FLOOD RECOVERY REPORT
TROPICAL STORM LEE-WYOMING VALLEY
COLUMBIA, LUZERNE, MONTOUR, NORTHUMBERLAND, AND SNYDER COUNTIES, PENNSYLVANIA

Prepared for: **Federal Emergency Management Agency**
Region III
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Philadelphia, Pennsylvania 19106-4404

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JUNE 2013

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2. U.S. Army Corps of Engineers, Hydrologic Engineering Center (HEC), Susquehanna River Flood Warning and Response System, PR-56, July 2003.

3. Federal Emergency Management Agency (FEMA), Delaware and Susquehanna River Basin Flood Data Assessment, May 2008.

4. U.S. Army Corps of Engineers, National Levee Database, located at http://nld.usace.army.mil/egis/f?p=471:1:

5. GG3, High Water Mark Report, Susquehanna River Post Flood Investigations, Disaster Declaration DR-4030-PA, July 27, 2012.

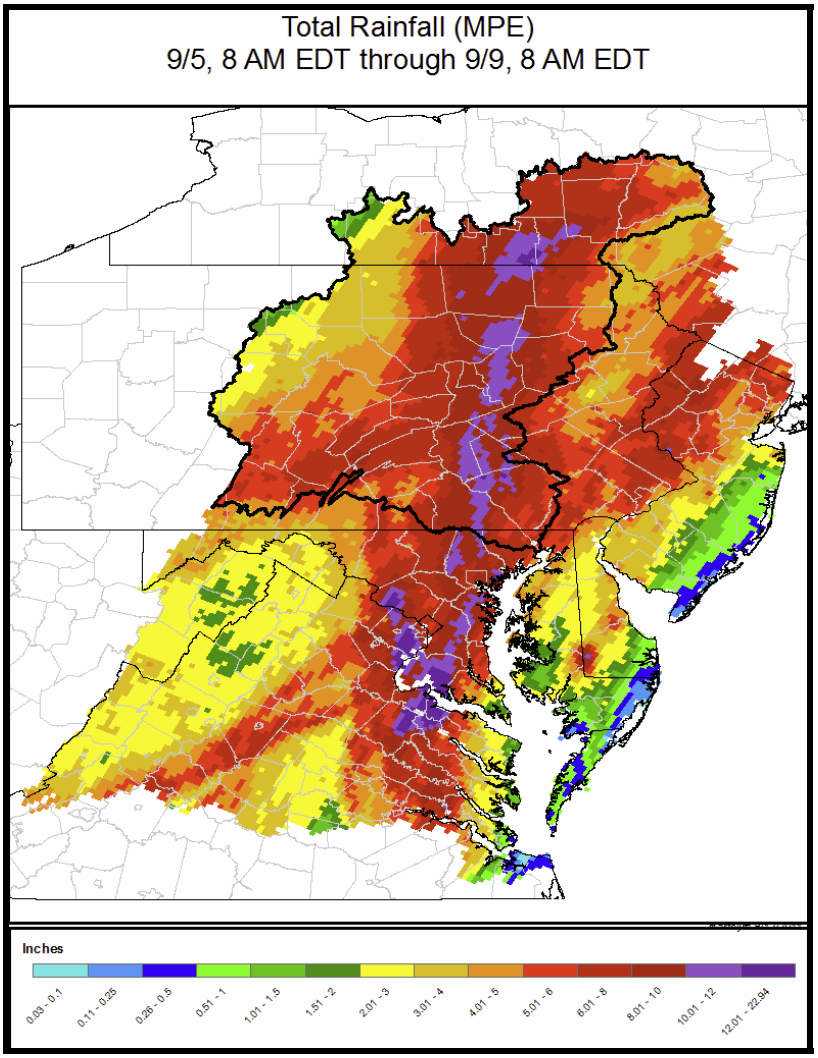
6. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-GeoRAS User's Manual, Version 4.2, September 2009.

1 INTRODUCTION

1.1 BACKGROUND

On September 4 through September 8, 2011, the remnants of Tropical Storm Lee produced heavy rainfall in the Susquehanna River basin. Rainfall totals exceeded 10-12 inches over a 48 hour period in some locations (Figure 1). Because portions of the Susquehanna River basin were already saturated by Hurricane Irene rainfall a month earlier, the additional heavy rain associated with the remnants of Tropical Storm Lee produced widespread flash flooding and river flooding in and to the east of the Susquehanna Valley. Several locations in the Susquehanna basin broke precipitation records set by Hurricane Agnes (June 1972), and 12 National Weather Service (NWS) forecast points set new floods of record (Reference 1).

Figure 1.1: Rainfall from Tropical Storm Lee in Susquehanna River Watershed (Reference 1)



The main stem of the Susquehanna River in northeast Pennsylvania, known as the Wyoming Valley, experienced record flooding. United States Geological Survey (USGS) stream flow gages at Wilkes Barre, Bloomsburg, Danville, and Sunbury, showed record or near-record flood stages. Nearly every municipality along the Susquehanna River experienced flooding. In Luzerne County, more than 100,000 people were ordered to evacuate, West Pittston saw water rise several feet higher than it did during Hurricane Agnes (June 1972), and other communities like Shickshinny were under water as the river spread across the valley. In Bloomsburg, the county fairgrounds were covered in 10-12 feet of water (Reference 1). Because of the extensive damages as a result of the flooding, the President declared a Federal Disaster (DR-4030-PA) in Pennsylvania, which affected over 30 counties in central and eastern parts of the State. The existing levee systems along the Susquehanna River in the Wyoming Valley held, but were close to overtopping in numerous areas, while portions of the levee system received damages (Figure 1.2).

Figure 1.2: Record Flooding in Wyoming Valley

In July 2003, the Hydrologic Engineering Center (HEC) of the U.S. Army Corps of Engineers (USACE) developed a HEC-RAS model (2003 HEC Model) for the main stem of the Susquehanna River in the Wyoming Valley. The geo-referenced HEC-RAS model included approximately 101 miles of the main stem of the Susquehanna River, as well as 5 miles of the West Branch Susquehanna River. This model is the basis for the Flood Warning and Response System (FWRS), developed by USACE Philadelphia District, currently being used by numerous municipalities on the Susquehanna River in the Wyoming Valley. The FWRS provides a comprehensive, easy-to-use, warning and response system that provides

accurate and timely flood forecasts that maximize the response time for floodplain residents and emergency management response officials. In addition, the FWRS provides local officials with a powerful management and planning tool for flood prone areas (Reference 2). The FWRS was utilized to its full extent during Tropical Storm Lee. The 2003 HEC Model was also used to establish 1-percent annual chance (100-year, or base flood) water surface elevations for the effective Federal Emergency Management Agency (FEMA) Flood Insurance Studies (FISs) and Digital Flood Insurance Rate Maps (DFIRMS) for Columbia, Luzerne, Montour, Northumberland, and Snyder Counties.

Since the development of the 2003 HEC Model, several hydrologic and hydraulic changes have occurred in the modeled reach. The hydraulic changes include bridge replacement/relocation, levee/floodwall raising, floodplain development, and the collection of high water marks during Tropical Storm Lee. Rainfall from Tropical Storm Lee caused record flows on the Susquehanna River through the Wyoming Valley, and the event resulted in revised flow frequency estimates. In response to Tropical Storm Lee, FEMA tasked USACE Baltimore District to conduct a basin flood data assessment as well as update the 2003 HEC Model to include the hydrologic and hydraulic changes noted above, and produce a revised geo-referenced, calibrated HEC-RAS model for the Wyoming Valley. The results can be used by FEMA, State, and local communities in the decision making process for future mitigation projects, flood risk management, and/or flood map revisions.

1.2 STUDY AUTHORITY

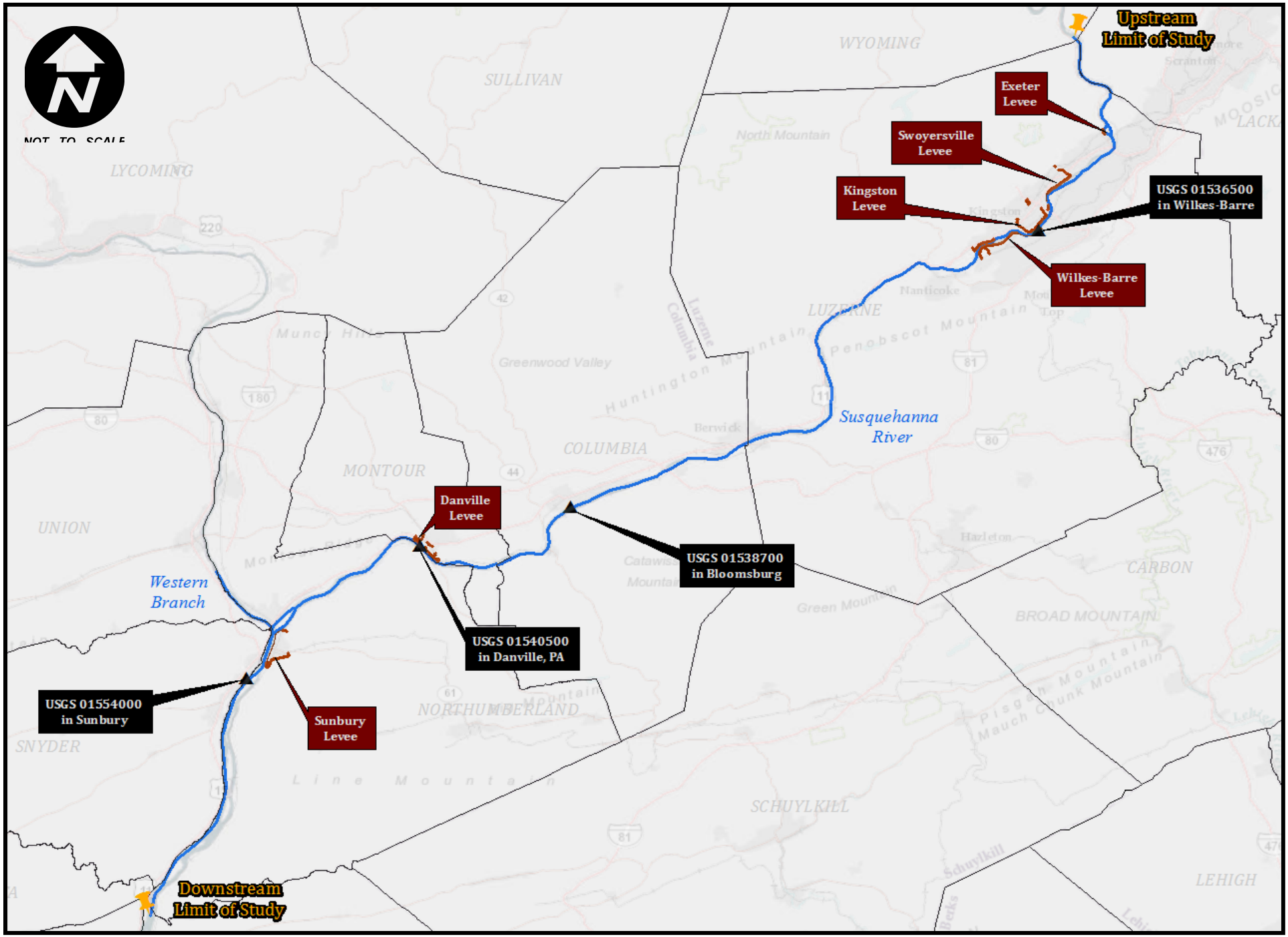
This project was completed by the USACE-Baltimore District for FEMA under Interagency Agreement (IAA) HSFE03-12-X-8103, in cooperation with GG3 (a joint venture between Greenhorne & O'Mara and Gannett Fleming), the USGS, and the Susquehanna River Basin Commission (SRBC). Input from HEC and USACE-Philadelphia District was also provided throughout the study process.

1.3 STUDY AREA

The study area includes 101 miles of the main stem of the Susquehanna River, as well as 5 miles of the West Branch Susquehanna River. The upstream limit of the model is upstream of the City of Wilkes-Barre, at the Luzerne County-Wyoming County boundary. The downstream limit of the model is below the Borough of Selinsgrove, at the Snyder and Northumberland County boundary with Perry and Dauphin Counties. The model limit spans a total of five counties (Columbia, Luzerne, Montour, Northumberland, and Snyder Counties) and includes over 50 local municipalities (Figure 1.3).

There are three levee systems within the study area: Sunbury, Danville, and Wyoming Valley, which contains 15.9 miles of flood protection from the following projects: Swoyersville and Forty Fort (and Exeter), Kingston-Edwardsville, Wilkes-Barre-Hanover Township, and Plymouth.

Figure 1.3: Study Area



The Sunbury Flood Protection Project, authorized under the Flood Control Act of 1936 (as modified by the Flood Control Act of 1941), was designed and built by USACE. The project, fully completed in 1951, consists of 14,000 feet of earth levee, 12,100 feet of concrete floodwall, and drainage structures including five pumping stations. The improvements were designed to protect the community against a flood discharge equal to that which occurred in 1936. Although Agnes (1972) exceeded the design discharge, the project held with only minor damages.

The Danville Flood Protection Project was constructed and is maintained by Pennsylvania Department of Environmental Protection (PADEP) and was designed to protect the Borough of Danville from flooding on the Susquehanna River, Mahoning Creek, and tributaries. The project consists of the relocation and improvement of approximately 4,000 feet of Mahoning Creek, rip-rap slope protection and concrete floodwalls, an earthen levee along the Susquehanna River side of Danville and refurbished closure structures. Construction completion date of the original project was 1958, with levee raising occurring in 1970, and other improvements as recent as 2004.

In 1996, the Luzerne County Flood Protection Authority was created to act as a local sponsor for the Wyoming Valley levee project, which includes Swoyersville and Forty Fort (and Exeter) (Swoyersville Levee and Exeter Levee), Kingston-Edwardsville (Kingston Levee), Wilkes-Barre-Hanover Township (Wilkes-Barre Levee), and Plymouth (Plymouth Levee). The Swoyersville Levee and Exeter Levee were authorized by the Flood Control Act of 1936. The protective works consists mainly of about 16,970 feet of earth levee and 2,490 feet of capped steel sheet pile wall, 3,900 feet of diversion of Abrahams Creek, and drainage structures. The original design was to protect the community from a flood discharge equal to that which occurred in 1936. The project was completed in 1957.

The Kingston Levee was also authorized by the Flood Control Act of 1936, and was also originally designed to protect the community from a flood discharge equal to that which occurred in 1936. It consists of 18,429 feet of earth levee, drainage structures, pumping stations, a pressure culvert, interceptor sewer, and electric transmission lines. The project was originally completed in 1943, with restoration in 1793 and raising in 1974.

Authorized by the Flood Control Act of 1936, the Wilkes-Barre Levee originally consisted of about 24,660 feet of earth levee and 160 feet of concrete floodwall with drainage structures, pump stations, and 3,200 feet of additional earth levee on Solomon Creek. The original design was to protect the community from a flood discharge equal to that which occurred in 1936, but Agnes (1972) exceeded the design flow and the levee design was exceeded.

The Plymouth Levee consists of 8,680 feet of earth levee, a diversion channel, drainage structures and pumping stations. The project was operationally complete in 1948, and was originally designed to protect the community from a flood discharge equal to that which occurred in 1936.

On January 14, 2003, the entire Wyoming Valley project was modified to provide a level of protection for a storm equivalent to Agnes (1972). Approximately 15 miles of levee and floodwalls were raised 3-5 feet with this modification, which was completed in 2009. In addition to the raising, 21 pump stations were modified and utilities were relocated. The project also includes on-going flood risk management activities such as: non-structural initiatives such as elevating or relocating structures out of the floodplain, structure flood-proofing; small scale public works projects, such as small levees and drainage projects; the FWRS; and hazard mitigation plans for interested communities.

1.4 PROJECT DELIVERABLES

Under IAA HSFE03-12-X-8103, USACE-Baltimore would provide FEMA with several non-regulatory deliverables as part of this investigation. A summary of those deliverables is provided below:

- A detailed review of the 2003 HEC Model and adjustments/improvements in the model based upon the review: **Section 3.1-Section 3.4 and Appendix A of this document.**

- The calibration of the updated HEC-RAS model to river flow (USGS gage data) and flood height (high water marks) information from Tropical Storm Lee: **Section 3.5 of this document. Digital model is provided on attached project disc.**

- A frequency flow run of the updated HEC-RAS model with updated 10-, 25-, 50-, 100-, and 500-year flow data. **Section 3.4 and Section 3.6 of this document. Digital model is provided on attached project disc.**

- Geographic Information System (GIS) shapefiles of the updated cross-sections (attributed with updated water surface elevations), flood inundation shapefiles for the 100-year and 500-year events, and depth grids for the 10-, 25-, 50-, 100-, and 500-year events. **Section 4.0 of this document. Shapefiles and depth grids are provided on attached project disc.**

- Modeling report outlining the specifics of the process used to review and update the 2003 HEC Model: **Section 3.0 of this document.**

- A correlation table comparing the effective 100-year water surface elevations and the updated 100-year water surface elevations: **Appendix E of this document.**

- A correlation table comparing the observed flood height data (high water marks) and the computed flood height for Tropical Storm Lee: **Table 3.4 and Table 3.5 of this document.**

- A chart comparing the effective FEMA flows to the updated flows: **Table 3.3 and Appendix B of this document.**

- An export of flood profiles from the updated HEC-RAS model that displays the 10-, 25-, 50-, 100-, and 500-year water surface elevations: **Appendix F of this document.**

- An export of a flood profile from the updated HEC-RAS model that displays the flood profile for Tropical Storm Lee with annotated high water marks: **Appendix F of this document.**

USACE-Baltimore was also tasked under the IAA to produce a "Basin Flood Data Assessment Report" that contains a summary of flood hazard map status and recommendations for prioritized improvements for the main stem of the Susquehanna River and any major tributaries identified. The basin flood data assessment was integrated into this document. **Section 2.0** of this document outlines the flood history in the Wyoming Valley and lists the effective FEMA FIS information for each county in the study area. **Section 5.0** of this document contains recommendations for improvements to flood hazard data as a result of the outcome of this investigation.

2 BASIN FLOOD DATA ASSESSMENT

2.1 FLOOD HISTORY OF WYOMING VALLEY

The Wyoming Valley has an extensive history of flooding. Recorded flooding dates back to the late 1800's, and due to the flooding, extensive measures have been taken to decrease the risk of damages and impacts, such as levees, floodwalls, and mitigation activity. A brief timeline of flooding in the study area is provided below:

March 1936: This was the flood of record in the area until Agnes (1972). This flood caused significant amounts of damages to the area, and it spurred the Flood Control Act of 1936 which led to the construction of the many levee systems along the Susquehanna River. The peak flow in Wilkes-Barre was 232,000 cubic feet per second (cfs), with flows of 250,000 cfs and 556,000 cfs being recorded in Danville and Sunbury, respectively.

June 1972: Tropical Storm Agnes was and is the flood of record for most areas on the Susquehanna River. It caused massive flooding throughout the region, prompting the modification to numerous existing flood control projects. A record flow of 345,000 cfs was recorded in Wilkes-Barre, a record flow of 363,000 cfs was recorded in Danville, and a record flow of 620,000 cfs was recorded in Sunbury.

September 1975: The following flows were recorded during this flood: 228,000 cfs at Wilkes-Barre, 257,000 cfs at Danville, and 439,000 cfs at Sunbury.

January 1996: The following flows were recorded during this flood: 221,000 cfs at Wilkes-Barre, 209,000 cfs at Danville, and 424,000 cfs at Sunbury.

September 2004: This storm added urgency to the levee raising project in the Wyoming Valley, sparked additional concerns about the impact of the levee raising project to downstream communities, and resulted in funding for mitigation efforts (Reference 3). Flows of 220,000 cfs, 227,000 cfs, and 427,000 cfs were recorded at Wilkes-Barre, Danville, and Sunbury, respectively.

June 2006: The following flows were recorded during this flood: 218,000 cfs at Wilkes-Barre, 260,000 cfs at Danville, and 427,000 cfs at Sunbury.

September 2011: Tropical Storm Lee produced near record flows and stages in the Wyoming Valley.

2.2 EFFECTIVE FEMA FLOOD INSURANCE STUDY INFORMATION

The study area includes Columbia, Luzerne, Montour, Northumberland, and Snyder Counties. Table 2.1 provides a list of the countywide community number and effective date of the respective FISs for each county.

Table 2.1: County Effective FIS Information in Wyoming Valley

County	FEMA Countywide Number	Effective Date
Columbia	42037C	August 19, 2008
Luzerne	42079C	November 2, 2012
Montour	42093C	May 16, 2008
Northumberland	42097C	July 16, 2008
Snyder	42109C	November 16, 2007

For all counties, the 2003 HEC Model was used as the hydraulic analysis in the effective FISs. The cross sections for the 2003 HEC Model were obtained from a digital terrain model (DTM), which was developed from aerial photography flown in April 1999 and April 2001. The below water portion of the DTM was developed from new river surveys performed in Summer 2000 using CHANNEL, an ARC/INFO software application. Bridge geometry was obtained from as-built bridge drawings from the Pennsylvania Department of Transportation (PENNDOT) and from field investigations.

10-percent annual chance (10-year), 2-percent annual chance (50-year), 1-percent annual chance (100-year), and 0.2-percent annual chance (500-year) peak flows for all counties were determined in a hydrologic study completed by USACE-Baltimore as part of the Wyoming Valley Levee Raising Project in January 1995. Four USGS stream gages were in operation on the main stem Susquehanna River within the area covered by the 1995 study. This hydrologic study considered the effects of the many flood control reservoirs upstream of the project area on the Main Stem and West Branch of the Susquehanna River in addition to the hydraulic changes brought about by the alterations to the flood control projects being proposed at the time. At least eight reservoirs were in various stages of completion from 1940-1980. The USACE- Baltimore study created a homogenous data set by altering the flow data since 1940 to reflect flows that would have occurred without reservoir regulation. This "natural conditions" data set for the period of record for each gage was then adjusted by average reduction factors consistent with the flood control reservoirs in place to determine an "existing conditions" data set. This "existing conditions" data set was then adjusted to include the effects of the levee raisings and "improved conditions" data set was created. The result of this analysis provided a discharge frequency curve for each of the four USGS gages, or the "improved conditions" discharge frequency curve up to 1995. In order to get more accurate flow transitions along the study area, changes in flow were generated at tributaries with greater than five square miles of contributing area using the "incremental addition in contributing area" technique.

A summary of discharges used in the effective FIS for the counties in the study area is shown in Table 2.2.

Table 2.2: Effective FEMA Peak Flows in Wyoming Valley

County	Location	Drainage Area (sq. mi.)	Annual Chance Peak Flow (cfs)			
			10-percent	2-percent	1-percent	0.2-percent
Luzerne	USGS 01536500 in Wilkes-Barre	9,968.6	167,000	226,000	256,000	333,000
Columbia	USGS 01538700 in Bloomsburg	10,466.6	176,300	246,300	277,800	378,000
Montour	USGS 01540500 in Danville, PA	11,114.3	185,000	255,000	285,000	394,000
Northumberland	Upstream of the confluence with West Branch Susquehanna River	11,250.0	190,000	250,000	285,000	440,000
Snyder	USGS 01554000 in Sunbury	18,300.0	305,000	435,000	505,000	701,000

There are existing tie-in issues with the upstream and downstream counties with the effective FEMA FISs (2003 HEC Model), prior to any updates outlined in this study. The upstream portion of the 2003 HEC Model ties into the effective FIS for Wyoming County, Pennsylvania (42131C dated August 2, 2012). The Wyoming County FIS was a re-delineation of the floodplains using a Digital Elevation Model (DEM) dated 2006, with no new hydrologic or hydraulic analyses performed. The hydrologic analysis in the Wyoming County FIS was a statistical analysis of USGS gage data up until the late 1970's. The hydraulic analysis was a USACE HEC-2 model, also from the 1970's. The difference in methodology and flow record for the hydrologic analysis leads to a 4.3 ft. difference in effective 100-year water surface elevations at the Luzerne/Wyoming County boundary (Table 2.3).

Table 2.3: Upstream Tie-In with Effective FEMA FISs

Data	Wyoming County	Luzerne County
Source of Hydrology	USACE statistical analyses to late 1970's	USACE statistical analysis to 1995
Peak Flow (cfs)	248,000	245,212
Source of Hydraulics	USACE HEC-2 (1970's)	HEC Model (2003)
100-year WSE (ft. NAVD88)	574.5	578.8

At the downstream end of the 2003 HEC Model there is also an issue with the tie-in between effective FEMA FISs. The downstream portion of the 2003 HEC Model ties into the effective FIS for Perry County, Pennsylvania (42099C dated June 16, 2009). The Perry County FIS was also a re-delineation of the floodplains using a DEM, with no new hydrologic or hydraulic analyses performed. The hydrologic analysis in the Perry County FIS was a statistical analysis of USGS gage data up until the late 1970's, and the hydraulic analysis was a USACE HEC-2 model, also from the 1970's. The difference in methodology and flow record for the hydrologic analysis leads to a 3.9 ft. difference in 100-year water surface elevations at the Northumberland/Perry (and Dauphin) County boundary (Table 2.4).

Table 2.4: Downstream Tie-In with Effective FEMA FISs

Data	Northumberland County	Perry County
Source of Hydrology	USACE statistical analysis to 1995	USACE statistical analyses to late 1970's
Peak Flow (cfs)	525,271	575,000
Source of Hydraulics	HEC Model (2003)	USACE HEC-2 (1970's)
100-year WSE (ft. NAVD88)	399.4	403.3

The information on the above tables indicates that there are issues with tie-ins for the 2003 HEC Model used for the effective FIS for the Wyoming Valley counties. This analysis does not consider the updates completed as part of this investigation.

3 HYDRAULIC MODELING UPDATE

The 2003 HEC Model is a geo-referenced HEC-RAS model being used for the Susquehanna River FWRS and the effective DFIRMs for the counties within the study area. Hydraulic changes, including bridge replacement/relocation, levee/floodwall raising, floodplain development, and the collection of high water marks during Tropical Storm Lee have occurred since the original model development. Record flow from Tropical Storm Lee has caused revised frequency-flow estimates within the Wyoming Valley. These changes, and others, were made to create an updated, geo-referenced HEC-RAS model for the Wyoming Valley.

All vertical elevations in the updated model are referenced to the North American Vertical Datum of 1988 (NAVD88). Any source of data that contained vertical elevations in the National Geodetic Vertical Datum of 1929 (NGVD29) was converted to NAVD88 using known conversion factors from the effective FISs in the study area.

3.1 DATA COLLECTION

Data was collected to support the update of the HEC-RAS model. This data included:

- As-built bridge plans from PENNDOT for Carey Bridge and 8th Street in Wilkes-Barre.
- High water marks for Tropical Storm Lee surveyed by USACE in October/November of 2011.
- High water marks for Tropical Storm Lee flagged by USGS and surveyed by GG3 in October/November 2011 (Reference 4).
- DEM at a 1-meter resolution, dated 2006-2008 from Pennsylvania Spatial Data Access (PASDA) PAMAP Program.
- USGS rating curves for four stream flow gages in the study area as well as flow data during Tropical Storm Lee.

3.2 GENERAL MODEL UPDATES

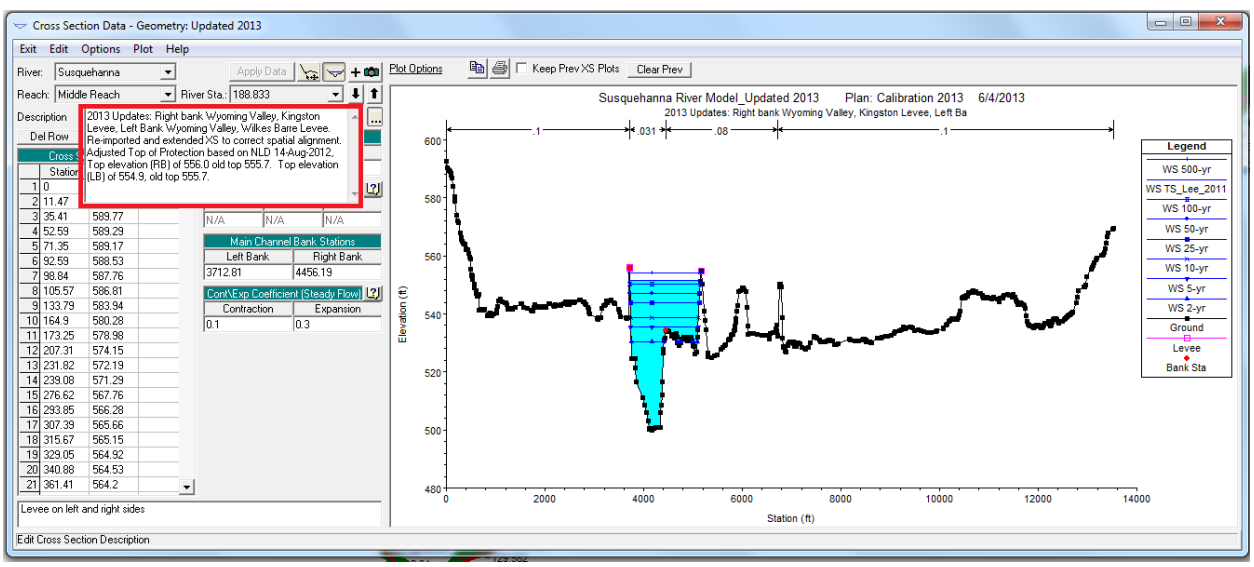
The general model updates included deleting old/unnecessary geometry, flow, and plan files, adding documentation to the model, and using the most recent version of the HEC-RAS software (Version 4.1). Table 3.1 shows the files from the original model that was replaced for the model update. The

Extensive documentation was provided in this update to provide future users of the model with a description of what was changed between the 2003 HEC Model and this version. The documentation includes detailed notes, levee information, and other pertinent information in the cross-section data editor description box in HEC-RAS (Figure 3.1).

Table 3.1: Modeling File Revisions

2003 HEC Model		Updated Model (2013)
	Geometry Files	
Geometry: Existing (g.01) Extreme WB Levee Overtopping (g.02)	→	Geometry: Updated 2013 (g.01)
	Flow Files	
Hurricane Agnes 1972 (f.04) Frequency Events USACE (f.01) Inundation Events (f.02) PF 34, 35, 36 Inundation Events (f.03)	→	Calibration 2013 (f.05) Frequency Profiles (f.06)
	Plan Files	
Hurricane Agnes 1972 Event (p.04) Frequency Events USACE (p.01) WSP for Inundation (p.02)	→	Calibration 2013 (p.05) Frequency Profiles (p.06)

Figure 3.1: Documentation in Updated Model



3.3 GEOMETRY UPDATES

Extensive updates to the geometry were made in order to produce a model that reflects existing-conditions as of 2013, meet FEMA guidelines and specifications for flood mapping products, and be used with the HEC-GeoRAS post-processor to accurately map floodplains, especially in backwater areas. A summary of the significant updates is listed below. A list of all changes per cross-section is located in Appendix A.

Terrain Data

The 2003 HEC Model includes station-elevation data from a DTM that was developed in 1999 and 2001. Since that time, a more recent DEM is available through the PASDA PAMAP Program, with topography that was captured between 2006 and 2008. The DTM used in the 2003 HEC Model (1999-2001) is at the same level of accuracy as the more recent DEM. The project partner GG3 produced the DFIRM for Luzerne County, and as part of that project, conducted a comparative analysis of the two data sets. It was concluded in that analysis that the two data sets have negligible differences for the scale of floodplain studies/mapping. Therefore, it was decided that the more recent DEM would not be used for the update to the 2003 HEC Model, however, is used for flood mapping (see Section 4).

Manning's n Values

The majority of Manning's n values were left unchanged from the 2003 HEC Model. The 2003 HEC Model utilized the "Flow Roughness Factors" option in HEC-RAS to calibrate the model. The Flow Roughness Factors were modified in this update to re-calibrate the model. Changes to Manning's n values were made in the right overbank for XS's 158.561-158.313 to account for a large warehouse building that was constructed after the development of the 2003 HEC Model. The n value was increased from 0.05 (open and farmed fields) to 0.12 (city area).

Ineffective Areas

Ineffective flow areas were adjusted at numerous cross-sections in order to meet FEMA's guidelines and specifications for flood mapping. The majority of ineffective flow areas at bridges were not updated to adhere to the 1:1 contraction and 2:1 expansions locations set in the 2003 HEC Model. Ineffective flow areas were added to cross-sections that extended into the floodplain of entering tributaries. The 2003 HEC Model utilized the "levee option" to simulate high ground, railroads, and roadways where flow of water would be ineffective behind them. Although this method is acceptable and accurate to use, it causes issues with floodplain mapping using the HEC-GeoRAS post-processor. Therefore, all levees in the model that are not actual levees on the ground were changed to ineffective flow areas. Doing this causes no change in computed water surface elevations and allows the mapping of floodplains to be completed with greater ease.

Levees

Levee/floodwall heights were updated based upon survey data from the National Levee Database (NLD) (Reference 4). The levee station for the Wilkes-Barre Levee was incorrect at XS's 189.669, 189.596, and 189.368. The location was revised to be spatially accurate. A list of the levees included in the updated model is provided in Table 3.2.

Table 3.2: Levees included in the Updated Model

Levee System	HEC-RAS XS	Bank
Wyoming Valley-Exeter	198.567-198.363	Right
Wyoming Valley-Swoyersville	193.895-190.940	Right
Wyoming Valley-Kingston	190.863-187.822	Right
Wyoming Valley-Wilkes-Barre	189.669-184.800	Left
Wyoming Valley-Plymouth	186.457-185.180	Right
Danville	138.528-136.466	Right
Sunbury	126.017-123.290	Left

Bridge Data

Thirty-one highway and railroad bridges are included in the model. Twenty-nine of the bridges remained unchanged from the 2003 HEC Model. The bridges at Stations 186.535 (Carey Bridge) and 194.720 (8th Street) were replaced since the time of the 2003 HEC Model. As-built plans were obtained from PENNDOT and used to update the bridges in the 2013 HEC-RAS model.

The HEC-RAS hydraulic computational method used for all the bridges was the energy method, which was used in the 2003 HEC Model. The energy method accounts for losses with two components, friction losses and contraction/expansion losses. In general, because the bridges are not a tremendous blockage of area to flow, the energy method is the best selection for calculating the hydraulics through the bridge (Reference 3). And because of the lack of blockage to flow, contraction/expansions coefficients were set at 0.1 and 0.3 respectively, rather than the standard FEMA values of 0.3 and 0.5.

Other

- There was a 14 ft. increase in channel invert near XS 182.169. It was determined that this was an error in the original DTM. Therefore, the channel was adjusted between XS 182.897 and 180.843.

- Over 70 cross-sections were extended to enclose the 500-year flood profile. Because the area of extension was outside the area of the original DTM, the PASDA PAMAP DEM was used for elevation data in these areas.

- There was an error in the channel width between XSs 152.587 and 151.976. It was determined that this was an error in the original DTM. The channel was modified to the correct width in this area.

3.4 FLOW UPDATES

Peak flow frequency estimates were revised by USACE-Baltimore as part of this investigation to include flow records up to and including Tropical Storm Lee (September 2011). This was completed with similar methodology as the effective FEMA FISs. Four USGS stream gages currently in operation on the main stem Susquehanna River within the area covered by this study were used to complete the analysis. The period of record for the stream gages was used to determine peak flow frequency relationships and included Tropical Storm Lee (September 2011). Eight USACE dam projects in the Susquehanna River basin were in various stages of completion between 1940 and 1980. The effect of regulation of these flood control reservoirs on peak flows at the four USGS gages was considered in the analysis. A homogenous data set was created by adjusting the flow data since 1940 to reflect flows that would have occurred without the reservoir regulation. This was done by using a relationship between natural (unregulated) and existing (regulated) conditions developed using historic records collected by USACE at the eight reservoirs. A natural conditions peak flow frequency curve for each of the four USGS gages was produced using the Log Pearson Type III distribution. The flows were then adjusted to existing conditions using the natural vs. existing conditions relationship. This produced existing (regulated) conditions peak flow frequency relationships for the four USGS stream gages. Flows in between gages were derived from percent of area contributing to the appropriate gage.

A list of the computed peak flows at the USGS gages for the 10-year, 50-year, 100-year, and 500-year flood events are shown in Table 3.3. All flow values input into the updated HEC-RAS model and a comparison to the flow values used in the 2003 HEC Model is located in Appendix B. Note the 200-year flow was not calculated and was not within the scope of this investigation.

As shown on Table 3.3, 100-year peak flow estimates have increased within the Wyoming Valley. In Wilkes-Barre, the inclusion of Tropical Storm Lee in September 2011 into the statistical analysis increases the 100-year peak flow by 15.8-percent, from 256,000 cfs from the 2003 HEC Model to 296,500 to the updated model. The percent increase lowers to 9.1-percent in Danville.

3.5 CALIBRATION

The 2003 HEC Model was calibrated to five historic events and eight frequency based events (Reference 3). The principal high flow event used in the calibration process for the development of the 2003 HEC Model was Agnes (1972). The model was also calibrated to the 1975, 1993, 1994, and 1995 events. Further calibration was performed with eight frequency-based events using rating curves at the four USGS gages. The model adjustments to obtain calibration were made exclusively using the "Flow Roughness Factors" option in

Table 3.3: Updated Flow Estimates and Comparison to FEMA Effective Flows

Location	Drainage Area (sq. mi.)	Analysis	Annual Chance Peak Flow (cfs)			
			10-percent	2-percent	1-percent	0.2-percent
USGS 01536500 in Wilkes-Barre	9,968.6	Effective FEMA	167,000	226,000	256,000	333,000
		Update 2013	188,000	262,200	296,500	383,600
		% Diff.	12.6%	16.0%	15.8%	15.2%
USGS 01538700 in Bloomsburg	10,466.6	Effective FEMA	176,300	246,300	277,800	378,000
		Update 2013	193,500	268,800	303,400	390,900
		% Diff.	9.8%	9.2%	9.2%	3.4%
USGS 01540500 in Danville, PA	11,114.3	Effective FEMA	185,000	255,000	285,000	394,000
		Update 2013	199,600	276,000	310,900	399,000
		% Diff.	7.9%	8.2%	9.1%	1.3%
USGS 01554000 in Sunbury	18,300.0	Effective FEMA	305,000	435,000	505,000	701,000
		Update 2013	342,900	498,500	574,600	779,200
		% Diff.	12.4%	14.6%	13.8%	11.2%

HEC-RAS. This option allows the user to specify a range if cross-sections in which a set of factors are used to change the roughness based upon flow rate. The calibration in the 2003 HEC Model was generally within +/- 0.5 ft. or better for the five historic events and the eight frequency events at the USGS gages.

For the calibration of the updated model, the same level of accuracy (+/- 0.5 ft.) was set as the standard tolerance for differences between observed and computed water surface elevations. The model was calibrated to Tropical Storm Lee as well as seven frequency events at each of the four USGS gages. Agnes (1972) was not used as a calibration event due to hydraulic changes that have occurred on the Susquehanna River since the time of the event, such as bridge replacements and levee raising.

Calibration was achieved through the adjustment of the 2003 HEC Model "Flow Roughness Factors" curves. The factors were adjusted up or down per reach, starting downstream, until the desired calibration tolerance was achieved for both USGS gages and Lee high water marks. Due to the greater extent of high water marks available from Tropical Storm Lee as opposed to the events used for calibration in the 2003 HEC Model, the 2003 HEC Model Flow Roughness Factor sets were modified into smaller reaches. For example, the 2003 HEC Model set that ranged from XS 198.107-161.420 was divided into five sets (198.107-194.583, 194.511-191.260, 191.150-186.841, 196.762-181.063, and 180.991-161.420). For calibration to the seven frequency events, the USGS provided the most recent rating curves for the four gages along the Susquehanna River (Appendix C). Also located in Appendix C is a table showing the most recent flood stages associated with the respective flood frequency flow at each USGS gage. The results of the calibration to the frequency events at the USGS gages in shown in Table 3.4.

Table 3.4: Calibration of Updated Model-Frequency Based Events

Gage	HEC-RAS XS	Frequency Event	Flow (cfs)	Observed (ft. NAVD88)	Computed (ft. NAVD88)	Difference
Wilkes-Barre *(USGS 01536500)*	189.523	2-year	113,700	532.1	532.1	0.0
		5-year	157,100	537.1	537.2	0.1
		10-year	188,000	540.6	540.6	0.0
		25-year	229,900	545.1	545.5	0.4
		50-year	262,200	548.6	548.6	0.0
		100-year	296,500	552.1	552.3	0.2
		500-year	383,600	n/a*	n/a*	n/a*
		Lee	310,000	553.5	553.5	0.0
Bloomsburg *(USGS 01538700)*	150.382	2-year	117,600	468.1	468.3	0.2
		5-year	162,000	472.1	472.1	0.0
		10-year	193,500	474.6	474.6	0.0
		25-year	239,600	477.7	477.6	-0.1
		50-year	268,800	480.1	479.9	-0.2
		100-year	303,400	482.3	482.7	0.4
		500-year	390,900	n/a*	n/a*	n/a*
		Lee	320,000	483.4	483.3	-0.1
Danville *(USGS 01540500)*	136.945	2-year	121,800	449.0	449.2	0.2
		5-year	167,400	452.6	452.7	0.1
		10-year	199,600	454.9	454.9	0.0
		25-year	242,400	457.8	457.3	-0.5
		50-year	276,000	460.0	460.1	0.1
		100-year	310,900	462.2	462.5	0.3
		500-year	399,000	467.6	467.6	0.0
		Lee	311,000	462.1	461.9	-0.2
Sunbury *(USGS 01554000)*	122.01	2-year	201,900	429.2	429.3	0.1
		5-year	282,400	432.8	433.1	0.3
		10-year	342,900	435.2	435.3	0.1
		25-year	428,200	438.3	438.4	0.1
		50-year	498,500	440.7	440.7	0.0
		100-year	574,600	443.2	443.3	0.1
		500-year	779,200	449.2	449.2	0.0
		Lee	463,000	439.5	439.6	0.1

**Rating curve does not extend to 500-year flow.*

For calibration to Tropical Storm Lee, high water marks captured by USGS/GG3 (Reference 5) and USACE were used. A total of 40 high water marks were used in the updated model calibration process (not including values at the USGS gages). The flow estimates for Tropical Storm Lee for non-gaged locations were developed using the same methodology discussed in Section 3.4. The results of the calibration of the updated model to high water marks from Tropical Storm Lee are shown in Table 3.5.

Table 3.5: Calibration of Updated Model-Tropical Storm Lee

Reach	HEC-RAS XS	Source	Observed (ft. NAVD88)	Computed (ft. NAVD88)	Difference
Scovell Left	198.39	USACE	568.3	568.4	0.1
Scovell Right	198.363	USACE	568.5	568.4	-0.1
Middle	197.561 *(-220 ft.)*	USGS/GG3	566.7	566.5	-0.2
Middle	197.33	USGS/GG3	565.3	565.3	0.0
Middle	197.176	USGS/GG3	565.0	564.6	-0.4
Middle	194.809 *(-280 ft.)*	USGS/GG3	561.3	561.1	-0.2
Middle	194.702 *(-100 ft.)*	USGS/GG3	561.0	561.0	0.0
Middle	194.583	USGS/GG3	560.7	561.0	0.3
Middle	193.895 *(-100 ft.)*	USGS/GG3	560.6	560.3	-0.3
Middle	193.44 *(-75 ft.)*	USGS/GG3	559.5	559.5	0.0
Middle	192.828 *(-130 ft.)*	USGS/GG3	558.8	558.7	-0.1
Middle	192.445	USGS/GG3	558.7	558.5	-0.2
Middle	192.297 *(-380 ft.)*	USGS/GG3	558.8	558.3	-0.5
Middle	192.22 *(-320 ft.)*	USGS/GG3	558.7	558.3	-0.4
Middle	192.145	USGS/GG3	558.8	558.3	-0.5
Middle	191.41 *(-315 ft.)*	USGS/GG3	556.0*	556.2	0.2
Middle	191.26	USGS/GG3	556.4	556.3	-0.1
Middle	190.384	USGS/GG3	553.7*	555.0	1.3
Middle	190.166 *(-235 ft.)*	USGS/GG3	554.1	554.6	0.5
Middle	189.884 *(-225 ft.)*	USGS/GG3	553.9	554.4	0.5
Middle	189.219	USACE	552.9	552.2	-0.7
Middle	188.518 *(-215 ft.)*	USGS/GG3	551.7	551.5	-0.2
Middle	188.206	USACE	551.3	551.4	0.1
Middle	188.131 *(-375 ft.)*	USGS/GG3	551.1	550.8	-0.3
Middle	187.978 *(-190 ft.)*	USGS/GG3	550.8	550.8	0.0
Middle	186.696 *(-60 ft.)*	USGS/GG3	549.2	549.7	0.5
Middle	186.457 *(-160 ft.)*	USGS/GG3	548.6	549.1	0.5
Middle	186.1	USACE	548.4	548.3	-0.1
Middle	185.781 *(-295 ft.)*	USGS/GG3	547.7	547.3	-0.4
Middle	185.629 *(-360 ft.)*	USGS/GG3	547.6	547.0	-0.6

Table 3.5: Calibration of Updated Model-Tropical Storm Lee (Continued)

Reach	HEC-RAS XS	Source	Observed (ft. NAVD88)	Computed (ft. NAVD88)	Difference
Middle	185.475 *(-130 ft.)*	USGS/GG3	547.4	546.8	-0.6
Middle	185.328 *(-760 ft.)*	USGS/GG3	547.0	546.4	-0.6
Middle	185.18 *(-375 ft.)*	USGS/GG3	546.2	546.4	0.2
Middle	184.8	USACE	546.3	546.4	0.1
Middle	183.524 *(-175 ft.)*	USGS/GG3	545.5	545.4	-0.1
Middle	183.408 *(-520 ft.)*	USGS/GG3	544.9	545.3	0.4
Middle	182.72	USGS/GG3	544.8	544.6	-0.2
Middle	180.991	USGS/GG3	540.7	540.9	0.2
Middle	172.499	USGS/GG3	526.2	525.8	-0.4
Middle	168.342	USGS/GG3	517.0*	517.9	0.9

** Fair Quality*

3.6 MULTIPLE PROFILE ANALYSIS

After the model was calibrated, a multiple profile analysis for the 2-year, 5-year, 10-year, 25-year, 50-year, 100-year, and 500-year events was performed. Note the 200-year profile was in the 2003 HEC Model but was not included in this investigation. No changes were made to the geometry between the calibration run and the multiple profile run. Table 3.6 shows a comparison of the results for the 100-year water surface between the updated model and the 2003 HEC Model (Effective FEMA FIS 100-year elevations) at interest points along the Susquehanna River.

Table 3.6: Updated 100-year Water Surface Elevations at Interest Points

Location	HEC-RAS XS	Effective FEMA 100-year WSE (ft. NAVD88)	Updated 100-year WSE (ft. NAVD88)	Difference
Luzerne-Wyoming County Boundary	205.877	578.7	581.7	3.0
Wyoming Valley-Exeter Levee	198.453	564.0	567.3	3.3
Wyoming Valley-Swoyersville Levee	192.601	553.1	557.1	4.0
Wyoming Valley-Kingston Levee	190.238	549.7	553.3	3.6
Wilkes-Barre Gage *(USGS 01536500)*	189.523	548.8	552.3	3.5
Wyoming Valley-Plymouth and Wilkes-Barre Levee	185.88	543.6	546.4	2.8
Bloomsburg Gage *(USGS 01538700)*	150.382	481.4	482.7	1.3
Danville Gage *(USGS 01540500)*	136.954	461.8	462.5	0.7
Sunbury Gage *(USGS 01554000)*	122.01	441.8	443.3	1.5
Northumberland-Perry County Boundary	104.91	399.6	401.3	1.7

The HEC-RAS modeling developed in this investigation was reviewed and approved by GG3 on behalf of FEMA. USACE received comments from GG3 in April 2013 on the draft HEC-RAS modeling, and USACE coordinated with GG3 on addressing the comments so that the model meets FEMA's guidelines and specifications for flood mapping. Acceptance of the final model was provided by GG3 in an email dated June 7, 2013.

Appendix D contains the full HEC-RAS results of the multiple profile analysis. Appendix E is a correlation table comparing the effective FEMA 100-year water surface elevations to the 100-year water surface elevations computed in the updated model for all cross-sections. Appendix F contains flood profiles based upon the results of the updated model, as well as flood profiles of Tropical Storm Lee with annotated high water marks.

As seen in Table 3.6, the increase in 100-year peak flows causes a significant increase in 100-year water surface elevations throughout the entire Wyoming Valley. The increase is as high as 4.0 feet at the Wyoming Valley-Swoyersville Levee and as low as 0.7 feet in Danville.

3.7 EFFECTIVE FEMA DATA TIE-IN

As discussed in Section 2.2, there are existing tie-in issues with the upstream and downstream counties with the effective FEMA FISs, prior to any updates outlined in this study. The tie-in issue remains with the results of the updated analysis. At the upstream end of the updated model (Table 3.7), the updated 100-year water surface elevation in Luzerne County is 7.2 feet higher than the effective FEMA 100-year water surface elevation in Wyoming County. This is due to the near 15-percent increase in 100-year peak flow since the time of the Wyoming County study and a difference in methodology and terrain data in the hydraulic modeling.

At the downstream end of the updated model (Table 3.8), the updated 100-year water surface elevation is 2.0 ft. lower than the effective FEMA 100-year water surface elevation in Perry County. Since the updated flow value is higher than the effective FEMA flow, it is likely that the updated water surface elevation is lower due to the use of normal depth slope as the downstream boundary condition.

Table 3.7: Upstream Tie-In between Updated Model and Effective FEMA FIS

Data	Wyoming County	Luzerne County
Source of Hydrology	USACE statistical analyses to late 1970's	USACE Update (2013)
Peak Flow (cfs)	248,000	284,000
Source of Hydraulics	USACE HEC-2 (1970's)	Updated Model (2013)
100-year WSE (ft. NAVD88)	574.5	581.7

Table 3.8: Downstream Tie-In between Updated Model and Effective FEMA FIS

Data	Northumberland County	Perry County
Source of Hydrology	USACE Update (2013)	USACE statistical analyses to late 1970's
Peak Flow (cfs)	603,900	575,000
Source of Hydraulics	Updated Model (2013)	USACE HEC-2 (1970's)
100-year WSE (ft. NAVD88)	401.3	403.3

4 GIS DATA

Flood inundation areas and depth grids were developed for the revised 10-, 25-, 50-, 100-, and 500-year flood events based on the calculated water surface elevations from the revised HEC-RAS model. The inundation areas were created in a GIS environment by comparing the water-surface elevation profiles from the revised HEC-RAS model with the more recent bare earth DEM available through the PASDA PAMAP Program, with topography that was captured between 2006 and 2008. The PASDA DEM has a raster cell size of 3.2 ft., but this size was re-sampled to a 6.4-ft horizontal resolution to speed up processing times. Estimated flood-inundation boundaries for each simulated profile were developed with USACE HEC–GeoRAS software. HEC–GeoRAS is a set of procedures, tools, and utilities for processing geospatial data in ArcGIS by using a graphical user interface (Reference 6). The interface allows the preparation of geometric data for import into HEC–RAS and processes simulation results exported from HEC–RAS.

Within the GIS environment, water-surface triangulated-irregular networks (TINs) for each of the 5 flood profiles were produced. The TINs were created based on the water surface elevation at each modeled HEC-RAS cross-section and without consideration of the bare-earth DEM. The next step was to delineate a flood inundation area for each water-surface TIN. To accomplish this, a floodplain polygon was created based on the intersection of the water-surface TIN with the bare-earth DEM. The water surface TIN was subsequently converted to a grid and compared to the bare-earth DEM. A depth grid was then created with values where the water surface grid was higher than the bare-earth DEM and ultimately converted into a floodplain polygon. This process resulted in the development of 5 floodplain polygons and depth grids for the study reach.

Prior to finalizing the data, the depth grids and floodplain polygons were reviewed and edited. The review and editing process consisted of steps 1) general smoothing and clean-up, and 2) removal of any disconnected water bodies. Step 1 involved typical map edits when developing floodplains; including but not limited to smoothing the floodplain boundary to remove any unnatural anomalies generated by the mapping software, removing any disconnected portions of the floodplain that were too small to see at the recommended map scale, and filling any holes in the floodplain that were too small to see at the recommended map scale. Step 2 consisted of checking hydraulically disconnected wet areas. If there was evidence that a wet disconnected pond was hydraulically connected (i.e. an underground pipe connecting the main stem Susquehanna River flooding to the disconnected pond), no action was taken. If there was no evidence of a hydraulic connection, the disconnected pond was removed.

5 SUMMARY AND RECOMMENDATIONS

The analyses in this investigation resulted in a revised, re-calibrated HEC-RAS model for the Susquehanna River in the Wyoming Valley. The results of the HEC-RAS model show that increase in 100-year peak flows cause a significant increase in 100-year water surface elevations throughout the entire Wyoming Valley. The increase is as high as 4.0 feet at the Wyoming Valley-Swoyersville Levee and as low as 0.7 feet in Danville. In addition, there are existing tie-in issues with the upstream and downstream counties with the effective FEMA FISs, prior to any updates outlined in this study. There are three recommendations discussed below that arise from the results of this study:

#1: Consider producing a geo-referenced, calibrated HEC-RAS model that spans the entire Susquehanna River in Pennsylvania.

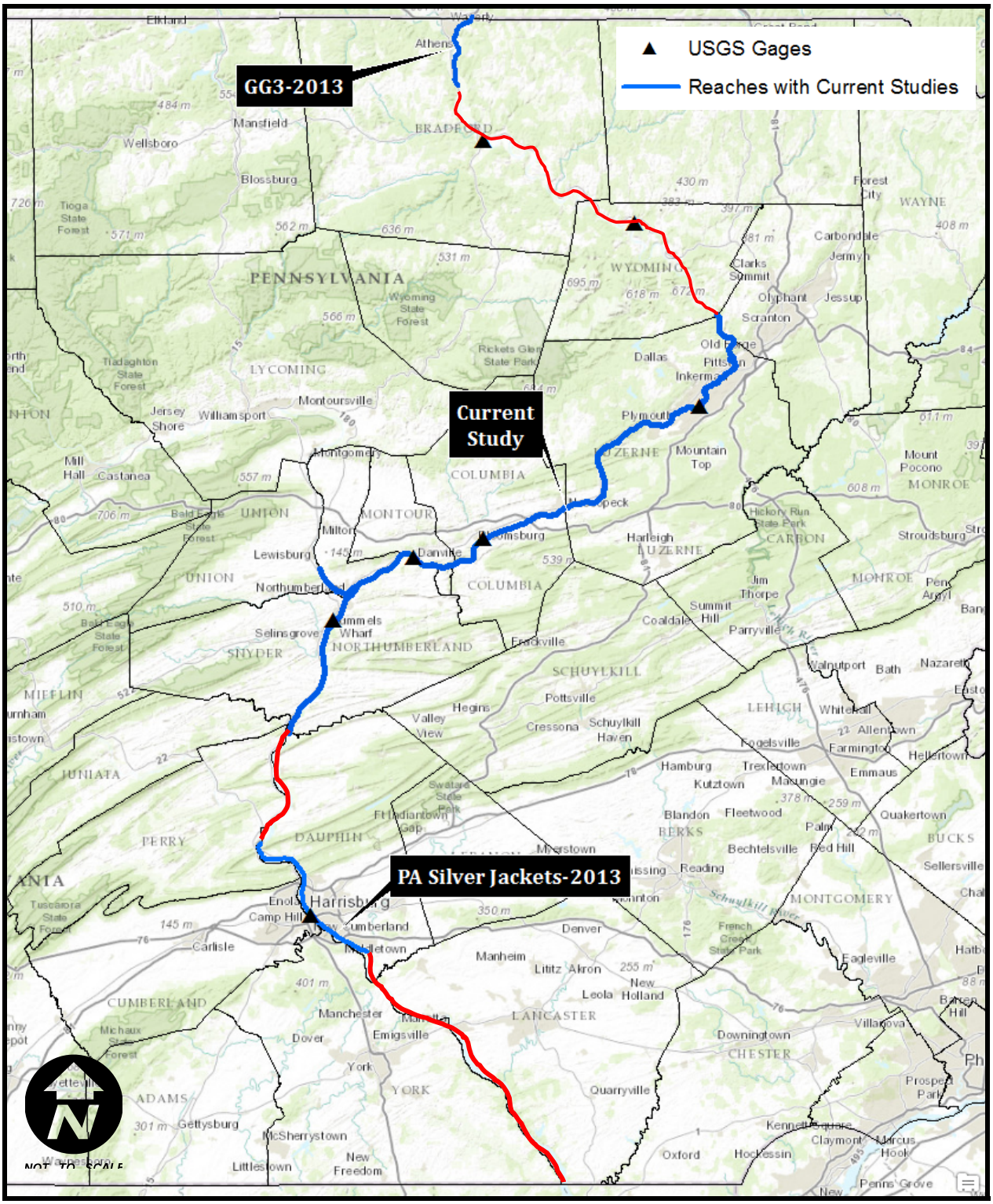
As shown on Figure 5.1, nearly two-thirds of the main stem of the Susquehanna River have revised HEC-RAS models from recent investigations. In October 2012, GG2 completed a geo-referenced, calibrated HEC-RAS model for approximately 10.8 river miles in Bradford County, Pennsylvania. This model is described in the document "Flood Recovery Report, Tropical Storm Lee, Susquehanna River, Boroughs of Athens and Sayre, Bradford County, Pennsylvania".

Under the Pennsylvania Silver Jackets Program a cooperative group comprised of USACE, NOAA, SRBC, FEMA, USGS, and the Harrisburg Authority, a geo-referenced, calibrated HEC-RAS model was developed for approximately 20 miles of the main stem of the Susquehanna River. The model, described in the a draft scientific report to be published by USGS titled "Flood-Inundation Maps for the Susquehanna River near the City of Harrisburg, Pennsylvania", spans from the confluence of Swatara Creek upstream to the confluence of the Juniata River.

With the 101 miles of river in this current investigation, more than 140 river miles of the Susquehanna River will be included in a geo-referenced HEC-RAS model that has flows input that include Tropical Storm Lee. The disadvantage to "filling in the gaps" of the existing models would be that the areas that currently do not have a revised HEC-RAS model are areas that are less densely populated, where the need for revised floodplain information is less. However, the advantages are numerous, and they include:

- A continuous model will eliminate tie-in issues between counties.
- Assumptions about downstream boundary conditions could be eliminated in the areas where revised modeling exists.
- Sustainability. A continuous model would be in place that could be revised every 5 or 10 years, which ultimately would reduce the cost of revising sections and/or counties. As events occur and flow values change, flow inputs can be easily changed in the model to assess the impact of the revised flows to water surface elevations.
- Coordination. One model for the entire Susquehanna River would reduce duplicate efforts that may be completed by Federal, State, and local agencies.

Figure 5.1: Reaches with Revised HEC-RAS Models on the Susquehanna River



FEMA should consider, at least on a long-term basis, the development of a geo-referenced, calibrated HEC-RAS model that spans the entire Susquehanna River in Pennsylvania. The initial investment of such a product would produce long-lasting, watershed-wide benefits.

#2: Consider revising the effective FISs for all counties in the study area.

Because 100-year water surface elevations have increased by as much as 4 feet in some areas, a revision to the effective FISs may be warranted. Although many of the increases are within existing levee systems, the areas that do not have flood protection should be aware of the increased flood risk.

#3: Consider a tributary flooding assessment.

The majority of tributaries to the main stem of the Susquehanna River have effective hydrology that is based upon a variation of a drainage area proportionment from the statistical analysis of peak flows from the USGS gages on the Susquehanna River. Since the incorporation of the flows from Tropical Storm Lee was completed in this investigation, 100-year peak flows have increased moderately. This increase would transcend to the tributaries if the same proportionment methodology was applied, causing increases to 100-year flows, and potential increases to 100-year water surface elevations.

FEMA should consider conducting an assessment of which tributaries utilize such methodology, recalculate the 100-year flows, and assess the potential impact to 100-year water surface elevations on those tributaries.

APPENDIX A

Changes per Cross-Section in Updated HEC-RAS Model

Reach	HEC-RAS XS	2013 Updates
Upper	205.877	2013 Updates: None
Upper	205.797	2013 Updates: None
Upper	205.719	2013 Updates: None
Upper	205.64	2013 Updates: None
Upper	205.562	2013 Updates: None
Upper	205.486	2013 Updates: None
Upper	205.409	2013 Updates: None
Upper	205.335	2013 Updates: None
Upper	205.256	2013 Updates: None
Upper	205.18	2013 Updates: None
Upper	205.102	2013 Updates: None
Upper	205.025	2013 Updates: None
Upper	204.948	2013 Updates: None
Upper	204.872	2013 Updates: None
Upper	204.796	2013 Updates: None
Upper	204.718	2013 Updates: None
Upper	204.642	2013 Updates: None
Upper	204.563	2013 Updates: None
Upper	204.488	2013 Updates: None
Upper	204.412	2013 Updates: None
Upper	204.335	2013 Updates: None
Upper	204.259	2013 Updates: None
Upper	204.18	2013 Updates: Added ineffective flow area at Station 1681 for all profiles.
Upper	204.103	2013 Updates: None
Upper	204.025	2013 Updates: Added ineffective flow area at 1650 for all profiles to account for high ground just downstream.
Upper	203.952	2013 Updates: None
Upper	203.872	2013 Updates: None
Upper	203.796	2013 Updates: None
Upper	203.721	2013 Updates: None
Upper	203.641	2013 Updates: None
Upper	203.564	2013 Updates: None
Upper	203.486	2013 Updates: None
Upper	203.411	2013 Updates: None
Upper	203.333	2013 Updates: Added ineffective flow area on left bank at 489.81.
Upper	203.256	2013 Updates: None
Upper	203.174	2013 Updates: None
Upper	203.092	2013 Updates: None
Upper	203.01	2013 Updates: None
Upper	202.932	2013 Updates: None
Upper	202.896	2013 Updates: None
Upper	202.848	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area.
Upper	202.766	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area.
Upper	202.683	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area.
Upper	202.608	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area.
Upper	202.531	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area.
Upper	202.457	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area.
Upper	202.38	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area.
Upper	202.309	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area.
Upper	202.235	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area.
Upper	202.164	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area.
Upper	202.083	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area.
Upper	202.01	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area.
Upper	201.936	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area.
Upper	201.861	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area.
Upper	201.785	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area.
Upper	201.715	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area.
Upper	201.641	2013 Updates: Removed levee in left bank (none on ground).
Upper	201.564	2013 Updates: None
Upper	201.488	2013 Updates: None
Upper	201.416	2013 Updates: None
Upper	201.341	2013 Updates: None
Upper	201.267	2013 Updates: None
Upper	201.191	2013 Updates: None
Upper	201.115	2013 Updates: None
Upper	201.043	2013 Updates: None
Upper	200.967	2013 Updates: None
Upper	200.894	2013 Updates: None
Upper	200.818	2013 Updates: None
Upper	200.744	2013 Updates: None

Reach	HEC-RAS XS	2013 Updates
Upper	200.671	2013 Updates: None
Upper	200.597	2013 Updates: None
Upper	200.52	2013 Updates: Added ineffective flow area on right bank at 1854.18.
Upper	200.447	2013 Updates: Added ineffective flow area on right bank at 2000.
Upper	200.372	2013 Updates: None
Upper	200.295	2013 Updates: None
Upper	200.223	2013 Updates: None
Upper	200.149	2013 Updates: None
Upper	200.075	2013 Updates: None
Upper	200.005	2013 Updates: None
Upper	199.925	2013 Updates: None
Upper	199.853	2013 Updates: None
Upper	199.776	2013 Updates: None
Upper	199.702	2013 Updates: None
Upper	199.626	2013 Updates: None
Upper	199.553	2013 Updates: None
Upper	199.481	2013 Updates: None
Upper	199.404	2013 Updates: None
Upper	199.331	2013 Updates: None
Upper	199.254	2013 Updates: None
Upper	199.183	2013 Updates: None
Upper	199.15	2013 Updates: None
Upper	199.08	2013 Updates: None. XS skewed 45 degrees.
Upper	199.07	ABANDONED RAILROAD. 2013 Updates: None. Ineffective flows encroaching into bridge opening are due to the skew of the bridge and bounding cross-sections.
Upper	199.06	2013 Updates: None. XS skewed 45 degrees.
Upper	199	2013 Updates: None.
Upper	198.9	2013 Updates: None.
Upper	198.887	2013 Updates: Slightly adjusted right bank ineffective flow area.
Scovell Left	198.702	2013 Updates: None
Scovell Left	198.623	2013 Updates: None
Scovell Left	198.543	2013 Updates: Moved left bank ineffective flow area in approximately 400 ft.
Scovell Left	198.466	2013 Updates: None
Scovell Left	198.39	2013 Updates: Moved ineffective flow area on left bank towards channel.
Scovell Left	198.309	2013 Updates: Removed levee on left bank (no levee on ground). Added ineffective flow area on left bank for all profiles.
Scovell Left	198.239	2013 Updates: Removed levee on left bank at 1089.86 (no levee on ground). Adjusted ineffective flow station.
Scovell Right	198.701	2013 Updates: None
Scovell Right	198.671	2013 Updates: None
Scovell Right	198.619	2013 Updates: Changed levee in right bank (road) to ineffective flow area.
Scovell Right	198.567	2013 Updates: Right bank Wyoming Valley, Exeter Levee. Adjusted Top of Protection based on NLD 3-Aug-2012. Top at 572.1 ft. NAVD88.
Scovell Right	198.512	2013 Updates: Right bank Wyoming Valley, Exeter Levee. Adjusted Top of Protection based on NLD 3-Aug-2012. Top at 573.7 ft. NAVD88. Old top at 572.1.
Scovell Right	198.463	2013 Updates: Right bank Wyoming Valley, Exeter Levee. Adjusted Top of Protection based on NLD 3-Aug-2012. Top at 571.8 ft. NAVD88.
Scovell Right	198.413	2013 Updates: Right bank Wyoming Valley, Exeter Floodwall. Adjusted Top of Protection based on NLD 3-Aug-2012. Top at 571.7 ft. NAVD88. Old top at 571.1. Also adjusted station location from 864.49 to 1302.
Scovell Right	198.363	2013 Updates: Right bank Wyoming Valley, Exeter Levee. Adjusted Top of Protection based on NLD 3-Aug-2012. Top at 571.6 ft. NAVD88. Old top at 572.3. Also adjusted station location from 810.20 to 1333. Area just inside of levee is ineffective as downstream high ground blocks flow.
Scovell Right	198.313	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area.
Scovell Right	198.262	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area..
Middle	198.107	2013 Updates: Removed ineffective flow area encroaching into channel on left bank. Removed levee on left bank. Changed levee in right bank (high ground) to ineffective flow area..
Middle	198.061	XS skewed 10 degrees. 2013 Updates: Altered ineffective flow on right bank to include ineffective flow from Station 5788.28. Removed left and right levees (railroad and high ground). Left ineffective flow area encroaching into channel due to skew.
Middle	198	RAILROAD. 2013 Updates: Changes to upstream and downstream ineffective flow.
Middle	197.995	XS skewed 10 degrees. 2013 Updates: None. Removed levee on left bank (railroad). Changed levee in right bank (high ground) to ineffective flow area..
Middle	197.938	2013 Updates: Adjusted right bank ineffective flow area. Removed levee on left bank (railroad). Changed levee in right bank (high ground) to ineffective flow area..
Middle	197.867	2013 Updates: Adjusted left bank ineffective flow area. Removed levee on left bank (railroad). Changed levee in right bank (high ground) to ineffective flow area..
Middle	197.79	2013 Updates: Removed left bank ineffective flow area. Changed levee on left bank (railroad) to ineffective flow area. Changed levee in right bank (high ground) to ineffective flow area..
Middle	197.711	2013 Updates: Adjusted left bank ineffective flow area. Changed levee on left bank (railroad) to ineffective flow area. Changed levee in right bank (high ground) to ineffective flow area..

Reach	HEC-RAS XS	2013 Updates
Middle	197.638	2013 Updates: Removed levee at 398.86 (no levee on ground). Removed left bank ineffective flow area. Changed levee in right bank (high ground) to ineffective flow area..
Middle	197.561	2013 Updates: Removed levee at 615.38 (no levee on ground). Removed left bank ineffective flow area. Changed levee in right bank (high ground) to ineffective flow area..
Middle	197.485	2013 Updates: Removed levee at 478.63 (no levee on ground). Changed levee in right bank (high ground) to ineffective flow area.
Middle	197.411	2013 Updates: Removed levee at 142.45 (no levee on ground). Changed levee in right bank (high ground) to ineffective flow area.
Middle	197.33	2013 Updates: Removed levee at 313.39 (no levee on ground). Adjusted right bank ineffective flow area. Changed levee in right bank (high ground) to ineffective flow area.
Middle	197.309	XS skewed 10 degrees. 2013 Updates: Removed levee at 227.92 (no levee on ground). Changed levee in right bank (high ground) to ineffective flow area. Right bank ineffective flow encroaches into channel due to skew.
Middle	197.306	U.S. ROUTE 11. 2013 Updates: None. Downstream ineffective flow area on left bank encroahes into bridge opening due to skew on cross-sections.
Middle	197.296	XS skewed 10 degrees. 2013 Updates: Removed levee at 199.43 (no levee on ground). Changed levee in right bank (high ground) to ineffective flow area.
Middle	197.261	2013 Updates: Removed levee at 199.43 (no levee on ground). Adjusted left and right bank ineffective flow area. Changed levee in right bank (high ground) to ineffective flow area.
Middle	197.222	2013 Updates: Removed levee at 341.88 (no levee on ground). Changed levee in right bank (high ground) to ineffective flow area.
Middle	197.176	2013 Updates: Removed levee at 410.26 (no levee on ground). Adjusted right bank ineffective flow area (moved in). Removed ineffective flow area from left bank. Changed levee in right bank (high ground) to ineffective flow area.
Middle	197.13	XS skewed 25 degrees. 2013 Updates: Removed levee at 642.69 (no levee on ground). Changed levee in right bank (high ground) to ineffective flow area.
Middle	197.126	WATER STREET. 2013 Updates: None. Downstream left bank ineffective flow area encroaches into opening due to skew.
Middle	197.121	XS skewed 25 degrees. 2013 Updates: Removed levee at 652.8 (no levee on ground). Adjusted ineffective flow areas. Changed levee in right bank (high ground) to ineffective flow area.
Middle	197.089	XS skewed 25 degrees. 2013 Updates: Removed levee at 677.23 (no levee on ground). Adjusted ineffective flow areas. Changed levee in right bank (high ground) to ineffective flow area.
Middle	197.024	2013 Updates: Removed levee on left bank. Changed levee in right bank (high ground) to ineffective flow area. Ineffective flow areas in channel due to skew of us sections.
Middle	196.944	2013 Updates: Removed levee on left bank. Changed levee in right bank (high ground) to ineffective flow area. Ineffective flow areas in channel due to skew of us sections.
Middle	196.867	2013 Updates: Changed levee in right bank and left bank (high ground) to ineffective flow areas.
Middle	196.795	2013 Updates: Removed levee at 370.37 (no levee on ground). Changed levee in right bank (high ground) to ineffective flow area.
Middle	196.716	2013 Updates: Removed levee at 170.94 (no levee on ground). Changed levee in right bank (high ground) to ineffective flow area.
Middle	196.647	2013 Updates: Removed levee at 284.90 (no levee on ground). Changed levee in right bank (high ground) to ineffective flow area.
Middle	196.563	2013 Updates: Removed levee at 199.43 (no levee on ground). Changed levee in right bank (high ground) to ineffective flow area.
Middle	196.493	2013 Updates: Removed levee at 113.96 (no levee on ground). Changed levee in right bank (high ground) to ineffective flow area.
Middle	196.412	2013 Updates: Removed levee at 142.45 (no levee on ground). Changed levee in right bank (high ground) to ineffective flow area.
Middle	196.336	2013 Updates: Removed levee at 68.38 (no levee on ground). Changed levee in right bank (high ground) to ineffective flow area.
Middle	196.261	2013 Updates: Removed levee at 68.38 (no levee on ground). Changed levee in right bank (high ground) to ineffective flow area.
Middle	196.184	2013 Updates: Removed levee at 91.17 (no levee on ground). Changed levee in right bank (high ground) to ineffective flow area.
Middle	196.105	2013 Updates: Removed levee at 68.38 (no levee on ground). Changed levee in right bank (high ground) to ineffective flow area.
Middle	196.034	2013 Updates: Removed levee at 113.96 (no levee on ground). Changed levee in right bank (high ground) to ineffective flow area.
Middle	195.958	2013 Updates: Removed levee at 159.54 (no levee on ground). Added ineffective flow at 2732.15. Changed levee in right bank (high ground) to ineffective flow area.
Middle	195.881	2013 Updates: Changed levee in right bank to ineffective flow area for mapping purposes. Changed levee in left bank (railroad) to ineffective flow area.
Middle	195.807	2013 Updates: Removed levee at 223.63 (no levee on ground). Changed levee at 2803.57 to ineffective flow for mapping purposes.
Middle	195.727	2013 Updates: Removed levee at 213.63 (no levee on ground). Changed levee in right bank (high ground) to ineffective flow area.
Middle	195.653	2013 Updates: Removed levee at 271.19 (no levee on ground). Changed levee in right bank (high ground) to ineffective flow area.
Middle	195.574	2013 Updates: Changed levee in right bank (high ground) and left bank (railroad) to ineffective flow area.

Reach	HEC-RAS XS	2013 Updates
Middle	195.5	2013 Updates: Changed levee in right bank (high ground) and left bank (railroad) to ineffective flow area.
Middle	195.423	2013 Updates: Changed levee in right bank (high ground) and left bank (railroad) to ineffective flow area.
Middle	195.346	2013 Updates: Changed levee in right bank (high ground) and left bank (railroad) to ineffective flow area.
Middle	195.265	2013 Updates: Changed levee in right bank (high ground) and left bank (railroad) to ineffective flow area.
Middle	195.194	2013 Updates: Removed levee at 51.02 (no levee on ground). Changed levee in right bank (high ground) to ineffective flow area.
Middle	195.119	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area.
Middle	195.042	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area.
Middle	194.966	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area..
Middle	194.888	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area.
Middle	194.809	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area.
Middle	194.732	2013 Updates: Adjusted ineffective flow in left bank. Removed levee on left bank (railroad) and right bank (high ground).
Middle	194.724	2013 Updates: Removed levee on left bank (railroad) and right bank (high ground).
Middle	194.702	2013 Updates: Removed levee on left bank (railroad) and right bank (high ground).
Middle	194.7	8th STREET. 2013 Updates: New 8th Street Bridge added. Constructed in 2010. Information in plan is provided by the design documents dated June 2009. Width of Deck is average of spans since the bridge has 7-spans at 54'-9", 2-spans at 66'-9" and one transitional span with an average of 60'-9". Overall average is 57'-9"
Middle	194.664	2013 Updates: Adjusted left bank ineffective flow area. Removed levee on left bank (railroad) and right bank (high ground).
Middle	194.583	2013 Updates: Removed levee on left bank (railroad) and right bank (high ground).
Middle	194.511	2013 Updates: Removed levee on right bank (high ground) and changed levee on left bank (railroad) to ineffective flow area.
Middle	194.428	2013 Updates: Removed levee on right bank (high ground) and changed levee on left bank (railroad) to ineffective flow area.
Middle	194.353	2013 Updates: Changed levee in right bank (high ground) and left bank (railroad) to ineffective flow area.
Middle	194.279	2013 Updates: Changed levee in right bank (high ground) and left bank (railroad) to ineffective flow area.
Middle	194.205	2013 Updates: Changed levee in right bank (high ground) and left bank (railroad) to ineffective flow area.
Middle	194.129	2013 Updates: Changed levee in right bank (high ground) and left bank (railroad) to ineffective flow area.
Middle	194.05	2013 Updates: Changed levee in right bank (high ground) and left bank (railroad) to ineffective flow area.
Middle	193.976	2013 Updates: Slight adjustment to right bank ineffective flow area. Removed left bank levee (none on ground). Changed levee in right bank (high ground) to ineffective flow area.
Middle	193.895	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 562.5, old top 563.4. Adjusted right bank ineffective flow area. Levee also at 3877.03 (not shown as levee). Changed levee in left bank (railroad) to ineffective flow area.
Middle	193.821	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 562.5, old top 563.3. Adjusted right bank ineffective flow area. Levee on left removed (not on ground).
Middle	193.746	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 562.5, old top 563.2. Added ineffective flow on left bank and right bank. Removed levee on left bank (not on ground). Levee also at 6946 (not shown).
Middle	193.671	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 562.3, old top 563.2. Added ineffective flow on left bank and right bank. Removed levee on left bank (not on ground). Levee also at 7323 (not shown).
Middle	193.596	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 562.1, old top 563.0. Added ineffective flow on left and right bank. Levee also at 7737 (not shown). Changed levee in left bank (high ground) to ineffective flow area.
Middle	193.518	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 562.0, old top 562.9. Added ineffective flow on right bank. Changed levee in left bank (high ground) to ineffective flow area.
Middle	193.44	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 561.9, old top 562.8. Added ineffective flow on right bank. Changed levee in left bank (high ground) to ineffective flow area.
Middle	193.365	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 561.8, old top 562.7. Changed levee in left bank (high ground) to ineffective flow area.
Middle	193.291	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 561.7, old top 562.6. Changed levee in left bank (high ground) to ineffective flow area.
Middle	193.21	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 561.4, old top 562.0. Changed levee in left bank (high ground) to ineffective flow area.
Middle	193.134	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 561.3, old top 562.4. Changed levee in left bank (high ground) to ineffective flow area.
Middle	193.052	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 561.3, old top 562.4. Changed levee in left bank (high ground) to ineffective flow area.

Reach	HEC-RAS XS	2013 Updates
Middle	192.983	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 561.4, old top 562.4. Adjusted left bank ineffective flow area. Changed levee in left bank (high ground) to ineffective flow area.
Middle	192.905	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 561.4, old top 562.2. Changed levee in left bank (high ground) to ineffective flow area.
Middle	192.828	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 561.3, old top 562.2. Changed levee in left bank (high ground) to ineffective flow area.
Middle	192.752	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 561.3, old top 562.2. Adjusted right bank ineffective flow area. Removed levee on left bank (none on ground).
Middle	192.672	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 561.3, old top 562.2. Changed levee in left bank (high ground) to ineffective flow area.
Middle	192.601	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 561.2, old top 562.2. Changed levee in left bank (high ground) to ineffective flow area.
Middle	192.522	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 561.1, old top 562.1. Changed levee in left bank (high ground) to ineffective flow area.
Middle	192.445	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 561.1, old top 562.1. Changed levee in left bank (high ground) to ineffective flow area.
Middle	192.368	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 561.1, old top 562.1. Changed levee in left bank (high ground) to ineffective flow area.
Middle	192.297	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 561.0, old top 562.1. Changed levee in left bank (high ground) to ineffective flow area.
Middle	192.22	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 561.1, old top 562.1. Changed levee in left bank (high ground) to ineffective flow area.
Middle	192.145	2013 Updates: Right bank Wyoming Valley, Swoyersville Floodwall. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 561.3, old top 562.0. Changed levee in left bank (high ground) to ineffective flow area.
Middle	192.064	2013 Updates: Right bank Wyoming Valley, Swoyersville Floodwall. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 561.1, old top 561.9. Removed levee from left bank (none on ground).
Middle	191.983	2013 Updates: Right bank Wyoming Valley, Swoyersville Floodwall. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 561.0, old top 561.9. Removed levee from left bank (none on ground).
Middle	191.901	2013 Updates: Right bank Wyoming Valley, Swoyersville Floodwall. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 560.8, old top 561.7. Changed levee in left bank (high ground) to ineffective flow area.
Middle	191.821	2013 Updates: Right bank Wyoming Valley, Swoyersville Floodwall. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 560.9, old top 561.6. Changed levee in left bank (high ground) to ineffective flow area.
Middle	191.746	2013 Updates: Right bank Wyoming Valley, Swoyersville Floodwall. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 560.8, old top 561.5. Changed levee in left bank (high ground) to ineffective flow area.
Middle	191.661	2013 Updates: Lowered left bank ineffective flow (high ground) area to allow 25-year profile and above to be effective. Termination of Right bank Wyoming Valley, Swoyersville Floodwall. Changed levee in left bank (high ground) and right bank (high ground) to ineffective flow area.
Middle	191.584	2013 Updates: Lowered left bank(high ground) area to allow 25-year profile and above to be effective. Added ineffective flow area on left bank to account for high ground downstream. Changed levee in left bank (high ground) and right bank (high ground) to ineffective flow area.
Middle	191.501	2013 Updates: Lowered left bank (high ground) area to allow 25-year profile and above to be effective. Added ineffective flow area on left bank to account for high ground downstream. Changed levee in left bank (high ground) and right bank (high ground) to ineffective flow area.
Middle	191.48	2013 Updates: Right bank Wyoming Valley, Swoyersville Floodwall. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 559.8, old top 565.9. Added ineffective flow area at 731 to account for downstream high ground. Lowered left bank (high ground) area to allow 25-year profile and above to be effective. Changed levee in left bank (high ground) to ineffective flow area.
Middle	191.41	2013 Updates: Right bank Wyoming Valley, Swoyersville Floodwall. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 560.0, old top 561.0. Removed left bank levee (high ground) area to allow 25-year profile and above to be effective.

Reach	HEC-RAS XS	2013 Updates
Middle	191.26	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 559.8, old top 560.7. Relocated right bank levee to spatially accurate location. Lowered left bank (high ground) area to allow 25-year profile and above to be effective.Changed levee in left bank (high ground) to ineffective flow area.
Middle	191.15	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 559.6, old top 560.8. Changed levee in left bank (high ground) to ineffective flow area.
Middle	191.01	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 559.4, old top 560.6. Changed levee in left bank (high ground) to ineffective flow area.
Middle	190.94	2013 Updates: Right bank Wyoming Valley, Swoyersville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 559.6, old top 561.1. Removed levee on left bank (none on ground). Removed left bank ineffective flow area. Adjusted right bank ineffective flow area.
Middle	190.898	PA ROUTE 309. 2013 Updates: Revised upstream and downstream ineffective flow areas.
Middle	190.864	2013 Updates: Removed left bank ineffective flow area. Adjusted right bank ineffective flow area. Changed levee in right bank (high ground) to ineffective flow area.
Middle	190.863	2013 Updates: Right bank Wyoming Valley, Kingston Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 559.9, old top 560.4. Removed left bank ineffective flow area. Adjusted right bank ineffective flow area.
Middle	190.782	2013 Updates: Right bank Wyoming Valley, Kingston Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 559.8, old top 560.5. Adjusted ineffective flow areas.
Middle	190.704	2013 Updates: Right bank Wyoming Valley, Kingston Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 559.3, old top 560.5. Adjusted ineffective flow area on right bank.
Middle	190.625	2013 Updates: Right bank Wyoming Valley, Kingston Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 558.8, old top 559.7. Added ineffective flow area to right bank.
Middle	190.546	2013 Updates: Right bank Wyoming Valley, Kingston Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 558.9, old top 559.6. Located levee in spatially accurate location. Added ineffective flow area to right bank.
Middle	190.467	2013 Updates: Right bank Wyoming Valley, Kingston Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 558.7, old top 559.5. Deleted ineffective flow area just behind levee. Added ineffective flow area to right bank.
Middle	190.454	2013 Updates: Right bank Wyoming Valley, Kingston Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 558.7, old top 559.1. Deleted ineffective flow area just near levee and on left bank. Added ineffective flow area to right bank.
Middle	190.44	2013 Updates: Right bank Wyoming Valley, Kingston Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 558.6, old top 559.6. Added ineffective flow area to right bank.
Middle	190.434	RAILROAD. 2013 Updates: Upstream and downstream XS's extended.
Middle	190.41	2013 Updates: Right bank Wyoming Valley, Kingston Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 558.5, old top 559.4. Adjusted left bank ineffective flow area so it was not encoraching into bridge opening.
Middle	190.384	2013 Updates: Right bank Wyoming Valley, Kingston Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 558.4, old top 559.3. Added ineffective flow on left bank for Mill Creek floodplain.
Middle	190.314	2013 Updates: Right bank Wyoming Valley, Kingston Levee/Floodwall. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 558.5, old top 559.2.
Middle	190.238	2013 Updates: Right bank Wyoming Valley, Kingston Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 558.6, old top 559.2. Second spike of high ground on right bank is railroad embankment.
Middle	190.166	2013 Updates: Right bank Wyoming Valley, Kingston Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 558.5, old top 559.1. Second spike of high ground on right bank is railroad embankment.
Middle	190.095	2013 Updates: Right bank Wyoming Valley, Kingston Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 558.5, old top 559.5. Second spike of high ground on right bank is railroad embankment.
Middle	190.026	2013 Updates: Right bank Wyoming Valley, Kingston Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 558.4, old top 558.9. Second spike of high ground on right bank is railroad embankment.
Middle	189.951	2013 Updates: Right bank Wyoming Valley, Kingston Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 558.0, old top 558.3. Second spike of high ground on right bank is railroad embankment.
Middle	189.884	2013 Updates: Right bank Wyoming Valley, Kingston Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 558.3, old top 558.9. Second spike of high ground on right bank is railroad embankment.

Reach	HEC-RAS XS	2013 Updates
Middle	189.811	2013 Updates: Right bank Wyoming Valley, Kingston Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 557.2, old top 558.0. Second spike of high ground on right bank is railroad embankment.
Middle	189.747	XS skewed 10 degrees .2013 Updates: Right bank Wyoming Valley, Kingston Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 557.0, old top 558.0. Second spike of high ground on right bank is railroad embankment. Removed ineffective flow area on right bank inside levee. Adjusted left bank ineffective flow area to be outside bridge opening.
Middle	189.743	NORTH MARKET STREET. 2013 Updates: Upstream and downstream XS's extended. Ineffective flow areas adjusted,
Middle	189.729	XS skewed 10 degrees. 2013 Updates: Right bank Wyoming Valley, Kingston Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 557.2, old top 557.9. Second spike of high ground on right bank is railroad embankment. Removed ineffective flow area on right bank inside levee. Changed levee in left bank (high ground) to ineffective flow area.
Middle	189.695	2013 Updates: Right bank Wyoming Valley, Kingston Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 556.8, old top 557.7. Second spike of high ground on right bank is railroad embankment. Changed levee in left bank (high ground) to ineffective flow area, which is high ground from Wilkes Barre levee at downstream section.
Middle	189.669	2013 Updates: Right bank Wyoming Valley, Kingston Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 556.6, old top 560.0. Top elevation (LB) of 556.8, old top 557.6. Adjusted levee station of left bank to spatially correct location (was at 696.86).
Middle	189.596	2013 Updates: Right bank Wyoming Valley, Kingston Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 556.5, old top 557.9. Top elevation (LB) of 556.4, old top 557.4. Adjusted levee station of left bank to spatially correct location (was at 981.59).
Middle	189.523	2013 Updates: Right bank Wyoming Valley, Kingston Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 556.3, old top 557.1. Top elevation (LB) of 556.6, old top 557.1.
Middle	189.446	2013 Updates: Right bank Wyoming Valley, Kingston Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 556.4, old top 557.1. Top elevation (LB) of 557.1, old top 557.1.
Middle	189.368	2013 Updates: Right bank Wyoming Valley, Kingston Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 555.9 old top 557.0. Top elevation (LB) of 556.8, old top 556.9. Adjusted levee station of left bank to spatially correct location (was at 5778.87).
Middle	189.347	2013 Updates: Right bank Wyoming Valley, Kingston Levee (Market Stree Closure), Left Bank Wyoming Valley, Wilkes Barre Levee (Closure). Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 555.8 old top 557.0. Top elevation (LB) of 557.5, old top 557.3. Deleted ineffective flow areas in channel area.
Middle	189.341	MARKET STREET. 2013 Updates: Upstream and downstream XS's extended. Ineffective flow areas removed within channel.
Middle	189.325	2013 Updates: Right bank Wyoming Valley, Kingston Levee (Market Stree Closure), Left Bank Wyoming Valley, Wilkes Barre Levee (Closure). Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 558.0 old top 557.0. Top elevation (LB) of 557.0, old top 556.8. Deleted ineffective flow areas in channel area.
Middle	189.29	2013 Updates: Right bank Wyoming Valley, Kingston Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 555.6 old top 556.9. Top elevation (LB) of 556.4, old top 556.9. Deleted ineffective flow areas in channel area.
Middle	189.219	2013 Updates: Right bank Wyoming Valley, Kingston Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 555.1 old top 556.7. Top elevation (LB) of 555.4, old top 556.2.
Middle	189.144	2013 Updates: Right bank Wyoming Valley, Kingston Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 555.1 old top 556.4. Top elevation (LB) of 560.4, old top 556.3. Corrected slight error in elevations on right bank levee enbankment.
Middle	189.062	2013 Updates: Right bank Wyoming Valley, Kingston Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 555.1 old top 556.1. Top elevation (LB) of 555.2, old top 556.4.
Middle	188.987	2013 Updates: Right bank Wyoming Valley, Kingston Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 555.0 old top 556.0. Top elevation (LB) of 555.5, old top 556.1. Adjusted location of left bank levee by 1 ft.
Middle	188.913	2013 Updates: Right bank Wyoming Valley, Kingston Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 554.9 old top 555.9. Top elevation (LB) of 556.0, old top 555.7.
Middle	188.833	2013 Updates: Right bank Wyoming Valley, Kingston Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 556.0 old top 555.7. Top elevation (LB) of 554.9, old top 555.7.

Reach	HEC-RAS XS	2013 Updates
Middle	188.754	2013 Updates: Right bank Wyoming Valley, Kingston Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 554.9 old top 555.6. Top elevation (LB) of 555.7, old top 555.6.
Middle	188.675	2013 Updates: Right bank Wyoming Valley, Kingston Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 554.9 old top 555.4. Top elevation (LB) of 555.7, old top 556.6.
Middle	188.594	2013 Updates: Right bank Wyoming Valley, Kingston Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 554.9 old top 555.2. Top elevation (LB) of 554.8, old top 555.5.
Middle	188.518	2013 Updates: Right bank Wyoming Valley, Kingston Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 554.7 old top 555.1. Top elevation (LB) of 554.5, old top 555.4. Ineffective flow in channel for downstream access road that encroaches into floodplain.
Middle	188.436	2013 Updates: Right bank Wyoming Valley, Kingston Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 554.4 old top 554.9. Top elevation (LB) of 554.4, old top 555.2. Deleted ineffective flow area for access ramp (already included in geometry).
Middle	188.367	2013 Updates: Right bank Wyoming Valley, Kingston Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 554.1 old top 554.8. Top elevation (LB) of 554.2, old top 555.0. Ineffective flow in channel for upstream access road that encroaches into floodplain.
Middle	188.28	2013 Updates: Right bank Wyoming Valley, Kingston Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 553.9 old top 554.8. Top elevation (LB) of 553.9, old top 554.8 . Deleted ineffective flow area near right levee.
Middle	188.206	XS skewed 15 degrees. 2013 Updates: Right bank Wyoming Valley, Kingston Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 553.9 old top 554.7. Top elevation (LB) of 553.5, old top 554.5 . Adjusted ineffective flow areas.
Middle	188.203	RAILROAD. 2013 Updates: Upstream and downstream XS's extended. Ineffective flow areas adjusted
Middle	188.196	XS skewed 15 degrees. 2013 Updates: Right bank Wyoming Valley, Kingston Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 553.5 old top 554.6. Top elevation (LB) of 553.5, old top 554.3 . Adjusted ineffective flow areas.
Middle	188.131	2013 Updates: Right bank Wyoming Valley, Kingston Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 553.4 old top 554.4. Top elevation (LB) of 553.5, old top 554.3 .Adjusted ineffective flow areas.
Middle	187.978	2013 Updates: Right bank Wyoming Valley, Kingston Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 553.3 old top 554.1. Top elevation (LB) of 553.3, old top 554.0 . Deleted ineffective flow area near left levee and adjusted area at right levee.
Middle	187.822	2013 Updates: Right bank termination of Wyoming Valley, Kingston Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Re-imported and extended XS to correct spatial alignment. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 555.1. Top elevation (LB) of 553.0, old top 553.8 . Adjusted ineffective flow on right bank. Adjusted right levee location to proper station.
Middle	187.666	2013 Updates: Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 552.4, old top 553.4 .
Middle	187.509	2013 Updates: Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 552.4, old top 553.0.
Middle	187.4	2013 Updates: Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 552.0, old top 553.2 .
Middle	187.38	2013 Updates: Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 552.0, old top 552.8 .
Middle	187.291	2013 Updates: Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 551.9, old top 552.8 .
Middle	187.142	2013 Updates: Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 551.9, old top 552.8 .
Middle	186.99	2013 Updates: Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 551.8, old top 552.8 .
Middle	186.841	2013 Updates: Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 551.8, old top 552.7 .
Middle	186.762	2013 Updates: Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 551.8, old top 552.6. Adjusted right bank ineffective flow area.
Middle	186.696	2013 Updates: Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 551.7, old top 552.6 .
Middle	186.54	2013 Updates: Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 553.1, old top 552.4. Adjusted left bank ineffective flow area and removed right bank ineffective flow area.

Reach	HEC-RAS XS	2013 Updates
Middle	186.535	CAREY BRIDGE. 2013 Updates: Ineffective flow areas removed within channel.
Middle	186.53	2013 Updates: Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 553.1, old top 552.2. Adjusted left bank ineffective flow area and removed right bank ineffective flow area.
Middle	186.47	2013 Updates: Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 553.1, old top 552.2. Added ineffective flow area on right bank for downstream Plymouth levee at elevation 551.4.
Middle	186.457	2013 Updates: Right bank Wyoming Valley, Plymouth Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 551.5 old top 552.1. Top elevation (LB) of 551.8, old top 552.3 .
Middle	186.384	2013 Updates: Right bank Wyoming Valley, Plymouth Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 550.9 old top 551.9. Top elevation (LB) of 551.0, old top 551.8 .
Middle	186.308	2013 Updates: Right bank Wyoming Valley, Plymouth Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 550.5 old top 551.4. Top elevation (LB) of 550.5, old top 551.3. Added ineffective flow area to left bank.
Middle	186.2	2013 Updates: Right bank Wyoming Valley, Plymouth Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 550.2 old top 551.0. Top elevation (LB) of 550.1 old top 551.2 . Added ineffective flow to left bank.
Middle	186.1	2013 Updates: Right bank Wyoming Valley, Plymouth Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 549.9 old top 551.6. Top elevation (LB) of 549.9, old top 551.0 . Added ineffective flow to left bank.
Middle	186	2013 Updates: Right bank Wyoming Valley, Plymouth Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 549.6 old top 550.4. Top elevation (LB) of 549.6, old top 550.6 .
Middle	185.9	XS skewed 45 degrees. 2013 Updates: Right bank Wyoming Valley, Plymouth Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 548.9 old top 550.0. Top elevation (LB) of 549.5, old top 550.0 .
Middle	185.88	XS skewed 45 degrees. 2013 Updates: Right bank Wyoming Valley, Plymouth Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 548.9 old top 550.2. Top elevation (LB) of 549.5, old top 550.0 .
Middle	185.84	2013 Updates: Right bank Wyoming Valley, Plymouth Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 548.4 old top 550.2. Top elevation (LB) of 548.6, old top 549.6. Removed ineffective flow area from channel.
Middle	185.781	2013 Updates: Right bank Wyoming Valley, Plymouth Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 548.4 old top 550.1. Top elevation (LB) of 548.2, old top 550.0.
Middle	185.629	2013 Updates: Right bank Wyoming Valley, Plymouth Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 547.9 old top 549.2. Top elevation (LB) of 547.8, old top 549.2.
Middle	185.475	2013 Updates: Right bank Wyoming Valley, Plymouth Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 547.5, old top 548.5. Top elevation (LB) of 547.6, old top 548.5.
Middle	185.328	2013 Updates: Right bank Wyoming Valley, Plymouth Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 547.5, old top 548.5. Top elevation (LB) of 547.6, old top 548.4.
Middle	185.18	2013 Updates: Right bank termination of Wyoming Valley, Plymouth Levee, Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 547.6, old top 548.4. Top elevation (LB) of 547.7, old top 548.3.
Middle	185.022	2013 Updates: Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 547.5 old top 548.3. Deleted levee in right bank (none on ground). Added ineffective flow for all profiles in right bank (Station 4700).
Middle	184.874	2013 Updates: Left Bank Wyoming Valley, Wilkes Barre Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 547.5 old top 548.3. Added ineffective flow for all profiles in right bank (Station 5170). Changed levee in right bank (high ground) to ineffective flow area.
Middle	184.8	2013 Updates: Left Bank Wyoming Valley, Wilkes Barre Levee (Termination). Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation (RB) of 547.2 old top 545.9. Added ineffective flow for all profiles in right bank (Station 4810). Changed levee in right bank (high ground) to ineffective flow area.
Middle	184.7	2013 Updates: Added ineffective flow for all profiles in right bank (Station 5000). Changed levee in right bank (high ground) to ineffective flow area.
Middle	184.6	2013 Updates: Added ineffective flow for all profiles in right bank (Station 4673). Changed levee in right bank (high ground) to ineffective flow area.
Middle	184.5	2013 Updates: Added ineffective flow for all profiles in right bank (Station 4590). Changed levee in right bank (high ground) to ineffective flow area.
Middle	184.45	2013 Updates: Extended cross-section on right bank. Added ineffective flow for all profiles in right bank (Station 4715). Changed levee in right bank (high ground) to ineffective flow area.
Middle	184.35	2013 Updates: Extended cross-section on right bank. Added ineffective flow for all profiles in right bank (Station 4750). Changed levee in right bank (high ground) to ineffective flow area.

Reach	HEC-RAS XS	2013 Updates
Middle	184.28	2013 Updates: Extended cross-section on right bank. Added ineffective flow for all profiles in right bank (Station 4908). Changed levee in right bank (high ground) to ineffective flow area.
Middle	184.18	2013 Updates: Added ineffective flow for all profiles in right bank (Station 5505). Changed levee in right bank (high ground) to ineffective flow area.
Middle	184.15	2013 Updates: None. Changed levee in right bank (high ground) to ineffective flow area.
Middle	184.1	2013 Updates: Removed levee on left bank (none on ground). Removed ineffective flow area on left bank. Changed levee in right bank (high ground) to ineffective flow area.
Middle	184.025	2013 Updates: Removed ineffective flow area on left bank. Changed levee in right bank (high ground) and levee in left bank (railroad) to ineffective flow area.
Middle	183.95	2013 Updates: Removed ineffective flow area on left bank. Changed levee in right bank (high ground) and levee in left bank (railroad) to ineffective flow area.
Middle	183.87	2013 Updates: Removed ineffective flow area on left bank. Changed levee in right bank (high ground) and levee in left bank (railroad) to ineffective flow area.
Middle	183.79	2013 Updates: Removed ineffective flow area on left bank. Changed levee in right bank (high ground) and levee in left bank (railroad) to ineffective flow area.
Middle	183.716	2013 Updates: Adjusted ineffective flow on left bank. Changed levee in right bank (high ground) and levee in left bank (railroad) to ineffective flow area.
Middle	183.634	2013 Updates: Removed ineffective flow area on left bank. Changed levee in right bank (high ground) and levee in left bank (railroad) to ineffective flow area.
Middle	183.524	2013 Updates: Removed ineffective flow area on left bank. Changed levee in right bank (high ground) and levee in left bank (railroad) to ineffective flow area.
Middle	183.408	2013 Updates: Revised ineffective flow area on left bank. Changed levee in right bank (high ground) and levee in left bank (railroad) to ineffective flow area.
Middle	183.287	2013 Updates: Revised ineffective flow area on left bank. Changed llevee in left bank (railroad) to ineffective flow area.
Middle	183.177	2013 Updates: Revised ineffective flow area on left bank.
Middle	183.055	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area.
Middle	182.897	2013 Updates: Adjusted right bank ineffective flow area. Removed levee in right bank. Channel inverts revised to correct terrain error.
Middle	182.8	2013 Updates: Adjusted ineffective flow areas. Removed levee in right bank. Channel inverts revised to correct terrain error.
Middle	182.79	XS skewed 20 degrees. 2013 Updates: Removed levee in right bank. Channel inverts revised to correct terrain error.
Middle	182.788	PA ROUTE 29. None. Ineffective flow areas encroach into bridge due to skew. Channel inverts revised to correct terrain error.
Middle	182.78	XS skewed 20 degrees. 2013 Updates: Removed levee in right bank. Channel inverts revised to correct terrain error.
Middle	182.72	2013 Updates: Revised ineffective flow areas. Removed levee in right bank. Channel inverts revised to correct terrain error.
Middle	182.6	2013 Updates: Added ineffective flow area to right bank. Removed levee in right bank. Channel inverts revised to correct terrain error.
Middle	182.487	2013 Updates: Added ineffective flow area to right bank. Removed levee in right bank. Channel inverts revised to correct terrain error.
Middle	182.41	2013 Updates: Added ineffective flow area to right bank. Removed levee in right bank. Channel inverts revised to correct terrain error.
Middle	182.331	2013 Updates: Added ineffective flow area to right bank. Removed levee in right bank. Added ineffective flow area to left bank. Channel inverts revised to correct terrain error.
Middle	182.25	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area. Added ineffective flow area to left bank. Channel inverts revised to correct terrain error.
Middle	182.169	2013 Updates: Removed levee on right bank. Added ineffective flow area to left bank. Channel inverts revised to correct terrain error.
Middle	182.092	2013 Updates: Removed levee from right bank (none on ground). Added ineffective flow area to left bank. Channel inverts revised to correct terrain error.
Middle	182.009	2013 Updates: Added ineffective flow area to left bank. Channel inverts revised to correct terrain error.
Middle	181.935	2013 Updates: Added ineffective flow area to left bank. Channel inverts revised to correct terrain error.
Middle	181.857	2013 Updates: Removed ineffective flow area from right bank. Adjusted ineffective flow area on left bank. Channel inverts revised to correct terrain error.
Middle	181.825	2013 Updates: Adjusted ineffective flow areas. Channel inverts revised to correct terrain error.
Middle	181.82	LOWER BROADWAY STREET. 2013 Updates: Adjusted ineffective flow areas.
Middle	181.756	2013 Updates: Adjusted ineffective flow areas. Channel inverts revised to correct terrain error.
Middle	181.724	2013 Updates: Adjusted left bank ineffective flow area. Channel inverts revised to correct terrain error.
Middle	181.7	2013 Updates: Channel inverts revised to correct terrain error.
Middle	181.69	RAILROAD. Adjusted ineffective flow areas.
Middle	181.68	2013 Updates: Channel inverts revised to correct terrain error.
Middle	181.626	2013 Updates: Extended cross-section on left and right bank. Adjusted ineffective flow areas. Channel inverts revised to correct terrain error.
Middle	181.549	2013 Updates: Channel inverts revised to correct terrain error.
Middle	181.464	2013 Updates: Channel inverts revised to correct terrain error.
Middle	181.384	2013 Updates: Channel inverts revised to correct terrain error.
Middle	181.308	2013 Updates: Channel inverts revised to correct terrain error.

Reach	HEC-RAS XS	2013 Updates
Middle	181.232	2013 Updates: Channel inverts revised to correct terrain error.
Middle	181.16	2013 Updates: Channel inverts revised to correct terrain error.
Middle	181.063	2013 Updates: Ineffective flow added for all profiles on right bank. Channel inverts revised to correct terrain error.
Middle	180.991	2013 Updates: Ineffective flow added for all profiles on right bank. Channel inverts revised to correct terrain error.
Middle	180.916	2013 Updates: Channel inverts revised to correct terrain error.
Middle	180.843	2013 Updates: Channel inverts revised to correct terrain error.
Middle	180.767	2013 Updates: None.
Middle	180.696	2013 Updates: None.
Middle	180.618	2013 Updates: None.
Middle	180.541	2013 Updates: None.
Middle	180.467	2013 Updates: None.
Middle	180.398	2013 Updates: None.
Middle	180.319	2013 Updates: None.
Middle	180.245	2013 Updates: None.
Middle	180.173	2013 Updates: None.
Middle	180.099	2013 Updates: None.
Middle	180.025	2013 Updates: None.
Middle	179.951	2013 Updates: None.
Middle	179.874	2013 Updates: None.
Middle	179.802	2013 Updates: None.
Middle	179.727	2013 Updates: None.
Middle	179.655	2013 Updates: None.
Middle	179.581	2013 Updates: None.
Middle	179.505	2013 Updates: None.
Middle	179.432	2013 Updates: None.
Middle	179.358	2013 Updates: None.
Middle	179.286	2013 Updates: None.
Middle	179.212	2013 Updates: None.
Middle	179.137	2013 Updates: None.
Middle	179.062	2013 Updates: None.
Middle	178.99	2013 Updates: None.
Middle	178.914	2013 Updates: None.
Middle	178.839	2013 Updates: None.
Middle	178.77	2013 Updates: None.
Middle	178.693	2013 Updates: None.
Middle	178.618	2013 Updates: None.
Middle	178.544	2013 Updates: None.
Middle	178.473	2013 Updates: None.
Middle	178.397	2013 Updates: None.
Middle	178.323	2013 Updates: Removed ineffective flow from right bank.
Middle	178.247	2013 Updates: None.
Middle	178.174	2013 Updates: None.
Middle	178.151	2013 Updates: None.
Middle	178.097	2013 Updates: None.
Middle	178.022	2013 Updates: Removed ineffective flow area from right bank.
Middle	177.946	2013 Updates: None.
Middle	177.869	2013 Updates: None.
Middle	177.795	2013 Updates: None.
Middle	177.718	2013 Updates: None.
Middle	177.646	2013 Updates: None.
Middle	177.572	2013 Updates: None.
Middle	177.494	2013 Updates: None.
Middle	177.416	2013 Updates: None.
Middle	177.341	2013 Updates: None.
Middle	177.267	2013 Updates: None.
Middle	177.187	2013 Updates: None.
Middle	177.114	2013 Updates: None.
Middle	177.039	2013 Updates: None.
Middle	176.963	2013 Updates: None.
Middle	176.889	2013 Updates: None.
Middle	176.812	2013 Updates: None.
Middle	176.735	2013 Updates: None.
Middle	176.7	2013 Updates: Adjusted ineffective flow areas.
Middle	176.695	RETREAT BRIDGE. 2013 Updates: Realigned opening stations and pier stations and adjusted upstream and downstream ineffective flow areas. Revised deck stations.
Middle	176.69	2013 Updates: Adjusted ineffective flow areas.
Middle	176.68	2013 Updates: Adjusted ineffective flow areas.
Middle	176.655	2013 Updates: None.

Reach	HEC-RAS XS	2013 Updates
Middle	176.587	2013 Updates: None.
Middle	176.508	2013 Updates: None.
Middle	176.432	2013 Updates: None.
Middle	176.356	2013 Updates: None.
Middle	176.285	2013 Updates: None.
Middle	176.205	2013 Updates: None.
Middle	176.13	2013 Updates: None.
Middle	176.054	2013 Updates: None.
Middle	175.98	2013 Updates: None.
Middle	175.903	2013 Updates: None.
Middle	175.827	2013 Updates: None.
Middle	175.753	2013 Updates: None.
Middle	175.677	2013 Updates: None.
Middle	175.601	2013 Updates: None.
Middle	175.526	2013 Updates: None.
Middle	175.451	2013 Updates: None.
Middle	175.373	2013 Updates: None.
Middle	175.3	2013 Updates: None.
Middle	175.224	2013 Updates: None.
Middle	175.147	2013 Updates: None.
Middle	175.072	2013 Updates: None.
Middle	174.995	2013 Updates: None.
Middle	174.919	2013 Updates: None.
Middle	174.843	2013 Updates: None.
Middle	174.768	2013 Updates: None.
Middle	174.693	2013 Updates: None.
Middle	174.618	2013 Updates: None.
Middle	174.542	2013 Updates: None.
Middle	174.466	2013 Updates: None.
Middle	174.389	2013 Updates: None.
Middle	174.313	2013 Updates: None.
Middle	174.24	2013 Updates: None.
Middle	174.161	2013 Updates: None.
Middle	174.087	2013 Updates: None.
Middle	174.012	2013 Updates: None.
Middle	173.934	2013 Updates: None.
Middle	173.86	2013 Updates: None.
Middle	173.786	2013 Updates: None.
Middle	173.712	2013 Updates: None.
Middle	173.633	2013 Updates: None.
Middle	173.559	2013 Updates: None.
Middle	173.48	2013 Updates: None.
Middle	173.408	2013 Updates: None.
Middle	173.33	2013 Updates: None.
Middle	173.254	2013 Updates: None.
Middle	173.179	2013 Updates: None.
Middle	173.103	2013 Updates: None.
Middle	173.028	2013 Updates: None.
Middle	172.953	2013 Updates: None.
Middle	172.877	2013 Updates: None.
Middle	172.799	2013 Updates: None.
Middle	172.725	2013 Updates: None.
Middle	172.649	2013 Updates: None.
Middle	172.574	2013 Updates: None.
Middle	172.499	2013 Updates: Added ineffective flow for all profiles in right bank.
Middle	172.424	2013 Updates: None.
Middle	172.347	2013 Updates: None.
Middle	172.27	2013 Updates: None.
Middle	172.196	2013 Updates: None.
Middle	172.123	2013 Updates: None.
Middle	172.096	XS skewed 10 degrees. 2013 Updates: None.
Middle	172.089	PA ROUTE 239 (BRIDGE STREET): 2013 Updates: None. Ineffective flow encroaches into opening due to skew.
Middle	172.083	XS skewed 10 degrees. 2013 Updates: None.
Middle	172.047	2013 Updates: None.
Middle	171.97	2013 Updates: None.
Middle	171.892	2013 Updates: None.
Middle	171.818	2013 Updates: None.
Middle	171.741	2013 Updates: None.
Middle	171.667	2013 Updates: None.

Reach	HEC-RAS XS	2013 Updates
Middle	171.596	2013 Updates: Added ineffective flow area on right bank.
Middle	171.519	2013 Updates: None.
Middle	171.442	2013 Updates: None.
Middle	171.367	2013 Updates: None.
Middle	171.292	2013 Updates: None.
Middle	171.217	2013 Updates: None.
Middle	171.141	2013 Updates: None.
Middle	171.064	2013 Updates: None.
Middle	170.985	2013 Updates: None.
Middle	170.912	2013 Updates: None.
Middle	170.834	2013 Updates: None.
Middle	170.759	2013 Updates: None.
Middle	170.685	2013 Updates: Added ineffective flow for all profiles in right bank.
Middle	170.609	2013 Updates: None.
Middle	170.532	2013 Updates: None.
Middle	170.457	2013 Updates: None.
Middle	170.382	2013 Updates: None.
Middle	170.309	2013 Updates: Added ineffective flow area in left bank.
Middle	170.23	2013 Updates: None.
Middle	170.155	2013 Updates: None.
Middle	170.079	2013 Updates: None.
Middle	170.003	2013 Updates: None.
Middle	169.932	2013 Updates: None.
Middle	169.852	2013 Updates: None.
Middle	169.778	2013 Updates: Added ineffective flow area in left bank.
Middle	169.704	2013 Updates: Removed levee in right bank (none on ground).
Middle	169.629	2013 Updates: Changed levee in right bank to ineffective flow area for mapping purposes.
Middle	169.553	2013 Updates: Removed levee in right bank (none on ground).
Middle	169.472	2013 Updates: Removed levee in right bank (none on ground).
Middle	169.397	2013 Updates: Removed levee in right bank (none on ground). Added ineffective flow area on right bank.
Middle	169.321	2013 Updates: Removed levee in right bank (none on ground).
Middle	169.246	2013 Updates: Changed levee in right bank (roadway) to ineffective flow area.
Middle	169.173	2013 Updates: Changed levee in right bank (roadway) to ineffective flow area.
Middle	169.096	2013 Updates: Changed levee in right bank (roadway) to ineffective flow area.
Middle	169.013	2013 Updates: Changed levee in right bank (roadway) to ineffective flow area.
Middle	168.944	2013 Updates: Changed levee in right bank (roadway) to ineffective flow area.
Middle	168.869	2013 Updates: Changed levee in right bank (roadway) to ineffective flow area.
Middle	168.794	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area.
Middle	168.719	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area. Added ineffective flow area to left bank.
Middle	168.643	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area. Adjusted left bank ineffective flow area.
Middle	168.571	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area. Adjusted left bank ineffective flow area.
Middle	168.494	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area. Adjusted left bank ineffective flow area.
Middle	168.419	2013 Updates: Adjusted ineffective flow area on left bank. Changed levee in right bank (high ground) to ineffective flow area.
Middle	168.342	2013 Updates: Adjusted ineffective flow area on left bank. Added ineffective flow on right bank. Levee on right bank is high ground. Changed levee in right bank (high ground) to ineffective flow area.
Middle	168.266	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area. Adjusted left bank ineffective flow area.
Middle	168.191	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area. Adjusted left bank ineffective flow area.
Middle	168.113	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area. Adjusted left bank ineffective flow area.
Middle	168.032	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area. Removed levee on left bank. Adjusted left bank ineffective flow area.
Middle	167.958	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area. Removed levee on left bank. Adjusted left bank ineffective flow area.
Middle	167.883	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area. Removed levee on left bank. Adjusted left bank ineffective flow area.
Middle	167.805	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area. Removed levee on left bank. Adjusted left bank ineffective flow area.
Middle	167.729	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area. Removed levee on left bank. Adjusted left bank ineffective flow area.
Middle	167.65	2013 Updates: Adjusted left bank ineffective flow area. Changed levee in right bank (high ground) to ineffective flow area. Removed levee on left bank.
Middle	167.572	2013 Updates: Adjusted left bank ineffective flow area. Changed levee in right bank (high ground) to ineffective flow area. Removed levee on left bank.

Reach	HEC-RAS XS	2013 Updates
Middle	167.494	2013 Updates: Adjusted left bank ineffective flow area. Changed levee in right bank (high ground) to ineffective flow area. Removed levee on left bank.
Middle	167.416	2013 Updates: Adjusted left bank ineffective flow area. Changed levee in right bank (high ground) to ineffective flow area. Removed levee on left bank.
Middle	167.336	2013 Updates: Adjusted left bank ineffective flow area. Changed levee in right bank (high ground) and levee in left bank (railroad) to ineffective flow area.
Middle	167.259	2013 Updates: Adjusted left bank ineffective flow area. Changed levee in right bank (high ground) and levee in left bank (railroad) to ineffective flow area.
Middle	167.179	2013 Updates: Removed left bank ineffective flow area. Changed levee in right bank (high ground) to ineffective flow area. Removed levee in left bank.
Middle	167.096	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area. Removed levee in left bank.
Middle	167.027	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area. Removed levee in left bank.
Middle	166.953	2013 Updates: Removed levee on left bank (none on ground). Changed levee in right bank (high ground) to ineffective flow area.
Middle	166.873	2013 Updates: Removed levee on left bank (none on ground). Changed levee in right bank (high ground) to ineffective flow area.
Middle	166.8	2013 Updates: Adjusted left bank ineffective flow area. Changed levee in right bank (high ground) to ineffective flow area. Removed levee in left bank.
Middle	166.72	2013 Updates: Adjusted left bank ineffective flow area. Changed levee in right bank (high ground) and levee in left bank (railroad) to ineffective flow area.
Middle	166.644	2013 Updates: Changed levee in right bank (high ground) and levee in left bank (railroad) to ineffective flow area.
Middle	166.567	2013 Updates: Removed levee on left bank (non on ground).
Middle	166.492	2013 Updates: Changed levee in left bank (roadway) to ineffective flow area.
Middle	166.417	2013 Updates: None. Changed levee in left bank (roadway) to ineffective flow area.
Middle	166.345	2013 Updates: None.
Middle	166.267	2013 Updates: None.
Middle	166.19	2013 Updates: None.
Middle	166.114	2013 Updates: None.
Middle	166.041	2013 Updates: None.
Middle	165.964	2013 Updates: None.
Middle	165.893	2013 Updates: None.
Middle	165.821	2013 Updates: None.
Middle	165.744	2013 Updates: None.
Middle	165.669	2013 Updates: None.
Middle	165.594	2013 Updates: None.
Middle	165.516	2013 Updates: None.
Middle	165.438	2013 Updates: None.
Middle	165.369	2013 Updates: None.
Middle	165.293	2013 Updates: None.
Middle	165.212	2013 Updates: None.
Middle	165.138	2013 Updates: None.
Middle	165.065	2013 Updates: None.
Middle	164.988	2013 Updates: None.
Middle	164.911	2013 Updates: None.
Middle	164.84	2013 Updates: None.
Middle	164.763	2013 Updates: None.
Middle	164.692	2013 Updates: Added ineffective flow area to right bank.
Middle	164.614	2013 Updates: None.
Middle	164.54	2013 Updates: None.
Middle	164.462	2013 Updates: None.
Middle	164.386	2013 Updates: None.
Middle	164.314	2013 Updates: None.
Middle	164.237	2013 Updates: None.
Middle	164.16	2013 Updates: None.
Middle	164.087	2013 Updates: None.
Middle	164.01	2013 Updates: None.
Middle	163.938	2013 Updates: None.
Middle	163.861	2013 Updates: None.
Middle	163.787	2013 Updates: None.
Middle	163.713	2013 Updates: None.
Middle	163.638	2013 Updates: None.
Middle	163.561	2013 Updates: None.
Middle	163.486	2013 Updates: None.
Middle	163.411	2013 Updates: None.
Middle	163.335	2013 Updates: None.
Middle	163.262	2013 Updates: None.
Middle	163.189	2013 Updates: None.
Middle	163.114	2013 Updates: None.
Middle	163.036	2013 Updates: None.

Reach	HEC-RAS XS	2013 Updates
Middle	162.96	2013 Updates: None.
Middle	162.887	2013 Updates: None.
Middle	162.813	2013 Updates: None.
Middle	162.735	2013 Updates: None.
Middle	162.659	2013 Updates: None.
Middle	162.58	2013 Updates: None.
Middle	162.51	2013 Updates: None.
Middle	162.437	2013 Updates: None.
Middle	162.359	2013 Updates: None.
Middle	162.283	2013 Updates: None.
Middle	162.208	2013 Updates: None.
Middle	162.136	2013 Updates: None.
Middle	162.059	2013 Updates: None.
Middle	161.979	2013 Updates: None.
Middle	161.902	2013 Updates: Changed levee in left bank (high ground) to ineffective flow area.
Middle	161.83	2013 Updates: Removed levee on left bank.
Middle	161.754	2013 Updates: Removed levee on left bank.
Middle	161.681	2013 Updates: Removed levee on left bank.
Middle	161.606	2013 Updates: Removed levee on left bank.
Middle	161.538	2013 Updates: Removed levee on left bank.
Middle	161.473	2013 Updates: Removed levee on left bank.
Middle	161.42	2013 Updates: Removed right bank ineffective flow area.. Removed levee on left bank.
Middle	161.415	PA ROUTE 93. Adjusted ineffective flow areas on upstream and downstream cross-sections.
Middle	161.41	2013 Updates: Adjusted ineffective flow area on left bank. Removed right bank ineffective flow area..
Middle	161.382	2013 Updates: Removed right bank ineffective flow area.
Middle	161.304	2013 Updates: Removed right bank ineffective flow area.
Middle	161.231	2013 Updates: None.
Middle	161.155	2013 Updates: Changed levee on left bank (high ground) to ineffective flow area.
Middle	161.076	2013 Updates: Changed levee on left bank (high ground) to ineffective flow area.
Middle	160.992	2013 Updates: Changed levee on left bank (high ground) to ineffective flow area.
Middle	160.913	2013 Updates: Changed levee on left bank (high ground) to ineffective flow area.
Middle	160.834	2013 Updates: Changed levee on left bank (high ground) to ineffective flow area.
Middle	160.752	2013 Updates: Changed levee on left bank (high ground) to ineffective flow area.
Middle	160.669	2013 Updates: Changed levee on left bank (high ground) to ineffective flow area.
Middle	160.59	2013 Updates: Changed levee on left bank (high ground) to ineffective flow area.
Middle	160.508	2013 Updates: Added ineffective flow area in left bank. Changed levee on left bank (high ground) to ineffective flow area.
Middle	160.426	2013 Updates: Removed levee on right bank (none on ground). Changed levee on left bank (high ground) to ineffective flow area.
Middle	160.346	2013 Updates: Removed levee on right bank (none on ground). Changed levee on left bank (high ground) to ineffective flow area.
Middle	160.262	2013 Updates: Removed levee on right bank (none on ground). Changed levee on left bank (high ground) to ineffective flow area.
Middle	160.182	2013 Updates: Removed levee on right bank (none on ground). Changed levee on left bank (high ground) to ineffective flow area.
Middle	160.099	2013 Updates: Changed levee on left bank and right bank (high ground) to ineffective flow area.
Middle	160.022	2013 Updates: Changed levee on left bank and right bank (high ground) to ineffective flow area.
Middle	159.934	2013 Updates: Changed levee on left bank and right bank (high ground) to ineffective flow area.
Middle	159.855	2013 Updates: Changed levee on right bank (high ground) to ineffective flow area.
Middle	159.774	2013 Updates: Changed levee on right bank (high ground) to ineffective flow area.
Middle	159.695	2013 Updates: Changed levee on right bank (high ground) to ineffective flow area.
Middle	159.616	2013 Updates: Changed levee on right bank (high ground) to ineffective flow area.
Middle	159.533	2013 Updates: Changed levee on right bank (high ground) to ineffective flow area.d.
Middle	159.453	2013 Updates: Changed levee on right bank (high ground) to ineffective flow area.
Middle	159.368	2013 Updates: Changed levee on right bank (high ground) to ineffective flow area.
Middle	159.289	2013 Updates: Changed levee on right bank (high ground) to ineffective flow area.
Middle	159.207	2013 Updates: Changed levee on right bank (high ground) to ineffective flow area.
Middle	159.125	2013 Updates: Changed levee on right bank (high ground) to ineffective flow area.
Middle	159.044	2013 Updates: Changed levee on right bank (high ground) to ineffective flow area.
Middle	158.962	2013 Updates: Changed levee on right bank (high ground) to ineffective flow area and extended ineffective flow area.
Middle	158.884	2013 Updates: Changed levee on right bank (high ground) to ineffective flow area.
Middle	158.796	2013 Updates: Changed levee on right bank (high ground) to ineffective flow area.
Middle	158.722	2013 Updates: Changed levee on right bank (high ground) to ineffective flow area.
Middle	158.638	2013 Updates: Changed levee on right bank (high ground) to ineffective flow area.
Middle	158.561	Update 2013: Changed n value between Stations 3509-4432 to .12 to account for new warehouse building in floodplain. Changed levee on right bank (high ground) to ineffective flow area.
Middle	158.475	Update 2013: Changed n value between Stations 3482-4360 to .12 to account for new warehouse building in floodplain. Changed levee on right bank (high ground) to ineffective flow area.

Reach	HEC-RAS XS	2013 Updates
Middle	158.394	Update 2013: Changed n value between Stations 3580-4427 to .12 to account for new warehouse building in floodplain. Changed levee on right bank (high ground) to ineffective flow area.
Middle	158.313	Update 2013: Changed n value between Stations 3846-4628 to .12 to account for new warehouse building in floodplain. Extended cross-section on right bank. Changed levee on right bank (high ground) to ineffective flow area.
Middle	158.231	2013 Updates: Extended cross-section on right bank. Changed levee on right banlk to ineffective flow area for mapping purposes.
Middle	158.15	2013 Updates: Extended cross-section on right bank. Changed levee on right banlk to ineffective flow area for mapping purposes.
Middle	158.073	2013 Updates: Changed levee on right bank to ineffective flow area for mapping purposes.
Middle	157.987	Update 2013: Changed levee on right bank (high ground) to ineffective flow area.
Middle	157.906	Update 2013: Added ineffective flow area to left bank. Changed levee on right bank (high ground) to ineffective flow area.
Middle	157.831	Update 2013: Added ineffective flow area to left bank. Changed levee on right bank (high ground) to ineffective flow area.
Middle	157.759	Update 2013: Removed levee on right bank (none on ground). Added ineffective flow area to left bank.
Middle	157.682	Update 2013: Added ineffective flow area to left bank.
Middle	157.614	Update 2013: Added ineffective flow area to left bank.
Middle	157.538	Update 2013: Added ineffective flow area to left bank.
Middle	157.468	Update 2013: Added ineffective flow area to left bank. Removed levee from left bank (none on ground).
Middle	157.39	Update 2013: Added ineffective flow area to left bank. Removed levee from left bank (none on ground).
Middle	157.314	Update 2013: Added ineffective flow area to left bank. Removed levee from left bank (none on ground).
Middle	157.24	Update 2013: Changed levee on left bank (high ground) to ineffective flow area.
Middle	157.167	Update 2013: Changed levee on left bank (high ground) to ineffective flow area.
Middle	157.099	Update 2013: Changed levee on left bank (high ground) to ineffective flow area.
Middle	157.018	Update 2013: Changed levee on left bank (high ground) to ineffective flow area.
Middle	156.943	Update 2013: Changed levee on left bank (high ground) to ineffective flow area.
Middle	156.875	Update 2013: Removed levee from left bank.
Middle	156.807	Update 2013: Removed levee from left bank.
Middle	156.8	Update 2013: Removed levee from left bank.
Middle	156.79	MARKET STREET. 2013 Updates: None.
Middle	156.78	Update 2013: Removed levee from left bank.
Middle	156.723	Update 2013: Removed levee from left bank.
Middle	156.65	Update 2013: Changed levee on left bank (high ground) to ineffective flow area.
Middle	156.572	Update 2013: Changed levee on left bank (high ground) to ineffective flow area.
Middle	156.5	Update 2013: Removed ineffective flow area on right bank. Removed levee on left bank (none on ground).
Middle	156.429	Update 2013: Removed ineffective flow area on right bank. Removed levee on left bank (none on ground).
Middle	156.354	Update 2013: Removed ineffective flow area on right bank. Removed levee on left bank (none on ground).
Middle	156.284	Update 2013: Removed levee on left bank (none on ground).
Middle	156.205	Update 2013: Changed levee on left bank to ineffective flow area (no levee on ground-high ground),
Middle	156.129	Update 2013: Changed levee on left bank to ineffective flow area (no levee on ground-high ground),
Middle	156.058	Update 2013: Removed levee from left bank (no levee on ground-high ground).
Middle	155.984	Update 2013: Removed levee from left bank (no levee on ground-high ground).
Middle	155.92	Update 2013: Removed levee from left bank (no levee on ground-high ground). Adjusted ineffective flow areas.
Middle	155.9	U.S. ROUTE 80 WEST. 2013 Updates: Adjusted upstream and downstream ineffective flow areas.
Middle	155.88	Update 2013: Removed levee from left bank (no levee on ground-high ground). Adjuested ineffective flow areas.
Middle	155.875	U.S. ROUTE 80 EAST. 2013 Updates: Adjusted upstream and downstream ineffective flow areas.
Middle	155.82	Update 2013: Removed levee from left bank (no levee on ground-high ground). Adjusted ineffective flow areas.
Middle	155.8	Update 2013: Extended cross-section on left bank. Removed left bank levee (no levee-high ground), added t ineffective flow area and deleted ineffective flow area from right bank.
Middle	155.756	Update 2013: Replaced left bank levee (no levee-railroad) with ineffective flow area and deleted ineffective flow area from right bank.
Middle	155.691	Update 2013: Replaced left bank levee (no levee-railroad) with ineffective flow area and deleted ineffective flow area and levee from right bank.
Middle	155.611	Update 2013: Replaced left bank levee (no levee-railroad) and right bank levee (high ground) with ineffective flow areas.
Middle	155.54	Update 2013: Replaced left bank levee (no levee-railroad) and right bank levee (high ground) with ineffective flow areas.
Middle	155.459	Update 2013: Replaced left bank levee (no levee-railroad) and right bank levee (high ground) with ineffective flow areas.
Middle	155.388	Update 2013: Replaced left bank levee (no levee-railroad) and right bank levee (high ground) with ineffective flow areas.
Middle	155.312	Update 2013: Replaced left bank levee (no levee-railroad) and right bank levee (high ground) with ineffective flow areas.
Middle	155.236	Update 2013: Replaced right bank levee (high ground) with ineffective flow area.
Middle	155.156	Update 2013: Replaced right bank levee (high ground) with ineffective flow area.
Middle	155.082	Update 2013: None.

Reach	HEC-RAS XS	2013 Updates
Middle	155.006	Update 2013: None.
Middle	154.926	Update 2013: None.
Middle	154.857	Update 2013: None.
Middle	154.782	Update 2013: None.
Middle	154.705	Update 2013: None.
Middle	154.633	Update 2013: None.
Middle	154.553	Update 2013: None.
Middle	154.48	Update 2013: None.
Middle	154.406	Update 2013: None.
Middle	154.327	Update 2013: None.
Middle	154.251	Update 2013: None.
Middle	154.174	Update 2013: None.
Middle	154.098	Update 2013: None.
Middle	154.024	Update 2013: Replaced right bank levee (high ground) with ineffective flow area. Added ineffective flow area on left bank.
Middle	153.948	Update 2013: Replaced right bank levee (high ground) with ineffective flow area.
Middle	153.873	Update 2013: Replaced right bank levee (high ground) with ineffective flow area.
Middle	153.795	Update 2013: Replaced right bank levee (high ground) with ineffective flow area.
Middle	153.721	Update 2013: Replaced right bank levee (high ground) with ineffective flow area.
Middle	153.643	Update 2013: Replaced right bank levee (high ground) with ineffective flow area.
Middle	153.567	Update 2013: Replaced right bank levee (high ground) with ineffective flow area.
Middle	153.49	Update 2013: Replaced right bank levee (high ground) with ineffective flow area.
Middle	153.414	Update 2013: Replaced right bank levee (high ground) with ineffective flow area.
Middle	153.342	Update 2013: Replaced right bank levee (high ground) with ineffective flow area.
Middle	153.263	Update 2013: Replaced right bank levee (high ground) with ineffective flow area.
Middle	153.188	Update 2013: Replaced right bank levee (high ground) with ineffective flow area.
Middle	153.112	Update 2013: Replaced right bank levee (high ground) with ineffective flow area.
Middle	153.038	Update 2013: Replaced right bank levee (high ground) with ineffective flow area.
Middle	152.962	Update 2013: Replaced right bank levee (high ground) with ineffective flow area.
Middle	152.887	Update 2013: Replaced right bank levee (high ground) with ineffective flow area.
Middle	152.81	Update 2013: Replaced right bank levee (high ground) with ineffective flow area.
Middle	152.734	Update 2013: Replaced right bank levee (high ground) with ineffective flow area.
Middle	152.658	Update 2013: Replaced right bank levee (high ground) with ineffective flow area.
Middle	152.587	2013 Updates: Corrected channel issue on left bank. Channel was too narrow in original model. Replaced right bank levee (high ground) with ineffective flow area.
Middle	152.505	2013 Updates: Corrected channel issue on left bank. Channel was too narrow in original model. Replaced right bank levee (high ground) with ineffective flow area.
Middle	152.426	2013 Updates: Corrected channel issue on left bank. Channel was too narrow in original model. Replaced right bank levee (high ground) with ineffective flow area.
Middle	152.351	2013 Updates: Corrected channel issue on left bank. Channel was too narrow in original model. Replaced right bank levee (high ground) with ineffective flow area.
Middle	152.28	2013 Updates: Corrected channel issue on left bank. Channel was too narrow in original model. Replaced right bank levee (high ground) with ineffective flow area.
Middle	152.202	2013 Updates: Corrected channel issue on left bank. Channel was too narrow in original model. Replaced right bank levee (high ground) with ineffective flow area.
Middle	152.127	2013 Updates: Corrected channel issue on left bank. Channel was too narrow in original model. Replaced right bank levee (high ground) with ineffective flow area.
Middle	152.05	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area.
Middle	151.976	2013 Updates: Corrected channel issue on left bank. Channel was too narrow in original model. Replaced right bank levee (high ground) with ineffective flow area.
Middle	151.899	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area.
Middle	151.822	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area.
Middle	151.748	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area.
Middle	151.672	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area. Added ineffective flow area to left bank. Adjusted right bank ineffective flow area to account for entering tributary floodplain.
Middle	151.597	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area. Adjusted right bank ineffective flow area to account for entering tributary floodplain.
Middle	151.521	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area. Adjusted right bank ineffective flow area to account for entering tributary floodplain.
Middle	151.444	2013 Updates: Adjusted right bank ineffective flow area to account for entering tributary floodplain. Replaced right bank levee (high ground) with ineffective flow area.
Middle	151.365	2013 Updates: Adjusted right bank ineffective flow area to account for entering tributary floodplain. Replaced right bank levee (high ground) with ineffective flow area.
Middle	151.288	2013 Updates: Replaced right bank levee (split flow) with ineffective flow area.
Middle	151.217	2013 Updates: Replaced right bank levee (split flow) with ineffective flow area.
Middle	151.144	2013 Updates: Replaced right bank levee (split flow) with ineffective flow area.
Middle	151.066	2013 Updates: Replaced right bank levee (split flow) with ineffective flow area.
Middle	150.988	2013 Updates: Replaced right bank levee (split flow) with ineffective flow area.
Middle	150.91	2013 Updates: Replaced right bank levee (split flow) with ineffective flow area.
Middle	150.838	2013 Updates: Replaced right bank levee (split flow) with ineffective flow area.

Reach	HEC-RAS XS	2013 Updates
Middle	150.764	2013 Updates: Replaced right bank levee (split flow) with ineffective flow area.
Middle	150.686	2013 Updates: Replaced right bank levee (split flow) with ineffective flow area.
Middle	150.609	2013 Updates: Replaced right bank levee (split flow) with ineffective flow area.
Middle	150.533	2013 Updates: Replaced right bank levee (split flow) with ineffective flow area.
Middle	150.456	2013 Updates: Replaced right bank levee (split flow) with ineffective flow area.
Middle	150.382	2013 Updates: Replaced right bank levee (split flow) with ineffective flow area.
Middle	150.309	2013 Updates: Replaced right bank levee (split flow) with ineffective flow area.
Middle	150.233	2013 Updates: Replaced right bank levee (split flow) with ineffective flow area.
Middle	150.158	2013 Updates: Replaced right bank levee (split flow) with ineffective flow area.
Middle	150.076	2013 Updates: Replaced right bank levee (split flow) with ineffective flow area.
Middle	150.001	2013 Updates: Replaced right bank levee (split flow) with ineffective flow area.
Middle	149.932	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area.
Middle	149.851	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area.
Middle	149.775	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area.
Middle	149.699	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area.
Middle	149.625	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area.
Middle	149.546	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area.
Middle	149.469	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area. Removed ineffective flow area from left bank.
Middle	149.403	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area. Added ineffective flow area to left bank.
Middle	149.382	2013 Updates: Removed right bank levee (high ground).
Middle	149.376	PA ROUTE 487. 2013 Update: Replaced levee (high ground) on right bank upstream and downstream with ineffective flow area.
Middle	149.37	2013 Updates: Removed right bank levee (high ground).
Middle	149.327	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area.
Middle	149.249	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area.
Middle	149.167	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area.
Middle	149.098	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area.
Middle	149.022	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area.
Middle	148.947	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area.
Middle	148.863	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area. Increased right bank ineffective flow elevation at station 2800.
Middle	148.795	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area.
Middle	148.718	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area. Adjusted and added ineffective flow area on right bank.
Middle	148.639	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area. Adjusted and added ineffective flow area on right bank.
Middle	148.561	2013 Updates: Removed levee in right bank (no levee on ground).
Middle	148.486	Update 2013: Extended cross-section on right bank. Changed levee at 1383.29 to ineffective flow area (no levee-high ground).
Middle	148.413	Update 2013: Extended cross-section on right bank. Changed levee at 1525.86 to ineffective flow area (no levee-high ground).
Middle	148.334	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area.
Middle	148.259	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area.
Middle	148.185	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area.
Middle	148.113	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area.
Middle	148.035	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area.
Middle	147.955	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area.
Middle	147.88	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area.
Middle	147.802	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area.
Middle	147.728	2013 Updates: Replaced right bank levee (high ground) with ineffective flow area.
Middle	147.643	2013 Updates: None.
Middle	147.573	2013 Updates: None.
Middle	147.502	2013 Updates: None.
Middle	147.425	2013 Updates: None.
Middle	147.355	2013 Updates: None.
Middle	147.3	XS skewed 40 degrees. 2013 Updates: None.
Middle	147.25	RAILROAD. 2013 Updates: None. Ineffective flow area encroaches into opening due to skew.
Middle	147.2	XS skewed 40 degrees. 2013 Updates: None.
Middle	147.188	2013 Updates: None. Ineffective flow area encroaches into channel due to skew of upstream cross-section.
Middle	147.114	2013 Updates: Removed levee from left bank (railroad). Ineffective flow area encroaches into channel due to skew of upstream cross-section.
Middle	147.033	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area. Ineffective flow area encroaches into channel due to skew of upstream cross-section.
Middle	146.952	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area. Adjusted right bank ineffective flow area.
Middle	146.876	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area. Removed other ineffective flow areas.
Middle	146.796	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area.

Reach	HEC-RAS XS	2013 Updates
Middle	146.718	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area.
Middle	146.641	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area.
Middle	146.562	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area.
Middle	146.481	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area.
Middle	146.404	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area.
Middle	146.328	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area.
Middle	146.246	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area. Added ineffective flow area in left bank for tributary floodplain.
Middle	146.17	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area.
Middle	146.092	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area. Removed other ineffective flow areas.
Middle	146.01	2013 Updates: Changed levee in left bank (railroad) to ineffective flow area.
Middle	145.95	2013 Updates: Removed levee in left bank. Adjusted left bank ineffective flow area.
Middle	145.949	PA ROUTE 42: 2013 Updates: Adjusted ineffective flow areas.
Middle	145.94	2013 Updates: None.
Middle	145.923	2013 Updates: None.
Middle	145.869	Updates 2013: Revised ineffective flow area left bank.
Middle	145.838	Updates 2013: None
Middle	145.772	Updates 2013: None
Middle	145.701	Updates 2013: None
Middle	145.619	Updates 2013: None
Middle	145.546	Updates 2013: None
Middle	145.471	Updates 2013: None
Middle	145.394	Updates 2013: None
Middle	145.315	Updates 2013: None
Middle	145.242	Updates 2013: None
Middle	145.162	Updates 2013: None
Middle	145.08	Updates 2013: None
Middle	145.007	Updates 2013: None
Middle	144.934	Updates 2013: None
Middle	144.853	Updates 2013: None
Middle	144.776	Updates 2013: Added right bank ineffective flow area.
Middle	144.702	Updates 2013: None
Middle	144.62	Updates 2013: None
Middle	144.544	Updates 2013: None
Middle	144.466	Updates 2013: None
Middle	144.393	Updates 2013: None
Middle	144.314	Updates 2013: None
Middle	144.242	Updates 2013: None
Middle	144.162	Updates 2013: None
Middle	144.089	Updates 2013: None
Middle	144.009	Updates 2013: None
Middle	143.935	Updates 2013: None
Middle	143.856	Updates 2013: None
Middle	143.779	Updates 2013: None
Middle	143.699	Updates 2013: None
Middle	143.623	Updates 2013: None
Middle	143.547	Updates 2013: None
Middle	143.471	Updates 2013: None
Middle	143.428	Updates 2013: Adjusted right bank ineffective flow area.
Middle	143.377	Updates 2013: None
Middle	143.314	Updates 2013: None
Middle	143.241	Updates 2013: None
Middle	143.161	Updates 2013: None
Middle	143.087	Updates 2013: None
Middle	143.011	Updates 2013: None
Middle	142.935	Updates 2013: None
Middle	142.859	Updates 2013: None
Middle	142.781	Updates 2013: None
Middle	142.701	Updates 2013: None
Middle	142.624	Updates 2013: None
Middle	142.544	Updates 2013: None
Middle	142.436	Updates 2013: None
Middle	142.381	Updates 2013: None
Middle	142.312	Updates 2013: None
Middle	142.236	Updates 2013: None
Middle	142.156	Updates 2013: None
Middle	142.077	Updates 2013: None
Middle	142.001	Updates 2013: None
Middle	141.923	Updates 2013: None

Reach	HEC-RAS XS	2013 Updates
Middle	141.838	Updates 2013: None
Middle	141.759	Updates 2013: None
Middle	141.68	Updates 2013: None
Middle	141.6	Updates 2013: None
Middle	141.523	Updates 2013: None
Middle	141.456	Updates 2013: None
Middle	141.368	Updates 2013: None
Middle	141.285	Updates 2013: None
Middle	141.202	Updates 2013: None
Middle	141.122	Updates 2013: None
Middle	141.045	Updates 2013: None
Middle	140.959	Updates 2013: None
Middle	140.878	Updates 2013: Adjusted left bank ineffective flow area.
Middle	140.81	Updates 2013: None
Middle	140.732	Updates 2013: None
Middle	140.662	Updates 2013: None
Middle	140.588	Updates 2013: None
Middle	140.513	Updates 2013: None
Middle	140.44	Updates 2013: None
Middle	140.361	Updates 2013: None
Middle	140.285	Updates 2013: None
Middle	140.215	Updates 2013: None
Middle	140.126	Updates 2013: None
Middle	140.038	Updates 2013: None
Middle	139.965	Updates 2013: None
Middle	139.87	Updates 2013: None
Middle	139.774	Updates 2013: None
Middle	139.696	Updates 2013: None
Middle	139.611	Updates 2013: Removed ineffective flow from left bank.
Middle	139.547	Updates 2013: Removed ineffective flow from left bank.
Middle	139.479	Updates 2013: Removed ineffective flow from left bank.
Middle	139.392	Updates 2013: Adjusted ineffective flow in left bank.
Middle	139.326	Updates 2013: Removed ineffective flow from left bank.
Middle	139.245	Updates 2013: Removed ineffective flow from left bank.
Middle	139.168	Updates 2013: Removed ineffective flow from left bank.
Middle	139.111	Updates 2013: Removed ineffective flow from left bank.
Middle	139.058	Updates 2013: Removed ineffective flow from left bank.
Middle	139.009	Updates 2013: Adjusted ineffective flow in left bank.
Middle	138.96	Updates 2013: Adjusted ineffective flow in left bank.
Middle	138.883	Updates 2013: Removed ineffective flow from left bank.
Middle	138.804	Updates 2013: Removed ineffective flow from left bank.
Middle	138.72	Updates 2013: Removed ineffective flow from left bank.
Middle	138.645	Updates 2013: Added ineffective flow area on right bank for downstream Danville levee.
Middle	138.586	Updates 2013: Added ineffective flow area on right bank for downstream Danville levee.
Middle	138.528	2013 Updates: Right bank Danville Levee.Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 460.2, Adjusted ineffective flow area on right bank. Another levee at 2600 not shown.
Middle	138.463	2013 Updates: Right bank Danville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 457.5, old top 460.6.
Middle	138.4	2013 Updates: Right bank Danville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 456.6, old top 459.9.
Middle	138.337	2013 Updates: Right bank Danville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 455.9, old top 459.9.
Middle	138.278	2013 Updates: Right bank Danville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 454.6, old top 460.3.
Middle	138.2	2013 Updates: Right bank Danville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 454.9, old top 458.0.
Middle	138.124	2013 Updates: Right bank Danville Levee, upstream termination. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 466.2, old top 466.8. Levee also at Station 2556 (not shown). Added ineffective flow area on right bank.
Middle	138.046	2013 Updates: Right bank Danville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 466.2, old top 467.0.
Middle	137.965	2013 Updates: Right bank Danville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 465.8, old top 468.0.
Middle	137.894	2013 Updates: Right bank Danville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 465.9, old top 467.5.
Middle	137.82	2013 Updates: Right bank Danville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 465.9, old top 467.5.
Middle	137.744	2013 Updates: Right bank Danville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 465.8, old top 467.5.

Reach	HEC-RAS XS	2013 Updates
Middle	137.653	2013 Updates: Right bank Danville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 465.7. Deleted levee on left bank (high ground). Added ineffective flow area on left babk.
Middle	137.593	2013 Updates: Right bank Danville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 465.4, old top 467.0.
Middle	137.524	2013 Updates: Right bank Danville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 465.1, old top 467.2.
Middle	137.442	2013 Updates: Right bank Danville Levee (termination). Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 464.8, old top 466.5. Added ineffective flow area on right bank.
Middle	137.314	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area.
Middle	137.223	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area.
Middle	137.128	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area. Added ineffective flow area on left bank.
Middle	137.067	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area.
Middle	136.945	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area.
Middle	136.906	2013 Updates: Changed levee in right bank (high ground) to ineffective flow area.
Middle	136.9	PA ROUTE 54. 2013 Updates: Adjusted ineffective flow areas.
Middle	136.857	2013 Updates: Right bank Danville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 464.6, re-located levee to Station 2490 (from 2512.02). Adjusted right bank ineffective flow area. Floodwall at 3393 and another levee at 3897.
Middle	136.792	2013 Updates: Right bank Danville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 464.7, old top 465.8. Adjusted right bank ineffective flow area. Floodwall at 3392 and another levee at 3538.
Middle	136.722	2013 Updates: Right bank Danville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 464.6, old top 466.0. Adjusted right bank ineffective flow area. Floodwall at 3512 and another levee at 3662.
Middle	136.633	2013 Updates: Right bank Danville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 464.6, old top 464.7. Adjusted right bank ineffective flow area. Another levee at 3766 and another levee at 3940.
Middle	136.546	2013 Updates: Right bank Danville Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 464.3, old top 464.7. Adjusted right bank ineffective flow area. Another levee at 3737 and another levee at 3903.
Middle	136.466	2013 Updates: Right bank Danville Levee (termination). Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 464.2, old top 464.3. Adjusted right bank ineffective flow area. Another levee at 3720 and another levee at 4169.
Middle	136.394	2013 Updates: Lowered right bank ineffective flow elevation so 500-year profile is effective.
Middle	136.324	2013 Updates: Lowered right bank ineffective flow elevation so 500-year profile is effective.
Middle	136.248	2013 Updates: Lowered right bank ineffective flow elevation so 500-year profile is effective.
Middle	136.148	2013 Updates: Lowered right bank ineffective flow elevation so 500-year profile is effective.
Middle	136.037	2013 Updates: Lowered right bank ineffective flow elevation so 500-year profile is effective.
Middle	135.926	2013 Updates: Lowered right bank ineffective flow elevation so 500-year profile is effective.
Middle	135.823	2013 Updates: Lowered right bank ineffective flow elevation so 500-year profile is effective.
Middle	135.72	2013 Updates: None.
Middle	135.599	2013 Updates: None.
Middle	135.497	2013 Updates: None.
Middle	135.387	2013 Updates: Changed left bank levee (high ground) to ineffective flow area.
Middle	135.315	2013 Updates: Changed left bank levee (high ground) to ineffective flow area.
Middle	135.242	2013 Updates: Changed left bank levee (high ground) to ineffective flow area.
Middle	135.174	2013 Updates: Changed left bank levee (high ground) to ineffective flow area.
Middle	135.102	2013 Updates: Changed left bank levee (high ground) to ineffective flow area.
Middle	135.032	2013 Updates: Changed left bank levee (high ground) to ineffective flow area.
Middle	134.959	2013 Updates: Changed left bank levee (high ground) to ineffective flow area.
Middle	134.884	2013 Updates: Changed left bank levee (high ground) to ineffective flow area.
Middle	134.815	2013 Updates: Changed left bank levee (high ground) to ineffective flow area.
Middle	134.74	2013 Updates: Changed left bank levee (high ground) to ineffective flow area.
Middle	134.671	2013 Updates: Changed left bank levee (high ground) to ineffective flow area.
Middle	134.596	2013 Updates: Changed left bank levee (high ground) to ineffective flow area.
Middle	134.497	2013 Updates: Changed left bank levee (high ground) to ineffective flow area.
Middle	134.413	2013 Updates: Changed left bank levee (railroad) to ineffective flow area. Added ineffective flow area on left bank.
Middle	134.341	2013 Updates: Changed left bank levee (railroad) to ineffective flow area. Added ineffective flow area on left bank.
Middle	134.282	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Middle	134.227	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Middle	134.148	2013 Updates: Changed left bank levee (railroad) to ineffective flow area. Added ineffective flow area on left bank.
Middle	134.074	2013 Updates: Changed left bank levee (railroad) to ineffective flow area. Added ineffective flow area on left bank.
Middle	133.981	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Middle	133.868	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Middle	133.793	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.

Reach	HEC-RAS XS	2013 Updates
Middle	133.723	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Middle	133.637	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Middle	133.561	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Middle	133.489	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Middle	133.416	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Middle	133.332	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Middle	133.252	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Middle	133.178	2013 Updates: Changed left bank levee (railroad) to ineffective flow area. Added ineffective flow area to right bank.
Middle	133.107	2013 Updates: Changed left bank levee (railroad) to ineffective flow area. Added ineffective flow area to right bank.
Middle	133.022	2013 Updates: Changed left bank levee (railroad) to ineffective flow area. Added ineffective flow area to right bank.
Middle	132.956	2013 Updates: Changed left bank levee (railroad) and right bank (high ground) levee to ineffective flow area.
Middle	132.876	2013 Updates: Changed left bank levee (railroad) and right bank (high ground) levee to ineffective flow area.
Middle	132.804	2013 Updates: Changed left bank levee (railroad) and right bank (railroad) levee to ineffective flow area.
Middle	132.72	2013 Updates: Changed left bank levee (railroad) and right bank (railroad) levee to ineffective flow area.
Middle	132.635	2013 Updates: Changed left bank levee (railroad) and right bank (railroad) levee to ineffective flow area.
Middle	132.569	2013 Updates: Changed left bank levee (railroad) and right bank (railroad) levee to ineffective flow area.
Middle	132.488	2013 Updates: Changed left bank levee (railroad) and right bank (railroad) levee to ineffective flow area.
Middle	132.411	2013 Updates: Changed left bank levee (railroad) and right bank (railroad) levee to ineffective flow area.
Middle	132.331	2013 Updates:Removed left bank levee (none on ground) and changed right bank (railroad) levee to ineffective flow area.
Middle	132.26	2013 Updates: Changed right bank levee (railroad) to ineffective flow area.
Middle	132.182	2013 Updates: Removed right bank levee (none on ground).
Middle	132.11	2013 Updates: Removed right bank levee (none on ground).
Middle	132.031	2013 Updates: Removed right bank levee (none on ground).
Middle	131.944	2013 Updates: Removed right bank levee (none on ground). Added ineffective flow area to left bank and right bank.
Middle	131.875	2013 Updates: Changed right bank levee (railroad) to ineffective flow area. Added ineffective flow area to right bank.
Middle	131.803	2013 Updates: Changed right bank levee (railroad) to ineffective flow area.
Middle	131.724	2013 Updates: Changed right bank levee (railroad) to ineffective flow area.
Middle	131.649	2013 Updates: Changed right bank levee (railroad) to ineffective flow area.
Middle	131.571	2013 Updates: Changed right bank levee (railroad) to ineffective flow area. Added ineffective flow area to right bank.
Middle	131.492	2013 Updates: Changed right bank levee (railroad) to ineffective flow area. Added ineffective flow area to right bank.
Middle	131.42	2013 Updates: Changed right bank levee (railroad) to ineffective flow area.
Middle	131.343	2013 Updates: Removed right bank levee (none on ground).
Middle	131.264	2013 Updates: Changed right bank levee (railroad) to ineffective flow area.
Middle	131.192	2013 Updates: Changed right bank levee (railroad) to ineffective flow area.
Middle	131.109	2013 Updates: Removed right bank levee (none on ground).
Middle	131.033	2013 Updates: Removed right bank levee (none on ground).
Middle	130.962	2013 Updates: Changed right bank levee (railroad) to ineffective flow area.
Middle	130.892	2013 Updates: Changed right bank levee (railroad) to ineffective flow area. Added ineffective flow area to right bank.
Middle	130.823	2013 Updates: Changed right bank levee (railroad) to ineffective flow area. Added ineffective flow area to right bank. Removed ineffective flow area on left bank.
Middle	130.73	2013 Updates: Changed right bank levee (railroad) to ineffective flow area.
Middle	130.619	Update 2013: Removed ineffective flow area for all profiles on right bank. Changed right bank levee (high ground) to ineffective flow area. Added ineffective flow area on right bank for railroad.
Middle	130.497	Update 2013: Removed ineffective flow area for all profiles on right bank. Removed ineffective flow area on left bank. Changed right bank levee (high ground) to ineffective flow area.
Middle	130.418	Update 2013: Removed ineffective flow area for all profiles on right bank. Removed ineffective flow area on left bank. Changed right bank levee (high ground) to ineffective flow area.
Middle	130.338	Update 2013: Removed ineffective flow area for all profiles on right bank. Changed right bank levee (high ground) to ineffective flow area.
Middle	130.273	Update 2013: Removed ineffective flow area for all profiles on right bank.Changed right bank levee (high ground) to ineffective flow area.
Middle	130.198	Update 2013: Removed ineffective flow area for all profiles on right bank. Changed right bank levee (high ground) to ineffective flow area.
Middle	130.114	Update 2013:Changed right bank levee (high ground) to ineffective flow area.
Middle	130.039	Update 2013:Changed right bank levee (high ground) to ineffective flow area.
Middle	129.965	Update 2013:Changed right bank levee (high ground) to ineffective flow area.
Middle	129.887	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Middle	129.81	Update 2013:Changed right bank levee (high ground) to ineffective flow area.
Middle	129.735	Update 2013:Changed right bank levee (high ground) to ineffective flow area.
Middle	129.655	Update 2013:Changed right bank levee (high ground) to ineffective flow area.

Reach	HEC-RAS XS	2013 Updates
Middle	129.582	Update 2013:Changed right bank levee (high ground) to ineffective flow area. Added ineffective flow area to left bank.
Middle	129.469	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Middle	129.35	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Middle	129.278	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Middle	129.197	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Middle	129.124	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Middle	129.049	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Middle	128.971	Update 2013: Changed right bank levee (high ground) to ineffective flow area. Added ineffective flow area to right bank.
Middle	128.894	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Middle	128.822	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Middle	128.742	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Middle	128.668	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Middle	128.587	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Middle	128.511	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Middle	128.436	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Middle	128.355	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Middle	128.284	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Middle	128.2	Update 2013: Removed right bank levee (none on ground).
Middle	128.133	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Middle	128.056	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Middle	127.976	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Middle	127.903	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Middle	127.82	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Middle	127.743	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Middle	127.669	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Middle	127.594	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Middle	127.522	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Middle	127.442	Update 2013: Added ineffective flow area in right split flow area to be consistent with upstream and downstream cross-sections.
Packers Right Up	127.302	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Packers Right Up	127.233	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Packers Right Up	127.165	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Packers Right Up	127.095	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Packers Right Up	127.029	Update 2013: Removed right bank levee (none on ground).
Packers Right Up	126.961	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Packers Right Up	126.899	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Packers Right Up	126.826	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Packers Right Up	126.757	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Packers Right Up	126.692	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Packers Right Up	126.628	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Packers Right Up	126.569	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Packers Right Up	126.498	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Packers Right Up	126.434	Update 2013: Changed right bank levee (high ground) to ineffective flow area.
Packers Right Up	126.366	Update 2013: Changed right bank levee (high ground) to ineffective flow area. Removed left bank ineffective flow area.
Packers Right Up	126.3	Update 2013: Removed levee in right bank.
Packers Right Up	126.287	Update 2013: Removed left bank ineffective flow area. Removed levee from right bank.
Packers Right Up	126.28	PA ROUTE 147. Update 2013: Removed left bank ineffective flow areas upstream and downstream. Flow would be effective over the roadway per upstream and downstream sections.
Packers Right Up	126.272	Update 2013: Removed left bank ineffective flow area. Adjusted right bank ineffective flow area. Removed levee from right bank.
Packers Right Up	126.18	Update 2013: Changed right bank levee (railroad) to ineffective flow area. Adjusted left bank ineffective flow area.
Packers Right Up	126.102	Update 2013: Changed right bank levee (railroad) to ineffective flow area.
Packers Right Up	126.07	Update 2013: Removed right bank levee.
Packers Right Up	126.065	RAILROAD. Update 2013: None.
Packers Right Up	126.06	Update 2013: Removed right bank levee.
Packers Right Up	126.034	Update 2013: None.
Packers Right Up	125.974	Update 2013: Removed right bank levee.
Packers Right Dn	125.758	2013 Updates: None.
Packers Right Dn	125.692	2013 Updates: None.
Packers Right Dn	125.636	2013 Updates: Added ineffective flow area to left bank.
Packers Left	127.312	Update 2013: None.
Packers Left	127.243	Update 2013: None.
Packers Left	127.177	Update 2013: None.
Packers Left	127.108	Update 2013: None.
Packers Left	127.037	Update 2013: None.
Packers Left	126.963	Update 2013: None.

Reach	HEC-RAS XS	2013 Updates
Packers Left	126.899	Update 2013: None.
Packers Left	126.835	Update 2013: None.
Packers Left	126.765	Update 2013: None.
Packers Left	126.692	Update 2013: Added ineffective flow area to left bank. Changed left bank levee (railroad) to ineffective flow area.
Packers Left	126.63	Update 2013: Changed left bank levee (railroad) to ineffective flow area.
Packers Left	126.563	Update 2013: Changed left bank levee (railroad) to ineffective flow area.
Packers Left	126.489	Update 2013: Changed left bank levee (railroad) to ineffective flow area.
Packers Left	126.427	Update 2013: Changed left bank levee (railroad) to ineffective flow area.
Packers Left	126.378	Update 2013: Changed left bank levee (railroad) to ineffective flow area. Added ineffective flow area to left bank.
Packers Left	126.304	Update 2013: Changed left bank levee (railroad) to ineffective flow area.
Packers Left	126.209	Update 2013: Changed left bank levee (railroad) to ineffective flow area. Added left bank ineffective flow area for contraction with downstream Sunbury Levee,
Packers Left	126.148	Update 2013: Changed left bank levee (railroad) to ineffective flow area. Added left bank ineffective flow area for contraction with downstream Sunbury Levee,
Packers Left	126.077	Update 2013: Changed left bank levee (railroad) to ineffective flow area. Sunbury Levee begins just downstream on this section. Ineffective flow area elevation on left bank set to top of levee.
Packers Left	126.017	2013 Updates: Left bank Sunbury Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 454.8, old top 454.8.
Packers Left	125.996	2013 Updates: Left bank Sunbury Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 454.8, old top 455.6. Adjusted ineffective flow areas.
Packers Left	125.989	PA ROUTE 147. 2013 Updates: Adjusted upstream and downstream ineffective flow areas.
Packers Left	125.981	2013 Updates: Left bank Sunbury Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 454.6, old top 454.1. Adjusted ineffective flow areas.
Packers Left	125.962	2013 Updates: Left bank Sunbury Floodwall. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 454.5, old top 452.0. Removed ineffective flow areas encroaching into channel.
Packers Left	125.93	2013 Updates: Left bank Sunbury Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 454.1, old top 452.2. Adjusted left bank ineffective flow area.
Packers Left	125.925	RAILROAD. 2013 Updates: Adjusted ineffective flow areas.
Packers Left	125.92	2013 Updates: Left bank Sunbury Floodwall. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 454.0, old top 452.4. Adjusted left bank ineffective flow area.
Packers Left	125.782	2013 Updates: Left bank Sunbury Floodwall. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 454.2, old top 451.9.
Packers Left	125.682	2013 Updates: Left bank Sunbury Levee. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 454.0, old top 452.0.
Downstream	125.39	2013 Updates: Left bank Sunbury Floodwall. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 453.1, old top 449.2.
Downstream	125.23	2013 Updates: Left bank Sunbury Floodwall. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 452.6, old top 449.0.
Downstream	125.15	2013 Updates: Left bank Sunbury Floodwall. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 452.6, old top 449.0.
Downstream	125.05	2013 Updates: Left bank Sunbury Floodwall. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 452.1, old top 448.9.
Downstream	124.95	2013 Updates: Left bank Sunbury Floodwall. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 452.0, old top 448.8.
Downstream	124.83	2013 Updates: Left bank Sunbury Floodwall. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 452.1, old top 448.7.
Downstream	124.72	2013 Updates: Left bank Sunbury Floodwall. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 451.5, old top 448.6
Downstream	124.57	2013 Updates: Left bank Sunbury Floodwall. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 451.5, old top 448.5.
Downstream	124.39	2013 Updates: Left Bank Sunbury Floodwall. Re-aligned cross-section Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 451.3, old top 448.2. PASDA LIDAR data used for left overbank area.
Downstream	124.29	2013 Updates: Left Bank Sunbury Floodwall. Re-aligned cross-section Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 449.9, old top 448.2. PASDA LIDAR data used for left overbank area. Shamokin Creek levee at 7127 (not shown as levee).
Downstream	124.18	2013 Updates: Left Bank Sunbury Floodwall. Re-aligned cross-section Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 449.9, old top 448.2. PASDA LIDAR data used for left overbank area. Shamokin Creek levee at 4138 (not shown as levee).
Downstream	124.08	2013 Updates: Left Bank Sunbury Floodwall. Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 449.5, old top 448.3. Shamokin Creek levee at 786 (not shown as levee).
Downstream	123.99	2013 Updates: Left Bank Sunbury Floodwall. Re-aligned cross-section Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 449.6, old top 448.2. PASDA LIDAR data used for left overbank area. Shamokin Creek levee at 1360 (not shown as levee).
Downstream	123.89	2013 Updates: Left Bank Sunbury Floodwall. Re-aligned cross-section Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 449.6, old top 448.3. PASDA LIDAR data used for left overbank area. Shamokin Creek levee at 1715 (not shown as levee). Deleted ineffective flow area in channel and added ineffective flow area for right bank tributary floodplain.

Reach	HEC-RAS XS	2013 Updates
Downstream	123.82	2013 Updates: Left Bank Sunbury Floodwall. Re-aligned cross-section Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 449.5, old top 448.3. PASDA LIDAR data used for left overbank area. Shamokin Creek levee at 1662 (not shown as levee). Deleted ineffective flow area in right overbank area.
Downstream	123.74	2013 Updates: Left Bank Sunbury Floodwall. Re-aligned cross-section Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 449.1, old top 448.1. PASDA LIDAR data used for left overbank area. Shamokin Creek levee at 1400 (not shown as levee).
Downstream	123.65	2013 Updates: Left Bank Sunbury Floodwall. Re-aligned cross-section Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 449.0, old top 456.9. PASDA LIDAR data used for left overbank area. Shamokin Creek levee at 1228 (not shown as levee).
Downstream	123.64	PA ROUTE 61. 2013 Updates: Upstream and downstream cross-sections extended.
Downstream	123.63	2013 Updates: Left Bank Sunbury Floodwall. Re-aligned cross-section Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 449.1, old top 454.7. PASDA LIDAR data used for left overbank area. Shamokin Creek levee at 1165 (not shown as levee).
Downstream	123.58	2013 Updates: Left Bank Sunbury Floodwall. Re-aligned cross-section Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 449.0, old top 448.29. PASDA LIDAR data used for left overbank area. Shamokin Creek levee at 1245 (not shown as levee). Changed right bank levee (railroad) to ineffective flow area.
Downstream	123.51	2013 Updates: Left Bank Sunbury Floodwall. Re-aligned cross-section Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 448.9, old top 448.3. PASDA LIDAR data used for left overbank area. Shamokin Creek levee at 1230 (not shown as levee). Slightly adjusted ineffective flow areas. Changed right bank levee (railroad) to ineffective flow area.
Downstream	123.43	2013 Updates: Left Bank Sunbury Levee. Re-aligned cross-section Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 448.3, old top 448.2. PASDA LIDAR data used for left overbank area. Shamokin Creek levee at 1273 (not shown as levee). Changed right bank levee (railroad) to ineffective flow area.
Downstream	123.36	2013 Updates: Left Bank Sunbury Levee. Re-aligned cross-section Adjusted Top of Protection based on NLD 14-Aug-2012, Top elevation of 448.2, old top 448.3. PASDA LIDAR data used for left overbank area. Shamokin Creek levee at 965 (not shown as levee). Changed right bank levee (railroad) to ineffective flow area.
Downstream	123.29	2013 Updates: Left Bank Sunbury Levee (termination). Top elevation of 448.1, old top 448.8. Changed right bank levee (railroad) to ineffective flow area
Downstream	123.21	2013 Updates: Added left bank ineffective flow area for expansion from upstream levee for all profiles except 500-year. Changed right bank levee (railroad) to ineffective flow area
Downstream	123.14	2013 Updates: Changed right bank levee (railroad) to ineffective flow area
Downstream	123.06	2013 Updates: Changed right bank levee (railroad) to ineffective flow area
Downstream	122.98	2013 Updates: Changed right bank levee (railroad) to ineffective flow area
Downstream	122.9	2013 Updates: Changed right bank levee (railroad) to ineffective flow area
Downstream	122.83	2013 Updates: Changed right bank levee (railroad) to ineffective flow area
Downstream	122.77	2013 Updates: Changed right bank levee (railroad) to ineffective flow area
Downstream	122.69	2013 Updates: Changed right bank levee (railroad) to ineffective flow area
Downstream	122.62	2013 Updates: Changed right bank levee (railroad) to ineffective flow area
Downstream	122.52	2013 Updates: Changed right bank levee (railroad) to ineffective flow area. Added ineffective flow area to left bank for tributary.
Downstream	122.41	2013 Updates: Changed right bank levee (railroad) to ineffective flow area. Added ineffective flow area to left bank for tributary.
Downstream	122.35	2013 Updates: Added ineffective flow area to right bank.
Downstream	122.3	2013 Updates: Added ineffective flow area to right bank.
Downstream	122.24	2013 Updates: Added ineffective flow area to right bank.
Downstream	122.19	2013 Updates: Added ineffective flow area to right bank.
Downstream	122.12	2013 Updates: None.
Downstream	122.01	2013 Updates: Changed right bank levee (high ground) to ineffective flow area.
Downstream	121.91	2013 Updates: Changed right bank levee (high ground) to ineffective flow area.
Downstream	121.84	2013 Updates: Changed right bank levee (high ground) to ineffective flow area.
Downstream	121.77	2013 Updates: Changed right bank levee (high ground) to ineffective flow area.
Downstream	121.69	2013 Updates: Changed right bank levee (high ground) to ineffective flow area.
Downstream	121.61	2013 Updates: Changed right bank levee (high ground) to ineffective flow area.
Downstream	121.53	2013 Updates: Changed right bank levee (high ground) to ineffective flow area.
Downstream	121.46	2013 Updates: Changed right bank levee (railroad) to ineffective flow area.. Added ineffective flow area to right bank.
Downstream	121.38	2013 Updates: Changed right bank levee (railroad) to ineffective flow area.
Downstream	121.31	2013 Updates: Changed right bank levee (railroad) to ineffective flow area.
Downstream	121.24	2013 Updates: Changed right bank levee (railroad) to ineffective flow area.
Downstream	121.16	2013 Updates: Changed right bank levee (railroad) to ineffective flow area.
Downstream	121.08	2013 Updates: Changed right bank levee (railroad) to ineffective flow area. Added ineffective flow area to right bank.
Downstream	121.01	2013 Updates: Changed right bank levee (railroad) to ineffective flow area.
Downstream	120.93	2013 Updates: Changed right bank levee (railroad) to ineffective flow area.
Downstream	120.8	2013 Updates: Changed right bank levee (railroad) to ineffective flow area.
Downstream	120.68	2013 Updates: Changed right bank levee (railroad) to ineffective flow area. Added ineffective flow area to left bank.

Reach	HEC-RAS XS	2013 Updates
Downstream	120.61	2013 Updates: Changed right bank levee (railroad) to ineffective flow area. Increased right bank ineffective flow area so all profiles are ineffective (from downstream interchange). Added ineffective flow area to left bank.
Downstream	120.5	2013 Updates: Changed right bank levee (railroad) to ineffective flow area. Added ineffective flow area to left bank.
Downstream	120.43	2013 Updates: Changed right bank levee (road) to ineffective flow area.
Downstream	120.33	2013 Updates: Removed levee from right bank (road).
Downstream	120.2	2013 Updates: Extended cross-section on right bank. Extended ineffective flow area on right bank. Removed levee from right bank (road).
Downstream	120.13	2013 Updates: Extended cross-section on right bank. Extended and raised ineffective flow area on right bank. Removed levee from right bank (road).
Downstream	120.06	2013 Updates: Removed levee from right bank (road).
Downstream	119.94	2013 Updates: Removed levee from right bank (road). Adjusted ineffective flow areas.
Downstream	119.86	2013 Updates: Changed right bank levee (road) to ineffective flow area.
Downstream	119.69	2013 Updates: Changed right bank levee (road) to ineffective flow area.
Downstream	119.57	2013 Updates: Removed levee in right bank. Adjusted ineffective flow areas.
Downstream	119.52	2013 Updates: Removed levee in right bank. Adjusted ineffective flow areas.
Downstream	119.51	RAILROAD. 2013 Updates: Adjusted ineffective flow areas. Note: Bridge on tributary (right bank)-no data. At XS 191.86, 50-year profile overtops railroad/road and becomes effective.
Downstream	119.5	2013 Updates: Removed levee in right bank. Adjusted ineffective flow areas.
Downstream	119.44	2013 Updates: Changed right bank levee (road) to ineffective flow area. Removed ineffective flow area from left bank.
Downstream	119.35	2013 Updates: Changed right bank levee (road) to ineffective flow area.
Downstream	119.24	2013 Updates: Changed right bank levee (road) to ineffective flow area.
Downstream	119.14	2013 Updates: Changed right bank levee (road) to ineffective flow area.
Downstream	119.05	2013 Updates: Changed right bank levee (road) to ineffective flow area.
Downstream	118.93	2013 Updates: Changed right bank levee (road) to ineffective flow area.
Downstream	118.82	2013 Updates: Changed right bank levee (road) to ineffective flow area.
Downstream	118.73	2013 Updates: Changed right bank levee (road) to ineffective flow area.
Downstream	118.63	2013 Updates: Changed right bank levee (road) to ineffective flow area.
Downstream	118.55	2013 Updates: Changed right bank levee (road) to ineffective flow area.
Downstream	118.48	2013 Updates: Changed right bank levee (road) to ineffective flow area.
Downstream	118.41	2013 Updates: Changed right bank levee (road) to ineffective flow area.
Downstream	118.36	2013 Updates: Changed right bank levee (road) to ineffective flow area.
Downstream	118.3	2013 Updates: Changed right bank levee (road) to ineffective flow area. Adjusted ineffective flow areas.
Downstream	118.22	2013 Updates: Changed right bank levee (road) to ineffective flow area. Adjusted ineffective flow areas.
Downstream	118.13	2013 Updates: Changed right bank levee (road) to ineffective flow area. Adjusted ineffective flow areas.
Downstream	118.02	2013 Updates: Changed right bank levee (road) to ineffective flow area. Adjusted ineffective flow areas.
Downstream	117.9	2013 Updates: Changed right bank levee (road) to ineffective flow area. Added ineffective flow area to left bank.
Downstream	117.79	2013 Updates: Changed right bank levee (road) to ineffective flow area. Added ineffective flow area to left bank.
Downstream	117.69	2013 Updates: Changed right bank levee (road) to ineffective flow area. Added ineffective flow area to left bank.
Downstream	117.58	2013 Updates: Extended cross-section on right bank. Extended ineffective flow area on right bank. Changed right bank levee (road) to ineffective flow area. Added ineffective flow area to left bank.
Downstream	117.47	2013 Updates: Extended cross-section on right bank. Extended ineffective flow area on right bank. Changed right bank levee (road) to ineffective flow area.
Downstream	117.3	2013 Updates: Changed right bank levee (road) to ineffective flow area. Added ineffective flow area to left bank.
Downstream	117.16	2013 Updates: Changed right bank levee (road) to ineffective flow area. Added ineffective flow area to left bank.
Downstream	117.04	2013 Updates: Removed levee on right bank (none on ground). Removed ineffective flow area from right channel.
Downstream	116.91	2013 Updates: Removed ineffective flow area from right channel.
Downstream	116.77	2013 Updates: None.
Downstream	116.67	2013 Updates: Removed ineffective flow area from right channel.
Downstream	116.6	2013 Updates: None.
Downstream	116.52	2013 Updates: Removed ineffective flow area from right channel. Added ineffective flow to left bank.
Downstream	116.39	2013 Updates: Removed ineffective flow area from right channel. Added ineffective flow to left bank.
Downstream	116.3	2013 Updates: Removed ineffective flow area from right channel. Added ineffective flow to left bank and right bank.
Downstream	116.19	2013 Updates: Removed ineffective flow area from right channel. Added ineffective flow to left bank and right bank.
Downstream	116.03	2013 Updates: Removed ineffective flow area from right channel. Added ineffective flow to right bank.
Downstream	115.89	2013 Updates: None.
Downstream	115.79	2013 Updates: None.
Downstream	115.65	2013 Updates: None.
Downstream	115.43	2013 Updates: None.
Downstream	115.26	2013 Updates: None.

Reach	HEC-RAS XS	2013 Updates
Downstream	115.1	2013 Updates: None.
Downstream	114.93	2013 Updates: None.
Downstream	114.68	2013 Updates: Added ineffective flow area to left bank.
Downstream	114.36	2013 Updates: Added ineffective flow area to left bank.
Downstream	114.06	2013 Updates: Added ineffective flow area to left bank. Ineffective flow is for roadway.
Downstream	113.93	2013 Updates: Added ineffective flow area to left bank.
Downstream	113.78	2013 Updates: Added ineffective flow area to left bank.
Downstream	113.63	2013 Updates: None.
Downstream	113.51	2013 Updates: None.
Downstream	113.39	2013 Updates: None
Downstream	113.27	2013 Updates: None
Downstream	113.15	2013 Updates: None
Downstream	113.02	2013 Updates: None
Downstream	112.86	2013 Updates: Added ineffective flow to left bank.
Downstream	112.66	2013 Updates: Added ineffective flow to left bank.
Downstream	112.42	2013 Updates: Added ineffective flow to left bank and right bank.
Downstream	112.23	2013 Updates: None
Downstream	112.03	2013 Updates: None
Downstream	111.84	2013 Updates: Added ineffective flow to right bank.
Downstream	111.67	2013 Updates: Added ineffective flow to left bank and right bank.
Downstream	111.49	2013 Updates: Added ineffective flow to right bank.
Downstream	111.3	2013 Updates: None
Downstream	111.13	2013 Updates: None
Downstream	110.89	2013 Updates: Added ineffective flow to right bank.
Downstream	110.64	2013 Updates: Added ineffective flow to right bank.
Downstream	110.49	2013 Updates: Added ineffective flow to right bank.
Downstream	110.34	2013 Updates: None
Downstream	110.12	2013 Updates: Added ineffective flow to right bank.
Downstream	109.96	2013 Updates: Added ineffective flow to right bank.
Downstream	109.83	2013 Updates: Added ineffective flow to right bank.
Downstream	109.71	2013 Updates: None
Downstream	109.59	2013 Updates: None
Downstream	109.49	2013 Updates: None
Downstream	109.38	2013 Updates: None
Downstream	109.15	2013 Updates: None
Downstream	108.9	2013 Updates: Added ineffective flow to right bank.
Downstream	108.69	2013 Updates: Added ineffective flow to right bank and left bank.
Downstream	108.53	2013 Updates: None
Downstream	108.3	2013 Updates: Added ineffective flow to right bank and left bank.
Downstream	108.2	2013 Updates: Added ineffective flow to right bank and left bank.
Downstream	108.05	2013 Updates: Added ineffective flow to right bank and left bank.
Downstream	107.88	2013 Updates: Added ineffective flow area to right bank.
Downstream	107.72	2013 Updates: None
Downstream	107.48	2013 Updates: Changed levee in right bank (road) to ineffective flow area.
Downstream	107.29	2013 Updates: Changed levee in right bank (road) to ineffective flow area.
Downstream	107.08	2013 Updates: Changed levee in right bank (road) to ineffective flow area. Added ineffective flow area to left bank.
Downstream	106.86	2013 Updates: Changed levee in right bank (road) to ineffective flow area.
Downstream	106.69	2013 Updates: Changed levee in right bank (road) to ineffective flow area.
Downstream	106.42	2013 Updates: Changed levee in right bank (road) to ineffective flow area. Added ineffective flow area to left bank.
Downstream	106.27	2013 Updates: Changed levee in right bank (road) to ineffective flow area.
Downstream	106.14	2013 Updates: Changed levee in right bank (road) to ineffective flow area. Added ineffective flow area to left bank.
Downstream	106.02	2013 Updates: Changed levee in right bank (road) to ineffective flow area.
Downstream	105.95	2013 Updates: Changed levee in right bank (road) to ineffective flow area.
Downstream	105.89	2013 Updates: Changed levee in right bank (road) to ineffective flow area.
Downstream	105.81	2013 Updates: Changed levee in right bank (road) to ineffective flow area. Added ineffective flow area to left bank.
Downstream	105.73	2013 Updates: Removed levee from right bank.
Downstream	105.66	2013 Updates: Changed levee in right bank (road) to ineffective flow area.
Downstream	105.55	2013 Updates: Changed levee in right bank (road) to ineffective flow area.
Downstream	105.44	2013 Updates: Changed levee in right bank (road) to ineffective flow area.
Downstream	105.36	2013 Updates: Changed levee in right bank (road) to ineffective flow area.
Downstream	105.29	2013 Updates: Added ineffective flow areas.
Downstream	105.23	2013 Updates: None
Downstream	105.15	2013 Updates: None
Downstream	105.02	2013 Updates: None
Downstream	104.91	2013 Updates: Added ineffective flow area to left bank.
Western Branch	5.26	2013 Updates: None.

Reach	HEC-RAS XS	2013 Updates
Western Branch	5.08	2013 Updates: None.
Western Branch	4.85	2013 Updates: None.
Western Branch	4.58	2013 Updates: None.
Western Branch	4.22	2013 Updates: None.
Western Branch	4.02	2013 Updates: None.
Western Branch	3.78	2013 Updates: None.
Western Branch	3.65	2013 Updates: Changed left bank levee (railroad) to ineffective flow area. Added ineffective flow area to left bank and right bank.
Western Branch	3.48	2013 Updates: Removed levee on left bank. Added ineffective flow area to right bank.
Western Branch	3.41	2013 Updates: Removed levee on left bank.
Western Branch	3.33	2013 Updates: Removed levee on left bank.
Western Branch	3.26	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	3.18	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	3.12	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	3.04	2013 Updates: Changed left bank levee (railroad) to ineffective flow area. Added ineffective flow area to right bank.
Western Branch	2.97	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	2.88	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	2.8	2013 Updates: Changed left bank levee (railroad) to ineffective flow area. Added ineffective flow area to right bank.
Western Branch	2.73	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	2.66	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	2.58	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	2.5	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	2.42	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	2.34	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	2.27	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	2.19	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	2.13	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	2.05	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	1.97	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	1.89	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	1.81	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	1.74	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	1.66	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	1.58	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	1.5	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	1.42	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	1.35	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	1.27	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	1.2	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	1.14	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	1.06	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	0.98	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	0.9	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	0.84	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	0.77	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	0.69	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	0.62	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	0.56	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	0.47	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	0.38	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	0.28	2013 Updates: Changed left bank levee (railroad) to ineffective flow area.
Western Branch	0.191	2013 Updates: Adjusted ineffective flow areas.
Western Branch	0.1905	U.S. ROUTE 11: 2013 Updates: Adjusted ineffective flow areas.
Western Branch	0.19	2013 Updates: Adjusted ineffective flow areas
Western Branch	0.16	2013 Updates: Adjusted ineffective flow areas

APPENDIX B

Updated Flow Estimates

River	Reach	2003 HEC Model								2013 Update							% Change						
		RS	2-year	5-year	10-year	25-year	50-year	100-year	500-year	2-year	5-year	10-year	25-year	50-year	100-year	500-year	2-year	5-year	10-year	25-year	50-year	100-year	500-year
Susquehanna	Upper Reach	205.877	105364	136016	159962	191572	216476	245212	318967	108900	150500	180100	219800	251200	284000	367400	3.4%	10.6%	12.6%	14.7%	16.0%	15.8%	15.2%
Susquehanna	Upper Reach	203.333	105364	136016	159962	191572	216476	245212	318967	108900	150500	180100	220200	251200	284000	367400	3.4%	10.6%	12.6%	14.9%	16.0%	15.8%	15.2%
Susquehanna	Upper Reach	202.683	105564	136274	160265	191935	216886	245676	319571	109100	150800	180400	188300	251600	284500	368100	3.3%	10.7%	12.6%	-1.9%	16.0%	15.8%	15.2%
Susquehanna	Scovell Left	198.702	87063.86	116386.4	137491.5	164099.9	187642.4	205028.5	262784.8	92200	129500	155700	188300	214600	241400	308200	5.9%	11.3%	13.2%	14.7%	14.4%	17.7%	17.3%
Susquehanna	Scovell Right	198.701	18500.14	24366.71	27730.57	33617.39	36104.84	48706.3	69137.84	20900	26700	31300	40000	46200	53500	73300	13.0%	9.6%	12.9%	19.0%	28.0%	9.8%	6.0%
Susquehanna	Middle Reach	198.107	109404	141231	166095	198917	224776	254613	331196	113100	156200	187000	228700	260800	294900	381500	3.4%	10.6%	12.6%	15.0%	16.0%	15.8%	15.2%
Susquehanna	Middle Reach	192.145	109596	141479	166387	199266	225170	255060	331777	113300	156500	187300	229500	261200	295400	382200	3.4%	10.6%	12.6%	15.2%	16.0%	15.8%	15.2%
Susquehanna	Middle Reach	190.384	110000	142000	167000	200000	226000	256000	333000	113700	157100	188000	229500	262200	296500	383600	3.4%	10.6%	12.6%	14.8%	16.0%	15.8%	15.2%
Susquehanna	Middle Reach	189.523	110000	142000	167000	200000	226000	256000	333000	113700	157100	188000	229900	262200	296500	383600	3.4%	10.6%	12.6%	15.0%	16.0%	15.8%	15.2%
Susquehanna	Middle Reach	187.822	110181	142894	167682	200726	227488	257598	336298	114000	157500	188400	230200	262700	297000	384100	3.5%	10.2%	12.4%	14.7%	15.5%	15.3%	14.2%
Susquehanna	Middle Reach	184.700	110271	143340	168021	201087	228230	258394	337943	114100	157600	188600	230300	262900	297300	384400	3.5%	9.9%	12.2%	14.5%	15.2%	15.1%	13.7%
Susquehanna	Middle Reach	183.055	110309	143525	168163	201238	228538	258726	338627	114200	157700	188700	230400	263000	297400	384500	3.5%	9.9%	12.2%	14.5%	15.1%	14.9%	13.5%
Susquehanna	Middle Reach	181.549	110378	143868	168424	201516	229109	259339	339892	114300	157900	188800	231000	263200	297600	384700	3.6%	9.8%	12.1%	14.6%	14.9%	14.8%	13.2%
Susquehanna	Middle Reach	180.991	110608	145003	169289	202437	230996	261365	344075	114700	158300	189400	231400	263800	298200	385400	3.7%	9.2%	11.9%	14.3%	14.2%	14.1%	12.0%
Susquehanna	Middle Reach	178.247	110769	145799	169896	203083	232321	262788	347012	114900	158600	189700	231800	264300	298600	385900	3.7%	8.8%	11.7%	14.1%	13.8%	13.6%	11.2%
Susquehanna	Middle Reach	172.347	110943	146656	170549	203778	233748	264320	350175	115200	159000	190100	232300	264700	299100	386400	3.8%	8.4%	11.5%	14.0%	13.2%	13.2%	10.3%
Susquehanna	Middle Reach	168.113	111139	147624	171287	204564	235358	266049	353744	115500	159400	190500	233000	265200	299700	387000	3.9%	8.0%	11.2%	13.9%	12.7%	12.6%	9.4%
Susquehanna	Middle Reach	166.644	111403	148927	172281	205621	237526	268378	358551	115900	159900	191100	235100	265900	300400	387700	4.0%	7.4%	10.9%	14.3%	11.9%	11.9%	8.1%
Susquehanna	Middle Reach	161.155	112266	153190	175530	209080	244619	275995	374274	117300	161600	193000	235500	268300	302800	390300	4.5%	5.5%	10.0%	12.6%	9.7%	9.7%	4.3%
Susquehanna	Middle Reach	157.906	112430	153998	176146	209736	245964	277439	377255	117500	161900	193400	235600	268700	303300	390800	4.5%	5.1%	9.8%	12.3%	9.2%	9.3%	3.6%
Susquehanna	Middle Reach	155.540	112471	154200	176300	209900	246300	277800	378000	117600	162000	193500	235600	268800	303400	390900	4.6%	5.1%	9.8%	12.2%	9.1%	9.2%	3.4%
Susquehanna	Middle Reach	150.382	112471	154200	176300	209900	246300	277800	378000	117600	162000	193500	239600	268800	303400	390900	4.6%	5.1%	9.8%	14.1%	9.1%	9.2%	3.4%
Susquehanna	Middle Reach	147.425	114357	156459	181471	215903	251471	282079	387510	120100	165200	197100	241200	273100	307900	395700	5.0%	5.6%	8.6%	11.7%	8.6%	9.2%	2.1%
Susquehanna	Middle Reach	145.772	115106	157356	183526	218289	253526	283780	391289	121100	166500	198600	242200	274800	309600	397600	5.2%	5.8%	8.2%	11.0%	8.4%	9.1%	1.6%
Susquehanna	Middle Reach	142.381	115534	157868	184699	219650	254699	284751	393446	121700	167200	199400	242200	275800	310600	398700	5.3%	5.9%	8.0%	10.3%	8.3%	9.1%	1.3%
Susquehanna	Middle Reach	140.878	115563	157903	184779	219743	254779	284817	393593	121700	167300	199400	242300	275800	310700	398800	5.3%	6.0%	7.9%	10.3%	8.3%	9.1%	1.3%
Susquehanna	Middle Reach	138.960	115606	157954	184896	219879	254896	284914	393808	121700	167300	199500	242400	275900	310800	398900	5.3%	5.9%	7.9%	10.2%	8.2%	9.1%	1.3%
Susquehanna	Middle Reach	137.067	115644	158000	185000	220000	255000	285000	394000	121800	167400	199600	242400	276000	310900	399000	5.3%	5.9%	7.9%	10.2%	8.2%	9.1%	1.3%
Susquehanna	Middle Reach	136.945	115644	158000	185000	220000	255000	285000	394000	121800	167400	199600	242400	276000	310900	399000	5.3%	5.9%	7.9%	10.2%	8.2%	9.1%	1.3%
Susquehanna	Middle Reach	136.248	115977	158455	185533	220633	255734	285821	395134	122200	167900	200200	243200	277000	312100	400700	5.4%	6.0%	7.9%	10.2%	8.3%	9.2%	1.4%
Susquehanna	Middle Reach	134.148	116043	158546	185639	220760	255881	285984	395361	122200	168000	200400	243400	277200	312300	401000	5.3%	6.0%	8.0%	10.3%	8.3%	9.2%	1.4%
Susquehanna	Middle Reach	130.619	116109	158636	185744	220885	256026	286146	395585	122300	168100	200500	243600	277400	312500	401400	5.3%	6.0%	7.9%	10.3%	8.3%	9.2%	1.5%
Susquehanna	Middle Reach	127.820	116202	158763	185893	221062	256231	286376	395903	122400	168300	200700	243800	277700	312900	401800	5.3%	6.0%	8.0%	10.3%	8.4%	9.3%	1.5%
Susquehanna	Packers Right Up	127.302	49574.56	68100.3	80365.43	95000.31	111077.6	138676.9	170149.5	52600	73000	87400	109100	122300	135500	165800	6.1%	7.2%	8.8%	14.8%	10.1%	-2.3%	-2.6%
Susquehanna	Packers Right Dn	125.758	150350.1	204116.1	240327.7	286571.8	327553.4	383888.4	489116.1	134400	189000	230200	288796	337500	387500	519800	-10.6%	-7.4%	-4.2%	0.8%	3.0%	0.9%	6.3%
Susquehanna	Packers Left	127.312	66627.84	90662.61	105527.9	126062.1	145153.8	177692.8	225752.8	69800	95300	113300	134700	155400	177400	236000	4.8%	5.1%	7.4%	6.9%	7.1%	-0.2%	4.5%
Susquehanna	Downstream	125.390	192280	255000	305000	375000	435000	505000	701000	201900	282400	342900	424700	498500	574600	779200	5.0%	10.7%	12.4%	13.3%	14.6%	13.8%	11.2%
Susquehanna	Downstream	122.900	192280	255000	305000	375000	435000	505000	701000	201900	282400	342900	428200	498500	574600	779200	5.0%	10.7%	12.4%	14.2%	14.6%	13.8%	11.2%
Susquehanna	Downstream	122.010	192280	255000	305000	375000	435000	505000	701000	201900	282400	342900	428200	498500	574600	779200	5.0%	10.7%	12.4%	14.2%	14.6%	13.8%	11.2%
Susquehanna	Downstream	120.200	192361	255107	305129	375158	435183	505213	701295	204800	286500	347900	434400	505700	582900	790500	6.5%	12.3%	14.0%	15.8%	16.2%	15.4%	12.7%
Susquehanna	Downstream	114.060	197370	261750	313073	384926	446514	518367	719555	209800	293500	356400	445000	518100	597200	809800	6.3%	12.1%	13.8%	15.6%	16.0%	15.2%	12.5%
Susquehanna	Downstream	106.420	198275	262951	314510	386692	448563	520746	722857	211300	295600	358900	448200	521700	601400	815500	6.6%	12.4%	14.1%	15.9%	16.3%	15.5%	12.8%
Susquehanna	Downstream	104.910	199998	265236	317243	390053	452462	525271	729139	212200	296800	360400	450000	523900	603900	818900	6.1%	11.9%	13.6%	15.4%	15.8%	15.0%	12.3%
West Branch	West Branch	5.260	100698	147204	181660	230592	270757	314184	430092	88900	133300	167500	215100	257500	301100	421600	-11.7%	-9.4%	-7.8%	-6.7%	-4.9%	-4.2%	-2.0%
West Branch	West Branch	3.480	100775	147317	181800	230770	270965	314426	430423	89100	133600	168000	215700	258100	301900	422700	-11.6%	-9.3%	-7.6%	-6.5%	-4.7%	-4.0%	-1.8%

APPENDIX C

USGS Rating Curves

Gage	Frequency Event	Flow (cfs)	Gage Elevation (feet NAVD88)	Observed WSE (ft. NAVD88)	Stage (feet)
Wilkes-Barre *(USGS 01536500)*	2-year	113,700	510.9	532.1	21.2
	5-year	157,100	510.9	537.1	26.2
	10-year	188,000	510.9	540.6	29.7
	25-year	229,900	510.9	545.1	34.2
	50-year	262,200	510.9	548.6	37.7
	100-year	296,500	510.9	552.1	41.2
	500-year	383,600	510.9	n/a*	n/a*
	Lee	310,000	510.9	553.5	42.6
Bloomsburg *(USGS 01538700)*	2-year	117,600	450.7	468.1	17.4
	5-year	162,000	450.7	472.1	21.4
	10-year	193,500	450.7	474.6	23.9
	25-year	239,600	450.7	477.7	27
	50-year	268,800	450.7	480.1	29.4
	100-year	303,400	450.7	482.3	31.6
	500-year	390,900	450.7	n/a*	n/a*
	Lee	320,000	450.7	483.4	32.7
Danville *(USGS 01540500)*	2-year	121,800	430.7	449	18.3
	5-year	167,400	430.7	452.6	21.9
	10-year	199,600	430.7	454.9	24.2
	25-year	242,400	430.7	457.8	27.1
	50-year	276,000	430.7	460	29.3
	100-year	310,900	430.7	462.2	31.5
	500-year	399,000	430.7	467.6	36.9
	Lee	311,000	430.7	462.1	31.4
Sunbury *(USGS 01554000)*	2-year	201,900	407.9	429.2	21.3
	5-year	282,400	407.9	432.8	24.9
	10-year	342,900	407.9	435.2	27.3
	25-year	428,200	407.9	438.3	30.4
	50-year	498,500	407.9	440.7	32.8
	100-year	574,600	407.9	443.2	35.3
	500-year	779,200	407.9	449.2	41.3
	Lee	463,000	407.9	439.5	31.6

**Rating curve does not extend to 500-year flow.*

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01536500 Susquehanna River at Wilkes-Barre, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:079
LATITUDE: 411503 LONGITUDE: 0755252 NAD27 DRAINAGE AREA:9960 CONTRIBUTING DRAINAGE AREA: DATUM:510.86 NAVD88
Date Processed: 2013-05-13 13:01 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 20.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mrbeaver on 01-28-2013 @ 10:17:48 EST, Updated by mrbeaver on 01-28-2013 @ 10:35:07 EST

RATING REMARKS: adjust upper end based on WY2011 Qm's > 15 ft. - REVISED WITH BOYER CONSTANT STAGE CURVE POINTS *** consider revising rating <15 ft. based on Qm's after 6/27/04

OFFSET: -2.00

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) (EXPANDED PRECISION) .00	.01	.02	.03	.04	.05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
-1.00	530.0*										
-0.90	624.2	614.5	604.8	595.2	585.7	576.3	566.9	557.6	548.3	539.1	94.20
-0.80	724.7	714.3	704.1	693.9	683.7	673.6	663.6	653.7	643.8	633.9	100.5
-0.70	831.4	820.4	809.5	798.7	788.0	777.3	766.6	756.0	745.5	735.1	106.7
-0.60	944.1	932.6	921.1	909.7	898.3	887.0	875.7	864.6	853.4	842.4	112.7
-0.50	1063	1051	1039	1027	1015	1003	990.9	979.1	967.4	955.7	118.9
-0.40	1187	1175	1162	1149	1137	1124	1112	1100	1087	1075	124.0
-0.30	1317	1304	1291	1278	1265	1252	1239	1226	1213	1200	130.0
-0.20	1453	1439	1426	1412	1398	1385	1371	1358	1344	1331	136.0
-0.10	1594	1580	1566	1551	1537	1523	1509	1495	1481	1467	141.0
-0.00	1741	1726	1711	1697	1682	1667	1652	1638	1623	1609	147.0
0.00	1741	1756	1771	1786	1801	1817	1832	1847	1862	1878	152.0
0.10	1893	1909	1924	1940	1956	1971	1987	2003	2019	2035	158.0
0.20	2051	2067	2083	2099	2115	2131	2147	2164	2180	2197	162.0
0.30	2213	2230	2246	2263	2280	2296	2313	2330	2347	2364	168.0
0.40	2381	2398	2415	2432	2449	2466	2484	2501	2519	2536	172.0
0.50	2553	2571	2589	2606	2624	2642	2660	2677	2695	2713	178.0
0.60	2731	2749	2767	2786	2804	2822	2840	2859	2877	2895	183.0
0.70	2914	2933	2951	2970	2988	3007	3026	3045	3064	3083	188.0
0.80	3102	3121	3140	3159	3178	3197	3217	3236	3255	3275	192.0
0.90	3294	3314	3333	3353	3372	3392	3412	3432	3452	3471	197.0
1.00	3491	3511	3531	3552	3572	3592	3612	3632	3653	3673	203.0
1.10	3694	3714	3735	3755	3776	3796	3817	3838	3859	3879	206.0
1.20	3900	3921	3942	3963	3984	4005	4027	4048	4069	4090	212.0
1.30	4112	4133	4155	4176	4198	4219	4241	4263	4284	4306	216.0
1.40	4328	4350	4372	4394	4416	4438	4460	4482	4504	4526	221.0
1.50	4549	4571	4593	4616	4638	4661	4683	4706	4729	4751	225.0
1.60	4774	4797	4820	4842	4865	4888	4911	4934	4957	4981	230.0
1.70	5004	5027	5050	5074	5097	5120	5144	5167	5191	5214	234.0
1.80	5238	5262	5285	5309	5333	5357	5381	5405	5429	5453	239.0
1.90	5477	5501	5525	5549	5574	5598	5622	5647	5671	5695	243.0
2.00	5720	5745	5769	5794	5818	5843	5868	5893	5918	5943	248.0
2.10	5968	5993	6018	6043	6068	6093	6118	6143	6169	6194	251.0
2.20	6219	6245	6270	6296	6321	6347	6373	6398	6424	6450	257.0
2.30	6476	6502	6528	6553	6579	6606	6632	6658	6684	6710	260.0
2.40	6736	6763	6789	6815	6842	6868	6895	6921	6948	6974	265.0
2.50	7001	7028	7055	7081	7108	7135	7162	7189	7216	7243	269.0

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01536500 Susquehanna River at Wilkes-Barre, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:079
LATITUDE: 411503 LONGITUDE: 0755252 NAD27 DRAINAGE AREA:9960 CONTRIBUTING DRAINAGE AREA: DATUM:510.86 NAVD88
Date Processed: 2013-05-13 13:01 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 20.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mrbeaver on 01-28-2013 @ 10:17:48 EST, Updated by mrbeaver on 01-28-2013 @ 10:35:07 EST

RATING REMARKS: adjust upper end based on WY2011 Qm's > 15 ft. - REVISED WITH BOYER CONSTANT STAGE CURVE POINTS *** consider revising rating <15 ft. based on Qm's after 6/27/04

OFFSET: -2.00

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(EXPANDED PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
2.60	7270	7297	7325	7352	7379	7406	7434	7461	7489	7516	274.0
2.70	7544	7571	7599	7626	7654	7682	7710	7737	7765	7793	277.0
2.80	7821	7849	7877	7905	7933	7961	7990	8018	8046	8074	282.0
2.90	8103	8131	8160	8188	8217	8245	8274	8302	8331	8360	286.0
3.00	8389	8417	8446	8475	8504	8533	8562	8591	8620	8649	290.0
3.10	8679	8708	8737	8766	8796	8825	8854	8884	8913	8943	294.0
3.20	8973	9002	9032	9062	9091	9121	9151	9181	9211	9241	298.0
3.30	9271	9301	9331	9361	9391	9421	9452	9482	9512	9542	302.0
3.40	9573	9603	9634	9664	9695	9725	9756	9787	9818	9848	306.0
3.50	9879	9910	9941	9972	10000	10030	10060	10100	10130	10160	311.0
3.60	10190	10220	10250	10280	10310	10350	10380	10410	10440	10470	310.0
3.70	10500	10540	10570	10600	10630	10660	10690	10730	10760	10790	320.0
3.80	10820	10850	10890	10920	10950	10980	11010	11050	11080	11110	320.0
3.90	11140	11180	11210	11240	11270	11310	11340	11370	11400	11440	330.0
4.00	11470	11500	11540	11570	11600	11630	11670	11700	11730	11770	330.0
4.10	11800	11830	11870	11900	11930	11970	12000	12030	12070	12100	330.0
4.20	12130	12170	12200	12230	12270	12300	12340	12370	12400	12440	340.0
4.30	12470	12510	12540	12570	12610	12640	12680	12710	12740	12780	340.0
4.40	12810	12850	12880	12920	12950	12990	13020	13050	13090	13120	350.0
4.50	13160	13190	13230	13260	13300	13330	13370	13400	13440	13470	350.0
4.60	13510	13540	13580	13610	13650	13680	13720	13750	13790	13830	350.0
4.70	13860	13900	13930	13970	14000	14040	14070	14110	14150	14180	360.0
4.80	14220	14250	14290	14330	14360	14400	14430	14470	14510	14540	360.0
4.90	14580	14610	14650	14690	14720	14760	14800	14830	14870	14910	360.0
5.00	14940	14980	15020	15050	15090	15130	15160	15200	15240	15270	370.0
5.10	15310	15350	15390	15420	15460	15500	15530	15570	15610	15650	370.0
5.20	15680	15720	15760	15800	15830	15870	15910	15950	15980	16020	380.0
5.30	16060	16100	16130	16170	16210	16250	16290	16320	16360	16400	380.0
5.40	16440	16480	16510	16550	16590	16630	16670	16710	16740	16780	380.0
5.50	16820	16860	16900	16940	16980	17010	17050	17090	17130	17170	390.0
5.60	17210	17250	17290	17320	17360	17400	17440	17480	17520	17560	390.0
5.70	17600	17640	17680	17720	17760	17790	17830	17870	17910	17950	390.0
5.80	17990	18030	18070	18110	18150	18190	18230	18270	18310	18350	400.0
5.90	18390	18430	18470	18510	18550	18590	18630	18670	18710	18750	400.0
6.00	18790	18830	18870	18910	18950	18990	19030	19070	19110	19160	410.0
6.10	19200	19240	19280	19320	19360	19400	19440	19480	19520	19560	400.0
6.20	19600	19650	19690	19730	19770	19810	19850	19890	19930	19980	420.0
6.30	20020	20060	20100	20140	20180	20220	20270	20310	20350	20390	410.0

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01536500 Susquehanna River at Wilkes-Barre, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:079
LATITUDE: 411503 LONGITUDE: 0755252 NAD27 DRAINAGE AREA:9960 CONTRIBUTING DRAINAGE AREA: DATUM:510.86 NAVD88
Date Processed: 2013-05-13 13:01 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 20.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mrbeaver on 01-28-2013 @ 10:17:48 EST, Updated by mrbeaver on 01-28-2013 @ 10:35:07 EST

RATING REMARKS: adjust upper end based on WY2011 Qm's > 15 ft. - REVISED WITH BOYER CONSTANT STAGE CURVE POINTS *** consider revising rating <15 ft. based on Qm's after 6/27/04

OFFSET: -2.00

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(EXPANDED PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
6.40	20430	20470	20520	20560	20600	20640	20680	20730	20770	20810	420.0
6.50	20850	20890	20940	20980	21020	21060	21100	21150	21190	21230	420.0
6.60	21270	21320	21360	21400	21440	21490	21530	21570	21610	21660	430.0
6.70	21700	21740	21790	21830	21870	21910	21960	22000	22040	22090	430.0
6.80	22130	22170	22220	22260	22300	22350	22390	22430	22480	22520	430.0
6.90	22560	22610	22650	22690	22740	22780	22820	22870	22910	22960	440.0
7.00	23000*	23050	23090	23140	23180	23230	23270	23320	23360	23410	450.0
7.10	23450	23500	23540	23590	23630	23680	23730	23770	23820	23860	460.0
7.20	23910	23960	24000	24050	24090	24140	24190	24230	24280	24320	460.0
7.30	24370	24420	24460	24510	24550	24600	24650	24690	24740	24790	460.0
7.40	24830	24880	24930	24970	25020	25070	25110	25160	25210	25250	470.0
7.50	25300	25350	25400	25440	25490	25540	25580	25630	25680	25730	470.0
7.60	25770	25820	25870	25920	25960	26010	26060	26110	26150	26200	480.0
7.70	26250	26300	26340	26390	26440	26490	26540	26580	26630	26680	480.0
7.80	26730	26780	26820	26870	26920	26970	27020	27070	27110	27160	480.0
7.90	27210	27260	27310	27360	27410	27450	27500	27550	27600	27650	490.0
8.00	27700	27750	27800	27840	27890	27940	27990	28040	28090	28140	490.0
8.10	28190	28240	28290	28340	28390	28440	28480	28530	28580	28630	490.0
8.20	28680	28730	28780	28830	28880	28930	28980	29030	29080	29130	500.0
8.30	29180	29230	29280	29330	29380	29430	29480	29530	29580	29630	500.0
8.40	29680	29730	29780	29830	29880	29930	29980	30040	30090	30140	510.0
8.50	30190	30240	30290	30340	30390	30440	30490	30540	30590	30650	510.0
8.60	30700	30750	30800	30850	30900	30950	31000	31060	31110	31160	510.0
8.70	31210	31260	31310	31360	31420	31470	31520	31570	31620	31670	520.0
8.80	31730	31780	31830	31880	31930	31990	32040	32090	32140	32190	520.0
8.90	32250	32300	32350	32400	32450	32510	32560	32610	32660	32720	520.0
9.00	32770	32820	32870	32930	32980	33030	33090	33140	33190	33240	530.0
9.10	33300	33350	33400	33460	33510	33560	33610	33670	33720	33770	530.0
9.20	33830	33880	33930	33990	34040	34090	34150	34200	34260	34310	530.0
9.30	34360	34420	34470	34520	34580	34630	34680	34740	34790	34850	540.0
9.40	34900	34950	35010	35060	35120	35170	35230	35280	35330	35390	540.0
9.50	35440	35500	35550	35610	35660	35710	35770	35820	35880	35930	550.0
9.60	35990	36040	36100	36150	36210	36260	36320	36370	36430	36480	550.0
9.70	36540	36590	36650	36700	36760	36810	36870	36920	36980	37030	550.0
9.80	37090	37150	37200	37260	37310	37370	37420	37480	37530	37590	560.0
9.90	37650	37700	37760	37810	37870	37930	37980	38040	38090	38150	560.0
10.00	38210	38260	38320	38370	38430	38490	38540	38600	38660	38710	560.0

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01536500 Susquehanna River at Wilkes-Barre, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:079
LATITUDE: 411503 LONGITUDE: 0755252 NAD27 DRAINAGE AREA:9960 CONTRIBUTING DRAINAGE AREA: DATUM:510.86 NAVD88
Date Processed: 2013-05-13 13:01 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 20.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mrbeaver on 01-28-2013 @ 10:17:48 EST, Updated by mrbeaver on 01-28-2013 @ 10:35:07 EST

RATING REMARKS: adjust upper end based on WY2011 Qm's > 15 ft. - REVISED WITH BOYER CONSTANT STAGE CURVE POINTS *** consider revising rating <15 ft. based on Qm's after 6/27/04

OFFSET: -2.00

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(EXPANDED PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
10.10	38770	38830	38880	38940	39000	39050	39110	39170	39220	39280	570.0
10.20	39340	39390	39450	39510	39560	39620	39680	39740	39790	39850	570.0
10.30	39910	39960	40020	40080	40140	40190	40250	40310	40370	40420	570.0
10.40	40480	40540	40600	40650	40710	40770	40830	40890	40940	41000	580.0
10.50	41060	41120	41170	41230	41290	41350	41410	41470	41520	41580	580.0
10.60	41640	41700	41760	41810	41870	41930	41990	42050	42110	42170	580.0
10.70	42220	42280	42340	42400	42460	42520	42580	42640	42700	42750	590.0
10.80	42810	42870	42930	42990	43050	43110	43170	43230	43290	43350	590.0
10.90	43400	43460	43520	43580	43640	43700	43760	43820	43880	43940	600.0
11.00	44000*	44060	44110	44170	44220	44280	44330	44390	44440	44500	550.0
11.10	44550	44610	44670	44720	44780	44830	44890	44940	45000	45060	560.0
11.20	45110	45170	45220	45280	45340	45390	45450	45500	45560	45620	560.0
11.30	45670	45730	45780	45840	45900	45950	46010	46070	46120	46180	570.0
11.40	46240	46290	46350	46400	46460	46520	46570	46630	46690	46740	560.0
11.50	46800	46860	46910	46970	47030	47080	47140	47200	47260	47310	570.0
11.60	47370	47430	47480	47540	47600	47650	47710	47770	47830	47880	570.0
11.70	47940	48000	48050	48110	48170	48230	48280	48340	48400	48460	570.0
11.80	48510	48570	48630	48690	48740	48800	48860	48920	48970	49030	580.0
11.90	49090	49150	49210	49260	49320	49380	49440	49490	49550	49610	580.0
12.00	49670	49730	49780	49840	49900	49960	50020	50080	50130	50190	580.0
12.10	50250	50310	50370	50430	50480	50540	50600	50660	50720	50780	580.0
12.20	50830	50890	50950	51010	51070	51130	51190	51240	51300	51360	590.0
12.30	51420	51480	51540	51600	51660	51720	51770	51830	51890	51950	590.0
12.40	52010	52070	52130	52190	52250	52310	52370	52420	52480	52540	590.0
12.50	52600	52660	52720	52780	52840	52900	52960	53020	53080	53140	600.0
12.60	53200	53260	53320	53380	53440	53500	53550	53610	53670	53730	590.0
12.70	53790	53850	53910	53970	54030	54090	54150	54210	54270	54330	600.0
12.80	54390	54450	54510	54570	54630	54690	54750	54820	54880	54940	610.0
12.90	55000	55060	55120	55180	55240	55300	55360	55420	55480	55540	600.0
13.00	55600	55660	55720	55780	55840	55900	55970	56030	56090	56150	610.0
13.10	56210	56270	56330	56390	56450	56510	56570	56640	56700	56760	610.0
13.20	56820	56880	56940	57000	57060	57120	57190	57250	57310	57370	610.0
13.30	57430	57490	57550	57620	57680	57740	57800	57860	57920	57980	620.0
13.40	58050	58110	58170	58230	58290	58350	58420	58480	58540	58600	610.0
13.50	58660	58730	58790	58850	58910	58970	59040	59100	59160	59220	620.0
13.60	59280	59350	59410	59470	59530	59590	59660	59720	59780	59840	630.0
13.70	59910	59970	60030	60090	60160	60220	60280	60340	60410	60470	620.0
13.80	60530	60590	60660	60720	60780	60850	60910	60970	61030	61100	630.0

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01536500 Susquehanna River at Wilkes-Barre, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:079
LATITUDE: 411503 LONGITUDE: 0755252 NAD27 DRAINAGE AREA:9960 CONTRIBUTING DRAINAGE AREA: DATUM:510.86 NAVD88
Date Processed: 2013-05-13 13:01 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 20.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mrbeaver on 01-28-2013 @ 10:17:48 EST, Updated by mrbeaver on 01-28-2013 @ 10:35:07 EST

RATING REMARKS: adjust upper end based on WY2011 Qm's > 15 ft. - REVISED WITH BOYER CONSTANT STAGE CURVE POINTS *** consider revising rating <15 ft. based on Qm's after 6/27/04

OFFSET: -2.00

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) (EXPANDED PRECISION) .00	.01	.02	.03	.04	.05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
13.90	61160	61220	61290	61350	61410	61470	61540	61600	61660	61730	630.0
14.00	61790	61850	61920	61980	62040	62110	62170	62230	62300	62360	630.0
14.10	62420	62490	62550	62610	62680	62740	62800	62870	62930	62990	640.0
14.20	63060	63120	63190	63250	63310	63380	63440	63500	63570	63630	640.0
14.30	63700	63760	63820	63890	63950	64020	64080	64140	64210	64270	640.0
14.40	64340	64400	64460	64530	64590	64660	64720	64790	64850	64910	640.0
14.50	64980	65040	65110	65170	65240	65300	65370	65430	65490	65560	640.0
14.60	65620	65690	65750	65820	65880	65950	66010	66080	66140	66210	650.0
14.70	66270	66340	66400	66470	66530	66600	66660	66730	66790	66860	650.0
14.80	66920	66990	67050	67120	67180	67250	67310	67380	67440	67510	650.0
14.90	67570	67640	67710	67770	67840	67900	67970	68030	68100	68160	660.0
15.00	68230	68290	68360	68430	68490	68560	68620	68690	68760	68820	660.0
15.10	68890	68950	69020	69080	69150	69220	69280	69350	69410	69480	660.0
15.20	69550	69610	69680	69750	69810	69880	69940	70010	70080	70140	660.0
15.30	70210	70280	70340	70410	70470	70540	70610	70670	70740	70810	660.0
15.40	70870	70940	71010	71070	71140	71210	71270	71340	71410	71470	670.0
15.50	71540	71610	71680	71740	71810	71880	71940	72010	72080	72140	670.0
15.60	72210	72280	72350	72410	72480	72550	72610	72680	72750	72820	670.0
15.70	72880	72950	73020	73090	73150	73220	73290	73360	73420	73490	680.0
15.80	73560	73630	73690	73760	73830	73900	73960	74030	74100	74170	670.0
15.90	74230	74300	74370	74440	74510	74570	74640	74710	74780	74850	680.0
16.00	74910	74980	75050	75120	75190	75250	75320	75390	75460	75530	690.0
16.10	75600	75660	75730	75800	75870	75940	76010	76070	76140	76210	680.0
16.20	76280	76350	76420	76490	76550	76620	76690	76760	76830	76900	690.0
16.30	76970	77040	77100	77170	77240	77310	77380	77450	77520	77590	690.0
16.40	77660	77720	77790	77860	77930	78000	78070	78140	78210	78280	690.0
16.50	78350	78420	78490	78550	78620	78690	78760	78830	78900	78970	690.0
16.60	79040	79110	79180	79250	79320	79390	79460	79530	79600	79670	700.0
16.70	79740	79810	79880	79950	80020	80090	80160	80230	80300	80370	700.0
16.80	80440	80510	80580	80650	80720	80790	80860	80930	81000	81070	700.0
16.90	81140	81210	81280	81350	81420	81490	81560	81630	81700	81770	700.0
17.00	81840	81910	81980	82050	82120	82190	82260	82330	82400	82470	700.0
17.10	82540	82620	82690	82760	82830	82900	82970	83040	83110	83180	710.0
17.20	83250	83320	83390	83470	83540	83610	83680	83750	83820	83890	710.0
17.30	83960	84030	84110	84180	84250	84320	84390	84460	84530	84600	720.0
17.40	84680	84750	84820	84890	84960	85030	85100	85180	85250	85320	710.0
17.50	85390	85460	85530	85610	85680	85750	85820	85890	85960	86040	720.0

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01536500 Susquehanna River at Wilkes-Barre, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:079
LATITUDE: 411503 LONGITUDE: 0755252 NAD27 DRAINAGE AREA:9960 CONTRIBUTING DRAINAGE AREA: DATUM:510.86 NAVD88
Date Processed: 2013-05-13 13:01 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 20.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mrbeaver on 01-28-2013 @ 10:17:48 EST, Updated by mrbeaver on 01-28-2013 @ 10:35:07 EST

RATING REMARKS: adjust upper end based on WY2011 Qm's > 15 ft. - REVISED WITH BOYER CONSTANT STAGE CURVE POINTS *** consider revising rating <15 ft. based on Qm's after 6/27/04

OFFSET: -2.00

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(EXPANDED PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
17.60	86110	86180	86250	86320	86400	86470	86540	86610	86680	86760	720.0
17.70	86830	86900	86970	87040	87120	87190	87260	87330	87400	87480	720.0
17.80	87550	87620	87690	87770	87840	87910	87980	88060	88130	88200	720.0
17.90	88270	88350	88420	88490	88560	88640	88710	88780	88850	88930	730.0
18.00	89000*	89070	89150	89220	89290	89370	89440	89510	89590	89660	730.0
18.10	89730	89810	89880	89950	90030	90100	90170	90250	90320	90390	740.0
18.20	90470	90540	90620	90690	90760	90840	90910	90980	91060	91130	740.0
18.30	91210	91280	91350	91430	91500	91580	91650	91720	91800	91870	740.0
18.40	91950	92020	92090	92170	92240	92320	92390	92460	92540	92610	740.0
18.50	92690	92760	92840	92910	92980	93060	93130	93210	93280	93360	740.0
18.60	93430	93510	93580	93660	93730	93810	93880	93950	94030	94100	750.0
18.70	94180	94250	94330	94400	94480	94550	94630	94700	94780	94850	750.0
18.80	94930	95000	95080	95150	95230	95300	95380	95450	95530	95600	750.0
18.90	95680	95750	95830	95910	95980	96060	96130	96210	96280	96360	750.0
19.00	96430	96510	96580	96660	96740	96810	96890	96960	97040	97110	760.0
19.10	97190	97270	97340	97420	97490	97570	97640	97720	97800	97870	760.0
19.20	97950	98020	98100	98180	98250	98330	98400	98480	98560	98630	760.0
19.30	98710	98780	98860	98940	99010	99090	99170	99240	99320	99400	760.0
19.40	99470	99550	99620	99700	99780	99850	99930	100000	100100	100200	730.0
19.50	100200	100300	100400	100500	100500	100600	100700	100800	100900	100900	800.0
19.60	101000	101100	101200	101200	101300	101400	101500	101500	101600	101700	800.0
19.70	101800	101900	101900	102000	102100	102200	102200	102300	102400	102500	700.0
19.80	102500	102600	102700	102800	102900	102900	103000	103100	103200	103200	800.0
19.90	103300	103400	103500	103600	103600	103700	103800	103900	103900	104000	800.0
20.00	104100	104200	104300	104300	104400	104500	104600	104600	104700	104800	800.0
20.10	104900	105000	105000	105100	105200	105300	105300	105400	105500	105600	800.0
20.20	105700	105700	105800	105900	106000	106000	106100	106200	106300	106400	700.0
20.30	106400	106500	106600	106700	106800	106800	106900	107000	107100	107100	800.0
20.40	107200	107300	107400	107500	107500	107600	107700	107800	107900	107900	800.0
20.50	108000	108100	108200	108300	108300	108400	108500	108600	108600	108700	800.0
20.60	108800	108900	109000	109000	109100	109200	109300	109400	109400	109500	800.0
20.70	109600	109700	109800	109800	109900	110000	110100	110200	110200	110300	800.0
20.80	110400	110500	110600	110600	110700	110800	110900	111000	111000	111100	800.0
20.90	111200	111300	111400	111400	111500	111600	111700	111800	111800	111900	800.0
21.00	112000	112100	112200	112200	112300	112400	112500	112600	112600	112700	800.0
21.10	112800	112900	113000	113000	113100	113200	113300	113400	113400	113500	800.0
21.20	113600	113700	113800	113800	113900	114000	114100	114200	114200	114300	800.0
21.30	114400	114500	114600	114600	114700	114800	114900	115000	115000	115100	800.0

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01536500 Susquehanna River at Wilkes-Barre, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:079
LATITUDE: 411503 LONGITUDE: 0755252 NAD27 DRAINAGE AREA:9960 CONTRIBUTING DRAINAGE AREA: DATUM:510.86 NAVD88
Date Processed: 2013-05-13 13:01 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 20.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mrbeaver on 01-28-2013 @ 10:17:48 EST, Updated by mrbeaver on 01-28-2013 @ 10:35:07 EST

RATING REMARKS: adjust upper end based on WY2011 Qm's > 15 ft. - REVISED WITH BOYER CONSTANT STAGE CURVE POINTS *** consider revising rating <15 ft. based on Qm's after 6/27/04

OFFSET: -2.00

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(EXPANDED PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
21.40	115200	115300	115400	115500	115500	115600	115700	115800	115900	115900	800.0
21.50	116000	116100	116200	116300	116300	116400	116500	116600	116700	116800	800.0
21.60	116800	116900	117000	117100	117200	117200	117300	117400	117500	117600	800.0
21.70	117600	117700	117800	117900	118000	118100	118100	118200	118300	118400	900.0
21.80	118500	118500	118600	118700	118800	118900	119000	119000	119100	119200	800.0
21.90	119300	119400	119400	119500	119600	119700	119800	119900	119900	120000	800.0
22.00	120100	120200	120300	120400	120400	120500	120600	120700	120800	120800	800.0
22.10	120900	121000	121100	121200	121300	121300	121400	121500	121600	121700	900.0
22.20	121800	121800	121900	122000	122100	122200	122300	122300	122400	122500	800.0
22.30	122600	122700	122800	122800	122900	123000	123100	123200	123200	123300	800.0
22.40	123400	123500	123600	123700	123700	123800	123900	124000	124100	124200	800.0
22.50	124200	124300	124400	124500	124600	124700	124700	124800	124900	125000	900.0
22.60	125100	125200	125300	125300	125400	125500	125600	125700	125800	125800	800.0
22.70	125900	126000	126100	126200	126300	126300	126400	126500	126600	126700	900.0
22.80	126800	126800	126900	127000	127100	127200	127300	127300	127400	127500	800.0
22.90	127600	127700	127800	127900	127900	128000	128100	128200	128300	128400	800.0
23.00	128400	128500	128600	128700	128800	128900	129000	129000	129100	129200	900.0
23.10	129300	129400	129500	129500	129600	129700	129800	129900	130000	130100	800.0
23.20	130100	130200	130300	130400	130500	130600	130600	130700	130800	130900	900.0
23.30	131000	131100	131200	131200	131300	131400	131500	131600	131700	131800	800.0
23.40	131800	131900	132000	132100	132200	132300	132400	132400	132500	132600	900.0
23.50	132700	132800	132900	133000	133000	133100	133200	133300	133400	133500	900.0
23.60	133600	133600	133700	133800	133900	134000	134100	134200	134200	134300	800.0
23.70	134400	134500	134600	134700	134800	134800	134900	135000	135100	135200	900.0
23.80	135300	135400	135400	135500	135600	135700	135800	135900	136000	136000	800.0
23.90	136100	136200	136300	136400	136500	136600	136700	136700	136800	136900	900.0
24.00	137000*	137100	137200	137300	137300	137400	137500	137600	137700	137800	900.0
24.10	137900	137900	138000	138100	138200	138300	138400	138500	138500	138600	800.0
24.20	138700	138800	138900	139000	139100	139200	139200	139300	139400	139500	900.0
24.30	139600	139700	139800	139800	139900	140000	140100	140200	140300	140400	900.0
24.40	140500	140500	140600	140700	140800	140900	141000	141100	141100	141200	800.0
24.50	141300	141400	141500	141600	141700	141800	141800	141900	142000	142100	900.0
24.60	142200	142300	142400	142500	142500	142600	142700	142800	142900	143000	900.0
24.70	143100	143200	143200	143300	143400	143500	143600	143700	143800	143900	800.0
24.80	143900	144000	144100	144200	144300	144400	144500	144600	144600	144700	900.0
24.90	144800	144900	145000	145100	145200	145300	145300	145400	145500	145600	900.0
25.00	145700	145800	145900	146000	146000	146100	146200	146300	146400	146500	900.0

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01536500 Susquehanna River at Wilkes-Barre, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:079
LATITUDE: 411503 LONGITUDE: 0755252 NAD27 DRAINAGE AREA:9960 CONTRIBUTING DRAINAGE AREA: DATUM:510.86 NAVD88
Date Processed: 2013-05-13 13:01 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 20.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mrbeaver on 01-28-2013 @ 10:17:48 EST, Updated by mrbeaver on 01-28-2013 @ 10:35:07 EST

RATING REMARKS: adjust upper end based on WY2011 Qm's > 15 ft. - REVISED WITH BOYER CONSTANT STAGE CURVE POINTS *** consider revising rating <15 ft. based on Qm's after 6/27/04

OFFSET: -2.00

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(EXPANDED PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
25.10	146600	146700	146800	146800	146900	147000	147100	147200	147300	147400	900.0
25.20	147500	147500	147600	147700	147800	147900	148000	148100	148200	148300	800.0
25.30	148300	148400	148500	148600	148700	148800	148900	149000	149100	149100	900.0
25.40	149200	149300	149400	149500	149600	149700	149800	149900	149900	150000	900.0
25.50	150100	150200	150300	150400	150500	150600	150700	150700	150800	150900	900.0
25.60	151000	151100	151200	151300	151400	151500	151500	151600	151700	151800	900.0
25.70	151900	152000	152100	152200	152300	152400	152400	152500	152600	152700	900.0
25.80	152800	152900	153000	153100	153200	153200	153300	153400	153500	153600	900.0
25.90	153700	153800	153900	154000	154100	154100	154200	154300	154400	154500	900.0
26.00	154600	154700	154800	154900	155000	155000	155100	155200	155300	155400	900.0
26.10	155500	155600	155700	155800	155900	155900	156000	156100	156200	156300	900.0
26.20	156400	156500	156600	156700	156800	156900	156900	157000	157100	157200	900.0
26.30	157300	157400	157500	157600	157700	157800	157800	157900	158000	158100	900.0
26.40	158200	158300	158400	158500	158600	158700	158800	158800	158900	159000	900.0
26.50	159100	159200	159300	159400	159500	159600	159700	159800	159800	159900	900.0
26.60	160000	160100	160200	160300	160400	160500	160600	160700	160800	160900	900.0
26.70	160900	161000	161100	161200	161300	161400	161500	161600	161700	161800	1000
26.80	161900	162000	162000	162100	162200	162300	162400	162500	162600	162700	900.0
26.90	162800	162900	163000	163100	163100	163200	163300	163400	163500	163600	900.0
27.00	163700	163800	163900	164000	164100	164200	164200	164300	164400	164500	900.0
27.10	164600	164700	164800	164900	165000	165100	165200	165300	165400	165400	900.0
27.20	165500	165600	165700	165800	165900	166000	166100	166200	166300	166400	1000
27.30	166500	166600	166700	166700	166800	166900	167000	167100	167200	167300	900.0
27.40	167400	167500	167600	167700	167800	167900	168000	168000	168100	168200	900.0
27.50	168300	168400	168500	168600	168700	168800	168900	169000	169100	169200	1000
27.60	169300	169300	169400	169500	169600	169700	169800	169900	170000	170100	900.0
27.70	170200	170300	170400	170500	170600	170700	170700	170800	170900	171000	900.0
27.80	171100	171200	171300	171400	171500	171600	171700	171800	171900	172000	1000
27.90	172100	172200	172200	172300	172400	172500	172600	172700	172800	172900	900.0
28.00	173000*	173100	173200	173300	173300	173400	173500	173600	173700	173800	900.0
28.10	173900	174000	174000	174100	174200	174300	174400	174500	174600	174600	800.0
28.20	174700	174800	174900	175000	175100	175200	175300	175300	175400	175500	900.0
28.30	175600	175700	175800	175900	175900	176000	176100	176200	176300	176400	900.0
28.40	176500	176600	176600	176700	176800	176900	177000	177100	177200	177300	800.0
28.50	177300	177400	177500	177600	177700	177800	177900	178000	178000	178100	900.0
28.60	178200	178300	178400	178500	178600	178700	178700	178800	178900	179000	900.0
28.70	179100	179200	179300	179400	179400	179500	179600	179700	179800	179900	900.0
28.80	180000	180100	180100	180200	180300	180400	180500	180600	180700	180800	800.0

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01536500 Susquehanna River at Wilkes-Barre, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:079
LATITUDE: 411503 LONGITUDE: 0755252 NAD27 DRAINAGE AREA:9960 CONTRIBUTING DRAINAGE AREA: DATUM:510.86 NAVD88
Date Processed: 2013-05-13 13:01 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 20.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mrbeaver on 01-28-2013 @ 10:17:48 EST, Updated by mrbeaver on 01-28-2013 @ 10:35:07 EST

RATING REMARKS: adjust upper end based on WY2011 Qm's > 15 ft. - REVISED WITH BOYER CONSTANT STAGE CURVE POINTS *** consider revising rating <15 ft. based on Qm's after 6/27/04

OFFSET: -2.00

EXPANDED RATING TABLE

Gage height, feet	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
	Discharge (cfs)					(EXPANDED PRECISION)					
28.90	180800	180900	181000	181100	181200	181300	181400	181500	181500	181600	900.0
29.00	181700	181800	181900	182000	182100	182200	182200	182300	182400	182500	900.0
29.10	182600	182700	182800	182900	183000	183000	183100	183200	183300	183400	900.0
29.20	183500	183600	183700	183700	183800	183900	184000	184100	184200	184300	900.0
29.30	184400	184500	184500	184600	184700	184800	184900	185000	185100	185200	800.0
29.40	185200	185300	185400	185500	185600	185700	185800	185900	186000	186000	900.0
29.50	186100	186200	186300	186400	186500	186600	186700	186800	186800	186900	900.0
29.60	187000	187100	187200	187300	187400	187500	187600	187600	187700	187800	900.0
29.70	187900	188000	188100	188200	188300	188400	188400	188500	188600	188700	900.0
29.80	188800	188900	189000	189100	189200	189200	189300	189400	189500	189600	900.0
29.90	189700	189800	189900	190000	190000	190100	190200	190300	190400	190500	900.0
30.00	190600	190700	190800	190900	190900	191000	191100	191200	191300	191400	900.0
30.10	191500	191600	191700	191700	191800	191900	192000	192100	192200	192300	900.0
30.20	192400	192500	192600	192600	192700	192800	192900	193000	193100	193200	900.0
30.30	193300	193400	193400	193500	193600	193700	193800	193900	194000	194100	900.0
30.40	194200	194300	194300	194400	194500	194600	194700	194800	194900	195000	900.0
30.50	195100	195200	195200	195300	195400	195500	195600	195700	195800	195900	900.0
30.60	196000	196100	196100	196200	196300	196400	196500	196600	196700	196800	900.0
30.70	196900	197000	197100	197100	197200	197300	197400	197500	197600	197700	900.0
30.80	197800	197900	198000	198000	198100	198200	198300	198400	198500	198600	900.0
30.90	198700	198800	198900	199000	199000	199100	199200	199300	199400	199500	900.0
31.00	199600	199700	199800	199900	199900	200000	200100	200200	200300	200400	900.0
31.10	200500	200600	200700	200800	200900	200900	201000	201100	201200	201300	900.0
31.20	201400	201500	201600	201700	201800	201900	201900	202000	202100	202200	900.0
31.30	202300	202400	202500	202600	202700	202800	202900	203000	203000	203100	900.0
31.40	203200	203300	203400	203500	203600	203700	203800	203900	204000	204000	900.0
31.50	204100	204200	204300	204400	204500	204600	204700	204800	204900	205000	1000
31.60	205100	205100	205200	205300	205400	205500	205600	205700	205800	205900	900.0
31.70	206000	206100	206200	206200	206300	206400	206500	206600	206700	206800	900.0
31.80	206900	207000	207100	207200	207300	207300	207400	207500	207600	207700	900.0
31.90	207800	207900	208000	208100	208200	208300	208400	208400	208500	208600	900.0
32.00	208700	208800	208900	209000	209100	209200	209300	209400	209500	209600	900.0
32.10	209600	209700	209800	209900	210000	210100	210200	210300	210400	210500	1000
32.20	210600	210700	210800	210800	210900	211000	211100	211200	211300	211400	900.0
32.30	211500	211600	211700	211800	211900	212000	212000	212100	212200	212300	900.0
32.40	212400	212500	212600	212700	212800	212900	213000	213100	213200	213300	900.0
32.50	213300	213400	213500	213600	213700	213800	213900	214000	214100	214200	1000

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LATITUDE: 411503 LONGITUDE: 0755252 NAD27 DRAINAGE AREA:9960 CONTRIBUTING DRAINAGE AREA: DATUM:510.86 NAVD88
Date Processed: 2013-05-13 13:01 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 20.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mrbeaver on 01-28-2013 @ 10:17:48 EST, Updated by mrbeaver on 01-28-2013 @ 10:35:07 EST

RATING REMARKS: adjust upper end based on WY2011 Qm's > 15 ft. - REVISED WITH BOYER CONSTANT STAGE CURVE POINTS *** consider revising rating <15 ft. based on Qm's after 6/27/04

OFFSET: -2.00

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(EXPANDED PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
32.60	214300	214400	214500	214600	214600	214700	214800	214900	215000	215100	900.0
32.70	215200	215300	215400	215500	215600	215700	215800	215900	215900	216000	900.0
32.80	216100	216200	216300	216400	216500	216600	216700	216800	216900	217000	1000
32.90	217100	217200	217300	217300	217400	217500	217600	217700	217800	217900	900.0
33.00	218000*	218100	218200	218300	218400	218500	218500	218600	218700	218800	900.0
33.10	218900	219000	219100	219200	219300	219400	219500	219600	219600	219700	900.0
33.20	219800	219900	220000	220100	220200	220300	220400	220500	220600	220600	900.0
33.30	220700	220800	220900	221000	221100	221200	221300	221400	221500	221600	1000
33.40	221700	221700	221800	221900	222000	222100	222200	222300	222400	222500	900.0
33.50	222600	222700	222800	222800	222900	223000	223100	223200	223300	223400	900.0
33.60	223500	223600	223700	223800	223900	223900	224000	224100	224200	224300	900.0
33.70	224400	224500	224600	224700	224800	224900	225000	225000	225100	225200	900.0
33.80	225300	225400	225500	225600	225700	225800	225900	226000	226100	226200	900.0
33.90	226200	226300	226400	226500	226600	226700	226800	226900	227000	227100	1000
34.00	227200	227300	227400	227400	227500	227600	227700	227800	227900	228000	900.0
34.10	228100	228200	228300	228400	228500	228600	228600	228700	228800	228900	900.0
34.20	229000	229100	229200	229300	229400	229500	229600	229700	229800	229800	900.0
34.30	229900	230000	230100	230200	230300	230400	230500	230600	230700	230800	1000
34.40	230900	231000	231100	231100	231200	231300	231400	231500	231600	231700	900.0
34.50	231800	231900	232000	232100	232200	232300	232400	232400	232500	232600	900.0
34.60	232700	232800	232900	233000	233100	233200	233300	233400	233500	233600	1000
34.70	233700	233700	233800	233900	234000	234100	234200	234300	234400	234500	900.0
34.80	234600	234700	234800	234900	235000	235100	235100	235200	235300	235400	900.0
34.90	235500	235600	235700	235800	235900	236000	236100	236200	236300	236400	1000
35.00	236500	236500	236600	236700	236800	236900	237000	237100	237200	237300	900.0
35.10	237400	237500	237600	237700	237800	237900	237900	238000	238100	238200	900.0
35.20	238300	238400	238500	238600	238700	238800	238900	239000	239100	239200	1000
35.30	239300	239400	239400	239500	239600	239700	239800	239900	240000	240100	900.0
35.40	240200	240300	240400	240500	240600	240700	240800	240900	240900	241000	900.0
35.50	241100	241200	241300	241400	241500	241600	241700	241800	241900	242000	1000
35.60	242100	242200	242300	242400	242500	242500	242600	242700	242800	242900	900.0
35.70	243000	243100	243200	243300	243400	243500	243600	243700	243800	243900	1000
35.80	244000	244100	244200	244200	244300	244400	244500	244600	244700	244800	900.0
35.90	244900	245000	245100	245200	245300	245400	245500	245600	245700	245800	1000
36.00	245900	245900	246000	246100	246200	246300	246400	246500	246600	246700	900.0
36.10	246800	246900	247000	247100	247200	247300	247400	247500	247600	247700	900.0
36.20	247700	247800	247900	248000	248100	248200	248300	248400	248500	248600	1000
36.30	248700	248800	248900	249000	249100	249200	249300	249400	249500	249600	900.0

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01536500 Susquehanna River at Wilkes-Barre, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:079
LATITUDE: 411503 LONGITUDE: 0755252 NAD27 DRAINAGE AREA:9960 CONTRIBUTING DRAINAGE AREA: DATUM:510.86 NAVD88
Date Processed: 2013-05-13 13:01 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 20.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mrbeaver on 01-28-2013 @ 10:17:48 EST, Updated by mrbeaver on 01-28-2013 @ 10:35:07 EST

RATING REMARKS: adjust upper end based on WY2011 Qm's > 15 ft. - REVISED WITH BOYER CONSTANT STAGE CURVE POINTS *** consider revising rating <15 ft. based on Qm's after 6/27/04

OFFSET: -2.00

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(EXPANDED PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
36.40	249600	249700	249800	249900	250000	250100	250200	250300	250400	250500	1000
36.50	250600	250700	250800	250900	251000	251100	251200	251300	251400	251500	900.0
36.60	251500	251600	251700	251800	251900	252000	252100	252200	252300	252400	1000
36.70	252500	252600	252700	252800	252900	253000	253100	253200	253300	253400	1000
36.80	253500	253600	253600	253700	253800	253900	254000	254100	254200	254300	900.0
36.90	254400	254500	254600	254700	254800	254900	255000	255100	255200	255300	1000
37.00	255400	255500	255600	255700	255800	255800	255900	256000	256100	256200	900.0
37.10	256300	256400	256500	256600	256700	256800	256900	257000	257100	257200	1000
37.20	257300	257400	257500	257600	257700	257800	257900	258000	258100	258200	900.0
37.30	258200	258300	258400	258500	258600	258700	258800	258900	259000	259100	1000
37.40	259200	259300	259400	259500	259600	259700	259800	259900	260000	260100	1000
37.50	260200	260300	260400	260500	260600	260700	260700	260800	260900	261000	900.0
37.60	261100	261200	261300	261400	261500	261600	261700	261800	261900	262000	1000
37.70	262100	262200	262300	262400	262500	262600	262700	262800	262900	263000	1000
37.80	263100	263200	263300	263400	263500	263500	263600	263700	263800	263900	900.0
37.90	264000	264100	264200	264300	264400	264500	264600	264700	264800	264900	1000
38.00	265000*	265100	265200	265300	265400	265500	265600	265700	265800	265800	900.0
38.10	265900	266000	266100	266200	266300	266400	266500	266600	266700	266800	1000
38.20	266900	267000	267100	267200	267300	267400	267500	267500	267600	267700	900.0
38.30	267800	267900	268000	268100	268200	268300	268400	268500	268600	268700	1000
38.40	268800	268900	269000	269100	269200	269300	269300	269400	269500	269600	900.0
38.50	269700	269800	269900	270000	270100	270200	270300	270400	270500	270600	1000
38.60	270700	270800	270900	271000	271100	271200	271200	271300	271400	271500	900.0
38.70	271600	271700	271800	271900	272000	272100	272200	272300	272400	272500	1000
38.80	272600	272700	272800	272900	273000	273100	273100	273200	273300	273400	900.0
38.90	273500	273600	273700	273800	273900	274000	274100	274200	274300	274400	1000
39.00	274500	274600	274700	274800	274900	275000	275100	275100	275200	275300	900.0
39.10	275400	275500	275600	275700	275800	275900	276000	276100	276200	276300	1000
39.20	276400	276500	276600	276700	276800	276900	277000	277100	277200	277200	900.0
39.30	277300	277400	277500	277600	277700	277800	277900	278000	278100	278200	1000
39.40	278300	278400	278500	278600	278700	278800	278900	279000	279100	279200	1000
39.50	279300	279400	279400	279500	279600	279700	279800	279900	280000	280100	900.0
39.60	280200	280300	280400	280500	280600	280700	280800	280900	281000	281100	1000
39.70	281200	281300	281400	281500	281600	281700	281700	281800	281900	282000	900.0
39.80	282100	282200	282300	282400	282500	282600	282700	282800	282900	283000	1000
39.90	283100	283200	283300	283400	283500	283600	283700	283800	283900	284000	1000
40.00	284100	284200	284200	284300	284400	284500	284600	284700	284800	284900	900.0

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01536500 Susquehanna River at Wilkes-Barre, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:079
LATITUDE: 411503 LONGITUDE: 0755252 NAD27 DRAINAGE AREA:9960 CONTRIBUTING DRAINAGE AREA: DATUM:510.86 NAVD88
Date Processed: 2013-05-13 13:01 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 20.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mrbeaver on 01-28-2013 @ 10:17:48 EST, Updated by mrbeaver on 01-28-2013 @ 10:35:07 EST

RATING REMARKS: adjust upper end based on WY2011 Qm's > 15 ft. - REVISED WITH BOYER CONSTANT STAGE CURVE POINTS *** consider revising rating <15 ft. based on Qm's after 6/27/04

OFFSET: -2.00

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(EXPANDED PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
40.10	285000	285100	285200	285300	285400	285500	285600	285700	285800	285900	1000
40.20	286000	286100	286200	286300	286400	286500	286600	286700	286800	286900	900.0
40.30	286900	287000	287100	287200	287300	287400	287500	287600	287700	287800	1000
40.40	287900	288000	288100	288200	288300	288400	288500	288600	288700	288800	1000
40.50	288900	289000	289100	289200	289300	289400	289500	289600	289700	289800	900.0
40.60	289800	289900	290000	290100	290200	290300	290400	290500	290600	290700	1000
40.70	290800	290900	291000	291100	291200	291300	291400	291500	291600	291700	1000
40.80	291800	291900	292000	292100	292200	292300	292400	292500	292600	292700	1000
40.90	292800	292900	293000	293000	293100	293200	293300	293400	293500	293600	900.0
41.00	293700	293800	293900	294000	294100	294200	294300	294400	294500	294600	1000
41.10	294700	294800	294900	295000	295100	295200	295300	295400	295500	295600	1000
41.20	295700	295800	295900	296000	296100	296200	296300	296400	296500	296600	1000
41.30	296700	296700	296800	296900	297000	297100	297200	297300	297400	297500	900.0
41.40	297600	297700	297800	297900	298000	298100	298200	298300	298400	298500	1000
41.50	298600	298700	298800	298900	299000	299100	299200	299300	299400	299500	1000
41.60	299600	299700	299800	299900	300000	300100	300200	300300	300400	300500	1000
41.70	300600	300700	300800	300900	301000	301000	301100	301200	301300	301400	900.0
41.80	301500	301600	301700	301800	301900	302000	302100	302200	302300	302400	1000
41.90	302500	302600	302700	302800	302900	303000	303100	303200	303300	303400	1000
42.00	303500	303600	303700	303800	303900	304000	304100	304200	304300	304400	1000
42.10	304500	304600	304700	304800	304900	305000	305100	305200	305300	305400	1000
42.20	305500	305600	305700	305800	305900	306000	306100	306200	306300	306400	900.0
42.30	306400	306500	306600	306700	306800	306900	307000	307100	307200	307300	1000
42.40	307400	307500	307600	307700	307800	307900	308000	308100	308200	308300	1000
42.50	308400	308500	308600	308700	308800	308900	309000	309100	309200	309300	1000
42.60	309400	309500	309600	309700	309800	309900	310000*				

"*" indicates a rating descriptor point

Rating Type: Rating Type: stage-discharge

ID	Starting Date	Ending Date	A	Comments
20.0	10-02-2010 @ 11:00:00 EDT	-----	W	Modification of upper end and mid-range based on all subsequent measurements. Upper-end change due to levee extension.

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01538700 Susquehanna River at Bloomsburg, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:037
LATITUDE: 405938 LONGITUDE: 0762625 NAD27 DRAINAGE AREA:10560 CONTRIBUTING DRAINAGE AREA: DATUM:
Date Processed: 2013-05-13 13:16 By mroland
Rating for Discharge (DCP) (cfs)
RATING ID: 3.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mejones on 01-02-2013 @ 13:46:56 EST, Updated by mrbeaver on 02-01-2013 @ 12:17:01 EST

RATING REMARKS: Rating extended above Sep 2011 peak, based on revised COE Wyaoming Flood Model

OFFSET: -1.60

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) (EXPANDED PRECISION) .00	.01	.02	.03	.04	.05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
0.00	1240*	1254	1269	1283	1298	1312	1327	1341	1356	1371	146.0
0.10	1386	1401	1416	1431	1447	1462	1477	1493	1508	1524	153.0
0.20	1539	1555	1571	1587	1603	1619	1635	1651	1667	1684	161.0
0.30	1700	1717	1733	1750	1767	1783	1800	1817	1834	1851	168.0
0.40	1868	1885	1903	1920	1937	1955	1972	1990	2008	2025	175.0
0.50	2043	2061	2079	2097	2115	2134	2152	2170	2189	2207	183.0
0.60	2226	2244	2263	2282	2300	2319	2338	2357	2376	2396	189.0
0.70	2415	2434	2454	2473	2493	2512	2532	2552	2571	2591	196.0
0.80	2611	2631	2651	2671	2692	2712	2732	2753	2773	2794	204.0
0.90	2815	2835	2856	2877	2898	2919	2940	2961	2982	3003	210.0
1.00	3025	3046	3068	3089	3111	3132	3154	3176	3198	3220	217.0
1.10	3242	3264	3286	3308	3331	3353	3375	3398	3420	3443	224.0
1.20	3466	3489	3511	3534	3557	3580	3603	3627	3650	3673	231.0
1.30	3697	3720	3743	3767	3791	3814	3838	3862	3886	3910	237.0
1.40	3934	3958	3982	4007	4031	4055	4080	4104	4129	4153	244.0
1.50	4178	4203	4228	4253	4278	4303	4328	4353	4378	4404	251.0
1.60	4429	4455	4480	4506	4531	4557	4583	4609	4635	4661	258.0
1.70	4687	4713	4739	4765	4791	4818	4844	4871	4897	4924	264.0
1.80	4951	4978	5004	5031	5058	5085	5112	5140	5167	5194	270.0
1.90	5221	5249	5276	5304	5332	5359	5387	5415	5443	5471	278.0
2.00	5499	5527	5555	5583	5612	5640	5668	5697	5725	5754	284.0
2.10	5783	5811	5840	5869	5898	5927	5956	5985	6014	6044	290.0
2.20	6073	6102	6132	6161	6191	6220	6250	6280	6310	6340	297.0
2.30	6370	6400	6430	6460	6490	6520	6551	6581	6612	6642	303.0
2.40	6673	6703	6734	6765	6796	6827	6858	6889	6920	6951	309.0
2.50	6982	7014	7045	7076	7108	7140	7171	7203	7235	7266	316.0
2.60	7298	7330	7362	7394	7427	7459	7491	7523	7556	7588	323.0
2.70	7621	7653	7686	7719	7751	7784	7817	7850	7883	7916	328.0
2.80	7949	7983	8016	8049	8083	8116	8150	8183	8217	8251	335.0
2.90	8284	8318	8352	8386	8420	8454	8488	8523	8557	8591	342.0
3.00	8626	8660	8695	8729	8764	8799	8833	8868	8903	8938	347.0
3.10	8973	9008	9043	9079	9114	9149	9185	9220	9256	9291	354.0
3.20	9327	9363	9398	9434	9470	9506	9542	9578	9614	9651	360.0
3.30	9687	9723	9760	9796	9833	9869	9906	9943	9979	10020	363.0
3.40	10050	10090	10130	10160	10200	10240	10280	10310	10350	10390	380.0
3.50	10430	10460	10500	10540	10580	10610	10650	10690	10730	10770	370.0
3.60	10800	10840	10880	10920	10960	11000	11030	11070	11110	11150	390.0
3.70	11190	11230	11270	11310	11340	11380	11420	11460	11500	11540	390.0
3.80	11580	11620	11660	11700	11740	11780	11820	11860	11900	11940	400.0

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01538700 Susquehanna River at Bloomsburg, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:037
LATITUDE: 405938 LONGITUDE: 0762625 NAD27 DRAINAGE AREA:10560 CONTRIBUTING DRAINAGE AREA: DATUM:
Date Processed: 2013-05-13 13:16 By mroland
Rating for Discharge (DCP) (cfs)
RATING ID: 3.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mejones on 01-02-2013 @ 13:46:56 EST, Updated by mrbeaver on 02-01-2013 @ 12:17:01 EST

RATING REMARKS: Rating extended above Sep 2011 peak, based on revised COE Wyaoming Flood Model

OFFSET: -1.60

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(EXPANDED PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
3.90	11980	12020	12060	12100	12140	12180	12220	12260	12300	12340	400.0
4.00	12380	12420	12460	12500	12540	12580	12620	12660	12710	12750	410.0
4.10	12790	12830	12870	12910	12950	13000	13040	13080	13120	13160	410.0
4.20	13200	13250	13290	13330	13370	13410	13460	13500	13540	13580	420.0
4.30	13620	13670	13710	13750	13790	13840	13880*	13920	13970	14010	440.0
4.40	14060	14100	14150	14190	14230	14280	14320	14370	14410	14460	440.0
4.50	14500	14550	14590	14640	14680	14730	14770	14820	14860	14910	450.0
4.60	14950	15000	15050	15090	15140	15180	15230	15270	15320	15370	460.0
4.70	15410	15460	15510	15550	15600	15640	15690	15740	15780	15830	470.0
4.80	15880	15930	15970	16020	16070	16110	16160	16210	16260	16300	470.0
4.90	16350	16400	16450	16490	16540	16590	16640	16680	16730	16780	480.0
5.00	16830	16880	16920	16970	17020	17070	17120	17170	17220	17260	480.0
5.10	17310	17360	17410	17460	17510	17560	17610	17660	17710	17750	490.0
5.20	17800	17850	17900	17950	18000	18050	18100	18150	18200	18250	500.0
5.30	18300	18350	18400	18450	18500	18550	18600	18650	18700	18760	510.0
5.40	18810	18860	18910	18960	19010	19060	19110	19160	19210	19270	510.0
5.50	19320	19370	19420	19470	19520	19570	19630	19680	19730	19780	510.0
5.60	19830	19890	19940	19990	20040	20090	20150	20200	20250	20300	530.0
5.70	20360	20410	20460	20520	20570	20620	20670	20730	20780	20830	530.0
5.80	20890	20940	20990	21050	21100	21150	21210	21260	21320	21370	530.0
5.90	21420	21480	21530	21590	21640	21690	21750	21800	21860	21910	550.0
6.00	21970	22020	22080	22130	22180	22240	22290	22350	22400	22460	540.0
6.10	22510	22570	22630	22680	22740	22790	22850	22900	22960	23010	560.0
6.20	23070	23130	23180	23240	23290	23350	23410	23460	23520	23580	560.0
6.30	23630	23690	23750	23800	23860	23920	23970	24030	24090	24140	570.0
6.40	24200	24260	24310	24370	24430	24490	24540	24600	24660	24720	570.0
6.50	24770	24830	24890	24950	25010	25060	25120	25180	25240	25300	590.0
6.60	25360	25410	25470	25530	25590	25650	25710	25770	25820	25880	580.0
6.70	25940	26000	26060	26120	26180	26240	26300	26360	26420	26480	600.0
6.80	26540	26600	26660	26710	26770	26830	26890	26950	27010	27080	600.0
6.90	27140	27200	27260	27320	27380	27440	27500	27560	27620	27680	600.0
7.00	27740	27800	27860	27920	27990	28050	28110	28170	28230	28290	610.0
7.10	28350	28420	28480	28540	28600	28660	28720	28790	28850	28910	620.0
7.20	28970	29030	29100	29160	29220	29280	29350	29410	29470	29530	630.0
7.30	29600	29660	29720	29790	29850	29910	29980	30040	30100	30160	630.0
7.40	30230	30290	30360	30420	30480	30550	30610	30670	30740	30800	640.0
7.50	30870	30930	30990	31060	31120	31190	31250	31320	31380	31440	640.0
7.60	31510	31570	31640	31700	31770	31830	31900	31960	32030	32090	650.0

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01538700 Susquehanna River at Bloomsburg, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:037
LATITUDE: 405938 LONGITUDE: 0762625 NAD27 DRAINAGE AREA:10560 CONTRIBUTING DRAINAGE AREA: DATUM:
Date Processed: 2013-05-13 13:16 By mroland
Rating for Discharge (DCP) (cfs)
RATING ID: 3.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mejones on 01-02-2013 @ 13:46:56 EST, Updated by mrbeaver on 02-01-2013 @ 12:17:01 EST

RATING REMARKS: Rating extended above Sep 2011 peak, based on revised COE Wyaoming Flood Model

OFFSET: -1.60

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(EXPANDED PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
7.70	32160	32220	32290	32360	32420	32490	32550	32620	32680	32750	660.0
7.80	32820	32880	32950	33010	33080	33150	33210	33280	33340	33410	660.0
7.90	33480	33540	33610	33680	33740	33810	33880	33950	34010	34080	670.0
8.00	34150	34210	34280	34350	34420	34480	34550	34620	34690	34750	670.0
8.10	34820	34890	34960	35020	35090	35160	35230	35300	35370	35430	680.0
8.20	35500	35570	35640	35710	35780	35840	35910	35980	36050	36120	690.0
8.30	36190	36260	36330	36400	36470	36540	36600	36670	36740	36810	690.0
8.40	36880	36950	37020	37090	37160	37230	37300	37370	37440	37510	700.0
8.50	37580	37650	37720	37790	37860	37930	38010	38080	38150	38220	710.0
8.60	38290	38360	38430	38500	38570	38640	38710	38790	38860	38930	710.0
8.70	39000*	39070	39140	39200	39270	39340	39410	39480	39550	39620	680.0
8.80	39680	39750	39820	39890	39960	40030	40100	40170	40240	40300	690.0
8.90	40370	40440	40510	40580	40650	40720	40790	40860	40930	41000	700.0
9.00	41070	41140	41210	41280	41350	41420	41490	41560	41630	41700	700.0
9.10	41770	41840	41910	41980	42050	42120	42190	42260	42330	42400	700.0
9.20	42470	42550	42620	42690	42760	42830	42900	42970	43040	43110	720.0
9.30	43190	43260	43330	43400	43470	43540	43610	43690	43760	43830	710.0
9.40	43900	43970	44050	44120	44190	44260	44330	44410	44480	44550	720.0
9.50	44620	44700	44770	44840	44910	44990	45060	45130	45200	45280	730.0
9.60	45350	45420	45500	45570	45640	45710	45790	45860	45930	46010	730.0
9.70	46080	46150	46230	46300	46380	46450	46520	46600	46670	46740	740.0
9.80	46820	46890	46970	47040	47110	47190	47260	47340	47410	47490	740.0
9.90	47560	47630	47710	47780	47860	47930	48010	48080	48160	48230	750.0
10.00	48310	48380	48460	48530	48610	48680	48760	48830	48910	48980	750.0
10.10	49060	49140	49210	49290	49360	49440	49510	49590	49670	49740	760.0
10.20	49820	49890	49970	50050	50120	50200	50270	50350	50430	50500	760.0
10.30	50580	50660	50730	50810	50890	50960	51040	51120	51190	51270	770.0
10.40	51350	51420	51500	51580	51660	51730	51810	51890	51970	52040	770.0
10.50	52120	52200	52280	52350	52430	52510	52590	52660	52740	52820	780.0
10.60	52900	52980	53060	53130	53210	53290	53370	53450	53530	53600	780.0
10.70	53680	53760	53840	53920	54000	54080	54150	54230	54310	54390	790.0
10.80	54470	54550	54630	54710	54790	54870	54950	55030	55110	55180	790.0
10.90	55260	55340	55420	55500	55580	55660	55740	55820	55900	55980	800.0
11.00	56060	56140	56220	56300	56380	56460	56540	56620	56710	56790	810.0
11.10	56870	56950	57030	57110	57190	57270	57350	57430	57510	57590	810.0
11.20	57680	57760	57840	57920	58000	58080	58160	58240	58330	58410	810.0
11.30	58490	58570	58650	58730	58820	58900	58980	59060	59140	59230	820.0
11.40	59310	59390	59470	59550	59640	59720	59800	59880	59970	60050	820.0

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01538700 Susquehanna River at Bloomsburg, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:037
LATITUDE: 405938 LONGITUDE: 0762625 NAD27 DRAINAGE AREA:10560 CONTRIBUTING DRAINAGE AREA: DATUM:
Date Processed: 2013-05-13 13:16 By mroland
Rating for Discharge (DCP) (cfs)
RATING ID: 3.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mejones on 01-02-2013 @ 13:46:56 EST, Updated by mrbeaver on 02-01-2013 @ 12:17:01 EST

RATING REMARKS: Rating extended above Sep 2011 peak, based on revised COE Wyaoming Flood Model

OFFSET: -1.60

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(EXPANDED PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
11.50	60130	60210	60300	60380	60460	60550	60630	60710	60790	60880	830.0
11.60	60960	61040	61130	61210	61290	61380	61460	61540	61630	61710	840.0
11.70	61800	61880	61960	62050	62130	62210	62300	62380	62470	62550	830.0
11.80	62630	62720	62800	62890	62970	63060	63140	63220	63310	63390	850.0
11.90	63480	63560	63650	63730	63820	63900	63990	64070	64160	64240	850.0
12.00	64330	64410	64500	64580	64670	64750	64840	64920	65010	65100	850.0
12.10	65180	65270	65350	65440	65520	65610	65700	65780	65870	65950	860.0
12.20	66040	66130	66210	66300	66390	66470	66560	66650	66730	66820	860.0
12.30	66900	66990	67080	67170	67250	67340	67430	67510	67600	67690	870.0
12.40	67770	67860	67950	68040	68120	68210	68300	68390	68470	68560	880.0
12.50	68650	68740	68820	68910	69000	69090	69180	69260	69350	69440	880.0
12.60	69530	69620	69700	69790	69880	69970	70060	70150	70230	70320	880.0
12.70	70410	70500	70590	70680	70770	70860	70940	71030	71120	71210	890.0
12.80	71300	71390	71480	71570	71660	71750	71840	71930	72020	72100	890.0
12.90	72190	72280	72370	72460	72550	72640	72730	72820	72910	73000	900.0
13.00	73090	73180	73270	73360	73450	73540	73640	73730	73820	73910	910.0
13.10	74000	74090	74180	74270	74360	74450	74540	74630	74720	74820	910.0
13.20	74910	75000	75090	75180	75270	75360	75450	75550	75640	75730	910.0
13.30	75820	75910	76000	76100	76190	76280	76370	76460	76550	76650	920.0
13.40	76740	76830	76920	77020	77110	77200	77290	77380	77480	77570	920.0
13.50	77660	77750	77850	77940	78030	78130	78220	78310	78400	78500	930.0
13.60	78590	78680	78780	78870	78960	79060	79150	79240	79340	79430	930.0
13.70	79520	79620	79710	79810	79900	79990	80090	80180	80270	80370	940.0
13.80	80460	80560	80650	80740	80840	80930	81030	81120	81220	81310	950.0
13.90	81410	81500	81590	81690	81780	81880	81970	82070	82160	82260	940.0
14.00	82350	82450	82540	82640	82730	82830	82920	83020	83120	83210	960.0
14.10	83310	83400	83500	83590	83690	83790	83880	83980	84070	84170	950.0
14.20	84260	84360	84460	84550	84650	84750	84840	84940	85030	85130	970.0
14.30	85230	85320	85420	85520	85610	85710	85810	85900	86000	86100	960.0
14.40	86190	86290	86390	86490	86580	86680	86780	86880	86970	87070	980.0
14.50	87170	87260	87360	87460	87560	87660	87750	87850	87950	88050	970.0
14.60	88140	88240	88340	88440	88540	88640	88730	88830	88930	89030	990.0
14.70	89130	89230	89320	89420	89520	89620	89720	89820	89920	90010	980.0
14.80	90110	90210	90310	90410	90510	90610	90710	90810	90910	91010	1000
14.90	91110	91200	91300	91400	91500	91600	91700	91800	91900	92000	990.0
15.00	92100	92200	92300	92400	92500	92600	92700	92800	92900	93000	1000
15.10	93100	93200	93300	93400	93510	93610	93710	93810	93910	94010	1010
15.20	94110	94210	94310	94410	94510	94610	94720	94820	94920	95020	1010
15.30	95120	95220	95320	95420	95530	95630	95730	95830	95930	96030	1020

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01538700 Susquehanna River at Bloomsburg, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:037
LATITUDE: 405938 LONGITUDE: 0762625 NAD27 DRAINAGE AREA:10560 CONTRIBUTING DRAINAGE AREA: DATUM:
Date Processed: 2013-05-13 13:16 By mroland
Rating for Discharge (DCP) (cfs)
RATING ID: 3.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mejones on 01-02-2013 @ 13:46:56 EST, Updated by mrbeaver on 02-01-2013 @ 12:17:01 EST

RATING REMARKS: Rating extended above Sep 2011 peak, based on revised COE Wyaoming Flood Model

OFFSET: -1.60

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(EXPANDED PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
15.40	96140	96240	96340	96440	96540	96650	96750	96850	96950	97050	1020
15.50	97160	97260	97360	97460	97570	97670	97770	97870	97980	98080	1020
15.60	98180	98290	98390	98490	98590	98700	98800*	98900	99000	99090	1010
15.70	99190	99290	99390	99490	99580	99680	99780	99880	99980	100100	1010
15.80	100200	100300	100400	100500	100600	100700	100800	100900	101000	101100	1000
15.90	101200	101300	101400	101500	101600	101700	101800	101800	101900	102000	900.0
16.00	102100	102200	102300	102400	102500	102600	102700	102800	102900	103000	1000
16.10	103100	103200	103300	103400	103500	103600	103700	103800	103900	104000	1000
16.20	104100	104200	104300	104400	104500	104600	104700	104800	104900	105000	1000
16.30	105100	105200	105300	105400	105500	105600	105700	105800	105900	106000	1000
16.40	106100	106200	106300	106400	106500	106600	106700	106800	106900	107100	1100
16.50	107200	107300	107400	107500	107600	107700	107800	107900	108000	108100	1000
16.60	108200	108300	108400	108500	108600	108700	108800	108900	109000	109100	1000
16.70	109200	109300	109400	109500	109600	109700	109800	109900	110000	110100	1000
16.80	110200	110300	110400	110500	110600	110700	110800	110900	111000	111100	1000
16.90	111200	111300	111400	111500	111600	111700	111800	111900	112000	112200	1100
17.00	112300	112400	112500	112600	112700	112800	112900	113000	113100	113200	1000
17.10	113300	113400	113500	113600	113700	113800	113900	114000	114100	114200	1000
17.20	114300	114400	114500	114600	114700	114800	114900	115100	115200	115300	1100
17.30	115400	115500	115600	115700	115800	115900	116000	116100	116200	116300	1000
17.40	116400	116500	116600	116700	116800	116900	117000	117100	117200	117400	1100
17.50	117500	117600	117700	117800	117900	118000	118100	118200	118300	118400	1000
17.60	118500	118600	118700	118800	118900	119000	119100	119200	119400	119500	1100
17.70	119600	119700	119800	119900	120000	120100	120200	120300	120400	120500	1000
17.80	120600	120700	120800	120900	121100	121200	121300	121400	121500	121600	1100
17.90	121700	121800	121900	122000	122100	122200	122300	122400	122500	122600	1100
18.00	122800	122900	123000	123100	123200	123300	123400	123500	123600	123700	1000
18.10	123800	123900	124000	124200	124300	124400	124500	124600	124700	124800	1100
18.20	124900	125000	125100	125200	125300	125400	125600	125700	125800	125900	1100
18.30	126000	126100	126200	126300	126400	126500	126600	126700	126800	127000	1100
18.40	127100	127200	127300	127400	127500	127600	127700	127800	127900	128000	1100
18.50	128200	128300	128400	128500	128600	128700	128800	128900	129000	129100	1000
18.60	129200	129400	129500	129600	129700	129800	129900	130000	130100	130200	1100
18.70	130300	130400	130600	130700	130800	130900	131000	131100	131200	131300	1100
18.80	131400	131500	131700	131800	131900	132000	132100	132200	132300	132400	1100
18.90	132500	132600	132800	132900	133000	133100	133200	133300	133400	133500	1100
19.00	133600	133800	133900	134000	134100	134200	134300	134400	134500	134600	1200
19.10	134800	134900	135000	135100	135200	135300	135400	135500	135600	135800	1100

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01538700 Susquehanna River at Bloomsburg, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:037
LATITUDE: 405938 LONGITUDE: 0762625 NAD27 DRAINAGE AREA:10560 CONTRIBUTING DRAINAGE AREA: DATUM:
Date Processed: 2013-05-13 13:16 By mroland
Rating for Discharge (DCP) (cfs)
RATING ID: 3.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mejones on 01-02-2013 @ 13:46:56 EST, Updated by mrbeaver on 02-01-2013 @ 12:17:01 EST

RATING REMARKS: Rating extended above Sep 2011 peak, based on revised COE Wyaoming Flood Model

OFFSET: -1.60

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(EXPANDED PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
19.20	135900	136000	136100	136200	136300	136400	136500	136600	136800	136900	1100
19.30	137000	137100	137200	137300	137400	137500	137700	137800	137900	138000	1100
19.40	138100	138200	138300	138400	138600	138700	138800	138900	139000	139100	1100
19.50	139200	139300	139500	139600	139700	139800	139900	140000	140100	140200	1200
19.60	140400	140500	140600	140700	140800	140900	141000	141200	141300	141400	1100
19.70	141500	141600	141700	141800	141900	142100	142200	142300	142400	142500	1100
19.80	142600	142700	142900	143000	143100	143200	143300	143400	143500	143700	1200
19.90	143800	143900	144000	144100	144200	144300	144500	144600	144700	144800	1100
20.00	144900	145000	145100	145300	145400	145500	145600	145700	145800	145900	1200
20.10	146100	146200	146300	146400	146500	146600	146700	146900	147000	147100	1100
20.20	147200	147300	147400	147600	147700	147800	147900	148000	148100	148300	1200
20.30	148400	148500	148600	148700	148800	148900	149100	149200	149300	149400	1100
20.40	149500	149600	149800	149900	150000	150100	150200	150300	150500	150600	1200
20.50	150700	150800	150900	151000	151200	151300	151400	151500	151600	151700	1200
20.60	151900	152000	152100	152200	152300	152400	152600	152700	152800	152900	1100
20.70	153000	153100	153300	153400	153500	153600	153700	153800	154000	154100	1200
20.80	154200	154300	154400	154500	154700	154800	154900	155000	155100	155300	1200
20.90	155400	155500	155600	155700	155800	156000	156100	156200	156300	156400	1200
21.00	156600	156700	156800	156900	157000	157100	157300	157400	157500	157600	1100
21.10	157700	157900	158000	158100	158200	158300	158500	158600	158700	158800	1200
21.20	158900	159000	159200	159300	159400	159500	159600	159800	159900	160000	1200
21.30	160100	160200	160400	160500	160600	160700	160800	161000	161100	161200	1200
21.40	161300	161400	161600	161700	161800	161900	162000	162200	162300	162400	1200
21.50	162500	162600	162800	162900	163000	163100	163200	163400	163500	163600	1200
21.60	163700	163800	164000	164100	164200	164300	164400	164600	164700	164800	1200
21.70	164900	165000	165200	165300	165400	165500	165700	165800	165900	166000	1200
21.80	166100	166300	166400	166500	166600	166700	166900	167000	167100	167200	1300
21.90	167400	167500	167600	167700	167800	168000	168100	168200	168300	168400	1200
22.00	168600	168700	168800	168900	169100	169200	169300	169400	169500	169700	1200
22.10	169800	169900	170000	170200	170300	170400	170500	170600	170800	170900	1200
22.20	171000	171100	171300	171400	171500	171600	171800	171900	172000	172100	1200
22.30	172200	172400	172500	172600	172700	172900	173000	173100	173200	173400	1300
22.40	173500	173600	173700	173800	174000	174100	174200	174300	174500	174600	1200
22.50	174700	174800	175000	175100	175200	175300	175500	175600	175700	175800	1300
22.60	176000	176100	176200	176300	176500	176600	176700	176800	176900	177100	1200
22.70	177200	177300	177400	177600	177700	177800	177900	178100	178200	178300	1200
22.80	178400	178600	178700	178800	178900	179100	179200	179300	179400	179600	1300
22.90	179700	179800	179900	180100	180200	180300	180400	180600	180700	180800	1200

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01538700 Susquehanna River at Bloomsburg, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:037
LATITUDE: 405938 LONGITUDE: 0762625 NAD27 DRAINAGE AREA:10560 CONTRIBUTING DRAINAGE AREA: DATUM:
Date Processed: 2013-05-13 13:16 By mroland
Rating for Discharge (DCP) (cfs)
RATING ID: 3.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mejones on 01-02-2013 @ 13:46:56 EST, Updated by mrbeaver on 02-01-2013 @ 12:17:01 EST

RATING REMARKS: Rating extended above Sep 2011 peak, based on revised COE Wyaoming Flood Model

OFFSET: -1.60

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(EXPANDED PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
23.00	180900	181100	181200	181300	181500	181600	181700	181800	182000	182100	1300
23.10	182200	182300	182500	182600	182700	182800	183000	183100	183200	183300	1300
23.20	183500	183600	183700	183800	184000	184100	184200	184400	184500	184600	1200
23.30	184700	184900	185000	185100	185200	185400	185500	185600	185700	185900	1300
23.40	186000	186100	186300	186400	186500	186600	186800	186900	187000	187100	1300
23.50	187300	187400	187500	187700	187800	187900	188000	188200	188300	188400	1200
23.60	188500	188700	188800	188900	189100	189200	189300	189400	189600	189700	1300
23.70	189800	190000	190100	190200	190300	190500	190600	190700	190900	191000	1300
23.80	191100	191200	191400	191500	191600	191800	191900	192000	192100	192300	1300
23.90	192400	192500	192700	192800	192900	193000	193200	193300	193400	193600	1300
24.00	193700	193800	193900	194100	194200	194300	194500	194600	194700	194900	1300
24.10	195000	195100	195200	195400	195500	195600	195800	195900	196000	196200	1300
24.20	196300	196400	196500	196700	196800	196900	197100	197200	197300	197500	1300
24.30	197600	197700	197800	198000	198100	198200	198400	198500	198600	198800	1300
24.40	198900	199000	199100	199300	199400	199500	199700	199800	199900	200100	1300
24.50	200200	200300	200500	200600	200700	200800	201000	201100	201200	201400	1300
24.60	201500	201600	201800	201900	202000	202200	202300	202400	202600	202700	1300
24.70	202800	203000	203100	203200	203300	203500	203600	203700	203900	204000	1300
24.80	204100	204300	204400	204500	204700	204800	204900	205100	205200	205300	1400
24.90	205500	205600	205700	205900	206000	206100	206300	206400	206500	206700	1300
25.00	206800	206900	207100	207200	207300	207500	207600	207700	207900	208000	1300
25.10	208100	208200	208400	208500	208600	208800	208900	209000	209200	209300	1300
25.20	209400	209600	209700	209800	210000	210100	210300	210400	210500	210700	1400
25.30	210800	210900	211100	211200	211300	211500	211600	211700	211900	212000	1300
25.40	212100	212300	212400	212500	212700	212800	212900	213100	213200	213300	1400
25.50	213500	213600	213700	213900	214000	214100	214300	214400	214500	214700	1300
25.60	214800	215000	215100	215200	215400	215500	215600	215800	215900	216000	1400
25.70	216200	216300	216400	216600	216700	216800	217000	217100	217200	217400	1300
25.80	217500	217700	217800	217900	218100	218200	218300	218500	218600	218700	1400
25.90	218900	219000	219100	219300	219400	219600	219700	219800	220000	220100	1300
26.00	220200	220400	220500	220600	220800	220900	221100	221200	221300	221500	1400
26.10	221600	221700	221900	222000	222100	222300	222400	222600	222700	222800	1400
26.20	223000	223100	223200	223400	223500	223700	223800	223900	224100	224200	1300
26.30	224300	224500	224600	224800	224900	225000	225200	225300	225400	225600	1400
26.40	225700	225900	226000	226100	226300	226400	226500	226700	226800	227000	1400
26.50	227100	227200	227400	227500	227600	227800	227900	228100	228200	228300	1400
26.60	228500	228600	228800	228900	229000	229200	229300	229400	229600	229700	1400
26.70	229900	230000	230100	230300	230400	230600	230700	230800	231000	231100	1400
26.80	231300	231400	231500	231700	231800	231900	232100	232200	232400	232500	1300

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01538700 Susquehanna River at Bloomsburg, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:037
LATITUDE: 405938 LONGITUDE: 0762625 NAD27 DRAINAGE AREA:10560 CONTRIBUTING DRAINAGE AREA: DATUM:
Date Processed: 2013-05-13 13:16 By mroland
Rating for Discharge (DCP) (cfs)
RATING ID: 3.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mejones on 01-02-2013 @ 13:46:56 EST, Updated by mrbeaver on 02-01-2013 @ 12:17:01 EST

RATING REMARKS: Rating extended above Sep 2011 peak, based on revised COE Wyaoming Flood Model

OFFSET: -1.60

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(EXPANDED PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
26.90	232600	232800	232900	233100	233200	233300	233500	233600	233800	233900	1400
27.00	234000	234200	234300	234500	234600	234700	234900	235000	235200	235300	1400
27.10	235400	235600	235700	235900	236000	236100	236300	236400	236600	236700	1400
27.20	236800	237000	237100	237300	237400	237500	237700	237800	238000	238100	1400
27.30	238200	238400	238500	238700	238800	239000	239100	239200	239400	239500	1500
27.40	239700	239800	239900	240100	240200	240400	240500	240600	240800	240900	1400
27.50	241100	241200	241400	241500	241600	241800	241900	242100	242200	242300	1400
27.60	242500	242600	242800	242900	243100	243200	243300	243500	243600	243800	1400
27.70	243900	244000	244200	244300	244500	244600	244800	244900	245000	245200	1400
27.80	245300	245500	245600	245800	245900	246000	246200	246300	246500	246600	1500
27.90	246800	246900	247000	247200	247300	247500	247600	247800	247900	248000	1400
28.00	248200	248300	248500	248600	248800	248900	249000	249200	249300	249500	1400
28.10	249600	249800	249900	250000	250200	250300	250500	250600	250800	250900	1500
28.20	251100	251200	251300	251500	251600	251800	251900	252100	252200	252400	1400
28.30	252500	252600	252800	252900	253100	253200	253400	253500	253700	253800	1400
28.40	253900	254100	254200	254400	254500	254700	254800	255000	255100	255200	1500
28.50	255400	255500	255700	255800	256000	256100	256300	256400	256500	256700	1400
28.60	256800	257000	257100	257300	257400	257600	257700	257900	258000	258100	1500
28.70	258300	258400	258600	258700	258900	259000	259200	259300	259500	259600	1400
28.80	259700	259900	260000	260200	260300	260500	260600	260800	260900	261100	1500
28.90	261200	261400	261500	261600	261800	261900	262100	262200	262400	262500	1500
29.00	262700	262800	263000	263100	263300	263400	263600	263700	263800	264000	1400
29.10	264100	264300	264400	264600	264700	264900	265000	265200	265300	265500	1500
29.20	265600	265800	265900	266100	266200	266300	266500	266600	266800	266900	1500
29.30	267100	267200	267400	267500	267700	267800	268000	268100	268300	268400	1500
29.40	268600	268700	268900	269000	269200	269300	269500	269600	269700	269900	1400
29.50	270000	270200	270300	270500	270600	270800	270900	271100	271200	271400	1500
29.60	271500	271700	271800	272000	272100	272300	272400	272600	272700	272900	1500
29.70	273000	273200	273300	273500	273600	273800	273900	274100	274200	274400	1500
29.80	274500	274700	274800	275000	275100	275300	275400	275600	275700	275900	1500
29.90	276000	276200	276300	276500	276600	276800	276900	277100	277200	277400	1500
30.00	277500	277700	277800	278000	278100	278300	278400	278600	278700	278900	1500
30.10	279000	279200	279300	279500	279600	279800	279900	280100	280200	280400	1500
30.20	280500	280700	280800	281000	281100	281300	281400	281600	281700	281900	1500
30.30	282000	282200	282300	282500	282600	282800	282900	283100	283200	283400	1500
30.40	283500	283700	283800	284000	284100	284300	284400	284600	284700	284900	1500
30.50	285000	285200	285300	285500	285600	285800	286000	286100	286300	286400	1600
30.60	286600	286700	286900	287000	287200	287300	287500	287600	287800	287900	1500

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01538700 Susquehanna River at Bloomsburg, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:037
LATITUDE: 405938 LONGITUDE: 0762625 NAD27 DRAINAGE AREA:10560 CONTRIBUTING DRAINAGE AREA: DATUM:
Date Processed: 2013-05-13 13:16 By mroland
Rating for Discharge (DCP) (cfs)
RATING ID: 3.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mejones on 01-02-2013 @ 13:46:56 EST, Updated by mrbeaver on 02-01-2013 @ 12:17:01 EST

RATING REMARKS: Rating extended above Sep 2011 peak, based on revised COE Wyaoming Flood Model

OFFSET: -1.60

EXPANDED RATING TABLE

Gage height, feet	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
	Discharge (cfs)					(EXPANDED PRECISION)					
30.70	288100	288200	288400	288500	288700	288800	289000	289100	289300	289500	1500
30.80	289600	289800	289900	290100	290200	290400	290500	290700	290800	291000	1500
30.90	291100	291300	291400	291600	291700	291900	292100	292200	292400	292500	1600
31.00	292700	292800	293000	293100	293300	293400	293600	293700	293900	294000	1500
31.10	294200	294400	294500	294700	294800	295000	295100	295300	295400	295600	1500
31.20	295700	295900	296000	296200	296400	296500	296700	296800	297000	297100	1600
31.30	297300	297400	297600	297700	297900	298100	298200	298400	298500	298700	1500
31.40	298800	299000	299100	299300	299400	299600	299800	299900	300100	300200	1600
31.50	300400	300500	300700	300800	301000	301100	301300	301500	301600	301800	1500
31.60	301900	302100	302200	302400	302500	302700	302900	303000	303200	303300	1600
31.70	303500	303600	303800	303900	304100	304300	304400	304600	304700	304900	1500
31.80	305000	305200	305300	305500	305700	305800	306000	306100	306300	306400	1600
31.90	306600	306800	306900	307100	307200	307400	307500	307700	307800	308000	1600
32.00	308200	308300	308500	308600	308800	308900	309100	309300	309400	309600	1500
32.10	309700	309900	310000	310200	310400	310500	310700	310800	311000	311100	1600
32.20	311300	311500	311600	311800	311900	312100	312200	312400	312600	312700	1600
32.30	312900	313000	313200	313300	313500	313700	313800	314000	314100	314300	1600
32.40	314500	314600	314800	314900	315100	315200	315400	315600	315700	315900	1500
32.50	316000	316200	316300	316500	316700	316800	317000	317100	317300	317500	1600
32.60	317600	317800	317900	318100	318300	318400	318600	318700	318900	319000	1600
32.70	319200	319400	319500	319700	319800	320000*	320200	320300	320500	320600	1600
32.80	320800	321000	321100	321300	321400	321600	321700	321900	322100	322200	1600
32.90	322400	322500	322700	322900	323000	323200	323300	323500	323600	323800	1600
33.00	324000	324100	324300	324400	324600	324800	324900	325100	325200	325400	1600
33.10	325600	325700	325900	326000	326200	326400	326500	326700	326800	327000	1600
33.20	327200	327300	327500	327600	327800	328000	328100	328300	328400	328600	1600
33.30	328800	328900	329100	329200	329400	329600	329700	329900	330000	330200	1600
33.40	330400	330500	330700	330800	331000	331200	331300	331500	331600	331800	1600
33.50	332000	332100	332300	332400	332600	332800	332900	333100	333200	333400	1600
33.60	333600	333700	333900	334000	334200	334400	334500	334700	334900	335000	1600
33.70	335200	335300	335500*								

"*" indicates a rating descriptor point

Rating Type: Rating Type: stage-discharge

ID	Starting Date	Ending Date	A	Comments
3.0	10-01-2010 @ 00:00:00 EDT	10-31-2012 @ 23:59:59 EDT	A	rating used to analyze flood flows for COE model
3.0	11-01-2012 @ 00:00:00 EDT	-----	W	rating used to analyze flood flows for COE model

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01540500 Susquehanna River at Danville, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:093
LATITUDE: 405729 LONGITUDE: 0763710 NAD27 DRAINAGE AREA:11220 CONTRIBUTING DRAINAGE AREA: DATUM:431.29 NGVD29
Date Processed: 2013-05-13 13:16 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 12.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mejones on 06-24-2008 @ 06:57:50 EDT, Updated by rrdurlin on 08-15-2008 @ 16:03:54 EDT

RATING REMARKS: upper end extended for NWS flood forecasting

OFFSET: 1.50

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(STANDARD PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
1.80						495*	515	535	555	576	202
1.90	596	617	638	660	681	703	725	747	769	791	218
2.00	814	837	860	883	906	930	953	977	1000	1030	236
2.10	1050	1070	1100	1120	1150	1170	1200	1220	1250	1280	250
2.20	1300	1330	1350	1380	1410	1430	1460	1490	1510	1540	270
2.30	1570	1600	1620	1650	1680	1710	1730	1760	1790	1820	280
2.40	1850	1880	1910	1930	1960	1990	2020	2050	2080	2110	290
2.50	2140	2170	2200	2230	2260	2290	2320	2350	2380	2410	300
2.60	2440	2480	2510	2540	2570	2600	2630	2660	2700	2730	320
2.70	2760	2790	2820	2860	2890	2920	2950	2990	3020	3050	330
2.80	3090	3120	3150	3180	3220	3250	3290	3320	3350	3390	330
2.90	3420	3460	3490	3520	3560	3590	3630	3660	3700	3730	350
3.00	3770	3800	3840	3870	3910	3940	3980	4010	4050	4090	350
3.10	4120	4160	4190	4230	4270	4300	4340	4370	4410	4450	360
3.20	4480	4520	4560	4600	4630	4670	4710	4740	4780	4820	380
3.30	4860	4890	4930	4970	5010	5050	5080	5120	5160	5200	380
3.40	5240	5280	5310	5350	5390	5430	5470	5510	5550	5590	390
3.50	5630	5660	5700	5740	5780	5820	5860	5900	5940	5980	390
3.60	6020	6060	6100	6140	6180	6220	6260	6300	6340	6380	410
3.70	6430	6470	6510	6550	6590	6630	6670	6710	6750	6790	410
3.80	6840	6880	6920	6960	7000	7040	7090	7130	7170	7210	410
3.90	7250	7300	7340	7380	7420	7470	7510	7550	7590	7640*	430
4.00	7680	7720	7760	7810	7850	7890	7940	7980	8020	8070	430
4.10	8110	8150	8200	8240	8280	8330	8370	8410	8460	8500	440
4.20	8550	8590	8630	8680	8720	8770	8810	8860	8900	8940	440
4.30	8990	9030	9080	9120	9170	9210	9260	9300	9350	9390	450
4.40	9440	9480	9530	9570	9620	9670	9710	9760	9800	9850	450
4.50	9890	9940	9990	10000	10100	10100	10200	10200	10300	10300	510
4.60	10400	10400	10400	10500	10500	10600	10600	10700	10700	10800	400
4.70	10800	10900	10900	11000	11000	11100	11100	11200	11200	11200	500
4.80	11300	11300	11400	11400	11500	11500	11600	11600	11700	11700	500
4.90	11800	11800	11900	11900	12000	12000	12100	12100	12200	12200	500
5.00	12300	12300	12400	12400	12500	12500	12600	12600	12600	12700	400
5.10	12700	12800	12800	12900	12900	13000	13000	13100	13100	13200	500
5.20	13200	13300	13300	13400	13400	13500	13500	13600	13600	13700	500
5.30	13700	13800	13800	13900	13900	14000	14000	14100	14100	14200	500
5.40	14200	14300	14300	14400	14500	14500	14600	14600	14700	14700	600
5.50	14800	14800	14900	14900	15000	15000	15100	15100	15200	15200	500

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01540500 Susquehanna River at Danville, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:093
LATITUDE: 405729 LONGITUDE: 0763710 NAD27 DRAINAGE AREA:11220 CONTRIBUTING DRAINAGE AREA: DATUM:431.29 NGVD29
Date Processed: 2013-05-13 13:16 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 12.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mejones on 06-24-2008 @ 06:57:50 EDT, Updated by rrdurlin on 08-15-2008 @ 16:03:54 EDT

RATING REMARKS: upper end extended for NWS flood forecasting

OFFSET: 1.50

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(STANDARD PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
5.60	15300	15300	15400	15400	15500	15500	15600	15600	15700	15700	500
5.70	15800	15800	15900	15900	16000	16100	16100	16200	16200	16300	500
5.80	16300	16400	16400	16500	16500	16600	16600	16700	16700	16800	500
5.90	16800	16900	17000	17000	17100	17100	17200	17200	17300	17300	600
6.00	17400	17400	17500	17500	17600	17700	17700	17800	17800	17900	500
6.10	17900	18000	18000	18100	18100	18200	18200	18300	18400	18400	600
6.20	18500	18500	18600	18600	18700	18700	18800	18800	18900	19000	500
6.30	19000	19100	19100	19200	19200	19300	19300	19400	19500	19500	600
6.40	19600	19600	19700	19700	19800	19800	19900	20000	20000	20100	500
6.50	20100	20200	20200	20300	20300	20400	20500	20500	20600	20600	600
6.60	20700	20700	20800	20900	20900	21000	21000	21100	21100	21200	600
6.70	21300	21300	21400	21400	21500	21500	21600	21600	21700	21800	500
6.80	21800	21900	21900	22000	22000	22100	22200	22200	22300	22300	600
6.90	22400	22500	22500	22600	22600	22700	22700	22800	22900	22900	600
7.00	23000	23000	23100	23100	23200	23300	23300	23400	23400	23500	600
7.10	23600	23600	23700	23700	23800	23800	23900	24000	24000	24100	500
7.20	24100	24200	24300	24300	24400	24400	24500	24600	24600	24700	600
7.30	24700	24800	24900	24900	25000	25000	25100	25100	25200	25300	600
7.40	25300	25400	25400	25500	25600	25600	25700	25700	25800	25900	600
7.50	25900	26000	26000	26100	26200	26200	26300	26300	26400	26500	600
7.60	26500	26600	26600	26700	26800	26800	26900	27000	27000	27100	600
7.70	27100	27200	27300	27300	27400	27400	27500	27600	27600	27700	600
7.80	27700	27800	27900	27900	28000	28100	28100	28200	28200	28300	700
7.90	28400	28400	28500	28500	28600	28700	28700	28800	28900	28900	600
8.00	29000	29000	29100	29200	29200	29300	29300	29400	29500	29500	600
8.10	29600	29700	29700	29800	29800	29900	30000	30000	30100	30200	600
8.20	30200	30300	30300	30400	30500	30500	30600	30700	30700	30800	700
8.30	30900	30900	31000	31000	31100	31200	31200	31300	31400	31400	600
8.40	31500	31500	31600	31700	31700	31800	31900	31900	32000	32100	600
8.50	32100	32200	32200	32300	32400	32400	32500	32600	32600	32700	700
8.60	32800	32800	32900	33000	33000	33100	33100	33200	33300	33300	600
8.70	33400	33500	33500	33600	33700	33700	33800	33900	33900	34000	600
8.80	34000	34100	34200	34200	34300	34400	34400	34500	34600	34600	700
8.90	34700	34800	34800	34900	35000	35000	35100	35200	35200	35300	700
9.00	35400	35400	35500	35500	35600	35700	35700	35800	35900	35900	600
9.10	36000	36100	36100	36200	36300	36300	36400	36500	36500	36600	700
9.20	36700	36700	36800	36900	36900	37000	37100	37100	37200	37300	600
9.30	37300	37400	37500	37500	37600	37700	37700	37800	37900	37900	700
9.40	38000	38100	38100	38200	38300	38300	38400	38500	38500	38600	700

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01540500 Susquehanna River at Danville, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:093
LATITUDE: 405729 LONGITUDE: 0763710 NAD27 DRAINAGE AREA:11220 CONTRIBUTING DRAINAGE AREA: DATUM:431.29 NGVD29
Date Processed: 2013-05-13 13:16 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 12.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mejones on 06-24-2008 @ 06:57:50 EDT, Updated by rrdurlin on 08-15-2008 @ 16:03:54 EDT

RATING REMARKS: upper end extended for NWS flood forecasting

OFFSET: 1.50

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) (STANDARD PRECISION) .00	.01	.02	.03	.04	.05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
9.50	38700	38700	38800	38900	38900	39000	39100	39100	39200	39300	600
9.60	39300	39400	39500	39500	39600	39700	39700	39800	39900	40000	700
9.70	40000	40100	40200	40200	40300	40400	40400	40500	40600	40600	700
9.80	40700	40800	40800	40900	41000	41000	41100	41200	41200	41300	700
9.90	41400	41500	41500	41600	41700	41700	41800	41900	41900	42000	700
10.00	42100	42100	42200	42300	42300	42400	42500	42600	42600	42700	700
10.10	42800	42800	42900	43000	43000	43100	43200	43200	43300	43400	700
10.20	43500	43500	43600	43700	43700	43800	43900	43900	44000	44100	600
10.30	44100	44200	44300	44400	44400	44500	44600	44600	44700	44800	700
10.40	44800	44900	45000	45100	45100	45200	45300	45300	45400	45500	700
10.50	45500	45600	45700	45800	45800	45900	46000	46000	46100	46200	800
10.60	46300	46300	46400	46500	46500	46600*	46700	46800	46800	46900	700
10.70	47000	47100	47200	47200	47300	47400	47500	47600	47600	47700	800
10.80	47800	47900	48000	48000	48100	48200	48300	48400	48400	48500	800
10.90	48600	48700	48800	48800	48900	49000	49100	49200	49200	49300	800
11.00	49400	49500	49600	49700	49700	49800	49900	50000	50100	50100	800
11.10	50200	50300	50400	50500	50500	50600	50700	50800	50900	51000	800
11.20	51000	51100	51200	51300	51400	51400	51500	51600	51700	51800	900
11.30	51900	51900	52000	52100	52200	52300	52400	52400	52500	52600	800
11.40	52700	52800	52800	52900	53000	53100	53200	53300	53300	53400	800
11.50	53500	53600	53700	53800	53800	53900	54000	54100	54200	54300	800
11.60	54300	54400	54500	54600	54700	54800	54800	54900	55000	55100	900
11.70	55200	55300	55400	55400	55500	55600	55700	55800	55900	55900	800
11.80	56000	56100	56200	56300	56400	56500	56500	56600	56700	56800	900
11.90	56900	57000	57000	57100	57200	57300	57400	57500	57600	57600	800
12.00	57700	57800	57900	58000	58100	58200	58200	58300	58400	58500	900
12.10	58600	58700	58800	58800	58900	59000	59100	59200	59300	59400	800
12.20	59400	59500	59600	59700	59800	59900	60000	60100	60100	60200	900
12.30	60300	60400	60500	60600	60700	60700	60800	60900	61000	61100	900
12.40	61200	61300	61400	61400	61500	61600	61700	61800	61900	62000	900
12.50	62100	62100	62200	62300	62400	62500	62600	62700	62800	62900	800
12.60	62900	63000	63100	63200	63300	63400	63500	63600	63600	63700	900
12.70	63800	63900	64000	64100	64200	64300*	64400	64400	64500	64600	900
12.80	64700	64800	64900	65000	65100	65200	65300	65400	65400	65500	900
12.90	65600	65700	65800	65900	66000	66100	66200	66300	66400	66500	900
13.00	66500	66600	66700	66800	66900	67000	67100	67200	67300	67400	1000
13.10	67500	67600	67700	67700	67800	67900	68000	68100	68200	68300	900
13.20	68400	68500	68600	68700	68800	68900	68900	69000	69100	69200	900
13.30	69300	69400	69500	69600	69700	69800	69900	70000	70100	70200	1000

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01540500 Susquehanna River at Danville, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:093
LATITUDE: 405729 LONGITUDE: 0763710 NAD27 DRAINAGE AREA:11220 CONTRIBUTING DRAINAGE AREA: DATUM:431.29 NGVD29
Date Processed: 2013-05-13 13:16 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 12.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mejones on 06-24-2008 @ 06:57:50 EDT, Updated by rrdurlin on 08-15-2008 @ 16:03:54 EDT

RATING REMARKS: upper end extended for NWS flood forecasting

OFFSET: 1.50

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(STANDARD PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
13.40	70300	70300	70400	70500	70600	70700	70800	70900	71000	71100	900
13.50	71200	71300	71400	71500	71600	71700	71800	71800	71900	72000	900
13.60	72100	72200	72300	72400	72500	72600	72700	72800	72900	73000	1000
13.70	73100	73200	73300	73400	73500	73600	73700	73700	73800	73900	900
13.80	74000	74100	74200	74300	74400	74500	74600	74700	74800	74900	1000
13.90	75000	75100	75200	75300	75400	75500	75600	75700	75800	75900	900
14.00	75900	76000	76100	76200	76300	76400	76500	76600	76700	76800	1000
14.10	76900	77000	77100	77200	77300	77400	77500	77600	77700	77800	1000
14.20	77900	78000	78100	78200	78300	78400	78500	78600	78700	78800	1000
14.30	78900	79000	79100	79200	79200	79300	79400	79500	79600	79700	900
14.40	79800	79900	80000	80100	80200	80300	80400	80500	80600	80700	1000
14.50	80800	80900	81000	81100	81200	81300	81400	81500	81600	81700	1000
14.60	81800	81900	82000	82100	82200	82300	82400	82500	82600	82700	1000
14.70	82800	82900	83000	83100	83200	83300	83400	83500	83600	83700	1000
14.80	83800	83900	84000	84100	84200	84300	84400	84500	84600	84700	1000
14.90	84800	84900	85000	85100	85200	85300	85400	85500	85600	85700	1000
15.00	85800	85900	86000	86100	86200	86300	86400	86500	86600	86700	1000
15.10	86800	86900	87000	87100	87200	87300	87400	87500	87600	87700	1000
15.20	87800	87900	88000	88100	88200	88300	88400	88500	88600	88700	1000
15.30	88800	88900	89000	89100	89300	89400	89500	89600	89700	89800	1100
15.40	89900	90000	90100	90200	90300	90400	90500	90600	90700	90800	1000
15.50	90900	91000	91100	91200	91300	91400	91500	91600	91700	91800	1000
15.60	91900	92000	92100	92200	92300	92400	92500	92600	92800	92900	1100
15.70	93000	93100	93200	93300	93400	93500	93600	93700	93800	93900	1000
15.80	94000	94100	94200	94300	94400	94500	94600	94700	94800	94900	1000
15.90	95000	95100	95300	95400	95500	95600	95700	95800	95900	96000	1100
16.00	96100	96200	96300	96400	96500	96600	96700	96800	96900	97000	1000
16.10	97100	97200	97400	97500	97600	97700	97800	97900	98000	98100	1100
16.20	98200	98300	98400	98500	98600	98700	98800	98900	99000	99200	1100
16.30	99300	99400	99500	99600	99700	99800	99900	100000	100000	100000	700
16.40	100000	100000	101000	101000	101000	101000	101000	101000	101000	101000	1000
16.50	101000	102000	102000	102000	102000	102000	102000	102000	102000	102000	1000
16.60	102000	103000	103000	103000	103000	103000	103000	103000	103000	103000	2000
16.70	104000	104000	104000	104000	104000	104000	104000	104000	104000	105000	1000
16.80	105000	105000	105000	105000	105000	105000	105000	105000	105000	106000	1000
16.90	106000	106000	106000	106000	106000	106000	106000	106000	107000	107000	1000
17.00	107000	107000	107000	107000	107000	107000	107000	108000	108000	108000	1000
17.10	108000	108000	108000	108000	108000	108000	109000	109000	109000	109000	1000

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01540500 Susquehanna River at Danville, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:093
LATITUDE: 405729 LONGITUDE: 0763710 NAD27 DRAINAGE AREA:11220 CONTRIBUTING DRAINAGE AREA: DATUM:431.29 NGVD29
Date Processed: 2013-05-13 13:16 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 12.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mejones on 06-24-2008 @ 06:57:50 EDT, Updated by rrdurlin on 08-15-2008 @ 16:03:54 EDT

RATING REMARKS: upper end extended for NWS flood forecasting

OFFSET: 1.50

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(STANDARD PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
17.20	109000	109000	109000	109000	109000	110000	110000	110000	110000	110000	1000
17.30	110000	110000	110000*	110000	111000	111000	111000	111000	111000	111000	1000
17.40	111000	111000	111000	112000	112000	112000	112000	112000	112000	112000	1000
17.50	112000	112000	113000	113000	113000	113000	113000	113000	113000	113000	2000
17.60	114000	114000	114000	114000	114000	114000	114000	114000	114000	115000	1000
17.70	115000	115000	115000	115000	115000	115000	115000	116000	116000	116000	1000
17.80	116000	116000	116000	116000	116000	116000	117000	117000	117000	117000	1000
17.90	117000	117000	117000	117000	117000	118000	118000	118000	118000	118000	1000
18.00	118000	118000	118000	119000	119000	119000	119000	119000	119000	119000	1000
18.10	119000	119000	120000	120000	120000	120000	120000	120000	120000	120000	2000
18.20	121000	121000	121000	121000	121000	121000	121000	121000	121000	122000	1000
18.30	122000	122000	122000	122000	122000	122000	122000	123000	123000	123000	1000
18.40	123000	123000	123000	123000	123000	124000	124000	124000	124000	124000	1000
18.50	124000	124000	124000	124000	125000	125000	125000	125000	125000	125000	1000
18.60	125000	125000	126000	126000	126000	126000	126000	126000	126000	126000	2000
18.70	127000	127000	127000	127000	127000	127000	127000	127000	127000	128000	1000
18.80	128000	128000	128000	128000	128000	128000	128000	129000	129000	129000	1000
18.90	129000	129000	129000	129000	129000	130000	130000	130000	130000	130000	1000
19.00	130000	130000	130000	131000	131000	131000	131000	131000	131000	131000	1000
19.10	131000	131000	132000	132000	132000	132000	132000	132000	132000	132000	2000
19.20	133000	133000	133000	133000	133000	133000	133000	133000	134000	134000	1000
19.30	134000	134000	134000	134000	134000	134000	135000	135000	135000	135000	1000
19.40	135000	135000	135000	135000	136000	136000	136000	136000	136000	136000	1000
19.50	136000	136000	137000	137000	137000	137000	137000	137000	137000	137000	2000
19.60	138000	138000	138000	138000	138000	138000	138000	138000	139000	139000	1000
19.70	139000	139000	139000	139000	139000	139000	140000	140000	140000	140000	1000
19.80	140000	140000	140000	140000	141000	141000	141000	141000	141000	141000	1000
19.90	141000	141000	142000	142000	142000	142000	142000	142000	142000	142000	2000
20.00	143000	143000	143000	143000	143000	143000	143000	143000	144000	144000	1000
20.10	144000	144000	144000	144000	144000	144000	145000	145000	145000	145000	1000
20.20	145000	145000	145000	145000	146000	146000	146000	146000	146000	146000	1000
20.30	146000	146000	147000	147000	147000	147000	147000	147000	147000	148000	2000
20.40	148000	148000	148000	148000	148000	148000	148000	149000	149000	149000	1000
20.50	149000	149000	149000	149000	149000	150000	150000	150000	150000	150000	1000
20.60	150000	150000	150000	151000	151000	151000	151000	151000	151000	151000	1000
20.70	151000	152000	152000	152000	152000	152000	152000	152000	153000	153000	2000
20.80	153000	153000	153000	153000	153000	153000	154000	154000	154000	154000	1000
20.90	154000	154000	154000	154000	155000	155000	155000	155000	155000	155000	1000

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01540500 Susquehanna River at Danville, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:093
LATITUDE: 405729 LONGITUDE: 0763710 NAD27 DRAINAGE AREA:11220 CONTRIBUTING DRAINAGE AREA: DATUM:431.29 NGVD29
Date Processed: 2013-05-13 13:16 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 12.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mejones on 06-24-2008 @ 06:57:50 EDT, Updated by rrdurlin on 08-15-2008 @ 16:03:54 EDT

RATING REMARKS: upper end extended for NWS flood forecasting

OFFSET: 1.50

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(STANDARD PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
21.00	155000	156000	156000	156000	156000	156000	156000	156000	156000	157000	2000
21.10	157000	157000	157000	157000	157000	157000	157000	158000	158000	158000	1000
21.20	158000	158000	158000	158000	159000	159000	159000	159000	159000	159000	1000
21.30	159000	159000	160000	160000	160000	160000	160000	160000	160000	161000	2000
21.40	161000	161000	161000	161000	161000	161000	161000	162000	162000	162000	1000
21.50	162000	162000	162000	162000	163000	163000	163000	163000	163000	163000	1000
21.60	163000	163000	164000	164000	164000	164000	164000	164000	164000	164000	2000
21.70	165000	165000	165000	165000	165000	165000	165000	166000	166000	166000	1000
21.80	166000	166000	166000	166000	167000	167000	167000	167000	167000	167000	1000
21.90	167000	167000	168000	168000	168000	168000	168000	168000	168000	169000	2000
22.00	169000	169000	169000	169000	169000	169000	169000	170000	170000	170000	1000
22.10	170000	170000	170000	170000	171000	171000	171000	171000	171000	171000	1000
22.20	171000	171000	172000	172000	172000	172000	172000	172000	172000	173000	2000
22.30	173000	173000	173000	173000	173000	173000	174000	174000	174000	174000	1000
22.40	174000	174000	174000	174000	175000	175000	175000	175000	175000	175000	1000
22.50	175000	176000	176000	176000	176000	176000	176000	176000	177000	177000	2000
22.60	177000	177000	177000	177000	177000	178000	178000	178000	178000	178000	1000
22.70	178000	178000	178000	179000	179000	179000	179000	179000	179000	179000	2000
22.80	180000	180000	180000	180000	180000	180000	180000	181000	181000	181000	1000
22.90	181000	181000	181000	181000	182000	182000	182000	182000	182000	182000	1000
23.00	182000	182000	183000	183000	183000	183000	183000	183000	183000	184000	2000
23.10	184000	184000	184000	184000	184000	184000	185000	185000	185000	185000	1000
23.20	185000	185000	185000	186000	186000	186000	186000	186000	186000	186000	2000
23.30	187000	187000	187000	187000	187000	187000	187000	188000	188000	188000	1000
23.40	188000	188000	188000	188000	188000	189000	189000	189000	189000	189000	1000
23.50	189000	189000	190000	190000	190000	190000	190000	190000	190000	191000	2000
23.60	191000	191000	191000	191000	191000	191000	192000	192000	192000	192000	1000
23.70	192000	192000	192000	193000	193000	193000	193000	193000	193000	193000	2000
23.80	194000	194000	194000	194000	194000	194000	194000	195000	195000	195000	1000
23.90	195000	195000	195000	195000	196000	196000	196000	196000	196000	196000	1000
24.00	196000	197000	197000	197000	197000	197000	197000	197000	198000	198000	2000
24.10	198000	198000	198000	198000	198000	199000	199000	199000	199000	199000	1000
24.20	199000	199000	200000	200000	200000	200000	200000	200000	200000	201000	2000
24.30	201000	201000	201000	201000	201000	201000	202000	202000	202000	202000	1000
24.40	202000	202000	202000	203000	203000	203000	203000	203000	203000	203000	2000
24.50	204000	204000	204000	204000	204000	204000	205000	205000	205000	205000	1000
24.60	205000	205000	205000	206000	206000	206000	206000	206000	206000	206000	2000
24.70	207000	207000	207000	207000	207000	207000	207000	208000	208000	208000	1000
24.80	208000	208000	208000	208000	209000	209000	209000	209000	209000	209000	1000

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01540500 Susquehanna River at Danville, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:093
LATITUDE: 405729 LONGITUDE: 0763710 NAD27 DRAINAGE AREA:11220 CONTRIBUTING DRAINAGE AREA: DATUM:431.29 NGVD29
Date Processed: 2013-05-13 13:16 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 12.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mejones on 06-24-2008 @ 06:57:50 EDT, Updated by rrdurlin on 08-15-2008 @ 16:03:54 EDT

RATING REMARKS: upper end extended for NWS flood forecasting

OFFSET: 1.50

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) (STANDARD PRECISION) .00	.01	.02	.03	.04	.05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
24.90	209000	210000	210000	210000	210000	210000	210000	210000	211000	211000	2000
25.00	211000	211000	211000	211000	212000	212000	212000	212000	212000	212000	1000
25.10	212000	213000	213000	213000	213000	213000	213000	213000	214000	214000	2000
25.20	214000	214000	214000	214000	214000	215000	215000	215000	215000	215000	1000
25.30	215000	216000	216000	216000	216000	216000	216000	216000	217000	217000	2000
25.40	217000	217000	217000	217000	217000	218000	218000	218000	218000	218000	1000
25.50	218000	218000	219000	219000	219000	219000	219000	219000	220000	220000	2000
25.60	220000	220000	220000	220000	220000	221000	221000	221000	221000	221000	1000
25.70	221000	221000	222000	222000	222000	222000	222000	222000	223000	223000	2000
25.80	223000	223000	223000	223000	223000	224000	224000	224000	224000	224000	1000
25.90	224000	224000	225000	225000	225000	225000	225000	225000	226000	226000	2000
26.00	226000	226000	226000	226000	226000	227000	227000	227000	227000	227000	1000
26.10	227000	228000	228000	228000	228000	228000	228000	228000	229000	229000	2000
26.20	229000	229000	229000	229000	229000	230000	230000	230000	230000	230000	1000
26.30	230000	231000	231000	231000	231000	231000	231000	231000	232000	232000	2000
26.40	232000	232000	232000	232000	233000	233000	233000	233000	233000	233000	1000
26.50	233000	234000	234000	234000	234000	234000	234000	235000	235000	235000	2000
26.60	235000	235000	235000	235000	236000	236000	236000	236000	236000	236000	2000
26.70	237000	237000	237000	237000	237000	237000	237000	238000	238000	238000	1000
26.80	238000	238000	238000	239000	239000	239000	239000	239000	239000	239000	2000
26.90	240000	240000	240000	240000	240000	240000	241000	241000	241000	241000	1000
27.00	241000	241000	241000	242000	242000	242000	242000	242000	242000	243000	2000
27.10	243000	243000	243000	243000	243000	243000	244000	244000	244000	244000	1000
27.20	244000	244000	245000	245000	245000	245000	245000	245000	245000	246000	2000
27.30	246000	246000	246000	246000	246000	247000	247000	247000	247000	247000	1000
27.40	247000	248000	248000	248000	248000	248000	248000	248000	249000	249000	2000
27.50	249000	249000	249000	249000	250000	250000	250000	250000	250000	250000	1000
27.60	250000	251000	251000	251000	251000	251000	251000	252000	252000	252000	2000
27.70	252000	252000	252000	253000	253000	253000	253000	253000	253000	253000	2000
27.80	254000	254000	254000	254000	254000	254000	255000	255000	255000	255000	1000
27.90	255000	255000	256000	256000	256000	256000	256000	256000	257000	257000	2000
28.00	257000	257000	257000	257000	257000	258000	258000	258000	258000	258000	1000
28.10	258000	259000	259000	259000	259000	259000	259000	260000	260000	260000	2000
28.20	260000*	260000	260000	260000	261000	261000	261000	261000	261000	261000	1000
28.30	261000	262000	262000	262000	262000	262000	262000	263000	263000	263000	2000
28.40	263000	263000	263000	263000	264000	264000	264000	264000	264000	264000	1000
28.50	264000	265000	265000	265000	265000	265000	265000	265000	266000	266000	2000
28.60	266000	266000	266000	266000	267000	267000	267000	267000	267000	267000	1000

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01540500 Susquehanna River at Danville, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:093
LATITUDE: 405729 LONGITUDE: 0763710 NAD27 DRAINAGE AREA:11220 CONTRIBUTING DRAINAGE AREA: DATUM:431.29 NGVD29
Date Processed: 2013-05-13 13:16 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 12.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mejones on 06-24-2008 @ 06:57:50 EDT, Updated by rrdurlin on 08-15-2008 @ 16:03:54 EDT

RATING REMARKS: upper end extended for NWS flood forecasting

OFFSET: 1.50

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) (STANDARD PRECISION) .00	.01	.02	.03	.04	.05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
28.70	267000	268000	268000	268000	268000	268000	268000	268000	269000	269000	2000
28.80	269000	269000	269000	269000	270000	270000	270000	270000	270000	270000	1000
28.90	270000	271000	271000	271000	271000	271000	271000	271000	272000	272000	2000
29.00	272000	272000	272000	272000	272000	273000	273000	273000	273000	273000	1000
29.10	273000	274000	274000	274000	274000	274000	274000	274000	275000	275000	2000
29.20	275000	275000	275000	275000	275000	276000	276000	276000	276000	276000	1000
29.30	276000	277000	277000	277000	277000	277000	277000	277000	278000	278000	2000
29.40	278000	278000	278000	278000	279000	279000	279000	279000	279000	279000	1000
29.50	279000	280000	280000	280000	280000	280000	280000	280000	281000	281000	2000
29.60	281000	281000	281000	281000	282000	282000	282000	282000	282000	282000	1000
29.70	282000	283000	283000	283000	283000	283000	283000	284000	284000	284000	2000
29.80	284000	284000	284000	284000	285000	285000	285000	285000	285000	285000	1000
29.90	285000	286000	286000	286000	286000	286000	286000	287000	287000	287000	2000
30.00	287000	287000	287000	287000	288000	288000	288000	288000	288000	288000	2000
30.10	289000	289000	289000	289000	289000	289000	289000	290000	290000	290000	1000
30.20	290000	290000	290000	291000	291000	291000	291000	291000	291000	291000	2000
30.30	292000	292000	292000	292000	292000	292000	293000	293000	293000	293000	1000
30.40	293000	293000	293000	294000	294000	294000	294000	294000	294000	295000	2000
30.50	295000	295000	295000	295000	295000	295000	296000	296000	296000	296000	1000
30.60	296000	296000	297000	297000	297000	297000	297000	297000	297000	298000	2000
30.70	298000	298000	298000	298000	298000	299000	299000	299000	299000	299000	1000
30.80	299000	299000	300000	300000	300000	300000	300000	300000	301000	301000	2000
30.90	301000	301000	301000	301000	301000	302000	302000	302000	302000	302000	1000
31.00	302000	303000	303000	303000	303000	303000	303000	304000	304000	304000	2000
31.10	304000	304000	304000	304000	305000	305000	305000	305000	305000	305000	2000
31.20	306000	306000	306000	306000	306000	306000	306000	307000	307000	307000	1000
31.30	307000	307000	307000	308000	308000	308000	308000	308000	308000	308000	2000
31.40	309000	309000	309000	309000	309000	309000	310000	310000	310000	310000	1000
31.50	310000	310000	311000	311000	311000	311000	311000	311000	311000	312000	2000
31.60	312000	312000	312000	312000	312000	313000	313000	313000	313000	313000	1000
31.70	313000	314000	314000	314000	314000	314000	314000	314000	315000	315000	2000
31.80	315000	315000	315000	315000	316000	316000	316000	316000	316000	316000	2000
31.90	317000	317000	317000	317000	317000	317000	317000	318000	318000	318000	1000
32.00	318000	318000	318000	319000	319000	319000	319000	319000	319000	320000	2000
32.10	320000	320000	320000	320000	320000	320000	321000	321000	321000	321000	1000
32.20	321000	321000	322000	322000	322000	322000	322000	322000	323000	323000	2000
32.30	323000	323000	323000	323000	323000	324000	324000	324000	324000	324000	1000
32.40	324000	325000	325000	325000	325000	325000	325000	326000	326000	326000	2000

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01540500 Susquehanna River at Danville, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:093
LATITUDE: 405729 LONGITUDE: 0763710 NAD27 DRAINAGE AREA:11220 CONTRIBUTING DRAINAGE AREA: DATUM:431.29 NGVD29
Date Processed: 2013-05-13 13:16 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 12.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mejones on 06-24-2008 @ 06:57:50 EDT, Updated by rrdurlin on 08-15-2008 @ 16:03:54 EDT

RATING REMARKS: upper end extended for NWS flood forecasting

OFFSET: 1.50

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) (STANDARD PRECISION) .00	.01	.02	.03	.04	.05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
32.50	326000	326000	326000	326000	327000	327000	327000	327000	327000	327000	2000
32.60	328000	328000	328000	328000	328000	328000	329000	329000	329000	329000	1000
32.70	329000	329000	330000	330000	330000	330000	330000	330000	330000	331000	2000
32.80	331000	331000	331000	331000	331000	332000	332000	332000	332000	332000	1000
32.90	332000	333000	333000	333000	333000	333000	333000	334000	334000	334000	2000
33.00	334000	334000	334000	335000	335000	335000	335000	335000	335000	335000	2000
33.10	336000	336000	336000	336000	336000	336000	337000	337000	337000	337000	1000
33.20	337000	337000	338000	338000	338000	338000	338000	338000	339000	339000	2000
33.30	339000	339000	339000	339000	339000	340000	340000	340000	340000	340000	1000
33.40	340000	341000	341000	341000	341000	341000	341000	342000	342000	342000	2000
33.50	342000	342000	342000	343000	343000	343000	343000	343000	343000	344000	2000
33.60	344000	344000	344000	344000	344000	345000	345000	345000	345000	345000	1000
33.70	345000	345000	346000	346000	346000	346000	346000	346000	347000	347000	2000
33.80	347000	347000	347000	347000	348000	348000	348000	348000	348000	348000	2000
33.90	349000	349000	349000	349000	349000	349000	350000	350000	350000	350000	1000
34.00	350000	350000	351000	351000	351000	351000	351000	351000	352000	352000	2000
34.10	352000	352000	352000	352000	353000	353000	353000	353000	353000	353000	1000
34.20	353000	354000	354000	354000	354000	354000	354000	355000	355000	355000	2000
34.30	355000	355000	355000	356000	356000	356000	356000	356000	356000	357000	2000
34.40	357000	357000	357000	357000	357000	358000	358000	358000	358000	358000	1000
34.50	358000	359000	359000	359000	359000	359000	359000	360000	360000	360000	2000
34.60	360000	360000	360000	361000	361000	361000	361000	361000	361000	362000	2000
34.70	362000	362000	362000	362000	362000	363000	363000	363000	363000	363000	1000
34.80	363000	364000	364000	364000	364000	364000	364000	365000	365000	365000	2000
34.90	365000	365000	365000	366000	366000	366000	366000	366000	366000	367000	2000
35.00	367000	367000	367000	367000	367000	368000	368000	368000	368000	368000	1000
35.10	368000	369000	369000	369000	369000	369000	369000	370000	370000	370000	2000
35.20	370000*	370000	370000	370000	371000	371000	371000	371000	371000	371000	2000
35.30	372000	372000	372000	372000	372000	372000	373000	373000	373000	373000	1000
35.40	373000	374000	374000	374000	374000	374000	374000	375000	375000	375000	2000
35.50	375000	375000	375000	376000	376000	376000	376000	376000	376000	377000	2000
35.60	377000	377000	377000	377000	377000	378000	378000	378000	378000	378000	1000
35.70	378000	379000	379000	379000	379000	379000	379000	380000	380000	380000	2000
35.80	380000	380000	380000	381000	381000	381000	381000	381000	381000	382000	2000
35.90	382000	382000	382000	382000	382000	383000	383000	383000	383000	383000	1000
36.00	383000	384000	384000	384000	384000	384000	384000	385000	385000	385000	2000
36.10	385000	385000	385000	386000	386000	386000	386000	386000	386000	387000	2000
36.20	387000	387000	387000	387000	387000	388000	388000	388000	388000	388000	1000
36.30	388000	389000	389000	389000	389000	389000	389000	390000	390000	390000	2000

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01540500 Susquehanna River at Danville, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:093
LATITUDE: 405729 LONGITUDE: 0763710 NAD27 DRAINAGE AREA:11220 CONTRIBUTING DRAINAGE AREA: DATUM:431.29 NGVD29
Date Processed: 2013-05-13 13:16 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 12.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mejones on 06-24-2008 @ 06:57:50 EDT, Updated by rrdurlin on 08-15-2008 @ 16:03:54 EDT

RATING REMARKS: upper end extended for NWS flood forecasting

OFFSET: 1.50

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(STANDARD PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
36.40	390000	390000	390000	391000	391000	391000	391000	391000	392000	392000	2000
36.50	392000	392000	392000	392000	393000	393000	393000	393000	393000	393000	2000
36.60	394000	394000	394000	394000	394000	394000	395000	395000	395000	395000	1000
36.70	395000	395000	396000	396000	396000	396000	396000	396000	397000	397000	2000
36.80	397000	397000	397000	397000	398000	398000	398000	398000	398000	398000	2000
36.90	399000	399000	399000	399000	399000	400000	400000	400000	400000	400000	1000
37.00	400000	401000	401000	401000	401000	401000	401000	402000	402000	402000	2000
37.10	402000	402000	402000	403000	403000	403000	403000	403000	403000	404000	2000
37.20	404000	404000	404000	404000	404000	405000	405000	405000	405000	405000	2000
37.30	406000	406000	406000	406000	406000	406000	407000	407000	407000	407000	1000
37.40	407000	407000	408000	408000	408000	408000	408000	408000	409000	409000	2000
37.50	409000	409000	409000	409000	410000	410000	410000	410000	410000	410000	2000
37.60	411000	411000	411000	411000	411000	412000	412000	412000	412000	412000	1000
37.70	412000	413000	413000	413000	413000	413000	413000	414000	414000	414000	2000
37.80	414000	414000	414000	415000	415000	415000	415000	415000	416000	416000	2000
37.90	416000	416000	416000	416000	417000	417000	417000	417000	417000	417000	2000
38.00	418000	418000	418000	418000	418000	418000	419000	419000	419000	419000	1000
38.10	419000	419000	420000	420000	420000	420000	420000	421000	421000	421000	2000
38.20	421000	421000	421000	422000	422000	422000	422000	422000	422000	423000	2000
38.30	423000	423000	423000	423000	423000	424000	424000	424000	424000	424000	2000
38.40	425000	425000	425000	425000	425000	425000	426000	426000	426000	426000	1000
38.50	426000	426000	427000	427000	427000	427000	427000	428000	428000	428000	2000
38.60	428000	428000	428000	429000	429000	429000	429000	429000	429000	430000	2000
38.70	430000	430000	430000	430000	430000	431000	431000	431000	431000	431000	2000
38.80	432000	432000	432000	432000	432000	432000	433000	433000	433000	433000	1000
38.90	433000	433000	434000	434000	434000	434000	434000	435000	435000	435000	2000
39.00	435000	435000	435000	436000	436000	436000	436000	436000	436000	437000	2000
39.10	437000	437000	437000	437000	438000	438000	438000	438000	438000	438000	2000
39.20	439000	439000	439000	439000	439000	439000	440000	440000	440000	440000	1000
39.30	440000	441000	441000	441000	441000	441000	441000	442000	442000	442000	2000
39.40	442000	442000	442000	443000	443000	443000	443000	443000	444000	444000	2000
39.50	444000	444000	444000	444000	445000	445000	445000	445000	445000	445000	2000
39.60	446000	446000	446000	446000	446000	447000	447000	447000	447000	447000	1000
39.70	447000	448000	448000	448000	448000	448000	448000	449000	449000	449000	2000
39.80	449000	449000	450000	450000	450000	450000	450000	450000	451000	451000	2000
39.90	451000	451000	451000	452000	452000	452000	452000	452000	452000	453000	2000
40.00	453000	453000	453000	453000	453000	454000	454000	454000	454000	454000	2000
40.10	455000	455000	455000	455000	455000	455000	456000	456000	456000	456000	1000

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01540500 Susquehanna River at Danville, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:093
LATITUDE: 405729 LONGITUDE: 0763710 NAD27 DRAINAGE AREA:11220 CONTRIBUTING DRAINAGE AREA: DATUM:431.29 NGVD29
Date Processed: 2013-05-13 13:16 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 12.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by mejones on 06-24-2008 @ 06:57:50 EDT, Updated by rrdurlin on 08-15-2008 @ 16:03:54 EDT

RATING REMARKS: upper end extended for NWS flood forecasting

OFFSET: 1.50

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(STANDARD PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
40.20	456000	457000	457000	457000	457000	457000	457000	458000	458000	458000	2000
40.30	458000	458000	458000	459000	459000	459000	459000	459000	460000	460000	2000
40.40	460000	460000	460000	460000	461000	461000	461000	461000	461000	462000	2000
40.50	462000	462000	462000	462000	462000	463000	463000	463000	463000	463000	1000
40.60	463000	464000	464000	464000	464000	464000	465000	465000	465000	465000	2000
40.70	465000	465000	466000	466000	466000	466000	466000	467000	467000	467000	2000
40.80	467000	467000	467000	468000	468000	468000	468000	468000	469000	469000	2000
40.90	469000	469000	469000	469000	470000	470000	470000	470000	470000	471000	2000
41.00	471000	471000	471000	471000	471000	472000	472000	472000	472000	472000	2000
41.10	473000	473000	473000	473000	473000	473000	474000	474000	474000	474000	1000
41.20	474000	474000	475000	475000	475000	475000	475000	476000	476000	476000	2000
41.30	476000	476000	476000	477000	477000	477000	477000	477000	478000	478000	2000
41.40	478000	478000	478000	478000	479000	479000	479000	479000	479000	480000	2000
41.50	480000	480000	480000	480000	480000	481000	481000	481000	481000	481000	2000
41.60	482000	482000	482000	482000	482000	482000	483000	483000	483000	483000	1000
41.70	483000	484000	484000	484000	484000	484000	484000	485000	485000	485000	2000
41.80	485000	485000	486000	486000	486000	486000	486000	487000	487000	487000	2000
41.90	487000	487000	487000	488000	488000	488000	488000	488000	489000	489000	2000
42.00	489000	489000	489000	489000	490000	490000	490000	490000	490000	491000	2000
42.10	491000	491000	491000	491000	491000	492000	492000	492000	492000	492000	2000
42.20	493000	493000	493000	493000	493000	493000	494000	494000	494000	494000	1000
42.30	494000	495000	495000	495000	495000	495000	495000	496000	496000	496000	2000
42.40	496000	496000	497000	497000	497000	497000	497000	498000	498000	498000	2000
42.50	498000	498000	498000	499000	499000	499000	499000	499000	500000	500000	2000
42.60	500000	500000	500000	500000	501000	501000	501000	501000	501000	502000	2000
42.70	502000	502000	502000	502000	502000	503000	503000	503000	503000	503000	2000
42.80	504000	504000	504000	504000	504000	505000	505000	505000	505000	505000	1000
42.90	505000	506000	506000	506000	506000	506000	507000	507000	507000	507000	2000
43.00	507000	507000	508000	508000	508000	508000	508000	509000	509000	509000	2000
43.10	509000	509000	510000	510000	510000	510000	510000	510000	511000	511000	2000
43.20	511000*										

"*" indicates a rating descriptor point

Rating Type: Rating Type: stage-discharge

ID	Starting Date	Ending Date	A	Comments
12.0	03-05-2008 @ 06:30:00 EST	10-11-2012 @ 23:59:59 EDT	A	
12.0	10-12-2012 @ 00:00:00 EDT	-----	W	

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01554000 Susquehanna River at Sunbury, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:109
LATITUDE: 405004 LONGITUDE: 0764937 NAD27 DRAINAGE AREA:18300 CONTRIBUTING DRAINAGE AREA: DATUM:408.61 NGVD29
Date Processed: 2013-05-13 13:17 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 18.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by jjrote on 02-01-2012 @ 17:52:07 EST, Updated by mrbeaver on 02-08-2012 @ 07:22:31 EST

RATING REMARKS: same as 15.0 abv 7.6ft (low-end redefined #498-501,507)

OFFSET: 3.50 BREAK,OFFSET: (10.50,4.40)

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) (EXPANDED PRECISION) .00	.01	.02	.03	.04	.05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
5.70	2300*	2325	2350	2374	2400	2425	2450	2476	2502	2528	254.0
5.80	2554	2580	2606	2633	2659	2686	2713	2740	2768	2795	269.0
5.90	2823	2850	2878	2906	2934	2963	2991	3020	3049	3078	284.0
6.00	3107	3136	3166	3196	3225	3255	3285	3316	3346	3377	300.0
6.10	3407	3438	3469	3501	3532	3564	3595	3627	3659	3691	317.0
6.20	3724	3756	3789	3822	3855	3888	3921	3955	3989	4022	332.0
6.30	4056	4091	4125	4159	4194	4229	4264	4299	4334	4370	350.0
6.40	4406	4441	4477	4514	4550	4586	4623	4660	4697	4734	365.0
6.50	4771	4809	4847	4884	4922	4961	4999	5037	5076	5115	383.0
6.60	5154	5193	5233	5272	5312	5352	5392	5432	5472	5513	400.0
6.70	5554	5595	5636	5677	5719	5760	5802	5844	5886	5928	417.0
6.80	5971	6013	6056	6099	6142	6186	6229	6273	6317	6361	434.0
6.90	6405	6450	6494	6539	6584	6629	6674	6720	6765	6811	452.0
7.00	6857	6904	6950	6996	7043	7090	7137	7184	7232	7279	470.0
7.10	7327	7375	7423	7472	7520	7569	7618	7667	7716	7766	488.0
7.20	7815	7865	7915	7965	8015	8066	8117	8167	8218	8270	506.0
7.30	8321	8373	8425	8477	8529	8581	8634	8686	8739	8792	525.0
7.40	8846	8899	8953	9006	9060	9115	9169	9224	9278	9333	542.0
7.50	9388	9444	9499	9555	9611	9667	9723	9780	9836	9893	562.0
7.60	9950*	10000	10060	10110	10170	10220	10280	10330	10390	10440	550.0
7.70	10500*	10560	10620	10680	10740	10800	10860	10920	10980	11040	600.0
7.80	11100*	11160	11230	11290	11350	11410	11480	11540	11610	11670	630.0
7.90	11730	11800	11860	11930	11990	12060	12130	12190	12260	12320	660.0
8.00	12390*	12450	12520	12580	12650	12720	12780	12850	12910	12980	660.0
8.10	13050	13110	13180	13250	13310	13380	13450	13520	13580	13650	670.0
8.20	13720	13790	13860	13930	14000	14070	14140	14210	14280	14350	700.0
8.30	14420	14490	14560	14630	14700	14770	14840	14910	14990	15060	710.0
8.40	15130	15200	15280	15350	15420	15490	15570	15640	15720	15790	730.0
8.50	15860	15940	16010	16090	16160	16240	16310	16390	16470	16540	760.0
8.60	16620	16700	16770	16850	16930	17000	17080	17160	17240	17320	770.0
8.70	17390	17470	17550	17630	17710	17790	17870	17950	18030	18110	800.0
8.80	18190	18270	18350	18430	18510	18590	18680	18760	18840	18920	810.0
8.90	19000	19090	19170	19250	19340	19420	19500	19590	19670	19760	840.0
9.00	19840*	19920	20000	20090	20170	20250	20330	20420	20500	20580	830.0
9.10	20670	20750	20830	20920	21000	21090	21170	21250	21340	21420	840.0
9.20	21510	21600	21680	21770	21850	21940	22030	22110	22200	22290	860.0
9.30	22370	22460	22550	22640	22720	22810	22900	22990	23080	23170	880.0
9.40	23250	23340	23430	23520	23610	23700	23790	23880	23970	24060	910.0

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01554000 Susquehanna River at Sunbury, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:109
LATITUDE: 405004 LONGITUDE: 0764937 NAD27 DRAINAGE AREA:18300 CONTRIBUTING DRAINAGE AREA: DATUM:408.61 NGVD29
Date Processed: 2013-05-13 13:17 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 18.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by jjrote on 02-01-2012 @ 17:52:07 EST, Updated by mrbeaver on 02-08-2012 @ 07:22:31 EST

RATING REMARKS: same as 15.0 abv 7.6ft (low-end redefined #498-501,507)

OFFSET: 3.50 BREAK,OFFSET: (10.50,4.40)

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(EXPANDED PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
9.50	24160	24250	24340	24430	24520	24610	24710	24800	24890	24980	920.0
9.60	25080	25170	25260	25360	25450	25540	25640	25730	25830	25920	940.0
9.70	26020	26110	26210	26300	26400	26490	26590	26680	26780	26880	950.0
9.80	26970	27070	27170	27270	27360	27460	27560	27660	27760	27850	980.0
9.90	27950	28050	28150	28250	28350	28450	28550	28650	28750	28850	1000
10.00	28950*	29050	29150	29250	29350	29450	29550	29650	29750	29850	1000
10.10	29950	30050	30150	30250	30350	30450	30550	30660	30760	30860	1010
10.20	30960	31060	31170	31270	31370	31480	31580	31680	31790	31890	1040
10.30	32000	32100	32210	32310	32410	32520	32630	32730	32840	32940	1050
10.40	33050	33160	33260	33370	33480	33580	33690	33800	33900	34010	1070
10.50	34120*	34230	34340	34440	34550	34660	34770	34880	34980	35090	1080
10.60	35200	35310	35420	35530	35640	35750	35860	35970	36080	36190	1100
10.70	36300*	36400	36500	36600	36700	36800	36900	37000	37100	37200	1000
10.80	37300*	37410	37520	37630	37740	37850	37960	38070	38180	38290	1100
10.90	38400*	38500	38600	38700	38800	38900	39000	39100	39200	39300	1000
11.00	39400*	39500	39610	39710	39810	39920	40020	40130	40230	40340	1040
11.10	40440	40540	40650	40750	40860	40960	41070	41170	41280	41390	1050
11.20	41490	41600	41700	41810	41910	42020	42130	42230	42340	42450	1060
11.30	42550	42660	42770	42870	42980	43090	43200	43300	43410	43520	1080
11.40	43630	43740	43840	43950	44060	44170	44280	44390	44490	44600	1080
11.50	44710	44820	44930	45040	45150	45260	45370	45480	45590	45700	1100
11.60	45810	45920	46030	46140	46250	46360	46470	46580	46690	46810	1110
11.70	46920	47030	47140	47250	47360	47480	47590	47700	47810	47920	1120
11.80	48040	48150	48260	48370	48490	48600	48710	48830	48940	49050	1130
11.90	49170	49280	49390	49510	49620	49740	49850	49960	50080	50190	1140
12.00	50310	50420	50540	50650	50770	50880	51000	51110	51230	51340	1150
12.10	51460	51570	51690	51810	51920	52040	52160	52270	52390	52510	1160
12.20	52620	52740	52860	52970	53090	53210	53330	53440	53560	53680	1180
12.30	53800	53910	54030	54150	54270	54390	54510	54620	54740	54860	1180
12.40	54980	55100	55220	55340	55460	55580	55700	55820	55940	56060	1200
12.50	56180	56300	56420	56540	56660	56780	56900	57020	57140	57260	1200
12.60	57380	57510	57630	57750	57870	57990	58110	58240	58360	58480	1220
12.70	58600	58720	58850	58970	59090	59210	59340	59460	59580	59710	1230
12.80	59830	59950	60080	60200	60320	60450	60570	60700	60820	60940	1240
12.90	61070	61190	61320	61440	61570	61690	61820	61940	62070	62190	1250
13.00	62320	62440	62570	62700	62820	62950	63070	63200	63330	63450	1260
13.10	63580	63710	63830	63960	64090	64210	64340	64470	64600	64720	1270
13.20	64850	64980	65110	65230	65360	65490	65620	65750	65880	66000	1280
13.30	66130	66260	66390	66520	66650	66780	66910	67040	67170	67300	1290

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01554000 Susquehanna River at Sunbury, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:109
LATITUDE: 405004 LONGITUDE: 0764937 NAD27 DRAINAGE AREA:18300 CONTRIBUTING DRAINAGE AREA: DATUM:408.61 NGVD29
Date Processed: 2013-05-13 13:17 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 18.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by jjrote on 02-01-2012 @ 17:52:07 EST, Updated by mrbeaver on 02-08-2012 @ 07:22:31 EST

RATING REMARKS: same as 15.0 abv 7.6ft (low-end redefined #498-501,507)

OFFSET: 3.50 BREAK,OFFSET: (10.50,4.40)

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(EXPANDED PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
13.40	67420	67550	67680	67810	67940	68080	68210	68340	68470	68600	1310
13.50	68730	68860	68990	69120	69250	69380	69510	69650	69780	69910	1310
13.60	70040	70170	70310	70440	70570	70700	70830	70970	71100	71230	1330
13.70	71370	71500	71630	71760	71900	72030	72160	72300	72430	72570	1330
13.80	72700	72830	72970	73100	73240	73370	73510	73640	73770	73910	1340
13.90	74040	74180	74320	74450	74590	74720	74860	74990	75130	75260	1360
14.00	75400	75540	75670	75810	75950	76080	76220	76350	76490	76630	1370
14.10	76770	76900	77040	77180	77310	77450	77590	77730	77870	78000	1370
14.20	78140	78280	78420	78560	78700	78830	78970	79110	79250	79390	1390
14.30	79530	79670	79810	79950	80090	80230	80360	80500	80640	80780	1390
14.40	80920	81060	81210	81350	81490	81630	81770	81910	82050	82190	1410
14.50	82330	82470	82610	82760	82900	83040	83180	83320	83460	83610	1420
14.60	83750	83890	84030	84180	84320	84460	84600	84750	84890	85030	1430
14.70	85180	85320	85460	85610	85750	85890	86040	86180	86330	86470	1430
14.80	86610	86760	86900	87050	87190	87340	87480	87630	87770	87920	1450
14.90	88060	88210	88350	88500	88640	88790	88930	89080	89230	89370	1460
15.00	89520	89670	89810	89960	90110	90250	90400	90550	90690	90840	1470
15.10	90990	91130	91280	91430	91580	91720	91870	92020	92170	92320	1480
15.20	92470	92610	92760	92910	93060	93210	93360	93510	93650	93800	1480
15.30	93950	94100	94250	94400	94550	94700	94850	95000	95150	95300	1500
15.40	95450	95600	95750	95900	96050	96200	96350	96510	96660	96810	1510
15.50	96960	97110	97260	97410	97570	97720	97870	98020	98170	98330	1520
15.60	98480	98630	98780	98930	99090	99240	99390	99550	99700	99850	1520
15.70	100000	100200	100300	100500	100600	100800	100900	101100	101200	101400	1500
15.80	101500	101700	101900	102000	102200	102300	102500	102600	102800	102900	1600
15.90	103100	103200	103400	103600	103700	103900	104000	104200	104300	104500	1500
16.00	104600	104800	105000	105100	105300	105400	105600	105700	105900	106100	1600
16.10	106200	106400	106500	106700	106800	107000	107200	107300	107500	107600	1600
16.20	107800	108000	108100	108300	108400	108600	108700	108900	109100	109200	1600
16.30	109400	109500	109700	109900	110000	110200	110300	110500	110700	110800	1600
16.40	111000	111100	111300	111500	111600	111800	111900	112100	112300	112400	1600
16.50	112600	112700	112900	113100	113200	113400	113600	113700	113900	114000	1600
16.60	114200	114400	114500	114700	114900	115000	115200	115300	115500	115700	1600
16.70	115800	116000	116200	116300	116500	116600	116800	117000	117100	117300	1700
16.80	117500	117600	117800	118000	118100	118300	118500	118600	118800	118900	1600
16.90	119100	119300	119400	119600	119800	119900	120100	120300	120400	120600	1700
17.00	120800	120900	121100	121300	121400	121600	121800	121900	122100	122300	1600
17.10	122400	122600	122800	122900	123100	123300	123400	123600	123800	123900	1700

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01554000 Susquehanna River at Sunbury, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:109
LATITUDE: 405004 LONGITUDE: 0764937 NAD27 DRAINAGE AREA:18300 CONTRIBUTING DRAINAGE AREA: DATUM:408.61 NGVD29
Date Processed: 2013-05-13 13:17 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 18.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by jjrote on 02-01-2012 @ 17:52:07 EST, Updated by mrbeaver on 02-08-2012 @ 07:22:31 EST

RATING REMARKS: same as 15.0 abv 7.6ft (low-end redefined #498-501,507)

OFFSET: 3.50 BREAK,OFFSET: (10.50,4.40)

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(EXPANDED PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
17.20	124100	124300	124400	124600	124800	124900	125100	125300	125500	125600	1700
17.30	125800	126000	126100	126300	126500	126600	126800	127000	127100	127300	1700
17.40	127500	127700	127800	128000	128200	128300	128500	128700	128800	129000	1700
17.50	129200	129400	129500	129700	129900	130000	130200	130400	130600	130700	1700
17.60	130900	131100	131200	131400	131600	131800	131900	132100	132300	132400	1700
17.70	132600	132800	133000	133100	133300	133500	133700	133800	134000	134200	1800
17.80	134400	134500	134700	134900	135000	135200	135400	135600	135700	135900	1700
17.90	136100	136300	136400	136600	136800	137000	137100	137300	137500	137700	1700
18.00	137800	138000	138200	138400	138500	138700	138900	139100	139300	139400	1800
18.10	139600	139800	140000	140100	140300	140500	140700	140800	141000	141200	1800
18.20	141400	141600	141700	141900	142100	142300	142400	142600	142800	143000	1800
18.30	143200	143300	143500	143700	143900	144000	144200	144400	144600	144800	1700
18.40	144900	145100	145300	145500	145700	145800	146000	146200	146400	146600	1800
18.50	146700	146900	147100	147300	147500	147600	147800	148000	148200	148400	1900
18.60	148600	148700	148900	149100	149300	149500	149600	149800	150000	150200	1800
18.70	150400	150500	150700	150900	151100	151300	151500	151600	151800	152000	1800
18.80	152200	152400	152600	152700	152900	153100	153300	153500	153700	153800	1800
18.90	154000	154200	154400	154600	154800	154900	155100	155300	155500	155700	1900
19.00	155900	156100	156200	156400	156600	156800	157000	157200	157400	157500	1800
19.10	157700	157900	158100	158300	158500	158700	158800	159000	159200	159400	1900
19.20	159600	159800	160000	160200	160300	160500	160700	160900	161100	161300	1900
19.30	161500	161700	161800	162000	162200	162400	162600	162800	163000	163200	1800
19.40	163300	163500	163700	163900	164100	164300	164500	164700	164900	165000	1900
19.50	165200	165400	165600	165800	166000	166200	166400	166600	166800	166900	1900
19.60	167100	167300	167500	167700	167900	168100	168300	168500	168700	168900	1900
19.70	169000	169200	169400	169600	169800	170000	170200	170400	170600	170800	2000
19.80	171000	171200	171300	171500	171700	171900	172100	172300	172500	172700	1900
19.90	172900	173100	173300	173500	173700	173900	174100	174200	174400	174600	1900
20.00	174800	175000	175200	175400	175600	175800	176000	176200	176400	176600	2000
20.10	176800	177000	177200	177400	177600	177700	177900	178100	178300	178500	1900
20.20	178700	178900	179100	179300	179500	179700	179900	180100	180300	180500	2000
20.30	180700	180900	181100	181300	181500	181700	181900	182100	182300	182500	2000
20.40	182700	182900	183100	183300	183500	183700	183900	184100	184300	184400	1900
20.50	184600	184800	185000	185200	185400	185600	185800	186000	186200	186400	2000
20.60	186600	186800	187000	187200	187400	187600	187800	188000	188200	188400	2000
20.70	188600	188800	189000	189200	189400	189600	189800	190000	190200	190400	2000
20.80	190600	190800	191100	191300	191500	191700	191900	192100	192300	192500	2100
20.90	192700	192900	193100	193300	193500	193700	193900	194100	194300	194500	2000

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01554000 Susquehanna River at Sunbury, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:109
LATITUDE: 405004 LONGITUDE: 0764937 NAD27 DRAINAGE AREA:18300 CONTRIBUTING DRAINAGE AREA: DATUM:408.61 NGVD29
Date Processed: 2013-05-13 13:17 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 18.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by jjrote on 02-01-2012 @ 17:52:07 EST, Updated by mrbeaver on 02-08-2012 @ 07:22:31 EST

RATING REMARKS: same as 15.0 abv 7.6ft (low-end redefined #498-501,507)

OFFSET: 3.50 BREAK,OFFSET: (10.50,4.40)

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(EXPANDED PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
21.00	194700	194900	195100	195300	195500	195700	195900	196100	196300	196500	2000
21.10	196700	196900	197100	197300	197500	197800	198000	198200	198400	198600	2100
21.20	198800	199000	199200	199400	199600	199800	200000	200200	200400	200600	2000
21.30	200800	201000	201200	201400	201700	201900	202100	202300	202500	202700	2100
21.40	202900	203100	203300	203500	203700	203900	204100	204300	204500	204800	2100
21.50	205000	205200	205400	205600	205800	206000	206200	206400	206600	206800	2000
21.60	207000	207300	207500	207700	207900	208100	208300	208500	208700	208900	2100
21.70	209100	209300	209600	209800	210000	210200	210400	210600	210800	211000	2100
21.80	211200	211400	211700	211900	212100	212300	212500	212700	212900	213100	2100
21.90	213300	213500	213800	214000	214200	214400	214600	214800	215000	215200	2200
22.00	215500	215700	215900	216100	216300	216500	216700	216900	217200	217400	2100
22.10	217600	217800	218000	218200	218400	218600	218900	219100	219300	219500	2100
22.20	219700	219900	220100	220400	220600	220800	221000	221200	221400	221600	2200
22.30	221900	222100	222300	222500	222700	222900	223100	223400	223600	223800	2100
22.40	224000	224200	224400	224700	224900	225100	225300	225500	225700	226000	2200
22.50	226200	226400	226600	226800	227000	227300	227500	227700	227900	228100	2100
22.60	228300	228600	228800	229000	229200	229400	229600	229900	230100	230300	2200
22.70	230500	230700	231000	231200	231400	231600	231800	232000	232300	232500	2200
22.80	232700	232900	233100	233400	233600	233800	234000	234200	234500	234700	2200
22.90	234900	235100	235300	235600	235800	236000	236200	236400	236700	236900	2200
23.00	237100	237300	237500	237800	238000	238200	238400	238600	238900	239100	2200
23.10	239300	239500	239800	240000	240200	240400	240600	240900	241100	241300	2200
23.20	241500	241800	242000	242200	242400	242600	242900	243100	243300	243500	2300
23.30	243800	244000	244200	244400	244700	244900	245100	245300	245600	245800	2200
23.40	246000*	246200	246500	246700	246900	247100	247400	247600	247800	248000	2300
23.50	248300	248500	248700	249000	249200	249400	249600	249900	250100	250300	2200
23.60	250500	250800	251000	251200	251500	251700	251900	252100	252400	252600	2300
23.70	252800	253100	253300	253500	253800	254000	254200	254400	254700	254900	2300
23.80	255100	255400	255600	255800	256100	256300	256500	256700	257000	257200	2300
23.90	257400	257700	257900	258100	258400	258600	258800	259100	259300	259500	2400
24.00	259800	260000	260200	260400	260700	260900	261100	261400	261600	261800	2300
24.10	262100	262300	262500	262800	263000	263200	263500	263700	263900	264200	2300
24.20	264400	264600	264900	265100	265300	265600	265800	266000	266300	266500	2300
24.30	266700	267000	267200	267500	267700	267900	268200	268400	268600	268900	2400
24.40	269100	269300	269600	269800	270000	270300	270500	270700	271000	271200	2400
24.50	271500	271700	271900	272200	272400	272600	272900	273100	273300	273600	2300
24.60	273800	274100	274300	274500	274800	275000	275200	275500	275700	276000	2400
24.70	276200	276400	276700	276900	277200	277400	277600	277900	278100	278300	2400
24.80	278600	278800	279100	279300	279500	279800	280000	280300	280500	280700	2400

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01554000 Susquehanna River at Sunbury, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:109
LATITUDE: 405004 LONGITUDE: 0764937 NAD27 DRAINAGE AREA:18300 CONTRIBUTING DRAINAGE AREA: DATUM:408.61 NGVD29
Date Processed: 2013-05-13 13:17 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 18.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by jjrote on 02-01-2012 @ 17:52:07 EST, Updated by mrbeaver on 02-08-2012 @ 07:22:31 EST

RATING REMARKS: same as 15.0 abv 7.6ft (low-end redefined #498-501,507)

OFFSET: 3.50 BREAK,OFFSET: (10.50,4.40)

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(EXPANDED PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
24.90	281000	281200	281500	281700	281900	282200	282400	282700	282900	283100	2400
25.00	283400	283600	283900	284100	284300	284600	284800	285100	285300	285500	2400
25.10	285800	286000	286300	286500	286800	287000	287200	287500	287700	288000	2400
25.20	288200	288500	288700	288900	289200	289400	289700	289900	290200	290400	2400
25.30	290600	290900	291100	291400	291600	291900	292100	292300	292600	292800	2500
25.40	293100	293300	293600	293800	294100	294300	294500	294800	295000	295300	2400
25.50	295500	295800	296000	296300	296500	296700	297000	297200	297500	297700	2500
25.60	298000	298200	298500	298700	299000	299200	299500	299700	299900	300200	2400
25.70	300400	300700	300900	301200	301400	301700	301900	302200	302400	302700	2500
25.80	302900	303200	303400	303700	303900	304200	304400	304600	304900	305100	2500
25.90	305400	305600	305900	306100	306400	306600	306900	307100	307400	307600	2500
26.00	307900	308100	308400	308600	308900	309100	309400	309600	309900	310100	2500
26.10	310400	310600	310900	311100	311400	311600	311900	312100	312400	312600	2500
26.20	312900	313100	313400	313600	313900	314100	314400	314600	314900	315200	2500
26.30	315400	315700	315900	316200	316400	316700	316900	317200	317400	317700	2500
26.40	317900	318200	318400	318700	318900	319200	319400	319700	320000	320200	2600
26.50	320500	320700	321000	321200	321500	321700	322000	322200	322500	322700	2500
26.60	323000	323300	323500	323800	324000	324300	324500	324800	325000	325300	2600
26.70	325600	325800	326100	326300	326600	326800	327100	327300	327600	327900	2500
26.80	328100	328400	328600	328900	329100	329400	329600	329900	330200	330400	2600
26.90	330700	330900	331200	331400	331700	332000	332200	332500	332700	333000	2600
27.00	333300	333500	333800	334000	334300	334500	334800	335100	335300	335600	2500
27.10	335800	336100	336400	336600	336900	337100	337400	337600	337900	338200	2600
27.20	338400	338700	338900	339200	339500	339700	340000	340200	340500	340800	2600
27.30	341000	341300	341600	341800	342100	342300	342600	342900	343100	343400	2600
27.40	343600	343900	344200	344400	344700	344900	345200	345500	345700	346000	2700
27.50	346300	346500	346800	347000	347300	347600	347800	348100	348400	348600	2600
27.60	348900	349100	349400	349700	349900	350200	350500	350700	351000	351300	2600
27.70	351500	351800	352000	352300	352600	352800	353100	353400	353600	353900	2700
27.80	354200	354400	354700	355000	355200	355500	355800	356000	356300	356500	2600
27.90	356800	357100	357300	357600	357900	358100	358400	358700	358900	359200	2700
28.00	359500	359700	360000	360300	360500	360800	361100	361300	361600	361900	2600
28.10	362100	362400	362700	362900	363200	363500	363800	364000	364300	364600	2700
28.20	364800	365100	365400	365600	365900	366200	366400	366700	367000	367200	2700
28.30	367500	367800	368000	368300	368600	368900	369100	369400	369700	369900	2700
28.40	370200	370500	370700	371000	371300	371600	371800	372100	372400	372600	2700
28.50	372900	373200	373400	373700	374000	374300	374500	374800	375100	375300	2700
28.60	375600	375900	376200	376400	376700	377000	377200	377500	377800	378100	2700

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01554000 Susquehanna River at Sunbury, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:109
LATITUDE: 405004 LONGITUDE: 0764937 NAD27 DRAINAGE AREA:18300 CONTRIBUTING DRAINAGE AREA: DATUM:408.61 NGVD29
Date Processed: 2013-05-13 13:17 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 18.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by jjrote on 02-01-2012 @ 17:52:07 EST, Updated by mrbeaver on 02-08-2012 @ 07:22:31 EST

RATING REMARKS: same as 15.0 abv 7.6ft (low-end redefined #498-501,507)

OFFSET: 3.50 BREAK,OFFSET: (10.50,4.40)

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(EXPANDED PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
28.70	378300	378600	378900	379200	379400	379700	380000	380200	380500	380800	2800
28.80	381100	381300	381600	381900	382200	382400	382700	383000	383300	383500	2700
28.90	383800	384100	384300	384600	384900	385200	385400	385700	386000	386300	2700
29.00	386500	386800	387100	387400	387600	387900	388200	388500	388700	389000	2800
29.10	389300	389600	389900	390100	390400	390700	391000	391200	391500	391800	2800
29.20	392100	392300	392600	392900	393200	393400	393700	394000	394300	394600	2700
29.30	394800	395100	395400	395700	395900	396200	396500	396800	397100	397300	2800
29.40	397600	397900	398200	398400	398700	399000	399300	399600	399800	400100	2800
29.50	400400	400700	401000	401200	401500	401800	402100	402400	402600	402900	2800
29.60	403200	403500	403800	404000	404300	404600	404900	405200	405400	405700	2800
29.70	406000	406300	406600	406800	407100	407400	407700	408000	408200	408500	2800
29.80	408800	409100	409400	409700	409900	410200	410500	410800	411100	411300	2800
29.90	411600	411900	412200	412500	412800	413000	413300	413600	413900	414200	2900
30.00	414500	414700	415000	415300	415600	415900	416200	416400	416700	417000	2800
30.10	417300	417600	417900	418100	418400	418700	419000	419300	419600	419900	2800
30.20	420100	420400	420700	421000	421300	421600	421800	422100	422400	422700	2900
30.30	423000	423300	423600	423800	424100	424400	424700	425000	425300	425600	2900
30.40	425900	426100	426400	426700	427000	427300	427600	427900	428100	428400	2800
30.50	428700	429000	429300	429600	429900	430200	430400	430700	431000	431300	2900
30.60	431600	431900	432200	432500	432800	433000	433300	433600	433900	434200	2900
30.70	434500	434800	435100	435400	435600	435900	436200	436500	436800	437100	2900
30.80	437400	437700	438000	438200	438500	438800	439100	439400	439700	440000	2900
30.90	440300	440600	440900	441200	441400	441700	442000	442300	442600	442900	2900
31.00	443200	443500	443800	444100	444400	444700	444900	445200	445500	445800	2900
31.10	446100	446400	446700	447000	447300	447600	447900	448200	448500	448700	2900
31.20	449000	449300	449600	449900	450200	450500	450800	451100	451400	451700	3000
31.30	452000	452300	452600	452900	453200	453400	453700	454000	454300	454600	2900
31.40	454900	455200	455500	455800	456100	456400	456700	457000	457300	457600	3000
31.50	457900	458200	458500	458800	459100	459300	459600	459900	460200	460500	2900
31.60	460800	461100	461400	461700	462000	462300	462600	462900	463200	463500	3000
31.70	463800	464100	464400	464700	465000	465300	465600	465900	466200	466500	3000
31.80	466800	467100	467400	467700	468000	468300	468600	468900	469200	469500	3000
31.90	469800	470100	470400	470700	471000	471300	471600	471900	472200	472500	3000
32.00	472800	473100	473400	473700	474000	474300	474600	474900	475200	475500	3000
32.10	475800	476100	476400	476700	477000	477300	477600	477900	478200	478500	3000
32.20	478800	479100	479400	479700	480000	480300	480600	480900	481200	481500	3000
32.30	481800	482100	482400	482700	483000	483300	483600	483900	484200	484500	3000
32.40	484800	485100	485400	485700	486000	486300	486600	486900	487200	487500	3000

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01554000 Susquehanna River at Sunbury, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:109
LATITUDE: 405004 LONGITUDE: 0764937 NAD27 DRAINAGE AREA:18300 CONTRIBUTING DRAINAGE AREA: DATUM:408.61 NGVD29
Date Processed: 2013-05-13 13:17 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 18.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by jjrote on 02-01-2012 @ 17:52:07 EST, Updated by mrbeaver on 02-08-2012 @ 07:22:31 EST

RATING REMARKS: same as 15.0 abv 7.6ft (low-end redefined #498-501,507)

OFFSET: 3.50 BREAK,OFFSET: (10.50,4.40)

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(EXPANDED PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
32.50	487800	488100	488400	488700	489100	489400	489700	490000	490300	490600	3100
32.60	490900	491200	491500	491800	492100	492400	492700	493000	493300	493600	3000
32.70	493900	494200	494500	494800	495100	495500	495800	496100	496400	496700	3100
32.80	497000	497300	497600	497900	498200	498500	498800	499100	499400	499700	3100
32.90	500100	500400	500700	501000	501300	501600	501900	502200	502500	502800	3000
33.00	503100	503400	503700	504000	504400	504700	505000	505300	505600	505900	3100
33.10	506200	506500	506800	507100	507400	507800	508100	508400	508700	509000	3100
33.20	509300	509600	509900	510200	510500	510800	511200	511500	511800	512100	3100
33.30	512400	512700	513000	513300	513600	513900	514300	514600	514900	515200	3100
33.40	515500	515800	516100	516400	516700	517100	517400	517700	518000	518300	3100
33.50	518600	518900	519200	519500	519900	520200	520500	520800	521100	521400	3100
33.60	521700	522000	522400	522700	523000	523300	523600	523900	524200	524600	3200
33.70	524900	525200	525500	525800	526100	526400	526700	527100	527400	527700	3100
33.80	528000	528300	528600	528900	529300	529600	529900	530200	530500	530800	3200
33.90	531200	531500	531800	532100	532400	532700	533000	533400	533700	534000	3100
34.00	534300	534600	534900	535300	535600	535900	536200	536500	536800	537100	3200
34.10	537500	537800	538100	538400	538700	539100	539400	539700	540000	540300	3100
34.20	540600	541000	541300	541600	541900	542200	542500	542900	543200	543500	3200
34.30	543800	544100	544500	544800	545100	545400	545700	546000	546400	546700	3200
34.40	547000*	547300	547600	547900	548200	548500	548900	549200	549500	549800	3100
34.50	550100	550400	550700	551000	551300	551600	551900	552300	552600	552900	3100
34.60	553200	553500	553800	554100	554400	554700	555000	555400	555700	556000	3100
34.70	556300	556600	556900	557200	557500	557800	558200	558500	558800	559100	3100
34.80	559400	559700	560000	560300	560600	561000	561300	561600	561900	562200	3100
34.90	562500	562800	563100	563500	563800	564100	564400	564700	565000	565300	3100
35.00	565600	566000	566300	566600	566900	567200	567500	567800	568100	568500	3200
35.10	568800	569100	569400	569700	570000	570300	570700	571000	571300	571600	3100
35.20	571900	572200	572500	572900	573200	573500	573800	574100	574400	574700	3200
35.30	575100	575400	575700	576000	576300	576600	576900	577300	577600	577900	3100
35.40	578200	578500	578800	579200	579500	579800	580100	580400	580700	581000	3200
35.50	581400	581700	582000	582300	582600	582900	583300	583600	583900	584200	3100
35.60	584500	584800	585200	585500	585800	586100	586400	586800	587100	587400	3200
35.70	587700	588000	588300	588700	589000	589300	589600	589900	590200	590600	3200
35.80	590900	591200	591500	591800	592200	592500	592800	593100	593400	593800	3200
35.90	594100	594400	594700	595000	595400	595700	596000	596300	596600	596900	3200
36.00	597300	597600	597900	598200	598500	598900	599200	599500	599800	600100	3200
36.10	600500	600800	601100	601400	601800	602100	602400	602700	603000	603400	3200
36.20	603700	604000	604300	604600	605000	605300	605600	605900	606200	606600	3200
36.30	606900	607200	607500	607900	608200	608500	608800	609100	609500	609800	3200

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01554000 Susquehanna River at Sunbury, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:109
LATITUDE: 405004 LONGITUDE: 0764937 NAD27 DRAINAGE AREA:18300 CONTRIBUTING DRAINAGE AREA: DATUM:408.61 NGVD29
Date Processed: 2013-05-13 13:17 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 18.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by jjrote on 02-01-2012 @ 17:52:07 EST, Updated by mrbeaver on 02-08-2012 @ 07:22:31 EST

RATING REMARKS: same as 15.0 abv 7.6ft (low-end redefined #498-501,507)

OFFSET: 3.50 BREAK,OFFSET: (10.50,4.40)

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(EXPANDED PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
36.40	610100	610400	610800	611100	611400	611700	612100	612400	612700	613000	3200
36.50	613300	613700	614000	614300	614600	615000	615300	615600	615900	616300	3300
36.60	616600	616900	617200	617600	617900	618200	618500	618900	619200	619500	3200
36.70	619800	620100	620500	620800	621100	621400	621800	622100	622400	622700	3300
36.80	623100	623400	623700	624100	624400	624700	625000	625400	625700	626000	3200
36.90	626300	626700	627000	627300	627600	628000	628300	628600	628900	629300	3300
37.00	629600	629900	630300	630600	630900	631200	631600	631900	632200	632500	3300
37.10	632900	633200	633500	633900	634200	634500	634800	635200	635500	635800	3200
37.20	636100	636500	636800	637100	637500	637800	638100	638400	638800	639100	3300
37.30	639400	639800	640100	640400	640700	641100	641400	641700	642100	642400	3300
37.40	642700	643100	643400	643700	644000	644400	644700	645000	645400	645700	3300
37.50	646000	646400	646700	647000	647300	647700	648000	648300	648700	649000	3300
37.60	649300	649700	650000	650300	650700	651000	651300	651600	652000	652300	3300
37.70	652600	653000	653300	653600	654000	654300	654600	655000	655300	655600	3400
37.80	656000	656300	656600	657000	657300	657600	658000	658300	658600	659000	3300
37.90	659300	659600	660000	660300	660600	661000	661300	661600	662000	662300	3300
38.00	662600	663000	663300	663600	664000	664300	664600	665000	665300	665600	3400
38.10	666000	666300	666600	667000	667300	667600	668000	668300	668600	669000	3300
38.20	669300	669600	670000	670300	670600	671000	671300	671700	672000	672300	3400
38.30	672700	673000	673300	673700	674000	674300	674700	675000	675300	675700	3300
38.40	676000	676400	676700	677000	677400	677700	678000	678400	678700	679100	3400
38.50	679400	679700	680100	680400	680700	681100	681400	681800	682100	682400	3400
38.60	682800	683100	683400	683800	684100	684500	684800	685100	685500	685800	3300
38.70	686100	686500	686800	687200	687500	687800	688200	688500	688900	689200	3400
38.80	689500	689900	690200	690600	690900	691200	691600	691900	692200	692600	3400
38.90	692900	693300	693600	693900	694300	694600	695000	695300	695600	696000	3400
39.00	696300	696700	697000	697400	697700	698000	698400	698700	699100	699400	3400
39.10	699700	700100	700400	700800	701100	701400	701800	702100	702500	702800	3500
39.20	703200	703500	703800	704200	704500	704900	705200	705500	705900	706200	3400
39.30	706600	706900	707300	707600	707900	708300	708600	709000	709300	709700	3400
39.40	710000	710300	710700	711000	711400	711700	712100	712400	712800	713100	3400
39.50	713400	713800	714100	714500	714800	715200	715500	715800	716200	716500	3500
39.60	716900	717200	717600	717900	718300	718600	719000	719300	719600	720000	3400
39.70	720300	720700	721000	721400	721700	722100	722400	722800	723100	723400	3500
39.80	723800	724100	724500	724800	725200	725500	725900	726200	726600	726900	3500
39.90	727300	727600	727900	728300	728600	729000	729300	729700	730000	730400	3400
40.00	730700	731100	731400	731800	732100	732500	732800	733200	733500	733800	3500
40.10	734200	734500	734900	735200	735600	735900	736300	736600	737000	737300	3500

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:01554000 Susquehanna River at Sunbury, PA TYPE:STREAM AGENCY:USGS STATE:42 COUNTY:109
LATITUDE: 405004 LONGITUDE: 0764937 NAD27 DRAINAGE AREA:18300 CONTRIBUTING DRAINAGE AREA: DATUM:408.61 NGVD29
Date Processed: 2013-05-13 13:17 By mroland
Rating for Discharge (DCP - PRIMARY) (cfs)
RATING ID: 18.0 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by jjrote on 02-01-2012 @ 17:52:07 EST, Updated by mrbeaver on 02-08-2012 @ 07:22:31 EST

RATING REMARKS: same as 15.0 abv 7.6ft (low-end redefined #498-501,507)

OFFSET: 3.50 BREAK,OFFSET: (10.50,4.40)

EXPANDED RATING TABLE

Gage height, feet	Discharge (cfs) .00	.01	.02	.03	.04	(EXPANDED PRECISION) .05	.06	.07	.08	.09	DIFF IN Q PER .1 UNITS
40.20	737700	738000	738400	738700	739100	739400	739800	740100	740500	740800	3500
40.30	741200	741500	741900	742200	742600	742900	743300	743600	744000	744300	3500
40.40	744700	745000	745400	745700	746100	746400	746800	747100	747500	747800	3500
40.50	748200	748500	748900	749200	749600	749900	750300	750600	751000	751300	3500
40.60	751700	752000	752400	752700	753100	753400	753800	754100	754500	754800	3500
40.70	755200	755500	755900	756300	756600	757000	757300	757700	758000	758400	3500
40.80	758700	759100	759400	759800	760100	760500	760800	761200	761500	761900	3500
40.90	762200	762600	763000	763300	763700	764000	764400	764700	765100	765400	3600
41.00	765800	766100	766500	766800	767200	767600	767900	768300	768600	769000	3500
41.10	769300	769700	770000	770400	770700	771100	771500	771800	772200	772500	3600
41.20	772900	773200	773600	773900	774300	774700	775000	775400	775700	776100	3500
41.30	776400	776800	777100	777500	777900	778200	778600	778900	779300	779600	3600
41.40	780000*										

"*" indicates a rating descriptor point

Rating Type: Rating Type: stage-discharge

ID	Starting Date	Ending Date	A	Comments
18.0	11-03-2010 @ 00:00:00 EDT	12-19-2012 @ 23:59:59 EST	A	Arbitrary...Rating 18 eliminates Rat15 low-water shift.
18.0	12-20-2012 @ 00:00:00 EST	-----	W	Arbitrary...Rating 18 eliminates Rat15 low-water shift.

APPENDIX D

HEC-RAS Results for Multiple Profile Analysis

HEC-RAS Plan: Frequency 2013

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
West Branch	West Branch	5.26	2-yr	88900.00	416.38	437.4		437.55	0.000117	3.53	25168.88	1847.55	0.17
West Branch	West Branch	5.26	5-yr	133300.00	416.38	441.8		442.03	0.000120	3.82	34868.02	2337.56	0.17
West Branch	West Branch	5.26	10-yr	167500.00	416.38	444.6		444.81	0.000123	4.05	41429.72	2430.28	0.17
West Branch	West Branch	5.26	25-yr	215100.00	416.38	448.2		448.45	0.000121	4.31	51056.83	2796.83	0.17
West Branch	West Branch	5.26	50-yr	257500.00	416.38	451.0		451.34	0.000120	4.52	59234.88	2890.59	0.16
West Branch	West Branch	5.26	100-yr	301100.00	416.38	454.0		454.30	0.000116	4.69	67797.80	2956.56	0.16
West Branch	West Branch	5.26	500-yr	421600.00	416.38	460.3		460.69	0.000118	5.26	87333.73	3263.64	0.16
West Branch	West Branch	5.08	2-yr	88900.00	416.32	437.3		437.50	0.000141	3.82	23250.48	1812.52	0.19
West Branch	West Branch	5.08	5-yr	133300.00	416.32	441.7		441.98	0.000141	4.06	32808.77	2294.95	0.19
West Branch	West Branch	5.08	10-yr	167500.00	416.32	444.5		444.76	0.000144	4.28	39180.04	2342.86	0.18
West Branch	West Branch	5.08	25-yr	215100.00	416.32	448.1		448.40	0.000142	4.51	48478.00	2770.49	0.18
West Branch	West Branch	5.08	50-yr	257500.00	416.32	451.0		451.29	0.000139	4.72	56544.18	2854.65	0.17
West Branch	West Branch	5.08	100-yr	301100.00	416.32	453.9		454.25	0.000133	4.87	65047.97	2939.80	0.17
West Branch	West Branch	5.08	500-yr	421600.00	416.32	460.2		460.64	0.000134	5.43	84530.63	3249.85	0.17
West Branch	West Branch	4.85	2-yr	88900.00	416.23	437.2		437.42	0.000173	4.00	22755.98	1845.34	0.18
West Branch	West Branch	4.85	5-yr	133300.00	416.23	441.6		441.90	0.000176	4.47	32591.58	2345.88	0.19
West Branch	West Branch	4.85	10-yr	167500.00	416.23	444.3		444.69	0.000171	4.81	39128.91	2434.21	0.19
West Branch	West Branch	4.85	25-yr	215100.00	416.23	447.9		448.32	0.000160	5.16	48305.75	2699.14	0.19
West Branch	West Branch	4.85	50-yr	257500.00	416.23	450.8		451.22	0.000154	5.45	56199.27	2844.33	0.18
West Branch	West Branch	4.85	100-yr	301100.00	416.23	453.7		454.18	0.000145	5.68	64705.64	2963.59	0.18
West Branch	West Branch	4.85	500-yr	421600.00	416.23	460.0		460.57	0.000142	6.37	84920.45	3501.67	0.19
West Branch	West Branch	4.58	2-yr	88900.00	414.77	437.1		437.33	0.000124	3.45	26811.26	2116.14	0.15
West Branch	West Branch	4.58	5-yr	133300.00	414.77	441.6		441.80	0.000125	3.95	36770.91	2352.42	0.16
West Branch	West Branch	4.58	10-yr	167500.00	414.77	444.3		444.59	0.000125	4.29	43383.89	2516.10	0.16
West Branch	West Branch	4.58	25-yr	215100.00	414.77	447.9		448.22	0.000121	4.67	52867.45	2749.80	0.16
West Branch	West Branch	4.58	50-yr	257500.00	414.77	450.8		451.13	0.000119	4.97	60836.65	2832.92	0.17
West Branch	West Branch	4.58	100-yr	301100.00	414.77	453.7		454.09	0.000115	5.21	69216.15	2893.15	0.17
West Branch	West Branch	4.58	500-yr	421600.00	414.77	460.0		460.48	0.000116	5.93	88301.91	3241.17	0.17
West Branch	West Branch	4.22	2-yr	88900.00	414.47	437.0		437.22	0.000154	3.59	25888.84	2151.67	0.17
West Branch	West Branch	4.22	5-yr	133300.00	414.47	441.5		441.71	0.000142	4.01	36182.63	2433.00	0.17
West Branch	West Branch	4.22	10-yr	167500.00	414.47	444.2		444.49	0.000138	4.33	42927.61	2503.34	0.17
West Branch	West Branch	4.22	25-yr	215100.00	414.47	447.8		448.13	0.000132	4.68	52102.13	2589.59	0.17
West Branch	West Branch	4.22	50-yr	257500.00	414.47	450.7		451.04	0.000130	4.99	59696.03	2724.51	0.17
West Branch	West Branch	4.22	100-yr	301100.00	414.47	453.6		454.00	0.000125	5.22	68321.77	3134.54	0.17
West Branch	West Branch	4.22	500-yr	421600.00	414.47	459.9		460.39	0.000125	5.89	88968.85	3337.10	0.17
West Branch	West Branch	4.02	2-yr	88900.00	414.26	437.0		437.16	0.000072	2.82	32800.56	2232.32	0.12
West Branch	West Branch	4.02	5-yr	133300.00	414.26	441.5		441.64	0.000076	3.32	42860.41	2309.36	0.13
West Branch	West Branch	4.02	10-yr	167500.00	414.26	444.2		444.43	0.000080	3.67	49496.14	2599.83	0.13
West Branch	West Branch	4.02	25-yr	215100.00	414.26	447.8		448.07	0.000082	4.06	59200.77	2764.03	0.14
West Branch	West Branch	4.02	50-yr	257500.00	414.26	450.7		450.97	0.000084	4.37	67321.95	2893.44	0.14
West Branch	West Branch	4.02	100-yr	301100.00	414.26	453.6		453.94	0.000083	4.62	76294.58	3133.20	0.14
West Branch	West Branch	4.02	500-yr	421600.00	414.26	459.9		460.32	0.000089	5.33	96997.70	3394.69	0.15
West Branch	West Branch	3.78	2-yr	88900.00	413.73	437.0		437.12	0.000079	2.86	32123.94	2346.01	0.13
West Branch	West Branch	3.78	5-yr	133300.00	413.73	441.4		441.61	0.000079	3.28	43716.57	2913.53	0.13
West Branch	West Branch	3.78	10-yr	167500.00	413.73	444.2		444.38	0.000081	3.56	51811.37	2973.93	0.13
West Branch	West Branch	3.78	25-yr	215100.00	413.73	447.8		448.02	0.000080	3.88	62696.53	3068.39	0.13
West Branch	West Branch	3.78	50-yr	257500.00	413.73	450.7		450.92	0.000080	4.13	71571.80	3113.43	0.14
West Branch	West Branch	3.78	100-yr	301100.00	413.73	453.6		453.89	0.000079	4.33	80924.44	3252.13	0.14
West Branch	West Branch	3.78	500-yr	421600.00	413.73	459.9		460.26	0.000082	4.94	102165.30	3453.18	0.14
West Branch	West Branch	3.65	2-yr	88900.00	413.65	436.9	422.75	437.09	0.000132	3.29	26997.23	1943.91	0.16
West Branch	West Branch	3.65	5-yr	133300.00	413.65	441.4	424.71	441.57	0.000131	3.68	36225.67	2210.44	0.16
West Branch	West Branch	3.65	10-yr	167500.00	413.65	444.1	426.01	444.35	0.000124	3.92	42818.72	2503.76	0.17
West Branch	West Branch	3.65	25-yr	215100.00	413.65	447.7	427.65	447.99	0.000115	4.16	52302.11	3031.94	0.16
West Branch	West Branch	3.65	50-yr	257500.00	413.65	450.6	429.10	450.89	0.000109	4.36	61222.23	3566.05	0.16
West Branch	West Branch	3.65	100-yr	301100.00	413.65	453.5	430.40	453.86	0.000102	4.50	70741.64	3876.80	0.15
West Branch	West Branch	3.65	500-yr	421600.00	413.65	459.9	433.48	460.24	0.000098	5.00	94533.57	4331.31	0.15
West Branch	West Branch	3.48 Winfield Creek	2-yr	89100.00	413.50	436.8	422.67	437.02	0.000126	3.53	25211.97	1606.65	0.16
West Branch	West Branch	3.48 Winfield Creek	5-yr	133600.00	413.50	441.2	424.62	441.50	0.000132	4.08	32783.78	2078.42	0.18
West Branch	West Branch	3.48 Winfield Creek	10-yr	168000.00	413.50	444.0	425.91	444.28	0.000134	4.36	38609.20	2195.51	0.18
West Branch	West Branch	3.48 Winfield Creek	25-yr	215700.00	413.50	447.6	427.58	447.92	0.000130	4.65	48039.44	2848.13	0.18
West Branch	West Branch	3.48 Winfield Creek	50-yr	258100.00	413.50	450.5	428.93	450.82	0.000127	4.87	56765.93	3157.31	0.17
West Branch	West Branch	3.48 Winfield Creek	100-yr	301900.00	413.50	453.4	430.18	453.79	0.000119	5.02	66406.95	3328.04	0.17
West Branch	West Branch	3.48 Winfield Creek	500-yr	422700.00	413.50	459.7	433.35	460.17	0.000116	5.52	89252.09	3885.07	0.17
West Branch	West Branch	3.41	2-yr	89100.00	413.40	436.8		436.97	0.000129	3.69	24159.24	1444.01	0.16
West Branch	West Branch	3.41	5-yr	133600.00	413.40	441.2		441.44	0.000149	4.27	31298.79	1860.41	0.18
West Branch	West Branch	3.41	10-yr	168000.00	413.40	443.9		444.22	0.000150	4.55	36989.23	2277.19	0.19
West Branch	West Branch	3.41	25-yr	215700.00	413.40	447.5		447.86	0.000144	4.83	47072.46	3006.45	0.18
West Branch	West Branch	3.41	50-yr	258100.00	413.40	450.4		450.77	0.000140	5.05	55850.41	3097.18	0.18
West Branch	West Branch	3.41	100-yr	301900.00	413.40	453.3		453.74	0.000132	5.22	65109.94	3196.87	0.18
West Branch	West Branch	3.41	500-yr	422700.00	413.40	459.6		460.12	0.000130	5.79	86467.67	3511.25	0.18
West Branch	West Branch	3.33	2-yr	89100.00	413.30	436.7		436.92	0.000143	3.72	23936.39	1510.42	0.16
West Branch	West Branch	3.33	5-yr	133600.00	413.30	441.1		441.36	0.000273	4.29	31205.60	2027.49	0.19
West Branch	West Branch	3.33	10-yr	168000.00	413.30	443.8		444.14	0.000263	4.58	37039.70	2483.26	0.19
West Branch	West Branch	3.33	25-yr	215700.00	413.30	447.4		447.79	0.000236	4.86	47515.52	3021.18	0.18
West Branch	West Branch	3.33	50-yr	258100.00	413.30	450.3		450.70	0.000220	5.05	56303.84	3079.01	0.18
West Branch	West Branch	3.33	100-yr	301900.00	413.30	453.3		453.67	0.000202	5.19	65494.83	3145.45	0.17
West Branch	West Branch	3.33	500-yr	422700.00	413.30	459.6		460.05	0.000186	5.71	86723.08	3476.66	0.17
West Branch	West Branch	3.26	2-yr	89100.00	413.20	436.7	422.50	436.86	0.000123	3.65	24377.78	1428.78	0.16
West Branch	West Branch	3.26	5-yr	133600.00	413.20	441.0	424.45	441.28	0.000160	4.25	31404.88	1988.04	0.19
West Branch	West Branch	3.26	10-yr	168000.00	413.20	443.7	425.77	444.07	0.000157	4.54	37016.89	2144.89	0.19
West Branch	West Branch	3.26	25-yr	215700.00	413.20	447.4	427.44	447.72	0.000148	4.82	46501.13	2901.50	0.18
West Branch	West Branch	3.26	50-yr	258100.00	413.20	450.2	428.80	450.63	0.000142	5.03	54998.78	2985.08	0.18
West Branch	West Branch	3.26	100-yr	301900.00	413.20	453.2	430.05	453.61	0.000134	5.18	63927.01	3167.25	0.18
West Branch	West Branch	3.26	500-yr	422700.00	413.20	459.5	433.28	459.99	0.000130	5.71	84990.87	3485.83	0.18
West Branch	West Branch	3.18	2-yr	89100.00	413.11	436.6	422.12	436.81	0.000107	3.49	25544.75	1444.51	0.15
West Branch	West Branch	3.18	5-yr	133600.00	413.11	441.0	424.00	441.22	0.000128	4.10	32571.17	1929.47	0.18
West Branch	West Branch	3.18	10-yr	168000.00	413.11	443.7	425.28	444.00	0.000132	4.43	38032.07	2258.82	0.18
West Branch	West Branch	3.18	25-yr	215700.00	413.11	447.3	426.91	447.66	0.000130	4.75	47308.97	2846.96	0.18
West Branch	West Branch	3.18	50-yr	258100.00	413.11	450.2	428.23	450.57	0.000127	4.97	55651.63	2914.60	0.17

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
West Branch	West Branch	3.18	100-yr	301900.00	413.11	453.2	429.45	453.55	0.000122	5.13	64304.78	2937.78	0.17
West Branch	West Branch	3.18	500-yr	422700.00	413.11	459.5	432.46	459.94	0.000121	5.68	84898.79	3498.62	0.17
West Branch	West Branch	3.12	2-yr	89100.00	412.86	436.6	421.12	436.77	0.000082	3.13	28505.09	1545.97	0.13
West Branch	West Branch	3.12	5-yr	133600.00	412.86	441.0	422.93	441.17	0.000106	3.73	35797.03	1852.81	0.15
West Branch	West Branch	3.12	10-yr	168000.00	412.86	443.7	424.17	443.95	0.000111	4.10	41170.18	2215.65	0.16
West Branch	West Branch	3.12	25-yr	215700.00	412.86	447.3	425.74	447.61	0.000110	4.46	50508.63	2824.36	0.16
West Branch	West Branch	3.12	50-yr	258100.00	412.86	450.2	427.00	450.52	0.000108	4.72	58689.36	2864.17	0.16
West Branch	West Branch	3.12	100-yr	301900.00	412.86	453.1	428.21	453.51	0.000104	4.91	67256.09	3013.42	0.16
West Branch	West Branch	3.12	500-yr	422700.00	412.86	459.4	431.12	459.89	0.000105	5.52	87570.56	3339.15	0.16
West Branch	West Branch	3.04	2-yr	89100.00	413.31	436.5	422.40	436.72	0.000148	3.55	25124.77	1548.45	0.16
West Branch	West Branch	3.04	5-yr	133600.00	413.31	440.8	424.35	441.11	0.000167	4.11	32474.28	1781.66	0.17
West Branch	West Branch	3.04	10-yr	168000.00	413.31	443.6	425.69	443.89	0.000174	4.49	37564.45	2091.94	0.18
West Branch	West Branch	3.04	25-yr	215700.00	413.31	447.2	427.38	447.55	0.000168	4.84	46359.73	2691.03	0.18
West Branch	West Branch	3.04	50-yr	258100.00	413.31	450.1	428.73	450.46	0.000161	5.09	54236.84	2777.35	0.18
West Branch	West Branch	3.04	100-yr	301900.00	413.31	453.0	430.18	453.45	0.000151	5.27	62404.92	3048.77	0.17
West Branch	West Branch	3.04	500-yr	422700.00	413.31	459.3	433.26	459.83	0.000148	5.84	83326.20	3431.31	0.17
West Branch	West Branch	2.97	2-yr	89100.00	413.30	436.5	420.98	436.67	0.000074	3.06	29114.18	1503.87	0.12
West Branch	West Branch	2.97	5-yr	133600.00	413.30	440.8	422.76	441.05	0.000099	3.68	36316.01	1803.29	0.14
West Branch	West Branch	2.97	10-yr	168000.00	413.30	443.6	423.88	443.82	0.000106	4.07	41793.81	2170.09	0.15
West Branch	West Branch	2.97	25-yr	215700.00	413.30	447.2	425.31	447.48	0.000109	4.48	50572.56	2665.90	0.16
West Branch	West Branch	2.97	50-yr	258100.00	413.30	450.1	426.51	450.40	0.000109	4.78	58358.52	2736.62	0.16
West Branch	West Branch	2.97	100-yr	301900.00	413.30	453.0	427.63	453.39	0.000107	5.01	66633.95	2966.78	0.16
West Branch	West Branch	2.97	500-yr	422700.00	413.30	459.3	430.49	459.78	0.000112	5.71	86710.04	3362.04	0.16
West Branch	West Branch	2.88	2-yr	89100.00	413.39	436.4	423.04	436.61	0.000139	3.60	24738.67	1638.26	0.16
West Branch	West Branch	2.88	5-yr	133600.00	413.39	440.7	425.07	440.98	0.000145	4.19	32609.94	1957.24	0.17
West Branch	West Branch	2.88	10-yr	168000.00	413.39	443.4	426.42	443.75	0.000149	4.58	38439.54	2363.33	0.18
West Branch	West Branch	2.88	25-yr	215700.00	413.39	447.0	428.14	447.41	0.000147	4.96	47744.43	2659.49	0.18
West Branch	West Branch	2.88	50-yr	258100.00	413.39	449.9	429.69	450.33	0.000144	5.25	55413.35	2671.64	0.18
West Branch	West Branch	2.88	100-yr	301900.00	413.39	452.9	430.87	453.32	0.000138	5.48	63351.35	2858.34	0.18
West Branch	West Branch	2.88	500-yr	422700.00	413.39	459.2	433.71	459.71	0.000141	6.19	82461.85	3137.70	0.18
West Branch	West Branch	2.80	2-yr	89100.00	413.27	436.4	421.85	436.55	0.000111	3.28	27194.29	1727.20	0.15
West Branch	West Branch	2.80	5-yr	133600.00	413.27	440.7	423.69	440.92	0.000114	3.85	34673.34	1756.14	0.15
West Branch	West Branch	2.80	10-yr	168000.00	413.27	443.4	424.94	443.69	0.000121	4.25	39646.75	1957.39	0.16
West Branch	West Branch	2.80	25-yr	215700.00	413.27	447.0	426.52	447.35	0.000122	4.66	48054.30	2543.28	0.16
West Branch	West Branch	2.80	50-yr	258100.00	413.27	449.9	427.79	450.27	0.000121	4.97	55556.73	2634.61	0.16
West Branch	West Branch	2.80	100-yr	301900.00	413.27	452.9	429.01	453.26	0.000118	5.21	63541.57	2996.60	0.16
West Branch	West Branch	2.80	500-yr	422700.00	413.27	459.1	432.21	459.65	0.000124	5.92	83415.90	3541.24	0.17
West Branch	West Branch	2.73	2-yr	89100.00	413.15	436.3	421.64	436.50	0.000135	3.41	26143.87	1552.49	0.15
West Branch	West Branch	2.73	5-yr	133600.00	413.15	440.6	423.57	440.87	0.000146	4.07	32848.34	1588.10	0.16
West Branch	West Branch	2.73	10-yr	168000.00	413.15	443.3	424.87	443.63	0.000156	4.51	37815.35	2005.78	0.17
West Branch	West Branch	2.73	25-yr	215700.00	413.15	446.9	426.50	447.29	0.000161	4.94	46024.09	2551.23	0.17
West Branch	West Branch	2.73	50-yr	258100.00	413.15	449.8	427.84	450.21	0.000159	5.24	53401.27	2578.94	0.17
West Branch	West Branch	2.73	100-yr	301900.00	413.15	452.8	429.09	453.21	0.000154	5.47	61124.30	2815.43	0.17
West Branch	West Branch	2.73	500-yr	422700.00	413.15	459.0	432.53	459.59	0.000158	6.15	80543.94	3148.10	0.18
West Branch	West Branch	2.66	2-yr	89100.00	413.05	436.3	421.54	436.46	0.000122	3.47	25672.91	1488.53	0.15
West Branch	West Branch	2.66	5-yr	133600.00	413.05	440.5	423.47	440.82	0.000133	4.16	32367.34	1698.86	0.16
West Branch	West Branch	2.66	10-yr	168000.00	413.05	443.2	424.81	443.57	0.000148	4.61	37230.64	1941.01	0.17
West Branch	West Branch	2.66	25-yr	215700.00	413.05	446.8	426.48	447.23	0.000170	5.03	45596.97	2566.04	0.18
West Branch	West Branch	2.66	50-yr	258100.00	413.05	449.7	427.84	450.15	0.000165	5.32	53066.82	2618.75	0.18
West Branch	West Branch	2.66	100-yr	301900.00	413.05	452.7	429.12	453.15	0.000157	5.53	60959.70	2894.14	0.18
West Branch	West Branch	2.66	500-yr	422700.00	413.05	459.0	432.37	459.53	0.000158	6.18	80300.99	3126.19	0.18
West Branch	West Branch	2.58	2-yr	89100.00	412.92	436.2	420.19	436.41	0.000082	3.22	27686.44	1442.20	0.13
West Branch	West Branch	2.58	5-yr	133600.00	412.92	440.5	422.01	440.76	0.000097	3.93	34457.98	1692.95	0.14
West Branch	West Branch	2.58	10-yr	168000.00	412.92	443.2	423.27	443.51	0.000109	4.41	39377.48	2020.39	0.16
West Branch	West Branch	2.58	25-yr	215700.00	412.92	446.8	424.85	447.17	0.000115	4.90	47901.92	2523.85	0.16
West Branch	West Branch	2.58	50-yr	258100.00	412.92	449.7	426.17	450.09	0.000118	5.25	55214.96	2561.58	0.17
West Branch	West Branch	2.58	100-yr	301900.00	412.92	452.6	427.41	453.09	0.000118	5.53	62876.11	2787.90	0.17
West Branch	West Branch	2.58	500-yr	422700.00	412.92	458.9	430.56	459.47	0.000128	6.32	81483.83	3020.44	0.18
West Branch	West Branch	2.50	2-yr	89100.00	412.34	436.2	420.16	436.37	0.000082	3.22	27644.29	1486.44	0.13
West Branch	West Branch	2.50	5-yr	133600.00	412.34	440.5	422.03	440.72	0.000096	3.94	34609.16	1720.32	0.14
West Branch	West Branch	2.50	10-yr	168000.00	412.34	443.2	423.30	443.46	0.000118	4.40	39506.66	1943.06	0.16
West Branch	West Branch	2.50	25-yr	215700.00	412.34	446.7	424.89	447.11	0.000142	4.86	47510.12	2460.03	0.17
West Branch	West Branch	2.50	50-yr	258100.00	412.34	449.6	426.20	450.03	0.000142	5.17	54642.50	2491.53	0.17
West Branch	West Branch	2.50	100-yr	301900.00	412.34	452.6	427.47	453.03	0.000139	5.41	62083.44	2575.99	0.17
West Branch	West Branch	2.50	500-yr	422700.00	412.34	458.9	430.64	459.40	0.000146	6.15	80237.73	3065.68	0.18
West Branch	West Branch	2.42	2-yr	89100.00	411.94	436.2	420.49	436.34	0.000090	3.29	27158.76	1585.54	0.13
West Branch	West Branch	2.42	5-yr	133600.00	411.94	440.4	422.36	440.68	0.000105	4.00	34226.61	1748.07	0.15
West Branch	West Branch	2.42	10-yr	168000.00	411.94	443.1	423.63	443.41	0.000114	4.47	39053.85	1892.73	0.16
West Branch	West Branch	2.42	25-yr	215700.00	411.94	446.7	425.25	447.05	0.000120	4.98	47170.87	2491.56	0.17
West Branch	West Branch	2.42	50-yr	258100.00	411.94	449.5	426.57	449.97	0.000123	5.34	54457.23	2718.86	0.17
West Branch	West Branch	2.42	100-yr	301900.00	411.94	452.5	427.85	452.98	0.000121	5.61	62256.78	2843.51	0.17
West Branch	West Branch	2.42	500-yr	422700.00	411.94	458.8	430.86	459.34	0.000129	6.40	81914.64	3169.90	0.18
West Branch	West Branch	2.34	2-yr	89100.00	411.54	436.1	420.11	436.30	0.000090	3.29	27224.95	1598.15	0.13
West Branch	West Branch	2.34	5-yr	133600.00	411.54	440.4	422.06	440.63	0.000105	3.98	34692.61	1991.55	0.15
West Branch	West Branch	2.34	10-yr	168000.00	411.54	443.1	423.39	443.36	0.000113	4.43	40152.34	2120.23	0.16
West Branch	West Branch	2.34	25-yr	215700.00	411.54	446.6	425.04	447.00	0.000124	4.89	48928.30	2646.46	0.16
West Branch	West Branch	2.34	50-yr	258100.00	411.54	449.5	426.41	449.91	0.000125	5.22	56610.26	2773.88	0.17
West Branch	West Branch	2.34	100-yr	301900.00	411.54	452.5	427.71	452.92	0.000123	5.47	64794.02	3055.07	0.17
West Branch	West Branch	2.34	500-yr	422700.00	411.54	458.7	430.92	459.28	0.000128	6.20	86328.47	3414.68	0.18
West Branch	West Branch	2.27	2-yr	89100.00	411.14	436.1	420.57	436.26	0.000102	3.46	26030.38	1524.83	0.14
West Branch	West Branch	2.27	5-yr	133600.00	411.14	440.3	422.58	440.59	0.000120	4.16	32858.39	1706.29	0.16
West Branch	West Branch	2.27	10-yr	168000.00	411.14	443.0	423.97	443.31	0.000129	4.64	37561.05	1978.37	0.17
West Branch	West Branch	2.27	25-yr	215700.00	411.14	446.5	425.68	446.94	0.000131	5.13	46270.75	2641.89	0.17
West Branch	West Branch	2.27	50-yr	258100.00	411.14	449.4	427.08	449.86	0.000132	5.49	53845.23	2740.30	0.18
West Branch	West Branch	2.27	100-yr	301900.00	411.14	452.4	428.56	452.86	0.000130	5.77	61905.26	2968.61	0.18
West Branch	West Branch	2.27	500-yr	422700.00	411.14	458.6	431.83	459.22	0.000135	6.57	83382.32	3502.70	0.19
West Branch	West Branch	2.19	2-yr	89100.00	411.09	436.0	422.50	436.21	0.000152	3.88	22978.17	1433.89	0.17
West Branch	West Branch	2.19	5-yr	133600.00	411.09	440.2	424.54	440.52	0.000166	4.58	29308.12	1771.43	0.18

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
West Branch	West Branch	2.19	10-yr	168000.00	411.09	442.9	425.91	443.25	0.000177	5.03	34187.07	2197.64	0.19
West Branch	West Branch	2.19	25-yr	215700.00	411.09	446.4	427.64	446.88	0.000172	5.48	42520.41	2649.50	0.19
West Branch	West Branch	2.19	50-yr	258100.00	411.09	449.3	429.18	449.79	0.000168	5.80	49723.95	2787.45	0.20
West Branch	West Branch	2.19	100-yr	301900.00	411.09	452.2	430.48	452.80	0.000160	6.05	57468.06	2989.49	0.19
West Branch	West Branch	2.19	500-yr	422700.00	411.09	458.5	433.74	459.16	0.000157	6.73	80566.23	3480.42	0.20
West Branch	West Branch	2.13	2-yr	89100.00	411.33	435.9	422.60	436.15	0.000165	3.96	22513.70	1445.09	0.18
West Branch	West Branch	2.13	5-yr	133600.00	411.33	440.1	424.65	440.47	0.000170	4.66	28840.45	1653.98	0.19
West Branch	West Branch	2.13	10-yr	168000.00	411.33	442.8	426.06	443.19	0.000182	5.13	33687.85	1983.44	0.19
West Branch	West Branch	2.13	25-yr	215700.00	411.33	446.3	427.82	446.82	0.000179	5.58	41706.11	2407.90	0.20
West Branch	West Branch	2.13	50-yr	258100.00	411.33	449.2	429.34	449.74	0.000176	5.89	48678.74	2509.12	0.20
West Branch	West Branch	2.13	100-yr	301900.00	411.33	452.2	430.64	452.75	0.000168	6.12	56116.65	2785.68	0.19
West Branch	West Branch	2.13	500-yr	422700.00	411.33	458.4	433.93	459.10	0.000168	6.82	76063.13	3403.77	0.20
West Branch	West Branch	2.05	2-yr	89100.00	411.64	435.9	422.43	436.08	0.000154	3.87	23047.53	1456.39	0.17
West Branch	West Branch	2.05	5-yr	133600.00	411.64	440.1	424.46	440.39	0.000161	4.56	29336.30	1629.60	0.18
West Branch	West Branch	2.05	10-yr	168000.00	411.64	442.7	425.85	443.11	0.000167	5.04	34080.46	1975.69	0.19
West Branch	West Branch	2.05	25-yr	215700.00	411.64	446.3	427.58	446.74	0.000165	5.50	42024.58	2348.64	0.19
West Branch	West Branch	2.05	50-yr	258100.00	411.64	449.2	428.92	449.66	0.000161	5.82	48745.97	2419.81	0.19
West Branch	West Branch	2.05	100-yr	301900.00	411.64	452.1	430.57	452.68	0.000154	6.06	55910.23	2734.43	0.19
West Branch	West Branch	2.05	500-yr	422700.00	411.64	458.4	433.75	459.04	0.000155	6.79	75902.32	3524.05	0.20
West Branch	West Branch	1.97	2-yr	89100.00	411.97	435.8	421.84	436.01	0.000125	3.63	24513.61	1450.46	0.16
West Branch	West Branch	1.97	5-yr	133600.00	411.97	440.0	423.77	440.32	0.000143	4.35	30734.90	1547.71	0.17
West Branch	West Branch	1.97	10-yr	168000.00	411.97	442.7	425.09	443.03	0.000155	4.82	35225.26	1929.71	0.18
West Branch	West Branch	1.97	25-yr	215700.00	411.97	446.2	426.76	446.66	0.000155	5.27	42846.98	2227.26	0.18
West Branch	West Branch	1.97	50-yr	258100.00	411.97	449.1	428.09	449.59	0.000153	5.60	49298.53	2261.67	0.19
West Branch	West Branch	1.97	100-yr	301900.00	411.97	452.1	429.47	452.60	0.000148	5.85	56078.70	2618.22	0.19
West Branch	West Branch	1.97	500-yr	422700.00	411.97	458.3	432.64	458.96	0.000151	6.60	74135.16	3139.08	0.19
West Branch	West Branch	1.89	2-yr	89100.00	412.29	435.7	421.85	435.96	0.000135	3.69	24148.42	1486.02	0.16
West Branch	West Branch	1.89	5-yr	133600.00	412.29	440.0	423.80	440.26	0.000148	4.38	30515.09	1553.83	0.17
West Branch	West Branch	1.89	10-yr	168000.00	412.29	442.6	425.13	442.96	0.000155	4.85	34779.53	1808.42	0.18
West Branch	West Branch	1.89	25-yr	215700.00	412.29	446.2	426.77	446.59	0.000153	5.33	41891.63	2213.72	0.19
West Branch	West Branch	1.89	50-yr	258100.00	412.29	449.0	428.07	449.52	0.000152	5.69	48090.66	2261.90	0.19
West Branch	West Branch	1.89	100-yr	301900.00	412.29	452.0	429.35	452.54	0.000146	5.96	54611.19	2584.46	0.19
West Branch	West Branch	1.89	500-yr	422700.00	412.29	458.2	432.89	458.89	0.000148	6.76	72554.98	3094.06	0.19
West Branch	West Branch	1.81	2-yr	89100.00	412.61	435.7	420.21	435.89	0.000105	3.34	26674.27	1575.89	0.14
West Branch	West Branch	1.81	5-yr	133600.00	412.61	439.9	422.14	440.18	0.000117	3.99	33460.37	1735.88	0.16
West Branch	West Branch	1.81	10-yr	168000.00	412.61	442.6	423.46	442.88	0.000133	4.43	37905.31	1848.77	0.17
West Branch	West Branch	1.81	25-yr	215700.00	412.61	446.1	425.12	446.51	0.000135	4.87	44844.12	2130.55	0.17
West Branch	West Branch	1.81	50-yr	258100.00	412.61	449.0	426.50	449.43	0.000135	5.21	50705.88	2227.39	0.17
West Branch	West Branch	1.81	100-yr	301900.00	412.61	452.0	427.71	452.45	0.000131	5.48	56898.63	2520.88	0.17
West Branch	West Branch	1.81	500-yr	422700.00	412.61	458.2	430.71	458.80	0.000135	6.22	76349.84	3181.89	0.18
West Branch	West Branch	1.74	2-yr	89100.00	412.86	435.7	420.50	435.86	0.000100	3.22	27664.19	1659.57	0.14
West Branch	West Branch	1.74	5-yr	133600.00	412.86	439.9	422.32	440.14	0.000110	3.84	34786.14	1848.56	0.15
West Branch	West Branch	1.74	10-yr	168000.00	412.86	442.5	423.59	442.83	0.000128	4.25	39515.52	1980.85	0.16
West Branch	West Branch	1.74	25-yr	215700.00	412.86	446.1	425.19	446.46	0.000128	4.67	46510.70	2155.76	0.17
West Branch	West Branch	1.74	50-yr	258100.00	412.86	449.0	426.49	449.38	0.000128	5.01	52323.50	2212.30	0.17
West Branch	West Branch	1.74	100-yr	301900.00	412.86	452.0	427.65	452.40	0.000125	5.28	58462.88	2553.17	0.17
West Branch	West Branch	1.74	500-yr	422700.00	412.86	458.2	430.58	458.75	0.000129	5.99	79481.76	3249.57	0.17
West Branch	West Branch	1.66	2-yr	89100.00	413.19	435.7	420.43	435.81	0.000093	3.15	28280.84	1668.69	0.13
West Branch	West Branch	1.66	5-yr	133600.00	413.19	439.9	422.23	440.09	0.000110	3.75	35580.02	1928.99	0.15
West Branch	West Branch	1.66	10-yr	168000.00	413.19	442.5	423.48	442.77	0.000124	4.17	40332.19	1982.35	0.16
West Branch	West Branch	1.66	25-yr	215700.00	413.19	446.1	425.06	446.40	0.000127	4.60	46893.59	2035.47	0.16
West Branch	West Branch	1.66	50-yr	258100.00	413.19	448.9	426.33	449.32	0.000129	4.95	52334.88	2122.69	0.16
West Branch	West Branch	1.66	100-yr	301900.00	413.19	451.9	427.50	452.34	0.000127	5.23	58113.86	2611.98	0.17
West Branch	West Branch	1.66	500-yr	422700.00	413.19	458.2	430.39	458.69	0.000130	5.94	80339.72	3178.86	0.17
West Branch	West Branch	1.58	2-yr	89100.00	413.51	435.6	420.52	435.77	0.000107	3.15	28281.72	1946.97	0.14
West Branch	West Branch	1.58	5-yr	133600.00	413.51	439.8	422.32	440.04	0.000119	3.70	36093.78	2049.36	0.15
West Branch	West Branch	1.58	10-yr	168000.00	413.51	442.5	423.58	442.71	0.000125	4.09	41052.90	2071.31	0.15
West Branch	West Branch	1.58	25-yr	215700.00	413.51	446.0	425.15	446.34	0.000126	4.51	47829.66	2101.22	0.16
West Branch	West Branch	1.58	50-yr	258100.00	413.51	448.9	426.43	449.26	0.000128	4.84	53318.63	2145.75	0.16
West Branch	West Branch	1.58	100-yr	301900.00	413.51	451.9	427.59	452.28	0.000126	5.11	59090.13	2906.83	0.16
West Branch	West Branch	1.58	500-yr	422700.00	413.51	458.1	430.57	458.62	0.000127	5.76	82515.05	3135.25	0.17
West Branch	West Branch	1.50	2-yr	89100.00	413.78	435.6	420.70	435.72	0.000118	3.22	27675.99	1958.62	0.15
West Branch	West Branch	1.50	5-yr	133600.00	413.78	439.8	422.52	439.99	0.000119	3.77	35398.35	2039.99	0.15
West Branch	West Branch	1.50	10-yr	168000.00	413.78	442.4	423.77	442.66	0.000125	4.17	40255.27	2062.68	0.16
West Branch	West Branch	1.50	25-yr	215700.00	413.78	446.0	425.37	446.29	0.000127	4.60	46900.10	2099.52	0.16
West Branch	West Branch	1.50	50-yr	258100.00	413.78	448.8	426.66	449.21	0.000128	4.94	52283.91	2198.99	0.17
West Branch	West Branch	1.50	100-yr	301900.00	413.78	451.8	427.78	452.23	0.000127	5.21	57936.82	2829.66	0.17
West Branch	West Branch	1.50	500-yr	422700.00	413.78	458.1	430.89	458.57	0.000127	5.85	81901.14	3081.54	0.17
West Branch	West Branch	1.42	2-yr	89100.00	414.11	435.5	421.32	435.67	0.000148	3.57	24971.03	1714.51	0.16
West Branch	West Branch	1.42	5-yr	133600.00	414.11	439.7	423.27	439.93	0.000149	4.14	32295.14	1757.65	0.17
West Branch	West Branch	1.42	10-yr	168000.00	414.11	442.3	424.59	442.60	0.000153	4.55	36908.34	1768.46	0.18
West Branch	West Branch	1.42	25-yr	215700.00	414.11	445.8	426.28	446.23	0.000153	4.99	43229.37	1783.35	0.18
West Branch	West Branch	1.42	50-yr	258100.00	414.11	448.7	427.55	449.14	0.000154	5.34	48348.90	1866.25	0.18
West Branch	West Branch	1.42	100-yr	301900.00	414.11	451.7	428.78	452.17	0.000151	5.62	53736.89	2697.82	0.18
West Branch	West Branch	1.42	500-yr	422700.00	414.11	457.9	432.09	458.50	0.000152	6.37	73899.80	3073.34	0.19
West Branch	West Branch	1.35	2-yr	89100.00	413.91	435.4	421.53	435.60	0.000162	3.72	23948.71	1628.94	0.17
West Branch	West Branch	1.35	5-yr	133600.00	413.91	439.6	423.57	439.86	0.000168	4.31	30971.79	1712.54	0.18
West Branch	West Branch	1.35	10-yr	168000.00	413.91	442.2	424.97	442.53	0.000173	4.74	35454.69	1721.82	0.18
West Branch	West Branch	1.35	25-yr	215700.00	413.91	445.7	426.72	446.16	0.000173	5.19	41596.89	1733.81	0.19
West Branch	West Branch	1.35	50-yr	258100.00	413.91	448.6	428.01	449.07	0.000175	5.54	46564.26	1795.74	0.19
West Branch	West Branch	1.35	100-yr	301900.00	413.91	451.6	429.62	452.10	0.000171	5.83	51774.96	2552.40	0.19
West Branch	West Branch	1.35	500-yr	422700.00	413.91	457.8	433.24	458.43	0.000173	6.61	70392.52	2922.09	0.20
West Branch	West Branch	1.27	2-yr	89100.00	413.91	435.3	422.00	435.53	0.000209	3.97	22441.52	1616.04	0.19
West Branch	West Branch	1.27	5-yr	133600.00	413.91	439.5	424.11	439.79	0.000202	4.56	29277.66	1647.91	0.19
West Branch	West Branch	1.27	10-yr	168000.00	413.91	442.1	425.57	442.46	0.000206	5.00	33579.66	1658.40	0.20
West Branch	West Branch	1.27	25-yr	215700.00	413.91	445.6	427.31	446.08	0.000203	5.46	39490.55	1672.40	0.20
West Branch	West Branch	1.27	50-yr	258100.00	413.91	448.5	428.65	449.00	0.000201	5.83	44276.11	1683.92	0.20
West Branch	West Branch	1.27	100-yr	301900.00	413.91	451.4	430.40	452.02	0.000195	6.12	49306.28	2466.32	0.20
West Branch	West Branch	1.27	500-yr	422700.00	413.91	457.6	434.21	458.36	0.000196	6.92	66862.06	2801.57	0.21

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
West Branch	West Branch	1.20	2-yr	89100.00	413.96	435.2	422.14	435.44	0.000230	4.17	21375.44	1561.88	0.20
West Branch	West Branch	1.20	5-yr	133600.00	413.96	439.3	424.30	439.70	0.000221	4.77	27992.13	1714.88	0.20
West Branch	West Branch	1.20	10-yr	168000.00	413.96	441.9	425.78	442.36	0.000224	5.22	32157.05	1750.25	0.21
West Branch	West Branch	1.20	25-yr	215700.00	413.96	445.5	427.54	445.99	0.000219	5.69	37886.48	1793.36	0.21
West Branch	West Branch	1.20	50-yr	258100.00	413.96	448.3	428.96	448.90	0.000216	6.07	42521.03	1836.00	0.21
West Branch	West Branch	1.20	100-yr	301900.00	413.96	451.3	430.45	451.93	0.000209	6.37	47392.20	2277.57	0.21
West Branch	West Branch	1.20	500-yr	422700.00	413.96	457.5	434.50	458.27	0.000206	7.14	65461.06	2598.39	0.21
West Branch	West Branch	1.14	2-yr	89100.00	412.49	435.1	422.16	435.37	0.000214	4.23	21080.07	1483.10	0.20
West Branch	West Branch	1.14	5-yr	133600.00	412.49	439.3	424.29	439.63	0.000216	4.85	27528.63	1743.44	0.20
West Branch	West Branch	1.14	10-yr	168000.00	412.49	441.9	425.74	442.30	0.000220	5.32	31588.89	1767.53	0.21
West Branch	West Branch	1.14	25-yr	215700.00	412.49	445.4	427.50	445.92	0.000217	5.80	37180.71	1798.73	0.21
West Branch	West Branch	1.14	50-yr	258100.00	412.49	448.2	428.85	448.84	0.000215	6.19	41703.82	1838.04	0.21
West Branch	West Branch	1.14	100-yr	301900.00	412.49	451.2	430.34	451.87	0.000208	6.50	46460.44	2169.54	0.21
West Branch	West Branch	1.14	500-yr	422700.00	412.49	457.4	434.27	458.20	0.000205	7.27	64465.37	2451.23	0.22
West Branch	West Branch	1.06	2-yr	89100.00	411.07	435.0	420.57	435.28	0.000196	4.18	21301.83	1431.97	0.19
West Branch	West Branch	1.06	5-yr	133600.00	411.07	439.2	422.96	439.54	0.000225	4.87	27451.16	1615.01	0.20
West Branch	West Branch	1.06	10-yr	168000.00	411.07	441.8	424.67	442.20	0.000233	5.36	31338.12	1635.06	0.21
West Branch	West Branch	1.06	25-yr	215700.00	411.07	445.3	427.17	445.83	0.000233	5.88	36701.07	1662.51	0.21
West Branch	West Branch	1.06	50-yr	258100.00	411.07	448.1	428.56	448.74	0.000235	6.29	41039.55	1684.55	0.21
West Branch	West Branch	1.06	100-yr	301900.00	411.07	451.1	430.20	451.77	0.000229	6.62	45609.37	1976.49	0.21
West Branch	West Branch	1.06	500-yr	422700.00	411.07	457.3	434.05	458.11	0.000229	7.50	61640.55	2451.75	0.22
West Branch	West Branch	0.98	2-yr	89100.00	411.22	434.9	420.55	435.20	0.000180	4.15	21459.71	1363.59	0.18
West Branch	West Branch	0.98	5-yr	133600.00	411.22	439.1	422.87	439.44	0.000215	4.89	27328.42	1587.34	0.20
West Branch	West Branch	0.98	10-yr	168000.00	411.22	441.6	424.53	442.10	0.000228	5.42	31012.84	1612.71	0.21
West Branch	West Branch	0.98	25-yr	215700.00	411.22	445.2	426.98	445.72	0.000232	5.97	36106.06	1643.57	0.21
West Branch	West Branch	0.98	50-yr	258100.00	411.22	448.0	428.35	448.64	0.000237	6.42	40227.64	1670.13	0.22
West Branch	West Branch	0.98	100-yr	301900.00	411.22	451.0	429.93	451.67	0.000233	6.77	44615.17	1840.54	0.22
West Branch	West Branch	0.98	500-yr	422700.00	411.22	457.1	433.48	458.00	0.000239	7.68	60273.68	2325.99	0.22
West Branch	West Branch	0.90	2-yr	89100.00	411.24	434.8	421.00	435.12	0.000205	4.21	21156.72	1359.73	0.19
West Branch	West Branch	0.90	5-yr	133600.00	411.24	439.0	423.35	439.36	0.000221	4.98	26838.82	1531.42	0.20
West Branch	West Branch	0.90	10-yr	168000.00	411.24	441.5	424.96	442.01	0.000236	5.53	30406.63	1551.78	0.21
West Branch	West Branch	0.90	25-yr	215700.00	411.24	445.1	427.27	445.63	0.000242	6.10	35356.15	1579.21	0.22
West Branch	West Branch	0.90	50-yr	258100.00	411.24	447.9	428.76	448.54	0.000248	6.56	39368.38	1602.26	0.22
West Branch	West Branch	0.90	100-yr	301900.00	411.24	450.8	430.11	451.58	0.000245	6.92	43665.07	1731.78	0.22
West Branch	West Branch	0.90	500-yr	422700.00	411.24	457.0	433.58	457.90	0.000254	7.88	58105.32	2239.37	0.23
West Branch	West Branch	0.84	2-yr	89100.00	411.24	434.8	420.78	435.06	0.000170	4.10	21710.76	1386.06	0.18
West Branch	West Branch	0.84	5-yr	133600.00	411.24	438.9	423.03	439.29	0.000181	4.89	27317.10	1475.02	0.19
West Branch	West Branch	0.84	10-yr	168000.00	411.24	441.5	424.59	441.94	0.000195	5.45	30827.78	1494.80	0.20
West Branch	West Branch	0.84	25-yr	215700.00	411.24	445.0	426.87	445.56	0.000202	6.04	35694.20	1521.30	0.21
West Branch	West Branch	0.84	50-yr	258100.00	411.24	447.8	428.22	448.47	0.000207	6.51	39632.42	1542.23	0.22
West Branch	West Branch	0.84	100-yr	301900.00	411.24	450.8	429.83	451.50	0.000207	6.89	43837.18	1613.65	0.22
West Branch	West Branch	0.84	500-yr	422700.00	411.24	456.9	433.03	457.83	0.000219	7.92	57375.32	2194.41	0.23
West Branch	West Branch	0.77	2-yr	89100.00	411.24	434.7	420.41	434.99	0.000159	4.02	22141.73	1370.18	0.17
West Branch	West Branch	0.77	5-yr	133600.00	411.24	438.9	422.64	439.22	0.000177	4.83	27679.29	1403.64	0.19
West Branch	West Branch	0.77	10-yr	168000.00	411.24	441.4	424.17	441.86	0.000193	5.39	31142.76	1424.30	0.20
West Branch	West Branch	0.77	25-yr	215700.00	411.24	444.9	426.07	445.47	0.000204	6.00	35949.02	1453.40	0.21
West Branch	West Branch	0.77	50-yr	258100.00	411.24	447.7	427.81	448.38	0.000213	6.48	39841.79	1481.36	0.21
West Branch	West Branch	0.77	100-yr	301900.00	411.24	450.7	429.31	451.42	0.000214	6.87	44016.58	1545.28	0.22
West Branch	West Branch	0.77	500-yr	422700.00	411.24	456.8	432.65	457.74	0.000231	7.96	56749.05	2233.47	0.23
West Branch	West Branch	0.69	2-yr	89100.00	411.22	434.7	420.41	434.93	0.000156	4.07	21887.67	1293.39	0.17
West Branch	West Branch	0.69	5-yr	133600.00	411.22	438.8	422.62	439.14	0.000176	4.89	27309.81	1330.68	0.19
West Branch	West Branch	0.69	10-yr	168000.00	411.22	441.3	424.12	441.78	0.000192	5.47	30700.27	1339.28	0.20
West Branch	West Branch	0.69	25-yr	215700.00	411.22	444.8	426.01	445.39	0.000203	6.09	35408.96	1351.12	0.21
West Branch	West Branch	0.69	50-yr	258100.00	411.22	447.6	427.77	448.29	0.000212	6.58	39216.11	1360.63	0.22
West Branch	West Branch	0.69	100-yr	301900.00	411.22	450.6	429.20	451.33	0.000214	6.98	43262.36	1587.40	0.22
West Branch	West Branch	0.69	500-yr	422700.00	411.22	456.6	432.53	457.64	0.000233	8.13	55183.50	2262.28	0.23
West Branch	West Branch	0.62	2-yr	89100.00	411.17	434.6	420.50	434.87	0.000153	4.07	21909.31	1274.99	0.17
West Branch	West Branch	0.62	5-yr	133600.00	411.17	438.7	422.67	439.07	0.000198	4.89	27301.44	1338.53	0.19
West Branch	West Branch	0.62	10-yr	168000.00	411.17	441.2	424.14	441.70	0.000216	5.47	30702.47	1346.44	0.20
West Branch	West Branch	0.62	25-yr	215700.00	411.17	444.7	426.01	445.31	0.000227	6.09	35429.25	1357.15	0.21
West Branch	West Branch	0.62	50-yr	258100.00	411.17	447.5	427.75	448.21	0.000236	6.57	39256.30	1377.71	0.22
West Branch	West Branch	0.62	100-yr	301900.00	411.17	450.5	429.10	451.24	0.000236	6.97	43336.98	1433.68	0.22
West Branch	West Branch	0.62	500-yr	422700.00	411.17	456.5	432.44	457.54	0.000256	8.12	54727.40	2278.99	0.23
West Branch	West Branch	0.56	2-yr	89100.00	411.22	434.6	420.21	434.81	0.000149	3.90	22831.51	1389.90	0.17
West Branch	West Branch	0.56	5-yr	133600.00	411.22	438.7	422.33	439.00	0.000162	4.68	28540.92	1403.14	0.18
West Branch	West Branch	0.56	10-yr	168000.00	411.22	441.2	423.77	441.62	0.000174	5.23	32107.06	1411.52	0.19
West Branch	West Branch	0.56	25-yr	215700.00	411.22	444.7	425.59	445.22	0.000180	5.82	37068.54	1422.89	0.20
West Branch	West Branch	0.56	50-yr	258100.00	411.22	447.5	427.32	448.12	0.000185	6.28	41077.32	1432.02	0.21
West Branch	West Branch	0.56	100-yr	301900.00	411.22	450.5	428.59	451.15	0.000184	6.66	45350.60	1478.05	0.21
West Branch	West Branch	0.56	500-yr	422700.00	411.22	456.5	431.93	457.44	0.000199	7.76	58093.86	2453.44	0.22
West Branch	West Branch	0.47	2-yr	89100.00	411.24	434.5	419.92	434.74	0.000127	3.80	23466.17	1318.40	0.16
West Branch	West Branch	0.47	5-yr	133600.00	411.24	438.6	421.97	438.93	0.000144	4.55	29385.75	1491.01	0.18
West Branch	West Branch	0.47	10-yr	168000.00	411.24	441.1	423.37	441.54	0.000157	5.06	33177.01	1502.36	0.19
West Branch	West Branch	0.47	25-yr	215700.00	411.24	444.6	425.14	445.13	0.000165	5.61	38473.03	1521.65	0.20
West Branch	West Branch	0.47	50-yr	258100.00	411.24	447.5	426.76	448.02	0.000172	6.03	42780.16	1540.24	0.20
West Branch	West Branch	0.47	100-yr	301900.00	411.24	450.4	428.15	451.05	0.000172	6.37	47398.50	1583.23	0.20
West Branch	West Branch	0.47	500-yr	422700.00	411.24	456.5	431.36	457.32	0.000188	7.40	60025.05	2379.05	0.22
West Branch	West Branch	0.38	2-yr	89100.00	411.24	434.4	420.24	434.68	0.000136	3.97	22441.10	1242.47	0.16
West Branch	West Branch	0.38	5-yr	133600.00	411.24	438.5	422.30	438.85	0.000165	4.86	27510.37	1300.53	0.19
West Branch	West Branch	0.38	10-yr	168000.00	411.24	441.0	423.71	441.45	0.000194	5.43	30918.25	1378.26	0.20
West Branch	West Branch	0.38	25-yr	215700.00	411.24	444.5	425.52	445.04	0.000207	6.03	35751.26	1397.96	0.21
West Branch	West Branch	0.38	50-yr	258100.00	411.24	447.3	427.24	447.92	0.000217	6.50	39677.89	1549.59	0.22
West Branch	West Branch	0.38	100-yr	301900.00	411.24	450.2	428.47	450.95	0.000215	6.86	44822.86	1766.01	0.22
West Branch	West Branch	0.38	500-yr	422700.00	411.24	456.2	431.64	457.21	0.000228	7.96	56903.51	2400.60	0.23
West Branch	West Branch	0.28	2-yr	89100.00	411.22	434.4	419.36	434.60	0.000105	3.54	25159.28	1359.78	0.15
West Branch	West Branch	0.28	5-yr	133600.00	411.22	438.5	421.29	438.75	0.000129	4.34	30804.68	1432.26	0.16
West Branch	West Branch	0.28	10-yr	168000.00	411.22	441.0	422.62	441.34	0.000143	4.88	34417.14	1449.25	0.18
West Branch	West Branch	0.28	25-yr	215700.00	411.22	444.5	424.30	444.92	0.000152	5.46	39528.29	1480.15	0.19

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
West Branch	West Branch	0.28	50-yr	258100.00	411.22	447.3	425.70	447.79	0.000157	5.91	43694.00	1497.38	0.19
West Branch	West Branch	0.28	100-yr	301900.00	411.22	450.2	427.26	450.82	0.000157	6.27	48154.51	1741.75	0.20
West Branch	West Branch	0.28	500-yr	422700.00	411.22	456.2	430.24	457.07	0.000172	7.31	60582.52	2314.06	0.21
West Branch	West Branch	0.191	2-yr	89100.00	411.24	434.3	419.79	434.53	0.000115	3.68	24235.91	1351.67	0.15
West Branch	West Branch	0.191	5-yr	133600.00	411.24	438.4	421.75	438.67	0.000134	4.50	29726.40	1379.73	0.17
West Branch	West Branch	0.191	10-yr	168000.00	411.24	440.8	423.08	441.24	0.000148	5.09	33124.74	1393.86	0.18
West Branch	West Branch	0.191	25-yr	215700.00	411.24	444.3	424.78	444.81	0.000158	5.72	37858.93	1763.83	0.19
West Branch	West Branch	0.191	50-yr	258100.00	411.24	447.1	426.25	447.69	0.000164	6.19	43889.17	1983.12	0.20
West Branch	West Branch	0.191	100-yr	301900.00	411.24	450.1	427.68	450.72	0.000166	6.53	50018.61	2074.83	0.20
West Branch	West Branch	0.191	500-yr	422700.00	411.24	456.1	430.71	456.95	0.000181	7.59	62636.81	2103.28	0.22
West Branch	West Branch	.1905 US Route 11		Bridge									
West Branch	West Branch	0.190	2-yr	89100.00	411.24	434.3	419.88	434.51	0.000118	3.72	23977.24	1352.78	0.15
West Branch	West Branch	0.190	5-yr	133600.00	411.24	438.3	421.84	438.61	0.000138	4.55	29369.77	1373.92	0.17
West Branch	West Branch	0.190	10-yr	168000.00	411.24	440.7	423.19	441.11	0.000155	5.15	32649.56	1378.13	0.18
West Branch	West Branch	0.190	25-yr	215700.00	411.24	444.0	424.91	444.54	0.000168	5.82	37171.25	1635.62	0.20
West Branch	West Branch	0.190	50-yr	258100.00	411.24	446.6	426.43	447.25	0.000178	6.35	40734.16	1858.91	0.20
West Branch	West Branch	0.190	100-yr	301900.00	411.24	449.5	427.82	450.23	0.000176	6.68	48256.66	2086.22	0.21
West Branch	West Branch	0.190	500-yr	422700.00	411.24	455.7	430.85	456.58	0.000190	7.71	61133.89	2101.87	0.22
West Branch	West Branch	0.16	2-yr	89100.00	411.22	434.2	419.66	434.40	0.000129	3.79	23535.24	1339.63	0.16
West Branch	West Branch	0.16	5-yr	133600.00	411.22	438.1	421.69	438.47	0.000157	4.59	29123.71	1604.12	0.18
West Branch	West Branch	0.16	10-yr	168000.00	411.22	440.5	423.08	440.96	0.000171	5.16	32689.57	1607.52	0.19
West Branch	West Branch	0.16	25-yr	215700.00	411.22	443.9	424.84	444.37	0.000182	5.78	37618.81	1615.34	0.20
West Branch	West Branch	0.16	50-yr	258100.00	411.22	446.5	426.40	447.07	0.000189	6.27	41503.17	1669.22	0.21
West Branch	West Branch	0.16	100-yr	301900.00	411.22	449.4	427.84	450.05	0.000183	6.60	47786.27	1732.47	0.21
West Branch	West Branch	0.16	500-yr	422700.00	411.22	455.5	430.94	456.40	0.000196	7.68	58453.88	1747.78	0.22
Susquehanna	Upper Reach	205.877	2-yr	108900.00	543.58	565.8		566.24	0.000324	5.30	20547.89	1511.85	0.25
Susquehanna	Upper Reach	205.877	5-yr	150500.00	543.58	569.7		570.23	0.000269	5.68	26862.00	1636.64	0.24
Susquehanna	Upper Reach	205.877	10-yr	180100.00	543.58	572.4		572.97	0.000245	5.87	31320.08	1650.82	0.23
Susquehanna	Upper Reach	205.877	25-yr	219800.00	543.58	575.5		576.13	0.000253	6.18	36516.67	1699.28	0.23
Susquehanna	Upper Reach	205.877	50-yr	251200.00	543.58	579.0		579.61	0.000215	6.11	42622.96	1858.70	0.21
Susquehanna	Upper Reach	205.877	100-yr	284000.00	543.58	581.7		582.29	0.000199	6.26	47748.30	2036.08	0.20
Susquehanna	Upper Reach	205.877	500-yr	367400.00	543.58	588.3		588.93	0.000191	6.52	62671.21	2361.77	0.19
Susquehanna	Upper Reach	205.797	2-yr	108900.00	543.54	565.7		566.11	0.000289	5.25	20838.50	1693.75	0.24
Susquehanna	Upper Reach	205.797	5-yr	150500.00	543.54	569.6		570.12	0.000245	5.64	28169.25	1916.51	0.23
Susquehanna	Upper Reach	205.797	10-yr	180100.00	543.54	572.4		572.87	0.000224	5.81	33435.73	1949.39	0.22
Susquehanna	Upper Reach	205.797	25-yr	219800.00	543.54	575.5		576.02	0.000233	6.09	39644.50	2043.76	0.22
Susquehanna	Upper Reach	205.797	50-yr	251200.00	543.54	579.0		579.51	0.000197	5.98	46916.90	2109.19	0.20
Susquehanna	Upper Reach	205.797	100-yr	284000.00	543.54	581.6		582.19	0.000181	6.11	52581.39	2148.70	0.20
Susquehanna	Upper Reach	205.797	500-yr	367400.00	543.54	588.3		588.83	0.000175	6.34	67205.01	2252.36	0.18
Susquehanna	Upper Reach	205.719	2-yr	108900.00	543.52	565.6		565.99	0.000187	4.72	23241.98	1503.46	0.20
Susquehanna	Upper Reach	205.719	5-yr	150500.00	543.52	569.6		570.01	0.000184	5.26	29906.77	1906.78	0.20
Susquehanna	Upper Reach	205.719	10-yr	180100.00	543.52	572.3		572.77	0.000177	5.50	35133.63	1927.99	0.20
Susquehanna	Upper Reach	205.719	25-yr	219800.00	543.52	575.4		575.92	0.000189	5.83	41211.21	2000.65	0.20
Susquehanna	Upper Reach	205.719	50-yr	251200.00	543.52	578.9		579.42	0.000166	5.78	48391.61	2075.31	0.19
Susquehanna	Upper Reach	205.719	100-yr	284000.00	543.52	581.6		582.11	0.000156	5.93	54009.23	2134.76	0.18
Susquehanna	Upper Reach	205.719	500-yr	367400.00	543.52	588.2		588.76	0.000155	6.21	68368.67	2207.26	0.17
Susquehanna	Upper Reach	205.640	2-yr	108900.00	543.43	565.6		565.91	0.000145	4.36	25365.18	1547.07	0.18
Susquehanna	Upper Reach	205.640	5-yr	150500.00	543.43	569.6		569.93	0.000149	4.93	31949.16	1870.48	0.19
Susquehanna	Upper Reach	205.640	10-yr	180100.00	543.43	572.3		572.69	0.000147	5.19	37075.08	1890.78	0.18
Susquehanna	Upper Reach	205.640	25-yr	219800.00	543.43	575.4		575.83	0.000162	5.55	43008.35	1949.37	0.19
Susquehanna	Upper Reach	205.640	50-yr	251200.00	543.43	578.9		579.35	0.000145	5.54	49994.60	2020.00	0.18
Susquehanna	Upper Reach	205.640	100-yr	284000.00	543.43	581.6		582.04	0.000138	5.72	55485.15	2099.98	0.17
Susquehanna	Upper Reach	205.640	500-yr	367400.00	543.43	588.2		588.69	0.000141	6.05	69759.04	2199.31	0.17
Susquehanna	Upper Reach	205.562	2-yr	108900.00	543.77	565.5		565.85	0.000165	4.53	25216.86	1737.79	0.19
Susquehanna	Upper Reach	205.562	5-yr	150500.00	543.77	569.5		569.86	0.000159	5.07	32094.24	1750.08	0.19
Susquehanna	Upper Reach	205.562	10-yr	180100.00	543.77	572.2		572.63	0.000156	5.34	36869.88	1758.36	0.19
Susquehanna	Upper Reach	205.562	25-yr	219800.00	543.77	575.3		575.76	0.000173	5.74	42336.62	1811.71	0.19
Susquehanna	Upper Reach	205.562	50-yr	251200.00	543.77	578.8		579.28	0.000156	5.77	48841.22	1880.75	0.18
Susquehanna	Upper Reach	205.562	100-yr	284000.00	543.77	581.5		581.98	0.000150	5.97	53925.78	1940.53	0.18
Susquehanna	Upper Reach	205.562	500-yr	367400.00	543.77	588.0		588.62	0.000156	6.37	67028.68	2023.27	0.18
Susquehanna	Upper Reach	205.486	2-yr	108900.00	544.09	565.5		565.77	0.000159	4.13	26362.12	1660.55	0.18
Susquehanna	Upper Reach	205.486	5-yr	150500.00	544.09	569.5		569.78	0.000149	4.57	32952.64	1670.27	0.18
Susquehanna	Upper Reach	205.486	10-yr	180100.00	544.09	572.2		572.55	0.000143	4.80	37519.81	1678.00	0.18
Susquehanna	Upper Reach	205.486	25-yr	219800.00	544.09	575.3		575.67	0.000157	5.15	42707.12	1707.09	0.18
Susquehanna	Upper Reach	205.486	50-yr	251200.00	544.09	578.8		579.20	0.000141	5.17	48785.87	1740.43	0.17
Susquehanna	Upper Reach	205.486	100-yr	284000.00	544.09	581.5		581.90	0.000135	5.34	53474.63	1776.27	0.17
Susquehanna	Upper Reach	205.486	500-yr	367400.00	544.09	588.0		588.53	0.000140	5.69	65585.74	1896.34	0.16
Susquehanna	Upper Reach	205.409	2-yr	108900.00	544.43	565.4		565.69	0.000199	4.28	25430.27	1601.61	0.19
Susquehanna	Upper Reach	205.409	5-yr	150500.00	544.43	569.4		569.71	0.000184	4.73	31788.71	1611.34	0.19
Susquehanna	Upper Reach	205.409	10-yr	180100.00	544.43	572.1		572.48	0.000177	4.98	36198.90	1629.40	0.19
Susquehanna	Upper Reach	205.409	25-yr	219800.00	544.43	575.2		575.60	0.000195	5.34	41218.89	1651.77	0.19
Susquehanna	Upper Reach	205.409	50-yr	251200.00	544.43	578.7		579.13	0.000175	5.35	47134.07	1705.66	0.18
Susquehanna	Upper Reach	205.409	100-yr	284000.00	544.43	581.4		581.83	0.000172	5.53	51724.78	1739.75	0.17
Susquehanna	Upper Reach	205.409	500-yr	367400.00	544.43	587.9		588.47	0.000179	5.89	63443.27	1802.14	0.17
Susquehanna	Upper Reach	205.335	2-yr	108900.00	544.77	565.2		565.60	0.000246	4.78	22762.91	1495.63	0.22
Susquehanna	Upper Reach	205.335	5-yr	150500.00	544.77	569.2		569.63	0.000236	5.24	28747.98	1535.52	0.21
Susquehanna	Upper Reach	205.335	10-yr	180100.00	544.77	571.9		572.39	0.000229	5.46	32963.71	1549.75	0.21
Susquehanna	Upper Reach	205.335	25-yr	219800.00	544.77	575.0		575.50	0.000255	5.83	37718.17	1579.59	0.21
Susquehanna	Upper Reach	205.335	50-yr	251200.00	544.77	578.5		579.05	0.000231	5.80	43397.34	1616.37	0.20
Susquehanna	Upper Reach	205.335	100-yr	284000.00	544.77	581.2		581.75	0.000222	5.98	47752.50	1654.47	0.19
Susquehanna	Upper Reach	205.335	500-yr	367400.00	544.77	587.8		588.38	0.000230	6.32	59015.40	1733.33	0.19
Susquehanna	Upper Reach	205.256	2-yr	108900.00	545.13	565.1		565.49	0.000296	5.13	21237.40	1367.16	0.23
Susquehanna	Upper Reach	205.256	5-yr	150500.00	545.13	569.0		569.51	0.000282	5.64	26668.39	1411.41	0.23
Susquehanna	Upper Reach	205.256	10-yr	180100.00	545.13	571.7		572.28	0.000273	5.91	30634.94	1479.66	0.22
Susquehanna	Upper Reach	205.256	25-yr	219800.00	545.13	574.8		575.38	0.000303	6.33	35117.92	1490.07	0.22
Susquehanna	Upper Reach	205.256	50-yr	251200.00	545.13	578.3		578.94	0.000269	6.31	40443.16	1507.20	0.21
Susquehanna	Upper Reach	205.256	100-yr	284000.00	545.13	581.0		581.64	0.000257	6.51	44534.23	1555.93	0.21
Susquehanna	Upper Reach	205.256	500-yr	367400.00	545.13	587.5		588.27	0.000266	6.93	54861.91	1589.05	0.20

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Upper Reach	205.180	2-yr	108900.00	545.45	564.9		565.36	0.000336	5.33	20435.94	1338.88	0.24
Susquehanna	Upper Reach	205.180	5-yr	150500.00	545.45	568.9		569.39	0.000316	5.82	25843.38	1389.80	0.24
Susquehanna	Upper Reach	205.180	10-yr	180100.00	545.45	571.6		572.17	0.000304	6.08	29658.77	1407.16	0.23
Susquehanna	Upper Reach	205.180	25-yr	219800.00	545.45	574.6		575.25	0.000334	6.50	33900.68	1419.03	0.23
Susquehanna	Upper Reach	205.180	50-yr	251200.00	545.45	578.2		578.82	0.000295	6.47	39019.82	1447.66	0.22
Susquehanna	Upper Reach	205.180	100-yr	284000.00	545.45	580.8		581.53	0.000280	6.67	42931.93	1483.09	0.21
Susquehanna	Upper Reach	205.180	500-yr	367400.00	545.45	587.4		588.15	0.000289	7.09	52765.52	1513.67	0.21
Susquehanna	Upper Reach	205.102	2-yr	108900.00	545.67	564.8	555.35	565.22	0.000364	5.43	20054.33	1316.16	0.25
Susquehanna	Upper Reach	205.102	5-yr	150500.00	545.67	568.7	556.83	569.26	0.000336	5.95	25274.70	1326.20	0.24
Susquehanna	Upper Reach	205.102	10-yr	180100.00	545.67	571.4	557.79	572.04	0.000323	6.23	28899.77	1333.42	0.24
Susquehanna	Upper Reach	205.102	25-yr	219800.00	545.67	574.4	558.98	575.11	0.000358	6.68	32883.22	1341.31	0.24
Susquehanna	Upper Reach	205.102	50-yr	251200.00	545.67	578.0	559.90	578.70	0.000318	6.66	37720.85	1350.52	0.22
Susquehanna	Upper Reach	205.102	100-yr	284000.00	545.67	580.7	560.80	581.41	0.000304	6.87	41364.91	1405.81	0.22
Susquehanna	Upper Reach	205.102	500-yr	367400.00	545.67	587.2	562.95	588.03	0.000318	7.31	50753.87	1455.49	0.21
Susquehanna	Upper Reach	205.025	2-yr	108900.00	545.84	564.5	555.82	565.04	0.000446	6.10	17863.25	1239.33	0.28
Susquehanna	Upper Reach	205.025	5-yr	150500.00	545.84	568.4	557.66	569.10	0.000396	6.60	22794.30	1251.19	0.27
Susquehanna	Upper Reach	205.025	10-yr	180100.00	545.84	571.2	558.66	571.89	0.000372	6.87	26220.13	1258.76	0.27
Susquehanna	Upper Reach	205.025	25-yr	219800.00	545.84	574.1	559.91	574.94	0.000408	7.34	29944.85	1266.88	0.27
Susquehanna	Upper Reach	205.025	50-yr	251200.00	545.84	577.7	560.86	578.55	0.000356	7.27	34596.30	1373.57	0.25
Susquehanna	Upper Reach	205.025	100-yr	284000.00	545.84	580.4	561.79	581.27	0.000338	7.47	38132.11	1472.25	0.24
Susquehanna	Upper Reach	205.025	500-yr	367400.00	545.84	586.9	564.01	587.88	0.000341	7.88	47368.39	1718.46	0.23
Susquehanna	Upper Reach	204.948	2-yr	108900.00	545.39	564.3	555.10	564.88	0.000378	6.13	17801.78	1205.52	0.28
Susquehanna	Upper Reach	204.948	5-yr	150500.00	545.39	568.3	556.73	568.95	0.000335	6.71	22796.59	1684.03	0.27
Susquehanna	Upper Reach	204.948	10-yr	180100.00	545.39	571.0	557.78	571.75	0.000314	7.01	26279.04	1788.57	0.26
Susquehanna	Upper Reach	204.948	25-yr	219800.00	545.39	573.9	559.12	574.79	0.000345	7.52	30017.94	1893.21	0.27
Susquehanna	Upper Reach	204.948	50-yr	251200.00	545.39	577.6	560.13	578.41	0.000301	7.47	34698.45	2060.41	0.25
Susquehanna	Upper Reach	204.948	100-yr	284000.00	545.39	580.2	561.12	581.14	0.000289	7.69	38248.66	2170.71	0.25
Susquehanna	Upper Reach	204.948	500-yr	367400.00	545.39	586.7	563.60	587.75	0.000291	8.15	47102.97	2473.62	0.24
Susquehanna	Upper Reach	204.872	2-yr	108900.00	544.05	564.0	554.95	564.70	0.000442	6.74	16153.03	1031.79	0.30
Susquehanna	Upper Reach	204.872	5-yr	150500.00	544.05	567.9	556.72	568.79	0.000408	7.43	20248.81	1049.45	0.30
Susquehanna	Upper Reach	204.872	10-yr	180100.00	544.05	570.6	557.87	571.59	0.000390	7.79	23115.12	1070.37	0.29
Susquehanna	Upper Reach	204.872	25-yr	219800.00	544.05	573.5	559.32	574.61	0.000433	8.40	26305.62	1140.50	0.30
Susquehanna	Upper Reach	204.872	50-yr	251200.00	544.05	577.2	560.48	578.26	0.000374	8.33	30601.50	1204.44	0.28
Susquehanna	Upper Reach	204.872	100-yr	284000.00	544.05	579.9	561.59	580.99	0.000351	8.57	33868.34	1279.86	0.27
Susquehanna	Upper Reach	204.872	500-yr	367400.00	544.05	586.3	564.15	587.60	0.000355	9.07	42196.19	1346.17	0.26
Susquehanna	Upper Reach	204.796	2-yr	108900.00	543.24	563.8		564.54	0.000404	6.73	16180.55	966.01	0.29
Susquehanna	Upper Reach	204.796	5-yr	150500.00	543.24	567.8		568.63	0.000390	7.53	19997.76	981.68	0.29
Susquehanna	Upper Reach	204.796	10-yr	180100.00	543.24	570.5		571.43	0.000380	7.94	22728.24	1047.41	0.29
Susquehanna	Upper Reach	204.796	25-yr	219800.00	543.24	573.3		574.43	0.000432	8.62	25739.46	1081.85	0.30
Susquehanna	Upper Reach	204.796	50-yr	251200.00	543.24	577.0		578.10	0.000379	8.58	29877.06	1160.91	0.28
Susquehanna	Upper Reach	204.796	100-yr	284000.00	543.24	579.6		580.84	0.000360	8.86	33043.43	1247.64	0.28
Susquehanna	Upper Reach	204.796	500-yr	367400.00	543.24	586.1		587.44	0.000370	9.41	41308.68	1290.11	0.27
Susquehanna	Upper Reach	204.718	2-yr	108900.00	543.59	563.6		564.35	0.000463	7.17	15181.32	913.97	0.31
Susquehanna	Upper Reach	204.718	5-yr	150500.00	543.59	567.5		568.45	0.000446	8.02	18774.86	928.43	0.31
Susquehanna	Upper Reach	204.718	10-yr	180100.00	543.59	570.1		571.26	0.000432	8.46	21417.07	1029.97	0.31
Susquehanna	Upper Reach	204.718	25-yr	219800.00	543.59	572.9		574.23	0.000492	9.17	24359.98	1079.66	0.32
Susquehanna	Upper Reach	204.718	50-yr	251200.00	543.59	576.7		577.93	0.000427	9.10	28505.66	1159.95	0.30
Susquehanna	Upper Reach	204.718	100-yr	284000.00	543.59	579.3		580.68	0.000403	9.36	31729.57	1247.02	0.30
Susquehanna	Upper Reach	204.718	500-yr	367400.00	543.59	585.8		587.28	0.000410	9.86	39957.56	1286.83	0.28
Susquehanna	Upper Reach	204.642	2-yr	108900.00	543.95	563.2		564.13	0.000586	7.86	13852.87	867.27	0.35
Susquehanna	Upper Reach	204.642	5-yr	150500.00	543.95	567.1		568.24	0.000551	8.73	17243.36	878.70	0.35
Susquehanna	Upper Reach	204.642	10-yr	180100.00	543.95	569.7		571.05	0.000531	9.18	19738.82	998.10	0.34
Susquehanna	Upper Reach	204.642	25-yr	219800.00	543.95	572.5		573.99	0.000602	9.94	22537.22	1061.44	0.35
Susquehanna	Upper Reach	204.642	50-yr	251200.00	543.95	576.3		577.72	0.000511	9.79	26753.06	1179.76	0.32
Susquehanna	Upper Reach	204.642	100-yr	284000.00	543.95	578.9		580.48	0.000488	10.02	30022.49	1239.11	0.32
Susquehanna	Upper Reach	204.642	500-yr	367400.00	543.95	585.4		587.08	0.000481	10.44	38390.77	1311.44	0.30
Susquehanna	Upper Reach	204.563	2-yr	108900.00	544.32	562.8		563.86	0.000679	8.28	13150.30	851.25	0.37
Susquehanna	Upper Reach	204.563	5-yr	150500.00	544.32	566.7		567.98	0.000622	9.13	16487.10	861.66	0.37
Susquehanna	Upper Reach	204.563	10-yr	180100.00	544.32	569.4		570.81	0.000594	9.57	18917.83	989.18	0.36
Susquehanna	Upper Reach	204.563	25-yr	219800.00	544.32	572.1		573.72	0.000673	10.35	21722.01	1088.37	0.37
Susquehanna	Upper Reach	204.563	50-yr	251200.00	544.32	575.9		577.50	0.000555	10.09	26267.92	1228.94	0.34
Susquehanna	Upper Reach	204.563	100-yr	284000.00	544.32	578.7		580.27	0.000524	10.29	29703.81	1301.81	0.33
Susquehanna	Upper Reach	204.563	500-yr	367400.00	544.32	585.2		586.88	0.000501	10.62	38762.80	1438.72	0.31
Susquehanna	Upper Reach	204.488	2-yr	108900.00	544.36	562.5		563.58	0.000714	8.44	12903.39	843.38	0.38
Susquehanna	Upper Reach	204.488	5-yr	150500.00	544.36	566.4		567.73	0.000650	9.27	16235.91	856.84	0.38
Susquehanna	Upper Reach	204.488	10-yr	180100.00	544.36	569.1		570.57	0.000617	9.69	18735.61	999.31	0.37
Susquehanna	Upper Reach	204.488	25-yr	219800.00	544.36	571.7		573.45	0.000702	10.51	21440.77	1136.99	0.38
Susquehanna	Upper Reach	204.488	50-yr	251200.00	544.36	575.7		577.27	0.000576	10.24	26412.57	1314.06	0.34
Susquehanna	Upper Reach	204.488	100-yr	284000.00	544.36	578.4		580.05	0.000543	10.45	30041.22	1350.05	0.34
Susquehanna	Upper Reach	204.488	500-yr	367400.00	544.36	584.9		586.67	0.000531	10.85	39294.18	1598.37	0.32
Susquehanna	Upper Reach	204.412	2-yr	108900.00	544.10	562.2		563.30	0.000661	8.24	13214.69	843.59	0.37
Susquehanna	Upper Reach	204.412	5-yr	150500.00	544.10	566.2		567.47	0.000606	9.09	16560.77	876.00	0.36
Susquehanna	Upper Reach	204.412	10-yr	180100.00	544.10	568.9		570.32	0.000578	9.52	19228.66	1039.66	0.36
Susquehanna	Upper Reach	204.412	25-yr	219800.00	544.10	571.5		573.16	0.000666	10.36	22005.68	1149.10	0.37
Susquehanna	Upper Reach	204.412	50-yr	251200.00	544.10	575.5		577.04	0.000548	10.10	26874.54	1271.30	0.33
Susquehanna	Upper Reach	204.412	100-yr	284000.00	544.10	578.2		579.83	0.000516	10.32	30486.55	1366.98	0.33
Susquehanna	Upper Reach	204.412	500-yr	367400.00	544.10	584.7		586.46	0.000508	10.78	40500.91	1744.50	0.31
Susquehanna	Upper Reach	204.335	2-yr	108900.00	544.09	562.0		563.02	0.000628	7.95	13696.52	887.09	0.36
Susquehanna	Upper Reach	204.335	5-yr	150500.00	544.09	566.0		567.20	0.000572	8.71	17614.44	1141.64	0.35
Susquehanna	Upper Reach	204.335	10-yr	180100.00	544.09	568.8		570.05	0.000531	9.06	20896.53	1248.00	0.34
Susquehanna	Upper Reach	204.335	25-yr	219800.00	544.09	571.4		572.85	0.000606	9.82	24264.22	1324.76	0.35
Susquehanna	Upper Reach	204.335	50-yr	251200.00	544.09	575.4		576.77	0.000491	9.52	29629.98	1364.57	0.32
Susquehanna	Upper Reach	204.335	100-yr	284000.00	544.09	578.2		579.58	0.000460	9.72	33450.46	1406.52	0.31
Susquehanna	Upper Reach	204.335	500-yr	367400.00	544.09	584.7		586.21	0.000463	10.19	43241.98	1591.29	0.30
Susquehanna	Upper Reach	204.259	2-yr	108900.00	540.63	562.0		562.75	0.000423	6.98	15599.28	912.66	0.30
Susquehanna	Upper Reach	204.259	5-yr	150500.00	540.63	566.0		566.94	0.000407	7.81	19275.84	923.18	0.30
Susquehanna	Upper Reach	204.259	10-yr	180100.00	540.63	568.8		569.81	0.000400	8.25	21920.18	1114.44	0.30
Susquehanna	Upper Reach	204.259	25-yr	219800.00	540.63	571.3		572.58	0.000473	9.05	24937.66	1211.59	0.31

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Upper Reach	204.259	50-yr	251200.00	540.63	575.3		576.55	0.000398	8.89	30010.87	1321.32	0.29
Susquehanna	Upper Reach	204.259	100-yr	284000.00	540.63	578.1		579.37	0.000376	9.14	33777.83	1410.37	0.28
Susquehanna	Upper Reach	204.259	500-yr	367400.00	540.63	584.6		586.00	0.000388	9.73	43646.71	1685.70	0.28
Susquehanna	Upper Reach	204.180	2-yr	108900.00	540.37	561.8	552.50	562.57	0.000431	6.89	15799.95	957.16	0.30
Susquehanna	Upper Reach	204.180	5-yr	150500.00	540.37	565.9	554.32	566.77	0.000403	7.65	19676.00	967.64	0.30
Susquehanna	Upper Reach	204.180	10-yr	180100.00	540.37	568.6	555.53	569.63	0.000389	8.04	22816.71	1302.61	0.30
Susquehanna	Upper Reach	204.180	25-yr	219800.00	540.37	571.2	557.04	572.37	0.000456	8.80	26276.78	1397.36	0.31
Susquehanna	Upper Reach	204.180	50-yr	251200.00	540.37	575.2	558.16	576.36	0.000377	8.58	32163.93	1463.78	0.28
Susquehanna	Upper Reach	204.180	100-yr	284000.00	540.37	578.0	559.27	579.19	0.000357	8.80	36359.69	1654.53	0.28
Susquehanna	Upper Reach	204.180	500-yr	367400.00	540.37	584.5	561.93	585.80	0.000362	9.24	46916.29	2192.50	0.26
Susquehanna	Upper Reach	204.103	2-yr	108900.00	540.10	561.7		562.39	0.000423	6.81	16002.31	974.89	0.30
Susquehanna	Upper Reach	204.103	5-yr	150500.00	540.10	565.7		566.60	0.000394	7.53	20160.44	1165.87	0.30
Susquehanna	Upper Reach	204.103	10-yr	180100.00	540.10	568.5		569.46	0.000375	7.88	23612.67	1337.97	0.29
Susquehanna	Upper Reach	204.103	25-yr	219800.00	540.10	571.0		572.17	0.000436	8.57	27069.47	1385.86	0.30
Susquehanna	Upper Reach	204.103	50-yr	251200.00	540.10	575.2		576.19	0.000352	8.28	32906.80	1430.22	0.27
Susquehanna	Upper Reach	204.103	100-yr	284000.00	540.10	578.0		579.02	0.000331	8.43	36989.54	1483.73	0.26
Susquehanna	Upper Reach	204.103	500-yr	367400.00	540.10	584.5		585.62	0.000334	8.84	47702.68	1968.12	0.25
Susquehanna	Upper Reach	204.025	2-yr	108900.00	539.84	561.5	552.53	562.22	0.000441	6.81	15983.44	1003.53	0.30
Susquehanna	Upper Reach	204.025	5-yr	150500.00	539.84	565.6	554.29	566.43	0.000399	7.48	20348.53	1144.62	0.30
Susquehanna	Upper Reach	204.025	10-yr	180100.00	539.84	568.4	555.46	569.31	0.000380	7.82	23872.79	1325.34	0.29
Susquehanna	Upper Reach	204.025	25-yr	219800.00	539.84	570.9	556.92	571.99	0.000443	8.53	27226.04	1351.12	0.30
Susquehanna	Upper Reach	204.025	50-yr	251200.00	539.84	575.0	558.00	576.04	0.000359	8.28	32880.29	1387.19	0.27
Susquehanna	Upper Reach	204.025	100-yr	284000.00	539.84	577.8	559.09	578.88	0.000339	8.50	36905.39	1658.95	0.27
Susquehanna	Upper Reach	204.025	500-yr	367400.00	539.84	584.3	561.67	585.48	0.000344	8.92	47236.18	1922.85	0.26
Susquehanna	Upper Reach	203.952	2-yr	108900.00	539.59	561.4		562.04	0.000433	6.66	16428.39	1073.64	0.30
Susquehanna	Upper Reach	203.952	5-yr	150500.00	539.59	565.4		566.27	0.000389	7.28	21002.56	1203.86	0.29
Susquehanna	Upper Reach	203.952	10-yr	180100.00	539.59	568.3		569.15	0.000363	7.58	24506.64	1268.93	0.28
Susquehanna	Upper Reach	203.952	25-yr	219800.00	539.59	570.7		571.80	0.000424	8.28	27694.09	1293.18	0.29
Susquehanna	Upper Reach	203.952	50-yr	251200.00	539.59	574.9		575.89	0.000343	8.03	33165.04	1344.46	0.27
Susquehanna	Upper Reach	203.952	100-yr	284000.00	539.59	577.7		578.73	0.000321	8.23	37103.87	1465.62	0.26
Susquehanna	Upper Reach	203.952	500-yr	367400.00	539.59	584.2		585.33	0.000325	8.64	47085.50	1559.55	0.25
Susquehanna	Upper Reach	203.872	2-yr	108900.00	539.08	561.2		561.84	0.000384	6.19	17597.26	1156.54	0.28
Susquehanna	Upper Reach	203.872	5-yr	150500.00	539.08	565.4		566.08	0.000334	6.72	22534.95	1223.92	0.27
Susquehanna	Upper Reach	203.872	10-yr	180100.00	539.08	568.2		568.97	0.000310	7.00	26035.74	1254.19	0.26
Susquehanna	Upper Reach	203.872	25-yr	219800.00	539.08	570.7		571.60	0.000363	7.66	29180.57	1286.44	0.27
Susquehanna	Upper Reach	203.872	50-yr	251200.00	539.08	574.9		575.72	0.000293	7.44	34686.89	1350.29	0.25
Susquehanna	Upper Reach	203.872	100-yr	284000.00	539.08	577.7		578.57	0.000276	7.64	38620.74	1474.91	0.24
Susquehanna	Upper Reach	203.872	500-yr	367400.00	539.08	584.2		585.17	0.000279	8.03	48672.23	1580.19	0.23
Susquehanna	Upper Reach	203.796	2-yr	108900.00	538.58	561.1		561.68	0.000349	5.90	18445.98	1203.68	0.27
Susquehanna	Upper Reach	203.796	5-yr	150500.00	538.58	565.3		565.94	0.000303	6.41	23486.25	1218.87	0.26
Susquehanna	Upper Reach	203.796	10-yr	180100.00	538.58	568.1		568.83	0.000284	6.68	26959.28	1229.22	0.25
Susquehanna	Upper Reach	203.796	25-yr	219800.00	538.58	570.6		571.44	0.000334	7.33	30131.28	1326.93	0.26
Susquehanna	Upper Reach	203.796	50-yr	251200.00	538.58	574.8		575.59	0.000269	7.11	35944.34	1438.23	0.24
Susquehanna	Upper Reach	203.796	100-yr	284000.00	538.58	577.6		578.44	0.000251	7.29	40086.04	1506.92	0.23
Susquehanna	Upper Reach	203.796	500-yr	367400.00	538.58	584.1		585.04	0.000256	7.69	50374.32	1623.80	0.22
Susquehanna	Upper Reach	203.721	2-yr	108900.00	538.44	561.1		561.54	0.000299	5.54	19664.25	1259.54	0.25
Susquehanna	Upper Reach	203.721	5-yr	150500.00	538.44	565.2		565.80	0.000269	6.01	25051.68	1335.73	0.24
Susquehanna	Upper Reach	203.721	10-yr	180100.00	538.44	568.1		568.70	0.000249	6.26	28900.62	1379.11	0.24
Susquehanna	Upper Reach	203.721	25-yr	219800.00	538.44	570.6		571.28	0.000293	6.86	32347.63	1418.67	0.25
Susquehanna	Upper Reach	203.721	50-yr	251200.00	538.44	574.8		575.46	0.000235	6.67	38425.61	1460.75	0.22
Susquehanna	Upper Reach	203.721	100-yr	284000.00	538.44	577.6		578.32	0.000220	6.84	42627.84	1514.77	0.22
Susquehanna	Upper Reach	203.721	500-yr	367400.00	538.44	584.1		584.92	0.000228	7.27	52848.74	1610.02	0.21
Susquehanna	Upper Reach	203.641	2-yr	108900.00	538.39	561.0		561.40	0.000202	4.89	22272.76	1275.12	0.21
Susquehanna	Upper Reach	203.641	5-yr	150500.00	538.39	565.2		565.68	0.000195	5.43	27734.16	1321.28	0.21
Susquehanna	Upper Reach	203.641	10-yr	180100.00	538.39	568.1		568.58	0.000189	5.71	31540.49	1367.17	0.21
Susquehanna	Upper Reach	203.641	25-yr	219800.00	538.39	570.5		571.14	0.000228	6.31	34971.14	1419.41	0.22
Susquehanna	Upper Reach	203.641	50-yr	251200.00	538.39	574.8		575.34	0.000189	6.19	41058.66	1458.44	0.20
Susquehanna	Upper Reach	203.641	100-yr	284000.00	538.39	577.6		578.21	0.000179	6.38	45238.82	1509.60	0.20
Susquehanna	Upper Reach	203.641	500-yr	367400.00	538.39	584.1		584.80	0.000189	6.85	55483.76	1614.62	0.19
Susquehanna	Upper Reach	203.564	2-yr	108900.00	538.34	561.0		561.32	0.000189	4.77	22869.33	1258.34	0.19
Susquehanna	Upper Reach	203.564	5-yr	150500.00	538.34	565.2		565.60	0.000190	5.37	28239.96	1304.03	0.20
Susquehanna	Upper Reach	203.564	10-yr	180100.00	538.34	568.0		568.51	0.000188	5.69	32008.49	1334.63	0.20
Susquehanna	Upper Reach	203.564	25-yr	219800.00	538.34	570.4		571.05	0.000232	6.33	35271.45	1355.56	0.21
Susquehanna	Upper Reach	203.564	50-yr	251200.00	538.34	574.7		575.27	0.000198	6.26	41067.99	1385.89	0.20
Susquehanna	Upper Reach	203.564	100-yr	284000.00	538.34	577.5		578.13	0.000191	6.48	45116.70	1482.75	0.20
Susquehanna	Upper Reach	203.564	500-yr	367400.00	538.34	584.0		584.72	0.000207	7.01	55152.14	1570.34	0.19
Susquehanna	Upper Reach	203.486	2-yr	108900.00	537.35	560.8		561.24	0.000187	5.09	21413.26	1095.69	0.20
Susquehanna	Upper Reach	203.486	5-yr	150500.00	537.35	565.0		565.51	0.000192	5.79	26009.63	1115.61	0.21
Susquehanna	Upper Reach	203.486	10-yr	180100.00	537.35	567.8		568.42	0.000194	6.17	29189.86	1128.08	0.21
Susquehanna	Upper Reach	203.486	25-yr	219800.00	537.35	570.2		570.94	0.000244	6.89	31907.12	1171.62	0.23
Susquehanna	Upper Reach	203.486	50-yr	251200.00	537.35	574.4		575.17	0.000211	6.83	37361.06	1376.27	0.21
Susquehanna	Upper Reach	203.486	100-yr	284000.00	537.35	577.3		578.04	0.000204	7.09	41373.42	1462.86	0.21
Susquehanna	Upper Reach	203.486	500-yr	367400.00	537.35	583.7		584.62	0.000222	7.68	51279.87	1572.62	0.21
Susquehanna	Upper Reach	203.411	2-yr	108900.00	538.39	560.6		561.14	0.000260	5.77	18881.56	1027.01	0.24
Susquehanna	Upper Reach	203.411	5-yr	150500.00	538.39	564.8		565.41	0.000260	6.49	23180.98	1053.12	0.24
Susquehanna	Upper Reach	203.411	10-yr	180100.00	538.39	567.6		568.32	0.000257	6.88	26274.81	1226.92	0.24
Susquehanna	Upper Reach	203.411	25-yr	219800.00	538.39	569.9		570.82	0.000317	7.66	29260.89	1329.36	0.26
Susquehanna	Upper Reach	203.411	50-yr	251200.00	538.39	574.2		575.06	0.000263	7.53	35116.33	1462.64	0.24
Susquehanna	Upper Reach	203.411	100-yr	284000.00	538.39	577.0		577.94	0.000250	7.77	39382.11	1563.31	0.23
Susquehanna	Upper Reach	203.411	500-yr	367400.00	538.39	583.5		584.51	0.000266	8.34	49927.27	1674.69	0.23
Susquehanna	Upper Reach	203.333 Sutton Creek	2-yr	108900.00	539.09	560.2	550.56	560.97	0.000482	7.15	15232.42	954.90	0.32
Susquehanna	Upper Reach	203.333 Sutton Creek	5-yr	150500.00	539.09	564.3	552.71	565.24	0.000497	7.74	19450.21	1109.43	0.33
Susquehanna	Upper Reach	203.333 Sutton Creek	10-yr	180100.00	539.09	567.2	554.00	568.16	0.000443	7.95	22784.85	1246.18	0.31
Susquehanna	Upper Reach	203.333 Sutton Creek	25-yr	220200.00	539.09	569.4	555.69	570.63	0.000525	8.73	25648.26	1433.58	0.32
Susquehanna	Upper Reach	203.333 Sutton Creek	50-yr	251200.00	539.09	573.9	556.93	574.92	0.000395	8.27	31613.27	1931.78	0.28
Susquehanna	Upper Reach	203.333 Sutton Creek	100-yr	284000.00	539.09	576.7	558.12	577.80	0.000356	8.40	35764.02	2124.61	0.27
Susquehanna	Upper Reach	203.333 Sutton Creek	500-yr	367400.00	539.09	583.2	560.90	584.37	0.000348	8.80	45855.09	2543.07	0.26
Susquehanna	Upper Reach	203.256	2-yr	108900.00	538.97	559.9		560.77	0.000515	7.52	14482.18	884.48	0.33

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Upper Reach	203.256	5-yr	150500.00	538.97	564.0		565.04	0.000472	8.27	18507.90	1052.47	0.33
Susquehanna	Upper Reach	203.256	10-yr	180100.00	538.97	566.8		567.97	0.000446	8.63	21546.19	1088.62	0.32
Susquehanna	Upper Reach	203.256	25-yr	220200.00	538.97	569.0		570.39	0.000552	9.60	23950.76	1174.19	0.34
Susquehanna	Upper Reach	203.256	50-yr	251200.00	538.97	573.5		574.73	0.000426	9.18	29475.31	1303.25	0.30
Susquehanna	Upper Reach	203.256	100-yr	284000.00	538.97	576.3		577.63	0.000394	9.39	33287.54	1365.29	0.29
Susquehanna	Upper Reach	203.256	500-yr	367400.00	538.97	582.7		584.20	0.000405	9.95	42732.05	1567.35	0.28
Susquehanna	Upper Reach	203.174	2-yr	108900.00	538.85	559.5		560.53	0.000613	8.25	13196.83	803.50	0.36
Susquehanna	Upper Reach	203.174	5-yr	150500.00	538.85	563.5		564.81	0.000567	9.12	17077.12	1061.60	0.36
Susquehanna	Upper Reach	203.174	10-yr	180100.00	538.85	566.4		567.75	0.000538	9.51	20112.75	1095.03	0.35
Susquehanna	Upper Reach	203.174	25-yr	220200.00	538.85	568.4		570.12	0.000674	10.64	22454.85	1216.87	0.37
Susquehanna	Upper Reach	203.174	50-yr	251200.00	538.85	573.0		574.52	0.000510	10.11	28195.61	1283.94	0.33
Susquehanna	Upper Reach	203.174	100-yr	284000.00	538.85	575.8		577.43	0.000472	10.33	31908.98	1329.51	0.32
Susquehanna	Upper Reach	203.174	500-yr	367400.00	538.85	582.2		583.99	0.000484	10.95	41100.54	1480.99	0.31
Susquehanna	Upper Reach	203.092	2-yr	108900.00	538.73	559.1		560.25	0.000699	8.78	12397.45	752.19	0.38
Susquehanna	Upper Reach	203.092	5-yr	150500.00	538.73	563.1		564.55	0.000676	9.69	15724.03	1028.53	0.39
Susquehanna	Upper Reach	203.092	10-yr	180100.00	538.73	565.9		567.50	0.000626	10.05	18734.10	1076.44	0.38
Susquehanna	Upper Reach	203.092	25-yr	220200.00	538.73	567.9		569.80	0.000791	11.24	20843.85	1139.30	0.40
Susquehanna	Upper Reach	203.092	50-yr	251200.00	538.73	572.6		574.29	0.000571	10.51	26616.71	1267.91	0.34
Susquehanna	Upper Reach	203.092	100-yr	284000.00	538.73	575.5		577.22	0.000518	10.67	30408.02	1365.06	0.33
Susquehanna	Upper Reach	203.092	500-yr	367400.00	538.73	582.0		583.78	0.000516	11.17	39801.92	1508.96	0.32
Susquehanna	Upper Reach	203.010	2-yr	108900.00	538.61	558.9		559.95	0.000615	8.29	13130.54	789.01	0.36
Susquehanna	Upper Reach	203.010	5-yr	150500.00	538.61	562.9		564.25	0.000584	9.19	16409.14	926.04	0.36
Susquehanna	Upper Reach	203.010	10-yr	180100.00	538.61	565.8		567.22	0.000552	9.60	19232.52	998.83	0.35
Susquehanna	Upper Reach	203.010	25-yr	220200.00	538.61	567.7		569.46	0.000715	10.83	21092.95	1006.13	0.38
Susquehanna	Upper Reach	203.010	50-yr	251200.00	538.61	572.4		574.05	0.000539	10.26	26169.89	1224.30	0.33
Susquehanna	Upper Reach	203.010	100-yr	284000.00	538.61	575.3		577.01	0.000497	10.49	29954.28	1412.19	0.33
Susquehanna	Upper Reach	203.010	500-yr	367400.00	538.61	581.7		583.58	0.000505	11.08	39625.82	1582.71	0.31
Susquehanna	Upper Reach	202.932	2-yr	108900.00	538.50	558.9		559.68	0.000442	7.29	14934.08	849.08	0.31
Susquehanna	Upper Reach	202.932	5-yr	150500.00	538.50	562.9		563.98	0.000431	8.16	18445.17	867.18	0.31
Susquehanna	Upper Reach	202.932	10-yr	180100.00	538.50	565.8		566.96	0.000420	8.58	21287.73	1074.97	0.31
Susquehanna	Upper Reach	202.932	25-yr	220200.00	538.50	567.7		569.12	0.000550	9.72	23287.59	1094.39	0.34
Susquehanna	Upper Reach	202.932	50-yr	251200.00	538.50	572.5		573.78	0.000421	9.25	28723.86	1155.15	0.30
Susquehanna	Upper Reach	202.932	100-yr	284000.00	538.50	575.4		576.75	0.000391	9.48	32607.05	1554.96	0.29
Susquehanna	Upper Reach	202.932	500-yr	367400.00	538.50	581.8		583.31	0.000404	10.06	43017.77	1646.27	0.28
Susquehanna	Upper Reach	202.896	2-yr	108900.00	538.45	558.8		559.58	0.000437	7.02	15505.32	926.41	0.30
Susquehanna	Upper Reach	202.896	5-yr	150500.00	538.45	562.9		563.87	0.000416	7.77	19359.44	955.62	0.30
Susquehanna	Upper Reach	202.896	10-yr	180100.00	538.45	565.8		566.85	0.000395	8.13	22378.25	1113.55	0.30
Susquehanna	Upper Reach	202.896	25-yr	220200.00	538.45	567.7		568.98	0.000514	9.18	24494.03	1181.50	0.33
Susquehanna	Upper Reach	202.896	50-yr	251200.00	538.45	572.5		573.67	0.000385	8.69	30412.44	1272.99	0.28
Susquehanna	Upper Reach	202.896	100-yr	284000.00	538.45	575.4		576.64	0.000354	8.89	34447.60	1577.74	0.28
Susquehanna	Upper Reach	202.896	500-yr	367400.00	538.45	581.9		583.18	0.000361	9.40	45542.74	1788.95	0.27
Susquehanna	Upper Reach	202.848	2-yr	108900.00	538.38	558.7	548.95	559.48	0.000418	6.91	15750.43	931.48	0.30
Susquehanna	Upper Reach	202.848	5-yr	150500.00	538.38	562.9	550.92	563.77	0.000400	7.66	19649.22	963.10	0.30
Susquehanna	Upper Reach	202.848	10-yr	180100.00	538.38	565.8	552.15	566.75	0.000394	8.00	22596.79	1078.58	0.30
Susquehanna	Upper Reach	202.848	25-yr	220200.00	538.38	567.6	553.71	568.85	0.000517	9.03	24602.48	1109.95	0.33
Susquehanna	Upper Reach	202.848	50-yr	251200.00	538.38	572.4	554.84	573.57	0.000384	8.53	30123.19	1159.46	0.28
Susquehanna	Upper Reach	202.848	100-yr	284000.00	538.38	575.4	556.00	576.54	0.000356	8.72	33724.89	1615.32	0.28
Susquehanna	Upper Reach	202.848	500-yr	367400.00	538.38	581.8	558.75	583.09	0.000359	9.19	45466.80	1870.84	0.26
Susquehanna	Upper Reach	202.766	2-yr	108900.00	538.26	558.6	549.18	559.29	0.000434	6.84	17123.77	1348.33	0.30
Susquehanna	Upper Reach	202.766	5-yr	150500.00	538.26	562.8	551.08	563.58	0.000392	7.38	22425.60	1991.52	0.29
Susquehanna	Upper Reach	202.766	10-yr	180100.00	538.26	565.7	552.33	566.55	0.000383	7.61	26440.90	2311.51	0.29
Susquehanna	Upper Reach	202.766	25-yr	220200.00	538.26	567.5	554.04	568.59	0.000498	8.53	29221.29	2409.61	0.32
Susquehanna	Upper Reach	202.766	50-yr	251200.00	538.26	572.4	555.22	573.36	0.000342	7.85	37220.30	2878.29	0.26
Susquehanna	Upper Reach	202.766	100-yr	284000.00	538.26	575.4	556.38	576.34	0.000305	7.95	42201.68	3255.05	0.25
Susquehanna	Upper Reach	202.766	500-yr	367400.00	538.26	582.0	559.06	582.83	0.000262	7.79	64525.57	3703.69	0.23
Susquehanna	Upper Reach	202.683 Gardener Creek	2-yr	109100.00	538.14	558.4	549.21	559.11	0.000419	6.54	16753.68	1182.26	0.29
Susquehanna	Upper Reach	202.683 Gardener Creek	5-yr	150800.00	538.14	562.7	551.04	563.41	0.000370	7.01	22335.28	1795.22	0.28
Susquehanna	Upper Reach	202.683 Gardener Creek	10-yr	180400.00	538.14	565.6	552.18	566.38	0.000328	7.17	26850.91	2108.36	0.27
Susquehanna	Upper Reach	202.683 Gardener Creek	25-yr	188300.00	538.14	567.6	552.47	568.32	0.000271	6.78	29996.61	2225.09	0.25
Susquehanna	Upper Reach	202.683 Gardener Creek	50-yr	251600.00	538.14	572.4	554.63	573.20	0.000287	7.39	37516.56	2794.60	0.24
Susquehanna	Upper Reach	202.683 Gardener Creek	100-yr	284500.00	538.14	575.5	555.70	576.16	0.000222	6.96	51314.95	3045.84	0.22
Susquehanna	Upper Reach	202.683 Gardener Creek	500-yr	368100.00	538.14	582.0	558.40	582.69	0.000207	7.07	67099.88	3529.90	0.20
Susquehanna	Upper Reach	202.608	2-yr	109100.00	537.77	558.2	549.95	558.91	0.000538	7.04	16527.59	1406.68	0.33
Susquehanna	Upper Reach	202.608	5-yr	150800.00	537.77	562.5	551.82	563.26	0.000407	7.27	22903.87	2013.85	0.30
Susquehanna	Upper Reach	202.608	10-yr	180400.00	537.77	565.5	553.16	566.25	0.000350	7.34	27466.72	2357.40	0.28
Susquehanna	Upper Reach	202.608	25-yr	188300.00	537.77	567.5	553.54	568.21	0.000285	6.91	30646.87	2556.95	0.25
Susquehanna	Upper Reach	202.608	50-yr	251600.00	537.77	572.3	556.15	573.08	0.000302	7.50	38105.04	3094.72	0.25
Susquehanna	Upper Reach	202.608	100-yr	284500.00	537.77	575.4	557.24	576.06	0.000225	6.93	52750.82	3403.70	0.22
Susquehanna	Upper Reach	202.608	500-yr	368100.00	537.77	582.0	559.51	582.60	0.000212	7.03	67994.39	3703.31	0.20
Susquehanna	Upper Reach	202.531	2-yr	109100.00	536.92	557.5	549.95	558.62	0.000710	8.50	13368.22	1195.37	0.38
Susquehanna	Upper Reach	202.531	5-yr	150800.00	536.92	561.9	552.02	563.02	0.000574	8.83	19153.16	1549.53	0.35
Susquehanna	Upper Reach	202.531	10-yr	180400.00	536.92	564.9	553.34	566.04	0.000492	8.87	23569.06	1783.72	0.33
Susquehanna	Upper Reach	202.531	25-yr	188300.00	536.92	567.1	553.67	568.05	0.000391	8.26	26810.71	1833.53	0.30
Susquehanna	Upper Reach	202.531	50-yr	251600.00	536.92	571.8	556.64	572.91	0.000412	8.89	33995.13	2008.67	0.29
Susquehanna	Upper Reach	202.531	100-yr	284500.00	536.92	574.8	558.08	575.89	0.000369	8.95	38697.62	2135.77	0.28
Susquehanna	Upper Reach	202.531	500-yr	368100.00	536.92	581.6	561.31	582.46	0.000311	8.45	58134.79	2197.10	0.24
Susquehanna	Upper Reach	202.457	2-yr	109100.00	536.10	557.0	549.75	558.31	0.000818	9.02	12193.44	902.44	0.41
Susquehanna	Upper Reach	202.457	5-yr	150800.00	536.10	561.4	551.89	562.75	0.000693	9.44	17088.39	1218.12	0.39
Susquehanna	Upper Reach	202.457	10-yr	180400.00	536.10	564.5	553.28	565.81	0.000593	9.49	20933.85	1700.56	0.36
Susquehanna	Upper Reach	202.457	25-yr	188300.00	536.10	566.7	553.62	567.86	0.000469	8.85	23872.05	1873.68	0.32
Susquehanna	Upper Reach	202.457	50-yr	251600.00	536.10	571.4	556.48	572.71	0.000498	9.60	30507.31	2126.27	0.32
Susquehanna	Upper Reach	202.457	100-yr	284500.00	536.10	574.7	558.01	575.74	0.000377	8.97	41927.70	2207.60	0.28
Susquehanna	Upper Reach	202.457	500-yr	368100.00	536.10	581.4	561.52	582.33	0.000324	8.78	56983.07	2276.00	0.25
Susquehanna	Upper Reach	202.380	2-yr	109100.00	535.22	557.0	548.51	557.94	0.000583	7.96	13930.87	1097.52	0.35
Susquehanna	Upper Reach	202.380	5-yr	150800.00	535.22	561.3	550.52	562.44	0.000506	8.54	18637.79	1345.68	0.33
Susquehanna	Upper Reach	202.380	10-yr	180400.00	535.22	564.4	551.82	565.54	0.000461	8.75	22234.14	1442.70	0.32
Susquehanna	Upper Reach	202.380	25-yr	188300.00	535.22	566.6	552.17	567.65	0.000381	8.28	25140.88	1702.37	0.29
Susquehanna	Upper Reach	202.380	50-yr	251600.00	535.22	571.3	554.72	572.48	0.000417	9.05	31969.24	1986.87	0.29
Susquehanna	Upper Reach	202.380	100-yr	284500.00	535.22	574.4	556.08	575.58	0.000369	9.04	36941.59	2114.54	0.28

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Upper Reach	202.380	500-yr	368100.00	535.22	581.3	559.23	582.20	0.000297	8.55	57226.56	2417.49	0.24
Susquehanna	Upper Reach	202.309	2-yr	109100.00	534.43	556.7	548.16	557.71	0.000583	7.93	13998.29	1042.88	0.35
Susquehanna	Upper Reach	202.309	5-yr	150800.00	534.43	561.1	550.25	562.24	0.000491	8.46	18824.18	1325.03	0.33
Susquehanna	Upper Reach	202.309	10-yr	180400.00	534.43	564.2	551.56	565.36	0.000439	8.66	22415.94	1649.38	0.32
Susquehanna	Upper Reach	202.309	25-yr	188300.00	534.43	566.5	551.92	567.50	0.000363	8.20	25386.57	1993.25	0.29
Susquehanna	Upper Reach	202.309	50-yr	251600.00	534.43	571.2	554.49	572.31	0.000393	8.92	32569.25	2245.11	0.29
Susquehanna	Upper Reach	202.309	100-yr	284500.00	534.43	574.3	555.87	575.44	0.000346	8.94	37828.29	2394.40	0.27
Susquehanna	Upper Reach	202.309	500-yr	368100.00	534.43	581.1	559.01	582.09	0.000286	8.52	56654.75	2481.86	0.24
Susquehanna	Upper Reach	202.235	2-yr	109100.00	533.59	556.6	546.41	557.44	0.000514	7.19	15331.31	1021.08	0.30
Susquehanna	Upper Reach	202.235	5-yr	150800.00	533.59	561.1	548.52	562.00	0.000476	7.82	20169.88	1145.23	0.30
Susquehanna	Upper Reach	202.235	10-yr	180400.00	533.59	564.2	549.86	565.14	0.000445	8.08	23805.22	1653.14	0.29
Susquehanna	Upper Reach	202.235	25-yr	188300.00	533.59	566.4	550.20	567.32	0.000374	7.66	26977.29	1964.19	0.26
Susquehanna	Upper Reach	202.235	50-yr	251600.00	533.59	571.1	552.79	572.12	0.000430	8.41	33936.47	2398.38	0.27
Susquehanna	Upper Reach	202.235	100-yr	284500.00	533.59	574.2	554.03	575.26	0.000394	8.46	38898.71	2541.50	0.26
Susquehanna	Upper Reach	202.235	500-yr	368100.00	533.59	581.1	557.21	581.94	0.000325	8.05	58752.23	2733.20	0.22
Susquehanna	Upper Reach	202.164	2-yr	109100.00	532.29	556.6	544.23	557.25	0.000309	6.40	17045.04	899.42	0.26
Susquehanna	Upper Reach	202.164	5-yr	150800.00	532.29	561.0	546.76	561.82	0.000295	7.12	21796.01	1181.87	0.26
Susquehanna	Upper Reach	202.164	10-yr	180400.00	532.29	564.1	548.07	564.97	0.000281	7.45	25525.29	1552.82	0.26
Susquehanna	Upper Reach	202.164	25-yr	188300.00	532.29	566.4	548.38	567.17	0.000237	7.09	28787.11	1738.82	0.24
Susquehanna	Upper Reach	202.164	50-yr	251600.00	532.29	571.0	550.91	571.96	0.000277	7.93	35710.09	1936.81	0.24
Susquehanna	Upper Reach	202.164	100-yr	284500.00	532.29	574.2	552.11	575.12	0.000256	8.05	40606.99	2184.12	0.24
Susquehanna	Upper Reach	202.164	500-yr	368100.00	532.29	580.9	554.92	581.83	0.000240	8.06	58187.87	2463.92	0.22
Susquehanna	Upper Reach	202.083	2-yr	109100.00	531.65	556.5	543.20	557.10	0.000246	6.00	18183.09	889.60	0.23
Susquehanna	Upper Reach	202.083	5-yr	150800.00	531.65	561.0	545.30	561.68	0.000247	6.79	22687.15	1148.64	0.24
Susquehanna	Upper Reach	202.083	10-yr	180400.00	531.65	564.1	546.62	564.84	0.000241	7.16	26445.41	1344.91	0.24
Susquehanna	Upper Reach	202.083	25-yr	188300.00	531.65	566.3	546.94	567.06	0.000206	6.84	29674.38	1460.68	0.22
Susquehanna	Upper Reach	202.083	50-yr	251600.00	531.65	570.9	549.44	571.83	0.000249	7.73	36308.13	1654.61	0.23
Susquehanna	Upper Reach	202.083	100-yr	284500.00	531.65	574.1	550.65	575.00	0.000229	7.86	42277.66	1842.30	0.23
Susquehanna	Upper Reach	202.083	500-yr	368100.00	531.65	580.8	553.50	581.72	0.000237	8.27	54844.03	2009.01	0.22
Susquehanna	Upper Reach	202.010	2-yr	109100.00	530.33	556.6	540.73	556.98	0.000162	5.08	21468.29	985.16	0.19
Susquehanna	Upper Reach	202.010	5-yr	150800.00	530.33	561.0	542.81	561.54	0.000169	5.83	26044.05	1195.52	0.20
Susquehanna	Upper Reach	202.010	10-yr	180400.00	530.33	564.1	544.55	564.70	0.000170	6.20	29880.17	1345.02	0.20
Susquehanna	Upper Reach	202.010	25-yr	188300.00	530.33	566.4	544.88	566.94	0.000148	5.96	33151.69	1451.30	0.19
Susquehanna	Upper Reach	202.010	50-yr	251600.00	530.33	571.0	547.18	571.69	0.000184	6.83	39887.01	1623.54	0.20
Susquehanna	Upper Reach	202.010	100-yr	284500.00	530.33	574.1	548.34	574.87	0.000173	7.00	45581.67	1858.65	0.20
Susquehanna	Upper Reach	202.010	500-yr	368100.00	530.33	580.8	551.00	581.59	0.000186	7.49	58345.30	2436.62	0.20
Susquehanna	Upper Reach	201.936	2-yr	109100.00	532.48	556.5	542.43	556.90	0.000193	5.33	21280.84	1197.71	0.21
Susquehanna	Upper Reach	201.936	5-yr	150800.00	532.48	560.9	544.31	561.47	0.000190	6.00	26733.05	1273.50	0.21
Susquehanna	Upper Reach	201.936	10-yr	180400.00	532.48	564.0	545.54	564.63	0.000186	6.34	30987.31	1450.17	0.21
Susquehanna	Upper Reach	201.936	25-yr	188300.00	532.48	566.3	545.88	566.88	0.000159	6.06	34311.95	1472.20	0.19
Susquehanna	Upper Reach	201.936	50-yr	251600.00	532.48	570.9	548.21	571.61	0.000197	6.91	40970.21	1647.75	0.21
Susquehanna	Upper Reach	201.936	100-yr	284500.00	532.48	574.1	549.37	574.80	0.000182	7.06	47042.64	1847.91	0.20
Susquehanna	Upper Reach	201.936	500-yr	368100.00	532.48	580.7	552.11	581.52	0.000196	7.56	58833.31	2151.06	0.20
Susquehanna	Upper Reach	201.861	2-yr	109100.00	531.88	556.3	542.60	556.82	0.000214	5.62	19404.07	944.27	0.22
Susquehanna	Upper Reach	201.861	5-yr	150800.00	531.88	560.7	544.55	561.38	0.000215	6.38	23975.98	1214.56	0.23
Susquehanna	Upper Reach	201.861	10-yr	180400.00	531.88	563.8	545.80	564.54	0.000211	6.74	27982.52	1343.94	0.23
Susquehanna	Upper Reach	201.861	25-yr	188300.00	531.88	566.2	546.11	566.80	0.000180	6.43	31164.69	1377.55	0.21
Susquehanna	Upper Reach	201.861	50-yr	251600.00	531.88	570.7	548.53	571.52	0.000224	7.33	37523.59	1462.19	0.22
Susquehanna	Upper Reach	201.861	100-yr	284500.00	531.88	573.9	549.67	574.71	0.000212	7.48	42467.39	1647.14	0.22
Susquehanna	Upper Reach	201.861	500-yr	368100.00	531.88	580.5	552.45	581.42	0.000223	7.96	53459.50	2056.43	0.21
Susquehanna	Upper Reach	201.785	2-yr	109100.00	531.48	556.1	543.59	556.71	0.000277	6.18	17667.49	908.65	0.25
Susquehanna	Upper Reach	201.785	5-yr	150800.00	531.48	560.5	545.59	561.27	0.000274	6.91	22131.36	1176.93	0.25
Susquehanna	Upper Reach	201.785	10-yr	180400.00	531.48	563.6	546.88	564.43	0.000263	7.25	26010.25	1316.32	0.25
Susquehanna	Upper Reach	201.785	25-yr	188300.00	531.48	566.0	547.20	566.71	0.000219	6.87	29160.56	1345.59	0.23
Susquehanna	Upper Reach	201.785	50-yr	251600.00	531.48	570.5	549.71	571.41	0.000266	7.79	35368.38	1437.54	0.24
Susquehanna	Upper Reach	201.785	100-yr	284500.00	531.48	573.7	550.90	574.60	0.000248	7.92	40064.49	1516.98	0.23
Susquehanna	Upper Reach	201.785	500-yr	368100.00	531.48	580.3	553.72	581.31	0.000258	8.36	50948.15	1933.28	0.23
Susquehanna	Upper Reach	201.715	2-yr	109100.00	530.70	556.1	542.05	556.59	0.000216	5.75	19200.28	1010.20	0.22
Susquehanna	Upper Reach	201.715	5-yr	150800.00	530.70	560.5	544.04	561.15	0.000220	6.53	24157.99	1258.23	0.23
Susquehanna	Upper Reach	201.715	10-yr	180400.00	530.70	563.6	545.34	564.32	0.000217	6.89	28106.65	1291.78	0.23
Susquehanna	Upper Reach	201.715	25-yr	188300.00	530.70	566.0	545.68	566.62	0.000185	6.58	31207.66	1328.21	0.21
Susquehanna	Upper Reach	201.715	50-yr	251600.00	530.70	570.4	548.17	571.30	0.000229	7.54	37406.98	1438.13	0.23
Susquehanna	Upper Reach	201.715	100-yr	284500.00	530.70	573.6	549.39	574.50	0.000215	7.73	42145.18	1533.20	0.22
Susquehanna	Upper Reach	201.715	500-yr	368100.00	530.70	580.2	552.23	581.21	0.000232	8.29	53603.04	1933.94	0.22
Susquehanna	Upper Reach	201.641	2-yr	109100.00	531.68	556.0		556.50	0.000198	5.48	19897.56	946.70	0.21
Susquehanna	Upper Reach	201.641	5-yr	150800.00	531.68	560.4		561.05	0.000203	6.25	24429.38	1168.60	0.22
Susquehanna	Upper Reach	201.641	10-yr	180400.00	531.68	563.5		564.22	0.000201	6.61	28203.14	1248.44	0.22
Susquehanna	Upper Reach	201.641	25-yr	188300.00	531.68	565.9		566.53	0.000172	6.33	31223.57	1295.21	0.20
Susquehanna	Upper Reach	201.641	50-yr	251600.00	531.68	570.4		571.19	0.000216	7.27	37359.10	1449.51	0.22
Susquehanna	Upper Reach	201.641	100-yr	284500.00	531.68	573.6		574.40	0.000201	7.45	42108.59	1526.31	0.21
Susquehanna	Upper Reach	201.641	500-yr	368100.00	531.68	580.2		581.11	0.000217	7.99	52643.65	1652.43	0.21
Susquehanna	Upper Reach	201.564	2-yr	109100.00	529.38	556.0		556.40	0.000145	4.92	22266.03	1044.92	0.18
Susquehanna	Upper Reach	201.564	5-yr	150800.00	529.38	560.5		560.95	0.000153	5.66	27166.01	1217.51	0.19
Susquehanna	Upper Reach	201.564	10-yr	180400.00	529.38	563.6		564.11	0.000155	6.02	31011.68	1258.01	0.20
Susquehanna	Upper Reach	201.564	25-yr	188300.00	529.38	565.9		566.44	0.000134	5.79	34105.68	1353.06	0.18
Susquehanna	Upper Reach	201.564	50-yr	251600.00	529.38	570.4		571.08	0.000172	6.73	40437.04	1528.63	0.20
Susquehanna	Upper Reach	201.564	100-yr	284500.00	529.38	573.6		574.29	0.000163	6.92	45435.35	1589.23	0.19
Susquehanna	Upper Reach	201.564	500-yr	368100.00	529.38	580.2		580.99	0.000181	7.49	56296.38	1711.07	0.19
Susquehanna	Upper Reach	201.488	2-yr	109100.00	530.16	556.0		556.34	0.000130	4.72	23362.55	1087.21	0.17
Susquehanna	Upper Reach	201.488	5-yr	150800.00	530.16	560.4		560.88	0.000140	5.46	28250.38	1154.35	0.18
Susquehanna	Upper Reach	201.488	10-yr	180400.00	530.16	563.5		564.04	0.000143	5.84	31992.75	1245.60	0.19
Susquehanna	Upper Reach	201.488	25-yr	188300.00	530.16	565.9		566.38	0.000125	5.63	35220.95	1429.44	0.17
Susquehanna	Upper Reach	201.488	50-yr	251600.00	530.16	570.3		571.00	0.000162	6.55	41914.79	1601.21	0.19
Susquehanna	Upper Reach	201.488	100-yr	284500.00	530.16	573.5		574.22	0.000155	6.78	47352.43	1806.22	0.19
Susquehanna	Upper Reach	201.488	500-yr	368100.00	530.16	580.1		580.91	0.000174	7.38	59635.77	1908.66	0.19
Susquehanna	Upper Reach	201.416	2-yr	109100.00	530.00	555.9		556.28	0.000127	4.66	23433.15	1025.34	0.17
Susquehanna	Upper Reach	201.416	5-yr	150800.00	530.00	560.4		560.82	0.000148	5.35	28209.38	1124.77	0.19
Susquehanna	Upper Reach	201.416	10-yr	180400.00	530.00	563.5		563.98	0.000150	5.68	31936.98	1311.01	0.19

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Upper Reach	201.416	25-yr	188300.00	530.00	565.9		566.32	0.000128	5.45	35224.43	1430.47	0.18
Susquehanna	Upper Reach	201.416	50-yr	251600.00	530.00	570.3		570.93	0.000163	6.31	41922.06	1587.11	0.19
Susquehanna	Upper Reach	201.416	100-yr	284500.00	530.00	573.5		574.15	0.000153	6.49	47140.43	1684.37	0.19
Susquehanna	Upper Reach	201.416	500-yr	368100.00	530.00	580.1		580.83	0.000170	7.06	58661.40	1793.66	0.19
Susquehanna	Upper Reach	201.341	2-yr	109100.00	527.81	555.9		556.22	0.000112	4.41	24741.24	1068.48	0.16
Susquehanna	Upper Reach	201.341	5-yr	150800.00	527.81	560.3		560.75	0.000123	5.11	29532.61	1098.08	0.17
Susquehanna	Upper Reach	201.341	10-yr	180400.00	527.81	563.4		563.91	0.000127	5.47	33437.74	1397.57	0.18
Susquehanna	Upper Reach	201.341	25-yr	188300.00	527.81	565.8		566.27	0.000110	5.27	36835.39	1459.12	0.16
Susquehanna	Upper Reach	201.341	50-yr	251600.00	527.81	570.3		570.85	0.000143	6.15	43491.27	1534.98	0.18
Susquehanna	Upper Reach	201.341	100-yr	284500.00	527.81	573.5		574.08	0.000137	6.36	48414.41	1554.87	0.18
Susquehanna	Upper Reach	201.341	500-yr	368100.00	527.81	580.0		580.76	0.000157	6.99	58784.51	1620.25	0.18
Susquehanna	Upper Reach	201.267	2-yr	109100.00	526.56	555.8		556.17	0.000139	5.05	21617.79	893.70	0.18
Susquehanna	Upper Reach	201.267	5-yr	150800.00	526.56	560.1		560.68	0.000156	5.90	25552.30	906.93	0.20
Susquehanna	Upper Reach	201.267	10-yr	180400.00	526.56	563.2		563.84	0.000163	6.35	28994.29	1316.29	0.20
Susquehanna	Upper Reach	201.267	25-yr	188300.00	526.56	565.6		566.20	0.000143	6.13	32365.07	1455.75	0.19
Susquehanna	Upper Reach	201.267	50-yr	251600.00	526.56	570.0		570.77	0.000188	7.16	38909.14	1542.99	0.21
Susquehanna	Upper Reach	201.267	100-yr	284500.00	526.56	573.2		574.00	0.000180	7.39	43834.67	1551.54	0.20
Susquehanna	Upper Reach	201.267	500-yr	368100.00	526.56	579.7		580.67	0.000205	8.09	54010.72	1567.97	0.21
Susquehanna	Upper Reach	201.191	2-yr	109100.00	525.20	555.6		556.10	0.000148	5.40	20187.62	786.24	0.19
Susquehanna	Upper Reach	201.191	5-yr	150800.00	525.20	560.0		560.60	0.000172	6.39	23612.81	797.90	0.21
Susquehanna	Upper Reach	201.191	10-yr	180400.00	525.20	563.0		563.75	0.000184	6.92	26481.10	1159.84	0.21
Susquehanna	Upper Reach	201.191	25-yr	188300.00	525.20	565.4		566.13	0.000163	6.69	29420.02	1346.17	0.20
Susquehanna	Upper Reach	201.191	50-yr	251600.00	525.20	569.7		570.67	0.000219	7.86	35922.91	1568.82	0.22
Susquehanna	Upper Reach	201.191	100-yr	284500.00	525.20	572.9		573.90	0.000210	8.12	40917.45	1572.47	0.22
Susquehanna	Upper Reach	201.191	500-yr	368100.00	525.20	579.4		580.56	0.000241	8.87	51148.09	1579.92	0.22
Susquehanna	Upper Reach	201.115	2-yr	109100.00	524.06	555.6		556.04	0.000148	5.50	19830.42	751.42	0.19
Susquehanna	Upper Reach	201.115	5-yr	150800.00	524.06	559.9		560.53	0.000174	6.53	23155.35	851.80	0.21
Susquehanna	Upper Reach	201.115	10-yr	180400.00	524.06	562.9		563.68	0.000188	7.08	26479.69	1218.70	0.22
Susquehanna	Upper Reach	201.115	25-yr	188300.00	524.06	565.3		566.06	0.000165	6.85	29555.02	1276.84	0.20
Susquehanna	Upper Reach	201.115	50-yr	251600.00	524.06	569.6		570.58	0.000224	8.06	35401.41	1413.02	0.23
Susquehanna	Upper Reach	201.115	100-yr	284500.00	524.06	572.8		573.81	0.000217	8.35	39898.23	1421.22	0.22
Susquehanna	Upper Reach	201.115	500-yr	368100.00	524.06	579.2		580.45	0.000253	9.18	49113.17	1437.58	0.23
Susquehanna	Upper Reach	201.043	2-yr	109100.00	518.07	555.4		555.97	0.000159	5.89	18509.65	663.89	0.20
Susquehanna	Upper Reach	201.043	5-yr	150800.00	518.07	559.7		560.45	0.000193	7.06	21348.24	674.63	0.22
Susquehanna	Upper Reach	201.043	10-yr	180400.00	518.07	562.7		563.58	0.000212	7.71	24088.55	1164.60	0.23
Susquehanna	Upper Reach	201.043	25-yr	188300.00	518.07	565.1		565.98	0.000188	7.47	26977.92	1189.09	0.22
Susquehanna	Upper Reach	201.043	50-yr	251600.00	518.07	569.3		570.46	0.000261	8.85	32098.77	1267.84	0.24
Susquehanna	Upper Reach	201.043	100-yr	284500.00	518.07	572.4		573.70	0.000255	9.20	36127.45	1288.04	0.24
Susquehanna	Upper Reach	201.043	500-yr	368100.00	518.07	578.8		580.31	0.000303	10.17	44390.10	1311.57	0.25
Susquehanna	Upper Reach	200.967	2-yr	109100.00	524.62	555.1		555.87	0.000246	6.97	15655.09	606.51	0.24
Susquehanna	Upper Reach	200.967	5-yr	150800.00	524.62	559.3		560.32	0.000294	8.29	18191.20	618.81	0.27
Susquehanna	Upper Reach	200.967	10-yr	180400.00	524.62	562.2		563.45	0.000319	9.00	20650.35	1020.04	0.28
Susquehanna	Upper Reach	200.967	25-yr	188300.00	524.62	564.7		565.86	0.000278	8.66	23350.63	1126.87	0.26
Susquehanna	Upper Reach	200.967	50-yr	251600.00	524.62	568.7		570.30	0.000380	10.21	28024.86	1203.11	0.29
Susquehanna	Upper Reach	200.967	100-yr	284500.00	524.62	571.9		573.53	0.000364	10.53	31831.75	1209.32	0.29
Susquehanna	Upper Reach	200.967	500-yr	368100.00	524.62	578.2		580.13	0.000420	11.54	39496.27	1223.65	0.29
Susquehanna	Upper Reach	200.894	2-yr	109100.00	523.77	555.0		555.77	0.000236	6.92	15760.43	597.49	0.24
Susquehanna	Upper Reach	200.894	5-yr	150800.00	523.77	559.1		560.21	0.000286	8.26	18248.36	610.94	0.27
Susquehanna	Upper Reach	200.894	10-yr	180400.00	523.77	562.1		563.32	0.000312	8.98	20863.24	1030.88	0.28
Susquehanna	Upper Reach	200.894	25-yr	188300.00	523.77	564.6		565.74	0.000276	8.63	23597.39	1108.05	0.26
Susquehanna	Upper Reach	200.894	50-yr	251600.00	523.77	568.6		570.14	0.000390	10.17	28132.16	1183.19	0.29
Susquehanna	Upper Reach	200.894	100-yr	284500.00	523.77	571.7		573.39	0.000371	10.47	31891.10	1189.75	0.29
Susquehanna	Upper Reach	200.894	500-yr	368100.00	523.77	578.0		579.96	0.000426	11.46	39406.97	1200.95	0.30
Susquehanna	Upper Reach	200.818	2-yr	109100.00	522.48	555.0		555.66	0.000195	6.43	16958.12	623.24	0.22
Susquehanna	Upper Reach	200.818	5-yr	150800.00	522.48	559.1		560.06	0.000240	7.71	19558.21	665.18	0.25
Susquehanna	Upper Reach	200.818	10-yr	180400.00	522.48	562.1		563.16	0.000262	8.41	21986.93	1012.69	0.26
Susquehanna	Upper Reach	200.818	25-yr	188300.00	522.48	564.6		565.60	0.000230	8.12	24621.56	1063.04	0.24
Susquehanna	Upper Reach	200.818	50-yr	251600.00	522.48	568.5		569.95	0.000323	9.67	28971.82	1141.92	0.27
Susquehanna	Upper Reach	200.818	100-yr	284500.00	522.48	571.7		573.21	0.000314	10.03	32596.68	1151.31	0.27
Susquehanna	Upper Reach	200.818	500-yr	368100.00	522.48	577.9		579.77	0.000374	11.12	39917.50	1205.32	0.28
Susquehanna	Upper Reach	200.744	2-yr	109100.00	521.17	554.9		555.58	0.000191	6.40	17042.15	620.40	0.22
Susquehanna	Upper Reach	200.744	5-yr	150800.00	521.17	559.0		559.96	0.000237	7.69	19662.40	682.69	0.24
Susquehanna	Upper Reach	200.744	10-yr	180400.00	521.17	562.0		563.05	0.000262	8.38	21936.98	854.37	0.26
Susquehanna	Upper Reach	200.744	25-yr	188300.00	521.17	564.5		565.51	0.000231	8.11	24176.73	947.46	0.24
Susquehanna	Upper Reach	200.744	50-yr	251600.00	521.17	568.4		569.83	0.000327	9.69	28340.59	1130.22	0.27
Susquehanna	Upper Reach	200.744	100-yr	284500.00	521.17	571.5		573.08	0.000318	10.06	31977.32	1170.01	0.27
Susquehanna	Upper Reach	200.744	500-yr	368100.00	521.17	577.8		579.62	0.000378	11.14	39434.09	1220.98	0.28
Susquehanna	Upper Reach	200.671	2-yr	109100.00	520.20	554.9		555.50	0.000179	6.31	17288.40	610.27	0.21
Susquehanna	Upper Reach	200.671	5-yr	150800.00	520.20	559.0		559.87	0.000224	7.61	19808.99	623.65	0.24
Susquehanna	Upper Reach	200.671	10-yr	180400.00	520.20	561.9		562.95	0.000250	8.34	21749.84	756.41	0.25
Susquehanna	Upper Reach	200.671	25-yr	188300.00	520.20	564.4		565.42	0.000221	8.09	23822.62	943.33	0.24
Susquehanna	Upper Reach	200.671	50-yr	251600.00	520.20	568.2		569.70	0.000319	9.73	27825.37	1116.48	0.27
Susquehanna	Upper Reach	200.671	100-yr	284500.00	520.20	571.4		572.96	0.000313	10.13	31426.05	1170.66	0.27
Susquehanna	Upper Reach	200.671	500-yr	368100.00	520.20	577.6		579.47	0.000377	11.27	38901.93	1237.21	0.28
Susquehanna	Upper Reach	200.597	2-yr	109100.00	520.70	554.8		555.42	0.000171	6.15	17732.18	630.19	0.20
Susquehanna	Upper Reach	200.597	5-yr	150800.00	520.70	558.9		559.77	0.000214	7.42	20333.83	645.33	0.23
Susquehanna	Upper Reach	200.597	10-yr	180400.00	520.70	561.8		562.84	0.000239	8.12	22284.00	737.08	0.25
Susquehanna	Upper Reach	200.597	25-yr	188300.00	520.70	564.4		565.32	0.000211	7.87	24256.21	846.28	0.23
Susquehanna	Upper Reach	200.597	50-yr	251600.00	520.70	568.2		569.55	0.000305	9.49	27672.73	932.97	0.26
Susquehanna	Upper Reach	200.597	100-yr	284500.00	520.70	571.3		572.82	0.000301	9.91	30796.12	1081.41	0.27
Susquehanna	Upper Reach	200.597	500-yr	368100.00	520.70	577.4		579.31	0.000368	11.10	37673.66	1176.77	0.28
Susquehanna	Upper Reach	200.520	2-yr	109100.00	520.92	554.8	534.52	555.35	0.000174	6.09	17916.17	655.76	0.21
Susquehanna	Upper Reach	200.520	5-yr	150800.00	520.92	558.8	537.24	559.67	0.000218	7.31	20627.82	687.67	0.23
Susquehanna	Upper Reach	200.520	10-yr	180400.00	520.92	561.7	538.92	562.73	0.000241	7.97	22777.08	772.35	0.25
Susquehanna	Upper Reach	200.520	25-yr	188300.00	520.92	564.3	539.41	565.22	0.000222	7.70	24833.78	885.97	0.23
Susquehanna	Upper Reach	200.520	50-yr	251600.00	520.92	568.1	542.81	569.40	0.000313	9.21	28851.79	1299.07	0.26
Susquehanna	Upper Reach	200.520	100-yr	284500.00	520.92	571.3	544.38	572.65	0.000300	9.51	33473.70	1600.75	0.26
Susquehanna	Upper Reach	200.520	500-yr	368100.00	520.92	577.5	548.09	579.07	0.000337	10.27	44056.93	1885.83	0.26

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Upper Reach	200.447	2-yr	109100.00	520.94	554.8	533.61	555.26	0.000137	5.61	19461.61	674.57	0.18
Susquehanna	Upper Reach	200.447	5-yr	150800.00	520.94	558.8	536.20	559.56	0.000172	6.78	22383.78	781.54	0.21
Susquehanna	Upper Reach	200.447	10-yr	180400.00	520.94	561.7	537.83	562.60	0.000191	7.43	24707.25	870.58	0.22
Susquehanna	Upper Reach	200.447	25-yr	188300.00	520.94	564.3	538.24	565.11	0.000174	7.21	27111.69	1017.98	0.21
Susquehanna	Upper Reach	200.447	50-yr	251600.00	520.94	568.1	541.37	569.24	0.000251	8.67	31563.63	1282.55	0.24
Susquehanna	Upper Reach	200.447	100-yr	284500.00	520.94	571.3	542.89	572.50	0.000245	8.99	35817.21	1404.19	0.24
Susquehanna	Upper Reach	200.447	500-yr	368100.00	520.94	577.5	546.47	578.91	0.000290	9.91	44756.23	1471.40	0.25
Susquehanna	Upper Reach	200.372	2-yr	109100.00	521.29	554.8		555.19	0.000125	5.29	20643.21	731.55	0.18
Susquehanna	Upper Reach	200.372	5-yr	150800.00	521.29	558.8		559.47	0.000155	6.37	23873.97	871.32	0.20
Susquehanna	Upper Reach	200.372	10-yr	180400.00	521.29	561.7		562.50	0.000170	6.97	26480.13	952.20	0.21
Susquehanna	Upper Reach	200.372	25-yr	188300.00	521.29	564.3		565.01	0.000151	6.75	29113.81	1126.41	0.20
Susquehanna	Upper Reach	200.372	50-yr	251600.00	521.29	568.1		569.11	0.000218	8.13	33659.84	1282.34	0.22
Susquehanna	Upper Reach	200.372	100-yr	284500.00	521.29	571.3		572.37	0.000213	8.46	37986.03	1442.31	0.22
Susquehanna	Upper Reach	200.372	500-yr	368100.00	521.29	577.4		578.76	0.000257	9.39	48156.18	1875.67	0.23
Susquehanna	Upper Reach	200.295	2-yr	109100.00	522.17	554.8		555.12	0.000099	4.69	23285.01	831.00	0.16
Susquehanna	Upper Reach	200.295	5-yr	150800.00	522.17	558.9		559.37	0.000122	5.64	26815.36	946.62	0.18
Susquehanna	Upper Reach	200.295	10-yr	180400.00	522.17	561.8		562.39	0.000134	6.17	29668.78	1007.55	0.19
Susquehanna	Upper Reach	200.295	25-yr	188300.00	522.17	564.4		564.91	0.000119	5.98	32365.96	1110.52	0.17
Susquehanna	Upper Reach	200.295	50-yr	251600.00	522.17	568.2		568.96	0.000172	7.21	36758.34	1215.95	0.20
Susquehanna	Upper Reach	200.295	100-yr	284500.00	522.17	571.4		572.22	0.000169	7.52	40789.54	1327.68	0.20
Susquehanna	Upper Reach	200.295	500-yr	368100.00	522.17	577.5		578.59	0.000205	8.38	51289.37	1974.66	0.21
Susquehanna	Upper Reach	200.223	2-yr	109100.00	530.31	554.6		555.06	0.000188	5.16	21155.66	1061.41	0.20
Susquehanna	Upper Reach	200.223	5-yr	150800.00	530.31	558.8		559.31	0.000195	5.90	25555.44	1074.05	0.21
Susquehanna	Upper Reach	200.223	10-yr	180400.00	530.31	561.7		562.32	0.000198	6.28	28748.22	1108.23	0.22
Susquehanna	Upper Reach	200.223	25-yr	188300.00	530.31	564.3		564.86	0.000167	5.95	31777.98	1218.78	0.20
Susquehanna	Upper Reach	200.223	50-yr	251600.00	530.31	568.1		568.88	0.000221	7.00	36640.96	1387.21	0.22
Susquehanna	Upper Reach	200.223	100-yr	284500.00	530.31	571.3		572.13	0.000204	7.17	41460.05	1579.50	0.21
Susquehanna	Upper Reach	200.223	500-yr	368100.00	530.31	577.5		578.47	0.000226	7.79	52949.49	2000.12	0.21
Susquehanna	Upper Reach	200.149	2-yr	109100.00	531.13	554.6		554.97	0.000200	4.89	22294.80	1271.41	0.21
Susquehanna	Upper Reach	200.149	5-yr	150800.00	531.13	558.7		559.21	0.000191	5.47	27591.30	1282.76	0.21
Susquehanna	Upper Reach	200.149	10-yr	180400.00	531.13	561.7		562.22	0.000183	5.74	31402.71	1291.25	0.21
Susquehanna	Upper Reach	200.149	25-yr	188300.00	531.13	564.3		564.77	0.000148	5.41	34800.87	1346.73	0.18
Susquehanna	Upper Reach	200.149	50-yr	251600.00	531.13	568.1		568.75	0.000192	6.32	40462.45	1616.06	0.20
Susquehanna	Upper Reach	200.149	100-yr	284500.00	531.13	571.4		572.01	0.000174	6.44	45865.22	1696.87	0.19
Susquehanna	Upper Reach	200.149	500-yr	368100.00	531.13	577.6		578.33	0.000188	6.95	56861.57	1974.83	0.19
Susquehanna	Upper Reach	200.075	2-yr	109100.00	532.22	554.5		554.88	0.000221	4.96	21995.29	1327.31	0.21
Susquehanna	Upper Reach	200.075	5-yr	150800.00	532.22	558.7		559.13	0.000202	5.47	27547.44	1340.07	0.21
Susquehanna	Upper Reach	200.075	10-yr	180400.00	532.22	561.6		562.14	0.000191	5.72	31540.01	1348.50	0.21
Susquehanna	Upper Reach	200.075	25-yr	188300.00	532.22	564.3		564.70	0.000152	5.37	35105.21	1395.64	0.19
Susquehanna	Upper Reach	200.075	50-yr	251600.00	532.22	568.1		568.67	0.000195	6.23	41109.80	1669.49	0.20
Susquehanna	Upper Reach	200.075	100-yr	284500.00	532.22	571.3		571.93	0.000175	6.33	46674.43	1766.71	0.19
Susquehanna	Upper Reach	200.075	500-yr	368100.00	532.22	577.5		578.24	0.000186	6.79	57903.43	1835.89	0.19
Susquehanna	Upper Reach	200.005	2-yr	109100.00	532.42	554.3		554.78	0.000283	5.62	19546.17	1239.70	0.24
Susquehanna	Upper Reach	200.005	5-yr	150800.00	532.42	558.4		559.03	0.000259	6.19	24773.45	1283.80	0.24
Susquehanna	Upper Reach	200.005	10-yr	180400.00	532.42	561.4		562.05	0.000246	6.46	28755.35	1404.15	0.24
Susquehanna	Upper Reach	200.005	25-yr	188300.00	532.42	564.1		564.63	0.000193	6.03	32544.73	1443.37	0.21
Susquehanna	Upper Reach	200.005	50-yr	251600.00	532.42	567.8		568.57	0.000245	6.97	38709.71	1703.92	0.23
Susquehanna	Upper Reach	200.005	100-yr	284500.00	532.42	571.1		571.85	0.000217	7.04	44335.64	1746.48	0.22
Susquehanna	Upper Reach	200.005	500-yr	368100.00	532.42	577.3		578.15	0.000228	7.52	55414.37	1829.46	0.21
Susquehanna	Upper Reach	199.925	2-yr	109100.00	531.72	554.1		554.65	0.000281	5.96	18308.15	1002.76	0.25
Susquehanna	Upper Reach	199.925	5-yr	150800.00	531.72	558.2		558.91	0.000279	6.71	22467.44	1024.21	0.25
Susquehanna	Upper Reach	199.925	10-yr	180400.00	531.72	561.1		561.92	0.000274	7.07	25619.99	1219.73	0.25
Susquehanna	Upper Reach	199.925	25-yr	188300.00	531.72	563.8		564.53	0.000223	6.62	29110.78	1385.36	0.23
Susquehanna	Upper Reach	199.925	50-yr	251600.00	531.72	567.5		568.44	0.000289	7.70	34849.54	1682.94	0.25
Susquehanna	Upper Reach	199.925	100-yr	284500.00	531.72	570.8		571.73	0.000256	7.76	40685.73	1823.66	0.24
Susquehanna	Upper Reach	199.925	500-yr	368100.00	531.72	577.0		578.03	0.000267	8.23	52224.01	1917.34	0.23
Susquehanna	Upper Reach	199.853	2-yr	109100.00	531.88	553.9		554.52	0.000382	6.49	16814.71	1023.85	0.28
Susquehanna	Upper Reach	199.853	5-yr	150800.00	531.88	558.0		558.77	0.000354	7.15	21084.68	1055.31	0.28
Susquehanna	Upper Reach	199.853	10-yr	180400.00	531.88	560.9		561.80	0.000332	7.46	24291.13	1116.93	0.27
Susquehanna	Upper Reach	199.853	25-yr	188300.00	531.88	563.7		564.43	0.000256	6.94	27687.27	1424.02	0.24
Susquehanna	Upper Reach	199.853	50-yr	251600.00	531.88	567.3		568.31	0.000328	8.05	33328.33	1693.24	0.26
Susquehanna	Upper Reach	199.853	100-yr	284500.00	531.88	570.6		571.62	0.000287	8.08	38983.52	1719.50	0.25
Susquehanna	Upper Reach	199.853	500-yr	368100.00	531.88	576.8		577.91	0.000295	8.55	50276.18	1872.89	0.24
Susquehanna	Upper Reach	199.776	2-yr	109100.00	531.95	553.6		554.34	0.000426	6.76	16136.82	1001.98	0.30
Susquehanna	Upper Reach	199.776	5-yr	150800.00	531.95	557.8		558.61	0.000395	7.40	20468.17	1166.09	0.30
Susquehanna	Upper Reach	199.776	10-yr	180400.00	531.95	560.7		561.65	0.000359	7.67	24066.37	1237.30	0.28
Susquehanna	Upper Reach	199.776	25-yr	188300.00	531.95	563.5		564.32	0.000272	7.09	27647.68	1395.24	0.25
Susquehanna	Upper Reach	199.776	50-yr	251600.00	531.95	567.1		568.17	0.000348	8.22	33069.37	1533.22	0.27
Susquehanna	Upper Reach	199.776	100-yr	284500.00	531.95	570.5		571.49	0.000302	8.24	38671.62	1756.48	0.26
Susquehanna	Upper Reach	199.776	500-yr	368100.00	531.95	576.7		577.78	0.000310	8.71	50116.93	1875.16	0.25
Susquehanna	Upper Reach	199.702	2-yr	109100.00	531.52	553.4		554.16	0.000455	6.99	15615.30	970.96	0.31
Susquehanna	Upper Reach	199.702	5-yr	150800.00	531.52	557.5		558.45	0.000418	7.65	20167.87	1194.81	0.30
Susquehanna	Upper Reach	199.702	10-yr	180400.00	531.52	560.5		561.50	0.000380	7.91	23770.11	1208.95	0.29
Susquehanna	Upper Reach	199.702	25-yr	188300.00	531.52	563.4		564.20	0.000286	7.30	27243.20	1235.36	0.25
Susquehanna	Upper Reach	199.702	50-yr	251600.00	531.52	566.9		568.02	0.000371	8.50	32289.49	1564.02	0.28
Susquehanna	Upper Reach	199.702	100-yr	284500.00	531.52	570.3		571.36	0.000322	8.51	37873.31	1794.77	0.26
Susquehanna	Upper Reach	199.702	500-yr	368100.00	531.52	576.5		577.65	0.000331	8.99	49112.14	1823.48	0.26
Susquehanna	Upper Reach	199.626	2-yr	109100.00	532.19	552.9		553.92	0.000631	8.03	13580.14	870.09	0.36
Susquehanna	Upper Reach	199.626	5-yr	150800.00	532.19	557.0		558.22	0.000573	8.74	17306.15	988.24	0.35
Susquehanna	Upper Reach	199.626	10-yr	180400.00	532.19	560.0		561.29	0.000517	9.01	20441.69	1071.30	0.34
Susquehanna	Upper Reach	199.626	25-yr	188300.00	532.19	563.0		564.04	0.000382	8.26	23620.96	1077.22	0.29
Susquehanna	Upper Reach	199.626	50-yr	251600.00	532.19	566.4		567.81	0.000505	9.68	27788.95	1420.91	0.32
Susquehanna	Upper Reach	199.626	100-yr	284500.00	532.19	569.8		571.18	0.000439	9.65	32722.79	1518.88	0.30
Susquehanna	Upper Reach	199.626	500-yr	368100.00	532.19	575.9		577.47	0.000444	10.13	43465.80	1768.36	0.29
Susquehanna	Upper Reach	199.553	2-yr	109100.00	531.02	552.5		553.65	0.000699	8.70	12540.39	770.20	0.38
Susquehanna	Upper Reach	199.553	5-yr	150800.00	531.02	556.5		557.96	0.000664	9.56	15780.28	812.27	0.38
Susquehanna	Upper Reach	199.553	10-yr	180400.00	531.02	559.5		561.04	0.000608	9.91	18483.88	1020.91	0.37
Susquehanna	Upper Reach	199.553	25-yr	188300.00	531.02	562.6		563.86	0.000446	9.06	21651.79	1039.50	0.32
Susquehanna	Upper Reach	199.553	50-yr	251600.00	531.02	565.8		567.57	0.000605	10.69	25279.81	1287.47	0.35

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Upper Reach	199.553	100-yr	284500.00	531.02	569.2		570.96	0.000527	10.67	29930.39	1408.21	0.33
Susquehanna	Upper Reach	199.553	500-yr	368100.00	531.02	575.4		577.24	0.000538	11.23	39911.53	1695.74	0.32
Susquehanna	Upper Reach	199.481	2-yr	109100.00	530.55	552.1		553.36	0.000763	8.99	12139.12	757.36	0.40
Susquehanna	Upper Reach	199.481	5-yr	150800.00	530.55	556.2		557.68	0.000721	9.81	15576.16	903.58	0.40
Susquehanna	Upper Reach	199.481	10-yr	180400.00	530.55	559.2		560.80	0.000649	10.09	18396.98	943.16	0.38
Susquehanna	Upper Reach	199.481	25-yr	188300.00	530.55	562.4		563.68	0.000466	9.18	21397.70	955.62	0.32
Susquehanna	Upper Reach	199.481	50-yr	251600.00	530.55	565.5		567.32	0.000640	10.87	24683.90	1285.04	0.36
Susquehanna	Upper Reach	199.481	100-yr	284500.00	530.55	569.0		570.75	0.000551	10.86	29268.35	1341.83	0.34
Susquehanna	Upper Reach	199.481	500-yr	368100.00	530.55	575.1		577.02	0.000574	11.41	38589.21	1637.14	0.33
Susquehanna	Upper Reach	199.404	2-yr	109100.00	529.57	551.8		553.03	0.000744	8.89	12277.23	766.21	0.39
Susquehanna	Upper Reach	199.404	5-yr	150800.00	529.57	555.9		557.37	0.000704	9.63	15653.42	866.24	0.40
Susquehanna	Upper Reach	199.404	10-yr	180400.00	529.57	559.0		560.51	0.000626	9.84	18337.96	878.04	0.38
Susquehanna	Upper Reach	199.404	25-yr	188300.00	529.57	562.2		563.47	0.000447	8.88	21202.86	890.65	0.32
Susquehanna	Upper Reach	199.404	50-yr	251600.00	529.57	565.3		567.03	0.000620	10.50	24176.86	1202.79	0.36
Susquehanna	Upper Reach	199.404	100-yr	284500.00	529.57	568.8		570.48	0.000539	10.43	28492.91	1273.53	0.34
Susquehanna	Upper Reach	199.404	500-yr	368100.00	529.57	574.9		576.76	0.000554	10.99	37319.38	1588.93	0.32
Susquehanna	Upper Reach	199.331	2-yr	109100.00	530.35	551.5		552.75	0.000718	9.02	12091.02	716.72	0.39
Susquehanna	Upper Reach	199.331	5-yr	150800.00	530.35	555.5		557.09	0.000706	9.98	15113.45	759.73	0.39
Susquehanna	Upper Reach	199.331	10-yr	180400.00	530.35	558.6		560.25	0.000657	10.34	17457.41	784.52	0.38
Susquehanna	Upper Reach	199.331	25-yr	188300.00	530.35	561.9		563.28	0.000477	9.39	20112.86	842.19	0.33
Susquehanna	Upper Reach	199.331	50-yr	251600.00	530.35	564.8		566.75	0.000676	11.27	22768.67	1136.14	0.37
Susquehanna	Upper Reach	199.331	100-yr	284500.00	530.35	568.3		570.24	0.000577	11.25	26961.55	1229.07	0.35
Susquehanna	Upper Reach	199.331	500-yr	368100.00	530.35	574.3		576.50	0.000609	12.03	34837.04	1513.57	0.34
Susquehanna	Upper Reach	199.254	2-yr	109100.00	530.24	551.1		552.43	0.000760	9.39	11616.22	675.40	0.40
Susquehanna	Upper Reach	199.254	5-yr	150800.00	530.24	555.1		556.77	0.000760	10.45	14436.20	713.74	0.41
Susquehanna	Upper Reach	199.254	10-yr	180400.00	530.24	558.1		559.94	0.000712	10.85	16627.51	726.10	0.40
Susquehanna	Upper Reach	199.254	25-yr	188300.00	530.24	561.6		563.06	0.000516	9.83	19169.01	781.14	0.34
Susquehanna	Upper Reach	199.254	50-yr	251600.00	530.24	564.2		566.43	0.000754	11.88	21685.69	1155.96	0.39
Susquehanna	Upper Reach	199.254	100-yr	284500.00	530.24	567.8		569.97	0.000639	11.84	26260.64	1314.86	0.37
Susquehanna	Upper Reach	199.254	500-yr	368100.00	530.24	573.8		576.21	0.000675	12.64	34274.59	1359.03	0.36
Susquehanna	Upper Reach	199.183	2-yr	109100.00	530.63	550.3	543.71	552.05	0.001058	10.53	10364.43	651.69	0.47
Susquehanna	Upper Reach	199.183	5-yr	150800.00	530.63	554.3	546.13	556.40	0.001003	11.54	13065.13	685.49	0.47
Susquehanna	Upper Reach	199.183	10-yr	180400.00	530.63	557.4	547.70	559.60	0.000910	11.87	15198.33	697.53	0.45
Susquehanna	Upper Reach	199.183	25-yr	188300.00	530.63	561.1	548.10	562.82	0.000619	10.59	17860.68	798.54	0.37
Susquehanna	Upper Reach	199.183	50-yr	251600.00	530.63	563.5	551.28	566.08	0.000922	12.89	19901.06	1157.51	0.43
Susquehanna	Upper Reach	199.183	100-yr	284500.00	530.63	567.1	552.72	569.66	0.000775	12.83	23072.32	1372.34	0.40
Susquehanna	Upper Reach	199.183	500-yr	368100.00	530.63	573.2	556.07	575.90	0.000778	13.43	33498.73	1394.52	0.39
Susquehanna	Upper Reach	199.150	2-yr	109100.00	529.88	550.4	542.47	551.81	0.001083	9.61	11357.00	672.52	0.41
Susquehanna	Upper Reach	199.150	5-yr	150800.00	529.88	554.4	544.85	556.14	0.001160	10.66	14143.95	704.82	0.42
Susquehanna	Upper Reach	199.150	10-yr	180400.00	529.88	557.5	546.38	559.36	0.001081	11.04	16385.10	738.54	0.41
Susquehanna	Upper Reach	199.150	25-yr	188300.00	529.88	561.1	546.78	562.65	0.000770	9.93	19221.51	843.99	0.34
Susquehanna	Upper Reach	199.150	50-yr	251600.00	529.88	563.6	549.79	565.83	0.001158	12.11	21347.42	962.45	0.40
Susquehanna	Upper Reach	199.150	100-yr	284500.00	529.88	567.2	551.38	569.44	0.000984	12.09	24625.45	1326.56	0.37
Susquehanna	Upper Reach	199.150	500-yr	368100.00	529.88	573.3	554.67	575.69	0.001016	12.77	34146.13	1449.49	0.36
Susquehanna	Upper Reach	199.080	2-yr	109100.00	529.73	550.1	541.52	551.43	0.001031	9.16	11908.04	693.39	0.39
Susquehanna	Upper Reach	199.080	5-yr	150800.00	529.73	554.1	543.82	555.74	0.001111	10.26	14693.64	721.01	0.40
Susquehanna	Upper Reach	199.080	10-yr	180400.00	529.73	557.2	545.36	558.98	0.001059	10.64	16957.07	731.38	0.39
Susquehanna	Upper Reach	199.080	25-yr	188300.00	529.73	561.0	545.74	562.37	0.000692	9.55	19808.83	788.91	0.33
Susquehanna	Upper Reach	199.080	50-yr	251600.00	529.73	563.3	548.68	565.41	0.001220	11.72	21649.67	832.29	0.38
Susquehanna	Upper Reach	199.080	100-yr	284500.00	529.73	567.0	550.32	569.09	0.001045	11.72	24689.44	1140.49	0.36
Susquehanna	Upper Reach	199.080	500-yr	368100.00	529.73	573.0	553.66	575.35	0.001291	12.55	32832.47	1324.09	0.36
Susquehanna	Upper Reach	199.07 Aban. Railroad		Bridge									
Susquehanna	Upper Reach	199.060	2-yr	109100.00	529.68	550.0	541.16	551.19	0.000841	8.83	12354.49	702.03	0.37
Susquehanna	Upper Reach	199.060	5-yr	150800.00	529.68	553.9	543.42	555.47	0.000882	9.98	15162.57	750.21	0.38
Susquehanna	Upper Reach	199.060	10-yr	180400.00	529.68	557.0	544.88	558.71	0.000844	10.42	17482.15	764.16	0.37
Susquehanna	Upper Reach	199.060	25-yr	188300.00	529.68	560.8	545.26	562.18	0.000586	9.40	20321.64	821.29	0.31
Susquehanna	Upper Reach	199.060	50-yr	251600.00	529.68	563.0	548.11	565.10	0.000925	11.63	21970.35	830.28	0.37
Susquehanna	Upper Reach	199.060	100-yr	284500.00	529.68	566.7	549.50	568.80	0.000806	11.72	24725.15	1236.23	0.35
Susquehanna	Upper Reach	199.060	500-yr	368100.00	529.68	571.9	552.89	574.44	0.000932	12.86	33044.41	1399.87	0.36
Susquehanna	Upper Reach	199.000	2-yr	109100.00	529.43	549.8	540.45	550.74	0.000689	7.70	14167.90	826.04	0.33
Susquehanna	Upper Reach	199.000	5-yr	150800.00	529.43	553.8	542.51	554.97	0.000711	8.59	17631.29	889.57	0.33
Susquehanna	Upper Reach	199.000	10-yr	180400.00	529.43	557.0	543.83	558.22	0.000645	8.90	20474.56	976.67	0.32
Susquehanna	Upper Reach	199.000	25-yr	188300.00	529.43	560.8	544.18	561.82	0.000439	7.98	23972.00	1135.93	0.27
Susquehanna	Upper Reach	199.000	50-yr	251600.00	529.43	563.0	546.78	564.55	0.000688	9.86	26411.54	1550.62	0.32
Susquehanna	Upper Reach	199.000	100-yr	284500.00	529.43	566.8	548.04	568.28	0.000578	9.78	31955.13	1997.24	0.30
Susquehanna	Upper Reach	199.000	500-yr	368100.00	529.43	572.2	551.11	573.79	0.000621	10.38	45556.09	2134.18	0.29
Susquehanna	Upper Reach	198.900	2-yr	109100.00	529.29	549.8	539.25	550.51	0.000487	6.72	16227.54	914.92	0.28
Susquehanna	Upper Reach	198.900	5-yr	150800.00	529.29	553.8	541.17	554.72	0.000539	7.53	20024.67	959.14	0.29
Susquehanna	Upper Reach	198.900	10-yr	180400.00	529.29	557.0	542.43	557.98	0.000508	7.81	23181.25	1077.56	0.28
Susquehanna	Upper Reach	198.900	25-yr	188300.00	529.29	560.9	542.76	561.64	0.000361	6.99	27700.81	1600.77	0.24
Susquehanna	Upper Reach	198.900	50-yr	251600.00	529.29	563.1	545.19	564.26	0.000578	8.59	31201.58	2017.65	0.28
Susquehanna	Upper Reach	198.900	100-yr	284500.00	529.29	566.9	546.33	568.02	0.000478	8.43	38393.61	2295.77	0.26
Susquehanna	Upper Reach	198.900	500-yr	368100.00	529.29	572.4	549.20	573.51	0.000506	8.91	53082.27	2394.43	0.25
Susquehanna	Upper Reach	198.887	2-yr	109100.00	529.20	549.8	538.45	550.40	0.000293	6.00	18185.07	1018.11	0.25
Susquehanna	Upper Reach	198.887	5-yr	150800.00	529.20	553.9	540.27	554.59	0.000296	6.73	22391.70	1058.31	0.26
Susquehanna	Upper Reach	198.887	10-yr	180400.00	529.20	557.1	541.44	557.85	0.000274	6.99	25797.69	1151.88	0.25
Susquehanna	Upper Reach	198.887	25-yr	188300.00	529.20	560.9	541.75	561.55	0.000191	6.27	31051.19	1705.49	0.21
Susquehanna	Upper Reach	198.887	50-yr	251600.00	529.20	563.2	544.03	564.11	0.000297	7.71	34896.29	2170.63	0.25
Susquehanna	Upper Reach	198.887	100-yr	284500.00	529.20	567.0	545.15	567.89	0.000246	7.57	44702.33	2476.14	0.23
Susquehanna	Upper Reach	198.887	500-yr	368100.00	529.20	572.4	547.81	573.38	0.000272	8.14	58587.46	2576.77	0.23
Susquehanna	Scovell Left	198.702	2-yr	91347.44	527.98	549.8	538.28	550.09	0.000163	4.18	26292.01	2275.46	0.18
Susquehanna	Scovell Left	198.702	5-yr	129323.90	527.98	554.0	540.17	554.26	0.000140	4.43	36081.53	2535.26	0.18
Susquehanna	Scovell Left	198.702	10-yr	155700.00	527.98	557.3	541.22	557.53	0.000115	4.40	44651.31	2767.95	0.16
Susquehanna	Scovell Left	198.702	25-yr	218765.60	527.98	561.0	544.00	561.31	0.000146	5.12	54720.17	2933.72	0.18
Susquehanna	Scovell Left	198.702	50-yr	214581.30	527.98	563.5	543.80	563.76	0.000099	4.49	61656.75	3074.39	0.15
Susquehanna	Scovell Left	198.702	100-yr	241400.00	527.98	567.3	544.87	567.57	0.000082	4.34	72208.09	3264.11	0.13
Susquehanna	Scovell Left	198.702	500-yr	310034.30	527.98	572.8	546.88	573.03	0.000082	4.64	87186.46	3408.78	0.13

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Scovell Left	198.623	2-yr	91347.44	528.69	549.7	538.80	550.01	0.000229	4.85	23996.89	2523.98	0.22
Susquehanna	Scovell Left	198.623	5-yr	129323.90	528.69	553.9	540.90	554.19	0.000182	4.99	33995.27	2843.98	0.20
Susquehanna	Scovell Left	198.623	10-yr	155700.00	528.69	557.2	542.44	557.47	0.000144	4.90	42387.40	4613.15	0.18
Susquehanna	Scovell Left	198.623	25-yr	218765.60	528.69	560.8	545.90	561.24	0.000180	5.65	53150.49	5598.32	0.19
Susquehanna	Scovell Left	198.623	50-yr	214581.30	528.69	563.4	545.77	563.71	0.000119	4.92	60896.44	5704.96	0.16
Susquehanna	Scovell Left	198.623	100-yr	241400.00	528.69	567.3	546.58	567.53	0.000096	4.71	72898.77	5875.67	0.15
Susquehanna	Scovell Left	198.623	500-yr	310034.30	528.69	572.7	548.32	572.99	0.000094	4.97	89990.80	5957.10	0.14
Susquehanna	Scovell Left	198.543	2-yr	91347.44	528.52	549.6	540.41	549.90	0.000204	4.76	27505.23	3120.56	0.21
Susquehanna	Scovell Left	198.543	5-yr	129323.90	528.52	553.8	542.12	554.10	0.000173	4.90	37781.76	5516.33	0.20
Susquehanna	Scovell Left	198.543	10-yr	155700.00	528.52	557.1	543.13	557.40	0.000141	4.79	46847.66	6335.67	0.18
Susquehanna	Scovell Left	198.543	25-yr	218765.60	528.52	560.8	545.10	561.14	0.000178	5.54	58425.27	7334.25	0.19
Susquehanna	Scovell Left	198.543	50-yr	214581.30	528.52	563.4	544.99	563.65	0.000117	4.82	66652.71	8006.40	0.16
Susquehanna	Scovell Left	198.543	100-yr	241400.00	528.52	567.3	545.80	567.48	0.000095	4.62	79086.61	8170.43	0.14
Susquehanna	Scovell Left	198.543	500-yr	310034.30	528.52	572.7	547.42	572.94	0.000093	4.89	96646.95	8184.68	0.14
Susquehanna	Scovell Left	198.466	2-yr	91347.44	528.33	549.6	539.88	549.81	0.000153	3.80	27708.47	4500.03	0.18
Susquehanna	Scovell Left	198.466	5-yr	129323.90	528.33	553.8	541.22	554.03	0.000125	4.02	38308.58	7020.48	0.16
Susquehanna	Scovell Left	198.466	10-yr	155700.00	528.33	557.1	542.00	557.34	0.000101	3.99	47828.43	7934.80	0.15
Susquehanna	Scovell Left	198.466	25-yr	218765.60	528.33	560.8	543.75	561.07	0.000126	4.64	59580.65	8656.60	0.16
Susquehanna	Scovell Left	198.466	50-yr	214581.30	528.33	563.4	543.65	563.60	0.000084	4.05	67915.20	8963.11	0.14
Susquehanna	Scovell Left	198.466	100-yr	241400.00	528.33	567.2	544.28	567.44	0.000068	3.90	80297.52	9434.00	0.12
Susquehanna	Scovell Left	198.466	500-yr	310034.30	528.33	572.7	545.79	572.91	0.000068	4.16	98058.46	9803.19	0.12
Susquehanna	Scovell Left	198.390	2-yr	91347.44	528.12	549.5	539.52	549.74	0.000185	4.39	25965.77	4880.68	0.19
Susquehanna	Scovell Left	198.390	5-yr	129323.90	528.12	553.7	541.20	553.97	0.000171	4.82	34649.80	6198.70	0.19
Susquehanna	Scovell Left	198.390	10-yr	155700.00	528.12	557.0	542.00	557.29	0.000138	4.79	42480.98	7695.06	0.18
Susquehanna	Scovell Left	198.390	25-yr	218765.60	528.12	560.6	543.81	561.00	0.000178	5.62	52153.28	8026.66	0.19
Susquehanna	Scovell Left	198.390	50-yr	214581.30	528.12	563.3	543.68	563.55	0.000119	4.91	59210.50	8304.95	0.16
Susquehanna	Scovell Left	198.390	100-yr	241400.00	528.12	567.1	544.37	567.40	0.000098	4.75	69552.34	8682.92	0.15
Susquehanna	Scovell Left	198.390	500-yr	310034.30	528.12	572.6	545.92	572.87	0.000099	5.10	84070.09	8847.99	0.15
Susquehanna	Scovell Left	198.309 Lackawanna River	2-yr	91347.44	527.89	549.4	538.32	549.66	0.000183	3.88	23547.89	2503.22	0.18
Susquehanna	Scovell Left	198.309 Lackawanna River	5-yr	129323.90	527.89	553.6	539.88	553.89	0.000165	4.23	30585.10	2598.86	0.18
Susquehanna	Scovell Left	198.309 Lackawanna River	10-yr	155700.00	527.89	556.9	540.77	557.22	0.000140	4.26	36840.59	2883.24	0.17
Susquehanna	Scovell Left	198.309 Lackawanna River	25-yr	218765.60	527.89	560.5	542.61	560.92	0.000193	5.07	43930.64	2898.46	0.18
Susquehanna	Scovell Left	198.309 Lackawanna River	50-yr	214581.30	527.89	563.2	542.50	563.49	0.000132	4.46	49212.07	2939.67	0.15
Susquehanna	Scovell Left	198.309 Lackawanna River	100-yr	241400.00	527.89	567.1	543.21	567.35	0.000113	4.36	56880.08	3040.88	0.14
Susquehanna	Scovell Left	198.309 Lackawanna River	500-yr	310034.30	527.89	572.5	544.92	572.81	0.000119	4.74	67602.70	3221.98	0.14
Susquehanna	Scovell Left	198.239	2-yr	91347.44	527.68	549.2	537.81	549.56	0.000261	5.15	18006.26	1467.10	0.23
Susquehanna	Scovell Left	198.239	5-yr	129323.90	527.68	553.3	539.71	553.79	0.000237	5.74	23104.54	1511.56	0.23
Susquehanna	Scovell Left	198.239	10-yr	155700.00	527.68	556.6	540.84	557.14	0.000204	5.90	27280.70	1555.92	0.22
Susquehanna	Scovell Left	198.239	25-yr	218765.60	527.68	560.0	543.26	560.79	0.000291	7.20	31623.76	1573.97	0.25
Susquehanna	Scovell Left	198.239	50-yr	214581.30	527.68	562.8	543.10	563.40	0.000199	6.38	35232.86	1608.53	0.21
Susquehanna	Scovell Left	198.239	100-yr	241400.00	527.68	566.7	544.05	567.27	0.000173	6.31	40432.07	1683.83	0.19
Susquehanna	Scovell Left	198.239	500-yr	310034.30	527.68	572.0	546.78	572.72	0.000186	6.95	47815.52	2501.97	0.20
Susquehanna	Scovell Right	198.701	2-yr	21752.57	527.91	550.0		550.10	0.000051	2.38	9155.58	543.23	0.10
Susquehanna	Scovell Right	198.701	5-yr	26876.13	527.91	554.2		554.25	0.000038	2.35	11458.04	577.15	0.09
Susquehanna	Scovell Right	198.701	10-yr	31300.00	527.91	557.4		557.52	0.000032	2.36	13363.92	588.07	0.08
Susquehanna	Scovell Right	198.701	25-yr	49534.46	527.91	561.1		561.31	0.000049	3.23	15652.54	637.14	0.11
Susquehanna	Scovell Right	198.701	50-yr	46218.70	527.91	563.6		563.74	0.000032	2.76	17262.63	661.82	0.09
Susquehanna	Scovell Right	198.701	100-yr	53500.00	527.91	567.4		567.55	0.000029	2.83	20133.48	871.66	0.09
Susquehanna	Scovell Right	198.701	500-yr	71465.73	527.91	572.9		573.02	0.000031	3.21	25254.50	983.99	0.09
Susquehanna	Scovell Right	198.671	2-yr	21752.57	528.10	550.0		550.08	0.000067	2.72	8000.73	479.46	0.12
Susquehanna	Scovell Right	198.671	5-yr	26876.13	528.10	554.1		554.23	0.000050	2.68	10041.14	511.18	0.10
Susquehanna	Scovell Right	198.671	10-yr	31300.00	528.10	557.4		557.51	0.000042	2.69	11825.71	694.29	0.10
Susquehanna	Scovell Right	198.671	25-yr	49534.46	528.10	561.1		561.29	0.000063	3.65	14553.97	755.76	0.12
Susquehanna	Scovell Right	198.671	50-yr	46218.70	528.10	563.6		563.73	0.000041	3.09	16500.68	879.30	0.10
Susquehanna	Scovell Right	198.671	100-yr	53500.00	528.10	567.4		567.54	0.000035	3.12	20437.90	1175.90	0.10
Susquehanna	Scovell Right	198.671	500-yr	71465.73	528.10	572.8		573.01	0.000036	3.48	27180.63	1278.69	0.10
Susquehanna	Scovell Right	198.619	2-yr	21752.57	528.15	549.9	535.20	550.04	0.000105	3.49	6230.90	357.49	0.15
Susquehanna	Scovell Right	198.619	5-yr	26876.13	528.15	554.0	536.15	554.20	0.000084	3.45	7831.61	459.93	0.14
Susquehanna	Scovell Right	198.619	10-yr	31300.00	528.15	557.3	536.89	557.48	0.000072	3.41	10260.53	937.69	0.13
Susquehanna	Scovell Right	198.619	25-yr	49534.46	528.15	560.9	539.51	561.25	0.000102	4.48	14413.99	1182.62	0.16
Susquehanna	Scovell Right	198.619	50-yr	46218.70	528.15	563.5	539.08	563.70	0.000061	3.69	17444.83	1188.00	0.12
Susquehanna	Scovell Right	198.619	100-yr	53500.00	528.15	567.3	540.03	567.52	0.000050	3.61	22017.60	1201.19	0.11
Susquehanna	Scovell Right	198.619	500-yr	71465.73	528.15	572.8	542.21	572.99	0.000048	3.94	29255.09	1380.79	0.11
Susquehanna	Scovell Right	198.567	2-yr	21752.57	528.19	549.8	534.74	549.99	0.000072	3.02	7195.43	387.42	0.12
Susquehanna	Scovell Right	198.567	5-yr	26876.13	528.19	554.0	535.62	554.16	0.000059	3.04	8910.97	567.09	0.11
Susquehanna	Scovell Right	198.567	10-yr	31300.00	528.19	557.3	536.33	557.44	0.000052	3.04	11282.09	929.24	0.11
Susquehanna	Scovell Right	198.567	25-yr	49534.46	528.19	561.0	538.68	561.20	0.000076	4.04	15577.65	1196.22	0.13
Susquehanna	Scovell Right	198.567	50-yr	46218.70	528.19	563.5	538.30	563.67	0.000047	3.35	18642.82	1201.42	0.11
Susquehanna	Scovell Right	198.567	100-yr	53500.00	528.19	567.3	539.14	567.49	0.000039	3.30	23263.70	1209.22	0.10
Susquehanna	Scovell Right	198.567	500-yr	71465.73	528.19	572.8	541.05	572.96	0.000037	3.54	33644.06	2195.32	0.10
Susquehanna	Scovell Right	198.512	2-yr	21752.57	528.23	549.7	536.23	549.94	0.000146	4.02	5416.91	323.02	0.17
Susquehanna	Scovell Right	198.512	5-yr	26876.13	528.23	553.9	537.27	554.11	0.000115	3.93	6917.00	498.89	0.16
Susquehanna	Scovell Right	198.512	10-yr	31300.00	528.23	557.2	538.04	557.41	0.000092	3.83	9917.11	1225.26	0.14
Susquehanna	Scovell Right	198.512	25-yr	49534.46	528.23	560.8	540.89	561.14	0.000127	4.90	14399.96	1262.48	0.17
Susquehanna	Scovell Right	198.512	50-yr	46218.70	528.23	563.4	540.38	563.64	0.000073	3.96	17725.86	1269.72	0.13
Susquehanna	Scovell Right	198.512	100-yr	53500.00	528.23	567.3	541.47	567.47	0.000056	3.80	22640.79	1278.74	0.12
Susquehanna	Scovell Right	198.512	500-yr	71465.73	528.23	572.7	543.87	572.94	0.000051	4.04	29662.68	1300.73	0.12
Susquehanna	Scovell Right	198.463	2-yr	21752.57	528.26	549.6	536.92	549.88	0.000157	3.98	5461.77	348.07	0.18
Susquehanna	Scovell Right	198.463	5-yr	26876.13	528.26	553.8	537.94	554.07	0.000120	3.85	7163.76	651.39	0.16
Susquehanna	Scovell Right	198.463	10-yr	31300.00	528.26	557.2	539.23	557.37	0.000090	3.69	10450.08	1097.20	0.14
Susquehanna	Scovell Right	198.463	25-yr	49534.46	528.26	560.8	541.79	561.09	0.000122	4.74	14519.46	1205.58	0.17
Susquehanna	Scovell Right	198.463	50-yr	46218.70	528.26	563.4	541.35	563.61	0.000069	3.83	17856.83	1281.43	0.13
Susquehanna	Scovell Right	198.463	100-yr	53500.00	528.26	567.3	542.30	567.45	0.000052	3.64	22835.31	1295.01	0.11
Susquehanna	Scovell Right	198.463	500-yr	71465.73	528.26	572.8	544.45	572.89	0.000028	2.98	61637.67	3683.88	0.09
Susquehanna	Scovell Right	198.413	2-yr	21752.57	528.30	549.5	536.89	549.81	0.000181	4.41	4927.51	299.22	0.19
Susquehanna	Scovell Right	198.413	5-yr	26876.13	528.30	553.7	537.93	554.01	0.000144	4.30	6672.73	784.51	0.17
Susquehanna	Scovell Right	198.413	10-yr	31300.00	528.30	557.1	538.75	557.32	0.000108	4.10	9574.11	869.85	0.15
Susquehanna	Scovell Right	198.413	25-yr	49534.46	528.30	560.6	541.84	561.03	0.000153	5.35	12670.43	874.17	0.19
Susquehanna	Scovell Right	198.413	50-yr	46218.70	528.30	563.3	541.31	563.58	0.000090	4.37	15041.97	905.21	0.15

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Scovell Right	198.413	100-yr	53500.00	528.30	567.2	542.41	567.42	0.000076	4.23	19335.78	1302.00	0.14
Susquehanna	Scovell Right	198.413	500-yr	71465.73	528.30	572.8	544.79	572.88	0.000033	3.11	67073.88	4061.41	0.09
Susquehanna	Scovell Right	198.363	2-yr	21752.57	528.34	549.5	535.72	549.72	0.000115	3.68	5913.31	334.82	0.15
Susquehanna	Scovell Right	198.363	5-yr	26876.13	528.34	553.7	536.63	553.94	0.000102	3.62	7424.86	393.01	0.15
Susquehanna	Scovell Right	198.363	10-yr	31300.00	528.34	557.1	537.37	557.27	0.000081	3.56	9129.17	589.13	0.13
Susquehanna	Scovell Right	198.363	25-yr	49534.46	528.34	560.6	539.90	560.96	0.000122	4.79	11523.29	686.15	0.17
Susquehanna	Scovell Right	198.363	50-yr	46218.70	528.34	563.3	539.47	563.54	0.000075	3.98	13369.06	688.23	0.13
Susquehanna	Scovell Right	198.363	100-yr	53500.00	528.34	567.2	540.42	567.39	0.000064	3.98	16029.69	915.30	0.12
Susquehanna	Scovell Right	198.363	500-yr	71465.73	528.34	572.8	542.56	572.87	0.000034	3.25	59306.07	4601.23	0.09
Susquehanna	Scovell Right	198.313	2-yr	21752.57	528.38	549.5	536.06	549.67	0.000136	3.71	5856.52	421.58	0.17
Susquehanna	Scovell Right	198.313	5-yr	26876.13	528.38	553.7	537.04	553.90	0.000097	3.60	7472.21	456.70	0.14
Susquehanna	Scovell Right	198.313	10-yr	31300.00	528.38	557.0	537.79	557.24	0.000081	3.56	8826.77	834.34	0.13
Susquehanna	Scovell Right	198.313	25-yr	49534.46	528.38	560.6	540.49	560.91	0.000124	4.83	10795.56	1977.73	0.17
Susquehanna	Scovell Right	198.313	50-yr	46218.70	528.38	563.3	540.01	563.51	0.000077	4.04	12337.17	2810.37	0.14
Susquehanna	Scovell Right	198.313	100-yr	53500.00	528.38	567.1	541.03	567.36	0.000067	4.07	14553.84	3417.90	0.13
Susquehanna	Scovell Right	198.313	500-yr	71465.73	528.38	572.5	543.28	572.83	0.000075	4.55	17727.71	4040.34	0.14
Susquehanna	Scovell Right	198.262	2-yr	21752.57	528.42	549.4	535.39	549.62	0.000100	3.44	6384.55	461.34	0.14
Susquehanna	Scovell Right	198.262	5-yr	26876.13	528.42	553.7	536.30	553.86	0.000078	3.37	8390.50	562.14	0.13
Susquehanna	Scovell Right	198.262	10-yr	31300.00	528.42	557.0	537.01	557.20	0.000064	3.34	10078.81	620.46	0.12
Susquehanna	Scovell Right	198.262	25-yr	49534.46	528.42	560.5	539.52	560.85	0.000101	4.55	11870.27	1780.37	0.16
Susquehanna	Scovell Right	198.262	50-yr	46218.70	528.42	563.2	539.10	563.47	0.000064	3.83	13267.57	2331.96	0.13
Susquehanna	Scovell Right	198.262	100-yr	53500.00	528.42	567.1	540.01	567.33	0.000057	3.88	15278.75	3319.03	0.12
Susquehanna	Scovell Right	198.262	500-yr	71465.73	528.42	572.5	542.11	572.79	0.000065	4.37	18371.68	4300.81	0.13
Susquehanna	Middle Reach	198.107	2-yr	113100.00	528.13	548.8	538.58	549.37	0.000261	5.91	19120.95	1187.78	0.26
Susquehanna	Middle Reach	198.107	5-yr	156200.00	528.13	553.0	540.22	553.62	0.000248	6.54	23900.45	1230.63	0.25
Susquehanna	Middle Reach	198.107	10-yr	187000.00	528.13	556.3	541.38	556.97	0.000241	6.74	27763.63	1340.17	0.24
Susquehanna	Middle Reach	198.107	25-yr	228700.00	528.13	559.8	542.77	560.62	0.000233	7.16	31927.45	2128.90	0.24
Susquehanna	Middle Reach	198.107	50-yr	260800.00	528.13	562.4	543.79	563.23	0.000228	7.47	34920.27	3285.30	0.24
Susquehanna	Middle Reach	198.107	100-yr	294900.00	528.13	566.2	544.83	567.11	0.000208	7.47	39494.27	4082.32	0.23
Susquehanna	Middle Reach	198.107	500-yr	381500.00	528.13	571.5	547.26	572.56	0.000211	8.14	53866.09	7096.80	0.23
Susquehanna	Middle Reach	198.061	2-yr	113100.00	528.94	548.6	538.66	549.29	0.000327	6.66	16978.52	1071.42	0.29
Susquehanna	Middle Reach	198.061	5-yr	156200.00	528.94	552.7	540.52	553.53	0.000317	7.38	21153.87	1263.18	0.29
Susquehanna	Middle Reach	198.061	10-yr	187000.00	528.94	556.0	541.74	556.88	0.000313	7.61	24575.94	1806.17	0.28
Susquehanna	Middle Reach	198.061	25-yr	228700.00	528.94	559.5	543.27	560.53	0.000304	8.09	28273.71	2586.31	0.27
Susquehanna	Middle Reach	198.061	50-yr	260800.00	528.94	562.0	544.34	563.15	0.000299	8.43	30943.70	3392.03	0.27
Susquehanna	Middle Reach	198.061	100-yr	294900.00	528.94	565.9	545.51	567.03	0.000271	8.41	35086.45	4315.86	0.26
Susquehanna	Middle Reach	198.061	500-yr	381500.00	528.94	571.2	548.19	572.47	0.000251	9.22	48569.05	6306.13	0.26
Susquehanna	Middle Reach	198 Railroad		Bridge									
Susquehanna	Middle Reach	197.995	2-yr	113100.00	529.29	548.3	539.02	549.09	0.000374	6.98	16192.74	1068.88	0.30
Susquehanna	Middle Reach	197.995	5-yr	156200.00	529.29	552.4	540.89	553.33	0.000357	7.70	20278.21	1106.61	0.30
Susquehanna	Middle Reach	197.995	10-yr	187000.00	529.29	555.7	542.14	556.68	0.000349	7.90	23657.45	1684.29	0.29
Susquehanna	Middle Reach	197.995	25-yr	228700.00	529.29	559.2	543.67	560.32	0.000338	8.37	27326.20	2627.13	0.29
Susquehanna	Middle Reach	197.995	50-yr	260800.00	529.29	561.8	544.79	562.94	0.000331	8.70	29993.08	3300.12	0.29
Susquehanna	Middle Reach	197.995	100-yr	294900.00	529.29	565.7	545.96	566.84	0.000300	8.62	34201.60	4397.76	0.27
Susquehanna	Middle Reach	197.995	500-yr	381500.00	529.29	570.9	548.65	572.06	0.000274	8.97	57631.50	5869.60	0.26
Susquehanna	Middle Reach	197.938	2-yr	113100.00	529.22	548.2	538.68	548.98	0.000362	6.94	16293.76	1076.94	0.30
Susquehanna	Middle Reach	197.938	5-yr	156200.00	529.22	552.3	540.57	553.22	0.000348	7.68	20330.89	1803.28	0.30
Susquehanna	Middle Reach	197.938	10-yr	187000.00	529.22	555.6	541.81	556.57	0.000341	7.91	23651.83	2131.32	0.29
Susquehanna	Middle Reach	197.938	25-yr	228700.00	529.22	559.1	543.40	560.22	0.000332	8.39	27252.54	2838.53	0.29
Susquehanna	Middle Reach	197.938	50-yr	260800.00	529.22	561.6	544.51	562.84	0.000323	8.74	29933.34	3611.67	0.29
Susquehanna	Middle Reach	197.938	100-yr	294900.00	529.22	565.6	545.70	566.75	0.000289	8.70	34226.10	4498.33	0.27
Susquehanna	Middle Reach	197.938	500-yr	381500.00	529.22	570.9	548.38	571.95	0.000238	8.66	63448.77	5612.60	0.25
Susquehanna	Middle Reach	197.867	2-yr	113100.00	529.12	548.1	538.69	548.84	0.000375	7.02	16114.31	1061.52	0.31
Susquehanna	Middle Reach	197.867	5-yr	156200.00	529.12	552.2	540.62	553.09	0.000360	7.75	20157.98	1612.31	0.30
Susquehanna	Middle Reach	197.867	10-yr	187000.00	529.12	555.5	541.85	556.44	0.000355	7.95	23534.72	1911.05	0.29
Susquehanna	Middle Reach	197.867	25-yr	228700.00	529.12	559.0	543.42	560.10	0.000341	8.41	27189.91	2651.21	0.29
Susquehanna	Middle Reach	197.867	50-yr	260800.00	529.12	561.5	544.58	562.71	0.000332	8.74	29835.47	3188.78	0.29
Susquehanna	Middle Reach	197.867	100-yr	294900.00	529.12	565.5	545.73	566.64	0.000294	8.67	34608.08	4411.09	0.27
Susquehanna	Middle Reach	197.867	500-yr	381500.00	529.12	570.7	548.43	571.85	0.000253	8.84	62032.45	5709.74	0.25
Susquehanna	Middle Reach	197.790	2-yr	113100.00	529.02	548.0	538.26	548.68	0.000347	6.80	16624.21	1074.51	0.29
Susquehanna	Middle Reach	197.790	5-yr	156200.00	529.02	552.1	540.18	552.93	0.000335	7.52	20774.99	1182.66	0.29
Susquehanna	Middle Reach	197.790	10-yr	187000.00	529.02	555.4	541.43	556.29	0.000329	7.73	24206.48	1562.53	0.28
Susquehanna	Middle Reach	197.790	25-yr	228700.00	529.02	558.9	542.96	559.94	0.000320	8.19	27986.69	2462.64	0.28
Susquehanna	Middle Reach	197.790	50-yr	260800.00	529.02	561.4	544.07	562.56	0.000315	8.50	31405.34	3008.80	0.28
Susquehanna	Middle Reach	197.790	100-yr	294900.00	529.02	565.4	545.22	566.50	0.000286	8.35	38053.73	3927.58	0.26
Susquehanna	Middle Reach	197.790	500-yr	381500.00	529.02	570.5	547.87	571.73	0.000282	9.05	53218.84	5299.81	0.26
Susquehanna	Middle Reach	197.711	2-yr	113100.00	528.91	547.8	538.59	548.53	0.000356	6.71	16856.93	1114.47	0.30
Susquehanna	Middle Reach	197.711	5-yr	156200.00	528.91	551.9	540.34	552.78	0.000335	7.35	21262.40	1185.62	0.29
Susquehanna	Middle Reach	197.711	10-yr	187000.00	528.91	555.3	541.54	556.14	0.000331	7.50	24944.23	1668.15	0.28
Susquehanna	Middle Reach	197.711	25-yr	228700.00	528.91	558.8	542.99	559.79	0.000325	7.86	29097.14	1830.84	0.28
Susquehanna	Middle Reach	197.711	50-yr	260800.00	528.91	561.4	544.08	562.40	0.000311	8.10	33340.59	2813.55	0.28
Susquehanna	Middle Reach	197.711	100-yr	294900.00	528.91	565.4	545.18	566.35	0.000264	7.88	41336.39	4019.73	0.25
Susquehanna	Middle Reach	197.711	500-yr	381500.00	528.91	570.5	547.82	571.57	0.000252	8.47	58714.73	5299.27	0.25
Susquehanna	Middle Reach	197.638	2-yr	113100.00	528.60	547.8	537.55	548.36	0.000271	5.90	19156.82	1242.94	0.26
Susquehanna	Middle Reach	197.638	5-yr	156200.00	528.60	552.0	539.43	552.60	0.000284	6.35	24603.02	1488.94	0.27
Susquehanna	Middle Reach	197.638	10-yr	187000.00	528.60	555.3	540.52	555.95	0.000260	6.38	29302.51	1956.87	0.25
Susquehanna	Middle Reach	197.638	25-yr	228700.00	528.60	558.9	541.90	559.60	0.000239	6.64	34446.45	2240.66	0.24
Susquehanna	Middle Reach	197.638	50-yr	260800.00	528.60	561.5	542.94	562.21	0.000224	6.83	38402.32	2641.55	0.23
Susquehanna	Middle Reach	197.638	100-yr	294900.00	528.60	565.5	544.00	566.18	0.000189	6.66	47329.08	3911.64	0.21
Susquehanna	Middle Reach	197.638	500-yr	381500.00	528.60	570.6	546.40	571.41	0.000181	7.20	65349.06	4865.14	0.21
Susquehanna	Middle Reach	197.561	2-yr	113100.00	528.09	547.8	536.13	548.25	0.000212	5.55	20370.83	1272.62	0.23
Susquehanna	Middle Reach	197.561	5-yr	156200.00	528.09	551.9	537.80	552.49	0.000211	6.21	25162.32	1440.54	0.24
Susquehanna	Middle Reach	197.561	10-yr	187000.00	528.09	555.2	538.94	555.86	0.000212	6.43	29087.18	1649.85	0.23
Susquehanna	Middle Reach	197.561	25-yr	228700.00	528.09	558.8	540.39	559.50	0.000210	6.86	33357.03	1900.96	0.23
Susquehanna	Middle Reach	197.561	50-yr	260800.00	528.09	561.3	541.43	562.12	0.000206	7.15	36891.82	2728.65	0.23
Susquehanna	Middle Reach	197.561	100-yr	294900.00	528.09	565.3	542.50	566.10	0.000183	7.09	44850.61	3344.41	0.21
Susquehanna	Middle Reach	197.561	500-yr	381500.00	528.09	570.4	545.04	571.32	0.000187	7.82	61086.29	4501.13	0.22

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	197.485	2-yr	113100.00	527.69	547.5	536.53	548.14	0.000269	6.24	18123.56	1066.47	0.26
Susquehanna	Middle Reach	197.485	5-yr	156200.00	527.69	551.6	538.39	552.38	0.000268	6.99	22352.40	1114.90	0.27
Susquehanna	Middle Reach	197.485	10-yr	187000.00	527.69	554.9	539.61	555.75	0.000269	7.24	25824.18	1278.07	0.26
Susquehanna	Middle Reach	197.485	25-yr	228700.00	527.69	558.5	541.18	559.39	0.000267	7.73	29633.61	1729.97	0.26
Susquehanna	Middle Reach	197.485	50-yr	260800.00	527.69	561.0	542.30	562.01	0.000262	8.07	32848.95	2368.91	0.26
Susquehanna	Middle Reach	197.485	100-yr	294900.00	527.69	565.0	543.45	566.00	0.000233	8.00	39398.12	3269.11	0.24
Susquehanna	Middle Reach	197.485	500-yr	381500.00	527.69	570.1	546.10	571.21	0.000236	8.78	56640.92	4300.99	0.25
Susquehanna	Middle Reach	197.411	2-yr	113100.00	527.30	547.2	536.96	548.01	0.000346	6.99	16188.29	972.10	0.30
Susquehanna	Middle Reach	197.411	5-yr	156200.00	527.30	551.3	538.96	552.24	0.000343	7.81	20001.13	1004.07	0.30
Susquehanna	Middle Reach	197.411	10-yr	187000.00	527.30	554.6	540.31	555.61	0.000341	8.08	23139.80	1120.53	0.29
Susquehanna	Middle Reach	197.411	25-yr	228700.00	527.30	558.1	541.97	559.25	0.000338	8.63	26518.70	1667.47	0.29
Susquehanna	Middle Reach	197.411	50-yr	260800.00	527.30	560.6	543.17	561.87	0.000330	9.00	29650.95	2263.35	0.29
Susquehanna	Middle Reach	197.411	100-yr	294900.00	527.30	564.6	544.40	565.87	0.000292	8.92	34926.18	3246.14	0.27
Susquehanna	Middle Reach	197.411	500-yr	381500.00	527.30	569.7	547.25	571.09	0.000293	9.73	52299.81	4055.95	0.27
Susquehanna	Middle Reach	197.330	2-yr	113100.00	526.87	546.7	537.76	547.80	0.000502	8.38	13500.57	808.47	0.36
Susquehanna	Middle Reach	197.330	5-yr	156200.00	526.87	550.7	539.98	552.03	0.000508	9.41	16604.00	875.02	0.36
Susquehanna	Middle Reach	197.330	10-yr	187000.00	526.87	553.9	541.40	555.39	0.000508	9.74	19208.39	957.32	0.35
Susquehanna	Middle Reach	197.330	25-yr	228700.00	526.87	557.3	543.20	559.02	0.000507	10.41	21971.55	1326.51	0.35
Susquehanna	Middle Reach	197.330	50-yr	260800.00	526.87	559.8	544.51	561.64	0.000504	10.88	23972.86	2038.57	0.35
Susquehanna	Middle Reach	197.330	100-yr	294900.00	526.87	563.8	545.84	565.66	0.000448	10.80	27486.48	3325.76	0.33
Susquehanna	Middle Reach	197.330	500-yr	381500.00	526.87	568.8	548.97	570.87	0.000441	11.69	44583.45	3971.91	0.33
Susquehanna	Middle Reach	197.309	2-yr	113100.00	526.75	546.7	537.64	547.74	0.000498	8.28	13653.43	827.52	0.35
Susquehanna	Middle Reach	197.309	5-yr	156200.00	526.75	550.6	539.89	551.96	0.000369	9.27	16848.37	868.74	0.36
Susquehanna	Middle Reach	197.309	10-yr	187000.00	526.75	553.9	541.34	555.32	0.000407	9.58	19514.15	905.44	0.35
Susquehanna	Middle Reach	197.309	25-yr	228700.00	526.75	557.3	543.12	558.95	0.000412	10.24	22328.35	1390.26	0.35
Susquehanna	Middle Reach	197.309	50-yr	260800.00	526.75	559.8	544.40	561.57	0.000412	10.71	24410.79	2030.69	0.35
Susquehanna	Middle Reach	197.309	100-yr	294900.00	526.75	563.9	545.76	565.58	0.000383	10.54	31746.50	3198.87	0.32
Susquehanna	Middle Reach	197.309	500-yr	381500.00	526.75	568.8	548.85	570.81	0.000392	11.52	44694.18	3971.18	0.33
Susquehanna	Middle Reach	197.306 US Route11		Bridge									
Susquehanna	Middle Reach	197.296	2-yr	113100.00	526.69	546.3	537.65	547.39	0.000533	8.46	13371.64	823.52	0.36
Susquehanna	Middle Reach	197.296	5-yr	156200.00	526.69	550.3	539.87	551.63	0.000524	9.42	16576.02	853.42	0.37
Susquehanna	Middle Reach	197.296	10-yr	187000.00	526.69	553.5	541.31	554.95	0.000520	9.73	19211.80	899.36	0.35
Susquehanna	Middle Reach	197.296	25-yr	228700.00	526.69	556.8	543.12	558.52	0.000516	10.40	21995.45	1092.42	0.36
Susquehanna	Middle Reach	197.296	50-yr	260800.00	526.69	559.2	544.39	561.08	0.000513	10.87	24049.14	2013.07	0.36
Susquehanna	Middle Reach	197.296	100-yr	294900.00	526.69	563.3	545.72	565.02	0.000448	10.69	30737.27	3071.33	0.33
Susquehanna	Middle Reach	197.296	500-yr	381500.00	526.69	568.0	548.83	570.11	0.000456	11.73	42911.60	3792.06	0.34
Susquehanna	Middle Reach	197.261	2-yr	113100.00	526.54	546.1	537.66	547.28	0.000567	8.71	12988.65	804.00	0.38
Susquehanna	Middle Reach	197.261	5-yr	156200.00	526.54	550.1	539.90	551.52	0.000568	9.68	16140.83	851.52	0.38
Susquehanna	Middle Reach	197.261	10-yr	187000.00	526.54	553.3	541.35	554.84	0.000563	9.95	18789.67	883.94	0.37
Susquehanna	Middle Reach	197.261	25-yr	228700.00	526.54	556.7	543.20	558.42	0.000550	10.58	21715.54	1160.35	0.37
Susquehanna	Middle Reach	197.261	50-yr	260800.00	526.54	559.1	544.52	560.97	0.000538	11.02	24125.75	2001.06	0.37
Susquehanna	Middle Reach	197.261	100-yr	294900.00	526.54	563.2	545.89	564.93	0.000454	10.73	31952.75	3082.50	0.33
Susquehanna	Middle Reach	197.261	500-yr	381500.00	526.54	568.0	549.14	570.02	0.000460	11.77	42912.14	3720.24	0.34
Susquehanna	Middle Reach	197.222	2-yr	113100.00	526.36	546.0	537.72	547.17	0.000592	8.74	12934.01	817.68	0.38
Susquehanna	Middle Reach	197.222	5-yr	156200.00	526.36	550.0	539.97	551.40	0.000583	9.66	16177.95	869.67	0.39
Susquehanna	Middle Reach	197.222	10-yr	187000.00	526.36	553.2	541.47	554.72	0.000572	9.89	18915.14	1095.52	0.37
Susquehanna	Middle Reach	197.222	25-yr	228700.00	526.36	556.6	543.32	558.29	0.000548	10.47	21937.53	1539.10	0.37
Susquehanna	Middle Reach	197.222	50-yr	260800.00	526.36	559.0	544.62	560.85	0.000530	10.90	24166.59	2410.52	0.36
Susquehanna	Middle Reach	197.222	100-yr	294900.00	526.36	563.1	545.97	564.82	0.000441	10.55	33107.44	3190.99	0.33
Susquehanna	Middle Reach	197.222	500-yr	381500.00	526.36	567.9	549.17	569.90	0.000441	11.52	44176.12	4289.96	0.34
Susquehanna	Middle Reach	197.176	2-yr	113100.00	526.13	546.0	537.07	546.97	0.000478	7.91	14298.24	891.56	0.34
Susquehanna	Middle Reach	197.176	5-yr	156200.00	526.13	550.0	539.16	551.20	0.000465	8.75	17851.54	1011.62	0.35
Susquehanna	Middle Reach	197.176	10-yr	187000.00	526.13	553.3	540.54	554.52	0.000458	8.99	20802.05	1176.02	0.33
Susquehanna	Middle Reach	197.176	25-yr	228700.00	526.13	556.7	542.29	558.09	0.000446	9.54	24073.96	1610.73	0.33
Susquehanna	Middle Reach	197.176	50-yr	260800.00	526.13	559.1	543.56	560.65	0.000432	9.93	26682.69	2400.27	0.33
Susquehanna	Middle Reach	197.176	100-yr	294900.00	526.13	563.2	544.84	564.64	0.000360	9.61	36556.01	3259.45	0.30
Susquehanna	Middle Reach	197.176	500-yr	381500.00	526.13	568.1	547.82	569.71	0.000363	10.53	47775.36	4498.27	0.30
Susquehanna	Middle Reach	197.130	2-yr	113100.00	525.80	545.8	537.04	546.85	0.000371	8.22	13751.53	851.98	0.36
Susquehanna	Middle Reach	197.130	5-yr	156200.00	525.80	549.8	539.26	551.07	0.000377	9.11	17148.49	925.32	0.36
Susquehanna	Middle Reach	197.130	10-yr	187000.00	525.80	553.0	540.66	554.39	0.000411	9.36	19979.41	1130.95	0.35
Susquehanna	Middle Reach	197.130	25-yr	228700.00	525.80	556.4	542.43	557.96	0.000406	9.95	23118.28	1439.77	0.34
Susquehanna	Middle Reach	197.130	50-yr	260800.00	525.80	558.9	543.71	560.52	0.000401	10.38	25402.38	2403.95	0.34
Susquehanna	Middle Reach	197.130	100-yr	294900.00	525.80	563.0	545.02	564.54	0.000362	10.08	34157.18	3012.44	0.31
Susquehanna	Middle Reach	197.130	500-yr	381500.00	525.80	567.8	548.11	569.60	0.000375	11.08	44303.37	4005.98	0.32
Susquehanna	Middle Reach	197.126 Water St.		Bridge									
Susquehanna	Middle Reach	197.121	2-yr	113100.00	525.76	545.7	537.00	546.79	0.000508	8.24	13732.89	842.73	0.36
Susquehanna	Middle Reach	197.121	5-yr	156200.00	525.76	549.7	539.22	551.01	0.000504	9.15	17072.28	914.19	0.36
Susquehanna	Middle Reach	197.121	10-yr	187000.00	525.76	552.9	540.61	554.32	0.000495	9.43	19837.59	1027.33	0.35
Susquehanna	Middle Reach	197.121	25-yr	228700.00	525.76	556.3	542.36	557.89	0.000484	10.05	22900.71	1382.08	0.35
Susquehanna	Middle Reach	197.121	50-yr	260800.00	525.76	558.7	543.64	560.44	0.000475	10.48	25152.73	2497.36	0.35
Susquehanna	Middle Reach	197.121	100-yr	294900.00	525.76	562.8	544.92	564.43	0.000404	10.20	33718.69	2998.38	0.31
Susquehanna	Middle Reach	197.121	500-yr	381500.00	525.76	567.5	548.02	569.39	0.000420	11.28	43493.00	3876.18	0.33
Susquehanna	Middle Reach	197.089	2-yr	113100.00	525.66	545.7	536.83	546.68	0.000496	7.89	14333.31	921.57	0.35
Susquehanna	Middle Reach	197.089	5-yr	156200.00	525.66	549.7	538.97	550.89	0.000479	8.66	18045.57	984.82	0.35
Susquehanna	Middle Reach	197.089	10-yr	187000.00	525.66	553.0	540.35	554.19	0.000481	8.82	21211.21	1182.78	0.34
Susquehanna	Middle Reach	197.089	25-yr	228700.00	525.66	556.4	542.08	557.74	0.000454	9.26	24850.35	1676.27	0.33
Susquehanna	Middle Reach	197.089	50-yr	260800.00	525.66	558.9	543.33	560.28	0.000432	9.58	27516.93	2643.99	0.33
Susquehanna	Middle Reach	197.089	100-yr	294900.00	525.66	563.0	544.69	564.28	0.000354	9.24	36763.96	3297.06	0.29
Susquehanna	Middle Reach	197.089	500-yr	381500.00	525.66	567.7	547.67	569.22	0.000359	10.17	47232.88	4222.75	0.30
Susquehanna	Middle Reach	197.024	2-yr	113100.00	525.33	545.6	536.64	546.50	0.000468	7.65	14780.72	951.52	0.34
Susquehanna	Middle Reach	197.024	5-yr	156200.00	525.33	549.6	538.77	550.71	0.000442	8.40	18601.50	1005.90	0.34
Susquehanna	Middle Reach	197.024	10-yr	187000.00	525.33	552.9	540.12	554.01	0.000463	8.56	21846.10	1674.41	0.33
Susquehanna	Middle Reach	197.024	25-yr	228700.00	525.33	556.3	541.80	557.56	0.000425	8.98	25714.01	2129.53	0.32
Susquehanna	Middle Reach	197.024	50-yr	260800.00	525.33	558.8	543.04	560.11	0.000404	9.29	28555.07	2759.57	0.32
Susquehanna	Middle Reach	197.024	100-yr	294900.00	525.33	562.9	544.32	564.14	0.000335	9.01	36521.77	3347.27	0.29
Susquehanna	Middle Reach	197.024	500-yr	381500.00	525.33	567.6	547.14	569.08	0.000342	9.96	46210.43	3900.57	0.29
Susquehanna	Middle Reach	196.944	2-yr	113100.00	524.90	545.3	536.51	546.29	0.000500	7.92	14281.99	917.18	0.35

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	196.944	5-yr	156200.00	524.90	549.3	538.60	550.51	0.000477	8.69	17967.87	1074.33	0.35
Susquehanna	Middle Reach	196.944	10-yr	187000.00	524.90	552.6	539.95	553.80	0.000470	8.89	21109.50	1398.73	0.33
Susquehanna	Middle Reach	196.944	25-yr	228700.00	524.90	556.0	541.69	557.37	0.000443	9.38	24842.10	2189.19	0.33
Susquehanna	Middle Reach	196.944	50-yr	260800.00	524.90	558.5	543.09	559.92	0.000426	9.73	27652.34	2435.48	0.33
Susquehanna	Middle Reach	196.944	100-yr	294900.00	524.90	562.6	544.36	563.99	0.000359	9.49	34527.03	3146.25	0.30
Susquehanna	Middle Reach	196.944	500-yr	381500.00	524.90	567.2	547.29	568.92	0.000374	10.54	43255.55	4232.90	0.31
Susquehanna	Middle Reach	196.867	2-yr	113100.00	524.51	544.8	536.68	546.04	0.000622	8.92	12683.77	809.41	0.39
Susquehanna	Middle Reach	196.867	5-yr	156200.00	524.51	548.8	538.96	550.26	0.000609	9.86	15845.08	978.06	0.39
Susquehanna	Middle Reach	196.867	10-yr	187000.00	524.51	552.0	540.46	553.55	0.000599	10.12	18481.86	1183.61	0.38
Susquehanna	Middle Reach	196.867	25-yr	228700.00	524.51	555.3	542.34	557.13	0.000574	10.74	21610.52	1554.93	0.37
Susquehanna	Middle Reach	196.867	50-yr	260800.00	524.51	557.8	543.71	559.68	0.000558	11.16	24284.06	1930.69	0.37
Susquehanna	Middle Reach	196.867	100-yr	294900.00	524.51	562.0	545.06	563.78	0.000467	10.86	30712.90	2556.31	0.34
Susquehanna	Middle Reach	196.867	500-yr	381500.00	524.51	566.5	548.22	568.69	0.000492	12.08	38635.75	2999.28	0.35
Susquehanna	Middle Reach	196.795	2-yr	113100.00	524.17	544.3	536.87	545.76	0.000741	9.73	11625.19	823.65	0.43
Susquehanna	Middle Reach	196.795	5-yr	156200.00	524.17	548.2	539.21	549.98	0.000735	10.78	14488.45	895.50	0.43
Susquehanna	Middle Reach	196.795	10-yr	187000.00	524.17	551.4	540.74	553.27	0.000729	11.05	16927.97	1117.96	0.42
Susquehanna	Middle Reach	196.795	25-yr	228700.00	524.17	554.7	542.70	556.85	0.000700	11.69	19827.92	1614.06	0.41
Susquehanna	Middle Reach	196.795	50-yr	260800.00	524.17	557.1	544.15	559.41	0.000677	12.14	22302.63	2053.36	0.41
Susquehanna	Middle Reach	196.795	100-yr	294900.00	524.17	561.4	545.58	563.55	0.000563	11.74	28102.24	2489.45	0.37
Susquehanna	Middle Reach	196.795	500-yr	381500.00	524.17	565.9	548.94	568.45	0.000596	13.11	34881.34	2952.40	0.39
Susquehanna	Middle Reach	196.716	2-yr	113100.00	523.79	544.0	536.63	545.45	0.000736	9.72	11635.83	721.20	0.43
Susquehanna	Middle Reach	196.716	5-yr	156200.00	523.79	547.9	538.94	549.68	0.000731	10.78	14487.62	791.68	0.43
Susquehanna	Middle Reach	196.716	10-yr	187000.00	523.79	551.1	540.47	552.97	0.000721	11.05	16926.25	1043.90	0.41
Susquehanna	Middle Reach	196.716	25-yr	228700.00	523.79	554.4	542.40	556.56	0.000694	11.71	19828.21	1505.50	0.41
Susquehanna	Middle Reach	196.716	50-yr	260800.00	523.79	556.8	543.81	559.13	0.000680	12.16	22201.33	2014.35	0.41
Susquehanna	Middle Reach	196.716	100-yr	294900.00	523.79	561.2	545.24	563.32	0.000576	11.73	27457.12	2438.36	0.37
Susquehanna	Middle Reach	196.716	500-yr	381500.00	523.79	565.6	548.59	568.19	0.000614	13.15	33341.63	2974.86	0.39
Susquehanna	Middle Reach	196.647	2-yr	113100.00	523.47	544.0	535.67	545.12	0.000571	8.56	13208.32	818.71	0.38
Susquehanna	Middle Reach	196.647	5-yr	156200.00	523.47	547.9	537.84	549.32	0.000564	9.46	16513.84	928.83	0.38
Susquehanna	Middle Reach	196.647	10-yr	187000.00	523.47	551.2	539.28	552.61	0.000565	9.68	19320.70	1354.88	0.37
Susquehanna	Middle Reach	196.647	25-yr	228700.00	523.47	554.6	541.07	556.19	0.000539	10.20	22620.60	1914.54	0.36
Susquehanna	Middle Reach	196.647	50-yr	260800.00	523.47	557.0	542.41	558.75	0.000519	10.57	25385.68	2403.42	0.36
Susquehanna	Middle Reach	196.647	100-yr	294900.00	523.47	561.4	543.72	562.99	0.000430	10.21	30950.24	2681.56	0.32
Susquehanna	Middle Reach	196.647	500-yr	381500.00	523.47	565.8	546.91	567.82	0.000460	11.46	36955.42	2976.42	0.34
Susquehanna	Middle Reach	196.563	2-yr	113100.00	523.07	543.9	534.93	544.83	0.000463	7.76	14569.35	894.76	0.34
Susquehanna	Middle Reach	196.563	5-yr	156200.00	523.07	547.9	536.97	549.02	0.000458	8.58	18211.60	967.12	0.34
Susquehanna	Middle Reach	196.563	10-yr	187000.00	523.07	551.1	538.30	552.31	0.000452	8.79	21268.37	1142.95	0.33
Susquehanna	Middle Reach	196.563	25-yr	228700.00	523.07	554.6	540.03	555.89	0.000441	9.28	24703.58	2050.78	0.33
Susquehanna	Middle Reach	196.563	50-yr	260800.00	523.07	557.0	541.28	558.46	0.000426	9.62	27302.33	2363.25	0.33
Susquehanna	Middle Reach	196.563	100-yr	294900.00	523.07	561.4	542.54	562.74	0.000356	9.35	32458.31	2657.70	0.29
Susquehanna	Middle Reach	196.563	500-yr	381500.00	523.07	565.8	545.43	567.55	0.000384	10.54	38252.07	3007.40	0.31
Susquehanna	Middle Reach	196.493	2-yr	113100.00	522.74	543.8	534.82	544.66	0.000456	7.63	14829.94	925.88	0.34
Susquehanna	Middle Reach	196.493	5-yr	156200.00	522.74	547.8	536.86	548.85	0.000439	8.40	18601.13	1165.16	0.34
Susquehanna	Middle Reach	196.493	10-yr	187000.00	522.74	551.0	538.18	552.14	0.000426	8.61	21706.99	1278.50	0.32
Susquehanna	Middle Reach	196.493	25-yr	228700.00	522.74	554.4	539.87	555.72	0.000412	9.13	25057.57	1639.82	0.32
Susquehanna	Middle Reach	196.493	50-yr	260800.00	522.74	556.9	541.07	558.29	0.000403	9.49	27478.74	2017.94	0.32
Susquehanna	Middle Reach	196.493	100-yr	294900.00	522.74	561.3	542.29	562.60	0.000344	9.25	32307.78	2731.27	0.29
Susquehanna	Middle Reach	196.493	500-yr	381500.00	522.74	565.7	545.25	567.40	0.000374	10.45	38073.71	2946.99	0.31
Susquehanna	Middle Reach	196.412	2-yr	113100.00	522.35	543.5	534.68	544.46	0.000453	7.73	14628.00	888.76	0.34
Susquehanna	Middle Reach	196.412	5-yr	156200.00	522.35	547.5	536.69	548.65	0.000445	8.58	18207.11	991.54	0.34
Susquehanna	Middle Reach	196.412	10-yr	187000.00	522.35	550.7	538.01	551.95	0.000441	8.82	21190.75	1195.79	0.33
Susquehanna	Middle Reach	196.412	25-yr	228700.00	522.35	554.2	539.67	555.54	0.000430	9.36	24423.65	1588.14	0.32
Susquehanna	Middle Reach	196.412	50-yr	260800.00	522.35	556.6	540.88	558.11	0.000422	9.74	26762.85	1741.29	0.32
Susquehanna	Middle Reach	196.412	100-yr	294900.00	522.35	561.0	542.08	562.45	0.000361	9.51	31124.23	2504.21	0.30
Susquehanna	Middle Reach	196.412	500-yr	381500.00	522.35	565.4	545.02	567.22	0.000401	10.79	35772.91	2685.18	0.32
Susquehanna	Middle Reach	196.336	2-yr	113100.00	520.53	543.6	532.77	544.23	0.000280	6.43	17601.12	983.73	0.27
Susquehanna	Middle Reach	196.336	5-yr	156200.00	520.53	547.6	534.61	548.40	0.000305	7.17	21773.58	1090.02	0.28
Susquehanna	Middle Reach	196.336	10-yr	187000.00	520.53	550.8	535.85	551.69	0.000301	7.40	25277.11	1295.82	0.27
Susquehanna	Middle Reach	196.336	25-yr	228700.00	520.53	554.3	537.39	555.28	0.000294	7.87	29072.63	1677.35	0.27
Susquehanna	Middle Reach	196.336	50-yr	260800.00	520.53	556.8	538.53	557.84	0.000289	8.20	31812.26	2029.12	0.27
Susquehanna	Middle Reach	196.336	100-yr	294900.00	520.53	561.2	539.68	562.21	0.000248	8.03	36851.52	2470.43	0.25
Susquehanna	Middle Reach	196.336	500-yr	381500.00	520.53	565.6	542.40	566.94	0.000277	9.13	42222.24	3039.76	0.26
Susquehanna	Middle Reach	196.261	2-yr	113100.00	514.28	543.7	530.31	544.07	0.000152	4.74	23856.11	1335.13	0.20
Susquehanna	Middle Reach	196.261	5-yr	156200.00	514.28	547.8	532.03	548.21	0.000153	5.33	29299.56	1357.08	0.20
Susquehanna	Middle Reach	196.261	10-yr	187000.00	514.28	551.0	533.15	551.50	0.000155	5.55	33699.15	1492.41	0.20
Susquehanna	Middle Reach	196.261	25-yr	228700.00	514.28	554.5	534.50	555.07	0.000154	5.95	38466.92	1817.29	0.20
Susquehanna	Middle Reach	196.261	50-yr	260800.00	514.28	557.0	535.48	557.63	0.000154	6.23	41895.59	2178.07	0.20
Susquehanna	Middle Reach	196.261	100-yr	294900.00	514.28	561.4	536.45	562.01	0.000135	6.15	48124.60	2865.41	0.18
Susquehanna	Middle Reach	196.261	500-yr	381500.00	514.28	565.9	538.77	566.70	0.000154	7.03	54654.96	3263.00	0.20
Susquehanna	Middle Reach	196.184	2-yr	113100.00	520.51	543.7	531.05	544.00	0.000134	4.45	25419.24	1422.92	0.19
Susquehanna	Middle Reach	196.184	5-yr	156200.00	520.51	547.8	532.54	548.14	0.000136	5.00	31268.59	1464.09	0.19
Susquehanna	Middle Reach	196.184	10-yr	187000.00	520.51	551.0	533.51	551.42	0.000138	5.19	36005.53	1538.02	0.18
Susquehanna	Middle Reach	196.184	25-yr	228700.00	520.51	554.5	534.74	554.99	0.000138	5.55	41176.32	1793.09	0.19
Susquehanna	Middle Reach	196.184	50-yr	260800.00	520.51	557.0	535.62	557.55	0.000137	5.81	44916.35	2271.32	0.19
Susquehanna	Middle Reach	196.184	100-yr	294900.00	520.51	561.4	536.53	561.94	0.000119	5.72	51732.48	3034.59	0.17
Susquehanna	Middle Reach	196.184	500-yr	381500.00	520.51	565.9	538.64	566.61	0.000135	6.53	58963.81	3399.19	0.19
Susquehanna	Middle Reach	196.105	2-yr	113100.00	520.86	543.6	532.06	543.93	0.000166	4.67	24364.51	1699.16	0.20
Susquehanna	Middle Reach	196.105	5-yr	156200.00	520.86	547.7	534.06	548.08	0.000155	5.12	31599.71	1882.53	0.20
Susquehanna	Middle Reach	196.105	10-yr	187000.00	520.86	550.9	535.03	551.36	0.000148	5.22	37769.43	1916.67	0.19
Susquehanna	Middle Reach	196.105	25-yr	228700.00	520.86	554.5	536.19	554.93	0.000139	5.49	44441.97	2552.07	0.19
Susquehanna	Middle Reach	196.105	50-yr	260800.00	520.86	557.0	537.03	557.48	0.000134	5.68	49234.02	2655.35	0.18
Susquehanna	Middle Reach	196.105	100-yr	294900.00	520.86	561.4	537.87	561.88	0.000112	5.52	57833.73	3629.02	0.17
Susquehanna	Middle Reach	196.105	500-yr	381500.00	520.86	566.0	539.93	566.53	0.000123	6.24	66749.69	3920.71	0.18
Susquehanna	Middle Reach	196.034	2-yr	113100.00	521.34	543.5	532.35	543.85	0.000222	5.04	23105.67	2115.75	0.23
Susquehanna	Middle Reach	196.034	5-yr	156200.00	521.34	547.6	534.88	548.01	0.000188	5.26	32200.78	2236.83	0.22
Susquehanna	Middle Reach	196.034	10-yr	187000.00	521.34	550.9	536.09	551.30	0.000170	5.23	39586.81	2270.52	0.20
Susquehanna	Middle Reach	196.034	25-yr	228700.00	521.34	554.4	537.71	554.86	0.000154	5.38	47540.17	2836.12	0.19
Susquehanna	Middle Reach	196.034	50-yr	260800.00	521.34	557.0	538.53	557.41	0.000145	5.51	53255.79	3079.99	0.18
Susquehanna	Middle Reach	196.034	100-yr	294900.00	521.34	561.4	539.36	561.81	0.000117	5.27	63531.91	4036.81	0.16

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	196.034	500-yr	381500.00	521.34	566.0	541.34	566.46	0.000125	5.87	74155.80	4307.79	0.17
Susquehanna	Middle Reach	195.958	2-yr	113100.00	521.76	543.4	532.04	543.76	0.000235	5.15	22967.04	2264.05	0.25
Susquehanna	Middle Reach	195.958	5-yr	156200.00	521.76	547.5	534.10	547.94	0.000190	5.25	32563.53	2330.77	0.22
Susquehanna	Middle Reach	195.958	10-yr	187000.00	521.76	550.8	535.47	551.23	0.000167	5.15	40318.49	2372.22	0.20
Susquehanna	Middle Reach	195.958	25-yr	228700.00	521.76	554.4	537.50	554.80	0.000148	5.27	48668.86	2891.57	0.19
Susquehanna	Middle Reach	195.958	50-yr	260800.00	521.76	556.9	538.47	557.35	0.000138	5.37	54653.45	3234.60	0.18
Susquehanna	Middle Reach	195.958	100-yr	294900.00	521.76	561.4	539.34	561.76	0.000110	5.11	65808.74	4348.97	0.16
Susquehanna	Middle Reach	195.958	500-yr	381500.00	521.76	565.9	541.65	566.40	0.000116	5.67	77868.85	4588.05	0.17
Susquehanna	Middle Reach	195.881	2-yr	113100.00	522.46	543.2	533.02	543.66	0.000281	5.31	21989.26	2194.85	0.26
Susquehanna	Middle Reach	195.881	5-yr	156200.00	522.46	547.4	535.06	547.85	0.000227	5.31	32502.88	2679.98	0.23
Susquehanna	Middle Reach	195.881	10-yr	187000.00	522.46	550.8	536.33	551.15	0.000196	5.11	41532.10	2747.10	0.20
Susquehanna	Middle Reach	195.881	25-yr	228700.00	522.46	554.3	537.86	554.72	0.000170	5.13	51326.90	3185.41	0.19
Susquehanna	Middle Reach	195.881	50-yr	260800.00	522.46	556.9	539.15	557.28	0.000156	5.18	58448.58	3585.78	0.18
Susquehanna	Middle Reach	195.881	100-yr	294900.00	522.46	561.4	540.05	561.70	0.000122	4.86	71278.72	5616.50	0.16
Susquehanna	Middle Reach	195.881	500-yr	381500.00	522.46	565.9	542.27	566.33	0.000126	5.33	84849.13	5957.06	0.16
Susquehanna	Middle Reach	195.807	2-yr	113100.00	522.35	543.0	533.56	543.54	0.000312	5.65	20139.08	1940.67	0.29
Susquehanna	Middle Reach	195.807	5-yr	156200.00	522.35	547.3	535.45	547.75	0.000257	5.67	28954.53	2227.15	0.25
Susquehanna	Middle Reach	195.807	10-yr	187000.00	522.35	550.6	536.88	551.06	0.000228	5.49	36576.48	2328.54	0.22
Susquehanna	Middle Reach	195.807	25-yr	228700.00	522.35	554.2	538.43	554.64	0.000202	5.55	44999.66	2393.27	0.21
Susquehanna	Middle Reach	195.807	50-yr	260800.00	522.35	556.7	539.41	557.20	0.000188	5.61	51097.54	2978.64	0.20
Susquehanna	Middle Reach	195.807	100-yr	294900.00	522.35	561.2	540.41	561.64	0.000148	5.28	62193.99	5000.98	0.17
Susquehanna	Middle Reach	195.807	500-yr	381500.00	522.35	565.8	543.00	566.26	0.000155	5.82	74013.63	6232.33	0.18
Susquehanna	Middle Reach	195.727	2-yr	113100.00	522.62	543.0	532.34	543.39	0.000243	5.00	22637.61	1674.47	0.24
Susquehanna	Middle Reach	195.727	5-yr	156200.00	522.62	547.2	534.52	547.63	0.000215	5.22	31079.96	2414.88	0.22
Susquehanna	Middle Reach	195.727	10-yr	187000.00	522.62	550.6	535.92	550.96	0.000195	5.16	39170.43	2443.99	0.20
Susquehanna	Middle Reach	195.727	25-yr	228700.00	522.62	554.1	537.38	554.55	0.000177	5.30	47859.07	2847.76	0.19
Susquehanna	Middle Reach	195.727	50-yr	260800.00	522.62	556.7	538.35	557.12	0.000167	5.42	54079.86	3448.29	0.19
Susquehanna	Middle Reach	195.727	100-yr	294900.00	522.62	561.2	539.21	561.57	0.000135	5.16	65218.96	3775.31	0.16
Susquehanna	Middle Reach	195.727	500-yr	381500.00	522.62	565.7	541.15	566.20	0.000144	5.75	76881.00	4230.69	0.17
Susquehanna	Middle Reach	195.653	2-yr	113100.00	522.03	543.0	530.40	543.28	0.000129	4.14	27619.43	1936.48	0.18
Susquehanna	Middle Reach	195.653	5-yr	156200.00	522.03	547.2	532.11	547.53	0.000119	4.49	36502.93	2236.04	0.18
Susquehanna	Middle Reach	195.653	10-yr	187000.00	522.03	550.6	533.50	550.87	0.000116	4.55	44166.87	2792.46	0.17
Susquehanna	Middle Reach	195.653	25-yr	228700.00	522.03	554.1	534.62	554.47	0.000108	4.75	53400.73	3925.28	0.16
Susquehanna	Middle Reach	195.653	50-yr	260800.00	522.03	556.7	535.39	557.04	0.000103	4.87	60192.77	4129.57	0.16
Susquehanna	Middle Reach	195.653	100-yr	294900.00	522.03	561.2	536.25	561.51	0.000083	4.66	72342.23	4611.49	0.14
Susquehanna	Middle Reach	195.653	500-yr	381500.00	522.03	565.7	538.19	566.12	0.000090	5.21	84810.62	5045.72	0.15
Susquehanna	Middle Reach	195.574	2-yr	113100.00	520.82	543.0	530.06	543.23	0.000136	4.16	27837.84	2107.81	0.18
Susquehanna	Middle Reach	195.574	5-yr	156200.00	520.82	547.2	531.81	547.48	0.000128	4.42	37511.33	2701.39	0.18
Susquehanna	Middle Reach	195.574	10-yr	187000.00	520.82	550.5	533.18	550.82	0.000118	4.42	45915.16	3941.60	0.17
Susquehanna	Middle Reach	195.574	25-yr	228700.00	520.82	554.1	534.54	554.42	0.000105	4.55	55685.30	4305.51	0.16
Susquehanna	Middle Reach	195.574	50-yr	260800.00	520.82	556.7	535.59	556.99	0.000097	4.65	62716.63	4700.05	0.16
Susquehanna	Middle Reach	195.574	100-yr	294900.00	520.82	561.2	536.38	561.47	0.000077	4.43	75390.58	5077.61	0.14
Susquehanna	Middle Reach	195.574	500-yr	381500.00	520.82	565.7	538.28	566.07	0.000081	4.93	88300.55	5450.91	0.14
Susquehanna	Middle Reach	195.500	2-yr	113100.00	520.43	542.9	529.19	543.17	0.000147	4.18	27362.13	2074.79	0.19
Susquehanna	Middle Reach	195.500	5-yr	156200.00	520.43	547.1	530.97	547.43	0.000128	4.45	37051.88	2543.31	0.18
Susquehanna	Middle Reach	195.500	10-yr	187000.00	520.43	550.5	532.10	550.77	0.000117	4.45	45687.46	3459.34	0.17
Susquehanna	Middle Reach	195.500	25-yr	228700.00	520.43	554.1	533.87	554.38	0.000106	4.59	55443.87	3801.77	0.16
Susquehanna	Middle Reach	195.500	50-yr	260800.00	520.43	556.6	534.84	556.95	0.000100	4.70	62427.26	3939.68	0.16
Susquehanna	Middle Reach	195.500	100-yr	294900.00	520.43	561.1	535.67	561.43	0.000081	4.49	75071.60	5018.60	0.14
Susquehanna	Middle Reach	195.500	500-yr	381500.00	520.43	565.7	537.70	566.04	0.000086	5.02	88095.48	5267.60	0.15
Susquehanna	Middle Reach	195.423	2-yr	113100.00	520.12	542.8	529.88	543.11	0.000149	4.58	29246.50	2504.91	0.19
Susquehanna	Middle Reach	195.423	5-yr	156200.00	520.12	547.0	532.07	547.37	0.000132	4.91	39914.15	2529.48	0.19
Susquehanna	Middle Reach	195.423	10-yr	187000.00	520.12	550.4	533.57	550.72	0.000125	4.96	48396.24	2797.07	0.18
Susquehanna	Middle Reach	195.423	25-yr	228700.00	520.12	553.9	534.95	554.32	0.000118	5.19	57532.77	2892.44	0.17
Susquehanna	Middle Reach	195.423	50-yr	260800.00	520.12	556.5	535.86	556.90	0.000114	5.36	64088.40	3095.22	0.17
Susquehanna	Middle Reach	195.423	100-yr	294900.00	520.12	561.0	536.78	561.39	0.000095	5.17	76871.33	3665.04	0.15
Susquehanna	Middle Reach	195.423	500-yr	381500.00	520.12	565.5	539.35	565.99	0.000104	5.84	89651.42	4617.54	0.16
Susquehanna	Middle Reach	195.346	2-yr	113100.00	519.80	542.7	529.85	543.03	0.000233	4.87	23400.44	1972.15	0.23
Susquehanna	Middle Reach	195.346	5-yr	156200.00	519.80	546.9	531.86	547.31	0.000185	5.05	32477.80	2189.62	0.21
Susquehanna	Middle Reach	195.346	10-yr	187000.00	519.80	550.3	533.52	550.66	0.000161	5.02	39847.50	2198.48	0.19
Susquehanna	Middle Reach	195.346	25-yr	228700.00	519.80	553.9	534.97	554.27	0.000143	5.19	47749.42	2360.12	0.19
Susquehanna	Middle Reach	195.346	50-yr	260800.00	519.80	556.4	536.18	556.84	0.000133	5.33	53394.27	2755.51	0.18
Susquehanna	Middle Reach	195.346	100-yr	294900.00	519.80	561.0	537.14	561.35	0.000107	5.12	63458.46	3392.54	0.16
Susquehanna	Middle Reach	195.346	500-yr	381500.00	519.80	565.5	539.76	565.95	0.000115	5.76	73473.30	4203.61	0.17
Susquehanna	Middle Reach	195.265	2-yr	113100.00	519.77	542.6	529.21	542.95	0.000167	4.98	23020.65	1878.86	0.23
Susquehanna	Middle Reach	195.265	5-yr	156200.00	519.77	546.8	531.09	547.23	0.000163	5.28	32044.22	2162.50	0.21
Susquehanna	Middle Reach	195.265	10-yr	187000.00	519.77	550.2	532.46	550.59	0.000160	5.31	39322.13	2170.79	0.20
Susquehanna	Middle Reach	195.265	25-yr	228700.00	519.77	553.7	533.95	554.20	0.000155	5.52	47126.41	2402.84	0.19
Susquehanna	Middle Reach	195.265	50-yr	260800.00	519.77	556.3	535.04	556.78	0.000152	5.68	52704.59	2911.96	0.19
Susquehanna	Middle Reach	195.265	100-yr	294900.00	519.77	560.9	536.24	561.30	0.000129	5.46	62690.87	3772.08	0.17
Susquehanna	Middle Reach	195.265	500-yr	381500.00	519.77	565.3	539.00	565.89	0.000145	6.14	72557.28	4626.96	0.18
Susquehanna	Middle Reach	195.194	2-yr	113100.00	520.34	542.3	530.84	542.85	0.000284	6.00	24000.33	2171.00	0.25
Susquehanna	Middle Reach	195.194	5-yr	156200.00	520.34	546.6	532.87	547.14	0.000263	6.36	33272.76	2189.08	0.24
Susquehanna	Middle Reach	195.194	10-yr	187000.00	520.34	550.0	534.19	550.50	0.000254	6.37	40689.90	2359.40	0.22
Susquehanna	Middle Reach	195.194	25-yr	228700.00	520.34	553.6	535.94	554.12	0.000245	6.60	48635.88	2812.13	0.22
Susquehanna	Middle Reach	195.194	50-yr	260800.00	520.34	556.1	537.12	556.70	0.000235	6.79	54433.16	3030.15	0.21
Susquehanna	Middle Reach	195.194	100-yr	294900.00	520.34	560.7	538.55	561.23	0.000192	6.52	65674.38	3641.30	0.19
Susquehanna	Middle Reach	195.194	500-yr	381500.00	520.34	565.2	541.83	565.81	0.000210	7.31	77411.91	4874.69	0.20
Susquehanna	Middle Reach	195.119	2-yr	113100.00	521.00	542.0	532.26	542.70	0.000371	7.12	20280.28	2024.77	0.31
Susquehanna	Middle Reach	195.119	5-yr	156200.00	521.00	546.2	534.60	547.01	0.000310	7.42	29003.88	2049.42	0.29
Susquehanna	Middle Reach	195.119	10-yr	187000.00	521.00	549.6	536.07	550.38	0.000282	7.37	36004.82	2066.10	0.26
Susquehanna	Middle Reach	195.119	25-yr	228700.00	521.00	553.2	537.82	554.00	0.000257	7.61	43812.65	2395.38	0.25
Susquehanna	Middle Reach	195.119	50-yr	260800.00	521.00	555.8	539.17	556.59	0.000241	7.80	49790.95	2634.42	0.25
Susquehanna	Middle Reach	195.119	100-yr	294900.00	521.00	560.4	540.90	561.14	0.000192	7.41	61019.67	3731.02	0.22
Susquehanna	Middle Reach	195.119	500-yr	381500.00	521.00	564.9	543.47	565.71	0.000208	8.31	71825.50	5134.27	0.23
Susquehanna	Middle Reach	195.042	2-yr	113100.00	521.65	541.7	532.89	542.53	0.000425	7.61	18389.80	1782.55	0.33
Susquehanna	Middle Reach	195.042	5-yr	156200.00	521.65	546.0	535.09	546.86	0.000363	8.00	26188.34	1833.34	0.31
Susquehanna	Middle Reach	195.042	10-yr	187000.00	521.65	549.4	536.57	550.24	0.000330	7.95	32506.60	1925.51	0.29

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	195.042	25-yr	228700.00	521.65	553.0	538.35	553.88	0.000300	8.22	39965.64	2357.46	0.28
Susquehanna	Middle Reach	195.042	50-yr	260800.00	521.65	555.5	539.66	556.47	0.000282	8.41	45571.89	2707.11	0.27
Susquehanna	Middle Reach	195.042	100-yr	294900.00	521.65	560.2	540.82	561.04	0.000223	7.98	56230.95	4200.87	0.24
Susquehanna	Middle Reach	195.042	500-yr	381500.00	521.65	564.6	543.91	565.61	0.000242	8.94	66395.30	4863.56	0.25
Susquehanna	Middle Reach	194.966	2-yr	113100.00	522.29	541.3	532.79	542.33	0.000515	8.27	14769.85	1210.39	0.36
Susquehanna	Middle Reach	194.966	5-yr	156200.00	522.29	545.5	534.94	546.67	0.000467	8.88	20444.03	1417.47	0.35
Susquehanna	Middle Reach	194.966	10-yr	187000.00	522.29	548.9	536.33	550.06	0.000443	8.94	25516.20	1654.11	0.33
Susquehanna	Middle Reach	194.966	25-yr	228700.00	522.29	552.5	538.27	553.71	0.000398	9.23	31985.64	2602.96	0.31
Susquehanna	Middle Reach	194.966	50-yr	260800.00	522.29	555.1	539.70	556.31	0.000370	9.41	37134.79	2814.93	0.31
Susquehanna	Middle Reach	194.966	100-yr	294900.00	522.29	559.8	541.05	560.92	0.000284	8.84	47204.06	3793.05	0.27
Susquehanna	Middle Reach	194.966	500-yr	381500.00	522.29	564.2	544.36	565.47	0.000307	9.89	56489.74	5139.56	0.28
Susquehanna	Middle Reach	194.888	2-yr	113100.00	522.86	541.1	532.81	542.09	0.000493	7.93	16329.55	1345.91	0.35
Susquehanna	Middle Reach	194.888	5-yr	156200.00	522.86	545.4	534.95	546.44	0.000434	8.39	22170.03	1396.70	0.33
Susquehanna	Middle Reach	194.888	10-yr	187000.00	522.86	548.8	536.49	549.84	0.000405	8.42	27034.46	1475.05	0.31
Susquehanna	Middle Reach	194.888	25-yr	228700.00	522.86	552.4	538.30	553.51	0.000366	8.73	32620.18	1673.51	0.30
Susquehanna	Middle Reach	194.888	50-yr	260800.00	522.86	555.0	539.61	556.12	0.000343	8.96	37214.63	2199.58	0.29
Susquehanna	Middle Reach	194.888	100-yr	294900.00	522.86	559.8	540.80	560.79	0.000272	8.57	46587.35	4817.32	0.26
Susquehanna	Middle Reach	194.888	500-yr	381500.00	522.86	564.1	543.54	565.33	0.000293	9.57	56894.33	5205.31	0.27
Susquehanna	Middle Reach	194.809	2-yr	113100.00	523.07	540.9	532.74	541.87	0.000559	8.07	14366.38	1164.62	0.37
Susquehanna	Middle Reach	194.809	5-yr	156200.00	523.07	545.2	534.73	546.24	0.000519	8.26	21007.68	1668.89	0.36
Susquehanna	Middle Reach	194.809	10-yr	187000.00	523.07	548.7	536.04	549.65	0.000429	8.03	26856.57	1764.83	0.32
Susquehanna	Middle Reach	194.809	25-yr	228700.00	523.07	552.3	537.75	553.32	0.000364	8.16	33141.16	1998.36	0.30
Susquehanna	Middle Reach	194.809	50-yr	260800.00	523.07	554.9	539.00	555.95	0.000330	8.29	37934.27	2273.01	0.28
Susquehanna	Middle Reach	194.809	100-yr	294900.00	523.07	559.8	540.55	560.62	0.000238	7.64	52082.34	3784.74	0.24
Susquehanna	Middle Reach	194.809	500-yr	381500.00	523.07	564.2	544.34	565.13	0.000245	8.41	64808.02	4886.16	0.25
Susquehanna	Middle Reach	194.732	2-yr	113100.00	523.21	540.7	532.57	541.64	0.000505	7.94	14247.06	1028.51	0.35
Susquehanna	Middle Reach	194.732	5-yr	156200.00	523.21	544.9	534.50	546.04	0.000451	8.59	18744.27	1537.54	0.34
Susquehanna	Middle Reach	194.732	10-yr	187000.00	523.21	548.3	535.78	549.46	0.000413	8.63	23163.11	1875.64	0.32
Susquehanna	Middle Reach	194.732	25-yr	228700.00	523.21	552.0	537.41	553.15	0.000377	8.95	27875.69	2314.88	0.31
Susquehanna	Middle Reach	194.732	50-yr	260800.00	523.21	554.5	538.58	555.78	0.000357	9.19	31233.52	2673.50	0.30
Susquehanna	Middle Reach	194.732	100-yr	294900.00	523.21	559.5	539.79	560.50	0.000258	8.41	46473.20	3500.51	0.25
Susquehanna	Middle Reach	194.732	500-yr	381500.00	523.21	563.8	542.82	565.00	0.000275	9.33	56647.56	3977.33	0.27
Susquehanna	Middle Reach	194.724	2-yr	113100.00	523.29	540.6	532.59	541.62	0.000508	7.94	14246.29	905.23	0.35
Susquehanna	Middle Reach	194.724	5-yr	156200.00	523.29	544.9	534.52	546.02	0.000457	8.61	18508.43	1101.23	0.34
Susquehanna	Middle Reach	194.724	10-yr	187000.00	523.29	548.3	535.80	549.44	0.000427	8.74	22671.54	1704.84	0.32
Susquehanna	Middle Reach	194.724	25-yr	228700.00	523.29	551.8	537.42	553.13	0.000399	9.16	27430.18	2132.78	0.31
Susquehanna	Middle Reach	194.724	50-yr	260800.00	523.29	554.4	538.59	555.76	0.000380	9.44	30996.08	2682.60	0.31
Susquehanna	Middle Reach	194.724	100-yr	294900.00	523.29	559.4	539.76	560.48	0.000274	8.64	46962.98	3572.95	0.26
Susquehanna	Middle Reach	194.724	500-yr	381500.00	523.29	563.7	542.70	564.98	0.000293	9.60	57544.30	3832.90	0.27
Susquehanna	Middle Reach	194.702	2-yr	113100.00	523.35	540.6	532.31	541.54	0.000463	7.60	15163.20	1153.59	0.34
Susquehanna	Middle Reach	194.702	5-yr	156200.00	523.35	544.9	534.20	545.93	0.000309	8.20	19900.68	1274.89	0.33
Susquehanna	Middle Reach	194.702	10-yr	187000.00	523.35	548.3	535.44	549.36	0.000326	8.35	23998.19	2031.08	0.31
Susquehanna	Middle Reach	194.702	25-yr	228700.00	523.35	551.9	537.03	553.04	0.000308	8.72	29008.05	2310.65	0.30
Susquehanna	Middle Reach	194.702	50-yr	260800.00	523.35	554.5	538.21	555.67	0.000295	8.99	32689.68	3028.10	0.29
Susquehanna	Middle Reach	194.702	100-yr	294900.00	523.35	559.4	539.39	560.42	0.000227	8.24	48868.28	3722.29	0.25
Susquehanna	Middle Reach	194.702	500-yr	381500.00	523.35	563.7	542.29	564.92	0.000248	9.19	59429.21	4393.09	0.26
Susquehanna	Middle Reach	194.70 8th St.		Bridge									
Susquehanna	Middle Reach	194.664	2-yr	113100.00	523.21	540.6	532.51	541.41	0.000473	7.37	15347.10	1176.22	0.34
Susquehanna	Middle Reach	194.664	5-yr	156200.00	523.21	544.9	534.35	545.80	0.000399	7.78	21788.76	1835.88	0.32
Susquehanna	Middle Reach	194.664	10-yr	187000.00	523.21	548.3	535.59	549.20	0.000358	7.71	27571.88	2120.71	0.29
Susquehanna	Middle Reach	194.664	25-yr	228700.00	523.21	551.9	537.12	552.87	0.000319	7.94	33788.18	2441.92	0.28
Susquehanna	Middle Reach	194.664	50-yr	260800.00	523.21	554.5	538.20	555.48	0.000296	8.12	38214.64	2958.30	0.27
Susquehanna	Middle Reach	194.664	100-yr	294900.00	523.21	559.4	539.32	560.21	0.000215	7.47	54333.37	4071.58	0.23
Susquehanna	Middle Reach	194.664	500-yr	381500.00	523.21	563.6	542.23	564.54	0.000231	8.34	65636.53	4505.09	0.24
Susquehanna	Middle Reach	194.583	2-yr	113100.00	522.46	540.5	531.15	541.18	0.000323	6.44	17864.19	1231.08	0.28
Susquehanna	Middle Reach	194.583	5-yr	156200.00	522.46	544.9	532.88	545.60	0.000287	6.94	24017.29	1822.02	0.27
Susquehanna	Middle Reach	194.583	10-yr	187000.00	522.46	548.3	534.01	549.02	0.000263	6.95	30226.91	2020.44	0.25
Susquehanna	Middle Reach	194.583	25-yr	228700.00	522.46	552.0	535.41	552.70	0.000237	7.14	37524.12	3150.00	0.24
Susquehanna	Middle Reach	194.583	50-yr	260800.00	522.46	554.6	536.50	555.31	0.000220	7.27	42853.89	4114.73	0.24
Susquehanna	Middle Reach	194.583	100-yr	294900.00	522.46	559.5	537.59	560.08	0.000162	6.70	58890.48	4695.51	0.20
Susquehanna	Middle Reach	194.583	500-yr	381500.00	522.46	563.7	540.14	564.39	0.000173	7.43	72437.36	5269.79	0.21
Susquehanna	Middle Reach	194.511	2-yr	113100.00	516.16	540.5	530.13	541.04	0.000253	5.88	19538.37	1356.43	0.25
Susquehanna	Middle Reach	194.511	5-yr	156200.00	516.16	544.8	531.79	545.47	0.000236	6.36	26454.96	1893.32	0.25
Susquehanna	Middle Reach	194.511	10-yr	187000.00	516.16	548.3	532.89	548.89	0.000235	6.40	33040.08	2173.92	0.23
Susquehanna	Middle Reach	194.511	25-yr	228700.00	516.16	551.9	534.27	552.58	0.000211	6.59	40891.28	3171.89	0.22
Susquehanna	Middle Reach	194.511	50-yr	260800.00	516.16	554.6	535.29	555.20	0.000200	6.72	46590.31	3897.96	0.21
Susquehanna	Middle Reach	194.511	100-yr	294900.00	516.16	559.4	536.31	559.98	0.000262	6.28	59260.19	4415.22	0.19
Susquehanna	Middle Reach	194.511	500-yr	381500.00	516.16	563.6	538.83	564.29	0.000318	7.02	72201.52	5466.93	0.20
Susquehanna	Middle Reach	194.428	2-yr	113100.00	517.39	540.4	530.79	540.91	0.000244	5.49	21005.88	1511.73	0.24
Susquehanna	Middle Reach	194.428	5-yr	156200.00	517.39	544.8	532.29	545.34	0.000212	5.83	29084.07	2139.60	0.23
Susquehanna	Middle Reach	194.428	10-yr	187000.00	517.39	548.3	533.25	548.77	0.000204	5.82	36658.75	2517.27	0.21
Susquehanna	Middle Reach	194.428	25-yr	228700.00	517.39	551.9	534.53	552.46	0.000180	5.95	45313.94	3910.01	0.20
Susquehanna	Middle Reach	194.428	50-yr	260800.00	517.39	554.6	535.44	555.08	0.000170	6.06	51483.03	4136.50	0.20
Susquehanna	Middle Reach	194.428	100-yr	294900.00	517.39	559.4	536.38	559.85	0.000224	5.68	63445.83	4557.40	0.17
Susquehanna	Middle Reach	194.428	500-yr	381500.00	517.39	563.6	538.66	564.13	0.000274	6.39	74737.09	4985.01	0.18
Susquehanna	Middle Reach	194.353	2-yr	113100.00	517.84	540.4	531.48	540.81	0.000259	5.38	21383.29	1677.49	0.25
Susquehanna	Middle Reach	194.353	5-yr	156200.00	517.84	544.8	532.87	545.25	0.000213	5.63	29582.62	2127.55	0.23
Susquehanna	Middle Reach	194.353	10-yr	187000.00	517.84	548.2	533.81	548.68	0.000199	5.58	37396.83	3568.60	0.21
Susquehanna	Middle Reach	194.353	25-yr	228700.00	517.84	551.9	534.98	552.38	0.000173	5.69	46274.43	4372.89	0.20
Susquehanna	Middle Reach	194.353	50-yr	260800.00	517.84	554.5	535.82	555.01	0.000162	5.78	52591.85	4555.85	0.19
Susquehanna	Middle Reach	194.353	100-yr	294900.00	517.84	559.3	536.71	559.76	0.000214	5.43	64752.64	5194.07	0.17
Susquehanna	Middle Reach	194.353	500-yr	381500.00	517.84	563.5	538.82	564.01	0.000260	6.09	76321.69	5299.25	0.18
Susquehanna	Middle Reach	194.279	2-yr	113100.00	518.29	540.3	529.86	540.70	0.000219	5.02	22815.13	1805.60	0.23
Susquehanna	Middle Reach	194.279	5-yr	156200.00	518.29	544.7	531.50	545.15	0.000182	5.20	32045.69	2338.22	0.21
Susquehanna	Middle Reach	194.279	10-yr	187000.00	518.29	548.2	532.68	548.58	0.000173	5.14	40225.58	3728.40	0.19
Susquehanna	Middle Reach	194.279	25-yr	228700.00	518.29	551.9	534.20	552.29	0.000152	5.22	49582.02	4775.56	0.18
Susquehanna	Middle Reach	194.279	50-yr	260800.00	518.29	554.5	535.17	554.92	0.000143	5.30	56299.95	5047.51	0.18
Susquehanna	Middle Reach	194.279	100-yr	294900.00	518.29	559.3	536.08	559.66	0.000188	4.96	69735.39	5470.86	0.15

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	194.279	500-yr	381500.00	518.29	563.5	538.24	563.89	0.000230	5.57	82048.06	5630.60	0.16
Susquehanna	Middle Reach	194.205	2-yr	113100.00	518.71	540.1	530.26	540.59	0.000292	5.76	19909.90	1751.16	0.27
Susquehanna	Middle Reach	194.205	5-yr	156200.00	518.71	544.5	532.06	545.06	0.000241	5.87	29003.75	2631.85	0.26
Susquehanna	Middle Reach	194.205	10-yr	187000.00	518.71	548.0	533.43	548.50	0.000219	5.56	37981.60	4205.84	0.23
Susquehanna	Middle Reach	194.205	25-yr	228700.00	518.71	551.8	534.78	552.23	0.000183	5.47	48355.10	5162.92	0.20
Susquehanna	Middle Reach	194.205	50-yr	260800.00	518.71	554.4	535.69	554.86	0.000168	5.46	55874.83	5514.89	0.19
Susquehanna	Middle Reach	194.205	100-yr	294900.00	518.71	559.2	536.70	559.59	0.000211	5.00	70994.95	5977.79	0.16
Susquehanna	Middle Reach	194.205	500-yr	381500.00	518.71	563.4	539.05	563.80	0.000250	5.53	84967.97	6594.37	0.17
Susquehanna	Middle Reach	194.129	2-yr	113100.00	519.17	539.8	530.96	540.44	0.000403	6.46	17647.90	1668.18	0.31
Susquehanna	Middle Reach	194.129	5-yr	156200.00	519.17	544.3	533.07	544.94	0.000325	6.41	26166.23	2681.67	0.30
Susquehanna	Middle Reach	194.129	10-yr	187000.00	519.17	547.9	534.27	548.40	0.000280	5.90	35324.17	4908.65	0.25
Susquehanna	Middle Reach	194.129	25-yr	228700.00	519.17	551.7	535.71	552.15	0.000222	5.69	46101.51	5600.58	0.22
Susquehanna	Middle Reach	194.129	50-yr	260800.00	519.17	554.3	536.75	554.79	0.000197	5.62	53994.16	5900.19	0.21
Susquehanna	Middle Reach	194.129	100-yr	294900.00	519.17	559.1	537.81	559.50	0.000240	5.09	69489.15	6624.62	0.17
Susquehanna	Middle Reach	194.129	500-yr	381500.00	519.17	563.3	540.48	563.70	0.000281	5.59	83167.56	6859.45	0.17
Susquehanna	Middle Reach	194.050	2-yr	113100.00	519.65	539.6	531.78	540.27	0.000414	6.39	17722.67	1666.58	0.31
Susquehanna	Middle Reach	194.050	5-yr	156200.00	519.65	544.2	533.60	544.80	0.000313	6.28	26412.44	4763.67	0.30
Susquehanna	Middle Reach	194.050	10-yr	187000.00	519.65	547.8	534.69	548.28	0.000262	5.70	36433.17	5879.49	0.25
Susquehanna	Middle Reach	194.050	25-yr	228700.00	519.65	551.6	536.02	552.05	0.000206	5.49	47448.21	6254.50	0.21
Susquehanna	Middle Reach	194.050	50-yr	260800.00	519.65	554.3	536.98	554.70	0.000183	5.42	55268.48	6477.97	0.20
Susquehanna	Middle Reach	194.050	100-yr	294900.00	519.65	559.1	537.93	559.39	0.000226	4.90	71893.86	6868.20	0.16
Susquehanna	Middle Reach	194.050	500-yr	381500.00	519.65	563.2	540.24	563.58	0.000266	5.39	85341.72	7134.65	0.17
Susquehanna	Middle Reach	193.976	2-yr	113100.00	520.08	539.6	531.56	540.08	0.000351	5.76	19632.91	2192.02	0.29
Susquehanna	Middle Reach	193.976	5-yr	156200.00	520.08	544.2	533.46	544.66	0.000259	5.71	27386.29	4787.48	0.27
Susquehanna	Middle Reach	193.976	10-yr	187000.00	520.08	547.7	534.38	548.18	0.000229	5.40	34809.43	5977.16	0.23
Susquehanna	Middle Reach	193.976	25-yr	228700.00	520.08	551.5	535.54	551.97	0.000194	5.39	43281.83	6672.49	0.21
Susquehanna	Middle Reach	193.976	50-yr	260800.00	520.08	554.2	536.40	554.63	0.000179	5.43	50086.07	7189.06	0.20
Susquehanna	Middle Reach	193.976	100-yr	294900.00	520.08	558.9	537.25	559.30	0.000233	5.06	63032.43	7696.73	0.17
Susquehanna	Middle Reach	193.976	500-yr	381500.00	520.08	563.2	539.28	563.45	0.000184	4.58	109353.30	8056.91	0.14
Susquehanna	Middle Reach	193.895	2-yr	113100.00	520.57	539.4	530.85	539.93	0.000305	5.59	20224.74	1531.99	0.27
Susquehanna	Middle Reach	193.895	5-yr	156200.00	520.57	544.1	532.34	544.55	0.000236	5.64	27734.84	1839.35	0.25
Susquehanna	Middle Reach	193.895	10-yr	187000.00	520.57	547.6	533.34	548.08	0.000219	5.49	34433.35	2022.92	0.22
Susquehanna	Middle Reach	193.895	25-yr	228700.00	520.57	551.4	534.65	551.89	0.000191	5.58	42403.52	2342.99	0.21
Susquehanna	Middle Reach	193.895	50-yr	260800.00	520.57	554.1	535.52	554.55	0.000179	5.66	49070.62	2395.03	0.20
Susquehanna	Middle Reach	193.895	100-yr	294900.00	520.57	558.8	536.41	559.20	0.000241	5.34	60545.61	2539.12	0.17
Susquehanna	Middle Reach	193.895	500-yr	381500.00	520.57	563.0	538.62	563.36	0.000202	4.96	107370.30	8570.46	0.15
Susquehanna	Middle Reach	193.821	2-yr	113100.00	521.01	539.3	530.96	539.81	0.000327	5.71	19807.34	1632.76	0.29
Susquehanna	Middle Reach	193.821	5-yr	156200.00	521.01	544.0	532.44	544.45	0.000249	5.61	28161.01	1988.66	0.25
Susquehanna	Middle Reach	193.821	10-yr	187000.00	521.01	547.5	533.41	547.99	0.000225	5.46	35681.77	2231.65	0.22
Susquehanna	Middle Reach	193.821	25-yr	228700.00	521.01	551.3	534.65	551.81	0.000192	5.53	44403.19	2344.85	0.20
Susquehanna	Middle Reach	193.821	50-yr	260800.00	521.01	554.0	535.52	554.48	0.000179	5.61	50653.55	2359.54	0.20
Susquehanna	Middle Reach	193.821	100-yr	294900.00	521.01	558.7	536.44	559.10	0.000241	5.30	61857.41	2425.82	0.17
Susquehanna	Middle Reach	193.821	500-yr	381500.00	521.01	563.0	539.04	563.28	0.000200	4.91	103967.20	8475.68	0.15
Susquehanna	Middle Reach	193.746	2-yr	113100.00	521.45	539.2	531.76	539.67	0.000341	5.54	20422.76	1656.41	0.28
Susquehanna	Middle Reach	193.746	5-yr	156200.00	521.45	543.9	533.25	544.35	0.000236	5.52	28781.84	2028.46	0.24
Susquehanna	Middle Reach	193.746	10-yr	187000.00	521.45	547.5	534.15	547.90	0.000209	5.41	36651.14	2261.98	0.21
Susquehanna	Middle Reach	193.746	25-yr	228700.00	521.45	551.3	535.20	551.73	0.000177	5.50	45567.52	2384.34	0.20
Susquehanna	Middle Reach	193.746	50-yr	260800.00	521.45	553.9	536.00	554.41	0.000165	5.60	52014.82	2460.83	0.19
Susquehanna	Middle Reach	193.746	100-yr	294900.00	521.45	558.6	536.78	559.01	0.000221	5.31	63549.16	2513.28	0.17
Susquehanna	Middle Reach	193.746	500-yr	381500.00	521.45	563.0	538.68	563.18	0.000144	4.33	175751.10	8923.53	0.13
Susquehanna	Middle Reach	193.671	2-yr	113100.00	521.90	539.1	530.86	539.54	0.000291	5.40	21198.47	1729.46	0.26
Susquehanna	Middle Reach	193.671	5-yr	156200.00	521.90	543.8	532.35	544.26	0.000212	5.45	29949.59	2019.71	0.23
Susquehanna	Middle Reach	193.671	10-yr	187000.00	521.90	547.4	533.27	547.82	0.000192	5.36	37741.53	2323.25	0.20
Susquehanna	Middle Reach	193.671	25-yr	228700.00	521.90	551.2	534.40	551.66	0.000163	5.43	47050.50	2582.45	0.19
Susquehanna	Middle Reach	193.671	50-yr	260800.00	521.90	553.9	535.20	554.34	0.000151	5.51	54501.80	3008.39	0.18
Susquehanna	Middle Reach	193.671	100-yr	294900.00	521.90	558.5	536.03	558.91	0.000201	5.18	68081.69	3118.19	0.16
Susquehanna	Middle Reach	193.671	500-yr	381500.00	521.90	563.0	538.08	563.12	0.000120	4.05	199753.70	9565.95	0.12
Susquehanna	Middle Reach	193.596	2-yr	113100.00	521.86	538.9	531.08	539.41	0.000363	5.82	19421.76	1457.39	0.28
Susquehanna	Middle Reach	193.596	5-yr	156200.00	521.86	543.6	532.51	544.16	0.000269	5.92	26764.07	1826.16	0.25
Susquehanna	Middle Reach	193.596	10-yr	187000.00	521.86	547.2	533.43	547.72	0.000249	5.85	33806.23	2165.81	0.22
Susquehanna	Middle Reach	193.596	25-yr	228700.00	521.86	551.0	534.63	551.58	0.000215	5.97	42749.75	2613.56	0.21
Susquehanna	Middle Reach	193.596	50-yr	260800.00	521.86	553.7	535.48	554.26	0.000200	6.07	50510.03	2932.36	0.20
Susquehanna	Middle Reach	193.596	100-yr	294900.00	521.86	558.3	536.36	558.81	0.000268	5.72	64059.86	3157.97	0.18
Susquehanna	Middle Reach	193.596	500-yr	381500.00	521.86	562.9	538.38	563.07	0.000132	4.06	200924.90	9248.57	0.12
Susquehanna	Middle Reach	193.518	2-yr	113100.00	521.50	538.7	529.62	539.27	0.000303	5.80	19485.30	1480.02	0.27
Susquehanna	Middle Reach	193.518	5-yr	156200.00	521.50	543.5	531.38	544.05	0.000242	6.02	25942.46	1548.82	0.24
Susquehanna	Middle Reach	193.518	10-yr	187000.00	521.50	547.1	532.38	547.62	0.000233	6.05	30986.94	1805.96	0.23
Susquehanna	Middle Reach	193.518	25-yr	228700.00	521.50	550.9	533.67	551.48	0.000210	6.29	36752.70	2304.23	0.22
Susquehanna	Middle Reach	193.518	50-yr	260800.00	521.50	553.6	534.59	554.17	0.000195	6.36	47152.41	2631.76	0.21
Susquehanna	Middle Reach	193.518	100-yr	294900.00	521.50	558.2	535.53	558.70	0.000265	6.03	60622.20	3050.70	0.19
Susquehanna	Middle Reach	193.518	500-yr	381500.00	521.50	562.8	537.82	563.00	0.000158	4.71	166227.70	8380.90	0.14
Susquehanna	Middle Reach	193.440	2-yr	113100.00	521.52	538.6	529.48	539.13	0.000328	6.06	18668.00	1374.50	0.28
Susquehanna	Middle Reach	193.440	5-yr	156200.00	521.52	543.3	531.25	543.94	0.000273	6.26	24957.70	1502.42	0.26
Susquehanna	Middle Reach	193.440	10-yr	187000.00	521.52	546.9	532.35	547.52	0.000259	6.24	30020.97	2051.33	0.24
Susquehanna	Middle Reach	193.440	25-yr	228700.00	521.52	550.7	533.68	551.39	0.000229	6.45	35676.34	2342.35	0.23
Susquehanna	Middle Reach	193.440	50-yr	260800.00	521.52	553.4	534.72	554.09	0.000210	6.50	46552.44	2612.27	0.22
Susquehanna	Middle Reach	193.440	100-yr	294900.00	521.52	558.0	535.74	558.58	0.000284	6.16	58984.61	2939.55	0.19
Susquehanna	Middle Reach	193.440	500-yr	381500.00	521.52	562.7	538.01	562.93	0.000154	4.64	173603.20	9124.15	0.14
Susquehanna	Middle Reach	193.365	2-yr	113100.00	520.57	538.3	529.52	538.98	0.000401	6.49	17420.27	1256.34	0.31
Susquehanna	Middle Reach	193.365	5-yr	156200.00	520.57	543.1	531.38	543.82	0.000329	6.57	23779.96	1649.75	0.28
Susquehanna	Middle Reach	193.365	10-yr	187000.00	520.57	546.8	532.67	547.40	0.000300	6.47	28938.10	1800.63	0.25
Susquehanna	Middle Reach	193.365	25-yr	228700.00	520.57	550.6	534.20	551.29	0.000258	6.64	34623.82	2498.36	0.24
Susquehanna	Middle Reach	193.365	50-yr	260800.00	520.57	553.3	535.20	554.00	0.000230	6.63	45987.77	2714.08	0.23
Susquehanna	Middle Reach	193.365	100-yr	294900.00	520.57	557.9	536.20	558.46	0.000308	6.25	59217.35	2967.53	0.20
Susquehanna	Middle Reach	193.365	500-yr	381500.00	520.57	562.6	538.71	562.87	0.000176	4.84	168255.00	9372.12	0.14
Susquehanna	Middle Reach	193.291	2-yr	113100.00	520.48	538.0	530.42	538.80	0.000507	7.07	16001.30	1223.38	0.34
Susquehanna	Middle Reach	193.291	5-yr	156200.00	520.48	542.9	532.38	543.67	0.000377	7.08	22057.25	1592.63	0.30
Susquehanna	Middle Reach	193.291	10-yr	187000.00	520.48	546.5	533.54	547.27	0.000352	6.96	26870.52	1728.79	0.27

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	193.291	25-yr	228700.00	520.48	550.4	534.97	551.17	0.000304	7.12	32112.61	2074.05	0.26
Susquehanna	Middle Reach	193.291	50-yr	260800.00	520.48	553.2	536.00	553.90	0.000259	6.95	42122.29	2324.44	0.24
Susquehanna	Middle Reach	193.291	100-yr	294900.00	520.48	557.7	537.03	558.34	0.000343	6.53	54657.58	2920.92	0.21
Susquehanna	Middle Reach	193.291	500-yr	381500.00	520.48	562.6	539.43	562.80	0.000180	4.87	164854.70	9249.90	0.15
Susquehanna	Middle Reach	193.210	2-yr	113100.00	520.04	537.7	530.06	538.58	0.000513	7.40	15293.57	1095.06	0.35
Susquehanna	Middle Reach	193.210	5-yr	156200.00	520.04	542.6	531.98	543.50	0.000414	7.48	21033.06	1637.41	0.32
Susquehanna	Middle Reach	193.210	10-yr	187000.00	520.04	546.3	533.14	547.10	0.000376	7.36	25983.69	1775.34	0.29
Susquehanna	Middle Reach	193.210	25-yr	228700.00	520.04	550.1	534.63	551.03	0.000327	7.54	31422.75	1990.69	0.27
Susquehanna	Middle Reach	193.210	50-yr	260800.00	520.04	552.9	535.69	553.77	0.000289	7.47	41060.36	2285.05	0.25
Susquehanna	Middle Reach	193.210	100-yr	294900.00	520.04	557.4	536.83	558.17	0.000393	7.07	52801.29	2748.46	0.22
Susquehanna	Middle Reach	193.210	500-yr	381500.00	520.04	562.4	539.45	562.70	0.000225	5.45	150658.20	9237.92	0.16
Susquehanna	Middle Reach	193.134	2-yr	113100.00	516.05	537.8	527.13	538.34	0.000272	5.98	18918.88	1201.26	0.26
Susquehanna	Middle Reach	193.134	5-yr	156200.00	516.05	542.7	528.93	543.29	0.000249	6.27	25670.76	1856.29	0.25
Susquehanna	Middle Reach	193.134	10-yr	187000.00	516.05	546.3	530.09	546.92	0.000244	6.32	31275.49	2097.90	0.23
Susquehanna	Middle Reach	193.134	25-yr	228700.00	516.05	550.2	531.60	550.85	0.000223	6.58	37544.46	2239.96	0.22
Susquehanna	Middle Reach	193.134	50-yr	260800.00	516.05	553.0	532.66	553.61	0.000203	6.58	48716.58	2408.11	0.21
Susquehanna	Middle Reach	193.134	100-yr	294900.00	516.05	557.4	533.75	557.99	0.000293	6.36	60548.16	2912.02	0.19
Susquehanna	Middle Reach	193.134	500-yr	381500.00	516.05	562.3	536.34	562.61	0.000182	5.10	158116.10	8836.52	0.15
Susquehanna	Middle Reach	193.052	2-yr	113100.00	516.04	537.7	526.67	538.23	0.000259	6.07	18626.89	1162.28	0.26
Susquehanna	Middle Reach	193.052	5-yr	156200.00	516.04	542.6	528.46	543.19	0.000236	6.31	26232.71	2217.73	0.25
Susquehanna	Middle Reach	193.052	10-yr	187000.00	516.04	546.2	529.65	546.81	0.000224	6.24	33281.63	2659.08	0.23
Susquehanna	Middle Reach	193.052	25-yr	228700.00	516.04	550.2	531.15	550.73	0.000186	6.18	47653.56	2921.18	0.21
Susquehanna	Middle Reach	193.052	50-yr	260800.00	516.04	553.0	532.20	553.50	0.000171	6.21	55883.59	2971.15	0.20
Susquehanna	Middle Reach	193.052	100-yr	294900.00	516.04	557.4	533.36	557.84	0.000237	5.86	69059.43	3008.49	0.18
Susquehanna	Middle Reach	193.052	500-yr	381500.00	516.04	562.3	536.02	562.53	0.000149	4.73	166824.90	8941.61	0.13
Susquehanna	Middle Reach	192.983	2-yr	113100.00	512.06	537.6	524.66	538.12	0.000200	5.62	20113.12	2037.05	0.23
Susquehanna	Middle Reach	192.983	5-yr	156200.00	512.06	542.7	526.72	543.06	0.000145	5.34	37353.48	2458.09	0.20
Susquehanna	Middle Reach	192.983	10-yr	187000.00	512.06	546.3	527.98	546.69	0.000146	5.39	44663.89	2624.85	0.18
Susquehanna	Middle Reach	192.983	25-yr	228700.00	512.06	550.2	529.51	550.64	0.000137	5.64	52691.17	3002.41	0.18
Susquehanna	Middle Reach	192.983	50-yr	260800.00	512.06	553.0	530.65	553.42	0.000128	5.68	67825.79	3024.74	0.18
Susquehanna	Middle Reach	192.983	100-yr	294900.00	512.06	557.4	531.84	557.74	0.000187	5.47	81189.76	3091.99	0.16
Susquehanna	Middle Reach	192.983	500-yr	381500.00	512.06	562.3	534.50	562.47	0.000120	4.44	175866.30	9014.73	0.12
Susquehanna	Middle Reach	192.905	2-yr	113100.00	510.52	537.6	523.16	538.02	0.000162	5.28	24105.90	2386.45	0.21
Susquehanna	Middle Reach	192.905	5-yr	156200.00	510.52	542.6	525.32	543.00	0.000136	5.40	36071.68	2618.71	0.19
Susquehanna	Middle Reach	192.905	10-yr	187000.00	510.52	546.2	526.70	546.63	0.000133	5.33	46701.61	2921.29	0.18
Susquehanna	Middle Reach	192.905	25-yr	228700.00	510.52	550.2	528.33	550.57	0.000119	5.40	58675.00	3090.86	0.17
Susquehanna	Middle Reach	192.905	50-yr	260800.00	510.52	553.0	529.51	553.36	0.000114	5.47	67287.63	3101.12	0.17
Susquehanna	Middle Reach	192.905	100-yr	294900.00	510.52	557.3	530.71	557.66	0.000166	5.24	80850.69	3236.92	0.15
Susquehanna	Middle Reach	192.905	500-yr	381500.00	510.52	562.3	533.66	562.41	0.000102	4.14	184032.10	8624.10	0.11
Susquehanna	Middle Reach	192.828	2-yr	113100.00	513.67	537.3	525.80	537.93	0.000251	6.15	18391.41	1883.80	0.25
Susquehanna	Middle Reach	192.828	5-yr	156200.00	513.67	542.2	527.71	542.90	0.000234	6.68	23383.80	2807.13	0.25
Susquehanna	Middle Reach	192.828	10-yr	187000.00	513.67	545.8	528.96	546.52	0.000249	6.89	27128.47	3059.55	0.24
Susquehanna	Middle Reach	192.828	25-yr	228700.00	513.67	550.1	530.53	550.52	0.000145	5.73	56335.41	3192.28	0.19
Susquehanna	Middle Reach	192.828	50-yr	260800.00	513.67	552.9	531.68	553.30	0.000134	5.74	65409.45	3289.73	0.18
Susquehanna	Middle Reach	192.828	100-yr	294900.00	513.67	557.2	532.83	557.59	0.000187	5.41	79779.73	3328.32	0.16
Susquehanna	Middle Reach	192.828	500-yr	381500.00	513.67	562.2	535.54	562.37	0.000125	4.50	173954.20	8667.50	0.12
Susquehanna	Middle Reach	192.752	2-yr	113100.00	513.15	537.3	525.30	537.83	0.000242	6.09	18581.28	1983.50	0.25
Susquehanna	Middle Reach	192.752	5-yr	156200.00	513.15	542.1	527.30	542.80	0.000231	6.61	23623.95	2694.87	0.25
Susquehanna	Middle Reach	192.752	10-yr	187000.00	513.15	545.7	528.56	546.42	0.000245	6.82	27422.01	3274.80	0.24
Susquehanna	Middle Reach	192.752	25-yr	228700.00	513.15	549.6	530.14	550.41	0.000238	7.23	31638.11	3398.68	0.24
Susquehanna	Middle Reach	192.752	50-yr	260800.00	513.15	552.9	531.28	553.25	0.000131	5.66	66808.97	3435.40	0.18
Susquehanna	Middle Reach	192.752	100-yr	294900.00	513.15	557.2	532.44	557.51	0.000181	5.30	81802.70	3501.41	0.16
Susquehanna	Middle Reach	192.752	500-yr	381500.00	513.15	562.1	535.19	562.31	0.000134	4.63	172232.30	8866.34	0.13
Susquehanna	Middle Reach	192.672	2-yr	113100.00	517.60	537.0	527.16	537.69	0.000346	6.85	16508.24	2157.12	0.29
Susquehanna	Middle Reach	192.672	5-yr	156200.00	517.60	541.8	529.08	542.67	0.000318	7.29	21416.79	2499.95	0.28
Susquehanna	Middle Reach	192.672	10-yr	187000.00	517.60	545.4	530.30	546.29	0.000322	7.42	25215.13	2915.82	0.27
Susquehanna	Middle Reach	192.672	25-yr	228700.00	517.60	549.3	531.85	550.28	0.000302	7.77	29438.37	3225.22	0.26
Susquehanna	Middle Reach	192.672	50-yr	260800.00	517.60	552.8	533.01	553.18	0.000135	5.51	69706.92	3414.03	0.18
Susquehanna	Middle Reach	192.672	100-yr	294900.00	517.60	557.1	534.16	557.43	0.000185	5.18	84720.42	3631.95	0.16
Susquehanna	Middle Reach	192.672	500-yr	381500.00	517.60	562.1	536.91	562.25	0.000126	4.35	174152.40	8789.53	0.12
Susquehanna	Middle Reach	192.601	2-yr	113100.00	517.30	536.9	527.05	537.54	0.000309	6.42	17627.87	2916.41	0.28
Susquehanna	Middle Reach	192.601	5-yr	156200.00	517.30	541.8	528.83	542.53	0.000283	6.81	22929.69	3120.53	0.27
Susquehanna	Middle Reach	192.601	10-yr	187000.00	517.30	545.4	530.00	546.14	0.000291	6.91	27047.01	3287.33	0.25
Susquehanna	Middle Reach	192.601	25-yr	228700.00	517.30	549.8	531.46	550.01	0.000101	4.45	72989.79	3504.89	0.15
Susquehanna	Middle Reach	192.601	50-yr	260800.00	517.30	552.9	532.54	553.10	0.000090	4.45	84022.84	3619.70	0.14
Susquehanna	Middle Reach	192.601	100-yr	294900.00	517.30	557.1	533.60	557.34	0.000129	4.27	99490.58	3642.90	0.13
Susquehanna	Middle Reach	192.601	500-yr	381500.00	517.30	562.1	536.21	562.19	0.000094	3.72	195230.30	8705.24	0.11
Susquehanna	Middle Reach	192.522	2-yr	113100.00	515.69	536.8	525.96	537.41	0.000263	6.20	18247.65	2875.08	0.26
Susquehanna	Middle Reach	192.522	5-yr	156200.00	515.69	541.7	527.77	542.41	0.000248	6.68	23397.70	3243.17	0.25
Susquehanna	Middle Reach	192.522	10-yr	187000.00	515.69	545.3	528.96	546.02	0.000257	6.85	27291.50	3521.73	0.24
Susquehanna	Middle Reach	192.522	25-yr	228700.00	515.69	549.8	530.43	549.97	0.000088	4.39	75516.34	3578.46	0.14
Susquehanna	Middle Reach	192.522	50-yr	260800.00	515.69	552.9	531.53	553.06	0.000079	4.37	86646.70	3596.35	0.14
Susquehanna	Middle Reach	192.522	100-yr	294900.00	515.69	557.1	532.64	557.29	0.000114	4.19	101978.20	3644.87	0.12
Susquehanna	Middle Reach	192.522	500-yr	381500.00	515.69	562.0	535.28	562.16	0.000090	3.79	194229.00	8745.55	0.11
Susquehanna	Middle Reach	192.445	2-yr	113100.00	514.97	536.6	526.76	537.28	0.000335	6.78	16683.84	2986.85	0.29
Susquehanna	Middle Reach	192.445	5-yr	156200.00	514.97	541.5	528.63	542.29	0.000303	7.19	21726.97	3333.67	0.28
Susquehanna	Middle Reach	192.445	10-yr	187000.00	514.97	545.6	529.84	545.80	0.000112	4.50	61022.19	3547.63	0.16
Susquehanna	Middle Reach	192.445	25-yr	228700.00	514.97	549.7	531.38	549.93	0.000092	4.44	75761.09	3572.79	0.15
Susquehanna	Middle Reach	192.445	50-yr	260800.00	514.97	552.8	532.50	553.03	0.000082	4.41	86880.52	3587.11	0.14
Susquehanna	Middle Reach	192.445	100-yr	294900.00	514.97	557.1	533.64	557.24	0.000119	4.24	102082.10	3602.42	0.13
Susquehanna	Middle Reach	192.445	500-yr	381500.00	514.97	562.0	536.33	562.12	0.000092	3.80	199037.30	8787.88	0.11
Susquehanna	Middle Reach	192.368	2-yr	113100.00	514.05	536.5	525.83	537.14	0.000310	6.62	17075.93	2607.40	0.28
Susquehanna	Middle Reach	192.368	5-yr	156200.00	514.05	541.6	527.84	542.10	0.000204	6.00	36969.52	3482.52	0.23
Susquehanna	Middle Reach	192.368	10-yr	187000.00	514.05	545.3	529.10	545.73	0.000172	5.59	50021.66	3543.60	0.20
Susquehanna	Middle Reach	192.368	25-yr	228700.00	514.05	549.5	530.76	549.87	0.000134	5.40	64920.64	3570.68	0.18
Susquehanna	Middle Reach	192.368	50-yr	260800.00	514.05	552.7	531.94	552.98	0.000116	5.29	76189.95	3663.26	0.17
Susquehanna	Middle Reach	192.368	100-yr	294900.00	514.05	556.9	533.10	557.18	0.000163	5.00	91786.05	3686.08	0.15
Susquehanna	Middle Reach	192.368	500-yr	381500.00	514.05	561.9	535.84	562.08	0.000117	4.30	189626.70	8565.55	0.12

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	192.297	2-yr	113100.00	512.98	536.2	525.72	537.00	0.000415	7.23	15639.81	2529.13	0.32
Susquehanna	Middle Reach	192.297	5-yr	156200.00	512.98	541.1	527.89	541.96	0.000373	7.50	20826.38	3500.32	0.30
Susquehanna	Middle Reach	192.297	10-yr	187000.00	512.98	544.7	529.32	545.60	0.000367	7.54	24800.98	3608.95	0.28
Susquehanna	Middle Reach	192.297	25-yr	228700.00	512.98	549.5	531.18	549.82	0.000142	5.20	64648.39	3681.04	0.18
Susquehanna	Middle Reach	192.297	50-yr	260800.00	512.98	552.6	532.43	552.93	0.000119	5.03	76244.41	3704.61	0.16
Susquehanna	Middle Reach	192.297	100-yr	294900.00	512.98	556.9	533.68	557.11	0.000161	4.70	92050.12	3760.46	0.14
Susquehanna	Middle Reach	192.297	500-yr	381500.00	512.98	561.9	537.23	562.03	0.000117	4.09	193395.20	8896.39	0.12
Susquehanna	Middle Reach	192.220	2-yr	113100.00	511.62	536.1	524.19	536.80	0.000335	6.48	17456.76	3043.22	0.29
Susquehanna	Middle Reach	192.220	5-yr	156200.00	511.62	541.1	526.34	541.78	0.000283	6.78	23045.27	3647.73	0.27
Susquehanna	Middle Reach	192.220	10-yr	187000.00	511.62	545.1	527.77	545.33	0.000119	4.53	60264.23	3811.28	0.16
Susquehanna	Middle Reach	192.220	25-yr	228700.00	511.62	549.5	529.49	549.75	0.000090	4.35	77285.82	3840.36	0.14
Susquehanna	Middle Reach	192.220	50-yr	260800.00	511.62	552.7	530.78	552.87	0.000079	4.29	89348.80	3855.19	0.14
Susquehanna	Middle Reach	192.220	100-yr	294900.00	511.62	556.9	532.54	557.05	0.000112	4.09	105578.70	3875.12	0.12
Susquehanna	Middle Reach	192.220	500-yr	381500.00	511.62	561.8	535.71	561.99	0.000101	3.95	193634.30	9051.81	0.11
Susquehanna	Middle Reach	192.145 Abrahms Creek	2-yr	113300.00	510.84	536.0	524.74	536.66	0.000375	6.52	17364.79	3414.74	0.30
Susquehanna	Middle Reach	192.145 Abrahms Creek	5-yr	156500.00	510.84	541.0	526.94	541.67	0.000305	6.74	23210.40	3728.99	0.27
Susquehanna	Middle Reach	192.145 Abrahms Creek	10-yr	187300.00	510.84	544.5	528.71	545.21	0.000304	6.83	27438.49	3761.42	0.25
Susquehanna	Middle Reach	192.145 Abrahms Creek	25-yr	229500.00	510.84	549.6	530.56	549.70	0.000074	3.76	86800.27	3909.19	0.13
Susquehanna	Middle Reach	192.145 Abrahms Creek	50-yr	261200.00	510.84	552.7	531.80	552.83	0.000066	3.75	99074.65	3924.84	0.12
Susquehanna	Middle Reach	192.145 Abrahms Creek	100-yr	295400.00	510.84	556.9	533.10	557.00	0.000097	3.62	115529.70	3945.63	0.11
Susquehanna	Middle Reach	192.145 Abrahms Creek	500-yr	382200.00	510.84	561.8	535.99	561.95	0.000091	3.62	194142.80	8318.87	0.10
Susquehanna	Middle Reach	192.064	2-yr	113300.00	509.48	536.0	524.49	536.48	0.000210	5.60	26935.85	3006.15	0.24
Susquehanna	Middle Reach	192.064	5-yr	156500.00	509.48	541.1	527.12	541.48	0.000153	5.36	44882.66	3787.22	0.20
Susquehanna	Middle Reach	192.064	10-yr	187300.00	509.48	544.7	528.48	545.01	0.000136	5.06	58512.97	3803.76	0.18
Susquehanna	Middle Reach	192.064	25-yr	229500.00	509.48	549.4	530.13	549.66	0.000103	4.81	76698.91	3893.13	0.15
Susquehanna	Middle Reach	192.064	50-yr	261200.00	509.48	552.6	530.98	552.80	0.000091	4.73	88985.19	3902.49	0.14
Susquehanna	Middle Reach	192.064	100-yr	295400.00	509.48	556.7	532.36	556.96	0.000134	4.51	105362.40	3917.50	0.13
Susquehanna	Middle Reach	192.064	500-yr	382200.00	509.48	561.7	535.24	561.91	0.000123	4.41	183106.70	8280.13	0.12
Susquehanna	Middle Reach	191.983	2-yr	113300.00	508.41	535.7	522.94	536.36	0.000298	6.50	19761.22	1835.30	0.28
Susquehanna	Middle Reach	191.983	5-yr	156500.00	508.41	540.9	525.30	541.39	0.000233	6.22	35330.73	3679.65	0.24
Susquehanna	Middle Reach	191.983	10-yr	187300.00	508.41	544.5	527.08	544.94	0.000189	5.71	48882.49	3707.00	0.21
Susquehanna	Middle Reach	191.983	25-yr	229500.00	508.41	549.3	529.52	549.61	0.000131	5.27	66800.48	3795.93	0.17
Susquehanna	Middle Reach	191.983	50-yr	261200.00	508.41	552.5	530.84	552.76	0.000111	5.11	78861.25	3805.84	0.16
Susquehanna	Middle Reach	191.983	100-yr	295400.00	508.41	556.7	532.61	556.90	0.000155	4.81	94838.40	3821.52	0.14
Susquehanna	Middle Reach	191.983	500-yr	382200.00	508.41	561.7	536.00	561.86	0.000126	4.46	192889.40	9826.35	0.12
Susquehanna	Middle Reach	191.901	2-yr	113300.00	506.99	535.5	523.85	536.22	0.000363	6.79	19638.02	2011.22	0.30
Susquehanna	Middle Reach	191.901	5-yr	156500.00	506.99	540.7	528.36	541.29	0.000248	6.49	33504.07	3242.28	0.25
Susquehanna	Middle Reach	191.901	10-yr	187300.00	506.99	544.4	530.00	544.86	0.000205	6.00	45605.25	3337.13	0.22
Susquehanna	Middle Reach	191.901	25-yr	229500.00	506.99	549.2	531.62	549.56	0.000144	5.58	62307.06	3641.13	0.18
Susquehanna	Middle Reach	191.901	50-yr	261200.00	506.99	552.4	532.90	552.71	0.000122	5.42	73919.67	3650.53	0.17
Susquehanna	Middle Reach	191.901	100-yr	295400.00	506.99	556.6	534.23	556.84	0.000172	5.12	89198.66	3662.16	0.15
Susquehanna	Middle Reach	191.901	500-yr	382200.00	506.99	561.6	537.14	561.81	0.000122	4.42	208696.80	10040.33	0.12
Susquehanna	Middle Reach	191.821	2-yr	113300.00	506.20	535.6	527.53	536.03	0.000303	6.18	28987.40	2761.76	0.27
Susquehanna	Middle Reach	191.821	5-yr	156500.00	506.20	540.8	529.77	541.15	0.000201	5.78	43740.72	3187.23	0.22
Susquehanna	Middle Reach	191.821	10-yr	187300.00	506.20	544.4	530.75	544.75	0.000184	5.50	54703.65	3370.45	0.20
Susquehanna	Middle Reach	191.821	25-yr	229500.00	506.20	549.2	531.94	549.48	0.000136	5.21	72419.09	3454.12	0.17
Susquehanna	Middle Reach	191.821	50-yr	261200.00	506.20	552.4	532.71	552.65	0.000118	5.11	83425.29	3466.61	0.16
Susquehanna	Middle Reach	191.821	100-yr	295400.00	506.20	556.5	533.71	556.77	0.000172	4.88	97844.22	3487.10	0.14
Susquehanna	Middle Reach	191.821	500-yr	382200.00	506.20	561.6	535.74	561.76	0.000147	4.64	176344.40	7615.30	0.13
Susquehanna	Middle Reach	191.746	2-yr	113300.00	505.49	535.5	523.40	535.91	0.000215	5.50	27922.31	2410.56	0.23
Susquehanna	Middle Reach	191.746	5-yr	156500.00	505.49	540.7	527.90	541.08	0.000154	5.36	40790.99	2841.23	0.20
Susquehanna	Middle Reach	191.746	10-yr	187300.00	505.49	544.4	529.10	544.69	0.000146	5.28	50297.23	3046.48	0.18
Susquehanna	Middle Reach	191.746	25-yr	229500.00	505.49	549.1	530.47	549.43	0.000116	5.21	67017.34	3319.16	0.17
Susquehanna	Middle Reach	191.746	50-yr	261200.00	505.49	552.3	531.26	552.60	0.000104	5.18	77640.98	3352.65	0.16
Susquehanna	Middle Reach	191.746	100-yr	295400.00	505.49	556.4	532.14	556.70	0.000156	5.01	91506.45	3368.01	0.14
Susquehanna	Middle Reach	191.746	500-yr	382200.00	505.49	561.5	534.37	561.71	0.000135	4.77	174038.80	7619.39	0.13
Susquehanna	Middle Reach	191.661	2-yr	113300.00	505.51	534.9	523.32	535.76	0.000368	7.54	19554.13	1957.56	0.31
Susquehanna	Middle Reach	191.661	5-yr	156500.00	505.51	540.2	526.27	540.95	0.000288	7.48	30646.05	2803.18	0.27
Susquehanna	Middle Reach	191.661	10-yr	187300.00	505.51	543.9	528.32	544.58	0.000270	7.30	39072.03	3652.70	0.25
Susquehanna	Middle Reach	191.661	25-yr	229500.00	505.51	548.7	530.35	549.35	0.000207	7.04	52800.49	6087.77	0.22
Susquehanna	Middle Reach	191.661	50-yr	261200.00	505.51	552.0	532.02	552.52	0.000185	6.97	61964.88	6716.54	0.21
Susquehanna	Middle Reach	191.661	100-yr	295400.00	505.51	556.1	533.34	556.60	0.000276	6.71	74286.19	7211.29	0.19
Susquehanna	Middle Reach	191.661	500-yr	382200.00	505.51	561.0	537.12	561.60	0.000319	7.36	89778.20	7675.09	0.20
Susquehanna	Middle Reach	191.584	2-yr	113300.00	505.03	535.0	522.77	535.58	0.000249	6.76	20148.92	1411.31	0.26
Susquehanna	Middle Reach	191.584	5-yr	156500.00	505.03	540.2	526.61	540.82	0.000214	6.92	27815.14	1655.40	0.24
Susquehanna	Middle Reach	191.584	10-yr	187300.00	505.03	543.9	528.19	544.46	0.000216	6.90	34093.27	2553.34	0.23
Susquehanna	Middle Reach	191.584	25-yr	229500.00	505.03	548.7	529.92	549.25	0.000177	6.73	44219.71	5638.15	0.21
Susquehanna	Middle Reach	191.584	50-yr	261200.00	505.03	551.9	531.02	552.44	0.000161	6.69	52129.23	6932.61	0.20
Susquehanna	Middle Reach	191.584	100-yr	295400.00	505.03	556.0	532.21	556.49	0.000246	6.48	63433.92	8133.57	0.18
Susquehanna	Middle Reach	191.584	500-yr	382200.00	505.03	560.9	534.74	561.46	0.000282	7.06	77646.81	9023.07	0.19
Susquehanna	Middle Reach	191.501	2-yr	113300.00	504.49	534.9	521.33	535.46	0.000201	6.18	21508.81	1628.04	0.23
Susquehanna	Middle Reach	191.501	5-yr	156500.00	504.49	540.2	524.09	540.71	0.000175	6.32	28732.87	1723.21	0.22
Susquehanna	Middle Reach	191.501	10-yr	187300.00	504.49	543.8	527.30	544.36	0.000181	6.36	33876.25	1963.99	0.21
Susquehanna	Middle Reach	191.501	25-yr	229500.00	504.49	548.7	529.06	549.17	0.000160	6.31	43316.16	5352.30	0.19
Susquehanna	Middle Reach	191.501	50-yr	261200.00	504.49	551.9	530.27	552.37	0.000155	6.29	49680.24	7299.64	0.18
Susquehanna	Middle Reach	191.501	100-yr	295400.00	504.49	555.9	531.33	556.39	0.000256	6.11	57883.85	7851.18	0.17
Susquehanna	Middle Reach	191.501	500-yr	382200.00	504.49	560.8	533.76	561.34	0.000323	6.71	67951.86	8643.57	0.18
Susquehanna	Middle Reach	191.480	2-yr	113300.00	505.81	533.9	525.11	535.32	0.000627	9.44	11995.81	793.21	0.40
Susquehanna	Middle Reach	191.480	5-yr	156500.00	505.81	539.0	527.61	540.56	0.000570	10.06	15558.17	849.05	0.38
Susquehanna	Middle Reach	191.480	10-yr	187300.00	505.81	542.6	529.22	544.20	0.000613	10.30	18180.83	906.10	0.37
Susquehanna	Middle Reach	191.480	25-yr	229500.00	505.81	547.3	531.37	549.01	0.000546	10.48	21995.77	1179.46	0.35
Susquehanna	Middle Reach	191.480	50-yr	261200.00	505.81	550.5	532.87	552.21	0.000521	10.51	26534.36	1594.63	0.34
Susquehanna	Middle Reach	191.480	100-yr	295400.00	505.81	554.7	534.43	556.22	0.000753	10.09	33493.61	1942.48	0.31
Susquehanna	Middle Reach	191.480	500-yr	382200.00	505.81	560.3	537.92	561.24	0.000522	8.75	109781.30	8136.65	0.25
Susquehanna	Middle Reach	191.410	2-yr	113300.00	504.22	534.1	522.28	534.97	0.000356	7.29	15534.53	860.07	0.30
Susquehanna	Middle Reach	191.410	5-yr	156500.00	504.22	539.3	525.41	540.20	0.000326	7.81	20026.01	897.45	0.29
Susquehanna	Middle Reach	191.410	10-yr	187300.00	504.22	542.8	526.82	543.83	0.000348	8.05	23275.17	923.82	0.28
Susquehanna	Middle Reach	191.410	25-yr	229500.00	504.22	547.6	528.64	548.65	0.000327	8.27	27766.95	976.36	0.27
Susquehanna	Middle Reach	191.410	50-yr	261200.00	504.22	550.8	529.97	551.87	0.000329	8.47	31076.88	1107.78	0.27

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	191.410	100-yr	295400.00	504.22	554.7	531.33	555.84	0.000556	8.47	36628.10	1711.17	0.25
Susquehanna	Middle Reach	191.410	500-yr	382200.00	504.22	560.2	534.42	561.02	0.000440	7.79	115202.50	8543.53	0.22
Susquehanna	Middle Reach	191.260	2-yr	113300.00	505.19	534.4	518.50	534.68	0.000126	4.67	25394.06	1411.99	0.19
Susquehanna	Middle Reach	191.260	5-yr	156500.00	505.19	539.5	520.63	539.91	0.000120	5.05	32848.16	1544.25	0.18
Susquehanna	Middle Reach	191.260	10-yr	187300.00	505.19	543.1	522.00	543.51	0.000132	5.23	38204.70	1635.38	0.18
Susquehanna	Middle Reach	191.260	25-yr	229500.00	505.19	547.9	524.44	548.34	0.000121	5.42	45797.03	1776.88	0.17
Susquehanna	Middle Reach	191.260	50-yr	261200.00	505.19	551.1	525.50	551.55	0.000118	5.55	52738.12	1970.11	0.17
Susquehanna	Middle Reach	191.260	100-yr	295400.00	505.19	555.0	526.53	555.44	0.000198	5.59	60829.75	2195.26	0.16
Susquehanna	Middle Reach	191.260	500-yr	382200.00	505.19	560.3	529.11	560.72	0.000182	5.46	154209.30	9621.14	0.15
Susquehanna	Middle Reach	191.150	2-yr	113300.00	503.96	534.3	516.97	534.61	0.000102	4.45	26327.50	1540.81	0.18
Susquehanna	Middle Reach	191.150	5-yr	156500.00	503.96	539.5	519.17	539.84	0.000104	4.82	34706.73	1675.16	0.17
Susquehanna	Middle Reach	191.150	10-yr	187300.00	503.96	543.1	520.54	543.44	0.000111	5.01	40766.54	1711.25	0.16
Susquehanna	Middle Reach	191.150	25-yr	229500.00	503.96	547.9	522.25	548.27	0.000103	5.20	49085.14	1756.40	0.16
Susquehanna	Middle Reach	191.150	50-yr	261200.00	503.96	551.1	524.01	551.48	0.000101	5.36	54761.77	1793.34	0.16
Susquehanna	Middle Reach	191.150	100-yr	295400.00	503.96	554.9	525.13	555.35	0.000111	5.44	61733.59	1822.74	0.15
Susquehanna	Middle Reach	191.150	500-yr	382200.00	503.96	560.3	527.67	560.65	0.000098	5.33	157512.90	9020.68	0.14
Susquehanna	Middle Reach	191.010	2-yr	113300.00	502.87	534.1	520.91	534.50	0.000223	5.31	21346.27	1513.90	0.25
Susquehanna	Middle Reach	191.010	5-yr	156500.00	502.87	539.3	525.00	539.74	0.000191	5.34	29326.73	1537.56	0.22
Susquehanna	Middle Reach	191.010	10-yr	187300.00	502.87	542.9	526.13	543.34	0.000189	5.37	34875.21	1553.13	0.20
Susquehanna	Middle Reach	191.010	25-yr	229500.00	502.87	547.7	527.55	548.18	0.000164	5.41	42446.11	1585.62	0.18
Susquehanna	Middle Reach	191.010	50-yr	261200.00	502.87	550.9	528.72	551.40	0.000155	5.49	47610.44	1624.41	0.18
Susquehanna	Middle Reach	191.010	100-yr	295400.00	502.87	554.8	530.15	555.26	0.000162	5.50	53914.92	1640.71	0.17
Susquehanna	Middle Reach	191.010	500-yr	382200.00	502.87	560.3	532.51	560.57	0.000118	4.95	154462.50	8729.83	0.14
Susquehanna	Middle Reach	190.940	2-yr	113300.00	501.21	533.9	520.25	534.39	0.000684	5.48	20666.39	1411.40	0.25
Susquehanna	Middle Reach	190.940	5-yr	156500.00	501.21	539.2	524.68	539.64	0.000531	5.56	28132.01	1437.49	0.22
Susquehanna	Middle Reach	190.940	10-yr	187300.00	501.21	542.7	526.39	543.24	0.000508	5.62	33318.26	1454.29	0.21
Susquehanna	Middle Reach	190.940	25-yr	229500.00	501.21	547.6	528.22	548.10	0.000412	5.68	40452.39	1503.81	0.19
Susquehanna	Middle Reach	190.940	50-yr	261200.00	501.21	550.8	529.28	551.32	0.000381	5.79	45372.31	1574.67	0.18
Susquehanna	Middle Reach	190.940	100-yr	295400.00	501.21	554.7	530.29	555.18	0.000393	5.81	51536.39	1610.51	0.17
Susquehanna	Middle Reach	190.940	500-yr	382200.00	501.21	560.1	532.42	560.51	0.000339	5.33	122605.40	7990.23	0.15
Susquehanna	Middle Reach	190.898 PA Route 309		Bridge									
Susquehanna	Middle Reach	190.864	2-yr	113300.00	499.77	533.3	518.97	533.96	0.001249	6.61	17144.16	1376.59	0.33
Susquehanna	Middle Reach	190.864	5-yr	156500.00	499.77	538.7	523.68	539.31	0.000811	6.34	24686.06	1409.15	0.27
Susquehanna	Middle Reach	190.864	10-yr	187300.00	499.77	542.3	525.39	542.92	0.000729	6.28	29827.93	1623.43	0.24
Susquehanna	Middle Reach	190.864	25-yr	229500.00	499.77	547.2	529.24	547.83	0.000552	6.22	37006.19	4576.01	0.22
Susquehanna	Middle Reach	190.864	50-yr	261200.00	499.77	550.5	530.84	551.06	0.000496	6.29	41852.30	5765.44	0.21
Susquehanna	Middle Reach	190.864	100-yr	295400.00	499.77	554.3	532.08	554.91	0.000499	6.26	47803.45	7507.03	0.19
Susquehanna	Middle Reach	190.864	500-yr	382200.00	499.77	559.4	534.23	560.18	0.000548	6.98	55957.25	8025.90	0.20
Susquehanna	Middle Reach	190.863	2-yr	113300.00	499.29	533.4	514.27	533.86	0.000224	5.30	21383.15	1932.16	0.24
Susquehanna	Middle Reach	190.863	5-yr	156500.00	499.29	538.8	517.11	539.24	0.000175	5.40	28995.08	2221.41	0.21
Susquehanna	Middle Reach	190.863	10-yr	187300.00	499.29	542.4	518.89	542.86	0.000170	5.47	34218.48	2327.76	0.20
Susquehanna	Middle Reach	190.863	25-yr	229500.00	499.29	547.3	521.17	547.78	0.000140	5.53	41687.08	3719.34	0.18
Susquehanna	Middle Reach	190.863	50-yr	261200.00	499.29	550.5	522.90	551.02	0.000130	5.64	46748.25	3776.83	0.18
Susquehanna	Middle Reach	190.863	100-yr	295400.00	499.29	554.4	524.50	554.87	0.000134	5.67	52899.50	3832.31	0.17
Susquehanna	Middle Reach	190.863	500-yr	382200.00	499.29	559.5	530.92	560.13	0.000152	6.39	61161.88	3879.76	0.18
Susquehanna	Middle Reach	190.782	2-yr	113300.00	497.81	533.4	512.75	533.77	0.000120	4.86	26659.15	3566.94	0.18
Susquehanna	Middle Reach	190.782	5-yr	156500.00	497.81	538.8	515.55	539.17	0.000114	5.22	35882.58	3585.06	0.18
Susquehanna	Middle Reach	190.782	10-yr	187300.00	497.81	542.4	517.44	542.79	0.000120	5.41	42099.73	3600.29	0.17
Susquehanna	Middle Reach	190.782	25-yr	229500.00	497.81	547.3	519.82	547.72	0.000108	5.60	50624.69	3625.41	0.17
Susquehanna	Middle Reach	190.782	50-yr	261200.00	497.81	550.5	521.69	550.96	0.000106	5.77	56251.83	3661.13	0.17
Susquehanna	Middle Reach	190.782	100-yr	295400.00	497.81	554.3	523.57	554.81	0.000115	5.87	63061.97	3713.67	0.16
Susquehanna	Middle Reach	190.782	500-yr	382200.00	497.81	559.4	527.29	560.07	0.000137	6.69	72238.75	3756.44	0.17
Susquehanna	Middle Reach	190.704	2-yr	113300.00	496.90	533.4	513.64	533.72	0.000123	4.93	26834.04	2136.09	0.19
Susquehanna	Middle Reach	190.704	5-yr	156500.00	496.90	538.7	516.63	539.12	0.000118	5.29	35759.61	2185.74	0.18
Susquehanna	Middle Reach	190.704	10-yr	187300.00	496.90	542.3	518.53	542.74	0.000124	5.50	41790.21	2206.77	0.18
Susquehanna	Middle Reach	190.704	25-yr	229500.00	496.90	547.2	520.86	547.68	0.000113	5.68	50078.43	2236.81	0.17
Susquehanna	Middle Reach	190.704	50-yr	261200.00	496.90	550.4	523.50	550.92	0.000110	5.87	55576.22	2275.74	0.17
Susquehanna	Middle Reach	190.704	100-yr	295400.00	496.90	554.3	525.06	554.76	0.000119	5.97	62266.41	2350.08	0.16
Susquehanna	Middle Reach	190.704	500-yr	382200.00	496.90	559.7	528.52	559.91	0.000076	4.99	186520.90	8335.82	0.13
Susquehanna	Middle Reach	190.625	2-yr	113300.00	498.93	533.4	513.79	533.66	0.000117	4.39	25779.85	1372.31	0.18
Susquehanna	Middle Reach	190.625	5-yr	156500.00	498.93	538.7	516.54	539.06	0.000108	4.71	33209.51	1400.42	0.17
Susquehanna	Middle Reach	190.625	10-yr	187300.00	498.93	542.3	518.26	542.68	0.000112	4.90	38268.91	1418.14	0.17
Susquehanna	Middle Reach	190.625	25-yr	229500.00	498.93	547.2	522.13	547.62	0.000099	5.08	45291.72	1442.43	0.16
Susquehanna	Middle Reach	190.625	50-yr	261200.00	498.93	550.4	523.38	550.86	0.000096	5.25	49959.18	1463.29	0.16
Susquehanna	Middle Reach	190.625	100-yr	295400.00	498.93	554.3	524.75	554.70	0.000105	5.35	55736.58	1615.55	0.15
Susquehanna	Middle Reach	190.625	500-yr	382200.00	498.93	559.6	527.76	559.87	0.000077	4.83	169705.50	10008.13	0.13
Susquehanna	Middle Reach	190.546	2-yr	113300.00	500.06	533.1	514.42	533.59	0.000150	5.38	21054.06	994.80	0.21
Susquehanna	Middle Reach	190.546	5-yr	156500.00	500.06	538.4	517.16	538.99	0.000154	5.92	26468.76	1118.62	0.21
Susquehanna	Middle Reach	190.546	10-yr	187300.00	500.06	542.0	518.94	542.60	0.000165	6.22	30483.69	1139.04	0.20
Susquehanna	Middle Reach	190.546	25-yr	229500.00	500.06	546.9	522.00	547.54	0.000151	6.50	36139.61	1191.16	0.20
Susquehanna	Middle Reach	190.546	50-yr	261200.00	500.06	550.1	524.25	550.79	0.000149	6.75	39994.37	1216.53	0.20
Susquehanna	Middle Reach	190.546	100-yr	295400.00	500.06	553.9	525.53	554.62	0.000163	6.90	44654.20	1231.15	0.19
Susquehanna	Middle Reach	190.546	500-yr	382200.00	500.06	559.4	528.33	559.83	0.000110	5.96	155669.10	9664.29	0.15
Susquehanna	Middle Reach	190.467	2-yr	113300.00	498.90	533.1	512.64	533.52	0.000141	5.07	22353.07	1105.22	0.20
Susquehanna	Middle Reach	190.467	5-yr	156500.00	498.90	538.4	515.27	538.91	0.000141	5.53	28335.57	1183.22	0.20
Susquehanna	Middle Reach	190.467	10-yr	187300.00	498.90	542.0	516.93	542.51	0.000149	5.78	32619.57	1211.77	0.19
Susquehanna	Middle Reach	190.467	25-yr	229500.00	498.90	546.9	519.03	547.46	0.000135	6.02	38616.87	1235.94	0.19
Susquehanna	Middle Reach	190.467	50-yr	261200.00	498.90	550.1	520.53	550.70	0.000132	6.23	42614.23	1266.06	0.18
Susquehanna	Middle Reach	190.467	100-yr	295400.00	498.90	553.9	522.09	554.53	0.000144	6.36	47505.01	1294.64	0.18
Susquehanna	Middle Reach	190.467	500-yr	382200.00	498.90	559.4	525.54	559.77	0.000093	5.40	167765.50	9622.29	0.14
Susquehanna	Middle Reach	190.454	2-yr	113300.00	498.60	533.1	511.80	533.50	0.000109	4.82	23508.55	1030.87	0.18
Susquehanna	Middle Reach	190.454	5-yr	156500.00	498.60	538.5	514.28	538.89	0.000135	5.32	29433.05	1221.91	0.19
Susquehanna	Middle Reach	190.454	10-yr	187300.00	498.60	542.0	515.87	542.49	0.000141	5.54	33814.81	1236.56	0.19
Susquehanna	Middle Reach	190.454	25-yr	229500.00	498.60	546.9	517.88	547.44	0.000126	5.76	39931.66	1257.39	0.18
Susquehanna	Middle Reach	190.454	50-yr	261200.00	498.60	550.1	519.33	550.68	0.000123	5.96	43996.67	1293.34	0.18
Susquehanna	Middle Reach	190.454	100-yr	295400.00	498.60	553.9	520.79	554.51	0.000134	6.09	49005.99	1325.55	0.17
Susquehanna	Middle Reach	190.454	500-yr	382200.00	498.60	559.4	524.25	559.75	0.000086	5.13	176857.40	9743.55	0.14

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	190.440	2-yr	113300.00	498.43	532.9	514.83	533.41	0.000180	5.85	20396.33	979.13	0.21
Susquehanna	Middle Reach	190.440	5-yr	156500.00	498.43	538.1	517.47	538.79	0.000194	6.57	25681.04	1107.86	0.21
Susquehanna	Middle Reach	190.440	10-yr	187300.00	498.43	541.6	519.21	542.38	0.000223	7.00	29839.52	1248.24	0.22
Susquehanna	Middle Reach	190.440	25-yr	229500.00	498.43	546.5	522.33	547.33	0.000189	7.32	36026.38	1297.54	0.21
Susquehanna	Middle Reach	190.440	50-yr	261200.00	498.43	549.7	523.61	550.57	0.000196	7.59	40206.34	1335.07	0.21
Susquehanna	Middle Reach	190.440	100-yr	295400.00	498.43	553.5	524.94	554.39	0.000286	7.71	45407.80	1426.92	0.21
Susquehanna	Middle Reach	190.440	500-yr	382200.00	498.43	558.5	528.20	559.60	0.000368	8.79	52447.00	1444.73	0.22
Susquehanna	Middle Reach	190.434 Railroad		Bridge									
Susquehanna	Middle Reach	190.410	2-yr	113300.00	498.10	532.9	513.16	533.33	0.000150	5.42	21812.02	983.96	0.19
Susquehanna	Middle Reach	190.410	5-yr	156500.00	498.10	538.1	515.76	538.69	0.000170	6.14	27076.17	1059.25	0.20
Susquehanna	Middle Reach	190.410	10-yr	187300.00	498.10	541.6	517.44	542.27	0.000196	6.54	31161.07	1233.29	0.20
Susquehanna	Middle Reach	190.410	25-yr	229500.00	498.10	546.5	519.56	547.23	0.000193	6.93	37464.38	1330.23	0.20
Susquehanna	Middle Reach	190.410	50-yr	261200.00	498.10	549.7	522.07	550.46	0.000197	7.20	41760.02	1366.09	0.20
Susquehanna	Middle Reach	190.410	100-yr	295400.00	498.10	553.5	523.36	554.27	0.000225	7.37	47011.96	1419.58	0.19
Susquehanna	Middle Reach	190.410	500-yr	382200.00	498.10	558.9	526.45	559.24	0.000137	5.89	188284.30	10217.56	0.15
Susquehanna	Middle Reach	190.384 Mill Creek	2-yr	113700.00	497.21	533.0	509.17	533.25	0.000066	3.87	29367.95	1223.94	0.14
Susquehanna	Middle Reach	190.384 Mill Creek	5-yr	157100.00	497.21	538.3	511.65	538.59	0.000075	4.37	36055.43	1405.11	0.15
Susquehanna	Middle Reach	190.384 Mill Creek	10-yr	188000.00	497.21	541.8	513.24	542.16	0.000083	4.63	41286.02	1499.33	0.15
Susquehanna	Middle Reach	190.384 Mill Creek	25-yr	229500.00	497.21	546.7	515.19	547.10	0.000077	4.87	48694.02	1663.30	0.14
Susquehanna	Middle Reach	190.384 Mill Creek	50-yr	262200.00	497.21	549.9	516.65	550.33	0.000078	5.10	53564.07	1735.49	0.14
Susquehanna	Middle Reach	190.384 Mill Creek	100-yr	296500.00	497.21	553.7	518.09	554.14	0.000088	5.25	59373.18	1782.38	0.14
Susquehanna	Middle Reach	190.384 Mill Creek	500-yr	383600.00	497.21	558.9	522.34	559.19	0.000062	4.60	202713.90	10502.19	0.12
Susquehanna	Middle Reach	190.314	2-yr	113700.00	496.10	532.8	510.46	533.19	0.000117	5.12	22223.66	938.36	0.19
Susquehanna	Middle Reach	190.314	5-yr	157100.00	496.10	538.0	513.27	538.53	0.000152	5.66	27779.82	1146.00	0.20
Susquehanna	Middle Reach	190.314	10-yr	188000.00	496.10	541.6	515.03	542.10	0.000160	5.91	31840.86	1164.67	0.20
Susquehanna	Middle Reach	190.314	25-yr	229500.00	496.10	546.5	517.34	547.04	0.000142	6.12	37882.47	1277.74	0.19
Susquehanna	Middle Reach	190.314	50-yr	262200.00	496.10	549.6	519.08	550.27	0.000139	6.35	41982.83	1296.42	0.19
Susquehanna	Middle Reach	190.314	100-yr	296500.00	496.10	553.4	520.73	554.08	0.000153	6.48	46924.45	1318.58	0.18
Susquehanna	Middle Reach	190.314	500-yr	383600.00	496.10	558.9	524.56	559.16	0.000085	5.10	197055.70	9982.06	0.13
Susquehanna	Middle Reach	190.238	2-yr	113700.00	495.06	532.7	510.41	533.13	0.000152	5.36	21230.44	1016.08	0.21
Susquehanna	Middle Reach	190.238	5-yr	157100.00	495.06	537.9	513.13	538.46	0.000154	5.91	26629.64	1043.86	0.20
Susquehanna	Middle Reach	190.238	10-yr	188000.00	495.06	541.4	514.87	542.02	0.000166	6.22	30313.66	1064.91	0.20
Susquehanna	Middle Reach	190.238	25-yr	229500.00	495.06	546.3	517.08	546.97	0.000151	6.49	35723.18	1198.58	0.20
Susquehanna	Middle Reach	190.238	50-yr	262200.00	495.06	549.5	518.69	550.20	0.000150	6.77	39545.64	1209.93	0.20
Susquehanna	Middle Reach	190.238	100-yr	296500.00	495.06	553.3	520.28	554.00	0.000167	6.93	44124.80	1223.39	0.19
Susquehanna	Middle Reach	190.238	500-yr	383600.00	495.06	558.1	523.90	559.04	0.000203	8.00	50037.34	1241.21	0.21
Susquehanna	Middle Reach	190.166	2-yr	113700.00	495.16	532.7	508.49	533.05	0.000088	4.49	25328.03	1048.25	0.16
Susquehanna	Middle Reach	190.166	5-yr	157100.00	495.16	538.0	511.17	538.37	0.000098	5.09	30874.61	1072.80	0.17
Susquehanna	Middle Reach	190.166	10-yr	188000.00	495.16	541.5	512.85	541.92	0.000110	5.43	34747.32	1132.14	0.17
Susquehanna	Middle Reach	190.166	25-yr	229500.00	495.16	546.4	514.90	546.88	0.000105	5.75	40536.94	1229.97	0.17
Susquehanna	Middle Reach	190.166	50-yr	262200.00	495.16	549.5	516.43	550.11	0.000107	6.04	44501.22	1255.22	0.17
Susquehanna	Middle Reach	190.166	100-yr	296500.00	495.16	553.3	517.97	553.90	0.000121	6.23	49239.61	1267.99	0.17
Susquehanna	Middle Reach	190.166	500-yr	383600.00	495.16	558.5	521.44	558.77	0.000067	4.84	213609.50	9815.75	0.12
Susquehanna	Middle Reach	190.095	2-yr	113700.00	495.72	532.7	509.52	533.01	0.000083	4.35	26141.37	1096.65	0.16
Susquehanna	Middle Reach	190.095	5-yr	157100.00	495.72	537.9	512.13	538.32	0.000091	4.93	31927.66	1116.71	0.16
Susquehanna	Middle Reach	190.095	10-yr	188000.00	495.72	541.4	513.75	541.87	0.000102	5.27	35938.99	1172.65	0.16
Susquehanna	Middle Reach	190.095	25-yr	229500.00	495.72	546.3	515.78	546.83	0.000097	5.58	41990.13	1248.30	0.16
Susquehanna	Middle Reach	190.095	50-yr	262200.00	495.72	549.5	517.32	550.06	0.000099	5.86	45978.07	1261.97	0.16
Susquehanna	Middle Reach	190.095	100-yr	296500.00	495.72	553.3	518.84	553.84	0.000113	6.06	50741.53	1278.09	0.16
Susquehanna	Middle Reach	190.095	500-yr	383600.00	495.72	557.9	521.94	558.68	0.000144	7.07	56716.62	1298.04	0.18
Susquehanna	Middle Reach	190.026	2-yr	113700.00	496.04	532.7	508.90	532.97	0.000066	4.05	28090.69	1097.79	0.14
Susquehanna	Middle Reach	190.026	5-yr	157100.00	496.04	537.9	511.34	538.28	0.000076	4.63	33937.92	1128.73	0.15
Susquehanna	Middle Reach	190.026	10-yr	188000.00	496.04	541.4	512.84	541.82	0.000087	4.97	37950.05	1173.34	0.15
Susquehanna	Middle Reach	190.026	25-yr	229500.00	496.04	546.3	514.65	546.78	0.000084	5.29	43822.16	1236.30	0.15
Susquehanna	Middle Reach	190.026	50-yr	262200.00	496.04	549.5	515.99	550.01	0.000087	5.58	47790.83	1261.74	0.15
Susquehanna	Middle Reach	190.026	100-yr	296500.00	496.04	553.3	517.31	553.79	0.000100	5.78	52567.90	1285.80	0.15
Susquehanna	Middle Reach	190.026	500-yr	383600.00	496.04	557.9	520.35	558.61	0.000128	6.77	58573.16	1304.61	0.17
Susquehanna	Middle Reach	189.951	2-yr	113700.00	495.30	532.7	508.03	532.93	0.000055	3.79	30041.57	1168.12	0.13
Susquehanna	Middle Reach	189.951	5-yr	157100.00	495.30	537.9	510.52	538.24	0.000064	4.36	36213.93	1191.08	0.14
Susquehanna	Middle Reach	189.951	10-yr	188000.00	495.30	541.4	512.09	541.78	0.000074	4.70	40456.86	1224.78	0.14
Susquehanna	Middle Reach	189.951	25-yr	229500.00	495.30	546.3	514.00	546.73	0.000072	5.02	46522.20	1246.08	0.14
Susquehanna	Middle Reach	189.951	50-yr	262200.00	495.30	549.5	515.36	549.96	0.000075	5.31	50504.09	1259.50	0.14
Susquehanna	Middle Reach	189.951	100-yr	296500.00	495.30	553.3	516.72	553.73	0.000087	5.51	55248.51	1284.71	0.14
Susquehanna	Middle Reach	189.951	500-yr	383600.00	495.30	558.2	519.74	558.43	0.000051	4.38	233149.80	10178.08	0.11
Susquehanna	Middle Reach	189.884	2-yr	113700.00	496.69	532.6	510.12	532.90	0.000073	4.26	26692.32	1040.90	0.15
Susquehanna	Middle Reach	189.884	5-yr	157100.00	496.69	537.8	512.71	538.20	0.000085	4.87	32641.13	1186.84	0.16
Susquehanna	Middle Reach	189.884	10-yr	188000.00	496.69	541.3	514.33	541.74	0.000097	5.21	36794.76	1199.10	0.16
Susquehanna	Middle Reach	189.884	25-yr	229500.00	496.69	546.2	516.39	546.69	0.000093	5.52	42836.99	1255.41	0.16
Susquehanna	Middle Reach	189.884	50-yr	262200.00	496.69	549.4	517.84	549.92	0.000096	5.81	46842.25	1269.72	0.16
Susquehanna	Middle Reach	189.884	100-yr	296500.00	496.69	553.1	519.16	553.69	0.000110	6.02	51621.16	1306.86	0.16
Susquehanna	Middle Reach	189.884	500-yr	383600.00	496.69	558.2	521.93	558.40	0.000063	4.75	218614.50	10074.25	0.12
Susquehanna	Middle Reach	189.811	2-yr	113700.00	497.02	532.4	514.58	532.85	0.000130	5.51	20650.18	837.39	0.20
Susquehanna	Middle Reach	189.811	5-yr	157100.00	497.02	537.5	517.25	538.13	0.000148	6.29	24982.44	847.56	0.20
Susquehanna	Middle Reach	189.811	10-yr	188000.00	497.02	541.0	518.90	541.66	0.000169	6.73	28285.71	1028.33	0.21
Susquehanna	Middle Reach	189.811	25-yr	229500.00	497.02	545.8	520.65	546.61	0.000161	7.12	33560.25	1201.13	0.20
Susquehanna	Middle Reach	189.811	50-yr	262200.00	497.02	549.0	521.86	549.83	0.000165	7.47	37603.27	1376.67	0.21
Susquehanna	Middle Reach	189.811	100-yr	296500.00	497.02	552.7	523.21	553.59	0.000186	7.68	42849.09	1452.53	0.20
Susquehanna	Middle Reach	189.811	500-yr	383600.00	497.02	558.1	526.24	558.37	0.000089	5.55	208277.90	10228.21	0.14
Susquehanna	Middle Reach	189.747	2-yr	113700.00	497.37	532.4	512.72	532.79	0.000113	5.33	21316.15	817.98	0.18
Susquehanna	Middle Reach	189.747	5-yr	157100.00	497.37	537.5	515.48	538.07	0.000133	6.15	25671.61	939.99	0.20
Susquehanna	Middle Reach	189.747	10-yr	188000.00	497.37	540.9	517.22	541.59	0.000154	6.61	29208.26	1083.34	0.20
Susquehanna	Middle Reach	189.747	25-yr	229500.00	497.37	545.8	519.28	546.55	0.000131	7.01	34545.59	1257.25	0.20
Susquehanna	Middle Reach	189.747	50-yr	262200.00	497.37	548.9	520.63	549.77	0.000139	7.38	38020.88	1368.71	0.20
Susquehanna	Middle Reach	189.747	100-yr	296500.00	497.37	552.6	521.96	553.53	0.000193	7.63	42145.27	1504.28	0.20
Susquehanna	Middle Reach	189.747	500-yr	383600.00	497.37	558.0	525.07	558.34	0.000098	5.50	212677.30	10428.74	0.14
Susquehanna	Middle Reach	189.743 North Market St		Bridge									
Susquehanna	Middle Reach	189.729	2-yr	113700.00	497.40	532.3	512.06	532.70	0.000102	5.19	21908.79	814.22	0.18

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	189.729	5-yr	157100.00	497.40	537.4	514.54	537.96	0.000128	5.98	26425.33	1011.04	0.19
Susquehanna	Middle Reach	189.729	10-yr	188000.00	497.40	540.8	516.08	541.46	0.000147	6.42	30087.74	1088.86	0.20
Susquehanna	Middle Reach	189.729	25-yr	229500.00	497.40	545.7	518.00	546.42	0.000142	6.80	35426.80	1096.73	0.19
Susquehanna	Middle Reach	189.729	50-yr	262200.00	497.40	548.8	519.41	549.63	0.000147	7.15	38873.71	1102.88	0.20
Susquehanna	Middle Reach	189.729	100-yr	296500.00	497.40	552.5	520.73	553.34	0.000170	7.40	42929.20	1401.30	0.19
Susquehanna	Middle Reach	189.729	500-yr	383600.00	497.40	557.5	524.01	557.75	0.000086	5.45	207534.30	10426.79	0.14
Susquehanna	Middle Reach	189.695	2-yr	113700.00	497.48	532.2	512.41	532.68	0.000114	5.47	20770.49	772.58	0.19
Susquehanna	Middle Reach	189.695	5-yr	157100.00	497.48	537.3	514.94	537.93	0.000136	6.34	25183.05	991.75	0.20
Susquehanna	Middle Reach	189.695	10-yr	188000.00	497.48	540.7	516.55	541.42	0.000160	6.82	28708.74	1069.24	0.20
Susquehanna	Middle Reach	189.695	25-yr	229500.00	497.48	545.6	518.57	546.38	0.000156	7.23	34019.75	1174.72	0.20
Susquehanna	Middle Reach	189.695	50-yr	262200.00	497.48	548.7	519.97	549.59	0.000161	7.60	37968.86	1295.73	0.21
Susquehanna	Middle Reach	189.695	100-yr	296500.00	497.48	552.4	521.37	553.30	0.000184	7.83	42741.34	1310.23	0.20
Susquehanna	Middle Reach	189.695	500-yr	383600.00	497.48	557.5	524.68	557.73	0.000084	5.51	215801.60	10369.64	0.14
Susquehanna	Middle Reach	189.669	2-yr	113700.00	497.68	532.2	512.58	532.66	0.000123	5.48	20737.50	818.69	0.19
Susquehanna	Middle Reach	189.669	5-yr	157100.00	497.68	537.3	515.14	537.90	0.000149	6.23	25716.24	1056.65	0.21
Susquehanna	Middle Reach	189.669	10-yr	188000.00	497.68	540.7	516.73	541.38	0.000168	6.63	29363.60	1080.56	0.21
Susquehanna	Middle Reach	189.669	25-yr	229500.00	497.68	545.6	518.73	546.34	0.000158	6.97	34747.82	1138.75	0.20
Susquehanna	Middle Reach	189.669	50-yr	262200.00	497.68	548.7	520.11	549.54	0.000160	7.30	38339.17	1153.99	0.20
Susquehanna	Middle Reach	189.669	100-yr	296500.00	497.68	552.4	521.51	553.25	0.000182	7.52	42597.31	1171.79	0.20
Susquehanna	Middle Reach	189.669	500-yr	383600.00	497.68	557.5	524.83	557.72	0.000083	5.30	213086.00	9922.45	0.13
Susquehanna	Middle Reach	189.596	2-yr	113700.00	498.01	532.2	512.41	532.61	0.000121	5.42	20971.32	838.73	0.19
Susquehanna	Middle Reach	189.596	5-yr	157100.00	498.01	537.2	514.82	537.84	0.000143	6.17	26178.99	1067.13	0.20
Susquehanna	Middle Reach	189.596	10-yr	188000.00	498.01	540.6	516.39	541.31	0.000162	6.58	29857.22	1093.57	0.20
Susquehanna	Middle Reach	189.596	25-yr	229500.00	498.01	545.5	518.33	546.27	0.000152	6.93	35303.73	1131.66	0.20
Susquehanna	Middle Reach	189.596	50-yr	262200.00	498.01	548.7	519.76	549.48	0.000155	7.26	38870.48	1146.38	0.20
Susquehanna	Middle Reach	189.596	100-yr	296500.00	498.01	552.3	521.17	553.18	0.000177	7.50	43088.02	1163.54	0.20
Susquehanna	Middle Reach	189.596	500-yr	383600.00	498.01	557.4	524.49	557.68	0.000086	5.47	204528.90	9868.89	0.14
Susquehanna	Middle Reach	189.523 Wilkes-Barre Gag	2-yr	113700.00	498.33	532.1	512.37	532.56	0.000133	5.51	20625.05	855.78	0.20
Susquehanna	Middle Reach	189.523 Wilkes-Barre Gag	5-yr	157100.00	498.33	537.2	514.91	537.78	0.000152	6.22	26061.87	1118.57	0.21
Susquehanna	Middle Reach	189.523 Wilkes-Barre Gag	10-yr	188000.00	498.33	540.6	516.55	541.24	0.000176	6.60	29895.02	1159.68	0.21
Susquehanna	Middle Reach	189.523 Wilkes-Barre Gag	25-yr	229900.00	498.33	545.5	518.62	546.21	0.000164	6.88	35681.49	1189.10	0.21
Susquehanna	Middle Reach	189.523 Wilkes-Barre Gag	50-yr	262200.00	498.33	548.6	520.01	549.40	0.000165	7.16	39436.32	1202.08	0.21
Susquehanna	Middle Reach	189.523 Wilkes-Barre Gag	100-yr	296500.00	498.33	552.3	521.44	553.09	0.000186	7.34	43853.42	1216.99	0.20
Susquehanna	Middle Reach	189.523 Wilkes-Barre Gag	500-yr	383600.00	498.33	557.4	524.82	557.64	0.000085	5.22	213927.40	10534.33	0.14
Susquehanna	Middle Reach	189.446	2-yr	113700.00	498.67	532.0	513.02	532.50	0.000129	5.68	20135.65	1002.34	0.20
Susquehanna	Middle Reach	189.446	5-yr	157100.00	498.67	537.1	515.55	537.71	0.000149	6.50	25652.92	1128.49	0.21
Susquehanna	Middle Reach	189.446	10-yr	188000.00	498.67	540.4	517.08	541.17	0.000174	6.94	29532.68	1169.39	0.21
Susquehanna	Middle Reach	189.446	25-yr	229900.00	498.67	545.3	519.14	546.13	0.000167	7.30	35331.71	1196.51	0.21
Susquehanna	Middle Reach	189.446	50-yr	262200.00	498.67	548.5	520.51	549.33	0.000170	7.62	39098.02	1211.67	0.21
Susquehanna	Middle Reach	189.446	100-yr	296500.00	498.67	552.1	521.96	553.00	0.000195	7.84	43535.23	1234.40	0.21
Susquehanna	Middle Reach	189.446	500-yr	383600.00	498.67	557.3	525.32	557.60	0.000084	5.38	237549.70	13459.89	0.14
Susquehanna	Middle Reach	189.368	2-yr	113700.00	499.03	531.9	513.08	532.44	0.000138	5.86	19396.87	751.39	0.20
Susquehanna	Middle Reach	189.368	5-yr	157100.00	499.03	536.9	515.64	537.64	0.000165	6.72	24100.70	1050.05	0.22
Susquehanna	Middle Reach	189.368	10-yr	188000.00	499.03	540.3	517.28	541.09	0.000191	7.19	27713.24	1116.72	0.22
Susquehanna	Middle Reach	189.368	25-yr	229900.00	499.03	545.2	519.30	546.06	0.000186	7.55	33396.60	1190.93	0.22
Susquehanna	Middle Reach	189.368	50-yr	262200.00	499.03	548.3	520.72	549.25	0.000189	7.87	37163.91	1215.95	0.22
Susquehanna	Middle Reach	189.368	100-yr	296500.00	499.03	551.9	522.12	552.92	0.000215	8.09	41636.85	1256.69	0.22
Susquehanna	Middle Reach	189.368	500-yr	383600.00	499.03	557.3	525.55	557.57	0.000086	5.36	241797.30	14478.92	0.14
Susquehanna	Middle Reach	189.347	2-yr	113700.00	498.79	531.9	513.83	532.43	0.000162	6.05	18806.30	787.91	0.22
Susquehanna	Middle Reach	189.347	5-yr	157100.00	498.79	536.9	516.43	537.62	0.000186	6.82	24179.53	1230.94	0.23
Susquehanna	Middle Reach	189.347	10-yr	188000.00	498.79	540.3	518.09	541.06	0.000187	7.17	28455.24	1280.79	0.23
Susquehanna	Middle Reach	189.347	25-yr	229900.00	498.79	545.2	520.09	546.02	0.000173	7.40	34812.50	1301.95	0.22
Susquehanna	Middle Reach	189.347	50-yr	262200.00	498.79	548.3	521.57	549.21	0.000176	7.66	38942.51	1321.31	0.22
Susquehanna	Middle Reach	189.347	100-yr	296500.00	498.79	552.0	523.03	552.87	0.000234	7.81	43746.67	1324.90	0.22
Susquehanna	Middle Reach	189.347	500-yr	383600.00	498.79	557.3	526.53	557.56	0.000113	5.55	201604.70	9634.75	0.14
Susquehanna	Middle Reach	189.341 Market St		Bridge									
Susquehanna	Middle Reach	189.325	2-yr	113700.00	499.20	531.7	514.69	532.27	0.000170	6.24	18222.07	764.75	0.22
Susquehanna	Middle Reach	189.325	5-yr	157100.00	499.20	536.7	517.33	537.44	0.000193	7.06	23945.82	1252.31	0.23
Susquehanna	Middle Reach	189.325	10-yr	188000.00	499.20	540.0	518.98	540.86	0.000216	7.46	28160.67	1266.02	0.24
Susquehanna	Middle Reach	189.325	25-yr	229900.00	499.20	544.9	520.95	545.83	0.000200	7.74	34431.68	1285.45	0.23
Susquehanna	Middle Reach	189.325	50-yr	262200.00	499.20	548.0	522.39	549.00	0.000201	8.03	38464.10	1316.23	0.23
Susquehanna	Middle Reach	189.325	100-yr	296500.00	499.20	551.5	523.85	552.55	0.000226	8.23	43088.92	1319.13	0.22
Susquehanna	Middle Reach	189.325	500-yr	383600.00	499.20	555.6	527.27	556.93	0.000290	9.61	48422.80	1322.46	0.25
Susquehanna	Middle Reach	189.290	2-yr	113700.00	499.18	531.5	515.25	532.23	0.000209	6.81	16687.81	708.37	0.25
Susquehanna	Middle Reach	189.290	5-yr	157100.00	499.18	536.5	518.11	537.38	0.000253	7.67	21732.99	1172.83	0.26
Susquehanna	Middle Reach	189.290	10-yr	188000.00	499.18	539.8	519.77	540.81	0.000278	8.05	25697.13	1196.94	0.26
Susquehanna	Middle Reach	189.290	25-yr	229900.00	499.18	544.7	521.84	545.77	0.000248	8.28	31667.41	1227.83	0.25
Susquehanna	Middle Reach	189.290	50-yr	262200.00	499.18	547.8	523.34	548.94	0.000247	8.56	35513.24	1248.83	0.25
Susquehanna	Middle Reach	189.290	100-yr	296500.00	499.18	551.4	524.87	552.49	0.000277	8.73	39938.47	1279.66	0.25
Susquehanna	Middle Reach	189.290	500-yr	383600.00	499.18	556.3	528.58	556.58	0.000106	5.66	202122.00	9576.52	0.15
Susquehanna	Middle Reach	189.219	2-yr	113700.00	499.67	531.3	515.59	532.13	0.000250	7.27	15647.28	688.12	0.27
Susquehanna	Middle Reach	189.219	5-yr	157100.00	499.67	536.2	518.49	537.27	0.000291	8.20	19536.61	903.18	0.28
Susquehanna	Middle Reach	189.219	10-yr	188000.00	499.67	539.5	520.23	540.68	0.000338	8.64	22688.11	1001.26	0.29
Susquehanna	Middle Reach	189.219	25-yr	229900.00	499.67	544.4	522.39	545.66	0.000300	8.89	28317.19	1203.55	0.28
Susquehanna	Middle Reach	189.219	50-yr	262200.00	499.67	547.6	524.01	548.83	0.000295	9.16	32080.37	1222.22	0.27
Susquehanna	Middle Reach	189.219	100-yr	296500.00	499.67	551.1	525.99	552.36	0.000328	9.33	36395.39	1246.66	0.27
Susquehanna	Middle Reach	189.219	500-yr	383600.00	499.67	556.3	529.73	556.53	0.000097	5.36	232258.40	12419.94	0.14
Susquehanna	Middle Reach	189.144	2-yr	113700.00	499.99	531.2	516.55	532.03	0.000276	7.45	15261.83	698.61	0.28
Susquehanna	Middle Reach	189.144	5-yr	157100.00	499.99	536.1	519.38	537.15	0.000307	8.34	19586.49	1144.31	0.29
Susquehanna	Middle Reach	189.144	10-yr	188000.00	499.99	539.4	521.06	540.55	0.000341	8.74	23439.75	1181.88	0.29
Susquehanna	Middle Reach	189.144	25-yr	229900.00	499.99	544.3	523.22	545.54	0.000299	8.91	29398.24	1215.14	0.28
Susquehanna	Middle Reach	189.144	50-yr	262200.00	499.99	547.5	524.80	548.71	0.000294	9.18	33203.20	1231.66	0.27
Susquehanna	Middle Reach	189.144	100-yr	296500.00	499.99	550.9	526.78	552.23	0.000328	9.33	37526.88	1246.14	0.27
Susquehanna	Middle Reach	189.144	500-yr	383600.00	499.99	556.2	530.37	556.49	0.000108	5.64	205075.80	9558.37	0.15
Susquehanna	Middle Reach	189.062	2-yr	113700.00	500.25	531.2	514.29	531.89	0.000216	6.89	16559.12	794.42	0.25
Susquehanna	Middle Reach	189.062	5-yr	157100.00	500.25	536.1	517.19	536.99	0.000244	7.76	21861.94	1175.74	0.26
Susquehanna	Middle Reach	189.062	10-yr	188000.00	500.25	539.4	519.00	540.37	0.000272	8.19	25763.33	1197.05	0.26
Susquehanna	Middle Reach	189.062	25-yr	229900.00	500.25	544.3	521.18	545.38	0.000247	8.43	31789.25	1227.94	0.25

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	189.062	50-yr	262200.00	500.25	547.4	522.79	548.56	0.000248	8.73	35632.87	1246.89	0.25
Susquehanna	Middle Reach	189.062	100-yr	296500.00	500.25	550.9	524.82	552.06	0.000280	8.93	40003.22	1272.58	0.25
Susquehanna	Middle Reach	189.062	500-yr	383600.00	500.25	556.2	528.56	556.44	0.000084	5.17	246517.30	12543.41	0.13
Susquehanna	Middle Reach	188.987	2-yr	113700.00	498.84	530.9	515.94	531.77	0.000294	7.66	15014.87	808.12	0.29
Susquehanna	Middle Reach	188.987	5-yr	157100.00	498.84	535.7	518.93	536.86	0.000322	8.55	20119.76	1201.56	0.29
Susquehanna	Middle Reach	188.987	10-yr	188000.00	498.84	539.0	520.70	540.23	0.000352	8.94	24100.87	1223.80	0.29
Susquehanna	Middle Reach	188.987	25-yr	229900.00	498.84	544.0	522.94	545.26	0.000308	9.09	30320.15	1255.46	0.28
Susquehanna	Middle Reach	188.987	50-yr	262200.00	498.84	547.2	524.78	548.44	0.000304	9.35	34263.50	1274.51	0.28
Susquehanna	Middle Reach	188.987	100-yr	296500.00	498.84	550.6	526.75	551.93	0.000340	9.51	38722.79	1295.07	0.27
Susquehanna	Middle Reach	188.987	500-yr	383600.00	498.84	554.5	530.54	556.23	0.000431	11.06	43735.49	1309.00	0.30
Susquehanna	Middle Reach	188.913	2-yr	113700.00	499.31	530.7	516.15	531.66	0.000302	7.76	14932.98	841.65	0.29
Susquehanna	Middle Reach	188.913	5-yr	157100.00	499.31	535.6	519.04	536.74	0.000341	8.60	20265.72	1263.35	0.30
Susquehanna	Middle Reach	188.913	10-yr	188000.00	499.31	538.9	520.82	540.10	0.000362	8.95	24440.79	1276.38	0.30
Susquehanna	Middle Reach	188.913	25-yr	229900.00	499.31	543.9	523.04	545.14	0.000308	9.05	30931.26	1297.00	0.28
Susquehanna	Middle Reach	188.913	50-yr	262200.00	499.31	547.1	524.68	548.32	0.000299	9.30	35001.23	1309.76	0.27
Susquehanna	Middle Reach	188.913	100-yr	296500.00	499.31	550.5	526.90	551.80	0.000333	9.47	39554.11	1323.89	0.27
Susquehanna	Middle Reach	188.913	500-yr	383600.00	499.31	554.3	530.68	556.06	0.000427	11.01	44647.38	1339.46	0.30
Susquehanna	Middle Reach	188.833	2-yr	113700.00	499.81	530.5	517.26	531.51	0.000367	8.22	14125.21	847.94	0.32
Susquehanna	Middle Reach	188.833	5-yr	157100.00	499.81	535.4	519.99	536.58	0.000392	8.96	19855.35	1364.82	0.32
Susquehanna	Middle Reach	188.833	10-yr	188000.00	499.81	538.7	521.79	539.94	0.000404	9.22	24397.30	1378.25	0.31
Susquehanna	Middle Reach	188.833	25-yr	229900.00	499.81	543.8	524.04	545.01	0.000330	9.20	31507.25	1399.01	0.29
Susquehanna	Middle Reach	188.833	50-yr	262200.00	499.81	546.9	526.32	548.19	0.000316	9.39	35931.63	1411.78	0.28
Susquehanna	Middle Reach	188.833	100-yr	296500.00	499.81	550.4	527.94	551.66	0.000347	9.50	40837.84	1426.08	0.27
Susquehanna	Middle Reach	188.833	500-yr	383600.00	499.81	554.2	532.45	555.88	0.000441	11.00	46293.46	1442.78	0.30
Susquehanna	Middle Reach	188.754	2-yr	113700.00	500.31	530.3	517.16	531.36	0.000349	8.13	14337.37	892.07	0.31
Susquehanna	Middle Reach	188.754	5-yr	157100.00	500.31	535.2	519.95	536.41	0.000391	8.82	20441.64	1460.89	0.32
Susquehanna	Middle Reach	188.754	10-yr	188000.00	500.31	538.5	521.89	539.76	0.000397	9.04	25314.35	1473.24	0.31
Susquehanna	Middle Reach	188.754	25-yr	229900.00	500.31	543.7	524.43	544.86	0.000318	8.94	32973.63	1492.40	0.28
Susquehanna	Middle Reach	188.754	50-yr	262200.00	500.31	546.9	525.96	548.05	0.000302	9.10	37711.21	1503.95	0.27
Susquehanna	Middle Reach	188.754	100-yr	296500.00	500.31	550.3	527.59	551.50	0.000330	9.20	42924.46	1516.92	0.26
Susquehanna	Middle Reach	188.754	500-yr	383600.00	500.31	554.1	532.20	555.67	0.000416	10.63	48708.92	1531.66	0.29
Susquehanna	Middle Reach	188.675	2-yr	113700.00	500.82	530.1	517.96	531.19	0.000437	8.52	14261.25	1129.51	0.34
Susquehanna	Middle Reach	188.675	5-yr	157100.00	500.82	535.0	520.87	536.24	0.000437	8.98	21175.21	1614.38	0.34
Susquehanna	Middle Reach	188.675	10-yr	188000.00	500.82	538.4	522.72	539.59	0.000425	9.05	26630.84	1628.20	0.32
Susquehanna	Middle Reach	188.675	25-yr	229900.00	500.82	543.6	525.77	544.71	0.000324	8.80	35207.75	1649.29	0.28
Susquehanna	Middle Reach	188.675	50-yr	262200.00	500.82	546.8	527.41	547.90	0.000302	8.89	40479.56	1662.12	0.27
Susquehanna	Middle Reach	188.675	100-yr	296500.00	500.82	550.3	529.10	551.34	0.000325	8.93	46241.09	1677.73	0.26
Susquehanna	Middle Reach	188.675	500-yr	383600.00	500.82	554.1	533.04	555.46	0.000405	10.28	52652.66	1703.15	0.29
Susquehanna	Middle Reach	188.594	2-yr	113700.00	501.34	530.0	517.86	530.97	0.000387	7.92	17483.38	1638.98	0.32
Susquehanna	Middle Reach	188.594	5-yr	157100.00	501.34	535.1	520.68	536.00	0.000343	8.10	26116.88	1759.42	0.30
Susquehanna	Middle Reach	188.594	10-yr	188000.00	501.34	538.4	523.36	539.35	0.000335	8.17	32063.66	1772.78	0.28
Susquehanna	Middle Reach	188.594	25-yr	229900.00	501.34	543.7	525.76	544.52	0.000258	7.97	41422.33	1793.59	0.25
Susquehanna	Middle Reach	188.594	50-yr	262200.00	501.34	546.9	527.41	547.72	0.000242	8.07	47161.11	1806.24	0.24
Susquehanna	Middle Reach	188.594	100-yr	296500.00	501.34	550.3	528.82	551.16	0.000263	8.13	53392.40	1819.88	0.23
Susquehanna	Middle Reach	188.594	500-yr	383600.00	501.34	554.1	532.54	555.23	0.000330	9.38	60353.59	1835.97	0.26
Susquehanna	Middle Reach	188.518	2-yr	113700.00	501.82	530.1	516.43	530.76	0.000251	6.67	21982.57	1819.57	0.26
Susquehanna	Middle Reach	188.518	5-yr	157100.00	501.82	535.1	519.03	535.81	0.000226	6.98	30951.56	1846.12	0.25
Susquehanna	Middle Reach	188.518	10-yr	188000.00	501.82	538.5	520.88	539.18	0.000232	7.15	36941.85	1858.81	0.24
Susquehanna	Middle Reach	188.518	25-yr	229900.00	501.82	543.7	523.90	544.39	0.000188	7.11	46343.71	1880.04	0.22
Susquehanna	Middle Reach	188.518	50-yr	262200.00	501.82	546.9	525.60	547.59	0.000181	7.26	52076.01	1890.38	0.21
Susquehanna	Middle Reach	188.518	100-yr	296500.00	501.82	550.3	527.15	551.02	0.000201	7.38	58247.40	1901.79	0.21
Susquehanna	Middle Reach	188.518	500-yr	383600.00	501.82	554.7	530.11	554.89	0.000081	4.84	257644.60	12606.11	0.13
Susquehanna	Middle Reach	188.436	2-yr	113700.00	502.25	530.1	515.32	530.64	0.000191	6.20	23385.40	1755.06	0.23
Susquehanna	Middle Reach	188.436	5-yr	157100.00	502.25	535.1	517.86	535.71	0.000185	6.65	32423.57	1854.24	0.23
Susquehanna	Middle Reach	188.436	10-yr	188000.00	502.25	538.4	519.48	539.08	0.000197	6.90	38742.64	1920.96	0.22
Susquehanna	Middle Reach	188.436	25-yr	229900.00	502.25	543.7	521.67	544.30	0.000164	6.90	48906.13	1947.56	0.21
Susquehanna	Middle Reach	188.436	50-yr	262200.00	502.25	546.9	523.19	547.51	0.000159	7.06	55130.36	1957.06	0.20
Susquehanna	Middle Reach	188.436	100-yr	296500.00	502.25	550.3	524.61	550.94	0.000178	7.19	61826.25	1966.67	0.20
Susquehanna	Middle Reach	188.436	500-yr	383600.00	502.25	553.9	528.56	554.77	0.000233	8.40	68935.09	1976.82	0.22
Susquehanna	Middle Reach	188.367	2-yr	113700.00	502.61	530.1	514.93	530.55	0.000163	5.52	25808.05	1950.34	0.21
Susquehanna	Middle Reach	188.367	5-yr	157100.00	502.61	535.1	517.37	535.61	0.000154	5.88	35109.53	1978.65	0.21
Susquehanna	Middle Reach	188.367	10-yr	188000.00	502.61	538.5	518.86	538.97	0.000161	6.08	41307.42	1993.86	0.20
Susquehanna	Middle Reach	188.367	25-yr	229900.00	502.61	543.7	521.51	544.22	0.000134	6.11	51087.74	2013.22	0.19
Susquehanna	Middle Reach	188.367	50-yr	262200.00	502.61	546.9	522.77	547.43	0.000131	6.29	57041.25	2021.37	0.18
Susquehanna	Middle Reach	188.367	100-yr	296500.00	502.61	550.3	524.08	550.85	0.000147	6.42	63413.41	2030.67	0.18
Susquehanna	Middle Reach	188.367	500-yr	383600.00	502.61	554.4	527.18	554.51	0.000063	4.34	284181.20	13910.16	0.12
Susquehanna	Middle Reach	188.280	2-yr	113700.00	503.06	530.1	514.51	530.47	0.000141	5.32	28431.96	2063.02	0.20
Susquehanna	Middle Reach	188.280	5-yr	157100.00	503.06	535.1	516.79	535.55	0.000140	5.77	38887.26	2098.84	0.20
Susquehanna	Middle Reach	188.280	10-yr	188000.00	503.06	538.4	518.16	538.91	0.000151	6.03	45895.95	2116.97	0.20
Susquehanna	Middle Reach	188.280	25-yr	229900.00	503.06	543.6	520.35	544.16	0.000129	6.11	57082.75	2144.39	0.18
Susquehanna	Middle Reach	188.280	50-yr	262200.00	503.06	546.8	521.72	547.37	0.000127	6.31	63925.10	2155.26	0.18
Susquehanna	Middle Reach	188.280	100-yr	296500.00	503.06	550.2	522.90	550.78	0.000145	6.47	71253.48	2166.85	0.18
Susquehanna	Middle Reach	188.280	500-yr	383600.00	503.06	554.3	525.82	554.48	0.000065	4.45	324774.30	15413.90	0.12
Susquehanna	Middle Reach	188.206	2-yr	113700.00	503.48	530.0	513.89	530.41	0.000131	4.97	22894.76	1099.05	0.19
Susquehanna	Middle Reach	188.206	5-yr	157100.00	503.48	535.0	516.01	535.49	0.000146	5.52	28455.74	1196.35	0.20
Susquehanna	Middle Reach	188.206	10-yr	188000.00	503.48	538.3	517.31	538.85	0.000161	5.81	32366.48	1444.66	0.20
Susquehanna	Middle Reach	188.206	25-yr	229900.00	503.48	543.6	518.91	544.11	0.000124	5.73	40097.01	2214.86	0.21
Susquehanna	Middle Reach	188.206	50-yr	262200.00	503.48	546.8	520.15	547.31	0.000122	5.74	45680.30	2242.63	0.20
Susquehanna	Middle Reach	188.206	100-yr	296500.00	503.48	550.2	521.28	550.71	0.000163	5.75	51635.10	2273.55	0.19
Susquehanna	Middle Reach	188.206	500-yr	383600.00	503.48	554.3	524.29	554.45	0.000074	3.82	283364.50	16231.53	0.12
Susquehanna	Middle Reach	188.203 Railroad		Bridge									
Susquehanna	Middle Reach	188.196	2-yr	113700.00	503.55	529.9	513.71	530.32	0.000130	4.94	23001.08	1105.48	0.19
Susquehanna	Middle Reach	188.196	5-yr	157100.00	503.55	534.9	515.79	535.39	0.000145	5.49	28628.04	1189.27	0.20
Susquehanna	Middle Reach	188.196	10-yr	188000.00	503.55	538.2	517.16	538.74	0.000159	5.77	32597.96	1212.16	0.20
Susquehanna	Middle Reach	188.196	25-yr	229900.00	503.55	543.4	518.74	543.94	0.000138	5.91	38893.75	1219.38	0.18
Susquehanna	Middle Reach	188.196	50-yr	262200.00	503.55	546.5	519.91	547.06	0.000137	6.15	42648.40	1613.92	0.18
Susquehanna	Middle Reach	188.196	100-yr	296500.00	503.55	549.7	521.10	550.31	0.000158	6.36	46584.11	2207.27	0.18
Susquehanna	Middle Reach	188.196	500-yr	383600.00	503.55	554.2	524.05	554.35	0.000065	4.25	276963.00	15873.99	0.12

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	188.131	2-yr	113700.00	503.81	529.9	514.17	530.28	0.000129	5.19	25947.57	2104.58	0.19
Susquehanna	Middle Reach	188.131	5-yr	157100.00	503.81	534.9	516.29	535.34	0.000133	5.66	34634.02	2171.72	0.19
Susquehanna	Middle Reach	188.131	10-yr	188000.00	503.81	538.2	517.65	538.68	0.000148	5.90	40512.09	2213.72	0.19
Susquehanna	Middle Reach	188.131	25-yr	229900.00	503.81	543.4	519.27	543.88	0.000126	5.97	49856.45	2234.91	0.18
Susquehanna	Middle Reach	188.131	50-yr	262200.00	503.81	546.5	520.46	547.00	0.000125	6.17	55422.28	2247.50	0.18
Susquehanna	Middle Reach	188.131	100-yr	296500.00	503.81	549.7	521.76	550.24	0.000144	6.35	61242.09	2260.62	0.18
Susquehanna	Middle Reach	188.131	500-yr	383600.00	503.81	554.2	525.05	554.31	0.000052	3.92	305280.60	13610.65	0.10
Susquehanna	Middle Reach	187.978	2-yr	113700.00	503.99	529.8	515.74	530.15	0.000166	5.10	30182.86	2331.18	0.21
Susquehanna	Middle Reach	187.978	5-yr	157100.00	503.99	534.8	518.06	535.20	0.000141	5.24	42028.77	2360.50	0.19
Susquehanna	Middle Reach	187.978	10-yr	188000.00	503.99	538.1	519.93	538.52	0.000142	5.34	49877.89	2380.72	0.19
Susquehanna	Middle Reach	187.978	25-yr	229900.00	503.99	543.4	522.31	543.74	0.000113	5.28	62418.06	2406.62	0.17
Susquehanna	Middle Reach	187.978	50-yr	262200.00	503.99	546.5	523.95	546.85	0.000108	5.40	69899.12	2509.06	0.16
Susquehanna	Middle Reach	187.978	100-yr	296500.00	503.99	549.7	525.10	550.08	0.000123	5.55	77840.77	2969.01	0.16
Susquehanna	Middle Reach	187.978	500-yr	383600.00	503.99	554.1	527.35	554.27	0.000064	4.13	264601.30	12708.90	0.11
Susquehanna	Middle Reach	187.822 Toby Creek	2-yr	114000.00	504.06	529.8	516.13	529.99	0.000122	3.87	29455.96	3042.28	0.18
Susquehanna	Middle Reach	187.822 Toby Creek	5-yr	157500.00	504.06	534.8	519.40	535.07	0.000100	3.99	39492.42	3237.31	0.16
Susquehanna	Middle Reach	187.822 Toby Creek	10-yr	188400.00	504.06	538.1	520.49	538.39	0.000100	4.08	46164.22	3975.55	0.15
Susquehanna	Middle Reach	187.822 Toby Creek	25-yr	230200.00	504.06	543.4	521.72	543.63	0.000081	4.05	56890.91	4213.33	0.14
Susquehanna	Middle Reach	187.822 Toby Creek	50-yr	262700.00	504.06	546.5	522.88	546.75	0.000077	4.15	63453.02	4385.42	0.13
Susquehanna	Middle Reach	187.822 Toby Creek	100-yr	297000.00	504.06	549.7	523.60	549.96	0.000086	4.24	70371.31	4507.43	0.13
Susquehanna	Middle Reach	187.822 Toby Creek	500-yr	384100.00	504.06	554.1	525.29	554.22	0.000058	3.67	201072.30	11276.34	0.11
Susquehanna	Middle Reach	187.666	2-yr	114000.00	504.03	529.5	515.68	529.86	0.000177	5.09	22404.73	1306.45	0.22
Susquehanna	Middle Reach	187.666	5-yr	157500.00	504.03	534.5	517.70	534.95	0.000162	5.42	29069.61	1340.73	0.21
Susquehanna	Middle Reach	187.666	10-yr	188400.00	504.03	537.8	519.06	538.26	0.000168	5.62	33500.23	1361.47	0.20
Susquehanna	Middle Reach	187.666	25-yr	230200.00	504.03	543.0	521.19	543.52	0.000136	5.65	40843.30	1411.00	0.18
Susquehanna	Middle Reach	187.666	50-yr	262700.00	504.03	546.1	522.29	546.64	0.000132	5.83	45214.99	1424.65	0.18
Susquehanna	Middle Reach	187.666	100-yr	297000.00	504.03	549.3	523.43	549.84	0.000150	6.00	49752.98	1437.73	0.18
Susquehanna	Middle Reach	187.666	500-yr	384100.00	504.03	553.9	526.09	554.16	0.000085	4.71	180495.20	7689.19	0.13
Susquehanna	Middle Reach	187.509	2-yr	114000.00	503.60	529.3	514.22	529.73	0.000137	5.10	22372.86	1076.57	0.20
Susquehanna	Middle Reach	187.509	5-yr	157500.00	503.60	534.3	516.24	534.81	0.000145	5.66	27815.95	1103.54	0.20
Susquehanna	Middle Reach	187.509	10-yr	188400.00	503.60	537.6	517.48	538.12	0.000161	6.00	31418.43	1118.35	0.20
Susquehanna	Middle Reach	187.509	25-yr	230200.00	503.60	542.8	519.07	543.40	0.000140	6.16	37521.46	1179.84	0.19
Susquehanna	Middle Reach	187.509	50-yr	262700.00	503.60	545.9	520.26	546.51	0.000142	6.43	41160.68	1197.07	0.19
Susquehanna	Middle Reach	187.509	100-yr	297000.00	503.60	549.0	521.42	549.69	0.000167	6.68	44932.98	1212.83	0.19
Susquehanna	Middle Reach	187.509	500-yr	384100.00	503.60	553.8	524.11	554.08	0.000094	5.24	170670.30	7193.02	0.14
Susquehanna	Middle Reach	187.400	2-yr	114000.00	503.72	529.0	517.29	529.61	0.000256	6.45	17822.40	1166.29	0.27
Susquehanna	Middle Reach	187.400	5-yr	157500.00	503.72	534.0	519.33	534.70	0.000244	6.86	23985.55	1273.22	0.26
Susquehanna	Middle Reach	187.400	10-yr	188400.00	503.72	537.2	520.62	537.99	0.000257	7.11	28159.65	1297.66	0.25
Susquehanna	Middle Reach	187.400	25-yr	230200.00	503.72	542.5	522.28	543.30	0.000212	7.12	35256.82	1365.44	0.23
Susquehanna	Middle Reach	187.400	50-yr	262700.00	503.72	545.6	523.49	546.41	0.000208	7.34	39471.44	1379.41	0.22
Susquehanna	Middle Reach	187.400	100-yr	297000.00	503.72	548.7	524.73	549.58	0.000239	7.56	43803.59	1394.05	0.22
Susquehanna	Middle Reach	187.400	500-yr	384100.00	503.72	553.7	527.70	554.03	0.000131	5.88	168753.50	7326.91	0.16
Susquehanna	Middle Reach	187.380	2-yr	114000.00	504.00	528.9	517.47	529.59	0.000207	6.51	17547.76	1074.66	0.27
Susquehanna	Middle Reach	187.380	5-yr	157500.00	504.00	533.9	519.45	534.68	0.000198	6.88	23870.67	1315.70	0.26
Susquehanna	Middle Reach	187.380	10-yr	188400.00	504.00	537.2	520.74	537.97	0.000209	7.11	28177.29	1353.28	0.25
Susquehanna	Middle Reach	187.380	25-yr	230200.00	504.00	542.5	522.38	543.27	0.000172	7.08	35519.54	1395.08	0.23
Susquehanna	Middle Reach	187.380	50-yr	262700.00	504.00	545.6	523.58	546.39	0.000169	7.29	39833.29	1413.31	0.22
Susquehanna	Middle Reach	187.380	100-yr	297000.00	504.00	548.7	524.91	549.55	0.000194	7.50	44277.62	1433.68	0.22
Susquehanna	Middle Reach	187.380	500-yr	384100.00	504.00	553.6	527.82	554.00	0.000118	6.11	164463.40	7275.19	0.17
Susquehanna	Middle Reach	187.291	2-yr	114000.00	504.46	529.0	515.15	529.37	0.000112	4.60	24803.66	1399.89	0.19
Susquehanna	Middle Reach	187.291	5-yr	157500.00	504.46	534.1	517.10	534.46	0.000106	4.92	32007.77	1454.42	0.18
Susquehanna	Middle Reach	187.291	10-yr	188400.00	504.46	537.3	518.34	537.74	0.000112	5.12	36783.69	1489.00	0.18
Susquehanna	Middle Reach	187.291	25-yr	230200.00	504.46	542.7	519.78	543.07	0.000090	5.15	44889.90	1538.21	0.17
Susquehanna	Middle Reach	187.291	50-yr	262700.00	504.46	545.7	520.78	546.18	0.000088	5.32	49660.83	1554.67	0.16
Susquehanna	Middle Reach	187.291	100-yr	297000.00	504.46	548.9	521.75	549.33	0.000101	5.49	54524.30	1565.12	0.16
Susquehanna	Middle Reach	187.291	500-yr	384100.00	504.46	553.6	524.15	553.89	0.000070	4.80	166838.20	6941.08	0.13
Susquehanna	Middle Reach	187.142	2-yr	114000.00	504.10	529.0	515.69	529.27	0.000129	4.53	25186.34	1612.99	0.20
Susquehanna	Middle Reach	187.142	5-yr	157500.00	504.10	534.0	517.65	534.36	0.000109	4.71	33437.26	1644.87	0.18
Susquehanna	Middle Reach	187.142	10-yr	188400.00	504.10	537.3	519.02	537.64	0.000110	4.85	38823.82	1661.78	0.18
Susquehanna	Middle Reach	187.142	25-yr	230200.00	504.10	542.6	520.85	542.99	0.000085	4.82	47824.45	1712.75	0.16
Susquehanna	Middle Reach	187.142	50-yr	262700.00	504.10	545.7	522.33	546.10	0.000081	4.96	53138.81	1724.83	0.16
Susquehanna	Middle Reach	187.142	100-yr	297000.00	504.10	548.8	523.40	549.23	0.000092	5.10	58527.54	1737.06	0.15
Susquehanna	Middle Reach	187.142	500-yr	384100.00	504.10	553.6	525.33	553.83	0.000066	4.57	162026.90	6613.01	0.13
Susquehanna	Middle Reach	186.990	2-yr	114000.00	504.03	528.7	516.18	529.13	0.000208	5.14	22187.21	1859.99	0.26
Susquehanna	Middle Reach	186.990	5-yr	157500.00	504.03	533.9	518.41	534.26	0.000148	4.95	31839.66	1883.38	0.21
Susquehanna	Middle Reach	186.990	10-yr	188400.00	504.03	537.2	520.18	537.54	0.000140	4.95	38048.19	1905.55	0.20
Susquehanna	Middle Reach	186.990	25-yr	230200.00	504.03	542.6	522.07	542.91	0.000102	4.74	49049.38	2093.68	0.17
Susquehanna	Middle Reach	186.990	50-yr	262700.00	504.03	545.7	523.26	546.02	0.000094	4.80	55574.55	2109.43	0.16
Susquehanna	Middle Reach	186.990	100-yr	297000.00	504.03	548.8	524.57	549.14	0.000103	4.88	62163.42	2122.92	0.15
Susquehanna	Middle Reach	186.990	500-yr	384100.00	504.03	553.5	527.77	553.76	0.000072	4.34	158773.30	6799.54	0.13
Susquehanna	Middle Reach	186.841	2-yr	114000.00	503.99	528.7	516.16	528.95	0.000165	4.34	26239.28	2258.92	0.22
Susquehanna	Middle Reach	186.841	5-yr	157500.00	503.99	533.9	518.82	534.12	0.000114	4.12	38224.79	2344.54	0.18
Susquehanna	Middle Reach	186.841	10-yr	188400.00	503.99	537.1	520.35	537.41	0.000107	4.10	45967.49	2367.71	0.16
Susquehanna	Middle Reach	186.841	25-yr	230200.00	503.99	542.6	522.59	542.80	0.000077	3.91	59139.66	2453.57	0.14
Susquehanna	Middle Reach	186.841	50-yr	262700.00	503.99	545.7	523.58	545.92	0.000071	3.95	66795.31	2465.61	0.13
Susquehanna	Middle Reach	186.841	100-yr	297000.00	503.99	548.8	524.56	549.04	0.000078	4.02	74479.38	2477.58	0.13
Susquehanna	Middle Reach	186.841	500-yr	384100.00	503.99	553.5	526.64	553.70	0.000064	3.85	155225.20	6174.21	0.11
Susquehanna	Middle Reach	186.762	2-yr	114000.00	504.14	528.6	516.57	528.85	0.000238	3.84	29670.42	2283.53	0.19
Susquehanna	Middle Reach	186.762	5-yr	157500.00	504.14	533.8	518.49	534.05	0.000162	3.78	41632.91	2309.36	0.16
Susquehanna	Middle Reach	186.762	10-yr	188400.00	504.14	537.1	519.80	537.34	0.000162	3.83	49244.97	2324.17	0.15
Susquehanna	Middle Reach	186.762	25-yr	230200.00	504.14	542.5	520.95	542.75	0.000182	3.72	62392.30	3046.75	0.13
Susquehanna	Middle Reach	186.762	50-yr	262700.00	504.14	545.7	521.89	545.87	0.000174	3.78	70580.58	3290.54	0.12
Susquehanna	Middle Reach	186.762	100-yr	297000.00	504.14	548.8	522.65	548.99	0.000171	3.86	78842.01	3414.38	0.12
Susquehanna	Middle Reach	186.762	500-yr	384100.00	504.14	553.5	524.46	553.65	0.000128	3.62	158215.50	6990.01	0.11
Susquehanna	Middle Reach	186.696	2-yr	114000.00	504.13	528.6	515.86	528.80	0.000093	3.74	30517.85	2291.08	0.18
Susquehanna	Middle Reach	186.696	5-yr	157500.00	504.13	533.8	517.51	534.01	0.000073	3.68	42794.71	2368.65	0.15
Susquehanna	Middle Reach	186.696	10-yr	188400.00	504.13	537.1	518.50	537.30	0.000077	3.72	50599.42	2383.15	0.14
Susquehanna	Middle Reach	186.696	25-yr	230200.00	504.13	542.5	519.85	542.70	0.000092	3.62	63625.82	2484.26	0.12

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	186.696	50-yr	262700.00	504.13	545.6	520.78	545.83	0.000090	3.69	71441.55	2535.57	0.12
Susquehanna	Middle Reach	186.696	100-yr	297000.00	504.13	548.7	521.68	548.94	0.000090	3.77	79366.55	2559.92	0.12
Susquehanna	Middle Reach	186.696	500-yr	384100.00	504.13	553.4	523.70	553.62	0.000076	3.74	156684.10	6121.20	0.11
Susquehanna	Middle Reach	186.540	2-yr	114000.00	504.08	528.3	514.36	528.60	0.000302	4.11	27712.21	1886.62	0.19
Susquehanna	Middle Reach	186.540	5-yr	157500.00	504.08	533.6	516.10	533.84	0.000298	4.09	38509.89	2212.46	0.17
Susquehanna	Middle Reach	186.540	10-yr	188400.00	504.08	536.9	517.13	537.12	0.000297	4.11	45793.99	2228.45	0.16
Susquehanna	Middle Reach	186.540	25-yr	230200.00	504.08	542.3	518.49	542.50	0.000335	3.98	57880.77	2254.46	0.14
Susquehanna	Middle Reach	186.540	50-yr	262700.00	504.08	545.4	519.57	545.62	0.000520	4.05	64935.66	2327.47	0.13
Susquehanna	Middle Reach	186.540	100-yr	297000.00	504.08	548.5	520.65	548.74	0.000571	4.12	72310.46	2390.16	0.13
Susquehanna	Middle Reach	186.540	500-yr	384100.00	504.08	553.3	523.10	553.47	0.000403	3.77	149306.80	6168.15	0.11
Susquehanna	Middle Reach	186.535 Carey Bridge		Bridge									
Susquehanna	Middle Reach	186.530	2-yr	114000.00	504.07	528.3	514.58	528.56	0.000099	4.24	26876.98	1904.95	0.20
Susquehanna	Middle Reach	186.530	5-yr	157500.00	504.07	533.5	516.23	533.81	0.000089	4.16	37847.94	2173.19	0.18
Susquehanna	Middle Reach	186.530	10-yr	188400.00	504.07	536.8	517.30	537.09	0.000098	4.19	44998.52	2189.97	0.16
Susquehanna	Middle Reach	186.530	25-yr	230200.00	504.07	542.2	518.79	542.46	0.000123	4.05	56868.83	2217.58	0.14
Susquehanna	Middle Reach	186.530	50-yr	262700.00	504.07	545.3	519.87	545.53	0.000125	4.12	63709.12	2302.40	0.14
Susquehanna	Middle Reach	186.530	100-yr	297000.00	504.07	548.3	520.85	548.61	0.000129	4.21	70901.63	2404.47	0.13
Susquehanna	Middle Reach	186.530	500-yr	384100.00	504.07	552.9	523.26	553.25	0.000145	4.74	81940.23	2421.00	0.14
Susquehanna	Middle Reach	186.470	2-yr	114000.00	503.80	528.0	516.51	528.48	0.000585	5.41	21064.22	1635.18	0.27
Susquehanna	Middle Reach	186.470	5-yr	157500.00	503.80	533.3	518.42	533.73	0.000479	5.12	30761.95	1886.82	0.22
Susquehanna	Middle Reach	186.470	10-yr	188400.00	503.80	536.6	519.88	537.01	0.000461	5.10	36975.02	1899.63	0.20
Susquehanna	Middle Reach	186.470	25-yr	230200.00	503.80	542.0	521.46	542.37	0.000499	4.87	47286.12	1923.69	0.17
Susquehanna	Middle Reach	186.470	50-yr	262700.00	503.80	545.1	522.56	545.44	0.000476	4.94	53198.20	2009.55	0.17
Susquehanna	Middle Reach	186.470	100-yr	297000.00	503.80	548.1	523.73	548.52	0.000475	5.02	59157.55	2061.39	0.16
Susquehanna	Middle Reach	186.470	500-yr	384100.00	503.80	552.7	526.54	553.16	0.000514	5.61	69594.70	2281.95	0.17
Susquehanna	Middle Reach	186.457	2-yr	114000.00	503.65	528.0	515.58	528.46	0.000176	5.35	21316.90	1750.77	0.27
Susquehanna	Middle Reach	186.457	5-yr	157500.00	503.65	533.3	517.79	533.72	0.000143	5.10	30856.76	1814.52	0.22
Susquehanna	Middle Reach	186.457	10-yr	188400.00	503.65	536.6	519.07	537.00	0.000153	5.12	36825.50	1828.93	0.20
Susquehanna	Middle Reach	186.457	25-yr	230200.00	503.65	542.0	520.93	542.36	0.000184	4.93	46796.48	1869.19	0.17
Susquehanna	Middle Reach	186.457	50-yr	262700.00	503.65	545.0	522.11	545.43	0.000182	5.01	52536.65	1882.95	0.17
Susquehanna	Middle Reach	186.457	100-yr	297000.00	503.65	548.1	523.28	548.51	0.000183	5.11	58321.20	1896.96	0.16
Susquehanna	Middle Reach	186.457	500-yr	384100.00	503.65	552.9	526.22	553.07	0.000112	4.28	146718.40	6161.34	0.13
Susquehanna	Middle Reach	186.384	2-yr	114000.00	503.06	528.0	514.95	528.36	0.000284	4.94	23062.60	1593.96	0.23
Susquehanna	Middle Reach	186.384	5-yr	157500.00	503.06	533.3	516.89	533.65	0.000212	4.99	31563.05	1621.32	0.20
Susquehanna	Middle Reach	186.384	10-yr	188400.00	503.06	536.5	518.17	536.93	0.000232	5.10	36922.97	1658.67	0.19
Susquehanna	Middle Reach	186.384	25-yr	230200.00	503.06	541.9	519.89	542.27	0.000279	5.02	45882.75	1688.34	0.17
Susquehanna	Middle Reach	186.384	50-yr	262700.00	503.06	544.9	521.72	545.34	0.000279	5.14	51063.62	1705.70	0.17
Susquehanna	Middle Reach	186.384	100-yr	297000.00	503.06	548.0	522.73	548.42	0.000283	5.28	56297.50	1723.06	0.16
Susquehanna	Middle Reach	186.384	500-yr	384100.00	503.06	552.8	525.12	553.01	0.000147	4.07	155157.90	6395.13	0.12
Susquehanna	Middle Reach	186.308	2-yr	114000.00	502.62	527.8	515.32	528.22	0.000341	5.45	20904.71	1364.57	0.25
Susquehanna	Middle Reach	186.308	5-yr	157500.00	502.62	533.1	517.42	533.54	0.000268	5.58	28247.67	1404.89	0.22
Susquehanna	Middle Reach	186.308	10-yr	188400.00	502.62	536.3	519.00	536.81	0.000287	5.74	32827.11	1422.04	0.21
Susquehanna	Middle Reach	186.308	25-yr	230200.00	502.62	541.6	520.80	542.13	0.000346	5.69	40479.66	1450.25	0.19
Susquehanna	Middle Reach	186.308	50-yr	262700.00	502.62	544.7	521.84	545.21	0.000344	5.85	44918.30	1466.37	0.19
Susquehanna	Middle Reach	186.308	100-yr	297000.00	502.62	547.7	522.88	548.28	0.000349	6.01	49402.59	1482.72	0.18
Susquehanna	Middle Reach	186.308	500-yr	384100.00	502.62	552.7	525.90	552.92	0.000180	4.68	139619.40	6328.13	0.13
Susquehanna	Middle Reach	186.200	2-yr	114000.00	502.12	527.7	514.27	528.06	0.000241	5.11	22311.59	1228.89	0.21
Susquehanna	Middle Reach	186.200	5-yr	157500.00	502.12	533.0	516.48	533.41	0.000240	5.44	28934.88	1282.02	0.20
Susquehanna	Middle Reach	186.200	10-yr	188400.00	502.12	536.2	517.63	536.67	0.000291	5.68	33140.89	1325.59	0.20
Susquehanna	Middle Reach	186.200	25-yr	230200.00	502.12	541.4	519.36	541.95	0.000384	5.72	40216.90	1356.31	0.19
Susquehanna	Middle Reach	186.200	50-yr	262700.00	502.12	544.5	520.42	545.02	0.000397	5.92	44358.58	1373.98	0.18
Susquehanna	Middle Reach	186.200	100-yr	297000.00	502.12	547.5	521.43	548.08	0.000414	6.12	48546.48	1391.77	0.18
Susquehanna	Middle Reach	186.200	500-yr	384100.00	502.12	552.6	523.82	552.83	0.000216	4.79	135349.10	6216.18	0.13
Susquehanna	Middle Reach	186.100	2-yr	114000.00	501.39	527.5	513.09	527.95	0.000195	5.33	21383.09	1147.77	0.22
Susquehanna	Middle Reach	186.100	5-yr	157500.00	501.39	532.8	515.15	533.30	0.000185	5.72	27525.25	1176.99	0.21
Susquehanna	Middle Reach	186.100	10-yr	188400.00	501.39	536.0	516.50	536.53	0.000216	6.02	31294.66	1194.57	0.21
Susquehanna	Middle Reach	186.100	25-yr	230200.00	501.39	541.2	518.24	541.76	0.000327	6.12	37633.74	1262.67	0.20
Susquehanna	Middle Reach	186.100	50-yr	262700.00	501.39	544.2	519.52	544.82	0.000365	6.32	41540.23	1308.38	0.20
Susquehanna	Middle Reach	186.100	100-yr	297000.00	501.39	547.2	521.18	547.87	0.000383	6.53	45514.66	1327.57	0.20
Susquehanna	Middle Reach	186.100	500-yr	384100.00	501.39	552.5	523.87	552.74	0.000186	4.96	146429.40	6929.97	0.14
Susquehanna	Middle Reach	186.000	2-yr	114000.00	502.34	527.2	515.80	527.79	0.000231	6.32	18045.03	1061.75	0.27
Susquehanna	Middle Reach	186.000	5-yr	157500.00	502.34	532.5	517.79	533.15	0.000218	6.63	23756.74	1095.34	0.25
Susquehanna	Middle Reach	186.000	10-yr	188400.00	502.34	535.6	519.13	536.36	0.000255	6.92	27238.34	1115.65	0.25
Susquehanna	Middle Reach	186.000	25-yr	230200.00	502.34	540.8	521.08	541.52	0.000348	6.95	33140.48	1199.80	0.23
Susquehanna	Middle Reach	186.000	50-yr	262700.00	502.34	543.8	522.30	544.56	0.000362	7.13	36863.48	1260.25	0.23
Susquehanna	Middle Reach	186.000	100-yr	297000.00	502.34	546.8	523.45	547.60	0.000376	7.30	40679.73	1278.70	0.23
Susquehanna	Middle Reach	186.000	500-yr	384100.00	502.34	552.4	526.12	552.63	0.000163	5.13	161841.40	7225.74	0.15
Susquehanna	Middle Reach	185.900	2-yr	114000.00	501.75	527.0	515.63	527.65	0.000235	6.64	17176.43	1007.38	0.28
Susquehanna	Middle Reach	185.900	5-yr	157500.00	501.75	532.3	517.79	533.01	0.000221	6.97	22603.13	1042.57	0.26
Susquehanna	Middle Reach	185.900	10-yr	188400.00	501.75	535.4	519.17	536.20	0.000260	7.27	25908.92	1080.19	0.26
Susquehanna	Middle Reach	185.900	25-yr	230200.00	501.75	540.5	520.90	541.31	0.000351	7.30	31541.18	1127.31	0.24
Susquehanna	Middle Reach	185.900	50-yr	262700.00	501.75	543.5	522.12	544.34	0.000363	7.52	34934.10	1150.00	0.24
Susquehanna	Middle Reach	185.900	100-yr	297000.00	501.75	546.4	523.33	547.38	0.000378	7.74	38395.45	1167.75	0.24
Susquehanna	Middle Reach	185.900	500-yr	384100.00	501.75	552.1	526.39	552.52	0.000216	6.27	118022.90	5178.87	0.18
Susquehanna	Middle Reach	185.880	2-yr	114000.00	502.52	526.9	515.90	527.63	0.000490	6.71	16991.50	975.32	0.28
Susquehanna	Middle Reach	185.880	5-yr	157500.00	502.52	532.2	518.10	532.99	0.000488	7.06	22316.55	1036.84	0.27
Susquehanna	Middle Reach	185.880	10-yr	188400.00	502.52	535.3	519.45	536.18	0.000571	7.36	25587.77	1059.45	0.26
Susquehanna	Middle Reach	185.880	25-yr	230200.00	502.52	540.4	521.16	541.28	0.000751	7.42	31040.71	1081.92	0.24
Susquehanna	Middle Reach	185.880	50-yr	262700.00	502.52	543.4	522.35	544.31	0.000764	7.67	34266.86	1091.38	0.24
Susquehanna	Middle Reach	185.880	100-yr	297000.00	502.52	546.4	523.55	547.34	0.000778	7.92	37525.39	1100.53	0.24
Susquehanna	Middle Reach	185.880	500-yr	384100.00	502.52	552.1	526.37	552.47	0.000326	5.66	113794.80	5174.01	0.16
Susquehanna	Middle Reach	185.84	2-yr	114000.00	502.32	526.9	515.38	527.50	0.000220	6.04	18875.26	1113.32	0.26
Susquehanna	Middle Reach	185.84	5-yr	157500.00	502.32	532.2	517.33	532.86	0.000210	6.33	24900.06	1157.40	0.24
Susquehanna	Middle Reach	185.84	10-yr	188400.00	502.32	535.3	518.61	536.02	0.000261	6.60	28548.64	1188.34	0.24
Susquehanna	Middle Reach	185.84	25-yr	230200.00	502.32	540.4	520.27	541.09	0.000349	6.65	34619.31	1213.97	0.22
Susquehanna	Middle Reach	185.84	50-yr	262700.00	502.32	543.4	521.51	544.11	0.000362	6.87	38252.01	1229.21	0.22
Susquehanna	Middle Reach	185.84	100-yr	297000.00	502.32	546.4	522.71	547.13	0.000379	7.08	41935.58	1244.47	0.22
Susquehanna	Middle Reach	185.84	500-yr	384100.00	502.32	552.1	525.36	552.36	0.000147	4.86	163129.10	7130.11	0.14

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	185.781	2-yr	114000.00	502.22	526.9	515.17	527.47	0.000200	6.14	18563.50	1045.56	0.26
Susquehanna	Middle Reach	185.781	5-yr	157500.00	502.22	532.2	517.10	532.83	0.000182	6.51	24199.97	1084.25	0.24
Susquehanna	Middle Reach	185.781	10-yr	188400.00	502.22	535.3	518.40	535.98	0.000225	6.83	27581.58	1105.60	0.24
Susquehanna	Middle Reach	185.781	25-yr	230200.00	502.22	540.3	520.04	541.03	0.000325	6.93	33217.43	1134.34	0.23
Susquehanna	Middle Reach	185.781	50-yr	262700.00	502.22	543.3	521.33	544.05	0.000347	7.18	36600.79	1150.01	0.22
Susquehanna	Middle Reach	185.781	100-yr	297000.00	502.22	546.2	522.48	547.07	0.000376	7.42	40038.02	1167.88	0.22
Susquehanna	Middle Reach	185.781	500-yr	384100.00	502.22	552.1	525.18	552.31	0.000117	4.45	162710.40	6654.92	0.12
Susquehanna	Middle Reach	185.629	2-yr	114000.00	502.08	526.8	513.70	527.30	0.000168	5.91	19290.82	1008.41	0.24
Susquehanna	Middle Reach	185.629	5-yr	157500.00	502.08	532.1	515.72	532.68	0.000161	6.37	24733.15	1045.94	0.23
Susquehanna	Middle Reach	185.629	10-yr	188400.00	502.08	535.1	517.14	535.81	0.000191	6.74	28050.55	1133.86	0.23
Susquehanna	Middle Reach	185.629	25-yr	230200.00	502.08	540.1	518.92	540.80	0.000258	6.89	33859.49	1186.74	0.22
Susquehanna	Middle Reach	185.629	50-yr	262700.00	502.08	543.0	520.07	543.80	0.000265	7.14	37385.90	1202.62	0.22
Susquehanna	Middle Reach	185.629	100-yr	297000.00	502.08	546.0	521.23	546.81	0.000275	7.39	40962.29	1220.33	0.22
Susquehanna	Middle Reach	185.629	500-yr	384100.00	502.08	552.0	523.99	552.23	0.000085	4.50	161705.30	6410.80	0.12
Susquehanna	Middle Reach	185.475	2-yr	114000.00	500.42	526.5	514.48	527.13	0.000246	6.55	17413.67	1040.08	0.28
Susquehanna	Middle Reach	185.475	5-yr	157500.00	500.42	531.8	517.05	532.52	0.000213	6.80	23509.41	1202.41	0.26
Susquehanna	Middle Reach	185.475	10-yr	188400.00	500.42	534.8	518.53	535.63	0.000242	7.09	27228.02	1241.54	0.26
Susquehanna	Middle Reach	185.475	25-yr	230200.00	500.42	539.8	520.50	540.56	0.000315	7.14	33522.12	1298.48	0.24
Susquehanna	Middle Reach	185.475	50-yr	262700.00	500.42	542.7	521.68	543.56	0.000315	7.35	37386.67	1315.49	0.23
Susquehanna	Middle Reach	185.475	100-yr	297000.00	500.42	545.7	523.00	546.56	0.000321	7.56	41298.80	1337.00	0.23
Susquehanna	Middle Reach	185.475	500-yr	384100.00	500.42	552.0	525.88	552.16	0.000096	4.55	169710.90	6261.97	0.13
Susquehanna	Middle Reach	185.328	2-yr	114000.00	498.75	526.2	514.81	526.91	0.000302	6.90	16528.09	1064.67	0.31
Susquehanna	Middle Reach	185.328	5-yr	157500.00	498.75	531.6	517.41	532.34	0.000244	7.02	22493.57	1147.99	0.28
Susquehanna	Middle Reach	185.328	10-yr	188400.00	498.75	534.6	518.98	535.42	0.000279	7.29	26002.81	1176.36	0.27
Susquehanna	Middle Reach	185.328	25-yr	230200.00	498.75	539.5	521.43	540.28	0.000383	7.32	31834.40	1224.74	0.25
Susquehanna	Middle Reach	185.328	50-yr	262700.00	498.75	542.4	522.73	543.28	0.000401	7.52	35494.61	1254.90	0.24
Susquehanna	Middle Reach	185.328	100-yr	297000.00	498.75	545.3	523.94	546.27	0.000431	7.72	39233.01	1289.55	0.24
Susquehanna	Middle Reach	185.328	500-yr	384100.00	498.75	551.9	526.60	552.08	0.000109	4.28	168848.80	6004.67	0.12
Susquehanna	Middle Reach	185.180	2-yr	114000.00	496.50	526.0	513.49	526.64	0.000296	6.28	18144.31	1326.09	0.30
Susquehanna	Middle Reach	185.180	5-yr	157500.00	496.50	531.5	516.02	532.10	0.000219	6.05	26028.72	1490.95	0.26
Susquehanna	Middle Reach	185.180	10-yr	188400.00	496.50	534.6	517.60	535.15	0.000233	6.16	30569.87	1508.72	0.24
Susquehanna	Middle Reach	185.180	25-yr	230200.00	496.50	539.4	520.00	539.95	0.000292	6.07	37897.89	1536.03	0.22
Susquehanna	Middle Reach	185.180	50-yr	262700.00	496.50	542.3	521.68	542.93	0.000289	6.18	42475.79	1552.78	0.21
Susquehanna	Middle Reach	185.180	100-yr	297000.00	496.50	545.3	523.39	545.90	0.000293	6.31	47073.93	1569.34	0.20
Susquehanna	Middle Reach	185.180	500-yr	384100.00	496.50	551.8	526.13	552.00	0.000105	4.21	158031.40	5777.44	0.12
Susquehanna	Middle Reach	185.022	2-yr	114000.00	495.36	526.0	510.48	526.43	0.000131	5.53	21972.55	1373.09	0.21
Susquehanna	Middle Reach	185.022	5-yr	157500.00	495.36	531.4	512.87	531.95	0.000122	5.80	32510.05	2949.42	0.20
Susquehanna	Middle Reach	185.022	10-yr	188400.00	495.36	534.5	514.40	534.98	0.000134	5.95	39848.61	3306.49	0.20
Susquehanna	Middle Reach	185.022	25-yr	230200.00	495.36	539.3	516.13	539.73	0.000168	5.85	51536.91	3561.90	0.18
Susquehanna	Middle Reach	185.022	50-yr	262700.00	495.36	542.2	517.38	542.71	0.000164	5.93	58847.09	3587.98	0.17
Susquehanna	Middle Reach	185.022	100-yr	297000.00	495.36	545.2	518.65	545.68	0.000163	6.01	66127.03	3659.81	0.17
Susquehanna	Middle Reach	185.022	500-yr	384100.00	495.36	551.7	521.71	551.91	0.000090	4.93	141674.30	5873.36	0.13
Susquehanna	Middle Reach	184.874	2-yr	114000.00	495.97	526.0	507.48	526.30	0.000079	4.21	31930.82	3189.53	0.17
Susquehanna	Middle Reach	184.874	5-yr	157500.00	495.97	531.6	509.80	531.80	0.000059	4.08	53867.88	4684.82	0.14
Susquehanna	Middle Reach	184.874	10-yr	188400.00	495.97	534.6	511.21	534.82	0.000064	4.15	65487.55	4934.07	0.14
Susquehanna	Middle Reach	184.874	25-yr	230200.00	495.97	539.4	512.92	539.56	0.000079	4.06	83844.59	5062.27	0.12
Susquehanna	Middle Reach	184.874	50-yr	262700.00	495.97	542.3	514.08	542.55	0.000077	4.10	95399.54	5124.25	0.12
Susquehanna	Middle Reach	184.874	100-yr	297000.00	495.97	545.3	515.24	545.51	0.000077	4.15	106901.50	5161.20	0.12
Susquehanna	Middle Reach	184.874	500-yr	384100.00	495.97	551.7	518.53	551.84	0.000060	4.04	160849.30	6271.52	0.11
Susquehanna	Middle Reach	184.800	2-yr	114000.00	497.77	526.1	507.58	526.25	0.000060	3.71	37210.81	3436.45	0.13
Susquehanna	Middle Reach	184.800	5-yr	157500.00	497.77	531.6	509.50	531.76	0.000048	3.64	65916.88	5227.61	0.12
Susquehanna	Middle Reach	184.800	10-yr	188400.00	497.77	534.6	510.73	534.78	0.000054	3.72	79778.27	5403.41	0.12
Susquehanna	Middle Reach	184.800	25-yr	230200.00	497.77	539.4	512.26	539.52	0.000069	3.65	101625.70	5491.80	0.11
Susquehanna	Middle Reach	184.800	50-yr	262700.00	497.77	542.4	513.38	542.50	0.000068	3.69	115391.50	5515.80	0.10
Susquehanna	Middle Reach	184.800	100-yr	297000.00	497.77	545.3	514.55	545.47	0.000068	3.74	129079.60	5534.34	0.10
Susquehanna	Middle Reach	184.800	500-yr	384100.00	497.77	551.7	517.91	551.81	0.000063	3.93	161220.90	5728.70	0.10
Susquehanna	Middle Reach	184.700	2-yr	114100.00	499.04	526.0	508.94	526.22	0.000077	4.09	33730.91	3341.73	0.15
Susquehanna	Middle Reach	184.700	5-yr	157600.00	499.04	531.5	510.80	531.74	0.000067	4.16	58796.14	5137.98	0.14
Susquehanna	Middle Reach	184.700	10-yr	188600.00	499.04	534.5	511.98	534.76	0.000075	4.24	73289.23	5400.21	0.13
Susquehanna	Middle Reach	184.700	25-yr	230300.00	499.04	539.3	513.49	539.49	0.000096	4.16	96331.97	5529.31	0.12
Susquehanna	Middle Reach	184.700	50-yr	262900.00	499.04	542.3	514.65	542.47	0.000094	4.19	110972.00	5567.62	0.12
Susquehanna	Middle Reach	184.700	100-yr	297300.00	499.04	545.2	515.90	545.43	0.000093	4.23	125523.30	5585.93	0.12
Susquehanna	Middle Reach	184.700	500-yr	384400.00	499.04	551.6	518.52	551.78	0.000086	4.43	156737.30	5626.90	0.11
Susquehanna	Middle Reach	184.600	2-yr	114100.00	498.87	525.9	508.63	526.18	0.000081	4.25	28267.10	2583.09	0.16
Susquehanna	Middle Reach	184.600	5-yr	157600.00	498.87	531.4	510.47	531.71	0.000071	4.36	50825.36	4827.67	0.14
Susquehanna	Middle Reach	184.600	10-yr	188600.00	498.87	534.5	511.66	534.72	0.000079	4.45	64075.29	4936.20	0.14
Susquehanna	Middle Reach	184.600	25-yr	230300.00	498.87	539.2	513.17	539.45	0.000100	4.34	85007.70	5008.61	0.13
Susquehanna	Middle Reach	184.600	50-yr	262900.00	498.87	542.2	514.31	542.44	0.000098	4.38	98280.07	5043.77	0.12
Susquehanna	Middle Reach	184.600	100-yr	297300.00	498.87	545.2	515.43	545.40	0.000097	4.42	111456.40	5052.71	0.12
Susquehanna	Middle Reach	184.600	500-yr	384400.00	498.87	551.5	518.00	551.75	0.000089	4.62	139662.90	5106.72	0.12
Susquehanna	Middle Reach	184.500	2-yr	114100.00	499.43	525.7	510.39	526.11	0.000148	5.43	21685.73	2071.14	0.21
Susquehanna	Middle Reach	184.500	5-yr	157600.00	499.43	531.1	512.54	531.63	0.000158	5.94	27792.78	4737.46	0.20
Susquehanna	Middle Reach	184.500	10-yr	188600.00	499.43	534.3	513.86	534.66	0.000143	5.44	54072.79	4888.04	0.18
Susquehanna	Middle Reach	184.500	25-yr	230300.00	499.43	539.1	515.48	539.38	0.000165	5.08	75059.02	4930.64	0.15
Susquehanna	Middle Reach	184.500	50-yr	262900.00	499.43	542.1	516.69	542.37	0.000153	5.01	88314.17	4976.85	0.15
Susquehanna	Middle Reach	184.500	100-yr	297300.00	499.43	545.1	517.92	545.34	0.000146	4.98	101455.10	4992.91	0.14
Susquehanna	Middle Reach	184.500	500-yr	384400.00	499.43	551.4	521.08	551.70	0.000125	5.07	129586.80	5094.73	0.13
Susquehanna	Middle Reach	184.450	2-yr	114100.00	498.39	525.2	511.64	525.99	0.000304	6.99	16918.02	1778.06	0.27
Susquehanna	Middle Reach	184.450	5-yr	157600.00	498.39	530.6	514.15	531.51	0.000305	7.54	22216.06	4524.38	0.27
Susquehanna	Middle Reach	184.450	10-yr	188600.00	498.39	534.0	515.68	534.58	0.000251	6.49	48304.84	4845.22	0.22
Susquehanna	Middle Reach	184.450	25-yr	230300.00	498.39	538.9	517.63	539.31	0.000262	5.75	69799.54	4921.11	0.18
Susquehanna	Middle Reach	184.450	50-yr	262900.00	498.39	542.0	519.04	542.31	0.000237	5.50	83345.86	4977.43	0.16
Susquehanna	Middle Reach	184.450	100-yr	297300.00	498.39	545.0	521.20	545.29	0.000216	5.36	96733.67	4998.90	0.15
Susquehanna	Middle Reach	184.450	500-yr	384400.00	498.39	551.4	524.41	551.66	0.000174	5.31	125350.10	5078.68	0.14
Susquehanna	Middle Reach	184.350	2-yr	114100.00	498.77	524.4	513.95	525.77	0.000517	9.31	12403.83	1383.81	0.38
Susquehanna	Middle Reach	184.350	5-yr	157600.00	498.77	529.8	516.60	531.29	0.000473	9.80	18006.88	4440.27	0.36
Susquehanna	Middle Reach	184.350	10-yr	188600.00	498.77	533.7	518.35	534.45	0.000315	7.96	44331.53	4818.78	0.27
Susquehanna	Middle Reach	184.350	25-yr	230300.00	498.77	538.7	520.53	539.19	0.000299	6.84	66261.58	4853.69	0.21

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	184.350	50-yr	262900.00	498.77	541.8	522.19	542.21	0.000261	6.47	79834.34	4903.39	0.20
Susquehanna	Middle Reach	184.350	100-yr	297300.00	498.77	544.8	524.24	545.20	0.000234	6.24	93177.00	4921.93	0.18
Susquehanna	Middle Reach	184.350	500-yr	384400.00	498.77	551.3	531.50	551.59	0.000183	6.09	121519.50	4984.04	0.16
Susquehanna	Middle Reach	184.280	2-yr	114100.00	498.60	524.3	513.28	525.52	0.000415	8.76	13138.71	1934.85	0.34
Susquehanna	Middle Reach	184.280	5-yr	157600.00	498.60	530.2	515.88	530.92	0.000252	7.64	34759.82	4571.41	0.26
Susquehanna	Middle Reach	184.280	10-yr	188600.00	498.60	533.7	517.56	534.27	0.000221	7.01	50441.28	4941.42	0.23
Susquehanna	Middle Reach	184.280	25-yr	230300.00	498.60	538.7	519.66	539.05	0.000222	6.12	72751.80	4981.05	0.18
Susquehanna	Middle Reach	184.280	50-yr	262900.00	498.60	541.8	521.31	542.10	0.000193	5.86	86709.52	5021.72	0.17
Susquehanna	Middle Reach	184.280	100-yr	297300.00	498.60	544.8	522.97	545.10	0.000177	5.70	100442.10	5064.51	0.16
Susquehanna	Middle Reach	184.280	500-yr	384400.00	498.60	551.3	526.65	551.51	0.000142	5.62	129661.50	5119.25	0.15
Susquehanna	Middle Reach	184.180	2-yr	114100.00	498.43	524.2	512.73	525.22	0.000367	7.98	14302.24	2207.23	0.32
Susquehanna	Middle Reach	184.180	5-yr	157600.00	498.43	530.1	515.15	530.77	0.000239	7.12	38387.98	4890.74	0.25
Susquehanna	Middle Reach	184.180	10-yr	188600.00	498.43	533.6	516.69	534.15	0.000218	6.72	54890.66	5136.53	0.23
Susquehanna	Middle Reach	184.180	25-yr	230300.00	498.43	538.5	518.67	538.94	0.000231	6.10	78281.17	5288.71	0.19
Susquehanna	Middle Reach	184.180	50-yr	262900.00	498.43	541.6	520.13	542.00	0.000207	5.94	93059.74	5328.93	0.18
Susquehanna	Middle Reach	184.180	100-yr	297300.00	498.43	544.7	521.59	545.01	0.000193	5.85	107601.10	5344.29	0.17
Susquehanna	Middle Reach	184.180	500-yr	384400.00	498.43	551.1	525.22	551.44	0.000161	5.88	138586.80	5383.23	0.15
Susquehanna	Middle Reach	184.150	2-yr	114100.00	498.27	524.1	513.18	525.19	0.000389	8.17	13960.51	1518.76	0.33
Susquehanna	Middle Reach	184.150	5-yr	157600.00	498.27	529.9	515.63	530.73	0.000276	7.67	34035.59	4944.91	0.27
Susquehanna	Middle Reach	184.150	10-yr	188600.00	498.27	533.5	517.17	534.12	0.000237	7.03	52281.85	5130.18	0.24
Susquehanna	Middle Reach	184.150	25-yr	230300.00	498.27	538.5	519.13	538.91	0.000238	6.18	78177.69	5212.56	0.19
Susquehanna	Middle Reach	184.150	50-yr	262900.00	498.27	541.6	520.63	541.98	0.000207	5.91	94493.47	5250.64	0.18
Susquehanna	Middle Reach	184.150	100-yr	297300.00	498.27	544.7	522.10	544.98	0.000189	5.74	110491.90	5258.74	0.16
Susquehanna	Middle Reach	184.150	500-yr	384400.00	498.27	551.1	525.58	551.41	0.000151	5.65	144515.60	5270.73	0.15
Susquehanna	Middle Reach	184.100	2-yr	114100.00	497.57	524.1	513.00	525.12	0.000403	8.24	13842.25	1661.25	0.33
Susquehanna	Middle Reach	184.100	5-yr	157600.00	497.57	530.0	515.38	530.63	0.000266	7.08	36843.37	4546.81	0.25
Susquehanna	Middle Reach	184.100	10-yr	188600.00	497.57	533.6	516.94	534.02	0.000231	6.10	53526.24	4745.17	0.21
Susquehanna	Middle Reach	184.100	25-yr	230300.00	497.57	538.6	518.90	538.82	0.000224	5.19	77919.73	5074.16	0.16
Susquehanna	Middle Reach	184.100	50-yr	262900.00	497.57	541.7	520.34	541.89	0.000188	4.91	93796.69	5126.27	0.15
Susquehanna	Middle Reach	184.100	100-yr	297300.00	497.57	544.7	521.97	544.90	0.000167	4.73	109414.80	5154.70	0.14
Susquehanna	Middle Reach	184.100	500-yr	384400.00	497.57	551.2	525.54	551.35	0.000129	4.60	143117.00	5253.69	0.12
Susquehanna	Middle Reach	184.025	2-yr	114100.00	496.86	524.1	512.01	524.88	0.000289	7.23	15785.00	1629.77	0.28
Susquehanna	Middle Reach	184.025	5-yr	157600.00	496.86	529.5	514.38	530.46	0.000280	7.86	20058.32	4320.54	0.28
Susquehanna	Middle Reach	184.025	10-yr	188600.00	496.86	533.4	515.82	533.90	0.000192	6.45	50034.09	4685.29	0.21
Susquehanna	Middle Reach	184.025	25-yr	230300.00	496.86	538.3	517.65	538.70	0.000196	5.73	74655.16	5182.31	0.17
Susquehanna	Middle Reach	184.025	50-yr	262900.00	496.86	541.5	518.96	541.79	0.000169	5.48	91495.58	5405.88	0.16
Susquehanna	Middle Reach	184.025	100-yr	297300.00	496.86	544.5	520.30	544.82	0.000153	5.30	108097.40	5429.46	0.15
Susquehanna	Middle Reach	184.025	500-yr	384400.00	496.86	551.0	523.45	551.28	0.000121	5.18	143417.00	5450.89	0.13
Susquehanna	Middle Reach	183.950	2-yr	114100.00	496.38	523.8	513.34	524.74	0.000355	7.65	14913.91	1618.32	0.31
Susquehanna	Middle Reach	183.950	5-yr	157600.00	496.38	529.6	515.50	530.28	0.000241	7.05	33848.91	4571.37	0.25
Susquehanna	Middle Reach	183.950	10-yr	188600.00	496.38	533.3	516.91	533.81	0.000197	6.31	51265.27	4784.40	0.21
Susquehanna	Middle Reach	183.950	25-yr	230300.00	496.38	538.3	518.69	538.62	0.000193	5.54	74942.28	5150.62	0.17
Susquehanna	Middle Reach	183.950	50-yr	262900.00	496.38	541.4	519.99	541.72	0.000165	5.27	92202.07	5347.31	0.16
Susquehanna	Middle Reach	183.950	100-yr	297300.00	496.38	544.5	521.28	544.75	0.000148	5.09	108666.10	5447.63	0.14
Susquehanna	Middle Reach	183.950	500-yr	384400.00	496.38	551.0	524.39	551.23	0.000116	4.97	145300.00	5755.11	0.13
Susquehanna	Middle Reach	183.870	2-yr	114100.00	497.40	523.8	511.55	524.57	0.000279	7.09	16088.85	1408.39	0.28
Susquehanna	Middle Reach	183.870	5-yr	157600.00	497.40	529.6	514.00	530.16	0.000201	6.65	36677.46	4673.64	0.23
Susquehanna	Middle Reach	183.870	10-yr	188600.00	497.40	533.3	515.42	533.72	0.000166	5.97	54038.82	4929.62	0.20
Susquehanna	Middle Reach	183.870	25-yr	230300.00	497.40	538.2	517.22	538.53	0.000167	5.29	77635.33	5271.86	0.16
Susquehanna	Middle Reach	183.870	50-yr	262900.00	497.40	541.4	518.52	541.65	0.000143	5.02	96704.20	5428.00	0.15
Susquehanna	Middle Reach	183.870	100-yr	297300.00	497.40	544.5	519.83	544.69	0.000129	4.87	113659.50	5620.28	0.14
Susquehanna	Middle Reach	183.870	500-yr	384400.00	497.40	551.0	522.93	551.18	0.000102	4.76	151049.50	5857.82	0.12
Susquehanna	Middle Reach	183.790	2-yr	114100.00	497.93	523.7	510.72	524.44	0.000236	6.72	16987.33	1827.72	0.26
Susquehanna	Middle Reach	183.790	5-yr	157600.00	497.93	529.5	512.93	530.07	0.000171	6.30	38337.39	4535.74	0.22
Susquehanna	Middle Reach	183.790	10-yr	188600.00	497.93	533.3	514.33	533.65	0.000147	5.77	54926.84	4900.96	0.19
Susquehanna	Middle Reach	183.790	25-yr	230300.00	497.93	538.2	516.10	538.47	0.000154	5.19	78222.88	5669.03	0.15
Susquehanna	Middle Reach	183.790	50-yr	262900.00	497.93	541.4	517.39	541.59	0.000131	4.90	100735.30	5807.33	0.14
Susquehanna	Middle Reach	183.790	100-yr	297300.00	497.93	544.4	518.72	544.64	0.000119	4.76	118849.10	5943.76	0.13
Susquehanna	Middle Reach	183.790	500-yr	384400.00	497.93	550.9	521.81	551.14	0.000095	4.65	157905.40	6025.04	0.12
Susquehanna	Middle Reach	183.716	2-yr	114100.00	497.84	523.7	509.84	524.34	0.000207	6.41	17800.01	2406.86	0.24
Susquehanna	Middle Reach	183.716	5-yr	157600.00	497.84	529.2	512.08	529.97	0.000210	7.05	22429.01	4689.07	0.24
Susquehanna	Middle Reach	183.716	10-yr	188600.00	497.84	532.7	513.46	533.54	0.000248	7.44	25521.02	5558.22	0.24
Susquehanna	Middle Reach	183.716	25-yr	230300.00	497.84	538.1	515.16	538.41	0.000146	5.04	79937.14	6115.73	0.15
Susquehanna	Middle Reach	183.716	50-yr	262900.00	497.84	541.3	516.50	541.54	0.000117	4.63	108823.20	6405.11	0.13
Susquehanna	Middle Reach	183.716	100-yr	297300.00	497.84	544.4	517.79	544.59	0.000106	4.48	128177.40	6978.58	0.12
Susquehanna	Middle Reach	183.716	500-yr	384400.00	497.84	550.9	520.89	551.09	0.000083	4.37	169683.50	7288.63	0.11
Susquehanna	Middle Reach	183.634	2-yr	114100.00	496.40	523.7	508.56	524.25	0.000176	6.14	18586.08	2806.68	0.23
Susquehanna	Middle Reach	183.634	5-yr	157600.00	496.40	529.2	510.72	529.87	0.000185	6.82	23130.88	4718.20	0.23
Susquehanna	Middle Reach	183.634	10-yr	188600.00	496.40	532.6	512.09	533.42	0.000221	7.25	26128.45	5219.39	0.23
Susquehanna	Middle Reach	183.634	25-yr	230300.00	496.40	538.1	513.92	538.35	0.000142	5.10	80795.36	5539.74	0.15
Susquehanna	Middle Reach	183.634	50-yr	262900.00	496.40	541.2	515.23	541.48	0.000129	4.98	95174.54	5593.65	0.14
Susquehanna	Middle Reach	183.634	100-yr	297300.00	496.40	544.3	516.55	544.54	0.000108	4.63	124185.90	5656.27	0.13
Susquehanna	Middle Reach	183.634	500-yr	384400.00	496.40	550.9	519.68	551.06	0.000089	4.61	162809.30	6164.68	0.12
Susquehanna	Middle Reach	183.524	2-yr	114100.00	496.57	523.6	507.99	524.15	0.000169	6.12	18642.28	2866.35	0.22
Susquehanna	Middle Reach	183.524	5-yr	157600.00	496.57	529.0	510.18	529.77	0.000184	6.84	23024.64	4595.88	0.23
Susquehanna	Middle Reach	183.524	10-yr	188600.00	496.57	532.8	511.62	533.20	0.000133	5.59	57837.48	5293.86	0.18
Susquehanna	Middle Reach	183.524	25-yr	230300.00	496.57	538.0	513.41	538.27	0.000142	5.09	81036.87	5444.00	0.15
Susquehanna	Middle Reach	183.524	50-yr	262900.00	496.57	541.2	514.75	541.41	0.000130	4.98	95283.72	5547.19	0.14
Susquehanna	Middle Reach	183.524	100-yr	297300.00	496.57	544.3	516.08	544.48	0.000112	4.69	124699.90	5608.58	0.13
Susquehanna	Middle Reach	183.524	500-yr	384400.00	496.57	550.8	519.24	551.01	0.000093	4.68	163221.30	6068.75	0.12
Susquehanna	Middle Reach	183.408	2-yr	114100.00	496.37	523.4	507.97	524.04	0.000175	6.20	18399.49	2617.87	0.23
Susquehanna	Middle Reach	183.408	5-yr	157600.00	496.37	528.9	510.17	529.66	0.000191	6.92	22931.72	4635.52	0.23
Susquehanna	Middle Reach	183.408	10-yr	188600.00	496.37	532.7	511.63	533.12	0.000138	5.70	57655.38	4980.72	0.18
Susquehanna	Middle Reach	183.408	25-yr	230300.00	496.37	537.9	513.45	538.19	0.000150	5.22	80681.39	5090.62	0.15
Susquehanna	Middle Reach	183.408	50-yr	262900.00	496.37	541.1	514.80	541.34	0.000127	4.93	104927.80	5188.12	0.14
Susquehanna	Middle Reach	183.408	100-yr	297300.00	496.37	544.2	516.16	544.42	0.000120	4.87	121622.90	5692.45	0.13
Susquehanna	Middle Reach	183.408	500-yr	384400.00	496.37	550.7	519.39	550.95	0.000100	4.89	159592.10	6100.16	0.12
Susquehanna	Middle Reach	183.287	2-yr	114100.00	496.16	523.6	508.19	523.86	0.000097	4.60	32985.98	3268.64	0.17

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	183.287	5-yr	157600.00	496.16	529.2	510.53	529.43	0.000074	4.34	54899.13	4245.05	0.14
Susquehanna	Middle Reach	183.287	10-yr	188600.00	496.16	532.8	513.58	533.00	0.000072	4.21	70544.13	4604.23	0.13
Susquehanna	Middle Reach	183.287	25-yr	230300.00	496.16	537.9	515.23	538.08	0.000085	3.99	93649.24	5634.99	0.12
Susquehanna	Middle Reach	183.287	50-yr	262900.00	496.16	541.1	516.34	541.25	0.000080	3.97	108293.50	6671.64	0.11
Susquehanna	Middle Reach	183.287	100-yr	297300.00	496.16	544.2	517.36	544.34	0.000078	3.98	122718.20	7200.92	0.11
Susquehanna	Middle Reach	183.287	500-yr	384400.00	496.16	550.7	519.57	550.88	0.000067	4.05	166054.40	7562.42	0.10
Susquehanna	Middle Reach	183.177	2-yr	114100.00	495.97	523.6	507.50	523.80	0.000074	3.93	38435.87	3274.79	0.15
Susquehanna	Middle Reach	183.177	5-yr	157600.00	495.97	529.2	509.61	529.38	0.000056	3.76	60067.14	4153.08	0.13
Susquehanna	Middle Reach	183.177	10-yr	188600.00	495.97	532.8	510.99	532.95	0.000056	3.68	75208.06	4728.20	0.12
Susquehanna	Middle Reach	183.177	25-yr	230300.00	495.97	537.9	514.44	538.03	0.000067	3.53	97382.13	4947.17	0.10
Susquehanna	Middle Reach	183.177	50-yr	262900.00	495.97	541.1	515.54	541.21	0.000064	3.54	111710.90	5347.61	0.10
Susquehanna	Middle Reach	183.177	100-yr	297300.00	495.97	544.2	516.53	544.29	0.000063	3.57	126451.50	5733.32	0.10
Susquehanna	Middle Reach	183.177	500-yr	384400.00	495.97	550.7	518.50	550.85	0.000057	3.72	158673.90	6745.06	0.09
Susquehanna	Middle Reach	183.055 Natikcoke Creek	2-yr	114200.00	494.48	523.6	506.72	523.75	0.000059	3.58	43737.23	3252.68	0.13
Susquehanna	Middle Reach	183.055 Natikcoke Creek	5-yr	157700.00	494.48	529.2	508.71	529.34	0.000047	3.52	65018.31	3976.18	0.12
Susquehanna	Middle Reach	183.055 Natikcoke Creek	10-yr	188700.00	494.48	532.8	509.96	532.92	0.000049	3.52	79637.20	4203.23	0.11
Susquehanna	Middle Reach	183.055 Natikcoke Creek	25-yr	230400.00	494.48	537.9	512.94	537.99	0.000062	3.46	101433.90	4322.46	0.10
Susquehanna	Middle Reach	183.055 Natikcoke Creek	50-yr	263000.00	494.48	541.0	514.46	541.17	0.000062	3.53	115615.40	4541.88	0.10
Susquehanna	Middle Reach	183.055 Natikcoke Creek	100-yr	297400.00	494.48	544.1	515.56	544.26	0.000062	3.58	130100.40	5073.63	0.10
Susquehanna	Middle Reach	183.055 Natikcoke Creek	500-yr	384500.00	494.48	550.7	517.77	550.82	0.000057	3.77	162112.20	5643.84	0.09
Susquehanna	Middle Reach	182.897	2-yr	114200.00	495.48	523.4	507.19	523.67	0.000113	4.63	32481.62	2351.40	0.18
Susquehanna	Middle Reach	182.897	5-yr	157700.00	495.48	529.0	509.39	529.28	0.000092	4.61	48166.12	3475.14	0.16
Susquehanna	Middle Reach	182.897	10-yr	188700.00	495.48	532.6	510.78	532.85	0.000097	4.67	61527.61	3888.35	0.15
Susquehanna	Middle Reach	182.897	25-yr	230400.00	495.48	537.7	513.24	537.92	0.000115	4.48	81550.73	4313.26	0.13
Susquehanna	Middle Reach	182.897	50-yr	263000.00	495.48	540.9	514.87	541.10	0.000110	4.49	94166.38	4364.35	0.13
Susquehanna	Middle Reach	182.897	100-yr	297400.00	495.48	544.0	516.69	544.18	0.000108	4.54	106628.90	4598.40	0.13
Susquehanna	Middle Reach	182.897	500-yr	384500.00	495.48	550.5	519.49	550.75	0.000098	4.74	133212.30	4979.31	0.12
Susquehanna	Middle Reach	182.800	2-yr	114200.00	495.31	523.3	505.47	523.62	0.000084	4.33	27082.41	2907.52	0.16
Susquehanna	Middle Reach	182.800	5-yr	157700.00	495.31	528.9	507.56	529.22	0.000086	4.76	36355.33	3885.11	0.16
Susquehanna	Middle Reach	182.800	10-yr	188700.00	495.31	532.4	508.81	532.79	0.000099	4.94	45239.27	4179.43	0.16
Susquehanna	Middle Reach	182.800	25-yr	230400.00	495.31	537.5	510.32	537.84	0.000135	5.00	58127.44	4295.94	0.15
Susquehanna	Middle Reach	182.800	50-yr	263000.00	495.31	540.6	511.40	541.02	0.000137	5.12	66232.18	4398.63	0.14
Susquehanna	Middle Reach	182.800	100-yr	297400.00	495.31	543.7	512.54	544.10	0.000142	5.27	74235.87	4669.76	0.14
Susquehanna	Middle Reach	182.800	500-yr	384500.00	495.31	550.2	515.23	550.67	0.000139	5.66	91293.35	4808.73	0.14
Susquehanna	Middle Reach	182.790	2-yr	114200.00	495.26	523.3	505.49	523.60	0.000101	4.55	26282.02	1667.95	0.17
Susquehanna	Middle Reach	182.790	5-yr	157700.00	495.26	528.8	507.58	529.20	0.000109	5.00	34781.79	2417.43	0.17
Susquehanna	Middle Reach	182.790	10-yr	188700.00	495.26	532.4	508.92	532.77	0.000122	5.19	43419.77	2948.96	0.16
Susquehanna	Middle Reach	182.790	25-yr	230400.00	495.26	537.4	510.48	537.81	0.000162	5.23	56101.30	3019.36	0.15
Susquehanna	Middle Reach	182.790	50-yr	263000.00	495.26	540.6	511.63	540.99	0.000162	5.35	64102.79	3145.95	0.15
Susquehanna	Middle Reach	182.790	100-yr	297400.00	495.26	543.7	512.82	544.07	0.000278	5.49	71928.37	3180.39	0.15
Susquehanna	Middle Reach	182.790	500-yr	384500.00	495.26	550.2	515.59	550.64	0.000269	5.89	88619.76	3321.30	0.15
Susquehanna	Middle Reach	182.788 PA Route 29		Bridge									
Susquehanna	Middle Reach	182.780	2-yr	114200.00	495.26	523.2	506.24	523.57	0.000110	4.83	24722.40	1793.74	0.18
Susquehanna	Middle Reach	182.780	5-yr	157700.00	495.26	528.7	508.48	529.17	0.000109	5.27	32974.55	2716.40	0.18
Susquehanna	Middle Reach	182.780	10-yr	188700.00	495.26	532.3	509.99	532.74	0.000122	5.44	41583.35	3306.47	0.17
Susquehanna	Middle Reach	182.780	25-yr	230400.00	495.26	537.4	511.55	537.78	0.000162	5.46	54336.37	3417.89	0.16
Susquehanna	Middle Reach	182.780	50-yr	263000.00	495.26	540.5	512.72	540.96	0.000161	5.57	62384.14	3540.33	0.16
Susquehanna	Middle Reach	182.780	100-yr	297400.00	495.26	543.6	513.90	544.04	0.000165	5.70	70235.84	3621.26	0.16
Susquehanna	Middle Reach	182.780	500-yr	384500.00	495.26	550.1	516.70	550.60	0.000158	6.09	87091.05	3920.12	0.15
Susquehanna	Middle Reach	182.720	2-yr	114200.00	495.17	523.1	506.24	523.53	0.000136	5.49	22126.22	2594.42	0.20
Susquehanna	Middle Reach	182.720	5-yr	157700.00	495.17	528.6	508.92	529.13	0.000137	5.99	31002.17	4524.62	0.20
Susquehanna	Middle Reach	182.720	10-yr	188700.00	495.17	532.1	510.34	532.69	0.000151	6.14	40403.01	5370.33	0.19
Susquehanna	Middle Reach	182.720	25-yr	230400.00	495.17	537.2	512.07	537.72	0.000196	6.11	54252.26	5995.85	0.18
Susquehanna	Middle Reach	182.720	50-yr	263000.00	495.17	540.4	513.37	540.90	0.000194	6.21	63038.14	6179.52	0.17
Susquehanna	Middle Reach	182.720	100-yr	297400.00	495.17	543.4	514.64	543.97	0.000197	6.34	71613.45	6393.65	0.17
Susquehanna	Middle Reach	182.720	500-yr	384500.00	495.17	550.0	517.76	550.54	0.000186	6.73	89897.83	6512.79	0.17
Susquehanna	Middle Reach	182.600	2-yr	114200.00	494.47	522.9	506.27	523.44	0.000154	5.75	23396.67	2213.85	0.20
Susquehanna	Middle Reach	182.600	5-yr	157700.00	494.47	528.5	508.69	529.04	0.000144	6.08	38008.32	3709.74	0.19
Susquehanna	Middle Reach	182.600	10-yr	188700.00	494.47	532.1	510.21	532.59	0.000152	6.09	49280.34	3785.51	0.18
Susquehanna	Middle Reach	182.600	25-yr	230400.00	494.47	537.2	512.06	537.58	0.000191	5.94	65362.98	3882.05	0.17
Susquehanna	Middle Reach	182.600	50-yr	263000.00	494.47	540.3	513.37	540.76	0.000186	5.99	75634.00	3986.67	0.16
Susquehanna	Middle Reach	182.600	100-yr	297400.00	494.47	543.4	514.72	543.83	0.000186	6.06	85724.99	4136.92	0.16
Susquehanna	Middle Reach	182.600	500-yr	384500.00	494.47	550.0	518.39	550.40	0.000172	6.36	107425.50	4213.85	0.16
Susquehanna	Middle Reach	182.487	2-yr	114200.00	494.90	522.9	507.22	523.40	0.000168	5.87	21033.87	2028.04	0.22
Susquehanna	Middle Reach	182.487	5-yr	157700.00	494.90	528.5	509.59	529.01	0.000158	6.03	36165.87	3779.60	0.21
Susquehanna	Middle Reach	182.487	10-yr	188700.00	494.90	532.0	511.09	532.55	0.000161	6.01	47628.37	3831.02	0.20
Susquehanna	Middle Reach	182.487	25-yr	230400.00	494.90	537.1	512.87	537.54	0.000198	5.86	63886.23	3921.73	0.18
Susquehanna	Middle Reach	182.487	50-yr	263000.00	494.90	540.3	514.15	540.71	0.000192	5.93	74282.70	4048.87	0.17
Susquehanna	Middle Reach	182.487	100-yr	297400.00	494.90	543.3	515.46	543.78	0.000190	6.01	84568.63	4191.31	0.17
Susquehanna	Middle Reach	182.487	500-yr	384500.00	494.90	549.9	518.72	550.35	0.000174	6.33	106711.30	4270.19	0.16
Susquehanna	Middle Reach	182.410	2-yr	114200.00	494.75	522.9	507.17	523.32	0.000152	5.52	21578.81	2227.12	0.21
Susquehanna	Middle Reach	182.410	5-yr	157700.00	494.75	528.5	509.37	528.93	0.000128	5.64	37860.24	3982.01	0.19
Susquehanna	Middle Reach	182.410	10-yr	188700.00	494.75	532.0	510.77	532.47	0.000131	5.59	50060.38	4014.59	0.18
Susquehanna	Middle Reach	182.410	25-yr	230400.00	494.75	537.1	512.51	537.44	0.000159	5.40	67327.84	4091.88	0.16
Susquehanna	Middle Reach	182.410	50-yr	263000.00	494.75	540.3	513.75	540.62	0.000152	5.42	78350.50	4144.64	0.15
Susquehanna	Middle Reach	182.410	100-yr	297400.00	494.75	543.3	515.01	543.69	0.000150	5.47	89119.70	4257.39	0.15
Susquehanna	Middle Reach	182.410	500-yr	384500.00	494.75	549.9	518.03	550.26	0.000136	5.72	112310.20	4381.48	0.14
Susquehanna	Middle Reach	182.331	2-yr	114200.00	494.62	522.8	506.24	523.25	0.000126	5.09	23484.55	2284.15	0.19
Susquehanna	Middle Reach	182.331	5-yr	157700.00	494.62	528.5	508.97	528.86	0.000117	5.25	39805.36	3710.65	0.18
Susquehanna	Middle Reach	182.331	10-yr	188700.00	494.62	532.0	510.49	532.41	0.000120	5.24	51486.49	3793.56	0.17
Susquehanna	Middle Reach	182.331	25-yr	230400.00	494.62	537.0	512.04	537.37	0.000145	5.07	70290.21	3880.89	0.15
Susquehanna	Middle Reach	182.331	50-yr	263000.00	494.62	540.2	513.18	540.55	0.000140	5.10	81506.73	3913.75	0.15
Susquehanna	Middle Reach	182.331	100-yr	297400.00	494.62	543.3	514.34	543.62	0.000139	5.16	92452.66	3974.72	0.14
Susquehanna	Middle Reach	182.331	500-yr	384500.00	494.62	549.9	517.02	550.20	0.000126	5.43	116058.70	4140.20	0.14
Susquehanna	Middle Reach	182.250	2-yr	114200.00	494.48	522.8	506.26	523.19	0.000133	5.02	24325.55	1986.20	0.19
Susquehanna	Middle Reach	182.250	5-yr	157700.00	494.48	528.4	508.59	528.81	0.000119	5.21	39337.66	3540.16	0.18
Susquehanna	Middle Reach	182.250	10-yr	188700.00	494.48	532.0	510.04	532.35	0.000124	5.21	50776.37	3555.64	0.17
Susquehanna	Middle Reach	182.250	25-yr	230400.00	494.48	537.0	511.72	537.31	0.000154	5.08	66866.57	3633.31	0.15

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	182.250	50-yr	263000.00	494.48	540.2	512.85	540.49	0.000142	5.00	82642.97	3663.85	0.14
Susquehanna	Middle Reach	182.250	100-yr	297400.00	494.48	543.3	514.00	543.56	0.000141	5.06	93800.45	3726.89	0.14
Susquehanna	Middle Reach	182.250	500-yr	384500.00	494.48	549.8	516.72	550.14	0.000127	5.28	117884.20	3782.02	0.13
Susquehanna	Middle Reach	182.169	2-yr	114200.00	494.34	522.7	505.97	523.12	0.000166	5.37	21289.66	1757.42	0.21
Susquehanna	Middle Reach	182.169	5-yr	157700.00	494.34	528.3	508.29	528.75	0.000149	5.51	33685.57	3626.31	0.20
Susquehanna	Middle Reach	182.169	10-yr	188700.00	494.34	531.9	509.77	532.29	0.000148	5.44	44242.40	3652.61	0.18
Susquehanna	Middle Reach	182.169	25-yr	230400.00	494.34	536.9	511.61	537.23	0.000176	5.24	59266.76	3749.81	0.16
Susquehanna	Middle Reach	182.169	50-yr	263000.00	494.34	540.1	512.88	540.43	0.000145	4.92	82085.59	3812.08	0.15
Susquehanna	Middle Reach	182.169	100-yr	297400.00	494.34	543.2	514.21	543.49	0.000140	4.93	93819.84	3815.30	0.14
Susquehanna	Middle Reach	182.169	500-yr	384500.00	494.34	549.8	517.29	550.08	0.000121	5.10	118955.40	3822.48	0.13
Susquehanna	Middle Reach	182.092	2-yr	114200.00	494.21	522.6	505.96	523.05	0.000155	5.64	20248.57	1702.77	0.21
Susquehanna	Middle Reach	182.092	5-yr	157700.00	494.21	528.1	508.13	528.68	0.000147	6.01	30899.18	3536.12	0.20
Susquehanna	Middle Reach	182.092	10-yr	188700.00	494.21	531.7	509.55	532.22	0.000154	6.02	40520.20	3615.50	0.19
Susquehanna	Middle Reach	182.092	25-yr	230400.00	494.21	536.7	511.35	537.16	0.000190	5.84	54228.09	3713.09	0.17
Susquehanna	Middle Reach	182.092	50-yr	263000.00	494.21	540.0	512.65	540.37	0.000148	5.30	80953.19	3769.94	0.15
Susquehanna	Middle Reach	182.092	100-yr	297400.00	494.21	543.1	513.98	543.44	0.000143	5.30	92601.97	3784.22	0.14
Susquehanna	Middle Reach	182.092	500-yr	384500.00	494.21	549.7	517.10	550.03	0.000126	5.45	117662.00	3815.23	0.14
Susquehanna	Middle Reach	182.009	2-yr	114200.00	494.06	522.3	506.13	522.96	0.000188	6.67	17689.40	2199.13	0.24
Susquehanna	Middle Reach	182.009	5-yr	157700.00	494.06	527.8	508.59	528.59	0.000189	7.13	28496.81	3366.99	0.23
Susquehanna	Middle Reach	182.009	10-yr	188700.00	494.06	531.4	510.20	532.13	0.000203	7.22	36780.23	3415.31	0.22
Susquehanna	Middle Reach	182.009	25-yr	230400.00	494.06	536.4	512.19	537.04	0.000263	7.14	48467.82	3509.36	0.21
Susquehanna	Middle Reach	182.009	50-yr	263000.00	494.06	539.8	513.68	540.29	0.000196	6.33	78163.43	3603.89	0.17
Susquehanna	Middle Reach	182.009	100-yr	297400.00	494.06	542.9	515.16	543.36	0.000192	6.35	89313.37	3614.88	0.17
Susquehanna	Middle Reach	182.009	500-yr	384500.00	494.06	549.5	518.68	549.96	0.000172	6.57	113255.60	3637.51	0.16
Susquehanna	Middle Reach	181.935	2-yr	114200.00	493.94	522.2	506.34	522.87	0.000194	6.65	20876.24	3108.22	0.24
Susquehanna	Middle Reach	181.935	5-yr	157700.00	493.94	527.9	508.87	528.49	0.000177	6.80	31976.38	3237.58	0.22
Susquehanna	Middle Reach	181.935	10-yr	188700.00	493.94	531.4	510.51	532.02	0.000195	6.89	39066.60	3256.26	0.22
Susquehanna	Middle Reach	181.935	25-yr	230400.00	493.94	536.3	512.65	536.92	0.000262	6.86	49025.43	3314.53	0.20
Susquehanna	Middle Reach	181.935	50-yr	263000.00	493.94	539.8	514.18	540.19	0.000185	5.91	81785.85	3481.29	0.17
Susquehanna	Middle Reach	181.935	100-yr	297400.00	493.94	542.9	516.11	543.27	0.000182	5.96	92685.09	3561.33	0.16
Susquehanna	Middle Reach	181.935	500-yr	384500.00	493.94	549.5	521.58	549.88	0.000165	6.23	116264.30	3609.84	0.16
Susquehanna	Middle Reach	181.857	2-yr	114200.00	493.80	522.1	506.19	522.78	0.000226	6.75	17455.06	1384.77	0.25
Susquehanna	Middle Reach	181.857	5-yr	157700.00	493.80	527.6	508.69	528.40	0.000210	7.11	26701.01	1870.62	0.24
Susquehanna	Middle Reach	181.857	10-yr	188700.00	493.80	531.2	510.28	531.92	0.000231	7.28	32760.72	1964.96	0.23
Susquehanna	Middle Reach	181.857	25-yr	230400.00	493.80	536.0	512.33	536.79	0.000311	7.32	41252.39	2526.32	0.22
Susquehanna	Middle Reach	181.857	50-yr	263000.00	493.80	539.3	513.83	540.05	0.000308	7.45	46993.21	3319.80	0.21
Susquehanna	Middle Reach	181.857	100-yr	297400.00	493.80	542.4	515.33	543.14	0.000289	7.36	65267.47	3391.70	0.20
Susquehanna	Middle Reach	181.857	500-yr	384500.00	493.80	549.1	519.26	549.77	0.000252	7.57	88285.91	3540.42	0.19
Susquehanna	Middle Reach	181.825	2-yr	114200.00	493.74	522.0	506.08	522.75	0.000222	6.76	17105.09	1103.59	0.25
Susquehanna	Middle Reach	181.825	5-yr	157700.00	493.74	527.6	508.57	528.36	0.000214	7.22	26418.02	1811.30	0.24
Susquehanna	Middle Reach	181.825	10-yr	188700.00	493.74	531.1	510.24	531.87	0.000239	7.43	32780.34	1826.74	0.24
Susquehanna	Middle Reach	181.825	25-yr	230400.00	493.74	535.9	512.30	536.72	0.000325	7.52	41688.24	2553.99	0.23
Susquehanna	Middle Reach	181.825	50-yr	263000.00	493.74	539.2	513.80	539.99	0.000506	7.67	47760.05	2962.35	0.22
Susquehanna	Middle Reach	181.825	100-yr	297400.00	493.74	542.2	515.33	543.07	0.000553	7.87	53552.07	3328.58	0.22
Susquehanna	Middle Reach	181.825	500-yr	384500.00	493.74	548.9	519.04	549.70	0.000485	8.09	84266.97	3588.63	0.21
Susquehanna	Middle Reach	181.820 Lower Broadway S		Bridge									
Susquehanna	Middle Reach	181.756	2-yr	114200.00	493.74	522.0	505.87	522.63	0.000222	6.52	17819.74	1090.87	0.25
Susquehanna	Middle Reach	181.756	5-yr	157700.00	493.74	527.5	508.32	528.23	0.000211	6.91	26859.93	1738.25	0.24
Susquehanna	Middle Reach	181.756	10-yr	188700.00	493.74	531.0	509.91	531.73	0.000238	7.10	32948.86	1827.74	0.24
Susquehanna	Middle Reach	181.756	25-yr	230400.00	493.74	535.8	511.92	536.52	0.000332	7.14	41560.75	2471.57	0.22
Susquehanna	Middle Reach	181.756	50-yr	263000.00	493.74	539.0	513.43	539.70	0.000334	7.26	47363.01	2927.92	0.22
Susquehanna	Middle Reach	181.756	100-yr	297400.00	493.74	542.0	514.90	542.70	0.000322	7.29	60970.39	3385.29	0.21
Susquehanna	Middle Reach	181.756	500-yr	384500.00	493.74	548.6	518.36	549.31	0.000277	7.53	83806.20	3700.54	0.20
Susquehanna	Middle Reach	181.724	2-yr	114200.00	493.69	521.9	505.46	522.59	0.000186	6.47	17786.03	983.34	0.23
Susquehanna	Middle Reach	181.724	5-yr	157700.00	493.69	527.5	507.94	528.20	0.000200	7.01	26718.16	1774.46	0.24
Susquehanna	Middle Reach	181.724	10-yr	188700.00	493.69	530.9	509.49	531.69	0.000228	7.23	33010.16	1862.08	0.23
Susquehanna	Middle Reach	181.724	25-yr	230400.00	493.69	535.7	511.48	536.47	0.000308	7.35	42091.93	2341.68	0.22
Susquehanna	Middle Reach	181.724	50-yr	263000.00	493.69	538.9	512.94	539.65	0.000307	7.53	48232.56	3137.56	0.21
Susquehanna	Middle Reach	181.724	100-yr	297400.00	493.69	541.9	514.39	542.65	0.000305	7.62	60406.89	3418.45	0.21
Susquehanna	Middle Reach	181.724	500-yr	384500.00	493.69	548.5	517.85	549.27	0.000268	7.87	85358.69	3811.48	0.20
Susquehanna	Middle Reach	181.700	2-yr	114200.00	493.51	522.0	504.20	522.47	0.000093	5.71	20811.00	995.17	0.20
Susquehanna	Middle Reach	181.700	5-yr	157700.00	493.51	527.5	506.64	528.07	0.000107	6.34	29519.78	1735.08	0.20
Susquehanna	Middle Reach	181.700	10-yr	188700.00	493.51	530.9	508.33	531.55	0.000153	6.66	35469.76	1747.74	0.20
Susquehanna	Middle Reach	181.700	25-yr	230400.00	493.51	535.6	510.18	536.30	0.000352	6.93	43782.77	2038.50	0.20
Susquehanna	Middle Reach	181.700	50-yr	263000.00	493.51	538.8	511.58	539.48	0.000386	7.17	49540.28	3208.19	0.20
Susquehanna	Middle Reach	181.700	100-yr	297400.00	493.51	541.7	512.94	542.49	0.000426	7.36	60200.12	3531.33	0.19
Susquehanna	Middle Reach	181.700	500-yr	384500.00	493.51	548.4	516.15	549.11	0.000413	7.55	87477.04	3981.26	0.19
Susquehanna	Middle Reach	181.69 Railroad		Bridge									
Susquehanna	Middle Reach	181.680	2-yr	114200.00	493.51	521.9	504.48	522.41	0.000145	5.81	20040.99	966.02	0.21
Susquehanna	Middle Reach	181.680	5-yr	157700.00	493.51	527.4	506.81	528.01	0.000158	6.39	28468.37	1639.04	0.21
Susquehanna	Middle Reach	181.680	10-yr	188700.00	493.51	530.8	508.31	531.49	0.000181	6.69	34227.38	1794.56	0.21
Susquehanna	Middle Reach	181.680	25-yr	230400.00	493.51	535.5	510.22	536.19	0.000259	6.94	42222.45	2105.00	0.20
Susquehanna	Middle Reach	181.680	50-yr	263000.00	493.51	538.6	511.59	539.36	0.000264	7.17	48016.51	2872.15	0.20
Susquehanna	Middle Reach	181.680	100-yr	297400.00	493.51	541.6	512.96	542.31	0.000269	7.33	58108.20	3606.68	0.20
Susquehanna	Middle Reach	181.680	500-yr	384500.00	493.51	548.1	516.18	548.81	0.000233	7.47	84758.60	3850.31	0.19
Susquehanna	Middle Reach	181.626	2-yr	114200.00	493.47	521.9	504.36	522.39	0.000140	5.80	21095.24	1594.24	0.20
Susquehanna	Middle Reach	181.626	5-yr	157700.00	493.47	527.4	506.70	527.99	0.000148	6.42	28645.75	2054.86	0.21
Susquehanna	Middle Reach	181.626	10-yr	188700.00	493.47	530.8	508.20	531.47	0.000175	6.78	33806.00	2676.48	0.21
Susquehanna	Middle Reach	181.626	25-yr	230400.00	493.47	535.4	510.07	536.16	0.000258	7.11	40897.98	3308.05	0.20
Susquehanna	Middle Reach	181.626	50-yr	263000.00	493.47	538.5	511.45	539.33	0.000269	7.41	46015.08	3748.18	0.20
Susquehanna	Middle Reach	181.626	100-yr	297400.00	493.47	541.4	512.90	542.26	0.000287	7.73	51378.31	3851.76	0.21
Susquehanna	Middle Reach	181.626	500-yr	384500.00	493.47	548.0	516.27	548.78	0.000239	7.72	84014.59	4064.72	0.19
Susquehanna	Middle Reach	181.549 Newport Creek	2-yr	114300.00	492.84	521.8		522.33	0.000159	5.72	19975.22	894.27	0.21
Susquehanna	Middle Reach	181.549 Newport Creek	5-yr	157900.00	492.84	527.3		527.93	0.000169	6.31	25341.62	1066.96	0.22
Susquehanna	Middle Reach	181.549 Newport Creek	10-yr	188800.00	492.84	530.7		531.39	0.000201	6.66	29076.18	1128.48	0.22
Susquehanna	Middle Reach	181.549 Newport Creek	25-yr	231000.00	492.84	535.3		536.05	0.000294	7.01	34400.91	1216.23	0.21
Susquehanna	Middle Reach	181.549 Newport Creek	50-yr	263200.00	492.84	538.4		539.22	0.000300	7.29	38339.89	1332.22	0.21

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	181.549 Newport Creek	100-yr	297600.00	492.84	541.3		542.14	0.000318	7.61	42731.81	1723.88	0.21
Susquehanna	Middle Reach	181.549 Newport Creek	500-yr	384700.00	492.84	547.6		548.64	0.000315	8.33	54222.88	1860.07	0.22
Susquehanna	Middle Reach	181.464	2-yr	114300.00	493.20	521.5		522.24	0.000206	6.69	17208.14	823.16	0.24
Susquehanna	Middle Reach	181.464	5-yr	157900.00	493.20	527.0		527.83	0.000216	7.46	21956.75	937.77	0.25
Susquehanna	Middle Reach	181.464	10-yr	188800.00	493.20	530.3		531.27	0.000261	7.94	25176.24	996.65	0.25
Susquehanna	Middle Reach	181.464	25-yr	231000.00	493.20	534.8		535.88	0.000398	8.43	29845.30	1062.72	0.25
Susquehanna	Middle Reach	181.464	50-yr	263200.00	493.20	537.8		539.03	0.000422	8.82	33310.44	1258.47	0.25
Susquehanna	Middle Reach	181.464	100-yr	297600.00	493.20	540.7		541.95	0.000451	9.21	37137.96	1424.84	0.25
Susquehanna	Middle Reach	181.464	500-yr	384700.00	493.20	546.9		548.44	0.000453	10.10	46297.41	1493.96	0.26
Susquehanna	Middle Reach	181.384	2-yr	114300.00	493.57	521.4		522.15	0.000224	7.13	16032.91	661.95	0.26
Susquehanna	Middle Reach	181.384	5-yr	157900.00	493.57	526.7		527.72	0.000252	8.02	19695.57	693.30	0.27
Susquehanna	Middle Reach	181.384	10-yr	188800.00	493.57	530.0		531.14	0.000313	8.59	21983.37	706.66	0.27
Susquehanna	Middle Reach	181.384	25-yr	231000.00	493.57	534.4		535.68	0.000497	9.20	25111.23	724.12	0.28
Susquehanna	Middle Reach	181.384	50-yr	263200.00	493.57	537.4		538.82	0.000530	9.62	28070.65	1237.70	0.28
Susquehanna	Middle Reach	181.384	100-yr	297600.00	493.57	540.2		541.72	0.000569	10.04	31753.55	1373.96	0.28
Susquehanna	Middle Reach	181.384	500-yr	384700.00	493.57	546.4		548.22	0.000560	10.95	40647.87	1471.13	0.29
Susquehanna	Middle Reach	181.308	2-yr	114300.00	492.94	521.1		522.04	0.000274	7.63	14975.63	646.04	0.28
Susquehanna	Middle Reach	181.308	5-yr	157900.00	492.94	526.5		527.60	0.000301	8.52	18524.08	677.30	0.29
Susquehanna	Middle Reach	181.308	10-yr	188800.00	492.94	529.7		531.00	0.000370	9.11	20729.35	687.69	0.29
Susquehanna	Middle Reach	181.308	25-yr	231000.00	492.94	534.0		535.46	0.000585	9.74	23710.74	764.58	0.30
Susquehanna	Middle Reach	181.308	50-yr	263200.00	492.94	537.0		538.59	0.000612	10.13	27213.12	1231.60	0.30
Susquehanna	Middle Reach	181.308	100-yr	297600.00	492.94	539.8		541.47	0.000656	10.53	30789.66	1377.51	0.30
Susquehanna	Middle Reach	181.308	500-yr	384700.00	492.94	546.1		547.98	0.000628	11.36	39993.71	1508.93	0.30
Susquehanna	Middle Reach	181.232	2-yr	114300.00	492.81	521.2		521.90	0.000206	6.90	16559.24	672.04	0.25
Susquehanna	Middle Reach	181.232	5-yr	157900.00	492.81	526.5		527.45	0.000240	7.80	20256.10	717.38	0.26
Susquehanna	Middle Reach	181.232	10-yr	188800.00	492.81	529.7		530.81	0.000297	8.36	22656.17	806.74	0.26
Susquehanna	Middle Reach	181.232	25-yr	231000.00	492.81	534.0		535.19	0.000466	8.96	26611.58	1022.28	0.27
Susquehanna	Middle Reach	181.232	50-yr	263200.00	492.81	537.0		538.31	0.000487	9.33	29924.07	1167.66	0.27
Susquehanna	Middle Reach	181.232	100-yr	297600.00	492.81	539.7		541.18	0.000528	9.73	33293.04	1299.95	0.27
Susquehanna	Middle Reach	181.232	500-yr	384700.00	492.81	546.0		547.69	0.000519	10.60	42006.02	1406.80	0.28
Susquehanna	Middle Reach	181.160	2-yr	114300.00	492.69	521.1		521.82	0.000232	6.97	16407.86	722.56	0.26
Susquehanna	Middle Reach	181.160	5-yr	157900.00	492.69	526.4		527.36	0.000251	7.75	20397.46	780.33	0.26
Susquehanna	Middle Reach	181.160	10-yr	188800.00	492.69	529.6		530.70	0.000304	8.28	22967.32	821.10	0.27
Susquehanna	Middle Reach	181.160	25-yr	231000.00	492.69	533.8		535.02	0.000475	8.87	26572.89	1014.68	0.27
Susquehanna	Middle Reach	181.160	50-yr	263200.00	492.69	536.8		538.13	0.000495	9.24	30127.79	1279.61	0.27
Susquehanna	Middle Reach	181.160	100-yr	297600.00	492.69	539.6		540.98	0.000531	9.64	33682.77	1316.92	0.27
Susquehanna	Middle Reach	181.160	500-yr	384700.00	492.69	545.9		547.50	0.000524	10.49	42474.36	1418.78	0.28
Susquehanna	Middle Reach	181.063	2-yr	114300.00	492.53	521.1	504.06	521.66	0.000145	5.76	19827.85	816.13	0.21
Susquehanna	Middle Reach	181.063	5-yr	157900.00	492.53	526.5	506.34	527.18	0.000161	6.49	24407.65	913.90	0.21
Susquehanna	Middle Reach	181.063	10-yr	188800.00	492.53	529.7	507.82	530.49	0.000199	6.97	27485.03	983.58	0.22
Susquehanna	Middle Reach	181.063	25-yr	231000.00	492.53	533.9	509.98	534.73	0.000315	7.49	32854.94	1707.43	0.22
Susquehanna	Middle Reach	181.063	50-yr	263200.00	492.53	536.9	511.38	537.82	0.000327	7.78	37591.73	1855.37	0.22
Susquehanna	Middle Reach	181.063	100-yr	297600.00	492.53	539.7	512.69	540.65	0.000351	8.10	41954.73	1873.25	0.22
Susquehanna	Middle Reach	181.063	500-yr	384700.00	492.53	546.0	515.75	547.14	0.000347	8.78	52224.99	1938.38	0.23
Susquehanna	Middle Reach	180.991 Harvey Creek	2-yr	114700.00	492.41	521.2	504.54	521.59	0.000137	5.39	25162.39	1868.59	0.20
Susquehanna	Middle Reach	180.991 Harvey Creek	5-yr	158300.00	492.41	526.6	506.92	527.07	0.000126	5.76	34700.95	2300.00	0.19
Susquehanna	Middle Reach	180.991 Harvey Creek	10-yr	189400.00	492.41	529.8	508.72	530.36	0.000123	6.05	40435.34	2635.53	0.19
Susquehanna	Middle Reach	180.991 Harvey Creek	25-yr	231400.00	492.41	534.0	511.02	534.57	0.000121	6.37	47823.08	2964.80	0.19
Susquehanna	Middle Reach	180.991 Harvey Creek	50-yr	263800.00	492.41	537.1	512.45	537.65	0.000122	6.58	53249.83	3083.24	0.19
Susquehanna	Middle Reach	180.991 Harvey Creek	100-yr	298200.00	492.41	539.8	513.84	540.47	0.000122	6.86	58201.23	3106.95	0.19
Susquehanna	Middle Reach	180.991 Harvey Creek	500-yr	385400.00	492.41	546.2	516.69	546.96	0.000122	7.50	69808.57	3342.83	0.19
Susquehanna	Middle Reach	180.916	2-yr	114700.00	492.27	520.8	505.61	521.49	0.000217	6.77	17269.99	826.11	0.25
Susquehanna	Middle Reach	180.916	5-yr	158300.00	492.27	526.1	508.42	526.97	0.000216	7.51	22211.17	1177.34	0.25
Susquehanna	Middle Reach	180.916	10-yr	189400.00	492.27	529.3	510.05	530.25	0.000215	7.98	26273.16	1418.07	0.26
Susquehanna	Middle Reach	180.916	25-yr	231400.00	492.27	533.4	512.11	534.45	0.000216	8.45	32233.39	1681.36	0.26
Susquehanna	Middle Reach	180.916	50-yr	263800.00	492.27	536.4	513.52	537.53	0.000218	8.75	37013.05	1763.05	0.25
Susquehanna	Middle Reach	180.916	100-yr	298200.00	492.27	539.1	514.96	540.35	0.000217	9.08	41396.06	1771.35	0.25
Susquehanna	Middle Reach	180.916	500-yr	385400.00	492.27	545.4	518.35	546.83	0.000217	9.84	51725.22	1859.44	0.26
Susquehanna	Middle Reach	180.843	2-yr	114700.00	492.14	520.6		521.40	0.000234	6.98	16884.67	833.66	0.26
Susquehanna	Middle Reach	180.843	5-yr	158300.00	492.14	526.0		526.87	0.000239	7.70	21969.51	1152.75	0.27
Susquehanna	Middle Reach	180.843	10-yr	189400.00	492.14	529.1		530.16	0.000235	8.13	25948.83	1349.63	0.27
Susquehanna	Middle Reach	180.843	25-yr	231400.00	492.14	533.3		534.36	0.000231	8.55	31767.09	1461.28	0.26
Susquehanna	Middle Reach	180.843	50-yr	263800.00	492.14	536.3		537.44	0.000230	8.81	36229.69	1488.24	0.26
Susquehanna	Middle Reach	180.843	100-yr	298200.00	492.14	539.0		540.26	0.000229	9.14	40365.29	1520.87	0.26
Susquehanna	Middle Reach	180.843	500-yr	385400.00	492.14	545.3		546.74	0.000228	9.89	50285.55	1660.69	0.26
Susquehanna	Middle Reach	180.767	2-yr	114700.00	492.00	520.4		521.27	0.000308	7.65	15121.04	792.96	0.30
Susquehanna	Middle Reach	180.767	5-yr	158300.00	492.00	525.7		526.75	0.000311	8.19	19894.00	932.76	0.30
Susquehanna	Middle Reach	180.767	10-yr	189400.00	492.00	528.9		530.03	0.000294	8.60	22886.16	946.91	0.29
Susquehanna	Middle Reach	180.767	25-yr	231400.00	492.00	533.0		534.24	0.000286	9.11	27004.46	1171.78	0.29
Susquehanna	Middle Reach	180.767	50-yr	263800.00	492.00	536.0		537.32	0.000281	9.39	30812.33	1333.44	0.29
Susquehanna	Middle Reach	180.767	100-yr	298200.00	492.00	538.7		540.13	0.000275	9.74	34470.96	1352.70	0.28
Susquehanna	Middle Reach	180.767	500-yr	385400.00	492.00	544.9		546.61	0.000267	10.55	43372.71	1541.19	0.28
Susquehanna	Middle Reach	180.696	2-yr	114700.00	490.59	520.5		521.09	0.000204	6.28	18667.34	976.90	0.24
Susquehanna	Middle Reach	180.696	5-yr	158300.00	490.59	525.8		526.56	0.000191	6.83	24300.20	1108.49	0.24
Susquehanna	Middle Reach	180.696	10-yr	189400.00	490.59	529.0		529.84	0.000185	7.23	27877.91	1124.60	0.24
Susquehanna	Middle Reach	180.696	25-yr	231400.00	490.59	533.1		534.04	0.000184	7.69	32519.57	1167.00	0.24
Susquehanna	Middle Reach	180.696	50-yr	263800.00	490.59	536.1		537.12	0.000186	8.02	36284.12	1266.17	0.24
Susquehanna	Middle Reach	180.696	100-yr	298200.00	490.59	538.9		539.93	0.000186	8.38	39754.27	1275.80	0.24
Susquehanna	Middle Reach	180.696	500-yr	385400.00	490.59	545.1		546.41	0.000190	9.23	48718.74	1545.27	0.24
Susquehanna	Middle Reach	180.618	2-yr	114700.00	484.74	520.6		520.96	0.000090	4.90	23397.27	878.66	0.17
Susquehanna	Middle Reach	180.618	5-yr	158300.00	484.74	525.9		526.43	0.000102	5.59	28607.73	1013.85	0.18
Susquehanna	Middle Reach	180.618	10-yr	189400.00	484.74	529.2		529.72	0.000107	6.04	31877.78	1029.46	0.18
Susquehanna	Middle Reach	180.618	25-yr	231400.00	484.74	533.2		533.91	0.000114	6.57	36226.69	1103.08	0.19
Susquehanna	Middle Reach	180.618	50-yr	263800.00	484.74	536.2		536.98	0.000119	6.92	39667.97	1152.37	0.19
Susquehanna	Middle Reach	180.618	100-yr	298200.00	484.74	539.0		539.80	0.000123	7.31	42827.22	1173.28	0.20
Susquehanna	Middle Reach	180.618	500-yr	385400.00	484.74	545.2		546.27	0.000133	8.22	51332.11	1456.24	0.21
Susquehanna	Middle Reach	180.541	2-yr	114700.00	484.05	520.4		520.90	0.000127	5.86	19613.20	756.56	0.20
Susquehanna	Middle Reach	180.541	5-yr	158300.00	484.05	525.7		526.36	0.000143	6.73	23891.97	839.61	0.21

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	180.541	10-yr	189400.00	484.05	528.8		529.64	0.000152	7.31	26581.66	890.24	0.22
Susquehanna	Middle Reach	180.541	25-yr	231400.00	484.05	532.8		533.82	0.000166	7.96	30409.80	1017.31	0.23
Susquehanna	Middle Reach	180.541	50-yr	263800.00	484.05	535.8		536.89	0.000174	8.38	33443.04	1027.40	0.23
Susquehanna	Middle Reach	180.541	100-yr	298200.00	484.05	538.5		539.70	0.000180	8.86	36214.71	1037.11	0.24
Susquehanna	Middle Reach	180.541	500-yr	385400.00	484.05	544.6		546.15	0.000197	9.99	43378.59	1305.68	0.25
Susquehanna	Middle Reach	180.467	2-yr	114700.00	481.66	520.3		520.84	0.000142	6.17	18587.51	684.72	0.21
Susquehanna	Middle Reach	180.467	5-yr	158300.00	481.66	525.5		526.29	0.000167	7.11	22255.69	720.97	0.23
Susquehanna	Middle Reach	180.467	10-yr	189400.00	481.66	528.6		529.56	0.000187	7.71	24588.68	836.46	0.24
Susquehanna	Middle Reach	180.467	25-yr	231400.00	481.66	532.7		533.74	0.000199	8.35	28272.34	984.26	0.25
Susquehanna	Middle Reach	180.467	50-yr	263800.00	481.66	535.6		536.80	0.000207	8.77	31195.98	992.55	0.25
Susquehanna	Middle Reach	180.467	100-yr	298200.00	481.66	538.3		539.61	0.000213	9.25	33861.21	1000.25	0.25
Susquehanna	Middle Reach	180.467	500-yr	385400.00	481.66	544.4		546.06	0.000227	10.35	40701.75	1226.87	0.26
Susquehanna	Middle Reach	180.398	2-yr	114700.00	483.61	520.1		520.78	0.000154	6.54	17548.99	632.26	0.22
Susquehanna	Middle Reach	180.398	5-yr	158300.00	483.61	525.3		526.22	0.000178	7.58	20907.48	685.80	0.24
Susquehanna	Middle Reach	180.398	10-yr	189400.00	483.61	528.4		529.48	0.000193	8.27	23184.55	823.40	0.25
Susquehanna	Middle Reach	180.398	25-yr	231400.00	483.61	532.4		533.64	0.000210	9.04	26681.04	933.81	0.26
Susquehanna	Middle Reach	180.398	50-yr	263800.00	483.61	535.3		536.70	0.000223	9.54	29548.21	990.94	0.26
Susquehanna	Middle Reach	180.398	100-yr	298200.00	483.61	537.9		539.50	0.000232	10.09	32177.22	1000.90	0.27
Susquehanna	Middle Reach	180.398	500-yr	385400.00	483.61	544.0		545.93	0.000254	11.36	38998.75	1205.60	0.28
Susquehanna	Middle Reach	180.319	2-yr	114700.00	485.08	520.0		520.71	0.000172	6.79	16883.40	626.58	0.23
Susquehanna	Middle Reach	180.319	5-yr	158300.00	485.08	525.2		526.13	0.000196	7.85	20245.33	718.40	0.25
Susquehanna	Middle Reach	180.319	10-yr	189400.00	485.08	528.3		529.38	0.000210	8.54	22502.31	750.51	0.26
Susquehanna	Middle Reach	180.319	25-yr	231400.00	485.08	532.2		533.54	0.000227	9.33	25901.68	958.99	0.27
Susquehanna	Middle Reach	180.319	50-yr	263800.00	485.08	535.1		536.60	0.000240	9.84	28744.50	985.07	0.27
Susquehanna	Middle Reach	180.319	100-yr	298200.00	485.08	537.7		539.39	0.000250	10.40	31355.23	1018.11	0.28
Susquehanna	Middle Reach	180.319	500-yr	385400.00	485.08	543.8		545.81	0.000271	11.67	38564.41	1230.86	0.29
Susquehanna	Middle Reach	180.245	2-yr	114700.00	483.73	519.9		520.63	0.000158	6.61	17360.98	627.09	0.22
Susquehanna	Middle Reach	180.245	5-yr	158300.00	483.73	525.1		526.04	0.000182	7.67	20867.02	752.76	0.24
Susquehanna	Middle Reach	180.245	10-yr	189400.00	483.73	528.2		529.29	0.000197	8.36	23241.74	806.15	0.25
Susquehanna	Middle Reach	180.245	25-yr	231400.00	483.73	532.1		533.44	0.000214	9.14	26732.78	962.94	0.26
Susquehanna	Middle Reach	180.245	50-yr	263800.00	483.73	535.1		536.48	0.000227	9.65	29546.96	972.81	0.26
Susquehanna	Middle Reach	180.245	100-yr	298200.00	483.73	537.7		539.27	0.000237	10.21	32193.23	1139.38	0.27
Susquehanna	Middle Reach	180.245	500-yr	385400.00	483.73	543.7		545.69	0.000259	11.48	39325.73	1209.14	0.28
Susquehanna	Middle Reach	180.173	2-yr	114700.00	483.37	519.9		520.56	0.000142	6.45	17787.97	615.24	0.21
Susquehanna	Middle Reach	180.173	5-yr	158300.00	483.37	525.1		525.96	0.000173	7.52	21285.67	786.88	0.23
Susquehanna	Middle Reach	180.173	10-yr	189400.00	483.37	528.2		529.20	0.000188	8.20	23776.61	834.23	0.24
Susquehanna	Middle Reach	180.173	25-yr	231400.00	483.37	532.1		533.33	0.000217	8.93	27255.95	933.56	0.26
Susquehanna	Middle Reach	180.173	50-yr	263800.00	483.37	535.0		536.37	0.000229	9.40	30098.05	995.01	0.26
Susquehanna	Middle Reach	180.173	100-yr	298200.00	483.37	537.7		539.15	0.000237	9.92	32822.38	1152.90	0.27
Susquehanna	Middle Reach	180.173	500-yr	385400.00	483.37	543.7		545.55	0.000254	11.09	40254.27	1267.24	0.28
Susquehanna	Middle Reach	180.099	2-yr	114700.00	484.65	519.8		520.50	0.000164	6.55	17506.05	655.01	0.22
Susquehanna	Middle Reach	180.099	5-yr	158300.00	484.65	525.0		525.89	0.000193	7.54	21223.76	813.30	0.24
Susquehanna	Middle Reach	180.099	10-yr	189400.00	484.65	528.1		529.12	0.000205	8.16	23805.07	856.59	0.25
Susquehanna	Middle Reach	180.099	25-yr	231400.00	484.65	532.0		533.24	0.000219	8.87	27287.39	909.05	0.26
Susquehanna	Middle Reach	180.099	50-yr	263800.00	484.65	534.9		536.28	0.000229	9.33	30066.25	965.14	0.26
Susquehanna	Middle Reach	180.099	100-yr	298200.00	484.65	537.6		539.05	0.000237	9.85	32838.25	1206.00	0.27
Susquehanna	Middle Reach	180.099	500-yr	385400.00	484.65	543.6		545.44	0.000253	11.01	40362.59	1260.91	0.28
Susquehanna	Middle Reach	180.025	2-yr	114700.00	488.95	519.9		520.40	0.000139	5.94	19311.39	774.63	0.21
Susquehanna	Middle Reach	180.025	5-yr	158300.00	488.95	525.1		525.77	0.000159	6.78	23697.57	887.80	0.22
Susquehanna	Middle Reach	180.025	10-yr	189400.00	488.95	528.2		528.98	0.000167	7.33	26468.44	901.17	0.23
Susquehanna	Middle Reach	180.025	25-yr	231400.00	488.95	532.1		533.09	0.000177	7.95	30165.71	1008.25	0.23
Susquehanna	Middle Reach	180.025	50-yr	263800.00	488.95	535.0		536.11	0.000185	8.36	33122.07	1015.65	0.24
Susquehanna	Middle Reach	180.025	100-yr	298200.00	488.95	537.7		538.88	0.000193	8.86	35962.15	1203.05	0.24
Susquehanna	Middle Reach	180.025	500-yr	385400.00	488.95	543.8		545.24	0.000204	9.88	43458.77	1240.69	0.25
Susquehanna	Middle Reach	179.951	2-yr	114700.00	490.26	519.9		520.31	0.000117	5.24	21895.04	910.33	0.19
Susquehanna	Middle Reach	179.951	5-yr	158300.00	490.26	525.1		525.66	0.000126	5.92	26759.41	943.21	0.20
Susquehanna	Middle Reach	179.951	10-yr	189400.00	490.26	528.2		528.87	0.000132	6.37	29717.68	955.69	0.20
Susquehanna	Middle Reach	179.951	25-yr	231400.00	490.26	532.2		532.96	0.000139	6.90	33588.13	993.29	0.21
Susquehanna	Middle Reach	179.951	50-yr	263800.00	490.26	535.2		535.97	0.000146	7.25	36630.69	1106.77	0.21
Susquehanna	Middle Reach	179.951	100-yr	298200.00	490.26	537.8		538.73	0.000151	7.64	39780.73	1272.13	0.21
Susquehanna	Middle Reach	179.951	500-yr	385400.00	490.26	543.9		545.06	0.000158	8.51	47643.00	1293.50	0.22
Susquehanna	Middle Reach	179.874	2-yr	114700.00	491.26	519.8		520.26	0.000124	5.42	21177.55	868.98	0.19
Susquehanna	Middle Reach	179.874	5-yr	158300.00	491.26	525.0		525.60	0.000133	6.15	25737.60	881.49	0.20
Susquehanna	Middle Reach	179.874	10-yr	189400.00	491.26	528.1		528.80	0.000140	6.65	28482.52	889.59	0.21
Susquehanna	Middle Reach	179.874	25-yr	231400.00	491.26	532.1		532.89	0.000149	7.22	32476.84	1121.44	0.21
Susquehanna	Middle Reach	179.874	50-yr	263800.00	491.26	535.0		535.90	0.000157	7.59	35777.80	1134.56	0.22
Susquehanna	Middle Reach	179.874	100-yr	298200.00	491.26	537.7		538.65	0.000163	8.00	38840.90	1218.65	0.22
Susquehanna	Middle Reach	179.874	500-yr	385400.00	491.26	543.8		544.98	0.000172	8.92	46732.04	1319.09	0.23
Susquehanna	Middle Reach	179.802	2-yr	114700.00	491.19	519.7		520.20	0.000136	5.70	20122.69	820.57	0.20
Susquehanna	Middle Reach	179.802	5-yr	158300.00	491.19	524.9		525.54	0.000147	6.48	24431.83	839.53	0.21
Susquehanna	Middle Reach	179.802	10-yr	189400.00	491.19	528.0		528.74	0.000157	7.00	27251.71	1091.83	0.22
Susquehanna	Middle Reach	179.802	25-yr	231400.00	491.19	531.9		532.82	0.000165	7.56	31934.58	1209.63	0.22
Susquehanna	Middle Reach	179.802	50-yr	263800.00	491.19	534.9		535.83	0.000172	7.91	35487.37	1218.98	0.23
Susquehanna	Middle Reach	179.802	100-yr	298200.00	491.19	537.5		538.58	0.000178	8.32	38743.08	1258.93	0.23
Susquehanna	Middle Reach	179.802	500-yr	385400.00	491.19	543.6		544.91	0.000185	9.23	46592.54	1307.82	0.24
Susquehanna	Middle Reach	179.727	2-yr	114700.00	491.34	519.3		520.10	0.000263	7.13	16083.25	772.00	0.28
Susquehanna	Middle Reach	179.727	5-yr	158300.00	491.34	524.5		525.44	0.000267	7.81	20662.34	1086.76	0.28
Susquehanna	Middle Reach	179.727	10-yr	189400.00	491.34	527.6		528.63	0.000270	8.22	24258.56	1222.23	0.28
Susquehanna	Middle Reach	179.727	25-yr	231400.00	491.34	531.6		532.72	0.000260	8.61	29291.88	1280.12	0.28
Susquehanna	Middle Reach	179.727	50-yr	263800.00	491.34	534.5		535.72	0.000256	8.86	33084.70	1288.08	0.27
Susquehanna	Middle Reach	179.727	100-yr	298200.00	491.34	537.2		538.47	0.000253	9.18	36542.85	1302.13	0.27
Susquehanna	Middle Reach	179.727	500-yr	385400.00	491.34	543.4		544.80	0.000246	9.94	45025.03	1408.65	0.27
Susquehanna	Middle Reach	179.655	2-yr	114700.00	490.79	519.0		519.98	0.000303	7.85	14616.52	672.88	0.30
Susquehanna	Middle Reach	179.655	5-yr	158300.00	490.79	524.1		525.30	0.000320	8.71	18182.47	718.55	0.31
Susquehanna	Middle Reach	179.655	10-yr	189400.00	490.79	527.1		528.48	0.000324	9.28	20857.18	1026.72	0.31
Susquehanna	Middle Reach	179.655	25-yr	231400.00	490.79	531.1		532.57	0.000322	9.80	25624.23	1300.27	0.31
Susquehanna	Middle Reach	179.655	50-yr	263800.00	490.79	534.0		535.58	0.000317	10.08	29555.55	1364.56	0.30
Susquehanna	Middle Reach	179.655	100-yr	298200.00	490.79	536.7		538.33	0.000311	10.43	33233.88	1393.87	0.30
Susquehanna	Middle Reach	179.655	500-yr	385400.00	490.79	542.8		544.66	0.000300	11.21	42148.87	1478.79	0.30

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	179.581	2-yr	114700.00	490.23	518.9		519.86	0.000282	7.83	14655.18	638.62	0.29
Susquehanna	Middle Reach	179.581	5-yr	158300.00	490.23	524.0		525.17	0.000311	8.78	18033.45	687.46	0.30
Susquehanna	Middle Reach	179.581	10-yr	189400.00	490.23	527.0		528.35	0.000326	9.41	20127.66	708.16	0.31
Susquehanna	Middle Reach	179.581	25-yr	231400.00	490.23	530.8		532.43	0.000341	10.10	23179.58	1086.08	0.32
Susquehanna	Middle Reach	179.581	50-yr	263800.00	490.23	533.7		535.43	0.000348	10.50	26898.62	1330.39	0.32
Susquehanna	Middle Reach	179.581	100-yr	298200.00	490.23	536.3		538.18	0.000353	10.94	30396.29	1346.81	0.32
Susquehanna	Middle Reach	179.581	500-yr	385400.00	490.23	542.4		544.50	0.000346	11.85	39249.02	1506.48	0.32
Susquehanna	Middle Reach	179.505	2-yr	114700.00	489.54	519.0		519.69	0.000186	6.67	17476.84	768.08	0.24
Susquehanna	Middle Reach	179.505	5-yr	158300.00	489.54	524.1		524.97	0.000207	7.56	21859.25	1104.96	0.25
Susquehanna	Middle Reach	179.505	10-yr	189400.00	489.54	527.1		528.13	0.000214	8.11	25441.11	1207.92	0.26
Susquehanna	Middle Reach	179.505	25-yr	231400.00	489.54	531.0		532.18	0.000223	8.70	30494.10	1376.04	0.26
Susquehanna	Middle Reach	179.505	50-yr	263800.00	489.54	533.9		535.17	0.000229	9.04	34528.27	1391.78	0.26
Susquehanna	Middle Reach	179.505	100-yr	298200.00	489.54	536.6		537.90	0.000233	9.43	38523.20	1602.10	0.26
Susquehanna	Middle Reach	179.505	500-yr	385400.00	489.54	542.7		544.21	0.000233	10.26	48426.92	1640.46	0.27
Susquehanna	Middle Reach	179.432	2-yr	114700.00	489.15	519.0		519.59	0.000148	6.08	19400.11	870.96	0.21
Susquehanna	Middle Reach	179.432	5-yr	158300.00	489.15	524.1		524.86	0.000163	6.95	24104.06	1097.74	0.22
Susquehanna	Middle Reach	179.432	10-yr	189400.00	489.15	527.2		528.01	0.000171	7.49	27795.52	1308.23	0.23
Susquehanna	Middle Reach	179.432	25-yr	231400.00	489.15	531.1		532.06	0.000181	8.07	33149.59	1431.16	0.24
Susquehanna	Middle Reach	179.432	50-yr	263800.00	489.15	534.0		535.04	0.000189	8.42	37376.91	1459.71	0.24
Susquehanna	Middle Reach	179.432	100-yr	298200.00	489.15	536.6		537.77	0.000192	8.81	41417.69	1620.77	0.24
Susquehanna	Middle Reach	179.432	500-yr	385400.00	489.15	542.7		544.08	0.000197	9.66	51658.46	1699.68	0.25
Susquehanna	Middle Reach	179.358	2-yr	114700.00	488.51	519.0		519.51	0.000113	5.56	21172.12	891.04	0.19
Susquehanna	Middle Reach	179.358	5-yr	158300.00	488.51	524.1		524.77	0.000128	6.41	26085.85	1118.71	0.20
Susquehanna	Middle Reach	179.358	10-yr	189400.00	488.51	527.2		527.92	0.000138	6.97	29564.58	1173.32	0.21
Susquehanna	Middle Reach	179.358	25-yr	231400.00	488.51	531.1		531.96	0.000149	7.57	34211.14	1210.99	0.22
Susquehanna	Middle Reach	179.358	50-yr	263800.00	488.51	534.0		534.94	0.000160	7.99	37927.99	1352.08	0.22
Susquehanna	Middle Reach	179.358	100-yr	298200.00	488.51	536.6		537.67	0.000166	8.41	41546.64	1422.96	0.23
Susquehanna	Middle Reach	179.358	500-yr	385400.00	488.51	542.7		543.98	0.000176	9.34	50397.48	1468.87	0.23
Susquehanna	Middle Reach	179.286	2-yr	114700.00	487.79	519.0		519.46	0.000116	5.56	21256.19	869.62	0.19
Susquehanna	Middle Reach	179.286	5-yr	158300.00	487.79	524.1		524.72	0.000133	6.40	26517.88	1222.59	0.20
Susquehanna	Middle Reach	179.286	10-yr	189400.00	487.79	527.1		527.86	0.000141	6.91	30590.49	1393.81	0.21
Susquehanna	Middle Reach	179.286	25-yr	231400.00	487.79	531.1		531.89	0.000149	7.45	36192.22	1456.61	0.21
Susquehanna	Middle Reach	179.286	50-yr	263800.00	487.79	534.0		534.86	0.000157	7.80	40516.39	1501.78	0.22
Susquehanna	Middle Reach	179.286	100-yr	298200.00	487.79	536.6		537.59	0.000162	8.18	44561.64	1564.21	0.22
Susquehanna	Middle Reach	179.286	500-yr	385400.00	487.79	542.7		543.88	0.000169	9.03	54272.94	1615.32	0.23
Susquehanna	Middle Reach	179.212	2-yr	114700.00	487.10	518.9		519.41	0.000127	5.79	20725.13	916.15	0.20
Susquehanna	Middle Reach	179.212	5-yr	158300.00	487.10	524.0		524.66	0.000143	6.65	26056.24	1172.75	0.21
Susquehanna	Middle Reach	179.212	10-yr	189400.00	487.10	527.0		527.80	0.000150	7.17	30143.99	1488.07	0.22
Susquehanna	Middle Reach	179.212	25-yr	231400.00	487.10	530.9		531.82	0.000160	7.73	36039.86	1540.65	0.22
Susquehanna	Middle Reach	179.212	50-yr	263800.00	487.10	533.8		534.79	0.000168	8.07	40542.06	1560.17	0.22
Susquehanna	Middle Reach	179.212	100-yr	298200.00	487.10	536.5		537.51	0.000173	8.46	44716.73	1627.14	0.23
Susquehanna	Middle Reach	179.212	500-yr	385400.00	487.10	542.6		543.81	0.000179	9.33	54921.73	1683.22	0.24
Susquehanna	Middle Reach	179.137	2-yr	114700.00	486.39	518.7		519.34	0.000156	6.33	19306.63	881.33	0.22
Susquehanna	Middle Reach	179.137	5-yr	158300.00	486.39	523.8		524.58	0.000175	7.23	24281.70	1174.58	0.23
Susquehanna	Middle Reach	179.137	10-yr	189400.00	486.39	526.8		527.72	0.000184	7.79	28290.23	1408.67	0.24
Susquehanna	Middle Reach	179.137	25-yr	231400.00	486.39	530.7		531.74	0.000195	8.38	33999.88	1493.87	0.24
Susquehanna	Middle Reach	179.137	50-yr	263800.00	486.39	533.6		534.70	0.000204	8.73	38374.32	1527.90	0.25
Susquehanna	Middle Reach	179.137	100-yr	298200.00	486.39	536.2		537.42	0.000210	9.13	42546.76	1645.89	0.25
Susquehanna	Middle Reach	179.137	500-yr	385400.00	486.39	542.3		543.71	0.000215	10.01	52627.94	1666.66	0.26
Susquehanna	Middle Reach	179.062	2-yr	114700.00	485.70	518.7		519.27	0.000135	6.05	19845.75	854.78	0.20
Susquehanna	Middle Reach	179.062	5-yr	158300.00	485.70	523.8		524.50	0.000154	6.97	24835.42	1151.80	0.22
Susquehanna	Middle Reach	179.062	10-yr	189400.00	485.70	526.8		527.63	0.000165	7.56	28817.67	1420.05	0.23
Susquehanna	Middle Reach	179.062	25-yr	231400.00	485.70	530.7		531.65	0.000178	8.17	34376.04	1441.55	0.23
Susquehanna	Middle Reach	179.062	50-yr	263800.00	485.70	533.5		534.61	0.000188	8.55	38603.03	1486.46	0.24
Susquehanna	Middle Reach	179.062	100-yr	298200.00	485.70	536.2		537.33	0.000195	8.97	42607.01	1593.77	0.24
Susquehanna	Middle Reach	179.062	500-yr	385400.00	485.70	542.2		543.63	0.000203	9.90	52361.20	1616.38	0.25
Susquehanna	Middle Reach	178.990	2-yr	114700.00	485.03	518.7		519.21	0.000115	5.77	20642.48	830.96	0.19
Susquehanna	Middle Reach	178.990	5-yr	158300.00	485.03	523.7		524.43	0.000137	6.71	25373.03	1077.92	0.21
Susquehanna	Middle Reach	178.990	10-yr	189400.00	485.03	526.7		527.55	0.000148	7.31	28670.50	1106.27	0.22
Susquehanna	Middle Reach	178.990	25-yr	231400.00	485.03	530.6		531.57	0.000163	7.97	33578.05	1398.70	0.22
Susquehanna	Middle Reach	178.990	50-yr	263800.00	485.03	533.5		534.54	0.000175	8.40	37650.79	1447.20	0.23
Susquehanna	Middle Reach	178.990	100-yr	298200.00	485.03	536.1		537.25	0.000183	8.85	41480.33	1518.54	0.24
Susquehanna	Middle Reach	178.990	500-yr	385400.00	485.03	542.1		543.55	0.000195	9.84	50743.50	1576.86	0.25
Susquehanna	Middle Reach	178.914	2-yr	114700.00	484.33	518.6		519.16	0.000112	5.74	20645.16	824.52	0.19
Susquehanna	Middle Reach	178.914	5-yr	158300.00	484.33	523.7		524.37	0.000138	6.67	25809.08	1142.00	0.21
Susquehanna	Middle Reach	178.914	10-yr	189400.00	484.33	526.7		527.49	0.000147	7.23	29444.00	1262.94	0.21
Susquehanna	Middle Reach	178.914	25-yr	231400.00	484.33	530.6		531.49	0.000161	7.86	34464.51	1324.55	0.22
Susquehanna	Middle Reach	178.914	50-yr	263800.00	484.33	533.4		534.45	0.000172	8.26	38344.96	1397.13	0.23
Susquehanna	Middle Reach	178.914	100-yr	298200.00	484.33	536.1		537.16	0.000180	8.68	42062.05	1462.36	0.23
Susquehanna	Middle Reach	178.914	500-yr	385400.00	484.33	542.1		543.45	0.000189	9.60	51028.41	1487.08	0.24
Susquehanna	Middle Reach	178.839	2-yr	114700.00	483.66	518.6		519.11	0.000117	5.65	21185.94	1018.12	0.19
Susquehanna	Middle Reach	178.839	5-yr	158300.00	483.66	523.7		524.30	0.000132	6.50	27107.35	1230.04	0.20
Susquehanna	Middle Reach	178.839	10-yr	189400.00	483.66	526.7		527.42	0.000140	7.03	30872.77	1286.92	0.21
Susquehanna	Middle Reach	178.839	25-yr	231400.00	483.66	530.5		531.41	0.000151	7.62	35991.23	1327.80	0.22
Susquehanna	Middle Reach	178.839	50-yr	263800.00	483.66	533.4		534.37	0.000161	8.01	39870.48	1378.53	0.22
Susquehanna	Middle Reach	178.839	100-yr	298200.00	483.66	536.0		537.07	0.000168	8.42	43525.99	1420.01	0.23
Susquehanna	Middle Reach	178.839	500-yr	385400.00	483.66	542.1		543.35	0.000178	9.35	52206.40	1444.44	0.23
Susquehanna	Middle Reach	178.770	2-yr	114700.00	483.03	518.6		519.06	0.000101	5.46	22271.76	1020.30	0.18
Susquehanna	Middle Reach	178.770	5-yr	158300.00	483.03	523.6		524.25	0.000117	6.34	27760.35	1138.61	0.19
Susquehanna	Middle Reach	178.770	10-yr	189400.00	483.03	526.6		527.36	0.000127	6.90	31465.56	1302.84	0.20
Susquehanna	Middle Reach	178.770	25-yr	231400.00	483.03	530.5		531.35	0.000139	7.52	36536.98	1322.63	0.21
Susquehanna	Middle Reach	178.770	50-yr	263800.00	483.03	533.4		534.30	0.000149	7.91	40418.31	1363.58	0.21
Susquehanna	Middle Reach	178.770	100-yr	298200.00	483.03	536.0		537.01	0.000156	8.35	44043.73	1402.19	0.22
Susquehanna	Middle Reach	178.770	500-yr	385400.00	483.03	542.0		543.29	0.000169	9.33	52687.23	1467.27	0.23
Susquehanna	Middle Reach	178.693	2-yr	114700.00	482.33	518.6		519.01	0.000093	5.26	23490.06	1126.04	0.17
Susquehanna	Middle Reach	178.693	5-yr	158300.00	482.33	523.6		524.18	0.000109	6.09	29285.16	1198.13	0.18
Susquehanna	Middle Reach	178.693	10-yr	189400.00	482.33	526.6		527.29	0.000118	6.63	33042.43	1271.28	0.19
Susquehanna	Middle Reach	178.693	25-yr	231400.00	482.33	530.5		531.28	0.000129	7.22	37988.69	1283.43	0.20

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	178.693	50-yr	263800.00	482.33	533.4		534.22	0.000140	7.65	41744.61	1387.23	0.21
Susquehanna	Middle Reach	178.693	100-yr	298200.00	482.33	536.0		536.93	0.000146	8.09	45518.86	1466.08	0.21
Susquehanna	Middle Reach	178.693	500-yr	385400.00	482.33	542.0		543.19	0.000157	9.02	54440.58	1479.99	0.22
Susquehanna	Middle Reach	178.618	2-yr	114700.00	481.65	518.5		518.97	0.000091	5.20	23084.99	1059.68	0.17
Susquehanna	Middle Reach	178.618	5-yr	158300.00	481.65	523.6		524.14	0.000106	6.05	28499.84	1095.15	0.18
Susquehanna	Middle Reach	178.618	10-yr	189400.00	481.65	526.6		527.24	0.000115	6.61	31878.15	1230.42	0.19
Susquehanna	Middle Reach	178.618	25-yr	231400.00	481.65	530.4		531.22	0.000128	7.23	36708.91	1263.59	0.20
Susquehanna	Middle Reach	178.618	50-yr	263800.00	481.65	533.3		534.17	0.000139	7.64	40482.82	1389.09	0.21
Susquehanna	Middle Reach	178.618	100-yr	298200.00	481.65	535.9		536.87	0.000145	8.08	44141.64	1412.20	0.21
Susquehanna	Middle Reach	178.618	500-yr	385400.00	481.65	541.9		543.13	0.000158	9.06	52727.55	1435.95	0.22
Susquehanna	Middle Reach	178.544	2-yr	114700.00	480.97	518.5		518.92	0.000083	4.93	24943.45	1126.50	0.16
Susquehanna	Middle Reach	178.544	5-yr	158300.00	480.97	523.6		524.08	0.000099	5.69	30995.83	1225.22	0.18
Susquehanna	Middle Reach	178.544	10-yr	189400.00	480.97	526.6		527.17	0.000106	6.18	34699.96	1236.92	0.18
Susquehanna	Middle Reach	178.544	25-yr	231400.00	480.97	530.5		531.14	0.000117	6.73	39514.38	1256.87	0.19
Susquehanna	Middle Reach	178.544	50-yr	263800.00	480.97	533.3		534.08	0.000126	7.12	43232.28	1343.25	0.20
Susquehanna	Middle Reach	178.544	100-yr	298200.00	480.97	535.9		536.77	0.000131	7.52	46816.20	1388.16	0.20
Susquehanna	Middle Reach	178.544	500-yr	385400.00	480.97	542.0		543.02	0.000142	8.43	55458.76	1440.01	0.21
Susquehanna	Middle Reach	178.473	2-yr	114700.00	480.29	518.5		518.88	0.000061	4.65	26686.12	1183.13	0.14
Susquehanna	Middle Reach	178.473	5-yr	158300.00	480.29	523.6		524.04	0.000076	5.48	32879.73	1246.42	0.16
Susquehanna	Middle Reach	178.473	10-yr	189400.00	480.29	526.6		527.13	0.000085	6.02	36643.06	1259.97	0.17
Susquehanna	Middle Reach	178.473	25-yr	231400.00	480.29	530.4		531.09	0.000097	6.62	41536.56	1277.30	0.18
Susquehanna	Middle Reach	178.473	50-yr	263800.00	480.29	533.3		534.03	0.000106	7.05	45318.20	1377.47	0.18
Susquehanna	Middle Reach	178.473	100-yr	298200.00	480.29	535.9		536.72	0.000112	7.48	48946.13	1398.65	0.19
Susquehanna	Middle Reach	178.473	500-yr	385400.00	480.29	541.9		542.97	0.000126	8.47	57445.20	1419.29	0.20
Susquehanna	Middle Reach	178.397	2-yr	114700.00	479.56	518.5		518.84	0.000055	4.39	28571.50	1154.98	0.13
Susquehanna	Middle Reach	178.397	5-yr	158300.00	479.56	523.6		523.99	0.000069	5.19	34630.64	1216.59	0.15
Susquehanna	Middle Reach	178.397	10-yr	189400.00	479.56	526.6		527.08	0.000077	5.71	38342.51	1268.84	0.16
Susquehanna	Middle Reach	178.397	25-yr	231400.00	479.56	530.4		531.04	0.000087	6.30	43306.89	1313.25	0.17
Susquehanna	Middle Reach	178.397	50-yr	263800.00	479.56	533.3		533.97	0.000095	6.70	47194.80	1396.39	0.17
Susquehanna	Middle Reach	178.397	100-yr	298200.00	479.56	535.9		536.65	0.000101	7.13	50872.99	1417.01	0.18
Susquehanna	Middle Reach	178.397	500-yr	385400.00	479.56	541.9		542.89	0.000114	8.08	59523.70	1447.13	0.19
Susquehanna	Middle Reach	178.323	2-yr	114700.00	478.84	518.5		518.82	0.000073	4.37	27072.16	1153.06	0.15
Susquehanna	Middle Reach	178.323	5-yr	158300.00	478.84	523.6		523.96	0.000081	5.04	32946.57	1198.60	0.16
Susquehanna	Middle Reach	178.323	10-yr	189400.00	478.84	526.6		527.04	0.000087	5.48	36670.10	1270.04	0.17
Susquehanna	Middle Reach	178.323	25-yr	231400.00	478.84	530.4		530.99	0.000095	5.99	41797.16	1377.25	0.17
Susquehanna	Middle Reach	178.323	50-yr	263800.00	478.84	533.3		533.91	0.000101	6.32	45853.57	1440.27	0.17
Susquehanna	Middle Reach	178.323	100-yr	298200.00	478.84	535.9		536.59	0.000104	6.68	49655.53	1459.89	0.18
Susquehanna	Middle Reach	178.323	500-yr	385400.00	478.84	542.0		542.81	0.000113	7.48	58556.21	1478.89	0.19
Susquehanna	Middle Reach	178.247 Hunlock Creek	2-yr	114900.00	478.11	518.4	494.41	518.78	0.000103	4.87	26199.15	1311.36	0.18
Susquehanna	Middle Reach	178.247 Hunlock Creek	5-yr	158600.00	478.11	523.5	497.88	523.91	0.000108	5.48	32951.42	1366.12	0.18
Susquehanna	Middle Reach	178.247 Hunlock Creek	10-yr	189700.00	478.11	526.5	500.12	526.99	0.000111	5.89	37107.79	1401.26	0.18
Susquehanna	Middle Reach	178.247 Hunlock Creek	25-yr	231800.00	478.11	530.3	505.46	530.94	0.000117	6.35	42647.85	1463.74	0.19
Susquehanna	Middle Reach	178.247 Hunlock Creek	50-yr	264300.00	478.11	533.2	506.77	533.86	0.000122	6.64	46920.14	1507.48	0.19
Susquehanna	Middle Reach	178.247 Hunlock Creek	100-yr	298600.00	478.11	535.8	508.08	536.54	0.000125	6.97	50925.83	1556.77	0.19
Susquehanna	Middle Reach	178.247 Hunlock Creek	500-yr	385900.00	478.11	541.9	511.09	542.76	0.000130	7.72	60702.28	1685.46	0.20
Susquehanna	Middle Reach	178.174	2-yr	114900.00	477.43	518.2	496.66	518.71	0.000147	5.96	20279.65	1056.20	0.21
Susquehanna	Middle Reach	178.174	5-yr	158600.00	477.43	523.1	500.51	523.84	0.000158	6.76	26390.09	1525.13	0.22
Susquehanna	Middle Reach	178.174	10-yr	189700.00	477.43	526.1	504.95	526.91	0.000163	7.24	30652.65	2042.60	0.22
Susquehanna	Middle Reach	178.174	25-yr	231800.00	477.43	530.0	506.92	530.86	0.000169	7.73	36464.98	2199.74	0.23
Susquehanna	Middle Reach	178.174	50-yr	264300.00	477.43	532.8	508.28	533.77	0.000174	8.05	40888.56	2334.36	0.23
Susquehanna	Middle Reach	178.174	100-yr	298600.00	477.43	535.4	509.71	536.45	0.000175	8.38	45103.86	2379.62	0.23
Susquehanna	Middle Reach	178.174	500-yr	385900.00	477.43	541.5	513.12	542.67	0.000177	9.14	54938.03	2424.46	0.23
Susquehanna	Middle Reach	178.151	2-yr	114900.00	477.22	518.1	495.16	518.69	0.000142	6.01	20268.85	1381.48	0.21
Susquehanna	Middle Reach	178.151	5-yr	158600.00	477.22	523.1	498.92	523.82	0.000158	6.88	26077.07	1799.54	0.22
Susquehanna	Middle Reach	178.151	10-yr	189700.00	477.22	526.1	503.97	526.89	0.000166	7.42	29906.84	2085.73	0.23
Susquehanna	Middle Reach	178.151	25-yr	231800.00	477.22	529.9	506.03	530.83	0.000175	7.96	35679.78	2316.59	0.23
Susquehanna	Middle Reach	178.151	50-yr	264300.00	477.22	532.7	507.51	533.75	0.000182	8.30	40174.70	2484.87	0.23
Susquehanna	Middle Reach	178.151	100-yr	298600.00	477.22	535.4	508.97	536.43	0.000184	8.65	44526.70	2515.55	0.23
Susquehanna	Middle Reach	178.151	500-yr	385900.00	477.22	541.4	512.51	542.64	0.000187	9.42	54698.92	2522.06	0.24
Susquehanna	Middle Reach	178.097	2-yr	114900.00	476.41	518.2	491.15	518.63	0.000085	5.47	22077.87	851.49	0.17
Susquehanna	Middle Reach	178.097	5-yr	158600.00	476.41	523.1	494.20	523.76	0.000107	6.51	26985.01	1113.12	0.19
Susquehanna	Middle Reach	178.097	10-yr	189700.00	476.41	526.1	496.18	526.83	0.000119	7.14	30337.31	1212.35	0.20
Susquehanna	Middle Reach	178.097	25-yr	231800.00	476.41	529.9	498.66	530.78	0.000134	7.82	35930.13	1540.82	0.21
Susquehanna	Middle Reach	178.097	50-yr	264300.00	476.41	532.7	500.44	533.70	0.000145	8.24	40326.83	1599.59	0.21
Susquehanna	Middle Reach	178.097	100-yr	298600.00	476.41	535.3	502.18	536.38	0.000152	8.69	44487.84	1746.66	0.22
Susquehanna	Middle Reach	178.097	500-yr	385900.00	476.41	541.3	506.34	542.58	0.000165	9.65	54417.07	1793.88	0.23
Susquehanna	Middle Reach	178.022	2-yr	114900.00	475.48	518.0	490.78	518.59	0.000099	5.92	19418.56	570.19	0.18
Susquehanna	Middle Reach	178.022	5-yr	158600.00	475.48	522.9	494.08	523.70	0.000132	7.13	22231.41	586.60	0.20
Susquehanna	Middle Reach	178.022	10-yr	189700.00	475.48	525.8	496.20	526.76	0.000153	7.93	23931.03	595.79	0.22
Susquehanna	Middle Reach	178.022	25-yr	231800.00	475.48	529.5	498.86	530.69	0.000182	8.86	26414.93	940.42	0.24
Susquehanna	Middle Reach	178.022	50-yr	264300.00	475.48	532.2	500.76	533.59	0.000199	9.45	29871.79	1403.55	0.25
Susquehanna	Middle Reach	178.022	100-yr	298600.00	475.48	534.7	502.67	536.26	0.000211	10.04	33641.52	1599.95	0.25
Susquehanna	Middle Reach	178.022	500-yr	385900.00	475.48	540.6	506.92	542.45	0.000232	11.21	43462.06	1704.98	0.27
Susquehanna	Middle Reach	177.946	2-yr	114900.00	476.63	518.1		518.51	0.000080	5.17	22390.56	751.71	0.16
Susquehanna	Middle Reach	177.946	5-yr	158600.00	476.63	523.0		523.59	0.000101	6.18	26154.82	784.71	0.18
Susquehanna	Middle Reach	177.946	10-yr	189700.00	476.63	525.9		526.63	0.000114	6.84	28463.28	804.40	0.19
Susquehanna	Middle Reach	177.946	25-yr	231800.00	476.63	529.6		530.53	0.000133	7.61	31720.87	986.46	0.21
Susquehanna	Middle Reach	177.946	50-yr	264300.00	476.63	532.4		533.41	0.000150	8.12	34603.61	1075.96	0.22
Susquehanna	Middle Reach	177.946	100-yr	298600.00	476.63	534.9		536.07	0.000162	8.68	37835.71	1501.20	0.22
Susquehanna	Middle Reach	177.946	500-yr	385900.00	476.63	540.8		542.24	0.000180	9.78	46830.52	1555.19	0.24
Susquehanna	Middle Reach	177.869	2-yr	114900.00	477.90	517.7		518.44	0.000152	6.70	17160.79	586.09	0.22
Susquehanna	Middle Reach	177.869	5-yr	158600.00	477.90	522.5		523.50	0.000191	7.93	20012.36	608.08	0.24
Susquehanna	Middle Reach	177.869	10-yr	189700.00	477.90	525.3		526.52	0.000216	8.73	21741.51	619.79	0.26
Susquehanna	Middle Reach	177.869	25-yr	231800.00	477.90	529.0		530.40	0.000251	9.65	24162.99	742.62	0.28
Susquehanna	Middle Reach	177.869	50-yr	264300.00	477.90	531.6		533.27	0.000278	10.26	26256.23	834.24	0.29
Susquehanna	Middle Reach	177.869	100-yr	298600.00	477.90	534.1		535.92	0.000304	10.89	28565.23	1103.71	0.30
Susquehanna	Middle Reach	177.869	500-yr	385900.00	477.90	539.8		542.07	0.000327	12.17	36661.46	1524.56	0.31
Susquehanna	Middle Reach	177.795	2-yr	114900.00	478.88	517.5		518.36	0.000198	7.57	15173.89	525.75	0.25

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	177.795	5-yr	158600.00	478.88	522.1		523.38	0.000257	8.96	17707.09	558.40	0.28
Susquehanna	Middle Reach	177.795	10-yr	189700.00	478.88	524.9		526.39	0.000294	9.85	19265.38	575.81	0.30
Susquehanna	Middle Reach	177.795	25-yr	231800.00	478.88	528.4		530.25	0.000354	10.85	21400.31	679.83	0.32
Susquehanna	Middle Reach	177.795	50-yr	264300.00	478.88	531.1		533.10	0.000410	11.45	23766.62	1064.13	0.34
Susquehanna	Middle Reach	177.795	100-yr	298600.00	478.88	533.5		535.74	0.000431	12.02	26621.43	1288.33	0.35
Susquehanna	Middle Reach	177.795	500-yr	385900.00	478.88	539.3		541.89	0.000431	13.06	35438.56	1584.92	0.36
Susquehanna	Middle Reach	177.718	2-yr	114900.00	479.91	517.5		518.23	0.000169	6.89	16686.78	595.03	0.23
Susquehanna	Middle Reach	177.718	5-yr	158600.00	479.91	522.2		523.22	0.000211	8.12	19539.30	619.46	0.25
Susquehanna	Middle Reach	177.718	10-yr	189700.00	479.91	525.0		526.20	0.000242	8.91	21285.44	642.61	0.27
Susquehanna	Middle Reach	177.718	25-yr	231800.00	479.91	528.5		530.01	0.000288	9.80	23717.15	749.44	0.29
Susquehanna	Middle Reach	177.718	50-yr	264300.00	479.91	531.2		532.84	0.000317	10.31	26646.74	1294.16	0.30
Susquehanna	Middle Reach	177.718	100-yr	298600.00	479.91	533.7		535.44	0.000327	10.74	30144.99	1483.98	0.31
Susquehanna	Middle Reach	177.718	500-yr	385900.00	479.91	539.6		541.55	0.000314	11.46	39310.19	1595.44	0.31
Susquehanna	Middle Reach	177.646	2-yr	114900.00	479.98	517.7		518.10	0.000098	5.29	21707.69	769.86	0.18
Susquehanna	Middle Reach	177.646	5-yr	158600.00	479.98	522.4		523.03	0.000130	6.19	25802.03	952.71	0.20
Susquehanna	Middle Reach	177.646	10-yr	189700.00	479.98	525.3		525.97	0.000144	6.74	28614.30	1027.67	0.21
Susquehanna	Middle Reach	177.646	25-yr	231800.00	479.98	528.9		529.73	0.000165	7.34	32562.18	1141.65	0.22
Susquehanna	Middle Reach	177.646	50-yr	264300.00	479.98	531.6		532.53	0.000181	7.71	35969.35	1361.24	0.23
Susquehanna	Middle Reach	177.646	100-yr	298600.00	479.98	534.1		535.12	0.000185	8.08	39675.45	1514.86	0.23
Susquehanna	Middle Reach	177.646	500-yr	385900.00	479.98	540.1		541.23	0.000184	8.81	48758.70	1580.47	0.24
Susquehanna	Middle Reach	177.572	2-yr	114900.00	478.73	517.8		518.01	0.000054	4.02	28559.08	988.15	0.13
Susquehanna	Middle Reach	177.572	5-yr	158600.00	478.73	522.6		522.92	0.000068	4.75	33501.05	1107.06	0.15
Susquehanna	Middle Reach	177.572	10-yr	189700.00	478.73	525.4		525.85	0.000075	5.21	37187.71	1381.46	0.16
Susquehanna	Middle Reach	177.572	25-yr	231800.00	478.73	529.1		529.59	0.000083	5.73	42314.04	1422.60	0.16
Susquehanna	Middle Reach	177.572	50-yr	264300.00	478.73	531.8		532.37	0.000089	6.07	46199.15	1430.16	0.17
Susquehanna	Middle Reach	177.572	100-yr	298600.00	478.73	534.3		534.96	0.000094	6.43	49817.79	1446.06	0.17
Susquehanna	Middle Reach	177.572	500-yr	385900.00	478.73	540.3		541.06	0.000102	7.23	58511.20	1520.50	0.18
Susquehanna	Middle Reach	177.494	2-yr	114900.00	469.23	517.8		517.97	0.000028	3.19	36288.64	1170.14	0.10
Susquehanna	Middle Reach	177.494	5-yr	158600.00	469.23	522.6		522.87	0.000036	3.83	42627.61	1395.71	0.11
Susquehanna	Middle Reach	177.494	10-yr	189700.00	469.23	525.5		525.78	0.000041	4.24	46646.96	1410.50	0.12
Susquehanna	Middle Reach	177.494	25-yr	231800.00	469.23	529.2		529.52	0.000047	4.74	51917.45	1460.66	0.13
Susquehanna	Middle Reach	177.494	50-yr	264300.00	469.23	531.9		532.30	0.000052	5.07	55936.23	1479.16	0.13
Susquehanna	Middle Reach	177.494	100-yr	298600.00	469.23	534.4		534.88	0.000056	5.42	59694.66	1503.22	0.14
Susquehanna	Middle Reach	177.494	500-yr	385900.00	469.23	540.4		540.97	0.000065	6.20	68752.23	1569.81	0.15
Susquehanna	Middle Reach	177.416	2-yr	114900.00	470.92	517.8		517.95	0.000030	3.41	33832.69	1043.07	0.10
Susquehanna	Middle Reach	177.416	5-yr	158600.00	470.92	522.6		522.85	0.000040	4.12	39903.32	1319.47	0.12
Susquehanna	Middle Reach	177.416	10-yr	189700.00	470.92	525.4		525.76	0.000045	4.57	43686.43	1333.04	0.12
Susquehanna	Middle Reach	177.416	25-yr	231800.00	470.92	529.1		529.49	0.000053	5.12	48606.37	1383.19	0.13
Susquehanna	Middle Reach	177.416	50-yr	264300.00	470.92	531.8		532.27	0.000059	5.49	52384.36	1405.51	0.14
Susquehanna	Middle Reach	177.416	100-yr	298600.00	470.92	534.3		534.85	0.000064	5.87	55942.84	1425.24	0.14
Susquehanna	Middle Reach	177.416	500-yr	385900.00	470.92	540.3		540.93	0.000074	6.72	64660.49	1508.29	0.16
Susquehanna	Middle Reach	177.341	2-yr	114900.00	472.48	517.7		517.94	0.000041	3.78	30537.59	989.24	0.12
Susquehanna	Middle Reach	177.341	5-yr	158600.00	472.48	522.5		522.82	0.000054	4.52	36230.68	1313.29	0.13
Susquehanna	Middle Reach	177.341	10-yr	189700.00	472.48	525.4		525.73	0.000061	4.98	39991.38	1331.65	0.14
Susquehanna	Middle Reach	177.341	25-yr	231800.00	472.48	529.0		529.46	0.000069	5.52	44967.94	1385.97	0.15
Susquehanna	Middle Reach	177.341	50-yr	264300.00	472.48	531.7		532.23	0.000076	5.88	48746.48	1400.73	0.15
Susquehanna	Middle Reach	177.341	100-yr	298600.00	472.48	534.2		534.81	0.000080	6.26	52299.61	1422.37	0.16
Susquehanna	Middle Reach	177.341	500-yr	385900.00	472.48	540.1		540.89	0.000090	7.10	60861.92	1505.35	0.17
Susquehanna	Middle Reach	177.267	2-yr	114900.00	474.50	517.6		517.91	0.000056	4.22	27468.19	985.31	0.14
Susquehanna	Middle Reach	177.267	5-yr	158600.00	474.50	522.4		522.79	0.000073	4.98	32914.53	1260.45	0.15
Susquehanna	Middle Reach	177.267	10-yr	189700.00	474.50	525.2		525.70	0.000080	5.46	36589.32	1325.09	0.16
Susquehanna	Middle Reach	177.267	25-yr	231800.00	474.50	528.9		529.42	0.000089	6.00	41532.75	1385.02	0.17
Susquehanna	Middle Reach	177.267	50-yr	264300.00	474.50	531.6		532.19	0.000096	6.36	45296.49	1397.71	0.17
Susquehanna	Middle Reach	177.267	100-yr	298600.00	474.50	534.1		534.77	0.000101	6.74	48825.52	1415.36	0.18
Susquehanna	Middle Reach	177.267	500-yr	385900.00	474.50	540.0		540.84	0.000110	7.58	57313.77	1449.56	0.19
Susquehanna	Middle Reach	177.187	2-yr	114900.00	475.86	517.6		517.88	0.000079	4.60	25210.86	1005.47	0.16
Susquehanna	Middle Reach	177.187	5-yr	158600.00	475.86	522.3		522.75	0.000092	5.38	30143.95	1113.70	0.17
Susquehanna	Middle Reach	177.187	10-yr	189700.00	475.86	525.1		525.65	0.000099	5.88	33659.37	1328.77	0.18
Susquehanna	Middle Reach	177.187	25-yr	231800.00	475.86	528.7		529.37	0.000109	6.45	38571.53	1372.59	0.18
Susquehanna	Middle Reach	177.187	50-yr	264300.00	475.86	531.4		532.14	0.000116	6.81	42289.68	1386.15	0.19
Susquehanna	Middle Reach	177.187	100-yr	298600.00	475.86	533.9		534.71	0.000121	7.20	45783.63	1408.24	0.19
Susquehanna	Middle Reach	177.187	500-yr	385900.00	475.86	539.8		540.78	0.000130	8.05	54224.11	1446.20	0.20
Susquehanna	Middle Reach	177.114	2-yr	114900.00	477.48	517.4		517.84	0.000110	5.10	22839.91	1001.32	0.18
Susquehanna	Middle Reach	177.114	5-yr	158600.00	477.48	522.2		522.70	0.000121	5.86	28140.70	1264.94	0.19
Susquehanna	Middle Reach	177.114	10-yr	189700.00	477.48	525.0		525.60	0.000127	6.34	31841.56	1325.11	0.20
Susquehanna	Middle Reach	177.114	25-yr	231800.00	477.48	528.6		529.32	0.000135	6.88	36699.89	1362.67	0.20
Susquehanna	Middle Reach	177.114	50-yr	264300.00	477.48	531.3		532.08	0.000142	7.23	40385.73	1372.33	0.21
Susquehanna	Middle Reach	177.114	100-yr	298600.00	477.48	533.8		534.65	0.000146	7.60	43834.85	1402.53	0.21
Susquehanna	Middle Reach	177.114	500-yr	385900.00	477.48	539.7		540.72	0.000152	8.41	52453.85	1487.01	0.22
Susquehanna	Middle Reach	177.039	2-yr	114900.00	478.94	517.3		517.78	0.000137	5.60	20766.48	928.58	0.20
Susquehanna	Middle Reach	177.039	5-yr	158600.00	478.94	522.0		522.64	0.000154	6.40	25958.25	1296.49	0.21
Susquehanna	Middle Reach	177.039	10-yr	189700.00	478.94	524.8		525.53	0.000159	6.89	29614.49	1311.71	0.22
Susquehanna	Middle Reach	177.039	25-yr	231800.00	478.94	528.4		529.25	0.000167	7.43	34391.10	1354.37	0.22
Susquehanna	Middle Reach	177.039	50-yr	264300.00	478.94	531.1		532.01	0.000172	7.77	38056.77	1378.78	0.23
Susquehanna	Middle Reach	177.039	100-yr	298600.00	478.94	533.6		534.58	0.000175	8.14	41562.85	1440.16	0.23
Susquehanna	Middle Reach	177.039	500-yr	385900.00	478.94	539.5		540.64	0.000180	8.94	50267.11	1495.15	0.23
Susquehanna	Middle Reach	176.963	2-yr	114900.00	480.42	517.2		517.72	0.000140	5.78	20142.01	879.46	0.21
Susquehanna	Middle Reach	176.963	5-yr	158600.00	480.42	521.9		522.57	0.000158	6.64	25121.57	1248.52	0.22
Susquehanna	Middle Reach	176.963	10-yr	189700.00	480.42	524.7		525.46	0.000167	7.16	28715.41	1305.58	0.23
Susquehanna	Middle Reach	176.963	25-yr	231800.00	480.42	528.3		529.17	0.000175	7.72	33440.92	1326.39	0.23
Susquehanna	Middle Reach	176.963	50-yr	264300.00	480.42	531.0		531.93	0.000182	8.08	37033.91	1360.98	0.23
Susquehanna	Middle Reach	176.963	100-yr	298600.00	480.42	533.4		534.50	0.000185	8.47	40427.35	1378.02	0.24
Susquehanna	Middle Reach	176.963	500-yr	385900.00	480.42	539.3		540.56	0.000191	9.31	48779.60	1447.90	0.24
Susquehanna	Middle Reach	176.889	2-yr	114900.00	481.87	517.1		517.66	0.000154	5.92	19633.46	873.72	0.21
Susquehanna	Middle Reach	176.889	5-yr	158600.00	481.87	521.8		522.51	0.000167	6.72	25142.34	1304.66	0.22
Susquehanna	Middle Reach	176.889	10-yr	189700.00	481.87	524.6		525.40	0.000172	7.21	28803.47	1315.07	0.23
Susquehanna	Middle Reach	176.889	25-yr	231800.00	481.87	528.2		529.10	0.000180	7.76	33557.47	1332.50	0.23
Susquehanna	Middle Reach	176.889	50-yr	264300.00	481.87	530.9		531.86	0.000186	8.11	37178.97	1379.00	0.24
Susquehanna	Middle Reach	176.889	100-yr	298600.00	481.87	533.4		534.42	0.000188	8.49	40630.35	1400.17	0.24

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	176.889	500-yr	385900.00	481.87	539.2		540.48	0.000193	9.31	49077.57	1455.22	0.24
Susquehanna	Middle Reach	176.812	2-yr	114900.00	482.75	517.0	499.88	517.59	0.000176	6.24	18706.66	987.42	0.23
Susquehanna	Middle Reach	176.812	5-yr	158600.00	482.75	521.7	502.66	522.43	0.000189	7.01	24484.47	1298.97	0.24
Susquehanna	Middle Reach	176.812	10-yr	189700.00	482.75	524.5	504.25	525.32	0.000193	7.50	28140.08	1317.39	0.24
Susquehanna	Middle Reach	176.812	25-yr	231800.00	482.75	528.1	506.22	529.02	0.000199	8.04	32914.66	1367.26	0.25
Susquehanna	Middle Reach	176.812	50-yr	264300.00	482.75	530.7	507.61	531.77	0.000204	8.37	36627.09	1404.88	0.25
Susquehanna	Middle Reach	176.812	100-yr	298600.00	482.75	533.2	509.06	534.34	0.000205	8.74	40127.01	1413.75	0.25
Susquehanna	Middle Reach	176.812	500-yr	385900.00	482.75	539.1	512.51	540.39	0.000207	9.54	49225.87	1607.55	0.25
Susquehanna	Middle Reach	176.735	2-yr	114900.00	482.39	516.9	499.54	517.51	0.000181	6.17	18796.37	980.15	0.23
Susquehanna	Middle Reach	176.735	5-yr	158600.00	482.39	521.6	502.22	522.34	0.000199	6.83	24968.08	1372.76	0.24
Susquehanna	Middle Reach	176.735	10-yr	189700.00	482.39	524.4	503.72	525.22	0.000198	7.25	28839.78	1408.89	0.24
Susquehanna	Middle Reach	176.735	25-yr	231800.00	482.39	528.0	505.65	528.91	0.000198	7.70	33950.13	1455.88	0.24
Susquehanna	Middle Reach	176.735	50-yr	264300.00	482.39	530.7	507.06	531.66	0.000200	7.98	37778.14	1484.87	0.24
Susquehanna	Middle Reach	176.735	100-yr	298600.00	482.39	533.2	508.46	534.22	0.000199	8.31	41331.20	1497.34	0.24
Susquehanna	Middle Reach	176.735	500-yr	385900.00	482.39	539.1	511.83	540.27	0.000196	9.00	51440.50	1734.92	0.24
Susquehanna	Middle Reach	176.700	2-yr	114900.00	482.21	516.9	499.68	517.47	0.000097	6.19	19299.93	993.91	0.21
Susquehanna	Middle Reach	176.700	5-yr	158600.00	482.21	521.5	502.18	522.28	0.000114	7.12	24801.94	1505.36	0.23
Susquehanna	Middle Reach	176.700	10-yr	189700.00	482.21	524.3	503.70	525.16	0.000122	7.69	28217.20	1527.95	0.23
Susquehanna	Middle Reach	176.700	25-yr	231800.00	482.21	527.8	505.64	528.85	0.000137	8.33	32607.77	1556.59	0.24
Susquehanna	Middle Reach	176.700	50-yr	264300.00	482.21	530.5	507.03	531.59	0.000151	8.74	35885.47	1584.83	0.24
Susquehanna	Middle Reach	176.700	100-yr	298600.00	482.21	532.9	508.42	534.14	0.000157	9.19	38917.82	1604.63	0.25
Susquehanna	Middle Reach	176.700	500-yr	385900.00	482.21	539.0	511.74	540.21	0.000151	9.62	54023.98	1817.36	0.24
Susquehanna	Middle Reach	176.695 Retreat Bridge		Bridge									
Susquehanna	Middle Reach	176.690	2-yr	114900.00	482.14	516.9	499.79	517.44	0.000148	6.14	19527.34	979.76	0.21
Susquehanna	Middle Reach	176.690	5-yr	158600.00	482.14	521.5	502.34	522.25	0.000165	7.06	24976.26	1413.31	0.23
Susquehanna	Middle Reach	176.690	10-yr	189700.00	482.14	524.3	503.83	525.13	0.000174	7.64	28366.87	1423.64	0.23
Susquehanna	Middle Reach	176.690	25-yr	231800.00	482.14	527.8	505.73	528.81	0.000187	8.28	32726.88	1436.92	0.24
Susquehanna	Middle Reach	176.690	50-yr	264300.00	482.14	530.4	507.09	531.49	0.000198	8.70	35912.57	1469.98	0.24
Susquehanna	Middle Reach	176.690	100-yr	298600.00	482.14	532.7	508.46	533.95	0.000206	9.18	38792.89	1701.77	0.25
Susquehanna	Middle Reach	176.690	500-yr	385900.00	482.14	538.3	511.81	539.67	0.000205	9.85	51884.63	1755.83	0.25
Susquehanna	Middle Reach	176.680	2-yr	114900.00	482.13	516.9	499.82	517.42	0.000170	5.89	19541.47	1094.40	0.22
Susquehanna	Middle Reach	176.680	5-yr	158600.00	482.13	521.5	502.37	522.21	0.000179	6.58	25245.65	1413.69	0.23
Susquehanna	Middle Reach	176.680	10-yr	189700.00	482.13	524.3	503.86	525.08	0.000182	7.02	28739.53	1423.04	0.23
Susquehanna	Middle Reach	176.680	25-yr	231800.00	482.13	527.9	505.75	528.75	0.000188	7.51	33250.46	1436.84	0.24
Susquehanna	Middle Reach	176.680	50-yr	264300.00	482.13	530.5	507.12	531.43	0.000194	7.84	36566.05	1618.82	0.24
Susquehanna	Middle Reach	176.680	100-yr	298600.00	482.13	532.9	508.50	533.88	0.000197	8.22	39571.32	1697.41	0.24
Susquehanna	Middle Reach	176.680	500-yr	385900.00	482.13	538.5	512.52	539.59	0.000189	8.76	52618.44	1751.20	0.24
Susquehanna	Middle Reach	176.655	2-yr	114900.00	482.01	516.8	499.94	517.39	0.000163	5.97	19569.97	1335.35	0.22
Susquehanna	Middle Reach	176.655	5-yr	158600.00	482.01	521.5	502.46	522.19	0.000182	6.63	25801.87	1521.30	0.23
Susquehanna	Middle Reach	176.655	10-yr	189700.00	482.01	524.3	503.94	525.06	0.000182	7.05	29596.85	1538.72	0.23
Susquehanna	Middle Reach	176.655	25-yr	231800.00	482.01	527.9	505.83	528.72	0.000185	7.53	34464.50	1594.27	0.23
Susquehanna	Middle Reach	176.655	50-yr	264300.00	482.01	530.5	507.19	531.40	0.000189	7.84	38018.48	1640.84	0.24
Susquehanna	Middle Reach	176.655	100-yr	298600.00	482.01	532.9	508.57	533.84	0.000191	8.20	42161.86	1720.94	0.24
Susquehanna	Middle Reach	176.655	500-yr	385900.00	482.01	538.5	511.97	539.56	0.000183	8.72	54548.21	1761.53	0.24
Susquehanna	Middle Reach	176.587	2-yr	114900.00	481.68	516.9	498.70	517.32	0.000119	5.46	21715.95	1234.38	0.19
Susquehanna	Middle Reach	176.587	5-yr	158600.00	481.68	521.5	501.31	522.11	0.000132	6.22	28417.34	1545.89	0.20
Susquehanna	Middle Reach	176.587	10-yr	189700.00	481.68	524.3	502.72	524.98	0.000137	6.69	32689.97	1559.03	0.21
Susquehanna	Middle Reach	176.587	25-yr	231800.00	481.68	527.9	504.48	528.64	0.000145	7.20	38203.15	1575.89	0.21
Susquehanna	Middle Reach	176.587	50-yr	264300.00	481.68	530.5	505.76	531.31	0.000152	7.54	42273.78	1638.52	0.21
Susquehanna	Middle Reach	176.587	100-yr	298600.00	481.68	532.9	507.06	533.76	0.000156	7.92	46451.02	1695.87	0.22
Susquehanna	Middle Reach	176.587	500-yr	385900.00	481.68	538.4	510.15	539.49	0.000164	8.74	56329.40	1806.54	0.23
Susquehanna	Middle Reach	176.508	2-yr	114900.00	481.33	516.9		517.25	0.000097	4.94	23552.27	1050.61	0.17
Susquehanna	Middle Reach	176.508	5-yr	158600.00	481.33	521.5		522.03	0.000112	5.68	29707.71	1402.52	0.19
Susquehanna	Middle Reach	176.508	10-yr	189700.00	481.33	524.3		524.89	0.000118	6.14	33654.01	1432.10	0.19
Susquehanna	Middle Reach	176.508	25-yr	231800.00	481.33	527.9		528.56	0.000127	6.67	38900.33	1515.85	0.20
Susquehanna	Middle Reach	176.508	50-yr	264300.00	481.33	530.5		531.23	0.000134	7.02	42970.85	1629.51	0.20
Susquehanna	Middle Reach	176.508	100-yr	298600.00	481.33	532.9		533.67	0.000138	7.40	46899.57	1685.35	0.21
Susquehanna	Middle Reach	176.508	500-yr	385900.00	481.33	538.4		539.41	0.000147	8.23	56457.01	1733.92	0.21
Susquehanna	Middle Reach	176.432	2-yr	114900.00	480.99	516.9		517.19	0.000083	4.59	26095.26	1396.08	0.16
Susquehanna	Middle Reach	176.432	5-yr	158600.00	480.99	521.5		521.97	0.000095	5.25	32911.05	1496.31	0.17
Susquehanna	Middle Reach	176.432	10-yr	189700.00	480.99	524.3		524.82	0.000100	5.68	37109.38	1510.61	0.18
Susquehanna	Middle Reach	176.432	25-yr	231800.00	480.99	527.9		528.48	0.000107	6.17	42674.76	1620.49	0.18
Susquehanna	Middle Reach	176.432	50-yr	264300.00	480.99	530.5		531.15	0.000113	6.49	46939.66	1640.42	0.18
Susquehanna	Middle Reach	176.432	100-yr	298600.00	480.99	532.9		533.58	0.000117	6.85	50845.43	1668.72	0.19
Susquehanna	Middle Reach	176.432	500-yr	385900.00	480.99	538.5		539.31	0.000126	7.64	60445.48	1743.23	0.20
Susquehanna	Middle Reach	176.356	2-yr	114900.00	480.63	516.8		517.16	0.000092	4.69	25582.54	1333.57	0.17
Susquehanna	Middle Reach	176.356	5-yr	158600.00	480.63	521.5		521.93	0.000100	5.35	31972.87	1381.93	0.18
Susquehanna	Middle Reach	176.356	10-yr	189700.00	480.63	524.3		524.78	0.000105	5.78	35839.30	1393.89	0.18
Susquehanna	Middle Reach	176.356	25-yr	231800.00	480.63	527.8		528.43	0.000113	6.30	41015.43	1540.72	0.19
Susquehanna	Middle Reach	176.356	50-yr	264300.00	480.63	530.4		531.10	0.000120	6.63	45103.67	1601.67	0.19
Susquehanna	Middle Reach	176.356	100-yr	298600.00	480.63	532.8		533.53	0.000124	7.00	48954.06	1651.49	0.19
Susquehanna	Middle Reach	176.356	500-yr	385900.00	480.63	538.4		539.25	0.000134	7.82	58307.77	1739.15	0.20
Susquehanna	Middle Reach	176.285	2-yr	114900.00	480.30	516.8		517.12	0.000081	4.54	26039.94	1197.07	0.16
Susquehanna	Middle Reach	176.285	5-yr	158600.00	480.30	521.5		521.89	0.000091	5.26	31664.64	1216.21	0.17
Susquehanna	Middle Reach	176.285	10-yr	189700.00	480.30	524.2		524.74	0.000098	5.73	35060.24	1229.76	0.18
Susquehanna	Middle Reach	176.285	25-yr	231800.00	480.30	527.8		528.39	0.000108	6.28	39497.83	1263.90	0.18
Susquehanna	Middle Reach	176.285	50-yr	264300.00	480.30	530.4		531.05	0.000116	6.66	42783.38	1275.30	0.19
Susquehanna	Middle Reach	176.285	100-yr	298600.00	480.30	532.7		533.48	0.000122	7.07	45796.16	1291.79	0.19
Susquehanna	Middle Reach	176.285	500-yr	385900.00	480.30	538.2		539.20	0.000135	8.00	53050.80	1330.04	0.21
Susquehanna	Middle Reach	176.205	2-yr	114900.00	479.91	516.8		517.08	0.000081	4.60	25226.98	1001.51	0.16
Susquehanna	Middle Reach	176.205	5-yr	158600.00	479.91	521.4		521.84	0.000095	5.38	29923.00	1022.87	0.17
Susquehanna	Middle Reach	176.205	10-yr	189700.00	479.91	524.2		524.70	0.000104	5.90	32765.83	1035.46	0.18
Susquehanna	Middle Reach	176.205	25-yr	231800.00	479.91	527.7		528.34	0.000117	6.50	36460.46	1068.97	0.19
Susquehanna	Middle Reach	176.205	50-yr	264300.00	479.91	530.3		530.99	0.000126	6.92	39226.21	1082.94	0.20
Susquehanna	Middle Reach	176.205	100-yr	298600.00	479.91	532.6		533.42	0.000134	7.37	41757.98	1092.52	0.20
Susquehanna	Middle Reach	176.205	500-yr	385900.00	479.91	538.0		539.12	0.000150	8.39	47947.81	1153.26	0.22
Susquehanna	Middle Reach	176.130	2-yr	114900.00	479.52	516.7		517.05	0.000090	4.96	23466.21	904.43	0.17

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	176.130	5-yr	158600.00	479.52	521.3		521.80	0.000108	5.84	27669.03	920.90	0.18
Susquehanna	Middle Reach	176.130	10-yr	189700.00	479.52	524.0		524.64	0.000120	6.41	30216.18	937.98	0.19
Susquehanna	Middle Reach	176.130	25-yr	231800.00	479.52	527.5		528.28	0.000136	7.09	33514.75	949.29	0.21
Susquehanna	Middle Reach	176.130	50-yr	264300.00	479.52	530.0		530.92	0.000150	7.56	35994.91	993.40	0.21
Susquehanna	Middle Reach	176.130	100-yr	298600.00	479.52	532.3		533.34	0.000161	8.06	38305.55	1026.72	0.22
Susquehanna	Middle Reach	176.130	500-yr	385900.00	479.52	537.7		539.04	0.000183	9.18	44015.89	1072.76	0.24
Susquehanna	Middle Reach	176.054	2-yr	114900.00	479.14	516.4		516.98	0.000164	6.20	18852.56	820.01	0.22
Susquehanna	Middle Reach	176.054	5-yr	158600.00	479.14	520.9		521.71	0.000187	7.19	22604.19	834.91	0.24
Susquehanna	Middle Reach	176.054	10-yr	189700.00	479.14	523.6		524.55	0.000202	7.84	24857.75	844.06	0.25
Susquehanna	Middle Reach	176.054	25-yr	231800.00	479.14	527.0		528.17	0.000224	8.61	27772.78	856.29	0.26
Susquehanna	Middle Reach	176.054	50-yr	264300.00	479.14	529.5		530.81	0.000243	9.16	29922.65	895.55	0.27
Susquehanna	Middle Reach	176.054	100-yr	298600.00	479.14	531.8		533.22	0.000258	9.73	31953.59	915.78	0.28
Susquehanna	Middle Reach	176.054	500-yr	385900.00	479.14	537.0		538.89	0.000285	11.02	36881.88	955.21	0.29
Susquehanna	Middle Reach	175.980	2-yr	114900.00	478.77	516.0		516.87	0.000242	7.40	15846.43	712.34	0.27
Susquehanna	Middle Reach	175.980	5-yr	158600.00	478.77	520.5		521.59	0.000275	8.58	19061.13	735.88	0.29
Susquehanna	Middle Reach	175.980	10-yr	189700.00	478.77	523.1		524.41	0.000298	9.36	20992.73	745.87	0.30
Susquehanna	Middle Reach	175.980	25-yr	231800.00	478.77	526.4		528.02	0.000331	10.28	23494.16	756.09	0.31
Susquehanna	Middle Reach	175.980	50-yr	264300.00	478.77	528.8		530.64	0.000359	10.91	25337.92	788.30	0.32
Susquehanna	Middle Reach	175.980	100-yr	298600.00	478.77	531.0		533.04	0.000383	11.63	27054.15	803.96	0.33
Susquehanna	Middle Reach	175.980	500-yr	385900.00	478.77	536.0		538.68	0.000428	13.19	31224.26	848.43	0.36
Susquehanna	Middle Reach	175.903	2-yr	114900.00	478.88	515.9		516.77	0.000259	7.41	15508.48	691.72	0.28
Susquehanna	Middle Reach	175.903	5-yr	158600.00	478.88	520.3		521.47	0.000294	8.52	18615.39	712.14	0.29
Susquehanna	Middle Reach	175.903	10-yr	189700.00	478.88	523.0		524.28	0.000317	9.26	20486.68	724.39	0.31
Susquehanna	Middle Reach	175.903	25-yr	231800.00	478.88	526.3		527.87	0.000352	10.11	22924.65	740.06	0.32
Susquehanna	Middle Reach	175.903	50-yr	264300.00	478.88	528.7		530.48	0.000376	10.69	24787.27	786.13	0.33
Susquehanna	Middle Reach	175.903	100-yr	298600.00	478.88	530.9		532.85	0.000396	11.33	26497.94	799.36	0.34
Susquehanna	Middle Reach	175.903	500-yr	385900.00	478.88	535.9		538.46	0.000430	12.77	30797.78	882.97	0.36
Susquehanna	Middle Reach	175.827	2-yr	114900.00	481.76	515.7		516.64	0.000331	7.89	14563.26	712.10	0.31
Susquehanna	Middle Reach	175.827	5-yr	158600.00	481.76	520.1		521.33	0.000356	8.93	17752.14	731.83	0.32
Susquehanna	Middle Reach	175.827	10-yr	189700.00	481.76	522.7		524.13	0.000375	9.65	19665.93	742.94	0.33
Susquehanna	Middle Reach	175.827	25-yr	231800.00	481.76	526.0		527.71	0.000404	10.46	22155.83	766.32	0.34
Susquehanna	Middle Reach	175.827	50-yr	264300.00	481.76	528.4		530.30	0.000425	11.02	24161.91	853.47	0.35
Susquehanna	Middle Reach	175.827	100-yr	298600.00	481.76	530.6		532.67	0.000442	11.64	26018.52	871.09	0.35
Susquehanna	Middle Reach	175.827	500-yr	385900.00	481.76	535.7		538.27	0.000473	13.02	30541.14	930.49	0.37
Susquehanna	Middle Reach	175.753	2-yr	114900.00	484.48	515.1		516.45	0.000509	9.28	12519.77	710.20	0.38
Susquehanna	Middle Reach	175.753	5-yr	158600.00	484.48	519.5		521.13	0.000513	10.36	15668.70	742.75	0.38
Susquehanna	Middle Reach	175.753	10-yr	189700.00	484.48	522.0		523.91	0.000528	11.14	17586.54	764.29	0.39
Susquehanna	Middle Reach	175.753	25-yr	231800.00	484.48	525.2		527.47	0.000555	12.02	20090.95	777.56	0.40
Susquehanna	Middle Reach	175.753	50-yr	264300.00	484.48	527.6		530.05	0.000584	12.64	22094.10	864.49	0.40
Susquehanna	Middle Reach	175.753	100-yr	298600.00	484.48	529.7		532.41	0.000604	13.32	23923.81	880.90	0.41
Susquehanna	Middle Reach	175.753	500-yr	385900.00	484.48	534.7		537.99	0.000642	14.80	28385.11	922.73	0.43
Susquehanna	Middle Reach	175.677	2-yr	114900.00	487.25	514.9		516.24	0.000500	9.21	12617.56	724.05	0.37
Susquehanna	Middle Reach	175.677	5-yr	158600.00	487.25	519.3		520.91	0.000514	10.27	15898.44	780.84	0.38
Susquehanna	Middle Reach	175.677	10-yr	189700.00	487.25	521.8		523.69	0.000531	11.01	17953.51	841.33	0.39
Susquehanna	Middle Reach	175.677	25-yr	231800.00	487.25	525.1		527.22	0.000557	11.81	20764.59	880.64	0.40
Susquehanna	Middle Reach	175.677	50-yr	264300.00	487.25	527.5		529.78	0.000576	12.34	22940.41	958.11	0.40
Susquehanna	Middle Reach	175.677	100-yr	298600.00	487.25	529.6		532.12	0.000590	12.95	25033.61	1013.79	0.41
Susquehanna	Middle Reach	175.677	500-yr	385900.00	487.25	534.6		537.65	0.000607	14.22	30424.47	1121.10	0.42
Susquehanna	Middle Reach	175.601	2-yr	114900.00	490.06	514.8		516.00	0.000439	8.65	13444.27	759.72	0.35
Susquehanna	Middle Reach	175.601	5-yr	158600.00	490.06	519.2		520.65	0.000450	9.63	16977.05	825.09	0.36
Susquehanna	Middle Reach	175.601	10-yr	189700.00	490.06	521.8		523.42	0.000462	10.34	19129.91	873.62	0.36
Susquehanna	Middle Reach	175.601	25-yr	231800.00	490.06	525.0		526.94	0.000483	11.13	22131.40	978.30	0.37
Susquehanna	Middle Reach	175.601	50-yr	264300.00	490.06	527.4		529.48	0.000501	11.63	24628.58	1103.67	0.37
Susquehanna	Middle Reach	175.601	100-yr	298600.00	490.06	529.6		531.81	0.000512	12.19	27088.03	1190.73	0.38
Susquehanna	Middle Reach	175.601	500-yr	385900.00	490.06	534.7		537.30	0.000517	13.32	33623.77	1366.09	0.39
Susquehanna	Middle Reach	175.526	2-yr	114900.00	489.37	514.8		515.78	0.000358	7.77	14934.42	853.13	0.32
Susquehanna	Middle Reach	175.526	5-yr	158600.00	489.37	519.3		520.41	0.000358	8.61	19082.14	955.77	0.32
Susquehanna	Middle Reach	175.526	10-yr	189700.00	489.37	521.8		523.16	0.000363	9.22	21666.57	1038.79	0.32
Susquehanna	Middle Reach	175.526	25-yr	231800.00	489.37	525.2		526.65	0.000375	9.90	25141.29	1062.65	0.33
Susquehanna	Middle Reach	175.526	50-yr	264300.00	489.37	527.5		529.18	0.000388	10.35	27729.26	1117.87	0.33
Susquehanna	Middle Reach	175.526	100-yr	298600.00	489.37	529.7		531.49	0.000397	10.88	30190.59	1169.37	0.33
Susquehanna	Middle Reach	175.526	500-yr	385900.00	489.37	534.8		536.97	0.000406	11.98	36778.04	1398.72	0.34
Susquehanna	Middle Reach	175.451	2-yr	114900.00	487.10	514.7		515.62	0.000435	7.70	15146.99	998.98	0.34
Susquehanna	Middle Reach	175.451	5-yr	158600.00	487.10	519.2		520.23	0.000390	8.21	19984.12	1114.31	0.32
Susquehanna	Middle Reach	175.451	10-yr	189700.00	487.10	521.8		522.96	0.000373	8.64	22923.46	1125.03	0.32
Susquehanna	Middle Reach	175.451	25-yr	231800.00	487.10	525.2		526.44	0.000366	9.14	26708.14	1140.32	0.32
Susquehanna	Middle Reach	175.451	50-yr	264300.00	487.10	527.6		528.95	0.000368	9.51	29509.63	1172.88	0.32
Susquehanna	Middle Reach	175.451	100-yr	298600.00	487.10	529.7		531.25	0.000367	9.94	32069.38	1179.55	0.32
Susquehanna	Middle Reach	175.451	500-yr	385900.00	487.10	534.9		536.71	0.000364	10.87	38993.42	1548.93	0.32
Susquehanna	Middle Reach	175.373	2-yr	114900.00	484.80	514.7		515.42	0.000273	6.79	17585.23	1114.70	0.28
Susquehanna	Middle Reach	175.373	5-yr	158600.00	484.80	519.2		520.04	0.000265	7.48	22815.14	1201.86	0.27
Susquehanna	Middle Reach	175.373	10-yr	189700.00	484.80	521.8		522.78	0.000267	7.98	26003.15	1227.89	0.28
Susquehanna	Middle Reach	175.373	25-yr	231800.00	484.80	525.2		526.26	0.000276	8.57	30159.20	1274.20	0.28
Susquehanna	Middle Reach	175.373	50-yr	264300.00	484.80	527.6		528.77	0.000287	8.97	33314.14	1324.57	0.28
Susquehanna	Middle Reach	175.373	100-yr	298600.00	484.80	529.7		531.07	0.000293	9.42	36227.57	1355.78	0.29
Susquehanna	Middle Reach	175.373	500-yr	385900.00	484.80	534.9		536.52	0.000300	10.38	43825.43	1572.36	0.30
Susquehanna	Middle Reach	175.300	2-yr	114900.00	484.57	514.8		515.27	0.000160	5.68	20894.07	1131.07	0.22
Susquehanna	Middle Reach	175.300	5-yr	158600.00	484.57	519.3		519.90	0.000169	6.44	26009.82	1149.28	0.22
Susquehanna	Middle Reach	175.300	10-yr	189700.00	484.57	521.9		522.63	0.000177	6.96	29044.08	1163.43	0.23
Susquehanna	Middle Reach	175.300	25-yr	231800.00	484.57	525.2		526.10	0.000190	7.58	33045.43	1239.77	0.24
Susquehanna	Middle Reach	175.300	50-yr	264300.00	484.57	527.6		528.61	0.000202	8.02	36219.44	1411.12	0.24
Susquehanna	Middle Reach	175.300	100-yr	298600.00	484.57	529.8		530.90	0.000209	8.47	39407.15	1516.16	0.25
Susquehanna	Middle Reach	175.300	500-yr	385900.00	484.57	535.0		536.33	0.000221	9.41	47726.05	1625.95	0.26
Susquehanna	Middle Reach	175.224	2-yr	114900.00	489.84	514.7		515.20	0.000186	5.75	20271.40	1079.17	0.23
Susquehanna	Middle Reach	175.224	5-yr	158600.00	489.84	519.2		519.82	0.000192	6.40	25293.91	1128.79	0.23
Susquehanna	Middle Reach	175.224	10-yr	189700.00	489.84	521.8		522.55	0.000196	6.87	28275.48	1137.77	0.24
Susquehanna	Middle Reach	175.224	25-yr	231800.00	489.84	525.2		526.01	0.000204	7.42	32382.82	1468.75	0.24
Susquehanna	Middle Reach	175.224	50-yr	264300.00	489.84	527.6		528.51	0.000212	7.77	36031.08	1549.23	0.24
Susquehanna	Middle Reach	175.224	100-yr	298600.00	489.84	529.8		530.79	0.000217	8.17	39463.54	1576.69	0.25

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	175.224	500-yr	385900.00	489.84	535.0		536.21	0.000221	8.98	47894.98	1635.01	0.25
Susquehanna	Middle Reach	175.147	2-yr	114900.00	491.48	514.5		515.11	0.000243	6.22	18695.92	1077.26	0.26
Susquehanna	Middle Reach	175.147	5-yr	158600.00	491.48	519.0		519.73	0.000232	6.85	23660.05	1119.18	0.26
Susquehanna	Middle Reach	175.147	10-yr	189700.00	491.48	521.6		522.45	0.000233	7.32	26608.52	1128.69	0.26
Susquehanna	Middle Reach	175.147	25-yr	231800.00	491.48	525.0		525.91	0.000240	7.86	30856.01	1458.71	0.26
Susquehanna	Middle Reach	175.147	50-yr	264300.00	491.48	527.4		528.41	0.000247	8.21	34440.96	1498.74	0.26
Susquehanna	Middle Reach	175.147	100-yr	298600.00	491.48	529.6		530.69	0.000250	8.59	37750.70	1520.56	0.27
Susquehanna	Middle Reach	175.147	500-yr	385900.00	491.48	534.8		536.11	0.000251	9.39	46130.79	1667.36	0.27
Susquehanna	Middle Reach	175.072	2-yr	114900.00	491.02	514.4		515.00	0.000275	6.42	18192.60	1102.42	0.27
Susquehanna	Middle Reach	175.072	5-yr	158600.00	491.02	518.9		519.63	0.000253	6.98	23480.87	1273.65	0.26
Susquehanna	Middle Reach	175.072	10-yr	189700.00	491.02	521.5		522.36	0.000249	7.42	26942.54	1358.20	0.27
Susquehanna	Middle Reach	175.072	25-yr	231800.00	491.02	524.9		525.81	0.000251	7.90	31620.06	1429.80	0.27
Susquehanna	Middle Reach	175.072	50-yr	264300.00	491.02	527.3		528.30	0.000255	8.22	35130.03	1456.67	0.27
Susquehanna	Middle Reach	175.072	100-yr	298600.00	491.02	529.5		530.59	0.000257	8.59	38337.98	1474.40	0.27
Susquehanna	Middle Reach	175.072	500-yr	385900.00	491.02	534.7		536.01	0.000257	9.40	46181.97	1521.98	0.27
Susquehanna	Middle Reach	174.995	2-yr	114900.00	491.17	514.2		514.88	0.000305	6.42	17909.78	1122.01	0.28
Susquehanna	Middle Reach	174.995	5-yr	158600.00	491.17	518.8		519.52	0.000269	6.89	23034.35	1136.07	0.27
Susquehanna	Middle Reach	174.995	10-yr	189700.00	491.17	521.4		522.25	0.000261	7.28	26128.60	1196.00	0.27
Susquehanna	Middle Reach	174.995	25-yr	231800.00	491.17	524.8		525.70	0.000259	7.75	30189.17	1244.52	0.27
Susquehanna	Middle Reach	174.995	50-yr	264300.00	491.17	527.2		528.20	0.000263	8.08	33369.31	1357.67	0.27
Susquehanna	Middle Reach	174.995	100-yr	298600.00	491.17	529.4		530.48	0.000265	8.46	36373.54	1399.11	0.27
Susquehanna	Middle Reach	174.995	500-yr	385900.00	491.17	534.6		535.90	0.000265	9.28	43834.83	1453.13	0.27
Susquehanna	Middle Reach	174.919	2-yr	114900.00	490.74	514.1		514.76	0.000306	6.67	17614.28	1100.88	0.29
Susquehanna	Middle Reach	174.919	5-yr	158600.00	490.74	518.6		519.40	0.000278	7.23	22648.76	1121.19	0.28
Susquehanna	Middle Reach	174.919	10-yr	189700.00	490.74	521.2		522.13	0.000275	7.68	25608.96	1133.63	0.28
Susquehanna	Middle Reach	174.919	25-yr	231800.00	490.74	524.5		525.59	0.000277	8.22	29431.96	1174.10	0.28
Susquehanna	Middle Reach	174.919	50-yr	264300.00	490.74	526.9		528.07	0.000284	8.61	32300.28	1232.91	0.28
Susquehanna	Middle Reach	174.919	100-yr	298600.00	490.74	529.1		530.35	0.000288	9.04	35011.03	1281.32	0.28
Susquehanna	Middle Reach	174.919	500-yr	385900.00	490.74	534.2		535.77	0.000294	9.99	41795.07	1329.71	0.29
Susquehanna	Middle Reach	174.843	2-yr	114900.00	491.72	514.0		514.63	0.000292	6.59	17765.44	1083.90	0.28
Susquehanna	Middle Reach	174.843	5-yr	158600.00	491.72	518.5		519.29	0.000273	7.16	22826.07	1170.36	0.27
Susquehanna	Middle Reach	174.843	10-yr	189700.00	491.72	521.1		522.02	0.000269	7.61	26032.64	1233.02	0.27
Susquehanna	Middle Reach	174.843	25-yr	231800.00	491.72	524.5		525.47	0.000272	8.13	30239.21	1326.82	0.28
Susquehanna	Middle Reach	174.843	50-yr	264300.00	491.72	526.9		527.95	0.000277	8.48	33461.15	1355.02	0.28
Susquehanna	Middle Reach	174.843	100-yr	298600.00	491.72	529.0		530.22	0.000279	8.88	36420.28	1377.60	0.28
Susquehanna	Middle Reach	174.843	500-yr	385900.00	491.72	534.2		535.63	0.000283	9.78	43648.11	1408.39	0.28
Susquehanna	Middle Reach	174.768	2-yr	114900.00	491.08	513.9		514.51	0.000232	6.21	18891.43	1093.01	0.25
Susquehanna	Middle Reach	174.768	5-yr	158600.00	491.08	518.4		519.17	0.000231	6.84	24131.48	1231.61	0.25
Susquehanna	Middle Reach	174.768	10-yr	189700.00	491.08	521.1		521.89	0.000233	7.29	27407.53	1272.00	0.26
Susquehanna	Middle Reach	174.768	25-yr	231800.00	491.08	524.4		525.34	0.000239	7.81	31777.93	1349.73	0.26
Susquehanna	Middle Reach	174.768	50-yr	264300.00	491.08	526.8		527.82	0.000245	8.17	35024.90	1361.54	0.26
Susquehanna	Middle Reach	174.768	100-yr	298600.00	491.08	529.0		530.09	0.000249	8.58	37997.94	1384.44	0.26
Susquehanna	Middle Reach	174.768	500-yr	385900.00	491.08	534.1		535.50	0.000256	9.50	45307.25	1481.38	0.27
Susquehanna	Middle Reach	174.693	2-yr	114900.00	490.83	513.9		514.40	0.000190	5.74	20304.64	1144.22	0.23
Susquehanna	Middle Reach	174.693	5-yr	158600.00	490.83	518.4		519.06	0.000191	6.37	25679.13	1226.62	0.23
Susquehanna	Middle Reach	174.693	10-yr	189700.00	490.83	521.1		521.78	0.000194	6.82	28954.33	1256.94	0.24
Susquehanna	Middle Reach	174.693	25-yr	231800.00	490.83	524.4		525.23	0.000201	7.36	33206.94	1341.21	0.24
Susquehanna	Middle Reach	174.693	50-yr	264300.00	490.83	526.8		527.70	0.000209	7.73	36468.20	1371.91	0.24
Susquehanna	Middle Reach	174.693	100-yr	298600.00	490.83	529.0		529.97	0.000214	8.14	39463.40	1402.67	0.25
Susquehanna	Middle Reach	174.693	500-yr	385900.00	490.83	534.1		535.37	0.000224	9.06	46858.57	1497.70	0.26
Susquehanna	Middle Reach	174.618	2-yr	114900.00	490.49	513.9		514.29	0.000120	4.76	24347.16	1234.10	0.19
Susquehanna	Middle Reach	174.618	5-yr	158600.00	490.49	518.5		518.94	0.000125	5.36	30083.89	1300.00	0.19
Susquehanna	Middle Reach	174.618	10-yr	189700.00	490.49	521.1		521.66	0.000129	5.79	33538.41	1311.73	0.19
Susquehanna	Middle Reach	174.618	25-yr	231800.00	490.49	524.5		525.09	0.000137	6.29	37949.15	1342.49	0.20
Susquehanna	Middle Reach	174.618	50-yr	264300.00	490.49	526.9		527.56	0.000145	6.65	41243.99	1390.89	0.20
Susquehanna	Middle Reach	174.618	100-yr	298600.00	490.49	529.1		529.82	0.000150	7.04	44288.46	1400.53	0.21
Susquehanna	Middle Reach	174.618	500-yr	385900.00	490.49	534.3		535.21	0.000161	7.90	51674.41	1430.84	0.22
Susquehanna	Middle Reach	174.542	2-yr	114900.00	490.44	513.9		514.24	0.000125	4.79	24106.43	1236.41	0.19
Susquehanna	Middle Reach	174.542	5-yr	158600.00	490.44	518.4		518.89	0.000126	5.38	29955.18	1320.72	0.19
Susquehanna	Middle Reach	174.542	10-yr	189700.00	490.44	521.1		521.61	0.000130	5.80	33478.45	1339.88	0.20
Susquehanna	Middle Reach	174.542	25-yr	231800.00	490.44	524.4		525.04	0.000138	6.30	37980.76	1355.82	0.20
Susquehanna	Middle Reach	174.542	50-yr	264300.00	490.44	526.8		527.50	0.000146	6.65	41260.92	1386.72	0.20
Susquehanna	Middle Reach	174.542	100-yr	298600.00	490.44	529.0		529.76	0.000151	7.04	44307.71	1406.15	0.21
Susquehanna	Middle Reach	174.542	500-yr	385900.00	490.44	534.2		535.14	0.000162	7.90	51706.16	1434.89	0.22
Susquehanna	Middle Reach	174.466	2-yr	114900.00	490.44	513.8		514.19	0.000125	4.72	24336.08	1232.24	0.19
Susquehanna	Middle Reach	174.466	5-yr	158600.00	490.44	518.4		518.83	0.000129	5.28	30118.43	1308.74	0.19
Susquehanna	Middle Reach	174.466	10-yr	189700.00	490.44	521.0		521.55	0.000132	5.68	33680.64	1359.94	0.20
Susquehanna	Middle Reach	174.466	25-yr	231800.00	490.44	524.4		524.98	0.000138	6.15	38260.13	1380.30	0.20
Susquehanna	Middle Reach	174.466	50-yr	264300.00	490.44	526.8		527.44	0.000145	6.48	41586.02	1401.03	0.20
Susquehanna	Middle Reach	174.466	100-yr	298600.00	490.44	529.0		529.69	0.000149	6.85	44684.68	1426.69	0.21
Susquehanna	Middle Reach	174.466	500-yr	385900.00	490.44	534.2		535.06	0.000158	7.66	52198.32	1454.76	0.22
Susquehanna	Middle Reach	174.389	2-yr	114900.00	490.29	513.8		514.13	0.000133	4.82	23842.97	1234.95	0.19
Susquehanna	Middle Reach	174.389	5-yr	158600.00	490.29	518.3		518.78	0.000135	5.37	29719.89	1347.84	0.20
Susquehanna	Middle Reach	174.389	10-yr	189700.00	490.29	521.0		521.49	0.000137	5.77	33315.23	1366.15	0.20
Susquehanna	Middle Reach	174.389	25-yr	231800.00	490.29	524.3		524.92	0.000143	6.24	37903.01	1382.16	0.20
Susquehanna	Middle Reach	174.389	50-yr	264300.00	490.29	526.7		527.38	0.000149	6.57	41224.33	1393.63	0.21
Susquehanna	Middle Reach	174.389	100-yr	298600.00	490.29	528.9		529.63	0.000154	6.95	44320.30	1450.24	0.21
Susquehanna	Middle Reach	174.389	500-yr	385900.00	490.29	534.1		534.99	0.000163	7.76	51951.86	1481.06	0.22
Susquehanna	Middle Reach	174.313	2-yr	114900.00	489.98	513.7		514.07	0.000153	5.07	22644.84	1195.70	0.21
Susquehanna	Middle Reach	174.313	5-yr	158600.00	489.98	518.2		518.72	0.000151	5.64	28307.42	1318.88	0.21
Susquehanna	Middle Reach	174.313	10-yr	189700.00	489.98	520.9		521.43	0.000154	6.04	31853.35	1374.47	0.21
Susquehanna	Middle Reach	174.313	25-yr	231800.00	489.98	524.2		524.85	0.000159	6.52	36509.32	1409.75	0.21
Susquehanna	Middle Reach	174.313	50-yr	264300.00	489.98	526.6		527.31	0.000166	6.85	39894.49	1426.22	0.22
Susquehanna	Middle Reach	174.313	100-yr	298600.00	489.98	528.8		529.56	0.000171	7.23	43027.43	1486.98	0.22
Susquehanna	Middle Reach	174.313	500-yr	385900.00	489.98	533.9		534.92	0.000179	8.05	50865.92	1529.83	0.23
Susquehanna	Middle Reach	174.240	2-yr	114900.00	489.69	513.6		514.01	0.000136	4.99	23058.83	1151.76	0.20
Susquehanna	Middle Reach	174.240	5-yr	158600.00	489.69	518.2		518.66	0.000140	5.61	28596.80	1318.41	0.20
Susquehanna	Middle Reach	174.240	10-yr	189700.00	489.69	520.8		521.37	0.000144	6.04	32257.92	1455.57	0.20

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	174.240	25-yr	231800.00	489.69	524.1		524.79	0.000152	6.54	37139.87	1480.77	0.21
Susquehanna	Middle Reach	174.240	50-yr	264300.00	489.69	526.5		527.24	0.000160	6.89	40688.87	1498.92	0.21
Susquehanna	Middle Reach	174.240	100-yr	298600.00	489.69	528.7		529.49	0.000165	7.29	43967.99	1563.72	0.22
Susquehanna	Middle Reach	174.240	500-yr	385900.00	489.69	533.8		534.85	0.000175	8.13	52241.55	1620.19	0.23
Susquehanna	Middle Reach	174.161	2-yr	114900.00	489.37	513.6		513.96	0.000127	5.01	23034.65	1137.54	0.19
Susquehanna	Middle Reach	174.161	5-yr	158600.00	489.37	518.1		518.60	0.000135	5.68	28446.93	1270.14	0.20
Susquehanna	Middle Reach	174.161	10-yr	189700.00	489.37	520.7		521.31	0.000142	6.14	31935.65	1493.29	0.20
Susquehanna	Middle Reach	174.161	25-yr	231800.00	489.37	524.0		524.72	0.000151	6.67	36949.95	1530.82	0.21
Susquehanna	Middle Reach	174.161	50-yr	264300.00	489.37	526.4		527.17	0.000159	7.04	40612.71	1554.65	0.21
Susquehanna	Middle Reach	174.161	100-yr	298600.00	489.37	528.6		529.42	0.000165	7.44	44054.83	1628.79	0.22
Susquehanna	Middle Reach	174.161	500-yr	385900.00	489.37	533.7		534.77	0.000176	8.31	52561.10	1662.23	0.23
Susquehanna	Middle Reach	174.087	2-yr	114900.00	489.82	513.4		513.90	0.000151	5.45	21195.28	1062.43	0.21
Susquehanna	Middle Reach	174.087	5-yr	158600.00	489.82	517.9		518.54	0.000160	6.18	26253.42	1189.81	0.22
Susquehanna	Middle Reach	174.087	10-yr	189700.00	489.82	520.6		521.24	0.000167	6.68	29738.21	1458.95	0.22
Susquehanna	Middle Reach	174.087	25-yr	231800.00	489.82	523.8		524.65	0.000177	7.24	34738.65	1537.57	0.23
Susquehanna	Middle Reach	174.087	50-yr	264300.00	489.82	526.2		527.09	0.000187	7.63	38394.64	1565.52	0.23
Susquehanna	Middle Reach	174.087	100-yr	298600.00	489.82	528.4		529.34	0.000194	8.06	41820.36	1618.68	0.24
Susquehanna	Middle Reach	174.087	500-yr	385900.00	489.82	533.5		534.68	0.000206	8.97	50249.61	1658.27	0.25
Susquehanna	Middle Reach	174.012	2-yr	114900.00	489.81	513.2		513.81	0.000215	6.32	18476.81	1007.04	0.25
Susquehanna	Middle Reach	174.012	5-yr	158600.00	489.81	517.7		518.44	0.000222	7.10	23256.94	1193.26	0.25
Susquehanna	Middle Reach	174.012	10-yr	189700.00	489.81	520.2		521.14	0.000229	7.65	26671.41	1435.46	0.26
Susquehanna	Middle Reach	174.012	25-yr	231800.00	489.81	523.5		524.55	0.000240	8.26	31508.60	1533.70	0.26
Susquehanna	Middle Reach	174.012	50-yr	264300.00	489.81	525.9		526.98	0.000250	8.66	35168.67	1574.98	0.27
Susquehanna	Middle Reach	174.012	100-yr	298600.00	489.81	528.0		529.22	0.000257	9.12	38577.73	1627.60	0.27
Susquehanna	Middle Reach	174.012	500-yr	385900.00	489.81	533.1		534.56	0.000268	10.08	47012.36	1672.42	0.28
Susquehanna	Middle Reach	173.934	2-yr	114900.00	489.69	513.0		513.70	0.000262	6.94	16778.57	872.62	0.27
Susquehanna	Middle Reach	173.934	5-yr	158600.00	489.69	517.4		518.32	0.000272	7.79	21428.00	1198.74	0.28
Susquehanna	Middle Reach	173.934	10-yr	189700.00	489.69	519.9		521.02	0.000280	8.37	24680.02	1346.57	0.29
Susquehanna	Middle Reach	173.934	25-yr	231800.00	489.69	523.2		524.42	0.000293	9.04	29340.96	1593.04	0.29
Susquehanna	Middle Reach	173.934	50-yr	264300.00	489.69	525.5		526.85	0.000304	9.46	33068.00	1602.85	0.29
Susquehanna	Middle Reach	173.934	100-yr	298600.00	489.69	527.6		529.08	0.000311	9.94	36487.23	1644.08	0.30
Susquehanna	Middle Reach	173.934	500-yr	385900.00	489.69	532.7		534.42	0.000320	10.92	44933.30	1682.61	0.31
Susquehanna	Middle Reach	173.860	2-yr	114900.00	489.56	512.8		513.58	0.000290	7.24	16153.56	858.49	0.29
Susquehanna	Middle Reach	173.860	5-yr	158600.00	489.56	517.2		518.21	0.000297	8.12	20746.68	1195.81	0.29
Susquehanna	Middle Reach	173.860	10-yr	189700.00	489.56	519.7		520.90	0.000304	8.72	23943.61	1305.43	0.30
Susquehanna	Middle Reach	173.860	25-yr	231800.00	489.56	522.9		524.29	0.000319	9.41	28543.17	1594.41	0.30
Susquehanna	Middle Reach	173.860	50-yr	264300.00	489.56	525.3		526.71	0.000330	9.84	32260.95	1604.50	0.31
Susquehanna	Middle Reach	173.860	100-yr	298600.00	489.56	527.4		528.94	0.000338	10.33	35656.00	1634.89	0.31
Susquehanna	Middle Reach	173.860	500-yr	385900.00	489.56	532.4		534.27	0.000346	11.33	44068.96	1685.62	0.32
Susquehanna	Middle Reach	173.786	2-yr	114900.00	486.56	512.7		513.46	0.000243	6.90	16925.33	881.55	0.26
Susquehanna	Middle Reach	173.786	5-yr	158600.00	486.56	517.1		518.07	0.000259	7.81	21626.31	1207.37	0.27
Susquehanna	Middle Reach	173.786	10-yr	189700.00	486.56	519.7		520.76	0.000269	8.43	24820.64	1335.93	0.28
Susquehanna	Middle Reach	173.786	25-yr	231800.00	486.56	522.9		524.14	0.000285	9.14	29444.92	1531.99	0.29
Susquehanna	Middle Reach	173.786	50-yr	264300.00	486.56	525.2		526.57	0.000299	9.58	33003.44	1541.97	0.29
Susquehanna	Middle Reach	173.786	100-yr	298600.00	486.56	527.3		528.80	0.000308	10.09	36266.45	1570.63	0.30
Susquehanna	Middle Reach	173.786	500-yr	385900.00	486.56	532.3		534.13	0.000323	11.15	44342.44	1627.20	0.31
Susquehanna	Middle Reach	173.712	2-yr	114900.00	486.80	512.6		513.36	0.000255	6.91	16888.83	895.55	0.27
Susquehanna	Middle Reach	173.712	5-yr	158600.00	486.80	517.0		517.97	0.000264	7.78	21828.57	1269.67	0.28
Susquehanna	Middle Reach	173.712	10-yr	189700.00	486.80	519.6		520.65	0.000272	8.37	25227.29	1421.48	0.28
Susquehanna	Middle Reach	173.712	25-yr	231800.00	486.80	522.8		524.02	0.000285	9.02	29855.11	1458.92	0.29
Susquehanna	Middle Reach	173.712	50-yr	264300.00	486.80	525.1		526.44	0.000298	9.47	33242.30	1485.81	0.29
Susquehanna	Middle Reach	173.712	100-yr	298600.00	486.80	527.2		528.66	0.000307	9.97	36378.29	1503.92	0.30
Susquehanna	Middle Reach	173.712	500-yr	385900.00	486.80	532.2		533.99	0.000321	11.03	44088.69	1558.86	0.31
Susquehanna	Middle Reach	173.633	2-yr	114900.00	488.44	512.5		513.25	0.000256	6.93	16723.52	857.27	0.27
Susquehanna	Middle Reach	173.633	5-yr	158600.00	488.44	516.9		517.86	0.000265	7.81	21538.72	1337.15	0.28
Susquehanna	Middle Reach	173.633	10-yr	189700.00	488.44	519.5		520.54	0.000272	8.39	25091.34	1413.32	0.28
Susquehanna	Middle Reach	173.633	25-yr	231800.00	488.44	522.7		523.90	0.000285	9.04	29666.93	1441.57	0.29
Susquehanna	Middle Reach	173.633	50-yr	264300.00	488.44	525.0		526.32	0.000300	9.50	33023.93	1505.48	0.29
Susquehanna	Middle Reach	173.633	100-yr	298600.00	488.44	527.1		528.54	0.000308	9.99	36194.84	1522.24	0.30
Susquehanna	Middle Reach	173.633	500-yr	385900.00	488.44	532.1		533.86	0.000322	11.06	44018.34	1595.32	0.31
Susquehanna	Middle Reach	173.559	2-yr	114900.00	489.02	512.5		513.14	0.000230	6.63	17331.66	837.75	0.26
Susquehanna	Middle Reach	173.559	5-yr	158600.00	489.02	516.9		517.73	0.000244	7.42	21822.83	1199.05	0.28
Susquehanna	Middle Reach	173.559	10-yr	189700.00	489.02	519.4		520.40	0.000254	7.91	25234.93	1409.34	0.28
Susquehanna	Middle Reach	173.559	25-yr	231800.00	489.02	522.7		523.75	0.000269	8.44	29836.28	1441.66	0.29
Susquehanna	Middle Reach	173.559	50-yr	264300.00	489.02	525.0		526.15	0.000282	8.80	33288.73	1506.52	0.29
Susquehanna	Middle Reach	173.559	100-yr	298600.00	489.02	527.1		528.36	0.000289	9.22	36469.00	1520.33	0.29
Susquehanna	Middle Reach	173.559	500-yr	385900.00	489.02	532.1		533.66	0.000301	10.11	44493.49	1618.78	0.29
Susquehanna	Middle Reach	173.480	2-yr	114900.00	486.29	512.4		513.04	0.000186	6.32	18170.85	801.89	0.23
Susquehanna	Middle Reach	173.480	5-yr	158600.00	486.29	516.8		517.63	0.000213	7.22	22076.39	1157.43	0.26
Susquehanna	Middle Reach	173.480	10-yr	189700.00	486.29	519.4		520.29	0.000226	7.76	25323.47	1342.40	0.27
Susquehanna	Middle Reach	173.480	25-yr	231800.00	486.29	522.6		523.64	0.000245	8.36	29737.29	1419.16	0.28
Susquehanna	Middle Reach	173.480	50-yr	264300.00	486.29	524.9		526.04	0.000260	8.77	33051.61	1485.34	0.28
Susquehanna	Middle Reach	173.480	100-yr	298600.00	486.29	527.0		528.24	0.000271	9.21	36164.07	1491.40	0.28
Susquehanna	Middle Reach	173.480	500-yr	385900.00	486.29	532.0		533.53	0.000289	10.18	43758.02	1540.53	0.29
Susquehanna	Middle Reach	173.408	2-yr	114900.00	487.19	512.3		512.96	0.000211	6.56	17503.24	802.46	0.25
Susquehanna	Middle Reach	173.408	5-yr	158600.00	487.19	516.7		517.54	0.000235	7.43	21490.99	1129.46	0.27
Susquehanna	Middle Reach	173.408	10-yr	189700.00	487.19	519.2		520.20	0.000248	7.97	24685.54	1345.75	0.28
Susquehanna	Middle Reach	173.408	25-yr	231800.00	487.19	522.4		523.54	0.000267	8.57	28996.01	1355.51	0.29
Susquehanna	Middle Reach	173.408	50-yr	264300.00	487.19	524.7		525.93	0.000282	8.98	32161.39	1413.27	0.29
Susquehanna	Middle Reach	173.408	100-yr	298600.00	487.19	526.8		528.13	0.000292	9.44	35191.59	1458.46	0.29
Susquehanna	Middle Reach	173.408	500-yr	385900.00	487.19	531.8		533.41	0.000309	10.42	42585.80	1509.34	0.30
Susquehanna	Middle Reach	173.330	2-yr	114900.00	486.56	512.4		512.83	0.000137	5.51	20870.71	902.75	0.20
Susquehanna	Middle Reach	173.330	5-yr	158600.00	486.56	516.8		517.38	0.000173	6.31	25568.78	1273.76	0.22
Susquehanna	Middle Reach	173.330	10-yr	189700.00	486.56	519.3		520.03	0.000186	6.81	29022.56	1403.79	0.23
Susquehanna	Middle Reach	173.330	25-yr	231800.00	486.56	522.5		523.35	0.000197	7.37	33547.01	1431.63	0.24
Susquehanna	Middle Reach	173.330	50-yr	264300.00	486.56	524.8		525.74	0.000207	7.76	36908.69	1503.61	0.24
Susquehanna	Middle Reach	173.330	100-yr	298600.00	486.56	526.9		527.93	0.000214	8.18	40129.67	1542.43	0.25
Susquehanna	Middle Reach	173.330	500-yr	385900.00	486.56	531.9		533.19	0.000225	9.11	48010.31	1599.74	0.26

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	173.254	2-yr	114900.00	488.49	512.2		512.75	0.000212	5.99	19326.96	1078.45	0.24
Susquehanna	Middle Reach	173.254	5-yr	158600.00	488.49	516.6		517.30	0.000237	6.59	24595.80	1405.98	0.25
Susquehanna	Middle Reach	173.254	10-yr	189700.00	488.49	519.2		519.94	0.000235	6.98	28360.88	1483.43	0.26
Susquehanna	Middle Reach	173.254	25-yr	231800.00	488.49	522.4		523.27	0.000235	7.43	33169.18	1493.49	0.26
Susquehanna	Middle Reach	173.254	50-yr	264300.00	488.49	524.7		525.65	0.000240	7.75	36678.82	1545.30	0.26
Susquehanna	Middle Reach	173.254	100-yr	298600.00	488.49	526.8		527.83	0.000242	8.12	39996.69	1633.72	0.26
Susquehanna	Middle Reach	173.254	500-yr	385900.00	488.49	531.9		533.08	0.000243	8.91	48373.40	1678.60	0.26
Susquehanna	Middle Reach	173.179	2-yr	114900.00	488.19	512.3		512.64	0.000119	4.97	23212.41	1138.74	0.19
Susquehanna	Middle Reach	173.179	5-yr	158600.00	488.19	516.7		517.17	0.000135	5.66	28836.79	1395.46	0.20
Susquehanna	Middle Reach	173.179	10-yr	189700.00	488.19	519.2		519.82	0.000143	6.12	32485.29	1435.66	0.21
Susquehanna	Middle Reach	173.179	25-yr	231800.00	488.19	522.5		523.14	0.000154	6.65	37142.14	1502.46	0.21
Susquehanna	Middle Reach	173.179	50-yr	264300.00	488.19	524.8		525.52	0.000163	7.02	40758.33	1594.80	0.22
Susquehanna	Middle Reach	173.179	100-yr	298600.00	488.19	526.9		527.70	0.000169	7.42	44119.61	1607.77	0.22
Susquehanna	Middle Reach	173.179	500-yr	385900.00	488.19	531.9		532.95	0.000181	8.30	52555.79	1710.56	0.23
Susquehanna	Middle Reach	173.103	2-yr	114900.00	487.75	512.2		512.58	0.000146	5.08	23064.89	1357.46	0.20
Susquehanna	Middle Reach	173.103	5-yr	158600.00	487.75	516.6		517.12	0.000149	5.66	29347.34	1471.65	0.21
Susquehanna	Middle Reach	173.103	10-yr	189700.00	487.75	519.2		519.75	0.000152	6.08	33252.85	1566.65	0.21
Susquehanna	Middle Reach	173.103	25-yr	231800.00	487.75	522.4		523.07	0.000159	6.56	38413.21	1638.08	0.21
Susquehanna	Middle Reach	173.103	50-yr	264300.00	487.75	524.7		525.44	0.000166	6.89	42219.07	1655.38	0.22
Susquehanna	Middle Reach	173.103	100-yr	298600.00	487.75	526.8		527.62	0.000170	7.26	45712.06	1666.75	0.22
Susquehanna	Middle Reach	173.103	500-yr	385900.00	487.75	531.9		532.86	0.000179	8.09	54416.15	1773.02	0.23
Susquehanna	Middle Reach	173.028	2-yr	114900.00	487.51	512.1		512.52	0.000178	5.26	22095.52	1335.40	0.22
Susquehanna	Middle Reach	173.028	5-yr	158600.00	487.51	516.5		517.05	0.000171	5.76	28481.01	1523.03	0.22
Susquehanna	Middle Reach	173.028	10-yr	189700.00	487.51	519.1		519.69	0.000169	6.13	32441.52	1561.75	0.22
Susquehanna	Middle Reach	173.028	25-yr	231800.00	487.51	522.3		523.01	0.000172	6.58	37632.51	1647.57	0.22
Susquehanna	Middle Reach	173.028	50-yr	264300.00	487.51	524.7		525.38	0.000178	6.88	41451.41	1658.51	0.22
Susquehanna	Middle Reach	173.028	100-yr	298600.00	487.51	526.8		527.55	0.000181	7.24	44954.04	1668.66	0.23
Susquehanna	Middle Reach	173.028	500-yr	385900.00	487.51	531.8		532.78	0.000186	8.01	53582.19	1731.13	0.23
Susquehanna	Middle Reach	172.953	2-yr	114900.00	487.38	511.9		512.43	0.000234	5.61	20498.45	1326.51	0.25
Susquehanna	Middle Reach	172.953	5-yr	158600.00	487.38	516.4		516.97	0.000205	6.03	26706.26	1507.84	0.24
Susquehanna	Middle Reach	172.953	10-yr	189700.00	487.38	519.0		519.61	0.000198	6.38	30732.46	1646.47	0.24
Susquehanna	Middle Reach	172.953	25-yr	231800.00	487.38	522.2		522.93	0.000197	6.79	36305.93	1762.37	0.23
Susquehanna	Middle Reach	172.953	50-yr	264300.00	487.38	524.5		525.30	0.000200	7.07	40405.85	1783.16	0.23
Susquehanna	Middle Reach	172.953	100-yr	298600.00	487.38	526.6		527.47	0.000201	7.41	44182.40	1800.10	0.24
Susquehanna	Middle Reach	172.953	500-yr	385900.00	487.38	531.7		532.70	0.000202	8.13	53507.66	1882.31	0.24
Susquehanna	Middle Reach	172.877	2-yr	114900.00	487.23	511.7		512.31	0.000304	6.09	18878.92	1279.37	0.28
Susquehanna	Middle Reach	172.877	5-yr	158600.00	487.23	516.2		516.87	0.000264	6.41	24728.96	1343.97	0.26
Susquehanna	Middle Reach	172.877	10-yr	189700.00	487.23	518.8		519.52	0.000253	6.71	28667.88	1706.89	0.26
Susquehanna	Middle Reach	172.877	25-yr	231800.00	487.23	522.1		522.83	0.000241	7.04	34450.16	1829.65	0.26
Susquehanna	Middle Reach	172.877	50-yr	264300.00	487.23	524.4		525.20	0.000240	7.29	38725.10	1856.45	0.25
Susquehanna	Middle Reach	172.877	100-yr	298600.00	487.23	526.5		527.38	0.000237	7.58	42676.10	1879.10	0.25
Susquehanna	Middle Reach	172.877	500-yr	385900.00	487.23	531.6		532.62	0.000228	8.21	52418.52	1950.03	0.25
Susquehanna	Middle Reach	172.799	2-yr	114900.00	487.11	511.3		512.15	0.000378	7.40	15529.88	931.82	0.32
Susquehanna	Middle Reach	172.799	5-yr	158600.00	487.11	515.8		516.72	0.000346	7.62	20815.06	1244.71	0.33
Susquehanna	Middle Reach	172.799	10-yr	189700.00	487.11	518.4		519.37	0.000339	7.89	24263.46	1421.54	0.32
Susquehanna	Middle Reach	172.799	25-yr	231800.00	487.11	521.6		522.69	0.000339	8.21	29448.09	1768.83	0.31
Susquehanna	Middle Reach	172.799	50-yr	264300.00	487.11	524.0		525.06	0.000343	8.44	33569.21	1784.18	0.30
Susquehanna	Middle Reach	172.799	100-yr	298600.00	487.11	526.1		527.24	0.000343	8.74	37335.57	1792.31	0.30
Susquehanna	Middle Reach	172.799	500-yr	385900.00	487.11	531.1		532.47	0.000336	9.37	46548.03	1858.82	0.29
Susquehanna	Middle Reach	172.725	2-yr	114900.00	486.98	511.3		511.97	0.000313	6.81	16880.29	1006.31	0.29
Susquehanna	Middle Reach	172.725	5-yr	158600.00	486.98	515.8		516.57	0.000294	7.22	21951.90	1175.50	0.29
Susquehanna	Middle Reach	172.725	10-yr	189700.00	486.98	518.3		519.23	0.000292	7.59	25112.34	1368.28	0.29
Susquehanna	Middle Reach	172.725	25-yr	231800.00	486.98	521.6		522.55	0.000296	8.02	30227.57	1660.46	0.29
Susquehanna	Middle Reach	172.725	50-yr	264300.00	486.98	523.9		524.92	0.000304	8.31	34177.97	1794.52	0.28
Susquehanna	Middle Reach	172.725	100-yr	298600.00	486.98	526.0		527.10	0.000306	8.65	37951.57	1802.60	0.29
Susquehanna	Middle Reach	172.725	500-yr	385900.00	486.98	531.0		532.35	0.000304	9.37	47203.86	1855.45	0.28
Susquehanna	Middle Reach	172.649	2-yr	114900.00	484.07	511.3		511.82	0.000222	6.05	18996.19	1029.13	0.25
Susquehanna	Middle Reach	172.649	5-yr	158600.00	484.07	515.7		516.43	0.000220	6.70	23728.47	1151.09	0.25
Susquehanna	Middle Reach	172.649	10-yr	189700.00	484.07	518.3		519.09	0.000224	7.18	27122.59	1425.64	0.25
Susquehanna	Middle Reach	172.649	25-yr	231800.00	484.07	521.5		522.42	0.000233	7.73	32292.98	1713.35	0.26
Susquehanna	Middle Reach	172.649	50-yr	264300.00	484.07	523.8		524.80	0.000242	8.10	36277.35	1749.40	0.26
Susquehanna	Middle Reach	172.649	100-yr	298600.00	484.07	525.9		526.98	0.000248	8.50	39940.50	1758.87	0.26
Susquehanna	Middle Reach	172.649	500-yr	385900.00	484.07	530.9		532.23	0.000255	9.35	48838.36	1770.16	0.27
Susquehanna	Middle Reach	172.574	2-yr	114900.00	486.45	511.0		511.72	0.000250	6.61	17386.01	902.30	0.27
Susquehanna	Middle Reach	172.574	5-yr	158600.00	486.45	515.5		516.32	0.000280	7.33	21693.37	1122.09	0.28
Susquehanna	Middle Reach	172.574	10-yr	189700.00	486.45	518.0		518.98	0.000292	7.81	24824.30	1311.07	0.29
Susquehanna	Middle Reach	172.574	25-yr	231800.00	486.45	521.2		522.30	0.000311	8.32	29579.61	1679.09	0.29
Susquehanna	Middle Reach	172.574	50-yr	264300.00	486.45	523.5		524.67	0.000315	8.64	33532.52	1784.97	0.29
Susquehanna	Middle Reach	172.574	100-yr	298600.00	486.45	525.6		526.86	0.000315	9.01	37297.40	1817.79	0.29
Susquehanna	Middle Reach	172.574	500-yr	385900.00	486.45	530.7		532.11	0.000307	9.77	46573.26	1859.71	0.29
Susquehanna	Middle Reach	172.499	2-yr	114900.00	486.18	510.7	499.53	511.58	0.000349	7.73	14870.35	1057.05	0.31
Susquehanna	Middle Reach	172.499	5-yr	158600.00	486.18	515.0	501.80	516.17	0.000348	8.60	19672.64	1779.81	0.31
Susquehanna	Middle Reach	172.499	10-yr	189700.00	486.18	517.5	503.28	518.82	0.000354	9.20	22792.71	1980.94	0.32
Susquehanna	Middle Reach	172.499	25-yr	231800.00	486.18	520.7	505.14	522.13	0.000368	9.85	27895.63	2632.77	0.32
Susquehanna	Middle Reach	172.499	50-yr	264300.00	486.18	522.9	506.50	524.49	0.000380	10.27	31829.43	2928.26	0.33
Susquehanna	Middle Reach	172.499	100-yr	298600.00	486.18	525.0	507.88	526.67	0.000387	10.74	35420.51	2980.38	0.33
Susquehanna	Middle Reach	172.499	500-yr	385900.00	486.18	530.0	511.39	531.92	0.000392	11.71	44193.65	3105.63	0.34
Susquehanna	Middle Reach	172.424	2-yr	114900.00	485.82	510.4		511.42	0.000440	7.94	14468.56	871.76	0.34
Susquehanna	Middle Reach	172.424	5-yr	158600.00	485.82	514.9		516.02	0.000402	8.60	18935.07	1079.64	0.33
Susquehanna	Middle Reach	172.424	10-yr	189700.00	485.82	517.4		518.67	0.000399	9.15	21749.00	1192.19	0.33
Susquehanna	Middle Reach	172.424	25-yr	231800.00	485.82	520.5		521.98	0.000403	9.76	26142.54	1585.03	0.34
Susquehanna	Middle Reach	172.424	50-yr	264300.00	485.82	522.8		524.33	0.000412	10.15	29740.08	1612.39	0.34
Susquehanna	Middle Reach	172.424	100-yr	298600.00	485.82	524.8		526.51	0.000415	10.61	33056.75	1625.22	0.34
Susquehanna	Middle Reach	172.424	500-yr	385900.00	485.82	529.8		531.75	0.000414	11.54	41271.11	1720.79	0.34
Susquehanna	Middle Reach	172.347 Shickshinny Cree	2-yr	115200.00	485.39	510.3		511.24	0.000379	7.80	14768.55	818.52	0.32
Susquehanna	Middle Reach	172.347 Shickshinny Cree	5-yr	159000.00	485.39	514.7		515.86	0.000368	8.60	19218.21	1211.96	0.32
Susquehanna	Middle Reach	172.347 Shickshinny Cree	10-yr	190100.00	485.39	517.2		518.51	0.000371	9.17	22433.20	1315.18	0.33
Susquehanna	Middle Reach	172.347 Shickshinny Cree	25-yr	232300.00	485.39	520.3		521.81	0.000385	9.83	26575.78	1396.16	0.33
Susquehanna	Middle Reach	172.347 Shickshinny Cree	50-yr	264700.00	485.39	522.6		524.16	0.000398	10.28	29860.29	1591.83	0.33

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	172.347 Shickshinny Cree	100-yr	299100.00	485.39	524.6		526.33	0.000407	10.79	33117.92	1626.94	0.34
Susquehanna	Middle Reach	172.347 Shickshinny Cree	500-yr	386400.00	485.39	529.5		531.57	0.000412	11.79	41501.79	1742.42	0.34
Susquehanna	Middle Reach	172.270	2-yr	115200.00	484.99	509.8		511.04	0.000479	8.97	12846.25	686.29	0.36
Susquehanna	Middle Reach	172.270	5-yr	159000.00	484.99	514.1		515.65	0.000507	10.00	16089.98	963.02	0.38
Susquehanna	Middle Reach	172.270	10-yr	190100.00	484.99	516.5		518.29	0.000518	10.72	18829.32	1302.13	0.38
Susquehanna	Middle Reach	172.270	25-yr	232300.00	484.99	519.6		521.58	0.000535	11.47	22833.81	1314.47	0.39
Susquehanna	Middle Reach	172.270	50-yr	264700.00	484.99	521.8		523.92	0.000553	11.97	25718.52	1321.77	0.39
Susquehanna	Middle Reach	172.270	100-yr	299100.00	484.99	523.7		526.08	0.000565	12.54	28330.80	1326.47	0.40
Susquehanna	Middle Reach	172.270	500-yr	386400.00	484.99	528.6		531.31	0.000576	13.70	34846.80	1427.10	0.40
Susquehanna	Middle Reach	172.196	2-yr	115200.00	484.60	509.7	499.62	510.83	0.000438	8.58	13756.00	853.03	0.35
Susquehanna	Middle Reach	172.196	5-yr	159000.00	484.60	514.0	502.02	515.41	0.000438	9.50	18242.10	1166.53	0.35
Susquehanna	Middle Reach	172.196	10-yr	190100.00	484.60	516.5	503.59	518.03	0.000448	10.14	21162.28	1214.47	0.36
Susquehanna	Middle Reach	172.196	25-yr	232300.00	484.60	519.5	505.60	521.31	0.000469	10.87	24914.72	1231.39	0.36
Susquehanna	Middle Reach	172.196	50-yr	264700.00	484.60	521.7	507.11	523.64	0.000486	11.36	27639.94	1264.30	0.37
Susquehanna	Middle Reach	172.196	100-yr	299100.00	484.60	523.7	508.62	525.80	0.000497	11.94	30242.39	1372.13	0.37
Susquehanna	Middle Reach	172.196	500-yr	386400.00	484.60	528.5	512.37	531.02	0.000508	13.12	36968.64	1422.32	0.38
Susquehanna	Middle Reach	172.123	2-yr	115200.00	484.21	509.6	499.36	510.63	0.000496	8.32	13846.85	850.52	0.36
Susquehanna	Middle Reach	172.123	5-yr	159000.00	484.21	514.0	501.71	515.19	0.000479	8.91	17853.56	1007.02	0.36
Susquehanna	Middle Reach	172.123	10-yr	190100.00	484.21	516.4	503.25	517.80	0.000467	9.44	20144.00	1017.44	0.36
Susquehanna	Middle Reach	172.123	25-yr	232300.00	484.21	519.5	505.24	521.07	0.000473	10.09	23017.38	1059.03	0.36
Susquehanna	Middle Reach	172.123	50-yr	264700.00	484.21	521.7	506.71	523.40	0.000484	10.56	25180.20	1145.31	0.36
Susquehanna	Middle Reach	172.123	100-yr	299100.00	484.21	523.6	508.81	525.55	0.000491	11.10	27382.43	1257.69	0.37
Susquehanna	Middle Reach	172.123	500-yr	386400.00	484.21	528.5	512.25	530.77	0.000495	12.23	32907.94	1334.92	0.37
Susquehanna	Middle Reach	172.096	2-yr	115200.00	484.07	509.5	499.38	510.55	0.000497	8.36	13778.35	841.73	0.36
Susquehanna	Middle Reach	172.096	5-yr	159000.00	484.07	513.8	501.74	515.12	0.000322	9.09	17484.27	893.84	0.35
Susquehanna	Middle Reach	172.096	10-yr	190100.00	484.07	516.3	503.31	517.73	0.000327	9.72	19550.54	965.40	0.36
Susquehanna	Middle Reach	172.096	25-yr	232300.00	484.07	519.3	505.32	520.99	0.000355	10.50	22119.30	1000.46	0.36
Susquehanna	Middle Reach	172.096	50-yr	264700.00	484.07	521.5	507.12	523.31	0.000388	10.92	25116.51	1220.65	0.37
Susquehanna	Middle Reach	172.096	100-yr	299100.00	484.07	523.4	508.86	525.46	0.000399	11.49	27556.88	1298.77	0.37
Susquehanna	Middle Reach	172.096	500-yr	386400.00	484.07	528.2	511.88	530.69	0.000413	12.64	34017.80	1533.38	0.38
Susquehanna	Middle Reach	172.089 PA Route 239		Bridge									
Susquehanna	Middle Reach	172.083	2-yr	115200.00	484.00	509.4	499.36	510.49	0.000483	8.29	13889.31	849.14	0.36
Susquehanna	Middle Reach	172.083	5-yr	159000.00	484.00	513.8	501.79	515.06	0.000444	9.06	17559.31	958.55	0.35
Susquehanna	Middle Reach	172.083	10-yr	190100.00	484.00	516.2	503.30	517.66	0.000447	9.70	19589.03	990.27	0.35
Susquehanna	Middle Reach	172.083	25-yr	232300.00	484.00	519.2	505.68	520.89	0.000468	10.51	22095.48	1270.57	0.36
Susquehanna	Middle Reach	172.083	50-yr	264700.00	484.00	521.4	507.27	523.17	0.000485	10.82	26369.57	1399.95	0.36
Susquehanna	Middle Reach	172.083	100-yr	299100.00	484.00	523.3	508.68	525.27	0.000494	11.38	29088.33	1476.35	0.37
Susquehanna	Middle Reach	172.083	500-yr	386400.00	484.00	527.9	511.65	530.26	0.000507	12.55	35974.79	1593.88	0.38
Susquehanna	Middle Reach	172.047	2-yr	115200.00	483.82	509.3	499.08	510.40	0.000462	8.26	13946.33	821.24	0.35
Susquehanna	Middle Reach	172.047	5-yr	159000.00	483.82	513.7	501.41	514.98	0.000443	9.05	17578.73	910.63	0.35
Susquehanna	Middle Reach	172.047	10-yr	190100.00	483.82	516.1	502.94	517.57	0.000453	9.69	19653.34	1011.74	0.36
Susquehanna	Middle Reach	172.047	25-yr	232300.00	483.82	519.1	504.91	520.80	0.000473	10.47	22481.69	1240.79	0.36
Susquehanna	Middle Reach	172.047	50-yr	264700.00	483.82	521.2	506.34	523.08	0.000486	10.94	26082.69	1296.86	0.36
Susquehanna	Middle Reach	172.047	100-yr	299100.00	483.82	523.1	508.36	525.17	0.000499	11.53	28672.90	1431.36	0.37
Susquehanna	Middle Reach	172.047	500-yr	386400.00	483.82	527.7	511.46	530.16	0.000516	12.74	35749.50	1673.50	0.38
Susquehanna	Middle Reach	171.970	2-yr	115200.00	483.40	509.0		510.19	0.000482	8.79	13104.08	721.97	0.36
Susquehanna	Middle Reach	171.970	5-yr	159000.00	483.40	513.3		514.76	0.000537	9.69	16409.91	817.87	0.38
Susquehanna	Middle Reach	171.970	10-yr	190100.00	483.40	515.7		517.35	0.000575	10.31	18448.75	880.72	0.40
Susquehanna	Middle Reach	171.970	25-yr	232300.00	483.40	518.7		520.57	0.000584	11.03	21172.68	953.74	0.40
Susquehanna	Middle Reach	171.970	50-yr	264700.00	483.40	520.8		522.83	0.000600	11.55	23242.13	1089.40	0.40
Susquehanna	Middle Reach	171.970	100-yr	299100.00	483.40	522.6		524.92	0.000611	12.15	25386.92	1176.08	0.41
Susquehanna	Middle Reach	171.970	500-yr	386400.00	483.40	527.1		529.89	0.000624	13.42	30722.76	1219.08	0.42
Susquehanna	Middle Reach	171.892	2-yr	115200.00	481.46	508.9		510.00	0.000378	8.55	13472.40	639.29	0.33
Susquehanna	Middle Reach	171.892	5-yr	159000.00	481.46	513.1		514.54	0.000517	9.74	16327.57	777.92	0.37
Susquehanna	Middle Reach	171.892	10-yr	190100.00	481.46	515.4		517.11	0.000570	10.42	18244.18	845.01	0.39
Susquehanna	Middle Reach	171.892	25-yr	232300.00	481.46	518.4		520.32	0.000585	11.21	20880.12	933.84	0.40
Susquehanna	Middle Reach	171.892	50-yr	264700.00	481.46	520.4		522.57	0.000608	11.79	22826.47	961.80	0.40
Susquehanna	Middle Reach	171.892	100-yr	299100.00	481.46	522.2		524.65	0.000628	12.46	24669.22	1096.95	0.41
Susquehanna	Middle Reach	171.892	500-yr	386400.00	481.46	526.6		529.61	0.000658	13.86	29928.35	1379.40	0.43
Susquehanna	Middle Reach	171.818	2-yr	115200.00	481.64	508.8		509.84	0.000346	8.38	13754.85	632.49	0.32
Susquehanna	Middle Reach	171.818	5-yr	159000.00	481.64	512.9		514.34	0.000429	9.59	16934.92	999.19	0.35
Susquehanna	Middle Reach	171.818	10-yr	190100.00	481.64	515.2		516.90	0.000454	10.39	19317.28	1039.41	0.36
Susquehanna	Middle Reach	171.818	25-yr	232300.00	481.64	518.1		520.11	0.000493	11.33	22383.64	1089.23	0.37
Susquehanna	Middle Reach	171.818	50-yr	264700.00	481.64	520.2		522.35	0.000528	12.00	24603.01	1110.55	0.38
Susquehanna	Middle Reach	171.818	100-yr	299100.00	481.64	521.9		524.42	0.000558	12.74	26614.42	1130.12	0.40
Susquehanna	Middle Reach	171.818	500-yr	386400.00	481.64	526.2		529.34	0.000616	14.40	31992.79	1326.65	0.42
Susquehanna	Middle Reach	171.741	2-yr	115200.00	481.58	508.7		509.68	0.000345	8.12	14194.88	684.55	0.31
Susquehanna	Middle Reach	171.741	5-yr	159000.00	481.58	512.8		514.14	0.000406	9.29	17146.99	816.19	0.34
Susquehanna	Middle Reach	171.741	10-yr	190100.00	481.58	515.1		516.70	0.000433	10.10	19122.71	885.98	0.35
Susquehanna	Middle Reach	171.741	25-yr	232300.00	481.58	518.0		519.89	0.000474	11.05	21811.44	993.78	0.37
Susquehanna	Middle Reach	171.741	50-yr	264700.00	481.58	520.0		522.11	0.000511	11.73	23885.63	1072.02	0.38
Susquehanna	Middle Reach	171.741	100-yr	299100.00	481.58	521.8		524.17	0.000541	12.49	25887.55	1239.68	0.39
Susquehanna	Middle Reach	171.741	500-yr	386400.00	481.58	526.0		529.07	0.000595	14.08	31565.89	1394.64	0.41
Susquehanna	Middle Reach	171.667	2-yr	115200.00	481.78	508.8		509.47	0.000203	6.54	17609.33	788.14	0.24
Susquehanna	Middle Reach	171.667	5-yr	159000.00	481.78	513.0		513.89	0.000248	7.58	20970.13	860.02	0.27
Susquehanna	Middle Reach	171.667	10-yr	190100.00	481.78	515.3		516.41	0.000278	8.27	23084.44	925.61	0.28
Susquehanna	Middle Reach	171.667	25-yr	232300.00	481.78	518.3		519.55	0.000308	9.08	25953.79	1075.25	0.30
Susquehanna	Middle Reach	171.667	50-yr	264700.00	481.78	520.3		521.75	0.000333	9.66	28240.14	1174.32	0.31
Susquehanna	Middle Reach	171.667	100-yr	299100.00	481.78	522.1		523.77	0.000353	10.28	30518.50	1279.33	0.32
Susquehanna	Middle Reach	171.667	500-yr	386400.00	481.78	526.5		528.60	0.000392	11.64	36611.61	1459.13	0.34
Susquehanna	Middle Reach	171.596	2-yr	115200.00	479.07	508.9	492.60	509.34	0.000124	5.22	22089.86	962.63	0.19
Susquehanna	Middle Reach	171.596	5-yr	159000.00	479.07	513.1	494.86	513.72	0.000149	6.07	26203.47	1006.66	0.21
Susquehanna	Middle Reach	171.596	10-yr	190100.00	479.07	515.5	496.28	516.21	0.000164	6.64	28630.46	1030.93	0.22
Susquehanna	Middle Reach	171.596	25-yr	232300.00	479.07	518.5	497.86	519.33	0.000183	7.33	32347.73	1427.95	0.23
Susquehanna	Middle Reach	171.596	50-yr	264700.00	479.07	520.6	498.99	521.50	0.000200	7.82	35493.30	1602.69	0.24
Susquehanna	Middle Reach	171.596	100-yr	299100.00	479.07	522.4	500.15	523.50	0.000213	8.33	38564.97	1689.38	0.25
Susquehanna	Middle Reach	171.596	500-yr	386400.00	479.07	526.9	502.92	528.27	0.000239	9.45	46644.46	1955.37	0.27

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	171.519	2-yr	115200.00	481.65	509.0		509.26	0.000089	4.37	26331.49	1171.62	0.16
Susquehanna	Middle Reach	171.519	5-yr	159000.00	481.65	513.2		513.62	0.000105	5.07	31365.48	1211.92	0.18
Susquehanna	Middle Reach	171.519	10-yr	190100.00	481.65	515.6		516.10	0.000116	5.54	34398.87	1300.67	0.19
Susquehanna	Middle Reach	171.519	25-yr	232300.00	481.65	518.6		519.19	0.000129	6.10	38495.55	1430.13	0.19
Susquehanna	Middle Reach	171.519	50-yr	264700.00	481.65	520.7		521.35	0.000140	6.51	41518.30	1502.39	0.20
Susquehanna	Middle Reach	171.519	100-yr	299100.00	481.65	522.6		523.33	0.000150	6.94	44435.99	1563.79	0.21
Susquehanna	Middle Reach	171.519	500-yr	386400.00	481.65	527.1		528.07	0.000168	7.90	51935.43	1715.47	0.22
Susquehanna	Middle Reach	171.442	2-yr	115200.00	485.63	508.9		509.21	0.000133	4.55	25339.33	1434.31	0.19
Susquehanna	Middle Reach	171.442	5-yr	159000.00	485.63	513.2		513.57	0.000131	5.05	31501.59	1449.84	0.19
Susquehanna	Middle Reach	171.442	10-yr	190100.00	485.63	515.6		516.04	0.000135	5.43	35014.89	1464.69	0.20
Susquehanna	Middle Reach	171.442	25-yr	232300.00	485.63	518.6		519.13	0.000143	5.89	39591.00	1601.31	0.20
Susquehanna	Middle Reach	171.442	50-yr	264700.00	485.63	520.7		521.27	0.000151	6.22	43029.97	1689.63	0.20
Susquehanna	Middle Reach	171.442	100-yr	299100.00	485.63	522.6		523.25	0.000157	6.59	46297.77	1751.32	0.21
Susquehanna	Middle Reach	171.442	500-yr	386400.00	485.63	527.1		527.96	0.000168	7.39	54784.09	1922.26	0.22
Susquehanna	Middle Reach	171.367	2-yr	115200.00	485.40	508.9		509.15	0.000141	4.31	26743.67	1708.92	0.19
Susquehanna	Middle Reach	171.367	5-yr	159000.00	485.40	513.2		513.50	0.000131	4.66	34130.51	1728.80	0.18
Susquehanna	Middle Reach	171.367	10-yr	190100.00	485.40	515.6		515.96	0.000133	4.96	38330.96	1740.05	0.19
Susquehanna	Middle Reach	171.367	25-yr	232300.00	485.40	518.6		519.04	0.000138	5.33	43612.30	1774.78	0.19
Susquehanna	Middle Reach	171.367	50-yr	264700.00	485.40	520.7		521.18	0.000144	5.60	47372.11	1843.25	0.19
Susquehanna	Middle Reach	171.367	100-yr	299100.00	485.40	522.6		523.15	0.000147	5.90	50991.03	1924.40	0.19
Susquehanna	Middle Reach	171.367	500-yr	386400.00	485.40	527.2		527.85	0.000153	6.57	60145.80	2081.21	0.20
Susquehanna	Middle Reach	171.292	2-yr	115200.00	485.18	508.8		509.09	0.000126	4.08	28237.01	1803.12	0.18
Susquehanna	Middle Reach	171.292	5-yr	159000.00	485.18	513.1		513.44	0.000115	4.39	36230.30	1866.66	0.18
Susquehanna	Middle Reach	171.292	10-yr	190100.00	485.18	515.6		515.90	0.000113	4.66	40771.36	1876.30	0.18
Susquehanna	Middle Reach	171.292	25-yr	232300.00	485.18	518.6		518.97	0.000116	5.00	46460.16	1900.22	0.18
Susquehanna	Middle Reach	171.292	50-yr	264700.00	485.18	520.7		521.11	0.000120	5.25	50497.57	1950.05	0.18
Susquehanna	Middle Reach	171.292	100-yr	299100.00	485.18	522.6		523.07	0.000123	5.53	54314.68	2010.45	0.18
Susquehanna	Middle Reach	171.292	500-yr	386400.00	485.18	527.2		527.77	0.000127	6.15	63824.26	2154.44	0.19
Susquehanna	Middle Reach	171.217	2-yr	115200.00	482.27	508.7		509.03	0.000159	4.47	25785.51	1730.25	0.20
Susquehanna	Middle Reach	171.217	5-yr	159000.00	482.27	513.0		513.38	0.000149	4.69	34069.85	1976.19	0.20
Susquehanna	Middle Reach	171.217	10-yr	190100.00	482.27	515.5		515.85	0.000141	4.92	38890.30	1987.13	0.19
Susquehanna	Middle Reach	171.217	25-yr	232300.00	482.27	518.5		518.92	0.000138	5.22	44930.36	2011.51	0.19
Susquehanna	Middle Reach	171.217	50-yr	264700.00	482.27	520.6		521.06	0.000140	5.45	49181.88	2039.29	0.19
Susquehanna	Middle Reach	171.217	100-yr	299100.00	482.27	522.5		523.02	0.000141	5.71	53154.46	2087.95	0.19
Susquehanna	Middle Reach	171.217	500-yr	386400.00	482.27	527.1		527.71	0.000142	6.28	62913.21	2176.29	0.20
Susquehanna	Middle Reach	171.141	2-yr	115200.00	480.69	508.7		508.95	0.000089	3.67	31405.89	1817.29	0.16
Susquehanna	Middle Reach	171.141	5-yr	159000.00	480.69	513.1		513.31	0.000094	3.99	39859.68	2033.34	0.16
Susquehanna	Middle Reach	171.141	10-yr	190100.00	480.69	515.5		515.77	0.000092	4.24	44825.14	2043.73	0.16
Susquehanna	Middle Reach	171.141	25-yr	232300.00	480.69	518.5		518.85	0.000094	4.55	51036.97	2061.29	0.16
Susquehanna	Middle Reach	171.141	50-yr	264700.00	480.69	520.6		520.98	0.000098	4.78	55399.49	2091.62	0.16
Susquehanna	Middle Reach	171.141	100-yr	299100.00	480.69	522.5		522.94	0.000100	5.03	59470.06	2141.78	0.17
Susquehanna	Middle Reach	171.141	500-yr	386400.00	480.69	527.1		527.62	0.000105	5.59	69349.34	2170.35	0.17
Susquehanna	Middle Reach	171.064	2-yr	115200.00	481.13	508.7		508.90	0.000071	3.27	35239.14	2053.74	0.14
Susquehanna	Middle Reach	171.064	5-yr	159000.00	481.13	513.1		513.26	0.000071	3.60	44164.10	2083.36	0.14
Susquehanna	Middle Reach	171.064	10-yr	190100.00	481.13	515.5		515.73	0.000074	3.86	49257.27	2096.40	0.14
Susquehanna	Middle Reach	171.064	25-yr	232300.00	481.13	518.5		518.80	0.000078	4.18	55639.69	2129.23	0.14
Susquehanna	Middle Reach	171.064	50-yr	264700.00	481.13	520.6		520.93	0.000083	4.41	60130.54	2152.58	0.15
Susquehanna	Middle Reach	171.064	100-yr	299100.00	481.13	522.5		522.88	0.000086	4.66	64334.54	2199.59	0.15
Susquehanna	Middle Reach	171.064	500-yr	386400.00	481.13	527.1		527.57	0.000091	5.22	74554.77	2285.28	0.16
Susquehanna	Middle Reach	170.985	2-yr	115200.00	480.23	508.7		508.87	0.000043	2.82	40911.29	2048.70	0.11
Susquehanna	Middle Reach	170.985	5-yr	159000.00	480.23	513.1		513.22	0.000046	3.20	49908.76	2123.94	0.11
Susquehanna	Middle Reach	170.985	10-yr	190100.00	480.23	515.5		515.69	0.000048	3.47	55097.80	2134.06	0.12
Susquehanna	Middle Reach	170.985	25-yr	232300.00	480.23	518.5		518.75	0.000052	3.80	61591.93	2164.87	0.12
Susquehanna	Middle Reach	170.985	50-yr	264700.00	480.23	520.6		520.88	0.000057	4.04	66198.47	2228.10	0.13
Susquehanna	Middle Reach	170.985	100-yr	299100.00	480.23	522.6		522.84	0.000060	4.30	70486.25	2234.55	0.13
Susquehanna	Middle Reach	170.985	500-yr	386400.00	480.23	527.2		527.52	0.000067	4.87	80863.02	2316.72	0.14
Susquehanna	Middle Reach	170.912	2-yr	115200.00	484.76	508.6		508.83	0.000100	3.93	29409.06	1761.65	0.17
Susquehanna	Middle Reach	170.912	5-yr	159000.00	484.76	512.9		513.18	0.000101	4.27	37818.25	2114.31	0.17
Susquehanna	Middle Reach	170.912	10-yr	190100.00	484.76	515.3		515.65	0.000102	4.54	42981.46	2133.52	0.17
Susquehanna	Middle Reach	170.912	25-yr	232300.00	484.76	518.3		518.71	0.000107	4.87	49498.67	2241.57	0.17
Susquehanna	Middle Reach	170.912	50-yr	264700.00	484.76	520.4		520.84	0.000112	5.10	54204.75	2256.54	0.17
Susquehanna	Middle Reach	170.912	100-yr	299100.00	484.76	522.3		522.79	0.000116	5.37	58524.11	2265.98	0.18
Susquehanna	Middle Reach	170.912	500-yr	386400.00	484.76	526.9		527.47	0.000123	5.96	69006.55	2348.66	0.18
Susquehanna	Middle Reach	170.834	2-yr	115200.00	482.97	508.6		508.79	0.000074	3.68	31297.70	1603.22	0.14
Susquehanna	Middle Reach	170.834	5-yr	159000.00	482.97	512.9		513.14	0.000078	4.17	38784.86	1839.35	0.15
Susquehanna	Middle Reach	170.834	10-yr	190100.00	482.97	515.3		515.61	0.000082	4.52	43287.25	1895.60	0.15
Susquehanna	Middle Reach	170.834	25-yr	232300.00	482.97	518.3		518.67	0.000090	4.95	49322.05	2217.68	0.16
Susquehanna	Middle Reach	170.834	50-yr	264700.00	482.97	520.4		520.79	0.000098	5.24	53968.65	2252.92	0.16
Susquehanna	Middle Reach	170.834	100-yr	299100.00	482.97	522.3		522.74	0.000103	5.56	58273.70	2277.89	0.17
Susquehanna	Middle Reach	170.834	500-yr	386400.00	482.97	526.8		527.41	0.000114	6.24	68761.44	2373.62	0.18
Susquehanna	Middle Reach	170.759	2-yr	115200.00	484.15	508.5		508.75	0.000097	4.27	27219.24	1570.69	0.17
Susquehanna	Middle Reach	170.759	5-yr	159000.00	484.15	512.7		513.10	0.000102	4.83	35110.92	2059.90	0.17
Susquehanna	Middle Reach	170.759	10-yr	190100.00	484.15	515.1		515.56	0.000107	5.22	40084.65	2076.47	0.18
Susquehanna	Middle Reach	170.759	25-yr	232300.00	484.15	518.1		518.62	0.000115	5.67	46388.35	2186.62	0.18
Susquehanna	Middle Reach	170.759	50-yr	264700.00	484.15	520.2		520.74	0.000124	5.99	50929.24	2209.77	0.19
Susquehanna	Middle Reach	170.759	100-yr	299100.00	484.15	522.1		522.68	0.000130	6.34	55103.16	2218.04	0.19
Susquehanna	Middle Reach	170.759	500-yr	386400.00	484.15	526.6		527.35	0.000141	7.10	65239.61	2309.74	0.20
Susquehanna	Middle Reach	170.685	2-yr	115200.00	483.13	508.1	495.33	508.67	0.000208	5.94	19711.52	1165.69	0.24
Susquehanna	Middle Reach	170.685	5-yr	159000.00	483.13	512.3	497.35	513.01	0.000222	6.69	24922.57	1549.59	0.24
Susquehanna	Middle Reach	170.685	10-yr	190100.00	483.13	514.7	498.72	515.47	0.000235	7.21	29036.41	1895.57	0.25
Susquehanna	Middle Reach	170.685	25-yr	232300.00	483.13	517.6	500.43	518.51	0.000257	7.80	34732.50	2018.51	0.26
Susquehanna	Middle Reach	170.685	50-yr	264700.00	483.13	519.6	501.62	520.62	0.000277	8.21	38896.08	2089.05	0.26
Susquehanna	Middle Reach	170.685	100-yr	299100.00	483.13	521.4	502.78	522.56	0.000293	8.66	42758.11	2190.13	0.27
Susquehanna	Middle Reach	170.685	500-yr	386400.00	483.13	525.9	505.52	527.21	0.000317	9.59	52338.70	2906.98	0.28
Susquehanna	Middle Reach	170.609	2-yr	115200.00	484.61	507.7		508.54	0.000308	7.17	16535.45	1101.45	0.29
Susquehanna	Middle Reach	170.609	5-yr	159000.00	484.61	511.9		512.88	0.000312	8.01	21564.39	1571.69	0.30
Susquehanna	Middle Reach	170.609	10-yr	190100.00	484.61	514.2		515.32	0.000322	8.59	25519.33	1743.97	0.30
Susquehanna	Middle Reach	170.609	25-yr	232300.00	484.61	517.1		518.36	0.000346	9.24	30725.34	1839.38	0.31
Susquehanna	Middle Reach	170.609	50-yr	264700.00	484.61	519.1		520.45	0.000372	9.70	34393.36	1854.97	0.32

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	170.609	100-yr	299100.00	484.61	520.9		522.38	0.000392	10.21	37736.66	1898.17	0.32
Susquehanna	Middle Reach	170.609	500-yr	386400.00	484.61	525.2		527.01	0.000424	11.29	46064.53	1964.84	0.34
Susquehanna	Middle Reach	170.532	2-yr	115200.00	485.32	507.4		508.38	0.000419	8.12	14556.32	1080.71	0.34
Susquehanna	Middle Reach	170.532	5-yr	159000.00	485.32	511.5		512.71	0.000417	9.00	19445.33	1401.76	0.34
Susquehanna	Middle Reach	170.532	10-yr	190100.00	485.32	513.7		515.14	0.000432	9.64	23009.14	1652.93	0.35
Susquehanna	Middle Reach	170.532	25-yr	232300.00	485.32	516.6		518.16	0.000460	10.35	27802.29	1734.80	0.35
Susquehanna	Middle Reach	170.532	50-yr	264700.00	485.32	518.5		520.25	0.000489	10.85	31197.87	1746.19	0.36
Susquehanna	Middle Reach	170.532	100-yr	299100.00	485.32	520.3		522.17	0.000512	11.41	34264.11	1757.57	0.37
Susquehanna	Middle Reach	170.532	500-yr	386400.00	485.32	524.5		526.78	0.000550	12.57	41905.65	1859.12	0.38
Susquehanna	Middle Reach	170.457	2-yr	115200.00	485.48	507.1		508.19	0.000458	8.55	13825.93	1056.55	0.35
Susquehanna	Middle Reach	170.457	5-yr	159000.00	485.48	511.1		512.52	0.000458	9.47	19060.71	1400.25	0.36
Susquehanna	Middle Reach	170.457	10-yr	190100.00	485.48	513.4		514.95	0.000470	10.14	22392.79	1520.86	0.37
Susquehanna	Middle Reach	170.457	25-yr	232300.00	485.48	516.2		517.96	0.000494	10.93	26844.32	1652.84	0.37
Susquehanna	Middle Reach	170.457	50-yr	264700.00	485.48	518.1		520.03	0.000520	11.48	30030.18	1675.25	0.38
Susquehanna	Middle Reach	170.457	100-yr	299100.00	485.48	519.8		521.94	0.000541	12.11	32903.05	1688.28	0.39
Susquehanna	Middle Reach	170.457	500-yr	386400.00	485.48	524.0		526.53	0.000573	13.43	40031.23	1741.50	0.40
Susquehanna	Middle Reach	170.382	2-yr	115200.00	485.28	506.9		508.00	0.000485	8.53	13678.05	959.66	0.36
Susquehanna	Middle Reach	170.382	5-yr	159000.00	485.28	511.0		512.33	0.000478	9.38	18259.55	1174.92	0.36
Susquehanna	Middle Reach	170.382	10-yr	190100.00	485.28	513.2		514.76	0.000488	10.03	21076.99	1399.85	0.37
Susquehanna	Middle Reach	170.382	25-yr	232300.00	485.28	516.0		517.75	0.000510	10.82	25278.78	1595.63	0.38
Susquehanna	Middle Reach	170.382	50-yr	264700.00	485.28	517.9		519.82	0.000535	11.36	28362.71	1637.96	0.38
Susquehanna	Middle Reach	170.382	100-yr	299100.00	485.28	519.6		521.72	0.000554	11.97	31168.79	1660.21	0.39
Susquehanna	Middle Reach	170.382	500-yr	386400.00	485.28	523.7		526.29	0.000581	13.25	38186.84	1722.78	0.40
Susquehanna	Middle Reach	170.309	2-yr	115200.00	485.08	506.8	497.29	507.78	0.000501	8.11	14439.44	1034.69	0.36
Susquehanna	Middle Reach	170.309	5-yr	159000.00	485.08	510.9	499.48	512.08	0.000488	8.59	19292.15	1349.72	0.36
Susquehanna	Middle Reach	170.309	10-yr	190100.00	485.08	513.2	500.91	514.49	0.000470	9.05	22723.33	1533.98	0.36
Susquehanna	Middle Reach	170.309	25-yr	232300.00	485.08	516.1	502.71	517.45	0.000465	9.58	27129.44	1584.80	0.35
Susquehanna	Middle Reach	170.309	50-yr	264700.00	485.08	518.0	504.05	519.50	0.000476	9.99	30238.64	1627.32	0.35
Susquehanna	Middle Reach	170.309	100-yr	299100.00	485.08	519.7	505.93	521.37	0.000483	10.49	33109.11	1674.55	0.36
Susquehanna	Middle Reach	170.309	500-yr	386400.00	485.08	524.0	509.52	525.91	0.000488	11.49	40421.50	1820.90	0.37
Susquehanna	Middle Reach	170.230	2-yr	115200.00	484.87	506.6		507.56	0.000438	7.75	14908.70	983.26	0.34
Susquehanna	Middle Reach	170.230	5-yr	159000.00	484.87	510.8		511.86	0.000454	8.35	19522.00	1378.90	0.35
Susquehanna	Middle Reach	170.230	10-yr	190100.00	484.87	513.1		514.28	0.000437	8.81	22829.59	1453.28	0.34
Susquehanna	Middle Reach	170.230	25-yr	232300.00	484.87	515.9		517.25	0.000436	9.37	27066.71	1540.56	0.34
Susquehanna	Middle Reach	170.230	50-yr	264700.00	484.87	517.8		519.29	0.000449	9.81	30102.53	1632.63	0.35
Susquehanna	Middle Reach	170.230	100-yr	299100.00	484.87	519.6		521.17	0.000458	10.31	32977.51	1693.84	0.35
Susquehanna	Middle Reach	170.230	500-yr	386400.00	484.87	523.8		525.70	0.000464	11.31	40492.16	1859.39	0.36
Susquehanna	Middle Reach	170.155	2-yr	115200.00	484.67	506.4		507.38	0.000424	8.10	14872.26	939.33	0.34
Susquehanna	Middle Reach	170.155	5-yr	159000.00	484.67	510.4		511.67	0.000469	8.96	19330.13	1305.80	0.36
Susquehanna	Middle Reach	170.155	10-yr	190100.00	484.67	512.7		514.08	0.000464	9.52	22516.14	1564.69	0.36
Susquehanna	Middle Reach	170.155	25-yr	232300.00	484.67	515.5		517.05	0.000471	10.15	27004.31	1636.78	0.36
Susquehanna	Middle Reach	170.155	50-yr	264700.00	484.67	517.4		519.09	0.000488	10.61	30184.83	1700.31	0.36
Susquehanna	Middle Reach	170.155	100-yr	299100.00	484.67	519.1		520.96	0.000500	11.14	33150.91	1748.94	0.37
Susquehanna	Middle Reach	170.155	500-yr	386400.00	484.67	523.4		525.49	0.000506	12.16	40643.36	1787.20	0.37
Susquehanna	Middle Reach	170.079	2-yr	115200.00	484.48	506.4		507.15	0.000312	6.84	17728.61	1174.25	0.29
Susquehanna	Middle Reach	170.079	5-yr	159000.00	484.48	510.5		511.40	0.000318	7.49	23149.07	1433.53	0.29
Susquehanna	Middle Reach	170.079	10-yr	190100.00	484.48	512.8		513.81	0.000315	7.96	26688.87	1584.03	0.30
Susquehanna	Middle Reach	170.079	25-yr	232300.00	484.48	515.7		516.76	0.000323	8.53	31259.24	1648.14	0.30
Susquehanna	Middle Reach	170.079	50-yr	264700.00	484.48	517.6		518.78	0.000339	8.96	34455.52	1693.40	0.30
Susquehanna	Middle Reach	170.079	100-yr	299100.00	484.48	519.3		520.64	0.000350	9.44	37426.25	1735.57	0.31
Susquehanna	Middle Reach	170.079	500-yr	386400.00	484.48	523.6		525.16	0.000364	10.44	44989.35	1834.68	0.32
Susquehanna	Middle Reach	170.003	2-yr	115200.00	484.23	506.5		506.98	0.000174	5.50	21555.16	1234.86	0.22
Susquehanna	Middle Reach	170.003	5-yr	159000.00	484.23	510.6		511.22	0.000184	6.19	27350.20	1529.77	0.23
Susquehanna	Middle Reach	170.003	10-yr	190100.00	484.23	512.9		513.63	0.000191	6.67	30951.23	1581.27	0.23
Susquehanna	Middle Reach	170.003	25-yr	232300.00	484.23	515.8		516.57	0.000205	7.25	35784.26	1764.49	0.24
Susquehanna	Middle Reach	170.003	50-yr	264700.00	484.23	517.7		518.58	0.000219	7.66	39223.46	1817.82	0.25
Susquehanna	Middle Reach	170.003	100-yr	299100.00	484.23	519.4		520.43	0.000230	8.12	42441.31	1865.02	0.25
Susquehanna	Middle Reach	170.003	500-yr	386400.00	484.23	523.7		524.92	0.000246	9.03	50472.84	1883.23	0.27
Susquehanna	Middle Reach	169.932	2-yr	115200.00	480.47	506.6		506.88	0.000105	4.48	25770.96	1288.24	0.17
Susquehanna	Middle Reach	169.932	5-yr	159000.00	480.47	510.7		511.11	0.000118	5.13	31458.67	1530.59	0.18
Susquehanna	Middle Reach	169.932	10-yr	190100.00	480.47	513.0		513.51	0.000126	5.58	35174.32	1760.77	0.19
Susquehanna	Middle Reach	169.932	25-yr	232300.00	480.47	515.9		516.44	0.000138	6.10	40338.84	1834.99	0.20
Susquehanna	Middle Reach	169.932	50-yr	264700.00	480.47	517.8		518.44	0.000149	6.48	43905.52	1863.90	0.20
Susquehanna	Middle Reach	169.932	100-yr	299100.00	480.47	519.6		520.28	0.000158	6.89	47197.39	1882.07	0.21
Susquehanna	Middle Reach	169.932	500-yr	386400.00	480.47	523.9		524.76	0.000173	7.75	55523.39	2029.19	0.22
Susquehanna	Middle Reach	169.852	2-yr	115200.00	483.58	506.5		506.83	0.000107	4.34	26589.55	1401.67	0.17
Susquehanna	Middle Reach	169.852	5-yr	159000.00	483.58	510.7		511.05	0.000115	4.92	32757.36	1714.07	0.18
Susquehanna	Middle Reach	169.852	10-yr	190100.00	483.58	513.0		513.44	0.000120	5.32	36888.49	1855.44	0.19
Susquehanna	Middle Reach	169.852	25-yr	232300.00	483.58	515.9		516.37	0.000130	5.80	42220.71	1886.41	0.19
Susquehanna	Middle Reach	169.852	50-yr	264700.00	483.58	517.8		518.36	0.000140	6.15	45879.34	1908.06	0.20
Susquehanna	Middle Reach	169.852	100-yr	299100.00	483.58	519.5		520.19	0.000148	6.53	49273.38	1975.02	0.20
Susquehanna	Middle Reach	169.852	500-yr	386400.00	483.58	523.9		524.66	0.000160	7.32	58265.78	2134.67	0.21
Susquehanna	Middle Reach	169.778	2-yr	115200.00	483.55	506.4	493.49	506.77	0.000161	4.80	24039.49	1486.98	0.21
Susquehanna	Middle Reach	169.778	5-yr	159000.00	483.55	510.6	495.51	511.00	0.000156	5.29	30381.35	1657.89	0.21
Susquehanna	Middle Reach	169.778	10-yr	190100.00	483.55	512.9	497.06	513.38	0.000158	5.66	34489.01	1795.63	0.21
Susquehanna	Middle Reach	169.778	25-yr	232300.00	483.55	515.7	498.62	516.31	0.000166	6.12	39649.49	1831.47	0.21
Susquehanna	Middle Reach	169.778	50-yr	264700.00	483.55	517.7	499.71	518.29	0.000176	6.47	43191.57	1857.98	0.22
Susquehanna	Middle Reach	169.778	100-yr	299100.00	483.55	519.4	500.73	520.12	0.000183	6.85	46465.70	1891.36	0.22
Susquehanna	Middle Reach	169.778	500-yr	386400.00	483.55	523.7	502.82	524.58	0.000195	7.67	54726.79	1960.58	0.23
Susquehanna	Middle Reach	169.704	2-yr	115200.00	483.22	506.3		506.70	0.000186	5.35	21548.66	1271.86	0.23
Susquehanna	Middle Reach	169.704	5-yr	159000.00	483.22	510.4		510.92	0.000190	5.77	27975.66	1882.99	0.24
Susquehanna	Middle Reach	169.704	10-yr	190100.00	483.22	512.7		513.31	0.000191	6.05	32504.08	1965.10	0.24
Susquehanna	Middle Reach	169.704	25-yr	232300.00	483.22	515.6		516.23	0.000199	6.42	38160.65	1999.81	0.24
Susquehanna	Middle Reach	169.704	50-yr	264700.00	483.22	517.5		518.21	0.000210	6.71	42082.20	2060.07	0.24
Susquehanna	Middle Reach	169.704	100-yr	299100.00	483.22	519.3		520.04	0.000218	7.05	45716.47	2087.42	0.24
Susquehanna	Middle Reach	169.704	500-yr	386400.00	483.22	523.6		524.49	0.000230	7.74	54762.61	2105.37	0.25
Susquehanna	Middle Reach	169.629	2-yr	115200.00	482.90	506.1	493.95	506.61	0.000218	5.98	19268.24	1048.25	0.25
Susquehanna	Middle Reach	169.629	5-yr	159000.00	482.90	510.2	495.84	510.83	0.000224	6.52	24853.59	1994.64	0.29

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	169.629	10-yr	190100.00	482.90	512.5	497.08	513.21	0.000226	6.73	29619.87	2040.19	0.28
Susquehanna	Middle Reach	169.629	25-yr	232300.00	482.90	515.4	498.63	516.13	0.000236	7.02	35513.42	2082.22	0.27
Susquehanna	Middle Reach	169.629	50-yr	264700.00	482.90	517.3	499.76	518.11	0.000249	7.27	39578.09	2157.85	0.27
Susquehanna	Middle Reach	169.629	100-yr	299100.00	482.90	519.1	500.92	519.93	0.000258	7.59	43401.14	2476.30	0.27
Susquehanna	Middle Reach	169.629	500-yr	386400.00	482.90	523.4	503.63	524.39	0.000268	8.19	53179.72	3010.67	0.27
Susquehanna	Middle Reach	169.553	2-yr	115200.00	482.09	506.0		506.52	0.000205	5.93	19654.97	1088.40	0.24
Susquehanna	Middle Reach	169.553	5-yr	159000.00	482.09	510.1		510.72	0.000269	6.46	25831.45	1898.81	0.27
Susquehanna	Middle Reach	169.553	10-yr	190100.00	482.09	512.4		513.11	0.000258	6.63	30782.18	2212.24	0.29
Susquehanna	Middle Reach	169.553	25-yr	232300.00	482.09	515.3		516.02	0.000249	6.82	37191.69	2236.15	0.27
Susquehanna	Middle Reach	169.553	50-yr	264700.00	482.09	517.3		517.99	0.000252	7.01	41534.04	2245.92	0.27
Susquehanna	Middle Reach	169.553	100-yr	299100.00	482.09	519.0		519.80	0.000253	7.27	45495.49	2254.15	0.27
Susquehanna	Middle Reach	169.553	500-yr	386400.00	482.09	523.4		524.25	0.000249	7.80	55724.40	2467.29	0.26
Susquehanna	Middle Reach	169.472	2-yr	115200.00	481.98	505.9		506.43	0.000202	5.95	19558.47	1027.86	0.24
Susquehanna	Middle Reach	169.472	5-yr	159000.00	481.98	510.0		510.61	0.000272	6.46	25588.40	1790.45	0.28
Susquehanna	Middle Reach	169.472	10-yr	190100.00	481.98	512.3		513.00	0.000262	6.68	30066.88	2097.92	0.29
Susquehanna	Middle Reach	169.472	25-yr	232300.00	481.98	515.2		515.91	0.000256	6.89	36163.47	2134.70	0.28
Susquehanna	Middle Reach	169.472	50-yr	264700.00	481.98	517.1		517.88	0.000260	7.10	40291.73	2150.90	0.27
Susquehanna	Middle Reach	169.472	100-yr	299100.00	481.98	518.9		519.69	0.000263	7.38	44069.80	2163.44	0.27
Susquehanna	Middle Reach	169.472	500-yr	386400.00	481.98	523.2		524.14	0.000261	7.95	53832.36	2476.22	0.27
Susquehanna	Middle Reach	169.397	2-yr	115200.00	481.93	505.9	492.17	506.33	0.000189	5.56	20879.51	1169.89	0.23
Susquehanna	Middle Reach	169.397	5-yr	159000.00	481.93	509.9	494.22	510.47	0.000241	5.91	27472.39	1885.31	0.26
Susquehanna	Middle Reach	169.397	10-yr	190100.00	481.93	512.3	495.46	512.86	0.000229	6.09	32140.58	2068.18	0.26
Susquehanna	Middle Reach	169.397	25-yr	232300.00	481.93	515.2	497.03	515.78	0.000222	6.34	38129.11	2097.61	0.25
Susquehanna	Middle Reach	169.397	50-yr	264700.00	481.93	517.1	498.17	517.75	0.000225	6.56	42184.71	2117.10	0.25
Susquehanna	Middle Reach	169.397	100-yr	299100.00	481.93	518.8	499.32	519.56	0.000227	6.84	45909.96	2134.84	0.25
Susquehanna	Middle Reach	169.397	500-yr	386400.00	481.93	523.2	502.07	524.01	0.000224	7.40	56380.00	2762.32	0.25
Susquehanna	Middle Reach	169.321	2-yr	115200.00	481.61	505.8		506.25	0.000197	5.52	20865.81	1213.60	0.23
Susquehanna	Middle Reach	169.321	5-yr	159000.00	481.61	509.8		510.38	0.000229	5.98	26775.79	1712.83	0.25
Susquehanna	Middle Reach	169.321	10-yr	190100.00	481.61	512.2		512.77	0.000223	6.25	31198.77	2080.62	0.26
Susquehanna	Middle Reach	169.321	25-yr	232300.00	481.61	515.0		515.69	0.000221	6.52	37493.21	2241.02	0.26
Susquehanna	Middle Reach	169.321	50-yr	264700.00	481.61	517.0		517.66	0.000226	6.75	41841.21	2287.11	0.25
Susquehanna	Middle Reach	169.321	100-yr	299100.00	481.61	518.7		519.46	0.000229	7.04	45913.76	2371.18	0.25
Susquehanna	Middle Reach	169.321	500-yr	386400.00	481.61	523.0		523.91	0.000227	7.59	56964.97	2715.62	0.25
Susquehanna	Middle Reach	169.246	2-yr	115200.00	480.91	505.7	490.95	506.17	0.000161	5.20	22133.05	1193.35	0.21
Susquehanna	Middle Reach	169.246	5-yr	159000.00	480.91	509.8	493.06	510.28	0.000186	5.75	27658.52	1729.31	0.24
Susquehanna	Middle Reach	169.246	10-yr	190100.00	480.91	512.1	494.37	512.68	0.000188	6.07	32230.88	2175.01	0.24
Susquehanna	Middle Reach	169.246	25-yr	232300.00	480.91	515.0	495.96	515.60	0.000195	6.44	38290.96	2248.83	0.24
Susquehanna	Middle Reach	169.246	50-yr	264700.00	480.91	516.9	497.10	517.57	0.000206	6.74	42382.07	2380.57	0.24
Susquehanna	Middle Reach	169.246	100-yr	299100.00	480.91	518.6	498.26	519.37	0.000210	7.03	47641.62	2566.06	0.24
Susquehanna	Middle Reach	169.246	500-yr	386400.00	480.91	523.0	500.93	523.82	0.000213	7.65	59229.45	2819.43	0.24
Susquehanna	Middle Reach	169.173	2-yr	115200.00	480.62	505.6	491.32	506.10	0.000177	5.50	20964.00	1111.78	0.22
Susquehanna	Middle Reach	169.173	5-yr	159000.00	480.62	509.6	493.47	510.20	0.000194	6.15	26544.51	2023.24	0.24
Susquehanna	Middle Reach	169.173	10-yr	190100.00	480.62	511.9	494.72	512.60	0.000199	6.54	31192.18	2116.75	0.24
Susquehanna	Middle Reach	169.173	25-yr	232300.00	480.62	514.8	496.37	515.51	0.000211	7.00	37041.83	2262.39	0.25
Susquehanna	Middle Reach	169.173	50-yr	264700.00	480.62	516.7	497.53	517.48	0.000222	7.31	42159.68	2434.56	0.25
Susquehanna	Middle Reach	169.173	100-yr	299100.00	480.62	518.4	498.70	519.28	0.000231	7.67	46502.66	2526.93	0.25
Susquehanna	Middle Reach	169.173	500-yr	386400.00	480.62	522.7	501.59	523.72	0.000238	8.34	58071.13	2836.58	0.26
Susquehanna	Middle Reach	169.096	2-yr	115200.00	479.98	505.5	491.06	506.02	0.000175	5.74	20069.70	1005.39	0.23
Susquehanna	Middle Reach	169.096	5-yr	159000.00	479.98	509.4	493.30	510.11	0.000197	6.59	24857.61	1622.06	0.24
Susquehanna	Middle Reach	169.096	10-yr	190100.00	479.98	511.7	494.61	512.50	0.000208	7.10	29372.22	2218.53	0.25
Susquehanna	Middle Reach	169.096	25-yr	232300.00	479.98	514.6	496.26	515.41	0.000220	7.60	36165.79	2388.25	0.25
Susquehanna	Middle Reach	169.096	50-yr	264700.00	479.98	516.4	497.47	517.37	0.000234	7.96	40778.47	2533.12	0.25
Susquehanna	Middle Reach	169.096	100-yr	299100.00	479.98	518.2	498.68	519.17	0.000243	8.35	45194.82	2593.62	0.26
Susquehanna	Middle Reach	169.096	500-yr	386400.00	479.98	522.5	501.56	523.61	0.000249	9.05	56864.34	2817.35	0.27
Susquehanna	Middle Reach	169.013	2-yr	115200.00	480.40	505.2	492.17	505.90	0.000251	6.96	16555.05	797.10	0.27
Susquehanna	Middle Reach	169.013	5-yr	159000.00	480.40	509.0	494.46	509.98	0.000290	8.06	20546.35	1345.09	0.29
Susquehanna	Middle Reach	169.013	10-yr	190100.00	480.40	511.2	495.95	512.35	0.000310	8.73	24398.50	2101.56	0.30
Susquehanna	Middle Reach	169.013	25-yr	232300.00	480.40	514.0	497.82	515.26	0.000324	9.30	30818.31	2274.99	0.31
Susquehanna	Middle Reach	169.013	50-yr	264700.00	480.40	515.9	499.14	517.21	0.000341	9.69	35228.64	2418.81	0.31
Susquehanna	Middle Reach	169.013	100-yr	299100.00	480.40	517.6	500.52	519.00	0.000351	10.12	39443.02	2531.09	0.31
Susquehanna	Middle Reach	169.013	500-yr	386400.00	480.40	521.9	503.74	523.45	0.000350	10.83	50564.71	2641.28	0.32
Susquehanna	Middle Reach	168.944	2-yr	115200.00	480.67	504.9	492.82	505.79	0.000289	7.45	15474.36	758.25	0.29
Susquehanna	Middle Reach	168.944	5-yr	159000.00	480.67	508.7	495.09	509.85	0.000345	8.63	19160.73	1400.43	0.31
Susquehanna	Middle Reach	168.944	10-yr	190100.00	480.67	510.9	496.57	512.21	0.000372	9.39	21673.91	1762.98	0.33
Susquehanna	Middle Reach	168.944	25-yr	232300.00	480.67	513.6	498.42	515.11	0.000390	10.05	28516.99	2222.77	0.33
Susquehanna	Middle Reach	168.944	50-yr	264700.00	480.67	515.4	499.79	517.05	0.000411	10.51	32712.75	2425.28	0.34
Susquehanna	Middle Reach	168.944	100-yr	299100.00	480.67	517.1	501.17	518.84	0.000422	10.99	36840.19	2499.13	0.34
Susquehanna	Middle Reach	168.944	500-yr	386400.00	480.67	521.4	504.43	523.28	0.000416	11.75	48061.89	2741.10	0.34
Susquehanna	Middle Reach	168.869	2-yr	115200.00	480.70	504.9	492.56	505.66	0.000272	7.06	16348.29	926.28	0.28
Susquehanna	Middle Reach	168.869	5-yr	159000.00	480.70	508.7	494.75	509.68	0.000318	8.15	20365.50	1307.36	0.30
Susquehanna	Middle Reach	168.869	10-yr	190100.00	480.70	510.8	496.20	512.02	0.000342	8.85	23034.58	1862.96	0.31
Susquehanna	Middle Reach	168.869	25-yr	232300.00	480.70	513.6	497.99	514.91	0.000357	9.44	30117.87	2528.58	0.32
Susquehanna	Middle Reach	168.869	50-yr	264700.00	480.70	515.4	499.29	516.83	0.000371	9.81	34888.66	2605.54	0.32
Susquehanna	Middle Reach	168.869	100-yr	299100.00	480.70	517.1	500.62	518.61	0.000378	10.20	39352.15	2648.10	0.32
Susquehanna	Middle Reach	168.869	500-yr	386400.00	480.70	521.5	503.93	523.04	0.000362	10.78	51371.09	2845.79	0.32
Susquehanna	Middle Reach	168.794	2-yr	115200.00	480.74	504.9	492.38	505.53	0.000242	6.58	17728.64	1064.05	0.26
Susquehanna	Middle Reach	168.794	5-yr	159000.00	480.74	508.6	494.50	509.51	0.000280	7.53	22231.70	1592.09	0.28
Susquehanna	Middle Reach	168.794	10-yr	190100.00	480.74	510.8	495.86	511.84	0.000298	8.14	25320.20	2296.45	0.29
Susquehanna	Middle Reach	168.794	25-yr	232300.00	480.74	513.6	497.58	514.70	0.000300	8.55	33845.64	2709.96	0.29
Susquehanna	Middle Reach	168.794	50-yr	264700.00	480.74	515.5	498.82	516.62	0.000309	8.88	38926.13	2763.08	0.29
Susquehanna	Middle Reach	168.794	100-yr	299100.00	480.74	517.2	500.09	518.39	0.000314	9.24	43678.55	2807.69	0.29
Susquehanna	Middle Reach	168.794	500-yr	386400.00	480.74	521.5	503.21	522.83	0.000304	9.83	56245.87	2998.54	0.29
Susquehanna	Middle Reach	168.719	2-yr	115200.00	480.77	504.8	492.56	505.42	0.000255	6.54	17757.39	1155.01	0.27
Susquehanna	Middle Reach	168.719	5-yr	159000.00	480.77	508.6	494.66	509.39	0.000279	7.39	22729.36	1625.30	0.28
Susquehanna	Middle Reach	168.719	10-yr	190100.00	480.77	510.7	496.00	511.71	0.000291	7.94	26622.04	2373.78	0.29
Susquehanna	Middle Reach	168.719	25-yr	232300.00	480.77	513.6	497.70	514.57	0.000287	8.31	34731.55	2861.84	0.28
Susquehanna	Middle Reach	168.719	50-yr	264700.00	480.77	515.4	498.91	516.48	0.000293	8.59	40167.57	2965.15	0.28
Susquehanna	Middle Reach	168.719	100-yr	299100.00	480.77	517.1	500.20	518.24	0.000294	8.90	45336.05	3076.31	0.29
Susquehanna	Middle Reach	168.719	500-yr	386400.00	480.77	521.5	503.34	522.68	0.000277	9.36	59908.28	3460.30	0.28

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	168.643	2-yr	115200.00	480.81	504.5	493.59	505.29	0.000342	7.29	15807.36	954.87	0.31
Susquehanna	Middle Reach	168.643	5-yr	159000.00	480.81	508.2	495.75	509.25	0.000356	8.13	21143.22	2039.30	0.31
Susquehanna	Middle Reach	168.643	10-yr	190100.00	480.81	510.4	497.16	511.56	0.000356	8.62	25108.30	2477.69	0.32
Susquehanna	Middle Reach	168.643	25-yr	232300.00	480.81	513.3	498.93	514.43	0.000333	8.81	34022.43	3182.45	0.30
Susquehanna	Middle Reach	168.643	50-yr	264700.00	480.81	515.2	500.23	516.35	0.000328	8.96	40121.25	3415.90	0.30
Susquehanna	Middle Reach	168.643	100-yr	299100.00	480.81	517.0	501.81	518.11	0.000313	9.09	47249.23	3459.63	0.29
Susquehanna	Middle Reach	168.643	500-yr	386400.00	480.81	521.5	504.88	522.54	0.000277	9.28	62950.96	3582.47	0.28
Susquehanna	Middle Reach	168.571	2-yr	115200.00	480.84	504.3	493.71	505.16	0.000344	7.42	15535.59	861.68	0.31
Susquehanna	Middle Reach	168.571	5-yr	159000.00	480.84	508.1	495.81	509.11	0.000381	8.26	20730.39	2078.08	0.32
Susquehanna	Middle Reach	168.571	10-yr	190100.00	480.84	510.3	497.18	511.42	0.000377	8.74	25366.09	2781.69	0.32
Susquehanna	Middle Reach	168.571	25-yr	232300.00	480.84	513.2	498.94	514.31	0.000341	8.82	35347.46	3404.82	0.31
Susquehanna	Middle Reach	168.571	50-yr	264700.00	480.84	515.1	500.20	516.22	0.000332	8.92	42440.00	3484.30	0.30
Susquehanna	Middle Reach	168.571	100-yr	299100.00	480.84	516.9	501.48	517.99	0.000320	9.09	48659.61	3551.11	0.30
Susquehanna	Middle Reach	168.571	500-yr	386400.00	480.84	521.4	505.27	522.43	0.000281	9.26	65053.82	3740.05	0.28
Susquehanna	Middle Reach	168.494	2-yr	115200.00	480.87	504.3	493.18	504.97	0.000303	6.62	17437.24	1219.49	0.29
Susquehanna	Middle Reach	168.494	5-yr	159000.00	480.87	508.1	495.14	508.90	0.000300	7.33	23508.16	2746.06	0.29
Susquehanna	Middle Reach	168.494	10-yr	190100.00	480.87	510.3	496.40	511.21	0.000292	7.69	28987.19	3364.34	0.29
Susquehanna	Middle Reach	168.494	25-yr	232300.00	480.87	513.3	498.02	514.11	0.000268	7.82	38713.05	3629.02	0.27
Susquehanna	Middle Reach	168.494	50-yr	264700.00	480.87	515.2	499.20	516.01	0.000245	7.67	48736.84	3797.20	0.26
Susquehanna	Middle Reach	168.494	100-yr	299100.00	480.87	517.0	500.40	517.79	0.000236	7.82	55212.58	3845.88	0.25
Susquehanna	Middle Reach	168.494	500-yr	386400.00	480.87	521.5	503.71	522.25	0.000209	8.00	71789.34	3969.33	0.24
Susquehanna	Middle Reach	168.419	2-yr	115200.00	480.91	504.3	492.63	504.84	0.000218	6.05	19697.63	2734.01	0.25
Susquehanna	Middle Reach	168.419	5-yr	159000.00	480.91	508.1	494.46	508.76	0.000225	6.76	26799.03	4172.28	0.25
Susquehanna	Middle Reach	168.419	10-yr	190100.00	480.91	510.3	495.64	511.07	0.000227	7.17	32401.10	5482.72	0.25
Susquehanna	Middle Reach	168.419	25-yr	232300.00	480.91	513.2	497.16	513.98	0.000214	7.33	42421.68	5887.08	0.25
Susquehanna	Middle Reach	168.419	50-yr	264700.00	480.91	515.3	498.26	515.87	0.000179	6.88	60938.86	6069.83	0.22
Susquehanna	Middle Reach	168.419	100-yr	299100.00	480.91	517.1	499.37	517.66	0.000176	7.05	68176.86	6273.26	0.22
Susquehanna	Middle Reach	168.419	500-yr	386400.00	480.91	521.5	502.05	522.13	0.000162	7.32	86562.31	6920.97	0.22
Susquehanna	Middle Reach	168.342	2-yr	115200.00	480.95	504.3	492.05	504.72	0.000177	5.31	22535.95	2498.30	0.22
Susquehanna	Middle Reach	168.342	5-yr	159000.00	480.95	508.1	493.80	508.63	0.000180	5.93	29432.84	3510.53	0.22
Susquehanna	Middle Reach	168.342	10-yr	190100.00	480.95	510.3	494.90	510.94	0.000183	6.33	34248.09	4139.45	0.23
Susquehanna	Middle Reach	168.342	25-yr	232300.00	480.95	513.2	496.28	513.87	0.000180	6.63	43203.70	4891.89	0.23
Susquehanna	Middle Reach	168.342	50-yr	264700.00	480.95	515.1	497.30	515.79	0.000187	6.90	49036.32	5444.12	0.23
Susquehanna	Middle Reach	168.342	100-yr	299100.00	480.95	517.1	498.33	517.55	0.000137	6.16	73793.18	5571.76	0.20
Susquehanna	Middle Reach	168.342	500-yr	386400.00	480.95	521.6	501.17	522.03	0.000128	6.44	93696.41	6241.90	0.19
Susquehanna	Middle Reach	168.266	2-yr	115200.00	480.98	504.1	494.26	504.62	0.000256	5.74	20119.59	1372.43	0.26
Susquehanna	Middle Reach	168.266	5-yr	159000.00	480.98	507.9	496.13	508.54	0.000243	6.33	25812.24	2014.92	0.26
Susquehanna	Middle Reach	168.266	10-yr	190100.00	480.98	510.1	497.17	510.84	0.000241	6.73	30101.07	2415.59	0.26
Susquehanna	Middle Reach	168.266	25-yr	232300.00	480.98	513.0	498.48	513.77	0.000239	7.13	36856.55	2962.22	0.26
Susquehanna	Middle Reach	168.266	50-yr	264700.00	480.98	514.9	499.56	515.70	0.000231	7.21	44652.66	4268.35	0.25
Susquehanna	Middle Reach	168.266	100-yr	299100.00	480.98	516.7	500.49	517.45	0.000227	7.42	52964.38	4449.24	0.25
Susquehanna	Middle Reach	168.266	500-yr	386400.00	480.98	521.2	502.71	521.94	0.000196	7.54	73504.08	4599.59	0.23
Susquehanna	Middle Reach	168.191	2-yr	115200.00	482.23	503.6	495.27	504.47	0.000412	7.34	15766.23	1109.60	0.33
Susquehanna	Middle Reach	168.191	5-yr	159000.00	482.23	507.4	497.12	508.38	0.000400	8.12	20467.85	1540.01	0.33
Susquehanna	Middle Reach	168.191	10-yr	190100.00	482.23	509.5	498.33	510.68	0.000396	8.62	24271.99	2252.83	0.33
Susquehanna	Middle Reach	168.191	25-yr	232300.00	482.23	512.4	499.85	513.61	0.000391	9.09	30195.75	2705.44	0.33
Susquehanna	Middle Reach	168.191	50-yr	264700.00	482.23	514.4	500.95	515.54	0.000366	9.06	37608.72	3718.86	0.31
Susquehanna	Middle Reach	168.191	100-yr	299100.00	482.23	516.1	502.06	517.30	0.000349	9.20	45123.42	3888.72	0.31
Susquehanna	Middle Reach	168.191	500-yr	386400.00	482.23	520.8	504.80	521.82	0.000290	9.19	64260.95	4237.51	0.28
Susquehanna	Middle Reach	168.113 Little Wapwallop	2-yr	115500.00	481.68	503.1	495.34	504.25	0.000533	8.47	13644.62	916.44	0.37
Susquehanna	Middle Reach	168.113 Little Wapwallop	5-yr	159400.00	481.68	506.8	497.39	508.15	0.000537	9.48	17313.28	1208.02	0.38
Susquehanna	Middle Reach	168.113 Little Wapwallop	10-yr	190500.00	481.68	508.9	498.71	510.45	0.000540	10.09	20909.39	2301.23	0.38
Susquehanna	Middle Reach	168.113 Little Wapwallop	25-yr	233000.00	481.68	511.7	500.39	513.38	0.000528	10.55	27049.31	2756.17	0.38
Susquehanna	Middle Reach	168.113 Little Wapwallop	50-yr	265200.00	481.68	513.8	501.61	515.33	0.000492	10.48	34521.53	3046.54	0.36
Susquehanna	Middle Reach	168.113 Little Wapwallop	100-yr	299700.00	481.68	515.6	502.84	517.10	0.000471	10.65	40598.10	3714.20	0.36
Susquehanna	Middle Reach	168.113 Little Wapwallop	500-yr	387000.00	481.68	520.3	505.95	521.65	0.000385	10.54	59213.89	4122.79	0.33
Susquehanna	Middle Reach	168.032	2-yr	115500.00	482.58	502.5	495.90	503.96	0.000733	9.64	12082.69	895.64	0.44
Susquehanna	Middle Reach	168.032	5-yr	159400.00	482.58	506.1	498.06	507.86	0.000711	10.62	16087.33	1547.30	0.43
Susquehanna	Middle Reach	168.032	10-yr	190500.00	482.58	508.4	499.48	510.17	0.000674	11.03	20389.10	2300.48	0.43
Susquehanna	Middle Reach	168.032	25-yr	233000.00	482.58	511.4	501.31	513.13	0.000605	11.13	27896.09	2569.62	0.40
Susquehanna	Middle Reach	168.032	50-yr	265200.00	482.58	513.4	502.68	515.09	0.000576	11.17	33180.36	2685.40	0.39
Susquehanna	Middle Reach	168.032	100-yr	299700.00	482.58	515.2	504.16	516.87	0.000550	11.35	38706.59	3436.17	0.38
Susquehanna	Middle Reach	168.032	500-yr	387000.00	482.58	519.9	508.88	521.46	0.000445	11.22	56831.34	4022.70	0.35
Susquehanna	Middle Reach	167.958	2-yr	115500.00	483.22	502.1	495.84	503.64	0.000820	10.11	11423.69	835.12	0.46
Susquehanna	Middle Reach	167.958	5-yr	159400.00	483.22	505.6	498.04	507.54	0.000823	11.22	14653.07	1744.78	0.46
Susquehanna	Middle Reach	167.958	10-yr	190500.00	483.22	507.7	499.50	509.86	0.000797	11.78	18042.43	2177.41	0.46
Susquehanna	Middle Reach	167.958	25-yr	233000.00	483.22	510.7	501.34	512.83	0.000751	12.17	22927.66	2481.13	0.45
Susquehanna	Middle Reach	167.958	50-yr	265200.00	483.22	512.5	502.66	514.79	0.000747	12.48	26259.45	2782.22	0.44
Susquehanna	Middle Reach	167.958	100-yr	299700.00	483.22	514.9	504.11	516.65	0.000581	11.60	38613.51	3229.50	0.39
Susquehanna	Middle Reach	167.958	500-yr	387000.00	483.22	519.7	508.70	521.29	0.000460	11.40	56365.43	3913.48	0.36
Susquehanna	Middle Reach	167.883	2-yr	115500.00	483.44	501.9	495.29	503.29	0.000726	9.45	12223.15	833.50	0.43
Susquehanna	Middle Reach	167.883	5-yr	159400.00	483.44	505.5	497.43	507.16	0.000707	10.36	16361.65	1551.10	0.43
Susquehanna	Middle Reach	167.883	10-yr	190500.00	483.44	507.7	498.81	509.48	0.000670	10.81	20035.14	1769.05	0.42
Susquehanna	Middle Reach	167.883	25-yr	233000.00	483.44	510.6	500.57	512.46	0.000623	11.15	25220.40	2145.60	0.41
Susquehanna	Middle Reach	167.883	50-yr	265200.00	483.44	512.5	501.85	514.42	0.000619	11.46	28709.94	2397.86	0.40
Susquehanna	Middle Reach	167.883	100-yr	299700.00	483.44	514.6	503.31	516.43	0.000560	11.44	35178.21	2595.45	0.39
Susquehanna	Middle Reach	167.883	500-yr	387000.00	483.44	519.3	507.49	521.09	0.000481	11.67	48676.65	3094.05	0.36
Susquehanna	Middle Reach	167.805	2-yr	115500.00	483.67	501.8	494.63	502.96	0.000611	8.79	13134.06	869.40	0.40
Susquehanna	Middle Reach	167.805	5-yr	159400.00	483.67	505.4	496.65	506.85	0.000598	9.74	17108.93	1506.11	0.40
Susquehanna	Middle Reach	167.805	10-yr	190500.00	483.67	507.6	497.97	509.18	0.000580	10.26	21058.35	2226.73	0.40
Susquehanna	Middle Reach	167.805	25-yr	233000.00	483.67	510.5	499.67	512.17	0.000537	10.54	28528.32	2613.05	0.38
Susquehanna	Middle Reach	167.805	50-yr	265200.00	483.67	512.5	500.87	514.12	0.000527	10.76	33663.05	2699.50	0.37
Susquehanna	Middle Reach	167.805	100-yr	299700.00	483.67	514.5	502.14	516.17	0.000490	10.87	39475.70	2927.48	0.36
Susquehanna	Middle Reach	167.805	500-yr	387000.00	483.67	519.3	505.60	520.86	0.000424	11.12	54189.02	3314.83	0.34
Susquehanna	Middle Reach	167.729	2-yr	115500.00	483.90	501.6	494.06	502.70	0.000543	8.36	13819.17	921.82	0.38
Susquehanna	Middle Reach	167.729	5-yr	159400.00	483.90	505.3	496.05	506.58	0.000533	9.22	18504.05	1759.26	0.38
Susquehanna	Middle Reach	167.729	10-yr	190500.00	483.90	507.5	497.34	508.90	0.000512	9.64	22438.02	1972.65	0.37
Susquehanna	Middle Reach	167.729	25-yr	233000.00	483.90	510.5	498.99	511.92	0.000479	9.95	29040.41	2436.57	0.36

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	167.729	50-yr	265200.00	483.90	512.4	500.16	513.87	0.000475	10.20	33809.08	2540.40	0.35
Susquehanna	Middle Reach	167.729	100-yr	299700.00	483.90	514.5	501.38	515.94	0.000446	10.36	39366.29	2822.53	0.35
Susquehanna	Middle Reach	167.729	500-yr	387000.00	483.90	519.2	504.98	520.67	0.000391	10.66	54038.78	3300.89	0.33
Susquehanna	Middle Reach	167.650	2-yr	115500.00	484.14	501.3	494.05	502.46	0.000603	8.74	13215.64	876.15	0.40
Susquehanna	Middle Reach	167.650	5-yr	159400.00	484.14	504.9	496.04	506.33	0.000623	9.59	17753.63	1816.66	0.40
Susquehanna	Middle Reach	167.650	10-yr	190500.00	484.14	507.2	497.39	508.67	0.000584	9.97	21694.99	2019.71	0.39
Susquehanna	Middle Reach	167.650	25-yr	233000.00	484.14	510.2	499.08	511.71	0.000527	10.15	29093.56	2694.11	0.37
Susquehanna	Middle Reach	167.650	50-yr	265200.00	484.14	512.2	500.31	513.67	0.000513	10.34	34529.21	2871.81	0.37
Susquehanna	Middle Reach	167.650	100-yr	299700.00	484.14	514.3	501.57	515.75	0.000467	10.38	40825.33	3079.73	0.35
Susquehanna	Middle Reach	167.650	500-yr	387000.00	484.14	519.1	505.75	520.48	0.000391	10.48	56803.94	3500.25	0.33
Susquehanna	Middle Reach	167.572	2-yr	115500.00	484.05	501.0	493.76	502.22	0.000593	8.74	13220.51	885.60	0.39
Susquehanna	Middle Reach	167.572	5-yr	159400.00	484.05	504.6	495.78	506.07	0.000643	9.68	17362.98	1881.01	0.41
Susquehanna	Middle Reach	167.572	10-yr	190500.00	484.05	506.9	497.09	508.42	0.000620	10.08	21158.74	2082.88	0.40
Susquehanna	Middle Reach	167.572	25-yr	233000.00	484.05	509.8	498.79	511.47	0.000581	10.45	26208.46	2450.91	0.39
Susquehanna	Middle Reach	167.572	50-yr	265200.00	484.05	512.0	500.02	513.46	0.000524	10.31	34271.08	2824.39	0.37
Susquehanna	Middle Reach	167.572	100-yr	299700.00	484.05	514.1	501.25	515.56	0.000478	10.36	40623.34	3092.25	0.36
Susquehanna	Middle Reach	167.572	500-yr	387000.00	484.05	518.9	505.46	520.32	0.000403	10.51	56543.03	3511.61	0.33
Susquehanna	Middle Reach	167.494	2-yr	115500.00	483.18	500.9	493.38	501.95	0.000533	8.26	14115.29	1046.66	0.37
Susquehanna	Middle Reach	167.494	5-yr	159400.00	483.18	504.5	495.30	505.79	0.000539	9.16	18259.76	1483.94	0.38
Susquehanna	Middle Reach	167.494	10-yr	190500.00	483.18	506.7	496.60	508.16	0.000531	9.65	21612.26	1790.90	0.38
Susquehanna	Middle Reach	167.494	25-yr	233000.00	483.18	509.7	498.22	511.23	0.000512	10.14	26443.48	2516.14	0.37
Susquehanna	Middle Reach	167.494	50-yr	265200.00	483.18	511.7	499.39	513.25	0.000496	10.31	33294.55	2966.92	0.36
Susquehanna	Middle Reach	167.494	100-yr	299700.00	483.18	513.8	500.63	515.36	0.000459	10.42	40018.06	3105.39	0.35
Susquehanna	Middle Reach	167.494	500-yr	387000.00	483.18	518.6	503.70	520.15	0.000397	10.68	55626.25	3392.98	0.33
Susquehanna	Middle Reach	167.416	2-yr	115500.00	482.50	500.9	491.92	501.69	0.000354	7.00	16854.95	1135.37	0.31
Susquehanna	Middle Reach	167.416	5-yr	159400.00	482.50	504.6	493.74	505.51	0.000362	7.86	21356.23	1613.05	0.31
Susquehanna	Middle Reach	167.416	10-yr	190500.00	482.50	506.8	494.93	507.88	0.000364	8.39	24594.77	2286.22	0.32
Susquehanna	Middle Reach	167.416	25-yr	233000.00	482.50	509.7	496.45	510.96	0.000367	8.94	29068.25	2676.88	0.32
Susquehanna	Middle Reach	167.416	50-yr	265200.00	482.50	511.8	497.56	512.97	0.000355	9.06	37926.29	2935.33	0.31
Susquehanna	Middle Reach	167.416	100-yr	299700.00	482.50	513.9	498.70	515.11	0.000336	9.23	44961.07	3122.20	0.30
Susquehanna	Middle Reach	167.416	500-yr	387000.00	482.50	518.7	501.33	519.93	0.000305	9.62	60607.77	3405.60	0.29
Susquehanna	Middle Reach	167.336	2-yr	115500.00	480.57	500.9	490.42	501.52	0.000257	6.23	18959.54	1180.02	0.26
Susquehanna	Middle Reach	167.336	5-yr	159400.00	480.57	504.6	492.30	505.32	0.000285	7.04	23773.57	1657.56	0.28
Susquehanna	Middle Reach	167.336	10-yr	190500.00	480.57	506.8	493.47	507.68	0.000286	7.51	27249.99	2402.16	0.28
Susquehanna	Middle Reach	167.336	25-yr	233000.00	480.57	509.8	494.94	510.74	0.000278	7.88	35966.68	2835.94	0.28
Susquehanna	Middle Reach	167.336	50-yr	265200.00	480.57	511.8	496.01	512.78	0.000282	8.16	41288.13	3000.15	0.28
Susquehanna	Middle Reach	167.336	100-yr	299700.00	480.57	513.9	497.10	514.92	0.000269	8.34	48700.66	3068.24	0.27
Susquehanna	Middle Reach	167.336	500-yr	387000.00	480.57	518.7	499.64	519.76	0.000251	8.82	63644.19	3178.24	0.27
Susquehanna	Middle Reach	167.259	2-yr	115500.00	480.00	500.8	489.56	501.42	0.000231	6.08	19301.27	1198.79	0.25
Susquehanna	Middle Reach	167.259	5-yr	159400.00	480.00	504.5	491.46	505.21	0.000252	6.97	23601.00	1387.55	0.26
Susquehanna	Middle Reach	167.259	10-yr	190500.00	480.00	506.7	492.66	507.57	0.000262	7.52	26308.39	1964.01	0.27
Susquehanna	Middle Reach	167.259	25-yr	233000.00	480.00	509.6	494.15	510.62	0.000278	8.17	29932.13	2586.24	0.28
Susquehanna	Middle Reach	167.259	50-yr	265200.00	480.00	511.7	495.23	512.67	0.000269	8.26	39173.63	2713.77	0.27
Susquehanna	Middle Reach	167.259	100-yr	299700.00	480.00	513.8	496.34	514.81	0.000257	8.43	46191.31	2765.28	0.27
Susquehanna	Middle Reach	167.259	500-yr	387000.00	480.00	518.6	499.01	519.66	0.000244	8.94	59678.85	2875.12	0.26
Susquehanna	Middle Reach	167.179	2-yr	115500.00	479.48	500.6	489.81	501.30	0.000285	6.75	17100.27	948.10	0.28
Susquehanna	Middle Reach	167.179	5-yr	159400.00	479.48	504.1	491.81	505.07	0.000329	7.76	20542.61	1015.00	0.30
Susquehanna	Middle Reach	167.179	10-yr	190500.00	479.48	506.3	493.10	507.42	0.000343	8.38	22784.21	1527.03	0.31
Susquehanna	Middle Reach	167.179	25-yr	233000.00	479.48	509.3	494.71	510.48	0.000341	8.86	29606.49	2399.98	0.31
Susquehanna	Middle Reach	167.179	50-yr	265200.00	479.48	511.3	495.86	512.52	0.000346	9.16	34378.10	2416.70	0.31
Susquehanna	Middle Reach	167.179	100-yr	299700.00	479.48	513.4	497.04	514.67	0.000332	9.38	39571.56	2465.01	0.30
Susquehanna	Middle Reach	167.179	500-yr	387000.00	479.48	518.2	499.83	519.53	0.000308	9.87	51566.88	2574.36	0.30
Susquehanna	Middle Reach	167.096	2-yr	115500.00	479.11	500.3	490.21	501.15	0.000346	7.41	15596.84	868.80	0.31
Susquehanna	Middle Reach	167.096	5-yr	159400.00	479.11	503.8	492.27	504.90	0.000389	8.56	18633.73	885.46	0.33
Susquehanna	Middle Reach	167.096	10-yr	190500.00	479.11	505.9	493.60	507.24	0.000412	9.29	20588.16	1523.36	0.34
Susquehanna	Middle Reach	167.096	25-yr	233000.00	479.11	508.7	495.29	510.27	0.000439	10.10	24067.75	2202.53	0.35
Susquehanna	Middle Reach	167.096	50-yr	265200.00	479.11	510.8	496.49	512.33	0.000423	10.21	31202.79	2252.29	0.34
Susquehanna	Middle Reach	167.096	100-yr	299700.00	479.11	512.9	497.74	514.49	0.000405	10.44	36004.98	2284.38	0.33
Susquehanna	Middle Reach	167.096	500-yr	387000.00	479.11	517.7	500.70	519.36	0.000376	10.97	47068.97	2329.22	0.33
Susquehanna	Middle Reach	167.027	2-yr	115500.00	478.22	500.0	490.16	501.00	0.000389	7.92	14588.11	800.38	0.33
Susquehanna	Middle Reach	167.027	5-yr	159400.00	478.22	503.4	492.32	504.73	0.000456	9.20	17328.86	982.65	0.35
Susquehanna	Middle Reach	167.027	10-yr	190500.00	478.22	505.5	493.71	507.06	0.000494	9.99	19091.36	1200.50	0.37
Susquehanna	Middle Reach	167.027	25-yr	233000.00	478.22	508.2	495.49	510.08	0.000528	10.88	22018.88	1803.98	0.38
Susquehanna	Middle Reach	167.027	50-yr	265200.00	478.22	510.2	496.77	512.12	0.000537	11.27	27625.57	2062.68	0.38
Susquehanna	Middle Reach	167.027	100-yr	299700.00	478.22	512.3	498.09	514.28	0.000524	11.64	31899.08	2067.77	0.38
Susquehanna	Middle Reach	167.027	500-yr	387000.00	478.22	516.9	501.21	519.15	0.000504	12.46	41606.26	2104.42	0.38
Susquehanna	Middle Reach	166.953	2-yr	115500.00	477.30	500.0	489.17	500.83	0.000324	7.41	15588.68	893.44	0.30
Susquehanna	Middle Reach	166.953	5-yr	159400.00	477.30	503.4	491.32	504.53	0.000387	8.66	18410.57	1011.28	0.33
Susquehanna	Middle Reach	166.953	10-yr	190500.00	477.30	505.5	492.70	506.83	0.000417	9.43	20313.93	1426.02	0.34
Susquehanna	Middle Reach	166.953	25-yr	233000.00	477.30	508.3	494.46	509.81	0.000433	10.12	26216.48	1883.76	0.35
Susquehanna	Middle Reach	166.953	50-yr	265200.00	477.30	510.2	495.73	511.86	0.000449	10.56	29875.56	1906.26	0.35
Susquehanna	Middle Reach	166.953	100-yr	299700.00	477.30	512.3	496.99	514.02	0.000442	10.93	33892.38	1944.80	0.35
Susquehanna	Middle Reach	166.953	500-yr	387000.00	477.30	516.9	500.05	518.90	0.000432	11.75	43159.58	1999.09	0.35
Susquehanna	Middle Reach	166.873	2-yr	115500.00	476.24	499.7	490.25	500.67	0.000406	7.87	14673.78	941.66	0.33
Susquehanna	Middle Reach	166.873	5-yr	159400.00	476.24	503.1	492.35	504.34	0.000487	9.08	17555.37	1054.98	0.36
Susquehanna	Middle Reach	166.873	10-yr	190500.00	476.24	505.1	493.72	506.63	0.000514	9.79	19521.94	1290.58	0.37
Susquehanna	Middle Reach	166.873	25-yr	233000.00	476.24	508.0	495.47	509.61	0.000505	10.32	25593.93	1802.51	0.37
Susquehanna	Middle Reach	166.873	50-yr	265200.00	476.24	509.9	496.72	511.66	0.000515	10.72	29127.47	1842.82	0.37
Susquehanna	Middle Reach	166.873	100-yr	299700.00	476.24	512.0	498.01	513.83	0.000495	11.02	33037.33	1883.21	0.37
Susquehanna	Middle Reach	166.873	500-yr	387000.00	476.24	516.7	501.05	518.71	0.000469	11.76	42020.62	1925.45	0.36
Susquehanna	Middle Reach	166.800	2-yr	115500.00	475.21	499.7	489.32	500.47	0.000301	6.89	16767.76	1037.55	0.29
Susquehanna	Middle Reach	166.800	5-yr	159400.00	475.21	503.1	491.27	504.09	0.000374	7.97	20042.44	1447.86	0.32
Susquehanna	Middle Reach	166.800	10-yr	190500.00	475.21	505.2	492.51	506.36	0.000390	8.59	22492.36	2038.32	0.33
Susquehanna	Middle Reach	166.800	25-yr	233000.00	475.21	508.1	494.13	509.34	0.000385	9.05	28999.49	2214.42	0.32
Susquehanna	Middle Reach	166.800	50-yr	265200.00	475.21	510.0	495.29	511.37	0.000396	9.45	32440.57	2272.89	0.32
Susquehanna	Middle Reach	166.800	100-yr	299700.00	475.21	512.1	496.46	513.55	0.000386	9.78	36257.64	2331.02	0.32
Susquehanna	Middle Reach	166.800	500-yr	387000.00	475.21	516.8	499.27	518.45	0.000376	10.57	44994.53	2656.58	0.32
Susquehanna	Middle Reach	166.720	2-yr	115500.00	474.10	499.6	489.26	500.32	0.000349	6.66	17330.01	1441.72	0.30

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	166.720	5-yr	159400.00	474.10	503.0	491.88	503.90	0.000364	7.50	21311.09	2136.38	0.31
Susquehanna	Middle Reach	166.720	10-yr	190500.00	474.10	505.2	493.25	506.16	0.000365	8.01	24146.37	2688.38	0.31
Susquehanna	Middle Reach	166.720	25-yr	233000.00	474.10	508.0	494.97	509.14	0.000361	8.50	29165.54	2819.78	0.31
Susquehanna	Middle Reach	166.720	50-yr	265200.00	474.10	510.0	496.07	511.17	0.000370	8.87	32365.78	2842.46	0.31
Susquehanna	Middle Reach	166.720	100-yr	299700.00	474.10	512.1	497.18	513.36	0.000359	9.19	35918.27	2916.96	0.31
Susquehanna	Middle Reach	166.720	500-yr	387000.00	474.10	516.8	499.75	518.26	0.000349	9.96	44137.99	2989.28	0.31
Susquehanna	Middle Reach	166.644 Wapwallopen Crk	2-yr	115900.00	472.99	499.6	488.17	500.18	0.000250	6.18	18754.61	1074.92	0.26
Susquehanna	Middle Reach	166.644 Wapwallopen Crk	5-yr	159900.00	472.99	503.0	490.11	503.75	0.000284	7.12	22690.66	1308.81	0.28
Susquehanna	Middle Reach	166.644 Wapwallopen Crk	10-yr	191100.00	472.99	505.1	491.35	506.00	0.000297	7.68	25515.76	1502.94	0.29
Susquehanna	Middle Reach	166.644 Wapwallopen Crk	25-yr	235100.00	472.99	507.9	493.01	508.99	0.000310	8.28	30224.57	1601.06	0.29
Susquehanna	Middle Reach	166.644 Wapwallopen Crk	50-yr	265900.00	472.99	509.9	494.09	511.02	0.000318	8.63	33348.52	1614.89	0.29
Susquehanna	Middle Reach	166.644 Wapwallopen Crk	100-yr	300400.00	472.99	512.0	495.28	513.21	0.000313	8.97	36796.64	1654.59	0.29
Susquehanna	Middle Reach	166.644 Wapwallopen Crk	500-yr	387700.00	472.99	516.7	497.97	518.11	0.000313	9.79	44647.71	1687.52	0.30
Susquehanna	Middle Reach	166.567	2-yr	115900.00	471.95	499.3		500.05	0.000334	7.00	16554.59	972.73	0.30
Susquehanna	Middle Reach	166.567	5-yr	159900.00	471.95	502.6		503.59	0.000387	8.04	20138.21	1270.21	0.32
Susquehanna	Middle Reach	166.567	10-yr	191100.00	471.95	504.7		505.84	0.000396	8.62	23010.75	1426.89	0.33
Susquehanna	Middle Reach	166.567	25-yr	235100.00	471.95	507.5		508.82	0.000408	9.27	27091.74	1470.38	0.33
Susquehanna	Middle Reach	166.567	50-yr	265900.00	471.95	509.4		510.84	0.000415	9.63	29949.16	1510.35	0.33
Susquehanna	Middle Reach	166.567	100-yr	300400.00	471.95	511.5		513.03	0.000406	9.98	33145.98	1528.89	0.33
Susquehanna	Middle Reach	166.567	500-yr	387700.00	471.95	516.2		517.94	0.000400	10.84	40338.16	1554.79	0.33
Susquehanna	Middle Reach	166.492	2-yr	115900.00	470.88	499.2	487.62	499.90	0.000266	6.65	17436.38	934.62	0.27
Susquehanna	Middle Reach	166.492	5-yr	159900.00	470.88	502.5	489.63	503.44	0.000317	7.79	20635.53	1147.74	0.30
Susquehanna	Middle Reach	166.492	10-yr	191100.00	470.88	504.6	490.93	505.69	0.000337	8.46	23091.61	1191.45	0.31
Susquehanna	Middle Reach	166.492	25-yr	235100.00	470.88	507.3	492.64	508.67	0.000366	9.26	26524.08	1336.34	0.32
Susquehanna	Middle Reach	166.492	50-yr	265900.00	470.88	509.2	493.76	510.68	0.000384	9.73	28958.55	1383.46	0.32
Susquehanna	Middle Reach	166.492	100-yr	300400.00	470.88	511.3	494.96	512.87	0.000386	10.18	31666.26	1418.76	0.33
Susquehanna	Middle Reach	166.492	500-yr	387700.00	470.88	515.9	498.00	517.76	0.000400	11.26	37796.09	1514.84	0.34
Susquehanna	Middle Reach	166.417	2-yr	115900.00	472.01	499.1	487.99	499.80	0.000271	6.75	17199.29	942.10	0.27
Susquehanna	Middle Reach	166.417	5-yr	159900.00	472.01	502.3	489.96	503.31	0.000320	7.93	20293.96	1132.94	0.30
Susquehanna	Middle Reach	166.417	10-yr	191100.00	472.01	504.4	491.23	505.54	0.000345	8.67	22283.50	1298.77	0.31
Susquehanna	Middle Reach	166.417	25-yr	235100.00	472.01	507.1	492.91	508.51	0.000383	9.57	25033.04	1400.12	0.33
Susquehanna	Middle Reach	166.417	50-yr	265900.00	472.01	508.9	494.03	510.51	0.000408	10.11	26983.05	1454.21	0.33
Susquehanna	Middle Reach	166.417	100-yr	300400.00	472.01	510.9	495.22	512.69	0.000416	10.64	29179.05	1484.03	0.34
Susquehanna	Middle Reach	166.417	500-yr	387700.00	472.01	515.4	498.04	517.57	0.000444	11.90	34323.04	1707.78	0.35
Susquehanna	Middle Reach	166.345	2-yr	115900.00	473.20	499.0		499.68	0.000278	6.58	17607.29	990.28	0.28
Susquehanna	Middle Reach	166.345	5-yr	159900.00	473.20	502.2		503.16	0.000331	7.67	20889.92	1102.91	0.30
Susquehanna	Middle Reach	166.345	10-yr	191100.00	473.20	504.3		505.38	0.000358	8.30	23673.62	1526.11	0.31
Susquehanna	Middle Reach	166.345	25-yr	235100.00	473.20	507.1		508.31	0.000381	8.98	28041.69	1617.72	0.31
Susquehanna	Middle Reach	166.345	50-yr	265900.00	473.20	509.0		510.28	0.000391	9.35	31099.55	1630.70	0.32
Susquehanna	Middle Reach	166.345	100-yr	300400.00	473.20	511.0		512.43	0.000384	9.68	34506.32	1666.84	0.32
Susquehanna	Middle Reach	166.345	500-yr	387700.00	473.20	515.6		517.24	0.000379	10.50	42290.83	1728.04	0.32
Susquehanna	Middle Reach	166.267	2-yr	115900.00	474.40	498.9		499.55	0.000264	6.31	18364.12	1060.15	0.27
Susquehanna	Middle Reach	166.267	5-yr	159900.00	474.40	502.2		503.01	0.000300	7.33	21995.62	1338.96	0.29
Susquehanna	Middle Reach	166.267	10-yr	191100.00	474.40	504.2		505.21	0.000314	7.93	25021.43	1523.60	0.29
Susquehanna	Middle Reach	166.267	25-yr	235100.00	474.40	507.0		508.13	0.000335	8.62	29308.04	1616.16	0.30
Susquehanna	Middle Reach	166.267	50-yr	265900.00	474.40	508.9		510.10	0.000347	9.01	32367.92	1653.12	0.30
Susquehanna	Middle Reach	166.267	100-yr	300400.00	474.40	510.9		512.26	0.000343	9.38	35806.29	1666.39	0.31
Susquehanna	Middle Reach	166.267	500-yr	387700.00	474.40	515.5		517.08	0.000347	10.27	43514.82	1720.48	0.31
Susquehanna	Middle Reach	166.190	2-yr	115900.00	475.58	498.8		499.44	0.000280	6.34	18290.80	1098.70	0.27
Susquehanna	Middle Reach	166.190	5-yr	159900.00	475.58	502.1		502.88	0.000311	7.31	22031.09	1326.40	0.29
Susquehanna	Middle Reach	166.190	10-yr	191100.00	475.58	504.1		505.08	0.000323	7.89	24822.90	1425.28	0.30
Susquehanna	Middle Reach	166.190	25-yr	235100.00	475.58	506.9		507.99	0.000343	8.57	28988.86	1594.98	0.30
Susquehanna	Middle Reach	166.190	50-yr	265900.00	475.58	508.7		509.95	0.000353	8.95	31994.24	1620.64	0.31
Susquehanna	Middle Reach	166.190	100-yr	300400.00	475.58	510.8		512.11	0.000348	9.31	35367.20	1636.96	0.31
Susquehanna	Middle Reach	166.190	500-yr	387700.00	475.58	515.4		516.93	0.000349	10.17	43023.39	1692.72	0.31
Susquehanna	Middle Reach	166.114	2-yr	115900.00	476.76	498.6		499.31	0.000320	6.61	17583.04	1154.40	0.29
Susquehanna	Middle Reach	166.114	5-yr	159900.00	476.76	501.9		502.74	0.000349	7.58	21521.21	1324.36	0.31
Susquehanna	Middle Reach	166.114	10-yr	191100.00	476.76	503.9		504.94	0.000358	8.14	24352.48	1437.17	0.31
Susquehanna	Middle Reach	166.114	25-yr	235100.00	476.76	506.6		507.84	0.000375	8.81	28383.66	1537.58	0.32
Susquehanna	Middle Reach	166.114	50-yr	265900.00	476.76	508.5		509.80	0.000385	9.19	31278.87	1572.11	0.32
Susquehanna	Middle Reach	166.114	100-yr	300400.00	476.76	510.6		511.96	0.000377	9.54	34573.64	1598.35	0.32
Susquehanna	Middle Reach	166.114	500-yr	387700.00	476.76	515.2		516.78	0.000374	10.40	42074.48	1685.16	0.32
Susquehanna	Middle Reach	166.041	2-yr	115900.00	477.77	498.4		499.17	0.000377	6.93	16723.02	1102.49	0.31
Susquehanna	Middle Reach	166.041	5-yr	159900.00	477.77	501.6		502.59	0.000402	7.89	20291.36	1143.70	0.33
Susquehanna	Middle Reach	166.041	10-yr	191100.00	477.77	503.7		504.78	0.000410	8.47	22757.44	1277.37	0.33
Susquehanna	Middle Reach	166.041	25-yr	235100.00	477.77	506.4		507.67	0.000425	9.15	26561.78	1488.10	0.34
Susquehanna	Middle Reach	166.041	50-yr	265900.00	477.77	508.2		509.63	0.000433	9.53	29369.55	1542.87	0.34
Susquehanna	Middle Reach	166.041	100-yr	300400.00	477.77	510.3		511.80	0.000422	9.87	32615.21	1579.44	0.34
Susquehanna	Middle Reach	166.041	500-yr	387700.00	477.77	514.9		516.61	0.000414	10.74	40000.29	1684.48	0.34
Susquehanna	Middle Reach	165.964	2-yr	115900.00	476.88	498.5		499.00	0.000208	5.87	19738.24	1066.72	0.24
Susquehanna	Middle Reach	165.964	5-yr	159900.00	476.88	501.7		502.39	0.000249	6.89	23441.31	1260.61	0.26
Susquehanna	Middle Reach	165.964	10-yr	191100.00	476.88	503.7		504.57	0.000268	7.49	26114.78	1348.65	0.27
Susquehanna	Middle Reach	165.964	25-yr	235100.00	476.88	506.4		507.45	0.000292	8.21	29890.17	1425.04	0.28
Susquehanna	Middle Reach	165.964	50-yr	265900.00	476.88	508.3		509.40	0.000307	8.64	32593.48	1484.84	0.29
Susquehanna	Middle Reach	165.964	100-yr	300400.00	476.88	510.3		511.58	0.000308	9.03	35710.05	1518.81	0.29
Susquehanna	Middle Reach	165.964	500-yr	387700.00	476.88	514.9		516.39	0.000318	9.99	42889.54	1629.13	0.30
Susquehanna	Middle Reach	165.893	2-yr	115900.00	478.93	498.2		498.88	0.000321	6.73	17210.39	1048.96	0.29
Susquehanna	Middle Reach	165.893	5-yr	159900.00	478.93	501.3		502.26	0.000362	7.79	20549.47	1143.65	0.31
Susquehanna	Middle Reach	165.893	10-yr	191100.00	478.93	503.3		504.43	0.000380	8.42	23075.52	1312.89	0.32
Susquehanna	Middle Reach	165.893	25-yr	235100.00	478.93	506.0		507.30	0.000404	9.17	26739.61	1419.86	0.33
Susquehanna	Middle Reach	165.893	50-yr	265900.00	478.93	507.8		509.24	0.000419	9.60	29377.53	1467.19	0.33
Susquehanna	Middle Reach	165.893	100-yr	300400.00	478.93	509.9		511.41	0.000413	9.99	32424.05	1486.16	0.33
Susquehanna	Middle Reach	165.893	500-yr	387700.00	478.93	514.4		516.22	0.000417	10.98	39337.30	1571.92	0.34
Susquehanna	Middle Reach	165.821	2-yr	115900.00	478.87	497.8		498.72	0.000430	7.68	15098.02	943.79	0.34
Susquehanna	Middle Reach	165.821	5-yr	159900.00	478.87	500.8		502.07	0.000500	8.88	18007.27	976.58	0.36
Susquehanna	Middle Reach	165.821	10-yr	191100.00	478.87	502.8		504.22	0.000525	9.57	20119.87	1153.71	0.38
Susquehanna	Middle Reach	165.821	25-yr	235100.00	478.87	505.4		507.08	0.000552	10.34	23462.43	1380.18	0.39
Susquehanna	Middle Reach	165.821	50-yr	265900.00	478.87	507.2		509.02	0.000566	10.75	25987.66	1407.84	0.39
Susquehanna	Middle Reach	165.821	100-yr	300400.00	478.87	509.3		511.19	0.000551	11.11	28940.72	1445.19	0.39

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	165.821	500-yr	387700.00	478.87	513.8		516.00	0.000544	12.05	35575.32	1519.25	0.39
Susquehanna	Middle Reach	165.744	2-yr	115900.00	481.48	497.2		498.47	0.000681	8.87	13062.49	926.68	0.42
Susquehanna	Middle Reach	165.744	5-yr	159900.00	481.48	500.2		501.79	0.000740	10.10	15824.44	947.34	0.44
Susquehanna	Middle Reach	165.744	10-yr	191100.00	481.48	502.1		503.93	0.000758	10.83	17749.88	1088.93	0.44
Susquehanna	Middle Reach	165.744	25-yr	235100.00	481.48	504.7		506.77	0.000777	11.66	20821.89	1299.47	0.45
Susquehanna	Middle Reach	165.744	50-yr	265900.00	481.48	506.4		508.70	0.000785	12.11	23162.09	1341.57	0.45
Susquehanna	Middle Reach	165.744	100-yr	300400.00	481.48	508.5		510.89	0.000748	12.48	25979.89	1401.83	0.44
Susquehanna	Middle Reach	165.744	500-yr	387700.00	481.48	513.0		515.70	0.000714	13.46	32415.26	1468.63	0.44
Susquehanna	Middle Reach	165.669	2-yr	115900.00	480.70	497.0		498.19	0.000683	8.79	13183.73	950.09	0.42
Susquehanna	Middle Reach	165.669	5-yr	159900.00	480.70	499.9		501.48	0.000730	10.00	15993.77	973.98	0.43
Susquehanna	Middle Reach	165.669	10-yr	191100.00	480.70	501.8		503.62	0.000738	10.71	18016.27	1164.67	0.44
Susquehanna	Middle Reach	165.669	25-yr	235100.00	480.70	504.4		506.45	0.000755	11.52	21434.95	1423.89	0.44
Susquehanna	Middle Reach	165.669	50-yr	265900.00	480.70	506.2		508.37	0.000760	11.95	24008.81	1457.67	0.44
Susquehanna	Middle Reach	165.669	100-yr	300400.00	480.70	508.3		510.56	0.000720	12.27	27103.05	1501.28	0.43
Susquehanna	Middle Reach	165.669	500-yr	387700.00	480.70	512.8		515.38	0.000681	13.19	34016.72	1549.52	0.43
Susquehanna	Middle Reach	165.594	2-yr	115900.00	481.48	496.8		497.89	0.000704	8.49	13643.96	1057.75	0.42
Susquehanna	Middle Reach	165.594	5-yr	159900.00	481.48	499.7		501.15	0.000708	9.52	16827.17	1105.42	0.42
Susquehanna	Middle Reach	165.594	10-yr	191100.00	481.48	501.7		503.28	0.000696	10.12	19153.01	1279.91	0.42
Susquehanna	Middle Reach	165.594	25-yr	235100.00	481.48	504.3		506.08	0.000698	10.82	22667.65	1425.54	0.42
Susquehanna	Middle Reach	165.594	50-yr	265900.00	481.48	506.1		508.00	0.000696	11.19	25265.38	1464.16	0.42
Susquehanna	Middle Reach	165.594	100-yr	300400.00	481.48	508.2		510.21	0.000653	11.47	28426.89	1505.89	0.41
Susquehanna	Middle Reach	165.594	500-yr	387700.00	481.48	512.7		515.03	0.000612	12.31	35433.93	1575.51	0.40
Susquehanna	Middle Reach	165.516	2-yr	115900.00	481.32	496.5		497.57	0.000741	8.27	14014.48	1178.13	0.42
Susquehanna	Middle Reach	165.516	5-yr	159900.00	481.32	499.5		500.82	0.000712	9.08	17614.40	1203.73	0.42
Susquehanna	Middle Reach	165.516	10-yr	191100.00	481.32	501.5		502.94	0.000679	9.55	20074.85	1315.54	0.41
Susquehanna	Middle Reach	165.516	25-yr	235100.00	481.32	504.2		505.74	0.000659	10.12	23645.68	1376.87	0.41
Susquehanna	Middle Reach	165.516	50-yr	265900.00	481.32	506.0		507.65	0.000647	10.43	26168.69	1406.77	0.40
Susquehanna	Middle Reach	165.516	100-yr	300400.00	481.32	508.1		509.87	0.000599	10.67	29211.22	1427.79	0.39
Susquehanna	Middle Reach	165.516	500-yr	387700.00	481.32	512.7		514.70	0.000553	11.43	36063.36	1599.05	0.38
Susquehanna	Middle Reach	165.438	2-yr	115900.00	481.48	496.3		497.24	0.000626	7.59	15269.40	1286.99	0.39
Susquehanna	Middle Reach	165.438	5-yr	159900.00	481.48	499.4		500.49	0.000586	8.31	19234.57	1300.75	0.38
Susquehanna	Middle Reach	165.438	10-yr	191100.00	481.48	501.4		502.62	0.000558	8.75	21967.67	1462.11	0.38
Susquehanna	Middle Reach	165.438	25-yr	235100.00	481.48	504.1		505.42	0.000542	9.27	26023.74	1548.85	0.37
Susquehanna	Middle Reach	165.438	50-yr	265900.00	481.48	505.9		507.33	0.000533	9.56	28888.09	1590.16	0.37
Susquehanna	Middle Reach	165.438	100-yr	300400.00	481.48	508.1		509.56	0.000493	9.77	32366.68	1610.66	0.36
Susquehanna	Middle Reach	165.438	500-yr	387700.00	481.48	512.7		514.39	0.000454	10.45	39927.85	1647.02	0.35
Susquehanna	Middle Reach	165.369	2-yr	115900.00	481.48	496.2		496.99	0.000576	7.22	16046.78	1368.69	0.37
Susquehanna	Middle Reach	165.369	5-yr	159900.00	481.48	499.3		500.25	0.000531	7.87	20311.73	1379.83	0.36
Susquehanna	Middle Reach	165.369	10-yr	191100.00	481.48	501.3		502.38	0.000503	8.26	23231.36	1523.59	0.36
Susquehanna	Middle Reach	165.369	25-yr	235100.00	481.48	504.0		505.18	0.000489	8.74	27363.91	1558.84	0.35
Susquehanna	Middle Reach	165.369	50-yr	265900.00	481.48	505.8		507.09	0.000481	9.01	30250.63	1576.86	0.35
Susquehanna	Middle Reach	165.369	100-yr	300400.00	481.48	508.0		509.34	0.000443	9.20	33903.08	1680.48	0.34
Susquehanna	Middle Reach	165.369	500-yr	387700.00	481.48	512.7		514.18	0.000405	9.83	41851.57	1725.37	0.33
Susquehanna	Middle Reach	165.293	2-yr	115900.00	478.77	496.0		496.75	0.000589	7.07	16388.65	1468.51	0.37
Susquehanna	Middle Reach	165.293	5-yr	159900.00	478.77	499.1		500.02	0.000523	7.60	21034.98	1483.15	0.36
Susquehanna	Middle Reach	165.293	10-yr	191100.00	478.77	501.2		502.16	0.000488	7.93	24201.87	1575.61	0.35
Susquehanna	Middle Reach	165.293	25-yr	235100.00	478.77	503.9		504.96	0.000465	8.35	28534.48	1624.49	0.34
Susquehanna	Middle Reach	165.293	50-yr	265900.00	478.77	505.7		506.87	0.000453	8.58	31564.73	1649.05	0.33
Susquehanna	Middle Reach	165.293	100-yr	300400.00	478.77	507.9		509.13	0.000414	8.74	35284.18	1696.73	0.32
Susquehanna	Middle Reach	165.293	500-yr	387700.00	478.77	512.6		513.98	0.000375	9.32	43351.34	1745.50	0.31
Susquehanna	Middle Reach	165.212	2-yr	115900.00	479.49	495.6		496.47	0.000665	7.48	15503.86	1400.62	0.40
Susquehanna	Middle Reach	165.212	5-yr	159900.00	479.49	498.8		499.77	0.000581	8.00	20006.13	1468.82	0.38
Susquehanna	Middle Reach	165.212	10-yr	191100.00	479.49	500.9		501.93	0.000535	8.33	23137.83	1517.79	0.37
Susquehanna	Middle Reach	165.212	25-yr	235100.00	479.49	503.6		504.74	0.000508	8.75	27360.67	1623.21	0.36
Susquehanna	Middle Reach	165.212	50-yr	265900.00	479.49	505.4		506.66	0.000492	8.99	30391.52	1640.77	0.35
Susquehanna	Middle Reach	165.212	100-yr	300400.00	479.49	507.6		508.93	0.000447	9.14	34086.77	1662.90	0.34
Susquehanna	Middle Reach	165.212	500-yr	387700.00	479.49	512.3		513.80	0.000404	9.73	42173.75	1778.10	0.33
Susquehanna	Middle Reach	165.138	2-yr	115900.00	480.13	495.4		496.20	0.000669	7.39	15682.93	1448.81	0.40
Susquehanna	Middle Reach	165.138	5-yr	159900.00	480.13	498.6		499.53	0.000577	7.82	20448.02	1497.14	0.37
Susquehanna	Middle Reach	165.138	10-yr	191100.00	480.13	500.7		501.70	0.000527	8.09	23629.63	1535.80	0.36
Susquehanna	Middle Reach	165.138	25-yr	235100.00	480.13	503.4		504.51	0.000505	8.46	27959.16	1661.25	0.35
Susquehanna	Middle Reach	165.138	50-yr	265900.00	480.13	505.3		506.44	0.000489	8.67	31102.89	1689.86	0.34
Susquehanna	Middle Reach	165.138	100-yr	300400.00	480.13	507.5		508.73	0.000443	8.77	34946.44	1706.49	0.33
Susquehanna	Middle Reach	165.138	500-yr	387700.00	480.13	512.3		513.60	0.000405	9.28	43188.82	1805.83	0.32
Susquehanna	Middle Reach	165.065	2-yr	115900.00	480.74	495.3		495.93	0.000491	6.53	17744.97	1564.12	0.34
Susquehanna	Middle Reach	165.065	5-yr	159900.00	480.74	498.5		499.28	0.000427	6.99	22865.09	1578.81	0.32
Susquehanna	Middle Reach	165.065	10-yr	191100.00	480.74	500.6		501.46	0.000398	7.29	26219.42	1587.39	0.32
Susquehanna	Middle Reach	165.065	25-yr	235100.00	480.74	503.4		504.29	0.000387	7.69	30685.15	1678.06	0.31
Susquehanna	Middle Reach	165.065	50-yr	265900.00	480.74	505.2		506.21	0.000381	7.92	33848.83	1696.61	0.30
Susquehanna	Middle Reach	165.065	100-yr	300400.00	480.74	507.5		508.52	0.000351	8.06	37726.53	1716.64	0.29
Susquehanna	Middle Reach	165.065	500-yr	387700.00	480.74	512.3		513.41	0.000325	8.60	46029.15	1799.96	0.29
Susquehanna	Middle Reach	164.988	2-yr	115900.00	480.61	495.2		495.71	0.000373	5.90	19648.56	1642.35	0.30
Susquehanna	Middle Reach	164.988	5-yr	159900.00	480.61	498.5		499.09	0.000339	6.38	25055.80	1653.97	0.29
Susquehanna	Middle Reach	164.988	10-yr	191100.00	480.61	500.6		501.28	0.000324	6.68	28586.74	1661.00	0.28
Susquehanna	Middle Reach	164.988	25-yr	235100.00	480.61	503.3		504.10	0.000326	7.09	33172.54	1699.73	0.28
Susquehanna	Middle Reach	164.988	50-yr	265900.00	480.61	505.2		506.03	0.000324	7.32	36370.75	1707.27	0.28
Susquehanna	Middle Reach	164.988	100-yr	300400.00	480.61	507.5		508.34	0.000301	7.48	40275.14	1714.39	0.27
Susquehanna	Middle Reach	164.988	500-yr	387700.00	480.61	512.2		513.24	0.000281	8.03	48687.52	1837.79	0.26
Susquehanna	Middle Reach	164.911	2-yr	115900.00	480.70	495.0		495.56	0.000391	6.02	19263.28	1617.56	0.31
Susquehanna	Middle Reach	164.911	5-yr	159900.00	480.70	498.3		498.94	0.000355	6.49	24619.27	1636.26	0.30
Susquehanna	Middle Reach	164.911	10-yr	191100.00	480.70	500.4		501.14	0.000346	6.79	28133.49	1654.92	0.29
Susquehanna	Middle Reach	164.911	25-yr	235100.00	480.70	503.2		503.96	0.000342	7.19	32743.17	1698.17	0.29
Susquehanna	Middle Reach	164.911	50-yr	265900.00	480.70	505.0		505.89	0.000340	7.42	35944.49	1708.97	0.28
Susquehanna	Middle Reach	164.911	100-yr	300400.00	480.70	507.3		508.22	0.000316	7.57	39899.15	1741.73	0.27
Susquehanna	Middle Reach	164.911	500-yr	387700.00	480.70	512.1		513.12	0.000302	8.10	48389.35	1828.21	0.27
Susquehanna	Middle Reach	164.840	2-yr	115900.00	480.06	494.7		495.37	0.000544	6.75	17165.85	1552.80	0.36
Susquehanna	Middle Reach	164.840	5-yr	159900.00	480.06	498.0		498.77	0.000472	7.14	22408.92	1597.05	0.34
Susquehanna	Middle Reach	164.840	10-yr	191100.00	480.06	500.1		500.98	0.000440	7.39	25851.95	1611.05	0.33

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	164.840	25-yr	235100.00	480.06	502.9		503.80	0.000427	7.76	30350.61	1712.06	0.32
Susquehanna	Middle Reach	164.840	50-yr	265900.00	480.06	504.8		505.74	0.000413	7.97	33607.15	1744.11	0.31
Susquehanna	Middle Reach	164.840	100-yr	300400.00	480.06	507.1		508.08	0.000371	8.08	37684.04	1782.01	0.30
Susquehanna	Middle Reach	164.840	500-yr	387700.00	480.06	511.8		512.99	0.000333	8.59	46537.79	1904.72	0.29
Susquehanna	Middle Reach	164.763	2-yr	115900.00	480.41	494.5		495.15	0.000384	6.22	18624.21	1466.14	0.31
Susquehanna	Middle Reach	164.763	5-yr	159900.00	480.41	497.9		498.58	0.000377	6.78	23572.24	1515.16	0.30
Susquehanna	Middle Reach	164.763	10-yr	191100.00	480.41	500.0		500.79	0.000388	7.12	26954.48	1666.42	0.30
Susquehanna	Middle Reach	164.763	25-yr	235100.00	480.41	502.7		503.62	0.000383	7.54	31771.81	1797.67	0.30
Susquehanna	Middle Reach	164.763	50-yr	265900.00	480.41	504.6		505.56	0.000376	7.77	35189.61	1827.56	0.29
Susquehanna	Middle Reach	164.763	100-yr	300400.00	480.41	507.0		507.91	0.000343	7.91	39482.02	1863.78	0.28
Susquehanna	Middle Reach	164.763	500-yr	387700.00	480.41	511.7		512.84	0.000315	8.45	48783.63	1975.28	0.28
Susquehanna	Middle Reach	164.692	2-yr	115900.00	479.79	494.4	487.08	495.01	0.000371	6.22	18624.98	1430.38	0.30
Susquehanna	Middle Reach	164.692	5-yr	159900.00	479.79	497.7	488.53	498.44	0.000364	6.82	23441.86	1470.65	0.30
Susquehanna	Middle Reach	164.692	10-yr	191100.00	479.79	499.8	489.49	500.65	0.000359	7.19	26592.09	1537.73	0.30
Susquehanna	Middle Reach	164.692	25-yr	235100.00	479.79	502.6	490.74	503.48	0.000366	7.66	31145.69	1773.47	0.30
Susquehanna	Middle Reach	164.692	50-yr	265900.00	479.79	504.4	491.56	505.42	0.000363	7.92	34534.01	1819.93	0.29
Susquehanna	Middle Reach	164.692	100-yr	300400.00	479.79	506.8	492.45	507.78	0.000333	8.07	38828.32	1860.00	0.29
Susquehanna	Middle Reach	164.692	500-yr	387700.00	479.79	511.6	494.55	512.72	0.000308	8.65	48091.84	1993.41	0.28
Susquehanna	Middle Reach	164.614	2-yr	115900.00	479.50	494.3		494.85	0.000349	6.02	19267.05	1486.12	0.29
Susquehanna	Middle Reach	164.614	5-yr	159900.00	479.50	497.6		498.28	0.000333	6.60	24242.79	1507.50	0.29
Susquehanna	Middle Reach	164.614	10-yr	191100.00	479.50	499.7		500.49	0.000333	6.95	27530.61	1671.32	0.29
Susquehanna	Middle Reach	164.614	25-yr	235100.00	479.50	502.5		503.31	0.000340	7.41	32317.79	1800.91	0.29
Susquehanna	Middle Reach	164.614	50-yr	265900.00	479.50	504.3		505.25	0.000340	7.66	35720.10	1811.14	0.29
Susquehanna	Middle Reach	164.614	100-yr	300400.00	479.50	506.7		507.63	0.000314	7.81	40006.63	1869.40	0.28
Susquehanna	Middle Reach	164.614	500-yr	387700.00	479.50	511.5		512.57	0.000291	8.37	49423.85	2028.38	0.27
Susquehanna	Middle Reach	164.540	2-yr	115900.00	478.32	494.2		494.70	0.000300	5.70	20324.78	1514.48	0.27
Susquehanna	Middle Reach	164.540	5-yr	159900.00	478.32	497.5		498.14	0.000301	6.30	25392.79	1539.51	0.27
Susquehanna	Middle Reach	164.540	10-yr	191100.00	478.32	499.7		500.35	0.000304	6.66	28798.52	1756.10	0.27
Susquehanna	Middle Reach	164.540	25-yr	235100.00	478.32	502.4		503.17	0.000307	7.12	33678.99	1804.03	0.27
Susquehanna	Middle Reach	164.540	50-yr	265900.00	478.32	504.3		505.10	0.000309	7.37	37085.65	1814.67	0.27
Susquehanna	Middle Reach	164.540	100-yr	300400.00	478.32	506.6		507.49	0.000288	7.54	41399.68	1870.21	0.26
Susquehanna	Middle Reach	164.540	500-yr	387700.00	478.32	511.4		512.44	0.000275	8.10	50624.56	1951.28	0.26
Susquehanna	Middle Reach	164.462	2-yr	115900.00	477.73	494.1		494.57	0.000273	5.49	21102.74	1551.12	0.26
Susquehanna	Middle Reach	164.462	5-yr	159900.00	477.73	497.4		498.01	0.000264	6.07	26650.50	1711.93	0.26
Susquehanna	Middle Reach	164.462	10-yr	191100.00	477.73	499.6		500.22	0.000258	6.43	30373.93	1775.28	0.26
Susquehanna	Middle Reach	164.462	25-yr	235100.00	477.73	502.3		503.03	0.000264	6.89	35227.67	1791.46	0.26
Susquehanna	Middle Reach	164.462	50-yr	265900.00	477.73	504.2		504.97	0.000268	7.15	38612.01	1806.30	0.26
Susquehanna	Middle Reach	164.462	100-yr	300400.00	477.73	506.5		507.37	0.000251	7.32	42922.63	1843.91	0.25
Susquehanna	Middle Reach	164.462	500-yr	387700.00	477.73	511.4		512.32	0.000244	7.92	52054.83	1934.93	0.25
Susquehanna	Middle Reach	164.386	2-yr	115900.00	477.80	493.9		494.45	0.000309	5.77	20101.06	1508.47	0.28
Susquehanna	Middle Reach	164.386	5-yr	159900.00	477.80	497.3		497.89	0.000296	6.36	25198.19	1571.06	0.28
Susquehanna	Middle Reach	164.386	10-yr	191100.00	477.80	499.4		500.10	0.000288	6.72	28584.12	1631.38	0.27
Susquehanna	Middle Reach	164.386	25-yr	235100.00	477.80	502.1		502.91	0.000291	7.21	33238.81	1789.13	0.28
Susquehanna	Middle Reach	164.386	50-yr	265900.00	477.80	504.0		504.85	0.000291	7.48	36614.53	1811.10	0.27
Susquehanna	Middle Reach	164.386	100-yr	300400.00	477.80	506.4		507.25	0.000269	7.64	41016.75	1881.59	0.27
Susquehanna	Middle Reach	164.386	500-yr	387700.00	477.80	511.2		512.21	0.000254	8.23	50291.52	1975.02	0.26
Susquehanna	Middle Reach	164.314	2-yr	115900.00	477.87	493.7		494.30	0.000412	6.38	18220.34	1485.12	0.32
Susquehanna	Middle Reach	164.314	5-yr	159900.00	477.87	497.0		497.75	0.000380	6.92	23323.41	1581.35	0.31
Susquehanna	Middle Reach	164.314	10-yr	191100.00	477.87	499.1		499.97	0.000360	7.25	26800.27	1697.66	0.30
Susquehanna	Middle Reach	164.314	25-yr	235100.00	477.87	501.9		502.78	0.000355	7.71	31557.96	1790.04	0.30
Susquehanna	Middle Reach	164.314	50-yr	265900.00	477.87	503.7		504.72	0.000350	7.95	34981.03	1846.19	0.30
Susquehanna	Middle Reach	164.314	100-yr	300400.00	477.87	506.1		507.13	0.000317	8.07	39433.02	1877.22	0.29
Susquehanna	Middle Reach	164.314	500-yr	387700.00	477.87	511.0		512.10	0.000290	8.62	48630.30	1935.40	0.28
Susquehanna	Middle Reach	164.237	2-yr	115900.00	477.94	493.6		494.11	0.000347	5.73	20212.36	1665.82	0.29
Susquehanna	Middle Reach	164.237	5-yr	159900.00	477.94	497.0		497.55	0.000377	6.14	26053.17	1794.52	0.28
Susquehanna	Middle Reach	164.237	10-yr	191100.00	477.94	499.1		499.76	0.000368	6.37	30001.49	1860.55	0.28
Susquehanna	Middle Reach	164.237	25-yr	235100.00	477.94	501.9		502.57	0.000353	6.71	35110.59	1869.94	0.27
Susquehanna	Middle Reach	164.237	50-yr	265900.00	477.94	503.8		504.50	0.000346	6.90	38658.67	1876.38	0.27
Susquehanna	Middle Reach	164.237	100-yr	300400.00	477.94	506.2		506.93	0.000315	6.99	43188.86	1890.76	0.26
Susquehanna	Middle Reach	164.237	500-yr	387700.00	477.94	511.0		511.90	0.000293	7.44	52578.83	1940.98	0.25
Susquehanna	Middle Reach	164.160	2-yr	115900.00	477.85	493.6		493.96	0.000253	5.11	22693.58	1754.13	0.25
Susquehanna	Middle Reach	164.160	5-yr	159900.00	477.85	496.9		497.39	0.000251	5.57	28717.13	1824.92	0.25
Susquehanna	Middle Reach	164.160	10-yr	191100.00	477.85	499.1		499.60	0.000261	5.83	32758.96	1879.83	0.25
Susquehanna	Middle Reach	164.160	25-yr	235100.00	477.85	501.8		502.41	0.000265	6.20	37943.61	1900.05	0.24
Susquehanna	Middle Reach	164.160	50-yr	265900.00	477.85	503.7		504.35	0.000265	6.40	41552.25	1907.40	0.24
Susquehanna	Middle Reach	164.160	100-yr	300400.00	477.85	506.1		506.79	0.000245	6.51	46172.85	1916.76	0.23
Susquehanna	Middle Reach	164.160	500-yr	387700.00	477.85	511.0		511.76	0.000232	6.98	55656.41	1985.54	0.23
Susquehanna	Middle Reach	164.087	2-yr	115900.00	477.60	493.4		493.85	0.000291	5.34	21706.02	1739.00	0.27
Susquehanna	Middle Reach	164.087	5-yr	159900.00	477.60	496.8		497.27	0.000378	5.73	27933.91	1996.24	0.27
Susquehanna	Middle Reach	164.087	10-yr	191100.00	477.60	498.9		499.48	0.000350	5.93	32319.05	2023.65	0.26
Susquehanna	Middle Reach	164.087	25-yr	235100.00	477.60	501.7		502.30	0.000336	6.23	37953.26	2057.43	0.25
Susquehanna	Middle Reach	164.087	50-yr	265900.00	477.60	503.6		504.23	0.000327	6.39	41875.30	2061.38	0.25
Susquehanna	Middle Reach	164.087	100-yr	300400.00	477.60	506.0		506.68	0.000292	6.46	46896.17	2066.42	0.24
Susquehanna	Middle Reach	164.087	500-yr	387700.00	477.60	510.9		511.66	0.000266	6.87	57031.86	2076.56	0.23
Susquehanna	Middle Reach	164.010	2-yr	115900.00	477.83	493.2		493.70	0.000451	5.54	20905.87	1912.41	0.30
Susquehanna	Middle Reach	164.010	5-yr	159900.00	477.83	496.6		497.11	0.000382	5.84	27449.75	1971.88	0.27
Susquehanna	Middle Reach	164.010	10-yr	191100.00	477.83	498.8		499.34	0.000351	6.04	31793.13	1995.68	0.26
Susquehanna	Middle Reach	164.010	25-yr	235100.00	477.83	501.5		502.16	0.000335	6.34	37329.67	2010.73	0.26
Susquehanna	Middle Reach	164.010	50-yr	265900.00	477.83	503.4		504.10	0.000326	6.51	41168.13	2015.80	0.25
Susquehanna	Middle Reach	164.010	100-yr	300400.00	477.83	505.9		506.56	0.000291	6.57	46108.97	2022.21	0.24
Susquehanna	Middle Reach	164.010	500-yr	387700.00	477.83	510.8		511.54	0.000265	6.99	56047.73	2034.18	0.23
Susquehanna	Middle Reach	163.938	2-yr	115900.00	476.87	493.0		493.52	0.000438	5.98	19375.78	1716.75	0.31
Susquehanna	Middle Reach	163.938	5-yr	159900.00	476.87	496.3		496.95	0.000451	6.30	25481.05	1899.21	0.30
Susquehanna	Middle Reach	163.938	10-yr	191100.00	476.87	498.5		499.18	0.000437	6.46	29762.04	1968.83	0.29
Susquehanna	Middle Reach	163.938	25-yr	235100.00	476.87	501.3		502.01	0.000407	6.73	35253.27	1987.25	0.28
Susquehanna	Middle Reach	163.938	50-yr	265900.00	476.87	503.2		503.95	0.000390	6.88	39063.45	1994.45	0.27
Susquehanna	Middle Reach	163.938	100-yr	300400.00	476.87	505.7		506.43	0.000343	6.91	44000.91	2004.58	0.26
Susquehanna	Middle Reach	163.938	500-yr	387700.00	476.87	510.6		511.43	0.000305	7.31	53903.82	2025.45	0.25

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	163.861	2-yr	115900.00	477.42	492.6		493.27	0.000824	6.45	17964.19	1738.26	0.35
Susquehanna	Middle Reach	163.861	5-yr	159900.00	477.42	496.0		496.70	0.000760	6.62	24137.61	1889.72	0.33
Susquehanna	Middle Reach	163.861	10-yr	191100.00	477.42	498.3		498.95	0.000679	6.73	28409.88	1929.74	0.31
Susquehanna	Middle Reach	163.861	25-yr	235100.00	477.42	501.0		501.80	0.000616	6.95	33827.66	1942.90	0.29
Susquehanna	Middle Reach	163.861	50-yr	265900.00	477.42	503.0		503.75	0.000587	7.08	37580.37	1952.08	0.28
Susquehanna	Middle Reach	163.861	100-yr	300400.00	477.42	505.5		506.25	0.000516	7.07	42488.04	1971.56	0.27
Susquehanna	Middle Reach	163.861	500-yr	387700.00	477.42	510.4		511.27	0.000459	7.41	52324.66	2004.42	0.26
Susquehanna	Middle Reach	163.787	2-yr	115900.00	477.33	492.3		492.97	0.000697	6.78	17098.30	1604.20	0.37
Susquehanna	Middle Reach	163.787	5-yr	159900.00	477.33	495.7		496.43	0.000615	7.03	22741.94	1678.02	0.34
Susquehanna	Middle Reach	163.787	10-yr	191100.00	477.33	497.9		498.71	0.000544	7.21	26507.05	1684.62	0.32
Susquehanna	Middle Reach	163.787	25-yr	235100.00	477.33	500.7		501.57	0.000512	7.53	31213.03	1692.82	0.31
Susquehanna	Middle Reach	163.787	50-yr	265900.00	477.33	502.6		503.53	0.000497	7.72	34464.97	1698.47	0.30
Susquehanna	Middle Reach	163.787	100-yr	300400.00	477.33	505.1		506.05	0.000440	7.75	38746.28	1705.88	0.29
Susquehanna	Middle Reach	163.787	500-yr	387700.00	477.33	510.0		511.09	0.000398	8.22	47181.66	1726.28	0.28
Susquehanna	Middle Reach	163.713	2-yr	115900.00	477.01	492.1		492.71	0.000542	6.49	17854.57	1555.79	0.34
Susquehanna	Middle Reach	163.713	5-yr	159900.00	477.01	495.5		496.21	0.000459	6.89	23203.24	1575.27	0.32
Susquehanna	Middle Reach	163.713	10-yr	191100.00	477.01	497.7		498.51	0.000418	7.14	26854.55	1662.36	0.31
Susquehanna	Middle Reach	163.713	25-yr	235100.00	477.01	500.5		501.39	0.000404	7.53	31669.91	1819.07	0.30
Susquehanna	Middle Reach	163.713	50-yr	265900.00	477.01	502.4		503.35	0.000396	7.74	35189.90	1851.94	0.29
Susquehanna	Middle Reach	163.713	100-yr	300400.00	477.01	505.0		505.90	0.000352	7.80	39937.44	1905.35	0.28
Susquehanna	Middle Reach	163.713	500-yr	387700.00	477.01	509.9		510.95	0.000321	8.28	49496.11	1947.45	0.27
Susquehanna	Middle Reach	163.638	2-yr	115900.00	476.64	491.9		492.51	0.000390	6.23	18616.28	1482.75	0.31
Susquehanna	Middle Reach	163.638	5-yr	159900.00	476.64	495.3		496.04	0.000353	6.74	23722.04	1499.16	0.30
Susquehanna	Middle Reach	163.638	10-yr	191100.00	476.64	497.6		498.36	0.000331	7.04	27351.47	1696.70	0.29
Susquehanna	Middle Reach	163.638	25-yr	235100.00	476.64	500.4		501.24	0.000329	7.48	32237.54	1786.24	0.29
Susquehanna	Middle Reach	163.638	50-yr	265900.00	476.64	502.3		503.21	0.000328	7.72	35678.82	1811.39	0.29
Susquehanna	Middle Reach	163.638	100-yr	300400.00	476.64	504.8		505.77	0.000296	7.81	40328.87	1844.04	0.27
Susquehanna	Middle Reach	163.638	500-yr	387700.00	476.64	509.8		510.82	0.000279	8.37	49562.04	1915.63	0.27
Susquehanna	Middle Reach	163.561	2-yr	115900.00	475.06	491.7		492.34	0.000414	6.54	17725.76	1369.48	0.32
Susquehanna	Middle Reach	163.561	5-yr	159900.00	475.06	495.1		495.88	0.000384	7.13	22426.86	1384.56	0.31
Susquehanna	Middle Reach	163.561	10-yr	191100.00	475.06	497.3		498.21	0.000364	7.48	25558.63	1425.30	0.31
Susquehanna	Middle Reach	163.561	25-yr	235100.00	475.06	500.1		501.08	0.000368	7.99	29626.96	1528.88	0.31
Susquehanna	Middle Reach	163.561	50-yr	265900.00	475.06	502.0		503.05	0.000371	8.27	32605.80	1660.65	0.31
Susquehanna	Middle Reach	163.561	100-yr	300400.00	475.06	504.5		505.62	0.000333	8.38	37016.73	1785.90	0.29
Susquehanna	Middle Reach	163.561	500-yr	387700.00	475.06	509.4		510.69	0.000309	8.99	45900.51	1830.32	0.29
Susquehanna	Middle Reach	163.486	2-yr	115900.00	475.54	491.5		492.17	0.000412	6.66	17392.32	1302.67	0.32
Susquehanna	Middle Reach	163.486	5-yr	159900.00	475.54	494.9		495.72	0.000392	7.31	21866.58	1330.81	0.32
Susquehanna	Middle Reach	163.486	10-yr	191100.00	475.54	497.1		498.06	0.000373	7.69	25024.82	1432.35	0.31
Susquehanna	Middle Reach	163.486	25-yr	235100.00	475.54	499.9		500.93	0.000377	8.23	29113.27	1531.27	0.31
Susquehanna	Middle Reach	163.486	50-yr	265900.00	475.54	501.8		502.90	0.000377	8.53	32145.62	1667.21	0.31
Susquehanna	Middle Reach	163.486	100-yr	300400.00	475.54	504.3		505.49	0.000339	8.64	36570.53	1781.99	0.30
Susquehanna	Middle Reach	163.486	500-yr	387700.00	475.54	509.3		510.56	0.000315	9.24	45768.40	1898.92	0.29
Susquehanna	Middle Reach	163.411	2-yr	115900.00	476.00	491.2		491.98	0.000491	7.21	16075.41	1219.21	0.35
Susquehanna	Middle Reach	163.411	5-yr	159900.00	476.00	494.6		495.54	0.000467	7.88	20290.44	1291.98	0.35
Susquehanna	Middle Reach	163.411	10-yr	191100.00	476.00	496.8		497.88	0.000441	8.21	23281.81	1336.63	0.35
Susquehanna	Middle Reach	163.411	25-yr	235100.00	476.00	499.6		500.75	0.000443	8.70	27252.10	1544.80	0.35
Susquehanna	Middle Reach	163.411	50-yr	265900.00	476.00	501.5		502.72	0.000442	8.95	30300.80	1622.26	0.34
Susquehanna	Middle Reach	163.411	100-yr	300400.00	476.00	504.1		505.33	0.000393	8.97	34596.11	1675.64	0.32
Susquehanna	Middle Reach	163.411	500-yr	387700.00	476.00	509.0		510.42	0.000360	9.48	43487.14	1854.96	0.31
Susquehanna	Middle Reach	163.335	2-yr	115900.00	476.17	491.0		491.79	0.000475	7.21	16065.17	1187.29	0.35
Susquehanna	Middle Reach	163.335	5-yr	159900.00	476.17	494.4		495.35	0.000480	7.87	20306.74	1388.06	0.36
Susquehanna	Middle Reach	163.335	10-yr	191100.00	476.17	496.7		497.69	0.000449	8.13	23496.82	1406.38	0.35
Susquehanna	Middle Reach	163.335	25-yr	235100.00	476.17	499.4		500.56	0.000448	8.57	27509.30	1504.82	0.35
Susquehanna	Middle Reach	163.335	50-yr	265900.00	476.17	501.3		502.53	0.000442	8.80	30418.67	1537.62	0.34
Susquehanna	Middle Reach	163.335	100-yr	300400.00	476.17	504.0		505.16	0.000390	8.81	34627.47	1681.17	0.32
Susquehanna	Middle Reach	163.335	500-yr	387700.00	476.17	508.9		510.26	0.000355	9.32	43393.96	1815.14	0.31
Susquehanna	Middle Reach	163.262	2-yr	115900.00	476.06	490.8		491.59	0.000485	7.12	16275.57	1246.63	0.35
Susquehanna	Middle Reach	163.262	5-yr	159900.00	476.06	494.2		495.14	0.000510	7.73	20693.08	1403.00	0.35
Susquehanna	Middle Reach	163.262	10-yr	191100.00	476.06	496.5		497.50	0.000465	7.98	23949.09	1426.90	0.34
Susquehanna	Middle Reach	163.262	25-yr	235100.00	476.06	499.3		500.38	0.000449	8.42	28046.27	1544.74	0.34
Susquehanna	Middle Reach	163.262	50-yr	265900.00	476.06	501.2		502.35	0.000436	8.65	31047.27	1585.57	0.33
Susquehanna	Middle Reach	163.262	100-yr	300400.00	476.06	503.8		505.00	0.000377	8.66	35326.38	1655.88	0.31
Susquehanna	Middle Reach	163.262	500-yr	387700.00	476.06	508.8		510.11	0.000337	9.18	43801.79	1744.01	0.30
Susquehanna	Middle Reach	163.189	2-yr	115900.00	476.36	490.7		491.38	0.000446	6.55	17693.15	1444.14	0.33
Susquehanna	Middle Reach	163.189	5-yr	159900.00	476.36	494.2		494.92	0.000397	7.04	22712.61	1468.66	0.32
Susquehanna	Middle Reach	163.189	10-yr	191100.00	476.36	496.5		497.30	0.000365	7.31	26127.66	1480.33	0.31
Susquehanna	Middle Reach	163.189	25-yr	235100.00	476.36	499.2		500.17	0.000361	7.77	30313.65	1551.81	0.30
Susquehanna	Middle Reach	163.189	50-yr	265900.00	476.36	501.1		502.15	0.000359	8.03	33291.62	1566.13	0.30
Susquehanna	Middle Reach	163.189	100-yr	300400.00	476.36	503.8		504.82	0.000320	8.08	37550.22	1658.64	0.29
Susquehanna	Middle Reach	163.189	500-yr	387700.00	476.36	508.8		509.95	0.000291	8.63	46119.41	1750.66	0.28
Susquehanna	Middle Reach	163.114	2-yr	115900.00	476.45	490.6		491.19	0.000363	6.17	18775.83	1433.19	0.30
Susquehanna	Middle Reach	163.114	5-yr	159900.00	476.45	494.1		494.75	0.000352	6.69	23913.16	1525.77	0.30
Susquehanna	Middle Reach	163.114	10-yr	191100.00	476.45	496.4		497.14	0.000324	6.95	27481.86	1535.18	0.29
Susquehanna	Middle Reach	163.114	25-yr	235100.00	476.45	499.2		500.01	0.000321	7.40	31858.77	1664.48	0.29
Susquehanna	Middle Reach	163.114	50-yr	265900.00	476.45	501.1		501.98	0.000318	7.65	35112.13	1712.66	0.28
Susquehanna	Middle Reach	163.114	100-yr	300400.00	476.45	503.8		504.67	0.000280	7.70	39723.50	1732.92	0.27
Susquehanna	Middle Reach	163.114	500-yr	387700.00	476.45	508.8		509.81	0.000257	8.24	48498.18	1766.63	0.26
Susquehanna	Middle Reach	163.036	2-yr	115900.00	476.36	490.5		491.03	0.000296	5.65	20528.09	1535.78	0.27
Susquehanna	Middle Reach	163.036	5-yr	159900.00	476.36	494.0		494.59	0.000283	6.16	25960.25	1608.51	0.27
Susquehanna	Middle Reach	163.036	10-yr	191100.00	476.36	496.3		496.98	0.000265	6.44	29787.48	1663.99	0.26
Susquehanna	Middle Reach	163.036	25-yr	235100.00	476.36	499.1		499.85	0.000266	6.88	34498.07	1732.37	0.26
Susquehanna	Middle Reach	163.036	50-yr	265900.00	476.36	501.0		501.83	0.000265	7.12	37845.14	1750.50	0.26
Susquehanna	Middle Reach	163.036	100-yr	300400.00	476.36	503.7		504.53	0.000236	7.19	42571.71	1761.53	0.25
Susquehanna	Middle Reach	163.036	500-yr	387700.00	476.36	508.8		509.67	0.000220	7.73	51452.21	1774.94	0.25
Susquehanna	Middle Reach	162.960	2-yr	115900.00	476.46	490.4		490.91	0.000310	5.66	20480.98	1581.05	0.28
Susquehanna	Middle Reach	162.960	5-yr	159900.00	476.46	493.9		494.47	0.000291	6.12	26150.95	1670.86	0.27
Susquehanna	Middle Reach	162.960	10-yr	191100.00	476.46	496.2		496.87	0.000266	6.36	30106.03	1686.18	0.26
Susquehanna	Middle Reach	162.960	25-yr	235100.00	476.46	499.0		499.74	0.000264	6.78	34865.33	1745.15	0.26
Susquehanna	Middle Reach	162.960	50-yr	265900.00	476.46	500.9		501.71	0.000263	7.01	38238.16	1760.99	0.26

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	162.960	100-yr	300400.00	476.46	503.7		504.43	0.000232	7.07	43013.63	1771.51	0.25
Susquehanna	Middle Reach	162.960	500-yr	387700.00	476.46	508.7		509.57	0.000215	7.60	51960.36	1784.67	0.24
Susquehanna	Middle Reach	162.887	2-yr	115900.00	476.07	490.2		490.77	0.000370	5.91	19626.61	1635.47	0.30
Susquehanna	Middle Reach	162.887	5-yr	159900.00	476.07	493.7		494.34	0.000339	6.25	25578.82	1733.88	0.29
Susquehanna	Middle Reach	162.887	10-yr	191100.00	476.07	496.1		496.76	0.000303	6.43	29728.07	1751.18	0.27
Susquehanna	Middle Reach	162.887	25-yr	235100.00	476.07	498.9		499.63	0.000294	6.79	34677.48	1796.20	0.27
Susquehanna	Middle Reach	162.887	50-yr	265900.00	476.07	500.8		501.60	0.000289	6.99	38163.15	1814.01	0.26
Susquehanna	Middle Reach	162.887	100-yr	300400.00	476.07	503.6		504.33	0.000252	7.01	43120.31	1826.85	0.25
Susquehanna	Middle Reach	162.887	500-yr	387700.00	476.07	508.6		509.48	0.000229	7.48	52386.79	1842.63	0.24
Susquehanna	Middle Reach	162.813	2-yr	115900.00	475.78	490.1		490.62	0.000386	5.99	19364.79	1695.44	0.31
Susquehanna	Middle Reach	162.813	5-yr	159900.00	475.78	493.6		494.21	0.000337	6.29	25429.31	1727.14	0.29
Susquehanna	Middle Reach	162.813	10-yr	191100.00	475.78	496.0		496.64	0.000304	6.46	29578.38	1737.42	0.28
Susquehanna	Middle Reach	162.813	25-yr	235100.00	475.78	498.8		499.51	0.000299	6.82	34460.74	1754.59	0.27
Susquehanna	Middle Reach	162.813	50-yr	265900.00	475.78	500.7		501.49	0.000296	7.03	37879.85	1786.73	0.27
Susquehanna	Middle Reach	162.813	100-yr	300400.00	475.78	503.5		504.23	0.000258	7.04	42824.15	1823.06	0.25
Susquehanna	Middle Reach	162.813	500-yr	387700.00	475.78	508.5		509.39	0.000237	7.51	52285.38	1908.76	0.24
Susquehanna	Middle Reach	162.735	2-yr	115900.00	475.41	489.9		490.46	0.000362	5.85	19799.66	1713.05	0.30
Susquehanna	Middle Reach	162.735	5-yr	159900.00	475.41	493.5		494.07	0.000316	6.17	25896.21	1721.45	0.28
Susquehanna	Middle Reach	162.735	10-yr	191100.00	475.41	495.9		496.51	0.000288	6.36	30045.67	1727.01	0.27
Susquehanna	Middle Reach	162.735	25-yr	235100.00	475.41	498.7		499.39	0.000287	6.74	34887.96	1733.33	0.26
Susquehanna	Middle Reach	162.735	50-yr	265900.00	475.41	500.6		501.36	0.000285	6.95	38270.15	1777.86	0.26
Susquehanna	Middle Reach	162.735	100-yr	300400.00	475.41	503.4		504.12	0.000251	6.98	43238.03	1834.27	0.25
Susquehanna	Middle Reach	162.735	500-yr	387700.00	475.41	508.4		509.29	0.000233	7.47	52986.33	1989.93	0.24
Susquehanna	Middle Reach	162.659	2-yr	115900.00	475.03	489.8		490.31	0.000341	5.75	20155.74	1695.17	0.29
Susquehanna	Middle Reach	162.659	5-yr	159900.00	475.03	493.4		493.94	0.000302	6.10	26220.19	1707.68	0.27
Susquehanna	Middle Reach	162.659	10-yr	191100.00	475.03	495.8		496.39	0.000277	6.30	30355.97	1715.93	0.26
Susquehanna	Middle Reach	162.659	25-yr	235100.00	475.03	498.6		499.27	0.000278	6.68	35169.96	1725.20	0.26
Susquehanna	Middle Reach	162.659	50-yr	265900.00	475.03	500.5		501.25	0.000278	6.91	38509.15	1745.32	0.26
Susquehanna	Middle Reach	162.659	100-yr	300400.00	475.03	503.3		504.01	0.000245	6.94	43400.62	1830.36	0.24
Susquehanna	Middle Reach	162.659	500-yr	387700.00	475.03	508.3		509.19	0.000228	7.43	53030.45	1942.21	0.24
Susquehanna	Middle Reach	162.580	2-yr	115900.00	474.65	489.7		490.17	0.000278	5.46	21243.29	1678.99	0.27
Susquehanna	Middle Reach	162.580	5-yr	159900.00	474.65	493.3		493.81	0.000255	5.87	27257.43	1689.20	0.26
Susquehanna	Middle Reach	162.580	10-yr	191100.00	474.65	495.7		496.27	0.000238	6.09	31356.60	1696.31	0.25
Susquehanna	Middle Reach	162.580	25-yr	235100.00	474.65	498.5		499.15	0.000243	6.51	36129.17	1721.51	0.25
Susquehanna	Middle Reach	162.580	50-yr	265900.00	474.65	500.4		501.13	0.000244	6.75	39503.95	1768.23	0.25
Susquehanna	Middle Reach	162.580	100-yr	300400.00	474.65	503.2		503.91	0.000217	6.80	44468.20	1815.32	0.24
Susquehanna	Middle Reach	162.580	500-yr	387700.00	474.65	508.3		509.09	0.000205	7.32	53874.99	1893.99	0.23
Susquehanna	Middle Reach	162.510	2-yr	115900.00	474.19	489.7		490.05	0.000221	5.05	22972.53	1637.08	0.24
Susquehanna	Middle Reach	162.510	5-yr	159900.00	474.19	493.2		493.71	0.000210	5.54	28850.60	1654.49	0.23
Susquehanna	Middle Reach	162.510	10-yr	191100.00	474.19	495.7		496.18	0.000199	5.81	32869.71	1663.15	0.23
Susquehanna	Middle Reach	162.510	25-yr	235100.00	474.19	498.4		499.05	0.000206	6.27	37529.78	1679.67	0.23
Susquehanna	Middle Reach	162.510	50-yr	265900.00	474.19	500.4		501.03	0.000211	6.53	40777.30	1692.48	0.23
Susquehanna	Middle Reach	162.510	100-yr	300400.00	474.19	503.1		503.82	0.000192	6.61	45504.25	1713.27	0.22
Susquehanna	Middle Reach	162.510	500-yr	387700.00	474.19	508.2		509.01	0.000187	7.17	54502.31	1862.25	0.22
Susquehanna	Middle Reach	162.437	2-yr	115900.00	473.97	489.5		489.95	0.000263	5.34	21703.88	1643.90	0.26
Susquehanna	Middle Reach	162.437	5-yr	159900.00	473.97	493.1		493.61	0.000246	5.76	27743.18	1699.79	0.25
Susquehanna	Middle Reach	162.437	10-yr	191100.00	473.97	495.5		496.09	0.000230	5.99	31894.67	1709.50	0.24
Susquehanna	Middle Reach	162.437	25-yr	235100.00	473.97	498.3		498.96	0.000235	6.41	36682.64	1719.80	0.24
Susquehanna	Middle Reach	162.437	50-yr	265900.00	473.97	500.3		500.94	0.000238	6.65	40005.14	1727.04	0.24
Susquehanna	Middle Reach	162.437	100-yr	300400.00	473.97	503.0		503.74	0.000213	6.70	44855.09	1745.56	0.23
Susquehanna	Middle Reach	162.437	500-yr	387700.00	473.97	508.1		508.93	0.000202	7.22	53895.15	1820.26	0.23
Susquehanna	Middle Reach	162.359	2-yr	115900.00	473.15	489.5		489.84	0.000208	5.00	23164.11	1696.96	0.24
Susquehanna	Middle Reach	162.359	5-yr	159900.00	473.15	493.0		493.51	0.000202	5.46	29309.64	1720.99	0.23
Susquehanna	Middle Reach	162.359	10-yr	191100.00	473.15	495.5		495.99	0.000192	5.70	33515.88	1727.36	0.23
Susquehanna	Middle Reach	162.359	25-yr	235100.00	473.15	498.3		498.86	0.000200	6.13	38347.03	1735.17	0.23
Susquehanna	Middle Reach	162.359	50-yr	265900.00	473.15	500.2		500.83	0.000204	6.38	41696.16	1745.17	0.23
Susquehanna	Middle Reach	162.359	100-yr	300400.00	473.15	503.0		503.64	0.000184	6.45	46640.93	1774.19	0.22
Susquehanna	Middle Reach	162.359	500-yr	387700.00	473.15	508.1		508.84	0.000178	6.98	55821.04	1849.33	0.22
Susquehanna	Middle Reach	162.283	2-yr	115900.00	473.37	489.4		489.75	0.000240	5.03	23026.89	1701.40	0.24
Susquehanna	Middle Reach	162.283	5-yr	159900.00	473.37	493.0		493.42	0.000227	5.47	29209.67	1729.29	0.23
Susquehanna	Middle Reach	162.283	10-yr	191100.00	473.37	495.4		495.90	0.000213	5.71	33448.77	1737.31	0.23
Susquehanna	Middle Reach	162.283	25-yr	235100.00	473.37	498.2		498.77	0.000219	6.14	38342.56	1769.71	0.23
Susquehanna	Middle Reach	162.283	50-yr	265900.00	473.37	500.1		500.74	0.000223	6.38	41777.88	1793.65	0.23
Susquehanna	Middle Reach	162.283	100-yr	300400.00	473.37	502.9		503.57	0.000199	6.44	46830.09	1803.80	0.22
Susquehanna	Middle Reach	162.283	500-yr	387700.00	473.37	508.0		508.76	0.000191	6.97	56124.38	1869.29	0.22
Susquehanna	Middle Reach	162.208	2-yr	115900.00	473.27	489.1		489.62	0.000355	5.91	19605.15	1550.49	0.29
Susquehanna	Middle Reach	162.208	5-yr	159900.00	473.27	492.7		493.30	0.000320	6.33	25247.29	1577.17	0.28
Susquehanna	Middle Reach	162.208	10-yr	191100.00	473.27	495.1		495.79	0.000294	6.56	29166.29	1613.72	0.27
Susquehanna	Middle Reach	162.208	25-yr	235100.00	473.27	497.9		498.65	0.000297	7.01	33662.84	1634.08	0.27
Susquehanna	Middle Reach	162.208	50-yr	265900.00	473.27	499.8		500.62	0.000298	7.26	36818.63	1681.66	0.27
Susquehanna	Middle Reach	162.208	100-yr	300400.00	473.27	502.6		503.46	0.000261	7.30	41690.75	1752.08	0.25
Susquehanna	Middle Reach	162.208	500-yr	387700.00	473.27	507.7		508.66	0.000244	7.84	50823.96	1856.47	0.25
Susquehanna	Middle Reach	162.136	2-yr	115900.00	473.11	488.9		489.48	0.000378	6.01	19271.80	1561.18	0.30
Susquehanna	Middle Reach	162.136	5-yr	159900.00	473.11	492.5		493.17	0.000342	6.39	25028.80	1609.61	0.29
Susquehanna	Middle Reach	162.136	10-yr	191100.00	473.11	495.0		495.67	0.000310	6.59	29041.06	1643.79	0.27
Susquehanna	Middle Reach	162.136	25-yr	235100.00	473.11	497.8		498.54	0.000312	7.01	33639.71	1672.89	0.27
Susquehanna	Middle Reach	162.136	50-yr	265900.00	473.11	499.7		500.51	0.000314	7.25	36885.22	1708.07	0.27
Susquehanna	Middle Reach	162.136	100-yr	300400.00	473.11	502.5		503.35	0.000271	7.25	41851.69	1762.73	0.26
Susquehanna	Middle Reach	162.136	500-yr	387700.00	473.11	507.6		508.56	0.000251	7.76	50999.00	1867.44	0.25
Susquehanna	Middle Reach	162.059	2-yr	115900.00	472.94	488.7		489.31	0.000418	6.17	18781.89	1591.40	0.32
Susquehanna	Middle Reach	162.059	5-yr	159900.00	472.94	492.4		493.02	0.000364	6.50	24599.62	1609.98	0.29
Susquehanna	Middle Reach	162.059	10-yr	191100.00	472.94	494.8		495.54	0.000331	6.68	28642.34	1639.42	0.28
Susquehanna	Middle Reach	162.059	25-yr	235100.00	472.94	497.6		498.40	0.000334	7.11	33214.64	1660.36	0.28
Susquehanna	Middle Reach	162.059	50-yr	265900.00	472.94	499.5		500.37	0.000334	7.35	36422.12	1680.59	0.27
Susquehanna	Middle Reach	162.059	100-yr	300400.00	472.94	502.4		503.24	0.000291	7.35	41291.76	1733.33	0.26
Susquehanna	Middle Reach	162.059	500-yr	387700.00	472.94	507.5		508.45	0.000270	7.86	50749.61	1986.86	0.25
Susquehanna	Middle Reach	161.979	2-yr	115900.00	472.76	488.6		489.14	0.000389	6.10	19003.99	1584.82	0.31
Susquehanna	Middle Reach	161.979	5-yr	159900.00	472.76	492.2		492.87	0.000343	6.44	24825.99	1594.30	0.29

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	161.979	10-yr	191100.00	472.76	494.7		495.40	0.000314	6.63	28830.99	1617.40	0.28
Susquehanna	Middle Reach	161.979	25-yr	235100.00	472.76	497.5		498.26	0.000319	7.07	33338.19	1638.88	0.27
Susquehanna	Middle Reach	161.979	50-yr	265900.00	472.76	499.4		500.23	0.000322	7.31	36501.61	1661.60	0.27
Susquehanna	Middle Reach	161.979	100-yr	300400.00	472.76	502.3		503.11	0.000280	7.31	41466.95	1790.75	0.26
Susquehanna	Middle Reach	161.979	500-yr	387700.00	472.76	507.4		508.33	0.000262	7.83	51069.28	2031.24	0.25
Susquehanna	Middle Reach	161.902	2-yr	115900.00	472.58	488.4	481.09	488.98	0.000387	6.13	18906.13	1544.12	0.31
Susquehanna	Middle Reach	161.902	5-yr	159900.00	472.58	492.1	482.80	492.72	0.000340	6.50	24611.61	1557.45	0.29
Susquehanna	Middle Reach	161.902	10-yr	191100.00	472.58	494.6	483.79	495.27	0.000309	6.70	28519.77	1563.48	0.28
Susquehanna	Middle Reach	161.902	25-yr	235100.00	472.58	497.3	485.06	498.13	0.000314	7.16	32841.50	1570.11	0.28
Susquehanna	Middle Reach	161.902	50-yr	265900.00	472.58	499.2	485.82	500.09	0.000320	7.42	35869.78	1615.64	0.27
Susquehanna	Middle Reach	161.902	100-yr	300400.00	472.58	502.1	486.68	502.99	0.000279	7.42	40728.76	1739.12	0.26
Susquehanna	Middle Reach	161.902	500-yr	387700.00	472.58	507.2	488.65	508.22	0.000261	7.95	50139.96	2047.30	0.25
Susquehanna	Middle Reach	161.830	2-yr	115900.00	472.42	488.3	480.48	488.83	0.000354	5.99	19355.80	1523.34	0.30
Susquehanna	Middle Reach	161.830	5-yr	159900.00	472.42	492.0	482.17	492.59	0.000322	6.38	25070.06	1564.79	0.28
Susquehanna	Middle Reach	161.830	10-yr	191100.00	472.42	494.5	483.31	495.15	0.000293	6.59	29017.68	1573.33	0.27
Susquehanna	Middle Reach	161.830	25-yr	235100.00	472.42	497.2	484.50	498.00	0.000299	7.05	33367.70	1582.27	0.27
Susquehanna	Middle Reach	161.830	50-yr	265900.00	472.42	499.1	485.28	499.97	0.000302	7.31	36390.39	1593.39	0.27
Susquehanna	Middle Reach	161.830	100-yr	300400.00	472.42	502.1	486.14	502.88	0.000264	7.32	41155.20	1778.14	0.25
Susquehanna	Middle Reach	161.830	500-yr	387700.00	472.42	507.2	488.18	508.12	0.000249	7.87	50210.63	2127.25	0.25
Susquehanna	Middle Reach	161.754	2-yr	115900.00	472.26	488.2	479.85	488.68	0.000288	5.66	20459.87	1780.91	0.27
Susquehanna	Middle Reach	161.754	5-yr	159900.00	472.26	491.9	481.27	492.46	0.000267	6.14	26025.71	2017.22	0.26
Susquehanna	Middle Reach	161.754	10-yr	191100.00	472.26	494.4	482.20	495.03	0.000248	6.40	29873.61	2194.92	0.26
Susquehanna	Middle Reach	161.754	25-yr	235100.00	472.26	497.1	483.41	497.88	0.000257	6.89	34107.54	2221.58	0.26
Susquehanna	Middle Reach	161.754	50-yr	265900.00	472.26	499.0	484.25	499.85	0.000263	7.18	37057.50	2410.05	0.26
Susquehanna	Middle Reach	161.754	100-yr	300400.00	472.26	502.0	485.13	502.78	0.000231	7.22	41744.68	2607.66	0.25
Susquehanna	Middle Reach	161.754	500-yr	387700.00	472.26	507.1	487.21	508.02	0.000220	7.80	50751.11	3214.17	0.24
Susquehanna	Middle Reach	161.681	2-yr	115900.00	471.54	488.1	478.73	488.57	0.000250	5.62	20607.63	1919.38	0.26
Susquehanna	Middle Reach	161.681	5-yr	159900.00	471.54	491.8	480.24	492.36	0.000248	6.22	25726.33	2434.88	0.26
Susquehanna	Middle Reach	161.681	10-yr	191100.00	471.54	494.3	481.25	494.93	0.000237	6.53	29279.54	2670.42	0.25
Susquehanna	Middle Reach	161.681	25-yr	235100.00	471.54	497.0	482.54	497.78	0.000251	7.09	33167.17	3242.26	0.26
Susquehanna	Middle Reach	161.681	50-yr	265900.00	471.54	498.9	483.36	499.74	0.000259	7.41	35901.28	3522.22	0.26
Susquehanna	Middle Reach	161.681	100-yr	300400.00	471.54	501.8	484.31	502.68	0.000231	7.49	40508.93	3779.36	0.25
Susquehanna	Middle Reach	161.681	500-yr	387700.00	471.54	506.9	486.51	507.93	0.000225	8.15	48959.31	4169.44	0.25
Susquehanna	Middle Reach	161.606	2-yr	115900.00	470.57	488.0	477.87	488.48	0.000229	5.64	20554.87	1733.65	0.25
Susquehanna	Middle Reach	161.606	5-yr	159900.00	470.57	491.6	479.46	492.26	0.000242	6.32	25307.26	1888.41	0.25
Susquehanna	Middle Reach	161.606	10-yr	191100.00	470.57	494.1	480.49	494.83	0.000237	6.67	28659.97	2944.97	0.25
Susquehanna	Middle Reach	161.606	25-yr	235100.00	470.57	496.9	481.84	497.67	0.000257	7.27	32359.15	3899.45	0.26
Susquehanna	Middle Reach	161.606	50-yr	265900.00	470.57	498.7	482.75	499.63	0.000267	7.62	34954.11	4086.48	0.27
Susquehanna	Middle Reach	161.606	100-yr	300400.00	470.57	501.7	483.73	502.58	0.000240	7.71	39343.42	4283.61	0.26
Susquehanna	Middle Reach	161.606	500-yr	387700.00	470.57	506.7	486.00	507.83	0.000235	8.41	47269.45	4691.65	0.26
Susquehanna	Middle Reach	161.538	2-yr	115900.00	469.81	487.9	477.09	488.39	0.000210	5.43	21340.48	1745.90	0.24
Susquehanna	Middle Reach	161.538	5-yr	159900.00	469.81	491.6	478.70	492.16	0.000219	6.11	26170.71	2438.06	0.24
Susquehanna	Middle Reach	161.538	10-yr	191100.00	469.81	494.1	479.74	494.74	0.000219	6.46	29571.63	3628.64	0.25
Susquehanna	Middle Reach	161.538	25-yr	235100.00	469.81	496.8	481.12	497.57	0.000240	7.05	33331.26	3697.03	0.25
Susquehanna	Middle Reach	161.538	50-yr	265900.00	469.81	498.7	482.05	499.52	0.000250	7.39	35958.22	3793.13	0.26
Susquehanna	Middle Reach	161.538	100-yr	300400.00	469.81	501.6	483.01	502.48	0.000227	7.49	40115.87	3838.63	0.25
Susquehanna	Middle Reach	161.538	500-yr	387700.00	469.81	506.7	485.49	507.73	0.000225	8.18	47748.89	4094.66	0.25
Susquehanna	Middle Reach	161.473	2-yr	115900.00	469.26	487.8	478.60	488.30	0.000282	5.93	19541.71	1707.74	0.27
Susquehanna	Middle Reach	161.473	5-yr	159900.00	469.26	491.4	480.19	492.07	0.000277	6.56	24381.71	2713.61	0.27
Susquehanna	Middle Reach	161.473	10-yr	191100.00	469.26	493.9	481.23	494.65	0.000267	6.88	27781.52	3514.28	0.27
Susquehanna	Middle Reach	161.473	25-yr	235100.00	469.26	496.6	482.59	497.47	0.000284	7.47	31475.05	3678.12	0.28
Susquehanna	Middle Reach	161.473	50-yr	265900.00	469.26	498.5	483.53	499.42	0.000295	7.81	34094.95	3741.49	0.28
Susquehanna	Middle Reach	161.473	100-yr	300400.00	469.26	501.4	484.51	502.39	0.000263	7.86	38336.26	3834.39	0.27
Susquehanna	Middle Reach	161.473	500-yr	387700.00	469.26	506.5	486.77	507.64	0.000263	8.51	46138.10	4061.76	0.27
Susquehanna	Middle Reach	161.420	2-yr	115900.00	469.11	487.4	480.16	488.11	0.000426	6.81	17014.49	1602.87	0.33
Susquehanna	Middle Reach	161.420	5-yr	159900.00	469.11	491.0	481.74	491.89	0.000388	7.38	21657.34	2417.43	0.32
Susquehanna	Middle Reach	161.420	10-yr	191100.00	469.11	493.6	482.74	494.48	0.000358	7.68	24892.25	3413.82	0.31
Susquehanna	Middle Reach	161.420	25-yr	235100.00	469.11	496.2	484.11	497.29	0.000375	8.30	28338.31	3623.31	0.31
Susquehanna	Middle Reach	161.420	50-yr	265900.00	469.11	498.1	485.00	499.23	0.000384	8.65	30753.45	3641.78	0.31
Susquehanna	Middle Reach	161.420	100-yr	300400.00	469.11	501.1	485.95	502.22	0.000339	8.65	34764.68	3716.08	0.30
Susquehanna	Middle Reach	161.420	500-yr	387700.00	469.11	506.1	488.25	507.47	0.000257	9.32	42151.02	4020.24	0.29
Susquehanna	Middle Reach	161.415 PA Route 93		Bridge									
Susquehanna	Middle Reach	161.410	2-yr	115900.00	468.86	487.3	480.24	488.02	0.000450	6.76	17137.25	1665.89	0.33
Susquehanna	Middle Reach	161.410	5-yr	159900.00	468.86	491.0	481.81	491.80	0.000385	7.20	22212.83	3107.28	0.32
Susquehanna	Middle Reach	161.410	10-yr	191100.00	468.86	493.5	482.84	494.38	0.000358	7.41	25789.00	3912.94	0.31
Susquehanna	Middle Reach	161.410	25-yr	235100.00	468.86	496.2	484.19	497.18	0.000365	7.95	29565.38	3992.71	0.31
Susquehanna	Middle Reach	161.410	50-yr	265900.00	468.86	498.1	485.12	499.11	0.000354	8.26	32198.97	4003.83	0.31
Susquehanna	Middle Reach	161.410	100-yr	300400.00	468.86	501.1	486.07	502.11	0.000364	8.22	36584.19	4070.37	0.29
Susquehanna	Middle Reach	161.410	500-yr	387700.00	468.86	506.1	488.32	507.34	0.000355	8.81	44394.86	4143.82	0.28
Susquehanna	Middle Reach	161.382	2-yr	115900.00	468.61	487.4	479.54	487.90	0.000368	5.71	20385.40	1943.99	0.28
Susquehanna	Middle Reach	161.382	5-yr	159900.00	468.61	491.1	481.01	491.68	0.000319	6.11	26814.81	3440.00	0.26
Susquehanna	Middle Reach	161.382	10-yr	191100.00	468.61	493.6	482.02	494.26	0.000308	6.31	31249.63	3604.56	0.25
Susquehanna	Middle Reach	161.382	25-yr	235100.00	468.61	496.3	483.20	497.05	0.000322	6.78	35953.32	3613.10	0.26
Susquehanna	Middle Reach	161.382	50-yr	265900.00	468.61	498.2	483.98	498.97	0.000316	7.05	39232.52	3619.17	0.25
Susquehanna	Middle Reach	161.382	100-yr	300400.00	468.61	501.2	484.79	501.97	0.000327	7.05	44500.76	3633.94	0.24
Susquehanna	Middle Reach	161.382	500-yr	387700.00	468.61	506.3	486.80	507.20	0.000333	7.61	53690.06	3685.12	0.24
Susquehanna	Middle Reach	161.304	2-yr	115900.00	468.09	487.0	479.83	487.72	0.000438	6.74	17685.78	1804.61	0.33
Susquehanna	Middle Reach	161.304	5-yr	159900.00	468.09	490.8	481.47	491.52	0.000352	7.05	24926.05	3181.04	0.31
Susquehanna	Middle Reach	161.304	10-yr	191100.00	468.09	493.4	482.48	494.12	0.000315	7.11	30855.70	3292.43	0.29
Susquehanna	Middle Reach	161.304	25-yr	235100.00	468.09	496.1	483.86	496.90	0.000308	7.45	37183.20	3305.64	0.28
Susquehanna	Middle Reach	161.304	50-yr	265900.00	468.09	498.0	484.74	498.84	0.000288	7.62	41620.85	3338.70	0.28
Susquehanna	Middle Reach	161.304	100-yr	300400.00	468.09	501.1	485.73	501.84	0.000279	7.46	48745.15	3378.42	0.26
Susquehanna	Middle Reach	161.304	500-yr	387700.00	468.09	506.2	488.27	507.06	0.000262	7.82	60942.94	3388.55	0.24
Susquehanna	Middle Reach	161.231	2-yr	115900.00	466.48	486.6	479.41	487.50	0.000536	7.79	15159.56	1533.68	0.37
Susquehanna	Middle Reach	161.231	5-yr	159900.00	466.48	490.3	481.25	491.34	0.000454	8.18	22099.03	2522.79	0.35
Susquehanna	Middle Reach	161.231	10-yr	191100.00	466.48	493.0	482.40	493.95	0.000409	8.22	27908.21	2881.56	0.33
Susquehanna	Middle Reach	161.231	25-yr	235100.00	466.48	495.7	484.02	496.74	0.000392	8.51	34534.22	3014.68	0.32
Susquehanna	Middle Reach	161.231	50-yr	265900.00	466.48	497.7	485.07	498.69	0.000361	8.62	39245.09	3061.41	0.31

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	161.231	100-yr	300400.00	466.48	500.8	486.24	501.70	0.000340	8.31	46947.07	3159.38	0.28
Susquehanna	Middle Reach	161.231	500-yr	387700.00	466.48	506.0	489.72	506.94	0.000309	8.55	60067.95	3201.73	0.27
Susquehanna	Middle Reach	161.155 Nescopeck Creek	2-yr	117300.00	466.08	486.4	478.44	487.30	0.000464	7.75	15946.36	1467.43	0.35
Susquehanna	Middle Reach	161.155 Nescopeck Creek	5-yr	161600.00	466.08	490.0	480.31	491.15	0.000436	8.50	21570.06	2423.57	0.35
Susquehanna	Middle Reach	161.155 Nescopeck Creek	10-yr	193000.00	466.08	492.7	481.56	493.78	0.000402	8.57	28112.37	2739.27	0.33
Susquehanna	Middle Reach	161.155 Nescopeck Creek	25-yr	235500.00	466.08	495.4	483.07	496.58	0.000390	8.91	34792.45	2841.87	0.32
Susquehanna	Middle Reach	161.155 Nescopeck Creek	50-yr	268300.00	466.08	497.4	484.47	498.53	0.000372	9.15	39487.12	2852.58	0.32
Susquehanna	Middle Reach	161.155 Nescopeck Creek	100-yr	302800.00	466.08	500.5	485.52	501.55	0.000360	8.86	47321.32	2949.93	0.29
Susquehanna	Middle Reach	161.155 Nescopeck Creek	500-yr	390300.00	466.08	505.7	488.46	506.80	0.000331	9.16	60566.51	2995.37	0.28
Susquehanna	Middle Reach	161.076	2-yr	117300.00	466.89	486.1	479.18	487.09	0.000566	8.19	15196.61	1404.08	0.38
Susquehanna	Middle Reach	161.076	5-yr	161600.00	466.89	489.7	481.06	490.95	0.000502	8.93	20298.68	1963.81	0.37
Susquehanna	Middle Reach	161.076	10-yr	193000.00	466.89	492.3	482.25	493.59	0.000479	9.19	24316.44	2357.22	0.36
Susquehanna	Middle Reach	161.076	25-yr	235500.00	466.89	495.1	483.77	496.40	0.000444	9.38	32956.38	2670.05	0.34
Susquehanna	Middle Reach	161.076	50-yr	268300.00	466.89	497.1	484.88	498.37	0.000417	9.58	37784.97	2719.90	0.34
Susquehanna	Middle Reach	161.076	100-yr	302800.00	466.89	500.3	486.01	501.40	0.000395	9.19	45829.73	2794.58	0.30
Susquehanna	Middle Reach	161.076	500-yr	390300.00	466.89	505.5	488.17	506.66	0.000355	9.41	59306.29	2824.68	0.29
Susquehanna	Middle Reach	160.992	2-yr	117300.00	466.21	485.8	478.81	486.85	0.000574	8.32	15015.64	1376.87	0.38
Susquehanna	Middle Reach	160.992	5-yr	161600.00	466.21	489.5	480.70	490.74	0.000517	9.00	19822.35	1969.54	0.38
Susquehanna	Middle Reach	160.992	10-yr	193000.00	466.21	492.1	481.94	493.38	0.000501	9.33	23574.26	2503.96	0.36
Susquehanna	Middle Reach	160.992	25-yr	235500.00	466.21	495.0	483.48	496.19	0.000418	9.09	34931.42	2560.73	0.33
Susquehanna	Middle Reach	160.992	50-yr	268300.00	466.21	497.0	484.58	498.17	0.000389	9.26	40015.46	2629.52	0.33
Susquehanna	Middle Reach	160.992	100-yr	302800.00	466.21	500.2	485.74	501.21	0.000365	8.85	48450.39	2671.12	0.29
Susquehanna	Middle Reach	160.992	500-yr	390300.00	466.21	505.5	488.76	506.48	0.000325	9.02	62638.89	2702.79	0.27
Susquehanna	Middle Reach	160.913	2-yr	117300.00	465.57	485.3	479.03	486.57	0.000733	9.15	12978.47	1408.32	0.43
Susquehanna	Middle Reach	160.913	5-yr	161600.00	465.57	489.0	481.01	490.49	0.000635	9.91	16806.91	1720.53	0.42
Susquehanna	Middle Reach	160.913	10-yr	193000.00	465.57	491.5	482.32	493.13	0.000621	10.32	19517.80	2132.85	0.41
Susquehanna	Middle Reach	160.913	25-yr	235500.00	465.57	494.7	484.00	496.00	0.000485	9.79	31863.21	2436.65	0.36
Susquehanna	Middle Reach	160.913	50-yr	268300.00	465.57	496.6	485.21	497.99	0.000448	9.93	36775.40	2520.93	0.35
Susquehanna	Middle Reach	160.913	100-yr	302800.00	465.57	499.9	486.44	501.04	0.000414	9.43	44998.39	2562.15	0.31
Susquehanna	Middle Reach	160.913	500-yr	390300.00	465.57	505.2	489.22	506.34	0.000364	9.56	58701.41	2588.30	0.29
Susquehanna	Middle Reach	160.834	2-yr	117300.00	465.01	484.9	478.37	486.29	0.000658	9.63	12413.92	1194.51	0.44
Susquehanna	Middle Reach	160.834	5-yr	161600.00	465.01	488.5	480.51	490.23	0.000606	10.55	15964.27	1662.90	0.44
Susquehanna	Middle Reach	160.834	10-yr	193000.00	465.01	491.3	481.92	492.89	0.000519	10.36	23326.56	2234.46	0.40
Susquehanna	Middle Reach	160.834	25-yr	235500.00	465.01	494.2	483.72	495.79	0.000480	10.56	30012.31	2335.60	0.38
Susquehanna	Middle Reach	160.834	50-yr	268300.00	465.01	496.2	485.08	497.79	0.000443	10.70	34734.80	2368.11	0.37
Susquehanna	Middle Reach	160.834	100-yr	302800.00	465.01	499.5	486.42	500.86	0.000409	10.16	42649.00	2443.07	0.33
Susquehanna	Middle Reach	160.834	500-yr	390300.00	465.01	504.9	490.99	506.18	0.000361	10.31	55793.20	2466.31	0.31
Susquehanna	Middle Reach	160.752	2-yr	117300.00	465.16	484.4	477.75	486.00	0.000692	10.02	11707.70	967.20	0.45
Susquehanna	Middle Reach	160.752	5-yr	161600.00	465.16	488.0	480.14	489.95	0.000663	11.15	14493.81	1253.82	0.46
Susquehanna	Middle Reach	160.752	10-yr	193000.00	465.16	490.4	481.66	492.59	0.000682	11.76	16410.65	1790.58	0.46
Susquehanna	Middle Reach	160.752	25-yr	235500.00	465.16	493.7	483.48	495.55	0.000564	11.43	26347.00	2252.49	0.41
Susquehanna	Middle Reach	160.752	50-yr	268300.00	465.16	495.7	484.81	497.57	0.000514	11.50	31016.26	2260.25	0.40
Susquehanna	Middle Reach	160.752	100-yr	302800.00	465.16	499.1	486.17	500.67	0.000462	10.78	38853.93	2354.08	0.35
Susquehanna	Middle Reach	160.752	500-yr	390300.00	465.16	504.6	489.33	506.01	0.000396	10.79	51700.41	2373.72	0.32
Susquehanna	Middle Reach	160.669	2-yr	117300.00	464.56	484.2	477.08	485.72	0.000652	9.88	11869.21	925.97	0.44
Susquehanna	Middle Reach	160.669	5-yr	161600.00	464.56	487.8	479.66	489.68	0.000634	11.05	14624.78	1252.88	0.45
Susquehanna	Middle Reach	160.669	10-yr	193000.00	464.56	490.4	481.13	492.25	0.000593	11.16	20055.65	1817.07	0.43
Susquehanna	Middle Reach	160.669	25-yr	235500.00	464.56	493.4	482.93	495.32	0.000547	11.40	26185.90	2159.70	0.41
Susquehanna	Middle Reach	160.669	50-yr	268300.00	464.56	495.5	484.31	497.36	0.000501	11.50	30677.59	2164.21	0.40
Susquehanna	Middle Reach	160.669	100-yr	302800.00	464.56	498.9	485.67	500.48	0.000454	10.82	38214.49	2258.03	0.35
Susquehanna	Middle Reach	160.669	500-yr	390300.00	464.56	504.4	488.87	505.85	0.000394	10.88	50564.79	2277.15	0.32
Susquehanna	Middle Reach	160.590	2-yr	117300.00	464.42	484.0	476.82	485.44	0.000590	9.54	12296.26	954.65	0.42
Susquehanna	Middle Reach	160.590	5-yr	161600.00	464.42	487.6	479.05	489.41	0.000580	10.71	15091.62	1327.01	0.43
Susquehanna	Middle Reach	160.590	10-yr	193000.00	464.42	490.2	480.48	491.99	0.000540	10.81	20766.86	1797.90	0.41
Susquehanna	Middle Reach	160.590	25-yr	235500.00	464.42	493.3	482.32	495.08	0.000500	11.05	26524.05	1936.59	0.39
Susquehanna	Middle Reach	160.590	50-yr	268300.00	464.42	495.4	483.63	497.15	0.000468	11.25	30604.60	2022.49	0.38
Susquehanna	Middle Reach	160.590	100-yr	302800.00	464.42	498.8	484.98	500.30	0.000437	10.72	37706.73	2147.63	0.34
Susquehanna	Middle Reach	160.590	500-yr	390300.00	464.42	504.2	488.13	505.69	0.000391	10.92	49560.40	2203.03	0.32
Susquehanna	Middle Reach	160.508	2-yr	117300.00	463.36	483.8	476.31	485.20	0.000554	9.37	12518.60	904.68	0.41
Susquehanna	Middle Reach	160.508	5-yr	161600.00	463.36	487.4	478.52	489.17	0.000551	10.56	15309.98	1392.24	0.42
Susquehanna	Middle Reach	160.508	10-yr	193000.00	463.36	490.1	479.97	491.77	0.000520	10.73	21082.79	1811.59	0.40
Susquehanna	Middle Reach	160.508	25-yr	235500.00	463.36	493.1	481.79	494.88	0.000492	11.07	26743.24	1900.01	0.39
Susquehanna	Middle Reach	160.508	50-yr	268300.00	463.36	495.1	483.13	496.96	0.000471	11.37	30609.20	1920.94	0.39
Susquehanna	Middle Reach	160.508	100-yr	302800.00	463.36	498.5	484.48	500.11	0.000454	10.99	37184.96	2123.53	0.35
Susquehanna	Middle Reach	160.508	500-yr	390300.00	463.36	503.8	489.01	505.51	0.000422	11.38	48616.10	2368.82	0.34
Susquehanna	Middle Reach	160.426	2-yr	117300.00	463.17	483.7	475.94	484.96	0.000522	9.14	12833.23	915.01	0.40
Susquehanna	Middle Reach	160.426	5-yr	161600.00	463.17	487.3	478.12	488.90	0.000512	10.11	17470.09	1632.36	0.41
Susquehanna	Middle Reach	160.426	10-yr	193000.00	463.17	489.9	479.54	491.54	0.000493	10.39	22028.66	1829.20	0.39
Susquehanna	Middle Reach	160.426	25-yr	235500.00	463.17	493.0	481.35	494.65	0.000465	10.70	27708.09	1863.20	0.38
Susquehanna	Middle Reach	160.426	50-yr	268300.00	463.17	495.0	482.66	496.74	0.000444	11.00	31504.52	1872.31	0.37
Susquehanna	Middle Reach	160.426	100-yr	302800.00	463.17	498.3	483.99	499.91	0.000432	10.67	37879.75	2057.55	0.34
Susquehanna	Middle Reach	160.426	500-yr	390300.00	463.17	503.7	488.46	505.32	0.000403	11.09	49084.73	2103.02	0.33
Susquehanna	Middle Reach	160.346	2-yr	117300.00	462.59	483.5	475.82	484.73	0.000492	8.75	13399.49	1014.54	0.39
Susquehanna	Middle Reach	160.346	5-yr	161600.00	462.59	487.2	477.92	488.67	0.000460	9.64	18405.42	1615.91	0.38
Susquehanna	Middle Reach	160.346	10-yr	193000.00	462.59	489.8	479.27	491.31	0.000446	9.93	22867.14	1757.47	0.37
Susquehanna	Middle Reach	160.346	25-yr	235500.00	462.59	492.9	480.98	494.44	0.000427	10.31	28298.86	1786.41	0.36
Susquehanna	Middle Reach	160.346	50-yr	268300.00	462.59	494.9	482.23	496.54	0.000413	10.65	31930.80	1795.90	0.36
Susquehanna	Middle Reach	160.346	100-yr	302800.00	462.59	498.2	483.48	499.72	0.000408	10.41	38033.12	1996.65	0.33
Susquehanna	Middle Reach	160.346	500-yr	390300.00	462.59	503.6	487.53	505.16	0.000387	10.91	48868.33	2035.33	0.32
Susquehanna	Middle Reach	160.262	2-yr	117300.00	461.93	483.4	475.50	484.52	0.000478	8.66	13546.24	1225.28	0.38
Susquehanna	Middle Reach	160.262	5-yr	161600.00	461.93	487.0	477.58	488.47	0.000497	9.70	16668.38	1572.41	0.40
Susquehanna	Middle Reach	160.262	10-yr	193000.00	461.93	489.7	478.95	491.09	0.000455	9.61	23526.18	1665.12	0.37
Susquehanna	Middle Reach	160.262	25-yr	235500.00	461.93	492.8	480.65	494.23	0.000429	9.95	28685.22	1689.40	0.36
Susquehanna	Middle Reach	160.262	50-yr	268300.00	461.93	494.8	481.91	496.34	0.000412	10.27	32126.98	1696.24	0.36
Susquehanna	Middle Reach	160.262	100-yr	302800.00	461.93	498.1	483.17	499.53	0.000405	10.04	37936.71	1802.54	0.33
Susquehanna	Middle Reach	160.262	500-yr	390300.00	461.93	503.4	486.21	504.98	0.000386	10.60	47925.33	1896.90	0.32
Susquehanna	Middle Reach	160.182	2-yr	117300.00	461.26	483.1	475.11	484.33	0.000486	8.87	13230.66	1154.87	0.39
Susquehanna	Middle Reach	160.182	5-yr	161600.00	461.26	486.7	477.27	488.26	0.000517	9.94	16252.73	1470.31	0.41

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	160.182	10-yr	193000.00	461.26	489.5	478.67	490.91	0.000466	9.87	22717.16	1536.71	0.38
Susquehanna	Middle Reach	160.182	25-yr	235500.00	461.26	492.5	480.46	494.05	0.000445	10.25	27477.95	1569.10	0.37
Susquehanna	Middle Reach	160.182	50-yr	268300.00	461.26	494.6	481.74	496.16	0.000430	10.60	30671.03	1576.85	0.37
Susquehanna	Middle Reach	160.182	100-yr	302800.00	461.26	497.8	483.06	499.36	0.000426	10.37	35965.45	1728.88	0.34
Susquehanna	Middle Reach	160.182	500-yr	390300.00	461.26	503.2	486.46	504.82	0.000408	10.95	45774.93	1865.75	0.33
Susquehanna	Middle Reach	160.099	2-yr	117300.00	461.24	483.1	473.39	484.10	0.000364	8.10	14483.29	1050.05	0.34
Susquehanna	Middle Reach	160.099	5-yr	161600.00	461.24	486.8	475.70	488.00	0.000360	9.03	19549.25	1359.57	0.35
Susquehanna	Middle Reach	160.099	10-yr	193000.00	461.24	489.4	477.12	490.70	0.000361	9.42	23168.12	1394.70	0.34
Susquehanna	Middle Reach	160.099	25-yr	235500.00	461.24	492.4	478.89	493.86	0.000362	9.97	27493.94	1451.45	0.34
Susquehanna	Middle Reach	160.099	50-yr	268300.00	461.24	494.4	480.19	495.99	0.000359	10.42	30431.08	1478.20	0.34
Susquehanna	Middle Reach	160.099	100-yr	302800.00	461.24	497.7	481.49	499.20	0.000369	10.34	35237.16	1572.93	0.32
Susquehanna	Middle Reach	160.099	500-yr	390300.00	461.24	502.9	484.57	504.65	0.000375	11.12	43170.20	1781.16	0.32
Susquehanna	Middle Reach	160.022	2-yr	117300.00	460.53	483.0	472.51	483.94	0.000313	7.67	15301.24	1085.36	0.31
Susquehanna	Middle Reach	160.022	5-yr	161600.00	460.53	486.6	474.73	487.85	0.000332	8.81	18340.29	1291.08	0.33
Susquehanna	Middle Reach	160.022	10-yr	193000.00	460.53	489.3	476.17	490.54	0.000321	9.01	23925.45	1372.36	0.32
Susquehanna	Middle Reach	160.022	25-yr	235500.00	460.53	492.3	478.01	493.70	0.000329	9.59	28133.88	1401.72	0.32
Susquehanna	Middle Reach	160.022	50-yr	268300.00	460.53	494.4	479.28	495.83	0.000330	10.04	30964.24	1411.60	0.33
Susquehanna	Middle Reach	160.022	100-yr	302800.00	460.53	497.6	480.59	499.04	0.000345	10.01	35551.09	1439.63	0.31
Susquehanna	Middle Reach	160.022	500-yr	390300.00	460.53	502.8	483.64	504.49	0.000355	10.81	43135.78	1664.94	0.31
Susquehanna	Middle Reach	159.934	2-yr	117300.00	460.46	482.9	472.13	483.80	0.000295	7.52	15589.31	1025.28	0.31
Susquehanna	Middle Reach	159.934	5-yr	161600.00	460.46	486.6	474.33	487.68	0.000310	8.43	20388.69	1198.08	0.32
Susquehanna	Middle Reach	159.934	10-yr	193000.00	460.46	489.2	475.74	490.39	0.000317	8.87	23665.27	1282.97	0.32
Susquehanna	Middle Reach	159.934	25-yr	235500.00	460.46	492.2	477.52	493.56	0.000326	9.48	27563.82	1305.76	0.32
Susquehanna	Middle Reach	159.934	50-yr	268300.00	460.46	494.2	478.82	495.69	0.000328	9.96	30194.29	1321.12	0.33
Susquehanna	Middle Reach	159.934	100-yr	302800.00	460.46	497.4	480.12	498.89	0.000343	9.97	34476.62	1338.14	0.31
Susquehanna	Middle Reach	159.934	500-yr	390300.00	460.46	502.7	483.17	504.34	0.000356	10.83	41578.28	1587.65	0.31
Susquehanna	Middle Reach	159.855	2-yr	117300.00	460.02	482.8	471.74	483.67	0.000283	7.38	16102.62	906.87	0.30
Susquehanna	Middle Reach	159.855	5-yr	161600.00	460.02	486.5	473.92	487.56	0.000302	8.46	19812.24	1118.48	0.32
Susquehanna	Middle Reach	159.855	10-yr	193000.00	460.02	489.0	475.33	490.26	0.000317	8.98	22744.67	1159.15	0.32
Susquehanna	Middle Reach	159.855	25-yr	235500.00	460.02	492.0	477.11	493.42	0.000335	9.68	26242.97	1199.26	0.33
Susquehanna	Middle Reach	159.855	50-yr	268300.00	460.02	494.0	478.44	495.54	0.000340	10.22	28631.65	1227.42	0.33
Susquehanna	Middle Reach	159.855	100-yr	302800.00	460.02	497.1	479.76	498.74	0.000362	10.29	32631.28	1276.45	0.32
Susquehanna	Middle Reach	159.855	500-yr	390300.00	460.02	502.3	482.91	504.17	0.000381	11.23	39343.37	1778.86	0.32
Susquehanna	Middle Reach	159.774	2-yr	117300.00	459.04	482.7	471.58	483.55	0.000334	7.59	15462.57	897.48	0.32
Susquehanna	Middle Reach	159.774	5-yr	161600.00	459.04	486.3	473.96	487.43	0.000348	8.58	18947.86	1035.09	0.34
Susquehanna	Middle Reach	159.774	10-yr	193000.00	459.04	488.9	475.43	490.13	0.000358	9.07	21674.88	1085.28	0.34
Susquehanna	Middle Reach	159.774	25-yr	235500.00	459.04	491.8	477.37	493.27	0.000372	9.76	25201.62	1301.30	0.34
Susquehanna	Middle Reach	159.774	50-yr	268300.00	459.04	493.8	478.74	495.40	0.000374	10.28	27815.55	1384.87	0.35
Susquehanna	Middle Reach	159.774	100-yr	302800.00	459.04	497.0	480.15	498.58	0.000391	10.31	32421.64	1463.68	0.33
Susquehanna	Middle Reach	159.774	500-yr	390300.00	459.04	502.1	483.63	504.01	0.000403	11.20	40059.88	1699.16	0.33
Susquehanna	Middle Reach	159.695	2-yr	117300.00	459.54	482.4	472.33	483.39	0.000373	8.16	14396.80	872.38	0.34
Susquehanna	Middle Reach	159.695	5-yr	161600.00	459.54	485.9	474.89	487.26	0.000391	9.34	17671.67	957.52	0.36
Susquehanna	Middle Reach	159.695	10-yr	193000.00	459.54	488.4	476.48	489.95	0.000412	9.94	20115.29	997.93	0.36
Susquehanna	Middle Reach	159.695	25-yr	235500.00	459.54	491.3	478.29	493.08	0.000437	10.76	23133.93	1287.00	0.37
Susquehanna	Middle Reach	159.695	50-yr	268300.00	459.54	493.2	479.58	495.20	0.000446	11.38	25240.24	1363.07	0.38
Susquehanna	Middle Reach	159.695	100-yr	302800.00	459.54	496.4	480.87	498.38	0.000474	11.49	28906.46	1474.33	0.36
Susquehanna	Middle Reach	159.695	500-yr	390300.00	459.54	501.5	484.08	503.80	0.000484	12.39	38884.57	1835.81	0.36
Susquehanna	Middle Reach	159.616	2-yr	117300.00	459.15	482.1	472.31	483.23	0.000425	8.50	13807.61	810.70	0.36
Susquehanna	Middle Reach	159.616	5-yr	161600.00	459.15	485.6	474.65	487.09	0.000441	9.65	17091.67	1037.60	0.38
Susquehanna	Middle Reach	159.616	10-yr	193000.00	459.15	488.2	476.19	489.77	0.000455	10.20	19743.88	1064.87	0.38
Susquehanna	Middle Reach	159.616	25-yr	235500.00	459.15	491.0	478.12	492.90	0.000476	10.97	22859.14	1099.86	0.38
Susquehanna	Middle Reach	159.616	50-yr	268300.00	459.15	493.0	479.66	495.01	0.000484	11.58	24988.40	1128.68	0.39
Susquehanna	Middle Reach	159.616	100-yr	302800.00	459.15	496.1	481.32	498.18	0.000512	11.63	28637.10	1181.79	0.37
Susquehanna	Middle Reach	159.616	500-yr	390300.00	459.15	501.2	484.65	503.59	0.000538	12.71	34817.11	1742.44	0.38
Susquehanna	Middle Reach	159.533	2-yr	117300.00	458.75	481.9	472.58	483.05	0.000450	8.61	13641.85	865.77	0.37
Susquehanna	Middle Reach	159.533	5-yr	161600.00	458.75	485.5	474.99	486.90	0.000491	9.66	17102.40	1099.18	0.40
Susquehanna	Middle Reach	159.533	10-yr	193000.00	458.75	488.0	476.49	489.57	0.000483	10.09	20403.41	1385.93	0.39
Susquehanna	Middle Reach	159.533	25-yr	235500.00	458.75	490.9	478.39	492.67	0.000480	10.70	24530.71	1450.94	0.38
Susquehanna	Middle Reach	159.533	50-yr	268300.00	458.75	492.9	479.78	494.77	0.000474	11.20	27400.93	1524.15	0.39
Susquehanna	Middle Reach	159.533	100-yr	302800.00	458.75	496.1	481.33	497.91	0.000482	11.11	32509.03	1679.40	0.36
Susquehanna	Middle Reach	159.533	500-yr	390300.00	458.75	501.2	485.06	503.27	0.000477	11.89	41887.28	1924.55	0.36
Susquehanna	Middle Reach	159.453	2-yr	117300.00	458.05	481.9	470.77	482.84	0.000308	7.77	15105.34	805.01	0.31
Susquehanna	Middle Reach	159.453	5-yr	161600.00	458.05	485.4	473.10	486.68	0.000333	8.99	18485.02	1104.62	0.34
Susquehanna	Middle Reach	159.453	10-yr	193000.00	458.05	487.9	474.58	489.37	0.000353	9.60	21476.07	1290.90	0.34
Susquehanna	Middle Reach	159.453	25-yr	235500.00	458.05	490.8	476.48	492.48	0.000376	10.40	25502.95	1505.97	0.35
Susquehanna	Middle Reach	159.453	50-yr	268300.00	458.05	492.8	477.85	494.58	0.000383	10.98	28474.10	1576.39	0.36
Susquehanna	Middle Reach	159.453	100-yr	302800.00	458.05	495.9	479.23	497.73	0.000408	11.05	33633.52	1709.81	0.34
Susquehanna	Middle Reach	159.453	500-yr	390300.00	458.05	501.0	482.54	503.09	0.000428	12.00	43169.40	1975.26	0.34
Susquehanna	Middle Reach	159.368	2-yr	117300.00	457.29	482.0	469.22	482.66	0.000223	6.76	17345.06	880.75	0.27
Susquehanna	Middle Reach	159.368	5-yr	161600.00	457.29	485.5	471.45	486.48	0.000249	7.87	20713.32	1071.25	0.29
Susquehanna	Middle Reach	159.368	10-yr	193000.00	457.29	488.0	472.87	489.14	0.000269	8.43	23893.39	1388.58	0.30
Susquehanna	Middle Reach	159.368	25-yr	235500.00	457.29	490.9	474.63	492.23	0.000288	9.15	28126.73	1525.74	0.30
Susquehanna	Middle Reach	159.368	50-yr	268300.00	457.29	492.9	475.90	494.33	0.000295	9.69	31256.61	1697.16	0.31
Susquehanna	Middle Reach	159.368	100-yr	302800.00	457.29	496.0	477.19	497.47	0.000316	9.77	36780.80	1823.86	0.30
Susquehanna	Middle Reach	159.368	500-yr	390300.00	457.29	501.1	480.23	502.81	0.000335	10.67	47024.05	2194.02	0.30
Susquehanna	Middle Reach	159.289	2-yr	117300.00	456.57	481.9	468.69	482.57	0.000197	6.58	17913.27	912.15	0.25
Susquehanna	Middle Reach	159.289	5-yr	161600.00	456.57	485.4	470.93	486.37	0.000229	7.71	21409.06	1104.93	0.28
Susquehanna	Middle Reach	159.289	10-yr	193000.00	456.57	488.0	472.35	489.03	0.000254	8.28	24473.17	1347.90	0.29
Susquehanna	Middle Reach	159.289	25-yr	235500.00	456.57	490.9	474.10	492.11	0.000273	9.01	28629.88	1509.64	0.30
Susquehanna	Middle Reach	159.289	50-yr	268300.00	456.57	492.8	475.38	494.20	0.000281	9.55	31611.49	1556.07	0.31
Susquehanna	Middle Reach	159.289	100-yr	302800.00	456.57	495.9	476.65	497.34	0.000305	9.68	36759.01	1799.54	0.29
Susquehanna	Middle Reach	159.289	500-yr	390300.00	456.57	501.0	479.67	502.67	0.000327	10.61	46680.68	2283.08	0.30
Susquehanna	Middle Reach	159.207	2-yr	117300.00	455.83	481.6	469.29	482.47	0.000254	7.24	16193.09	826.77	0.29
Susquehanna	Middle Reach	159.207	5-yr	161600.00	455.83	485.1	471.67	486.25	0.000294	8.45	19192.19	890.07	0.32
Susquehanna	Middle Reach	159.207	10-yr	193000.00	455.83	487.6	473.24	488.89	0.000323	9.07	21651.73	1164.62	0.32
Susquehanna	Middle Reach	159.207	25-yr	235500.00	455.83	490.5	475.15	491.96	0.000347	9.86	25257.36	1360.96	0.33
Susquehanna	Middle Reach	159.207	50-yr	268300.00	455.83	492.4	476.47	494.04	0.000356	10.45	27910.24	1428.60	0.34
Susquehanna	Middle Reach	159.207	100-yr	302800.00	455.83	495.5	477.83	497.17	0.000382	10.56	32524.06	1575.05	0.33
Susquehanna	Middle Reach	159.207	500-yr	390300.00	455.83	500.5	481.03	502.49	0.000406	11.56	41332.79	2113.67	0.33

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	159.125	2-yr	117300.00	455.10	481.5	468.88	482.36	0.000252	7.40	15855.23	768.02	0.29
Susquehanna	Middle Reach	159.125	5-yr	161600.00	455.10	484.9	471.34	486.12	0.000297	8.71	18561.29	817.52	0.32
Susquehanna	Middle Reach	159.125	10-yr	193000.00	455.10	487.4	472.92	488.75	0.000327	9.42	20694.13	906.35	0.33
Susquehanna	Middle Reach	159.125	25-yr	235500.00	455.10	490.1	474.78	491.80	0.000363	10.36	23379.92	1121.58	0.34
Susquehanna	Middle Reach	159.125	50-yr	268300.00	455.10	492.0	476.17	493.87	0.000379	11.05	25754.64	1354.88	0.35
Susquehanna	Middle Reach	159.125	100-yr	302800.00	455.10	495.1	477.55	496.99	0.000414	11.22	30273.73	1604.29	0.34
Susquehanna	Middle Reach	159.125	500-yr	390300.00	455.10	500.0	480.83	502.29	0.000447	12.33	38768.76	2080.64	0.35
Susquehanna	Middle Reach	159.044	2-yr	117300.00	454.55	481.4	469.06	482.25	0.000275	7.49	15669.71	797.44	0.30
Susquehanna	Middle Reach	159.044	5-yr	161600.00	454.55	484.8	471.56	486.00	0.000320	8.76	18447.10	829.58	0.33
Susquehanna	Middle Reach	159.044	10-yr	193000.00	454.55	487.2	473.25	488.62	0.000347	9.43	20500.46	862.28	0.34
Susquehanna	Middle Reach	159.044	25-yr	235500.00	454.55	490.0	475.16	491.65	0.000380	10.34	23044.44	1034.13	0.35
Susquehanna	Middle Reach	159.044	50-yr	268300.00	454.55	491.8	476.50	493.72	0.000396	11.02	25212.88	1292.49	0.36
Susquehanna	Middle Reach	159.044	100-yr	302800.00	454.55	494.9	477.86	496.82	0.000429	11.17	29687.15	1553.25	0.35
Susquehanna	Middle Reach	159.044	500-yr	390300.00	454.55	499.8	481.26	502.11	0.000458	12.24	37931.89	2051.46	0.35
Susquehanna	Middle Reach	158.962	2-yr	117300.00	455.11	481.4	467.64	482.10	0.000188	6.56	17891.94	832.04	0.25
Susquehanna	Middle Reach	158.962	5-yr	161600.00	455.11	484.9	469.92	485.82	0.000221	7.78	20776.27	843.01	0.28
Susquehanna	Middle Reach	158.962	10-yr	193000.00	455.11	487.3	471.41	488.42	0.000247	8.46	22858.22	904.24	0.29
Susquehanna	Middle Reach	158.962	25-yr	235500.00	455.11	490.1	473.18	491.43	0.000278	9.35	25740.37	1185.21	0.30
Susquehanna	Middle Reach	158.962	50-yr	268300.00	455.11	491.9	474.47	493.48	0.000294	10.00	28263.13	1502.65	0.31
Susquehanna	Middle Reach	158.962	100-yr	302800.00	455.11	495.0	475.77	496.57	0.000326	10.21	32981.10	1713.79	0.31
Susquehanna	Middle Reach	158.962	500-yr	390300.00	455.11	499.9	478.84	501.85	0.000360	11.30	41228.84	2313.54	0.32
Susquehanna	Middle Reach	158.884	2-yr	117300.00	455.66	481.3	468.34	482.02	0.000212	6.79	17286.85	853.12	0.26
Susquehanna	Middle Reach	158.884	5-yr	161600.00	455.66	484.7	470.67	485.72	0.000249	8.00	20633.83	1166.22	0.29
Susquehanna	Middle Reach	158.884	10-yr	193000.00	455.66	487.2	472.15	488.31	0.000276	8.60	23863.96	1374.91	0.30
Susquehanna	Middle Reach	158.884	25-yr	235500.00	455.66	490.0	473.90	491.32	0.000300	9.38	27817.69	1502.25	0.31
Susquehanna	Middle Reach	158.884	50-yr	268300.00	455.66	491.8	475.17	493.35	0.000310	9.96	30604.17	1635.08	0.32
Susquehanna	Middle Reach	158.884	100-yr	302800.00	455.66	494.9	476.45	496.43	0.000340	10.12	35398.64	1919.76	0.31
Susquehanna	Middle Reach	158.884	500-yr	390300.00	455.66	499.8	479.49	501.68	0.000366	11.12	44286.05	2238.99	0.32
Susquehanna	Middle Reach	158.796	2-yr	117300.00	456.26	481.1	468.71	481.92	0.000236	7.11	16498.37	820.57	0.28
Susquehanna	Middle Reach	158.796	5-yr	161600.00	456.26	484.5	471.03	485.60	0.000279	8.37	19585.85	1052.31	0.31
Susquehanna	Middle Reach	158.796	10-yr	193000.00	456.26	486.9	472.47	488.18	0.000318	8.98	22583.99	1354.32	0.32
Susquehanna	Middle Reach	158.796	25-yr	235500.00	456.26	489.7	474.28	491.17	0.000340	9.71	26881.29	1601.35	0.33
Susquehanna	Middle Reach	158.796	50-yr	268300.00	456.26	491.6	475.57	493.21	0.000343	10.22	29943.10	1614.15	0.33
Susquehanna	Middle Reach	158.796	100-yr	302800.00	456.26	494.7	476.89	496.28	0.000363	10.25	35175.09	2004.76	0.32
Susquehanna	Middle Reach	158.796	500-yr	390300.00	456.26	499.7	480.02	501.49	0.000374	11.04	44581.43	2373.22	0.32
Susquehanna	Middle Reach	158.722	2-yr	117300.00	456.77	481.0	469.28	481.82	0.000275	7.46	15729.65	805.88	0.30
Susquehanna	Middle Reach	158.722	5-yr	161600.00	456.77	484.3	471.64	485.48	0.000325	8.73	18849.17	1130.47	0.33
Susquehanna	Middle Reach	158.722	10-yr	193000.00	456.77	486.7	473.14	488.04	0.000348	9.32	22033.89	1367.63	0.33
Susquehanna	Middle Reach	158.722	25-yr	235500.00	456.77	489.5	474.99	491.03	0.000371	10.07	26188.38	1586.83	0.34
Susquehanna	Middle Reach	158.722	50-yr	268300.00	456.77	491.4	476.32	493.07	0.000375	10.59	29236.26	1627.58	0.35
Susquehanna	Middle Reach	158.722	100-yr	302800.00	456.77	494.5	477.64	496.13	0.000395	10.60	34495.66	2016.42	0.33
Susquehanna	Middle Reach	158.722	500-yr	390300.00	456.77	499.5	480.83	501.34	0.000400	11.35	44008.90	2360.70	0.33
Susquehanna	Middle Reach	158.638	2-yr	117300.00	457.33	480.7	469.78	481.68	0.000327	7.84	15001.09	912.67	0.32
Susquehanna	Middle Reach	158.638	5-yr	161600.00	457.33	484.0	472.14	485.33	0.000361	9.10	18447.21	1188.96	0.35
Susquehanna	Middle Reach	158.638	10-yr	193000.00	457.33	486.4	473.61	487.88	0.000383	9.70	21573.38	1401.11	0.35
Susquehanna	Middle Reach	158.638	25-yr	235500.00	457.33	489.2	475.49	490.86	0.000406	10.44	25863.90	1629.09	0.36
Susquehanna	Middle Reach	158.638	50-yr	268300.00	457.33	491.1	476.85	492.90	0.000407	10.93	28984.04	1654.34	0.36
Susquehanna	Middle Reach	158.638	100-yr	302800.00	457.33	494.2	478.46	495.95	0.000423	10.89	34435.68	2063.72	0.34
Susquehanna	Middle Reach	158.638	500-yr	390300.00	457.33	499.3	481.79	501.17	0.000425	11.62	44214.86	2517.12	0.34
Susquehanna	Middle Reach	158.561	2-yr	117300.00	457.87	480.5	470.21	481.54	0.000363	8.23	14318.66	833.72	0.34
Susquehanna	Middle Reach	158.561	5-yr	161600.00	457.87	483.8	472.58	485.17	0.000428	9.49	17827.06	1213.24	0.37
Susquehanna	Middle Reach	158.561	10-yr	193000.00	457.87	486.2	474.08	487.72	0.000444	10.04	20857.32	1322.43	0.37
Susquehanna	Middle Reach	158.561	25-yr	235500.00	457.87	488.9	475.99	490.69	0.000461	10.74	24931.85	1557.25	0.38
Susquehanna	Middle Reach	158.561	50-yr	268300.00	457.87	490.8	477.36	492.72	0.000460	11.24	28022.30	1687.43	0.38
Susquehanna	Middle Reach	158.561	100-yr	302800.00	457.87	494.0	478.79	495.78	0.000466	11.11	33692.93	2078.75	0.36
Susquehanna	Middle Reach	158.561	500-yr	390300.00	457.87	499.0	482.89	500.99	0.000462	11.82	43924.66	2646.54	0.35
Susquehanna	Middle Reach	158.475	2-yr	117300.00	458.44	480.5	469.66	481.34	0.000315	7.43	15913.49	1069.10	0.31
Susquehanna	Middle Reach	158.475	5-yr	161600.00	458.44	483.8	471.89	484.93	0.000335	8.54	19808.75	1252.50	0.33
Susquehanna	Middle Reach	158.475	10-yr	193000.00	458.44	486.2	473.28	487.47	0.000351	9.05	22980.32	1472.59	0.33
Susquehanna	Middle Reach	158.475	25-yr	235500.00	458.44	489.0	475.01	490.42	0.000365	9.70	27487.45	1708.83	0.34
Susquehanna	Middle Reach	158.475	50-yr	268300.00	458.44	490.9	476.33	492.44	0.000364	10.17	30846.66	1814.25	0.34
Susquehanna	Middle Reach	158.475	100-yr	302800.00	458.44	494.0	477.91	495.51	0.000376	10.11	36934.72	2198.05	0.32
Susquehanna	Middle Reach	158.475	500-yr	390300.00	458.44	499.1	481.22	500.72	0.000379	10.83	48174.98	3026.95	0.32
Susquehanna	Middle Reach	158.394	2-yr	117300.00	458.99	480.5	468.91	481.18	0.000240	6.57	17898.80	1088.24	0.27
Susquehanna	Middle Reach	158.394	5-yr	161600.00	458.99	483.9	470.97	484.74	0.000263	7.57	21918.63	1294.94	0.29
Susquehanna	Middle Reach	158.394	10-yr	193000.00	458.99	486.3	472.27	487.26	0.000279	8.03	25312.49	1586.49	0.30
Susquehanna	Middle Reach	158.394	25-yr	235500.00	458.99	489.1	473.88	490.20	0.000289	8.61	30038.00	1780.90	0.30
Susquehanna	Middle Reach	158.394	50-yr	268300.00	458.99	491.0	475.08	492.22	0.000289	9.04	33472.12	1839.17	0.30
Susquehanna	Middle Reach	158.394	100-yr	302800.00	458.99	494.1	476.27	495.29	0.000301	9.04	39865.21	2175.75	0.29
Susquehanna	Middle Reach	158.394	500-yr	390300.00	458.99	499.1	479.14	500.50	0.000305	9.71	51901.05	3187.65	0.29
Susquehanna	Middle Reach	158.313	2-yr	117300.00	459.50	480.3	469.74	481.07	0.000272	6.87	17076.92	1003.72	0.29
Susquehanna	Middle Reach	158.313	5-yr	161600.00	459.50	483.7	472.12	484.62	0.000298	7.90	20919.37	1288.12	0.31
Susquehanna	Middle Reach	158.313	10-yr	193000.00	459.50	486.1	473.37	487.14	0.000309	8.35	24507.37	1651.45	0.31
Susquehanna	Middle Reach	158.313	25-yr	235500.00	459.50	488.9	474.97	490.07	0.000317	8.94	29489.86	1883.92	0.31
Susquehanna	Middle Reach	158.313	50-yr	268300.00	459.50	490.8	476.10	492.09	0.000312	9.32	33167.83	1945.57	0.32
Susquehanna	Middle Reach	158.313	100-yr	302800.00	459.50	493.9	477.24	495.16	0.000317	9.21	39907.38	2344.09	0.30
Susquehanna	Middle Reach	158.313	500-yr	390300.00	459.50	499.0	479.94	500.37	0.000312	9.77	52245.94	3629.77	0.29
Susquehanna	Middle Reach	158.231	2-yr	117300.00	460.10	480.1	469.96	480.94	0.000317	7.30	16120.42	1067.74	0.31
Susquehanna	Middle Reach	158.231	5-yr	161600.00	460.10	483.4	472.02	484.48	0.000343	8.32	20081.44	1294.15	0.33
Susquehanna	Middle Reach	158.231	10-yr	193000.00	460.10	485.8	473.35	486.99	0.000356	8.75	23743.84	1980.62	0.33
Susquehanna	Middle Reach	158.231	25-yr	235500.00	460.10	488.6	475.04	489.93	0.000356	9.25	29004.89	2501.56	0.33
Susquehanna	Middle Reach	158.231	50-yr	268300.00	460.10	490.6	476.27	491.96	0.000346	9.60	32956.31	2653.95	0.33
Susquehanna	Middle Reach	158.231	100-yr	302800.00	460.10	493.8	477.51	495.03	0.000343	9.39	40036.71	3725.74	0.31
Susquehanna	Middle Reach	158.231	500-yr	390300.00	460.10	498.9	480.86	500.23	0.000323	9.79	52613.17	4875.84	0.29
Susquehanna	Middle Reach	158.150	2-yr	117300.00	460.47	480.0	469.99	480.80	0.000310	7.08	17492.45	1898.62	0.31
Susquehanna	Middle Reach	158.150	5-yr	161600.00	460.47	483.4	472.00	484.30	0.000305	7.81	24460.31	2474.33	0.31
Susquehanna	Middle Reach	158.150	10-yr	193000.00	460.47	485.9	473.30	486.79	0.000295	8.01	30184.98	2827.87	0.30
Susquehanna	Middle Reach	158.150	25-yr	235500.00	460.47	488.7	474.94	489.70	0.000285	8.28	37367.80	3574.58	0.30

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	158.150	50-yr	268300.00	460.47	490.7	476.13	491.72	0.000270	8.49	42595.19	3942.53	0.29
Susquehanna	Middle Reach	158.150	100-yr	302800.00	460.47	493.9	477.38	494.79	0.000265	8.27	51420.15	4397.58	0.27
Susquehanna	Middle Reach	158.150	500-yr	390300.00	460.47	499.2	481.57	499.95	0.000210	7.93	86549.16	4998.19	0.24
Susquehanna	Middle Reach	158.073	2-yr	117300.00	460.63	480.0	469.48	480.65	0.000234	6.30	20852.93	1959.65	0.27
Susquehanna	Middle Reach	158.073	5-yr	161600.00	460.63	483.4	471.40	484.15	0.000232	6.99	28244.14	2379.11	0.27
Susquehanna	Middle Reach	158.073	10-yr	193000.00	460.63	485.9	472.61	486.64	0.000229	7.23	34509.42	2713.51	0.27
Susquehanna	Middle Reach	158.073	25-yr	235500.00	460.63	488.8	474.11	489.56	0.000222	7.52	42573.66	2837.39	0.26
Susquehanna	Middle Reach	158.073	50-yr	268300.00	460.63	490.8	475.22	491.58	0.000213	7.75	48267.57	2868.87	0.26
Susquehanna	Middle Reach	158.073	100-yr	302800.00	460.63	493.9	476.33	494.66	0.000210	7.55	57312.60	2896.78	0.24
Susquehanna	Middle Reach	158.073	500-yr	390300.00	460.63	499.1	479.35	499.87	0.000201	7.91	72280.03	3727.77	0.23
Susquehanna	Middle Reach	157.987	2-yr	117300.00	460.72	480.1	469.17	480.51	0.000196	5.39	22966.46	1863.83	0.24
Susquehanna	Middle Reach	157.987	5-yr	161600.00	460.72	483.5	470.97	484.01	0.000189	5.98	29999.44	2426.67	0.25
Susquehanna	Middle Reach	157.987	10-yr	193000.00	460.72	485.9	472.13	486.50	0.000184	6.19	36249.89	2600.45	0.24
Susquehanna	Middle Reach	157.987	25-yr	235500.00	460.72	488.8	473.72	489.42	0.000178	6.48	43879.21	2695.42	0.23
Susquehanna	Middle Reach	157.987	50-yr	268300.00	460.72	490.8	474.84	491.45	0.000172	6.71	49315.87	2757.18	0.23
Susquehanna	Middle Reach	157.987	100-yr	302800.00	460.72	493.9	476.00	494.54	0.000171	6.59	58021.00	2916.74	0.22
Susquehanna	Middle Reach	157.987	500-yr	390300.00	460.72	499.1	478.27	499.75	0.000165	6.96	73207.33	3343.45	0.21
Susquehanna	Middle Reach	157.906 Briar Creek	2-yr	117500.00	460.80	479.9	469.84	480.41	0.000225	5.96	20126.16	1354.90	0.26
Susquehanna	Middle Reach	157.906 Briar Creek	5-yr	161900.00	460.80	483.2	471.67	483.91	0.000228	6.77	25138.59	1718.88	0.27
Susquehanna	Middle Reach	157.906 Briar Creek	10-yr	193400.00	460.80	485.6	472.76	486.39	0.000230	7.11	30016.38	2210.77	0.27
Susquehanna	Middle Reach	157.906 Briar Creek	25-yr	235600.00	460.80	488.5	474.12	489.32	0.000228	7.49	36766.86	2419.87	0.27
Susquehanna	Middle Reach	157.906 Briar Creek	50-yr	268700.00	460.80	490.5	475.11	491.34	0.000221	7.77	41581.81	2459.49	0.27
Susquehanna	Middle Reach	157.906 Briar Creek	100-yr	303300.00	460.80	493.6	476.10	494.44	0.000221	7.62	49703.98	2798.43	0.25
Susquehanna	Middle Reach	157.906 Briar Creek	500-yr	390800.00	460.80	498.8	478.46	499.66	0.000209	7.96	65206.81	3031.59	0.24
Susquehanna	Middle Reach	157.831	2-yr	117500.00	460.88	479.6	470.37	480.30	0.000304	6.59	17910.42	1381.49	0.30
Susquehanna	Middle Reach	157.831	5-yr	161900.00	460.88	483.0	472.21	483.79	0.000294	7.32	23624.96	1995.78	0.30
Susquehanna	Middle Reach	157.831	10-yr	193400.00	460.88	485.4	473.49	486.28	0.000283	7.54	28758.37	2179.55	0.29
Susquehanna	Middle Reach	157.831	25-yr	235600.00	460.88	488.3	474.95	489.21	0.000270	7.86	35436.16	2520.50	0.29
Susquehanna	Middle Reach	157.831	50-yr	268700.00	460.88	490.3	476.02	491.24	0.000256	8.08	40707.32	2769.04	0.28
Susquehanna	Middle Reach	157.831	100-yr	303300.00	460.88	493.5	477.05	494.34	0.000247	7.82	49798.91	2877.36	0.26
Susquehanna	Middle Reach	157.831	500-yr	390800.00	460.88	498.7	479.72	499.57	0.000226	8.08	65078.06	2966.72	0.25
Susquehanna	Middle Reach	157.759	2-yr	117500.00	460.96	479.3	471.16	480.14	0.000433	7.17	16451.65	1361.51	0.35
Susquehanna	Middle Reach	157.759	5-yr	161900.00	460.96	482.7	473.12	483.65	0.000381	7.73	22253.60	1998.02	0.34
Susquehanna	Middle Reach	157.759	10-yr	193400.00	460.96	485.2	474.43	486.15	0.000346	7.83	27684.21	2288.77	0.32
Susquehanna	Middle Reach	157.759	25-yr	235600.00	460.96	488.1	476.08	489.09	0.000314	8.02	34683.04	2509.55	0.31
Susquehanna	Middle Reach	157.759	50-yr	268700.00	460.96	490.2	477.20	491.13	0.000290	8.19	39823.80	2580.39	0.30
Susquehanna	Middle Reach	157.759	100-yr	303300.00	460.96	493.4	478.47	494.24	0.000274	7.89	48151.59	2645.93	0.27
Susquehanna	Middle Reach	157.759	500-yr	390800.00	460.96	498.6	481.06	499.47	0.000247	8.14	62534.16	2876.98	0.25
Susquehanna	Middle Reach	157.682	2-yr	117500.00	461.06	479.5	469.09	479.93	0.000196	5.46	21684.71	1538.47	0.24
Susquehanna	Middle Reach	157.682	5-yr	161900.00	461.06	482.9	470.67	483.44	0.000199	6.12	27844.96	2040.31	0.25
Susquehanna	Middle Reach	157.682	10-yr	193400.00	461.06	485.3	471.68	485.96	0.000196	6.37	32998.45	2121.92	0.25
Susquehanna	Middle Reach	157.682	25-yr	235600.00	461.06	488.2	472.97	488.91	0.000192	6.73	39383.56	2280.53	0.24
Susquehanna	Middle Reach	157.682	50-yr	268700.00	461.06	490.2	473.91	490.97	0.000187	7.00	44031.37	2343.59	0.24
Susquehanna	Middle Reach	157.682	100-yr	303300.00	461.06	493.4	474.87	494.09	0.000190	6.94	51631.36	2615.84	0.23
Susquehanna	Middle Reach	157.682	500-yr	390800.00	461.06	498.6	477.12	499.35	0.000185	7.38	65901.92	2834.77	0.22
Susquehanna	Middle Reach	157.614	2-yr	117500.00	462.03	479.4	470.86	479.84	0.000260	5.54	21408.44	1737.23	0.27
Susquehanna	Middle Reach	157.614	5-yr	161900.00	462.03	482.8	472.75	483.35	0.000242	6.05	27695.75	1972.43	0.26
Susquehanna	Middle Reach	157.614	10-yr	193400.00	462.03	485.3	473.69	485.87	0.000236	6.25	32796.92	2107.98	0.25
Susquehanna	Middle Reach	157.614	25-yr	235600.00	462.03	488.2	474.81	488.83	0.000230	6.55	39053.30	2220.15	0.25
Susquehanna	Middle Reach	157.614	50-yr	268700.00	462.03	490.2	475.61	490.88	0.000222	6.80	43556.07	2261.17	0.25
Susquehanna	Middle Reach	157.614	100-yr	303300.00	462.03	493.3	476.44	494.01	0.000225	6.72	50853.27	2434.75	0.23
Susquehanna	Middle Reach	157.614	500-yr	390800.00	462.03	498.5	478.41	499.27	0.000218	7.12	64858.84	2857.41	0.22
Susquehanna	Middle Reach	157.538	2-yr	117500.00	461.85	479.1	471.35	479.71	0.000324	6.27	18734.26	1452.00	0.31
Susquehanna	Middle Reach	157.538	5-yr	161900.00	461.85	482.5	472.93	483.23	0.000294	6.76	23955.55	1613.55	0.31
Susquehanna	Middle Reach	157.538	10-yr	193400.00	461.85	485.0	473.95	485.75	0.000278	6.88	28432.41	1995.94	0.30
Susquehanna	Middle Reach	157.538	25-yr	235600.00	461.85	487.9	475.18	488.72	0.000260	7.05	34598.62	2153.01	0.29
Susquehanna	Middle Reach	157.538	50-yr	268700.00	461.85	490.0	476.11	490.78	0.000247	7.22	39075.77	2235.20	0.28
Susquehanna	Middle Reach	157.538	100-yr	303300.00	461.85	493.1	477.07	493.91	0.000243	7.03	46310.55	2401.46	0.25
Susquehanna	Middle Reach	157.538	500-yr	390800.00	461.85	498.4	479.33	499.17	0.000227	7.32	60462.54	2844.17	0.24
Susquehanna	Middle Reach	157.468	2-yr	117500.00	461.45	478.8	470.89	479.56	0.000380	6.91	17000.16	1262.37	0.33
Susquehanna	Middle Reach	157.468	5-yr	161900.00	461.45	482.2	472.63	483.09	0.000357	7.52	21571.54	1487.68	0.34
Susquehanna	Middle Reach	157.468	10-yr	193400.00	461.45	484.7	473.75	485.62	0.000338	7.62	25588.15	1733.27	0.34
Susquehanna	Middle Reach	157.468	25-yr	235600.00	461.45	487.7	475.15	488.59	0.000316	7.66	31217.28	1961.17	0.33
Susquehanna	Middle Reach	157.468	50-yr	268700.00	461.45	489.7	476.28	490.66	0.000300	7.78	35254.57	1996.29	0.32
Susquehanna	Middle Reach	157.468	100-yr	303300.00	461.45	492.9	477.32	493.79	0.000294	7.49	41741.00	2053.73	0.28
Susquehanna	Middle Reach	157.468	500-yr	390800.00	461.45	498.1	479.83	499.06	0.000280	7.79	52739.49	2512.29	0.26
Susquehanna	Middle Reach	157.390	2-yr	117500.00	461.01	478.5	471.11	479.38	0.000443	7.42	15839.20	1180.78	0.36
Susquehanna	Middle Reach	157.390	5-yr	161900.00	461.01	481.9	472.88	482.91	0.000424	8.13	19913.12	1283.54	0.36
Susquehanna	Middle Reach	157.390	10-yr	193400.00	461.01	484.4	474.05	485.45	0.000402	8.17	23798.72	1682.60	0.38
Susquehanna	Middle Reach	157.390	25-yr	235600.00	461.01	487.4	475.51	488.43	0.000375	8.22	28968.05	1837.91	0.36
Susquehanna	Middle Reach	157.390	50-yr	268700.00	461.01	489.4	476.66	490.51	0.000352	8.33	32820.78	1914.79	0.34
Susquehanna	Middle Reach	157.390	100-yr	303300.00	461.01	492.7	477.78	493.65	0.000341	7.99	39141.04	1996.74	0.30
Susquehanna	Middle Reach	157.390	500-yr	390800.00	461.01	497.9	480.26	498.93	0.000320	8.25	49686.40	2111.95	0.28
Susquehanna	Middle Reach	157.314	2-yr	117500.00	460.57	478.4	470.85	479.19	0.000427	7.24	16238.23	1228.88	0.35
Susquehanna	Middle Reach	157.314	5-yr	161900.00	460.57	481.8	472.61	482.72	0.000396	7.89	20618.68	1381.02	0.35
Susquehanna	Middle Reach	157.314	10-yr	193400.00	460.57	484.3	473.77	485.28	0.000377	8.03	24435.44	1683.59	0.36
Susquehanna	Middle Reach	157.314	25-yr	235600.00	460.57	487.3	475.24	488.28	0.000354	8.12	29655.28	1804.25	0.34
Susquehanna	Middle Reach	157.314	50-yr	268700.00	460.57	489.3	476.33	490.36	0.000333	8.27	33406.16	1841.16	0.33
Susquehanna	Middle Reach	157.314	100-yr	303300.00	460.57	492.5	477.42	493.51	0.000325	7.99	39411.89	1898.98	0.30
Susquehanna	Middle Reach	157.314	500-yr	390800.00	460.57	497.7	479.91	498.80	0.000308	8.33	49407.35	1981.70	0.28
Susquehanna	Middle Reach	157.240	2-yr	117500.00	460.15	478.3	470.41	479.01	0.000362	6.83	17207.72	1286.45	0.33
Susquehanna	Middle Reach	157.240	5-yr	161900.00	460.15	481.7	472.10	482.55	0.000342	7.46	21695.56	1373.35	0.33
Susquehanna	Middle Reach	157.240	10-yr	193400.00	460.15	484.2	473.20	485.11	0.000332	7.58	25675.77	1731.53	0.34
Susquehanna	Middle Reach	157.240	25-yr	235600.00	460.15	487.2	474.59	488.12	0.000314	7.76	30897.52	1793.76	0.32
Susquehanna	Middle Reach	157.240	50-yr	268700.00	460.15	489.2	475.68	490.22	0.000300	7.97	34620.97	1831.28	0.31
Susquehanna	Middle Reach	157.240	100-yr	303300.00	460.15	492.4	476.76	493.37	0.000299	7.77	40573.39	1872.10	0.28
Susquehanna	Middle Reach	157.240	500-yr	390800.00	460.15	497.6	479.16	498.67	0.000290	8.19	50406.30	1926.67	0.27
Susquehanna	Middle Reach	157.167	2-yr	117500.00	459.72	478.3	469.70	478.84	0.000274	6.08	19338.21	1413.60	0.29

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	157.167	5-yr	161900.00	459.72	481.7	471.27	482.37	0.000262	6.62	24515.68	1680.45	0.29
Susquehanna	Middle Reach	157.167	10-yr	193400.00	459.72	484.2	472.28	484.94	0.000253	6.81	28856.69	1741.33	0.28
Susquehanna	Middle Reach	157.167	25-yr	235600.00	459.72	487.2	473.55	487.96	0.000244	7.12	34062.97	1776.61	0.27
Susquehanna	Middle Reach	157.167	50-yr	268700.00	459.72	489.2	474.51	490.07	0.000236	7.38	37722.61	1795.51	0.27
Susquehanna	Middle Reach	157.167	100-yr	303300.00	459.72	492.4	475.46	493.23	0.000240	7.29	43520.25	1847.73	0.25
Susquehanna	Middle Reach	157.167	500-yr	390800.00	459.72	497.6	477.89	498.53	0.000237	7.78	53289.03	1942.18	0.24
Susquehanna	Middle Reach	157.099	2-yr	117500.00	460.04	478.2	469.44	478.73	0.000270	5.96	19703.24	1404.02	0.28
Susquehanna	Middle Reach	157.099	5-yr	161900.00	460.04	481.6	470.98	482.28	0.000252	6.59	24612.55	1601.84	0.28
Susquehanna	Middle Reach	157.099	10-yr	193400.00	460.04	484.1	472.01	484.85	0.000244	6.84	28843.37	1704.37	0.27
Susquehanna	Middle Reach	157.099	25-yr	235600.00	460.04	487.1	473.28	487.87	0.000237	7.20	33884.14	1716.76	0.27
Susquehanna	Middle Reach	157.099	50-yr	268700.00	460.04	489.1	474.23	489.98	0.000229	7.50	37403.99	1725.39	0.27
Susquehanna	Middle Reach	157.099	100-yr	303300.00	460.04	492.3	475.20	493.14	0.000231	7.44	42909.91	1739.25	0.25
Susquehanna	Middle Reach	157.099	500-yr	390800.00	460.04	497.5	477.52	498.44	0.000229	8.00	51971.70	1772.96	0.25
Susquehanna	Middle Reach	157.018	2-yr	117500.00	461.00	478.0	469.46	478.60	0.000301	6.27	18747.36	1345.21	0.30
Susquehanna	Middle Reach	157.018	5-yr	161900.00	461.00	481.4	471.05	482.15	0.000281	6.92	23451.16	1489.06	0.30
Susquehanna	Middle Reach	157.018	10-yr	193400.00	461.00	483.9	472.09	484.73	0.000271	7.17	27550.27	1679.60	0.29
Susquehanna	Middle Reach	157.018	25-yr	235600.00	461.00	486.9	473.41	487.76	0.000261	7.52	32523.13	1691.95	0.28
Susquehanna	Middle Reach	157.018	50-yr	268700.00	461.00	488.9	474.37	489.87	0.000250	7.82	35996.62	1700.78	0.28
Susquehanna	Middle Reach	157.018	100-yr	303300.00	461.00	492.1	475.35	493.03	0.000251	7.74	41437.08	1714.37	0.26
Susquehanna	Middle Reach	157.018	500-yr	390800.00	461.00	497.3	477.85	498.33	0.000247	8.30	50369.54	1747.20	0.26
Susquehanna	Middle Reach	156.943	2-yr	117500.00	461.74	477.7	470.22	478.45	0.000398	6.87	17109.49	1271.45	0.33
Susquehanna	Middle Reach	156.943	5-yr	161900.00	461.74	481.1	471.82	482.01	0.000367	7.54	21547.07	1416.92	0.32
Susquehanna	Middle Reach	156.943	10-yr	193400.00	461.74	483.7	472.91	484.59	0.000353	7.79	25542.54	1641.04	0.31
Susquehanna	Middle Reach	156.943	25-yr	235600.00	461.74	486.6	474.21	487.62	0.000339	8.14	30399.47	1652.29	0.31
Susquehanna	Middle Reach	156.943	50-yr	268700.00	461.74	488.7	475.35	489.74	0.000326	8.44	33789.95	1660.09	0.30
Susquehanna	Middle Reach	156.943	100-yr	303300.00	461.74	491.9	476.33	492.90	0.000327	8.32	39123.93	1672.30	0.28
Susquehanna	Middle Reach	156.943	500-yr	390800.00	461.74	497.0	478.59	498.20	0.000321	8.88	47869.59	1737.97	0.28
Susquehanna	Middle Reach	156.875	2-yr	117500.00	461.67	477.6	470.15	478.30	0.000406	6.94	16938.43	1261.22	0.33
Susquehanna	Middle Reach	156.875	5-yr	161900.00	461.67	481.0	471.79	481.87	0.000371	7.58	21724.92	1578.03	0.33
Susquehanna	Middle Reach	156.875	10-yr	193400.00	461.67	483.5	472.83	484.46	0.000353	7.79	25811.63	1613.82	0.31
Susquehanna	Middle Reach	156.875	25-yr	235600.00	461.67	486.5	474.19	487.49	0.000337	8.13	30604.82	1626.27	0.31
Susquehanna	Middle Reach	156.875	50-yr	268700.00	461.67	488.5	475.28	489.61	0.000324	8.42	33953.38	1634.91	0.30
Susquehanna	Middle Reach	156.875	100-yr	303300.00	461.67	491.7	476.24	492.78	0.000323	8.30	39208.57	1648.38	0.28
Susquehanna	Middle Reach	156.875	500-yr	390800.00	461.67	496.9	478.54	498.08	0.000314	8.85	48211.25	1824.89	0.27
Susquehanna	Middle Reach	156.807	2-yr	117500.00	461.28	477.5	469.31	478.14	0.000321	6.51	18036.00	1263.11	0.30
Susquehanna	Middle Reach	156.807	5-yr	161900.00	461.28	480.9	470.90	481.73	0.000302	7.19	23030.02	1584.37	0.30
Susquehanna	Middle Reach	156.807	10-yr	193400.00	461.28	483.5	471.94	484.32	0.000290	7.44	27100.56	1614.42	0.29
Susquehanna	Middle Reach	156.807	25-yr	235600.00	461.28	486.4	473.27	487.36	0.000280	7.82	31898.11	1629.93	0.29
Susquehanna	Middle Reach	156.807	50-yr	268700.00	461.28	488.5	474.25	489.49	0.000271	8.14	35254.20	1640.42	0.29
Susquehanna	Middle Reach	156.807	100-yr	303300.00	461.28	491.7	475.23	492.65	0.000274	8.07	40481.58	1680.65	0.27
Susquehanna	Middle Reach	156.807	500-yr	390800.00	461.28	496.8	477.60	497.96	0.000273	8.69	49005.07	1732.39	0.27
Susquehanna	Middle Reach	156.800	2-yr	117500.00	460.46	477.4	468.54	477.98	0.000297	6.14	19240.03	1459.01	0.28
Susquehanna	Middle Reach	156.800	5-yr	161900.00	460.46	480.8	470.12	481.57	0.000294	6.85	24310.40	1487.12	0.28
Susquehanna	Middle Reach	156.800	10-yr	193400.00	460.46	483.4	471.15	484.17	0.000209	7.16	28114.14	1506.40	0.28
Susquehanna	Middle Reach	156.800	25-yr	235600.00	460.46	486.3	472.42	487.22	0.000218	7.61	32597.52	1630.95	0.27
Susquehanna	Middle Reach	156.800	50-yr	268700.00	460.46	488.4	473.35	489.35	0.000214	7.96	35730.39	1639.41	0.28
Susquehanna	Middle Reach	156.800	100-yr	303300.00	460.46	491.6	474.35	492.52	0.000267	7.97	40595.31	1651.64	0.26
Susquehanna	Middle Reach	156.800	500-yr	390800.00	460.46	496.7	476.64	497.83	0.000294	8.67	48543.95	1688.08	0.26
Susquehanna	Middle Reach	156.79 Market Street		Bridge									
Susquehanna	Middle Reach	156.780	2-yr	117500.00	460.32	477.3	468.37	477.90	0.000282	5.94	19816.10	1349.91	0.27
Susquehanna	Middle Reach	156.780	5-yr	161900.00	460.32	480.8	469.89	481.48	0.000274	6.64	24732.04	1497.65	0.27
Susquehanna	Middle Reach	156.780	10-yr	193400.00	460.32	483.3	470.89	484.09	0.000271	6.96	28585.20	1536.07	0.27
Susquehanna	Middle Reach	156.780	25-yr	235600.00	460.32	486.3	472.16	487.14	0.000270	7.40	33181.63	1573.46	0.27
Susquehanna	Middle Reach	156.780	50-yr	268700.00	460.32	488.3	473.10	489.27	0.000266	7.75	36396.55	1592.01	0.27
Susquehanna	Middle Reach	156.780	100-yr	303300.00	460.32	491.5	474.04	492.43	0.000276	7.77	41362.07	1632.33	0.25
Susquehanna	Middle Reach	156.780	500-yr	390800.00	460.32	496.6	476.28	497.72	0.000283	8.46	49487.20	1727.64	0.25
Susquehanna	Middle Reach	156.723	2-yr	117500.00	460.23	477.3	468.37	477.86	0.000249	5.96	19702.79	1319.13	0.27
Susquehanna	Middle Reach	156.723	5-yr	161900.00	460.23	480.8	469.91	481.44	0.000260	6.61	24762.14	1591.60	0.28
Susquehanna	Middle Reach	156.723	10-yr	193400.00	460.23	483.3	470.90	484.05	0.000250	6.83	28868.81	1610.67	0.27
Susquehanna	Middle Reach	156.723	25-yr	235600.00	460.23	486.3	472.18	487.09	0.000241	7.19	33664.69	1620.19	0.27
Susquehanna	Middle Reach	156.723	50-yr	268700.00	460.23	488.4	473.12	489.22	0.000233	7.49	37007.79	1626.89	0.27
Susquehanna	Middle Reach	156.723	100-yr	303300.00	460.23	491.5	474.05	492.37	0.000238	7.46	42238.80	1680.27	0.25
Susquehanna	Middle Reach	156.723	500-yr	390800.00	460.23	496.7	476.29	497.66	0.000238	8.04	50846.99	1739.57	0.25
Susquehanna	Middle Reach	156.650	2-yr	117500.00	459.02	477.3	467.11	477.74	0.000170	5.15	22815.47	1430.98	0.23
Susquehanna	Middle Reach	156.650	5-yr	161900.00	459.02	480.8	468.56	481.32	0.000173	5.81	27848.50	1471.60	0.24
Susquehanna	Middle Reach	156.650	10-yr	193400.00	459.02	483.3	469.50	483.92	0.000175	6.11	31898.10	1628.49	0.23
Susquehanna	Middle Reach	156.650	25-yr	235600.00	459.02	486.3	470.69	486.97	0.000175	6.52	36774.61	1658.43	0.23
Susquehanna	Middle Reach	156.650	50-yr	268700.00	459.02	488.4	471.56	489.10	0.000174	6.85	40249.42	1718.06	0.24
Susquehanna	Middle Reach	156.650	100-yr	303300.00	459.02	491.5	472.46	492.25	0.000182	6.89	45711.25	1747.25	0.22
Susquehanna	Middle Reach	156.650	500-yr	390800.00	459.02	496.7	474.55	497.54	0.000188	7.52	54865.42	1860.74	0.23
Susquehanna	Middle Reach	156.572	2-yr	117500.00	459.47	477.2	468.35	477.65	0.000242	5.55	21174.41	1500.68	0.26
Susquehanna	Middle Reach	156.572	5-yr	161900.00	459.47	480.6	470.06	481.23	0.000230	6.13	26429.79	1527.09	0.26
Susquehanna	Middle Reach	156.572	10-yr	193400.00	459.47	483.2	470.97	483.84	0.000227	6.37	30454.53	1621.13	0.25
Susquehanna	Middle Reach	156.572	25-yr	235600.00	459.47	486.2	472.13	486.88	0.000224	6.73	35318.02	1653.31	0.25
Susquehanna	Middle Reach	156.572	50-yr	268700.00	459.47	488.2	472.96	489.01	0.000219	7.03	38787.93	1723.52	0.25
Susquehanna	Middle Reach	156.572	100-yr	303300.00	459.47	491.4	473.83	492.16	0.000225	7.02	44354.87	1793.76	0.23
Susquehanna	Middle Reach	156.572	500-yr	390800.00	459.47	496.6	475.86	497.45	0.000228	7.59	53939.08	2003.51	0.23
Susquehanna	Middle Reach	156.500	2-yr	117500.00	459.66	476.9	469.73	477.52	0.000358	6.15	19113.98	1529.40	0.31
Susquehanna	Middle Reach	156.500	5-yr	161900.00	459.66	480.4	471.39	481.11	0.000322	6.60	24514.74	1561.06	0.29
Susquehanna	Middle Reach	156.500	10-yr	193400.00	459.66	483.0	472.28	483.73	0.000308	6.77	28638.07	1637.15	0.28
Susquehanna	Middle Reach	156.500	25-yr	235600.00	459.66	486.0	473.41	486.78	0.000295	7.07	33622.25	1691.89	0.27
Susquehanna	Middle Reach	156.500	50-yr	268700.00	459.66	488.1	474.25	488.91	0.000283	7.33	37246.47	1779.12	0.27
Susquehanna	Middle Reach	156.500	100-yr	303300.00	459.66	491.2	475.10	492.06	0.000284	7.26	43039.17	1863.38	0.25
Susquehanna	Middle Reach	156.500	500-yr	390800.00	459.66	496.4	477.11	497.35	0.000279	7.76	53334.36	2134.80	0.24
Susquehanna	Middle Reach	156.429	2-yr	117500.00	459.71	476.7	469.89	477.37	0.000416	6.65	17675.74	1519.64	0.34
Susquehanna	Middle Reach	156.429	5-yr	161900.00	459.71	480.2	471.62	480.97	0.000353	7.01	23107.43	1556.14	0.32
Susquehanna	Middle Reach	156.429	10-yr	193400.00	459.71	482.8	472.94	483.60	0.000326	7.12	27274.87	1626.51	0.30
Susquehanna	Middle Reach	156.429	25-yr	235600.00	459.71	485.8	474.08	486.65	0.000305	7.38	32328.88	1723.07	0.29

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	156.429	50-yr	268700.00	459.71	487.9	474.90	488.79	0.000288	7.61	35977.81	1775.84	0.28
Susquehanna	Middle Reach	156.429	100-yr	303300.00	459.71	491.1	475.76	491.95	0.000285	7.50	41852.84	1903.15	0.26
Susquehanna	Middle Reach	156.429	500-yr	390800.00	459.71	496.3	477.80	497.24	0.000273	7.96	52261.02	2145.52	0.25
Susquehanna	Middle Reach	156.354	2-yr	117500.00	459.73	476.5	468.96	477.19	0.000389	6.49	18091.20	1573.03	0.34
Susquehanna	Middle Reach	156.354	5-yr	161900.00	459.73	480.1	470.77	480.82	0.000331	6.82	23748.82	1616.71	0.31
Susquehanna	Middle Reach	156.354	10-yr	193400.00	459.73	482.7	472.49	483.45	0.000307	6.93	28086.19	1699.86	0.29
Susquehanna	Middle Reach	156.354	25-yr	235600.00	459.73	485.7	473.81	486.52	0.000289	7.19	33239.03	1722.21	0.28
Susquehanna	Middle Reach	156.354	50-yr	268700.00	459.73	487.8	474.65	488.67	0.000276	7.43	36884.52	1777.39	0.28
Susquehanna	Middle Reach	156.354	100-yr	303300.00	459.73	491.0	475.51	491.82	0.000277	7.33	42815.66	1937.53	0.25
Susquehanna	Middle Reach	156.354	500-yr	390800.00	459.73	496.2	477.49	497.11	0.000268	7.78	53604.77	2171.51	0.25
Susquehanna	Middle Reach	156.284	2-yr	117500.00	459.85	476.4	468.54	477.04	0.000355	6.32	18600.22	1596.07	0.33
Susquehanna	Middle Reach	156.284	5-yr	161900.00	459.85	480.0	470.21	480.69	0.000301	6.64	24376.13	1626.61	0.30
Susquehanna	Middle Reach	156.284	10-yr	193400.00	459.85	482.6	471.32	483.33	0.000280	6.75	28681.99	1658.16	0.28
Susquehanna	Middle Reach	156.284	25-yr	235600.00	459.85	485.6	473.03	486.40	0.000264	7.00	33716.23	1687.85	0.27
Susquehanna	Middle Reach	156.284	50-yr	268700.00	459.85	487.7	474.29	488.55	0.000251	7.24	37335.60	1770.06	0.27
Susquehanna	Middle Reach	156.284	100-yr	303300.00	459.85	490.9	475.14	491.71	0.000250	7.15	43291.36	1968.78	0.25
Susquehanna	Middle Reach	156.284	500-yr	390800.00	459.85	496.1	477.08	497.01	0.000241	7.58	54260.29	2244.99	0.24
Susquehanna	Middle Reach	156.205	2-yr	117500.00	459.93	476.3	468.04	476.88	0.000281	5.88	19986.46	1607.22	0.29
Susquehanna	Middle Reach	156.205	5-yr	161900.00	459.93	479.9	469.59	480.55	0.000247	6.23	25978.43	1688.23	0.28
Susquehanna	Middle Reach	156.205	10-yr	193400.00	459.93	482.6	470.62	483.20	0.000237	6.36	30432.56	1705.51	0.27
Susquehanna	Middle Reach	156.205	25-yr	235600.00	459.93	485.6	471.91	486.28	0.000228	6.61	35637.17	1767.49	0.26
Susquehanna	Middle Reach	156.205	50-yr	268700.00	459.93	487.7	473.01	488.43	0.000220	6.84	39447.47	1852.60	0.25
Susquehanna	Middle Reach	156.205	100-yr	303300.00	459.93	490.9	473.96	491.58	0.000222	6.76	45774.43	2093.10	0.23
Susquehanna	Middle Reach	156.205	500-yr	390800.00	459.93	496.1	476.14	496.88	0.000215	7.16	58081.91	2913.60	0.23
Susquehanna	Middle Reach	156.129	2-yr	117500.00	459.89	476.2	467.95	476.76	0.000287	5.98	19665.01	1642.33	0.30
Susquehanna	Middle Reach	156.129	5-yr	161900.00	459.89	479.8	469.53	480.45	0.000253	6.31	25644.21	1663.72	0.28
Susquehanna	Middle Reach	156.129	10-yr	193400.00	459.89	482.5	470.57	483.10	0.000243	6.44	30039.90	1681.08	0.27
Susquehanna	Middle Reach	156.129	25-yr	235600.00	459.89	485.5	471.89	486.18	0.000235	6.70	35159.57	1711.25	0.26
Susquehanna	Middle Reach	156.129	50-yr	268700.00	459.89	487.6	472.86	488.34	0.000225	6.94	38818.45	1791.20	0.26
Susquehanna	Middle Reach	156.129	100-yr	303300.00	459.89	490.8	474.06	491.49	0.000228	6.86	45005.75	2040.50	0.24
Susquehanna	Middle Reach	156.129	500-yr	390800.00	459.89	496.0	476.32	496.79	0.000223	7.31	56203.91	2280.67	0.23
Susquehanna	Middle Reach	156.058	2-yr	117500.00	459.83	476.1	467.77	476.66	0.000275	5.98	19649.60	1434.59	0.28
Susquehanna	Middle Reach	156.058	5-yr	161900.00	459.83	479.7	469.26	480.35	0.000251	6.49	24948.80	1534.31	0.28
Susquehanna	Middle Reach	156.058	10-yr	193400.00	459.83	482.3	470.27	483.00	0.000244	6.65	29099.64	1600.64	0.27
Susquehanna	Middle Reach	156.058	25-yr	235600.00	459.83	485.3	471.50	486.08	0.000235	6.94	34043.24	1716.09	0.27
Susquehanna	Middle Reach	156.058	50-yr	268700.00	459.83	487.4	472.43	488.24	0.000225	7.18	37832.87	1886.38	0.26
Susquehanna	Middle Reach	156.058	100-yr	303300.00	459.83	490.6	473.42	491.40	0.000227	7.10	44096.17	2040.11	0.24
Susquehanna	Middle Reach	156.058	500-yr	390800.00	459.83	495.8	475.56	496.70	0.000221	7.56	55256.34	2316.01	0.24
Susquehanna	Middle Reach	155.984	2-yr	117500.00	460.10	475.9	468.95	476.52	0.000381	6.45	18226.07	1480.52	0.32
Susquehanna	Middle Reach	155.984	5-yr	161900.00	460.10	479.5	470.60	480.22	0.000325	6.84	23666.06	1528.09	0.31
Susquehanna	Middle Reach	155.984	10-yr	193400.00	460.10	482.1	471.56	482.89	0.000303	6.98	27735.80	1568.50	0.29
Susquehanna	Middle Reach	155.984	25-yr	235600.00	460.10	485.2	472.74	485.97	0.000283	7.26	32653.99	1730.07	0.28
Susquehanna	Middle Reach	155.984	50-yr	268700.00	460.10	487.3	473.58	488.14	0.000267	7.51	36520.39	1944.55	0.28
Susquehanna	Middle Reach	155.984	100-yr	303300.00	460.10	490.5	474.45	491.29	0.000264	7.40	42702.76	2045.20	0.25
Susquehanna	Middle Reach	155.984	500-yr	390800.00	460.10	495.7	476.51	496.59	0.000253	7.86	53008.89	2169.20	0.25
Susquehanna	Middle Reach	155.920	2-yr	117500.00	458.93	475.9	466.18	476.29	0.000171	5.02	23459.04	1551.82	0.23
Susquehanna	Middle Reach	155.920	5-yr	161900.00	458.93	479.5	467.55	480.02	0.000158	5.56	29436.61	1681.02	0.23
Susquehanna	Middle Reach	155.920	10-yr	193400.00	458.93	482.2	468.46	482.69	0.000155	5.80	33967.08	1741.77	0.22
Susquehanna	Middle Reach	155.920	25-yr	235600.00	458.93	485.2	469.59	485.78	0.000153	6.15	39313.97	1784.94	0.22
Susquehanna	Middle Reach	155.920	50-yr	268700.00	458.93	487.3	470.43	487.95	0.000150	6.42	43130.53	1824.88	0.22
Susquehanna	Middle Reach	155.920	100-yr	303300.00	458.93	490.5	471.27	491.11	0.000142	6.43	48988.34	1998.58	0.21
Susquehanna	Middle Reach	155.920	500-yr	390800.00	458.93	495.7	473.24	496.41	0.000155	6.95	58823.32	2333.50	0.21
Susquehanna	Middle Reach	155.900 US Route 80 W		Bridge									
Susquehanna	Middle Reach	155.880	2-yr	117500.00	458.91	475.8	466.10	476.24	0.000177	4.99	23595.39	1599.83	0.23
Susquehanna	Middle Reach	155.880	5-yr	161900.00	458.91	479.5	467.47	479.96	0.000165	5.55	29592.11	1692.60	0.22
Susquehanna	Middle Reach	155.880	10-yr	193400.00	458.91	482.1	468.38	482.63	0.000163	5.81	34077.23	1727.06	0.22
Susquehanna	Middle Reach	155.880	25-yr	235600.00	458.91	485.1	469.52	485.72	0.000163	6.19	39326.23	1747.99	0.22
Susquehanna	Middle Reach	155.880	50-yr	268700.00	458.91	487.2	470.36	487.88	0.000160	6.49	43022.61	1759.16	0.22
Susquehanna	Middle Reach	155.880	100-yr	303300.00	458.91	490.4	471.20	491.04	0.000169	6.53	48644.58	1812.29	0.21
Susquehanna	Middle Reach	155.880	500-yr	390800.00	458.91	495.6	473.17	496.33	0.000175	7.14	58199.71	1924.52	0.21
Susquehanna	Middle Reach	155.875 US Route 80 E		Bridge									
Susquehanna	Middle Reach	155.820	2-yr	117500.00	458.63	475.8	465.92	476.19	0.000189	4.98	23796.85	1642.93	0.22
Susquehanna	Middle Reach	155.820	5-yr	161900.00	458.63	479.4	467.32	479.91	0.000179	5.53	29792.22	1658.64	0.22
Susquehanna	Middle Reach	155.820	10-yr	193400.00	458.63	482.1	468.23	482.57	0.000181	5.79	34241.69	1730.46	0.22
Susquehanna	Middle Reach	155.820	25-yr	235600.00	458.63	485.1	469.37	485.65	0.000180	6.17	39776.63	2023.15	0.22
Susquehanna	Middle Reach	155.820	50-yr	268700.00	458.63	487.2	470.21	487.81	0.000177	6.45	44026.39	2146.01	0.22
Susquehanna	Middle Reach	155.820	100-yr	303300.00	458.63	490.3	471.07	490.96	0.000185	6.48	50478.38	2288.84	0.21
Susquehanna	Middle Reach	155.820	500-yr	390800.00	458.63	495.5	473.05	496.23	0.000190	7.04	61342.81	2970.67	0.21
Susquehanna	Middle Reach	155.800	2-yr	117500.00	458.37	475.6	466.17	476.12	0.000203	5.50	21526.70	1599.26	0.25
Susquehanna	Middle Reach	155.800	5-yr	161900.00	458.37	479.3	467.67	479.84	0.000191	6.09	26975.53	1868.95	0.25
Susquehanna	Middle Reach	155.800	10-yr	193400.00	458.37	481.9	468.64	482.50	0.000188	6.36	31086.60	2132.14	0.24
Susquehanna	Middle Reach	155.800	25-yr	235600.00	458.37	484.9	469.86	485.58	0.000185	6.72	36822.26	2829.03	0.24
Susquehanna	Middle Reach	155.800	50-yr	268700.00	458.37	487.0	470.76	487.75	0.000178	6.99	41510.87	3061.41	0.24
Susquehanna	Middle Reach	155.800	100-yr	303300.00	458.37	490.2	471.64	490.89	0.000182	6.94	48658.84	3457.59	0.22
Susquehanna	Middle Reach	155.800	500-yr	390800.00	458.37	495.4	473.77	496.17	0.000181	7.43	60502.12	3539.38	0.22
Susquehanna	Middle Reach	155.756	2-yr	117500.00	458.63	475.6	466.16	476.07	0.000228	5.59	21028.70	1455.19	0.26
Susquehanna	Middle Reach	155.756	5-yr	161900.00	458.63	479.2	467.66	479.80	0.000214	6.13	26405.50	1514.77	0.26
Susquehanna	Middle Reach	155.756	10-yr	193400.00	458.63	481.8	468.65	482.46	0.000206	6.36	30734.60	1879.92	0.25
Susquehanna	Middle Reach	155.756	25-yr	235600.00	458.63	484.9	469.87	485.55	0.000199	6.70	37091.72	2686.49	0.25
Susquehanna	Middle Reach	155.756	50-yr	268700.00	458.63	487.0	470.80	487.71	0.000191	6.95	41846.63	2756.91	0.24
Susquehanna	Middle Reach	155.756	100-yr	303300.00	458.63	490.1	471.71	490.86	0.000193	6.90	49060.86	2866.90	0.23
Susquehanna	Middle Reach	155.756	500-yr	390800.00	458.63	495.3	474.15	496.13	0.000191	7.40	61016.79	3174.64	0.23
Susquehanna	Middle Reach	155.691	2-yr	117500.00	457.56	475.5	465.94	475.99	0.000212	5.47	22701.56	1993.52	0.25
Susquehanna	Middle Reach	155.691	5-yr	161900.00	457.56	479.2	467.44	479.71	0.000201	5.92	30249.68	2381.64	0.25
Susquehanna	Middle Reach	155.691	10-yr	193400.00	457.56	481.8	468.43	482.37	0.000191	6.07	36194.05	2567.89	0.24
Susquehanna	Middle Reach	155.691	25-yr	235600.00	457.56	484.9	469.65	485.45	0.000180	6.32	43211.29	2910.12	0.23
Susquehanna	Middle Reach	155.691	50-yr	268700.00	457.56	487.0	470.57	487.61	0.000171	6.55	48146.78	2929.10	0.23

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	155.691	100-yr	303300.00	457.56	490.1	471.51	490.76	0.000173	6.49	55520.40	2957.13	0.22
Susquehanna	Middle Reach	155.691	500-yr	390800.00	457.56	495.3	473.86	496.03	0.000171	6.98	67769.23	3030.66	0.21
Susquehanna	Middle Reach	155.611	2-yr	117500.00	456.94	475.4	466.08	475.89	0.000225	5.67	20722.92	1383.53	0.26
Susquehanna	Middle Reach	155.611	5-yr	161900.00	456.94	479.0	467.71	479.61	0.000214	6.27	26275.45	1691.14	0.26
Susquehanna	Middle Reach	155.611	10-yr	193400.00	456.94	481.6	468.70	482.27	0.000213	6.51	30937.31	1862.25	0.26
Susquehanna	Middle Reach	155.611	25-yr	235600.00	456.94	484.6	469.97	485.35	0.000207	6.86	37071.04	2245.55	0.25
Susquehanna	Middle Reach	155.611	50-yr	268700.00	456.94	486.7	470.88	487.52	0.000198	7.12	41921.77	2337.40	0.25
Susquehanna	Middle Reach	155.611	100-yr	303300.00	456.94	489.9	471.79	490.67	0.000201	7.06	49372.18	2575.91	0.23
Susquehanna	Middle Reach	155.611	500-yr	390800.00	456.94	495.1	473.92	495.94	0.000198	7.56	61777.23	3001.67	0.23
Susquehanna	Middle Reach	155.540 Tenmile Run	2-yr	117600.00	457.20	475.1	466.84	475.77	0.000326	6.59	17986.97	1361.65	0.31
Susquehanna	Middle Reach	155.540 Tenmile Run	5-yr	162000.00	457.20	478.7	468.57	479.50	0.000294	7.19	23263.23	1541.58	0.30
Susquehanna	Middle Reach	155.540 Tenmile Run	10-yr	193500.00	457.20	481.3	469.66	482.16	0.000283	7.44	27494.70	1745.73	0.29
Susquehanna	Middle Reach	155.540 Tenmile Run	25-yr	235600.00	457.20	484.3	471.02	485.24	0.000273	7.81	32996.56	1905.54	0.29
Susquehanna	Middle Reach	155.540 Tenmile Run	50-yr	268800.00	457.20	486.4	472.03	487.41	0.000264	8.11	37174.03	2071.68	0.29
Susquehanna	Middle Reach	155.540 Tenmile Run	100-yr	303400.00	457.20	489.6	473.03	490.56	0.000267	8.01	44023.73	2360.03	0.27
Susquehanna	Middle Reach	155.540 Tenmile Run	500-yr	390900.00	457.20	494.8	475.41	495.83	0.000259	8.51	56283.01	2801.80	0.26
Susquehanna	Middle Reach	155.459	2-yr	117600.00	456.10	474.6	466.89	475.57	0.000473	7.91	15214.95	1299.37	0.37
Susquehanna	Middle Reach	155.459	5-yr	162000.00	456.10	478.2	468.92	479.32	0.000422	8.60	19945.66	1390.14	0.36
Susquehanna	Middle Reach	155.459	10-yr	193500.00	456.10	480.8	470.19	481.98	0.000407	8.89	23898.59	1639.36	0.35
Susquehanna	Middle Reach	155.459	25-yr	235600.00	456.10	483.8	471.79	485.07	0.000391	9.29	28942.57	1738.94	0.34
Susquehanna	Middle Reach	155.459	50-yr	268800.00	456.10	485.8	473.05	487.24	0.000376	9.63	32699.62	1837.50	0.34
Susquehanna	Middle Reach	155.459	100-yr	303400.00	456.10	489.1	474.38	490.39	0.000378	9.48	38840.32	1975.12	0.32
Susquehanna	Middle Reach	155.459	500-yr	390900.00	456.10	494.2	477.02	495.66	0.000365	10.05	49867.45	2565.47	0.31
Susquehanna	Middle Reach	155.388	2-yr	117600.00	456.07	474.4	466.29	475.40	0.000456	8.01	14907.33	1227.58	0.37
Susquehanna	Middle Reach	155.388	5-yr	162000.00	456.07	478.0	468.29	479.15	0.000423	8.80	19338.32	1271.07	0.37
Susquehanna	Middle Reach	155.388	10-yr	193500.00	456.07	480.5	469.62	481.82	0.000416	9.17	22885.79	1567.01	0.36
Susquehanna	Middle Reach	155.388	25-yr	235600.00	456.07	483.5	471.31	484.91	0.000406	9.62	27662.45	1634.58	0.35
Susquehanna	Middle Reach	155.388	50-yr	268800.00	456.07	485.6	472.57	487.09	0.000392	9.98	31196.47	1753.35	0.35
Susquehanna	Middle Reach	155.388	100-yr	303400.00	456.07	488.8	473.97	490.23	0.000400	9.87	36956.76	1879.35	0.33
Susquehanna	Middle Reach	155.388	500-yr	390900.00	456.07	493.9	476.81	495.51	0.000390	10.49	47521.54	2456.25	0.32
Susquehanna	Middle Reach	155.312	2-yr	117600.00	455.23	474.3	465.68	475.21	0.000399	7.74	15411.59	1096.15	0.35
Susquehanna	Middle Reach	155.312	5-yr	162000.00	455.23	477.8	467.68	478.97	0.000391	8.62	19411.64	1215.58	0.35
Susquehanna	Middle Reach	155.312	10-yr	193500.00	455.23	480.4	468.98	481.64	0.000390	8.99	23011.89	1510.21	0.35
Susquehanna	Middle Reach	155.312	25-yr	235600.00	455.23	483.4	470.64	484.74	0.000382	9.49	27661.37	1650.74	0.34
Susquehanna	Middle Reach	155.312	50-yr	268800.00	455.23	485.4	471.90	486.93	0.000370	9.88	31155.85	1720.85	0.34
Susquehanna	Middle Reach	155.312	100-yr	303400.00	455.23	488.6	473.15	490.07	0.000376	9.80	36888.34	1933.81	0.32
Susquehanna	Middle Reach	155.312	500-yr	390900.00	455.23	493.7	476.02	495.36	0.000373	10.49	46733.36	2434.45	0.32
Susquehanna	Middle Reach	155.236	2-yr	117600.00	454.93	474.1	465.33	475.04	0.000416	7.64	15398.13	1047.43	0.35
Susquehanna	Middle Reach	155.236	5-yr	162000.00	454.93	477.7	467.34	478.81	0.000394	8.44	19216.77	1147.71	0.35
Susquehanna	Middle Reach	155.236	10-yr	193500.00	454.93	480.3	468.66	481.47	0.000387	8.78	22621.46	1399.68	0.34
Susquehanna	Middle Reach	155.236	25-yr	235600.00	454.93	483.3	470.34	484.57	0.000376	9.27	26966.11	1544.61	0.34
Susquehanna	Middle Reach	155.236	50-yr	268800.00	454.93	485.3	472.04	486.77	0.000364	9.66	30284.32	1644.80	0.34
Susquehanna	Middle Reach	155.236	100-yr	303400.00	454.93	488.5	473.15	489.91	0.000370	9.59	35644.86	2120.30	0.32
Susquehanna	Middle Reach	155.236	500-yr	390900.00	454.93	493.6	475.78	495.20	0.000368	10.31	44721.65	2288.41	0.31
Susquehanna	Middle Reach	155.156	2-yr	117600.00	454.15	474.0	464.51	474.85	0.000358	7.23	16275.35	1071.88	0.33
Susquehanna	Middle Reach	155.156	5-yr	162000.00	454.15	477.6	466.47	478.62	0.000348	8.02	20196.38	1158.65	0.33
Susquehanna	Middle Reach	155.156	10-yr	193500.00	454.15	480.2	467.74	481.29	0.000345	8.36	23644.82	1419.86	0.33
Susquehanna	Middle Reach	155.156	25-yr	235600.00	454.15	483.2	469.35	484.39	0.000338	8.85	27991.98	1510.88	0.32
Susquehanna	Middle Reach	155.156	50-yr	268800.00	454.15	485.3	470.59	486.58	0.000328	9.23	31241.32	1568.52	0.32
Susquehanna	Middle Reach	155.156	100-yr	303400.00	454.15	488.4	472.21	489.73	0.000336	9.20	36255.96	2040.07	0.30
Susquehanna	Middle Reach	155.156	500-yr	390900.00	454.15	493.5	474.96	495.02	0.000339	9.95	44877.24	2331.75	0.30
Susquehanna	Middle Reach	155.082	2-yr	117600.00	453.40	474.0		474.69	0.000273	6.66	17661.41	1073.86	0.29
Susquehanna	Middle Reach	155.082	5-yr	162000.00	453.40	477.6		478.46	0.000278	7.50	21849.18	1315.17	0.30
Susquehanna	Middle Reach	155.082	10-yr	193500.00	453.40	480.2		481.13	0.000281	7.87	25427.40	1455.50	0.30
Susquehanna	Middle Reach	155.082	25-yr	235600.00	453.40	483.1		484.23	0.000282	8.39	29876.49	1529.83	0.30
Susquehanna	Middle Reach	155.082	50-yr	268800.00	453.40	485.2		486.43	0.000278	8.79	33298.05	1646.68	0.30
Susquehanna	Middle Reach	155.082	100-yr	303400.00	453.40	488.4		489.57	0.000290	8.81	38524.74	1677.05	0.28
Susquehanna	Middle Reach	155.082	500-yr	390900.00	453.40	493.5		494.86	0.000299	9.58	47283.18	1758.59	0.28
Susquehanna	Middle Reach	155.006	2-yr	117600.00	453.26	473.9		474.57	0.000252	6.43	18344.52	1153.55	0.28
Susquehanna	Middle Reach	155.006	5-yr	162000.00	453.26	477.5		478.34	0.000253	7.26	22659.31	1238.29	0.29
Susquehanna	Middle Reach	155.006	10-yr	193500.00	453.26	480.1		481.00	0.000262	7.65	25942.22	1353.92	0.29
Susquehanna	Middle Reach	155.006	25-yr	235600.00	453.26	483.1		484.11	0.000265	8.17	30132.00	1493.48	0.29
Susquehanna	Middle Reach	155.006	50-yr	268800.00	453.26	485.2		486.30	0.000262	8.58	33474.32	1638.60	0.29
Susquehanna	Middle Reach	155.006	100-yr	303400.00	453.26	488.3		489.44	0.000276	8.62	38691.88	1682.43	0.28
Susquehanna	Middle Reach	155.006	500-yr	390900.00	453.26	493.4		494.73	0.000286	9.39	47409.88	1740.33	0.28
Susquehanna	Middle Reach	154.926	2-yr	117600.00	453.80	473.9		474.45	0.000241	6.18	19017.28	1174.95	0.27
Susquehanna	Middle Reach	154.926	5-yr	162000.00	453.80	477.5		478.21	0.000240	6.95	23322.71	1234.98	0.28
Susquehanna	Middle Reach	154.926	10-yr	193500.00	453.80	480.0		480.87	0.000246	7.32	26550.32	1311.44	0.28
Susquehanna	Middle Reach	154.926	25-yr	235600.00	453.80	483.0		483.97	0.000249	7.82	30971.01	1625.97	0.28
Susquehanna	Middle Reach	154.926	50-yr	268800.00	453.80	485.1		486.17	0.000244	8.19	34417.47	1645.29	0.28
Susquehanna	Middle Reach	154.926	100-yr	303400.00	453.80	488.3		489.30	0.000256	8.22	39619.02	1672.13	0.27
Susquehanna	Middle Reach	154.926	500-yr	390900.00	453.80	493.4		494.58	0.000265	8.96	48223.57	1710.08	0.27
Susquehanna	Middle Reach	154.857	2-yr	117600.00	453.85	473.7		474.35	0.000277	6.56	17935.54	1121.68	0.29
Susquehanna	Middle Reach	154.857	5-yr	162000.00	453.85	477.3		478.11	0.000285	7.32	22139.04	1215.81	0.30
Susquehanna	Middle Reach	154.857	10-yr	193500.00	453.85	479.9		480.77	0.000284	7.66	25514.36	1436.01	0.30
Susquehanna	Middle Reach	154.857	25-yr	235600.00	453.85	482.8		483.87	0.000283	8.13	30242.70	1626.58	0.29
Susquehanna	Middle Reach	154.857	50-yr	268800.00	453.85	485.0		486.07	0.000276	8.47	33699.88	1642.63	0.29
Susquehanna	Middle Reach	154.857	100-yr	303400.00	453.85	488.1		489.20	0.000287	8.46	38894.25	1663.51	0.28
Susquehanna	Middle Reach	154.857	500-yr	390900.00	453.85	493.2		494.48	0.000293	9.15	47492.88	1707.03	0.28
Susquehanna	Middle Reach	154.782	2-yr	117600.00	454.39	473.5		474.23	0.000316	6.84	17190.21	1118.98	0.31
Susquehanna	Middle Reach	154.782	5-yr	162000.00	454.39	477.1		477.98	0.000306	7.59	21362.71	1210.58	0.32
Susquehanna	Middle Reach	154.782	10-yr	193500.00	454.39	479.7		480.65	0.000304	7.91	24564.25	1273.78	0.31
Susquehanna	Middle Reach	154.782	25-yr	235600.00	454.39	482.7		483.75	0.000304	8.38	28445.97	1329.28	0.31
Susquehanna	Middle Reach	154.782	50-yr	268800.00	454.39	484.8		485.95	0.000299	8.74	31387.25	1558.15	0.31
Susquehanna	Middle Reach	154.782	100-yr	303400.00	454.39	487.9		489.07	0.000311	8.71	36473.42	1666.44	0.29
Susquehanna	Middle Reach	154.782	500-yr	390900.00	454.39	493.0		494.35	0.000316	9.34	45107.47	1708.67	0.29
Susquehanna	Middle Reach	154.705	2-yr	117600.00	454.53	473.4		474.10	0.000317	6.89	17066.98	1102.73	0.31
Susquehanna	Middle Reach	154.705	5-yr	162000.00	454.53	476.9		477.86	0.000310	7.67	21160.49	1190.68	0.32

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	154.705	10-yr	193500.00	454.53	479.5		480.52	0.000308	7.98	24373.64	1269.84	0.32
Susquehanna	Middle Reach	154.705	25-yr	235600.00	454.53	482.5		483.62	0.000308	8.43	28274.15	1346.00	0.31
Susquehanna	Middle Reach	154.705	50-yr	268800.00	454.53	484.6		485.82	0.000302	8.79	31209.33	1578.15	0.31
Susquehanna	Middle Reach	154.705	100-yr	303400.00	454.53	487.8		488.95	0.000315	8.74	36287.98	1653.82	0.30
Susquehanna	Middle Reach	154.705	500-yr	390900.00	454.53	492.9		494.22	0.000319	9.36	44844.06	1690.46	0.29
Susquehanna	Middle Reach	154.633	2-yr	117600.00	454.66	473.2		473.97	0.000340	7.09	16596.23	1084.29	0.32
Susquehanna	Middle Reach	154.633	5-yr	162000.00	454.66	476.8		477.73	0.000327	7.90	20599.66	1204.53	0.32
Susquehanna	Middle Reach	154.633	10-yr	193500.00	454.66	479.3		480.39	0.000330	8.27	23801.32	1273.61	0.32
Susquehanna	Middle Reach	154.633	25-yr	235600.00	454.66	482.3		483.49	0.000330	8.79	27646.08	1328.77	0.32
Susquehanna	Middle Reach	154.633	50-yr	268800.00	454.66	484.4		485.69	0.000324	9.19	30471.03	1565.76	0.32
Susquehanna	Middle Reach	154.633	100-yr	303400.00	454.66	487.5		488.81	0.000337	9.19	35463.14	1648.32	0.30
Susquehanna	Middle Reach	154.633	500-yr	390900.00	454.66	492.6		494.08	0.000342	9.91	43962.90	1696.50	0.30
Susquehanna	Middle Reach	154.553	2-yr	117600.00	454.61	473.1		473.82	0.000319	6.99	16830.04	1069.65	0.31
Susquehanna	Middle Reach	154.553	5-yr	162000.00	454.61	476.6		477.59	0.000329	7.81	20893.12	1230.93	0.32
Susquehanna	Middle Reach	154.553	10-yr	193500.00	454.61	479.2		480.24	0.000328	8.13	24459.68	1516.01	0.32
Susquehanna	Middle Reach	154.553	25-yr	235600.00	454.61	482.2		483.33	0.000320	8.57	29114.52	1586.34	0.31
Susquehanna	Middle Reach	154.553	50-yr	268800.00	454.61	484.3		485.53	0.000309	8.90	32507.28	1613.32	0.31
Susquehanna	Middle Reach	154.553	100-yr	303400.00	454.61	487.5		488.64	0.000317	8.85	37625.98	1647.69	0.29
Susquehanna	Middle Reach	154.553	500-yr	390900.00	454.61	492.6		493.90	0.000318	9.51	46141.45	1694.36	0.29
Susquehanna	Middle Reach	154.480	2-yr	117600.00	454.45	473.0		473.69	0.000309	6.81	17257.02	1112.32	0.30
Susquehanna	Middle Reach	154.480	5-yr	162000.00	454.45	476.6		477.45	0.000302	7.59	21367.47	1192.20	0.31
Susquehanna	Middle Reach	154.480	10-yr	193500.00	454.45	479.1		480.11	0.000304	7.96	24594.80	1456.55	0.31
Susquehanna	Middle Reach	154.480	25-yr	235600.00	454.45	482.1		483.20	0.000302	8.43	29208.35	1587.06	0.30
Susquehanna	Middle Reach	154.480	50-yr	268800.00	454.45	484.2		485.41	0.000293	8.78	32600.05	1610.06	0.30
Susquehanna	Middle Reach	154.480	100-yr	303400.00	454.45	487.3		488.51	0.000304	8.75	37684.54	1649.35	0.29
Susquehanna	Middle Reach	154.480	500-yr	390900.00	454.45	492.4		493.78	0.000308	9.43	46204.74	1706.56	0.29
Susquehanna	Middle Reach	154.406	2-yr	117600.00	454.23	472.9		473.56	0.000276	6.55	17965.03	1129.97	0.29
Susquehanna	Middle Reach	154.406	5-yr	162000.00	454.23	476.5		477.32	0.000270	7.34	22239.42	1300.29	0.30
Susquehanna	Middle Reach	154.406	10-yr	193500.00	454.23	479.1		479.97	0.000281	7.70	25913.32	1521.41	0.30
Susquehanna	Middle Reach	154.406	25-yr	235600.00	454.23	482.0		483.07	0.000281	8.17	30598.87	1593.01	0.29
Susquehanna	Middle Reach	154.406	50-yr	268800.00	454.23	484.2		485.28	0.000274	8.52	34009.03	1624.55	0.29
Susquehanna	Middle Reach	154.406	100-yr	303400.00	454.23	487.3		488.38	0.000287	8.53	39117.21	1657.60	0.28
Susquehanna	Middle Reach	154.406	500-yr	390900.00	454.23	492.4		493.64	0.000294	9.24	47661.31	1704.91	0.28
Susquehanna	Middle Reach	154.327	2-yr	117600.00	454.00	472.8		473.44	0.000273	6.52	18044.78	1134.14	0.29
Susquehanna	Middle Reach	154.327	5-yr	162000.00	454.00	476.4		477.21	0.000268	7.31	22391.91	1352.47	0.29
Susquehanna	Middle Reach	154.327	10-yr	193500.00	454.00	478.9		479.86	0.000274	7.67	26087.20	1523.21	0.29
Susquehanna	Middle Reach	154.327	25-yr	235600.00	454.00	481.9		482.95	0.000275	8.14	30785.95	1621.33	0.29
Susquehanna	Middle Reach	154.327	50-yr	268800.00	454.00	484.1		485.16	0.000269	8.50	34263.27	1647.29	0.29
Susquehanna	Middle Reach	154.327	100-yr	303400.00	454.00	487.2		488.26	0.000282	8.51	39419.08	1673.01	0.28
Susquehanna	Middle Reach	154.327	500-yr	390900.00	454.00	492.2		493.52	0.000292	9.23	48094.25	1759.18	0.28
Susquehanna	Middle Reach	154.251	2-yr	117600.00	453.75	472.5		473.31	0.000351	7.01	16767.26	1140.33	0.32
Susquehanna	Middle Reach	154.251	5-yr	162000.00	453.75	476.1		477.08	0.000330	7.73	20961.60	1176.26	0.32
Susquehanna	Middle Reach	154.251	10-yr	193500.00	453.75	478.7		479.73	0.000326	8.06	24301.28	1503.12	0.32
Susquehanna	Middle Reach	154.251	25-yr	235600.00	453.75	481.7		482.82	0.000319	8.50	29017.72	1636.57	0.31
Susquehanna	Middle Reach	154.251	50-yr	268800.00	453.75	483.8		485.03	0.000308	8.84	32514.72	1650.00	0.31
Susquehanna	Middle Reach	154.251	100-yr	303400.00	453.75	486.9		488.13	0.000318	8.81	37688.89	1674.22	0.29
Susquehanna	Middle Reach	154.251	500-yr	390900.00	453.75	492.0		493.39	0.000322	9.50	46350.73	1753.29	0.29
Susquehanna	Middle Reach	154.174	2-yr	117600.00	453.53	472.4		473.16	0.000345	6.98	16855.87	1139.12	0.32
Susquehanna	Middle Reach	154.174	5-yr	162000.00	453.53	476.0		476.94	0.000325	7.70	21121.22	1324.18	0.32
Susquehanna	Middle Reach	154.174	10-yr	193500.00	453.53	478.6		479.59	0.000323	8.00	24818.30	1555.79	0.31
Susquehanna	Middle Reach	154.174	25-yr	235600.00	453.53	481.6		482.69	0.000313	8.41	29594.86	1623.10	0.31
Susquehanna	Middle Reach	154.174	50-yr	268800.00	453.53	483.7		484.90	0.000301	8.72	33114.97	1657.08	0.31
Susquehanna	Middle Reach	154.174	100-yr	303400.00	453.53	486.9		487.99	0.000309	8.67	38317.31	1684.00	0.29
Susquehanna	Middle Reach	154.174	500-yr	390900.00	453.53	491.9		493.24	0.000310	9.31	47165.32	1786.95	0.29
Susquehanna	Middle Reach	154.098	2-yr	117600.00	453.30	472.3		473.02	0.000303	6.69	17588.80	1149.94	0.30
Susquehanna	Middle Reach	154.098	5-yr	162000.00	453.30	475.9		476.80	0.000290	7.43	21949.02	1307.50	0.30
Susquehanna	Middle Reach	154.098	10-yr	193500.00	453.30	478.5		479.45	0.000293	7.75	25686.20	1595.43	0.30
Susquehanna	Middle Reach	154.098	25-yr	235600.00	453.30	481.5		482.55	0.000287	8.17	30688.87	1703.19	0.30
Susquehanna	Middle Reach	154.098	50-yr	268800.00	453.30	483.7		484.76	0.000276	8.47	34358.50	1718.08	0.29
Susquehanna	Middle Reach	154.098	100-yr	303400.00	453.30	486.8		487.85	0.000285	8.43	39762.92	1758.03	0.28
Susquehanna	Middle Reach	154.098	500-yr	390900.00	453.30	491.9		493.10	0.000286	9.06	49211.89	1998.97	0.28
Susquehanna	Middle Reach	154.024	2-yr	117600.00	453.40	472.2	463.35	472.89	0.000315	6.82	17247.91	1128.68	0.31
Susquehanna	Middle Reach	154.024	5-yr	162000.00	453.40	475.8	465.13	476.68	0.000309	7.54	21671.54	1338.57	0.31
Susquehanna	Middle Reach	154.024	10-yr	193500.00	453.40	478.4	466.28	479.33	0.000307	7.84	25427.86	1588.07	0.31
Susquehanna	Middle Reach	154.024	25-yr	235600.00	453.40	481.4	467.72	482.43	0.000296	8.25	30456.12	1723.73	0.30
Susquehanna	Middle Reach	154.024	50-yr	268800.00	453.40	483.5	468.81	484.65	0.000282	8.54	34220.77	1759.83	0.30
Susquehanna	Middle Reach	154.024	100-yr	303400.00	453.40	486.7	469.88	487.74	0.000288	8.49	39696.25	1785.37	0.28
Susquehanna	Middle Reach	154.024	500-yr	390900.00	453.40	491.8	472.42	492.99	0.000287	9.12	48797.42	1858.70	0.28
Susquehanna	Middle Reach	153.948	2-yr	117600.00	453.00	472.2	461.96	472.74	0.000227	6.12	19205.30	1152.89	0.26
Susquehanna	Middle Reach	153.948	5-yr	162000.00	453.00	475.8	463.66	476.53	0.000226	6.91	23758.22	1402.94	0.27
Susquehanna	Middle Reach	153.948	10-yr	193500.00	453.00	478.4	464.80	479.18	0.000232	7.28	27565.69	1582.89	0.27
Susquehanna	Middle Reach	153.948	25-yr	235600.00	453.00	481.4	466.20	482.29	0.000236	7.76	32607.55	1756.40	0.27
Susquehanna	Middle Reach	153.948	50-yr	268800.00	453.00	483.5	467.22	484.52	0.000232	8.08	36406.37	1768.84	0.27
Susquehanna	Middle Reach	153.948	100-yr	303400.00	453.00	486.6	468.28	487.60	0.000246	8.09	41911.51	1786.64	0.26
Susquehanna	Middle Reach	153.948	500-yr	390900.00	453.00	491.7	470.74	492.85	0.000255	8.74	51095.41	1822.39	0.26
Susquehanna	Middle Reach	153.873	2-yr	117600.00	452.99	472.1	462.02	472.64	0.000214	5.87	20031.50	1248.29	0.26
Susquehanna	Middle Reach	153.873	5-yr	162000.00	452.99	475.7	463.66	476.43	0.000209	6.60	24967.77	1508.74	0.26
Susquehanna	Middle Reach	153.873	10-yr	193500.00	452.99	478.3	464.74	479.07	0.000212	6.95	29110.57	1691.67	0.26
Susquehanna	Middle Reach	153.873	25-yr	235600.00	452.99	481.3	466.08	482.17	0.000214	7.39	34464.19	1833.39	0.26
Susquehanna	Middle Reach	153.873	50-yr	268800.00	452.99	483.5	467.07	484.40	0.000210	7.70	38439.61	1844.42	0.26
Susquehanna	Middle Reach	153.873	100-yr	303400.00	452.99	486.6	468.08	487.48	0.000222	7.71	44157.11	1857.07	0.25
Susquehanna	Middle Reach	153.873	500-yr	390900.00	452.99	491.7	470.40	492.72	0.000229	8.34	53683.04	1998.90	0.25
Susquehanna	Middle Reach	153.795	2-yr	117600.00	452.92	472.1	461.25	472.54	0.000174	5.41	21763.34	1351.32	0.23
Susquehanna	Middle Reach	153.795	5-yr	162000.00	452.92	475.7	462.85	476.32	0.000172	6.10	27291.26	1689.18	0.24
Susquehanna	Middle Reach	153.795	10-yr	193500.00	452.92	478.3	463.88	478.96	0.000176	6.42	31873.32	1833.16	0.24
Susquehanna	Middle Reach	153.795	25-yr	235600.00	452.92	481.3	465.18	482.06	0.000178	6.85	37518.41	1894.78	0.24
Susquehanna	Middle Reach	153.795	50-yr	268800.00	452.92	483.5	466.12	484.28	0.000175	7.15	41633.68	1902.56	0.24
Susquehanna	Middle Reach	153.795	100-yr	303400.00	452.92	486.6	467.08	487.36	0.000187	7.19	47509.98	1914.39	0.23
Susquehanna	Middle Reach	153.795	500-yr	390900.00	452.92	491.7	469.34	492.60	0.000195	7.82	57330.89	2200.81	0.23

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	153.721	2-yr	117600.00	453.46	472.0	462.06	472.46	0.000214	5.70	20661.13	1378.79	0.25
Susquehanna	Middle Reach	153.721	5-yr	162000.00	453.46	475.6	463.65	476.24	0.000205	6.32	26150.62	1661.97	0.26
Susquehanna	Middle Reach	153.721	10-yr	193500.00	453.46	478.2	464.68	478.88	0.000203	6.60	30828.14	1896.03	0.25
Susquehanna	Middle Reach	153.721	25-yr	235600.00	453.46	481.2	465.97	481.98	0.000200	6.96	36625.52	1935.61	0.25
Susquehanna	Middle Reach	153.721	50-yr	268800.00	453.46	483.4	466.94	484.21	0.000193	7.23	40847.07	1944.41	0.25
Susquehanna	Middle Reach	153.721	100-yr	303400.00	453.46	486.5	467.90	487.29	0.000202	7.23	46865.45	1957.16	0.24
Susquehanna	Middle Reach	153.721	500-yr	390900.00	453.46	491.6	470.16	492.52	0.000206	7.81	56926.79	2275.15	0.24
Susquehanna	Middle Reach	153.643	2-yr	117600.00	453.39	471.9	461.84	472.36	0.000192	5.44	21635.45	1368.54	0.24
Susquehanna	Middle Reach	153.643	5-yr	162000.00	453.39	475.6	463.36	476.14	0.000188	6.05	27035.34	1574.69	0.25
Susquehanna	Middle Reach	153.643	10-yr	193500.00	453.39	478.2	464.34	478.79	0.000187	6.33	31592.59	1899.96	0.24
Susquehanna	Middle Reach	153.643	25-yr	235600.00	453.39	481.2	465.62	481.89	0.000185	6.70	37430.67	1950.06	0.24
Susquehanna	Middle Reach	153.643	50-yr	268800.00	453.39	483.4	466.56	484.12	0.000179	6.97	41695.81	1962.86	0.24
Susquehanna	Middle Reach	153.643	100-yr	303400.00	453.39	486.5	467.46	487.19	0.000188	6.98	47852.38	2050.61	0.23
Susquehanna	Middle Reach	153.643	500-yr	390900.00	453.39	491.6	469.65	492.42	0.000192	7.54	58406.70	2230.78	0.23
Susquehanna	Middle Reach	153.567	2-yr	117600.00	452.27	471.8	461.37	472.28	0.000184	5.30	22414.18	1497.88	0.24
Susquehanna	Middle Reach	153.567	5-yr	162000.00	452.27	475.5	463.16	476.06	0.000178	5.89	28186.85	1674.85	0.24
Susquehanna	Middle Reach	153.567	10-yr	193500.00	452.27	478.1	464.21	478.70	0.000178	6.17	32796.74	1831.17	0.23
Susquehanna	Middle Reach	153.567	25-yr	235600.00	452.27	481.1	465.49	481.80	0.000178	6.54	38611.74	1956.21	0.23
Susquehanna	Middle Reach	153.567	50-yr	268800.00	452.27	483.3	466.40	484.04	0.000174	6.81	42911.43	1986.93	0.23
Susquehanna	Middle Reach	153.567	100-yr	303400.00	452.27	486.4	467.30	487.11	0.000184	6.84	49188.63	2104.68	0.22
Susquehanna	Middle Reach	153.567	500-yr	390900.00	452.27	491.5	469.45	492.33	0.000190	7.41	60247.58	2321.17	0.22
Susquehanna	Middle Reach	153.490	2-yr	117600.00	452.83	471.8	461.48	472.20	0.000190	5.34	22155.84	1485.89	0.24
Susquehanna	Middle Reach	153.490	5-yr	162000.00	452.83	475.4	463.13	475.99	0.000190	5.92	27868.16	1680.45	0.24
Susquehanna	Middle Reach	153.490	10-yr	193500.00	452.83	478.0	464.19	478.63	0.000193	6.17	32465.99	1835.52	0.24
Susquehanna	Middle Reach	153.490	25-yr	235600.00	452.83	481.1	465.55	481.73	0.000192	6.53	38185.98	1935.54	0.24
Susquehanna	Middle Reach	153.490	50-yr	268800.00	452.83	483.3	466.55	483.96	0.000186	6.79	42497.36	2026.68	0.24
Susquehanna	Middle Reach	153.490	100-yr	303400.00	452.83	486.3	467.44	487.03	0.000196	6.80	49006.17	2239.64	0.22
Susquehanna	Middle Reach	153.490	500-yr	390900.00	452.83	491.4	469.56	492.25	0.000201	7.34	60872.07	2504.92	0.22
Susquehanna	Middle Reach	153.414	2-yr	117600.00	453.01	471.7	461.67	472.12	0.000191	5.19	22643.67	1516.54	0.24
Susquehanna	Middle Reach	153.414	5-yr	162000.00	453.01	475.4	463.23	475.90	0.000195	5.68	28542.25	1674.22	0.24
Susquehanna	Middle Reach	153.414	10-yr	193500.00	453.01	478.0	464.26	478.54	0.000189	5.88	33050.28	1783.78	0.23
Susquehanna	Middle Reach	153.414	25-yr	235600.00	453.01	481.0	465.56	481.63	0.000183	6.18	38695.19	1920.42	0.23
Susquehanna	Middle Reach	153.414	50-yr	268800.00	453.01	483.2	466.49	483.87	0.000175	6.41	43063.61	2148.13	0.23
Susquehanna	Middle Reach	153.414	100-yr	303400.00	453.01	486.3	467.39	486.93	0.000182	6.41	50246.43	2517.80	0.21
Susquehanna	Middle Reach	153.414	500-yr	390900.00	453.01	491.4	469.44	492.15	0.000181	6.88	64166.66	2814.67	0.21
Susquehanna	Middle Reach	153.342	2-yr	117600.00	453.00	471.5	462.25	472.03	0.000248	5.72	20544.86	1445.33	0.27
Susquehanna	Middle Reach	153.342	5-yr	162000.00	453.00	475.2	463.91	475.80	0.000244	6.23	25999.53	1575.35	0.27
Susquehanna	Middle Reach	153.342	10-yr	193500.00	453.00	477.8	464.96	478.44	0.000246	6.39	30349.94	1703.46	0.26
Susquehanna	Middle Reach	153.342	25-yr	235600.00	453.00	480.9	466.18	481.55	0.000232	6.65	35630.58	1761.68	0.26
Susquehanna	Middle Reach	153.342	50-yr	268800.00	453.00	483.1	467.10	483.79	0.000218	6.86	39525.14	1808.94	0.25
Susquehanna	Middle Reach	153.342	100-yr	303400.00	453.00	486.1	468.02	486.85	0.000222	6.83	45207.29	1934.20	0.24
Susquehanna	Middle Reach	153.342	500-yr	390900.00	453.00	491.2	470.17	492.06	0.000219	7.33	55545.27	3762.61	0.23
Susquehanna	Middle Reach	153.263	2-yr	117600.00	452.14	471.5	460.08	471.91	0.000143	4.79	24529.12	1502.05	0.21
Susquehanna	Middle Reach	153.263	5-yr	162000.00	452.14	475.2	461.72	475.68	0.000142	5.37	30155.28	1547.84	0.21
Susquehanna	Middle Reach	153.263	10-yr	193500.00	452.14	477.8	462.67	478.33	0.000145	5.65	34264.91	1612.58	0.21
Susquehanna	Middle Reach	153.263	25-yr	235600.00	452.14	480.9	463.85	481.44	0.000147	6.04	39225.74	1651.76	0.21
Susquehanna	Middle Reach	153.263	50-yr	268800.00	452.14	483.1	464.73	483.68	0.000144	6.32	42881.83	1704.79	0.22
Susquehanna	Middle Reach	153.263	100-yr	303400.00	452.14	486.1	465.63	486.74	0.000155	6.40	48173.82	1825.30	0.21
Susquehanna	Middle Reach	153.263	500-yr	390900.00	452.14	491.2	467.73	491.96	0.000164	7.03	57882.77	2750.83	0.21
Susquehanna	Middle Reach	153.188	2-yr	117600.00	451.83	471.5	459.62	471.84	0.000122	4.58	25690.58	1497.72	0.19
Susquehanna	Middle Reach	153.188	5-yr	162000.00	451.83	475.2	461.15	475.62	0.000125	5.18	31301.73	1544.93	0.20
Susquehanna	Middle Reach	153.188	10-yr	193500.00	451.83	477.8	462.08	478.26	0.000131	5.47	35345.50	1573.11	0.20
Susquehanna	Middle Reach	153.188	25-yr	235600.00	451.83	480.8	463.25	481.37	0.000134	5.87	40194.41	1619.46	0.21
Susquehanna	Middle Reach	153.188	50-yr	268800.00	451.83	483.0	464.12	483.62	0.000132	6.16	43780.48	1651.30	0.21
Susquehanna	Middle Reach	153.188	100-yr	303400.00	451.83	486.1	464.99	486.68	0.000144	6.26	48873.79	1697.30	0.20
Susquehanna	Middle Reach	153.188	500-yr	390900.00	451.83	491.2	467.05	491.89	0.000154	6.90	57982.44	2664.77	0.20
Susquehanna	Middle Reach	153.112	2-yr	117600.00	452.31	471.5	459.59	471.79	0.000120	4.57	25754.29	1488.44	0.19
Susquehanna	Middle Reach	153.112	5-yr	162000.00	452.31	475.2	461.06	475.57	0.000124	5.17	31321.53	1536.20	0.20
Susquehanna	Middle Reach	153.112	10-yr	193500.00	452.31	477.7	461.99	478.21	0.000130	5.47	35344.99	1568.37	0.20
Susquehanna	Middle Reach	153.112	25-yr	235600.00	452.31	480.8	463.14	481.32	0.000135	5.87	40160.25	1600.94	0.21
Susquehanna	Middle Reach	153.112	50-yr	268800.00	452.31	483.0	464.03	483.56	0.000134	6.16	43695.18	1623.54	0.21
Susquehanna	Middle Reach	153.112	100-yr	303400.00	452.31	486.0	464.90	486.62	0.000145	6.25	48672.62	1653.18	0.20
Susquehanna	Middle Reach	153.112	500-yr	390900.00	452.31	491.1	466.95	491.83	0.000155	6.89	57499.34	2408.80	0.20
Susquehanna	Middle Reach	153.038	2-yr	117600.00	451.30	471.4	459.88	471.74	0.000133	4.68	25145.06	1510.66	0.20
Susquehanna	Middle Reach	153.038	5-yr	162000.00	451.30	475.1	461.35	475.52	0.000133	5.26	30776.33	1548.62	0.21
Susquehanna	Middle Reach	153.038	10-yr	193500.00	451.30	477.7	462.27	478.16	0.000136	5.56	34826.50	1590.33	0.21
Susquehanna	Middle Reach	153.038	25-yr	235600.00	451.30	480.7	463.44	481.26	0.000140	5.95	39696.52	1618.73	0.21
Susquehanna	Middle Reach	153.038	50-yr	268800.00	451.30	482.9	464.32	483.51	0.000139	6.25	43268.01	1639.54	0.21
Susquehanna	Middle Reach	153.038	100-yr	303400.00	451.30	485.9	465.19	486.56	0.000151	6.34	48283.66	1663.51	0.20
Susquehanna	Middle Reach	153.038	500-yr	390900.00	451.30	491.0	467.24	491.77	0.000161	6.97	56899.71	2239.37	0.21
Susquehanna	Middle Reach	152.962	2-yr	117600.00	450.53	471.3	460.87	471.68	0.000157	4.86	24180.10	1555.90	0.22
Susquehanna	Middle Reach	152.962	5-yr	162000.00	450.53	475.0	462.29	475.46	0.000149	5.41	29957.95	1577.83	0.22
Susquehanna	Middle Reach	152.962	10-yr	193500.00	450.53	477.6	463.19	478.10	0.000150	5.68	34077.60	1607.25	0.22
Susquehanna	Middle Reach	152.962	25-yr	235600.00	450.53	480.6	464.34	481.20	0.000152	6.05	39021.11	1647.65	0.22
Susquehanna	Middle Reach	152.962	50-yr	268800.00	450.53	482.8	465.20	483.45	0.000149	6.32	42661.94	1664.38	0.22
Susquehanna	Middle Reach	152.962	100-yr	303400.00	450.53	485.9	466.06	486.50	0.000160	6.39	47733.02	1678.93	0.21
Susquehanna	Middle Reach	152.962	500-yr	390900.00	450.53	490.9	468.08	491.70	0.000168	7.01	56362.21	2266.33	0.21
Susquehanna	Middle Reach	152.887	2-yr	117600.00	450.27	471.3	460.49	471.62	0.000143	4.70	25019.59	1573.43	0.21
Susquehanna	Middle Reach	152.887	5-yr	162000.00	450.27	475.0	462.01	475.39	0.000136	5.25	30915.93	1630.02	0.21
Susquehanna	Middle Reach	152.887	10-yr	193500.00	450.27	477.6	463.06	478.03	0.000138	5.53	35165.61	1650.89	0.21
Susquehanna	Middle Reach	152.887	25-yr	235600.00	450.27	480.6	464.16	481.14	0.000140	5.91	40215.92	1674.43	0.21
Susquehanna	Middle Reach	152.887	50-yr	268800.00	450.27	482.8	464.98	483.38	0.000137	6.19	43911.26	1688.75	0.21
Susquehanna	Middle Reach	152.887	100-yr	303400.00	450.27	485.8	465.80	486.43	0.000149	6.28	49048.27	1704.84	0.20
Susquehanna	Middle Reach	152.887	500-yr	390900.00	450.27	490.9	467.76	491.63	0.000158	6.91	57765.59	2156.93	0.21
Susquehanna	Middle Reach	152.810	2-yr	117600.00	450.68	471.2	459.69	471.55	0.000123	4.47	26299.29	1596.11	0.19
Susquehanna	Middle Reach	152.810	5-yr	162000.00	450.68	474.9	461.18	475.33	0.000121	5.03	32228.60	1613.73	0.20
Susquehanna	Middle Reach	152.810	10-yr	193500.00	450.68	477.5	462.13	477.97	0.000124	5.31	36426.14	1627.49	0.20
Susquehanna	Middle Reach	152.810	25-yr	235600.00	450.68	480.6	463.35	481.07	0.000128	5.69	41394.07	1643.63	0.20

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	152.810	50-yr	268800.00	450.68	482.8	464.22	483.32	0.000127	5.97	45055.93	1690.08	0.20
Susquehanna	Middle Reach	152.810	100-yr	303400.00	450.68	485.8	465.09	486.36	0.000138	6.06	50222.08	1721.94	0.19
Susquehanna	Middle Reach	152.810	500-yr	390900.00	450.68	490.9	467.03	491.55	0.000147	6.68	59028.96	2193.57	0.20
Susquehanna	Middle Reach	152.734	2-yr	117600.00	450.87	471.1	460.80	471.48	0.000194	5.15	22835.52	1581.00	0.24
Susquehanna	Middle Reach	152.734	5-yr	162000.00	450.87	474.8	462.64	475.26	0.000184	5.64	28717.61	1601.34	0.23
Susquehanna	Middle Reach	152.734	10-yr	193500.00	450.87	477.4	463.75	477.90	0.000185	5.88	32886.40	1615.70	0.23
Susquehanna	Middle Reach	152.734	25-yr	235600.00	450.87	480.4	465.08	481.00	0.000187	6.23	37881.01	1670.79	0.23
Susquehanna	Middle Reach	152.734	50-yr	268800.00	450.87	482.6	466.00	483.25	0.000183	6.49	41600.49	1707.18	0.23
Susquehanna	Middle Reach	152.734	100-yr	303400.00	450.87	485.6	466.88	486.28	0.000196	6.53	46790.08	1721.67	0.22
Susquehanna	Middle Reach	152.734	500-yr	390900.00	450.87	490.7	468.95	491.47	0.000205	7.12	55573.39	2146.98	0.22
Susquehanna	Middle Reach	152.658	2-yr	117600.00	451.03	471.0	460.18	471.39	0.000256	5.09	23123.18	1553.38	0.23
Susquehanna	Middle Reach	152.658	5-yr	162000.00	451.03	474.7	461.77	475.18	0.000239	5.60	28927.23	1579.75	0.23
Susquehanna	Middle Reach	152.658	10-yr	193500.00	451.03	477.3	462.81	477.81	0.000239	5.86	33036.57	1594.36	0.23
Susquehanna	Middle Reach	152.658	25-yr	235600.00	451.03	480.3	464.10	480.91	0.000240	6.22	37899.05	1611.08	0.23
Susquehanna	Middle Reach	152.658	50-yr	268800.00	451.03	482.5	465.11	483.16	0.000235	6.48	41456.80	1624.41	0.23
Susquehanna	Middle Reach	152.658	100-yr	303400.00	451.03	485.5	466.09	486.19	0.000248	6.55	46439.62	1678.15	0.22
Susquehanna	Middle Reach	152.658	500-yr	390900.00	451.03	490.6	468.40	491.38	0.000257	7.16	55020.67	2154.22	0.22
Susquehanna	Middle Reach	152.587	2-yr	117600.00	451.11	470.9	459.73	471.31	0.000156	4.96	23727.34	1519.38	0.22
Susquehanna	Middle Reach	152.587	5-yr	162000.00	451.11	474.6	461.30	475.10	0.000152	5.51	29391.73	1541.73	0.22
Susquehanna	Middle Reach	152.587	10-yr	193500.00	451.11	477.2	462.32	477.74	0.000156	5.79	33398.13	1557.30	0.22
Susquehanna	Middle Reach	152.587	25-yr	235600.00	451.11	480.2	463.58	480.84	0.000159	6.18	38143.48	1574.85	0.22
Susquehanna	Middle Reach	152.587	50-yr	268800.00	451.11	482.4	464.53	483.09	0.000156	6.46	41685.88	1632.88	0.22
Susquehanna	Middle Reach	152.587	100-yr	303400.00	451.11	485.5	465.51	486.12	0.000169	6.55	46633.30	1669.93	0.21
Susquehanna	Middle Reach	152.587	500-yr	390900.00	451.11	490.5	467.76	491.30	0.000179	7.20	55173.60	2159.41	0.22
Susquehanna	Middle Reach	152.505	2-yr	117600.00	451.42	470.9	459.19	471.24	0.000147	4.87	24131.76	1495.72	0.21
Susquehanna	Middle Reach	152.505	5-yr	162000.00	451.42	474.6	460.78	475.03	0.000146	5.45	29713.07	1520.98	0.22
Susquehanna	Middle Reach	152.505	10-yr	193500.00	451.42	477.2	461.82	477.67	0.000151	5.75	33661.44	1536.94	0.22
Susquehanna	Middle Reach	152.505	25-yr	235600.00	451.42	480.2	463.12	480.77	0.000156	6.14	38341.43	1555.18	0.22
Susquehanna	Middle Reach	152.505	50-yr	268800.00	451.42	482.4	464.11	483.02	0.000154	6.43	41842.92	1645.04	0.22
Susquehanna	Middle Reach	152.505	100-yr	303400.00	451.42	485.4	465.13	486.05	0.000167	6.52	46814.52	1665.16	0.21
Susquehanna	Middle Reach	152.505	500-yr	390900.00	451.42	490.4	467.40	491.22	0.000177	7.18	55349.91	2297.14	0.21
Susquehanna	Middle Reach	152.426	2-yr	117600.00	451.53	470.7	460.10	471.16	0.000188	5.37	21892.30	1479.42	0.25
Susquehanna	Middle Reach	152.426	5-yr	162000.00	451.53	474.4	461.67	474.96	0.000181	5.91	27415.36	1505.58	0.24
Susquehanna	Middle Reach	152.426	10-yr	193500.00	451.53	477.0	462.72	477.59	0.000182	6.18	31339.55	1535.89	0.24
Susquehanna	Middle Reach	152.426	25-yr	235600.00	451.53	480.0	464.02	480.69	0.000183	6.56	36012.72	1565.97	0.24
Susquehanna	Middle Reach	152.426	50-yr	268800.00	451.53	482.2	464.98	482.95	0.000179	6.85	39512.59	1625.57	0.24
Susquehanna	Middle Reach	152.426	100-yr	303400.00	451.53	485.2	465.94	485.96	0.000192	6.92	44512.54	1691.85	0.23
Susquehanna	Middle Reach	152.426	500-yr	390900.00	451.53	490.2	468.22	491.14	0.000202	7.57	53102.09	2351.78	0.23
Susquehanna	Middle Reach	152.351	2-yr	117600.00	451.77	470.6	460.67	471.08	0.000222	5.69	20655.43	1360.72	0.26
Susquehanna	Middle Reach	152.351	5-yr	162000.00	451.77	474.3	462.27	474.87	0.000209	6.26	25900.02	1493.17	0.26
Susquehanna	Middle Reach	152.351	10-yr	193500.00	451.77	476.9	463.31	477.51	0.000207	6.50	29848.76	1552.04	0.26
Susquehanna	Middle Reach	152.351	25-yr	235600.00	451.77	479.9	464.61	480.61	0.000204	6.87	34593.09	1596.06	0.25
Susquehanna	Middle Reach	152.351	50-yr	268800.00	451.77	482.1	465.60	482.87	0.000198	7.15	38194.05	1665.48	0.25
Susquehanna	Middle Reach	152.351	100-yr	303400.00	451.77	485.1	466.55	485.88	0.000211	7.20	43259.23	1756.47	0.24
Susquehanna	Middle Reach	152.351	500-yr	390900.00	451.77	490.1	468.89	491.05	0.000219	7.84	51858.71	2128.47	0.24
Susquehanna	Middle Reach	152.280	2-yr	117600.00	451.74	470.5	460.93	470.99	0.000255	5.86	20084.15	1413.95	0.27
Susquehanna	Middle Reach	152.280	5-yr	162000.00	451.74	474.2	462.72	474.79	0.000230	6.36	25497.96	1493.62	0.27
Susquehanna	Middle Reach	152.280	10-yr	193500.00	451.74	476.8	463.87	477.43	0.000222	6.59	29496.41	1565.96	0.26
Susquehanna	Middle Reach	152.280	25-yr	235600.00	451.74	479.8	465.25	480.53	0.000216	6.95	34290.85	1605.70	0.26
Susquehanna	Middle Reach	152.280	50-yr	268800.00	451.74	482.0	466.23	482.79	0.000207	7.22	37859.89	1628.05	0.25
Susquehanna	Middle Reach	152.280	100-yr	303400.00	451.74	485.0	467.19	485.80	0.000218	7.26	42767.13	2107.11	0.24
Susquehanna	Middle Reach	152.280	500-yr	390900.00	451.74	490.0	469.41	490.96	0.000224	7.91	51170.54	2460.43	0.24
Susquehanna	Middle Reach	152.202	2-yr	117600.00	451.67	470.4	460.54	470.87	0.000217	5.58	21061.54	1438.59	0.26
Susquehanna	Middle Reach	152.202	5-yr	162000.00	451.67	474.1	462.19	474.69	0.000212	6.10	26573.65	1503.15	0.26
Susquehanna	Middle Reach	152.202	10-yr	193500.00	451.67	476.7	463.27	477.32	0.000211	6.35	30557.45	1609.06	0.25
Susquehanna	Middle Reach	152.202	25-yr	235600.00	451.67	479.7	465.04	480.42	0.000209	6.71	35591.64	1705.83	0.25
Susquehanna	Middle Reach	152.202	50-yr	268800.00	451.67	481.9	465.99	482.69	0.000202	6.98	39370.06	1715.85	0.24
Susquehanna	Middle Reach	152.202	100-yr	303400.00	451.67	484.9	466.85	485.69	0.000215	7.03	44525.70	2410.99	0.23
Susquehanna	Middle Reach	152.202	500-yr	390900.00	451.67	489.9	468.93	490.85	0.000224	7.67	53286.00	2747.83	0.23
Susquehanna	Middle Reach	152.127	2-yr	117600.00	450.82	470.4	459.27	470.77	0.000153	4.94	23787.73	1471.29	0.22
Susquehanna	Middle Reach	152.127	5-yr	162000.00	450.82	474.1	460.84	474.58	0.000154	5.51	29388.59	1523.77	0.22
Susquehanna	Middle Reach	152.127	10-yr	193500.00	450.82	476.7	461.84	477.22	0.000156	5.80	33441.29	1634.24	0.22
Susquehanna	Middle Reach	152.127	25-yr	235600.00	450.82	479.7	463.23	480.32	0.000158	6.20	38628.43	1738.45	0.22
Susquehanna	Middle Reach	152.127	50-yr	268800.00	450.82	481.9	464.18	482.59	0.000155	6.48	42480.98	1745.91	0.22
Susquehanna	Middle Reach	152.127	100-yr	303400.00	450.82	484.9	465.04	485.59	0.000168	6.57	47703.40	2394.65	0.21
Susquehanna	Middle Reach	152.127	500-yr	390900.00	450.82	489.9	467.10	490.74	0.000179	7.23	56562.66	2635.49	0.21
Susquehanna	Middle Reach	152.050	2-yr	117600.00	450.29	470.4	458.47	470.70	0.000130	4.60	25575.80	1529.85	0.20
Susquehanna	Middle Reach	152.050	5-yr	162000.00	450.29	474.1	460.12	474.51	0.000134	5.16	31409.02	1594.79	0.20
Susquehanna	Middle Reach	152.050	10-yr	193500.00	450.29	476.7	461.21	477.14	0.000141	5.43	35701.61	1714.95	0.21
Susquehanna	Middle Reach	152.050	25-yr	235600.00	450.29	479.7	462.37	480.24	0.000143	5.80	41010.99	1866.45	0.21
Susquehanna	Middle Reach	152.050	50-yr	268800.00	450.29	481.9	463.23	482.50	0.000140	6.06	44942.67	1956.32	0.21
Susquehanna	Middle Reach	152.050	100-yr	303400.00	450.29	484.9	464.07	485.50	0.000152	6.15	50297.18	2653.62	0.20
Susquehanna	Middle Reach	152.050	500-yr	390900.00	450.29	489.9	466.12	490.64	0.000162	6.76	59411.92	3183.21	0.20
Susquehanna	Middle Reach	151.976	2-yr	117600.00	451.43	470.2	460.53	470.62	0.000221	5.34	22003.86	1597.39	0.25
Susquehanna	Middle Reach	151.976	5-yr	162000.00	451.43	473.9	462.32	474.43	0.000197	5.78	28028.53	1628.99	0.25
Susquehanna	Middle Reach	151.976	10-yr	193500.00	451.43	476.5	463.43	477.06	0.000198	5.98	32363.76	1722.23	0.24
Susquehanna	Middle Reach	151.976	25-yr	235600.00	451.43	479.6	464.78	480.16	0.000191	6.29	37661.35	1908.48	0.23
Susquehanna	Middle Reach	151.976	50-yr	268800.00	451.43	481.8	465.68	482.43	0.000182	6.52	41595.99	2136.25	0.23
Susquehanna	Middle Reach	151.976	100-yr	303400.00	451.43	484.8	466.53	485.42	0.000191	6.55	47004.81	2816.25	0.22
Susquehanna	Middle Reach	151.976	500-yr	390900.00	451.43	489.8	468.52	490.57	0.000196	7.11	56368.97	3456.90	0.22
Susquehanna	Middle Reach	151.899	2-yr	117600.00	451.53	470.0	460.76	470.52	0.000272	5.76	20415.34	1582.40	0.28
Susquehanna	Middle Reach	151.899	5-yr	162000.00	451.53	473.8	462.51	474.34	0.000239	6.11	26506.31	1638.17	0.27
Susquehanna	Middle Reach	151.899	10-yr	193500.00	451.53	476.4	463.57	476.97	0.000228	6.29	30880.86	1801.48	0.26
Susquehanna	Middle Reach	151.899	25-yr	235600.00	451.53	479.4	464.87	480.08	0.000217	6.57	36501.92	1983.06	0.25
Susquehanna	Middle Reach	151.899	50-yr	268800.00	451.53	481.6	465.86	482.35	0.000206	6.78	40659.77	2144.71	0.24
Susquehanna	Middle Reach	151.899	100-yr	303400.00	451.53	484.6	466.84	485.34	0.000215	6.78	46263.54	3043.18	0.23
Susquehanna	Middle Reach	151.899	500-yr	390900.00	451.53	489.7	469.41	490.48	0.000217	7.32	55765.32	3482.32	0.23
Susquehanna	Middle Reach	151.822	2-yr	117600.00	450.80	469.9	460.27	470.41	0.000231	5.59	21037.37	1498.01	0.26

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	151.822	5-yr	162000.00	450.80	473.7	461.88	474.25	0.000207	6.03	26870.39	1663.84	0.26
Susquehanna	Middle Reach	151.822	10-yr	193500.00	450.80	476.3	462.94	476.88	0.000201	6.22	31268.00	2066.81	0.25
Susquehanna	Middle Reach	151.822	25-yr	235600.00	450.80	479.3	464.30	479.99	0.000195	6.51	36905.03	2283.31	0.24
Susquehanna	Middle Reach	151.822	50-yr	268800.00	450.80	481.6	465.30	482.27	0.000186	6.73	41104.06	2361.43	0.24
Susquehanna	Middle Reach	151.822	100-yr	303400.00	450.80	484.5	466.23	485.25	0.000196	6.74	46746.95	2967.60	0.23
Susquehanna	Middle Reach	151.822	500-yr	390900.00	450.80	489.6	468.62	490.39	0.000201	7.29	56336.22	3504.95	0.23
Susquehanna	Middle Reach	151.748	2-yr	117600.00	450.08	469.9	459.94	470.31	0.000215	5.41	21746.86	1524.77	0.25
Susquehanna	Middle Reach	151.748	5-yr	162000.00	450.08	473.6	461.49	474.16	0.000195	5.85	27694.79	1779.23	0.25
Susquehanna	Middle Reach	151.748	10-yr	193500.00	450.08	476.2	462.51	476.80	0.000188	6.04	32223.59	1968.09	0.24
Susquehanna	Middle Reach	151.748	25-yr	235600.00	450.08	479.3	463.77	479.91	0.000182	6.34	37832.03	2089.22	0.24
Susquehanna	Middle Reach	151.748	50-yr	268800.00	450.08	481.5	464.82	482.19	0.000173	6.56	41999.32	2182.30	0.23
Susquehanna	Middle Reach	151.748	100-yr	303400.00	450.08	484.5	465.81	485.17	0.000183	6.59	47588.00	2404.56	0.22
Susquehanna	Middle Reach	151.748	500-yr	390900.00	450.08	489.5	468.04	490.31	0.000188	7.15	57316.59	3471.13	0.22
Susquehanna	Middle Reach	151.672	2-yr	117600.00	450.18	469.7	460.63	470.21	0.000250	5.70	20647.90	1583.70	0.28
Susquehanna	Middle Reach	151.672	5-yr	162000.00	450.18	473.5	462.28	474.07	0.000228	6.04	26946.20	1708.60	0.26
Susquehanna	Middle Reach	151.672	10-yr	193500.00	450.18	476.1	463.36	476.71	0.000215	6.19	31799.37	1969.90	0.25
Susquehanna	Middle Reach	151.672	25-yr	235600.00	450.18	479.2	464.95	479.83	0.000204	6.45	38065.68	2188.24	0.24
Susquehanna	Middle Reach	151.672	50-yr	268800.00	450.18	481.4	465.87	482.11	0.000192	6.64	42973.52	2425.00	0.24
Susquehanna	Middle Reach	151.672	100-yr	303400.00	450.18	484.4	466.77	485.09	0.000199	6.62	49750.75	2611.89	0.23
Susquehanna	Middle Reach	151.672	500-yr	390900.00	450.18	489.5	468.94	490.22	0.000199	7.11	61197.40	3689.68	0.22
Susquehanna	Middle Reach	151.597	2-yr	117600.00	449.78	469.6	459.93	470.11	0.000235	5.75	20460.23	1433.06	0.27
Susquehanna	Middle Reach	151.597	5-yr	162000.00	449.78	473.4	461.57	473.98	0.000222	6.14	26394.93	1631.79	0.27
Susquehanna	Middle Reach	151.597	10-yr	193500.00	449.78	476.0	462.63	476.63	0.000213	6.31	30829.77	1735.11	0.26
Susquehanna	Middle Reach	151.597	25-yr	235600.00	449.78	479.1	463.94	479.74	0.000204	6.59	36306.12	1861.89	0.25
Susquehanna	Middle Reach	151.597	50-yr	268800.00	449.78	481.3	464.92	482.03	0.000193	6.80	40512.36	2185.84	0.25
Susquehanna	Middle Reach	151.597	100-yr	303400.00	449.78	484.3	465.89	485.01	0.000201	6.79	47906.95	2604.35	0.23
Susquehanna	Middle Reach	151.597	500-yr	390900.00	449.78	489.3	468.23	490.14	0.000201	7.26	60751.45	3538.29	0.23
Susquehanna	Middle Reach	151.521	2-yr	117600.00	450.21	469.5	459.73	470.02	0.000241	5.88	19984.06	1341.39	0.27
Susquehanna	Middle Reach	151.521	5-yr	162000.00	450.21	473.3	461.36	473.88	0.000225	6.38	25389.51	1571.63	0.28
Susquehanna	Middle Reach	151.521	10-yr	193500.00	450.21	475.9	462.47	476.54	0.000219	6.56	29629.56	1668.56	0.27
Susquehanna	Middle Reach	151.521	25-yr	235600.00	450.21	478.9	463.80	479.65	0.000213	6.85	34958.05	1889.35	0.26
Susquehanna	Middle Reach	151.521	50-yr	268800.00	450.21	481.2	464.83	481.95	0.000203	7.07	39153.16	2515.90	0.25
Susquehanna	Middle Reach	151.521	100-yr	303400.00	450.21	484.2	465.83	484.92	0.000213	7.03	48080.96	2914.47	0.24
Susquehanna	Middle Reach	151.521	500-yr	390900.00	450.21	489.2	468.29	490.05	0.000211	7.47	62631.08	3620.06	0.23
Susquehanna	Middle Reach	151.444	2-yr	117600.00	450.32	469.4	459.22	469.91	0.000218	5.69	20662.51	1351.47	0.26
Susquehanna	Middle Reach	151.444	5-yr	162000.00	450.32	473.2	460.86	473.79	0.000203	6.20	26130.44	1537.42	0.26
Susquehanna	Middle Reach	151.444	10-yr	193500.00	450.32	475.8	461.92	476.44	0.000201	6.42	30247.48	1646.65	0.26
Susquehanna	Middle Reach	151.444	25-yr	235600.00	450.32	478.9	463.26	479.57	0.000199	6.76	35530.60	1945.82	0.25
Susquehanna	Middle Reach	151.444	50-yr	268800.00	450.32	481.1	464.24	481.86	0.000192	7.00	39723.80	2614.78	0.25
Susquehanna	Middle Reach	151.444	100-yr	303400.00	450.32	484.1	465.24	484.83	0.000202	6.98	49735.74	3228.97	0.23
Susquehanna	Middle Reach	151.444	500-yr	390900.00	450.32	489.1	467.56	489.96	0.000201	7.42	66019.69	3607.19	0.23
Susquehanna	Middle Reach	151.365	2-yr	117600.00	449.74	469.4	458.04	469.80	0.000139	4.85	24264.07	1427.03	0.21
Susquehanna	Middle Reach	151.365	5-yr	162000.00	449.74	473.2	459.53	473.68	0.000137	5.46	29679.83	1440.59	0.21
Susquehanna	Middle Reach	151.365	10-yr	193500.00	449.74	475.8	460.49	476.34	0.000143	5.79	33447.73	1479.97	0.21
Susquehanna	Middle Reach	151.365	25-yr	235600.00	449.74	478.9	461.73	479.46	0.000149	6.21	37916.10	1561.90	0.22
Susquehanna	Middle Reach	151.365	50-yr	268800.00	449.74	481.1	462.66	481.76	0.000148	6.52	41339.25	2601.84	0.22
Susquehanna	Middle Reach	151.365	100-yr	303400.00	449.74	484.1	463.53	484.73	0.000160	6.60	51413.21	3297.46	0.21
Susquehanna	Middle Reach	151.365	500-yr	390900.00	449.74	489.1	465.62	489.87	0.000166	7.14	68587.98	3526.63	0.21
Susquehanna	Middle Reach	151.288	2-yr	117600.00	449.07	469.4	457.69	469.74	0.000145	4.95	23767.95	1398.43	0.21
Susquehanna	Middle Reach	151.288	5-yr	162000.00	449.07	473.1	459.32	473.62	0.000143	5.57	29107.37	1424.63	0.22
Susquehanna	Middle Reach	151.288	10-yr	193500.00	449.07	475.7	460.38	476.27	0.000149	5.89	32826.50	1439.73	0.22
Susquehanna	Middle Reach	151.288	25-yr	235600.00	449.07	478.8	461.67	479.40	0.000155	6.33	37229.10	1456.17	0.22
Susquehanna	Middle Reach	151.288	50-yr	268800.00	449.07	481.0	462.57	481.70	0.000154	6.64	40505.21	1522.92	0.22
Susquehanna	Middle Reach	151.288	100-yr	303400.00	449.07	484.0	463.48	484.66	0.000169	6.75	47228.29	3072.56	0.22
Susquehanna	Middle Reach	151.288	500-yr	390900.00	449.07	489.0	465.63	489.80	0.000175	7.29	64658.39	3771.06	0.22
Susquehanna	Middle Reach	151.217	2-yr	117600.00	448.85	469.2	458.64	469.68	0.000173	5.25	22387.92	1377.88	0.23
Susquehanna	Middle Reach	151.217	5-yr	162000.00	448.85	473.0	460.16	473.56	0.000166	5.86	27625.97	1399.45	0.23
Susquehanna	Middle Reach	151.217	10-yr	193500.00	448.85	475.6	461.15	476.21	0.000171	6.19	31273.42	1414.09	0.23
Susquehanna	Middle Reach	151.217	25-yr	235600.00	448.85	478.6	462.38	479.33	0.000176	6.62	35590.20	1450.62	0.23
Susquehanna	Middle Reach	151.217	50-yr	268800.00	448.85	480.9	463.30	481.63	0.000173	6.93	38820.72	2011.86	0.24
Susquehanna	Middle Reach	151.217	100-yr	303400.00	448.85	483.8	464.22	484.59	0.000187	7.01	46316.92	2752.10	0.23
Susquehanna	Middle Reach	151.217	500-yr	390900.00	448.85	488.9	466.42	489.72	0.000192	7.58	62225.23	3672.23	0.23
Susquehanna	Middle Reach	151.144	2-yr	117600.00	447.89	469.2	457.15	469.60	0.000135	4.93	23866.20	1341.73	0.21
Susquehanna	Middle Reach	151.144	5-yr	162000.00	447.89	473.0	458.75	473.48	0.000137	5.60	28952.43	1356.44	0.21
Susquehanna	Middle Reach	151.144	10-yr	193500.00	447.89	475.6	459.76	476.14	0.000144	5.96	32474.57	1366.58	0.22
Susquehanna	Middle Reach	151.144	25-yr	235600.00	447.89	478.6	461.01	479.25	0.000152	6.43	36631.99	1379.05	0.22
Susquehanna	Middle Reach	151.144	50-yr	268800.00	447.89	480.8	461.96	481.56	0.000153	6.77	39725.45	1544.09	0.22
Susquehanna	Middle Reach	151.144	100-yr	303400.00	447.89	483.8	462.87	484.52	0.000170	6.91	45240.46	2276.27	0.22
Susquehanna	Middle Reach	151.144	500-yr	390900.00	447.89	488.8	465.10	489.65	0.000181	7.57	59541.80	3287.34	0.22
Susquehanna	Middle Reach	151.066	2-yr	117600.00	448.36	469.1	458.40	469.53	0.000186	5.46	21543.67	1319.94	0.24
Susquehanna	Middle Reach	151.066	5-yr	162000.00	448.36	472.8	460.14	473.41	0.000179	6.10	26539.53	1335.05	0.24
Susquehanna	Middle Reach	151.066	10-yr	193500.00	448.36	475.4	461.21	476.06	0.000184	6.45	29999.53	1345.38	0.24
Susquehanna	Middle Reach	151.066	25-yr	235600.00	448.36	478.4	462.48	479.17	0.000189	6.91	34132.77	1386.91	0.24
Susquehanna	Middle Reach	151.066	50-yr	268800.00	448.36	480.7	463.43	481.48	0.000187	7.24	37261.59	1506.79	0.24
Susquehanna	Middle Reach	151.066	100-yr	303400.00	448.36	483.6	464.35	484.43	0.000205	7.37	42343.72	2095.63	0.24
Susquehanna	Middle Reach	151.066	500-yr	390900.00	448.36	488.6	466.59	489.56	0.000216	8.06	55171.05	2996.94	0.24
Susquehanna	Middle Reach	150.988	2-yr	117600.00	448.67	469.0	458.43	469.45	0.000193	5.59	21044.58	1309.52	0.25
Susquehanna	Middle Reach	150.988	5-yr	162000.00	448.67	472.7	460.09	473.33	0.000188	6.23	26002.84	1324.96	0.25
Susquehanna	Middle Reach	150.988	10-yr	193500.00	448.67	475.3	461.18	475.98	0.000194	6.57	29460.41	1352.67	0.25
Susquehanna	Middle Reach	150.988	25-yr	235600.00	448.67	478.3	462.59	479.09	0.000201	7.04	33580.69	1383.51	0.25
Susquehanna	Middle Reach	150.988	50-yr	268800.00	448.67	480.6	463.63	481.40	0.000198	7.36	36700.36	1650.98	0.25
Susquehanna	Middle Reach	150.988	100-yr	303400.00	448.67	483.5	464.56	484.34	0.000216	7.47	42549.31	2278.35	0.24
Susquehanna	Middle Reach	150.988	500-yr	390900.00	448.67	488.5	466.83	489.47	0.000225	8.11	55802.96	3019.10	0.24
Susquehanna	Middle Reach	150.910	2-yr	117600.00	449.07	468.8	458.76	469.36	0.000223	5.93	19827.15	1267.40	0.26
Susquehanna	Middle Reach	150.910	5-yr	162000.00	449.07	472.6	460.47	473.24	0.000215	6.58	24631.80	1288.47	0.27
Susquehanna	Middle Reach	150.910	10-yr	193500.00	449.07	475.1	461.56	475.89	0.000221	6.92	27962.04	1324.79	0.26
Susquehanna	Middle Reach	150.910	25-yr	235600.00	449.07	478.2	462.96	479.00	0.000225	7.39	31907.19	1378.80	0.26
Susquehanna	Middle Reach	150.910	50-yr	268800.00	449.07	480.4	464.00	481.30	0.000220	7.72	34895.45	1863.03	0.26
Susquehanna	Middle Reach	150.910	100-yr	303400.00	449.07	483.3	465.08	484.24	0.000238	7.80	41321.15	2266.30	0.25

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	150.910	500-yr	390900.00	449.07	488.3	467.48	489.36	0.000245	8.44	54186.99	2945.92	0.25
Susquehanna	Middle Reach	150.838	2-yr	117600.00	449.53	468.7	458.85	469.27	0.000236	6.08	19336.09	1227.17	0.27
Susquehanna	Middle Reach	150.838	5-yr	162000.00	449.53	472.4	460.54	473.16	0.000229	6.75	23995.14	1255.10	0.27
Susquehanna	Middle Reach	150.838	10-yr	193500.00	449.53	475.0	461.65	475.80	0.000236	7.10	27239.64	1293.09	0.27
Susquehanna	Middle Reach	150.838	25-yr	235600.00	449.53	478.0	463.05	478.91	0.000239	7.58	31285.28	1397.30	0.27
Susquehanna	Middle Reach	150.838	50-yr	268800.00	449.53	480.2	464.10	481.21	0.000233	7.92	34321.13	1868.06	0.27
Susquehanna	Middle Reach	150.838	100-yr	303400.00	449.53	483.2	465.20	484.14	0.000252	8.01	40379.24	2073.27	0.26
Susquehanna	Middle Reach	150.838	500-yr	390900.00	449.53	488.1	467.55	489.26	0.000262	8.69	52256.85	2755.12	0.26
Susquehanna	Middle Reach	150.764	2-yr	117600.00	449.92	468.6	458.66	469.18	0.000241	6.18	19015.16	1181.14	0.27
Susquehanna	Middle Reach	150.764	5-yr	162000.00	449.92	472.3	460.38	473.06	0.000231	6.89	23706.60	1283.72	0.27
Susquehanna	Middle Reach	150.764	10-yr	193500.00	449.92	474.9	461.51	475.70	0.000236	7.28	27031.79	1330.01	0.27
Susquehanna	Middle Reach	150.764	25-yr	235600.00	449.92	477.9	462.91	478.81	0.000242	7.79	31140.23	1437.76	0.27
Susquehanna	Middle Reach	150.764	50-yr	268800.00	449.92	480.1	463.95	481.12	0.000237	8.15	34353.43	1853.75	0.27
Susquehanna	Middle Reach	150.764	100-yr	303400.00	449.92	483.0	465.01	484.04	0.000258	8.25	40246.28	2150.02	0.27
Susquehanna	Middle Reach	150.764	500-yr	390900.00	449.92	488.0	467.50	489.15	0.000267	8.94	52125.62	2682.69	0.27
Susquehanna	Middle Reach	150.686	2-yr	117600.00	448.97	468.6	457.49	469.06	0.000186	5.73	20552.79	1242.35	0.24
Susquehanna	Middle Reach	150.686	5-yr	162000.00	448.97	472.3	459.19	472.95	0.000186	6.49	25294.85	1277.90	0.25
Susquehanna	Middle Reach	150.686	10-yr	193500.00	448.97	474.8	460.30	475.59	0.000196	6.91	28680.35	1383.94	0.25
Susquehanna	Middle Reach	150.686	25-yr	235600.00	448.97	477.8	461.64	478.69	0.000205	7.45	32839.35	1436.14	0.25
Susquehanna	Middle Reach	150.686	50-yr	268800.00	448.97	480.1	462.69	481.00	0.000203	7.82	35964.94	1804.88	0.26
Susquehanna	Middle Reach	150.686	100-yr	303400.00	448.97	482.9	463.70	483.92	0.000225	7.97	42246.30	2248.32	0.25
Susquehanna	Middle Reach	150.686	500-yr	390900.00	448.97	487.9	466.11	489.03	0.000238	8.68	54525.05	2766.34	0.25
Susquehanna	Middle Reach	150.609	2-yr	117600.00	448.89	468.5	457.68	468.98	0.000202	5.84	20196.67	1274.98	0.25
Susquehanna	Middle Reach	150.609	5-yr	162000.00	448.89	472.2	459.45	472.87	0.000198	6.57	25036.42	1305.93	0.26
Susquehanna	Middle Reach	150.609	10-yr	193500.00	448.89	474.8	460.64	475.51	0.000205	6.98	28570.74	1416.55	0.26
Susquehanna	Middle Reach	150.609	25-yr	235600.00	448.89	477.7	462.00	478.60	0.000212	7.49	32851.03	1463.52	0.26
Susquehanna	Middle Reach	150.609	50-yr	268800.00	448.89	480.0	463.02	480.92	0.000210	7.85	36132.89	1725.00	0.26
Susquehanna	Middle Reach	150.609	100-yr	303400.00	448.89	482.9	464.03	483.83	0.000230	7.97	42474.28	2265.14	0.25
Susquehanna	Middle Reach	150.609	500-yr	390900.00	448.89	487.8	466.43	488.93	0.000241	8.66	55407.44	3238.99	0.26
Susquehanna	Middle Reach	150.533	2-yr	117600.00	448.59	468.4	456.86	468.89	0.000167	5.53	21334.93	1237.79	0.23
Susquehanna	Middle Reach	150.533	5-yr	162000.00	448.59	472.2	458.53	472.78	0.000170	6.29	26265.88	1419.50	0.24
Susquehanna	Middle Reach	150.533	10-yr	193500.00	448.59	474.7	459.60	475.41	0.000179	6.70	29923.49	1451.49	0.24
Susquehanna	Middle Reach	150.533	25-yr	235600.00	448.59	477.7	460.95	478.51	0.000188	7.24	34353.82	1534.21	0.25
Susquehanna	Middle Reach	150.533	50-yr	268800.00	448.59	479.9	461.94	480.82	0.000187	7.60	37768.06	1734.64	0.25
Susquehanna	Middle Reach	150.533	100-yr	303400.00	448.59	482.8	462.96	483.72	0.000208	7.75	43892.73	2297.17	0.24
Susquehanna	Middle Reach	150.533	500-yr	390900.00	448.59	487.7	465.39	488.82	0.000223	8.47	56285.86	3155.80	0.25
Susquehanna	Middle Reach	150.456	2-yr	117600.00	448.38	468.4	456.10	468.82	0.000150	5.37	22080.37	1285.61	0.22
Susquehanna	Middle Reach	150.456	5-yr	162000.00	448.38	472.1	457.77	472.71	0.000155	6.15	27201.99	1439.15	0.23
Susquehanna	Middle Reach	150.456	10-yr	193500.00	448.38	474.7	458.87	475.33	0.000165	6.57	30910.75	1476.70	0.23
Susquehanna	Middle Reach	150.456	25-yr	235600.00	448.38	477.6	460.25	478.42	0.000175	7.10	35425.72	1673.33	0.24
Susquehanna	Middle Reach	150.456	50-yr	268800.00	448.38	479.9	461.27	480.74	0.000176	7.47	38857.72	2331.25	0.24
Susquehanna	Middle Reach	150.456	100-yr	303400.00	448.38	482.8	462.29	483.63	0.000195	7.59	46910.29	2552.73	0.23
Susquehanna	Middle Reach	150.456	500-yr	390900.00	448.38	487.7	464.70	488.71	0.000207	8.26	62142.47	3481.82	0.24
Susquehanna	Middle Reach	150.382 Bloomsburg Gage	2-yr	117600.00	447.56	468.3	455.49	468.75	0.000133	5.15	23377.58	1341.39	0.21
Susquehanna	Middle Reach	150.382 Bloomsburg Gage	5-yr	162000.00	447.56	472.1	457.18	472.64	0.000139	5.91	28558.70	1416.01	0.22
Susquehanna	Middle Reach	150.382 Bloomsburg Gage	10-yr	193500.00	447.56	474.6	458.27	475.26	0.000150	6.33	32199.10	1447.37	0.22
Susquehanna	Middle Reach	150.382 Bloomsburg Gage	25-yr	239600.00	447.56	477.6	459.75	478.35	0.000166	6.99	36529.42	1680.99	0.23
Susquehanna	Middle Reach	150.382 Bloomsburg Gage	50-yr	268800.00	447.56	479.9	460.64	480.65	0.000162	7.24	39884.89	2314.81	0.23
Susquehanna	Middle Reach	150.382 Bloomsburg Gage	100-yr	303400.00	447.56	482.7	461.67	483.54	0.000182	7.41	48137.72	2678.22	0.23
Susquehanna	Middle Reach	150.382 Bloomsburg Gage	500-yr	390900.00	447.56	487.7	464.09	488.62	0.000194	8.07	63561.86	3498.67	0.23
Susquehanna	Middle Reach	150.309	2-yr	117600.00	447.13	468.3	455.16	468.70	0.000126	5.05	23670.49	1327.85	0.20
Susquehanna	Middle Reach	150.309	5-yr	162000.00	447.13	472.1	456.85	472.58	0.000132	5.82	28734.16	1370.96	0.21
Susquehanna	Middle Reach	150.309	10-yr	193500.00	447.13	474.6	457.93	475.20	0.000143	6.25	32244.75	1396.25	0.22
Susquehanna	Middle Reach	150.309	25-yr	239600.00	447.13	477.5	459.40	478.28	0.000160	6.92	36411.39	1502.71	0.23
Susquehanna	Middle Reach	150.309	50-yr	268800.00	447.13	479.8	460.29	480.59	0.000157	7.18	39717.47	1971.00	0.23
Susquehanna	Middle Reach	150.309	100-yr	303400.00	447.13	482.6	461.30	483.47	0.000178	7.37	47409.52	2802.48	0.22
Susquehanna	Middle Reach	150.309	500-yr	390900.00	447.13	487.6	463.68	488.55	0.000191	8.05	62960.81	3605.24	0.23
Susquehanna	Middle Reach	150.233	2-yr	117600.00	447.11	468.2	455.82	468.64	0.000146	5.24	22702.63	1336.24	0.22
Susquehanna	Middle Reach	150.233	5-yr	162000.00	447.11	472.0	457.58	472.52	0.000151	5.97	27886.20	1478.30	0.22
Susquehanna	Middle Reach	150.233	10-yr	193500.00	447.11	474.5	458.71	475.13	0.000160	6.37	31693.76	1522.98	0.23
Susquehanna	Middle Reach	150.233	25-yr	239600.00	447.11	477.5	460.35	478.21	0.000177	7.01	36448.65	2011.52	0.24
Susquehanna	Middle Reach	150.233	50-yr	268800.00	447.11	479.7	461.22	480.52	0.000170	7.22	40307.26	2421.33	0.23
Susquehanna	Middle Reach	150.233	100-yr	303400.00	447.11	482.6	462.20	483.39	0.000187	7.33	49403.95	3002.72	0.23
Susquehanna	Middle Reach	150.233	500-yr	390900.00	447.11	487.5	464.52	488.46	0.000198	7.96	65488.31	3677.78	0.23
Susquehanna	Middle Reach	150.158	2-yr	117600.00	447.82	468.1	456.85	468.57	0.000183	5.65	21009.67	1349.20	0.25
Susquehanna	Middle Reach	150.158	5-yr	162000.00	447.82	471.8	458.55	472.45	0.000181	6.32	26200.99	1474.18	0.25
Susquehanna	Middle Reach	150.158	10-yr	193500.00	447.82	474.4	459.67	475.06	0.000189	6.69	30224.25	1675.48	0.25
Susquehanna	Middle Reach	150.158	25-yr	239600.00	447.82	477.3	461.20	478.13	0.000203	7.28	35196.04	2233.28	0.25
Susquehanna	Middle Reach	150.158	50-yr	268800.00	447.82	479.6	462.07	480.45	0.000192	7.46	39061.73	2538.69	0.25
Susquehanna	Middle Reach	150.158	100-yr	303400.00	447.82	482.5	463.12	483.31	0.000207	7.49	49297.33	2932.58	0.24
Susquehanna	Middle Reach	150.158	500-yr	390900.00	447.82	487.4	465.63	488.37	0.000214	8.05	65959.87	3752.88	0.24
Susquehanna	Middle Reach	150.076	2-yr	117600.00	447.62	468.0	456.94	468.49	0.000206	5.67	20749.09	1336.86	0.25
Susquehanna	Middle Reach	150.076	5-yr	162000.00	447.62	471.8	458.69	472.36	0.000196	6.26	25858.84	1367.01	0.25
Susquehanna	Middle Reach	150.076	10-yr	193500.00	447.62	474.3	459.85	474.97	0.000201	6.59	29377.13	1469.46	0.25
Susquehanna	Middle Reach	150.076	25-yr	239600.00	447.62	477.2	461.40	478.04	0.000210	7.14	34445.82	2424.76	0.26
Susquehanna	Middle Reach	150.076	50-yr	268800.00	447.62	479.5	462.32	480.35	0.000195	7.28	38524.49	2623.63	0.25
Susquehanna	Middle Reach	150.076	100-yr	303400.00	447.62	482.4	463.37	483.21	0.000205	7.25	49127.70	3112.49	0.24
Susquehanna	Middle Reach	150.076	500-yr	390900.00	447.62	487.4	466.07	488.26	0.000205	7.72	65946.72	3674.39	0.23
Susquehanna	Middle Reach	150.001	2-yr	117600.00	447.07	467.9	456.37	468.41	0.000183	5.63	20877.91	1225.65	0.24
Susquehanna	Middle Reach	150.001	5-yr	162000.00	447.07	471.7	458.13	472.29	0.000183	6.31	25661.23	1288.13	0.25
Susquehanna	Middle Reach	150.001	10-yr	193500.00	447.07	474.2	459.26	474.89	0.000192	6.69	29189.04	1652.70	0.25
Susquehanna	Middle Reach	150.001	25-yr	239600.00	447.07	477.1	460.81	477.95	0.000206	7.27	34252.34	2510.76	0.26
Susquehanna	Middle Reach	150.001	50-yr	268800.00	447.07	479.4	461.74	480.27	0.000193	7.41	38875.93	2973.21	0.25
Susquehanna	Middle Reach	150.001	100-yr	303400.00	447.07	482.3	462.80	483.12	0.000203	7.36	50538.62	3512.88	0.24
Susquehanna	Middle Reach	150.001	500-yr	390900.00	447.07	487.3	465.29	488.18	0.000200	7.76	68911.31	3840.62	0.23
Susquehanna	Middle Reach	149.932	2-yr	117600.00	447.41	467.9	456.36	468.33	0.000186	5.52	21293.68	1311.29	0.24
Susquehanna	Middle Reach	149.932	5-yr	162000.00	447.41	471.6	458.09	472.21	0.000182	6.17	26266.51	1333.07	0.24
Susquehanna	Middle Reach	149.932	10-yr	193500.00	447.41	474.1	459.22	474.81	0.000189	6.53	29747.92	1657.92	0.24

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	149.932	25-yr	239600.00	447.41	477.1	460.73	477.87	0.000202	7.13	33911.63	2421.25	0.25
Susquehanna	Middle Reach	149.932	50-yr	268800.00	447.41	479.4	461.66	480.19	0.000183	7.16	43230.07	3428.94	0.24
Susquehanna	Middle Reach	149.932	100-yr	303400.00	447.41	482.3	462.69	483.03	0.000192	7.12	53161.49	3481.55	0.23
Susquehanna	Middle Reach	149.932	500-yr	390900.00	447.41	487.3	465.14	488.09	0.000188	7.49	71231.84	3894.00	0.22
Susquehanna	Middle Reach	149.851	2-yr	117600.00	447.32	467.8	456.07	468.25	0.000164	5.34	22036.80	1265.68	0.23
Susquehanna	Middle Reach	149.851	5-yr	162000.00	447.32	471.6	457.78	472.13	0.000171	6.03	26878.39	1330.57	0.24
Susquehanna	Middle Reach	149.851	10-yr	193500.00	447.32	474.1	458.87	474.72	0.000178	6.40	30301.34	1712.07	0.24
Susquehanna	Middle Reach	149.851	25-yr	239600.00	447.32	477.0	460.41	477.78	0.000191	7.02	34397.32	3128.97	0.24
Susquehanna	Middle Reach	149.851	50-yr	268800.00	447.32	479.4	461.34	480.10	0.000170	7.00	45578.43	3442.52	0.23
Susquehanna	Middle Reach	149.851	100-yr	303400.00	447.32	482.2	462.30	482.94	0.000177	6.94	55512.18	3467.75	0.22
Susquehanna	Middle Reach	149.851	500-yr	390900.00	447.32	487.3	464.60	487.99	0.000173	7.29	73200.33	3628.45	0.22
Susquehanna	Middle Reach	149.775	2-yr	117600.00	448.12	467.7	456.19	468.18	0.000166	5.37	21894.09	1260.45	0.23
Susquehanna	Middle Reach	149.775	5-yr	162000.00	448.12	471.5	457.82	472.06	0.000167	6.07	26673.81	1507.70	0.23
Susquehanna	Middle Reach	149.775	10-yr	193500.00	448.12	474.0	458.86	474.65	0.000176	6.47	29970.52	2163.75	0.24
Susquehanna	Middle Reach	149.775	25-yr	239600.00	448.12	476.9	460.30	477.70	0.000191	7.11	33943.97	3071.49	0.25
Susquehanna	Middle Reach	149.775	50-yr	268800.00	448.12	479.3	461.16	480.03	0.000164	6.98	46746.20	3399.90	0.23
Susquehanna	Middle Reach	149.775	100-yr	303400.00	448.12	482.2	462.15	482.87	0.000172	6.92	56638.17	3473.33	0.22
Susquehanna	Middle Reach	149.775	500-yr	390900.00	448.12	487.2	464.48	487.92	0.000168	7.26	74566.91	3750.52	0.21
Susquehanna	Middle Reach	149.699	2-yr	117600.00	447.67	467.6	456.38	468.11	0.000181	5.55	21183.40	1238.47	0.24
Susquehanna	Middle Reach	149.699	5-yr	162000.00	447.67	471.4	457.99	471.99	0.000180	6.27	25844.82	1251.66	0.24
Susquehanna	Middle Reach	149.699	10-yr	193500.00	447.67	473.9	459.09	474.57	0.000189	6.67	29073.48	1749.27	0.24
Susquehanna	Middle Reach	149.699	25-yr	239600.00	447.67	476.8	460.54	477.61	0.000205	7.34	32956.63	2541.83	0.25
Susquehanna	Middle Reach	149.699	50-yr	268800.00	447.67	479.1	461.42	479.95	0.000183	7.35	41871.06	2763.18	0.24
Susquehanna	Middle Reach	149.699	100-yr	303400.00	447.67	482.0	462.43	482.78	0.000196	7.39	49882.85	3353.48	0.23
Susquehanna	Middle Reach	149.699	500-yr	390900.00	447.67	487.0	464.79	487.83	0.000191	7.76	65699.02	3560.85	0.23
Susquehanna	Middle Reach	149.625	2-yr	117600.00	447.23	467.6	456.10	468.04	0.000175	5.50	21388.15	1234.48	0.23
Susquehanna	Middle Reach	149.625	5-yr	162000.00	447.23	471.3	457.75	471.92	0.000175	6.22	26037.28	1248.51	0.24
Susquehanna	Middle Reach	149.625	10-yr	193500.00	447.23	473.8	458.82	474.50	0.000185	6.63	29231.91	1720.44	0.24
Susquehanna	Middle Reach	149.625	25-yr	239600.00	447.23	476.7	460.30	477.53	0.000202	7.30	33081.65	2698.88	0.25
Susquehanna	Middle Reach	149.625	50-yr	268800.00	447.23	479.1	461.18	479.88	0.000184	7.37	41085.34	3333.00	0.24
Susquehanna	Middle Reach	149.625	100-yr	303400.00	447.23	481.9	462.19	482.70	0.000193	7.33	52544.88	3460.45	0.23
Susquehanna	Middle Reach	149.625	500-yr	390900.00	447.23	486.9	464.56	487.76	0.000190	7.75	70099.34	3544.25	0.23
Susquehanna	Middle Reach	149.546	2-yr	117600.00	446.97	467.5	456.03	467.97	0.000171	5.47	21488.69	1229.62	0.23
Susquehanna	Middle Reach	149.546	5-yr	162000.00	446.97	471.2	457.66	471.84	0.000172	6.20	26124.34	1274.04	0.24
Susquehanna	Middle Reach	149.546	10-yr	193500.00	446.97	473.7	458.73	474.42	0.000183	6.62	29301.42	1445.99	0.24
Susquehanna	Middle Reach	149.546	25-yr	239600.00	446.97	476.6	460.20	477.45	0.000200	7.29	33128.26	1972.67	0.25
Susquehanna	Middle Reach	149.546	50-yr	268800.00	446.97	479.0	461.07	479.80	0.000186	7.42	39134.80	3273.05	0.25
Susquehanna	Middle Reach	149.546	100-yr	303400.00	446.97	481.8	462.08	482.62	0.000198	7.43	50428.86	3540.08	0.23
Susquehanna	Middle Reach	149.546	500-yr	390900.00	446.97	486.8	464.43	487.68	0.000195	7.86	68364.30	3627.08	0.23
Susquehanna	Middle Reach	149.469	2-yr	117600.00	446.46	467.4	455.88	467.90	0.000171	5.51	21327.39	1208.73	0.23
Susquehanna	Middle Reach	149.469	5-yr	162000.00	446.46	471.2	457.54	471.77	0.000176	6.26	25897.74	1273.33	0.24
Susquehanna	Middle Reach	149.469	10-yr	193500.00	446.46	473.7	458.62	474.34	0.000191	6.66	29038.60	1319.15	0.25
Susquehanna	Middle Reach	149.469	25-yr	239600.00	446.46	476.5	460.10	477.36	0.000208	7.32	32720.53	2129.91	0.26
Susquehanna	Middle Reach	149.469	50-yr	268800.00	446.46	478.8	460.99	479.72	0.000196	7.52	36929.29	2983.07	0.25
Susquehanna	Middle Reach	149.469	100-yr	303400.00	446.46	481.7	462.00	482.53	0.000208	7.50	49621.75	3506.78	0.24
Susquehanna	Middle Reach	149.469	500-yr	390900.00	446.46	486.7	464.38	487.59	0.000207	7.95	67363.06	3587.10	0.24
Susquehanna	Middle Reach	149.403	2-yr	117600.00	446.86	467.2	456.93	467.81	0.000245	6.24	18853.29	1186.90	0.27
Susquehanna	Middle Reach	149.403	5-yr	162000.00	446.86	470.9	458.73	471.69	0.000238	6.97	23256.87	1256.60	0.28
Susquehanna	Middle Reach	149.403	10-yr	193500.00	446.86	473.4	459.91	474.25	0.000248	7.38	26232.43	1362.80	0.28
Susquehanna	Middle Reach	149.403	25-yr	239600.00	446.86	476.3	461.52	477.26	0.000270	8.07	29698.85	2147.83	0.29
Susquehanna	Middle Reach	149.403	50-yr	268800.00	446.86	478.6	462.50	479.62	0.000253	8.25	32783.93	2966.82	0.28
Susquehanna	Middle Reach	149.403	100-yr	303400.00	446.86	481.4	463.60	482.44	0.000260	8.13	46780.12	3468.24	0.27
Susquehanna	Middle Reach	149.403	500-yr	390900.00	446.86	486.5	466.19	487.50	0.000249	8.49	64553.78	3601.17	0.26
Susquehanna	Middle Reach	149.382	2-yr	117600.00	445.38	467.2	456.04	467.77	0.000207	5.98	19662.49	1172.13	0.25
Susquehanna	Middle Reach	149.382	5-yr	162000.00	445.38	470.9	457.83	471.65	0.000212	6.75	23991.88	1496.83	0.26
Susquehanna	Middle Reach	149.382	10-yr	193500.00	445.38	473.4	459.01	474.21	0.000224	7.18	26931.80	1692.34	0.27
Susquehanna	Middle Reach	149.382	25-yr	239600.00	445.38	476.3	460.61	477.22	0.000245	7.90	30334.88	2165.95	0.28
Susquehanna	Middle Reach	149.382	50-yr	268800.00	445.38	478.6	461.57	479.58	0.000176	8.12	33115.83	2584.16	0.27
Susquehanna	Middle Reach	149.382	100-yr	303400.00	445.38	481.4	462.66	482.40	0.000221	8.02	48117.90	3440.19	0.26
Susquehanna	Middle Reach	149.382	500-yr	390900.00	445.38	486.4	465.25	487.47	0.000239	8.53	66138.87	3728.87	0.26
Susquehanna	Middle Reach	149.376 PA Route 487		Bridge									
Susquehanna	Middle Reach	149.370	2-yr	117600.00	445.49	467.2	455.89	467.73	0.000201	5.93	19845.40	1145.92	0.25
Susquehanna	Middle Reach	149.370	5-yr	162000.00	445.49	470.9	457.67	471.60	0.000207	6.70	24175.21	1184.97	0.26
Susquehanna	Middle Reach	149.370	10-yr	193500.00	445.49	473.4	458.84	474.16	0.000223	7.13	27140.39	1686.18	0.27
Susquehanna	Middle Reach	149.370	25-yr	239600.00	445.49	476.2	460.43	477.16	0.000245	7.83	30606.70	2309.76	0.28
Susquehanna	Middle Reach	149.370	50-yr	268800.00	445.49	478.6	461.39	479.52	0.000226	7.92	39002.73	2904.21	0.27
Susquehanna	Middle Reach	149.370	100-yr	303400.00	445.49	481.4	462.49	482.35	0.000246	7.98	48051.30	3506.32	0.26
Susquehanna	Middle Reach	149.370	500-yr	390900.00	445.49	486.4	465.08	487.41	0.000244	8.47	66266.54	3738.67	0.26
Susquehanna	Middle Reach	149.327	2-yr	117600.00	446.38	467.1	456.42	467.68	0.000220	6.12	19216.26	1378.79	0.26
Susquehanna	Middle Reach	149.327	5-yr	162000.00	446.38	470.8	458.16	471.55	0.000233	6.87	23586.47	1750.97	0.27
Susquehanna	Middle Reach	149.327	10-yr	193500.00	446.38	473.3	459.31	474.11	0.000244	7.27	26624.72	1865.25	0.28
Susquehanna	Middle Reach	149.327	25-yr	239600.00	446.38	476.2	460.87	477.09	0.000246	7.74	35477.70	2281.83	0.28
Susquehanna	Middle Reach	149.327	50-yr	268800.00	446.38	478.5	461.80	479.46	0.000225	7.86	41399.25	2732.63	0.27
Susquehanna	Middle Reach	149.327	100-yr	303400.00	446.38	481.4	462.87	482.29	0.000241	7.89	49997.70	3467.47	0.26
Susquehanna	Middle Reach	149.327	500-yr	390900.00	446.38	486.4	465.42	487.34	0.000235	8.31	68224.36	3703.23	0.25
Susquehanna	Middle Reach	149.249	2-yr	117600.00	445.94	467.1	455.66	467.57	0.000192	5.73	20524.45	1276.34	0.24
Susquehanna	Middle Reach	149.249	5-yr	162000.00	445.94	470.8	457.38	471.43	0.000197	6.45	25100.92	1456.36	0.25
Susquehanna	Middle Reach	149.249	10-yr	193500.00	445.94	473.3	458.49	473.99	0.000208	6.86	28209.77	1636.17	0.26
Susquehanna	Middle Reach	149.249	25-yr	239600.00	445.94	476.1	460.04	476.98	0.000227	7.52	31847.98	1940.01	0.27
Susquehanna	Middle Reach	149.249	50-yr	268800.00	445.94	478.5	460.95	479.35	0.000206	7.56	40014.18	2614.80	0.26
Susquehanna	Middle Reach	149.249	100-yr	303400.00	445.94	481.3	462.00	482.18	0.000223	7.64	48420.19	3319.76	0.25
Susquehanna	Middle Reach	149.249	500-yr	390900.00	445.94	486.3	464.45	487.24	0.000221	8.11	66746.84	3799.40	0.24
Susquehanna	Middle Reach	149.167	2-yr	117600.00	447.27	466.9	456.52	467.48	0.000233	6.11	19240.48	1183.52	0.27
Susquehanna	Middle Reach	149.167	5-yr	162000.00	447.27	470.6	458.26	471.33	0.000230	6.83	23703.38	1217.45	0.27
Susquehanna	Middle Reach	149.167	10-yr	193500.00	447.27	473.1	459.40	473.88	0.000239	7.24	26708.87	1228.72	0.27
Susquehanna	Middle Reach	149.167	25-yr	239600.00	447.27	475.9	460.95	476.87	0.000259	7.93	30201.07	1241.46	0.28
Susquehanna	Middle Reach	149.167	50-yr	268800.00	447.27	478.2	461.88	479.24	0.000244	8.12	33260.56	1444.04	0.28
Susquehanna	Middle Reach	149.167	100-yr	303400.00	447.27	481.0	462.94	482.05	0.000269	8.27	38560.42	2449.01	0.27

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	149.167	500-yr	390900.00	447.27	485.9	465.58	487.10	0.000278	8.97	53463.95	3539.11	0.27
Susquehanna	Middle Reach	149.098	2-yr	117600.00	446.96	466.9	455.53	467.38	0.000190	5.74	20492.73	1521.89	0.24
Susquehanna	Middle Reach	149.098	5-yr	162000.00	446.96	470.6	457.26	471.24	0.000194	6.49	24961.05	1680.02	0.25
Susquehanna	Middle Reach	149.098	10-yr	193500.00	446.96	473.0	458.38	473.78	0.000206	6.92	27970.76	1746.53	0.26
Susquehanna	Middle Reach	149.098	25-yr	239600.00	446.96	475.9	459.90	476.76	0.000227	7.61	31472.86	1905.52	0.27
Susquehanna	Middle Reach	149.098	50-yr	268800.00	446.96	478.2	460.82	479.11	0.000201	7.58	41411.69	1981.93	0.25
Susquehanna	Middle Reach	149.098	100-yr	303400.00	446.96	481.0	461.87	481.91	0.000222	7.71	47034.21	2504.07	0.25
Susquehanna	Middle Reach	149.098	500-yr	390900.00	446.96	485.9	464.35	486.96	0.000237	8.47	57774.63	3293.84	0.25
Susquehanna	Middle Reach	149.022	2-yr	117600.00	446.89	466.8	455.62	467.30	0.000187	5.68	20700.59	1485.83	0.24
Susquehanna	Middle Reach	149.022	5-yr	162000.00	446.89	470.5	457.31	471.15	0.000191	6.41	25281.85	1629.32	0.25
Susquehanna	Middle Reach	149.022	10-yr	193500.00	446.89	473.0	458.41	473.69	0.000203	6.82	28356.87	1704.16	0.25
Susquehanna	Middle Reach	149.022	25-yr	239600.00	446.89	475.8	459.91	476.66	0.000221	7.50	32056.81	1921.37	0.26
Susquehanna	Middle Reach	149.022	50-yr	268800.00	446.89	478.2	460.81	479.03	0.000197	7.51	41146.92	2023.14	0.25
Susquehanna	Middle Reach	149.022	100-yr	303400.00	446.89	480.9	461.83	481.82	0.000218	7.64	46887.89	2545.68	0.25
Susquehanna	Middle Reach	149.022	500-yr	390900.00	446.89	485.8	464.28	486.86	0.000230	8.34	57734.14	3334.59	0.25
Susquehanna	Middle Reach	148.947	2-yr	117600.00	446.62	466.8	455.04	467.21	0.000156	5.27	22297.60	1261.51	0.22
Susquehanna	Middle Reach	148.947	5-yr	162000.00	446.62	470.5	456.66	471.06	0.000161	5.99	27051.58	1373.63	0.23
Susquehanna	Middle Reach	148.947	10-yr	193500.00	446.62	473.0	457.71	473.59	0.000171	6.40	30284.07	1680.49	0.23
Susquehanna	Middle Reach	148.947	25-yr	239600.00	446.62	475.8	459.13	476.55	0.000186	7.02	36086.31	1885.10	0.24
Susquehanna	Middle Reach	148.947	50-yr	268800.00	446.62	478.1	460.00	478.94	0.000174	7.18	40828.48	2276.13	0.24
Susquehanna	Middle Reach	148.947	100-yr	303400.00	446.62	480.9	460.98	481.72	0.000194	7.32	46681.22	2732.45	0.23
Susquehanna	Middle Reach	148.947	500-yr	390900.00	446.62	485.8	463.30	486.75	0.000208	8.01	57771.68	3325.54	0.24
Susquehanna	Middle Reach	148.863	2-yr	117600.00	447.12	466.7	456.00	467.13	0.000186	5.52	21314.38	1288.23	0.24
Susquehanna	Middle Reach	148.863	5-yr	162000.00	447.12	470.4	457.59	470.98	0.000183	6.19	26153.39	1520.14	0.24
Susquehanna	Middle Reach	148.863	10-yr	193500.00	447.12	472.8	458.63	473.51	0.000191	6.57	30517.45	1849.21	0.25
Susquehanna	Middle Reach	148.863	25-yr	239600.00	447.12	475.7	460.06	476.46	0.000204	7.16	35849.00	1953.26	0.25
Susquehanna	Middle Reach	148.863	50-yr	268800.00	447.12	478.0	460.93	478.85	0.000188	7.29	40745.82	2090.91	0.25
Susquehanna	Middle Reach	148.863	100-yr	303400.00	447.12	480.8	461.92	481.63	0.000208	7.41	46663.70	2209.54	0.24
Susquehanna	Middle Reach	148.863	500-yr	390900.00	447.12	485.7	464.23	486.66	0.000218	8.07	58698.40	3735.67	0.24
Susquehanna	Middle Reach	148.795	2-yr	117600.00	446.36	466.6	455.60	467.06	0.000179	5.38	21841.66	1333.28	0.23
Susquehanna	Middle Reach	148.795	5-yr	162000.00	446.36	470.3	457.28	470.91	0.000176	6.03	26870.51	1363.03	0.24
Susquehanna	Middle Reach	148.795	10-yr	193500.00	446.36	472.8	458.40	473.43	0.000185	6.39	30591.90	1890.85	0.24
Susquehanna	Middle Reach	148.795	25-yr	239600.00	446.36	475.6	459.84	476.37	0.000195	6.95	36823.96	2300.75	0.25
Susquehanna	Middle Reach	148.795	50-yr	268800.00	446.36	478.0	460.68	478.77	0.000177	7.02	42347.77	2398.95	0.24
Susquehanna	Middle Reach	148.795	100-yr	303400.00	446.36	480.8	461.67	481.54	0.000192	7.09	48789.31	2658.54	0.23
Susquehanna	Middle Reach	148.795	500-yr	390900.00	446.36	485.7	463.97	486.55	0.000197	7.65	60378.77	3377.95	0.23
Susquehanna	Middle Reach	148.718	2-yr	117600.00	446.43	466.6	454.62	466.98	0.000154	5.18	22689.03	1308.71	0.22
Susquehanna	Middle Reach	148.718	5-yr	162000.00	446.43	470.3	456.26	470.83	0.000159	5.85	27671.21	1363.16	0.23
Susquehanna	Middle Reach	148.718	10-yr	193500.00	446.43	472.7	457.31	473.35	0.000168	6.23	31220.22	2302.66	0.23
Susquehanna	Middle Reach	148.718	25-yr	239600.00	446.43	475.6	458.76	476.28	0.000177	6.74	38708.90	2425.50	0.24
Susquehanna	Middle Reach	148.718	50-yr	268800.00	446.43	478.0	459.64	478.69	0.000161	6.81	44381.20	2663.86	0.23
Susquehanna	Middle Reach	148.718	100-yr	303400.00	446.43	480.7	460.65	481.45	0.000175	6.87	50948.34	2936.47	0.22
Susquehanna	Middle Reach	148.718	500-yr	390900.00	446.43	485.7	463.04	486.45	0.000176	7.34	69065.84	3741.12	0.22
Susquehanna	Middle Reach	148.639	2-yr	117600.00	446.64	466.5	454.67	466.92	0.000154	5.24	22424.46	1270.53	0.22
Susquehanna	Middle Reach	148.639	5-yr	162000.00	446.64	470.2	456.30	470.76	0.000157	5.96	27184.03	1295.96	0.23
Susquehanna	Middle Reach	148.639	10-yr	193500.00	446.64	472.6	457.36	473.28	0.000167	6.36	31481.22	2136.45	0.23
Susquehanna	Middle Reach	148.639	25-yr	239600.00	446.64	475.5	458.79	476.20	0.000180	6.94	37941.61	2430.05	0.24
Susquehanna	Middle Reach	148.639	50-yr	268800.00	446.64	477.9	459.66	478.61	0.000165	7.02	43572.51	2884.99	0.23
Susquehanna	Middle Reach	148.639	100-yr	303400.00	446.64	480.6	460.63	481.37	0.000181	7.11	50085.41	3057.65	0.22
Susquehanna	Middle Reach	148.639	500-yr	390900.00	446.64	485.5	463.01	486.37	0.000183	7.58	69423.52	3743.71	0.22
Susquehanna	Middle Reach	148.561	2-yr	117600.00	446.44	466.4	454.43	466.85	0.000155	5.33	22083.42	1223.76	0.22
Susquehanna	Middle Reach	148.561	5-yr	162000.00	446.44	470.1	456.10	470.69	0.000162	6.07	26816.72	1530.66	0.23
Susquehanna	Middle Reach	148.561	10-yr	193500.00	446.44	472.6	457.17	473.20	0.000173	6.48	30803.48	1708.56	0.24
Susquehanna	Middle Reach	148.561	25-yr	239600.00	446.44	475.4	458.63	476.12	0.000188	7.10	35789.36	1927.16	0.24
Susquehanna	Middle Reach	148.561	50-yr	268800.00	446.44	477.7	459.50	478.54	0.000174	7.22	40518.20	2008.38	0.24
Susquehanna	Middle Reach	148.561	100-yr	303400.00	446.44	480.5	460.52	481.29	0.000194	7.35	46252.69	2188.79	0.23
Susquehanna	Middle Reach	148.561	500-yr	390900.00	446.44	485.3	462.93	486.28	0.000205	8.01	58844.05	4678.85	0.24
Susquehanna	Middle Reach	148.486	2-yr	117600.00	446.44	466.3	454.70	466.78	0.000171	5.57	21117.01	1946.89	0.23
Susquehanna	Middle Reach	148.486	5-yr	162000.00	446.44	470.0	456.41	470.62	0.000178	6.35	25521.58	2350.94	0.24
Susquehanna	Middle Reach	148.486	10-yr	193500.00	446.44	472.4	457.51	473.13	0.000188	6.76	30486.00	3875.71	0.25
Susquehanna	Middle Reach	148.486	25-yr	239600.00	446.44	475.2	459.02	476.04	0.000200	7.30	37645.85	4041.74	0.25
Susquehanna	Middle Reach	148.486	50-yr	268800.00	446.44	477.7	459.91	478.47	0.000179	7.33	44068.11	4669.86	0.24
Susquehanna	Middle Reach	148.486	100-yr	303400.00	446.44	480.4	460.93	481.20	0.000194	7.36	51633.63	6541.25	0.23
Susquehanna	Middle Reach	148.486	500-yr	390900.00	446.44	485.3	463.34	486.17	0.000196	7.84	66287.63	7970.78	0.23
Susquehanna	Middle Reach	148.413	2-yr	117600.00	446.24	466.2	454.54	466.72	0.000175	5.57	21101.31	1421.37	0.23
Susquehanna	Middle Reach	148.413	5-yr	162000.00	446.24	469.9	456.24	470.55	0.000181	6.34	25571.86	2297.99	0.24
Susquehanna	Middle Reach	148.413	10-yr	193500.00	446.24	472.4	457.34	473.05	0.000190	6.70	31448.55	3466.07	0.25
Susquehanna	Middle Reach	148.413	25-yr	239600.00	446.24	475.2	458.86	475.96	0.000196	7.17	40052.62	4871.50	0.25
Susquehanna	Middle Reach	148.413	50-yr	268800.00	446.24	477.7	459.74	478.38	0.000172	7.11	47979.00	6223.46	0.24
Susquehanna	Middle Reach	148.413	100-yr	303400.00	446.24	480.4	460.79	481.10	0.000181	7.05	56849.52	7072.64	0.22
Susquehanna	Middle Reach	148.413	500-yr	390900.00	446.24	485.3	463.22	486.06	0.000177	7.38	72761.95	8191.23	0.22
Susquehanna	Middle Reach	148.334	2-yr	117600.00	446.14	466.2	454.12	466.64	0.000159	5.35	21962.57	1436.97	0.22
Susquehanna	Middle Reach	148.334	5-yr	162000.00	446.14	469.9	455.78	470.46	0.000166	6.10	26553.07	2087.74	0.23
Susquehanna	Middle Reach	148.334	10-yr	193500.00	446.14	472.3	456.88	472.96	0.000177	6.48	31233.33	3412.17	0.24
Susquehanna	Middle Reach	148.334	25-yr	239600.00	446.14	475.1	458.37	475.87	0.000189	7.04	38824.00	5590.98	0.24
Susquehanna	Middle Reach	148.334	50-yr	268800.00	446.14	477.6	459.24	478.31	0.000169	7.06	45991.95	6275.17	0.23
Susquehanna	Middle Reach	148.334	100-yr	303400.00	446.14	480.3	460.25	481.02	0.000183	7.10	54098.56	7588.81	0.22
Susquehanna	Middle Reach	148.334	500-yr	390900.00	446.14	485.2	462.67	485.98	0.000185	7.55	69126.38	7876.41	0.22
Susquehanna	Middle Reach	148.259	2-yr	117600.00	446.15	466.2	453.90	466.57	0.000150	5.16	22771.91	1474.30	0.22
Susquehanna	Middle Reach	148.259	5-yr	162000.00	446.15	469.9	455.55	470.39	0.000153	5.88	27573.84	2340.50	0.23
Susquehanna	Middle Reach	148.259	10-yr	193500.00	446.15	472.3	456.60	472.88	0.000163	6.26	32449.86	4351.67	0.23
Susquehanna	Middle Reach	148.259	25-yr	239600.00	446.15	475.1	458.05	475.78	0.000175	6.80	41016.99	6339.42	0.23
Susquehanna	Middle Reach	148.259	50-yr	268800.00	446.15	477.5	458.92	478.23	0.000155	6.79	49566.03	6993.86	0.22
Susquehanna	Middle Reach	148.259	100-yr	303400.00	446.15	480.3	459.92	480.93	0.000165	6.78	59016.21	7317.39	0.21
Susquehanna	Middle Reach	148.259	500-yr	390900.00	446.15	485.2	462.27	485.88	0.000164	7.16	76082.47	7401.37	0.21
Susquehanna	Middle Reach	148.185	2-yr	117600.00	446.16	466.1	453.69	466.50	0.000138	5.02	23426.40	1558.02	0.21
Susquehanna	Middle Reach	148.185	5-yr	162000.00	446.16	469.8	455.33	470.32	0.000143	5.73	28283.15	1921.87	0.22
Susquehanna	Middle Reach	148.185	10-yr	193500.00	446.16	472.2	456.38	472.81	0.000152	6.09	33675.75	4030.64	0.22

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	148.185	25-yr	239600.00	446.16	475.0	457.79	475.70	0.000160	6.58	42914.80	6000.31	0.23
Susquehanna	Middle Reach	148.185	50-yr	268800.00	446.16	477.5	458.67	478.15	0.000140	6.52	51607.44	7208.69	0.21
Susquehanna	Middle Reach	148.185	100-yr	303400.00	446.16	480.3	459.65	480.85	0.000148	6.47	61160.60	7381.11	0.20
Susquehanna	Middle Reach	148.185	500-yr	390900.00	446.16	485.2	461.94	485.79	0.000144	6.76	78430.44	7408.87	0.20
Susquehanna	Middle Reach	148.113	2-yr	117600.00	446.17	466.1	453.46	466.45	0.000125	4.84	24302.48	1592.03	0.20
Susquehanna	Middle Reach	148.113	5-yr	162000.00	446.17	469.8	455.03	470.26	0.000131	5.54	29247.49	2361.84	0.21
Susquehanna	Middle Reach	148.113	10-yr	193500.00	446.17	472.2	456.02	472.74	0.000140	5.92	34571.77	3913.14	0.21
Susquehanna	Middle Reach	148.113	25-yr	239600.00	446.17	475.0	457.44	475.63	0.000149	6.39	43800.37	7733.01	0.22
Susquehanna	Middle Reach	148.113	50-yr	268800.00	446.17	477.5	458.26	478.09	0.000131	6.36	52272.70	8101.96	0.21
Susquehanna	Middle Reach	148.113	100-yr	303400.00	446.17	480.2	459.22	480.78	0.000140	6.34	61579.26	8227.79	0.20
Susquehanna	Middle Reach	148.113	500-yr	390900.00	446.17	485.1	461.46	485.73	0.000138	6.66	78446.68	8614.85	0.19
Susquehanna	Middle Reach	148.035	2-yr	117600.00	446.18	466.0	453.62	466.39	0.000128	4.84	24302.61	1609.11	0.20
Susquehanna	Middle Reach	148.035	5-yr	162000.00	446.18	469.7	455.21	470.21	0.000133	5.52	29354.10	2629.08	0.21
Susquehanna	Middle Reach	148.035	10-yr	193500.00	446.18	472.1	456.20	472.68	0.000143	5.89	34418.30	4324.70	0.21
Susquehanna	Middle Reach	148.035	25-yr	239600.00	446.18	475.0	457.59	475.57	0.000152	6.37	43368.88	5635.12	0.22
Susquehanna	Middle Reach	148.035	50-yr	268800.00	446.18	477.4	458.42	478.03	0.000133	6.33	51831.17	6126.94	0.21
Susquehanna	Middle Reach	148.035	100-yr	303400.00	446.18	480.2	459.34	480.72	0.000142	6.30	61057.14	6265.93	0.20
Susquehanna	Middle Reach	148.035	500-yr	390900.00	446.18	485.1	461.56	485.67	0.000140	6.62	77809.83	6967.51	0.19
Susquehanna	Middle Reach	147.955	2-yr	117600.00	446.19	466.0	453.32	466.34	0.000123	4.80	24524.30	1666.96	0.20
Susquehanna	Middle Reach	147.955	5-yr	162000.00	446.19	469.7	454.90	470.15	0.000129	5.49	29520.27	3109.41	0.21
Susquehanna	Middle Reach	147.955	10-yr	193500.00	446.19	472.1	455.90	472.62	0.000136	5.82	35954.61	4779.60	0.21
Susquehanna	Middle Reach	147.955	25-yr	239600.00	446.19	474.9	457.28	475.50	0.000145	6.30	45210.12	6569.58	0.21
Susquehanna	Middle Reach	147.955	50-yr	268800.00	446.19	477.4	458.09	477.97	0.000127	6.24	54176.40	6644.50	0.20
Susquehanna	Middle Reach	147.955	100-yr	303400.00	446.19	480.1	459.03	480.66	0.000135	6.20	63902.18	6651.95	0.19
Susquehanna	Middle Reach	147.955	500-yr	390900.00	446.19	485.0	461.25	485.60	0.000132	6.50	81592.45	6670.90	0.19
Susquehanna	Middle Reach	147.880	2-yr	117600.00	442.82	466.0	451.32	466.28	0.000094	4.45	26456.34	2092.45	0.18
Susquehanna	Middle Reach	147.880	5-yr	162000.00	442.82	469.7	452.98	470.09	0.000103	5.16	31372.15	3069.43	0.19
Susquehanna	Middle Reach	147.880	10-yr	193500.00	442.82	472.1	454.01	472.56	0.000113	5.57	35965.47	4792.35	0.19
Susquehanna	Middle Reach	147.880	25-yr	239600.00	442.82	474.9	455.44	475.44	0.000126	6.13	43962.24	5790.12	0.20
Susquehanna	Middle Reach	147.880	50-yr	268800.00	442.82	477.4	456.27	477.93	0.000114	6.17	51769.04	5831.20	0.20
Susquehanna	Middle Reach	147.880	100-yr	303400.00	442.82	480.0	457.24	480.60	0.000126	6.22	60189.29	5876.37	0.19
Susquehanna	Middle Reach	147.880	500-yr	390900.00	442.82	484.9	459.52	485.54	0.000130	6.65	75545.82	6017.14	0.19
Susquehanna	Middle Reach	147.802	2-yr	117600.00	445.27	465.8	453.04	466.23	0.000134	5.01	23487.86	1883.43	0.21
Susquehanna	Middle Reach	147.802	5-yr	162000.00	445.27	469.5	454.69	470.03	0.000142	5.74	28214.48	3939.32	0.22
Susquehanna	Middle Reach	147.802	10-yr	193500.00	445.27	472.0	455.73	472.50	0.000147	6.01	36177.02	4719.76	0.22
Susquehanna	Middle Reach	147.802	25-yr	239600.00	445.27	474.8	457.20	475.38	0.000156	6.49	43924.88	4988.04	0.22
Susquehanna	Middle Reach	147.802	50-yr	268800.00	445.27	477.3	458.05	477.87	0.000140	6.50	51421.95	5291.07	0.21
Susquehanna	Middle Reach	147.802	100-yr	303400.00	445.27	480.0	459.05	480.54	0.000150	6.49	59718.88	5425.41	0.20
Susquehanna	Middle Reach	147.802	500-yr	390900.00	445.27	484.9	461.39	485.48	0.000151	6.87	74839.76	5766.39	0.20
Susquehanna	Middle Reach	147.728	2-yr	117600.00	444.35	465.8	452.97	466.17	0.000142	5.17	22761.49	2375.92	0.21
Susquehanna	Middle Reach	147.728	5-yr	162000.00	444.35	469.4	454.74	469.97	0.000150	5.92	27351.26	4065.37	0.22
Susquehanna	Middle Reach	147.728	10-yr	193500.00	444.35	471.9	455.82	472.43	0.000138	5.87	40574.54	4498.07	0.21
Susquehanna	Middle Reach	147.728	25-yr	239600.00	444.35	474.7	457.28	475.30	0.000143	6.26	48717.84	4596.07	0.21
Susquehanna	Middle Reach	147.728	50-yr	268800.00	444.35	477.3	458.18	477.79	0.000126	6.22	56003.49	4701.34	0.20
Susquehanna	Middle Reach	147.728	100-yr	303400.00	444.35	479.9	459.19	480.47	0.000136	6.23	63780.16	4936.87	0.20
Susquehanna	Middle Reach	147.728	500-yr	390900.00	444.35	484.8	461.58	485.41	0.000138	6.64	77981.76	5641.45	0.19
Susquehanna	Middle Reach	147.643	2-yr	117600.00	438.56	465.9	449.09	466.05	0.000034	2.87	48845.18	3670.85	0.11
Susquehanna	Middle Reach	147.643	5-yr	162000.00	438.56	469.7	451.70	469.82	0.000035	3.22	59339.87	4051.07	0.11
Susquehanna	Middle Reach	147.643	10-yr	193500.00	438.56	472.1	453.34	472.29	0.000038	3.42	66261.10	4180.49	0.11
Susquehanna	Middle Reach	147.643	25-yr	239600.00	438.56	475.0	454.84	475.15	0.000042	3.76	74220.98	4235.09	0.12
Susquehanna	Middle Reach	147.643	50-yr	268800.00	438.56	477.5	455.47	477.66	0.000040	3.83	81269.28	4479.48	0.12
Susquehanna	Middle Reach	147.643	100-yr	303400.00	438.56	480.1	456.14	480.34	0.000046	3.93	88797.25	4552.53	0.12
Susquehanna	Middle Reach	147.643	500-yr	390900.00	438.56	485.0	457.70	485.27	0.000051	4.34	102658.30	4755.73	0.12
Susquehanna	Middle Reach	147.573	2-yr	117600.00	442.46	465.6	452.47	466.00	0.000145	4.94	23977.05	1653.52	0.21
Susquehanna	Middle Reach	147.573	5-yr	162000.00	442.46	469.3	454.31	469.75	0.000143	5.55	30897.76	2059.66	0.22
Susquehanna	Middle Reach	147.573	10-yr	193500.00	442.46	471.7	455.84	472.23	0.000149	5.87	35929.61	2126.73	0.22
Susquehanna	Middle Reach	147.573	25-yr	239600.00	442.46	474.4	457.44	475.08	0.000161	6.43	41662.11	2161.78	0.22
Susquehanna	Middle Reach	147.573	50-yr	268800.00	442.46	476.9	458.29	477.58	0.000147	6.51	46876.86	2234.22	0.22
Susquehanna	Middle Reach	147.573	100-yr	303400.00	442.46	479.6	459.25	480.25	0.000165	6.66	52412.80	2281.07	0.21
Susquehanna	Middle Reach	147.573	500-yr	390900.00	442.46	484.4	461.52	485.18	0.000176	7.30	64629.39	2426.28	0.22
Susquehanna	Middle Reach	147.502	2-yr	117600.00	441.49	465.5	452.31	465.93	0.000161	5.35	22176.78	1423.08	0.22
Susquehanna	Middle Reach	147.502	5-yr	162000.00	441.49	469.1	454.23	469.69	0.000174	6.09	28321.96	1937.56	0.23
Susquehanna	Middle Reach	147.502	10-yr	193500.00	441.49	471.5	455.94	472.15	0.000191	6.49	32649.68	2038.33	0.23
Susquehanna	Middle Reach	147.502	25-yr	239600.00	441.49	474.2	457.62	474.99	0.000217	7.15	37554.78	2080.28	0.24
Susquehanna	Middle Reach	147.502	50-yr	268800.00	441.49	476.7	458.51	477.50	0.000203	7.26	42082.23	2125.10	0.24
Susquehanna	Middle Reach	147.502	100-yr	303400.00	441.49	479.3	459.51	480.16	0.000235	7.45	46859.14	2182.12	0.23
Susquehanna	Middle Reach	147.502	500-yr	390900.00	441.49	484.2	461.90	485.09	0.000251	8.04	60726.93	2290.37	0.24
Susquehanna	Middle Reach	147.425 Fishing Creek	2-yr	120100.00	443.96	465.2	454.31	465.84	0.000231	6.33	19335.81	1481.09	0.27
Susquehanna	Middle Reach	147.425 Fishing Creek	5-yr	165200.00	443.96	468.8	456.49	469.58	0.000235	7.16	24159.74	1830.86	0.28
Susquehanna	Middle Reach	147.425 Fishing Creek	10-yr	197100.00	443.96	471.1	457.66	472.04	0.000253	7.63	27468.21	1876.83	0.28
Susquehanna	Middle Reach	147.425 Fishing Creek	25-yr	241200.00	443.96	473.8	459.17	474.87	0.000269	8.32	31217.45	1918.06	0.29
Susquehanna	Middle Reach	147.425 Fishing Creek	50-yr	273100.00	443.96	476.3	460.20	477.38	0.000253	8.54	34691.91	1923.02	0.29
Susquehanna	Middle Reach	147.425 Fishing Creek	100-yr	307900.00	443.96	478.9	461.28	480.02	0.000291	8.77	38354.91	1928.24	0.28
Susquehanna	Middle Reach	147.425 Fishing Creek	500-yr	395700.00	443.96	483.7	463.92	484.95	0.000279	9.18	54116.86	1938.08	0.27
Susquehanna	Middle Reach	147.355	2-yr	120100.00	444.41	465.1	454.05	465.76	0.000222	6.41	18733.47	1553.15	0.26
Susquehanna	Middle Reach	147.355	5-yr	165200.00	444.41	468.6	455.91	469.49	0.000236	7.37	22478.56	1882.42	0.28
Susquehanna	Middle Reach	147.355	10-yr	197100.00	444.41	471.0	457.11	471.94	0.000260	7.94	24992.29	1910.79	0.29
Susquehanna	Middle Reach	147.355	25-yr	241200.00	444.41	473.6	458.66	474.75	0.000286	8.74	27832.19	1946.37	0.30
Susquehanna	Middle Reach	147.355	50-yr	273100.00	444.41	476.0	459.73	477.27	0.000274	9.05	30494.58	1961.11	0.30
Susquehanna	Middle Reach	147.355	100-yr	307900.00	444.41	478.5	460.86	479.90	0.000322	9.36	33280.66	1967.01	0.30
Susquehanna	Middle Reach	147.355	500-yr	395700.00	444.41	483.6	463.50	484.85	0.000283	9.38	54956.83	1989.18	0.28
Susquehanna	Middle Reach	147.300	2-yr	120100.00	444.12	464.9	454.06	465.55	0.000252	6.29	19116.22	1320.75	0.26
Susquehanna	Middle Reach	147.300	5-yr	165200.00	444.12	468.5	455.85	469.27	0.000176	7.22	22958.10	1664.26	0.27
Susquehanna	Middle Reach	147.300	10-yr	197100.00	444.12	470.8	457.02	471.70	0.000211	7.78	25577.54	1775.49	0.28
Susquehanna	Middle Reach	147.300	25-yr	241200.00	444.12	473.3	458.54	474.48	0.000239	8.57	28549.66	1795.36	0.29
Susquehanna	Middle Reach	147.300	50-yr	273100.00	444.12	475.8	459.56	477.01	0.000227	8.86	31366.34	1804.64	0.29
Susquehanna	Middle Reach	147.300	100-yr	307900.00	444.12	478.3	460.66	479.59	0.000326	9.18	34236.54	1808.35	0.29
Susquehanna	Middle Reach	147.300	500-yr	395700.00	444.12	483.3	463.24	484.58	0.000320	9.49	51185.64	1848.01	0.28

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	147.25 Railroad		Bridge									
Susquehanna	Middle Reach	147.200	2-yr	120100.00	444.08	464.9	454.04	465.48	0.000229	6.34	18948.49	1176.99	0.27
Susquehanna	Middle Reach	147.200	5-yr	165200.00	444.08	468.4	455.84	469.20	0.000240	7.26	22766.76	1421.62	0.28
Susquehanna	Middle Reach	147.200	10-yr	197100.00	444.08	470.7	457.02	471.61	0.000264	7.81	25392.21	1771.09	0.29
Susquehanna	Middle Reach	147.200	25-yr	241200.00	444.08	473.2	458.55	474.37	0.000288	8.58	28456.76	1782.39	0.30
Susquehanna	Middle Reach	147.200	50-yr	273100.00	444.08	475.7	459.60	476.89	0.000273	8.85	31375.57	1787.30	0.29
Susquehanna	Middle Reach	147.200	100-yr	307900.00	444.08	478.2	460.69	479.46	0.000320	9.15	34336.77	1791.90	0.29
Susquehanna	Middle Reach	147.200	500-yr	395700.00	444.08	482.9	463.28	484.29	0.000312	9.66	49162.06	1816.66	0.29
Susquehanna	Middle Reach	147.188	2-yr	120100.00	443.93	464.9	453.50	465.43	0.000188	5.66	21230.09	1435.38	0.24
Susquehanna	Middle Reach	147.188	5-yr	165200.00	443.93	468.5	455.21	469.13	0.000189	6.41	26320.03	1777.98	0.25
Susquehanna	Middle Reach	147.188	10-yr	197100.00	443.93	470.8	456.33	471.53	0.000202	6.83	29917.19	1800.21	0.25
Susquehanna	Middle Reach	147.188	25-yr	241200.00	443.93	473.4	457.76	474.27	0.000215	7.45	33987.11	1831.91	0.26
Susquehanna	Middle Reach	147.188	50-yr	273100.00	443.93	475.9	458.81	476.78	0.000199	7.63	37830.96	1835.97	0.25
Susquehanna	Middle Reach	147.188	100-yr	307900.00	443.93	478.4	459.91	479.33	0.000230	7.85	41724.14	1840.09	0.25
Susquehanna	Middle Reach	147.188	500-yr	395700.00	443.93	483.1	462.48	484.20	0.000244	8.66	48996.73	1868.15	0.26
Susquehanna	Middle Reach	147.114	2-yr	120100.00	445.28	464.9	454.50	465.36	0.000203	5.64	21443.37	1518.86	0.25
Susquehanna	Middle Reach	147.114	5-yr	165200.00	445.28	468.4	456.21	469.05	0.000194	6.30	27334.26	1923.50	0.25
Susquehanna	Middle Reach	147.114	10-yr	197100.00	445.28	470.8	457.35	471.44	0.000204	6.67	31460.35	1940.28	0.25
Susquehanna	Middle Reach	147.114	25-yr	241200.00	445.28	473.4	458.78	474.17	0.000212	7.22	36134.20	1976.06	0.26
Susquehanna	Middle Reach	147.114	50-yr	273100.00	445.28	475.9	459.73	476.69	0.000194	7.36	40561.09	1986.50	0.25
Susquehanna	Middle Reach	147.114	100-yr	307900.00	445.28	478.4	460.67	479.22	0.000221	7.53	45011.16	2004.19	0.24
Susquehanna	Middle Reach	147.114	500-yr	395700.00	445.28	483.1	462.88	484.07	0.000230	8.25	53366.43	2082.88	0.25
Susquehanna	Middle Reach	147.033	2-yr	120100.00	444.80	464.9	452.91	465.24	0.000124	4.54	26748.65	1992.74	0.20
Susquehanna	Middle Reach	147.033	5-yr	165200.00	444.80	468.5	454.50	468.92	0.000121	5.11	33682.00	2025.16	0.20
Susquehanna	Middle Reach	147.033	10-yr	197100.00	444.80	470.8	455.46	471.30	0.000129	5.44	38160.30	2050.50	0.20
Susquehanna	Middle Reach	147.033	25-yr	241200.00	444.80	473.5	456.70	474.03	0.000138	5.94	43246.39	2115.17	0.21
Susquehanna	Middle Reach	147.033	50-yr	273100.00	444.80	476.0	457.68	476.55	0.000128	6.09	48044.55	2155.23	0.20
Susquehanna	Middle Reach	147.033	100-yr	307900.00	444.80	478.5	458.62	479.07	0.000148	6.28	52842.11	2176.88	0.20
Susquehanna	Middle Reach	147.033	500-yr	395700.00	444.80	483.2	460.64	483.90	0.000155	6.78	64829.13	2251.27	0.20
Susquehanna	Middle Reach	146.952	2-yr	120100.00	445.40	464.9	454.31	465.18	0.000125	4.34	28274.81	2000.64	0.19
Susquehanna	Middle Reach	146.952	5-yr	165200.00	445.40	468.5	455.65	468.86	0.000115	4.78	35629.60	2050.97	0.19
Susquehanna	Middle Reach	146.952	10-yr	197100.00	445.40	470.8	456.51	471.23	0.000120	5.04	40455.50	2075.14	0.19
Susquehanna	Middle Reach	146.952	25-yr	241200.00	445.40	473.5	457.55	473.95	0.000125	5.45	46055.84	2159.57	0.20
Susquehanna	Middle Reach	146.952	50-yr	273100.00	445.40	476.0	458.33	476.47	0.000113	5.55	51460.50	2311.71	0.19
Susquehanna	Middle Reach	146.952	100-yr	307900.00	445.40	478.5	459.13	478.98	0.000129	5.68	56868.47	2401.97	0.19
Susquehanna	Middle Reach	146.952	500-yr	395700.00	445.40	483.2	461.02	483.81	0.000134	6.20	67169.84	2482.48	0.19
Susquehanna	Middle Reach	146.876	2-yr	120100.00	445.48	464.7	455.66	465.10	0.000246	5.34	22534.14	1780.67	0.26
Susquehanna	Middle Reach	146.876	5-yr	165200.00	445.48	468.3	457.34	468.79	0.000203	5.72	29034.85	1802.05	0.25
Susquehanna	Middle Reach	146.876	10-yr	197100.00	445.48	470.6	458.42	471.15	0.000203	5.97	33251.85	1825.20	0.24
Susquehanna	Middle Reach	146.876	25-yr	241200.00	445.48	473.2	460.11	473.87	0.000203	6.39	38089.89	1893.13	0.24
Susquehanna	Middle Reach	146.876	50-yr	273100.00	445.48	475.7	460.92	476.39	0.000179	6.47	42781.12	1979.64	0.23
Susquehanna	Middle Reach	146.876	100-yr	307900.00	445.48	478.2	461.65	478.90	0.000200	6.59	47434.48	2054.79	0.23
Susquehanna	Middle Reach	146.876	500-yr	395700.00	445.48	482.9	463.49	483.72	0.000203	7.16	56322.96	2251.11	0.23
Susquehanna	Middle Reach	146.796	2-yr	120100.00	445.40	464.5	455.80	464.98	0.000300	5.73	20964.12	1712.64	0.29
Susquehanna	Middle Reach	146.796	5-yr	165200.00	445.40	468.1	457.48	468.69	0.000242	6.05	27283.79	1742.84	0.27
Susquehanna	Middle Reach	146.796	10-yr	197100.00	445.40	470.4	458.58	471.06	0.000237	6.29	31357.54	1829.92	0.26
Susquehanna	Middle Reach	146.796	25-yr	241200.00	445.40	473.1	460.10	473.77	0.000234	6.70	36076.11	2001.73	0.26
Susquehanna	Middle Reach	146.796	50-yr	273100.00	445.40	475.6	461.15	476.31	0.000204	6.75	40677.82	2159.14	0.25
Susquehanna	Middle Reach	146.796	100-yr	307900.00	445.40	478.1	462.14	478.81	0.000226	6.86	45211.51	2188.07	0.24
Susquehanna	Middle Reach	146.796	500-yr	395700.00	445.40	482.8	464.05	483.63	0.000225	7.41	53922.70	2271.58	0.24
Susquehanna	Middle Reach	146.718	2-yr	120100.00	445.73	464.2	455.84	464.84	0.000341	6.37	18855.40	1710.74	0.33
Susquehanna	Middle Reach	146.718	5-yr	165200.00	445.73	467.9	457.76	468.57	0.000290	6.63	24931.74	1892.89	0.30
Susquehanna	Middle Reach	146.718	10-yr	197100.00	445.73	470.2	458.93	470.94	0.000292	6.83	28839.20	1954.52	0.29
Susquehanna	Middle Reach	146.718	25-yr	241200.00	445.73	472.8	460.44	473.66	0.000293	7.25	33320.86	2001.26	0.29
Susquehanna	Middle Reach	146.718	50-yr	273100.00	445.73	475.4	461.97	476.21	0.000257	7.26	37763.67	2060.54	0.27
Susquehanna	Middle Reach	146.718	100-yr	307900.00	445.73	477.9	462.98	478.70	0.000288	7.35	42106.24	2133.35	0.26
Susquehanna	Middle Reach	146.718	500-yr	395700.00	445.73	482.6	464.91	483.53	0.000274	7.70	55956.34	2219.01	0.25
Susquehanna	Middle Reach	146.641	2-yr	120100.00	445.96	464.0	455.79	464.69	0.000369	6.79	17696.25	1611.99	0.35
Susquehanna	Middle Reach	146.641	5-yr	165200.00	445.96	467.7	457.58	468.45	0.000316	7.03	23489.73	1804.81	0.32
Susquehanna	Middle Reach	146.641	10-yr	197100.00	445.96	470.0	458.69	470.81	0.000321	7.25	27192.02	1897.01	0.31
Susquehanna	Middle Reach	146.641	25-yr	241200.00	445.96	472.6	460.25	473.53	0.000323	7.68	31444.09	1965.10	0.31
Susquehanna	Middle Reach	146.641	50-yr	273100.00	445.96	475.2	461.29	476.09	0.000283	7.67	35727.73	2069.03	0.29
Susquehanna	Middle Reach	146.641	100-yr	307900.00	445.96	477.6	462.73	478.57	0.000318	7.77	39856.62	2096.48	0.28
Susquehanna	Middle Reach	146.641	500-yr	395700.00	445.96	482.4	465.25	483.40	0.000297	8.09	53930.16	2163.16	0.27
Susquehanna	Middle Reach	146.562	2-yr	120100.00	445.57	463.9	455.34	464.55	0.000343	6.69	17955.11	1547.57	0.34
Susquehanna	Middle Reach	146.562	5-yr	165200.00	445.57	467.6	457.14	468.32	0.000304	7.03	23494.65	1635.07	0.31
Susquehanna	Middle Reach	146.562	10-yr	197100.00	445.57	469.9	458.28	470.69	0.000315	7.29	27019.07	1724.53	0.31
Susquehanna	Middle Reach	146.562	25-yr	241200.00	445.57	472.5	459.81	473.40	0.000321	7.77	31083.84	1823.54	0.31
Susquehanna	Middle Reach	146.562	50-yr	273100.00	445.57	475.0	460.97	475.98	0.000284	7.79	35251.89	2015.27	0.29
Susquehanna	Middle Reach	146.562	100-yr	307900.00	445.57	477.5	462.54	478.44	0.000321	7.91	39213.16	2041.46	0.28
Susquehanna	Middle Reach	146.562	500-yr	395700.00	445.57	482.2	464.79	483.28	0.000306	8.32	52234.72	2093.43	0.27
Susquehanna	Middle Reach	146.481	2-yr	120100.00	445.48	463.9	453.35	464.37	0.000172	5.22	23016.58	1496.67	0.23
Susquehanna	Middle Reach	146.481	5-yr	165200.00	445.48	467.6	454.86	468.16	0.000167	5.83	28317.31	1692.42	0.23
Susquehanna	Middle Reach	146.481	10-yr	197100.00	445.48	469.9	455.83	470.52	0.000181	6.22	31666.82	1759.90	0.24
Susquehanna	Middle Reach	146.481	25-yr	241200.00	445.48	472.5	457.09	473.23	0.000193	6.80	35556.01	1857.52	0.24
Susquehanna	Middle Reach	146.481	50-yr	273100.00	445.48	475.1	457.95	475.83	0.000177	6.95	39530.69	1883.91	0.24
Susquehanna	Middle Reach	146.481	100-yr	307900.00	445.48	477.5	458.85	478.28	0.000207	7.17	43266.47	1919.91	0.24
Susquehanna	Middle Reach	146.481	500-yr	395700.00	445.48	482.2	460.98	483.13	0.000207	7.71	56302.40	1954.06	0.23
Susquehanna	Middle Reach	146.404	2-yr	120100.00	444.02	463.9	452.88	464.30	0.000161	5.24	22919.40	1343.79	0.22
Susquehanna	Middle Reach	146.404	5-yr	165200.00	444.02	467.5	454.40	468.09	0.000165	5.91	27932.44	1387.48	0.23
Susquehanna	Middle Reach	146.404	10-yr	197100.00	444.02	469.8	455.39	470.45	0.000181	6.34	31112.83	1406.00	0.24
Susquehanna	Middle Reach	146.404	25-yr	241200.00	444.02	472.4	456.69	473.15	0.000197	6.94	34770.87	1689.64	0.25
Susquehanna	Middle Reach	146.404	50-yr	273100.00	444.02	475.0	457.58	475.75	0.000183	7.11	38510.21	1762.24	0.24
Susquehanna	Middle Reach	146.404	100-yr	307900.00	444.02	477.4	458.51	478.19	0.000215	7.35	42045.16	1796.82	0.24
Susquehanna	Middle Reach	146.404	500-yr	395700.00	444.02	482.0	460.69	483.04	0.000223	8.04	52274.66	1822.93	0.24
Susquehanna	Middle Reach	146.328	2-yr	120100.00	444.06	463.8	452.28	464.23	0.000170	5.40	22239.23	1299.65	0.23
Susquehanna	Middle Reach	146.328	5-yr	165200.00	444.06	467.5	453.92	468.02	0.000182	6.06	27263.52	1405.74	0.24
Susquehanna	Middle Reach	146.328	10-yr	197100.00	444.06	469.7	454.98	470.37	0.000197	6.47	30473.55	1470.52	0.25

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	146.328	25-yr	241200.00	444.06	472.3	456.34	473.07	0.000212	7.06	34143.20	1664.83	0.26
Susquehanna	Middle Reach	146.328	50-yr	273100.00	444.06	474.9	457.28	475.68	0.000193	7.22	37935.78	1729.23	0.25
Susquehanna	Middle Reach	146.328	100-yr	307900.00	444.06	477.2	458.26	478.10	0.000226	7.46	41479.69	1793.34	0.25
Susquehanna	Middle Reach	146.328	500-yr	395700.00	444.06	481.9	460.58	482.95	0.000234	8.14	51655.57	1822.96	0.25
Susquehanna	Middle Reach	146.246	2-yr	120100.00	444.69	463.6	453.98	464.14	0.000264	6.03	19911.53	1443.44	0.28
Susquehanna	Middle Reach	146.246	5-yr	165200.00	444.69	467.3	455.62	467.93	0.000245	6.58	25090.30	1668.26	0.28
Susquehanna	Middle Reach	146.246	10-yr	197100.00	444.69	469.5	456.68	470.27	0.000256	6.95	28350.88	1717.69	0.28
Susquehanna	Middle Reach	146.246	25-yr	241200.00	444.69	472.1	458.07	472.96	0.000267	7.52	32067.56	1832.81	0.28
Susquehanna	Middle Reach	146.246	50-yr	273100.00	444.69	474.7	459.00	475.58	0.000237	7.61	35991.42	2072.22	0.27
Susquehanna	Middle Reach	146.246	100-yr	307900.00	444.69	477.0	459.99	477.99	0.000272	7.82	39607.79	2169.77	0.27
Susquehanna	Middle Reach	146.246	500-yr	395700.00	444.69	481.8	462.56	482.84	0.000261	8.31	53104.55	2287.71	0.26
Susquehanna	Middle Reach	146.170	2-yr	120100.00	445.07	463.4	454.67	464.02	0.000320	6.36	18885.70	1387.63	0.30
Susquehanna	Middle Reach	146.170	5-yr	165200.00	445.07	467.1	456.32	467.82	0.000283	6.84	24144.22	1446.15	0.30
Susquehanna	Middle Reach	146.170	10-yr	197100.00	445.07	469.4	457.40	470.16	0.000290	7.18	27443.27	1462.05	0.29
Susquehanna	Middle Reach	146.170	25-yr	241200.00	445.07	471.9	458.79	472.85	0.000297	7.73	31208.87	1492.33	0.30
Susquehanna	Middle Reach	146.170	50-yr	273100.00	445.07	474.5	459.88	475.48	0.000259	7.78	35203.55	1870.21	0.28
Susquehanna	Middle Reach	146.170	100-yr	307900.00	445.07	476.9	461.15	477.88	0.000290	7.92	40262.85	1918.57	0.27
Susquehanna	Middle Reach	146.170	500-yr	395700.00	445.07	481.6	463.41	482.73	0.000284	8.51	49410.95	1972.29	0.27
Susquehanna	Middle Reach	146.092	2-yr	120100.00	444.11	463.4	452.89	463.87	0.000226	5.67	21178.35	1426.21	0.26
Susquehanna	Middle Reach	146.092	5-yr	165200.00	444.11	467.1	454.53	467.68	0.000215	6.20	26659.93	1509.14	0.26
Susquehanna	Middle Reach	146.092	10-yr	197100.00	444.11	469.4	455.59	470.02	0.000225	6.55	30103.68	1585.72	0.26
Susquehanna	Middle Reach	146.092	25-yr	241200.00	444.11	471.9	456.98	472.70	0.000235	7.09	34092.80	1690.27	0.27
Susquehanna	Middle Reach	146.092	50-yr	273100.00	444.11	474.6	457.95	475.35	0.000208	7.16	38383.05	1920.96	0.25
Susquehanna	Middle Reach	146.092	100-yr	307900.00	444.11	476.9	458.95	477.74	0.000236	7.33	43819.80	2082.41	0.25
Susquehanna	Middle Reach	146.092	500-yr	395700.00	444.11	481.6	461.64	482.59	0.000236	7.94	54153.10	2272.04	0.25
Susquehanna	Middle Reach	146.010	2-yr	120100.00	444.68	463.2	452.92	463.78	0.000215	5.92	20282.03	1231.09	0.26
Susquehanna	Middle Reach	146.010	5-yr	165200.00	444.68	466.9	454.56	467.58	0.000224	6.57	25128.85	1341.94	0.27
Susquehanna	Middle Reach	146.010	10-yr	197100.00	444.68	469.2	455.63	469.91	0.000241	7.00	28149.54	1355.45	0.27
Susquehanna	Middle Reach	146.010	25-yr	241200.00	444.68	471.7	457.02	472.58	0.000257	7.63	31725.88	1762.82	0.28
Susquehanna	Middle Reach	146.010	50-yr	273100.00	444.68	474.3	457.99	475.24	0.000231	7.75	35800.87	2047.22	0.27
Susquehanna	Middle Reach	146.010	100-yr	307900.00	444.68	476.6	458.99	477.62	0.000267	7.97	40562.69	2128.33	0.27
Susquehanna	Middle Reach	146.010	500-yr	395700.00	444.68	481.3	461.34	482.46	0.000268	8.61	52571.90	2323.68	0.27
Susquehanna	Middle Reach	145.950	2-yr	120100.00	444.23	463.2	452.62	463.68	0.000210	5.83	20789.38	1265.84	0.25
Susquehanna	Middle Reach	145.950	5-yr	165200.00	444.23	466.8	454.27	467.49	0.000140	6.60	25689.92	1450.47	0.25
Susquehanna	Middle Reach	145.950	10-yr	197100.00	444.23	469.0	455.35	469.81	0.000167	7.09	28867.52	1479.52	0.26
Susquehanna	Middle Reach	145.950	25-yr	241200.00	444.23	471.5	456.73	472.47	0.000189	7.80	32456.53	1551.15	0.27
Susquehanna	Middle Reach	145.950	50-yr	273100.00	444.23	474.2	457.67	475.14	0.000173	7.98	36244.99	2005.55	0.26
Susquehanna	Middle Reach	145.950	100-yr	307900.00	444.23	476.5	458.66	477.49	0.000251	8.27	41469.23	2292.67	0.26
Susquehanna	Middle Reach	145.950	500-yr	395700.00	444.23	481.1	461.01	482.34	0.000276	9.02	53277.80	2452.66	0.27
Susquehanna	Middle Reach	145.949 PA Route 42		Bridge									
Susquehanna	Middle Reach	145.940	2-yr	120100.00	444.06	463.1	452.65	463.63	0.000201	5.87	20523.54	1339.44	0.25
Susquehanna	Middle Reach	145.940	5-yr	165200.00	444.06	466.8	454.28	467.45	0.000197	6.62	25329.22	1623.70	0.26
Susquehanna	Middle Reach	145.940	10-yr	197100.00	444.06	469.0	455.39	469.76	0.000215	7.10	28535.02	1672.88	0.26
Susquehanna	Middle Reach	145.940	25-yr	241200.00	444.06	471.5	456.76	472.41	0.000233	7.78	32184.44	1787.31	0.27
Susquehanna	Middle Reach	145.940	50-yr	273100.00	444.06	474.1	457.72	475.08	0.000212	7.93	36041.58	2128.98	0.26
Susquehanna	Middle Reach	145.940	100-yr	307900.00	444.06	476.4	458.72	477.40	0.000244	8.09	42801.23	2273.59	0.26
Susquehanna	Middle Reach	145.940	500-yr	395700.00	444.06	481.1	461.06	482.20	0.000250	8.76	55486.97	2513.30	0.26
Susquehanna	Middle Reach	145.923	2-yr	120100.00	445.20	463.0	453.48	463.60	0.000273	6.35	18919.04	1340.89	0.29
Susquehanna	Middle Reach	145.923	5-yr	165200.00	445.20	466.7	455.17	467.42	0.000262	7.02	23533.45	1627.44	0.29
Susquehanna	Middle Reach	145.923	10-yr	197100.00	445.20	468.9	456.28	469.73	0.000279	7.47	26373.91	1656.58	0.29
Susquehanna	Middle Reach	145.923	25-yr	241200.00	445.20	471.3	457.72	472.38	0.000297	8.16	29575.62	1789.97	0.30
Susquehanna	Middle Reach	145.923	50-yr	273100.00	445.20	474.0	458.71	475.04	0.000265	8.28	33111.91	2079.25	0.29
Susquehanna	Middle Reach	145.923	100-yr	307900.00	445.20	476.3	459.73	477.37	0.000292	8.21	41239.20	2184.41	0.28
Susquehanna	Middle Reach	145.923	500-yr	395700.00	445.20	481.0	462.32	482.17	0.000291	8.84	53392.06	2420.24	0.28
Susquehanna	Middle Reach	145.869	2-yr	120100.00	444.34	462.9	453.97	463.52	0.000280	6.66	20610.48	4646.81	0.29
Susquehanna	Middle Reach	145.869	5-yr	165200.00	444.34	466.6	455.67	467.34	0.000275	7.32	25878.07	7877.04	0.30
Susquehanna	Middle Reach	145.869	10-yr	197100.00	444.34	468.8	456.76	469.65	0.000292	7.80	29080.16	8256.29	0.30
Susquehanna	Middle Reach	145.869	25-yr	241200.00	444.34	471.2	458.16	472.29	0.000311	8.52	32664.25	8554.20	0.31
Susquehanna	Middle Reach	145.869	50-yr	273100.00	444.34	473.9	459.11	474.96	0.000278	8.65	36503.14	8574.77	0.30
Susquehanna	Middle Reach	145.869	100-yr	307900.00	444.34	476.2	460.12	477.28	0.000309	8.71	44444.74	8639.08	0.29
Susquehanna	Middle Reach	145.869	500-yr	395700.00	444.34	480.8	462.47	482.07	0.000319	9.52	53446.53	8757.88	0.29
Susquehanna	Middle Reach	145.838	2-yr	120100.00	444.89	462.7	455.00	463.46	0.000371	6.92	19019.69	4670.72	0.33
Susquehanna	Middle Reach	145.838	5-yr	165200.00	444.89	466.5	456.68	467.29	0.000313	7.39	25342.12	4988.13	0.31
Susquehanna	Middle Reach	145.838	10-yr	197100.00	444.89	468.7	457.64	469.60	0.000319	7.76	29256.92	5081.27	0.31
Susquehanna	Middle Reach	145.838	25-yr	241200.00	444.89	471.2	459.23	472.23	0.000327	8.37	33765.18	5240.97	0.31
Susquehanna	Middle Reach	145.838	50-yr	273100.00	444.89	473.9	460.16	474.90	0.000281	8.37	38651.24	5267.00	0.30
Susquehanna	Middle Reach	145.838	100-yr	307900.00	444.89	476.2	461.13	477.22	0.000309	8.41	46048.79	5316.85	0.29
Susquehanna	Middle Reach	145.838	500-yr	395700.00	444.89	480.8	463.68	481.99	0.000307	9.07	56264.16	5463.46	0.28
Susquehanna	Middle Reach	145.772 Catawissa Creek	2-yr	121100.00	442.22	462.6	453.70	463.34	0.000315	6.68	18441.75	1479.48	0.31
Susquehanna	Middle Reach	145.772 Catawissa Creek	5-yr	166500.00	442.22	466.4	455.49	467.19	0.000282	7.26	24231.68	1729.42	0.30
Susquehanna	Middle Reach	145.772 Catawissa Creek	10-yr	198600.00	442.22	468.6	456.62	469.49	0.000296	7.68	27771.00	1803.29	0.30
Susquehanna	Middle Reach	145.772 Catawissa Creek	25-yr	242200.00	442.22	471.1	458.40	472.11	0.000312	8.09	32445.55	1831.48	0.31
Susquehanna	Middle Reach	145.772 Catawissa Creek	50-yr	274800.00	442.22	473.8	459.37	474.80	0.000267	8.06	38266.10	1888.71	0.29
Susquehanna	Middle Reach	145.772 Catawissa Creek	100-yr	309600.00	442.22	476.1	460.37	477.11	0.000306	8.24	42713.24	1998.28	0.28
Susquehanna	Middle Reach	145.772 Catawissa Creek	500-yr	397600.00	442.22	480.7	462.81	481.88	0.000302	8.89	52210.84	2104.97	0.28
Susquehanna	Middle Reach	145.701	2-yr	121100.00	439.55	462.6		463.20	0.000291	6.30	19617.73	1373.37	0.27
Susquehanna	Middle Reach	145.701	5-yr	166500.00	439.55	466.3		467.06	0.000279	6.99	25113.99	1551.75	0.28
Susquehanna	Middle Reach	145.701	10-yr	198600.00	439.55	468.5		469.37	0.000280	7.45	28784.55	1702.53	0.28
Susquehanna	Middle Reach	145.701	25-yr	242200.00	439.55	471.0		472.00	0.000280	8.08	33072.91	1766.83	0.29
Susquehanna	Middle Reach	145.701	50-yr	274800.00	439.55	473.7		474.69	0.000284	8.16	37904.25	1841.25	0.28
Susquehanna	Middle Reach	145.701	100-yr	309600.00	439.55	475.9		477.00	0.000285	8.40	42127.01	1903.31	0.28
Susquehanna	Middle Reach	145.701	500-yr	397600.00	439.55	480.5		481.77	0.000281	9.14	51107.48	2007.71	0.28
Susquehanna	Middle Reach	145.619	2-yr	121100.00	440.43	462.4		463.07	0.000296	6.67	18425.39	1236.17	0.28
Susquehanna	Middle Reach	145.619	5-yr	166500.00	440.43	466.1		466.93	0.000312	7.51	23323.16	1411.25	0.29
Susquehanna	Middle Reach	145.619	10-yr	198600.00	440.43	468.2		469.23	0.000315	8.04	26580.45	1570.87	0.30
Susquehanna	Middle Reach	145.619	25-yr	242200.00	440.43	470.7		471.86	0.000318	8.76	30471.75	1643.34	0.31
Susquehanna	Middle Reach	145.619	50-yr	274800.00	440.43	473.4		474.55	0.000325	8.87	34964.18	1725.49	0.30
Susquehanna	Middle Reach	145.619	100-yr	309600.00	440.43	475.6		476.85	0.000327	9.15	38879.37	1768.86	0.30

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	145.619	500-yr	397600.00	440.43	480.2		481.62	0.000327	10.00	47140.52	1860.80	0.30
Susquehanna	Middle Reach	145.546	2-yr	121100.00	442.93	461.9		462.91	0.000452	7.86	15681.38	1129.27	0.34
Susquehanna	Middle Reach	145.546	5-yr	166500.00	442.93	465.6		466.76	0.000462	8.73	20258.04	1343.50	0.35
Susquehanna	Middle Reach	145.546	10-yr	198600.00	442.93	467.7		469.06	0.000455	9.29	23337.89	1499.21	0.36
Susquehanna	Middle Reach	145.546	25-yr	242200.00	442.93	470.1		471.68	0.000450	10.06	27016.20	1573.38	0.37
Susquehanna	Middle Reach	145.546	50-yr	274800.00	442.93	472.8		474.37	0.000448	10.10	31367.29	1647.90	0.35
Susquehanna	Middle Reach	145.546	100-yr	309600.00	442.93	475.1		476.67	0.000445	10.37	35099.98	1690.55	0.34
Susquehanna	Middle Reach	145.546	500-yr	397600.00	442.93	479.6		481.44	0.000436	11.25	42909.45	1758.72	0.35
Susquehanna	Middle Reach	145.471	2-yr	121100.00	441.89	461.5		462.69	0.000557	8.62	14343.07	1070.33	0.38
Susquehanna	Middle Reach	145.471	5-yr	166500.00	441.89	465.1		466.54	0.000538	9.62	18610.89	1291.37	0.38
Susquehanna	Middle Reach	145.471	10-yr	198600.00	441.89	467.2		468.84	0.000538	10.26	21470.73	1432.07	0.39
Susquehanna	Middle Reach	145.471	25-yr	242200.00	441.89	469.6		471.46	0.000538	11.15	24923.11	1511.92	0.40
Susquehanna	Middle Reach	145.471	50-yr	274800.00	441.89	472.3		474.15	0.000537	11.18	29125.32	1587.29	0.38
Susquehanna	Middle Reach	145.471	100-yr	309600.00	441.89	474.5		476.45	0.000534	11.48	32725.60	1637.91	0.38
Susquehanna	Middle Reach	145.471	500-yr	397600.00	441.89	479.0		481.22	0.000526	12.46	40167.10	1688.42	0.38
Susquehanna	Middle Reach	145.394	2-yr	121100.00	440.83	461.3		462.46	0.000573	8.77	14118.70	1008.66	0.38
Susquehanna	Middle Reach	145.394	5-yr	166500.00	440.83	464.8		466.31	0.000579	9.75	18165.75	1257.19	0.39
Susquehanna	Middle Reach	145.394	10-yr	198600.00	440.83	467.0		468.61	0.000576	10.37	21009.26	1420.30	0.40
Susquehanna	Middle Reach	145.394	25-yr	242200.00	440.83	469.3		471.23	0.000573	11.23	24464.47	1500.61	0.41
Susquehanna	Middle Reach	145.394	50-yr	274800.00	440.83	472.1		473.93	0.000568	11.22	28638.73	1565.63	0.39
Susquehanna	Middle Reach	145.394	100-yr	309600.00	440.83	474.3		476.24	0.000561	11.49	32194.26	1618.10	0.38
Susquehanna	Middle Reach	145.394	500-yr	397600.00	440.83	478.8		481.01	0.000545	12.44	39631.49	1694.41	0.39
Susquehanna	Middle Reach	145.315	2-yr	121100.00	439.61	461.0		462.21	0.000647	8.75	13879.93	968.30	0.40
Susquehanna	Middle Reach	145.315	5-yr	166500.00	439.61	464.6		466.04	0.000639	9.55	17825.55	1291.15	0.41
Susquehanna	Middle Reach	145.315	10-yr	198600.00	439.61	466.8		468.34	0.000612	10.07	20724.95	1398.42	0.41
Susquehanna	Middle Reach	145.315	25-yr	242200.00	439.61	469.2		470.96	0.000591	10.83	24167.06	1488.87	0.41
Susquehanna	Middle Reach	145.315	50-yr	274800.00	439.61	471.9		473.66	0.000574	10.79	28353.63	1574.32	0.39
Susquehanna	Middle Reach	145.315	100-yr	309600.00	439.61	474.1		475.97	0.000559	11.03	31917.02	1594.70	0.38
Susquehanna	Middle Reach	145.315	500-yr	397600.00	439.61	478.6		480.75	0.000534	11.91	39183.07	1632.10	0.38
Susquehanna	Middle Reach	145.242	2-yr	121100.00	438.52	460.9		461.96	0.000507	8.33	14566.68	922.22	0.36
Susquehanna	Middle Reach	145.242	5-yr	166500.00	438.52	464.5		465.79	0.000549	9.28	18538.50	1332.80	0.38
Susquehanna	Middle Reach	145.242	10-yr	198600.00	438.52	466.6		468.10	0.000534	9.82	21506.35	1395.88	0.38
Susquehanna	Middle Reach	145.242	25-yr	242200.00	438.52	469.0		470.72	0.000521	10.58	24967.78	1484.90	0.39
Susquehanna	Middle Reach	145.242	50-yr	274800.00	438.52	471.8		473.43	0.000510	10.54	29175.48	1571.39	0.37
Susquehanna	Middle Reach	145.242	100-yr	309600.00	438.52	474.0		475.74	0.000500	10.78	32772.81	1615.45	0.36
Susquehanna	Middle Reach	145.242	500-yr	397600.00	438.52	478.6		480.52	0.000481	11.63	40330.38	1706.50	0.36
Susquehanna	Middle Reach	145.162	2-yr	121100.00	437.28	460.8		461.72	0.000381	7.57	16004.78	945.74	0.32
Susquehanna	Middle Reach	145.162	5-yr	166500.00	437.28	464.4		465.55	0.000395	8.60	20213.84	1383.00	0.33
Susquehanna	Middle Reach	145.162	10-yr	198600.00	437.28	466.6		467.86	0.000400	9.21	23224.91	1410.28	0.34
Susquehanna	Middle Reach	145.162	25-yr	242200.00	437.28	469.0		470.48	0.000406	10.04	26665.62	1478.37	0.35
Susquehanna	Middle Reach	145.162	50-yr	274800.00	437.28	471.7		473.20	0.000413	10.13	30791.53	1550.10	0.34
Susquehanna	Middle Reach	145.162	100-yr	309600.00	437.28	473.9		475.52	0.000416	10.44	34292.27	1571.72	0.33
Susquehanna	Middle Reach	145.162	500-yr	397600.00	437.28	478.4		480.31	0.000417	11.39	41763.70	1688.76	0.34
Susquehanna	Middle Reach	145.080	2-yr	121100.00	435.83	460.8		461.55	0.000299	7.09	17123.31	984.70	0.28
Susquehanna	Middle Reach	145.080	5-yr	166500.00	435.83	464.3		465.36	0.000322	8.17	21409.85	1365.35	0.30
Susquehanna	Middle Reach	145.080	10-yr	198600.00	435.83	466.5		467.67	0.000334	8.82	24368.08	1387.32	0.31
Susquehanna	Middle Reach	145.080	25-yr	242200.00	435.83	468.9		470.29	0.000349	9.68	27763.94	1467.50	0.33
Susquehanna	Middle Reach	145.080	50-yr	274800.00	435.83	471.6		473.01	0.000364	9.83	31841.79	1548.40	0.32
Susquehanna	Middle Reach	145.080	100-yr	309600.00	435.83	473.8		475.33	0.000372	10.17	35339.95	1577.19	0.32
Susquehanna	Middle Reach	145.080	500-yr	397600.00	435.83	478.3		480.12	0.000381	11.17	42616.75	1684.55	0.33
Susquehanna	Middle Reach	145.007	2-yr	121100.00	436.54	460.7		461.43	0.000302	7.04	17205.94	982.05	0.28
Susquehanna	Middle Reach	145.007	5-yr	166500.00	436.54	464.2		465.23	0.000323	8.12	21285.58	1274.95	0.30
Susquehanna	Middle Reach	145.007	10-yr	198600.00	436.54	466.4		467.54	0.000336	8.77	24119.73	1338.89	0.31
Susquehanna	Middle Reach	145.007	25-yr	242200.00	436.54	468.7		470.15	0.000349	9.65	27433.84	1427.48	0.33
Susquehanna	Middle Reach	145.007	50-yr	274800.00	436.54	471.4		472.87	0.000365	9.82	31399.06	1561.92	0.32
Susquehanna	Middle Reach	145.007	100-yr	309600.00	436.54	473.7		475.18	0.000374	10.17	34964.77	1639.67	0.32
Susquehanna	Middle Reach	145.007	500-yr	397600.00	436.54	478.2		479.97	0.000382	11.16	42720.46	1789.59	0.33
Susquehanna	Middle Reach	144.934	2-yr	121100.00	437.05	460.6		461.30	0.000279	6.72	18026.53	1027.24	0.27
Susquehanna	Middle Reach	144.934	5-yr	166500.00	437.05	464.2		465.09	0.000297	7.73	22300.85	1349.12	0.29
Susquehanna	Middle Reach	144.934	10-yr	198600.00	437.05	466.3		467.38	0.000307	8.34	25326.06	1464.46	0.30
Susquehanna	Middle Reach	144.934	25-yr	242200.00	437.05	468.7		469.98	0.000318	9.15	28952.06	1548.02	0.31
Susquehanna	Middle Reach	144.934	50-yr	274800.00	437.05	471.4		472.69	0.000331	9.30	33189.50	1612.43	0.30
Susquehanna	Middle Reach	144.934	100-yr	309600.00	437.05	473.6		475.00	0.000338	9.62	36840.84	1670.55	0.30
Susquehanna	Middle Reach	144.934	500-yr	397600.00	437.05	478.2		479.78	0.000343	10.54	44599.52	1749.23	0.31
Susquehanna	Middle Reach	144.853	2-yr	121100.00	437.63	460.5		461.18	0.000288	6.71	18051.40	1043.67	0.28
Susquehanna	Middle Reach	144.853	5-yr	166500.00	437.63	464.0		464.96	0.000302	7.67	22497.55	1386.33	0.29
Susquehanna	Middle Reach	144.853	10-yr	198600.00	437.63	466.2		467.25	0.000310	8.26	25581.42	1487.52	0.30
Susquehanna	Middle Reach	144.853	25-yr	242200.00	437.63	468.6		469.84	0.000318	9.05	29278.69	1587.43	0.31
Susquehanna	Middle Reach	144.853	50-yr	274800.00	437.63	471.3		472.54	0.000330	9.19	33743.57	1844.35	0.30
Susquehanna	Middle Reach	144.853	100-yr	309600.00	437.63	473.5		474.85	0.000334	9.47	37923.09	1879.61	0.30
Susquehanna	Middle Reach	144.853	500-yr	397600.00	437.63	478.1		479.61	0.000332	10.29	46636.57	1936.96	0.30
Susquehanna	Middle Reach	144.776	2-yr	121100.00	438.17	460.1	451.18	461.02	0.000441	7.63	15899.20	1079.62	0.34
Susquehanna	Middle Reach	144.776	5-yr	166500.00	438.17	463.7	453.36	464.79	0.000426	8.51	20535.89	1371.98	0.34
Susquehanna	Middle Reach	144.776	10-yr	198600.00	438.17	465.8	454.65	467.08	0.000423	9.06	23691.04	1552.91	0.34
Susquehanna	Middle Reach	144.776	25-yr	242200.00	438.17	468.2	456.26	469.67	0.000420	9.83	27568.96	1750.08	0.36
Susquehanna	Middle Reach	144.776	50-yr	274800.00	438.17	470.9	457.38	472.38	0.000419	9.85	32200.10	1980.68	0.34
Susquehanna	Middle Reach	144.776	100-yr	309600.00	438.17	473.2	458.52	474.68	0.000415	10.10	36230.95	2075.31	0.33
Susquehanna	Middle Reach	144.776	500-yr	397600.00	438.17	477.7	461.46	479.44	0.000402	10.88	44724.32	2208.82	0.33
Susquehanna	Middle Reach	144.702	2-yr	121100.00	438.70	460.0		460.84	0.000407	7.42	16409.52	1142.19	0.32
Susquehanna	Middle Reach	144.702	5-yr	166500.00	438.70	463.6		464.62	0.000402	8.28	20942.27	1411.20	0.33
Susquehanna	Middle Reach	144.702	10-yr	198600.00	438.70	465.7		466.90	0.000399	8.82	24198.32	1664.23	0.33
Susquehanna	Middle Reach	144.702	25-yr	242200.00	438.70	468.1		469.49	0.000395	9.54	28311.29	1751.23	0.34
Susquehanna	Middle Reach	144.702	50-yr	274800.00	438.70	470.8		472.19	0.000392	9.54	33172.62	1810.72	0.33
Susquehanna	Middle Reach	144.702	100-yr	309600.00	438.70	473.1		474.49	0.000387	9.75	37322.56	1852.90	0.32
Susquehanna	Middle Reach	144.702	500-yr	397600.00	438.70	477.7		479.26	0.000372	10.49	45961.48	1914.87	0.32
Susquehanna	Middle Reach	144.620	2-yr	121100.00	439.30	459.9		460.64	0.000327	6.76	18066.14	1196.01	0.29
Susquehanna	Middle Reach	144.620	5-yr	166500.00	439.30	463.5		464.41	0.000325	7.59	22849.36	1484.49	0.30
Susquehanna	Middle Reach	144.620	10-yr	198600.00	439.30	465.7		466.69	0.000325	8.11	26407.62	1747.02	0.30

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	144.620	25-yr	242200.00	439.30	468.1		469.28	0.000324	8.80	30721.00	1815.38	0.31
Susquehanna	Middle Reach	144.620	50-yr	274800.00	439.30	470.8		471.98	0.000327	8.84	35692.51	1853.57	0.30
Susquehanna	Middle Reach	144.620	100-yr	309600.00	439.30	473.1		474.29	0.000326	9.07	39939.54	1898.21	0.30
Susquehanna	Middle Reach	144.620	500-yr	397600.00	439.30	477.7		479.05	0.000318	9.81	48805.91	1960.43	0.30
Susquehanna	Middle Reach	144.544	2-yr	121100.00	439.87	459.9		460.49	0.000268	6.19	19740.98	1304.70	0.26
Susquehanna	Middle Reach	144.544	5-yr	166500.00	439.87	463.5		464.26	0.000267	6.99	24868.30	1550.31	0.27
Susquehanna	Middle Reach	144.544	10-yr	198600.00	439.87	465.7		466.53	0.000270	7.49	28532.83	1830.61	0.28
Susquehanna	Middle Reach	144.544	25-yr	242200.00	439.87	468.1		469.11	0.000271	8.16	33047.79	1874.54	0.29
Susquehanna	Middle Reach	144.544	50-yr	274800.00	439.87	470.8		471.82	0.000277	8.24	38157.11	1910.84	0.28
Susquehanna	Middle Reach	144.544	100-yr	309600.00	439.87	473.1		474.12	0.000278	8.48	42521.23	1949.75	0.27
Susquehanna	Middle Reach	144.544	500-yr	397600.00	439.87	477.7		478.89	0.000276	9.23	51630.24	2017.11	0.28
Susquehanna	Middle Reach	144.466	2-yr	121100.00	440.29	459.9		460.35	0.000246	5.60	21675.62	1415.51	0.25
Susquehanna	Middle Reach	144.466	5-yr	166500.00	440.29	463.5		464.11	0.000237	6.23	26952.48	1501.70	0.25
Susquehanna	Middle Reach	144.466	10-yr	198600.00	440.29	465.7		466.38	0.000234	6.64	30581.75	1776.58	0.26
Susquehanna	Middle Reach	144.466	25-yr	242200.00	440.29	468.1		468.95	0.000232	7.21	35241.98	1942.36	0.26
Susquehanna	Middle Reach	144.466	50-yr	274800.00	440.29	470.8		471.65	0.000233	7.28	40535.52	2002.35	0.25
Susquehanna	Middle Reach	144.466	100-yr	309600.00	440.29	473.1		473.96	0.000233	7.48	45135.39	2051.34	0.25
Susquehanna	Middle Reach	144.466	500-yr	397600.00	440.29	477.7		478.71	0.000227	8.13	54762.93	2118.13	0.25
Susquehanna	Middle Reach	144.393	2-yr	121100.00	440.85	459.7		460.25	0.000267	5.72	21206.35	1421.23	0.26
Susquehanna	Middle Reach	144.393	5-yr	166500.00	440.85	463.4		464.01	0.000255	6.32	26542.32	1518.09	0.26
Susquehanna	Middle Reach	144.393	10-yr	198600.00	440.85	465.6		466.28	0.000251	6.72	30162.63	1865.33	0.26
Susquehanna	Middle Reach	144.393	25-yr	242200.00	440.85	468.0		468.86	0.000247	7.27	34855.18	1943.31	0.27
Susquehanna	Middle Reach	144.393	50-yr	274800.00	440.85	470.7		471.56	0.000246	7.30	40303.88	2069.35	0.26
Susquehanna	Middle Reach	144.393	100-yr	309600.00	440.85	473.0		473.86	0.000242	7.49	45051.80	2115.64	0.25
Susquehanna	Middle Reach	144.393	500-yr	397600.00	440.85	477.6		478.62	0.000233	8.09	55058.34	2205.09	0.25
Susquehanna	Middle Reach	144.314	2-yr	121100.00	441.31	459.5		460.11	0.000368	6.16	19700.39	1503.73	0.30
Susquehanna	Middle Reach	144.314	5-yr	166500.00	441.31	463.2		463.89	0.000315	6.62	25645.55	1766.61	0.29
Susquehanna	Middle Reach	144.314	10-yr	198600.00	441.31	465.4		466.17	0.000298	6.94	29677.70	1888.66	0.28
Susquehanna	Middle Reach	144.314	25-yr	242200.00	441.31	467.9		468.74	0.000283	7.42	34527.39	2016.43	0.29
Susquehanna	Middle Reach	144.314	50-yr	274800.00	441.31	470.6		471.45	0.000274	7.39	40131.57	2099.07	0.27
Susquehanna	Middle Reach	144.314	100-yr	309600.00	441.31	472.9		473.76	0.000265	7.53	45010.71	2170.88	0.26
Susquehanna	Middle Reach	144.314	500-yr	397600.00	441.31	477.5		478.52	0.000247	8.07	55373.82	2300.74	0.26
Susquehanna	Middle Reach	144.242	2-yr	121100.00	439.61	459.4		459.97	0.000354	6.00	20245.66	1611.91	0.29
Susquehanna	Middle Reach	144.242	5-yr	166500.00	439.61	463.1		463.76	0.000298	6.41	26628.89	1807.25	0.28
Susquehanna	Middle Reach	144.242	10-yr	198600.00	439.61	465.3		466.04	0.000281	6.71	30798.95	1920.32	0.27
Susquehanna	Middle Reach	144.242	25-yr	242200.00	439.61	467.8		468.62	0.000265	7.18	35675.16	2031.22	0.28
Susquehanna	Middle Reach	144.242	50-yr	274800.00	439.61	470.6		471.34	0.000256	7.16	41396.24	2148.83	0.26
Susquehanna	Middle Reach	144.242	100-yr	309600.00	439.61	472.8		473.65	0.000248	7.30	46387.62	2211.64	0.25
Susquehanna	Middle Reach	144.242	500-yr	397600.00	439.61	477.5		478.41	0.000232	7.83	56871.61	2280.54	0.25
Susquehanna	Middle Reach	144.162	2-yr	121100.00	438.43	459.3		459.82	0.000279	5.63	21674.31	1570.24	0.26
Susquehanna	Middle Reach	144.162	5-yr	166500.00	438.43	463.1		463.63	0.000247	6.04	27926.49	1789.13	0.26
Susquehanna	Middle Reach	144.162	10-yr	198600.00	438.43	465.3		465.91	0.000238	6.33	32012.97	1866.44	0.26
Susquehanna	Middle Reach	144.162	25-yr	242200.00	438.43	467.8		468.50	0.000231	6.78	36771.61	1946.56	0.26
Susquehanna	Middle Reach	144.162	50-yr	274800.00	438.43	470.5		471.21	0.000229	6.77	42297.25	2106.96	0.25
Susquehanna	Middle Reach	144.162	100-yr	309600.00	438.43	472.8		473.53	0.000225	6.92	47199.64	2173.55	0.24
Susquehanna	Middle Reach	144.162	500-yr	397600.00	438.43	477.5		478.30	0.000215	7.43	57486.22	2234.07	0.24
Susquehanna	Middle Reach	144.089	2-yr	121100.00	438.44	459.3		459.72	0.000203	5.36	22607.20	1359.74	0.23
Susquehanna	Middle Reach	144.089	5-yr	166500.00	438.44	463.0		463.54	0.000215	5.98	27952.97	1583.97	0.25
Susquehanna	Middle Reach	144.089	10-yr	198600.00	438.44	465.2		465.83	0.000215	6.27	31976.76	1871.02	0.26
Susquehanna	Middle Reach	144.089	25-yr	242200.00	438.44	467.7		468.41	0.000212	6.71	36709.09	1919.55	0.26
Susquehanna	Middle Reach	144.089	50-yr	274800.00	438.44	470.4		471.12	0.000216	6.70	42105.98	2078.85	0.25
Susquehanna	Middle Reach	144.089	100-yr	309600.00	438.44	472.7		473.44	0.000214	6.84	46927.10	2125.04	0.24
Susquehanna	Middle Reach	144.089	500-yr	397600.00	438.44	477.4		478.21	0.000208	7.36	57143.52	2253.86	0.24
Susquehanna	Middle Reach	144.009	2-yr	121100.00	438.44	459.2		459.63	0.000172	5.19	23327.33	1277.99	0.21
Susquehanna	Middle Reach	144.009	5-yr	166500.00	438.44	462.9		463.45	0.000183	5.87	28474.43	1663.91	0.25
Susquehanna	Middle Reach	144.009	10-yr	198600.00	438.44	465.1		465.73	0.000190	6.17	32421.74	1800.26	0.25
Susquehanna	Middle Reach	144.009	25-yr	242200.00	438.44	467.6		468.32	0.000196	6.62	36987.66	1895.94	0.26
Susquehanna	Middle Reach	144.009	50-yr	274800.00	438.44	470.4		471.03	0.000203	6.62	42398.97	2051.79	0.24
Susquehanna	Middle Reach	144.009	100-yr	309600.00	438.44	472.6		473.35	0.000206	6.78	47159.62	2122.80	0.24
Susquehanna	Middle Reach	144.009	500-yr	397600.00	438.44	477.3		478.12	0.000205	7.30	57243.89	2187.45	0.23
Susquehanna	Middle Reach	143.935	2-yr	121100.00	438.44	459.1		459.56	0.000173	5.21	23273.88	1290.51	0.21
Susquehanna	Middle Reach	143.935	5-yr	166500.00	438.44	462.8		463.38	0.000189	5.85	28580.73	1674.15	0.25
Susquehanna	Middle Reach	143.935	10-yr	198600.00	438.44	465.1		465.66	0.000196	6.16	32441.56	1762.13	0.25
Susquehanna	Middle Reach	143.935	25-yr	242200.00	438.44	467.6		468.24	0.000200	6.63	36924.88	1897.14	0.25
Susquehanna	Middle Reach	143.935	50-yr	274800.00	438.44	470.3		470.95	0.000205	6.65	42288.12	2034.03	0.24
Susquehanna	Middle Reach	143.935	100-yr	309600.00	438.44	472.6		473.27	0.000206	6.81	46980.25	2070.91	0.23
Susquehanna	Middle Reach	143.935	500-yr	397600.00	438.44	477.2		478.04	0.000204	7.36	56819.18	2140.92	0.23
Susquehanna	Middle Reach	143.856	2-yr	121100.00	438.16	459.1		459.48	0.000148	4.86	24924.68	1362.02	0.20
Susquehanna	Middle Reach	143.856	5-yr	166500.00	438.16	462.8		463.29	0.000156	5.47	30549.89	1666.66	0.22
Susquehanna	Middle Reach	143.856	10-yr	198600.00	438.16	465.0		465.57	0.000161	5.81	34360.97	1737.59	0.23
Susquehanna	Middle Reach	143.856	25-yr	242200.00	438.16	467.5		468.15	0.000165	6.32	38820.40	1890.16	0.23
Susquehanna	Middle Reach	143.856	50-yr	274800.00	438.16	470.2		470.86	0.000172	6.39	44116.00	2002.66	0.22
Susquehanna	Middle Reach	143.856	100-yr	309600.00	438.16	472.5		473.18	0.000176	6.59	48730.59	2045.48	0.22
Susquehanna	Middle Reach	143.856	500-yr	397600.00	438.16	477.2		477.95	0.000180	7.19	58407.24	2102.81	0.22
Susquehanna	Middle Reach	143.779	2-yr	121100.00	438.06	459.1		459.40	0.000108	4.13	29325.54	1607.25	0.17
Susquehanna	Middle Reach	143.779	5-yr	166500.00	438.06	462.9		463.20	0.000112	4.72	35354.17	1639.48	0.18
Susquehanna	Middle Reach	143.779	10-yr	198600.00	438.06	465.1		465.48	0.000117	5.11	39024.57	1670.40	0.18
Susquehanna	Middle Reach	143.779	25-yr	242200.00	438.06	467.6		468.05	0.000121	5.64	43383.18	1865.11	0.19
Susquehanna	Middle Reach	143.779	50-yr	274800.00	438.06	470.2		470.77	0.000128	5.79	48537.04	1950.19	0.19
Susquehanna	Middle Reach	143.779	100-yr	309600.00	438.06	472.5		473.08	0.000132	6.04	53019.63	1996.19	0.19
Susquehanna	Middle Reach	143.779	500-yr	397600.00	438.06	477.2		477.86	0.000137	6.70	62477.91	2059.60	0.20
Susquehanna	Middle Reach	143.699	2-yr	121100.00	437.77	459.0		459.34	0.000162	4.77	25406.78	1511.22	0.20
Susquehanna	Middle Reach	143.699	5-yr	166500.00	437.77	462.7		463.13	0.000160	5.37	31105.78	1560.57	0.21
Susquehanna	Middle Reach	143.699	10-yr	198600.00	437.77	464.9		465.41	0.000162	5.77	34592.64	1628.09	0.22
Susquehanna	Middle Reach	143.699	25-yr	242200.00	437.77	467.4		467.98	0.000165	6.32	38905.68	1827.60	0.22
Susquehanna	Middle Reach	143.699	50-yr	274800.00	437.77	470.1		470.69	0.000170	6.45	43969.99	1917.81	0.22
Susquehanna	Middle Reach	143.699	100-yr	309600.00	437.77	472.3		473.01	0.000173	6.68	48375.39	1962.31	0.22
Susquehanna	Middle Reach	143.699	500-yr	397600.00	437.77	477.0		477.78	0.000176	7.36	57703.22	2082.78	0.22

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	143.623	2-yr	121100.00	438.37	458.8		459.25	0.000226	5.26	23006.91	1509.47	0.24
Susquehanna	Middle Reach	143.623	5-yr	166500.00	438.37	462.5		463.05	0.000210	5.82	28680.06	1554.37	0.24
Susquehanna	Middle Reach	143.623	10-yr	198600.00	438.37	464.7		465.33	0.000210	6.20	32241.56	1714.37	0.24
Susquehanna	Middle Reach	143.623	25-yr	242200.00	438.37	467.2		467.90	0.000207	6.74	36670.56	1859.19	0.25
Susquehanna	Middle Reach	143.623	50-yr	274800.00	438.37	469.9		470.61	0.000208	6.82	41820.45	1946.72	0.24
Susquehanna	Middle Reach	143.623	100-yr	309600.00	438.37	472.2		472.93	0.000208	7.02	46283.84	1981.35	0.23
Susquehanna	Middle Reach	143.623	500-yr	397600.00	438.37	476.8		477.70	0.000204	7.65	55621.40	2036.18	0.24
Susquehanna	Middle Reach	143.547	2-yr	121100.00	438.03	458.7		459.16	0.000238	5.30	22846.24	1541.37	0.24
Susquehanna	Middle Reach	143.547	5-yr	166500.00	438.03	462.4		462.97	0.000218	5.81	28697.59	1604.18	0.24
Susquehanna	Middle Reach	143.547	10-yr	198600.00	438.03	464.7		465.24	0.000214	6.18	32286.34	1670.41	0.24
Susquehanna	Middle Reach	143.547	25-yr	242200.00	438.03	467.1		467.82	0.000211	6.71	36591.52	1854.44	0.25
Susquehanna	Middle Reach	143.547	50-yr	274800.00	438.03	469.8		470.53	0.000211	6.78	41795.71	1964.80	0.24
Susquehanna	Middle Reach	143.547	100-yr	309600.00	438.03	472.1		472.84	0.000210	6.99	46300.16	2004.52	0.23
Susquehanna	Middle Reach	143.547	500-yr	397600.00	438.03	476.7		477.62	0.000207	7.63	55789.61	2075.81	0.24
Susquehanna	Middle Reach	143.471	2-yr	121100.00	438.03	458.7	446.75	459.06	0.000193	4.91	24681.88	1600.19	0.22
Susquehanna	Middle Reach	143.471	5-yr	166500.00	438.03	462.4	448.44	462.87	0.000180	5.43	30745.44	1650.77	0.22
Susquehanna	Middle Reach	143.471	10-yr	198600.00	438.03	464.6	449.66	465.14	0.000179	5.79	34427.61	1678.65	0.22
Susquehanna	Middle Reach	143.471	25-yr	242200.00	438.03	467.1	451.14	467.72	0.000180	6.31	38691.70	1793.07	0.23
Susquehanna	Middle Reach	143.471	50-yr	274800.00	438.03	469.8	452.13	470.43	0.000183	6.40	43993.04	2004.42	0.22
Susquehanna	Middle Reach	143.471	100-yr	309600.00	438.03	472.1	453.53	472.74	0.000183	6.61	48608.03	2058.57	0.22
Susquehanna	Middle Reach	143.471	500-yr	397600.00	438.03	476.7	455.66	477.52	0.000182	7.24	58274.89	2101.68	0.22
Susquehanna	Middle Reach	143.428	2-yr	121100.00	438.23	458.6	447.34	459.00	0.000239	5.34	22664.19	1594.80	0.25
Susquehanna	Middle Reach	143.428	5-yr	166500.00	438.23	462.3	449.09	462.82	0.000219	5.80	28706.95	1632.40	0.24
Susquehanna	Middle Reach	143.428	10-yr	198600.00	438.23	464.5	450.27	465.09	0.000216	6.14	32334.33	1648.61	0.24
Susquehanna	Middle Reach	143.428	25-yr	242200.00	438.23	467.0	451.74	467.67	0.000216	6.65	36505.11	1766.28	0.25
Susquehanna	Middle Reach	143.428	50-yr	274800.00	438.23	469.7	453.00	470.38	0.000216	6.70	41675.60	2101.12	0.24
Susquehanna	Middle Reach	143.428	100-yr	309600.00	438.23	472.0	454.04	472.69	0.000215	6.89	46324.59	2456.51	0.23
Susquehanna	Middle Reach	143.428	500-yr	397600.00	438.23	476.6	456.49	477.47	0.000210	7.49	56181.29	2769.83	0.24
Susquehanna	Middle Reach	143.377	2-yr	121100.00	438.10	458.5		458.94	0.000220	5.32	22765.05	1433.50	0.24
Susquehanna	Middle Reach	143.377	5-yr	166500.00	438.10	462.2		462.76	0.000219	5.84	28505.41	1639.03	0.25
Susquehanna	Middle Reach	143.377	10-yr	198600.00	438.10	464.4		465.04	0.000217	6.17	32180.53	1671.88	0.25
Susquehanna	Middle Reach	143.377	25-yr	242200.00	438.10	466.9		467.61	0.000216	6.66	36464.49	1829.14	0.25
Susquehanna	Middle Reach	143.377	50-yr	274800.00	438.10	469.6		470.32	0.000215	6.70	41651.75	1979.21	0.24
Susquehanna	Middle Reach	143.377	100-yr	309600.00	438.10	471.9		472.63	0.000214	6.88	46229.92	2035.75	0.24
Susquehanna	Middle Reach	143.377	500-yr	397600.00	438.10	476.6		477.41	0.000207	7.45	55926.30	2128.17	0.24
Susquehanna	Middle Reach	143.314	2-yr	121100.00	438.30	458.4		458.87	0.000196	5.31	22822.61	1321.86	0.23
Susquehanna	Middle Reach	143.314	5-yr	166500.00	438.30	462.2		462.69	0.000214	5.86	28494.22	1683.06	0.25
Susquehanna	Middle Reach	143.314	10-yr	198600.00	438.30	464.4		464.96	0.000213	6.18	32261.68	1718.47	0.25
Susquehanna	Middle Reach	143.314	25-yr	242200.00	438.30	466.8		467.54	0.000213	6.67	36616.99	1864.15	0.25
Susquehanna	Middle Reach	143.314	50-yr	274800.00	438.30	469.6		470.25	0.000214	6.70	41961.11	2022.38	0.24
Susquehanna	Middle Reach	143.314	100-yr	309600.00	438.30	471.8		472.56	0.000213	6.87	46624.51	2070.93	0.24
Susquehanna	Middle Reach	143.314	500-yr	397600.00	438.30	476.5		477.34	0.000208	7.43	56439.96	2131.42	0.24
Susquehanna	Middle Reach	143.241	2-yr	121100.00	438.36	458.4		458.80	0.000194	5.26	23001.57	1336.14	0.22
Susquehanna	Middle Reach	143.241	5-yr	166500.00	438.36	462.1		462.61	0.000218	5.88	28370.11	1547.61	0.24
Susquehanna	Middle Reach	143.241	10-yr	198600.00	438.36	464.3		464.88	0.000223	6.22	32045.04	1715.93	0.25
Susquehanna	Middle Reach	143.241	25-yr	242200.00	438.36	466.8		467.46	0.000220	6.70	36455.30	1851.68	0.26
Susquehanna	Middle Reach	143.241	50-yr	274800.00	438.36	469.5		470.17	0.000219	6.74	41621.67	2002.61	0.24
Susquehanna	Middle Reach	143.241	100-yr	309600.00	438.36	471.7		472.48	0.000217	6.92	46265.50	2069.78	0.24
Susquehanna	Middle Reach	143.241	500-yr	397600.00	438.36	476.4		477.26	0.000211	7.50	56183.89	2168.05	0.24
Susquehanna	Middle Reach	143.161	2-yr	121100.00	438.95	458.2		458.70	0.000264	5.66	21382.47	1417.87	0.26
Susquehanna	Middle Reach	143.161	5-yr	166500.00	438.95	461.9		462.50	0.000267	6.18	26959.61	1669.06	0.27
Susquehanna	Middle Reach	143.161	10-yr	198600.00	438.95	464.1		464.78	0.000256	6.47	30783.38	1770.05	0.27
Susquehanna	Middle Reach	143.161	25-yr	242200.00	438.95	466.6		467.35	0.000247	6.93	35328.91	1895.02	0.27
Susquehanna	Middle Reach	143.161	50-yr	274800.00	438.95	469.3		470.07	0.000242	6.92	40689.66	2052.15	0.25
Susquehanna	Middle Reach	143.161	100-yr	309600.00	438.95	471.6		472.38	0.000236	7.06	45483.41	2160.06	0.25
Susquehanna	Middle Reach	143.161	500-yr	397600.00	438.95	476.3		477.17	0.000224	7.58	55845.00	2257.14	0.24
Susquehanna	Middle Reach	143.087	2-yr	121100.00	438.23	458.1		458.59	0.000216	5.40	22420.94	1360.35	0.23
Susquehanna	Middle Reach	143.087	5-yr	166500.00	438.23	461.8		462.39	0.000231	5.97	27909.02	1614.07	0.25
Susquehanna	Middle Reach	143.087	10-yr	198600.00	438.23	464.1		464.68	0.000228	6.31	31561.45	1710.30	0.25
Susquehanna	Middle Reach	143.087	25-yr	242200.00	438.23	466.5		467.26	0.000222	6.81	35983.69	1973.07	0.26
Susquehanna	Middle Reach	143.087	50-yr	274800.00	438.23	469.3		469.97	0.000220	6.83	41626.98	2139.25	0.24
Susquehanna	Middle Reach	143.087	100-yr	309600.00	438.23	471.5		472.29	0.000217	6.99	46591.36	2194.77	0.24
Susquehanna	Middle Reach	143.087	500-yr	397600.00	438.23	476.2		477.08	0.000208	7.53	57006.36	2247.89	0.24
Susquehanna	Middle Reach	143.011	2-yr	121100.00	437.74	458.2		458.48	0.000123	4.25	28487.12	1634.30	0.18
Susquehanna	Middle Reach	143.011	5-yr	166500.00	437.74	461.9		462.27	0.000123	4.81	34659.51	1707.19	0.19
Susquehanna	Middle Reach	143.011	10-yr	198600.00	437.74	464.1		464.55	0.000127	5.18	38652.21	1871.10	0.19
Susquehanna	Middle Reach	143.011	25-yr	242200.00	437.74	466.6		467.12	0.000130	5.69	43508.66	2021.24	0.20
Susquehanna	Middle Reach	143.011	50-yr	274800.00	437.74	469.3		469.85	0.000135	5.82	49067.36	2090.86	0.19
Susquehanna	Middle Reach	143.011	100-yr	309600.00	437.74	471.6		472.16	0.000138	6.04	53867.61	2118.46	0.19
Susquehanna	Middle Reach	143.011	500-yr	397600.00	437.74	476.3		476.96	0.000141	6.67	63911.39	2180.33	0.20
Susquehanna	Middle Reach	142.935	2-yr	121100.00	437.51	458.1		458.43	0.000125	4.31	28109.21	1595.82	0.18
Susquehanna	Middle Reach	142.935	5-yr	166500.00	437.51	461.8		462.22	0.000127	4.89	34086.54	1638.17	0.19
Susquehanna	Middle Reach	142.935	10-yr	198600.00	437.51	464.1		464.50	0.000131	5.27	37748.59	1663.95	0.19
Susquehanna	Middle Reach	142.935	25-yr	242200.00	437.51	466.6		467.07	0.000134	5.79	42419.29	2013.07	0.20
Susquehanna	Middle Reach	142.935	50-yr	274800.00	437.51	469.3		469.79	0.000140	5.91	47948.46	2077.27	0.20
Susquehanna	Middle Reach	142.935	100-yr	309600.00	437.51	471.5		472.11	0.000142	6.13	52722.21	2111.64	0.20
Susquehanna	Middle Reach	142.935	500-yr	397600.00	437.51	476.2		476.90	0.000145	6.75	62812.99	2205.44	0.20
Susquehanna	Middle Reach	142.859	2-yr	121100.00	437.46	458.1		458.37	0.000141	4.51	26860.81	1562.30	0.19
Susquehanna	Middle Reach	142.859	5-yr	166500.00	437.46	461.8		462.16	0.000141	5.09	32723.39	1660.19	0.20
Susquehanna	Middle Reach	142.859	10-yr	198600.00	437.46	464.0		464.44	0.000144	5.48	36549.28	1817.53	0.20
Susquehanna	Middle Reach	142.859	25-yr	242200.00	437.46	466.5		467.01	0.000147	6.01	41323.46	2031.44	0.21
Susquehanna	Middle Reach	142.859	50-yr	274800.00	437.46	469.2		469.73	0.000152	6.13	46915.22	2096.95	0.20
Susquehanna	Middle Reach	142.859	100-yr	309600.00	437.46	471.4		472.05	0.000154	6.34	51725.27	2125.03	0.20
Susquehanna	Middle Reach	142.859	500-yr	397600.00	437.46	476.1		476.84	0.000156	6.97	61793.30	2184.06	0.21
Susquehanna	Middle Reach	142.781	2-yr	121100.00	436.89	458.0		458.31	0.000101	4.11	29496.37	1542.01	0.17
Susquehanna	Middle Reach	142.781	5-yr	166500.00	436.89	461.7		462.10	0.000108	4.72	35263.57	1611.20	0.18
Susquehanna	Middle Reach	142.781	10-yr	198600.00	436.89	464.0		464.37	0.000113	5.13	39007.81	1812.26	0.18
Susquehanna	Middle Reach	142.781	25-yr	242200.00	436.89	466.4		466.94	0.000119	5.66	43809.08	2014.96	0.19
Susquehanna	Middle Reach	142.781	50-yr	274800.00	436.89	469.1		469.66	0.000125	5.81	49385.77	2113.21	0.19

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	142.781	100-yr	309600.00	436.89	471.4		471.97	0.000129	6.05	54298.54	2207.13	0.19
Susquehanna	Middle Reach	142.781	500-yr	397600.00	436.89	476.1		476.76	0.000133	6.68	64847.63	2299.52	0.19
Susquehanna	Middle Reach	142.701	2-yr	121100.00	436.84	457.9		458.25	0.000134	4.51	26873.87	1497.39	0.19
Susquehanna	Middle Reach	142.701	5-yr	166500.00	436.84	461.6		462.04	0.000139	5.12	32568.80	1568.82	0.20
Susquehanna	Middle Reach	142.701	10-yr	198600.00	436.84	463.8		464.31	0.000144	5.52	36059.85	1598.01	0.20
Susquehanna	Middle Reach	142.701	25-yr	242200.00	436.84	466.3		466.88	0.000149	6.07	40326.36	1853.15	0.21
Susquehanna	Middle Reach	142.701	50-yr	274800.00	436.84	469.0		469.59	0.000155	6.20	45757.30	2109.73	0.21
Susquehanna	Middle Reach	142.701	100-yr	309600.00	436.84	471.3		471.90	0.000158	6.42	50636.22	2196.17	0.21
Susquehanna	Middle Reach	142.701	500-yr	397600.00	436.84	475.9		476.69	0.000159	7.05	61092.77	2275.34	0.21
Susquehanna	Middle Reach	142.624	2-yr	121100.00	436.94	457.8		458.19	0.000176	4.95	24472.37	1459.56	0.21
Susquehanna	Middle Reach	142.624	5-yr	166500.00	436.94	461.5		461.97	0.000177	5.57	29914.71	1496.61	0.22
Susquehanna	Middle Reach	142.624	10-yr	198600.00	436.94	463.7		464.24	0.000180	5.98	33358.24	1714.20	0.22
Susquehanna	Middle Reach	142.624	25-yr	242200.00	436.94	466.1		466.80	0.000181	6.54	37945.89	2029.11	0.23
Susquehanna	Middle Reach	142.624	50-yr	274800.00	436.94	468.8		469.51	0.000185	6.63	43720.91	2207.62	0.22
Susquehanna	Middle Reach	142.624	100-yr	309600.00	436.94	471.1		471.83	0.000186	6.84	48793.32	2245.15	0.22
Susquehanna	Middle Reach	142.624	500-yr	397600.00	436.94	475.8		476.62	0.000183	7.44	59517.06	2326.42	0.22
Susquehanna	Middle Reach	142.544	2-yr	121100.00	436.63	457.7	446.02	458.10	0.000197	5.29	25014.40	2801.24	0.23
Susquehanna	Middle Reach	142.544	5-yr	166500.00	436.63	461.4	447.72	461.89	0.000184	5.80	33175.24	3198.97	0.22
Susquehanna	Middle Reach	142.544	10-yr	198600.00	436.63	463.6	448.83	464.16	0.000180	6.14	38323.04	3313.15	0.23
Susquehanna	Middle Reach	142.544	25-yr	242200.00	436.63	466.1	450.36	466.71	0.000177	6.62	44288.07	3404.62	0.23
Susquehanna	Middle Reach	142.544	50-yr	274800.00	436.63	468.8	451.47	469.42	0.000177	6.64	50968.95	3433.21	0.22
Susquehanna	Middle Reach	142.544	100-yr	309600.00	436.63	471.1	452.48	471.73	0.000176	6.81	56621.47	3443.31	0.22
Susquehanna	Middle Reach	142.544	500-yr	397600.00	436.63	475.8	454.71	476.51	0.000172	7.36	68242.63	3466.52	0.22
Susquehanna	Middle Reach	142.436	2-yr	121100.00	436.65	457.7	445.36	457.97	0.000102	4.12	38831.65	2499.95	0.17
Susquehanna	Middle Reach	142.436	5-yr	166500.00	436.65	461.5	447.20	461.75	0.000102	4.61	47872.24	2600.88	0.17
Susquehanna	Middle Reach	142.436	10-yr	198600.00	436.65	463.7	448.08	464.02	0.000103	4.95	53279.95	2731.73	0.17
Susquehanna	Middle Reach	142.436	25-yr	242200.00	436.65	466.2	449.20	466.57	0.000106	5.42	59335.99	2796.66	0.18
Susquehanna	Middle Reach	142.436	50-yr	274800.00	436.65	468.9	449.95	469.28	0.000112	5.54	65956.78	2871.34	0.18
Susquehanna	Middle Reach	142.436	100-yr	309600.00	436.65	471.2	450.69	471.59	0.000115	5.75	71619.69	2914.24	0.18
Susquehanna	Middle Reach	142.436	500-yr	397600.00	436.65	475.9	452.42	476.37	0.000119	6.37	83294.39	3003.04	0.18
Susquehanna	Middle Reach	142.381 Roaring Creek	2-yr	121700.00	436.60	457.5		457.90	0.000185	5.39	22588.54	1230.68	0.22
Susquehanna	Middle Reach	142.381 Roaring Creek	5-yr	167200.00	436.60	461.1		461.68	0.000191	6.13	28341.85	1897.63	0.23
Susquehanna	Middle Reach	142.381 Roaring Creek	10-yr	199400.00	436.60	463.3		463.94	0.000194	6.58	32727.83	2061.40	0.24
Susquehanna	Middle Reach	142.381 Roaring Creek	25-yr	242200.00	436.60	465.7		466.48	0.000195	7.15	37814.45	2126.43	0.25
Susquehanna	Middle Reach	142.381 Roaring Creek	50-yr	275800.00	436.60	468.4		469.19	0.000202	7.25	43657.20	2201.47	0.24
Susquehanna	Middle Reach	142.381 Roaring Creek	100-yr	310600.00	436.60	470.7		471.50	0.000203	7.45	48749.71	2265.39	0.23
Susquehanna	Middle Reach	142.381 Roaring Creek	500-yr	398700.00	436.60	475.3		476.28	0.000201	8.08	59521.98	2348.15	0.24
Susquehanna	Middle Reach	142.312	2-yr	121700.00	436.53	457.2		457.81	0.000262	6.29	19420.43	1263.56	0.26
Susquehanna	Middle Reach	142.312	5-yr	167200.00	436.53	460.8		461.58	0.000263	7.09	25211.96	1902.83	0.27
Susquehanna	Middle Reach	142.312	10-yr	199400.00	436.53	463.0		463.84	0.000263	7.55	29429.14	1975.67	0.28
Susquehanna	Middle Reach	142.312	25-yr	242200.00	436.53	465.4		466.39	0.000261	8.15	34282.67	2036.97	0.28
Susquehanna	Middle Reach	142.312	50-yr	275800.00	436.53	468.1		469.09	0.000266	8.21	39943.34	2125.52	0.27
Susquehanna	Middle Reach	142.312	100-yr	310600.00	436.53	470.4		471.40	0.000264	8.41	44898.16	2210.68	0.27
Susquehanna	Middle Reach	142.312	500-yr	398700.00	436.53	475.0		476.18	0.000256	9.04	55452.95	2313.23	0.27
Susquehanna	Middle Reach	142.236	2-yr	121700.00	436.46	456.9		457.68	0.000353	7.02	17531.34	1341.78	0.30
Susquehanna	Middle Reach	142.236	5-yr	167200.00	436.46	460.5		461.45	0.000344	7.80	23081.65	1829.49	0.31
Susquehanna	Middle Reach	142.236	10-yr	199400.00	436.46	462.7		463.71	0.000337	8.25	27132.03	1930.96	0.31
Susquehanna	Middle Reach	142.236	25-yr	242200.00	436.46	465.1		466.26	0.000327	8.83	31993.88	2049.02	0.32
Susquehanna	Middle Reach	142.236	50-yr	275800.00	436.46	467.8		468.97	0.000326	8.83	37740.46	2139.48	0.30
Susquehanna	Middle Reach	142.236	100-yr	310600.00	436.46	470.1		471.28	0.000317	8.97	42734.09	2205.29	0.29
Susquehanna	Middle Reach	142.236	500-yr	398700.00	436.46	474.8		476.07	0.000298	9.55	53227.86	2278.15	0.29
Susquehanna	Middle Reach	142.156	2-yr	121700.00	436.39	456.6		457.52	0.000413	7.51	16330.41	1266.77	0.33
Susquehanna	Middle Reach	142.156	5-yr	167200.00	436.39	460.2		461.29	0.000414	8.27	21975.89	1779.73	0.33
Susquehanna	Middle Reach	142.156	10-yr	199400.00	436.39	462.4		463.56	0.000397	8.67	26085.53	1983.47	0.33
Susquehanna	Middle Reach	142.156	25-yr	242200.00	436.39	464.9		466.11	0.000377	9.21	30997.03	2045.00	0.34
Susquehanna	Middle Reach	142.156	50-yr	275800.00	436.39	467.6		468.82	0.000367	9.13	36753.96	2114.45	0.32
Susquehanna	Middle Reach	142.156	100-yr	310600.00	436.39	469.9		471.14	0.000353	9.24	41718.57	2176.35	0.31
Susquehanna	Middle Reach	142.156	500-yr	398700.00	436.39	474.6		475.94	0.000326	9.78	52093.66	2243.26	0.30
Susquehanna	Middle Reach	142.077	2-yr	121700.00	436.10	456.6		457.33	0.000338	6.93	18008.72	1416.44	0.30
Susquehanna	Middle Reach	142.077	5-yr	167200.00	436.10	460.2		461.10	0.000331	7.66	23905.15	1775.82	0.30
Susquehanna	Middle Reach	142.077	10-yr	199400.00	436.10	462.4		463.37	0.000324	8.09	27971.33	1941.54	0.30
Susquehanna	Middle Reach	142.077	25-yr	242200.00	436.10	464.8		465.93	0.000314	8.65	32796.88	2015.14	0.31
Susquehanna	Middle Reach	142.077	50-yr	275800.00	436.10	467.6		468.65	0.000313	8.67	38455.10	2098.52	0.29
Susquehanna	Middle Reach	142.077	100-yr	310600.00	436.10	469.9		470.98	0.000306	8.82	43366.66	2159.85	0.29
Susquehanna	Middle Reach	142.077	500-yr	398700.00	436.10	474.6		475.79	0.000290	9.42	53694.24	2236.27	0.28
Susquehanna	Middle Reach	142.001	2-yr	121700.00	435.99	456.6		457.15	0.000260	5.88	20947.98	1418.43	0.26
Susquehanna	Middle Reach	142.001	5-yr	167200.00	435.99	460.3		460.92	0.000253	6.52	26826.15	1828.31	0.26
Susquehanna	Middle Reach	142.001	10-yr	199400.00	435.99	462.5		463.18	0.000249	6.91	31006.66	1965.76	0.26
Susquehanna	Middle Reach	142.001	25-yr	242200.00	435.99	464.9		465.74	0.000242	7.42	35956.20	2054.79	0.27
Susquehanna	Middle Reach	142.001	50-yr	275800.00	435.99	467.6		468.47	0.000243	7.46	41705.14	2153.95	0.26
Susquehanna	Middle Reach	142.001	100-yr	310600.00	435.99	469.9		470.80	0.000238	7.62	46743.92	2208.15	0.25
Susquehanna	Middle Reach	142.001	500-yr	398700.00	435.99	474.6		475.61	0.000227	8.19	57295.80	2279.71	0.25
Susquehanna	Middle Reach	141.923	2-yr	121700.00	436.02	456.6		457.02	0.000186	5.01	24312.31	1493.69	0.22
Susquehanna	Middle Reach	141.923	5-yr	167200.00	436.02	460.3		460.78	0.000185	5.60	29926.43	1603.79	0.22
Susquehanna	Middle Reach	141.923	10-yr	199400.00	436.02	462.5		463.05	0.000186	5.98	33689.20	1874.48	0.23
Susquehanna	Middle Reach	141.923	25-yr	242200.00	436.02	465.0		465.61	0.000184	6.49	38462.78	2028.03	0.24
Susquehanna	Middle Reach	141.923	50-yr	275800.00	436.02	467.7		468.34	0.000188	6.59	44135.09	2136.77	0.23
Susquehanna	Middle Reach	141.923	100-yr	310600.00	436.02	470.0		470.67	0.000187	6.78	49158.15	2222.37	0.22
Susquehanna	Middle Reach	141.923	500-yr	398700.00	436.02	474.7		475.49	0.000182	7.37	59914.76	2352.03	0.22
Susquehanna	Middle Reach	141.838	2-yr	121700.00	435.88	456.6		456.94	0.000145	4.66	26400.35	1610.19	0.20
Susquehanna	Middle Reach	141.838	5-yr	167200.00	435.88	460.3		460.69	0.000146	5.28	32566.63	1801.18	0.20
Susquehanna	Middle Reach	141.838	10-yr	199400.00	435.88	462.5		462.96	0.000149	5.68	36627.82	1906.98	0.21
Susquehanna	Middle Reach	141.838	25-yr	242200.00	435.88	464.9		465.52	0.000151	6.21	41476.84	2022.26	0.22
Susquehanna	Middle Reach	141.838	50-yr	275800.00	435.88	467.6		468.25	0.000158	6.36	47139.02	2167.85	0.21
Susquehanna	Middle Reach	141.838	100-yr	310600.00	435.88	469.9		470.59	0.000161	6.58	52219.72	2257.16	0.21
Susquehanna	Middle Reach	141.838	500-yr	398700.00	435.88	474.6		475.40	0.000162	7.21	63166.39	2388.90	0.21
Susquehanna	Middle Reach	141.759	2-yr	121700.00	435.87	456.5		456.88	0.000137	4.64	26511.30	1527.88	0.19
Susquehanna	Middle Reach	141.759	5-yr	167200.00	435.87	460.2		460.64	0.000148	5.28	32480.25	1763.17	0.20

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	141.759	10-yr	199400.00	435.87	462.4		462.90	0.000154	5.68	36498.85	1936.94	0.21
Susquehanna	Middle Reach	141.759	25-yr	242200.00	435.87	464.9		465.45	0.000155	6.20	41418.70	2051.81	0.22
Susquehanna	Middle Reach	141.759	50-yr	275800.00	435.87	467.6		468.18	0.000161	6.33	47244.08	2222.61	0.21
Susquehanna	Middle Reach	141.759	100-yr	310600.00	435.87	469.9		470.52	0.000162	6.54	52464.57	2313.76	0.21
Susquehanna	Middle Reach	141.759	500-yr	398700.00	435.87	474.6		475.33	0.000162	7.15	63618.37	2424.47	0.21
Susquehanna	Middle Reach	141.680	2-yr	121700.00	435.73	456.4		456.82	0.000164	4.91	25375.84	1621.79	0.21
Susquehanna	Middle Reach	141.680	5-yr	167200.00	435.73	460.1		460.57	0.000170	5.54	31636.46	1862.72	0.22
Susquehanna	Middle Reach	141.680	10-yr	199400.00	435.73	462.3		462.83	0.000174	5.93	35866.75	1958.92	0.22
Susquehanna	Middle Reach	141.680	25-yr	242200.00	435.73	464.8		465.39	0.000173	6.44	40909.29	2120.65	0.23
Susquehanna	Middle Reach	141.680	50-yr	275800.00	435.73	467.5		468.11	0.000178	6.55	46791.13	2223.44	0.22
Susquehanna	Middle Reach	141.680	100-yr	310600.00	435.73	469.8		470.45	0.000179	6.76	52023.11	2323.13	0.22
Susquehanna	Middle Reach	141.680	500-yr	398700.00	435.73	474.5		475.26	0.000177	7.38	63306.35	2458.02	0.22
Susquehanna	Middle Reach	141.600	2-yr	121700.00	435.58	456.3	443.97	456.74	0.000187	5.39	23241.38	1477.63	0.22
Susquehanna	Middle Reach	141.600	5-yr	167200.00	435.58	459.9	445.66	460.48	0.000206	6.07	29232.94	1872.03	0.24
Susquehanna	Middle Reach	141.600	10-yr	199400.00	435.58	462.1	446.75	462.74	0.000207	6.48	33494.05	1976.75	0.24
Susquehanna	Middle Reach	141.600	25-yr	242200.00	435.58	464.6	448.10	465.30	0.000205	7.02	38583.57	2153.71	0.25
Susquehanna	Middle Reach	141.600	50-yr	275800.00	435.58	467.3	449.13	468.03	0.000209	7.12	44663.99	2299.76	0.24
Susquehanna	Middle Reach	141.600	100-yr	310600.00	435.58	469.6	450.12	470.36	0.000208	7.31	50117.52	2419.33	0.24
Susquehanna	Middle Reach	141.600	500-yr	398700.00	435.58	474.3	452.58	475.18	0.000202	7.89	61712.05	2539.14	0.24
Susquehanna	Middle Reach	141.523	2-yr	121700.00	435.45	456.2	444.20	456.65	0.000231	5.62	21670.63	1315.54	0.24
Susquehanna	Middle Reach	141.523	5-yr	167200.00	435.45	459.8	445.96	460.39	0.000235	6.31	26644.63	1458.20	0.25
Susquehanna	Middle Reach	141.523	10-yr	199400.00	435.45	461.9	447.07	462.65	0.000248	6.74	30217.38	1874.37	0.26
Susquehanna	Middle Reach	141.523	25-yr	242200.00	435.45	464.4	448.52	465.21	0.000241	7.25	35432.52	2239.03	0.27
Susquehanna	Middle Reach	141.523	50-yr	275800.00	435.45	467.1	449.57	467.94	0.000238	7.28	41783.48	2434.23	0.25
Susquehanna	Middle Reach	141.523	100-yr	310600.00	435.45	469.4	450.62	470.27	0.000231	7.41	47531.37	2600.99	0.25
Susquehanna	Middle Reach	141.523	500-yr	398700.00	435.45	474.2	453.32	475.10	0.000215	7.89	59583.15	2751.47	0.24
Susquehanna	Middle Reach	141.456	2-yr	121700.00	435.34	456.1	444.09	456.58	0.000213	5.69	21606.55	1334.66	0.24
Susquehanna	Middle Reach	141.456	5-yr	167200.00	435.34	459.7	445.84	460.31	0.000245	6.34	27772.38	2050.64	0.26
Susquehanna	Middle Reach	141.456	10-yr	199400.00	435.34	461.9	446.99	462.56	0.000244	6.69	32713.64	2497.44	0.26
Susquehanna	Middle Reach	141.456	25-yr	242200.00	435.34	464.4	448.41	465.11	0.000232	7.14	38944.45	2555.18	0.26
Susquehanna	Middle Reach	141.456	50-yr	275800.00	435.34	467.1	449.48	467.84	0.000227	7.13	46002.23	2901.35	0.25
Susquehanna	Middle Reach	141.456	100-yr	310600.00	435.34	469.4	450.54	470.18	0.000220	7.24	52066.52	3023.13	0.24
Susquehanna	Middle Reach	141.456	500-yr	398700.00	435.34	474.2	453.15	475.01	0.000205	7.73	64507.38	3238.10	0.24
Susquehanna	Middle Reach	141.368	2-yr	121700.00	435.19	455.9		456.47	0.000250	6.19	19657.61	1156.54	0.26
Susquehanna	Middle Reach	141.368	5-yr	167200.00	435.19	459.4		460.18	0.000295	6.99	24654.76	1619.53	0.28
Susquehanna	Middle Reach	141.368	10-yr	199400.00	435.19	461.6		462.43	0.000296	7.45	28366.25	1885.81	0.29
Susquehanna	Middle Reach	141.368	25-yr	242200.00	435.19	464.0		464.98	0.000291	8.05	33224.38	2162.78	0.29
Susquehanna	Middle Reach	141.368	50-yr	275800.00	435.19	466.7		467.70	0.000290	8.09	39519.90	2377.04	0.28
Susquehanna	Middle Reach	141.368	100-yr	310600.00	435.19	469.0		470.04	0.000282	8.25	45110.13	2441.23	0.27
Susquehanna	Middle Reach	141.368	500-yr	398700.00	435.19	473.7		474.87	0.000265	8.82	56774.42	2509.11	0.27
Susquehanna	Middle Reach	141.285	2-yr	121700.00	435.05	455.7		456.35	0.000285	6.41	19053.92	1257.12	0.27
Susquehanna	Middle Reach	141.285	5-yr	167200.00	435.05	459.2		460.05	0.000321	7.19	24103.88	1591.72	0.29
Susquehanna	Middle Reach	141.285	10-yr	199400.00	435.05	461.4		462.29	0.000327	7.63	27731.09	1803.72	0.30
Susquehanna	Middle Reach	141.285	25-yr	242200.00	435.05	463.8		464.84	0.000317	8.22	32626.04	2253.25	0.31
Susquehanna	Middle Reach	141.285	50-yr	275800.00	435.05	466.6		467.57	0.000312	8.23	38925.49	2341.46	0.29
Susquehanna	Middle Reach	141.285	100-yr	310600.00	435.05	468.9		469.92	0.000301	8.37	44411.82	2376.59	0.28
Susquehanna	Middle Reach	141.285	500-yr	398700.00	435.05	473.6		474.76	0.000281	8.93	55749.27	2438.86	0.28
Susquehanna	Middle Reach	141.202	2-yr	121700.00	434.91	455.6		456.23	0.000262	6.24	19876.14	1409.69	0.26
Susquehanna	Middle Reach	141.202	5-yr	167200.00	434.91	459.1		459.91	0.000280	7.04	25307.40	1668.25	0.28
Susquehanna	Middle Reach	141.202	10-yr	199400.00	434.91	461.3		462.16	0.000286	7.55	29152.38	2058.12	0.28
Susquehanna	Middle Reach	141.202	25-yr	242200.00	434.91	463.7		464.71	0.000282	8.16	34409.77	2239.45	0.29
Susquehanna	Middle Reach	141.202	50-yr	275800.00	434.91	466.4		467.44	0.000283	8.22	40613.79	2304.04	0.28
Susquehanna	Middle Reach	141.202	100-yr	310600.00	434.91	468.8		469.79	0.000278	8.40	45980.88	2326.99	0.27
Susquehanna	Middle Reach	141.202	500-yr	398700.00	434.91	473.5		474.64	0.000269	9.06	57114.83	2419.12	0.27
Susquehanna	Middle Reach	141.122	2-yr	121700.00	434.78	455.5		456.12	0.000236	6.08	20284.92	1413.41	0.25
Susquehanna	Middle Reach	141.122	5-yr	167200.00	434.78	459.1		459.80	0.000247	6.91	25708.15	1715.68	0.26
Susquehanna	Middle Reach	141.122	10-yr	199400.00	434.78	461.2		462.04	0.000253	7.41	29832.31	2071.17	0.27
Susquehanna	Middle Reach	141.122	25-yr	242200.00	434.78	463.6		464.59	0.000250	7.98	35021.32	2194.92	0.28
Susquehanna	Middle Reach	141.122	50-yr	275800.00	434.78	466.4		467.32	0.000252	8.02	41144.03	2318.63	0.27
Susquehanna	Middle Reach	141.122	100-yr	310600.00	434.78	468.7		469.67	0.000249	8.19	46683.80	2407.96	0.26
Susquehanna	Middle Reach	141.122	500-yr	398700.00	434.78	473.5		474.50	0.000236	8.72	58236.02	2457.96	0.26
Susquehanna	Middle Reach	141.045	2-yr	121700.00	434.60	455.5		456.03	0.000233	6.09	20195.48	1284.39	0.25
Susquehanna	Middle Reach	141.045	5-yr	167200.00	434.60	459.0		459.70	0.000247	6.95	25429.32	1719.60	0.26
Susquehanna	Middle Reach	141.045	10-yr	199400.00	434.60	461.1		461.94	0.000256	7.46	29484.29	2046.11	0.27
Susquehanna	Middle Reach	141.045	25-yr	242200.00	434.60	463.5		464.49	0.000253	8.04	34552.63	2135.03	0.28
Susquehanna	Middle Reach	141.045	50-yr	275800.00	434.60	466.3		467.22	0.000255	8.08	40500.77	2215.16	0.27
Susquehanna	Middle Reach	141.045	100-yr	310600.00	434.60	468.6		469.57	0.000252	8.25	45805.04	2334.47	0.26
Susquehanna	Middle Reach	141.045	500-yr	398700.00	434.60	473.3		474.41	0.000241	8.82	57244.67	2472.23	0.26
Susquehanna	Middle Reach	140.959	2-yr	121700.00	434.35	455.3	443.68	455.92	0.000236	6.10	20291.05	1360.64	0.25
Susquehanna	Middle Reach	140.959	5-yr	167200.00	434.35	458.9	445.53	459.59	0.000251	6.93	25761.84	1793.86	0.27
Susquehanna	Middle Reach	140.959	10-yr	199400.00	434.35	461.0	446.73	461.82	0.000258	7.43	29922.24	2043.51	0.27
Susquehanna	Middle Reach	140.959	25-yr	242200.00	434.35	463.4	448.21	464.37	0.000254	7.98	35111.23	2197.29	0.28
Susquehanna	Middle Reach	140.959	50-yr	275800.00	434.35	466.2	449.33	467.10	0.000254	8.00	41319.44	2344.94	0.27
Susquehanna	Middle Reach	140.959	100-yr	310600.00	434.35	468.5	450.42	469.45	0.000248	8.14	47005.64	2513.33	0.26
Susquehanna	Middle Reach	140.959	500-yr	398700.00	434.35	473.3	453.07	474.29	0.000234	8.66	58854.71	2772.50	0.26
Susquehanna	Middle Reach	140.878 Little Roaring	2-yr	121700.00	434.14	455.3	445.29	455.82	0.000271	6.15	21475.36	2008.74	0.26
Susquehanna	Middle Reach	140.878 Little Roaring	5-yr	167300.00	434.14	458.8	447.16	459.47	0.000266	6.86	27645.76	2466.85	0.27
Susquehanna	Middle Reach	140.878 Little Roaring	10-yr	199400.00	434.14	460.9	448.30	461.70	0.000263	7.27	32317.39	2732.99	0.27
Susquehanna	Middle Reach	140.878 Little Roaring	25-yr	242300.00	434.14	463.4	449.67	464.24	0.000253	7.76	37957.95	2802.86	0.28
Susquehanna	Middle Reach	140.878 Little Roaring	50-yr	275800.00	434.14	466.1	450.66	466.97	0.000249	7.72	44405.72	2829.60	0.26
Susquehanna	Middle Reach	140.878 Little Roaring	100-yr	310700.00	434.14	468.5	451.66	469.32	0.000241	7.84	49956.30	2864.33	0.25
Susquehanna	Middle Reach	140.878 Little Roaring	500-yr	398800.00	434.14	473.2	454.10	474.17	0.000226	8.34	61681.79	2977.90	0.25
Susquehanna	Middle Reach	140.810	2-yr	121700.00	433.96	455.1		455.71	0.000279	6.43	19393.39	1419.81	0.27
Susquehanna	Middle Reach	140.810	5-yr	167300.00	433.96	458.6		459.36	0.000287	7.26	24621.13	1664.43	0.28
Susquehanna	Middle Reach	140.810	10-yr	199400.00	433.96	460.7		461.58	0.000292	7.78	28570.05	2077.51	0.29
Susquehanna	Middle Reach	140.810	25-yr	242300.00	433.96	463.1		464.13	0.000284	8.34	33848.24	2243.98	0.29
Susquehanna	Middle Reach	140.810	50-yr	275800.00	433.96	465.8		466.85	0.000282	8.34	40162.30	2357.43	0.28
Susquehanna	Middle Reach	140.810	100-yr	310700.00	433.96	468.2		469.21	0.000273	8.46	45745.43	2410.94	0.27
Susquehanna	Middle Reach	140.810	500-yr	398800.00	433.96	473.0		474.06	0.000254	8.95	57678.98	2539.36	0.27

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	140.732	2-yr	121700.00	433.75	454.9		455.59	0.000286	6.55	18853.84	1227.44	0.27
Susquehanna	Middle Reach	140.732	5-yr	167300.00	433.75	458.4		459.23	0.000302	7.42	24200.92	1894.78	0.29
Susquehanna	Middle Reach	140.732	10-yr	199400.00	433.75	460.5		461.45	0.000301	7.91	28349.10	2128.08	0.29
Susquehanna	Middle Reach	140.732	25-yr	242300.00	433.75	462.9		464.00	0.000292	8.49	33779.11	2323.39	0.30
Susquehanna	Middle Reach	140.732	50-yr	275800.00	433.75	465.7		466.73	0.000288	8.46	40294.78	2386.92	0.28
Susquehanna	Middle Reach	140.732	100-yr	310700.00	433.75	468.0		469.09	0.000280	8.58	45944.98	2425.31	0.28
Susquehanna	Middle Reach	140.732	500-yr	398800.00	433.75	472.8		473.95	0.000261	9.10	57631.97	2501.64	0.27
Susquehanna	Middle Reach	140.662	2-yr	121700.00	433.31	454.9		455.47	0.000253	6.26	19662.64	1245.85	0.26
Susquehanna	Middle Reach	140.662	5-yr	167300.00	433.31	458.3		459.10	0.000292	7.12	24702.12	1797.97	0.28
Susquehanna	Middle Reach	140.662	10-yr	199400.00	433.31	460.4		461.32	0.000294	7.55	28926.45	2113.60	0.29
Susquehanna	Middle Reach	140.662	25-yr	242300.00	433.31	462.9		463.87	0.000283	8.08	34301.18	2273.52	0.29
Susquehanna	Middle Reach	140.662	50-yr	275800.00	433.31	465.7		466.60	0.000277	8.04	40706.41	2352.74	0.27
Susquehanna	Middle Reach	140.662	100-yr	310700.00	433.31	468.0		468.96	0.000267	8.14	46293.75	2390.02	0.27
Susquehanna	Middle Reach	140.662	500-yr	398800.00	433.31	472.8		473.83	0.000247	8.63	57815.77	2455.64	0.26
Susquehanna	Middle Reach	140.588	2-yr	121700.00	433.07	454.8		455.35	0.000228	5.85	21516.75	1469.94	0.25
Susquehanna	Middle Reach	140.588	5-yr	167300.00	433.07	458.3		458.96	0.000250	6.57	27564.24	1862.98	0.26
Susquehanna	Middle Reach	140.588	10-yr	199400.00	433.07	460.4		461.17	0.000249	6.99	31613.35	1961.75	0.27
Susquehanna	Middle Reach	140.588	25-yr	242300.00	433.07	462.9		463.73	0.000244	7.54	36760.16	2205.58	0.27
Susquehanna	Middle Reach	140.588	50-yr	275800.00	433.07	465.6		466.47	0.000243	7.57	42979.84	2306.56	0.26
Susquehanna	Middle Reach	140.588	100-yr	310700.00	433.07	468.0		468.84	0.000238	7.73	48465.49	2359.55	0.25
Susquehanna	Middle Reach	140.588	500-yr	398800.00	433.07	472.7		473.71	0.000226	8.29	59979.39	2458.79	0.25
Susquehanna	Middle Reach	140.513	2-yr	121700.00	435.73	454.7		455.25	0.000292	6.08	20020.96	1300.74	0.27
Susquehanna	Middle Reach	140.513	5-yr	167300.00	435.73	458.1		458.85	0.000292	6.77	25703.68	1914.99	0.28
Susquehanna	Middle Reach	140.513	10-yr	199400.00	435.73	460.3		461.06	0.000286	7.15	30025.46	2108.13	0.28
Susquehanna	Middle Reach	140.513	25-yr	242300.00	435.73	462.7		463.62	0.000271	7.63	35325.03	2206.07	0.28
Susquehanna	Middle Reach	140.513	50-yr	275800.00	435.73	465.5		466.36	0.000264	7.61	41575.71	2326.67	0.27
Susquehanna	Middle Reach	140.513	100-yr	310700.00	435.73	467.9		468.74	0.000255	7.73	47161.48	2391.30	0.26
Susquehanna	Middle Reach	140.513	500-yr	398800.00	435.73	472.6		473.62	0.000236	8.23	58807.37	2511.49	0.25
Susquehanna	Middle Reach	140.440	2-yr	121700.00	435.59	454.6		455.11	0.000234	5.51	22077.59	1406.29	0.24
Susquehanna	Middle Reach	140.440	5-yr	167300.00	435.59	458.1		458.71	0.000229	6.16	28277.66	1955.34	0.25
Susquehanna	Middle Reach	140.440	10-yr	199400.00	435.59	460.3		460.92	0.000226	6.54	32623.61	2091.78	0.25
Susquehanna	Middle Reach	140.440	25-yr	242300.00	435.59	462.7		463.48	0.000218	7.01	37905.24	2177.37	0.26
Susquehanna	Middle Reach	140.440	50-yr	275800.00	435.59	465.5		466.23	0.000216	7.02	44110.59	2307.90	0.24
Susquehanna	Middle Reach	140.440	100-yr	310700.00	435.59	467.9		468.61	0.000211	7.16	49636.16	2381.05	0.24
Susquehanna	Middle Reach	140.440	500-yr	398800.00	435.59	472.7		473.50	0.000199	7.67	61291.63	2492.22	0.23
Susquehanna	Middle Reach	140.361	2-yr	121700.00	435.47	454.6		455.01	0.000212	5.33	22890.33	1596.48	0.23
Susquehanna	Middle Reach	140.361	5-yr	167300.00	435.47	458.1		458.61	0.000210	5.98	29101.27	1895.92	0.24
Susquehanna	Middle Reach	140.361	10-yr	199400.00	435.47	460.2		460.82	0.000208	6.36	33329.29	2027.63	0.24
Susquehanna	Middle Reach	140.361	25-yr	242300.00	435.47	462.7		463.39	0.000202	6.84	38470.21	2118.80	0.25
Susquehanna	Middle Reach	140.361	50-yr	275800.00	435.47	465.4		466.13	0.000202	6.89	44441.78	2210.13	0.24
Susquehanna	Middle Reach	140.361	100-yr	310700.00	435.47	467.8		468.52	0.000199	7.05	49726.82	2292.87	0.23
Susquehanna	Middle Reach	140.361	500-yr	398800.00	435.47	472.6		473.41	0.000190	7.60	61076.00	2449.14	0.23
Susquehanna	Middle Reach	140.285	2-yr	121700.00	435.28	454.6		454.91	0.000149	4.65	26417.34	1861.08	0.20
Susquehanna	Middle Reach	140.285	5-yr	167300.00	435.28	458.1		458.49	0.000153	5.26	33168.13	1995.14	0.21
Susquehanna	Middle Reach	140.285	10-yr	199400.00	435.28	460.2		460.71	0.000154	5.62	37549.38	2074.73	0.21
Susquehanna	Middle Reach	140.285	25-yr	242300.00	435.28	462.7		463.27	0.000152	6.09	42855.54	2190.92	0.22
Susquehanna	Middle Reach	140.285	50-yr	275800.00	435.28	465.5		466.02	0.000156	6.17	49020.69	2305.04	0.21
Susquehanna	Middle Reach	140.285	100-yr	310700.00	435.28	467.8		468.40	0.000155	6.34	54567.04	2397.94	0.20
Susquehanna	Middle Reach	140.285	500-yr	398800.00	435.28	472.6		473.30	0.000151	6.87	66357.78	2498.85	0.21
Susquehanna	Middle Reach	140.215	2-yr	121700.00	434.49	454.6		454.84	0.000106	4.08	30025.02	1872.86	0.17
Susquehanna	Middle Reach	140.215	5-yr	167300.00	434.49	458.1		458.42	0.000112	4.67	36967.13	2032.14	0.18
Susquehanna	Middle Reach	140.215	10-yr	199400.00	434.49	460.2		460.63	0.000116	5.03	41401.81	2077.68	0.18
Susquehanna	Middle Reach	140.215	25-yr	242300.00	434.49	462.7		463.19	0.000117	5.48	46686.50	2165.21	0.19
Susquehanna	Middle Reach	140.215	50-yr	275800.00	434.49	465.5		465.94	0.000122	5.60	52747.88	2272.98	0.18
Susquehanna	Middle Reach	140.215	100-yr	310700.00	434.49	467.8		468.32	0.000123	5.78	58252.06	2396.81	0.18
Susquehanna	Middle Reach	140.215	500-yr	398800.00	434.49	472.6		473.22	0.000123	6.33	70103.02	2516.20	0.19
Susquehanna	Middle Reach	140.126	2-yr	121700.00	435.23	454.4		454.76	0.000169	4.70	26195.66	1907.22	0.21
Susquehanna	Middle Reach	140.126	5-yr	167300.00	435.23	457.9		458.35	0.000165	5.22	33025.65	1978.94	0.21
Susquehanna	Middle Reach	140.126	10-yr	199400.00	435.23	460.1		460.55	0.000164	5.55	37351.13	2028.08	0.22
Susquehanna	Middle Reach	140.126	25-yr	242300.00	435.23	462.6		463.12	0.000161	5.98	42467.96	2091.91	0.22
Susquehanna	Middle Reach	140.126	50-yr	275800.00	435.23	465.3		465.86	0.000164	6.05	48456.05	2279.46	0.21
Susquehanna	Middle Reach	140.126	100-yr	310700.00	435.23	467.7		468.25	0.000163	6.21	53951.08	2369.77	0.21
Susquehanna	Middle Reach	140.126	500-yr	398800.00	435.23	472.5		473.14	0.000158	6.72	65660.24	2476.12	0.21
Susquehanna	Middle Reach	140.038	2-yr	121700.00	434.62	454.2		454.65	0.000287	5.63	21623.66	1535.08	0.26
Susquehanna	Middle Reach	140.038	5-yr	167300.00	434.62	457.6		458.23	0.000280	6.13	27306.48	1712.41	0.27
Susquehanna	Middle Reach	140.038	10-yr	199400.00	434.62	459.8		460.44	0.000267	6.35	31460.51	1959.06	0.28
Susquehanna	Middle Reach	140.038	25-yr	242300.00	434.62	462.3		463.01	0.000249	6.67	36441.41	2055.15	0.27
Susquehanna	Middle Reach	140.038	50-yr	275800.00	434.62	465.1		465.76	0.000240	6.60	42360.04	2181.38	0.25
Susquehanna	Middle Reach	140.038	100-yr	310700.00	434.62	467.5		468.15	0.000229	6.67	47709.88	2311.27	0.24
Susquehanna	Middle Reach	140.038	500-yr	398800.00	434.62	472.3		473.05	0.000208	7.05	59128.06	2411.92	0.23
Susquehanna	Middle Reach	139.965	2-yr	121700.00	434.95	454.0		454.53	0.000282	5.60	21739.58	1537.34	0.26
Susquehanna	Middle Reach	139.965	5-yr	167300.00	434.95	457.5		458.12	0.000277	6.11	27388.75	1687.60	0.27
Susquehanna	Middle Reach	139.965	10-yr	199400.00	434.95	459.7		460.34	0.000262	6.33	31535.87	1944.38	0.28
Susquehanna	Middle Reach	139.965	25-yr	242300.00	434.95	462.2		462.91	0.000245	6.67	36436.25	1968.28	0.27
Susquehanna	Middle Reach	139.965	50-yr	275800.00	434.95	465.0		465.67	0.000238	6.61	42234.96	2190.21	0.25
Susquehanna	Middle Reach	139.965	100-yr	310700.00	434.95	467.4		468.06	0.000228	6.69	47558.97	2300.01	0.24
Susquehanna	Middle Reach	139.965	500-yr	398800.00	434.95	472.2		472.97	0.000209	7.09	58952.41	2406.37	0.23
Susquehanna	Middle Reach	139.870	2-yr	121700.00	434.82	453.9		454.40	0.000226	5.45	22323.06	1501.36	0.25
Susquehanna	Middle Reach	139.870	5-yr	167300.00	434.82	457.4		457.98	0.000227	5.95	28121.57	1868.44	0.27
Susquehanna	Middle Reach	139.870	10-yr	199400.00	434.82	459.6		460.21	0.000225	6.20	32212.68	1891.31	0.26
Susquehanna	Middle Reach	139.870	25-yr	242300.00	434.82	462.1		462.79	0.000220	6.58	37006.50	1952.37	0.26
Susquehanna	Middle Reach	139.870	50-yr	275800.00	434.82	464.9		465.55	0.000223	6.55	42601.73	2099.09	0.24
Susquehanna	Middle Reach	139.870	100-yr	310700.00	434.82	467.3		467.94	0.000219	6.65	47769.21	2238.40	0.24
Susquehanna	Middle Reach	139.870	500-yr	398800.00	434.82	472.1		472.86	0.000208	7.08	58905.88	2363.71	0.23
Susquehanna	Middle Reach	139.774	2-yr	121700.00	435.34	453.9		454.27	0.000205	5.08	23940.98	1536.38	0.23
Susquehanna	Middle Reach	139.774	5-yr	167300.00	435.34	457.4		457.86	0.000201	5.66	29563.61	1818.15	0.25
Susquehanna	Middle Reach	139.774	10-yr	199400.00	435.34	459.5		460.08	0.000199	5.96	33535.40	1838.57	0.24
Susquehanna	Middle Reach	139.774	25-yr	242300.00	435.34	462.0		462.67	0.000195	6.37	38165.68	1872.10	0.25

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	139.774	50-yr	275800.00	435.34	464.8		465.43	0.000197	6.39	43597.97	2079.84	0.23
Susquehanna	Middle Reach	139.774	100-yr	310700.00	435.34	467.2		467.83	0.000195	6.53	48653.62	2179.70	0.23
Susquehanna	Middle Reach	139.774	500-yr	398800.00	435.34	472.0		472.76	0.000186	7.01	59520.44	2303.00	0.22
Susquehanna	Middle Reach	139.696	2-yr	121700.00	435.12	453.7		454.18	0.000226	5.32	22878.10	1516.11	0.24
Susquehanna	Middle Reach	139.696	5-yr	167300.00	435.12	457.3		457.77	0.000217	5.76	29069.64	1803.72	0.25
Susquehanna	Middle Reach	139.696	10-yr	199400.00	435.12	459.4		459.99	0.000215	6.06	33009.42	1828.53	0.25
Susquehanna	Middle Reach	139.696	25-yr	242300.00	435.12	461.9		462.58	0.000211	6.46	37639.17	1872.15	0.25
Susquehanna	Middle Reach	139.696	50-yr	275800.00	435.12	464.7		465.34	0.000214	6.48	42972.56	2023.91	0.24
Susquehanna	Middle Reach	139.696	100-yr	310700.00	435.12	467.1		467.74	0.000210	6.61	48034.32	2205.44	0.23
Susquehanna	Middle Reach	139.696	500-yr	398800.00	435.12	471.9		472.67	0.000199	7.07	58983.02	2314.36	0.23
Susquehanna	Middle Reach	139.611	2-yr	121700.00	436.03	453.7		454.06	0.000174	4.68	25996.81	1681.30	0.21
Susquehanna	Middle Reach	139.611	5-yr	167300.00	436.03	457.2		457.65	0.000171	5.23	32013.64	1745.87	0.21
Susquehanna	Middle Reach	139.611	10-yr	199400.00	436.03	459.4		459.88	0.000170	5.58	35835.55	1776.27	0.22
Susquehanna	Middle Reach	139.611	25-yr	242300.00	436.03	461.9		462.47	0.000169	6.03	40392.29	1851.26	0.22
Susquehanna	Middle Reach	139.611	50-yr	275800.00	436.03	464.7		465.23	0.000171	6.11	45967.06	2179.06	0.21
Susquehanna	Middle Reach	139.611	100-yr	310700.00	436.03	467.0		467.64	0.000168	6.27	51317.46	2309.12	0.21
Susquehanna	Middle Reach	139.611	500-yr	398800.00	436.03	471.9		472.57	0.000159	6.77	62755.66	2402.20	0.21
Susquehanna	Middle Reach	139.547	2-yr	121700.00	436.11	453.6		453.98	0.000222	5.08	23982.29	1657.76	0.23
Susquehanna	Middle Reach	139.547	5-yr	167300.00	436.11	457.1		457.58	0.000209	5.62	29889.38	1702.13	0.23
Susquehanna	Middle Reach	139.547	10-yr	199400.00	436.11	459.3		459.81	0.000204	5.96	33603.71	1740.29	0.24
Susquehanna	Middle Reach	139.547	25-yr	242300.00	436.11	461.8		462.40	0.000197	6.42	38048.54	1809.56	0.24
Susquehanna	Middle Reach	139.547	50-yr	275800.00	436.11	464.5		465.16	0.000198	6.49	43363.11	2122.80	0.23
Susquehanna	Middle Reach	139.547	100-yr	310700.00	436.11	466.9		467.57	0.000193	6.65	48557.10	2250.68	0.22
Susquehanna	Middle Reach	139.547	500-yr	398800.00	436.11	471.7		472.51	0.000182	7.16	59916.45	2410.03	0.22
Susquehanna	Middle Reach	139.479	2-yr	121700.00	435.02	453.4		453.89	0.000253	5.40	22544.49	1597.95	0.25
Susquehanna	Middle Reach	139.479	5-yr	167300.00	435.02	456.9		457.50	0.000240	5.93	28263.58	1670.59	0.25
Susquehanna	Middle Reach	139.479	10-yr	199400.00	435.02	459.1		459.73	0.000235	6.27	31929.92	1703.31	0.25
Susquehanna	Middle Reach	139.479	25-yr	242300.00	435.02	461.6		462.32	0.000225	6.73	36252.02	1785.78	0.26
Susquehanna	Middle Reach	139.479	50-yr	275800.00	435.02	464.4		465.08	0.000224	6.78	41468.37	1983.34	0.24
Susquehanna	Middle Reach	139.479	100-yr	310700.00	435.02	466.7		467.49	0.000218	6.93	46330.11	2125.85	0.24
Susquehanna	Middle Reach	139.479	500-yr	398800.00	435.02	471.6		472.43	0.000205	7.44	57429.54	2392.29	0.23
Susquehanna	Middle Reach	139.392	2-yr	121700.00	433.80	453.3	443.18	453.78	0.000232	5.40	22530.31	1472.56	0.24
Susquehanna	Middle Reach	139.392	5-yr	167300.00	433.80	456.8	444.71	457.38	0.000234	5.98	28090.88	1703.97	0.25
Susquehanna	Middle Reach	139.392	10-yr	199400.00	433.80	459.0	445.70	459.62	0.000229	6.33	31851.48	1753.64	0.25
Susquehanna	Middle Reach	139.392	25-yr	242300.00	433.80	461.5	446.95	462.21	0.000221	6.81	36294.04	1822.17	0.26
Susquehanna	Middle Reach	139.392	50-yr	275800.00	433.80	464.2	447.87	464.97	0.000221	6.86	41443.70	1937.38	0.24
Susquehanna	Middle Reach	139.392	100-yr	310700.00	433.80	466.6	448.79	467.38	0.000216	7.03	46144.53	2023.06	0.24
Susquehanna	Middle Reach	139.392	500-yr	398800.00	433.80	471.5	450.96	472.33	0.000206	7.58	56566.65	2402.69	0.24
Susquehanna	Middle Reach	139.326	2-yr	121700.00	433.61	453.2		453.69	0.000270	5.67	21477.71	1450.03	0.26
Susquehanna	Middle Reach	139.326	5-yr	167300.00	433.61	456.7		457.29	0.000259	6.29	26644.21	1531.59	0.26
Susquehanna	Middle Reach	139.326	10-yr	199400.00	433.61	458.8		459.52	0.000255	6.68	30036.47	1630.95	0.26
Susquehanna	Middle Reach	139.326	25-yr	242300.00	433.61	461.3		462.12	0.000247	7.20	34168.04	1697.34	0.27
Susquehanna	Middle Reach	139.326	50-yr	275800.00	433.61	464.1		464.88	0.000247	7.27	39230.07	1905.71	0.26
Susquehanna	Middle Reach	139.326	100-yr	310700.00	433.61	466.4		467.29	0.000241	7.45	43896.26	2010.11	0.25
Susquehanna	Middle Reach	139.326	500-yr	398800.00	433.61	471.3		472.24	0.000229	8.05	54136.95	2260.63	0.25
Susquehanna	Middle Reach	139.245	2-yr	121700.00	434.15	452.9		453.54	0.000343	6.30	19317.45	1332.88	0.29
Susquehanna	Middle Reach	139.245	5-yr	167300.00	434.15	456.4		457.15	0.000337	6.96	24051.24	1409.39	0.30
Susquehanna	Middle Reach	139.245	10-yr	199400.00	434.15	458.5		459.38	0.000330	7.36	27099.86	1438.19	0.30
Susquehanna	Middle Reach	139.245	25-yr	242300.00	434.15	461.0		461.98	0.000317	7.90	30756.51	1554.35	0.30
Susquehanna	Middle Reach	139.245	50-yr	275800.00	434.15	463.8		464.75	0.000311	7.94	35296.41	1806.96	0.29
Susquehanna	Middle Reach	139.245	100-yr	310700.00	434.15	466.1		467.16	0.000300	8.10	39829.96	1948.74	0.28
Susquehanna	Middle Reach	139.245	500-yr	398800.00	434.15	471.0		472.12	0.000279	8.69	49693.32	2207.26	0.28
Susquehanna	Middle Reach	139.168	2-yr	121700.00	433.44	452.9		453.39	0.000277	5.90	20698.04	1447.07	0.26
Susquehanna	Middle Reach	139.168	5-yr	167300.00	433.44	456.3		457.00	0.000272	6.56	26212.31	1676.84	0.27
Susquehanna	Middle Reach	139.168	10-yr	199400.00	433.44	458.5		459.23	0.000267	6.95	29895.82	1729.30	0.27
Susquehanna	Middle Reach	139.168	25-yr	242300.00	433.44	461.0		461.83	0.000258	7.47	34314.81	1824.30	0.28
Susquehanna	Middle Reach	139.168	50-yr	275800.00	433.44	463.7		464.59	0.000256	7.51	39520.23	1938.10	0.26
Susquehanna	Middle Reach	139.168	100-yr	310700.00	433.44	466.1		467.01	0.000249	7.67	44200.91	1973.65	0.26
Susquehanna	Middle Reach	139.168	500-yr	398800.00	433.44	471.0		471.97	0.000235	8.25	54146.61	2140.54	0.25
Susquehanna	Middle Reach	139.111	2-yr	121700.00	433.53	452.8		453.30	0.000243	5.68	21435.91	1331.14	0.25
Susquehanna	Middle Reach	139.111	5-yr	167300.00	433.53	456.3		456.91	0.000247	6.38	26679.63	1700.83	0.26
Susquehanna	Middle Reach	139.111	10-yr	199400.00	433.53	458.4		459.14	0.000245	6.81	30395.39	1766.18	0.26
Susquehanna	Middle Reach	139.111	25-yr	242300.00	433.53	460.9		461.74	0.000239	7.35	34907.99	1853.20	0.27
Susquehanna	Middle Reach	139.111	50-yr	275800.00	433.53	463.7		464.51	0.000240	7.42	40197.89	1983.56	0.26
Susquehanna	Middle Reach	139.111	100-yr	310700.00	433.53	466.1		466.93	0.000236	7.60	44974.05	2019.95	0.25
Susquehanna	Middle Reach	139.111	500-yr	398800.00	433.53	470.9		471.90	0.000226	8.21	55148.98	2217.73	0.25
Susquehanna	Middle Reach	139.058	2-yr	121700.00	433.47	452.7		453.23	0.000241	5.61	21732.56	1486.37	0.25
Susquehanna	Middle Reach	139.058	5-yr	167300.00	433.47	456.2		456.83	0.000239	6.27	27558.00	1739.31	0.25
Susquehanna	Middle Reach	139.058	10-yr	199400.00	433.47	458.4		459.07	0.000236	6.66	31337.89	1794.57	0.26
Susquehanna	Middle Reach	139.058	25-yr	242300.00	433.47	460.9		461.67	0.000230	7.17	35926.16	1879.72	0.26
Susquehanna	Middle Reach	139.058	50-yr	275800.00	433.47	463.6		464.43	0.000230	7.23	41239.17	1962.52	0.25
Susquehanna	Middle Reach	139.058	100-yr	310700.00	433.47	466.0		466.85	0.000225	7.40	46047.46	2046.93	0.24
Susquehanna	Middle Reach	139.058	500-yr	398800.00	433.47	470.9		471.81	0.000215	7.99	56402.26	2280.34	0.24
Susquehanna	Middle Reach	139.009	2-yr	121700.00	433.92	452.6	442.67	453.16	0.000280	5.83	20918.88	1463.81	0.26
Susquehanna	Middle Reach	139.009	5-yr	167300.00	433.92	456.1	444.30	456.76	0.000277	6.40	26707.44	1718.58	0.27
Susquehanna	Middle Reach	139.009	10-yr	199400.00	433.92	458.3	445.36	459.00	0.000266	6.75	30472.12	1769.89	0.27
Susquehanna	Middle Reach	139.009	25-yr	242300.00	433.92	460.8	446.68	461.60	0.000253	7.22	34982.17	1849.45	0.27
Susquehanna	Middle Reach	139.009	50-yr	275800.00	433.92	463.6	447.67	464.37	0.000248	7.24	40252.42	1951.03	0.26
Susquehanna	Middle Reach	139.009	100-yr	310700.00	433.92	466.0	448.68	466.79	0.000240	7.38	44989.93	2008.86	0.25
Susquehanna	Middle Reach	139.009	500-yr	398800.00	433.92	470.8	451.15	471.76	0.000224	7.93	55551.25	2736.09	0.25
Susquehanna	Middle Reach	138.960 Logan Run	2-yr	121700.00	433.88	452.6	443.66	453.06	0.000260	5.52	26414.40	2545.59	0.25
Susquehanna	Middle Reach	138.960 Logan Run	5-yr	167300.00	433.88	456.1	445.23	456.66	0.000229	5.97	34874.85	2788.08	0.25
Susquehanna	Middle Reach	138.960 Logan Run	10-yr	199500.00	433.88	458.3	446.35	458.89	0.000219	6.28	40187.86	2868.82	0.24
Susquehanna	Middle Reach	138.960 Logan Run	25-yr	242400.00	433.88	460.9	447.49	461.49	0.000206	6.69	46449.23	3055.29	0.25
Susquehanna	Middle Reach	138.960 Logan Run	50-yr	275900.00	433.88	463.6	448.47	464.26	0.000203	6.70	53356.93	3436.71	0.23
Susquehanna	Middle Reach	138.960 Logan Run	100-yr	310800.00	433.88	466.0	449.37	466.68	0.000196	6.83	59354.93	3814.72	0.23
Susquehanna	Middle Reach	138.960 Logan Run	500-yr	398900.00	433.88	470.9	451.35	471.64	0.000186	7.34	71609.15	4132.19	0.23
Susquehanna	Middle Reach	138.883	2-yr	121700.00	433.81	452.2		452.90	0.000444	6.85	17955.48	1462.58	0.33

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	138.883	5-yr	167300.00	433.81	455.6		456.50	0.000391	7.45	23203.67	1529.09	0.32
Susquehanna	Middle Reach	138.883	10-yr	199500.00	433.81	457.8		458.74	0.000374	7.84	26538.95	1642.97	0.32
Susquehanna	Middle Reach	138.883	25-yr	242400.00	433.81	460.3		461.34	0.000352	8.36	30886.46	1814.54	0.32
Susquehanna	Middle Reach	138.883	50-yr	275900.00	433.81	463.1		464.11	0.000339	8.33	36108.47	1929.02	0.30
Susquehanna	Middle Reach	138.883	100-yr	310800.00	433.81	465.5		466.53	0.000323	8.45	40863.58	2025.18	0.29
Susquehanna	Middle Reach	138.883	500-yr	398900.00	433.81	470.3		471.50	0.000296	8.99	51262.79	2295.76	0.28
Susquehanna	Middle Reach	138.804	2-yr	121700.00	433.56	452.0		452.71	0.000415	6.78	18033.55	1373.62	0.32
Susquehanna	Middle Reach	138.804	5-yr	167300.00	433.56	455.5		456.34	0.000382	7.40	23100.96	1492.31	0.32
Susquehanna	Middle Reach	138.804	10-yr	199500.00	433.56	457.6		458.58	0.000366	7.81	26615.32	1716.25	0.31
Susquehanna	Middle Reach	138.804	25-yr	242400.00	433.56	460.1		461.19	0.000345	8.34	30971.16	1790.00	0.32
Susquehanna	Middle Reach	138.804	50-yr	275900.00	433.56	462.9		463.96	0.000334	8.32	36083.97	1867.90	0.30
Susquehanna	Middle Reach	138.804	100-yr	310800.00	433.56	465.3		466.39	0.000321	8.46	40669.32	1962.63	0.29
Susquehanna	Middle Reach	138.804	500-yr	398900.00	433.56	470.2		471.37	0.000296	9.04	50662.67	2183.92	0.28
Susquehanna	Middle Reach	138.720	2-yr	121700.00	432.95	451.9		452.51	0.000306	6.10	20120.20	1459.56	0.28
Susquehanna	Middle Reach	138.720	5-yr	167300.00	432.95	455.4		456.14	0.000305	6.74	25536.08	1675.24	0.28
Susquehanna	Middle Reach	138.720	10-yr	199500.00	432.95	457.6		458.39	0.000293	7.12	29320.74	1796.44	0.28
Susquehanna	Middle Reach	138.720	25-yr	242400.00	432.95	460.1		461.00	0.000279	7.62	33904.39	1867.03	0.29
Susquehanna	Middle Reach	138.720	50-yr	275900.00	432.95	462.9		463.78	0.000273	7.64	39250.38	1956.07	0.27
Susquehanna	Middle Reach	138.720	100-yr	310800.00	432.95	465.3		466.22	0.000264	7.79	44039.80	2044.04	0.26
Susquehanna	Middle Reach	138.720	500-yr	398900.00	432.95	470.2		471.20	0.000247	8.35	54519.34	2247.10	0.26
Susquehanna	Middle Reach	138.645	2-yr	121700.00	432.80	451.9	441.68	452.38	0.000274	5.82	21389.84	1616.81	0.26
Susquehanna	Middle Reach	138.645	5-yr	167300.00	432.80	455.4	443.33	456.01	0.000271	6.41	27625.08	1992.99	0.27
Susquehanna	Middle Reach	138.645	10-yr	199500.00	432.80	457.6	444.40	458.25	0.000261	6.77	31822.00	2039.79	0.27
Susquehanna	Middle Reach	138.645	25-yr	242400.00	432.80	460.1	445.75	460.86	0.000246	7.23	37461.34	2101.10	0.27
Susquehanna	Middle Reach	138.645	50-yr	275900.00	432.80	462.9	446.73	463.65	0.000243	7.25	43436.66	2189.84	0.26
Susquehanna	Middle Reach	138.645	100-yr	310800.00	432.80	465.3	447.74	466.09	0.000235	7.41	48819.47	2269.99	0.25
Susquehanna	Middle Reach	138.645	500-yr	398900.00	432.80	470.1	450.36	471.07	0.000221	7.96	60492.84	2495.39	0.25
Susquehanna	Middle Reach	138.586	2-yr	121700.00	432.83	451.8	441.76	452.28	0.000259	5.44	22367.48	1626.18	0.25
Susquehanna	Middle Reach	138.586	5-yr	167300.00	432.83	455.3	443.37	455.91	0.000243	5.99	27930.37	1841.25	0.25
Susquehanna	Middle Reach	138.586	10-yr	199500.00	432.83	457.5	444.41	458.15	0.000237	6.34	31513.23	1984.65	0.25
Susquehanna	Middle Reach	138.586	25-yr	242400.00	432.83	460.1	445.71	460.76	0.000222	6.74	38041.72	2108.31	0.25
Susquehanna	Middle Reach	138.586	50-yr	275900.00	432.83	462.9	446.71	463.55	0.000217	6.76	44005.50	2175.94	0.24
Susquehanna	Middle Reach	138.586	100-yr	310800.00	432.83	465.3	447.68	465.99	0.000209	6.89	49310.07	2310.49	0.23
Susquehanna	Middle Reach	138.586	500-yr	398900.00	432.83	470.2	450.01	470.97	0.000195	7.39	60803.51	2619.58	0.23
Susquehanna	Middle Reach	138.528	2-yr	121700.00	432.75	451.7	441.62	452.19	0.000269	5.63	21601.56	1466.01	0.26
Susquehanna	Middle Reach	138.528	5-yr	167300.00	432.75	455.2	443.22	455.82	0.000254	6.24	26813.00	1493.22	0.26
Susquehanna	Middle Reach	138.528	10-yr	199500.00	432.75	457.4	444.24	458.07	0.000250	6.64	30065.49	1508.88	0.26
Susquehanna	Middle Reach	138.528	25-yr	242400.00	432.75	459.9	445.56	460.68	0.000245	7.16	33870.54	1550.17	0.27
Susquehanna	Middle Reach	138.528	50-yr	275900.00	432.75	462.7	446.51	463.48	0.000230	7.00	42401.81	2234.09	0.25
Susquehanna	Middle Reach	138.528	100-yr	310800.00	432.75	465.2	447.46	465.92	0.000220	7.12	47553.70	2352.35	0.24
Susquehanna	Middle Reach	138.528	500-yr	398900.00	432.75	470.1	449.72	470.91	0.000205	7.62	58347.95	2501.19	0.24
Susquehanna	Middle Reach	138.463	2-yr	121700.00	433.11	451.6	441.18	452.09	0.000226	5.35	22751.81	1465.46	0.24
Susquehanna	Middle Reach	138.463	5-yr	167300.00	433.11	455.2	442.71	455.73	0.000223	5.97	28016.85	1512.07	0.24
Susquehanna	Middle Reach	138.463	10-yr	199500.00	433.11	457.3	443.72	457.97	0.000222	6.37	31316.05	1529.07	0.25
Susquehanna	Middle Reach	138.463	25-yr	242400.00	433.11	459.9	444.97	460.57	0.000205	6.69	39074.19	2264.38	0.25
Susquehanna	Middle Reach	138.463	50-yr	275900.00	433.11	462.7	445.89	463.38	0.000202	6.69	45074.20	2370.69	0.23
Susquehanna	Middle Reach	138.463	100-yr	310800.00	433.11	465.1	446.82	465.83	0.000195	6.82	50339.87	2416.98	0.23
Susquehanna	Middle Reach	138.463	500-yr	398900.00	433.11	470.0	449.02	470.82	0.000183	7.32	61288.45	2500.23	0.23
Susquehanna	Middle Reach	138.400	2-yr	121700.00	433.51	451.5	441.50	452.01	0.000247	5.54	21974.74	1432.70	0.25
Susquehanna	Middle Reach	138.400	5-yr	167300.00	433.51	455.1	443.03	455.65	0.000243	6.17	27127.21	1484.48	0.25
Susquehanna	Middle Reach	138.400	10-yr	199500.00	433.51	457.3	444.03	457.90	0.000231	6.44	32908.12	2289.39	0.25
Susquehanna	Middle Reach	138.400	25-yr	242400.00	433.51	459.8	445.28	460.49	0.000220	6.89	38018.15	2348.93	0.25
Susquehanna	Middle Reach	138.400	50-yr	275900.00	433.51	462.6	446.21	463.31	0.000215	6.89	43864.46	2433.51	0.24
Susquehanna	Middle Reach	138.400	100-yr	310800.00	433.51	465.0	447.12	465.76	0.000208	7.01	49003.96	2484.79	0.23
Susquehanna	Middle Reach	138.400	500-yr	398900.00	433.51	469.9	449.37	470.75	0.000195	7.53	59529.34	2551.51	0.23
Susquehanna	Middle Reach	138.337	2-yr	121700.00	433.01	451.4	441.34	451.92	0.000266	5.76	21137.86	1375.19	0.26
Susquehanna	Middle Reach	138.337	5-yr	167300.00	433.01	454.9	442.97	455.56	0.000266	6.39	26172.20	1458.24	0.27
Susquehanna	Middle Reach	138.337	10-yr	199500.00	433.01	457.1	444.00	457.81	0.000251	6.67	31731.17	2353.55	0.26
Susquehanna	Middle Reach	138.337	25-yr	242400.00	433.01	459.6	445.32	460.41	0.000238	7.12	36658.23	2444.18	0.27
Susquehanna	Middle Reach	138.337	50-yr	275900.00	433.01	462.5	446.27	463.23	0.000232	7.11	42280.27	2481.59	0.25
Susquehanna	Middle Reach	138.337	100-yr	310800.00	433.01	464.9	447.27	465.68	0.000224	7.24	47151.05	2537.35	0.24
Susquehanna	Middle Reach	138.337	500-yr	398900.00	433.01	469.8	449.55	470.68	0.000210	7.77	57312.62	2664.03	0.24
Susquehanna	Middle Reach	138.278	2-yr	121700.00	431.64	451.3	441.37	451.83	0.000312	6.05	20111.29	1370.94	0.28
Susquehanna	Middle Reach	138.278	5-yr	167300.00	431.64	454.8	443.05	455.47	0.000294	6.60	26266.84	2157.62	0.28
Susquehanna	Middle Reach	138.278	10-yr	199500.00	431.64	457.0	444.13	457.72	0.000278	6.94	30334.74	2395.25	0.28
Susquehanna	Middle Reach	138.278	25-yr	242400.00	431.64	459.5	445.50	460.33	0.000261	7.40	34997.78	2442.17	0.28
Susquehanna	Middle Reach	138.278	50-yr	275900.00	431.64	462.3	446.53	463.15	0.000254	7.40	40307.38	2531.71	0.26
Susquehanna	Middle Reach	138.278	100-yr	310800.00	431.64	464.8	447.59	465.60	0.000244	7.53	44930.13	2585.78	0.25
Susquehanna	Middle Reach	138.278	500-yr	398900.00	431.64	469.6	450.00	470.60	0.000229	8.09	54378.39	2675.52	0.25
Susquehanna	Middle Reach	138.200	2-yr	121700.00	431.57	451.1	440.95	451.70	0.000307	6.03	20189.11	1364.72	0.28
Susquehanna	Middle Reach	138.200	5-yr	167300.00	431.57	454.6	442.66	455.34	0.000290	6.69	25012.31	1382.40	0.28
Susquehanna	Middle Reach	138.200	10-yr	199500.00	431.57	456.9	443.76	457.61	0.000273	6.99	29992.71	2202.49	0.27
Susquehanna	Middle Reach	138.200	25-yr	242400.00	431.57	459.4	445.19	460.22	0.000261	7.50	34347.02	2313.53	0.28
Susquehanna	Middle Reach	138.200	50-yr	275900.00	431.57	462.2	446.28	463.04	0.000257	7.53	39274.57	2480.17	0.26
Susquehanna	Middle Reach	138.200	100-yr	310800.00	431.57	464.6	447.39	465.49	0.000250	7.69	43598.25	2580.72	0.26
Susquehanna	Middle Reach	138.200	500-yr	398900.00	431.57	469.6	449.90	470.48	0.000209	7.81	62743.48	2734.70	0.24
Susquehanna	Middle Reach	138.124	2-yr	121700.00	431.98	451.0	441.05	451.57	0.000310	6.18	19798.26	1348.02	0.28
Susquehanna	Middle Reach	138.124	5-yr	167300.00	431.98	454.5	442.76	455.22	0.000297	6.87	24649.51	1410.32	0.28
Susquehanna	Middle Reach	138.124	10-yr	199500.00	431.98	456.7	443.87	457.49	0.000294	7.31	27751.21	1445.17	0.28
Susquehanna	Middle Reach	138.124	25-yr	242400.00	431.98	459.1	445.25	460.10	0.000289	7.91	31387.29	1494.58	0.29
Susquehanna	Middle Reach	138.124	50-yr	275900.00	431.98	461.9	446.29	462.92	0.000290	7.98	35676.91	1541.15	0.28
Susquehanna	Middle Reach	138.124	100-yr	310800.00	431.98	464.3	447.33	465.37	0.000284	8.18	39433.11	1569.03	0.27
Susquehanna	Middle Reach	138.124	500-yr	398900.00	431.98	469.4	450.12	470.38	0.000236	8.28	58541.38	2943.91	0.25
Susquehanna	Middle Reach	138.046	2-yr	121700.00	431.57	450.7	441.51	451.42	0.000379	6.70	18167.39	1227.81	0.31
Susquehanna	Middle Reach	138.046	5-yr	167300.00	431.57	454.2	443.28	455.07	0.000358	7.44	22479.41	1241.50	0.31
Susquehanna	Middle Reach	138.046	10-yr	199500.00	431.57	456.4	444.44	457.34	0.000354	7.93	25158.70	1250.48	0.31
Susquehanna	Middle Reach	138.046	25-yr	242400.00	431.57	458.8	445.89	459.95	0.000348	8.59	28221.42	1260.70	0.32
Susquehanna	Middle Reach	138.046	50-yr	275900.00	431.57	461.6	446.99	462.76	0.000354	8.69	31756.53	1275.22	0.31
Susquehanna	Middle Reach	138.046	100-yr	310800.00	431.57	464.0	448.05	465.22	0.000356	8.92	34834.33	1301.04	0.30

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	138.046	500-yr	398900.00	431.57	469.0	450.79	470.25	0.000300	9.07	57883.06	2821.64	0.28
Susquehanna	Middle Reach	137.965	2-yr	121700.00	431.32	450.6	441.42	451.25	0.000360	6.60	18425.60	1223.05	0.30
Susquehanna	Middle Reach	137.965	5-yr	167300.00	431.32	454.1	443.16	454.92	0.000345	7.35	22749.87	1244.28	0.30
Susquehanna	Middle Reach	137.965	10-yr	199500.00	431.32	456.2	444.29	457.18	0.000342	7.84	25436.53	1251.76	0.31
Susquehanna	Middle Reach	137.965	25-yr	242400.00	431.32	458.7	445.70	459.79	0.000337	8.50	28505.02	1260.52	0.32
Susquehanna	Middle Reach	137.965	50-yr	275900.00	431.32	461.5	446.88	462.61	0.000343	8.61	32028.91	1270.76	0.30
Susquehanna	Middle Reach	137.965	100-yr	310800.00	431.32	463.8	448.06	465.07	0.000342	8.86	35078.75	1281.00	0.30
Susquehanna	Middle Reach	137.965	500-yr	398900.00	431.32	468.9	450.41	470.12	0.000290	9.05	58874.85	2874.99	0.28
Susquehanna	Middle Reach	137.894	2-yr	121700.00	430.85	450.5	440.67	451.11	0.000336	6.42	18965.00	1246.83	0.29
Susquehanna	Middle Reach	137.894	5-yr	167300.00	430.85	454.0	442.41	454.77	0.000325	7.14	23427.73	1279.30	0.29
Susquehanna	Middle Reach	137.894	10-yr	199500.00	430.85	456.1	443.54	457.04	0.000322	7.61	26199.12	1288.13	0.30
Susquehanna	Middle Reach	137.894	25-yr	242400.00	430.85	458.6	444.96	459.65	0.000318	8.25	29368.86	1298.15	0.31
Susquehanna	Middle Reach	137.894	50-yr	275900.00	430.85	461.4	446.01	462.46	0.000323	8.36	33001.28	1311.01	0.29
Susquehanna	Middle Reach	137.894	100-yr	310800.00	430.85	463.8	447.09	464.92	0.000322	8.60	36153.09	1322.07	0.29
Susquehanna	Middle Reach	137.894	500-yr	398900.00	430.85	468.9	449.90	469.99	0.000269	8.69	62707.47	3051.27	0.27
Susquehanna	Middle Reach	137.820	2-yr	121700.00	431.52	450.3	441.23	450.98	0.000357	6.43	18934.51	1301.99	0.30
Susquehanna	Middle Reach	137.820	5-yr	167300.00	431.52	453.9	442.91	454.64	0.000337	7.08	23632.24	1344.34	0.30
Susquehanna	Middle Reach	137.820	10-yr	199500.00	431.52	456.0	444.02	456.91	0.000328	7.51	26556.76	1353.25	0.30
Susquehanna	Middle Reach	137.820	25-yr	242400.00	431.52	458.5	445.39	459.52	0.000319	8.11	29902.65	1363.38	0.31
Susquehanna	Middle Reach	137.820	50-yr	275900.00	431.52	461.3	446.51	462.32	0.000320	8.18	33721.30	1375.23	0.29
Susquehanna	Middle Reach	137.820	100-yr	310800.00	431.52	463.7	447.60	464.78	0.000316	8.39	37035.24	1385.52	0.29
Susquehanna	Middle Reach	137.820	500-yr	398900.00	431.52	468.8	450.05	469.86	0.000255	8.41	64667.68	3078.30	0.26
Susquehanna	Middle Reach	137.744	2-yr	121700.00	431.17	450.3	440.59	450.81	0.000303	5.96	20406.11	1388.29	0.27
Susquehanna	Middle Reach	137.744	5-yr	167300.00	431.17	453.8	442.23	454.49	0.000282	6.60	25358.00	1403.84	0.27
Susquehanna	Middle Reach	137.744	10-yr	199500.00	431.17	456.0	443.30	456.75	0.000277	7.02	28425.01	1413.04	0.28
Susquehanna	Middle Reach	137.744	25-yr	242400.00	431.17	458.5	444.63	459.36	0.000271	7.59	31936.73	1423.22	0.28
Susquehanna	Middle Reach	137.744	50-yr	275900.00	431.17	461.2	445.61	462.17	0.000274	7.68	35917.87	1434.75	0.27
Susquehanna	Middle Reach	137.744	100-yr	310800.00	431.17	463.7	446.80	464.62	0.000272	7.89	39379.31	1444.70	0.27
Susquehanna	Middle Reach	137.744	500-yr	398900.00	431.17	468.8	449.25	469.74	0.000226	8.00	67122.41	3212.27	0.25
Susquehanna	Middle Reach	137.653	2-yr	121700.00	431.29	450.1	440.58	450.67	0.000295	6.05	20125.72	1318.06	0.27
Susquehanna	Middle Reach	137.653	5-yr	167300.00	431.29	453.6	442.29	454.35	0.000283	6.74	24824.86	1335.77	0.28
Susquehanna	Middle Reach	137.653	10-yr	199500.00	431.29	455.8	443.38	456.61	0.000281	7.19	27732.20	1344.84	0.28
Susquehanna	Middle Reach	137.653	25-yr	242400.00	431.29	458.3	444.73	459.22	0.000278	7.80	31058.68	1355.14	0.29
Susquehanna	Middle Reach	137.653	50-yr	275900.00	431.29	461.1	445.71	462.03	0.000284	7.92	34837.49	1366.75	0.28
Susquehanna	Middle Reach	137.653	100-yr	310800.00	431.29	463.4	446.67	464.48	0.000283	8.15	38126.10	1419.61	0.27
Susquehanna	Middle Reach	137.653	500-yr	398900.00	431.29	468.7	448.97	469.63	0.000232	8.19	67796.95	3537.83	0.25
Susquehanna	Middle Reach	137.593	2-yr	121700.00	431.71	449.9	441.27	450.55	0.000375	6.61	18400.19	1257.91	0.30
Susquehanna	Middle Reach	137.593	5-yr	167300.00	431.71	453.4	443.00	454.23	0.000349	7.32	22866.20	1272.40	0.30
Susquehanna	Middle Reach	137.593	10-yr	199500.00	431.71	455.6	444.29	456.50	0.000344	7.79	25620.96	1281.51	0.31
Susquehanna	Middle Reach	137.593	25-yr	242400.00	431.71	458.0	445.61	459.11	0.000337	8.43	28766.55	1291.85	0.31
Susquehanna	Middle Reach	137.593	50-yr	275900.00	431.71	460.8	446.60	461.91	0.000341	8.52	32371.78	1304.16	0.30
Susquehanna	Middle Reach	137.593	100-yr	310800.00	431.71	463.2	447.55	464.37	0.000339	8.75	35506.93	1315.36	0.30
Susquehanna	Middle Reach	137.593	500-yr	398900.00	431.71	468.4	449.87	469.53	0.000274	8.77	63769.32	3295.83	0.27
Susquehanna	Middle Reach	137.524	2-yr	121700.00	430.94	449.7	440.87	450.41	0.000365	6.68	18210.52	1203.67	0.30
Susquehanna	Middle Reach	137.524	5-yr	167300.00	430.94	453.2	442.59	454.10	0.000353	7.43	22531.57	1238.29	0.31
Susquehanna	Middle Reach	137.524	10-yr	199500.00	430.94	455.4	443.69	456.37	0.000350	7.91	25209.56	1250.29	0.31
Susquehanna	Middle Reach	137.524	25-yr	242400.00	430.94	457.8	445.11	458.98	0.000346	8.57	28274.46	1263.88	0.32
Susquehanna	Middle Reach	137.524	50-yr	275900.00	430.94	460.6	446.15	461.78	0.000350	8.68	31814.52	1284.46	0.31
Susquehanna	Middle Reach	137.524	100-yr	310800.00	430.94	463.0	447.20	464.24	0.000346	8.92	34901.08	1297.89	0.30
Susquehanna	Middle Reach	137.524	500-yr	398900.00	430.94	468.2	449.63	469.42	0.000285	9.01	62189.10	3500.85	0.28
Susquehanna	Middle Reach	137.442	2-yr	121700.00	430.08	449.7	439.59	450.24	0.000285	6.11	19927.58	1250.67	0.27
Susquehanna	Middle Reach	137.442	5-yr	167300.00	430.08	453.2	441.27	453.92	0.000287	6.83	24491.59	1306.98	0.28
Susquehanna	Middle Reach	137.442	10-yr	199500.00	430.08	455.4	442.37	456.19	0.000289	7.30	27336.01	1326.30	0.28
Susquehanna	Middle Reach	137.442	25-yr	242400.00	430.08	457.8	443.74	458.79	0.000289	7.91	30626.55	1348.84	0.29
Susquehanna	Middle Reach	137.442	50-yr	275900.00	430.08	460.6	444.78	461.59	0.000296	8.02	34387.05	1364.45	0.28
Susquehanna	Middle Reach	137.442	100-yr	310800.00	430.08	463.0	445.82	464.04	0.000295	8.25	37674.27	1377.95	0.28
Susquehanna	Middle Reach	137.442	500-yr	398900.00	430.08	468.2	448.30	469.27	0.000252	8.45	60854.87	4842.68	0.26
Susquehanna	Middle Reach	137.314	2-yr	121700.00	430.03	449.5	439.12	450.04	0.000251	5.73	21236.21	1335.78	0.25
Susquehanna	Middle Reach	137.314	5-yr	167300.00	430.03	453.1	440.75	453.72	0.000250	6.42	26042.05	1401.63	0.26
Susquehanna	Middle Reach	137.314	10-yr	199500.00	430.03	455.2	441.83	455.97	0.000259	6.87	29055.08	1470.78	0.27
Susquehanna	Middle Reach	137.314	25-yr	242400.00	430.03	457.7	443.13	458.57	0.000258	7.43	32683.90	1625.43	0.28
Susquehanna	Middle Reach	137.314	50-yr	275900.00	430.03	460.5	444.16	461.36	0.000259	7.52	37064.81	1795.30	0.26
Susquehanna	Middle Reach	137.314	100-yr	310800.00	430.03	462.9	445.16	463.82	0.000254	7.72	41063.52	1879.55	0.26
Susquehanna	Middle Reach	137.314	500-yr	398900.00	430.03	468.0	447.58	469.10	0.000238	8.33	50320.83	2911.05	0.26
Susquehanna	Middle Reach	137.223	2-yr	121700.00	430.85	449.3	440.15	449.89	0.000313	6.13	19848.31	1345.94	0.28
Susquehanna	Middle Reach	137.223	5-yr	167300.00	430.85	452.9	441.76	453.58	0.000296	6.80	24599.12	1381.96	0.28
Susquehanna	Middle Reach	137.223	10-yr	199500.00	430.85	455.0	442.82	455.83	0.000293	7.25	27521.18	1439.61	0.28
Susquehanna	Middle Reach	137.223	25-yr	242400.00	430.85	457.5	444.16	458.43	0.000291	7.85	30891.13	1529.14	0.29
Susquehanna	Middle Reach	137.223	50-yr	275900.00	430.85	460.2	445.15	461.22	0.000294	7.94	34991.20	1735.14	0.28
Susquehanna	Middle Reach	137.223	100-yr	310800.00	430.85	462.6	446.13	463.68	0.000287	8.15	38898.86	1886.27	0.27
Susquehanna	Middle Reach	137.223	500-yr	398900.00	430.85	467.8	448.45	468.97	0.000267	8.75	47877.81	2744.85	0.27
Susquehanna	Middle Reach	137.128	2-yr	121700.00	430.00	449.3	438.50	449.73	0.000213	5.46	22309.18	1350.42	0.24
Susquehanna	Middle Reach	137.128	5-yr	167300.00	430.00	452.8	440.07	453.41	0.000216	6.18	27190.85	1395.41	0.24
Susquehanna	Middle Reach	137.128	10-yr	199500.00	430.00	455.0	441.10	455.67	0.000220	6.64	30232.72	1421.42	0.25
Susquehanna	Middle Reach	137.128	25-yr	242400.00	430.00	457.4	442.38	458.26	0.000224	7.25	33769.37	1657.40	0.26
Susquehanna	Middle Reach	137.128	50-yr	275900.00	430.00	460.2	443.34	461.05	0.000234	7.39	37829.56	1837.69	0.25
Susquehanna	Middle Reach	137.128	100-yr	310800.00	430.00	462.6	444.28	463.51	0.000235	7.63	41688.13	2331.75	0.25
Susquehanna	Middle Reach	137.128	500-yr	398900.00	430.00	467.7	446.54	468.80	0.000225	8.28	50923.81	3197.25	0.25
Susquehanna	Middle Reach	137.067 Sechler Run	2-yr	121800.00	429.96	449.2	438.75	449.66	0.000232	5.65	21563.62	1302.43	0.24
Susquehanna	Middle Reach	137.067 Sechler Run	5-yr	167400.00	429.96	452.7	440.36	453.34	0.000233	6.39	26208.66	1317.22	0.25
Susquehanna	Middle Reach	137.067 Sechler Run	10-yr	199600.00	429.96	454.9	441.40	455.59	0.000237	6.87	29107.03	1397.50	0.26
Susquehanna	Middle Reach	137.067 Sechler Run	25-yr	242400.00	429.96	457.3	442.67	458.18	0.000239	7.50	32681.12	1851.24	0.27
Susquehanna	Middle Reach	137.067 Sechler Run	50-yr	276000.00	429.96	460.1	443.66	460.97	0.000249	7.65	36859.48	2489.23	0.26
Susquehanna	Middle Reach	137.067 Sechler Run	100-yr	310900.00	429.96	462.5	444.61	463.43	0.000250	7.90	40635.54	2673.91	0.26
Susquehanna	Middle Reach	137.067 Sechler Run	500-yr	399000.00	429.96	467.6	446.85	468.72	0.000240	8.57	49410.90	3087.21	0.26
Susquehanna	Middle Reach	136.945 Danville Gage	2-yr	121800.00	428.75	449.2	437.90	449.60	0.000193	5.30	22996.75	1328.76	0.22
Susquehanna	Middle Reach	136.945 Danville Gage	5-yr	167400.00	428.75	452.7	439.47	453.28	0.000198	6.04	27736.39	1341.06	0.23
Susquehanna	Middle Reach	136.945 Danville Gage	10-yr	199600.00	428.75	454.9	440.51	455.53	0.000204	6.52	30632.05	1347.98	0.24

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	136.945 Danville Gage	25-yr	242400.00	428.75	457.3	441.79	458.12	0.000208	7.14	33948.28	1483.73	0.25
Susquehanna	Middle Reach	136.945 Danville Gage	50-yr	276000.00	428.75	460.1	442.73	460.91	0.000218	7.33	37681.89	2125.15	0.24
Susquehanna	Middle Reach	136.945 Danville Gage	100-yr	310900.00	428.75	462.5	443.69	463.36	0.000222	7.60	40949.57	2449.96	0.24
Susquehanna	Middle Reach	136.945 Danville Gage	500-yr	399000.00	428.75	467.6	445.90	468.67	0.000219	8.33	48031.18	3310.29	0.25
Susquehanna	Middle Reach	136.906	2-yr	121800.00	428.70	449.1	438.03	449.56	0.000207	5.45	22360.84	1312.52	0.23
Susquehanna	Middle Reach	136.906	5-yr	167400.00	428.70	452.6	439.64	453.24	0.000215	6.18	27066.81	1349.22	0.24
Susquehanna	Middle Reach	136.906	10-yr	199600.00	428.70	454.8	440.68	455.48	0.000180	6.65	30023.69	1493.01	0.25
Susquehanna	Middle Reach	136.906	25-yr	242400.00	428.70	457.3	441.98	458.07	0.000174	7.25	33508.59	2056.11	0.26
Susquehanna	Middle Reach	136.906	50-yr	276000.00	428.70	460.0	442.93	460.86	0.000206	7.40	37454.01	2694.02	0.25
Susquehanna	Middle Reach	136.906	100-yr	310900.00	428.70	462.4	443.91	463.31	0.000218	7.65	40902.13	3682.31	0.25
Susquehanna	Middle Reach	136.906	500-yr	399000.00	428.70	467.6	446.15	468.62	0.000215	8.30	49119.38	4391.51	0.25
Susquehanna	Middle Reach	136.9 PA Route 54		Bridge									
Susquehanna	Middle Reach	136.857	2-yr	121800.00	429.26	449.0	437.99	449.49	0.000227	5.59	21771.54	1331.99	0.24
Susquehanna	Middle Reach	136.857	5-yr	167400.00	429.26	452.5	439.62	453.16	0.000229	6.33	26455.19	1367.80	0.25
Susquehanna	Middle Reach	136.857	10-yr	199600.00	429.26	454.7	440.67	455.40	0.000232	6.80	29400.70	1437.11	0.26
Susquehanna	Middle Reach	136.857	25-yr	242400.00	429.26	457.1	442.00	457.98	0.000232	7.43	32860.49	1480.78	0.27
Susquehanna	Middle Reach	136.857	50-yr	276000.00	429.26	459.8	442.98	460.72	0.000242	7.61	36721.11	1517.22	0.26
Susquehanna	Middle Reach	136.857	100-yr	310900.00	429.26	462.2	443.94	463.12	0.000244	7.88	40053.91	1546.26	0.26
Susquehanna	Middle Reach	136.857	500-yr	399000.00	429.26	467.2	446.31	468.15	0.000212	7.98	68636.84	4067.30	0.24
Susquehanna	Middle Reach	136.792	2-yr	121800.00	429.33	448.9	438.39	449.40	0.000238	5.67	21483.96	1315.27	0.25
Susquehanna	Middle Reach	136.792	5-yr	167400.00	429.33	452.4	440.01	453.08	0.000239	6.39	26198.93	1348.96	0.26
Susquehanna	Middle Reach	136.792	10-yr	199600.00	429.33	454.6	441.05	455.32	0.000241	6.86	29094.32	1419.90	0.26
Susquehanna	Middle Reach	136.792	25-yr	242400.00	429.33	457.0	442.35	457.89	0.000242	7.48	32387.54	1473.50	0.27
Susquehanna	Middle Reach	136.792	50-yr	276000.00	429.33	459.7	443.34	460.63	0.000252	7.65	36058.61	1497.80	0.26
Susquehanna	Middle Reach	136.792	100-yr	310900.00	429.33	462.1	444.32	463.02	0.000255	7.92	39245.27	1520.97	0.26
Susquehanna	Middle Reach	136.792	500-yr	399000.00	429.33	467.0	446.62	468.06	0.000231	8.31	61545.95	3306.01	0.25
Susquehanna	Middle Reach	136.722	2-yr	121800.00	429.29	448.8	438.31	449.31	0.000241	5.66	21502.54	1331.80	0.25
Susquehanna	Middle Reach	136.722	5-yr	167400.00	429.29	452.4	439.93	452.98	0.000240	6.37	26266.06	1360.24	0.26
Susquehanna	Middle Reach	136.722	10-yr	199600.00	429.29	454.5	440.99	455.22	0.000242	6.84	29243.76	1426.10	0.26
Susquehanna	Middle Reach	136.722	25-yr	242400.00	429.29	456.9	442.30	457.79	0.000242	7.45	32793.45	1478.22	0.27
Susquehanna	Middle Reach	136.722	50-yr	276000.00	429.29	459.6	443.28	460.53	0.000251	7.60	36812.54	1500.25	0.26
Susquehanna	Middle Reach	136.722	100-yr	310900.00	429.29	462.0	444.28	462.92	0.000253	7.85	40338.09	1519.51	0.26
Susquehanna	Middle Reach	136.722	500-yr	399000.00	429.29	467.0	446.63	467.97	0.000227	8.23	63489.78	3442.55	0.25
Susquehanna	Middle Reach	136.633	2-yr	121800.00	428.88	448.7	437.97	449.19	0.000237	5.63	21615.38	1314.96	0.24
Susquehanna	Middle Reach	136.633	5-yr	167400.00	428.88	452.2	439.63	452.86	0.000244	6.36	26334.28	1354.77	0.25
Susquehanna	Middle Reach	136.633	10-yr	199600.00	428.88	454.4	440.68	455.10	0.000248	6.82	29256.45	1369.35	0.26
Susquehanna	Middle Reach	136.633	25-yr	242400.00	428.88	456.8	442.04	457.67	0.000250	7.44	32606.92	1385.06	0.27
Susquehanna	Middle Reach	136.633	50-yr	276000.00	428.88	459.5	443.00	460.40	0.000263	7.61	36355.31	1402.42	0.26
Susquehanna	Middle Reach	136.633	100-yr	310900.00	428.88	461.8	444.03	462.79	0.000268	7.87	39641.33	1429.28	0.26
Susquehanna	Middle Reach	136.633	500-yr	399000.00	428.88	466.9	446.34	467.84	0.000232	8.06	66190.41	3352.53	0.25
Susquehanna	Middle Reach	136.546	2-yr	121800.00	428.97	448.6	437.68	449.08	0.000230	5.69	21415.51	1273.54	0.24
Susquehanna	Middle Reach	136.546	5-yr	167400.00	428.97	452.1	439.33	452.75	0.000235	6.45	25947.98	1303.72	0.25
Susquehanna	Middle Reach	136.546	10-yr	199600.00	428.97	454.2	440.40	454.98	0.000239	6.95	28762.25	1334.54	0.26
Susquehanna	Middle Reach	136.546	25-yr	242400.00	428.97	456.7	441.75	457.55	0.000242	7.60	32028.59	1363.10	0.27
Susquehanna	Middle Reach	136.546	50-yr	276000.00	428.97	459.3	442.78	460.27	0.000255	7.80	35718.63	1397.50	0.26
Susquehanna	Middle Reach	136.546	100-yr	310900.00	428.97	461.6	443.82	462.66	0.000259	8.08	39001.67	1432.29	0.26
Susquehanna	Middle Reach	136.546	500-yr	399000.00	428.97	466.7	446.19	467.72	0.000229	8.37	63319.38	3244.91	0.25
Susquehanna	Middle Reach	136.466	2-yr	121800.00	428.06	448.5	437.51	448.98	0.000233	5.71	21340.21	1273.99	0.25
Susquehanna	Middle Reach	136.466	5-yr	167400.00	428.06	452.0	439.21	452.64	0.000237	6.47	25862.29	1295.31	0.26
Susquehanna	Middle Reach	136.466	10-yr	199600.00	428.06	454.1	440.31	454.88	0.000243	6.97	28636.24	1308.22	0.26
Susquehanna	Middle Reach	136.466	25-yr	242400.00	428.06	456.5	441.66	457.44	0.000248	7.62	31817.96	1323.40	0.27
Susquehanna	Middle Reach	136.466	50-yr	276000.00	428.06	459.2	442.74	460.16	0.000258	7.81	35395.11	1354.82	0.27
Susquehanna	Middle Reach	136.466	100-yr	310900.00	428.06	461.5	443.76	462.55	0.000261	8.09	38569.50	1392.49	0.26
Susquehanna	Middle Reach	136.466	500-yr	399000.00	428.06	466.7	446.15	467.60	0.000213	8.09	65540.55	3034.50	0.24
Susquehanna	Middle Reach	136.394	2-yr	121800.00	427.37	448.3	437.88	448.88	0.000244	5.85	20835.52	1538.23	0.25
Susquehanna	Middle Reach	136.394	5-yr	167400.00	427.37	451.9	439.52	452.54	0.000251	6.63	25256.10	2035.86	0.26
Susquehanna	Middle Reach	136.394	10-yr	199600.00	427.37	454.0	440.60	454.77	0.000259	7.13	28152.46	2286.69	0.27
Susquehanna	Middle Reach	136.394	25-yr	242400.00	427.37	456.4	441.92	457.34	0.000262	7.78	31545.39	2336.49	0.28
Susquehanna	Middle Reach	136.394	50-yr	276000.00	427.37	459.1	442.92	460.05	0.000273	7.95	35349.05	2377.05	0.27
Susquehanna	Middle Reach	136.394	100-yr	310900.00	427.37	461.4	443.89	462.44	0.000275	8.22	38663.37	2387.99	0.27
Susquehanna	Middle Reach	136.394	500-yr	399000.00	427.37	466.2	446.23	467.47	0.000272	8.99	46533.71	2856.19	0.27
Susquehanna	Middle Reach	136.324	2-yr	121800.00	427.30	448.2	438.14	448.77	0.000283	6.29	19355.16	1409.98	0.27
Susquehanna	Middle Reach	136.324	5-yr	167400.00	427.30	451.6	439.85	452.43	0.000289	7.16	23377.36	1623.92	0.28
Susquehanna	Middle Reach	136.324	10-yr	199600.00	427.30	453.7	440.97	454.65	0.000298	7.73	25821.41	2044.02	0.29
Susquehanna	Middle Reach	136.324	25-yr	242400.00	427.30	456.1	442.36	457.21	0.000305	8.48	28627.47	2073.47	0.30
Susquehanna	Middle Reach	136.324	50-yr	276000.00	427.30	458.7	443.40	459.92	0.000323	8.70	31846.46	2193.85	0.30
Susquehanna	Middle Reach	136.324	100-yr	310900.00	427.30	461.0	444.43	462.30	0.000329	9.01	34949.24	2353.17	0.30
Susquehanna	Middle Reach	136.324	500-yr	399000.00	427.30	465.8	446.85	467.33	0.000325	9.86	42599.54	2682.90	0.30
Susquehanna	Middle Reach	136.248 Mahoning Creek	2-yr	122200.00	426.85	448.1	437.40	448.63	0.000235	5.80	21071.83	1696.00	0.25
Susquehanna	Middle Reach	136.248 Mahoning Creek	5-yr	167900.00	426.85	451.6	439.05	452.28	0.000251	6.60	25449.88	1783.38	0.26
Susquehanna	Middle Reach	136.248 Mahoning Creek	10-yr	200200.00	426.85	453.7	440.15	454.49	0.000259	7.10	28226.36	1864.44	0.27
Susquehanna	Middle Reach	136.248 Mahoning Creek	25-yr	243200.00	426.85	456.1	441.48	457.04	0.000267	7.74	31897.93	2144.40	0.28
Susquehanna	Middle Reach	136.248 Mahoning Creek	50-yr	277000.00	426.85	458.8	442.49	459.73	0.000276	7.88	36352.67	2323.04	0.27
Susquehanna	Middle Reach	136.248 Mahoning Creek	100-yr	312100.00	426.85	461.1	443.49	462.10	0.000274	8.12	40592.27	2440.43	0.27
Susquehanna	Middle Reach	136.248 Mahoning Creek	500-yr	400700.00	426.85	465.9	445.84	467.11	0.000265	8.82	50126.71	2629.96	0.27
Susquehanna	Middle Reach	136.148	2-yr	122200.00	427.58	447.8	438.51	448.46	0.000339	6.63	20554.43	1852.98	0.29
Susquehanna	Middle Reach	136.148	5-yr	167900.00	427.58	451.3	440.31	452.10	0.000337	7.40	25732.07	1917.14	0.30
Susquehanna	Middle Reach	136.148	10-yr	200200.00	427.58	453.4	441.46	454.31	0.000344	7.94	28996.66	1992.39	0.30
Susquehanna	Middle Reach	136.148	25-yr	243200.00	427.58	455.8	442.88	456.85	0.000344	8.61	32958.16	2129.85	0.31
Susquehanna	Middle Reach	136.148	50-yr	277000.00	427.58	458.4	443.98	459.54	0.000357	8.74	37618.66	2227.84	0.30
Susquehanna	Middle Reach	136.148	100-yr	312100.00	427.58	460.7	445.12	461.91	0.000357	8.98	41738.60	2252.05	0.29
Susquehanna	Middle Reach	136.148	500-yr	400700.00	427.58	465.6	447.42	466.93	0.000351	9.73	50717.92	2519.17	0.30
Susquehanna	Middle Reach	136.037	2-yr	122200.00	426.09	447.7	436.93	448.25	0.000280	6.07	20122.34	1407.64	0.27
Susquehanna	Middle Reach	136.037	5-yr	167900.00	426.09	451.2	438.72	451.88	0.000281	6.83	24946.74	1854.85	0.28
Susquehanna	Middle Reach	136.037	10-yr	200200.00	426.09	453.3	439.89	454.09	0.000282	7.31	28269.13	1973.46	0.28
Susquehanna	Middle Reach	136.037	25-yr	243200.00	426.09	455.6	441.35	456.62	0.000280	7.94	32330.80	2123.75	0.29
Susquehanna	Middle Reach	136.037	50-yr	277000.00	426.09	458.3	442.53	459.30	0.000287	8.08	36998.88	2165.97	0.28
Susquehanna	Middle Reach	136.037	100-yr	312100.00	426.09	460.6	443.70	461.68	0.000285	8.31	41197.79	2322.31	0.28

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	136.037	500-yr	400700.00	426.09	465.5	446.27	466.69	0.000275	9.02	50679.21	2468.05	0.28
Susquehanna	Middle Reach	135.926	2-yr	122200.00	424.53	447.4	436.94	448.06	0.000314	6.26	19507.98	1463.68	0.28
Susquehanna	Middle Reach	135.926	5-yr	167900.00	424.53	450.9	438.83	451.69	0.000347	6.90	24328.79	1726.20	0.30
Susquehanna	Middle Reach	135.926	10-yr	200200.00	424.53	453.1	440.08	453.89	0.000331	7.29	27455.78	1737.03	0.30
Susquehanna	Middle Reach	135.926	25-yr	243200.00	424.53	455.5	441.75	456.43	0.000316	7.84	31034.77	1803.73	0.30
Susquehanna	Middle Reach	135.926	50-yr	277000.00	424.53	458.1	443.07	459.11	0.000314	7.92	35132.26	1872.01	0.29
Susquehanna	Middle Reach	135.926	100-yr	312100.00	424.53	460.5	444.31	461.48	0.000306	8.12	39100.16	2145.24	0.28
Susquehanna	Middle Reach	135.926	500-yr	400700.00	424.53	465.3	446.62	466.50	0.000285	8.74	48499.26	2503.64	0.28
Susquehanna	Middle Reach	135.823	2-yr	122200.00	424.52	447.4	435.96	447.85	0.000283	5.65	21634.53	1542.12	0.26
Susquehanna	Middle Reach	135.823	5-yr	167900.00	424.52	450.9	437.75	451.48	0.000257	6.22	26982.18	1553.52	0.26
Susquehanna	Middle Reach	135.823	10-yr	200200.00	424.52	453.0	438.93	453.68	0.000252	6.62	30235.44	1565.55	0.26
Susquehanna	Middle Reach	135.823	25-yr	243200.00	424.52	455.4	440.38	456.22	0.000246	7.16	33972.77	1608.69	0.27
Susquehanna	Middle Reach	135.823	50-yr	277000.00	424.52	458.1	441.73	458.90	0.000250	7.28	38157.16	1666.59	0.26
Susquehanna	Middle Reach	135.823	100-yr	312100.00	424.52	460.4	442.73	461.28	0.000247	7.49	42016.76	1877.01	0.25
Susquehanna	Middle Reach	135.823	500-yr	400700.00	424.52	465.3	445.14	466.31	0.000235	8.12	51863.42	2421.53	0.25
Susquehanna	Middle Reach	135.720	2-yr	122200.00	424.68	447.2		447.70	0.000254	5.71	21384.04	1358.81	0.25
Susquehanna	Middle Reach	135.720	5-yr	167900.00	424.68	450.7		451.33	0.000249	6.42	26168.99	1377.99	0.26
Susquehanna	Middle Reach	135.720	10-yr	200200.00	424.68	452.8		453.54	0.000251	6.88	29102.88	1407.21	0.26
Susquehanna	Middle Reach	135.720	25-yr	243200.00	424.68	455.2		456.07	0.000251	7.50	32585.85	1532.41	0.27
Susquehanna	Middle Reach	135.720	50-yr	277000.00	424.68	457.8		458.75	0.000260	7.66	36772.00	1621.24	0.27
Susquehanna	Middle Reach	135.720	100-yr	312100.00	424.68	460.2		461.13	0.000260	7.91	40619.61	1776.67	0.26
Susquehanna	Middle Reach	135.720	500-yr	400700.00	424.68	465.0		466.16	0.000251	8.59	51531.79	2460.58	0.26
Susquehanna	Middle Reach	135.599	2-yr	122200.00	424.18	447.1		447.53	0.000185	5.36	22801.41	1258.17	0.22
Susquehanna	Middle Reach	135.599	5-yr	167900.00	424.18	450.6		451.16	0.000197	6.17	27208.70	1272.17	0.24
Susquehanna	Middle Reach	135.599	10-yr	200200.00	424.18	452.7		453.37	0.000206	6.70	29899.70	1292.69	0.24
Susquehanna	Middle Reach	135.599	25-yr	243200.00	424.18	455.1		455.91	0.000214	7.38	33027.29	1318.75	0.26
Susquehanna	Middle Reach	135.599	50-yr	277000.00	424.18	457.7		458.58	0.000230	7.63	36612.98	1461.91	0.25
Susquehanna	Middle Reach	135.599	100-yr	312100.00	424.18	460.0		460.96	0.000235	7.94	40032.54	1507.95	0.25
Susquehanna	Middle Reach	135.599	500-yr	400700.00	424.18	464.8		465.98	0.000239	8.77	47961.91	1789.76	0.26
Susquehanna	Middle Reach	135.497	2-yr	122200.00	425.40	446.9		447.40	0.000246	5.91	20693.15	1222.01	0.25
Susquehanna	Middle Reach	135.497	5-yr	167900.00	425.40	450.3		451.02	0.000253	6.73	24946.48	1236.86	0.26
Susquehanna	Middle Reach	135.497	10-yr	200200.00	425.40	452.4		453.23	0.000261	7.27	27548.42	1270.84	0.27
Susquehanna	Middle Reach	135.497	25-yr	243200.00	425.40	454.8		455.76	0.000267	7.98	30576.93	1288.49	0.28
Susquehanna	Middle Reach	135.497	50-yr	277000.00	425.40	457.4		458.42	0.000283	8.21	33998.98	1394.65	0.28
Susquehanna	Middle Reach	135.497	100-yr	312100.00	425.40	459.7		460.80	0.000286	8.52	37292.84	1451.00	0.28
Susquehanna	Middle Reach	135.497	500-yr	400700.00	425.40	464.5		465.82	0.000287	9.36	44495.94	1663.08	0.28
Susquehanna	Middle Reach	135.387	2-yr	122200.00	424.49	446.7	435.41	447.25	0.000225	5.80	21074.36	1197.65	0.24
Susquehanna	Middle Reach	135.387	5-yr	167900.00	424.49	450.2	437.12	450.86	0.000247	6.64	25270.71	1252.96	0.26
Susquehanna	Middle Reach	135.387	10-yr	200200.00	424.49	452.3	438.23	453.06	0.000265	7.17	27928.29	1304.02	0.27
Susquehanna	Middle Reach	135.387	25-yr	243200.00	424.49	454.6	439.60	455.58	0.000275	7.83	31074.33	1340.24	0.29
Susquehanna	Middle Reach	135.387	50-yr	277000.00	424.49	457.2	440.67	458.23	0.000290	8.01	34635.38	1400.75	0.28
Susquehanna	Middle Reach	135.387	100-yr	312100.00	424.49	459.5	441.71	460.60	0.000291	8.27	37933.18	1452.00	0.28
Susquehanna	Middle Reach	135.387	500-yr	400700.00	424.49	464.4	444.16	465.62	0.000284	9.04	45170.91	1760.68	0.28
Susquehanna	Middle Reach	135.315	2-yr	122200.00	423.55	446.6	435.47	447.16	0.000239	5.92	20650.76	1188.71	0.25
Susquehanna	Middle Reach	135.315	5-yr	167900.00	423.55	450.0	437.20	450.76	0.000258	6.77	24797.44	1233.52	0.27
Susquehanna	Middle Reach	135.315	10-yr	200200.00	423.55	452.1	438.29	452.94	0.000275	7.31	27390.32	1276.95	0.28
Susquehanna	Middle Reach	135.315	25-yr	243200.00	423.55	454.5	439.73	455.46	0.000281	7.99	30534.36	1356.22	0.29
Susquehanna	Middle Reach	135.315	50-yr	277000.00	423.55	457.1	440.78	458.10	0.000297	8.19	34089.14	1389.73	0.28
Susquehanna	Middle Reach	135.315	100-yr	312100.00	423.55	459.4	441.84	460.48	0.000299	8.47	37335.70	1441.22	0.28
Susquehanna	Middle Reach	135.315	500-yr	400700.00	423.55	464.2	444.37	465.49	0.000294	9.27	45320.68	2155.66	0.28
Susquehanna	Middle Reach	135.242	2-yr	122200.00	422.61	446.5	434.98	447.05	0.000222	5.78	21157.03	1193.49	0.24
Susquehanna	Middle Reach	135.242	5-yr	167900.00	422.61	450.0	436.72	450.65	0.000243	6.63	25307.94	1240.31	0.26
Susquehanna	Middle Reach	135.242	10-yr	200200.00	422.61	452.0	437.85	452.83	0.000255	7.18	27881.49	1257.72	0.27
Susquehanna	Middle Reach	135.242	25-yr	243200.00	422.61	454.4	439.26	455.34	0.000264	7.88	30908.29	1299.56	0.28
Susquehanna	Middle Reach	135.242	50-yr	277000.00	422.61	457.0	440.30	457.98	0.000281	8.10	34276.63	1310.99	0.28
Susquehanna	Middle Reach	135.242	100-yr	312100.00	422.61	459.3	441.38	460.35	0.000285	8.40	37348.02	1399.40	0.28
Susquehanna	Middle Reach	135.242	500-yr	400700.00	422.61	464.1	443.91	465.38	0.000284	9.23	44415.57	1872.69	0.28
Susquehanna	Middle Reach	135.174	2-yr	122200.00	421.24	446.5	434.52	446.97	0.000205	5.68	21504.56	1173.48	0.23
Susquehanna	Middle Reach	135.174	5-yr	167900.00	421.24	449.9	436.24	450.56	0.000222	6.57	25541.61	1188.08	0.25
Susquehanna	Middle Reach	135.174	10-yr	200200.00	421.24	451.9	437.35	452.73	0.000241	7.15	28000.95	1217.57	0.26
Susquehanna	Middle Reach	135.174	25-yr	243200.00	421.24	454.3	438.78	455.25	0.000252	7.88	30875.64	1244.06	0.28
Susquehanna	Middle Reach	135.174	50-yr	277000.00	421.24	456.8	439.82	457.87	0.000276	8.13	34136.47	1303.07	0.27
Susquehanna	Middle Reach	135.174	100-yr	312100.00	421.24	459.1	440.86	460.24	0.000289	8.44	37282.42	1566.08	0.28
Susquehanna	Middle Reach	135.174	500-yr	400700.00	421.24	463.9	443.41	465.26	0.000287	9.26	45522.47	2051.00	0.28
Susquehanna	Middle Reach	135.102	2-yr	122200.00	421.24	446.5	432.07	446.87	0.000137	5.04	24254.68	1168.27	0.19
Susquehanna	Middle Reach	135.102	5-yr	167900.00	421.24	449.9	433.89	450.45	0.000158	5.94	28281.60	1184.48	0.21
Susquehanna	Middle Reach	135.102	10-yr	200200.00	421.24	452.0	435.01	452.61	0.000174	6.52	30725.40	1203.93	0.23
Susquehanna	Middle Reach	135.102	25-yr	243200.00	421.24	454.3	436.41	455.11	0.000191	7.24	33610.02	1276.61	0.24
Susquehanna	Middle Reach	135.102	50-yr	277000.00	421.24	456.9	437.45	457.73	0.000213	7.53	36779.38	1303.23	0.24
Susquehanna	Middle Reach	135.102	100-yr	312100.00	421.24	459.1	438.48	460.10	0.000223	7.87	39692.47	1366.03	0.25
Susquehanna	Middle Reach	135.102	500-yr	400700.00	421.24	463.9	440.92	465.12	0.000232	8.74	47934.40	1948.10	0.26
Susquehanna	Middle Reach	135.032	2-yr	122200.00	421.95	446.4	432.36	446.81	0.000145	5.14	23772.83	1161.00	0.20
Susquehanna	Middle Reach	135.032	5-yr	167900.00	421.95	449.8	434.14	450.38	0.000167	6.05	27759.16	1183.94	0.22
Susquehanna	Middle Reach	135.032	10-yr	200200.00	421.95	451.9	435.27	452.54	0.000188	6.63	30181.56	1266.35	0.23
Susquehanna	Middle Reach	135.032	25-yr	243200.00	421.95	454.2	436.68	455.03	0.000201	7.36	33043.14	1289.02	0.25
Susquehanna	Middle Reach	135.032	50-yr	277000.00	421.95	456.7	437.71	457.64	0.000223	7.66	36176.57	1313.67	0.25
Susquehanna	Middle Reach	135.032	100-yr	312100.00	421.95	459.0	438.76	460.00	0.000233	8.00	39041.88	1373.86	0.25
Susquehanna	Middle Reach	135.032	500-yr	400700.00	421.95	463.8	441.24	465.02	0.000241	8.85	46658.14	1644.69	0.26
Susquehanna	Middle Reach	134.959	2-yr	122200.00	422.66	446.3	432.81	446.75	0.000157	5.27	23207.89	1300.07	0.21
Susquehanna	Middle Reach	134.959	5-yr	167900.00	422.66	449.7	434.58	450.31	0.000179	6.18	27171.39	1424.76	0.23
Susquehanna	Middle Reach	134.959	10-yr	200200.00	422.66	451.7	435.70	452.46	0.000194	6.77	29565.05	1558.57	0.24
Susquehanna	Middle Reach	134.959	25-yr	243200.00	422.66	454.1	437.11	454.95	0.000199	7.39	34794.74	1592.85	0.25
Susquehanna	Middle Reach	134.959	50-yr	277000.00	422.66	456.7	438.15	457.55	0.000217	7.64	38877.49	1613.63	0.25
Susquehanna	Middle Reach	134.959	100-yr	312100.00	422.66	458.9	439.19	459.90	0.000224	7.93	42622.60	1673.01	0.25
Susquehanna	Middle Reach	134.959	500-yr	400700.00	422.66	463.8	441.65	464.91	0.000228	8.73	50881.12	1763.52	0.25
Susquehanna	Middle Reach	134.884	2-yr	122200.00	423.41	446.2	433.33	446.68	0.000171	5.42	22538.88	1293.78	0.22
Susquehanna	Middle Reach	134.884	5-yr	167900.00	423.41	449.6	435.05	450.23	0.000193	6.35	26433.31	1412.44	0.23
Susquehanna	Middle Reach	134.884	10-yr	200200.00	423.41	451.6	436.16	452.37	0.000208	6.96	28775.17	1516.52	0.25

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	134.884	25-yr	243200.00	423.41	454.0	437.57	454.86	0.000213	7.59	33968.39	1587.45	0.26
Susquehanna	Middle Reach	134.884	50-yr	277000.00	423.41	456.5	438.61	457.45	0.000232	7.84	38058.82	1639.90	0.25
Susquehanna	Middle Reach	134.884	100-yr	312100.00	423.41	458.8	439.65	459.80	0.000238	8.14	41884.89	1718.56	0.25
Susquehanna	Middle Reach	134.884	500-yr	400700.00	423.41	463.6	442.08	464.80	0.000241	8.93	50444.62	1874.54	0.26
Susquehanna	Middle Reach	134.815	2-yr	122200.00	424.03	446.1	433.61	446.61	0.000179	5.48	22280.28	1328.64	0.22
Susquehanna	Middle Reach	134.815	5-yr	167900.00	424.03	449.5	435.31	450.15	0.000200	6.41	26189.82	1448.71	0.24
Susquehanna	Middle Reach	134.815	10-yr	200200.00	424.03	451.5	436.43	452.28	0.000216	7.02	28538.41	1502.31	0.25
Susquehanna	Middle Reach	134.815	25-yr	243200.00	424.03	453.9	437.82	454.78	0.000219	7.62	33833.27	1558.06	0.26
Susquehanna	Middle Reach	134.815	50-yr	277000.00	424.03	456.4	438.85	457.36	0.000238	7.87	37829.74	1604.61	0.26
Susquehanna	Middle Reach	134.815	100-yr	312100.00	424.03	458.7	439.88	459.70	0.000245	8.17	41569.58	1676.37	0.26
Susquehanna	Middle Reach	134.815	500-yr	400700.00	424.03	463.5	442.31	464.71	0.000245	8.94	49950.59	1809.21	0.26
Susquehanna	Middle Reach	134.740	2-yr	122200.00	424.81	446.0	434.22	446.52	0.000208	5.77	21172.47	1274.15	0.24
Susquehanna	Middle Reach	134.740	5-yr	167900.00	424.81	449.4	435.92	450.05	0.000230	6.71	25004.03	1408.43	0.25
Susquehanna	Middle Reach	134.740	10-yr	200200.00	424.81	451.4	437.07	452.19	0.000240	7.26	28689.72	1477.83	0.26
Susquehanna	Middle Reach	134.740	25-yr	243200.00	424.81	453.7	438.48	454.67	0.000249	7.98	32171.86	1522.49	0.28
Susquehanna	Middle Reach	134.740	50-yr	277000.00	424.81	456.2	439.53	457.24	0.000268	8.22	36053.45	1558.90	0.27
Susquehanna	Middle Reach	134.740	100-yr	312100.00	424.81	458.5	440.56	459.59	0.000273	8.52	39675.59	1633.90	0.27
Susquehanna	Middle Reach	134.740	500-yr	400700.00	424.81	463.3	443.03	464.59	0.000273	9.32	47817.68	1748.76	0.28
Susquehanna	Middle Reach	134.671	2-yr	122200.00	425.34	445.9	434.61	446.44	0.000228	5.94	20564.72	1133.51	0.25
Susquehanna	Middle Reach	134.671	5-yr	167900.00	425.34	449.2	436.34	449.96	0.000249	6.89	24359.16	1397.93	0.26
Susquehanna	Middle Reach	134.671	10-yr	200200.00	425.34	451.2	437.47	452.08	0.000260	7.47	27773.02	1475.43	0.27
Susquehanna	Middle Reach	134.671	25-yr	243200.00	425.34	453.5	438.87	454.56	0.000269	8.21	31219.62	1512.15	0.29
Susquehanna	Middle Reach	134.671	50-yr	277000.00	425.34	456.0	439.91	457.13	0.000290	8.46	35054.79	1546.73	0.28
Susquehanna	Middle Reach	134.671	100-yr	312100.00	425.34	458.3	440.96	459.47	0.000295	8.76	38637.23	1620.36	0.28
Susquehanna	Middle Reach	134.671	500-yr	400700.00	425.34	463.1	443.43	464.48	0.000293	9.58	46715.55	1780.96	0.29
Susquehanna	Middle Reach	134.596	2-yr	122200.00	425.86	445.7	435.11	446.33	0.000262	6.17	19812.64	1191.87	0.26
Susquehanna	Middle Reach	134.596	5-yr	167900.00	425.86	449.1	436.86	449.84	0.000289	7.08	23718.89	1474.45	0.28
Susquehanna	Middle Reach	134.596	10-yr	200200.00	425.86	451.1	437.99	451.97	0.000295	7.61	27351.44	1512.89	0.29
Susquehanna	Middle Reach	134.596	25-yr	243200.00	425.86	453.4	439.39	454.44	0.000299	8.30	30886.67	1543.39	0.30
Susquehanna	Middle Reach	134.596	50-yr	277000.00	425.86	455.9	440.43	457.00	0.000314	8.50	34817.54	1586.57	0.29
Susquehanna	Middle Reach	134.596	100-yr	312100.00	425.86	458.2	441.50	459.34	0.000314	8.77	38502.48	1643.42	0.29
Susquehanna	Middle Reach	134.596	500-yr	400700.00	425.86	463.0	443.97	464.35	0.000305	9.52	46662.02	1799.15	0.29
Susquehanna	Middle Reach	134.497	2-yr	122200.00	426.38	445.5	435.80	446.17	0.000313	6.57	18694.53	1212.63	0.28
Susquehanna	Middle Reach	134.497	5-yr	167900.00	426.38	448.8	437.55	449.66	0.000331	7.47	23149.52	1487.30	0.30
Susquehanna	Middle Reach	134.497	10-yr	200200.00	426.38	450.8	438.68	451.78	0.000337	8.03	26190.87	1554.98	0.31
Susquehanna	Middle Reach	134.497	25-yr	243200.00	426.38	453.1	440.10	454.26	0.000338	8.73	29834.39	1603.24	0.32
Susquehanna	Middle Reach	134.497	50-yr	277000.00	426.38	455.6	441.17	456.81	0.000353	8.90	33984.21	1727.53	0.31
Susquehanna	Middle Reach	134.497	100-yr	312100.00	426.38	457.9	442.22	459.15	0.000349	9.14	37985.59	1766.85	0.30
Susquehanna	Middle Reach	134.497	500-yr	400700.00	426.38	462.7	444.75	464.16	0.000332	9.84	46854.53	2183.01	0.30
Susquehanna	Middle Reach	134.413	2-yr	122200.00	426.74	445.2	436.70	445.98	0.000423	7.29	16868.36	1270.36	0.33
Susquehanna	Middle Reach	134.413	5-yr	167900.00	426.74	448.4	438.52	449.47	0.000432	8.18	21307.63	1439.98	0.34
Susquehanna	Middle Reach	134.413	10-yr	200200.00	426.74	450.4	439.70	451.58	0.000433	8.73	24241.68	1513.25	0.34
Susquehanna	Middle Reach	134.413	25-yr	243200.00	426.74	452.7	441.17	454.06	0.000422	9.42	27783.92	1560.53	0.35
Susquehanna	Middle Reach	134.413	50-yr	277000.00	426.74	455.2	442.25	456.61	0.000429	9.54	31741.94	1760.73	0.34
Susquehanna	Middle Reach	134.413	100-yr	312100.00	426.74	457.5	443.33	458.95	0.000419	9.75	35657.25	1979.25	0.33
Susquehanna	Middle Reach	134.413	500-yr	400700.00	426.74	462.4	446.15	463.98	0.000383	10.35	46502.11	2131.33	0.32
Susquehanna	Middle Reach	134.341	2-yr	122200.00	427.01	444.9	436.94	445.79	0.000468	7.54	16228.87	1252.36	0.34
Susquehanna	Middle Reach	134.341	5-yr	167900.00	427.01	448.2	438.73	449.28	0.000471	8.43	20592.80	1552.93	0.35
Susquehanna	Middle Reach	134.341	10-yr	200200.00	427.01	450.2	439.91	451.40	0.000467	8.98	23436.60	1691.96	0.36
Susquehanna	Middle Reach	134.341	25-yr	243200.00	427.01	452.5	441.37	453.88	0.000454	9.68	26983.30	1844.32	0.36
Susquehanna	Middle Reach	134.341	50-yr	277000.00	427.01	455.0	442.46	456.42	0.000458	9.78	31416.49	2069.13	0.35
Susquehanna	Middle Reach	134.341	100-yr	312100.00	427.01	457.3	443.53	458.78	0.000442	9.96	35667.70	2191.01	0.34
Susquehanna	Middle Reach	134.341	500-yr	400700.00	427.01	462.3	446.46	463.81	0.000382	10.30	49380.57	2561.94	0.32
Susquehanna	Middle Reach	134.282	2-yr	122200.00	427.23	444.7	437.25	445.63	0.000523	7.62	16071.33	1197.80	0.36
Susquehanna	Middle Reach	134.282	5-yr	167900.00	427.23	448.0	439.08	449.12	0.000499	8.42	20597.65	1447.42	0.36
Susquehanna	Middle Reach	134.282	10-yr	200200.00	427.23	450.0	440.26	451.24	0.000486	8.95	23563.11	1583.84	0.36
Susquehanna	Middle Reach	134.282	25-yr	243200.00	427.23	452.3	441.70	453.73	0.000468	9.64	27194.10	1711.79	0.37
Susquehanna	Middle Reach	134.282	50-yr	277000.00	427.23	454.8	442.78	456.27	0.000471	9.74	31380.28	2120.60	0.35
Susquehanna	Middle Reach	134.282	100-yr	312100.00	427.23	457.1	443.86	458.63	0.000455	9.93	35520.99	2468.48	0.34
Susquehanna	Middle Reach	134.282	500-yr	400700.00	427.23	462.2	446.58	463.69	0.000386	10.23	50634.11	2868.84	0.32
Susquehanna	Middle Reach	134.227	2-yr	122200.00	426.25	444.7	436.15	445.45	0.000415	7.05	17827.11	1375.97	0.32
Susquehanna	Middle Reach	134.227	5-yr	167900.00	426.25	448.0	437.95	448.94	0.000416	7.88	22417.92	1665.69	0.33
Susquehanna	Middle Reach	134.227	10-yr	200200.00	426.25	450.0	439.12	451.05	0.000413	8.39	25440.33	1938.17	0.34
Susquehanna	Middle Reach	134.227	25-yr	243200.00	426.25	452.3	440.57	453.54	0.000401	9.06	29212.90	2134.33	0.34
Susquehanna	Middle Reach	134.227	50-yr	277000.00	426.25	454.8	441.63	456.08	0.000407	9.18	33539.88	2496.71	0.33
Susquehanna	Middle Reach	134.227	100-yr	312100.00	426.25	457.1	442.72	458.45	0.000395	9.38	37749.72	2559.13	0.32
Susquehanna	Middle Reach	134.227	500-yr	400700.00	426.25	462.2	445.35	463.50	0.000321	9.44	56372.20	2727.97	0.30
Susquehanna	Middle Reach	134.148 Kipps Run	2-yr	122200.00	426.51	444.4	436.69	445.24	0.000498	7.35	17138.60	1530.02	0.35
Susquehanna	Middle Reach	134.148 Kipps Run	5-yr	168000.00	426.51	447.7	438.47	448.74	0.000463	8.09	21929.46	1686.12	0.35
Susquehanna	Middle Reach	134.148 Kipps Run	10-yr	200400.00	426.51	449.7	439.63	450.86	0.000453	8.59	24969.17	1856.88	0.35
Susquehanna	Middle Reach	134.148 Kipps Run	25-yr	243400.00	426.51	452.1	441.06	453.35	0.000433	9.23	28863.08	2033.15	0.35
Susquehanna	Middle Reach	134.148 Kipps Run	50-yr	277200.00	426.51	454.6	442.30	455.89	0.000435	9.32	33401.49	2443.35	0.34
Susquehanna	Middle Reach	134.148 Kipps Run	100-yr	312300.00	426.51	456.9	443.37	458.26	0.000418	9.49	37651.68	3092.04	0.33
Susquehanna	Middle Reach	134.148 Kipps Run	500-yr	401000.00	426.51	462.0	445.96	463.35	0.000344	9.65	57242.70	3724.29	0.30
Susquehanna	Middle Reach	134.074	2-yr	122200.00	425.62	444.3	435.50	445.04	0.000389	6.97	17533.14	1140.68	0.31
Susquehanna	Middle Reach	134.074	5-yr	168000.00	425.62	447.6	437.28	448.56	0.000396	7.86	21437.33	1379.53	0.32
Susquehanna	Middle Reach	134.074	10-yr	200400.00	425.62	449.6	438.43	450.69	0.000400	8.44	24353.77	1670.38	0.33
Susquehanna	Middle Reach	134.074	25-yr	243400.00	425.62	451.9	439.88	453.19	0.000393	9.15	28127.27	2028.05	0.34
Susquehanna	Middle Reach	134.074	50-yr	277200.00	425.62	454.4	440.93	455.73	0.000405	9.31	32535.87	2490.96	0.33
Susquehanna	Middle Reach	134.074	100-yr	312300.00	425.62	456.7	442.01	458.10	0.000395	9.53	36937.63	2878.64	0.32
Susquehanna	Middle Reach	134.074	500-yr	401000.00	425.62	461.9	444.60	463.21	0.000321	9.57	56255.55	3966.91	0.30
Susquehanna	Middle Reach	133.981	2-yr	122200.00	426.67	444.2	435.18	444.84	0.000336	6.57	18933.78	1258.39	0.29
Susquehanna	Middle Reach	133.981	5-yr	168000.00	426.67	447.5	436.88	448.35	0.000348	7.43	23430.31	1560.03	0.30
Susquehanna	Middle Reach	133.981	10-yr	200400.00	426.67	449.5	437.98	450.47	0.000350	7.96	26637.19	1652.61	0.31
Susquehanna	Middle Reach	133.981	25-yr	243400.00	426.67	451.8	439.35	452.97	0.000343	8.62	30528.85	1908.97	0.32
Susquehanna	Middle Reach	133.981	50-yr	277200.00	426.67	454.3	440.37	455.50	0.000356	8.80	34936.23	2501.03	0.31
Susquehanna	Middle Reach	133.981	100-yr	312300.00	426.67	456.6	441.39	457.88	0.000350	9.03	39403.25	2846.80	0.30
Susquehanna	Middle Reach	133.981	500-yr	401000.00	426.67	461.8	443.80	463.03	0.000291	9.17	57838.34	3108.73	0.28

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	133.868	2-yr	122200.00	425.54	444.1	434.59	444.63	0.000279	5.99	20406.60	1297.06	0.27
Susquehanna	Middle Reach	133.868	5-yr	168000.00	425.54	447.4	436.19	448.12	0.000281	6.74	25685.49	1811.42	0.27
Susquehanna	Middle Reach	133.868	10-yr	200400.00	425.54	449.4	437.23	450.23	0.000281	7.20	29609.57	2062.34	0.28
Susquehanna	Middle Reach	133.868	25-yr	243400.00	425.54	451.8	438.50	452.72	0.000271	7.73	34404.65	2286.83	0.28
Susquehanna	Middle Reach	133.868	50-yr	277200.00	425.54	454.3	439.47	455.24	0.000277	7.82	39672.45	2802.09	0.27
Susquehanna	Middle Reach	133.868	100-yr	312300.00	425.54	456.7	440.42	457.60	0.000262	7.88	48152.41	2979.35	0.26
Susquehanna	Middle Reach	133.868	500-yr	401000.00	425.54	461.9	442.69	462.79	0.000222	8.08	64046.04	3140.94	0.25
Susquehanna	Middle Reach	133.793	2-yr	122200.00	425.56	444.0	434.71	444.49	0.000244	5.38	22747.94	1631.82	0.25
Susquehanna	Middle Reach	133.793	5-yr	168000.00	425.56	447.4	436.29	447.97	0.000233	6.00	28672.54	1930.67	0.25
Susquehanna	Middle Reach	133.793	10-yr	200400.00	425.56	449.5	437.20	450.08	0.000231	6.39	32848.86	2143.90	0.25
Susquehanna	Middle Reach	133.793	25-yr	243400.00	425.56	451.8	438.34	452.57	0.000221	6.86	37909.74	2434.95	0.26
Susquehanna	Middle Reach	133.793	50-yr	277200.00	425.56	454.4	439.20	455.08	0.000226	6.96	43301.91	2783.87	0.25
Susquehanna	Middle Reach	133.793	100-yr	312300.00	425.56	456.7	440.04	457.46	0.000215	7.03	51829.87	3042.99	0.24
Susquehanna	Middle Reach	133.793	500-yr	401000.00	425.56	461.9	442.04	462.67	0.000184	7.26	68117.91	3207.42	0.22
Susquehanna	Middle Reach	133.723	2-yr	122200.00	424.96	444.0	434.46	444.41	0.000235	5.38	22724.21	1508.64	0.24
Susquehanna	Middle Reach	133.723	5-yr	168000.00	424.96	447.3	435.91	447.89	0.000238	5.98	28302.39	1913.03	0.26
Susquehanna	Middle Reach	133.723	10-yr	200400.00	424.96	449.4	436.85	449.99	0.000235	6.31	32516.24	2132.95	0.26
Susquehanna	Middle Reach	133.723	25-yr	243400.00	424.96	451.8	438.02	452.48	0.000225	6.72	37704.69	2363.13	0.26
Susquehanna	Middle Reach	133.723	50-yr	277200.00	424.96	454.3	438.90	454.99	0.000230	6.78	43379.07	2797.48	0.25
Susquehanna	Middle Reach	133.723	100-yr	312300.00	424.96	456.7	439.76	457.37	0.000216	6.80	51552.36	3136.64	0.24
Susquehanna	Middle Reach	133.723	500-yr	401000.00	424.96	461.9	441.84	462.59	0.000184	6.97	68302.58	3285.76	0.22
Susquehanna	Middle Reach	133.637	2-yr	122200.00	424.19	443.7	435.17	444.28	0.000305	5.92	20633.89	1441.75	0.28
Susquehanna	Middle Reach	133.637	5-yr	168000.00	424.19	447.1	436.68	447.76	0.000298	6.52	25760.82	1743.69	0.30
Susquehanna	Middle Reach	133.637	10-yr	200400.00	424.19	449.1	437.65	449.86	0.000293	6.79	29869.06	2078.32	0.30
Susquehanna	Middle Reach	133.637	25-yr	243400.00	424.19	451.6	438.86	452.36	0.000277	7.14	34955.00	2498.37	0.29
Susquehanna	Middle Reach	133.637	50-yr	277200.00	424.19	454.1	439.77	454.87	0.000276	7.07	42145.14	2925.68	0.27
Susquehanna	Middle Reach	133.637	100-yr	312300.00	424.19	456.5	440.66	457.26	0.000257	7.03	49529.55	3202.07	0.26
Susquehanna	Middle Reach	133.637	500-yr	401000.00	424.19	461.8	442.79	462.50	0.000213	7.10	66584.15	3282.97	0.24
Susquehanna	Middle Reach	133.561	2-yr	122200.00	424.66	443.6	434.82	444.15	0.000293	5.82	21008.66	1463.63	0.27
Susquehanna	Middle Reach	133.561	5-yr	168000.00	424.66	447.0	436.31	447.63	0.000284	6.34	26524.15	1894.73	0.29
Susquehanna	Middle Reach	133.561	10-yr	200400.00	424.66	449.1	437.29	449.74	0.000277	6.62	30714.68	2085.23	0.29
Susquehanna	Middle Reach	133.561	25-yr	243400.00	424.66	451.5	438.52	452.24	0.000263	6.99	35816.91	2126.95	0.28
Susquehanna	Middle Reach	133.561	50-yr	277200.00	424.66	454.0	439.43	454.76	0.000267	6.98	41254.01	2558.67	0.27
Susquehanna	Middle Reach	133.561	100-yr	312300.00	424.66	456.4	440.32	457.15	0.000250	6.99	48926.09	3195.48	0.25
Susquehanna	Middle Reach	133.561	500-yr	401000.00	424.66	461.7	442.48	462.41	0.000208	7.07	66096.39	3322.52	0.23
Susquehanna	Middle Reach	133.489	2-yr	122200.00	424.70	443.5	435.17	444.03	0.000325	5.97	20460.63	1474.02	0.28
Susquehanna	Middle Reach	133.489	5-yr	168000.00	424.70	446.8	436.66	447.52	0.000307	6.55	25758.73	1868.74	0.30
Susquehanna	Middle Reach	133.489	10-yr	200400.00	424.70	448.9	437.60	449.63	0.000297	6.82	29873.59	2051.28	0.30
Susquehanna	Middle Reach	133.489	25-yr	243400.00	424.70	451.3	438.82	452.13	0.000282	7.18	34907.73	2146.20	0.29
Susquehanna	Middle Reach	133.489	50-yr	277200.00	424.70	453.9	439.73	454.65	0.000284	7.16	40262.32	2685.13	0.28
Susquehanna	Middle Reach	133.489	100-yr	312300.00	424.70	456.3	440.61	457.05	0.000265	7.14	48307.42	3165.93	0.26
Susquehanna	Middle Reach	133.489	500-yr	401000.00	424.70	461.6	442.77	462.33	0.000218	7.20	65620.39	3487.20	0.24
Susquehanna	Middle Reach	133.416	2-yr	122200.00	424.69	443.4	434.63	443.90	0.000287	5.70	21456.15	1511.47	0.27
Susquehanna	Middle Reach	133.416	5-yr	168000.00	424.69	446.8	436.13	447.38	0.000303	6.16	27283.35	1914.08	0.29
Susquehanna	Middle Reach	133.416	10-yr	200400.00	424.69	448.9	437.09	449.49	0.000299	6.40	31364.46	2135.64	0.28
Susquehanna	Middle Reach	133.416	25-yr	243400.00	424.69	451.3	438.26	452.00	0.000274	6.71	36371.60	2268.75	0.28
Susquehanna	Middle Reach	133.416	50-yr	277200.00	424.69	453.8	439.16	454.52	0.000266	6.66	42984.55	2821.54	0.26
Susquehanna	Middle Reach	133.416	100-yr	312300.00	424.69	456.3	440.04	456.93	0.000243	6.65	50731.94	3392.77	0.25
Susquehanna	Middle Reach	133.416	500-yr	401000.00	424.69	461.6	442.11	462.22	0.000193	6.69	69090.37	3529.42	0.22
Susquehanna	Middle Reach	133.332	2-yr	122200.00	423.89	443.3	434.69	443.77	0.000312	5.70	21448.08	1606.75	0.27
Susquehanna	Middle Reach	133.332	5-yr	168000.00	423.89	446.7	436.17	447.24	0.000299	6.15	27306.89	1887.25	0.28
Susquehanna	Middle Reach	133.332	10-yr	200400.00	423.89	448.7	437.15	449.36	0.000283	6.42	31230.63	2037.42	0.28
Susquehanna	Middle Reach	133.332	25-yr	243400.00	423.89	451.2	438.37	451.88	0.000260	6.78	36073.77	2230.33	0.28
Susquehanna	Middle Reach	133.332	50-yr	277200.00	423.89	453.7	439.29	454.40	0.000257	6.79	41422.75	2553.04	0.26
Susquehanna	Middle Reach	133.332	100-yr	312300.00	423.89	456.1	440.22	456.82	0.000236	6.77	49739.19	3140.60	0.25
Susquehanna	Middle Reach	133.332	500-yr	401000.00	423.89	461.4	442.34	462.13	0.000192	6.87	66781.88	3270.37	0.23
Susquehanna	Middle Reach	133.252	2-yr	122200.00	423.94	443.2	433.80	443.63	0.000256	5.30	23052.71	1646.16	0.25
Susquehanna	Middle Reach	133.252	5-yr	168000.00	423.94	446.6	435.26	447.11	0.000247	5.84	28744.40	1851.53	0.25
Susquehanna	Middle Reach	133.252	10-yr	200400.00	423.94	448.6	436.21	449.24	0.000242	6.17	32525.72	2088.69	0.26
Susquehanna	Middle Reach	133.252	25-yr	243400.00	423.94	451.1	437.52	451.76	0.000230	6.55	37399.43	2306.56	0.26
Susquehanna	Middle Reach	133.252	50-yr	277200.00	423.94	453.6	438.39	454.28	0.000234	6.59	42636.56	2749.24	0.25
Susquehanna	Middle Reach	133.252	100-yr	312300.00	423.94	456.1	439.27	456.71	0.000215	6.56	51630.09	2991.29	0.24
Susquehanna	Middle Reach	133.252	500-yr	401000.00	423.94	461.4	441.31	462.04	0.000178	6.69	68784.87	3408.48	0.22
Susquehanna	Middle Reach	133.178	2-yr	122200.00	425.24	443.0	434.35	443.52	0.000303	5.54	22040.32	1669.06	0.27
Susquehanna	Middle Reach	133.178	5-yr	168000.00	425.24	446.4	435.80	447.01	0.000273	6.04	27817.33	1907.96	0.27
Susquehanna	Middle Reach	133.178	10-yr	200400.00	425.24	448.5	436.74	449.13	0.000264	6.35	31603.93	2105.96	0.27
Susquehanna	Middle Reach	133.178	25-yr	243400.00	425.24	451.0	437.96	451.67	0.000247	6.73	36426.64	2298.85	0.27
Susquehanna	Middle Reach	133.178	50-yr	277200.00	425.24	453.5	438.92	454.19	0.000243	6.71	43621.62	2641.91	0.25
Susquehanna	Middle Reach	133.178	100-yr	312300.00	425.24	455.9	439.79	456.62	0.000226	6.73	50427.43	2893.15	0.24
Susquehanna	Middle Reach	133.178	500-yr	401000.00	425.24	461.3	441.97	461.97	0.000187	6.87	66817.25	3319.46	0.22
Susquehanna	Middle Reach	133.107	2-yr	122200.00	422.82	443.0	433.90	443.40	0.000226	4.99	24512.05	1812.72	0.24
Susquehanna	Middle Reach	133.107	5-yr	168000.00	422.82	446.4	435.27	446.89	0.000208	5.46	30745.39	1976.77	0.24
Susquehanna	Middle Reach	133.107	10-yr	200400.00	422.82	448.5	436.16	449.02	0.000204	5.80	34590.50	2108.40	0.24
Susquehanna	Middle Reach	133.107	25-yr	243400.00	422.82	451.0	437.26	451.55	0.000195	6.22	39314.63	2263.85	0.24
Susquehanna	Middle Reach	133.107	50-yr	277200.00	422.82	453.5	438.09	454.09	0.000200	6.32	44412.57	2519.85	0.23
Susquehanna	Middle Reach	133.107	100-yr	312300.00	422.82	455.9	438.90	456.52	0.000187	6.34	53083.31	2799.91	0.22
Susquehanna	Middle Reach	133.107	500-yr	401000.00	422.82	461.2	440.89	461.89	0.000160	6.59	68260.87	3201.34	0.21
Susquehanna	Middle Reach	133.022	2-yr	122200.00	423.81	442.9	433.81	443.29	0.000246	5.27	23181.57	1643.31	0.25
Susquehanna	Middle Reach	133.022	5-yr	168000.00	423.81	446.3	435.19	446.79	0.000231	5.77	29135.00	1826.83	0.25
Susquehanna	Middle Reach	133.022	10-yr	200400.00	423.81	448.3	436.10	448.92	0.000227	6.09	32925.45	2001.82	0.25
Susquehanna	Middle Reach	133.022	25-yr	243400.00	423.81	450.8	437.21	451.46	0.000219	6.50	37542.73	2160.96	0.26
Susquehanna	Middle Reach	133.022	50-yr	277200.00	423.81	453.3	438.04	453.99	0.000225	6.58	42428.45	2492.66	0.24
Susquehanna	Middle Reach	133.022	100-yr	312300.00	423.81	455.8	438.89	456.43	0.000212	6.59	50376.08	2652.51	0.23
Susquehanna	Middle Reach	133.022	500-yr	401000.00	423.81	461.1	440.87	461.81	0.000180	6.80	65655.45	3075.34	0.22
Susquehanna	Middle Reach	132.956	2-yr	122200.00	424.45	442.8	434.05	443.20	0.000263	5.38	22701.42	1638.50	0.25
Susquehanna	Middle Reach	132.956	5-yr	168000.00	424.45	446.2	435.44	446.70	0.000247	5.93	28334.89	1893.44	0.25
Susquehanna	Middle Reach	132.956	10-yr	200400.00	424.45	448.2	436.35	448.83	0.000241	6.29	31925.62	2092.19	0.26
Susquehanna	Middle Reach	132.956	25-yr	243400.00	424.45	450.7	437.47	451.38	0.000230	6.72	36479.36	2343.13	0.26
Susquehanna	Middle Reach	132.956	50-yr	277200.00	424.45	453.2	438.32	453.91	0.000228	6.69	44259.66	2487.29	0.25

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	132.956	100-yr	312300.00	424.45	455.7	439.15	456.36	0.000215	6.74	50414.37	2535.14	0.24
Susquehanna	Middle Reach	132.956	500-yr	401000.00	424.45	461.0	441.12	461.74	0.000184	6.98	64354.21	2679.29	0.22
Susquehanna	Middle Reach	132.876	2-yr	122200.00	424.68	442.6	433.72	443.09	0.000253	5.33	22924.41	1810.06	0.25
Susquehanna	Middle Reach	132.876	5-yr	168000.00	424.68	446.1	435.13	446.60	0.000240	5.89	28542.17	2034.61	0.25
Susquehanna	Middle Reach	132.876	10-yr	200400.00	424.68	448.1	436.03	448.73	0.000235	6.24	32188.90	2181.11	0.26
Susquehanna	Middle Reach	132.876	25-yr	243400.00	424.68	450.6	437.17	451.28	0.000223	6.69	36694.85	2285.14	0.26
Susquehanna	Middle Reach	132.876	50-yr	277200.00	424.68	453.2	438.00	453.81	0.000215	6.59	45525.55	2381.24	0.24
Susquehanna	Middle Reach	132.876	100-yr	312300.00	424.68	455.6	438.82	456.26	0.000204	6.66	51378.46	2400.25	0.23
Susquehanna	Middle Reach	132.876	500-yr	401000.00	424.68	461.0	440.82	461.66	0.000177	6.94	65479.02	2818.11	0.22
Susquehanna	Middle Reach	132.804	2-yr	122200.00	424.35	442.5	433.90	442.99	0.000275	5.52	22125.14	1680.31	0.26
Susquehanna	Middle Reach	132.804	5-yr	168000.00	424.35	445.9	435.32	446.50	0.000255	6.07	27721.17	2025.63	0.26
Susquehanna	Middle Reach	132.804	10-yr	200400.00	424.35	448.0	436.24	448.63	0.000250	6.44	31367.67	2172.18	0.26
Susquehanna	Middle Reach	132.804	25-yr	243400.00	424.35	450.4	437.38	451.19	0.000238	6.91	35830.55	2236.07	0.26
Susquehanna	Middle Reach	132.804	50-yr	277200.00	424.35	453.0	438.24	453.72	0.000230	6.84	43998.53	2284.94	0.25
Susquehanna	Middle Reach	132.804	100-yr	312300.00	424.35	455.5	439.09	456.18	0.000218	6.92	49604.30	2333.08	0.24
Susquehanna	Middle Reach	132.804	500-yr	401000.00	424.35	460.8	441.14	461.59	0.000189	7.22	63283.05	2821.60	0.23
Susquehanna	Middle Reach	132.720	2-yr	122200.00	424.31	442.4	432.64	442.86	0.000225	5.24	23321.92	1678.96	0.24
Susquehanna	Middle Reach	132.720	5-yr	168000.00	424.31	445.9	434.09	446.39	0.000218	5.82	28893.20	1957.54	0.24
Susquehanna	Middle Reach	132.720	10-yr	200400.00	424.31	447.9	435.02	448.52	0.000218	6.21	32465.42	2115.83	0.25
Susquehanna	Middle Reach	132.720	25-yr	243400.00	424.31	450.4	436.18	451.08	0.000211	6.69	36909.01	2209.56	0.25
Susquehanna	Middle Reach	132.720	50-yr	277200.00	424.31	452.9	437.05	453.61	0.000211	6.66	44792.57	2277.98	0.24
Susquehanna	Middle Reach	132.720	100-yr	312300.00	424.31	455.4	437.94	456.08	0.000203	6.76	50397.61	2348.51	0.23
Susquehanna	Middle Reach	132.720	500-yr	401000.00	424.31	460.8	440.08	461.50	0.000180	7.10	63631.68	2544.60	0.22
Susquehanna	Middle Reach	132.635	2-yr	122200.00	424.02	442.4	431.67	442.76	0.000183	4.89	24990.12	1571.22	0.22
Susquehanna	Middle Reach	132.635	5-yr	168000.00	424.02	445.8	433.11	446.28	0.000184	5.52	30511.38	1825.84	0.22
Susquehanna	Middle Reach	132.635	10-yr	200400.00	424.02	447.9	434.04	448.41	0.000187	5.94	34078.05	2028.61	0.23
Susquehanna	Middle Reach	132.635	25-yr	243400.00	424.02	450.3	435.19	450.97	0.000185	6.44	38548.38	2123.93	0.24
Susquehanna	Middle Reach	132.635	50-yr	277200.00	424.02	452.9	436.05	453.52	0.000191	6.53	45131.66	2175.42	0.23
Susquehanna	Middle Reach	132.635	100-yr	312300.00	424.02	455.3	436.86	455.99	0.000185	6.67	50480.45	2226.45	0.22
Susquehanna	Middle Reach	132.635	500-yr	401000.00	424.02	460.7	438.93	461.42	0.000168	7.08	63014.17	2520.80	0.22
Susquehanna	Middle Reach	132.569	2-yr	122200.00	424.27	442.3	431.92	442.69	0.000185	4.91	24872.80	1563.73	0.22
Susquehanna	Middle Reach	132.569	5-yr	168000.00	424.27	445.7	433.31	446.22	0.000185	5.55	30418.65	1793.30	0.22
Susquehanna	Middle Reach	132.569	10-yr	200400.00	424.27	447.8	434.20	448.35	0.000188	5.96	33983.67	1959.56	0.23
Susquehanna	Middle Reach	132.569	25-yr	243400.00	424.27	450.3	435.36	450.91	0.000186	6.46	38547.28	2067.32	0.24
Susquehanna	Middle Reach	132.569	50-yr	277200.00	424.27	452.8	436.20	453.45	0.000192	6.56	44684.73	2127.79	0.23
Susquehanna	Middle Reach	132.569	100-yr	312300.00	424.27	455.2	437.04	455.92	0.000186	6.69	49918.81	2211.08	0.22
Susquehanna	Middle Reach	132.569	500-yr	401000.00	424.27	460.6	439.03	461.36	0.000168	7.09	62612.11	2526.75	0.22
Susquehanna	Middle Reach	132.488	2-yr	122200.00	423.92	442.2	431.67	442.62	0.000178	4.86	25155.27	1564.56	0.21
Susquehanna	Middle Reach	132.488	5-yr	168000.00	423.92	445.7	433.09	446.14	0.000179	5.50	30586.32	1739.01	0.22
Susquehanna	Middle Reach	132.488	10-yr	200400.00	423.92	447.7	434.00	448.27	0.000183	5.92	34139.13	1941.60	0.23
Susquehanna	Middle Reach	132.488	25-yr	243400.00	423.92	450.2	435.12	450.83	0.000182	6.42	38784.86	2004.13	0.23
Susquehanna	Middle Reach	132.488	50-yr	277200.00	423.92	452.7	435.95	453.37	0.000190	6.54	44385.32	2041.48	0.23
Susquehanna	Middle Reach	132.488	100-yr	312300.00	423.92	455.2	436.80	455.84	0.000185	6.69	49411.70	2069.17	0.22
Susquehanna	Middle Reach	132.488	500-yr	401000.00	423.92	460.5	438.79	461.29	0.000168	7.12	61364.38	2366.40	0.22
Susquehanna	Middle Reach	132.411	2-yr	122200.00	424.65	442.0	433.04	442.52	0.000267	5.54	22054.48	1527.42	0.26
Susquehanna	Middle Reach	132.411	5-yr	168000.00	424.65	445.5	434.51	446.04	0.000253	6.15	27385.98	1670.77	0.26
Susquehanna	Middle Reach	132.411	10-yr	200400.00	424.65	447.5	435.46	448.17	0.000251	6.56	31022.33	1887.64	0.26
Susquehanna	Middle Reach	132.411	25-yr	243400.00	424.65	450.0	436.65	450.73	0.000240	7.03	35693.32	1936.57	0.27
Susquehanna	Middle Reach	132.411	50-yr	277200.00	424.65	452.5	437.53	453.27	0.000245	7.14	40690.20	1977.64	0.25
Susquehanna	Middle Reach	132.411	100-yr	312300.00	424.65	454.9	438.38	455.75	0.000234	7.26	45575.25	2008.55	0.25
Susquehanna	Middle Reach	132.411	500-yr	401000.00	424.65	460.3	440.46	461.21	0.000207	7.65	57188.45	2299.51	0.24
Susquehanna	Middle Reach	132.331	2-yr	122200.00	424.60	441.9	433.24	442.40	0.000292	5.74	21302.47	1496.96	0.27
Susquehanna	Middle Reach	132.331	5-yr	168000.00	424.60	445.3	434.70	445.93	0.000273	6.35	26496.20	1641.08	0.27
Susquehanna	Middle Reach	132.331	10-yr	200400.00	424.60	447.3	435.64	448.06	0.000269	6.77	30109.20	1871.22	0.27
Susquehanna	Middle Reach	132.331	25-yr	243400.00	424.60	449.8	436.84	450.62	0.000256	7.25	34771.47	1910.67	0.27
Susquehanna	Middle Reach	132.331	50-yr	277200.00	424.60	452.3	437.73	453.16	0.000261	7.36	39647.32	1952.38	0.26
Susquehanna	Middle Reach	132.331	100-yr	312300.00	424.60	454.8	438.63	455.64	0.000249	7.48	44485.41	1985.70	0.25
Susquehanna	Middle Reach	132.331	500-yr	401000.00	424.60	460.2	440.70	461.11	0.000219	7.88	55586.14	2174.80	0.24
Susquehanna	Middle Reach	132.260	2-yr	122200.00	422.14	441.9	431.37	442.28	0.000198	5.13	23800.06	1471.68	0.22
Susquehanna	Middle Reach	132.260	5-yr	168000.00	422.14	445.3	432.87	445.81	0.000199	5.82	29048.48	1717.53	0.23
Susquehanna	Middle Reach	132.260	10-yr	200400.00	422.14	447.3	433.81	447.94	0.000203	6.26	32777.86	1882.85	0.24
Susquehanna	Middle Reach	132.260	25-yr	243400.00	422.14	449.8	435.00	450.51	0.000199	6.77	37488.90	1929.92	0.24
Susquehanna	Middle Reach	132.260	50-yr	277200.00	422.14	452.3	435.87	453.05	0.000209	6.93	42365.94	1958.15	0.24
Susquehanna	Middle Reach	132.260	100-yr	312300.00	422.14	454.8	436.77	455.53	0.000204	7.09	47214.30	1985.46	0.23
Susquehanna	Middle Reach	132.260	500-yr	401000.00	422.14	460.2	438.87	461.02	0.000187	7.56	58355.95	2199.75	0.23
Susquehanna	Middle Reach	132.182	2-yr	122200.00	422.49	441.8		442.20	0.000186	5.03	24273.85	1475.52	0.22
Susquehanna	Middle Reach	132.182	5-yr	168000.00	422.49	445.2		445.73	0.000189	5.72	29551.02	1713.42	0.23
Susquehanna	Middle Reach	132.182	10-yr	200400.00	422.49	447.3		447.86	0.000193	6.17	33286.69	1905.71	0.23
Susquehanna	Middle Reach	132.182	25-yr	243400.00	422.49	449.7		450.42	0.000191	6.68	38070.52	1964.73	0.24
Susquehanna	Middle Reach	132.182	50-yr	277200.00	422.49	452.2		452.96	0.000201	6.84	43034.79	1997.32	0.23
Susquehanna	Middle Reach	132.182	100-yr	312300.00	422.49	454.7		455.45	0.000197	7.01	47979.98	2018.09	0.23
Susquehanna	Middle Reach	132.182	500-yr	401000.00	422.49	460.1		460.93	0.000181	7.47	59104.24	2183.32	0.22
Susquehanna	Middle Reach	132.110	2-yr	122200.00	423.37	441.7		442.12	0.000218	5.31	23011.02	1459.62	0.24
Susquehanna	Middle Reach	132.110	5-yr	168000.00	423.37	445.1		445.65	0.000218	5.99	28208.85	1691.47	0.24
Susquehanna	Middle Reach	132.110	10-yr	200400.00	423.37	447.1		447.77	0.000220	6.43	31964.03	1948.20	0.25
Susquehanna	Middle Reach	132.110	25-yr	243400.00	423.37	449.6		450.34	0.000213	6.94	36869.50	2017.54	0.25
Susquehanna	Middle Reach	132.110	50-yr	277200.00	423.37	452.1		452.87	0.000222	7.08	41957.51	2043.70	0.25
Susquehanna	Middle Reach	132.110	100-yr	312300.00	423.37	454.6		455.36	0.000215	7.23	47032.53	2068.35	0.24
Susquehanna	Middle Reach	132.110	500-yr	401000.00	423.37	460.0		460.86	0.000194	7.66	58365.20	2119.20	0.23
Susquehanna	Middle Reach	132.031	2-yr	122200.00	423.36	441.5		442.01	0.000252	5.60	21814.37	1428.13	0.25
Susquehanna	Middle Reach	132.031	5-yr	168000.00	423.36	444.9		445.55	0.000249	6.28	27008.15	1761.45	0.26
Susquehanna	Middle Reach	132.031	10-yr	200400.00	423.36	447.0		447.67	0.000250	6.71	30879.89	1988.86	0.26
Susquehanna	Middle Reach	132.031	25-yr	243400.00	423.36	449.5		450.25	0.000238	7.20	35900.27	2064.45	0.27
Susquehanna	Middle Reach	132.031	50-yr	277200.00	423.36	452.0		452.77	0.000245	7.31	41131.06	2100.10	0.26
Susquehanna	Middle Reach	132.031	100-yr	312300.00	423.36	454.4		455.27	0.000234	7.43	46361.02	2130.45	0.25
Susquehanna	Middle Reach	132.031	500-yr	401000.00	423.36	459.9		460.78	0.000207	7.82	58097.27	2193.58	0.24
Susquehanna	Middle Reach	131.944	2-yr	122200.00	422.82	441.4	431.87	441.90	0.000263	5.68	21514.03	1460.41	0.26
Susquehanna	Middle Reach	131.944	5-yr	168000.00	422.82	444.8	433.41	445.43	0.000258	6.36	26857.90	1893.14	0.26

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	131.944	10-yr	200400.00	422.82	446.8	434.41	447.55	0.000257	6.79	30919.44	2040.87	0.27
Susquehanna	Middle Reach	131.944	25-yr	243400.00	422.82	449.3	435.64	450.13	0.000244	7.28	36112.58	2129.65	0.27
Susquehanna	Middle Reach	131.944	50-yr	277200.00	422.82	451.8	436.54	452.66	0.000251	7.38	41503.73	2233.63	0.26
Susquehanna	Middle Reach	131.944	100-yr	312300.00	422.82	454.3	437.49	455.16	0.000239	7.50	46917.91	2342.03	0.25
Susquehanna	Middle Reach	131.944	500-yr	401000.00	422.82	459.8	439.73	460.68	0.000210	7.87	59069.82	2583.92	0.24
Susquehanna	Middle Reach	131.875	2-yr	122200.00	422.94	441.2	432.03	441.79	0.000303	5.98	20433.60	1389.54	0.27
Susquehanna	Middle Reach	131.875	5-yr	168000.00	422.94	444.6	433.62	445.32	0.000294	6.65	25598.70	1737.83	0.28
Susquehanna	Middle Reach	131.875	10-yr	200400.00	422.94	446.7	434.66	447.45	0.000292	7.09	29570.56	2101.86	0.28
Susquehanna	Middle Reach	131.875	25-yr	243400.00	422.94	449.2	435.98	450.03	0.000276	7.58	34887.37	2190.15	0.28
Susquehanna	Middle Reach	131.875	50-yr	277200.00	422.94	451.7	436.96	452.56	0.000280	7.67	40442.89	2259.14	0.27
Susquehanna	Middle Reach	131.875	100-yr	312300.00	422.94	454.1	437.94	455.06	0.000266	7.78	46034.90	2355.51	0.26
Susquehanna	Middle Reach	131.875	500-yr	401000.00	422.94	459.6	440.20	460.59	0.000230	8.13	59429.16	2477.40	0.25
Susquehanna	Middle Reach	131.803	2-yr	122200.00	422.23	441.2	431.10	441.66	0.000238	5.48	22513.59	1571.19	0.25
Susquehanna	Middle Reach	131.803	5-yr	168000.00	422.23	444.6	432.69	445.19	0.000235	6.14	28461.71	1936.69	0.25
Susquehanna	Middle Reach	131.803	10-yr	200400.00	422.23	446.7	433.69	447.32	0.000234	6.56	32719.42	2145.04	0.25
Susquehanna	Middle Reach	131.803	25-yr	243400.00	422.23	449.1	434.95	449.90	0.000224	7.05	38224.39	2263.50	0.26
Susquehanna	Middle Reach	131.803	50-yr	277200.00	422.23	451.6	435.86	452.43	0.000232	7.17	43921.86	2286.55	0.25
Susquehanna	Middle Reach	131.803	100-yr	312300.00	422.23	454.1	436.79	454.94	0.000222	7.30	49622.63	2322.79	0.24
Susquehanna	Middle Reach	131.803	500-yr	401000.00	422.23	459.6	439.05	460.48	0.000197	7.69	62627.02	2442.23	0.23
Susquehanna	Middle Reach	131.724	2-yr	122200.00	422.55	441.1	431.44	441.56	0.000236	5.34	22879.45	1569.32	0.24
Susquehanna	Middle Reach	131.724	5-yr	168000.00	422.55	444.5	432.95	445.09	0.000230	5.95	29017.61	2006.59	0.25
Susquehanna	Middle Reach	131.724	10-yr	200400.00	422.55	446.6	433.89	447.21	0.000226	6.34	33241.88	2148.67	0.25
Susquehanna	Middle Reach	131.724	25-yr	243400.00	422.55	449.1	435.04	449.80	0.000215	6.80	38802.89	2253.57	0.25
Susquehanna	Middle Reach	131.724	50-yr	277200.00	422.55	451.6	435.95	452.32	0.000221	6.92	44473.09	2281.09	0.24
Susquehanna	Middle Reach	131.724	100-yr	312300.00	422.55	454.1	436.82	454.83	0.000212	7.03	50199.71	2329.96	0.24
Susquehanna	Middle Reach	131.724	500-yr	401000.00	422.55	459.6	438.92	460.39	0.000186	7.39	63627.43	2497.93	0.23
Susquehanna	Middle Reach	131.649	2-yr	122200.00	422.45	441.0	431.00	441.46	0.000217	5.14	23787.40	1625.30	0.23
Susquehanna	Middle Reach	131.649	5-yr	168000.00	422.45	444.5	432.57	444.99	0.000211	5.72	30161.47	2038.07	0.24
Susquehanna	Middle Reach	131.649	10-yr	200400.00	422.45	446.5	433.51	447.11	0.000207	6.09	34550.63	2212.21	0.24
Susquehanna	Middle Reach	131.649	25-yr	243400.00	422.45	449.1	434.68	449.70	0.000196	6.52	40232.44	2285.89	0.24
Susquehanna	Middle Reach	131.649	50-yr	277200.00	422.45	451.6	435.54	452.22	0.000202	6.62	45977.05	2372.27	0.23
Susquehanna	Middle Reach	131.649	100-yr	312300.00	422.45	454.1	436.42	454.73	0.000192	6.72	51788.46	2448.01	0.23
Susquehanna	Middle Reach	131.649	500-yr	401000.00	422.45	459.6	438.48	460.29	0.000168	7.04	65878.66	2573.07	0.22
Susquehanna	Middle Reach	131.571	2-yr	122200.00	421.56	441.0	430.27	441.36	0.000181	4.78	25783.98	1870.16	0.21
Susquehanna	Middle Reach	131.571	5-yr	168000.00	421.56	444.5	431.88	444.89	0.000175	5.33	32907.57	2170.29	0.22
Susquehanna	Middle Reach	131.571	10-yr	200400.00	421.56	446.5	432.79	447.01	0.000174	5.70	37494.78	2295.16	0.22
Susquehanna	Middle Reach	131.571	25-yr	243400.00	421.56	449.0	433.90	449.60	0.000167	6.13	43315.30	2412.56	0.22
Susquehanna	Middle Reach	131.571	50-yr	277200.00	421.56	451.5	434.76	452.12	0.000174	6.26	49158.18	2449.46	0.22
Susquehanna	Middle Reach	131.571	100-yr	312300.00	421.56	454.0	435.59	454.64	0.000168	6.38	55075.51	2562.83	0.21
Susquehanna	Middle Reach	131.571	500-yr	401000.00	421.56	459.5	437.55	460.21	0.000148	6.71	70693.41	3173.31	0.20
Susquehanna	Middle Reach	131.492	2-yr	122200.00	421.25	440.9	430.09	441.29	0.000181	4.76	25728.38	1735.81	0.21
Susquehanna	Middle Reach	131.492	5-yr	168000.00	421.25	444.4	431.66	444.82	0.000176	5.33	32162.04	1968.36	0.22
Susquehanna	Middle Reach	131.492	10-yr	200400.00	421.25	446.4	432.57	446.94	0.000176	5.71	36564.15	2260.39	0.22
Susquehanna	Middle Reach	131.492	25-yr	243400.00	421.25	449.0	433.71	449.53	0.000168	6.13	42446.04	2380.12	0.22
Susquehanna	Middle Reach	131.492	50-yr	277200.00	421.25	451.5	434.55	452.05	0.000174	6.24	48394.05	2430.21	0.22
Susquehanna	Middle Reach	131.492	100-yr	312300.00	421.25	454.0	435.44	454.57	0.000167	6.35	54443.22	2524.48	0.21
Susquehanna	Middle Reach	131.492	500-yr	401000.00	421.25	459.5	437.53	460.15	0.000147	6.67	69103.39	2671.80	0.20
Susquehanna	Middle Reach	131.420	2-yr	122200.00	421.76	440.8	430.54	441.21	0.000193	4.86	25260.44	1752.92	0.22
Susquehanna	Middle Reach	131.420	5-yr	168000.00	421.76	444.3	432.12	444.75	0.000185	5.41	31777.97	2062.11	0.22
Susquehanna	Middle Reach	131.420	10-yr	200400.00	421.76	446.4	433.01	446.87	0.000183	5.78	36294.96	2324.92	0.23
Susquehanna	Middle Reach	131.420	25-yr	243400.00	421.76	448.9	434.14	449.47	0.000174	6.19	42327.99	2431.45	0.23
Susquehanna	Middle Reach	131.420	50-yr	277200.00	421.76	451.4	434.97	451.98	0.000179	6.29	48450.82	2506.69	0.22
Susquehanna	Middle Reach	131.420	100-yr	312300.00	421.76	453.9	435.83	454.50	0.000171	6.38	54715.26	2554.69	0.21
Susquehanna	Middle Reach	131.420	500-yr	401000.00	421.76	459.4	437.81	460.09	0.000149	6.69	69176.39	2680.65	0.20
Susquehanna	Middle Reach	131.343	2-yr	122200.00	421.96	440.8		441.13	0.000198	4.82	25569.06	1860.55	0.22
Susquehanna	Middle Reach	131.343	5-yr	168000.00	421.96	444.2		444.67	0.000186	5.34	32366.73	2148.93	0.22
Susquehanna	Middle Reach	131.343	10-yr	200400.00	421.96	446.3		446.79	0.000182	5.68	37010.75	2325.25	0.22
Susquehanna	Middle Reach	131.343	25-yr	243400.00	421.96	448.8		449.39	0.000172	6.07	43248.40	2556.71	0.23
Susquehanna	Middle Reach	131.343	50-yr	277200.00	421.96	451.3		451.90	0.000176	6.16	49703.78	2601.00	0.22
Susquehanna	Middle Reach	131.343	100-yr	312300.00	421.96	453.8		454.43	0.000166	6.23	56301.15	2634.39	0.21
Susquehanna	Middle Reach	131.343	500-yr	401000.00	421.96	459.4		460.02	0.000144	6.51	71062.39	2677.64	0.20
Susquehanna	Middle Reach	131.264	2-yr	122200.00	421.83	440.8	429.48	441.04	0.000137	4.24	29196.75	1954.13	0.19
Susquehanna	Middle Reach	131.264	5-yr	168000.00	421.83	444.2	430.89	444.58	0.000135	4.77	36127.33	2071.81	0.19
Susquehanna	Middle Reach	131.264	10-yr	200400.00	421.83	446.3	431.79	446.70	0.000136	5.12	40740.45	2418.42	0.20
Susquehanna	Middle Reach	131.264	25-yr	243400.00	421.83	448.8	432.85	449.30	0.000132	5.52	47144.69	2607.51	0.20
Susquehanna	Middle Reach	131.264	50-yr	277200.00	421.83	451.3	433.61	451.81	0.000138	5.64	53667.05	2664.11	0.19
Susquehanna	Middle Reach	131.264	100-yr	312300.00	421.83	453.8	434.39	454.34	0.000133	5.75	60475.80	2702.45	0.19
Susquehanna	Middle Reach	131.264	500-yr	401000.00	421.83	459.4	436.21	459.94	0.000119	6.07	75609.02	2737.65	0.18
Susquehanna	Middle Reach	131.192	2-yr	122200.00	421.86	440.7	429.25	440.99	0.000129	4.07	30254.43	2051.60	0.18
Susquehanna	Middle Reach	131.192	5-yr	168000.00	421.86	444.2	430.66	444.52	0.000125	4.56	37420.15	2115.80	0.18
Susquehanna	Middle Reach	131.192	10-yr	200400.00	421.86	446.3	431.57	446.64	0.000125	4.89	42143.51	2415.11	0.19
Susquehanna	Middle Reach	131.192	25-yr	243400.00	421.86	448.8	432.59	449.24	0.000121	5.28	48491.14	2593.76	0.19
Susquehanna	Middle Reach	131.192	50-yr	277200.00	421.86	451.3	433.35	451.75	0.000128	5.41	55121.91	2719.94	0.19
Susquehanna	Middle Reach	131.192	100-yr	312300.00	421.86	453.8	434.11	454.28	0.000123	5.52	62047.25	2757.20	0.18
Susquehanna	Middle Reach	131.192	500-yr	401000.00	421.86	459.4	435.89	459.89	0.000111	5.85	77484.79	2792.49	0.18
Susquehanna	Middle Reach	131.109	2-yr	122200.00	422.77	440.6		440.92	0.000157	4.26	28883.66	2108.85	0.20
Susquehanna	Middle Reach	131.109	5-yr	168000.00	422.77	444.1		444.46	0.000144	4.70	36558.22	2301.79	0.20
Susquehanna	Middle Reach	131.109	10-yr	200400.00	422.77	446.2		446.58	0.000141	5.01	41496.20	2462.10	0.20
Susquehanna	Middle Reach	131.109	25-yr	243400.00	422.77	448.7		449.19	0.000134	5.36	48225.91	2762.00	0.20
Susquehanna	Middle Reach	131.109	50-yr	277200.00	422.77	451.2		451.69	0.000137	5.44	55179.40	2812.15	0.19
Susquehanna	Middle Reach	131.109	100-yr	312300.00	422.77	453.8		454.23	0.000130	5.52	62320.73	2831.36	0.19
Susquehanna	Middle Reach	131.109	500-yr	401000.00	422.77	459.3		459.83	0.000113	5.77	78216.38	2871.48	0.18
Susquehanna	Middle Reach	131.033	2-yr	122200.00	423.34	440.5		440.85	0.000182	4.48	27457.89	2113.04	0.21
Susquehanna	Middle Reach	131.033	5-yr	168000.00	423.34	444.0		444.40	0.000163	4.89	35052.18	2227.83	0.21
Susquehanna	Middle Reach	131.033	10-yr	200400.00	423.34	446.1		446.52	0.000159	5.18	39755.43	2303.55	0.21
Susquehanna	Middle Reach	131.033	25-yr	243400.00	423.34	448.7		449.13	0.000149	5.53	46162.61	2645.54	0.21
Susquehanna	Middle Reach	131.033	50-yr	277200.00	423.34	451.2		451.63	0.000153	5.60	53087.13	2888.64	0.20
Susquehanna	Middle Reach	131.033	100-yr	312300.00	423.34	453.7		454.17	0.000143	5.66	60459.34	2928.39	0.19
Susquehanna	Middle Reach	131.033	500-yr	401000.00	423.34	459.3		459.79	0.000123	5.88	77015.05	2989.83	0.18

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	130.962	2-yr	122200.00	422.68	440.5	430.63	440.78	0.000170	4.41	27930.34	2117.25	0.21
Susquehanna	Middle Reach	130.962	5-yr	168000.00	422.68	444.0	431.99	444.34	0.000157	4.82	35609.61	2254.83	0.20
Susquehanna	Middle Reach	130.962	10-yr	200400.00	422.68	446.1	432.84	446.46	0.000154	5.11	40475.98	2555.58	0.21
Susquehanna	Middle Reach	130.962	25-yr	243400.00	422.68	448.6	433.92	449.07	0.000144	5.44	47464.91	2844.25	0.21
Susquehanna	Middle Reach	130.962	50-yr	277200.00	422.68	451.1	434.71	451.57	0.000147	5.51	54784.68	3059.76	0.20
Susquehanna	Middle Reach	130.962	100-yr	312300.00	422.68	453.6	435.53	454.11	0.000138	5.55	62483.76	3108.99	0.19
Susquehanna	Middle Reach	130.962	500-yr	401000.00	422.68	459.2	437.22	459.73	0.000117	5.74	80289.69	3156.02	0.18
Susquehanna	Middle Reach	130.892	2-yr	122200.00	423.96	440.4	432.14	440.71	0.000231	4.75	25922.10	2170.19	0.24
Susquehanna	Middle Reach	130.892	5-yr	168000.00	423.96	443.9	433.47	444.27	0.000196	5.06	34042.18	2478.31	0.22
Susquehanna	Middle Reach	130.892	10-yr	200400.00	423.96	446.0	434.43	446.39	0.000186	5.31	39451.60	2677.31	0.22
Susquehanna	Middle Reach	130.892	25-yr	243400.00	423.96	448.5	435.34	449.01	0.000168	5.59	46612.70	2964.66	0.22
Susquehanna	Middle Reach	130.892	50-yr	277200.00	423.96	451.0	436.05	451.51	0.000166	5.60	54880.58	3462.40	0.21
Susquehanna	Middle Reach	130.892	100-yr	312300.00	423.96	453.6	436.74	454.06	0.000151	5.59	63658.03	3513.06	0.20
Susquehanna	Middle Reach	130.892	500-yr	401000.00	423.96	459.2	438.40	459.68	0.000122	5.68	83607.41	3859.59	0.18
Susquehanna	Middle Reach	130.823	2-yr	122200.00	422.92	440.3	430.89	440.62	0.000181	4.39	27852.44	2136.19	0.21
Susquehanna	Middle Reach	130.823	5-yr	168000.00	422.92	443.8	432.25	444.19	0.000161	4.77	35785.83	2418.54	0.20
Susquehanna	Middle Reach	130.823	10-yr	200400.00	422.92	445.9	433.09	446.32	0.000155	5.04	41017.66	2550.77	0.20
Susquehanna	Middle Reach	130.823	25-yr	243400.00	422.92	448.5	434.15	448.94	0.000143	5.34	48905.79	3501.78	0.20
Susquehanna	Middle Reach	130.823	50-yr	277200.00	422.92	451.0	435.00	451.44	0.000143	5.36	57908.12	3677.31	0.19
Susquehanna	Middle Reach	130.823	100-yr	312300.00	422.92	453.6	435.71	453.99	0.000131	5.35	67229.84	3808.00	0.18
Susquehanna	Middle Reach	130.823	500-yr	401000.00	422.92	459.2	437.36	459.63	0.000107	5.45	88350.27	4050.48	0.17
Susquehanna	Middle Reach	130.730	2-yr	122200.00	422.99	440.3	429.26	440.53	0.000121	3.94	31999.63	2364.75	0.18
Susquehanna	Middle Reach	130.730	5-yr	168000.00	422.99	443.8	430.52	444.11	0.000117	4.40	40214.47	2736.83	0.18
Susquehanna	Middle Reach	130.730	10-yr	200400.00	422.99	445.9	431.32	446.24	0.000117	4.71	45706.45	3224.41	0.18
Susquehanna	Middle Reach	130.730	25-yr	243400.00	422.99	448.5	432.28	448.87	0.000111	5.04	53901.54	3986.96	0.18
Susquehanna	Middle Reach	130.730	50-yr	277200.00	422.99	451.0	433.02	451.37	0.000115	5.12	63349.07	4644.11	0.18
Susquehanna	Middle Reach	130.730	100-yr	312300.00	422.99	453.5	433.72	453.93	0.000108	5.15	73256.12	4862.64	0.17
Susquehanna	Middle Reach	130.730	500-yr	401000.00	422.99	459.2	435.48	459.57	0.000091	5.31	95491.40	4940.54	0.16
Susquehanna	Middle Reach	130.619 Gravel Run	2-yr	122300.00	421.38	440.1	428.88	440.45	0.000155	4.40	27785.04	2513.58	0.20
Susquehanna	Middle Reach	130.619 Gravel Run	5-yr	168100.00	421.38	443.7	430.39	444.03	0.000148	4.90	34446.07	3009.52	0.20
Susquehanna	Middle Reach	130.619 Gravel Run	10-yr	200500.00	421.38	445.7	431.39	446.15	0.000148	5.23	39075.93	3548.06	0.20
Susquehanna	Middle Reach	130.619 Gravel Run	25-yr	243600.00	421.38	448.4	432.54	448.79	0.000117	5.10	58605.47	3934.35	0.19
Susquehanna	Middle Reach	130.619 Gravel Run	50-yr	277400.00	421.38	450.9	433.39	451.29	0.000118	5.10	68632.27	4067.69	0.18
Susquehanna	Middle Reach	130.619 Gravel Run	100-yr	312500.00	421.38	453.5	434.25	453.85	0.000108	5.07	79075.59	4130.89	0.17
Susquehanna	Middle Reach	130.619 Gravel Run	500-yr	401400.00	421.38	459.2	436.19	459.50	0.000089	5.13	102721.90	4181.65	0.16
Susquehanna	Middle Reach	130.497	2-yr	122300.00	422.30	439.9	430.35	440.32	0.000224	4.99	24529.91	2695.58	0.23
Susquehanna	Middle Reach	130.497	5-yr	168100.00	422.30	443.4	431.77	443.91	0.000205	5.46	30964.03	3270.24	0.23
Susquehanna	Middle Reach	130.497	10-yr	200500.00	422.30	445.5	432.68	446.03	0.000200	5.80	35103.30	3533.96	0.23
Susquehanna	Middle Reach	130.497	25-yr	243600.00	422.30	448.3	433.79	448.71	0.000147	5.53	56433.40	3700.80	0.21
Susquehanna	Middle Reach	130.497	50-yr	277400.00	422.30	450.8	434.60	451.20	0.000146	5.52	65855.97	3823.22	0.20
Susquehanna	Middle Reach	130.497	100-yr	312500.00	422.30	453.3	435.44	453.77	0.000136	5.57	75965.61	4074.90	0.19
Susquehanna	Middle Reach	130.497	500-yr	401400.00	422.30	459.0	437.49	459.43	0.000109	5.61	99603.77	4194.98	0.17
Susquehanna	Middle Reach	130.418	2-yr	122300.00	422.25	439.9	429.84	440.23	0.000203	4.89	25078.53	2725.58	0.23
Susquehanna	Middle Reach	130.418	5-yr	168100.00	422.25	443.4	431.30	443.82	0.000189	5.41	31661.09	3280.74	0.22
Susquehanna	Middle Reach	130.418	10-yr	200500.00	422.25	445.5	432.21	445.93	0.000154	5.26	47217.55	3588.71	0.21
Susquehanna	Middle Reach	130.418	25-yr	243600.00	422.25	448.2	433.31	448.65	0.000137	5.47	57083.26	3705.52	0.20
Susquehanna	Middle Reach	130.418	50-yr	277400.00	422.25	450.7	434.16	451.14	0.000136	5.47	66476.50	3821.09	0.19
Susquehanna	Middle Reach	130.418	100-yr	312500.00	422.25	453.3	434.97	453.71	0.000128	5.52	76604.01	4113.47	0.18
Susquehanna	Middle Reach	130.418	500-yr	401400.00	422.25	459.0	437.03	459.39	0.000103	5.57	100243.80	4197.27	0.17
Susquehanna	Middle Reach	130.338	2-yr	122300.00	421.40	439.8	429.26	440.13	0.000182	4.65	26326.17	2780.99	0.21
Susquehanna	Middle Reach	130.338	5-yr	168100.00	421.40	443.4	430.72	443.71	0.000145	4.72	41743.35	3519.12	0.20
Susquehanna	Middle Reach	130.338	10-yr	200500.00	421.40	445.5	431.59	445.85	0.000136	4.92	49347.00	3653.68	0.19
Susquehanna	Middle Reach	130.338	25-yr	243600.00	421.40	448.2	432.68	448.58	0.000120	5.11	59331.25	3721.47	0.19
Susquehanna	Middle Reach	130.338	50-yr	277400.00	421.40	450.7	433.53	451.07	0.000120	5.12	68803.53	3866.12	0.18
Susquehanna	Middle Reach	130.338	100-yr	312500.00	421.40	453.3	434.35	453.65	0.000111	5.14	78996.74	4069.56	0.17
Susquehanna	Middle Reach	130.338	500-yr	401400.00	421.40	459.0	436.34	459.34	0.000092	5.25	102737.60	4199.10	0.16
Susquehanna	Middle Reach	130.273	2-yr	122300.00	422.20	439.7	429.29	440.07	0.000176	4.58	26675.60	2245.42	0.21
Susquehanna	Middle Reach	130.273	5-yr	168100.00	422.20	443.3	430.66	443.65	0.000178	5.04	33547.43	3037.39	0.22
Susquehanna	Middle Reach	130.273	10-yr	200500.00	422.20	445.4	431.54	445.80	0.000156	5.09	44299.91	3269.19	0.21
Susquehanna	Middle Reach	130.273	25-yr	243600.00	422.20	448.1	432.63	448.53	0.000137	5.30	53333.07	3391.46	0.20
Susquehanna	Middle Reach	130.273	50-yr	277400.00	422.20	450.6	433.44	451.03	0.000139	5.35	62107.50	3743.72	0.19
Susquehanna	Middle Reach	130.273	100-yr	312500.00	422.20	453.2	434.25	453.60	0.000127	5.34	72208.55	4007.05	0.18
Susquehanna	Middle Reach	130.273	500-yr	401400.00	422.20	458.9	436.18	459.30	0.000101	5.38	96001.73	4215.80	0.17
Susquehanna	Middle Reach	130.198	2-yr	122300.00	421.85	439.6	429.53	439.99	0.000214	4.85	25227.50	2256.07	0.23
Susquehanna	Middle Reach	130.198	5-yr	168100.00	421.85	443.1	431.03	443.57	0.000212	5.26	31956.10	2882.71	0.23
Susquehanna	Middle Reach	130.198	10-yr	200500.00	421.85	445.3	431.93	445.73	0.000180	5.23	42791.57	3118.20	0.22
Susquehanna	Middle Reach	130.198	25-yr	243600.00	421.85	448.0	433.06	448.47	0.000156	5.42	51423.30	3232.56	0.21
Susquehanna	Middle Reach	130.198	50-yr	277400.00	421.85	450.5	433.89	450.97	0.000154	5.43	59625.04	3353.31	0.20
Susquehanna	Middle Reach	130.198	100-yr	312500.00	421.85	453.1	434.75	453.55	0.000141	5.43	69001.23	3948.84	0.19
Susquehanna	Middle Reach	130.198	500-yr	401400.00	421.85	458.8	436.74	459.26	0.000113	5.51	91736.02	4014.16	0.17
Susquehanna	Middle Reach	130.114	2-yr	122300.00	421.45	439.6	428.60	439.90	0.000185	4.69	26070.20	2071.54	0.21
Susquehanna	Middle Reach	130.114	5-yr	168100.00	421.45	443.1	430.11	443.48	0.000178	5.19	32457.13	2823.72	0.22
Susquehanna	Middle Reach	130.114	10-yr	200500.00	421.45	445.2	431.08	445.65	0.000165	5.38	41400.73	3174.65	0.21
Susquehanna	Middle Reach	130.114	25-yr	243600.00	421.45	447.9	432.25	448.40	0.000148	5.64	50279.02	3427.38	0.21
Susquehanna	Middle Reach	130.114	50-yr	277400.00	421.45	450.4	433.08	450.90	0.000150	5.67	59077.63	3768.30	0.20
Susquehanna	Middle Reach	130.114	100-yr	312500.00	421.45	453.0	433.93	453.48	0.000138	5.68	69238.58	3986.46	0.19
Susquehanna	Middle Reach	130.114	500-yr	401400.00	421.45	458.7	435.90	459.20	0.000113	5.77	92276.55	4064.67	0.18
Susquehanna	Middle Reach	130.039	2-yr	122300.00	421.02	439.5	428.31	439.82	0.000175	4.65	26325.60	1813.03	0.21
Susquehanna	Middle Reach	130.039	5-yr	168100.00	421.02	443.0	429.88	443.42	0.000166	5.16	33506.99	2700.18	0.21
Susquehanna	Middle Reach	130.039	10-yr	200500.00	421.02	445.1	430.85	445.58	0.000162	5.47	40238.89	3310.10	0.21
Susquehanna	Middle Reach	130.039	25-yr	243600.00	421.02	447.8	431.98	448.34	0.000147	5.75	49574.38	3579.49	0.21
Susquehanna	Middle Reach	130.039	50-yr	277400.00	421.02	450.3	432.84	450.84	0.000149	5.77	58921.44	3876.71	0.20
Susquehanna	Middle Reach	130.039	100-yr	312500.00	421.02	452.9	433.68	453.43	0.000138	5.77	69376.19	4102.73	0.19
Susquehanna	Middle Reach	130.039	500-yr	401400.00	421.02	458.7	435.67	459.16	0.000112	5.83	93083.00	4142.39	0.18
Susquehanna	Middle Reach	129.965	2-yr	122300.00	421.24	439.4	428.78	439.75	0.000188	4.79	25514.54	1751.76	0.22
Susquehanna	Middle Reach	129.965	5-yr	168100.00	421.24	442.9	430.26	443.35	0.000173	5.27	34753.34	3222.66	0.22
Susquehanna	Middle Reach	129.965	10-yr	200500.00	421.24	445.1	431.20	445.52	0.000165	5.53	41886.08	3393.74	0.21
Susquehanna	Middle Reach	129.965	25-yr	243600.00	421.24	447.8	432.36	448.28	0.000149	5.78	51397.33	3590.04	0.21

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	129.965	50-yr	277400.00	421.24	450.3	433.22	450.78	0.000151	5.82	61050.00	4032.67	0.20
Susquehanna	Middle Reach	129.965	100-yr	312500.00	421.24	452.9	434.08	453.37	0.000137	5.77	71674.30	4090.48	0.19
Susquehanna	Middle Reach	129.965	500-yr	401400.00	421.24	458.7	436.11	459.11	0.000110	5.80	95347.14	4138.69	0.17
Susquehanna	Middle Reach	129.887	2-yr	122300.00	420.49	439.2	429.53	439.66	0.000249	5.27	23227.59	1976.21	0.25
Susquehanna	Middle Reach	129.887	5-yr	168100.00	420.49	442.7	431.18	443.26	0.000225	5.79	29443.93	3415.21	0.24
Susquehanna	Middle Reach	129.887	10-yr	200500.00	420.49	444.9	432.18	445.44	0.000199	5.88	40801.13	3617.27	0.23
Susquehanna	Middle Reach	129.887	25-yr	243600.00	420.49	447.7	433.39	448.21	0.000172	6.05	50947.83	3721.24	0.23
Susquehanna	Middle Reach	129.887	50-yr	277400.00	420.49	450.2	434.39	450.71	0.000169	6.00	60402.01	3797.03	0.21
Susquehanna	Middle Reach	129.887	100-yr	312500.00	420.49	452.8	435.31	453.31	0.000153	5.95	70558.72	3946.26	0.20
Susquehanna	Middle Reach	129.887	500-yr	401400.00	420.49	458.6	437.36	459.06	0.000121	5.98	93948.88	4121.65	0.18
Susquehanna	Middle Reach	129.810	2-yr	122300.00	419.49	439.1	428.68	439.56	0.000220	5.14	23806.04	1858.71	0.23
Susquehanna	Middle Reach	129.810	5-yr	168100.00	419.49	442.7	430.48	443.17	0.000207	5.71	29774.88	3461.22	0.23
Susquehanna	Middle Reach	129.810	10-yr	200500.00	419.49	444.8	431.51	445.35	0.000204	6.09	33544.03	3701.54	0.24
Susquehanna	Middle Reach	129.810	25-yr	243600.00	419.49	447.6	432.73	448.14	0.000164	6.03	51419.32	3802.09	0.22
Susquehanna	Middle Reach	129.810	50-yr	277400.00	419.49	450.1	433.62	450.65	0.000162	5.99	61083.96	3874.99	0.21
Susquehanna	Middle Reach	129.810	100-yr	312500.00	419.49	452.8	434.50	453.25	0.000147	5.94	71404.17	3967.95	0.20
Susquehanna	Middle Reach	129.810	500-yr	401400.00	419.49	458.6	436.72	459.02	0.000117	5.97	94638.64	4067.00	0.18
Susquehanna	Middle Reach	129.735	2-yr	122300.00	420.05	439.0	429.04	439.47	0.000230	5.22	23451.31	1850.72	0.24
Susquehanna	Middle Reach	129.735	5-yr	168100.00	420.05	442.6	430.88	443.08	0.000214	5.78	29494.36	3524.33	0.24
Susquehanna	Middle Reach	129.735	10-yr	200500.00	420.05	444.7	431.81	445.26	0.000192	5.90	41121.84	3654.19	0.23
Susquehanna	Middle Reach	129.735	25-yr	243600.00	420.05	447.6	433.00	448.08	0.000166	6.06	51606.92	3774.88	0.22
Susquehanna	Middle Reach	129.735	50-yr	277400.00	420.05	450.1	433.88	450.58	0.000163	6.01	61238.88	3865.61	0.21
Susquehanna	Middle Reach	129.735	100-yr	312500.00	420.05	452.7	434.71	453.19	0.000147	5.96	71559.75	3957.15	0.20
Susquehanna	Middle Reach	129.735	500-yr	401400.00	420.05	458.5	436.75	458.97	0.000117	5.98	94748.89	4043.08	0.18
Susquehanna	Middle Reach	129.655	2-yr	122300.00	418.83	438.9	428.57	439.37	0.000223	5.24	23371.07	2208.10	0.24
Susquehanna	Middle Reach	129.655	5-yr	168100.00	418.83	442.5	430.36	442.99	0.000215	5.82	29298.96	3449.93	0.24
Susquehanna	Middle Reach	129.655	10-yr	200500.00	418.83	444.7	431.39	445.17	0.000184	5.80	42626.02	3628.33	0.23
Susquehanna	Middle Reach	129.655	25-yr	243600.00	418.83	447.5	432.63	448.01	0.000161	5.98	53091.83	3803.43	0.22
Susquehanna	Middle Reach	129.655	50-yr	277400.00	418.83	450.0	433.51	450.51	0.000158	5.93	62782.36	3882.79	0.21
Susquehanna	Middle Reach	129.655	100-yr	312500.00	418.83	452.7	434.37	453.13	0.000143	5.88	73151.36	3969.59	0.19
Susquehanna	Middle Reach	129.655	500-yr	401400.00	418.83	458.5	436.44	458.92	0.000114	5.91	96451.55	4050.02	0.18
Susquehanna	Middle Reach	129.582	2-yr	122300.00	418.83	438.8	428.08	439.28	0.000239	5.37	23123.81	2146.76	0.24
Susquehanna	Middle Reach	129.582	5-yr	168100.00	418.83	442.4	429.79	442.90	0.000218	5.67	34446.80	3369.30	0.24
Susquehanna	Middle Reach	129.582	10-yr	200500.00	418.83	444.6	431.11	445.10	0.000200	5.84	42179.33	3683.19	0.23
Susquehanna	Middle Reach	129.582	25-yr	243600.00	418.83	447.4	432.44	447.95	0.000170	5.99	52850.31	3864.58	0.22
Susquehanna	Middle Reach	129.582	50-yr	277400.00	418.83	450.0	433.41	450.45	0.000165	5.92	62705.62	3939.50	0.21
Susquehanna	Middle Reach	129.582	100-yr	312500.00	418.83	452.6	434.34	453.08	0.000147	5.85	73293.80	4085.69	0.20
Susquehanna	Middle Reach	129.582	500-yr	401400.00	418.83	458.4	436.59	458.88	0.000116	5.84	97197.36	4644.35	0.18
Susquehanna	Middle Reach	129.469	2-yr	122300.00	418.95	438.6	428.14	439.10	0.000332	5.93	20616.71	1655.37	0.28
Susquehanna	Middle Reach	129.469	5-yr	168100.00	418.95	442.1	430.16	442.73	0.000300	6.39	27054.12	3178.25	0.28
Susquehanna	Middle Reach	129.469	10-yr	200500.00	418.95	444.4	431.36	444.96	0.000253	6.40	37459.82	3493.58	0.26
Susquehanna	Middle Reach	129.469	25-yr	243600.00	418.95	447.2	433.00	447.83	0.000206	6.46	47920.79	3694.80	0.25
Susquehanna	Middle Reach	129.469	50-yr	277400.00	418.95	449.8	434.07	450.34	0.000195	6.32	57419.76	3765.65	0.23
Susquehanna	Middle Reach	129.469	100-yr	312500.00	418.95	452.5	435.46	452.98	0.000171	6.20	67632.83	3860.70	0.21
Susquehanna	Middle Reach	129.469	500-yr	401400.00	418.95	458.3	437.78	458.80	0.000130	6.13	90658.47	3980.49	0.19
Susquehanna	Middle Reach	129.350	2-yr	122300.00	418.98	438.4	427.88	438.90	0.000282	5.73	21597.06	1721.01	0.26
Susquehanna	Middle Reach	129.350	5-yr	168100.00	418.98	441.9	429.74	442.55	0.000260	6.26	28572.50	2774.81	0.26
Susquehanna	Middle Reach	129.350	10-yr	200500.00	418.98	444.2	430.87	444.80	0.000242	6.54	34282.83	3104.70	0.26
Susquehanna	Middle Reach	129.350	25-yr	243600.00	418.98	447.0	432.24	447.69	0.000211	6.78	41815.34	3342.70	0.25
Susquehanna	Middle Reach	129.350	50-yr	277400.00	418.98	449.6	433.35	450.21	0.000200	6.62	53741.61	3544.93	0.23
Susquehanna	Middle Reach	129.350	100-yr	312500.00	418.98	452.3	434.43	452.86	0.000178	6.52	63433.22	3648.53	0.22
Susquehanna	Middle Reach	129.350	500-yr	401400.00	418.98	458.2	437.07	458.71	0.000139	6.50	85337.66	3788.67	0.20
Susquehanna	Middle Reach	129.278	2-yr	122300.00	419.19	438.3	427.53	438.79	0.000241	5.43	22914.78	1861.43	0.25
Susquehanna	Middle Reach	129.278	5-yr	168100.00	419.19	441.9	429.26	442.44	0.000225	5.98	30053.97	3031.74	0.25
Susquehanna	Middle Reach	129.278	10-yr	200500.00	419.19	444.1	430.38	444.69	0.000207	6.19	38516.91	3444.96	0.24
Susquehanna	Middle Reach	129.278	25-yr	243600.00	419.19	447.0	431.69	447.59	0.000177	6.35	48625.01	3556.34	0.23
Susquehanna	Middle Reach	129.278	50-yr	277400.00	419.19	449.6	432.66	450.12	0.000174	6.30	57946.53	3696.15	0.22
Susquehanna	Middle Reach	129.278	100-yr	312500.00	419.19	452.3	433.62	452.78	0.000156	6.22	67948.14	3750.87	0.20
Susquehanna	Middle Reach	129.278	500-yr	401400.00	419.19	458.1	436.32	458.65	0.000124	6.24	90546.66	3890.07	0.19
Susquehanna	Middle Reach	129.197	2-yr	122300.00	419.40	438.3	427.28	438.68	0.000214	5.18	24184.07	1999.53	0.23
Susquehanna	Middle Reach	129.197	5-yr	168100.00	419.40	441.8	428.93	442.33	0.000197	5.68	32308.39	3101.26	0.23
Susquehanna	Middle Reach	129.197	10-yr	200500.00	419.40	444.1	429.99	444.60	0.000187	5.96	37931.81	3313.74	0.23
Susquehanna	Middle Reach	129.197	25-yr	243600.00	419.40	447.0	431.28	447.50	0.000157	6.05	50572.48	3471.31	0.22
Susquehanna	Middle Reach	129.197	50-yr	277400.00	419.40	449.5	432.20	450.04	0.000156	6.04	59613.91	3611.52	0.21
Susquehanna	Middle Reach	129.197	100-yr	312500.00	419.40	452.2	433.14	452.71	0.000141	5.97	69396.36	3670.43	0.19
Susquehanna	Middle Reach	129.197	500-yr	401400.00	419.40	458.1	435.69	458.58	0.000113	6.01	91697.81	3896.45	0.18
Susquehanna	Middle Reach	129.124	2-yr	122300.00	419.44	438.2	427.33	438.59	0.000210	5.02	24350.62	1710.37	0.23
Susquehanna	Middle Reach	129.124	5-yr	168100.00	419.44	441.8	428.93	442.25	0.000197	5.47	30888.76	2320.93	0.23
Susquehanna	Middle Reach	129.124	10-yr	200500.00	419.44	444.0	429.91	444.52	0.000190	5.75	35338.73	2837.33	0.23
Susquehanna	Middle Reach	129.124	25-yr	243600.00	419.44	446.9	431.14	447.44	0.000167	5.88	46100.48	3119.85	0.22
Susquehanna	Middle Reach	129.124	50-yr	277400.00	419.44	449.5	432.04	449.98	0.000172	5.86	54510.84	3490.88	0.21
Susquehanna	Middle Reach	129.124	100-yr	312500.00	419.44	452.2	432.94	452.65	0.000153	5.77	64058.36	3595.17	0.20
Susquehanna	Middle Reach	129.124	500-yr	401400.00	419.44	458.1	435.33	458.54	0.000119	5.75	86000.93	3812.06	0.18
Susquehanna	Middle Reach	129.049	2-yr	122300.00	419.64	438.1	427.09	438.51	0.000191	4.85	25224.51	1942.17	0.22
Susquehanna	Middle Reach	129.049	5-yr	168100.00	419.64	441.7	428.65	442.17	0.000182	5.31	31671.69	2516.90	0.22
Susquehanna	Middle Reach	129.049	10-yr	200500.00	419.64	443.9	429.62	444.44	0.000180	5.60	35779.20	2834.25	0.23
Susquehanna	Middle Reach	129.049	25-yr	243600.00	419.64	446.9	430.81	447.36	0.000160	5.67	48293.80	3278.24	0.22
Susquehanna	Middle Reach	129.049	50-yr	277400.00	419.64	449.4	431.69	449.90	0.000158	5.64	56812.94	3368.42	0.20
Susquehanna	Middle Reach	129.049	100-yr	312500.00	419.64	452.1	432.60	452.58	0.000142	5.57	65980.49	3454.99	0.19
Susquehanna	Middle Reach	129.049	500-yr	401400.00	419.64	458.0	434.89	458.49	0.000113	5.60	86834.98	3559.97	0.17
Susquehanna	Middle Reach	128.971	2-yr	122300.00	419.77	438.1	427.18	438.42	0.000187	4.72	25899.54	2041.93	0.22
Susquehanna	Middle Reach	128.971	5-yr	168100.00	419.77	441.7	428.67	442.09	0.000179	5.20	32428.12	2506.25	0.22
Susquehanna	Middle Reach	128.971	10-yr	200500.00	419.77	443.9	429.61	444.36	0.000172	5.50	36994.12	2719.79	0.22
Susquehanna	Middle Reach	128.971	25-yr	243600.00	419.77	446.8	430.78	447.29	0.000145	5.60	48370.39	2949.49	0.21
Susquehanna	Middle Reach	128.971	50-yr	277400.00	419.77	449.4	431.64	449.84	0.000146	5.63	56272.95	3209.30	0.20
Susquehanna	Middle Reach	128.971	100-yr	312500.00	419.77	452.1	432.59	452.52	0.000133	5.63	64974.03	3243.44	0.19
Susquehanna	Middle Reach	128.971	500-yr	401400.00	419.77	458.0	434.78	458.44	0.000109	5.75	85005.31	3507.67	0.17
Susquehanna	Middle Reach	128.894	2-yr	122300.00	419.90	438.0	427.22	438.35	0.000194	4.74	25793.93	2048.50	0.22

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	128.894	5-yr	168100.00	419.90	441.6	428.72	442.02	0.000178	5.21	32323.24	2275.72	0.22
Susquehanna	Middle Reach	128.894	10-yr	200500.00	419.90	443.8	429.68	444.29	0.000171	5.52	36639.34	2590.86	0.22
Susquehanna	Middle Reach	128.894	25-yr	243600.00	419.90	446.7	430.85	447.23	0.000146	5.67	47788.54	2835.38	0.21
Susquehanna	Middle Reach	128.894	50-yr	277400.00	419.90	449.3	431.72	449.77	0.000149	5.73	55340.95	3074.88	0.20
Susquehanna	Middle Reach	128.894	100-yr	312500.00	419.90	452.0	432.57	452.47	0.000136	5.73	63685.68	3119.18	0.19
Susquehanna	Middle Reach	128.894	500-yr	401400.00	419.90	457.9	434.88	458.39	0.000113	5.87	83240.23	3478.18	0.18
Susquehanna	Middle Reach	128.822	2-yr	122300.00	419.91	437.9	427.77	438.27	0.000194	4.69	26090.59	1901.49	0.22
Susquehanna	Middle Reach	128.822	5-yr	168100.00	419.91	441.5	429.16	441.95	0.000172	5.11	33607.65	2314.71	0.21
Susquehanna	Middle Reach	128.822	10-yr	200500.00	419.91	443.8	430.05	444.22	0.000163	5.36	38997.22	2498.87	0.21
Susquehanna	Middle Reach	128.822	25-yr	243600.00	419.91	446.7	431.19	447.18	0.000144	5.60	46667.80	2731.00	0.21
Susquehanna	Middle Reach	128.822	50-yr	277400.00	419.91	449.2	432.02	449.71	0.000146	5.65	53934.48	2983.21	0.20
Susquehanna	Middle Reach	128.822	100-yr	312500.00	419.91	451.9	432.82	452.41	0.000134	5.65	62145.79	3081.92	0.19
Susquehanna	Middle Reach	128.822	500-yr	401400.00	419.91	457.9	434.90	458.35	0.000110	5.78	80627.30	3149.09	0.17
Susquehanna	Middle Reach	128.742	2-yr	122300.00	419.96	437.8	428.01	438.18	0.000217	4.87	25138.28	1810.76	0.23
Susquehanna	Middle Reach	128.742	5-yr	168100.00	419.96	441.4	429.40	441.86	0.000200	5.28	31827.83	2319.35	0.23
Susquehanna	Middle Reach	128.742	10-yr	200500.00	419.96	443.7	430.31	444.14	0.000188	5.50	37926.41	2510.64	0.22
Susquehanna	Middle Reach	128.742	25-yr	243600.00	419.96	446.6	431.42	447.11	0.000163	5.72	45675.66	2821.89	0.22
Susquehanna	Middle Reach	128.742	50-yr	277400.00	419.96	449.1	432.26	449.65	0.000162	5.75	53078.38	2970.77	0.21
Susquehanna	Middle Reach	128.742	100-yr	312500.00	419.96	451.9	433.09	452.35	0.000147	5.73	61206.83	3016.07	0.20
Susquehanna	Middle Reach	128.742	500-yr	401400.00	419.96	457.8	435.19	458.29	0.000118	5.84	80621.60	3446.64	0.18
Susquehanna	Middle Reach	128.668	2-yr	122300.00	420.05	437.8	427.05	438.09	0.000181	4.61	26534.93	1897.54	0.21
Susquehanna	Middle Reach	128.668	5-yr	168100.00	420.05	441.4	428.43	441.78	0.000174	5.06	33247.50	2323.90	0.21
Susquehanna	Middle Reach	128.668	10-yr	200500.00	420.05	443.6	429.35	444.06	0.000166	5.30	39602.15	2472.20	0.21
Susquehanna	Middle Reach	128.668	25-yr	243600.00	420.05	446.6	430.46	447.04	0.000147	5.55	47349.01	2785.71	0.21
Susquehanna	Middle Reach	128.668	50-yr	277400.00	420.05	449.1	431.33	449.58	0.000150	5.63	54671.42	2951.87	0.20
Susquehanna	Middle Reach	128.668	100-yr	312500.00	420.05	451.8	432.14	452.30	0.000139	5.67	62746.79	3036.70	0.19
Susquehanna	Middle Reach	128.668	500-yr	401400.00	420.05	457.7	434.18	458.25	0.000117	5.89	82028.65	3443.90	0.18
Susquehanna	Middle Reach	128.587	2-yr	122300.00	420.26	437.7	426.95	438.02	0.000165	4.51	27123.97	1979.57	0.20
Susquehanna	Middle Reach	128.587	5-yr	168100.00	420.26	441.3	428.30	441.70	0.000166	4.94	35107.31	2332.32	0.21
Susquehanna	Middle Reach	128.587	10-yr	200500.00	420.26	443.6	429.17	443.99	0.000157	5.20	40413.82	2424.95	0.21
Susquehanna	Middle Reach	128.587	25-yr	243600.00	420.26	446.5	430.26	446.97	0.000140	5.46	47953.92	2737.54	0.20
Susquehanna	Middle Reach	128.587	50-yr	277400.00	420.26	449.0	431.06	449.52	0.000144	5.56	55147.00	2922.31	0.20
Susquehanna	Middle Reach	128.587	100-yr	312500.00	420.26	451.8	431.85	452.23	0.000134	5.60	63134.90	2963.16	0.19
Susquehanna	Middle Reach	128.587	500-yr	401400.00	420.26	457.7	433.75	458.19	0.000113	5.81	82313.08	3459.63	0.18
Susquehanna	Middle Reach	128.511	2-yr	122300.00	420.24	437.6	427.01	437.95	0.000167	4.50	27152.11	2013.30	0.20
Susquehanna	Middle Reach	128.511	5-yr	168100.00	420.24	441.3	428.36	441.64	0.000169	4.95	33938.31	2552.22	0.21
Susquehanna	Middle Reach	128.511	10-yr	200500.00	420.24	443.5	429.19	443.93	0.000157	5.17	41600.45	2646.32	0.21
Susquehanna	Middle Reach	128.511	25-yr	243600.00	420.24	446.5	430.29	446.92	0.000138	5.41	49566.34	2777.63	0.20
Susquehanna	Middle Reach	128.511	50-yr	277400.00	420.24	449.0	431.08	449.46	0.000142	5.50	56707.02	2870.51	0.19
Susquehanna	Middle Reach	128.511	100-yr	312500.00	420.24	451.7	431.90	452.18	0.000132	5.55	64594.03	2931.07	0.19
Susquehanna	Middle Reach	128.511	500-yr	401400.00	420.24	457.7	433.78	458.15	0.000112	5.77	83386.37	3519.14	0.18
Susquehanna	Middle Reach	128.436	2-yr	122300.00	420.45	437.6	426.95	437.88	0.000160	4.46	27406.38	1887.29	0.20
Susquehanna	Middle Reach	128.436	5-yr	168100.00	420.45	441.2	428.30	441.57	0.000152	4.92	35733.33	2502.59	0.20
Susquehanna	Middle Reach	128.436	10-yr	200500.00	420.45	443.5	429.15	443.87	0.000147	5.20	41484.64	2619.22	0.20
Susquehanna	Middle Reach	128.436	25-yr	243600.00	420.45	446.4	430.22	446.86	0.000133	5.47	49375.52	2732.24	0.20
Susquehanna	Middle Reach	128.436	50-yr	277400.00	420.45	448.9	431.01	449.40	0.000138	5.58	56376.59	2814.12	0.19
Susquehanna	Middle Reach	128.436	100-yr	312500.00	420.45	451.6	431.79	452.13	0.000130	5.64	64123.20	2875.83	0.19
Susquehanna	Middle Reach	128.436	500-yr	401400.00	420.45	457.6	433.66	458.10	0.000112	5.89	82446.81	3244.80	0.18
Susquehanna	Middle Reach	128.355	2-yr	122300.00	420.89	437.5	427.32	437.81	0.000175	4.65	26284.88	1806.93	0.21
Susquehanna	Middle Reach	128.355	5-yr	168100.00	420.89	441.1	428.68	441.50	0.000163	5.14	34068.16	2330.66	0.21
Susquehanna	Middle Reach	128.355	10-yr	200500.00	420.89	443.3	429.52	443.80	0.000158	5.44	39338.48	2354.57	0.21
Susquehanna	Middle Reach	128.355	25-yr	243600.00	420.89	446.3	430.59	446.80	0.000143	5.74	46894.43	2661.21	0.21
Susquehanna	Middle Reach	128.355	50-yr	277400.00	420.89	448.8	431.39	449.33	0.000149	5.86	53769.26	2784.97	0.20
Susquehanna	Middle Reach	128.355	100-yr	312500.00	420.89	451.5	432.18	452.06	0.000140	5.92	61442.18	2831.46	0.19
Susquehanna	Middle Reach	128.355	500-yr	401400.00	420.89	457.5	434.04	458.05	0.000121	6.17	79354.97	3308.57	0.18
Susquehanna	Middle Reach	128.284	2-yr	122300.00	420.48	437.4	427.14	437.74	0.000181	4.76	25702.57	1746.67	0.21
Susquehanna	Middle Reach	128.284	5-yr	168100.00	420.48	441.0	428.54	441.44	0.000173	5.28	31807.48	2200.54	0.22
Susquehanna	Middle Reach	128.284	10-yr	200500.00	420.48	443.2	429.45	443.73	0.000171	5.62	35652.27	2350.29	0.22
Susquehanna	Middle Reach	128.284	25-yr	243600.00	420.48	446.2	430.53	446.74	0.000149	5.81	45692.70	2635.37	0.21
Susquehanna	Middle Reach	128.284	50-yr	277400.00	420.48	448.8	431.36	449.28	0.000153	5.88	52517.80	2758.14	0.20
Susquehanna	Middle Reach	128.284	100-yr	312500.00	420.48	451.5	432.15	452.01	0.000142	5.90	60098.79	2788.71	0.19
Susquehanna	Middle Reach	128.284	500-yr	401400.00	420.48	457.5	434.08	458.00	0.000119	6.09	77907.10	3285.87	0.18
Susquehanna	Middle Reach	128.200	2-yr	122300.00	420.36	437.3		437.65	0.000204	4.98	24550.39	1629.52	0.23
Susquehanna	Middle Reach	128.200	5-yr	168100.00	420.36	440.9		441.35	0.000190	5.50	31140.08	2094.55	0.23
Susquehanna	Middle Reach	128.200	10-yr	200500.00	420.36	443.1		443.65	0.000183	5.81	36022.25	2251.10	0.23
Susquehanna	Middle Reach	128.200	25-yr	243600.00	420.36	446.1		446.67	0.000164	6.09	43160.31	2528.10	0.22
Susquehanna	Middle Reach	128.200	50-yr	277400.00	420.36	448.6		449.20	0.000170	6.18	49721.05	2644.95	0.21
Susquehanna	Middle Reach	128.200	100-yr	312500.00	420.36	451.4		451.94	0.000157	6.20	57062.84	2704.01	0.20
Susquehanna	Middle Reach	128.200	500-yr	401400.00	420.36	457.3		457.93	0.000131	6.40	74211.56	3212.62	0.19
Susquehanna	Middle Reach	128.133	2-yr	122300.00	420.66	437.2	427.59	437.58	0.000225	5.16	23765.36	1659.41	0.24
Susquehanna	Middle Reach	128.133	5-yr	168100.00	420.66	440.8	429.05	441.28	0.000205	5.66	30629.55	2154.25	0.23
Susquehanna	Middle Reach	128.133	10-yr	200500.00	420.66	443.0	429.96	443.58	0.000196	5.95	35639.95	2336.29	0.23
Susquehanna	Middle Reach	128.133	25-yr	243600.00	420.66	446.0	431.09	446.61	0.000173	6.20	42995.63	2546.21	0.23
Susquehanna	Middle Reach	128.133	50-yr	277400.00	420.66	448.6	431.92	449.14	0.000177	6.28	49542.75	2630.02	0.22
Susquehanna	Middle Reach	128.133	100-yr	312500.00	420.66	451.3	432.75	451.88	0.000163	6.28	56867.82	2689.22	0.21
Susquehanna	Middle Reach	128.133	500-yr	401400.00	420.66	457.3	434.70	457.89	0.000135	6.44	73841.09	3322.35	0.19
Susquehanna	Middle Reach	128.056	2-yr	122300.00	420.04	437.1	427.17	437.48	0.000219	5.11	24077.56	1787.37	0.23
Susquehanna	Middle Reach	128.056	5-yr	168100.00	420.04	440.7	428.68	441.20	0.000200	5.60	31212.49	2173.62	0.23
Susquehanna	Middle Reach	128.056	10-yr	200500.00	420.04	443.0	429.62	443.50	0.000192	5.90	36436.85	2495.80	0.23
Susquehanna	Middle Reach	128.056	25-yr	243600.00	420.04	446.0	430.76	446.54	0.000169	6.15	43997.46	2781.92	0.22
Susquehanna	Middle Reach	128.056	50-yr	277400.00	420.04	448.5	431.59	449.06	0.000174	6.24	50514.21	3244.72	0.22
Susquehanna	Middle Reach	128.056	100-yr	312500.00	420.04	451.2	432.44	451.81	0.000161	6.26	57835.82	3576.10	0.21
Susquehanna	Middle Reach	128.056	500-yr	401400.00	420.04	457.2	434.43	457.83	0.000135	6.47	74492.23	4056.56	0.19
Susquehanna	Middle Reach	127.976	2-yr	122300.00	420.96	437.0	427.95	437.39	0.000247	5.23	26372.78	2586.05	0.25
Susquehanna	Middle Reach	127.976	5-yr	168100.00	420.96	440.7	429.43	441.10	0.000203	5.50	36429.43	3002.23	0.23
Susquehanna	Middle Reach	127.976	10-yr	200500.00	420.96	442.9	430.39	443.40	0.000185	5.68	43331.59	3033.17	0.23
Susquehanna	Middle Reach	127.976	25-yr	243600.00	420.96	446.0	431.57	446.44	0.000156	5.82	52518.39	3158.14	0.22
Susquehanna	Middle Reach	127.976	50-yr	277400.00	420.96	448.5	432.46	448.96	0.000158	5.85	60265.72	3331.86	0.21
Susquehanna	Middle Reach	127.976	100-yr	312500.00	420.96	451.3	433.35	451.71	0.000143	5.83	68788.83	3414.13	0.19

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Middle Reach	127.976	500-yr	401400.00	420.96	457.3	435.77	457.74	0.000118	5.98	87408.60	3588.63	0.18
Susquehanna	Middle Reach	127.903	2-yr	122300.00	420.94	436.8	428.05	437.28	0.000275	5.46	22406.02	1622.22	0.26
Susquehanna	Middle Reach	127.903	5-yr	168100.00	420.94	440.5	429.51	441.00	0.000245	5.91	28570.02	2246.48	0.25
Susquehanna	Middle Reach	127.903	10-yr	200500.00	420.94	442.7	430.42	443.31	0.000227	6.16	34756.17	2437.71	0.25
Susquehanna	Middle Reach	127.903	25-yr	243600.00	420.94	445.7	431.54	446.36	0.000195	6.38	42220.64	2593.35	0.24
Susquehanna	Middle Reach	127.903	50-yr	277400.00	420.94	448.3	432.38	448.88	0.000198	6.44	48841.67	2667.02	0.23
Susquehanna	Middle Reach	127.903	100-yr	312500.00	420.94	451.0	433.22	451.64	0.000180	6.43	56289.13	2709.42	0.22
Susquehanna	Middle Reach	127.903	500-yr	401400.00	420.94	457.0	435.31	457.67	0.000146	6.58	73629.50	3122.20	0.20
Susquehanna	Middle Reach	127.820 Lithia Springs	2-yr	122400.00	421.20	436.6	428.47	437.15	0.000308	5.70	21476.99	1586.39	0.27
Susquehanna	Middle Reach	127.820 Lithia Springs	5-yr	168300.00	421.20	440.3	429.89	440.89	0.000273	6.15	27387.76	2350.74	0.27
Susquehanna	Middle Reach	127.820 Lithia Springs	10-yr	200700.00	421.20	442.6	430.81	443.20	0.000245	6.35	33974.58	2540.41	0.26
Susquehanna	Middle Reach	127.820 Lithia Springs	25-yr	243800.00	421.20	445.6	431.95	446.27	0.000205	6.52	41904.50	2659.22	0.25
Susquehanna	Middle Reach	127.820 Lithia Springs	50-yr	277700.00	421.20	448.2	432.80	448.79	0.000205	6.55	48692.10	2718.18	0.23
Susquehanna	Middle Reach	127.820 Lithia Springs	100-yr	312900.00	421.20	450.9	433.64	451.56	0.000184	6.51	56306.20	2751.25	0.22
Susquehanna	Middle Reach	127.820 Lithia Springs	500-yr	401800.00	421.20	457.0	435.67	457.61	0.000148	6.62	73787.06	3113.89	0.20
Susquehanna	Middle Reach	127.743	2-yr	122400.00	420.54	436.4	428.79	437.01	0.000379	6.08	20120.17	1616.26	0.30
Susquehanna	Middle Reach	127.743	5-yr	168300.00	420.54	440.1	430.42	440.76	0.000322	6.47	26028.84	2272.95	0.29
Susquehanna	Middle Reach	127.743	10-yr	200700.00	420.54	442.4	431.42	443.09	0.000281	6.58	33164.22	2626.88	0.27
Susquehanna	Middle Reach	127.743	25-yr	243800.00	420.54	445.5	432.58	446.18	0.000225	6.66	41442.80	2735.67	0.26
Susquehanna	Middle Reach	127.743	50-yr	277700.00	420.54	448.1	433.44	448.70	0.000220	6.64	48449.83	2769.33	0.24
Susquehanna	Middle Reach	127.743	100-yr	312900.00	420.54	450.9	434.29	451.48	0.000194	6.55	56311.28	2824.47	0.22
Susquehanna	Middle Reach	127.743	500-yr	401800.00	420.54	456.9	436.30	457.54	0.000151	6.59	74019.78	3008.75	0.20
Susquehanna	Middle Reach	127.669	2-yr	122400.00	420.77	436.3	428.42	436.86	0.000354	5.98	20473.63	1827.64	0.29
Susquehanna	Middle Reach	127.669	5-yr	168300.00	420.77	440.0	429.89	440.63	0.000300	6.38	26478.50	2328.76	0.28
Susquehanna	Middle Reach	127.669	10-yr	200700.00	420.77	442.3	430.83	442.98	0.000278	6.67	30359.79	2720.89	0.27
Susquehanna	Middle Reach	127.669	25-yr	243800.00	420.77	445.4	432.00	446.09	0.000214	6.62	42636.45	2794.62	0.25
Susquehanna	Middle Reach	127.669	50-yr	277700.00	420.77	448.0	432.88	448.62	0.000212	6.61	49778.33	2826.38	0.24
Susquehanna	Middle Reach	127.669	100-yr	312900.00	420.77	450.8	433.80	451.40	0.000188	6.54	57807.99	2886.57	0.22
Susquehanna	Middle Reach	127.669	500-yr	401800.00	420.77	456.9	435.91	457.48	0.000148	6.60	75671.95	2986.02	0.20
Susquehanna	Middle Reach	127.594	2-yr	122400.00	420.00	436.2	427.84	436.70	0.000333	5.66	21616.88	2041.59	0.28
Susquehanna	Middle Reach	127.594	5-yr	168300.00	420.00	439.9	429.28	440.50	0.000270	6.00	28054.33	2300.46	0.26
Susquehanna	Middle Reach	127.594	10-yr	200700.00	420.00	442.2	430.22	442.85	0.000247	6.25	32275.83	2741.60	0.26
Susquehanna	Middle Reach	127.594	25-yr	243800.00	420.00	445.4	431.39	445.99	0.000192	6.22	44896.89	2866.33	0.24
Susquehanna	Middle Reach	127.594	50-yr	277700.00	420.00	447.9	432.24	448.52	0.000190	6.23	52182.67	2883.53	0.22
Susquehanna	Middle Reach	127.594	100-yr	312900.00	420.00	450.8	433.11	451.31	0.000169	6.18	60365.93	2933.18	0.21
Susquehanna	Middle Reach	127.594	500-yr	401800.00	420.00	456.9	435.50	457.41	0.000134	6.27	78493.86	3029.82	0.19
Susquehanna	Middle Reach	127.522	2-yr	122400.00	419.06	436.2	426.49	436.57	0.000235	5.04	24301.47	2181.62	0.24
Susquehanna	Middle Reach	127.522	5-yr	168300.00	419.06	439.9	427.94	440.38	0.000203	5.43	30987.48	2390.96	0.23
Susquehanna	Middle Reach	127.522	10-yr	200700.00	419.06	442.3	428.84	442.73	0.000185	5.55	39534.20	2867.07	0.22
Susquehanna	Middle Reach	127.522	25-yr	243800.00	419.06	445.4	429.96	445.89	0.000151	5.65	48696.38	2945.47	0.21
Susquehanna	Middle Reach	127.522	50-yr	277700.00	419.06	447.9	430.80	448.42	0.000152	5.68	56185.37	2976.77	0.20
Susquehanna	Middle Reach	127.522	100-yr	312900.00	419.06	450.8	431.62	451.23	0.000136	5.64	64613.95	3001.29	0.19
Susquehanna	Middle Reach	127.522	500-yr	401800.00	419.06	456.9	433.64	457.34	0.000110	5.75	83193.47	3107.10	0.17
Susquehanna	Middle Reach	127.442	2-yr	122400.00	416.68	436.1	425.19	436.46	0.000172	4.60	26615.47	2141.88	0.21
Susquehanna	Middle Reach	127.442	5-yr	168300.00	416.68	439.9	426.71	440.28	0.000164	5.02	33542.73	2557.66	0.21
Susquehanna	Middle Reach	127.442	10-yr	200700.00	416.68	442.2	427.65	442.64	0.000164	5.28	38095.95	2869.43	0.21
Susquehanna	Middle Reach	127.442	25-yr	243800.00	416.68	445.4	428.76	445.81	0.000133	5.24	51956.10	3024.17	0.20
Susquehanna	Middle Reach	127.442	50-yr	277700.00	416.68	447.9	429.57	448.34	0.000133	5.27	59624.28	3038.66	0.19
Susquehanna	Middle Reach	127.442	100-yr	312900.00	416.68	450.8	430.40	451.15	0.000120	5.24	68274.72	3082.49	0.18
Susquehanna	Middle Reach	127.442	500-yr	401800.00	416.68	456.9	432.31	457.28	0.000097	5.36	87623.71	3286.01	0.16
Susquehanna	Packers Right Up	127.302	2-yr	52303.14	420.24	435.8	428.63	436.31	0.000347	5.57	9391.88	1199.32	0.28
Susquehanna	Packers Right Up	127.302	5-yr	72898.10	420.24	439.6	430.07	440.16	0.000280	5.91	12343.95	1495.28	0.26
Susquehanna	Packers Right Up	127.302	10-yr	87400.00	420.24	442.1	430.97	442.52	0.000215	5.65	18843.98	1658.20	0.23
Susquehanna	Packers Right Up	127.302	25-yr	106034.00	420.24	445.3	431.99	445.70	0.000166	5.53	24213.52	1669.77	0.21
Susquehanna	Packers Right Up	127.302	50-yr	121606.60	420.24	447.9	432.80	448.25	0.000140	5.47	28527.73	1697.40	0.20
Susquehanna	Packers Right Up	127.302	100-yr	135500.00	420.24	450.7	433.49	451.06	0.000112	5.27	33388.75	1723.37	0.18
Susquehanna	Packers Right Up	127.302	500-yr	165523.30	420.24	456.9	434.91	457.21	0.000075	4.93	44548.54	1871.36	0.15
Susquehanna	Packers Right Up	127.233	2-yr	52303.14	418.05	435.8	427.12	436.15	0.000273	4.98	10494.96	1139.82	0.25
Susquehanna	Packers Right Up	127.233	5-yr	72898.10	418.05	439.6	428.76	440.02	0.000215	5.12	16198.75	1567.80	0.23
Susquehanna	Packers Right Up	127.233	10-yr	87400.00	418.05	442.0	429.76	442.42	0.000184	5.21	19975.32	1584.32	0.22
Susquehanna	Packers Right Up	127.233	25-yr	106034.00	418.05	445.2	431.01	445.63	0.000148	5.21	25109.73	1598.90	0.20
Susquehanna	Packers Right Up	127.233	50-yr	121606.60	418.05	447.8	431.81	448.19	0.000129	5.23	29236.07	1626.05	0.19
Susquehanna	Packers Right Up	127.233	100-yr	135500.00	418.05	450.6	432.51	451.01	0.000106	5.12	33887.12	1650.92	0.18
Susquehanna	Packers Right Up	127.233	500-yr	165523.30	418.05	456.8	433.90	457.17	0.000075	4.93	44360.12	1764.50	0.15
Susquehanna	Packers Right Up	127.165	2-yr	52303.14	418.63	435.7	426.17	436.03	0.000182	4.36	12003.89	940.42	0.21
Susquehanna	Packers Right Up	127.165	5-yr	72898.10	418.63	439.6	427.83	439.92	0.000164	4.63	16728.54	1466.83	0.20
Susquehanna	Packers Right Up	127.165	10-yr	87400.00	418.63	442.0	428.64	442.33	0.000153	4.73	20370.66	1592.57	0.20
Susquehanna	Packers Right Up	127.165	25-yr	106034.00	418.63	445.2	429.60	445.56	0.000122	4.73	25541.75	1605.28	0.18
Susquehanna	Packers Right Up	127.165	50-yr	121606.60	418.63	447.8	430.34	448.13	0.000105	4.75	29701.34	1642.33	0.17
Susquehanna	Packers Right Up	127.165	100-yr	135500.00	418.63	450.6	431.01	450.95	0.000086	4.64	34410.96	1668.81	0.16
Susquehanna	Packers Right Up	127.165	500-yr	165523.30	418.63	456.9	432.33	457.13	0.000060	4.45	45009.78	1750.18	0.14
Susquehanna	Packers Right Up	127.095	2-yr	52303.14	418.44	435.6	425.91	435.95	0.000184	4.50	11616.02	948.32	0.21
Susquehanna	Packers Right Up	127.095	5-yr	72898.10	418.44	439.5	427.41	439.84	0.000171	4.90	14876.39	1258.50	0.21
Susquehanna	Packers Right Up	127.095	10-yr	87400.00	418.44	441.9	428.25	442.26	0.000151	5.00	19243.18	1499.86	0.20
Susquehanna	Packers Right Up	127.095	25-yr	106034.00	418.44	445.1	429.26	445.50	0.000125	5.05	24459.54	1621.87	0.19
Susquehanna	Packers Right Up	127.095	50-yr	121606.60	418.44	447.7	430.05	448.08	0.000109	5.07	28666.39	1650.20	0.18
Susquehanna	Packers Right Up	127.095	100-yr	135500.00	418.44	450.6	430.74	450.91	0.000090	4.96	33434.91	1688.83	0.17
Susquehanna	Packers Right Up	127.095	500-yr	165523.30	418.44	456.8	432.14	457.10	0.000063	4.75	44216.52	1780.81	0.14
Susquehanna	Packers Right Up	127.029	2-yr	52303.14	418.26	435.5		435.87	0.000217	4.73	11050.64	819.81	0.23
Susquehanna	Packers Right Up	127.029	5-yr	72898.10	418.26	439.4		439.77	0.000191	5.07	14903.12	1122.15	0.22
Susquehanna	Packers Right Up	127.029	10-yr	87400.00	418.26	441.8		442.19	0.000187	5.25	17860.45	1497.48	0.22
Susquehanna	Packers Right Up	127.029	25-yr	106034.00	418.26	445.0		445.44	0.000150	5.26	23104.63	1616.76	0.20
Susquehanna	Packers Right Up	127.029	50-yr	121606.60	418.26	447.6		448.03	0.000128	5.26	27306.76	1626.05	0.19
Susquehanna	Packers Right Up	127.029	100-yr	135500.00	418.26	450.5		450.87	0.000104	5.12	32046.74	1680.35	0.18
Susquehanna	Packers Right Up	127.029	500-yr	165523.30	418.26	456.7		457.07	0.000071	4.89	42992.05	1827.32	0.15
Susquehanna	Packers Right Up	126.961	2-yr	52303.14	418.08	435.4	426.07	435.78	0.000210	4.82	10906.53	819.32	0.23
Susquehanna	Packers Right Up	126.961	5-yr	72898.10	418.08	439.3	427.61	439.69	0.000183	5.20	14782.50	1077.68	0.22
Susquehanna	Packers Right Up	126.961	10-yr	87400.00	418.08	441.7	428.47	442.11	0.000172	5.41	17680.03	1479.38	0.21

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Packers Right Up	126.961	25-yr	106034.00	418.08	444.9	429.52	445.38	0.000143	5.43	23222.72	1717.06	0.20
Susquehanna	Packers Right Up	126.961	50-yr	121606.60	418.08	447.6	430.35	447.97	0.000123	5.42	27712.28	1725.61	0.19
Susquehanna	Packers Right Up	126.961	100-yr	135500.00	418.08	450.4	431.05	450.83	0.000100	5.26	32712.82	1736.33	0.17
Susquehanna	Packers Right Up	126.961	500-yr	165523.30	418.08	456.7	432.50	457.04	0.000069	4.98	44221.09	1887.90	0.15
Susquehanna	Packers Right Up	126.899	2-yr	52303.14	417.91	435.3	426.31	435.69	0.000267	5.02	10415.00	950.01	0.25
Susquehanna	Packers Right Up	126.899	5-yr	72898.10	417.91	439.2	427.85	439.61	0.000217	5.26	14556.98	1101.51	0.23
Susquehanna	Packers Right Up	126.899	10-yr	87400.00	417.91	441.6	428.76	442.04	0.000194	5.42	17807.63	1542.08	0.23
Susquehanna	Packers Right Up	126.899	25-yr	106034.00	417.91	444.9	429.84	445.32	0.000155	5.38	23470.58	1741.68	0.21
Susquehanna	Packers Right Up	126.899	50-yr	121606.60	417.91	447.5	430.70	447.92	0.000131	5.36	28044.69	1786.32	0.19
Susquehanna	Packers Right Up	126.899	100-yr	135500.00	417.91	450.4	431.42	450.79	0.000105	5.18	33258.56	1806.07	0.18
Susquehanna	Packers Right Up	126.899	500-yr	165523.30	417.91	456.7	433.08	457.01	0.000070	4.86	45186.81	1965.42	0.15
Susquehanna	Packers Right Up	126.826	2-yr	52303.14	416.98	435.2	425.99	435.57	0.000245	4.84	10806.87	881.54	0.24
Susquehanna	Packers Right Up	126.826	5-yr	72898.10	416.98	439.1	427.65	439.52	0.000198	5.13	14738.61	1080.52	0.22
Susquehanna	Packers Right Up	126.826	10-yr	87400.00	416.98	441.5	428.54	441.96	0.000180	5.32	17389.14	1163.35	0.22
Susquehanna	Packers Right Up	126.826	25-yr	106034.00	416.98	444.8	429.62	445.25	0.000149	5.37	22843.47	1849.45	0.20
Susquehanna	Packers Right Up	126.826	50-yr	121606.60	416.98	447.4	430.47	447.87	0.000127	5.35	27711.22	1855.21	0.19
Susquehanna	Packers Right Up	126.826	100-yr	135500.00	416.98	450.4	431.19	450.74	0.000102	5.17	33123.48	1861.59	0.17
Susquehanna	Packers Right Up	126.826	500-yr	165523.30	416.98	456.7	433.00	456.98	0.000068	4.85	45449.55	2057.39	0.15
Susquehanna	Packers Right Up	126.757	2-yr	52303.14	416.77	435.1	425.52	435.47	0.000213	4.68	11187.72	942.68	0.22
Susquehanna	Packers Right Up	126.757	5-yr	72898.10	416.77	439.0	427.22	439.43	0.000185	4.99	15233.07	1103.29	0.22
Susquehanna	Packers Right Up	126.757	10-yr	87400.00	416.77	441.5	428.10	441.88	0.000169	5.18	17928.76	1124.80	0.21
Susquehanna	Packers Right Up	126.757	25-yr	106034.00	416.77	444.8	429.16	445.19	0.000142	5.26	23186.55	1909.87	0.20
Susquehanna	Packers Right Up	126.757	50-yr	121606.60	416.77	447.4	429.98	447.81	0.000121	5.24	28226.01	1913.71	0.19
Susquehanna	Packers Right Up	126.757	100-yr	135500.00	416.77	450.3	430.73	450.70	0.000097	5.06	33823.27	1917.97	0.17
Susquehanna	Packers Right Up	126.757	500-yr	165523.30	416.77	456.6	432.32	456.95	0.000065	4.75	46398.41	2109.03	0.14
Susquehanna	Packers Right Up	126.692	2-yr	52303.14	416.57	435.1	425.04	435.38	0.000191	4.54	11519.58	967.83	0.21
Susquehanna	Packers Right Up	126.692	5-yr	72898.10	416.57	439.0	426.78	439.36	0.000165	4.88	15773.11	1149.95	0.21
Susquehanna	Packers Right Up	126.692	10-yr	87400.00	416.57	441.4	427.71	441.81	0.000154	5.09	18621.11	1248.46	0.20
Susquehanna	Packers Right Up	126.692	25-yr	106034.00	416.57	444.7	428.74	445.13	0.000130	5.19	24095.07	1969.75	0.19
Susquehanna	Packers Right Up	126.692	50-yr	121606.60	416.57	447.4	429.56	447.76	0.000113	5.19	29305.29	1976.89	0.18
Susquehanna	Packers Right Up	126.692	100-yr	135500.00	416.57	450.3	430.24	450.66	0.000092	5.04	35103.61	1986.94	0.17
Susquehanna	Packers Right Up	126.692	500-yr	165523.30	416.57	456.6	431.66	456.92	0.000063	4.76	48197.88	2168.03	0.14
Susquehanna	Packers Right Up	126.628	2-yr	52303.14	416.37	434.9	425.30	435.30	0.000212	4.81	10875.35	846.34	0.23
Susquehanna	Packers Right Up	126.628	5-yr	72898.10	416.37	438.9	427.09	439.28	0.000181	5.19	14950.21	1152.27	0.22
Susquehanna	Packers Right Up	126.628	10-yr	87400.00	416.37	441.3	427.99	441.74	0.000168	5.42	17757.24	1163.87	0.21
Susquehanna	Packers Right Up	126.628	25-yr	106034.00	416.37	444.6	429.04	445.07	0.000145	5.54	22467.57	1773.10	0.20
Susquehanna	Packers Right Up	126.628	50-yr	121606.60	416.37	447.3	429.88	447.71	0.000127	5.57	27684.66	2043.27	0.19
Susquehanna	Packers Right Up	126.628	100-yr	135500.00	416.37	450.2	430.58	450.61	0.000103	5.40	33714.80	2054.22	0.18
Susquehanna	Packers Right Up	126.628	500-yr	165523.30	416.37	456.5	432.04	456.90	0.000070	5.08	46989.55	2168.70	0.15
Susquehanna	Packers Right Up	126.569	2-yr	52303.14	417.01	434.9	425.23	435.22	0.000221	4.84	10809.04	967.32	0.23
Susquehanna	Packers Right Up	126.569	5-yr	72898.10	417.01	438.8	427.05	439.22	0.000186	5.17	15254.03	1237.54	0.22
Susquehanna	Packers Right Up	126.569	10-yr	87400.00	417.01	441.2	427.98	441.68	0.000168	5.37	18288.87	1268.28	0.21
Susquehanna	Packers Right Up	126.569	25-yr	106034.00	417.01	444.6	429.04	445.02	0.000143	5.48	22855.57	1448.48	0.20
Susquehanna	Packers Right Up	126.569	50-yr	121606.60	417.01	447.2	429.87	447.66	0.000127	5.56	27214.50	2018.44	0.19
Susquehanna	Packers Right Up	126.569	100-yr	135500.00	417.01	450.2	430.57	450.58	0.000105	5.42	33389.46	2112.43	0.18
Susquehanna	Packers Right Up	126.569	500-yr	165523.30	417.01	456.5	432.03	456.87	0.000072	5.13	47168.16	2184.34	0.15
Susquehanna	Packers Right Up	126.498	2-yr	52303.14	416.27	434.8	424.77	435.12	0.000208	4.51	11600.02	897.15	0.22
Susquehanna	Packers Right Up	126.498	5-yr	72898.10	416.27	438.8	426.59	439.12	0.000168	4.75	16221.65	1267.66	0.21
Susquehanna	Packers Right Up	126.498	10-yr	87400.00	416.27	441.2	427.55	441.59	0.000157	4.90	19360.61	1311.93	0.20
Susquehanna	Packers Right Up	126.498	25-yr	106034.00	416.27	444.6	428.62	444.94	0.000129	4.96	24156.76	1501.33	0.19
Susquehanna	Packers Right Up	126.498	50-yr	121606.60	416.27	447.2	429.49	447.59	0.000113	5.01	28222.68	1567.52	0.18
Susquehanna	Packers Right Up	126.498	100-yr	135500.00	416.27	450.2	430.22	450.51	0.000093	4.92	33178.74	1781.99	0.17
Susquehanna	Packers Right Up	126.498	500-yr	165523.30	416.27	456.5	431.66	456.83	0.000065	4.72	46287.96	2249.28	0.14
Susquehanna	Packers Right Up	126.434	2-yr	52303.14	415.79	434.7	424.54	435.04	0.000201	4.47	11709.28	892.84	0.22
Susquehanna	Packers Right Up	126.434	5-yr	72898.10	415.79	438.7	426.36	439.06	0.000179	4.71	15489.13	1001.07	0.21
Susquehanna	Packers Right Up	126.434	10-yr	87400.00	415.79	441.2	427.39	441.52	0.000173	4.84	18162.70	1286.12	0.21
Susquehanna	Packers Right Up	126.434	25-yr	106034.00	415.79	444.5	428.43	444.88	0.000142	4.83	23016.18	1553.20	0.19
Susquehanna	Packers Right Up	126.434	50-yr	121606.60	415.79	447.2	429.27	447.54	0.000119	4.83	27207.54	1609.27	0.18
Susquehanna	Packers Right Up	126.434	100-yr	135500.00	415.79	450.1	429.99	450.47	0.000096	4.70	32007.05	1639.41	0.17
Susquehanna	Packers Right Up	126.434	500-yr	165523.30	415.79	456.5	431.42	456.80	0.000064	4.50	44145.88	2215.45	0.14
Susquehanna	Packers Right Up	126.366	2-yr	52303.14	415.58	434.6	424.27	434.96	0.000186	4.50	11633.14	829.53	0.21
Susquehanna	Packers Right Up	126.366	5-yr	72898.10	415.58	438.6	426.04	438.98	0.000180	4.75	15389.87	1037.11	0.21
Susquehanna	Packers Right Up	126.366	10-yr	87400.00	415.58	441.1	427.18	441.45	0.000161	4.91	18042.76	1168.62	0.21
Susquehanna	Packers Right Up	126.366	25-yr	106034.00	415.58	444.4	428.21	444.82	0.000135	4.96	22783.63	1513.40	0.19
Susquehanna	Packers Right Up	126.366	50-yr	121606.60	415.58	447.1	429.01	447.49	0.000117	5.00	26889.25	1568.36	0.18
Susquehanna	Packers Right Up	126.366	100-yr	135500.00	415.58	450.1	429.68	450.43	0.000096	4.90	31794.88	1733.94	0.17
Susquehanna	Packers Right Up	126.366	500-yr	165523.30	415.58	456.4	431.10	456.77	0.000067	4.73	44204.71	2302.43	0.15
Susquehanna	Packers Right Up	126.300	2-yr	52303.14	415.38	434.6	424.11	434.88	0.000177	4.48	11681.12	807.96	0.21
Susquehanna	Packers Right Up	126.300	5-yr	72898.10	415.38	438.5	425.79	438.91	0.000164	4.83	15093.67	911.53	0.21
Susquehanna	Packers Right Up	126.300	10-yr	87400.00	415.38	441.0	427.04	441.39	0.000159	5.06	17615.76	1170.85	0.21
Susquehanna	Packers Right Up	126.300	25-yr	106034.00	415.38	444.4	428.07	444.76	0.000135	5.17	22051.37	1446.15	0.19
Susquehanna	Packers Right Up	126.300	50-yr	121606.60	415.38	447.0	428.87	447.44	0.000120	5.25	25756.11	1491.90	0.19
Susquehanna	Packers Right Up	126.300	100-yr	135500.00	415.38	450.0	429.55	450.39	0.000100	5.18	29999.00	1617.75	0.17
Susquehanna	Packers Right Up	126.300	500-yr	165523.30	415.38	456.4	430.95	456.74	0.000071	5.02	43039.88	2246.43	0.15
Susquehanna	Packers Right Up	126.287	2-yr	52303.14	415.33	434.6	423.72	434.86	0.000123	4.17	12554.68	866.96	0.19
Susquehanna	Packers Right Up	126.287	5-yr	72898.10	415.33	438.6	425.27	438.89	0.000108	4.56	15998.96	884.03	0.19
Susquehanna	Packers Right Up	126.287	10-yr	87400.00	415.33	441.0	426.51	441.36	0.000104	4.82	18144.93	901.37	0.19
Susquehanna	Packers Right Up	126.287	25-yr	106034.00	415.33	444.4	427.62	444.75	0.000093	5.02	21130.82	955.06	0.18
Susquehanna	Packers Right Up	126.287	50-yr	121606.60	415.33	447.0	428.40	447.43	0.000087	5.17	24083.97	1407.33	0.18
Susquehanna	Packers Right Up	126.287	100-yr	135500.00	415.33	450.0	429.05	450.38	0.000075	5.15	28555.45	1740.27	0.17
Susquehanna	Packers Right Up	126.287	500-yr	165523.30	415.33	456.4	430.41	456.73	0.000057	4.89	43023.23	2500.15	0.15
Susquehanna	Packers Right Up	126.280 PA Route 147		Bridge									
Susquehanna	Packers Right Up	126.272	2-yr	52303.14	415.28	434.6	423.66	434.84	0.000152	4.19	12477.48	851.65	0.19
Susquehanna	Packers Right Up	126.272	5-yr	72898.10	415.28	438.5	425.23	438.86	0.000136	4.59	15891.77	866.19	0.19
Susquehanna	Packers Right Up	126.272	10-yr	87400.00	415.28	441.0	426.43	441.34	0.000131	4.85	18015.71	877.82	0.19
Susquehanna	Packers Right Up	126.272	25-yr	106034.00	415.28	444.3	427.57	444.73	0.000118	5.05	21000.59	1009.07	0.18
Susquehanna	Packers Right Up	126.272	50-yr	121606.60	415.28	447.0	428.36	447.41	0.000109	5.20	24307.27	1489.48	0.18
Susquehanna	Packers Right Up	126.272	100-yr	135500.00	415.28	449.9	429.01	450.36	0.000095	5.15	29329.43	1921.66	0.17

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Packers Right Up	126.272	500-yr	165523.30	415.28	456.3	430.36	456.69	0.000069	4.96	43678.31	2466.83	0.15
Susquehanna	Packers Right Up	126.180	2-yr	52303.14	415.01	434.4	423.74	434.74	0.000169	4.39	11910.94	820.11	0.20
Susquehanna	Packers Right Up	126.180	5-yr	72898.10	415.01	438.4	425.36	438.78	0.000149	4.79	15212.50	858.64	0.20
Susquehanna	Packers Right Up	126.180	10-yr	87400.00	415.01	440.9	426.76	441.26	0.000142	5.06	17455.27	1011.37	0.20
Susquehanna	Packers Right Up	126.180	25-yr	106034.00	415.01	444.2	427.78	444.65	0.000127	5.26	20883.83	1219.80	0.19
Susquehanna	Packers Right Up	126.180	50-yr	121606.60	415.01	446.9	428.56	447.34	0.000119	5.39	24076.03	1495.20	0.19
Susquehanna	Packers Right Up	126.180	100-yr	135500.00	415.01	449.9	429.25	450.30	0.000103	5.30	29265.33	1791.14	0.18
Susquehanna	Packers Right Up	126.180	500-yr	165523.30	415.01	456.3	430.64	456.65	0.000073	5.04	43545.73	2271.43	0.15
Susquehanna	Packers Right Up	126.102	2-yr	52303.14	414.77	434.3	423.83	434.66	0.000181	4.56	11471.37	802.37	0.21
Susquehanna	Packers Right Up	126.102	5-yr	72898.10	414.77	438.3	425.47	438.71	0.000169	4.93	14793.03	921.90	0.21
Susquehanna	Packers Right Up	126.102	10-yr	87400.00	414.77	440.8	426.91	441.19	0.000158	5.17	16903.59	939.34	0.21
Susquehanna	Packers Right Up	126.102	25-yr	106034.00	414.77	444.1	427.93	444.59	0.000138	5.34	19864.10	1307.32	0.20
Susquehanna	Packers Right Up	126.102	50-yr	121606.60	414.77	446.8	428.75	447.28	0.000125	5.48	22217.08	1325.57	0.19
Susquehanna	Packers Right Up	126.102	100-yr	135500.00	414.77	449.8	429.42	450.25	0.000108	5.46	24837.34	1394.17	0.18
Susquehanna	Packers Right Up	126.102	500-yr	165523.30	414.77	456.3	430.84	456.62	0.000071	4.91	42236.96	2427.60	0.15
Susquehanna	Packers Right Up	126.070	2-yr	52303.14	414.70	434.3	423.42	434.58	0.000122	4.33	12418.84	896.21	0.19
Susquehanna	Packers Right Up	126.070	5-yr	72898.10	414.70	438.3	425.01	438.63	0.000107	4.73	16117.34	948.10	0.19
Susquehanna	Packers Right Up	126.070	10-yr	87400.00	414.70	440.7	426.05	441.12	0.000102	5.00	18412.73	1077.76	0.19
Susquehanna	Packers Right Up	126.070	25-yr	106034.00	414.70	444.1	427.41	444.53	0.000092	5.20	21578.05	1441.55	0.18
Susquehanna	Packers Right Up	126.070	50-yr	121606.60	414.70	446.8	428.25	447.22	0.000085	5.37	24079.83	1485.04	0.18
Susquehanna	Packers Right Up	126.070	100-yr	135500.00	414.70	449.8	428.94	450.20	0.000075	5.37	26866.41	1541.85	0.17
Susquehanna	Packers Right Up	126.070	500-yr	165523.30	414.70	456.2	430.34	456.59	0.000053	5.12	43743.20	2283.51	0.15
Susquehanna	Packers Right Up	126.065 Railroad		Bridge									
Susquehanna	Packers Right Up	126.060	2-yr	52303.14	414.63	434.3	422.92	434.54	0.000132	4.16	13057.93	883.66	0.18
Susquehanna	Packers Right Up	126.060	5-yr	72898.10	414.63	438.3	424.47	438.59	0.000119	4.58	16813.59	968.05	0.18
Susquehanna	Packers Right Up	126.060	10-yr	87400.00	414.63	440.7	425.43	441.08	0.000115	4.86	19197.79	1242.32	0.18
Susquehanna	Packers Right Up	126.060	25-yr	106034.00	414.63	444.1	426.73	444.49	0.000104	5.08	22570.04	1655.74	0.18
Susquehanna	Packers Right Up	126.060	50-yr	121606.60	414.63	446.8	427.61	447.18	0.000097	5.24	25251.51	1812.24	0.17
Susquehanna	Packers Right Up	126.060	100-yr	135500.00	414.63	449.8	428.33	450.16	0.000086	5.25	28241.26	1986.89	0.16
Susquehanna	Packers Right Up	126.060	500-yr	165523.30	414.63	456.2	429.72	456.48	0.000058	4.89	48549.77	2273.10	0.14
Susquehanna	Packers Right Up	126.034	2-yr	52303.14	414.56	434.2	423.31	434.52	0.000163	4.32	12102.60	828.82	0.20
Susquehanna	Packers Right Up	126.034	5-yr	72898.10	414.56	438.2	424.93	438.58	0.000147	4.71	15535.14	971.50	0.20
Susquehanna	Packers Right Up	126.034	10-yr	87400.00	414.56	440.7	425.95	441.06	0.000144	4.95	17971.78	1555.74	0.20
Susquehanna	Packers Right Up	126.034	25-yr	106034.00	414.56	444.1	427.44	444.48	0.000125	5.09	21846.61	1878.44	0.19
Susquehanna	Packers Right Up	126.034	50-yr	121606.60	414.56	446.8	428.23	447.17	0.000112	5.20	24948.51	2077.01	0.18
Susquehanna	Packers Right Up	126.034	100-yr	135500.00	414.56	449.7	428.90	450.15	0.000095	5.15	28403.92	2114.70	0.17
Susquehanna	Packers Right Up	126.034	500-yr	165523.30	414.56	456.2	430.28	456.47	0.000060	4.68	49853.43	2114.70	0.14
Susquehanna	Packers Right Up	125.974	2-yr	52303.14	414.38	434.1	423.60	434.45	0.000212	4.58	11416.39	874.36	0.22
Susquehanna	Packers Right Up	125.974	5-yr	72898.10	414.38	438.2	425.28	438.52	0.000190	4.73	15416.84	1111.42	0.22
Susquehanna	Packers Right Up	125.974	10-yr	87400.00	414.38	440.6	426.79	441.01	0.000164	4.86	18252.00	1555.57	0.21
Susquehanna	Packers Right Up	125.974	25-yr	106034.00	414.38	444.1	427.82	444.42	0.000131	4.89	23156.61	1762.03	0.19
Susquehanna	Packers Right Up	125.974	50-yr	121606.60	414.38	446.7	428.63	447.12	0.000113	4.92	27051.04	1762.03	0.18
Susquehanna	Packers Right Up	125.974	100-yr	135500.00	414.38	449.7	429.34	450.10	0.000093	4.82	31385.05	1762.03	0.17
Susquehanna	Packers Right Up	125.974	500-yr	165523.30	414.38	456.1	430.75	456.44	0.000062	4.52	45742.62	1762.03	0.14
Susquehanna	Packers Right Dn	125.758	2-yr	134103.10	412.30	433.9		434.26	0.000143	4.64	28900.70	1616.11	0.19
Susquehanna	Packers Right Dn	125.758	5-yr	188898.10	412.30	437.9		438.31	0.000153	5.33	35416.18	1686.91	0.21
Susquehanna	Packers Right Dn	125.758	10-yr	230200.00	412.30	440.3		440.79	0.000167	5.83	39503.17	1732.07	0.22
Susquehanna	Packers Right Dn	125.758	25-yr	285730.00	412.30	443.6		444.20	0.000181	6.28	45613.93	1866.49	0.22
Susquehanna	Packers Right Dn	125.758	50-yr	336806.60	412.30	446.2		446.89	0.000182	6.71	50491.75	1869.92	0.22
Susquehanna	Packers Right Dn	125.758	100-yr	387500.00	412.30	449.1		449.87	0.000188	6.98	55965.12	1873.75	0.22
Susquehanna	Packers Right Dn	125.758	500-yr	519523.30	412.30	455.3		456.21	0.000208	7.78	67515.05	1881.81	0.23
Susquehanna	Packers Right Dn	125.692	2-yr	134103.10	413.51	433.8		434.20	0.000176	5.02	26699.85	1556.09	0.21
Susquehanna	Packers Right Dn	125.692	5-yr	188898.10	413.51	437.7		438.25	0.000182	5.73	32982.68	1654.78	0.22
Susquehanna	Packers Right Dn	125.692	10-yr	230200.00	413.51	440.1		440.72	0.000194	6.25	37278.70	1933.69	0.23
Susquehanna	Packers Right Dn	125.692	25-yr	285730.00	413.51	443.4		444.12	0.000201	6.75	43686.77	1943.40	0.23
Susquehanna	Packers Right Dn	125.692	50-yr	336806.60	413.51	446.0		446.81	0.000203	7.21	48746.06	1951.04	0.24
Susquehanna	Packers Right Dn	125.692	100-yr	387500.00	413.51	448.9		449.79	0.000210	7.49	54447.35	1959.61	0.24
Susquehanna	Packers Right Dn	125.692	500-yr	519523.30	413.51	455.1		456.12	0.000232	8.35	66488.14	1969.60	0.24
Susquehanna	Packers Right Dn	125.636	2-yr	134103.10	413.06	433.7	422.32	434.14	0.000194	5.19	25829.61	1537.06	0.22
Susquehanna	Packers Right Dn	125.636	5-yr	188898.10	413.06	437.6	424.12	438.19	0.000198	5.91	31968.21	1635.78	0.23
Susquehanna	Packers Right Dn	125.636	10-yr	230200.00	413.06	440.0	425.33	440.65	0.000208	6.44	36182.69	1812.49	0.24
Susquehanna	Packers Right Dn	125.636	25-yr	285730.00	413.06	443.3	426.84	444.05	0.000215	6.95	42182.04	1826.51	0.24
Susquehanna	Packers Right Dn	125.636	50-yr	336806.60	413.06	445.9	428.05	446.75	0.000217	7.42	46935.30	1861.37	0.25
Susquehanna	Packers Right Dn	125.636	100-yr	387500.00	413.06	448.8	429.25	449.72	0.000224	7.72	52349.97	1943.16	0.24
Susquehanna	Packers Right Dn	125.636	500-yr	519523.30	413.06	454.9	432.04	456.04	0.000248	8.60	63710.90	1965.22	0.25
Susquehanna	Packers Left	127.312	2-yr	70096.87	419.51	435.9		436.30	0.000309	5.06	13839.84	1328.71	0.28
Susquehanna	Packers Left	127.312	5-yr	95401.91	419.51	439.8		440.15	0.000220	5.02	19061.40	1391.77	0.24
Susquehanna	Packers Left	127.312	10-yr	113300.00	419.51	442.1		442.51	0.000193	5.10	22388.19	1430.68	0.22
Susquehanna	Packers Left	127.312	25-yr	137766.00	419.51	445.3		445.70	0.000163	5.18	27007.77	1488.12	0.21
Susquehanna	Packers Left	127.312	50-yr	156093.40	419.51	447.8		448.24	0.000142	5.18	30787.19	1493.35	0.19
Susquehanna	Packers Left	127.312	100-yr	177400.00	419.51	450.6		451.06	0.000125	5.21	35007.26	1498.52	0.18
Susquehanna	Packers Left	127.312	500-yr	236276.80	419.51	456.7		457.19	0.000113	5.54	44150.20	1511.39	0.18
Susquehanna	Packers Left	127.243	2-yr	70096.87	418.43	435.9		436.17	0.000201	4.45	15986.39	1427.50	0.23
Susquehanna	Packers Left	127.243	5-yr	95401.91	418.43	439.7		440.05	0.000159	4.54	21740.44	1550.51	0.20
Susquehanna	Packers Left	127.243	10-yr	113300.00	418.43	442.1		442.42	0.000144	4.66	25430.03	1577.22	0.19
Susquehanna	Packers Left	127.243	25-yr	137766.00	418.43	445.3		445.63	0.000125	4.78	30553.63	1631.08	0.18
Susquehanna	Packers Left	127.243	50-yr	156093.40	418.43	447.8		448.17	0.000111	4.81	34701.84	1635.45	0.17
Susquehanna	Packers Left	127.243	100-yr	177400.00	418.43	450.6		451.00	0.000099	4.86	39328.06	1640.30	0.17
Susquehanna	Packers Left	127.243	500-yr	236276.80	418.43	456.7		457.13	0.000091	5.22	49345.14	1653.49	0.16
Susquehanna	Packers Left	127.177	2-yr	70096.87	418.46	435.7		436.07	0.000269	5.11	13721.94	1198.11	0.27
Susquehanna	Packers Left	127.177	5-yr	95401.91	418.46	439.6		439.97	0.000213	5.17	18524.63	1297.17	0.24
Susquehanna	Packers Left	127.177	10-yr	113300.00	418.46	441.9		442.34	0.000196	5.28	21981.66	1618.06	0.23
Susquehanna	Packers Left	127.177	25-yr	137766.00	418.46	445.1		445.56	0.000166	5.34	27246.50	1666.97	0.21
Susquehanna	Packers Left	127.177	50-yr	156093.40	418.46	447.7		448.11	0.000143	5.31	31521.95	1677.08	0.20
Susquehanna	Packers Left	127.177	100-yr	177400.00	418.46	450.5		450.95	0.000125	5.31	36304.64	1687.39	0.19
Susquehanna	Packers Left	127.177	500-yr	236276.80	418.46	456.6		457.09	0.000111	5.61	46629.85	1698.82	0.18
Susquehanna	Packers Left	127.108	2-yr	70096.87	418.22	435.6		435.96	0.000248	4.99	14041.89	1150.11	0.25

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Packers Left	127.108	5-yr	95401.91	418.22	439.5		439.89	0.000196	5.13	18746.64	1286.89	0.23
Susquehanna	Packers Left	127.108	10-yr	113300.00	418.22	441.8		442.27	0.000179	5.29	22106.59	1602.30	0.22
Susquehanna	Packers Left	127.108	25-yr	137766.00	418.22	445.1		445.50	0.000154	5.39	27532.06	1719.39	0.21
Susquehanna	Packers Left	127.108	50-yr	156093.40	418.22	447.6		448.06	0.000135	5.38	31947.92	1722.76	0.19
Susquehanna	Packers Left	127.108	100-yr	177400.00	418.22	450.5		450.90	0.000118	5.39	36859.63	1726.08	0.18
Susquehanna	Packers Left	127.108	500-yr	236276.80	418.22	456.6		457.04	0.000106	5.70	47422.18	1735.45	0.18
Susquehanna	Packers Left	127.037	2-yr	70096.87	417.82	435.4		435.86	0.000238	5.19	14054.33	1074.94	0.24
Susquehanna	Packers Left	127.037	5-yr	95401.91	417.82	439.3		439.80	0.000210	5.49	18603.09	1261.19	0.23
Susquehanna	Packers Left	127.037	10-yr	113300.00	417.82	441.7		442.19	0.000191	5.69	22039.87	1681.21	0.23
Susquehanna	Packers Left	127.037	25-yr	137766.00	417.82	444.9		445.43	0.000163	5.82	27526.23	1736.49	0.21
Susquehanna	Packers Left	127.037	50-yr	156093.40	417.82	447.5		447.99	0.000141	5.82	32002.71	1740.24	0.20
Susquehanna	Packers Left	127.037	100-yr	177400.00	417.82	450.4		450.84	0.000124	5.84	36981.41	1750.29	0.19
Susquehanna	Packers Left	127.037	500-yr	236276.80	417.82	456.5		456.99	0.000110	6.19	47686.79	1757.30	0.19
Susquehanna	Packers Left	126.963	2-yr	70096.87	417.87	435.4		435.75	0.000243	4.96	14141.38	1126.74	0.25
Susquehanna	Packers Left	126.963	5-yr	95401.91	417.87	439.3		439.69	0.000205	5.10	18716.57	1196.00	0.23
Susquehanna	Packers Left	126.963	10-yr	113300.00	417.87	441.7		442.08	0.000190	5.23	22380.94	1725.88	0.22
Susquehanna	Packers Left	126.963	25-yr	137766.00	417.87	444.9		445.33	0.000163	5.30	28028.04	1756.31	0.20
Susquehanna	Packers Left	126.963	50-yr	156093.40	417.87	447.5		447.91	0.000142	5.27	32632.01	1784.50	0.19
Susquehanna	Packers Left	126.963	100-yr	177400.00	417.87	450.4		450.77	0.000125	5.26	37795.32	1828.11	0.18
Susquehanna	Packers Left	126.963	500-yr	236276.80	417.87	456.5		456.92	0.000111	5.53	49060.93	1853.50	0.17
Susquehanna	Packers Left	126.899	2-yr	70096.87	417.65	435.3		435.64	0.000308	4.76	14727.86	1093.74	0.23
Susquehanna	Packers Left	126.899	5-yr	95401.91	417.65	439.2		439.60	0.000260	4.99	19258.84	1448.68	0.21
Susquehanna	Packers Left	126.899	10-yr	113300.00	417.65	441.6		442.00	0.000240	5.13	23197.18	1731.34	0.21
Susquehanna	Packers Left	126.899	25-yr	137766.00	417.65	444.9		445.26	0.000203	5.18	28890.06	1763.53	0.20
Susquehanna	Packers Left	126.899	50-yr	156093.40	417.65	447.4		447.84	0.000173	5.14	33530.65	1798.20	0.18
Susquehanna	Packers Left	126.899	100-yr	177400.00	417.65	450.3		450.71	0.000148	5.12	38708.27	1804.73	0.17
Susquehanna	Packers Left	126.899	500-yr	236276.80	417.65	456.5		456.86	0.000128	5.38	49828.26	1825.24	0.16
Susquehanna	Packers Left	126.835	2-yr	70096.87	417.30	435.2		435.55	0.000187	4.70	14899.55	1024.68	0.22
Susquehanna	Packers Left	126.835	5-yr	95401.91	417.30	439.1		439.52	0.000170	4.95	19550.94	1490.11	0.21
Susquehanna	Packers Left	126.835	10-yr	113300.00	417.30	441.5		441.93	0.000157	5.11	23495.59	1749.99	0.21
Susquehanna	Packers Left	126.835	25-yr	137766.00	417.30	444.8		445.19	0.000135	5.22	29206.71	1760.48	0.20
Susquehanna	Packers Left	126.835	50-yr	156093.40	417.30	447.4		447.79	0.000119	5.23	33822.84	1795.08	0.19
Susquehanna	Packers Left	126.835	100-yr	177400.00	417.30	450.2		450.66	0.000105	5.26	38994.76	1806.06	0.18
Susquehanna	Packers Left	126.835	500-yr	236276.80	417.30	456.4		456.82	0.000095	5.60	50053.30	1811.73	0.17
Susquehanna	Packers Left	126.765	2-yr	70096.87	417.21	435.1		435.47	0.000189	4.67	15014.11	1044.11	0.22
Susquehanna	Packers Left	126.765	5-yr	95401.91	417.21	439.1		439.45	0.000165	4.96	19629.65	1402.34	0.21
Susquehanna	Packers Left	126.765	10-yr	113300.00	417.21	441.5		441.86	0.000152	5.16	23376.81	1684.80	0.20
Susquehanna	Packers Left	126.765	25-yr	137766.00	417.21	444.7		445.14	0.000134	5.32	29093.24	1765.83	0.20
Susquehanna	Packers Left	126.765	50-yr	156093.40	417.21	447.3		447.74	0.000118	5.35	33718.14	1795.70	0.19
Susquehanna	Packers Left	126.765	100-yr	177400.00	417.21	450.2		450.61	0.000105	5.40	38886.93	1799.84	0.18
Susquehanna	Packers Left	126.765	500-yr	236276.80	417.21	456.3		456.78	0.000095	5.78	49995.77	1822.99	0.17
Susquehanna	Packers Left	126.692	2-yr	70096.87	416.90	434.9	425.94	435.34	0.000355	5.57	12592.35	1063.44	0.29
Susquehanna	Packers Left	126.692	5-yr	95401.91	416.90	438.9	427.48	439.35	0.000253	5.57	17406.55	1407.03	0.26
Susquehanna	Packers Left	126.692	10-yr	113300.00	416.90	441.3	428.45	441.78	0.000216	5.64	21297.17	1743.73	0.24
Susquehanna	Packers Left	126.692	25-yr	137766.00	416.90	444.6	429.77	445.07	0.000174	5.64	27128.05	1882.86	0.22
Susquehanna	Packers Left	126.692	50-yr	156093.40	416.90	447.2	430.74	447.68	0.000146	5.56	32113.96	1972.76	0.21
Susquehanna	Packers Left	126.692	100-yr	177400.00	416.90	450.1	431.70	450.56	0.000124	5.51	37579.54	2095.18	0.19
Susquehanna	Packers Left	126.692	500-yr	236276.80	416.90	456.3	434.54	456.73	0.000106	5.74	49139.87	2227.63	0.18
Susquehanna	Packers Left	126.630	2-yr	70096.87	416.44	434.7	425.42	435.20	0.000482	5.60	12506.56	968.37	0.27
Susquehanna	Packers Left	126.630	5-yr	95401.91	416.44	438.7	426.96	439.23	0.000510	5.60	17450.08	1379.74	0.26
Susquehanna	Packers Left	126.630	10-yr	113300.00	416.44	441.2	427.91	441.67	0.000431	5.67	21128.23	1675.56	0.24
Susquehanna	Packers Left	126.630	25-yr	137766.00	416.44	444.5	429.14	444.98	0.000343	5.65	26895.26	1825.36	0.22
Susquehanna	Packers Left	126.630	50-yr	156093.40	416.44	447.2	429.99	447.60	0.000291	5.52	32115.91	1932.94	0.20
Susquehanna	Packers Left	126.630	100-yr	177400.00	416.44	450.1	430.95	450.50	0.000239	5.43	37764.66	1937.47	0.19
Susquehanna	Packers Left	126.630	500-yr	236276.80	416.44	456.2	433.69	456.67	0.000197	5.60	49724.55	1947.02	0.18
Susquehanna	Packers Left	126.563	2-yr	70096.87	416.51	434.7	424.58	435.05	0.000208	4.97	14111.81	1103.70	0.24
Susquehanna	Packers Left	126.563	5-yr	95401.91	416.51	438.7	426.04	439.09	0.000180	5.11	18819.61	1275.16	0.22
Susquehanna	Packers Left	126.563	10-yr	113300.00	416.51	441.1	426.98	441.55	0.000168	5.25	22208.29	1553.34	0.22
Susquehanna	Packers Left	126.563	25-yr	137766.00	416.51	444.4	428.13	444.89	0.000148	5.37	27299.68	1735.06	0.20
Susquehanna	Packers Left	126.563	50-yr	156093.40	416.51	447.1	428.93	447.53	0.000131	5.39	31828.75	1993.45	0.19
Susquehanna	Packers Left	126.563	100-yr	177400.00	416.51	450.0	429.84	450.43	0.000115	5.36	38609.29	2024.87	0.18
Susquehanna	Packers Left	126.563	500-yr	236276.80	416.51	456.1	432.19	456.61	0.000104	5.64	51072.36	2033.12	0.17
Susquehanna	Packers Left	126.489	2-yr	70096.87	415.15	434.6	423.65	434.93	0.000270	4.72	14859.59	1209.90	0.22
Susquehanna	Packers Left	126.489	5-yr	95401.91	415.15	438.6	425.11	439.00	0.000228	4.90	19632.67	1448.73	0.21
Susquehanna	Packers Left	126.489	10-yr	113300.00	415.15	441.1	426.06	441.46	0.000207	5.06	22891.57	1572.14	0.21
Susquehanna	Packers Left	126.489	25-yr	137766.00	415.15	444.4	427.26	444.81	0.000179	5.21	27611.19	1670.60	0.20
Susquehanna	Packers Left	126.489	50-yr	156093.40	415.15	447.0	428.07	447.46	0.000159	5.25	31468.76	1818.44	0.19
Susquehanna	Packers Left	126.489	100-yr	177400.00	415.15	450.0	428.97	450.36	0.000124	5.01	39945.04	2069.20	0.17
Susquehanna	Packers Left	126.489	500-yr	236276.80	415.15	456.1	431.26	456.54	0.000108	5.27	53328.35	2194.57	0.16
Susquehanna	Packers Left	126.427	2-yr	70096.87	416.01	434.5	423.73	434.84	0.000238	4.63	15134.90	1276.50	0.21
Susquehanna	Packers Left	126.427	5-yr	95401.91	416.01	438.5	425.14	438.91	0.000217	4.85	19689.63	1438.82	0.21
Susquehanna	Packers Left	126.427	10-yr	113300.00	416.01	441.0	426.04	441.39	0.000202	5.01	22595.46	1504.51	0.20
Susquehanna	Packers Left	126.427	25-yr	137766.00	416.01	444.3	427.20	444.74	0.000175	5.17	26830.32	1692.76	0.19
Susquehanna	Packers Left	126.427	50-yr	156093.40	416.01	447.0	427.98	447.40	0.000155	5.22	30493.55	1859.45	0.19
Susquehanna	Packers Left	126.427	100-yr	177400.00	416.01	450.0	428.86	450.31	0.000115	4.83	40542.69	2016.65	0.16
Susquehanna	Packers Left	126.427	500-yr	236276.80	416.01	456.1	431.06	456.50	0.000101	5.10	53697.05	2333.73	0.16
Susquehanna	Packers Left	126.378	2-yr	70096.87	415.77	434.5	423.27	434.77	0.000211	4.45	15765.22	1113.02	0.21
Susquehanna	Packers Left	126.378	5-yr	95401.91	415.77	438.5	424.67	438.85	0.000182	4.70	20444.23	1489.80	0.20
Susquehanna	Packers Left	126.378	10-yr	113300.00	415.77	441.0	425.57	441.33	0.000169	4.90	23517.62	1557.80	0.19
Susquehanna	Packers Left	126.378	25-yr	137766.00	415.77	444.3	426.69	444.69	0.000152	5.10	27860.03	1739.10	0.19
Susquehanna	Packers Left	126.378	50-yr	156093.40	415.77	446.9	427.49	447.36	0.000138	5.18	31488.20	1935.91	0.18
Susquehanna	Packers Left	126.378	100-yr	177400.00	415.77	449.9	428.32	450.28	0.000107	4.89	41085.73	2084.27	0.16
Susquehanna	Packers Left	126.378	500-yr	236276.80	415.77	456.1	430.53	456.47	0.000095	5.16	54305.02	2460.88	0.15
Susquehanna	Packers Left	126.304	2-yr	70096.87	414.06	434.4	422.46	434.68	0.000141	4.25	16488.13	1044.02	0.19
Susquehanna	Packers Left	126.304	5-yr	95401.91	414.06	438.5	423.84	438.78	0.000138	4.56	20904.91	1657.39	0.19
Susquehanna	Packers Left	126.304	10-yr	113300.00	414.06	440.9	424.75	441.25	0.000142	4.75	23840.17	1712.69	0.19
Susquehanna	Packers Left	126.304	25-yr	137766.00	414.06	444.2	425.90	444.62	0.000133	4.93	27972.43	1835.76	0.18
Susquehanna	Packers Left	126.304	50-yr	156093.40	414.06	446.9	426.69	447.29	0.000122	5.00	31391.60	1913.16	0.18
Susquehanna	Packers Left	126.304	100-yr	177400.00	414.06	449.9	427.57	450.22	0.000085	4.48	43338.84	2029.60	0.15

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Packers Left	126.304	500-yr	236276.80	414.06	456.1	429.76	456.41	0.000074	4.69	56539.48	2285.59	0.14
Susquehanna	Packers Left	126.209	2-yr	70096.87	415.42	434.3	422.56	434.60	0.000135	4.11	17048.59	1095.09	0.18
Susquehanna	Packers Left	126.209	5-yr	95401.91	415.42	438.4	423.89	438.69	0.000142	4.39	21732.20	1785.83	0.18
Susquehanna	Packers Left	126.209	10-yr	113300.00	415.42	440.8	424.76	441.17	0.000143	4.57	24769.66	1915.63	0.18
Susquehanna	Packers Left	126.209	25-yr	137766.00	415.42	444.2	425.85	444.54	0.000133	4.75	28986.45	2012.93	0.18
Susquehanna	Packers Left	126.209	50-yr	156093.40	415.42	446.9	426.61	447.22	0.000123	4.82	32391.33	2061.55	0.17
Susquehanna	Packers Left	126.209	100-yr	177400.00	415.42	449.8	427.44	450.16	0.000109	4.77	40491.30	2133.12	0.16
Susquehanna	Packers Left	126.209	500-yr	236276.80	415.42	456.0	429.57	456.36	0.000093	4.91	58847.04	2324.04	0.15
Susquehanna	Packers Left	126.148	2-yr	70096.87	415.19	434.3	422.00	434.55	0.000115	3.87	18117.92	1128.41	0.17
Susquehanna	Packers Left	126.148	5-yr	95401.91	415.19	438.4	423.30	438.64	0.000124	4.16	22916.79	1869.99	0.17
Susquehanna	Packers Left	126.148	10-yr	113300.00	415.19	440.8	424.14	441.11	0.000120	4.35	26057.04	2127.53	0.17
Susquehanna	Packers Left	126.148	25-yr	137766.00	415.19	444.2	425.20	444.49	0.000110	4.52	30471.40	2259.75	0.17
Susquehanna	Packers Left	126.148	50-yr	156093.40	415.19	446.8	425.94	447.17	0.000100	4.58	34058.32	2320.03	0.16
Susquehanna	Packers Left	126.148	100-yr	177400.00	415.19	449.8	426.77	450.12	0.000090	4.63	39367.85	2397.46	0.15
Susquehanna	Packers Left	126.148	500-yr	236276.80	415.19	456.0	428.84	456.32	0.000074	4.63	65191.77	2970.63	0.14
Susquehanna	Packers Left	126.077	2-yr	70096.87	414.85	434.3	421.64	434.50	0.000102	3.76	18653.33	1115.44	0.16
Susquehanna	Packers Left	126.077	5-yr	95401.91	414.85	438.3	422.94	438.59	0.000102	4.08	23385.88	1634.84	0.16
Susquehanna	Packers Left	126.077	10-yr	113300.00	414.85	440.8	423.78	441.06	0.000099	4.28	26446.25	2263.28	0.17
Susquehanna	Packers Left	126.077	25-yr	137766.00	414.85	444.1	424.84	444.45	0.000092	4.48	30764.89	2464.23	0.16
Susquehanna	Packers Left	126.077	50-yr	156093.40	414.85	446.8	425.59	447.13	0.000086	4.55	34318.90	2603.77	0.16
Susquehanna	Packers Left	126.077	100-yr	177400.00	414.85	449.8	426.42	450.09	0.000078	4.63	38380.29	2667.95	0.15
Susquehanna	Packers Left	126.077	500-yr	236276.80	414.85	456.0	428.45	456.28	0.000054	4.33	69976.70	3335.91	0.13
Susquehanna	Packers Left	126.017	2-yr	70096.87	414.34	434.2	421.86	434.46	0.000120	4.05	17296.47	1042.50	0.18
Susquehanna	Packers Left	126.017	5-yr	95401.91	414.34	438.2	423.22	438.54	0.000117	4.41	21653.69	1121.31	0.18
Susquehanna	Packers Left	126.017	10-yr	113300.00	414.34	440.7	424.10	441.02	0.000115	4.64	24433.59	1144.09	0.18
Susquehanna	Packers Left	126.017	25-yr	137766.00	414.34	444.0	425.22	444.41	0.000110	4.86	28359.73	1229.07	0.18
Susquehanna	Packers Left	126.017	50-yr	156093.40	414.34	446.7	426.01	447.09	0.000099	4.94	31569.38	1248.93	0.17
Susquehanna	Packers Left	126.017	100-yr	177400.00	414.34	449.7	426.84	450.05	0.000090	5.05	35107.01	1270.97	0.16
Susquehanna	Packers Left	126.017	500-yr	236276.80	414.34	456.0	428.99	456.26	0.000066	4.38	77254.69	3741.25	0.13
Susquehanna	Packers Left	125.996	2-yr	70096.87	414.20	434.1	422.11	434.44	0.000139	4.43	15810.06	927.90	0.19
Susquehanna	Packers Left	125.996	5-yr	95401.91	414.20	438.2	423.55	438.52	0.000130	4.88	19564.67	939.89	0.19
Susquehanna	Packers Left	125.996	10-yr	113300.00	414.20	440.6	424.47	441.00	0.000128	5.18	21856.57	946.62	0.19
Susquehanna	Packers Left	125.996	25-yr	137766.00	414.20	443.9	425.65	444.38	0.000122	5.51	25023.09	956.78	0.19
Susquehanna	Packers Left	125.996	50-yr	156093.40	414.20	446.6	426.48	447.06	0.000115	5.66	27578.24	967.32	0.19
Susquehanna	Packers Left	125.996	100-yr	177400.00	414.20	449.5	427.36	450.03	0.000109	5.83	30421.89	983.60	0.18
Susquehanna	Packers Left	125.996	500-yr	236276.80	414.20	455.9	429.62	456.24	0.000058	5.01	73860.42	3808.14	0.15
Susquehanna	Packers Left	125.989 PA Route 147		Bridge									
Susquehanna	Packers Left	125.981	2-yr	70096.87	414.11	434.1	422.12	434.41	0.000142	4.46	15709.40	926.89	0.19
Susquehanna	Packers Left	125.981	5-yr	95401.91	414.11	438.1	423.56	438.49	0.000132	4.90	19461.57	940.09	0.19
Susquehanna	Packers Left	125.981	10-yr	113300.00	414.11	440.5	424.49	440.97	0.000130	5.21	21753.37	947.66	0.19
Susquehanna	Packers Left	125.981	25-yr	137766.00	414.11	443.9	425.68	444.35	0.000124	5.53	24934.70	962.86	0.19
Susquehanna	Packers Left	125.981	50-yr	156093.40	414.11	446.5	426.50	447.04	0.000116	5.68	27495.37	976.38	0.19
Susquehanna	Packers Left	125.981	100-yr	177400.00	414.11	449.5	427.39	450.00	0.000109	5.85	30328.43	992.67	0.18
Susquehanna	Packers Left	125.981	500-yr	236276.80	414.11	455.9	429.68	456.21	0.000066	4.97	75676.94	3879.01	0.14
Susquehanna	Packers Left	125.962	2-yr	70096.87	412.83	434.1	420.99	434.38	0.000112	4.11	17062.12	954.67	0.17
Susquehanna	Packers Left	125.962	5-yr	95401.91	412.83	438.1	422.42	438.47	0.000108	4.56	20928.78	968.37	0.17
Susquehanna	Packers Left	125.962	10-yr	113300.00	412.83	440.6	423.35	440.94	0.000108	4.86	23292.26	976.38	0.18
Susquehanna	Packers Left	125.962	25-yr	137766.00	412.83	443.9	424.53	444.32	0.000104	5.19	26564.77	987.46	0.18
Susquehanna	Packers Left	125.962	50-yr	156093.40	412.83	446.6	425.35	447.01	0.000099	5.35	29201.71	996.31	0.17
Susquehanna	Packers Left	125.962	100-yr	177400.00	412.83	449.5	426.25	449.97	0.000095	5.52	32135.84	1006.06	0.17
Susquehanna	Packers Left	125.962	500-yr	236276.80	412.83	455.9	428.50	456.19	0.000056	4.65	79733.22	3891.49	0.13
Susquehanna	Packers Left	125.930	2-yr	70096.87	412.43	434.1	420.91	434.37	0.000088	4.15	16966.76	947.85	0.17
Susquehanna	Packers Left	125.930	5-yr	95401.91	412.43	438.1	422.34	438.45	0.000085	4.63	20729.96	964.46	0.17
Susquehanna	Packers Left	125.930	10-yr	113300.00	412.43	440.5	423.27	440.92	0.000085	4.96	23016.11	974.42	0.18
Susquehanna	Packers Left	125.930	25-yr	137766.00	412.43	443.9	424.45	444.31	0.000082	5.32	26152.34	985.73	0.18
Susquehanna	Packers Left	125.930	50-yr	156093.40	412.43	446.5	425.24	446.99	0.000078	5.50	28654.35	994.97	0.17
Susquehanna	Packers Left	125.930	100-yr	177400.00	412.43	449.4	426.16	449.95	0.000075	5.71	31411.65	1037.09	0.17
Susquehanna	Packers Left	125.930	500-yr	236276.80	412.43	455.8	428.45	456.17	0.000058	5.47	85323.21	4318.54	0.15
Susquehanna	Packers Left	125.925 Railroad		Bridge									
Susquehanna	Packers Left	125.920	2-yr	70096.87	412.04	434.1	420.43	434.34	0.000114	4.08	17301.31	953.90	0.17
Susquehanna	Packers Left	125.920	5-yr	95401.91	412.04	438.1	421.88	438.41	0.000110	4.55	21145.39	960.66	0.17
Susquehanna	Packers Left	125.920	10-yr	113300.00	412.04	440.5	422.82	440.88	0.000110	4.87	23469.46	964.38	0.17
Susquehanna	Packers Left	125.920	25-yr	137766.00	412.04	443.8	424.01	444.26	0.000107	5.22	26658.41	972.44	0.17
Susquehanna	Packers Left	125.920	50-yr	156093.40	412.04	446.5	424.84	446.94	0.000102	5.40	29204.93	979.09	0.17
Susquehanna	Packers Left	125.920	100-yr	177400.00	412.04	449.4	425.75	449.90	0.000097	5.60	32012.71	992.14	0.17
Susquehanna	Packers Left	125.920	500-yr	236276.80	412.04	455.7	428.06	456.14	0.000076	5.47	82100.99	4374.10	0.15
Susquehanna	Packers Left	125.782	2-yr	70096.87	412.28	433.9	421.75	434.31	0.000180	5.10	13742.47	792.10	0.22
Susquehanna	Packers Left	125.782	5-yr	95401.91	412.28	437.9	423.43	438.38	0.000187	5.56	17172.89	1218.95	0.22
Susquehanna	Packers Left	125.782	10-yr	113300.00	412.28	440.3	424.50	440.85	0.000182	5.86	19354.31	1345.11	0.22
Susquehanna	Packers Left	125.782	25-yr	137766.00	412.28	443.7	425.86	444.23	0.000159	6.03	25318.36	1345.86	0.21
Susquehanna	Packers Left	125.782	50-yr	156093.40	412.28	446.4	426.80	446.92	0.000143	6.10	28920.19	1346.46	0.21
Susquehanna	Packers Left	125.782	100-yr	177400.00	412.28	449.3	427.80	449.88	0.000132	6.19	32930.11	1371.32	0.20
Susquehanna	Packers Left	125.782	500-yr	236276.80	412.28	455.7	430.36	456.13	0.000086	5.62	85321.34	4663.83	0.17
Susquehanna	Packers Left	125.682	2-yr	70096.87	412.14	433.9	420.52	434.19	0.000137	4.51	15536.89	876.01	0.19
Susquehanna	Packers Left	125.682	5-yr	95401.91	412.14	437.9	422.11	438.25	0.000148	4.92	19385.30	1015.50	0.20
Susquehanna	Packers Left	125.682	10-yr	113300.00	412.14	440.3	423.13	440.72	0.000143	5.17	21894.89	1034.04	0.20
Susquehanna	Packers Left	125.682	25-yr	137766.00	412.14	443.7	424.44	444.12	0.000131	5.43	25365.44	1034.85	0.19
Susquehanna	Packers Left	125.682	50-yr	156093.40	412.14	446.3	425.34	446.82	0.000120	5.55	28135.37	1035.48	0.19
Susquehanna	Packers Left	125.682	100-yr	177400.00	412.14	449.3	426.35	449.79	0.000110	5.69	31299.63	1093.57	0.18
Susquehanna	Packers Left	125.682	500-yr	236276.80	412.14	455.7	428.81	456.07	0.000076	5.25	86032.98	4826.24	0.15
Susquehanna	Downstream	125.39	2-yr	201900.00	412.45	433.3	421.25	433.84	0.000244	5.92	34128.83	1888.03	0.25
Susquehanna	Downstream	125.39	5-yr	282400.00	412.45	437.2	423.27	437.87	0.000253	6.82	41431.50	1898.91	0.26
Susquehanna	Downstream	125.39	10-yr	342900.00	412.45	439.4	424.66	440.32	0.000269	7.49	45805.11	1928.65	0.27
Susquehanna	Downstream	125.39	25-yr	424700.00	412.45	442.7	426.65	443.69	0.000290	8.18	52128.14	1988.38	0.28
Susquehanna	Downstream	125.39	50-yr	498500.00	412.45	445.2	428.00	446.37	0.000311	8.78	57134.14	1991.82	0.28
Susquehanna	Downstream	125.39	100-yr	574600.00	412.45	448.0	429.33	449.31	0.000338	9.23	62816.84	2019.58	0.29
Susquehanna	Downstream	125.39	500-yr	779200.00	412.45	454.2	432.65	455.61	0.000354	9.82	118087.10	5594.47	0.28

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Downstream	125.23	2-yr	201900.00	413.25	433.0	422.16	433.62	0.000283	6.19	32641.39	1886.15	0.26
Susquehanna	Downstream	125.23	5-yr	282400.00	413.25	436.9	424.26	437.65	0.000290	7.07	39935.88	1916.46	0.27
Susquehanna	Downstream	125.23	10-yr	342900.00	413.25	439.1	425.64	440.06	0.000351	7.72	44426.14	2016.29	0.29
Susquehanna	Downstream	125.23	25-yr	424700.00	413.25	442.3	427.26	443.42	0.000368	8.34	50910.66	2031.19	0.29
Susquehanna	Downstream	125.23	50-yr	498500.00	413.25	444.9	428.61	446.08	0.000387	8.90	56019.13	2042.85	0.30
Susquehanna	Downstream	125.23	100-yr	574600.00	413.25	447.7	429.89	449.01	0.000415	9.31	61777.79	2050.49	0.30
Susquehanna	Downstream	125.23	500-yr	779200.00	413.25	453.9	433.16	455.30	0.000421	9.72	117431.30	5398.89	0.28
Susquehanna	Downstream	125.15	2-yr	201900.00	413.16	432.9	421.95	433.49	0.000266	6.01	33604.53	1939.32	0.25
Susquehanna	Downstream	125.15	5-yr	282400.00	413.16	436.8	423.96	437.51	0.000273	6.87	41123.00	2017.00	0.27
Susquehanna	Downstream	125.15	10-yr	342900.00	413.16	439.0	425.33	439.91	0.000287	7.50	45724.89	2050.75	0.28
Susquehanna	Downstream	125.15	25-yr	424700.00	413.16	442.2	426.94	443.26	0.000305	8.12	52308.83	2064.27	0.28
Susquehanna	Downstream	125.15	50-yr	498500.00	413.16	444.7	428.25	445.91	0.000325	8.67	57488.66	2074.85	0.29
Susquehanna	Downstream	125.15	100-yr	574600.00	413.16	447.5	429.51	448.82	0.000350	9.08	63322.60	2086.25	0.29
Susquehanna	Downstream	125.15	500-yr	779200.00	413.16	453.8	432.72	455.12	0.000358	9.59	117714.50	5390.62	0.28
Susquehanna	Downstream	125.05	2-yr	201900.00	413.11	432.9	421.25	433.34	0.000212	5.44	37136.91	2100.65	0.23
Susquehanna	Downstream	125.05	5-yr	282400.00	413.11	436.7	423.13	437.35	0.000218	6.23	45310.29	2118.26	0.24
Susquehanna	Downstream	125.05	10-yr	342900.00	413.11	439.0	424.38	439.73	0.000246	6.84	50129.01	2162.43	0.25
Susquehanna	Downstream	125.05	25-yr	424700.00	413.11	442.2	425.92	443.07	0.000267	7.44	57143.46	2201.61	0.26
Susquehanna	Downstream	125.05	50-yr	498500.00	413.11	444.7	427.18	445.70	0.000285	7.97	62665.71	2205.22	0.26
Susquehanna	Downstream	125.05	100-yr	574600.00	413.11	447.5	428.40	448.60	0.000309	8.37	68845.42	2211.82	0.26
Susquehanna	Downstream	125.05	500-yr	779200.00	413.11	453.8	431.42	454.88	0.000313	8.80	127277.00	5258.77	0.25
Susquehanna	Downstream	124.95	2-yr	201900.00	412.96	432.8	421.13	433.21	0.000194	5.17	39024.23	2221.25	0.22
Susquehanna	Downstream	124.95	5-yr	282400.00	412.96	436.7	422.91	437.22	0.000197	5.93	47660.90	2237.91	0.23
Susquehanna	Downstream	124.95	10-yr	342900.00	412.96	438.9	424.08	439.59	0.000209	6.50	52732.48	2293.72	0.24
Susquehanna	Downstream	124.95	25-yr	424700.00	412.96	442.1	425.56	442.91	0.000224	7.08	60179.67	2343.44	0.24
Susquehanna	Downstream	124.95	50-yr	498500.00	412.96	444.6	426.76	445.53	0.000239	7.59	66062.93	2353.02	0.25
Susquehanna	Downstream	124.95	100-yr	574600.00	412.96	447.4	427.93	448.41	0.000259	7.97	72659.03	2367.76	0.25
Susquehanna	Downstream	124.95	500-yr	779200.00	412.96	453.7	430.83	454.70	0.000263	8.39	133574.00	5312.07	0.24
Susquehanna	Downstream	124.83	2-yr	201900.00	412.85	432.7	420.72	433.09	0.000169	4.83	41763.79	2369.67	0.20
Susquehanna	Downstream	124.83	5-yr	282400.00	412.85	436.6	422.41	437.08	0.000171	5.54	51006.08	2390.42	0.21
Susquehanna	Downstream	124.83	10-yr	342900.00	412.85	438.9	423.54	439.44	0.000181	6.08	56523.13	2476.23	0.22
Susquehanna	Downstream	124.83	25-yr	424700.00	412.85	442.1	424.94	442.75	0.000195	6.62	64513.94	2503.98	0.23
Susquehanna	Downstream	124.83	50-yr	498500.00	412.85	444.6	426.10	445.36	0.000208	7.09	70806.67	2515.69	0.23
Susquehanna	Downstream	124.83	100-yr	574600.00	412.85	447.4	427.25	448.23	0.000225	7.45	77862.70	2537.04	0.23
Susquehanna	Downstream	124.83	500-yr	779200.00	412.85	453.6	430.03	454.51	0.000234	7.92	136884.10	5345.43	0.23
Susquehanna	Downstream	124.72	2-yr	201900.00	412.74	432.6	420.39	432.99	0.000161	4.75	42474.48	2382.25	0.20
Susquehanna	Downstream	124.72	5-yr	282400.00	412.74	436.5	422.07	436.98	0.000163	5.45	51833.88	2456.58	0.21
Susquehanna	Downstream	124.72	10-yr	342900.00	412.74	438.8	423.20	439.33	0.000173	5.98	57416.46	2481.89	0.22
Susquehanna	Downstream	124.72	25-yr	424700.00	412.74	442.0	424.60	442.63	0.000186	6.52	65361.50	2489.30	0.22
Susquehanna	Downstream	124.72	50-yr	498500.00	412.74	444.5	425.76	445.23	0.000199	6.99	71608.20	2514.01	0.23
Susquehanna	Downstream	124.72	100-yr	574600.00	412.74	447.3	426.91	448.09	0.000216	7.35	78633.05	2532.52	0.23
Susquehanna	Downstream	124.72	500-yr	779200.00	412.74	453.4	429.69	454.37	0.000237	7.99	130040.90	5534.65	0.23
Susquehanna	Downstream	124.57	2-yr	201900.00	412.76	432.5	420.31	432.86	0.000167	4.86	41536.73	2319.71	0.20
Susquehanna	Downstream	124.57	5-yr	282400.00	412.76	436.4	421.98	436.85	0.000173	5.58	50571.18	2372.33	0.21
Susquehanna	Downstream	124.57	10-yr	342900.00	412.76	438.6	423.13	439.19	0.000183	6.14	55984.54	2451.44	0.22
Susquehanna	Downstream	124.57	25-yr	424700.00	412.76	441.8	424.55	442.48	0.000197	6.70	63826.32	2482.24	0.23
Susquehanna	Downstream	124.57	50-yr	498500.00	412.76	444.3	425.78	445.07	0.000211	7.19	70008.02	2493.13	0.23
Susquehanna	Downstream	124.57	100-yr	574600.00	412.76	447.0	426.91	447.91	0.000229	7.56	76927.63	2513.47	0.24
Susquehanna	Downstream	124.57	500-yr	779200.00	412.76	453.2	429.75	454.18	0.000243	8.11	135688.90	6018.46	0.23
Susquehanna	Downstream	124.39	2-yr	201900.00	412.70	432.3	420.46	432.69	0.000178	4.99	40496.77	2281.02	0.21
Susquehanna	Downstream	124.39	5-yr	282400.00	412.70	436.2	422.17	436.67	0.000182	5.73	49358.64	2320.53	0.22
Susquehanna	Downstream	124.39	10-yr	342900.00	412.70	438.4	423.32	439.01	0.000193	6.30	54534.67	2331.56	0.23
Susquehanna	Downstream	124.39	25-yr	424700.00	412.70	441.5	424.77	442.28	0.000209	6.88	61913.20	2346.43	0.23
Susquehanna	Downstream	124.39	50-yr	498500.00	412.70	444.0	425.93	444.85	0.000225	7.40	67708.54	2377.03	0.24
Susquehanna	Downstream	124.39	100-yr	574600.00	412.70	446.7	427.06	447.68	0.000246	7.80	74267.06	2407.86	0.24
Susquehanna	Downstream	124.39	500-yr	779200.00	412.70	453.0	429.91	453.94	0.000252	8.22	135427.90	9514.83	0.23
Susquehanna	Downstream	124.29	2-yr	201900.00	412.19	432.2	420.48	432.60	0.000186	5.07	39808.06	2286.56	0.21
Susquehanna	Downstream	124.29	5-yr	282400.00	412.19	436.1	422.21	436.58	0.000188	5.82	48661.81	2303.87	0.22
Susquehanna	Downstream	124.29	10-yr	342900.00	412.19	438.3	423.40	438.91	0.000200	6.40	53779.14	2314.21	0.23
Susquehanna	Downstream	124.29	25-yr	424700.00	412.19	441.4	424.83	442.17	0.000216	6.99	61074.70	2328.87	0.24
Susquehanna	Downstream	124.29	50-yr	498500.00	412.19	443.9	426.00	444.74	0.000231	7.51	66800.66	2350.97	0.24
Susquehanna	Downstream	124.29	100-yr	574600.00	412.19	446.6	427.17	447.55	0.000253	7.92	73255.38	2395.11	0.25
Susquehanna	Downstream	124.29	500-yr	779200.00	412.19	452.8	430.04	453.80	0.000267	8.47	131251.50	10647.99	0.24
Susquehanna	Downstream	124.18	2-yr	201900.00	411.97	432.0	420.69	432.47	0.000207	5.26	38427.42	2261.32	0.22
Susquehanna	Downstream	124.18	5-yr	282400.00	411.97	435.9	422.47	436.46	0.000207	6.00	47158.14	2271.53	0.23
Susquehanna	Downstream	124.18	10-yr	342900.00	411.97	438.1	423.68	438.77	0.000219	6.59	52169.32	2277.37	0.24
Susquehanna	Downstream	124.18	25-yr	424700.00	411.97	441.2	425.12	442.03	0.000235	7.19	59304.67	2285.68	0.25
Susquehanna	Downstream	124.18	50-yr	498500.00	411.97	443.7	426.33	444.58	0.000252	7.72	64888.46	2302.72	0.25
Susquehanna	Downstream	124.18	100-yr	574600.00	411.97	446.4	427.50	447.38	0.000274	8.13	71192.16	2344.90	0.26
Susquehanna	Downstream	124.18	500-yr	779200.00	411.97	452.5	430.45	453.63	0.000285	8.66	127292.50	9225.70	0.25
Susquehanna	Downstream	124.08	2-yr	201900.00	411.80	431.9	420.88	432.37	0.000226	5.31	38050.48	2279.80	0.23
Susquehanna	Downstream	124.08	5-yr	282400.00	411.80	435.8	422.68	436.35	0.000224	6.03	46866.14	2292.36	0.23
Susquehanna	Downstream	124.08	10-yr	342900.00	411.80	438.0	423.88	438.66	0.000237	6.61	51915.97	2303.74	0.24
Susquehanna	Downstream	124.08	25-yr	424700.00	411.80	441.1	425.31	441.91	0.000257	7.18	59227.87	2351.71	0.25
Susquehanna	Downstream	124.08	50-yr	498500.00	411.80	443.5	426.51	444.45	0.000285	7.70	64970.42	2390.50	0.26
Susquehanna	Downstream	124.08	100-yr	574600.00	411.80	446.2	427.67	447.24	0.000308	8.08	71414.19	2393.35	0.26
Susquehanna	Downstream	124.08	500-yr	779200.00	411.80	452.4	430.58	453.46	0.000304	8.41	131995.20	5775.73	0.24
Susquehanna	Downstream	123.99	2-yr	201900.00	411.62	431.8	420.88	432.25	0.000233	5.48	36819.26	2202.10	0.24
Susquehanna	Downstream	123.99	5-yr	282400.00	411.62	435.6	422.74	436.23	0.000233	6.21	45622.46	2351.37	0.24
Susquehanna	Downstream	123.99	10-yr	342900.00	411.62	437.8	423.97	438.54	0.000243	6.80	50776.94	2358.95	0.25
Susquehanna	Downstream	123.99	25-yr	424700.00	411.62	440.9	425.42	441.78	0.000258	7.39	58199.72	2458.74	0.26
Susquehanna	Downstream	123.99	50-yr	498500.00	411.62	443.3	426.61	444.31	0.000273	7.91	64201.59	2511.04	0.26
Susquehanna	Downstream	123.99	100-yr	574600.00	411.62	446.0	427.81	447.09	0.000295	8.30	70936.19	2515.93	0.26
Susquehanna	Downstream	123.99	500-yr	779200.00	411.62	452.2	430.74	453.30	0.000304	8.82	125745.00	5603.77	0.26
Susquehanna	Downstream	123.89	2-yr	201900.00	408.62	431.8	417.21	432.12	0.000117	4.42	45654.07	2251.95	0.17
Susquehanna	Downstream	123.89	5-yr	282400.00	408.62	435.7	418.94	436.09	0.000135	5.19	54441.29	2349.94	0.19
Susquehanna	Downstream	123.89	10-yr	342900.00	408.62	437.9	420.12	438.39	0.000149	5.75	59614.83	2363.48	0.20
Susquehanna	Downstream	123.89	25-yr	424700.00	408.62	441.0	421.67	441.61	0.000166	6.34	66985.88	2371.55	0.21

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Downstream	123.89	50-yr	498500.00	408.62	443.4	422.95	444.13	0.000183	6.86	72714.65	2377.82	0.22
Susquehanna	Downstream	123.89	100-yr	574600.00	408.62	446.1	424.11	446.89	0.000204	7.27	79172.96	2479.13	0.22
Susquehanna	Downstream	123.89	500-yr	779200.00	408.62	452.2	427.01	453.11	0.000226	7.87	124945.50	5371.96	0.22
Susquehanna	Downstream	123.82 Sunbury Old Gage	2-yr	201900.00	408.33	431.8	416.62	432.07	0.000105	4.15	48606.88	2420.41	0.16
Susquehanna	Downstream	123.82 Sunbury Old Gage	5-yr	282400.00	408.33	435.7	418.33	436.03	0.000116	4.87	58016.95	2448.20	0.18
Susquehanna	Downstream	123.82 Sunbury Old Gage	10-yr	342900.00	408.33	437.9	419.50	438.31	0.000128	5.41	63405.09	2452.39	0.19
Susquehanna	Downstream	123.82 Sunbury Old Gage	25-yr	424700.00	408.33	441.0	420.93	441.53	0.000146	5.98	71047.91	2457.85	0.20
Susquehanna	Downstream	123.82 Sunbury Old Gage	50-yr	498500.00	408.33	443.4	422.12	444.03	0.000163	6.48	76981.02	2461.68	0.20
Susquehanna	Downstream	123.82 Sunbury Old Gage	100-yr	574600.00	408.33	446.1	423.27	446.79	0.000185	6.88	83557.20	2465.73	0.21
Susquehanna	Downstream	123.82 Sunbury Old Gage	500-yr	779200.00	408.33	452.1	426.15	453.00	0.000212	7.56	134330.00	5627.39	0.21
Susquehanna	Downstream	123.74	2-yr	201900.00	407.38	431.8	416.25	432.02	0.000097	4.07	49583.76	2391.88	0.16
Susquehanna	Downstream	123.74	5-yr	282400.00	407.38	435.6	417.91	435.98	0.000117	4.79	58949.48	2484.03	0.17
Susquehanna	Downstream	123.74	10-yr	342900.00	407.38	437.8	419.03	438.26	0.000135	5.32	64452.23	2514.26	0.19
Susquehanna	Downstream	123.74	25-yr	424700.00	407.38	440.9	420.42	441.46	0.000154	5.88	72277.57	2520.17	0.19
Susquehanna	Downstream	123.74	50-yr	498500.00	407.38	443.3	421.60	443.96	0.000171	6.36	78371.56	2537.76	0.20
Susquehanna	Downstream	123.74	100-yr	574600.00	407.38	446.0	422.74	446.70	0.000193	6.75	85138.64	2549.01	0.21
Susquehanna	Downstream	123.74	500-yr	779200.00	407.38	452.1	425.60	452.89	0.000209	7.26	138021.40	5305.10	0.20
Susquehanna	Downstream	123.65	2-yr	201900.00	407.80	431.7	415.96	431.97	0.000091	3.88	52053.99	2591.89	0.15
Susquehanna	Downstream	123.65	5-yr	282400.00	407.80	435.6	417.58	435.91	0.000101	4.53	62344.82	2712.20	0.17
Susquehanna	Downstream	123.65	10-yr	342900.00	407.80	437.8	418.66	438.18	0.000111	5.02	68319.21	2729.66	0.18
Susquehanna	Downstream	123.65	25-yr	424700.00	407.80	440.9	420.03	441.38	0.000124	5.54	76845.01	2752.17	0.18
Susquehanna	Downstream	123.65	50-yr	498500.00	407.80	443.3	421.17	443.87	0.000136	5.99	83486.51	2761.58	0.19
Susquehanna	Downstream	123.65	100-yr	574600.00	407.80	446.0	422.31	446.60	0.000153	6.36	90858.89	2780.41	0.19
Susquehanna	Downstream	123.65	500-yr	779200.00	407.80	452.1	425.11	452.78	0.000193	6.83	145030.00	5070.82	0.19
Susquehanna	Downstream	123.64 PA Route 61		Bridge									
Susquehanna	Downstream	123.63	2-yr	201900.00	407.77	431.7	416.22	431.95	0.000092	3.95	51277.16	2617.74	0.15
Susquehanna	Downstream	123.63	5-yr	282400.00	407.77	435.6	417.81	435.89	0.000102	4.64	61637.89	2727.44	0.17
Susquehanna	Downstream	123.63	10-yr	342900.00	407.77	437.7	418.89	438.16	0.000113	5.16	67619.52	2742.49	0.18
Susquehanna	Downstream	123.63	25-yr	424700.00	407.77	440.8	420.25	441.35	0.000127	5.71	76139.35	2754.36	0.19
Susquehanna	Downstream	123.63	50-yr	498500.00	407.77	443.2	421.41	443.83	0.000141	6.18	82756.01	2761.54	0.19
Susquehanna	Downstream	123.63	100-yr	574600.00	407.77	445.9	422.49	446.56	0.000158	6.57	90086.95	2768.95	0.20
Susquehanna	Downstream	123.63	500-yr	779200.00	407.77	452.0	425.32	452.73	0.000170	7.02	144948.80	5015.23	0.19
Susquehanna	Downstream	123.58	2-yr	201900.00	408.83	431.7	417.13	431.93	0.000107	4.01	50399.80	2659.63	0.16
Susquehanna	Downstream	123.58	5-yr	282400.00	408.83	435.5	418.67	435.86	0.000119	4.63	60945.91	2771.96	0.17
Susquehanna	Downstream	123.58	10-yr	342900.00	408.83	437.7	419.75	438.12	0.000129	5.12	67033.92	2903.95	0.18
Susquehanna	Downstream	123.58	25-yr	424700.00	408.83	440.8	421.09	441.31	0.000143	5.61	75784.34	3007.14	0.19
Susquehanna	Downstream	123.58	50-yr	498500.00	408.83	443.2	422.23	443.79	0.000157	6.04	82721.97	3035.37	0.20
Susquehanna	Downstream	123.58	100-yr	574600.00	408.83	445.9	423.31	446.50	0.000173	6.36	91799.98	3172.43	0.20
Susquehanna	Downstream	123.58	500-yr	779200.00	408.83	452.0	426.10	452.67	0.000176	6.66	152180.30	5694.39	0.19
Susquehanna	Downstream	123.51	2-yr	201900.00	409.00	431.5	418.88	431.87	0.000167	4.56	44228.01	2797.08	0.20
Susquehanna	Downstream	123.51	5-yr	282400.00	409.00	435.4	420.65	435.80	0.000162	5.11	55280.85	3017.67	0.21
Susquehanna	Downstream	123.51	10-yr	342900.00	409.00	437.6	421.82	438.06	0.000169	5.55	61778.84	3112.12	0.21
Susquehanna	Downstream	123.51	25-yr	424700.00	409.00	440.7	423.28	441.24	0.000180	5.98	71064.57	3164.79	0.22
Susquehanna	Downstream	123.51	50-yr	498500.00	409.00	443.1	424.50	443.71	0.000191	6.36	78322.33	3180.09	0.22
Susquehanna	Downstream	123.51	100-yr	574600.00	409.00	445.7	425.69	446.42	0.000206	6.64	88069.71	3319.31	0.22
Susquehanna	Downstream	123.51	500-yr	779200.00	409.00	451.9	429.03	452.59	0.000206	6.88	144972.80	5746.35	0.21
Susquehanna	Downstream	123.43	2-yr	201900.00	409.11	431.5	418.72	431.80	0.000172	4.62	43713.42	2694.24	0.20
Susquehanna	Downstream	123.43	5-yr	282400.00	409.11	435.3	420.70	435.73	0.000167	5.21	54245.99	2939.64	0.21
Susquehanna	Downstream	123.43	10-yr	342900.00	409.11	437.5	422.37	437.99	0.000174	5.67	60469.17	3018.72	0.22
Susquehanna	Downstream	123.43	25-yr	424700.00	409.11	440.6	423.81	441.16	0.000184	6.12	69358.54	3230.57	0.22
Susquehanna	Downstream	123.43	50-yr	498500.00	409.11	443.0	425.03	443.63	0.000196	6.54	76259.06	3260.18	0.22
Susquehanna	Downstream	123.43	100-yr	574600.00	409.11	445.6	426.31	446.34	0.000211	6.82	86968.91	3303.50	0.22
Susquehanna	Downstream	123.43	500-yr	779200.00	409.11	451.8	428.94	452.50	0.000209	7.07	139290.00	5346.46	0.21
Susquehanna	Downstream	123.36	2-yr	201900.00	405.72	431.5	417.27	431.72	0.000130	4.15	48703.82	2830.14	0.18
Susquehanna	Downstream	123.36	5-yr	282400.00	405.72	435.3	418.92	435.64	0.000157	4.70	60022.01	3067.44	0.19
Susquehanna	Downstream	123.36	10-yr	342900.00	405.72	437.5	420.06	437.89	0.000166	5.15	66628.22	3156.87	0.19
Susquehanna	Downstream	123.36	25-yr	424700.00	405.72	440.6	421.48	441.06	0.000179	5.58	76047.04	3205.49	0.20
Susquehanna	Downstream	123.36	50-yr	498500.00	405.72	443.0	422.83	443.52	0.000194	5.98	83360.90	3246.54	0.20
Susquehanna	Downstream	123.36	100-yr	574600.00	405.72	445.6	424.10	446.22	0.000212	6.27	93214.78	3437.86	0.20
Susquehanna	Downstream	123.36	500-yr	779200.00	405.72	451.7	427.18	452.40	0.000230	6.81	135605.70	4937.19	0.20
Susquehanna	Downstream	123.29	2-yr	201900.00	407.00	431.4	417.50	431.67	0.000150	4.25	47498.45	2987.88	0.19
Susquehanna	Downstream	123.29	5-yr	282400.00	407.00	435.2	419.44	435.59	0.000150	4.76	59330.92	3141.70	0.19
Susquehanna	Downstream	123.29	10-yr	342900.00	407.00	437.4	420.78	437.83	0.000157	5.18	66214.85	3174.63	0.20
Susquehanna	Downstream	123.29	25-yr	424700.00	407.00	440.5	423.13	440.99	0.000165	5.58	76099.88	3204.86	0.20
Susquehanna	Downstream	123.29	50-yr	498500.00	407.00	442.9	424.32	443.45	0.000174	5.95	83780.44	3378.75	0.21
Susquehanna	Downstream	123.29	100-yr	574600.00	407.00	445.5	425.41	446.14	0.000189	6.22	93216.49	3665.73	0.21
Susquehanna	Downstream	123.29	500-yr	779200.00	407.00	451.6	428.10	452.32	0.000205	6.79	126460.80	4422.08	0.20
Susquehanna	Downstream	123.21	2-yr	201900.00	404.97	431.3	418.35	431.60	0.000191	4.41	45829.54	3485.40	0.21
Susquehanna	Downstream	123.21	5-yr	282400.00	404.97	435.2	420.63	435.51	0.000205	4.80	58835.47	3719.60	0.21
Susquehanna	Downstream	123.21	10-yr	342900.00	404.97	437.3	422.86	437.76	0.000216	5.15	66560.06	3833.56	0.21
Susquehanna	Downstream	123.21	25-yr	424700.00	404.97	440.4	424.19	440.91	0.000214	5.47	77603.60	3964.11	0.21
Susquehanna	Downstream	123.21	50-yr	498500.00	404.97	442.8	425.27	443.36	0.000219	5.79	86136.11	4139.28	0.21
Susquehanna	Downstream	123.21	100-yr	574600.00	404.97	445.5	426.48	446.04	0.000227	6.00	97456.48	4235.72	0.20
Susquehanna	Downstream	123.21	500-yr	779200.00	404.97	451.6	428.94	452.20	0.000223	6.23	129329.80	4375.72	0.19
Susquehanna	Downstream	123.14	2-yr	201900.00	405.05	431.2	418.56	431.52	0.000184	4.21	47976.93	3579.96	0.20
Susquehanna	Downstream	123.14	5-yr	282400.00	405.05	435.1	421.06	435.43	0.000161	4.54	62226.85	3751.50	0.20
Susquehanna	Downstream	123.14	10-yr	342900.00	405.05	437.3	422.94	437.67	0.000158	4.87	70472.75	3773.91	0.20
Susquehanna	Downstream	123.14	25-yr	424700.00	405.05	440.4	424.28	440.83	0.000156	5.17	82225.71	3952.75	0.20
Susquehanna	Downstream	123.14	50-yr	498500.00	405.05	442.8	425.33	443.27	0.000159	5.46	91332.39	4078.70	0.20
Susquehanna	Downstream	123.14	100-yr	574600.00	405.05	445.5	426.33	445.95	0.000165	5.66	103059.50	4182.94	0.19
Susquehanna	Downstream	123.14	500-yr	779200.00	405.05	451.5	428.75	452.13	0.000178	6.23	129191.90	4360.11	0.19
Susquehanna	Downstream	123.06	2-yr	201900.00	405.13	431.1	418.39	431.43	0.000177	4.42	45727.70	3349.54	0.21
Susquehanna	Downstream	123.06	5-yr	282400.00	405.13	435.0	420.67	435.36	0.000163	4.80	58820.62	3409.61	0.20
Susquehanna	Downstream	123.06	10-yr	342900.00	405.13	437.2	422.79	437.60	0.000166	5.17	66261.11	3427.09	0.21
Susquehanna	Downstream	123.06	25-yr	424700.00	405.13	440.3	424.20	440.75	0.000170	5.52	76888.80	3475.76	0.21
Susquehanna	Downstream	123.06	50-yr	498500.00	405.13	442.7	425.53	443.19	0.000177	5.86	85144.90	3664.81	0.21
Susquehanna	Downstream	123.06	100-yr	574600.00	405.13	445.3	426.64	445.87	0.000188	6.10	95597.95	4198.57	0.21
Susquehanna	Downstream	123.06	500-yr	779200.00	405.13	451.3	429.09	452.03	0.000206	6.72	121635.10	4381.66	0.21

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Downstream	122.98	2-yr	201900.00	406.86	431.0	418.95	431.36	0.000187	4.54	44490.13	2980.47	0.21
Susquehanna	Downstream	122.98	5-yr	282400.00	406.86	434.9	420.78	435.28	0.000193	4.94	57142.87	3340.85	0.21
Susquehanna	Downstream	122.98	10-yr	342900.00	406.86	437.1	422.41	437.52	0.000193	5.32	64418.80	3382.94	0.21
Susquehanna	Downstream	122.98	25-yr	424700.00	406.86	440.2	423.76	440.67	0.000195	5.68	74796.20	3711.00	0.21
Susquehanna	Downstream	122.98	50-yr	498500.00	406.86	442.5	424.96	443.11	0.000202	6.02	82815.08	3856.92	0.21
Susquehanna	Downstream	122.98	100-yr	574600.00	406.86	445.2	426.10	445.78	0.000214	6.27	91911.57	4057.78	0.21
Susquehanna	Downstream	122.98	500-yr	779200.00	406.86	451.2	428.69	451.94	0.000230	6.83	120372.50	4262.03	0.21
Susquehanna	Downstream	122.90 Shamokin Creek	2-yr	201900.00	407.29	430.9	419.11	431.28	0.000191	4.77	42360.55	3087.65	0.23
Susquehanna	Downstream	122.90 Shamokin Creek	5-yr	282400.00	407.29	434.8	420.94	435.21	0.000186	5.13	55019.38	3335.78	0.22
Susquehanna	Downstream	122.90 Shamokin Creek	10-yr	342900.00	407.29	437.0	422.45	437.44	0.000191	5.51	62276.98	3371.13	0.22
Susquehanna	Downstream	122.90 Shamokin Creek	25-yr	428200.00	407.29	440.1	423.94	440.59	0.000201	5.90	72596.85	3492.92	0.22
Susquehanna	Downstream	122.90 Shamokin Creek	50-yr	498500.00	407.29	442.4	425.26	443.03	0.000207	6.18	80630.88	3664.37	0.22
Susquehanna	Downstream	122.90 Shamokin Creek	100-yr	574600.00	407.29	445.1	426.60	445.69	0.000221	6.42	89665.69	3940.62	0.22
Susquehanna	Downstream	122.90 Shamokin Creek	500-yr	779200.00	407.29	451.1	429.48	451.85	0.000244	7.01	116590.60	4290.01	0.22
Susquehanna	Downstream	122.83	2-yr	201900.00	407.95	430.8	418.86	431.20	0.000187	4.78	42247.19	3114.84	0.23
Susquehanna	Downstream	122.83	5-yr	282400.00	407.95	434.7	420.66	435.13	0.000179	5.13	55081.66	3433.34	0.22
Susquehanna	Downstream	122.83	10-yr	342900.00	407.95	436.9	422.08	437.36	0.000185	5.49	62487.91	3452.60	0.23
Susquehanna	Downstream	122.83	25-yr	428200.00	407.95	440.0	423.55	440.51	0.000196	5.86	73015.30	3510.14	0.22
Susquehanna	Downstream	122.83	50-yr	498500.00	407.95	442.4	424.69	442.94	0.000203	6.14	81269.25	3640.70	0.22
Susquehanna	Downstream	122.83	100-yr	574600.00	407.95	445.0	425.91	445.60	0.000217	6.35	91667.09	3896.72	0.22
Susquehanna	Downstream	122.83	500-yr	779200.00	407.95	451.0	429.05	451.74	0.000243	6.96	116703.60	4281.58	0.22
Susquehanna	Downstream	122.77	2-yr	201900.00	408.18	430.8	418.97	431.12	0.000194	4.64	43495.96	3192.81	0.22
Susquehanna	Downstream	122.77	5-yr	282400.00	408.18	434.7	420.75	435.06	0.000184	5.00	56485.52	3485.70	0.22
Susquehanna	Downstream	122.77	10-yr	342900.00	408.18	436.8	422.13	437.29	0.000189	5.36	63984.14	3516.68	0.22
Susquehanna	Downstream	122.77	25-yr	428200.00	408.18	439.9	423.57	440.43	0.000201	5.74	74643.56	3548.85	0.22
Susquehanna	Downstream	122.77	50-yr	498500.00	408.18	442.3	424.70	442.86	0.000208	6.01	83018.16	3730.65	0.22
Susquehanna	Downstream	122.77	100-yr	574600.00	408.18	444.9	425.94	445.51	0.000222	6.22	93665.98	3927.74	0.21
Susquehanna	Downstream	122.77	500-yr	779200.00	408.18	450.9	429.25	451.64	0.000248	6.82	118957.30	4391.27	0.21
Susquehanna	Downstream	122.69	2-yr	201900.00	408.25	430.6	420.73	431.00	0.000449	4.83	41949.92	3393.29	0.24
Susquehanna	Downstream	122.69	5-yr	282400.00	408.25	434.5	422.58	434.94	0.000417	5.11	55429.16	3659.74	0.23
Susquehanna	Downstream	122.69	10-yr	342900.00	408.25	436.7	423.66	437.17	0.000401	5.44	63198.88	3692.70	0.23
Susquehanna	Downstream	122.69	25-yr	428200.00	408.25	439.8	425.03	440.31	0.000393	5.78	74232.73	3764.39	0.22
Susquehanna	Downstream	122.69	50-yr	498500.00	408.25	442.2	426.09	442.74	0.000388	6.03	82846.41	3882.53	0.22
Susquehanna	Downstream	122.69	100-yr	574600.00	408.25	444.8	427.13	445.38	0.000400	6.25	92413.81	4025.05	0.22
Susquehanna	Downstream	122.69	500-yr	779200.00	408.25	450.8	429.92	451.50	0.000414	6.76	120167.10	4393.32	0.21
Susquehanna	Downstream	122.62	2-yr	201900.00	408.27	430.5	420.43	430.86	0.000214	4.65	43541.96	3366.62	0.23
Susquehanna	Downstream	122.62	5-yr	282400.00	408.27	434.4	422.44	434.82	0.000184	4.97	57169.96	3622.33	0.22
Susquehanna	Downstream	122.62	10-yr	342900.00	408.27	436.6	423.44	437.05	0.000183	5.30	65081.31	3707.48	0.22
Susquehanna	Downstream	122.62	25-yr	428200.00	408.27	439.7	424.73	440.18	0.000187	5.65	76328.36	3750.16	0.22
Susquehanna	Downstream	122.62	50-yr	498500.00	408.27	442.1	425.74	442.61	0.000189	5.90	85121.19	3859.86	0.21
Susquehanna	Downstream	122.62	100-yr	574600.00	408.27	444.7	426.77	445.25	0.000199	6.12	94851.00	3969.22	0.21
Susquehanna	Downstream	122.62	500-yr	779200.00	408.27	450.7	429.27	451.36	0.000216	6.68	121390.60	4394.85	0.21
Susquehanna	Downstream	122.52	2-yr	201900.00	408.19	430.4	419.76	430.73	0.000187	4.42	45663.47	3461.96	0.21
Susquehanna	Downstream	122.52	5-yr	282400.00	408.19	434.4	421.78	434.70	0.000167	4.72	59780.60	3774.00	0.21
Susquehanna	Downstream	122.52	10-yr	342900.00	408.19	436.5	422.83	436.93	0.000169	5.05	67882.83	3938.22	0.21
Susquehanna	Downstream	122.52	25-yr	428200.00	408.19	439.6	424.17	440.06	0.000176	5.40	79356.02	4072.32	0.21
Susquehanna	Downstream	122.52	50-yr	498500.00	408.19	442.0	425.16	442.49	0.000180	5.65	88364.59	4448.31	0.21
Susquehanna	Downstream	122.52	100-yr	574600.00	408.19	444.6	426.14	445.12	0.000193	5.86	98261.40	4611.42	0.20
Susquehanna	Downstream	122.52	500-yr	779200.00	408.19	450.6	428.52	451.22	0.000211	6.40	126720.80	5231.53	0.20
Susquehanna	Downstream	122.41	2-yr	201900.00	408.10	430.3	417.72	430.62	0.000150	4.42	45716.77	3035.35	0.20
Susquehanna	Downstream	122.41	5-yr	282400.00	408.10	434.2	419.58	434.60	0.000149	4.82	58612.72	3618.60	0.21
Susquehanna	Downstream	122.41	10-yr	342900.00	408.10	436.4	420.85	436.83	0.000157	5.15	66519.38	3649.73	0.21
Susquehanna	Downstream	122.41	25-yr	428200.00	408.10	439.5	422.36	439.95	0.000171	5.51	77706.67	3977.80	0.21
Susquehanna	Downstream	122.41	50-yr	498500.00	408.10	441.9	423.56	442.37	0.000179	5.76	86474.39	4068.81	0.21
Susquehanna	Downstream	122.41	100-yr	574600.00	408.10	444.4	424.66	445.00	0.000195	5.98	96103.73	4182.48	0.21
Susquehanna	Downstream	122.41	500-yr	779200.00	408.10	450.4	427.37	451.08	0.000223	6.53	125788.50	4908.04	0.21
Susquehanna	Downstream	122.35	2-yr	201900.00	408.04	430.2	417.79	430.56	0.000266	4.82	41882.20	2639.34	0.21
Susquehanna	Downstream	122.35	5-yr	282400.00	408.04	434.1	419.61	434.51	0.000547	5.31	53200.72	3488.30	0.24
Susquehanna	Downstream	122.35	10-yr	342900.00	408.04	436.2	420.83	436.74	0.000519	5.64	60770.64	3498.07	0.24
Susquehanna	Downstream	122.35	25-yr	428200.00	408.04	439.3	422.31	439.86	0.000505	5.99	71487.97	3511.35	0.23
Susquehanna	Downstream	122.35	50-yr	498500.00	408.04	441.7	423.45	442.28	0.000496	6.24	79841.49	3548.47	0.23
Susquehanna	Downstream	122.35	100-yr	574600.00	408.04	444.2	424.64	444.89	0.000510	6.46	89031.87	3584.54	0.23
Susquehanna	Downstream	122.35	500-yr	779200.00	408.04	450.2	427.81	450.97	0.000537	7.06	113822.80	4746.84	0.22
Susquehanna	Downstream	122.30	2-yr	201900.00	407.97	430.0	418.11	430.48	0.000203	5.37	37566.50	2098.58	0.22
Susquehanna	Downstream	122.30	5-yr	282400.00	407.97	433.8	420.03	434.40	0.000211	6.04	46768.52	3004.85	0.27
Susquehanna	Downstream	122.30	10-yr	342900.00	407.97	436.0	421.26	436.62	0.000224	6.36	53937.77	3479.44	0.28
Susquehanna	Downstream	122.30	25-yr	428200.00	407.97	439.1	422.82	439.74	0.000242	6.63	64615.82	3491.70	0.27
Susquehanna	Downstream	122.30	50-yr	498500.00	407.97	441.4	424.01	442.16	0.000251	6.84	72948.56	3524.97	0.26
Susquehanna	Downstream	122.30	100-yr	574600.00	407.97	444.0	425.25	444.77	0.000271	7.01	82061.71	3554.22	0.26
Susquehanna	Downstream	122.30	500-yr	779200.00	407.97	449.9	428.34	450.83	0.000306	7.56	105999.30	4713.16	0.25
Susquehanna	Downstream	122.24	2-yr	201900.00	409.26	429.8	419.31	430.39	0.000276	5.95	33943.26	2121.96	0.26
Susquehanna	Downstream	122.24	5-yr	282400.00	409.26	433.7	421.22	434.32	0.000272	6.37	44334.97	3256.94	0.30
Susquehanna	Downstream	122.24	10-yr	342900.00	409.26	435.9	422.45	436.54	0.000280	6.63	51719.79	3451.99	0.30
Susquehanna	Downstream	122.24	25-yr	428200.00	409.26	438.9	424.06	439.65	0.000292	6.87	62310.76	3464.49	0.29
Susquehanna	Downstream	122.24	50-yr	498500.00	409.26	441.3	425.30	442.07	0.000298	7.07	70560.15	3487.63	0.28
Susquehanna	Downstream	122.24	100-yr	574600.00	409.26	443.9	426.58	444.67	0.000316	7.23	79562.84	3510.76	0.27
Susquehanna	Downstream	122.24	500-yr	779200.00	409.26	449.8	430.07	450.73	0.000346	7.75	104426.00	5212.56	0.25
Susquehanna	Downstream	122.19	2-yr	201900.00	409.71	429.8	419.14	430.30	0.000259	5.82	34674.83	2103.72	0.25
Susquehanna	Downstream	122.19	5-yr	282400.00	409.71	433.6	421.02	434.24	0.000262	6.36	44391.70	3045.52	0.29
Susquehanna	Downstream	122.19	10-yr	342900.00	409.71	435.8	422.20	436.45	0.000273	6.66	51521.40	3412.19	0.30
Susquehanna	Downstream	122.19	25-yr	428200.00	409.71	438.8	423.79	439.56	0.000287	6.91	61965.08	3423.68	0.29
Susquehanna	Downstream	122.19	50-yr	498500.00	409.71	441.2	425.01	441.98	0.000294	7.11	70103.30	3447.13	0.28
Susquehanna	Downstream	122.19	100-yr	574600.00	409.71	443.8	426.26	444.58	0.000314	7.28	78994.20	3486.03	0.27
Susquehanna	Downstream	122.19	500-yr	779200.00	409.71	449.7	429.44	450.62	0.000346	7.82	102971.30	4707.10	0.26
Susquehanna	Downstream	122.12	2-yr	201900.00	409.95	429.6		430.17	0.000317	6.17	32711.69	2241.47	0.28
Susquehanna	Downstream	122.12	5-yr	282400.00	409.95	433.4		434.11	0.000322	6.52	43295.20	3306.49	0.32
Susquehanna	Downstream	122.12	10-yr	342900.00	409.95	435.6		436.32	0.000325	6.79	50519.91	3356.69	0.31
Susquehanna	Downstream	122.12	25-yr	428200.00	409.95	438.7		439.43	0.000334	7.04	60789.66	3381.17	0.29

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Downstream	122.12	50-yr	498500.00	409.95	441.0		441.84	0.000338	7.24	68824.20	3403.75	0.28
Susquehanna	Downstream	122.12	100-yr	574600.00	409.95	443.6		444.43	0.000358	7.41	77551.27	3433.78	0.27
Susquehanna	Downstream	122.12	500-yr	779200.00	409.95	449.5		450.46	0.000391	7.96	101159.10	4616.94	0.26
Susquehanna	Downstream	122.01 Sunbury New Gage	2-yr	201900.00	410.05	429.3	420.10	429.97	0.000361	6.53	30912.38	2000.97	0.29
Susquehanna	Downstream	122.01 Sunbury New Gage	5-yr	282400.00	410.05	433.1	422.02	433.89	0.000369	6.93	40764.66	3148.86	0.34
Susquehanna	Downstream	122.01 Sunbury New Gage	10-yr	342900.00	410.05	435.3	423.25	436.11	0.000369	7.16	47877.03	3336.89	0.33
Susquehanna	Downstream	122.01 Sunbury New Gage	25-yr	428200.00	410.05	438.4	424.87	439.21	0.000374	7.37	58079.62	3348.40	0.31
Susquehanna	Downstream	122.01 Sunbury New Gage	50-yr	498500.00	410.05	440.7	426.11	441.62	0.000375	7.55	66035.36	3369.03	0.30
Susquehanna	Downstream	122.01 Sunbury New Gage	100-yr	574600.00	410.05	443.3	427.39	444.20	0.000393	7.70	74658.91	3407.18	0.29
Susquehanna	Downstream	122.01 Sunbury New Gage	500-yr	779200.00	410.05	449.2	432.28	450.21	0.000424	8.23	97150.03	4690.67	0.27
Susquehanna	Downstream	121.91	2-yr	201900.00	408.41	429.2	418.57	429.77	0.000271	5.88	34330.65	2162.64	0.26
Susquehanna	Downstream	121.91	5-yr	282400.00	408.41	433.1	420.54	433.70	0.000268	6.33	44630.72	3217.58	0.30
Susquehanna	Downstream	121.91	10-yr	342900.00	408.41	435.2	421.79	435.91	0.000279	6.63	51738.45	3314.53	0.30
Susquehanna	Downstream	121.91	25-yr	428200.00	408.41	438.3	423.39	439.01	0.000296	6.93	61822.61	3330.44	0.28
Susquehanna	Downstream	121.91	50-yr	498500.00	408.41	440.6	424.63	441.42	0.000306	7.15	69728.63	3366.01	0.28
Susquehanna	Downstream	121.91	100-yr	574600.00	408.41	443.2	425.89	443.99	0.000330	7.35	78280.80	3408.10	0.27
Susquehanna	Downstream	121.91	500-yr	779200.00	408.41	449.0	429.28	449.99	0.000374	7.95	98385.88	3988.69	0.26
Susquehanna	Downstream	121.84	2-yr	201900.00	408.16	429.2	418.40	429.65	0.000342	5.66	35660.03	2288.24	0.25
Susquehanna	Downstream	121.84	5-yr	282400.00	408.16	432.9	420.28	433.53	0.000862	6.13	46075.23	3291.76	0.29
Susquehanna	Downstream	121.84	10-yr	342900.00	408.16	435.1	421.55	435.75	0.000790	6.45	53175.86	3304.15	0.28
Susquehanna	Downstream	121.84	25-yr	428200.00	408.16	438.1	423.12	438.85	0.000741	6.78	63209.22	3321.21	0.27
Susquehanna	Downstream	121.84	50-yr	498500.00	408.16	440.5	424.30	441.26	0.000711	7.02	71084.12	3352.83	0.27
Susquehanna	Downstream	121.84	100-yr	574600.00	408.16	443.0	425.52	443.82	0.000723	7.24	79557.06	3393.00	0.26
Susquehanna	Downstream	121.84	500-yr	779200.00	408.16	448.8	428.56	449.80	0.000749	7.89	99342.86	3748.60	0.25
Susquehanna	Downstream	121.77	2-yr	201900.00	406.75	429.1	417.36	429.53	0.000197	5.22	38657.39	2306.05	0.22
Susquehanna	Downstream	121.77	5-yr	282400.00	406.75	432.8	419.20	433.37	0.000209	5.82	48555.27	3025.52	0.26
Susquehanna	Downstream	121.77	10-yr	342900.00	406.75	435.0	420.35	435.59	0.000221	6.19	55419.90	3265.85	0.26
Susquehanna	Downstream	121.77	25-yr	428200.00	406.75	438.0	421.90	438.68	0.000240	6.56	65307.03	3282.70	0.26
Susquehanna	Downstream	121.77	50-yr	498500.00	406.75	440.4	423.05	441.09	0.000252	6.82	73082.27	3321.36	0.26
Susquehanna	Downstream	121.77	100-yr	574600.00	406.75	442.9	424.25	443.65	0.000275	7.07	81435.68	3467.87	0.25
Susquehanna	Downstream	121.77	500-yr	779200.00	406.75	448.7	427.19	449.61	0.000317	7.75	100966.10	4179.32	0.25
Susquehanna	Downstream	121.69	2-yr	201900.00	405.77	429.0	416.36	429.45	0.000187	5.15	39240.73	2363.98	0.22
Susquehanna	Downstream	121.69	5-yr	282400.00	405.77	432.8	418.40	433.29	0.000199	5.72	49331.18	3106.23	0.25
Susquehanna	Downstream	121.69	10-yr	342900.00	405.77	434.9	419.65	435.50	0.000212	6.10	56182.85	3252.46	0.26
Susquehanna	Downstream	121.69	25-yr	428200.00	405.77	437.9	421.22	438.59	0.000233	6.49	66004.41	3275.58	0.25
Susquehanna	Downstream	121.69	50-yr	498500.00	405.77	440.3	422.43	440.99	0.000247	6.76	73753.14	3326.61	0.25
Susquehanna	Downstream	121.69	100-yr	574600.00	405.77	442.8	423.69	443.54	0.000270	7.01	82069.08	3853.82	0.25
Susquehanna	Downstream	121.69	500-yr	779200.00	405.77	448.6	426.88	449.49	0.000314	7.71	101525.40	4439.52	0.25
Susquehanna	Downstream	121.61	2-yr	201900.00	405.87	429.0	416.07	429.37	0.000187	5.13	39753.10	2643.95	0.23
Susquehanna	Downstream	121.61	5-yr	282400.00	405.87	432.7	418.24	433.19	0.000195	5.65	50602.41	3315.59	0.25
Susquehanna	Downstream	121.61	10-yr	342900.00	405.87	434.8	419.66	435.40	0.000207	6.02	57705.69	3329.39	0.25
Susquehanna	Downstream	121.61	25-yr	428200.00	405.87	437.8	421.25	438.48	0.000227	6.41	67732.41	3346.80	0.25
Susquehanna	Downstream	121.61	50-yr	498500.00	405.87	440.2	422.45	440.88	0.000238	6.70	75586.60	3365.58	0.25
Susquehanna	Downstream	121.61	100-yr	574600.00	405.87	442.7	423.74	443.41	0.000262	6.96	83923.14	4007.58	0.24
Susquehanna	Downstream	121.61	500-yr	779200.00	405.87	448.4	426.95	449.34	0.000309	7.67	103437.90	4464.41	0.24
Susquehanna	Downstream	121.53	2-yr	201900.00	406.47	428.9	416.60	429.29	0.000192	5.13	39652.93	2558.89	0.23
Susquehanna	Downstream	121.53	5-yr	282400.00	406.47	432.6	418.61	433.12	0.000203	5.66	50423.70	3331.89	0.25
Susquehanna	Downstream	121.53	10-yr	342900.00	406.47	434.8	419.87	435.31	0.000221	6.02	57728.80	3477.88	0.26
Susquehanna	Downstream	121.53	25-yr	428200.00	406.47	437.8	421.37	438.38	0.000237	6.37	68208.02	3508.26	0.25
Susquehanna	Downstream	121.53	50-yr	498500.00	406.47	440.1	422.57	440.78	0.000245	6.63	76428.80	3527.57	0.25
Susquehanna	Downstream	121.53	100-yr	574600.00	406.47	442.6	423.85	443.30	0.000266	6.88	85135.90	3888.00	0.24
Susquehanna	Downstream	121.53	500-yr	779200.00	406.47	448.3	426.95	449.21	0.000307	7.55	105501.50	4465.85	0.24
Susquehanna	Downstream	121.46	2-yr	201900.00	406.01	428.8	416.05	429.22	0.000171	4.97	40744.91	2709.35	0.22
Susquehanna	Downstream	121.46	5-yr	282400.00	406.01	432.6	417.98	433.04	0.000184	5.48	52793.92	3738.94	0.24
Susquehanna	Downstream	121.46	10-yr	342900.00	406.01	434.7	419.26	435.23	0.000196	5.84	60828.81	3799.13	0.24
Susquehanna	Downstream	121.46	25-yr	428200.00	406.01	437.7	420.80	438.29	0.000215	6.20	72642.75	4133.61	0.24
Susquehanna	Downstream	121.46	50-yr	498500.00	406.01	440.0	422.00	440.68	0.000223	6.45	82117.28	4424.44	0.24
Susquehanna	Downstream	121.46	100-yr	574600.00	406.01	442.5	423.21	443.20	0.000243	6.68	92134.35	4630.90	0.23
Susquehanna	Downstream	121.46	500-yr	779200.00	406.01	448.3	426.45	449.08	0.000278	7.25	122292.20	5050.52	0.23
Susquehanna	Downstream	121.38	2-yr	201900.00	406.60	428.7	416.36	429.12	0.000375	5.01	41024.43	2988.69	0.23
Susquehanna	Downstream	121.38	5-yr	282400.00	406.60	432.5	418.33	432.91	0.000533	5.47	53456.05	3712.91	0.24
Susquehanna	Downstream	121.38	10-yr	342900.00	406.60	434.6	419.60	435.10	0.000535	5.82	61457.66	3777.50	0.24
Susquehanna	Downstream	121.38	25-yr	428200.00	406.60	437.6	421.09	438.15	0.000525	6.18	72857.31	3895.88	0.24
Susquehanna	Downstream	121.38	50-yr	498500.00	406.60	439.9	422.27	440.54	0.000515	6.43	81829.72	4141.69	0.24
Susquehanna	Downstream	121.38	100-yr	574600.00	406.60	442.4	423.47	443.05	0.000537	6.67	91316.10	4523.59	0.23
Susquehanna	Downstream	121.38	500-yr	779200.00	406.60	448.1	426.50	448.92	0.000566	7.25	119817.80	4790.72	0.23
Susquehanna	Downstream	121.31	2-yr	201900.00	406.46	428.6	417.23	429.00	0.000226	5.26	38469.83	2854.01	0.25
Susquehanna	Downstream	121.31	5-yr	282400.00	406.46	432.3	419.53	432.78	0.000225	5.66	50513.32	3628.27	0.26
Susquehanna	Downstream	121.31	10-yr	342900.00	406.46	434.4	420.75	434.96	0.000237	6.02	58264.22	3770.87	0.26
Susquehanna	Downstream	121.31	25-yr	428200.00	406.46	437.4	422.33	438.02	0.000249	6.37	69347.90	4098.22	0.25
Susquehanna	Downstream	121.31	50-yr	498500.00	406.46	439.7	423.45	440.40	0.000254	6.62	78116.26	4233.67	0.25
Susquehanna	Downstream	121.31	100-yr	574600.00	406.46	442.2	424.61	442.90	0.000274	6.86	87324.32	4626.05	0.24
Susquehanna	Downstream	121.31	500-yr	779200.00	406.46	447.9	427.77	448.76	0.000302	7.40	118637.80	4927.47	0.24
Susquehanna	Downstream	121.24	2-yr	201900.00	404.80	428.5	415.64	428.92	0.000188	5.00	40764.38	2822.37	0.23
Susquehanna	Downstream	121.24	5-yr	282400.00	404.80	432.2	417.71	432.70	0.000198	5.48	52338.92	3501.77	0.24
Susquehanna	Downstream	121.24	10-yr	342900.00	404.80	434.4	419.39	434.87	0.000209	5.84	59927.45	3596.18	0.24
Susquehanna	Downstream	121.24	25-yr	428200.00	404.80	437.3	420.95	437.92	0.000225	6.20	70729.34	3715.13	0.24
Susquehanna	Downstream	121.24	50-yr	498500.00	404.80	439.7	422.16	440.30	0.000233	6.44	79285.99	4260.96	0.23
Susquehanna	Downstream	121.24	100-yr	574600.00	404.80	442.1	423.38	442.79	0.000254	6.67	88256.68	4585.50	0.23
Susquehanna	Downstream	121.24	500-yr	779200.00	404.80	447.9	427.02	448.63	0.000287	7.22	118753.60	5084.36	0.23
Susquehanna	Downstream	121.16	2-yr	201900.00	405.27	428.4	415.73	428.84	0.000192	5.05	40341.23	2753.01	0.22
Susquehanna	Downstream	121.16	5-yr	282400.00	405.27	432.1	417.78	432.61	0.000207	5.57	51673.64	3687.34	0.25
Susquehanna	Downstream	121.16	10-yr	342900.00	405.27	434.2	419.42	434.78	0.000220	5.96	59172.47	3749.73	0.25
Susquehanna	Downstream	121.16	25-yr	428200.00	405.27	437.2	420.99	437.82	0.000241	6.37	69759.13	3927.92	0.24
Susquehanna	Downstream	121.16	50-yr	498500.00	405.27	439.5	422.26	440.20	0.000252	6.65	78130.38	4440.34	0.24
Susquehanna	Downstream	121.16	100-yr	574600.00	405.27	442.0	423.52	442.68	0.000272	6.86	92096.19	4696.64	0.24
Susquehanna	Downstream	121.16	500-yr	779200.00	405.27	447.7	426.73	448.50	0.000314	7.48	120227.30	5122.42	0.24
Susquehanna	Downstream	121.08	2-yr	201900.00	403.62	428.4	415.09	428.76	0.000184	4.90	41635.30	3032.13	0.23

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Downstream	121.08	5-yr	282400.00	403.62	432.1	417.25	432.52	0.000191	5.38	53650.38	3520.05	0.23
Susquehanna	Downstream	121.08	10-yr	342900.00	403.62	434.2	418.68	434.69	0.000202	5.80	60951.62	3680.55	0.23
Susquehanna	Downstream	121.08	25-yr	428200.00	403.62	437.1	420.88	437.72	0.000219	6.25	71371.43	3745.30	0.23
Susquehanna	Downstream	121.08	50-yr	498500.00	403.62	439.4	422.11	440.10	0.000228	6.56	79626.48	4642.68	0.23
Susquehanna	Downstream	121.08	100-yr	574600.00	403.62	441.9	423.33	442.57	0.000246	6.80	93989.61	4822.68	0.23
Susquehanna	Downstream	121.08	500-yr	779200.00	403.62	447.6	426.56	448.38	0.000281	7.47	121944.70	5332.25	0.23
Susquehanna	Downstream	121.01	2-yr	201900.00	404.46	428.3	415.38	428.69	0.000182	5.01	42036.88	2886.30	0.22
Susquehanna	Downstream	121.01	5-yr	282400.00	404.46	432.0	417.43	432.45	0.000194	5.50	53873.23	3494.59	0.24
Susquehanna	Downstream	121.01	10-yr	342900.00	404.46	434.1	418.81	434.61	0.000204	5.92	61120.52	3622.87	0.24
Susquehanna	Downstream	121.01	25-yr	428200.00	404.46	437.0	420.95	437.63	0.000222	6.34	71473.41	3732.79	0.24
Susquehanna	Downstream	121.01	50-yr	498500.00	404.46	439.3	422.20	440.01	0.000232	6.63	79663.84	4369.84	0.24
Susquehanna	Downstream	121.01	100-yr	574600.00	404.46	441.8	423.42	442.47	0.000251	6.87	93237.69	4931.85	0.24
Susquehanna	Downstream	121.01	500-yr	779200.00	404.46	447.4	426.48	448.27	0.000283	7.50	122083.80	5213.13	0.23
Susquehanna	Downstream	120.93	2-yr	201900.00	404.72	428.2	415.77	428.60	0.000205	5.00	41869.05	2997.70	0.23
Susquehanna	Downstream	120.93	5-yr	282400.00	404.72	431.9	417.98	432.36	0.000213	5.51	53504.77	3326.94	0.23
Susquehanna	Downstream	120.93	10-yr	342900.00	404.72	434.0	419.97	434.52	0.000227	5.98	60465.80	3504.14	0.24
Susquehanna	Downstream	120.93	25-yr	428200.00	404.72	436.9	421.43	437.53	0.000250	6.44	70522.02	3784.11	0.24
Susquehanna	Downstream	120.93	50-yr	498500.00	404.72	439.2	422.56	439.90	0.000262	6.77	78519.48	4164.63	0.24
Susquehanna	Downstream	120.93	100-yr	574600.00	404.72	441.6	423.71	442.36	0.000288	7.08	86934.76	4335.91	0.24
Susquehanna	Downstream	120.93	500-yr	779200.00	404.72	447.2	426.84	448.14	0.000327	7.75	118642.00	5178.10	0.24
Susquehanna	Downstream	120.80	2-yr	201900.00	404.29	428.1	414.83	428.48	0.000169	5.00	41384.71	2609.75	0.21
Susquehanna	Downstream	120.80	5-yr	282400.00	404.29	431.7	416.87	432.23	0.000182	5.66	51936.35	3315.75	0.24
Susquehanna	Downstream	120.80	10-yr	342900.00	404.29	433.8	418.24	434.38	0.000198	6.13	58830.36	3465.53	0.24
Susquehanna	Downstream	120.80	25-yr	428200.00	404.29	436.7	419.84	437.38	0.000220	6.62	68723.08	3748.65	0.25
Susquehanna	Downstream	120.80	50-yr	498500.00	404.29	439.0	421.04	439.73	0.000233	6.96	76651.71	4197.91	0.25
Susquehanna	Downstream	120.80	100-yr	574600.00	404.29	441.4	422.40	442.18	0.000257	7.25	89317.59	4366.66	0.25
Susquehanna	Downstream	120.80	500-yr	779200.00	404.29	447.0	425.64	447.93	0.000304	8.02	116582.90	5391.62	0.25
Susquehanna	Downstream	120.68	2-yr	201900.00	405.38	427.9	416.57	428.35	0.000249	5.66	35646.36	2542.51	0.26
Susquehanna	Downstream	120.68	5-yr	282400.00	405.38	431.5	418.67	432.09	0.000257	6.23	45298.61	3300.28	0.28
Susquehanna	Downstream	120.68	10-yr	342900.00	405.38	433.5	419.93	434.23	0.000274	6.69	51903.07	3848.07	0.28
Susquehanna	Downstream	120.68	25-yr	428200.00	405.38	436.4	421.57	437.21	0.000297	7.16	61621.29	4516.25	0.28
Susquehanna	Downstream	120.68	50-yr	498500.00	405.38	438.7	422.83	439.56	0.000308	7.47	70089.16	5300.32	0.28
Susquehanna	Downstream	120.68	100-yr	574600.00	405.38	441.1	424.06	441.99	0.000336	7.77	78551.91	5595.03	0.27
Susquehanna	Downstream	120.68	500-yr	779200.00	405.38	446.7	427.99	447.72	0.000366	8.32	119655.20	6480.58	0.26
Susquehanna	Downstream	120.61	2-yr	201900.00	405.46	427.7	416.59	428.23	0.000428	5.71	35921.12	2852.86	0.26
Susquehanna	Downstream	120.61	5-yr	282400.00	405.46	431.3	418.68	431.94	0.000688	6.34	45846.98	3715.29	0.28
Susquehanna	Downstream	120.61	10-yr	342900.00	405.46	433.4	419.94	434.07	0.000675	6.79	52671.87	3996.72	0.28
Susquehanna	Downstream	120.61	25-yr	428200.00	405.46	436.2	421.54	437.04	0.000673	7.24	62556.31	4249.88	0.28
Susquehanna	Downstream	120.61	50-yr	498500.00	405.46	438.5	422.76	439.39	0.000662	7.53	71165.41	4585.56	0.28
Susquehanna	Downstream	120.61	100-yr	574600.00	405.46	440.9	424.06	441.79	0.000665	7.66	89379.24	5124.22	0.27
Susquehanna	Downstream	120.61	500-yr	779200.00	405.46	446.5	427.74	447.51	0.000690	8.24	118651.80	6169.29	0.26
Susquehanna	Downstream	120.50	2-yr	201900.00	403.94	427.6	414.49	428.00	0.000267	4.82	42255.68	2959.81	0.21
Susquehanna	Downstream	120.50	5-yr	282400.00	403.94	431.1	416.45	431.61	0.000380	5.49	52401.86	3941.04	0.23
Susquehanna	Downstream	120.50	10-yr	342900.00	403.94	433.2	417.77	433.74	0.000406	5.97	59156.26	4379.85	0.24
Susquehanna	Downstream	120.50	25-yr	428200.00	403.94	436.1	419.39	436.70	0.000412	6.38	74953.07	4760.26	0.24
Susquehanna	Downstream	120.50	50-yr	498500.00	403.94	438.4	420.59	439.05	0.000413	6.66	86426.73	4913.38	0.24
Susquehanna	Downstream	120.50	100-yr	574600.00	403.94	440.7	421.86	441.45	0.000444	6.96	97408.08	5236.31	0.23
Susquehanna	Downstream	120.50	500-yr	779200.00	403.94	446.3	425.30	447.16	0.000493	7.69	125718.20	6429.05	0.24
Susquehanna	Downstream	120.43	2-yr	201900.00	404.16	427.6	413.50	427.92	0.000139	4.53	44610.32	2992.73	0.19
Susquehanna	Downstream	120.43	5-yr	282400.00	404.16	431.1	415.39	431.52	0.000156	5.26	54315.80	3930.13	0.21
Susquehanna	Downstream	120.43	10-yr	342900.00	404.16	433.1	416.66	433.63	0.000173	5.75	60954.37	4281.93	0.22
Susquehanna	Downstream	120.43	25-yr	428200.00	404.16	436.0	418.31	436.60	0.000193	6.29	70722.33	4383.02	0.23
Susquehanna	Downstream	120.43	50-yr	498500.00	404.16	438.3	419.47	438.94	0.000191	6.44	88643.38	4446.67	0.22
Susquehanna	Downstream	120.43	100-yr	574600.00	404.16	440.7	420.63	441.33	0.000211	6.74	99103.72	4507.53	0.22
Susquehanna	Downstream	120.43	500-yr	779200.00	404.16	446.2	423.57	447.02	0.000246	7.48	124445.90	4598.93	0.23
Susquehanna	Downstream	120.33	2-yr	201900.00	405.29	427.5	415.83	427.83	0.000186	4.81	41998.77	3180.53	0.21
Susquehanna	Downstream	120.33	5-yr	282400.00	405.29	431.0	417.69	431.42	0.000196	5.48	52206.68	3952.74	0.23
Susquehanna	Downstream	120.33	10-yr	342900.00	405.29	433.0	418.91	433.53	0.000208	5.97	59145.56	4282.16	0.23
Susquehanna	Downstream	120.33	25-yr	428200.00	405.29	435.8	420.46	436.48	0.000226	6.51	69073.77	4530.38	0.24
Susquehanna	Downstream	120.33	50-yr	498500.00	405.29	438.1	421.58	438.82	0.000226	6.72	84225.43	5336.54	0.24
Susquehanna	Downstream	120.33	100-yr	574600.00	405.29	440.5	422.66	441.20	0.000248	7.05	93906.20	6205.42	0.24
Susquehanna	Downstream	120.33	500-yr	779200.00	405.29	446.0	425.29	446.86	0.000289	7.86	117407.80	7947.68	0.24
Susquehanna	Downstream	120.20 Sealholtz Run	2-yr	204800.00	406.48	427.4	415.72	427.70	0.000160	4.56	44975.91	2991.26	0.20
Susquehanna	Downstream	120.20 Sealholtz Run	5-yr	286500.00	406.48	430.9	417.38	431.28	0.000168	5.19	56253.98	4169.76	0.21
Susquehanna	Downstream	120.20 Sealholtz Run	10-yr	347900.00	406.48	432.9	418.49	433.38	0.000178	5.67	63371.01	4592.45	0.22
Susquehanna	Downstream	120.20 Sealholtz Run	25-yr	434400.00	406.48	435.7	419.80	436.32	0.000196	6.18	73522.95	5385.19	0.23
Susquehanna	Downstream	120.20 Sealholtz Run	50-yr	505700.00	406.48	438.0	420.83	438.66	0.000210	6.53	81657.34	6572.53	0.23
Susquehanna	Downstream	120.20 Sealholtz Run	100-yr	582900.00	406.48	440.3	421.89	441.02	0.000220	6.72	104518.60	8077.16	0.22
Susquehanna	Downstream	120.20 Sealholtz Run	500-yr	790500.00	406.48	445.8	424.50	446.65	0.000249	7.42	135481.00	13013.38	0.23
Susquehanna	Downstream	120.13	2-yr	204800.00	404.86	427.3	414.59	427.64	0.000148	4.43	46407.36	3347.64	0.19
Susquehanna	Downstream	120.13	5-yr	286500.00	404.86	430.8	416.32	431.22	0.000162	5.03	58061.77	5217.58	0.21
Susquehanna	Downstream	120.13	10-yr	347900.00	404.86	432.8	417.50	433.31	0.000171	5.48	65450.14	5467.83	0.22
Susquehanna	Downstream	120.13	25-yr	434400.00	404.86	435.7	418.99	436.24	0.000186	5.96	75935.61	6093.40	0.22
Susquehanna	Downstream	120.13	50-yr	505700.00	404.86	438.0	420.04	438.58	0.000199	6.29	84336.52	6779.80	0.22
Susquehanna	Downstream	120.13	100-yr	582900.00	404.86	440.3	421.14	440.94	0.000216	6.59	94554.16	7895.63	0.22
Susquehanna	Downstream	120.13	500-yr	790500.00	404.86	445.9	423.83	446.52	0.000210	6.77	145064.40	10937.26	0.21
Susquehanna	Downstream	120.06	2-yr	204800.00	405.34	427.2	415.40	427.57	0.000175	4.82	44487.59	4756.34	0.21
Susquehanna	Downstream	120.06	5-yr	286500.00	405.34	430.7	417.23	431.15	0.000184	5.46	56772.50	6412.64	0.23
Susquehanna	Downstream	120.06	10-yr	347900.00	405.34	432.7	418.48	433.23	0.000196	5.93	64352.23	6706.22	0.23
Susquehanna	Downstream	120.06	25-yr	434400.00	405.34	435.5	419.86	436.16	0.000216	6.43	75099.52	6979.14	0.24
Susquehanna	Downstream	120.06	50-yr	505700.00	405.34	437.8	420.98	438.49	0.000231	6.77	83714.48	7823.55	0.24
Susquehanna	Downstream	120.06	100-yr	582900.00	405.34	440.2	422.12	440.84	0.000217	6.59	113747.90	8888.02	0.22
Susquehanna	Downstream	120.06	500-yr	790500.00	405.34	445.8	424.92	446.43	0.000223	6.90	176246.70	10166.31	0.21
Susquehanna	Downstream	119.94	2-yr	204800.00	403.58	427.1	414.91	427.44	0.000276	4.81	45027.95	4552.49	0.22
Susquehanna	Downstream	119.94	5-yr	286500.00	403.58	430.6	417.60	430.99	0.000370	5.37	57771.98	5367.34	0.23
Susquehanna	Downstream	119.94	10-yr	347900.00	403.58	432.6	419.02	433.06	0.000372	5.79	65583.48	5514.51	0.23
Susquehanna	Downstream	119.94	25-yr	434400.00	403.58	435.4	420.67	435.98	0.000384	6.24	76646.55	6006.80	0.23
Susquehanna	Downstream	119.94	50-yr	505700.00	403.58	437.7	421.68	438.29	0.000397	6.55	85506.80	6098.34	0.23
Susquehanna	Downstream	119.94	100-yr	582900.00	403.58	440.0	422.72	440.66	0.000415	6.80	97111.98	6327.65	0.23

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Downstream	119.94	500-yr	790500.00	403.58	445.7	425.33	446.25	0.000342	6.55	160219.20	6558.22	0.20
Susquehanna	Downstream	119.86	2-yr	204800.00	407.83	426.7	419.05	427.27	0.000416	5.87	35637.62	4771.90	0.30
Susquehanna	Downstream	119.86	5-yr	286500.00	407.83	430.2	420.63	430.81	0.000369	6.16	48810.34	5357.27	0.29
Susquehanna	Downstream	119.86	10-yr	347900.00	407.83	432.2	421.75	432.88	0.000364	6.49	56761.13	5438.84	0.29
Susquehanna	Downstream	119.86	25-yr	434400.00	407.83	435.1	423.20	435.80	0.000368	6.82	68014.98	5655.48	0.28
Susquehanna	Downstream	119.86	50-yr	505700.00	407.83	437.4	424.30	438.11	0.000375	7.04	77018.51	5918.24	0.27
Susquehanna	Downstream	119.86	100-yr	582900.00	407.83	439.9	425.48	440.46	0.000296	6.35	114301.30	6163.59	0.23
Susquehanna	Downstream	119.86	500-yr	790500.00	407.83	445.5	428.39	446.10	0.000305	6.74	149297.80	6437.34	0.22
Susquehanna	Downstream	119.69	2-yr	204800.00	404.47	426.5	416.45	426.96	0.000296	5.53	37215.10	3459.19	0.27
Susquehanna	Downstream	119.69	5-yr	286500.00	404.47	430.0	419.10	430.52	0.000278	5.97	49052.38	5022.77	0.27
Susquehanna	Downstream	119.69	10-yr	347900.00	404.47	432.0	420.17	432.61	0.000282	6.35	56831.49	5131.87	0.27
Susquehanna	Downstream	119.69	25-yr	434400.00	404.47	434.8	421.58	435.51	0.000292	6.74	67812.53	5359.92	0.27
Susquehanna	Downstream	119.69	50-yr	505700.00	404.47	437.1	422.64	437.82	0.000302	7.00	76593.52	5809.53	0.26
Susquehanna	Downstream	119.69	100-yr	582900.00	404.47	439.6	423.80	440.21	0.000270	6.69	108106.10	5965.67	0.24
Susquehanna	Downstream	119.69	500-yr	790500.00	404.47	445.1	427.17	445.84	0.000281	7.13	142000.60	6180.56	0.23
Susquehanna	Downstream	119.57	2-yr	204800.00	406.43	426.2	417.03	426.69	0.000623	5.87	35323.00	3475.53	0.28
Susquehanna	Downstream	119.57	5-yr	286500.00	406.43	429.6	419.25	430.26	0.000608	6.49	45258.45	4154.40	0.28
Susquehanna	Downstream	119.57	10-yr	347900.00	406.43	431.6	420.37	432.33	0.000639	7.02	51051.20	4377.24	0.29
Susquehanna	Downstream	119.57	25-yr	434400.00	406.43	434.3	421.83	435.22	0.000671	7.59	59717.75	5224.19	0.29
Susquehanna	Downstream	119.57	50-yr	505700.00	406.43	436.5	422.95	437.52	0.000697	7.96	67395.02	5668.38	0.29
Susquehanna	Downstream	119.57	100-yr	582900.00	406.43	439.3	424.12	439.95	0.000662	6.66	101496.10	5903.80	0.24
Susquehanna	Downstream	119.57	500-yr	790500.00	406.43	444.9	427.11	445.57	0.000639	7.03	135204.30	6173.81	0.23
Susquehanna	Downstream	119.520	2-yr	204800.00	406.38	425.8	418.34	426.32	0.000355	5.99	34278.77	3340.87	0.30
Susquehanna	Downstream	119.520	5-yr	286500.00	406.38	429.3	419.86	429.91	0.000342	6.51	44264.90	3836.16	0.29
Susquehanna	Downstream	119.520	10-yr	347900.00	406.38	431.2	420.90	431.96	0.000357	7.02	49952.75	4148.81	0.30
Susquehanna	Downstream	119.520	25-yr	434400.00	406.38	433.9	422.24	434.83	0.000411	7.56	58054.16	4492.89	0.30
Susquehanna	Downstream	119.520	50-yr	505700.00	406.38	436.1	423.36	437.11	0.000467	7.94	64801.13	5470.76	0.30
Susquehanna	Downstream	119.520	100-yr	582900.00	406.38	438.9	424.43	439.57	0.000426	6.88	96919.63	6053.41	0.26
Susquehanna	Downstream	119.520	500-yr	790500.00	406.38	444.4	427.12	445.19	0.000512	7.25	131584.90	6965.80	0.24
Susquehanna	Downstream	119.51 Railroad		Bridge									
Susquehanna	Downstream	119.500	2-yr	204800.00	405.40	425.7	417.14	426.22	0.000326	5.64	36341.93	3173.69	0.27
Susquehanna	Downstream	119.500	5-yr	286500.00	405.40	429.2	418.98	429.80	0.000318	6.20	46350.97	3647.36	0.27
Susquehanna	Downstream	119.500	10-yr	347900.00	405.40	431.1	420.01	431.85	0.000333	6.71	52065.33	4057.77	0.28
Susquehanna	Downstream	119.500	25-yr	434400.00	405.40	433.9	421.39	434.69	0.000361	7.27	60179.52	4567.25	0.28
Susquehanna	Downstream	119.500	50-yr	505700.00	405.40	436.0	422.45	436.87	0.000390	7.68	66683.67	5610.38	0.29
Susquehanna	Downstream	119.500	100-yr	582900.00	405.40	438.6	423.54	439.27	0.000346	6.90	96532.55	6045.11	0.26
Susquehanna	Downstream	119.500	500-yr	790500.00	405.40	444.2	426.31	444.93	0.000361	7.29	131548.60	7324.15	0.24
Susquehanna	Downstream	119.44	2-yr	204800.00	405.59	425.7	416.27	426.17	0.000290	5.55	36873.44	2937.99	0.26
Susquehanna	Downstream	119.44	5-yr	286500.00	405.59	429.2	418.37	429.76	0.000289	6.22	46074.95	3297.95	0.27
Susquehanna	Downstream	119.44	10-yr	347900.00	405.59	431.1	419.40	431.80	0.000307	6.72	51789.44	3632.43	0.29
Susquehanna	Downstream	119.44	25-yr	434400.00	405.59	433.8	420.77	434.64	0.000334	7.24	60014.92	4081.36	0.29
Susquehanna	Downstream	119.44	50-yr	505700.00	405.59	436.0	421.84	436.79	0.000337	7.38	74393.90	5181.52	0.28
Susquehanna	Downstream	119.44	100-yr	582900.00	405.59	438.4	422.93	439.21	0.000347	7.38	91185.64	5483.19	0.27
Susquehanna	Downstream	119.44	500-yr	790500.00	405.59	444.0	425.67	444.86	0.000363	7.85	123738.90	6270.44	0.26
Susquehanna	Downstream	119.35	2-yr	204800.00	405.41	425.6	414.89	426.04	0.000213	5.16	39657.82	2874.04	0.23
Susquehanna	Downstream	119.35	5-yr	286500.00	405.41	429.1	416.64	429.62	0.000223	5.81	49300.49	3420.74	0.25
Susquehanna	Downstream	119.35	10-yr	347900.00	405.41	431.0	417.76	431.65	0.000241	6.31	55130.07	3717.07	0.26
Susquehanna	Downstream	119.35	25-yr	434400.00	405.41	433.7	419.18	434.47	0.000269	6.85	63388.44	4827.49	0.26
Susquehanna	Downstream	119.35	50-yr	505700.00	405.41	435.9	420.29	436.62	0.000278	7.06	77429.74	5058.07	0.26
Susquehanna	Downstream	119.35	100-yr	582900.00	405.41	438.3	421.41	439.05	0.000286	7.19	94123.51	5135.97	0.25
Susquehanna	Downstream	119.35	500-yr	790500.00	405.41	443.8	424.42	444.70	0.000311	7.78	123093.20	5862.73	0.25
Susquehanna	Downstream	119.24	2-yr	204800.00	406.88	425.3	416.44	425.85	0.000479	5.91	34636.52	2755.93	0.28
Susquehanna	Downstream	119.24	5-yr	286500.00	406.88	428.7	418.10	429.39	0.000755	6.53	43903.50	3409.75	0.30
Susquehanna	Downstream	119.24	10-yr	347900.00	406.88	430.6	419.21	431.40	0.000748	7.02	49543.46	3478.12	0.30
Susquehanna	Downstream	119.24	25-yr	434400.00	406.88	433.3	420.68	434.21	0.000763	7.55	57621.12	4649.04	0.30
Susquehanna	Downstream	119.24	50-yr	505700.00	406.88	435.4	421.79	436.35	0.000754	7.77	70480.59	4827.72	0.30
Susquehanna	Downstream	119.24	100-yr	582900.00	406.88	437.9	422.95	438.78	0.000744	7.87	87188.56	4978.21	0.28
Susquehanna	Downstream	119.24	500-yr	790500.00	406.88	443.4	426.28	444.42	0.000748	8.45	115239.20	5833.53	0.27
Susquehanna	Downstream	119.14	2-yr	204800.00	405.90	425.2	415.07	425.62	0.000298	5.35	38271.71	2877.61	0.24
Susquehanna	Downstream	119.14	5-yr	286500.00	405.90	428.5	416.79	429.04	0.000499	6.02	47610.30	3404.79	0.27
Susquehanna	Downstream	119.14	10-yr	347900.00	405.90	430.4	417.88	431.05	0.000507	6.51	53471.04	3488.56	0.27
Susquehanna	Downstream	119.14	25-yr	434400.00	405.90	433.1	419.29	433.84	0.000537	7.04	63296.00	4720.64	0.28
Susquehanna	Downstream	119.14	50-yr	505700.00	405.90	435.2	420.41	435.98	0.000504	7.06	79071.80	4795.46	0.26
Susquehanna	Downstream	119.14	100-yr	582900.00	405.90	437.6	421.51	438.42	0.000516	7.30	90730.19	4974.11	0.26
Susquehanna	Downstream	119.14	500-yr	790500.00	405.90	443.2	424.46	444.05	0.000530	7.89	118768.80	6180.99	0.25
Susquehanna	Downstream	119.05	2-yr	204800.00	404.51	425.1	414.43	425.50	0.000217	5.17	39580.38	3100.57	0.24
Susquehanna	Downstream	119.05	5-yr	286500.00	404.51	428.4	416.24	428.88	0.000231	5.82	49236.46	3634.82	0.26
Susquehanna	Downstream	119.05	10-yr	347900.00	404.51	430.3	417.37	430.89	0.000248	6.31	55399.96	3992.54	0.26
Susquehanna	Downstream	119.05	25-yr	434400.00	404.51	432.9	418.78	433.66	0.000275	6.84	66048.69	4823.86	0.27
Susquehanna	Downstream	119.05	50-yr	505700.00	404.51	435.1	419.89	435.82	0.000280	6.99	82685.01	4879.31	0.26
Susquehanna	Downstream	119.05	100-yr	582900.00	404.51	437.5	421.03	438.24	0.000298	7.24	94399.60	4967.46	0.26
Susquehanna	Downstream	119.05	500-yr	790500.00	404.51	442.9	424.25	443.86	0.000331	7.90	122258.60	5814.75	0.25
Susquehanna	Downstream	118.93	2-yr	204800.00	404.88	424.9	414.54	425.33	0.000322	5.26	38921.76	3162.40	0.24
Susquehanna	Downstream	118.93	5-yr	286500.00	404.88	428.1	416.36	428.66	0.000595	5.95	48209.23	3965.71	0.27
Susquehanna	Downstream	118.93	10-yr	347900.00	404.88	430.0	417.45	430.65	0.000594	6.41	55222.83	4736.35	0.27
Susquehanna	Downstream	118.93	25-yr	434400.00	404.88	432.7	418.87	433.41	0.000597	6.84	66576.24	5062.94	0.27
Susquehanna	Downstream	118.93	50-yr	505700.00	404.88	434.9	419.95	435.56	0.000539	6.75	85855.95	5149.28	0.25
Susquehanna	Downstream	118.93	100-yr	582900.00	404.88	437.3	421.09	437.97	0.000542	6.93	98349.72	5316.96	0.25
Susquehanna	Downstream	118.93	500-yr	790500.00	404.88	442.8	424.13	443.55	0.000540	7.39	127687.00	5967.52	0.24
Susquehanna	Downstream	118.82	2-yr	204800.00	404.11	424.7	414.53	425.17	0.000249	5.39	37973.52	3283.78	0.25
Susquehanna	Downstream	118.82	5-yr	286500.00	404.11	427.9	416.49	428.43	0.000268	6.08	47225.88	4098.02	0.28
Susquehanna	Downstream	118.82	10-yr	347900.00	404.11	429.8	417.58	430.42	0.000286	6.53	53938.80	4423.25	0.28
Susquehanna	Downstream	118.82	25-yr	434400.00	404.11	432.4	419.00	433.17	0.000311	6.98	65122.50	5156.38	0.28
Susquehanna	Downstream	118.82	50-yr	505700.00	404.11	434.6	420.11	435.31	0.000310	7.06	85128.92	5209.46	0.27
Susquehanna	Downstream	118.82	100-yr	582900.00	404.11	436.9	421.25	437.72	0.000326	7.25	97666.12	5363.97	0.26
Susquehanna	Downstream	118.82	500-yr	790500.00	404.11	442.4	424.14	443.29	0.000351	7.78	127035.40	6160.75	0.25
Susquehanna	Downstream	118.73	2-yr	204800.00	404.03	424.6	414.22	425.05	0.000252	5.52	37167.12	3247.67	0.25

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Downstream	118.73	5-yr	286500.00	404.03	427.7	416.33	428.30	0.000274	6.21	47427.95	4639.59	0.28
Susquehanna	Downstream	118.73	10-yr	347900.00	404.03	429.6	417.45	430.28	0.000289	6.63	55046.26	4863.26	0.29
Susquehanna	Downstream	118.73	25-yr	434400.00	404.03	432.3	418.91	433.02	0.000312	7.04	66139.66	5216.70	0.28
Susquehanna	Downstream	118.73	50-yr	505700.00	404.03	434.5	420.02	435.16	0.000300	6.98	86885.31	5308.51	0.27
Susquehanna	Downstream	118.73	100-yr	582900.00	404.03	436.8	421.19	437.55	0.000313	7.14	99692.78	5500.68	0.26
Susquehanna	Downstream	118.73	500-yr	790500.00	404.03	442.3	424.14	443.10	0.000333	7.58	129844.60	6226.01	0.25
Susquehanna	Downstream	118.63	2-yr	204800.00	402.73	424.5	413.57	424.90	0.000198	4.91	46977.18	4105.58	0.22
Susquehanna	Downstream	118.63	5-yr	286500.00	402.73	427.7	415.79	428.13	0.000218	5.50	58741.38	4878.57	0.25
Susquehanna	Downstream	118.63	10-yr	347900.00	402.73	429.6	417.16	430.10	0.000235	5.89	66544.16	5017.60	0.25
Susquehanna	Downstream	118.63	25-yr	434400.00	402.73	432.3	418.53	432.82	0.000253	6.31	77949.91	5327.72	0.25
Susquehanna	Downstream	118.63	50-yr	505700.00	402.73	434.4	419.56	434.97	0.000247	6.32	98999.09	5407.34	0.24
Susquehanna	Downstream	118.63	100-yr	582900.00	402.73	436.8	420.59	437.36	0.000260	6.51	111881.00	5584.89	0.23
Susquehanna	Downstream	118.63	500-yr	790500.00	402.73	442.2	423.34	442.90	0.000282	7.03	142190.30	6270.23	0.23
Susquehanna	Downstream	118.55	2-yr	204800.00	402.40	424.4	414.65	424.80	0.000253	5.36	43530.83	4069.30	0.25
Susquehanna	Downstream	118.55	5-yr	286500.00	402.40	427.5	416.93	428.02	0.000262	5.87	55601.75	4817.77	0.27
Susquehanna	Downstream	118.55	10-yr	347900.00	402.40	429.4	418.03	429.98	0.000271	6.25	63370.05	4957.81	0.27
Susquehanna	Downstream	118.55	25-yr	434400.00	402.40	432.1	419.38	432.70	0.000289	6.64	74845.09	5279.16	0.27
Susquehanna	Downstream	118.55	50-yr	505700.00	402.40	434.3	420.42	434.85	0.000279	6.62	95403.03	5487.43	0.25
Susquehanna	Downstream	118.55	100-yr	582900.00	402.40	436.6	421.48	437.23	0.000291	6.79	108175.30	5874.22	0.25
Susquehanna	Downstream	118.55	500-yr	790500.00	402.40	442.1	424.50	442.77	0.000310	7.27	138767.90	6348.34	0.24
Susquehanna	Downstream	118.48	2-yr	204800.00	395.41	424.4	410.14	424.68	0.000124	4.34	54516.49	4445.81	0.18
Susquehanna	Downstream	118.48	5-yr	286500.00	395.41	427.6	412.29	427.90	0.000146	4.96	66764.88	5005.59	0.21
Susquehanna	Downstream	118.48	10-yr	347900.00	395.41	429.4	413.72	429.85	0.000163	5.38	74641.60	5220.69	0.22
Susquehanna	Downstream	118.48	25-yr	434400.00	395.41	432.1	416.02	432.56	0.000183	5.83	85964.23	5489.65	0.22
Susquehanna	Downstream	118.48	50-yr	505700.00	395.41	434.3	417.39	434.72	0.000184	5.91	109589.60	5770.10	0.21
Susquehanna	Downstream	118.48	100-yr	582900.00	395.41	436.6	418.53	437.10	0.000198	6.13	122549.10	6155.80	0.21
Susquehanna	Downstream	118.48	500-yr	790500.00	395.41	442.0	421.15	442.64	0.000225	6.72	154134.00	6559.19	0.21
Susquehanna	Downstream	118.41	2-yr	204800.00	402.62	424.3	413.76	424.62	0.000204	5.01	45788.98	4250.89	0.23
Susquehanna	Downstream	118.41	5-yr	286500.00	402.62	427.4	415.79	427.83	0.000216	5.67	56789.82	4527.96	0.24
Susquehanna	Downstream	118.41	10-yr	347900.00	402.62	429.2	416.90	429.78	0.000233	6.12	63851.68	4798.28	0.26
Susquehanna	Downstream	118.41	25-yr	434400.00	402.62	431.9	418.38	432.48	0.000257	6.59	74001.27	4873.19	0.26
Susquehanna	Downstream	118.41	50-yr	505700.00	402.62	434.1	419.38	434.64	0.000247	6.57	95881.96	5099.23	0.25
Susquehanna	Downstream	118.41	100-yr	582900.00	402.62	436.4	420.60	437.01	0.000263	6.79	108084.90	5702.54	0.24
Susquehanna	Downstream	118.41	500-yr	790500.00	402.62	441.8	423.27	442.54	0.000286	7.37	138368.30	6334.20	0.24
Susquehanna	Downstream	118.36	2-yr	204800.00	402.09	424.2	413.01	424.56	0.000187	4.94	46504.88	4304.85	0.22
Susquehanna	Downstream	118.36	5-yr	286500.00	402.09	427.3	414.76	427.77	0.000210	5.64	58018.06	4732.42	0.24
Susquehanna	Downstream	118.36	10-yr	347900.00	402.09	429.2	415.96	429.71	0.000226	6.12	65383.02	4808.76	0.25
Susquehanna	Downstream	118.36	25-yr	434400.00	402.09	431.8	417.43	432.40	0.000251	6.65	75788.79	4938.89	0.26
Susquehanna	Downstream	118.36	50-yr	505700.00	402.09	433.9	418.52	434.57	0.000245	6.69	97081.63	5172.97	0.25
Susquehanna	Downstream	118.36	100-yr	582900.00	402.09	436.3	419.68	436.93	0.000262	6.94	109475.10	5497.26	0.24
Susquehanna	Downstream	118.36	500-yr	790500.00	402.09	441.6	422.74	442.45	0.000293	7.62	140509.30	5956.29	0.24
Susquehanna	Downstream	118.30	2-yr	204800.00	404.50	424.1	414.10	424.49	0.000237	5.27	38836.73	3159.79	0.24
Susquehanna	Downstream	118.30	5-yr	286500.00	404.50	427.1	415.68	427.68	0.000257	6.05	47385.85	3416.60	0.26
Susquehanna	Downstream	118.30	10-yr	347900.00	404.50	428.9	416.76	429.61	0.000277	6.62	52595.88	3477.17	0.27
Susquehanna	Downstream	118.30	25-yr	434400.00	404.50	431.5	418.16	432.29	0.000310	7.26	59934.95	3737.40	0.28
Susquehanna	Downstream	118.30	50-yr	505700.00	404.50	433.6	419.24	434.46	0.000311	7.42	75595.58	4004.64	0.27
Susquehanna	Downstream	118.30	100-yr	582900.00	404.50	435.9	420.34	436.81	0.000338	7.79	85262.76	4702.68	0.27
Susquehanna	Downstream	118.30	500-yr	790500.00	404.50	441.2	423.34	442.31	0.000374	8.52	113945.40	5937.03	0.27
Susquehanna	Downstream	118.22	2-yr	204800.00	404.62	424.0	413.18	424.39	0.000196	5.00	40960.41	3260.50	0.23
Susquehanna	Downstream	118.22	5-yr	286500.00	404.62	427.1	414.74	427.57	0.000220	5.80	49413.63	3446.77	0.24
Susquehanna	Downstream	118.22	10-yr	347900.00	404.62	428.9	415.82	429.50	0.000241	6.39	54485.31	3579.31	0.26
Susquehanna	Downstream	118.22	25-yr	434400.00	404.62	431.4	417.22	432.16	0.000277	7.05	61588.51	3702.19	0.27
Susquehanna	Downstream	118.22	50-yr	505700.00	404.62	433.5	418.28	434.32	0.000278	7.20	78612.77	4339.14	0.26
Susquehanna	Downstream	118.22	100-yr	582900.00	404.62	435.8	419.43	436.67	0.000305	7.58	87952.58	4792.42	0.26
Susquehanna	Downstream	118.22	500-yr	790500.00	404.62	441.1	422.17	442.16	0.000346	8.36	117685.30	5845.88	0.26
Susquehanna	Downstream	118.13	2-yr	204800.00	404.46	423.9	412.56	424.27	0.000235	4.76	43026.41	3218.86	0.21
Susquehanna	Downstream	118.13	5-yr	286500.00	404.46	426.9	414.12	427.43	0.000315	5.55	51662.40	3554.87	0.23
Susquehanna	Downstream	118.13	10-yr	347900.00	404.46	428.8	415.18	429.34	0.000338	6.11	57245.35	3736.01	0.24
Susquehanna	Downstream	118.13	25-yr	434400.00	404.46	431.3	416.56	431.98	0.000376	6.74	65140.86	3870.09	0.25
Susquehanna	Downstream	118.13	50-yr	505700.00	404.46	433.4	417.63	434.14	0.000367	6.87	80817.13	4062.64	0.25
Susquehanna	Downstream	118.13	100-yr	582900.00	404.46	435.7	418.72	436.47	0.000401	7.27	89947.87	5103.67	0.25
Susquehanna	Downstream	118.13	500-yr	790500.00	404.46	441.0	421.44	441.93	0.000439	8.01	120936.00	6033.88	0.25
Susquehanna	Downstream	118.02	2-yr	204800.00	403.85	423.8	412.07	424.15	0.000162	4.54	47679.17	4820.90	0.21
Susquehanna	Downstream	118.02	5-yr	286500.00	403.85	426.9	413.70	427.27	0.000174	5.16	61550.75	5297.57	0.22
Susquehanna	Downstream	118.02	10-yr	347900.00	403.85	428.7	414.77	429.16	0.000185	5.60	70053.29	5332.63	0.22
Susquehanna	Downstream	118.02	25-yr	434400.00	403.85	431.2	416.33	431.77	0.000203	6.08	81909.59	5402.34	0.23
Susquehanna	Downstream	118.02	50-yr	505700.00	403.85	433.4	417.37	433.93	0.000202	6.19	101361.10	5618.61	0.22
Susquehanna	Downstream	118.02	100-yr	582900.00	403.85	435.7	418.43	436.24	0.000216	6.44	114037.30	5880.30	0.22
Susquehanna	Downstream	118.02	500-yr	790500.00	403.85	441.0	421.22	441.66	0.000237	7.01	148052.30	6316.30	0.22
Susquehanna	Downstream	117.90	2-yr	204800.00	402.65	423.8	410.74	424.02	0.000167	4.07	53269.69	5005.74	0.18
Susquehanna	Downstream	117.90	5-yr	286500.00	402.65	426.8	412.32	427.13	0.000204	4.65	67478.70	5660.83	0.19
Susquehanna	Downstream	117.90	10-yr	347900.00	402.65	428.6	413.42	429.01	0.000212	5.06	76288.95	5712.14	0.20
Susquehanna	Downstream	117.90	25-yr	434400.00	402.65	431.2	414.86	431.60	0.000230	5.51	88560.69	5792.66	0.20
Susquehanna	Downstream	117.90	50-yr	505700.00	402.65	433.3	415.90	433.77	0.000223	5.59	109794.40	5965.02	0.20
Susquehanna	Downstream	117.90	100-yr	582900.00	402.65	435.6	417.04	436.06	0.000233	5.79	124880.30	6084.12	0.20
Susquehanna	Downstream	117.90	500-yr	790500.00	402.65	440.9	419.83	441.47	0.000254	6.34	158004.70	6348.79	0.20
Susquehanna	Downstream	117.79	2-yr	204800.00	403.74	423.7	411.83	423.93	0.000163	4.22	51298.29	4894.16	0.19
Susquehanna	Downstream	117.79	5-yr	286500.00	403.74	426.7	413.55	427.02	0.000174	4.85	65218.33	5788.22	0.20
Susquehanna	Downstream	117.79	10-yr	347900.00	403.74	428.5	414.57	428.89	0.000183	5.27	74165.20	5843.50	0.21
Susquehanna	Downstream	117.79	25-yr	434400.00	403.74	431.0	415.95	431.48	0.000199	5.73	86619.45	5918.43	0.21
Susquehanna	Downstream	117.79	50-yr	505700.00	403.74	433.2	417.04	433.64	0.000194	5.79	108630.00	6110.17	0.21
Susquehanna	Downstream	117.79	100-yr	582900.00	403.74	435.4	418.17	435.93	0.000203	5.98	124006.30	6155.14	0.20
Susquehanna	Downstream	117.79	500-yr	790500.00	403.74	440.8	420.78	441.33	0.000223	6.55	157191.80	6406.46	0.20
Susquehanna	Downstream	117.69	2-yr	204800.00	403.37	423.5	412.11	423.83	0.000192	4.33	50566.72	5496.87	0.20
Susquehanna	Downstream	117.69	5-yr	286500.00	403.37	426.6	413.74	426.92	0.000201	4.88	65744.59	5749.19	0.20
Susquehanna	Downstream	117.69	10-yr	347900.00	403.37	428.4	414.79	428.79	0.000209	5.29	74918.41	5805.46	0.21
Susquehanna	Downstream	117.69	25-yr	434400.00	403.37	430.9	416.29	431.37	0.000225	5.72	87667.35	5893.82	0.21
Susquehanna	Downstream	117.69	50-yr	505700.00	403.37	433.1	417.46	433.53	0.000217	5.77	108670.10	6078.34	0.21
Susquehanna	Downstream	117.69	100-yr	582900.00	403.37	435.3	418.46	435.82	0.000228	5.98	123614.20	6263.38	0.20

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Downstream	117.69	500-yr	790500.00	403.37	440.6	421.15	441.20	0.000246	6.49	157523.70	6460.69	0.20
Susquehanna	Downstream	117.58	2-yr	204800.00	403.20	423.4	412.15	423.67	0.000383	4.21	53056.75	6400.99	0.19
Susquehanna	Downstream	117.58	5-yr	286500.00	403.20	426.4	413.75	426.75	0.000383	4.68	68794.16	6673.12	0.20
Susquehanna	Downstream	117.58	10-yr	347900.00	403.20	428.3	414.75	428.61	0.000385	5.01	78308.29	6995.01	0.20
Susquehanna	Downstream	117.58	25-yr	434400.00	403.20	430.8	416.06	431.17	0.000400	5.37	91484.13	7492.41	0.20
Susquehanna	Downstream	117.58	50-yr	505700.00	403.20	433.0	417.07	433.35	0.000375	5.36	111493.80	7918.58	0.19
Susquehanna	Downstream	117.58	100-yr	582900.00	403.20	435.2	418.11	435.62	0.000386	5.52	125063.20	8156.96	0.19
Susquehanna	Downstream	117.58	500-yr	790500.00	403.20	440.5	421.23	440.99	0.000409	5.98	157608.00	8408.03	0.19
Susquehanna	Downstream	117.47	2-yr	204800.00	403.72	423.3	412.91	423.48	0.000237	3.89	54580.03	5547.02	0.18
Susquehanna	Downstream	117.47	5-yr	286500.00	403.72	426.3	414.42	426.55	0.000241	4.28	69302.97	5965.70	0.18
Susquehanna	Downstream	117.47	10-yr	347900.00	403.72	428.1	415.41	428.41	0.000248	4.64	78547.72	6462.45	0.19
Susquehanna	Downstream	117.47	25-yr	434400.00	403.72	430.6	416.68	430.96	0.000254	4.92	92225.45	6943.71	0.19
Susquehanna	Downstream	117.47	50-yr	505700.00	403.72	432.8	417.58	433.15	0.000239	4.93	109601.90	7340.46	0.18
Susquehanna	Downstream	117.47	100-yr	582900.00	403.72	435.1	418.67	435.42	0.000241	5.03	123101.60	8349.53	0.18
Susquehanna	Downstream	117.47	500-yr	790500.00	403.72	440.4	421.12	440.78	0.000245	5.35	155361.70	8616.63	0.17
Susquehanna	Downstream	117.30	2-yr	204800.00	404.13	423.1	412.74	423.32	0.000142	3.81	59073.97	4577.48	0.18
Susquehanna	Downstream	117.30	5-yr	286500.00	404.13	426.1	414.03	426.39	0.000147	4.36	72958.63	4705.67	0.19
Susquehanna	Downstream	117.30	10-yr	347900.00	404.13	427.9	414.98	428.24	0.000156	4.79	81570.12	4967.76	0.19
Susquehanna	Downstream	117.30	25-yr	434400.00	404.13	430.4	416.24	430.77	0.000176	5.32	94543.91	5818.40	0.20
Susquehanna	Downstream	117.30	50-yr	505700.00	404.13	432.5	417.15	432.96	0.000182	5.55	106948.00	5905.98	0.20
Susquehanna	Downstream	117.30	100-yr	582900.00	404.13	434.7	418.05	435.22	0.000192	5.78	120074.70	6031.52	0.20
Susquehanna	Downstream	117.30	500-yr	790500.00	404.13	440.0	420.14	440.56	0.000210	6.34	152939.90	6232.57	0.20
Susquehanna	Downstream	117.16	2-yr	204800.00	404.91	423.0	412.69	423.21	0.000156	3.77	58726.66	4832.42	0.18
Susquehanna	Downstream	117.16	5-yr	286500.00	404.91	426.0	413.99	426.27	0.000155	4.26	73426.92	4943.42	0.19
Susquehanna	Downstream	117.16	10-yr	347900.00	404.91	427.8	414.88	428.11	0.000161	4.63	82347.62	5007.86	0.19
Susquehanna	Downstream	117.16	25-yr	434400.00	404.91	430.3	416.08	430.63	0.000175	5.07	94890.61	5301.45	0.20
Susquehanna	Downstream	117.16	50-yr	505700.00	404.91	432.4	417.01	432.81	0.000185	5.38	106809.20	5911.85	0.20
Susquehanna	Downstream	117.16	100-yr	582900.00	404.91	434.6	417.88	435.06	0.000193	5.57	119976.40	5974.83	0.20
Susquehanna	Downstream	117.16	500-yr	790500.00	404.91	439.9	420.05	440.39	0.000205	6.06	151970.50	6150.54	0.19
Susquehanna	Downstream	117.04	2-yr	204800.00	405.14	422.9		423.12	0.000149	3.83	58489.53	4859.90	0.19
Susquehanna	Downstream	117.04	5-yr	286500.00	405.14	425.9		426.18	0.000152	4.30	73703.26	5148.99	0.19
Susquehanna	Downstream	117.04	10-yr	347900.00	405.14	427.7		428.01	0.000159	4.65	82980.80	5206.00	0.20
Susquehanna	Downstream	117.04	25-yr	434400.00	405.14	430.1		430.52	0.000175	5.07	95903.10	5396.44	0.20
Susquehanna	Downstream	117.04	50-yr	505700.00	405.14	432.3		432.69	0.000186	5.35	108066.00	5980.95	0.20
Susquehanna	Downstream	117.04	100-yr	582900.00	405.14	434.5		434.94	0.000194	5.52	121532.10	6121.80	0.20
Susquehanna	Downstream	117.04	500-yr	790500.00	405.14	439.8		440.26	0.000206	5.98	153999.80	6221.58	0.19
Susquehanna	Downstream	116.91	2-yr	204800.00	405.54	422.8		423.01	0.000149	3.94	55062.80	5389.87	0.20
Susquehanna	Downstream	116.91	5-yr	286500.00	405.54	425.8		426.07	0.000147	4.29	73016.26	6177.71	0.20
Susquehanna	Downstream	116.91	10-yr	347900.00	405.54	427.6		427.90	0.000150	4.57	84124.89	6184.58	0.20
Susquehanna	Downstream	116.91	25-yr	434400.00	405.54	430.1		430.39	0.000159	4.88	99314.55	6201.00	0.20
Susquehanna	Downstream	116.91	50-yr	505700.00	405.54	432.2		432.56	0.000161	5.03	112641.30	6224.35	0.19
Susquehanna	Downstream	116.91	100-yr	582900.00	405.54	434.4		434.80	0.000167	5.18	126662.30	6458.70	0.19
Susquehanna	Downstream	116.91	500-yr	790500.00	405.54	439.7		440.11	0.000178	5.58	161512.80	6692.11	0.18
Susquehanna	Downstream	116.77	2-yr	204800.00	405.77	422.6		422.89	0.000175	4.08	54986.30	5343.00	0.21
Susquehanna	Downstream	116.77	5-yr	286500.00	405.77	425.7		425.95	0.000168	4.42	72793.85	6258.58	0.21
Susquehanna	Downstream	116.77	10-yr	347900.00	405.77	427.5		427.78	0.000172	4.73	84085.79	6329.63	0.21
Susquehanna	Downstream	116.77	25-yr	434400.00	405.77	429.9		430.26	0.000179	5.02	99593.71	6338.20	0.21
Susquehanna	Downstream	116.77	50-yr	505700.00	405.77	432.0		432.42	0.000181	5.17	113202.60	6396.04	0.20
Susquehanna	Downstream	116.77	100-yr	582900.00	405.77	434.3		434.66	0.000188	5.31	127520.70	6537.26	0.20
Susquehanna	Downstream	116.77	500-yr	790500.00	405.77	439.5		439.96	0.000198	5.71	162551.10	6799.22	0.19
Susquehanna	Downstream	116.67	2-yr	204800.00	405.88	422.6		422.75	0.000323	3.58	61341.95	5996.65	0.18
Susquehanna	Downstream	116.67	5-yr	286500.00	405.88	425.6		425.82	0.000300	3.91	80344.63	6413.89	0.18
Susquehanna	Downstream	116.67	10-yr	347900.00	405.88	427.4		427.64	0.000292	4.16	91874.74	6422.68	0.18
Susquehanna	Downstream	116.67	25-yr	434400.00	405.88	429.8		430.12	0.000297	4.44	107614.50	6434.72	0.18
Susquehanna	Downstream	116.67	50-yr	505700.00	405.88	432.0		432.29	0.000294	4.59	121442.20	6486.53	0.17
Susquehanna	Downstream	116.67	100-yr	582900.00	405.88	434.2		434.52	0.000302	4.74	135931.60	6588.27	0.17
Susquehanna	Downstream	116.67	500-yr	790500.00	405.88	439.4		439.81	0.000310	5.12	170604.50	6625.03	0.17
Susquehanna	Downstream	116.60	2-yr	204800.00	405.96	422.4		422.65	0.000172	4.03	56972.23	5745.20	0.20
Susquehanna	Downstream	116.60	5-yr	286500.00	405.96	425.5		425.73	0.000166	4.30	76135.52	6391.29	0.20
Susquehanna	Downstream	116.60	10-yr	347900.00	405.96	427.3		427.55	0.000169	4.55	87608.56	6396.56	0.20
Susquehanna	Downstream	116.60	25-yr	434400.00	405.96	429.7		430.03	0.000179	4.82	103250.50	6411.35	0.20
Susquehanna	Downstream	116.60	50-yr	505700.00	405.96	431.8		432.19	0.000182	4.96	117021.50	6428.06	0.19
Susquehanna	Downstream	116.60	100-yr	582900.00	405.96	434.1		434.42	0.000191	5.10	131329.30	6539.66	0.19
Susquehanna	Downstream	116.60	500-yr	790500.00	405.96	439.3		439.71	0.000204	5.48	165720.40	6584.93	0.18
Susquehanna	Downstream	116.52	2-yr	204800.00	406.03	422.3	412.63	422.55	0.000402	4.07	55100.96	5859.94	0.21
Susquehanna	Downstream	116.52	5-yr	286500.00	406.03	425.4	413.91	425.63	0.000402	4.22	74115.44	6339.04	0.20
Susquehanna	Downstream	116.52	10-yr	347900.00	406.03	427.2	414.81	427.45	0.000378	4.44	85521.41	6346.18	0.20
Susquehanna	Downstream	116.52	25-yr	434400.00	406.03	429.6	415.97	429.92	0.000369	4.69	101035.00	6355.94	0.20
Susquehanna	Downstream	116.52	50-yr	505700.00	406.03	431.8	416.89	432.08	0.000355	4.80	114699.90	6522.84	0.19
Susquehanna	Downstream	116.52	100-yr	582900.00	406.03	434.0	417.84	434.31	0.000359	4.95	129447.50	6754.76	0.19
Susquehanna	Downstream	116.52	500-yr	790500.00	406.03	439.2	421.48	439.59	0.000354	5.28	164979.70	6814.75	0.18
Susquehanna	Downstream	116.39	2-yr	204800.00	406.12	422.1	412.72	422.37	0.000191	4.33	52936.98	6262.24	0.23
Susquehanna	Downstream	116.39	5-yr	286500.00	406.12	425.1	414.06	425.44	0.000181	4.56	71550.77	6636.30	0.22
Susquehanna	Downstream	116.39	10-yr	347900.00	406.12	426.9	414.95	427.27	0.000184	4.81	82584.77	6670.14	0.22
Susquehanna	Downstream	116.39	25-yr	434400.00	406.12	429.4	416.11	429.74	0.000195	5.10	97553.21	6708.04	0.21
Susquehanna	Downstream	116.39	50-yr	505700.00	406.12	431.5	417.03	431.90	0.000198	5.23	110785.40	6746.21	0.21
Susquehanna	Downstream	116.39	100-yr	582900.00	406.12	433.7	417.99	434.12	0.000208	5.39	124520.30	6908.60	0.20
Susquehanna	Downstream	116.39	500-yr	790500.00	406.12	439.0	421.48	439.40	0.000212	5.65	166757.70	7310.06	0.19
Susquehanna	Downstream	116.30	2-yr	204800.00	406.20	422.0	413.26	422.26	0.000229	4.20	53508.22	5847.70	0.23
Susquehanna	Downstream	116.30	5-yr	286500.00	406.20	425.1	414.55	425.35	0.000207	4.44	71549.71	5978.91	0.21
Susquehanna	Downstream	116.30	10-yr	347900.00	406.20	426.9	415.43	427.17	0.000206	4.70	82162.86	6056.06	0.21
Susquehanna	Downstream	116.30	25-yr	434400.00	406.20	429.3	416.72	429.64	0.000216	5.00	96555.16	6314.44	0.21
Susquehanna	Downstream	116.30	50-yr	505700.00	406.20	431.4	417.81	431.80	0.000217	5.15	109379.70	6570.98	0.20
Susquehanna	Downstream	116.30	100-yr	582900.00	406.20	433.6	418.88	434.01	0.000227	5.32	123225.10	6995.85	0.20
Susquehanna	Downstream	116.30	500-yr	790500.00	406.20	438.8	421.35	439.29	0.000238	5.72	158359.00	7370.84	0.19
Susquehanna	Downstream	116.19	2-yr	204800.00	405.75	421.8	413.18	422.12	0.000220	4.38	50611.30	4754.26	0.22
Susquehanna	Downstream	116.19	5-yr	286500.00	405.75	424.9	414.47	425.22	0.000204	4.85	65296.21	4955.02	0.22
Susquehanna	Downstream	116.19	10-yr	347900.00	405.75	426.6	415.36	427.04	0.000207	5.23	74117.61	5024.04	0.23

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Downstream	116.19	25-yr	434400.00	405.75	429.0	416.64	429.49	0.000220	5.64	86389.55	5251.80	0.23
Susquehanna	Downstream	116.19	50-yr	505700.00	405.75	431.2	417.54	431.65	0.000223	5.84	97716.07	5521.21	0.23
Susquehanna	Downstream	116.19	100-yr	582900.00	405.75	433.3	418.45	433.86	0.000233	6.00	110198.00	6117.55	0.24
Susquehanna	Downstream	116.19	500-yr	790500.00	405.75	438.5	420.57	439.13	0.000247	6.38	142905.60	6325.13	0.23
Susquehanna	Downstream	116.03	2-yr	204800.00	406.33	421.6	413.63	421.92	0.000283	4.48	45708.80	4497.28	0.25
Susquehanna	Downstream	116.03	5-yr	286500.00	406.33	424.7	414.89	425.03	0.000251	4.76	60174.07	4825.85	0.24
Susquehanna	Downstream	116.03	10-yr	347900.00	406.33	426.5	415.74	426.86	0.000251	5.06	68809.80	4899.70	0.24
Susquehanna	Downstream	116.03	25-yr	434400.00	406.33	428.8	416.84	429.30	0.000262	5.39	80591.80	4966.08	0.24
Susquehanna	Downstream	116.03	50-yr	505700.00	406.33	431.0	417.72	431.46	0.000263	5.54	91226.77	5019.88	0.23
Susquehanna	Downstream	116.03	100-yr	582900.00	406.33	433.1	418.75	433.65	0.000276	5.69	102392.90	5598.63	0.23
Susquehanna	Downstream	116.03	500-yr	790500.00	406.33	438.4	420.88	438.91	0.000285	5.98	132870.50	5889.36	0.22
Susquehanna	Downstream	115.89	2-yr	204800.00	407.00	421.2		421.62	0.000563	4.91	41688.04	4039.66	0.27
Susquehanna	Downstream	115.89	5-yr	286500.00	407.00	424.3		424.72	0.000713	5.20	55108.86	4765.06	0.27
Susquehanna	Downstream	115.89	10-yr	347900.00	407.00	426.1		426.53	0.000794	5.44	63984.82	5177.24	0.27
Susquehanna	Downstream	115.89	25-yr	434400.00	407.00	428.5		428.97	0.000748	5.68	76474.31	5234.15	0.26
Susquehanna	Downstream	115.89	50-yr	505700.00	407.00	430.6		431.14	0.000723	5.76	87819.21	5358.61	0.25
Susquehanna	Downstream	115.89	100-yr	582900.00	407.00	432.8		433.32	0.000753	5.84	99850.27	5634.15	0.24
Susquehanna	Downstream	115.89	500-yr	790500.00	407.00	438.0		438.58	0.000680	6.11	129675.20	5752.94	0.23
Susquehanna	Downstream	115.79	2-yr	204800.00	406.15	420.9		421.30	0.000651	5.23	39122.16	3787.02	0.29
Susquehanna	Downstream	115.79	5-yr	286500.00	406.15	423.8		424.30	0.000964	5.55	51587.80	4732.32	0.30
Susquehanna	Downstream	115.79	10-yr	347900.00	406.15	425.5		426.05	0.001125	5.74	60561.91	5356.10	0.30
Susquehanna	Downstream	115.79	25-yr	434400.00	406.15	428.0		428.54	0.000975	5.89	73754.04	5365.91	0.28
Susquehanna	Downstream	115.79	50-yr	505700.00	406.15	430.2		430.73	0.000867	5.91	85515.09	5376.70	0.26
Susquehanna	Downstream	115.79	100-yr	582900.00	406.15	432.4		432.92	0.000828	6.00	97222.23	5415.96	0.25
Susquehanna	Downstream	115.79	500-yr	790500.00	406.15	437.6		438.22	0.000746	6.29	126203.30	5560.04	0.23
Susquehanna	Downstream	115.65	2-yr	204800.00	406.56	420.5		420.96	0.000319	5.19	39476.59	3859.48	0.29
Susquehanna	Downstream	115.65	5-yr	286500.00	406.56	423.4		423.90	0.000316	5.55	51610.63	4688.51	0.29
Susquehanna	Downstream	115.65	10-yr	347900.00	406.56	425.1		425.62	0.000327	5.81	59898.10	5053.19	0.30
Susquehanna	Downstream	115.65	25-yr	434400.00	406.56	427.6		428.12	0.000338	6.00	72351.45	5060.85	0.28
Susquehanna	Downstream	115.65	50-yr	505700.00	406.56	429.8		430.34	0.000335	6.06	83516.27	5067.71	0.26
Susquehanna	Downstream	115.65	100-yr	582900.00	406.56	431.9		432.52	0.000349	6.17	94465.11	5079.23	0.25
Susquehanna	Downstream	115.65	500-yr	790500.00	406.56	437.2		437.83	0.000364	6.50	121721.90	5263.78	0.24
Susquehanna	Downstream	115.43	2-yr	204800.00	404.65	420.2	411.45	420.61	0.000284	5.09	40242.35	3866.23	0.27
Susquehanna	Downstream	115.43	5-yr	286500.00	404.65	423.1	412.98	423.54	0.000293	5.40	53092.48	4387.90	0.27
Susquehanna	Downstream	115.43	10-yr	347900.00	404.65	424.7	414.03	425.25	0.000313	5.75	60522.07	4631.63	0.28
Susquehanna	Downstream	115.43	25-yr	434400.00	404.65	427.2	415.41	427.73	0.000336	6.05	71764.93	4640.23	0.27
Susquehanna	Downstream	115.43	50-yr	505700.00	404.65	429.4	416.49	429.94	0.000340	6.17	81934.57	4651.64	0.26
Susquehanna	Downstream	115.43	100-yr	582900.00	404.65	431.5	417.58	432.10	0.000361	6.35	91877.45	4762.23	0.25
Susquehanna	Downstream	115.43	500-yr	790500.00	404.65	436.7	420.47	437.38	0.000397	6.79	116806.80	4835.67	0.24
Susquehanna	Downstream	115.26	2-yr	204800.00	398.34	419.9		420.15	0.000835	4.02	50883.95	4035.00	0.20
Susquehanna	Downstream	115.26	5-yr	286500.00	398.34	422.8		423.07	0.000917	4.54	63107.64	4459.16	0.21
Susquehanna	Downstream	115.26	10-yr	347900.00	398.34	424.4		424.75	0.000943	4.95	70348.27	4464.62	0.22
Susquehanna	Downstream	115.26	25-yr	434400.00	398.34	426.8		427.21	0.000984	5.36	81027.15	4472.65	0.22
Susquehanna	Downstream	115.26	50-yr	505700.00	398.34	428.9		429.42	0.000978	5.57	90775.20	4486.44	0.22
Susquehanna	Downstream	115.26	100-yr	582900.00	398.34	431.0		431.56	0.001027	5.82	100325.90	4603.49	0.22
Susquehanna	Downstream	115.26	500-yr	790500.00	398.34	436.2		436.80	0.001085	6.40	124311.00	4739.85	0.22
Susquehanna	Downstream	115.10	2-yr	204800.00	398.98	419.6		419.88	0.000176	4.14	49506.38	4194.31	0.21
Susquehanna	Downstream	115.10	5-yr	286500.00	398.98	422.4		422.77	0.000191	4.64	61901.20	4420.08	0.22
Susquehanna	Downstream	115.10	10-yr	347900.00	398.98	424.0		424.43	0.000210	5.06	68963.51	4424.80	0.22
Susquehanna	Downstream	115.10	25-yr	434400.00	398.98	426.4		426.86	0.000235	5.49	79393.80	4431.77	0.23
Susquehanna	Downstream	115.10	50-yr	505700.00	398.98	428.6		429.06	0.000245	5.70	89004.79	4438.23	0.22
Susquehanna	Downstream	115.10	100-yr	582900.00	398.98	430.6		431.17	0.000267	5.96	98190.60	4529.65	0.22
Susquehanna	Downstream	115.10	500-yr	790500.00	398.98	435.7		436.36	0.000304	6.57	121678.50	4663.69	0.22
Susquehanna	Downstream	114.93	2-yr	204800.00	396.56	419.6		419.75	0.000068	3.09	66430.16	4469.54	0.14
Susquehanna	Downstream	114.93	5-yr	286500.00	396.56	422.4		422.63	0.000082	3.65	79045.58	4479.00	0.15
Susquehanna	Downstream	114.93	10-yr	347900.00	396.56	424.0		424.27	0.000094	4.06	86185.52	4484.57	0.16
Susquehanna	Downstream	114.93	25-yr	434400.00	396.56	426.4		426.68	0.000111	4.53	96710.41	4500.59	0.17
Susquehanna	Downstream	114.93	50-yr	505700.00	396.56	428.5		428.87	0.000121	4.79	106439.20	4519.28	0.17
Susquehanna	Downstream	114.93	100-yr	582900.00	396.56	430.6		430.96	0.000137	5.08	115770.10	4618.71	0.17
Susquehanna	Downstream	114.93	500-yr	790500.00	396.56	435.6		436.12	0.000166	5.75	139343.70	4692.92	0.18
Susquehanna	Downstream	114.68	2-yr	204800.00	398.85	419.4	406.61	419.61	0.000169	3.83	57539.99	4776.90	0.17
Susquehanna	Downstream	114.68	5-yr	286500.00	398.85	422.2	408.10	422.46	0.000187	4.46	70196.31	5056.29	0.19
Susquehanna	Downstream	114.68	10-yr	347900.00	398.85	423.7	409.14	424.08	0.000207	4.95	77308.47	5109.83	0.20
Susquehanna	Downstream	114.68	25-yr	434400.00	398.85	426.0	410.60	426.45	0.000234	5.47	87827.98	5512.29	0.21
Susquehanna	Downstream	114.68	50-yr	505700.00	398.85	428.1	411.56	428.63	0.000245	5.76	97632.63	5807.81	0.21
Susquehanna	Downstream	114.68	100-yr	582900.00	398.85	430.2	412.58	430.69	0.000269	6.08	106914.20	6115.79	0.21
Susquehanna	Downstream	114.68	500-yr	790500.00	398.85	435.1	415.23	435.81	0.000306	6.81	133119.30	6211.68	0.22
Susquehanna	Downstream	114.36	2-yr	204800.00	399.68	419.0	408.64	419.32	0.000163	4.39	54339.72	4919.31	0.20
Susquehanna	Downstream	114.36	5-yr	286500.00	399.68	421.8	410.03	422.14	0.000179	5.13	66484.83	4969.00	0.21
Susquehanna	Downstream	114.36	10-yr	347900.00	399.68	423.3	410.99	423.73	0.000200	5.71	73171.21	4996.54	0.23
Susquehanna	Downstream	114.36	25-yr	434400.00	399.68	425.5	412.23	426.05	0.000229	6.34	83102.13	5048.44	0.24
Susquehanna	Downstream	114.36	50-yr	505700.00	399.68	427.6	413.18	428.21	0.000240	6.67	92537.52	5115.52	0.24
Susquehanna	Downstream	114.36	100-yr	582900.00	399.68	429.6	414.13	430.25	0.000250	6.87	109801.60	5228.12	0.24
Susquehanna	Downstream	114.36	500-yr	790500.00	399.68	434.5	416.67	435.31	0.000286	7.67	135727.70	5326.54	0.24
Susquehanna	Downstream	114.06	2-yr	209800.00	401.93	418.5	410.32	418.97	0.000297	5.38	45947.59	4853.41	0.28
Susquehanna	Downstream	114.06	5-yr	293500.00	401.93	421.3	411.86	421.77	0.000308	5.96	58761.70	4872.87	0.28
Susquehanna	Downstream	114.06	10-yr	356400.00	401.93	422.7	412.99	423.32	0.000336	6.50	65637.63	5042.89	0.29
Susquehanna	Downstream	114.06	25-yr	445000.00	401.93	424.9	414.73	425.59	0.000372	7.04	75939.63	5290.93	0.29
Susquehanna	Downstream	114.06	50-yr	518100.00	401.93	427.0	415.83	427.73	0.000399	7.26	85868.61	5338.92	0.29
Susquehanna	Downstream	114.06	100-yr	597200.00	401.93	428.9	417.23	429.74	0.000418	7.56	95133.19	5371.23	0.28
Susquehanna	Downstream	114.06	500-yr	809800.00	401.93	433.9	419.40	434.76	0.000429	8.06	127571.90	5512.80	0.27
Susquehanna	Downstream	113.93	2-yr	209800.00	402.43	418.3	410.40	418.75	0.000341	5.37	40579.84	4722.86	0.30
Susquehanna	Downstream	113.93	5-yr	293500.00	402.43	421.0	411.89	421.54	0.000341	5.87	53469.86	4833.58	0.29
Susquehanna	Downstream	113.93	10-yr	356400.00	402.43	422.5	412.95	423.07	0.000367	6.37	60348.16	4952.20	0.30
Susquehanna	Downstream	113.93	25-yr	445000.00	402.43	424.6	414.48	425.32	0.000399	6.86	70712.41	5124.65	0.30
Susquehanna	Downstream	113.93	50-yr	518100.00	402.43	426.7	416.06	427.44	0.000420	7.04	80754.10	5190.43	0.29
Susquehanna	Downstream	113.93	100-yr	597200.00	402.43	428.7	417.31	429.44	0.000430	7.26	92449.23	5265.30	0.28
Susquehanna	Downstream	113.93	500-yr	809800.00	402.43	433.6	419.45	434.45	0.000444	7.80	119008.90	5443.75	0.27

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Downstream	113.78	2-yr	209800.00	402.52	417.9	410.57	418.31	0.000990	5.49	39355.83	4374.65	0.31
Susquehanna	Downstream	113.78	5-yr	293500.00	402.52	420.6	412.06	421.11	0.000965	5.87	52024.21	4757.86	0.30
Susquehanna	Downstream	113.78	10-yr	356400.00	402.52	422.0	413.06	422.62	0.000968	6.34	58857.20	4848.23	0.31
Susquehanna	Downstream	113.78	25-yr	445000.00	402.52	424.2	414.73	424.84	0.000962	6.76	69340.85	4906.46	0.30
Susquehanna	Downstream	113.78	50-yr	518100.00	402.52	426.2	415.83	426.95	0.000947	6.88	79580.06	4954.30	0.29
Susquehanna	Downstream	113.78	100-yr	597200.00	402.52	428.2	417.14	428.94	0.000930	7.09	89392.13	5094.62	0.28
Susquehanna	Downstream	113.78	500-yr	809800.00	402.52	433.1	419.36	433.95	0.000880	7.55	115464.40	5366.02	0.27
Susquehanna	Downstream	113.63	2-yr	209800.00	403.14	417.0		417.49	0.001098	5.50	38677.14	4395.75	0.32
Susquehanna	Downstream	113.63	5-yr	293500.00	403.14	419.8		420.31	0.001077	5.81	51957.04	4963.85	0.31
Susquehanna	Downstream	113.63	10-yr	356400.00	403.14	421.2		421.82	0.001054	6.23	59076.84	4969.17	0.31
Susquehanna	Downstream	113.63	25-yr	445000.00	403.14	423.4		424.05	0.001025	6.60	69839.26	4977.19	0.30
Susquehanna	Downstream	113.63	50-yr	518100.00	403.14	425.5		426.17	0.000995	6.70	80308.25	4984.99	0.29
Susquehanna	Downstream	113.63	100-yr	597200.00	403.14	427.5		428.18	0.000969	6.90	90142.19	5014.29	0.28
Susquehanna	Downstream	113.63	500-yr	809800.00	403.14	432.4		433.23	0.000912	7.37	115852.40	5256.94	0.27
Susquehanna	Downstream	113.51	2-yr	209800.00	402.73	416.3		416.79	0.001010	5.62	37399.50	4081.66	0.32
Susquehanna	Downstream	113.51	5-yr	293500.00	402.73	419.0		419.57	0.001108	5.94	49893.03	4768.21	0.32
Susquehanna	Downstream	113.51	10-yr	356400.00	402.73	420.5		421.10	0.001073	6.35	56833.65	4818.27	0.32
Susquehanna	Downstream	113.51	25-yr	445000.00	402.73	422.7		423.36	0.001031	6.72	67459.69	4907.75	0.31
Susquehanna	Downstream	113.51	50-yr	518100.00	402.73	424.8		425.50	0.000989	6.80	77954.01	4932.73	0.29
Susquehanna	Downstream	113.51	100-yr	597200.00	402.73	426.8		427.53	0.000954	6.97	87786.05	4939.08	0.28
Susquehanna	Downstream	113.51	500-yr	809800.00	402.73	431.8		432.63	0.000883	7.41	112939.90	5142.82	0.27
Susquehanna	Downstream	113.39	2-yr	209800.00	403.01	415.5		416.04	0.001468	6.08	34723.20	4428.61	0.38
Susquehanna	Downstream	113.39	5-yr	293500.00	403.01	418.3		418.88	0.001153	6.24	47768.78	4872.84	0.34
Susquehanna	Downstream	113.39	10-yr	356400.00	403.01	419.8		420.44	0.001076	6.60	55040.80	4877.17	0.34
Susquehanna	Downstream	113.39	25-yr	445000.00	403.01	422.0		422.73	0.000997	6.90	65950.85	4883.70	0.32
Susquehanna	Downstream	113.39	50-yr	518100.00	403.01	424.2		424.91	0.000935	6.94	76556.59	4890.15	0.30
Susquehanna	Downstream	113.39	100-yr	597200.00	403.01	426.2		426.96	0.000890	7.09	86443.65	4896.10	0.29
Susquehanna	Downstream	113.39	500-yr	809800.00	403.01	431.2		432.10	0.000811	7.51	111536.10	5083.21	0.27
Susquehanna	Downstream	113.27	2-yr	209800.00	402.05	414.5		415.17	0.001302	6.47	32424.76	3985.18	0.40
Susquehanna	Downstream	113.27	5-yr	293500.00	402.05	417.5		418.17	0.001127	6.39	46035.09	4726.90	0.36
Susquehanna	Downstream	113.27	10-yr	356400.00	402.05	419.1		419.78	0.001028	6.70	53432.97	4779.90	0.35
Susquehanna	Downstream	113.27	25-yr	445000.00	402.05	421.4		422.14	0.000927	6.96	64450.72	4805.14	0.33
Susquehanna	Downstream	113.27	50-yr	518100.00	402.05	423.6		424.35	0.000855	6.97	75114.98	4814.91	0.31
Susquehanna	Downstream	113.27	100-yr	597200.00	402.05	425.7		426.43	0.000807	7.11	85003.84	4823.21	0.30
Susquehanna	Downstream	113.27	500-yr	809800.00	402.05	430.8		431.63	0.000724	7.50	109870.90	4966.14	0.27
Susquehanna	Downstream	113.15	2-yr	209800.00	402.32	413.6		414.35	0.001118	6.76	31044.88	3310.50	0.39
Susquehanna	Downstream	113.15	5-yr	293500.00	402.32	416.4		417.16	0.001964	7.04	41705.18	4469.83	0.41
Susquehanna	Downstream	113.15	10-yr	356400.00	402.32	418.0		418.85	0.001842	7.24	49242.24	4664.25	0.39
Susquehanna	Downstream	113.15	25-yr	445000.00	402.32	420.5		421.32	0.001585	7.33	60722.93	4742.44	0.36
Susquehanna	Downstream	113.15	50-yr	518100.00	402.32	422.8		423.61	0.001403	7.22	71760.29	4776.62	0.33
Susquehanna	Downstream	113.15	100-yr	597200.00	402.32	424.9		425.75	0.001282	7.30	81886.86	4786.29	0.31
Susquehanna	Downstream	113.15	500-yr	809800.00	402.32	430.1		431.02	0.001096	7.59	107187.70	5007.71	0.28
Susquehanna	Downstream	113.02	2-yr	209800.00	401.78	413.1		413.77	0.000713	6.65	31533.52	3810.23	0.41
Susquehanna	Downstream	113.02	5-yr	293500.00	401.78	415.8		416.49	0.000617	6.86	42802.24	4661.93	0.40
Susquehanna	Downstream	113.02	10-yr	356400.00	401.78	417.5		418.22	0.000579	7.01	50861.49	4791.90	0.38
Susquehanna	Downstream	113.02	25-yr	445000.00	401.78	420.0		420.74	0.000535	7.08	62886.67	4801.85	0.34
Susquehanna	Downstream	113.02	50-yr	518100.00	401.78	422.3		423.08	0.000505	6.98	74238.75	4811.16	0.31
Susquehanna	Downstream	113.02	100-yr	597200.00	401.78	424.5		425.25	0.000485	7.06	84577.57	4826.79	0.30
Susquehanna	Downstream	113.02	500-yr	809800.00	401.78	429.7		430.57	0.000451	7.37	110581.40	5052.80	0.27
Susquehanna	Downstream	112.86	2-yr	209800.00	400.47	412.6	407.45	413.17	0.000634	6.31	33261.35	3777.92	0.37
Susquehanna	Downstream	112.86	5-yr	293500.00	400.47	415.3	408.73	415.98	0.000545	6.62	44315.70	4513.68	0.37
Susquehanna	Downstream	112.86	10-yr	356400.00	400.47	417.0	409.62	417.74	0.000514	6.82	52254.04	4684.65	0.36
Susquehanna	Downstream	112.86	25-yr	445000.00	400.47	419.6	410.82	420.30	0.000478	6.93	64197.03	4717.94	0.33
Susquehanna	Downstream	112.86	50-yr	518100.00	400.47	421.9	412.06	422.67	0.000454	6.87	75435.44	4808.59	0.30
Susquehanna	Downstream	112.86	100-yr	597200.00	400.47	424.1	412.99	424.85	0.000439	6.98	85672.51	4910.39	0.29
Susquehanna	Downstream	112.86	500-yr	809800.00	400.47	429.4	415.51	430.20	0.000411	7.30	112642.30	5120.73	0.27
Susquehanna	Downstream	112.66	2-yr	209800.00	395.78	412.2	405.43	412.61	0.000388	5.33	39500.50	4036.12	0.30
Susquehanna	Downstream	112.66	5-yr	293500.00	395.78	415.0	406.72	415.47	0.000361	5.70	51851.33	4713.73	0.30
Susquehanna	Downstream	112.66	10-yr	356400.00	395.78	416.7	407.59	417.25	0.000353	5.99	60056.72	4875.56	0.30
Susquehanna	Downstream	112.66	25-yr	445000.00	395.78	419.2	408.84	419.84	0.000345	6.24	72271.96	4966.15	0.28
Susquehanna	Downstream	112.66	50-yr	518100.00	395.78	421.6	409.73	422.22	0.000340	6.28	83759.41	5082.73	0.26
Susquehanna	Downstream	112.66	100-yr	597200.00	395.78	423.8	410.69	424.42	0.000337	6.44	94256.63	5205.92	0.25
Susquehanna	Downstream	112.66	500-yr	809800.00	395.78	429.1	413.44	429.79	0.000330	6.85	123719.80	5563.46	0.24
Susquehanna	Downstream	112.42	2-yr	209800.00	395.63	411.7	404.92	412.10	0.000377	5.02	42899.39	4430.90	0.27
Susquehanna	Downstream	112.42	5-yr	293500.00	395.63	414.5	406.23	414.99	0.000352	5.52	55547.59	4782.52	0.26
Susquehanna	Downstream	112.42	10-yr	356400.00	395.63	416.3	407.10	416.79	0.000350	5.92	63421.49	5061.83	0.27
Susquehanna	Downstream	112.42	25-yr	445000.00	395.63	418.8	408.24	419.38	0.000351	6.29	75004.49	5458.20	0.26
Susquehanna	Downstream	112.42	50-yr	518100.00	395.63	421.1	409.07	421.77	0.000354	6.43	85935.35	5614.47	0.25
Susquehanna	Downstream	112.42	100-yr	597200.00	395.63	423.3	409.92	423.97	0.000350	6.60	99725.04	5727.79	0.25
Susquehanna	Downstream	112.42	500-yr	809800.00	395.63	428.6	412.12	429.34	0.000353	7.14	127052.90	6443.19	0.24
Susquehanna	Downstream	112.23	2-yr	209800.00	396.44	411.4		411.74	0.000305	4.62	45870.94	4369.90	0.24
Susquehanna	Downstream	112.23	5-yr	293500.00	396.44	414.3		414.66	0.000291	5.14	58490.24	4488.09	0.24
Susquehanna	Downstream	112.23	10-yr	356400.00	396.44	416.0		416.45	0.000292	5.54	66290.38	4519.00	0.24
Susquehanna	Downstream	112.23	25-yr	445000.00	396.44	418.5		419.05	0.000298	5.93	77817.98	4587.10	0.24
Susquehanna	Downstream	112.23	50-yr	518100.00	396.44	420.9		421.43	0.000303	6.09	88672.54	4638.72	0.24
Susquehanna	Downstream	112.23	100-yr	597200.00	396.44	423.0		423.63	0.000308	6.34	98734.99	4723.82	0.23
Susquehanna	Downstream	112.23	500-yr	809800.00	396.44	428.3		429.00	0.000319	6.94	124141.10	4851.34	0.23
Susquehanna	Downstream	112.03	2-yr	209800.00	397.19	411.0		411.37	0.000431	5.13	41283.69	4266.41	0.28
Susquehanna	Downstream	112.03	5-yr	293500.00	397.19	413.8		414.31	0.000385	5.56	54048.90	4513.15	0.27
Susquehanna	Downstream	112.03	10-yr	356400.00	397.19	415.6		416.11	0.000378	5.93	61904.34	4541.00	0.27
Susquehanna	Downstream	112.03	25-yr	445000.00	397.19	418.1		418.70	0.000371	6.27	73413.21	4551.12	0.27
Susquehanna	Downstream	112.03	50-yr	518100.00	397.19	420.5		421.08	0.000369	6.39	84176.59	4560.77	0.25
Susquehanna	Downstream	112.03	100-yr	597200.00	397.19	422.6		423.28	0.000368	6.60	94084.41	4608.57	0.25
Susquehanna	Downstream	112.03	500-yr	809800.00	397.19	427.9		428.65	0.000368	7.14	119090.70	4838.37	0.24
Susquehanna	Downstream	111.84	2-yr	209800.00	397.25	410.5	404.20	410.87	0.000491	4.71	44509.09	4522.96	0.26
Susquehanna	Downstream	111.84	5-yr	293500.00	397.25	413.5	405.33	413.87	0.000402	5.07	57880.52	4531.57	0.25
Susquehanna	Downstream	111.84	10-yr	356400.00	397.25	415.2	406.07	415.68	0.000387	5.41	65818.05	4537.22	0.25
Susquehanna	Downstream	111.84	25-yr	445000.00	397.25	417.8	407.07	418.28	0.000378	5.75	77367.61	4553.60	0.25
Susquehanna	Downstream	111.84	50-yr	518100.00	397.25	420.1	407.86	420.67	0.000374	5.88	88167.63	4583.29	0.24

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Downstream	111.84	100-yr	597200.00	397.25	422.3	408.68	422.87	0.000373	6.09	98127.59	4760.15	0.23
Susquehanna	Downstream	111.84	500-yr	809800.00	397.25	427.6	410.67	428.23	0.000369	6.61	124220.10	5020.87	0.23
Susquehanna	Downstream	111.67	2-yr	209800.00	397.37	410.1	403.47	410.51	0.000334	4.95	42362.12	3863.73	0.26
Susquehanna	Downstream	111.67	5-yr	293500.00	397.37	413.1	404.69	413.56	0.000308	5.44	53986.43	4027.28	0.26
Susquehanna	Downstream	111.67	10-yr	356400.00	397.37	414.8	405.50	415.37	0.000311	5.83	61131.47	4141.37	0.27
Susquehanna	Downstream	111.67	25-yr	445000.00	397.37	417.4	406.55	417.97	0.000307	6.21	71639.53	4243.62	0.26
Susquehanna	Downstream	111.67	50-yr	518100.00	397.37	419.7	407.35	420.36	0.000304	6.35	82173.88	4652.05	0.25
Susquehanna	Downstream	111.67	100-yr	597200.00	397.37	421.9	408.19	422.56	0.000303	6.59	92082.79	4899.90	0.25
Susquehanna	Downstream	111.67	500-yr	809800.00	397.37	427.1	410.26	427.93	0.000300	7.14	118443.80	5315.63	0.24
Susquehanna	Downstream	111.49	2-yr	209800.00	395.29	409.8	403.67	410.16	0.000388	4.94	43953.57	4627.76	0.27
Susquehanna	Downstream	111.49	5-yr	293500.00	395.29	412.8	404.83	413.24	0.000323	5.25	58238.73	4792.51	0.25
Susquehanna	Downstream	111.49	10-yr	356400.00	395.29	414.6	405.63	415.05	0.000309	5.57	66666.90	4800.70	0.25
Susquehanna	Downstream	111.49	25-yr	445000.00	395.29	417.1	406.66	417.66	0.000298	5.88	78947.13	4813.21	0.25
Susquehanna	Downstream	111.49	50-yr	518100.00	395.29	419.5	407.43	420.04	0.000293	5.98	90392.29	4831.01	0.24
Susquehanna	Downstream	111.49	100-yr	597200.00	395.29	421.7	408.22	422.24	0.000291	6.19	100898.60	4895.00	0.23
Susquehanna	Downstream	111.49	500-yr	809800.00	395.29	426.9	410.25	427.61	0.000289	6.70	127316.00	5062.18	0.23
Susquehanna	Downstream	111.30	2-yr	209800.00	393.73	409.2		409.60	0.000926	5.21	43594.58	4729.12	0.27
Susquehanna	Downstream	111.30	5-yr	293500.00	393.73	412.3		412.78	0.000784	5.56	58863.04	5045.65	0.26
Susquehanna	Downstream	111.30	10-yr	356400.00	393.73	414.1		414.60	0.000754	5.91	67832.09	5051.52	0.26
Susquehanna	Downstream	111.30	25-yr	445000.00	393.73	416.7		417.22	0.000733	6.23	80836.88	5063.75	0.26
Susquehanna	Downstream	111.30	50-yr	518100.00	393.73	419.1		419.62	0.000725	6.33	92916.05	5076.39	0.24
Susquehanna	Downstream	111.30	100-yr	597200.00	393.73	421.2		421.82	0.000722	6.54	103983.20	5131.25	0.24
Susquehanna	Downstream	111.30	500-yr	809800.00	393.73	426.5		427.19	0.000724	7.08	131508.80	5250.08	0.23
Susquehanna	Downstream	111.13	2-yr	209800.00	391.65	409.0		409.23	0.000179	4.06	54373.53	4914.07	0.20
Susquehanna	Downstream	111.13	5-yr	293500.00	391.65	412.1		412.44	0.000168	4.51	70230.26	5202.49	0.20
Susquehanna	Downstream	111.13	10-yr	356400.00	391.65	413.9		414.27	0.000171	4.88	79485.82	5209.84	0.20
Susquehanna	Downstream	111.13	25-yr	445000.00	391.65	416.5		416.88	0.000177	5.26	92853.21	5220.39	0.21
Susquehanna	Downstream	111.13	50-yr	518100.00	391.65	418.8		419.28	0.000183	5.44	105230.50	5230.13	0.20
Susquehanna	Downstream	111.13	100-yr	597200.00	391.65	421.0		421.48	0.000189	5.69	116552.20	5299.91	0.20
Susquehanna	Downstream	111.13	500-yr	809800.00	391.65	426.3		426.83	0.000201	6.27	144819.30	5413.91	0.20
Susquehanna	Downstream	110.89	2-yr	209800.00	389.50	408.8	399.19	409.01	0.000169	3.84	56779.71	4817.58	0.19
Susquehanna	Downstream	110.89	5-yr	293500.00	389.50	411.9	400.60	412.22	0.000164	4.29	72079.91	4865.02	0.19
Susquehanna	Downstream	110.89	10-yr	356400.00	389.50	413.7	401.40	414.04	0.000172	4.67	80701.80	4875.02	0.19
Susquehanna	Downstream	110.89	25-yr	445000.00	389.50	416.3	402.45	416.65	0.000184	5.07	93135.13	4896.09	0.20
Susquehanna	Downstream	110.89	50-yr	518100.00	389.50	418.6	403.27	419.04	0.000196	5.26	104639.00	4921.89	0.19
Susquehanna	Downstream	110.89	100-yr	597200.00	389.50	420.8	404.11	421.22	0.000206	5.52	115255.10	5068.36	0.19
Susquehanna	Downstream	110.89	500-yr	809800.00	389.50	426.0	406.23	426.56	0.000224	6.12	143026.50	5371.78	0.20
Susquehanna	Downstream	110.64	2-yr	209800.00	388.22	408.5	398.17	408.77	0.000187	4.06	51720.11	4332.61	0.21
Susquehanna	Downstream	110.64	5-yr	293500.00	388.22	411.7	399.81	411.99	0.000189	4.45	66023.01	4637.71	0.21
Susquehanna	Downstream	110.64	10-yr	356400.00	388.22	413.4	400.79	413.80	0.000200	4.80	74180.96	4648.73	0.21
Susquehanna	Downstream	110.64	25-yr	445000.00	388.22	416.0	402.00	416.39	0.000217	5.18	85978.00	4685.14	0.21
Susquehanna	Downstream	110.64	50-yr	518100.00	388.22	418.3	402.96	418.75	0.000232	5.35	96991.98	4737.29	0.21
Susquehanna	Downstream	110.64	100-yr	597200.00	388.22	420.4	403.91	420.93	0.000244	5.59	107193.00	5025.74	0.21
Susquehanna	Downstream	110.64	500-yr	809800.00	388.22	425.7	406.71	426.24	0.000268	6.14	135024.90	6180.12	0.20
Susquehanna	Downstream	110.49	2-yr	209800.00	388.50	408.3	397.91	408.61	0.000211	4.64	49688.28	4062.35	0.22
Susquehanna	Downstream	110.49	5-yr	293500.00	388.50	411.4	399.61	411.82	0.000217	5.17	63104.12	4368.84	0.23
Susquehanna	Downstream	110.49	10-yr	356400.00	388.50	413.2	400.79	413.62	0.000233	5.62	70702.89	4414.66	0.24
Susquehanna	Downstream	110.49	25-yr	445000.00	388.50	415.6	402.12	416.19	0.000256	6.09	81721.33	4425.58	0.24
Susquehanna	Downstream	110.49	50-yr	518100.00	388.50	418.0	403.10	418.54	0.000276	6.31	91972.65	4435.74	0.24
Susquehanna	Downstream	110.49	100-yr	597200.00	388.50	420.1	404.12	420.70	0.000294	6.62	101333.70	4698.23	0.24
Susquehanna	Downstream	110.49	500-yr	809800.00	388.50	425.2	406.77	425.98	0.000329	7.34	126595.30	4887.72	0.24
Susquehanna	Downstream	110.34	2-yr	209800.00	388.50	408.1		408.39	0.000356	4.52	48867.38	3938.23	0.22
Susquehanna	Downstream	110.34	5-yr	293500.00	388.50	411.2		411.59	0.000350	5.04	62158.11	4413.00	0.22
Susquehanna	Downstream	110.34	10-yr	356400.00	388.50	412.9		413.38	0.000365	5.50	69726.22	4418.46	0.23
Susquehanna	Downstream	110.34	25-yr	445000.00	388.50	415.4		415.93	0.000389	5.98	80661.27	4426.32	0.23
Susquehanna	Downstream	110.34	50-yr	518100.00	388.50	417.7		418.26	0.000410	6.21	90831.88	4433.62	0.23
Susquehanna	Downstream	110.34	100-yr	597200.00	388.50	419.8		420.41	0.000428	6.52	100116.50	4450.15	0.23
Susquehanna	Downstream	110.34	500-yr	809800.00	388.50	424.9		425.66	0.000465	7.24	124151.40	4936.52	0.23
Susquehanna	Downstream	110.12	2-yr	209800.00	387.47	407.8	395.28	408.02	0.000265	4.13	51363.21	3595.99	0.19
Susquehanna	Downstream	110.12	5-yr	293500.00	387.47	410.9	396.83	411.23	0.000278	4.77	63918.57	4318.57	0.20
Susquehanna	Downstream	110.12	10-yr	356400.00	387.47	412.6	397.88	412.99	0.000302	5.27	71215.82	4335.28	0.21
Susquehanna	Downstream	110.12	25-yr	445000.00	387.47	415.0	399.27	415.51	0.000337	5.82	81780.12	4355.64	0.22
Susquehanna	Downstream	110.12	50-yr	518100.00	387.47	417.3	400.31	417.82	0.000366	6.10	91635.80	4402.59	0.22
Susquehanna	Downstream	110.12	100-yr	597200.00	387.47	419.3	401.44	419.94	0.000392	6.45	100664.50	4523.46	0.22
Susquehanna	Downstream	110.12	500-yr	809800.00	387.47	424.4	404.17	425.13	0.000442	7.24	124744.10	4822.54	0.23
Susquehanna	Downstream	109.96	2-yr	209800.00	386.39	407.6	394.96	407.87	0.000122	3.92	54381.78	3740.16	0.17
Susquehanna	Downstream	109.96	5-yr	293500.00	386.39	410.7	396.46	411.06	0.000137	4.61	66951.68	4298.64	0.18
Susquehanna	Downstream	109.96	10-yr	356400.00	386.39	412.4	397.49	412.80	0.000155	5.14	73995.48	4316.60	0.19
Susquehanna	Downstream	109.96	25-yr	445000.00	386.39	414.8	398.85	415.30	0.000180	5.73	84176.20	4348.12	0.21
Susquehanna	Downstream	109.96	50-yr	518100.00	386.39	417.0	399.96	417.59	0.000203	6.06	93691.33	4397.09	0.21
Susquehanna	Downstream	109.96	100-yr	597200.00	386.39	419.1	401.01	419.69	0.000223	6.44	102414.80	4441.21	0.21
Susquehanna	Downstream	109.96	500-yr	809800.00	386.39	424.1	403.44	424.85	0.000262	7.29	126278.60	4587.91	0.22
Susquehanna	Downstream	109.83	2-yr	209800.00	387.21	407.6	394.12	407.78	0.000095	3.68	57950.74	3543.20	0.15
Susquehanna	Downstream	109.83	5-yr	293500.00	387.21	410.7	395.51	410.96	0.000110	4.38	69915.29	4117.33	0.17
Susquehanna	Downstream	109.83	10-yr	356400.00	387.21	412.3	396.47	412.70	0.000125	4.91	76723.47	4143.30	0.18
Susquehanna	Downstream	109.83	25-yr	445000.00	387.21	414.7	397.71	415.18	0.000148	5.52	86569.58	4201.88	0.19
Susquehanna	Downstream	109.83	50-yr	518100.00	387.21	416.9	398.66	417.45	0.000169	5.87	95775.80	4246.90	0.20
Susquehanna	Downstream	109.83	100-yr	597200.00	387.21	418.9	399.64	419.54	0.000187	6.28	104272.70	4313.23	0.20
Susquehanna	Downstream	109.83	500-yr	809800.00	387.21	423.9	402.05	424.68	0.000224	7.19	126601.60	4468.81	0.22
Susquehanna	Downstream	109.71	2-yr	209800.00	387.77	407.5		407.73	0.000088	3.59	59377.87	3639.34	0.15
Susquehanna	Downstream	109.71	5-yr	293500.00	387.77	410.6		410.90	0.000103	4.28	71401.33	3989.29	0.16
Susquehanna	Downstream	109.71	10-yr	356400.00	387.77	412.3		412.62	0.000117	4.81	78009.91	4011.03	0.18
Susquehanna	Downstream	109.71	25-yr	445000.00	387.77	414.6		415.09	0.000140	5.41	87663.02	4172.41	0.19
Susquehanna	Downstream	109.71	50-yr	518100.00	387.77	416.8		417.35	0.000160	5.77	97012.25	4258.81	0.19
Susquehanna	Downstream	109.71	100-yr	597200.00	387.77	418.9		419.43	0.000177	6.16	105586.30	4267.10	0.20
Susquehanna	Downstream	109.71	500-yr	809800.00	387.77	423.8		424.54	0.000214	7.07	127169.60	4431.83	0.21
Susquehanna	Downstream	109.59	2-yr	209800.00	387.77	407.5		407.67	0.000091	3.57	60062.48	3809.29	0.15
Susquehanna	Downstream	109.59	5-yr	293500.00	387.77	410.6		410.83	0.000104	4.24	72238.90	3995.84	0.16

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Downstream	109.59	10-yr	356400.00	387.77	412.2		412.54	0.000119	4.76	78958.45	4149.07	0.18
Susquehanna	Downstream	109.59	25-yr	445000.00	387.77	414.6		414.99	0.000141	5.36	88934.80	4288.99	0.19
Susquehanna	Downstream	109.59	50-yr	518100.00	387.77	416.7		417.24	0.000161	5.70	98383.72	4324.35	0.19
Susquehanna	Downstream	109.59	100-yr	597200.00	387.77	418.7		419.31	0.000178	6.09	107047.20	4331.98	0.20
Susquehanna	Downstream	109.59	500-yr	809800.00	387.77	423.7		424.40	0.000214	6.99	128839.70	4494.41	0.21
Susquehanna	Downstream	109.49	2-yr	209800.00	387.82	407.4		407.61	0.000142	3.95	54173.13	3827.87	0.18
Susquehanna	Downstream	109.49	5-yr	293500.00	387.82	410.4		410.76	0.000152	4.59	66552.81	4195.08	0.19
Susquehanna	Downstream	109.49	10-yr	356400.00	387.82	412.1		412.46	0.000169	5.11	73426.09	4240.84	0.20
Susquehanna	Downstream	109.49	25-yr	445000.00	387.82	414.4		414.90	0.000194	5.68	83452.71	4289.58	0.21
Susquehanna	Downstream	109.49	50-yr	518100.00	387.82	416.6		417.14	0.000216	5.99	92845.18	4315.95	0.21
Susquehanna	Downstream	109.49	100-yr	597200.00	387.82	418.6		419.20	0.000234	6.36	101478.20	4343.40	0.22
Susquehanna	Downstream	109.49	500-yr	809800.00	387.82	423.5		424.27	0.000272	7.21	123281.70	4505.87	0.23
Susquehanna	Downstream	109.38	2-yr	209800.00	387.95	407.3		407.52	0.000110	3.64	57724.48	3851.22	0.16
Susquehanna	Downstream	109.38	5-yr	293500.00	387.95	410.4		410.66	0.000121	4.25	70421.88	4238.12	0.17
Susquehanna	Downstream	109.38	10-yr	356400.00	387.95	412.0		412.36	0.000136	4.73	77341.47	4269.09	0.19
Susquehanna	Downstream	109.38	25-yr	445000.00	387.95	414.4		414.78	0.000159	5.27	87365.36	4302.16	0.20
Susquehanna	Downstream	109.38	50-yr	518100.00	387.95	416.5		417.00	0.000179	5.58	96754.35	4343.10	0.20
Susquehanna	Downstream	109.38	100-yr	597200.00	387.95	418.5		419.05	0.000196	5.94	105478.00	4470.51	0.20
Susquehanna	Downstream	109.38	500-yr	809800.00	387.95	423.4		424.10	0.000230	6.75	127590.00	4568.44	0.21
Susquehanna	Downstream	109.15	2-yr	209800.00	387.44	407.2		407.37	0.000135	3.70	56753.59	4126.60	0.18
Susquehanna	Downstream	109.15	5-yr	293500.00	387.44	410.2		410.50	0.000142	4.21	70390.58	4494.56	0.18
Susquehanna	Downstream	109.15	10-yr	356400.00	387.44	411.8		412.18	0.000156	4.66	77657.11	4515.36	0.19
Susquehanna	Downstream	109.15	25-yr	445000.00	387.44	414.2		414.57	0.000177	5.14	88144.16	4525.89	0.20
Susquehanna	Downstream	109.15	50-yr	518100.00	387.44	416.3		416.77	0.000195	5.41	97909.41	4535.00	0.20
Susquehanna	Downstream	109.15	100-yr	597200.00	387.44	418.3		418.80	0.000211	5.73	106894.10	4616.86	0.20
Susquehanna	Downstream	109.15	500-yr	809800.00	387.44	423.2		423.80	0.000242	6.46	129929.70	4798.96	0.21
Susquehanna	Downstream	108.90	2-yr	209800.00	387.69	406.9	398.80	407.13	0.000261	4.20	50056.37	4730.80	0.23
Susquehanna	Downstream	108.90	5-yr	293500.00	387.69	409.9	399.99	410.26	0.000247	4.55	64805.23	4800.63	0.22
Susquehanna	Downstream	108.90	10-yr	356400.00	387.69	411.5	400.89	411.92	0.000263	4.94	72477.45	4813.81	0.22
Susquehanna	Downstream	108.90	25-yr	445000.00	387.69	413.8	401.95	414.28	0.000287	5.36	83560.21	4852.33	0.22
Susquehanna	Downstream	108.90	50-yr	518100.00	387.69	416.0	402.78	416.45	0.000308	5.56	93918.04	4919.77	0.22
Susquehanna	Downstream	108.90	100-yr	597200.00	387.69	417.9	403.58	418.46	0.000325	5.83	103480.60	5116.28	0.22
Susquehanna	Downstream	108.90	500-yr	809800.00	387.69	422.8	405.73	423.42	0.000354	6.42	129398.40	5361.62	0.22
Susquehanna	Downstream	108.69	2-yr	209800.00	388.48	406.3	399.38	406.65	0.000742	4.75	44132.34	4555.22	0.27
Susquehanna	Downstream	108.69	5-yr	293500.00	388.48	409.4	400.58	409.83	0.000659	4.97	59049.39	5131.98	0.26
Susquehanna	Downstream	108.69	10-yr	356400.00	388.48	411.0	401.42	411.47	0.000639	5.32	67006.70	5206.19	0.26
Susquehanna	Downstream	108.69	25-yr	445000.00	388.48	413.3	402.50	413.81	0.000630	5.67	78470.74	5537.05	0.25
Susquehanna	Downstream	108.69	50-yr	518100.00	388.48	415.4	403.45	415.96	0.000643	5.81	89189.78	5810.42	0.24
Susquehanna	Downstream	108.69	100-yr	597200.00	388.48	417.4	404.37	417.95	0.000639	6.02	99589.27	5909.34	0.24
Susquehanna	Downstream	108.69	500-yr	809800.00	388.48	422.2	406.56	422.89	0.000627	6.52	125700.90	6062.34	0.23
Susquehanna	Downstream	108.53	2-yr	209800.00	388.80	405.8		406.17	0.000450	4.99	42045.83	4036.62	0.27
Susquehanna	Downstream	108.53	5-yr	293500.00	388.80	409.0		409.40	0.000391	5.26	55772.73	4794.59	0.27
Susquehanna	Downstream	108.53	10-yr	356400.00	388.80	410.6		411.04	0.000399	5.62	63379.78	4823.60	0.27
Susquehanna	Downstream	108.53	25-yr	445000.00	388.80	412.8		413.38	0.000412	5.98	74377.32	4848.30	0.27
Susquehanna	Downstream	108.53	50-yr	518100.00	388.80	414.9		415.52	0.000423	6.12	84643.21	4863.70	0.26
Susquehanna	Downstream	108.53	100-yr	597200.00	388.80	416.9		417.51	0.000431	6.35	94135.38	4896.96	0.25
Susquehanna	Downstream	108.53	500-yr	809800.00	388.80	421.7		422.44	0.000441	6.88	118566.80	5201.79	0.25
Susquehanna	Downstream	108.30	2-yr	209800.00	389.16	404.8	399.32	405.39	0.000958	6.17	33994.79	3472.29	0.35
Susquehanna	Downstream	108.30	5-yr	293500.00	389.16	408.0	400.63	408.61	0.001268	6.22	47183.60	4473.38	0.34
Susquehanna	Downstream	108.30	10-yr	356400.00	389.16	409.6	401.52	410.26	0.001181	6.56	54289.84	4579.21	0.33
Susquehanna	Downstream	108.30	25-yr	445000.00	389.16	411.9	402.73	412.61	0.001105	6.89	64600.20	4698.95	0.32
Susquehanna	Downstream	108.30	50-yr	518100.00	389.16	414.0	403.69	414.75	0.001062	6.98	74242.40	4749.09	0.30
Susquehanna	Downstream	108.30	100-yr	597200.00	389.16	415.9	404.73	416.74	0.001024	7.16	84255.48	4803.55	0.29
Susquehanna	Downstream	108.30	500-yr	809800.00	389.16	420.8	407.52	421.68	0.000958	7.63	108181.90	5231.22	0.28
Susquehanna	Downstream	108.20	2-yr	209800.00	391.24	404.3	398.86	404.98	0.000632	6.44	32578.11	3376.79	0.37
Susquehanna	Downstream	108.20	5-yr	293500.00	391.24	407.5	400.25	408.20	0.000498	6.55	44803.45	4424.92	0.36
Susquehanna	Downstream	108.20	10-yr	356400.00	391.24	409.1	401.23	409.87	0.000494	6.88	51826.91	4611.31	0.35
Susquehanna	Downstream	108.20	25-yr	445000.00	391.24	411.4	402.48	412.22	0.000497	7.18	61966.03	4656.56	0.34
Susquehanna	Downstream	108.20	50-yr	518100.00	391.24	413.5	403.50	414.36	0.000501	7.26	71433.53	4684.54	0.32
Susquehanna	Downstream	108.20	100-yr	597200.00	391.24	415.5	404.68	416.36	0.000498	7.41	82130.24	4743.75	0.31
Susquehanna	Downstream	108.20	500-yr	809800.00	391.24	420.4	407.38	421.32	0.000495	7.88	105692.90	5107.43	0.29
Susquehanna	Downstream	108.05	2-yr	209800.00	386.50	403.7	397.58	404.41	0.000764	6.70	31300.81	2942.09	0.36
Susquehanna	Downstream	108.05	5-yr	293500.00	386.50	407.0	399.11	407.72	0.000723	6.72	43692.05	4257.43	0.37
Susquehanna	Downstream	108.05	10-yr	356400.00	386.50	408.6	400.22	409.39	0.000711	7.05	50561.41	4313.64	0.36
Susquehanna	Downstream	108.05	25-yr	445000.00	386.50	410.9	401.61	411.74	0.000694	7.36	60425.07	4323.09	0.35
Susquehanna	Downstream	108.05	50-yr	518100.00	386.50	413.0	402.79	413.89	0.000690	7.44	69628.00	4369.25	0.33
Susquehanna	Downstream	108.05	100-yr	597200.00	386.50	415.0	403.98	415.88	0.000689	7.64	78219.65	4515.59	0.32
Susquehanna	Downstream	108.05	500-yr	809800.00	386.50	419.8	407.16	420.85	0.000664	8.12	100721.30	4701.17	0.30
Susquehanna	Downstream	107.88	2-yr	209800.00	386.44	403.3	395.60	403.82	0.000518	6.06	34631.28	2956.72	0.31
Susquehanna	Downstream	107.88	5-yr	293500.00	386.44	406.6	397.13	407.17	0.000489	6.22	47222.96	4250.88	0.33
Susquehanna	Downstream	107.88	10-yr	356400.00	386.44	408.2	398.20	408.84	0.000500	6.60	53999.16	4256.02	0.33
Susquehanna	Downstream	107.88	25-yr	445000.00	386.44	410.4	399.62	411.19	0.000522	6.99	63666.11	4263.33	0.32
Susquehanna	Downstream	107.88	50-yr	518100.00	386.44	412.5	400.72	413.33	0.000543	7.13	72662.80	4292.88	0.30
Susquehanna	Downstream	107.88	100-yr	597200.00	386.44	414.5	401.96	415.32	0.000558	7.38	81129.30	4619.46	0.30
Susquehanna	Downstream	107.88	500-yr	809800.00	386.44	419.3	405.83	420.29	0.000572	7.92	103245.90	5013.88	0.29
Susquehanna	Downstream	107.72	2-yr	209800.00	386.44	402.5	395.94	403.19	0.001005	6.71	31935.76	3233.42	0.35
Susquehanna	Downstream	107.72	5-yr	293500.00	386.44	405.7	397.53	406.46	0.001444	6.91	43897.33	4104.50	0.35
Susquehanna	Downstream	107.72	10-yr	356400.00	386.44	407.3	398.61	408.13	0.001420	7.30	50467.00	4169.81	0.35
Susquehanna	Downstream	107.72	25-yr	445000.00	386.44	409.6	400.12	410.47	0.001361	7.69	59906.06	4179.25	0.34
Susquehanna	Downstream	107.72	50-yr	518100.00	386.44	411.7	401.34	412.60	0.001333	7.80	68708.64	4257.13	0.33
Susquehanna	Downstream	107.72	100-yr	597200.00	386.44	413.6	402.73	414.58	0.001317	8.04	76794.14	4449.63	0.32
Susquehanna	Downstream	107.72	500-yr	809800.00	386.44	418.5	405.89	419.55	0.001273	8.64	99492.60	4735.20	0.31
Susquehanna	Downstream	107.48	2-yr	209800.00	386.44	400.9	395.59	401.71	0.001467	7.22	29173.06	3030.46	0.39
Susquehanna	Downstream	107.48	5-yr	293500.00	386.44	403.6	397.10	404.50	0.001769	7.85	38685.70	3983.72	0.40
Susquehanna	Downstream	107.48	10-yr	356400.00	386.44	405.2	398.15	406.25	0.001628	8.23	45385.27	4045.24	0.40
Susquehanna	Downstream	107.48	25-yr	445000.00	386.44	407.6	399.56	408.70	0.001510	8.55	55036.74	4060.41	0.38
Susquehanna	Downstream	107.48	50-yr	518100.00	386.44	409.8	400.70	410.88	0.001450	8.61	63888.87	4074.72	0.36
Susquehanna	Downstream	107.48	100-yr	597200.00	386.44	411.7	402.18	412.89	0.001418	8.84	71886.85	4090.19	0.35
Susquehanna	Downstream	107.48	500-yr	809800.00	386.44	416.6	404.80	417.91	0.001379	9.48	93000.48	4540.96	0.34

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Downstream	107.29	2-yr	209800.00	386.43	399.9	394.59	400.68	0.000743	7.31	28815.83	2864.94	0.39
Susquehanna	Downstream	107.29	5-yr	293500.00	386.43	402.3	396.12	403.39	0.000741	8.25	36884.34	3667.32	0.40
Susquehanna	Downstream	107.29	10-yr	356400.00	386.43	404.0	397.17	405.19	0.000725	8.77	43092.77	3724.46	0.40
Susquehanna	Downstream	107.29	25-yr	445000.00	386.43	406.4	398.55	407.67	0.000717	9.24	52158.78	3864.19	0.39
Susquehanna	Downstream	107.29	50-yr	518100.00	386.43	408.6	399.63	409.88	0.000707	9.34	60714.57	3902.84	0.38
Susquehanna	Downstream	107.29	100-yr	597200.00	386.43	410.6	400.84	411.91	0.000706	9.61	68392.50	4051.15	0.37
Susquehanna	Downstream	107.29	500-yr	809800.00	386.43	415.5	403.84	416.95	0.000692	10.19	89026.77	4325.34	0.35
Susquehanna	Downstream	107.08	2-yr	209800.00	385.43	398.8	393.68	399.77	0.000849	8.05	26116.15	2411.86	0.42
Susquehanna	Downstream	107.08	5-yr	293500.00	385.43	401.1	395.38	402.44	0.000885	9.26	32789.24	3152.68	0.44
Susquehanna	Downstream	107.08	10-yr	356400.00	385.43	402.7	396.49	404.25	0.000891	9.99	38062.78	3445.13	0.45
Susquehanna	Downstream	107.08	25-yr	445000.00	385.43	405.0	397.96	406.73	0.000904	10.68	46248.32	3624.87	0.45
Susquehanna	Downstream	107.08	50-yr	518100.00	385.43	407.2	399.15	408.95	0.000906	10.90	54122.23	3713.24	0.44
Susquehanna	Downstream	107.08	100-yr	597200.00	385.43	409.1	400.46	410.96	0.000920	11.32	61035.90	3780.16	0.43
Susquehanna	Downstream	107.08	500-yr	809800.00	385.43	413.8	403.51	416.01	0.000941	12.27	79670.10	4043.90	0.43
Susquehanna	Downstream	106.86	2-yr	209800.00	384.26	397.8	392.60	398.78	0.000804	7.82	27058.63	2611.99	0.41
Susquehanna	Downstream	106.86	5-yr	293500.00	384.26	400.2	394.34	401.41	0.000840	9.03	33732.07	3214.34	0.43
Susquehanna	Downstream	106.86	10-yr	356400.00	384.26	401.8	395.43	403.21	0.000846	9.73	39187.60	3597.29	0.44
Susquehanna	Downstream	106.86	25-yr	445000.00	384.26	404.0	396.87	405.67	0.000857	10.41	47588.85	3712.05	0.44
Susquehanna	Downstream	106.86	50-yr	518100.00	384.26	406.2	398.00	407.89	0.000858	10.61	55633.71	3726.38	0.42
Susquehanna	Downstream	106.86	100-yr	597200.00	384.26	408.1	399.23	409.88	0.000874	11.03	62613.49	3897.70	0.42
Susquehanna	Downstream	106.86	500-yr	809800.00	384.26	412.8	402.43	414.89	0.000888	11.93	80334.73	4148.73	0.42
Susquehanna	Downstream	106.69	2-yr	209800.00	383.25	397.3	391.42	398.08	0.000656	7.13	29723.21	3195.69	0.37
Susquehanna	Downstream	106.69	5-yr	293500.00	383.25	399.6	393.10	400.66	0.000705	8.28	36966.20	4437.03	0.39
Susquehanna	Downstream	106.69	10-yr	356400.00	383.25	401.2	394.20	402.44	0.000713	8.93	42992.53	4667.96	0.40
Susquehanna	Downstream	106.69	25-yr	445000.00	383.25	403.5	395.57	404.88	0.000730	9.58	51597.97	4980.42	0.40
Susquehanna	Downstream	106.69	50-yr	518100.00	383.25	405.7	396.66	407.09	0.000741	9.82	59767.38	5279.58	0.39
Susquehanna	Downstream	106.69	100-yr	597200.00	383.25	407.5	397.75	409.07	0.000762	10.24	66833.23	5434.77	0.39
Susquehanna	Downstream	106.69	500-yr	809800.00	383.25	412.2	400.71	414.06	0.000782	11.16	85188.72	5892.59	0.38
Susquehanna	Downstream	106.42	2-yr	211300.00	381.79	396.1	390.62	397.01	0.000861	7.66	28084.11	3185.13	0.42
Susquehanna	Downstream	106.42	5-yr	295600.00	381.79	398.4	392.47	399.56	0.000853	8.68	35931.55	4132.14	0.43
Susquehanna	Downstream	106.42	10-yr	358900.00	381.79	400.1	393.87	401.35	0.000816	9.22	42233.92	4374.98	0.43
Susquehanna	Downstream	106.42	25-yr	448200.00	381.79	402.4	395.37	403.81	0.000787	9.70	51340.05	4411.32	0.42
Susquehanna	Downstream	106.42	50-yr	521700.00	381.79	404.6	396.48	406.01	0.000779	9.81	59878.31	4435.89	0.40
Susquehanna	Downstream	106.42	100-yr	601400.00	381.79	406.5	397.71	407.96	0.000776	10.16	67204.18	4526.43	0.39
Susquehanna	Downstream	106.42	500-yr	815500.00	381.79	411.2	400.51	412.92	0.000759	10.90	86268.65	5016.88	0.38
Susquehanna	Downstream	106.27	2-yr	211300.00	378.80	395.8	388.35	396.44	0.000481	6.60	32823.52	2875.47	0.33
Susquehanna	Downstream	106.27	5-yr	295600.00	378.80	398.0	390.16	398.96	0.000543	7.80	39934.60	3652.79	0.35
Susquehanna	Downstream	106.27	10-yr	358900.00	378.80	399.7	391.36	400.76	0.000560	8.49	46370.99	4119.41	0.37
Susquehanna	Downstream	106.27	25-yr	448200.00	378.80	402.0	392.94	403.22	0.000588	9.17	55642.64	4141.58	0.37
Susquehanna	Downstream	106.27	50-yr	521700.00	378.80	404.1	394.15	405.42	0.000618	9.46	64321.32	4173.88	0.36
Susquehanna	Downstream	106.27	100-yr	601400.00	378.80	405.9	395.28	407.37	0.000641	9.91	71780.06	4195.87	0.36
Susquehanna	Downstream	106.27	500-yr	815500.00	378.80	410.6	398.30	412.33	0.000674	10.87	91285.48	4658.04	0.36
Susquehanna	Downstream	106.14	2-yr	211300.00	378.80	395.6	386.57	396.13	0.000305	5.96	37443.52	2880.97	0.27
Susquehanna	Downstream	106.14	5-yr	295600.00	378.80	397.9	388.35	398.59	0.000362	7.11	45136.23	4040.69	0.30
Susquehanna	Downstream	106.14	10-yr	358900.00	378.80	399.5	389.56	400.36	0.000381	7.74	51959.50	4173.73	0.31
Susquehanna	Downstream	106.14	25-yr	448200.00	378.80	401.8	391.15	402.79	0.000414	8.41	61550.99	4191.54	0.32
Susquehanna	Downstream	106.14	50-yr	521700.00	378.80	403.9	392.51	404.96	0.000448	8.72	70428.61	4197.97	0.32
Susquehanna	Downstream	106.14	100-yr	601400.00	378.80	405.8	393.74	406.89	0.000473	9.17	78106.16	4203.52	0.32
Susquehanna	Downstream	106.14	500-yr	815500.00	378.80	410.5	396.68	411.81	0.000519	10.15	98112.93	4664.02	0.32
Susquehanna	Downstream	106.02	2-yr	211300.00	380.00	395.4	388.14	395.92	0.000374	5.67	37405.29	3179.19	0.28
Susquehanna	Downstream	106.02	5-yr	295600.00	380.00	397.6	389.55	398.33	0.000426	6.72	45460.09	4115.09	0.31
Susquehanna	Downstream	106.02	10-yr	358900.00	380.00	399.3	390.53	400.09	0.000441	7.27	52443.76	4262.10	0.32
Susquehanna	Downstream	106.02	25-yr	448200.00	380.00	401.6	391.79	402.50	0.000466	7.87	62162.32	4291.20	0.32
Susquehanna	Downstream	106.02	50-yr	521700.00	380.00	403.6	392.75	404.65	0.000493	8.15	71157.50	4297.70	0.32
Susquehanna	Downstream	106.02	100-yr	601400.00	380.00	405.5	393.72	406.56	0.000512	8.56	78952.31	4303.32	0.32
Susquehanna	Downstream	106.02	500-yr	815500.00	380.00	410.1	396.29	411.45	0.000540	9.42	99354.19	4660.05	0.32
Susquehanna	Downstream	105.95	2-yr	211300.00	381.48	394.7	391.08	395.63	0.001115	8.04	28678.75	3693.66	0.47
Susquehanna	Downstream	105.95	5-yr	295600.00	381.48	396.8	392.37	398.02	0.001074	9.07	36895.50	3997.56	0.48
Susquehanna	Downstream	105.95	10-yr	358900.00	381.48	398.5	393.47	399.79	0.000982	9.50	43576.19	4109.88	0.47
Susquehanna	Downstream	105.95	25-yr	448200.00	381.48	400.7	394.73	402.19	0.000926	9.94	53391.41	4372.66	0.45
Susquehanna	Downstream	105.95	50-yr	521700.00	381.48	402.9	395.72	404.34	0.000893	9.98	62866.90	4394.06	0.42
Susquehanna	Downstream	105.95	100-yr	601400.00	381.48	404.7	396.89	406.24	0.000878	10.30	70926.87	4437.59	0.41
Susquehanna	Downstream	105.95	500-yr	815500.00	381.48	409.5	399.08	411.13	0.000827	10.94	92100.63	4571.59	0.39
Susquehanna	Downstream	105.89	2-yr	211300.00	381.01	394.1	391.36	395.21	0.001528	8.65	26772.80	3794.94	0.54
Susquehanna	Downstream	105.89	5-yr	295600.00	381.01	396.4	392.74	397.66	0.001227	9.17	35891.29	4006.44	0.50
Susquehanna	Downstream	105.89	10-yr	358900.00	381.01	398.2	393.79	399.45	0.001049	9.39	43184.43	4376.13	0.48
Susquehanna	Downstream	105.89	25-yr	448200.00	381.01	400.5	394.96	401.85	0.000929	9.63	53639.92	4462.96	0.45
Susquehanna	Downstream	105.89	50-yr	521700.00	381.01	402.7	395.91	404.00	0.000861	9.53	63520.66	4530.25	0.41
Susquehanna	Downstream	105.89	100-yr	601400.00	381.01	404.6	396.80	405.90	0.000820	9.72	71942.76	4539.65	0.40
Susquehanna	Downstream	105.89	500-yr	815500.00	381.01	409.4	399.25	410.79	0.000736	10.14	93941.26	4801.56	0.37
Susquehanna	Downstream	105.81	2-yr	211300.00	380.49	394.0	389.71	394.64	0.000762	6.76	32907.64	3963.19	0.39
Susquehanna	Downstream	105.81	5-yr	295600.00	380.49	396.4	391.05	397.16	0.000672	7.38	42630.66	4166.77	0.38
Susquehanna	Downstream	105.81	10-yr	358900.00	380.49	398.2	391.89	399.00	0.000602	7.67	50143.75	4284.26	0.37
Susquehanna	Downstream	105.81	25-yr	448200.00	380.49	400.5	393.03	401.43	0.000568	8.02	60774.10	4595.25	0.35
Susquehanna	Downstream	105.81	50-yr	521700.00	380.49	402.7	393.88	403.61	0.000556	8.08	70798.97	4616.46	0.34
Susquehanna	Downstream	105.81	100-yr	601400.00	380.49	404.6	394.81	405.52	0.000550	8.36	79377.13	4652.94	0.33
Susquehanna	Downstream	105.81	500-yr	815500.00	380.49	409.3	396.93	410.44	0.000533	8.93	102303.10	5073.07	0.32
Susquehanna	Downstream	105.73	2-yr	211300.00	380.11	393.7		394.31	0.000687	6.55	33929.92	4075.98	0.37
Susquehanna	Downstream	105.73	5-yr	295600.00	380.11	396.1		396.86	0.000621	7.16	44218.35	4327.21	0.36
Susquehanna	Downstream	105.73	10-yr	358900.00	380.11	397.9		398.73	0.000563	7.43	52148.03	4452.16	0.35
Susquehanna	Downstream	105.73	25-yr	448200.00	380.11	400.3		401.18	0.000539	7.78	63165.85	4764.23	0.34
Susquehanna	Downstream	105.73	50-yr	521700.00	380.11	402.5		403.36	0.000532	7.84	73565.38	4775.44	0.32
Susquehanna	Downstream	105.73	100-yr	601400.00	380.11	404.3		405.27	0.000529	8.11	82453.73	4791.76	0.32
Susquehanna	Downstream	105.73	500-yr	815500.00	380.11	409.2		410.19	0.000513	8.66	105615.90	4968.95	0.31
Susquehanna	Downstream	105.66	2-yr	211300.00	379.71	393.3	388.68	394.03	0.000774	6.80	33283.54	3771.51	0.39
Susquehanna	Downstream	105.66	5-yr	295600.00	379.71	395.7	390.10	396.60	0.000734	7.58	42688.05	4106.58	0.39
Susquehanna	Downstream	105.66	10-yr	358900.00	379.71	397.5	390.99	398.47	0.000679	7.91	50326.36	4447.41	0.38
Susquehanna	Downstream	105.66	25-yr	448200.00	379.71	399.9	392.17	400.93	0.000671	8.31	61486.93	4868.86	0.38

HEC-RAS Plan: Frequency 2013 (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Susquehanna	Downstream	105.66	50-yr	521700.00	379.71	402.1	393.26	403.12	0.000658	8.34	72180.12	4896.08	0.35
Susquehanna	Downstream	105.66	100-yr	601400.00	379.71	404.0	393.83	405.03	0.000655	8.61	81270.30	4909.74	0.35
Susquehanna	Downstream	105.66	500-yr	815500.00	379.71	408.8	396.46	409.95	0.000630	9.14	104963.60	5024.59	0.33
Susquehanna	Downstream	105.55	2-yr	211300.00	379.31	393.0	387.75	393.59	0.000650	6.48	36310.66	4062.14	0.36
Susquehanna	Downstream	105.55	5-yr	295600.00	379.31	395.4	389.17	396.17	0.000626	7.21	46792.95	4526.69	0.37
Susquehanna	Downstream	105.55	10-yr	358900.00	379.31	397.3	390.13	398.06	0.000586	7.43	55450.29	4806.69	0.36
Susquehanna	Downstream	105.55	25-yr	448200.00	379.31	399.7	391.28	400.51	0.000565	7.72	67383.09	5067.72	0.35
Susquehanna	Downstream	105.55	50-yr	521700.00	379.31	401.9	392.17	402.71	0.000553	7.75	78528.88	5092.63	0.33
Susquehanna	Downstream	105.55	100-yr	601400.00	379.31	403.7	392.53	404.62	0.000549	8.00	88035.58	5143.14	0.32
Susquehanna	Downstream	105.55	500-yr	815500.00	379.31	408.6	395.84	409.55	0.000523	8.48	113022.30	5208.67	0.30
Susquehanna	Downstream	105.44	2-yr	211300.00	379.38	392.4	388.02	393.12	0.001041	7.27	32421.70	3689.34	0.43
Susquehanna	Downstream	105.44	5-yr	295600.00	379.38	394.8	389.50	395.72	0.000967	8.00	41765.24	4056.67	0.43
Susquehanna	Downstream	105.44	10-yr	358900.00	379.38	396.6	390.40	397.64	0.000909	8.40	49485.37	4564.01	0.43
Susquehanna	Downstream	105.44	25-yr	448200.00	379.38	399.1	391.58	400.11	0.000836	8.58	61503.50	5240.06	0.41
Susquehanna	Downstream	105.44	50-yr	521700.00	379.38	401.3	392.46	402.32	0.000794	8.51	73293.63	5277.54	0.38
Susquehanna	Downstream	105.44	100-yr	601400.00	379.38	403.2	393.45	404.24	0.000766	8.66	83303.09	5302.37	0.36
Susquehanna	Downstream	105.44	500-yr	815500.00	379.38	408.1	396.23	409.20	0.000701	9.01	109301.80	5355.16	0.33
Susquehanna	Downstream	105.36	2-yr	211300.00	379.35	391.8	387.93	392.59	0.001531	7.63	30743.74	3627.50	0.47
Susquehanna	Downstream	105.36	5-yr	295600.00	379.35	394.3	389.28	395.24	0.001359	8.22	40133.94	3904.23	0.45
Susquehanna	Downstream	105.36	10-yr	358900.00	379.35	396.1	390.17	397.13	0.001708	8.58	47820.36	4718.40	0.45
Susquehanna	Downstream	105.36	25-yr	448200.00	379.35	398.6	391.35	399.65	0.001499	8.74	60295.97	5264.57	0.42
Susquehanna	Downstream	105.36	50-yr	521700.00	379.35	400.9	392.28	401.89	0.001315	8.52	72402.02	5297.16	0.38
Susquehanna	Downstream	105.36	100-yr	601400.00	379.35	402.8	393.16	403.83	0.001228	8.65	82666.33	5309.67	0.36
Susquehanna	Downstream	105.36	500-yr	815500.00	379.35	407.8	395.12	408.82	0.001058	8.93	108981.00	5360.50	0.33
Susquehanna	Downstream	105.29	2-yr	211300.00	378.34	391.4	386.48	392.11	0.000864	6.98	33370.52	3560.60	0.40
Susquehanna	Downstream	105.29	5-yr	295600.00	378.34	394.0	387.99	394.81	0.000797	7.71	42811.98	4028.28	0.41
Susquehanna	Downstream	105.29	10-yr	358900.00	378.34	395.7	388.90	396.66	0.000772	8.11	50429.52	4485.87	0.41
Susquehanna	Downstream	105.29	25-yr	448200.00	378.34	398.2	390.11	399.24	0.000749	8.53	62200.61	5339.37	0.40
Susquehanna	Downstream	105.29	50-yr	521700.00	378.34	400.6	390.78	401.52	0.000692	8.35	74364.08	5410.56	0.36
Susquehanna	Downstream	105.29	100-yr	601400.00	378.34	402.5	391.95	403.47	0.000665	8.49	84674.81	5452.95	0.35
Susquehanna	Downstream	105.29	500-yr	815500.00	378.34	407.5	393.60	408.50	0.000600	8.76	112806.70	5775.11	0.32
Susquehanna	Downstream	105.23	2-yr	211300.00	377.23	391.1		391.80	0.000874	6.88	34109.67	3654.35	0.40
Susquehanna	Downstream	105.23	5-yr	295600.00	377.23	393.7		394.52	0.000821	7.64	44030.91	4044.89	0.40
Susquehanna	Downstream	105.23	10-yr	358900.00	377.23	395.5		396.39	0.000751	7.96	51462.88	4249.73	0.40
Susquehanna	Downstream	105.23	25-yr	448200.00	377.23	398.0		398.98	0.000754	8.53	63293.01	5213.69	0.40
Susquehanna	Downstream	105.23	50-yr	521700.00	377.23	400.3		401.28	0.000689	8.34	75589.77	5221.25	0.36
Susquehanna	Downstream	105.23	100-yr	601400.00	377.23	402.3		403.24	0.000661	8.48	85725.03	5227.35	0.35
Susquehanna	Downstream	105.23	500-yr	815500.00	377.23	407.3		408.29	0.000602	8.84	111884.40	5336.47	0.32
Susquehanna	Downstream	105.15	2-yr	211300.00	377.18	390.8		391.45	0.000739	6.59	32711.36	3649.11	0.38
Susquehanna	Downstream	105.15	5-yr	295600.00	377.18	393.4		394.18	0.000643	7.14	42455.65	3816.44	0.37
Susquehanna	Downstream	105.15	10-yr	358900.00	377.18	395.3		396.08	0.000580	7.41	49779.70	4148.73	0.36
Susquehanna	Downstream	105.15	25-yr	448200.00	377.18	397.8		398.65	0.000538	7.62	61986.86	5104.98	0.34
Susquehanna	Downstream	105.15	50-yr	521700.00	377.18	400.2		400.97	0.000500	7.56	74045.00	5113.46	0.32
Susquehanna	Downstream	105.15	100-yr	601400.00	377.18	402.1		402.95	0.000482	7.76	83994.68	5120.44	0.31
Susquehanna	Downstream	105.15	500-yr	815500.00	377.18	407.1		408.03	0.000443	8.17	109708.30	5217.35	0.29
Susquehanna	Downstream	105.02	2-yr	211300.00	375.30	390.1		390.94	0.000845	7.57	31269.71	3293.86	0.42
Susquehanna	Downstream	105.02	5-yr	295600.00	375.30	392.7		393.72	0.000795	8.45	39936.49	3488.00	0.42
Susquehanna	Downstream	105.02	10-yr	358900.00	375.30	394.5		395.64	0.000756	8.93	46569.46	3931.21	0.42
Susquehanna	Downstream	105.02	25-yr	448200.00	375.30	397.1		398.22	0.000747	9.20	58340.20	4892.67	0.41
Susquehanna	Downstream	105.02	50-yr	521700.00	375.30	399.4		400.58	0.000699	9.13	70147.95	4971.32	0.38
Susquehanna	Downstream	105.02	100-yr	601400.00	375.30	401.4		402.57	0.000681	9.39	79796.65	4992.68	0.37
Susquehanna	Downstream	105.02	500-yr	815500.00	375.30	406.4		407.67	0.000632	9.90	104962.00	5195.59	0.35
Susquehanna	Downstream	104.91	2-yr	212200.00	373.10	389.9	383.44	390.48	0.000500	6.32	40130.64	3966.58	0.32
Susquehanna	Downstream	104.91	5-yr	296800.00	373.10	392.6	384.93	393.25	0.000499	7.07	51397.57	4586.25	0.33
Susquehanna	Downstream	104.91	10-yr	360400.00	373.10	394.4	386.04	395.17	0.000501	7.56	60126.61	4988.18	0.34
Susquehanna	Downstream	104.91	25-yr	450000.00	373.10	396.9	387.34	397.77	0.000500	7.96	72947.37	5139.18	0.33
Susquehanna	Downstream	104.91	50-yr	523900.00	373.10	399.3	388.38	400.14	0.000501	8.00	85303.08	5202.72	0.31
Susquehanna	Downstream	104.91	100-yr	603900.00	373.10	401.3	389.31	402.13	0.000500	8.27	95431.92	5218.38	0.31
Susquehanna	Downstream	104.91	500-yr	818900.00	373.10	406.3	391.88	407.25	0.000500	8.85	122039.20	5477.26	0.30

APPENDIX E

100-year Water Surface Elevation Correlation Table

Reach	HEC-RAS XS	100-Year HEC-RAS Results (feet NAVD 88) 2003 HEC Model	Updated Model	Difference
West Branch	5.26	453.3	454.0	0.7
West Branch	5.08	453.2	453.9	0.7
West Branch	4.85	453.0	453.7	0.7
West Branch	4.58	453.0	453.7	0.7
West Branch	4.22	452.9	453.6	0.7
West Branch	4.02	452.9	453.6	0.7
West Branch	3.78	452.9	453.6	0.7
West Branch	3.65	452.8	453.5	0.7
West Branch	3.48 Winfield Creek	452.7	453.4	0.7
West Branch	3.41	452.6	453.3	0.7
West Branch	3.33	452.5	453.3	0.8
West Branch	3.26	452.4	453.2	0.8
West Branch	3.18	452.4	453.2	0.8
West Branch	3.12	452.4	453.1	0.7
West Branch	3.04	452.2	453.0	0.8
West Branch	2.97	452.2	453.0	0.8
West Branch	2.88	452.1	452.9	0.8
West Branch	2.8	452.0	452.9	0.9
West Branch	2.73	451.9	452.8	0.9
West Branch	2.66	451.8	452.7	0.9
West Branch	2.58	451.8	452.6	0.8
West Branch	2.5	451.7	452.6	0.9
West Branch	2.42	451.6	452.5	0.9
West Branch	2.34	451.6	452.5	0.9
West Branch	2.27	451.4	452.4	1.0
West Branch	2.19	451.3	452.2	0.9
West Branch	2.13	451.2	452.2	1.0
West Branch	2.05	451.2	452.1	0.9
West Branch	1.97	451.1	452.1	1.0
West Branch	1.89	451.0	452.0	1.0
West Branch	1.81	451.0	452.0	1.0
West Branch	1.74	451.0	452.0	1.0
West Branch	1.66	450.9	451.9	1.0
West Branch	1.58	450.8	451.9	1.1
West Branch	1.5	450.8	451.8	1.0
West Branch	1.42	450.6	451.7	1.1
West Branch	1.35	450.5	451.6	1.1
West Branch	1.27	450.3	451.4	1.1
West Branch	1.2	450.1	451.3	1.2
West Branch	1.14	450.0	451.2	1.2
West Branch	1.06	449.9	451.1	1.2
West Branch	0.98	449.7	451.0	1.3
West Branch	0.9	449.6	450.8	1.2
West Branch	0.84	449.5	450.8	1.3
West Branch	0.77	449.4	450.7	1.3
West Branch	0.69	449.2	450.6	1.4
West Branch	0.62	449.1	450.5	1.4
West Branch	0.56	449.1	450.5	1.4
West Branch	0.47	449.0	450.4	1.4
West Branch	0.38	448.8	450.2	1.4
West Branch	0.28	448.8	450.2	1.4
West Branch	0.191	448.6	450.1	1.5
West Branch	.1905 US Route 11			
West Branch	0.19	447.8	449.5	1.7

Reach	HEC-RAS XS	100-Year HEC-RAS Results (feet NAVD 88)		Difference
		2003 HEC Model	Updated Model	
West Branch	0.16	447.6	449.4	1.8
Upper Reach	205.877	578.7	581.7	3.0
Upper Reach	205.797	578.7	581.6	2.9
Upper Reach	205.719	578.6	581.6	3.0
Upper Reach	205.64	578.6	581.6	3.0
Upper Reach	205.562	578.5	581.5	3.0
Upper Reach	205.486	578.5	581.5	3.0
Upper Reach	205.409	578.4	581.4	3.0
Upper Reach	205.335	578.2	581.2	3.0
Upper Reach	205.256	578.0	581.0	3.0
Upper Reach	205.18	577.9	580.8	2.9
Upper Reach	205.102	577.7	580.7	3.0
Upper Reach	205.025	577.4	580.4	3.0
Upper Reach	204.948	577.3	580.2	2.9
Upper Reach	204.872	576.9	579.9	3.0
Upper Reach	204.796	576.7	579.6	2.9
Upper Reach	204.718	576.4	579.3	2.9
Upper Reach	204.642	576.0	578.9	2.9
Upper Reach	204.563	575.7	578.7	3.0
Upper Reach	204.488	575.4	578.4	3.0
Upper Reach	204.412	575.2	578.2	3.0
Upper Reach	204.335	575.2	578.2	3.0
Upper Reach	204.259	575.1	578.1	3.0
Upper Reach	204.18	575.0	578.0	3.0
Upper Reach	204.103	574.9	578.0	3.1
Upper Reach	204.025	574.8	577.8	3.0
Upper Reach	203.952	574.7	577.7	3.0
Upper Reach	203.872	574.7	577.7	3.0
Upper Reach	203.796	574.6	577.6	3.0
Upper Reach	203.721	574.6	577.6	3.0
Upper Reach	203.641	574.5	577.6	3.1
Upper Reach	203.564	574.5	577.5	3.0
Upper Reach	203.486	574.3	577.3	3.0
Upper Reach	203.411	574.0	577.0	3.0
Upper Reach	203.333 Sutton Creek	573.7	576.7	3.0
Upper Reach	203.256	573.3	576.3	3.0
Upper Reach	203.174	572.8	575.8	3.0
Upper Reach	203.092	572.5	575.5	3.0
Upper Reach	203.01	572.3	575.3	3.0
Upper Reach	202.932	572.4	575.4	3.0
Upper Reach	202.896	572.4	575.4	3.0
Upper Reach	202.848	572.3	575.4	3.1
Upper Reach	202.766	572.3	575.4	3.1
Upper Reach	202.683 Gardener Creek	572.3	575.5	3.2
Upper Reach	202.608	572.2	575.4	3.2
Upper Reach	202.531	571.7	574.8	3.1
Upper Reach	202.457	571.3	574.7	3.4
Upper Reach	202.38	571.2	574.4	3.2
Upper Reach	202.309	571.1	574.3	3.2
Upper Reach	202.235	571.0	574.2	3.2
Upper Reach	202.164	571.0	574.2	3.2
Upper Reach	202.083	570.9	574.1	3.2
Upper Reach	202.01	570.9	574.1	3.2
Upper Reach	201.936	570.9	574.1	3.2

Reach	HEC-RAS XS	100-Year HEC-RAS Results (feet NAVD 88) 2003 HEC Model	Updated Model	Difference
Upper Reach	201.861	570.7	573.9	3.2
Upper Reach	201.785	570.5	573.7	3.2
Upper Reach	201.715	570.4	573.6	3.2
Upper Reach	201.641	570.4	573.6	3.2
Upper Reach	201.564	570.4	573.6	3.2
Upper Reach	201.488	570.3	573.5	3.2
Upper Reach	201.416	570.3	573.5	3.2
Upper Reach	201.341	570.3	573.5	3.2
Upper Reach	201.267	570.0	573.2	3.2
Upper Reach	201.191	569.7	572.9	3.2
Upper Reach	201.115	569.6	572.8	3.2
Upper Reach	201.043	569.3	572.4	3.1
Upper Reach	200.967	568.8	571.9	3.1
Upper Reach	200.894	568.7	571.7	3.0
Upper Reach	200.818	568.6	571.7	3.1
Upper Reach	200.744	568.5	571.5	3.0
Upper Reach	200.671	568.3	571.4	3.1
Upper Reach	200.597	568.3	571.3	3.0
Upper Reach	200.52	568.2	571.3	3.1
Upper Reach	200.447	568.2	571.3	3.1
Upper Reach	200.372	568.2	571.3	3.1
Upper Reach	200.295	568.3	571.4	3.1
Upper Reach	200.223	568.2	571.3	3.1
Upper Reach	200.149	568.3	571.4	3.1
Upper Reach	200.075	568.2	571.3	3.1
Upper Reach	200.005	568.0	571.1	3.1
Upper Reach	199.925	567.7	570.8	3.1
Upper Reach	199.853	567.5	570.6	3.1
Upper Reach	199.776	567.3	570.5	3.2
Upper Reach	199.702	567.1	570.3	3.2
Upper Reach	199.626	566.6	569.8	3.2
Upper Reach	199.553	566.1	569.2	3.1
Upper Reach	199.481	565.8	569.0	3.2
Upper Reach	199.404	565.7	568.8	3.1
Upper Reach	199.331	565.2	568.3	3.1
Upper Reach	199.254	564.7	567.8	3.1
Upper Reach	199.183	564.0	567.1	3.1
Upper Reach	199.15	564.1	567.2	3.1
Upper Reach	199.08	563.9	567.0	3.1
Upper Reach	199.07 Aban. Railroad			
Upper Reach	199.06	563.6	566.7	3.1
Upper Reach	199	563.7	566.8	3.1
Upper Reach	198.9	563.7	566.9	3.2
Upper Reach	198.887	563.8	567.0	3.2
Scovell Left	198.702	564.1	567.3	3.2
Scovell Left	198.623	564.0	567.3	3.3
Scovell Left	198.543	564.0	567.3	3.3
Scovell Left	198.466	564.0	567.2	3.2
Scovell Left	198.39	564.0	567.1	3.1
Scovell Left	198.309 Lackawanna River	564.0	567.1	3.1
Scovell Left	198.239	563.5	566.7	3.2
Scovell Right	198.701	564.3	567.4	3.1
Scovell Right	198.671	564.2	567.4	3.2
Scovell Right	198.619	564.1	567.3	3.2

Reach	HEC-RAS XS	100-Year HEC-RAS Results (feet NAVD 88) 2003 HEC Model	Updated Model	Difference	
Scovell Right	198.567	564.1	567.3	3.2	RB Exeter Levee
Scovell Right	198.512	564.1	567.3	3.2	
Scovell Right	198.463	564.0	567.3	3.3	
Scovell Right	198.413	563.9	567.2	3.3	
Scovell Right	198.363	563.9	567.2	3.3	
Scovell Right	198.313	563.9	567.1	3.2	
Scovell Right	198.262	563.9	567.1	3.2	
Middle Reach	198.107	563.1	566.2	3.1	
Middle Reach	198.061	562.8	565.9	3.1	
Middle Reach	198 Railroad				
Middle Reach	197.995	562.5	565.7	3.2	
Middle Reach	197.938	562.4	565.6	3.2	
Middle Reach	197.867	562.2	565.5	3.3	
Middle Reach	197.79	562.2	565.4	3.2	
Middle Reach	197.711	562.1	565.4	3.3	
Middle Reach	197.638	562.1	565.5	3.4	
Middle Reach	197.561	562.0	565.3	3.3	
Middle Reach	197.485	561.7	565.0	3.3	
Middle Reach	197.411	561.3	564.6	3.3	
Middle Reach	197.33	560.5	563.8	3.3	
Middle Reach	197.309	560.5	563.9	3.4	
Middle Reach	197.306 US Route11				
Middle Reach	197.296	559.9	563.3	3.4	
Middle Reach	197.261	559.7	563.2	3.5	
Middle Reach	197.222	559.7	563.1	3.4	
Middle Reach	197.176	559.8	563.2	3.4	
Middle Reach	197.13	559.5	563.0	3.5	
Middle Reach	197.126 Water St.				
Middle Reach	197.121	559.4	562.8	3.4	
Middle Reach	197.089	559.3	563.0	3.7	
Middle Reach	197.024	559.4	562.9	3.5	
Middle Reach	196.944	559.0	562.6	3.6	
Middle Reach	196.867	558.4	562.0	3.6	
Middle Reach	196.795	557.8	561.4	3.6	
Middle Reach	196.716	557.5	561.2	3.7	
Middle Reach	196.647	557.6	561.4	3.8	
Middle Reach	196.563	557.5	561.4	3.9	
Middle Reach	196.493	557.4	561.3	3.9	
Middle Reach	196.412	557.1	561.0	3.9	
Middle Reach	196.336	557.2	561.2	4.0	
Middle Reach	196.261	557.4	561.4	4.0	
Middle Reach	196.184	557.4	561.4	4.0	
Middle Reach	196.105	557.4	561.4	4.0	
Middle Reach	196.034	557.4	561.4	4.0	
Middle Reach	195.958	557.3	561.4	4.1	
Middle Reach	195.881	557.3	561.4	4.1	
Middle Reach	195.807	557.1	561.2	4.1	
Middle Reach	195.727	557.0	561.2	4.2	
Middle Reach	195.653	557.0	561.2	4.2	
Middle Reach	195.574	557.0	561.2	4.2	
Middle Reach	195.5	557.0	561.1	4.1	
Middle Reach	195.423	556.8	561.0	4.2	
Middle Reach	195.346	556.7	561.0	4.3	

Reach	HEC-RAS XS	100-Year HEC-RAS Results (feet NAVD 88) 2003 HEC Model	Updated Model	Difference	
Middle Reach	195.265	556.6	560.9	4.3	
Middle Reach	195.194	556.4	560.7	4.3	
Middle Reach	195.119	556.1	560.4	4.3	
Middle Reach	195.042	555.9	560.2	4.3	
Middle Reach	194.966	555.4	559.8	4.4	
Middle Reach	194.888	555.3	559.8	4.5	
Middle Reach	194.809	555.2	559.8	4.6	
Middle Reach	194.732	554.7	559.5	4.8	
Middle Reach	194.724	554.7	559.4	4.7	
Middle Reach	194.702	554.7	559.4	4.7	
Middle Reach	194.70 8th St.				
Middle Reach	194.664	554.8	559.4	4.6	
Middle Reach	194.583	554.8	559.5	4.7	
Middle Reach	194.511	554.8	559.4	4.6	
Middle Reach	194.428	554.8	559.4	4.6	
Middle Reach	194.353	554.7	559.3	4.6	
Middle Reach	194.279	554.7	559.3	4.6	
Middle Reach	194.205	554.7	559.2	4.5	
Middle Reach	194.129	554.6	559.1	4.5	
Middle Reach	194.05	554.5	559.1	4.6	
Middle Reach	193.976	554.4	558.9	4.5	
Middle Reach	193.895	554.3	558.8	4.5	RB Swoyersville Levee
Middle Reach	193.821	554.2	558.7	4.5	
Middle Reach	193.746	554.1	558.6	4.5	
Middle Reach	193.671	554.1	558.5	4.4	
Middle Reach	193.596	553.9	558.3	4.4	
Middle Reach	193.518	553.8	558.2	4.4	
Middle Reach	193.44	553.7	558.0	4.3	
Middle Reach	193.365	553.5	557.9	4.4	
Middle Reach	193.291	553.4	557.7	4.3	
Middle Reach	193.21	553.2	557.4	4.2	
Middle Reach	193.134	553.2	557.4	4.2	
Middle Reach	193.052	553.2	557.4	4.2	
Middle Reach	192.983	553.2	557.4	4.2	
Middle Reach	192.905	553.2	557.3	4.1	
Middle Reach	192.828	553.1	557.2	4.1	
Middle Reach	192.752	553.0	557.2	4.2	
Middle Reach	192.672	553.0	557.1	4.1	
Middle Reach	192.601	553.1	557.1	4.0	
Middle Reach	192.522	553.0	557.1	4.1	
Middle Reach	192.445	553.0	557.1	4.1	
Middle Reach	192.368	552.9	556.9	4.0	
Middle Reach	192.297	552.8	556.9	4.1	
Middle Reach	192.22	552.9	556.9	4.0	
Middle Reach	192.145 Abrahms Creek	552.9	556.9	4.0	
Middle Reach	192.064	552.7	556.7	4.0	
Middle Reach	191.983	552.7	556.7	4.0	
Middle Reach	191.901	552.6	556.6	4.0	
Middle Reach	191.821	552.6	556.5	3.9	
Middle Reach	191.746	552.5	556.4	3.9	
Middle Reach	191.661	552.1	556.1	4.0	
Middle Reach	191.584	552.1	556.0	3.9	
Middle Reach	191.501	552.1	555.9	3.8	

Reach	HEC-RAS XS	100-Year HEC-RAS Results (feet NAVD 88) 2003 HEC Model	Updated Model	Difference	
Middle Reach	191.48	550.9	554.7	3.8	
Middle Reach	191.41	551.0	554.7	3.7	
Middle Reach	191.26	551.3	555.0	3.7	
Middle Reach	191.15	551.3	554.9	3.6	
Middle Reach	191.01	551.2	554.8	3.6	
Middle Reach	190.94	551.0	554.7	3.7	
Middle Reach	190.898 PA Route 309				
Middle Reach	190.864	550.7	554.3	3.6	RB Kingston Levee
Middle Reach	190.863	550.8	554.4	3.6	
Middle Reach	190.782	550.8	554.3	3.5	
Middle Reach	190.704	550.6	554.3	3.7	
Middle Reach	190.625	550.6	554.3	3.7	
Middle Reach	190.546	550.3	553.9	3.6	
Middle Reach	190.467	550.3	553.9	3.6	
Middle Reach	190.454	550.3	553.9	3.6	
Middle Reach	190.44	549.9	553.5	3.6	
Middle Reach	190.434 Railroad				
Middle Reach	190.41	549.9	553.5	3.6	
Middle Reach	190.384 Mill Creek	550.1	553.7	3.6	
Middle Reach	190.314	549.9	553.4	3.5	
Middle Reach	190.238	549.7	553.3	3.6	
Middle Reach	190.166	549.7	553.3	3.6	
Middle Reach	190.095	549.7	553.3	3.6	
Middle Reach	190.026	549.7	553.3	3.6	
Middle Reach	189.951	549.7	553.3	3.6	
Middle Reach	189.884	549.6	553.1	3.5	
Middle Reach	189.811	549.2	552.7	3.5	
Middle Reach	189.747	549.1	552.6	3.5	
Middle Reach	189.743 North Market St				
Middle Reach	189.729	549.0	552.5	3.5	
Middle Reach	189.695	548.9	552.4	3.5	
Middle Reach	189.669	548.9	552.4	3.5	LB Kingston Levee, RB Wilkes Barre Levee
Middle Reach	189.596	548.9	552.3	3.4	
Middle Reach	189.523 Wilkes-Barre Gag	548.8	552.3	3.5	
Middle Reach	189.446	548.6	552.1	3.5	
Middle Reach	189.368	548.5	551.9	3.4	
Middle Reach	189.347	548.5	552.0	3.5	
Middle Reach	189.341 Market St				
Middle Reach	189.325	548.2	551.5	3.3	
Middle Reach	189.29	548.0	551.4	3.4	
Middle Reach	189.219	547.8	551.1	3.3	
Middle Reach	189.144	547.6	550.9	3.3	
Middle Reach	189.062	547.6	550.9	3.3	
Middle Reach	188.987	547.3	550.6	3.3	
Middle Reach	188.913	547.2	550.5	3.3	
Middle Reach	188.833	547.1	550.4	3.3	
Middle Reach	188.754	547.0	550.3	3.3	
Middle Reach	188.675	547.0	550.3	3.3	
Middle Reach	188.594	547.0	550.3	3.3	
Middle Reach	188.518	547.0	550.3	3.3	
Middle Reach	188.436	547.0	550.3	3.3	
Middle Reach	188.367	547.0	550.3	3.3	
Middle Reach	188.28	546.9	550.2	3.3	

Reach	HEC-RAS XS	100-Year HEC-RAS Results (feet NAVD 88) 2003 HEC Model	Updated Model	Difference	
Middle Reach	188.206	546.8	550.2	3.4	
Middle Reach	188.203 Railroad				
Middle Reach	188.196	546.4	549.7	3.3	
Middle Reach	188.131	546.4	549.7	3.3	
Middle Reach	187.978	546.4	549.7	3.3	
Middle Reach	187.822 Toby Creek	546.4	549.7	3.3	
Middle Reach	187.666	546.1	549.3	3.2	LB Wilkes Barre Levee
Middle Reach	187.509	545.8	549.0	3.2	
Middle Reach	187.4	545.5	548.7	3.2	
Middle Reach	187.38	545.5	548.7	3.2	
Middle Reach	187.291	545.6	548.9	3.3	
Middle Reach	187.142	545.6	548.8	3.2	
Middle Reach	186.99	545.5	548.8	3.3	
Middle Reach	186.841	545.5	548.8	3.3	
Middle Reach	186.762	545.5	548.8	3.3	
Middle Reach	186.696	545.4	548.7	3.3	
Middle Reach	186.54	545.2	548.5	3.3	
Middle Reach	186.535 Carey Bridge				
Middle Reach	186.53	545.2	548.3	3.1	
Middle Reach	186.47	545.0	548.1	3.1	
Middle Reach	186.457	545.0	548.1	3.1	LB Plymouth Levee, RB Wilkes Barre Levee
Middle Reach	186.384	544.9	548.0	3.1	
Middle Reach	186.308	544.7	547.7	3.0	
Middle Reach	186.2	544.6	547.5	2.9	
Middle Reach	186.1	544.3	547.2	2.9	
Middle Reach	186	544.0	546.8	2.8	
Middle Reach	185.9	543.7	546.4	2.7	
Middle Reach	185.88	543.6	546.4	2.8	
Middle Reach	185.84	543.6	546.4	2.8	
Middle Reach	185.781	543.5	546.2	2.7	
Middle Reach	185.629	543.4	546.0	2.6	
Middle Reach	185.475	543.2	545.7	2.5	
Middle Reach	185.328	542.9	545.3	2.4	
Middle Reach	185.18	542.9	545.3	2.4	
Middle Reach	185.022	542.9	545.2	2.3	LB Wilkes
Middle Reach	184.874	543.0	545.3	2.3	
Middle Reach	184.8	543.0	545.3	2.3	
Middle Reach	184.7	543.0	545.2	2.2	
Middle Reach	184.6	542.9	545.2	2.3	
Middle Reach	184.5	542.8	545.1	2.3	
Middle Reach	184.45	542.8	545.0	2.2	
Middle Reach	184.35	542.7	544.8	2.1	
Middle Reach	184.28	542.7	544.8	2.1	
Middle Reach	184.18	542.6	544.7	2.1	
Middle Reach	184.15	542.6	544.7	2.1	
Middle Reach	184.1	542.6	544.7	2.1	
Middle Reach	184.025	542.5	544.5	2.0	
Middle Reach	183.95	542.5	544.5	2.0	
Middle Reach	183.87	542.4	544.5	2.1	
Middle Reach	183.79	542.4	544.4	2.0	
Middle Reach	183.716	542.4	544.4	2.0	
Middle Reach	183.634	542.4	544.3	1.9	
Middle Reach	183.524	542.3	544.3	2.0	

Reach	HEC-RAS XS	100-Year HEC-RAS Results (feet NAVD 88) 2003 HEC Model	Updated Model	Difference
Middle Reach	183.408	542.3	544.2	1.9
Middle Reach	183.287	542.3	544.2	1.9
Middle Reach	183.177	542.3	544.2	1.9
Middle Reach	183.055 Natikcoke Creek	542.3	544.1	1.8
Middle Reach	182.897	542.1	544.0	1.9
Middle Reach	182.8	542.0	543.7	1.7
Middle Reach	182.79	541.9	543.7	1.8
Middle Reach	182.788 PA Route 29			
Middle Reach	182.78	541.9	543.6	1.7
Middle Reach	182.72	541.8	543.4	1.6
Middle Reach	182.6	541.8	543.4	1.6
Middle Reach	182.487	541.7	543.3	1.6
Middle Reach	182.41	541.8	543.3	1.5
Middle Reach	182.331	541.8	543.3	1.5
Middle Reach	182.25	541.7	543.3	1.6
Middle Reach	182.169	541.7	543.2	1.5
Middle Reach	182.092	541.6	543.1	1.5
Middle Reach	182.009	541.5	542.9	1.4
Middle Reach	181.935	541.5	542.9	1.4
Middle Reach	181.857	541.0	542.4	1.4
Middle Reach	181.825	540.9	542.2	1.3
Middle Reach	181.820 Lower Broadway S			
Middle Reach	181.756	540.8	542.0	1.2
Middle Reach	181.724	540.7	541.9	1.2
Middle Reach	181.7	540.6	541.7	1.1
Middle Reach	181.69 Railroad			
Middle Reach	181.68	540.3	541.6	1.3
Middle Reach	181.626	540.3	541.4	1.1
Middle Reach	181.549 Newport Creek	540.0	541.3	1.3
Middle Reach	181.464	539.5	540.7	1.2
Middle Reach	181.384	539.2	540.2	1.0
Middle Reach	181.308	538.9	539.8	0.9
Middle Reach	181.232	538.9	539.7	0.8
Middle Reach	181.16	538.8	539.6	0.8
Middle Reach	181.063	539.0	539.7	0.7
Middle Reach	180.991 Harvey Creek	539.2	539.8	0.6
Middle Reach	180.916	538.5	539.1	0.6
Middle Reach	180.843	538.4	539.0	0.6
Middle Reach	180.767	538.1	538.7	0.6
Middle Reach	180.696	538.2	538.9	0.7
Middle Reach	180.618	538.3	539.0	0.7
Middle Reach	180.541	537.9	538.5	0.6
Middle Reach	180.467	537.7	538.3	0.6
Middle Reach	180.398	537.4	537.9	0.5
Middle Reach	180.319	537.2	537.7	0.5
Middle Reach	180.245	537.2	537.7	0.5
Middle Reach	180.173	537.1	537.7	0.6
Middle Reach	180.099	537.0	537.6	0.6
Middle Reach	180.025	537.1	537.7	0.6
Middle Reach	179.951	537.2	537.8	0.6
Middle Reach	179.874	537.1	537.7	0.6
Middle Reach	179.802	536.9	537.5	0.6
Middle Reach	179.727	536.6	537.2	0.6
Middle Reach	179.655	536.2	536.7	0.5

Reach	HEC-RAS XS	100-Year HEC-RAS Results (feet NAVD 88)		Difference
		2003 HEC Model	Updated Model	
Middle Reach	179.581	535.9	536.3	0.4
Middle Reach	179.505	536.1	536.6	0.5
Middle Reach	179.432	536.1	536.6	0.5
Middle Reach	179.358	536.0	536.6	0.6
Middle Reach	179.286	536.0	536.6	0.6
Middle Reach	179.212	535.9	536.5	0.6
Middle Reach	179.137	535.7	536.2	0.5
Middle Reach	179.062	535.6	536.2	0.6
Middle Reach	178.99	535.5	536.1	0.6
Middle Reach	178.914	535.5	536.1	0.6
Middle Reach	178.839	535.5	536.0	0.5
Middle Reach	178.77	535.4	536.0	0.6
Middle Reach	178.693	535.4	536.0	0.6
Middle Reach	178.618	535.3	535.9	0.6
Middle Reach	178.544	535.3	535.9	0.6
Middle Reach	178.473	535.3	535.9	0.6
Middle Reach	178.397	535.3	535.9	0.6
Middle Reach	178.323	535.3	535.9	0.6
Middle Reach	178.247 Hunlock Creek	535.2	535.8	0.6
Middle Reach	178.174	534.8	535.4	0.6
Middle Reach	178.151	534.8	535.4	0.6
Middle Reach	178.097	534.7	535.3	0.6
Middle Reach	178.022	534.2	534.7	0.5
Middle Reach	177.946	534.4	534.9	0.5
Middle Reach	177.869	533.7	534.1	0.4
Middle Reach	177.795	533.2	533.5	0.3
Middle Reach	177.718	533.3	533.7	0.4
Middle Reach	177.646	533.6	534.1	0.5
Middle Reach	177.572	533.8	534.3	0.5
Middle Reach	177.494	533.9	534.4	0.5
Middle Reach	177.416	533.8	534.3	0.5
Middle Reach	177.341	533.7	534.2	0.5
Middle Reach	177.267	533.6	534.1	0.5
Middle Reach	177.187	533.4	533.9	0.5
Middle Reach	177.114	533.3	533.8	0.5
Middle Reach	177.039	533.1	533.6	0.5
Middle Reach	176.963	533.0	533.4	0.4
Middle Reach	176.889	532.9	533.4	0.5
Middle Reach	176.812	532.8	533.2	0.4
Middle Reach	176.735	532.7	533.2	0.5
Middle Reach	176.7	532.6	532.9	0.3
Middle Reach	176.695 Retreat Bridge			
Middle Reach	176.69	532.3	532.7	0.4
Middle Reach	176.68	532.4	532.9	0.5
Middle Reach	176.655	532.4	532.9	0.5
Middle Reach	176.587	532.4	532.9	0.5
Middle Reach	176.508	532.4	532.9	0.5
Middle Reach	176.432	532.4	532.9	0.5
Middle Reach	176.356	532.3	532.8	0.5
Middle Reach	176.285	532.2	532.7	0.5
Middle Reach	176.205	532.1	532.6	0.5
Middle Reach	176.13	531.9	532.3	0.4
Middle Reach	176.054	531.4	531.8	0.4
Middle Reach	175.98	530.8	531.0	0.2

Reach	HEC-RAS XS	100-Year HEC-RAS Results (feet NAVD 88) 2003 HEC Model	Updated Model	Difference
Middle Reach	175.903	530.6	530.9	0.3
Middle Reach	175.827	530.4	530.6	0.2
Middle Reach	175.753	529.7	529.7	0.0
Middle Reach	175.677	529.5	529.6	0.1
Middle Reach	175.601	529.4	529.6	0.2
Middle Reach	175.526	529.5	529.7	0.2
Middle Reach	175.451	529.5	529.7	0.2
Middle Reach	175.373	529.5	529.7	0.2
Middle Reach	175.3	529.5	529.8	0.3
Middle Reach	175.224	529.4	529.8	0.4
Middle Reach	175.147	529.2	529.6	0.4
Middle Reach	175.072	529.1	529.5	0.4
Middle Reach	174.995	529.0	529.4	0.4
Middle Reach	174.919	528.8	529.1	0.3
Middle Reach	174.843	528.7	529.0	0.3
Middle Reach	174.768	528.6	529.0	0.4
Middle Reach	174.693	528.6	529.0	0.4
Middle Reach	174.618	528.7	529.1	0.4
Middle Reach	174.542	528.6	529.0	0.4
Middle Reach	174.466	528.5	529.0	0.5
Middle Reach	174.389	528.5	528.9	0.4
Middle Reach	174.313	528.3	528.8	0.5
Middle Reach	174.24	528.3	528.7	0.4
Middle Reach	174.161	528.2	528.6	0.4
Middle Reach	174.087	528.0	528.4	0.4
Middle Reach	174.012	527.7	528.0	0.3
Middle Reach	173.934	527.3	527.6	0.3
Middle Reach	173.86	527.1	527.4	0.3
Middle Reach	173.786	527.0	527.3	0.3
Middle Reach	173.712	526.9	527.2	0.3
Middle Reach	173.633	526.8	527.1	0.3
Middle Reach	173.559	526.8	527.1	0.3
Middle Reach	173.48	526.6	527.0	0.4
Middle Reach	173.408	526.5	526.8	0.3
Middle Reach	173.33	526.5	526.9	0.4
Middle Reach	173.254	526.5	526.8	0.3
Middle Reach	173.179	526.5	526.9	0.4
Middle Reach	173.103	526.4	526.8	0.4
Middle Reach	173.028	526.3	526.8	0.5
Middle Reach	172.953	526.2	526.6	0.4
Middle Reach	172.877	526.1	526.5	0.4
Middle Reach	172.799	525.7	526.1	0.4
Middle Reach	172.725	525.6	526.0	0.4
Middle Reach	172.649	525.5	525.9	0.4
Middle Reach	172.574	525.3	525.6	0.3
Middle Reach	172.499	525.0	525.0	0.0
Middle Reach	172.424	524.6	524.8	0.2
Middle Reach	172.347 Shickshinny Cree	524.3	524.6	0.3
Middle Reach	172.27	523.6	523.7	0.1
Middle Reach	172.196	523.5	523.7	0.2
Middle Reach	172.123	523.4	523.6	0.2
Middle Reach	172.096	523.3	523.4	0.1
Middle Reach	172.089 PA Route 239			
Middle Reach	172.083	523.1	523.3	0.2

Reach	HEC-RAS XS	100-Year HEC-RAS Results (feet NAVD 88)		Difference
		2003 HEC Model	Updated Model	
Middle Reach	172.047	523.0	523.1	0.1
Middle Reach	171.97	522.5	522.6	0.1
Middle Reach	171.892	522.2	522.2	0.0
Middle Reach	171.818	521.9	521.9	0.0
Middle Reach	171.741	521.7	521.8	0.1
Middle Reach	171.667	521.9	522.1	0.2
Middle Reach	171.596	522.1	522.4	0.3
Middle Reach	171.519	522.2	522.6	0.4
Middle Reach	171.442	522.2	522.6	0.4
Middle Reach	171.367	522.2	522.6	0.4
Middle Reach	171.292	522.2	522.6	0.4
Middle Reach	171.217	522.1	522.5	0.4
Middle Reach	171.141	522.1	522.5	0.4
Middle Reach	171.064	522.1	522.5	0.4
Middle Reach	170.985	522.1	522.6	0.5
Middle Reach	170.912	521.9	522.3	0.4
Middle Reach	170.834	521.8	522.3	0.5
Middle Reach	170.759	521.7	522.1	0.4
Middle Reach	170.685	521.2	521.4	0.2
Middle Reach	170.609	520.7	520.9	0.2
Middle Reach	170.532	520.2	520.3	0.1
Middle Reach	170.457	519.8	519.8	0.0
Middle Reach	170.382	519.5	519.6	0.1
Middle Reach	170.309	519.6	519.7	0.1
Middle Reach	170.23	519.4	519.6	0.2
Middle Reach	170.155	519.0	519.1	0.1
Middle Reach	170.079	519.1	519.3	0.2
Middle Reach	170.003	519.2	519.4	0.2
Middle Reach	169.932	519.3	519.6	0.3
Middle Reach	169.852	519.2	519.5	0.3
Middle Reach	169.778	519.1	519.4	0.3
Middle Reach	169.704	519.0	519.3	0.3
Middle Reach	169.629	518.8	519.1	0.3
Middle Reach	169.553	518.7	519.0	0.3
Middle Reach	169.472	518.6	518.9	0.3
Middle Reach	169.397	518.5	518.8	0.3
Middle Reach	169.321	518.4	518.7	0.3
Middle Reach	169.246	518.3	518.6	0.3
Middle Reach	169.173	518.1	518.4	0.3
Middle Reach	169.096	517.9	518.2	0.3
Middle Reach	169.013	517.4	517.6	0.2
Middle Reach	168.944	517.0	517.1	0.1
Middle Reach	168.869	517.0	517.1	0.1
Middle Reach	168.794	517.0	517.2	0.2
Middle Reach	168.719	516.9	517.1	0.2
Middle Reach	168.643	516.8	517.0	0.2
Middle Reach	168.571	516.6	516.9	0.3
Middle Reach	168.494	516.6	517.0	0.4
Middle Reach	168.419	516.6	517.1	0.5
Middle Reach	168.342	516.5	517.1	0.6
Middle Reach	168.266	516.4	516.7	0.3
Middle Reach	168.191	515.9	516.1	0.2
Middle Reach	168.113 Little Wapwallop	515.4	515.6	0.2
Middle Reach	168.032	515.1	515.2	0.1

Reach	HEC-RAS XS	100-Year HEC-RAS Results (feet NAVD 88)		Difference
		2003 HEC Model	Updated Model	
Middle Reach	167.958	514.8	514.9	0.1
Middle Reach	167.883	514.5	514.6	0.1
Middle Reach	167.805	514.4	514.5	0.1
Middle Reach	167.729	514.3	514.5	0.2
Middle Reach	167.65	514.1	514.3	0.2
Middle Reach	167.572	513.9	514.1	0.2
Middle Reach	167.494	513.6	513.8	0.2
Middle Reach	167.416	513.6	513.9	0.3
Middle Reach	167.336	513.6	513.9	0.3
Middle Reach	167.259	513.5	513.8	0.3
Middle Reach	167.179	513.1	513.4	0.3
Middle Reach	167.096	512.7	512.9	0.2
Middle Reach	167.027	512.2	512.3	0.1
Middle Reach	166.953	512.1	512.3	0.2
Middle Reach	166.873	511.9	512.0	0.1
Middle Reach	166.8	511.9	512.1	0.2
Middle Reach	166.72	511.8	512.1	0.3
Middle Reach	166.644 Wapwallopen Crk	511.7	512.0	0.3
Middle Reach	166.567	511.3	511.5	0.2
Middle Reach	166.492	511.1	511.3	0.2
Middle Reach	166.417	510.7	510.9	0.2
Middle Reach	166.345	510.8	511.0	0.2
Middle Reach	166.267	510.6	510.9	0.3
Middle Reach	166.19	510.5	510.8	0.3
Middle Reach	166.114	510.3	510.6	0.3
Middle Reach	166.041	510.0	510.3	0.3
Middle Reach	165.964	510.0	510.3	0.3
Middle Reach	165.893	509.6	509.9	0.3
Middle Reach	165.821	509.1	509.3	0.2
Middle Reach	165.744	508.4	508.5	0.1
Middle Reach	165.669	508.1	508.3	0.2
Middle Reach	165.594	508.0	508.2	0.2
Middle Reach	165.516	507.8	508.1	0.3
Middle Reach	165.438	507.7	508.1	0.4
Middle Reach	165.369	507.6	508.0	0.4
Middle Reach	165.293	507.5	507.9	0.4
Middle Reach	165.212	507.2	507.6	0.4
Middle Reach	165.138	507.1	507.5	0.4
Middle Reach	165.065	507.0	507.5	0.5
Middle Reach	164.988	506.9	507.5	0.6
Middle Reach	164.911	506.8	507.3	0.5
Middle Reach	164.84	506.5	507.1	0.6
Middle Reach	164.763	506.4	507.0	0.6
Middle Reach	164.692	506.2	506.8	0.6
Middle Reach	164.614	506.1	506.7	0.6
Middle Reach	164.54	506.0	506.6	0.6
Middle Reach	164.462	505.9	506.5	0.6
Middle Reach	164.386	505.7	506.4	0.7
Middle Reach	164.314	505.4	506.1	0.7
Middle Reach	164.237	505.4	506.2	0.8
Middle Reach	164.16	505.4	506.1	0.7
Middle Reach	164.087	505.2	506.0	0.8
Middle Reach	164.01	505.1	505.9	0.8
Middle Reach	163.938	504.9	505.7	0.8

Reach	HEC-RAS XS	100-Year HEC-RAS Results (feet NAVD 88) 2003 HEC Model	Updated Model	Difference
Middle Reach	163.861	504.6	505.5	0.9
Middle Reach	163.787	504.3	505.1	0.8
Middle Reach	163.713	504.1	505.0	0.9
Middle Reach	163.638	503.9	504.8	0.9
Middle Reach	163.561	503.6	504.5	0.9
Middle Reach	163.486	503.4	504.3	0.9
Middle Reach	163.411	503.1	504.1	1.0
Middle Reach	163.335	503.0	504.0	1.0
Middle Reach	163.262	502.8	503.8	1.0
Middle Reach	163.189	502.7	503.8	1.1
Middle Reach	163.114	502.6	503.8	1.2
Middle Reach	163.036	502.6	503.7	1.1
Middle Reach	162.96	502.5	503.7	1.2
Middle Reach	162.887	502.4	503.6	1.2
Middle Reach	162.813	502.2	503.5	1.3
Middle Reach	162.735	502.1	503.4	1.3
Middle Reach	162.659	502.0	503.3	1.3
Middle Reach	162.58	501.9	503.2	1.3
Middle Reach	162.51	501.8	503.1	1.3
Middle Reach	162.437	501.7	503.0	1.3
Middle Reach	162.359	501.6	503.0	1.4
Middle Reach	162.283	501.5	502.9	1.4
Middle Reach	162.208	501.3	502.6	1.3
Middle Reach	162.136	501.1	502.5	1.4
Middle Reach	162.059	501.0	502.4	1.4
Middle Reach	161.979	500.8	502.3	1.5
Middle Reach	161.902	500.6	502.1	1.5
Middle Reach	161.83	500.5	502.1	1.6
Middle Reach	161.754	500.4	502.0	1.6
Middle Reach	161.681	500.2	501.8	1.6
Middle Reach	161.606	500.1	501.7	1.6
Middle Reach	161.538	500.0	501.6	1.6
Middle Reach	161.473	499.8	501.4	1.6
Middle Reach	161.42	499.4	501.1	1.7
Middle Reach	161.415 PA Route 93			
Middle Reach	161.41	499.4	501.1	1.7
Middle Reach	161.382	499.5	501.2	1.7
Middle Reach	161.304	499.3	501.1	1.8
Middle Reach	161.231	499.1	500.8	1.7
Middle Reach	161.155 Nescopeck Creek	498.7	500.5	1.8
Middle Reach	161.076	498.5	500.3	1.8
Middle Reach	160.992	498.4	500.2	1.8
Middle Reach	160.913	498.1	499.9	1.8
Middle Reach	160.834	497.7	499.5	1.8
Middle Reach	160.752	497.3	499.1	1.8
Middle Reach	160.669	497.1	498.9	1.8
Middle Reach	160.59	496.9	498.8	1.9
Middle Reach	160.508	496.7	498.5	1.8
Middle Reach	160.426	496.5	498.3	1.8
Middle Reach	160.346	496.4	498.2	1.8
Middle Reach	160.262	496.3	498.1	1.8
Middle Reach	160.182	496.1	497.8	1.7
Middle Reach	160.099	495.9	497.7	1.8
Middle Reach	160.022	495.8	497.6	1.8

Reach	HEC-RAS XS	100-Year HEC-RAS Results (feet NAVD 88) 2003 HEC Model	Updated Model	Difference
Middle Reach	159.934	495.7	497.4	1.7
Middle Reach	159.855	495.4	497.1	1.7
Middle Reach	159.774	495.2	497.0	1.8
Middle Reach	159.695	494.7	496.4	1.7
Middle Reach	159.616	494.5	496.1	1.6
Middle Reach	159.533	494.4	496.1	1.7
Middle Reach	159.453	494.3	495.9	1.6
Middle Reach	159.368	494.4	496.0	1.6
Middle Reach	159.289	494.3	495.9	1.6
Middle Reach	159.207	493.8	495.5	1.7
Middle Reach	159.125	493.5	495.1	1.6
Middle Reach	159.044	493.3	494.9	1.6
Middle Reach	158.962	493.4	495.0	1.6
Middle Reach	158.884	493.3	494.9	1.6
Middle Reach	158.796	493.1	494.7	1.6
Middle Reach	158.722	492.9	494.5	1.6
Middle Reach	158.638	492.6	494.2	1.6
Middle Reach	158.561	492.4	494.0	1.6
Middle Reach	158.475	492.4	494.0	1.6
Middle Reach	158.394	492.5	494.1	1.6
Middle Reach	158.313	492.3	493.9	1.6
Middle Reach	158.231	492.1	493.8	1.7
Middle Reach	158.15	492.3	493.9	1.6
Middle Reach	158.073	492.3	493.9	1.6
Middle Reach	157.987	492.3	493.9	1.6
Middle Reach	157.906 Briar Creek	492.0	493.6	1.6
Middle Reach	157.831	491.8	493.5	1.7
Middle Reach	157.759	491.7	493.4	1.7
Middle Reach	157.682	491.8	493.4	1.6
Middle Reach	157.614	491.7	493.3	1.6
Middle Reach	157.538	491.5	493.1	1.6
Middle Reach	157.468	491.3	492.9	1.6
Middle Reach	157.39	491.0	492.7	1.7
Middle Reach	157.314	490.9	492.5	1.6
Middle Reach	157.24	490.8	492.4	1.6
Middle Reach	157.167	490.8	492.4	1.6
Middle Reach	157.099	490.7	492.3	1.6
Middle Reach	157.018	490.5	492.1	1.6
Middle Reach	156.943	490.3	491.9	1.6
Middle Reach	156.875	490.2	491.7	1.5
Middle Reach	156.807	490.1	491.7	1.6
Middle Reach	156.8	490.0	491.6	1.6
Middle Reach	156.79 Market Street			
Middle Reach	156.78	489.9	491.5	1.6
Middle Reach	156.723	489.9	491.5	1.6
Middle Reach	156.65	490.0	491.5	1.5
Middle Reach	156.572	489.8	491.4	1.6
Middle Reach	156.5	489.7	491.2	1.5
Middle Reach	156.429	489.5	491.1	1.6
Middle Reach	156.354	489.4	491.0	1.6
Middle Reach	156.284	489.4	490.9	1.5
Middle Reach	156.205	489.3	490.9	1.6
Middle Reach	156.129	489.2	490.8	1.6
Middle Reach	156.058	489.1	490.6	1.5

Reach	HEC-RAS XS	100-Year HEC-RAS Results (feet NAVD 88) 2003 HEC Model	Updated Model	Difference
Middle Reach	155.984	488.9	490.5	1.6
Middle Reach	155.92	488.9	490.5	1.6
Middle Reach	155.900 US Route 80 W			
Middle Reach	155.88	488.9	490.4	1.5
Middle Reach	155.875 US Route 80 E			
Middle Reach	155.82	488.8	490.3	1.5
Middle Reach	155.8	488.6	490.2	1.6
Middle Reach	155.756	488.6	490.1	1.5
Middle Reach	155.691	488.6	490.1	1.5
Middle Reach	155.611	488.4	489.9	1.5
Middle Reach	155.540 Tenmile Run	488.1	489.6	1.5
Middle Reach	155.459	487.6	489.1	1.5
Middle Reach	155.388	487.3	488.8	1.5
Middle Reach	155.312	487.2	488.6	1.4
Middle Reach	155.236	487.1	488.5	1.4
Middle Reach	155.156	487.0	488.4	1.4
Middle Reach	155.082	487.0	488.4	1.4
Middle Reach	155.006	486.9	488.3	1.4
Middle Reach	154.926	486.8	488.3	1.5
Middle Reach	154.857	486.7	488.1	1.4
Middle Reach	154.782	486.5	487.9	1.4
Middle Reach	154.705	486.4	487.8	1.4
Middle Reach	154.633	486.1	487.5	1.4
Middle Reach	154.553	486.1	487.5	1.4
Middle Reach	154.48	486.0	487.3	1.3
Middle Reach	154.406	485.9	487.3	1.4
Middle Reach	154.327	485.8	487.2	1.4
Middle Reach	154.251	485.6	486.9	1.3
Middle Reach	154.174	485.5	486.9	1.4
Middle Reach	154.098	485.4	486.8	1.4
Middle Reach	154.024	485.3	486.7	1.4
Middle Reach	153.948	485.3	486.6	1.3
Middle Reach	153.873	485.3	486.6	1.3
Middle Reach	153.795	485.3	486.6	1.3
Middle Reach	153.721	485.2	486.5	1.3
Middle Reach	153.643	485.1	486.5	1.4
Middle Reach	153.567	485.1	486.4	1.3
Middle Reach	153.49	485.0	486.3	1.3
Middle Reach	153.414	485.0	486.3	1.3
Middle Reach	153.342	484.8	486.1	1.3
Middle Reach	153.263	484.8	486.1	1.3
Middle Reach	153.188	484.8	486.1	1.3
Middle Reach	153.112	484.7	486.0	1.3
Middle Reach	153.038	484.7	485.9	1.2
Middle Reach	152.962	484.6	485.9	1.3
Middle Reach	152.887	484.6	485.8	1.2
Middle Reach	152.81	484.5	485.8	1.3
Middle Reach	152.734	484.4	485.6	1.2
Middle Reach	152.658	484.3	485.5	1.2
Middle Reach	152.587	484.0	485.5	1.5
Middle Reach	152.505	483.8	485.4	1.6
Middle Reach	152.426	483.7	485.2	1.5
Middle Reach	152.351	483.6	485.1	1.5
Middle Reach	152.28	483.5	485.0	1.5

Reach	HEC-RAS XS	100-Year HEC-RAS Results (feet NAVD 88)		Difference
		2003 HEC Model	Updated Model	
Middle Reach	152.202	483.4	484.9	1.5
Middle Reach	152.127	483.4	484.9	1.5
Middle Reach	152.05	483.5	484.9	1.4
Middle Reach	151.976	483.3	484.8	1.5
Middle Reach	151.899	483.2	484.6	1.4
Middle Reach	151.822	483.1	484.5	1.4
Middle Reach	151.748	483.1	484.5	1.4
Middle Reach	151.672	483.0	484.4	1.4
Middle Reach	151.597	482.9	484.3	1.4
Middle Reach	151.521	482.7	484.2	1.5
Middle Reach	151.444	482.7	484.1	1.4
Middle Reach	151.365	482.7	484.1	1.4
Middle Reach	151.288	482.6	484.0	1.4
Middle Reach	151.217	482.4	483.8	1.4
Middle Reach	151.144	482.4	483.8	1.4
Middle Reach	151.066	482.2	483.6	1.4
Middle Reach	150.988	482.1	483.5	1.4
Middle Reach	150.91	481.9	483.3	1.4
Middle Reach	150.838	481.8	483.2	1.4
Middle Reach	150.764	481.7	483.0	1.3
Middle Reach	150.686	481.6	482.9	1.3
Middle Reach	150.609	481.5	482.9	1.4
Middle Reach	150.533	481.5	482.8	1.3
Middle Reach	150.456	481.4	482.8	1.4
Middle Reach	150.382 Bloomsburg Gage	481.4	482.7	1.3
Middle Reach	150.309	481.3	482.6	1.3
Middle Reach	150.233	481.3	482.6	1.3
Middle Reach	150.158	481.2	482.5	1.3
Middle Reach	150.076	481.1	482.4	1.3
Middle Reach	150.001	481.0	482.3	1.3
Middle Reach	149.932	481.0	482.3	1.3
Middle Reach	149.851	481.0	482.2	1.2
Middle Reach	149.775	480.9	482.2	1.3
Middle Reach	149.699	480.7	482.0	1.3
Middle Reach	149.625	480.6	481.9	1.3
Middle Reach	149.546	480.5	481.8	1.3
Middle Reach	149.469	480.4	481.7	1.3
Middle Reach	149.403	480.2	481.4	1.2
Middle Reach	149.382	480.2	481.4	1.2
Middle Reach	149.376 PA Route 487			
Middle Reach	149.37	480.2	481.4	1.2
Middle Reach	149.327	480.2	481.4	1.2
Middle Reach	149.249	480.1	481.3	1.2
Middle Reach	149.167	479.8	481.0	1.2
Middle Reach	149.098	479.9	481.0	1.1
Middle Reach	149.022	479.8	480.9	1.1
Middle Reach	148.947	479.8	480.9	1.1
Middle Reach	148.863	479.7	480.8	1.1
Middle Reach	148.795	479.6	480.8	1.2
Middle Reach	148.718	479.6	480.7	1.1
Middle Reach	148.639	479.5	480.6	1.1
Middle Reach	148.561	479.4	480.5	1.1
Middle Reach	148.486	479.3	480.4	1.1
Middle Reach	148.413	479.3	480.4	1.1

Reach	HEC-RAS XS	100-Year HEC-RAS Results (feet NAVD 88) 2003 HEC Model	Updated Model	Difference
Middle Reach	148.334	479.2	480.3	1.1
Middle Reach	148.259	479.2	480.3	1.1
Middle Reach	148.185	479.2	480.3	1.1
Middle Reach	148.113	479.1	480.2	1.1
Middle Reach	148.035	479.1	480.2	1.1
Middle Reach	147.955	479.0	480.1	1.1
Middle Reach	147.88	479.0	480.0	1.0
Middle Reach	147.802	478.9	480.0	1.1
Middle Reach	147.728	478.9	479.9	1.0
Middle Reach	147.643	479.1	480.1	1.0
Middle Reach	147.573	478.6	479.6	1.0
Middle Reach	147.502	478.3	479.3	1.0
Middle Reach	147.425 Fishing Creek	477.9	478.9	1.0
Middle Reach	147.355	477.7	478.5	0.8
Middle Reach	147.3	477.4	478.3	0.9
Middle Reach	147.25 Railroad			
Middle Reach	147.2	477.3	478.2	0.9
Middle Reach	147.188	477.5	478.4	0.9
Middle Reach	147.114	477.5	478.4	0.9
Middle Reach	147.033	477.6	478.5	0.9
Middle Reach	146.952	477.6	478.5	0.9
Middle Reach	146.876	477.4	478.2	0.8
Middle Reach	146.796	477.3	478.1	0.8
Middle Reach	146.718	477.1	477.9	0.8
Middle Reach	146.641	476.9	477.6	0.7
Middle Reach	146.562	476.7	477.5	0.8
Middle Reach	146.481	476.7	477.5	0.8
Middle Reach	146.404	476.6	477.4	0.8
Middle Reach	146.328	476.5	477.2	0.7
Middle Reach	146.246	476.4	477.0	0.6
Middle Reach	146.17	476.2	476.9	0.7
Middle Reach	146.092	476.2	476.9	0.7
Middle Reach	146.01	476.0	476.6	0.6
Middle Reach	145.95	475.9	476.5	0.6
Middle Reach	145.949 PA Route 42			
Middle Reach	145.94	475.8	476.4	0.6
Middle Reach	145.923	475.8	476.3	0.5
Middle Reach	145.869	476.0	476.2	0.2
Middle Reach	145.838	475.5	476.2	0.7
Middle Reach	145.772 Catawissa Creek	475.4	476.1	0.7
Middle Reach	145.701	475.3	475.9	0.6
Middle Reach	145.619	475.0	475.6	0.6
Middle Reach	145.546	474.5	475.1	0.6
Middle Reach	145.471	474.0	474.5	0.5
Middle Reach	145.394	473.8	474.3	0.5
Middle Reach	145.315	473.6	474.1	0.5
Middle Reach	145.242	473.4	474.0	0.6
Middle Reach	145.162	473.3	473.9	0.6
Middle Reach	145.08	473.2	473.8	0.6
Middle Reach	145.007	473.1	473.7	0.6
Middle Reach	144.934	473.0	473.6	0.6
Middle Reach	144.853	472.9	473.5	0.6
Middle Reach	144.776	472.6	473.2	0.6
Middle Reach	144.702	472.5	473.1	0.6

Reach	HEC-RAS XS	100-Year HEC-RAS Results (feet NAVD 88)		Difference
		2003 HEC Model	Updated Model	
Middle Reach	144.62	472.5	473.1	0.6
Middle Reach	144.544	472.4	473.1	0.7
Middle Reach	144.466	472.5	473.1	0.6
Middle Reach	144.393	472.4	473.0	0.6
Middle Reach	144.314	472.2	472.9	0.7
Middle Reach	144.242	472.2	472.8	0.6
Middle Reach	144.162	472.1	472.8	0.7
Middle Reach	144.089	472.0	472.7	0.7
Middle Reach	144.009	472.0	472.6	0.6
Middle Reach	143.935	471.9	472.6	0.7
Middle Reach	143.856	471.8	472.5	0.7
Middle Reach	143.779	471.8	472.5	0.7
Middle Reach	143.699	471.6	472.3	0.7
Middle Reach	143.623	471.5	472.2	0.7
Middle Reach	143.547	471.4	472.1	0.7
Middle Reach	143.471	471.4	472.1	0.7
Middle Reach	143.428	471.3	472.0	0.7
Middle Reach	143.377	471.2	471.9	0.7
Middle Reach	143.314	471.1	471.8	0.7
Middle Reach	143.241	471.1	471.7	0.6
Middle Reach	143.161	470.9	471.6	0.7
Middle Reach	143.087	470.8	471.5	0.7
Middle Reach	143.011	470.9	471.6	0.7
Middle Reach	142.935	470.8	471.5	0.7
Middle Reach	142.859	470.7	471.4	0.7
Middle Reach	142.781	470.7	471.4	0.7
Middle Reach	142.701	470.6	471.3	0.7
Middle Reach	142.624	470.4	471.1	0.7
Middle Reach	142.544	470.4	471.1	0.7
Middle Reach	142.436	470.5	471.2	0.7
Middle Reach	142.381 Roaring Creek	470.0	470.7	0.7
Middle Reach	142.312	469.7	470.4	0.7
Middle Reach	142.236	469.5	470.1	0.6
Middle Reach	142.156	469.3	469.9	0.6
Middle Reach	142.077	469.2	469.9	0.7
Middle Reach	142.001	469.3	469.9	0.6
Middle Reach	141.923	469.3	470.0	0.7
Middle Reach	141.838	469.2	469.9	0.7
Middle Reach	141.759	469.2	469.9	0.7
Middle Reach	141.68	469.1	469.8	0.7
Middle Reach	141.6	468.9	469.6	0.7
Middle Reach	141.523	468.8	469.4	0.6
Middle Reach	141.456	468.7	469.4	0.7
Middle Reach	141.368	468.4	469.0	0.6
Middle Reach	141.285	468.2	468.9	0.7
Middle Reach	141.202	468.1	468.8	0.7
Middle Reach	141.122	468.0	468.7	0.7
Middle Reach	141.045	467.9	468.6	0.7
Middle Reach	140.959	467.8	468.5	0.7
Middle Reach	140.878 Little Roaring	467.8	468.5	0.7
Middle Reach	140.81	467.5	468.2	0.7
Middle Reach	140.732	467.4	468.0	0.6
Middle Reach	140.662	467.3	468.0	0.7
Middle Reach	140.588	467.3	468.0	0.7

Reach	HEC-RAS XS	100-Year HEC-RAS Results (feet NAVD 88) 2003 HEC Model	Updated Model	Difference	
Middle Reach	140.513	467.1	467.9	0.8	
Middle Reach	140.44	467.1	467.9	0.8	
Middle Reach	140.361	467.1	467.8	0.7	
Middle Reach	140.285	467.1	467.8	0.7	
Middle Reach	140.215	467.1	467.8	0.7	
Middle Reach	140.126	466.9	467.7	0.8	
Middle Reach	140.038	466.7	467.5	0.8	
Middle Reach	139.965	466.6	467.4	0.8	
Middle Reach	139.87	466.5	467.3	0.8	
Middle Reach	139.774	466.4	467.2	0.8	
Middle Reach	139.696	466.3	467.1	0.8	
Middle Reach	139.611	466.3	467.0	0.7	
Middle Reach	139.547	466.1	466.9	0.8	
Middle Reach	139.479	466.0	466.7	0.7	
Middle Reach	139.392	465.9	466.6	0.7	
Middle Reach	139.326	465.7	466.4	0.7	
Middle Reach	139.245	465.4	466.1	0.7	
Middle Reach	139.168	465.4	466.1	0.7	
Middle Reach	139.111	465.3	466.1	0.8	
Middle Reach	139.058	465.3	466.0	0.7	
Middle Reach	139.009	465.2	466.0	0.8	
Middle Reach	138.960 Logan Run	465.1	466.0	0.9	
Middle Reach	138.883	464.8	465.5	0.7	
Middle Reach	138.804	464.6	465.3	0.7	
Middle Reach	138.72	464.6	465.3	0.7	
Middle Reach	138.645	464.6	465.3	0.7	
Middle Reach	138.586	464.6	465.3	0.7	
Middle Reach	138.528	464.4	465.2	0.8	RB Danville Levee
Middle Reach	138.463	464.4	465.1	0.7	
Middle Reach	138.4	464.3	465.0	0.7	
Middle Reach	138.337	464.2	464.9	0.7	
Middle Reach	138.278	464.0	464.8	0.8	
Middle Reach	138.2	463.9	464.6	0.7	
Middle Reach	138.124	463.7	464.3	0.6	
Middle Reach	138.046	463.3	464.0	0.7	
Middle Reach	137.965	463.2	463.8	0.6	
Middle Reach	137.894	463.1	463.8	0.7	
Middle Reach	137.82	463.0	463.7	0.7	
Middle Reach	137.744	463.0	463.7	0.7	
Middle Reach	137.653	462.8	463.4	0.6	
Middle Reach	137.593	462.5	463.2	0.7	
Middle Reach	137.524	462.3	463.0	0.7	
Middle Reach	137.442	462.3	463.0	0.7	
Middle Reach	137.314	462.2	462.9	0.7	
Middle Reach	137.223	462.0	462.6	0.6	
Middle Reach	137.128	461.9	462.6	0.7	
Middle Reach	137.067 Sechler Run	461.8	462.5	0.7	
Middle Reach	136.945 Danville Gage	461.8	462.5	0.7	
Middle Reach	136.906	461.7	462.4	0.7	
Middle Reach	136.9 PA Route 54				
Middle Reach	136.857	461.5	462.2	0.7	
Middle Reach	136.792	461.4	462.1	0.7	
Middle Reach	136.722	461.3	462.0	0.7	

Reach	HEC-RAS XS	100-Year HEC-RAS Results (feet NAVD 88)		Difference
		2003 HEC Model	Updated Model	
Middle Reach	136.633	461.1	461.8	0.7
Middle Reach	136.546	461.0	461.6	0.6
Middle Reach	136.466	460.8	461.5	0.7
Middle Reach	136.394	460.7	461.4	0.7
Middle Reach	136.324	460.4	461.0	0.6
Middle Reach	136.248 Mahoning Creek	460.4	461.1	0.7
Middle Reach	136.148	460.1	460.7	0.6
Middle Reach	136.037	459.9	460.6	0.7
Middle Reach	135.926	459.8	460.5	0.7
Middle Reach	135.823	459.7	460.4	0.7
Middle Reach	135.72	459.5	460.2	0.7
Middle Reach	135.599	459.3	460.0	0.7
Middle Reach	135.497	459.0	459.7	0.7
Middle Reach	135.387	458.9	459.5	0.6
Middle Reach	135.315	458.7	459.4	0.7
Middle Reach	135.242	458.6	459.3	0.7
Middle Reach	135.174	458.5	459.1	0.6
Middle Reach	135.102	458.4	459.1	0.7
Middle Reach	135.032	458.3	459.0	0.7
Middle Reach	134.959	458.3	458.9	0.6
Middle Reach	134.884	458.1	458.8	0.7
Middle Reach	134.815	458.0	458.7	0.7
Middle Reach	134.74	457.8	458.5	0.7
Middle Reach	134.671	457.6	458.3	0.7
Middle Reach	134.596	457.5	458.2	0.7
Middle Reach	134.497	457.2	457.9	0.7
Middle Reach	134.413	456.9	457.5	0.6
Middle Reach	134.341	456.6	457.3	0.7
Middle Reach	134.282	456.5	457.1	0.6
Middle Reach	134.227	456.4	457.1	0.7
Middle Reach	134.148 Kipps Run	456.2	456.9	0.7
Middle Reach	134.074	456.0	456.7	0.7
Middle Reach	133.981	455.9	456.6	0.7
Middle Reach	133.868	455.9	456.7	0.8
Middle Reach	133.793	455.9	456.7	0.8
Middle Reach	133.723	455.9	456.7	0.8
Middle Reach	133.637	455.7	456.5	0.8
Middle Reach	133.561	455.6	456.4	0.8
Middle Reach	133.489	455.5	456.3	0.8
Middle Reach	133.416	455.5	456.3	0.8
Middle Reach	133.332	455.3	456.1	0.8
Middle Reach	133.252	455.3	456.1	0.8
Middle Reach	133.178	455.1	455.9	0.8
Middle Reach	133.107	455.1	455.9	0.8
Middle Reach	133.022	455.0	455.8	0.8
Middle Reach	132.956	454.9	455.7	0.8
Middle Reach	132.876	454.8	455.6	0.8
Middle Reach	132.804	454.6	455.5	0.9
Middle Reach	132.72	454.6	455.4	0.8
Middle Reach	132.635	454.5	455.3	0.8
Middle Reach	132.569	454.4	455.2	0.8
Middle Reach	132.488	454.3	455.2	0.9
Middle Reach	132.411	454.1	454.9	0.8

Reach	HEC-RAS XS	100-Year HEC-RAS Results (feet NAVD 88)		Difference
		2003 HEC Model	Updated Model	
Middle Reach	132.331	454.0	454.8	0.8
Middle Reach	132.26	453.9	454.8	0.9
Middle Reach	132.182	453.9	454.7	0.8
Middle Reach	132.11	453.7	454.6	0.9
Middle Reach	132.031	453.6	454.4	0.8
Middle Reach	131.944	453.5	454.3	0.8
Middle Reach	131.875	453.3	454.1	0.8
Middle Reach	131.803	453.3	454.1	0.8
Middle Reach	131.724	453.2	454.1	0.9
Middle Reach	131.649	453.2	454.1	0.9
Middle Reach	131.571	453.2	454.0	0.8
Middle Reach	131.492	453.1	454.0	0.9
Middle Reach	131.42	453.0	453.9	0.9
Middle Reach	131.343	453.0	453.8	0.8
Middle Reach	131.264	452.9	453.8	0.9
Middle Reach	131.192	452.9	453.8	0.9
Middle Reach	131.109	452.9	453.8	0.9
Middle Reach	131.033	452.8	453.7	0.9
Middle Reach	130.962	452.7	453.6	0.9
Middle Reach	130.892	452.7	453.6	0.9
Middle Reach	130.823	452.6	453.6	1.0
Middle Reach	130.73	452.6	453.5	0.9
Middle Reach	130.619 Gravel Run	452.4	453.5	1.1
Middle Reach	130.497	452.4	453.3	0.9
Middle Reach	130.418	452.3	453.3	1.0
Middle Reach	130.338	452.3	453.3	1.0
Middle Reach	130.273	452.2	453.2	1.0
Middle Reach	130.198	452.1	453.1	1.0
Middle Reach	130.114	452.0	453.0	1.0
Middle Reach	130.039	452.0	452.9	0.9
Middle Reach	129.965	451.9	452.9	1.0
Middle Reach	129.887	451.8	452.8	1.0
Middle Reach	129.81	451.8	452.8	1.0
Middle Reach	129.735	451.7	452.7	1.0
Middle Reach	129.655	451.6	452.7	1.1
Middle Reach	129.582	451.6	452.6	1.0
Middle Reach	129.469	451.4	452.5	1.1
Middle Reach	129.35	451.2	452.3	1.1
Middle Reach	129.278	451.2	452.3	1.1
Middle Reach	129.197	451.2	452.2	1.0
Middle Reach	129.124	451.1	452.2	1.1
Middle Reach	129.049	451.1	452.1	1.0
Middle Reach	128.971	451.0	452.1	1.1
Middle Reach	128.894	450.9	452.0	1.1
Middle Reach	128.822	450.9	451.9	1.0
Middle Reach	128.742	450.8	451.9	1.1
Middle Reach	128.668	450.7	451.8	1.1
Middle Reach	128.587	450.7	451.8	1.1
Middle Reach	128.511	450.6	451.7	1.1
Middle Reach	128.436	450.6	451.6	1.0
Middle Reach	128.355	450.4	451.5	1.1
Middle Reach	128.284	450.4	451.5	1.1
Middle Reach	128.2	450.3	451.4	1.1
Middle Reach	128.133	450.2	451.3	1.1

Reach	HEC-RAS XS	100-Year HEC-RAS Results (feet NAVD 88) 2003 HEC Model	Updated Model	Difference
Middle Reach	128.056	450.1	451.2	1.1
Middle Reach	127.976	450.1	451.3	1.2
Middle Reach	127.903	449.9	451.0	1.1
Middle Reach	127.820 Lithia Springs	449.8	450.9	1.1
Middle Reach	127.743	449.7	450.9	1.2
Middle Reach	127.669	449.6	450.8	1.2
Middle Reach	127.594	449.6	450.8	1.2
Middle Reach	127.522	449.6	450.8	1.2
Middle Reach	127.442	449.6	450.8	1.2
Packers Right Up	127.302	449.5	450.7	1.2
Packers Right Up	127.233	449.4	450.6	1.2
Packers Right Up	127.165	449.4	450.6	1.2
Packers Right Up	127.095	449.3	450.6	1.3
Packers Right Up	127.029	449.2	450.5	1.3
Packers Right Up	126.961	449.1	450.4	1.3
Packers Right Up	126.899	449.1	450.4	1.3
Packers Right Up	126.826	449.0	450.4	1.4
Packers Right Up	126.757	448.9	450.3	1.4
Packers Right Up	126.692	448.9	450.3	1.4
Packers Right Up	126.628	448.8	450.2	1.4
Packers Right Up	126.569	448.7	450.2	1.5
Packers Right Up	126.498	448.7	450.2	1.5
Packers Right Up	126.434	448.6	450.1	1.5
Packers Right Up	126.366	448.5	450.1	1.6
Packers Right Up	126.3	448.4	450.0	1.6
Packers Right Up	126.287	448.4	450.0	1.6
Packers Right Up	126.280 PA Route 147			
Packers Right Up	126.272	448.4	449.9	1.5
Packers Right Up	126.18	448.3	449.9	1.6
Packers Right Up	126.102	448.2	449.8	1.6
Packers Right Up	126.07	448.1	449.8	1.7
Packers Right Up	126.065 Railroad			
Packers Right Up	126.06	448.1	449.8	1.7
Packers Right Up	126.034	448.1	449.7	1.6
Packers Right Up	125.974	448.1	449.7	1.6
Packers Right Dn	125.758	447.4	449.1	1.7
Packers Right Dn	125.692	447.1	448.9	1.8
Packers Right Dn	125.636	447.0	448.8	1.8
Packers Left	127.312	449.4	450.6	1.2
Packers Left	127.243	449.4	450.6	1.2
Packers Left	127.177	449.2	450.5	1.3
Packers Left	127.108	449.1	450.5	1.4
Packers Left	127.037	449.0	450.4	1.4
Packers Left	126.963	449.0	450.4	1.4
Packers Left	126.899	448.9	450.3	1.4
Packers Left	126.835	448.8	450.2	1.4
Packers Left	126.765	448.7	450.2	1.5
Packers Left	126.692	448.6	450.1	1.5
Packers Left	126.63	448.6	450.1	1.5
Packers Left	126.563	448.5	450.0	1.5
Packers Left	126.489	448.4	450.0	1.6
Packers Left	126.427	448.4	450.0	1.6
Packers Left	126.378	448.3	449.9	1.6
Packers Left	126.304	448.3	449.9	1.6

Reach	HEC-RAS XS	100-Year HEC-RAS Results (feet NAVD 88) 2003 HEC Model	Updated Model	Difference	
Packers Left	126.209	448.2	449.8	1.6	
Packers Left	126.148	448.2	449.8	1.6	
Packers Left	126.077	448.1	449.8	1.7	
Packers Left	126.017	448.0	449.7	1.7	LB Sunbury Levee
Packers Left	125.996	447.8	449.5	1.7	LB Sunbury Levee
Packers Left	125.989 PA Route 147				LB Sunbury Levee
Packers Left	125.981	447.7	449.5	1.8	LB Sunbury Levee
Packers Left	125.962	447.7	449.5	1.8	LB Sunbury Levee
Packers Left	125.93	447.7	449.4	1.7	LB Sunbury Levee
Packers Left	125.925 Railroad				LB Sunbury Levee
Packers Left	125.92	447.6	449.4	1.8	LB Sunbury Levee
Packers Left	125.782	447.5	449.3	1.8	LB Sunbury Levee
Packers Left	125.682	447.5	449.3	1.8	LB Sunbury Levee
Downstream	125.39	446.4	448.0	1.6	LB Sunbury Levee
Downstream	125.23	446.1	447.7	1.6	LB Sunbury Levee
Downstream	125.15	446.0	447.5	1.5	LB Sunbury Levee
Downstream	125.05	446.0	447.5	1.5	LB Sunbury Levee
Downstream	124.95	445.9	447.4	1.5	LB Sunbury Levee
Downstream	124.83	445.8	447.4	1.6	LB Sunbury Levee
Downstream	124.72	445.7	447.3	1.6	LB Sunbury Levee
Downstream	124.57	445.5	447.0	1.5	LB Sunbury Levee
Downstream	124.39	445.2	446.7	1.5	LB Sunbury Levee
Downstream	124.29	445.1	446.6	1.5	LB Sunbury Levee
Downstream	124.18	444.9	446.4	1.5	LB Sunbury Levee
Downstream	124.08	444.7	446.2	1.5	LB Sunbury Levee
Downstream	123.99	444.6	446.0	1.4	LB Sunbury Levee
Downstream	123.89	444.6	446.1	1.5	LB Sunbury Levee
Downstream	123.82 Sunbury Old Gage	444.5	446.1	1.6	LB Sunbury Levee
Downstream	123.74	444.5	446.0	1.5	LB Sunbury Levee
Downstream	123.65	444.5	446.0	1.5	LB Sunbury Levee
Downstream	123.64 PA Route 61				LB Sunbury Levee
Downstream	123.63	444.4	445.9	1.5	LB Sunbury Levee
Downstream	123.58	444.4	445.9	1.5	LB Sunbury Levee
Downstream	123.51	444.2	445.7	1.5	LB Sunbury Levee
Downstream	123.43	444.1	445.6	1.5	LB Sunbury Levee
Downstream	123.36	444.1	445.6	1.5	LB Sunbury Levee
Downstream	123.29	444.0	445.5	1.5	LB Sunbury Levee
Downstream	123.21	444.0	445.5	1.5	
Downstream	123.14	443.9	445.5	1.6	
Downstream	123.06	443.8	445.3	1.5	
Downstream	122.98	443.6	445.2	1.6	
Downstream	122.90 Shamokin Creek	443.5	445.1	1.6	
Downstream	122.83	443.5	445.0	1.5	
Downstream	122.77	443.4	444.9	1.5	
Downstream	122.69	443.2	444.8	1.6	
Downstream	122.62	443.1	444.7	1.6	
Downstream	122.52	443.0	444.6	1.6	
Downstream	122.41	442.9	444.4	1.5	
Downstream	122.35	442.7	444.2	1.5	
Downstream	122.3	442.5	444.0	1.5	
Downstream	122.24	442.3	443.9	1.6	
Downstream	122.19	442.2	443.8	1.6	
Downstream	122.12	442.0	443.6	1.6	

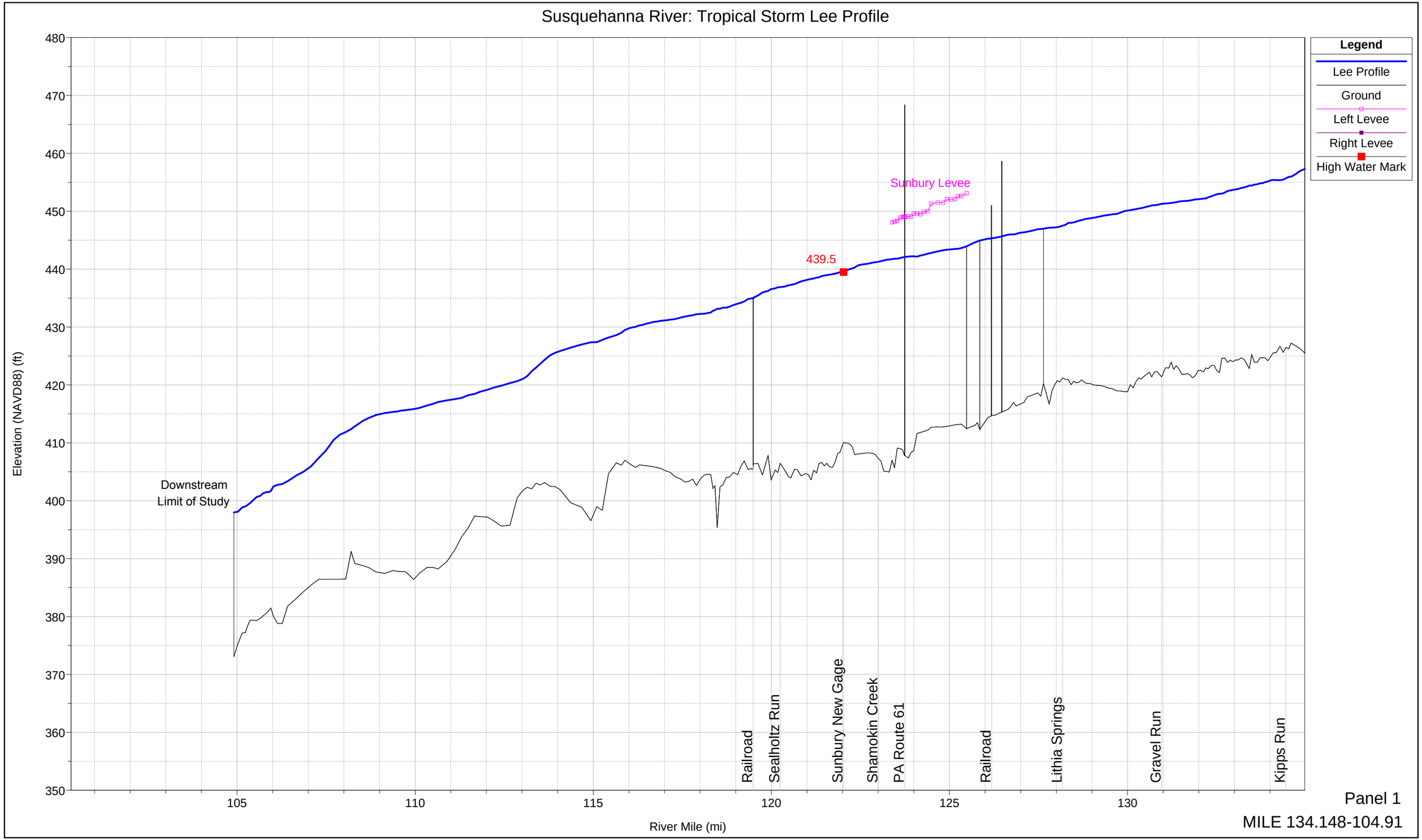
Reach	HEC-RAS XS	100-Year HEC-RAS Results (feet NAVD 88) 2003 HEC Model	Updated Model	Difference
Downstream	122.01 Sunbury New Gage	441.8	443.3	1.5
Downstream	121.91	441.6	443.2	1.6
Downstream	121.84	441.5	443.0	1.5
Downstream	121.77	441.4	442.9	1.5
Downstream	121.69	441.3	442.8	1.5
Downstream	121.61	441.2	442.7	1.5
Downstream	121.53	441.1	442.6	1.5
Downstream	121.46	441.0	442.5	1.5
Downstream	121.38	440.9	442.4	1.5
Downstream	121.31	440.7	442.2	1.5
Downstream	121.24	440.6	442.1	1.5
Downstream	121.16	440.5	442.0	1.5
Downstream	121.08	440.4	441.9	1.5
Downstream	121.01	440.3	441.8	1.5
Downstream	120.93	440.1	441.6	1.5
Downstream	120.8	439.9	441.4	1.5
Downstream	120.68	439.6	441.1	1.5
Downstream	120.61	439.5	440.9	1.4
Downstream	120.5	439.3	440.7	1.4
Downstream	120.43	439.2	440.7	1.5
Downstream	120.33	439.0	440.5	1.5
Downstream	120.20 Sealholtz Run	438.9	440.3	1.4
Downstream	120.13	438.9	440.3	1.4
Downstream	120.06	438.7	440.2	1.5
Downstream	119.94	438.5	440.0	1.5
Downstream	119.86	438.3	439.9	1.6
Downstream	119.69	438.0	439.6	1.6
Downstream	119.57	437.3	439.3	2.0
Downstream	119.52	437.0	438.9	1.9
Downstream	119.51 Railroad			
Downstream	119.5	436.8	438.6	1.8
Downstream	119.44	436.8	438.4	1.6
Downstream	119.35	436.6	438.3	1.7
Downstream	119.24	436.2	437.9	1.7
Downstream	119.14	436.0	437.6	1.6
Downstream	119.05	435.8	437.5	1.7
Downstream	118.93	435.6	437.3	1.7
Downstream	118.82	435.3	436.9	1.6
Downstream	118.73	435.1	436.8	1.7
Downstream	118.63	435.1	436.8	1.7
Downstream	118.55	434.9	436.6	1.7
Downstream	118.48	434.9	436.6	1.7
Downstream	118.41	434.7	436.4	1.7
Downstream	118.36	434.6	436.3	1.7
Downstream	118.3	434.2	435.9	1.7
Downstream	118.22	434.1	435.8	1.7
Downstream	118.13	434.0	435.7	1.7
Downstream	118.02	434.0	435.7	1.7
Downstream	117.9	433.9	435.6	1.7
Downstream	117.79	433.7	435.4	1.7
Downstream	117.69	433.6	435.3	1.7
Downstream	117.58	433.5	435.2	1.7
Downstream	117.47	433.3	435.1	1.8
Downstream	117.3	433.0	434.7	1.7

Reach	HEC-RAS XS	100-Year HEC-RAS Results (feet NAVD 88)		Difference
		2003 HEC Model	Updated Model	
Downstream	117.16	432.9	434.6	1.7
Downstream	117.04	432.8	434.5	1.7
Downstream	116.91	432.7	434.4	1.7
Downstream	116.77	432.6	434.3	1.7
Downstream	116.67	432.5	434.2	1.7
Downstream	116.6	432.4	434.1	1.7
Downstream	116.52	432.3	434.0	1.7
Downstream	116.39	432.0	433.7	1.7
Downstream	116.3	431.9	433.6	1.7
Downstream	116.19	431.7	433.3	1.6
Downstream	116.03	431.5	433.1	1.6
Downstream	115.89	431.1	432.8	1.7
Downstream	115.79	430.7	432.4	1.7
Downstream	115.65	430.2	431.9	1.7
Downstream	115.43	429.8	431.5	1.7
Downstream	115.26	429.3	431.0	1.7
Downstream	115.1	428.9	430.6	1.7
Downstream	114.93	428.9	430.6	1.7
Downstream	114.68	428.6	430.2	1.6
Downstream	114.36	428.0	429.6	1.6
Downstream	114.06	427.4	428.9	1.5
Downstream	113.93	427.1	428.7	1.6
Downstream	113.78	426.6	428.2	1.6
Downstream	113.63	425.9	427.5	1.6
Downstream	113.51	425.2	426.8	1.6
Downstream	113.39	424.6	426.2	1.6
Downstream	113.27	424.0	425.7	1.7
Downstream	113.15	423.2	424.9	1.7
Downstream	113.02	422.7	424.5	1.8
Downstream	112.86	422.3	424.1	1.8
Downstream	112.66	422.0	423.8	1.8
Downstream	112.42	421.6	423.3	1.7
Downstream	112.23	421.3	423.0	1.7
Downstream	112.03	420.9	422.6	1.7
Downstream	111.84	420.5	422.3	1.8
Downstream	111.67	420.1	421.9	1.8
Downstream	111.49	419.9	421.7	1.8
Downstream	111.3	419.5	421.2	1.7
Downstream	111.13	419.2	421.0	1.8
Downstream	110.89	419.0	420.8	1.8
Downstream	110.64	418.7	420.4	1.7
Downstream	110.49	418.3	420.1	1.8
Downstream	110.34	418.1	419.8	1.7
Downstream	110.12	417.6	419.3	1.7
Downstream	109.96	417.4	419.1	1.7
Downstream	109.83	417.3	418.9	1.6
Downstream	109.71	417.2	418.9	1.7
Downstream	109.59	417.1	418.7	1.6
Downstream	109.49	416.9	418.6	1.7
Downstream	109.38	416.9	418.5	1.6
Downstream	109.15	416.7	418.3	1.6
Downstream	108.9	416.3	417.9	1.6
Downstream	108.69	415.8	417.4	1.6
Downstream	108.53	415.3	416.9	1.6

Reach	HEC-RAS XS	100-Year HEC-RAS Results (feet NAVD 88)		Difference
		2003 HEC Model	Updated Model	
Downstream	108.3	414.3	415.9	1.6
Downstream	108.2	413.9	415.5	1.6
Downstream	108.05	413.4	415.0	1.6
Downstream	107.88	412.9	414.5	1.6
Downstream	107.72	412.0	413.6	1.6
Downstream	107.48	410.1	411.7	1.6
Downstream	107.29	408.9	410.6	1.7
Downstream	107.08	407.5	409.1	1.6
Downstream	106.86	406.5	408.1	1.6
Downstream	106.69	405.9	407.5	1.6
Downstream	106.42	404.9	406.5	1.6
Downstream	106.27	404.4	405.9	1.5
Downstream	106.14	404.2	405.8	1.6
Downstream	106.02	403.9	405.5	1.6
Downstream	105.95	403.2	404.7	1.5
Downstream	105.89	403.0	404.6	1.6
Downstream	105.81	403.0	404.6	1.6
Downstream	105.73	402.8	404.3	1.5
Downstream	105.66	402.4	404.0	1.6
Downstream	105.55	402.2	403.7	1.5
Downstream	105.44	401.6	403.2	1.6
Downstream	105.36	401.2	402.8	1.6
Downstream	105.29	400.9	402.5	1.6
Downstream	105.23	400.6	402.3	1.7
Downstream	105.15	400.5	402.1	1.6
Downstream	105.02	399.8	401.4	1.6
Downstream	104.91	399.6	401.3	1.7

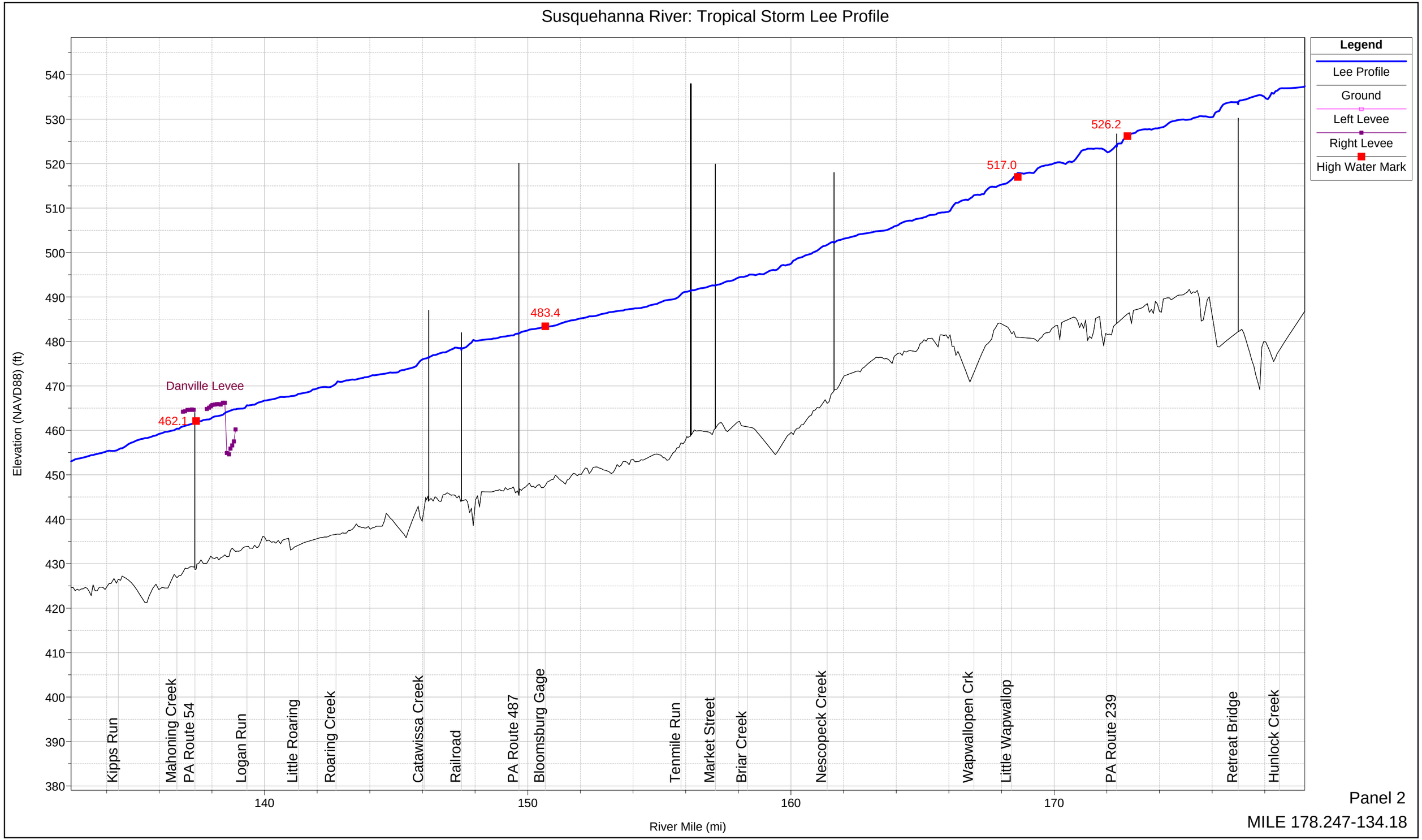
APPENDIX F

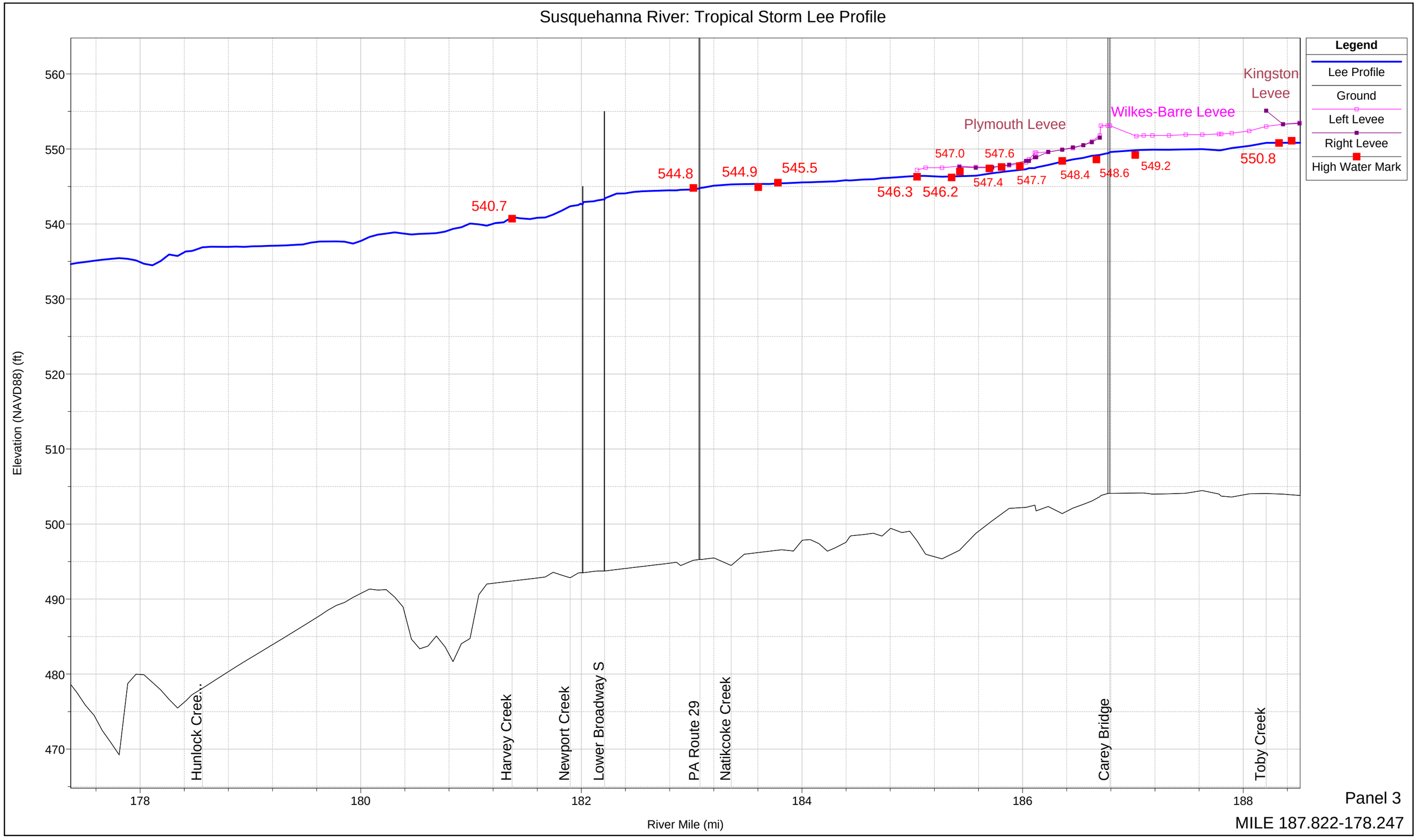
Flood Profiles

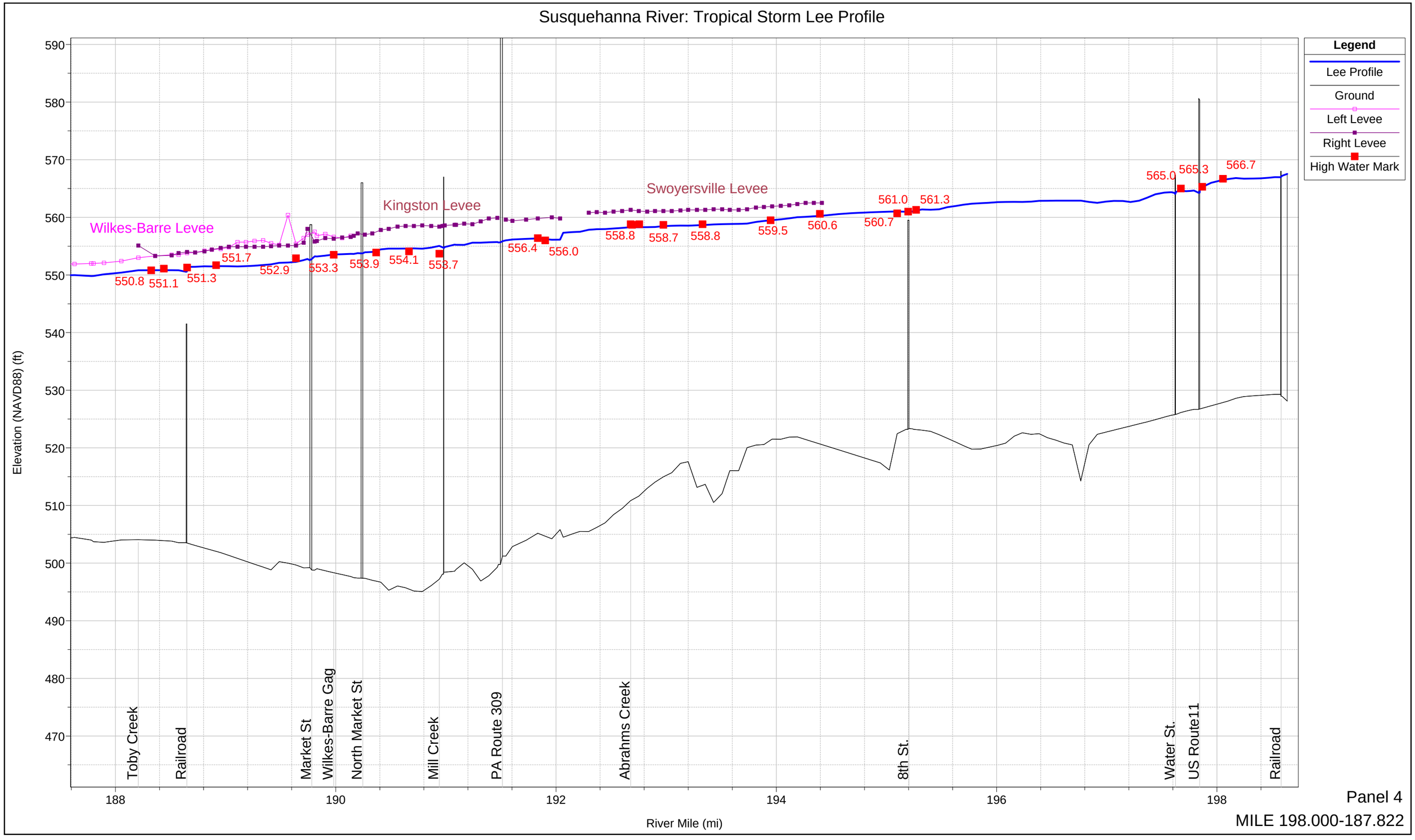


Panel 1

MILE 134.148-104.91

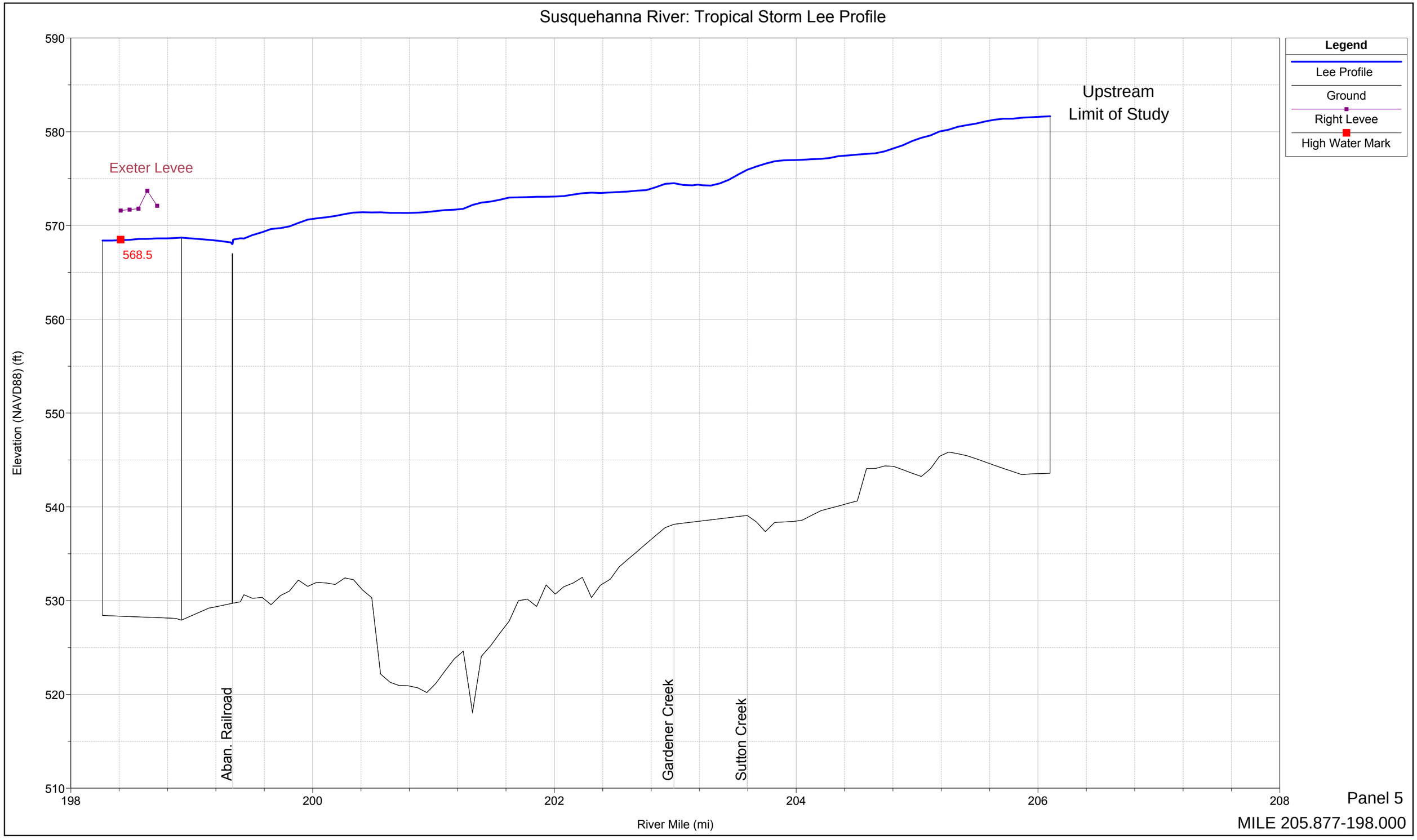

Susquehanna River: Tropical Storm Lee Profile
Legend
Lee Profile
Ground
Left Levee
Right Levee
High Water Mark
Elevation (NAVD88) (ft)
River Mile (mi)
Danville Levee
462.1
483.4
517.0
526.2
Kipps Run
Mahoning Creek
PA Route 54
Logan Run
Little Roaring
Roaring Creek
Catawissa Creek
Railroad
PA Route 487
Bloomsburg Gage
Tenmile Run
Market Street
Briar Creek
Nescopeck Creek
Wapwallopen Crk
Little Wapwallop
PA Route 239
Retreat Bridge
Hunlock Creek
Panel 2
MILE 178.247-134.18

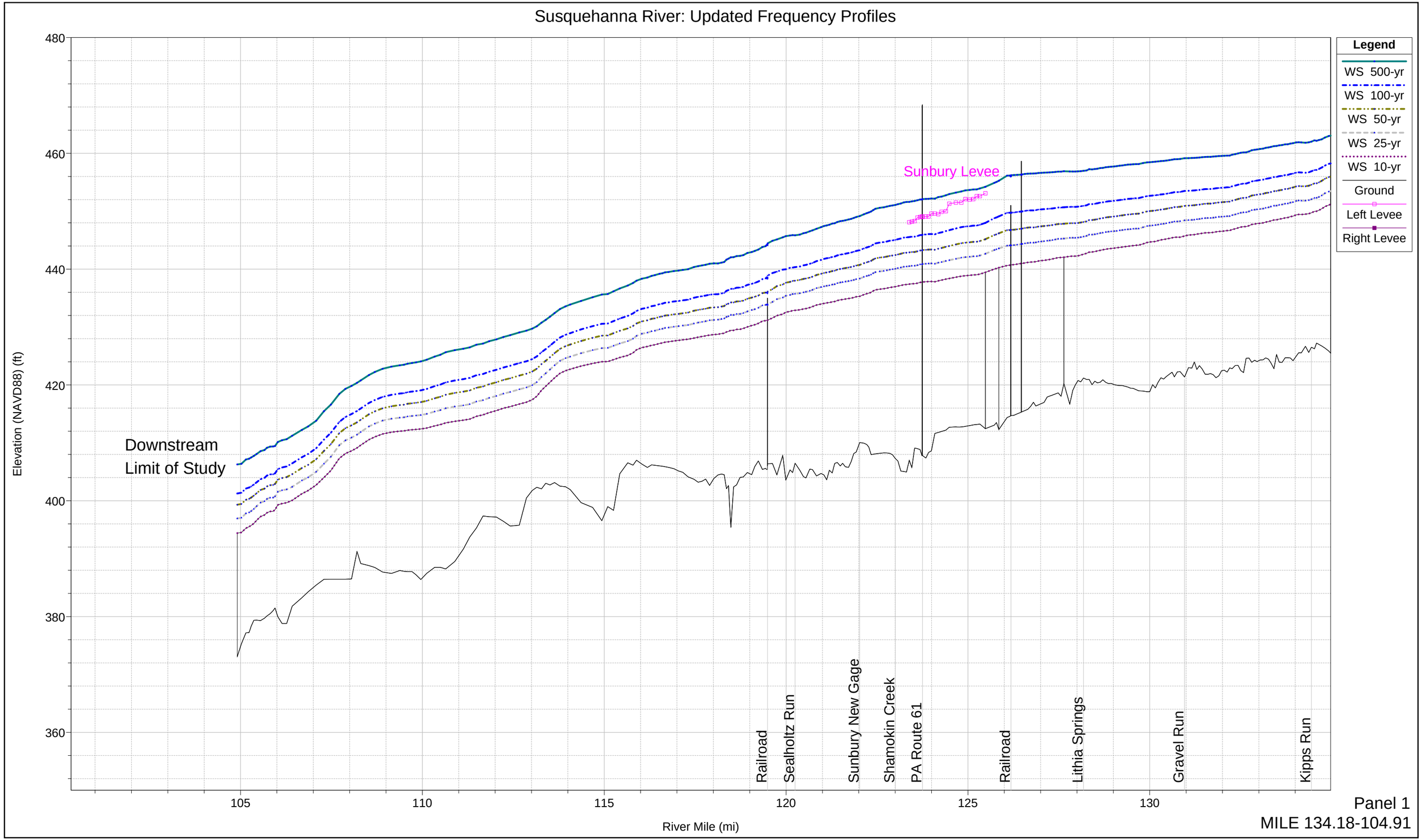

Susquehanna River: Tropical Storm Lee Profile
Legend
Lee Profile
Ground
Left Levee
Right Levee
High Water Mark
Kingston Levee
Wilkes-Barre Levee
Plymouth Levee
540.7
544.8
544.9
545.5
546.3
546.2
547.0
547.4
547.6
547.7
548.4
548.6
549.2
550.8
Hunlock Cree...
Harvey Creek
Newport Creek
Lower Broadway S
PA Route 29
Natikcoke Creek
Carey Bridge
Toby Creek
Elevation (NAVD88) (ft)
River Mile (mi)
560
550
540
530
520
510
500
490
480
470
178
180
182
184
186
188
Panel 3
MILE 187.822-178.247

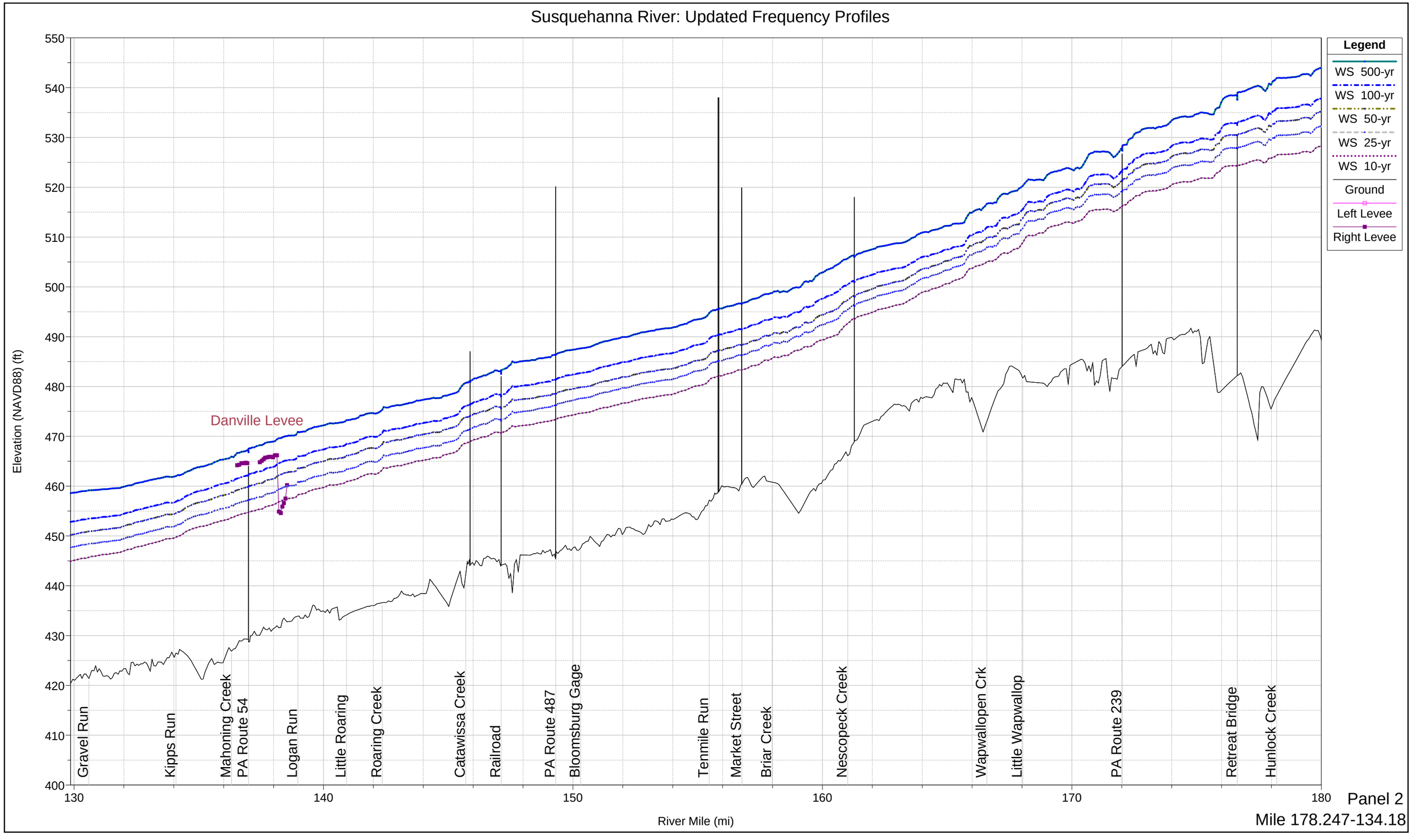


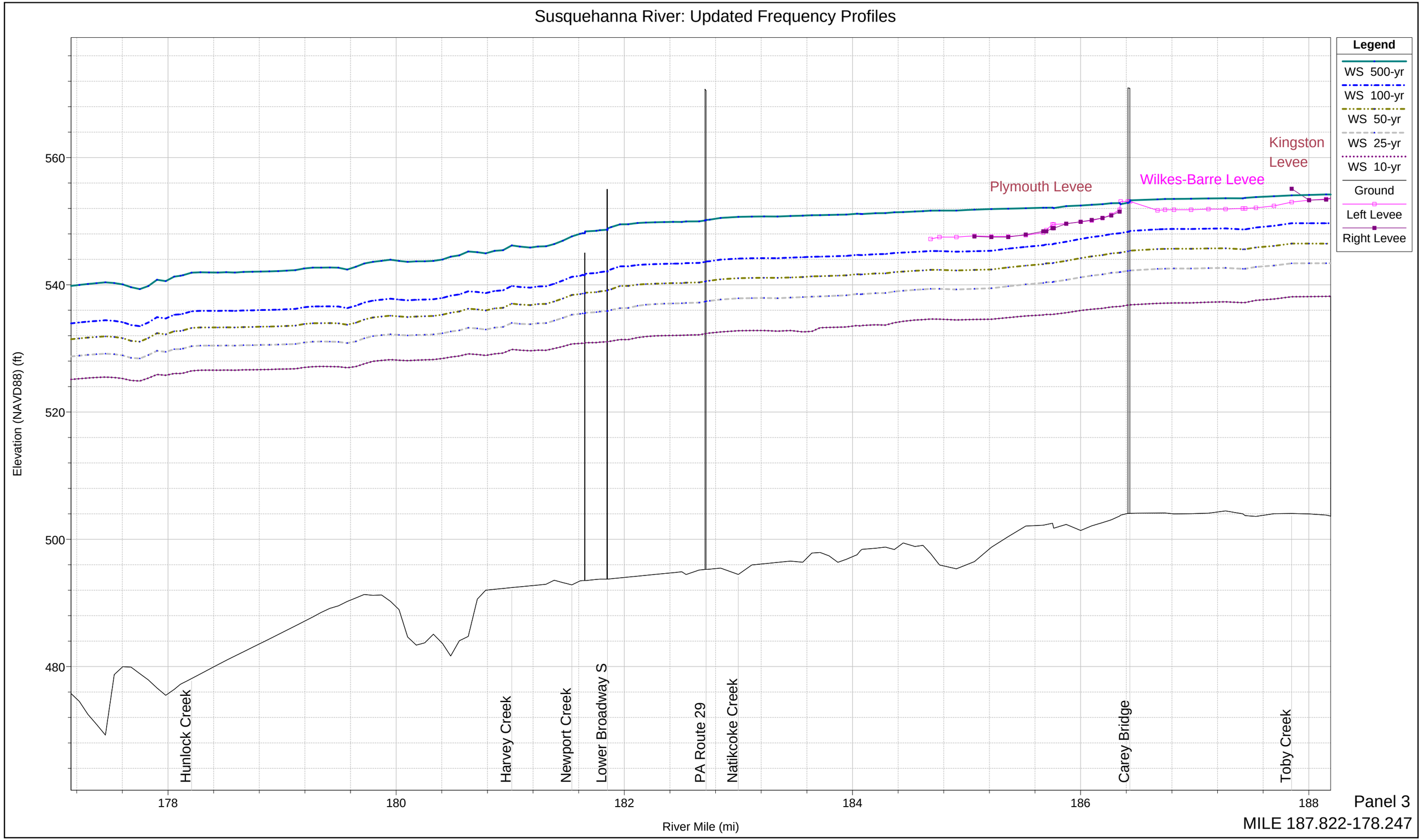
Panel 4

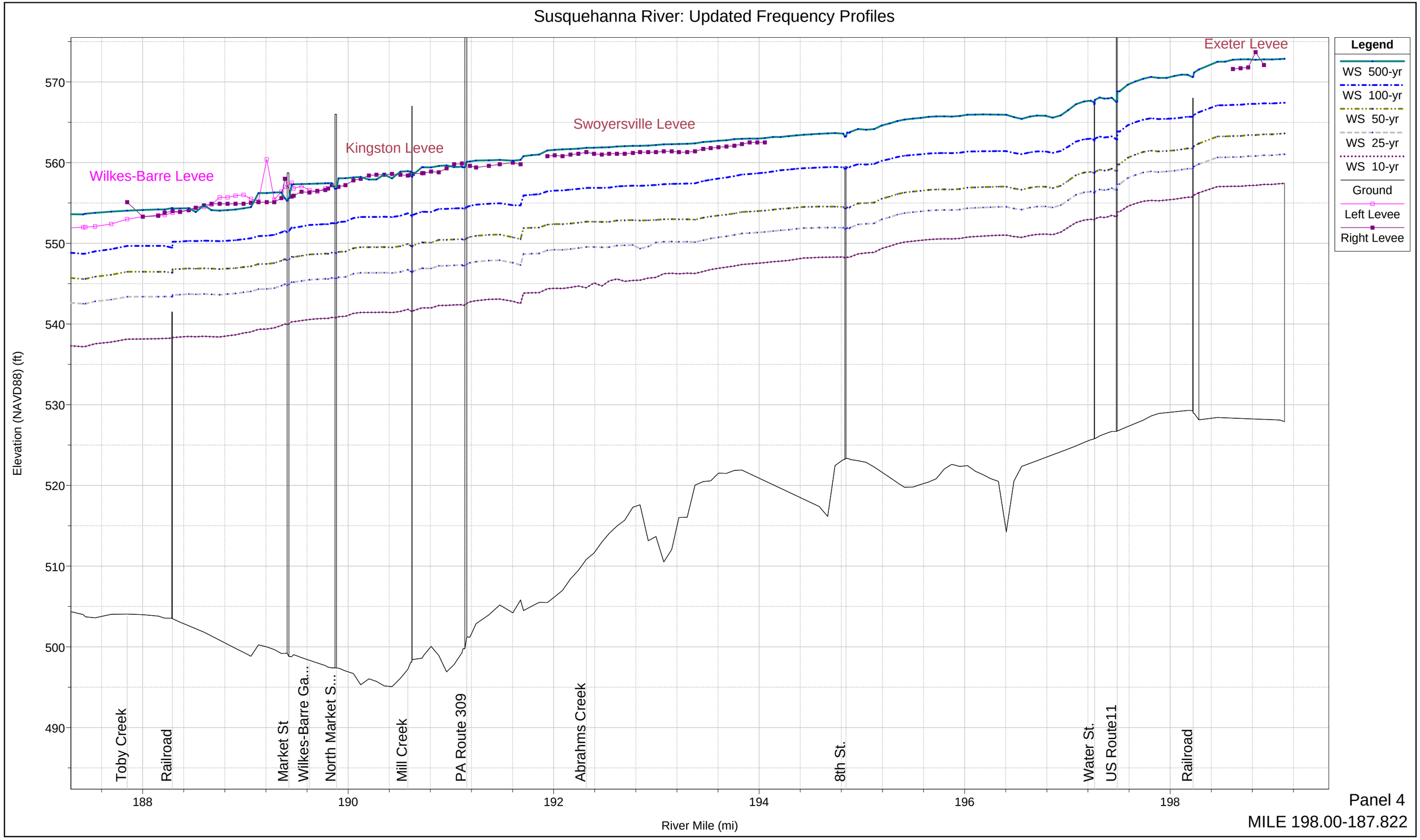
MILE 198.000-187.822

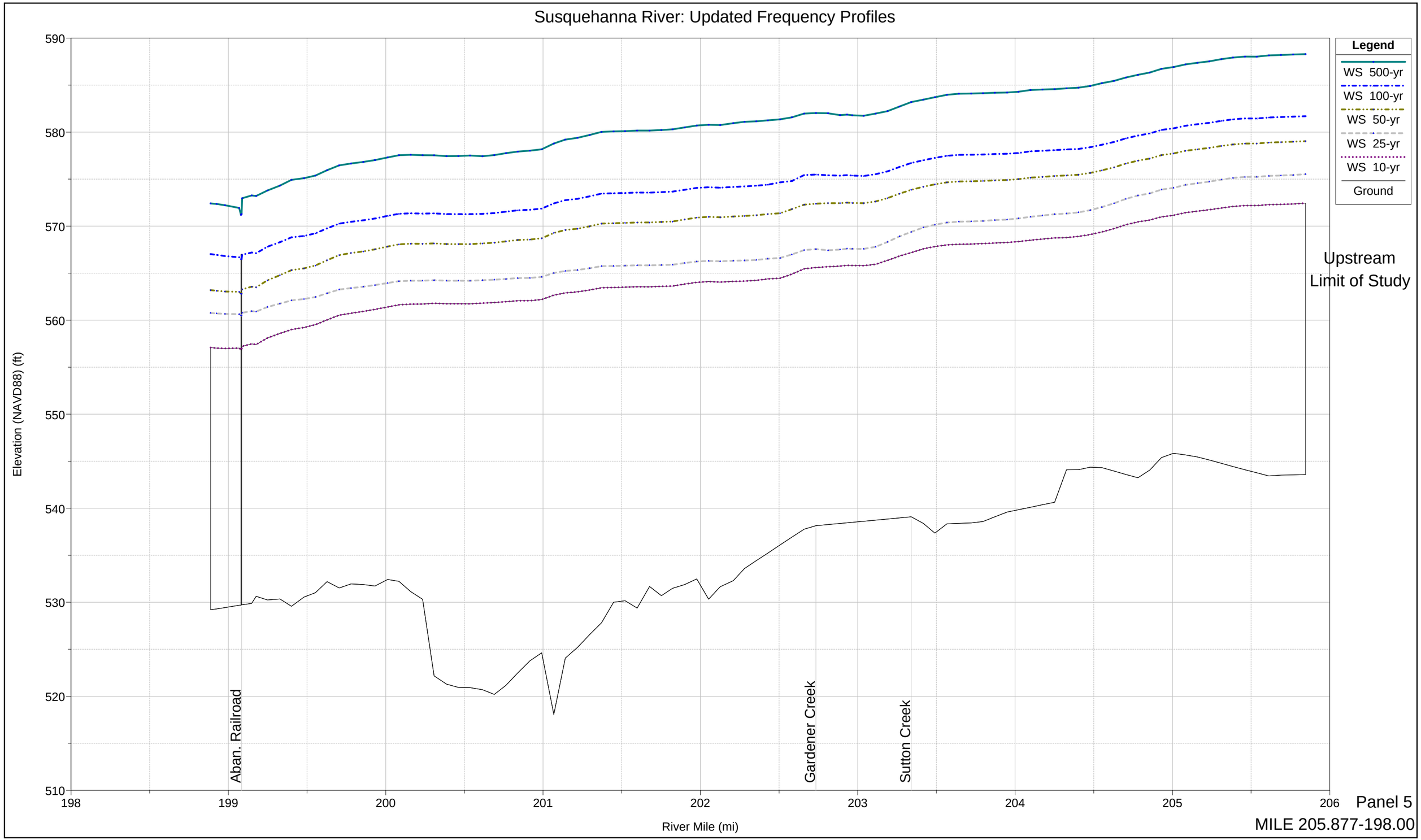

Susquehanna River: Tropical Storm Lee Profile
Legend
Lee Profile
Ground
Right Levee
High Water Mark
Upstream
Limit of Study
Exeter Levee
568.5
Aban. Railroad
Gardener Creek
Sutton Creek
Elevation (NAVD88) (ft)
River Mile (mi)
590
580
570
560
550
540
530
520
510
198
200
202
204
206
208
Panel 5
MILE 205.877-198.000


Susquehanna River: Updated Frequency Profiles
Elevation (NAVD88) (ft)
480
460
440
420
400
380
360
105
110
115
120
125
130
River Mile (mi)
Legend
WS 500-yr
WS 100-yr
WS 50-yr
WS 25-yr
WS 10-yr
Ground
Left Levee
Right Levee
Sunbury Levee
Downstream
Limit of Study
Railroad
Sealholtz Run
Sunbury New Gage
Shamokin Creek
PA Route 61
Railroad
Lithia Springs
Gravel Run
Kipps Run
Panel 1
MILE 134.18-104.91


Susquehanna River: Updated Frequency Profiles
Elevation (NAVD88) (ft)
River Mile (mi)
Legend
WS 500-yr
WS 100-yr
WS 50-yr
WS 25-yr
WS 10-yr
Ground
Left Levee
Right Levee
Danville Levee
Gravel Run
Kipps Run
Mahoning Creek
PA Route 54
Logan Run
Little Roaring
Roaring Creek
Catawissa Creek
Railroad
PA Route 487
Bloomsburg Gage
Tenmile Run
Market Street
Briar Creek
Nescopeck Creek
Wapwallopen Crk
Little Wapwallop
PA Route 239
Retreat Bridge
Hunlock Creek
Panel 2
Mile 178.247-134.18


Susquehanna River: Updated Frequency Profiles
Legend
WS 500-yr
WS 100-yr
WS 50-yr
WS 25-yr
WS 10-yr
Ground
Left Levee
Right Levee
Kingston Levee
Plymouth Levee
Wilkes-Barre Levee
Hunlock Creek
Harvey Creek
Newport Creek
Lower Broadway S
PA Route 29
Natikcoke Creek
Carey Bridge
Toby Creek
Elevation (NAVD88) (ft)
560
540
520
500
480
178
180
182
184
186
188
River Mile (mi)
Panel 3
MILE 187.822-178.247


Susquehanna River: Updated Frequency Profiles
Elevation (NAVD88) (ft)
River Mile (mi)
570
560
550
540
530
520
510
500
490
188
190
192
194
196
198
Wilkes-Barre Levee
Kingston Levee
Swoyersville Levee
Exeter Levee
Toby Creek
Railroad
Market St
Wilkes-Barre Ga...
North Market S...
Mill Creek
PA Route 309
Abrahms Creek
8th St.
Water St.
US Route11
Railroad
Legend
WS 500-yr
WS 100-yr
WS 50-yr
WS 25-yr
WS 10-yr
Ground
Left Levee
Right Levee
Panel 4
MILE 198.00-187.822


Susquehanna River: Updated Frequency Profiles
Legend
WS 500-yr
WS 100-yr
WS 50-yr
WS 25-yr
WS 10-yr
Ground
Upstream
Limit of Study
Aban. Railroad
Gardener Creek
Sutton Creek
Elevation (NAVD88) (ft)
River Mile (mi)
590
580
570
560
550
540
530
520
510
198
199
200
201
202
203
204
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Panel 5
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