

Comprehensive Stormwater Pollution Prevention Plan (C-SWPPP) For Construction Activities:

Project/Site Name:

Ibis Avenue

Project Address/Location:

Ibis Avenue at South Island Road (S-18)
Georgetown, SC 29440

Primary Permittee:

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C-SWPPP Preparation Date:

10/13/2020

Modification Dates:

Modification I: ___/___/___

Modification II: ___/___/___

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<i>*C-SWPPP is acronym for Comprehensive Storm Water Pollution Prevention Plan</i>	
<i>**OS-SWPPP is acronym for On-Site Storm Water Pollution Prevention Plan</i>	

1.1 Narrative (CGP Section 3.2.1)

Construction Activities and BMP Summary

The total disturbed acreage for Ibis Avenue is approximately 1.85 acres, and runoff from the site is distributed among three outfalls. The area contributing to each of the outfalls varies from 0.39 acres to 6.68 acres. Activities performed within the disturbed areas include the clearing of existing roadside embankments, grading of the proposed roadway sub-base and ditches, and the construction of a 2-two-lane, asphalt paved roadway to replace the existing residential dirt roadway.

Perimeter Control BMPs, in the form of silt fence, will be installed before clearing to prevent sediment from entering wetland areas. As sections of the roadside ditches are completed, sediment tubes as well as temporary erosion control blankets will be installed within the flow path of the ditches and serve as the primary sediment control BMP throughout the construction activities. HECP Type III will be used to promote vegetative growth. Riprap will be used to stabilize outfalls. Once final stabilization is reached, temporary BMPs will be removed. As this is a linear construction site, erosion and sediment control measures are not required to be implemented through phased plans.

Pre-Development Conditions

The existing project site consists of the existing road totaling approximately 2,300 ft of dirt roadway that is used by private residences. As shown on the Hydrologic Soil Group Map in Appendix A, the site is composed of Lakeland fine sand that is categorized as a Group A hydrologic soil. The site includes three crosslines but only two outfall locations. There are not any existing crossline pipes on Ibis Avenue. In existing conditions on the left side of Ibis Avenue the water flows through the roadside ditches to the two outfalls. One outfall is at the intersection of South Island Rd (S-18) where the water outfalls into the existing roadside ditch along South Island Road where it eventually outfalls into the unnamed tributary to Winyah Bay. The other outfall is at the end of Ibis Road where the road curves onto a private roadway and outfalls into the existing roadside ditch along the private roadway where it eventually outfalls into the unnamed Tributary to Winyah Bay. The first 500 feet of the right side of Ibis Avenue sheet flows off the roadway and eventually flows into the existing roadside ditch on South Island Road where it then flows into the unnamed Tributary to Winyah Bay. For the remainder of the right side of Ibis Avenue the stormwater sheet flows off the road and eventually evaporates, infiltrates the soil, or flows to the unnamed tributary to Winyah Bay. The flow paths, outlet locations, and drainage areas are shown in **Appendix A**.

Post-Development Conditions

After construction, the project site drainage conditions will not be significantly changed from the pre-development conditions. The previous area covered by the dirt roadway will be covered by an asphalt roadway. Due to the construction of new ditches on the right side of Ibis Avenue the site will include two new crosslines. The first new crossline will be located approximately 100 feet from the intersection with South Island Road (S-18) and will convey water from the north side of the road to the south side where it will flow into the existing outfall ditch along South Island Road. The second new crossline will be located at approximately station 32+29.73 near the end of Ibis Avenue where

the existing road curves out of the project area into a private roadway. This crossline will convey water from the north side of the road to the south side where it will outfall into the existing ditch along the private roadway and eventually flow to the unnamed tributary to Winyah Bay. The final outfall for post-construction conditions will be the first 100 feet on the right side of Ibis Avenue. This area will be reduced from existing conditions and will flow through the proposed ditch into the existing ditch along South Island road where it will eventually flow into the unnamed Tributary to Winyah Bay. The flow paths, outlet locations, and drainage areas are shown in **Appendix A**. The discharges from all watersheds except for Watershed 3 will be less than or equal to the discharges from pre-construction. The discharge from Watershed 3 slightly increases due to a slightly higher curve number because of the construction of the asphalt roadway. However, the slight increase in discharge will not have a negative impact on any downstream or adjacent properties. The discharges are shown below in **Table 1.1A** and the detention waiver is shown in **Appendix B**.

Table 1.1-A: Pre/Post Peak Discharges

Summary of Pre/Post Peak Discharges						
	Watershed #1		Watershed #2		Watershed #3 (6.68 AC)	
	Pre (0.76 AC)	Post (0.39 AC)	Pre (1.33 AC)	Post (1.70 AC)	Pre	Post
2-YR	0.073	0.025	0.006	0.001	0.075	0.177
10-YR	0.389	0.185	0.128	0.095	0.812	1.344
25-YR	0.689	0.351	0.369	0.247	1.874	2.718
100-YR	1.240	0.665	0.963	0.943	4.255	5.554

Flooding Issues

The site is not located within a flood zone, and there are no known flooding issues around the site. As shown on the Flood Insurance Rate Map provided in Appendix A, the site is located within a Zone X Flood area. As the intent of the proposed linear project is not to drastically alter the drainage conditions of the site, there are not any foreseeable flooding problems to the site or the surrounding area.

1.2 Stormwater Management and Sediment Control (CGP Section 3.2.2)

Erosion Prevention BMPs

As the existing site is cleared and graded erosion prevention BMPs shall be placed throughout the construction site to aid in the prevention of sediment-laden stormwater runoff. These BMPs shall be focused in areas with high potential of erosion, areas preceding infiltration practices, and shall be applied to all steep slopes.

Each erosion prevention measures have been selected on a site-specific basis and details have been provided on the construction site plans. The plans identify all proposed Erosion Prevention BMPs and the references for the recommended installation, maintenance, and inspection procedures.

Examples of Erosion Prevention BMPs are, but are not limited to, temporary seeding using HECP Type III, riprap, and outlet protection. Information on the design and proper use of Erosion Prevention BMPs can be located in the [SC DHEC's BMP Handbook](#).

Sediment Control BMPs

Sediment Control BMPs have been designed and selected to remove some of the sediment accumulated within stormwater runoff, to the best extent practicable. These BMPs help prevent sediment impacts to adjacent properties and water bodies from stormwater discharges originating from construction sites.

As the project is linear in nature, the BMPs such as sediment tubes, rip rap, and geotechnical filter fabric under rip rap are located throughout the site and are installed prior to clearing and grubbing of the site, when applicable, and after mass grading. In addition, to keep excess sediment out of jurisdictional wetlands silt fence will be added near the perimeter of the wetlands after the construction of roadside ditches. The construction plans identify all Sediment Control BMPs and identify references for the recommended installation, maintenance, and inspection procedures. Placement, sizing, and modifications of Sediment Control BMPs should be left to the SWPPP preparer and/or the Site Engineer.

Each sediment control BMP shall be selected on a site-specific basis. Examples of Sediment Control BMPs are, but are not limited to, sediment traps, sediment basins, silt fence, rock check dams, rock sediment dikes, sediment tubes, and inlet protection. Please consult [SC DHEC's BMP Handbook](#) for more information on Sediment Control BMPs.

Dust Control

During extremely dry conditions, drought, and/or excessive winds, the construction site should be treated for dust control to prevent the suspension of fine sediment particles into the air, being carried offsite, and deposited on adjacent properties or surface waters. This practice is not directly called out for on the construction site plans but shall be implemented when directed by the Site Engineer as required by the site conditions. A water tanker used to spray the soil down may be an effective way to prevent excessive dust at a construction site.

Water Quality BMPs During Construction

Site-specific water quality BMPs must be kept in functioning order throughout the lifespan of all construction activities. Each of these BMPs must be maintained and inspected until all areas draining to these BMPs have reached final stabilization, approved by the construction site inspector or the SWPPP Preparer, and recorded within the stabilization log located as an appendix of the On-site SWPPP.

Post-Construction Water Quality

Upon final stabilization, the construction site will be transitioned from the temporary BMPs to the permanent BMPs which include, but may not be limited to, establishing permanent vegetation within the roadside ditches. These water quality controls must be installed and stabilized prior to terminating coverage under the CGP. The project improvements, in general, will contribute to the improvement of the water quality. The existing roadway is permanently disturbed and must be maintained by grading and leveling of its existing gravel and earth surface. The proposed side slopes

will reduce the potential for erosion and paving will permanently stabilize the road by providing a non-erosive wearing surface.

Other Stormwater Management Procedures

Based on the nature, conditions, and/or procedures associated with this construction site, the following items must be followed and adopted by all those conducting land disturbing activities at this site:

- All construction debris must be stockpiled in designated areas, which have been provided with the proper BMPs to prevent the discharge of pollutants through stormwater runoff from building or other similar materials off-site or into surface waters.
- Any additional waste material or stockpile material (i.e., soil and mulch) must also be stored in the designated areas that the contractor, responsible for day-to-day activities at this site, deems appropriate. Silt fence or an approved equal shall surround all stockpiled materials.
- All parties conducting work at this construction site must be informed of and make note of pollutant sources, both industrial and construction, at this site, and be informed of all controls and measures that will be implemented to prevent the discharge of these pollutants in stormwater runoff.
- Any additional non-stormwater discharges, as referenced in the CGP, should be eliminated or reduced to the maximum extent feasible. All unpreventable non-stormwater discharges shall be treated through the approved stormwater management system before release off-site. Following is a list of allowable non-stormwater discharges:
 - Fire hydrant flushing
 - Wash water without detergents
 - Water used for dust control
 - Potable water
 - Building wash down water without detergents
 - Uncontaminated pavement wash water
 - Uncontaminated condensation from mechanical equipment
 - Uncontaminated ground or spring water
 - Water from foundation of footing drains
 - Uncontaminated excavation dewatering
 - Landscape irrigation.

1.3 *Sequence of Construction*

Construction Sequence

- Receive NPDES coverage from DHEC
- Pre-construction meeting
- Notify DHEC EQC Regional office or OCRM office 48 hours prior to beginning land-disturbing activities
- Clearing & grubbing only as necessary for installation of perimeter controls
- Installation of perimeter controls (e.g., silt fence)
- Clearing & grubbing of site
- Mass grading and installation of sediment BMPs
- Permanent stabilization
- File Notice of Termination with DHEC

1.4 Non-Numeric Effluent Limits

Stormwater Volume and Velocity Control

During the implementation of construction activities, all parties performing work at this construction site whose work may affect the implementation of the SWPPP must be informed of and directed on how to comply with this Non-Numeric Effluent Limit, which requires the management of stormwater runoff within the construction site and at each outfall. The purpose of this requirement is to control the stormwater volume and velocity at these locations to minimize erosion.

Specifically, each responsible party should be made aware of the practices that have been or should be implemented at the construction site to accomplish these particular stormwater management practices. Below is a list of practices that may be utilized within the disturbed area and at each outfall at construction sites to control stormwater volume and velocity:

Volume Control

- Limiting the amount of disturbed area and exposed soils
- Staging and/or Phasing of the Construction Sequence;
- Sediment Basins and Sediment Traps
- Diverting off-site flow around the construction site;
- Controlling the Drainage Patterns within the Construction Site;
- Temporary Stabilization of Disturbed Areas.

Velocity Control

- Surface Roughening and/or other Slope Stabilization Practices;
- Level Spreaders, Riprap Plunge Pools and/or other Velocity Dissipation BMPS located at the Construction Site's and Sediment Basin Outfalls.
- Use of Rock Checks, Sediment Tubes, Etc. in Temporary Diversion Swales and Ditches.
- Use of Erosion Control Blankets, Turf Reinforcement Mats, and other Non-Vegetative BMPs that can be used to Quickly Stabilize Disturbed Areas.

The SWPPP Preparer/Engineer should approve any modifications (Additional BMPs or Changes to Existing BMPs) to address the management of stormwater volume and velocity prior to implementation. All approved SWPPPs that were issued coverage under the CGP should include ample BMPs and other control measures to address this specific Non-Numeric Effluent Limit.

Soil Exposure, Compaction and Preservation

Throughout construction activities, the amount of soil exposed during construction should be kept to a minimum. This may be accomplished by minimizing the amount the disturbed area within the permitted Limits of Disturbance (shown on the approved construction site plans) to only that which is necessary to complete the proposed work. For areas that have already been disturbed and where construction activities will not begin for a period of 14 days or more, temporary stabilization techniques must be implemented.

Prior to implementation of any major grading activities, topsoil is to be preserved by placing it in areas designated for stockpiling until final grades are reached. Each stockpile must be equipped with proper sediment and erosion controls to preserve the topsoil and protect adjacent areas from impacts. Once final grades have been reached, the preserved topsoil should be utilized to apply to areas

identified for stabilization. Topsoil contains nutrients and organisms that aid in the growth of vegetation.

The Compaction of Soil should also be minimized to the degree practicable during grading activities. This is especially important during the replacement of topsoil to aid in a quick establishment of vegetative cover. Compaction of soil may also reduce rainfall's ability to infiltrate into the soil, increasing the amount of stormwater runoff.

Soil Stabilization

Throughout construction activities, soil stabilization techniques are to be initiated as soon as practicable whenever any clearing, grading, excavating, or other land-disturbing activities have permanently or temporarily ceased on any portion of the construction site and will not resume for a period exceeding 14 calendar days. For areas where initiating stabilization measures is infeasible (e.g. where snow cover, frozen ground, or drought conditions preclude stabilization), initiate vegetative or non-vegetative stabilization measures as soon as practicable.

Steep Slopes (Slopes of 30% grade or greater)

All disturbed steep slopes (30% grade, ~3H:1V, or greater), and steep slopes to be created through grading activities must be managed in a fashion that limits the potential of erosion along the slopes. All parties whose work is/was responsible for the creation/disturbance of steep slopes must comply with the following items:

- Minimize the Disturbance of all steep slopes, when possible.
- Divert Concentrated or Channelized Flows of stormwater away from and around steep slope disturbances.
- Use Specialized BMP Controls including temporary and permanent seeding with soil binders, erosion control blankets, surface roughening, reducing continuous slope length with terracing or diversions, gradient terraces, interceptor dikes and swales, grass-lined channels, pipe slope drains, subsurface drains, level spreaders, check dams, seep berms, and triangular silt dikes to minimize erosion.
- Initiate Stabilization Measures as soon as practicable on any disturbed steep slope areas where construction activities have permanently or temporarily ceased, and will not resume for a period exceeding 7 calendar days.
- A Vegetative and/or Non-Vegetative Cover must be established within 3 working days from the time that stabilization measures were initiated.

Stabilization of steep slopes should be a priority for those performing work at the construction site. At the very least, runoff control BMPs should be implemented to transport stormwater runoff from the top of the slope to the toe of the slope. An example of this is to install diversion swales along the top of slope and direct the runoff towards pipe slopes drains to transports the runoff to the toe of the slope. All pipe slope drain outlets are to be equipped proper outlet protection.

Sediment Discharge Minimization

Permittees, Contractors, and all other parties responsible for conducting land-disturbing activities are required to install and maintain all erosion and sediment BMPs that are identified on the approved construction site plans. These BMPs have been designed and approved to address such factors as the amount, frequency, intensity and duration of precipitation, the nature of resulting stormwater runoff, and soil characteristics, including the range of soils particle sizes expected to be present on the construction site. Proper installation, inspection, and maintenance will allow these BMPs to operate

at maximum efficiencies in order to minimize sediment discharges to the maximum extent practical.

Pollutant Discharge Minimization

Permittees, Contractors, and all other parties responsible for conducting land-disturbing activities are required to install, implement, and maintain effective pollution prevention measures to minimize the discharge of pollutants. At a minimum, the following items must be implemented:

- Minimize the discharge of pollutants from dewatering trenches and excavations by managing runoff with the appropriate controls. Otherwise these discharges are prohibited;
- Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;
- Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials present on the site to precipitation and to stormwater; and
- Minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures.

Prohibited Discharges

Permittees, Contractors, and all other responsible parties for conducting land-disturbing activities are prohibited to discharge, from the construction site, the following items:

- Wastewater from washout of concrete, unless managed by an appropriate control;
- Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
- Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance; and
- Soaps or solvents used in vehicle and equipment washing.

1.5 Buffer Zone Management

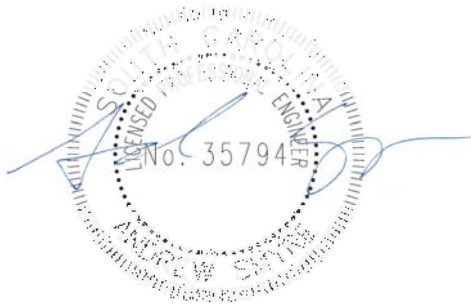
Per Section 3.2.4.C of the CGP, a buffer zone is required to be provided along the surface waters leading to the surrounding wetlands; however, an undisturbed buffer zone is not capable of being provided due to pre-existing development that has disturbed the majority of the required buffer zone area. For this reason Compliance Option C was selected for this project.

Compliance Option C was selected since the pre-existing development has stripped the buffer zone area from natural strands of vegetation. The pre-existing state of the project area was dirt roads with grassed ditches that extended to within a few feet of the surface waters. For this reason, a buffer zone will not be provided as allowed through Compliance Option C listed in Section 3.2.4.C of the CGP.

In order to maintain the required erosion prevention and sediment control, BMPs such as sediment tubes and erosion control blankets will be installed in ditches, and silt fence will be installed along the perimeter of the affected wetlands. These BMPs are to be inspected at least once every 7 calendar days as well as after any storm event with greater than 0.5 inches of precipitation during any 24-hour period. All related calculations and drawings are located in the Appendices.

1.6 Certification Statement

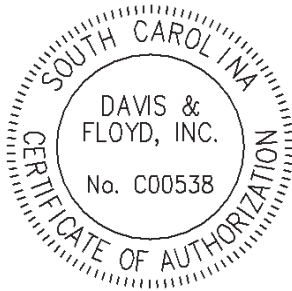
"I have placed my signature and seal on the design documents submitted signifying that I accept responsibility for the design of the system. Further, I certify to the best of my knowledge and belief that the design is consistent with the requirements of Title 48, Chapter 14 of the Code of Laws of SC, 1976 as amended, pursuant to Regulation 72-300 et seq. (if applicable), and in accordance with the terms and conditions of SCR100000."



Name Andrew Smyre

Title Transportation Engineer, P.E.

Date 10/13/2020



Section 2

SITE FEATURES AND SENSITIVE AREAS

2.1 Sources of Pollution

Throughout construction activities, each permittee, contractor, and person responsible for conducting work will need to ensure that sources of pollution are managed to prevent their discharge from the construction site. Expected pollution sources during construction have been identified in Table 2.1-A, but due to the nature of construction activities, it is often tough to predict all pollution sources that may appear throughout the life of a construction project. For that reason, the following table has also been provided to help all those performing work at this construction site identify possible sources of pollution

Stormwater runoff subjected to the identified pollution sources must be treated by the appropriate BMPs as directed by this SWPPP.

In the event that any additional sources of pollution are identified during construction, the person(s) with day-to-day operational control at the site is to add the new source(s) to Table 2.1-A and consult with the SWPPP Preparer to properly address this source and to prevent the discharge of its pollutant through stormwater runoff.

Table 2.1-A: Potential Sources of Pollution

Source	Material or Chemical	Location*	Appropriate Control Measures
Loose soil exposed/disturbed during clearing, grubbing and grading activities	Sediment	All areas within the Limits of Disturbance	As directed by the construction Plans. This includes Silt Fence, sediment tubes, sediment basins, and sediment traps.
Areas where construction equipment are cleaned, a.k.a. concrete washout	Heavy Metals & pH	Located adjacent to each construction entrance	Concrete Washout Basin
Water encountered during trenching	Nutrients & Sediment	In and around any trenching activities.	Direct water into impoundments such as basins or traps to allow for the sedimentation of the listed pollutants.
Paving Operations	Sediment & Trash	All areas to be paved.	As directed by the construction Plans. This includes Silt Fence, sediment tubes, sediment basins, and sediment traps.
Material Delivery and Storage Areas	Nutrients, pH, Sediment, Heavy Metals, oils & grease	All areas used as storage areas	Silt fence and/or sediment dikes
Equipment fueling and maintenance areas	Metals, hydrocarbons, oils and greases	Areas surrounding fuel tanks	Provide secondary containments, locate in upland areas. Repair leaking and broken hoses.
Paints	Metal oxides, stoddard solvent, talc, calcium-carbonate, arsenic	Throughout site, primarily in areas of building construction	Washwater should be contained and is prohibited from being discharged

*Area where material/chemical is used on site.

2.2 Surface Waters

Stormwater runoff from the site follows existing drainage patterns and has three outfall points where runoff is discharged from the site as shown on the Drainage Maps in Appendix A. The construction of roadside ditches along the right side of Ibis Avenue as well as two proposed crossline pipes slightly change the drainage patterns within the project area. However, all three of the outfalls still eventually flow into the unnamed tributary to Winyah Bay after leaving the project area, and the slight changes in drainage patterns and discharges will not have any negative impacts on downstream or adjacent properties.

2.3 Impairments and TMDLs

Some Waters of the State (WoS) have been identified as not meeting the State's water quality standards for recreational swimming, fish consumption, aquatic life use, and/or shellfish harvesting for one or more pollutants even after controls for point and nonpoint source pollution have been put in place. These waterbodies have been classified as "impaired." Once these waterbodies have been identified they are listed on the State's 303(d) List of Impaired Waterbodies. South Carolina lists impairments as "stations" where samples were taken along a waterbody.

The most recently-approved 303(d) list can be found at the following web address:

https://scdhec.gov/sites/default/files/media/document/PN_IR_Part_I_2018.pdf

After a pre-determined period of time, DHEC is obliged to develop a Total Maximum Daily Load (TMDL) for the pollutant of concern for each impaired station listed on the 303(d) List. A TMDL is the amount of a single pollutant (such as bacteria, nutrients, metals) that can enter a waterbody on daily basis and that waterbody still meet water quality standards. "TMDL" refers to both a calculation of a pollutant entering a waterbody as well as the document containing this calculation along with source assessments, watershed and land use information, reductions and allocations information, implementation and other relevant information, maps, figures, and pictures.

Once a TMDL has been developed and approved by the EPA, the impaired WoS is removed from the 303(d) list. A separate list is maintained for WoS with approved TMDLs.

Any construction site whose discharges are released into a WoS listed on the 303(d) List or for which an EPA-approved TMDL has been developed must address the specific pollutant set forth in the TMDL and/or potential pollutants for the impairment. The SWPPP must include a description of BMPs to address these pollutants.

The primary permittee and/or contractor must ensure that the construction site discharges remain in compliance with the State's water quality standards. To do so, these parties will have to ensure the function of all approved BMPs to handle the specific pollutant.

Construction Stormwater Discharges are expected to contain pollutants that contribute and/or can cause the following impairments to receiving water bodies: BIO (Macroinvertebrate Community), Turbidity, TP (Total Phosphorus), TN (Total Nitrogen), CHLA (Chlorophyll-a), and Fecal Coliform in waters classified for Shellfish Harvesting in the coastal zone. The presence of any of these impairments in receiving waters will require approval control of the site's construction stormwater

discharges. Information on each of these impairments and how to treat stormwater runoff for these impairments has been provided below.

Impairments Effected by Construction Site Discharges and Methods to Control Potential Pollutants Causing or Contributing to the Impairments

1. BIO (Macroinvertebrate Community): A balanced and varied group of Macroinvertebrate organisms is an indicator of a healthy stream that supports aquatic life. A balanced community can be defined as a natural, diverse group of organisms (including Macroinvertebrate) characterized by the ability to sustain itself through season changes, presence of food chain species and a lack of domination by pollutant tolerant or invasive species. If these conditions do not exist, then the site may be considered impaired due to the presence of an undesirable or non-existent Macroinvertebrate community. Sediment from construction sites may further threaten the propagation of these organisms.

Address by: Examples include limiting the amount of disturbed area, designing sediment control BMPs to remove the maximum amount of sediment possible, immediate stabilization of disturbed areas, and other practices may be utilized to control the discharge of sediment from construction sites.

2. Turbidity: Turbidity can be generally defined as the “cloudiness” of a waterbody and may be caused by the growth of aquatic phytoplankton and the presence of suspended solids in the water column. In SC, a water quality standard for turbidity is applicable to all waters of the State (see R. 61-68 D. 11. for numeric targets by waterbody classification). Turbidity levels that exceed the water quality standard may reduce light penetration, thereby inhibiting aquatic flora growth, and may reduce the ability of fauna, such as fish, to absorb oxygen across their gills.

Address by: Examples include limiting the amount of disturbed area, designing sediment control BMPs to remove the maximum amount of sediment possible, immediate stabilization of disturbed areas, and other practices may be utilized to control the discharge of sediment from construction sites.

3. TP (Total Phosphorus): Similar to total nitrogen, TP is an essential nutrient for the propagation of aquatic life. In SC, a water quality standard for TP is applicable to lakes greater than 40 acres (see R. 61-68 D. 11. for numeric and narrative targets). At acceptable levels, TP is assimilated by aquatic flora ensures the propagation of an overall balanced, indigenous aquatic community. TP levels that exceed the water quality standard are considered impaired and may cause negative impacts to the overall health of the aquatic community by promoting excessive algal growth in lakes. Phosphorous may enter a site’s stormwater when excess amounts of the nutrient are applied to the site during temporary or final stabilization.

Address by: To prevent this soil should be tested to determine the quantity of the nutrient present in the soil and the correct amount that needs to be added so that it is absorbed by the vegetation.

4. TN (Total Nitrogen): Similar to total phosphorus, TN is an essential nutrient for the propagation of aquatic life. In SC, a water quality standard for TN is applicable to lakes greater than 40 acres (see R. 61-68 D. 11. for numeric and narrative targets). At acceptable levels, TN is assimilated by aquatic flora and ensures the propagation of an overall balanced, indigenous aquatic community. TN levels that exceed the water quality standard are considered impaired and may cause negative impacts to the overall health of the aquatic community by promoting excessive algal growth in lakes. Nitrogen may enter a site's stormwater when excess amounts of the nutrient are applied to the site during temporary or final stabilization

Address by: Examples include that the soil should be tested to determine the quantity of the nutrient present in the soil and the correct amount that needs to be added so that it is absorbed by the vegetation.

5. Chlorophyll-a (CHLA): CHLA is a pigment present in the cells of photosynthetic flora and some algal species. The presence of CHLA in an aquatic environment is a water quality indicator of the overall productivity in the aquatic system. CHLA is linked to the levels of TP, TN and light penetration in the water column. In SC, a water quality standard for CHLA is applicable to lakes greater than 40 acres (see R. 61-68 D. 11. for numeric and narrative targets). CHLA levels that exceed the water quality standard may suggest that other undesirable water quality impacts are present as the aquatic system may be too productive to support the propagation of an overall balanced, indigenous aquatic community. Excess nutrients may discharge from a construction site during temporary and final stabilization. Limiting the amount of phosphorus and nitrogen applied while establishing vegetation will prevent excessive levels of CHLA in receiving waters.

Address by: Examples include that the soil should be tested to determine the quantity of the nutrients present in the soil and the correct amount that needs to be added so that it is absorbed by the vegetation.

6. Fecal Coliform (FC) in Shellfish Harvesting waters: Fecal Coliform is an indicator bacteria for other pathogens which may be present in a waterbody. Shellfish Harvesting Waters are tidal salt waters protected for shellfish harvesting and must be protected to a higher standard than other waters because of the risk to human health posed by ingesting shellfish from areas with high levels of bacteria. Bacteria levels increase following rain events. Potential sources of bacteria on construction sites include improperly located porta-johns and litter that may attract rodents and other animals.

Address by: Porta-johns should be placed away from WoS and not placed on catch basins and other drainage structures. Litter and construction debris should be placed in identified areas and emptied on a routine basis.

Impairment Sources and Prevention

Construction sites can contribute to these impairments directly through the release of excess soil and/or nutrients within stormwater runoff. For this reason, proper sediment and erosion control BMPs should be implemented and the design of the stormwater management systems, during both construction and post-construction, should address the control of stormwater runoff. A reduction in the volume released or the rate at which this volume is released can significantly improve the quality

of stormwater runoff and limit the amount of the pollutants that contribute to the above listed impairments.

As an example, sediment basins and/or traps should be used during construction to allow for sedimentation of soils/nutrients, and to control the release of stormwater into the impaired water body. Vegetated Detention and Infiltration structures should be implemented as post-construction BMPs to control stormwater volumes. Caution is advised when using fertilizers to reach Final Stabilization; excess fertilizer can contribute to each of the above listed impairments.

Site-Specific Requirements

This construction site's discharges drain into an unnamed tributary to Winyah Bay does not have any impairments, and therefore, stormwater discharges from this site do not have a reasonable potential to contribute to any impairments. Proposed BMP's such as silt fences, sediment tubes, HECF Type III, vegetation, and rip rap will ensure the site's discharges will not cause WQS violations. Due to the possibility of pollutants in construction stormwater discharges from this site that may contribute to any of the above impairments, the following must be conducted throughout the lifespan of all land-disturbing activities at this site:

- Biweekly inspections of all the primary sediment control BMPs;
- Employee training/acknowledgement during the Pre-Construction Meeting;
- Installation of additional BMPs to meet the water quality standards (as directed by the SWPPP preparer and as approved by the regulating agency)

Section 3 Compliance Requirements

3.1 SWPPP Availability

Section 3.1.6 of the CGP requires that a copy of the On-Site SWPPP (OS-SWPPP) must be retained at a location where the OS-SWPPP can be easily accessed during normal business hours from the date of commencement to the date that final stabilization is reached. As this project is linear in nature and it is not practical to have the OS-SWPPP on location of the construction site, the OS-SWPPP will be retained off-site by the Permittee or Operator. Notice of the plan's location and any updated contact information must be posted near the main entrance of the construction site.

The Permittee or Operator, upon request, must make the OS-SWPPP available by the end of normal business hours or by the following day under extenuating circumstances. The OS-SWPPP must be made available upon request and at the time of the construction site inspection by the EPA, SCDHEC, a tribal or an entity delegated under Regulation 72-300, and local government officials.

3.2 Pre-Construction Conferences

Section 4.1 of the CGP requires that a pre-construction conference be held to review and explain the requirements of the On-Site SWPPP (OS-SWPPP) before performing any land disturbing activities. The conference may be held either on-site or off-site. Details of how to address and process

modifications of the OS-SWPPP, both major and minor, to maintain compliance under the General Construction Permit shall be covered during the conference.

The Permittee shall be responsible for conducting the pre-construction conference(s) and documenting the attendance. This documentation must remain with the OS-SWPPP. All contractors, subcontractors, blanket utility providers, etcetera performing work at the site shall attend the conference(s).

3.3 Inspection Requirements

Section 4.2 of the CGP requires that inspections be conducted on a routine basis of all areas disturbed by construction activity. These areas include perimeter BMPs and material storage areas exposed to precipitation. The purpose of the inspections is to look for evidence of, or potential for, inefficiencies within the On-Site SWPPP (OS-SWPPP), whether they are a direct result of improper design, installation, or maintenance. At a minimum, the inspections shall include the following:

- All areas of the site disturbed by construction activity and areas used for storage of materials that are exposed to precipitation;
- All stormwater conveyance systems for any evidence of, or the potential for, pollutants entering these systems;
- All BMPs identified in the OS-SWPPP;
- All discharge locations to ascertain whether the implemented BMPs are effective in preventing the discharge of sediment from the site. Where discharge locations are inaccessible, nearby downstream locations must be inspected to the extent that such inspections are practicable; and
- Locations where vehicles enter or exit the site must be inspected for evidence of off-site sediment tracking.

The Permittee shall provide qualified personnel and be responsible for inspections of the construction activity and performance of the BMPs.

Frequency

The frequency of the inspections shall be at least once every calendar week after the date of commencement until the date that final stabilization is reached. The frequency may be increased based on the frequency of storm events of 0.5 inches or greater and under the direction of SCDHEC. The frequency of inspections may be reduced to at least once every month for areas that have reached and maintain temporary or final stabilization with no additional disturbance. If a definable area reaches final stabilization, this may be marked on the inspection reports of the OS-SWPPP, and no further inspections of the area will be required.

Rainfall Data

Rainfall data for the days of inspection and rainfall events 0.5 inches or greater must be maintained in the OS-SWPPP. The Permittee may maintain an on-site rain gauge or use data from a certified weather record within a reasonable proximity of the construction site to record the rainfall amounts.

Inspector Qualifications

“Qualified personnel” means a person knowledgeable in the principles and practice of erosion and sediment controls who possesses the skills to assess conditions at the construction site that could impact Stormwater quality and to assess the effectiveness of any BMPs selected to control the quality of Stormwater discharges from the construction site. This person must be either the preparer of the C-SWPPP or an individual who is under the direct supervision of the preparer of the approved C-SWPPP and who meets the requirements in this paragraph or an individual who has been certified through a Construction Site Inspector Certification Course that has been approved by DHEC. Inspections may also be conducted by a person with a registration equivalent to the registration of the preparer of the C-SWPPP and who meets the qualifications of this paragraph or an individual who is under the direct supervision of the person with an equivalent registration and who meets the requirements in this paragraph.

Inspection Reports

For each inspection required above, the Permittee, or designated personnel, must complete an inspection report. At a minimum, the inspection report must include:

- The inspection date;
- Names, titles, and, if not previously given in an inspection report, the qualifications of personnel making the inspection, unless those qualifications change;
- Weather information for the period since the last inspection (or since commencement of construction activity if the first inspection) including a best estimate of the beginning of each storm event, duration of each storm event, approximate amount of rainfall for each storm event (in inches), and whether you know if any discharges occurred. At the very least, the total rainfall (in inches) since the time of the last inspection must be recorded;
- Weather information and a description of any discharges occurring at the time of the inspection;
- Location(s) of discharges of sediment or other pollutants from the Site;
- Location(s) of BMPs that need maintenance;
- Location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location;
- Location(s) where additional BMPs are needed that did not exist at the time of inspection;
- Corrective action required including any changes to the OS-SWPPP necessary and implementation dates;
- Site Name, Operator Name and permit number; and.
- Verification that all BMPs and stormwater controls identified in the OS-SWPPP have been installed and are operating as designed.

A record of each inspection and of any actions taken in accordance with the Permit must be retained as part of the OS-SWPPP for at least three years from the date that permit coverage expires or is terminated and must be signed by the qualified inspector(s).

3.4 Maintenance Agreement and Requirements

Construction Maintenance

While conducting construction activities, the BMPs and other protective measures identified on the plans and in the On-Site SWPPP (OS-SWPPP) must remain in effective operating condition. If inspections find BMPs that are not operating effectively, maintenance must be performed before the next scheduled inspection or as reasonably possible and before the next storm event whenever practicable.

If inspections reveal that a BMP has been used inappropriately or incorrectly, the Permittee must address the necessary replacement or modification required to correct the issue within 48 hours of identification of the issue. If existing BMPs need to be modified or additional BMPs are necessary to comply with the requirements of the General Construction Permit, the implementation must be before the next storm event whenever practicable. If implementation before the next storm event is impracticable, the situation must be documented in the inspection report in the OS-SWPPP, and alternatives implemented as soon as reasonably possible.

Sediment collected by Silt Fence and other sediment control measures must be removed once the deposited sediment reaches 1/3 of the height of the above-ground portion of the BMP or lower height as specified by the manufacturer.

3.5 Record Keeping

In addition to and in accordance with Section 3.1.1.H.V. of the CGP, the On-Site SWPPP (OS-SWPPP) must contain appendices with the following documents:

- SC DHEC Construction General Permit. Provisions may be made for the copy of general permit to be accessed electronically as long as a hard copy can be made available by the end of the working day when required.
- Stamped and Approved Notice of Intent
- NPDES Coverage Approval Letter
- CZC Certification
- SCDHEC 401 Certification
- USACOE Approvals

Any and all logs as deemed necessary to comply with the Permit which includes, but is not limited to, pre-construction attendance, inspections reports, and rainfall data.

3.6 Final Stabilization

As the final roadway base, shoulder, and ditch grades are established, the site will be transitioned to final stabilization. The roadway and driveways within the site will be stabilized by the application of asphalt over the base course. The shoulders and ditches will be stabilized through the use of HECF Type III, riprap at locations detailed in the construction plan set and permanent seeding. Once the

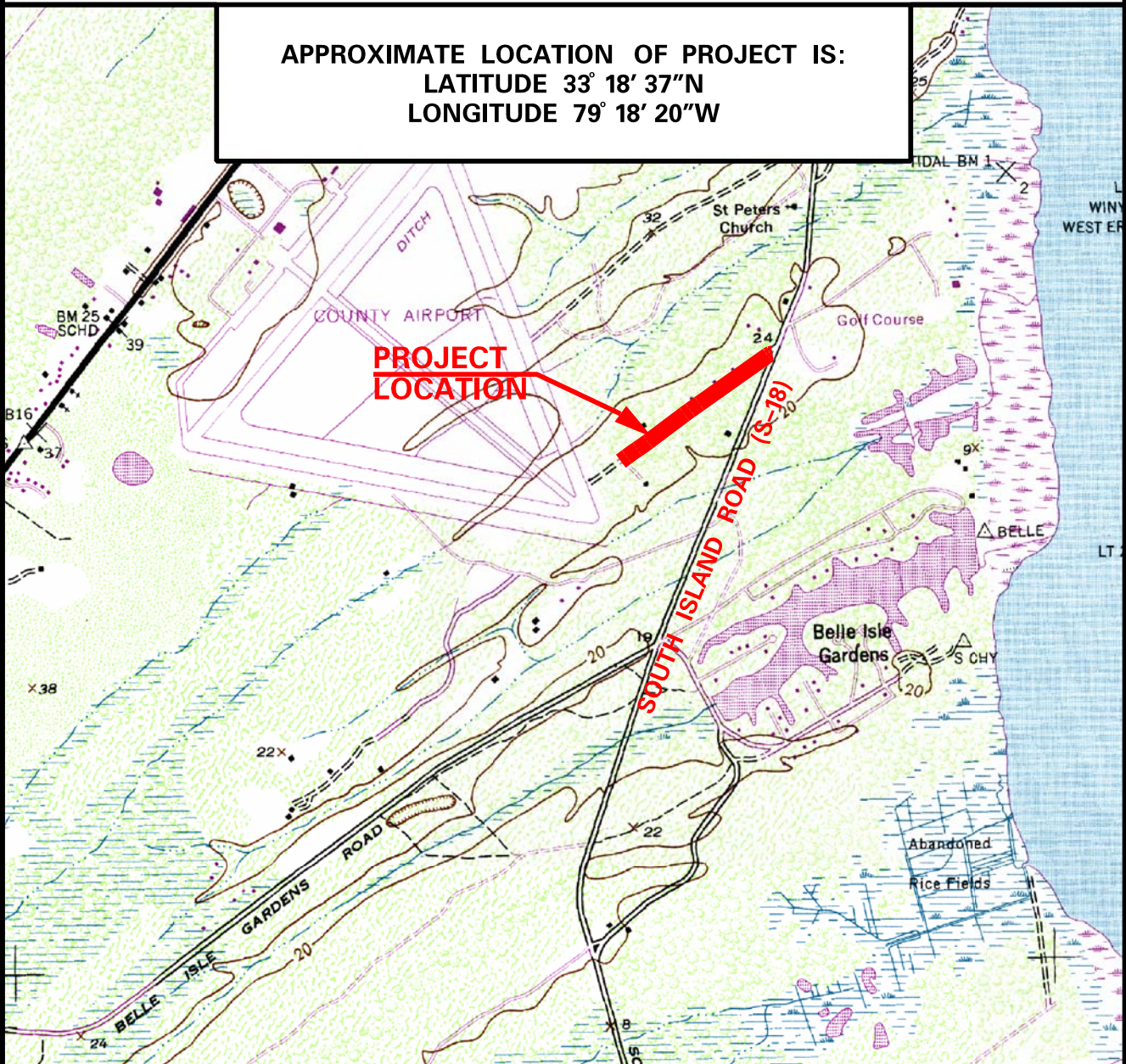
temporary BMPs have been removed and final stabilization has been reached on all disturbed areas, the Notice of Termination shall be submitted.

- Location Map
- Drainage Maps
- Hydrologic Soil Group Map
- FIRM

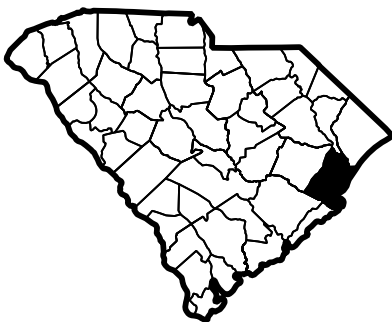
LOCATION MAP

FROM: USGS QUAD MAP GEORGETOWN SOUTH (1968)

APPROXIMATE LOCATION OF PROJECT IS:
LATITUDE 33° 18' 37"N
LONGITUDE 79° 18' 20"W



SHADED AREA INDICATES
COUNTY LOCATION IN SC



0 2000
SCALE  FEET

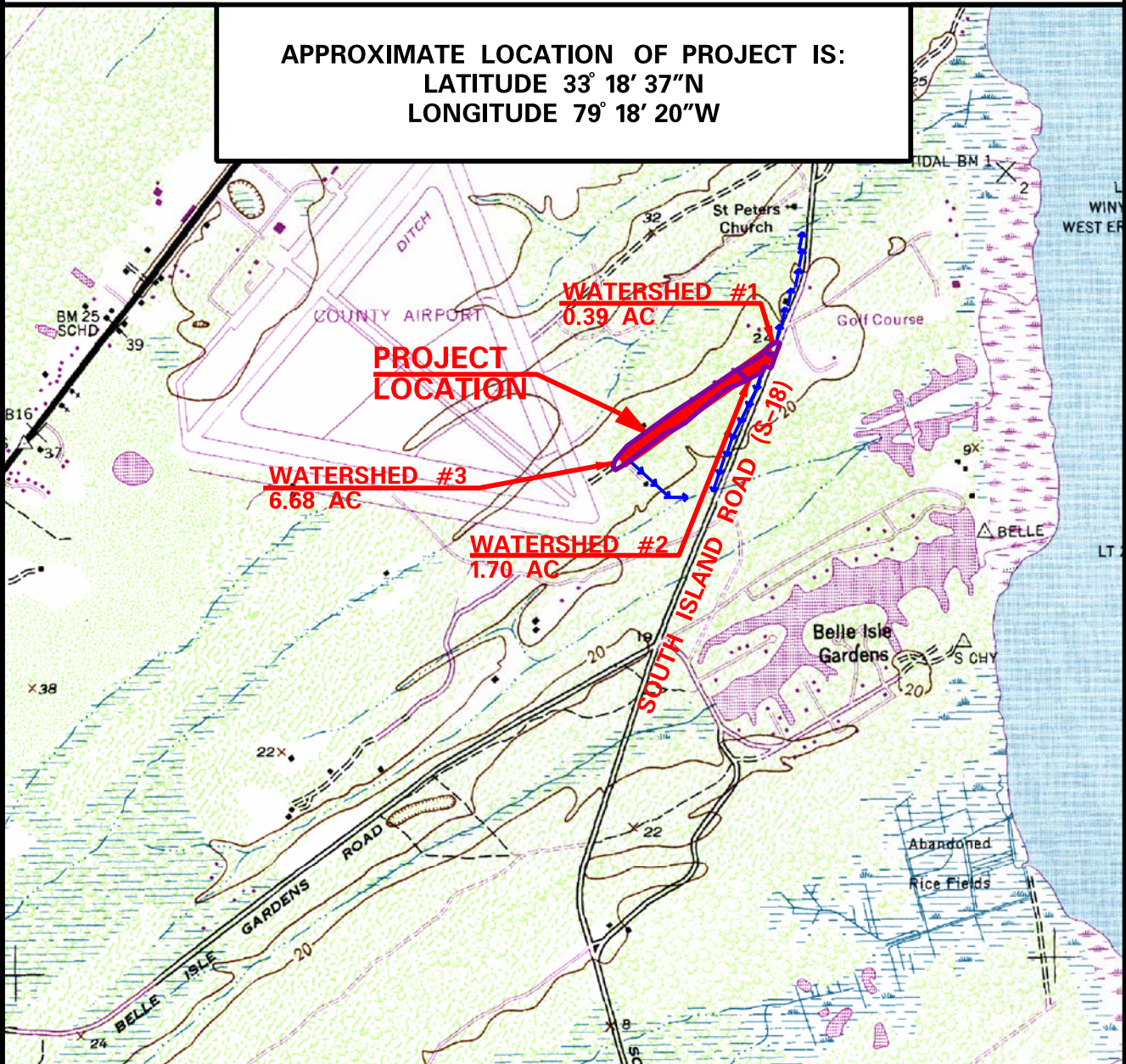


LOCATION MAP
IBIS AVENUE
GEORGETOWN COUNTY, SC
APPLICATION BY GEORGETOWN COUNTY
OCTOBER 2020

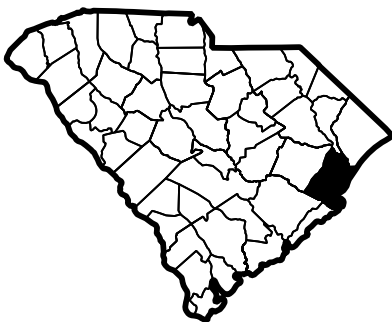
DRAINAGE MAP

POST-CONSTRUCTION
FROM: USGS QUAD MAP GEORGETOWN SOUTH (1968)

APPROXIMATE LOCATION OF PROJECT IS:
LATITUDE 33° 18' 37"N
LONGITUDE 79° 18' 20"W



SHADED AREA INDICATES
COUNTY LOCATION IN SC



0 2000
SCALE  FEET



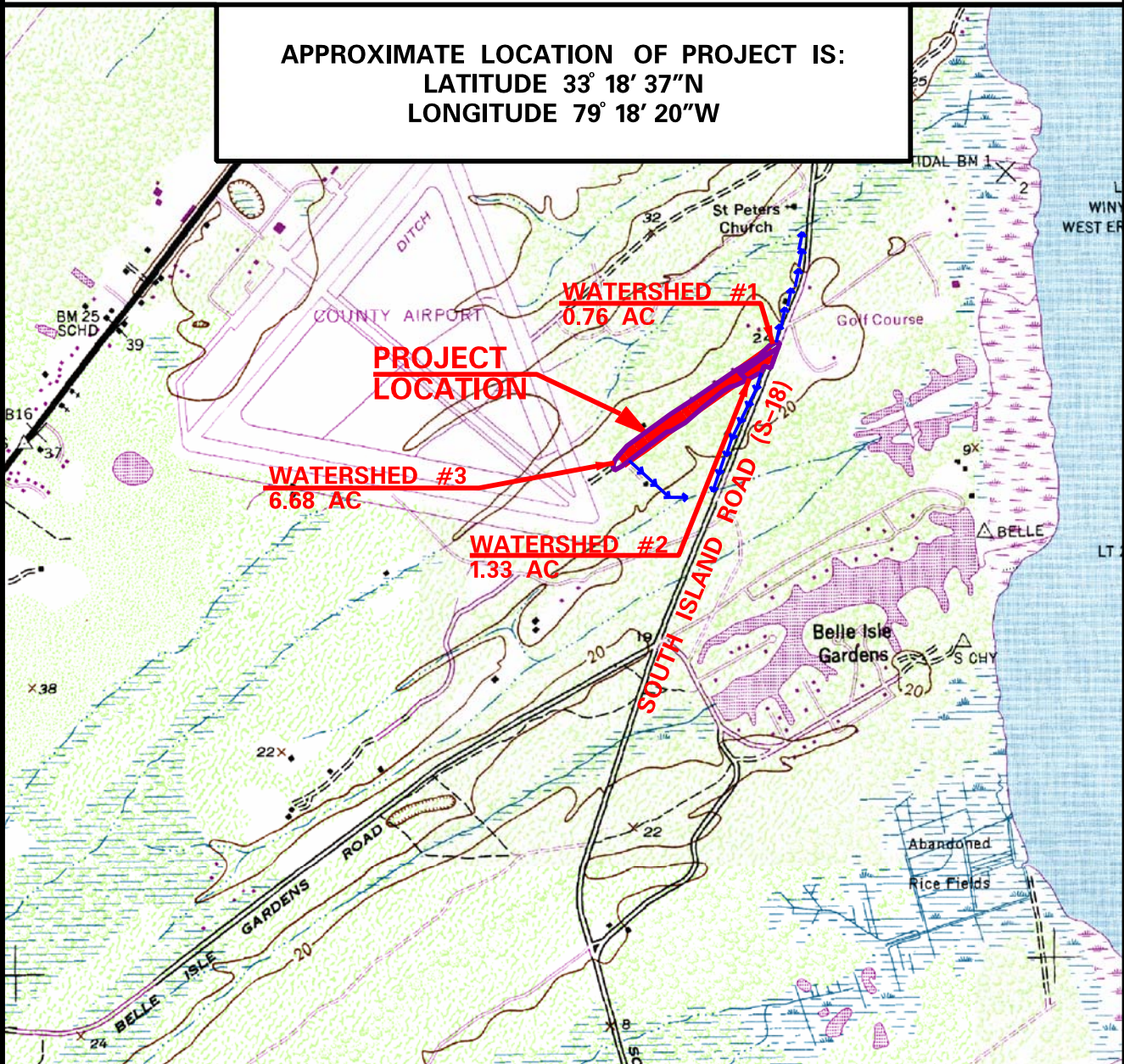
POST-CONSTRUCTION DRAINAGE MAP
IBIS AVENUE
GEORGETOWN COUNTY, SC
APPLICATION BY GEORGETOWN COUNTY
OCTOBER 2020

DRAINAGE MAP

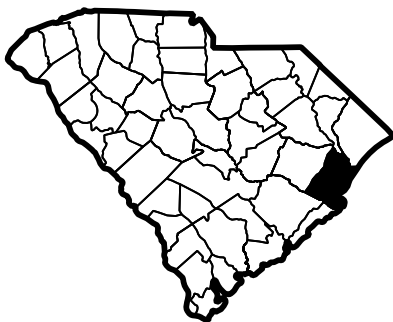
PRE-CONSTRUCTION

FROM: USGS QUAD MAP GEORGETOWN SOUTH (1968)

APPROXIMATE LOCATION OF PROJECT IS:
LATITUDE 33° 18' 37"N
LONGITUDE 79° 18' 20"W



SHADED AREA INDICATES
COUNTY LOCATION IN SC

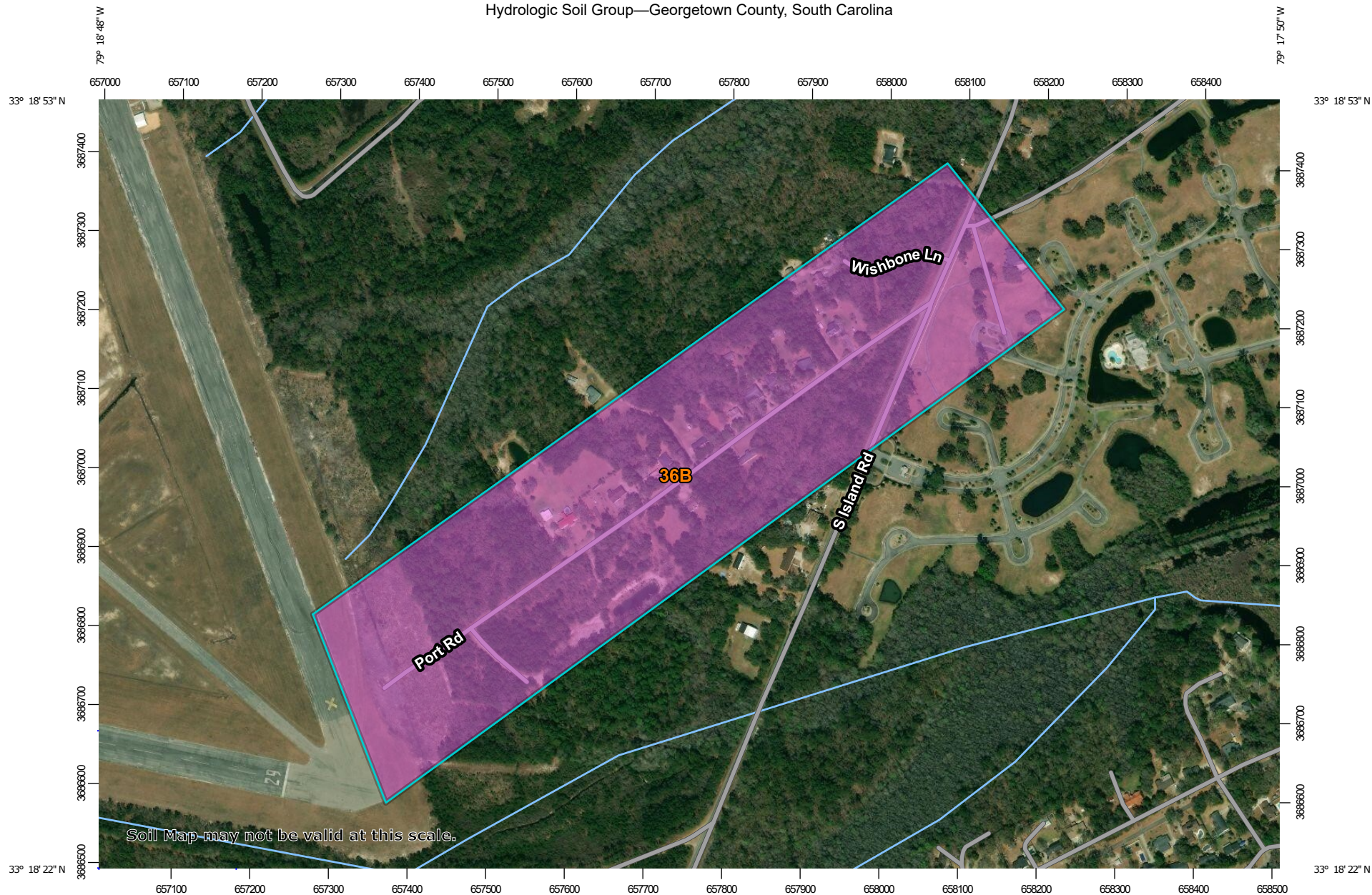


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SCALE  FEET



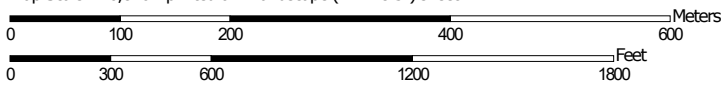
PRE-CONSTRUCTION DRAINAGE MAP
IBIS AVENUE
GEORGETOWN COUNTY, SC
APPLICATION BY GEORGETOWN COUNTY
OCTOBER 2020

Hydrologic Soil Group—Georgetown County, South Carolina



Soil Map may not be valid at this scale.

Map Scale: 1:6,870 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

11/5/2019
Page 1 of 4

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points

 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available


Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Georgetown County, South Carolina
 Survey Area Data: Version 17, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Oct 18, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
36B	Lakeland fine sand, 0 to 6 percent slopes	A	61.8	100.0%
Totals for Area of Interest			61.8	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

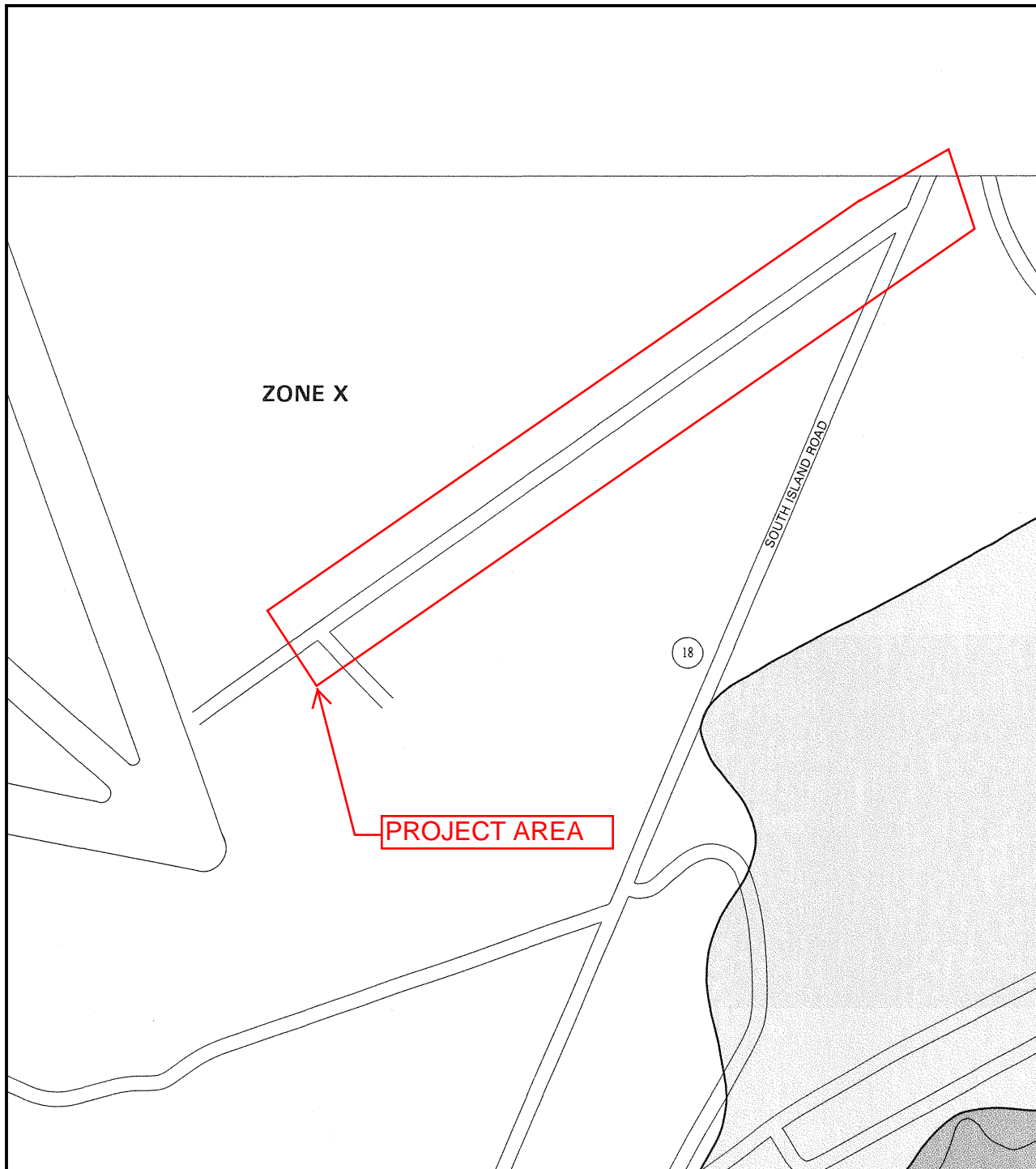
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

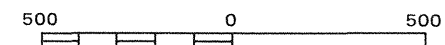
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



APPROXIMATE SCALE IN FEET



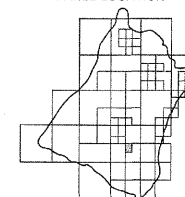
NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

GEORGETOWN
COUNTY,
SOUTH CAROLINA
(UNINCORPORATED AREAS)

PANEL 391 OF 490

PANEL LOCATION



COMMUNITY-PANEL NUMBER

450085 0391 D

MAP REVISED:

MARCH 16, 1989



Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

- Hydrograph Reports

Hydrograph Report

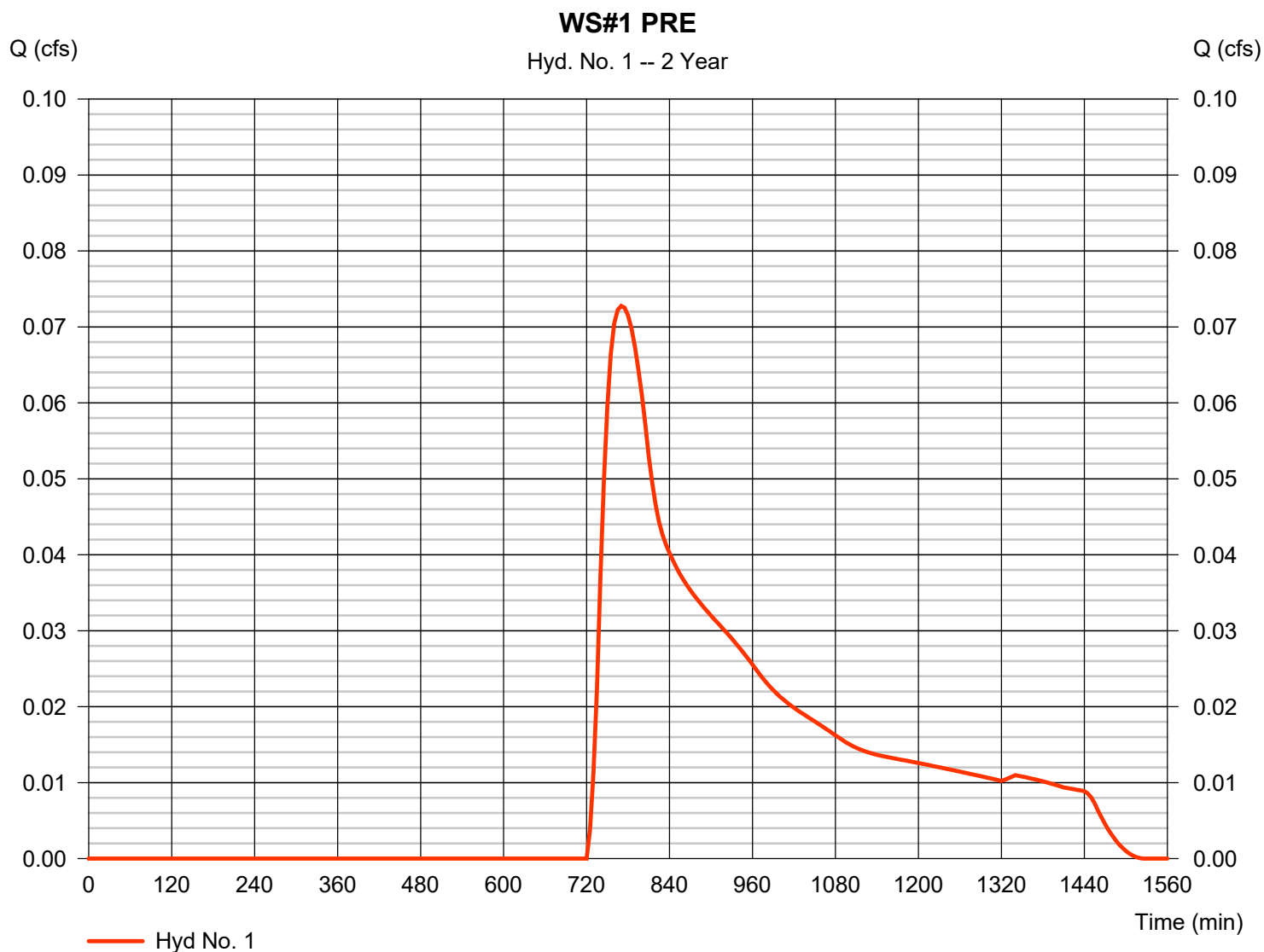
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Thursday, 08 / 20 / 2020

Hyd. No. 1

WS#1 PRE

Hydrograph type	= SCS Runoff	Peak discharge	= 0.073 cfs
Storm frequency	= 2 yrs	Time to peak	= 770 min
Time interval	= 5 min	Hyd. volume	= 1,018 cuft
Drainage area	= 0.760 ac	Curve number	= 52
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 26.30 min
Total precip.	= 3.90 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 284



Hydrograph Report

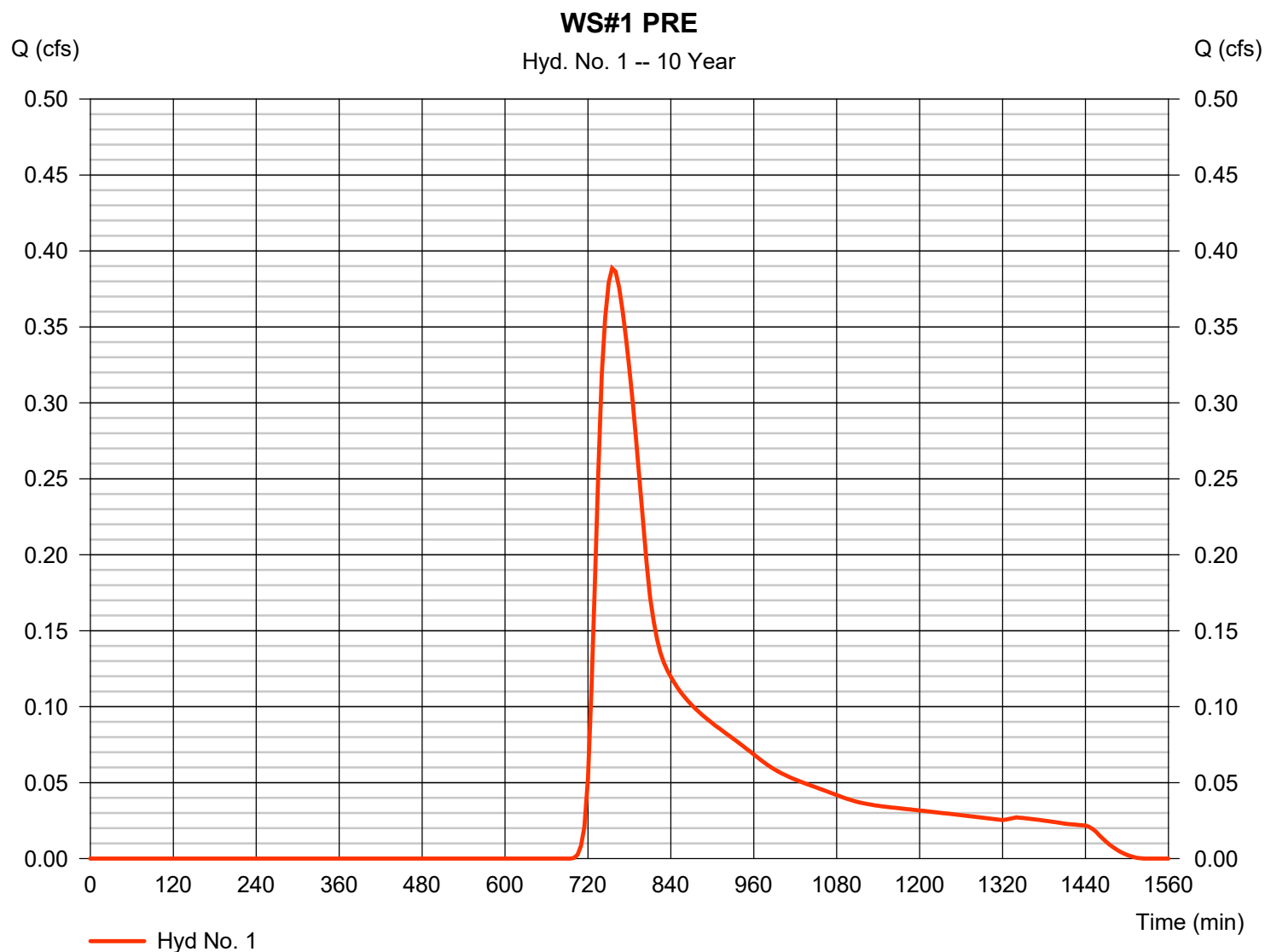
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Thursday, 08 / 20 / 2020

Hyd. No. 1

WS#1 PRE

Hydrograph type	= SCS Runoff	Peak discharge	= 0.389 cfs
Storm frequency	= 10 yrs	Time to peak	= 755 min
Time interval	= 5 min	Hyd. volume	= 3,521 cuft
Drainage area	= 0.760 ac	Curve number	= 52
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 26.30 min
Total precip.	= 6.00 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 284



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

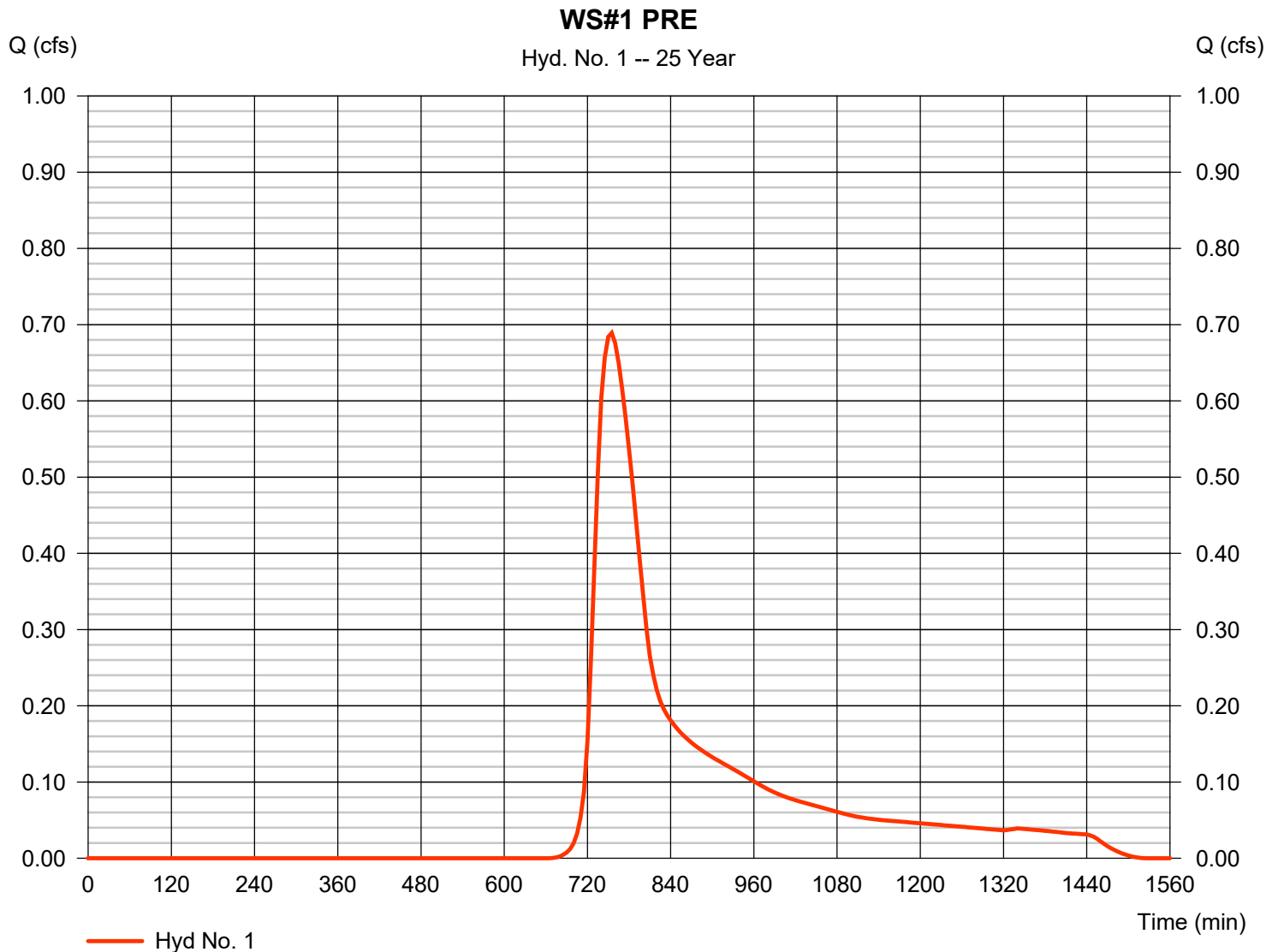
Thursday, 08 / 20 / 2020

Hyd. No. 1

WS#1 PRE

Hydrograph type = SCS Runoff
 Storm frequency = 25 yrs
 Time interval = 5 min
 Drainage area = 0.760 ac
 Basin Slope = 0.0 %
 Tc method = User
 Total precip. = 7.40 in
 Storm duration = 24 hrs

Peak discharge = 0.689 cfs
 Time to peak = 755 min
 Hyd. volume = 5,699 cuft
 Curve number = 52
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 26.30 min
 Distribution = Type III
 Shape factor = 284



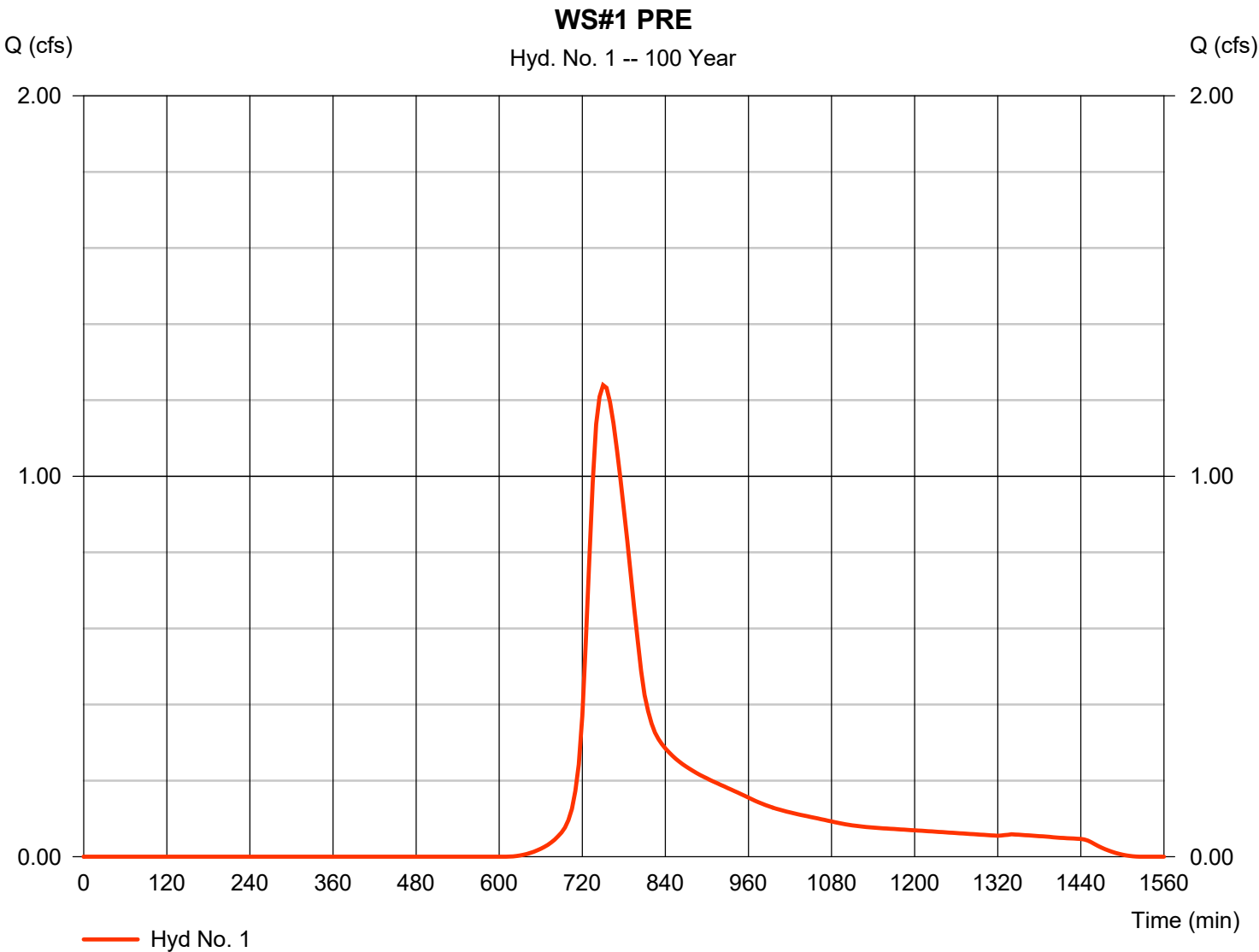
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020
 Thursday, 08 / 20 / 2020

Hyd. No. 1

WS#1 PRE

Hydrograph type	= SCS Runoff	Peak discharge	= 1.240 cfs
Storm frequency	= 100 yrs	Time to peak	= 750 min
Time interval	= 5 min	Hyd. volume	= 9,670 cuft
Drainage area	= 0.760 ac	Curve number	= 52
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 26.30 min
Total precip.	= 9.60 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 284



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

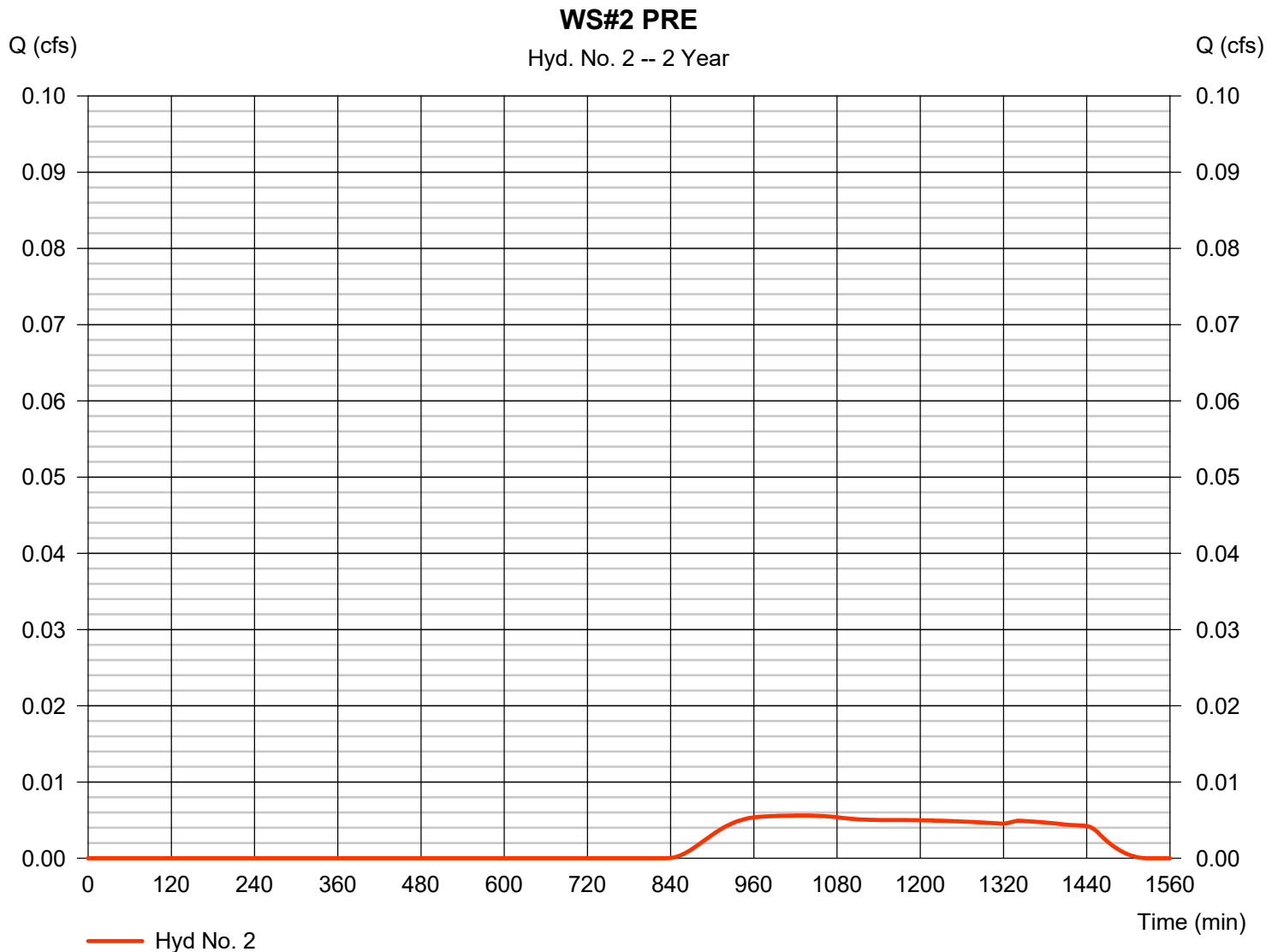
Thursday, 08 / 20 / 2020

Hyd. No. 2

WS#2 PRE

Hydrograph type = SCS Runoff
 Storm frequency = 2 yrs
 Time interval = 5 min
 Drainage area = 1.330 ac
 Basin Slope = 0.0 %
 Tc method = User
 Total precip. = 3.90 in
 Storm duration = 24 hrs

Peak discharge = 0.006 cfs
 Time to peak = 1030 min
 Hyd. volume = 173 cuft
 Curve number = 39
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 32.10 min
 Distribution = Type III
 Shape factor = 284



Hydrograph Report

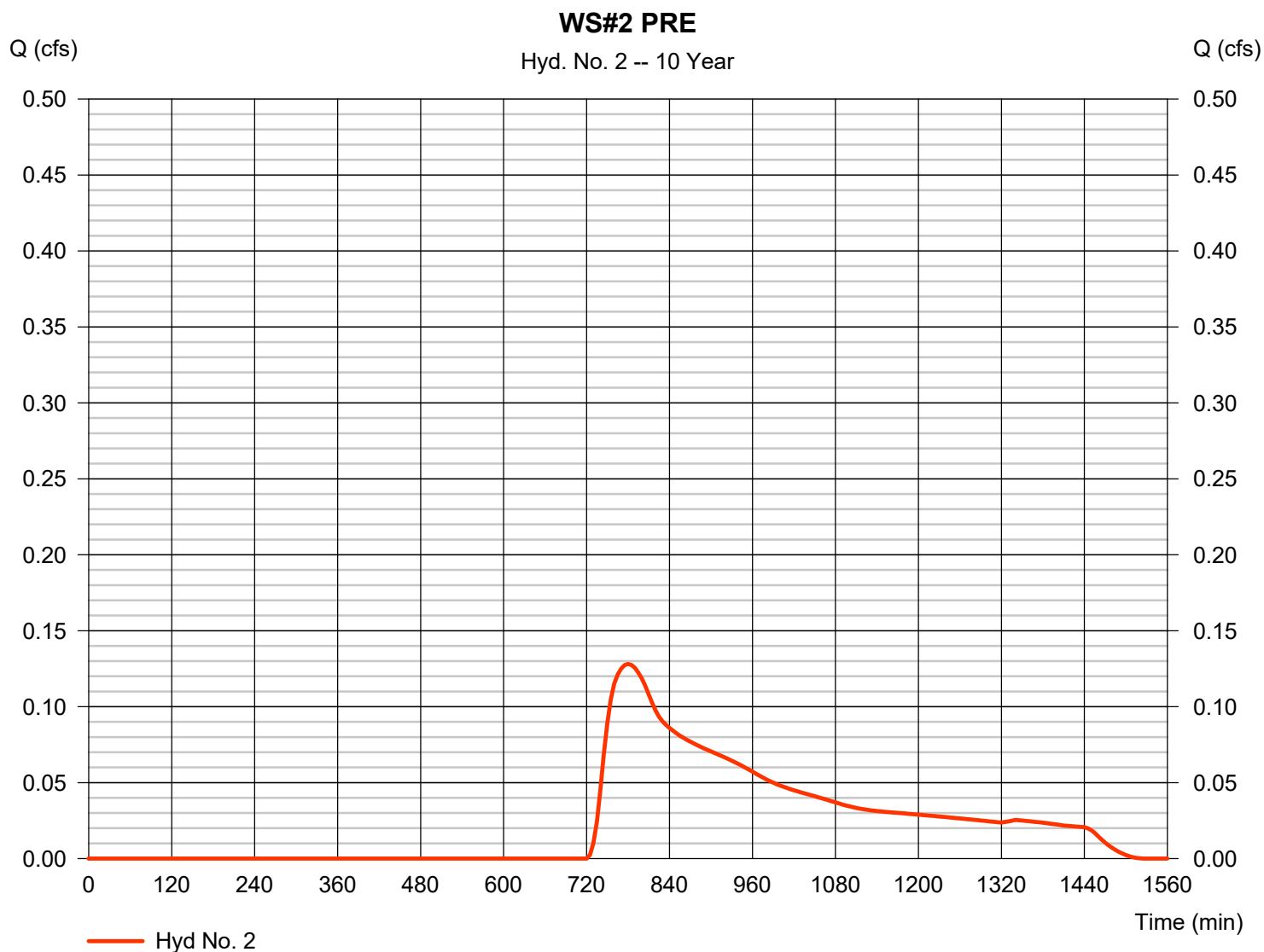
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Thursday, 08 / 20 / 2020

Hyd. No. 2

WS#2 PRE

Hydrograph type	= SCS Runoff	Peak discharge	= 0.128 cfs
Storm frequency	= 10 yrs	Time to peak	= 780 min
Time interval	= 5 min	Hyd. volume	= 2,125 cuft
Drainage area	= 1.330 ac	Curve number	= 39
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 32.10 min
Total precip.	= 6.00 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 284



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

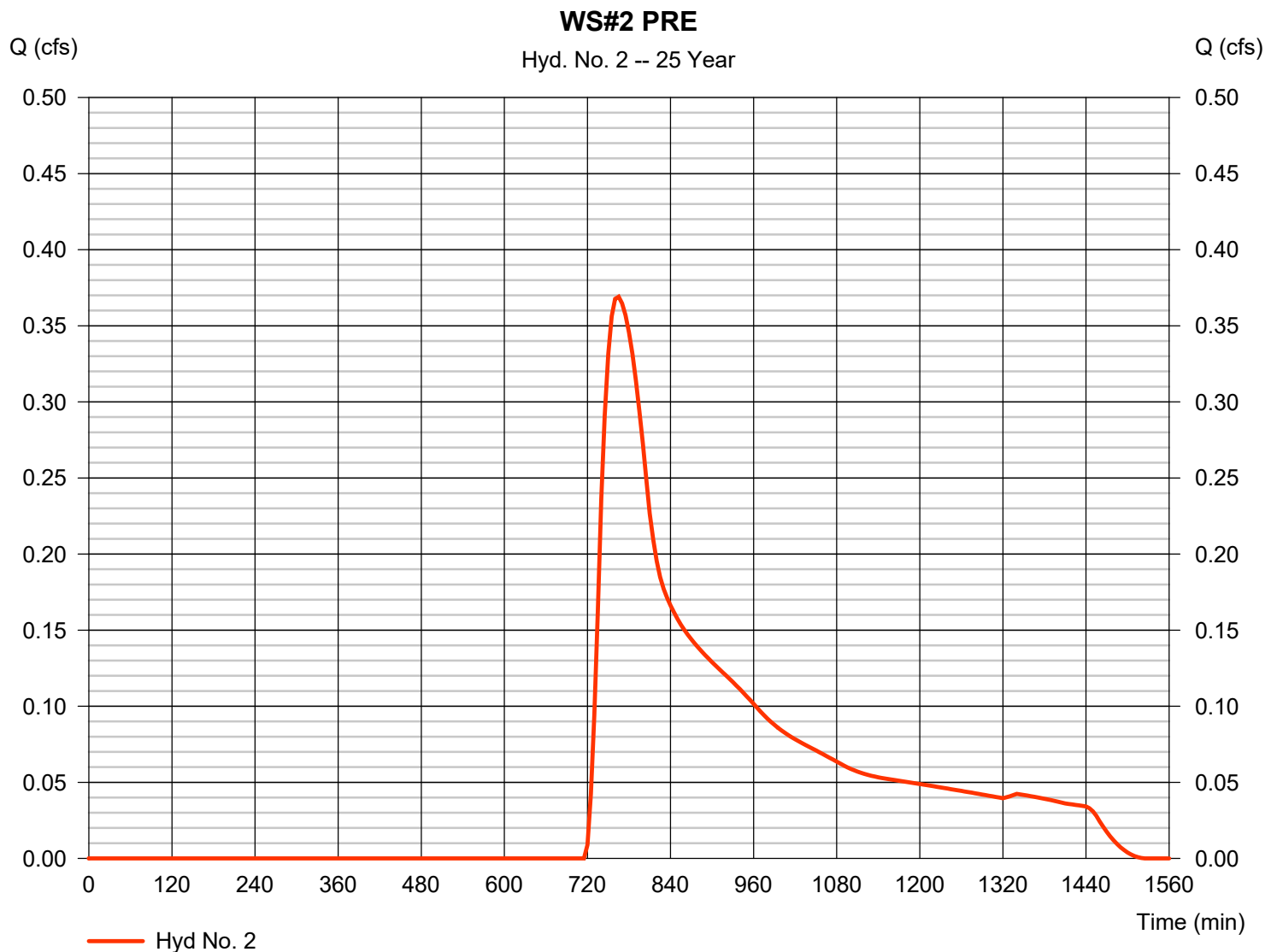
Thursday, 08 / 20 / 2020

Hyd. No. 2

WS#2 PRE

Hydrograph type = SCS Runoff
 Storm frequency = 25 yrs
 Time interval = 5 min
 Drainage area = 1.330 ac
 Basin Slope = 0.0 %
 Tc method = User
 Total precip. = 7.40 in
 Storm duration = 24 hrs

Peak discharge = 0.369 cfs
 Time to peak = 765 min
 Hyd. volume = 4,381 cuft
 Curve number = 39
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 32.10 min
 Distribution = Type III
 Shape factor = 284



Hydrograph Report

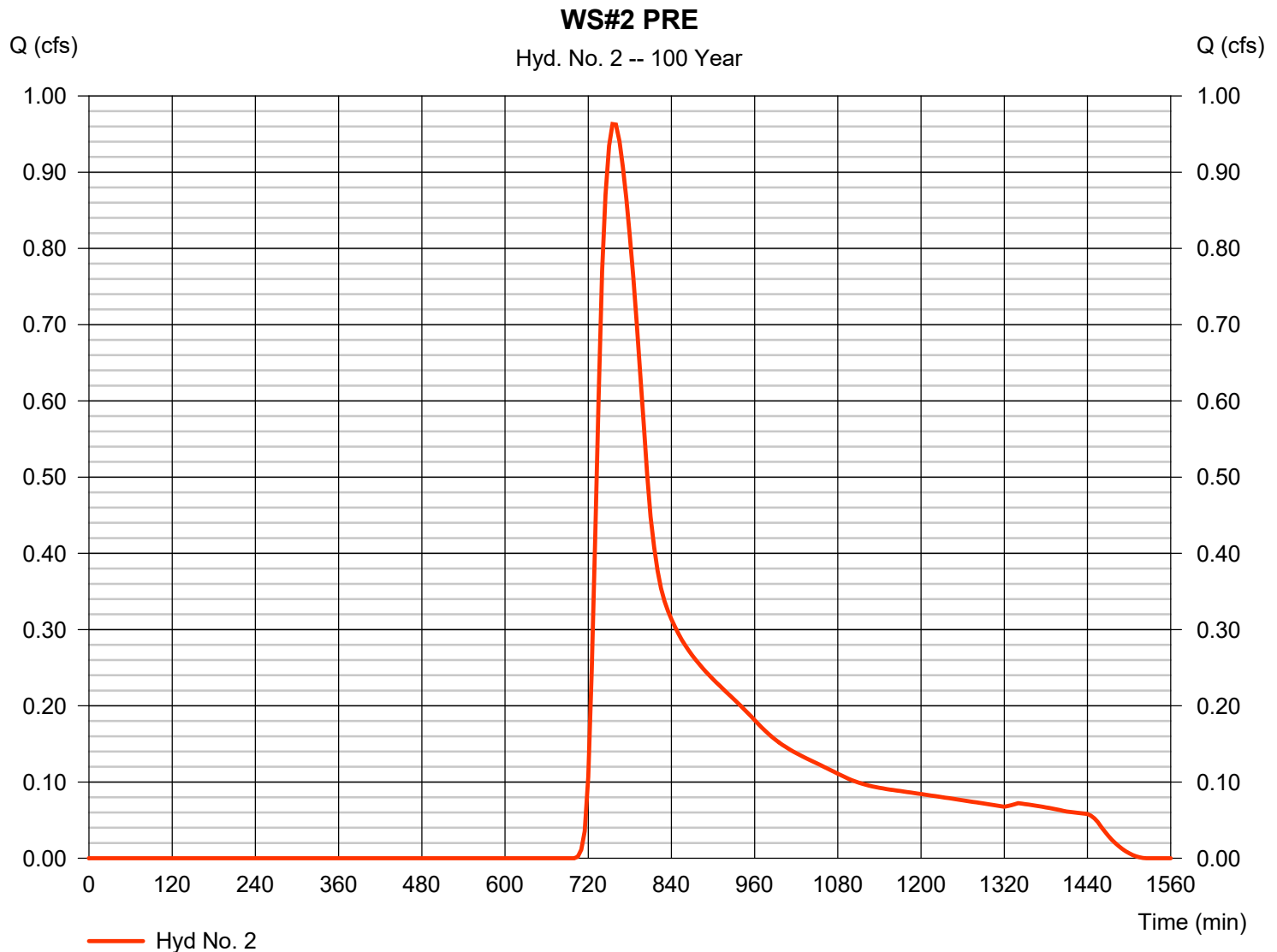
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Thursday, 08 / 20 / 2020

Hyd. No. 2

WS#2 PRE

Hydrograph type	= SCS Runoff	Peak discharge	= 0.963 cfs
Storm frequency	= 100 yrs	Time to peak	= 755 min
Time interval	= 5 min	Hyd. volume	= 9,054 cuft
Drainage area	= 1.330 ac	Curve number	= 39
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 32.10 min
Total precip.	= 9.60 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 284



Hydrograph Report

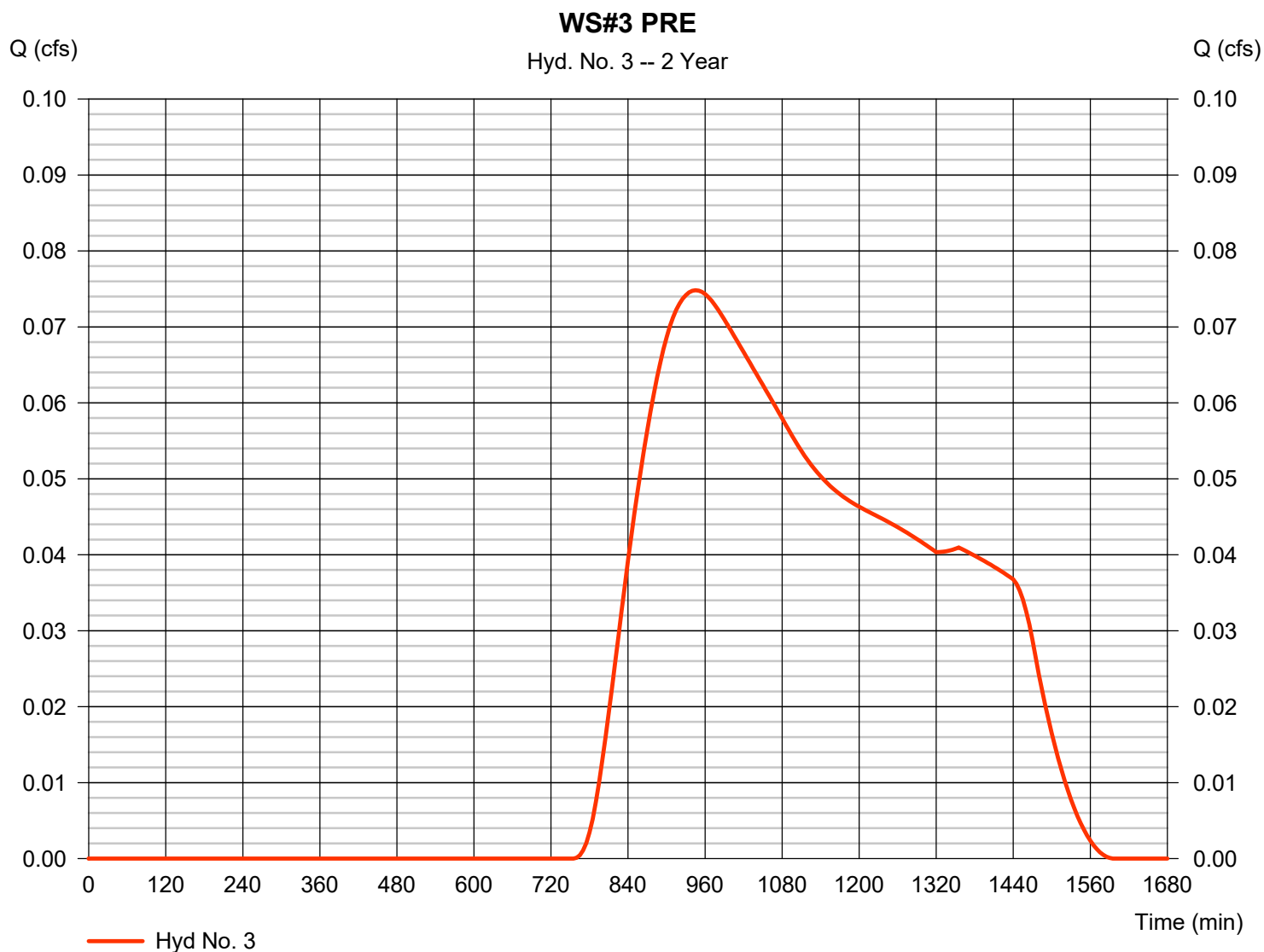
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Thursday, 08 / 20 / 2020

Hyd. No. 3

WS#3 PRE

Hydrograph type	= SCS Runoff	Peak discharge	= 0.075 cfs
Storm frequency	= 2 yrs	Time to peak	= 945 min
Time interval	= 5 min	Hyd. volume	= 2,113 cuft
Drainage area	= 6.680 ac	Curve number	= 42
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 51.65 min
Total precip.	= 3.90 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 284



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

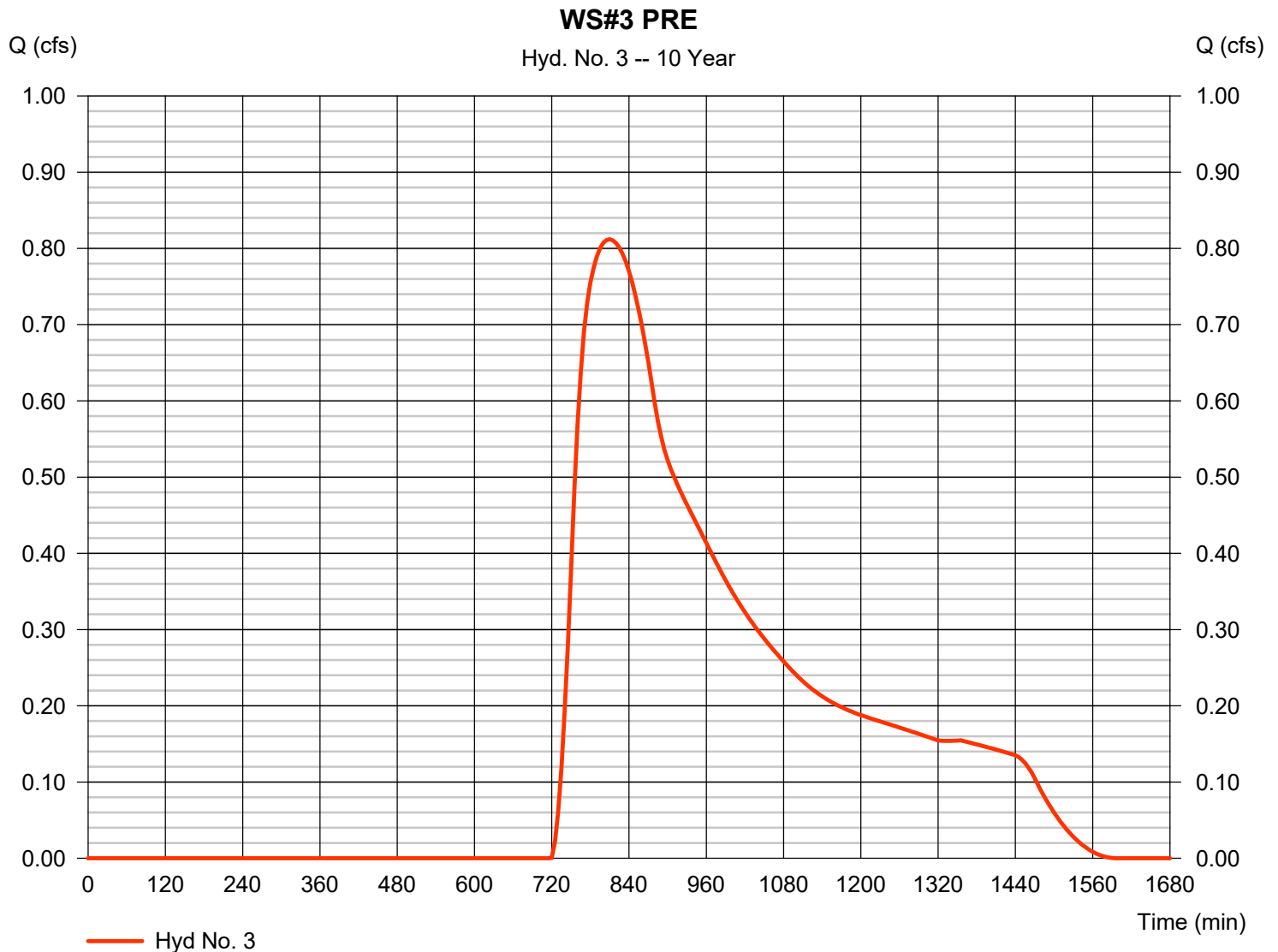
Thursday, 08 / 20 / 2020

Hyd. No. 3

WS#3 PRE

Hydrograph type = SCS Runoff
 Storm frequency = 10 yrs
 Time interval = 5 min
 Drainage area = 6.680 ac
 Basin Slope = 0.0 %
 Tc method = User
 Total precip. = 6.00 in
 Storm duration = 24 hrs

Peak discharge = 0.812 cfs
 Time to peak = 810 min
 Hyd. volume = 14,921 cuft
 Curve number = 42
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 51.65 min
 Distribution = Type III
 Shape factor = 284



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

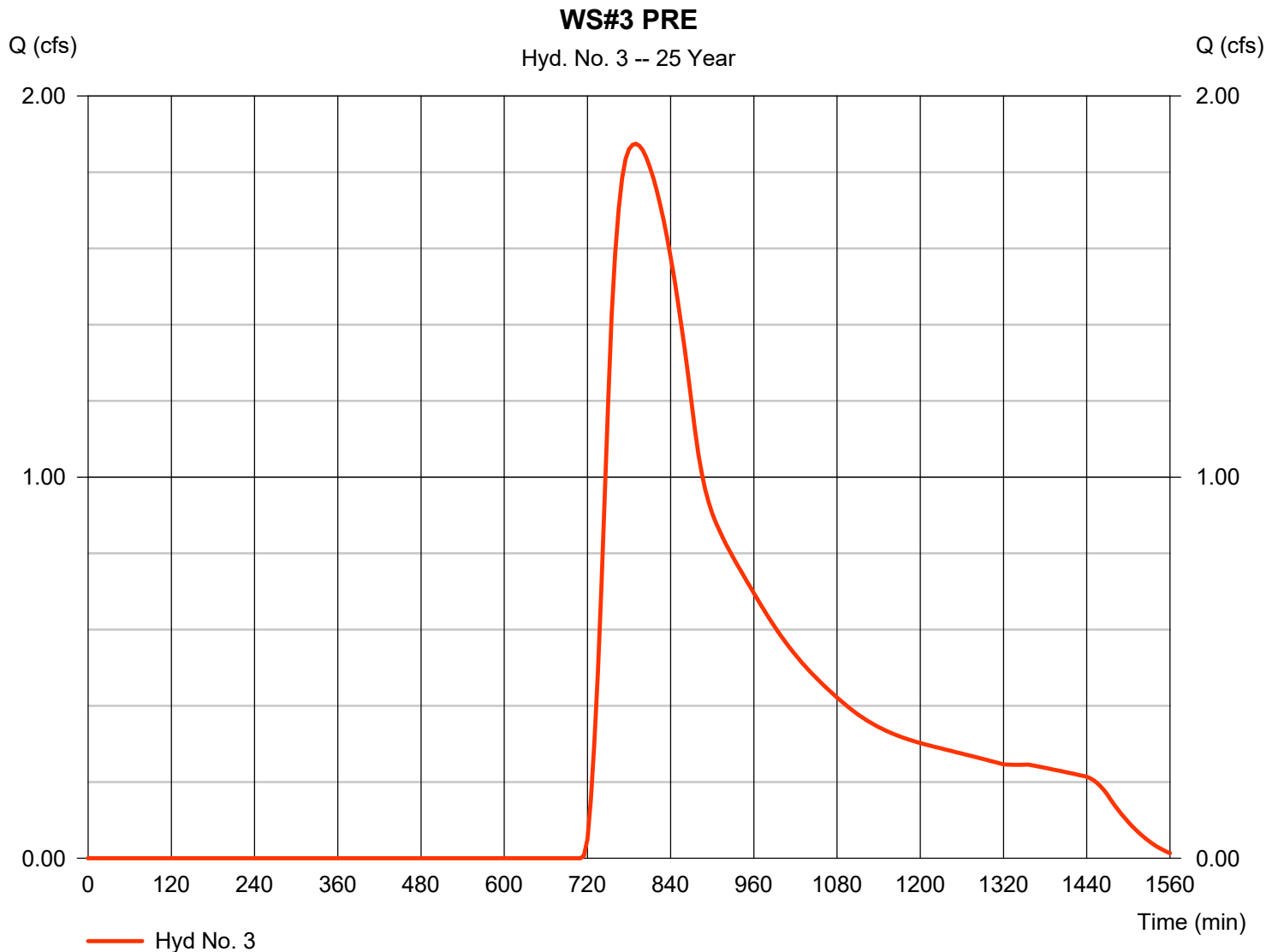
Thursday, 08 / 20 / 2020

Hyd. No. 3

WS#3 PRE

Hydrograph type = SCS Runoff
 Storm frequency = 25 yrs
 Time interval = 5 min
 Drainage area = 6.680 ac
 Basin Slope = 0.0 %
 Tc method = User
 Total precip. = 7.40 in
 Storm duration = 24 hrs

Peak discharge = 1.874 cfs
 Time to peak = 790 min
 Hyd. volume = 28,426 cuft
 Curve number = 42
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 51.65 min
 Distribution = Type III
 Shape factor = 284



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

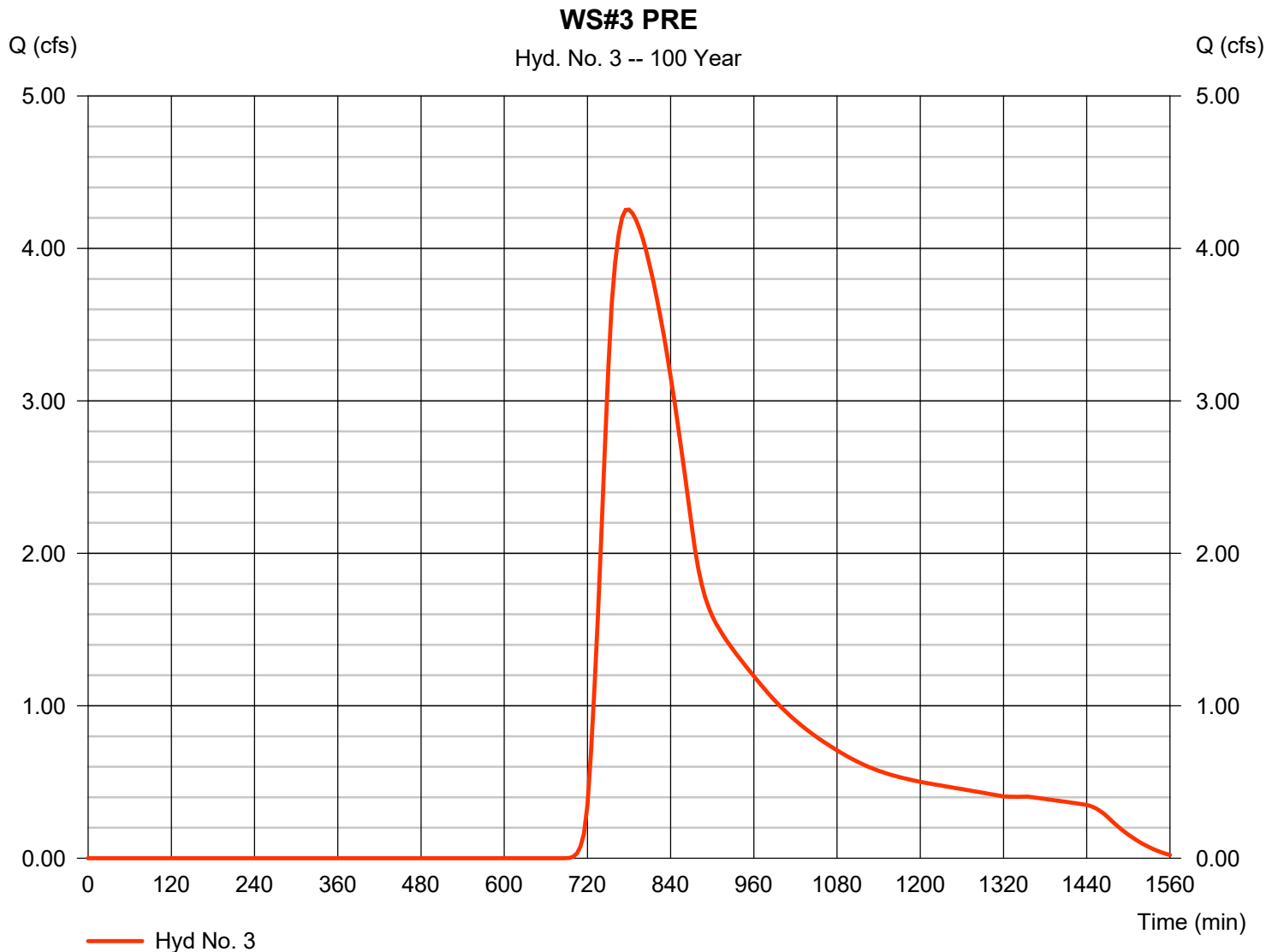
Thursday, 08 / 20 / 2020

Hyd. No. 3

WS#3 PRE

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 5 min
 Drainage area = 6.680 ac
 Basin Slope = 0.0 %
 Tc method = User
 Total precip. = 9.60 in
 Storm duration = 24 hrs

Peak discharge = 4.255 cfs
 Time to peak = 780 min
 Hyd. volume = 55,238 cuft
 Curve number = 42
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 51.65 min
 Distribution = Type III
 Shape factor = 284

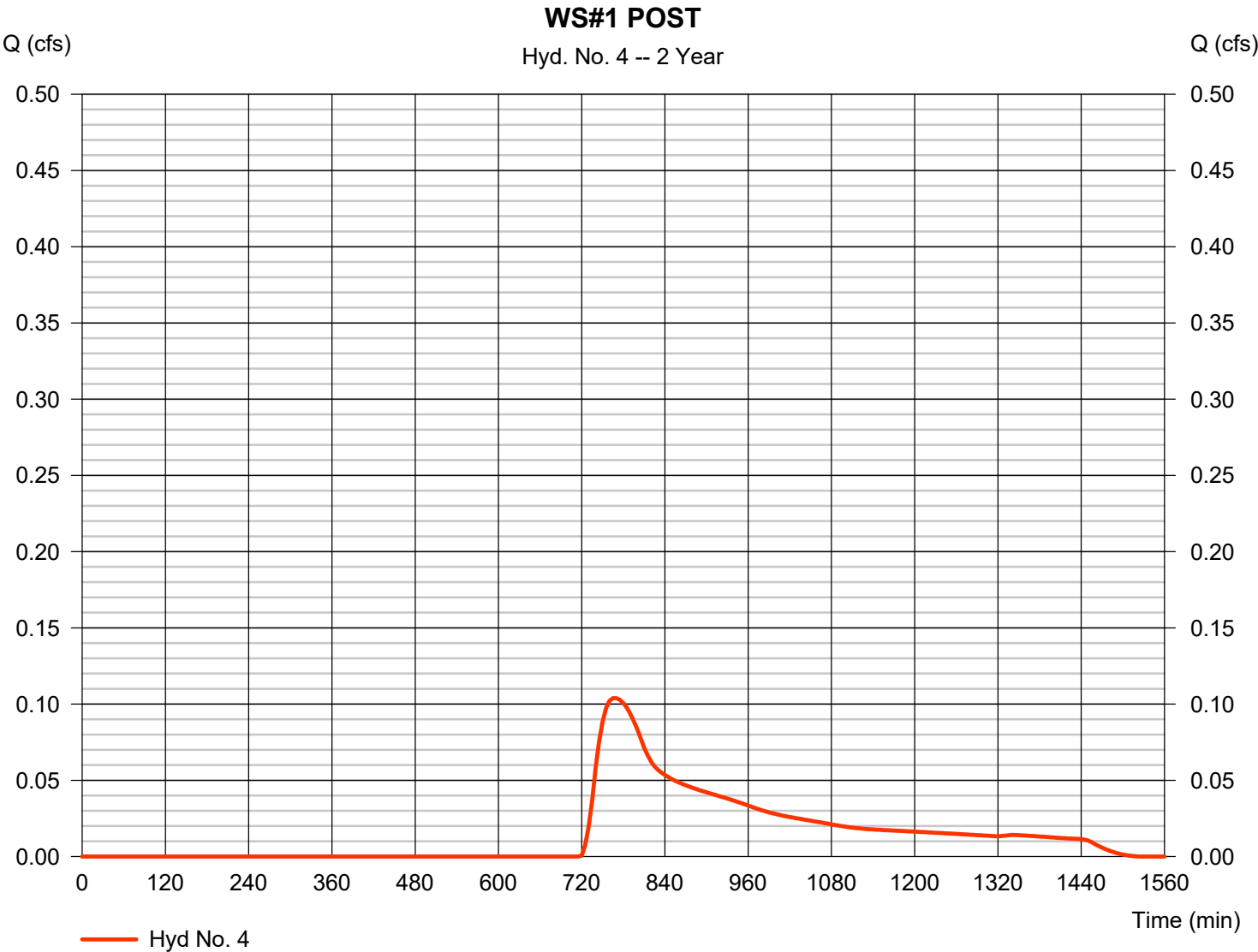


Hydrograph Report

Hyd. No. 4

WS#1 POST

Hydrograph type	= SCS Runoff	Peak discharge	= 0.104 cfs
Storm frequency	= 2 yrs	Time to peak	= 770 min
Time interval	= 5 min	Hyd. volume	= 1,370 cuft
Drainage area	= 0.930 ac	Curve number	= 53
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 26.31 min
Total precip.	= 3.90 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 284



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

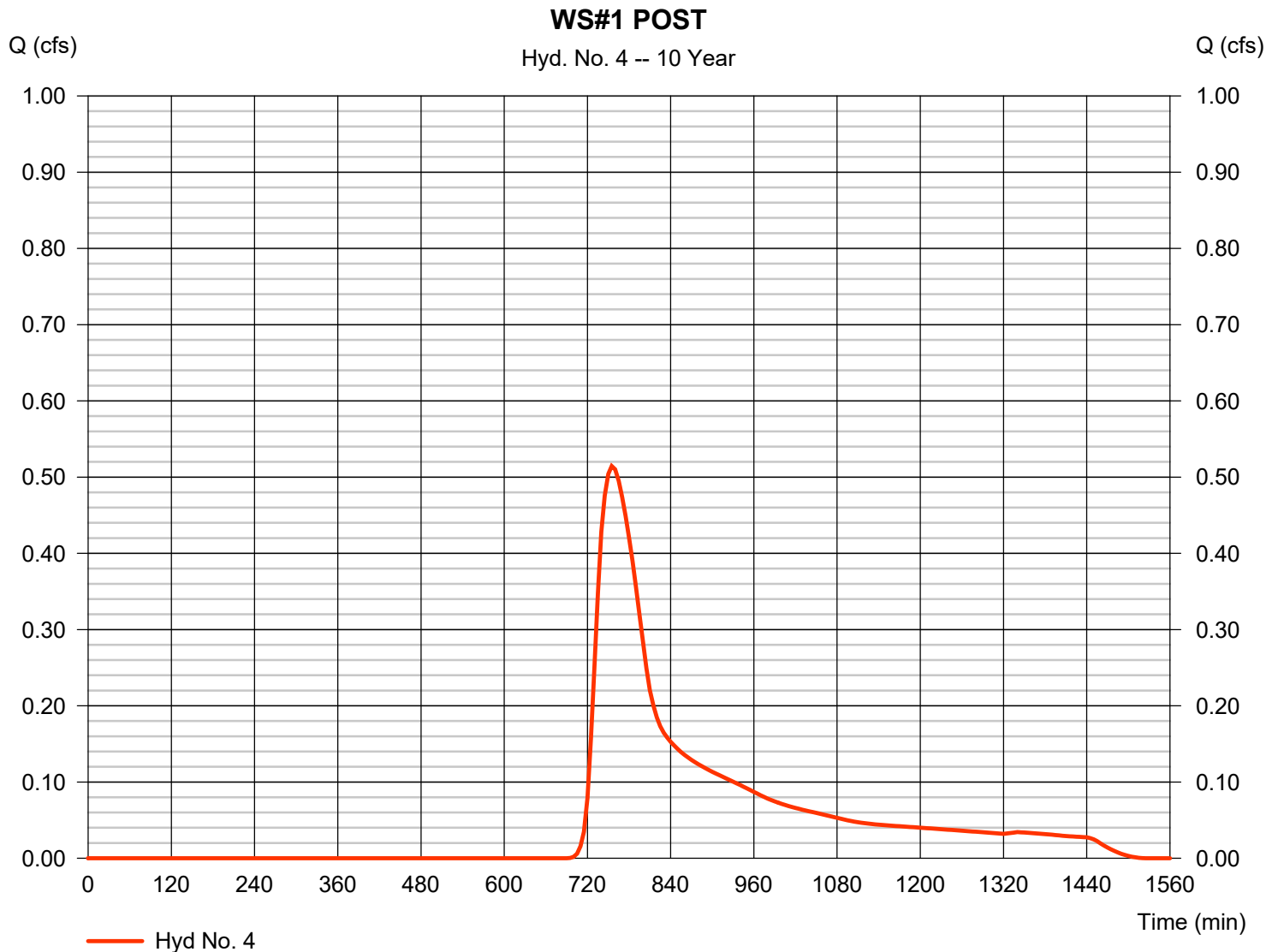
Thursday, 08 / 20 / 2020

Hyd. No. 4

WS#1 POST

Hydrograph type = SCS Runoff
 Storm frequency = 10 yrs
 Time interval = 5 min
 Drainage area = 0.930 ac
 Basin Slope = 0.0 %
 Tc method = User
 Total precip. = 6.00 in
 Storm duration = 24 hrs

Peak discharge = 0.514 cfs
 Time to peak = 755 min
 Hyd. volume = 4,560 cuft
 Curve number = 53
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 26.31 min
 Distribution = Type III
 Shape factor = 284



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

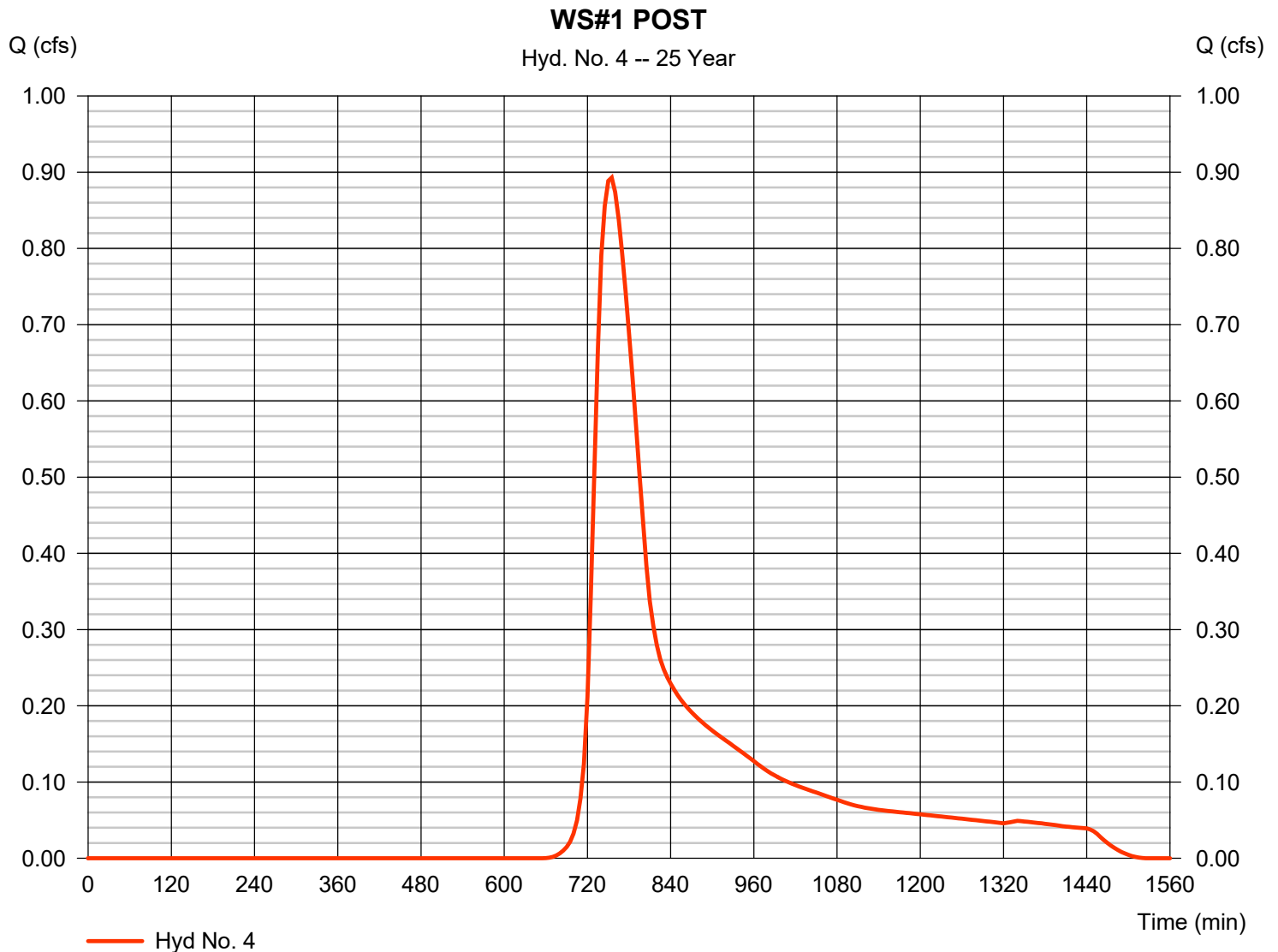
Thursday, 08 / 20 / 2020

Hyd. No. 4

WS#1 POST

Hydrograph type = SCS Runoff
 Storm frequency = 25 yrs
 Time interval = 5 min
 Drainage area = 0.930 ac
 Basin Slope = 0.0 %
 Tc method = User
 Total precip. = 7.40 in
 Storm duration = 24 hrs

Peak discharge = 0.893 cfs
 Time to peak = 755 min
 Hyd. volume = 7,301 cuft
 Curve number = 53
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 26.31 min
 Distribution = Type III
 Shape factor = 284



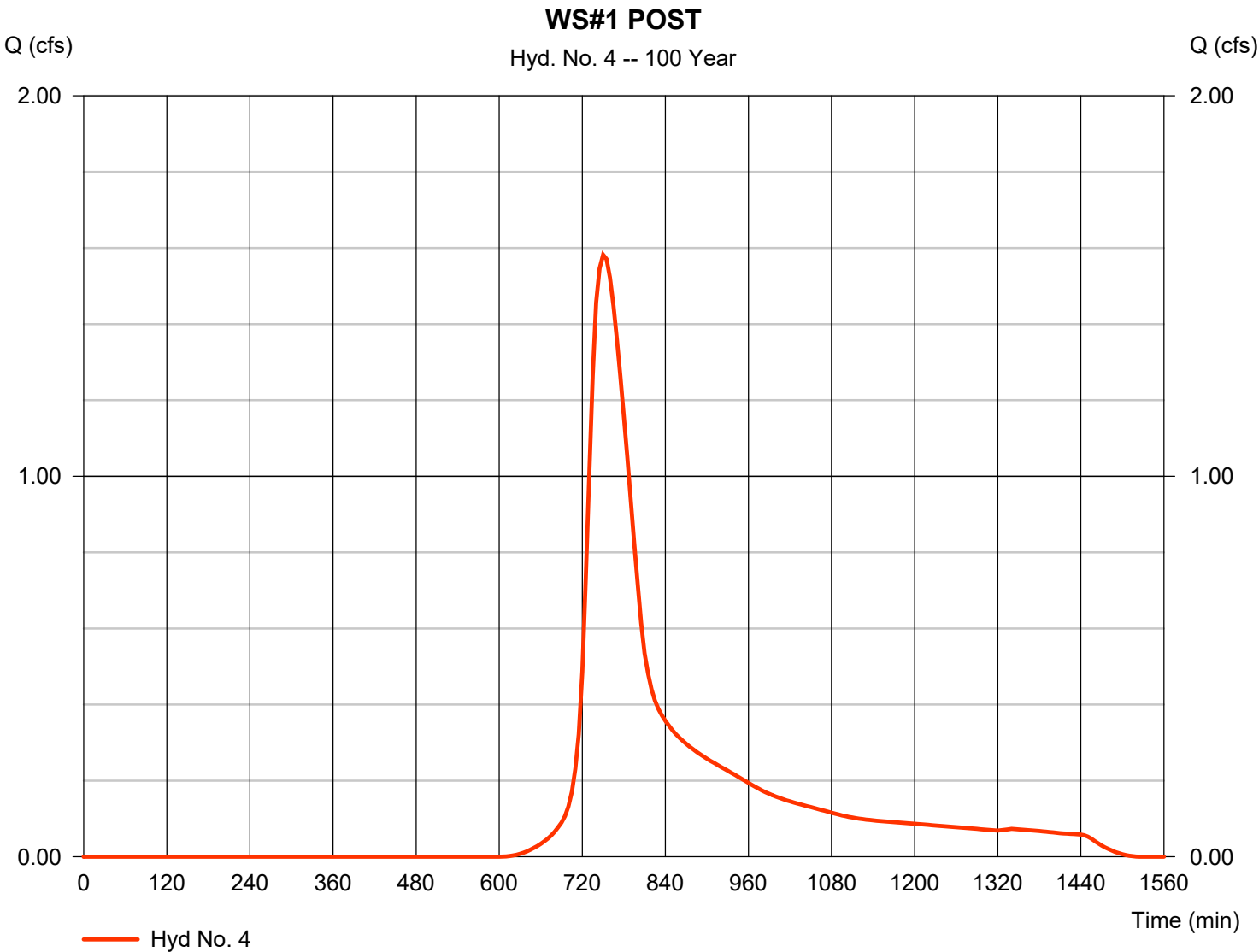
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020
 Thursday, 08 / 20 / 2020

Hyd. No. 4

WS#1 POST

Hydrograph type	= SCS Runoff	Peak discharge	= 1.582 cfs
Storm frequency	= 100 yrs	Time to peak	= 750 min
Time interval	= 5 min	Hyd. volume	= 12,265 cuft
Drainage area	= 0.930 ac	Curve number	= 53
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 26.31 min
Total precip.	= 9.60 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 284



Hydrograph Report

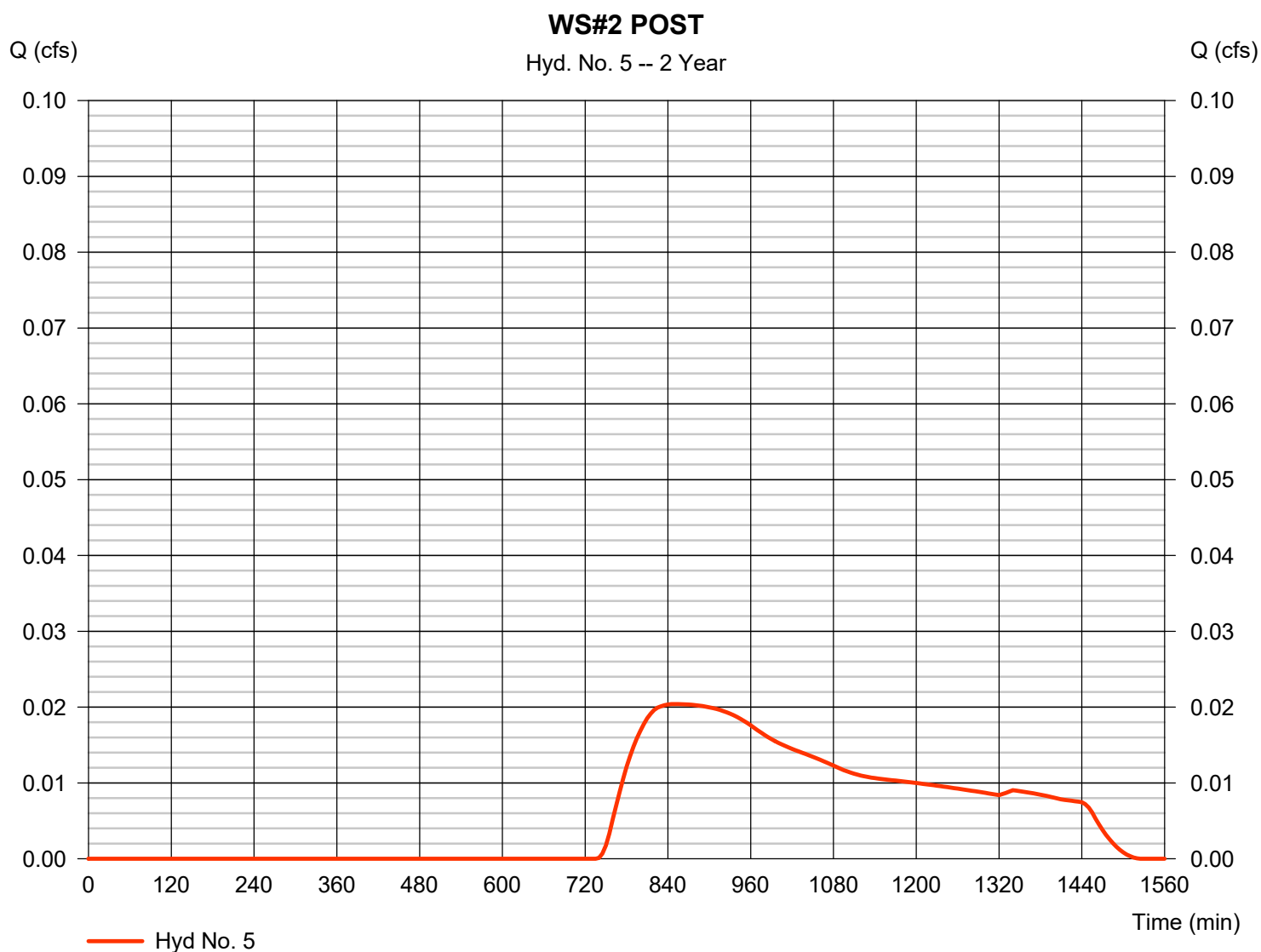
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Thursday, 08 / 20 / 2020

Hyd. No. 5

WS#2 POST

Hydrograph type	= SCS Runoff	Peak discharge	= 0.020 cfs
Storm frequency	= 2 yrs	Time to peak	= 850 min
Time interval	= 5 min	Hyd. volume	= 543 cuft
Drainage area	= 1.160 ac	Curve number	= 44
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 32.13 min
Total precip.	= 3.90 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 284



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

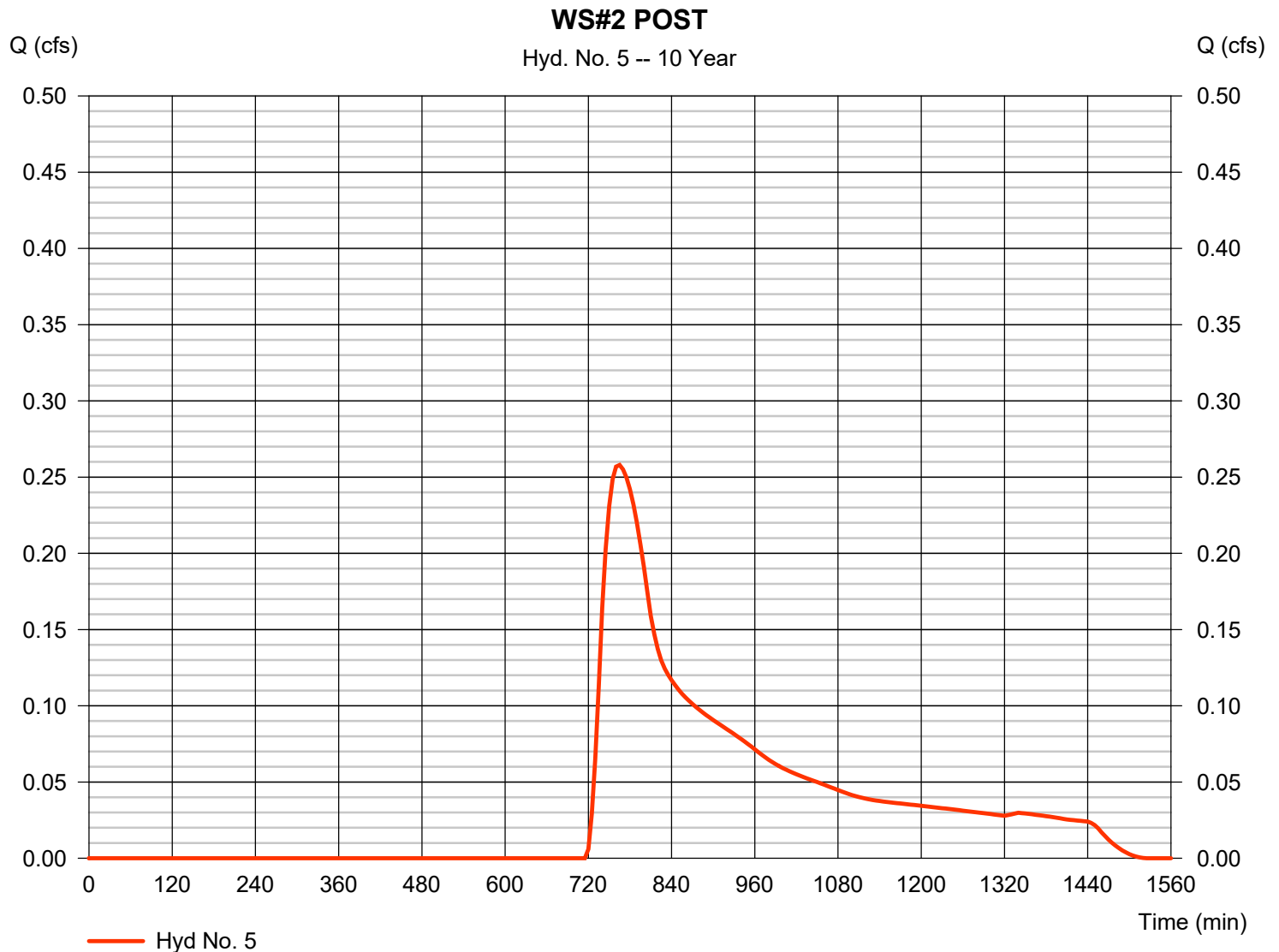
Thursday, 08 / 20 / 2020

Hyd. No. 5

WS#2 POST

Hydrograph type = SCS Runoff
 Storm frequency = 10 yrs
 Time interval = 5 min
 Drainage area = 1.160 ac
 Basin Slope = 0.0 %
 Tc method = User
 Total precip. = 6.00 in
 Storm duration = 24 hrs

Peak discharge = 0.258 cfs
 Time to peak = 765 min
 Hyd. volume = 3,075 cuft
 Curve number = 44
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 32.13 min
 Distribution = Type III
 Shape factor = 284



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

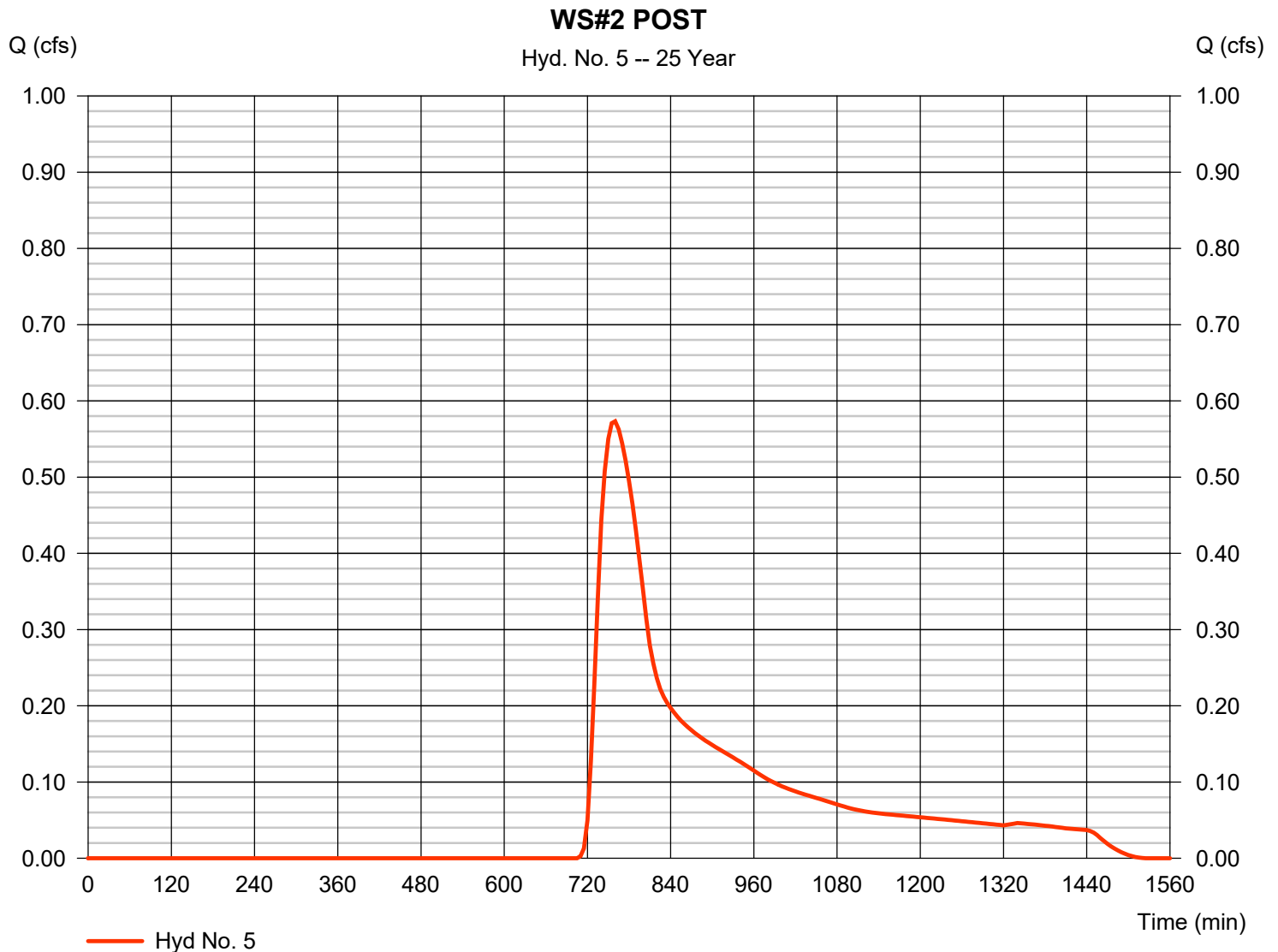
Thursday, 08 / 20 / 2020

Hyd. No. 5

WS#2 POST

Hydrograph type = SCS Runoff
 Storm frequency = 25 yrs
 Time interval = 5 min
 Drainage area = 1.160 ac
 Basin Slope = 0.0 %
 Tc method = User
 Total precip. = 7.40 in
 Storm duration = 24 hrs

Peak discharge = 0.573 cfs
 Time to peak = 760 min
 Hyd. volume = 5,586 cuft
 Curve number = 44
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 32.13 min
 Distribution = Type III
 Shape factor = 284



Hydrograph Report

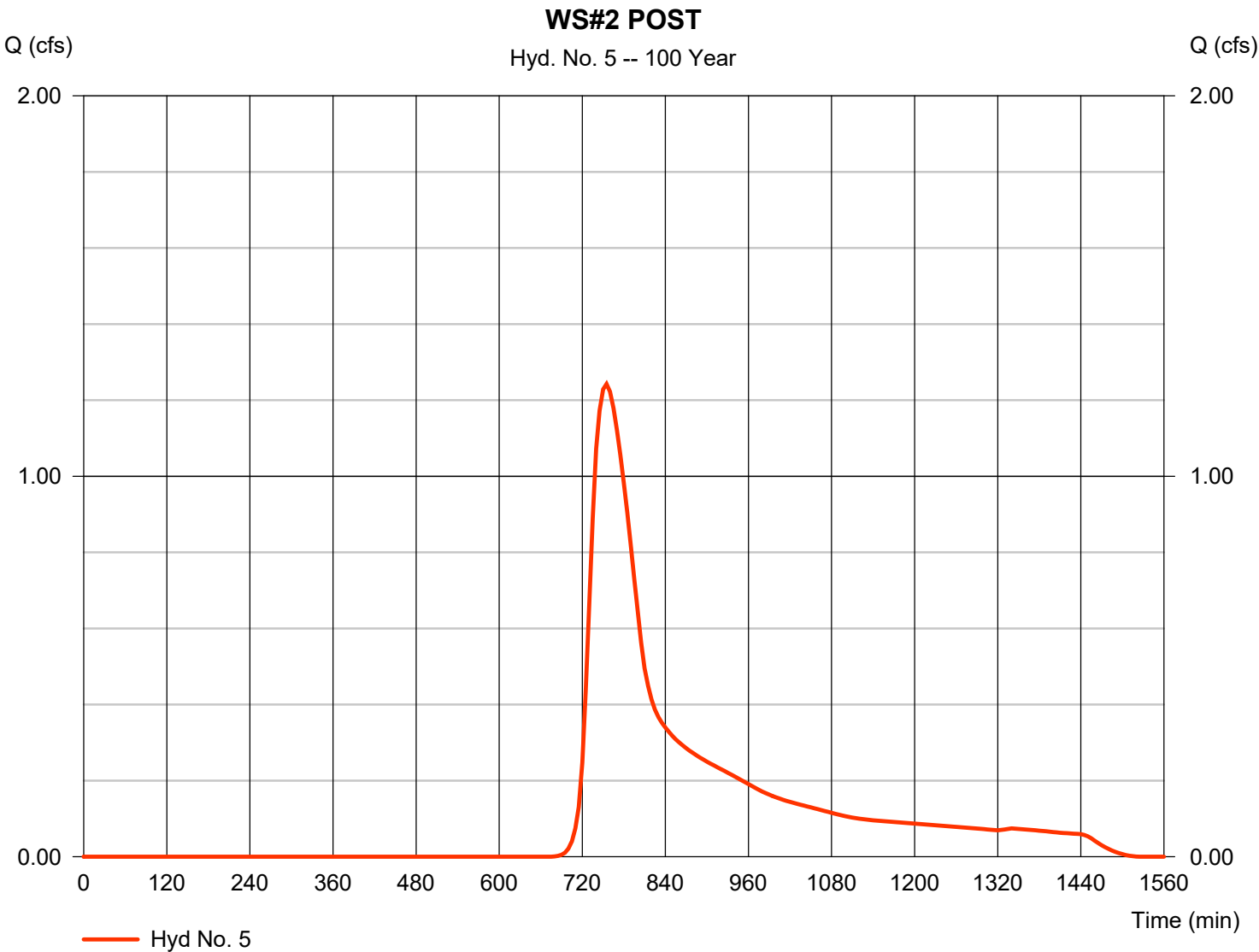
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Thursday, 08 / 20 / 2020

Hyd. No. 5

WS#2 POST

Hydrograph type	= SCS Runoff	Peak discharge	= 1.242 cfs
Storm frequency	= 100 yrs	Time to peak	= 755 min
Time interval	= 5 min	Hyd. volume	= 10,489 cuft
Drainage area	= 1.160 ac	Curve number	= 44
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 32.13 min
Total precip.	= 9.60 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 284



Hydrograph Report

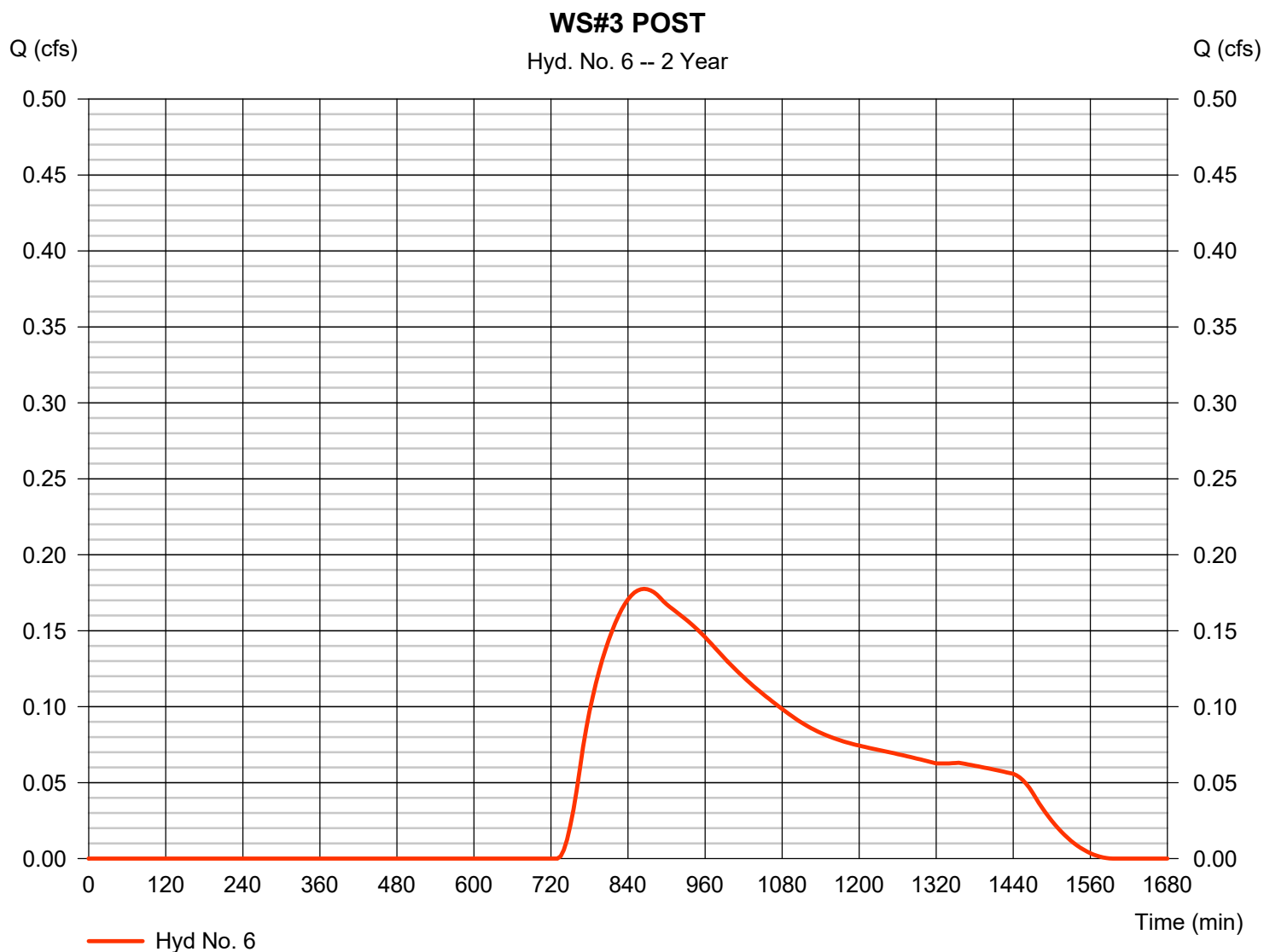
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Thursday, 08 / 20 / 2020

Hyd. No. 6

WS#3 POST

Hydrograph type	= SCS Runoff	Peak discharge	= 0.177 cfs
Storm frequency	= 2 yrs	Time to peak	= 865 min
Time interval	= 5 min	Hyd. volume	= 4,417 cuft
Drainage area	= 6.680 ac	Curve number	= 46
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 51.65 min
Total precip.	= 3.90 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 284



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

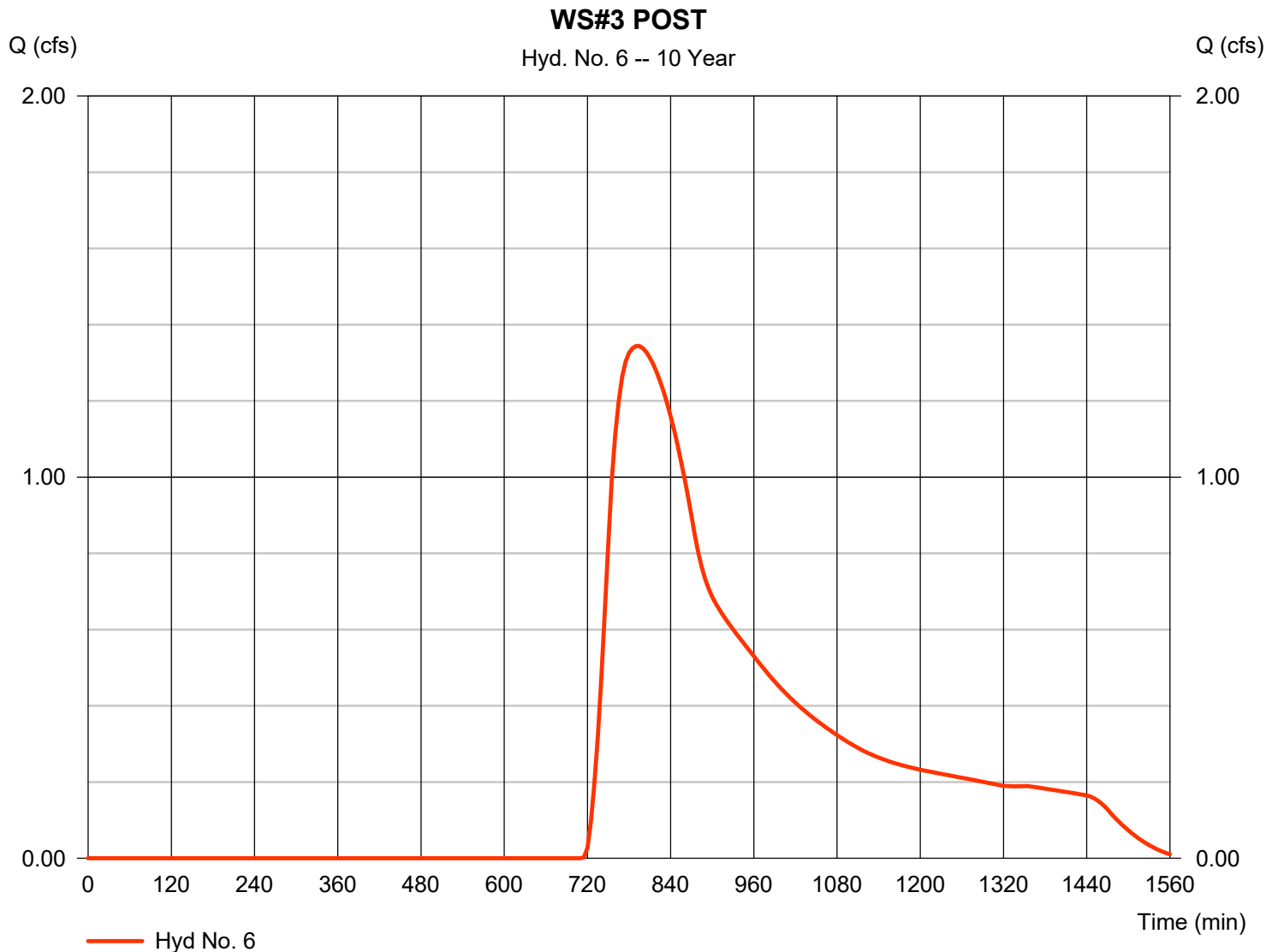
Thursday, 08 / 20 / 2020

Hyd. No. 6

WS#3 POST

Hydrograph type = SCS Runoff
 Storm frequency = 10 yrs
 Time interval = 5 min
 Drainage area = 6.680 ac
 Basin Slope = 0.0 %
 Tc method = User
 Total precip. = 6.00 in
 Storm duration = 24 hrs

Peak discharge = 1.344 cfs
 Time to peak = 790 min
 Hyd. volume = 21,136 cuft
 Curve number = 46
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 51.65 min
 Distribution = Type III
 Shape factor = 284



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

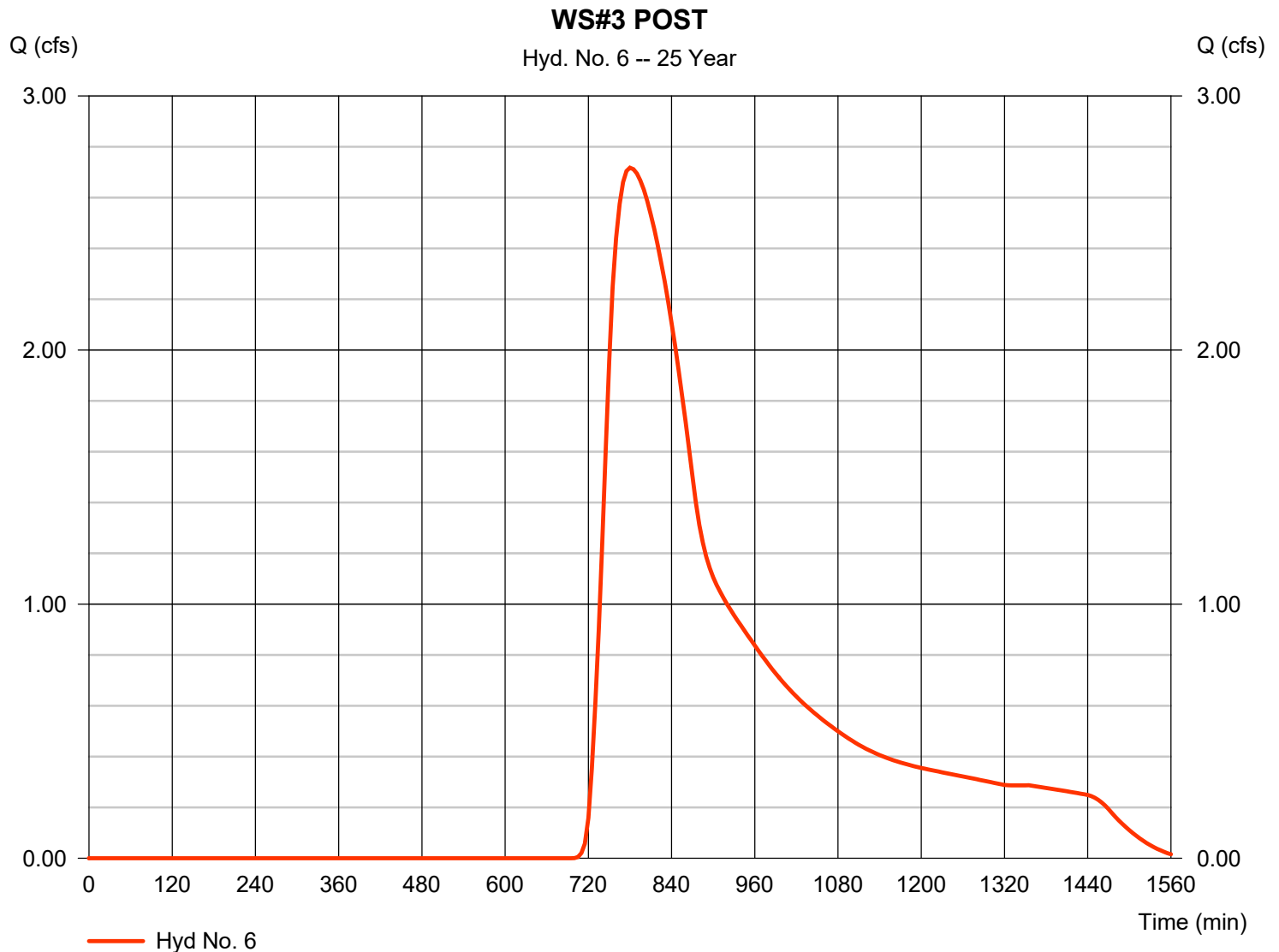
Thursday, 08 / 20 / 2020

Hyd. No. 6

WS#3 POST

Hydrograph type = SCS Runoff
 Storm frequency = 25 yrs
 Time interval = 5 min
 Drainage area = 6.680 ac
 Basin Slope = 0.0 %
 Tc method = User
 Total precip. = 7.40 in
 Storm duration = 24 hrs

Peak discharge = 2.718 cfs
 Time to peak = 780 min
 Hyd. volume = 37,073 cuft
 Curve number = 46
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 51.65 min
 Distribution = Type III
 Shape factor = 284



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

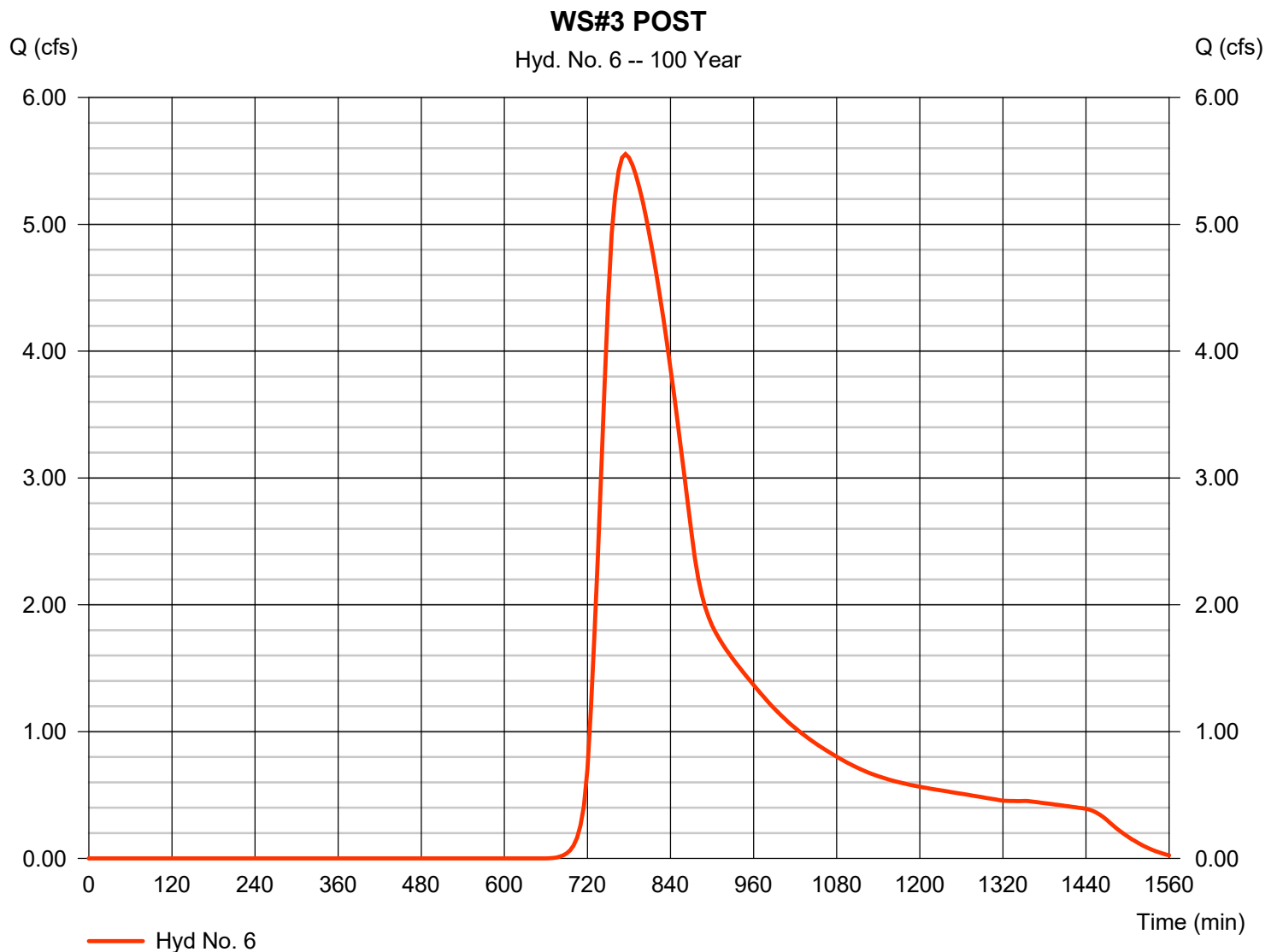
Thursday, 08 / 20 / 2020

Hyd. No. 6

WS#3 POST

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 5 min
 Drainage area = 6.680 ac
 Basin Slope = 0.0 %
 Tc method = User
 Total precip. = 9.60 in
 Storm duration = 24 hrs

Peak discharge = 5.554 cfs
 Time to peak = 775 min
 Hyd. volume = 67,549 cuft
 Curve number = 46
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 51.65 min
 Distribution = Type III
 Shape factor = 284



A copy of the NPDES General Permit for Stormwater Discharges from Construction Activities (SCR100000) can be found at the following address:

<https://scdhec.gov/sites/default/files/docs/Environment/docs/CGP-permit.pdf>

Comprehensive Stormwater Pollution Prevention Plan (C-SWPPP) For Construction Activities:

Project/Site Name:

Royal Pines Drive and Simone Court

Project Address/Location:

Royal Pines Drive at Powell Road (S-24)
Georgetown, SC 29440

Primary Permittee:

Georgetown County
2236 Browns Ferry Rd
Georgetown, SC 29440
843-545-3438

Permittee/Owner Contact:

Jacob Nesmith
2236 Browns Ferry Rd
Georgetown, SC 29440
843-545-3438
jnesmith@gtcounty.org

SWPPP Preparer:

Davis & Floyd, Inc.
Andrew Smyre
3229 West Montague Ave.
Charleston, SC, 29418
843-554-8602
asmyre@davisfloyd.com

Day-to-Day Operator:

C-SWPPP Preparation Date:

1/27/2021

Modification Dates:

Modification I: ____/____/____

Modification II: ____/____/____

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REFERENCE MATERIAL

Appendix A – Site Maps	
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Appendix C –Additional Approvals/Certifications	
Appendix D – Construction General Permit (CGP) – SCR100000	
<i>*C-SWPPP is acronym for Comprehensive Storm Water Pollution Prevention Plan</i>	
<i>**OS-SWPPP is acronym for On-Site Storm Water Pollution Prevention Plan</i>	

1.1 Narrative (CGP Section 3.2.1)

Construction Activities and BMP Summary

The total disturbed acreage for Royal Pines Drive and Simone Court is approximately 1.24 acres, and runoff from the site is distributed among two outfalls. The area contributing to each of the outfalls varies from 3.14 acres to 3.92 acres. Activities performed within the disturbed areas include the clearing of existing roadside embankments, grading of the proposed roadway sub-base and ditches, and the construction of a 2-two-lane, asphalt paved roadways to replace the existing residential dirt roadways.

Perimeter Control BMPs, in the form of silt fence, will be installed before clearing to prevent sediment from entering wetland areas. As sections of the roadside ditches are completed, sediment tubes as well as temporary erosion control blankets will be installed within the flow path of the ditches and serve as the primary sediment control BMP throughout the construction activities. HECP Type III will be used to promote vegetative growth. Riprap will be used to stabilize outfalls. Once final stabilization is reached, temporary BMPs will be removed. As this is a linear construction site, erosion and sediment control measures are not required to be implemented through phased plans.

Pre-Development Conditions

The existing project site consists of two existing roads totaling to approximately 1,600 ft of dirt roadways that are used by private residences. As shown on the Hydrologic Soil Group Map in Appendix A, the site is composed of Echaw sand that is categorized as a Group A hydrologic soil and Hobcaw loam that is categorized as a Group B/D hydrologic soil. The site includes three crosslines but only two outfall locations. There is an existing crossline pipe on Royal Pines Drive at the intersection of Powell Road (S-24) that conveys water from the southern side of Royal Pines to the northern side where it flows into the existing roadside ditches on Powell Road and eventually to an unnamed tributary to the Sampit River. There are two crosslines on Simone Court. One crossline is located approximately 100 feet north of the intersection with Royal Pines. This crossline conveys water from the west side of Simone to the east side where it continues to flow through roadside ditches within the project area until it outfalls at the intersection of Royal Pines and Powell Road. The remaining crossline on Simone Court is located approximately 150' from the intersection of Powell Road and conveys water from the north side of Simone to the south side. From there the water flows through roadside ditches until it outfalls into roadside ditches on Powell Road. The water flows through roadside ditches on Powell until it eventually outfalls into the unnamed tributary to the Sampit River. The flow paths, outlet locations, and drainage areas are shown in **Appendix A**.

Post-Development Conditions

After construction, the project site drainage conditions will not be significantly changed from the pre-development conditions. The previous area covered by the dirt roadway will be covered by an asphalt roadway. Due to the installation of new ditches the site will include replacing both the existing crosslines on Simone Court as well as the crossline on Royal Pines Drive. The post-construction drainage patterns will match that of existing conditions. The replaced crossline on

Royal Pines Drive will be shifted approximately 125' to the west in order to provide appropriate cover. It will continue to convey water from the south side of the road to the north where it flows into the roadside ditches along Powell Road and eventually into the unnamed Tributary to the Sampit River. The existing crossline on Simone Court near the intersection with Royal pines will be replaced and shifted approximately 140 feet to the north to allow for appropriate cover. It will continue to convey water from the west side of the road to the east side. The final crossline on Simone Court near the intersection with Powell road will be replaced and shifted approximately 20 feet to the west to provide appropriate cover. It will continue to convey water from the north side of the road to the south side where the water will flow through roadside ditches along both Simone Court and Powell Road until it reaches the unnamed Tributary to the Sampit River. The flow paths, outlet locations, and drainage areas are shown in **Appendix A**.

Table 1.1-A: Pre/Post Peak Discharges

Summary of Pre/Post Peak Discharges					
Watershed #1 (Pre/Post = 3.14 AC)			Watershed #2 (Pre/Post = 3.92 AC)		
	Pre	Post		Pre	Post
2-YR	0.213	0.052	2-YR	0.200	0.200
10-YR	1.352	0.570	10-YR	1.337	1.214
25-YR	2.513	1.218	25-YR	2.536	2.063
100-YR	4.678	2.136	100-YR	4.861	3.523

Flooding Issues

The site is not located within a flood zone, and there are no known flooding issues around the site. As shown on the Flood Insurance Rate Map provided in Appendix A, the site is located within a Zone X Flood area. As the intent of the proposed linear project is not to drastically alter the drainage conditions of the site, there are not any foreseeable flooding problems to the site or the surrounding area.

1.2 Stormwater Management and Sediment Control (CGP Section 3.2.2)

Erosion Prevention BMPs

As the existing site is cleared and graded erosion prevention BMPs shall be placed throughout the construction site to aid in the prevention of sediment-laden stormwater runoff. These BMPs shall be focused in areas with high potential of erosion, areas preceding infiltration practices, and shall be applied to all steep slopes.

Each erosion prevention measures have been selected on a site-specific basis and details have been provided on the construction site plans. The plans identify all proposed Erosion Prevention BMPs and the references for the recommended installation, maintenance, and inspection procedures.

Examples of Erosion Prevention BMPs are, but are not limited to, temporary seeding using HECP Type III, riprap, and outlet protection. Information on the design and proper use of Erosion Prevention BMPs can be located in the [SC DHEC's BMP Handbook](#).

Sediment Control BMPs

Sediment Control BMPs have been designed and selected to remove some of the sediment accumulated within stormwater runoff, to the best extent practicable. These BMPs help prevent sediment impacts to adjacent properties and water bodies from stormwater discharges originating from construction sites.

As the project is linear in nature, the BMPs such as sediment tubes, rip rap, and geotechnical filter fabric under rip rap are located throughout the site and are installed prior to clearing and grubbing of the site, when applicable, and after mass grading. In addition, to keep excess sediment out of jurisdictional wetlands silt fence will be added near the perimeter of the wetlands after the construction of roadside ditches. The construction plans identify all Sediment Control BMPs and identify references for the recommended installation, maintenance, and inspection procedures. Placement, sizing, and modifications of Sediment Control BMPs should be left to the SWPPP preparer and/or the Site Engineer.

Each sediment control BMP shall be selected on a site-specific basis. Examples of Sediment Control BMPs are, but are not limited to, sediment traps, sediment basins, silt fence, rock check dams, rock sediment dikes, sediment tubes, and inlet protection. Please consult [SC DHEC's BMP Handbook](#) for more information on Sediment Control BMPs.

Dust Control

During extremely dry conditions, drought, and/or excessive winds, the construction site should be treated for dust control to prevent the suspension of fine sediment particles into the air, being carried offsite, and deposited on adjacent properties or surface waters. This practice is not directly called out for on the construction site plans but shall be implemented when directed by the Site Engineer as required by the site conditions. A water tanker used to spray the soil down may be an effective way to prevent excessive dust at a construction site.

Water Quality BMPs During Construction

Site-specific water quality BMPs must be kept in functioning order throughout the lifespan of all construction activities. Each of these BMPs must be maintained and inspected until all areas draining to these BMPs have reached final stabilization, approved by the construction site inspector or the SWPPP Preparer, and recorded within the stabilization log located as an appendix of the On-site SWPPP.

Post-Construction Water Quality

Upon final stabilization, the construction site will be transitioned from the temporary BMPs to the permanent BMPs which include, but may not be limited to, establishing permanent vegetation within the roadside ditches. These water quality controls must be installed and stabilized prior to terminating coverage under the CGP. The project improvements, in general, will contribute to the improvement of the water quality. The existing roadway is permanently disturbed and must be maintained by grading and leveling of its existing gravel and earth surface. The proposed side slopes

will reduce the potential for erosion and paving will permanently stabilize the road by providing a non-erosive wearing surface.

Other Stormwater Management Procedures

Based on the nature, conditions, and/or procedures associated with this construction site, the following items must be followed and adopted by all those conducting land disturbing activities at this site:

- All construction debris must be stockpiled in designated areas, which have been provided with the proper BMPs to prevent the discharge of pollutants through stormwater runoff from building or other similar materials off-site or into surface waters.
- Any additional waste material or stockpile material (i.e., soil and mulch) must also be stored in the designated areas that the contractor, responsible for day-to-day activities at this site, deems appropriate. Silt fence or an approved equal shall surround all stockpiled materials.
- All parties conducting work at this construction site must be informed of and make note of pollutant sources, both industrial and construction, at this site, and be informed of all controls and measures that will be implemented to prevent the discharge of these pollutants in stormwater runoff.
- Any additional non-stormwater discharges, as referenced in the CGP, should be eliminated or reduced to the maximum extent feasible. All unpreventable non-stormwater discharges shall be treated through the approved stormwater management system before release off-site. Following is a list of allowable non-stormwater discharges:
 - Fire hydrant flushing
 - Wash water without detergents
 - Water used for dust control
 - Potable water
 - Building wash down water without detergents
 - Uncontaminated pavement wash water
 - Uncontaminated condensation from mechanical equipment
 - Uncontaminated ground or spring water
 - Water from foundation of footing drains
 - Uncontaminated excavation dewatering
 - Landscape irrigation.

1.3 *Sequence of Construction*

Construction Sequence

- Receive NPDES coverage from DHEC
- Pre-construction meeting
- Notify DHEC EQC Regional office or OCRM office 48 hours prior to beginning land-disturbing activities
- Clearing & grubbing only as necessary for installation of perimeter controls
- Installation of perimeter controls (e.g., silt fence)
- Clearing & grubbing of site
- Mass grading and installation of sediment BMPs
- Permanent stabilization
- File Notice of Termination with DHEC

1.4 Non-Numeric Effluent Limits

Stormwater Volume and Velocity Control

During the implementation of construction activities, all parties performing work at this construction site whose work may affect the implementation of the SWPPP must be informed of and directed on how to comply with this Non-Numeric Effluent Limit, which requires the management of stormwater runoff within the construction site and at each outfall. The purpose of this requirement is to control the stormwater volume and velocity at these locations to minimize erosion.

Specifically, each responsible party should be made aware of the practices that have been or should be implemented at the construction site to accomplish these particular stormwater management practices. Below is a list of practices that may be utilized within the disturbed area and at each outfall at construction sites to control stormwater volume and velocity:

Volume Control

- Limiting the amount of disturbed area and exposed soils
- Staging and/or Phasing of the Construction Sequence;
- Sediment Basins and Sediment Traps
- Diverting off-site flow around the construction site;
- Controlling the Drainage Patterns within the Construction Site;
- Temporary Stabilization of Disturbed Areas.

Velocity Control

- Surface Roughening and/or other Slope Stabilization Practices;
- Level Spreaders, Riprap Plunge Pools and/or other Velocity Dissipation BMPS located at the Construction Site's and Sediment Basin Outfalls.
- Use of Rock Checks, Sediment Tubes, Etc. in Temporary Diversions Swales and Ditches.
- Use of Erosion Control Blankets, Turf Reinforcement Mats, and other Non-Vegetative BMPs that can be used to Quickly Stabilize Disturbed Areas.

The SWPPP Preparer/Engineer should approve any modifications (Additional BMPs or Changes to Existing BMPs) to address the management of stormwater volume and velocity prior to implementation. All approved SWPPPs that were issued coverage under the CGP should include ample BMPs and other control measures to address this specific Non-Numeric Effluent Limit.

Soil Exposure, Compaction and Preservation

Throughout construction activities, the amount of soil exposed during construction should be kept to a minimum. This may be accomplished by minimizing the amount the disturbed area within the permitted Limits of Disturbance (shown on the approved construction site plans) to only that which is necessary to complete the proposed work. For areas that have already been disturbed and where construction activities will not begin for a period of 14 days or more, temporary stabilization techniques must be implemented.

Prior to implementation of any major grading activities, topsoil is to be preserved by placing it in areas designated for stockpiling until final grades are reached. Each stockpile must be equipped with proper sediment and erosion controls to preserve the topsoil and protect adjacent areas from impacts.

Once final grades have been reached, the preserved topsoil should be utilized to apply to areas identified for stabilization. Topsoil contains nutrients and organisms that aid in the growth of vegetation.

The Compaction of Soil should also be minimized to the degree practicable during grading activities. This is especially important during the replacement of topsoil to aid in a quick establishment of vegetative cover. Compaction of soil may also reduce rainfall's ability to infiltrate into the soil, increasing the amount of stormwater runoff.

Soil Stabilization

Throughout construction activities, soil stabilization techniques are to be initiated as soon as practicable whenever any clearing, grading, excavating, or other land-disturbing activities have permanently or temporarily ceased on any portion of the construction site and will not resume for a period exceeding 14 calendar days. For areas where initiating stabilization measures is infeasible (e.g. where snow cover, frozen ground, or drought conditions preclude stabilization), initiate vegetative or non-vegetative stabilization measures as soon as practicable.

Steep Slopes (Slopes of 30% grade or greater)

All disturbed steep slopes (30% grade, ~3H:1V, or greater), and steep slopes to be created through grading activities must be managed in a fashion that limits the potential of erosion along the slopes. All parties whose work is/was responsible for the creation/disturbance of steep slopes must comply with the following items:

- Minimize the Disturbance of all steep slopes, when possible.
- Divert Concentrated or Channelized Flows of stormwater away from and around steep slope disturbances.
- Use Specialized BMP Controls including temporary and permanent seeding with soil binders, erosion control blankets, surface roughening, reducing continuous slope length with terracing or diversions, gradient terraces, interceptor dikes and swales, grass-lined channels, pipe slope drains, subsurface drains, level spreaders, check dams, seep berms, and triangular silt dikes to minimize erosion.
- Initiate Stabilization Measures as soon as practicable on any disturbed steep slope areas where construction activities have permanently or temporarily ceased, and will not resume for a period exceeding 7 calendar days.
- A Vegetative and/or Non-Vegetative Cover must be established within 3 working days from the time that stabilization measures were initiated.

Stabilization of steep slopes should be a priority for those performing work at the construction site. At the very least, runoff control BMPs should be implemented to transport stormwater runoff from the top of the slope to the toe of the slope. An example of this is to install diversion swales along the top of slope and direct the runoff towards pipe slopes drains to transports the runoff to the toe of the slope. All pipe slope drain outlets are to be equipped proper outlet protection.

Sediment Discharge Minimization

Permittees, Contractors, and all other parties responsible for conducting land-disturbing activities are required to install and maintain all erosion and sediment BMPs that are identified on the approved construction site plans. These BMPs have been designed and approved to address such factors as the amount, frequency, intensity and duration of precipitation, the nature of resulting stormwater runoff, and soil characteristics, including the range of soils particle sizes expected to be present on the

construction site. Proper installation, inspection, and maintenance will allow these BMPs to operate at maximum efficiencies in order to minimize sediment discharges to the maximum extent practical.

Pollutant Discharge Minimization

Permittees, Contractors, and all other parties responsible for conducting land-disturbing activities are required to install, implement, and maintain effective pollution prevention measures to minimize the discharge of pollutants. At a minimum, the following items must be implemented:

- Minimize the discharge of pollutants from dewatering trenches and excavations by managing runoff with the appropriate controls. Otherwise these discharges are prohibited;
- Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;
- Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials present on the site to precipitation and to stormwater; and
- Minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures.

Prohibited Discharges

Permittees, Contractors, and all other responsible parties for conducting land-disturbing activities are prohibited to discharge, from the construction site, the following items:

- Wastewater from washout of concrete, unless managed by an appropriate control;
- Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
- Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance; and
- Soaps or solvents used in vehicle and equipment washing.

1.5 Buffer Zone Management

Per Section 3.2.4.C of the CGP, a buffer zone is required to be provided along the surface waters leading to the surrounding wetlands; however, an undisturbed buffer zone is not capable of being provided due to pre-existing development that has disturbed the majority of the required buffer zone area. For this reason Compliance Option C was selected for this project.

Compliance Option C was selected since the pre-existing development has stripped the buffer zone area from natural strands of vegetation. The pre-existing state of the project area was dirt roads with grassed ditches that extended to within a few feet of the surface waters. For this reason, a buffer zone will not be provided as allowed through Compliance Option C listed in Section 3.2.4.C of the CGP.

In order to maintain the required erosion prevention and sediment control, BMPs such as sediment tubes and erosion control blankets will be installed in ditches, and silt fence will be installed along the perimeter of the affected wetlands. These BMPs are to be inspected at least once every 7

calendar days as well as after any storm event with greater than 0.5 inches of precipitation during any 24-hour period. All related calculations and drawings are located in the Appendices.

1.6 Certification Statement

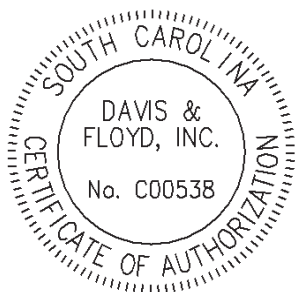
"I have placed my signature and seal on the design documents submitted signifying that I accept responsibility for the design of the system. Further, I certify to the best of my knowledge and belief that the design is consistent with the requirements of Title 48, Chapter 14 of the Code of Laws of SC, 1976 as amended, pursuant to Regulation 72-300 et seq. (if applicable), and in accordance with the terms and conditions of SCR100000."



Name Andrew Smyre

Title Transportation Engineer, P.E.

Date 1/27/2021



Section 2

SITE FEATURES AND SENSITIVE AREAS

2.1 Sources of Pollution

Throughout construction activities, each permittee, contractor, and person responsible for conducting work will need to ensure that sources of pollution are managed to prevent their discharge from the construction site. Expected pollution sources during construction have been identified in Table 2.1-A, but due to the nature of construction activities, it is often tough to predict all pollution sources that may appear throughout the life of a construction project. For that reason, the following table has also been provided to help all those performing work at this construction site identify possible sources of pollution

Stormwater runoff subjected to the identified pollution sources must be treated by the appropriate BMPs as directed by this SWPPP.

In the event that any additional sources of pollution are identified during construction, the person(s) with day-to-day operational control at the site is to add the new source(s) to Table 2.1-A and consult with the SWPPP Preparer to properly address this source and to prevent the discharge of its pollutant through stormwater runoff.

Table 2.1-A: Potential Sources of Pollution

Source	Material or Chemical	Location*	Appropriate Control Measures
Loose soil exposed/disturbed during clearing, grubbing and grading activities	Sediment	All areas within the Limits of Disturbance	As directed by the construction Plans. This includes Silt Fence, sediment tubes, sediment basins, and sediment traps.
Areas where construction equipment are cleaned, a.k.a. concrete washout	Heavy Metals & pH	Located adjacent to each construction entrance	Concrete Washout Basin
Water encountered during trenching	Nutrients & Sediment	In and around any trenching activities.	Direct water into impoundments such as basins or traps to allow for the sedimentation of the listed pollutants.
Paving Operations	Sediment & Trash	All areas to be paved.	As directed by the construction Plans. This includes Silt Fence, sediment tubes, sediment basins, and sediment traps.
Material Delivery and Storage Areas	Nutrients, pH, Sediment, Heavy Metals, oils & grease	All areas used as storage areas	Silt fence and/or sediment dikes
Equipment fueling and maintenance areas	Metals, hydrocarbons, oils and greases	Areas surrounding fuel tanks	Provide secondary containments, locate in upland areas. Repair leaking and broken hoses.
Paints	Metal oxides, stoddard solvent, talc, calcium-carbonate, arsenic	Throughout site, primarily in areas of building construction	Washwater should be contained and is prohibited from being discharged

*Area where material/chemical is used on site.

2.2 Surface Waters

Stormwater runoff from the site follows existing drainage patterns and has two outfall points where runoff is discharged from the site as shown on the Drainage Map in Appendix A. All three of the existing crossline pipes will be replaced, two on Simone Court and one on Royal Pines Drive. The outfalls from both Simone Court and Royal Pines Drive flow into the roadside ditches along Powell Road (S-24) where they eventually flow into the unnamed Tributary to the Sampit River.

2.3 Impairments and TMDLs

Some Waters of the State (WoS) have been identified as not meeting the State's water quality standards for recreational swimming, fish consumption, aquatic life use, and/or shellfish harvesting for one or more pollutants even after controls for point and nonpoint source pollution have been put in place. These waterbodies have been classified as "impaired." Once these waterbodies have been identified they are listed on the State's 303(d) List of Impaired Waterbodies. South Carolina lists impairments as "stations" where samples were taken along a waterbody.

The most recently-approved 303(d) list can be found at the following web address:

https://scdhec.gov/sites/default/files/media/document/PN_IR_Part_I_2018.pdf

After a pre-determined period of time, DHEC is obliged to develop a Total Maximum Daily Load (TMDL) for the pollutant of concern for each impaired station listed on the 303(d) List. A TMDL is the amount of a single pollutant (such as bacteria, nutrients, metals) that can enter a waterbody on daily basis and that waterbody still meet water quality standards. "TMDL" refers to both a calculation of a pollutant entering a waterbody as well as the document containing this calculation along with source assessments, watershed and land use information, reductions and allocations information, implementation and other relevant information, maps, figures, and pictures.

Once a TMDL has been developed and approved by the EPA, the impaired WoS is removed from the 303(d) list. A separate list is maintained for WoS with approved TMDLs.

Any construction site whose discharges are released into a WoS listed on the 303(d) List or for which an EPA-approved TMDL has been developed must address the specific pollutant set forth in the TMDL and/or potential pollutants for the impairment. The SWPPP must include a description of BMPs to address these pollutants.

The primary permittee and/or contractor must ensure that the construction site discharges remain in compliance with the State's water quality standards. To do so, these parties will have to ensure the function of all approved BMPs to handle the specific pollutant.

Construction Stormwater Discharges are expected to contain pollutants that contribute and/or can cause the following impairments to receiving water bodies: BIO (Macroinvertebrate Community), Turbidity, TP (Total Phosphorus), TN (Total Nitrogen), CHLA (Chlorophyll-a), and Fecal Coliform in waters classified for Shellfish Harvesting in the coastal zone. The presence of any of these impairments in receiving waters will require approval control of the site's construction stormwater discharges. Information on each of these impairments and how to treat stormwater runoff for these impairments has been provided below.

Impairments Effectuated by Construction Site Discharges and Methods to Control Potential Pollutants Causing or Contributing to the Impairments

1. BIO (Macroinvertebrate Community): A balanced and varied group of Macroinvertebrate organisms is an indicator of a healthy stream that supports aquatic life. A balanced community can be defined as a natural, diverse group of organisms (including Macroinvertebrate) characterized by the ability to sustain itself through season changes, presence of food chain species and a lack of domination by pollutant tolerant or invasive species. If these conditions do not exist, then the site may be considered impaired due to the presence of an undesirable or non-existent Macroinvertebrate community. Sediment from construction sites may further threaten the propagation of these organisms.

Address by: Examples include limiting the amount of disturbed area, designing sediment control BMPs to remove the maximum amount of sediment possible, immediate stabilization of disturbed areas, and other practices may be utilized to control the discharge of sediment from construction sites.

2. Turbidity: Turbidity can be generally defined as the “cloudiness” of a waterbody and may be caused by the growth of aquatic phytoplankton and the presence of suspended solids in the water column. In SC, a water quality standard for turbidity is applicable to all waters of the State (see R. 61-68 D. 11. for numeric targets by waterbody classification). Turbidity levels that exceed the water quality standard may reduce light penetration, thereby inhibiting aquatic flora growth, and may reduce the ability of fauna, such as fish, to absorb oxygen across their gills.

Address by: Examples include limiting the amount of disturbed area, designing sediment control BMPs to remove the maximum amount of sediment possible, immediate stabilization of disturbed areas, and other practices may be utilized to control the discharge of sediment from construction sites.

3. TP (Total Phosphorus): Similar to total nitrogen, TP is an essential nutrient for the propagation of aquatic life. In SC, a water quality standard for TP is applicable to lakes greater than 40 acres (see R. 61-68 D. 11. for numeric and narrative targets). At acceptable levels, TP is assimilated by aquatic flora ensures the propagation of an overall balanced, indigenous aquatic community. TP levels that exceed the water quality standard are considered impaired and may cause negative impacts to the overall health of the aquatic community by promoting excessive algal growth in lakes. Phosphorous may enter a site’s stormwater when excess amounts of the nutrient are applied to the site during temporary or final stabilization.

Address by: To prevent this soil should be tested to determine the quantity of the nutrient present in the soil and the correct amount that needs to be added so that it is absorbed by the vegetation.

4. TN (Total Nitrogen): Similar to total phosphorus, TN is an essential nutrient for the propagation of aquatic life. In SC, a water quality standard for TN is applicable to lakes

greater than 40 acres (see R. 61-68 D. 11. for numeric and narrative targets). At acceptable levels, TN is assimilated by aquatic flora and ensures the propagation of an overall balanced, indigenous aquatic community. TN levels that exceed the water quality standard are considered impaired and may cause negative impacts to the overall health of the aquatic community by promoting excessive algal growth in lakes. Nitrogen may enter a site's stormwater when excess amounts of the nutrient are applied to the site during temporary or final stabilization

Address by: Examples include that the soil should be tested to determine the quantity of the nutrient present in the soil and the correct amount that needs to be added so that it is absorbed by the vegetation.

5. Chlorophyll-a (CHLA): CHLA is a pigment present in the cells of photosynthetic flora and some algal species. The presence of CHLA in an aquatic environment is a water quality indicator of the overall productivity in the aquatic system. CHLA is linked to the levels of TP, TN and light penetration in the water column. In SC, a water quality standard for CHLA is applicable to lakes greater than 40 acres (see R. 61-68 D. 11. for numeric and narrative targets). CHLA levels that exceed the water quality standard may suggest that other undesirable water quality impacts are present as the aquatic system may be too productive to support the propagation of an overall balanced, indigenous aquatic community. Excess nutrients may discharge from a construction site during temporary and final stabilization. Limiting the amount of phosphorus and nitrogen applied while establishing vegetation will prevent excessive levels of CHLA in receiving waters.

Address by: Examples include that the soil should be tested to determine the quantity of the nutrients present in the soil and the correct amount that needs to be added so that it is absorbed by the vegetation.

6. Fecal Coliform (FC) in Shellfish Harvesting waters: Fecal Coliform is an indicator bacteria for other pathogens which may be present in a waterbody. Shellfish Harvesting Waters are tidal salt waters protected for shellfish harvesting and must be protected to a higher standard than other waters because of the risk to human health posed by ingesting shellfish from areas with high levels of bacteria. Bacteria levels increase following rain events. Potential sources of bacteria on construction sites include improperly located porta-johns and litter that may attract rodents and other animals.

Address by: Porta-johns should be placed away from WoS and not placed on catch basins and other drainage structures. Litter and construction debris should be placed in identified areas and emptied on a routine basis.

Impairment Sources and Prevention

Construction sites can contribute to these impairments directly through the release of excess soil and/or nutrients within stormwater runoff. For this reason, proper sediment and erosion control BMPs should be implemented and the design of the stormwater management systems, during both construction and post-construction, should address the control of stormwater runoff. A reduction in the volume released or the rate at which this volume is released can significantly improve the quality of stormwater runoff and limit the amount of the pollutants that contribute to the above listed impairments.

As an example, sediment basins and/or traps should be used during construction to allow for sedimentation of soils/nutrients, and to control the release of stormwater into the impaired water body. Vegetated Detention and Infiltration structures should be implemented as post-construction BMPs to control stormwater volumes. Caution is advised when using fertilizers to reach Final Stabilization; excess fertilizer can contribute to each of the above listed impairments.

Site-Specific Requirements

This construction site's discharges drain into an unnamed tributary to the Sampit River which is impaired by the following impairments: Dissolved Oxygen (DO), and Mercury (HG). Stormwater discharges from this site do not have a reasonable potential to contribute to any impairments. Proposed BMP's such as silt fences, sediment tubes, HECP Type III, vegetation, and rip rap will ensure the site's discharges will not contribute to or cause further WQS violations. Due to the possibility of pollutants in construction stormwater discharges from this site that may contribute to any of the above impairments, the following must be conducted throughout the lifespan of all land-disturbing activities at this site:

- Biweekly inspections of all the primary sediment control BMPs;
- Employee training/acknowledgement during the Pre-Construction Meeting;
- Installation of additional BMPs to meet the water quality standards (as directed by the SWPPP preparer and as approved by the regulating agency)

Section 3 Compliance Requirements

3.1 SWPPP Availability

Section 3.1.6 of the CGP requires that a copy of the On-Site SWPPP (OS-SWPPP) must be retained at a location where the OS-SWPPP can be easily accessed during normal business hours from the date of commencement to the date that final stabilization is reached. As this project is linear in nature and it is not practical to have the OS-SWPPP on location of the construction site, the OS-SWPPP will be retained off-site by the Permittee or Operator. Notice of the plan's location and any updated contact information must be posted near the main entrance of the construction site.

The Permittee or Operator, upon request, must make the OS-SWPPP available by the end of normal business hours or by the following day under extenuating circumstances. The OS-SWPPP must be made available upon request and at the time of the construction site inspection by the EPA, SCDHEC, a tribal or an entity delegated under Regulation 72-300, and local government officials.

3.2 Pre-Construction Conferences

Section 4.1 of the CGP requires that a pre-construction conference be held to review and explain the requirements of the On-Site SWPPP (OS-SWPPP) before performing any land disturbing activities. The conference may be held either on-site or off-site. Details of how to address and process modifications of the OS-SWPPP, both major and minor, to maintain compliance under the General Construction Permit shall be covered during the conference.

The Permittee shall be responsible for conducting the pre-construction conference(s) and documenting the attendance. This documentation must remain with the OS-SWPPP. All contractors, subcontractors, blanket utility providers, etcetera performing work at the site shall attend the conference(s).

3.3 Inspection Requirements

Section 4.2 of the CGP requires that inspections be conducted on a routine basis of all areas disturbed by construction activity. These areas include perimeter BMPs and material storage areas exposed to precipitation. The purpose of the inspections is to look for evidence of, or potential for, inefficiencies within the On-Site SWPPP (OS-SWPPP), whether they are a direct result of improper design, installation, or maintenance. At a minimum, the inspections shall include the following:

- All areas of the site disturbed by construction activity and areas used for storage of materials that are exposed to precipitation;
- All stormwater conveyance systems for any evidence of, or the potential for, pollutants entering these systems;
- All BMPs identified in the OS-SWPPP;
- All discharge locations to ascertain whether the implemented BMPs are effective in preventing the discharge of sediment from the site. Where discharge locations are inaccessible, nearby downstream locations must be inspected to the extent that such inspections are practicable; and
- Locations where vehicles enter or exit the site must be inspected for evidence of off-site sediment tracking.

The Permittee shall provide qualified personnel and be responsible for inspections of the construction activity and performance of the BMPs.

Frequency

The frequency of the inspections shall be at least once every calendar week after the date of commencement until the date that final stabilization is reached. The frequency may be increased based on the frequency of storm events of 0.5 inches or greater and under the direction of SCDHEC. The frequency of inspections may be reduced to at least once every month for areas that have reached and maintain temporary or final stabilization with no additional disturbance. If a definable area reaches final stabilization, this may be marked on the inspection reports of the OS-SWPPP, and no further inspections of the area will be required.

Rainfall Data

Rainfall data for the days of inspection and rainfall events 0.5 inches or greater must be maintained in the OS-SWPPP. The Permittee may maintain an on-site rain gauge or use data from a certified weather record within a reasonable proximity of the construction site to record the rainfall amounts.

Inspector Qualifications

“Qualified personnel” means a person knowledgeable in the principles and practice of erosion and sediment controls who possesses the skills to assess conditions at the construction site that could impact Stormwater quality and to assess the effectiveness of any BMPs selected to control the quality of Stormwater discharges from the construction site. This person must be either the preparer

of the C-SWPPP or an individual who is under the direct supervision of the preparer of the approved C-SWPPP and who meets the requirements in this paragraph or an individual who has been certified through a Construction Site Inspector Certification Course that has been approved by DHEC. Inspections may also be conducted by a person with a registration equivalent to the registration of the preparer of the C-SWPPP and who meets the qualifications of this paragraph or an individual who is under the direct supervision of the person with an equivalent registration and who meets the requirements in this paragraph.

Inspection Reports

For each inspection required above, the Permittee, or designated personnel, must complete an inspection report. At a minimum, the inspection report must include:

- The inspection date;
- Names, titles, and, if not previously given in an inspection report, the qualifications of personnel making the inspection, unless those qualifications change;
- Weather information for the period since the last inspection (or since commencement of construction activity if the first inspection) including a best estimate of the beginning of each storm event, duration of each storm event, approximate amount of rainfall for each storm event (in inches), and whether you know if any discharges occurred. At the very least, the total rainfall (in inches) since the time of the last inspection must be recorded;
- Weather information and a description of any discharges occurring at the time of the inspection;
- Location(s) of discharges of sediment or other pollutants from the Site;
- Location(s) of BMPs that need maintenance;
- Location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location;
- Location(s) where additional BMPs are needed that did not exist at the time of inspection;
- Corrective action required including any changes to the OS-SWPPP necessary and implementation dates;
- Site Name, Operator Name and permit number; and.
- Verification that all BMPs and stormwater controls identified in the OS-SWPPP have been installed and are operating as designed.

A record of each inspection and of any actions taken in accordance with the Permit must be retained as part of the OS-SWPPP for at least three years from the date that permit coverage expires or is terminated and must be signed by the qualified inspector(s).

3.4 Maintenance Agreement and Requirements

Construction Maintenance

While conducting construction activities, the BMPs and other protective measures identified on the plans and in the On-Site SWPPP (OS-SWPPP) must remain in effective operating condition. If inspections find BMPs that are not operating effectively, maintenance must be performed before the next scheduled inspection or as reasonably possible and before the next storm event whenever practicable.

If inspections reveal that a BMP has been used inappropriately or incorrectly, the Permittee must address the necessary replacement or modification required to correct the issue within 48 hours of identification of the issue. If existing BMPs need to be modified or additional BMPs are necessary to comply with the requirements of the General Construction Permit, the implementation must be before the next storm event whenever practicable. If implementation before the next storm event is impracticable, the situation must be documented in the inspection report in the OS-SWPPP, and alternatives implemented as soon as reasonably possible.

Sediment collected by Silt Fence and other sediment control measures must be removed once the deposited sediment reaches 1/3 of the height of the above-ground portion of the BMP or lower height as specified by the manufacturer.

3.5 Record Keeping

In addition to and in accordance with Section 3.1.1.H.V. of the CGP, the On-Site SWPPP (OS-SWPPP) must contain appendices with the following documents:

- SC DHEC Construction General Permit. Provisions may be made for the copy of general permit to be accessed electronically as long as a hard copy can be made available by the end of the working day when required.
- Stamped and Approved Notice of Intent
- NPDES Coverage Approval Letter
- CZC Certification
- SCDHEC 401 Certification
- USACOE Approvals

Any and all logs as deemed necessary to comply with the Permit which includes, but is not limited to, pre-construction attendance, inspections reports, and rainfall data.

3.6 Final Stabilization

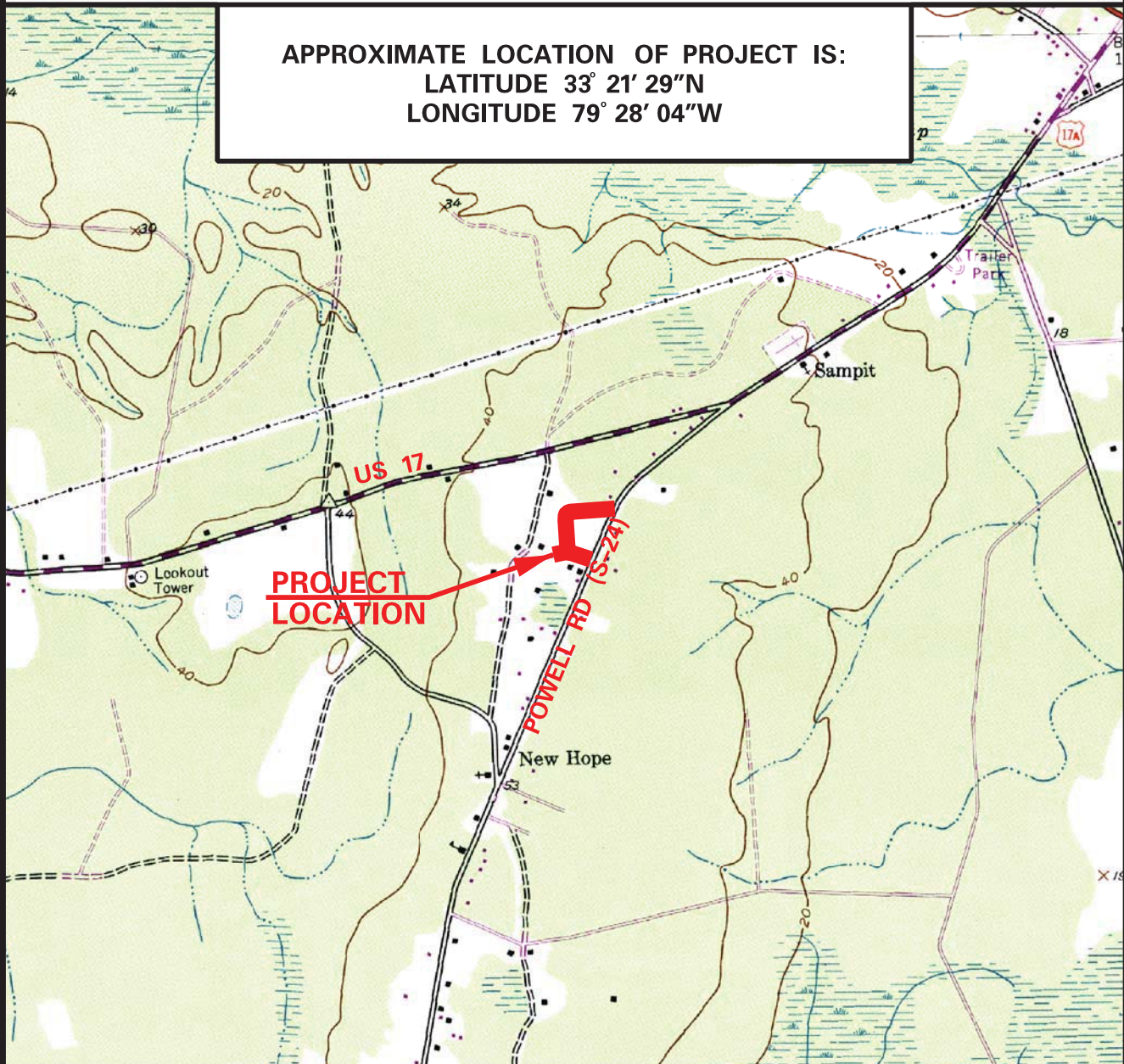
As the final roadway base, shoulder, and ditch grades are established, the site will be transitioned to final stabilization. The roadway and driveways within the site will be stabilized by the application of asphalt over the base course. The shoulders and ditches will be stabilized through the use of HECF Type III, riprap at locations detailed in the construction plan set and permanent seeding. Once the temporary BMPs have been removed and final stabilization has been reached on all disturbed areas, the Notice of Termination shall be submitted.

- Location Map
- Drainage Map
- Topographic Map
- Hydrologic Soil Group Map
- FIRM

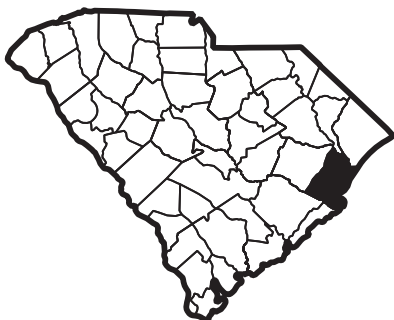
LOCATION MAP

FROM: USGS QUAD MAP KILSOCK BAY (1997)

APPROXIMATE LOCATION OF PROJECT IS:
LATITUDE 33° 21' 29"N
LONGITUDE 79° 28' 04"W



SHADED AREA INDICATES
COUNTY LOCATION IN SC



0 2000
SCALE  FEET

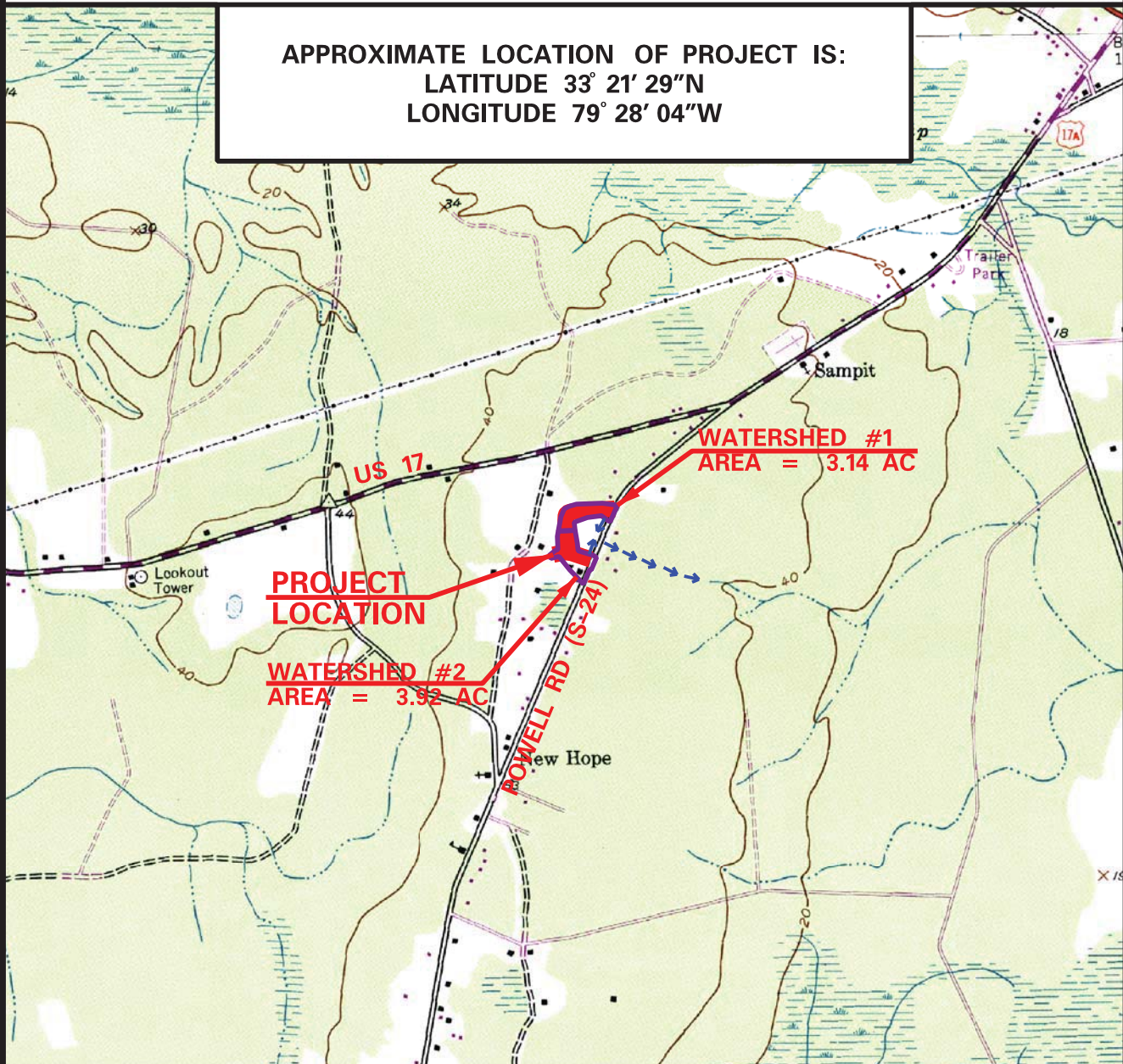


LOCATION MAP
ROYAL PINES DRIVE AND SIMONE COURT
GEORGETOWN COUNTY, SC
APPLICATION BY GEORGETOWN COUNTY
OCTOBER 2020

DRAINAGE MAP

FROM: USGS QUAD MAP KILSOCK BAY (1997)

APPROXIMATE LOCATION OF PROJECT IS:
LATITUDE 33° 21' 29"N
LONGITUDE 79° 28' 04"W



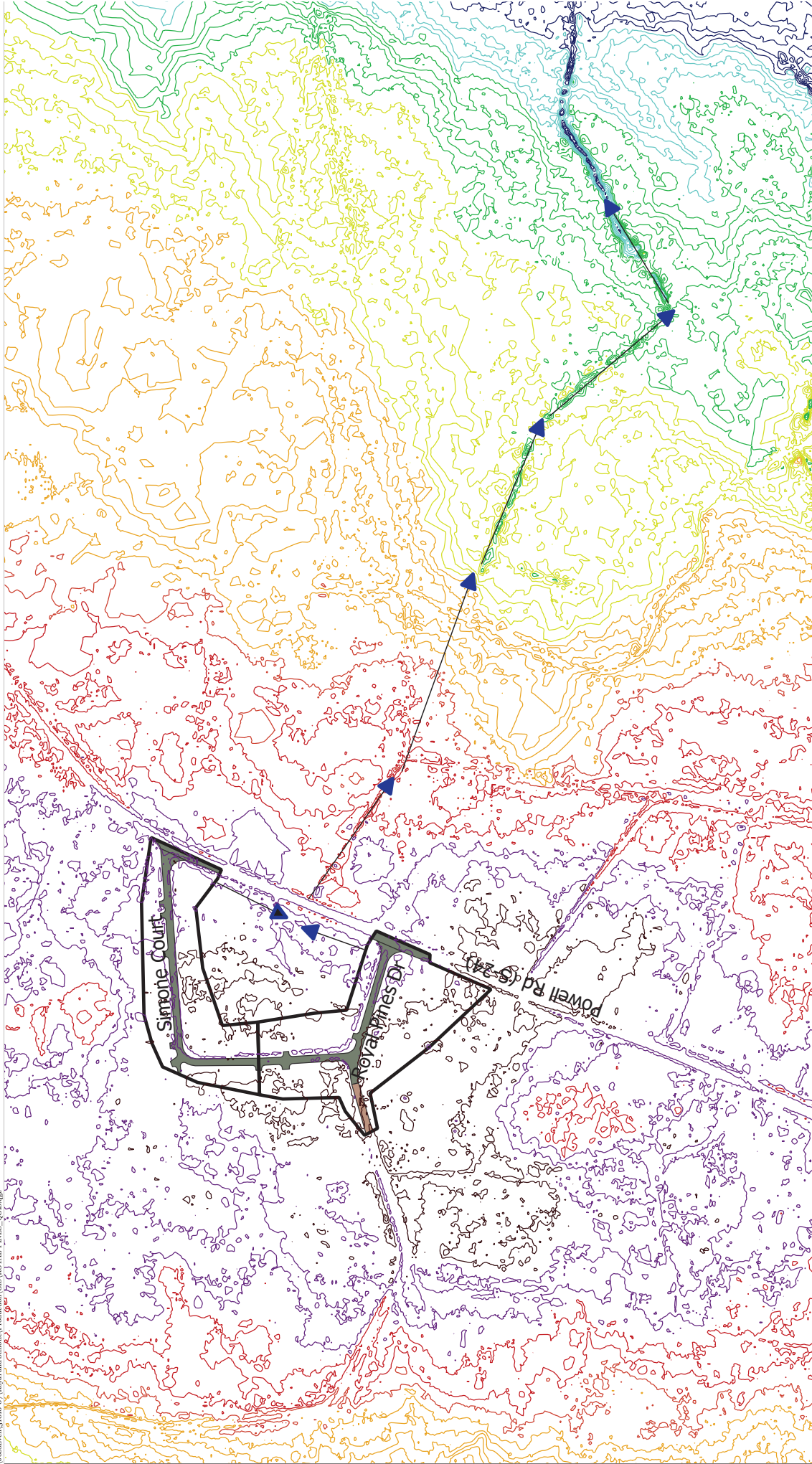
SHADED AREA INDICATES
COUNTY LOCATION IN SC



0 2000
SCALE  FEET



DRAINAGE MAP
ROYAL PINES DRIVE AND SIMONE COURT
GEORGETOWN COUNTY, SC
APPLICATION BY GEORGETOWN COUNTY
OCTOBER 2020



0 300 ft

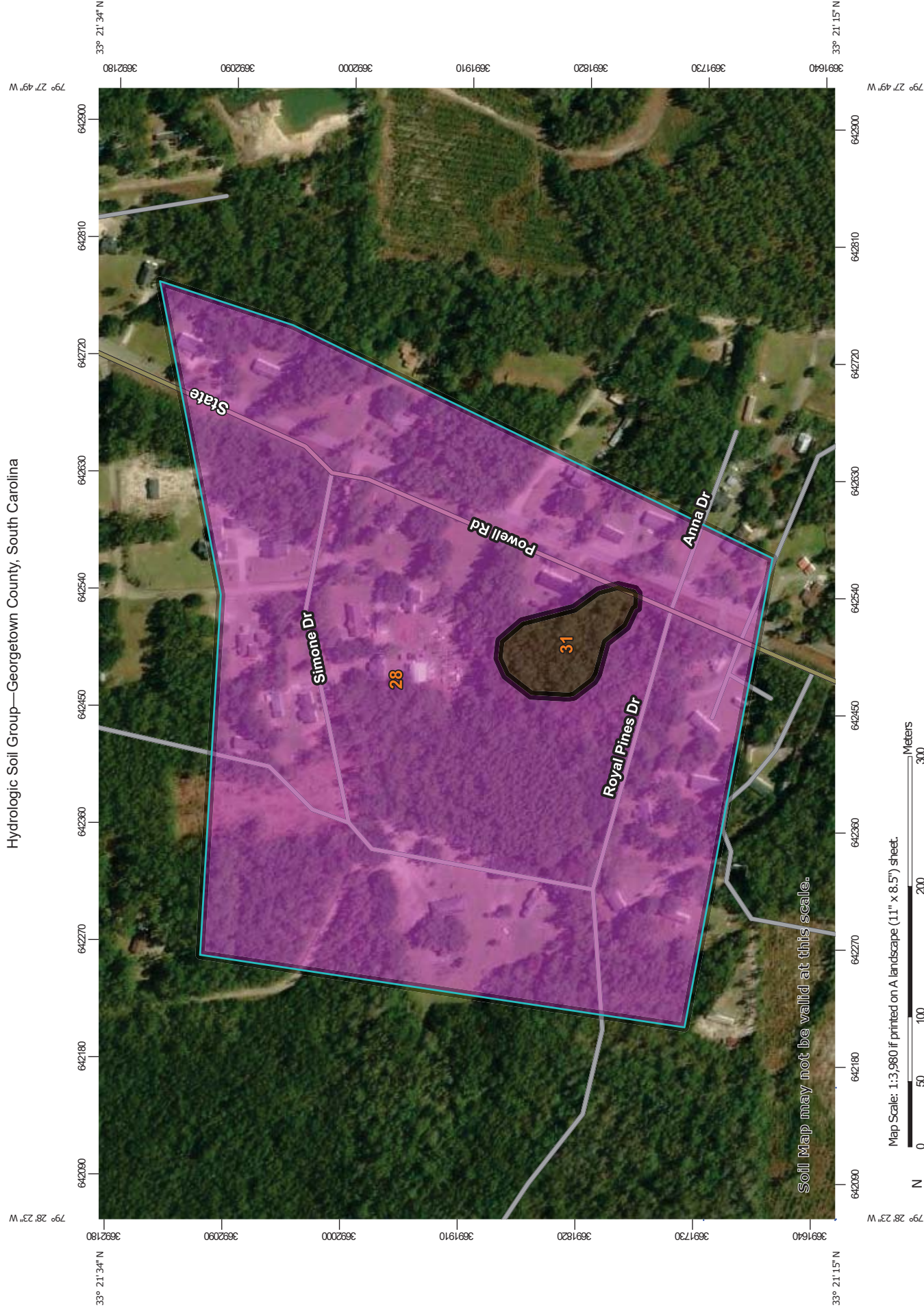
Contours
39-43
44-49
50-52
53-54
>28
29-32
32-38

Watersheds

Outfall Flow Direction

DAVIS & FLOYD
SINCE 1954

Topo Exhibit
Royal Pines Drive &
Simone Court
10/05/2020



Map Scale: 1:3,980 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

C

C/D

D

Not rated or not available

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Georgetown County, South Carolina
Survey Area Data: Version 17, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 29, 2016—Dec 15, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
28	Echaw sand	A	43.6	97.0%
31	Hobcaw loam	B/D	1.3	3.0%
Totals for Area of Interest			44.9	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



LOCATION

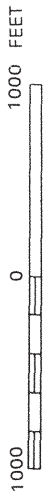
Site headwall on southeast
warp, approximately 0.7
intersection of U.S. Route 17

Site post, from intersection
with on U.S. Route 17A,
section of State Route 42,
42, approximately 9.25
ranch to Morning Glory
feet east-northeast of
approximately 12.4 feet
r of flush headstone (H.
approximately 3.8 feet

Site post flush with ground,
post along U.S. Route 521



APPROXIMATE SCALE



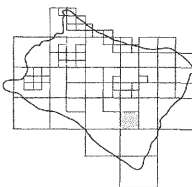
NATIONAL FLOOD INSURANCE PROGRAM

FIRM FLOOD INSURANCE RATE MAP

GEORGETOWN
COUNTY,
SOUTH CAROLINA
(UNINCORPORATED AREAS)

PANEL 355 OF 490
(SEE MAP INDEX FOR PANELS NOT PRINTED)

PANEL LOCATION



COMMUNITY-PANEL NUMBER
450085 0355 E

MAP REVISED:
AUGUST 2, 1996



Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

- Hydrograph Reports

Hydrograph Report

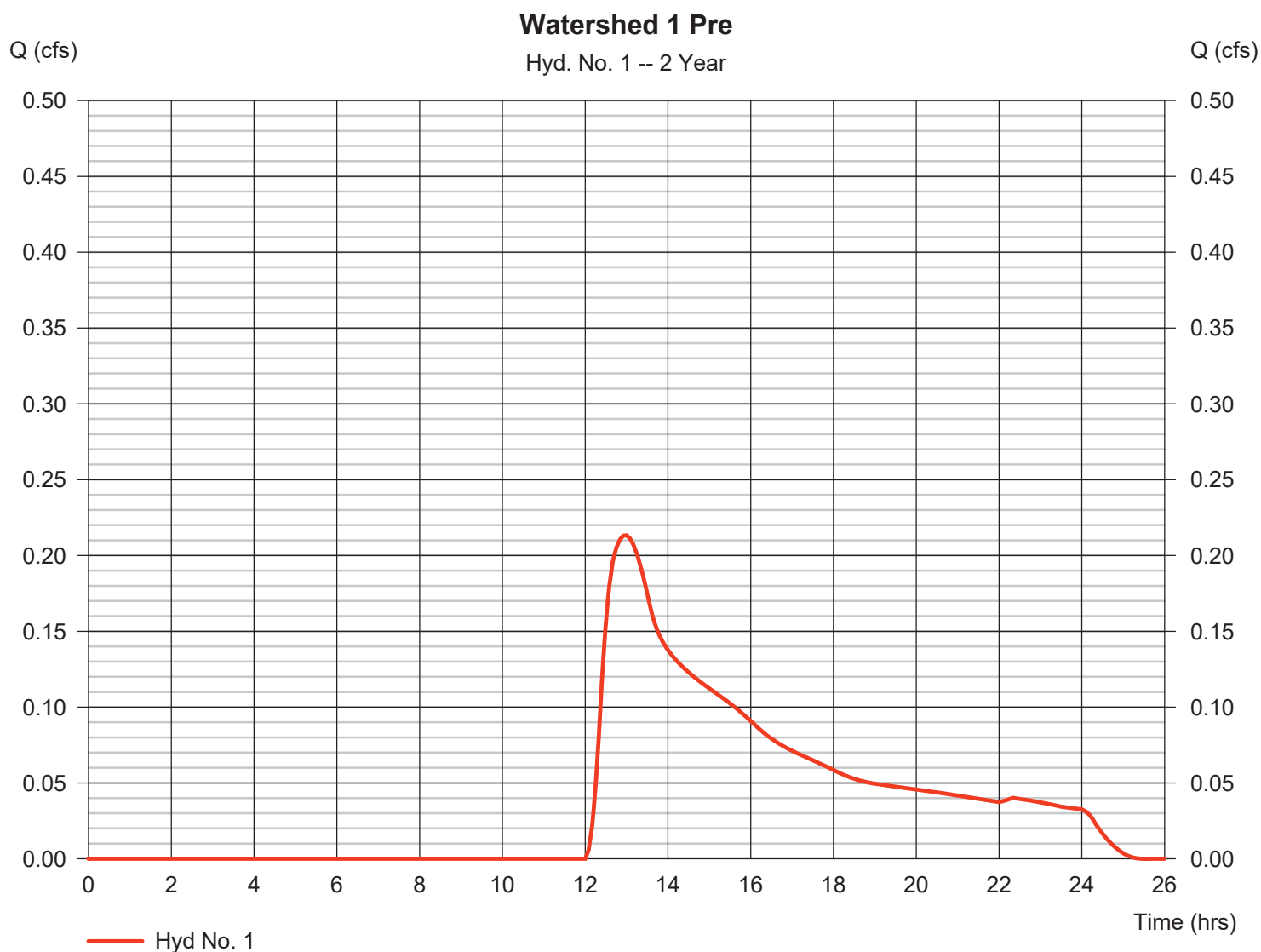
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Tuesday, 09 / 22 / 2020

Hyd. No. 1

Watershed 1 Pre

Hydrograph type	= SCS Runoff	Peak discharge	= 0.213 cfs
Storm frequency	= 2 yrs	Time to peak	= 13.00 hrs
Time interval	= 5 min	Hyd. volume	= 3,421 cuft
Drainage area	= 3.140 ac	Curve number	= 50
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 29.57 min
Total precip.	= 3.90 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 284



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Tuesday, 09 / 22 / 2020

Hyd. No. 1

Watershed 1 Pre

Hydrograph type	= SCS Runoff	Peak discharge	= 1.352 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.67 hrs
Time interval	= 5 min	Hyd. volume	= 12,898 cuft
Drainage area	= 3.140 ac	Curve number	= 50
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 29.57 min
Total precip.	= 6.00 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 284



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Tuesday, 09 / 22 / 2020

Hyd. No. 1

Watershed 1 Pre

Hydrograph type = SCS Runoff
 Storm frequency = 25 yrs
 Time interval = 5 min
 Drainage area = 3.140 ac
 Basin Slope = 0.0 %
 Tc method = User
 Total precip. = 7.40 in
 Storm duration = 24 hrs

Peak discharge = 2.513 cfs
 Time to peak = 12.58 hrs
 Hyd. volume = 21,371 cuft
 Curve number = 50
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 29.57 min
 Distribution = Type III
 Shape factor = 284



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

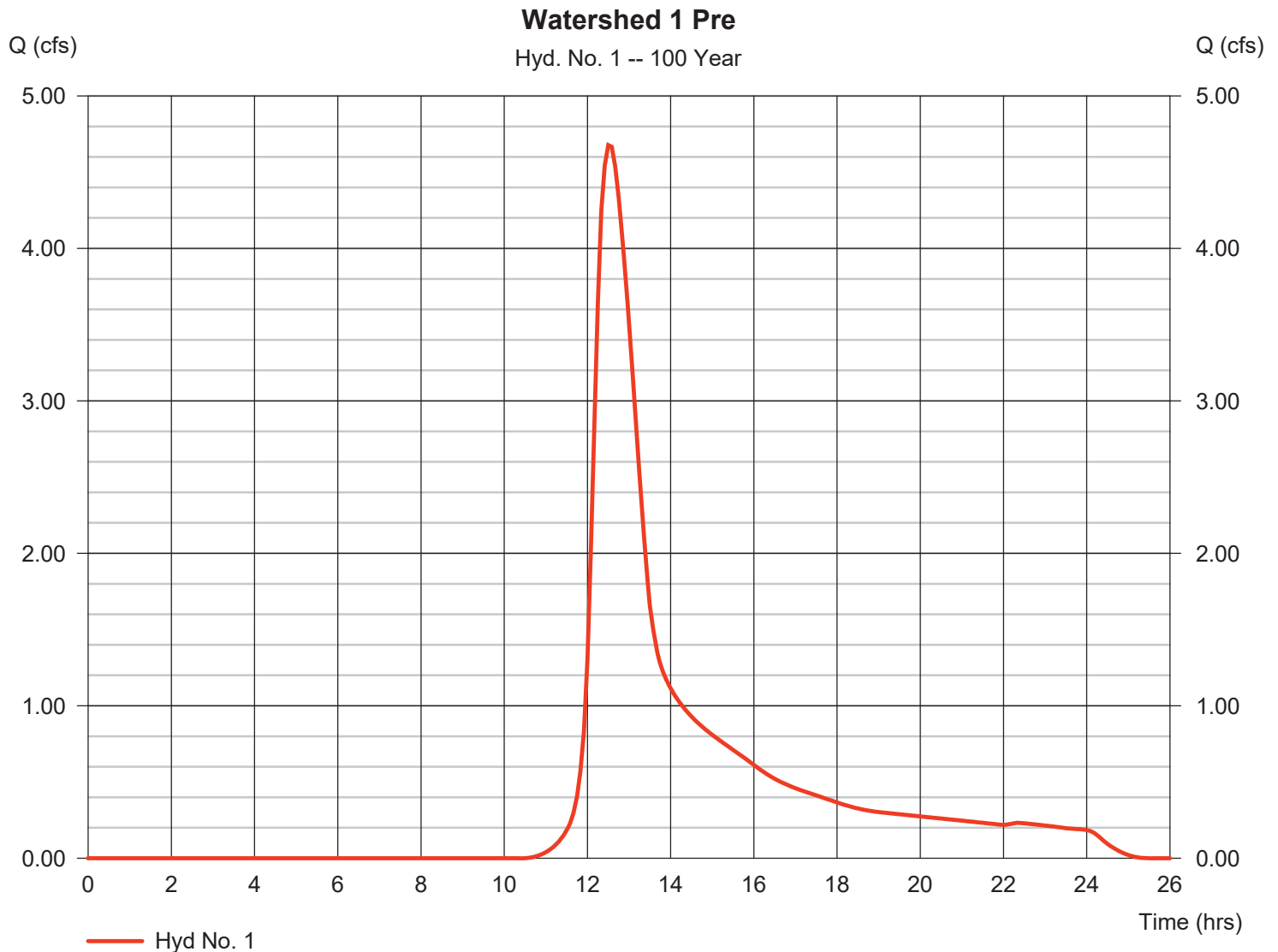
Tuesday, 09 / 22 / 2020

Hyd. No. 1

Watershed 1 Pre

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 5 min
 Drainage area = 3.140 ac
 Basin Slope = 0.0 %
 Tc method = User
 Total precip. = 9.60 in
 Storm duration = 24 hrs

Peak discharge = 4.678 cfs
 Time to peak = 12.50 hrs
 Hyd. volume = 37,039 cuft
 Curve number = 50
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 29.57 min
 Distribution = Type III
 Shape factor = 284

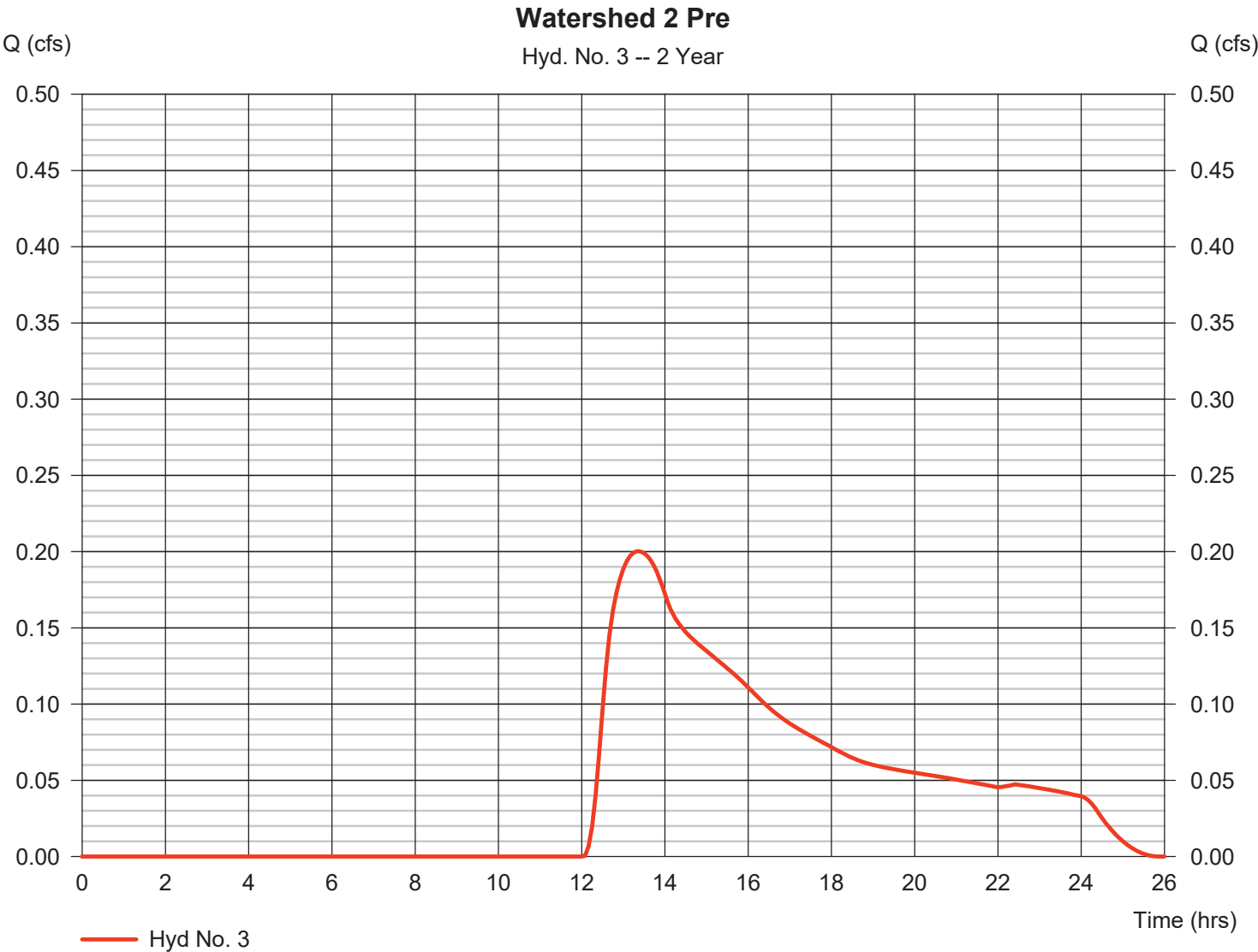


Hydrograph Report

Hyd. No. 3

Watershed 2 Pre

Hydrograph type	= SCS Runoff	Peak discharge	= 0.200 cfs
Storm frequency	= 2 yrs	Time to peak	= 13.33 hrs
Time interval	= 5 min	Hyd. volume	= 3,871 cuft
Drainage area	= 3.920 ac	Curve number	= 49
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 41.03 min
Total precip.	= 3.90 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 284



Hydrograph Report

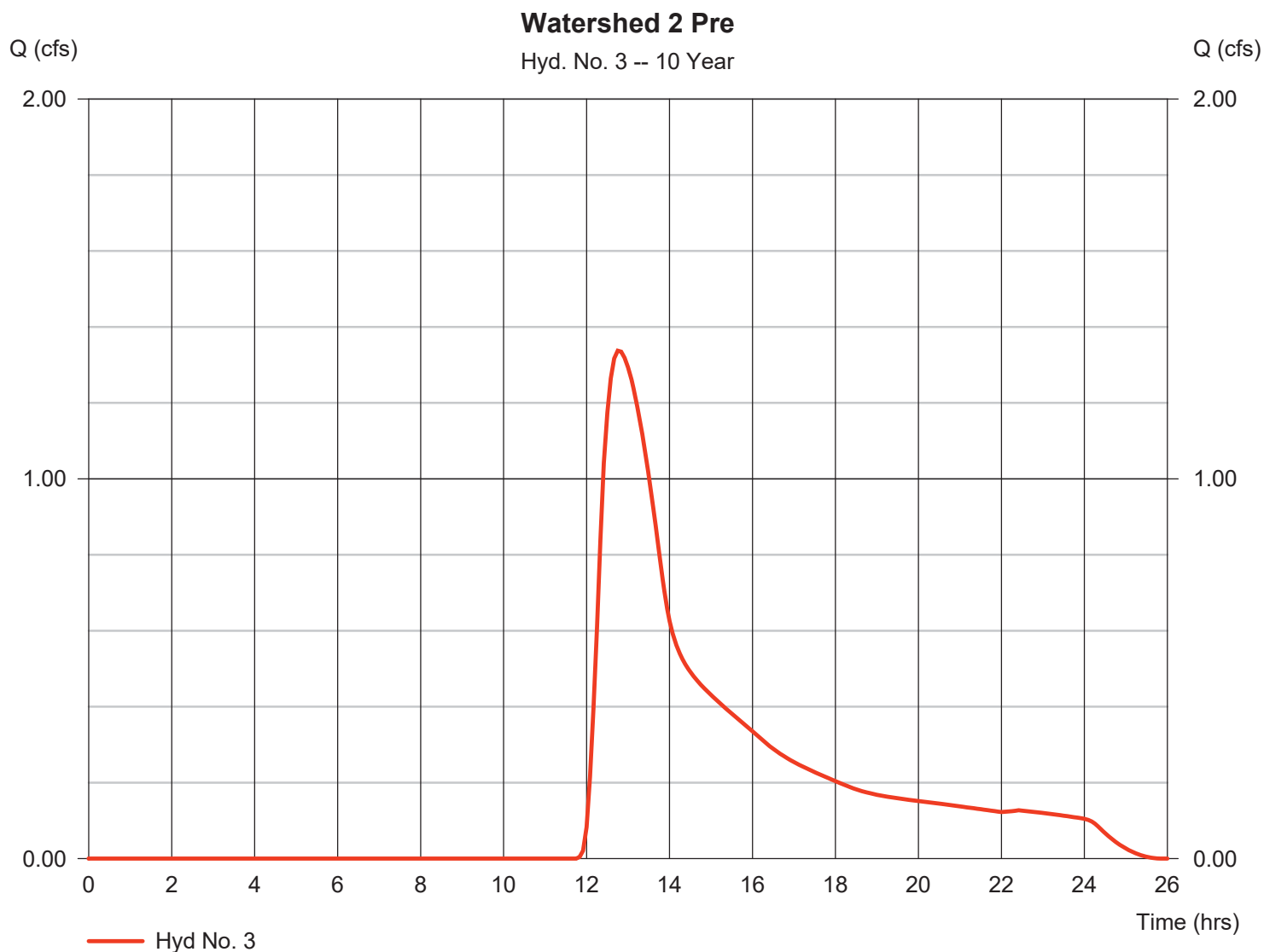
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

Tuesday, 09 / 22 / 2020

Hyd. No. 3

Watershed 2 Pre

Hydrograph type	= SCS Runoff	Peak discharge	= 1.337 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.75 hrs
Time interval	= 5 min	Hyd. volume	= 15,432 cuft
Drainage area	= 3.920 ac	Curve number	= 49
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 41.03 min
Total precip.	= 6.00 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 284



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

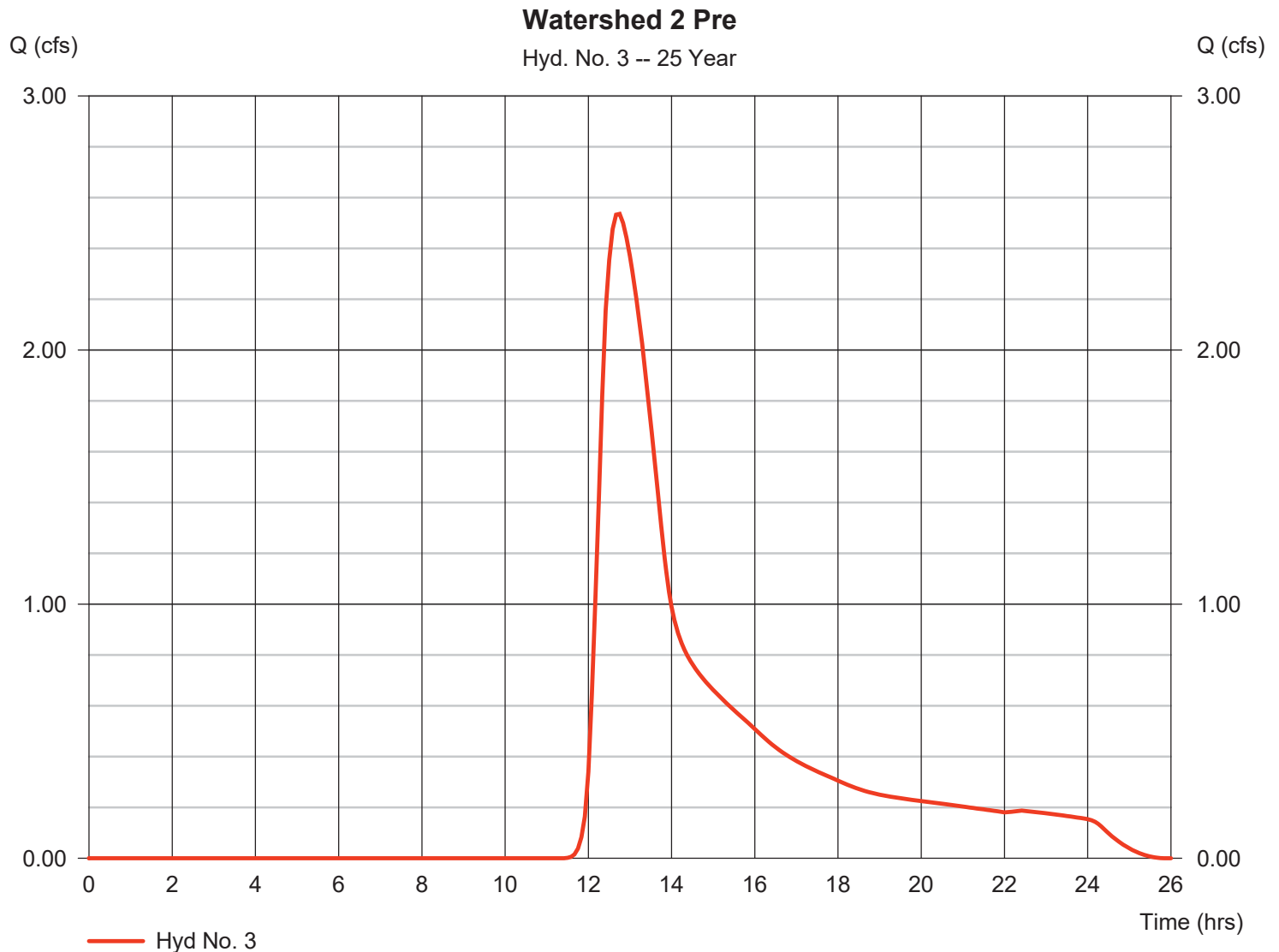
Tuesday, 09 / 22 / 2020

Hyd. No. 3

Watershed 2 Pre

Hydrograph type = SCS Runoff
 Storm frequency = 25 yrs
 Time interval = 5 min
 Drainage area = 3.920 ac
 Basin Slope = 0.0 %
 Tc method = User
 Total precip. = 7.40 in
 Storm duration = 24 hrs

Peak discharge = 2.536 cfs
 Time to peak = 12.75 hrs
 Hyd. volume = 25,904 cuft
 Curve number = 49
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 41.03 min
 Distribution = Type III
 Shape factor = 284



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

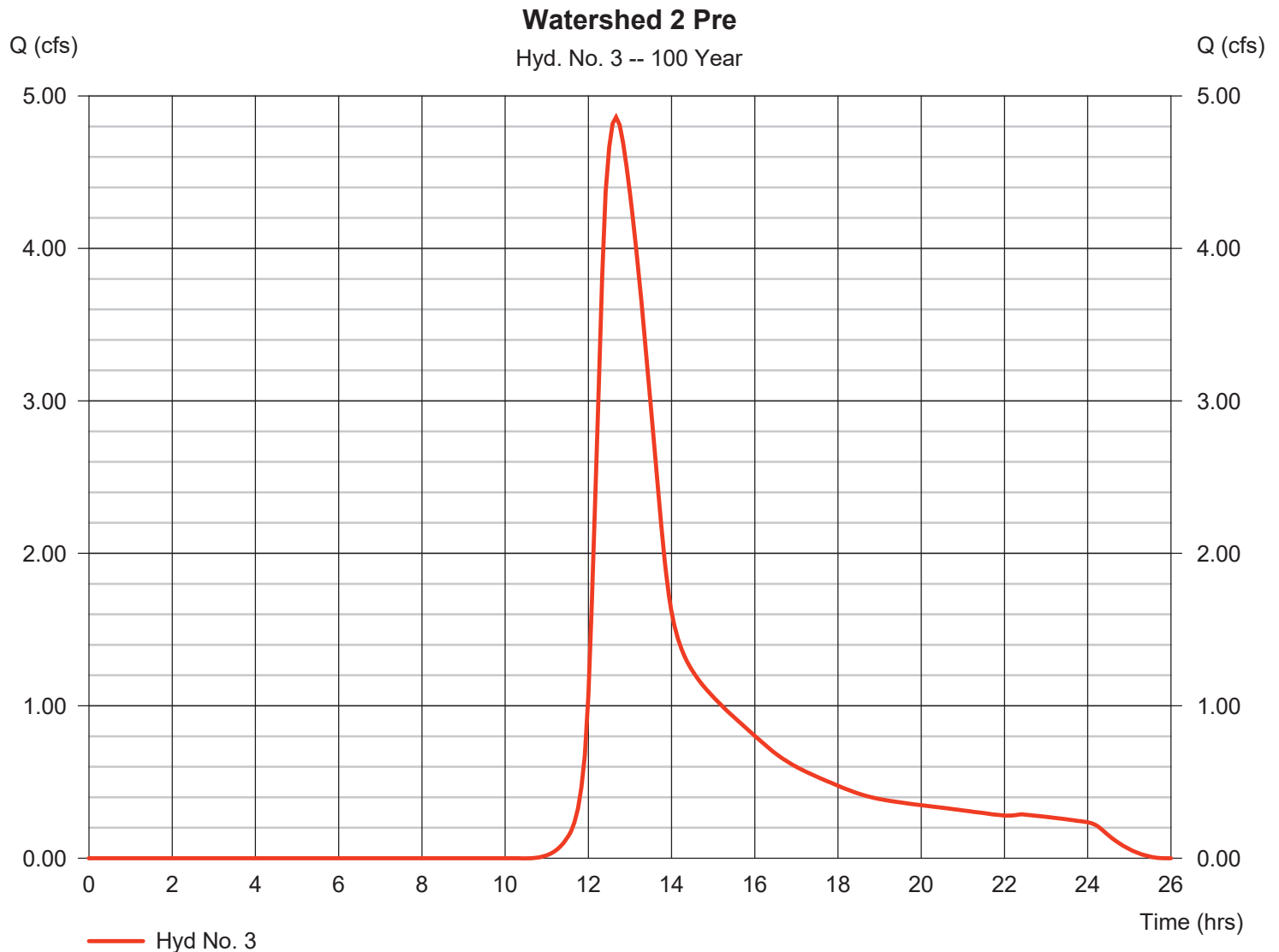
Tuesday, 09 / 22 / 2020

Hyd. No. 3

Watershed 2 Pre

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 5 min
 Drainage area = 3.920 ac
 Basin Slope = 0.0 %
 Tc method = User
 Total precip. = 9.60 in
 Storm duration = 24 hrs

Peak discharge = 4.861 cfs
 Time to peak = 12.67 hrs
 Hyd. volume = 45,416 cuft
 Curve number = 49
 Hydraulic length = 0 ft
 Time of conc. (Tc) = 41.03 min
 Distribution = Type III
 Shape factor = 284



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

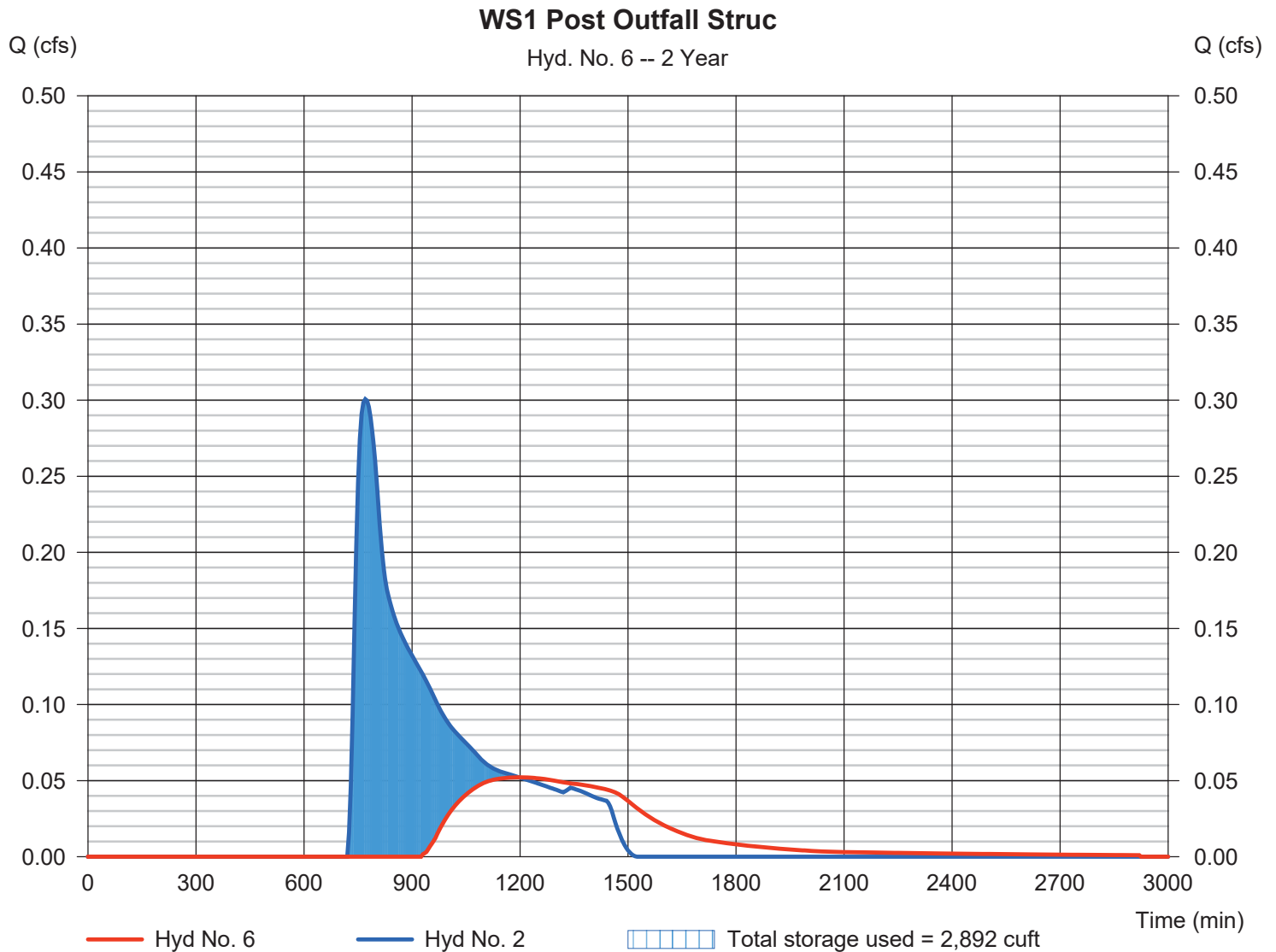
Monday, 10 / 5 / 2020

Hyd. No. 6

WS1 Post Outfall Struc

Hydrograph type	= Reservoir	Peak discharge	= 0.052 cfs
Storm frequency	= 2 yrs	Time to peak	= 1195 min
Time interval	= 5 min	Hyd. volume	= 1,956 cuft
Inflow hyd. No.	= 2 - Watershed 1 Post	Max. Elevation	= 51.70 ft
Reservoir name	= Watershed 1 Ditch Pond	Max. Storage	= 2,892 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

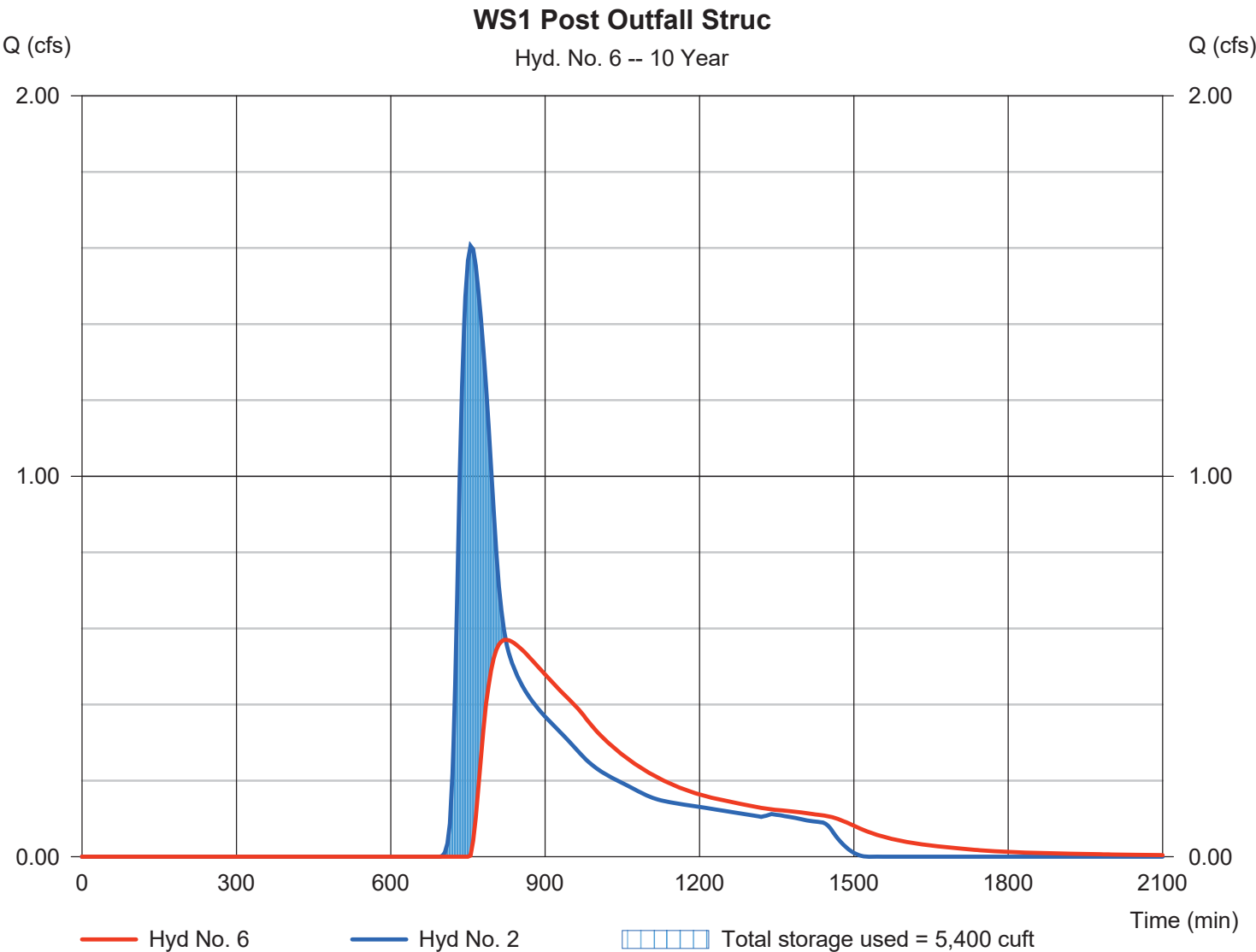
Monday, 10 / 5 / 2020

Hyd. No. 6

WS1 Post Outfall Struc

Hydrograph type	= Reservoir	Peak discharge	= 0.570 cfs
Storm frequency	= 10 yrs	Time to peak	= 825 min
Time interval	= 5 min	Hyd. volume	= 12,299 cuft
Inflow hyd. No.	= 2 - Watershed 1 Post	Max. Elevation	= 52.01 ft
Reservoir name	= Watershed 1 Ditch Pond	Max. Storage	= 5,400 cuft

Storage Indication method used.



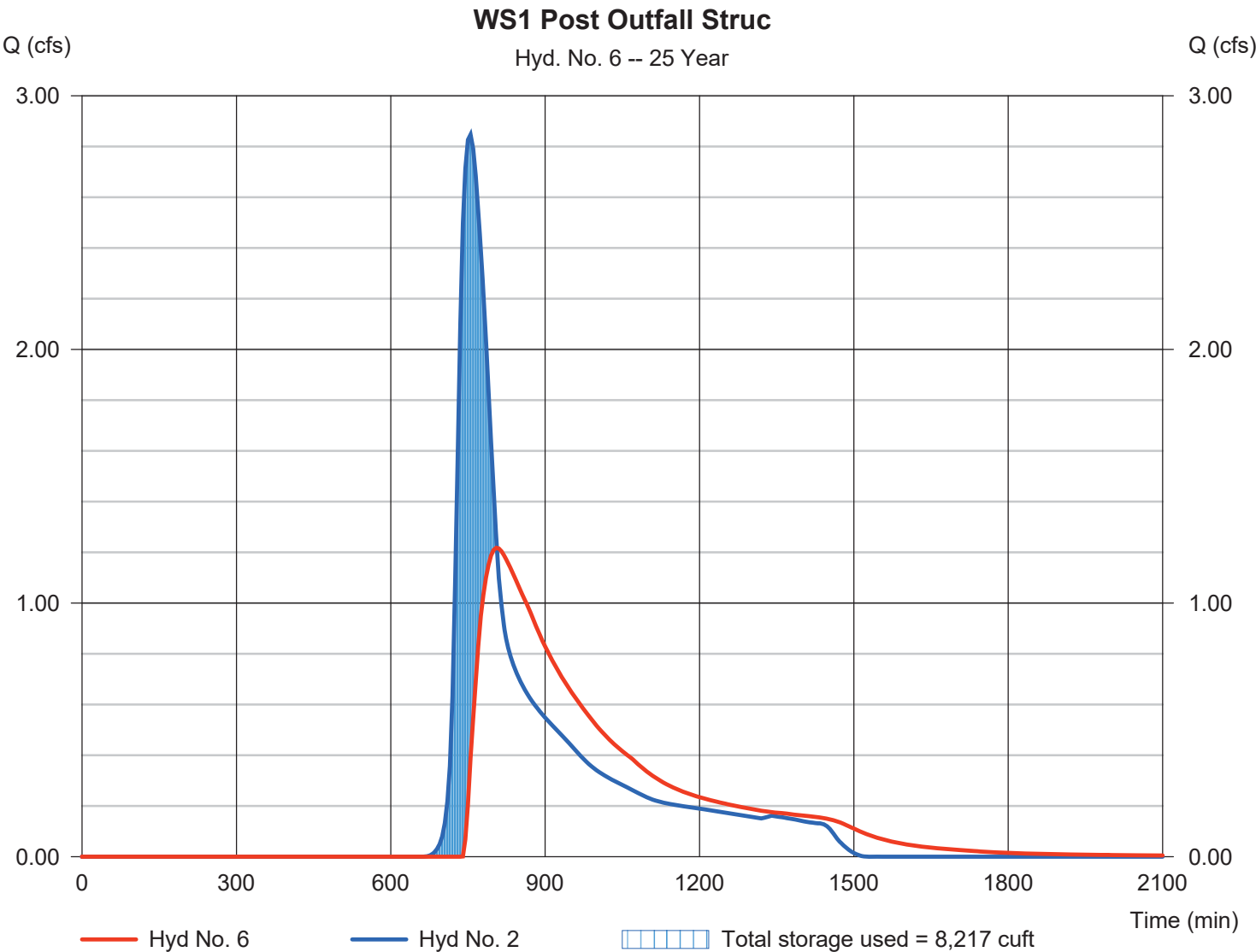
Hydrograph Report

Hyd. No. 6

WS1 Post Outfall Struc

Hydrograph type	= Reservoir	Peak discharge	= 1.218 cfs
Storm frequency	= 25 yrs	Time to peak	= 805 min
Time interval	= 5 min	Hyd. volume	= 21,296 cuft
Inflow hyd. No.	= 2 - Watershed 1 Post	Max. Elevation	= 52.27 ft
Reservoir name	= Watershed 1 Ditch Pond	Max. Storage	= 8,217 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

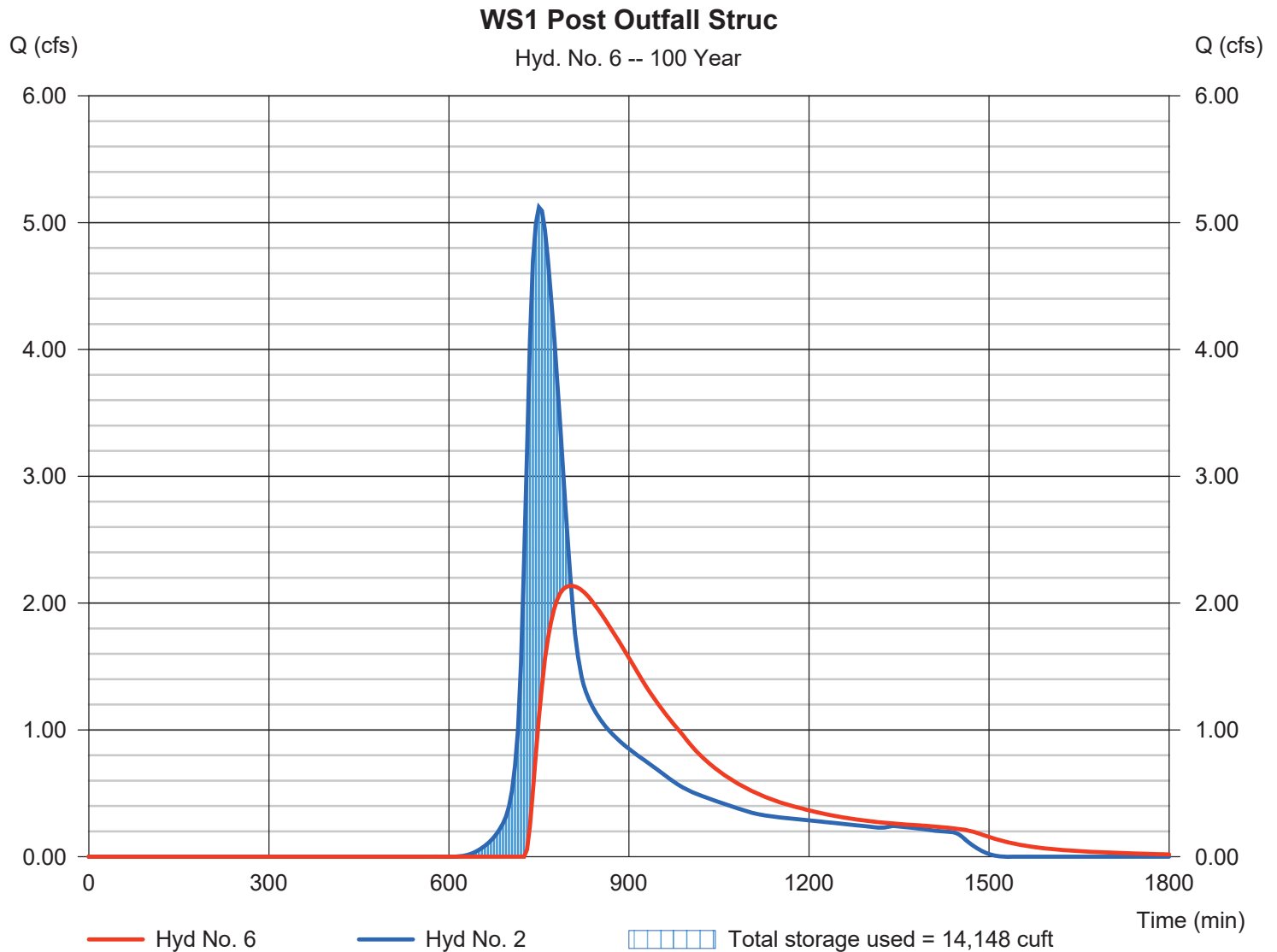
Monday, 10 / 5 / 2020

Hyd. No. 6

WS1 Post Outfall Struc

Hydrograph type	= Reservoir	Peak discharge	= 2.136 cfs
Storm frequency	= 100 yrs	Time to peak	= 805 min
Time interval	= 5 min	Hyd. volume	= 37,701 cuft
Inflow hyd. No.	= 2 - Watershed 1 Post	Max. Elevation	= 52.71 ft
Reservoir name	= Watershed 1 Ditch Pond	Max. Storage	= 14,148 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

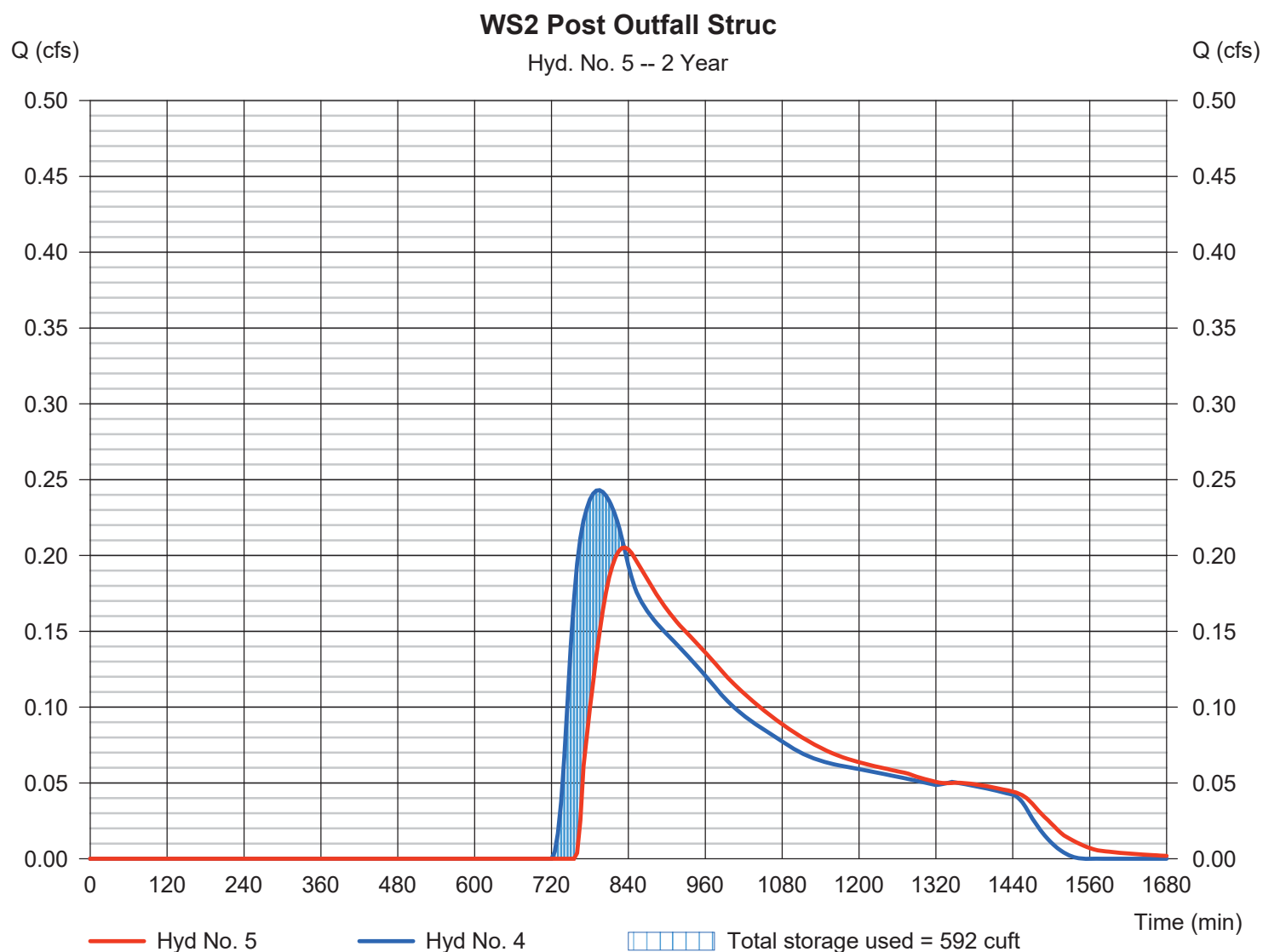
Monday, 10 / 5 / 2020

Hyd. No. 5

WS2 Post Outfall Struc

Hydrograph type	= Reservoir	Peak discharge	= 0.205 cfs
Storm frequency	= 2 yrs	Time to peak	= 835 min
Time interval	= 5 min	Hyd. volume	= 4,192 cuft
Inflow hyd. No.	= 4 - Watershed 2 Post	Max. Elevation	= 51.66 ft
Reservoir name	= Watershed 2 Ditch Pond	Max. Storage	= 592 cuft

Storage Indication method used.



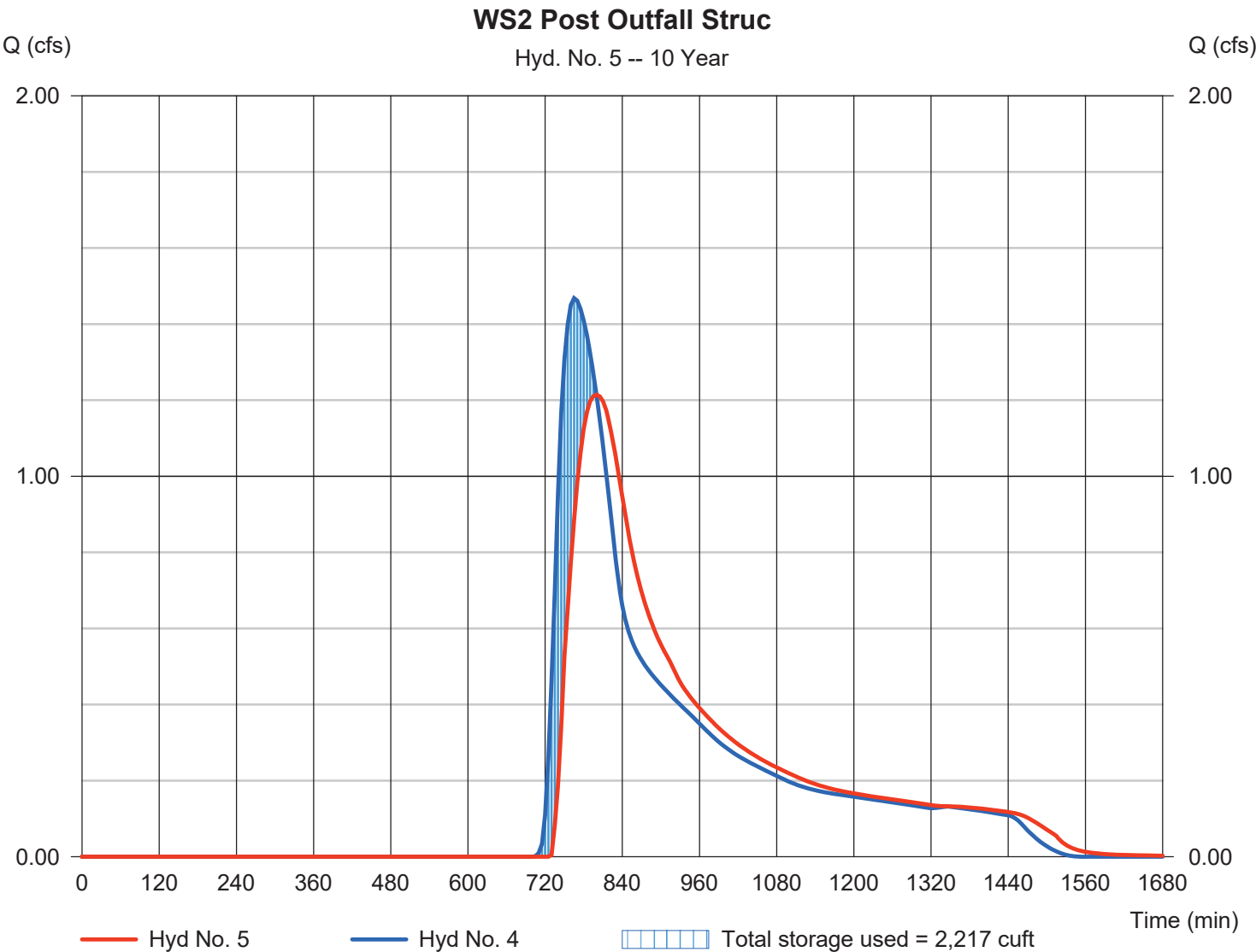
Hydrograph Report

Hyd. No. 5

WS2 Post Outfall Struc

Hydrograph type	= Reservoir	Peak discharge	= 1.214 cfs
Storm frequency	= 10 yrs	Time to peak	= 800 min
Time interval	= 5 min	Hyd. volume	= 16,286 cuft
Inflow hyd. No.	= 4 - Watershed 2 Post	Max. Elevation	= 52.06 ft
Reservoir name	= Watershed 2 Ditch Pond	Max. Storage	= 2,217 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

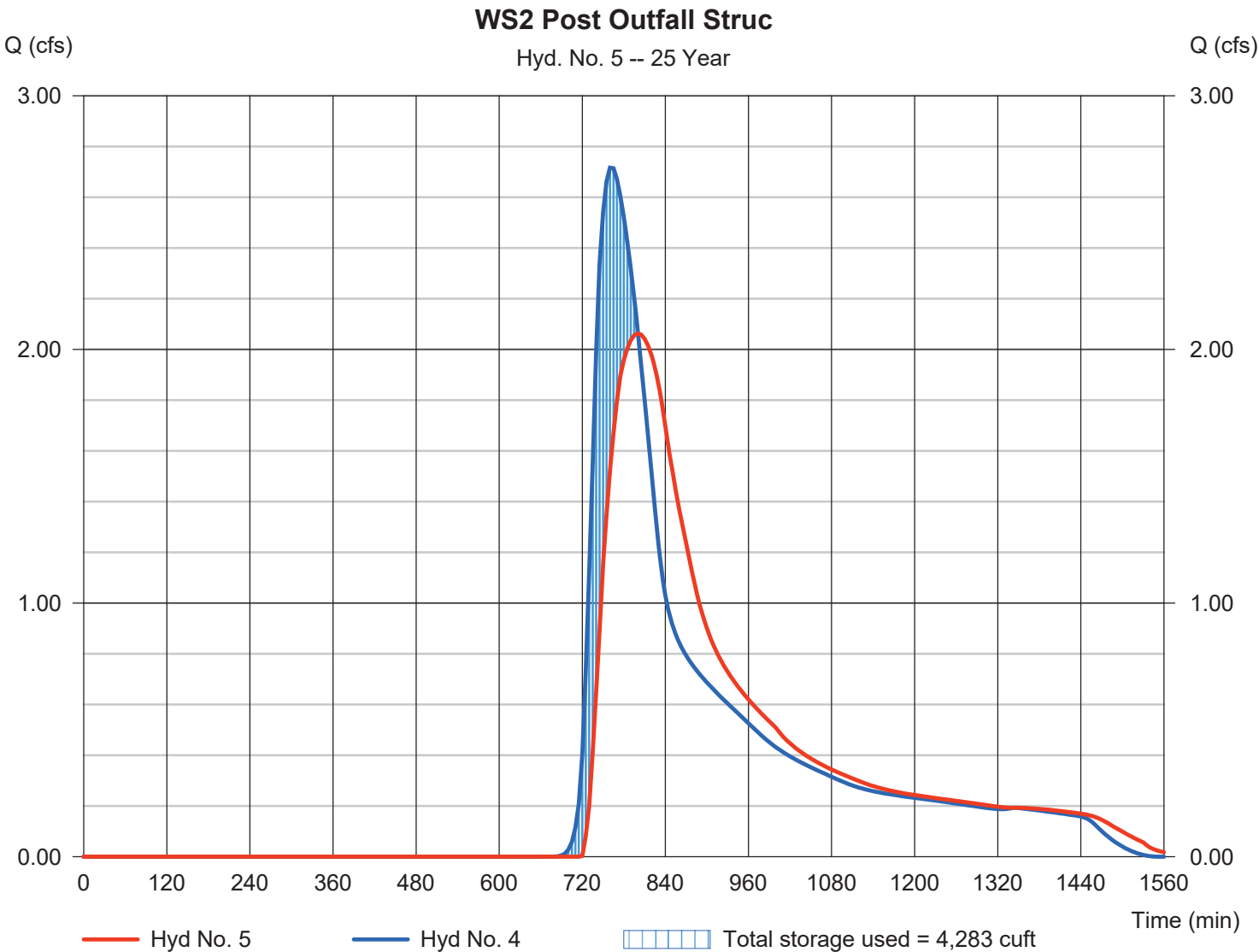
Monday, 10 / 5 / 2020

Hyd. No. 5

WS2 Post Outfall Struc

Hydrograph type	= Reservoir	Peak discharge	= 2.063 cfs
Storm frequency	= 25 yrs	Time to peak	= 800 min
Time interval	= 5 min	Hyd. volume	= 27,099 cuft
Inflow hyd. No.	= 4 - Watershed 2 Post	Max. Elevation	= 52.37 ft
Reservoir name	= Watershed 2 Ditch Pond	Max. Storage	= 4,283 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

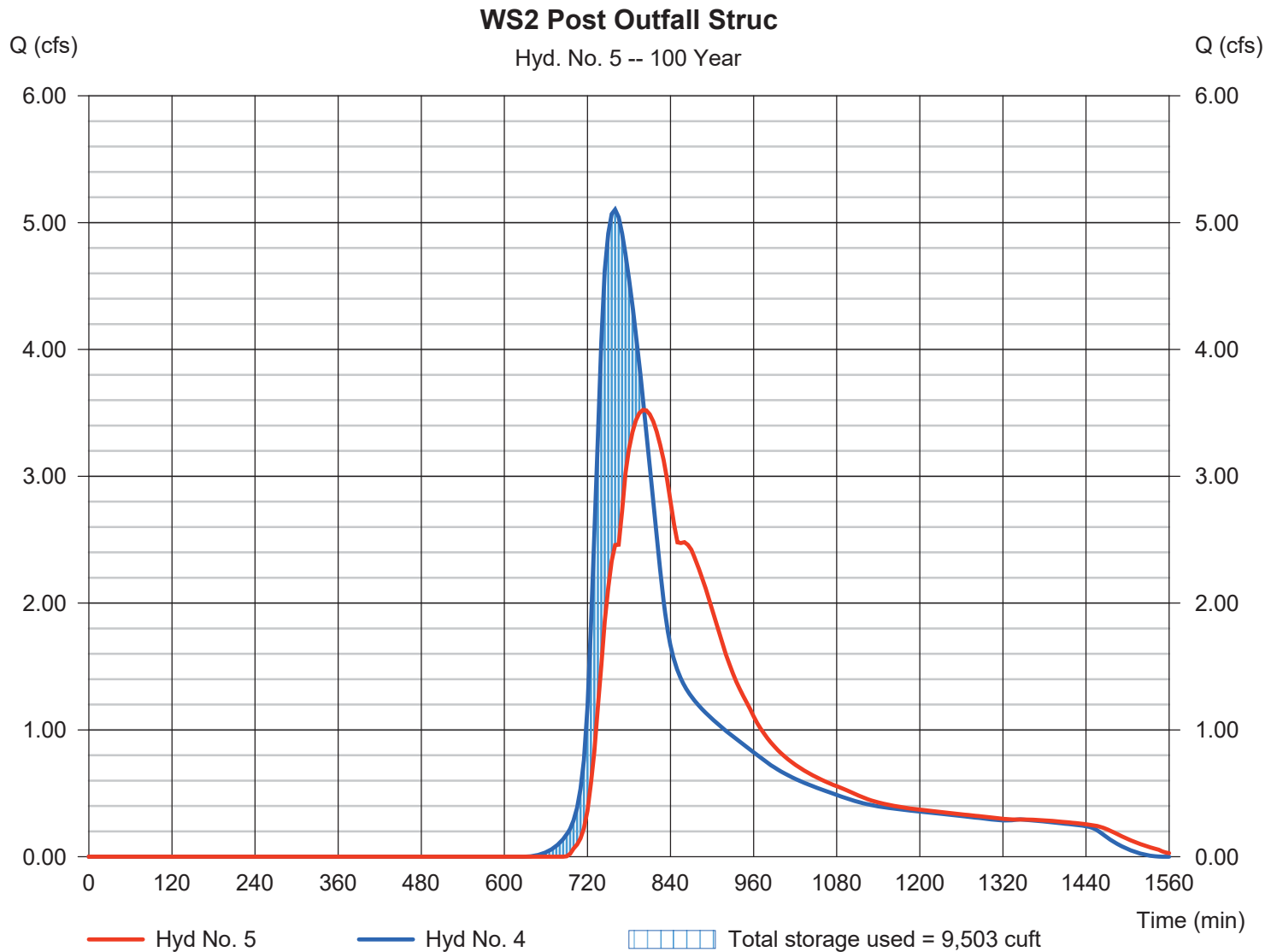
Monday, 10 / 5 / 2020

Hyd. No. 5

WS2 Post Outfall Struc

Hydrograph type	= Reservoir	Peak discharge	= 3.523 cfs
Storm frequency	= 100 yrs	Time to peak	= 800 min
Time interval	= 5 min	Hyd. volume	= 47,094 cuft
Inflow hyd. No.	= 4 - Watershed 2 Post	Max. Elevation	= 52.91 ft
Reservoir name	= Watershed 2 Ditch Pond	Max. Storage	= 9,503 cuft

Storage Indication method used.



Appendix C

Construction General Permit (CGP) – SCR100000

A copy of the NPDES General Permit for Stormwater Discharges from Construction Activities (SCR 100000) can be found at the following address:

<https://scdhec.gov/sites/default/files/docs/Environment/docs/CGP-permit.pdf>