

Definitive Subdivision
"Barbara's Way"
24 & 26 Agawam Road
Acton, MA

January 23, 2008

PLACES 07-481

PLACES Site Consultants, Inc.

510 King St., Suite 9, Littleton, MA 01460
(978) 486-0334 Fax: (978) 486-0447

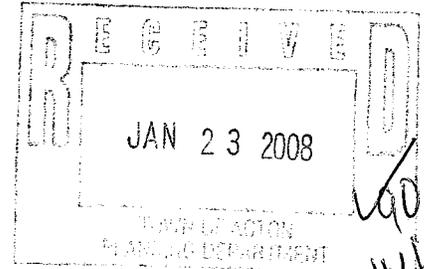
694 Main Street, Suite 3, Holden, MA 01520
(508) 829-0333 Fax: (508) 829-0904

PLACES Site Consultants, Inc.

PLANNING, LANDSCAPE ARCHITECTURE, CIVIL ENGINEERING & SURVEYING

January 23, 2008

Town of Acton
Planning Board
472 Main Street
Acton, MA. 01720



Re: Proposed Definitive Subdivision, 24 & 26 Agawam Road, Acton, MA

Dear Board Members,

PLACES Site Consultants, Inc on behalf of 26 Agawam, LLC, submits twelve (12) copies of the Definitive Subdivision and Supplemental Data for the re-subdivision of two existing, single family house lots, into four single family house lots under the Town of Acton Subdivision Rules and Regulations Section 10 – Optional Residential Compound.

The proposal calls for the introduction of a right of way between the two existing houses to gain access to the rear portions of the lots, leaving the existing two houses with frontage and access from Agawam Road.

The proposed road, created to service only two residential lots, has been designed per the Common Driveway Standards, as allowed by waiver from the Planning Board under Section 10.1.1, to allow for minimum disturbance and impervious coverage relating to the development of two additional house lots.

Attached are documents and plans relative to the conditions of approval for the Residential Compound Plan.

Please schedule this item for the next available public hearing for Board review.

Sincerely,
PLACES Site Consultants, Inc.

By:

Katie Bomengen, P.E.

Project Manager

kbomengen@verizon.net

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— places.littleton@verizon.net

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ACTON PLANNING BOARD

FORM DP

APPLICATION for APPROVAL of DEFINITIVE PLAN

The undersigned herewith submits the accompanying Definitive Plan of property located in the Town of Acton for Approval as a subdivision under the requirements of the Subdivision Control Law and the Rules and Regulations Governing the Subdivision of Land in the Town of Acton.

(Please type or print information in blanks below.)

- 1. Name of Proposed Subdivision Barbara's Way
- 2. Name of Applicant(s) 26 Agawam LLC
Contact Address 31 Burgess Road, Townsend, MA 01469 Phone 978-263-8400
- 3. Name of Property Owner(s) 26 Agawam, LLC and Thomas E. and Barbara L. Geagan
- 4. Name of Engineer PLACES Site Consultants, Inc.
Address 510 King Street Suite 9 Littleton, MA 01464
Phone 978-486-0334
- 5. Name of Land Surveyor PLACES Site Consultants, Inc.
Address 510 King Street Suite 9 Littleton, MA 01464
Phone 978-486-0334
- 6. Deed of property recorded in Middlesex South Registry Of Deeds, Book Number 50138, 13415, Page Number 241, 291; and/or registered in Middlesex Registry of Land Court, Certificate of Title Number _____.
- 7. Zoning District R2, Town Atlas Map No. E2 Parcel No. 196,183
Approximate acreage in subdivision 2.34 Acres, Number of Lots 4
Total length of road(s) in feet 271 feet
Location and Description of Property 24 and 26 Agawam Road at the intersection of Agawam Road and Seneca Road, Acton, MA

8. Said plan has (X)/ has not () evolved from a preliminary plan submitted to the Board on _____ 20__; and approved (with modifications) () or disapproved () on _____

20
Thomas E. Geagan - 1/22/08
Applicant(s) Signature, Date

Applicant(s) Signature, Date

Thomas E. Geagan - 1/22/08
Owner(s) Signature, Date

Owner(s) Signature, Date

owners (in the case of a corporation, an authorized officer; in the case of a trust, all trustees) must sign.

ACTON PLANNING BOARD

FORM DC

DESIGNER'S CERTIFICATE

I hereby certify that the accompanying plan entitled "Plan of Land in Acton, Massachusetts Prepared for 26 AGAWAM LLC, 31 Burgess Road, Townsend, MA dated January 23, 2008"

is correct, stating that the perimeter traverse of the subdivision before adjustment was closed to an accuracy of a ratio "error of closure" not to exceed 1/15000*; that it is a subdivision of 1.87

acres conveyed by J. Warren and Tanya Barnett to Thomas E. Geagan, Jr. and Barbara L. Geagan by a deed, dated April 3rd, 1978 and recorded in Middlesex County Registry of Deeds, South District, Book 13415, Page 291 and another parcel conveyed by Peter R. and Pamela M. Fromer to 26 Agawam, LLC by a deed, dated July 2nd, 2007 and recorded in Middlesex County Registry of Deeds, South District, Book 50138, Page 241

Other sources of information used in the preparation of the plan are:

1. Other deeds and plans, as follows:

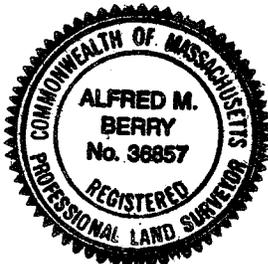
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Book 26,595, Page 469
Book 33,526, Page 495
Book 26,080, Page 536
Book 11,324, Page 523

Plans: Agawam road acceptance 3/5-1956
Plan #1999 A & B of 1954
Plan #648 of 1994
Plan #660 of 1963
Plan #927 of 1994
Plan #1548 of 1948
Plan #384 of 1956
Plan #617 of 1962

2. Oral information furnished by _____

3. Other Assessor's and roadway information at the Acton Town Hall.

Furthermore, I certify that this survey was made on the ground in accordance with the "Procedural and Technical Standards for the Practice of Land Surveying", Section 250 CMR** 5.0 between 10/11/07 and 10/19/07.



Signed

Alfred M. Berry
Registered Land Surveyor

1/23/08
Date

Address: 694 Main Street, Suite 3, Holden, MA 01520

Registration No. 36857

*As described in the "1989 Manual of Instructions for the Survey of Lands and Preparation of Plans" published by the Land Court of the Commonwealth of Massachusetts, as most recently amended.

** Code of Massachusetts Regulations

3

Return: Katy, Argenia & Pamela, P.
1388 Main St.
Spfld., MA 01103

Bk: 50138 Pg: 241



Bk: 50138 Pg: 241 Doc: DEED
Page: 1 of 3 09/24/2007 03:11 PM

C-3

QUITCLAIM DEED

Property Address: 26 Agawam Road, Acton, Massachusetts

We, Peter R. Fromer and Pamela M. Fromer of Acton, Middlesex County, Massachusetts

For Consideration Paid and In Full Consideration Of Three Hundred Seventy-Five Thousand (\$375,000.00) Dollars

Grant To 26 Agawam, LLC, a Massachusetts limited liability company

Of 31 Burgess Road, Townsend, MA

With Quitclaim Covenants

Three certain parcels of land further bound and described as follows:

PARCEL 1: The land with the buildings thereon, in said Acton shown as Lot #5 on a "Plan of Lots in Acton, Mass., owned by Albert R. Jenks," dated November 14, 1955 by Miller & Nylander, recorded with Middlesex South District Deeds, at the end of Book 8685, said Lot #5 being bounded:

NORTHWESTERLY by Agawam Road one hundred thirty-four and 47/100 (134.47) feet;

NORTHERLY by said Agawam Road twenty-six and 4/10 (26.4) feet;

NORTHEASTERLY by land now or formerly of Albert R. Jenks one hundred thirty-three and 25/100 (133.25) feet;

SOUTHEASTERLY by land now or formerly of Carrie E. Goss one hundred fifty-five (155) feet; and

SOUTHWESTERLY by Lot #6 one hundred sixty-four and 32/100 (164.32) feet.

All as shown on said plan and containing according to said plan 23,500 square feet more or less.

Together with the right to use, in common with others, said Agawam Road for all purposes for which streets and ways are commonly used in the Town of Acton.

The said premises are conveyed subject to and with the benefit of easements, restrictions and agreements of record insofar as the same are now in force and applicable.

PARCEL 2: A certain parcel of land in that part of Acton, called West Acton, and being shown as Lot #4, on a plan entitled "Plan of Land in Acton, Mass., dated April 10, 1962",

~~MASSACHUSETTS EXCISE TAX
Southern Middlesex District ROD # 001
Date: 09/24/2007 03:11 PM
Ctrl# 099959 26433 Doc# 00177731
Fee: \$1,710.00 Cons: \$375,000.00~~

0301-2412 5221 1141-6-22
11-3-78 1235 2172-10.00

1110

We, J. WARREN BARNETT and JANYA BARNETT, husband and wife
of Acton, Middlesex County, Massachusetts

~~being represented~~, for consideration paid, and in full consideration of \$65,700

grant to THOMAS E. GEAGAN JR. and BARBARA L. GEAGAN, husband and wife, each of an undivided one-half interest as joint tenants and not as ~~joint~~ tenants in common with quitclaim covenants

the ~~land~~ with the buildings thereon in Acton now numbered 24 Agawam Road consisting of two adjoining parcels situated on the southeasterly side ~~(to be known as Parcel One and Parcel Two)~~

of said Agawam Road more particularly described as follows:

PARCEL ONE: Being the land in said Acton with the buildings thereon, shown as Lot 4 on the "Plan of Lots in Acton, Mass., owned by Albert R. Jenks," dated November 14, 1955 by Miller & Nylander, recorded with Middlesex South District Deeds at the end of Book 8685, said Lot 4 being bounded:

- NORTHWESTERLY by Agawam Road one hundred thirty-four and 27/100 (134.27) feet;
- NORTHEASTERLY by Lot 3, shown on said plan, one hundred thirty-seven and 3/10 (137.3) feet;
- SOUTHEASTERLY by land now or formerly of Carrie E. Goss one hundred fifty-nine and 59/100 (159.59) feet;
- SOUTHWESTERLY by land of Albert R. Jenks one hundred twenty-three and 57/100 (123.57) feet;
- WESTERLY by said Agawam Road thirty-four and 01/100 (34.01) feet.

Containing, according to said plan 21,900 square feet, more or less.

Said premises are conveyed subject to and with the benefit of restrictions contained in deed of Albert R. Jenks to David G. Walker et ux dated September 22, 1956, recorded with said Deeds in Book 8821, Page 356, in so far as now in force and applicable.

PARCEL TWO: Being the adjoining parcel of land shown as Lot 5 on the plan entitled, "Plan of Land in Acton, Mass., dated April 10, 1962" Albert A. Miller, Wilbur C. Nylander, Civil Engineers & Surveyors, recorded with said Deeds in Book 10036, Page 278, bounded and described as follows:

- NORTHWESTERLY by land of Albert R. Jenks and Charles R. and Margaret F. Heselton, by two courses, forty and 40/100 (40.40) feet and one hundred fifty-nine and 59/100 (159.59) feet;
- NORTHEASTERLY by Lot 6 and Lot 7 on said plan, one hundred fifty (150) feet;
- SOUTHEASTERLY by land of Carrie E. Goss by two courses, one hundred sixty-two and 84/100 (162.84) feet and forty-four and 45/100 (44.45) feet;
- SOUTHWESTERLY by Lot 4 on said plan, one hundred thirty-six and 37/100 (136.37) feet.

Containing, according to said plan, 29,908 square feet.

Said two parcels being the same premises conveyed to us by Allan B. Gancy, by deed dated Feb. 26, 1970 recorded with said Deeds in Book 11806, Page 326.

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Certified Abutters List

HydroCAD Analysis

PLACES Site Consultants, Inc.

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Address 510 King Street Suite 9 Littleton, MA 01464

Phone 978-486-0334

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7. Zoning District R2, Town Atlas Map No. E2 Parcel No. 196,183

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Applicant(s) Signature, Date

Applicant(s) Signature, Date

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Owner(s) Signature, Date

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Registered Land Surveyor Date

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** Code of Massachusetts Regulations

DEVELOPMENT IMPACT REPORT

The Development Impact Report (DIR) is intended to serve as a guide to the applicant in formulating the development proposal, as well as a guide to the Planning Board in its evaluation of the proposed development in the context of existing conditions and planning efforts by the Town. The DIR should be prepared as early in the development process as possible, even if certain aspects are unknown at that time. It is recommended that the various aspects of the DIR, together with a conceptual development plan, are discussed with the Planning Department staff as soon as possible, prior to the filing of an application for approval of a preliminary plan.

The DIR seeks to raise the broad range of issues generally associated with development plans in a form and in a language that is understandable to a layperson. It assesses development impacts which could possibly be avoided or mitigated if recognized early in the development process. Other portions of the DIR request information which will help the Town plan ahead and ensure adequate services in the future. It is the hope of the Planning Board that the use of the DIR, along with early consultations with the Planning Department staff and the applicant's continuing cooperation throughout the development process, will foster a development of excellent quality and design sensitive to Acton's natural and historic heritage and other community concerns.

The DIR shall be filed with an application for approval of a preliminary and a definitive subdivision plan. The DIR shall clearly and methodically assess the relationship of the proposed development to the natural, physical, and social environment. In preparing the DIR, professionals of the respective fields shall be consulted and a systematic, interdisciplinary approach shall be utilized which will ensure the integrated use of the natural and social sciences and the environmental design arts in planning, designing and engineering of the proposed project.

DEVELOPMENT IMPACT REPORT

Please type or print information in blanks below.

1. Name of Proposed Subdivision Barbara's Way
2. Location 24 & 26 Agawam Road
3. Name of Applicant(s) 26 Agawam LLC
4. Brief Description of the Proposed Project Proposed subdivision of two existing single family house lots into four single family house lots.
5. Name of Individual Preparing this DIR PLACES Site Consultants, Inc., Katie Bomengen, P.E.
Address 510 King Street Suite 9, Littleton, MA 01460
Business Phone 978-486-0334
6. Professional Credentials Professional Engineer, Massachusetts Soil Evaluator

A. Site Description

7. Present permitted and actual land uses by percentage of the site.

<i>Uses</i>	<i>Percentage</i>
Industrial	0
Commercial	0
Residential	100%
Forest	0
Agricultural	0
Other (specify)	0

8. Total acreage on the site: 2.34 acres.

<i>Approximate Acreage</i>	<i>At Present</i>	<i>After Completion</i>
Meadow or Brushland (non agriculture)	1.32	1.63
Forested	0.84	0.22
Agricultural (includes orchards, cropland, pasture)	0	0
Wetland	0	0
Water Surface Area	0	0
Flood Plain	0	0
Unvegetated (rock, earth, or fill)	0	0
Roads, buildings and other impervious surfaces	0.18	0.49
Other (indicate type)	0	0

9. List the zoning districts in which the site is located and indicate the percentage of the site in each district. *Note: be sure to include overlay zoning districts.*

District	Percentage
Residential 2	100%

10. Predominant soil type(s) on the site: Canton-Charlton, Canton fine sandy loam
**NRCS Soils Map*

Soil drainage (Use the US Natural Resources Conservation Service's definition)

Soil Type	% of the Site
Well drained	100%
Moderately well drained	
Poorly drained	

11. Are there bedrock outcroppings on the site? yes X no

12. Approximate percentage of proposed site with slopes between:

Slope	% of the Site
0 - 10%	88%
10 - 15%	12%
greater than 15%	

13. In which of the Groundwater Protection Districts in the site located? How close is the site to a public well? Zone(s) 4,3 Proximity to a public well: <1 mile feet

14. Does the project site contain any species of plant or animal life that is identified as rare or endangered? (Consult with the Massachusetts National Heritage Program and the Acton Natural Resources Director). yes X no

If yes, specify: _____

15. Are there any unusual or unique features on the site such as trees larger than 30 inches D.B.H., bogs, kettle ponds, eskers, drumlins, quarries, distinctive rock formation or granite bridges? yes X no

If yes, specify: _____

16. Are there any established foot paths running through the site or railroad right of ways? yes X no

If yes, specify: _____

17. Is the site presently used by the community or neighborhood as an open space or recreation area? ___yes Xno

Is the site adjacent to conservation land or a recreation area? ___yes Xno

If yes, specify: _____

18. Does the site include scenic views or will the proposed development cause any scenic vistas to be obstructed from view? ___yes Xno

If yes, specify: _____

19. Are there wetlands, lakes, ponds, streams, or rivers within or contiguous to the site? ___yes Xno

If yes, specify: _____

20. Is there any farmland or forest land on the site protected under Chapter 61A or 61B of the Massachusetts General Laws? ___yes Xno

If yes, specify: _____

21. Has the site ever been used for the disposal of hazardous waste? Has a 21E Study been conducted for the site? ___yes Xno

If yes, specify results: _____

22. Will the proposed activity require use and/or storage of hazardous materials, or generation of hazardous waste? ___yes Xno

If yes, specify _____

23. Does the project contain any buildings or sites of historic or archaeological significance? (Consult with the Acton Historic Commission or the Action Historical Society.)

___yes Xno

If yes, please describe _____

24. Is the project contiguous to or does it contain a building in a local historic district or national register district? ___yes X no
25. Is the project contiguous to any section of the Isaac Davis Trail? ___yes X no
- If yes, please describe _____

B. Circulation System

26. What is the average weekday traffic and peak hour traffic volumes generated by the proposed subdivision? *Two (2) new units proposed on common driveway, one existing to remain on Agawam, one to be razed and new house constructed.*

Average weekday traffic	<i>9.59 trips/DU*</i>	<i>19 trips</i>
Average peak hour volumes	morning	<i>1.5 trips</i>
Average peak hour volumes	evening	<i>2 trips</i>

*ITE 7th Edition Code 210 Single Family Detached Dwelling.

27. Existing street(s) providing access to proposed subdivision:

Name Agawam Road Town Classification Local

28. Existing intersection(s): list intersections located within 1000 feet of any access to the proposed development:

Name of ways Seneca Road, Sandas Trail, Sioux Street, Quaboag Road

29. Location of existing sidewalks within 1000 feet of the proposed site? Elm Street

30. Location of proposed sidewalks and their connection to existing sidewalks:

None required or proposed for common drive serving two houses.

31. Are there parcels of undeveloped land adjacent to the proposed site? ___yes X no

Will access to these undeveloped parcels been provided within the proposed site?

___yes ___no

If yes, please describe _____

If no, please explain why _____

C. Utilities and Municipal Services

32. If dwelling units are to be constructed, what is the total number of bedrooms proposed?

Four (4) bedrooms per new single family, totaling 12 bedrooms

33. If the proposed use of the site is nonresidential, what will the site be specifically used for and how many feet of Gross floor area will be constructed? _____

34. How will sewage be handled? On site septic system for each lot

35. Storm Drainage

- a. Describe nature, location and surface water body receiving current surface water of the site: Overland flow to wetland on abutting property greater than 100 feet from construction impacts. Flow continues to Grassy Pond Brook, greater than 1000 ft from locus.
- b. Describe the proposed storm drainage system and how it will be altered by the proposed development: Runoff from the proposed common driveway, and individual house driveways, will be collected in a grassed swale and discharge to a series of retention areas where sediment will be collected and stormwater runoff will infiltrate into the ground.
- c. Will a NPDES Permit be required? X yes no

36. In the event of fire, estimate the response time of the fire department (consult with Fire Dept.) 1.05 miles from site

37. Schools (if residential)

- a. Projected number of new school age children: Three (3)
- b. Distance to nearest school: 1600 feet

D. Measures to Mitigate Impacts

Attach brief descriptions of the measures that will be taken to:

38. Prevent surface water contamination.

Surface water will be protected by the collection and treatment of surface runoff from paved areas outside of resource areas and their protective buffer zones.

39. Prevent groundwater contamination.

Surface water will be protected by designing the subsurface disposal systems per Massachusetts Title 5 regulations and the collection and treatment of surface runoff from paved areas outside of resource areas and their protective buffer zones.

40. Maximize groundwater recharge.

Groundwater recharge will be maximized by the use of roof drain drywells to collect and infiltrate "clean" roof water and the use of an infiltration basin to collect runoff from paved areas and infiltrate the stormwater collected.

41. Prevent erosion and sedimentation.

Erosion and sedimentation will be prevented by the use of silt fence and haybales during construction and immediate stabilization of disturbed areas.

42. Maintain slope stability.

Slopes have not been proposed in excess of 3:1, therefore stabilization will occur with loaming and seeding immediately after construction.

43. Design the project to conserve energy.

The project is being designed using modern energy efficient building materials.

44. Preserve wildlife habitat.

Areas have been specified on the Site Plan to remain undisturbed to create a vegetated buffer between the project site and abutters to the maximum extent feasible to allow for corridors of wildlife movement.

45. Preserve wetlands.

The proposal calls for no impacts to wetlands or associated buffer zones.

46. Ensure compatibility with the surrounding land uses.

All abutting uses are residential, single family houses.

47. Control peak runoff from the site so that the post-development rate of runoff will be no greater than the predevelopment rate of runoff for the 10-year storm event.

Post development runoff has been mitigated in the 2, 10, 25 and 100 year storm events through stormwater Best Management Practices.

48. Preserve historically significant structures and features on the site.

There are no, known historically significant features on the project site.

49. To mitigate the impact of the traffic generated by the development.

Due to the nature of the proposed project, traffic generated by this development will be negligible.

Please use layman's terms where possible while still being accurate and comprehensive. Where appropriate, graphics shall be used. List sources of data, reference materials, and methodology used to determine all conclusions. Use additional sheets as necessary.

STORMWATER SUMMARY

Drainage for the proposed driveway and additional impervious areas have been mitigated by the design of a grassed swale and infiltration basin system within the proposed right of way. The system has been designed to collect runoff from the proposed common drive and individual driveways and allow for sediments to settle out into two small basins and infiltrate the runoff into the ground.

Soil testing within the project site found sand and gravel with an infiltration rate of greater than two minutes per inch to 12 minutes per inch.

A exfiltration rate has been assigned to the detention areas at a rate of 8.27 inches/hour based upon the Pioneer Valley Method guide to Soil Limitations. This minimum infiltration rate is based upon the underlying sandy soils located within the site.

All proposed roofs have been designed to collect roof runoff and discharge to a drywell, where the "clean" water will infiltrate back into the ground.

Stormwater calculations have been produced using HydroCad 7.00, a stormwater modeling program, to calculate the pre to post development runoff rates and volumes.

STORM EVENT	2 YEAR STORM (CFS/AF)	10 YEAR STORM (CFS/AF)	25 YEAR STORM (CFS/AF)	100 YEAR STORM (CFS/AF)
Pre Drain to SW (1S)	0 0.001	0.09 0.026	0.31 0.053	0.79 0.103
Post Drain to SW (4S)	0 0	0.01 0.006	0.06 0.014	0.20 0.03
Decrease	0 -0.001	-0.08 -0.02	-0.25 -0.039	-0.59 -0.073
Pre Drain to SE (2S)	0 0	0 0	0.00 0.001	0.01 0.006
Post Drain to SE (8P)	0 0	0 0.001	0.01 0.003	0.05 0.009
Decrease	0	0 +0.001	+0.01 +0.002	+0.04 +0.003
Stage in Pond 1 (ft) /Volume (cf) (9P)	220 1	220.14 51	220.42 150	220.87 313
Stage in Pond 2 (ft) /Volume (cf) (7P)	218.15 62	219 419	219.30 827	219.87 1597

Stormwater impacts to abutting properties are negligible based upon the above analysis.

PLACES Site Consultants, Inc.

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OPERATION AND MAINTENANCE PLAN

Responsible Party: Homeowners Association, "Barbara's Way"

To ensure stormwater treatment and control, Best Management Practices are required to be cleaned and maintained per the prescribed maintenance schedule or manufacturers recommendations.

Infiltration Basin (Per Stormwater Policy Volume II)

Infiltration Basins should be inspected after every major storm for the first few months after construction to ensure proper stabilization and function. Thereafter, the basin should be inspected at least twice per year.

The grass in the basin, on the sideslopes and in the buffer areas should be mowed, and grass clippings, organic matter, and accumulated trash and debris removed, at least twice during the growing season.

Eroded or barren spots should be reseeded immediately after inspection to prevent additional erosion and accumulation of sediment.

Deep tilling can be used to break up clogged surface area, Any tilled areas should be revegetated immediately.

Sediment should be removed from the basin as necessary. Removal procedures should not take place until the floor of the basin is thoroughly dry.

PLACES Site Consultants, Inc.

510 King St., Suite 9, Littleton, MA 01460
(978) 486-0334 Fax: (978) 486-0447

694 Main Street, Suite 3, Holden, MA 01520
(508) 829-0333 Fax: (508) 829-0904

APPENDIX

PLACES Site Consultants, Inc.

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Certified Abutters List

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Town of Acton
 472 Main Street
 Acton, MA 01720
 Telephone (978) 264-9622
 Fax (978) 264-9630

Brian McMullen
 Assistant Assessor

Locus: 24 AND 26 AGAWAM RD
Parcel: E2-183 & E2-186

Location	Parcel ID	Owner	Co-Owner	Mailing Address	City	ST	Zip
7 MOHEGAN RD	E2-132	ARSENAULT GREGORY R		7 MOHEGAN RD	ACTON	MA	01720
18 AGAWAM RD	E2-133	KEEGAN KEVIN E	A BERNADETTE	19 AGAWAM ROAD	ACTON	MA	01720
5 MOHEGAN RD	E2-141	CONNORS BRYCE PATRICK	CONNORS TINA M	5 MOHEGAN RD	ACTON	MA	01720
3 MOHEGAN RD	E2-147	TULP PETER J	TULP KATHLEEN L	3 MOHEGAN ROAD	ACTON	MA	01720
21 AGAWAM RD	E2-148	KIELY JOHN R	GENEVIEVE	21 AGAWAM RD	ACTON	MA	01720
20 AGAWAM RD	E2-149	TWIGHELL JONATHAN C	KRISTI B	20 AGAWAM RD	ACTON	MA	01720
1 MOHEGAN RD	E2-165	CAROTENUTO JOSEPH F	CAROTENUTO TERRI J	1 MOHEGAN RD	ACTON	MA	01720
21 SENECA RD	E2-164	STURTZ WILLIAM J AND STURTZ RAI C/O FANTON TROY AND CINDY		21 SENECA RD	ACTON	MA	01720
23 AGAWAM RD	E2-166	MISKIN LUCY		23 AGAWAM RD	ACTON	MA	01720
22 AGAWAM RD	E2-168	CASEY JAMES R		22 AGAWAM RD	ACTON	MA	01720
12 AGAWAM RD	E2-173	THOMPSON PHILIP	KATHRYN	12 AGAWAM RD	ACTON	MA	01720
51 QUABOAG RD	E2-173	JOHNSTON A SIDNEY	JOHNSTON JULIA M	51 QUABOAG RD	ACTON	MA	01720
49 QUABOAG RD	E2-181	BODNAR KEITH E	BODNAR KIMBERLY ANN	49 QUABOAG RD	ACTON	MA	01720
23 SENECA RD	E2-182	GUNDLACH JOHN D	GUNDLACH LISA MOLONEY	23 SENECA RD	ACTON	MA	01720
1 SANDAS TR	E2-184	KRUG PETER B	KRUG DONNA A	1 SANDAS TR	ACTON	MA	01720
2 SANDAS TR	E2-184-1	LECLAIR RAYMOND A	LECLAIR AMY KOBAYSHI	2 SANDAS TRAIL	ACTON	MA	01720
27 AGAWAM RD	E2-185	GRACELY FRED	CLOUGHER MARIE J	27 AGAWAM RD	ACTON	MA	01720
3 PERKINS LN	E2-197	GNALL ELLEN H DELEMO		3 PERKINS LN	ACTON	MA	01720
5 PERKINS LN	E2-197-2	CHANDRA ANITA	CHANDRA ANITA	5 PERKINS LANE	ACTON	MA	01720
7 PERKINS LN	E2-197-3	PARNELL MATTHEW J	PARNELL PATRICIA G	15 LEXINGTON DR	ACTON	MA	01720
9 PERKINS LN	E2-197-4	TABNER JAMES V + MARIANNE BLAC C/O TABNER JAMES V	KAREN S	9 PERKINS LANE	ACTON	MA	01720
29 AGAWAM RD	E2-205	KILLOY DAVID H	ELIZABETH	29 AGAWAM ROAD	ACTON	MA	01720
28 AGAWAM RD	E2-206	SCHMIDT ELWOOD R	CAROL F	28 AGAWAM ROAD	ACTON	MA	01720
30 AGAWAM RD	E2-219	PEABODY BAYARD W		30 AGAWAM RD	ACTON	MA	01720

Abutters and owners of land directly opposite on any public or private street or way and abutters to the abutters within three hundred feet of the property line all as they appear on the most recent applicable tax list.

HEARING NOTICES FOR ALL SPECIAL PERMITS MUST BE SENT TO THE PLANNING BOARD, TOWN HALL IN THE FOLLOWING TOWNS:

Boxborough, MA 01729
 Carlisle, MA 01741
 Maynard, MA 01754
 Stow, MA 01775
 Concord, MA 01742
 Westford, MA 01886
 Littleton, MA 01460
 Sudbury, MA 01776

Kimberly Hoyt
 Kimberly Hoyt
 Assessing Clerk

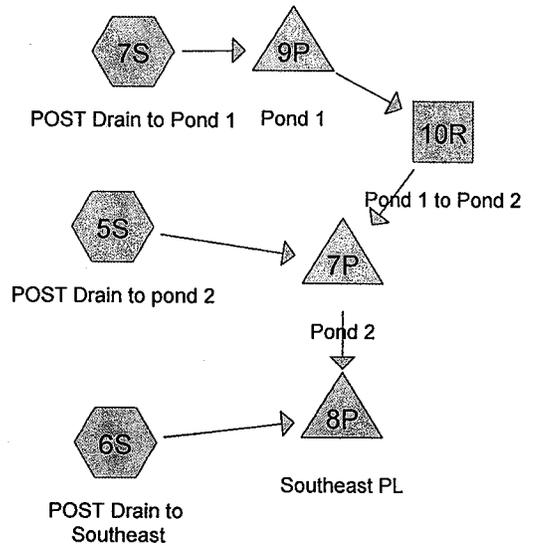
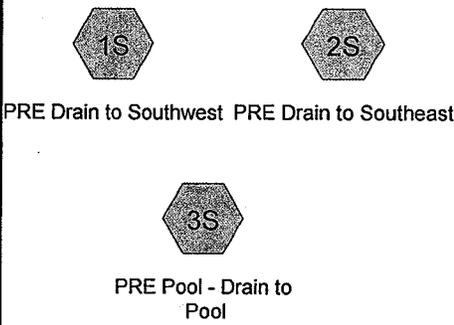
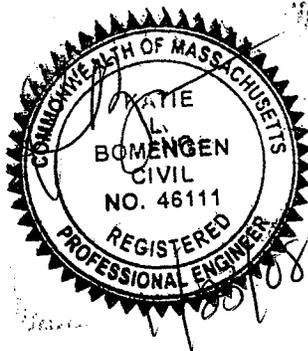
17-Dec-07

HydroCAD Analysis

PLACES Site Consultants, Inc.

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Drainage Diagram for Pre-Post development
 Prepared by PLACES Site Consultants 1/21/2008
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Pre-Post development

Type III 24-hr 2 Year Storm Rainfall=3.10"

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1/21/2008

Subcatchment 1S: PRE Drain to Southwest

Runoff = 0.00 cfs @ 20.00 hrs, Volume= 0.001 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.10"

Area (sf)	CN	Description
7,345	98	impervious
11,448	30	Woods, Good, HSG A
56,283	39	>75% Grass cover, Good, HSG A
75,076	43	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	34	0.0230	1.2		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.10"
1.4	110	0.0360	1.3		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.3	101	0.0340	1.3		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.1	87	0.0200	0.7		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
6.4	85	0.0010	0.2		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.2	104	0.0440	1.5		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
12.9	521	Total			

Subcatchment 2S: PRE Drain to Southeast

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.10"

Area (sf)	CN	Description
25,359	30	Woods, Good, HSG A
1,636	39	>75% Grass cover, Good, HSG A
26,995	31	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	50	0.0160	0.1		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.10"
1.0	76	0.0675	1.3		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
14.7	126	Total			

Pre-Post development

Type III 24-hr 2 Year Storm Rainfall=3.10"

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Subcatchment 3S: PRE Pool - Drain to Pool

Runoff = 0.05 cfs @ 12.07 hrs, Volume= 0.004 af, Depth= 2.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.10"

Area (sf)	CN	Description
700	98	pool

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

Subcatchment 4S: POST Drain to Southwest

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.10"

Area (sf)	CN	Description
783	98	impervious
1,250	30	Woods, Good, HSG A
27,586	39	>75% Grass cover, Good, HSG A
29,619	40	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.2		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
0.6	63	0.0630	1.8		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.3	98	0.0100	0.7		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.4	59	0.1000	2.2		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
7.6	270	Total			

Subcatchment 5S: POST Drain to pond 2

Runoff = 0.05 cfs @ 12.31 hrs, Volume= 0.011 af, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.10"

Pre-Post development

Type III 24-hr 2 Year Storm Rainfall=3.10"

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Area (sf)	CN	Description
10,681	98	impervious
4,120	30	Woods, Good, HSG A
26,147	39	>75% Grass cover, Good, HSG A
40,948	53	Weighted Average

Subcatchment 6S: POST Drain to Southeast

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.10"

Area (sf)	CN	Description
9,017	39	>75% Grass cover, Good, HSG A
3,031	30	Woods, Good, HSG A
12,048	37	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	45	0.0300	0.2		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
0.2	28	0.1700	2.9		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.2	80	0.0250	1.1		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	80	0.0500	1.6		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
6.8	233	Total			

Subcatchment 7S: POST Drain to Pond 1

Runoff = 0.00 cfs @ 12.43 hrs, Volume= 0.002 af, Depth= 0.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.10"

Area (sf)	CN	Description
2,665	98	impervious
8,522	39	>75% Grass cover, Good, HSG A
1,407	30	Woods, Good, HSG A
12,594	50	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0600	1.8		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.10"
0.5	95	0.0420	3.1		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
1.0	145	Total			

Pre-Post development

Type III 24-hr 2 Year Storm Rainfall=3.10"

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Reach 10R: Pond 1 to Pond 2

Inflow Area = 0.289 ac, Inflow Depth = 0.00" for 2 Year Storm event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity= 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 5.00 hrs
Capacity at bank full= 0.56 cfs
Inlet Invert= 220.75', Outlet Invert= 220.51'
6.0" Diameter Pipe n= 0.013 Length= 24.0' Slope= 0.0100 1'

Pond 7P: Pond 2

Inflow Area = 1.229 ac, Inflow Depth = 0.11" for 2 Year Storm event
Inflow = 0.05 cfs @ 12.31 hrs, Volume= 0.011 af
Outflow = 0.02 cfs @ 13.60 hrs, Volume= 0.011 af, Atten= 54%, Lag= 77.5 min
Discarded = 0.02 cfs @ 13.60 hrs, Volume= 0.011 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 218.15' @ 13.60 hrs Surf.Area= 123 sf Storage= 62 cf
Plug-Flow detention time= 42.6 min calculated for 0.011 af (95% of inflow)
Center-of-Mass det. time= 28.3 min (931.7 - 903.4)

#	Invert	Avail.Storage	Storage Description
1	218.00'	3,061 cf	Custom Stage Data (Prismatic) Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
218.00	0	0	0
219.00	832	416	416
220.00	1,870	1,351	1,767
220.50	3,305	1,294	3,061

#	Routing	Invert	Outlet Devices
1	Discarded	0.00'	0.011400 fpm Exfiltration over entire Surface area

Discarded OutFlow Max=0.02 cfs @ 13.60 hrs HW=218.15' (Free Discharge)
↑1=Exfiltration (Exfiltration Controls 0.02 cfs)

Pond 8P: Southeast PL

Inflow Area = 1.506 ac, Inflow Depth = 0.00" for 2 Year Storm event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pre-Post development

Type III 24-hr 2 Year Storm Rainfall=3.10"

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Pond 9P: Pond 1

Inflow Area = 0.289 ac, Inflow Depth = 0.09" for 2 Year Storm event
 Inflow = 0.00 cfs @ 12.43 hrs, Volume= 0.002 af
 Outflow = 0.00 cfs @ 13.60 hrs, Volume= 0.002 af, Atten= 3%, Lag= 70.2 min
 Discarded = 0.00 cfs @ 13.60 hrs, Volume= 0.002 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 220.00' @ 13.60 hrs Surf.Area= 180 sf Storage= 1 cf
 Plug-Flow detention time= 2.6 min calculated for 0.002 af (99% of inflow)
 Center-of-Mass det. time= 1.7 min (935.7 - 934.0)

#	Invert	Avail.Storage	Storage Description
1	220.00'	691 cf	Custom Stage Data (Prismatic) Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
220.00	179	0	0
221.00	543	361	361
221.50	775	330	691

#	Routing	Invert	Outlet Devices
1	Discarded	0.00'	0.011400 fpm Exfiltration over entire Surface area
2	Primary	220.75'	6.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.03 cfs @ 13.60 hrs HW=220.00' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=220.00' (Free Discharge)
 ↳2=Orifice/Grate (Controls 0.00 cfs)

Pre-Post development

Type III 24-hr 10 Year Storm Rainfall=4.50"

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Subcatchment 1S: PRE Drain to Southwest

Runoff = 0.09 cfs @ 12.53 hrs, Volume= 0.026 af, Depth= 0.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.50"

Area (sf)	CN	Description
7,345	98	impervious
11,448	30	Woods, Good, HSG A
56,283	39	>75% Grass cover, Good, HSG A
75,076	43	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	34	0.0230	1.2		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.10"
1.4	110	0.0360	1.3		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.3	101	0.0340	1.3		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.1	87	0.0200	0.7		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
6.4	85	0.0010	0.2		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.2	104	0.0440	1.5		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
12.9	521	Total			

Subcatchment 2S: PRE Drain to Southeast

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.50"

Area (sf)	CN	Description
25,359	30	Woods, Good, HSG A
1,636	39	>75% Grass cover, Good, HSG A
26,995	31	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	50	0.0160	0.1		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.10"
1.0	76	0.0675	1.3		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
14.7	126	Total			

Pre-Post development

Type III 24-hr 10 Year Storm Rainfall=4.50"

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1/21/2008

Subcatchment 3S: PRE Pool - Drain to Pool

Runoff = 0.07 cfs @ 12.07 hrs, Volume= 0.005 af, Depth= 3.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.50"

Area (sf)	CN	Description
700	98	pool

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

Subcatchment 4S: POST Drain to Southwest

Runoff = 0.01 cfs @ 13.79 hrs, Volume= 0.006 af, Depth= 0.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.50"

Area (sf)	CN	Description
783	98	impervious
1,250	30	Woods, Good, HSG A
27,586	39	>75% Grass cover, Good, HSG A
29,619	40	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.2		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
0.6	63	0.0630	1.8		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.3	98	0.0100	0.7		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.4	59	0.1000	2.2		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
7.6	270	Total			

Subcatchment 5S: POST Drain to pond 2

Runoff = 0.51 cfs @ 12.03 hrs, Volume= 0.044 af, Depth= 0.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.50"

Pre-Post development

Type III 24-hr 10 Year Storm Rainfall=4.50"

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1/21/2008

Area (sf)	CN	Description
10,681	98	impervious
4,120	30	Woods, Good, HSG A
26,147	39	>75% Grass cover, Good, HSG A
40,948	53	Weighted Average

Subcatchment 6S: POST Drain to Southeast

Runoff = 0.00 cfs @ 15.29 hrs, Volume= 0.001 af, Depth= 0.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.50"

Area (sf)	CN	Description
9,017	39	>75% Grass cover, Good, HSG A
3,031	30	Woods, Good, HSG A
12,048	37	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	45	0.0300	0.2		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
0.2	28	0.1700	2.9		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.2	80	0.0250	1.1		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	80	0.0500	1.6		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
6.8	233	Total			

Subcatchment 7S: POST Drain to Pond 1

Runoff = 0.10 cfs @ 12.06 hrs, Volume= 0.010 af, Depth= 0.43"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.50"

Area (sf)	CN	Description
2,665	98	impervious
8,522	39	>75% Grass cover, Good, HSG A
1,407	30	Woods, Good, HSG A
12,594	50	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0600	1.8		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.10"
0.5	95	0.0420	3.1		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
1.0	145	Total			

Pre-Post development

Type III 24-hr 10 Year Storm Rainfall=4.50"

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1/21/2008

Reach 10R: Pond 1 to Pond 2

Inflow Area = 0.289 ac, Inflow Depth = 0.00" for 10 Year Storm event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 5.00 hrs
Capacity at bank full= 0.56 cfs
Inlet Invert= 220.75', Outlet Invert= 220.51'
6.0" Diameter Pipe n= 0.013 Length= 24.0' Slope= 0.0100 '/'

Pond 7P: Pond 2

Inflow Area = 1.229 ac, Inflow Depth = 0.43" for 10 Year Storm event
Inflow = 0.51 cfs @ 12.03 hrs, Volume= 0.044 af
Outflow = 0.16 cfs @ 12.47 hrs, Volume= 0.043 af, Atten= 69%, Lag= 26.3 min
Discarded = 0.16 cfs @ 12.47 hrs, Volume= 0.043 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 219.00' @ 12.47 hrs Surf.Area= 834 sf Storage= 419 cf
Plug-Flow detention time= 43.1 min calculated for 0.043 af (96% of inflow)
Center-of-Mass det. time= 32.1 min (883.5 - 851.4)

#	Invert	Avail.Storage	Storage Description
1	218.00'	3,061 cf	Custom Stage Data (Prismatic) Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
218.00	0	0	0
219.00	832	416	416
220.00	1,870	1,351	1,767
220.50	3,305	1,294	3,061

#	Routing	Invert	Outlet Devices
1	Discarded	0.00'	0.011400 fpm Exfiltration over entire Surface area

Discarded OutFlow Max=0.16 cfs @ 12.47 hrs HW=219.00' (Free Discharge)
↳ **1=Exfiltration** (Exfiltration Controls 0.16 cfs)

Pond 8P: Southeast PL

Inflow Area = 1.506 ac, Inflow Depth = 0.01" for 10 Year Storm event
Inflow = 0.00 cfs @ 15.29 hrs, Volume= 0.001 af
Primary = 0.00 cfs @ 15.29 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pre-Post development

Type III 24-hr 10 Year Storm Rainfall=4.50"

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Pond 9P: Pond 1

Inflow Area = 0.289 ac, Inflow Depth = 0.43" for 10 Year Storm event
 Inflow = 0.10 cfs @ 12.06 hrs, Volume= 0.010 af
 Outflow = 0.04 cfs @ 12.45 hrs, Volume= 0.010 af, Atten= 55%, Lag= 23.2 min
 Discarded = 0.04 cfs @ 12.45 hrs, Volume= 0.010 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 220.14' @ 12.45 hrs Surf.Area= 231 sf Storage= 51 cf
 Plug-Flow detention time= 7.0 min calculated for 0.010 af (99% of inflow)
 Center-of-Mass det. time= 6.4 min (870.9 - 864.6)

#	Invert	Avail.Storage	Storage Description
1	220.00'	691 cf	Custom Stage Data (Prismatic) Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
220.00	179	0	0
221.00	543	361	361
221.50	775	330	691

#	Routing	Invert	Outlet Devices
1	Discarded	0.00'	0.011400 fpm Exfiltration over entire Surface area
2	Primary	220.75'	6.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.04 cfs @ 12.45 hrs HW=220.14' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=220.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pre-Post development

Type III 24-hr 25 Year Storm Rainfall=5.30"

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Subcatchment 1S: PRE Drain to Southwest

Runoff = 0.31 cfs @ 12.43 hrs, Volume= 0.053 af, Depth= 0.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Storm Rainfall=5.30"

Area (sf)	CN	Description
7,345	98	impervious
11,448	30	Woods, Good, HSG A
56,283	39	>75% Grass cover, Good, HSG A
75,076	43	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	34	0.0230	1.2		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.10"
1.4	110	0.0360	1.3		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.3	101	0.0340	1.3		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.1	87	0.0200	0.7		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
6.4	85	0.0010	0.2		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.2	104	0.0440	1.5		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
12.9	521	Total			

Subcatchment 2S: PRE Drain to Southeast

Runoff = 0.00 cfs @ 20.00 hrs, Volume= 0.001 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Storm Rainfall=5.30"

Area (sf)	CN	Description
25,359	30	Woods, Good, HSG A
1,636	39	>75% Grass cover, Good, HSG A
26,995	31	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	50	0.0160	0.1		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.10"
1.0	76	0.0675	1.3		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
14.7	126	Total			

Pre-Post development

Type III 24-hr 25 Year Storm Rainfall=5.30"

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Subcatchment 3S: PRE Pool - Drain to Pool

Runoff = 0.08 cfs @ 12.07 hrs, Volume= 0.006 af, Depth= 4.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Storm Rainfall=5.30"

Area (sf)	CN	Description
700	98	pool

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

Subcatchment 4S: POST Drain to Southwest

Runoff = 0.06 cfs @ 12.42 hrs, Volume= 0.014 af, Depth= 0.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Storm Rainfall=5.30"

Area (sf)	CN	Description
783	98	impervious
1,250	30	Woods, Good, HSG A
27,586	39	>75% Grass cover, Good, HSG A
29,619	40	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.2		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
0.6	63	0.0630	1.8		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.3	98	0.0100	0.7		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.4	59	0.1000	2.2		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
7.6	270	Total			

Subcatchment 5S: POST Drain to pond 2

Runoff = 1.00 cfs @ 12.02 hrs, Volume= 0.070 af, Depth= 0.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Storm Rainfall=5.30"

Pre-Post development

Type III 24-hr 25 Year Storm Rainfall=5.30"

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Area (sf)	CN	Description
10,681	98	impervious
4,120	30	Woods, Good, HSG A
26,147	39	>75% Grass cover, Good, HSG A
40,948	53	Weighted Average

Subcatchment 6S: POST Drain to Southeast

Runoff = 0.01 cfs @ 13.63 hrs, Volume= 0.003 af, Depth= 0.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Storm Rainfall=5.30"

Area (sf)	CN	Description
9,017	39	>75% Grass cover, Good, HSG A
3,031	30	Woods, Good, HSG A
12,048	37	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	45	0.0300	0.2		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
0.2	28	0.1700	2.9		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.2	80	0.0250	1.1		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	80	0.0500	1.6		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
6.8	233	Total			

Subcatchment 7S: POST Drain to Pond 1

Runoff = 0.22 cfs @ 12.05 hrs, Volume= 0.017 af, Depth= 0.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Storm Rainfall=5.30"

Area (sf)	CN	Description
2,665	98	impervious
8,522	39	>75% Grass cover, Good, HSG A
1,407	30	Woods, Good, HSG A
12,594	50	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0600	1.8		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.10"
0.5	95	0.0420	3.1		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
1.0	145	Total			

Pre-Post development

Type III 24-hr 25 Year Storm Rainfall=5.30"

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Reach 10R: Pond 1 to Pond 2

Inflow Area = 0.289 ac, Inflow Depth = 0.00" for 25 Year Storm event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00' @ 5.00 hrs
Capacity at bank full= 0.56 cfs
Inlet Invert= 220.75', Outlet Invert= 220.51'
6.0" Diameter Pipe n= 0.013 Length= 24.0' Slope= 0.0100 '/'

Pond 7P: Pond 2

Inflow Area = 1.229 ac, Inflow Depth = 0.68" for 25 Year Storm event
Inflow = 1.00 cfs @ 12.02 hrs, Volume= 0.070 af
Outflow = 0.22 cfs @ 12.50 hrs, Volume= 0.068 af, Atten= 78%, Lag= 28.7 min
Discarded = 0.22 cfs @ 12.50 hrs, Volume= 0.068 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 219.30' @ 12.50 hrs Surf.Area= 1,148 sf Storage= 827 cf
Plug-Flow detention time= 49.6 min calculated for 0.068 af (97% of inflow)
Center-of-Mass det. time= 39.6 min (877.6 - 838.0)

#	Invert	Avail.Storage	Storage Description
1	218.00'	3,061 cf	Custom Stage Data (Prismatic) Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
218.00	0	0	0
219.00	832	416	416
220.00	1,870	1,351	1,767
220.50	3,305	1,294	3,061

#	Routing	Invert	Outlet Devices
1	Discarded	0.00'	0.011400 fpm Exfiltration over entire Surface area

Discarded OutFlow Max=0.22 cfs @ 12.50 hrs HW=219.30' (Free Discharge)
↑1=Exfiltration (Exfiltration Controls 0.22 cfs)

Pond 8P: Southeast PL

Inflow Area = 1.506 ac, Inflow Depth = 0.03" for 25 Year Storm event
Inflow = 0.01 cfs @ 13.63 hrs, Volume= 0.003 af
Primary = 0.01 cfs @ 13.63 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pre-Post development

Type III 24-hr 25 Year Storm Rainfall=5.30"

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Pond 9P: Pond 1

Inflow Area = 0.289 ac, Inflow Depth = 0.72" for 25 Year Storm event
 Inflow = 0.22 cfs @ 12.05 hrs, Volume= 0.017 af
 Outflow = 0.06 cfs @ 12.48 hrs, Volume= 0.017 af, Atten= 71%, Lag= 26.0 min
 Discarded = 0.06 cfs @ 12.48 hrs, Volume= 0.017 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 220.42' @ 12.48 hrs Surf.Area= 331 sf Storage= 150 cf
 Plug-Flow detention time= 19.0 min calculated for 0.017 af (99% of inflow)
 Center-of-Mass det. time= 18.4 min (866.6 - 848.2)

#	Invert	Avail.Storage	Storage Description
1	220.00'	691 cf	Custom Stage Data (Prismatic) Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
220.00	179	0	0
221.00	543	361	361
221.50	775	330	691

#	Routing	Invert	Outlet Devices
1	Discarded	0.00'	0.011400 fpm Exfiltration over entire Surface area
2	Primary	220.75'	6.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.06 cfs @ 12.48 hrs HW=220.42' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=220.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

Pre-Post development

Type III 24-hr 100 Year Storm Rainfall=6.40"

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Subcatchment 1S: PRE Drain to Southwest

Runoff = 0.79 cfs @ 12.27 hrs, Volume= 0.103 af, Depth= 0.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=6.40"

Area (sf)	CN	Description
7,345	98	impervious
11,448	30	Woods, Good, HSG A
56,283	39	>75% Grass cover, Good, HSG A
75,076	43	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	34	0.0230	1.2		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.10"
1.4	110	0.0360	1.3		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.3	101	0.0340	1.3		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.1	87	0.0200	0.7		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
6.4	85	0.0010	0.2		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.2	104	0.0440	1.5		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
12.9	521	Total			

Subcatchment 2S: PRE Drain to Southeast

Runoff = 0.01 cfs @ 14.84 hrs, Volume= 0.006 af, Depth= 0.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=6.40"

Area (sf)	CN	Description
25,359	30	Woods, Good, HSG A
1,636	39	>75% Grass cover, Good, HSG A
26,995	31	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	50	0.0160	0.1		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.10"
1.0	76	0.0675	1.3		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
14.7	126	Total			

Pre-Post development

Type III 24-hr 100 Year Storm Rainfall=6.40"

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Subcatchment 3S: PRE Pool - Drain to Pool

Runoff = 0.10 cfs @ 12.07 hrs, Volume= 0.008 af, Depth= 5.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=6.40"

Area (sf)	CN	Description
700	98	pool

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

Subcatchment 4S: POST Drain to Southwest

Runoff = 0.20 cfs @ 12.30 hrs, Volume= 0.030 af, Depth= 0.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=6.40"

Area (sf)	CN	Description
783	98	impervious
1,250	30	Woods, Good, HSG A
27,586	39	>75% Grass cover, Good, HSG A
29,619	40	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.2		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
0.6	63	0.0630	1.8		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.3	98	0.0100	0.7		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.4	59	0.1000	2.2		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
7.6	270	Total			

Subcatchment 5S: POST Drain to pond 2

Runoff = 1.78 cfs @ 12.01 hrs, Volume= 0.112 af, Depth= 1.43"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=6.40"

Pre-Post development

Type III 24-hr 100 Year Storm Rainfall=6.40"

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Area (sf)	CN	Description
10,681	98	impervious
4,120	30	Woods, Good, HSG A
26,147	39	>75% Grass cover, Good, HSG A
40,948	53	Weighted Average

Subcatchment 6S: POST Drain to Southeast

Runoff = 0.05 cfs @ 12.37 hrs, Volume= 0.009 af, Depth= 0.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=6.40"

Area (sf)	CN	Description
9,017	39	>75% Grass cover, Good, HSG A
3,031	30	Woods, Good, HSG A
12,048	37	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	45	0.0300	0.2		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
0.2	28	0.1700	2.9		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.2	80	0.0250	1.1		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	80	0.0500	1.6		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
6.8	233	Total			

Subcatchment 7S: POST Drain to Pond 1

Runoff = 0.42 cfs @ 12.04 hrs, Volume= 0.029 af, Depth= 1.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=6.40"

Area (sf)	CN	Description
2,665	98	impervious
8,522	39	>75% Grass cover, Good, HSG A
1,407	30	Woods, Good, HSG A
12,594	50	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0600	1.8		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.10"
0.5	95	0.0420	3.1		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
1.0	145	Total			

Pre-Post development

Type III 24-hr 100 Year Storm Rainfall=6.40"

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Reach 10R: Pond 1 to Pond 2

Inflow Area = 0.289 ac, Inflow Depth = 0.04" for 100 Year Storm event
Inflow = 0.04 cfs @ 12.42 hrs, Volume= 0.001 af
Outflow = 0.04 cfs @ 12.43 hrs, Volume= 0.001 af, Atten= 1%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.6 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.1 fps, Avg. Travel Time= 0.4 min

Peak Depth= 0.09' @ 12.43 hrs
Capacity at bank full= 0.56 cfs
Inlet Invert= 220.75', Outlet Invert= 220.51'
6.0" Diameter Pipe n= 0.013 Length= 24.0' Slope= 0.0100 '/'

Pond 7P: Pond 2

Inflow Area = 1.229 ac, Inflow Depth = 1.10" for 100 Year Storm event
Inflow = 1.78 cfs @ 12.01 hrs, Volume= 0.113 af
Outflow = 0.33 cfs @ 12.52 hrs, Volume= 0.110 af, Atten= 81%, Lag= 30.6 min
Discarded = 0.33 cfs @ 12.52 hrs, Volume= 0.110 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 219.87' @ 12.52 hrs Surf.Area= 1,739 sf Storage= 1,597 cf
Plug-Flow detention time= 62.4 min calculated for 0.110 af (97% of inflow)
Center-of-Mass det. time= 53.3 min (878.5 - 825.3)

#	Invert	Avail.Storage	Storage Description
1	218.00'	3,061 cf	Custom Stage Data (Prismatic) Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
218.00	0	0	0
219.00	832	416	416
220.00	1,870	1,351	1,767
220.50	3,305	1,294	3,061

#	Routing	Invert	Outlet Devices
1	Discarded	0.00'	0.011400 fpm Exfiltration over entire Surface area

Discarded OutFlow Max=0.33 cfs @ 12.52 hrs HW=219.87' (Free Discharge)
↑1=Exfiltration (Exfiltration Controls 0.33 cfs)

Pond 8P: Southeast PL

Inflow Area = 1.506 ac, Inflow Depth = 0.07" for 100 Year Storm event
Inflow = 0.05 cfs @ 12.37 hrs, Volume= 0.009 af
Primary = 0.05 cfs @ 12.37 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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Type III 24-hr 100 Year Storm Rainfall=6.40"

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Pond 9P: Pond 1

Inflow Area = 0.289 ac, Inflow Depth = 1.20" for 100 Year Storm event
 Inflow = 0.42 cfs @ 12.04 hrs, Volume= 0.029 af
 Outflow = 0.13 cfs @ 12.42 hrs, Volume= 0.029 af, Atten= 68%, Lag= 22.9 min
 Discarded = 0.09 cfs @ 12.42 hrs, Volume= 0.028 af
 Primary = 0.04 cfs @ 12.42 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 220.87' @ 12.42 hrs Surf.Area= 494 sf Storage= 313 cf
 Plug-Flow detention time= 31.8 min calculated for 0.029 af (100% of inflow)
 Center-of-Mass det. time= 31.1 min (865.1 - 834.0)

#	Invert	Avail.Storage	Storage Description
1	220.00'	691 cf	Custom Stage Data (Prismatic) Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
220.00	179	0	0
221.00	543	361	361
221.50	775	330	691

#	Routing	Invert	Outlet Devices
1	Discarded	0.00'	0.011400 fpm Exfiltration over entire Surface area
2	Primary	220.75'	6.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.09 cfs @ 12.42 hrs HW=220.86' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.09 cfs)

Primary OutFlow Max=0.04 cfs @ 12.42 hrs HW=220.86' (Free Discharge)
 ↳2=Orifice/Grate (Orifice Controls 0.04 cfs @ 1.2 fps)