Stantec

February 20, 2024
File: 195113533

Attention: Mr. Rudy Cartier
Candia Planning Board
74 High Street
Candia, NH 03034

Dear Mr. Cartier,

Reference: 669 High Street - Major Site Plan Review#1
Candia Tax Map 405 Lot 48 – Candia Planning Board Case#24-002

In accordance with the request of the Town of Candia, NH Land Use Office we have reviewed the following submitted information, received by email on January 23, 2024, by Jones and Beach Engineers, for the referenced proposed Major Site Plan application in Candia, NH with an associated notice to proceed dated February 7, 2024:

- Major Site Plan, entitled Multi-Family Development, prepared by Jones & Beach, 17-page plan set, dated January 22, 2024.

- Major Site Plan Application, prepared by Jones & Beach, dated January 10, 2024

The project submission was reviewed for conformance with the Town of Candia Zoning Ordinances (Ordinances) and Major Site Plan Regulations (Regulations), as well as other applicable state and local rules and regulations and accepted engineering practices.

Based on our review of the submitted documents we offer the following comments for your consideration:

PROJECT DESCRIPTION

The plans propose the development of an existing 87.8-acre lot, with a 550 linear cul-de-sac common drive roadway proposed intersecting with High Street, across from Donavan Road; with three proposed multifamily buildings (6-units in total), a proposed barn, associated clearing, drainage, utilities, and site improvements. The units will be serviced with an on-site shared well and individual septic systems.

It should be noted that the pre and post storm water calculations and associated report were not provided with the application and that a waiver has been requested by the Applicant for this requirement.

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1. The plans specify that 99,000 SF will be disturbed for the proposed improvements; however, based on our review of the proposed improvements the disturbance areas that are specified are unrealistic and the proposed improvements as shown will disturb more than 100,000 SF and will require a NHDES Alteration of Terrain (AoT) permit.

2. The plans propose the construction of a barn to the North of the proposed duplex units by accessing an existing 8-foot-wide existing trail through and between existing wetlands, based on this we offer the following comments:

    a. additional erosion control measures are required to be provided/specified for the access, disturbance and construction activities associated with providing access and constructing the proposed barn.

    b. The plans specify the use of an existing woods trail for access for the construction of the proposed barn, the existing trail is shown as 8-feet wide in plan view and 12-feet wide in the detail. The 12 –foot wide access seems appropriate but appears to require a wetlands dredge and fill permit at the existing wetlands crossing. Additionally, the grading for this proposed trail widening must be shown on the plans and the disturbance associated with these proposed improvements must be included in the disturbance area total.

    c. The plans specify a 'proposed trail to connect to the existing trail' and a 'proposed 8-foot-wide trail to barn' that extends to the proposed barn but the materials and specifics of the proposed trail widening are unclear, we recommend that a typical cross section for construction be provided.

    d. It is recommended that a subsurface assessment (borings and or test pits) of the existing trail be performed to confirm that the existing trail is suitable to support the necessary construction vehicles and vehicle traffic to the proposed barn without rutting and/or eroding the existing trail and causing impacts to the adjacent wetlands and properties.

3. The plans specify that the property is outside of the FEMA Regulated 100-Year Flood Plain, it is required that it also be confirmed that there are no other FEMA FEMA regulated flood plains located within the limits of the proposed improvements, in addition to the 100-year flood plain, as specified in Regulation Section 2.07.

4. Test pit logs for the test pits that were performed on the property show a depth to ground water between sixteen and twenty-four inches for the available test pit information that was submitted with the application, additional subsurface investigations including test pits and/or borings are also required to be obtained for the design of the roadway, underdrains and proposed drainage systems, as specified in regulation section 8.06-U.

5. The plans show a proposed shared private well to provide the domestic water supply for the three buildings (6 housing units) but no details were submitted with the application regarding the existing hydrogeological information that was obtained for the design of the well or details and no details of the proposed well have been provided by the applicant and/or included on the plans.   Additional information and details are required to be specified on the plans and submitted for review to confirm

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that the proposed well location is suitable and the yield is sufficient for the proposed anticipated domestic and fire protection system(s) demands.

6. The specified limits of clearing of the existing/proposed woods trail to the proposed barn appear to be insufficient to provide fire apparatus access to and around the proposed barn. We defer to the Fire Chief on whether the proposed access to and around the proposed buildings are sufficient.

7. The plans specify one parking space per unit, but it is required that a minimum of two spaces per unit are provided, as specified in Ordinance section 9.06. The plans specify that twenty-four spaces are proposed/provided in total, but it is unclear how this number is being determined.

8. Building setbacks are required to be shown on the plans, including land use restrictions for poorly drained and very poorly drained soils and wetlands in conformance with Ordinance Section 10.

9. The plans specify a plan scale of one-inch equals fifty feet (1" = 50') but are required to be provided at a minimum of one-inch equals twenty feet (1" =20'), as specified in Regulation Section 4.03-E, it should be noted that the Applicant has requested a waiver for this regulation.

10. The plans only provide a partial boundary, physical conditions, and topographical survey for part of the lot but are required to provide a survey of the entire parcel including the lot perimeter, boundary survey, as specified in Regulation section 4.03-F, 4.03-G and 4.03-I. It should be noted that the applicant has requested a waiver to provide a partial survey for and in proximity to the proposed improvements.

11. The plans are required to specify the height of the existing and proposed structures, as specified in Regulation section 4.03-H.

12. The plans are required to specify the location, size, and material of all existing and proposed public and private utilities, as specified in Regulation Section 4.03-L.

13. The plans are required to provide a schedule for construction, as specified in Regulation section 4.03-Q.

14. The plans specify a 'proposed development sign' but no additional details are provided with the application, the Applicant is required to submit, for review and approval, details for the proposed signage for the property, as specified in Regulation Section 4.03-M, in conformance with Ordinance section 8.01 and Specification section 8.03.

15. The plans are required to specify the location and type of the proposed fire suppression system(s), as required by the Fire Department, as specified in Regulation Section 4.03-T, in conformance with Regulation section 8.08B.

16. The plans provide a signature block for five (5) Board members but are required to provide a signature block for seven (7) Board members, including the chairman, as specified in Regulation section 4.03-U.

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17. The plans are required to provide vehicle turning movements for a WB-67, into, around and exiting the site without potentially impacting other vehicles or pedestrian traffic, as specified in Regulation section 4,03-V and section 8.03-A-2.

18. The plans propose the installation of culverts, rip rap and a plunge pool in conjunction with the proposed improvements but no drainage analysis or associated drainage report is provided to demonstrate that the design of this proposed drainage infrastructure is appropriate. A drainage analysis and associated report, stamped by a professional Engineer licensed in the State of New Hampshire, with support drainage calculations is required to be provided, as specified in Regulation section 4.05. It should be noted that the Applicant has requested a waiver for this regulation requirement; we recommend that a drainage analysis be performed, calculations and an associated report be submitted for review to confirm conformance with the stormwater standards specified Regulation section 8.06.

19. The proposed improvements require the submittal to and approval by the ZBA, NHDOT driveway permit (and/or amendment to the existing permit), NHDES subsurface disposal systems permit, NHDES Alteration of Terrain (AoT), NHDES Dredge and Fill permit and USACOE permit based on the proposed improvements. It is required that a copy of all necessary permits for the project be submitted with the application to the Town in conjunction with the application and that the required permit approval numbers be listed on the cover sheet of the plan set for reference, as specified in Regulation section 4.05.

20. The site is required to be provided with a designated and striped space for delivery vehicles, as specified in Regulation Section 8.03-A-2.

21. The plans specify that a private driveway is to be built to Town standards, but the access drive, as proposed, does not meet Town roadway standards, we recommend that this note be updated, as appropriate, for clarity or that the design be upgraded to meet town standards.

22. Additional existing and proposed spot grades, low/high points and proposed driveway slopes are required to be specified on the plans to confirm that the proposed access drives and parking spaces are provided with slopes that in compliance with Regulation section 8.03-A-4 and that the proposed driveways will not create icing conditions with the shared access road/drive.

23. The proposed access drive, barn and parking spaces are provided with less than 0.2 horizontal foot candles; lighting is required to be provided with a minimum of 0.2 horizontal foot candles with an average uniformity ratio of 4:1 and minimum color ratio index of 50 for common space, shared space and parking spaces, as specified in Regulation section 8.03-D.

24. The Applicant is required to provide the Planning Board with architectural renderings, including side elevations, proposed materials, and colors for construction for the proposed buildings, as specified and in conformance with the requirements of Regulation Section 8.03-G. No renderings have been submitted for the proposed barn and some of the required architectural rendering information was not submitted with the application for the proposed duplex units.

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25. The proposed multi-family structures are required to be provided with a fire alarm system and Knox Box, as specified in Regulation section 8.04-E; it is recommended that a note be added to the plans specifying these requirements.

26. All buildings are required to be provided with signage with a minimum of a 4-inch-high letters on a post or mailbox with the property address, it is recommended that the location of the proposed address labels be reviewed and confirmed appropriate with the Fire Department.

27. Storage and/or waste collection areas are required to be specified on the plans and provided with proposed screening, as specified in Regulation section 8.05.

28. The proposed access drive culverts are specified as twelve-inch HDPE culverts, but are required to be a minimum of fifteen-inch RCP for open drainage systems, as specified in Regulation section 8.06-K and 8.06-Q.

29. The plans are required to specify that all excavated waste will be disposed of from the site, as specified in Regulation Section 8.09.

30. The plans are required to specify that the solid waste requirements for the disposal of materials from the site shall be performed in conformance with Regulation Section 8.10.

31. The landscaping plan is required to be designed by a qualified landscape designer with proposed buffers to mitigate impacts to neighboring properties, as specified in Regulation section 8.14-B and 8.14-C. In general, the proposed landscaping does not appear to satisfy the requirements of Regulation section 8.14.

32. The construction of the proposed access driveway will require an NHDOT driveway permit (and/or permit amendment) and temporary traffic signage for construction, it is required that the plans included and specify temporary maintenance and protection of traffic signage plans and details for construction, as specified in Regulation section 8.16.

33. The demolition plan (DM-1) specifies that several items are to be removed from the existing property; it is recommended that these notes be expanded to specify the removal <u>and</u> legal disposal offsite for these items being specified as being removed.

34. The demolition plan (DM-1) specifies trees to be removed; however, these notes should be expanded to specify trees and stumps to be removed and disposed of offsite.

35. The demolition plan (DM-1) specifies 'stone wall toppled over', but it is unclear if this stone wall is being reset as part of the project, which we recommended.

36. Additional details regarding the abandonment of the existing well and demolition of the existing buildings are recommended to be specified on the plans to avoid future health and safety concerns.

37. On the demolition plan (DM-1) the following tree clearing/tree removal notes should be either standardized or clarified if there are separate intent/direction for the removal and/or disposal of the existing trees on site: "Treeline to Be Removed, Proposed Treeline and Trees to be Removed".

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38. On the demolition plan (DM-1), demolition note#2 specifies that the contractor shall stake the clearing limits and that a minimum of 48 hours shall be provide, it is recommended that this note be revised to indicate that the limits of clearing shall be staked for Town's review and approval prior to clearing, in conformance with the tree clearing permit.

39. On the demolition plan (DM-1), demolition note#5 specifies that the existing septic system shall be abandoned in accordance with NHDES or Town Standards and Regulations, but no existing septic systems are shown on the plans; it is recommended that the existing septic systems be shown on the plans to confirm whether it (they) are required to be removed to perform the proposed improvements.

40. On the demolition plan (DM-1), Demolition note#7 specifies that excavated material will be placed in upland area, but no areas are designated on the plans for excavated material to be placed, given the shallow depth to ground water and the amount of wetlands on the property it is recommended that an excavation material stock pile area and concrete wash out area and associated erosion control measures in conformance with NHDES standards be specified on the plans.

41. It is required that the Applicant demonstrate sufficient, all season NHDOT sight distance, at the proposed intersection, as specified in Regulation section 10.06-r.

42. The drainage trench detail specifies a minimum of 2-feet of cover, but the proposed grading provides less than 2-feet of cover over the proposed driveway culverts and less than 2-feet of cover behind the proposed headwalls, it is recommended that the driveway culverts be provided with a minimum of 3-feet of cover in paved areas and a minimum of 2-feet of cover in unpaved areas.

43. It is recommended that the proposed driveway specify a saw cut and asphalt emulsion joint at the existing High Street pavement for the installation of the proposed driveway.

44. Scour protection (rip rap) is required to be specified/provided for the outlet to the proposed 18-inch culvert.

45. Rip rap sizing calculations in conformance with NHDES standards are required to be provided to confirm that the proposed rip rap apron stone sizes, stone thickness, and apron dimensions are sufficient.

46. The swale, down stream of the proposed 18-inch head wall outlet, is proposed with a slope greater than 5-percent, rip rap is required to be provided in/for this swale to prevent erosion.

47. The material details for the proposed water service including the water shut off, water pipe material and water pipe class are required to be specified on the plans for construction.

48. The proposed intersection of the primary access drive and the end of the cul-de-sac proposed two different cross slopes at this location, 1.4-percent and 2.0-percent, additional details are required to be specified for the construction of this proposed intersection.

49. Additional details and/or deed occupancy restrictions are required to ensure that the proposed well is not being proposed as or could potentially serve a small community system; for a water supply of 25, or more, people the well would be considered a small community system and would be subject

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to the requirements of NHDES Env Dw 305. If deed restrictions are not put on the property maximizing the number of occupants, then we recommend that the proposed community well be submitted to NHDES for review and approval as a small community well system.

50. It is required that a statement from the Candia Tax Collector indicating whether the property is under current taxation status or not be received for the project, as specified in Regulation section 10.06m.

51. It is required that a letter from the Fire Chief and Police Chief be obtained regarding their review and recommendations regarding safety issues and/or concerns for the project, as specified in Regulation section 10.06-n.

52. Additional erosion control measures are required to be specified between the disturbed area at the proposed intersection/access drive and the adjacent wetlands.

53. The typical road cross section detail specifies underdrain, but no underdrain is specified in plan view(s). It is required that the proposed underdrain be shown on the plans.

54. It is recommended that the access drive stationing be shown on all the plan sheets.

55. It appears that, based on the proposed grading, that guardrail is required from STA 1+60 to STA 2+70 on the right side of the road.

56. It appears that a cross culvert is necessary under the access drive at approximate STA 0+30 to keep stormwater from impounding up grade of the proposed access driveway.

57. A minimum of three benchmarks are recommended to the specified on the plans for construction.

58. It is recommended that the Board discuss whether the proposed cul-de-sac road should be designated as a private road with an associated street sign and property address numbers to minimize potential confusion from future first responders.

59. The plans specify/reference an assumed vertical and horizontal bearing, given the shallow ground water and proximity to wetlands it is recommended that a horizontal and vertical datum be established and specified on the plans for construction.

60. A 2:1 slope is proposed on both sides of proposed duplex unit 5/6, it is recommended that the grading be revised to eliminate these steep slopes where immediately adjacent to the proposed building.

61. The proposed grading creates a swale within 35-feet to the south of the proposed subsurface septic disposal system for duplex units 5/6, this proposed grading, and/or the location of the proposed leach field are required to be revised to conform with NHDES requirements.

These comprise our comments at this time. We invite the Engineer and Applicant to meet with us to discuss these comments and other design related topics, which may affect the project and the associated design. We reserve the right to make future comments based on proposed revisions and additional submissions.

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If you have any questions or need any additional information, please feel free to contact us.

Respectfully,

Stantec Consulting Services Inc.

Bryan Ruoff PE
Associate
Phone: 603 854 9501
Fax: 603 669 7636
bryan.ruoff@stantec.com

Attachment: N/A

c.   Candia Planning Board
     Amy Spencer, Town of Candia
     Rene LaBranche, Stantec

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JONES&BEACH
ENGINEERS INC.

85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

March 21, 2024

Candia Planning Board
Attn. Rudy Cartier
74 High Street
Candia, NH 03034

RE: **Response Letter & Special Use Permit Criteria response.**
Beaver Meadows Duplex Development
669 High Street Candia, NH
Map 405, Lot 48
JBE Project No. 22201

Dear Mr. Cartier,

We are in receipt of comments from Brian Ruoff, P.E. from Stantec Consulting Services dated February 20, 2024, Rudy Cartier, Planning Board Chair dated February 22, 2024, Michael McGillen, Candia Police dated March 5, 2024, and Jeff Wuebbolt, Road Agent dated March 6, 2024. Review comments are listed below with our responses in bold.

We are also providing the criteria for the Special Use Permit for the wetland buffer impacts for the driveway. We will be providing performance security to ensure that the construction is carried out in accordance with the approved design as required by the Planning Board. This will be done prior to construction and after Planning Board approval and is typically a condition of approval.

Section 10.09: Conditional Uses
A. A Special Use Permit may be granted by the Planning Board (RSA 674:21-11) for the construction of roads and other access ways, and for pipelines, power lines and other transmission lines provided that all of the following conditions are found to exist:

1. The proposed construction is essential to the productive use of land not within the Wetlands Conservation District.
   RESPONSE: The proposed location of the driveway is over the existing driveway in order to minimize the impacts to the site. The existing driveway is aligned with Donovan Road and so is the proposed driveway. The proposed driveway needs to be widened to allow for 2 way traffic and is currently only one lane wide as it provides access to a single family house. This is the ideal location for access and is essential to the productive use of the uplands given the alignment with Donovan Road. The existing yard and landscaping in the front of the site will not be impacted with this design. The wetland at the front of the property is a small isolated wetlands.

2. Design, construction and maintenance methods will be such as to minimize detrimental impact upon the wetland and will include restoration of the site as nearly as possible to its original grade and condition.
RESPONSE: The new driveway will be a 20' wide paved driveway which will minimize the erosion and be stabilized. As you know, maintenance of gravel driveways often ends up with sediment flowing off the driveway during hard rain events and gravel being plowed in the winter off of the driveway. Paving this driveway will reduce both of those things from happening. A condition of the ZBA approval is that the back of the land will not be further developed for housing.

3. No alternative route which does not cross a wetland or has less detrimental impact upon the wetland is feasible.
RESPONSE: The Town Road Agent wants this driveway to be aligned with Donovan Road as that is property driveway design and access management for roadways. We do not have another location that would accomplish this access point.

<u>Stantec Comments:</u>

1. *The plans specify that 99,000 SF will be disturbed for the proposed improvements; however, based on our review of the proposed improvements the disturbance areas that are specified are unrealistic and the proposed improvements as shown will disturb more than 100,000 SF and will require a NHDES Alteration of Terrain (AoT) permit.*
RESPONSE: A NHDES Alteration of Terrain permit is not required. We are below the threshold for this permit and we have moved the proposed units closer to the road in order to reduce the area of disturbance.

2. *The plans propose the construction of a barn to the North of the proposed duplex units by accessing an existing 8-foot-wide existing trail through and between existing wetlands, based on this we offer the following comments:*

a. *additional erosion control measures are required to be provided/specified for the access, disturbance and construction activities associated with providing access and constructing the proposed barn.*
RESPONSE: Additional erosion control measures have been added to the plans, including silt soxx at the existing wetland crossing and silt fence near the proposed barn.

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b. *The plans specify the use of an existing woods trail for access for the construction of the proposed barn, the existing trail is shown as 8-feet wide in plan view and 12-feet wide in the detail. The 12 –foot wide access seems appropriate but appears to require a wetlands dredge and fill permit at the existing wetlands crossing. Additionally, the grading for this proposed trail widening must be shown on the plans and the disturbance associated with these proposed improvements must be included in the disturbance area total.*
RESPONSE: The plan is to keep the existing rural driveway to the future barn. We are not widening the driveway to 12', that was a holdover on the detail. No wetland permit is required. The trail has been actively used by vehicles for equipment for decades.

c. *The plans specify a 'proposed trail to connect to the existing trail' and a 'proposed 8-footwide trail to barn' that extends to the proposed barn but the materials and specifics of the proposed trail widening are unclear, we recommend that a typical cross section for construction be provided.*
RESPONSE: A note specifying the materials and surface treatment for the trail has been added to the Woods Trail Section on Sheet D1.

d. *It is recommended that a subsurface assessment (borings and or test pits) of the existing trail be performed to confirm that the existing trail is suitable to support the necessary construction vehicles and vehicle traffic to the proposed barn without rutting and/or eroding the existing trail and causing impacts to the adjacent wetlands and properties.*
RESPONSE: We do not believe test pits are required, this is an existing trail/gravel drive to access a barn, not a road or a highway. However, test pit 5 represents conditions near the proposed trail extension coming off of the shared access driveway for the duplexes and test pit 7 represents the conditions near the gravel access driveway to the barn.

3. *The plans specify that the property is outside of the FEMA Regulated 100-Year Flood Plain, it is required that it also be confirmed that there are no other FEMA regulated flood plains located within the limits of the proposed improvements, in addition to the 100-year flood plain, as specified in Regulation Section 2.07.*
RESPONSE: There are no FEMA Regulated flood plains within the area of the proposed development.

4. *Test pit logs for the test pits that were performed on the property show a depth to ground water between sixteen and twenty-four inches for the available test pit information that was submitted with the application, additional subsurface investigations including test pits and/or borings are also required to be obtained for the design of the roadway, underdrains and proposed drainage systems, as specified in regulation section 8.06-U.*
RESPONSE: Test pits were performed and that is why the proposed driveway is raised and designed the way it is. Test pits 3 and 4 specifically represent the subsurface conditions near the proposed access driveway.

5. *The plans show a proposed shared private well to provide the domestic water supply for the three buildings (6 housing units) but no details were submitted with the application regarding the existing hydrogeological information that was obtained for the design of the well or details and no details of the proposed well have been provided by the applicant and/or included on the plans. Additional information and details are required to be specified on the plans and submitted for review to confirm that the proposed well*

location is suitable and the yield is sufficient for the proposed anticipated domestic and fire protection system(s) demands.

RESPONSE: A conceptual well layout detail has been added to Sheet D3 and more detail has been added to Sheet C6 regarding the layout and design intent of the water system. Fire protection systems are not required and the yield should be suitable for the domestic services.

6. *The specified limits of clearing of the existing/proposed woods trail to the proposed barn appear to be insufficient to provide fire apparatus access to and around the proposed barn. We defer to the Fire Chief on whether the proposed access to and around the proposed buildings are sufficient.*
   RESPONSE: We spoke with the Fire Chief after the Planning Board meeting and he is not concerned about the width of the existing and proposed gravel trails. He should be providing a letter to the Planning Board ahead of the next meeting.

7. *The plans specify one parking space per unit, but it is required that a minimum of two spaces per unit are provided, as specified in Ordinance section 9.06. The plans specify that twenty-four spaces are proposed/provided in total, but it is unclear how this number is being determined.*
   RESPONSE: We are providing 3 spaces per unit – one in the garage, one in the driveway, and one in the 9'x18' bumpout. This is explained in Note #5 on Sheet C4.

8. *Building setbacks are required to be shown on the plans, including land use restrictions for poorly drained and very poorly drained soils and wetlands in conformance with Ordinance Section 10.*
   RESPONSE: Building setbacks are shown on the plans.

9. *The plans specify a plan scale of one-inch equals fifty feet (1" = 50') but are required to be provided at a minimum of one-inch equals twenty feet (1" =20'), as specified in Regulation Section 4.03-E, it should be noted that the Applicant has requested a waiver for this regulation.*
   RESPONSE: No response necessary.

10. *The plans only provide a partial boundary, physical conditions, and topographical survey for part of the lot but are required to provide a survey of the entire parcel including the lot perimeter, boundary survey, as specified in Regulation section 4.03-F, 4.03-G and 4.03-I. It should be noted that the applicant has requested a waiver to provide a partial survey for and in proximity to the proposed improvements.*
    RESPONSE: No response necessary.

11. *The plans are required to specify the height of the existing and proposed structures, as specified in Regulation section 4.03-H.*
    RESPONSE: The heights of the existing and proposed structures have been added to the plans. The heights of the existing buildings are measured in stories based on publicly available GIS data on Sheet C1 while the heights of the proposed buildings are measured in feet on Sheet C4.

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12. *The plans are required to specify the location, size, and material of all existing and proposed public and private utilities, as specified in Regulation Section 4.03-L.*
RESPONSE: The location, size, and material of all existing and proposed public and private utilities are already on the plans.

13. *The plans are required to provide a schedule for construction, as specified in Regulation section 4.03- Q.*
RESPONSE: A schedule for construction is included with this letter and also on Sheet C4.

14. *The plans specify a 'proposed development sign' but no additional details are provided with the application, the Applicant is required to submit, for review and approval, details for the proposed signage for the property, as specified in Regulation Section 4.03-M, in conformance with Ordinance section 8.01 and Specification section 8.03.*
RESPONSE: We will provide a detail for the development sign prior to final plan approval but this information is not available at this time.

15. *The plans are required to specify the location and type of the proposed fire suppression system(s), as required by the Fire Department, as specified in Regulation Section 4.03-T, in conformance with Regulation section 8.08B.*
RESPONSE: Fire suppression is not required for duplexes in New Hampshire and Section 8.08B specifically says that fire suppression is required for "all new multi-family structures of <u>three or more</u> dwelling units".

16. *The plans provide a signature block for five (5) Board members but are required to provide a signature block for seven (7) Board members, including the chairman, as specified in Regulation section 4.03-U.*
RESPONSE: The signature block for the Planning Board has been increased to include 7 lines.

17. *The plans are required to provide vehicle turning movements for a WB-67, into, around and exiting the site without potentially impacting other vehicles or pedestrian traffic, as specified in Regulation section 4,03-V and section 8.03-A-2.*
RESPONSE: Vehicle turning movements have been added to the plans for realistic sized vehicles including a fire truck and a SU-30. Typically, we would only run a WB-67 as the design vehicle for a commercial or industrial site that is anticipated to take tractor-trailer deliveries. We are requesting a waiver for the requirement to run a WB-67.

18. *The plans propose the installation of culverts, rip rap and a plunge pool in conjunction with the proposed improvements but no drainage analysis or associated drainage report is provided to demonstrate that the design of this proposed drainage infrastructure is appropriate. A drainage analysis and associated report, stamped by a professional Engineer licensed in the State of New Hampshire, with support drainage calculations is required to be provided, as specified in Regulation section 4.05. It should be noted that the Applicant has requested a waiver for this regulation requirement; we recommend that a drainage analysis be performed, calculations and an associated report be submitted for review to confirm conformance with the stormwater standards specified Regulation section 8.06.*
RESPONSE: A drainage report is included with this resubmission.

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ENGINEERS INC.

19. *The proposed improvements require the submittal to and approval by the ZBA, NHDOT driveway permit (and/or amendment to the existing permit), NHDES subsurface disposal systems permit, NHDES Alteration of Terrain (AoT), NHDES Dredge and Fill permit and USACOE permit based on the proposed improvements. It is required that a copy of all necessary permits for the project be submitted with the application to the Town in conjunction with the application and that the required permit approval numbers be listed on the cover sheet of the plan set for reference, as specified in Regulation section 4.05.*
   RESPONSE: A list of permits has been added to the cover sheet. Only NHDOT and septic approvals are required, and they are filed digitally with the state. We will provide permit numbers once received.

20. *The site is required to be provided with a designated and striped space for delivery vehicles, as specified in Regulation Section 8.03-A-2.*
   RESPONSE: A waiver has been requested for the cited requirement.

21. *The plans specify that a private driveway is to be built to Town standards, but the access drive, as proposed, does not meet Town roadway standards, we recommend that this note be updated, as appropriate, for clarity or that the design be upgraded to meet town standards.*
   RESPONSE: The access driveway is to meet the gravel quality of a town road, not the dimensions. The note stating that the private driveway is to be built to Town standards has been removed from the plan.

22. *Additional existing and proposed spot grades, low/high points and proposed driveway slopes are required to be specified on the plans to confirm that the proposed access drives and parking spaces are provided with slopes that in compliance with Regulation section 8.03-A-4 and that the proposed driveways will not create icing conditions with the shared access road/drive.*
   RESPONSE: Additional spotgrades and driveway slopes have been added to confirm that the driveway and parking lot grades are within the allowable range per Section 8.03-A-4. The driveway for Units 5-6 is the longest driveway and it is sloped toward a low point, while the driveways for Units 1-2 and Units 3-4 slope toward the roadway but they are 55' long and 44' long respectively. We do not anticipate the driveway runoff to cause icing conditions on the shared access driveway, which is sloped directly toward the center island and is not curbed.

23. *The proposed access drive, barn and parking spaces are provided with less than 0.2 horizontal foot candles; lighting is required to be provided with a minimum of 0.2 horizontal foot candles with an average uniformity ratio of 4:1 and minimum color ratio index of 50 for common space, shared space and parking spaces, as specified in Regulation section 8.03-D.*
   RESPONSE: A waiver has been requested for the cited requirement in order to preserve the rural character of the neighborhood.

24. *The Applicant is required to provide the Planning Board with architectural renderings, including side elevations, proposed materials, and colors for construction for the proposed buildings, as specified and in conformance with the requirements of Regulation Section 8.03-G. No renderings have been submitted for the proposed barn and some of*

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the required architectural rendering information was not submitted with the application for the proposed duplex units.
RESPONSE: Floor plans and elevations as well as a front rendering showing the color and materials for the siding and roofs of the duplexes is included with this resubmission. Additional information, including a rendering of the barn, will be submitted once ready but it is not available at this time.

25. The proposed multi-family structures are required to be provided with a fire alarm system and Knox Box, as specified in Regulation section 8.04-E; it is recommended that a note be added to the plans specifying these requirements.
RESPONSE: The cited requirement references "multi-family structures of three (3) or more dwelling units" and therefore is not applicable for duplexes.

26. All buildings are required to be provided with signage with a minimum of a 4-inch-high letters on a post or mailbox with the property address, it is recommended that the location of the proposed address labels be reviewed and confirmed appropriate with the Fire Department.
RESPONSE: See Note #23 on Sheet C4.

27. Storage and/or waste collection areas are required to be specified on the plans and provided with proposed screening, as specified in Regulation section 8.05.
RESPONSE: See Note #22 on Sheet C4. In lieu of a dumpster, each tenant or unit owner will be responsible for their own trash removal.

28. The proposed access drive culverts are specified as twelve-inch HDPE culverts, but are required to be a minimum of fifteen-inch RCP for open drainage systems, as specified in Regulation section 8.06-K and 8.06-Q.
RESPONSE: The proposed culverts have been revised to be the required minimum 15" diameter. However, we do not typically spec RCP culverts under driveways. ADS-N12 HDPE is industry standard and we are requesting a waiver to use ADS-N12 HDPE culverts.

29. The plans are required to specify that all excavated waste will be disposed of from the site, as specified in Regulation Section 8.09.
RESPONSE: See Note #8 on Sheet DM-1.

30. The plans are required to specify that the solid waste requirements for the disposal of materials from the site shall be performed in conformance with Regulation Section 8.10.
RESPONSE:
   a) *Description of the solid waste to be generated by the site.*
      Common household waste will be generated by this multi-family residential use.
   b) *Description of the on-site solid waste facilities.*
      Each tenant or unit owner shall store trash indoors and shall be responsible for their own waste removal. See Note #22 on Sheet C4.
   c) *A removal schedule showing volume and frequency.*
      Each tenant or unit owner will likely haul their trash and recycling to the dump weekly or by-weekly. The volume of waste will be dependent on the number of people living in each unit.
   d) *A statement acknowledging the conditions imposed by the Candia Recycling Center Regulations and the method by which the site will conform with those conditions.*

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These conditions will remain in effect. See Note #25 on Sheet C4.

31. *The landscaping plan is required to be designed by a qualified landscape designer with proposed buffers to mitigate impacts to neighboring properties, as specified in Regulation section 8.14-B and 8.14-C. In general, the proposed landscaping does not appear to satisfy the requirements of Regulation section 8.14.*
RESPONSE: We are keeping existing tree buffers around the property and we meet all applicable requirements of Section 8.14.
Section 8.14 A: All site plans shall include a landscaping plan designed by a qualified landscaping Designer. The Board shall make the final determination of whether the landscape Designer is qualified.
Response: This is for the Planning Board to determine.
Section 8.14 B: For all proposed landscaped areas a minimum of 4-inches of topsoil, with 5% organic matter incorporated shall be spread in all planting and turf areas.
Response: See Note #16 on Sheet L1.

Section 8.14 C: Landscape plans shall be designed to provide buffers in an effort to mitigate impacts to neighboring properties. Buffers are intended to physically separate one use or property from another so as to visually shield or block, noise, lights, provide a water quality benefit and to minimize other impacts.
Response: We are maintaining existing tree buffer in order to shield abutting properties from the proposed land use.

Section 8.14 C (continued): a. Along the property line of a property, buffers are required in the following instances: i. Where a proposed non-residential use abuts a residential zoning district.; ii. Where a proposed non-residential use abuts an existing residential use; and iii. Where a proposed roadway abuts an existing property line or is within 20-feet of a property line where the existing use is residential. b. Within a property, buffers are required to provide visual screens in the following instances: i. Outdoor Storage Areas; and ii. Refuse and Recycling Collection Areas
Response: None of these are applicable. This is a residential use; the shared access driveway is more than 20' from the nearest abutter and no refuse and recycling collection areas are proposed.

Section 8.14 D: Within a property landscaping buffers shall meet the following criteria: a. Buffers shall be located to prevent visibility of the above listed items from the parking areas, traveled right-of-way or neighboring properties. b. Buffers shall be at least 6-feet in height and may consist of fencing, evergreens, berms, mounds or combinations thereof. Chain link fencing with privacy slats are discouraged.
Response: The existing tree buffers that we are maintaining meet this requirement.

Section 8.14 E: Landscaping shall be provided along all building frontage. A minimum of one (1) shrub for every 12-feet of building frontage shall be provided. In instances where it is not possible to locate all required shrubs along the building frontage due to doorways, walkways or other impervious surfaces, the required shrubs shall be utilized within the parking lot or landscape buffers. Plant locations are designed to be flexible and not necessarily in even spaced intervals.
Response: 20 New England Aster perennials are proposed in front of each building. 80 feet of frontage are provided on each duplex building and therefore a minimum

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of 7 shrubs or perennials shall be required. These are placed in the corner between each driveway and parking space for maximum aesthetic appeal.

Section 8.14 F: Peripheral landscaping shall be required along all sides of a parking lot or access way that abuts adjoining property or a public right.
Response: A combination of existing and proposed landscaping is provided along the proposed access driveway in order to satisfy this requirement.

Section 8.14 G: Landscaping within parking lots or green space encompassing not less than five (5%) percent of the total parking area shall be required. A minimum of one (1) tree for every fifteen (15) parking spaces shall be provided. These trees shall be complemented by suitable ground cover and shrubs.
Response: Not applicable. A parking lot is not proposed.
Section 8.14 H: A minimum 4-foot wide landscape area shall be provided surrounding each free-standing sign base.
Response: Perennials are proposed surrounding the development sign in the front of the property.

Section 8.14I: Bare soil is not acceptable. The introduction of groundcovers and/or perennials planted, the use of mulch or other natural material as a soil covering is acceptable. However, no more than twenty percent of the minimum landscaped area may be covered with nonliving landscaping materials such as bark mulch, woodchips or leaf litter.
Response: All pervious areas of the subject parcel will be covered by plantings, grass, or natural woods post-construction.

Section 8.14 J: Use of Existing Landscaping Towards Requirements: a. Each existing healthy and native or non-invasive tree, with a caliper of 3-inches or greater, preserved using proper protection methods within the interior parking lot area may be substituted for one tree required for every fifteen (15) parking spaces. b. Where an Applicant proposes leaving a significant portion of healthy non-invasive trees and other vegetation within the proposed parking area, the Board may consider alternative landscaping designs.
Response: We are proposing to maintain a natural tree buffer that meets this requirement.

Section 8.14 K: All trees, shrubs and ground cover shall be planted according to accepted horticultural standards. a. Minimum for shade or canopy trees shall be 3-inches in diameter measured at breast height, with a height not less than 12-feet. b. Minimum size for small or minor shade trees shall be 2.5-inches in diameter measured breast height, with a height of not less than 9-feet. c. Minimum size for ornamental or flowering fruit trees shall be 2-inches in diameter measured at breast height, with a height of not less than 7-feet. d. Minimum size for evergreen trees shall be 6-feet in height. e. Minimum size for a shrubbery shall be 1.5-feet in height or spread. f. All trees and shrubs shall be appropriately pruned after planting with all broken or damaged branches removed.
Response: The proposed landscaping meets these size requirements.

Section 8.14 L: All landscaping shall be completed prior to the issuance of a Certificate of Occupancy. An inspection of all plantings to ensure compliance with the approved

landscaping plan shall be conducted prior to the issuance of a Certificate of Occupancy. Ongoing inspections of landscapes shall be conducted to ensure compliance of the site with the approved landscape plan in perpetuity.
Response: See Note #17 on Sheet L1.

Section 8.14 M: All landscaping shall be warranted for one (1) year from the issuance of a Certificate of Occupancy.
Response: See Note #8 on Sheet L1.

32. *The construction of the proposed access driveway will require an NHDOT driveway permit (and/or permit amendment) and temporary traffic signage for construction, it is required that the plans included and specify temporary maintenance and protection of traffic signage plans and details for construction, as specified in Regulation section 8.16.*
RESPONSE: A NHDOT permit will be obtained for this project. Temporary sign placement is unknown at this time and will be incidental to the construction. The cited Regulation section does not state that temporary signs need to be shown on the plan set.

33. *The demolition plan (DM-1) specifies that several items are to be removed from the existing property; it is recommended that these notes be expanded to specify the removal and legal disposal offsite for these items being specified as being removed.*
RESPONSE: See Note #11 on Sheet DM-1.

34. *The demolition plan (DM-1) specifies trees to be removed; however, these notes should be expanded to specify trees and stumps to be removed and disposed of offsite.*
RESPONSE: The note "Trees to be removed" on the plan has been revised to state "Trees and stumps to be removed and legally disposed off-site."

35. *The demolition plan (DM-1) specifies 'stone wall toppled over', but it is unclear if this stone wall is being reset as part of the project, which we recommended.*
RESPONSE: This refers to a stone wall in the Route 27 right of way that is not being rebuilt at this time.

36. *Additional details regarding the abandonment of the existing well and demolition of the existing buildings are recommended to be specified on the plans to avoid future health and safety concerns.*
RESPONSE: See Notes 9 and 10 on Sheet DM-1.

37. *On the demolition plan (DM-1) the following tree clearing/tree removal notes should be either standardized or clarified if there are separate intent/direction for the removal and/or disposal of the existing trees on site: "Treeline to Be Removed, Proposed Treeline and Trees to be Removed".*
RESPONSE: Most of the work is being done in the cleared area. The owner may remove trees or keep ones for firewood or lumber milling. This will be the owner's decision.

38. *On the demolition plan (DM-1), demolition note#2 specifies that the contractor shall stake the clearing limits and that a minimum of 48 hours shall be provide, it is recommended that this note be revised to indicate that the limits of clearing shall be*

staked for Town's review and approval prior to clearing, in conformance with the tree clearing permit.
RESPONSE: Note #2 on the demolition plan has been revised to indicate that the limits of clearing shall be staked for Town's review and approval prior to clearing.

39. *On the demolition plan (DM-1), demolition note#5 specifies that the existing septic system shall be abandoned in accordance with NHDES or Town Standards and Regulations, but no existing septic systems are shown on the plans; it is recommended that the existing septic systems be shown on the plans to confirm whether it (they) are required to be removed to perform the proposed improvements.*
RESPONSE: It is noted on Sheet DM-1 that the existing septic system shall be removed or abandoned. The existing septic system is old and minimal in size.

40. *On the demolition plan (DM-1), Demolition note #7 specifies that excavated material will be placed in upland area, but no areas are designated on the plans for excavated material to be placed, given the shallow depth to ground water and the amount of wetlands on the property it is recommended that an excavation material stock pile area and concrete wash out area and associated erosion control measures in conformance with NHDES standards be specified on the plans.*
RESPONSE: The intent of this note is that the contractor will use any suitable spoils from excavation as fill materials in other upland parts of the site. A stockpile area is shown on Sheet DM-1 and C5 as well.

41. *It is required that the Applicant demonstrate sufficient, all season NHDOT sight distance, at the proposed intersection, as specified in Regulation section 10.06-r.*
RESPONSE: See Sheet H1 showing 400' of intersection sight distance in both directions.

42. *The drainage trench detail specifies a minimum of 2-feet of cover, but the proposed grading provides less than 2-feet of cover over the proposed driveway culverts and less than 2-feet of cover behind the proposed headwalls, it is recommended that the driveway culverts be provided with a minimum of 3-feet of cover in paved areas and a minimum of 2-feet of cover in unpaved areas.*
RESPONSE: The culvert depths have been revised to provide at least 2' of cover in unpaved areas and at least 3' of cover in paved areas.

43. *It is recommended that the proposed driveway specify a saw cut and asphalt emulsion joint at the existing High Street pavement for the installation of the proposed driveway.*
RESPONSE: A sawcut line and a leadered note stating to place an asphalt emulsion joint has been added to Sheet DM-1.

44. *Scour protection (rip rap) is required to be specified/provided for the outlet to the proposed 18-inch culvert.*
RESPONSE: Rip rap outlet protection is now provided at all proposed culvert outlets.

45. *Rip rap sizing calculations in conformance with NHDES standards are required to be provided to confirm that the proposed rip rap apron stone sizes, stone thickness, and apron dimensions are sufficient.*

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RESPONSE: Rip rap calculations have been performed and these calculations are available within the drainage report.

46. *The swale, downstream of the proposed 18-inch head wall outlet, is proposed with a slope greater than 5-percent, rip rap is required to be provided in/for this swale to prevent erosion.*
RESPONSE: A rip rap outlet protection apron is proposed at the end of the 15" culvert (we changed the size after running the drainage analysis) and NAG S150 erosion control fabric is proposed to line the bottom of the swale.

47. *The material details for the proposed water service including the water shut off, water pipe material and water pipe class are required to be specified on the plans for construction.*
RESPONSE: It is noted on Sheet C6 that the water services shall be CTS SDR 9 HDPE or stronger.

48. *The proposed intersection of the primary access drive and the end of the cul-de-sac proposed two different cross slopes at this location, 1.4-percent and 2.0-percent, additional details are required to be specified for the construction of this proposed intersection.*
RESPONSE: Additional spotgrades have been added to clarify the design intent around the intersection of the primary access drive and the end of the cul-de-sac.

49. *Additional details and/or deed occupancy restrictions are required to ensure that the proposed well is not being proposed as or could potentially serve a small community system; for a water supply of 25, or more, people the well would be considered a small community system and would be subject to the requirements of NHDES Env Dw 305. If deed restrictions are not put on the property maximizing the number of occupants, then we recommend that the proposed community well be submitted to NHDES for review and approval as a small community well system.*
RESPONSE: See Note #24 on Sheet C2 stipulating that the maximum occupancy of each unit shall be 4 persons.

50. *It is required that a statement from the Candia Tax Collector indicating whether the property is under current taxation status or not be received for the project, as specified in Regulation section 10.06m.*
RESPONSE: Per the landowner, the property is not under current use. We have not been able to obtain a statement from the Tax Collector to this effect at this time, but this requirement is in the Subdivision Regulations and is not applicable to a residential site plan.

51. *It is required that a letter from the Fire Chief and Police Chief be obtained regarding their review and recommendations regarding safety issues and/or concerns for the project, as specified in Regulation section 10.06-n.*
RESPONSE: We received a review letter from the Police Chief dated March 5, 2024. A response to his comment is contained within this letter. We have not yet received a review letter from the Fire Chief.

52. *Additional erosion control measures are required to be specified between the disturbed area at the proposed intersection/access drive and the adjacent wetlands.*

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> RESPONSE: We added silt soxx where the existing trail intersects the two wetland areas. No work is planned there. Otherwise, silt fence has been added between the entrance driveway and the isolated wetland pocket.

53. *The typical road cross section detail specifies underdrain, but no underdrain is specified in plan view(s). It is required that the proposed underdrain be shown on the plans.*
RESPONSE: The road is a fill condition above seasonal high water table, so no underdrain is needed. The underdrain has been removed from the typical road cross section details.

54. *It is recommended that the access drive stationing be shown on all the plan sheets.*
RESPONSE: The access drive stationing has been added to the site plan and utility plan. Showing it on the grading plan would be redundant and messy.

55. *It appears that, based on the proposed grading, that guardrail is required from STA 1+60 to STA 2+70 on the right side of the road.*
RESPONSE: The side slopes in this area have been switched from 2:1 to 3:1 in order to avoid the need for guardrail.

56. *It appears that a cross culvert is necessary under the access drive at approximate STA 0+30 to keep stormwater from impounding upgrade of the proposed access driveway.*
RESPONSE: In lieu of a culvert, we have expanded the proposed swale along the east edge of the entrance driveway to extend almost to the right of way line. This will prevent stormwater from impounding upgrade of the driveway. A driveway cross culvert here would not be able to have 2' of cover as required. The grade of the isolated wetland that the culvert would be ouletting into is approximately 196 and the grade of the driveway in this location is approximately 199 and cannot be brought higher. Therefore, a 15" culvert at this location with an invert elevation of 196.2 would only have 1.55' of cover, so we need to instead extend the swale.

57. *A minimum of three benchmarks are recommended to be specified on the plans for construction.*
RESPONSE: Three benchmarks (TBM A, TBM B, and SPK 18) are shown on Sheet C2.

58. *It is recommended that the Board discuss whether the proposed cul-de-sac road should be designated as a private road with an associated street sign and property address numbers to minimize potential confusion from future first responders.*
RESPONSE: Per the Road Agent comment that we respond to below, the access driveway shall never become a public or town-maintained road.

59. *The plans specify/reference an assumed vertical and horizontal bearing, given the shallow ground water and proximity to wetlands it is recommended that a horizontal and vertical datum be established and specified on the plans for construction.*
RESPONSE: The horizontal and vertical datums are relative & sufficient. There is nothing to gain by putting the plan on a different datum.

60. *A 2:1 slope is proposed on both sides of proposed duplex unit 5/6, it is recommended that the grading be revised to eliminate these steep slopes where immediately adjacent to the proposed building.*

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RESPONSE: The slopes adjacent to buildings have been changed to 3:1 minimum.

61. *The proposed grading creates a swale within 35-feet to the south of the proposed subsurface septic disposal system for duplex units 5/6, this proposed grading, and/or the location of the proposed leach field are required to be revised to conform with NHDES requirements.*
    RESPONSE: The top of the swale, which does not intercept the seasonal high water table, is 35' away from the leach fields and 25' from the septic tanks at minimum.

Planning Board Comments:

- *Section I, Line 5: Scale of Plan (1" =20' minimum)*
  - *Scale of Plan submitted as 1" = 50'*
    - *Waiver requested.*
  RESPONSE: No response necessary.

- *Section II, Line 10: Boundary line of site shown.*
  - *Boundary lines are not all shown.*
    - *Waiver requested.*
  RESPONSE: No response necessary.

- *Section II, Line 11: Bearings and distances shown.*
  - *Bearings and distances not all shown.*
    - *Waiver requested.*
  RESPONSE: No response necessary.

- *Section II, Line 13: Plans drawn in ink on transparent mylar.*
  - *Mylar not submitted.*
    - *Mylar to be submitted upon final plat approval.*
  RESPONSE: A mylar will be submitted once final plat approval is received.

- *Section II. Line 14: Existing grades shown.*
  - *Existing grades are not all shown.*
    - *Waiver requested.*
  RESPONSE: No response necessary.

- *Section II, Line 17: Use of all abutting properties shown with all structures there on and access roads.*
  - *Structures not shown.*
    - *Add abutting properties existing structures.*
  RESPONSE: See Aerial Site Plans – Sheet AR1 & AR2. Abutting structures are shown on these plans.

- *Section II, Line 20: Special features, natural and man-made, affecting site or giving it character (see list).*
  - *Several items (such as streams and wetlands) not fully shown for part of site.*
    - *Waiver requested.*
  RESPONSE: No response necessary.

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- *Section III, Line 2: Proposed streets, including names.*
  - *Proposed streets not shown.*
    - *Proposed streets to be determined.*

  RESPONSE: The street name has not been determined at this time.

- *Section III, Line 3: Proposed drives, parking spaces and sidewalks.*
  - *Sidewalks not shown.*
    - *Sidewalks to be added.*

  RESPONSE: A waiver for the sidewalk requirement is included with this resubmission.

- *Section III, Line 5: Widths of streets, drives and sidewalks shown.*
  - *Widths of sidewalks not shown.*
    - *Sidewalk details to be added.*

  RESPONSE: A waiver for the sidewalk requirement is included with this submission.

- *Section III, Line 7: Size and location of all proposed and public utilities.*
  - *Water supply information not provided.*
    - *Add water supply information.*

  RESPONSE: The location and size of all proposed and public utilities are shown on Sheet C6. This sheet contains the water supply information as well.

- *Section III, Line 10, Drainage Calculations /Report*
  - *Drainage Calculations/Report not submitted.*
    - *Waiver requested.*

  RESPONSE: A drainage report is included with this resubmission. We hereby withdraw this waiver request.

- *Section III, Line 11: Circulation plan provided.*
  - *Circulation plan not provided.*
    - *Provide circulation plan.*

  RESPONSE: Circulation information, including pavement radii and arrows indicating direction of travel, is shown on Sheet C4.

- *Section III, Line 12(a): Pavement and road profiles.*
  - *Information not provided for access road/driveway to rear barn.*
    - *Provide specifications and location for access to rear barn (including wetlands crossings).*

  RESPONSE: The existing trail/driveway to be extended provides access to the barn. No wetland permit is needed and no change to driveway is proposed.

- *Section III, Line 12(c): Curbing.*
    - *Information on curbing was not provided.*
      - *Provide details on curbing.*

  RESPONSE: A waiver for the requirement to provide curbing is included with this submission.

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- *Section III, Line 14: Solid Waste Disposal Plan*
  o *Solid waste disposal plan not provided.*
    ▪ *Add a note concerning solid waste disposal requirements.*

RESPONSE: Note 22 on Sheet C4 is stipulates solid waste disposal requirements.

- *Section III, Line 25 Timetable for construction and completion of buildings, improvements, and landscaping.*
  o *Timetable not provided.*
    ▪ *Provide timetable for above.*

RESPONSE: A construction timeline is included with this response and on Sheet C4 of the plan set.

- *Section III, Line 17 Location of any fire suppression system as required by the Fire Department.*
  o *No fire suppression information provided.*
    ▪ *Add fire suppression system requirements per Fire Departments and regulations.*

RESPONSE: Fire suppression systems are not required for duplexes.

- *Section III, Line 19: All required State, Federal and Local permits, and permit numbers.*
  o *Permits not provided.*
    ▪ *Permits will be required to be submitted prior to final plat approval.*

RESPONSE: All state, federal and local permits will be obtained and noted on the plans prior to final plat approval.

- *Section III, Line 22: SWPPP*
  o *SWPPP not provided.*
    ▪ *SWPPP will be required to be submitted prior to final plat approval.*

RESPONSE: A SWPPP will be submitted prior to the start of construction.

- *Section III Line 23: Sight Distance Plan*
  o *Sight distance plan not submitted.*
    ▪ *Driveway approval from NHDOT will be required to be submitted prior to final plat approval.*

RESPONSE: See Sheet H1 – Highway Access Plan for sight distance profile. A NHDOT permit will be obtained prior to final plat approval.

- *Section IV, Line 3: Review letter by Fire Department*
  o *Letter not provided.*
    ▪ *Provide letter from Fire Department review.*

RESPONSE: A letter from the Fire Chief is pending.

- *Section IV, Line 3: Review letter by Police Department*
  o *Letter not provided.*
    ▪ *Provide letter from Police Department review.*

RESPONSE: We have received a review letter from the Police Chief and our response to his comment is below.

- *Section IV, Line 7: Drainage calculations and report.*
  - *Drainage calculations and report not provided.*
    - *Waiver requested.*

  RESPONSE: A drainage report is included with this resubmission. We hereby withdraw this waiver request.

- *Section V: Engineering Review.*
    - *The plans and drawings are required to be reviewed by Stantec, the Town of Candia's engineering consultants, prior to the Public Hearing for the project.*

  RESPONSE: Responses to Stantec's comments are included above in this letter.

Police Chief Comment:

1. *The proposed driveway is askew from Donovan Road. I would like it to line up with Donovan Road.*
   RESPONSE: The proposed driveway is aligned with Donovan Road. It is at a different angle so that Units 5-6 will be outside of the wetland buffer, but it will be a 4-way intersection regardless. The proposed access driveway is at an angle of 80º with respect to High Street where 75º is the Town minimum per Section 14.09 of the Subdivision Regulations.

Road Agent Comments:

1. *There should be a note on the plans to ensure that this access never becomes a town-maintained road or will ever be a responsibility of the town to maintain.*
   RESPONSE: See Note #26 on Sheet C4.

Included with this response letter are the following:

1. Three (3) Full Size Plan Sets.
2. Architectural Plans (at end of plan set).
3. Email from Postmaster Sean Dooley.
4. Letters from Police Chief and Road Agent.
5. Waiver Request Letter.
6. Construction Schedule.
7. Two (2) Drainage Analysis.

Thank you very much for your time.

Very truly yours,
JONES & BEACH ENGINEERS, INC.

Joseph Coronati
Vice President

cc: Bob Carr (via email)
        Jason A. Bielagus, Esq. (via email)
        Bryan Ruoff, Stantec Consulting Services (via email)

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Daniel Meditz

From: Bob Carr <bob.carr22@comcast.net>
Sent: Wednesday, March 20, 2024 4:01 PM
To: Daniel Meditz
Subject: Fwd: [EXTERNAL] 669 High Street

Message from the Postmaster

Begin forwarded message:

From: "Dooley, Sean - Candia, NH" <Sean.T.Dooley@usps.gov>
Subject: RE: [EXTERNAL] 669 High Street
Date: March 5, 2024 at 2:12:34 PM EST
To: Bob Carr <bob.carr22@comcast.net>

Good afternoon Mr. Carr,
at some point someone from the e911 system will work with the fire chief and generate the addresses to match up with the 911 system. I would advise against calling it a new road. I would see them as be 669 High St. unit 1, 669 High St. unit 2, 669 High St. unit 3, 669 High St. unit 4, 669 High St. unit 5, and 669 High St. unit 6. The Post office will establish the actual delivery location as a valid address once 911 certifies its location and it's entered the e911 system.
If possible, I would like to see the deliveries on the left side of each delivery unit's driveway as indicated by the red dots on the map picture below.
If we were looking at the properties from the road it would be preferred the mailboxes be to the left of each driveway on their own post with a large mailbox for each unit. I put two read dots on the map to indicate where I think they should be placed. My carrier would make a left hand turn into the driveway from High ST deliver the boxes in reverse order from unit six to unit one and exit back onto High Street. If the driveway is paved, obviously clear in the winter, and the mailboxes are not blocked for any other reason, there should be no issue with them delivering to them in the driveway. Which is more appealing to your residents than having to cross the street I would imagen. I also included a photo of the new regulation mailboxes and where they can be purchased. Just throwing it out there if you need a good contractor for whatever, siding, decks, etc.. JJB construction his number is 6039966042.
If you have any other questions don't hesitate to reach out to me, best of luck with everything.

PROPOSED SEPTIC
TANK (TYP.)

PROPOSED DUPLEX
UNITS 1-2
3,536 S.F. (TYP.)

UNDERGROUND
ELECTRIC SERVICE
(TYP., EACH UNIT)

PROPOSED
DUPLEX
UNITS 3-4

TP2

PROP
LEAC
(TYP,

1" HDPE WATER
SERVICE WITH
SHUTOFF (TYP.,
EACH BUILDING)

PROPOSED
SINGLE-PHASE
TRANSFORMER

TP1

PULL BOX

PROPOSED WELL

125' WELL RADIUS

TP3

TP4

PROPOSED
DUPLEX
UNITS 5-6

STREET

2
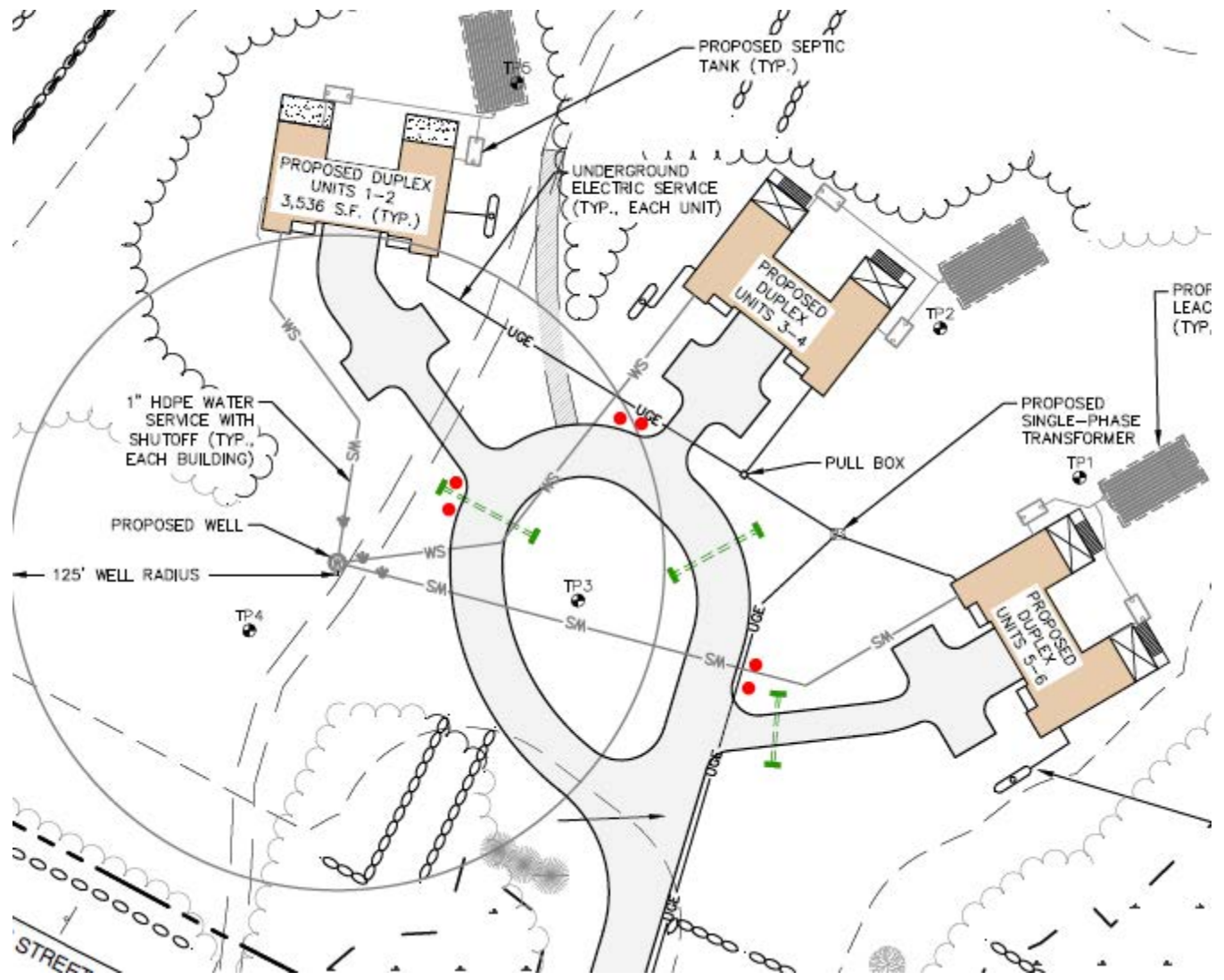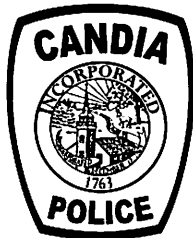
Candia Police Department

74 High Street
Candia, New Hampshire 03034
Telephone (603) 483-2317 emergency
(603) 483-2318 business
Fax (603) 483-0253

Michael D. McGillen
Chief of Police

March 5, 2024

Candia Planning Board
Attn: Chairman Rudy Cartier
74 High Street
Candia, NH 03034

Re: Multi-Family Development 669 High St.
Tax Map 405, Lot 48

Dear Rudy:

I have reviewed the plans and visited the site at 669 High Street. It appears that the proper stopping distance 400' is available. From what I can see the proposed driveway is askew from Donovan Road. I would like for it to line-up with Donovan Road.

Chief Michael McGillen
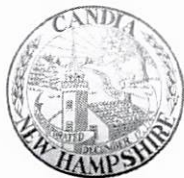
Town of Candia
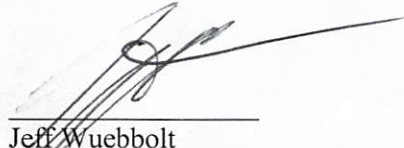
Town Road Agent
Jeffrey Wuebbolt
Candia, New Hampshire 03034
(603) 483-8588

RECEIVED
MAR 0 6 2024
By _____
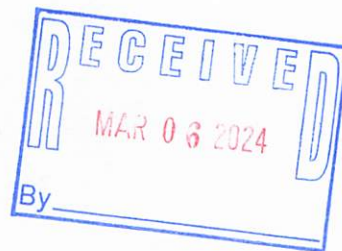
From: Candia Town Road Agent
To: Rudy Cartier, Chairman of the planning Committee
Subj: 669 High Street, Major Site Plan

I have reviewed the plans submitted for above project and my concerns are as follows:

1. There should be a note on the plans to ensure that this access never becomes a town-maintained road or will ever be a responsibility of the town to maintain.

Jeff Wuebbolt
Candia Town Road Agent

CONSTRUCTION SCHEDULE MEMO
669 HIGH STREET

Sept 1. All approvals for construction complete and Building Permits in hand.

Oct 1. Erosion Controls installed. Begin Clearing trees for Units 1&2 and stripping loam

Nov 1. Pour foundations for all three buildings
　　　　Install drainage and underground utilities

Dec 1. Begin Framing units
　　　　Rough grade properties

Jan 1. Continue framing

Feb 1. Continue framing and begin interior fit ups

March 1. Interior rough fit ups of all units continues
　　　　　Drill well

April 1. Interior rough fits up cont.
　　　　Run well lines throughout
　　　　Begin fine grading
　　　　Complete rip rap
　　　　Begin exterior finishes

May 1. Install all three septic tanks
　　　　Begin septic fields
　　　　Begin interior finishes

June1. Continue septic fields
　　　　Continue interior finishes
　　　　Continue exterior finishes
　　　　1st coat of paving throughout

July 1. Septic systems complete
　　　　Fine grading loam and seed
　　　　Continue interior finishes
　　　　Continue exterior finishes
　　　　Build Decks for units 3-6
　　　　Pour patios for units 1 & 2

August1. Unit 1&2 substantially complete
　　　　Install trees and shrubs
　　　　Erosion control for barn area installed
　　　　Trees cleared and stumped

Sep 1. C of O for unit 1 & 2
　　　　Continue interior and exterior finishes for units 3-6
　　　　Prep for foundatoin

Oct. 1. C of O for units 3 & 4
　　　　Pour foundation walls to barn and back fill

Nov. 1. C of O for units 5 & 6
　　　　Finish paving

Dec. 1 Erect Pre-Engineered steel barn

March 1. Pour floor to barn
　　　　　Finish grade

May1. Barn C of O

JONES&BEACH
ENGINEERS INC.

85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

March 21, 2024

Candia Planning Board
Attn. Rudy Cartier
74 High Street
Candia, NH 03034

RE: Waiver Request Letter
669 High Street Candia, NH
Map 405, Lot 48
JBE Project No. 22201

Dear Mr. Cartier:

Jones & Beach Engineers, Inc. respectfully requests the following waivers for the proposed multi-family residential development on the above-referenced parcel on behalf of our client & owner, Bob Carr, Claudia Patricia Carr Rev Trust due to the unique characteristics of the subject property and the proposed use. We have consolidated all of the proposed waivers into this one letter for ease of review rather than having multiple separate letters. We have also removed the waiver for the drainage design as we are providing a report now.

Section II, Article 4.03.E – Plan Scale: The scale of the plan shall be at a minimum of one-inch equals twenty feet (1" = 20'), and the plan shall include a north arrow and the date.

We are asking for a waiver from this requirement because this site is 88 acres and most of that property is not being developed. Typically housing developments would be at a larger scale than 1"=20'. Since we are required to apply under the site plan regulations, those are more geared towards commercial sites and additions, which makes more sense for a more detailed site plan. Our plans are at 1"=50' and provide adequate detail for this spread out housing design.

Section II, Article 4.03.F – Boundary Survey: A survey of the perimeter boundaries of the proposed use subject to site plan review, including compass bearings, distances, and area in acres.

We are asking for a waiver from this requirement because the site is 88 acres and mostly undeveloped backland. The client also agreed to no further development as part of the ZBA approval to allow the multi-family housing development. The units are not being sold off individually and therefore we are not required to survey the entire lot per the condominium law. We have surveyed approximately 17.6 acres of boundary which is well past the proposed barn in the rear of the parcel and enough to prove out density. Because of these reasons, we feel that this is a reasonable request given the small size of this developed compared to overall parcel size.

Section II, Article 4.03.G – Topography Survey: Existing and proposed topography showing surface contours at intervals not in excess of 2-feet.

We are asking for a waiver from this requirement because the site is 88 acres and mostly undeveloped backland. The client also agreed to no further development as part of the ZBA approval to allow the multi-family housing development. We have provided detailed topography on the front 15 acres, which is well more than the area needed for this small development. Because of these reasons, we feel that this is a reasonable request given the small size of this developed compared to overall parcel size.

Section II, Article 4.03.I – Natural Features: The location of natural features such as rivers, streams, marshes, wetlands, and any man-made feature such as existing dams, roads, stone walls, and structures. The plan shall indicate those natural and man-made features which are to be removed, retained, or altered.

We are asking for a waiver from this requirement because the site is 88 acres and mostly undeveloped backland. The client also agreed to no further development as part of the ZBA approval to allow the multi-family housing development. We have provided detailed existing features for the front 15 acres, which is well more than the area needed for this small development. Because of these reasons, we feel that this is a reasonable request given the small size of this developed compared to overall parcel size.

Section II, Article 4.03.K – Sidewalk: Proposed streets, driveways, parking spaces and sidewalks, with indication of direction of travel and inside radii of all curves. The width of the traveled way of all streets, driveways and sidewalks, and the total number of all parking spaces shall be shown. Loading spaces, trash disposal facilities, and facilities used in connection with any structure on the site shall be shown.

We comply with most of this section but we are asking for a waiver from the sidewalk requirement because:

We are proposing a short shared private driveway, just over 300' in length, for six (6) dwelling units. The purpose of having sidewalks is to improve pedestrian safety on roadways with high traffic volume, so that pedestrians will not be walking in the travel lane. Traffic on the shared driveway will be minimal and does not warrant the need for sidewalks. There is no sidewalk along Route 27 to connect to and the residents will be able to walk along the driveway with no issues.

Section III, Article 8.03.A.2 – Truck Turning: Turning movements shall be provided for a WB-67 vehicle demonstrating that a delivery vehicle can access, maneuver and exit the site without impacting other motorists or pedestrians.

We believe that this requirement is intended for industrial and major commercial sites where deliveries via a large tractor trailer such as a WB-67 are anticipated. A WB-67 is specifically intended for deliveries of materials to warehouses or superstores, and it would have no business utilizing a shared access driveway between three duplexes. The largest vehicles anticipated to use the proposed shared access driveway are fire trucks and delivery box trucks similar to a SU-30. Turning movements for these two vehicles were run on Sheets T1 and T2 of the plan set.

JONES&BEACH
ENGINEERS INC.

Section III, Article 8.03.A.3 – Delivery Area: An area designated and striped for delivery vehicles (is required).

Again, this requirement seems like it is intended for industrial and commercial sites. The delivery vehicles will mostly like stop in the cul-de-sac near the driveway for the unit it is delivering to and walk to the front door. Residents exiting their driveways would be able to go the other direction away from the delivery vehicle on the cul-de-sac and therefore wouldn't pose any traffic congestion.

Section III, Article 8.03.D.3.D – Lighting Design: Parking lot and sidewalk lighting shall provide a minimum 0.2 horizontal foot candles with an average uniformity ratio of 4:1 and a minimum color ratio index of 50.

A parking lot is not proposed and neither are sidewalks. Lighting on the units is proposed above their garage doors and at front doors like most homes. We want to avoid having too many lights in this development and I believe that is the goal of the Town as well in a rural area like this one.

Section III, Article 8.03.I – Granite Curbing: Parking spaces shall be of adequate size and number in accordance with Candia's Zoning Ordinance, and shall be physically delineated by granite curbing so as to protect adjacent pedestrians.

We are providing three parking spaces per dwelling unit – two in the driveway and one in the garage. The parking requirement per zoning is only two spaces per dwelling unit and therefore we exceed the required number and a waiver is not required for the number or dimension of parking spaces. However, no curbing is being proposed anywhere for the use. The intent of curbing typically is twofold; to stop stormwater from leaving pavement where it is not intended to, and to physically demarcate paved areas. We are proposing to allow runoff to sheet flow off of the paved surface and into several culverts and swales toward a detention pond in the center of the cul de sac, then finally to the back of the site. Therefore, curbing is not necessary for drainage design purposes. Furthermore, curbing would be contrary to the intended character of the proposed multi-family residential use. We are intending to maintain a rural feel to the site in keeping with surrounding properties and the existing use of the subject parcel. There is no curbing on High Street or any surrounding sites along High Street to the best of our knowledge. Therefore, we have no need for curbing and feel that it would be detrimental to the intended character of the property.

Section III, Article 8.06.K – Culvert Pipe: Acceptable pipe material for roadway drainage systems and driveway culverts is: Reinforced Concrete Pipe (RCP).

RCP is typically only used for wetland crossings. ADS-N12 HDPE pipe is industry standard for culverts underneath driveways and roadways. Local contractors are more used to installing ADS-N12 HDPE pipes and these are more readily available for construction. ADS-N12 is rated for H20 loading at a depth of as little as 1 foot, and we are proposing at least 3 feet of cover in all paved areas. ADS-N12 HDPE pipe is a sufficient construction material for the intended use we are proposing.

JONES&BEACH
ENGINEERS INC.

Thank you very much for your consideration. If you have any questions, or need further assistance, please contact our office.

Very truly yours,
JONES & BEACH ENGINEERS, INC.

Joseph Coronati
Vice President

JONES&BEACH
ENGINEERS INC.

DRAINAGE ANALYSIS

SEDIMENT AND EROSION CONTROL PLAN

"Beaver Meadows"
669 High Street
Candia, NH 03034
Tax Map 405, Lot 48

Prepared for:

Bob Carr
17 Vassar Street
Manchester, NH 03104
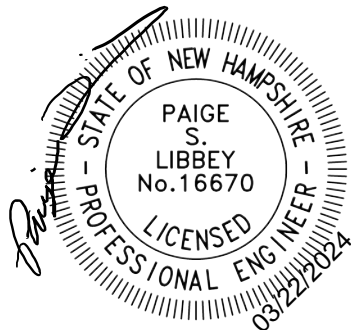
Prepared by:
Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
(603) 772-4746
March 22, 2024
JBE Project No. 22201

EXECUTIVE SUMMARY

Our client, Bob Carr proposes to remove the existing residential structures and driveway located at 669 High Street in Candia, NH, and construct 3 residential duplex buildings for a total of six new dwelling units, as well as an associated shared access driveway, on the same parcel. A drainage analysis of the entire site as well as offsite contributing watershed area was conducted for the purpose of estimating the peak rate of stormwater runoff and to subsequently design adequate drainage structures. Two models were compiled, one for the area in its existing (pre-construction) condition, and a second for its proposed (post-construction) condition. The analysis was conducted using data for the 2 Year – 24 Hour (2.90”), 10 Year – 24 Hour (4.34”), 25 Year – 24 Hour (5.47"), 50 Year – 24 Hour (6.51") and 100 Year – 24 Hour (7.77”) storm events using the USDA SCS TR-20 method within the HydroCAD Stormwater Modeling System environment. This data was taken from the Extreme Precipitation Tables developed by the Northeast Regional Climate Center (NRCC). A summary of the existing and proposed conditions peak rates of runoff in units of cubic feet per second (cfs) is as follows:

Analysis Point	2 Year		10 Year		25 Year		50 Year		100 Year	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Analysis Point #1	2.20	2.12	5.29	5.21	8.04	7.98	10.71	10.64	14.08	14.08
Analysis Point #2	0.49	0.44	1.26	1.14	1.97	1.78	2.65	2.40	3.52	3.18
Analysis Point #3	0.05	0.05	0.32	0.30	0.64	0.59	0.98	0.90	1.45	1.37
Analysis Point #4	0.86	0.63	2.66	2.00	4.65	3.31	6.50	4.63	8.82	6.33
Analysis Point #5	0.00	0.00	1.58	1.56	3.29	3.28	4.73	4.72	6.32	6.32

The subject parcel is located in the Residential Zoning District. The subject parcel currently consists of the aforementioned residential structures and driveway which are proposed to be demolished. Despite impervious surface existing on the subject parcel now, the proposed development results in an increase in impervious surface on the subject parcel. The addition of the proposed impervious surfaces causes an increase in the curve number (C_n) and a decrease in the time of concentration (T_c), the net result being a potential increase in peak rates of runoff from the site. In order to mitigate this potential, a stormwater management system has been designed, consisting of a central detention pond as well as several culverts and stone drip edges. Due to the use of these stormwater management features, the peak flow will be reduced toward all analysis points during all analyzed storm events in the proposed condition as compared to the existing condition.

The use of Best Management Practices per the NHDES Stormwater Manual have been applied to the design of this stormwater management system and will be observed during all stages of construction. All land disturbed during construction will be stabilized within thirty days of groundbreaking and abutting property owners will suffer minimal adversity resultant to this development.

TABLE OF CONTENTS

Attachment from Candia Planning Board Meeting on 4/3/2024
669 High Street, Candia, NH
Drainage Analysis and Erosion and Sediment Control Plan

March 22, 2024
Page 1

1.0 RAINFALL CHARACTERISTICS

This drainage report includes an existing conditions analysis of the area involved in the proposed development, as well as a proposed condition, or post-construction analysis, of the same area. These analyses were accomplished using the USDA SCS TR-20 Method within the HydroCAD 10.20-3c Stormwater Modeling System. The curve numbers were developed using the SCS TR-55 Runoff Curve numbers for Urban Areas. A Type III SCS 24-hour rainfall distribution was utilized in analyzing the data for the 2 Year – 24 Hour (2.90”), 10 Year – 24 Hour (4.34”), 25 Year – 24 Hour (5.47"), 50 Year – 24 Hour (6.51") and 100 Year – 24 Hour (7.77”) storm events. This data was taken from the Extreme Precipitation Tables developed by the Northeast Regional Climate Center (NRCC).

2.0 EXISTING CONDITIONS ANALYSIS

In the existing condition, the front area of the subject parcel consists of the aforementioned residential structures and driveway as well as a system of trails. Behind the existing single-family residential site, there are many acres of woods that comprise the remainder of the subject parcel.

The existing topography and roof ridges divide the subject parcel and offsite contributing watershed areas into 7 subcatchments, draining toward 5 analysis points. The majority of the front area of the subject parcel, modelled as Subcatchment 1S, draining overland toward Analysis Point 1. Analysis Point 1 represents a large wetland complex located approximately 200 feet behind the developed portion of the subject parcel.

Subcatchment 2S represents the area north of AP1 which drains toward this same analysis point. It is modelled separately because it has a different time of concentration path and weighted CN value, and is separated physically from 1S by the wetland complex.

Subcatchment 3S represents the area in the southwest corner of the subject parcel which drains westerly toward Analysis Point 2 Analysis Point 2 represents Tax Map 404, Lot 112.

Subcatchment 4S is wooded with an 8’ wide dirt trail running through it. All runoff from 4S drains toward Analysis Point 3, which is a point along the wooded trail immediately east of the subcatchment boundary. This subcatchment and analysis point were included only due to the addition of the proposed barn and dirt trail leading to it in this area.

Subcatchment 5S is mostly sandwiched between 1S and 3S. This represents the land area that drains toward Analysis Point 4. Analysis Point 4 is another wetland complex to the north of the wetland complex that is represented as Analysis Point 1. The buffer associated with this wetland complex lies just to the east of the proposed barn.

There is an isolated wetland located in the front of the property at the corner of the existing gravel driveway and High Street. This isolated wetland consists of a shallow depression with a berm and therefore it is modelled as Pond 1P. The land area draining toward Pond 1P is modelled as Subcatchment 6S. Since this is a wetland, the seasonal high water table was assumed to be 6” below surface for the purposes of modelling infiltration of surface water to groundwater. Infiltration was modelled in the pond and any overflow over the berm follows a path through Subcatchment 5S, modelled as Reach 1R, to Analysis Point 4.

Finally, there is another existing depression on the eastern edge of the property modelled as 2P. The land area draining toward 2P is modelled as Subcatchment 7S. Since this is a wetland, the seasonal high water table was assumed to be 6" below surface for the purposes of modelling infiltration of surface water to groundwater. Infiltration was modelled in the pond and any overflow over the berm flows directly to Analysis Point 5, which represents an offsite discharge point immediately adjacent to Pond 2P.

Existing soil types were determined via NRCS Web Soil Survey. Four soil types exist in the study area: Scituate-Newfields Complex (Symbol 446A, Hydrologic Soil Group C), Scituate-Newfields Complex "very stony" (Symbol 447A, Hydrologic Soil Group C), Ridgebury fine sandy loam (Symbol 657B, Hydrologic Soil Group D), and Chatfield-Hollis-Canton complex (Symbol 140B, Hydrologic Soil Group B). All proposed infiltration practices are proposed in locations represented as 446A or 447A. According to "Ksat Values for New Hampshire Soils," Special Publication No. 5 sponsored by the Society of Soil Scientists of Northern New England (SSSNNE), Newfields and Scituate soils have identical saturated hydraulic conductivity ranges in the B horizon. The saturated hydraulic conductivity (Ksat) value for these soils ranges from 0.6 to 6.0 inches/hour within both the B horizon. Scituate has a Ksat range of 0.06-2.0 in/hr in the C horizon, but there is also Newfields soil in this complex and infiltration is proposed into the B horizon. B horizon Ksat estimates are typically more accurate in our experience. Therefore, in accordance with standard engineering practice, the lowest published Ksat of 0.6 in/hr in the B horizon for these soil types was divided by two in order to determine an appropriate Ksat of **0.3 in/hr** to use for design.

3.0   PROPOSED CONDITIONS ANALYSIS

The addition of the proposed impervious paved areas and buildings causes an increase in the curve number (C_n) and a decrease in the time of concentration (T_c), the result being a potential increase in peak rates of runoff from the site. A stormwater management system was designed in order to mitigate this potential. The proposed development, consisting of the aforementioned six (6) dwelling units in three buildings with an associated shared access driveways and individual unit driveways as well as stormwater management features divide the subject parcel into 21 subcatchments. Subcatchments 1S-7S are functionally the same in the proposed condition as they were in the existing condition, although the areas have been changed. Pond 1P, representing an isolated wetland in the front of the subject parcel, flows overland through 1R but the difference now is that it is captured into a culvert modelled as 3R and routed into the stormwater management system which outlets toward Analysis Point 1.

There is no 8S due to a subcatchment numbering error on our end, but rather than renumbering the remainder of the subcatchments we will keep going. Subcatchment 9S represents an area consisting of woods, grass, pavement and roof that drains into a culvert modelled as Reach 3R. Reach 3R outlets into the primary detention pond for the site, modelled as 3P, located in the cul-de-sac center island. The detention pond has an outlet control structure and is designed to capture and slowly release runoff directed toward it. Discharge from Pond 3P outlets into Reach 4R, representing a swale between Units 4 and 5.

Subcatchment 10S represents a large section of the proposed cul de sac as well as some driveway and roof areas which drain directly into Pond 3P.

Subcatchment 11S represents a stretch of the proposed access driveway which drains through a shallow swale into a plunge pool. The swale is modelled as part of the Tc path for the subcatchment and the plunge pool is modelled as 24P. The plunge pool has a culvert outlet which drains into 3P.

Subcatchments 12S-22S represent roof areas which drain directly into stone drip edges adjacent to the building foundations for infiltration of roof runoff. The seasonal high water table depths per the test pits informed us of the proper SHWT elevations to use for design.

Through the design of this stormwater management system, peak flows are reduced toward all five analysis points during all analyzed storm events and all applicable requirements of the Candia Major Site Plan Regulations Section 8.06 are met except that a waiver is requested from 8.06.K to allow ADS-N12 HDPE drainage pipes instead of RCP as is typical for small residential developments.

5.0   CONCLUSION

This proposed site development will have minimal adverse effect on abutting infrastructures, properties, and downstream wetlands by way of stormwater runoff or siltation. Appropriate steps will be taken to eliminate erosion and sedimentation; these will be accomplished through the construction of a drainage system consisting of a detention pond, swales, and stone drip edges, and temporary erosion control measures including but not limited to silt fence and the use of a stabilized construction entrance. Best Management Practices developed by the State of New Hampshire have been utilized in the design of this system and their application will be enforced throughout the construction process. Peak rates of runoff from the site will be reduced toward all analysis points during all analyzed storm events.

This project disturbs less than 100,000 S.F. and does not require a NHDES Alteration of Terrain Permit.

Respectfully Submitted,
JONES & BEACH ENGINEERS, INC.

Daniel Meditz, P.E
Project Engineer

APPENDIX I

EXISTING CONDITIONS DRAINAGE ANALYSIS

Summary 2 YEAR
Complete 10 YEAR
Summary 25 YEAR
Complete 50 YEAR
Complete 100 YEAR

1S

2S

3S → AP2

6S

1S

2S

3S

Analysis Point 2

6S

7S

AP1

4S → AP3

1P

7S

4S

Analysis Point 3

Isolated Wetland

2P → AP5

5S → AP4 ← 1R

Depression in Woods

Analysis Point 5

5S

Analysis Point 4

Flow Through 5S

Subcat   Reach   Pond   Link

Routing Diagram for 22201-EXISTING
Prepared by Jones & Beach Engineers Inc, Printed 3/22/2024
HydroCAD® 10.20-3c s/n 00762 © 2023 HydroCAD Software Solutions LLC
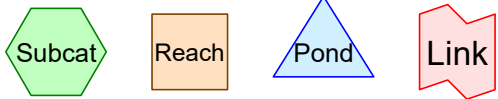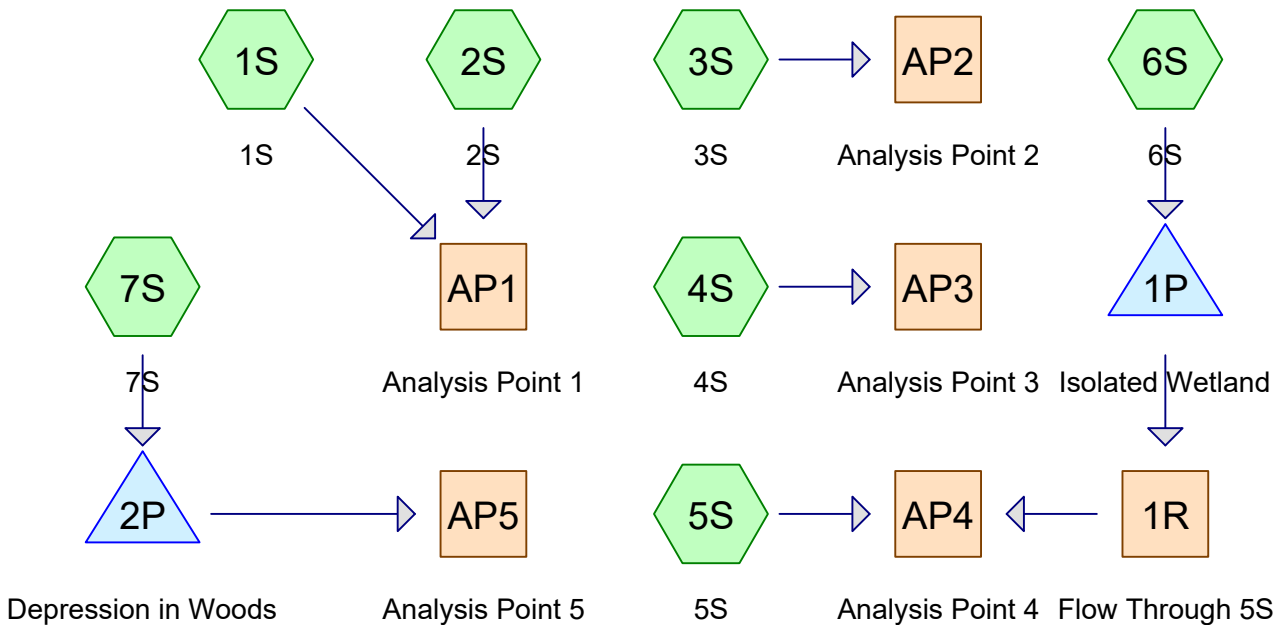
22201-EXISTING
Prepared by Jones & Beach Engineers Inc
HydroCAD® 10.20-3c s/n 00762 © 2023 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.405	74	>75% Grass cover, Good, HSG C (1S, 3S, 5S, 6S, 7S)
0.007	80	>75% Grass cover, Good, HSG D (1S, 7S)
0.120	82	Dirt roads, HSG B (2S, 4S, 5S)
0.132	87	Dirt roads, HSG C (5S)
0.019	89	Dirt roads, HSG D (5S)
0.071	96	Gravel surface, HSG C (1S, 6S)
0.093	98	Paved parking, HSG C (1S, 5S, 6S, 7S)
0.075	98	Roofs, HSG C (1S, 7S)
2.176	55	Woods, Good, HSG B (2S, 4S, 5S)
4.966	70	Woods, Good, HSG C (1S, 3S, 5S, 6S, 7S)
1.886	77	Woods, Good, HSG D (1S, 2S, 5S, 7S)
11.949	**70**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
2.296	HSG B	2S, 4S, 5S
7.742	HSG C	1S, 3S, 5S, 6S, 7S
1.911	HSG D	1S, 2S, 5S, 7S
0.000	Other	
11.949		**TOTAL AREA**

22201-EXISTING
Prepared by Jones & Beach Engineers Inc
HydroCAD® 10.20-3c s/n 00762 © 2023 HydroCAD Software Solutions LLC

Type III 24-hr 2-YR 24HR Rainfall=2.90"
Printed 3/22/2024
Page 4

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: 1S Runoff Area=122,795 sf 2.52% Impervious Runoff Depth>0.84"
Flow Length=438' Tc=27.3 min CN=74 Runoff=1.52 cfs 0.197 af

Subcatchment2S: 2S Runoff Area=66,616 sf 0.00% Impervious Runoff Depth>0.70"
Flow Length=290' Tc=18.2 min CN=71 Runoff=0.76 cfs 0.089 af

Subcatchment3S: 3S Runoff Area=43,497 sf 0.00% Impervious Runoff Depth>0.70"
Flow Length=140' Slope=0.0123 '/' Tc=19.1 min CN=71 Runoff=0.49 cfs 0.058 af

Subcatchment4S: 4S Runoff Area=32,528 sf 0.00% Impervious Runoff Depth>0.21"
Flow Length=271' Tc=25.6 min CN=57 Runoff=0.05 cfs 0.013 af

Subcatchment5S: 5S Runoff Area=153,606 sf 0.42% Impervious Runoff Depth>0.53"
Flow Length=881' Tc=40.0 min CN=67 Runoff=0.86 cfs 0.155 af

Subcatchment6S: 6S Runoff Area=16,669 sf 8.30% Impervious Runoff Depth>0.95"
Flow Length=122' Tc=11.6 min CN=76 Runoff=0.33 cfs 0.030 af

Subcatchment7S: 7S Runoff Area=84,800 sf 2.58% Impervious Runoff Depth>0.79"
Flow Length=456' Tc=23.1 min CN=73 Runoff=1.04 cfs 0.128 af

Reach 1R: Flow Through 5S Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.030 L=881.0' S=0.0254 '/' Capacity=37.95 cfs Outflow=0.00 cfs 0.000 af

Reach AP1: Analysis Point 1 Inflow=2.20 cfs 0.286 af
Outflow=2.20 cfs 0.286 af

Reach AP2: Analysis Point 2 Inflow=0.49 cfs 0.058 af
Outflow=0.49 cfs 0.058 af

Reach AP3: Analysis Point 3 Inflow=0.05 cfs 0.013 af
Outflow=0.05 cfs 0.013 af

Reach AP4: Analysis Point 4 Inflow=0.86 cfs 0.155 af
Outflow=0.86 cfs 0.155 af

Reach AP5: Analysis Point 5 Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond 1P: Isolated Wetland Peak Elev=196.22' Storage=745 cf Inflow=0.33 cfs 0.030 af
Discarded=0.02 cfs 0.018 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.018 af

Pond 2P: Depression in Woods Peak Elev=176.38' Storage=3,094 cf Inflow=1.04 cfs 0.128 af
Discarded=0.09 cfs 0.078 af Primary=0.00 cfs 0.000 af Outflow=0.09 cfs 0.078 af

Total Runoff Area = 11.949 ac   Runoff Volume = 0.672 af   Average Runoff Depth = 0.67"
98.60% Pervious = 11.781 ac   1.40% Impervious = 0.168 ac

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: 1S   Runoff Area=122,795 sf   2.52% Impervious   Runoff Depth>1.84"
                              Flow Length=438' Tc=27.3 min   CN=74   Runoff=3.54 cfs 0.432 af

Subcatchment2S: 2S   Runoff Area=66,616 sf   0.00% Impervious   Runoff Depth>1.62"
                              Flow Length=290' Tc=18.2 min   CN=71   Runoff=1.98 cfs 0.207 af

Subcatchment3S: 3S   Runoff Area=43,497 sf   0.00% Impervious   Runoff Depth>1.62"
              Flow Length=140'   Slope=0.0123 '/' Tc=19.1 min   CN=71   Runoff=1.26 cfs 0.135 af

Subcatchment4S: 4S   Runoff Area=32,528 sf   0.00% Impervious   Runoff Depth>0.77"
                              Flow Length=271' Tc=25.6 min   CN=57   Runoff=0.32 cfs 0.048 af

Subcatchment5S: 5S   Runoff Area=153,606 sf   0.42% Impervious   Runoff Depth>1.34"
                              Flow Length=881' Tc=40.0 min   CN=67   Runoff=2.59 cfs 0.395 af

Subcatchment6S: 6S   Runoff Area=16,669 sf   8.30% Impervious   Runoff Depth>2.00"
                              Flow Length=122' Tc=11.6 min   CN=76   Runoff=0.74 cfs 0.064 af

Subcatchment7S: 7S   Runoff Area=84,800 sf   2.58% Impervious   Runoff Depth>1.77"
                              Flow Length=456' Tc=23.1 min   CN=73   Runoff=2.51 cfs 0.287 af

Reach 1R: Flow Through 5S   Avg. Flow Depth=0.03' Max Vel=0.60 fps Inflow=0.40 cfs 0.014 af
                    n=0.030   L=881.0'   S=0.0254 '/' Capacity=37.95 cfs Outflow=0.10 cfs 0.014 af

Reach AP1: Analysis Point 1   Inflow=5.29 cfs 0.639 af
                                                              Outflow=5.29 cfs 0.639 af

Reach AP2: Analysis Point 2   Inflow=1.26 cfs 0.135 af
                                                              Outflow=1.26 cfs 0.135 af

Reach AP3: Analysis Point 3   Inflow=0.32 cfs 0.048 af
                                                              Outflow=0.32 cfs 0.048 af

Reach AP4: Analysis Point 4   Inflow=2.66 cfs 0.409 af
                                                              Outflow=2.66 cfs 0.409 af

Reach AP5: Analysis Point 5   Inflow=1.58 cfs 0.128 af
                                                              Outflow=1.58 cfs 0.128 af

Pond 1P: Isolated Wetland   Peak Elev=196.44' Storage=1,191 cf Inflow=0.74 cfs 0.064 af
                  Discarded=0.03 cfs 0.029 af Primary=0.40 cfs 0.014 af Outflow=0.43 cfs 0.043 af

Pond 2P: Depression in Woods   Peak Elev=176.50' Storage=3,960 cf Inflow=2.51 cfs 0.287 af
                  Discarded=0.10 cfs 0.091 af Primary=1.58 cfs 0.128 af Outflow=1.68 cfs 0.219 af

Total Runoff Area = 11.949 ac   Runoff Volume = 1.567 af   Average Runoff Depth = 1.57"
98.60% Pervious = 11.781 ac   1.40% Impervious = 0.168 ac

Summary for Subcatchment 1S: 1S

Runoff   =   3.54 cfs @ 12.40 hrs, Volume=   0.432 af, Depth> 1.84"
    Routed to Reach AP1 : Analysis Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR 24HR Rainfall=4.34"

Area (sf)	CN	Description
2,882	98	Roofs, HSG C
210	98	Paved parking, HSG C
1,737	96	Gravel surface, HSG C
58,443	70	Woods, Good, HSG C
35,755	74	>75% Grass cover, Good, HSG C
23,726	77	Woods, Good, HSG D
42	80	>75% Grass cover, Good, HSG D
122,795	74	Weighted Average
119,703		97.48% Pervious Area
3,092		2.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.6	100	0.0200	0.07		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
0.4	18	0.0186	0.68		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
2.1	147	0.0544	1.17		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.5	45	0.0889	1.49		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
1.4	103	0.0583	1.21		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.3	25	0.0800	1.41		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
27.3	438	Total			

Summary for Subcatchment 2S: 2S

Runoff   =   1.98 cfs @ 12.27 hrs, Volume=   0.207 af, Depth> 1.62"
    Routed to Reach AP1 : Analysis Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR 24HR Rainfall=4.34"

Area (sf)	CN	Description
1,242	82	Dirt roads, HSG B
19,472	55	Woods, Good, HSG B
45,902	77	Woods, Good, HSG D
66,616	71	Weighted Average
66,616		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	82	0.0610	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.90"
2.9	18	0.1111	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.90"
0.2	21	0.1111	1.67		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	30	0.0571	1.19		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.4	139	0.0367	0.96		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.2	290	Total			

Summary for Subcatchment 3S: 3S

Runoff = 1.26 cfs @ 12.28 hrs, Volume= 0.135 af, Depth> 1.62"
    Routed to Reach AP2 : Analysis Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR 24HR Rainfall=4.34"

Area (sf)	CN	Description
33,751	70	Woods, Good, HSG C
9,746	74	>75% Grass cover, Good, HSG C
43,497	71	Weighted Average
43,497		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	81	0.0123	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.90"
7.3	19	0.0123	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.90"
1.2	40	0.0123	0.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.1	140	Total			

Summary for Subcatchment 4S: 4S

Runoff = 0.32 cfs @ 12.45 hrs, Volume= 0.048 af, Depth> 0.77"
    Routed to Reach AP3 : Analysis Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR 24HR Rainfall=4.34"

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Type III 24-hr 10-YR 24HR Rainfall=4.34"
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Area (sf)	CN	Description
1,810	82	Dirt roads, HSG B
30,718	55	Woods, Good, HSG B
32,528	57	Weighted Average
32,528		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	30	0.0667	0.09		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
17.3	80	0.0250	0.08		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
2.8	113	0.0177	0.67		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.2	48	0.0625	4.03		**Shallow Concentrated Flow,**
					Unpaved Kv= 16.1 fps
25.6	271	Total			

Summary for Subcatchment 5S: 5S

Runoff   =   2.59 cfs @ 12.60 hrs, Volume=   0.395 af, Depth> 1.34"
    Routed to Reach AP4 : Analysis Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR 24HR Rainfall=4.34"

Area (sf)	CN	Description
2,174	82	Dirt roads, HSG B
44,614	55	Woods, Good, HSG B
649	98	Paved parking, HSG C
5,767	87	Dirt roads, HSG C
16,547	74	>75% Grass cover, Good, HSG C
80,332	70	Woods, Good, HSG C
817	89	Dirt roads, HSG D
2,706	77	Woods, Good, HSG D
153,606	67	Weighted Average
152,957		99.58% Pervious Area
649		0.42% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.3	100	0.0150	0.07		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
2.7	100	0.0150	0.61		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
1.4	70	0.0286	0.85		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
1.0	176	0.0341	2.97		**Shallow Concentrated Flow,**
					Unpaved Kv= 16.1 fps
0.1	32	0.0625	4.03		**Shallow Concentrated Flow,**
					Unpaved Kv= 16.1 fps
0.4	29	0.0690	1.31		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
1.4	69	0.0290	0.85		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.6	39	0.0513	1.13		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.4	75	0.0333	2.94		**Shallow Concentrated Flow,**
					Unpaved Kv= 16.1 fps
6.7	191	0.0089	0.47		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
40.0	881	Total			

Summary for Subcatchment 6S: 6S

Runoff   =   0.74 cfs @ 12.17 hrs, Volume=   0.064 af, Depth> 2.00"
    Routed to Pond 1P : Isolated Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR 24HR Rainfall=4.34"

Area (sf)	CN	Description
1,383	98	Paved parking, HSG C
1,344	96	Gravel surface, HSG C
8,543	74	>75% Grass cover, Good, HSG C
5,399	70	Woods, Good, HSG C
16,669	76	Weighted Average
15,286		91.70% Pervious Area
1,383		8.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	76	0.0105	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.90"
0.3	11	0.0100	0.64		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.90"
0.2	13	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	22	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.6	122	Total			

Summary for Subcatchment 7S: 7S

Runoff = 2.51 cfs @ 12.34 hrs, Volume= 0.287 af, Depth> 1.77"
Routed to Pond 2P : Depression in Woods

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR 24HR Rainfall=4.34"

Area (sf)	CN	Description
365	98	Roofs, HSG C
1,823	98	Paved parking, HSG C
38,380	70	Woods, Good, HSG C
34,179	74	>75% Grass cover, Good, HSG C
9,806	77	Woods, Good, HSG D
247	80	>75% Grass cover, Good, HSG D
84,800	73	Weighted Average
82,612		97.42% Pervious Area
2,188		2.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	13	0.0200	0.87		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.90"
1.4	20	0.1200	0.24		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.90"
7.3	39	0.0513	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.90"
7.3	28	0.0260	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.90"
2.6	127	0.0260	0.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	75	0.1067	1.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	56	0.0357	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	22	0.0909	1.51		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.3	76	0.0125	0.56		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
23.1	456	Total			

Summary for Reach 1R: Flow Through 5S

[80] Warning: Exceeded Pond 1P by 0.10' @ 23.95 hrs (0.00 cfs 0.019 af)

Inflow Area =   0.383 ac,   8.30% Impervious,   Inflow Depth =   0.43"   for 10-YR 24HR event
Inflow   =   0.40 cfs @   12.50 hrs,   Volume=   0.014 af
Outflow   =   0.10 cfs @   12.84 hrs,   Volume=   0.014 af,   Atten= 76%,   Lag= 20.0 min
    Routed to Reach AP4 : Analysis Point 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 0.60 fps,   Min. Travel Time= 24.3 min
Avg. Velocity = 0.27 fps,   Avg. Travel Time= 53.6 min

Peak Storage= 139 cf @ 12.84 hrs
Average Depth at Peak Storage= 0.03' , Surface Width= 7.52'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf,   Capacity= 37.95 cfs

30.00' x 0.50' deep Parabolic Channel,   n= 0.030 Stream, clean & straight
Length= 881.0' Slope= 0.0254 '/'
Inlet Invert= 196.40', Outlet Invert= 174.00'

‡

Summary for Reach AP1: Analysis Point 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   4.348 ac,   1.63% Impervious, Inflow Depth > 1.76"   for 10-YR 24HR event
Inflow   =   5.29 cfs @   12.35 hrs, Volume=   0.639 af
Outflow   =   5.29 cfs @   12.35 hrs, Volume=   0.639 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP2: Analysis Point 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   0.999 ac,   0.00% Impervious, Inflow Depth > 1.62"   for 10-YR 24HR event
Inflow   =   1.26 cfs @   12.28 hrs, Volume=   0.135 af
Outflow   =   1.26 cfs @   12.28 hrs, Volume=   0.135 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP3: Analysis Point 3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   0.747 ac,   0.00% Impervious, Inflow Depth > 0.77"   for 10-YR 24HR event
Inflow   =   0.32 cfs @   12.45 hrs, Volume=   0.048 af
Outflow   =   0.32 cfs @   12.45 hrs, Volume=   0.048 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP4: Analysis Point 4

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   3.909 ac,   1.19% Impervious, Inflow Depth > 1.26"   for 10-YR 24HR event
Inflow   =   2.66 cfs @   12.62 hrs, Volume=   0.409 af
Outflow   =   2.66 cfs @   12.62 hrs, Volume=   0.409 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP5: Analysis Point 5

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   1.947 ac,   2.58% Impervious, Inflow Depth = 0.79"   for 10-YR 24HR event
Inflow   =   1.58 cfs @   12.61 hrs, Volume=   0.128 af
Outflow   =   1.58 cfs @   12.61 hrs, Volume=   0.128 af, Atten= 0%, Lag= 0.0 min

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Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Pond 1P: Isolated Wetland

[93] Warning: Storage range exceeded by 0.03'
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=40)

Inflow Area =	0.383 ac,	8.30% Impervious,	Inflow Depth > 2.00"	for 10-YR 24HR event	
Inflow =	0.74 cfs @ 12.17 hrs,	Volume=	0.064 af		
Outflow =	0.43 cfs @ 12.50 hrs,	Volume=	0.043 af,	Atten= 41%, Lag= 20.2 min	
Discarded =	0.03 cfs @ 12.50 hrs,	Volume=	0.029 af		
Primary =	0.40 cfs @ 12.50 hrs,	Volume=	0.014 af		

    Routed to Reach 1R : Flow Through 5S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 196.44' @ 12.50 hrs   Surf.Area= 2,828 sf   Storage= 1,191 cf

Plug-Flow detention time= 240.8 min calculated for 0.043 af (67% of inflow)
Center-of-Mass det. time= 138.2 min (981.2 - 843.0)

Volume	Invert	Avail.Storage	Storage Description
#1	195.30'	1,191 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
195.30	235	72.0	0	0	235
196.00	1,050	148.0	416	416	1,568
196.40	2,828	211.0	747	1,163	3,369
196.41	2,828	211.0	28	1,191	3,371

Device	Routing	Invert	Outlet Devices
#1	Primary	196.40'	**20.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#2	Discarded	195.30'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 194.80' Phase-In= 0.10'

Discarded OutFlow Max=0.03 cfs @ 12.50 hrs HW=196.44' (Free Discharge)
└─**2=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=0.38 cfs @ 12.50 hrs HW=196.44' TW=196.41' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 0.38 cfs @ 0.45 fps)

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Summary for Pond 2P: Depression in Woods

Inflow Area =   1.947 ac,   2.58% Impervious, Inflow Depth > 1.77"   for 10-YR 24HR event
Inflow   =   2.51 cfs @   12.34 hrs, Volume=   0.287 af
Outflow   =   1.68 cfs @   12.61 hrs, Volume=   0.219 af, Atten= 33%, Lag= 16.5 min
Discarded =   0.10 cfs @   12.61 hrs, Volume=   0.091 af
Primary   =   1.58 cfs @   12.61 hrs, Volume=   0.128 af
    Routed to Reach AP5 : Analysis Point 5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 176.50' @ 12.61 hrs   Surf.Area= 7,514 sf   Storage= 3,960 cf

Plug-Flow detention time= 152.4 min calculated for 0.218 af (76% of inflow)
Center-of-Mass det. time= 66.7 min (926.8 - 860.1)

Volume	Invert	Avail.Storage	Storage Description		
#1	175.70'	5,471 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)		

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
175.70	2,764	204.0	0	0	2,764
176.00	3,841	265.0	986	986	5,042
176.40	7,514	341.0	2,230	3,217	8,709
176.70	7,514	341.0	2,254	5,471	8,811

Device	Routing	Invert	Outlet Devices
#1	Primary	176.40'	**20.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Discarded	175.70'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 175.20' Phase-In= 0.10'

Discarded OutFlow Max=0.10 cfs @ 12.61 hrs HW=176.50' (Free Discharge)
└─**2=Exfiltration** (Controls 0.10 cfs)

Primary OutFlow Max=1.57 cfs @ 12.61 hrs HW=176.50' TW=0.00' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 1.57 cfs @ 0.80 fps)

22201-EXISTING
Type III 24-hr 25-YR 24HR Rainfall=5.47"

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: 1S
Runoff Area=122,795 sf 2.52% Impervious Runoff Depth>2.73"
Flow Length=438' Tc=27.3 min CN=74 Runoff=5.32 cfs 0.641 af

Subcatchment2S: 2S
Runoff Area=66,616 sf 0.00% Impervious Runoff Depth>2.47"
Flow Length=290' Tc=18.2 min CN=71 Runoff=3.07 cfs 0.315 af

Subcatchment3S: 3S
Runoff Area=43,497 sf 0.00% Impervious Runoff Depth>2.47"
Flow Length=140' Slope=0.0123 '/' Tc=19.1 min CN=71 Runoff=1.97 cfs 0.205 af

Subcatchment4S: 4S
Runoff Area=32,528 sf 0.00% Impervious Runoff Depth>1.35"
Flow Length=271' Tc=25.6 min CN=57 Runoff=0.64 cfs 0.084 af

Subcatchment5S: 5S
Runoff Area=153,606 sf 0.42% Impervious Runoff Depth>2.12"
Flow Length=881' Tc=40.0 min CN=67 Runoff=4.23 cfs 0.622 af

Subcatchment6S: 6S
Runoff Area=16,669 sf 8.30% Impervious Runoff Depth>2.92"
Flow Length=122' Tc=11.6 min CN=76 Runoff=1.08 cfs 0.093 af

Subcatchment7S: 7S
Runoff Area=84,800 sf 2.58% Impervious Runoff Depth>2.64"
Flow Length=456' Tc=23.1 min CN=73 Runoff=3.81 cfs 0.429 af

Reach 1R: Flow Through 5S
Avg. Flow Depth=0.06' Max Vel=0.96 fps Inflow=1.67 cfs 0.039 af
n=0.030 L=881.0' S=0.0254 '/' Capacity=37.95 cfs Outflow=0.44 cfs 0.039 af

Reach AP1: Analysis Point 1
Inflow=8.04 cfs 0.956 af
Outflow=8.04 cfs 0.956 af

Reach AP2: Analysis Point 2
Inflow=1.97 cfs 0.205 af
Outflow=1.97 cfs 0.205 af

Reach AP3: Analysis Point 3
Inflow=0.64 cfs 0.084 af
Outflow=0.64 cfs 0.084 af

Reach AP4: Analysis Point 4
Inflow=4.65 cfs 0.661 af
Outflow=4.65 cfs 0.661 af

Reach AP5: Analysis Point 5
Inflow=3.29 cfs 0.260 af
Outflow=3.29 cfs 0.260 af

Pond 1P: Isolated Wetland
Peak Elev=196.51' Storage=1,191 cf Inflow=1.08 cfs 0.093 af
Discarded=0.03 cfs 0.031 af Primary=1.67 cfs 0.039 af Outflow=1.70 cfs 0.070 af

Pond 2P: Depression in Woods
Peak Elev=176.56' Storage=4,427 cf Inflow=3.81 cfs 0.429 af
Discarded=0.10 cfs 0.096 af Primary=3.29 cfs 0.260 af Outflow=3.39 cfs 0.355 af

Total Runoff Area = 11.949 ac   Runoff Volume = 2.389 af   Average Runoff Depth = 2.40"
98.60% Pervious = 11.781 ac   1.40% Impervious = 0.168 ac

22201-EXISTING   *Type III 24-hr 50-YR 24HR Rainfall=6.51"*
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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: 1S   Runoff Area=122,795 sf 2.52% Impervious Runoff Depth>3.60"
                               Flow Length=438' Tc=27.3 min CN=74 Runoff=7.04 cfs 0.845 af

Subcatchment2S: 2S   Runoff Area=66,616 sf 0.00% Impervious Runoff Depth>3.30"
                               Flow Length=290' Tc=18.2 min CN=71 Runoff=4.14 cfs 0.421 af

Subcatchment3S: 3S   Runoff Area=43,497 sf 0.00% Impervious Runoff Depth>3.30"
               Flow Length=140' Slope=0.0123 '/' Tc=19.1 min CN=71 Runoff=2.65 cfs 0.275 af

Subcatchment4S: 4S   Runoff Area=32,528 sf 0.00% Impervious Runoff Depth>1.98"
                               Flow Length=271' Tc=25.6 min CN=57 Runoff=0.98 cfs 0.123 af

Subcatchment5S: 5S   Runoff Area=153,606 sf 0.42% Impervious Runoff Depth>2.89"
                               Flow Length=881' Tc=40.0 min CN=67 Runoff=5.87 cfs 0.850 af

Subcatchment6S: 6S   Runoff Area=16,669 sf 8.30% Impervious Runoff Depth>3.82"
                               Flow Length=122' Tc=11.6 min CN=76 Runoff=1.42 cfs 0.122 af

Subcatchment7S: 7S   Runoff Area=84,800 sf 2.58% Impervious Runoff Depth>3.50"
                               Flow Length=456' Tc=23.1 min CN=73 Runoff=5.08 cfs 0.568 af

Reach 1R: Flow Through 5S   Avg. Flow Depth=0.09' Max Vel=1.17 fps Inflow=2.29 cfs 0.065 af
                     n=0.030 L=881.0' S=0.0254 '/' Capacity=37.95 cfs Outflow=0.83 cfs 0.065 af

Reach AP1: Analysis Point 1   Inflow=10.71 cfs 1.266 af
                                                              Outflow=10.71 cfs 1.266 af

Reach AP2: Analysis Point 2   Inflow=2.65 cfs 0.275 af
                                                              Outflow=2.65 cfs 0.275 af

Reach AP3: Analysis Point 3   Inflow=0.98 cfs 0.123 af
                                                              Outflow=0.98 cfs 0.123 af

Reach AP4: Analysis Point 4   Inflow=6.50 cfs 0.915 af
                                                              Outflow=6.50 cfs 0.915 af

Reach AP5: Analysis Point 5   Inflow=4.73 cfs 0.394 af
                                                              Outflow=4.73 cfs 0.394 af

Pond 1P: Isolated Wetland   Peak Elev=196.54' Storage=1,191 cf Inflow=1.42 cfs 0.122 af
                   Discarded=0.03 cfs 0.032 af Primary=2.29 cfs 0.065 af Outflow=2.32 cfs 0.096 af

Pond 2P: Depression in Woods   Peak Elev=176.61' Storage=4,758 cf Inflow=5.08 cfs 0.568 af
                   Discarded=0.11 cfs 0.099 af Primary=4.73 cfs 0.394 af Outflow=4.83 cfs 0.493 af

Total Runoff Area = 11.949 ac   Runoff Volume = 3.204 af   Average Runoff Depth = 3.22"
98.60% Pervious = 11.781 ac   1.40% Impervious = 0.168 ac

22201-EXISTING
Type III 24-hr 100-YR 24HR Rainfall=7.77"
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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: 1S
Runoff Area=122,795 sf 2.52% Impervious Runoff Depth>4.70"
Flow Length=438' Tc=27.3 min CN=74 Runoff=9.17 cfs 1.103 af

Subcatchment2S: 2S
Runoff Area=66,616 sf 0.00% Impervious Runoff Depth>4.37"
Flow Length=290' Tc=18.2 min CN=71 Runoff=5.49 cfs 0.556 af

Subcatchment3S: 3S
Runoff Area=43,497 sf 0.00% Impervious Runoff Depth>4.36"
Flow Length=140' Slope=0.0123 '/' Tc=19.1 min CN=71 Runoff=3.52 cfs 0.363 af

Subcatchment4S: 4S
Runoff Area=32,528 sf 0.00% Impervious Runoff Depth>2.82"
Flow Length=271' Tc=25.6 min CN=57 Runoff=1.45 cfs 0.176 af

Subcatchment5S: 5S
Runoff Area=153,606 sf 0.42% Impervious Runoff Depth>3.90"
Flow Length=881' Tc=40.0 min CN=67 Runoff=7.97 cfs 1.145 af

Subcatchment6S: 6S
Runoff Area=16,669 sf 8.30% Impervious Runoff Depth>4.94"
Flow Length=122' Tc=11.6 min CN=76 Runoff=1.83 cfs 0.158 af

Subcatchment7S: 7S
Runoff Area=84,800 sf 2.58% Impervious Runoff Depth>4.59"
Flow Length=456' Tc=23.1 min CN=73 Runoff=6.66 cfs 0.744 af

Reach 1R: Flow Through 5S
Avg. Flow Depth=0.10' Max Vel=1.34 fps Inflow=1.90 cfs 0.098 af
n=0.030 L=881.0' S=0.0254 '/' Capacity=37.95 cfs Outflow=1.27 cfs 0.098 af

Reach AP1: Analysis Point 1
Inflow=14.08 cfs 1.660 af
Outflow=14.08 cfs 1.660 af

Reach AP2: Analysis Point 2
Inflow=3.52 cfs 0.363 af
Outflow=3.52 cfs 0.363 af

Reach AP3: Analysis Point 3
Inflow=1.45 cfs 0.176 af
Outflow=1.45 cfs 0.176 af

Reach AP4: Analysis Point 4
Inflow=8.82 cfs 1.243 af
Outflow=8.82 cfs 1.243 af

Reach AP5: Analysis Point 5
Inflow=6.32 cfs 0.565 af
Outflow=6.32 cfs 0.565 af

Pond 1P: Isolated Wetland
Peak Elev=196.54' Storage=1,191 cf Inflow=1.83 cfs 0.158 af
Discarded=0.03 cfs 0.033 af Primary=1.90 cfs 0.098 af Outflow=1.93 cfs 0.131 af

Pond 2P: Depression in Woods
Peak Elev=176.65' Storage=5,082 cf Inflow=6.66 cfs 0.744 af
Discarded=0.11 cfs 0.104 af Primary=6.32 cfs 0.565 af Outflow=6.43 cfs 0.669 af

Total Runoff Area = 11.949 ac Runoff Volume = 4.245 af Average Runoff Depth = 4.26"
98.60% Pervious = 11.781 ac 1.40% Impervious = 0.168 ac

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Type III 24-hr 50-YR 24HR Rainfall=6.51"
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Summary for Subcatchment 1S: 1S

Runoff   =   7.04 cfs @ 12.38 hrs, Volume=   0.845 af, Depth> 3.60"
    Routed to Reach AP1 : Analysis Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

Area (sf)	CN	Description
2,882	98	Roofs, HSG C
210	98	Paved parking, HSG C
1,737	96	Gravel surface, HSG C
58,443	70	Woods, Good, HSG C
35,755	74	>75% Grass cover, Good, HSG C
23,726	77	Woods, Good, HSG D
42	80	>75% Grass cover, Good, HSG D
122,795	74	Weighted Average
119,703		97.48% Pervious Area
3,092		2.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.6	100	0.0200	0.07		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
0.4	18	0.0186	0.68		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
2.1	147	0.0544	1.17		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.5	45	0.0889	1.49		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
1.4	103	0.0583	1.21		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.3	25	0.0800	1.41		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
27.3	438	Total			

Summary for Subcatchment 2S: 2S

Runoff   =   4.14 cfs @ 12.26 hrs, Volume=   0.421 af, Depth> 3.30"
    Routed to Reach AP1 : Analysis Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

Area (sf)	CN	Description
1,242	82	Dirt roads, HSG B
19,472	55	Woods, Good, HSG B
45,902	77	Woods, Good, HSG D
66,616	71	Weighted Average
66,616		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	82	0.0610	0.11		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
2.9	18	0.1111	0.10		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
0.2	21	0.1111	1.67		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.4	30	0.0571	1.19		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
2.4	139	0.0367	0.96		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
18.2	290	Total			

Summary for Subcatchment 3S: 3S

Runoff   =   2.65 cfs @ 12.27 hrs, Volume=   0.275 af, Depth> 3.30"
    Routed to Reach AP2 : Analysis Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

Area (sf)	CN	Description
33,751	70	Woods, Good, HSG C
9,746	74	>75% Grass cover, Good, HSG C
43,497	71	Weighted Average
43,497		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	81	0.0123	0.13		**Sheet Flow,**
					Grass: Short n= 0.150 P2= 2.90"
7.3	19	0.0123	0.04		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
1.2	40	0.0123	0.55		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
19.1	140	Total			

Summary for Subcatchment 4S: 4S

Runoff   =   0.98 cfs @ 12.39 hrs, Volume=   0.123 af, Depth> 1.98"
    Routed to Reach AP3 : Analysis Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

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Type III 24-hr 50-YR 24HR Rainfall=6.51"
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Area (sf)	CN	Description
1,810	82	Dirt roads, HSG B
30,718	55	Woods, Good, HSG B
32,528	57	Weighted Average
32,528		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	30	0.0667	0.09		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
17.3	80	0.0250	0.08		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
2.8	113	0.0177	0.67		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.2	48	0.0625	4.03		**Shallow Concentrated Flow,**
					Unpaved Kv= 16.1 fps
25.6	271	Total			

Summary for Subcatchment 5S: 5S

Runoff   =   5.87 cfs @   12.57 hrs, Volume=   0.850 af, Depth> 2.89"
    Routed to Reach AP4 : Analysis Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

Area (sf)	CN	Description
2,174	82	Dirt roads, HSG B
44,614	55	Woods, Good, HSG B
649	98	Paved parking, HSG C
5,767	87	Dirt roads, HSG C
16,547	74	>75% Grass cover, Good, HSG C
80,332	70	Woods, Good, HSG C
817	89	Dirt roads, HSG D
2,706	77	Woods, Good, HSG D
153,606	67	Weighted Average
152,957		99.58% Pervious Area
649		0.42% Impervious Area

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Type III 24-hr 50-YR 24HR Rainfall=6.51"
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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.3	100	0.0150	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.90"
2.7	100	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	70	0.0286	0.85		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	176	0.0341	2.97		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	32	0.0625	4.03		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	29	0.0690	1.31		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	69	0.0290	0.85		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	39	0.0513	1.13		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	75	0.0333	2.94		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
6.7	191	0.0089	0.47		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
40.0	881	Total			

Summary for Subcatchment 6S: 6S

Runoff   =   1.42 cfs @ 12.16 hrs, Volume=   0.122 af, Depth> 3.82"
    Routed to Pond 1P : Isolated Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

Area (sf)	CN	Description
1,383	98	Paved parking, HSG C
1,344	96	Gravel surface, HSG C
8,543	74	>75% Grass cover, Good, HSG C
5,399	70	Woods, Good, HSG C
16,669	76	Weighted Average
15,286		91.70% Pervious Area
1,383		8.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	76	0.0105	0.12		**Sheet Flow,**
					Grass: Short n= 0.150 P2= 2.90"
0.3	11	0.0100	0.64		**Sheet Flow,**
					Smooth surfaces n= 0.011 P2= 2.90"
0.2	13	0.0400	1.40		**Shallow Concentrated Flow,**
					Short Grass Pasture Kv= 7.0 fps
0.4	22	0.0400	1.00		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
11.6	122	Total			

Summary for Subcatchment 7S: 7S

Runoff   =   5.08 cfs @ 12.32 hrs, Volume=   0.568 af, Depth> 3.50"
    Routed to Pond 2P : Depression in Woods

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

Area (sf)	CN	Description
365	98	Roofs, HSG C
1,823	98	Paved parking, HSG C
38,380	70	Woods, Good, HSG C
34,179	74	>75% Grass cover, Good, HSG C
9,806	77	Woods, Good, HSG D
247	80	>75% Grass cover, Good, HSG D
84,800	73	Weighted Average
82,612		97.42% Pervious Area
2,188		2.58% Impervious Area

22201-EXISTING   *Type III 24-hr 50-YR 24HR Rainfall=6.51"*
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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	13	0.0200	0.87		**Sheet Flow,**
					Smooth surfaces n= 0.011 P2= 2.90"
1.4	20	0.1200	0.24		**Sheet Flow,**
					Grass: Short n= 0.150 P2= 2.90"
7.3	39	0.0513	0.09		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
7.3	28	0.0260	0.06		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
2.6	127	0.0260	0.81		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.8	75	0.1067	1.63		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
1.0	56	0.0357	0.94		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.2	22	0.0909	1.51		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
2.3	76	0.0125	0.56		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
23.1	456	Total			

Summary for Reach 1R: Flow Through 5S

[80] Warning: Exceeded Pond 1P by 0.08' @ 12.40 hrs (1.18 cfs 0.047 af)

Inflow Area =   0.383 ac,   8.30% Impervious, Inflow Depth = 2.03"   for 50-YR 24HR event
Inflow   =   2.29 cfs @   12.15 hrs, Volume=   0.065 af
Outflow   =   0.83 cfs @   12.38 hrs, Volume=   0.065 af, Atten= 64%, Lag= 14.0 min
     Routed to Reach AP4 : Analysis Point 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 1.17 fps, Min. Travel Time= 12.6 min
Avg. Velocity = 0.39 fps, Avg. Travel Time= 37.8 min

Peak Storage= 622 cf @ 12.38 hrs
Average Depth at Peak Storage= 0.09' , Surface Width= 12.40'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 37.95 cfs

30.00' x 0.50' deep Parabolic Channel, n= 0.030 Stream, clean & straight
Length= 881.0'   Slope= 0.0254 '/'
Inlet Invert= 196.40', Outlet Invert= 174.00'

‡

Summary for Reach AP1: Analysis Point 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   4.348 ac,   1.63% Impervious, Inflow Depth > 3.49"   for 50-YR 24HR event
Inflow   =   10.71 cfs @ 12.33 hrs, Volume=   1.266 af
Outflow   =   10.71 cfs @ 12.33 hrs, Volume=   1.266 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP2: Analysis Point 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   0.999 ac,   0.00% Impervious, Inflow Depth > 3.30"   for 50-YR 24HR event
Inflow   =   2.65 cfs @ 12.27 hrs, Volume=   0.275 af
Outflow   =   2.65 cfs @ 12.27 hrs, Volume=   0.275 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP3: Analysis Point 3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   0.747 ac,   0.00% Impervious, Inflow Depth > 1.98"   for 50-YR 24HR event
Inflow   =   0.98 cfs @ 12.39 hrs, Volume=   0.123 af
Outflow   =   0.98 cfs @ 12.39 hrs, Volume=   0.123 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP4: Analysis Point 4

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   3.909 ac,   1.19% Impervious, Inflow Depth > 2.81"   for 50-YR 24HR event
Inflow   =   6.50 cfs @ 12.55 hrs, Volume=   0.915 af
Outflow   =   6.50 cfs @ 12.55 hrs, Volume=   0.915 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP5: Analysis Point 5

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   1.947 ac,   2.58% Impervious, Inflow Depth > 2.43"   for 50-YR 24HR event
Inflow   =   4.73 cfs @ 12.40 hrs, Volume=   0.394 af
Outflow   =   4.73 cfs @ 12.40 hrs, Volume=   0.394 af, Atten= 0%, Lag= 0.0 min

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Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Pond 1P: Isolated Wetland

[93] Warning: Storage range exceeded by 0.13'
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=57)

Inflow Area =   0.383 ac,   8.30% Impervious, Inflow Depth > 3.82"   for 50-YR 24HR event
Inflow   =   1.42 cfs @   12.16 hrs, Volume=   0.122 af
Outflow   =   2.32 cfs @   12.15 hrs, Volume=   0.096 af, Atten= 0%, Lag= 0.0 min
Discarded =   0.03 cfs @   12.25 hrs, Volume=   0.032 af
Primary   =   2.29 cfs @   12.15 hrs, Volume=   0.065 af
     Routed to Reach 1R : Flow Through 5S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 196.54' @ 12.25 hrs   Surf.Area= 2,828 sf   Storage= 1,191 cf

Plug-Flow detention time= 127.8 min calculated for 0.096 af (79% of inflow)
Center-of-Mass det. time= 49.9 min (874.3 - 824.4)

Volume	Invert	Avail.Storage	Storage Description
#1	195.30'	1,191 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
195.30	235	72.0	0	0	235
196.00	1,050	148.0	416	416	1,568
196.40	2,828	211.0	747	1,163	3,369
196.41	2,828	211.0	28	1,191	3,371

Device	Routing	Invert	Outlet Devices
#1	Primary	196.40'	**20.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#2	Discarded	195.30'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 194.80' Phase-In= 0.10'

Discarded OutFlow Max=0.03 cfs @ 12.25 hrs HW=196.54'   (Free Discharge)
└─**2=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=2.26 cfs @ 12.15 hrs HW=196.54' TW=196.45'   (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 2.26 cfs @ 0.82 fps)

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Type III 24-hr 50-YR 24HR Rainfall=6.51"
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Summary for Pond 2P: Depression in Woods

Inflow Area =   1.947 ac,   2.58% Impervious, Inflow Depth > 3.50"   for 50-YR 24HR event
Inflow   =   5.08 cfs @   12.32 hrs, Volume=   0.568 af
Outflow   =   4.83 cfs @   12.40 hrs, Volume=   0.493 af, Atten= 5%, Lag= 4.6 min
Discarded =   0.11 cfs @   12.40 hrs, Volume=   0.099 af
Primary   =   4.73 cfs @   12.40 hrs, Volume=   0.394 af
    Routed to Reach AP5 : Analysis Point 5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 176.61' @ 12.40 hrs   Surf.Area= 7,514 sf   Storage= 4,758 cf

Plug-Flow detention time= 87.3 min calculated for 0.492 af (87% of inflow)
Center-of-Mass det. time= 30.2 min (870.7 - 840.5)

Volume	Invert	Avail.Storage	Storage Description
#1	175.70'	5,471 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
175.70	2,764	204.0	0	0	2,764
176.00	3,841	265.0	986	986	5,042
176.40	7,514	341.0	2,230	3,217	8,709
176.70	7,514	341.0	2,254	5,471	8,811

Device	Routing	Invert	Outlet Devices
#1	Primary	176.40'	**20.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Discarded	175.70'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 175.20' Phase-In= 0.10'

Discarded OutFlow Max=0.11 cfs @ 12.40 hrs HW=176.61'   (Free Discharge)
└─**2=Exfiltration** (Controls 0.11 cfs)

Primary OutFlow Max=4.73 cfs @ 12.40 hrs HW=176.61' TW=0.00'   (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 4.73 cfs @ 1.15 fps)

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Summary for Subcatchment 1S: 1S

Runoff   =   9.17 cfs @ 12.38 hrs, Volume=   1.103 af, Depth> 4.70"
    Routed to Reach AP1 : Analysis Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

Area (sf)	CN	Description
2,882	98	Roofs, HSG C
210	98	Paved parking, HSG C
1,737	96	Gravel surface, HSG C
58,443	70	Woods, Good, HSG C
35,755	74	>75% Grass cover, Good, HSG C
23,726	77	Woods, Good, HSG D
42	80	>75% Grass cover, Good, HSG D
122,795	74	Weighted Average
119,703		97.48% Pervious Area
3,092		2.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.6	100	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.90"
0.4	18	0.0186	0.68		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.1	147	0.0544	1.17		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	45	0.0889	1.49		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	103	0.0583	1.21		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	25	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
27.3	438	Total			

Summary for Subcatchment 2S: 2S

Runoff   =   5.49 cfs @ 12.25 hrs, Volume=   0.556 af, Depth> 4.37"
    Routed to Reach AP1 : Analysis Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

Area (sf)	CN	Description
1,242	82	Dirt roads, HSG B
19,472	55	Woods, Good, HSG B
45,902	77	Woods, Good, HSG D
66,616	71	Weighted Average
66,616		100.00% Pervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	82	0.0610	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.90"
2.9	18	0.1111	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.90"
0.2	21	0.1111	1.67		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	30	0.0571	1.19		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.4	139	0.0367	0.96		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.2	290	Total			

Summary for Subcatchment 3S: 3S

Runoff   =   3.52 cfs @ 12.26 hrs, Volume=   0.363 af, Depth> 4.36"
    Routed to Reach AP2 : Analysis Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

Area (sf)	CN	Description
33,751	70	Woods, Good, HSG C
9,746	74	>75% Grass cover, Good, HSG C
43,497	71	Weighted Average
43,497		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	81	0.0123	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.90"
7.3	19	0.0123	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.90"
1.2	40	0.0123	0.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.1	140	Total			

Summary for Subcatchment 4S: 4S

Runoff   =   1.45 cfs @ 12.38 hrs, Volume=   0.176 af, Depth> 2.82"
    Routed to Reach AP3 : Analysis Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

Area (sf)	CN	Description
1,810	82	Dirt roads, HSG B
30,718	55	Woods, Good, HSG B
32,528	57	Weighted Average
32,528		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	30	0.0667	0.09		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
17.3	80	0.0250	0.08		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
2.8	113	0.0177	0.67		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.2	48	0.0625	4.03		**Shallow Concentrated Flow,**
					Unpaved Kv= 16.1 fps
25.6	271	Total			

Summary for Subcatchment 5S: 5S

Runoff   =   7.97 cfs @ 12.56 hrs, Volume=   1.145 af, Depth> 3.90"
    Routed to Reach AP4 : Analysis Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

Area (sf)	CN	Description
2,174	82	Dirt roads, HSG B
44,614	55	Woods, Good, HSG B
649	98	Paved parking, HSG C
5,767	87	Dirt roads, HSG C
16,547	74	>75% Grass cover, Good, HSG C
80,332	70	Woods, Good, HSG C
817	89	Dirt roads, HSG D
2,706	77	Woods, Good, HSG D
153,606	67	Weighted Average
152,957		99.58% Pervious Area
649		0.42% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.3	100	0.0150	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.90"
2.7	100	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	70	0.0286	0.85		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	176	0.0341	2.97		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	32	0.0625	4.03		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.4	29	0.0690	1.31		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	69	0.0290	0.85		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	39	0.0513	1.13		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	75	0.0333	2.94		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
6.7	191	0.0089	0.47		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
40.0	881	Total			

Summary for Subcatchment 6S: 6S

Runoff   =   1.83 cfs @ 12.16 hrs, Volume=   0.158 af, Depth> 4.94"
   Routed to Pond 1P : Isolated Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

Area (sf)	CN	Description
1,383	98	Paved parking, HSG C
1,344	96	Gravel surface, HSG C
8,543	74	>75% Grass cover, Good, HSG C
5,399	70	Woods, Good, HSG C
16,669	76	Weighted Average
15,286		91.70% Pervious Area
1,383		8.30% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	76	0.0105	0.12		**Sheet Flow,**
					Grass: Short n= 0.150 P2= 2.90"
0.3	11	0.0100	0.64		**Sheet Flow,**
					Smooth surfaces n= 0.011 P2= 2.90"
0.2	13	0.0400	1.40		**Shallow Concentrated Flow,**
					Short Grass Pasture Kv= 7.0 fps
0.4	22	0.0400	1.00		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
11.6	122	Total			

Summary for Subcatchment 7S: 7S

Runoff   =   6.66 cfs @ 12.32 hrs, Volume=   0.744 af, Depth> 4.59"
    Routed to Pond 2P : Depression in Woods

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

Area (sf)	CN	Description
365	98	Roofs, HSG C
1,823	98	Paved parking, HSG C
38,380	70	Woods, Good, HSG C
34,179	74	>75% Grass cover, Good, HSG C
9,806	77	Woods, Good, HSG D
247	80	>75% Grass cover, Good, HSG D
84,800	73	Weighted Average
82,612		97.42% Pervious Area
2,188		2.58% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	13	0.0200	0.87		**Sheet Flow,**
					Smooth surfaces n= 0.011 P2= 2.90"
1.4	20	0.1200	0.24		**Sheet Flow,**
					Grass: Short n= 0.150 P2= 2.90"
7.3	39	0.0513	0.09		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
7.3	28	0.0260	0.06		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
2.6	127	0.0260	0.81		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.8	75	0.1067	1.63		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
1.0	56	0.0357	0.94		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.2	22	0.0909	1.51		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
2.3	76	0.0125	0.56		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
23.1	456	Total			

Summary for Reach 1R: Flow Through 5S

[80] Warning: Exceeded Pond 1P by 0.04' @ 13.15 hrs (0.48 cfs 0.044 af)

Inflow Area =   0.383 ac,   8.30% Impervious, Inflow Depth = 3.07"   for 100-YR 24HR event
Inflow   =   1.90 cfs @   12.19 hrs, Volume=   0.098 af
Outflow   =   1.27 cfs @   12.29 hrs, Volume=   0.098 af, Atten= 33%, Lag= 6.2 min
    Routed to Reach AP4 : Analysis Point 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 1.34 fps, Min. Travel Time= 11.0 min
Avg. Velocity = 0.45 fps, Avg. Travel Time= 32.7 min

Peak Storage= 840 cf @ 12.29 hrs
Average Depth at Peak Storage= 0.10' , Surface Width= 13.71'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 37.95 cfs

30.00' x 0.50' deep Parabolic Channel, n= 0.030 Stream, clean & straight
Length= 881.0'   Slope= 0.0254 '/'
Inlet Invert= 196.40', Outlet Invert= 174.00'

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Summary for Reach AP1: Analysis Point 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   4.348 ac,   1.63% Impervious, Inflow Depth > 4.58"   for 100-YR 24HR event
Inflow   =   14.08 cfs @   12.32 hrs, Volume=   1.660 af
Outflow   =   14.08 cfs @   12.32 hrs, Volume=   1.660 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP2: Analysis Point 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   0.999 ac,   0.00% Impervious, Inflow Depth > 4.36"   for 100-YR 24HR event
Inflow   =   3.52 cfs @   12.26 hrs, Volume=   0.363 af
Outflow   =   3.52 cfs @   12.26 hrs, Volume=   0.363 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP3: Analysis Point 3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   0.747 ac,   0.00% Impervious, Inflow Depth > 2.82"   for 100-YR 24HR event
Inflow   =   1.45 cfs @   12.38 hrs, Volume=   0.176 af
Outflow   =   1.45 cfs @   12.38 hrs, Volume=   0.176 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP4: Analysis Point 4

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   3.909 ac,   1.19% Impervious, Inflow Depth > 3.82"   for 100-YR 24HR event
Inflow   =   8.82 cfs @   12.53 hrs, Volume=   1.243 af
Outflow   =   8.82 cfs @   12.53 hrs, Volume=   1.243 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP5: Analysis Point 5

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   1.947 ac,   2.58% Impervious, Inflow Depth > 3.48"   for 100-YR 24HR event
Inflow   =   6.32 cfs @   12.38 hrs, Volume=   0.565 af
Outflow   =   6.32 cfs @   12.38 hrs, Volume=   0.565 af, Atten= 0%, Lag= 0.0 min

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Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Pond 1P: Isolated Wetland

[93] Warning: Storage range exceeded by 0.13'
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=77)

Inflow Area =   0.383 ac,   8.30% Impervious, Inflow Depth > 4.94" for 100-YR 24HR event
Inflow   =   1.83 cfs @ 12.16 hrs, Volume=   0.158 af
Outflow   =   1.93 cfs @ 12.19 hrs, Volume=   0.131 af, Atten= 0%, Lag= 1.8 min
Discarded   =   0.03 cfs @ 12.20 hrs, Volume=   0.033 af
Primary   =   1.90 cfs @ 12.19 hrs, Volume=   0.098 af
    Routed to Reach 1R : Flow Through 5S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 196.54' @ 12.20 hrs Surf.Area= 2,828 sf Storage= 1,191 cf

Plug-Flow detention time= 102.9 min calculated for 0.131 af (83% of inflow)
Center-of-Mass det. time= 35.3 min (852.4 - 817.1)

Volume	Invert	Avail.Storage	Storage Description
#1	195.30'	1,191 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
195.30	235	72.0	0	0	235
196.00	1,050	148.0	416	416	1,568
196.40	2,828	211.0	747	1,163	3,369
196.41	2,828	211.0	28	1,191	3,371

Device	Routing	Invert	Outlet Devices
#1	Primary	196.40'	**20.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#2	Discarded	195.30'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 194.80' Phase-In= 0.10'

Discarded OutFlow Max=0.03 cfs @ 12.20 hrs HW=196.54' (Free Discharge)
└─**2=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=1.83 cfs @ 12.19 hrs HW=196.54' TW=196.49' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 1.83 cfs @ 0.65 fps)

Summary for Pond 2P: Depression in Woods

Inflow Area = 1.947 ac, 2.58% Impervious, Inflow Depth > 4.59" for 100-YR 24HR event
Inflow = 6.66 cfs @ 12.32 hrs, Volume= 0.744 af
Outflow = 6.43 cfs @ 12.38 hrs, Volume= 0.669 af, Atten= 3%, Lag= 3.6 min
Discarded = 0.11 cfs @ 12.38 hrs, Volume= 0.104 af
Primary = 6.32 cfs @ 12.38 hrs, Volume= 0.565 af
    Routed to Reach AP5 : Analysis Point 5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 176.65' @ 12.38 hrs Surf.Area= 7,514 sf Storage= 5,082 cf

Plug-Flow detention time= 72.7 min calculated for 0.668 af (90% of inflow)
Center-of-Mass det. time= 25.6 min (858.5 - 832.9)

Volume	Invert	Avail.Storage	Storage Description
#1	175.70'	5,471 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
175.70	2,764	204.0	0	0	2,764
176.00	3,841	265.0	986	986	5,042
176.40	7,514	341.0	2,230	3,217	8,709
176.70	7,514	341.0	2,254	5,471	8,811

Device	Routing	Invert	Outlet Devices
#1	Primary	176.40'	**20.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Discarded	175.70'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 175.20' Phase-In= 0.10'

Discarded OutFlow Max=0.11 cfs @ 12.38 hrs HW=176.65' (Free Discharge)
└—**2=Exfiltration** (Controls 0.11 cfs)

Primary OutFlow Max=6.29 cfs @ 12.38 hrs HW=176.65' TW=0.00' (Dynamic Tailwater)
└—**1=Broad-Crested Rectangular Weir**(Weir Controls 6.29 cfs @ 1.27 fps)

APPENDIX II

PROPOSED CONDITIONS DRAINAGE ANALYSIS

Summary 2 YEAR
Complete 10 YEAR
Summary 25 YEAR
Complete 50 YEAR
Complete 100 YEAR
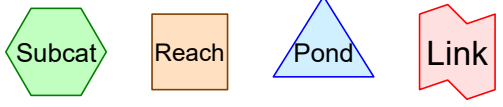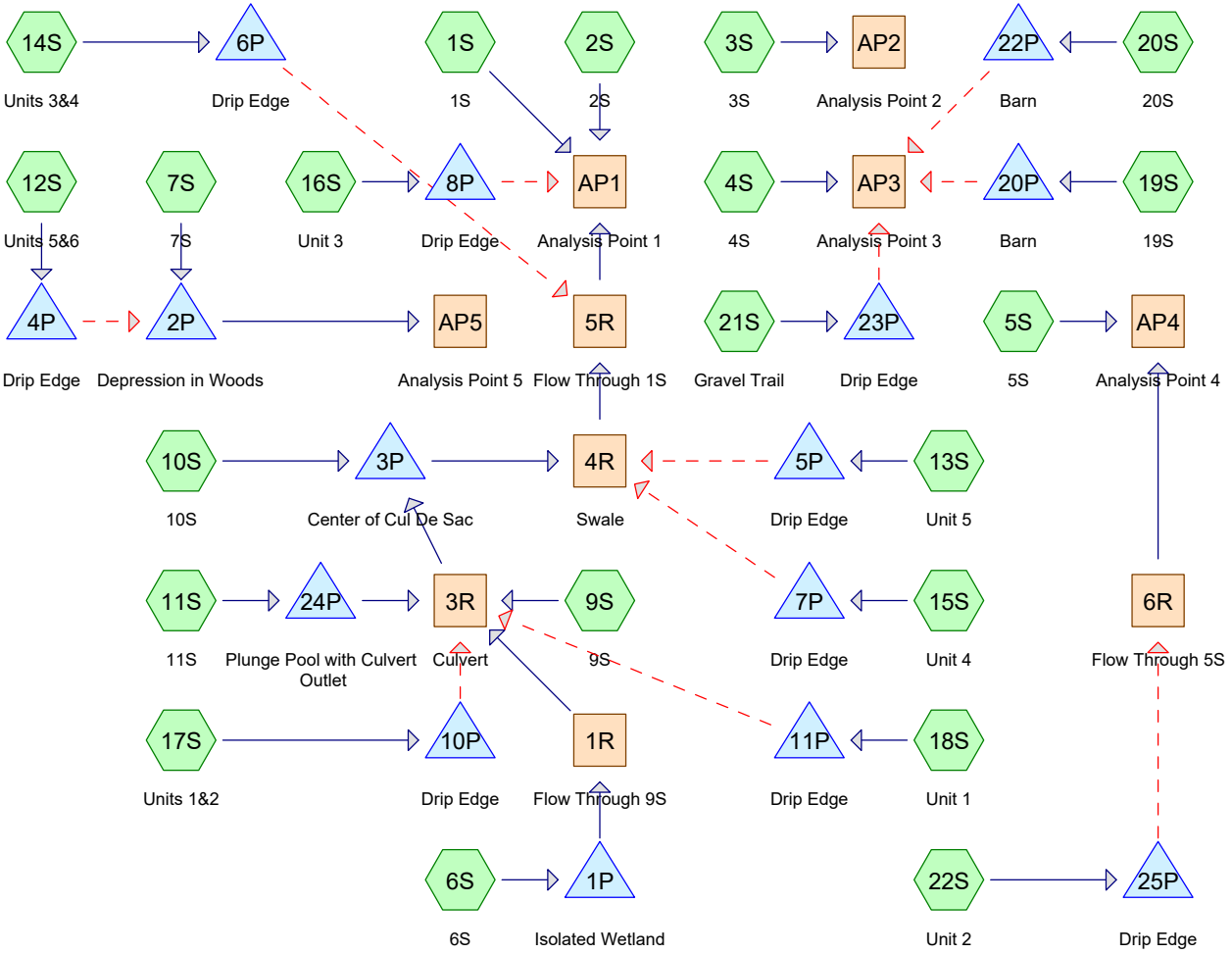
Routing Diagram for 22201-PROPOSED
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.137	61	>75% Grass cover, Good, HSG B (4S)
2.950	74	>75% Grass cover, Good, HSG C (1S, 3S, 5S, 6S, 7S, 9S, 10S, 11S)
0.007	80	>75% Grass cover, Good, HSG D (1S, 7S)
0.131	82	Dirt roads, HSG B (2S, 4S, 5S, 21S)
0.092	87	Dirt roads, HSG C (5S)
0.019	89	Dirt roads, HSG D (5S)
0.447	98	Paved parking, HSG C (1S, 6S, 7S, 9S, 10S, 11S)
0.092	98	Roofs, HSG B (19S, 20S)
0.178	98	Roofs, HSG C (1S, 7S, 9S, 10S, 12S, 13S, 14S, 15S, 16S, 17S, 18S, 22S)
0.020	98	Water Surface, HSG B (19S, 20S, 21S)
0.028	98	Water Surface, HSG C (12S, 13S, 14S, 15S, 16S, 17S, 18S, 22S)
1.917	55	Woods, Good, HSG B (2S, 4S, 5S)
4.046	70	Woods, Good, HSG C (1S, 3S, 5S, 6S, 7S, 9S)
1.885	77	Woods, Good, HSG D (1S, 2S, 5S, 7S)
11.949	**72**	**TOTAL AREA**

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
2.296	HSG B	2S, 4S, 5S, 19S, 20S, 21S
7.742	HSG C	1S, 3S, 5S, 6S, 7S, 9S, 10S, 11S, 12S, 13S, 14S, 15S, 16S, 17S, 18S, 22S
1.911	HSG D	1S, 2S, 5S, 7S
0.000	Other	
11.949		**TOTAL AREA**

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Type III 24-hr 2-YR 24HR Rainfall=2.90"
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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: 1S
Runoff Area=97,026 sf 2.11% Impervious Runoff Depth>0.79"
Flow Length=320' Tc=19.9 min CN=73 Runoff=1.27 cfs 0.147 af

Subcatchment2S: 2S
Runoff Area=66,576 sf 0.00% Impervious Runoff Depth>0.70"
Flow Length=290' Tc=18.2 min CN=71 Runoff=0.76 cfs 0.089 af

Subcatchment3S: 3S
Runoff Area=39,339 sf 0.00% Impervious Runoff Depth>0.70"
Flow Length=140' Slope=0.0123 '/' Tc=19.1 min CN=71 Runoff=0.44 cfs 0.053 af

Subcatchment4S: 4S
Runoff Area=27,185 sf 0.00% Impervious Runoff Depth>0.24"
Flow Length=194' Tc=23.6 min CN=58 Runoff=0.05 cfs 0.012 af

Subcatchment5S: 5S
Runoff Area=113,462 sf 0.00% Impervious Runoff Depth>0.49"
Flow Length=602' Tc=32.4 min CN=66 Runoff=0.63 cfs 0.107 af

Subcatchment6S: 6S
Runoff Area=13,598 sf 21.51% Impervious Runoff Depth>1.06"
Flow Length=92' Slope=0.0217 '/' Tc=9.3 min CN=78 Runoff=0.33 cfs 0.027 af

Subcatchment7S: 7S
Runoff Area=84,203 sf 3.46% Impervious Runoff Depth>0.79"
Flow Length=456' Tc=23.1 min CN=73 Runoff=1.04 cfs 0.127 af

Subcatchment9S: 9S
Runoff Area=41,089 sf 6.98% Impervious Runoff Depth>0.89"
Flow Length=211' Tc=22.8 min CN=75 Runoff=0.59 cfs 0.070 af

Subcatchment10S: 10S
Runoff Area=17,686 sf 57.92% Impervious Runoff Depth>1.73"
Tc=6.0 min CN=88 Runoff=0.81 cfs 0.058 af

Subcatchment11S: 11S
Runoff Area=9,293 sf 18.90% Impervious Runoff Depth>1.11"
Flow Length=194' Tc=10.2 min CN=79 Runoff=0.23 cfs 0.020 af

Subcatchment12S: Units 5&6
Runoff Area=994 sf 100.00% Impervious Runoff Depth>2.67"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.005 af

Subcatchment13S: Unit 5
Runoff Area=580 sf 100.00% Impervious Runoff Depth>2.67"
Tc=6.0 min CN=98 Runoff=0.04 cfs 0.003 af

Subcatchment14S: Units 3&4
Runoff Area=1,046 sf 100.00% Impervious Runoff Depth>2.67"
Tc=6.0 min CN=98 Runoff=0.07 cfs 0.005 af

Subcatchment15S: Unit 4
Runoff Area=498 sf 100.00% Impervious Runoff Depth>2.67"
Tc=6.0 min CN=98 Runoff=0.03 cfs 0.003 af

Subcatchment16S: Unit 3
Runoff Area=518 sf 100.00% Impervious Runoff Depth>2.67"
Tc=6.0 min CN=98 Runoff=0.03 cfs 0.003 af

Subcatchment17S: Units 1&2
Runoff Area=1,046 sf 100.00% Impervious Runoff Depth>2.67"
Tc=6.0 min CN=98 Runoff=0.07 cfs 0.005 af

22201-PROPOSED   *Type III 24-hr 2-YR 24HR Rainfall=2.90"*
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Subcatchment 18S: Unit 1   Runoff Area=498 sf   100.00% Impervious   Runoff Depth>2.67"
                                      Tc=6.0 min   CN=98   Runoff=0.03 cfs 0.003 af

Subcatchment 19S: 19S   Runoff Area=2,375 sf   100.00% Impervious   Runoff Depth>2.67"
                                      Tc=6.0 min   CN=98   Runoff=0.15 cfs 0.012 af

Subcatchment 20S: 20S   Runoff Area=2,375 sf   100.00% Impervious   Runoff Depth>2.67"
                                      Tc=6.0 min   CN=98   Runoff=0.15 cfs 0.012 af

Subcatchment 21S: Gravel Trail   Runoff Area=574 sf   15.85% Impervious   Runoff Depth>1.50"
                                      Tc=6.0 min   CN=85   Runoff=0.02 cfs 0.002 af

Subcatchment 22S: Unit 2   Runoff Area=518 sf   100.00% Impervious   Runoff Depth>2.67"
                                      Tc=6.0 min   CN=98   Runoff=0.03 cfs 0.003 af

Reach 1R: Flow Through 9S   Avg. Flow Depth=0.00'   Max Vel=0.00 fps   Inflow=0.00 cfs 0.000 af
                          n=0.030   L=140.0'   S=0.0329 '/'   Capacity=43.14 cfs   Outflow=0.00 cfs 0.000 af

Reach 3R: Culvert   Avg. Flow Depth=0.31'   Max Vel=3.11 fps   Inflow=0.74 cfs 0.090 af
            15.0" Round Pipe   n=0.012   L=49.0'   S=0.0061 '/'   Capacity=5.48 cfs   Outflow=0.74 cfs 0.090 af

Reach 4R: Swale   Avg. Flow Depth=0.08'   Max Vel=1.83 fps   Inflow=0.18 cfs 0.125 af
                          n=0.030   L=120.0'   S=0.0517 '/'   Capacity=30.09 cfs   Outflow=0.18 cfs 0.125 af

Reach 5R: Flow Through 1S   Avg. Flow Depth=0.04'   Max Vel=0.93 fps   Inflow=0.18 cfs 0.125 af
                          n=0.030   L=191.0'   S=0.0497 '/'   Capacity=53.08 cfs   Outflow=0.18 cfs 0.124 af

Reach 6R: Flow Through 5S   Avg. Flow Depth=0.00'   Max Vel=0.00 fps   Inflow=0.00 cfs 0.000 af
                          n=0.030   L=600.0'   S=0.0367 '/'   Capacity=45.58 cfs   Outflow=0.00 cfs 0.000 af

Reach AP1: Analysis Point 1   Inflow=2.12 cfs 0.361 af
                                                              Outflow=2.12 cfs 0.361 af

Reach AP2: Analysis Point 2   Inflow=0.44 cfs 0.053 af
                                                              Outflow=0.44 cfs 0.053 af

Reach AP3: Analysis Point 3   Inflow=0.05 cfs 0.012 af
                                                              Outflow=0.05 cfs 0.012 af

Reach AP4: Analysis Point 4   Inflow=0.63 cfs 0.107 af
                                                              Outflow=0.63 cfs 0.107 af

Reach AP5: Analysis Point 5   Inflow=0.00 cfs 0.000 af
                                                              Outflow=0.00 cfs 0.000 af

Pond 1P: Isolated Wetland   Peak Elev=196.19' Storage=682 cf   Inflow=0.33 cfs 0.027 af
            Discarded=0.02 cfs 0.017 af   Primary=0.00 cfs 0.000 af   Outflow=0.02 cfs 0.017 af

Pond 2P: Depression in Woods   Peak Elev=176.38' Storage=3,070 cf   Inflow=1.04 cfs 0.127 af
            Discarded=0.09 cfs 0.077 af   Primary=0.00 cfs 0.000 af   Outflow=0.09 cfs 0.077 af

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Pond 3P: Center of Cul De Sac Peak Elev=191.62' Storage=3,011 cf Inflow=1.25 cfs 0.148 af
Outflow=0.18 cfs 0.125 af

Pond 4P: Drip Edge Peak Elev=190.99' Storage=0.002 af Inflow=0.06 cfs 0.005 af
Discarded=0.02 cfs 0.005 af Secondary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.005 af

Pond 5P: Drip Edge Peak Elev=190.42' Storage=0.001 af Inflow=0.04 cfs 0.003 af
Discarded=0.01 cfs 0.003 af Secondary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.003 af

Pond 6P: Drip Edge Peak Elev=188.99' Storage=0.001 af Inflow=0.07 cfs 0.005 af
Discarded=0.04 cfs 0.005 af Secondary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.005 af

Pond 7P: Drip Edge Peak Elev=189.54' Storage=0.001 af Inflow=0.03 cfs 0.003 af
Discarded=0.00 cfs 0.002 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.002 af

Pond 8P: Drip Edge Peak Elev=188.40' Storage=0.001 af Inflow=0.03 cfs 0.003 af
Discarded=0.01 cfs 0.003 af Secondary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.003 af

Pond 10P: Drip Edge Peak Elev=193.84' Storage=0.002 af Inflow=0.07 cfs 0.005 af
Discarded=0.01 cfs 0.005 af Secondary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.005 af

Pond 11P: Drip Edge Peak Elev=194.26' Storage=0.001 af Inflow=0.03 cfs 0.003 af
Discarded=0.01 cfs 0.003 af Secondary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.003 af

Pond 20P: Barn Peak Elev=169.52' Storage=0.005 af Inflow=0.15 cfs 0.012 af
Discarded=0.03 cfs 0.012 af Secondary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.012 af

Pond 22P: Barn Peak Elev=169.52' Storage=0.005 af Inflow=0.15 cfs 0.012 af
Discarded=0.03 cfs 0.012 af Secondary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.012 af

Pond 23P: Drip Edge Peak Elev=169.77' Storage=0.001 af Inflow=0.02 cfs 0.002 af
Discarded=0.00 cfs 0.001 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.001 af

Pond 24P: Plunge Pool with Culvert Outlet Peak Elev=193.22' Storage=15 cf Inflow=0.23 cfs 0.020 af
15.0" Round Culvert n=0.012 L=50.0' S=0.0100 '/' Outflow=0.23 cfs 0.020 af

Pond 25P: Drip Edge Peak Elev=194.49' Storage=0.001 af Inflow=0.03 cfs 0.003 af
Discarded=0.01 cfs 0.003 af Secondary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.003 af

Total Runoff Area = 11.949 ac Runoff Volume = 0.766 af Average Runoff Depth = 0.77"
93.60% Pervious = 11.184 ac 6.40% Impervious = 0.764 ac

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Type III 24-hr 10-YR 24HR Rainfall=4.34"
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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: 1S
Runoff Area=97,026 sf 2.11% Impervious Runoff Depth>1.77"
Flow Length=320' Tc=19.9 min CN=73 Runoff=3.05 cfs 0.328 af

Subcatchment2S: 2S
Runoff Area=66,576 sf 0.00% Impervious Runoff Depth>1.62"
Flow Length=290' Tc=18.2 min CN=71 Runoff=1.98 cfs 0.207 af

Subcatchment3S: 3S
Runoff Area=39,339 sf 0.00% Impervious Runoff Depth>1.62"
Flow Length=140' Slope=0.0123 '/' Tc=19.1 min CN=71 Runoff=1.14 cfs 0.122 af

Subcatchment4S: 4S
Runoff Area=27,185 sf 0.00% Impervious Runoff Depth>0.82"
Flow Length=194' Tc=23.6 min CN=58 Runoff=0.30 cfs 0.043 af

Subcatchment5S: 5S
Runoff Area=113,462 sf 0.00% Impervious Runoff Depth>1.28"
Flow Length=602' Tc=32.4 min CN=66 Runoff=2.00 cfs 0.279 af

Subcatchment6S: 6S
Runoff Area=13,598 sf 21.51% Impervious Runoff Depth>2.16"
Flow Length=92' Slope=0.0217 '/' Tc=9.3 min CN=78 Runoff=0.69 cfs 0.056 af

Subcatchment7S: 7S
Runoff Area=84,203 sf 3.46% Impervious Runoff Depth>1.77"
Flow Length=456' Tc=23.1 min CN=73 Runoff=2.49 cfs 0.285 af

Subcatchment9S: 9S
Runoff Area=41,089 sf 6.98% Impervious Runoff Depth>1.92"
Flow Length=211' Tc=22.8 min CN=75 Runoff=1.34 cfs 0.151 af

Subcatchment10S: 10S
Runoff Area=17,686 sf 57.92% Impervious Runoff Depth>3.04"
Tc=6.0 min CN=88 Runoff=1.40 cfs 0.103 af

Subcatchment11S: 11S
Runoff Area=9,293 sf 18.90% Impervious Runoff Depth>2.24"
Flow Length=194' Tc=10.2 min CN=79 Runoff=0.48 cfs 0.040 af

Subcatchment12S: Units 5&6
Runoff Area=994 sf 100.00% Impervious Runoff Depth>4.10"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.008 af

Subcatchment13S: Unit 5
Runoff Area=580 sf 100.00% Impervious Runoff Depth>4.10"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.005 af

Subcatchment14S: Units 3&4
Runoff Area=1,046 sf 100.00% Impervious Runoff Depth>4.10"
Tc=6.0 min CN=98 Runoff=0.10 cfs 0.008 af

Subcatchment15S: Unit 4
Runoff Area=498 sf 100.00% Impervious Runoff Depth>4.10"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment16S: Unit 3
Runoff Area=518 sf 100.00% Impervious Runoff Depth>4.10"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment17S: Units 1&2
Runoff Area=1,046 sf 100.00% Impervious Runoff Depth>4.10"
Tc=6.0 min CN=98 Runoff=0.10 cfs 0.008 af

Subcatchment 18S: Unit 1   Runoff Area=498 sf   100.00% Impervious   Runoff Depth>4.10"
Tc=6.0 min   CN=98   Runoff=0.05 cfs 0.004 af

Subcatchment 19S: 19S   Runoff Area=2,375 sf   100.00% Impervious   Runoff Depth>4.10"
Tc=6.0 min   CN=98   Runoff=0.23 cfs 0.019 af

Subcatchment 20S: 20S   Runoff Area=2,375 sf   100.00% Impervious   Runoff Depth>4.10"
Tc=6.0 min   CN=98   Runoff=0.23 cfs 0.019 af

Subcatchment 21S: Gravel Trail   Runoff Area=574 sf   15.85% Impervious   Runoff Depth>2.76"
Tc=6.0 min   CN=85   Runoff=0.04 cfs 0.003 af

Subcatchment 22S: Unit 2   Runoff Area=518 sf   100.00% Impervious   Runoff Depth>4.10"
Tc=6.0 min   CN=98   Runoff=0.05 cfs 0.004 af

Reach 1R: Flow Through 9S   Avg. Flow Depth=0.03' Max Vel=0.66 fps Inflow=0.13 cfs 0.008 af
n=0.030   L=140.0'   S=0.0329 '/' Capacity=43.14 cfs Outflow=0.10 cfs 0.008 af

Reach 3R: Culvert   Avg. Flow Depth=0.47' Max Vel=3.90 fps Inflow=1.65 cfs 0.199 af
15.0" Round Pipe   n=0.012   L=49.0'   S=0.0061 '/' Capacity=5.48 cfs Outflow=1.65 cfs 0.199 af

Reach 4R: Swale   Avg. Flow Depth=0.11' Max Vel=2.18 fps Inflow=0.31 cfs 0.249 af
n=0.030   L=120.0'   S=0.0517 '/' Capacity=30.09 cfs Outflow=0.31 cfs 0.249 af

Reach 5R: Flow Through 1S   Avg. Flow Depth=0.05' Max Vel=1.10 fps Inflow=0.31 cfs 0.249 af
n=0.030   L=191.0'   S=0.0497 '/' Capacity=53.08 cfs Outflow=0.31 cfs 0.248 af

Reach 6R: Flow Through 5S   Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.030   L=600.0'   S=0.0367 '/' Capacity=45.58 cfs Outflow=0.00 cfs 0.000 af

Reach AP1: Analysis Point 1   Inflow=5.21 cfs 0.784 af
Outflow=5.21 cfs 0.784 af

Reach AP2: Analysis Point 2   Inflow=1.14 cfs 0.122 af
Outflow=1.14 cfs 0.122 af

Reach AP3: Analysis Point 3   Inflow=0.30 cfs 0.043 af
Outflow=0.30 cfs 0.043 af

Reach AP4: Analysis Point 4   Inflow=2.00 cfs 0.279 af
Outflow=2.00 cfs 0.279 af

Reach AP5: Analysis Point 5   Inflow=1.56 cfs 0.126 af
Outflow=1.56 cfs 0.126 af

Pond 1P: Isolated Wetland   Peak Elev=196.43' Storage=1,191 cf Inflow=0.69 cfs 0.056 af
Discarded=0.03 cfs 0.028 af   Primary=0.13 cfs 0.008 af Outflow=0.17 cfs 0.037 af

Pond 2P: Depression in Woods   Peak Elev=176.50' Storage=3,954 cf Inflow=2.50 cfs 0.285 af
Discarded=0.10 cfs 0.091 af   Primary=1.56 cfs 0.126 af Outflow=1.66 cfs 0.217 af

Pond 3P: Center of Cul De Sac   Peak Elev=192.99' Storage=6,702 cf Inflow=2.50 cfs 0.302 af
                                                              Outflow=0.31 cfs 0.249 af

Pond 4P: Drip Edge   Peak Elev=191.50' Storage=0.002 af Inflow=0.09 cfs 0.008 af
          Discarded=0.03 cfs 0.008 af Secondary=0.02 cfs 0.000 af Outflow=0.04 cfs 0.008 af

Pond 5P: Drip Edge   Peak Elev=190.70' Storage=0.001 af Inflow=0.06 cfs 0.005 af
          Discarded=0.02 cfs 0.005 af Secondary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.005 af

Pond 6P: Drip Edge   Peak Elev=189.24' Storage=0.001 af Inflow=0.10 cfs 0.008 af
          Discarded=0.05 cfs 0.008 af Secondary=0.00 cfs 0.000 af Outflow=0.05 cfs 0.008 af

Pond 7P: Drip Edge   Peak Elev=190.52' Storage=0.002 af Inflow=0.05 cfs 0.004 af
          Discarded=0.00 cfs 0.002 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.002 af

Pond 8P: Drip Edge   Peak Elev=188.84' Storage=0.001 af Inflow=0.05 cfs 0.004 af
          Discarded=0.01 cfs 0.004 af Secondary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.004 af

Pond 10P: Drip Edge   Peak Elev=194.43' Storage=0.003 af Inflow=0.10 cfs 0.008 af
          Discarded=0.02 cfs 0.008 af Secondary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.008 af

Pond 11P: Drip Edge   Peak Elev=194.56' Storage=0.001 af Inflow=0.05 cfs 0.004 af
          Discarded=0.02 cfs 0.004 af Secondary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.004 af

Pond 20P: Barn   Peak Elev=170.29' Storage=0.007 af Inflow=0.23 cfs 0.019 af
          Discarded=0.04 cfs 0.018 af Secondary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.018 af

Pond 22P: Barn   Peak Elev=170.29' Storage=0.007 af Inflow=0.23 cfs 0.019 af
          Discarded=0.04 cfs 0.018 af Secondary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.018 af

Pond 23P: Drip Edge   Peak Elev=170.56' Storage=0.002 af Inflow=0.04 cfs 0.003 af
          Discarded=0.00 cfs 0.002 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.002 af

Pond 24P: Plunge Pool with Culvert Outlet   Peak Elev=193.32' Storage=25 cf Inflow=0.48 cfs 0.040 af
                   15.0" Round Culvert n=0.012 L=50.0' S=0.0100 '/' Outflow=0.48 cfs 0.040 af

Pond 25P: Drip Edge   Peak Elev=194.90' Storage=0.001 af Inflow=0.05 cfs 0.004 af
          Discarded=0.01 cfs 0.004 af Secondary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.004 af

Total Runoff Area = 11.949 ac   Runoff Volume = 1.698 af   Average Runoff Depth = 1.70"
93.60% Pervious = 11.184 ac   6.40% Impervious = 0.764 ac

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Type III 24-hr 10-YR 24HR Rainfall=4.34"
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Summary for Subcatchment 1S: 1S

Runoff   =   3.05 cfs @ 12.29 hrs, Volume=   0.328 af, Depth> 1.77"
    Routed to Reach AP1 : Analysis Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR 24HR Rainfall=4.34"

Area (sf)	CN	Description
930	98	Roofs, HSG C
1,120	98	Paved parking, HSG C
47,794	70	Woods, Good, HSG C
23,377	74	>75% Grass cover, Good, HSG C
23,763	77	Woods, Good, HSG D
42	80	>75% Grass cover, Good, HSG D
97,026	73	Weighted Average
94,976		97.89% Pervious Area
2,050		2.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.6	100	0.0433	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.90"
1.4	113	0.0708	1.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	70	0.0286	0.85		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	37	0.0541	1.16		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.9	320	Total			

Summary for Subcatchment 2S: 2S

Runoff   =   1.98 cfs @ 12.27 hrs, Volume=   0.207 af, Depth> 1.62"
    Routed to Reach AP1 : Analysis Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR 24HR Rainfall=4.34"

Area (sf)	CN	Description
1,242	82	Dirt roads, HSG B
19,492	55	Woods, Good, HSG B
45,842	77	Woods, Good, HSG D
66,576	71	Weighted Average
66,576		100.00% Pervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	82	0.0610	0.11		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
2.9	18	0.1111	0.10		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
0.2	21	0.1111	1.67		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.4	30	0.0571	1.19		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
2.4	139	0.0367	0.96		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
18.2	290	Total			

Summary for Subcatchment 3S: 3S

Runoff   =   1.14 cfs @ 12.28 hrs, Volume=   0.122 af, Depth> 1.62"
    Routed to Reach AP2 : Analysis Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR 24HR Rainfall=4.34"

Area (sf)	CN	Description
27,514	70	Woods, Good, HSG C
11,825	74	>75% Grass cover, Good, HSG C
39,339	71	Weighted Average
39,339		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	81	0.0123	0.13		**Sheet Flow,**
					Grass: Short n= 0.150 P2= 2.90"
7.3	19	0.0123	0.04		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
1.2	40	0.0123	0.55		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
19.1	140	Total			

Summary for Subcatchment 4S: 4S

Runoff   =   0.30 cfs @ 12.41 hrs, Volume=   0.043 af, Depth> 0.82"
    Routed to Reach AP3 : Analysis Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR 24HR Rainfall=4.34"

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Area (sf)	CN	Description
1,810	82	Dirt roads, HSG B
19,394	55	Woods, Good, HSG B
5,981	61	>75% Grass cover, Good, HSG B
27,185	58	Weighted Average
27,185		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	49	0.0408	0.09		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
12.8	51	0.0213	0.07		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
1.0	43	0.0213	0.73		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.2	51	0.0588	3.90		**Shallow Concentrated Flow,**
					Unpaved Kv= 16.1 fps
23.6	194	Total			

Summary for Subcatchment 5S: 5S

Runoff   =   2.00 cfs @ 12.50 hrs, Volume=   0.279 af, Depth> 1.28"
    Routed to Reach AP4 : Analysis Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR 24HR Rainfall=4.34"

Area (sf)	CN	Description
2,174	82	Dirt roads, HSG B
44,614	55	Woods, Good, HSG B
4,013	87	Dirt roads, HSG C
9,149	74	>75% Grass cover, Good, HSG C
49,989	70	Woods, Good, HSG C
817	89	Dirt roads, HSG D
2,706	77	Woods, Good, HSG D
113,462	66	Weighted Average
113,462		100.00% Pervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.0	100	0.0239	0.08		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
0.4	17	0.0239	0.77		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.8	48	0.0417	1.02		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
1.2	94	0.0638	1.26		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
2.9	116	0.0172	0.66		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.6	51	0.0784	1.40		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
5.5	176	0.0114	0.53		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
32.4	602	Total			

Summary for Subcatchment 6S: 6S

Runoff   =   0.69 cfs @ 12.14 hrs, Volume=   0.056 af, Depth> 2.16"
    Routed to Pond 1P : Isolated Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR 24HR Rainfall=4.34"

Area (sf)	CN	Description
2,925	98	Paved parking, HSG C
5,274	74	>75% Grass cover, Good, HSG C
5,399	70	Woods, Good, HSG C
13,598	78	Weighted Average
10,673		78.49% Pervious Area
2,925		21.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	92	0.0217	0.16		**Sheet Flow,**
					Grass: Short n= 0.150 P2= 2.90"

Summary for Subcatchment 7S: 7S

Runoff   =   2.49 cfs @ 12.34 hrs, Volume=   0.285 af, Depth> 1.77"
    Routed to Pond 2P : Depression in Woods

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
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Area (sf)	CN	Description
898	98	Roofs, HSG C
2,014	98	Paved parking, HSG C
37,527	70	Woods, Good, HSG C
33,711	74	>75% Grass cover, Good, HSG C
9,806	77	Woods, Good, HSG D
247	80	>75% Grass cover, Good, HSG D
84,203	73	Weighted Average
81,291		96.54% Pervious Area
2,912		3.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	13	0.0200	0.87		**Sheet Flow,**
					Smooth surfaces n= 0.011 P2= 2.90"
1.4	20	0.1200	0.24		**Sheet Flow,**
					Grass: Short n= 0.150 P2= 2.90"
7.3	39	0.0513	0.09		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
7.3	28	0.0260	0.06		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
2.6	127	0.0260	0.81		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.8	75	0.1067	1.63		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
1.0	56	0.0357	0.94		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.2	22	0.0909	1.51		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
2.3	76	0.0125	0.56		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
23.1	456	Total			

Summary for Subcatchment 9S: 9S

Runoff   =   1.34 cfs @ 12.33 hrs, Volume=   0.151 af, Depth> 1.92"
    Routed to Reach 3R : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR 24HR Rainfall=4.34"

Area (sf)	CN	Description
704	98	Roofs, HSG C
2,162	98	Paved parking, HSG C
8,023	70	Woods, Good, HSG C
30,200	74	>75% Grass cover, Good, HSG C
41,089	75	Weighted Average
38,223		93.02% Pervious Area
2,866		6.98% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.7	100	0.0248	0.08		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
0.4	21	0.0248	0.79		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
1.7	90	0.0167	0.90		**Shallow Concentrated Flow,**
					Short Grass Pasture Kv= 7.0 fps
22.8	211	Total			

Summary for Subcatchment 10S: 10S

Runoff   =   1.40 cfs @ 12.09 hrs, Volume=   0.103 af, Depth> 3.04"
    Routed to Pond 3P : Center of Cul De Sac

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR 24HR Rainfall=4.34"

Area (sf)	CN	Description
728	98	Roofs, HSG C
9,516	98	Paved parking, HSG C
7,442	74	>75% Grass cover, Good, HSG C
17,686	88	Weighted Average
7,442		42.08% Pervious Area
10,244		57.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 11S: 11S

Runoff   =   0.48 cfs @ 12.15 hrs, Volume=   0.040 af, Depth> 2.24"
    Routed to Pond 24P : Plunge Pool with Culvert Outlet

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR 24HR Rainfall=4.34"

Area (sf)	CN	Description
1,756	98	Paved parking, HSG C
7,537	74	>75% Grass cover, Good, HSG C
9,293	79	Weighted Average
7,537		81.10% Pervious Area
1,756		18.90% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	73	0.0123	0.13		**Sheet Flow,**
					Grass: Short n= 0.150 P2= 2.90"
0.5	121	0.0165	4.25	17.00	**Trap/Vee/Rect Channel Flow,**
					Bot.W=1.00' D=1.00' Z= 3.0 '/' Top.W=7.00'
					n= 0.030 Stream, clean & straight
10.2	194	Total			

Summary for Subcatchment 12S: Units 5&6

Runoff   =   0.09 cfs @ 12.09 hrs, Volume=   0.008 af, Depth> 4.10"
    Routed to Pond 4P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR 24HR Rainfall=4.34"

Area (sf)	CN	Description
838	98	Roofs, HSG C
156	98	Water Surface, HSG C
994	98	Weighted Average
994		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 13S: Unit 5

Runoff   =   0.06 cfs @ 12.09 hrs, Volume=   0.005 af, Depth> 4.10"
    Routed to Pond 5P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR 24HR Rainfall=4.34"

Area (sf)	CN	Description
395	98	Roofs, HSG C
185	98	Water Surface, HSG C
580	98	Weighted Average
580		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

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Summary for Subcatchment 14S: Units 3&4

Runoff   =   0.10 cfs @ 12.09 hrs, Volume=   0.008 af, Depth> 4.10"
    Routed to Pond 6P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR 24HR Rainfall=4.34"

Area (sf)	CN	Description
838	98	Roofs, HSG C
208	98	Water Surface, HSG C
1,046	98	Weighted Average
1,046		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 15S: Unit 4

Runoff   =   0.05 cfs @ 12.09 hrs, Volume=   0.004 af, Depth> 4.10"
    Routed to Pond 7P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR 24HR Rainfall=4.34"

Area (sf)	CN	Description
395	98	Roofs, HSG C
103	98	Water Surface, HSG C
498	98	Weighted Average
498		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 16S: Unit 3

Runoff   =   0.05 cfs @ 12.09 hrs, Volume=   0.004 af, Depth> 4.10"
    Routed to Pond 8P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR 24HR Rainfall=4.34"

Area (sf)	CN	Description
395	98	Roofs, HSG C
123	98	Water Surface, HSG C
518	98	Weighted Average
518		100.00% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 17S: Units 1&2

Runoff   =   0.10 cfs @ 12.09 hrs, Volume=   0.008 af, Depth> 4.10"
   Routed to Pond 10P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR 24HR Rainfall=4.34"

Area (sf)	CN	Description
838	98	Roofs, HSG C
208	98	Water Surface, HSG C
1,046	98	Weighted Average
1,046		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 18S: Unit 1

Runoff   =   0.05 cfs @ 12.09 hrs, Volume=   0.004 af, Depth> 4.10"
   Routed to Pond 11P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR 24HR Rainfall=4.34"

Area (sf)	CN	Description
395	98	Roofs, HSG C
103	98	Water Surface, HSG C
498	98	Weighted Average
498		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 19S: 19S

Runoff   =   0.23 cfs @ 12.09 hrs, Volume=   0.019 af, Depth> 4.10"
   Routed to Pond 20P : Barn

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
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Area (sf)	CN	Description
1,995	98	Roofs, HSG B
380	98	Water Surface, HSG B
2,375	98	Weighted Average
2,375		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 20S: 20S

Runoff   =   0.23 cfs @   12.09 hrs, Volume=   0.019 af, Depth> 4.10"
   Routed to Pond 22P : Barn

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR 24HR Rainfall=4.34"

Area (sf)	CN	Description
1,995	98	Roofs, HSG B
380	98	Water Surface, HSG B
2,375	98	Weighted Average
2,375		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 21S: Gravel Trail

Runoff   =   0.04 cfs @   12.09 hrs, Volume=   0.003 af, Depth> 2.76"
   Routed to Pond 23P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR 24HR Rainfall=4.34"

Area (sf)	CN	Description
483	82	Dirt roads, HSG B
91	98	Water Surface, HSG B
574	85	Weighted Average
483		84.15% Pervious Area
91		15.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

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Summary for Subcatchment 22S: Unit 2

Runoff   =   0.05 cfs @ 12.09 hrs, Volume=   0.004 af, Depth> 4.10"
     Routed to Pond 25P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
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Area (sf)	CN	Description
395	98	Roofs, HSG C
123	98	Water Surface, HSG C
518	98	Weighted Average
518		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Reach 1R: Flow Through 9S

[80] Warning: Exceeded Pond 1P by 0.08' @ 21.70 hrs (0.00 cfs 0.001 af)

Inflow Area =   0.312 ac, 21.51% Impervious, Inflow Depth =   0.32"   for 10-YR 24HR event
Inflow   =   0.13 cfs @ 12.62 hrs, Volume=   0.008 af
Outflow   =   0.10 cfs @ 12.69 hrs, Volume=   0.008 af, Atten= 29%, Lag= 4.4 min
     Routed to Reach 3R : Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 0.66 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 0.37 fps, Avg. Travel Time= 6.4 min

Peak Storage= 20 cf @ 12.69 hrs
Average Depth at Peak Storage= 0.03' , Surface Width= 7.32'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 43.14 cfs

30.00' x 0.50' deep Parabolic Channel, n= 0.030 Stream, clean & straight
Length= 140.0' Slope= 0.0329 '/'
Inlet Invert= 196.40', Outlet Invert= 191.80'

‡

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Summary for Reach 3R: Culvert

[52] Hint: Inlet/Outlet conditions not evaluated
[62] Hint: Exceeded Reach 1R OUTLET depth by 0.47' @ 12.30 hrs

Inflow Area =   1.469 ac, 11.80% Impervious, Inflow Depth > 1.62"   for 10-YR 24HR event
Inflow   =   1.65 cfs @ 12.29 hrs, Volume=   0.199 af
Outflow   =   1.65 cfs @ 12.30 hrs, Volume=   0.199 af, Atten= 0%, Lag= 0.2 min
    Routed to Pond 3P : Center of Cul De Sac

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 3.90 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.66 fps, Avg. Travel Time= 0.5 min

Peak Storage= 21 cf @ 12.30 hrs
Average Depth at Peak Storage= 0.47' , Surface Width= 1.21'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 5.48 cfs

15.0" Round Pipe
n= 0.012
Length= 49.0'   Slope= 0.0061 '/'
Inlet Invert= 191.80', Outlet Invert= 191.50'

Summary for Reach 4R: Swale

Inflow Area =   1.875 ac, 21.79% Impervious, Inflow Depth > 1.60"   for 10-YR 24HR event
Inflow   =   0.31 cfs @ 14.01 hrs, Volume=   0.249 af
Outflow   =   0.31 cfs @ 14.02 hrs, Volume=   0.249 af, Atten= 0%, Lag= 0.6 min
    Routed to Reach 5R : Flow Through 1S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 2.18 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.63 fps, Avg. Travel Time= 1.2 min

Peak Storage= 17 cf @ 14.02 hrs
Average Depth at Peak Storage= 0.11' , Surface Width= 1.65'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 30.09 cfs

1.00' x 1.00' deep channel, n= 0.030 Stream, clean & straight
Side Slope Z-value= 3.0 '/'   Top Width= 7.00'
Length= 120.0'   Slope= 0.0517 '/'
Inlet Invert= 189.70', Outlet Invert= 183.50'

Summary for Reach 5R: Flow Through 1S
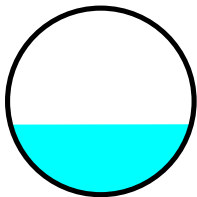
[61] Hint: Exceeded Reach 4R outlet invert by 0.05' @ 14.05 hrs

Inflow Area =   1.875 ac, 21.79% Impervious, Inflow Depth > 1.59"   for 10-YR 24HR event
Inflow   =   0.31 cfs @   14.02 hrs, Volume=   0.249 af
Outflow   =   0.31 cfs @   14.05 hrs, Volume=   0.248 af, Atten= 0%, Lag= 2.0 min
    Routed to Reach AP1 : Analysis Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 1.10 fps, Min. Travel Time= 2.9 min
Avg. Velocity = 0.82 fps, Avg. Travel Time= 3.9 min

Peak Storage= 55 cf @ 14.05 hrs
Average Depth at Peak Storage= 0.05' , Surface Width= 9.16'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 53.08 cfs

30.00' x 0.50' deep Parabolic Channel, n= 0.030 Stream, clean & straight
Length= 191.0'   Slope= 0.0497 '/'
Inlet Invert= 183.50', Outlet Invert= 174.00'

‡

Summary for Reach 6R: Flow Through 5S

Inflow   =   0.00 cfs @   0.00 hrs, Volume=   0.000 af
Outflow   =   0.00 cfs @   0.00 hrs, Volume=   0.000 af, Atten= 0%, Lag= 0.0 min
    Routed to Reach AP4 : Analysis Point 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 45.58 cfs

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30.00' x 0.50' deep Parabolic Channel, n= 0.030 Stream, clean & straight
Length= 600.0'   Slope= 0.0367 '/'
Inlet Invert= 196.00', Outlet Invert= 174.00'

‡
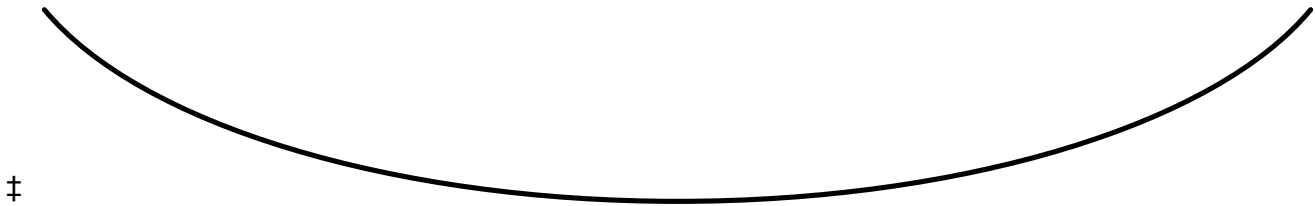
Summary for Reach AP1: Analysis Point 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   5.631 ac,   8.09% Impervious, Inflow Depth > 1.67"   for 10-YR 24HR event
Inflow   =   5.21 cfs @ 12.28 hrs, Volume=   0.784 af
Outflow   =   5.21 cfs @ 12.28 hrs, Volume=   0.784 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP2: Analysis Point 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   0.903 ac,   0.00% Impervious, Inflow Depth > 1.62"   for 10-YR 24HR event
Inflow   =   1.14 cfs @ 12.28 hrs, Volume=   0.122 af
Outflow   =   1.14 cfs @ 12.28 hrs, Volume=   0.122 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP3: Analysis Point 3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   0.624 ac,   0.00% Impervious, Inflow Depth > 0.82"   for 10-YR 24HR event
Inflow   =   0.30 cfs @ 12.41 hrs, Volume=   0.043 af
Outflow   =   0.30 cfs @ 12.41 hrs, Volume=   0.043 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP4: Analysis Point 4

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   2.605 ac,   0.00% Impervious, Inflow Depth > 1.28"   for 10-YR 24HR event
Inflow   =   2.00 cfs @ 12.50 hrs, Volume=   0.279 af
Outflow   =   2.00 cfs @ 12.50 hrs, Volume=   0.279 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP5: Analysis Point 5

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   1.933 ac,   3.46% Impervious, Inflow Depth = 0.78"   for 10-YR 24HR event
Inflow   =   1.56 cfs @   12.61 hrs, Volume=   0.126 af
Outflow   =   1.56 cfs @   12.61 hrs, Volume=   0.126 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Pond 1P: Isolated Wetland

[93] Warning: Storage range exceeded by 0.02'
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=26)

Inflow Area =   0.312 ac, 21.51% Impervious, Inflow Depth > 2.16"   for 10-YR 24HR event
Inflow   =   0.69 cfs @   12.14 hrs, Volume=   0.056 af
Outflow   =   0.17 cfs @   12.62 hrs, Volume=   0.037 af, Atten= 76%, Lag= 28.8 min
Discarded =   0.03 cfs @   12.67 hrs, Volume=   0.028 af
Primary   =   0.13 cfs @   12.62 hrs, Volume=   0.008 af
    Routed to Reach 1R : Flow Through 9S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 196.43' @ 12.67 hrs   Surf.Area= 2,828 sf   Storage= 1,191 cf

Plug-Flow detention time= 272.8 min calculated for 0.037 af (65% of inflow)
Center-of-Mass det. time= 168.8 min (1,004.5 - 835.7)

Volume	Invert	Avail.Storage	Storage Description
#1	195.30'	1,191 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
195.30	235	72.0	0	0	235
196.00	1,050	148.0	416	416	1,568
196.40	2,828	211.0	747	1,163	3,369
196.41	2,828	211.0	28	1,191	3,371

Device	Routing	Invert	Outlet Devices
#1	Primary	196.40'	**20.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#2	Discarded	195.30'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 194.80' Phase-In= 0.10'

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Discarded OutFlow Max=0.03 cfs @ 12.67 hrs HW=196.43' (Free Discharge)
└─**2=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=0.13 cfs @ 12.62 hrs HW=196.43' TW=196.42' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir**(Weir Controls 0.13 cfs @ 0.23 fps)

Summary for Pond 2P: Depression in Woods

Inflow Area =   1.933 ac,   3.46% Impervious, Inflow Depth > 1.77"   for 10-YR 24HR event
Inflow   =   2.50 cfs @ 12.33 hrs, Volume=   0.285 af
Outflow   =   1.66 cfs @ 12.61 hrs, Volume=   0.217 af, Atten= 34%, Lag= 16.7 min
Discarded =   0.10 cfs @ 12.61 hrs, Volume=   0.091 af
Primary   =   1.56 cfs @ 12.61 hrs, Volume=   0.126 af
     Routed to Reach AP5 : Analysis Point 5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 176.50' @ 12.61 hrs   Surf.Area= 7,514 sf   Storage= 3,954 cf

Plug-Flow detention time= 154.0 min calculated for 0.217 af (76% of inflow)
Center-of-Mass det. time= 67.5 min (927.5 - 860.0)

Volume	Invert	Avail.Storage	Storage Description
#1	175.70'	5,471 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
175.70	2,764	204.0	0	0	2,764
176.00	3,841	265.0	986	986	5,042
176.40	7,514	341.0	2,230	3,217	8,709
176.70	7,514	341.0	2,254	5,471	8,811

Device	Routing	Invert	Outlet Devices
#1	Primary	176.40'	**20.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Discarded	175.70'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 175.20' Phase-In= 0.10'

Discarded OutFlow Max=0.10 cfs @ 12.61 hrs HW=176.50' (Free Discharge)
└─**2=Exfiltration** (Controls 0.10 cfs)

Primary OutFlow Max=1.55 cfs @ 12.61 hrs HW=176.50' TW=0.00' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir**(Weir Controls 1.55 cfs @ 0.79 fps)

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Summary for Pond 3P: Center of Cul De Sac

[63] Warning: Exceeded Reach 3R INLET depth by 1.02' @ 14.25 hrs

Inflow Area =		1.875 ac,	21.79% Impervious,	Inflow Depth >	1.93"	for 10-YR 24HR event
Inflow	=	2.50 cfs @	12.12 hrs,	Volume=	0.302 af	
Outflow	=	0.31 cfs @	14.01 hrs,	Volume=	0.249 af,	Atten= 88%, Lag= 113.2 min
Primary	=	0.31 cfs @	14.01 hrs,	Volume=	0.249 af	

Routed to Reach 4R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 192.99' @ 14.01 hrs   Surf.Area= 3,113 sf   Storage= 6,702 cf

Plug-Flow detention time= 258.8 min calculated for 0.249 af (83% of inflow)
Center-of-Mass det. time= 189.1 min (1,022.5 - 833.4)

Volume	Invert	Avail.Storage	Storage Description
#1	190.00'	16,171 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
190.00	1,491	0	0
191.00	1,934	1,713	1,713
192.00	2,483	2,209	3,921
194.00	3,751	6,234	10,155
195.00	4,514	4,133	14,288
195.40	4,903	1,883	16,171

Device	Routing	Invert	Outlet Devices
#1	Primary	190.00'	**15.0" Round Culvert** L= 47.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 190.00' / 189.70' S= 0.0064 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	190.00'	**2.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	191.30'	**2.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	193.40'	**2.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 1	193.65'	**0.7" W x 9.6" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Device 1	194.45'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.31 cfs @ 14.01 hrs HW=192.99' TW=189.81' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.31 cfs of 7.18 cfs potential flow)
 ├─**2=Orifice/Grate** (Orifice Controls 0.18 cfs @ 8.21 fps)
 ├─**3=Orifice/Grate** (Orifice Controls 0.13 cfs @ 6.11 fps)
 ├─**4=Orifice/Grate** (Controls 0.00 cfs)
 ├─**5=Orifice/Grate** (Controls 0.00 cfs)
 └─**6=Orifice/Grate** (Controls 0.00 cfs)

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Summary for Pond 4P: Drip Edge

Inflow Area =   0.023 ac,100.00% Impervious, Inflow Depth > 4.10"   for 10-YR 24HR event
Inflow   =   0.09 cfs @ 12.09 hrs, Volume=   0.008 af
Outflow   =   0.04 cfs @ 12.31 hrs, Volume=   0.008 af, Atten= 57%, Lag= 13.6 min
Discarded =   0.03 cfs @ 12.30 hrs, Volume=   0.008 af
Secondary =   0.02 cfs @ 12.31 hrs, Volume=   0.000 af
    Routed to Pond 2P : Depression in Woods

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 191.50' @ 12.30 hrs Surf.Area= 0.004 ac Storage= 0.002 af

Plug-Flow detention time= 55.9 min calculated for 0.008 af (99% of inflow)
Center-of-Mass det. time= 49.8 min (799.8 - 750.0)

Volume	Invert	Avail.Storage	Storage Description
#1	189.90'	0.002 af	**3.00'W x 52.00'L x 1.60'H Prismatoid** 0.006 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	191.50'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	189.90'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 189.83' Phase-In= 0.10'

Discarded OutFlow Max=0.03 cfs @ 12.30 hrs HW=191.50' (Free Discharge)
└─**1=Exfiltration** (Controls 0.03 cfs)

Secondary OutFlow Max=0.00 cfs @ 12.31 hrs HW=191.50' TW=176.30' (Dynamic Tailwater)

Summary for Pond 5P: Drip Edge

Inflow Area =   0.013 ac,100.00% Impervious, Inflow Depth > 4.10"   for 10-YR 24HR event
Inflow   =   0.06 cfs @ 12.09 hrs, Volume=   0.005 af
Outflow   =   0.02 cfs @ 12.42 hrs, Volume=   0.005 af, Atten= 71%, Lag= 19.8 min
Discarded =   0.02 cfs @ 12.42 hrs, Volume=   0.005 af
Secondary =   0.00 cfs @   0.00 hrs, Volume=   0.000 af
    Routed to Reach 4R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 190.70' @ 12.42 hrs Surf.Area= 0.004 ac Storage= 0.001 af

Plug-Flow detention time= 54.7 min calculated for 0.004 af (99% of inflow)
Center-of-Mass det. time= 47.3 min (797.4 - 750.0)

Volume	Invert	Avail.Storage	Storage Description
#1	189.90'	0.003 af	**4.50'W x 41.00'L x 1.60'H Prismatoid** 0.007 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	191.50'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	189.90'	**0.300 in/hr Exfiltration over Surface area**

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Conductivity to Groundwater Elevation = 189.83'   Phase-In= 0.10'

Discarded OutFlow Max=0.02 cfs @ 12.42 hrs HW=190.70' (Free Discharge)
└─**1=Exfiltration** (Controls 0.02 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=189.90' TW=189.70' (Dynamic Tailwater)

Summary for Pond 6P: Drip Edge

Inflow Area =   0.024 ac,100.00% Impervious, Inflow Depth > 4.10"   for 10-YR 24HR event
Inflow   =   0.10 cfs @   12.09 hrs, Volume=   0.008 af
Outflow   =   0.05 cfs @   12.22 hrs, Volume=   0.008 af, Atten= 46%, Lag= 8.0 min
Discarded   =   0.05 cfs @   12.22 hrs, Volume=   0.008 af
Secondary   =   0.00 cfs @   0.00 hrs, Volume=   0.000 af
    Routed to Reach 5R : Flow Through 1S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 189.24' @ 12.22 hrs   Surf.Area= 0.005 ac   Storage= 0.001 af

Plug-Flow detention time= 21.8 min calculated for 0.008 af (99% of inflow)
Center-of-Mass det. time= 17.5 min (767.5 - 750.0)

Volume	Invert	Avail.Storage	Storage Description
#1	188.52'	0.002 af	**4.00'W x 52.00'L x 1.20'H Prismatoid**
			0.006 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	189.72'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	188.52'	**0.300 in/hr Exfiltration over Surface area**
			Conductivity to Groundwater Elevation = 188.50' Phase-In= 0.10'

Discarded OutFlow Max=0.05 cfs @ 12.22 hrs HW=189.24' (Free Discharge)
└─**1=Exfiltration** (Controls 0.05 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=188.52' TW=183.50' (Dynamic Tailwater)

Summary for Pond 7P: Drip Edge

Inflow Area =   0.011 ac,100.00% Impervious, Inflow Depth > 4.10"   for 10-YR 24HR event
Inflow   =   0.05 cfs @   12.09 hrs, Volume=   0.004 af
Outflow   =   0.00 cfs @   15.03 hrs, Volume=   0.002 af, Atten= 96%, Lag= 176.7 min
Discarded   =   0.00 cfs @   15.03 hrs, Volume=   0.002 af
Secondary   =   0.00 cfs @   0.00 hrs, Volume=   0.000 af
    Routed to Reach 4R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 190.52' @ 15.03 hrs   Surf.Area= 0.002 ac   Storage= 0.002 af

Plug-Flow detention time= 315.9 min calculated for 0.002 af (57% of inflow)
Center-of-Mass det. time= 202.4 min (952.5 - 750.0)

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Volume	Invert	Avail.Storage	Storage Description
#1	188.00'	0.004 af	**2.50'W x 41.00'L x 4.00'H Prismatoid** 0.009 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	192.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	188.00'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 186.50' Phase-In= 0.10'

Discarded OutFlow Max=0.00 cfs @ 15.03 hrs HW=190.52' (Free Discharge)
└─**1=Exfiltration** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=188.00' TW=189.70' (Dynamic Tailwater)

Summary for Pond 8P: Drip Edge

Inflow Area =   0.012 ac,100.00% Impervious, Inflow Depth > 4.10"   for 10-YR 24HR event
Inflow   =   0.05 cfs @   12.09 hrs, Volume=   0.004 af
Outflow   =   0.01 cfs @   12.48 hrs, Volume=   0.004 af, Atten= 77%, Lag= 23.4 min
Discarded =   0.01 cfs @   12.48 hrs, Volume=   0.004 af
Secondary =   0.00 cfs @   0.00 hrs, Volume=   0.000 af
      Routed to Reach AP1 : Analysis Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 188.84' @ 12.48 hrs   Surf.Area= 0.003 ac   Storage= 0.001 af

Plug-Flow detention time= 74.4 min calculated for 0.004 af (99% of inflow)
Center-of-Mass det. time= 66.9 min (816.9 - 750.0)

Volume	Invert	Avail.Storage	Storage Description
#1	187.60'	0.003 af	**3.00'W x 41.00'L x 2.40'H Prismatoid** 0.007 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	190.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	187.60'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 187.50' Phase-In= 0.10'

Discarded OutFlow Max=0.01 cfs @ 12.48 hrs HW=188.84' (Free Discharge)
└─**1=Exfiltration** (Controls 0.01 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=187.60' TW=0.00' (Dynamic Tailwater)

Summary for Pond 10P: Drip Edge

Inflow Area =   0.024 ac,100.00% Impervious, Inflow Depth > 4.10"   for 10-YR 24HR event
Inflow   =   0.10 cfs @   12.09 hrs, Volume=   0.008 af
Outflow   =   0.02 cfs @   12.52 hrs, Volume=   0.008 af, Atten= 80%, Lag= 25.8 min
Discarded =   0.02 cfs @   12.52 hrs, Volume=   0.008 af
Secondary =   0.00 cfs @   0.00 hrs, Volume=   0.000 af
      Routed to Reach 3R : Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 194.43' @ 12.52 hrs   Surf.Area= 0.005 ac   Storage= 0.003 af

Plug-Flow detention time= 95.8 min calculated for 0.008 af (99% of inflow)
Center-of-Mass det. time= 88.0 min (838.1 - 750.0)

Volume	Invert	Avail.Storage	Storage Description
#1	192.80'	0.006 af	**4.00'W x 52.00'L x 3.20'H Prismatoid**
			0.015 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	196.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	192.80'	**0.300 in/hr Exfiltration over Surface area**
			Conductivity to Groundwater Elevation = 192.67' Phase-In= 0.10'

Discarded OutFlow Max=0.02 cfs @ 12.52 hrs HW=194.43' (Free Discharge)
⌐—**1=Exfiltration** (Controls 0.02 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=192.80' TW=191.80' (Dynamic Tailwater)

Summary for Pond 11P: Drip Edge

Inflow Area =   0.011 ac,100.00% Impervious, Inflow Depth > 4.10"   for 10-YR 24HR event
Inflow   =   0.05 cfs @   12.09 hrs, Volume=   0.004 af
Outflow   =   0.02 cfs @   12.27 hrs, Volume=   0.004 af, Atten= 55%, Lag= 10.9 min
Discarded =   0.02 cfs @   12.27 hrs, Volume=   0.004 af
Secondary =   0.00 cfs @   0.00 hrs, Volume=   0.000 af
    Routed to Reach 3R : Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 194.56' @ 12.27 hrs   Surf.Area= 0.002 ac   Storage= 0.001 af

Plug-Flow detention time= 28.9 min calculated for 0.004 af (99% of inflow)
Center-of-Mass det. time= 23.8 min (773.9 - 750.0)

Volume	Invert	Avail.Storage	Storage Description
#1	193.70'	0.002 af	**2.50'W x 41.00'L x 2.30'H Prismatoid**
			0.005 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	196.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	193.70'	**0.300 in/hr Exfiltration over Surface area**
			Conductivity to Groundwater Elevation = 193.67' Phase-In= 0.10'

Discarded OutFlow Max=0.02 cfs @ 12.27 hrs HW=194.56' (Free Discharge)
⌐—**1=Exfiltration** (Controls 0.02 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=193.70' TW=191.80' (Dynamic Tailwater)

Summary for Pond 20P: Barn

Inflow Area =   0.055 ac,100.00% Impervious, Inflow Depth > 4.10"   for 10-YR 24HR event
Inflow   =   0.23 cfs @ 12.09 hrs, Volume=   0.019 af
Outflow   =   0.04 cfs @ 12.54 hrs, Volume=   0.018 af, Atten= 82%, Lag= 27.2 min
Discarded   =   0.04 cfs @ 12.54 hrs, Volume=   0.018 af
Secondary   =   0.00 cfs @   0.00 hrs, Volume=   0.000 af
   Routed to Reach AP3 : Analysis Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 170.29' @ 12.54 hrs Surf.Area= 0.009 ac Storage= 0.007 af

Plug-Flow detention time= 113.1 min calculated for 0.018 af (99% of inflow)
Center-of-Mass det. time= 105.2 min (855.2 - 750.0)

Volume	Invert	Avail.Storage	Storage Description
#1	168.15'	0.013 af	**4.00'W x 95.00'L x 3.85'H Prismatoid** 0.034 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	172.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	168.15'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 168.00' Phase-In= 0.10'

Discarded OutFlow Max=0.04 cfs @ 12.54 hrs HW=170.29' (Free Discharge)
└─**1=Exfiltration** (Controls 0.04 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=168.15' TW=0.00'   (Dynamic Tailwater)

Summary for Pond 22P: Barn

Inflow Area =   0.055 ac,100.00% Impervious, Inflow Depth > 4.10"   for 10-YR 24HR event
Inflow   =   0.23 cfs @ 12.09 hrs, Volume=   0.019 af
Outflow   =   0.04 cfs @ 12.54 hrs, Volume=   0.018 af, Atten= 82%, Lag= 27.2 min
Discarded   =   0.04 cfs @ 12.54 hrs, Volume=   0.018 af
Secondary   =   0.00 cfs @   0.00 hrs, Volume=   0.000 af
   Routed to Reach AP3 : Analysis Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 170.29' @ 12.54 hrs Surf.Area= 0.009 ac Storage= 0.007 af

Plug-Flow detention time= 113.1 min calculated for 0.018 af (99% of inflow)
Center-of-Mass det. time= 105.2 min (855.2 - 750.0)

Volume	Invert	Avail.Storage	Storage Description
#1	168.15'	0.013 af	**4.00'W x 95.00'L x 3.85'H Prismatoid** 0.034 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	172.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	168.15'	**0.300 in/hr Exfiltration over Surface area**

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Conductivity to Groundwater Elevation = 168.00'   Phase-In= 0.10'

Discarded OutFlow Max=0.04 cfs @ 12.54 hrs HW=170.29'   (Free Discharge)
└─**1=Exfiltration** (Controls 0.04 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=168.15' TW=0.00'   (Dynamic Tailwater)

Summary for Pond 23P: Drip Edge

Inflow Area =   0.013 ac, 15.85% Impervious, Inflow Depth > 2.76"   for 10-YR 24HR event
Inflow   =   0.04 cfs @   12.09 hrs, Volume=   0.003 af
Outflow   =   0.00 cfs @   14.69 hrs, Volume=   0.002 af, Atten= 95%, Lag= 156.0 min
Discarded   =   0.00 cfs @   14.69 hrs, Volume=   0.002 af
Secondary   =   0.00 cfs @   0.00 hrs, Volume=   0.000 af
     Routed to Reach AP3 : Analysis Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 170.56' @ 14.69 hrs   Surf.Area= 0.003 ac   Storage= 0.002 af

Plug-Flow detention time= 311.5 min calculated for 0.002 af (69% of inflow)
Center-of-Mass det. time= 215.7 min (1,028.3 - 812.6)

Volume	Invert	Avail.Storage	Storage Description
#1	169.00'	0.003 af	**3.00'W x 40.00'L x 3.00'H Prismatoid**
			0.008 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	172.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	169.00'	**0.300 in/hr Exfiltration over Surface area**
			Conductivity to Groundwater Elevation = 168.00' Phase-In= 0.10'

Discarded OutFlow Max=0.00 cfs @ 14.69 hrs HW=170.56'   (Free Discharge)
└─**1=Exfiltration** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=169.00' TW=0.00'   (Dynamic Tailwater)

Summary for Pond 24P: Plunge Pool with Culvert Outlet

Inflow Area =   0.213 ac, 18.90% Impervious, Inflow Depth > 2.24"   for 10-YR 24HR event
Inflow   =   0.48 cfs @   12.15 hrs, Volume=   0.040 af
Outflow   =   0.48 cfs @   12.16 hrs, Volume=   0.040 af, Atten= 0%, Lag= 0.6 min
Primary   =   0.48 cfs @   12.16 hrs, Volume=   0.040 af
     Routed to Reach 3R : Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 193.32' @ 12.16 hrs   Surf.Area= 106 sf   Storage= 25 cf

Plug-Flow detention time= 2.1 min calculated for 0.040 af (100% of inflow)
Center-of-Mass det. time= 1.4 min (835.0 - 833.6)

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Volume	Invert	Avail.Storage	Storage Description
#1	193.00'	475 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
193.00	51	0	0
194.00	222	137	137
195.00	455	339	475

Device	Routing	Invert	Outlet Devices
#1	Primary	193.00'	**15.0" Round Culvert**
			L= 50.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 193.00' / 192.50' S= 0.0100 '/' Cc= 0.900
			n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=0.47 cfs @ 12.16 hrs HW=193.32' TW=192.23' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 0.47 cfs @ 1.92 fps)

Summary for Pond 25P: Drip Edge

Inflow Area =   0.012 ac,100.00% Impervious, Inflow Depth > 4.10"   for 10-YR 24HR event
Inflow   =   0.05 cfs @   12.09 hrs, Volume=   0.004 af
Outflow   =   0.01 cfs @   12.44 hrs, Volume=   0.004 af, Atten= 73%, Lag= 21.3 min
Discarded =   0.01 cfs @   12.44 hrs, Volume=   0.004 af
Secondary =   0.00 cfs @   0.00 hrs, Volume=   0.000 af
     Routed to Reach 6R : Flow Through 5S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 194.90' @ 12.44 hrs   Surf.Area= 0.003 ac   Storage= 0.001 af

Plug-Flow detention time= 61.8 min calculated for 0.004 af (99% of inflow)
Center-of-Mass det. time= 54.7 min (804.7 - 750.0)

Volume	Invert	Avail.Storage	Storage Description
#1	193.75'	0.003 af	**3.00'W x 41.00'L x 2.25'H Prismatoid**
			0.006 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	196.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	193.75'	**0.300 in/hr Exfiltration over Surface area**
			Conductivity to Groundwater Elevation = 193.67' Phase-In= 0.10'

Discarded OutFlow Max=0.01 cfs @ 12.44 hrs HW=194.90' (Free Discharge)
└─**1=Exfiltration** (Controls 0.01 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=193.75' TW=196.00' (Dynamic Tailwater)

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: 1S
Runoff Area=97,026 sf   2.11% Impervious   Runoff Depth>2.64"
Flow Length=320' Tc=19.9 min   CN=73   Runoff=4.64 cfs 0.491 af

Subcatchment2S: 2S
Runoff Area=66,576 sf   0.00% Impervious   Runoff Depth>2.47"
Flow Length=290' Tc=18.2 min   CN=71   Runoff=3.07 cfs 0.314 af

Subcatchment3S: 3S
Runoff Area=39,339 sf   0.00% Impervious   Runoff Depth>2.47"
Flow Length=140'   Slope=0.0123 '/' Tc=19.1 min   CN=71   Runoff=1.78 cfs 0.186 af

Subcatchment4S: 4S
Runoff Area=27,185 sf   0.00% Impervious   Runoff Depth>1.43"
Flow Length=194' Tc=23.6 min   CN=58   Runoff=0.59 cfs 0.074 af

Subcatchment5S: 5S
Runoff Area=113,462 sf   0.00% Impervious   Runoff Depth>2.04"
Flow Length=602' Tc=32.4 min   CN=66   Runoff=3.31 cfs 0.443 af

Subcatchment6S: 6S
Runoff Area=13,598 sf   21.51% Impervious   Runoff Depth>3.11"
Flow Length=92'   Slope=0.0217 '/' Tc=9.3 min   CN=78   Runoff=1.00 cfs 0.081 af

Subcatchment7S: 7S
Runoff Area=84,203 sf   3.46% Impervious   Runoff Depth>2.64"
Flow Length=456' Tc=23.1 min   CN=73   Runoff=3.78 cfs 0.426 af

Subcatchment9S: 9S
Runoff Area=41,089 sf   6.98% Impervious   Runoff Depth>2.82"
Flow Length=211' Tc=22.8 min   CN=75   Runoff=1.99 cfs 0.222 af

Subcatchment10S: 10S
Runoff Area=17,686 sf   57.92% Impervious   Runoff Depth>4.11"
Tc=6.0 min   CN=88   Runoff=1.86 cfs 0.139 af

Subcatchment11S: 11S
Runoff Area=9,293 sf   18.90% Impervious   Runoff Depth>3.20"
Flow Length=194' Tc=10.2 min   CN=79   Runoff=0.69 cfs 0.057 af

Subcatchment12S: Units 5&6
Runoff Area=994 sf   100.00% Impervious   Runoff Depth>5.23"
Tc=6.0 min   CN=98   Runoff=0.12 cfs 0.010 af

Subcatchment13S: Unit 5
Runoff Area=580 sf   100.00% Impervious   Runoff Depth>5.23"
Tc=6.0 min   CN=98   Runoff=0.07 cfs 0.006 af

Subcatchment14S: Units 3&4
Runoff Area=1,046 sf   100.00% Impervious   Runoff Depth>5.23"
Tc=6.0 min   CN=98   Runoff=0.13 cfs 0.010 af

Subcatchment15S: Unit 4
Runoff Area=498 sf   100.00% Impervious   Runoff Depth>5.23"
Tc=6.0 min   CN=98   Runoff=0.06 cfs 0.005 af

Subcatchment16S: Unit 3
Runoff Area=518 sf   100.00% Impervious   Runoff Depth>5.23"
Tc=6.0 min   CN=98   Runoff=0.06 cfs 0.005 af

Subcatchment17S: Units 1&2
Runoff Area=1,046 sf   100.00% Impervious   Runoff Depth>5.23"
Tc=6.0 min   CN=98   Runoff=0.13 cfs 0.010 af

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Subcatchment18S: Unit 1
Runoff Area=498 sf   100.00% Impervious   Runoff Depth>5.23"
Tc=6.0 min   CN=98   Runoff=0.06 cfs 0.005 af

Subcatchment19S: 19S
Runoff Area=2,375 sf   100.00% Impervious   Runoff Depth>5.23"
Tc=6.0 min   CN=98   Runoff=0.29 cfs 0.024 af

Subcatchment20S: 20S
Runoff Area=2,375 sf   100.00% Impervious   Runoff Depth>5.23"
Tc=6.0 min   CN=98   Runoff=0.29 cfs 0.024 af

Subcatchment21S: Gravel Trail
Runoff Area=574 sf   15.85% Impervious   Runoff Depth>3.80"
Tc=6.0 min   CN=85   Runoff=0.06 cfs 0.004 af

Subcatchment22S: Unit 2
Runoff Area=518 sf   100.00% Impervious   Runoff Depth>5.23"
Tc=6.0 min   CN=98   Runoff=0.06 cfs 0.005 af

Reach 1R: Flow Through 9S
Avg. Flow Depth=0.07' Max Vel=1.20 fps Inflow=1.36 cfs 0.030 af
n=0.030   L=140.0'   S=0.0329 '/'   Capacity=43.14 cfs Outflow=0.70 cfs 0.030 af

Reach 3R: Culvert
Avg. Flow Depth=0.68' Max Vel=4.62 fps Inflow=3.14 cfs 0.308 af
15.0" Round Pipe   n=0.012   L=49.0'   S=0.0061 '/'   Capacity=5.48 cfs Outflow=3.16 cfs 0.308 af

Reach 4R: Swale
Avg. Flow Depth=0.14' Max Vel=2.52 fps Inflow=0.50 cfs 0.363 af
n=0.030   L=120.0'   S=0.0517 '/'   Capacity=30.09 cfs Outflow=0.50 cfs 0.363 af

Reach 5R: Flow Through 1S
Avg. Flow Depth=0.06' Max Vel=1.27 fps Inflow=0.50 cfs 0.363 af
n=0.030   L=191.0'   S=0.0497 '/'   Capacity=53.08 cfs Outflow=0.50 cfs 0.362 af

Reach 6R: Flow Through 5S
Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.030   L=600.0'   S=0.0367 '/'   Capacity=45.58 cfs Outflow=0.00 cfs 0.000 af

Reach AP1: Analysis Point 1
Inflow=7.98 cfs 1.167 af
Outflow=7.98 cfs 1.167 af

Reach AP2: Analysis Point 2
Inflow=1.78 cfs 0.186 af
Outflow=1.78 cfs 0.186 af

Reach AP3: Analysis Point 3
Inflow=0.59 cfs 0.074 af
Outflow=0.59 cfs 0.074 af

Reach AP4: Analysis Point 4
Inflow=3.31 cfs 0.443 af
Outflow=3.31 cfs 0.443 af

Reach AP5: Analysis Point 5
Inflow=3.28 cfs 0.258 af
Outflow=3.28 cfs 0.258 af

Pond 1P: Isolated Wetland
Peak Elev=196.51' Storage=1,191 cf Inflow=1.00 cfs 0.081 af
Discarded=0.03 cfs 0.030 af Primary=1.36 cfs 0.030 af Outflow=1.39 cfs 0.059 af

Pond 2P: Depression in Woods
Peak Elev=176.56' Storage=4,425 cf Inflow=3.81 cfs 0.427 af
Discarded=0.10 cfs 0.095 af Primary=3.28 cfs 0.258 af Outflow=3.38 cfs 0.353 af

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Pond 3P: Center of Cul De Sac   Peak Elev=194.03' Storage=10,272 cf   Inflow=3.98 cfs 0.448 af
Outflow=0.50 cfs 0.363 af

Pond 4P: Drip Edge   Peak Elev=191.50' Storage=0.002 af   Inflow=0.12 cfs 0.010 af
Discarded=0.03 cfs 0.009 af   Secondary=0.08 cfs 0.001 af   Outflow=0.10 cfs 0.010 af

Pond 5P: Drip Edge   Peak Elev=190.92' Storage=0.002 af   Inflow=0.07 cfs 0.006 af
Discarded=0.02 cfs 0.006 af   Secondary=0.00 cfs 0.000 af   Outflow=0.02 cfs 0.006 af

Pond 6P: Drip Edge   Peak Elev=189.44' Storage=0.002 af   Inflow=0.13 cfs 0.010 af
Discarded=0.07 cfs 0.010 af   Secondary=0.00 cfs 0.000 af   Outflow=0.07 cfs 0.010 af

Pond 7P: Drip Edge   Peak Elev=191.31' Storage=0.003 af   Inflow=0.06 cfs 0.005 af
Discarded=0.00 cfs 0.003 af   Secondary=0.00 cfs 0.000 af   Outflow=0.00 cfs 0.003 af

Pond 8P: Drip Edge   Peak Elev=189.19' Storage=0.002 af   Inflow=0.06 cfs 0.005 af
Discarded=0.01 cfs 0.005 af   Secondary=0.00 cfs 0.000 af   Outflow=0.01 cfs 0.005 af

Pond 10P: Drip Edge   Peak Elev=194.89' Storage=0.004 af   Inflow=0.13 cfs 0.010 af
Discarded=0.02 cfs 0.010 af   Secondary=0.00 cfs 0.000 af   Outflow=0.02 cfs 0.010 af

Pond 11P: Drip Edge   Peak Elev=194.80' Storage=0.001 af   Inflow=0.06 cfs 0.005 af
Discarded=0.03 cfs 0.005 af   Secondary=0.00 cfs 0.000 af   Outflow=0.03 cfs 0.005 af

Pond 20P: Barn   Peak Elev=170.90' Storage=0.010 af   Inflow=0.29 cfs 0.024 af
Discarded=0.05 cfs 0.023 af   Secondary=0.00 cfs 0.000 af   Outflow=0.05 cfs 0.023 af

Pond 22P: Barn   Peak Elev=170.90' Storage=0.010 af   Inflow=0.29 cfs 0.024 af
Discarded=0.05 cfs 0.023 af   Secondary=0.00 cfs 0.000 af   Outflow=0.05 cfs 0.023 af

Pond 23P: Drip Edge   Peak Elev=171.23' Storage=0.002 af   Inflow=0.06 cfs 0.004 af
Discarded=0.00 cfs 0.003 af   Secondary=0.00 cfs 0.000 af   Outflow=0.00 cfs 0.003 af

Pond 24P: Plunge Pool with Culvert Outlet   Peak Elev=193.39' Storage=33 cf   Inflow=0.69 cfs 0.057 af
15.0" Round Culvert n=0.012 L=50.0' S=0.0100 '/'   Outflow=0.69 cfs 0.057 af

Pond 25P: Drip Edge   Peak Elev=195.22' Storage=0.002 af   Inflow=0.06 cfs 0.005 af
Discarded=0.02 cfs 0.005 af   Secondary=0.00 cfs 0.000 af   Outflow=0.02 cfs 0.005 af

Total Runoff Area = 11.949 ac   Runoff Volume = 2.541 af   Average Runoff Depth = 2.55"
93.60% Pervious = 11.184 ac   6.40% Impervious = 0.764 ac

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: 1S   Runoff Area=97,026 sf   2.11% Impervious   Runoff Depth>3.50"
Flow Length=320' Tc=19.9 min CN=73 Runoff=6.17 cfs 0.650 af

Subcatchment2S: 2S   Runoff Area=66,576 sf   0.00% Impervious   Runoff Depth>3.30"
Flow Length=290' Tc=18.2 min CN=71 Runoff=4.14 cfs 0.421 af

Subcatchment3S: 3S   Runoff Area=39,339 sf   0.00% Impervious   Runoff Depth>3.30"
Flow Length=140'   Slope=0.0123 '/' Tc=19.1 min CN=71 Runoff=2.40 cfs 0.249 af

Subcatchment4S: 4S   Runoff Area=27,185 sf   0.00% Impervious   Runoff Depth>2.07"
Flow Length=194' Tc=23.6 min CN=58 Runoff=0.90 cfs 0.108 af

Subcatchment5S: 5S   Runoff Area=113,462 sf   0.00% Impervious   Runoff Depth>2.80"
Flow Length=602' Tc=32.4 min CN=66 Runoff=4.63 cfs 0.609 af

Subcatchment6S: 6S   Runoff Area=13,598 sf   21.51% Impervious   Runoff Depth>4.03"
Flow Length=92'   Slope=0.0217 '/' Tc=9.3 min CN=78 Runoff=1.29 cfs 0.105 af

Subcatchment7S: 7S   Runoff Area=84,203 sf   3.46% Impervious   Runoff Depth>3.50"
Flow Length=456' Tc=23.1 min CN=73 Runoff=5.05 cfs 0.564 af

Subcatchment9S: 9S   Runoff Area=41,089 sf   6.98% Impervious   Runoff Depth>3.70"
Flow Length=211' Tc=22.8 min CN=75 Runoff=2.62 cfs 0.291 af

Subcatchment10S: 10S   Runoff Area=17,686 sf   57.92% Impervious   Runoff Depth>5.11"
Tc=6.0 min CN=88 Runoff=2.29 cfs 0.173 af

Subcatchment11S: 11S   Runoff Area=9,293 sf   18.90% Impervious   Runoff Depth>4.13"
Flow Length=194' Tc=10.2 min CN=79 Runoff=0.89 cfs 0.073 af

Subcatchment12S: Units 5&6   Runoff Area=994 sf   100.00% Impervious   Runoff Depth>6.27"
Tc=6.0 min CN=98 Runoff=0.14 cfs 0.012 af

Subcatchment13S: Unit 5   Runoff Area=580 sf   100.00% Impervious   Runoff Depth>6.27"
Tc=6.0 min CN=98 Runoff=0.08 cfs 0.007 af

Subcatchment14S: Units 3&4   Runoff Area=1,046 sf   100.00% Impervious   Runoff Depth>6.27"
Tc=6.0 min CN=98 Runoff=0.15 cfs 0.013 af

Subcatchment15S: Unit 4   Runoff Area=498 sf   100.00% Impervious   Runoff Depth>6.27"
Tc=6.0 min CN=98 Runoff=0.07 cfs 0.006 af

Subcatchment16S: Unit 3   Runoff Area=518 sf   100.00% Impervious   Runoff Depth>6.27"
Tc=6.0 min CN=98 Runoff=0.07 cfs 0.006 af

Subcatchment17S: Units 1&2   Runoff Area=1,046 sf   100.00% Impervious   Runoff Depth>6.27"
Tc=6.0 min CN=98 Runoff=0.15 cfs 0.013 af

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Type III 24-hr 50-YR 24HR Rainfall=6.51"
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Subcatchment18S: Unit 1
Runoff Area=498 sf   100.00% Impervious   Runoff Depth>6.27"
Tc=6.0 min   CN=98   Runoff=0.07 cfs 0.006 af

Subcatchment19S: 19S
Runoff Area=2,375 sf   100.00% Impervious   Runoff Depth>6.27"
Tc=6.0 min   CN=98   Runoff=0.34 cfs 0.028 af

Subcatchment20S: 20S
Runoff Area=2,375 sf   100.00% Impervious   Runoff Depth>6.27"
Tc=6.0 min   CN=98   Runoff=0.34 cfs 0.028 af

Subcatchment21S: Gravel Trail
Runoff Area=574 sf   15.85% Impervious   Runoff Depth>4.78"
Tc=6.0 min   CN=85   Runoff=0.07 cfs 0.005 af

Subcatchment22S: Unit 2
Runoff Area=518 sf   100.00% Impervious   Runoff Depth>6.27"
Tc=6.0 min   CN=98   Runoff=0.07 cfs 0.006 af

Reach 1R: Flow Through 9S
Avg. Flow Depth=0.10'   Max Vel=1.45 fps   Inflow=2.18 cfs 0.051 af
n=0.030   L=140.0'   S=0.0329 '/'   Capacity=43.14 cfs   Outflow=1.35 cfs 0.051 af

Reach 3R: Culvert
Avg. Flow Depth=0.83'   Max Vel=4.92 fps   Inflow=4.15 cfs 0.415 af
15.0" Round Pipe   n=0.012   L=49.0'   S=0.0061 '/'   Capacity=5.48 cfs   Outflow=4.23 cfs 0.415 af

Reach 4R: Swale
Avg. Flow Depth=0.24'   Max Vel=3.36 fps   Inflow=1.37 cfs 0.483 af
n=0.030   L=120.0'   S=0.0517 '/'   Capacity=30.09 cfs   Outflow=1.37 cfs 0.483 af

Reach 5R: Flow Through 1S
Avg. Flow Depth=0.09'   Max Vel=1.72 fps   Inflow=1.37 cfs 0.483 af
n=0.030   L=191.0'   S=0.0497 '/'   Capacity=53.08 cfs   Outflow=1.37 cfs 0.482 af

Reach 6R: Flow Through 5S
Avg. Flow Depth=0.00'   Max Vel=0.00 fps   Inflow=0.00 cfs 0.000 af
n=0.030   L=600.0'   S=0.0367 '/'   Capacity=45.58 cfs   Outflow=0.00 cfs 0.000 af

Reach AP1: Analysis Point 1
Inflow=10.64 cfs 1.552 af
Outflow=10.64 cfs 1.552 af

Reach AP2: Analysis Point 2
Inflow=2.40 cfs 0.249 af
Outflow=2.40 cfs 0.249 af

Reach AP3: Analysis Point 3
Inflow=0.90 cfs 0.108 af
Outflow=0.90 cfs 0.108 af

Reach AP4: Analysis Point 4
Inflow=4.63 cfs 0.609 af
Outflow=4.63 cfs 0.609 af

Reach AP5: Analysis Point 5
Inflow=4.72 cfs 0.392 af
Outflow=4.72 cfs 0.392 af

Pond 1P: Isolated Wetland
Peak Elev=196.56' Storage=1,191 cf   Inflow=1.29 cfs 0.105 af
Discarded=0.03 cfs 0.032 af   Primary=2.18 cfs 0.051 af   Outflow=2.21 cfs 0.081 af

Pond 2P: Depression in Woods
Peak Elev=176.61' Storage=4,758 cf   Inflow=5.08 cfs 0.566 af
Discarded=0.11 cfs 0.099 af   Primary=4.72 cfs 0.392 af   Outflow=4.83 cfs 0.491 af

Pond 3P: Center of Cul De Sac   Peak Elev=194.61' Storage=12,602 cf Inflow=5.75 cfs 0.588 af
                                                                  Outflow=1.37 cfs 0.483 af

Pond 4P: Drip Edge   Peak Elev=191.50' Storage=0.002 af Inflow=0.14 cfs 0.012 af
           Discarded=0.03 cfs 0.010 af   Secondary=0.12 cfs 0.002 af   Outflow=0.14 cfs 0.012 af

Pond 5P: Drip Edge   Peak Elev=191.13' Storage=0.002 af Inflow=0.08 cfs 0.007 af
           Discarded=0.02 cfs 0.007 af   Secondary=0.00 cfs 0.000 af   Outflow=0.02 cfs 0.007 af

Pond 6P: Drip Edge   Peak Elev=189.62' Storage=0.002 af Inflow=0.15 cfs 0.013 af
           Discarded=0.08 cfs 0.012 af   Secondary=0.00 cfs 0.000 af   Outflow=0.08 cfs 0.012 af

Pond 7P: Drip Edge   Peak Elev=192.00' Storage=0.004 af Inflow=0.07 cfs 0.006 af
           Discarded=0.00 cfs 0.003 af   Secondary=0.00 cfs 0.000 af   Outflow=0.00 cfs 0.003 af

Pond 8P: Drip Edge   Peak Elev=189.52' Storage=0.002 af Inflow=0.07 cfs 0.006 af
           Discarded=0.02 cfs 0.006 af   Secondary=0.00 cfs 0.000 af   Outflow=0.02 cfs 0.006 af

Pond 10P: Drip Edge   Peak Elev=195.32' Storage=0.005 af Inflow=0.15 cfs 0.013 af
           Discarded=0.03 cfs 0.012 af   Secondary=0.00 cfs 0.000 af   Outflow=0.03 cfs 0.012 af

Pond 11P: Drip Edge   Peak Elev=195.02' Storage=0.001 af Inflow=0.07 cfs 0.006 af
           Discarded=0.03 cfs 0.006 af   Secondary=0.00 cfs 0.000 af   Outflow=0.03 cfs 0.006 af

Pond 20P: Barn   Peak Elev=171.46' Storage=0.012 af Inflow=0.34 cfs 0.028 af
           Discarded=0.06 cfs 0.028 af   Secondary=0.00 cfs 0.000 af   Outflow=0.06 cfs 0.028 af

Pond 22P: Barn   Peak Elev=171.46' Storage=0.012 af Inflow=0.34 cfs 0.028 af
           Discarded=0.06 cfs 0.028 af   Secondary=0.00 cfs 0.000 af   Outflow=0.06 cfs 0.028 af

Pond 23P: Drip Edge   Peak Elev=171.87' Storage=0.003 af Inflow=0.07 cfs 0.005 af
           Discarded=0.00 cfs 0.003 af   Secondary=0.00 cfs 0.000 af   Outflow=0.00 cfs 0.003 af

Pond 24P: Plunge Pool with Culvert Outlet   Peak Elev=193.44' Storage=39 cf Inflow=0.89 cfs 0.073 af
                15.0" Round Culvert n=0.012 L=50.0' S=0.0100 '/'   Outflow=0.88 cfs 0.073 af

Pond 25P: Drip Edge   Peak Elev=195.52' Storage=0.002 af Inflow=0.07 cfs 0.006 af
           Discarded=0.02 cfs 0.006 af   Secondary=0.00 cfs 0.000 af   Outflow=0.02 cfs 0.006 af

Total Runoff Area = 11.949 ac   Runoff Volume = 3.372 af   Average Runoff Depth = 3.39"
93.60% Pervious = 11.184 ac   6.40% Impervious = 0.764 ac

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Type III 24-hr 100-YR 24HR Rainfall=7.77"
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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: 1S Runoff Area=97,026 sf 2.11% Impervious Runoff Depth>4.59"
Flow Length=320' Tc=19.9 min CN=73 Runoff=8.11 cfs 0.852 af

Subcatchment2S: 2S Runoff Area=66,576 sf 0.00% Impervious Runoff Depth>4.37"
Flow Length=290' Tc=18.2 min CN=71 Runoff=5.49 cfs 0.556 af

Subcatchment3S: 3S Runoff Area=39,339 sf 0.00% Impervious Runoff Depth>4.36"
Flow Length=140' Slope=0.0123 '/' Tc=19.1 min CN=71 Runoff=3.18 cfs 0.328 af

Subcatchment4S: 4S Runoff Area=27,185 sf 0.00% Impervious Runoff Depth>2.93"
Flow Length=194' Tc=23.6 min CN=58 Runoff=1.31 cfs 0.152 af

Subcatchment5S: 5S Runoff Area=113,462 sf 0.00% Impervious Runoff Depth>3.79"
Flow Length=602' Tc=32.4 min CN=66 Runoff=6.33 cfs 0.823 af

Subcatchment6S: 6S Runoff Area=13,598 sf 21.51% Impervious Runoff Depth>5.17"
Flow Length=92' Slope=0.0217 '/' Tc=9.3 min CN=78 Runoff=1.65 cfs 0.135 af

Subcatchment7S: 7S Runoff Area=84,203 sf 3.46% Impervious Runoff Depth>4.59"
Flow Length=456' Tc=23.1 min CN=73 Runoff=6.61 cfs 0.739 af

Subcatchment9S: 9S Runoff Area=41,089 sf 6.98% Impervious Runoff Depth>4.81"
Flow Length=211' Tc=22.8 min CN=75 Runoff=3.40 cfs 0.378 af

Subcatchment10S: 10S Runoff Area=17,686 sf 57.92% Impervious Runoff Depth>6.34"
Tc=6.0 min CN=88 Runoff=2.80 cfs 0.214 af

Subcatchment11S: 11S Runoff Area=9,293 sf 18.90% Impervious Runoff Depth>5.29"
Flow Length=194' Tc=10.2 min CN=79 Runoff=1.13 cfs 0.094 af

Subcatchment12S: Units 5&6 Runoff Area=994 sf 100.00% Impervious Runoff Depth>7.53"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment13S: Unit 5 Runoff Area=580 sf 100.00% Impervious Runoff Depth>7.53"
Tc=6.0 min CN=98 Runoff=0.10 cfs 0.008 af

Subcatchment14S: Units 3&4 Runoff Area=1,046 sf 100.00% Impervious Runoff Depth>7.53"
Tc=6.0 min CN=98 Runoff=0.18 cfs 0.015 af

Subcatchment15S: Unit 4 Runoff Area=498 sf 100.00% Impervious Runoff Depth>7.53"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.007 af

Subcatchment16S: Unit 3 Runoff Area=518 sf 100.00% Impervious Runoff Depth>7.53"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.007 af

Subcatchment17S: Units 1&2 Runoff Area=1,046 sf 100.00% Impervious Runoff Depth>7.53"
Tc=6.0 min CN=98 Runoff=0.18 cfs 0.015 af

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Subcatchment18S: Unit 1 Runoff Area=498 sf   100.00% Impervious   Runoff Depth>7.53"
Tc=6.0 min   CN=98   Runoff=0.09 cfs 0.007 af

Subcatchment19S: 19S Runoff Area=2,375 sf   100.00% Impervious   Runoff Depth>7.53"
Tc=6.0 min   CN=98   Runoff=0.41 cfs 0.034 af

Subcatchment20S: 20S Runoff Area=2,375 sf   100.00% Impervious   Runoff Depth>7.53"
Tc=6.0 min   CN=98   Runoff=0.41 cfs 0.034 af

Subcatchment21S: Gravel Trail Runoff Area=574 sf   15.85% Impervious   Runoff Depth>5.99"
Tc=6.0 min   CN=85   Runoff=0.09 cfs 0.007 af

Subcatchment22S: Unit 2 Runoff Area=518 sf   100.00% Impervious   Runoff Depth>7.53"
Tc=6.0 min   CN=98   Runoff=0.09 cfs 0.007 af

Reach 1R: Flow Through 9S Avg. Flow Depth=0.11' Max Vel=1.57 fps Inflow=1.91 cfs 0.078 af
n=0.030   L=140.0'   S=0.0329 '/' Capacity=43.14 cfs Outflow=1.61 cfs 0.078 af

Reach 3R: Culvert Avg. Flow Depth=1.01' Max Vel=5.09 fps Inflow=5.37 cfs 0.550 af
15.0" Round Pipe   n=0.012   L=49.0'   S=0.0061 '/' Capacity=5.48 cfs Outflow=5.40 cfs 0.550 af

Reach 4R: Swale Avg. Flow Depth=0.37' Max Vel=4.29 fps Inflow=3.39 cfs 0.644 af
n=0.030   L=120.0'   S=0.0517 '/' Capacity=30.09 cfs Outflow=3.39 cfs 0.643 af

Reach 5R: Flow Through 1S Avg. Flow Depth=0.14' Max Vel=2.28 fps Inflow=3.39 cfs 0.644 af
n=0.030   L=191.0'   S=0.0497 '/' Capacity=53.08 cfs Outflow=3.39 cfs 0.643 af

Reach 6R: Flow Through 5S Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.030   L=600.0'   S=0.0367 '/' Capacity=45.58 cfs Outflow=0.00 cfs 0.000 af

Reach AP1: Analysis Point 1 Inflow=14.08 cfs 2.050 af
Outflow=14.08 cfs 2.050 af

Reach AP2: Analysis Point 2 Inflow=3.18 cfs 0.328 af
Outflow=3.18 cfs 0.328 af

Reach AP3: Analysis Point 3 Inflow=1.37 cfs 0.154 af
Outflow=1.37 cfs 0.154 af

Reach AP4: Analysis Point 4 Inflow=6.33 cfs 0.823 af
Outflow=6.33 cfs 0.823 af

Reach AP5: Analysis Point 5 Inflow=6.32 cfs 0.563 af
Outflow=6.32 cfs 0.563 af

Pond 1P: Isolated Wetland Peak Elev=196.55' Storage=1,191 cf Inflow=1.65 cfs 0.135 af
Discarded=0.03 cfs 0.033 af   Primary=1.91 cfs 0.078 af   Outflow=1.94 cfs 0.109 af

Pond 2P: Depression in Woods Peak Elev=176.65' Storage=5,082 cf Inflow=6.66 cfs 0.742 af
Discarded=0.11 cfs 0.104 af   Primary=6.32 cfs 0.563 af   Outflow=6.43 cfs 0.667 af

Pond 3P: Center of Cul De Sac   Peak Elev=194.93' Storage=13,965 cf   Inflow=7.27 cfs 0.765 af
                                                      Outflow=3.38 cfs 0.643 af

Pond 4P: Drip Edge   Peak Elev=191.50' Storage=0.002 af   Inflow=0.17 cfs 0.014 af
                        Discarded=0.03 cfs 0.011 af   Secondary=0.14 cfs 0.003 af   Outflow=0.16 cfs 0.014 af

Pond 5P: Drip Edge   Peak Elev=191.39' Storage=0.003 af   Inflow=0.10 cfs 0.008 af
                        Discarded=0.03 cfs 0.008 af   Secondary=0.00 cfs 0.000 af   Outflow=0.03 cfs 0.008 af

Pond 6P: Drip Edge   Peak Elev=189.72' Storage=0.002 af   Inflow=0.18 cfs 0.015 af
                        Discarded=0.09 cfs 0.015 af   Secondary=0.03 cfs 0.000 af   Outflow=0.12 cfs 0.015 af

Pond 7P: Drip Edge   Peak Elev=192.00' Storage=0.004 af   Inflow=0.09 cfs 0.007 af
                        Discarded=0.00 cfs 0.003 af   Secondary=0.03 cfs 0.001 af   Outflow=0.03 cfs 0.004 af

Pond 8P: Drip Edge   Peak Elev=189.91' Storage=0.003 af   Inflow=0.09 cfs 0.007 af
                        Discarded=0.02 cfs 0.007 af   Secondary=0.00 cfs 0.000 af   Outflow=0.02 cfs 0.007 af

Pond 10P: Drip Edge   Peak Elev=195.84' Storage=0.006 af   Inflow=0.18 cfs 0.015 af
                        Discarded=0.04 cfs 0.015 af   Secondary=0.00 cfs 0.000 af   Outflow=0.04 cfs 0.015 af

Pond 11P: Drip Edge   Peak Elev=195.28' Storage=0.001 af   Inflow=0.09 cfs 0.007 af
                        Discarded=0.04 cfs 0.007 af   Secondary=0.00 cfs 0.000 af   Outflow=0.04 cfs 0.007 af

Pond 20P: Barn   Peak Elev=172.00' Storage=0.013 af   Inflow=0.41 cfs 0.034 af
                        Discarded=0.07 cfs 0.033 af   Secondary=0.05 cfs 0.000 af   Outflow=0.12 cfs 0.034 af

Pond 22P: Barn   Peak Elev=172.00' Storage=0.013 af   Inflow=0.41 cfs 0.034 af
                        Discarded=0.07 cfs 0.033 af   Secondary=0.05 cfs 0.000 af   Outflow=0.12 cfs 0.034 af

Pond 23P: Drip Edge   Peak Elev=172.00' Storage=0.003 af   Inflow=0.09 cfs 0.007 af
                        Discarded=0.00 cfs 0.003 af   Secondary=0.02 cfs 0.001 af   Outflow=0.03 cfs 0.004 af

Pond 24P: Plunge Pool with Culvert Outlet   Peak Elev=193.51' Storage=48 cf   Inflow=1.13 cfs 0.094 af
                        15.0" Round Culvert n=0.012 L=50.0' S=0.0100 '/'   Outflow=1.12 cfs 0.094 af

Pond 25P: Drip Edge   Peak Elev=195.88' Storage=0.002 af   Inflow=0.09 cfs 0.007 af
                        Discarded=0.02 cfs 0.007 af   Secondary=0.00 cfs 0.000 af   Outflow=0.02 cfs 0.007 af

Total Runoff Area = 11.949 ac   Runoff Volume = 4.429 af   Average Runoff Depth = 4.45"
93.60% Pervious = 11.184 ac   6.40% Impervious = 0.764 ac

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Type III 24-hr 50-YR 24HR Rainfall=6.51"
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Summary for Subcatchment 1S: 1S

Runoff   =   6.17 cfs @ 12.28 hrs, Volume=   0.650 af, Depth> 3.50"
    Routed to Reach AP1 : Analysis Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

Area (sf)	CN	Description
930	98	Roofs, HSG C
1,120	98	Paved parking, HSG C
47,794	70	Woods, Good, HSG C
23,377	74	>75% Grass cover, Good, HSG C
23,763	77	Woods, Good, HSG D
42	80	>75% Grass cover, Good, HSG D
97,026	73	Weighted Average
94,976		97.89% Pervious Area
2,050		2.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.6	100	0.0433	0.10		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
1.4	113	0.0708	1.33		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
1.4	70	0.0286	0.85		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.5	37	0.0541	1.16		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
19.9	320	Total			

Summary for Subcatchment 2S: 2S

Runoff   =   4.14 cfs @ 12.26 hrs, Volume=   0.421 af, Depth> 3.30"
    Routed to Reach AP1 : Analysis Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

Area (sf)	CN	Description
1,242	82	Dirt roads, HSG B
19,492	55	Woods, Good, HSG B
45,842	77	Woods, Good, HSG D
66,576	71	Weighted Average
66,576		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	82	0.0610	0.11		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
2.9	18	0.1111	0.10		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
0.2	21	0.1111	1.67		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.4	30	0.0571	1.19		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
2.4	139	0.0367	0.96		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
18.2	290	Total			

Summary for Subcatchment 3S: 3S

Runoff   =   2.40 cfs @ 12.27 hrs, Volume=   0.249 af, Depth> 3.30"
    Routed to Reach AP2 : Analysis Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

Area (sf)	CN	Description
27,514	70	Woods, Good, HSG C
11,825	74	>75% Grass cover, Good, HSG C
39,339	71	Weighted Average
39,339		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	81	0.0123	0.13		**Sheet Flow,**
					Grass: Short n= 0.150 P2= 2.90"
7.3	19	0.0123	0.04		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
1.2	40	0.0123	0.55		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
19.1	140	Total			

Summary for Subcatchment 4S: 4S

Runoff   =   0.90 cfs @ 12.36 hrs, Volume=   0.108 af, Depth> 2.07"
    Routed to Reach AP3 : Analysis Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

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Type III 24-hr 50-YR 24HR Rainfall=6.51"
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Area (sf)	CN	Description
1,810	82	Dirt roads, HSG B
19,394	55	Woods, Good, HSG B
5,981	61	>75% Grass cover, Good, HSG B
27,185	58	Weighted Average
27,185		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	49	0.0408	0.09		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
12.8	51	0.0213	0.07		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
1.0	43	0.0213	0.73		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.2	51	0.0588	3.90		**Shallow Concentrated Flow,**
					Unpaved Kv= 16.1 fps
23.6	194	Total			

Summary for Subcatchment 5S: 5S

Runoff   =   4.63 cfs @ 12.47 hrs, Volume=   0.609 af, Depth> 2.80"
    Routed to Reach AP4 : Analysis Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

Area (sf)	CN	Description
2,174	82	Dirt roads, HSG B
44,614	55	Woods, Good, HSG B
4,013	87	Dirt roads, HSG C
9,149	74	>75% Grass cover, Good, HSG C
49,989	70	Woods, Good, HSG C
817	89	Dirt roads, HSG D
2,706	77	Woods, Good, HSG D
113,462	66	Weighted Average
113,462		100.00% Pervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.0	100	0.0239	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.90"
0.4	17	0.0239	0.77		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	48	0.0417	1.02		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	94	0.0638	1.26		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.9	116	0.0172	0.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	51	0.0784	1.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.5	176	0.0114	0.53		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
32.4	602	Total			

Summary for Subcatchment 6S: 6S

Runoff   =   1.29 cfs @ 12.13 hrs, Volume=   0.105 af, Depth> 4.03"
    Routed to Pond 1P : Isolated Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

Area (sf)	CN	Description
2,925	98	Paved parking, HSG C
5,274	74	>75% Grass cover, Good, HSG C
5,399	70	Woods, Good, HSG C
13,598	78	Weighted Average
10,673		78.49% Pervious Area
2,925		21.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	92	0.0217	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.90"

Summary for Subcatchment 7S: 7S

Runoff   =   5.05 cfs @ 12.32 hrs, Volume=   0.564 af, Depth> 3.50"
    Routed to Pond 2P : Depression in Woods

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

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Area (sf)	CN	Description
898	98	Roofs, HSG C
2,014	98	Paved parking, HSG C
37,527	70	Woods, Good, HSG C
33,711	74	>75% Grass cover, Good, HSG C
9,806	77	Woods, Good, HSG D
247	80	>75% Grass cover, Good, HSG D
84,203	73	Weighted Average
81,291		96.54% Pervious Area
2,912		3.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	13	0.0200	0.87		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.90"
1.4	20	0.1200	0.24		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.90"
7.3	39	0.0513	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.90"
7.3	28	0.0260	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.90"
2.6	127	0.0260	0.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	75	0.1067	1.63		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	56	0.0357	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	22	0.0909	1.51		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.3	76	0.0125	0.56		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
23.1	456	Total			

Summary for Subcatchment 9S: 9S

Runoff   =   2.62 cfs @ 12.32 hrs, Volume=   0.291 af, Depth> 3.70"
    Routed to Reach 3R : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

Area (sf)	CN	Description
704	98	Roofs, HSG C
2,162	98	Paved parking, HSG C
8,023	70	Woods, Good, HSG C
30,200	74	>75% Grass cover, Good, HSG C
41,089	75	Weighted Average
38,223		93.02% Pervious Area
2,866		6.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.7	100	0.0248	0.08		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
0.4	21	0.0248	0.79		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
1.7	90	0.0167	0.90		**Shallow Concentrated Flow,**
					Short Grass Pasture Kv= 7.0 fps
22.8	211	Total			

Summary for Subcatchment 10S: 10S

Runoff   =   2.29 cfs @ 12.09 hrs, Volume=   0.173 af, Depth> 5.11"
   Routed to Pond 3P : Center of Cul De Sac

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

Area (sf)	CN	Description
728	98	Roofs, HSG C
9,516	98	Paved parking, HSG C
7,442	74	>75% Grass cover, Good, HSG C
17,686	88	Weighted Average
7,442		42.08% Pervious Area
10,244		57.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 11S: 11S

Runoff   =   0.89 cfs @ 12.14 hrs, Volume=   0.073 af, Depth> 4.13"
   Routed to Pond 24P : Plunge Pool with Culvert Outlet

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

Area (sf)	CN	Description
1,756	98	Paved parking, HSG C
7,537	74	>75% Grass cover, Good, HSG C
9,293	79	Weighted Average
7,537		81.10% Pervious Area
1,756		18.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	73	0.0123	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.90"
0.5	121	0.0165	4.25	17.00	**Trap/Vee/Rect Channel Flow,** Bot.W=1.00' D=1.00' Z= 3.0 '/' Top.W=7.00' n= 0.030 Stream, clean & straight
10.2	194	Total			

Summary for Subcatchment 12S: Units 5&6

Runoff   =   0.14 cfs @ 12.09 hrs, Volume=   0.012 af, Depth> 6.27"
    Routed to Pond 4P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

Area (sf)	CN	Description
838	98	Roofs, HSG C
156	98	Water Surface, HSG C
994	98	Weighted Average
994		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 13S: Unit 5

Runoff   =   0.08 cfs @ 12.09 hrs, Volume=   0.007 af, Depth> 6.27"
    Routed to Pond 5P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

Area (sf)	CN	Description
395	98	Roofs, HSG C
185	98	Water Surface, HSG C
580	98	Weighted Average
580		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

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Summary for Subcatchment 14S: Units 3&4

Runoff   =   0.15 cfs @ 12.09 hrs, Volume=   0.013 af, Depth> 6.27"
    Routed to Pond 6P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

Area (sf)	CN	Description
838	98	Roofs, HSG C
208	98	Water Surface, HSG C
1,046	98	Weighted Average
1,046		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 15S: Unit 4

Runoff   =   0.07 cfs @ 12.09 hrs, Volume=   0.006 af, Depth> 6.27"
    Routed to Pond 7P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

Area (sf)	CN	Description
395	98	Roofs, HSG C
103	98	Water Surface, HSG C
498	98	Weighted Average
498		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 16S: Unit 3

Runoff   =   0.07 cfs @ 12.09 hrs, Volume=   0.006 af, Depth> 6.27"
    Routed to Pond 8P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

Area (sf)	CN	Description
395	98	Roofs, HSG C
123	98	Water Surface, HSG C
518	98	Weighted Average
518		100.00% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 17S: Units 1&2

Runoff   =   0.15 cfs @ 12.09 hrs, Volume=   0.013 af, Depth> 6.27"
    Routed to Pond 10P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

Area (sf)	CN	Description
838	98	Roofs, HSG C
208	98	Water Surface, HSG C
1,046	98	Weighted Average
1,046		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 18S: Unit 1

Runoff   =   0.07 cfs @ 12.09 hrs, Volume=   0.006 af, Depth> 6.27"
    Routed to Pond 11P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

Area (sf)	CN	Description
395	98	Roofs, HSG C
103	98	Water Surface, HSG C
498	98	Weighted Average
498		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 19S: 19S

Runoff   =   0.34 cfs @ 12.09 hrs, Volume=   0.028 af, Depth> 6.27"
    Routed to Pond 20P : Barn

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

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Area (sf)	CN	Description
1,995	98	Roofs, HSG B
380	98	Water Surface, HSG B
2,375	98	Weighted Average
2,375		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 20S: 20S

Runoff   =   0.34 cfs @   12.09 hrs, Volume=   0.028 af, Depth> 6.27"
   Routed to Pond 22P : Barn

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

Area (sf)	CN	Description
1,995	98	Roofs, HSG B
380	98	Water Surface, HSG B
2,375	98	Weighted Average
2,375		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 21S: Gravel Trail

Runoff   =   0.07 cfs @   12.09 hrs, Volume=   0.005 af, Depth> 4.78"
   Routed to Pond 23P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

Area (sf)	CN	Description
483	82	Dirt roads, HSG B
91	98	Water Surface, HSG B
574	85	Weighted Average
483		84.15% Pervious Area
91		15.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

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Summary for Subcatchment 22S: Unit 2

Runoff   =   0.07 cfs @ 12.09 hrs, Volume=   0.006 af, Depth> 6.27"
   Routed to Pond 25P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YR 24HR Rainfall=6.51"

Area (sf)	CN	Description
395	98	Roofs, HSG C
123	98	Water Surface, HSG C
518	98	Weighted Average
518		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Reach 1R: Flow Through 9S

[80] Warning: Exceeded Pond 1P by 0.08' @ 12.30 hrs (1.14 cfs 0.034 af)

Inflow Area =   0.312 ac, 21.51% Impervious, Inflow Depth = 1.94"   for 50-YR 24HR event
Inflow   =   2.18 cfs @ 12.15 hrs, Volume=   0.051 af
Outflow   =   1.35 cfs @ 12.17 hrs, Volume=   0.051 af, Atten= 38%, Lag= 1.3 min
   Routed to Reach 3R : Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 1.45 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 0.47 fps, Avg. Travel Time= 5.0 min

Peak Storage= 130 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.10' , Surface Width= 13.72'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 43.14 cfs

30.00' x 0.50' deep Parabolic Channel, n= 0.030 Stream, clean & straight
Length= 140.0'   Slope= 0.0329 '/'
Inlet Invert= 196.40', Outlet Invert= 191.80'

‡

Summary for Reach 3R: Culvert

[52] Hint: Inlet/Outlet conditions not evaluated
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[62] Hint: Exceeded Reach 1R OUTLET depth by 0.73' @ 12.20 hrs
[64] Warning: Exceeded Reach 1R outlet bank by 0.33' @ 12.21 hrs

Inflow Area =   1.469 ac, 11.80% Impervious, Inflow Depth > 3.39"   for 50-YR 24HR event
Inflow   =   4.15 cfs @   12.20 hrs, Volume=   0.415 af
Outflow   =   4.23 cfs @   12.21 hrs, Volume=   0.415 af, Atten= 0%, Lag= 0.5 min
     Routed to Pond 3P : Center of Cul De Sac

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 4.92 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.93 fps, Avg. Travel Time= 0.4 min

Peak Storage= 42 cf @ 12.21 hrs
Average Depth at Peak Storage= 0.83' , Surface Width= 1.18'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 5.48 cfs

15.0" Round Pipe
n= 0.012
Length= 49.0'   Slope= 0.0061 '/'
Inlet Invert= 191.80', Outlet Invert= 191.50'
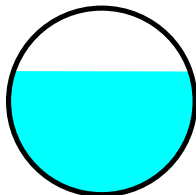
Summary for Reach 4R: Swale

Inflow Area =   1.875 ac, 21.79% Impervious, Inflow Depth > 3.09"   for 50-YR 24HR event
Inflow   =   1.37 cfs @   12.85 hrs, Volume=   0.483 af
Outflow   =   1.37 cfs @   12.85 hrs, Volume=   0.483 af, Atten= 0%, Lag= 0.4 min
     Routed to Reach 5R : Flow Through 1S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 3.36 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.87 fps, Avg. Travel Time= 1.1 min

Peak Storage= 49 cf @ 12.85 hrs
Average Depth at Peak Storage= 0.24' , Surface Width= 2.43'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 30.09 cfs

1.00' x 1.00' deep channel, n= 0.030 Stream, clean & straight
Side Slope Z-value= 3.0 '/'   Top Width= 7.00'
Length= 120.0'   Slope= 0.0517 '/'
Inlet Invert= 189.70', Outlet Invert= 183.50'

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Summary for Reach 5R: Flow Through 1S

[61] Hint: Exceeded Reach 4R outlet invert by 0.09' @ 12.85 hrs

Inflow Area =   1.875 ac, 21.79% Impervious, Inflow Depth > 3.09"   for 50-YR 24HR event
Inflow   =   1.37 cfs @   12.85 hrs, Volume=   0.483 af
Outflow   =   1.37 cfs @   12.87 hrs, Volume=   0.482 af, Atten= 0%, Lag= 1.2 min
    Routed to Reach AP1 : Analysis Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 1.72 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 0.95 fps, Avg. Travel Time= 3.4 min

Peak Storage= 152 cf @ 12.87 hrs
Average Depth at Peak Storage= 0.09' , Surface Width= 12.90'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 53.08 cfs

30.00' x 0.50' deep Parabolic Channel, n= 0.030 Stream, clean & straight
Length= 191.0'   Slope= 0.0497 '/'
Inlet Invert= 183.50', Outlet Invert= 174.00'

‡

Summary for Reach 6R: Flow Through 5S

Inflow   =   0.00 cfs @   0.00 hrs, Volume=   0.000 af
Outflow   =   0.00 cfs @   0.00 hrs, Volume=   0.000 af, Atten= 0%, Lag= 0.0 min
    Routed to Reach AP4 : Analysis Point 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 45.58 cfs

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30.00' x 0.50' deep Parabolic Channel, n= 0.030 Stream, clean & straight
Length= 600.0'   Slope= 0.0367 '/'
Inlet Invert= 196.00', Outlet Invert= 174.00'

‡
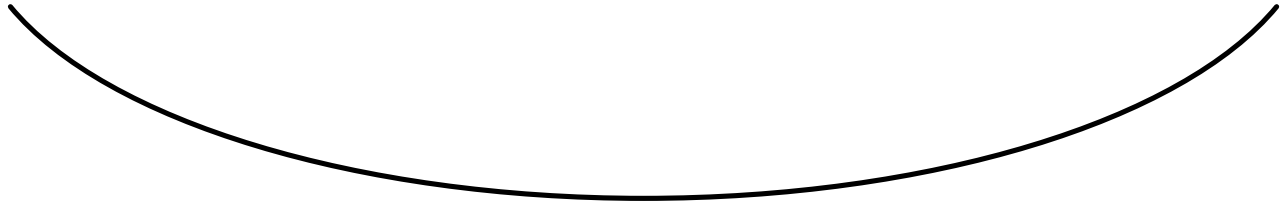
Summary for Reach AP1: Analysis Point 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   5.631 ac,   8.09% Impervious, Inflow Depth > 3.31"   for 50-YR 24HR event
Inflow   =   10.64 cfs @   12.27 hrs, Volume=   1.552 af
Outflow   =   10.64 cfs @   12.27 hrs, Volume=   1.552 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP2: Analysis Point 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   0.903 ac,   0.00% Impervious, Inflow Depth > 3.30"   for 50-YR 24HR event
Inflow   =   2.40 cfs @   12.27 hrs, Volume=   0.249 af
Outflow   =   2.40 cfs @   12.27 hrs, Volume=   0.249 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP3: Analysis Point 3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   0.624 ac,   0.00% Impervious, Inflow Depth > 2.07"   for 50-YR 24HR event
Inflow   =   0.90 cfs @   12.36 hrs, Volume=   0.108 af
Outflow   =   0.90 cfs @   12.36 hrs, Volume=   0.108 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP4: Analysis Point 4

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   2.605 ac,   0.00% Impervious, Inflow Depth > 2.80"   for 50-YR 24HR event
Inflow   =   4.63 cfs @   12.47 hrs, Volume=   0.609 af
Outflow   =   4.63 cfs @   12.47 hrs, Volume=   0.609 af, Atten= 0%, Lag= 0.0 min

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Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP5: Analysis Point 5

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   1.933 ac,   3.46% Impervious, Inflow Depth > 2.43"   for 50-YR 24HR event
Inflow   =   4.72 cfs @   12.40 hrs, Volume=   0.392 af
Outflow   =   4.72 cfs @   12.40 hrs, Volume=   0.392 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Pond 1P: Isolated Wetland

[93] Warning: Storage range exceeded by 0.15'
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=51)

Inflow Area =   0.312 ac, 21.51% Impervious, Inflow Depth > 4.03"   for 50-YR 24HR event
Inflow   =   1.29 cfs @   12.13 hrs, Volume=   0.105 af
Outflow   =   2.21 cfs @   12.15 hrs, Volume=   0.081 af, Atten= 0%, Lag= 1.0 min
Discarded =   0.03 cfs @   12.16 hrs, Volume=   0.032 af
Primary   =   2.18 cfs @   12.15 hrs, Volume=   0.051 af
    Routed to Reach 1R : Flow Through 9S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 196.56' @ 12.16 hrs   Surf.Area= 2,828 sf   Storage= 1,191 cf

Plug-Flow detention time= 146.7 min calculated for 0.081 af (77% of inflow)
Center-of-Mass det. time= 65.9 min (883.8 - 817.9)

Volume	Invert	Avail.Storage	Storage Description		
#1	195.30'	1,191 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)		

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
195.30	235	72.0	0	0	235
196.00	1,050	148.0	416	416	1,568
196.40	2,828	211.0	747	1,163	3,369
196.41	2,828	211.0	28	1,191	3,371

Device	Routing	Invert	Outlet Devices
#1	Primary	196.40'	**20.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#2	Discarded	195.30'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 194.80' Phase-In= 0.10'

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Discarded OutFlow Max=0.03 cfs @ 12.16 hrs HW=196.54' (Free Discharge)
⌐—**2=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=2.13 cfs @ 12.15 hrs HW=196.55' TW=196.50' (Dynamic Tailwater)
⌐—**1=Broad-Crested Rectangular Weir**(Weir Controls 2.13 cfs @ 0.70 fps)

Summary for Pond 2P: Depression in Woods

Inflow Area =   1.933 ac,   3.46% Impervious, Inflow Depth > 3.51"   for 50-YR 24HR event
Inflow   =   5.08 cfs @   12.32 hrs, Volume=   0.566 af
Outflow   =   4.83 cfs @   12.40 hrs, Volume=   0.491 af, Atten= 5%, Lag= 4.6 min
Discarded =   0.11 cfs @   12.40 hrs, Volume=   0.099 af
Primary   =   4.72 cfs @   12.40 hrs, Volume=   0.392 af
     Routed to Reach AP5 : Analysis Point 5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 176.61' @ 12.40 hrs   Surf.Area= 7,514 sf   Storage= 4,758 cf

Plug-Flow detention time= 88.1 min calculated for 0.491 af (87% of inflow)
Center-of-Mass det. time= 30.2 min (870.3 - 840.2)

Volume	Invert	Avail.Storage	Storage Description
#1	175.70'	5,471 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
175.70	2,764	204.0	0	0	2,764
176.00	3,841	265.0	986	986	5,042
176.40	7,514	341.0	2,230	3,217	8,709
176.70	7,514	341.0	2,254	5,471	8,811

Device	Routing	Invert	Outlet Devices
#1	Primary	176.40'	**20.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Discarded	175.70'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 175.20' Phase-In= 0.10'

Discarded OutFlow Max=0.11 cfs @ 12.40 hrs HW=176.60' (Free Discharge)
⌐—**2=Exfiltration** (Controls 0.11 cfs)

Primary OutFlow Max=4.72 cfs @ 12.40 hrs HW=176.60' TW=0.00' (Dynamic Tailwater)
⌐—**1=Broad-Crested Rectangular Weir**(Weir Controls 4.72 cfs @ 1.15 fps)

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Summary for Pond 3P: Center of Cul De Sac

[63] Warning: Exceeded Reach 3R INLET depth by 2.47' @ 13.10 hrs

Inflow Area =   1.875 ac, 21.79% Impervious, Inflow Depth > 3.76"   for 50-YR 24HR event
Inflow   =   5.75 cfs @   12.17 hrs, Volume=   0.588 af
Outflow   =   1.37 cfs @   12.85 hrs, Volume=   0.483 af, Atten= 76%, Lag= 40.5 min
Primary   =   1.37 cfs @   12.85 hrs, Volume=   0.483 af
      Routed to Reach 4R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 194.61' @ 12.85 hrs   Surf.Area= 4,219 sf   Storage= 12,602 cf

Plug-Flow detention time= 239.0 min calculated for 0.482 af (82% of inflow)
Center-of-Mass det. time= 171.4 min (986.9 - 815.6)

Volume	Invert	Avail.Storage	Storage Description
#1	190.00'	16,171 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
190.00	1,491	0	0
191.00	1,934	1,713	1,713
192.00	2,483	2,209	3,921
194.00	3,751	6,234	10,155
195.00	4,514	4,133	14,288
195.40	4,903	1,883	16,171

Device	Routing	Invert	Outlet Devices
#1	Primary	190.00'	**15.0" Round Culvert** L= 47.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 190.00' / 189.70' S= 0.0064 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	190.00'	**2.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	191.30'	**2.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	193.40'	**2.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 1	193.65'	**0.7" W x 9.6" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Device 1	194.45'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.37 cfs @ 12.85 hrs HW=194.61' TW=189.94'   (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.37 cfs of 9.32 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.22 cfs @ 10.25 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 0.19 cfs @ 8.65 fps)
  ├─**4=Orifice/Grate** (Orifice Controls 0.11 cfs @ 5.12 fps)
  ├─**5=Orifice/Grate** (Orifice Controls 0.16 cfs @ 3.53 fps)
  └─**6=Orifice/Grate** (Weir Controls 0.68 cfs @ 1.32 fps)

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Summary for Pond 4P: Drip Edge

Inflow Area =   0.023 ac,100.00% Impervious, Inflow Depth > 6.27"   for 50-YR 24HR event
Inflow   =   0.14 cfs @   12.09 hrs, Volume=   0.012 af
Outflow   =   0.14 cfs @   12.12 hrs, Volume=   0.012 af, Atten= 0%, Lag= 2.1 min
Discarded =   0.03 cfs @   12.10 hrs, Volume=   0.010 af
Secondary =   0.12 cfs @   12.12 hrs, Volume=   0.002 af
    Routed to Pond 2P : Depression in Woods

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 191.50' @ 12.10 hrs Surf.Area= 0.004 ac Storage= 0.002 af

Plug-Flow detention time= 48.5 min calculated for 0.012 af (99% of inflow)
Center-of-Mass det. time= 43.2 min (786.7 - 743.5)

Volume	Invert	Avail.Storage	Storage Description
#1	189.90'	0.002 af	**3.00'W x 52.00'L x 1.60'H Prismatoid** 0.006 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	191.50'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	189.90'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 189.83' Phase-In= 0.10'

Discarded OutFlow Max=0.03 cfs @ 12.10 hrs HW=191.50' (Free Discharge)
└─**1=Exfiltration** (Controls 0.03 cfs)

Secondary OutFlow Max=0.00 cfs @ 12.12 hrs HW=191.50' TW=176.44' (Dynamic Tailwater)

Summary for Pond 5P: Drip Edge

Inflow Area =   0.013 ac,100.00% Impervious, Inflow Depth > 6.27"   for 50-YR 24HR event
Inflow   =   0.08 cfs @   12.09 hrs, Volume=   0.007 af
Outflow   =   0.02 cfs @   12.42 hrs, Volume=   0.007 af, Atten= 71%, Lag= 19.9 min
Discarded =   0.02 cfs @   12.42 hrs, Volume=   0.007 af
Secondary =   0.00 cfs @   0.00 hrs, Volume=   0.000 af
    Routed to Reach 4R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 191.13' @ 12.42 hrs Surf.Area= 0.004 ac Storage= 0.002 af

Plug-Flow detention time= 55.8 min calculated for 0.007 af (99% of inflow)
Center-of-Mass det. time= 49.1 min (792.7 - 743.5)

Volume	Invert	Avail.Storage	Storage Description
#1	189.90'	0.003 af	**4.50'W x 41.00'L x 1.60'H Prismatoid** 0.007 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	191.50'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	189.90'	**0.300 in/hr Exfiltration over Surface area**

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Conductivity to Groundwater Elevation = 189.83'   Phase-In= 0.10'

Discarded OutFlow Max=0.02 cfs @ 12.42 hrs HW=191.13' (Free Discharge)
└─**1=Exfiltration** (Controls 0.02 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=189.90' TW=189.70' (Dynamic Tailwater)

Summary for Pond 6P: Drip Edge

Inflow Area =	0.024 ac,100.00% Impervious, Inflow Depth > 6.27" for 50-YR 24HR event	
Inflow =	0.15 cfs @ 12.09 hrs, Volume=	0.013 af
Outflow =	0.08 cfs @ 12.22 hrs, Volume=	0.012 af, Atten= 46%, Lag= 8.0 min
Discarded =	0.08 cfs @ 12.22 hrs, Volume=	0.012 af
Secondary =	0.00 cfs @ 0.00 hrs, Volume=	0.000 af

Routed to Reach 5R : Flow Through 1S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 189.62' @ 12.22 hrs Surf.Area= 0.005 ac Storage= 0.002 af

Plug-Flow detention time= 20.2 min calculated for 0.012 af (99% of inflow)
Center-of-Mass det. time= 16.6 min (760.2 - 743.5)

Volume	Invert	Avail.Storage	Storage Description
#1	188.52'	0.002 af	**4.00'W x 52.00'L x 1.20'H Prismatoid**
			0.006 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	189.72'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	188.52'	**0.300 in/hr Exfiltration over Surface area**
			Conductivity to Groundwater Elevation = 188.50' Phase-In= 0.10'

Discarded OutFlow Max=0.08 cfs @ 12.22 hrs HW=189.61' (Free Discharge)
└─**1=Exfiltration** (Controls 0.08 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=188.52' TW=183.50' (Dynamic Tailwater)

Summary for Pond 7P: Drip Edge

Inflow Area =	0.011 ac,100.00% Impervious, Inflow Depth > 6.27" for 50-YR 24HR event	
Inflow =	0.07 cfs @ 12.09 hrs, Volume=	0.006 af
Outflow =	0.00 cfs @ 14.27 hrs, Volume=	0.003 af, Atten= 95%, Lag= 131.2 min
Discarded =	0.00 cfs @ 14.25 hrs, Volume=	0.003 af
Secondary =	0.00 cfs @ 14.27 hrs, Volume=	0.000 af

Routed to Reach 4R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 192.00' @ 14.25 hrs Surf.Area= 0.002 ac Storage= 0.004 af

Plug-Flow detention time= 333.5 min calculated for 0.003 af (52% of inflow)
Center-of-Mass det. time= 206.7 min (950.2 - 743.5)

Volume	Invert	Avail.Storage	Storage Description
#1	188.00'	0.004 af	**2.50'W x 41.00'L x 4.00'H Prismatoid**
			0.009 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	192.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	188.00'	**0.300 in/hr Exfiltration over Surface area**
			Conductivity to Groundwater Elevation = 186.50' Phase-In= 0.10'

Discarded OutFlow Max=0.00 cfs @ 14.25 hrs HW=192.00' (Free Discharge)
└—**1=Exfiltration** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 14.27 hrs HW=192.00' TW=189.86' (Dynamic Tailwater)

Summary for Pond 8P: Drip Edge

Inflow Area =   0.012 ac,100.00% Impervious, Inflow Depth > 6.27"   for 50-YR 24HR event
Inflow   =   0.07 cfs @   12.09 hrs, Volume=   0.006 af
Outflow   =   0.02 cfs @   12.48 hrs, Volume=   0.006 af, Atten= 77%, Lag= 23.4 min
Discarded =   0.02 cfs @   12.48 hrs, Volume=   0.006 af
Secondary =   0.00 cfs @   0.00 hrs, Volume=   0.000 af
     Routed to Reach AP1 : Analysis Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 189.52' @ 12.48 hrs   Surf.Area= 0.003 ac   Storage= 0.002 af

Plug-Flow detention time= 78.0 min calculated for 0.006 af (99% of inflow)
Center-of-Mass det. time= 71.3 min (814.8 - 743.5)

Volume	Invert	Avail.Storage	Storage Description
#1	187.60'	0.003 af	**3.00'W x 41.00'L x 2.40'H Prismatoid**
			0.007 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	190.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	187.60'	**0.300 in/hr Exfiltration over Surface area**
			Conductivity to Groundwater Elevation = 187.50' Phase-In= 0.10'

Discarded OutFlow Max=0.02 cfs @ 12.48 hrs HW=189.52' (Free Discharge)
└—**1=Exfiltration** (Controls 0.02 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=187.60' TW=0.00' (Dynamic Tailwater)

Summary for Pond 10P: Drip Edge

Inflow Area =   0.024 ac,100.00% Impervious, Inflow Depth > 6.27"   for 50-YR 24HR event
Inflow   =   0.15 cfs @   12.09 hrs, Volume=   0.013 af
Outflow   =   0.03 cfs @   12.52 hrs, Volume=   0.012 af, Atten= 80%, Lag= 25.8 min
Discarded =   0.03 cfs @   12.52 hrs, Volume=   0.012 af
Secondary =   0.00 cfs @   0.00 hrs, Volume=   0.000 af
     Routed to Reach 3R : Culvert

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Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 195.32' @ 12.52 hrs   Surf.Area= 0.005 ac   Storage= 0.005 af

Plug-Flow detention time= 101.7 min calculated for 0.012 af (99% of inflow)
Center-of-Mass det. time= 94.7 min (838.2 - 743.5)

Volume	Invert	Avail.Storage	Storage Description
#1	192.80'	0.006 af	**4.00'W x 52.00'L x 3.20'H Prismatoid**
			0.015 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	196.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	192.80'	**0.300 in/hr Exfiltration over Surface area**
			Conductivity to Groundwater Elevation = 192.67' Phase-In= 0.10'

Discarded OutFlow Max=0.03 cfs @ 12.52 hrs HW=195.32' (Free Discharge)
└─**1=Exfiltration** (Controls 0.03 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=192.80' TW=191.80' (Dynamic Tailwater)

Summary for Pond 11P: Drip Edge

Inflow Area =   0.011 ac,100.00% Impervious, Inflow Depth > 6.27"   for 50-YR 24HR event
Inflow   =   0.07 cfs @   12.09 hrs, Volume=   0.006 af
Outflow   =   0.03 cfs @   12.27 hrs, Volume=   0.006 af, Atten= 55%, Lag= 10.9 min
Discarded =   0.03 cfs @   12.27 hrs, Volume=   0.006 af
Secondary =   0.00 cfs @   0.00 hrs, Volume=   0.000 af
    Routed to Reach 3R : Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 195.02' @ 12.27 hrs   Surf.Area= 0.002 ac   Storage= 0.001 af

Plug-Flow detention time= 27.8 min calculated for 0.006 af (99% of inflow)
Center-of-Mass det. time= 23.5 min (767.0 - 743.5)

Volume	Invert	Avail.Storage	Storage Description
#1	193.70'	0.002 af	**2.50'W x 41.00'L x 2.30'H Prismatoid**
			0.005 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	196.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	193.70'	**0.300 in/hr Exfiltration over Surface area**
			Conductivity to Groundwater Elevation = 193.67' Phase-In= 0.10'

Discarded OutFlow Max=0.03 cfs @ 12.27 hrs HW=195.01' (Free Discharge)
└─**1=Exfiltration** (Controls 0.03 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=193.70' TW=191.80' (Dynamic Tailwater)

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Summary for Pond 20P: Barn

Inflow Area =   0.055 ac,100.00% Impervious, Inflow Depth > 6.27"   for 50-YR 24HR event
Inflow   =   0.34 cfs @ 12.09 hrs, Volume=   0.028 af
Outflow   =   0.06 cfs @ 12.54 hrs, Volume=   0.028 af, Atten= 82%, Lag= 27.1 min
Discarded =   0.06 cfs @ 12.54 hrs, Volume=   0.028 af
Secondary =   0.00 cfs @   0.00 hrs, Volume=   0.000 af
    Routed to Reach AP3 : Analysis Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 171.46' @ 12.54 hrs   Surf.Area= 0.009 ac   Storage= 0.012 af

Plug-Flow detention time= 120.4 min calculated for 0.028 af (98% of inflow)
Center-of-Mass det. time= 110.5 min (854.0 - 743.5)

Volume	Invert	Avail.Storage	Storage Description
#1	168.15'	0.013 af	**4.00'W x 95.00'L x 3.85'H Prismatoid**
			0.034 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	172.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	168.15'	**0.300 in/hr Exfiltration over Surface area**
			Conductivity to Groundwater Elevation = 168.00' Phase-In= 0.10'

Discarded OutFlow Max=0.06 cfs @ 12.54 hrs HW=171.46'   (Free Discharge)
└─**1=Exfiltration** (Controls 0.06 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=168.15' TW=0.00'   (Dynamic Tailwater)

Summary for Pond 22P: Barn

Inflow Area =   0.055 ac,100.00% Impervious, Inflow Depth > 6.27"   for 50-YR 24HR event
Inflow   =   0.34 cfs @ 12.09 hrs, Volume=   0.028 af
Outflow   =   0.06 cfs @ 12.54 hrs, Volume=   0.028 af, Atten= 82%, Lag= 27.1 min
Discarded =   0.06 cfs @ 12.54 hrs, Volume=   0.028 af
Secondary =   0.00 cfs @   0.00 hrs, Volume=   0.000 af
    Routed to Reach AP3 : Analysis Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 171.46' @ 12.54 hrs   Surf.Area= 0.009 ac   Storage= 0.012 af

Plug-Flow detention time= 120.4 min calculated for 0.028 af (98% of inflow)
Center-of-Mass det. time= 110.5 min (854.0 - 743.5)

Volume	Invert	Avail.Storage	Storage Description
#1	168.15'	0.013 af	**4.00'W x 95.00'L x 3.85'H Prismatoid**
			0.034 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	172.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	168.15'	**0.300 in/hr Exfiltration over Surface area**

Conductivity to Groundwater Elevation = 168.00'   Phase-In= 0.10'

Discarded OutFlow Max=0.06 cfs @ 12.54 hrs HW=171.46'   (Free Discharge)
└─**1=Exfiltration** (Controls 0.06 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=168.15' TW=0.00'   (Dynamic Tailwater)

Summary for Pond 23P: Drip Edge

Inflow Area =   0.013 ac, 15.85% Impervious, Inflow Depth > 4.78"   for 50-YR 24HR event
Inflow   =   0.07 cfs @   12.09 hrs, Volume=   0.005 af
Outflow   =   0.00 cfs @   14.88 hrs, Volume=   0.003 af, Atten= 95%, Lag= 167.7 min
Discarded   =   0.00 cfs @   14.88 hrs, Volume=   0.003 af
Secondary   =   0.00 cfs @   0.00 hrs, Volume=   0.000 af
    Routed to Reach AP3 : Analysis Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 171.87' @ 14.88 hrs   Surf.Area= 0.003 ac   Storage= 0.003 af

Plug-Flow detention time= 323.3 min calculated for 0.003 af (61% of inflow)
Center-of-Mass det. time= 222.1 min (1,019.3 - 797.2)

Volume	Invert	Avail.Storage	Storage Description
#1	169.00'	0.003 af	**3.00'W x 40.00'L x 3.00'H Prismatoid** 0.008 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	172.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	169.00'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 168.00' Phase-In= 0.10'

Discarded OutFlow Max=0.00 cfs @ 14.88 hrs HW=171.87'   (Free Discharge)
└─**1=Exfiltration** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=169.00' TW=0.00'   (Dynamic Tailwater)

Summary for Pond 24P: Plunge Pool with Culvert Outlet

Inflow Area =   0.213 ac, 18.90% Impervious, Inflow Depth > 4.13"   for 50-YR 24HR event
Inflow   =   0.89 cfs @   12.14 hrs, Volume=   0.073 af
Outflow   =   0.88 cfs @   12.15 hrs, Volume=   0.073 af, Atten= 0%, Lag= 0.6 min
Primary   =   0.88 cfs @   12.15 hrs, Volume=   0.073 af
    Routed to Reach 3R : Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 193.44' @ 12.15 hrs   Surf.Area= 127 sf   Storage= 39 cf

Plug-Flow detention time= 1.7 min calculated for 0.073 af (100% of inflow)
Center-of-Mass det. time= 1.2 min (817.3 - 816.2)

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Volume	Invert	Avail.Storage	Storage Description
#1	193.00'	475 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
193.00	51	0	0
194.00	222	137	137
195.00	455	339	475

Device	Routing	Invert	Outlet Devices
#1	Primary	193.00'	**15.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 193.00' / 192.50' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=0.88 cfs @ 12.15 hrs HW=193.44' TW=192.58' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 0.88 cfs @ 2.26 fps)

Summary for Pond 25P: Drip Edge

Inflow Area =   0.012 ac,100.00% Impervious, Inflow Depth > 6.27"   for 50-YR 24HR event
Inflow   =   0.07 cfs @ 12.09 hrs, Volume=   0.006 af
Outflow   =   0.02 cfs @ 12.44 hrs, Volume=   0.006 af, Atten= 73%, Lag= 21.3 min
Discarded =   0.02 cfs @ 12.44 hrs, Volume=   0.006 af
Secondary =   0.00 cfs @   0.00 hrs, Volume=   0.000 af
    Routed to Reach 6R : Flow Through 5S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 195.52' @ 12.44 hrs   Surf.Area= 0.003 ac   Storage= 0.002 af

Plug-Flow detention time= 63.9 min calculated for 0.006 af (99% of inflow)
Center-of-Mass det. time= 57.6 min (801.1 - 743.5)

Volume	Invert	Avail.Storage	Storage Description
#1	193.75'	0.003 af	**3.00'W x 41.00'L x 2.25'H Prismatoid** 0.006 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	196.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	193.75'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 193.67' Phase-In= 0.10'

Discarded OutFlow Max=0.02 cfs @ 12.44 hrs HW=195.51' (Free Discharge)
└─**1=Exfiltration** (Controls 0.02 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=193.75' TW=196.00' (Dynamic Tailwater)

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Summary for Subcatchment 1S: 1S

Runoff   =   8.11 cfs @ 12.27 hrs, Volume=   0.852 af, Depth> 4.59"
     Routed to Reach AP1 : Analysis Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

Area (sf)	CN	Description
930	98	Roofs, HSG C
1,120	98	Paved parking, HSG C
47,794	70	Woods, Good, HSG C
23,377	74	>75% Grass cover, Good, HSG C
23,763	77	Woods, Good, HSG D
42	80	>75% Grass cover, Good, HSG D
97,026	73	Weighted Average
94,976		97.89% Pervious Area
2,050		2.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.6	100	0.0433	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.90"
1.4	113	0.0708	1.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	70	0.0286	0.85		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	37	0.0541	1.16		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.9	320	Total			

Summary for Subcatchment 2S: 2S

Runoff   =   5.49 cfs @ 12.25 hrs, Volume=   0.556 af, Depth> 4.37"
     Routed to Reach AP1 : Analysis Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

Area (sf)	CN	Description
1,242	82	Dirt roads, HSG B
19,492	55	Woods, Good, HSG B
45,842	77	Woods, Good, HSG D
66,576	71	Weighted Average
66,576		100.00% Pervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	82	0.0610	0.11		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
2.9	18	0.1111	0.10		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
0.2	21	0.1111	1.67		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.4	30	0.0571	1.19		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
2.4	139	0.0367	0.96		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
18.2	290	Total			

Summary for Subcatchment 3S: 3S

Runoff   =   3.18 cfs @ 12.26 hrs, Volume=   0.328 af, Depth> 4.36"
    Routed to Reach AP2 : Analysis Point 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

Area (sf)	CN	Description
27,514	70	Woods, Good, HSG C
11,825	74	>75% Grass cover, Good, HSG C
39,339	71	Weighted Average
39,339		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	81	0.0123	0.13		**Sheet Flow,**
					Grass: Short n= 0.150 P2= 2.90"
7.3	19	0.0123	0.04		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
1.2	40	0.0123	0.55		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
19.1	140	Total			

Summary for Subcatchment 4S: 4S

Runoff   =   1.31 cfs @ 12.35 hrs, Volume=   0.152 af, Depth> 2.93"
    Routed to Reach AP3 : Analysis Point 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

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Area (sf)	CN	Description
1,810	82	Dirt roads, HSG B
19,394	55	Woods, Good, HSG B
5,981	61	>75% Grass cover, Good, HSG B
27,185	58	Weighted Average
27,185		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	49	0.0408	0.09		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
12.8	51	0.0213	0.07		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
1.0	43	0.0213	0.73		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.2	51	0.0588	3.90		**Shallow Concentrated Flow,**
					Unpaved Kv= 16.1 fps
23.6	194	Total			

Summary for Subcatchment 5S: 5S

Runoff   =   6.33 cfs @ 12.46 hrs, Volume=   0.823 af, Depth> 3.79"
    Routed to Reach AP4 : Analysis Point 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

Area (sf)	CN	Description
2,174	82	Dirt roads, HSG B
44,614	55	Woods, Good, HSG B
4,013	87	Dirt roads, HSG C
9,149	74	>75% Grass cover, Good, HSG C
49,989	70	Woods, Good, HSG C
817	89	Dirt roads, HSG D
2,706	77	Woods, Good, HSG D
113,462	66	Weighted Average
113,462		100.00% Pervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.0	100	0.0239	0.08		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
0.4	17	0.0239	0.77		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.8	48	0.0417	1.02		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
1.2	94	0.0638	1.26		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
2.9	116	0.0172	0.66		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.6	51	0.0784	1.40		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
5.5	176	0.0114	0.53		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
32.4	602	Total			

Summary for Subcatchment 6S: 6S

Runoff   =   1.65 cfs @ 12.13 hrs, Volume=   0.135 af, Depth> 5.17"
    Routed to Pond 1P : Isolated Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

Area (sf)	CN	Description
2,925	98	Paved parking, HSG C
5,274	74	>75% Grass cover, Good, HSG C
5,399	70	Woods, Good, HSG C
13,598	78	Weighted Average
10,673		78.49% Pervious Area
2,925		21.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	92	0.0217	0.16		**Sheet Flow,**
					Grass: Short n= 0.150 P2= 2.90"

Summary for Subcatchment 7S: 7S

Runoff   =   6.61 cfs @ 12.32 hrs, Volume=   0.739 af, Depth> 4.59"
    Routed to Pond 2P : Depression in Woods

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

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Area (sf)	CN	Description
898	98	Roofs, HSG C
2,014	98	Paved parking, HSG C
37,527	70	Woods, Good, HSG C
33,711	74	>75% Grass cover, Good, HSG C
9,806	77	Woods, Good, HSG D
247	80	>75% Grass cover, Good, HSG D
84,203	73	Weighted Average
81,291		96.54% Pervious Area
2,912		3.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	13	0.0200	0.87		**Sheet Flow,**
					Smooth surfaces n= 0.011 P2= 2.90"
1.4	20	0.1200	0.24		**Sheet Flow,**
					Grass: Short n= 0.150 P2= 2.90"
7.3	39	0.0513	0.09		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
7.3	28	0.0260	0.06		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
2.6	127	0.0260	0.81		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.8	75	0.1067	1.63		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
1.0	56	0.0357	0.94		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.2	22	0.0909	1.51		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
2.3	76	0.0125	0.56		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
23.1	456	Total			

Summary for Subcatchment 9S: 9S

Runoff   =   3.40 cfs @ 12.31 hrs, Volume=   0.378 af, Depth> 4.81"
    Routed to Reach 3R : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

Area (sf)	CN	Description
704	98	Roofs, HSG C
2,162	98	Paved parking, HSG C
8,023	70	Woods, Good, HSG C
30,200	74	>75% Grass cover, Good, HSG C
41,089	75	Weighted Average
38,223		93.02% Pervious Area
2,866		6.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.7	100	0.0248	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.90"
0.4	21	0.0248	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	90	0.0167	0.90		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
22.8	211	Total			

Summary for Subcatchment 10S: 10S

Runoff   =   2.80 cfs @ 12.09 hrs, Volume=   0.214 af, Depth> 6.34"
    Routed to Pond 3P : Center of Cul De Sac

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

Area (sf)	CN	Description
728	98	Roofs, HSG C
9,516	98	Paved parking, HSG C
7,442	74	>75% Grass cover, Good, HSG C
17,686	88	Weighted Average
7,442		42.08% Pervious Area
10,244		57.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 11S: 11S

Runoff   =   1.13 cfs @ 12.14 hrs, Volume=   0.094 af, Depth> 5.29"
    Routed to Pond 24P : Plunge Pool with Culvert Outlet

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

Area (sf)	CN	Description
1,756	98	Paved parking, HSG C
7,537	74	>75% Grass cover, Good, HSG C
9,293	79	Weighted Average
7,537		81.10% Pervious Area
1,756		18.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	73	0.0123	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.90"
0.5	121	0.0165	4.25	17.00	**Trap/Vee/Rect Channel Flow,** Bot.W=1.00' D=1.00' Z= 3.0 '/' Top.W=7.00' n= 0.030 Stream, clean & straight
10.2	194	Total			

Summary for Subcatchment 12S: Units 5&6

Runoff   =   0.17 cfs @ 12.09 hrs, Volume=   0.014 af, Depth> 7.53"
   Routed to Pond 4P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

Area (sf)	CN	Description
838	98	Roofs, HSG C
156	98	Water Surface, HSG C
994	98	Weighted Average
994		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 13S: Unit 5

Runoff   =   0.10 cfs @ 12.09 hrs, Volume=   0.008 af, Depth> 7.53"
   Routed to Pond 5P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

Area (sf)	CN	Description
395	98	Roofs, HSG C
185	98	Water Surface, HSG C
580	98	Weighted Average
580		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 14S: Units 3&4

Runoff   =   0.18 cfs @ 12.09 hrs, Volume=   0.015 af, Depth> 7.53"
     Routed to Pond 6P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

Area (sf)	CN	Description
838	98	Roofs, HSG C
208	98	Water Surface, HSG C
1,046	98	Weighted Average
1,046		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 15S: Unit 4

Runoff   =   0.09 cfs @ 12.09 hrs, Volume=   0.007 af, Depth> 7.53"
     Routed to Pond 7P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

Area (sf)	CN	Description
395	98	Roofs, HSG C
103	98	Water Surface, HSG C
498	98	Weighted Average
498		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 16S: Unit 3

Runoff   =   0.09 cfs @ 12.09 hrs, Volume=   0.007 af, Depth> 7.53"
     Routed to Pond 8P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

Area (sf)	CN	Description
395	98	Roofs, HSG C
123	98	Water Surface, HSG C
518	98	Weighted Average
518		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 17S: Units 1&2

Runoff   =   0.18 cfs @ 12.09 hrs, Volume=   0.015 af, Depth> 7.53"
   Routed to Pond 10P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

Area (sf)	CN	Description
838	98	Roofs, HSG C
208	98	Water Surface, HSG C
1,046	98	Weighted Average
1,046		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 18S: Unit 1

Runoff   =   0.09 cfs @ 12.09 hrs, Volume=   0.007 af, Depth> 7.53"
   Routed to Pond 11P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

Area (sf)	CN	Description
395	98	Roofs, HSG C
103	98	Water Surface, HSG C
498	98	Weighted Average
498		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 19S: 19S

Runoff   =   0.41 cfs @ 12.09 hrs, Volume=   0.034 af, Depth> 7.53"
   Routed to Pond 20P : Barn

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

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Area (sf)	CN	Description
1,995	98	Roofs, HSG B
380	98	Water Surface, HSG B
2,375	98	Weighted Average
2,375		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 20S: 20S

Runoff   =   0.41 cfs @   12.09 hrs, Volume=   0.034 af, Depth> 7.53"
    Routed to Pond 22P : Barn

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

Area (sf)	CN	Description
1,995	98	Roofs, HSG B
380	98	Water Surface, HSG B
2,375	98	Weighted Average
2,375		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 21S: Gravel Trail

Runoff   =   0.09 cfs @   12.09 hrs, Volume=   0.007 af, Depth> 5.99"
    Routed to Pond 23P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

Area (sf)	CN	Description
483	82	Dirt roads, HSG B
91	98	Water Surface, HSG B
574	85	Weighted Average
483		84.15% Pervious Area
91		15.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 22S: Unit 2

Runoff   =   0.09 cfs @ 12.09 hrs, Volume=   0.007 af, Depth> 7.53"
Routed to Pond 25P : Drip Edge

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR 24HR Rainfall=7.77"

Area (sf)	CN	Description
395	98	Roofs, HSG C
123	98	Water Surface, HSG C
518	98	Weighted Average
518		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Reach 1R: Flow Through 9S

[80] Warning: Exceeded Pond 1P by 0.04' @ 12.70 hrs (0.50 cfs 0.032 af)

Inflow Area =   0.312 ac, 21.51% Impervious, Inflow Depth = 3.00"   for 100-YR 24HR event
Inflow   =   1.91 cfs @ 12.15 hrs, Volume=   0.078 af
Outflow   =   1.61 cfs @ 12.15 hrs, Volume=   0.078 af, Atten= 16%, Lag= 0.3 min
Routed to Reach 3R : Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 1.57 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 0.48 fps, Avg. Travel Time= 4.8 min

Peak Storage= 143 cf @ 12.15 hrs
Average Depth at Peak Storage= 0.11' , Surface Width= 14.04'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 43.14 cfs

30.00' x 0.50' deep Parabolic Channel, n= 0.030 Stream, clean & straight
Length= 140.0' Slope= 0.0329 '/'
Inlet Invert= 196.40', Outlet Invert= 191.80'

‡

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Summary for Reach 3R: Culvert

[52] Hint: Inlet/Outlet conditions not evaluated
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[62] Hint: Exceeded Reach 1R OUTLET depth by 0.90' @ 12.20 hrs
[64] Warning: Exceeded Reach 1R outlet bank by 0.51' @ 12.21 hrs

Inflow Area =   1.469 ac, 11.80% Impervious, Inflow Depth > 4.50"   for 100-YR 24HR event
Inflow   =   5.37 cfs @ 12.21 hrs, Volume=   0.550 af
Outflow   =   5.40 cfs @ 12.21 hrs, Volume=   0.550 af, Atten= 0%, Lag= 0.0 min
    Routed to Pond 3P : Center of Cul De Sac

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 5.09 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.05 fps, Avg. Travel Time= 0.4 min

Peak Storage= 52 cf @ 12.21 hrs
Average Depth at Peak Storage= 1.01' , Surface Width= 0.99'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 5.48 cfs

15.0" Round Pipe
n= 0.012
Length= 49.0'   Slope= 0.0061 '/'
Inlet Invert= 191.80', Outlet Invert= 191.50'
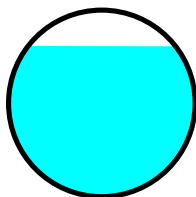
Summary for Reach 4R: Swale

Inflow Area =   1.875 ac, 21.79% Impervious, Inflow Depth > 4.12"   for 100-YR 24HR event
Inflow   =   3.39 cfs @ 12.57 hrs, Volume=   0.644 af
Outflow   =   3.39 cfs @ 12.58 hrs, Volume=   0.643 af, Atten= 0%, Lag= 0.3 min
    Routed to Reach 5R : Flow Through 1S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 4.29 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.94 fps, Avg. Travel Time= 1.0 min

Peak Storage= 95 cf @ 12.58 hrs
Average Depth at Peak Storage= 0.37' , Surface Width= 3.24'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 30.09 cfs

1.00' x 1.00' deep channel, n= 0.030 Stream, clean & straight
Side Slope Z-value= 3.0 '/'   Top Width= 7.00'
Length= 120.0'   Slope= 0.0517 '/'
Inlet Invert= 189.70', Outlet Invert= 183.50'

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Summary for Reach 5R: Flow Through 1S

[61] Hint: Exceeded Reach 4R outlet invert by 0.14' @ 12.60 hrs

Inflow Area =   1.875 ac, 21.79% Impervious, Inflow Depth > 4.12"   for 100-YR 24HR event
Inflow   =   3.39 cfs @   12.58 hrs, Volume=   0.644 af
Outflow   =   3.39 cfs @   12.60 hrs, Volume=   0.643 af, Atten= 0%, Lag= 1.3 min
    Routed to Reach AP1 : Analysis Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 2.28 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 0.99 fps, Avg. Travel Time= 3.2 min

Peak Storage= 284 cf @ 12.60 hrs
Average Depth at Peak Storage= 0.14' , Surface Width= 15.90'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 53.08 cfs

30.00' x 0.50' deep Parabolic Channel, n= 0.030 Stream, clean & straight
Length= 191.0'   Slope= 0.0497 '/'
Inlet Invert= 183.50', Outlet Invert= 174.00'

‡

Summary for Reach 6R: Flow Through 5S

Inflow   =   0.00 cfs @   0.00 hrs, Volume=   0.000 af
Outflow   =   0.00 cfs @   0.00 hrs, Volume=   0.000 af, Atten= 0%, Lag= 0.0 min
    Routed to Reach AP4 : Analysis Point 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 10.0 sf, Capacity= 45.58 cfs

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30.00' x 0.50' deep Parabolic Channel, n= 0.030 Stream, clean & straight
Length= 600.0'   Slope= 0.0367 '/'
Inlet Invert= 196.00', Outlet Invert= 174.00'

‡
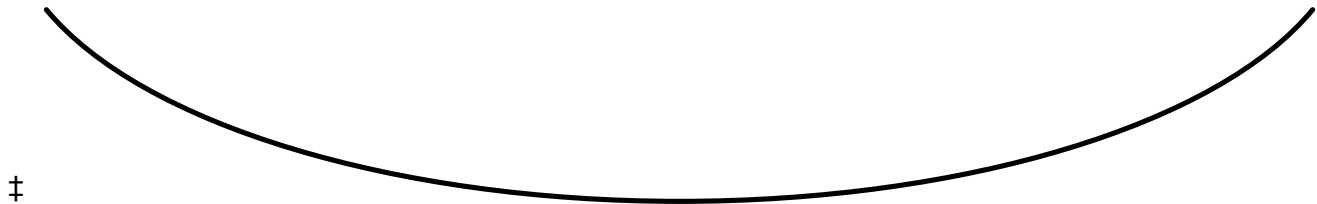
Summary for Reach AP1: Analysis Point 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   5.631 ac,   8.09% Impervious, Inflow Depth > 4.37"   for 100-YR 24HR event
Inflow   =   14.08 cfs @ 12.27 hrs, Volume=   2.050 af
Outflow   =   14.08 cfs @ 12.27 hrs, Volume=   2.050 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP2: Analysis Point 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   0.903 ac,   0.00% Impervious, Inflow Depth > 4.36"   for 100-YR 24HR event
Inflow   =   3.18 cfs @ 12.26 hrs, Volume=   0.328 af
Outflow   =   3.18 cfs @ 12.26 hrs, Volume=   0.328 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP3: Analysis Point 3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   0.624 ac,   0.00% Impervious, Inflow Depth > 2.97"   for 100-YR 24HR event
Inflow   =   1.37 cfs @ 12.40 hrs, Volume=   0.154 af
Outflow   =   1.37 cfs @ 12.40 hrs, Volume=   0.154 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP4: Analysis Point 4

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =   2.605 ac,   0.00% Impervious, Inflow Depth > 3.79"   for 100-YR 24HR event
Inflow   =   6.33 cfs @ 12.46 hrs, Volume=   0.823 af
Outflow   =   6.33 cfs @ 12.46 hrs, Volume=   0.823 af, Atten= 0%, Lag= 0.0 min

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Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach AP5: Analysis Point 5

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =	1.933 ac, 3.46% Impervious, Inflow Depth > 3.49" for 100-YR 24HR event	
Inflow =	6.32 cfs @ 12.38 hrs, Volume=	0.563 af
Outflow =	6.32 cfs @ 12.38 hrs, Volume=	0.563 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Pond 1P: Isolated Wetland

[93] Warning: Storage range exceeded by 0.14'
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=62)

Inflow Area =	0.312 ac, 21.51% Impervious, Inflow Depth > 5.17" for 100-YR 24HR event	
Inflow =	1.65 cfs @ 12.13 hrs, Volume=	0.135 af
Outflow =	1.94 cfs @ 12.15 hrs, Volume=	0.109 af, Atten= 0%, Lag= 0.9 min
Discarded =	0.03 cfs @ 12.15 hrs, Volume=	0.033 af
Primary =	1.91 cfs @ 12.15 hrs, Volume=	0.078 af

    Routed to Reach 1R : Flow Through 9S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 196.55' @ 12.15 hrs   Surf.Area= 2,828 sf   Storage= 1,191 cf

Plug-Flow detention time= 119.4 min calculated for 0.109 af (81% of inflow)
Center-of-Mass det. time= 46.2 min (857.0 - 810.8)

Volume	Invert	Avail.Storage	Storage Description		
#1	195.30'	1,191 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)		

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
195.30	235	72.0	0	0	235
196.00	1,050	148.0	416	416	1,568
196.40	2,828	211.0	747	1,163	3,369
196.41	2,828	211.0	28	1,191	3,371

Device	Routing	Invert	Outlet Devices
#1	Primary	196.40'	**20.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#2	Discarded	195.30'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 194.80' Phase-In= 0.10'

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Discarded OutFlow Max=0.03 cfs @ 12.15 hrs HW=196.55' (Free Discharge)
└─**2=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=1.86 cfs @ 12.15 hrs HW=196.55' TW=196.51' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir**(Weir Controls 1.86 cfs @ 0.62 fps)

Summary for Pond 2P: Depression in Woods

Inflow Area = 1.933 ac, 3.46% Impervious, Inflow Depth > 4.60" for 100-YR 24HR event
Inflow = 6.66 cfs @ 12.32 hrs, Volume= 0.742 af
Outflow = 6.43 cfs @ 12.38 hrs, Volume= 0.667 af, Atten= 3%, Lag= 3.5 min
Discarded = 0.11 cfs @ 12.38 hrs, Volume= 0.104 af
Primary = 6.32 cfs @ 12.38 hrs, Volume= 0.563 af
   Routed to Reach AP5 : Analysis Point 5

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 176.65' @ 12.38 hrs Surf.Area= 7,514 sf Storage= 5,082 cf

Plug-Flow detention time= 72.8 min calculated for 0.665 af (90% of inflow)
Center-of-Mass det. time= 25.6 min (858.1 - 832.5)

Volume	Invert	Avail.Storage	Storage Description
#1	175.70'	5,471 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
175.70	2,764	204.0	0	0	2,764
176.00	3,841	265.0	986	986	5,042
176.40	7,514	341.0	2,230	3,217	8,709
176.70	7,514	341.0	2,254	5,471	8,811

Device	Routing	Invert	Outlet Devices
#1	Primary	176.40'	**20.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Discarded	175.70'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 175.20' Phase-In= 0.10'

Discarded OutFlow Max=0.11 cfs @ 12.38 hrs HW=176.65' (Free Discharge)
└─**2=Exfiltration** (Controls 0.11 cfs)

Primary OutFlow Max=6.29 cfs @ 12.38 hrs HW=176.65' TW=0.00' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir**(Weir Controls 6.29 cfs @ 1.27 fps)

Summary for Pond 3P: Center of Cul De Sac

[63] Warning: Exceeded Reach 3R INLET depth by 2.55' @ 12.75 hrs

Inflow Area =   1.875 ac, 21.79% Impervious, Inflow Depth > 4.90"   for 100-YR 24HR event
Inflow   =   7.27 cfs @   12.15 hrs, Volume=   0.765 af
Outflow   =   3.38 cfs @   12.57 hrs, Volume=   0.643 af, Atten= 54%, Lag= 25.7 min
Primary   =   3.38 cfs @   12.57 hrs, Volume=   0.643 af
     Routed to Reach 4R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 194.93' @ 12.57 hrs   Surf.Area= 4,459 sf   Storage= 13,965 cf

Plug-Flow detention time= 195.3 min calculated for 0.641 af (84% of inflow)
Center-of-Mass det. time= 132.6 min (942.2 - 809.6)

Volume	Invert	Avail.Storage	Storage Description
#1	190.00'	16,171 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
190.00	1,491	0	0
191.00	1,934	1,713	1,713
192.00	2,483	2,209	3,921
194.00	3,751	6,234	10,155
195.00	4,514	4,133	14,288
195.40	4,903	1,883	16,171

Device	Routing	Invert	Outlet Devices
#1	Primary	190.00'	**15.0" Round Culvert** L= 47.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 190.00' / 189.70' S= 0.0064 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	190.00'	**2.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	191.30'	**2.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	193.40'	**2.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 1	193.65'	**0.7" W x 9.6" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Device 1	194.45'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=3.37 cfs @ 12.57 hrs HW=194.93' TW=190.07'   (Dynamic Tailwater)
└─**1=Culvert** (Passes 3.37 cfs of 9.67 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.23 cfs @ 10.60 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 0.20 cfs @ 9.06 fps)
  ├─**4=Orifice/Grate** (Orifice Controls 0.13 cfs @ 5.78 fps)
  ├─**5=Orifice/Grate** (Orifice Controls 0.21 cfs @ 4.46 fps)
  └─**6=Orifice/Grate** (Orifice Controls 2.61 cfs @ 3.32 fps)

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Summary for Pond 4P: Drip Edge

Inflow Area =   0.023 ac,100.00% Impervious, Inflow Depth > 7.53"   for 100-YR 24HR event
Inflow   =   0.17 cfs @ 12.09 hrs, Volume=   0.014 af
Outflow   =   0.16 cfs @ 12.11 hrs, Volume=   0.014 af, Atten= 4%, Lag= 1.4 min
Discarded =   0.03 cfs @ 12.00 hrs, Volume=   0.011 af
Secondary =   0.14 cfs @ 12.11 hrs, Volume=   0.003 af
   Routed to Pond 2P : Depression in Woods

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 191.50' @ 12.00 hrs Surf.Area= 0.004 ac Storage= 0.002 af

Plug-Flow detention time= 46.1 min calculated for 0.014 af (99% of inflow)
Center-of-Mass det. time= 41.1 min (782.2 - 741.2)

Volume	Invert	Avail.Storage	Storage Description
#1	189.90'	0.002 af	**3.00'W x 52.00'L x 1.60'H Prismatoid** 0.006 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	191.50'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	189.90'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 189.83' Phase-In= 0.10'

Discarded OutFlow Max=0.03 cfs @ 12.00 hrs HW=191.50'   (Free Discharge)
└─**1=Exfiltration** (Controls 0.03 cfs)

Secondary OutFlow Max=0.00 cfs @ 12.11 hrs HW=191.50' TW=176.54'   (Dynamic Tailwater)

Summary for Pond 5P: Drip Edge

Inflow Area =   0.013 ac,100.00% Impervious, Inflow Depth > 7.53"   for 100-YR 24HR event
Inflow   =   0.10 cfs @ 12.09 hrs, Volume=   0.008 af
Outflow   =   0.03 cfs @ 12.42 hrs, Volume=   0.008 af, Atten= 71%, Lag= 19.9 min
Discarded =   0.03 cfs @ 12.42 hrs, Volume=   0.008 af
Secondary =   0.00 cfs @   0.00 hrs, Volume=   0.000 af
   Routed to Reach 4R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 191.39' @ 12.42 hrs Surf.Area= 0.004 ac Storage= 0.003 af

Plug-Flow detention time= 56.3 min calculated for 0.008 af (99% of inflow)
Center-of-Mass det. time= 50.1 min (791.2 - 741.2)

Volume	Invert	Avail.Storage	Storage Description
#1	189.90'	0.003 af	**4.50'W x 41.00'L x 1.60'H Prismatoid** 0.007 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	191.50'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	189.90'	**0.300 in/hr Exfiltration over Surface area**

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Conductivity to Groundwater Elevation = 189.83'   Phase-In= 0.10'

Discarded OutFlow Max=0.03 cfs @ 12.42 hrs HW=191.39' (Free Discharge)
└─**1=Exfiltration** (Controls 0.03 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=189.90' TW=189.70' (Dynamic Tailwater)

Summary for Pond 6P: Drip Edge

Inflow Area =   0.024 ac,100.00% Impervious, Inflow Depth > 7.53"   for 100-YR 24HR event
Inflow   =   0.18 cfs @   12.09 hrs, Volume=   0.015 af
Outflow   =   0.12 cfs @   12.18 hrs, Volume=   0.015 af, Atten= 31%, Lag= 5.8 min
Discarded =   0.09 cfs @   12.15 hrs, Volume=   0.015 af
Secondary =   0.03 cfs @   12.18 hrs, Volume=   0.000 af
     Routed to Reach 5R : Flow Through 1S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 189.72' @ 12.15 hrs   Surf.Area= 0.005 ac   Storage= 0.002 af

Plug-Flow detention time= 19.4 min calculated for 0.015 af (99% of inflow)
Center-of-Mass det. time= 16.1 min (757.2 - 741.2)

Volume	Invert	Avail.Storage	Storage Description
#1	188.52'	0.002 af	**4.00'W x 52.00'L x 1.20'H Prismatoid** 0.006 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	189.72'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	188.52'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 188.50' Phase-In= 0.10'

Discarded OutFlow Max=0.09 cfs @ 12.15 hrs HW=189.72' (Free Discharge)
└─**1=Exfiltration** (Controls 0.09 cfs)

Secondary OutFlow Max=0.00 cfs @ 12.18 hrs HW=189.72' TW=183.55' (Dynamic Tailwater)

Summary for Pond 7P: Drip Edge

Inflow Area =   0.011 ac,100.00% Impervious, Inflow Depth > 7.53"   for 100-YR 24HR event
Inflow   =   0.09 cfs @   12.09 hrs, Volume=   0.007 af
Outflow   =   0.03 cfs @   12.42 hrs, Volume=   0.004 af, Atten= 66%, Lag= 19.8 min
Discarded =   0.00 cfs @   12.35 hrs, Volume=   0.003 af
Secondary =   0.03 cfs @   12.42 hrs, Volume=   0.001 af
     Routed to Reach 4R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 192.00' @ 12.35 hrs   Surf.Area= 0.002 ac   Storage= 0.004 af

Plug-Flow detention time= 278.3 min calculated for 0.004 af (58% of inflow)
Center-of-Mass det. time= 162.1 min (903.2 - 741.2)

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Volume	Invert	Avail.Storage	Storage Description
#1	188.00'	0.004 af	**2.50'W x 41.00'L x 4.00'H Prismatoid**
			0.009 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	192.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	188.00'	**0.300 in/hr Exfiltration over Surface area**
			Conductivity to Groundwater Elevation = 186.50' Phase-In= 0.10'

Discarded OutFlow Max=0.00 cfs @ 12.35 hrs HW=192.00' (Free Discharge)
└─**1=Exfiltration** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 12.42 hrs HW=192.00' TW=190.03' (Dynamic Tailwater)

Summary for Pond 8P: Drip Edge

Inflow Area =   0.012 ac,100.00% Impervious, Inflow Depth > 7.53"   for 100-YR 24HR event
Inflow   =   0.09 cfs @   12.09 hrs, Volume=   0.007 af
Outflow   =   0.02 cfs @   12.48 hrs, Volume=   0.007 af, Atten= 77%, Lag= 23.4 min
Discarded =   0.02 cfs @   12.48 hrs, Volume=   0.007 af
Secondary =   0.00 cfs @   0.00 hrs, Volume=   0.000 af
    Routed to Reach AP1 : Analysis Point 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 189.91' @ 12.48 hrs   Surf.Area= 0.003 ac   Storage= 0.003 af

Plug-Flow detention time= 79.6 min calculated for 0.007 af (99% of inflow)
Center-of-Mass det. time= 73.2 min (814.3 - 741.2)

Volume	Invert	Avail.Storage	Storage Description
#1	187.60'	0.003 af	**3.00'W x 41.00'L x 2.40'H Prismatoid**
			0.007 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	190.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	187.60'	**0.300 in/hr Exfiltration over Surface area**
			Conductivity to Groundwater Elevation = 187.50' Phase-In= 0.10'

Discarded OutFlow Max=0.02 cfs @ 12.48 hrs HW=189.91' (Free Discharge)
└─**1=Exfiltration** (Controls 0.02 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=187.60' TW=0.00' (Dynamic Tailwater)

Summary for Pond 10P: Drip Edge

Inflow Area =   0.024 ac,100.00% Impervious, Inflow Depth > 7.53"   for 100-YR 24HR event
Inflow   =   0.18 cfs @   12.09 hrs, Volume=   0.015 af
Outflow   =   0.04 cfs @   12.52 hrs, Volume=   0.015 af, Atten= 80%, Lag= 25.8 min
Discarded =   0.04 cfs @   12.52 hrs, Volume=   0.015 af
Secondary =   0.00 cfs @   0.00 hrs, Volume=   0.000 af
    Routed to Reach 3R : Culvert

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Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 195.84' @ 12.52 hrs   Surf.Area= 0.005 ac   Storage= 0.006 af

Plug-Flow detention time= 104.2 min calculated for 0.015 af (99% of inflow)
Center-of-Mass det. time= 97.2 min (838.3 - 741.2)

Volume	Invert	Avail.Storage	Storage Description
#1	192.80'	0.006 af	**4.00'W x 52.00'L x 3.20'H Prismatoid**
			0.015 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	196.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	192.80'	**0.300 in/hr Exfiltration over Surface area**
			Conductivity to Groundwater Elevation = 192.67' Phase-In= 0.10'

Discarded OutFlow Max=0.04 cfs @ 12.52 hrs HW=195.84' (Free Discharge)
└─**1=Exfiltration** (Controls 0.04 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=192.80' TW=191.80' (Dynamic Tailwater)

Summary for Pond 11P: Drip Edge

Inflow Area =   0.011 ac,100.00% Impervious, Inflow Depth > 7.53"   for 100-YR 24HR event
Inflow   =   0.09 cfs @   12.09 hrs, Volume=   0.007 af
Outflow   =   0.04 cfs @   12.27 hrs, Volume=   0.007 af, Atten= 55%, Lag= 10.9 min
Discarded =   0.04 cfs @   12.27 hrs, Volume=   0.007 af
Secondary =   0.00 cfs @   0.00 hrs, Volume=   0.000 af
    Routed to Reach 3R : Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 195.28' @ 12.27 hrs   Surf.Area= 0.002 ac   Storage= 0.001 af

Plug-Flow detention time= 27.5 min calculated for 0.007 af (99% of inflow)
Center-of-Mass det. time= 23.5 min (764.6 - 741.2)

Volume	Invert	Avail.Storage	Storage Description
#1	193.70'	0.002 af	**2.50'W x 41.00'L x 2.30'H Prismatoid**
			0.005 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	196.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	193.70'	**0.300 in/hr Exfiltration over Surface area**
			Conductivity to Groundwater Elevation = 193.67' Phase-In= 0.10'

Discarded OutFlow Max=0.04 cfs @ 12.27 hrs HW=195.27' (Free Discharge)
└─**1=Exfiltration** (Controls 0.04 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=193.70' TW=191.80' (Dynamic Tailwater)

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Summary for Pond 20P: Barn

Inflow Area =   0.055 ac,100.00% Impervious, Inflow Depth > 7.53"   for 100-YR 24HR event
Inflow   =   0.41 cfs @ 12.09 hrs, Volume=   0.034 af
Outflow   =   0.12 cfs @ 12.42 hrs, Volume=   0.034 af, Atten= 70%, Lag= 20.3 min
Discarded =   0.07 cfs @ 12.40 hrs, Volume=   0.033 af
Secondary =   0.05 cfs @ 12.42 hrs, Volume=   0.000 af
    Routed to Reach AP3 : Analysis Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 172.00' @ 12.40 hrs Surf.Area= 0.009 ac Storage= 0.013 af

Plug-Flow detention time= 121.2 min calculated for 0.034 af (98% of inflow)
Center-of-Mass det. time= 109.4 min (850.6 - 741.2)

Volume	Invert	Avail.Storage	Storage Description
#1	168.15'	0.013 af	**4.00'W x 95.00'L x 3.85'H Prismatoid** 0.034 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	172.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	168.15'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 168.00' Phase-In= 0.10'

Discarded OutFlow Max=0.07 cfs @ 12.40 hrs HW=172.00'   (Free Discharge)
└─**1=Exfiltration** (Controls 0.07 cfs)

Secondary OutFlow Max=0.00 cfs @ 12.42 hrs HW=172.00' TW=0.00'   (Dynamic Tailwater)

Summary for Pond 22P: Barn

Inflow Area =   0.055 ac,100.00% Impervious, Inflow Depth > 7.53"   for 100-YR 24HR event
Inflow   =   0.41 cfs @ 12.09 hrs, Volume=   0.034 af
Outflow   =   0.12 cfs @ 12.42 hrs, Volume=   0.034 af, Atten= 70%, Lag= 20.3 min
Discarded =   0.07 cfs @ 12.40 hrs, Volume=   0.033 af
Secondary =   0.05 cfs @ 12.42 hrs, Volume=   0.000 af
    Routed to Reach AP3 : Analysis Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 172.00' @ 12.40 hrs Surf.Area= 0.009 ac Storage= 0.013 af

Plug-Flow detention time= 121.2 min calculated for 0.034 af (98% of inflow)
Center-of-Mass det. time= 109.4 min (850.6 - 741.2)

Volume	Invert	Avail.Storage	Storage Description
#1	168.15'	0.013 af	**4.00'W x 95.00'L x 3.85'H Prismatoid** 0.034 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	172.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	168.15'	**0.300 in/hr Exfiltration over Surface area**

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Conductivity to Groundwater Elevation = 168.00'   Phase-In= 0.10'

Discarded OutFlow Max=0.07 cfs @ 12.40 hrs HW=172.00'   (Free Discharge)
└─**1=Exfiltration** (Controls 0.07 cfs)

Secondary OutFlow Max=0.00 cfs @ 12.42 hrs HW=172.00' TW=0.00'   (Dynamic Tailwater)

Summary for Pond 23P: Drip Edge

Inflow Area =   0.013 ac, 15.85% Impervious, Inflow Depth > 5.99"   for 100-YR 24HR event
Inflow   =   0.09 cfs @   12.09 hrs, Volume=   0.007 af
Outflow   =   0.03 cfs @   12.46 hrs, Volume=   0.004 af, Atten= 70%, Lag= 22.5 min
Discarded =   0.00 cfs @   12.40 hrs, Volume=   0.003 af
Secondary =   0.02 cfs @   12.46 hrs, Volume=   0.001 af
    Routed to Reach AP3 : Analysis Point 3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 172.00' @ 12.40 hrs   Surf.Area= 0.003 ac   Storage= 0.003 af

Plug-Flow detention time= 270.8 min calculated for 0.004 af (65% of inflow)
Center-of-Mass det. time= 174.5 min (965.5 - 791.0)

Volume	Invert	Avail.Storage	Storage Description
#1	169.00'	0.003 af	**3.00'W x 40.00'L x 3.00'H Prismatoid** 0.008 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	172.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	169.00'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 168.00' Phase-In= 0.10'

Discarded OutFlow Max=0.00 cfs @ 12.40 hrs HW=172.00'   (Free Discharge)
└─**1=Exfiltration** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 12.46 hrs HW=172.00' TW=0.00'   (Dynamic Tailwater)

Summary for Pond 24P: Plunge Pool with Culvert Outlet

Inflow Area =   0.213 ac, 18.90% Impervious, Inflow Depth > 5.29"   for 100-YR 24HR event
Inflow   =   1.13 cfs @   12.14 hrs, Volume=   0.094 af
Outflow   =   1.12 cfs @   12.15 hrs, Volume=   0.094 af, Atten= 0%, Lag= 0.6 min
Primary   =   1.12 cfs @   12.15 hrs, Volume=   0.094 af
    Routed to Reach 3R : Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 193.51' @ 12.15 hrs   Surf.Area= 137 sf   Storage= 48 cf

Plug-Flow detention time= 1.5 min calculated for 0.094 af (100% of inflow)
Center-of-Mass det. time= 1.1 min (810.3 - 809.2)

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Volume	Invert	Avail.Storage	Storage Description	
#1	193.00'	475 cf	**Custom Stage Data (Prismatic)**	Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
193.00	51	0	0
194.00	222	137	137
195.00	455	339	475

Device	Routing	Invert	Outlet Devices
#1	Primary	193.00'	**15.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 193.00' / 192.50' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=1.12 cfs @ 12.15 hrs HW=193.50' TW=192.75' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.12 cfs @ 2.42 fps)

Summary for Pond 25P: Drip Edge

Inflow Area =   0.012 ac,100.00% Impervious, Inflow Depth > 7.53"   for 100-YR 24HR event
Inflow   =   0.09 cfs @   12.09 hrs, Volume=   0.007 af
Outflow   =   0.02 cfs @   12.44 hrs, Volume=   0.007 af, Atten= 73%, Lag= 21.3 min
Discarded =   0.02 cfs @   12.44 hrs, Volume=   0.007 af
Secondary =   0.00 cfs @   0.00 hrs, Volume=   0.000 af
    Routed to Reach 6R : Flow Through 5S

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 195.88' @ 12.44 hrs   Surf.Area= 0.003 ac   Storage= 0.002 af

Plug-Flow detention time= 64.8 min calculated for 0.007 af (99% of inflow)
Center-of-Mass det. time= 58.8 min (800.0 - 741.2)

Volume	Invert	Avail.Storage	Storage Description
#1	193.75'	0.003 af	**3.00'W x 41.00'L x 2.25'H Prismatoid** 0.006 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#0	Secondary	196.00'	**Automatic Storage Overflow** (Discharged without head)
#1	Discarded	193.75'	**0.300 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 193.67' Phase-In= 0.10'

Discarded OutFlow Max=0.02 cfs @ 12.44 hrs HW=195.87' (Free Discharge)
└─**1=Exfiltration** (Controls 0.02 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=193.75' TW=196.00' (Dynamic Tailwater)

APPENDIX III

Test Pit Logs

TEST PITS
FOR
669 High Street
Candia
September 14, 2023
JBE Project No. 22201

Performed by: Joseph Coronati, Jones & Beach Engineers, Inc., SSD #1716

Test Pit #1

0"- 6"		topsoil
6"- 20"	10YR 4/4	dark yellowish brown fine sandy loam rocky, friable
20"- 60"	10YR 6/4	light yellowish brown sandy clay firm, saturated

SHWT = 20"
Roots to 20"
H_2O @ 36"
No Refusal observed
Perc Rate = 20 min/inch

Test Pit #2

0"- 6"		topsoil
6"- 18"	10YR 3/4	dark yellowish brown fine sandy loam friable
18"	10Y 4/4	dark yellowish brown silty sand friable, saturated

SHWT = 18"
Roots to 18"
H_2O @ 23"
No Refusal observed
Perc Rate = 20 min/inch

W:\22201 CANDIA, 669 HIGH ST, CARR\WORD FILES\TEST PITS 1-7.rtf
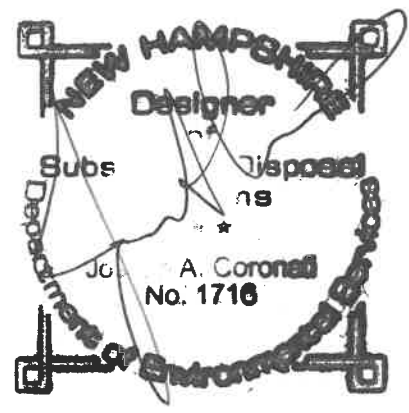
Test Pit #3

0"- 10"		topsoil
10"- 22"	10YR 3/4	dark yellowish brown fine sandy loam friable
22"- 60"	10YR 4/4	dark yellowish brown loamy sand friable many mottles

SHWT = 22"
Roots to 18"
NO H_2O
No Refusal observed
Perc Rate = 16 min/inch

Test Pit #4

0"- 16"		topsoil
16"- 60"	10YR 4/4	dark yellowish brown loamy sand, wet loose, friable

SHWT = 16"
Roots to 16"
H_2O @ 16"
No Refusal observed
Perc Rate = 14 min/inch

Test Pit #5

0"- 10"		topsoil
10"- 20"	10YR 3/4	dark yellowish brown fine sandy loam friable
20"- 60"	10Y 4/4	dark yellowish brown loamy sand firm, mottles

SHWT = 20"
Roots to 20"
NO H_2O observed
No Refusal observed
Perc Rate = 14 min/inch

Test Pit #6

0"- 8"		topsoil
8"- 24"	10YR 3/4	dark yellowish brown fine sandy loam friable
24"- 60"	10Y 4/4	dark yellowish brown loamy sand firm, moist

SHWT = 24"
Roots to 24"
NO H$_2$O observed
No Refusal observed
Perc Rate = 14 min/inch

Test Pit #7

0"- 6"		topsoil
6"- 24"	10YR 4/4	dark yellowish brown loamy sand friable, dry
24"- 54"	10YR 4/4	dark yellowish brown loamy sand firm, cobbles, mottles

SHWT = 24"
Roots to 24"
NO H$_2$O observed
No Refusal observed
Perc Rate = 12 min/inch

APPENDIX IV

NRCS Soil Map

Hydrologic Soil Group—Rockingham County, New Hampshire
(669 High Street HSG Map)

Soil Map may not be valid at this scale.

Map Scale: 1:2,490 if printed on A portrait (8.5" x 11") sheet.

Meters
0   35   70   140   210

Feet
0   100   200   400   600

Map projection: Web Mercator   Corner coordinates: WGS84   Edge tics: UTM Zone 19N WGS84

USDA   **Natural Resources**
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

3/12/2024
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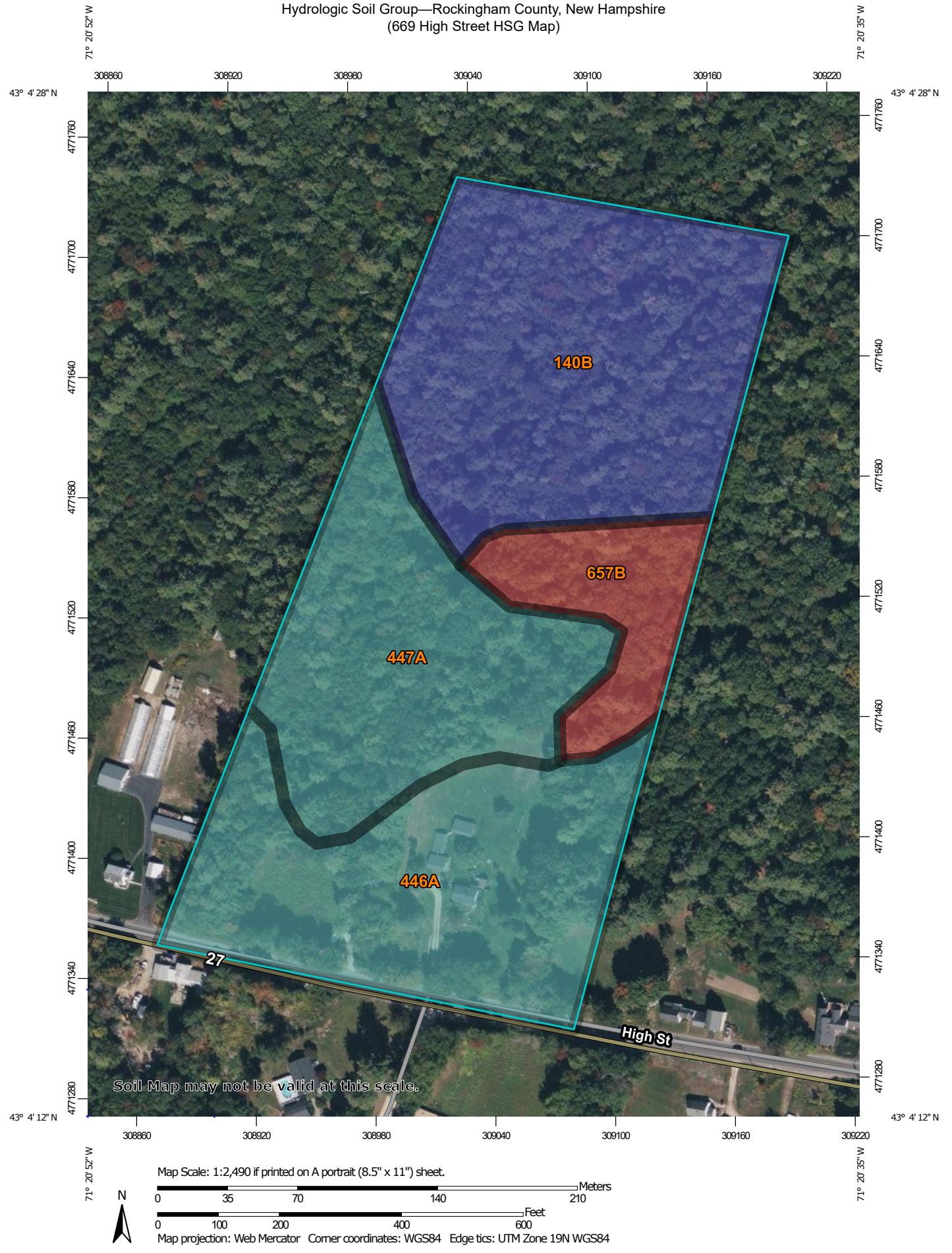
Hydrologic Soil Group—Rockingham County, New Hampshire
(669 High Street HSG Map)

MAP LEGEND	MAP INFORMATION

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 1:24,000.

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: Rockingham County, New Hampshire
Survey Area Data: Version 26, Aug 22, 2023

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

Date(s) aerial images were photographed: Data not available.

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
140B	Chatfield-Hollis-Canton complex, 0 to 8 percent slopes, rocky	B	6.9	35.9%
446A	Scituate-Newfields complex, 0 to 3 percent slopes	C	5.7	29.3%
447A	Scituate-Newfields complex, 0 to 3 percent slopes, very stony	C	4.9	25.3%
657B	Ridgebury fine sandy loam, 3 to 8 percent slopes, very stony	D	1.8	9.5%
Totals for Area of Interest			**19.3**	**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

APPENDIX V

Extreme Precipitation Estimates

Extreme Precipitation in New York & New England
An Interactive Web Tool for Extreme Precipitation Analysis

About this Project   **Data & Products**   **Daily Monitoring**   **Documentation**

Select Product ?

Extreme Precipitation Tables - HTML ?

Extreme Precipitation Tables - Text/CSV ?

Partial Duration Series - by Point ?

Partial Duration Series - by Station ?

Distribution Curves - Graphical ?

Distribution Curves - Text/TBL ?
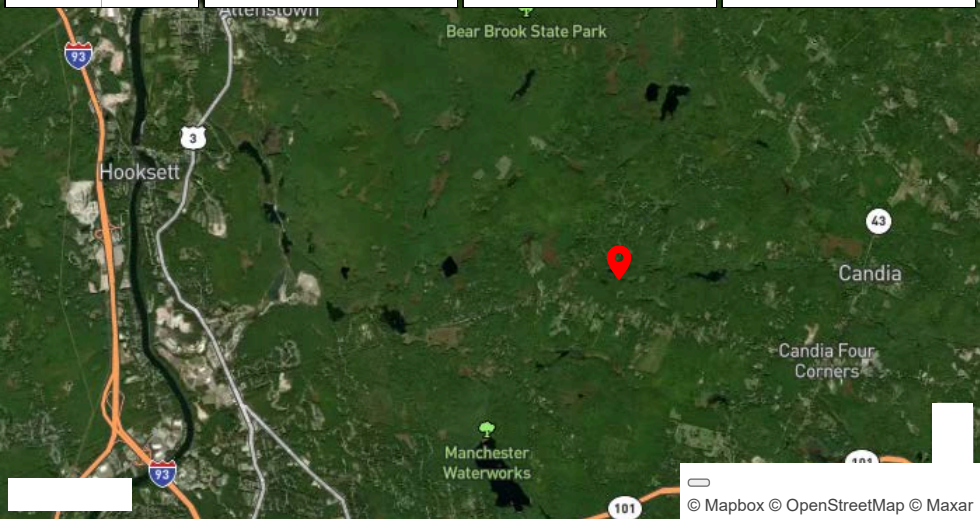
Intensity Frequency Duration Graphs ?

Precipitation Frequency Duration Graphs ?

GIS Data Files ?

Regional/State Maps ?

Select Location ? *Double-click map to place a marker, or enter address or latitude/longitude.*

Hybrid	Map	**Locate by Address** ?	**Locate by Lat/Lon** ?	**Locate by State/County** ?
Satellite	Terrain	669 High Street, Candia →	43.075 °N -71.34 °W →	⌄

© Mapbox © OpenStreetMap © Maxar

Select Options ?

Smoothing ?
Yes ⌄

Delivery ?
Popup ⌄

Submit ?

Extreme Precipitation Tables
Northeast Regional Climate Center
Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Metadata for Point	
Smoothing	Yes
State	
Location	
Latitude	43.076 degrees North
Longitude	71.342 degrees West
Elevation	140 feet
Date/Time	Mon Mar 04 2024 16:12:26 GMT-0500 (Eastern Standard Time)

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7d
1yr	0.26	0.40	0.49	0.65	0.81	1.02	1yr	0.70	0.98	1.18	1.50	1.90	2.42	2.65	1yr	2.15	2.55	2.95	3.
2yr	0.32	0.49	0.61	0.80	1.01	1.27	2yr	0.87	1.16	1.47	1.85	2.31	2.90	3.23	2yr	2.57	3.11	3.59	4.
5yr	0.38	0.58	0.73	0.98	1.26	1.60	5yr	1.08	1.46	1.86	2.33	2.92	3.65	4.12	5yr	3.23	3.96	4.56	5.
10yr	0.42	0.66	0.84	1.14	1.48	1.90	10yr	1.28	1.72	2.22	2.79	3.49	4.34	4.95	10yr	3.84	4.76	5.47	6.
25yr	0.50	0.79	1.01	1.39	1.85	2.39	25yr	1.59	2.15	2.79	3.53	4.41	5.47	6.31	25yr	4.84	6.07	6.96	8.
50yr	0.57	0.91	1.16	1.62	2.18	2.85	50yr	1.88	2.55	3.34	4.22	5.27	6.51	7.59	50yr	5.77	7.30	8.35	9.
100yr	0.64	1.04	1.34	1.89	2.58	3.40	100yr	2.23	3.03	4.00	5.05	6.30	7.77	9.13	100yr	6.87	8.78	10.02	11
200yr	0.73	1.20	1.55	2.22	3.06	4.04	200yr	2.64	3.59	4.76	6.03	7.51	9.26	11.00	200yr	8.20	10.57	12.02	13
500yr	0.88	1.44	1.88	2.73	3.82	5.09	500yr	3.30	4.51	6.02	7.63	9.51	11.70	14.06	500yr	10.35	13.52	15.32	16

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7d
1yr	0.22	0.33	0.41	0.55	0.67	0.88	1yr	0.58	0.86	1.04	1.34	1.58	2.10	2.48	1yr	1.86	2.38	2.73	3.
2yr	0.31	0.48	0.59	0.79	0.98	1.16	2yr	0.84	1.14	1.32	1.75	2.23	2.81	3.11	2yr	2.49	2.99	3.48	4.
5yr	0.35	0.54	0.67	0.92	1.17	1.39	5yr	1.01	1.36	1.56	2.03	2.60	3.35	3.74	5yr	2.97	3.60	4.17	5.
10yr	0.39	0.60	0.74	1.03	1.34	1.58	10yr	1.15	1.54	1.77	2.29	2.92	3.82	4.29	10yr	3.38	4.13	4.77	5.
25yr	0.45	0.68	0.85	1.21	1.59	1.85	25yr	1.37	1.81	2.09	2.66	3.41	4.52	5.13	25yr	4.00	4.93	5.68	6.
50yr	0.49	0.75	0.94	1.35	1.81	2.10	50yr	1.57	2.05	2.36	2.99	3.83	5.13	5.86	50yr	4.54	5.63	6.47	7.
100yr	0.56	0.84	1.05	1.52	2.09	2.38	100yr	1.80	2.33	2.68	3.36	4.31	5.81	6.69	100yr	5.14	6.43	7.36	9.
200yr	0.62	0.93	1.18	1.71	2.39	2.69	200yr	2.06	2.63	3.04	3.77	4.85	6.57	8.07	200yr	5.82	7.76	8.37	10
500yr	0.72	1.08	1.38	2.01	2.86	3.17	500yr	2.47	3.10	3.59	4.40	5.69	7.70	9.70	500yr	6.82	9.33	9.88	12

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7d
1yr	0.29	0.45	0.55	0.73	0.90	1.08	1yr	0.78	1.05	1.21	1.61	2.04	2.61	2.89	1yr	2.31	2.78	3.28	3.
2yr	0.33	0.51	0.63	0.85	1.04	1.25	2yr	0.90	1.22	1.41	1.86	2.37	3.02	3.37	2yr	2.68	3.24	3.76	4.
5yr	0.41	0.63	0.78	1.07	1.36	1.59	5yr	1.17	1.55	1.81	2.34	2.99	3.96	4.53	5yr	3.50	4.36	4.98	5.
10yr	0.49	0.75	0.93	1.29	1.67	1.93	10yr	1.44	1.89	2.19	2.81	3.57	4.88	5.69	10yr	4.32	5.47	6.21	7.
25yr	0.62	0.94	1.17	1.67	2.20	2.51	25yr	1.90	2.45	2.83	3.56	4.51	6.46	7.70	25yr	5.72	7.40	8.30	9.
50yr	0.73	1.12	1.39	2.00	2.69	3.06	50yr	2.32	2.99	3.42	4.27	5.40	7.99	9.71	50yr	7.08	9.33	10.36	11
100yr	0.88	1.34	1.67	2.42	3.32	3.73	100yr	2.86	3.65	4.15	5.13	6.46	9.90	12.24	100yr	8.76	11.77	12.94	13
200yr	1.06	1.59	2.02	2.92	4.07	4.56	200yr	3.51	4.46	5.04	6.16	7.74	12.28	14.68	200yr	10.87	14.12	16.19	17
500yr	1.35	2.01	2.59	3.76	5.35	5.95	500yr	4.61	5.82	6.52	7.86	9.84	16.34	19.81	500yr	14.46	19.05	21.78	22

APPENDIX VI

Rip Rap Calculations

RIP RAP CALCULATIONS
"Beaver Meadows"
669 High Street, Candia, NH 03034
JBE #22201

Jones & Beach Engineers, Inc.
P.O. Box 219
Stratham, NH 03885
22-Mar-24

Rip Rap equations were obtained from the *Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire.* Aprons are sized for the 25-Year storm event.

TAILWATER < HALF THE D_o

$L_a = (1.8 \times Q) / D_0^{3/2} + (7 \times D_o)$

$W = L_a + (3 \times D_o)$ or defined channel width

$d_{50} = (0.02 \times Q^{4/3}) / (T_w \times D_0)$

Culvert or Catch Basin (Sta. No.)	Tailwater (Feet) T_w	Discharge (C.F.S.) Q	Diameter of Pipe D_o	Length of Rip Rap L_a (feet)	Width of Rip Rap W (feet)	d_{50}-Median Stone Rip Rap d50 (feet)
3P	0.26	0.52	1.25	9.4	13	0.03
24P	0.26	0.69	1.25	9.6	13	0.04
3R	0.62	2.71	1.25	12.2	16	0.10

TAILWATER > HALF THE D_o

$L_a = (3.0 \times Q) / D_0^{3/2} + (7 \times D_o)$

$W = (0.4 \times L_a) + (3 \times D_o)$ or defined channel width

$d_{50} = (0.02 \times Q^{4/3}) / (T_w \times D_0)$

Culvert or Catch Basin (Sta. No.)	Tailwater (Feet) T_w	Discharge (C.F.S.) Q	Diameter of Pipe D_o	Length of Rip Rap L_a (feet)	Width of Rip Rap W (feet)	d_{50}-Median Stone Rip Rap d50 (feet)
				#DIV/0!	#DIV/0!	#DIV/0!

Table 7-24 -- Recommended Rip Rap Gradation Ranges			
d_{50} Size =	0.25 Feet	3	Inches
% of Weight Smaller		Size of Stone (Inches)	
Than the Given d_{50} Size	From		To
100%	5		6
85%	4		5
50%	3		5
15%	1		2

Table 7-24 -- Recommended Rip Rap Gradation Ranges			
d_{50} Size =	0.5 Feet	6	Inches
% of Weight Smaller		Size of Stone (Inches)	
Than the Given d_{50} Size	From		To
100%	9		12
85%	8		11
50%	6		9
15%	2		3

APPENDIX VII

Stormwater Operations and Maintenance Manual

STORMWATER MANAGEMENT OPERATIONS AND MAINTENANCE MANUAL

"Beaver Meadows"
669 High Street
Candia, NH 03034
Tax Map 405, Lot 48

Prepared for:

Bob Carr
17 Vassar Street
Manchester, NH 03104

Prepared by:
Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
(603) 772-4746
March 22, 2024
JBE Project No. 22201

Inspection and Maintenance of Facilities and Property

A. Maintenance of Common Facilities or Property

1. The Landowner, future owners and assigns are responsible to perform the maintenance obligations or hire a Professional Engineer to review the site on an annual basis for maintenance and certification of the stormwater system. The same shall keep receipts and records of all maintenance companies hired throughout the year to submit along with the following form.

B. General Inspection and Maintenance Requirements

1. Permanent stormwater and sediment and erosion control facilities to be maintained on the site include, but are not limited to, the following:

   a. Roadway and driveways
   b. Vegetation and landscaping
   c. Detention Pond
   d. Stone Drip Edges
   e. Culverts
   f. Rip-Rap Outlet Protection Aprons
   g. Swale

2. Maintenance of permanent measures shall follow the following schedule:

   a. Normal winter roadway maintenance including plowing and snow removal. Road sweeping at the end of every winter, preferably before the start of the spring rain season.

   b. **Annual inspection** of the site for erosion, destabilization, settling, and sloughing. Any needed repairs are to be conducted immediately. **Annual inspection** of site's vegetation and landscaping. Any areas that are bare shall be reseeded and mulched with hay or, if the case is extreme, loamed and seeded or sodded to ensure adequate vegetative cover. Landscape specimens shall be replaced in kind, if they are found to be dead or dying.

   c. Detention Ponds:
   Detention ponds should require little maintenance, but must be inspected frequently during the first year of operation, and annually thereafter. Every five years, the services of a professional engineer shall be retained to perform a thorough inspection of all the aspects of the pond and its infrastructure. Any debris and sediment accumulations need to be removed from the outlet structure and disposed of properly. Inspect outlet structure for deterioration and or clogging. Detention pond should be mowed at least once annually so as to prevent the establishment of woody vegetation – trees must *never* be allowed to grow in a detention pond or its side slopes, as they may destabilize the structure and increase the potential for failure. Areas showing signs of erosion or thin or dying vegetation need to be repaired immediately by whatever means necessary, *with the exception of fertilizer.* Rodent burrows are to be repaired immediately and the suspect animals apprehended with non-lethal traps if the problem persists

JONES&BEACH
ENGINEERS INC.

d. Stone Drip Edges:

In the spring and fall, visually inspect the area around the edges and repair any erosion. Use small stones to stabilize erosion along drainage paths. Inspect stone area to ensure that it has not been displaced, undermined, or otherwise damaged. Displaced rock shall be replaced, or additional rock added in order to maintain the structure(s) in their undamaged state. Woody vegetation shall not be allowed to become established in stone areas, and/or any debris removed from the void spaces between the stones.

e. **Inspection** of culvert inlets and outlets at least **once per month** during the rainy season (March to November). Any debris is to be removed and disposed of properly.

f. Rock riprap shall be **inspected annually** in order to ensure that it has not been displaced, undermined, or otherwise damaged. Displaced rock shall be replaced, or additional rock added in order to maintain the structure(s) in their undamaged state. Woody vegetation must not be allowed to become established in riprap areas, and/or any debris removed from the void spaces between the rocks. If the riprap is adjacent to a stream or other waterbody, the water shall be kept clear of obstructions, debris, and sediment deposits

g. Swales - Inspect swales annually for erosion, sediment accumulation, vegetation loss, and presence of invasive species. Perform periodic mowing; frequency depends on location and type of grass. Remove debris and accumulated sediment, based on inspection. Repair eroded areas, remove invasive species and dead vegetation, and reseed as warranted by inspection

See attached sample forms as a guideline.

Any inquiries in regards to the design, function, and/or maintenance of any one of the above-mentioned facilities or tasks shall be directed to the project engineer:

Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885

T#: (603) 772-4746
F#: (603) 772-0227

Commitment to maintenance requirements

I agree to complete and/or observe all of the required maintenance practices and their respective schedules as outlined above.

_____

Signature

_____

Print Name

_____

Title

_____

Date

JONES&BEACH
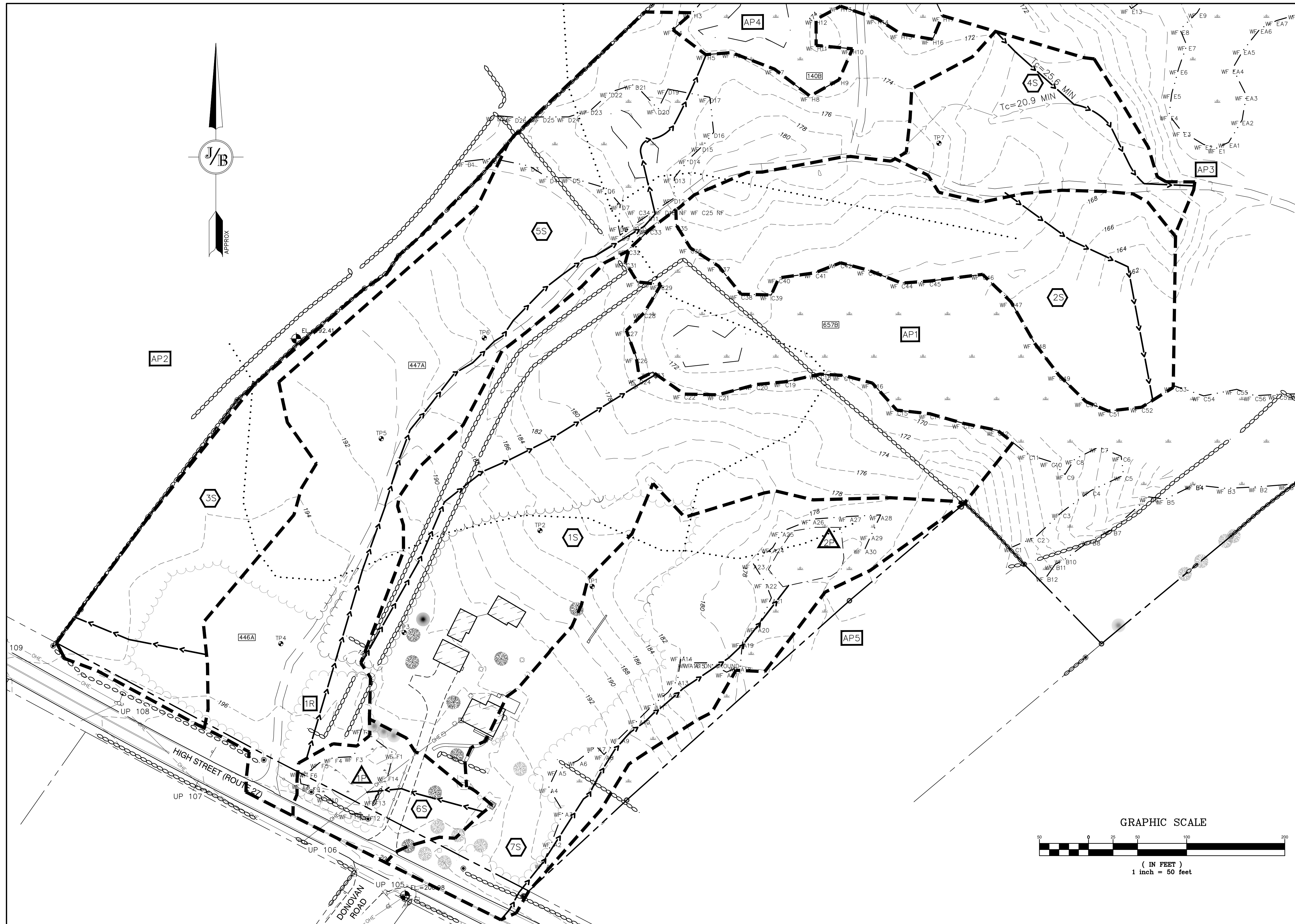ENGINEERS INC.

Annual Operations and Maintenance Report

The Condominium Association, future owners and assigns are responsible to perform the maintenance obligations or hire a Professional Engineer to review the site on an annual basis for maintenance and certification of the stormwater system. The Association shall keep receipts and records of all maintenance companies hired throughout the year to submit along with the following form.

Construction Activity	Date of Inspection	Who Inspected	Findings of Inspector
Roadway and Driveways			
Vegetation and Landscaping			
Detention Pond			
Stone Drip Edges			
Culverts			
Rip Rap Outlet Protection			

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Swales			
Other (please note):			

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APPENDIX VIII

Pre- and Post-Construction Watershed Plans

LEGEND

SUBCATCHMENT BOUNDARY	————
SUBCATCHMENT	⬡ X
REACH	▣ X
POND	△ X
TC PATH	→——→
WETLANDS	——
NRCS SOILS	··········
FLOW ARROW	↗

HIGH STREET (ROUTE 27)

DONOVAN ROAD

GRAPHIC SCALE

(IN FEET)
1 inch = 50 feet

PROJECT PARCEL
TOWN OF CANDIA
TAX MAP 405, LOT 48

APPLICANT
BOB CARR
17 VASSAR STREET
MANCHESTER, NH 03104
BK 6150, PG 2657

TOTAL LOT AREA
87.8 ACRES

Design: DJM	Draft: DJM	Date: 11/13/23
Checked: PSL	Scale: AS NOTED	Project No.: 22201
Drawing Name: 22201-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN
PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE).
ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE
AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

STATE OF NEW HAMPSHIRE
PAIGE S. LIBBEY
No. 16670
LICENSED PROFESSIONAL ENGINEER

0	3/22/24	ISSUED FOR REVIEW	DJM
REV.	DATE	REVISION	BY

J/B Jones & Beach Engineers, Inc.
Designed and Produced in NH
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: **EXISTING WATERSHED PLAN**

Project: **"BEAVER MEADOWS"**
669 HIGH STREET, CANDIA, NH 03034

Owner of Record: CLAUDIA PATRICIA CARR REVOCABLE TRUST AGREEMENT
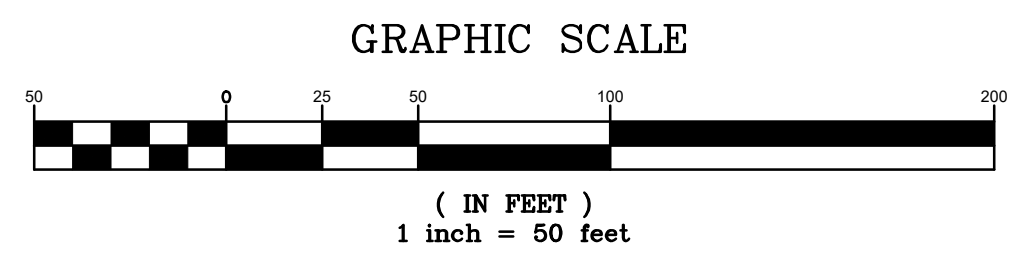17 VASSAR STREET, MANCHESTER, NH 03104

DRAWING No.
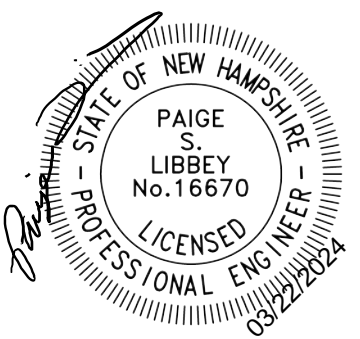**W1**
SHEET 1 OF 2
JBE PROJECT NO. 22201

LEGEND

SUBCATCHMENT BOUNDARY	
SUBCATCHMENT	X
REACH	X
POND	X
TC PATH	→ →
WETLANDS	
NRCS SOILS	⋯⋯
FLOW ARROW	⌐→

GRAPHIC SCALE

(IN FEET)
1 inch = 50 feet

PROJECT PARCEL
TOWN OF CANDIA
TAX MAP 405, LOT 48

APPLICANT
BOB CARR
17 VASSAR STREET
MANCHESTER, NH 03104
BK 6150, PG 2657

TOTAL LOT AREA
87.8 ACRES

Design: DJM	Draft: DJM	Date: 11/13/23
Checked: PSL	Scale: AS NOTED	Project No.: 22201
Drawing Name: 22201-PLAN.dwg		

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STATE OF NEW HAMPSHIRE
PAIGE S. LIBBEY
No.16670
LICENSED PROFESSIONAL ENGINEER

0	3/22/24	ISSUED FOR REVIEW	DJM
REV.	DATE	REVISION	BY

J/B Jones & Beach Engineers, Inc.
Designed and Produced in NH
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	PROPOSED WATERSHED PLAN
Project:	"BEAVER MEADOWS" 669 HIGH STREET, CANDIA, NH 03034
Owner of Record:	CLAUDIA PATRICIA CARR REVOCABLE TRUST AGREEMENT 17 VASSAR STREET, MANCHESTER, NH 03104

DRAWING No.
W2
SHEET 2 OF 2
JBE PROJECT NO. 22201