	12.42	281.46	12.87	98.74
RE30	RE	002YR-EX-Masci	15.00	25.69	0.00	0.0004	1158	15.00	136.73	15.00	136.72
RE30	RE	005YR-EX-Masci	14.92	26.27	0.00	0.0006	1083	14.92	193.61	14.92	193.61
RE30	RE	010YR-EX-Masci	14.87	26.70	0.00	0.0005	1101	14.92	243.46	14.92	243.46
RE30	RE	025YR-EX-Masci	15.45	27.11	0.00	-0.0105	722265	14.83	289.65	15.79	283.97

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RE30	RE	050YR-EX-Masci	15.93	27.36	0.00	-0.0232	1729291	14.83	328.24	16.66	309.08
RE30	RE	100YR-EX-Masci	16.35	27.59	0.00	-0.0304	2633808	14.83	366.83	17.43	330.65
RE30	RE	500YR-EX-Masci	17.28	27.99	0.00	-0.0323	4235688	14.83	455.53	19.36	371.35
RE30B	RE	002YR-EX-Masci	15.82	24.64	0.00	0.0003	1134998	12.50	263.91	15.77	63.98
RE30B	RE	005YR-EX-Masci	16.03	25.33	0.00	0.0006	1803305	12.50	405.85	15.98	90.86
RE30B	RE	010YR-EX-Masci	16.23	25.77	0.00	0.0006	2467333	12.50	535.14	16.16	109.42
RE30B	RE	025YR-EX-Masci	16.87	26.14	0.00	0.0005	3347220	12.50	657.39	19.70	121.83
RE30B	RE	050YR-EX-Masci	17.60	26.38	0.00	0.0005	4202992	12.42	760.95	17.60	127.47
RE30B	RE	100YR-EX-Masci	18.04	26.57	0.00	0.0005	4905068	12.42	865.54	18.04	137.99
RE30B	RE	500YR-EX-Masci	19.23	26.94	0.00	0.0004	6256614	12.42	1109.08	19.23	156.24
RI05	RI	002YR-EX-Masci	14.83	24.16	0.00	0.0003	139771	14.11	339.90	14.38	334.93
RI05	RI	005YR-EX-Masci	14.70	24.88	0.00	0.0008	161025	13.59	507.51	13.91	494.11
RI05	RI	010YR-EX-Masci	14.63	25.46	0.00	0.0007	182031	13.30	651.02	13.75	630.27
RI05	RI	025YR-EX-Masci	14.48	25.95	0.00	0.0007	220182	13.32	775.78	13.58	746.62
RI05	RI	050YR-EX-Masci	14.66	26.34	0.00	0.0006	293165	13.22	860.48	13.45	820.08
RI05	RI	100YR-EX-Masci	14.94	26.68	0.00	0.0006	402186	13.11	933.57	13.26	873.28
RI05	RI	500YR-EX-Masci	15.08	27.29	0.00	0.0006	748988	12.79	1066.31	12.87	940.00
RI10	RI	002YR-EX-Masci	14.80	24.28	0.00	0.0003	191287	14.35	316.56	14.64	313.07
RI10	RI	005YR-EX-Masci	14.66	25.04	0.00	0.0008	239691	13.88	465.09	14.35	455.73
RI10	RI	010YR-EX-Masci	14.56	25.63	0.00	0.0008	303425	13.62	586.68	14.17	572.05
RI10	RI	025YR-EX-Masci	14.39	26.12	0.00	0.0007	406652	13.53	691.65	13.89	659.50
RI10	RI	050YR-EX-Masci	14.52	26.50	0.00	0.0007	533567	13.38	750.70	13.88	703.97
RI10	RI	100YR-EX-Masci	14.82	26.82	0.00	0.0007	756314	13.15	795.77	14.15	709.24
RI10	RI	500YR-EX-Masci	15.01	27.39	0.00	0.0006	1373966	12.88	872.55	13.25	673.63
RI15	31-RI	002YR-EX-Masci	12.38	27.55	0.00	0.0003	16631	12.08	10.00	12.38	6.09
RI15	31-RI	005YR-EX-Masci	12.24	27.72	0.00	0.0003	17228	12.00	13.81	12.24	10.68
RI15	31-RI	010YR-EX-Masci	12.18	27.85	0.00	-0.0002	17639	12.00	17.11	12.18	14.31
RI15	31-RI	025YR-EX-Masci	12.17	27.94	0.00	0.0003	17964	12.00	20.13	12.17	17.09
RI15	31-RI	050YR-EX-Masci	12.18	28.03	0.00	0.0003	18260	12.00	22.65	12.18	18.82
RI15	31-RI	100YR-EX-Masci	12.20	28.12	0.00	0.0003	18603	12.00	25.15	12.20	20.29
RI15	31-RI	500YR-EX-Masci	12.25	28.38	0.00	0.0004	19507	12.00	30.88	12.25	23.27
RI16	31-RI	002YR-EX-Masci	12.80	27.69	0.00	0.0003	70205	12.08	36.60	12.80	8.80
RI16	31-RI	005YR-EX-Masci	12.57	28.05	0.00	0.0004	72714	12.00	50.78	12.57	20.24
RI16	31-RI	010YR-EX-Masci	12.50	28.35	0.00	0.0004	74782	12.00	63.15	12.50	29.10
RI16	31-RI	025YR-EX-Masci	12.49	28.64	0.00	0.0007	76845	12.00	74.51	12.49	34.87
RI16	31-RI	050YR-EX-Masci	12.50	28.89	0.00	0.0006	78590	12.00	83.94	12.50	38.85
RI16	31-RI	100YR-EX-Masci	12.45	29.11	0.00	0.0007	80057	12.00	93.34	12.45	47.04
RI16	31-RI	500YR-EX-Masci	12.33	29.36	0.00	0.0006	81844	12.00	114.84	12.33	75.31
RI18	31-RI	002YR-EX-Masci	14.88	24.44	0.00	0.0004	335209	14.22	257.56	15.29	256.91
RI18	31-RI	005YR-EX-Masci	14.79	25.39	0.00	0.0009	361705	14.38	369.73	15.06	368.17
RI18	31-RI	010YR-EX-Masci	14.81	26.15	0.00	0.0009	389213	14.48	450.71	15.18	451.38
RI18	31-RI	025YR-EX-Masci	14.83	26.74	0.00	0.0008	420676	14.64	491.96	15.50	497.67
RI18	31-RI	050YR-EX-Masci	14.90	27.08	0.00	0.0008	447378	13.19	501.06	17.18	490.72
RI18	31-RI	100YR-EX-Masci	14.96	27.37	0.00	0.0007	478385	12.94	525.30	17.73	472.92
RI18	31-RI	500YR-EX-Masci	15.23	27.87	0.00	0.0007	551527	12.62	577.85	17.35	431.83
RI20	RI	002YR-EX-Masci	14.88	24.45	0.00	0.0004	88090	15.02	224.06	15.19	225.04
RI20	RI	005YR-EX-Masci	14.80	25.39	0.00	0.0011	107156	14.69	324.99	14.95	325.20
RI20	RI	010YR-EX-Masci	14.81	26.16	0.00	0.0010	129394	14.80	397.90	15.08	399.28
RI20	RI	025YR-EX-Masci	14.83	26.75	0.00	0.0008	167109	15.15	437.01	15.52	441.15
RI20	RI	050YR-EX-Masci	14.91	27.09	0.00	0.0008	208331	15.96	445.50	16.16	451.48

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RI20	RI	100YR-EX-Masci	14.97	27.37	0.00	0.0007	262894	16.16	440.76	16.51	446.80
RI20	RI	500YR-EX-Masci	15.23	27.88	0.00	0.0007	443129	13.98	443.34	15.36	431.28
RI25	RI	002YR-EX-Masci	14.88	24.45	0.00	0.0004	30786	13.72	151.90	14.07	149.54
RI25	RI	005YR-EX-Masci	14.79	25.40	0.00	0.0009	34907	14.12	229.43	14.22	227.31
RI25	RI	010YR-EX-Masci	14.80	26.17	0.00	0.0010	40124	14.52	287.15	14.59	286.26
RI25	RI	025YR-EX-Masci	14.83	26.75	0.00	0.0010	45399	14.71	321.62	14.80	321.38
RI25	RI	050YR-EX-Masci	14.91	27.10	0.00	0.0008	49093	14.92	320.16	15.14	320.53
RI25	RI	100YR-EX-Masci	14.97	27.38	0.00	0.0008	52579	15.98	310.14	16.02	311.09
RI25	RI	500YR-EX-Masci	15.23	27.88	0.00	0.0007	57978	15.56	303.75	15.66	304.21
RI30	RI	002YR-EX-Masci	14.86	24.48	0.00	0.0004	156197	13.29	164.37	14.20	145.41
RI30	RI	005YR-EX-Masci	14.76	25.46	0.00	0.0010	200410	13.39	238.68	14.42	217.96
RI30	RI	010YR-EX-Masci	14.79	26.29	0.00	0.0010	310422	13.49	297.65	14.63	274.62
RI30	RI	025YR-EX-Masci	14.83	26.91	0.00	0.0009	516121	13.38	344.52	14.83	310.79
RI30	RI	050YR-EX-Masci	14.96	27.26	0.00	0.0008	738991	13.55	382.50	15.13	320.57
RI30	RI	100YR-EX-Masci	14.97	27.53	0.00	0.0008	949994	13.25	426.44	15.97	317.57
RI30	RI	500YR-EX-Masci	15.24	28.05	0.00	0.0006	1621231	12.96	515.08	15.30	325.56
RI35	RI	002YR-EX-Masci	14.86	24.49	0.00	0.0004	345574	12.83	133.90	14.75	80.57
RI35	RI	005YR-EX-Masci	14.76	25.47	0.00	0.0010	407212	12.83	201.40	14.70	128.04
RI35	RI	010YR-EX-Masci	14.79	26.30	0.00	0.0010	493655	12.83	264.39	14.81	166.47
RI35	RI	025YR-EX-Masci	14.83	26.92	0.00	0.0009	633979	12.83	320.44	15.35	186.58
RI35	RI	050YR-EX-Masci	14.97	27.27	0.00	0.0008	823637	12.75	363.37	15.74	191.21
RI35	RI	100YR-EX-Masci	14.98	27.54	0.00	0.0008	996885	12.74	403.67	16.28	189.40
RI35	RI	500YR-EX-Masci	15.24	28.05	0.00	0.0006	1413779	12.75	492.99	17.18	178.23
RP05	RP	002YR-EX-Masci	16.25	13.52	0.00	0.0004	215011	16.15	1904.77	16.20	1904.49
RP05	RP	005YR-EX-Masci	16.47	13.92	0.00	0.0008	216927	16.38	2322.08	16.44	2321.87
RP05	RP	010YR-EX-Masci	16.79	14.21	0.00	0.0008	218302	16.70	2626.81	16.76	2626.67
RP05	RP	025YR-EX-Masci	17.06	14.40	0.00	0.0007	219209	16.99	2829.29	17.04	2829.20
RP05	RP	050YR-EX-Masci	17.32	14.53	0.00	0.0005	219848	17.25	2972.18	17.31	2972.11
RP05	RP	100YR-EX-Masci	17.73	14.66	0.00	0.0005	220449	17.67	3106.24	17.73	3106.21
RP05	RP	500YR-EX-Masci	18.56	14.88	0.00	0.0003	221557	18.56	3353.49	18.61	3353.51
RP07	RP	002YR-EX-Masci	16.25	13.58	0.00	0.0043	14140	16.14	1904.79	16.15	1904.77
RP07	RP	005YR-EX-Masci	16.47	13.99	0.00	0.0044	14262	16.38	2322.10	16.38	2322.08
RP07	RP	010YR-EX-Masci	16.78	14.28	0.00	0.0044	14349	16.70	2626.83	16.70	2626.81
RP07	RP	025YR-EX-Masci	17.06	14.47	0.00	0.0043	14406	16.98	2829.30	16.99	2829.29
RP07	RP	050YR-EX-Masci	17.32	14.60	0.00	0.0043	14446	17.24	2972.19	17.25	2972.18
RP07	RP	100YR-EX-Masci	17.73	14.73	0.00	0.0042	14484	17.67	3106.25	17.67	3106.24
RP07	RP	500YR-EX-Masci	18.56	14.96	0.00	0.0042	14553	18.55	3353.49	18.56	3353.49
RP10	RP	002YR-EX-Masci	16.17	13.82	0.00	-0.0074	11112	16.14	1904.80	16.14	1904.79
RP10	RP	005YR-EX-Masci	16.38	14.37	0.00	-0.0073	11555	16.37	2322.10	16.38	2322.10
RP10	RP	010YR-EX-Masci	16.68	14.78	0.00	-0.0073	11876	16.69	2626.83	16.70	2626.83
RP10	RP	025YR-EX-Masci	16.96	15.05	0.00	-0.0072	12087	16.98	2829.30	16.98	2829.30
RP10	RP	050YR-EX-Masci	17.21	15.23	0.00	-0.0072	12232	17.24	2972.19	17.24	2972.19
RP10	RP	100YR-EX-Masci	17.65	15.40	0.00	-0.0071	12367	17.66	3106.25	17.67	3106.25
RP10	RP	500YR-EX-Masci	18.55	15.72	0.00	-0.0071	12608	18.55	3353.49	18.55	3353.49
RP15	RP	002YR-EX-Masci	16.15	14.83	0.00	0.0445	12143	16.13	1904.80	16.14	1904.80
RP15	RP	005YR-EX-Masci	16.37	15.46	0.00	0.0444	12641	16.37	2322.10	16.37	2322.10
RP15	RP	010YR-EX-Masci	16.69	15.89	0.00	0.0443	12989	16.69	2626.83	16.69	2626.83
RP15	RP	025YR-EX-Masci	16.97	16.16	0.00	0.0439	13213	16.97	2829.30	16.98	2829.30
RP15	RP	050YR-EX-Masci	17.23	16.35	0.00	0.0446	13367	17.23	2972.19	17.24	2972.19
RP15	RP	100YR-EX-Masci	17.66	16.53	0.00	0.0445	13509	17.66	3106.25	17.66	3106.25

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Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
RP15	RP	500YR-EX-Masci	18.55	16.84	0.00	0.0442	13764	18.55	3353.49	18.55	3353.49
RP20	RP	002YR-EX-Masci	16.14	16.66	0.00	-0.1104	5539	16.13	1904.25	16.13	1904.25
RP20	RP	005YR-EX-Masci	16.37	17.57	0.00	-0.1101	5871	16.37	2321.38	16.37	2321.37
RP20	RP	010YR-EX-Masci	16.69	18.19	0.00	-0.1102	6095	16.69	2625.98	16.69	2625.98
RP20	RP	025YR-EX-Masci	16.98	18.58	0.00	-0.1095	6236	16.97	2828.35	16.98	2828.35
RP20	RP	050YR-EX-Masci	17.24	18.85	0.00	-0.1119	6331	17.23	2971.16	17.24	2971.16
RP20	RP	100YR-EX-Masci	17.67	19.10	0.00	-0.1119	6419	17.67	3105.14	17.67	3105.14
RP20	RP	500YR-EX-Masci	18.55	19.55	0.00	-0.1111	6576	18.54	3352.28	18.55	3352.28
RP25	RP	002YR-EX-Masci	16.13	19.72	0.00	-0.0020	6156	16.13	1904.25	16.13	1904.25
RP25	RP	005YR-EX-Masci	16.37	20.75	0.00	0.0029	6553	16.36	2321.38	16.37	2321.38
RP25	RP	010YR-EX-Masci	16.69	21.44	0.00	0.0023	6818	16.68	2625.98	16.69	2625.98
RP25	RP	025YR-EX-Masci	16.97	21.86	0.00	-0.0020	6984	16.97	2828.35	16.97	2828.35
RP25	RP	050YR-EX-Masci	17.23	22.16	0.00	-0.0020	7097	17.23	2971.16	17.23	2971.16
RP25	RP	100YR-EX-Masci	17.67	22.42	0.00	-0.0020	7200	17.66	3105.14	17.67	3105.14
RP25	RP	500YR-EX-Masci	18.54	22.90	0.00	-0.0020	7384	18.54	3352.28	18.54	3352.28
RP30	RP	002YR-EX-Masci	16.13	19.90	0.00	0.0015	72335	16.04	1905.17	16.13	1904.25
RP30	RP	005YR-EX-Masci	16.37	20.94	0.00	0.0029	75241	16.30	2321.83	16.36	2321.38
RP30	RP	010YR-EX-Masci	16.69	21.63	0.00	0.0024	77294	16.64	2626.49	16.68	2625.98
RP30	RP	025YR-EX-Masci	16.97	22.06	0.00	0.0017	78491	16.93	2828.40	16.97	2828.35
RP30	RP	050YR-EX-Masci	17.23	22.36	0.00	0.0013	79371	17.19	2971.19	17.23	2971.16
RP30	RP	100YR-EX-Masci	17.67	22.62	0.00	0.0013	80172	17.62	3105.17	17.66	3105.14
RP30	RP	500YR-EX-Masci	18.54	23.10	0.00	0.0009	81600	18.50	3352.30	18.54	3352.28
RP35	RP	002YR-EX-Masci	16.13	20.38	0.00	0.0016	73635	15.04	1972.64	16.04	1904.66
RP35	RP	005YR-EX-Masci	16.36	21.45	0.00	0.0030	76552	15.52	2386.18	16.33	2321.18
RP35	RP	010YR-EX-Masci	16.67	22.17	0.00	0.0025	78453	18.48	2638.96	16.64	2625.74
RP35	RP	025YR-EX-Masci	16.97	22.62	0.00	0.0017	79673	18.08	2922.19	16.93	2827.55
RP35	RP	050YR-EX-Masci	17.23	22.93	0.00	0.0014	80504	17.15	2970.33	17.19	2970.25
RP35	RP	100YR-EX-Masci	17.66	23.20	0.00	0.0014	81261	17.59	3104.24	17.64	3104.19
RP35	RP	500YR-EX-Masci	18.54	23.70	0.00	0.0009	82628	18.45	3351.21	18.51	3351.17
RP37	RP	002YR-EX-Masci	16.12	20.42	0.00	0.0059	5403	16.04	1900.74	15.04	1960.74
RP37	RP	005YR-EX-Masci	16.36	21.50	0.00	0.0059	5619	16.06	2315.93	15.52	2367.77
RP37	RP	010YR-EX-Masci	16.68	22.22	0.00	0.0065	5763	16.67	2614.89	18.48	2622.25
RP37	RP	025YR-EX-Masci	16.96	22.67	0.00	0.0062	5853	16.89	2803.12	18.08	2897.72
RP37	RP	050YR-EX-Masci	17.22	22.97	0.00	0.0061	5914	17.14	2946.20	17.14	2946.19
RP37	RP	100YR-EX-Masci	17.66	23.25	0.00	0.0062	5970	17.57	3080.55	17.58	3080.54
RP37	RP	500YR-EX-Masci	18.54	23.75	0.00	0.0053	6069	18.41	3328.35	18.42	3328.34
RP40	RP	002YR-EX-Masci	16.10	20.96	0.00	0.0004	243782	15.86	1894.56	16.04	1900.74
RP40	RP	005YR-EX-Masci	16.35	21.96	0.00	0.0008	327028	16.06	2306.29	16.06	2315.93
RP40	RP	010YR-EX-Masci	16.67	22.67	0.00	0.0008	452525	16.31	2605.76	16.67	2614.89
RP40	RP	025YR-EX-Masci	16.96	23.12	0.00	0.0009	626086	16.46	2807.03	16.89	2803.12
RP40	RP	050YR-EX-Masci	17.22	23.43	0.00	0.0007	704013	16.66	2949.78	17.14	2946.20
RP40	RP	100YR-EX-Masci	17.65	23.71	0.00	0.0006	1099328	16.87	3086.96	17.57	3080.55
RP40	RP	500YR-EX-Masci	18.53	24.22	0.00	0.0006	1699119	12.97	3382.84	18.41	3328.35
RP45	RP	002YR-EX-Masci	16.02	21.07	0.00	0.0004	421210	14.82	1007.82	15.15	986.67
RP45	RP	005YR-EX-Masci	16.24	22.09	0.00	0.0009	496533	14.63	1430.64	15.04	1394.87
RP45	RP	010YR-EX-Masci	16.50	22.81	0.00	0.0008	603595	14.60	1758.42	15.09	1708.63
RP45	RP	025YR-EX-Masci	16.76	23.27	0.00	0.0007	695680	14.11	2019.00	14.41	1940.98
RP45	RP	050YR-EX-Masci	17.04	23.57	0.00	0.0007	860443	13.66	2170.58	14.07	2064.07
RP45	RP	100YR-EX-Masci	17.49	23.84	0.00	0.0006	1286037	13.41	2299.65	13.68	2164.84
RP45	RP	500YR-EX-Masci	18.31	24.33	0.00	0.0005	1794151	13.00	2553.61	13.18	2353.62

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RP50	RP	002YR-EX-Masci	15.95	21.17	0.00	0.0004	175437	14.94	951.83	15.07	943.36
RP50	RP	005YR-EX-Masci	16.14	22.21	0.00	0.0009	197354	14.78	1345.76	14.98	1332.65
RP50	RP	010YR-EX-Masci	16.35	22.94	0.00	0.0008	223860	14.81	1648.73	15.01	1632.49
RP50	RP	025YR-EX-Masci	16.61	23.39	0.00	0.0007	241813	14.19	1866.10	14.36	1839.59
RP50	RP	050YR-EX-Masci	16.90	23.69	0.00	0.0007	261840	13.86	1969.81	14.02	1937.19
RP50	RP	100YR-EX-Masci	17.34	23.95	0.00	0.0006	283219	13.53	2049.62	13.69	2006.14
RP50	RP	500YR-EX-Masci	18.18	24.42	0.00	0.0005	318796	12.75	2226.28	13.05	2137.13
RP55	RP	002YR-EX-Masci	15.70	21.54	0.00	0.0005	57177	14.99	922.24	15.03	919.67
RP55	RP	005YR-EX-Masci	15.74	22.83	0.00	0.0010	67324	14.89	1298.37	14.97	1294.40
RP55	RP	010YR-EX-Masci	15.74	23.82	0.00	0.0010	76064	14.96	1589.54	15.02	1584.62
RP55	RP	025YR-EX-Masci	15.83	24.45	0.00	0.0008	83525	14.35	1776.45	14.45	1768.52
RP55	RP	050YR-EX-Masci	16.09	24.87	0.00	0.0008	110918	14.05	1853.20	14.12	1842.50
RP55	RP	100YR-EX-Masci	16.48	25.22	0.00	0.0009	139118	13.70	1898.40	13.69	1881.76
RP55	RP	500YR-EX-Masci	17.24	25.87	0.00	0.0010	355069	12.71	1963.96	13.04	1930.77
RP57	RP	002YR-EX-Masci	15.01	23.81	0.00	0.0002	73523	14.98	909.72	15.01	909.68
RP57	RP	005YR-EX-Masci	14.95	24.28	0.00	0.0005	78506	14.90	1280.78	14.93	1280.67
RP57	RP	010YR-EX-Masci	15.03	24.64	0.00	0.0005	82151	14.96	1567.89	14.99	1567.72
RP57	RP	025YR-EX-Masci	15.49	24.99	0.00	0.0004	84021	14.36	1749.44	14.39	1745.66
RP57	RP	050YR-EX-Masci	15.86	25.32	0.00	0.0004	88545	14.15	1821.45	14.20	1815.26
RP57	RP	100YR-EX-Masci	16.27	25.62	0.00	0.0004	102878	13.76	1860.55	13.82	1850.36
RP57	RP	500YR-EX-Masci	17.08	26.20	0.00	0.0003	145639	13.16	1893.50	13.17	1874.20
RP60	RP	002YR-EX-Masci	15.01	23.85	0.00	0.0002	241741	14.88	908.90	14.98	908.30
RP60	RP	005YR-EX-Masci	14.95	24.36	0.00	0.0005	257504	14.81	1279.67	14.90	1278.78
RP60	RP	010YR-EX-Masci	15.02	24.73	0.00	0.0005	272451	14.86	1566.59	14.96	1565.43
RP60	RP	025YR-EX-Masci	15.42	25.09	0.00	0.0004	288924	14.27	1759.18	14.36	1745.97
RP60	RP	050YR-EX-Masci	15.80	25.41	0.00	0.0004	303474	13.93	1841.57	14.17	1817.25
RP60	RP	100YR-EX-Masci	16.21	25.70	0.00	0.0004	338548	13.70	1890.41	13.77	1855.15
RP60	RP	500YR-EX-Masci	17.03	26.27	0.00	0.0003	424215	13.13	1947.52	13.17	1883.46
RP65	RP	002YR-EX-Masci	14.99	23.91	0.00	0.0002	252373	14.65	781.90	14.80	779.35
RP65	RP	005YR-EX-Masci	14.93	24.45	0.00	0.0006	262402	14.64	1090.24	14.80	1087.95
RP65	RP	010YR-EX-Masci	15.01	24.84	0.00	0.0005	275847	14.86	1338.49	14.96	1337.27
RP65	RP	025YR-EX-Masci	15.35	25.21	0.00	0.0005	287008	14.36	1513.54	14.48	1502.45
RP65	RP	050YR-EX-Masci	15.73	25.51	0.00	0.0004	295507	14.12	1581.49	14.28	1563.27
RP65	RP	100YR-EX-Masci	16.14	25.79	0.00	0.0004	305551	13.89	1600.75	13.96	1573.20
RP65	RP	500YR-EX-Masci	16.97	26.33	0.00	0.0004	324994	13.67	1561.45	13.79	1524.74
RP70	RP	002YR-EX-Masci	14.95	23.99	0.00	0.0003	367744	14.44	784.88	14.68	778.62
RP70	RP	005YR-EX-Masci	14.90	24.57	0.00	0.0006	411901	14.39	1092.60	14.68	1085.59
RP70	RP	010YR-EX-Masci	14.99	25.00	0.00	0.0006	454007	14.68	1338.04	14.88	1333.32
RP70	RP	025YR-EX-Masci	15.23	25.37	0.00	0.0005	487237	14.22	1525.61	14.41	1505.04
RP70	RP	050YR-EX-Masci	15.62	25.66	0.00	0.0004	523983	13.92	1606.81	14.21	1569.92
RP70	RP	100YR-EX-Masci	16.04	25.93	0.00	0.0004	564100	13.69	1636.07	13.93	1584.60
RP70	RP	500YR-EX-Masci	16.87	26.43	0.00	0.0004	640568	13.29	1615.85	13.76	1537.44
RP80	RP	002YR-EX-Masci	14.93	24.01	0.00	0.0003	350000	13.04	249.81	14.26	220.29
RP80	RP	005YR-EX-Masci	14.88	24.60	0.00	0.0006	408106	12.73	323.81	14.55	286.04
RP80	RP	010YR-EX-Masci	14.98	25.03	0.00	0.0006	448675	12.58	377.25	14.07	329.77
RP80	RP	025YR-EX-Masci	15.21	25.39	0.00	0.0005	487104	12.58	419.36	14.31	350.88
RP80	RP	050YR-EX-Masci	15.59	25.68	0.00	0.0005	523261	12.82	455.72	13.18	367.11
RP80	RP	100YR-EX-Masci	16.00	25.94	0.00	0.0004	559309	12.99	500.28	13.02	401.02
RP80	RP	500YR-EX-Masci	16.85	26.44	0.00	0.0004	662075	12.75	601.90	12.77	460.64

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RP85	RP	002YR-EX-Masci	14.93	24.02	0.00	0.0003	219651	13.81	156.74	15.04	153.89
RP85	RP	005YR-EX-Masci	14.89	24.61	0.00	0.0006	256617	14.70	198.47	15.31	200.05
RP85	RP	010YR-EX-Masci	14.99	25.04	0.00	0.0006	284195	14.38	228.34	15.88	232.83
RP85	RP	025YR-EX-Masci	15.21	25.41	0.00	0.0005	310464	13.87	243.34	16.17	245.00
RP85	RP	050YR-EX-Masci	15.60	25.69	0.00	0.0005	353964	13.69	253.37	16.50	247.29
RP85	RP	100YR-EX-Masci	16.00	25.95	0.00	0.0004	402190	13.39	257.30	16.21	250.03
RP85	RP	500YR-EX-Masci	16.85	26.45	0.00	0.0004	482278	14.70	274.45	15.50	257.92
RPW015	31-RPW	002YR-EX-Masci	13.07	25.41	0.00	0.0004	9560	13.27	50.49	13.33	50.76
RPW015	31-RPW	005YR-EX-Masci	12.70	25.91	0.00	0.0005	10747	12.81	58.03	12.93	58.90
RPW015	31-RPW	010YR-EX-Masci	12.63	26.32	0.00	0.0006	11728	12.63	64.32	13.04	65.93
RPW015	31-RPW	025YR-EX-Masci	12.56	26.62	0.00	0.0010	12569	13.20	68.52	13.10	70.70
RPW015	31-RPW	050YR-EX-Masci	12.53	26.80	0.00	0.0009	13141	13.12	70.01	12.97	72.53
RPW015	31-RPW	100YR-EX-Masci	12.52	26.96	0.00	0.0009	13624	12.08	71.13	12.96	73.51
RPW015	31-RPW	500YR-EX-Masci	12.57	27.34	0.00	0.0008	14764	12.57	77.63	12.66	78.33
RPW016	31-RPW	002YR-EX-Masci	12.40	27.60	0.00	0.0001	120429	12.17	21.77	12.40	18.54
RPW016	31-RPW	005YR-EX-Masci	12.29	27.64	0.00	0.0001	131360	12.17	31.26	12.29	29.04
RPW016	31-RPW	010YR-EX-Masci	12.27	27.66	0.00	-0.0000	138839	12.17	39.54	12.27	37.17
RPW016	31-RPW	025YR-EX-Masci	12.26	27.68	0.00	0.0001	145069	12.17	47.19	12.26	44.50
RPW016	31-RPW	050YR-EX-Masci	12.26	27.69	0.00	0.0001	149959	12.17	53.55	12.26	50.59
RPW016	31-RPW	100YR-EX-Masci	12.26	27.71	0.00	0.0001	154620	12.17	59.89	12.26	56.67
RPW016	31-RPW	500YR-EX-Masci	12.25	27.74	0.00	0.0001	164629	12.17	74.42	12.25	70.61
RPW020	31-RPW	002YR-EX-Masci	13.27	26.03	0.00	0.0003	10863	13.37	45.42	13.53	45.62
RPW020	31-RPW	005YR-EX-Masci	12.81	26.35	0.00	0.0004	11704	14.07	46.47	14.20	46.36
RPW020	31-RPW	010YR-EX-Masci	12.71	26.67	0.00	0.0006	12579	13.66	46.40	13.51	47.41
RPW020	31-RPW	025YR-EX-Masci	12.65	26.94	0.00	0.0009	13341	13.61	45.93	13.50	47.18
RPW020	31-RPW	050YR-EX-Masci	12.65	27.10	0.00	0.0007	13942	13.57	45.04	13.46	46.24
RPW020	31-RPW	100YR-EX-Masci	12.64	27.24	0.00	0.0007	14481	11.94	45.40	13.34	45.44
RPW020	31-RPW	500YR-EX-Masci	12.65	27.51	0.00	0.0006	15569	11.82	46.57	13.82	40.59
RPW025	31-RPW	002YR-EX-Masci	13.27	26.16	0.00	0.0004	9838	13.11	45.18	13.40	45.15
RPW025	31-RPW	005YR-EX-Masci	12.83	26.43	0.00	0.0004	10399	14.04	46.66	14.07	46.20
RPW025	31-RPW	010YR-EX-Masci	12.72	26.72	0.00	0.0005	11103	12.21	46.40	13.69	46.02
RPW025	31-RPW	025YR-EX-Masci	12.65	26.97	0.00	0.0008	11713	12.08	46.94	13.64	45.47
RPW025	31-RPW	050YR-EX-Masci	12.66	27.13	0.00	0.0006	12118	12.00	47.46	13.57	44.51
RPW025	31-RPW	100YR-EX-Masci	12.65	27.26	0.00	0.0006	12453	11.95	47.71	13.50	43.60
RPW025	31-RPW	500YR-EX-Masci	12.65	27.52	0.00	0.0005	13124	11.82	48.06	11.78	42.10
RPW030	31-RPW	002YR-EX-Masci	13.25	26.57	0.00	0.0004	4706	13.04	45.05	13.16	44.89
RPW030	31-RPW	005YR-EX-Masci	12.87	26.77	0.00	0.0009	4900	14.00	49.02	14.04	46.42
RPW030	31-RPW	010YR-EX-Masci	12.77	27.03	0.00	0.0007	5186	14.73	47.62	14.77	45.15
RPW030	31-RPW	025YR-EX-Masci	12.73	27.24	0.00	0.0008	5476	12.08	46.24	13.76	44.19
RPW030	31-RPW	050YR-EX-Masci	12.68	27.38	0.00	0.0006	5679	12.00	46.18	13.66	43.15
RPW030	31-RPW	100YR-EX-Masci	12.77	27.50	0.00	0.0006	5841	11.94	46.13	11.92	43.01
RPW030	31-RPW	500YR-EX-Masci	12.86	27.66	0.00	0.0014	6837	13.17	55.30	11.80	44.03
RPW031	31-RPW	002YR-EX-Masci	12.10	28.78	0.00	0.0000	15115	12.08	7.65	12.10	7.48
RPW031	31-RPW	005YR-EX-Masci	12.10	28.83	0.00	-0.0001	15354	12.08	10.78	12.10	10.49
RPW031	31-RPW	010YR-EX-Masci	12.12	28.87	0.00	-0.0001	15615	12.00	13.52	12.12	12.61
RPW031	31-RPW	025YR-EX-Masci	12.21	28.99	0.00	-0.0003	16270	12.00	16.06	12.21	13.07
RPW031	31-RPW	050YR-EX-Masci	12.27	29.12	0.00	-0.0004	17016	12.00	18.17	12.24	13.52
RPW031	31-RPW	100YR-EX-Masci	12.34	29.28	0.00	-0.0005	17909	12.00	20.28	12.17	13.84
RPW031	31-RPW	500YR-EX-Masci	12.41	29.67	0.00	-0.0006	20163	12.00	25.09	12.18	14.07
RPW035	31-RPW	002YR-EX-Masci	13.25	26.59	0.00	0.0004	6349	13.02	43.23	13.18	43.00

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Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
RPW035	31-RPW	005YR-EX-Masci	12.87	26.78	0.00	0.0015	6645	14.00	53.45	14.00	44.92
RPW035	31-RPW	010YR-EX-Masci	12.77	27.04	0.00	0.0011	7083	14.73	48.05	14.73	40.35
RPW035	31-RPW	025YR-EX-Masci	12.74	27.24	0.00	0.0008	7480	15.48	44.00	15.49	36.96
RPW035	31-RPW	050YR-EX-Masci	12.69	27.38	0.00	0.0008	7760	17.22	43.65	17.23	36.55
RPW035	31-RPW	100YR-EX-Masci	12.78	27.50	0.00	0.0008	7983	18.95	42.48	18.96	35.57
RPW035	31-RPW	500YR-EX-Masci	12.86	27.66	0.00	-0.0012	8896	22.84	38.22	11.52	35.57
RPW040	31-RPW	002YR-EX-Masci	13.24	26.71	0.00	0.0004	7444	12.82	43.70	13.03	43.07
RPW040	31-RPW	005YR-EX-Masci	12.92	26.96	0.00	-0.0014	8373	14.00	46.86	14.00	53.33
RPW040	31-RPW	010YR-EX-Masci	12.82	27.13	0.00	0.0013	9285	14.73	42.10	14.73	47.94
RPW040	31-RPW	025YR-EX-Masci	12.84	27.29	0.00	0.0013	10114	15.49	38.58	15.48	43.89
RPW040	31-RPW	050YR-EX-Masci	12.82	27.41	0.00	0.0010	10778	17.23	37.97	17.22	43.56
RPW040	31-RPW	100YR-EX-Masci	12.82	27.51	0.00	0.0010	11353	11.82	37.52	18.95	42.40
RPW040	31-RPW	500YR-EX-Masci	12.92	27.65	0.00	0.0009	12494	11.62	38.58	22.84	38.15
RPW041	31-RPW	002YR-EX-Masci	12.54	27.13	0.00	0.0003	20407	12.08	16.24	12.54	7.20
RPW041	31-RPW	005YR-EX-Masci	12.61	27.73	0.00	0.0004	21720	12.08	22.71	12.28	9.15
RPW041	31-RPW	010YR-EX-Masci	12.63	28.27	0.00	0.0005	23024	12.00	28.40	12.50	9.93
RPW041	31-RPW	025YR-EX-Masci	12.64	28.75	0.00	0.0011	24278	12.00	33.65	12.57	11.25
RPW041	31-RPW	050YR-EX-Masci	12.65	29.14	0.00	0.0010	25299	12.00	38.00	12.58	12.24
RPW041	31-RPW	100YR-EX-Masci	12.66	29.52	0.00	0.0011	26305	12.00	42.34	12.60	13.18
RPW041	31-RPW	500YR-EX-Masci	12.68	30.38	0.00	0.0011	28536	12.00	52.27	12.66	15.32
RPW045	31-RPW	002YR-EX-Masci	13.23	26.75	0.00	0.0004	22646	12.52	49.86	12.90	43.46
RPW045	31-RPW	005YR-EX-Masci	12.92	26.98	0.00	0.0004	25055	12.26	52.17	14.00	46.73
RPW045	31-RPW	010YR-EX-Masci	12.82	27.14	0.00	0.0005	26927	12.11	51.60	14.73	41.97
RPW045	31-RPW	025YR-EX-Masci	12.85	27.29	0.00	0.0007	28602	12.08	50.76	15.49	38.45
RPW045	31-RPW	050YR-EX-Masci	12.83	27.41	0.00	0.0006	29971	12.05	50.31	17.23	37.86
RPW045	31-RPW	100YR-EX-Masci	12.83	27.51	0.00	0.0006	31133	11.99	49.13	18.96	36.85
RPW045	31-RPW	500YR-EX-Masci	12.92	27.65	0.00	0.0004	33142	11.71	44.46	11.56	37.55
RPW050	31-RPW	002YR-EX-Masci	13.23	26.75	0.00	0.0017	14859	12.10	11.62	12.09	8.95
RPW050	31-RPW	005YR-EX-Masci	12.93	26.98	0.00	0.0017	18901	12.08	12.99	12.01	8.26
RPW050	31-RPW	010YR-EX-Masci	12.82	27.14	0.00	0.0017	23983	12.11	13.26	11.93	7.09
RPW050	31-RPW	025YR-EX-Masci	12.85	27.29	0.00	0.0017	28706	12.04	14.12	12.01	6.04
RPW050	31-RPW	050YR-EX-Masci	12.83	27.41	0.00	0.0017	32586	11.99	14.11	15.38	11.86
RPW050	31-RPW	100YR-EX-Masci	12.83	27.51	0.00	0.0017	35813	16.22	22.23	16.21	23.11
RPW050	31-RPW	500YR-EX-Masci	12.92	27.65	0.00	0.0017	40341	15.30	38.72	15.32	39.08
RPW055	31-RPW	002YR-EX-Masci	13.23	26.75	0.00	-0.0010	15706	12.15	9.09	12.09	6.73
RPW055	31-RPW	005YR-EX-Masci	12.93	26.98	0.00	-0.0010	19418	12.08	11.50	12.01	6.42
RPW055	31-RPW	010YR-EX-Masci	12.82	27.14	0.00	-0.0010	24637	12.11	13.36	11.94	5.58
RPW055	31-RPW	025YR-EX-Masci	12.85	27.28	0.00	-0.0010	29290	12.07	14.18	12.01	5.08
RPW055	31-RPW	050YR-EX-Masci	12.84	27.39	0.00	-0.0010	33231	11.99	13.92	15.40	10.39
RPW055	31-RPW	100YR-EX-Masci	12.84	27.49	0.00	-0.0010	36550	16.26	20.52	16.25	21.41
RPW055	31-RPW	500YR-EX-Masci	12.94	27.65	0.00	-0.0010	45173	15.32	37.07	15.35	37.48
RPW060	31-RPW	002YR-EX-Masci	13.23	26.75	0.00	0.0002	11355	12.17	3.57	12.12	2.79
RPW060	31-RPW	005YR-EX-Masci	12.93	26.97	0.00	0.0003	16379	12.17	5.02	12.04	2.81
RPW060	31-RPW	010YR-EX-Masci	12.81	27.12	0.00	0.0004	19940	12.17	6.27	12.80	3.40
RPW060	31-RPW	025YR-EX-Masci	12.86	27.22	0.00	0.0007	22290	12.17	7.42	12.58	4.36
RPW060	31-RPW	050YR-EX-Masci	12.87	27.33	0.00	0.0006	24677	12.17	8.38	12.41	5.07
RPW060	31-RPW	100YR-EX-Masci	12.86	27.42	0.00	0.0005	26756	12.17	9.34	12.31	5.79
RPW060	31-RPW	500YR-EX-Masci	14.66	27.66	0.00	0.0003	33045	12.17	11.52	12.96	9.56
RPW065	31-RPW	002YR-EX-Masci	13.25	26.83	0.00	0.0003	18286	12.48	46.82	12.51	40.42
RPW065	31-RPW	005YR-EX-Masci	12.94	27.01	0.00	0.0004	19957	12.21	45.97	12.37	37.16

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RPW065	31-RPW	010YR-EX-Masci	12.83	27.16	0.00	0.0004	21900	12.22	43.89	12.23	34.42
RPW065	31-RPW	025YR-EX-Masci	12.87	27.30	0.00	0.0007	23833	12.13	43.82	12.14	32.75
RPW065	31-RPW	050YR-EX-Masci	12.85	27.42	0.00	0.0005	25400	12.06	43.06	12.06	31.07
RPW065	31-RPW	100YR-EX-Masci	12.84	27.51	0.00	0.0005	26756	12.00	41.37	11.79	30.94
RPW065	31-RPW	500YR-EX-Masci	12.94	27.65	0.00	0.0004	29519	11.51	35.73	11.51	32.65
RPW070	31-RPW	002YR-EX-Masci	13.25	26.84	0.00	0.0003	18512	12.47	50.40	12.48	45.09
RPW070	31-RPW	005YR-EX-Masci	12.94	27.02	0.00	0.0004	23062	12.21	50.24	12.21	42.02
RPW070	31-RPW	010YR-EX-Masci	12.83	27.16	0.00	0.0004	28596	12.21	48.84	12.22	38.98
RPW070	31-RPW	025YR-EX-Masci	12.87	27.30	0.00	0.0007	34267	12.12	48.87	12.13	37.12
RPW070	31-RPW	050YR-EX-Masci	12.85	27.42	0.00	0.0005	38852	12.06	47.39	12.06	34.88
RPW070	31-RPW	100YR-EX-Masci	12.84	27.51	0.00	0.0005	42549	12.00	44.58	11.78	33.69
RPW070	31-RPW	500YR-EX-Masci	12.95	27.65	0.00	0.0004	48071	11.48	35.86	11.49	33.83
RPW075	31-RPW	002YR-EX-Masci	13.25	26.84	0.00	0.0004	19578	12.47	18.97	12.47	16.91
RPW075	31-RPW	005YR-EX-Masci	12.93	27.01	0.00	0.0004	24203	12.21	18.73	12.20	13.47
RPW075	31-RPW	010YR-EX-Masci	12.83	27.15	0.00	0.0003	29918	12.07	13.38	12.06	7.85
RPW075	31-RPW	025YR-EX-Masci	12.87	27.30	0.00	0.0007	35869	11.95	9.90	18.46	6.81
RPW075	31-RPW	050YR-EX-Masci	12.85	27.41	0.00	0.0005	40674	11.87	9.04	19.52	6.89
RPW075	31-RPW	100YR-EX-Masci	12.84	27.51	0.00	0.0005	44590	11.74	8.13	20.94	7.02
RPW075	31-RPW	500YR-EX-Masci	12.95	27.65	0.00	0.0004	51316	10.68	7.34	10.70	6.12
RPW080	31-RPW	002YR-EX-Masci	13.25	26.83	0.00	0.0004	33150	12.48	15.73	12.47	11.74
RPW080	31-RPW	005YR-EX-Masci	12.91	26.98	0.00	0.0004	38113	12.21	16.63	12.21	6.43
RPW080	31-RPW	010YR-EX-Masci	12.81	27.07	0.00	0.0003	40995	12.13	12.14	17.56	5.39
RPW080	31-RPW	025YR-EX-Masci	12.88	27.21	0.00	0.0007	45040	12.08	10.36	18.48	5.42
RPW080	31-RPW	050YR-EX-Masci	12.88	27.33	0.00	0.0005	48594	12.04	8.88	19.56	5.50
RPW080	31-RPW	100YR-EX-Masci	12.87	27.43	0.00	0.0005	51565	11.35	7.34	20.97	5.67
RPW080	31-RPW	500YR-EX-Masci	12.95	27.61	0.00	0.0004	58205	14.74	6.87	10.68	4.54
RPW085	31-RPW	002YR-EX-Masci	13.25	26.83	0.00	0.0003	32001	12.49	12.20	12.48	8.40
RPW085	31-RPW	005YR-EX-Masci	12.91	26.97	0.00	0.0003	37150	12.01	8.48	12.01	5.46
RPW085	31-RPW	010YR-EX-Masci	12.80	27.07	0.00	0.0003	40423	11.89	7.94	11.89	5.46
RPW085	31-RPW	025YR-EX-Masci	12.88	27.21	0.00	0.0007	45217	12.47	9.39	13.29	7.33
RPW085	31-RPW	050YR-EX-Masci	12.88	27.33	0.00	0.0005	49424	14.87	22.50	14.90	23.09
RPW085	31-RPW	100YR-EX-Masci	12.87	27.43	0.00	0.0005	52938	14.89	36.61	15.03	37.81
RPW085	31-RPW	500YR-EX-Masci	12.95	27.60	0.00	0.0004	63716	14.94	61.87	14.74	68.62
RPW090	31-RPW	002YR-EX-Masci	13.25	26.83	0.00	0.0002	35643	12.33	6.95	13.30	3.85
RPW090	31-RPW	005YR-EX-Masci	12.91	26.97	0.00	0.0003	42369	12.33	9.72	12.92	6.90
RPW090	31-RPW	010YR-EX-Masci	12.80	27.07	0.00	0.0004	46735	12.70	14.07	12.81	13.66
RPW090	31-RPW	025YR-EX-Masci	12.88	27.20	0.00	0.0005	52621	12.62	27.09	12.76	23.78
RPW090	31-RPW	050YR-EX-Masci	12.88	27.32	0.00	0.0004	57449	12.45	34.38	12.85	27.18
RPW090	31-RPW	100YR-EX-Masci	12.87	27.41	0.00	0.0004	61378	12.34	39.52	12.82	29.74
RPW090	31-RPW	500YR-EX-Masci	14.66	27.66	0.00	0.0003	80743	12.19	47.92	12.95	42.85
RPW100	31-RPW	002YR-EX-Masci	18.64	28.84	0.00	0.0002	126145	12.00	42.91	18.64	1.40
RPW100	31-RPW	005YR-EX-Masci	14.93	29.17	0.00	0.0003	129040	12.00	56.45	14.93	3.26
RPW100	31-RPW	010YR-EX-Masci	13.21	29.40	0.00	0.0004	131008	12.00	68.12	13.22	7.90
RPW100	31-RPW	025YR-EX-Masci	12.95	29.63	0.00	0.0006	133004	12.00	78.86	13.15	12.77
RPW100	31-RPW	050YR-EX-Masci	12.98	29.86	0.00	0.0005	135035	12.00	87.80	13.87	13.91
RPW100	31-RPW	100YR-EX-Masci	13.02	30.11	0.00	0.0006	137209	12.00	96.72	13.82	14.33
RPW100	31-RPW	500YR-EX-Masci	12.88	30.63	0.00	0.0005	141782	12.00	117.22	12.88	21.73
RPW105	31-RPW	002YR-EX-Masci	13.80	29.27	0.00	0.0002	103260	12.00	31.14	13.80	2.62
RPW105	31-RPW	005YR-EX-Masci	12.83	29.51	0.00	0.0002	105521	12.00	40.94	12.83	8.46
RPW105	31-RPW	010YR-EX-Masci	12.67	29.69	0.00	0.0003	107285	12.00	49.39	12.67	14.75

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RPW105	31-RPW	025YR-EX-Masci	12.67	29.88	0.00	0.0005	109092	12.00	57.17	12.84	17.13
RPW105	31-RPW	050YR-EX-Masci	12.71	30.07	0.00	0.0004	110898	12.00	63.64	13.00	17.63
RPW105	31-RPW	100YR-EX-Masci	12.74	30.27	0.00	0.0004	112786	12.00	70.11	13.11	17.97
RPW105	31-RPW	500YR-EX-Masci	12.61	30.60	0.00	0.0004	116002	12.00	84.95	12.61	29.77
RPW110	31-RPW	002YR-EX-Masci	12.99	25.19	0.00	0.0029	14156	12.80	58.31	12.99	57.98
RPW110	31-RPW	005YR-EX-Masci	12.68	25.76	0.00	0.0029	16222	12.49	76.76	12.68	75.13
RPW110	31-RPW	010YR-EX-Masci	12.62	26.20	0.00	0.0029	17931	12.38	90.47	12.62	88.04
RPW110	31-RPW	025YR-EX-Masci	12.55	26.52	0.00	0.0029	19387	12.33	101.09	12.55	98.13
RPW110	31-RPW	050YR-EX-Masci	12.53	26.72	0.00	0.0029	20686	12.32	108.01	12.53	104.84
RPW110	31-RPW	100YR-EX-Masci	12.52	26.89	0.00	0.0029	21775	12.28	113.82	12.70	110.77
RPW110	31-RPW	500YR-EX-Masci	12.56	27.27	0.00	0.0029	24153	12.39	126.34	12.59	126.57
RPW115	31-RPW	002YR-EX-Masci	12.41	26.39	0.00	0.0002	3354	12.31	8.43	12.35	8.21
RPW115	31-RPW	005YR-EX-Masci	12.38	26.60	0.00	0.0002	4086	12.21	13.04	12.24	12.65
RPW115	31-RPW	010YR-EX-Masci	12.41	26.79	0.00	-0.0002	4675	12.19	16.36	12.21	15.72
RPW115	31-RPW	025YR-EX-Masci	12.43	26.95	0.00	0.0004	5156	12.18	19.12	12.21	18.18
RPW115	31-RPW	050YR-EX-Masci	12.43	27.08	0.00	0.0004	5986	12.15	21.30	12.21	20.12
RPW115	31-RPW	100YR-EX-Masci	12.44	27.20	0.00	0.0004	6466	12.15	23.42	12.23	22.00
RPW115	31-RPW	500YR-EX-Masci	12.56	27.47	0.00	0.0004	7589	12.14	27.90	12.23	26.01
RPW120	31-RPW	002YR-EX-Masci	12.14	26.49	0.00	0.0001	2546	12.08	3.48	12.14	3.33
RPW120	31-RPW	005YR-EX-Masci	12.33	26.65	0.00	-0.0002	3138	12.08	4.90	12.11	4.48
RPW120	31-RPW	010YR-EX-Masci	12.39	26.81	0.00	-0.0002	3730	12.08	6.09	12.10	5.42
RPW120	31-RPW	025YR-EX-Masci	12.42	26.97	0.00	0.0003	4318	12.08	7.13	12.09	6.11
RPW120	31-RPW	050YR-EX-Masci	12.43	27.10	0.00	0.0003	5023	12.08	7.89	12.08	6.55
RPW120	31-RPW	100YR-EX-Masci	12.45	27.21	0.00	0.0004	5733	12.05	8.58	12.87	7.18
RPW120	31-RPW	500YR-EX-Masci	12.57	27.48	0.00	0.0004	7480	13.04	10.19	13.08	10.84
RPW125	31-RPW	002YR-EX-Masci	12.23	26.83	0.00	0.0001	9103	12.08	3.15	12.23	2.54
RPW125	31-RPW	005YR-EX-Masci	12.23	26.92	0.00	-0.0001	10738	12.08	4.49	12.22	3.57
RPW125	31-RPW	010YR-EX-Masci	12.37	27.01	0.00	-0.0001	12352	12.08	5.65	12.18	4.40
RPW125	31-RPW	025YR-EX-Masci	12.47	27.10	0.00	0.0002	14312	12.00	6.74	12.13	4.99
RPW125	31-RPW	050YR-EX-Masci	12.71	27.21	0.00	0.0002	16438	12.00	7.65	12.11	5.32
RPW125	31-RPW	100YR-EX-Masci	12.75	27.34	0.00	0.0002	18910	12.00	8.55	12.08	5.51
RPW125	31-RPW	500YR-EX-Masci	12.85	27.62	0.00	0.0002	24105	12.00	10.62	12.02	5.58
RPW130	31-RPW	002YR-EX-Masci	12.84	26.34	0.00	-0.0002	2731	12.08	3.13	12.23	2.89
RPW130	31-RPW	005YR-EX-Masci	12.72	26.73	0.00	0.0003	4005	12.08	4.46	12.22	4.12
RPW130	31-RPW	010YR-EX-Masci	12.67	26.91	0.00	0.0005	4710	12.08	5.61	12.17	5.23
RPW130	31-RPW	025YR-EX-Masci	12.67	27.08	0.00	0.0005	5484	12.08	6.69	12.10	6.09
RPW130	31-RPW	050YR-EX-Masci	12.72	27.21	0.00	0.0005	6235	12.08	7.57	12.05	6.52
RPW130	31-RPW	100YR-EX-Masci	12.79	27.35	0.00	0.0006	6983	12.08	8.30	12.01	6.68
RPW130	31-RPW	500YR-EX-Masci	12.89	27.66	0.00	0.0005	9325	12.02	9.69	12.10	6.35
RPW135	31-RPW	002YR-EX-Masci	12.84	26.33	0.00	0.0003	2573	12.21	3.30	12.10	2.53
RPW135	31-RPW	005YR-EX-Masci	12.72	26.72	0.00	0.0005	3297	12.19	4.71	12.77	3.90
RPW135	31-RPW	010YR-EX-Masci	12.66	26.91	0.00	0.0006	3654	12.17	6.00	12.66	4.21
RPW135	31-RPW	025YR-EX-Masci	12.67	27.08	0.00	0.0010	3983	12.10	7.11	12.10	4.60
RPW135	31-RPW	050YR-EX-Masci	12.72	27.21	0.00	0.0008	4224	12.05	7.71	12.05	4.96
RPW135	31-RPW	100YR-EX-Masci	12.79	27.35	0.00	0.0008	4462	12.01	8.01	12.01	5.14
RPW135	31-RPW	500YR-EX-Masci	12.90	27.67	0.00	0.0007	4996	12.09	7.94	12.12	5.69
RPW140	31-RPW	002YR-EX-Masci	12.84	26.33	0.00	0.0005	25440	12.37	50.07	12.84	44.48
RPW140	31-RPW	005YR-EX-Masci	12.72	26.72	0.00	0.0006	33193	12.53	64.71	12.72	49.74
RPW140	31-RPW	010YR-EX-Masci	12.68	26.91	0.00	0.0006	37564	12.36	69.80	13.01	53.65
RPW140	31-RPW	025YR-EX-Masci	12.67	27.07	0.00	0.0010	42698	12.22	71.87	12.79	56.83

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Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
RPW140	31-RPW	050YR-EX-Masci	12.72	27.21	0.00	0.0008	48055	12.21	77.37	12.72	58.45
RPW140	31-RPW	100YR-EX-Masci	12.79	27.35	0.00	0.0008	53527	12.13	81.68	12.63	59.75
RPW140	31-RPW	500YR-EX-Masci	12.90	27.67	0.00	0.0007	66861	12.03	87.70	12.40	61.18
RPW145	31-RPW	002YR-EX-Masci	20.09	28.80	0.00	0.0001	36248	12.00	9.19	20.09	0.26
RPW145	31-RPW	005YR-EX-Masci	16.86	29.12	0.00	0.0002	38261	12.00	12.15	16.86	0.48
RPW145	31-RPW	010YR-EX-Masci	14.66	29.31	0.00	0.0003	39493	12.00	14.70	14.66	0.92
RPW145	31-RPW	025YR-EX-Masci	13.76	29.49	0.00	0.0005	40651	12.00	17.04	13.76	1.45
RPW145	31-RPW	050YR-EX-Masci	13.42	29.64	0.00	0.0004	41633	12.00	18.99	13.42	1.95
RPW145	31-RPW	100YR-EX-Masci	13.29	29.80	0.00	0.0004	42684	12.00	20.93	13.29	2.28
RPW145	31-RPW	500YR-EX-Masci	13.37	30.20	0.00	0.0004	45355	12.00	25.39	13.80	2.77
RPW150	31-RPW	002YR-EX-Masci	13.24	27.40	0.00	0.0000	1403761	12.32	86.93	13.24	41.43
RPW150	31-RPW	005YR-EX-Masci	13.07	27.46	0.00	0.0001	1498630	12.25	126.01	13.07	66.71
RPW150	31-RPW	010YR-EX-Masci	12.99	27.50	0.00	0.0001	1569361	12.25	159.56	12.99	90.53
RPW150	31-RPW	025YR-EX-Masci	12.92	27.54	0.00	0.0001	1622053	12.25	190.61	12.92	115.35
RPW150	31-RPW	050YR-EX-Masci	12.87	27.57	0.00	0.0001	1661360	12.25	216.66	12.87	136.74
RPW150	31-RPW	100YR-EX-Masci	12.86	27.59	0.00	0.0001	1700965	12.25	242.74	12.94	154.17
RPW150	31-RPW	500YR-EX-Masci	12.96	27.68	0.00	0.0001	1834519	12.25	302.47	13.20	174.97
RPW155	31-RPW	002YR-EX-Masci	12.37	26.52	0.00	-0.0015	22276	12.08	12.91	12.34	10.04
RPW155	31-RPW	005YR-EX-Masci	12.38	26.59	0.00	-0.0010	27500	12.08	18.44	12.17	16.46
RPW155	31-RPW	010YR-EX-Masci	12.60	26.65	0.00	0.0006	31225	12.08	23.26	12.17	20.56
RPW155	31-RPW	025YR-EX-Masci	12.55	26.68	0.00	0.0006	33547	12.08	27.70	12.14	25.45
RPW155	31-RPW	050YR-EX-Masci	12.66	26.70	0.00	0.0006	35253	12.08	31.39	12.12	29.46
RPW155	31-RPW	100YR-EX-Masci	12.75	26.74	0.00	0.0006	37515	12.08	35.07	12.11	33.37
RPW155	31-RPW	500YR-EX-Masci	15.06	27.29	0.00	0.0004	85883	12.08	43.49	12.10	40.46
RPW160	31-RPW	002YR-EX-Masci	12.38	26.52	0.00	0.0010	13013	11.98	14.49	11.97	10.01
RPW160	31-RPW	005YR-EX-Masci	12.70	26.66	0.00	0.0009	19043	12.00	15.34	11.83	9.70
RPW160	31-RPW	010YR-EX-Masci	12.66	26.87	0.00	0.0008	27907	11.92	15.50	11.76	9.04
RPW160	31-RPW	025YR-EX-Masci	12.68	27.05	0.00	0.0007	37329	11.86	15.20	11.70	8.30
RPW160	31-RPW	050YR-EX-Masci	12.72	27.19	0.00	0.0006	48130	11.81	14.87	11.69	7.87
RPW160	31-RPW	100YR-EX-Masci	12.80	27.33	0.00	0.0007	58897	11.76	14.56	11.64	7.59
RPW160	31-RPW	500YR-EX-Masci	12.91	27.64	0.00	0.0005	96089	11.67	13.04	17.37	14.09
RPW165	31-RPW	002YR-EX-Masci	12.70	26.48	0.00	0.0009	9920	12.01	21.30	11.96	17.49
RPW165	31-RPW	005YR-EX-Masci	12.70	26.71	0.00	0.0009	18694	12.03	23.32	13.61	19.55
RPW165	31-RPW	010YR-EX-Masci	12.66	26.88	0.00	-0.0008	25497	12.00	25.15	14.03	19.55
RPW165	31-RPW	025YR-EX-Masci	12.68	27.06	0.00	0.0007	35069	11.98	26.20	14.23	17.49
RPW165	31-RPW	050YR-EX-Masci	12.72	27.20	0.00	0.0009	46513	11.93	26.27	11.77	16.62
RPW165	31-RPW	100YR-EX-Masci	12.80	27.33	0.00	0.0008	57965	11.89	25.80	11.73	15.99
RPW165	31-RPW	500YR-EX-Masci	12.91	27.64	0.00	0.0006	98494	11.79	23.60	17.35	16.98
RPW170	31-RPW	002YR-EX-Masci	12.70	26.48	0.00	0.0009	6625	12.08	24.45	12.13	21.06
RPW170	31-RPW	005YR-EX-Masci	12.70	26.71	0.00	-0.0015	11040	12.00	27.10	12.02	22.32
RPW170	31-RPW	010YR-EX-Masci	12.66	26.88	0.00	0.0010	14487	12.00	28.19	11.95	22.21
RPW170	31-RPW	025YR-EX-Masci	12.68	27.06	0.00	0.0009	19022	11.98	28.52	11.91	21.87
RPW170	31-RPW	050YR-EX-Masci	12.72	27.20	0.00	0.0009	23988	11.93	28.42	11.88	21.48
RPW170	31-RPW	100YR-EX-Masci	12.80	27.34	0.00	0.0008	28965	11.89	27.93	12.11	22.54
RPW170	31-RPW	500YR-EX-Masci	12.91	27.65	0.00	0.0006	51282	12.03	31.52	12.03	27.13
RPW175	31-RPW	002YR-EX-Masci	12.84	26.34	0.00	-0.0047	4842	12.11	30.14	12.92	57.82
RPW175	31-RPW	005YR-EX-Masci	12.72	26.72	0.00	-0.0049	13242	12.08	34.89	13.30	57.00
RPW175	31-RPW	010YR-EX-Masci	12.68	26.91	0.00	-0.0037	19337	12.04	37.31	14.04	54.96
RPW175	31-RPW	025YR-EX-Masci	12.68	27.07	0.00	-0.0033	28207	12.00	38.90	14.23	50.86
RPW175	31-RPW	050YR-EX-Masci	12.72	27.21	0.00	-0.0033	38860	12.09	41.04	14.87	41.01

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RPW175	31-RPW	100YR-EX-Masci	12.79	27.35	0.00	-0.0020	49655	12.10	46.61	12.02	36.44
RPW175	31-RPW	500YR-EX-Masci	12.91	27.66	0.00	0.0007	77662	12.03	55.85	12.02	38.25
RPW180	31-RPW	002YR-EX-Masci	12.84	26.34	0.00	-0.0007	22606	12.92	58.66	12.09	18.41
RPW180	31-RPW	005YR-EX-Masci	12.76	26.72	0.00	-0.0016	28853	13.30	57.63	12.00	19.78
RPW180	31-RPW	010YR-EX-Masci	12.66	26.91	0.00	-0.0009	32451	14.04	55.40	12.00	20.12
RPW180	31-RPW	025YR-EX-Masci	12.68	27.07	0.00	0.0010	36110	14.23	51.33	11.92	20.29
RPW180	31-RPW	050YR-EX-Masci	12.72	27.21	0.00	0.0008	39530	14.87	41.43	11.91	20.35
RPW180	31-RPW	100YR-EX-Masci	12.79	27.35	0.00	0.0008	43000	12.02	42.55	11.84	20.38
RPW180	31-RPW	500YR-EX-Masci	12.91	27.66	0.00	0.0007	50075	12.02	45.83	17.00	22.20
RPW185	31-RPW	002YR-EX-Masci	0.00	26.22	0.00	-0.0574	124	12.08	3.64	0.00	14.27
RPW185	31-RPW	005YR-EX-Masci	0.00	26.22	0.00	-0.0574	124	12.08	5.33	0.00	14.27
RPW185	31-RPW	010YR-EX-Masci	12.46	26.34	0.00	-0.0574	117	12.08	6.81	0.00	14.27
RPW185	31-RPW	025YR-EX-Masci	12.35	26.83	0.00	-0.0574	1428	12.08	8.19	0.00	14.27
RPW185	31-RPW	050YR-EX-Masci	12.36	27.17	0.00	-0.0574	5042	12.00	9.33	0.00	14.27
RPW185	31-RPW	100YR-EX-Masci	12.40	27.40	0.00	-0.0574	9033	12.00	10.50	0.00	14.27
RPW185	31-RPW	500YR-EX-Masci	12.51	27.78	0.00	-0.0574	18670	12.00	13.17	0.00	14.27
RPW190	31-RPW	002YR-EX-Masci	12.08	26.01	0.00	-0.0400	171	12.08	2.67	12.08	2.67
RPW190	31-RPW	005YR-EX-Masci	12.08	26.20	0.00	-0.0400	167	12.08	3.87	12.08	3.87
RPW190	31-RPW	010YR-EX-Masci	12.08	26.36	0.00	-0.0400	155	12.08	4.92	12.08	4.92
RPW190	31-RPW	025YR-EX-Masci	12.47	26.72	0.00	-0.0400	754	12.08	5.90	12.07	5.89
RPW190	31-RPW	050YR-EX-Masci	12.39	26.97	0.00	-0.0400	1578	12.00	6.71	12.05	6.70
RPW190	31-RPW	100YR-EX-Masci	12.39	27.19	0.00	-0.0400	4054	12.00	7.54	11.99	7.05
RPW190	31-RPW	500YR-EX-Masci	12.49	27.59	0.00	-0.0400	10815	12.00	9.42	11.97	6.87
RPW195	31-RPW	002YR-EX-Masci	12.51	26.72	0.00	-0.0010	80305	12.08	40.77	12.53	24.02
RPW195	31-RPW	005YR-EX-Masci	12.89	26.94	0.00	-0.0007	111893	12.80	76.12	12.88	75.43
RPW195	31-RPW	010YR-EX-Masci	12.79	27.03	0.00	0.0006	129680	12.71	127.85	12.77	126.97
RPW195	31-RPW	025YR-EX-Masci	12.88	27.18	0.00	0.0006	180725	12.46	164.08	12.94	152.66
RPW195	31-RPW	050YR-EX-Masci	12.88	27.31	0.00	0.0007	222447	12.51	183.64	12.87	167.54
RPW195	31-RPW	100YR-EX-Masci	12.87	27.42	0.00	0.0007	256548	12.43	200.90	12.80	177.90
RPW195	31-RPW	500YR-EX-Masci	12.95	27.59	0.00	0.0005	354417	12.30	233.66	12.78	189.01
RPW200	31-RPW	002YR-EX-Masci	12.44	25.52	0.00	0.0004	11399	12.38	39.83	12.44	39.48
RPW200	31-RPW	005YR-EX-Masci	12.92	26.29	0.00	0.0005	30461	12.80	87.60	12.92	86.01
RPW200	31-RPW	010YR-EX-Masci	12.88	26.89	0.00	0.0006	69389	12.70	144.80	12.88	139.06
RPW200	31-RPW	025YR-EX-Masci	12.88	27.16	0.00	0.0010	97254	12.42	182.26	12.95	169.61
RPW200	31-RPW	050YR-EX-Masci	12.88	27.29	0.00	0.0009	113978	12.29	199.10	12.88	186.38
RPW200	31-RPW	100YR-EX-Masci	12.87	27.40	0.00	0.0010	127347	12.19	213.78	12.80	199.14
RPW200	31-RPW	500YR-EX-Masci	12.96	27.58	0.00	0.0012	160155	12.06	241.54	12.60	216.58
RS05	RS	002YR-EX-Masci	14.88	24.45	0.00	0.0004	38543	19.49	97.28	19.38	98.99
RS05	RS	005YR-EX-Masci	14.80	25.40	0.00	0.0010	43110	19.50	131.64	19.39	134.22
RS05	RS	010YR-EX-Masci	14.81	26.16	0.00	0.0009	48103	21.55	157.32	21.38	159.70
RS05	RS	025YR-EX-Masci	14.83	26.75	0.00	0.0008	58294	23.61	172.79	23.43	174.97
RS05	RS	050YR-EX-Masci	14.91	27.09	0.00	0.0008	67599	24.00	177.48	24.00	180.07
RS05	RS	100YR-EX-Masci	14.97	27.37	0.00	0.0007	75853	24.00	170.46	24.00	173.88
RS05	RS	500YR-EX-Masci	15.23	27.88	0.00	0.0006	95817	24.00	133.67	24.00	138.00
RS10	RS	002YR-EX-Masci	15.72	24.74	0.00	0.0004	174084	19.58	88.38	19.48	96.90
RS10	RS	005YR-EX-Masci	15.91	25.89	0.00	0.0009	199101	19.32	118.79	19.49	131.12
RS10	RS	010YR-EX-Masci	15.86	26.69	0.00	0.0009	220816	12.33	150.20	21.55	156.80
RS10	RS	025YR-EX-Masci	16.24	27.30	0.00	0.0008	249599	12.33	183.31	23.69	172.27
RS10	RS	050YR-EX-Masci	16.40	27.70	0.00	0.0008	273413	12.33	210.52	24.00	176.95
RS10	RS	100YR-EX-Masci	15.97	27.98	0.00	0.0007	291092	12.33	236.88	24.00	169.87

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RS10	RS	500YR-EX-Masci	14.89	28.40	0.00	0.0007	316460	12.25	295.74	24.00	132.95
RS15	RS	002YR-EX-Masci	15.73	24.74	0.00	0.0004	77831	19.75	80.24	19.72	84.05
RS15	RS	005YR-EX-Masci	15.92	25.89	0.00	0.0009	86111	19.22	107.50	19.28	112.86
RS15	RS	010YR-EX-Masci	15.86	26.69	0.00	0.0009	93582	21.44	133.89	21.49	139.00
RS15	RS	025YR-EX-Masci	16.24	27.30	0.00	0.0008	100568	24.00	150.67	24.00	155.50
RS15	RS	050YR-EX-Masci	16.40	27.70	0.00	0.0008	103492	24.00	153.60	24.00	158.72
RS15	RS	100YR-EX-Masci	15.98	27.98	0.00	0.0007	105507	24.00	144.38	24.00	149.91
RS15	RS	500YR-EX-Masci	14.89	28.40	0.00	0.0007	108509	12.51	129.94	24.00	113.21
RS20	RS	002YR-EX-Masci	15.95	24.99	0.00	0.0004	55552	19.83	75.87	19.87	78.74
RS20	RS	005YR-EX-Masci	16.22	26.33	0.00	0.0011	63577	19.02	101.53	19.23	105.37
RS20	RS	010YR-EX-Masci	16.62	27.14	0.00	0.0010	68493	21.22	127.96	21.46	131.74
RS20	RS	025YR-EX-Masci	17.18	27.78	0.00	0.0010	72328	24.00	145.19	24.00	148.66
RS20	RS	050YR-EX-Masci	16.83	28.17	0.00	0.0009	74650	24.00	148.16	24.00	151.34
RS20	RS	100YR-EX-Masci	15.97	28.34	0.00	0.0008	75687	24.00	139.30	24.00	141.86
RS20	RS	500YR-EX-Masci	15.30	28.58	0.00	0.0007	77081	12.48	117.25	24.00	105.68
RS25	RS	002YR-EX-Masci	15.95	24.99	0.00	0.0004	64175	19.80	72.81	19.83	75.67
RS25	RS	005YR-EX-Masci	16.22	26.33	0.00	0.0011	102787	12.93	99.48	19.01	101.26
RS25	RS	010YR-EX-Masci	16.62	27.15	0.00	0.0010	130469	12.85	131.50	21.22	127.67
RS25	RS	025YR-EX-Masci	17.18	27.78	0.00	0.0010	156566	12.76	160.59	24.00	144.94
RS25	RS	050YR-EX-Masci	16.83	28.17	0.00	0.0009	178702	12.75	181.42	24.00	147.88
RS25	RS	100YR-EX-Masci	15.97	28.34	0.00	0.0008	191772	12.73	202.57	24.00	139.00
RS25	RS	500YR-EX-Masci	15.30	28.58	0.00	0.0007	212358	12.47	223.21	12.48	107.68
RS30	RS	002YR-EX-Masci	16.15	25.11	0.00	0.0004	787610	12.50	282.84	20.21	66.23
RS30	RS	005YR-EX-Masci	16.26	26.37	0.00	0.0011	971845	12.50	419.20	19.07	85.76
RS30	RS	010YR-EX-Masci	16.69	27.18	0.00	0.0011	1948646	12.50	539.90	21.12	111.86
RS30	RS	025YR-EX-Masci	17.30	27.82	0.00	0.0010	2376940	12.50	652.20	24.00	129.61
RS30	RS	050YR-EX-Masci	16.88	28.20	0.00	0.0009	2711342	12.50	746.03	24.00	131.31
RS30	RS	100YR-EX-Masci	16.04	28.36	0.00	0.0008	2829312	12.50	839.90	15.81	155.47
RS30	RS	500YR-EX-Masci	15.51	28.58	0.00	0.0007	3152916	12.50	1055.53	14.64	316.53
RW105	31-RW	002YR-EX-Masci	14.83	24.45	0.00	0.0003	1519	12.99	47.72	13.00	47.50
RW105	31-RW	005YR-EX-Masci	14.78	25.39	0.00	0.0006	2563	12.65	82.56	12.65	82.22
RW105	31-RW	010YR-EX-Masci	14.80	26.16	0.00	0.0016	6819	12.58	108.03	12.58	107.36
RW105	31-RW	025YR-EX-Masci	14.82	26.74	0.00	0.0013	22298	12.60	131.82	12.59	130.64
RW105	31-RW	050YR-EX-Masci	14.90	27.09	0.00	-0.0024	40581	12.61	155.09	12.61	153.43
RW105	31-RW	100YR-EX-Masci	14.96	27.37	0.00	-0.0036	63580	12.60	178.12	12.59	175.55
RW105	31-RW	500YR-EX-Masci	15.23	27.87	0.00	0.0006	127538	12.58	227.54	12.53	220.23
RW110	31-RW	002YR-EX-Masci	12.99	26.54	0.00	0.0005	14226	13.00	39.82	13.03	39.91
RW110	31-RW	005YR-EX-Masci	12.67	26.66	0.00	0.0008	18923	12.65	69.27	12.66	69.23
RW110	31-RW	010YR-EX-Masci	12.64	26.72	0.00	0.0010	21308	12.58	91.10	12.60	90.93
RW110	31-RW	025YR-EX-Masci	12.71	26.76	0.00	0.0020	23165	12.61	111.78	12.62	111.59
RW110	31-RW	050YR-EX-Masci	14.89	27.09	0.00	0.0018	37818	12.62	132.49	12.63	132.26
RW110	31-RW	100YR-EX-Masci	14.96	27.37	0.00	0.0018	54351	12.62	152.85	12.63	152.59
RW110	31-RW	500YR-EX-Masci	15.23	27.87	0.00	0.0016	100111	12.58	195.95	12.58	195.58
RW115	31-RW	002YR-EX-Masci	12.99	26.54	0.00	0.0005	13303	12.99	34.08	13.03	34.17
RW115	31-RW	005YR-EX-Masci	12.67	26.66	0.00	0.0008	17581	12.66	59.20	12.68	59.19
RW115	31-RW	010YR-EX-Masci	12.64	26.73	0.00	0.0010	19830	12.59	78.10	12.61	77.99
RW115	31-RW	025YR-EX-Masci	12.70	26.78	0.00	0.0020	21637	12.64	96.69	12.66	96.57
RW115	31-RW	050YR-EX-Masci	14.89	27.09	0.00	0.0018	34812	12.65	115.57	12.67	115.43
RW115	31-RW	100YR-EX-Masci	14.96	27.37	0.00	0.0018	52224	12.65	133.95	12.66	133.78
RW115	31-RW	500YR-EX-Masci	15.22	27.87	0.00	0.0016	92524	12.59	172.02	12.60	171.71

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Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
RW120	31-RW	002YR-EX-Masci	13.00	26.57	0.00	-0.0010	12799	13.01	27.96	13.05	28.06
RW120	31-RW	005YR-EX-Masci	12.68	26.69	0.00	0.0007	17585	12.69	48.51	12.71	48.57
RW120	31-RW	010YR-EX-Masci	12.64	26.75	0.00	0.0006	20196	12.62	64.33	12.64	64.31
RW120	31-RW	025YR-EX-Masci	12.70	26.81	0.00	0.0009	22338	12.69	81.10	12.71	81.09
RW120	31-RW	050YR-EX-Masci	14.88	27.09	0.00	0.0008	37216	12.70	98.15	12.72	98.13
RW120	31-RW	100YR-EX-Masci	14.96	27.37	0.00	0.0008	60169	12.69	114.50	12.71	114.46
RW120	31-RW	500YR-EX-Masci	15.22	27.87	0.00	0.0005	122596	12.62	147.11	12.63	146.96
RW125	31-RW	002YR-EX-Masci	13.00	26.58	0.00	-0.0010	8888	13.05	21.88	13.08	22.00
RW125	31-RW	005YR-EX-Masci	12.68	26.70	0.00	0.0007	12862	12.71	38.32	12.73	38.39
RW125	31-RW	010YR-EX-Masci	12.64	26.77	0.00	0.0006	15131	12.63	51.34	12.65	51.35
RW125	31-RW	025YR-EX-Masci	12.72	26.83	0.00	0.0009	17113	12.73	66.31	12.75	66.36
RW125	31-RW	050YR-EX-Masci	14.88	27.09	0.00	0.0008	27585	12.74	81.59	12.76	81.64
RW125	31-RW	100YR-EX-Masci	14.94	27.37	0.00	0.0008	44337	12.72	95.98	12.74	96.01
RW125	31-RW	500YR-EX-Masci	15.21	27.86	0.00	0.0007	88857	12.63	123.59	12.65	123.51
RW130	31-RW	002YR-EX-Masci	13.14	26.70	0.00	-0.0023	14929	13.14	17.05	13.17	17.06
RW130	31-RW	005YR-EX-Masci	12.78	26.76	0.00	-0.0009	16847	12.80	29.41	12.81	29.43
RW130	31-RW	010YR-EX-Masci	12.67	26.81	0.00	0.0007	18355	12.71	39.43	12.73	39.52
RW130	31-RW	025YR-EX-Masci	12.74	26.86	0.00	0.0005	20166	12.81	53.37	12.83	53.52
RW130	31-RW	050YR-EX-Masci	14.87	27.09	0.00	0.0006	28983	12.81	67.05	12.83	67.23
RW130	31-RW	100YR-EX-Masci	14.94	27.37	0.00	0.0005	43292	12.80	79.57	12.81	79.78
RW130	31-RW	500YR-EX-Masci	15.21	27.86	0.00	0.0014	83373	12.95	103.78	12.66	101.76
RW135	31-RW	002YR-EX-Masci	13.25	26.83	0.00	-0.0004	34064	13.07	13.24	13.29	13.00
RW135	31-RW	005YR-EX-Masci	12.91	26.97	0.00	0.0004	40477	12.72	22.39	12.94	21.95
RW135	31-RW	010YR-EX-Masci	12.80	27.06	0.00	0.0004	45947	12.63	29.94	12.84	29.42
RW135	31-RW	025YR-EX-Masci	12.88	27.20	0.00	0.0005	54307	12.75	43.09	12.91	42.43
RW135	31-RW	050YR-EX-Masci	12.88	27.31	0.00	0.0004	61169	12.74	55.52	12.91	54.68
RW135	31-RW	100YR-EX-Masci	12.87	27.41	0.00	0.0004	66758	12.73	66.51	12.89	65.66
RW135	31-RW	500YR-EX-Masci	14.67	27.66	0.00	-0.0004	95029	12.66	84.48	12.95	88.12
RW305	31-RW	002YR-EX-Masci	12.40	25.88	0.00	0.0002	5224	12.35	18.54	12.40	18.46
RW305	31-RW	005YR-EX-Masci	12.40	26.07	0.00	0.0002	6891	12.33	25.69	12.40	25.56
RW305	31-RW	010YR-EX-Masci	12.62	26.27	0.00	0.0002	9366	12.56	34.30	12.62	34.20
RW305	31-RW	025YR-EX-Masci	14.82	26.76	0.00	0.0004	19249	12.51	41.56	12.57	41.39
RW305	31-RW	050YR-EX-Masci	14.91	27.10	0.00	0.0004	28692	12.47	46.95	12.54	46.74
RW305	31-RW	100YR-EX-Masci	14.96	27.38	0.00	0.0004	37517	12.47	52.05	12.70	52.02
RW305	31-RW	500YR-EX-Masci	15.24	27.87	0.00	0.0004	61510	12.54	64.22	12.53	64.68
RW310	31-RW	002YR-EX-Masci	12.41	26.19	0.00	0.0002	8288	12.32	13.66	12.41	13.38
RW310	31-RW	005YR-EX-Masci	12.76	26.41	0.00	0.0002	11675	12.69	20.22	12.79	20.15
RW310	31-RW	010YR-EX-Masci	12.68	26.61	0.00	0.0002	16582	12.57	27.42	12.70	27.19
RW310	31-RW	025YR-EX-Masci	14.73	26.78	0.00	0.0004	21794	12.48	33.15	12.64	32.57
RW310	31-RW	050YR-EX-Masci	14.90	27.10	0.00	0.0004	33925	12.42	37.19	12.67	36.61
RW310	31-RW	100YR-EX-Masci	14.94	27.37	0.00	0.0004	48313	12.56	41.15	12.75	41.24
RW310	31-RW	500YR-EX-Masci	15.25	27.85	0.00	0.0004	88388	12.52	51.11	12.60	50.25
RW315	31-RW	002YR-EX-Masci	12.38	26.40	0.00	0.0002	5283	12.25	8.17	12.35	7.88
RW315	31-RW	005YR-EX-Masci	12.84	26.69	0.00	0.0002	10290	12.78	14.76	12.89	14.73
RW315	31-RW	010YR-EX-Masci	12.72	26.87	0.00	0.0002	14687	12.60	19.89	12.76	19.67
RW315	31-RW	025YR-EX-Masci	12.64	26.99	0.00	0.0003	17499	12.44	23.66	12.73	23.07
RW315	31-RW	050YR-EX-Masci	14.82	27.09	0.00	0.0003	22078	12.71	26.48	12.87	26.67
RW315	31-RW	100YR-EX-Masci	14.85	27.36	0.00	0.0004	34710	12.69	30.27	12.83	30.29
RW315	31-RW	500YR-EX-Masci	15.22	27.81	0.00	0.0004	62677	12.76	38.51	12.75	36.60

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Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
RW320	31-RW	002YR-EX-Masci	12.41	26.55	0.00	0.0001	6357	13.18	4.04	13.28	3.96
RW320	31-RW	005YR-EX-Masci	12.93	26.96	0.00	0.0004	14323	12.74	11.37	12.98	11.16
RW320	31-RW	010YR-EX-Masci	12.81	27.11	0.00	0.0005	18782	12.55	14.92	12.91	14.60
RW320	31-RW	025YR-EX-Masci	12.86	27.22	0.00	0.0005	21967	12.84	17.41	12.95	17.53
RW320	31-RW	050YR-EX-Masci	12.87	27.32	0.00	0.0005	25211	12.73	21.85	12.91	21.50
RW320	31-RW	100YR-EX-Masci	12.86	27.41	0.00	0.0006	28105	12.71	26.13	12.88	25.69
RW320	31-RW	500YR-EX-Masci	14.67	27.66	0.00	0.0006	40303	12.67	33.37	12.96	32.45
TW05	TW	002YR-EX-Masci	15.70	20.03	0.00	0.0003	155653	12.64	43.32	14.51	27.33
TW05	TW	005YR-EX-Masci	16.41	21.91	0.00	0.0006	174887	12.62	69.69	19.71	51.97
TW05	TW	010YR-EX-Masci	16.73	22.66	0.00	0.0007	181003	12.62	95.16	20.49	64.72
TW05	TW	025YR-EX-Masci	17.00	23.11	0.00	0.0009	185788	12.62	119.89	12.71	68.27
TW05	TW	050YR-EX-Masci	17.30	23.43	0.00	0.0010	188890	12.61	141.51	14.17	74.01
TW05	TW	100YR-EX-Masci	17.73	23.72	0.00	0.0011	191759	12.58	162.04	13.77	90.46
TW05	TW	500YR-EX-Masci	18.60	24.23	0.00	0.0007	196916	12.69	209.24	13.17	135.84
TW10	TW	002YR-EX-Masci	12.70	20.80	0.00	0.0001	12048	12.36	5.06	12.53	4.69
TW10	TW	005YR-EX-Masci	16.41	21.91	0.00	0.0003	19610	12.33	9.33	12.47	8.57
TW10	TW	010YR-EX-Masci	16.73	22.66	0.00	0.0007	23894	12.33	13.57	12.44	12.39
TW10	TW	025YR-EX-Masci	17.00	23.11	0.00	0.0009	26542	12.33	17.76	12.42	16.14
TW10	TW	050YR-EX-Masci	17.30	23.43	0.00	0.0008	28392	12.33	21.56	12.46	19.61
TW10	TW	100YR-EX-Masci	17.73	23.72	0.00	0.0007	30142	12.23	24.98	12.38	22.45
TW10	TW	500YR-EX-Masci	18.60	24.23	0.00	0.0004	33327	12.60	34.20	12.29	27.50
TW20	TW	002YR-EX-Masci	12.76	24.24	0.00	0.0000	1122	12.73	1.64	12.76	1.64
TW20	TW	005YR-EX-Masci	12.69	24.38	0.00	0.0001	1275	12.67	3.05	12.70	3.05
TW20	TW	010YR-EX-Masci	12.65	24.48	0.00	0.0001	1397	12.64	4.48	12.68	4.49
TW20	TW	025YR-EX-Masci	12.92	24.66	0.00	0.0002	1557	12.90	7.46	12.92	7.46
TW20	TW	050YR-EX-Masci	12.85	24.79	0.00	0.0002	1697	12.84	10.29	12.86	10.29
TW20	TW	100YR-EX-Masci	12.80	24.91	0.00	0.0002	1815	12.78	13.15	12.80	13.14
TW20	TW	500YR-EX-Masci	12.71	25.15	0.00	0.0003	2045	12.70	20.07	12.71	20.07
TW21	TW	002YR-EX-Masci	12.76	24.25	0.00	0.0000	20956	12.08	2.45	12.84	1.47
TW21	TW	005YR-EX-Masci	12.69	24.38	0.00	0.0001	22918	12.25	4.10	12.77	2.77
TW21	TW	010YR-EX-Masci	12.65	24.49	0.00	0.0001	25607	12.25	5.72	12.66	4.06
TW21	TW	025YR-EX-Masci	12.92	24.66	0.00	0.0002	32897	12.25	7.31	13.14	4.11
TW21	TW	050YR-EX-Masci	12.86	24.80	0.00	0.0002	38706	12.25	8.69	13.18	5.56
TW21	TW	100YR-EX-Masci	12.81	24.91	0.00	0.0002	43755	12.25	10.11	13.12	7.19
TW21	TW	500YR-EX-Masci	12.72	25.15	0.00	0.0003	49723	12.25	13.48	13.01	10.95
TW30	TW	002YR-EX-Masci	12.76	24.95	0.00	0.0000	147007	12.08	5.19	12.76	2.54
TW30	TW	005YR-EX-Masci	12.75	24.98	0.00	0.0000	151318	12.08	7.53	12.75	4.34
TW30	TW	010YR-EX-Masci	12.72	25.01	0.00	0.0000	154685	12.08	9.76	12.72	6.22
TW30	TW	025YR-EX-Masci	12.69	25.03	0.00	0.0001	157507	12.08	11.93	12.69	8.15
TW30	TW	050YR-EX-Masci	12.67	25.05	0.00	0.0000	159671	12.08	13.81	12.67	9.87
TW30	TW	100YR-EX-Masci	12.65	25.07	0.00	0.0001	161686	12.08	15.72	12.65	11.67
TW30	TW	500YR-EX-Masci	12.62	25.11	0.00	0.0000	165846	12.25	20.38	12.62	16.03
TW33	FDOT	002YR-EX-Masci	12.70	24.20	0.00	0.0000	5243	12.67	9.62	12.70	9.61
TW33	FDOT	005YR-EX-Masci	12.80	24.28	0.00	0.0001	5237	12.78	13.96	12.80	13.96
TW33	FDOT	010YR-EX-Masci	12.88	24.34	0.00	0.0001	5229	12.86	18.12	12.88	18.12
TW33	FDOT	025YR-EX-Masci	12.92	24.39	0.00	0.0001	5218	12.90	22.00	12.92	22.00
TW33	FDOT	050YR-EX-Masci	12.95	24.43	0.00	0.0001	5207	12.93	25.19	12.95	25.19
TW33	FDOT	100YR-EX-Masci	12.98	24.47	0.00	0.0001	5194	12.96	28.32	12.98	28.32
TW33	FDOT	500YR-EX-Masci	13.04	24.55	0.00	0.0001	5153	13.02	35.20	13.04	35.20
TW35	TW	002YR-EX-Masci	12.69	24.27	0.00	0.0001	129421	12.08	20.67	12.67	9.62

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TW35	TW	005YR-EX-Masci	12.79	24.39	0.00	0.0001	134109	12.08	28.22	12.78	13.96
TW35	TW	010YR-EX-Masci	12.87	24.51	0.00	0.0001	142297	12.08	35.18	12.86	18.12
TW35	TW	025YR-EX-Masci	12.91	24.63	0.00	0.0002	153016	12.08	42.10	12.90	22.00
TW35	TW	050YR-EX-Masci	12.94	24.72	0.00	0.0002	161895	12.08	48.36	12.93	25.19
TW35	TW	100YR-EX-Masci	12.96	24.81	0.00	0.0002	170695	12.09	54.87	12.96	28.32
TW35	TW	500YR-EX-Masci	13.03	25.02	0.00	0.0002	188085	12.09	70.19	13.02	35.20
TW45	TW	002YR-EX-Masci	12.66	23.35	0.00	0.0001	3846	12.54	2.92	12.67	2.87
TW45	TW	005YR-EX-Masci	12.56	23.55	0.00	0.0002	4505	12.46	5.62	12.58	5.58
TW45	TW	010YR-EX-Masci	12.50	23.70	0.00	0.0002	5012	12.42	8.39	12.53	8.36
TW45	TW	025YR-EX-Masci	12.58	23.83	0.00	0.0004	5478	12.62	11.49	12.70	11.56
TW45	TW	050YR-EX-Masci	12.68	23.95	0.00	0.0003	44247	12.64	15.27	12.80	15.77
TW45	TW	100YR-EX-Masci	12.73	24.02	0.00	-0.0003	46137	12.61	19.30	12.88	20.05
TW45	TW	500YR-EX-Masci	18.67	24.24	0.00	0.0003	53149	12.56	29.01	12.74	26.68
TW50	TW	002YR-EX-Masci	12.77	23.20	0.00	0.0000	1100949	12.08	86.16	12.77	30.70
TW50	TW	005YR-EX-Masci	12.87	23.27	0.00	0.0000	1110764	12.08	116.53	12.87	46.84
TW50	TW	010YR-EX-Masci	12.89	23.33	0.00	0.0001	1119431	12.08	143.46	12.89	63.34
TW50	TW	025YR-EX-Masci	12.89	23.39	0.00	0.0001	1127338	12.08	168.90	12.89	80.09
TW50	TW	050YR-EX-Masci	17.45	23.44	0.00	0.0001	1131892	12.08	191.00	12.89	94.98
TW50	TW	100YR-EX-Masci	17.83	23.73	0.00	0.0001	1227550	12.08	214.51	12.88	110.61
TW50	TW	500YR-EX-Masci	18.64	24.23	0.00	0.0001	1347581	12.08	272.68	12.86	148.82
TW80	TW	002YR-EX-Masci	15.77	24.05	0.00	0.0000	228271	12.50	9.78	13.34	6.98
TW80	TW	005YR-EX-Masci	14.10	24.11	0.00	0.0001	230917	12.50	15.50	13.18	10.89
TW80	TW	010YR-EX-Masci	13.53	24.16	0.00	0.0001	233288	12.50	20.72	13.16	16.15
TW80	TW	025YR-EX-Masci	13.21	24.20	0.00	0.0001	235499	12.42	25.68	13.06	21.31
TW80	TW	050YR-EX-Masci	13.07	24.24	0.00	0.0001	237323	12.42	29.90	13.01	25.79
TW80	TW	100YR-EX-Masci	12.97	24.28	0.00	0.0001	239104	12.42	34.15	13.00	30.35
TW80	TW	500YR-EX-Masci	12.83	24.36	0.00	0.0001	242982	12.42	44.00	12.92	40.99
TW85	TW	002YR-EX-Masci	15.78	24.05	0.00	0.0000	1047453	12.08	56.61	0.00	0.00
TW85	TW	005YR-EX-Masci	14.10	24.11	0.00	0.0001	1050686	12.08	78.98	0.00	0.00
TW85	TW	010YR-EX-Masci	13.54	24.16	0.00	0.0001	1053604	12.08	98.67	0.00	0.00
TW85	TW	025YR-EX-Masci	13.21	24.21	0.00	0.0001	1056340	12.09	114.13	0.00	0.00
TW85	TW	050YR-EX-Masci	13.07	24.25	0.00	0.0001	1058608	12.03	124.93	0.00	0.00
TW85	TW	100YR-EX-Masci	12.97	24.29	0.00	0.0001	1060829	12.00	134.46	0.00	0.00
TW85	TW	500YR-EX-Masci	12.83	24.37	0.00	0.0001	1065686	12.00	154.33	0.00	0.00
TW86	TW	002YR-EX-Masci	0.00	23.75	0.00	-0.0001	190880	15.77	6.79	0.00	38.84
TW86	TW	005YR-EX-Masci	0.00	23.75	0.00	0.0001	190880	14.10	13.13	0.00	38.84
TW86	TW	010YR-EX-Masci	0.00	23.75	0.00	0.0001	190880	13.53	19.92	0.00	38.84
TW86	TW	025YR-EX-Masci	0.00	23.75	0.00	0.0001	190880	13.21	27.07	0.00	38.84
TW86	TW	050YR-EX-Masci	0.00	23.75	0.00	0.0001	190880	13.07	33.51	0.00	38.84
TW86	TW	100YR-EX-Masci	17.82	23.75	0.00	0.0001	191718	12.97	40.23	0.00	38.84
TW86	TW	500YR-EX-Masci	18.70	24.23	0.00	0.0001	238888	12.83	56.30	13.44	50.32
TW95	TW	002YR-EX-Masci	15.77	24.05	0.00	0.0000	641764	12.11	25.96	15.67	8.02
TW95	TW	005YR-EX-Masci	14.10	24.11	0.00	0.0001	650565	12.11	41.78	14.05	19.61
TW95	TW	010YR-EX-Masci	13.53	24.17	0.00	0.0001	658616	12.12	57.26	13.29	33.68
TW95	TW	025YR-EX-Masci	13.20	24.22	0.00	0.0001	666260	12.14	73.73	13.10	49.62
TW95	TW	050YR-EX-Masci	13.06	24.26	0.00	0.0001	672630	12.33	89.59	12.97	64.28
TW95	TW	100YR-EX-Masci	12.96	24.31	0.00	0.0001	678900	12.33	106.70	12.92	79.86
TW95	TW	500YR-EX-Masci	12.83	24.40	0.00	0.0001	692686	12.32	147.83	12.81	117.64
TW96	TW	002YR-EX-Masci	13.34	26.00	0.00	0.0000	459335	12.33	8.02	13.34	3.73
TW96	TW	005YR-EX-Masci	12.96	26.02	0.00	0.0000	461735	12.33	14.26	12.96	8.26

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TW96	TW	010YR-EX-Masci	12.79	26.04	0.00	0.0000	463476	12.25	19.88	12.79	12.90
TW96	TW	025YR-EX-Masci	12.70	26.05	0.00	0.0000	464926	12.25	24.91	12.70	17.52
TW96	TW	050YR-EX-Masci	12.64	26.06	0.00	0.0000	466046	12.25	29.01	12.64	21.50
TW96	TW	100YR-EX-Masci	12.61	26.07	0.00	0.0000	467099	12.25	33.12	12.61	25.57
TW96	TW	500YR-EX-Masci	12.55	26.10	0.00	0.0000	469314	12.25	42.75	12.55	35.09
TW99	TW	002YR-EX-Masci	15.77	24.05	0.00	0.0000	395514	12.08	40.16	12.10	17.78
TW99	TW	005YR-EX-Masci	14.11	24.12	0.00	0.0001	398830	12.08	59.49	12.10	28.08
TW99	TW	010YR-EX-Masci	13.53	24.17	0.00	0.0001	401900	12.08	77.31	12.10	37.92
TW99	TW	025YR-EX-Masci	13.17	24.23	0.00	0.0001	404847	12.08	94.38	12.10	47.87
TW99	TW	050YR-EX-Masci	13.02	24.27	0.00	0.0001	407343	12.08	108.92	12.10	56.97
TW99	TW	100YR-EX-Masci	12.90	24.32	0.00	0.0001	409836	12.08	123.68	12.10	66.60
TW99	TW	500YR-EX-Masci	12.75	24.42	0.00	0.0001	415397	12.08	158.23	12.10	90.65
WA05	WA	002YR-EX-Masci	16.15	21.07	0.00	0.0004	333958	13.96	544.05	14.49	505.57
WA05	WA	005YR-EX-Masci	16.40	22.06	0.00	0.0009	396560	13.61	809.30	14.46	745.46
WA05	WA	010YR-EX-Masci	16.74	22.75	0.00	0.0008	516491	13.69	1051.39	13.89	976.59
WA05	WA	025YR-EX-Masci	16.99	23.20	0.00	0.0007	651247	13.39	1264.60	13.45	1155.14
WA05	WA	050YR-EX-Masci	17.20	23.52	0.00	0.0007	757909	13.19	1408.26	13.29	1272.98
WA05	WA	100YR-EX-Masci	17.53	23.82	0.00	0.0006	1110894	13.14	1530.77	13.43	1375.87
WA05	WA	500YR-EX-Masci	18.21	24.36	0.00	0.0005	1542654	13.18	1842.96	13.27	1658.24
WA10	WA	002YR-EX-Masci	16.12	21.10	0.00	0.0004	306810	13.96	483.30	14.65	452.09
WA10	WA	005YR-EX-Masci	16.35	22.09	0.00	0.0009	352847	13.91	709.95	14.59	667.17
WA10	WA	010YR-EX-Masci	16.69	22.79	0.00	0.0008	391657	13.82	911.71	13.95	850.17
WA10	WA	025YR-EX-Masci	16.93	23.24	0.00	0.0007	425842	13.43	1065.14	13.52	973.53
WA10	WA	050YR-EX-Masci	17.12	23.56	0.00	0.0007	487799	13.27	1156.03	13.45	1048.67
WA10	WA	100YR-EX-Masci	17.38	23.87	0.00	0.0007	669144	13.33	1235.04	13.60	1141.38
WA10	WA	500YR-EX-Masci	18.02	24.42	0.00	0.0005	927262	14.61	1510.87	14.77	1451.28
WA15	WA	002YR-EX-Masci	16.10	21.11	0.00	0.0004	153800	14.53	392.06	14.72	380.98
WA15	WA	005YR-EX-Masci	16.32	22.10	0.00	0.0010	201736	14.42	582.14	14.66	562.70
WA15	WA	010YR-EX-Masci	16.66	22.81	0.00	0.0008	254504	14.01	729.83	14.08	697.56
WA15	WA	025YR-EX-Masci	16.90	23.26	0.00	0.0007	296618	13.44	823.00	13.52	770.00
WA15	WA	050YR-EX-Masci	17.08	23.58	0.00	0.0007	330198	13.25	876.29	13.42	809.45
WA15	WA	100YR-EX-Masci	17.31	23.90	0.00	0.0007	376875	16.04	942.49	16.22	933.79
WA15	WA	500YR-EX-Masci	17.94	24.46	0.00	-0.0010	471240	14.93	1212.89	15.22	1190.06
WA20	WA	002YR-EX-Masci	15.73	21.42	0.00	0.0857	34355	14.85	326.93	14.91	324.92
WA20	WA	005YR-EX-Masci	15.55	22.79	0.00	0.0857	55086	14.74	488.15	14.83	484.00
WA20	WA	010YR-EX-Masci	15.74	23.79	0.00	0.0857	119357	14.12	597.93	14.28	585.99
WA20	WA	025YR-EX-Masci	16.08	24.44	0.00	0.0857	182997	13.82	640.98	14.65	619.12
WA20	WA	050YR-EX-Masci	16.47	25.06	0.00	0.0857	263325	15.61	680.62	16.18	671.32
WA20	WA	100YR-EX-Masci	16.57	26.10	0.00	0.0857	734137	15.55	868.01	16.44	824.27
WA20	WA	500YR-EX-Masci	16.87	27.03	0.00	0.2295	2598552	14.43	1250.78	16.55	1042.20
WA23	WA	002YR-EX-Masci	15.13	23.93	0.00	0.0003	69976	15.04	280.58	15.13	280.39
WA23	WA	005YR-EX-Masci	15.04	24.53	0.00	0.0006	74221	14.95	418.65	15.04	418.41
WA23	WA	010YR-EX-Masci	15.37	25.07	0.00	0.0006	78002	14.67	499.42	14.85	495.86
WA23	WA	025YR-EX-Masci	15.89	25.74	0.00	0.0005	82637	15.29	529.14	15.62	527.38
WA23	WA	050YR-EX-Masci	16.36	26.22	0.00	0.0005	86041	14.80	544.20	14.87	536.88
WA23	WA	100YR-EX-Masci	16.27	26.56	0.00	0.0006	88410	14.13	534.39	14.17	519.18
WA23	WA	500YR-EX-Masci	16.83	27.08	0.00	0.0006	91992	13.48	499.14	23.18	472.60
WA25	WA	002YR-EX-Masci	15.13	23.94	0.00	0.0003	417457	14.34	292.74	15.04	280.58
WA25	WA	005YR-EX-Masci	15.04	24.55	0.00	0.0006	473059	14.27	436.25	14.95	418.65
WA25	WA	010YR-EX-Masci	15.36	25.09	0.00	0.0006	542747	13.98	551.66	14.67	499.42

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WA25	WA	025YR-EX-Masci	15.89	25.75	0.00	0.0005	788574	13.51	615.15	15.29	529.14
WA25	WA	050YR-EX-Masci	16.36	26.23	0.00	0.0005	1090603	14.03	665.48	16.13	590.82
WA25	WA	100YR-EX-Masci	16.26	26.57	0.00	0.0006	1460640	15.28	797.24	15.75	761.23
WA25	WA	500YR-EX-Masci	16.83	27.08	0.00	0.0006	2986063	14.43	1223.79	14.44	1059.44
WA26	WA	002YR-EX-Masci	15.13	23.94	0.00	0.0003	147258	12.58	76.91	12.58	51.55
WA26	WA	005YR-EX-Masci	15.04	24.55	0.00	0.0006	183296	12.58	106.96	12.43	74.76
WA26	WA	010YR-EX-Masci	15.36	25.09	0.00	0.0006	300267	12.50	132.98	12.42	88.09
WA26	WA	025YR-EX-Masci	15.89	25.75	0.00	0.0005	339588	12.50	157.02	12.42	102.08
WA26	WA	050YR-EX-Masci	16.36	26.23	0.00	0.0005	378609	12.50	176.99	12.42	114.00
WA26	WA	100YR-EX-Masci	16.26	26.57	0.00	0.0006	451455	12.50	196.89	12.42	125.86
WA26	WA	500YR-EX-Masci	16.83	27.08	0.00	0.0006	772545	12.50	242.47	12.42	153.17
WA30	WA	002YR-EX-Masci	15.13	23.95	0.00	0.0003	598063	13.92	213.46	15.01	180.57
WA30	WA	005YR-EX-Masci	15.04	24.56	0.00	0.0006	704733	13.83	318.37	14.94	270.73
WA30	WA	010YR-EX-Masci	15.35	25.11	0.00	0.0006	856745	13.83	412.31	14.70	330.61
WA30	WA	025YR-EX-Masci	15.89	25.76	0.00	0.0005	1086306	13.83	500.24	14.93	363.08
WA30	WA	050YR-EX-Masci	16.35	26.25	0.00	0.0005	1329328	13.83	574.03	16.21	416.77
WA30	WA	100YR-EX-Masci	16.23	26.59	0.00	0.0006	1716872	13.83	648.10	15.70	561.84
WA30	WA	500YR-EX-Masci	16.75	27.11	0.00	0.0006	3003527	14.28	1020.92	14.51	834.91
WS05	FDOT	002YR-EX-Masci	12.28	25.62	0.00	0.0001	23498	12.00	7.87	12.28	5.76
WS05	FDOT	005YR-EX-Masci	12.26	25.71	0.00	-0.0002	24238	12.00	10.63	12.26	8.00
WS05	FDOT	010YR-EX-Masci	12.25	25.78	0.00	-0.0002	24840	12.00	13.06	12.25	9.99
WS05	FDOT	025YR-EX-Masci	12.24	25.85	0.00	0.0002	25369	12.00	15.33	12.24	11.85
WS05	FDOT	050YR-EX-Masci	12.23	25.90	0.00	0.0002	25793	12.00	17.22	12.23	13.42
WS05	FDOT	100YR-EX-Masci	12.22	25.95	0.00	0.0002	26204	12.00	19.12	12.22	15.01
WS05	FDOT	500YR-EX-Masci	12.21	26.06	0.00	0.0003	27182	12.00	23.51	12.21	18.67
WS06	FDOT	002YR-EX-Masci	13.20	25.07	0.00	0.0002	22705	12.33	7.09	13.20	2.68
WS06	FDOT	005YR-EX-Masci	12.99	25.29	0.00	0.0002	23453	12.20	8.53	12.99	6.60
WS06	FDOT	010YR-EX-Masci	12.93	25.44	0.00	0.0002	23935	12.32	11.01	12.93	9.85
WS06	FDOT	025YR-EX-Masci	12.91	25.53	0.00	0.0003	24224	12.32	13.59	12.91	11.85
WS06	FDOT	050YR-EX-Masci	12.91	25.58	0.00	0.0003	24410	12.21	15.24	12.91	13.19
WS06	FDOT	100YR-EX-Masci	12.90	25.63	0.00	0.0003	24585	12.12	16.75	12.90	14.49
WS06	FDOT	500YR-EX-Masci	12.75	25.75	0.00	0.0002	25001	12.00	18.71	12.75	17.41
WS07	FDOT	002YR-EX-Masci	14.48	25.07	0.00	0.0002	17516	12.08	1.05	15.87	0.21
WS07	FDOT	005YR-EX-Masci	13.58	25.33	0.00	0.0005	18625	12.08	1.93	14.25	0.59
WS07	FDOT	010YR-EX-Masci	13.30	25.58	0.00	0.0004	19983	12.08	2.78	14.27	1.01
WS07	FDOT	025YR-EX-Masci	13.24	25.84	0.00	0.0005	21559	12.08	3.61	14.66	1.40
WS07	FDOT	050YR-EX-Masci	13.27	26.05	0.00	0.0004	23923	12.08	4.32	14.91	1.60
WS07	FDOT	100YR-EX-Masci	13.32	26.23	0.00	0.0004	27036	12.08	5.05	14.93	1.78
WS07	FDOT	500YR-EX-Masci	13.37	26.56	0.00	0.0004	36120	12.08	6.77	15.48	2.01
WS08	FDOT	002YR-EX-Masci	13.13	25.09	0.00	0.0002	34111	12.09	9.99	12.36	6.09
WS08	FDOT	005YR-EX-Masci	12.89	25.37	0.00	0.0002	39465	12.08	16.01	12.38	6.69
WS08	FDOT	010YR-EX-Masci	12.85	25.61	0.00	0.0003	43998	12.08	20.82	12.66	9.43
WS08	FDOT	025YR-EX-Masci	12.98	25.84	0.00	0.0004	48474	12.08	25.68	13.22	11.08
WS08	FDOT	050YR-EX-Masci	13.19	26.04	0.00	0.0004	52753	12.08	29.53	13.24	12.40
WS08	FDOT	100YR-EX-Masci	13.23	26.22	0.00	0.0004	56935	12.08	32.99	13.26	13.57
WS08	FDOT	500YR-EX-Masci	13.23	26.55	0.00	0.0004	73629	12.01	40.49	13.35	15.92
WS08A	FDOT	002YR-EX-Masci	12.36	26.47	0.00	0.0001	42587	12.08	10.17	12.36	6.47
WS08A	FDOT	005YR-EX-Masci	12.36	26.57	0.00	-0.0002	54864	12.00	14.12	12.36	9.01
WS08A	FDOT	010YR-EX-Masci	12.36	26.63	0.00	-0.0001	63940	12.00	17.57	12.36	11.06
WS08A	FDOT	025YR-EX-Masci	12.36	26.69	0.00	0.0002	71492	12.00	20.74	12.36	12.88

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WS08A	FDOT	050YR-EX-Masci	12.38	26.73	0.00	0.0002	77434	12.00	23.37	12.31	14.13
WS08A	FDOT	100YR-EX-Masci	12.42	26.78	0.00	0.0002	84033	12.00	26.00	12.23	14.65
WS08A	FDOT	500YR-EX-Masci	12.56	26.91	0.00	0.0002	101702	12.00	31.99	12.12	14.87
WS09	FDOT	002YR-EX-Masci	13.14	25.09	0.00	0.0002	12981	12.08	1.89	13.38	0.50
WS09	FDOT	005YR-EX-Masci	12.90	25.37	0.00	0.0002	17156	12.08	3.89	13.08	1.15
WS09	FDOT	010YR-EX-Masci	12.88	25.62	0.00	0.0003	24367	12.08	5.87	13.07	1.70
WS09	FDOT	025YR-EX-Masci	13.02	25.85	0.00	0.0004	32929	12.08	7.83	14.11	2.27
WS09	FDOT	050YR-EX-Masci	13.23	26.05	0.00	0.0004	37732	12.08	9.54	14.38	2.83
WS09	FDOT	100YR-EX-Masci	13.29	26.23	0.00	0.0004	39761	12.08	11.31	14.99	3.14
WS09	FDOT	500YR-EX-Masci	13.29	26.57	0.00	0.0004	47381	12.08	15.51	16.51	3.33
WS10	FDOT	002YR-EX-Masci	12.28	26.34	0.00	0.0007	436	12.08	0.58	12.28	0.45
WS10	FDOT	005YR-EX-Masci	12.09	26.40	0.00	0.0009	436	12.08	0.89	12.09	0.89
WS10	FDOT	010YR-EX-Masci	12.08	26.43	0.00	0.0008	436	12.08	1.18	12.08	1.17
WS10	FDOT	025YR-EX-Masci	12.08	26.45	0.00	0.0006	447	12.08	1.44	12.08	1.44
WS10	FDOT	050YR-EX-Masci	12.08	26.47	0.00	0.0003	488	12.08	1.67	12.08	1.67
WS10	FDOT	100YR-EX-Masci	12.08	26.47	0.00	0.0002	522	12.08	1.89	12.08	1.89
WS10	FDOT	500YR-EX-Masci	12.08	26.49	0.00	0.0002	588	12.08	2.41	12.08	2.41
WS11	FDOT	002YR-EX-Masci	12.09	21.27	0.00	0.0001	163	12.08	0.85	12.09	0.84
WS11	FDOT	005YR-EX-Masci	12.09	21.44	0.00	-0.0002	169	12.08	1.61	12.09	1.60
WS11	FDOT	010YR-EX-Masci	12.09	21.57	0.00	-0.0002	172	12.08	2.33	12.09	2.32
WS11	FDOT	025YR-EX-Masci	12.09	21.68	0.00	-0.0002	174	12.08	3.05	12.08	3.04
WS11	FDOT	050YR-EX-Masci	12.09	21.77	0.00	0.0003	175	12.08	3.66	12.08	3.65
WS11	FDOT	100YR-EX-Masci	12.08	21.86	0.00	0.0004	175	12.08	4.29	12.08	4.29
WS11	FDOT	500YR-EX-Masci	12.08	22.05	0.00	0.0005	175	12.08	5.79	12.08	5.78
WS12	FDOT	002YR-EX-Masci	12.31	25.32	0.00	0.0001	8767	12.08	2.17	12.31	1.77
WS12	FDOT	005YR-EX-Masci	12.22	25.41	0.00	-0.0001	9088	12.08	4.00	12.22	3.40
WS12	FDOT	010YR-EX-Masci	12.18	25.49	0.00	-0.0001	9357	12.08	5.75	12.18	5.02
WS12	FDOT	025YR-EX-Masci	12.16	25.56	0.00	0.0002	9661	12.08	7.46	12.16	6.64
WS12	FDOT	050YR-EX-Masci	12.15	25.61	0.00	0.0002	9907	12.08	8.94	12.15	8.03
WS12	FDOT	100YR-EX-Masci	12.15	25.67	0.00	0.0002	10145	12.08	10.45	12.15	9.46
WS12	FDOT	500YR-EX-Masci	12.13	25.78	0.00	0.0002	10646	12.08	14.01	12.13	12.89
WS13	FDOT	002YR-EX-Masci	12.45	25.25	0.00	0.0001	14787	12.08	6.13	12.40	3.89
WS13	FDOT	005YR-EX-Masci	12.39	25.55	0.00	0.0002	16210	12.08	10.97	12.38	7.33
WS13	FDOT	010YR-EX-Masci	12.37	25.79	0.00	0.0003	19637	12.08	15.57	12.37	10.39
WS13	FDOT	025YR-EX-Masci	12.43	26.07	0.00	0.0006	24084	12.08	20.04	12.20	11.97
WS13	FDOT	050YR-EX-Masci	12.43	26.27	0.00	0.0005	28339	12.08	23.88	12.43	13.66
WS13	FDOT	100YR-EX-Masci	12.45	26.45	0.00	0.0006	32266	12.08	27.79	12.45	15.34
WS13	FDOT	500YR-EX-Masci	12.61	26.77	0.00	0.0006	70804	12.08	36.96	12.38	17.73
WS14	FDOT	002YR-EX-Masci	14.22	25.18	0.00	0.0001	127974	12.08	12.71	14.22	1.81
WS14	FDOT	005YR-EX-Masci	13.57	25.38	0.00	0.0001	133240	12.08	21.86	13.57	3.68
WS14	FDOT	010YR-EX-Masci	13.22	25.56	0.00	0.0002	140002	12.08	30.65	13.22	5.77
WS14	FDOT	025YR-EX-Masci	13.16	25.73	0.00	0.0003	148961	12.08	38.84	13.16	7.94
WS14	FDOT	050YR-EX-Masci	13.15	25.87	0.00	0.0002	156102	12.08	45.16	13.15	9.85
WS14	FDOT	100YR-EX-Masci	13.13	25.99	0.00	0.0003	162436	12.08	50.36	13.13	12.51
WS14	FDOT	500YR-EX-Masci	13.17	26.20	0.00	0.0003	168279	12.08	64.95	13.17	18.25
WY05	WY	002YR-EX-Masci	15.20	27.80	0.00	-0.0011	107304	20.17	542.24	20.26	550.41
WY05	WY	005YR-EX-Masci	15.04	27.87	0.00	0.0009	116407	20.44	605.05	20.39	612.81
WY05	WY	010YR-EX-Masci	15.13	27.93	0.00	0.0008	124156	20.63	664.20	20.56	671.59
WY05	WY	025YR-EX-Masci	15.25	27.99	0.00	0.0009	131606	20.59	721.68	20.59	729.17
WY05	WY	050YR-EX-Masci	15.34	28.04	0.00	0.0008	135842	21.02	771.17	21.01	777.92

September, 2011

Singhofen & Associates, Inc.

Stormwater Management Master Plan
Existing Conditions - Node Max Comparison Report

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
WY05	WY	100YR-EX-Masci	15.44	28.09	0.00	0.0009	140254	21.34	820.09	21.31	826.17
WY05	WY	500YR-EX-Masci	15.66	28.23	0.00	0.0007	151646	22.05	901.08	22.03	906.07
WY10	WY	002YR-EX-Masci	15.77	27.82	0.00	0.0005	459329	20.15	518.99	20.17	541.09
WY10	WY	005YR-EX-Masci	15.89	27.94	0.00	0.0010	537962	20.41	581.40	20.44	603.55
WY10	WY	010YR-EX-Masci	16.01	28.05	0.00	0.0008	710216	20.61	639.99	20.64	662.40
WY10	WY	025YR-EX-Masci	16.11	28.16	0.00	0.0008	882742	20.64	698.12	20.59	719.55
WY10	WY	050YR-EX-Masci	16.18	28.25	0.00	0.0007	1025650	21.05	745.35	21.02	768.88
WY10	WY	100YR-EX-Masci	16.37	28.35	0.00	0.0007	1191551	21.54	788.80	21.34	817.60
WY10	WY	500YR-EX-Masci	16.38	28.59	0.00	0.0006	1575859	22.13	853.03	22.05	898.10
WY15	WY	002YR-EX-Masci	15.79	27.82	0.00	-0.0015	589698	20.12	494.61	20.15	516.35
WY15	WY	005YR-EX-Masci	15.91	27.94	0.00	-0.0020	701055	22.51	962.70	20.42	578.02
WY15	WY	010YR-EX-Masci	16.03	28.06	0.00	-0.0022	949479	22.84	927.03	20.62	635.95
WY15	WY	025YR-EX-Masci	16.12	28.16	0.00	-0.0017	1193819	23.25	985.66	20.64	693.40
WY15	WY	050YR-EX-Masci	16.19	28.25	0.00	-0.0019	1395968	23.67	1012.35	21.05	740.24
WY15	WY	100YR-EX-Masci	16.38	28.36	0.00	0.0011	1631123	21.60	752.11	21.54	783.24
WY15	WY	500YR-EX-Masci	16.38	28.60	0.00	0.0012	2173399	22.69	807.28	22.13	846.28
WY20	WY	002YR-EX-Masci	15.80	27.82	0.00	-0.0046	150934	20.10	466.18	20.11	474.90
WY20	WY	005YR-EX-Masci	15.92	27.94	0.00	-0.0063	174568	20.36	525.25	22.51	934.15
WY20	WY	010YR-EX-Masci	16.04	28.06	0.00	-0.0063	227427	20.55	581.74	22.84	895.09
WY20	WY	025YR-EX-Masci	16.13	28.17	0.00	-0.0065	278917	20.71	636.79	23.25	951.04
WY20	WY	050YR-EX-Masci	16.19	28.26	0.00	-0.0063	321497	21.13	677.68	23.67	975.89
WY20	WY	100YR-EX-Masci	16.38	28.36	0.00	0.0026	371135	21.62	713.90	21.60	724.87
WY20	WY	500YR-EX-Masci	16.37	28.60	0.00	0.0027	485341	22.70	763.56	22.69	775.92
WY25	WY	002YR-EX-Masci	15.81	27.82	0.00	-0.0022	144538	20.07	442.72	20.10	465.31
WY25	WY	005YR-EX-Masci	15.92	27.95	0.00	0.0016	145085	22.72	519.30	20.36	524.17
WY25	WY	010YR-EX-Masci	16.05	28.06	0.00	-0.0014	145597	20.42	558.02	20.55	580.47
WY25	WY	025YR-EX-Masci	16.13	28.17	0.00	-0.0013	146080	20.71	612.52	20.71	635.35
WY25	WY	050YR-EX-Masci	16.19	28.26	0.00	-0.0014	146480	21.13	651.79	21.13	676.13
WY25	WY	100YR-EX-Masci	16.38	28.36	0.00	-0.0014	146946	21.62	686.44	21.62	712.23
WY25	WY	500YR-EX-Masci	16.36	28.60	0.00	-0.0012	148016	22.70	734.25	22.70	761.58
WY30	WY	002YR-EX-Masci	15.82	27.82	0.00	-0.0008	240103	20.05	415.71	20.07	437.63
WY30	WY	005YR-EX-Masci	15.93	27.95	0.00	0.0011	279745	20.30	469.94	22.72	505.21
WY30	WY	010YR-EX-Masci	16.05	28.06	0.00	0.0010	316841	20.30	523.98	20.43	545.71
WY30	WY	025YR-EX-Masci	16.13	28.17	0.00	0.0009	361804	20.71	574.59	20.71	597.60
WY30	WY	050YR-EX-Masci	16.19	28.26	0.00	0.0008	432497	21.13	610.37	21.13	634.92
WY30	WY	100YR-EX-Masci	16.37	28.37	0.00	0.0008	515159	21.62	641.77	21.62	667.77
WY30	WY	500YR-EX-Masci	16.35	28.61	0.00	0.0007	704623	22.70	684.03	22.70	711.61
WY35	WY	002YR-EX-Masci	15.83	27.82	0.00	0.0005	4570629	13.33	232.91	20.05	401.51
WY35	WY	005YR-EX-Masci	15.95	27.95	0.00	0.0011	5220978	13.25	347.01	20.30	452.61
WY35	WY	010YR-EX-Masci	16.07	28.06	0.00	0.0008	5653625	13.25	448.86	20.30	504.06
WY35	WY	025YR-EX-Masci	16.15	28.17	0.00	0.0007	5968453	13.25	544.02	20.70	552.88
WY35	WY	050YR-EX-Masci	16.20	28.26	0.00	0.0006	6228273	13.25	623.75	21.13	587.27
WY35	WY	100YR-EX-Masci	16.38	28.37	0.00	0.0007	6533059	13.25	703.69	21.62	617.25
WY35	WY	500YR-EX-Masci	16.35	28.61	0.00	0.0006	7936885	13.42	887.81	22.70	656.11

September, 2011

Singhofen & Associates, Inc.

Submittal Examples

Tc Calcs

Appendix G.2 - Time of Concentration Calculations

Sheet Flow Surface Codes	
a Smooth Surface	f grass, dense
b fallow (no residue)	g grass, bermuda
c cultivated < 20% Res.	h woods, light
d cultivated > 20% Res.	i woods, dense
e grass - range, short	j range, natural

Shallow Concentrated Surface Codes
u unpaved surface
p paved surface

Notes:

1. Methodology: SCS, TR-55, 2nd, ed., 1986

Minimum T_c (min.) =	10
Precipitation (inches, mean-annual, 24-hour storm event) =	4.30
Assumed Channel Flow Velocity (ft/s) =	2.00
Assumed Pipe Flow Velocity (ft/sec) =	2.50

BASIN ID	SEGMENT_ID	FLOW TYPE	LENGTH (feet)	U/S ELEV (ft)	D/S ELEV (ft)	SLOPE (ft/ft)	SURFACE CODE	MANNINGS "N"	VELOCITY (ft./sec.)	TRAVEL TIME (min)	BASIN AREA (ac)	TIME OF CONC. (min)
1000	1	Sheet Flow	314	78.0	77.5	0.0016	h	0.4	n/a	127.47		
1000	2	Shallow Conc. Flow	641	77.5	72.0	0.0086	u	n/a	1.47	7.28		
1000 Total			955							134.75	18.1	134.7
1010	1	Sheet Flow	300	112.0	108.0	0.0133	e	0.15	n/a	23.94		
1010	2	Shallow Conc. Flow	791	108.0	91.0	0.0215	u	n/a	2.35	5.62		
1010	3	Pipe Flow	628	0.0	0.0	0.0000	n/a (pipe)	#N/A	2.50	4.18		
1010 Total			1719							33.74	14.9	33.7
1020	1	Sheet Flow	300	81.0	77.0	0.0133	h	0.4	n/a	52.47		
1020	2	Shallow Conc. Flow	750	77.0	72.0	0.0067	u	n/a	1.29	9.69		
1020 Total			1050							62.16	27.1	62.2
1030	1	Sheet Flow	300	78.0	77.0	0.0033	h	0.4	n/a	91.35		
1030	2	Shallow Conc. Flow	467	77.0	75.0	0.0043	u	n/a	1.06	7.37		
1030 Total			767							98.72	44.6	98.7
1040	1	Sheet Flow	300	78.5	78.0	0.0017	h	0.4	n/a	120.54		
1040	2	Shallow Conc. Flow	1529	78.0	72.0	0.0039	u	n/a	1.01	25.22		
1040 Total			1829							145.75	242.1	145.8
1050	1	Sheet Flow	240	81.5	77.0	0.0188	f	0.24	n/a	25.41		
1050	2	Shallow Conc. Flow	1000	77.0	74.0	0.0030	u	n/a	0.88	18.87		
1050 Total			1240							44.28	25.8	44.3
1060	1	Sheet Flow	300	85.5	84.5	0.0033	f	0.24	n/a	60.73		
1060	2	Shallow Conc. Flow	1333	84.5	76.5	0.0060	u	n/a	1.22	18.17		
1060 Total			1633							78.90	161.3	78.9
1070	1	Sheet Flow	299	86.5	85.5	0.0033	e	0.15	n/a	41.55		
1070	2	Shallow Conc. Flow	517	85.5	81.0	0.0087	u	n/a	1.48	5.83		
1070 Total			816							47.38	30.1	47.4
1080	1	Sheet Flow	300	89.0	86.0	0.0100	e	0.15	n/a	26.84		
1080	2	Shallow Conc. Flow	707	86.0	83.0	0.0042	u	n/a	1.05	11.21		
1080 Total			1007							38.04	104.4	38.0
1090	1	Sheet Flow	299	105.0	102.5	0.0084	h	0.4	n/a	63.07		
1090	2	Shallow Conc. Flow	5018	102.5	76.0	0.0053	u	n/a	1.15	73.03		
1090 Total			5317							136.10	874.9	136.1
1100	1	Sheet Flow	74	99.0	81.0	0.2436	e	0.15	n/a	2.44		
1100 Total			74							2.44	6.1	10.0
1110	1	Sheet Flow	31	105.0	98.0	0.2235	e	0.15	n/a	1.27		
1110 Total			31							1.27	74.0	10.0
15	1	Sheet Flow	300	78.5	77.5	0.0033	h	0.4	n/a	91.35		
15	2	Shallow Conc. Flow	2866	77.5	75.0	0.0009	u	n/a	0.48	100.26		
15 Total			3166							191.61	192.7	191.6
15-41	1	Sheet Flow	300	79.0	78.0	0.0033	h	0.4	n/a	91.35		
15-41	2	Shallow Conc. Flow	308	78.0	75.0	0.0097	u	n/a	1.57	3.28		
15-41 Total			608							94.63	9.6	94.6
15-42	1	Sheet Flow	119	84.0	80.0	0.0335	e	0.15	n/a	7.93		
15-42	2	Shallow Conc. Flow	807	80.0	77.0	0.0449	u	n/a	3.42	0.33		
15-42	3	Shallow Conc. Flow	802	77.0	76.5	0.0006	u	n/a	0.40	33.18		
15-42 Total			988							41.43	27.0	41.4
2000	1	Sheet Flow	476	79.5	79.0	0.0010	h	0.4	n/a	209.97		
2000	2	Shallow Conc. Flow	1412	79.0	73.0	0.0042	u	n/a	1.05	22.38		
2000 Total			1889							232.36	160.7	232.4
2010	1	Sheet Flow	300	79.5	79.0	0.0017	h	0.4	n/a	120.54		
2010	2	Shallow Conc. Flow	1037	79.0	74.0	0.0048	u	n/a	1.12	15.42		
2010 Total			1337							135.96	45.0	136.0
2020	1	Sheet Flow	300	78.5	78.0	0.0017	f	0.24	n/a	80.07		
2020	2	Shallow Conc. Flow	199	78.0	76.0	0.0100	u	n/a	1.59	2.09		
2020 Total			499							82.16	72.8	82.2
2030	1	Sheet Flow	294	81.0	79.0	0.0068	h	0.4	n/a	67.52		
2030	2	Shallow Conc. Flow	929	79.0	75.5	0.0038	u	n/a	0.99	15.64		
2030 Total			1223							83.16	101.8	83.2
2040	1	Sheet Flow	298	78.5	76.5	0.0067	h	0.4	n/a	68.61		
2040	2	Shallow Conc. Flow	592	76.5	76.0	0.0008	u	n/a	0.47	21.06		
2040 Total			890							89.67	100.0	89.7
2050	1	Sheet Flow	299	93.0	85.5	0.0251	h	0.4	n/a	40.63		
2050	2	Shallow Conc. Flow	1176	85.5	75.0	0.0089	u	n/a	1.50	13.09		
2050 Total			1475							53.72	109.5	53.7
2060	1	Sheet Flow	21	86.0	82.0	0.1930	e	0.15	n/a	0.97		
2060 Total			21							0.97	3.8	10.0
2070	1	Sheet Flow	300	82.0	80.5	0.0050	h	0.4	n/a	77.55		
2070	2	Shallow Conc. Flow	254	80.5	76.0	0.0177	u	n/a	2.13	1.99		
2070 Total			553							79.54	36.8	79.5
2080	1	Sheet Flow	300	79.0	78.5	0.0017	h	0.4	n/a	120.68		
2080	2	Shallow Conc. Flow	720	78.5	76.0	0.0035	u	n/a	0.95	12.61		
2080 Total			1020							133.29	72.9	133.3
2090	1	Sheet Flow	298	106.0	102.0	0.0134	e	0.15	n/a	23.72		
2090	2	Shallow Conc. Flow	3344	102.0	77.0	0.0075	u	n/a	1.37	40.74		
2090 Total			3642							64.46	520.2	64.5
2100	1	Sheet Flow	296	119.0	113.0	0.0203	e	0.15	n/a	20.02		
2100	2	Shallow Conc. Flow	2769	113.0	81.0	0.0116	u	n/a	1.71	27.00		
2100 Total			3065							47.01	180.6	47.0
2110	1	Sheet Flow	40	107.0	100.0	0.1742	e	0.15	n/a	1.71		
2110 Total			40							1.71	16.6	10.0
3000	1	Sheet Flow	300	78.0	77.0	0.0033	h	0.4	n/a	91.35		
3000	2	Shallow Conc. Flow	1134	77.0	75.0	0.0018	u	n/a	0.68	27.89		
3000 Total			1434							119.24	238.2	119.2
3010	1	Sheet Flow	300	79.5	79.0	0.0017	h	0.4	n/a	120.54		
3010	2	Shallow Conc. Flow	1212	79.0	75.0	0.0033	u	n/a	0.93	21.81		
3010 Total			1512							142.34	43.7	142.3
3020	1	Sheet Flow	297	79.5	78.5	0.0034	f	0.24	n/a	60.08		
3020	2	Shallow Conc. Flow	466	78.5	76.0	0.0054	u	n/a	1.15	6.72		

Appendix G.2 - Time of Concentration Calculations

Sheet Flow Surface Codes	
a Smooth Surface	f grass, dense
b fallow (no residue)	g grass, bermuda
c cultivated < 20% Res.	h woods, light
d cultivated > 20% Res.	i woods, dense
e grass - range, short	j range, natural

Shallow Concentrated Surface Codes
u unpaved surface
p paved surface

Notes:

1. Methodology: SCS, TR-55, 2nd, ed., 1986

Minimum T_c (min.) =	10
Precipitation (inches, mean-annual, 24-hour storm event) =	4.30
Assumed Channel Flow Velocity (ft/s) =	2.00
Assumed Pipe Flow Velocity (ft/sec) =	2.50

BASIN ID	SEGMENT_ID	FLOW TYPE	LENGTH (feet)	U/S ELEV (ft)	D/S ELEV (ft)	SLOPE (ft./ft.)	SURFACE CODE	MANNINGS "N"	VELOCITY (ft./sec.)	TRAVEL TIME (min)	BASIN AREA (ac)	TIME OF CONC. (min)
3020 Total			763							66.80	30.4	66.8
3030	1	Sheet Flow	298	77.5	77.0	0.0017	h	0.4	n/a	119.45		
3030	2	Shallow Conc. Flow	650	77.0	76.0	0.0015	u	n/a	0.63	17.10		
3030 Total			947							136.55	63.6	136.6
3040	1	Sheet Flow	298	80.0	78.0	0.0067	h	0.4	n/a	68.81		
3040	2	Shallow Conc. Flow	908	78.0	75.0	0.0033	u	n/a	0.93	16.32		
3040 Total			1207							85.13	120.1	85.1
3050	1	Sheet Flow	257	92.0	86.5	0.0214	e	0.15	n/a	17.49		
3050	2	Shallow Conc. Flow	1194	86.5	77.0	0.0080	u	n/a	1.41	14.09		
3050 Total			1451							31.58	150.6	31.6
4000	1	Sheet Flow	175	79.0	76.0	0.0171	h	0.4	n/a	30.90		
4000	2	Shallow Conc. Flow	728	76.0	74.0	0.0027	u	n/a	0.85	14.35		
4000 Total			904							45.25	105.0	45.3
4010	1	Sheet Flow	300	79.0	77.0	0.0067	h	0.4	n/a	69.23		
4010	2	Shallow Conc. Flow	463	77.0	76.0	0.0022	u	n/a	0.75	10.29		
4010 Total			763							79.52	55.7	79.5
5000	1	Sheet Flow	83	82.0	77.0	0.0599	h	0.4	n/a	10.34		
5000	2	Shallow Conc. Flow	496	77.0	75.0	0.0040	u	n/a	1.02	8.08		
5000 Total			580							18.41	24.0	18.4
53494	1	Sheet Flow	498	78.5	73.0	0.0110	h	0.4	n/a	84.84		
53494 Total			498							84.84	18.9	84.8
54994	1	Sheet Flow	105	85.5	77.0	0.0813	f	0.24	n/a	7.28		
54994	2	Shallow Conc. Flow	240	77.0	76.0	0.0042	u	n/a	1.04	3.84		
54994 Total			345							11.12	16.4	11.1
55544	1	Sheet Flow	36	79.0	73.0	0.1675	h	0.4	n/a	3.48		
55544 Total			36							3.48	3.3	10.0
56724	1	Sheet Flow	24	79.0	74.5	0.1850	h	0.4	n/a	2.46		
56724 Total			24							2.46	2.9	10.0
57994	1	Sheet Flow	292	81.0	76.0	0.0171	e	0.15	n/a	21.20		
57994	2	Shallow Conc. Flow	989	76.0	74.5	0.0015	u	n/a	0.63	26.25		
57994 Total			1281							47.45	42.7	47.4
58794	1	Sheet Flow	300	76.0	75.0	0.0033	h	0.4	n/a	91.35		
58794	2	Shallow Conc. Flow	251	75.0	73.5	0.0060	u	n/a	1.22	3.42		
58794 Total			551							94.77	13.1	94.8
59334	1	Sheet Flow	300	76.5	76.0	0.0017	h	0.4	n/a	120.54		
59334	2	Shallow Conc. Flow	2446	76.0	73.0	0.0012	u	n/a	0.57	72.16		
59334 Total			2746							192.70	229.1	192.7