PHILIP M. SMALL
ATTORNEY-AT-LAW

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Hartford
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October 20, 2015

VIA ELECTRONIC MAIL AND OVERNIGHT DELIVERY

Mr. Robert Stein, Chairman
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Re: Petition No. 1181 – SolarCity Corporation petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the proposed construction and operation of a 4.93 Megawatt Community Shared Solar Photovoltaic Electric Generating facility located at 9 Stott Avenue and 292 Plain Hill Road, Norwich, Connecticut -- Development and Management Plan Documents

Dear Chairman Stein:

On behalf of SolarCity Corporation ("SolarCity"), enclosed, as a bulk filing, is one hard copy and a disk of documents that would likely be required as part of a development and management plan.

Please contact me at 860-509-6575 with any questions or if you need additional information.

Very truly yours,

BROWN RUDNICK LLP

By: _____
Philip M. Small
Counsel for SolarCity Corporation

PMS/jmb
Enclosure

62199196 v1-WorksiteUS-031819/0001

brownrudnick.com

PETITION NO. 1181 -- SOLARCITY CORPORATION
DEVELOPMENT AND MANAGEMENT PLAN

OCTOBER 16, 2015

a) A final plan of site development to include specifications for the solar panels, supporting infrastructure, electrical equipment, equipment compound, access and maintenance roads, utility connections, and landscaping -- **See attached Exhibit A, Site Development Plan**.

b) Construction details for site clearing, site phasing, grading, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended -- **See attached Exhibit A, Site Development Plan**.

c) A final Drainage Report and associated site plans stamped by a Professional Engineer -- **See attached Exhibit B, Stormwater Management Report**.

d) Incorporation of a Wetland Protection Program as provided in Petition Exhibit 2, Appendix G -- **See attached Exhibit A, Site Development Plan, and notes on Sheet 9**.

e) Construction work hours and days of work -- **The following work schedule is planned: 7 a.m. to 7 p.m., seven days per week. Please note that the on-site work is expected to take approximately 18 weeks**.

f) The Wildlife Impact Mitigation Measures, dated August 2015 -- **See attached Exhibit A, Site Development Plan, and notes on Sheet 9**.

g) All Points Technology has been assigned as the environmental monitor for the project.

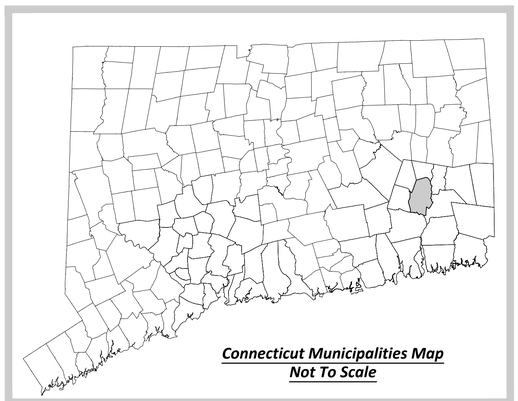
h) Decommissioning Plan -- **See attached Exhibit C, Decommissioning Plan**.

i) The U.S. Army Corps of Engineers Programmatic General Permit for Wetland number 3 was filed on October 19, 2015 -- **See a copy of the application attached as Exhibit D**.

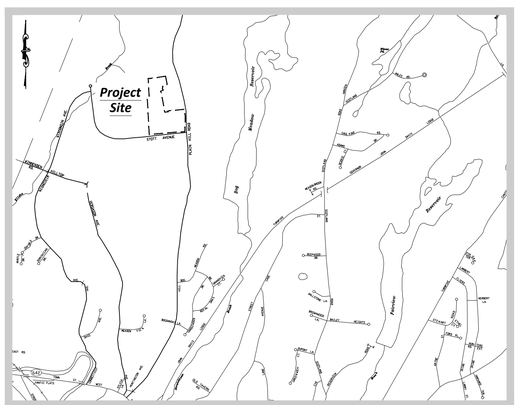
EXHIBIT A – Site Development Plan

STOTT AVENUE SOLAR PROJECT
SITE DEVELOPMENT AND MANAGEMENT PLAN
SolarCity Corporation
9 Stott Avenue & 292 Plain Hill Road
Norwich, Connecticut
August 2015

Revision "A" - Development & Management Plan Submittal - 10/15/15



Connecticut Municipalities Map
Not To Scale



Site Location Map
Scale: 1"=2000'



Site Location Aerial View
Not To Scale

Project Information	
Developed By:	***Electrical Engineer:***
Brightfields Development, LLC *40 Walnut Street, Suite 301* *Wellesley, MA 02481*	*SolarCity Corporation* *714 Brook Street* *Rocky Hill, CT 06067*
SolarCity Corporation *714 Brook Street* *Rocky Hill, CT 06067*	***Host:*** *Kelvin H. Stott & Frances S. Stott* *9 Stott Avenue* *292 Plain Hill Road* *Norwich, CT 06360*
Civil Engineer: *Boundaries LLC* *179 Pachaug River Drive* *Griswold, CT 06351*	***Utility:*** *Norwich Public Utilities* *173 North Main Street* *Norwich, CT 06360*

Index To Drawings	
Sheet	*Sheet Title*
1	*Cover Sheet*
2-3	*Topographic Survey-Existing Conditions*
4	*Lease Plan*
5-6	*Site Preparation and Demolition Plan*
7-8	*Site Development Plan Solar Modules and Infrastructure*
9	*Erosion & Sediment Control Narrative and Details*
10	*Site Details*

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Match Mark - See Sheet #3

N\F
The William W. Backus Hospital
Volume 2610 Page 296

Subject Property #1
N/F Kelvin H. Stott
9 Stott Ave.
Vol. 1258 Pg. 227

N\F
Susan E. Ferguson &
Mark J. Ferguson
Volume 1109 Page 32

Subject Property #2
N/F Kelvin H. Stott &
Frances S. Stott
292 Plain Hill Road
Volume 1691 Page 144

N\F
Norwich Community
Development Corporation, Inc.
Volume 369 Page 783

Stott Avenue

Plain Hill Road

Cross Hatched Portion Denotes The Limits Of A Land Lease In Favor Of SBA Towers, Inc Volume 1477 Page 343

Cross Hatched Portion Denotes The Limits Of A 20' Wide Permanent and Perpetual Easement and Right of Way For Ingress and Egress Across Lands of Norwich Community Development Corporation Incorporated Volume 2356 Page 310

Cross Hatched Portion Denotes The Limits Of A Drainage Easement in Favor of the City of Norwich Volume 445 Page 312

Cross Hatched Portion Denotes The Approximate Limits Of A 40' Electric Distribution Easement In Favor Of The City of Norwich Department of Public Utilities Volume 1430 Page 219

Gravel Drive Subject to Rights Of Others For Ingress and Egress

"TO MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON."

70016
JOHN U. FAULISE JR. L.S. LICENSE NO. DATE

GRAPHIC SCALE
80 40 20 0 40
(IN FEET)
1 inch = 40 ft.

NOTE: SEE SHEET 3 FOR SURVEY NOTES AND LEGEND

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Boundaries LLC
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T 860.376.2006 | www.boundariesllc.net

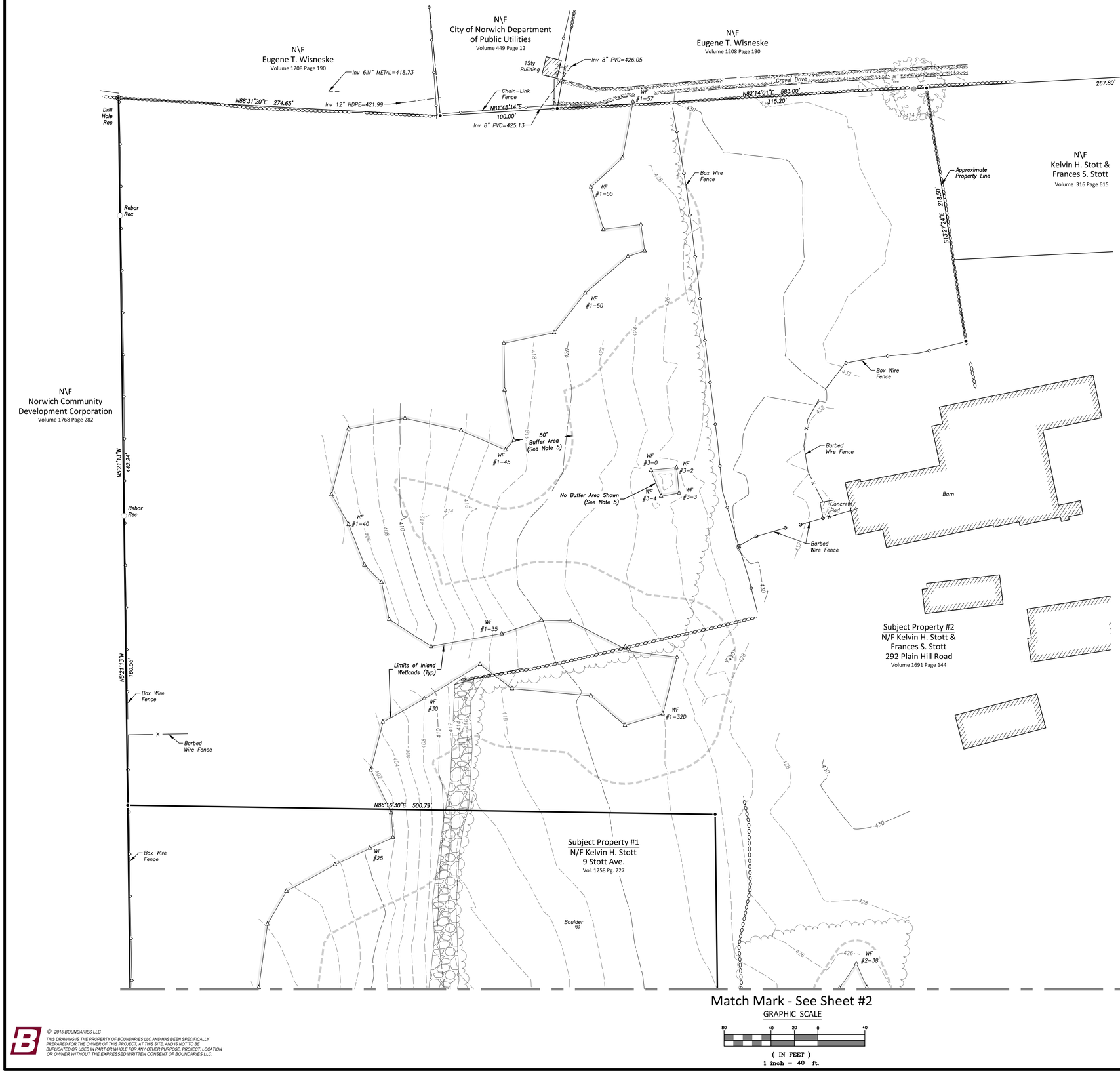
BRIGHTFIELDS DEVELOPMENT LLC
40 Walnut Street Suite 301
Wellesley, MA 02481
www.solarbrownfields.com

SolarCity
714 Brook Street
Rocky Hill, CT 06067
www.solarcity.com

SolarCity Corporation
Site Development and Management Plan
9 Stott Avenue & 292 Plain Hill Road
Norwich, Connecticut
Topographic Survey-Existing Conditions

SCALE: 1"=40'
DATE: August 2015
JOB I.D. NO. 15-2327
Revisions
Rev. A - Development & Management Plan Submittal - 10/15/15

SHEET NO.
2
10



LEGEND & ABBREVIATIONS

±	MORE OR LESS		TREELINE
TYP	TYPICAL		STONEWALL
PVC	POLYVINYL CHLORIDE		STONEWALL REMAINS
RCP	REINFORCED CONCRETE PIPE	•	ANGLE POINT
HDPE	HIGH DENSITY POLYETHYLENE PIPE	○	IRON PIN
S.F.	SQUARE FEET	◉	DRILL HOLE
SMH	SANITARY MANHOLE	⊡	MONUMENT
CB	CATCH BASIN	○	FENCE POST
TF	TOP OF FRAME		UTILITY POLE
INV	INVERT		UTILITY POLE WITH LIGHT
WV	WATER VALVE		GUY WIRE
HH	HANDHOLE	[N]	CATCH BASIN
WF #1	WETLAND FLAG		SANITARY MANHOLE
MON	MONUMENT		ELECTRIC MANHOLE
REC	RECOVERED		WATER VALVE
NPUD	NORWICH PUBLIC UTILITIES		SIGN
N/F	NOW OR FORMERLY	△	WETLAND FLAG
320	EXISTING CONTOUR		

REFERENCE MAPS

A. RESUBDIVISION SURVEY PROPERTY OF KELVIN H. STOTT, PLAIN HILL ROAD NORWICH, CONNECTICUT, DATED FEBRUARY 1996, SCALE: 1"= 100', PREPARED BY CLA ENGINEERS, INC.

B. LOT LINE RECONFIGURATION PROPERTY OF HILLTOP INVESTMENTS, LLC, #11 STOTT AVENUE NORWICH, CONNECTICUT, DATED 1/15/03, SCALE: 1"= 50', PREPARED BY CLA ENGINEERS, INC.

C. LOT LINE REVISION OF 292 PLAIN HILL ROAD, NORWICH, CONNECTICUT, PREPARED FOR KELVIN H. STOTT DECEMBER 16, 1998, SCALE: 1"= 100', PREPARED BY GESICK & ASSOCIATES P.C.

D. BOUNDARY SURVEY PROPERTY TO BE CONVEYED TO THE WM. W. BACKUS HOSPITAL, #11 STOTT AVENUE, NORWICH, CONNECTICUT, DATED APRIL 2010, SCALE 1"= 40' PREPARED BY CLA ENGINEERS, INC.

E. EXISTING CONDITIONS OF PROPOSED LEASE PARCEL, 292 PLAIN HILL ROAD NORWICH, CONNECTICUT, DATED DECEMBER 17, 1998, SCALE: 1"= 50', SBA, INC., PREPARED BY GESICK & ASSOCIATES P.C.

F. COMPREHENSIVE SITE PLAN SBA SITE #8618/NORWICH, 292 PLAIN HILL ROAD NORWICH, CONNECTICUT, DATED 3/19/99, SCALE: 1"= 50', SBA, INC., PREPARED BY GESICK & ASSOCIATES P.C.

G. KELVIN STOTT BASEBALL BATTING RANGE SITE PLAN, 292 PLAIN HILL ROAD NORWICH, CONNECTICUT, DATED JANUARY 1996, REVISED 2/13/96, SCALE: 1"= 20', PREPARED BY CLA ENGINEERS, INC.

H. SUBDIVISION PLAN #313 PROPERTY OF KELVIN H. STOTT, PLAIN HILL ROAD, NORWICH, CT., DATED 6/24/92, SCALE: 1"=40', PREPARED BY CLA ENGINEERS, INC.

I. CITY OF NORWICH, CONNECTICUT, NORWICH INDUSTRIAL PARK PLAN OF ROADS TO BE CONVEYED BY THE NORWICH COMMUNITY DEVELOPMENT CORPORATION, INC. TO THE CITY OF NORWICH, STOTT AVENUE, DATED JANUARY 1976, SCALE: 1"= 40', SHEETS 1 AND 2 OF 7, PREPARED BY CE MAGUIRE, INC.

J. LAND TO BE CONVEYED BY MICHAEL AND BLANCHE WISNESKE TO THE NORWICH COMMUNITY DEVELOPMENT CORPORATION INCORPORATED, CITY OF NORWICH, CONNECTICUT, SCALE: 1"= 20', REVISED 6/9/72, PREPARED BY C.E. MAGUIRE, INC.

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SURVEY NOTES

1. THIS SURVEY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300B-1 THROUGH 20-300B-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES AND "STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED FOR USE BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996. IT IS A PROPERTY AND TOPOGRAPHIC SURVEY BASED ON RESURVEY AND CONFORMS TO HORIZONTAL CLASS A-2 AND TOPOGRAPHIC CLASS T-2 ACCURACY STANDARDS. IT IS INTENDED TO DEPICT EXISTING SITE CONDITIONS FOR THE BASIS OF FUTURE DEVELOPMENT.

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3. NORTH ORIENTATION DEPICTED HEREON IS BASED ON APPROXIMATE CONNECTICUT GRID NORTH, NAD 1983, VERTICAL DATUM IS BASED ON NGVD 1988 DERIVED FROM GLOBAL POSITIONING OBSERVATIONS TAKEN FEBRUARY 2014.

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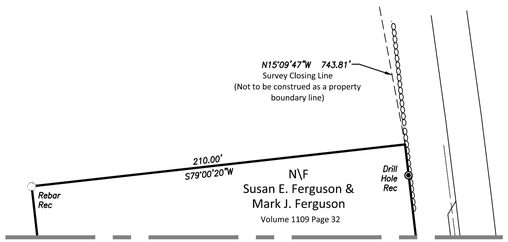
5. LIMITS OF INLAND WETLANDS DEPICTED HEREON WERE DELINEATED BY DEAN E. GUSTAFSON P.S.S., ALL POINTS TECHNOLOGY CORPORATION. 20' TO 50' BUFFER AREAS DEPICTED HEREON ARE PREDICATED ON RECOMMENDED SETBACKS PROVIDED BY ALL POINTS TECHNOLOGY CORPORATION BASED FIELD EVALUATION OF SAID INLAND WETLANDS. THE CITY OF NORWICH INLAND WETLAND REGULATIONS REQUIRES AN UPLAND REGULATED AREA OF 100'.



GRAPHIC SCALE

80 40 20 0 40

(IN FEET)
1 inch = 40 ft.

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70016

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SCALE: 1"=40'

DATE: August 2015

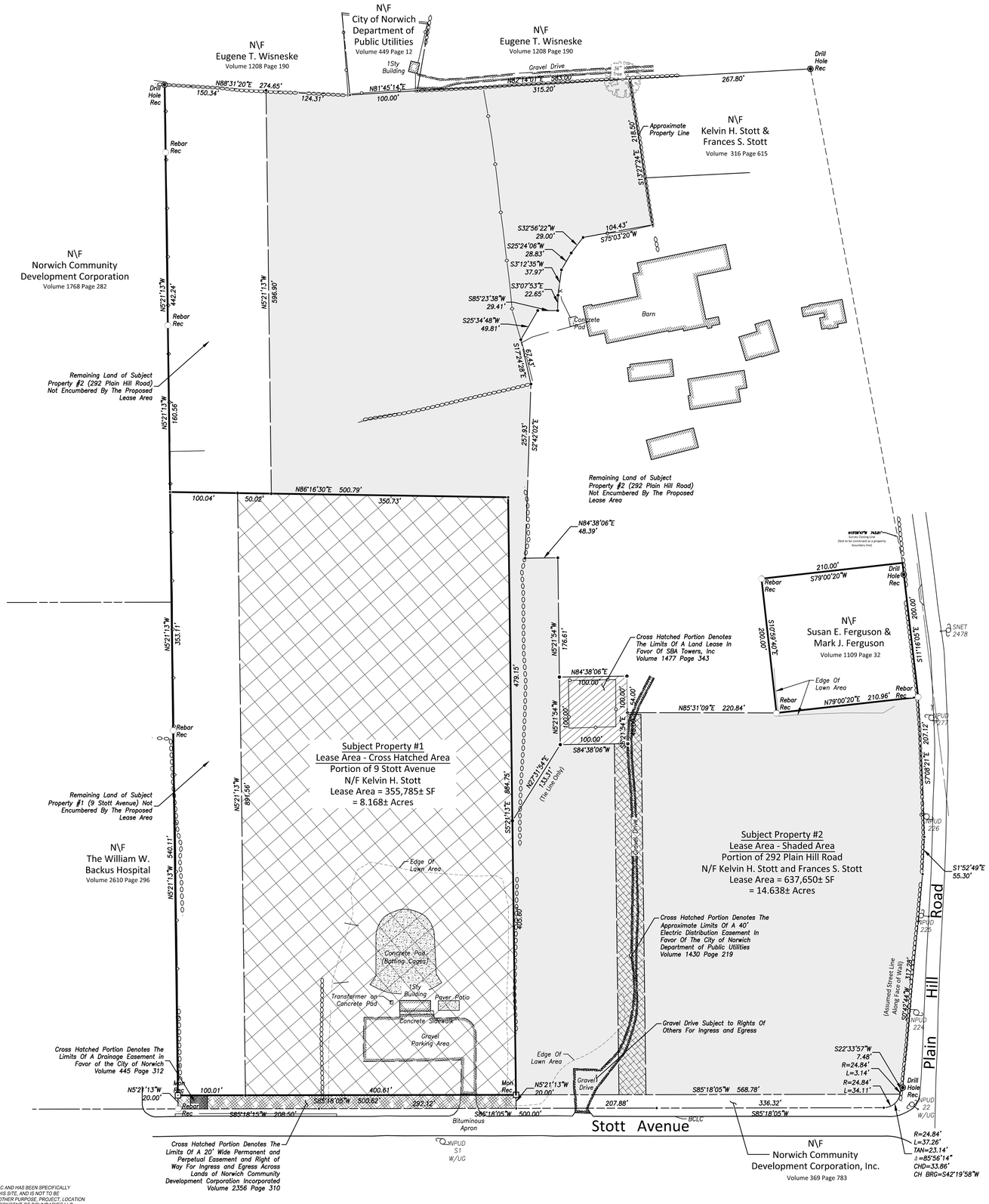
JOB I.D. NO. 15-2327

Revisions

Rev. A - Development & Management Plan Submittal - 10/15/15

SHEET NO.

3 / 10



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LEGEND & ABBREVIATIONS

±	*MORE OR LESS*
TYP	*TYPICAL*
S.F.	*SQUARE FEET*
MON	*MONUMENT*
REC	*RECOVERED*
NPUD	*NORWICH PUBLIC UTILITIES*
N/F	*NOW OR FORMERLY*
	STONEWALL
	STONEWALL REMAINS
•	*ANGLE POINT*
○	*IRON PIN*
◉	*DRILL HOLE*
⊡	*MONUMENT*
○	*FENCE POST*
	UTILITY POLE
	UTILITY POLE WITH LIGHT
	GUY WIRE

GRAPHIC SCALE

160 80 40 0 80

(IN FEET)
1 inch = 80 ft.

"TO MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON."

70016

JOHN U. FAULISE JR. L.S. *LICENSE NO.* *DATE*

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SCALE: 1"=80'

DATE: August 2015

JOB I.D. NO. 15-2327

Revisions

Rev. A - Development & Management Plan Submittal - 10/15/15

SHEET NO.

4 / 10

Match Mark - See Sheet #6

DEMOLITION NOTES:

(ALL WORK TO BE PERFORMED IN ACCORDANCE WITH CONNECTICUT GENERAL STATUES SEC. 29-402 THUR SEC. 29-414.)

1. OBTAIN DEMOLITION PERMIT AND PROVIDE REQUIRED BOND.
2. PROVIDE CERTIFICATE OF NOTICE FROM ALL PUBLIC UTILITY COMPANIES STATING THAT SERVICE CONNECTIONS HAVE BEEN TERMINATED.
3. DEMOLITION MATERIALS TO BE REMOVED FROM THE SITE BY THE CONTRACTOR AND DELIVERED FOR DISPOSAL TO A SITE APPROVED TO RECEIVE SUCH MATERIALS.
4. ALL ATTEMPTS SHOULD BE MADE TO LIMIT THE TIME THAT CRAWL SPACES OR FOUNDATIONS UNCOVERED DURING DEMOLITION ARE LEFT OPEN.
5. THE CONTRACTOR IS TO SEGREGATE RECYCLABLE MATERIALS AND DELIVER SUCH MATERIALS TO THE APPROPRIATE RECYCLING CENTER.
6. DUST CONTROL TO BE ACCOMPLISHED BY SPRAYING WITH WATER.
7. EXISTING UTILITY LOCATIONS ARE APPROXIMATE. CONTACT CALL BEFORE YOU DIG: 1-800-922-4455 PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES.

PROPOSED CLEARING LIMITS AND LIMITS OF DISTURBANCE LINE (TYP.) ALONG THE PROPOSED 50' WETLAND BUFFER LINE. NOTE THAT BUFFER TRANSITIONS FROM 25' TO 50' AT THIS LOCATION.

DISTURBANCE LINE TO BE STAKED AND MAINTAINED WITH A CONTINUOUS LINE OF SEDIMENT AND EROSION CONTROL BERM OR SEDIMENT FENCE IMMEDIATELY FOLLOWING CLEARING ACTIVITIES (SEE DETAIL).

BOTTOM OF WATER QUALITY BASIN = 392.0
TOP OF GRAVEL BERM = 393.0
STORAGE VOLUME = 1,730± CF

PROVIDE WATER QUALITY BASIN FORMED WITH 12-INCH HIGH GRAVEL BERM CONSTRUCTED AND INTEGRATED WITH THE NORTHEASTERLY FACE OF THE RELOCATED BOULDER WALL (SEE DETAILS)

25' Buffer Area (See Note 5)

PROVIDE CONTINUOUS CRUSHED STONE CHECK DAM. CONSTRUCT AGAINST THE NORTHEASTERLY FACE OF THE RELOCATED BOULDER WALL (SEE DETAIL)

PROPOSED CLEARING LIMITS AND LIMITS OF DISTURBANCE LINE (TYP.) ALONG THE PROPOSED 25' WETLAND BUFFER LINE.

DISTURBANCE LINE TO BE STAKED AND MAINTAINED WITH A CONTINUOUS LINE OF WOOD CHIP BERM OR SEDIMENT FENCE, IMMEDIATELY FOLLOWING CLEARING ACTIVITIES (SEE DETAIL).

BOTTOM OF WATER QUALITY BASIN = 386.0
TOP OF GRAVEL BERM = 387.0
STORAGE VOLUME = 3,130± CF

PROVIDE WATER QUALITY BASIN FORMED WITH 12-INCH HIGH GRAVEL BERM CONSTRUCTED AND INTEGRATED WITH THE NORTHEASTERLY FACE OF THE RELOCATED BOULDER WALL (SEE DETAILS)

DEMOLISH ALL EXISTING SITE IMPROVEMENTS IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS (SEE NOTES). FOLLOWING COMPLETION ALL AREAS ARE TO BE LOAMED, SEEDED AND MULCHED.

EXISTING STONE WALL TO REMAIN

PROVIDE 4,965' CHAIN LINK FENCE (SEE DETAIL)

Cross Hatched Portion Denotes The Limits Of A Drainage Easement in Favor of the City of Norwich Volume 445 Page 312

Cross Hatched Portion Denotes The Limits Of A 20' Wide Permanent and Perpetual Easement and Right of Way For Ingress and Egress Across Lands of Norwich Community Development Corporation Incorporated Volume 2356 Page 310

ALL AREAS LOCATED WITHIN THE LIMITS OF CLEARING TO BE CLEARED, STUMPS REMOVED, AND GRUBBED. DISTURBED AREAS TO BE LOAMED, SEEDED AND MULCHED.

FEASIBLE TOPSOIL STOCKPILE LOCATION (PROVIDE AND MAINTAIN CONTINUOUS SEDIMENT FENCE AROUND STOCKPILE)

EXISTING BOULDERS TO BE REMOVED. UTILIZE AND RELOCATE BOULDERS TO FORM A SINGLE CONTINUOUS BOULDER WALL (920'±) ALONG THE NORTHEASTERLY LIMITS OF THE PROPOSED 25' BUFFER AREA. EXCESS MATERIAL TO EITHER BE PROCESSED ON SITE FOR USE IN THE CONSTRUCTION OF THE STONE CHECK DAMS/GRAVEL BERMS OR REMOVED FROM THE SITE.

PROVIDE 12' WIDE PERMANENT GRAVEL ACCESS DRIVEWAY (SEE DETAIL)

REMAINS OF EXISTING STONE WALL TO REMAIN OUTSIDE OF PROPOSED FENCE LINE

EXISTING BOULDERS AND STONE WALL TO BE REMOVED. EXCESS MATERIAL TO EITHER BE PROCESSED ON SITE FOR USE IN THE CONSTRUCTION OF THE STONE CHECK DAMS/GRAVEL BERMS OR REMOVED FROM THE SITE.

PROVIDE DESIGNATED CONCRETE TRUCK WASHOUT AREA (10'X10' AREA MIN.)

ALL UTILITY SERVICES ARE TO BE ABANDONED AND CAPPED IN ACCORDANCE WITH THE REQUIREMENTS OF NORWICH DPU. CALL BEFORE YOU DIG: 1-800-922-4455

EXISTING GRAVEL PARKING AREA TO BE UTILIZED FOR STAGING, LAYDOWN, AND THE PROCESSING/LOADING OF BOULDERS DURING CONSTRUCTION. GRAVEL IS TO BE REMOVED FOLLOWING THE COMPLETION OF SITE PREPARATION/ DEMOLITION ACTIVITIES, AND THE AREA LOAMED, SEEDED AND MULCHED.

PROVIDE 15' WIDE ACCESS GATE (TYP. FOR 2) (SEE DETAIL)

PROPOSED TEMPORARY CONSTRUCTION ACCESS DRIVEWAY. PROVIDE AND MAINTAIN A ANTI-TRACKING PAD THROUGHOUT CONSTRUCTION.

Cross Hatched Portion Denotes The Limits Of A Land Lease In Favor Of SBA Towers, Inc Volume 1477 Page 343

PROVIDE 1,900' CHAIN LINK FENCE (SEE DETAIL)

EXISTING BOULDERS TO BE REMOVED. EXCESS MATERIAL TO EITHER BE PROCESSED ON SITE FOR USE IN THE CONSTRUCTION OF THE STONE CHECK DAMS/GRAVEL BERMS OR REMOVED FROM THE SITE.

PROVIDE STONE CHECK DAM (SEE DETAIL)

Cross Hatched Portion Denotes The Approximate Limits Of A 40' Electric Distribution Easement In Favor Of The City of Norwich Department of Public Utilities Volume 1430 Page 219

ALL AREAS LOCATED WITHIN THE LIMITS OF CLEARING TO BE CLEARED, STUMPS REMOVED, AND GRUBBED. DISTURBED AREAS TO BE LOAMED, SEEDED AND MULCHED.

Gravel Drive Subject to Rights Of Others For Ingress and Egress

PROVIDE CONTINUOUS CANADA YEW LANDSCAPED BUFFER ALONG STOTT AVENUE (SEE LANDSCAPE SCHEDULE AND DETAILS)

PROVIDE CONTINUOUS ARBORVITAE LANDSCAPED BUFFER ALONG PLAIN HILL ROAD AND THE PROPOSED LEASE LINE (SEE LANDSCAPE SCHEDULE AND DETAILS)

PROVIDE CONTINUOUS SEDIMENT FENCE LINE DOWNGRADIENT OF PROPOSED WORK (TYP) (SEE DETAIL)

Stott Avenue

Plain Hill Road

GRAPHIC SCALE
80 40 20 0 40
(IN FEET)
1 inch = 40 ft.

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29102
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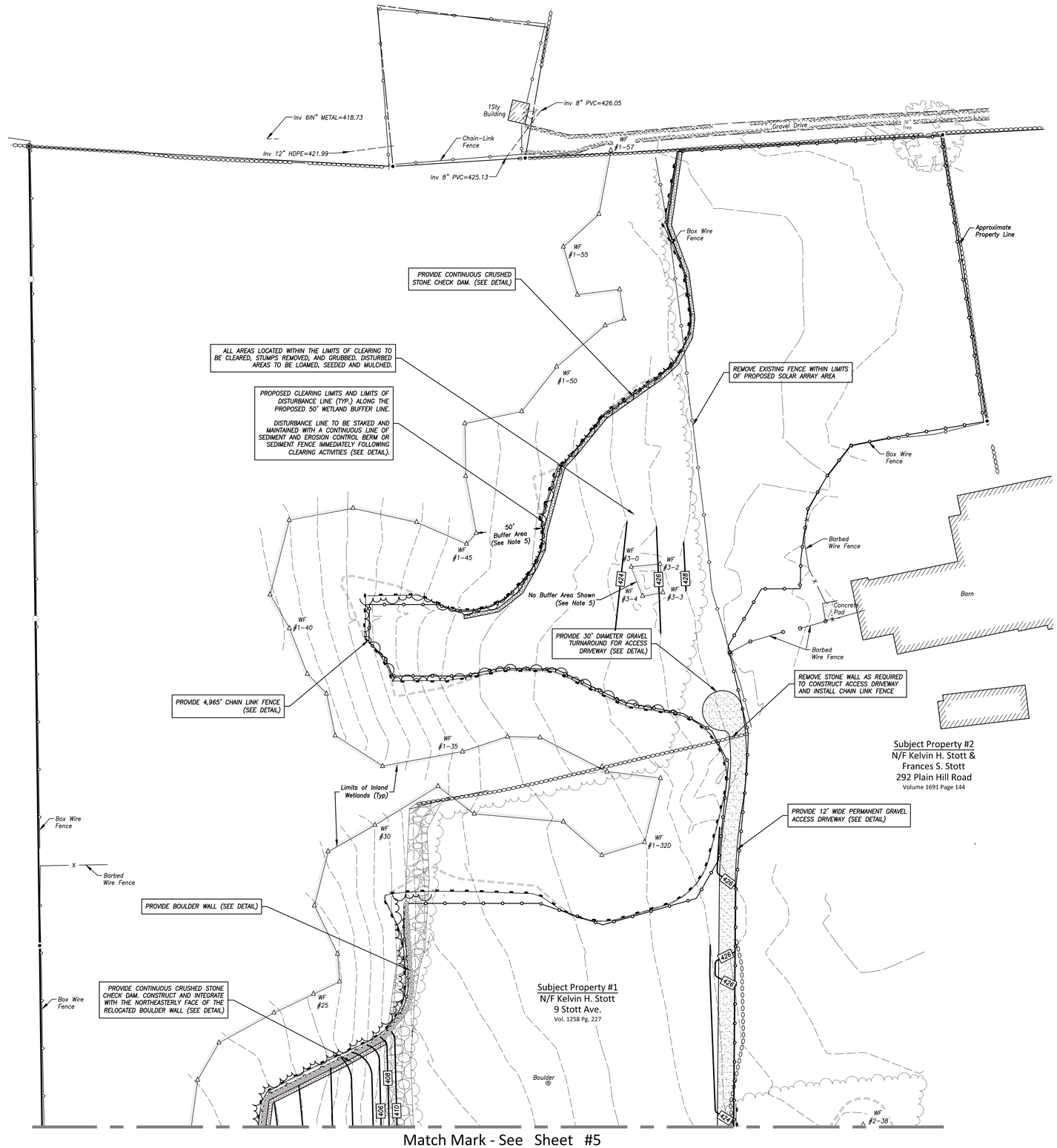
Rocky Hill, CT 06067
www.solarcity.com

SolarCity Corporation
Site Development and Management Plan
9 Stott Avenue & 292 Plain Hill Road
Norwich, Connecticut
Site Preparation and Demolition Plan

SCALE: 1"=40'
DATE: August 2015
JOB I.D. NO. 15-2327

Revisions
Rev. A - Development & Management Plan Submittal - 10/15/15

SHEET NO.
5
10



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Revisions

Rev. A - Development & Management Plan Submittal - 10/15/15

SHEET NO.
6
10

Match Mark - See Sheet #8

LIMITS OF PERIMETER IMPROVEMENTS COMPLETED DURING SITE PREPARATION AND DEMOLITION (CHAIN LINK FENCE, BOULDER WALL, WATER QUALITY BASINS, STONE CHECK DAM, AND GRAVEL BERM)

PROPOSED SOLAR PHOTOVOLTAIC SYSTEM

PROVIDE CONCRETE PAD FOR ELECTRICAL INVERTER EQUIPMENT (SEE ELECTRICAL DRAWINGS)

PROVIDE ELECTRICAL CONDUIT (TYP) (SEE ELECTRICAL DRAWINGS)

PROVIDE CONCRETE PAD FOR BATTERY SYSTEM AND PV SYSTEM UTILITY INTERCONNECTION POINT (SEE ELECTRICAL DRAWINGS)

Transformer

Chain-Link Fence

Electrical Panel

HHC

Rebar Rec

Box Wire Fence

Underground Electric Marked Out In Field (Typ)

Gravel Drive

Transformer on Concrete Pad EMH TF=409.18

EMH TF=414.03

Sign "Speed Limit 25"

Sign "Right Turn Ahead"

Sign "No Parking"

Sign "Speed Limit 30"

BCLC

Stott Avenue

Plain Hill Road

SMH TF=384.29
Inv 30" RCP(N)=378.95
Inv 30" RCP(S)=378.63

CB Type "C" TF=383.39

CB Type "C"
Inv 30" RCP(N)=378.61
Inv 30" RCP(W)=379.30
Inv 30" RCP(S)=378.43

EMH TF=384.36

CB Type "C" TF=389.52

EMH TF=393.76

CB Type "C" TF=393.90

NPUD S1 W/UG

CB Type "C" TF=401.26

CB Type "C" TF=401.18

CB Type "C" TF=404.65

EMH TF=404.53

CB Type "C" TF=403.73

CB Type TF=414.5

CB Type "CL" TF=414.23

CB Type "C" TF=407.58

CB Type "CL" TF=406.26

NPUD 277

NPUD 226

NPUD 225

NPUD 224

NPUD 22 W/UG

WF #1, #2-1, #2-05, #2-10, #2-15, #2-20, #2-25, #2-30, #2-35, #4, #10, #15, #20

GRAPHIC SCALE

80 40 20 0 40

(IN FEET)
1 inch = 40 ft.

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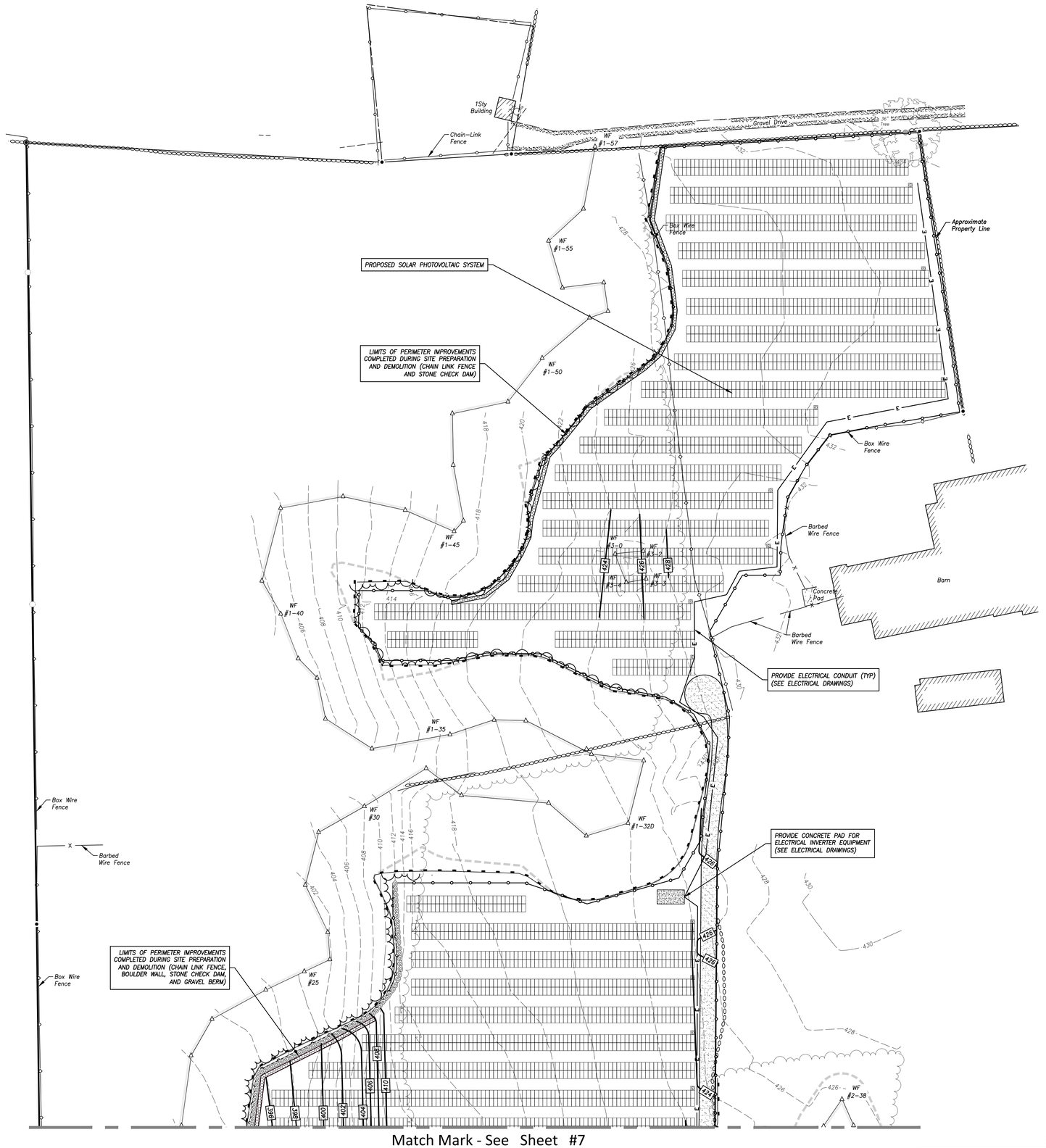
SolarCity Corporation
Site Development and Management Plan
9 Stott Avenue & 292 Plain Hill Road
Norwich, Connecticut
Site Development Plan Solar Modules and Infrastructure

SCALE: 1"=40'
DATE: August 2015
JOB I.D. NO. 15-2327
Revisions
Rev. A - Development & Management Plan Submittal - 10/15/15

SHEET NO.
7
10



Match Mark - See Sheet #7

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Rev. A - Development & Management Plan Submittal - 10/15/15

SHEET NO.
8
10

Reference Is Made To:

1. Connecticut Guidelines For Soil Erosion and Sediment Control, MAY 2002.
2. Soil Survey Of New London County Connecticut, U.S.D.A. Soil Conservation Service.

Development Schedule:

Prior to the start of construction, the contractor is to schedule a mandatory preconstruction meeting on site to discuss issues as they relate to the proposed project. These issues will include but not be limited to:

1. Resource Protection.
2. Construction Vehicle Access and Parking.
3. Construction Methods and Scheduling.
4. Existing site utilities and mark-out coordination.
5. Material delivery and stockpiling.
6. Site Inspection procedures and As-Built drawings.

General Sequence of Construction:

1. Secure all necessary local, state, and federal permits. Register for all applicable state and federal permits as required.
2. Install anti-tracking pad at construction entrance and sediment fence in vicinity of proposed access drive.
3. Rough grade (cut and fill as required) access drive. Place and compact driveway base and install traffic bound gravel surface for access drive. Stabilize all side slopes as soon as completed by loaming all disturbed areas (4" minimum), seed with grass/hydroseed and mulch.
4. Clear and remove all trees within the proposed clearing limits. Chip trees for use as sediment and erosion control berms.
5. Install sediment and erosion control berms or sediment fence as shown down gradient of proposed development area prior to grubbing operations.
6. Install chain link security fence along entire perimeter of development area and access road.
7. Grub stumps and strip topsoil in cleared areas and proposed grading areas stockpile all topsoil at the locations indicated or other approved location. Seed these stockpiles with ryegrass and surround with sediment fence or sediment and erosion control berm. All stumps are to be ground or disposed of off-site.
8. Install boulder barriers, stormwater basins/temporary sediment traps, and crushed stone check dams, and grade as shown within the cleared areas (1.5% maximum within the solar array area and 3H:1V maximum in other areas), place 4" of topsoil (minimum), seed and mulch disturbed areas.
9. Demolish existing structures in accordance with local, state, and federal requirements.
10. Grade remainder of site to the grades shown (1.5% maximum within the solar array area and 3H:1V maximum in other areas), place 4" of topsoil (minimum), seed and mulch disturbed areas.
11. Install final landscaping improvements and proposed solar array system. Install conduit, concrete utility pads and electrical equipment as required for harvesting power.
12. After all areas have been permanently stabilized, remove erosion control measures. Sediment and erosion control berms may be left in place at the option of the Contractor.

Soil Disturbance Phasing:

The project results in an estimated total soil disturbance of 4.91 acres as a result of the following activities:

1. Access drive construction and grading – 0.77 acres
2. Clearing, grubbing, and grading of cleared areas – 2.70 acres
3. Existing structure demolition and grading – 1.29 acres
4. Miscellaneous site improvements (landscaping, utilities, etc.) – 0.15 acres

Sediment and erosion control measures shall be installed on the downgradient limit of the project area prior to the initiation of any soil disturbing activities.

Construction Rules:

1. The Contractor shall Call Before You Dig at 811 or 1-800-922-4455 at least 72 hours, Saturdays, Sundays, and holidays excluded, prior to excavation at any location. A copy of the Call Before You Dig project reference number(s) shall be given to the Owner prior to excavation.
2. Locations of existing pipes, conduits, utilities, foundations and other underground objects are not warranted to be correct and the Contractor shall have no claim on that account should they be other than that shown.
3. Stone walls, fences, curbs, etc. shall be removed and replaced as necessary to perform the work. Unless otherwise indicated, all such work shall be incidental to construction of the project.
4. All other areas disturbed by the Contractor beyond payment limits shall be restored at no additional cost to the Owner.
5. The wetland buffer line shall be staked out in the field prior to any clearing operations.
6. All work shall be done in accordance with OSHA requirements and the contractor is responsible for compliance with these requirements. In addition, it shall be the responsibility of the Contractor to provide any excavation safeguards, necessary barricades, flagmen, etc. for traffic control and site safety.
7. All erosion & sedimentation control measures shall be installed prior to the start of construction.
8. All fuel, oil, paint or other hazardous materials used during construction should be stored in a secondary container and removed to a locked indoor area with an impervious floor during non-work hours.
9. No waste materials (such as stumps) are allowed to be buried on site. All waste materials shall be disposed of off-site at an appropriate location in accordance with all local, state, and federal regulations.

Erosion Control Operation & Maintenance:

The applicant shall be responsible for the installation and maintenance of erosion and sediment control measures throughout the project. No construction shall proceed until proper sedimentation and erosion control methods have been installed as the sequence of construction necessitates.

Every precaution shall be used during construction to prevent and minimize the degradation of the existing water quality from stormwater runoff during construction. All activities shall be in conformance to and consistent with all applicable water quality standards and management practices as set forth by local, state and federal agencies.

The applicant shall appoint an onsite agent who shall be personally responsible for implementing this erosion and sediment control plan and enforcing the prescribed safeguards during the excavation and operation period.

This responsibility includes the installation and maintenance of control measures throughout the project, informing all parties engaged on site of the requirements and objectives of the plan, notifying the proper agency and officials of any transfer of this responsibility.

All erosion and sediment control measures shall be repaired, cleaned and/or replaced as necessary throughout the project in order to maintain complete and integral erosion and sediment control protection. Once in place, all erosion and sediment control measures are to remain in place in proper condition and be continuously maintained until final site restoration has been completed. Following such permanent stabilization, the erosion and sediment control measures shall be dismantled, removed, and disposed of in an approved manner. Additional erosion and sediment control measures beyond those shown on the plans or prescribed herein shall be put in place, whenever necessary, to address field conditions and/or as ordered by the engineer.

Qualified personnel provided by the applicant shall inspect disturbed areas and the locations where vehicles enter and leave the site. These areas shall be inspected at least once every seven calendar days and within twenty-four hours at the end of a storm that is 0.5 inches or greater. Additional measures beyond those indicated and/or shown on this plan set or prescribed herein shall be put in place, whenever necessary, To address field conditions and/or as ordered by the engineer. where sites have been temporarily or finally stabilized, such inspection shall be conducted at least once every month for three consecutive months.

No soil, fill or other materials shall be deposited in surrounding inland wetlands.

All temporary storage and/or stockpile areas shall be properly stabilized to prevent erosion and suitably contained to prevent turbid runoff.

Dumping of oil or other deleterious materials on the ground is forbidden. The applicant shall provide a means of catching, retaining and properly disposing of drained oil, removed oil filters, or other deleterious material from equipment used on site. Vehicle maintenance shall be completed off site. All oil spills shall be immediately reported to the department of energy and environmental protection/hazardous materials office. Failure to do so may result in the imposition of fines under the applicable Connecticut General Statutes.

During construction, the applicant shall be responsible for site inspection and maintenance to assure proper performance of erosion control measures. Inspection and maintenance shall include, at a minimum, the following:

- Inspect all sediment fence, sediment and erosion control berms and other erosion control measures. Repair or replace any damaged portion in order to insure its proper and effective operation. Remove accumulated sediment if required (greater than 4" depth).
- Inspect all stockpiles. Repair or replace any damaged portion of erosion control measures surrounding these areas in order to prevent sedimentation downgradient.
- Inspect grass restored areas. Revegetate any eroded or disturbed areas to provide permanent stabilization. Reseed and/or revegetate any areas that do not have a suitable stand of grass or any scoured areas to provide permanent stabilization.
- Inspect anti-tracking pad. Remove and dispose of pad and replace if pad is no longer functioning efficiently or accumulated sediment is to a depth of 2" below the stone surface.
- Inspect all stone check dams. Remove accumulated sediment if required (blocking more than 3" depth of flow).
- Inspect all temporary and permanent stormwater basins. Remove accumulated sediment if required (greater than 6" depth), revegetate if necessary to provide stabilization.
- Inspect downgradient areas of all outlets and solar arrays. Stabilize any eroded areas if found.

Erosion and Sediment Control Best Management Practices (BMP'S)

Minimize Disturbed Area and Protect Natural Features and Soil:

Topsoil:

Topsoil will be removed and stockpiled on site and utilized for final grading. Additional topsoil, if required will be supplied from an off-site source. Excess materials resulting from "cut slopes" in the areas of the proposed construction that are not intended for reuse will be immediately removed from the site. When soil is stockpiled, the slope of the stockpile will not exceed 2 horizontal to 1 vertical.

Installation Schedule: As noted, excavated topsoil will be stockpiled on site. Sediment fence will be placed around any stockpiles that are not immediately removed from the site to protect the existing drainage ditches and off site areas.

Maintenance and Inspection: The cut and fill areas will be inspected weekly for erosion. These areas will be stabilized immediately with erosion controls or graded to avoid possible disturbance to the existing drainage ditches or off site areas. See also maintenance and inspection procedures for silt fence.

Control Stormwater Flowing Onto and Through the Project:

Area for Silt to accumulate:

BMP/Installation Schedule: Before any grading operations begin, a sediment and erosion control berm or sediment fence will be installed adjacent to the areas under construction just outside the limits of disturbance.

Other adjacent off site areas will always be protected by a sediment fence or another BMP until final stabilization is achieved.

Maintenance and Inspection: The graded areas and sediment fence will be inspected weekly to ensure that there are no structural failures and immediately after rain events.

Construction Specifications

Sediment and Erosion Control Berm

1. The material for sediment and erosion control berms will be acquired in conjunction with the removal and chipping of trees located within the project area.

Installation

Erect sediment and erosion control berm in a continuous fashion at the specified height and width.

Maintenance:

1. Sediment should be removed once it has accumulated to a depth of 4".
2. Berm should be repaired if it has been breached.
3. Berm can be left in place permanently and left to deteriorate.
4. All sediment accumulated at the berm should be removed and properly disposed of if the berm is to be removed.

Sediment Fence

1. The material for sediment fences should be a pervious sheet of synthetic fabric such as polypropylene, nylon, polyester, or polyethylene yarn.
2. The stakes used to anchor the filter fabric should be wood or metal. Wooden stakes should be at least 3 feet long and have a minimum diameter of 2 inches if a hardwood like oak is used. Stakes from soft woods like pine should be at least 4 inches in diameter.
3. Erect sediment fence in a continuous fashion from a single roll of fabric to eliminate gaps in the fence. If a continuous roll of fabric is not available, overlap the fabric from both directions only at stakes or posts. Overlap at least 6 inches. Excavate a trench to bury the bottom of the fabric fence at least 6 inches below the ground surface. This helps to prevent gaps from forming near the ground surface. Gaps would make the fencing useless as a sediment barrier.
4. The height of the fence posts should be 16 to 34 inches above the original ground surface. Space the posts no more than 10 feet apart.
5. The fence should be designed to withstand the runoff from a 10-year peak storm event. Once installed, it should remain in place until all areas upslope have been permanently stabilized by vegetation or other means.

Installation:

1. Dig a 6" deep trench on the uphill side of the proposed barrier location.
2. Position the posts on the downhill side of the fabric barrier and drive the post 1.5 feet into the ground.
3. Lay the bottom 6" of the fabric barrier in the trench to prevent undermining and backfill.

Maintenance:

1. Sediment should be removed once it has accumulated to 4" depth.
2. Filter fabric should be replaced whenever it has deteriorated to such an extent that the effectiveness of the fabric is reduced (approximately six months).
3. Sediment fence should remain in place until disturbed areas have been permanently stabilized.
4. All sediment accumulated at the fence should be removed and properly disposed of before the fence is removed.

Inspection:

1. Inspect sediment fence before anticipated storm events (or series of storm events such as intermittent showers over one or more days) and within 24 hours after the end of a storm event of 0.5 inches or greater, and at least once every seven calendar days, at least 72 hours apart.
2. Where sites have been finally or temporarily stabilized, such inspections may be conducted once per month.

Straw Bale Barrier

Installation

1. Excavate trench 4" and place material upslope of trench.
2. Place bales in a single row in the trench, lengthwise, with ends of adjacent bales tightly abutting one another and the bindings oriented around the sides rather than along the tops and bottoms of the bales (to avoid premature rotting of the bindings).
3. Anchor each bale with at least 2 stakes, driving the first stake in each bale toward the previously laid bale to force the bales together. Stakes must be driven a minimum of 18 inches into the ground. Fill any gaps between the bales with straw to prevent water from escaping between the bales.
4. Backfill the bales with the excavated trench material to a minimum depth of 4 inches on the uphill side of the bales. Tamp by hand or machine and compact the soil. Loose straw scattered over the disturbed area immediately uphill from the hay bale barrier tends to increase barrier efficiency.

Maintenance

1. Inspect the straw bale barrier at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inch or greater to determine maintenance needs. For dewatering operations, inspect frequently before, during, and after pumping operations. Remove the sediment deposits when sediment deposits reach approximately one half the height of the barrier.
2. Replace or repair the barrier within 24 hours of observed failure. Failure of the barrier has occurred when sediment fails to be retained by the barrier because:
   (a) the barrier has been overtopped, undercut or bypassed by runoff water,
   (b) the barrier has been moved out of position, or
   (c) the straw bales have deteriorated or been damaged.
3. When repetitive failures occur at the same location, review conditions and limitations for use and determine if additional controls are needed to reduce failure rate or replace straw bale barrier.
4. Maintain the straw bale barrier until the contributing area is stabilized. After the upslope areas have been permanently stabilized, pull the stakes out of the hay bales. Remove sediment.

Dust Control:

Dust from the site will be controlled by using a mobile pressure-type distributor truck that will apply potable water at rate of 300 gallons per acre and minimized as needed to avoid ponding.

Installation Schedule: Dust control will be implemented as needed once site grading has been initiated, and during windy conditions exceeding 20mph, while site grading is occurring. Spraying of potable water will be performed once per day during the months of March through May and no more than three times per day from June to September or whenever dryness of soil warrants it.

Maintenance Schedule: At least one mobile unit will be available at all times during construction to apply potable water. Each mobile unit shall be equipped with a positive shutoff valve to prevent over watering of disturbed areas.

Soil Stabilization:

Temporary Stabilization:

RMP Description: Hydromulching will be used on slopes where construction will cease for more than 14 days and over the winter months to stabilize erodible materials. Straw mulch and wood fiber will be mixed with a tackifier and applied uniformly by machine with an application rate of 2 tons (100-200 bales) per acre. The contractor will use crimping equipment to bind the mulch to the soil if the tackifier is not effective. Netting will be used on small areas with steep slopes. In areas where hydromulching is inaccessible, straw mulch will be applied by hand at the same application rate.

Temporary Seeding will be used on any area where construction activity is suspended for more than twenty-one days to stabilize erodible materials. Refer to the Erosion Control Plan for guidance on seeding mixtures, rates, and acceptable planting dates for temporary seeding.

Installation Schedule: Portions of the site where construction activities will temporarily cease for more than 14 days will be stabilized with mulch. Where construction activities will temporarily cease for more than 21 days it will be temporarily seeded. Winter stabilization will be provided between December 25 and March 30.

Maintenance and Inspection: Mulched areas will be inspected weekly to ensure that adequate coverage is provided. Repairs will be conducted as needed.

Seed Mixture For Temporary Seeding

	LBS./ACRE	LBS./1000 S.F.
Annual Ryegrass	40	1.0

See Figure TS-2 in the 2002 Guidelines for additional temporary seed mixes.

Final Stabilization:

Permanent seeding should be applied immediately after the final design grades are achieved at the site but no later than 14 days after construction activities have permanently ceased. After the entire site is stabilized, any sediment that has accumulated will be removed and hauled off site to a licensed landfill facility. Construction debris, trash, and temporary BMP's will also be removed and any areas disturbed during removal will be seeded immediately.

Seedbed Preparation:

1. Topsoil will be spread over final graded areas at a minimum depth of four inches. Topsoil shall inclusively mean a soil meeting one of the following soil textural classes established by the United States Department of Agriculture classification system based upon the proportion of sand, silt, and clay size particles after passing a 2 millimeter (mm) sieve and subjected to a particle size analysis:
   1.1. Loamy sand, including coarse, loamy fine, and loamy very fine sand, sandy loam, including coarse, fine and very fine sandy loam, loam, or silt loam with not more than 60% silt;
   1.2. Containing not less than 6% and not more than 20% organic matter as determined by loss-on-ignition of oven dried samples dried at 105 degrees centigrade;
   1.3. Possessing a ph range of 6.0-7.5, except if the vegetative practice being used specifically requires a lower ph, then ph may be adjusted accordingly;
   1.4. Having soluble salts not exceeding 500 ppm;
   1.5. And that is loose and friable and free from refuse, stumps, roots, brush, weeds, frozen particles, rocks, and stones over 1.25 inches in diameter, and any material that will prevent the formation of a suitable seedbed or prevent seed germination and plant growth.
2. Fertilizer will be applied to the seedbed as needed. Fertilizers will be commercial type of uniform composition, free-flowing and conforming to the applicable State and Federal laws. Choose native species that are adapted to local weather and soil conditions wherever possible to reduce water and fertilizer inputs and lower maintenance overall.
3. Topsoil will be loosened by raking, tilling or other suitable methods.

Final stabilization should be installed on portions of the site where construction activities have permanently ceased but no later than 14 days after construction ceases.

All seeded areas will be inspected weekly during construction activities for failure until a dense cover of vegetation has been established. If failure is noticed on the seeded area, the area will be reseeded, fertilized and mulched immediately. After construction is complete at the site permanent stabilization measures will be monitored until final stabilization is reached.

Seed Mixture For Upland Areas

	LBS./ACRE	LBS./1000 S.F.
Kentucky Bluegrass	20	0.45
Creeping Red Fescue	20	0.45
Perennial Ryegrass	5	0.10
	45	1.00

The recommended seeding dates are: April 1-June 15 and August 1-September 15

ENVIRONMENTAL NOTES

(PREPARED BY ALL POINTS TECHNOLOGY)

Wetland Protection Program

Portions of the proposed Project are located in close proximity to wetlands. As a result, the following protective measures shall be followed to help avoid degradation of the nearby wetland system.

It is of the utmost importance that the Contractor complies with the requirement for the installation of protective measures and the education of its employees and subcontractors performing work on the project site. These measures will also provide protection to a nearby wetland system. This protection program shall be implemented regardless of time of year the construction activities occur. All-Points Technology Corporation, P.C. ("APT") will serve as the Environmental Monitor for this project to ensure that wetland protection measures are implemented properly. The Contractor shall contact Dean Gustafson, Senior Environmental Scientist at APT, at least 5 business days prior to the pre-construction meeting. Mr. Gustafson can be reached by telephone at (860) 663-1697 ext. 201 or via email at dgustafson@allpointstech.com.

The wetland protection program consists of several components: use of appropriate erosion control measures to control and contain erosion while avoiding/minimizing wildlife entanglement; periodic inspection and maintenance of isolation structures and erosion control measures; education of all contractors and sub-contractors prior to initiation of work on the site; protective measures; and, reporting.

1. Erosion and Sedimentation Controls

   a. Plastic netting used in a variety of erosion control products (i.e., erosion control blankets, fiber rolls [wattles], reinforced silt fence) has been found to entangle wildlife, including reptiles, amphibians, birds and small mammals. No permanent erosion control products or reinforced silt fence will be used on the project. Temporary Erosion control products will use either erosion control blankets and fiber rolls composed of processed fibers mechanically bound together to form a continuous matrix (net less) or netting composed of planar woven natural biodegradable fiber to avoid/minimize wildlife entanglement.

   b. Installation of erosion control measures shall be performed by the Contractor prior to any earthwork. The Environmental Monitor will inspect the work zone area prior to and following barrier installation to ensure erosion controls are properly installed.

   c. In addition to required daily inspection by the Contractor, the fencing will be inspected for tears or breeches in the fabric following installation periodically by the Environmental Monitor throughout the course of the construction project.

   d. The extent of the erosion controls will be as shown on the site plans. The Contractor shall have additional erosion control materials should field conditions warrant extending the fencing as directed by the Environmental Monitor.

   e. All silt fencing and other erosion control devices shall be removed within 30 days of completion of work and permanent stabilization of site soils. If fiber rolls/wattles, straw bales, or other natural material erosion control products are used, such devices will not be left in place to biodegrade and shall be promptly removed after soils are stable so as not to create a barrier to migrating wildlife. Seed from seeding of soils should not spread over fiber rolls/wattles as it makes them harder to remove once soils are stabilized by vegetation.

2. Contractor Education

   a. Prior to work on site, the Contractor shall attend an educational session at the pre-construction meeting with the Environmental Monitor. This orientation and educational session will consist of an introductory meeting with the Environmental Monitor to understand the environmentally sensitive nature of the development site and the need to follow these protective measures.

3. Petroleum Materials Storage and Spill Prevention

   a. Certain precautions are necessary to store petroleum materials, refuel and contain and properly clean up any inadvertent fuel or petroleum (i.e., oil, hydraulic fluid, etc.) spill due to the project's location in proximity to sensitive wetlands.

   b. A spill containment kit consisting of a sufficient supply of absorbent pads and absorbent material will be maintained by the Contractor at the construction site throughout the duration of the project. In addition, a waste drum will be kept on site to contain any used absorbent pads/material for proper and timely disposal off site in accordance with applicable local, state and federal laws.

   c. The following petroleum and hazardous materials storage and refueling restrictions and spill response procedures will be adhered to by the Contractor.

   i. Petroleum and Hazardous Materials Storage and Refueling

1. Refueling of vehicles or machinery shall occur a minimum of 100 feet from wetlands or watercourses and shall take place on an impervious pad with secondary containment designed to contain fuels.
2. Any fuel or hazardous materials that must be kept on site shall be stored on an impervious surface utilizing secondary containment a minimum of 100 feet from wetlands or watercourses.

   ii. Initial Spill Response Procedures

1. Stop operations and shut off equipment.
2. Remove any sources of spark or flame.
3. Contain the source of the spill.
4. Determine the approximate volume of the spill.
5. Identify the location of natural flow paths to prevent the release of the spill to sensitive nearby waterways or wetlands.
6. Ensure that fellow workers are notified of the spill.

   iii. Spill Clean Up & Containment

1. Obtain spill response materials from the on-site spill response kit. Place absorbent materials directly on the release area.
2. Limit the spread of the spill by placing absorbent materials around the perimeter of the spill.
3. Isolate and eliminate the spill source.
4. Contact appropriate local, state and/or federal agencies, as necessary.
5. Contact a disposal company to properly dispose of contaminated materials.

   iv. Reporting

1. Complete an incident report.
2. Submit a completed incident report to appropriate local, state and/or federal agencies, as necessary.
3. Herbicide and Pesticide Restrictions

   a. In the event herbicides and/or pesticides are required at the proposed facility, their use will be used in accordance with Integrated Pest Management ("IPM") principles with particular attention to minimize applications within 100 feet of wetland or watercourse resources. No applications of herbicides or pesticides are allowed within actual wetland or watercourse resources.

5. Reporting

   a. Any incidents of sediment release into the nearby wetland will be reported to the Connecticut Siting Council.

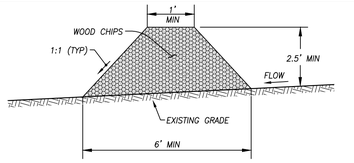
Wildlife Habitat Enhancement Measures

Areas located between the perimeter fence and forest edge (including forest areas that will be cleared to prevent shading of the proposed solar array), shall be managed as follows to enhance wildlife habitat. The relatively narrow strip of land (generally 25 feet in most areas with an expansion to 50 feet for developed areas for areas bordering vegetated community types) located between the perimeter fence and the newly-created forest edge shall be mowed on a rotational basis every 4 to 7 years. Mowing shall not occur between March 1 and November 1 to minimize potential for wildlife impact. This mowing regime will allow the area to revert to a late old field habitat cover and create a "soft" ecotone that will provide cover and habitat for a number of wildlife species that utilize this "edge" habitat, particularly nesting bird species.

Bat and Avian Protection Program

The proposed construction activities will result in the clearing of trees, shrubs and mature vegetation that has the potential to support breeding birds. In addition, depending on the type and timing of forest management activities there is potential for mortality and temporary removal or degradation of roosting and foraging habitat for northern long-eared bat. Northern long-eared bat is a federally-listed Threatened Species and a state-listed Endangered Species.

In order to limit disturbance to tree roosting and breeding habitat utilized by northern long-eared bat and various bird species, the Contractor shall not perform tree clearing activities between April 15 and August 31.



SEDIMENT AND EROSION CONTROL BERM

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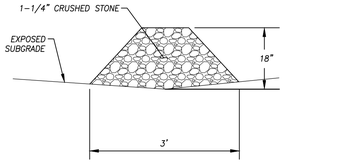

STONE CHECK DAM SECTION

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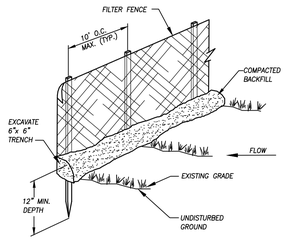

SEDIMENT FENCE DETAIL

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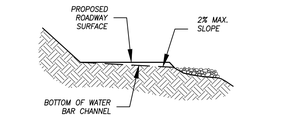
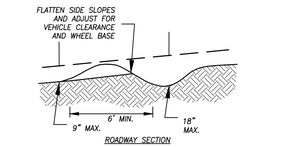


PERPENDICULAR SECTION



ROADWAY SECTION

WATER BAR DETAIL

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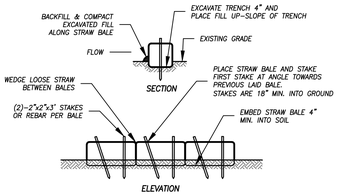
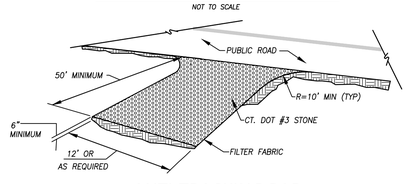


SECTION

ELEVATION

STRAW BALE BARRIER DETAIL



ANTI-TRACKING PAD

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SolarCity Corporation
Site Development and Management Plan
9 Stott Avenue & 292 Plain Hill Road
Norwich, Connecticut
Erosion and Sediment Control Narrative & Details

SCALE: As Noted

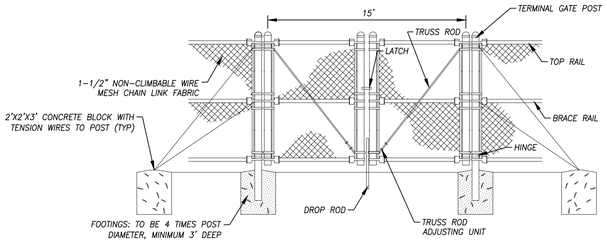
DATE: August 2015

JOB I.D. NO. 15-2327

Revisions

Rev. A - Development & Management Plan Submittal - 10/15/15

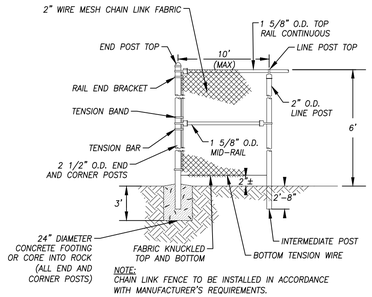
SHEET NO. 9 / 10



NOTE:
SWING GATES TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

6' HIGH GALVANIZED SWING GATE DETAIL

NOT TO SCALE



NOTE:
CHAIN LINK FENCE TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

GALVANIZED CHAIN LINK FENCE DETAIL

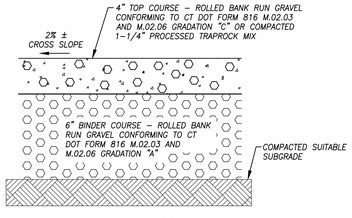
NOT TO SCALE



NOTE:
1. SIGNS MOUNTED ON GATES AT ALL ENTRANCES.
2. SIGNS TO BE RATED FOR OUTDOOR ENVIRONMENTS.

IDENTIFICATION SIGNAGE

NOT TO SCALE



TRAFFIC BOUND GRAVEL SURFACE

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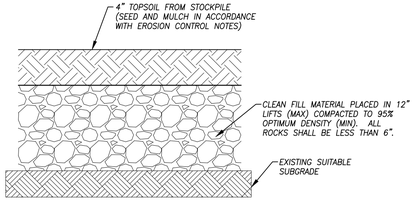

FILL PLACEMENT DETAIL

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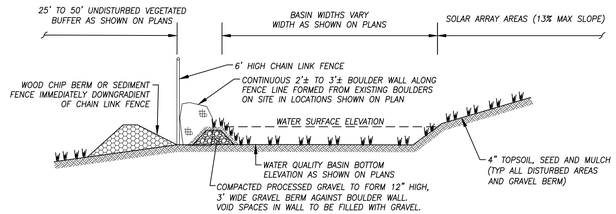
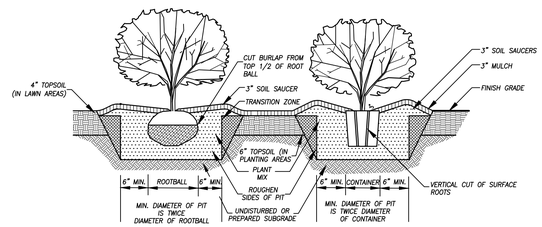


NOTES:
ALL GRAVEL FILL FOR WATER QUALITY BASIN BERM TO MEET THE REQUIREMENTS OF CT DOT FORM 816 M.02.06 GRADATION A.

WATER QUALITY BASIN DETAIL

NOT TO SCALE



NOTES:
1. SET CROWN OF ROOTBALL 2" ABOVE FINISH GRADE.
2. FOR CONTAINER GROWN STOCK USE FINGERS OR A SHARP KNIFE TO LOOSEN ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL; THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER.
3. AT PLANTING THOROUGHLY SOAK THE ROOT MASS AND ADJACENT SOIL. REPEAT SEVERAL TIMES DURING THE FIRST MONTH AND THROUGHOUT THE FOLLOWING TWO SUMMERS.

SHRUB PLANTING DETAIL

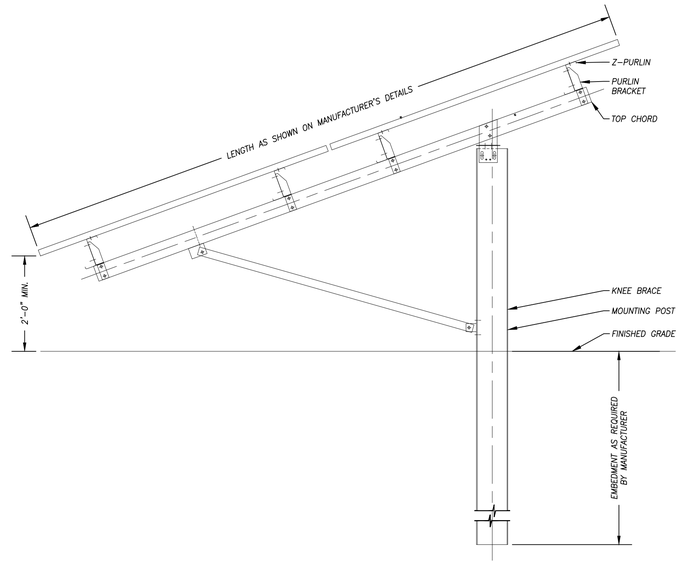
NOT TO SCALE

LANDSCAPE SCHEDULE

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY	COMMENT
TREES AND SHRUBS					
THOC2	Thuja Occidentalis	"Emerald Green" Arborvitae	5' Height	238	C.G.
TACA7	Taxus Canadensis	Canada Yew	2-3' Height	62	C.G.

Planting Specifications:

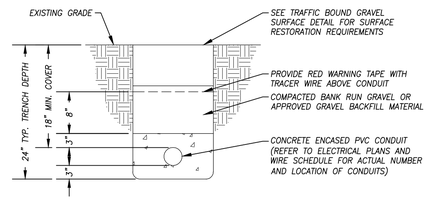
1. *All materials and construction methods shall conform to the requirements of the Connecticut Association of Landscape Contractors Specification. All plants shall be nursery grown and conform to the latest edition of ANSI Z60.1, AMERICAN STANDARD FOR NURSERY STOCK and also the minimum guidelines established for nursery stock published by the American Association of Nurserymen, Inc.*
2. *No substitution of plant materials will be allowed without the prior written consent of the Project Owner. Where a plant size range is provided at least 50% of the plants shall be of the larger size.*
3. *All lawn and planting area soil preparation shall be fertilized and amended according to recommendations of a soil analysis provided by an approved soil testing laboratory.*
4. *All exterior ground areas disturbed by construction and not covered by buildings, structures, paving, continuous planting beds or other site improvements shall be graded, topsoiled to a minimum depth of 4" and grass seeded. Provide lawn development in all areas of selective clearing as directed.*
5. *All plant pits must be free draining. Break up the bottom of the hole by fork if necessary to ensure plant has proper drainage.*
6. *Set all plants in center of plant pits, plumb and straight and as detailed on the drawing. All plant material shall bear the same relationship to finished grade as to original planting grade prior to digging. Trees shall be planted with the junction of roots and stem level with finished grade.*
7. *Handle balled and burlapped plants from the ball only. Once positioned in the hole, remove the top 1/3 of the burlap from the root ball without disturbing the roots.*
8. *Face each plant to give the best appearance. Final location of plant material should be approved by the Project Owner in the field.*
9. *Fill plant pits 2/3 their depth with prepared planting mixture, water thoroughly and allow to settle. Complete back-filling, water thoroughly to eliminate any voids and air pockets. Provide additional back-fill as necessary to conform to required elevation and as detailed.*
10. *Form saucer and install mulch over entire plant pit and saucer area as detailed.*
11. *All tree staking or guying shall be completed immediately after planting, but in no instance more than 24 hours after planting. See staking/guying detail. At the completion of the maintenance period remove all stakes, flags, guys, tree wrap, and anchors.*
12. *Mulch all new shrub beds and plant pits to achieve a 3" depth after settlement. Mulch all ground cover beds to achieve a 2" depth after settlement. Mulch for saucers and planting areas to be a double shredded bark mulch.*
13. *All plants shall be guaranteed for a period of one full year after inspection and acceptance by the Owner's representative, and shall have at least 80% healthy growth at the end of the guarantee period.*
14. *Landscape planting materials as proposed by this plan are Connecticut native and/or non-invasive species. This landscape plan has been designed to incorporate species which are prolific in USDA plant hardiness zone 6b and which require minimal energy input for upkeep and maintenance. References utilized for Connecticut native and non-invasive species selection include the Connecticut Botanical Society, the Connecticut agricultural experiment station, the U.S. Department of Transportation Federal Highway Administration, 2004 Connecticut Stormwater Quality Manual, New England Wetland Plants, Inc., and other sources.*



NOTES:
SEE MANUFACTURER'S DETAIL SHEETS FOR ADDITIONAL INFORMATION REGARDING RACKING SYSTEM REQUIREMENTS AND INSTALLATION PROCEDURES. RACKING SYSTEM TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

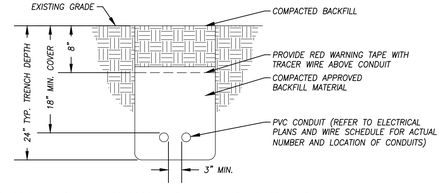
TYPICAL POST MOUNTED RACKING SYSTEM DETAIL

NOT TO SCALE



CONDUIT TRENCH THROUGH GRAVEL DRIVE DETAIL

NOT TO SCALE



NON-TRAFFIC CONDUIT TRENCH DETAIL

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SolarCity Corporation
Site Development and Management Plan
9 Stott Avenue & 292 Plain Hill Road
Norwich, Connecticut
Site Details

SCALE: As Noted
DATE: August 2015
JOB I.D. NO. 15-2327

Revisions

Rev. A - Development & Management Plan Submittal - 10/15/15

SHEET NO.
10
10

EXHIBIT B – Stormwater Management Report

John U. Faulise Jr. L.S.
James McNally, Jr., L.S.

David C. McKay, P.E.
Demian A. Sorrentino AICP, C.S.S.

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STORMWATER MANAGEMENT REPORT

PREPARED FOR:

SOLARCITY CORPORATION
DEVELOPMENT AND MANAGEMENT PLAN
STOTT AVENUE SOLAR PROJECT
9 STOTT AVENUE AND 292 PLAIN HILL ROAD
NORWICH, CONNECTICUT

AUGUST 2015

PREPARED BY:

BOUNDARIES LLC

PROJECT I.D. NO. 15-2327

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FIGURE 3 POST-DEVELOPMENT CONDITIONS WATERSHED MAP

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APPENDIX B HYDROCAD MODELING RESULTS
APPENDIX C STORMWATER QUALITY CALCULATIONS
APPENDIX D SITE DEVELOPMENT PLANS

Introduction

On behalf of SolarCity Corporation, Boundaries LLC has prepared the following stormwater management report for the proposed solar photovoltaic development to be located at 9 Stott Avenue and 292 Plain Hill Road in Norwich. The stormwater management system has been designed to meet the recommendations of the Connecticut Department of Energy and Environmental Protection (CT DEEP) Stormwater Quality Manual and make use of low impact development techniques. The proposed development consists of an approximately 5 MW DC solar photovoltaic development on two lots. The stormwater management system has been designed to provide peak flow control, pollution prevention, and groundwater recharge. This stormwater analysis includes the areas that contribute runoff to the project area, but are not affected by the proposed project. Of the approximately 25.5 acres that contribute runoff to the project area, approximately 14.8 acres are included in the proposed development.

The new construction includes solar panels mounted on posts driven approximately 8 feet into the ground, electrical equipment installed on concrete pads, and the construction of a 12-foot wide gravel driveway for maintenance access. The proposed development will be enclosed within a 6-foot high chain link fence. The location of the proposed project is shown on the Location Map included as Figure 1.

There are three regulated inland wetlands resource areas on site, as determined by Matthew Gustafson, a registered soil scientist with All Points Technology Corporation. Wetland series 1 forms the western boundary of the project area, wetland series 2 is an isolated wetland located in a wooded area between the two properties, and wetland series 3 is a small isolated wetland that has formed in the middle of the existing agricultural field to the north as a result of the agricultural operations. According to the Natural Resources Conservation Service (NRCS) Web Soil Survey the soils on the site consist of Woodbridge fine sandy loam, 0 to 3% slopes, Woodbridge fine sandy loam, 3 to 8% slopes, and Woodbridge fine sandy loam, 2 to 15% slopes, extremely stony. Woodbridge soils are classified as Hydrologic Soil Group C/D. The Soils Report is provided in Appendix A.

Existing and post-development conditions hydrographs were estimated using the hydrologic modeling program HydroCAD. The methodology selected was NRCS TR-20. Times of concentration were estimated using multiple segment flow paths as described in the NRCS TR-55 manual. The Type III 24-hour storm was analyzed under antecedent moisture condition two. HydroCAD modeling results are presented in Appendix B. Stormwater quality calculations are included in Appendix C.

The proposed site development plans are included in Appendix D.

Existing Conditions

The proposed project area consists of approximately 14.8 acres of the total 27.4 acres of 9 Stott Avenue and 292 Plain Hill Road. 9 Stott Avenue is zoned BP and 292 Plain Hill Road is zoned R-40. 9 Stott Avenue is currently developed as a batting cage facility, with the rear portion of the lot still being used in the agricultural operation. 292 Plain Hill Road is an active agricultural development with fields, barns and other outbuildings, and the farm house. 9 Stott Avenue is adjacent to a medical facility, 292 Plain Hill Road, and is across the street from a parking lot and baseball stadium. 292 Plain Hill Road is adjacent to single family residential lots, agricultural uses, and a water tower and cellular communications tower. During storms, runoff sheet flows off the site to the wetlands system at the western limit of the project area or to the formal drainage system located in Stott Avenue. The northern portion of the wetlands systems flows to the north behind the medical facility and the southern portion of the wetlands system flows to the south through a culvert under Stott Avenue. Existing conditions of the property are shown below.



Aerial Photograph of Project Area

Existing conditions sub-watersheds are shown on Figure 2. Existing conditions sub-watersheds were delineated using topographic survey data supplemented with aerial topographic survey from the City of Norwich's GIS mapping for areas outside of the detailed survey limits. Land uses were estimated using aerial photography and survey data. Runoff Curve Numbers (CN) used for the existing conditions analysis are as follows: 65 (brush) for dense brush areas, 74 (>75% grass cover/pasture) for lawns and grazing areas, 70 (woods) for wooded areas with dense vegetation, 77 (woods) for wooded areas with sparse vegetation due to the boulder piles, 77 (small grain crops) for agricultural fields, 82 (farmsteads) for the active operation areas of the farm, 86 (<50% grass cover) for boulder piles outside of wooded areas, 87 (dirt roads) for existing unpaved access drives, and 98 (impervious) for concrete pads, existing buildings, and paved areas.

The existing conditions sub-watersheds are described further below:

Drainage Area #1A (DA #1A)
This 5.3± acre drainage area encompasses the northwestern portion of 292 Plain Hill Road, west of the barn and outbuildings. The drainage area is comprised of approximately 2.0 acres of agricultural pasture and approximately 0.5 acres of dense brush. The remaining approximately 2.8 acres consists of buildings, maintained lawns, and dirt and gravel driveways and is outside of the project area. The weighted CN of the drainage area is 77. This area drains generally westerly via overland flow and eventually flows offsite to the north via wetlands series 1.

Drainage Area #1B (DA #1B)
This 1.9± acre drainage area encompasses the western portion of 292 Plain Hill Road and the northern portion of 9 Stott Avenue, west of the barn and outbuildings. The drainage area is comprised of approximately 1.0 acres of agricultural fields and approximately 0.3 acres of woods. The remaining approximately 0.6 acres consists of lands used for agricultural operations and is outside of the project area. The weighted CN of the drainage area is 78. This area drains generally westerly via overland flow and eventually flows offsite to the north via wetlands series 1.

Drainage Area #2 (DA #2)
This 9.2± acre drainage area encompasses the central portion of 292 Plain Hill Road and the southwestern portion of 9 Stott Avenue. The drainage area is comprised of approximately 3.6 acres of agricultural fields, approximately 2.4 acres of woods, approximately 1.1 acres of maintained lawn, and approximately 0.3 acres of buildings, concrete pad, and parking area associated with the batting cages. The remaining approximately 2.8 acres consists of lands used for agricultural operations, the cellular tower, and a portion of wetland series 2, and is outside of the project area. The weighted CN of the drainage area is 77. This area drains generally westerly via overland flow and eventually flows offsite to the south via wetlands series 1 through the culvert crossing Stott Avenue.

Drainage Area #3 (DA #3)
This 9.1± acre drainage area encompasses the southern portion of 292 Plain Hill Road and the southeastern portion of 9 Stott Avenue. The drainage area is comprised of approximately 5.7 acres of agricultural fields, approximately 0.9 acres of woods, approximately 1.4 acres of maintained lawn, and approximately 0.3 acres of buildings and parking area associated with the batting cages. The remaining approximately 0.8 acres consists of agricultural fields and a residential lot, and is outside of the project area. The weighted CN of the drainage area is 77. This area drains generally southerly via overland flow and eventually flows offsite to the drainage system in Stott Avenue.

Existing conditions peak flow rates were analyzed at the three (3) existing discharge locations; the wetlands system flowing north, the wetlands system flowing south, and the formal drainage system in Stott Avenue. Peak flow rates for existing conditions are summarized below in Table 1.

Table 1
Peak Runoff Rates – Existing Conditions

Storm Event	Peak Runoff Rate to Northwest – Link 6L (CFS)	Peak Runoff Rate to Southwest – Link 2L (CFS)	Peak Runoff Rate to Stott Avenue – Link 5L (CFS)
2-Year	7.2	8.2	9.5
5-Year	11.2	12.7	14.6
10-Year	14.4	16.3	18.8
25-Year	17.8	20.0	23.2
50-Year	20.8	23.3	27.0
100-Year	24.8	27.6	32.1

Proposed Conditions

The proposed improvements to the site include the installation of solar panels mounted on posts driven approximately 8 feet into the ground, a 12-foot wide, 1,140± foot long gravel surface access drive, various concrete pads for electrical equipment, and installation of a 6 foot high chain link security fence surrounding the entire perimeter of the solar arrays. Additionally the site will be improved with a stormwater management system consisting of a crushed stone check dam/filtration berm backed by boulders, and water quality basins formed with gravel berms backed by boulders. The site plan has been developed to maintain existing flow patterns. The stormwater management system has been sized to maintain existing runoff rates from the site and provide groundwater recharge and treatment as recommend by the CT DEEP Stormwater Quality Manual.

Installation of the solar arrays will consist of clearing and removing all woody vegetation within the proposed clearing limits, grubbing and disposing of stumps, regrading approximately 4.4 acres of the 14.8 acre array areas to a maximum of a 13% slope and associated side slopes not greater than 3:1, demolishing the existing batting cage facility and appurtenances, importing or processing fill material as required to accomplish regrading, placing and compacting fill as required, installing stormwater management system, placing proposed racking posts, installing and anchoring the solar array panels to the racking system, and installing the necessary electrical equipment for harvesting power.

Maintaining existing flow patterns, water quality, and controlling peak runoff rates were critical components in the design of the proposed stormwater management system for this project. The design incorporates measures for limiting disturbed areas and controlling/capturing potential erosion and sedimentation during construction through erosion control measures. Peak post-development stormwater flows are regulated so they do not exceed pre-developed peak stormwater flows to the receiving wetlands or existing stormwater system. Peak runoff rate control measures include reducing the grades of the site in steep areas and installing crushed stone check dams at the limit of the development to slow down the overland flow of runoff and lengthen the travel time. Water quality will be maintained by retaining the water quality volume on site in shallow basins at the limit of the development. Runoff into the basins will be treated by the approximately 300 feet of grass between the basins and the proposed gravel access drive.

The solar array areas will be regraded with existing or imported soil covered with a minimum of 4 inches of seeded topsoil. The existing piles of boulders on the site will be processed on site to create fill material and the crushed stone for the check dams and berms to be used in the construction of the stormwater management system.

Proposed impervious areas are limited to the steel posts for the proposed racking system, the proposed electrical equipment pads, and the proposed gravel access drive. The W8X10 steel post each cover 2.96 square inches (0.02 square feet) and they are spaced approximately 16 feet along each row of solar arrays. The increase in impervious area and change in CN value in each drainage area due to the proposed development are presented below in Table 2 – Impervious Area Summary. Decreases in CN value are due to the change in use from active agricultural fields to grassed areas for the solar arrays, and the demolition of the existing batting cage facility and associated improvements.

Table 2
Impervious Area Summary

Drainage Area	Proposed Gravel Access Drive (SF)	Proposed W8X10 Racking Posts (SF)	Proposed Concrete Pads (SF)	Total Proposed Impervious Area (SF)	Total Watershed Area (SF)	CN (Pre)	CN (Post)
DA-1A	1,214	5	114	1,333	231,783	77	79
DA-1B	2,983	3	0	2,986	84,376	78	77
DA-2A	1,991	4	228	2,223	144,663	77	78
DA-2B	3,603	6	0	3,609	256,002	77	76
DA-3	4,558	14	2,015	6,587	395,568	77	74
TOTAL	14,349	32	2,357	16,738	1,112,392	77	76

Proposed conditions sub-watersheds are shown on Figure 3. Proposed conditions sub-watersheds were delineated using topographic survey data supplemented with aerial topographic survey from the City of Norwich's GIS mapping for areas outside of the detailed survey limits. Land uses were estimated using the proposed site development plan. Runoff Curve Numbers (CN) used for the proposed conditions analysis are as follows: 74 (>75% grass cover/pasture) for the proposed solar array areas, 87 (dirt roads) for proposed gravel access drives, and 98 (impervious) for proposed concrete equipment pads.

The proposed conditions sub-watersheds are described further below:

Drainage Area #1A (DA #1A)
Of the existing 5.3± acre drainage area approximately 2.3 acres are proposed to be used for the solar arrays. To prepare the site for the solar arrays approximately 0.5 acres of dense brush will be cleared and the disturbed area seeded with grass and 1.8 acres of pasture will be mowed. The remaining approximately 3.0 acres consists of buildings, maintained lawns, and dirt and gravel driveways and is outside of the project area. The post-development weighted CN of the drainage area is 79. This area drains generally westerly via overland flow and eventually flows offsite to the north via wetlands series 1. A crushed stone check dam/filtration berm will be installed at the downgradient limit of work to disrupt concentrated flows and increase the runoff travel time.

Drainage Area #1B (DA #1B)
Of the existing 1.9± acre drainage area approximately 1.3 acres are proposed to be used for the solar arrays. To prepare the site for the solar arrays approximately 0.3 acres of woods will be cleared and the disturbed area graded and seeded with grass and the 1.0 acre area of row crops will be seeded with grass. The remaining approximately 0.6 acres consists of lands used for agricultural operations and is outside of the project area. The post-development weighted CN of the drainage area is 77. This area drains generally westerly via overland flow and eventually flows offsite to the north via

wetlands series 1. A crushed stone check dam/filtration berm backed by boulders will be installed at the downgradient limit of work to disrupt concentrated flows and increase the runoff travel time.

Drainage Area #2A (DA #2A)

This 3.3± acre drainage area encompasses the northern portion of existing conditions DA #2 described in the Existing Conditions section of the report. Of the existing 3.3± acre drainage area approximately 1.9 acres are proposed to be used for the solar arrays. To prepare the site for the solar arrays approximately 0.7 acres of woods will be cleared and the disturbed area graded and seeded with grass and the 1.2 acre area of row crops will be seeded with grass. The remaining approximately 1.4 acres consists of lands used for agricultural operations and a portion of wetland series 2, and is outside of the project area. The post-development weighted CN of the drainage area is 78. This area drains generally westerly via overland flow and eventually flows offsite to the south via wetlands series 1 through the culvert crossing Stott Avenue. A crushed stone check dam/filtration berm backed by boulders will be installed at the downgradient limit of work to disrupt concentrated flows and increase the runoff travel time. Water Quality Basin #1 will be constructed at the low point of the drainage area and consists of a gravel berm backed by boulders. The basin will retain water on site for groundwater recharge and pollution reduction.

Drainage Area #2B (DA #2B)

This 5.9± acre drainage area encompasses the southern portion of existing conditions DA #2 described in the Existing Conditions section of the report. Of the existing 5.9± acre drainage area approximately 2.8 acres are proposed to be used for the solar arrays. To prepare the site for the solar arrays approximately 0.5 acres of woods will be cleared and the disturbed area graded and seeded with grass, approximately 0.9 acres of the existing batting cages and associated improvements will be demolished and the area regraded, and the 1.1 acre area of row crops will be seeded with grass. Approximately 0.3 acres of existing grassed area will not be disturbed. The remaining approximately 3.1 acres consists of lands used for agricultural operations, the cellular tower, and a portion of wetland series 2, and is outside of the project area. The post-development weighted CN of the drainage area is 76. This area drains generally westerly via overland flow and eventually flows offsite to the south via wetlands series 1 through the culvert crossing Stott Avenue. A crushed stone check dam will be installed at the downgradient limit of work to disrupt concentrated flows and increase the runoff travel time. Water Quality Basin #2 will be constructed at the low point of the drainage area and consists of a gravel berm backed by boulders. The basin will retain water on site for groundwater recharge and pollution reduction.

Drainage Area #3 (DA #3)

Of the existing 9.1± acre drainage area approximately 7.3 acres are proposed to be used for the solar arrays. To prepare the site for the solar arrays approximately 0.4 acres of woods will be cleared and the disturbed area graded and seeded with grass, approximately 0.3 acres of the existing batting cages and associated improvements will be demolished and the area regraded, and the 5.2 acre area of row crops will be seeded with grass. Approximately 1.4 acres of existing grassed area will not be disturbed. The remaining approximately 1.8 acres consists of agricultural fields and a residential lot, and is outside of the project area. The post-development weighted CN of the drainage area is 74. This area drains generally southerly via overland flow and eventually flows offsite to the drainage system in Stott Avenue.

Proposed conditions peak flow rates were analyzed at the three (3) existing discharge locations; the wetlands system flowing north, the wetlands system flowing south, and the formal drainage system in Stott Avenue. The peak runoff rates are summarized below in Tables 3, 4, and 5.

Table 3
Peak Runoff Rates – Link 6L Proposed Conditions vs. Existing Conditions

Storm Event	Proposed Conditions Peak Runoff Rate to Northwest – Link 6L (CFS)	Existing Conditions Peak Runoff Rate to Northwest – Link 6L (CFS)	Change in Peak Runoff Rate (CFS)
2-Year	6.6	7.2	-0.6
5-Year	10.2	11.2	-1.0
10-Year	13.0	14.4	-1.4
25-Year	16.0	17.8	-1.8
50-Year	18.6	20.8	-1.2
100-Year	22.1	24.8	-2.7

Table 4
Peak Runoff Rates – Link 2L Proposed Conditions vs. Existing Conditions

Storm Event	Proposed Conditions Peak Runoff Rate to Southwest – Link 2L (CFS)	Existing Conditions Peak Runoff Rate to Southwest – Link 2L (CFS)	Change in Peak Runoff Rate (CFS)
2-Year	7.7	8.2	-0.5
5-Year	12.0	12.7	-0.7
10-Year	15.5	16.3	-0.8
25-Year	19.2	20.0	-0.8
50-Year	22.3	23.3	-1.0
100-Year	26.6	27.6	-1.0

Table 5
Peak Runoff Rates – Link 5L Proposed Conditions vs. Existing Conditions

Storm Event	Proposed Conditions Peak Runoff Rate to Stott Avenue – Link 5L (CFS)	Existing Conditions Peak Runoff Rate to Stott Avenue – Link 5L (CFS)	Change in Peak Runoff Rate (CFS)
2-Year	7.7	9.5	-1.8
5-Year	12.3	14.6	-2.3
10-Year	16.2	18.8	-2.6
25-Year	20.2	23.2	-3.0
50-Year	23.7	27.0	-3.3
100-Year	28.5	32.1	-3.6

As demonstrated above, the proposed low impact development and stormwater management system provides peak runoff rate control for all of the modeled storm events.

Due to the shallow depth of the proposed water quality basins are intended to overtop during all of the modeled storm events and sheet flow through the undisturbed vegetated buffer prior to entering the wetland area. Each of the stormwater management components has been evaluated for the potential for erosion during overtopping conditions. The modeled velocities of the 100-year discharges as compared to typical allowable velocities for the proposed surfaces are presented in Table 6 below.

Table 6
100-year Overflow Erosion Potential Evaluation

Stormwater Management Component	100-year Overflow Velocity (FPS)	Proposed Surface Treatment	Typical Maximum Allowable Velocity (FPS)
Water Quality Basin 1	0.75	Grassed berm	2.0 to 2.5 (per DEEP SESC Guidelines)
Water Quality Basin 2	0.81	Grassed berm	2.0 to 2.5 (per DEEP SESC Guidelines)

As demonstrated above, the proposed stormwater management system components will be adequately protected from erosion due to modeled overflows during the 100-year storm event.

The stormwater management system is also required to treat the runoff from the proposed impervious areas, as presented above in Table 2. The water quality basins have sufficient storage capacity to meet the requirements for both the water quality volume for pollutant reduction as well as groundwater recharge. The volumes retained/treated by the proposed basins were determined using the HydroCAD stage-storage results included in Appendix B. The calculations to determine the required volumes are included in Appendix C. The treatment volumes required and provided are presented below in Table 7.

Table 7
Runoff Treatment Sizing Criteria

	Groundwater Recharge Volume Required (CF)	Water Quality Volume Required (CF)	Treatment Volume Required (CF)	Treatment Volume Provided (CF)
Volume (CF)	139.5	1,524.0	1,524.0	4,857

As demonstrated above, the proposed stormwater management system provides adequate capacity for the required groundwater recharge volume and water quality volume. Additionally, the runoff will be treated prior to entering the basins by the 300 feet of grassed solar array areas between the proposed gravel access drive and the water quality basins.

Summary

The proposed stormwater management system has been designed in accordance with the CT DEEP Stormwater Quality Manual. The system provides the peak flow control, runoff treatment, and groundwater recharge as required.

The proposed improvements are shown on plans titled “Stott Avenue Solar Project, Prepared for SolarCity Corporation, 9 Stott Avenue & 292 Plain Hill Road, Norwich, Connecticut, August 2015, Job I.D. No. 15-2327, Cover Sheet through Sheet 10 of 10” prepared by Boundaries LLC.

Figures



BOUNDARIES
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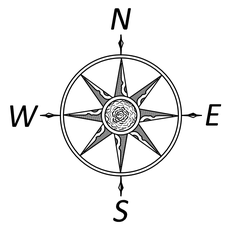
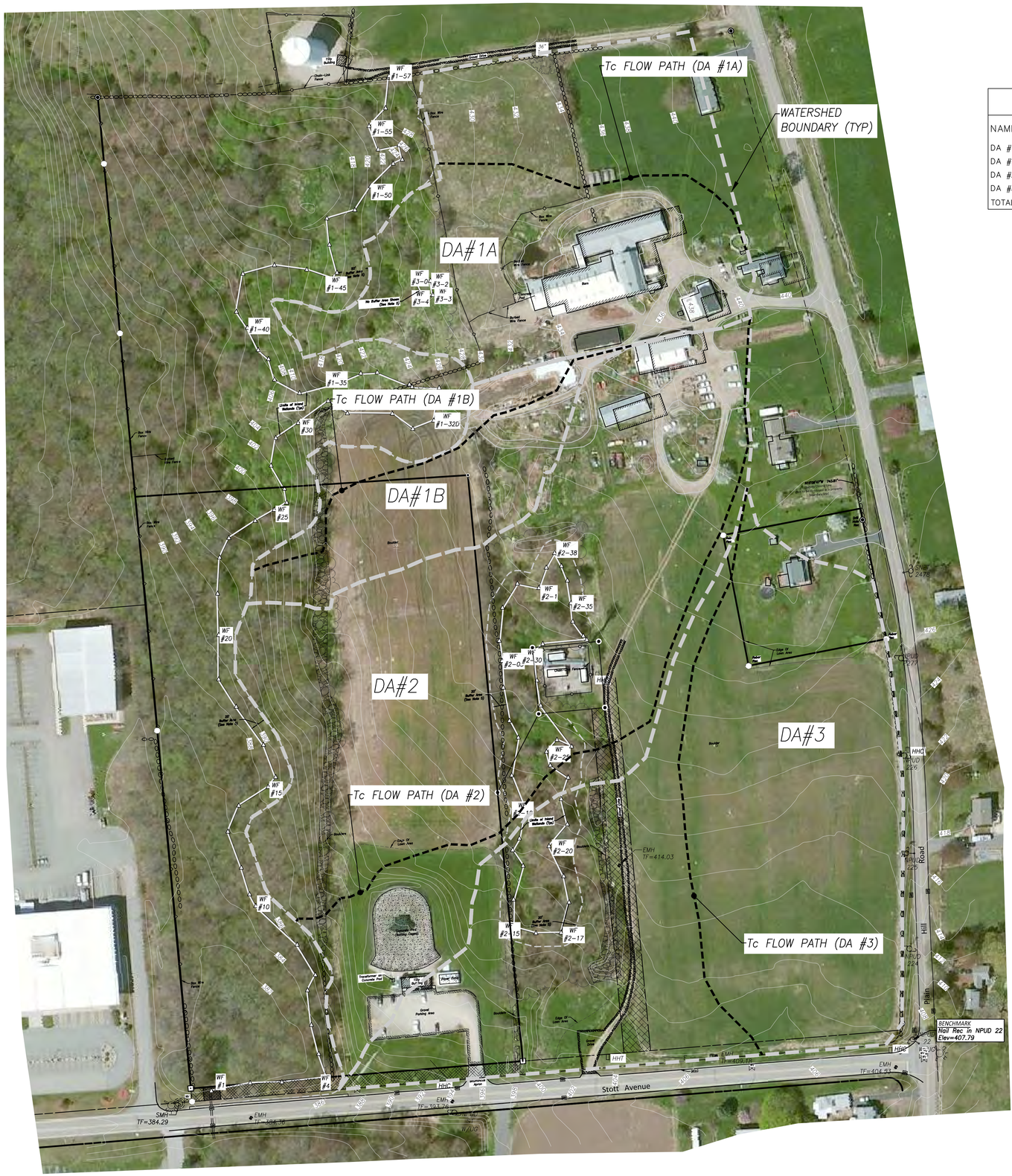
Location Map
(Norwich Quad)
Brightfields Development, LLC
9 Stott Avenue & 292 Plain Hill Road, Norwich, CT

SCALE:	1"=2,000'
DATE:	July 2015
JOB NO.	15-2327
FIGURE	1





Drainage Area Summary			
NAME	AREA (Acres)	Weighted CN Value	Tc Time (Minutes)
DA #1A	5.321	77	19.9
DA #1B	1.937	78	7
DA #2	9.198	77	28.6
DA #3	9.081	77	19.7
TOTAL	25.537	77	--

GRAPHIC SCALE

160 80 40 0 80

(IN FEET)
1 inch = 80 ft.

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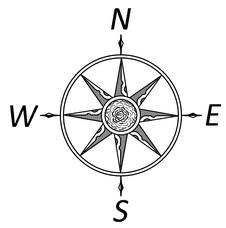
Figure 2
"Pre-Development Conditions Watershed Map"
Prepared for
SolarCity Corporation
Stott Avenue, Norwich, Connecticut

SCALE: 1" = 80'
DATE: June 2015
JOB I.D. NO. 15-2327

Revisions

SHEET NO.
1
2





Drainage Area Summary			
NAME	AREA (Acres)	Weighted CN Value	Tc Time (Minutes)
DA #1A	5.321	79	24.8
DA #1B	1.937	77	7
DA #2A	3.321	78	21
DA #2B	5.877	76	31.7
DA #3	9.081	74	22.1
TOTAL	25.537	76	--

GRAPHIC SCALE

160 80 40 0 80

(IN FEET)

1 inch = 80 ft.

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Figure 3
"Post-Development Conditions Watershed Map"
Prepared for
SolarCity Corporation
Stott Avenue, Norwich, Connecticut

SCALE: 1" = 80'

DATE: June 2015

JOB I.D. NO. 15-2327

Revisions

SHEET NO.

2 / 2

Appendix A
NRCS Web Soil Survey Soils Report

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for State of Connecticut

Stott Avenue Solar Field



June 5, 2015

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

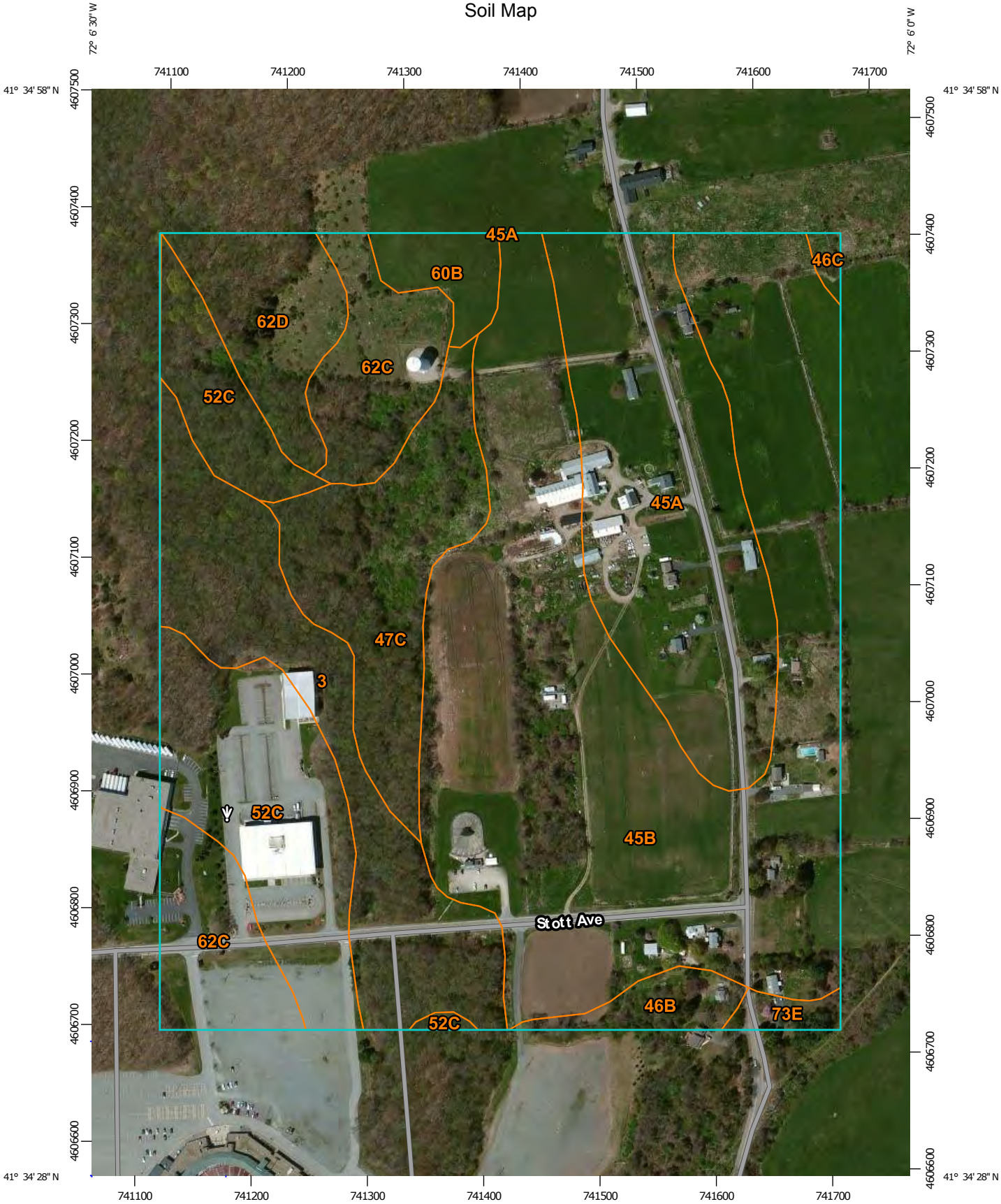
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:4,530 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

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 1:12,000.

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: http://websoilsurvey.nrcs.usda.gov
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: State of Connecticut
Survey Area Data: Version 13, Oct 28, 2014

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

Date(s) aerial images were photographed: Mar 28, 2011—May 12, 2011

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.

Map Unit Legend

State of Connecticut (CT600)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	10.3	10.4%
45A	Woodbridge fine sandy loam, 0 to 3 percent slopes	14.5	14.7%
45B	Woodbridge fine sandy loam, 3 to 8 percent slopes	38.3	38.7%
46B	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	1.5	1.5%
46C	Woodbridge fine sandy loam, 8 to 15 percent slopes, very stony	0.3	0.3%
47C	Woodbridge fine sandy loam, 2 to 15 percent slopes, extremely stony	8.0	8.1%
52C	Sutton fine sandy loam, 2 to 15 percent slopes, extremely stony	11.6	11.7%
60B	Canton and Charlton soils, 3 to 8 percent slopes	1.7	1.7%
62C	Canton and Charlton soils, 3 to 15 percent slopes, extremely stony	8.0	8.1%
62D	Canton and Charlton soils, 15 to 35 percent slopes, extremely stony	4.3	4.3%
73E	Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky	0.7	0.7%
Totals for Area of Interest		**99.0**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic

class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

State of Connecticut

3—Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2t2qt
Elevation: 0 to 1,480 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Ridgebury, extremely stony, and similar soils: 40 percent
Leicester, extremely stony, and similar soils: 35 percent
Whitman, extremely stony, and similar soils: 20 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ridgebury, Extremely Stony

Setting

Landform: Drainageways, depressions, hills, ground moraines
Landform position (two-dimensional): Backslope, footslope, toeslope
Landform position (three-dimensional): Head slope, base slope, dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

A - 0 to 5 inches: fine sandy loam
Bw - 5 to 9 inches: sandy loam
Bg - 9 to 18 inches: gravelly sandy loam
Cd - 18 to 65 inches: gravelly sandy loam

Properties and qualities

Slope: 0 to 8 percent
Percent of area covered with surface fragments: 9.0 percent
Depth to restrictive feature: 14 to 32 inches to densic material
Natural drainage class: Poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D

Description of Leicester, Extremely Stony

Setting

Landform: Depressions, drainageways
Landform position (two-dimensional): Toeslope, footslope, backslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Coarse-loamy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 7 inches: fine sandy loam
Bg1 - 7 to 10 inches: fine sandy loam
Bg2 - 10 to 18 inches: fine sandy loam
BC - 18 to 24 inches: fine sandy loam
C1 - 24 to 43 inches: gravelly fine sandy loam
C2 - 43 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 0 to 8 percent
Percent of area covered with surface fragments: 9.0 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B/D

Description of Whitman, Extremely Stony

Setting

Landform: Depressions, drainageways
Landform position (two-dimensional): Toeslope, footslope, backslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 9 inches: fine sandy loam
Bg - 9 to 16 inches: fine sandy loam
Cdg1 - 16 to 22 inches: fine sandy loam
Cdg2 - 22 to 60 inches: fine sandy loam

Properties and qualities

Slope: 0 to 8 percent
Percent of area covered with surface fragments: 9.0 percent
Depth to restrictive feature: 12 to 20 inches to densic material
Natural drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Occasional
Available water storage in profile: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D

Minor Components

Woodbridge, extremely stony

Percent of map unit: 3 percent
Landform: Hills, drumlins, ground moraines
Landform position (two-dimensional): Backslope, footslope, summit
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear

Swansea

Percent of map unit: 2 percent
Landform: Swamps, bogs
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave

45A—Woodbridge fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9lnq
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Woodbridge and similar soils: 80 percent

Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Woodbridge

Setting
Landform: Drumlins, hills
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Coarse-loamy lodgment till derived from granite and/or schist and/or gneiss

Typical profile
Ap - 0 to 7 inches: fine sandy loam
Bw1 - 7 to 18 inches: fine sandy loam
Bw2 - 18 to 26 inches: fine sandy loam
Bw3 - 26 to 30 inches: fine sandy loam
Cd1 - 30 to 43 inches: gravelly fine sandy loam
Cd2 - 43 to 65 inches: gravelly fine sandy loam

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to densic material
Natural drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.9 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C

Minor Components

Paxton
Percent of map unit: 5 percent
Landform: Drumlins, hills, till plains
Down-slope shape: Linear
Across-slope shape: Convex

Montauk
Percent of map unit: 3 percent
Landform: Drumlins, hills
Down-slope shape: Convex
Across-slope shape: Linear

Ridgebury
Percent of map unit: 3 percent
Landform: Depressions, drainageways
Down-slope shape: Concave
Across-slope shape: Concave

Leicester
Percent of map unit: 2 percent
Landform: Depressions, drainageways
Down-slope shape: Linear
Across-slope shape: Concave

Sutton
Percent of map unit: 2 percent
Landform: Depressions, drainageways
Down-slope shape: Concave
Across-slope shape: Linear

Unnamed, loamy substratum
Percent of map unit: 2 percent
Landform: Drumlins

Stockbridge
Percent of map unit: 1 percent
Landform: Hills
Down-slope shape: Concave
Across-slope shape: Linear

Whitman
Percent of map unit: 1 percent
Landform: Depressions, drainageways
Down-slope shape: Concave
Across-slope shape: Concave

Georgia
Percent of map unit: 1 percent
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear

45B—Woodbridge fine sandy loam, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: 2t2ql
Elevation: 0 to 1,470 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Woodbridge, fine sandy loam, and similar soils: 82 percent
Minor components: 18 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Woodbridge, Fine Sandy Loam

Setting

Landform: Hills, drumlins, ground moraines
Landform position (two-dimensional): Backslope, footslope, summit
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw1 - 7 to 18 inches: fine sandy loam
Bw2 - 18 to 30 inches: fine sandy loam
Cd - 30 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 39 inches to densic material
Natural drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D

Minor Components

Paxton

Percent of map unit: 10 percent
Landform: Hills, ground moraines, drumlins
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex

Ridgebury

Percent of map unit: 8 percent
Landform: Drainageways, hills, ground moraines, depressions
Landform position (two-dimensional): Backslope, footslope, toeslope
Landform position (three-dimensional): Head slope, base slope, dip
Down-slope shape: Concave
Across-slope shape: Concave

46B—Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2t2qr
Elevation: 0 to 1,430 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Woodbridge, very stony, and similar soils: 82 percent
Minor components: 18 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Woodbridge, Very Stony

Setting

Landform: Hills, drumlins, ground moraines
Landform position (two-dimensional): Backslope, footslope, summit
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 7 inches: fine sandy loam
Bw1 - 7 to 18 inches: fine sandy loam
Bw2 - 18 to 30 inches: fine sandy loam
Cd - 30 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 0 to 8 percent
Percent of area covered with surface fragments: 1.6 percent
Depth to restrictive feature: 20 to 39 inches to densic material
Natural drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 3.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: C/D

Minor Components

Paxton, very stony

Percent of map unit: 10 percent
Landform: Hills, ground moraines, drumlins
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex

Ridgebury, very stony

Percent of map unit: 8 percent
Landform: Drainageways, hills, ground moraines, depressions
Landform position (two-dimensional): Backslope, footslope, toeslope
Landform position (three-dimensional): Head slope, base slope, dip
Down-slope shape: Concave
Across-slope shape: Concave

46C—Woodbridge fine sandy loam, 8 to 15 percent slopes, very stony

Map Unit Setting

National map unit symbol: 9lnv
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Woodbridge and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Woodbridge

Setting

Landform: Drumlins, hills
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Coarse-loamy lodgment till derived from granite and/or schist and/or gneiss

Typical profile

A - 0 to 7 inches: fine sandy loam
Bw1 - 7 to 18 inches: fine sandy loam
Bw2 - 18 to 26 inches: fine sandy loam
Bw3 - 26 to 30 inches: fine sandy loam
Cd1 - 30 to 43 inches: gravelly fine sandy loam
Cd2 - 43 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Percent of area covered with surface fragments: 1.6 percent
Depth to restrictive feature: 20 to 40 inches to densic material
Natural drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C

Minor Components

Paxton

Percent of map unit: 5 percent
Landform: Drumlins, hills, till plains
Down-slope shape: Linear
Across-slope shape: Convex

Ridgebury

Percent of map unit: 3 percent
Landform: Depressions, drainageways
Down-slope shape: Concave
Across-slope shape: Concave

Montauk

Percent of map unit: 3 percent
Landform: Drumlins, hills
Down-slope shape: Convex
Across-slope shape: Linear

Leicester

Percent of map unit: 2 percent
Landform: Depressions, drainageways
Down-slope shape: Linear
Across-slope shape: Concave

Unnamed, loamy substratum

Percent of map unit: 2 percent

Sutton

Percent of map unit: 2 percent
Landform: Depressions, drainageways
Down-slope shape: Concave
Across-slope shape: Linear

Whitman

Percent of map unit: 1 percent
Landform: Depressions, drainageways
Down-slope shape: Concave
Across-slope shape: Concave

Stockbridge

Percent of map unit: 1 percent
Landform: Hills
Down-slope shape: Concave
Across-slope shape: Linear

Georgia

Percent of map unit: 1 percent
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear

47C—Woodbridge fine sandy loam, 2 to 15 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 9lnw
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Woodbridge and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Woodbridge

Setting

Landform: Drumlins, hills
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Coarse-loamy lodgment till derived from granite and/or schist and/or gneiss

Typical profile

A - 0 to 7 inches: fine sandy loam
Bw1 - 7 to 18 inches: fine sandy loam
Bw2 - 18 to 26 inches: fine sandy loam
Bw3 - 26 to 30 inches: fine sandy loam
Cd1 - 30 to 43 inches: gravelly fine sandy loam
Cd2 - 43 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 2 to 15 percent
Percent of area covered with surface fragments: 9.0 percent
Depth to restrictive feature: 20 to 40 inches to densic material
Natural drainage class: Moderately well drained

Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.9 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C

Minor Components

Paxton
Percent of map unit: 5 percent
Landform: Drumlins, hills, till plains
Down-slope shape: Linear
Across-slope shape: Convex

Ridgebury
Percent of map unit: 3 percent
Landform: Depressions, drainageways
Down-slope shape: Concave
Across-slope shape: Concave

Montauk
Percent of map unit: 3 percent
Landform: Drumlins, hills
Down-slope shape: Convex
Across-slope shape: Linear

Unnamed, loamy substratum
Percent of map unit: 2 percent

Sutton
Percent of map unit: 2 percent
Landform: Depressions, drainageways
Down-slope shape: Concave
Across-slope shape: Linear

Leicester
Percent of map unit: 2 percent
Landform: Depressions, drainageways
Down-slope shape: Linear
Across-slope shape: Concave

Georgia
Percent of map unit: 1 percent
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear

Whitman
Percent of map unit: 1 percent
Landform: Depressions, drainageways
Down-slope shape: Concave
Across-slope shape: Concave

Stockbridge

Percent of map unit: 1 percent
Landform: Hills
Down-slope shape: Concave
Across-slope shape: Linear

52C—Sutton fine sandy loam, 2 to 15 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 9lp5
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Sutton and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sutton

Setting

Landform: Depressions, drainageways
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Coarse-loamy melt-out till derived from granite and/or schist and/or gneiss

Typical profile

Ap - 0 to 6 inches: fine sandy loam
Bw1 - 6 to 12 inches: fine sandy loam
Bw2 - 12 to 24 inches: fine sandy loam
Bw3 - 24 to 28 inches: fine sandy loam
C1 - 28 to 36 inches: gravelly fine sandy loam
C2 - 36 to 65 inches: gravelly sandy loam

Properties and qualities

Slope: 2 to 15 percent
Percent of area covered with surface fragments: 9.0 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B

Minor Components

Charlton

Percent of map unit: 5 percent
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear

Canton

Percent of map unit: 4 percent
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Convex

Paxton

Percent of map unit: 3 percent
Landform: Drumlins, hills, till plains
Down-slope shape: Linear
Across-slope shape: Convex

Leicester

Percent of map unit: 3 percent
Landform: Depressions, drainageways
Down-slope shape: Linear
Across-slope shape: Concave

Rainbow

Percent of map unit: 2 percent
Landform: Drumlins, hills
Down-slope shape: Linear
Across-slope shape: Concave

Woodbridge

Percent of map unit: 2 percent
Landform: Drumlins, hills
Down-slope shape: Concave
Across-slope shape: Linear

Narragansett

Percent of map unit: 1 percent
Landform: Hills, till plains
Down-slope shape: Linear
Across-slope shape: Convex

60B—Canton and Charlton soils, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9lpn
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 54 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Canton and similar soils: 45 percent
Charlton and similar soils: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton

Setting

Landform: Hills
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy and gravelly melt-out till derived from granite and/or schist and/or gneiss

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: gravelly fine sandy loam
Bw1 - 3 to 15 inches: gravelly loam
Bw2 - 15 to 24 inches: gravelly loam
Bw3 - 24 to 30 inches: gravelly loam
2C - 30 to 60 inches: very gravelly loamy sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B

Description of Charlton

Setting

Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy melt-out till derived from granite and/or schist and/or gneiss

Typical profile

Ap - 0 to 4 inches: fine sandy loam
Bw1 - 4 to 7 inches: fine sandy loam
Bw2 - 7 to 19 inches: fine sandy loam
Bw3 - 19 to 27 inches: gravelly fine sandy loam
C - 27 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B

Minor Components

Chatfield

Percent of map unit: 5 percent
Landform: Hills, ridges
Down-slope shape: Convex
Across-slope shape: Linear

Sutton

Percent of map unit: 5 percent
Landform: Depressions, drainageways
Down-slope shape: Concave
Across-slope shape: Linear

Leicester

Percent of map unit: 5 percent
Landform: Depressions, drainageways
Down-slope shape: Linear
Across-slope shape: Concave

Hollis

Percent of map unit: 3 percent
Landform: Hills, ridges
Down-slope shape: Convex

Across-slope shape: Convex

Unnamed, silt loam surface
Percent of map unit: 2 percent

62C—Canton and Charlton soils, 3 to 15 percent slopes, extremely stony

Map Unit Setting
National map unit symbol: 9lpt
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 54 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition
Canton and similar soils: 45 percent
Charlton and similar soils: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton

Setting
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy and gravelly melt-out till derived from granite and/or schist and/or gneiss

Typical profile
Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: gravelly fine sandy loam
Bw1 - 3 to 15 inches: gravelly loam
Bw2 - 15 to 24 inches: gravelly loam
Bw3 - 24 to 30 inches: gravelly loam
2C - 30 to 60 inches: very gravelly loamy sand

Properties and qualities
Slope: 3 to 15 percent
Percent of area covered with surface fragments: 9.0 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B

Description of Charlton

Setting

Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy melt-out till derived from granite and/or schist and/or gneiss

Typical profile

Ap - 0 to 4 inches: fine sandy loam
Bw1 - 4 to 7 inches: fine sandy loam
Bw2 - 7 to 19 inches: fine sandy loam
Bw3 - 19 to 27 inches: gravelly fine sandy loam
C - 27 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 15 percent
Percent of area covered with surface fragments: 9.0 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B

Minor Components

Hollis

Percent of map unit: 5 percent
Landform: Hills, ridges
Down-slope shape: Convex
Across-slope shape: Convex

Leicester

Percent of map unit: 5 percent
Landform: Depressions, drainageways
Down-slope shape: Linear
Across-slope shape: Concave

Chatfield

Percent of map unit: 5 percent
Landform: Hills, ridges
Down-slope shape: Convex

Across-slope shape: Linear

Sutton

Percent of map unit: 5 percent
Landform: Depressions, drainageways
Down-slope shape: Concave
Across-slope shape: Linear

62D—Canton and Charlton soils, 15 to 35 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 9lpv
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 54 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Canton and similar soils: 45 percent
Charlton and similar soils: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton

Setting

Landform: Hills
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy and gravelly melt-out till derived from granite and/or schist and/or gneiss

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: gravelly fine sandy loam
Bw1 - 3 to 15 inches: gravelly loam
Bw2 - 15 to 24 inches: gravelly loam
Bw3 - 24 to 30 inches: gravelly loam
2C - 30 to 60 inches: very gravelly loamy sand

Properties and qualities

Slope: 15 to 35 percent
Percent of area covered with surface fragments: 9.0 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches

Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B

Description of Charlton

Setting

Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy melt-out till derived from granite and/or schist and/or gneiss

Typical profile

Ap - 0 to 4 inches: fine sandy loam
Bw1 - 4 to 7 inches: fine sandy loam
Bw2 - 7 to 19 inches: fine sandy loam
Bw3 - 19 to 27 inches: gravelly fine sandy loam
C - 27 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 15 to 35 percent
Percent of area covered with surface fragments: 9.0 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B

Minor Components

Sutton

Percent of map unit: 5 percent
Landform: Depressions, drainageways
Down-slope shape: Concave
Across-slope shape: Linear

Hollis

Percent of map unit: 5 percent
Landform: Hills, ridges
Down-slope shape: Convex
Across-slope shape: Convex

Chatfield

Percent of map unit: 5 percent
Landform: Hills, ridges
Down-slope shape: Convex
Across-slope shape: Linear

Leicester

Percent of map unit: 5 percent
Landform: Depressions, drainageways
Down-slope shape: Linear
Across-slope shape: Concave

73E—Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky

Map Unit Setting

National map unit symbol: 9lql
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Charlton and similar soils: 45 percent
Chatfield and similar soils: 30 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Charlton

Setting

Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy melt-out till derived from granite and/or schist and/or gneiss

Typical profile

Ap - 0 to 4 inches: fine sandy loam
Bw1 - 4 to 7 inches: fine sandy loam
Bw2 - 7 to 19 inches: fine sandy loam
Bw3 - 19 to 27 inches: gravelly fine sandy loam
C - 27 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 15 to 45 percent
Percent of area covered with surface fragments: 1.6 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained

Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.9 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B

Description of Chatfield

Setting
Landform: Hills, ridges
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Coarse-loamy melt-out till derived from granite and/or schist and/or gneiss

Typical profile
Oa - 0 to 1 inches: highly decomposed plant material
A - 1 to 6 inches: gravelly fine sandy loam
Bw1 - 6 to 15 inches: gravelly fine sandy loam
Bw2 - 15 to 29 inches: gravelly fine sandy loam
2R - 29 to 80 inches: unweathered bedrock

Properties and qualities
Slope: 15 to 45 percent
Percent of area covered with surface fragments: 1.6 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.3 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B

Minor Components

Rock outcrop
Percent of map unit: 10 percent

Leicester
Percent of map unit: 5 percent
Landform: Depressions, drainageways
Down-slope shape: Linear
Across-slope shape: Concave

Sutton

Percent of map unit: 5 percent
Landform: Depressions, drainageways
Down-slope shape: Concave
Across-slope shape: Linear

Hollis

Percent of map unit: 3 percent
Landform: Hills, ridges
Down-slope shape: Convex
Across-slope shape: Convex

Unnamed, sandy subsoil

Percent of map unit: 1 percent

Unnamed, red parent material

Percent of map unit: 1 percent

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Physical Properties

Soil Physical Properties are measured or inferred from direct observations in the field or laboratory. Examples of soil physical properties include percent clay, organic matter, saturated hydraulic conductivity, available water capacity, and bulk density.

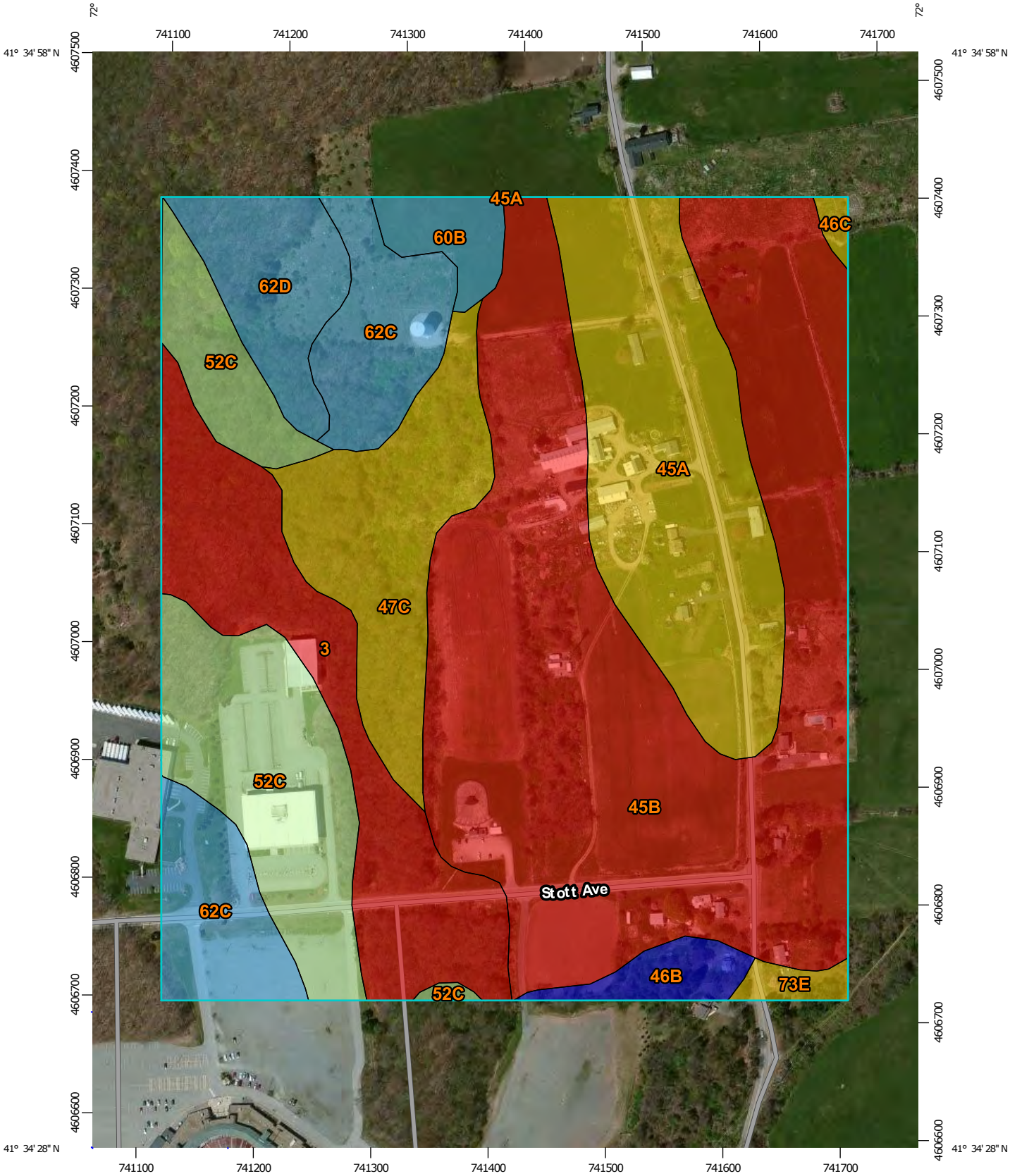
Saturated Hydraulic Conductivity (Ksat)

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity is considered in the design of soil drainage systems and septic tank absorption fields.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

The numeric Ksat values have been grouped according to standard Ksat class limits.

Custom Soil Resource Report
Map—Saturated Hydraulic Conductivity (Ksat)



Map Scale: 1:4,530 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- <= 5.5000
- > 5.5000 and <= 10.0000
- > 10.0000 and <= 28.0000
- > 28.0000 and <= 92.0000
- > 92.0000 and <= 120.0000
- Not rated or not available

Soil Rating Lines

- <= 5.5000
- > 5.5000 and <= 10.0000
- > 10.0000 and <= 28.0000
- > 28.0000 and <= 92.0000
- > 92.0000 and <= 120.0000
- Not rated or not available

Soil Rating Points

- <= 5.5000
- > 5.5000 and <= 10.0000
- > 10.0000 and <= 28.0000
- > 28.0000 and <= 92.0000
- > 92.0000 and <= 120.0000
- 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 1:12,000.

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: http://websoilsurvey.nrcs.usda.gov
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: State of Connecticut
Survey Area Data: Version 13, Oct 28, 2014

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

Date(s) aerial images were photographed: Mar 28, 2011—May 12, 2011

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.

Table—Saturated Hydraulic Conductivity (Ksat)

Saturated Hydraulic Conductivity (Ksat)— Summary by Map Unit — State of Connecticut (CT600)				
Map unit symbol	**Map unit name**	**Rating (micrometers per second)**	**Acres in AOI**	**Percent of AOI**
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	5.5000	10.3	10.4%
45A	Woodbridge fine sandy loam, 0 to 3 percent slopes	9.0000	14.5	14.7%
45B	Woodbridge fine sandy loam, 3 to 8 percent slopes	5.5000	38.3	38.7%
46B	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	120.0000	1.5	1.5%
46C	Woodbridge fine sandy loam, 8 to 15 percent slopes, very stony	9.0000	0.3	0.3%
47C	Woodbridge fine sandy loam, 2 to 15 percent slopes, extremely stony	9.0000	8.0	8.1%
52C	Sutton fine sandy loam, 2 to 15 percent slopes, extremely stony	28.0000	11.6	11.7%
60B	Canton and Charlton soils, 3 to 8 percent slopes	92.0000	1.7	1.7%
62C	Canton and Charlton soils, 3 to 15 percent slopes, extremely stony	92.0000	8.0	8.1%
62D	Canton and Charlton soils, 15 to 35 percent slopes, extremely stony	92.0000	4.3	4.3%
73E	Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky	10.0000	0.7	0.7%
Totals for Area of Interest			**99.0**	**100.0%**

Rating Options—Saturated Hydraulic Conductivity (Ksat)

Units of Measure: micrometers per second

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Fastest

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

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.

Map—Hydrologic Soil Group



Map Scale: 1:4,530 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

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

Soil Rating Lines

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

Soil Rating Points

- A
- A/D
- B
- B/D
- 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 1:12,000.

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: http://websoilsurvey.nrcs.usda.gov
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: State of Connecticut
Survey Area Data: Version 13, Oct 28, 2014

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

Date(s) aerial images were photographed: Mar 28, 2011—May 12, 2011

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.

Table—Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — State of Connecticut (CT600)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	D	10.3	10.4%
45A	Woodbridge fine sandy loam, 0 to 3 percent slopes	C	14.5	14.7%
45B	Woodbridge fine sandy loam, 3 to 8 percent slopes	C/D	38.3	38.7%
46B	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	C/D	1.5	1.5%
46C	Woodbridge fine sandy loam, 8 to 15 percent slopes, very stony	C	0.3	0.3%
47C	Woodbridge fine sandy loam, 2 to 15 percent slopes, extremely stony	C	8.0	8.1%
52C	Sutton fine sandy loam, 2 to 15 percent slopes, extremely stony	B	11.6	11.7%
60B	Canton and Charlton soils, 3 to 8 percent slopes	B	1.7	1.7%
62C	Canton and Charlton soils, 3 to 15 percent slopes, extremely stony	B	8.0	8.1%
62D	Canton and Charlton soils, 15 to 35 percent slopes, extremely stony	B	4.3	4.3%
73E	Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky	B	0.7	0.7%
Totals for Area of Interest			**99.0**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

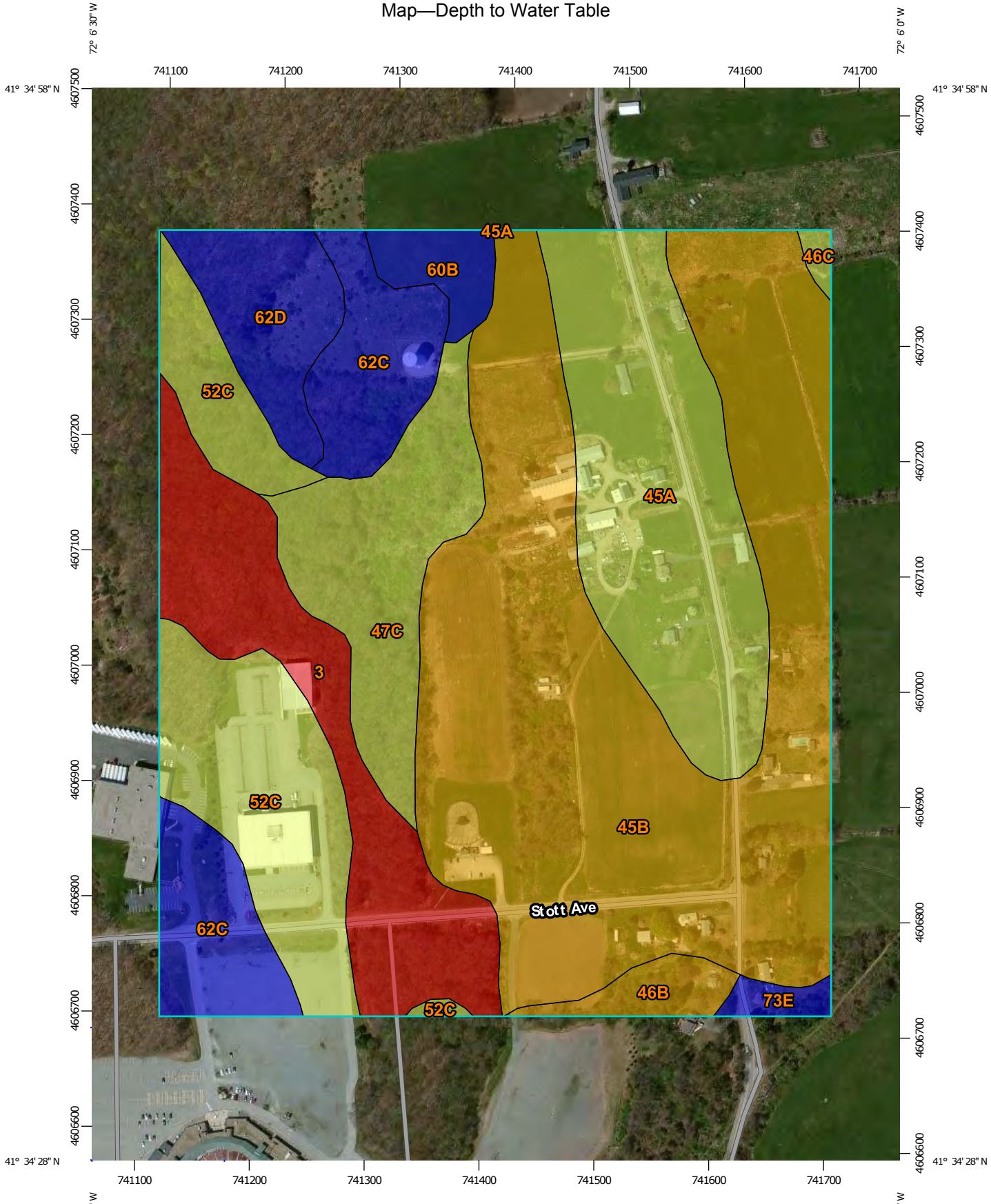
Water Features

Water Features include ponding frequency, flooding frequency, and depth to water table.

Depth to Water Table

"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.



Map Scale: 1:4,530 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

Not rated or not available

Soil Rating Lines

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

Not rated or not available

Soil Rating Points

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

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 1:12,000.

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: http://websoilsurvey.nrcs.usda.gov
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: State of Connecticut
Survey Area Data: Version 13, Oct 28, 2014

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

Date(s) aerial images were photographed: Mar 28, 2011—May 12, 2011

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.

Table—Depth to Water Table

Depth to Water Table— Summary by Map Unit — State of Connecticut (CT600)				
Map unit symbol	**Map unit name**	**Rating (centimeters)**	**Acres in AOI**	**Percent of AOI**
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	8	10.3	10.4%
45A	Woodbridge fine sandy loam, 0 to 3 percent slopes	61	14.5	14.7%
45B	Woodbridge fine sandy loam, 3 to 8 percent slopes	46	38.3	38.7%
46B	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	46	1.5	1.5%
46C	Woodbridge fine sandy loam, 8 to 15 percent slopes, very stony	61	0.3	0.3%
47C	Woodbridge fine sandy loam, 2 to 15 percent slopes, extremely stony	61	8.0	8.1%
52C	Sutton fine sandy loam, 2 to 15 percent slopes, extremely stony	61	11.6	11.7%
60B	Canton and Charlton soils, 3 to 8 percent slopes	>200	1.7	1.7%
62C	Canton and Charlton soils, 3 to 15 percent slopes, extremely stony	>200	8.0	8.1%
62D	Canton and Charlton soils, 15 to 35 percent slopes, extremely stony	>200	4.3	4.3%
73E	Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky	>200	0.7	0.7%
Totals for Area of Interest			**99.0**	**100.0%**

Rating Options—Depth to Water Table

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Beginning Month: January

Ending Month: December

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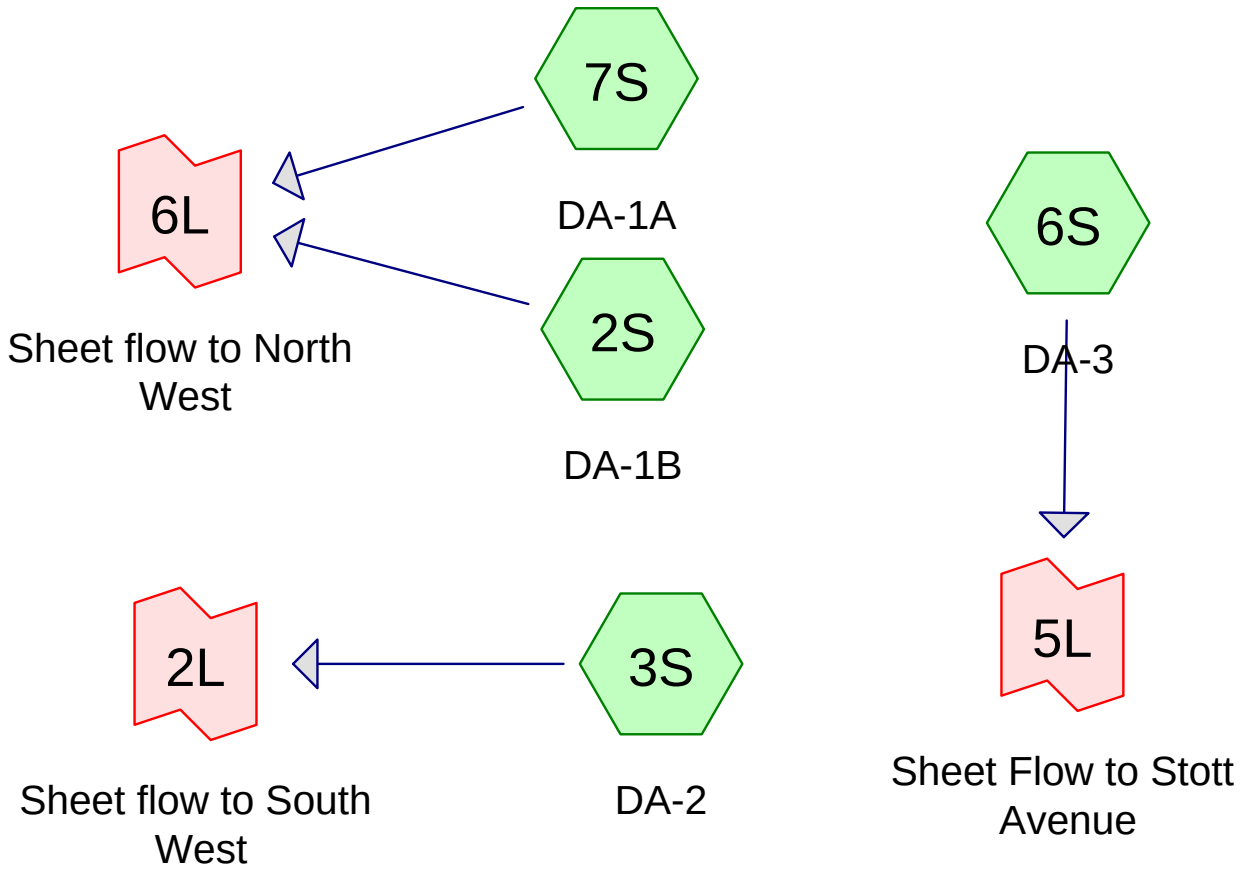
Appendix B
HydroCAD Modeling Results

Existing Conditions Results



Subcat Reach Pond Link

Routing Diagram for Stott Ave Existing Conditions
Prepared by Boundaries LLC - DCM, Printed 8/3/2015
HydroCAD® 10.00-13 s/n 04031 © 2014 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.070	86	<50% Grass cover, Poor, HSG C (6S)
3.878	74	>75% Grass cover, Good, HSG C (3S, 6S, 7S)
0.580	65	Brush, Good, HSG C (7S)
2.006	87	Dirt roads, HSG C (2S, 3S, 6S, 7S)
2.153	82	Farmsteads, HSG C (2S, 3S, 6S)
2.019	74	Pasture/grassland/range, Good, HSG C (7S)
10.213	77	Small grain, C&T + CR, Good, HSG C (2S, 3S, 6S)
0.973	98	Unconnected roofs, HSG C (3S, 6S, 7S)
3.259	70	Woods, Good, HSG C (2S, 3S, 6S)
0.386	77	Woods, Poor, HSG C (2S, 3S, 6S)
25.537	**77**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
25.537	HSG C	2S, 3S, 6S, 7S
0.000	HSG D	
0.000	Other	
25.537		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.070	0.000	0.000	0.070	<50% Grass cover, Poor	6S
0.000	0.000	3.878	0.000	0.000	3.878	>75% Grass cover, Good	3S, 6S, 7S
0.000	0.000	0.580	0.000	0.000	0.580	Brush, Good	7S
0.000	0.000	2.006	0.000	0.000	2.006	Dirt roads	2S, 3S, 6S, 7S
0.000	0.000	2.153	0.000	0.000	2.153	Farmsteads	2S, 3S, 6S
0.000	0.000	2.019	0.000	0.000	2.019	Pasture/grassland/range, Good	7S
0.000	0.000	10.213	0.000	0.000	10.213	Small grain, C&T + CR, Good	2S, 3S, 6S
0.000	0.000	0.973	0.000	0.000	0.973	Unconnected roofs	3S, 6S, 7S
0.000	0.000	3.259	0.000	0.000	3.259	Woods, Good	2S, 3S, 6S
0.000	0.000	0.386	0.000	0.000	0.386	Woods, Poor	2S, 3S, 6S
0.000	**0.000**	**25.537**	**0.000**	**0.000**	**25.537**	**TOTAL AREA**	

Time span=0.00-24.00 hrs, dt=0.050 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 2S: DA-1B Runoff Area=1.937 ac 0.00% Impervious Runoff Depth>1.42"
Flow Length=712' Tc=10.0 min CN=78 Runoff=2.7 cfs 0.229 af

Subcatchment 3S: DA-2 Runoff Area=9.198 ac 4.37% Impervious Runoff Depth>1.35"
Flow Length=1,274' Tc=28.6 min CN=77 Runoff=8.2 cfs 1.033 af

Subcatchment 6S: DA-3 Runoff Area=9.081 ac 0.65% Impervious Runoff Depth>1.35"
Flow Length=900' Tc=19.7 min CN=77 Runoff=9.5 cfs 1.022 af

Subcatchment 7S: DA-1A Runoff Area=5.321 ac 9.62% Impervious Runoff Depth>1.29"
Flow Length=552' Tc=19.9 min UI Adjusted CN=76 Runoff=5.3 cfs 0.571 af

Link 2L: Sheet flow to South West Inflow=8.2 cfs 1.033 af
Primary=8.2 cfs 1.033 af

Link 5L: Sheet Flow to Stott Avenue Inflow=9.5 cfs 1.022 af
Primary=9.5 cfs 1.022 af

Link 6L: Sheet flow to North West Inflow=7.2 cfs 0.800 af
Primary=7.2 cfs 0.800 af

Total Runoff Area = 25.537 ac Runoff Volume = 2.855 af Average Runoff Depth = 1.34"
96.19% Pervious = 24.564 ac 3.81% Impervious = 0.973 ac

Summary for Subcatchment 2S: DA-1B

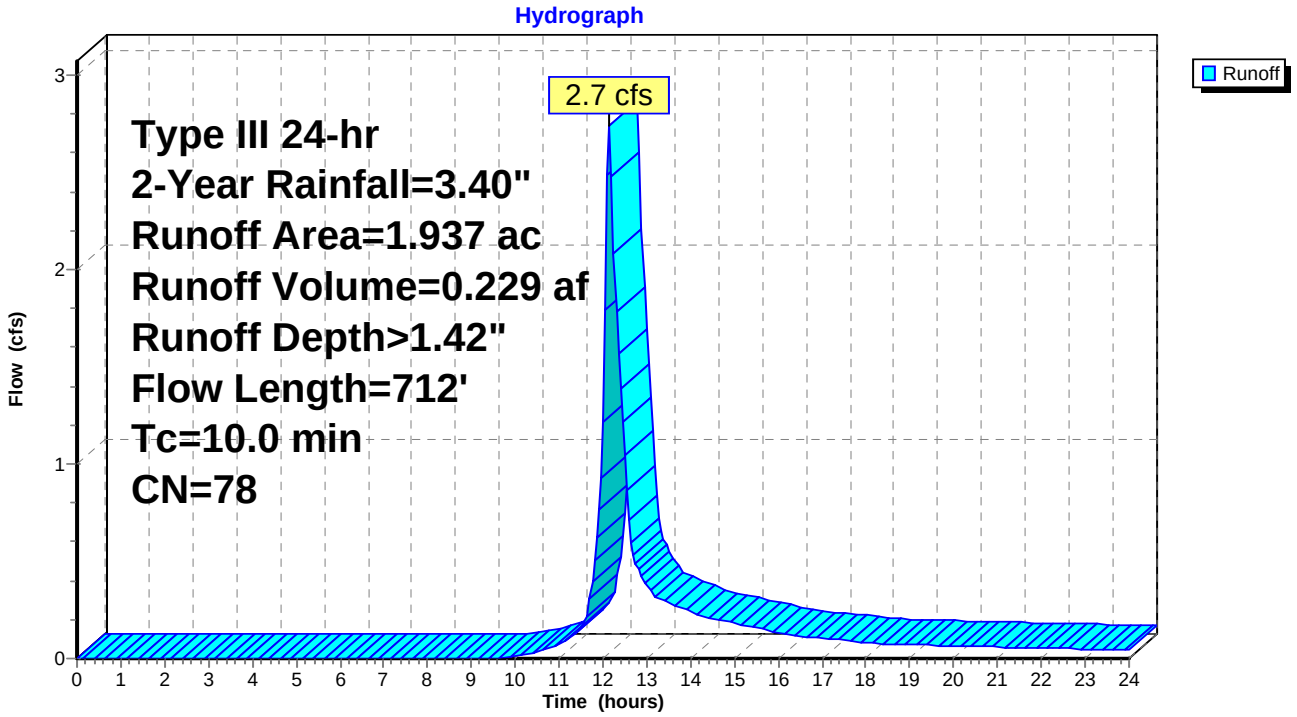
Runoff = 2.7 cfs @ 12.15 hrs, Volume= 0.229 af, Depth> 1.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
0.928	77	Small grain, C&T + CR, Good, HSG C
0.601	82	Farmsteads, HSG C
0.107	87	Dirt roads, HSG C
0.200	70	Woods, Good, HSG C
0.101	77	Woods, Poor, HSG C
1.937	78	Weighted Average
1.937		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		**Sheet Flow, Dirt Drive** Smooth surfaces n= 0.011 P2= 3.40"
0.8	124	0.0242	2.50		**Shallow Concentrated Flow, Dirt Drive** Unpaved Kv= 16.1 fps
0.2	60	0.1000	5.09		**Shallow Concentrated Flow, Dirt Drive** Unpaved Kv= 16.1 fps
3.7	307	0.0391	1.38		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
0.7	121	0.1488	2.70		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
7.0	712	Total, Increased to minimum Tc = 10.0 min			

Subcatchment 2S: DA-1B



Summary for Subcatchment 3S: DA-2

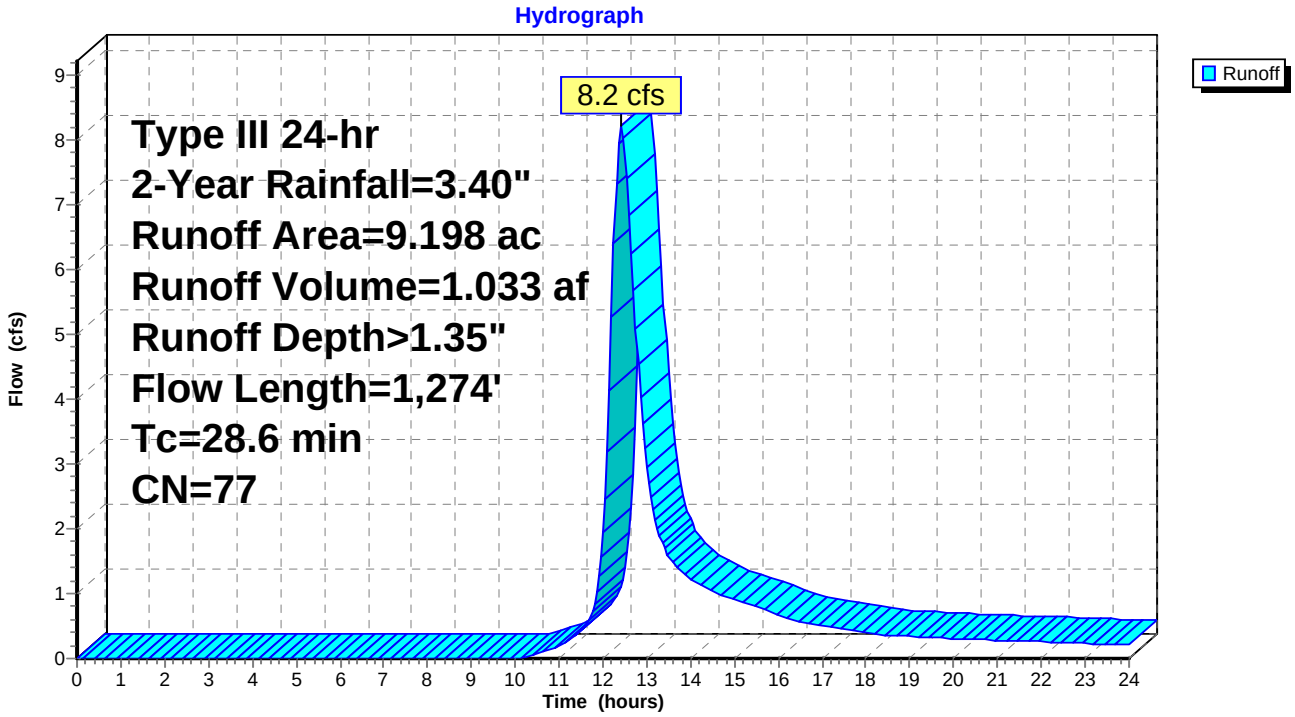
Runoff = 8.2 cfs @ 12.42 hrs, Volume= 1.033 af, Depth> 1.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
0.402	98	Unconnected roofs, HSG C
3.610	77	Small grain, C&T + CR, Good, HSG C
2.233	70	Woods, Good, HSG C
0.206	77	Woods, Poor, HSG C
0.989	82	Farmsteads, HSG C
1.099	74	>75% Grass cover, Good, HSG C
0.659	87	Dirt roads, HSG C
9.198	77	Weighted Average
8.796		95.63% Pervious Area
0.402		4.37% Impervious Area
0.402		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	100	0.0200	0.12		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
3.9	230	0.0196	0.98		**Shallow Concentrated Flow, Grassed** Short Grass Pasture Kv= 7.0 fps
3.8	367	0.0327	1.63		**Shallow Concentrated Flow, Field** Cultivated Straight Rows Kv= 9.0 fps
4.1	230	0.0348	0.93		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.9	106	0.0472	1.96		**Shallow Concentrated Flow, Fields** Cultivated Straight Rows Kv= 9.0 fps
1.7	194	0.0773	1.95		**Shallow Concentrated Flow, Grassed** Short Grass Pasture Kv= 7.0 fps
0.4	47	0.1277	1.79		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
28.6	1,274	Total			

Subcatchment 3S: DA-2



Summary for Subcatchment 6S: DA-3

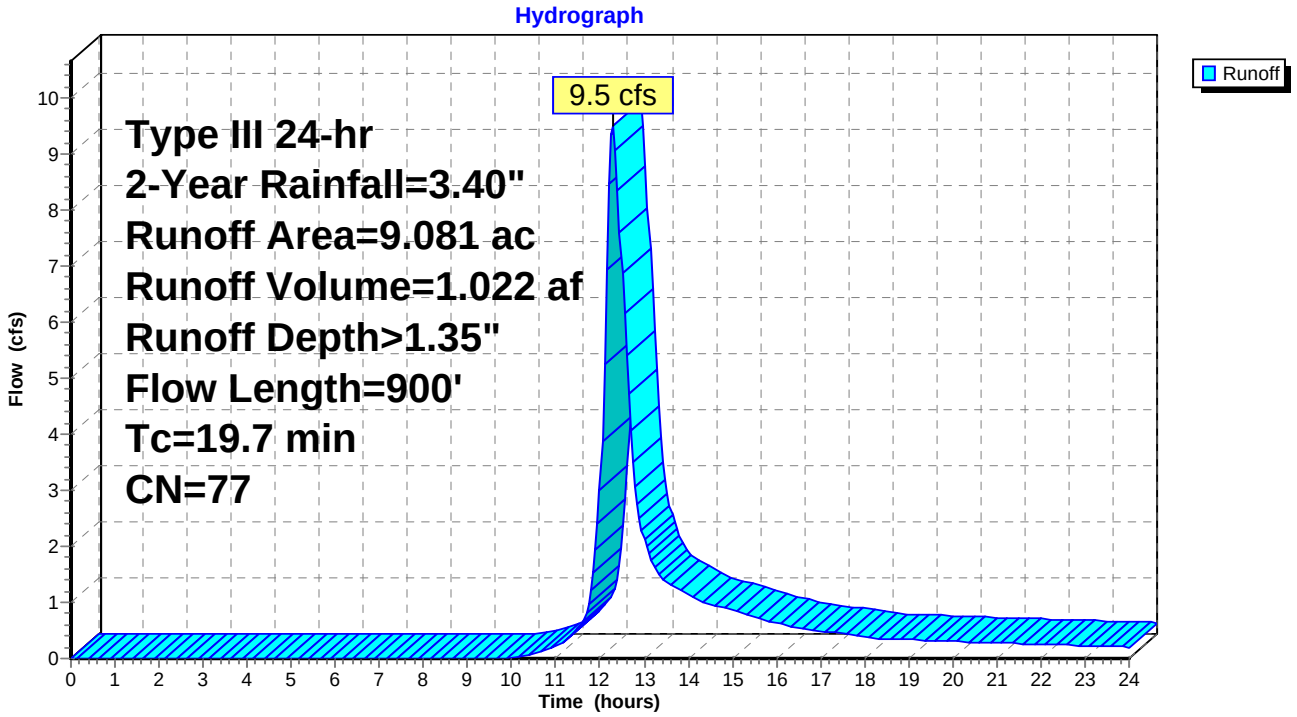
Runoff = 9.5 cfs @ 12.29 hrs, Volume= 1.022 af, Depth> 1.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
0.059	98	Unconnected roofs, HSG C
0.826	70	Woods, Good, HSG C
0.079	77	Woods, Poor, HSG C
1.439	74	>75% Grass cover, Good, HSG C
0.070	86	<50% Grass cover, Poor, HSG C
0.563	82	Farmsteads, HSG C
0.370	87	Dirt roads, HSG C
5.675	77	Small grain, C&T + CR, Good, HSG C
9.081	77	Weighted Average
9.022		99.35% Pervious Area
0.059		0.65% Impervious Area
0.059		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0333	0.15		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
8.4	800	0.0312	1.59		**Shallow Concentrated Flow, Field** Cultivated Straight Rows Kv= 9.0 fps
19.7	900	Total			

Subcatchment 6S: DA-3



Summary for Subcatchment 7S: DA-1A

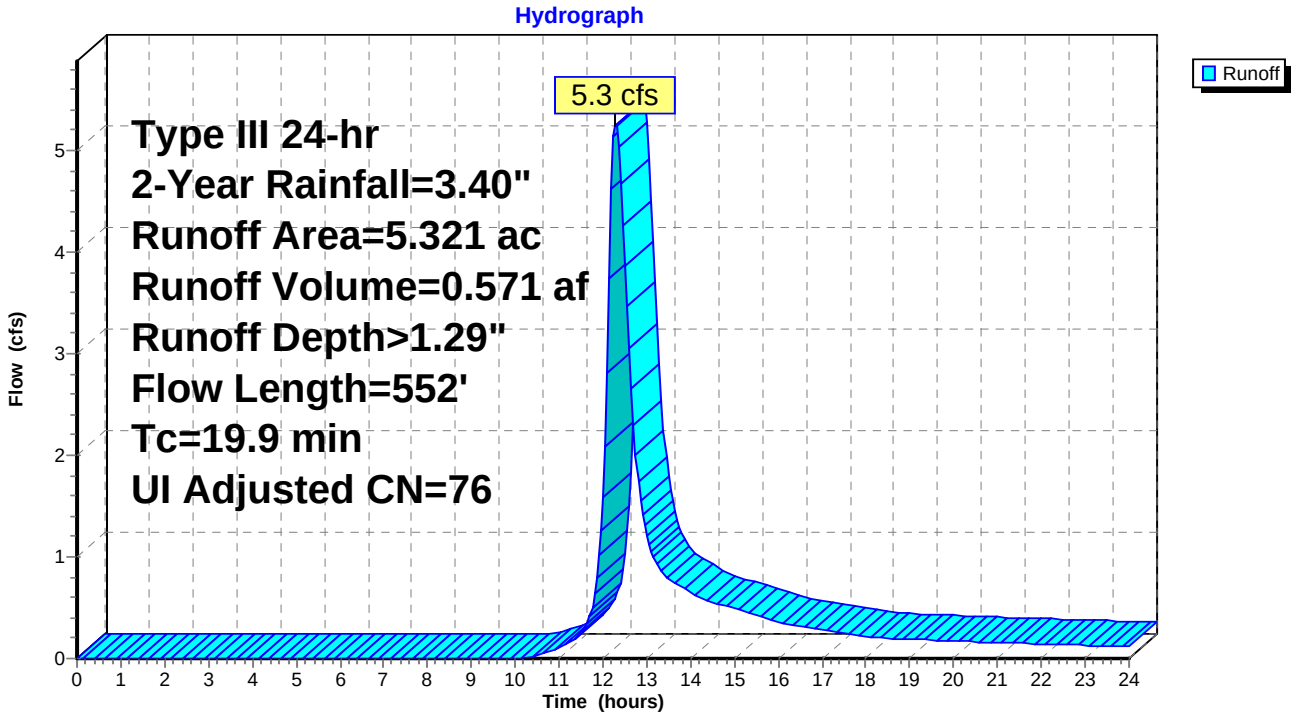
Runoff = 5.3 cfs @ 12.29 hrs, Volume= 0.571 af, Depth> 1.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Adj	Description
0.512	98		Unconnected roofs, HSG C
1.340	74		>75% Grass cover, Good, HSG C
2.019	74		Pasture/grassland/range, Good, HSG C
0.870	87		Dirt roads, HSG C
0.580	65		Brush, Good, HSG C
5.321	77	76	Weighted Average, UI Adjusted
4.809			90.38% Pervious Area
0.512			9.62% Impervious Area
0.512			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0233	0.13		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
2.5	138	0.0179	0.94		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
1.1	96	0.0417	1.43		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
3.3	218	0.0252	1.11		**Shallow Concentrated Flow, Pasture** Short Grass Pasture Kv= 7.0 fps
19.9	552	Total			

Subcatchment 7S: DA-1A

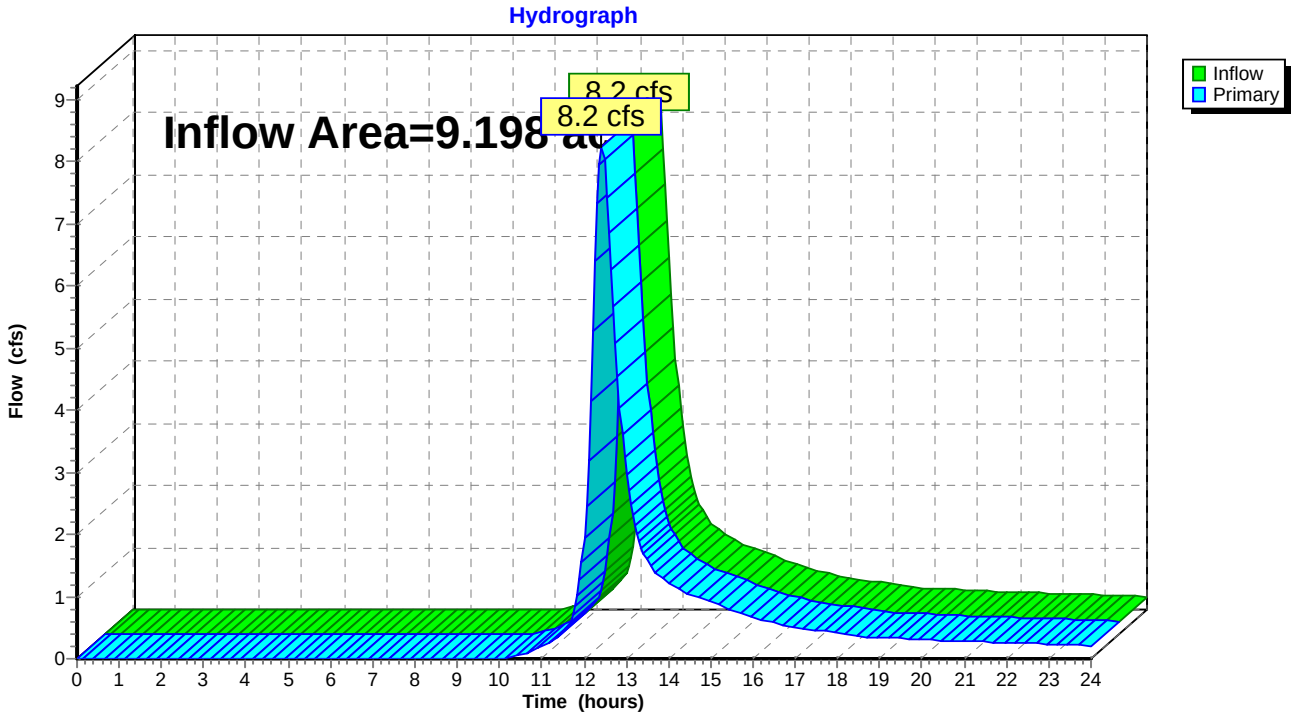


Summary for Link 2L: Sheet flow to South West

Inflow Area = 9.198 ac, 4.37% Impervious, Inflow Depth > 1.35" for 2-Year event
Inflow = 8.2 cfs @ 12.42 hrs, Volume= 1.033 af
Primary = 8.2 cfs @ 12.42 hrs, Volume= 1.033 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs

Link 2L: Sheet flow to South West

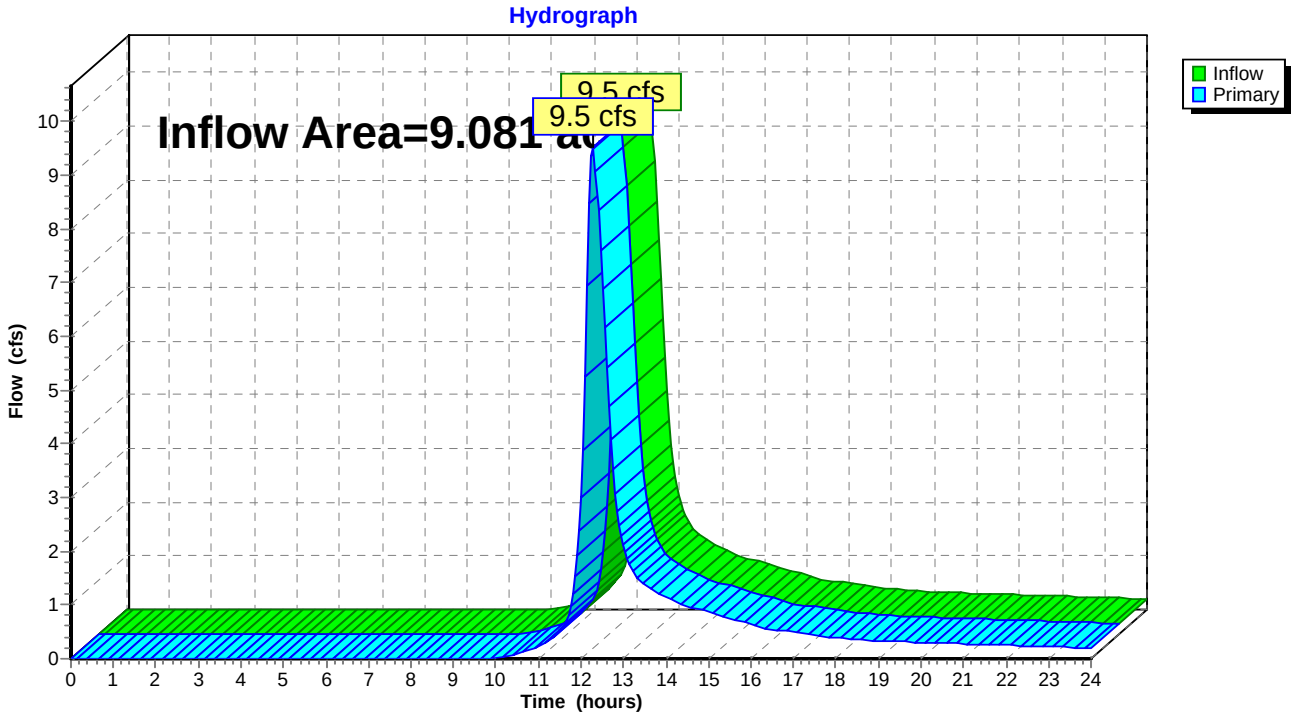


Summary for Link 5L: Sheet Flow to Stott Avenue

Inflow Area = 9.081 ac, 0.65% Impervious, Inflow Depth > 1.35" for 2-Year event
Inflow = 9.5 cfs @ 12.29 hrs, Volume= 1.022 af
Primary = 9.5 cfs @ 12.29 hrs, Volume= 1.022 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs

Link 5L: Sheet Flow to Stott Avenue

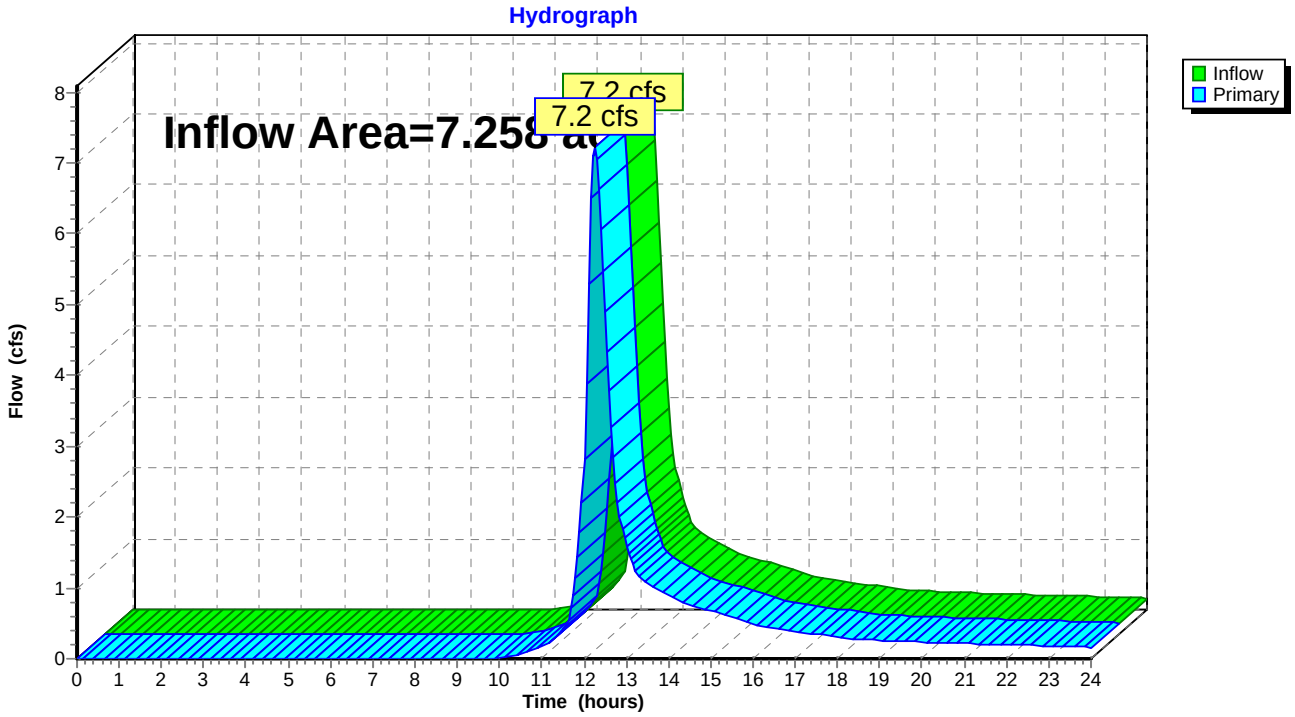


Summary for Link 6L: Sheet flow to North West

Inflow Area = 7.258 ac, 7.05% Impervious, Inflow Depth > 1.32" for 2-Year event
Inflow = 7.2 cfs @ 12.25 hrs, Volume= 0.800 af
Primary = 7.2 cfs @ 12.25 hrs, Volume= 0.800 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs

Link 6L: Sheet flow to North West



Time span=0.00-24.00 hrs, dt=0.050 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 2S: DA-1B Runoff Area=1.937 ac 0.00% Impervious Runoff Depth>2.12"
Flow Length=712' Tc=10.0 min CN=78 Runoff=4.2 cfs 0.343 af

Subcatchment 3S: DA-2 Runoff Area=9.198 ac 4.37% Impervious Runoff Depth>2.04"
Flow Length=1,274' Tc=28.6 min CN=77 Runoff=12.7 cfs 1.561 af

Subcatchment 6S: DA-3 Runoff Area=9.081 ac 0.65% Impervious Runoff Depth>2.04"
Flow Length=900' Tc=19.7 min CN=77 Runoff=14.6 cfs 1.545 af

Subcatchment 7S: DA-1A Runoff Area=5.321 ac 9.62% Impervious Runoff Depth>1.96"
Flow Length=552' Tc=19.9 min UI Adjusted CN=76 Runoff=8.2 cfs 0.870 af

Link 2L: Sheet flow to South West Inflow=12.7 cfs 1.561 af
Primary=12.7 cfs 1.561 af

Link 5L: Sheet Flow to Stott Avenue Inflow=14.6 cfs 1.545 af
Primary=14.6 cfs 1.545 af

Link 6L: Sheet flow to North West Inflow=11.2 cfs 1.213 af
Primary=11.2 cfs 1.213 af

Total Runoff Area = 25.537 ac Runoff Volume = 4.319 af Average Runoff Depth = 2.03"
96.19% Pervious = 24.564 ac 3.81% Impervious = 0.973 ac

Summary for Subcatchment 2S: DA-1B

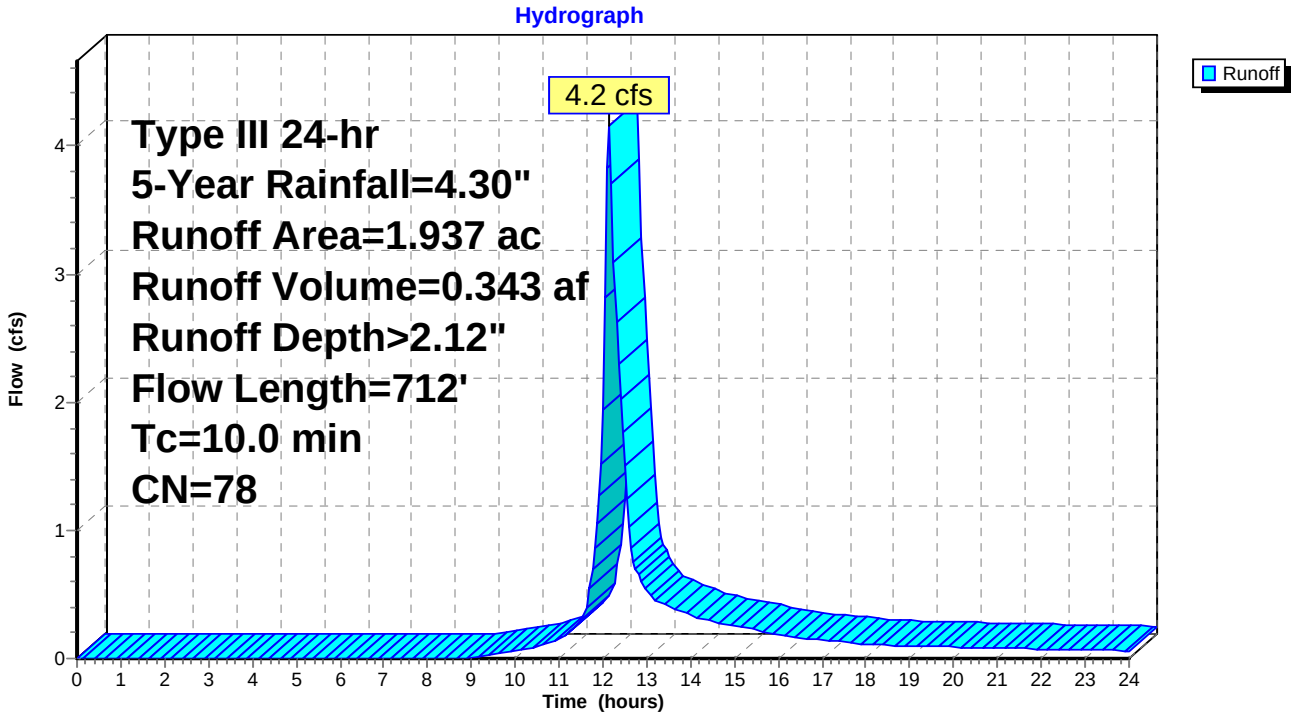
Runoff = 4.2 cfs @ 12.15 hrs, Volume= 0.343 af, Depth> 2.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs
Type III 24-hr 5-Year Rainfall=4.30"

Area (ac)	CN	Description
0.928	77	Small grain, C&T + CR, Good, HSG C
0.601	82	Farmsteads, HSG C
0.107	87	Dirt roads, HSG C
0.200	70	Woods, Good, HSG C
0.101	77	Woods, Poor, HSG C
1.937	78	Weighted Average
1.937		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		**Sheet Flow, Dirt Drive** Smooth surfaces n= 0.011 P2= 3.40"
0.8	124	0.0242	2.50		**Shallow Concentrated Flow, Dirt Drive** Unpaved Kv= 16.1 fps
0.2	60	0.1000	5.09		**Shallow Concentrated Flow, Dirt Drive** Unpaved Kv= 16.1 fps
3.7	307	0.0391	1.38		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
0.7	121	0.1488	2.70		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
7.0	712	Total, Increased to minimum Tc = 10.0 min			

Subcatchment 2S: DA-1B



Summary for Subcatchment 3S: DA-2

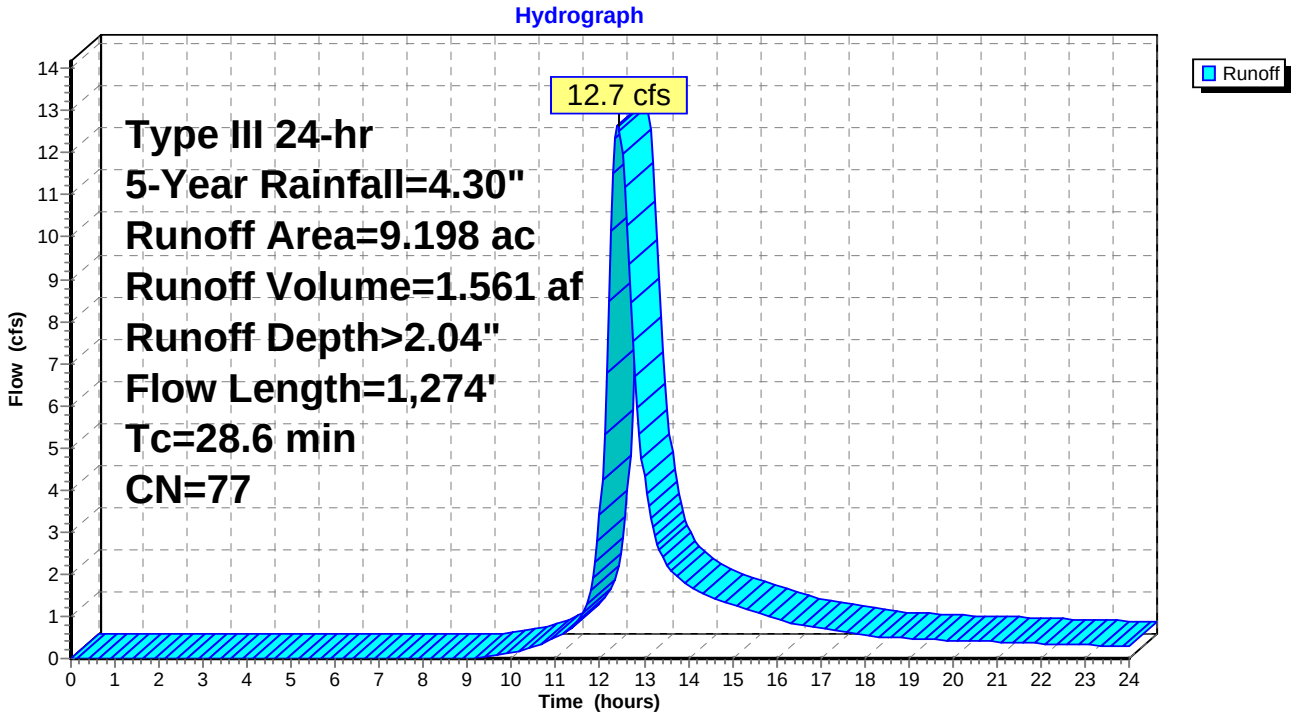
Runoff = 12.7 cfs @ 12.41 hrs, Volume= 1.561 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs
Type III 24-hr 5-Year Rainfall=4.30"

Area (ac)	CN	Description
0.402	98	Unconnected roofs, HSG C
3.610	77	Small grain, C&T + CR, Good, HSG C
2.233	70	Woods, Good, HSG C
0.206	77	Woods, Poor, HSG C
0.989	82	Farmsteads, HSG C
1.099	74	>75% Grass cover, Good, HSG C
0.659	87	Dirt roads, HSG C
9.198	77	Weighted Average
8.796		95.63% Pervious Area
0.402		4.37% Impervious Area
0.402		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	100	0.0200	0.12		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
3.9	230	0.0196	0.98		**Shallow Concentrated Flow, Grassed** Short Grass Pasture Kv= 7.0 fps
3.8	367	0.0327	1.63		**Shallow Concentrated Flow, Field** Cultivated Straight Rows Kv= 9.0 fps
4.1	230	0.0348	0.93		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.9	106	0.0472	1.96		**Shallow Concentrated Flow, Fields** Cultivated Straight Rows Kv= 9.0 fps
1.7	194	0.0773	1.95		**Shallow Concentrated Flow, Grassed** Short Grass Pasture Kv= 7.0 fps
0.4	47	0.1277	1.79		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
28.6	1,274	Total			

Subcatchment 3S: DA-2



Summary for Subcatchment 6S: DA-3

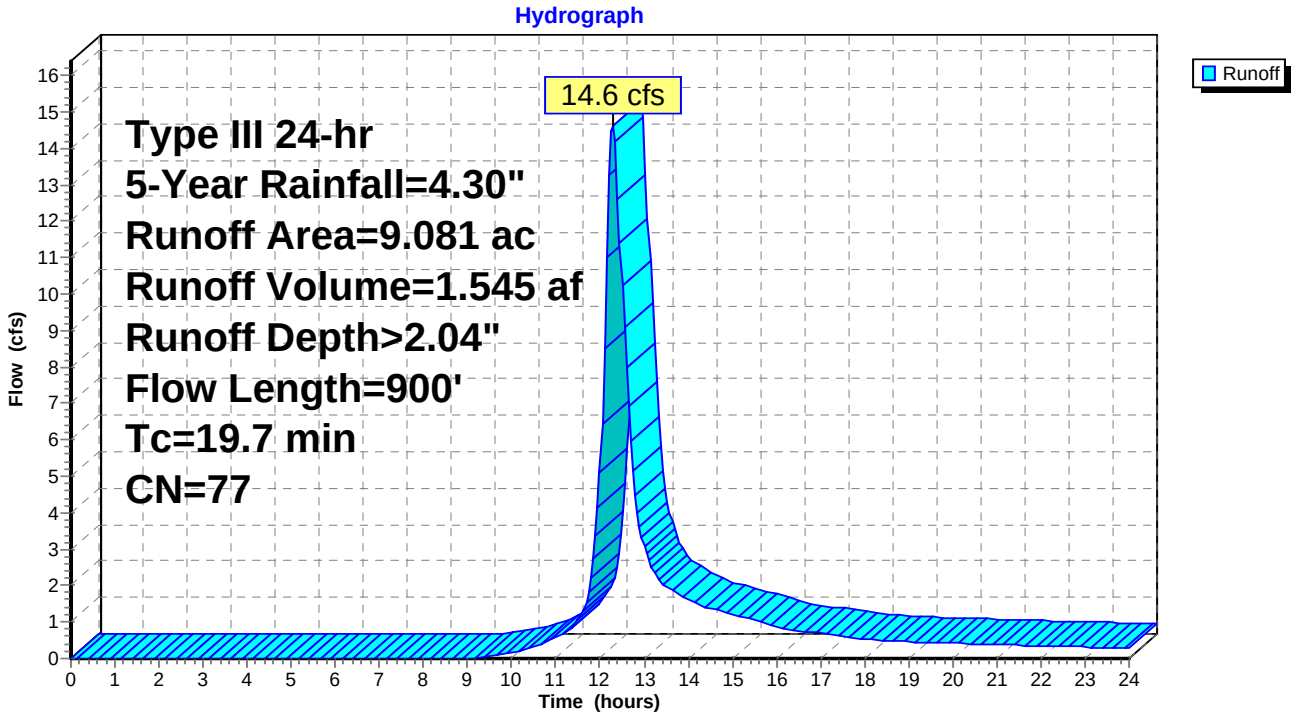
Runoff = 14.6 cfs @ 12.28 hrs, Volume= 1.545 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs
Type III 24-hr 5-Year Rainfall=4.30"

Area (ac)	CN	Description
0.059	98	Unconnected roofs, HSG C
0.826	70	Woods, Good, HSG C
0.079	77	Woods, Poor, HSG C
1.439	74	>75% Grass cover, Good, HSG C
0.070	86	<50% Grass cover, Poor, HSG C
0.563	82	Farmsteads, HSG C
0.370	87	Dirt roads, HSG C
5.675	77	Small grain, C&T + CR, Good, HSG C
9.081	77	Weighted Average
9.022		99.35% Pervious Area
0.059		0.65% Impervious Area
0.059		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0333	0.15		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
8.4	800	0.0312	1.59		**Shallow Concentrated Flow, Field** Cultivated Straight Rows Kv= 9.0 fps
19.7	900	Total			

Subcatchment 6S: DA-3



Summary for Subcatchment 7S: DA-1A

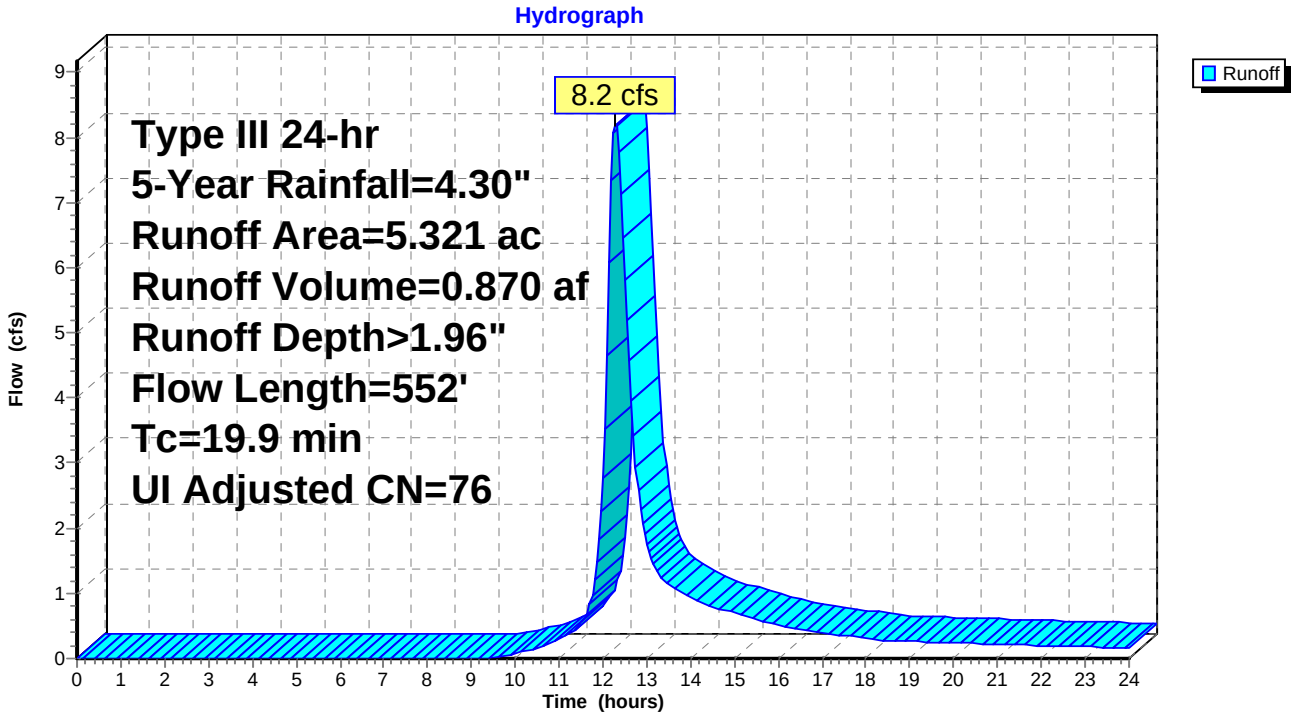
Runoff = 8.2 cfs @ 12.28 hrs, Volume= 0.870 af, Depth> 1.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs
Type III 24-hr 5-Year Rainfall=4.30"

Area (ac)	CN	Adj	Description
0.512	98		Unconnected roofs, HSG C
1.340	74		>75% Grass cover, Good, HSG C
2.019	74		Pasture/grassland/range, Good, HSG C
0.870	87		Dirt roads, HSG C
0.580	65		Brush, Good, HSG C
5.321	77	76	Weighted Average, UI Adjusted
4.809			90.38% Pervious Area
0.512			9.62% Impervious Area
0.512			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0233	0.13		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
2.5	138	0.0179	0.94		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
1.1	96	0.0417	1.43		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
3.3	218	0.0252	1.11		**Shallow Concentrated Flow, Pasture** Short Grass Pasture Kv= 7.0 fps
19.9	552	Total			

Subcatchment 7S: DA-1A

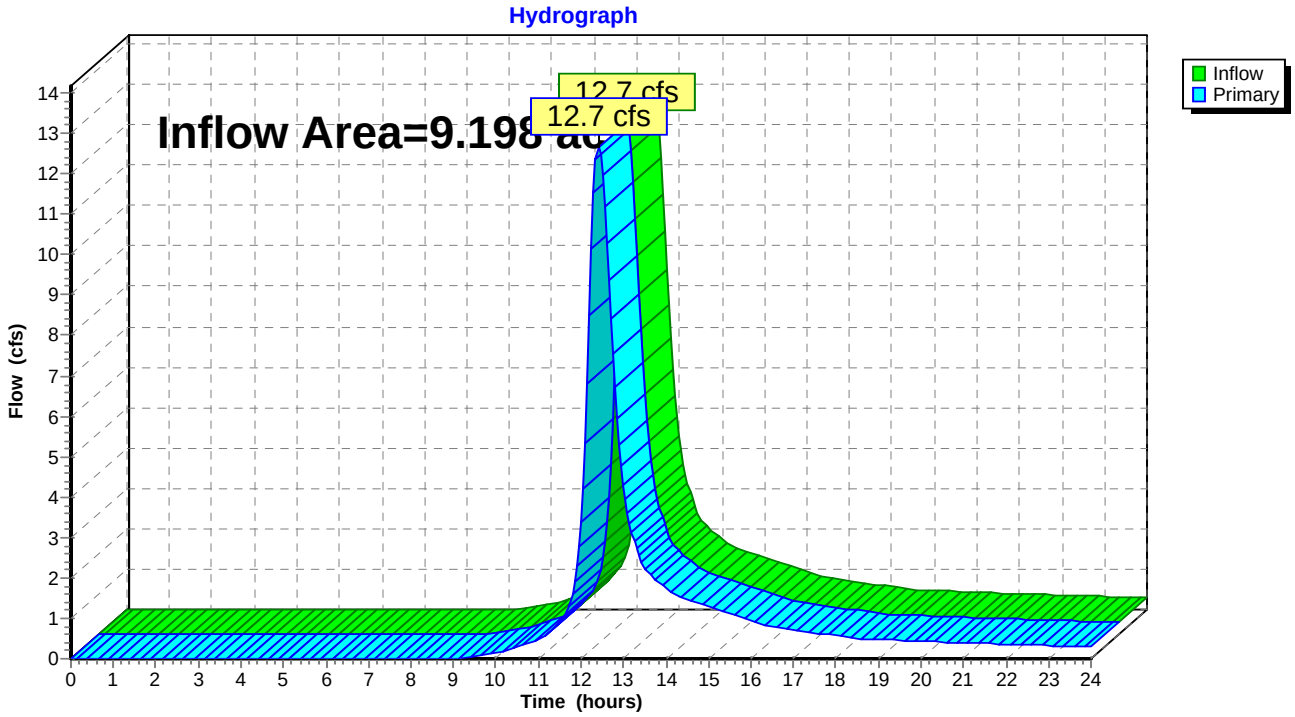


Summary for Link 2L: Sheet flow to South West

Inflow Area = 9.198 ac, 4.37% Impervious, Inflow Depth > 2.04" for 5-Year event
Inflow = 12.7 cfs @ 12.41 hrs, Volume= 1.561 af
Primary = 12.7 cfs @ 12.41 hrs, Volume= 1.561 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs

Link 2L: Sheet flow to South West

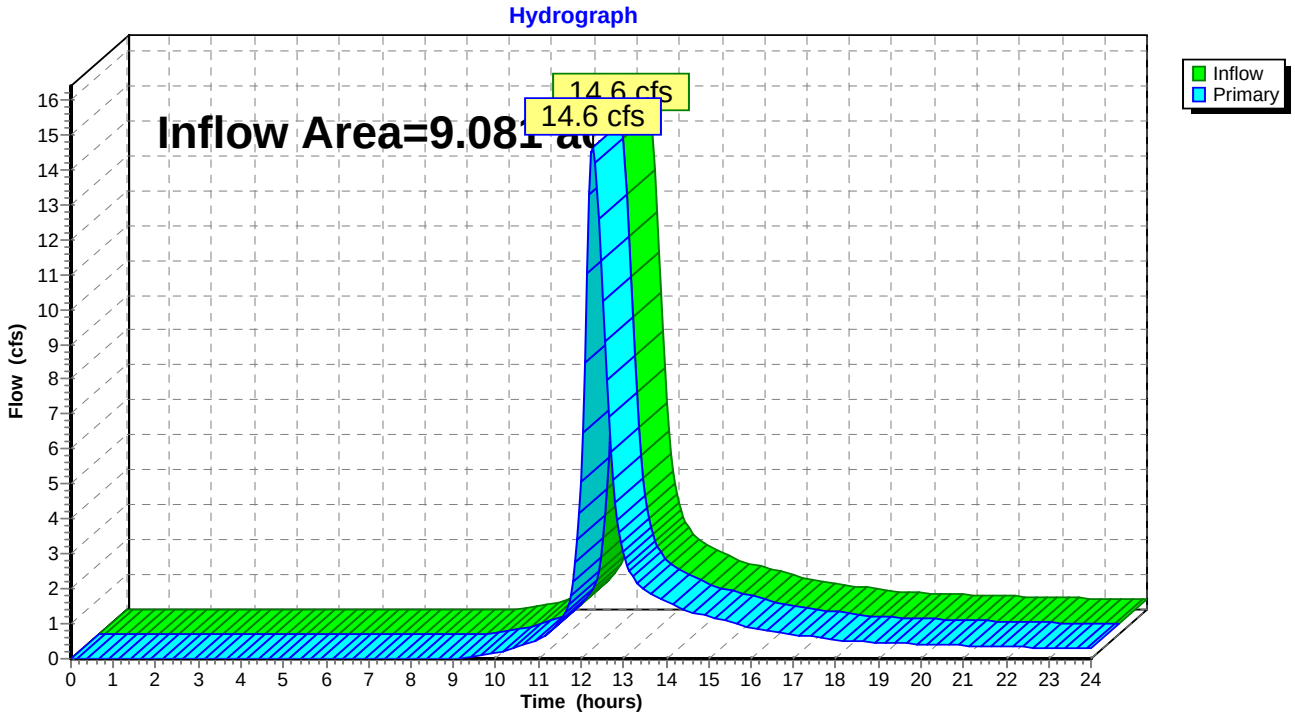


Summary for Link 5L: Sheet Flow to Stott Avenue

Inflow Area = 9.081 ac, 0.65% Impervious, Inflow Depth > 2.04" for 5-Year event
Inflow = 14.6 cfs @ 12.28 hrs, Volume= 1.545 af
Primary = 14.6 cfs @ 12.28 hrs, Volume= 1.545 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs

Link 5L: Sheet Flow to Stott Avenue

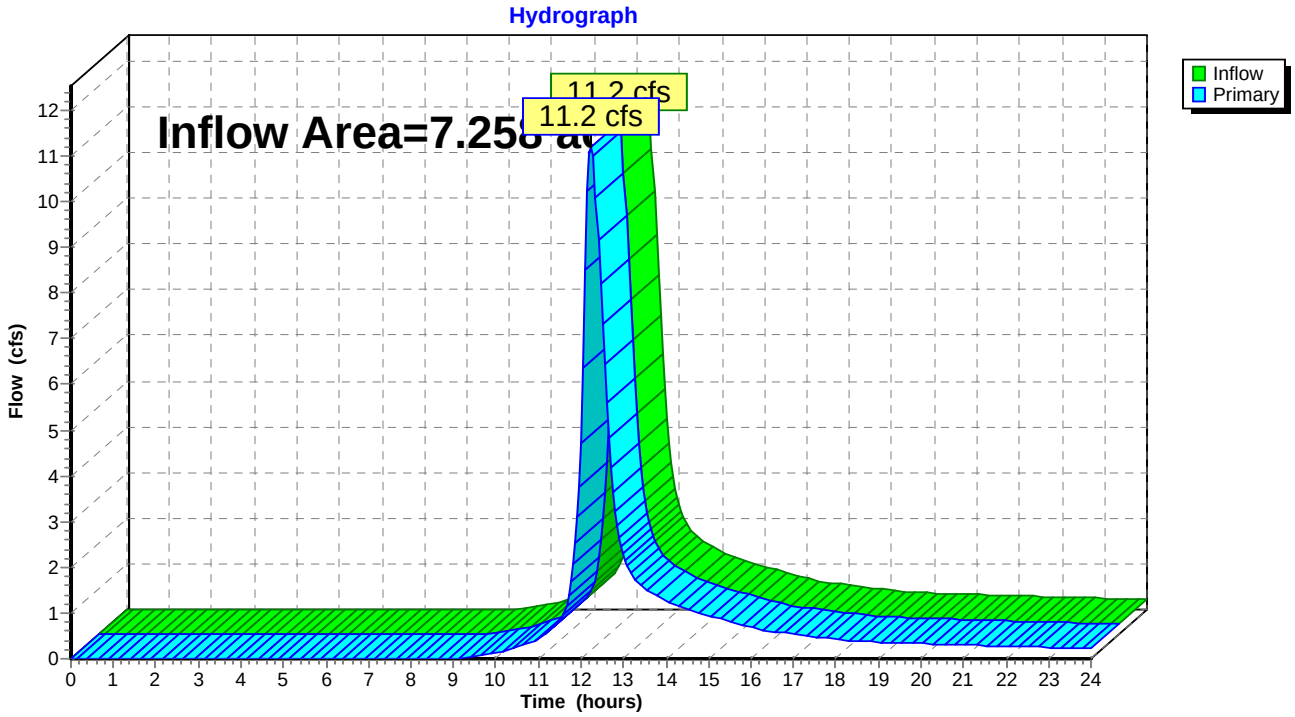


Summary for Link 6L: Sheet flow to North West

Inflow Area = 7.258 ac, 7.05% Impervious, Inflow Depth > 2.01" for 5-Year event
Inflow = 11.2 cfs @ 12.24 hrs, Volume= 1.213 af
Primary = 11.2 cfs @ 12.24 hrs, Volume= 1.213 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs

Link 6L: Sheet flow to North West



Time span=0.00-24.00 hrs, dt=0.050 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 2S: DA-1B Runoff Area=1.937 ac 0.00% Impervious Runoff Depth>2.71"
Flow Length=712' Tc=10.0 min CN=78 Runoff=5.3 cfs 0.437 af

Subcatchment 3S: DA-2 Runoff Area=9.198 ac 4.37% Impervious Runoff Depth>2.61"
Flow Length=1,274' Tc=28.6 min CN=77 Runoff=16.3 cfs 1.999 af

Subcatchment 6S: DA-3 Runoff Area=9.081 ac 0.65% Impervious Runoff Depth>2.61"
Flow Length=900' Tc=19.7 min CN=77 Runoff=18.8 cfs 1.977 af

Subcatchment 7S: DA-1A Runoff Area=5.321 ac 9.62% Impervious Runoff Depth>2.53"
Flow Length=552' Tc=19.9 min UI Adjusted CN=76 Runoff=10.6 cfs 1.120 af

Link 2L: Sheet flow to South West Inflow=16.3 cfs 1.999 af
Primary=16.3 cfs 1.999 af

Link 5L: Sheet Flow to Stott Avenue Inflow=18.8 cfs 1.977 af
Primary=18.8 cfs 1.977 af

Link 6L: Sheet flow to North West Inflow=14.4 cfs 1.557 af
Primary=14.4 cfs 1.557 af

Total Runoff Area = 25.537 ac Runoff Volume = 5.533 af Average Runoff Depth = 2.60"
96.19% Pervious = 24.564 ac 3.81% Impervious = 0.973 ac

Summary for Subcatchment 2S: DA-1B

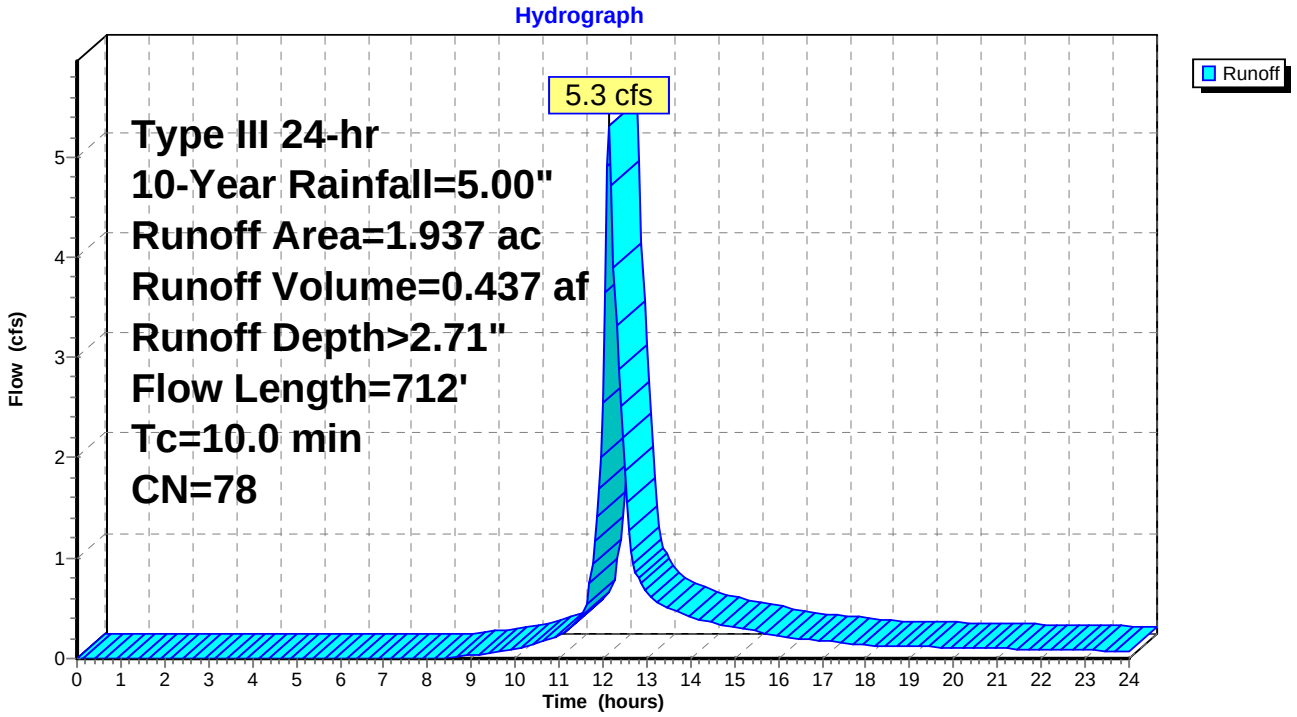
Runoff = 5.3 cfs @ 12.14 hrs, Volume= 0.437 af, Depth> 2.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (ac)	CN	Description
0.928	77	Small grain, C&T + CR, Good, HSG C
0.601	82	Farmsteads, HSG C
0.107	87	Dirt roads, HSG C
0.200	70	Woods, Good, HSG C
0.101	77	Woods, Poor, HSG C
1.937	78	Weighted Average
1.937		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		**Sheet Flow, Dirt Drive** Smooth surfaces n= 0.011 P2= 3.40"
0.8	124	0.0242	2.50		**Shallow Concentrated Flow, Dirt Drive** Unpaved Kv= 16.1 fps
0.2	60	0.1000	5.09		**Shallow Concentrated Flow, Dirt Drive** Unpaved Kv= 16.1 fps
3.7	307	0.0391	1.38		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
0.7	121	0.1488	2.70		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
7.0	712	Total, Increased to minimum Tc = 10.0 min			

Subcatchment 2S: DA-1B



Summary for Subcatchment 3S: DA-2

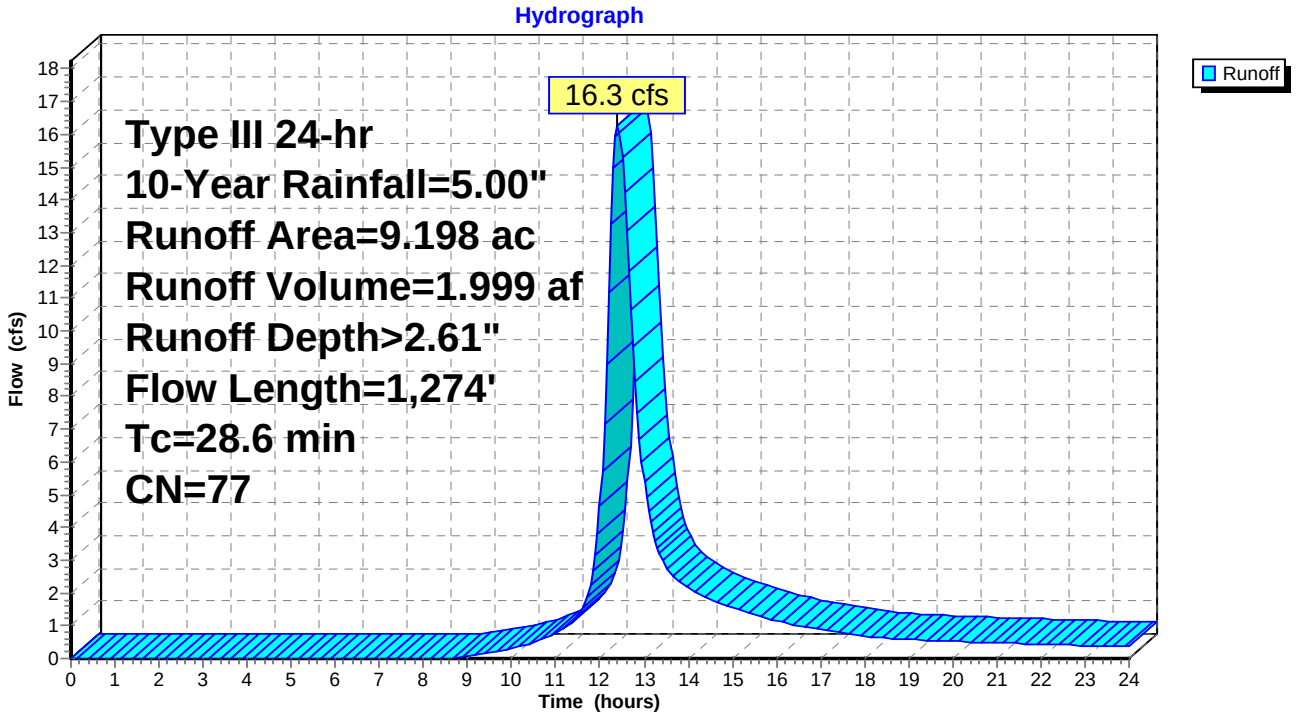
Runoff = 16.3 cfs @ 12.40 hrs, Volume= 1.999 af, Depth> 2.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (ac)	CN	Description
0.402	98	Unconnected roofs, HSG C
3.610	77	Small grain, C&T + CR, Good, HSG C
2.233	70	Woods, Good, HSG C
0.206	77	Woods, Poor, HSG C
0.989	82	Farmsteads, HSG C
1.099	74	>75% Grass cover, Good, HSG C
0.659	87	Dirt roads, HSG C
9.198	77	Weighted Average
8.796		95.63% Pervious Area
0.402		4.37% Impervious Area
0.402		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	100	0.0200	0.12		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
3.9	230	0.0196	0.98		**Shallow Concentrated Flow, Grassed** Short Grass Pasture Kv= 7.0 fps
3.8	367	0.0327	1.63		**Shallow Concentrated Flow, Field** Cultivated Straight Rows Kv= 9.0 fps
4.1	230	0.0348	0.93		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.9	106	0.0472	1.96		**Shallow Concentrated Flow, Fields** Cultivated Straight Rows Kv= 9.0 fps
1.7	194	0.0773	1.95		**Shallow Concentrated Flow, Grassed** Short Grass Pasture Kv= 7.0 fps
0.4	47	0.1277	1.79		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
28.6	1,274	Total			

Subcatchment 3S: DA-2



Summary for Subcatchment 6S: DA-3

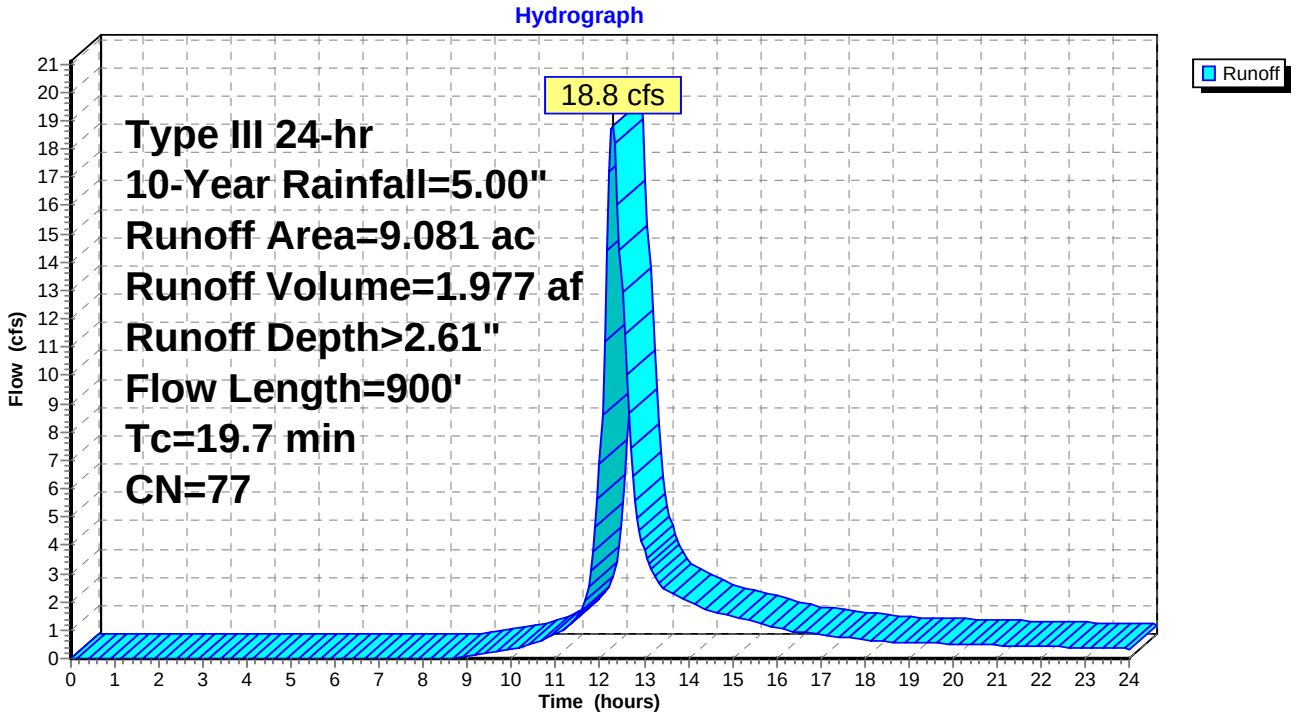
Runoff = 18.8 cfs @ 12.28 hrs, Volume= 1.977 af, Depth> 2.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (ac)	CN	Description
0.059	98	Unconnected roofs, HSG C
0.826	70	Woods, Good, HSG C
0.079	77	Woods, Poor, HSG C
1.439	74	>75% Grass cover, Good, HSG C
0.070	86	<50% Grass cover, Poor, HSG C
0.563	82	Farmsteads, HSG C
0.370	87	Dirt roads, HSG C
5.675	77	Small grain, C&T + CR, Good, HSG C
9.081	77	Weighted Average
9.022		99.35% Pervious Area
0.059		0.65% Impervious Area
0.059		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0333	0.15		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
8.4	800	0.0312	1.59		**Shallow Concentrated Flow, Field** Cultivated Straight Rows Kv= 9.0 fps
19.7	900	Total			

Subcatchment 6S: DA-3



Summary for Subcatchment 7S: DA-1A

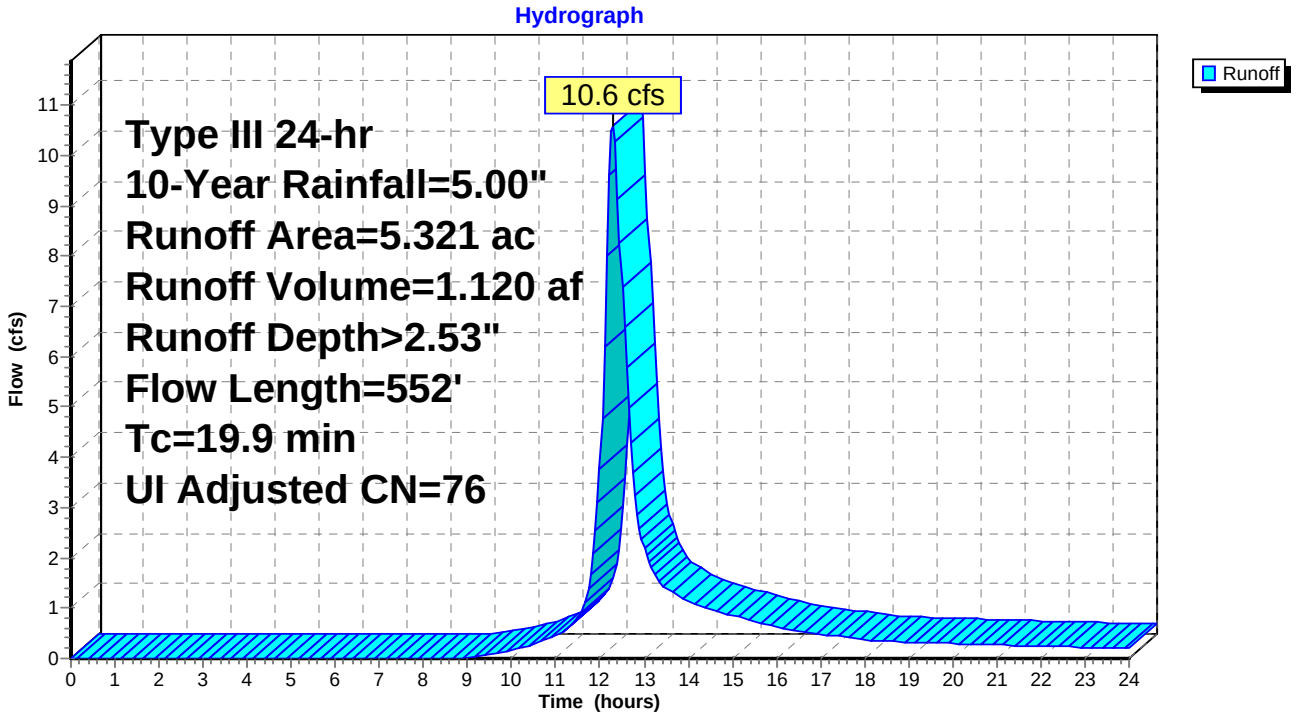
Runoff = 10.6 cfs @ 12.28 hrs, Volume= 1.120 af, Depth> 2.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (ac)	CN	Adj	Description
0.512	98		Unconnected roofs, HSG C
1.340	74		>75% Grass cover, Good, HSG C
2.019	74		Pasture/grassland/range, Good, HSG C
0.870	87		Dirt roads, HSG C
0.580	65		Brush, Good, HSG C
5.321	77	76	Weighted Average, UI Adjusted
4.809			90.38% Pervious Area
0.512			9.62% Impervious Area
0.512			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0233	0.13		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
2.5	138	0.0179	0.94		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
1.1	96	0.0417	1.43		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
3.3	218	0.0252	1.11		**Shallow Concentrated Flow, Pasture** Short Grass Pasture Kv= 7.0 fps
19.9	552	Total			

Subcatchment 7S: DA-1A

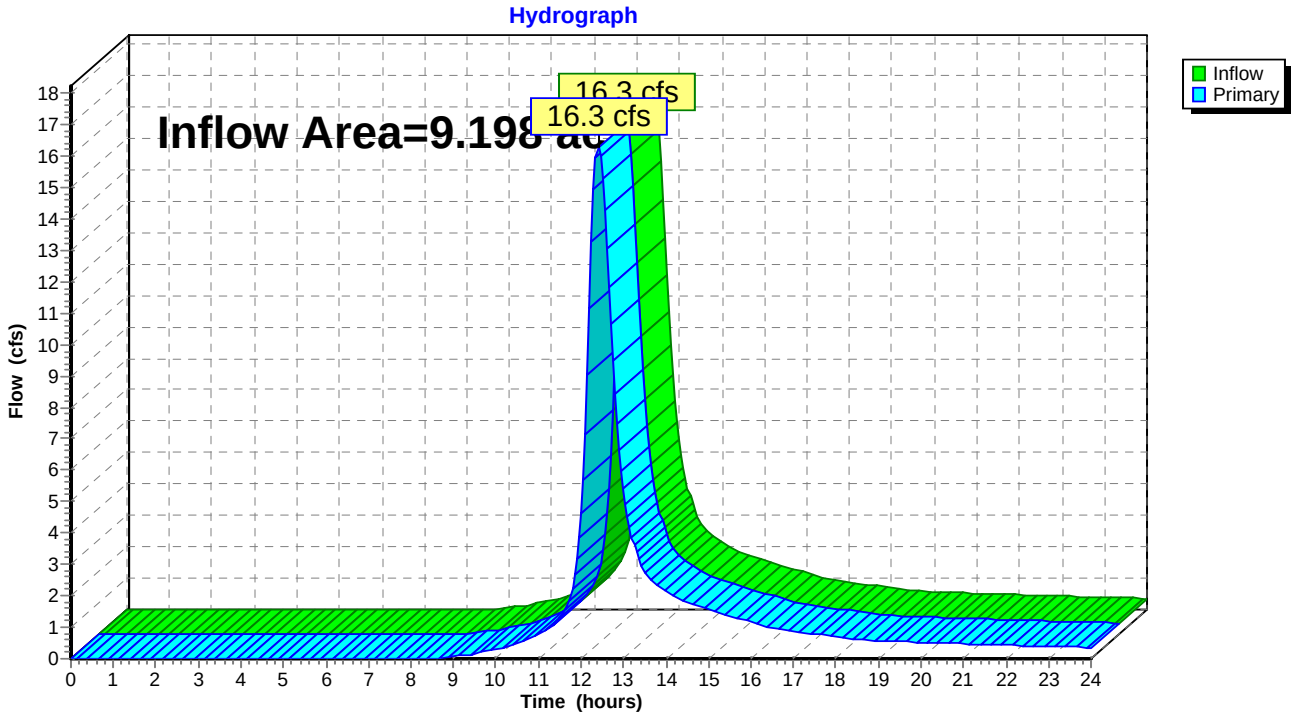


Summary for Link 2L: Sheet flow to South West

Inflow Area = 9.198 ac, 4.37% Impervious, Inflow Depth > 2.61" for 10-Year event
Inflow = 16.3 cfs @ 12.40 hrs, Volume= 1.999 af
Primary = 16.3 cfs @ 12.40 hrs, Volume= 1.999 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs

Link 2L: Sheet flow to South West

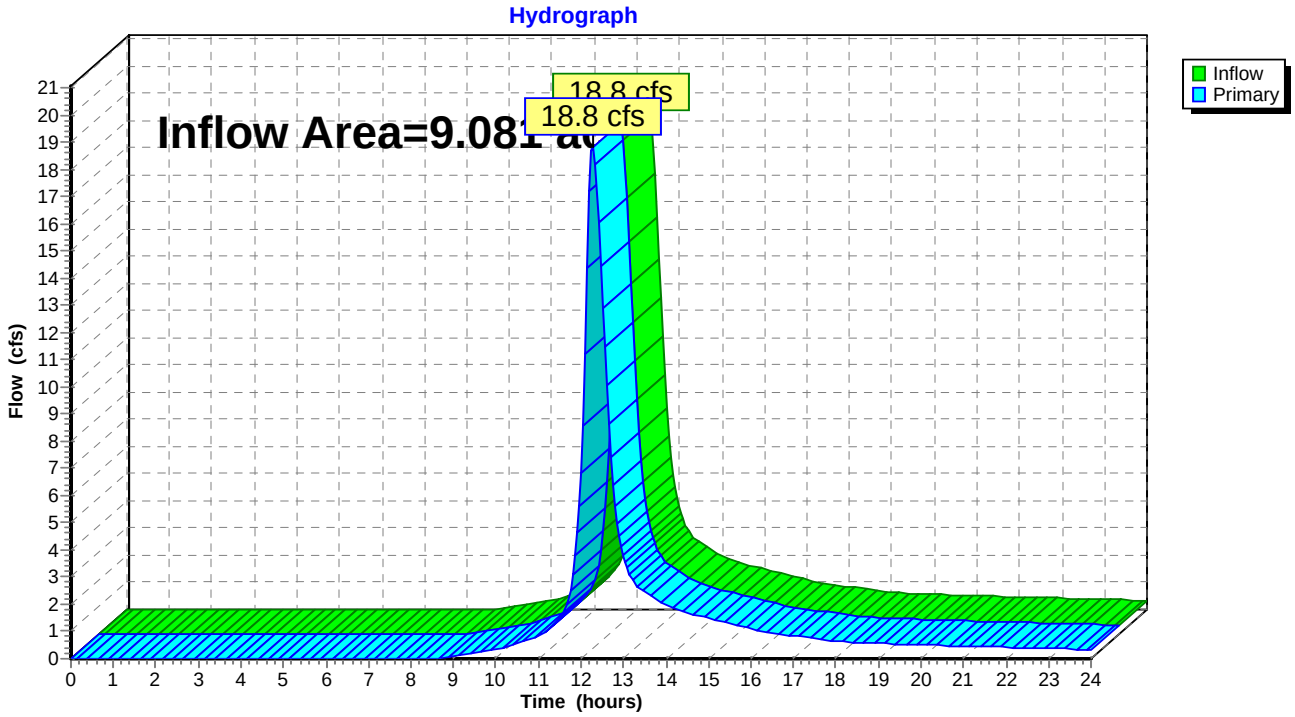


Summary for Link 5L: Sheet Flow to Stott Avenue

Inflow Area = 9.081 ac, 0.65% Impervious, Inflow Depth > 2.61" for 10-Year event
Inflow = 18.8 cfs @ 12.28 hrs, Volume= 1.977 af
Primary = 18.8 cfs @ 12.28 hrs, Volume= 1.977 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs

Link 5L: Sheet Flow to Stott Avenue

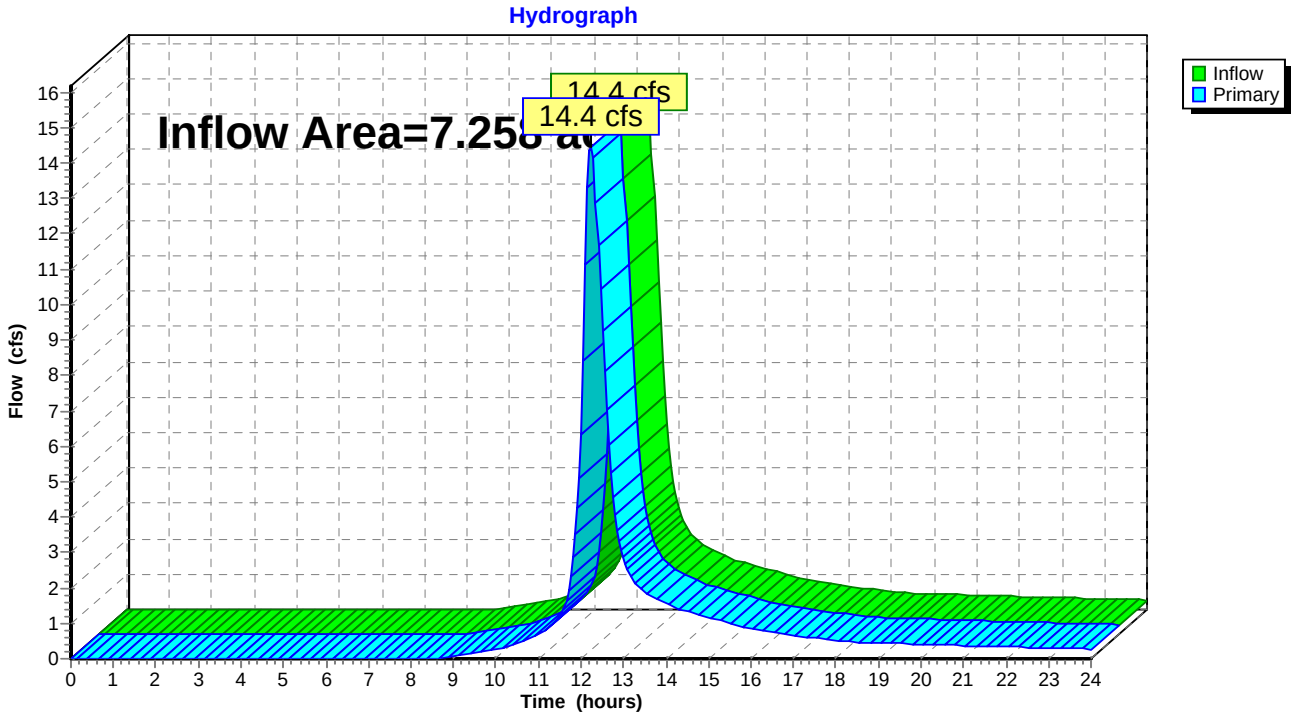


Summary for Link 6L: Sheet flow to North West

Inflow Area = 7.258 ac, 7.05% Impervious, Inflow Depth > 2.57" for 10-Year event
Inflow = 14.4 cfs @ 12.23 hrs, Volume= 1.557 af
Primary = 14.4 cfs @ 12.23 hrs, Volume= 1.557 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs

Link 6L: Sheet flow to North West



Time span=0.00-24.00 hrs, dt=0.050 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 2S: DA-1B Runoff Area=1.937 ac 0.00% Impervious Runoff Depth>3.31"
Flow Length=712' Tc=10.0 min CN=78 Runoff=6.5 cfs 0.534 af

Subcatchment 3S: DA-2 Runoff Area=9.198 ac 4.37% Impervious Runoff Depth>3.20"
Flow Length=1,274' Tc=28.6 min CN=77 Runoff=20.0 cfs 2.453 af

Subcatchment 6S: DA-3 Runoff Area=9.081 ac 0.65% Impervious Runoff Depth>3.21"
Flow Length=900' Tc=19.7 min CN=77 Runoff=23.2 cfs 2.427 af

Subcatchment 7S: DA-1A Runoff Area=5.321 ac 9.62% Impervious Runoff Depth>3.11"
Flow Length=552' Tc=19.9 min UI Adjusted CN=76 Runoff=13.1 cfs 1.379 af

Link 2L: Sheet flow to South West Inflow=20.0 cfs 2.453 af
Primary=20.0 cfs 2.453 af

Link 5L: Sheet Flow to Stott Avenue Inflow=23.2 cfs 2.427 af
Primary=23.2 cfs 2.427 af

Link 6L: Sheet flow to North West Inflow=17.8 cfs 1.914 af
Primary=17.8 cfs 1.914 af

Total Runoff Area = 25.537 ac Runoff Volume = 6.793 af Average Runoff Depth = 3.19"
96.19% Pervious = 24.564 ac 3.81% Impervious = 0.973 ac

Summary for Subcatchment 2S: DA-1B

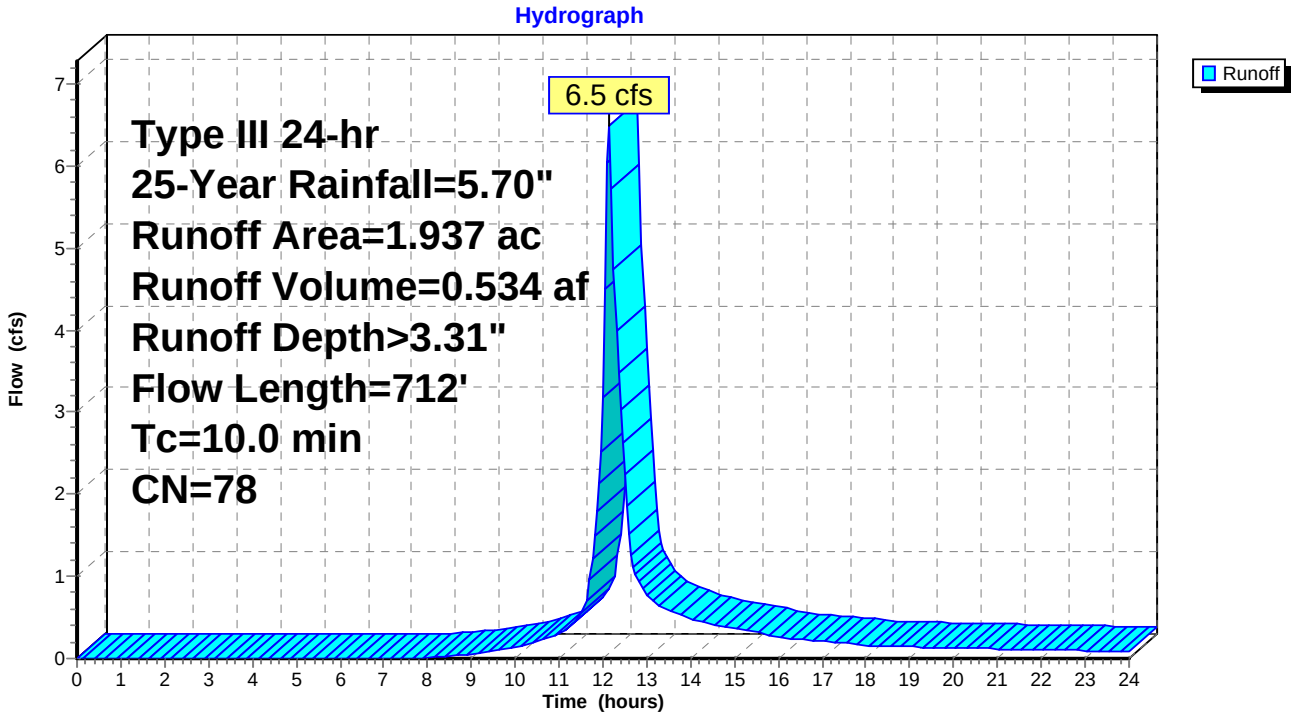
Runoff = 6.5 cfs @ 12.14 hrs, Volume= 0.534 af, Depth> 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs
Type III 24-hr 25-Year Rainfall=5.70"

Area (ac)	CN	Description
0.928	77	Small grain, C&T + CR, Good, HSG C
0.601	82	Farmsteads, HSG C
0.107	87	Dirt roads, HSG C
0.200	70	Woods, Good, HSG C
0.101	77	Woods, Poor, HSG C
1.937	78	Weighted Average
1.937		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		**Sheet Flow, Dirt Drive** Smooth surfaces n= 0.011 P2= 3.40"
0.8	124	0.0242	2.50		**Shallow Concentrated Flow, Dirt Drive** Unpaved Kv= 16.1 fps
0.2	60	0.1000	5.09		**Shallow Concentrated Flow, Dirt Drive** Unpaved Kv= 16.1 fps
3.7	307	0.0391	1.38		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
0.7	121	0.1488	2.70		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
7.0	712	Total, Increased to minimum Tc = 10.0 min			

Subcatchment 2S: DA-1B



Summary for Subcatchment 3S: DA-2

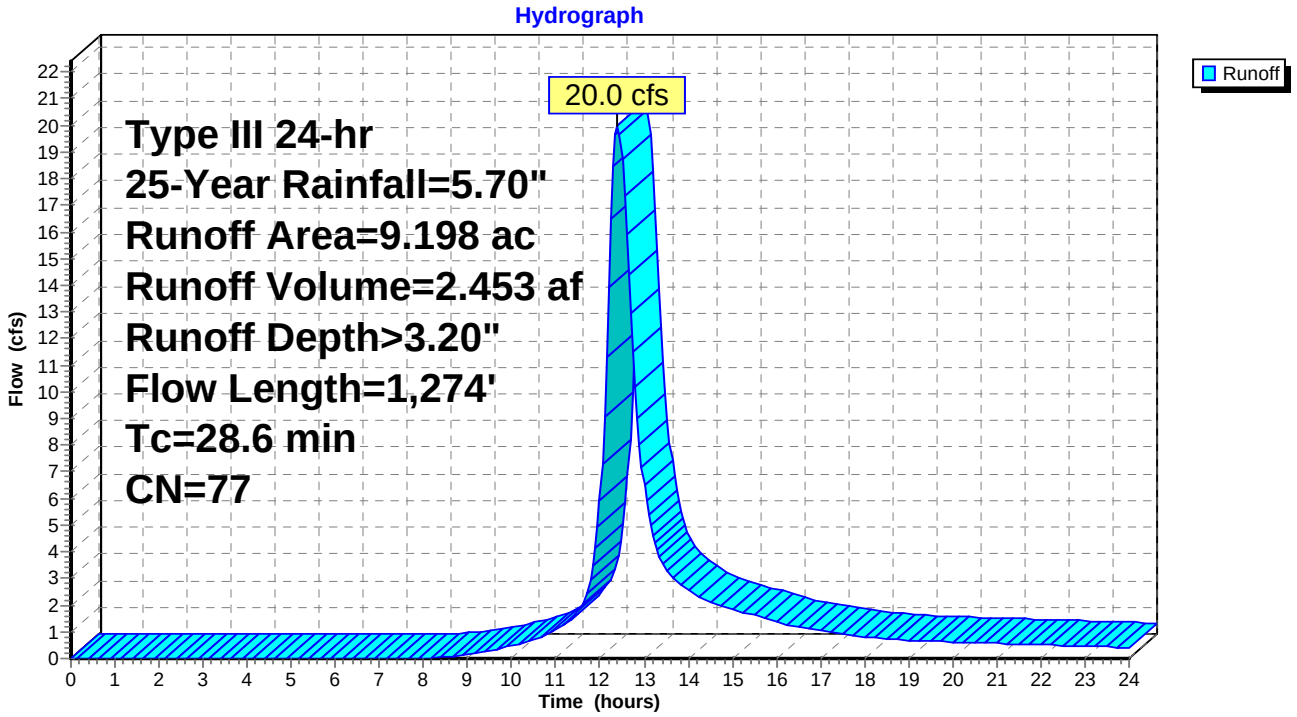
Runoff = 20.0 cfs @ 12.40 hrs, Volume= 2.453 af, Depth> 3.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs
Type III 24-hr 25-Year Rainfall=5.70"

Area (ac)	CN	Description
0.402	98	Unconnected roofs, HSG C
3.610	77	Small grain, C&T + CR, Good, HSG C
2.233	70	Woods, Good, HSG C
0.206	77	Woods, Poor, HSG C
0.989	82	Farmsteads, HSG C
1.099	74	>75% Grass cover, Good, HSG C
0.659	87	Dirt roads, HSG C
9.198	77	Weighted Average
8.796		95.63% Pervious Area
0.402		4.37% Impervious Area
0.402		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	100	0.0200	0.12		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
3.9	230	0.0196	0.98		**Shallow Concentrated Flow, Grassed** Short Grass Pasture Kv= 7.0 fps
3.8	367	0.0327	1.63		**Shallow Concentrated Flow, Field** Cultivated Straight Rows Kv= 9.0 fps
4.1	230	0.0348	0.93		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.9	106	0.0472	1.96		**Shallow Concentrated Flow, Fields** Cultivated Straight Rows Kv= 9.0 fps
1.7	194	0.0773	1.95		**Shallow Concentrated Flow, Grassed** Short Grass Pasture Kv= 7.0 fps
0.4	47	0.1277	1.79		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
28.6	1,274	Total			

Subcatchment 3S: DA-2



Summary for Subcatchment 6S: DA-3

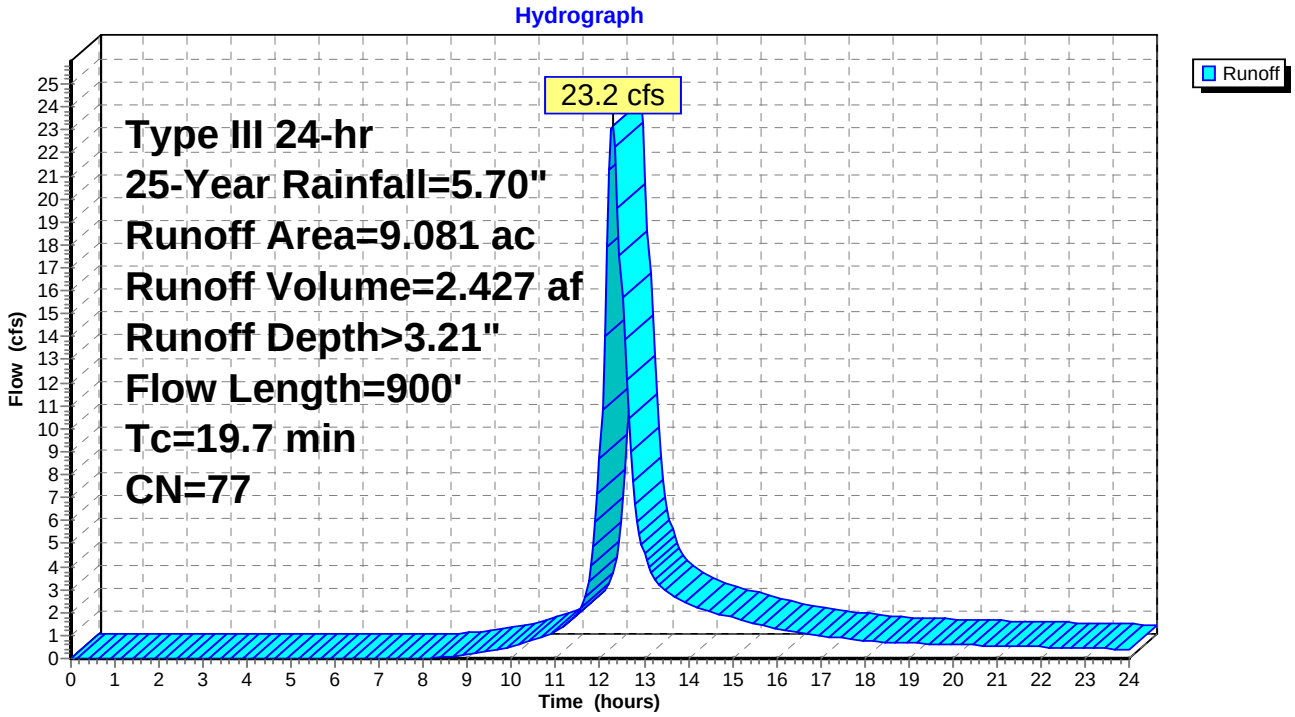
Runoff = 23.2 cfs @ 12.27 hrs, Volume= 2.427 af, Depth> 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs
Type III 24-hr 25-Year Rainfall=5.70"

Area (ac)	CN	Description
0.059	98	Unconnected roofs, HSG C
0.826	70	Woods, Good, HSG C
0.079	77	Woods, Poor, HSG C
1.439	74	>75% Grass cover, Good, HSG C
0.070	86	<50% Grass cover, Poor, HSG C
0.563	82	Farmsteads, HSG C
0.370	87	Dirt roads, HSG C
5.675	77	Small grain, C&T + CR, Good, HSG C
9.081	77	Weighted Average
9.022		99.35% Pervious Area
0.059		0.65% Impervious Area
0.059		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0333	0.15		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
8.4	800	0.0312	1.59		**Shallow Concentrated Flow, Field** Cultivated Straight Rows Kv= 9.0 fps
19.7	900	Total			

Subcatchment 6S: DA-3



Summary for Subcatchment 7S: DA-1A

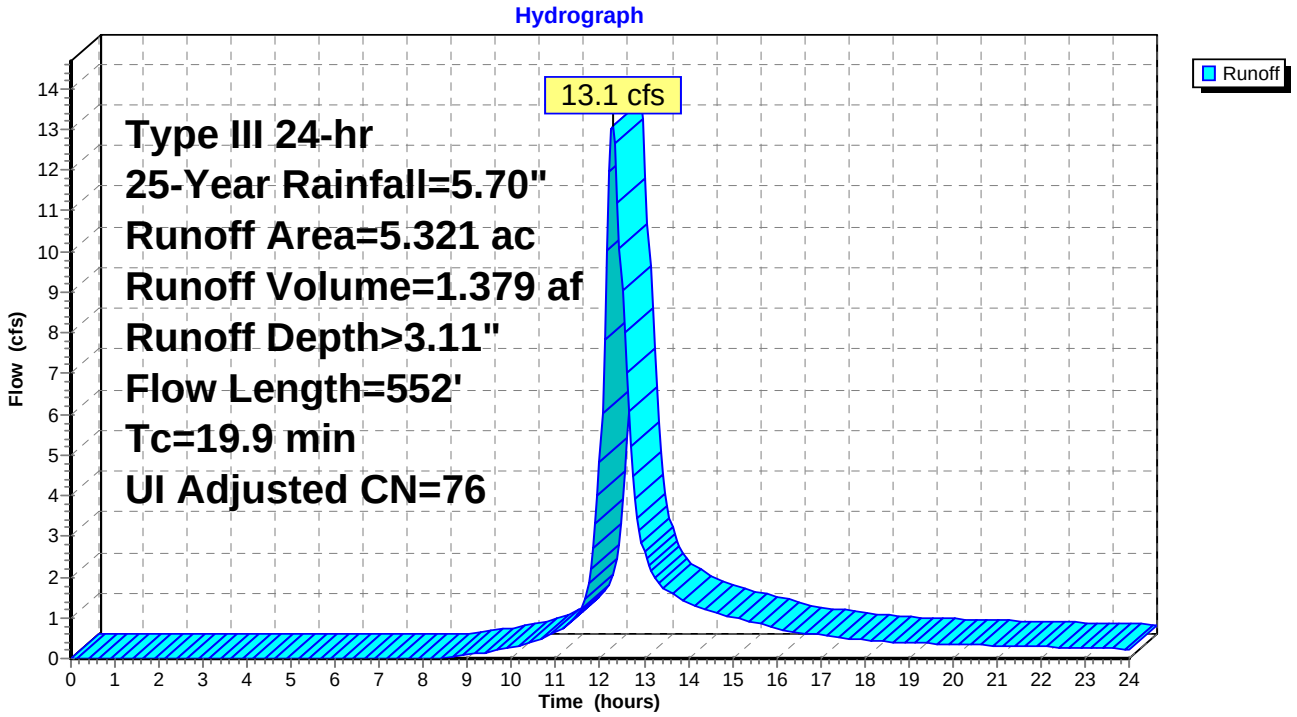
Runoff = 13.1 cfs @ 12.28 hrs, Volume= 1.379 af, Depth> 3.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs
Type III 24-hr 25-Year Rainfall=5.70"

Area (ac)	CN	Adj	Description
0.512	98		Unconnected roofs, HSG C
1.340	74		>75% Grass cover, Good, HSG C
2.019	74		Pasture/grassland/range, Good, HSG C
0.870	87		Dirt roads, HSG C
0.580	65		Brush, Good, HSG C
5.321	77	76	Weighted Average, UI Adjusted
4.809			90.38% Pervious Area
0.512			9.62% Impervious Area
0.512			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0233	0.13		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
2.5	138	0.0179	0.94		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
1.1	96	0.0417	1.43		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
3.3	218	0.0252	1.11		**Shallow Concentrated Flow, Pasture** Short Grass Pasture Kv= 7.0 fps
19.9	552	Total			

Subcatchment 7S: DA-1A

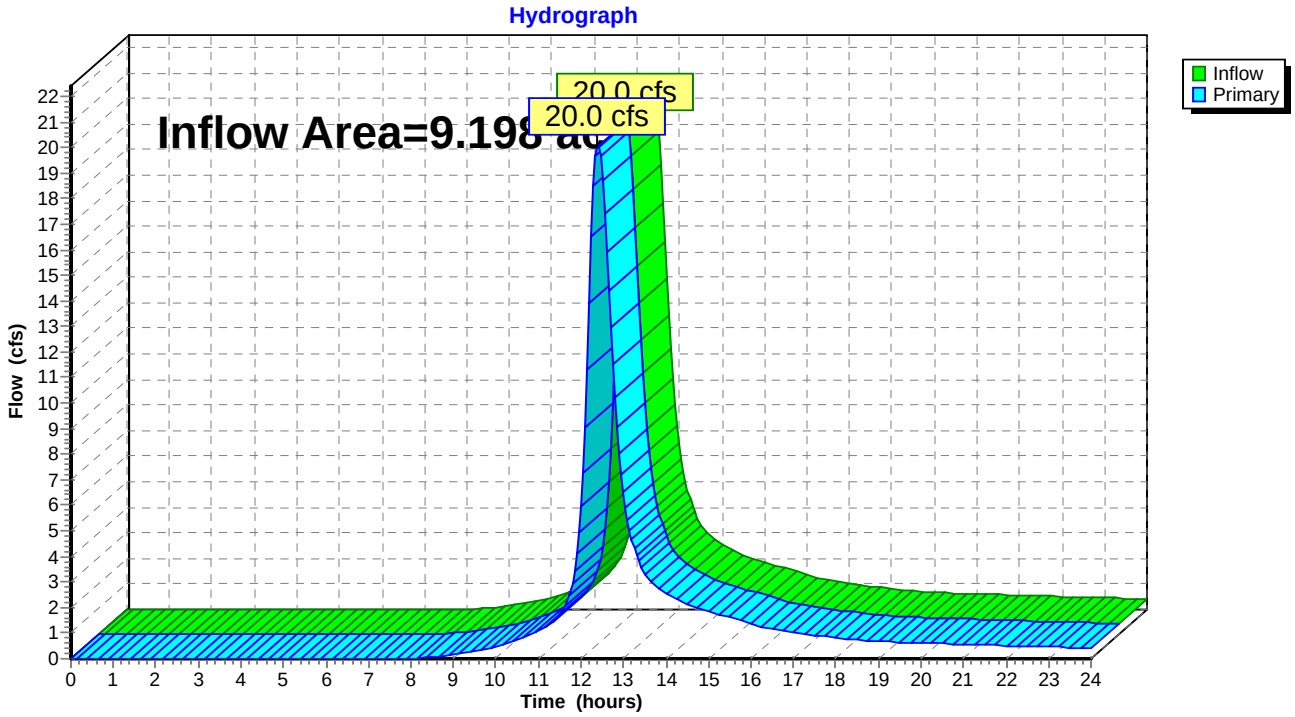


Summary for Link 2L: Sheet flow to South West

Inflow Area = 9.198 ac, 4.37% Impervious, Inflow Depth > 3.20" for 25-Year event
Inflow = 20.0 cfs @ 12.40 hrs, Volume= 2.453 af
Primary = 20.0 cfs @ 12.40 hrs, Volume= 2.453 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs

Link 2L: Sheet flow to South West

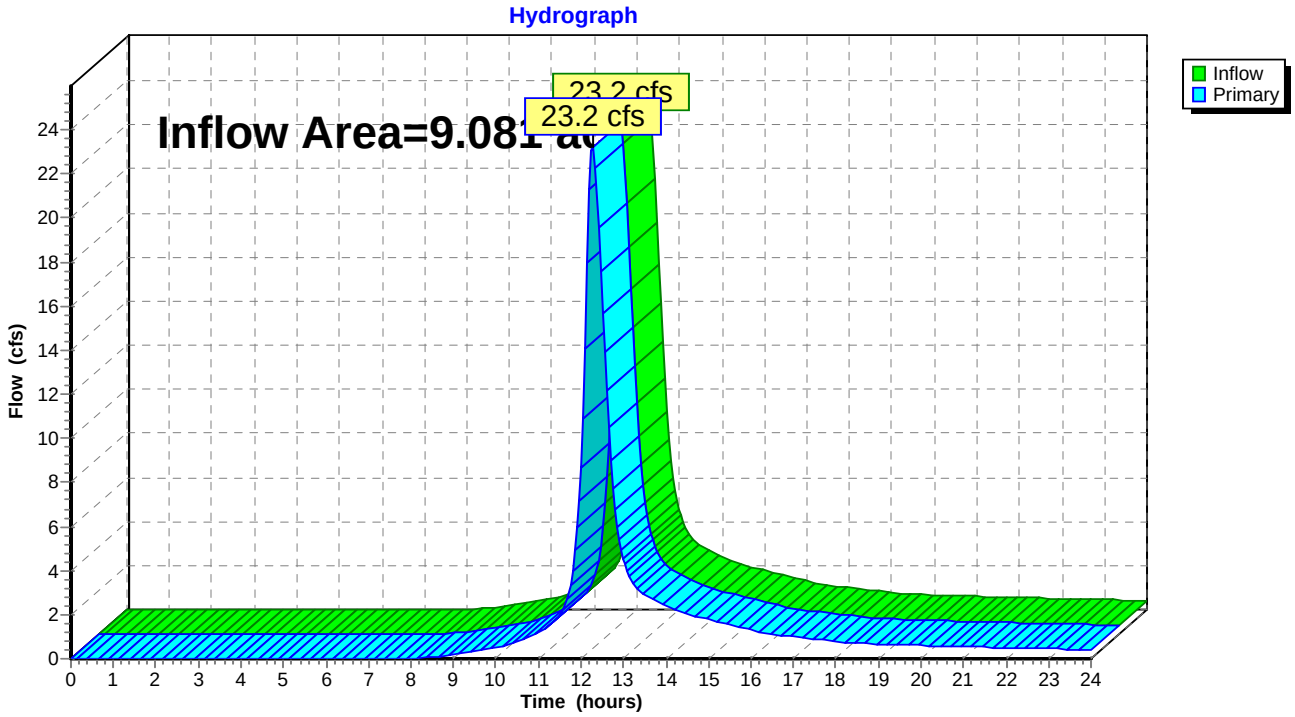


Summary for Link 5L: Sheet Flow to Stott Avenue

Inflow Area = 9.081 ac, 0.65% Impervious, Inflow Depth > 3.21" for 25-Year event
Inflow = 23.2 cfs @ 12.27 hrs, Volume= 2.427 af
Primary = 23.2 cfs @ 12.27 hrs, Volume= 2.427 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs

Link 5L: Sheet Flow to Stott Avenue

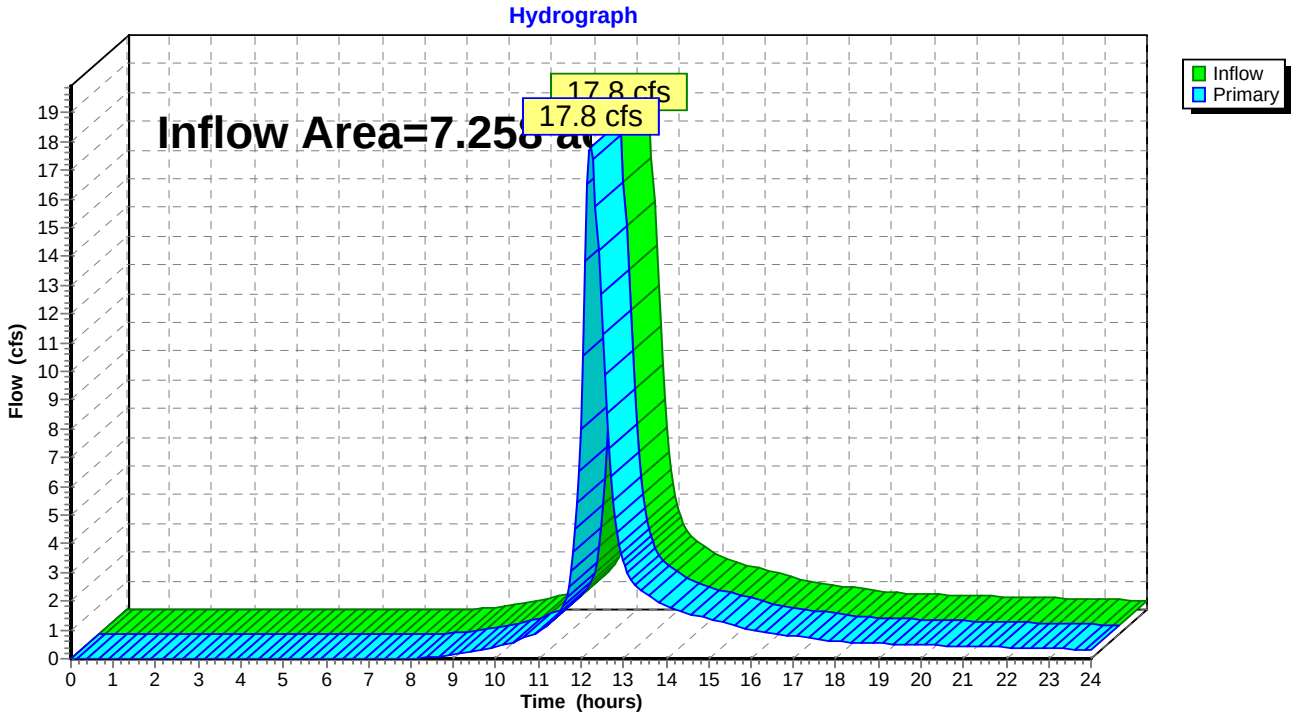


Summary for Link 6L: Sheet flow to North West

Inflow Area = 7.258 ac, 7.05% Impervious, Inflow Depth > 3.16" for 25-Year event
Inflow = 17.8 cfs @ 12.23 hrs, Volume= 1.914 af
Primary = 17.8 cfs @ 12.23 hrs, Volume= 1.914 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs

Link 6L: Sheet flow to North West



Time span=0.00-24.00 hrs, dt=0.050 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 2S: DA-1B Runoff Area=1.937 ac 0.00% Impervious Runoff Depth>3.84"
Flow Length=712' Tc=10.0 min CN=78 Runoff=7.5 cfs 0.620 af

Subcatchment 3S: DA-2 Runoff Area=9.198 ac 4.37% Impervious Runoff Depth>3.72"
Flow Length=1,274' Tc=28.6 min CN=77 Runoff=23.3 cfs 2.853 af

Subcatchment 6S: DA-3 Runoff Area=9.081 ac 0.65% Impervious Runoff Depth>3.73"
Flow Length=900' Tc=19.7 min CN=77 Runoff=27.0 cfs 2.822 af

Subcatchment 7S: DA-1A Runoff Area=5.321 ac 9.62% Impervious Runoff Depth>3.63"
Flow Length=552' Tc=19.9 min UI Adjusted CN=76 Runoff=15.3 cfs 1.608 af

Link 2L: Sheet flow to South West Inflow=23.3 cfs 2.853 af
Primary=23.3 cfs 2.853 af

Link 5L: Sheet Flow to Stott Avenue Inflow=27.0 cfs 2.822 af
Primary=27.0 cfs 2.822 af

Link 6L: Sheet flow to North West Inflow=20.8 cfs 2.228 af
Primary=20.8 cfs 2.228 af

Total Runoff Area = 25.537 ac Runoff Volume = 7.903 af Average Runoff Depth = 3.71"
96.19% Pervious = 24.564 ac 3.81% Impervious = 0.973 ac

Summary for Subcatchment 2S: DA-1B

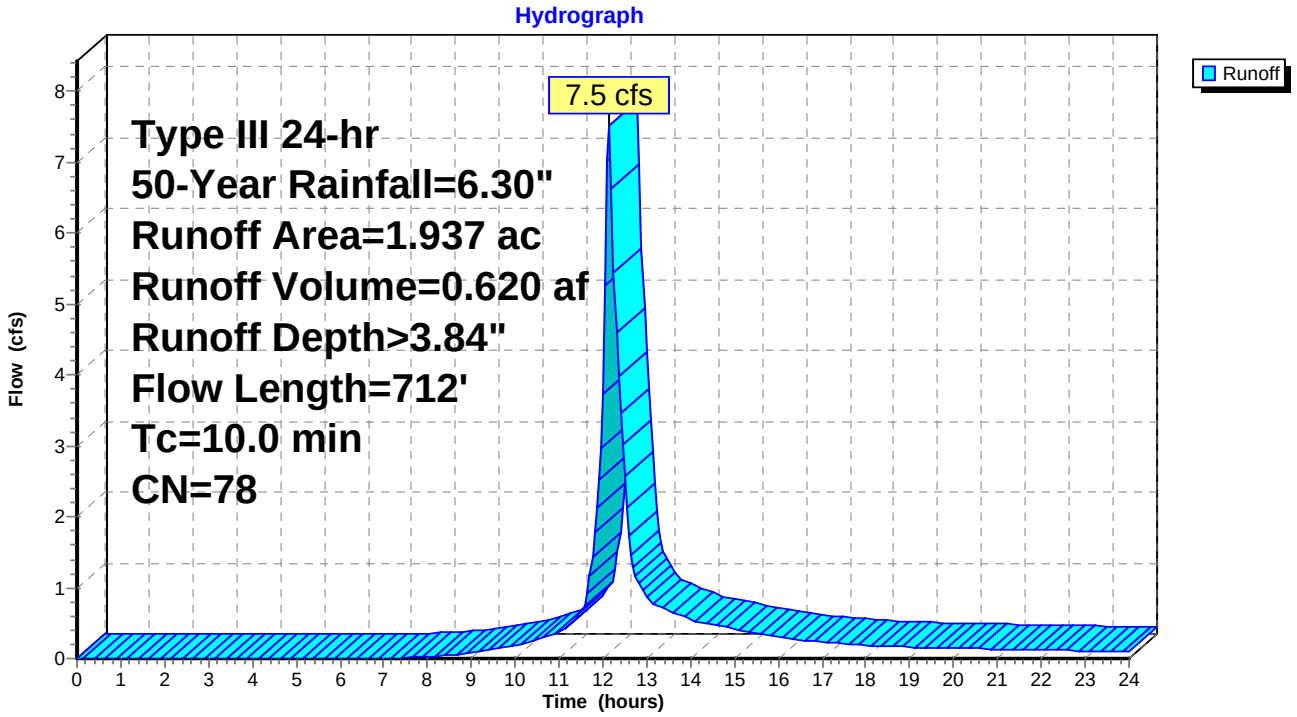
Runoff = 7.5 cfs @ 12.14 hrs, Volume= 0.620 af, Depth> 3.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs
Type III 24-hr 50-Year Rainfall=6.30"

Area (ac)	CN	Description
0.928	77	Small grain, C&T + CR, Good, HSG C
0.601	82	Farmsteads, HSG C
0.107	87	Dirt roads, HSG C
0.200	70	Woods, Good, HSG C
0.101	77	Woods, Poor, HSG C
1.937	78	Weighted Average
1.937		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		**Sheet Flow, Dirt Drive** Smooth surfaces n= 0.011 P2= 3.40"
0.8	124	0.0242	2.50		**Shallow Concentrated Flow, Dirt Drive** Unpaved Kv= 16.1 fps
0.2	60	0.1000	5.09		**Shallow Concentrated Flow, Dirt Drive** Unpaved Kv= 16.1 fps
3.7	307	0.0391	1.38		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
0.7	121	0.1488	2.70		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
7.0	712	Total, Increased to minimum Tc = 10.0 min			

Subcatchment 2S: DA-1B



Summary for Subcatchment 3S: DA-2

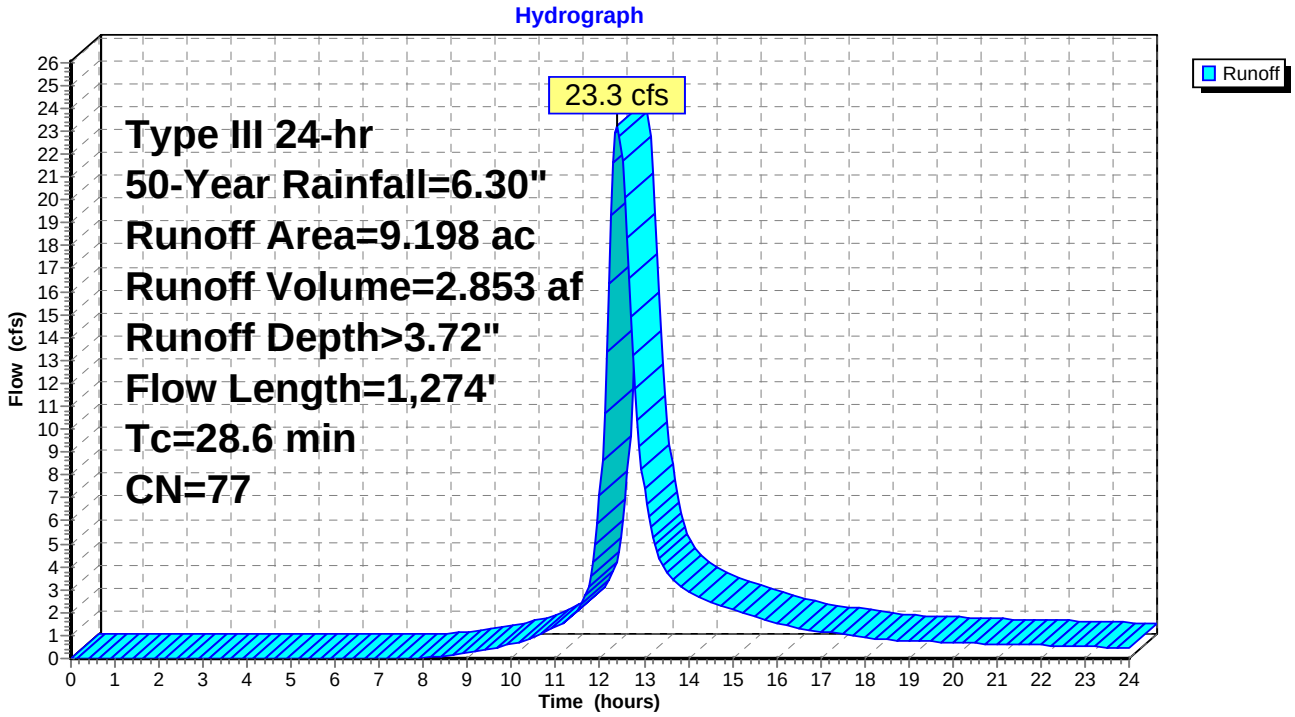
Runoff = 23.3 cfs @ 12.40 hrs, Volume= 2.853 af, Depth> 3.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs
Type III 24-hr 50-Year Rainfall=6.30"

Area (ac)	CN	Description
0.402	98	Unconnected roofs, HSG C
3.610	77	Small grain, C&T + CR, Good, HSG C
2.233	70	Woods, Good, HSG C
0.206	77	Woods, Poor, HSG C
0.989	82	Farmsteads, HSG C
1.099	74	>75% Grass cover, Good, HSG C
0.659	87	Dirt roads, HSG C
9.198	77	Weighted Average
8.796		95.63% Pervious Area
0.402		4.37% Impervious Area
0.402		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	100	0.0200	0.12		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
3.9	230	0.0196	0.98		**Shallow Concentrated Flow, Grassed** Short Grass Pasture Kv= 7.0 fps
3.8	367	0.0327	1.63		**Shallow Concentrated Flow, Field** Cultivated Straight Rows Kv= 9.0 fps
4.1	230	0.0348	0.93		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.9	106	0.0472	1.96		**Shallow Concentrated Flow, Fields** Cultivated Straight Rows Kv= 9.0 fps
1.7	194	0.0773	1.95		**Shallow Concentrated Flow, Grassed** Short Grass Pasture Kv= 7.0 fps
0.4	47	0.1277	1.79		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
28.6	1,274	Total			

Subcatchment 3S: DA-2



Summary for Subcatchment 6S: DA-3

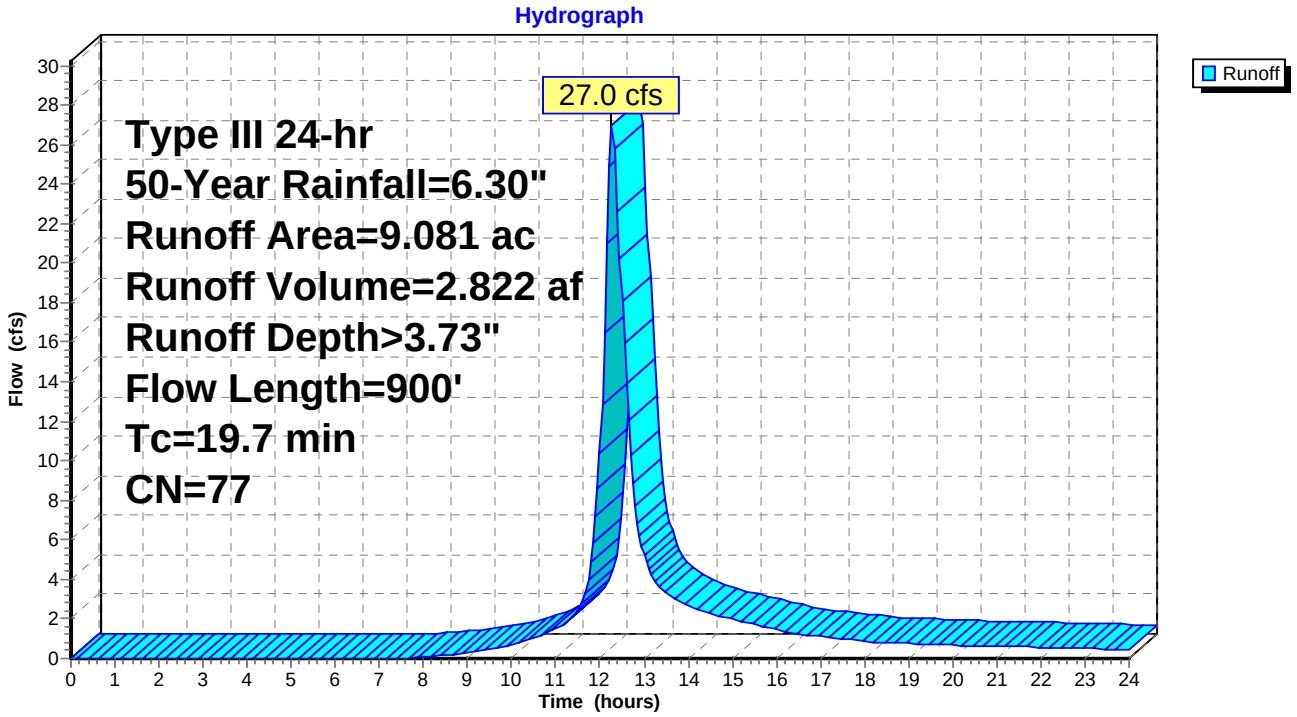
Runoff = 27.0 cfs @ 12.27 hrs, Volume= 2.822 af, Depth> 3.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs
Type III 24-hr 50-Year Rainfall=6.30"

Area (ac)	CN	Description
0.059	98	Unconnected roofs, HSG C
0.826	70	Woods, Good, HSG C
0.079	77	Woods, Poor, HSG C
1.439	74	>75% Grass cover, Good, HSG C
0.070	86	<50% Grass cover, Poor, HSG C
0.563	82	Farmsteads, HSG C
0.370	87	Dirt roads, HSG C
5.675	77	Small grain, C&T + CR, Good, HSG C
9.081	77	Weighted Average
9.022		99.35% Pervious Area
0.059		0.65% Impervious Area
0.059		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0333	0.15		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
8.4	800	0.0312	1.59		**Shallow Concentrated Flow, Field** Cultivated Straight Rows Kv= 9.0 fps
19.7	900	Total			

Subcatchment 6S: DA-3



Summary for Subcatchment 7S: DA-1A

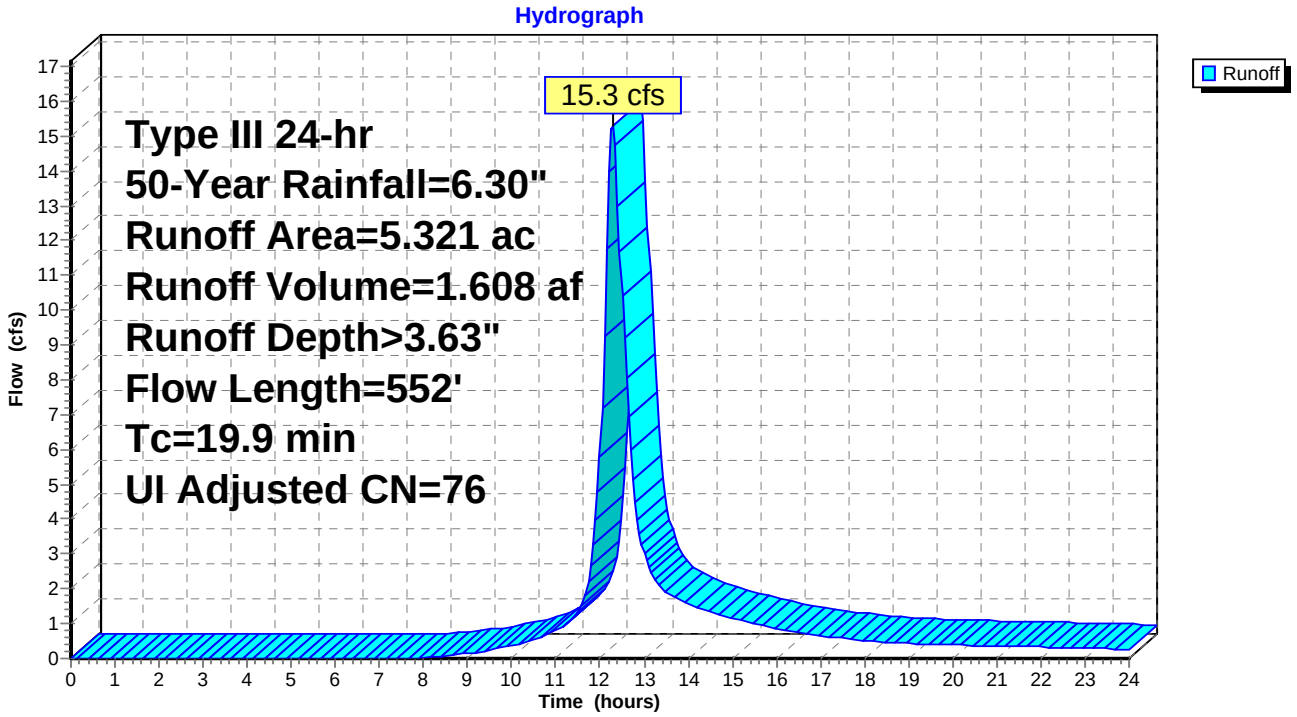
Runoff = 15.3 cfs @ 12.27 hrs, Volume= 1.608 af, Depth> 3.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs
Type III 24-hr 50-Year Rainfall=6.30"

Area (ac)	CN	Adj	Description
0.512	98		Unconnected roofs, HSG C
1.340	74		>75% Grass cover, Good, HSG C
2.019	74		Pasture/grassland/range, Good, HSG C
0.870	87		Dirt roads, HSG C
0.580	65		Brush, Good, HSG C
5.321	77	76	Weighted Average, UI Adjusted
4.809			90.38% Pervious Area
0.512			9.62% Impervious Area
0.512			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0233	0.13		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
2.5	138	0.0179	0.94		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
1.1	96	0.0417	1.43		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
3.3	218	0.0252	1.11		**Shallow Concentrated Flow, Pasture** Short Grass Pasture Kv= 7.0 fps
19.9	552	Total			

Subcatchment 7S: DA-1A

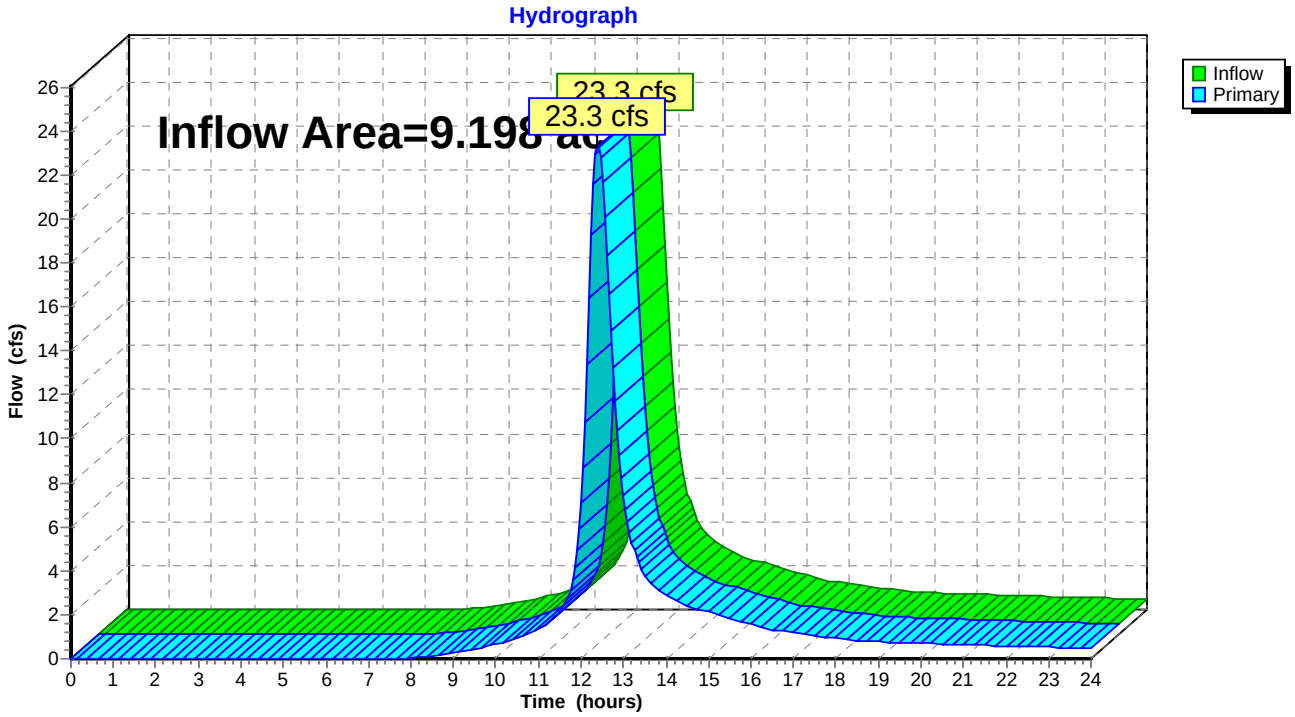


Summary for Link 2L: Sheet flow to South West

Inflow Area = 9.198 ac, 4.37% Impervious, Inflow Depth > 3.72" for 50-Year event
Inflow = 23.3 cfs @ 12.40 hrs, Volume= 2.853 af
Primary = 23.3 cfs @ 12.40 hrs, Volume= 2.853 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs

Link 2L: Sheet flow to South West

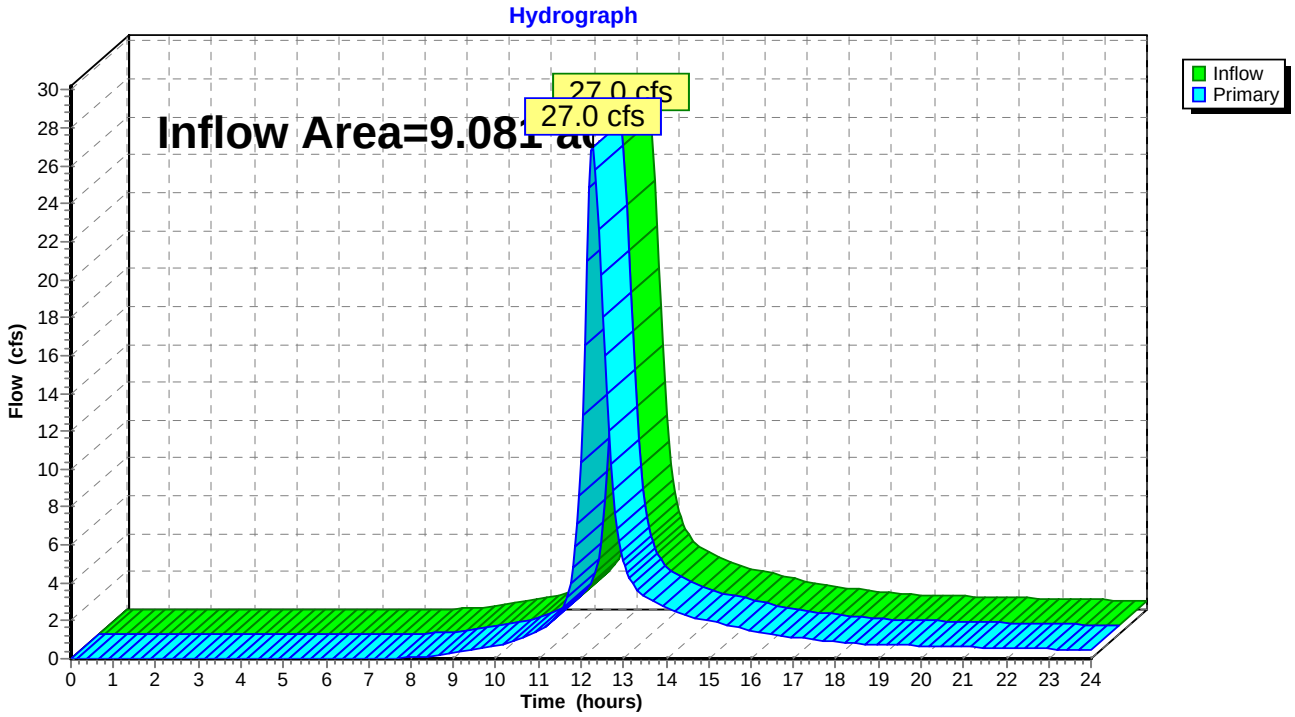


Summary for Link 5L: Sheet Flow to Stott Avenue

Inflow Area = 9.081 ac, 0.65% Impervious, Inflow Depth > 3.73" for 50-Year event
Inflow = 27.0 cfs @ 12.27 hrs, Volume= 2.822 af
Primary = 27.0 cfs @ 12.27 hrs, Volume= 2.822 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs

Link 5L: Sheet Flow to Stott Avenue

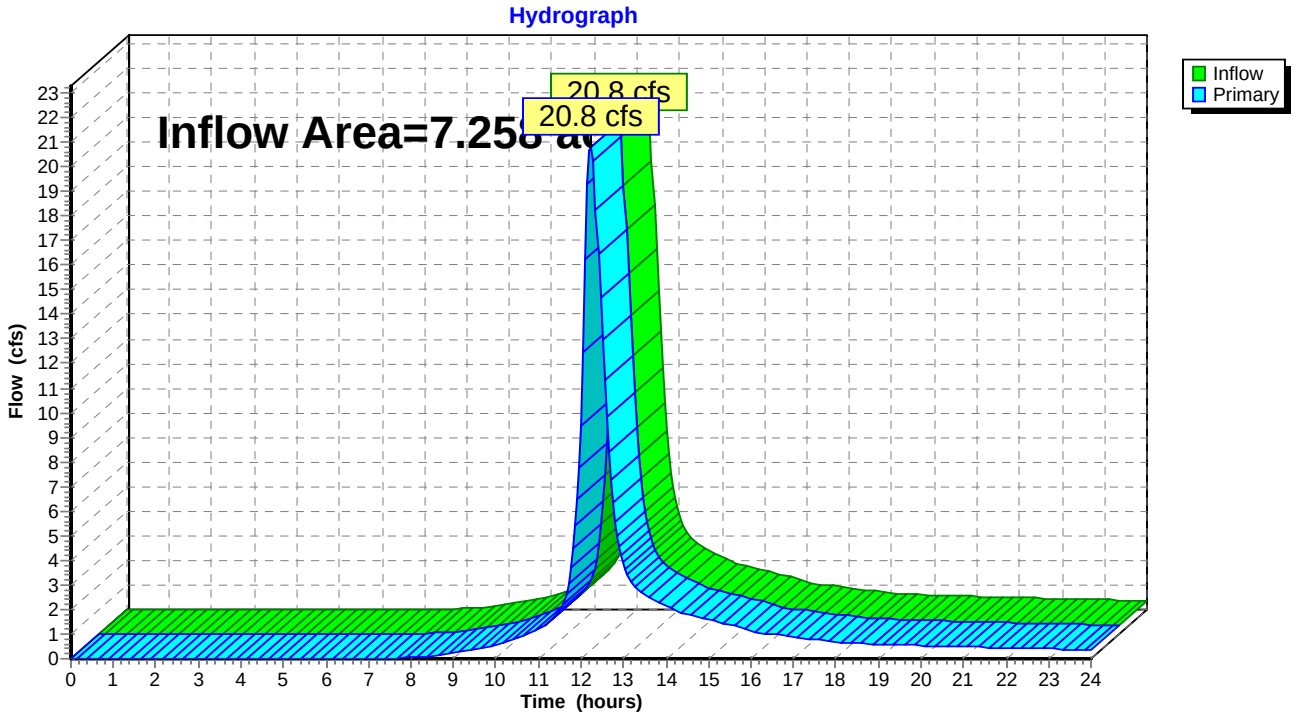


Summary for Link 6L: Sheet flow to North West

Inflow Area = 7.258 ac, 7.05% Impervious, Inflow Depth > 3.68" for 50-Year event
Inflow = 20.8 cfs @ 12.22 hrs, Volume= 2.228 af
Primary = 20.8 cfs @ 12.22 hrs, Volume= 2.228 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs

Link 6L: Sheet flow to North West



Time span=0.00-24.00 hrs, dt=0.050 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 2S: DA-1B Runoff Area=1.937 ac 0.00% Impervious Runoff Depth>4.56"
Flow Length=712' Tc=10.0 min CN=78 Runoff=8.9 cfs 0.736 af

Subcatchment 3S: DA-2 Runoff Area=9.198 ac 4.37% Impervious Runoff Depth>4.43"
Flow Length=1,274' Tc=28.6 min CN=77 Runoff=27.6 cfs 3.397 af

Subcatchment 6S: DA-3 Runoff Area=9.081 ac 0.65% Impervious Runoff Depth>4.44"
Flow Length=900' Tc=19.7 min CN=77 Runoff=32.1 cfs 3.360 af

Subcatchment 7S: DA-1A Runoff Area=5.321 ac 9.62% Impervious Runoff Depth>4.33"
Flow Length=552' Tc=19.9 min UI Adjusted CN=76 Runoff=18.3 cfs 1.920 af

Link 2L: Sheet flow to South West Inflow=27.6 cfs 3.397 af
Primary=27.6 cfs 3.397 af

Link 5L: Sheet Flow to Stott Avenue Inflow=32.1 cfs 3.360 af
Primary=32.1 cfs 3.360 af

Link 6L: Sheet flow to North West Inflow=24.8 cfs 2.656 af
Primary=24.8 cfs 2.656 af

Total Runoff Area = 25.537 ac Runoff Volume = 9.414 af Average Runoff Depth = 4.42"
96.19% Pervious = 24.564 ac 3.81% Impervious = 0.973 ac

Summary for Subcatchment 2S: DA-1B

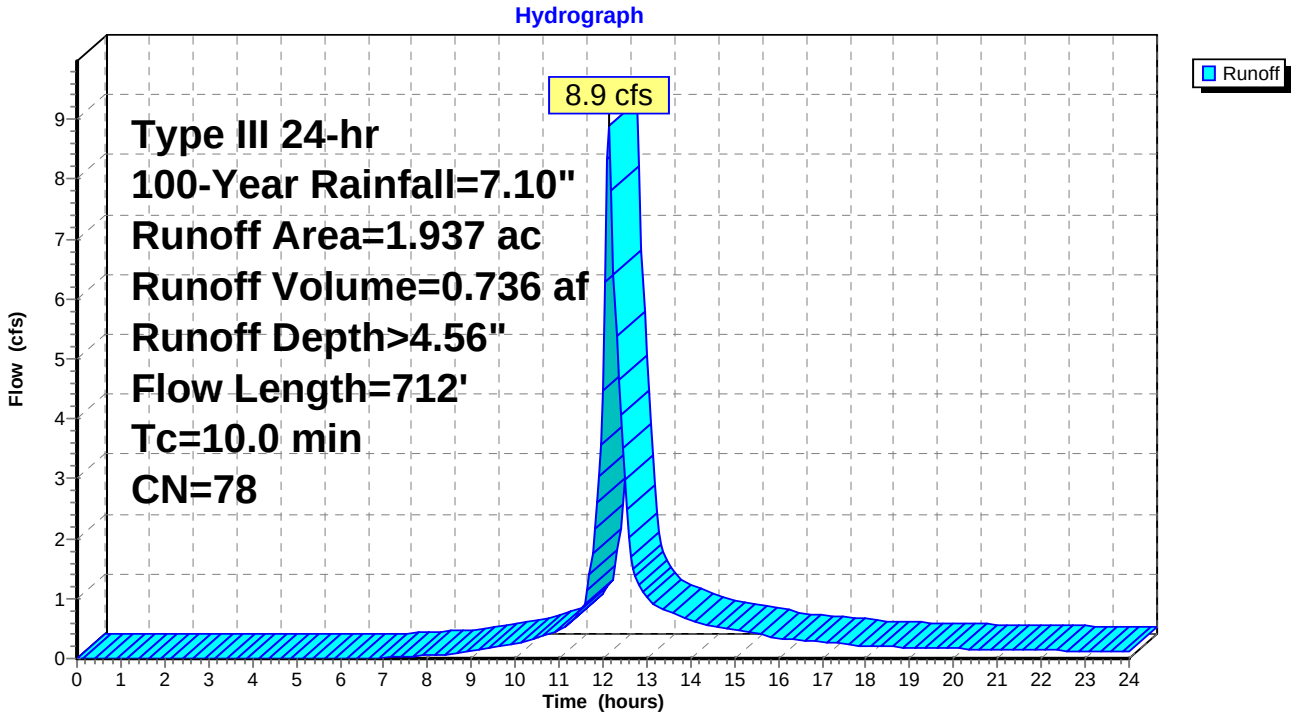
Runoff = 8.9 cfs @ 12.14 hrs, Volume= 0.736 af, Depth> 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs
Type III 24-hr 100-Year Rainfall=7.10"

Area (ac)	CN	Description
0.928	77	Small grain, C&T + CR, Good, HSG C
0.601	82	Farmsteads, HSG C
0.107	87	Dirt roads, HSG C
0.200	70	Woods, Good, HSG C
0.101	77	Woods, Poor, HSG C
1.937	78	Weighted Average
1.937		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		**Sheet Flow, Dirt Drive** Smooth surfaces n= 0.011 P2= 3.40"
0.8	124	0.0242	2.50		**Shallow Concentrated Flow, Dirt Drive** Unpaved Kv= 16.1 fps
0.2	60	0.1000	5.09		**Shallow Concentrated Flow, Dirt Drive** Unpaved Kv= 16.1 fps
3.7	307	0.0391	1.38		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
0.7	121	0.1488	2.70		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
7.0	712	Total, Increased to minimum Tc = 10.0 min			

Subcatchment 2S: DA-1B



Summary for Subcatchment 3S: DA-2

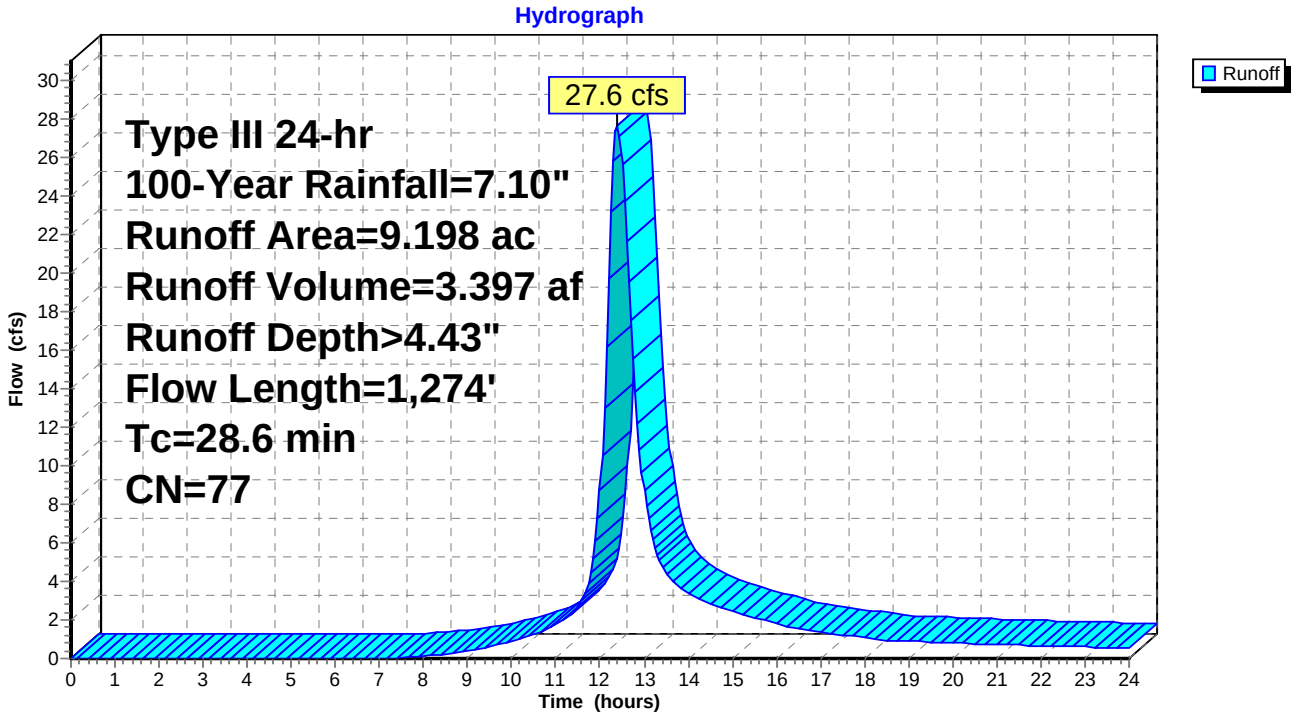
Runoff = 27.6 cfs @ 12.39 hrs, Volume= 3.397 af, Depth> 4.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs
Type III 24-hr 100-Year Rainfall=7.10"

Area (ac)	CN	Description
0.402	98	Unconnected roofs, HSG C
3.610	77	Small grain, C&T + CR, Good, HSG C
2.233	70	Woods, Good, HSG C
0.206	77	Woods, Poor, HSG C
0.989	82	Farmsteads, HSG C
1.099	74	>75% Grass cover, Good, HSG C
0.659	87	Dirt roads, HSG C
9.198	77	Weighted Average
8.796		95.63% Pervious Area
0.402		4.37% Impervious Area
0.402		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	100	0.0200	0.12		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
3.9	230	0.0196	0.98		**Shallow Concentrated Flow, Grassed** Short Grass Pasture Kv= 7.0 fps
3.8	367	0.0327	1.63		**Shallow Concentrated Flow, Field** Cultivated Straight Rows Kv= 9.0 fps
4.1	230	0.0348	0.93		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
0.9	106	0.0472	1.96		**Shallow Concentrated Flow, Fields** Cultivated Straight Rows Kv= 9.0 fps
1.7	194	0.0773	1.95		**Shallow Concentrated Flow, Grassed** Short Grass Pasture Kv= 7.0 fps
0.4	47	0.1277	1.79		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
28.6	1,274	Total			

Subcatchment 3S: DA-2



Summary for Subcatchment 6S: DA-3

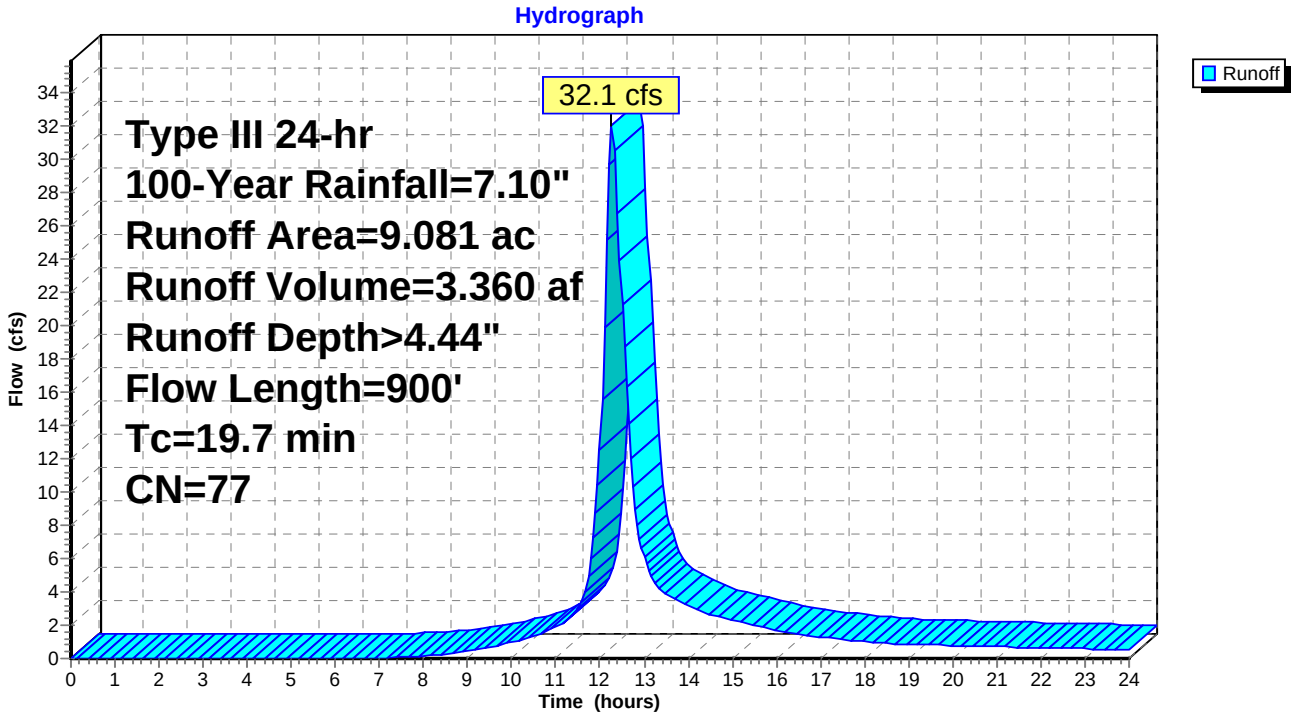
Runoff = 32.1 cfs @ 12.27 hrs, Volume= 3.360 af, Depth> 4.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs
Type III 24-hr 100-Year Rainfall=7.10"

Area (ac)	CN	Description
0.059	98	Unconnected roofs, HSG C
0.826	70	Woods, Good, HSG C
0.079	77	Woods, Poor, HSG C
1.439	74	>75% Grass cover, Good, HSG C
0.070	86	<50% Grass cover, Poor, HSG C
0.563	82	Farmsteads, HSG C
0.370	87	Dirt roads, HSG C
5.675	77	Small grain, C&T + CR, Good, HSG C
9.081	77	Weighted Average
9.022		99.35% Pervious Area
0.059		0.65% Impervious Area
0.059		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0333	0.15		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
8.4	800	0.0312	1.59		**Shallow Concentrated Flow, Field** Cultivated Straight Rows Kv= 9.0 fps
19.7	900	Total			

Subcatchment 6S: DA-3



Summary for Subcatchment 7S: DA-1A

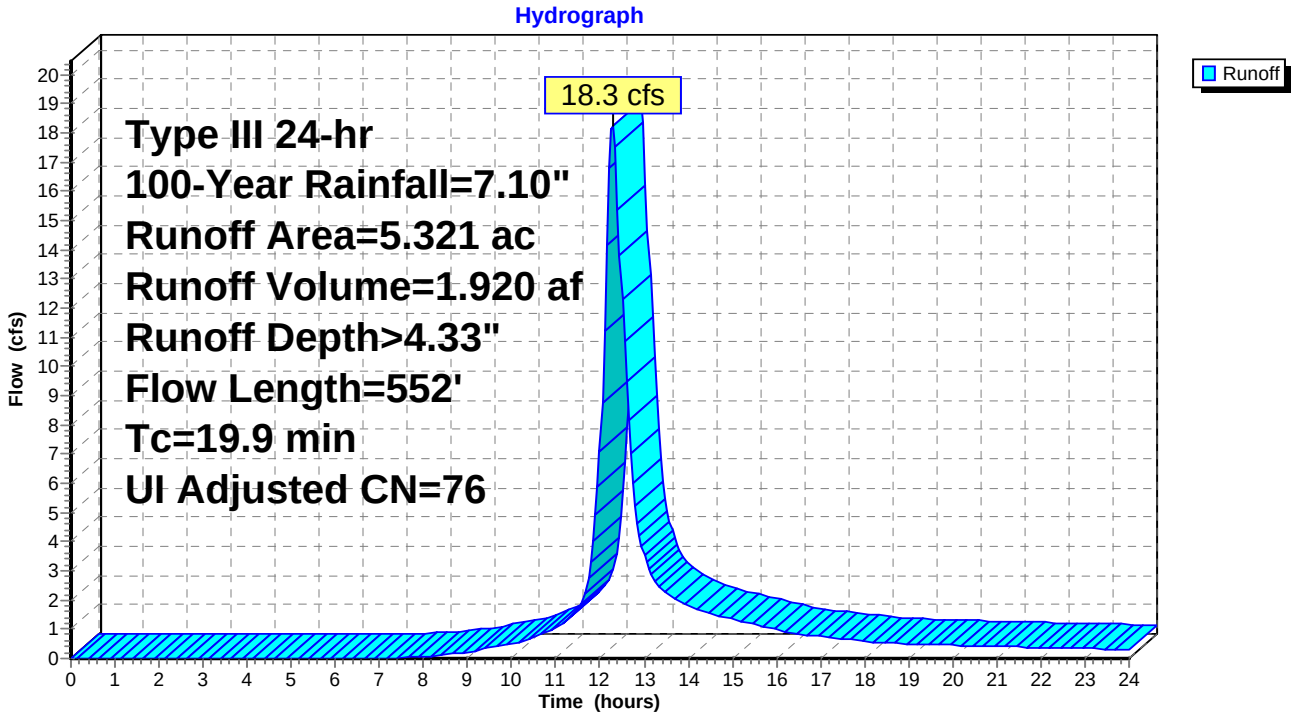
Runoff = 18.3 cfs @ 12.27 hrs, Volume= 1.920 af, Depth> 4.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs
Type III 24-hr 100-Year Rainfall=7.10"

Area (ac)	CN	Adj	Description
0.512	98		Unconnected roofs, HSG C
1.340	74		>75% Grass cover, Good, HSG C
2.019	74		Pasture/grassland/range, Good, HSG C
0.870	87		Dirt roads, HSG C
0.580	65		Brush, Good, HSG C
5.321	77	76	Weighted Average, UI Adjusted
4.809			90.38% Pervious Area
0.512			9.62% Impervious Area
0.512			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0233	0.13		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
2.5	138	0.0179	0.94		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
1.1	96	0.0417	1.43		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
3.3	218	0.0252	1.11		**Shallow Concentrated Flow, Pasture** Short Grass Pasture Kv= 7.0 fps
19.9	552	Total			

Subcatchment 7S: DA-1A

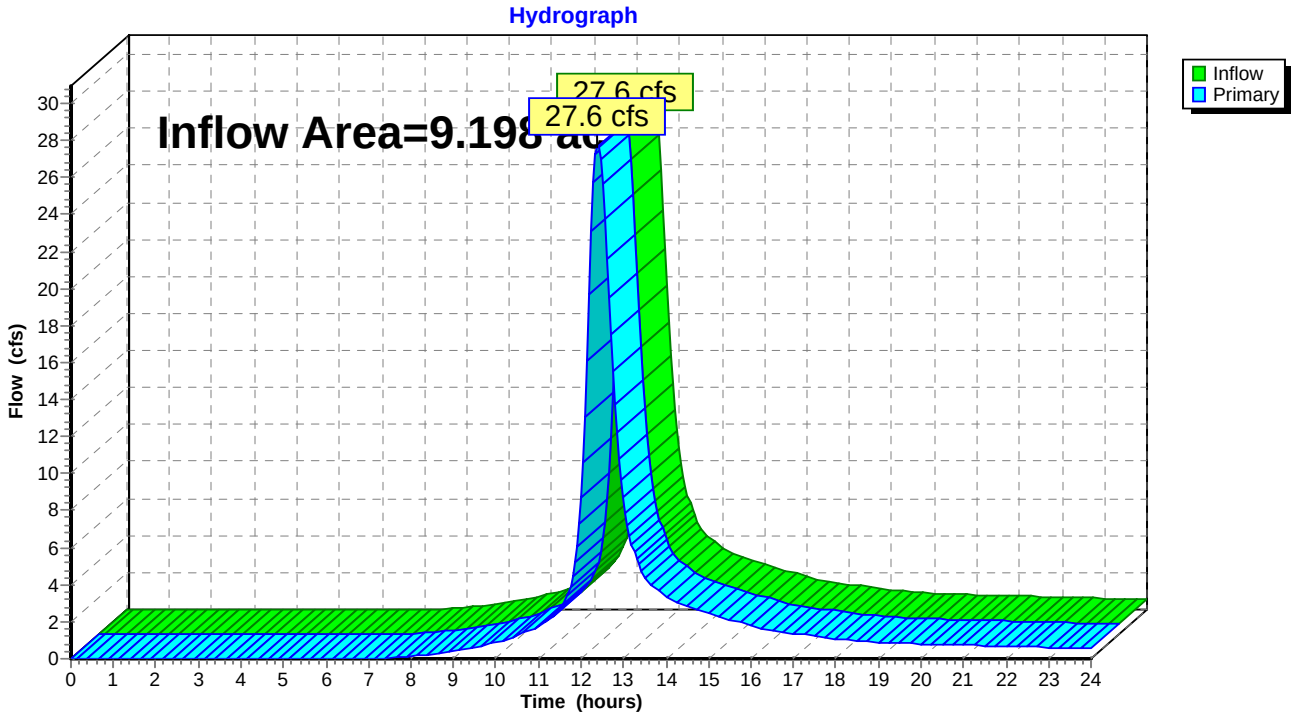


Summary for Link 2L: Sheet flow to South West

Inflow Area = 9.198 ac, 4.37% Impervious, Inflow Depth > 4.43" for 100-Year event
Inflow = 27.6 cfs @ 12.39 hrs, Volume= 3.397 af
Primary = 27.6 cfs @ 12.39 hrs, Volume= 3.397 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs

Link 2L: Sheet flow to South West

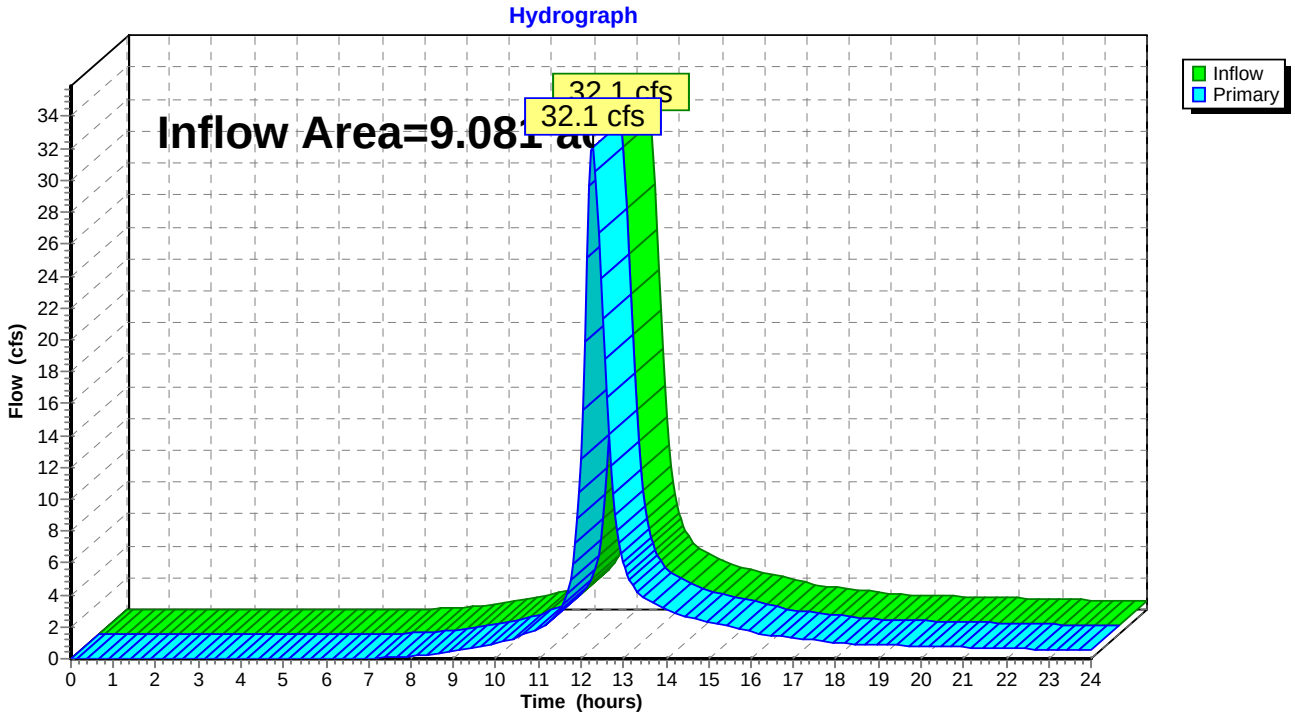


Summary for Link 5L: Sheet Flow to Stott Avenue

Inflow Area = 9.081 ac, 0.65% Impervious, Inflow Depth > 4.44" for 100-Year event
Inflow = 32.1 cfs @ 12.27 hrs, Volume= 3.360 af
Primary = 32.1 cfs @ 12.27 hrs, Volume= 3.360 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs

Link 5L: Sheet Flow to Stott Avenue

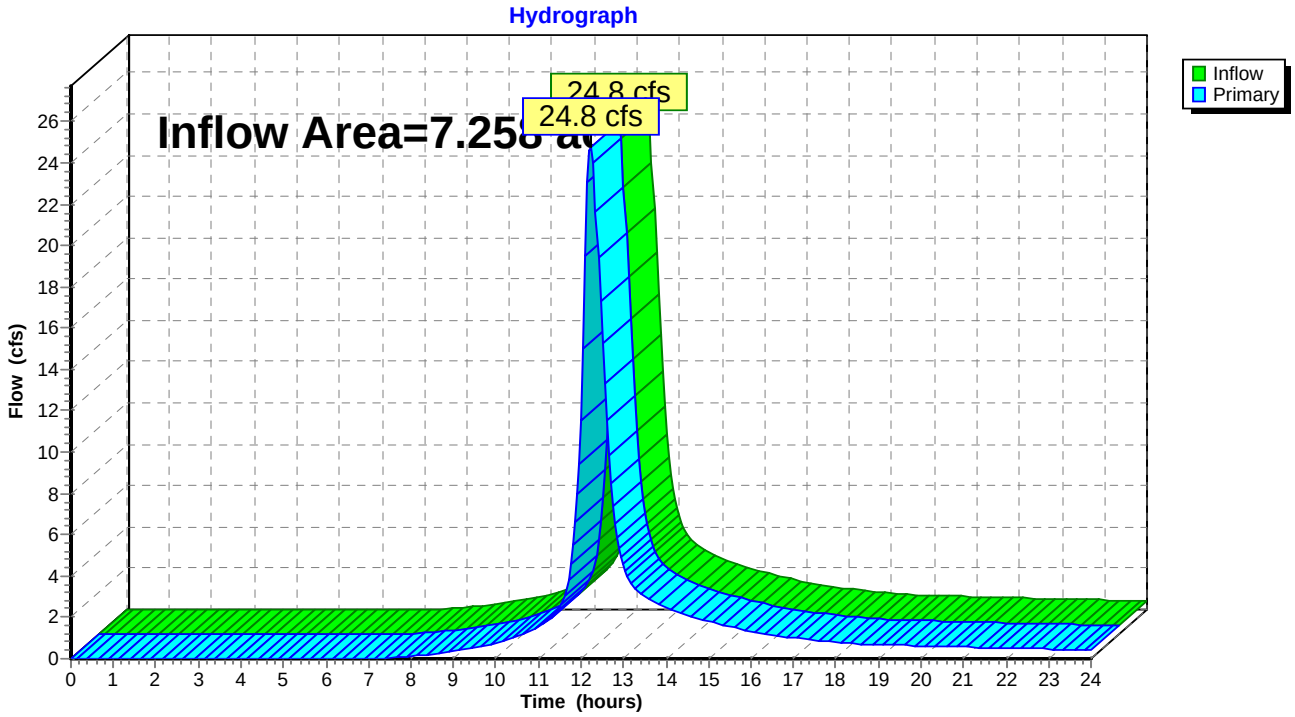


Summary for Link 6L: Sheet flow to North West

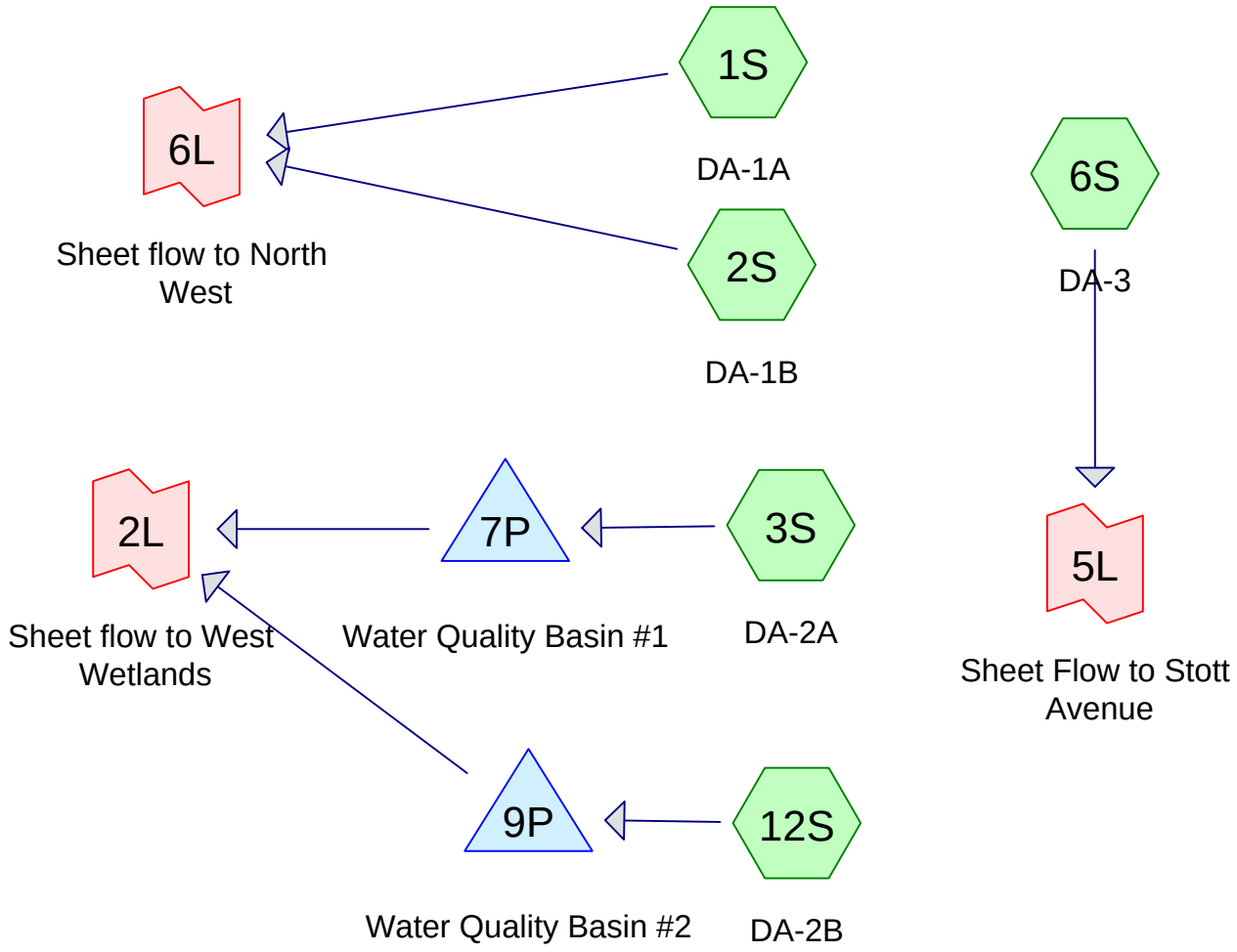
Inflow Area = 7.258 ac, 7.05% Impervious, Inflow Depth > 4.39" for 100-Year event
Inflow = 24.8 cfs @ 12.22 hrs, Volume= 2.656 af
Primary = 24.8 cfs @ 12.22 hrs, Volume= 2.656 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.050 hrs

Link 6L: Sheet flow to North West



Proposed Conditions Results



Subcat Reach Pond Link

Routing Diagram for Stott Ave Proposed Conditions
Prepared by Boundaries LLC - DCM, Printed 8/3/2015
HydroCAD® 10.00-13 s/n 04031 © 2014 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.700	74	>75% Grass cover, Good, HSG C (1S, 2S, 6S, 12S)
1.969	87	Dirt roads, HSG C (1S, 2S, 3S, 6S, 12S)
1.520	82	Farmsteads, HSG C (2S, 3S, 12S)
0.331	74	Pasture/grassland/range, Good, HSG C (1S)
1.131	81	Row crops, C + CR, Good, HSG C (12S)
14.366	74	Solar Arrays, >75% Grass cover, Good, HSG C (1S, 3S, 6S, 12S)
0.784	98	Unconnected roofs, HSG C (1S, 3S, 6S, 12S)
1.736	70	Woods, Good, HSG C (3S, 6S, 12S)
25.537	**76**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
25.537	HSG C	1S, 2S, 3S, 6S, 12S
0.000	HSG D	
0.000	Other	
25.537		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatch Numbers
0.000	0.000	3.700	0.000	0.000	3.700	>75% Grass cover, Good	
0.000	0.000	1.969	0.000	0.000	1.969	Dirt roads	
0.000	0.000	1.520	0.000	0.000	1.520	Farmsteads	
0.000	0.000	0.331	0.000	0.000	0.331	Pasture/grassland/range, Good	
0.000	0.000	1.131	0.000	0.000	1.131	Row crops, C + CR, Good	
0.000	0.000	14.366	0.000	0.000	14.366	Solar Arrays, >75% Grass cover, Good	
0.000	0.000	0.784	0.000	0.000	0.784	Unconnected roofs	
0.000	0.000	1.736	0.000	0.000	1.736	Woods, Good	
0.000	**0.000**	**25.537**	**0.000**	**0.000**	**25.537**	**TOTAL AREA**	

Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: DA-1A Runoff Area=5.321 ac 9.74% Impervious Runoff Depth>1.35"
Flow Length=943' Tc=24.8 min UI Adjusted CN=77 Runoff=5.1 cfs 0.598 af

Subcatchment 2S: DA-1B Runoff Area=1.937 ac 0.00% Impervious Runoff Depth>1.35"
Flow Length=712' Tc=10.0 min CN=77 Runoff=2.6 cfs 0.218 af

Subcatchment 3S: DA-2A Runoff Area=3.321 ac 4.03% Impervious Runoff Depth>1.35"
Flow Length=993' Tc=21.0 min UI Adjusted CN=77 Runoff=3.4 cfs 0.374 af

Subcatchment 6S: DA-3 Runoff Area=9.081 ac 1.16% Impervious Runoff Depth>1.16"
Flow Length=900' Tc=22.1 min CN=74 Runoff=7.7 cfs 0.881 af

Subcatchment 12S: DA-2B Runoff Area=5.877 ac 0.46% Impervious Runoff Depth>1.28"
Flow Length=1,409' Tc=31.7 min CN=76 Runoff=4.8 cfs 0.628 af

Pond 7P: Water Quality Basin #1 Peak Elev=393.05' Storage=1,824 cf Inflow=3.4 cfs 0.374 af
Outflow=3.4 cfs 0.334 af

Pond 9P: Water Quality Basin #2 Peak Elev=387.05' Storage=3,306 cf Inflow=4.8 cfs 0.628 af
Outflow=4.8 cfs 0.556 af

Link 2L: Sheet flow to West Wetlands Inflow=7.7 cfs 0.890 af
Primary=7.7 cfs 0.890 af

Link 5L: Sheet Flow to Stott Avenue Inflow=7.7 cfs 0.881 af
Primary=7.7 cfs 0.881 af

Link 6L: Sheet flow to North West Inflow=6.6 cfs 0.816 af
Primary=6.6 cfs 0.816 af

Total Runoff Area = 25.537 ac Runoff Volume = 2.699 af Average Runoff Depth = 1.27"
96.93% Pervious = 24.753 ac 3.07% Impervious = 0.784 ac

Summary for Subcatchment 1S: DA-1A

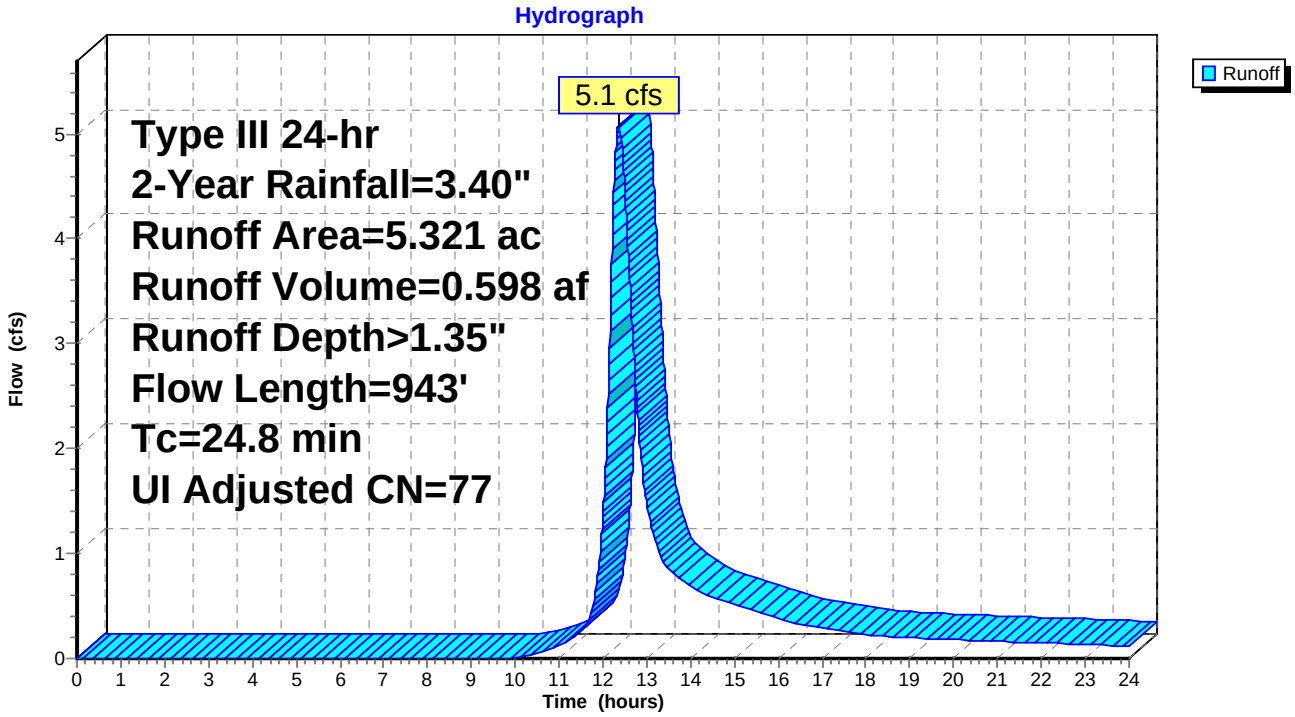
Runoff = 5.1 cfs @ 12.37 hrs, Volume= 0.598 af, Depth> 1.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 2-Year Rainfall=3.40"

	Area (ac)	CN	Adj	Description
	0.518	98		Unconnected roofs, HSG C
	1.337	74		>75% Grass cover, Good, HSG C
*	2.240	74		Solar Arrays, >75% Grass cover, Good, HSG C
	0.331	74		Pasture/grassland/range, Good, HSG C
	0.895	87		Dirt roads, HSG C
	5.321	79	77	Weighted Average, UI Adjusted
	4.803			90.26% Pervious Area
	0.518			9.74% Impervious Area
	0.518			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0233	0.13		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
2.5	138	0.0179	0.94		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
1.1	96	0.0417	1.43		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
3.3	218	0.0252	1.11		**Shallow Concentrated Flow, Pasture** Short Grass Pasture Kv= 7.0 fps
4.0	281	0.0285	1.18		**Shallow Concentrated Flow, Check Dam** Short Grass Pasture Kv= 7.0 fps
0.9	110	0.0909	2.11		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
24.8	943	Total			

Subcatchment 1S: DA-1A



Summary for Subcatchment 2S: DA-1B

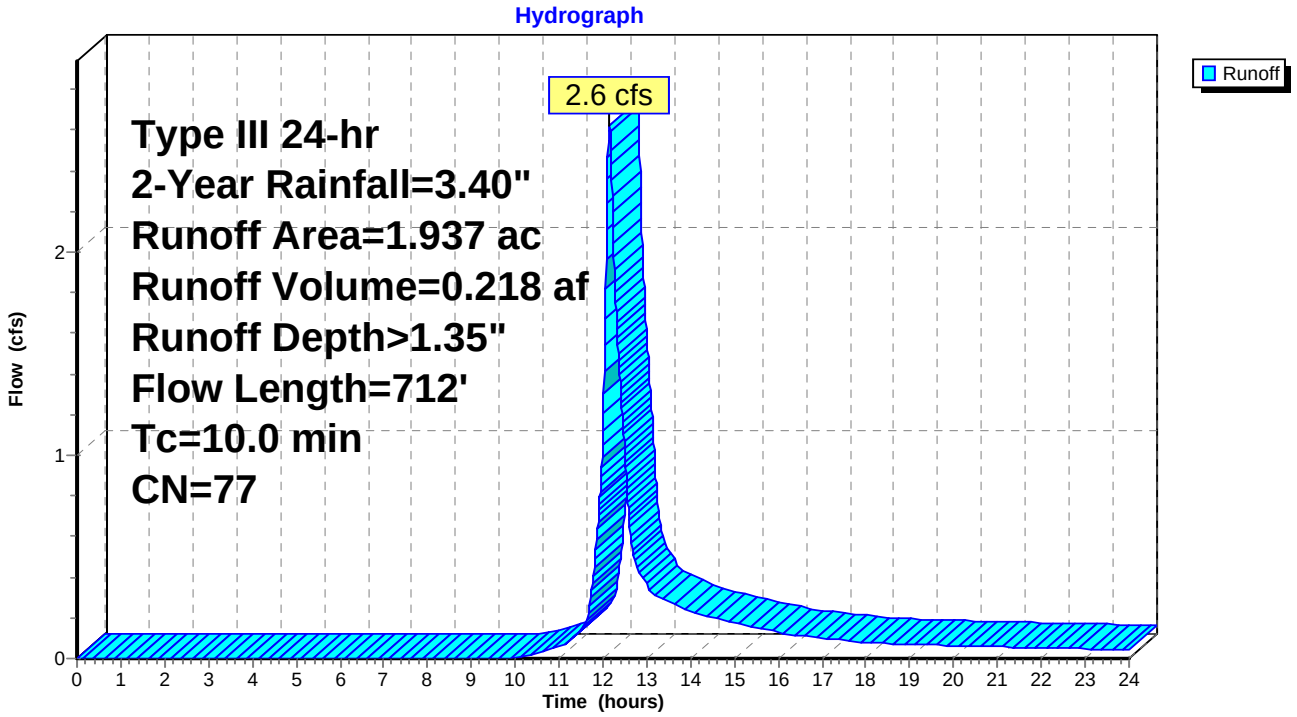
Runoff = 2.6 cfs @ 12.15 hrs, Volume= 0.218 af, Depth> 1.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 2-Year Rainfall=3.40"

Area (ac)	CN	Description
1.231	74	>75% Grass cover, Good, HSG C
0.531	82	Farmsteads, HSG C
0.175	87	Dirt roads, HSG C
1.937	77	Weighted Average
1.937		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		**Sheet Flow, Dirt Drive** Smooth surfaces n= 0.011 P2= 3.40"
0.8	124	0.0242	2.50		**Shallow Concentrated Flow, Dirt Drive** Unpaved Kv= 16.1 fps
0.2	60	0.1000	5.09		**Shallow Concentrated Flow, Dirt Drive** Unpaved Kv= 16.1 fps
3.7	307	0.0391	1.38		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
0.7	121	0.1488	2.70		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
7.0	712	Total, Increased to minimum Tc = 10.0 min			

Subcatchment 2S: DA-1B



Summary for Subcatchment 3S: DA-2A

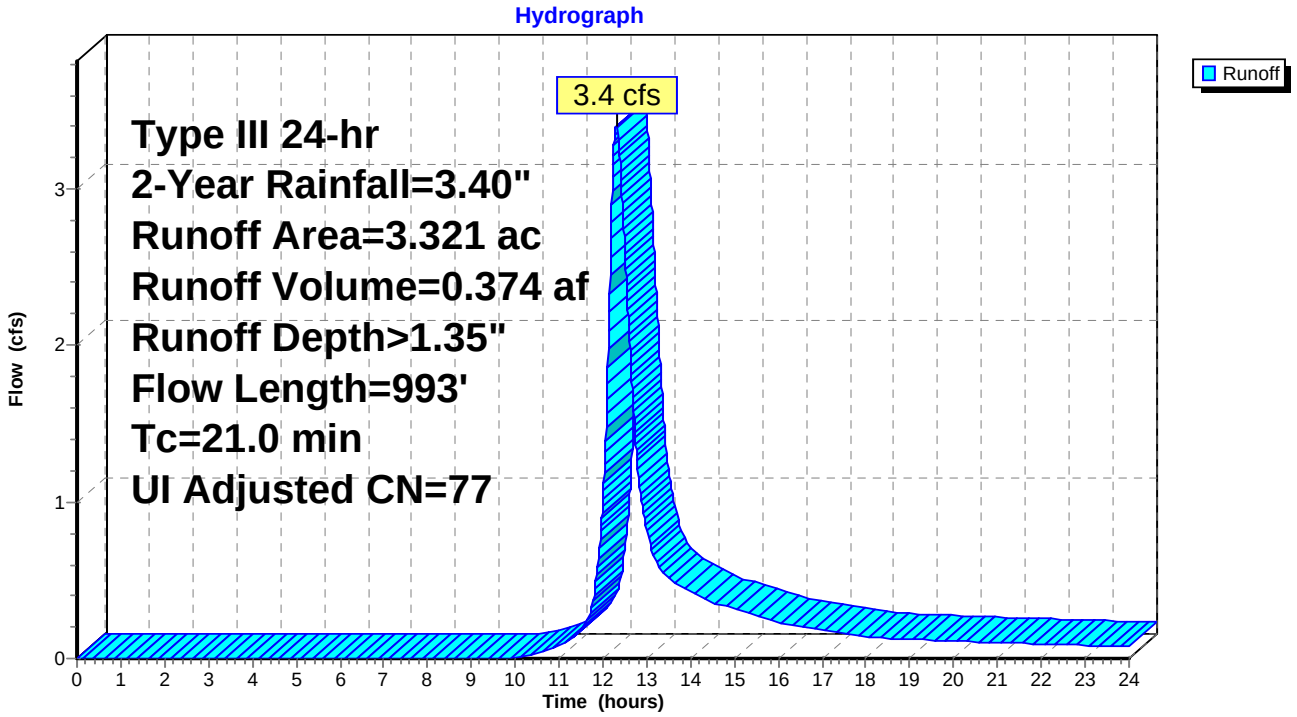
Runoff = 3.4 cfs @ 12.30 hrs, Volume= 0.374 af, Depth> 1.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 2-Year Rainfall=3.40"

	Area (ac)	CN	Adj	Description
	0.229	70		Woods, Good, HSG C
	0.134	98		Unconnected roofs, HSG C
	0.720	82		Farmsteads, HSG C
*	1.865	74		Solar Arrays, >75% Grass cover, Good, HSG C
	0.373	87		Dirt roads, HSG C
	3.321	78	77	Weighted Average, UI Adjusted
	3.187			95.97% Pervious Area
	0.134			4.03% Impervious Area
	0.134			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	66	0.0189	0.11		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
0.4	34	0.0267	1.28		**Sheet Flow, Dirt** Smooth surfaces n= 0.011 P2= 3.40"
0.5	109	0.0619	4.01		**Shallow Concentrated Flow, Dirt** Unpaved Kv= 16.1 fps
3.9	252	0.0238	1.08		**Shallow Concentrated Flow, Grassed** Short Grass Pasture Kv= 7.0 fps
2.0	114	0.0351	0.94		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
3.2	296	0.0473	1.52		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
0.8	122	0.1475	2.69		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
21.0	993	Total			

Subcatchment 3S: DA-2A



Summary for Subcatchment 6S: DA-3

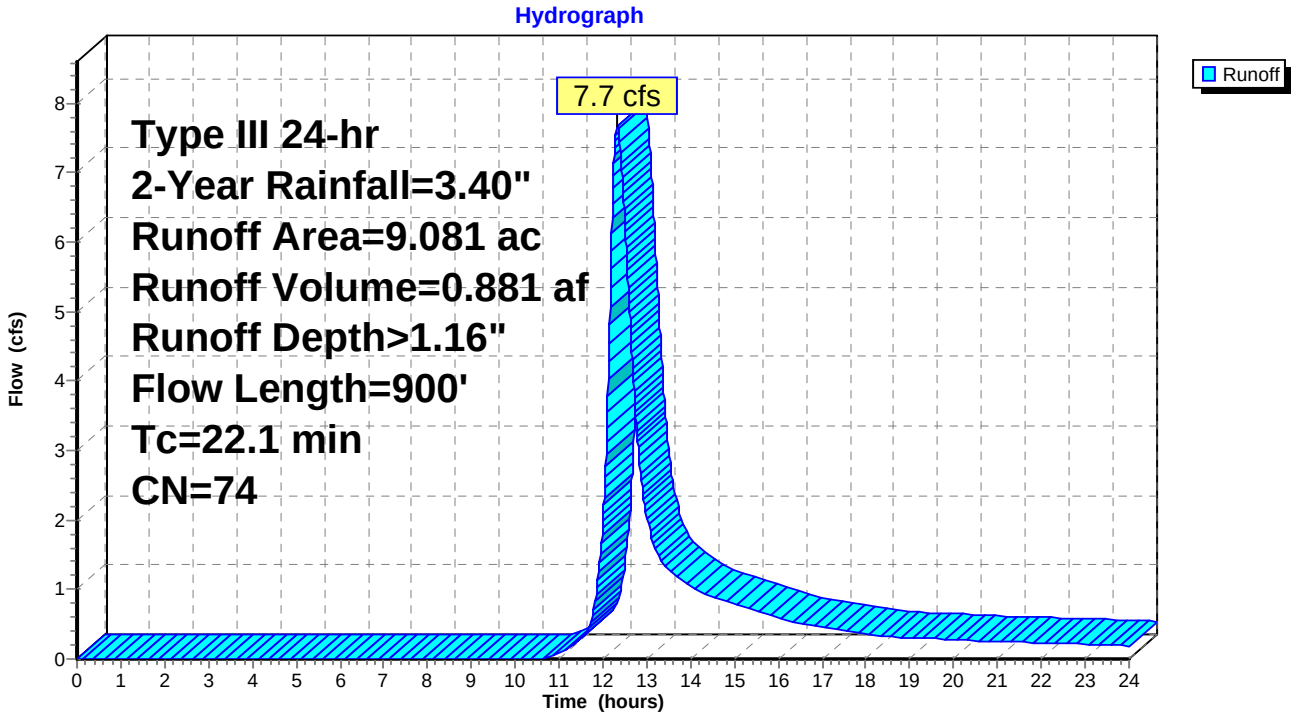
Runoff = 7.7 cfs @ 12.33 hrs, Volume= 0.881 af, Depth> 1.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 2-Year Rainfall=3.40"

	Area (ac)	CN	Description
	0.105	98	Unconnected roofs, HSG C
	0.523	70	Woods, Good, HSG C
	0.958	74	>75% Grass cover, Good, HSG C
	0.240	87	Dirt roads, HSG C
*	7.255	74	Solar Arrays, >75% Grass cover, Good, HSG C
	9.081	74	Weighted Average
	8.976		98.84% Pervious Area
	0.105		1.16% Impervious Area
	0.105		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0333	0.15		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
10.8	800	0.0312	1.24		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
22.1	900	Total			

Subcatchment 6S: DA-3



Summary for Subcatchment 12S: DA-2B

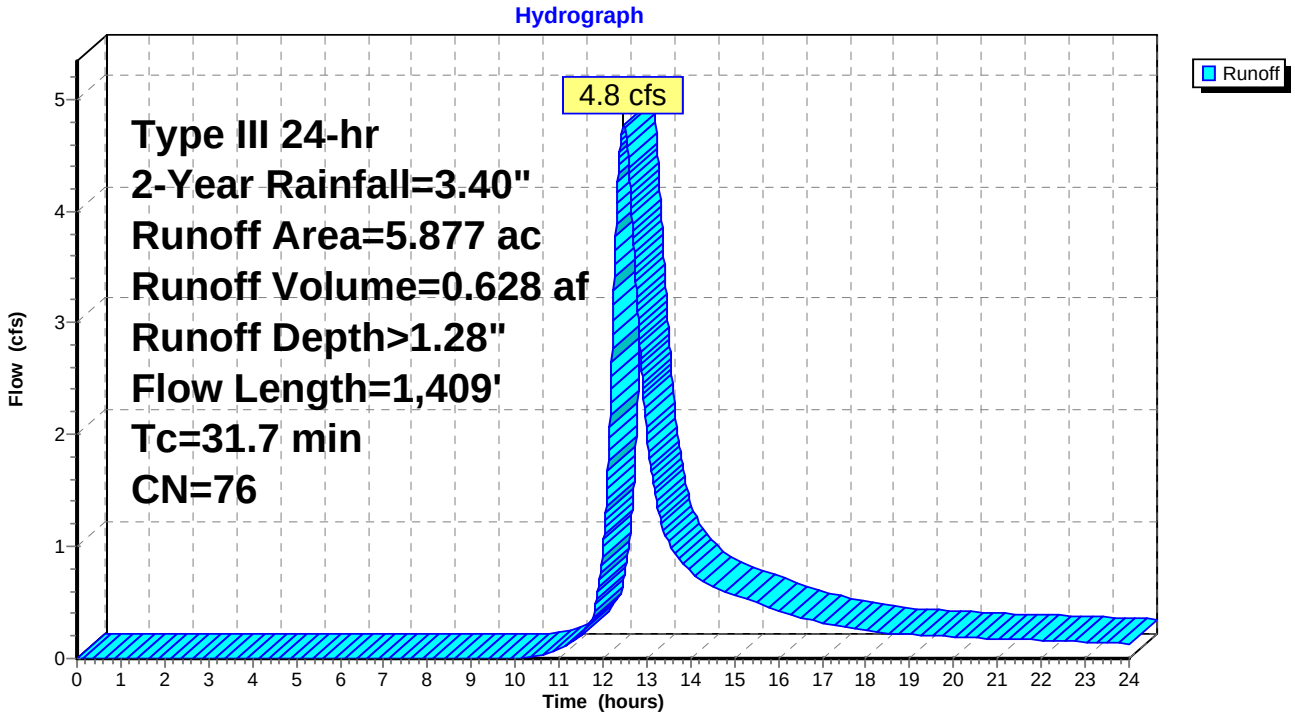
Runoff = 4.8 cfs @ 12.47 hrs, Volume= 0.628 af, Depth> 1.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 2-Year Rainfall=3.40"

	Area (ac)	CN	Description
	0.984	70	Woods, Good, HSG C
	0.027	98	Unconnected roofs, HSG C
	0.269	82	Farmsteads, HSG C
	1.131	81	Row crops, C + CR, Good, HSG C
	0.174	74	>75% Grass cover, Good, HSG C
*	3.006	74	Solar Arrays, >75% Grass cover, Good, HSG C
	0.286	87	Dirt roads, HSG C
	5.877	76	Weighted Average
	5.850		99.54% Pervious Area
	0.027		0.46% Impervious Area
	0.027		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	100	0.0200	0.12		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
3.9	230	0.0196	0.98		**Shallow Concentrated Flow, Grassed** Short Grass Pasture Kv= 7.0 fps
2.4	233	0.0327	1.63		**Shallow Concentrated Flow, Field** Cultivated Straight Rows Kv= 9.0 fps
2.1	151	0.0281	1.17		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
4.1	230	0.0348	0.93		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
1.2	106	0.0472	1.52		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
1.7	194	0.0773	1.95		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
0.3	47	0.1277	2.50		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
2.2	118	0.0169	0.91		**Shallow Concentrated Flow, Check Dam** Short Grass Pasture Kv= 7.0 fps
31.7	1,409	Total			

Subcatchment 12S: DA-2B



Summary for Pond 7P: Water Quality Basin #1

Inflow Area = 3.321 ac, 4.03% Impervious, Inflow Depth > 1.35" for 2-Year event
Inflow = 3.4 cfs @ 12.30 hrs, Volume= 0.374 af
Outflow = 3.4 cfs @ 12.31 hrs, Volume= 0.334 af, Atten= 0%, Lag= 0.4 min
Primary = 3.4 cfs @ 12.31 hrs, Volume= 0.334 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs / 2
Peak Elev= 393.05' @ 12.31 hrs Surf.Area= 2,098 sf Storage= 1,824 cf

Plug-Flow detention time= 68.9 min calculated for 0.334 af (89% of inflow)
Center-of-Mass det. time= 18.9 min (878.8 - 859.9)

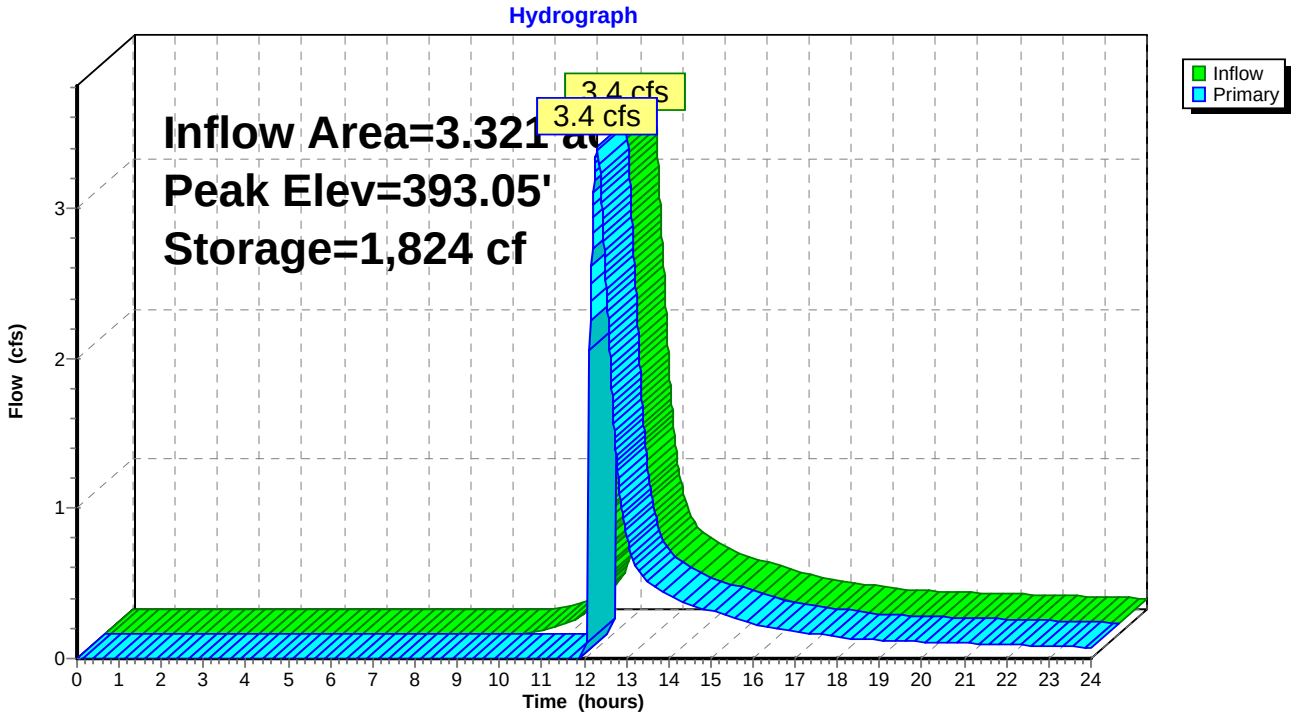
Volume	Invert	Avail.Storage	Storage Description
#1	392.00'	2,848 cf	**Basin (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
392.00	1,392	0	0
393.50	2,405	2,848	2,848

Device	Routing	Invert	Outlet Devices
#1	Primary	393.00'	**150.0' 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

Primary OutFlow Max=3.4 cfs @ 12.31 hrs HW=393.05' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 3.4 cfs @ 0.50 fps)

Pond 7P: Water Quality Basin #1



Stage-Area-Storage for Pond 7P: Water Quality Basin #1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
392.00	1,392	0
392.02	1,406	28
392.04	1,419	56
392.06	1,433	85
392.08	1,446	114
392.10	1,460	143
392.12	1,473	172
392.14	1,487	201
392.16	1,500	231
392.18	1,514	262
392.20	1,527	292
392.22	1,541	323
392.24	1,554	354
392.26	1,568	385
392.28	1,581	416
392.30	1,595	448
392.32	1,608	480
392.34	1,622	512
392.36	1,635	545
392.38	1,649	578
392.40	1,662	611
392.42	1,676	644
392.44	1,689	678
392.46	1,703	712
392.48	1,716	746
392.50	1,730	780
392.52	1,743	815
392.54	1,757	850
392.56	1,770	885
392.58	1,784	921
392.60	1,797	957
392.62	1,811	993
392.64	1,824	1,029
392.66	1,838	1,066
392.68	1,851	1,103
392.70	1,865	1,140
392.72	1,878	1,177
392.74	1,892	1,215
392.76	1,905	1,253
392.78	1,919	1,291
392.80	1,932	1,330
392.82	1,946	1,368
392.84	1,959	1,408
392.86	1,973	1,447
392.88	1,986	1,486
392.90	2,000	1,526
392.92	2,013	1,566
392.94	2,027	1,607
392.96	2,040	1,648
392.98	2,054	1,688
393.00	2,067	1,730
393.02	2,081	1,771
393.04	2,094	1,813
393.06	2,108	1,855
393.08	2,121	1,897
393.10	2,135	1,940
393.12	2,148	1,983
393.14	2,162	2,026
393.16	2,175	2,069
393.18	2,189	2,113
393.20	2,202	2,157
393.22	2,216	2,201
393.24	2,229	2,245
393.26	2,243	2,290
393.28	2,256	2,335
393.30	2,270	2,380
393.32	2,283	2,426
393.34	2,297	2,472
393.36	2,310	2,518
393.38	2,324	2,564
393.40	2,337	2,611
393.42	2,351	2,658
393.44	2,364	2,705
393.46	2,378	2,752
393.48	2,391	2,800
393.50	**2,405**	**2,848**

Summary for Pond 9P: Water Quality Basin #2

Inflow Area = 5.877 ac, 0.46% Impervious, Inflow Depth > 1.28" for 2-Year event
Inflow = 4.8 cfs @ 12.47 hrs, Volume= 0.628 af
Outflow = 4.8 cfs @ 12.47 hrs, Volume= 0.556 af, Atten= 0%, Lag= 0.3 min
Primary = 4.8 cfs @ 12.47 hrs, Volume= 0.556 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs / 2
Peak Elev= 387.05' @ 12.47 hrs Surf.Area= 3,551 sf Storage= 3,306 cf

Plug-Flow detention time= 72.7 min calculated for 0.556 af (88% of inflow)
Center-of-Mass det. time= 20.5 min (891.7 - 871.2)

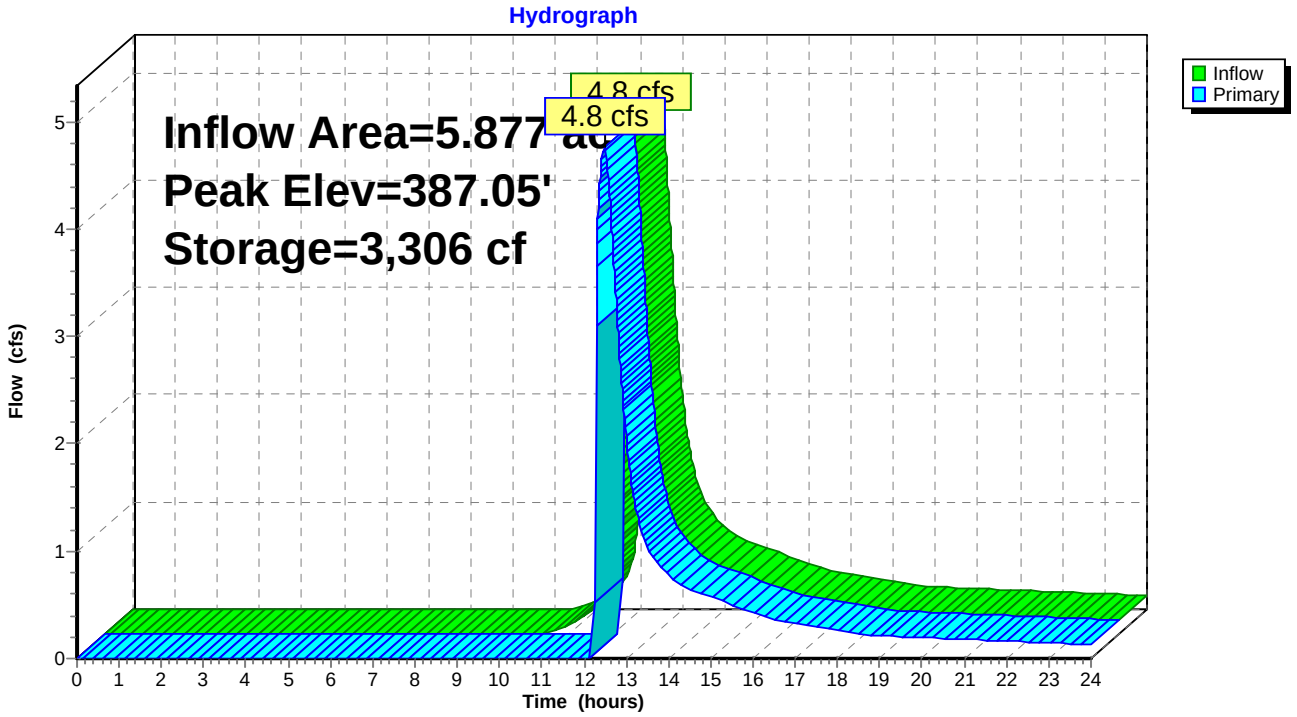
Volume	Invert	Avail.Storage	Storage Description
#1	386.00'	4,979 cf	**Basin (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
386.00	2,742	0	0
387.50	3,896	4,979	4,979

Device	Routing	Invert	Outlet Devices
#1	Primary	387.00'	**175.0' 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

Primary OutFlow Max=4.8 cfs @ 12.47 hrs HW=387.05' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 4.8 cfs @ 0.53 fps)

Pond 9P: Water Quality Basin #2



Stage-Area-Storage for Pond 9P: Water Quality Basin #2

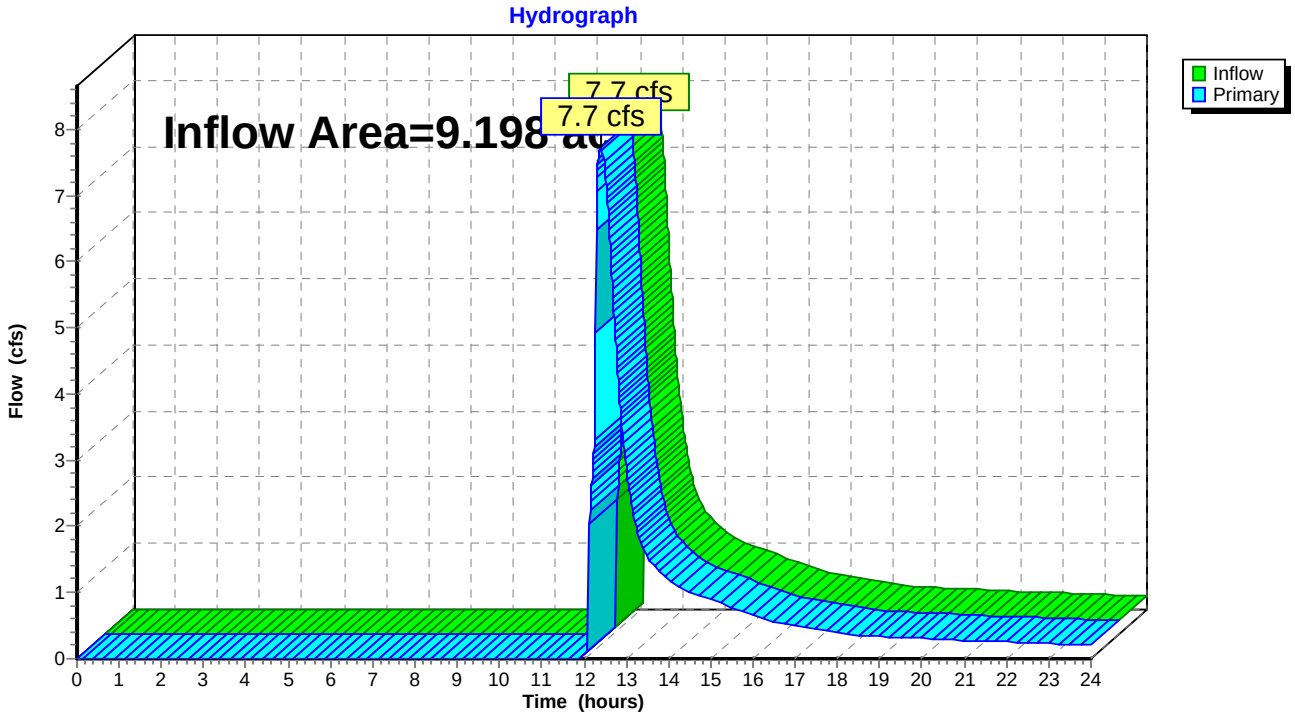
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
386.00	2,742	0
386.02	2,757	55
386.04	2,773	110
386.06	2,788	166
386.08	2,804	222
386.10	2,819	278
386.12	2,834	335
386.14	2,850	391
386.16	2,865	449
386.18	2,880	506
386.20	2,896	564
386.22	2,911	622
386.24	2,927	680
386.26	2,942	739
386.28	2,957	798
386.30	2,973	857
386.32	2,988	917
386.34	3,004	977
386.36	3,019	1,037
386.38	3,034	1,098
386.40	3,050	1,158
386.42	3,065	1,219
386.44	3,081	1,281
386.46	3,096	1,343
386.48	3,111	1,405
386.50	3,127	1,467
386.52	3,142	1,530
386.54	3,157	1,593
386.56	3,173	1,656
386.58	3,188	1,720
386.60	3,204	1,784
386.62	3,219	1,848
386.64	3,234	1,912
386.66	3,250	1,977
386.68	3,265	2,042
386.70	3,281	2,108
386.72	3,296	2,174
386.74	3,311	2,240
386.76	3,327	2,306
386.78	3,342	2,373
386.80	3,357	2,440
386.82	3,373	2,507
386.84	3,388	2,575
386.86	3,404	2,643
386.88	3,419	2,711
386.90	3,434	2,779
386.92	3,450	2,848
386.94	3,465	2,917
386.96	3,481	2,987
386.98	3,496	3,057
387.00	3,511	3,127
387.02	3,527	3,197
387.04	3,542	3,268
387.06	3,557	3,339
387.08	3,573	3,410
387.10	3,588	3,482
387.12	3,604	3,554
387.14	3,619	3,626
387.16	3,634	3,698
387.18	3,650	3,771
387.20	3,665	3,844
387.22	3,681	3,918
387.24	3,696	3,992
387.26	3,711	4,066
387.28	3,727	4,140
387.30	3,742	4,215
387.32	3,758	4,290
387.34	3,773	4,365
387.36	3,788	4,441
387.38	3,804	4,517
387.40	3,819	4,593
387.42	3,834	4,669
387.44	3,850	4,746
387.46	3,865	4,823
387.48	3,881	4,901
387.50	**3,896**	**4,979**

Summary for Link 2L: Sheet flow to West Wetlands

Inflow Area = 9.198 ac, 1.75% Impervious, Inflow Depth > 1.16" for 2-Year event
Inflow = 7.7 cfs @ 12.40 hrs, Volume= 0.890 af
Primary = 7.7 cfs @ 12.40 hrs, Volume= 0.890 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs

Link 2L: Sheet flow to West Wetlands

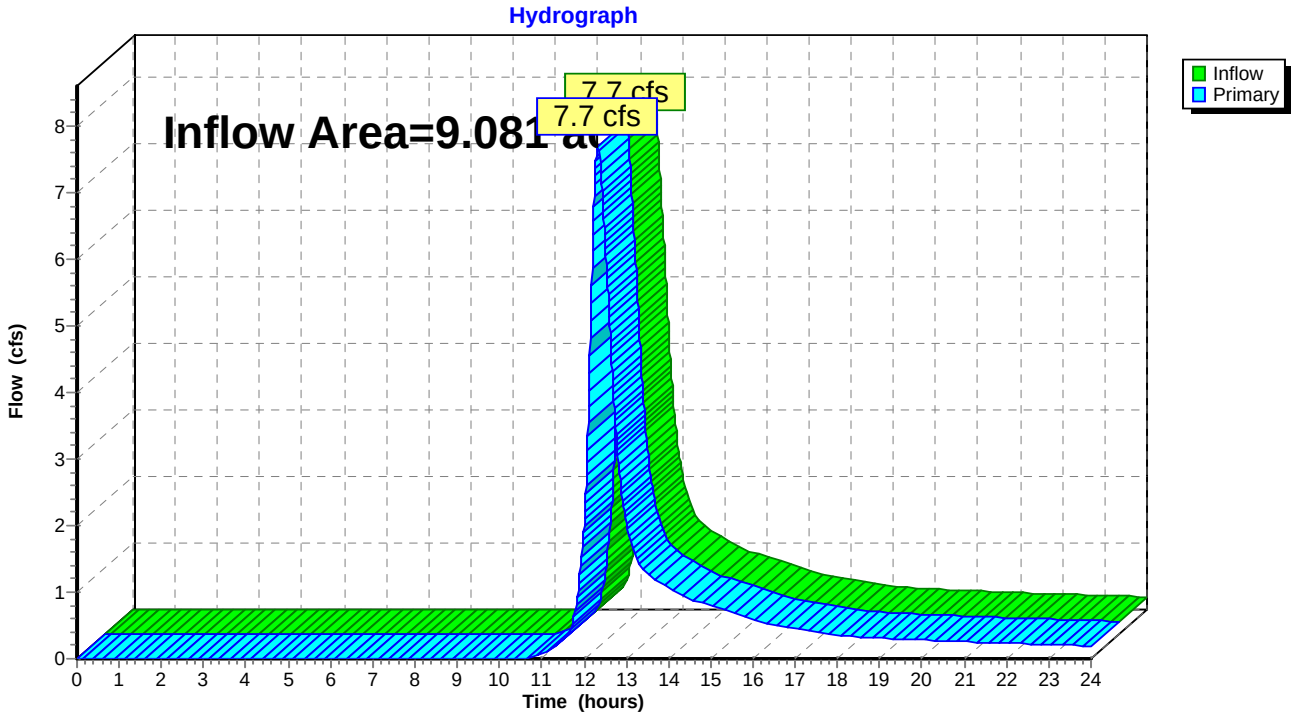


Summary for Link 5L: Sheet Flow to Stott Avenue

Inflow Area = 9.081 ac, 1.16% Impervious, Inflow Depth > 1.16" for 2-Year event
Inflow = 7.7 cfs @ 12.33 hrs, Volume= 0.881 af
Primary = 7.7 cfs @ 12.33 hrs, Volume= 0.881 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs

Link 5L: Sheet Flow to Stott Avenue

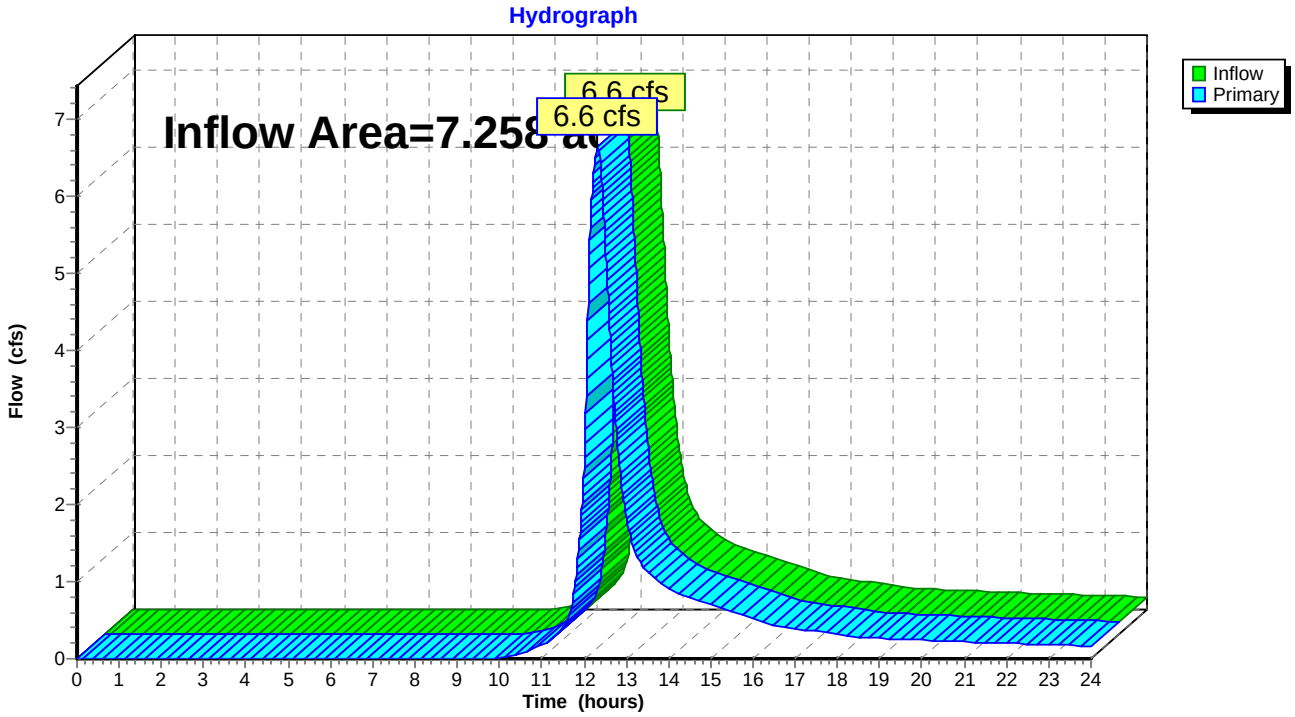


Summary for Link 6L: Sheet flow to North West

Inflow Area = 7.258 ac, 7.14% Impervious, Inflow Depth > 1.35" for 2-Year event
Inflow = 6.6 cfs @ 12.32 hrs, Volume= 0.816 af
Primary = 6.6 cfs @ 12.32 hrs, Volume= 0.816 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs

Link 6L: Sheet flow to North West



Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: DA-1A Runoff Area=5.321 ac 9.74% Impervious Runoff Depth>2.04"
Flow Length=943' Tc=24.8 min UI Adjusted CN=77 Runoff=7.8 cfs 0.904 af

Subcatchment 2S: DA-1B Runoff Area=1.937 ac 0.00% Impervious Runoff Depth>2.04"
Flow Length=712' Tc=10.0 min CN=77 Runoff=4.0 cfs 0.330 af

Subcatchment 3S: DA-2A Runoff Area=3.321 ac 4.03% Impervious Runoff Depth>2.04"
Flow Length=993' Tc=21.0 min UI Adjusted CN=77 Runoff=5.2 cfs 0.564 af

Subcatchment 6S: DA-3 Runoff Area=9.081 ac 1.16% Impervious Runoff Depth>1.81"
Flow Length=900' Tc=22.1 min CN=74 Runoff=12.3 cfs 1.370 af

Subcatchment 12S: DA-2B Runoff Area=5.877 ac 0.46% Impervious Runoff Depth>1.96"
Flow Length=1,409' Tc=31.7 min CN=76 Runoff=7.4 cfs 0.958 af

Pond 7P: Water Quality Basin #1 Peak Elev=393.06' Storage=1,855 cf Inflow=5.2 cfs 0.564 af
Outflow=5.2 cfs 0.525 af

Pond 9P: Water Quality Basin #2 Peak Elev=387.07' Storage=3,369 cf Inflow=7.4 cfs 0.958 af
Outflow=7.4 cfs 0.886 af

Link 2L: Sheet flow to West Wetlands Inflow=12.0 cfs 1.411 af
Primary=12.0 cfs 1.411 af

Link 5L: Sheet Flow to Stott Avenue Inflow=12.3 cfs 1.370 af
Primary=12.3 cfs 1.370 af

Link 6L: Sheet flow to North West Inflow=10.2 cfs 1.234 af
Primary=10.2 cfs 1.234 af

Total Runoff Area = 25.537 ac Runoff Volume = 4.127 af Average Runoff Depth = 1.94"
96.93% Pervious = 24.753 ac 3.07% Impervious = 0.784 ac

Summary for Subcatchment 1S: DA-1A

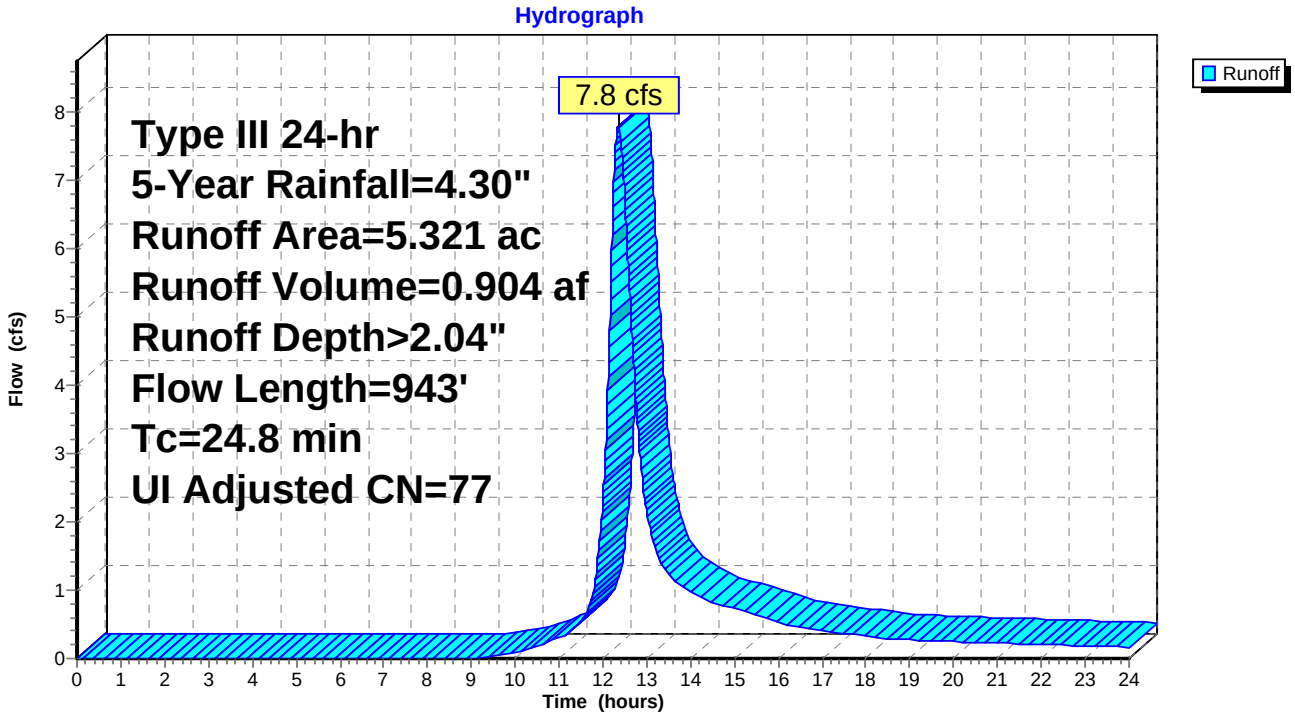
Runoff = 7.8 cfs @ 12.35 hrs, Volume= 0.904 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 5-Year Rainfall=4.30"

	Area (ac)	CN	Adj	Description
	0.518	98		Unconnected roofs, HSG C
	1.337	74		>75% Grass cover, Good, HSG C
*	2.240	74		Solar Arrays, >75% Grass cover, Good, HSG C
	0.331	74		Pasture/grassland/range, Good, HSG C
	0.895	87		Dirt roads, HSG C
	5.321	79	77	Weighted Average, UI Adjusted
	4.803			90.26% Pervious Area
	0.518			9.74% Impervious Area
	0.518			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0233	0.13		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
2.5	138	0.0179	0.94		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
1.1	96	0.0417	1.43		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
3.3	218	0.0252	1.11		**Shallow Concentrated Flow, Pasture** Short Grass Pasture Kv= 7.0 fps
4.0	281	0.0285	1.18		**Shallow Concentrated Flow, Check Dam** Short Grass Pasture Kv= 7.0 fps
0.9	110	0.0909	2.11		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
24.8	943	Total			

Subcatchment 1S: DA-1A



Summary for Subcatchment 2S: DA-1B

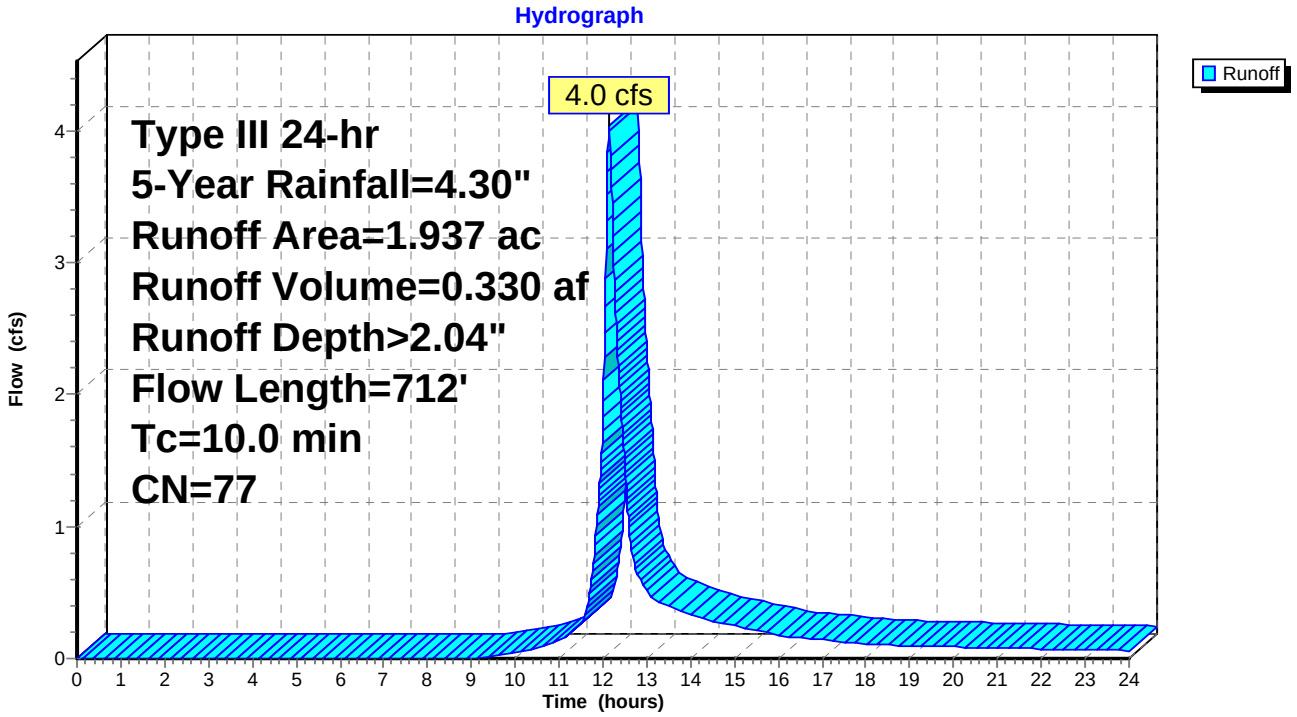
Runoff = 4.0 cfs @ 12.14 hrs, Volume= 0.330 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 5-Year Rainfall=4.30"

Area (ac)	CN	Description
1.231	74	>75% Grass cover, Good, HSG C
0.531	82	Farmsteads, HSG C
0.175	87	Dirt roads, HSG C
1.937	77	Weighted Average
1.937		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		**Sheet Flow, Dirt Drive** Smooth surfaces n= 0.011 P2= 3.40"
0.8	124	0.0242	2.50		**Shallow Concentrated Flow, Dirt Drive** Unpaved Kv= 16.1 fps
0.2	60	0.1000	5.09		**Shallow Concentrated Flow, Dirt Drive** Unpaved Kv= 16.1 fps
3.7	307	0.0391	1.38		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
0.7	121	0.1488	2.70		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
7.0	712	Total, Increased to minimum Tc = 10.0 min			

Subcatchment 2S: DA-1B



Summary for Subcatchment 3S: DA-2A

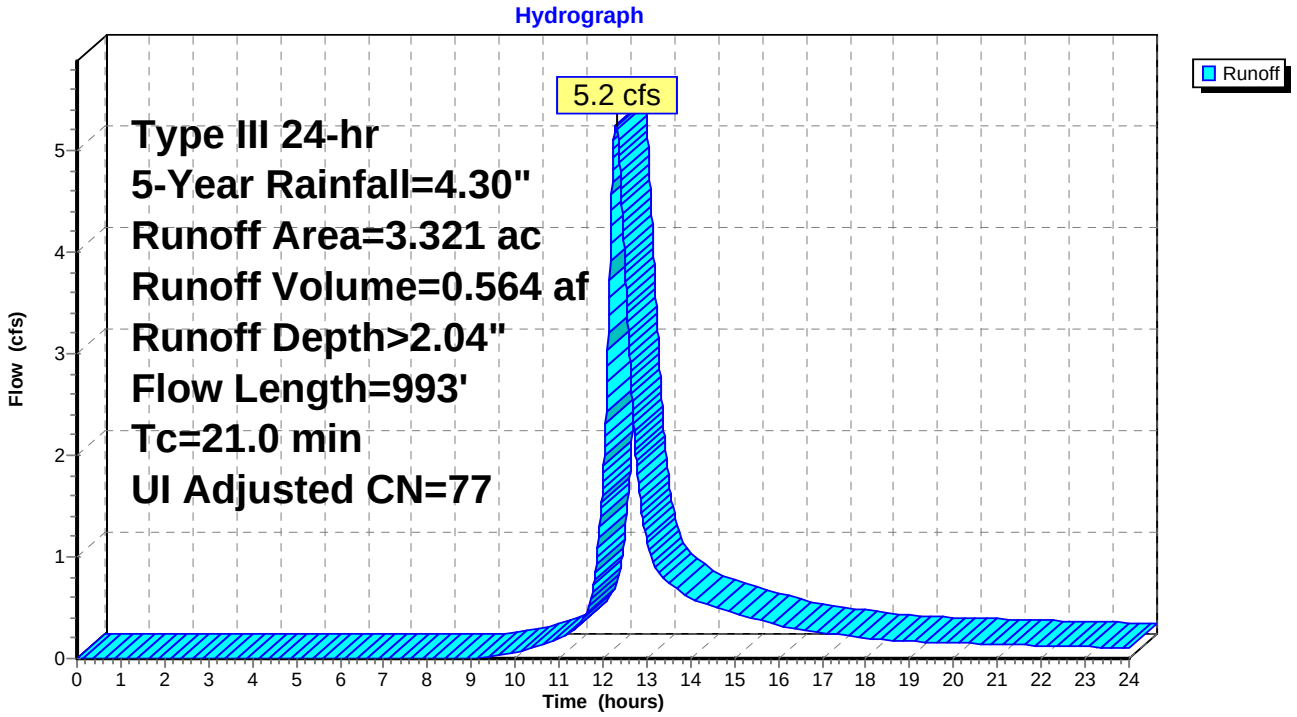
Runoff = 5.2 cfs @ 12.30 hrs, Volume= 0.564 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 5-Year Rainfall=4.30"

	Area (ac)	CN	Adj	Description
	0.229	70		Woods, Good, HSG C
	0.134	98		Unconnected roofs, HSG C
	0.720	82		Farmsteads, HSG C
*	1.865	74		Solar Arrays, >75% Grass cover, Good, HSG C
	0.373	87		Dirt roads, HSG C
	3.321	78	77	Weighted Average, UI Adjusted
	3.187			95.97% Pervious Area
	0.134			4.03% Impervious Area
	0.134			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	66	0.0189	0.11		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
0.4	34	0.0267	1.28		**Sheet Flow, Dirt** Smooth surfaces n= 0.011 P2= 3.40"
0.5	109	0.0619	4.01		**Shallow Concentrated Flow, Dirt** Unpaved Kv= 16.1 fps
3.9	252	0.0238	1.08		**Shallow Concentrated Flow, Grassed** Short Grass Pasture Kv= 7.0 fps
2.0	114	0.0351	0.94		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
3.2	296	0.0473	1.52		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
0.8	122	0.1475	2.69		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
21.0	993	Total			

Subcatchment 3S: DA-2A



Summary for Subcatchment 6S: DA-3

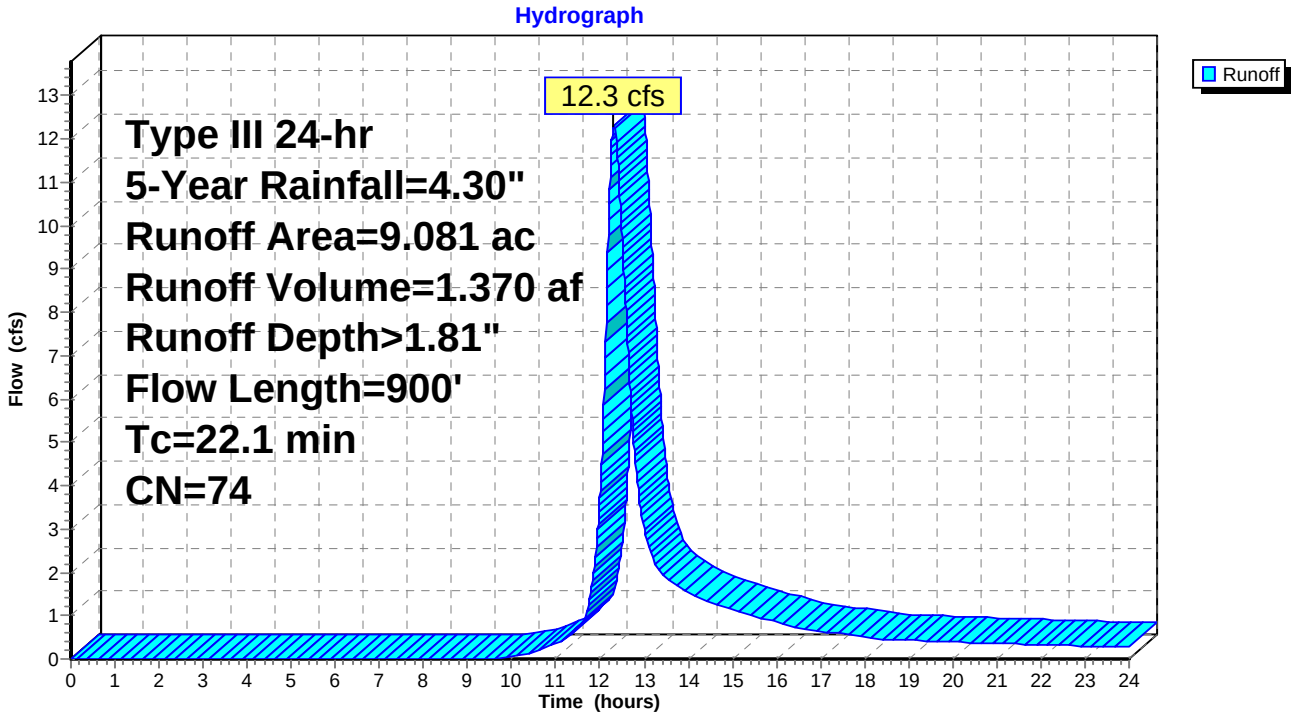
Runoff = 12.3 cfs @ 12.31 hrs, Volume= 1.370 af, Depth> 1.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 5-Year Rainfall=4.30"

	Area (ac)	CN	Description
	0.105	98	Unconnected roofs, HSG C
	0.523	70	Woods, Good, HSG C
	0.958	74	>75% Grass cover, Good, HSG C
	0.240	87	Dirt roads, HSG C
*	7.255	74	Solar Arrays, >75% Grass cover, Good, HSG C
	9.081	74	Weighted Average
	8.976		98.84% Pervious Area
	0.105		1.16% Impervious Area
	0.105		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0333	0.15		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
10.8	800	0.0312	1.24		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
22.1	900	Total			

Subcatchment 6S: DA-3



Summary for Subcatchment 12S: DA-2B

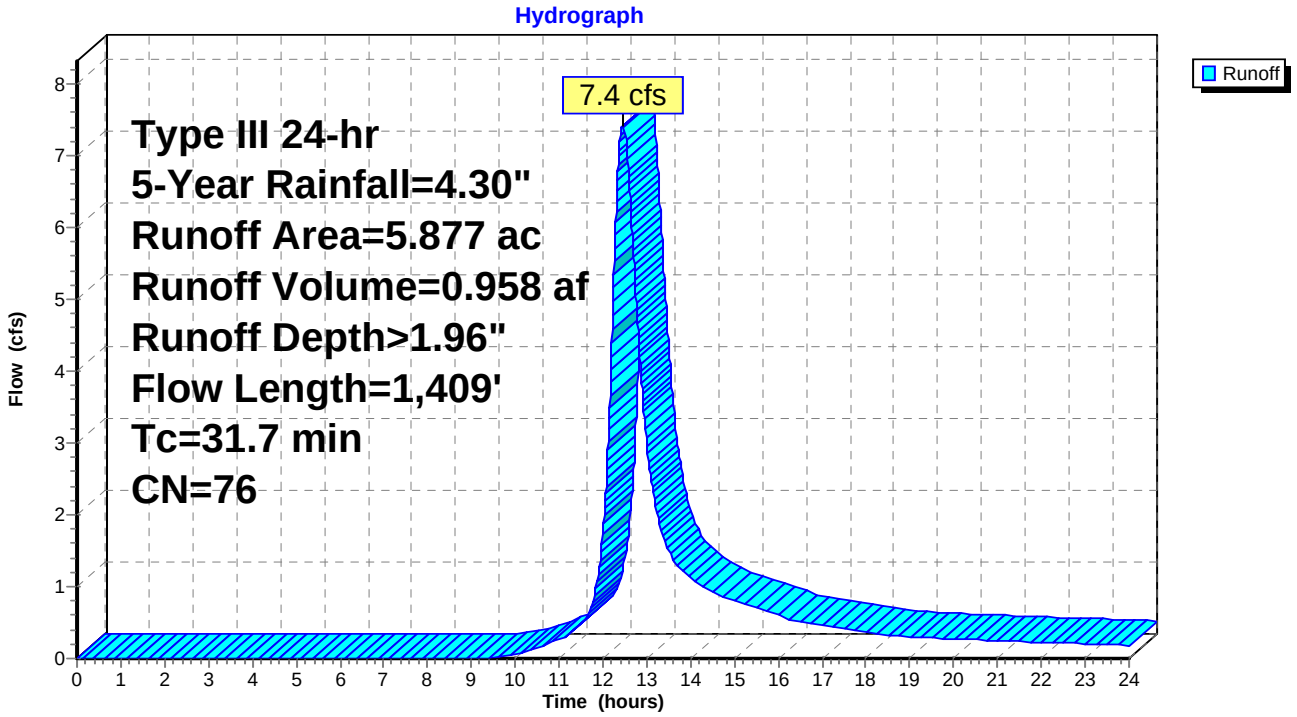
Runoff = 7.4 cfs @ 12.44 hrs, Volume= 0.958 af, Depth> 1.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 5-Year Rainfall=4.30"

	Area (ac)	CN	Description
	0.984	70	Woods, Good, HSG C
	0.027	98	Unconnected roofs, HSG C
	0.269	82	Farmsteads, HSG C
	1.131	81	Row crops, C + CR, Good, HSG C
	0.174	74	>75% Grass cover, Good, HSG C
*	3.006	74	Solar Arrays, >75% Grass cover, Good, HSG C
	0.286	87	Dirt roads, HSG C
	5.877	76	Weighted Average
	5.850		99.54% Pervious Area
	0.027		0.46% Impervious Area
	0.027		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	100	0.0200	0.12		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
3.9	230	0.0196	0.98		**Shallow Concentrated Flow, Grassed** Short Grass Pasture Kv= 7.0 fps
2.4	233	0.0327	1.63		**Shallow Concentrated Flow, Field** Cultivated Straight Rows Kv= 9.0 fps
2.1	151	0.0281	1.17		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
4.1	230	0.0348	0.93		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
1.2	106	0.0472	1.52		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
1.7	194	0.0773	1.95		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
0.3	47	0.1277	2.50		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
2.2	118	0.0169	0.91		**Shallow Concentrated Flow, Check Dam** Short Grass Pasture Kv= 7.0 fps
31.7	1,409	Total			

Subcatchment 12S: DA-2B



Summary for Pond 7P: Water Quality Basin #1

Inflow Area = 3.321 ac, 4.03% Impervious, Inflow Depth > 2.04" for 5-Year event
Inflow = 5.2 cfs @ 12.30 hrs, Volume= 0.564 af
Outflow = 5.2 cfs @ 12.30 hrs, Volume= 0.525 af, Atten= 0%, Lag= 0.2 min
Primary = 5.2 cfs @ 12.30 hrs, Volume= 0.525 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs / 2
Peak Elev= 393.06' @ 12.30 hrs Surf.Area= 2,108 sf Storage= 1,855 cf

Plug-Flow detention time= 49.5 min calculated for 0.524 af (93% of inflow)
Center-of-Mass det. time= 13.8 min (861.8 - 848.0)

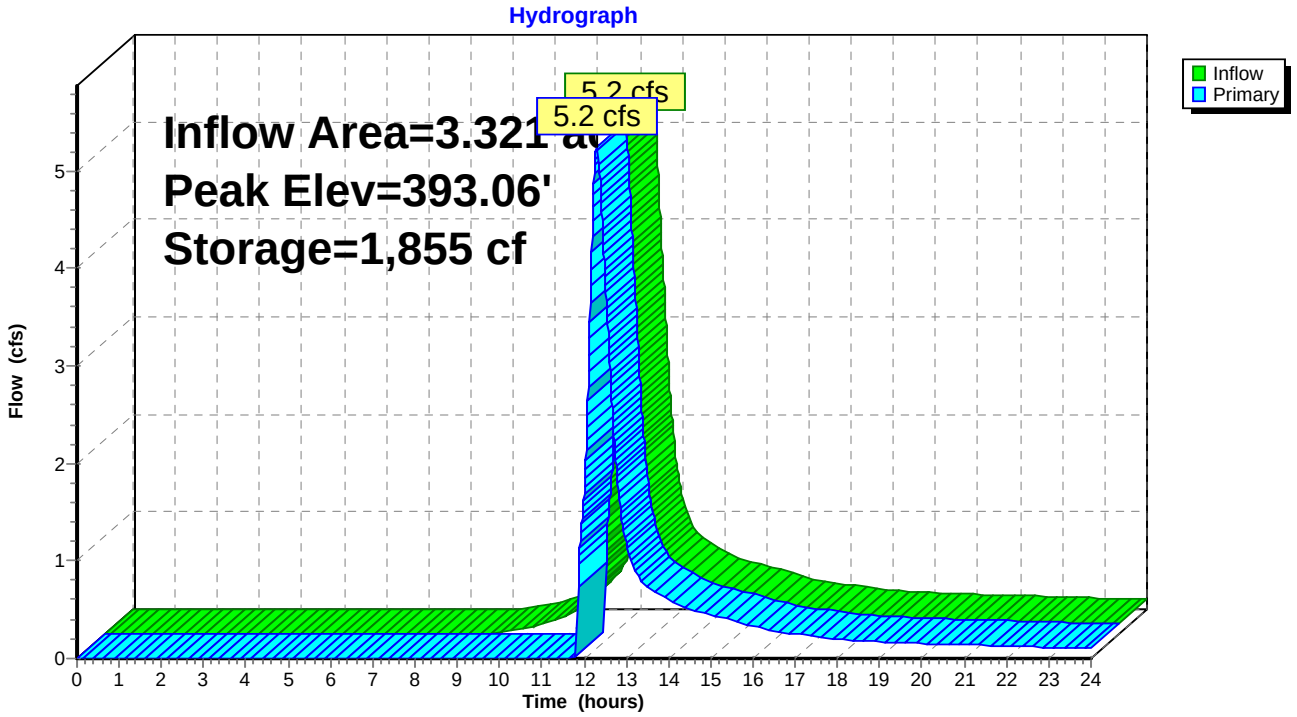
Volume	Invert	Avail.Storage	Storage Description
#1	392.00'	2,848 cf	**Basin (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
392.00	1,392	0	0
393.50	2,405	2,848	2,848

Device	Routing	Invert	Outlet Devices
#1	Primary	393.00'	**150.0' 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

Primary OutFlow Max=5.2 cfs @ 12.30 hrs HW=393.06' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 5.2 cfs @ 0.58 fps)

Pond 7P: Water Quality Basin #1



Stage-Area-Storage for Pond 7P: Water Quality Basin #1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
392.00	1,392	0
392.02	1,406	28
392.04	1,419	56
392.06	1,433	85
392.08	1,446	114
392.10	1,460	143
392.12	1,473	172
392.14	1,487	201
392.16	1,500	231
392.18	1,514	262
392.20	1,527	292
392.22	1,541	323
392.24	1,554	354
392.26	1,568	385
392.28	1,581	416
392.30	1,595	448
392.32	1,608	480
392.34	1,622	512
392.36	1,635	545
392.38	1,649	578
392.40	1,662	611
392.42	1,676	644
392.44	1,689	678
392.46	1,703	712
392.48	1,716	746
392.50	1,730	780
392.52	1,743	815
392.54	1,757	850
392.56	1,770	885
392.58	1,784	921
392.60	1,797	957
392.62	1,811	993
392.64	1,824	1,029
392.66	1,838	1,066
392.68	1,851	1,103
392.70	1,865	1,140
392.72	1,878	1,177
392.74	1,892	1,215
392.76	1,905	1,253
392.78	1,919	1,291
392.80	1,932	1,330
392.82	1,946	1,368
392.84	1,959	1,408
392.86	1,973	1,447
392.88	1,986	1,486
392.90	2,000	1,526
392.92	2,013	1,566
392.94	2,027	1,607
392.96	2,040	1,648
392.98	2,054	1,688
393.00	2,067	1,730
393.02	2,081	1,771
393.04	2,094	1,813
393.06	2,108	1,855
393.08	2,121	1,897
393.10	2,135	1,940
393.12	2,148	1,983
393.14	2,162	2,026
393.16	2,175	2,069
393.18	2,189	2,113
393.20	2,202	2,157
393.22	2,216	2,201
393.24	2,229	2,245
393.26	2,243	2,290
393.28	2,256	2,335
393.30	2,270	2,380
393.32	2,283	2,426
393.34	2,297	2,472
393.36	2,310	2,518
393.38	2,324	2,564
393.40	2,337	2,611
393.42	2,351	2,658
393.44	2,364	2,705
393.46	2,378	2,752
393.48	2,391	2,800
393.50	**2,405**	**2,848**

Summary for Pond 9P: Water Quality Basin #2

Inflow Area = 5.877 ac, 0.46% Impervious, Inflow Depth > 1.96" for 5-Year event
Inflow = 7.4 cfs @ 12.44 hrs, Volume= 0.958 af
Outflow = 7.4 cfs @ 12.45 hrs, Volume= 0.886 af, Atten= 0%, Lag= 0.6 min
Primary = 7.4 cfs @ 12.45 hrs, Volume= 0.886 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs / 2
Peak Elev= 387.07' @ 12.45 hrs Surf.Area= 3,564 sf Storage= 3,369 cf

Plug-Flow detention time= 51.6 min calculated for 0.886 af (92% of inflow)
Center-of-Mass det. time= 14.4 min (873.5 - 859.1)

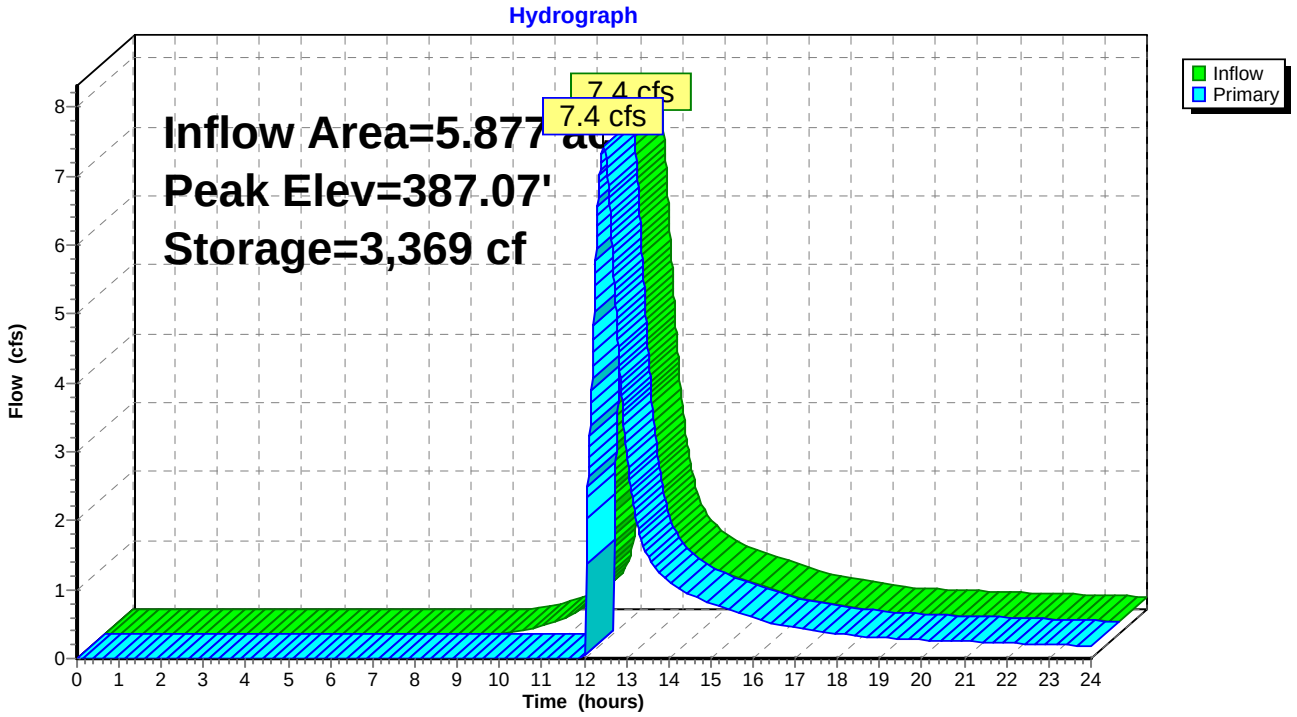
Volume	Invert	Avail.Storage	Storage Description
#1	386.00'	4,979 cf	**Basin (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
386.00	2,742	0	0
387.50	3,896	4,979	4,979

Device	Routing	Invert	Outlet Devices
#1	Primary	387.00'	**175.0' 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

Primary OutFlow Max=7.4 cfs @ 12.45 hrs HW=387.07' TW=0.00' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 7.4 cfs @ 0.62 fps)

Pond 9P: Water Quality Basin #2



Stage-Area-Storage for Pond 9P: Water Quality Basin #2

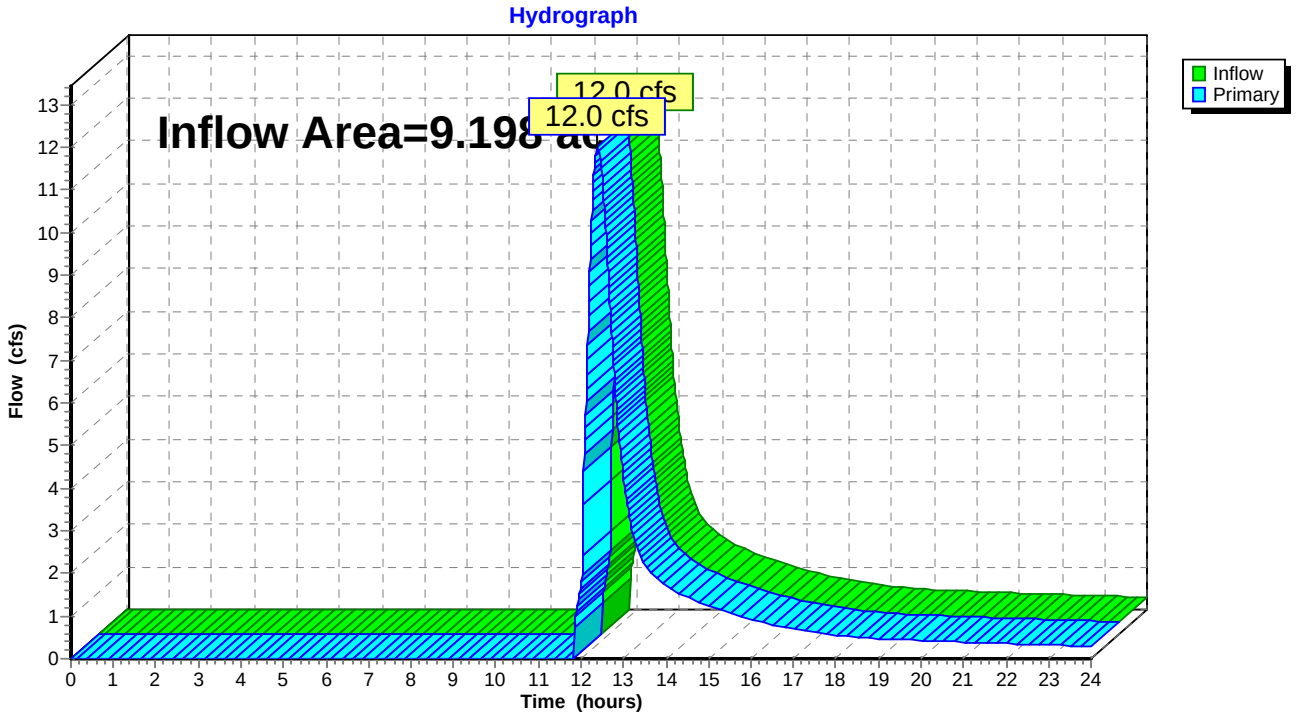
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
386.00	2,742	0
386.02	2,757	55
386.04	2,773	110
386.06	2,788	166
386.08	2,804	222
386.10	2,819	278
386.12	2,834	335
386.14	2,850	391
386.16	2,865	449
386.18	2,880	506
386.20	2,896	564
386.22	2,911	622
386.24	2,927	680
386.26	2,942	739
386.28	2,957	798
386.30	2,973	857
386.32	2,988	917
386.34	3,004	977
386.36	3,019	1,037
386.38	3,034	1,098
386.40	3,050	1,158
386.42	3,065	1,219
386.44	3,081	1,281
386.46	3,096	1,343
386.48	3,111	1,405
386.50	3,127	1,467
386.52	3,142	1,530
386.54	3,157	1,593
386.56	3,173	1,656
386.58	3,188	1,720
386.60	3,204	1,784
386.62	3,219	1,848
386.64	3,234	1,912
386.66	3,250	1,977
386.68	3,265	2,042
386.70	3,281	2,108
386.72	3,296	2,174
386.74	3,311	2,240
386.76	3,327	2,306
386.78	3,342	2,373
386.80	3,357	2,440
386.82	3,373	2,507
386.84	3,388	2,575
386.86	3,404	2,643
386.88	3,419	2,711
386.90	3,434	2,779
386.92	3,450	2,848
386.94	3,465	2,917
386.96	3,481	2,987
386.98	3,496	3,057
387.00	3,511	3,127
387.02	3,527	3,197
387.04	3,542	3,268
387.06	3,557	3,339
387.08	3,573	3,410
387.10	3,588	3,482
387.12	3,604	3,554
387.14	3,619	3,626
387.16	3,634	3,698
387.18	3,650	3,771
387.20	3,665	3,844
387.22	3,681	3,918
387.24	3,696	3,992
387.26	3,711	4,066
387.28	3,727	4,140
387.30	3,742	4,215
387.32	3,758	4,290
387.34	3,773	4,365
387.36	3,788	4,441
387.38	3,804	4,517
387.40	3,819	4,593
387.42	3,834	4,669
387.44	3,850	4,746
387.46	3,865	4,823
387.48	3,881	4,901
387.50	**3,896**	**4,979**

Summary for Link 2L: Sheet flow to West Wetlands

Inflow Area = 9.198 ac, 1.75% Impervious, Inflow Depth > 1.84" for 5-Year event
Inflow = 12.0 cfs @ 12.38 hrs, Volume= 1.411 af
Primary = 12.0 cfs @ 12.38 hrs, Volume= 1.411 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs

Link 2L: Sheet flow to West Wetlands

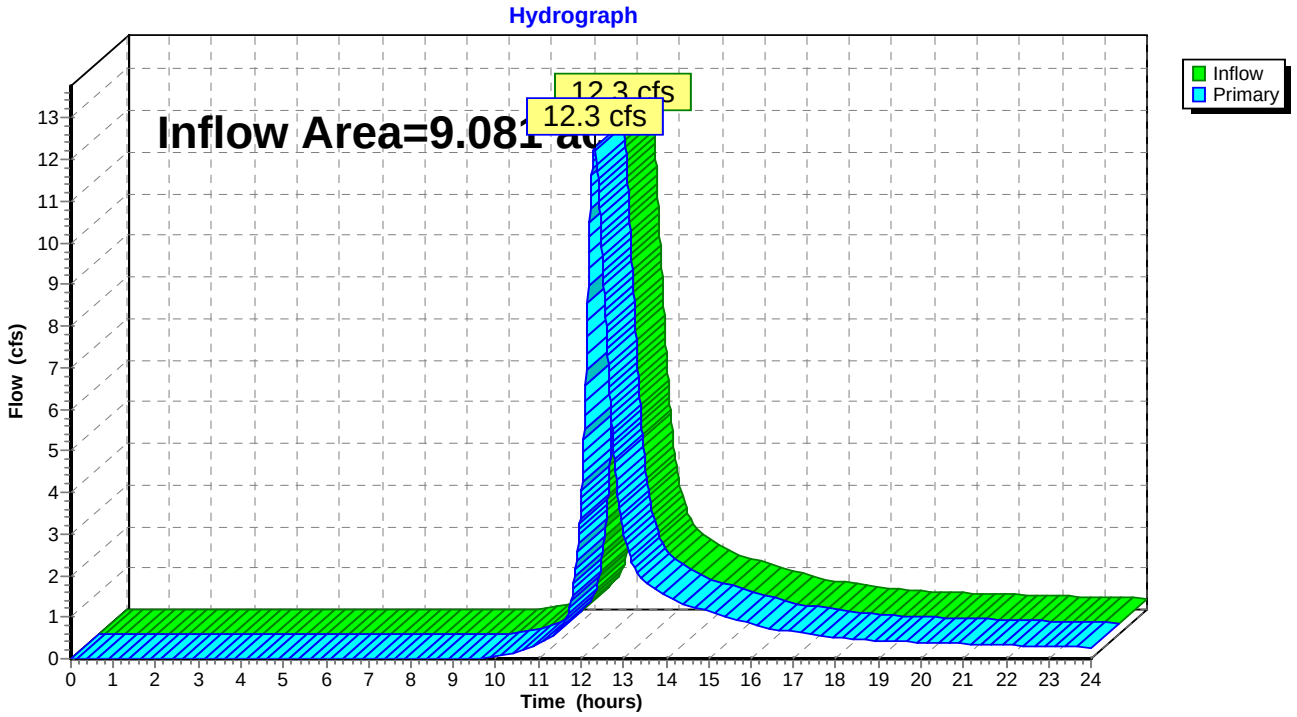


Summary for Link 5L: Sheet Flow to Stott Avenue

Inflow Area = 9.081 ac, 1.16% Impervious, Inflow Depth > 1.81" for 5-Year event
Inflow = 12.3 cfs @ 12.31 hrs, Volume= 1.370 af
Primary = 12.3 cfs @ 12.31 hrs, Volume= 1.370 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs

Link 5L: Sheet Flow to Stott Avenue

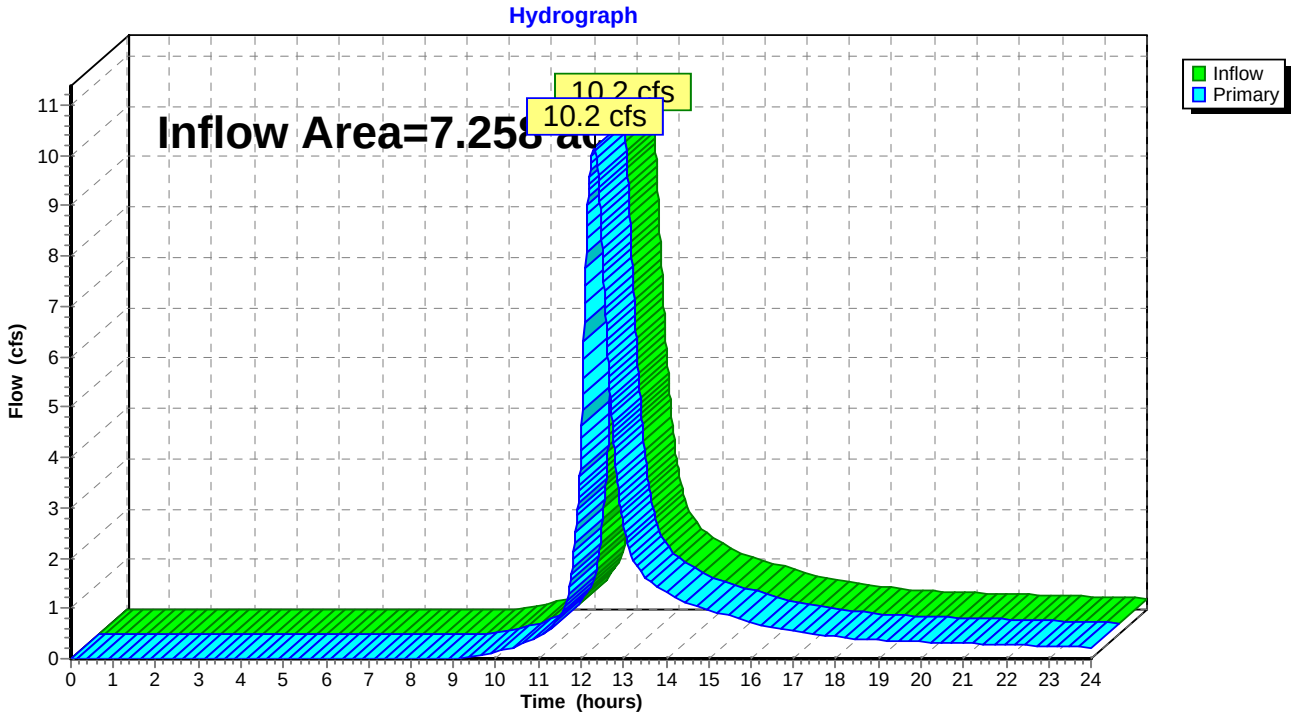


Summary for Link 6L: Sheet flow to North West

Inflow Area = 7.258 ac, 7.14% Impervious, Inflow Depth > 2.04" for 5-Year event
Inflow = 10.2 cfs @ 12.32 hrs, Volume= 1.234 af
Primary = 10.2 cfs @ 12.32 hrs, Volume= 1.234 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs

Link 6L: Sheet flow to North West



Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: DA-1A Runoff Area=5.321 ac 9.74% Impervious Runoff Depth>2.61"
Flow Length=943' Tc=24.8 min UI Adjusted CN=77 Runoff=10.0 cfs 1.157 af

Subcatchment 2S: DA-1B Runoff Area=1.937 ac 0.00% Impervious Runoff Depth>2.62"
Flow Length=712' Tc=10.0 min CN=77 Runoff=5.2 cfs 0.423 af

Subcatchment 3S: DA-2A Runoff Area=3.321 ac 4.03% Impervious Runoff Depth>2.61"
Flow Length=993' Tc=21.0 min UI Adjusted CN=77 Runoff=6.7 cfs 0.723 af

Subcatchment 6S: DA-3 Runoff Area=9.081 ac 1.16% Impervious Runoff Depth>2.35"
Flow Length=900' Tc=22.1 min CN=74 Runoff=16.2 cfs 1.780 af

Subcatchment 12S: DA-2B Runoff Area=5.877 ac 0.46% Impervious Runoff Depth>2.52"
Flow Length=1,409' Tc=31.7 min CN=76 Runoff=9.6 cfs 1.233 af

Pond 7P: Water Quality Basin #1 Peak Elev=393.07' Storage=1,878 cf Inflow=6.7 cfs 0.723 af
Outflow=6.7 cfs 0.683 af

Pond 9P: Water Quality Basin #2 Peak Elev=387.08' Storage=3,415 cf Inflow=9.6 cfs 1.233 af
Outflow=9.6 cfs 1.161 af

Link 2L: Sheet flow to West Wetlands Inflow=15.5 cfs 1.844 af
Primary=15.5 cfs 1.844 af

Link 5L: Sheet Flow to Stott Avenue Inflow=16.2 cfs 1.780 af
Primary=16.2 cfs 1.780 af

Link 6L: Sheet flow to North West Inflow=13.0 cfs 1.579 af
Primary=13.0 cfs 1.579 af

Total Runoff Area = 25.537 ac Runoff Volume = 5.316 af Average Runoff Depth = 2.50"
96.93% Pervious = 24.753 ac 3.07% Impervious = 0.784 ac

Summary for Subcatchment 1S: DA-1A

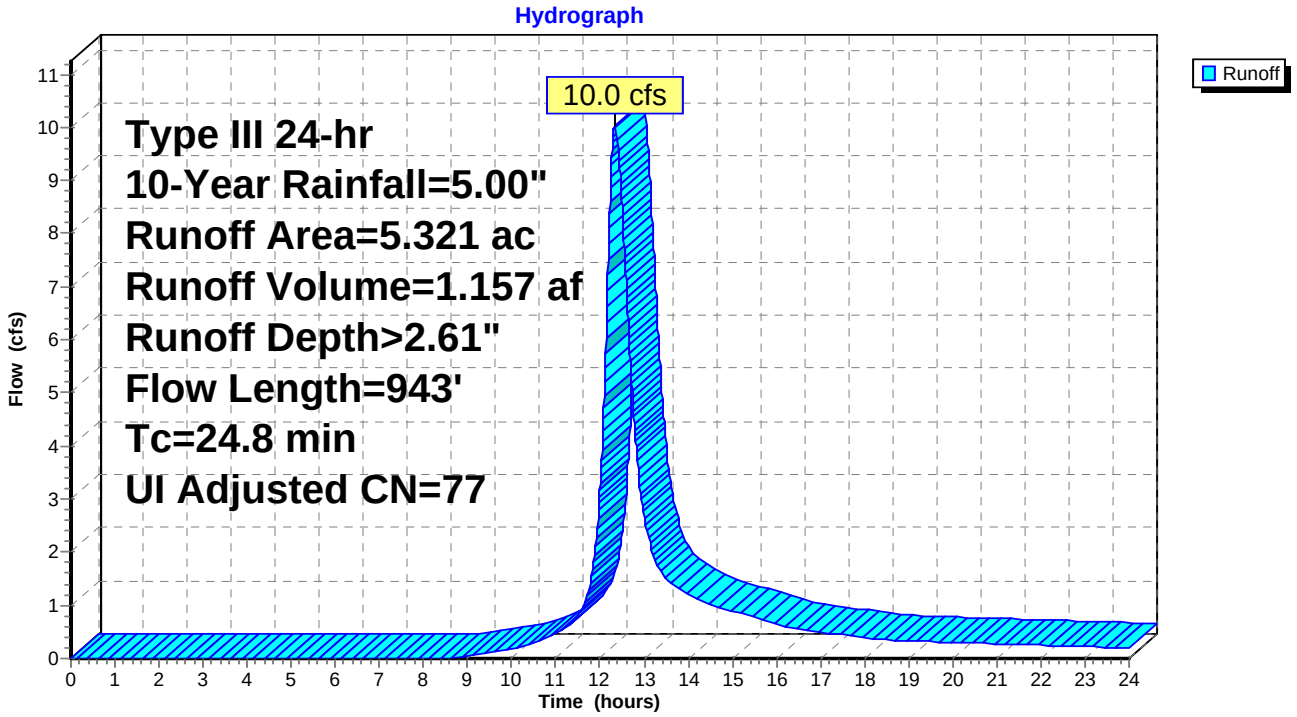
Runoff = 10.0 cfs @ 12.35 hrs, Volume= 1.157 af, Depth> 2.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 10-Year Rainfall=5.00"

	Area (ac)	CN	Adj	Description
	0.518	98		Unconnected roofs, HSG C
	1.337	74		>75% Grass cover, Good, HSG C
*	2.240	74		Solar Arrays, >75% Grass cover, Good, HSG C
	0.331	74		Pasture/grassland/range, Good, HSG C
	0.895	87		Dirt roads, HSG C
	5.321	79	77	Weighted Average, UI Adjusted
	4.803			90.26% Pervious Area
	0.518			9.74% Impervious Area
	0.518			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0233	0.13		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
2.5	138	0.0179	0.94		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
1.1	96	0.0417	1.43		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
3.3	218	0.0252	1.11		**Shallow Concentrated Flow, Pasture** Short Grass Pasture Kv= 7.0 fps
4.0	281	0.0285	1.18		**Shallow Concentrated Flow, Check Dam** Short Grass Pasture Kv= 7.0 fps
0.9	110	0.0909	2.11		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
24.8	943	Total			

Subcatchment 1S: DA-1A



Summary for Subcatchment 2S: DA-1B

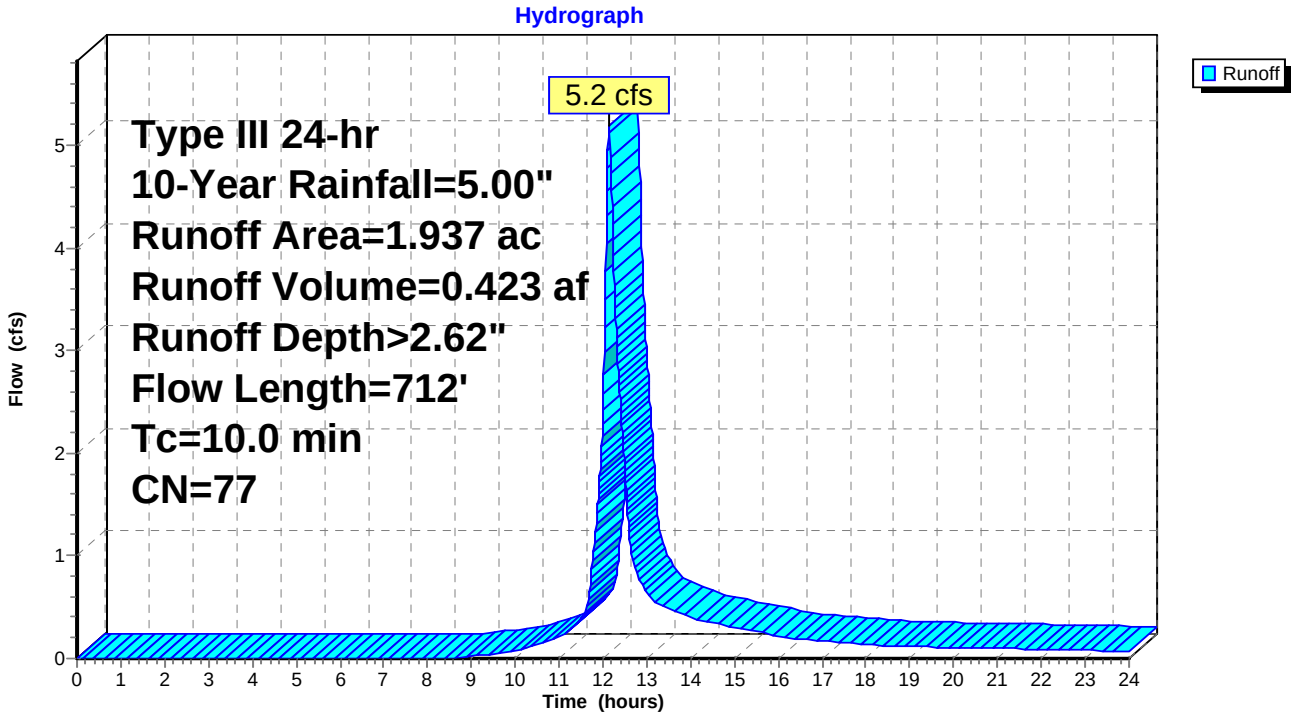
Runoff = 5.2 cfs @ 12.14 hrs, Volume= 0.423 af, Depth> 2.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (ac)	CN	Description
1.231	74	>75% Grass cover, Good, HSG C
0.531	82	Farmsteads, HSG C
0.175	87	Dirt roads, HSG C
1.937	77	Weighted Average
1.937		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		**Sheet Flow, Dirt Drive** Smooth surfaces n= 0.011 P2= 3.40"
0.8	124	0.0242	2.50		**Shallow Concentrated Flow, Dirt Drive** Unpaved Kv= 16.1 fps
0.2	60	0.1000	5.09		**Shallow Concentrated Flow, Dirt Drive** Unpaved Kv= 16.1 fps
3.7	307	0.0391	1.38		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
0.7	121	0.1488	2.70		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
7.0	712	Total, Increased to minimum Tc = 10.0 min			

Subcatchment 2S: DA-1B



Summary for Subcatchment 3S: DA-2A

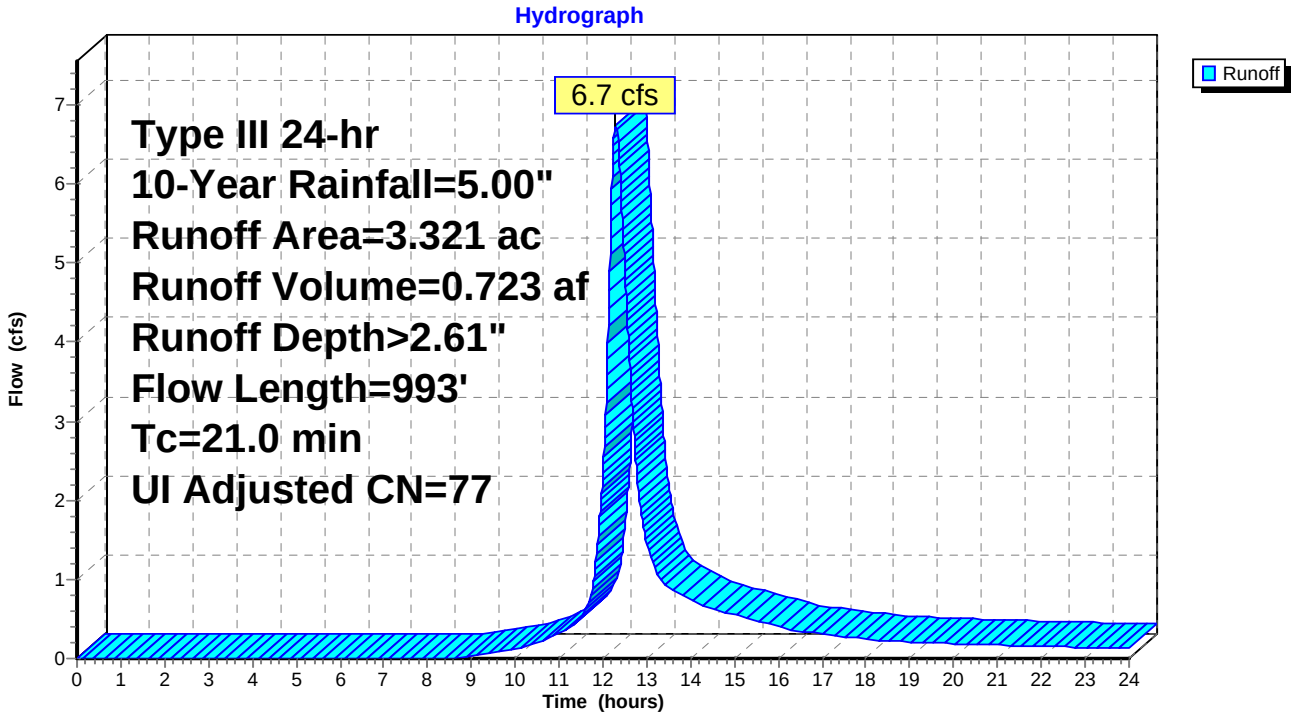
Runoff = 6.7 cfs @ 12.30 hrs, Volume= 0.723 af, Depth> 2.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 10-Year Rainfall=5.00"

	Area (ac)	CN	Adj	Description
	0.229	70		Woods, Good, HSG C
	0.134	98		Unconnected roofs, HSG C
	0.720	82		Farmsteads, HSG C
*	1.865	74		Solar Arrays, >75% Grass cover, Good, HSG C
	0.373	87		Dirt roads, HSG C
	3.321	78	77	Weighted Average, UI Adjusted
	3.187			95.97% Pervious Area
	0.134			4.03% Impervious Area
	0.134			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	66	0.0189	0.11		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
0.4	34	0.0267	1.28		**Sheet Flow, Dirt** Smooth surfaces n= 0.011 P2= 3.40"
0.5	109	0.0619	4.01		**Shallow Concentrated Flow, Dirt** Unpaved Kv= 16.1 fps
3.9	252	0.0238	1.08		**Shallow Concentrated Flow, Grassed** Short Grass Pasture Kv= 7.0 fps
2.0	114	0.0351	0.94		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
3.2	296	0.0473	1.52		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
0.8	122	0.1475	2.69		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
21.0	993	Total			

Subcatchment 3S: DA-2A



Summary for Subcatchment 6S: DA-3

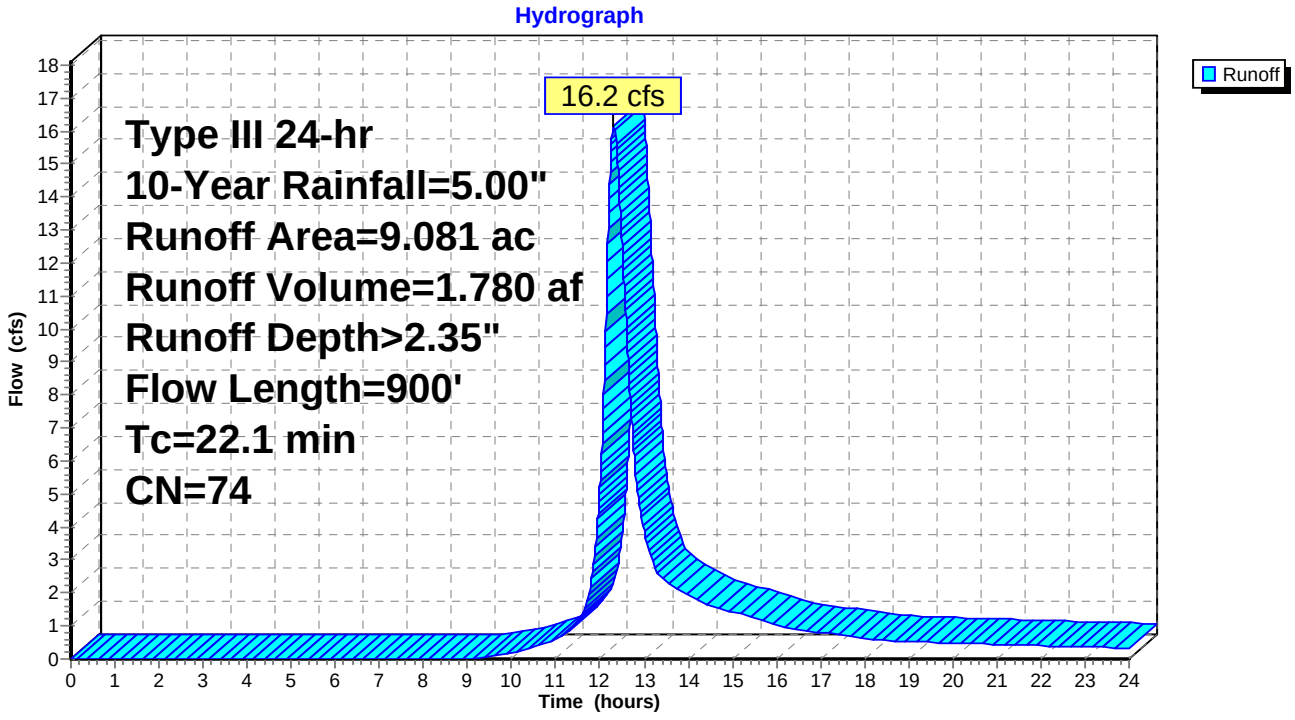
Runoff = 16.2 cfs @ 12.31 hrs, Volume= 1.780 af, Depth> 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 10-Year Rainfall=5.00"

	Area (ac)	CN	Description
	0.105	98	Unconnected roofs, HSG C
	0.523	70	Woods, Good, HSG C
	0.958	74	>75% Grass cover, Good, HSG C
	0.240	87	Dirt roads, HSG C
*	7.255	74	Solar Arrays, >75% Grass cover, Good, HSG C
	9.081	74	Weighted Average
	8.976		98.84% Pervious Area
	0.105		1.16% Impervious Area
	0.105		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0333	0.15		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
10.8	800	0.0312	1.24		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
22.1	900	Total			

Subcatchment 6S: DA-3



Summary for Subcatchment 12S: DA-2B

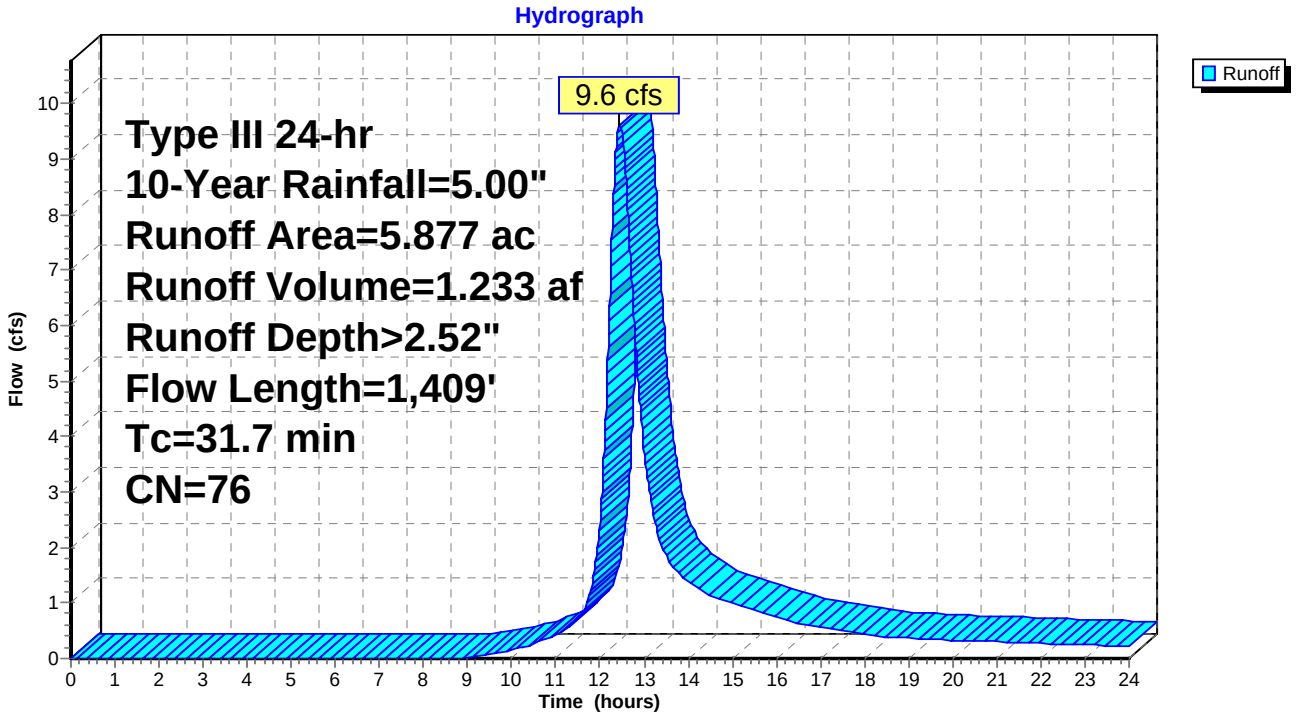
Runoff = 9.6 cfs @ 12.44 hrs, Volume= 1.233 af, Depth> 2.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 10-Year Rainfall=5.00"

	Area (ac)	CN	Description
	0.984	70	Woods, Good, HSG C
	0.027	98	Unconnected roofs, HSG C
	0.269	82	Farmsteads, HSG C
	1.131	81	Row crops, C + CR, Good, HSG C
	0.174	74	>75% Grass cover, Good, HSG C
*	3.006	74	Solar Arrays, >75% Grass cover, Good, HSG C
	0.286	87	Dirt roads, HSG C
	5.877	76	Weighted Average
	5.850		99.54% Pervious Area
	0.027		0.46% Impervious Area
	0.027		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	100	0.0200	0.12		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
3.9	230	0.0196	0.98		**Shallow Concentrated Flow, Grassed** Short Grass Pasture Kv= 7.0 fps
2.4	233	0.0327	1.63		**Shallow Concentrated Flow, Field** Cultivated Straight Rows Kv= 9.0 fps
2.1	151	0.0281	1.17		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
4.1	230	0.0348	0.93		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
1.2	106	0.0472	1.52		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
1.7	194	0.0773	1.95		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
0.3	47	0.1277	2.50		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
2.2	118	0.0169	0.91		**Shallow Concentrated Flow, Check Dam** Short Grass Pasture Kv= 7.0 fps
31.7	1,409	Total			

Subcatchment 12S: DA-2B



Summary for Pond 7P: Water Quality Basin #1

Inflow Area = 3.321 ac, 4.03% Impervious, Inflow Depth > 2.61" for 10-Year event
Inflow = 6.7 cfs @ 12.30 hrs, Volume= 0.723 af
Outflow = 6.7 cfs @ 12.30 hrs, Volume= 0.683 af, Atten= 0%, Lag= 0.2 min
Primary = 6.7 cfs @ 12.30 hrs, Volume= 0.683 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs / 2
Peak Elev= 393.07' @ 12.30 hrs Surf.Area= 2,115 sf Storage= 1,878 cf

Plug-Flow detention time= 41.0 min calculated for 0.683 af (94% of inflow)
Center-of-Mass det. time= 12.0 min (852.9 - 840.9)

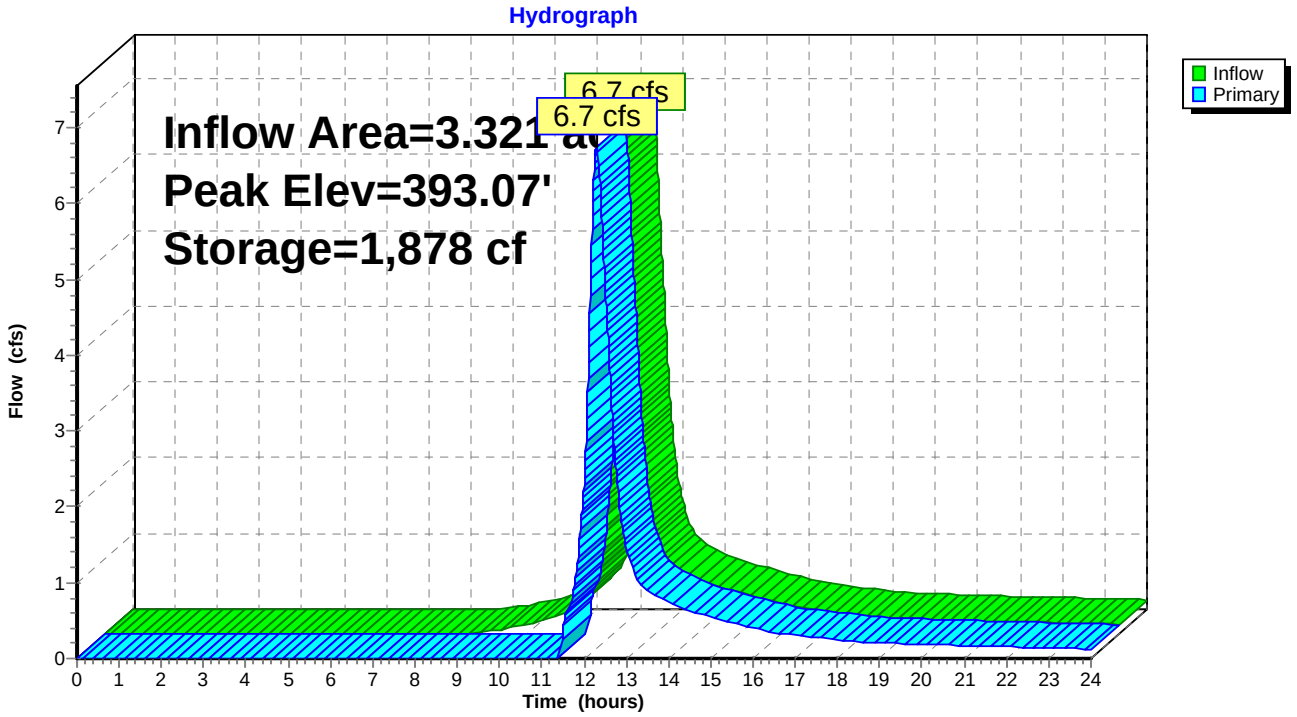
Volume	Invert	Avail.Storage	Storage Description
#1	392.00'	2,848 cf	**Basin (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
392.00	1,392	0	0
393.50	2,405	2,848	2,848

Device	Routing	Invert	Outlet Devices
#1	Primary	393.00'	**150.0' 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

Primary OutFlow Max=6.7 cfs @ 12.30 hrs HW=393.07' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 6.7 cfs @ 0.63 fps)

Pond 7P: Water Quality Basin #1



Stage-Area-Storage for Pond 7P: Water Quality Basin #1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
392.00	1,392	0
392.02	1,406	28
392.04	1,419	56
392.06	1,433	85
392.08	1,446	114
392.10	1,460	143
392.12	1,473	172
392.14	1,487	201
392.16	1,500	231
392.18	1,514	262
392.20	1,527	292
392.22	1,541	323
392.24	1,554	354
392.26	1,568	385
392.28	1,581	416
392.30	1,595	448
392.32	1,608	480
392.34	1,622	512
392.36	1,635	545
392.38	1,649	578
392.40	1,662	611
392.42	1,676	644
392.44	1,689	678
392.46	1,703	712
392.48	1,716	746
392.50	1,730	780
392.52	1,743	815
392.54	1,757	850
392.56	1,770	885
392.58	1,784	921
392.60	1,797	957
392.62	1,811	993
392.64	1,824	1,029
392.66	1,838	1,066
392.68	1,851	1,103
392.70	1,865	1,140
392.72	1,878	1,177
392.74	1,892	1,215
392.76	1,905	1,253
392.78	1,919	1,291
392.80	1,932	1,330
392.82	1,946	1,368
392.84	1,959	1,408
392.86	1,973	1,447
392.88	1,986	1,486
392.90	2,000	1,526
392.92	2,013	1,566
392.94	2,027	1,607
392.96	2,040	1,648
392.98	2,054	1,688
393.00	2,067	1,730
393.02	2,081	1,771
393.04	2,094	1,813
393.06	2,108	1,855
393.08	2,121	1,897
393.10	2,135	1,940
393.12	2,148	1,983
393.14	2,162	2,026
393.16	2,175	2,069
393.18	2,189	2,113
393.20	2,202	2,157
393.22	2,216	2,201
393.24	2,229	2,245
393.26	2,243	2,290
393.28	2,256	2,335
393.30	2,270	2,380
393.32	2,283	2,426
393.34	2,297	2,472
393.36	2,310	2,518
393.38	2,324	2,564
393.40	2,337	2,611
393.42	2,351	2,658
393.44	2,364	2,705
393.46	2,378	2,752
393.48	2,391	2,800
393.50	**2,405**	**2,848**

Summary for Pond 9P: Water Quality Basin #2

Inflow Area = 5.877 ac, 0.46% Impervious, Inflow Depth > 2.52" for 10-Year event
Inflow = 9.6 cfs @ 12.44 hrs, Volume= 1.233 af
Outflow = 9.6 cfs @ 12.45 hrs, Volume= 1.161 af, Atten= 0%, Lag= 0.4 min
Primary = 9.6 cfs @ 12.45 hrs, Volume= 1.161 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs / 2
Peak Elev= 387.08' @ 12.45 hrs Surf.Area= 3,574 sf Storage= 3,415 cf

Plug-Flow detention time= 42.4 min calculated for 1.160 af (94% of inflow)
Center-of-Mass det. time= 12.4 min (864.3 - 851.9)

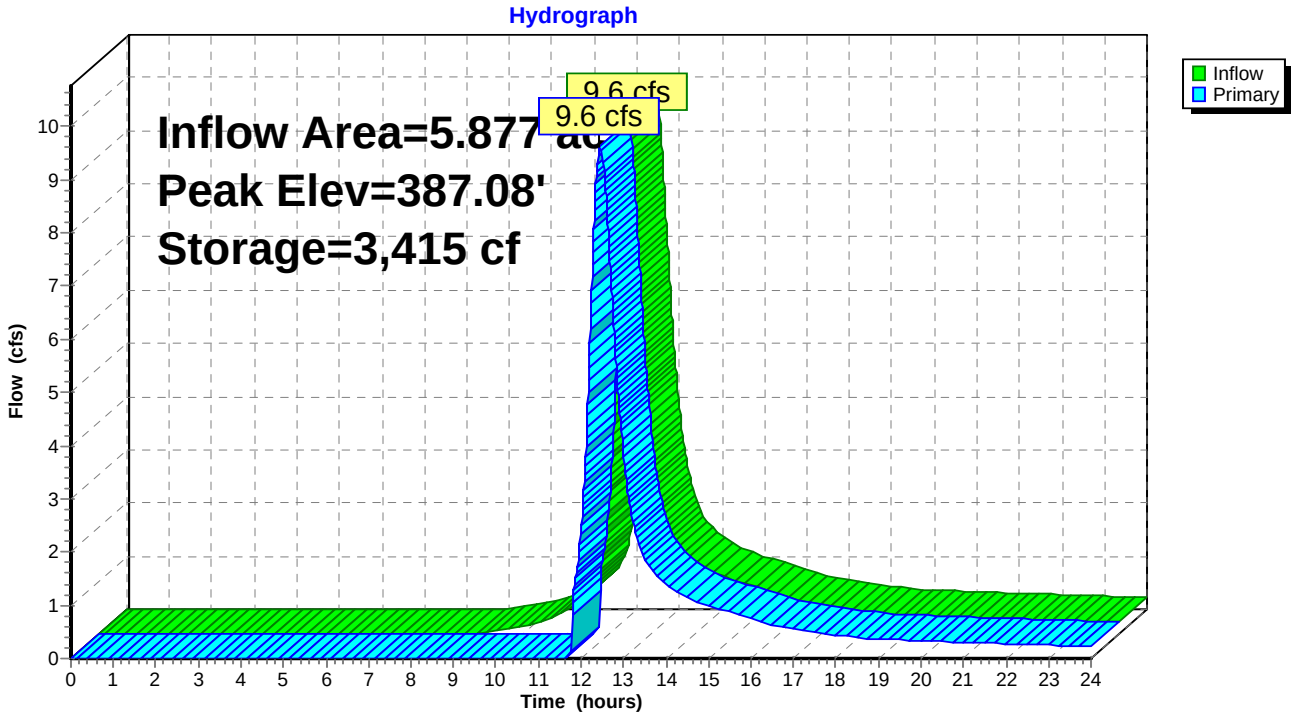
Volume	Invert	Avail.Storage	Storage Description
#1	386.00'	4,979 cf	**Basin (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
386.00	2,742	0	0
387.50	3,896	4,979	4,979

Device	Routing	Invert	Outlet Devices
#1	Primary	387.00'	**175.0' 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

Primary OutFlow Max=9.6 cfs @ 12.45 hrs HW=387.08' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 9.6 cfs @ 0.68 fps)

Pond 9P: Water Quality Basin #2



Stage-Area-Storage for Pond 9P: Water Quality Basin #2

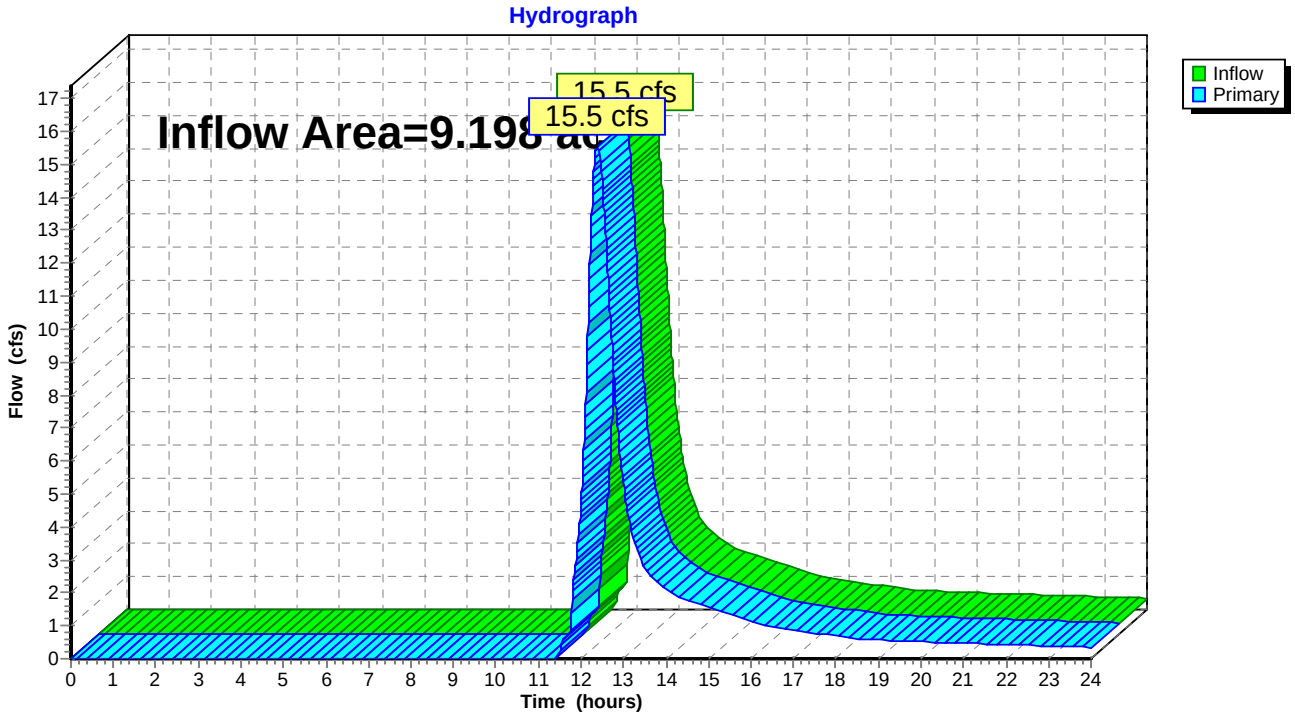
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
386.00	2,742	0
386.02	2,757	55
386.04	2,773	110
386.06	2,788	166
386.08	2,804	222
386.10	2,819	278
386.12	2,834	335
386.14	2,850	391
386.16	2,865	449
386.18	2,880	506
386.20	2,896	564
386.22	2,911	622
386.24	2,927	680
386.26	2,942	739
386.28	2,957	798
386.30	2,973	857
386.32	2,988	917
386.34	3,004	977
386.36	3,019	1,037
386.38	3,034	1,098
386.40	3,050	1,158
386.42	3,065	1,219
386.44	3,081	1,281
386.46	3,096	1,343
386.48	3,111	1,405
386.50	3,127	1,467
386.52	3,142	1,530
386.54	3,157	1,593
386.56	3,173	1,656
386.58	3,188	1,720
386.60	3,204	1,784
386.62	3,219	1,848
386.64	3,234	1,912
386.66	3,250	1,977
386.68	3,265	2,042
386.70	3,281	2,108
386.72	3,296	2,174
386.74	3,311	2,240
386.76	3,327	2,306
386.78	3,342	2,373
386.80	3,357	2,440
386.82	3,373	2,507
386.84	3,388	2,575
386.86	3,404	2,643
386.88	3,419	2,711
386.90	3,434	2,779
386.92	3,450	2,848
386.94	3,465	2,917
386.96	3,481	2,987
386.98	3,496	3,057
387.00	3,511	3,127
387.02	3,527	3,197
387.04	3,542	3,268
387.06	3,557	3,339
387.08	3,573	3,410
387.10	3,588	3,482
387.12	3,604	3,554
387.14	3,619	3,626
387.16	3,634	3,698
387.18	3,650	3,771
387.20	3,665	3,844
387.22	3,681	3,918
387.24	3,696	3,992
387.26	3,711	4,066
387.28	3,727	4,140
387.30	3,742	4,215
387.32	3,758	4,290
387.34	3,773	4,365
387.36	3,788	4,441
387.38	3,804	4,517
387.40	3,819	4,593
387.42	3,834	4,669
387.44	3,850	4,746
387.46	3,865	4,823
387.48	3,881	4,901
387.50	**3,896**	**4,979**

Summary for Link 2L: Sheet flow to West Wetlands

Inflow Area = 9.198 ac, 1.75% Impervious, Inflow Depth > 2.41" for 10-Year event
Inflow = 15.5 cfs @ 12.37 hrs, Volume= 1.844 af
Primary = 15.5 cfs @ 12.37 hrs, Volume= 1.844 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs

Link 2L: Sheet flow to West Wetlands

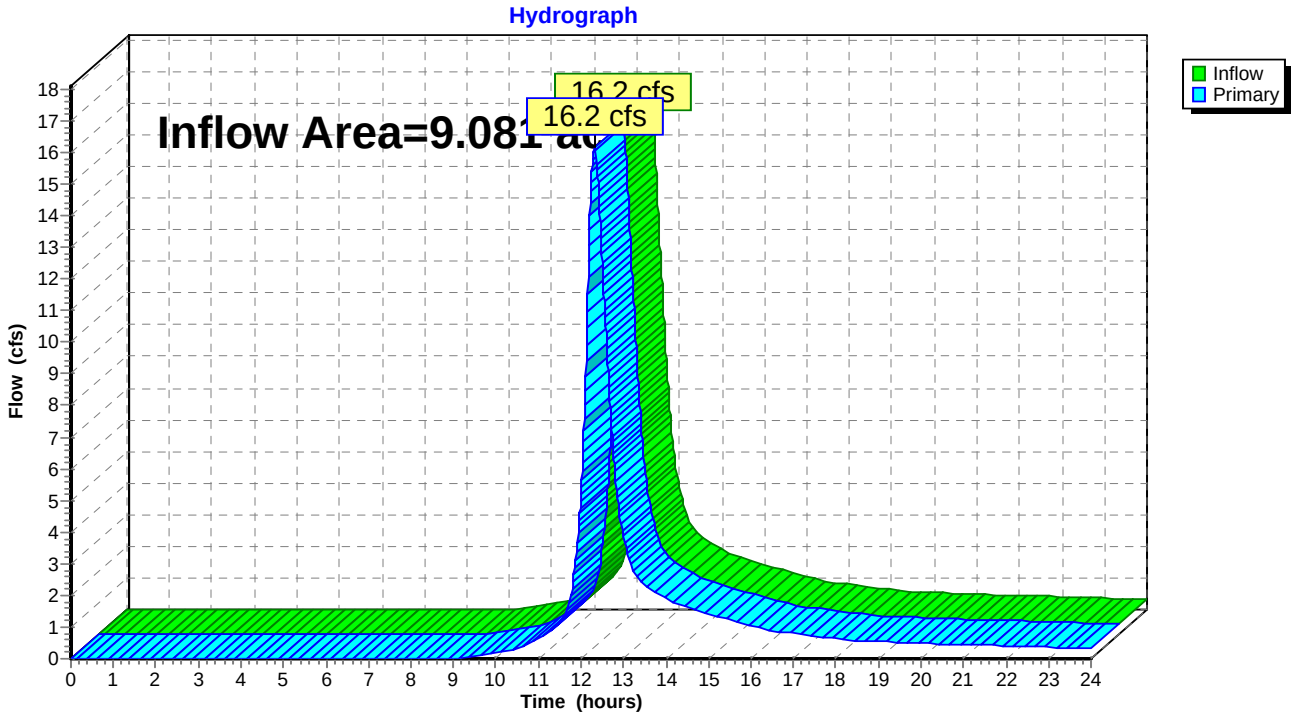


Summary for Link 5L: Sheet Flow to Stott Avenue

Inflow Area = 9.081 ac, 1.16% Impervious, Inflow Depth > 2.35" for 10-Year event
Inflow = 16.2 cfs @ 12.31 hrs, Volume= 1.780 af
Primary = 16.2 cfs @ 12.31 hrs, Volume= 1.780 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs

Link 5L: Sheet Flow to Stott Avenue

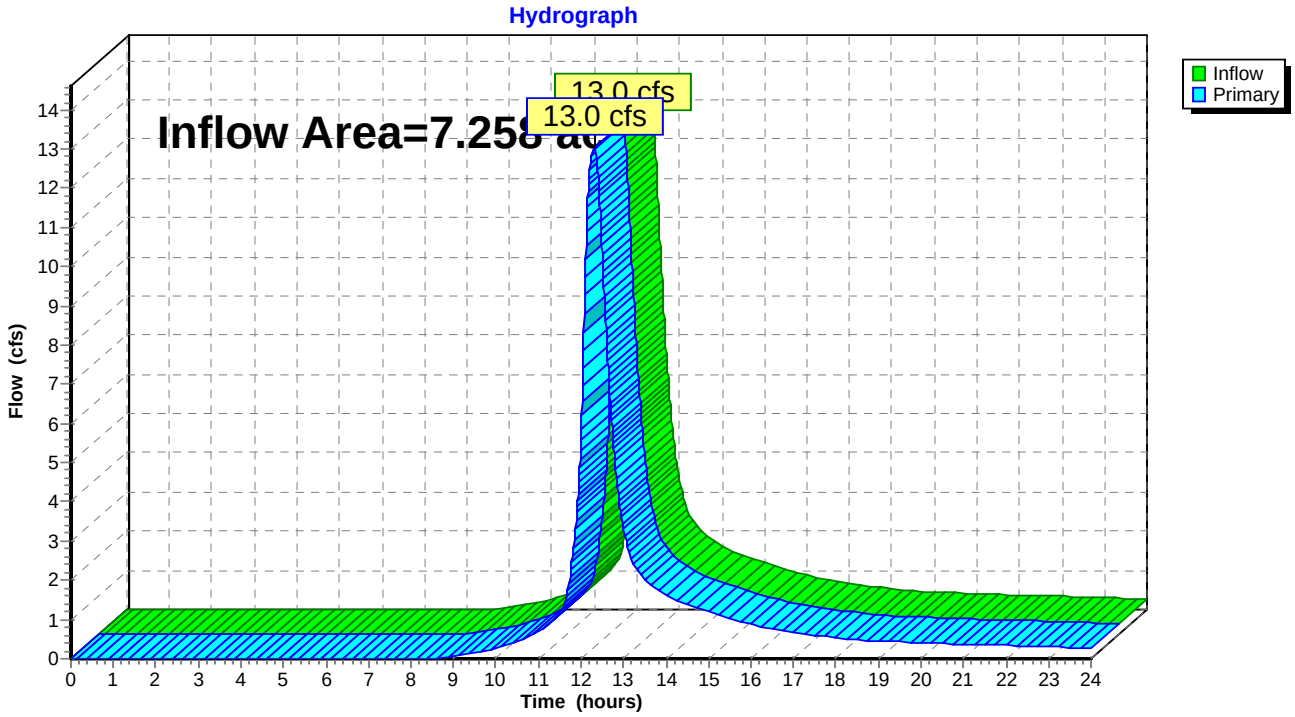


Summary for Link 6L: Sheet flow to North West

Inflow Area = 7.258 ac, 7.14% Impervious, Inflow Depth > 2.61" for 10-Year event
Inflow = 13.0 cfs @ 12.31 hrs, Volume= 1.579 af
Primary = 13.0 cfs @ 12.31 hrs, Volume= 1.579 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs

Link 6L: Sheet flow to North West



Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: DA-1A Runoff Area=5.321 ac 9.74% Impervious Runoff Depth>3.20"
Flow Length=943' Tc=24.8 min UI Adjusted CN=77 Runoff=12.3 cfs 1.420 af

Subcatchment 2S: DA-1B Runoff Area=1.937 ac 0.00% Impervious Runoff Depth>3.21"
Flow Length=712' Tc=10.0 min CN=77 Runoff=6.4 cfs 0.518 af

Subcatchment 3S: DA-2A Runoff Area=3.321 ac 4.03% Impervious Runoff Depth>3.20"
Flow Length=993' Tc=21.0 min UI Adjusted CN=77 Runoff=8.3 cfs 0.887 af

Subcatchment 6S: DA-3 Runoff Area=9.081 ac 1.16% Impervious Runoff Depth>2.92"
Flow Length=900' Tc=22.1 min CN=74 Runoff=20.2 cfs 2.210 af

Subcatchment 12S: DA-2B Runoff Area=5.877 ac 0.46% Impervious Runoff Depth>3.10"
Flow Length=1,409' Tc=31.7 min CN=76 Runoff=11.9 cfs 1.519 af

Pond 7P: Water Quality Basin #1 Peak Elev=393.08' Storage=1,901 cf Inflow=8.3 cfs 0.887 af
Outflow=8.3 cfs 0.847 af

Pond 9P: Water Quality Basin #2 Peak Elev=387.09' Storage=3,459 cf Inflow=11.9 cfs 1.519 af
Outflow=11.9 cfs 1.447 af

Link 2L: Sheet flow to West Wetlands Inflow=19.2 cfs 2.294 af
Primary=19.2 cfs 2.294 af

Link 5L: Sheet Flow to Stott Avenue Inflow=20.2 cfs 2.210 af
Primary=20.2 cfs 2.210 af

Link 6L: Sheet flow to North West Inflow=16.0 cfs 1.938 af
Primary=16.0 cfs 1.938 af

Total Runoff Area = 25.537 ac Runoff Volume = 6.555 af Average Runoff Depth = 3.08"
96.93% Pervious = 24.753 ac 3.07% Impervious = 0.784 ac

Summary for Subcatchment 1S: DA-1A

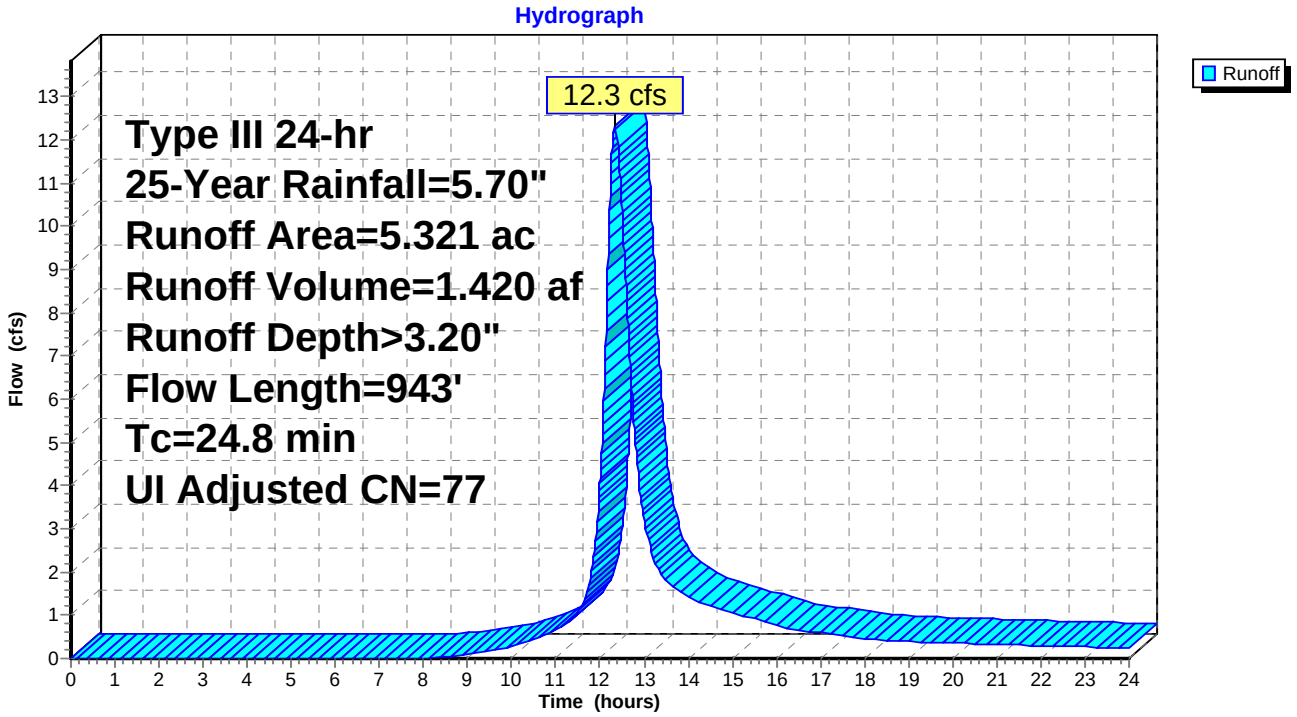
Runoff = 12.3 cfs @ 12.34 hrs, Volume= 1.420 af, Depth> 3.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (ac)	CN	Adj	Description
	0.518	98		Unconnected roofs, HSG C
	1.337	74		>75% Grass cover, Good, HSG C
*	2.240	74		Solar Arrays, >75% Grass cover, Good, HSG C
	0.331	74		Pasture/grassland/range, Good, HSG C
	0.895	87		Dirt roads, HSG C
	5.321	79	77	Weighted Average, UI Adjusted
	4.803			90.26% Pervious Area
	0.518			9.74% Impervious Area
	0.518			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0233	0.13		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
2.5	138	0.0179	0.94		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
1.1	96	0.0417	1.43		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
3.3	218	0.0252	1.11		**Shallow Concentrated Flow, Pasture** Short Grass Pasture Kv= 7.0 fps
4.0	281	0.0285	1.18		**Shallow Concentrated Flow, Check Dam** Short Grass Pasture Kv= 7.0 fps
0.9	110	0.0909	2.11		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
24.8	943	Total			

Subcatchment 1S: DA-1A



Summary for Subcatchment 2S: DA-1B

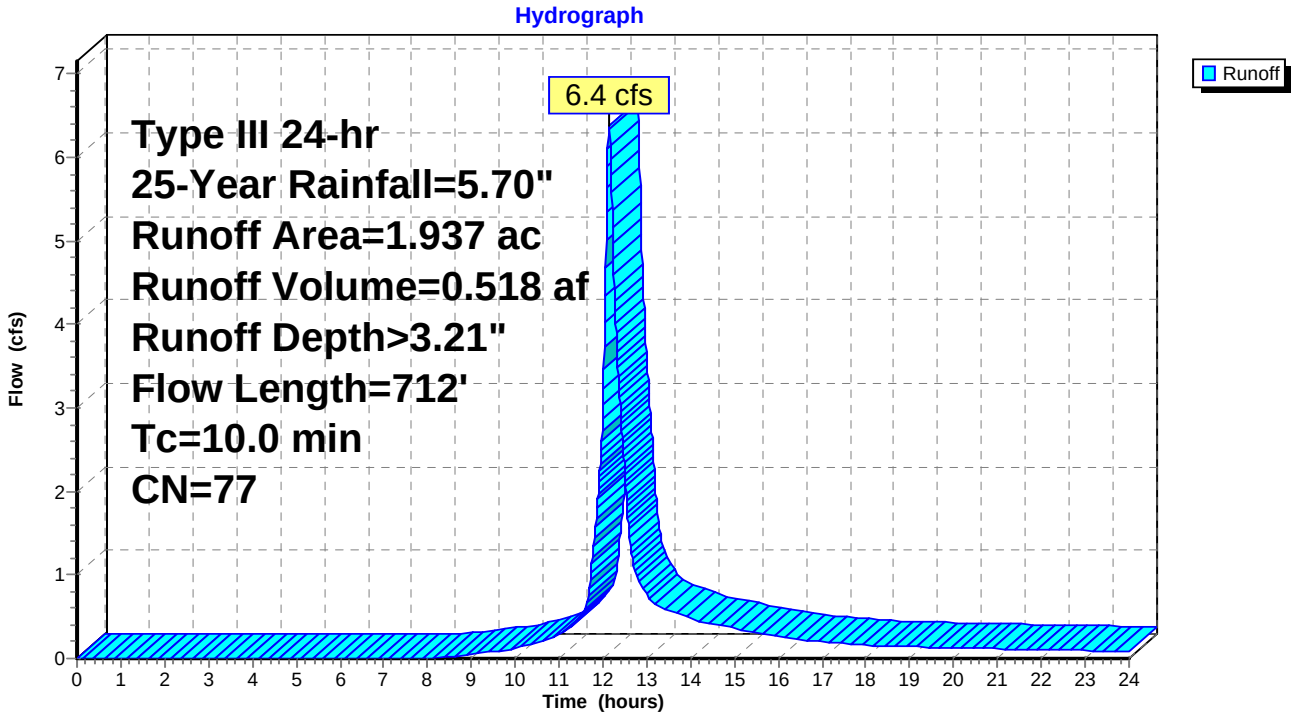
Runoff = 6.4 cfs @ 12.14 hrs, Volume= 0.518 af, Depth> 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 25-Year Rainfall=5.70"

Area (ac)	CN	Description
1.231	74	>75% Grass cover, Good, HSG C
0.531	82	Farmsteads, HSG C
0.175	87	Dirt roads, HSG C
1.937	77	Weighted Average
1.937		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		**Sheet Flow, Dirt Drive** Smooth surfaces n= 0.011 P2= 3.40"
0.8	124	0.0242	2.50		**Shallow Concentrated Flow, Dirt Drive** Unpaved Kv= 16.1 fps
0.2	60	0.1000	5.09		**Shallow Concentrated Flow, Dirt Drive** Unpaved Kv= 16.1 fps
3.7	307	0.0391	1.38		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
0.7	121	0.1488	2.70		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
7.0	712	Total, Increased to minimum Tc = 10.0 min			

Subcatchment 2S: DA-1B



Summary for Subcatchment 3S: DA-2A

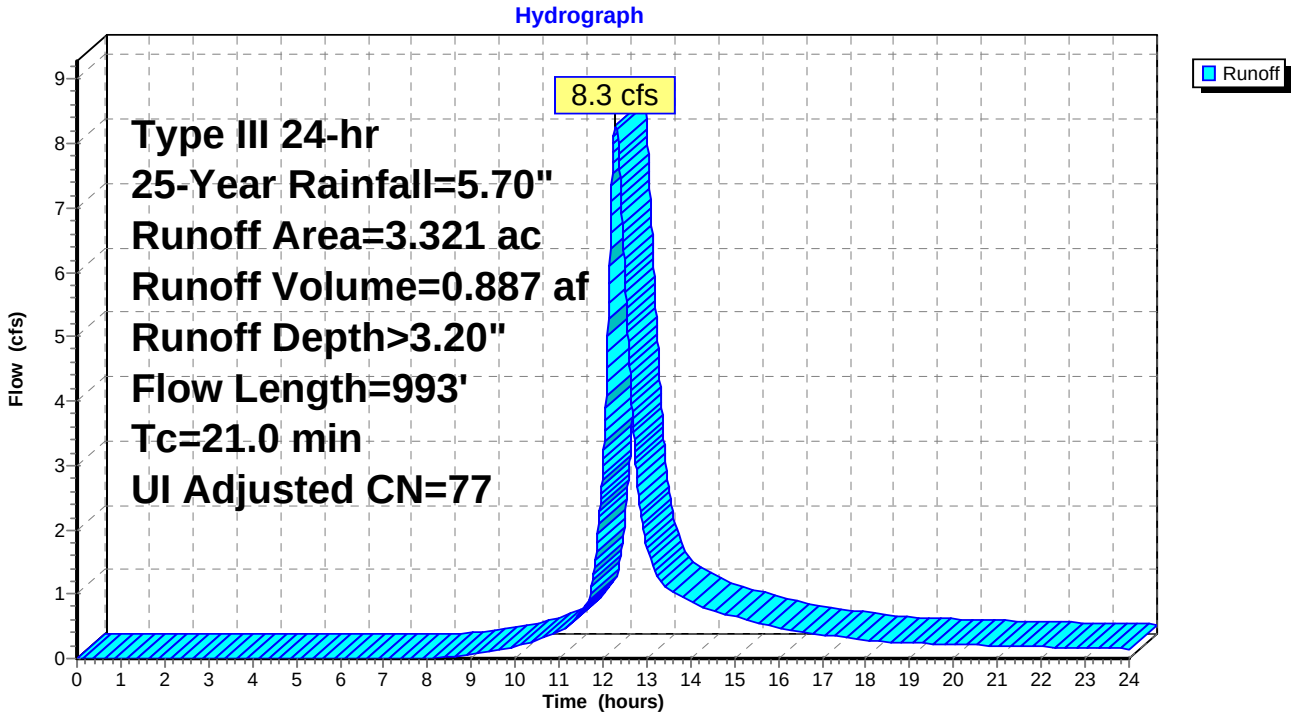
Runoff = 8.3 cfs @ 12.29 hrs, Volume= 0.887 af, Depth> 3.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (ac)	CN	Adj	Description
	0.229	70		Woods, Good, HSG C
	0.134	98		Unconnected roofs, HSG C
	0.720	82		Farmsteads, HSG C
*	1.865	74		Solar Arrays, >75% Grass cover, Good, HSG C
	0.373	87		Dirt roads, HSG C
	3.321	78	77	Weighted Average, UI Adjusted
	3.187			95.97% Pervious Area
	0.134			4.03% Impervious Area
	0.134			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	66	0.0189	0.11		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
0.4	34	0.0267	1.28		**Sheet Flow, Dirt** Smooth surfaces n= 0.011 P2= 3.40"
0.5	109	0.0619	4.01		**Shallow Concentrated Flow, Dirt** Unpaved Kv= 16.1 fps
3.9	252	0.0238	1.08		**Shallow Concentrated Flow, Grassed** Short Grass Pasture Kv= 7.0 fps
2.0	114	0.0351	0.94		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
3.2	296	0.0473	1.52		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
0.8	122	0.1475	2.69		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
21.0	993	Total			

Subcatchment 3S: DA-2A



Summary for Subcatchment 6S: DA-3

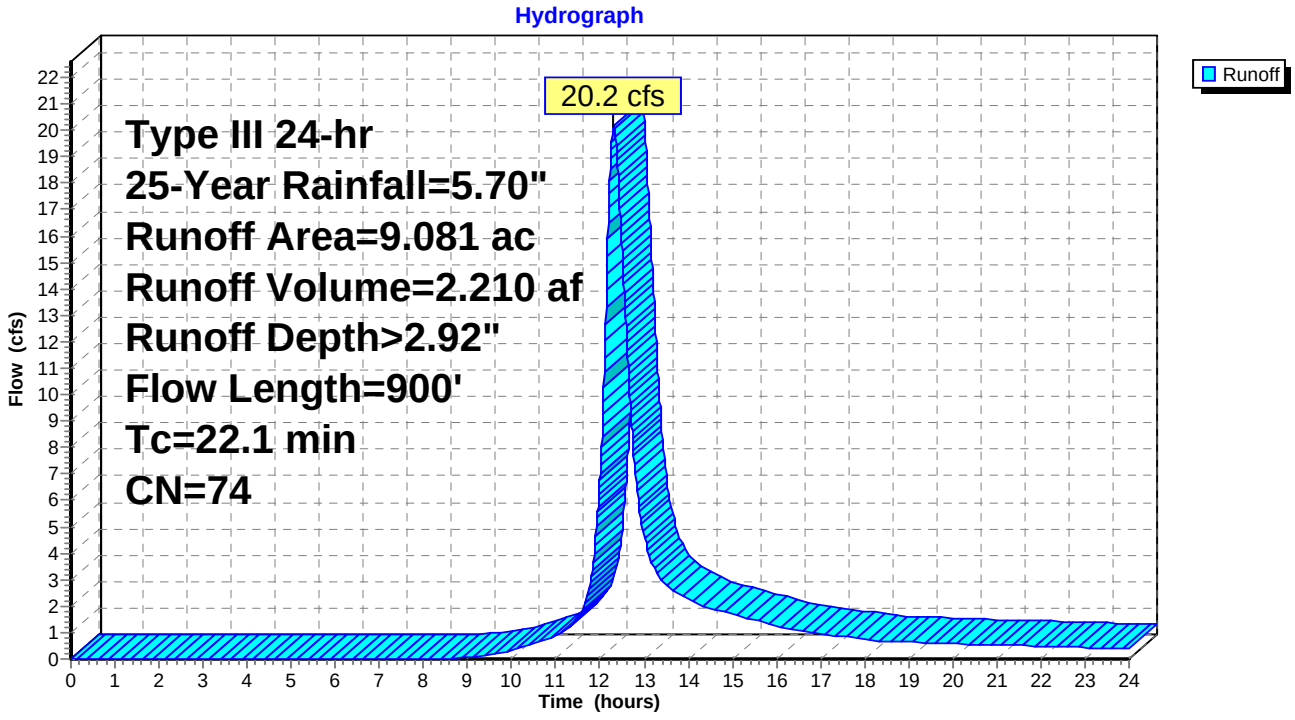
Runoff = 20.2 cfs @ 12.30 hrs, Volume= 2.210 af, Depth> 2.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (ac)	CN	Description
	0.105	98	Unconnected roofs, HSG C
	0.523	70	Woods, Good, HSG C
	0.958	74	>75% Grass cover, Good, HSG C
	0.240	87	Dirt roads, HSG C
*	7.255	74	Solar Arrays, >75% Grass cover, Good, HSG C
	9.081	74	Weighted Average
	8.976		98.84% Pervious Area
	0.105		1.16% Impervious Area
	0.105		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0333	0.15		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
10.8	800	0.0312	1.24		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
22.1	900	Total			

Subcatchment 6S: DA-3



Summary for Subcatchment 12S: DA-2B

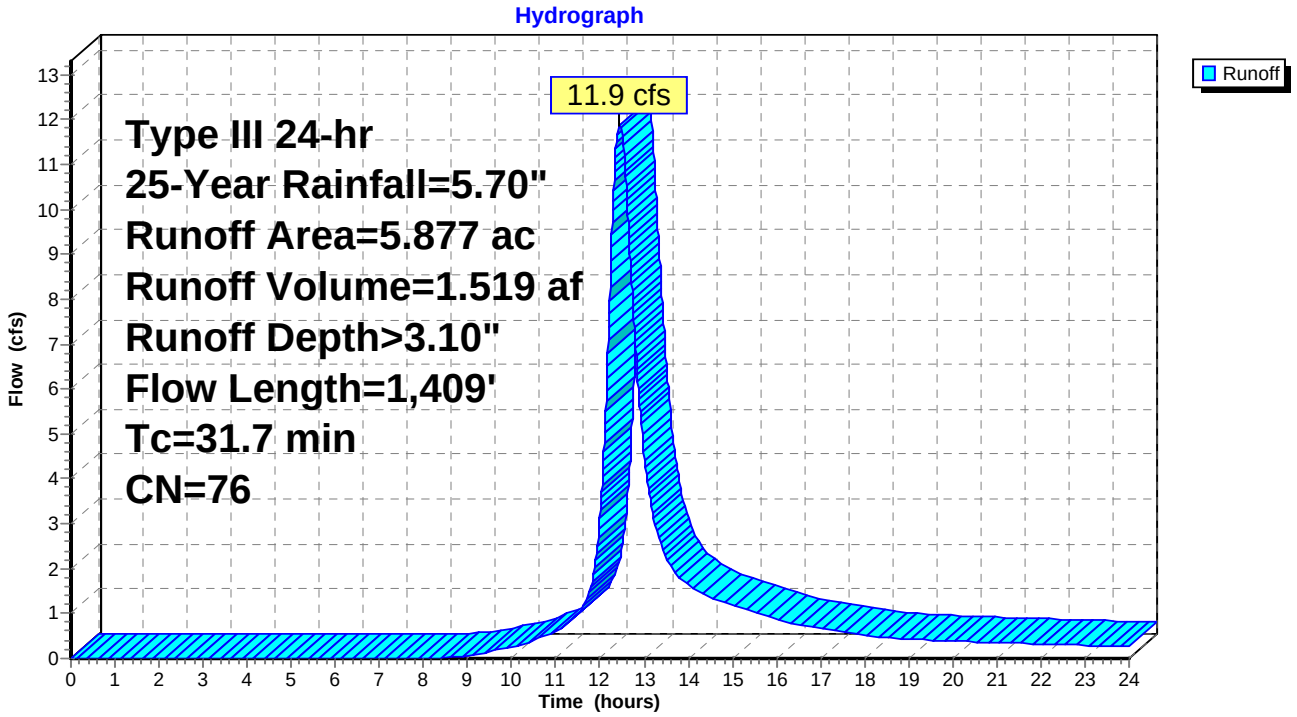
Runoff = 11.9 cfs @ 12.44 hrs, Volume= 1.519 af, Depth> 3.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 25-Year Rainfall=5.70"

	Area (ac)	CN	Description
	0.984	70	Woods, Good, HSG C
	0.027	98	Unconnected roofs, HSG C
	0.269	82	Farmsteads, HSG C
	1.131	81	Row crops, C + CR, Good, HSG C
	0.174	74	>75% Grass cover, Good, HSG C
*	3.006	74	Solar Arrays, >75% Grass cover, Good, HSG C
	0.286	87	Dirt roads, HSG C
	5.877	76	Weighted Average
	5.850		99.54% Pervious Area
	0.027		0.46% Impervious Area
	0.027		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	100	0.0200	0.12		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
3.9	230	0.0196	0.98		**Shallow Concentrated Flow, Grassed** Short Grass Pasture Kv= 7.0 fps
2.4	233	0.0327	1.63		**Shallow Concentrated Flow, Field** Cultivated Straight Rows Kv= 9.0 fps
2.1	151	0.0281	1.17		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
4.1	230	0.0348	0.93		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
1.2	106	0.0472	1.52		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
1.7	194	0.0773	1.95		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
0.3	47	0.1277	2.50		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
2.2	118	0.0169	0.91		**Shallow Concentrated Flow, Check Dam** Short Grass Pasture Kv= 7.0 fps
31.7	1,409	Total			

Subcatchment 12S: DA-2B



Summary for Pond 7P: Water Quality Basin #1

Inflow Area = 3.321 ac, 4.03% Impervious, Inflow Depth > 3.20" for 25-Year event
Inflow = 8.3 cfs @ 12.29 hrs, Volume= 0.887 af
Outflow = 8.3 cfs @ 12.30 hrs, Volume= 0.847 af, Atten= 0%, Lag= 0.2 min
Primary = 8.3 cfs @ 12.30 hrs, Volume= 0.847 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs / 2
Peak Elev= 393.08' @ 12.30 hrs Surf.Area= 2,122 sf Storage= 1,901 cf

Plug-Flow detention time= 35.1 min calculated for 0.847 af (95% of inflow)
Center-of-Mass det. time= 10.8 min (846.0 - 835.1)

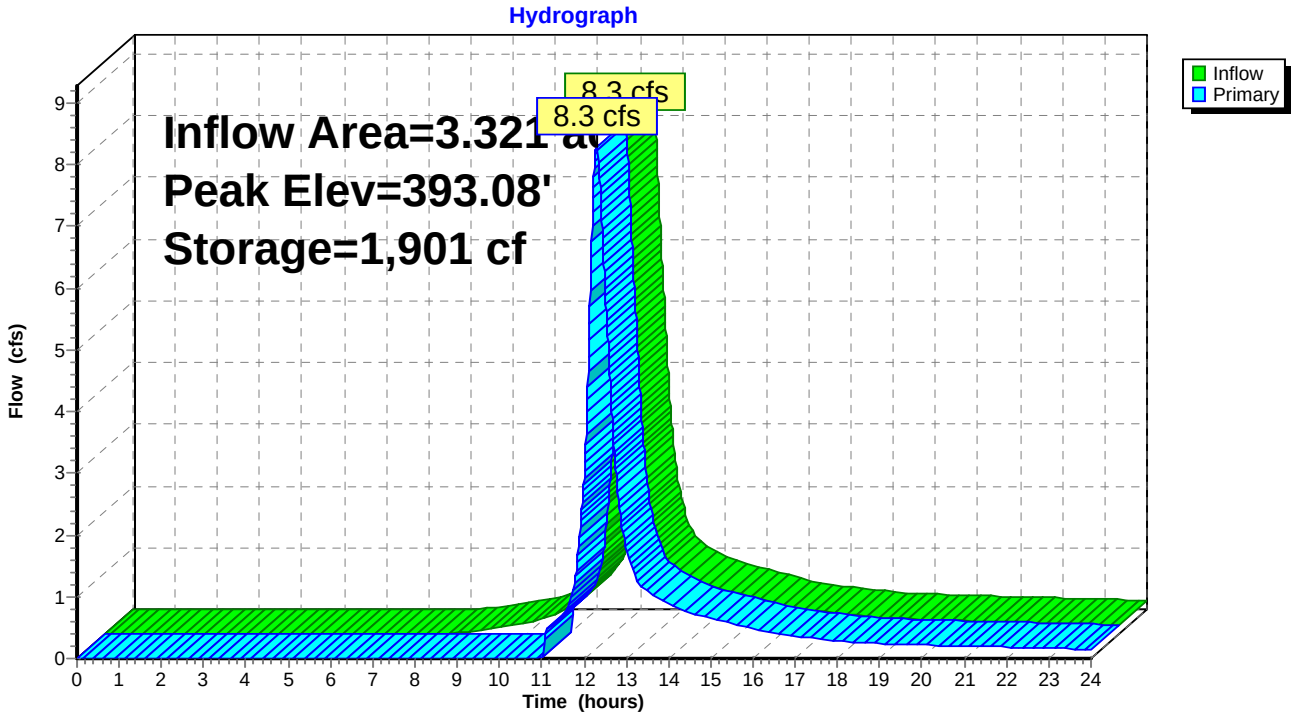
Volume	Invert	Avail.Storage	Storage Description
#1	392.00'	2,848 cf	**Basin (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
392.00	1,392	0	0
393.50	2,405	2,848	2,848

Device	Routing	Invert	Outlet Devices
#1	Primary	393.00'	**150.0' 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

Primary OutFlow Max=8.3 cfs @ 12.30 hrs HW=393.08' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 8.3 cfs @ 0.68 fps)

Pond 7P: Water Quality Basin #1



Stage-Area-Storage for Pond 7P: Water Quality Basin #1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
392.00	1,392	0
392.02	1,406	28
392.04	1,419	56
392.06	1,433	85
392.08	1,446	114
392.10	1,460	143
392.12	1,473	172
392.14	1,487	201
392.16	1,500	231
392.18	1,514	262
392.20	1,527	292
392.22	1,541	323
392.24	1,554	354
392.26	1,568	385
392.28	1,581	416
392.30	1,595	448
392.32	1,608	480
392.34	1,622	512
392.36	1,635	545
392.38	1,649	578
392.40	1,662	611
392.42	1,676	644
392.44	1,689	678
392.46	1,703	712
392.48	1,716	746
392.50	1,730	780
392.52	1,743	815
392.54	1,757	850
392.56	1,770	885
392.58	1,784	921
392.60	1,797	957
392.62	1,811	993
392.64	1,824	1,029
392.66	1,838	1,066
392.68	1,851	1,103
392.70	1,865	1,140
392.72	1,878	1,177
392.74	1,892	1,215
392.76	1,905	1,253
392.78	1,919	1,291
392.80	1,932	1,330
392.82	1,946	1,368
392.84	1,959	1,408
392.86	1,973	1,447
392.88	1,986	1,486
392.90	2,000	1,526
392.92	2,013	1,566
392.94	2,027	1,607
392.96	2,040	1,648
392.98	2,054	1,688
393.00	2,067	1,730
393.02	2,081	1,771
393.04	2,094	1,813
393.06	2,108	1,855
393.08	2,121	1,897
393.10	2,135	1,940
393.12	2,148	1,983
393.14	2,162	2,026
393.16	2,175	2,069
393.18	2,189	2,113
393.20	2,202	2,157
393.22	2,216	2,201
393.24	2,229	2,245
393.26	2,243	2,290
393.28	2,256	2,335
393.30	2,270	2,380
393.32	2,283	2,426
393.34	2,297	2,472
393.36	2,310	2,518
393.38	2,324	2,564
393.40	2,337	2,611
393.42	2,351	2,658
393.44	2,364	2,705
393.46	2,378	2,752
393.48	2,391	2,800
393.50	**2,405**	**2,848**

Summary for Pond 9P: Water Quality Basin #2

Inflow Area = 5.877 ac, 0.46% Impervious, Inflow Depth > 3.10" for 25-Year event
Inflow = 11.9 cfs @ 12.44 hrs, Volume= 1.519 af
Outflow = 11.9 cfs @ 12.44 hrs, Volume= 1.447 af, Atten= 0%, Lag= 0.4 min
Primary = 11.9 cfs @ 12.44 hrs, Volume= 1.447 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs / 2
Peak Elev= 387.09' @ 12.44 hrs Surf.Area= 3,583 sf Storage= 3,459 cf

Plug-Flow detention time= 36.2 min calculated for 1.446 af (95% of inflow)
Center-of-Mass det. time= 11.1 min (857.2 - 846.1)

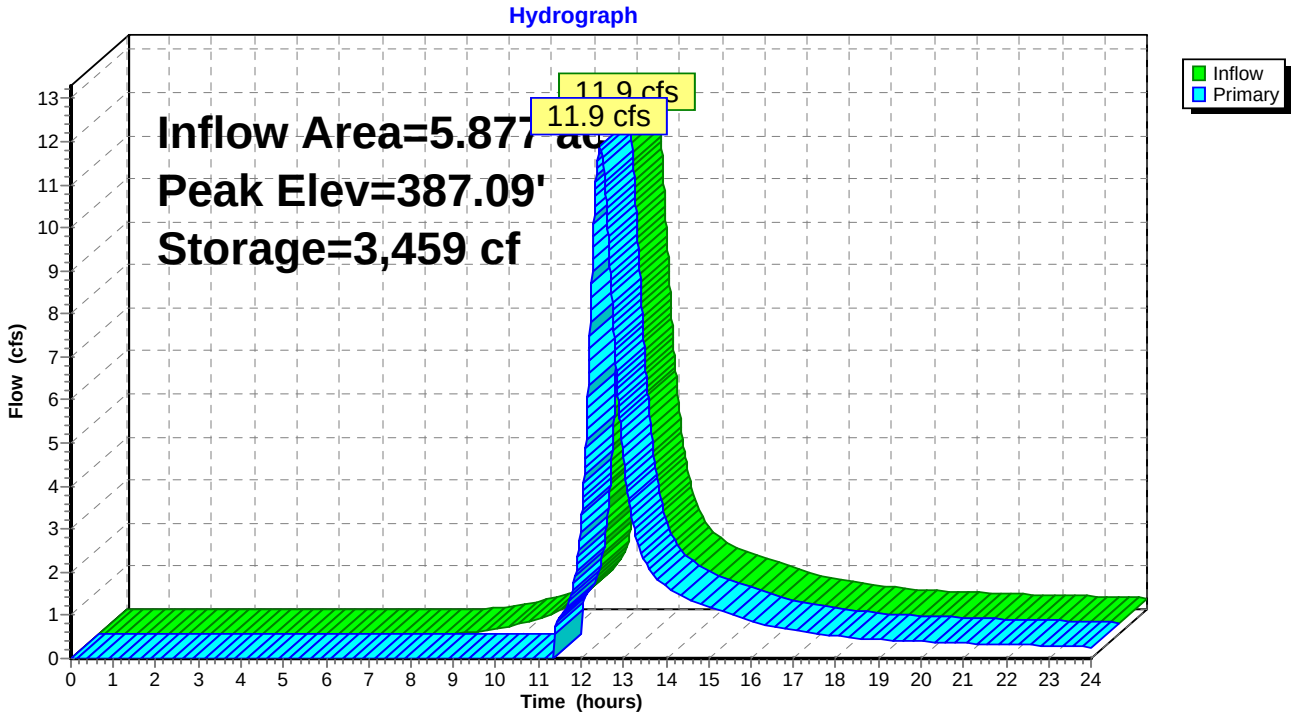
Volume	Invert	Avail.Storage	Storage Description
#1	386.00'	4,979 cf	**Basin (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
386.00	2,742	0	0
387.50	3,896	4,979	4,979

Device	Routing	Invert	Outlet Devices
#1	Primary	387.00'	**175.0' 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

Primary OutFlow Max=11.9 cfs @ 12.44 hrs HW=387.09' TW=0.00' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 11.9 cfs @ 0.72 fps)

Pond 9P: Water Quality Basin #2



Stage-Area-Storage for Pond 9P: Water Quality Basin #2

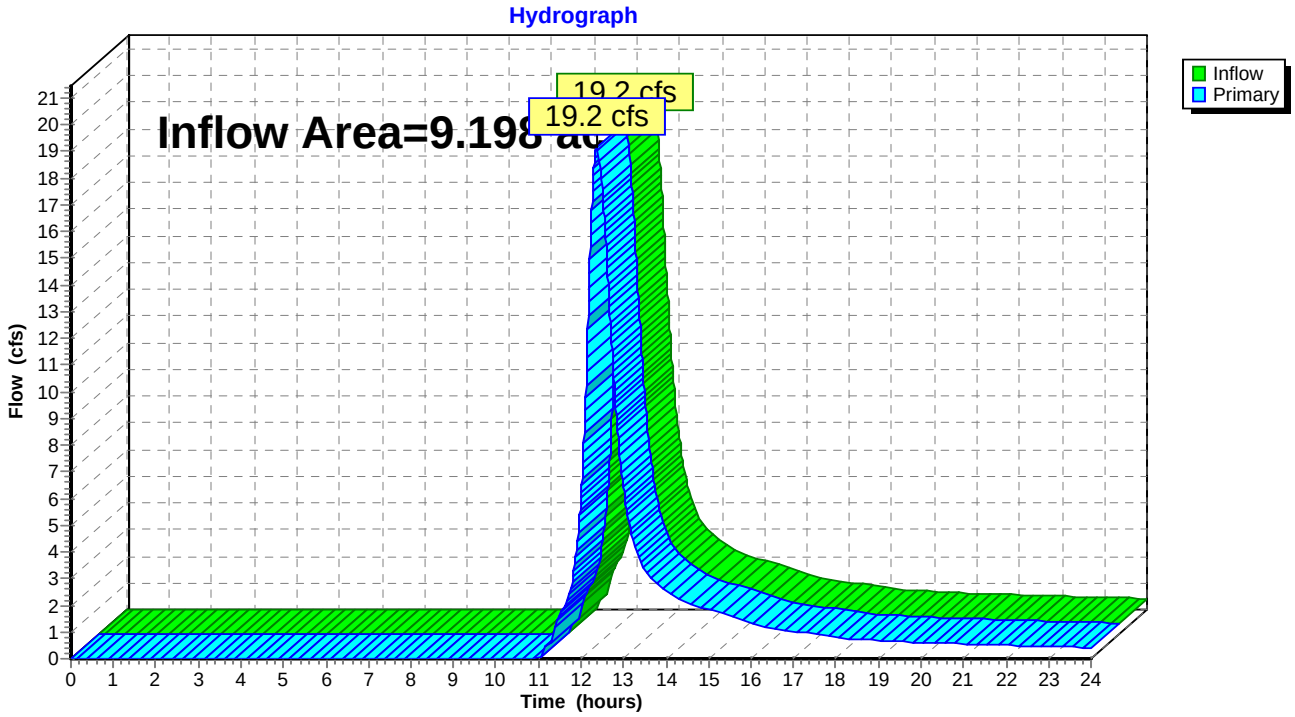
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
386.00	2,742	0
386.02	2,757	55
386.04	2,773	110
386.06	2,788	166
386.08	2,804	222
386.10	2,819	278
386.12	2,834	335
386.14	2,850	391
386.16	2,865	449
386.18	2,880	506
386.20	2,896	564
386.22	2,911	622
386.24	2,927	680
386.26	2,942	739
386.28	2,957	798
386.30	2,973	857
386.32	2,988	917
386.34	3,004	977
386.36	3,019	1,037
386.38	3,034	1,098
386.40	3,050	1,158
386.42	3,065	1,219
386.44	3,081	1,281
386.46	3,096	1,343
386.48	3,111	1,405
386.50	3,127	1,467
386.52	3,142	1,530
386.54	3,157	1,593
386.56	3,173	1,656
386.58	3,188	1,720
386.60	3,204	1,784
386.62	3,219	1,848
386.64	3,234	1,912
386.66	3,250	1,977
386.68	3,265	2,042
386.70	3,281	2,108
386.72	3,296	2,174
386.74	3,311	2,240
386.76	3,327	2,306
386.78	3,342	2,373
386.80	3,357	2,440
386.82	3,373	2,507
386.84	3,388	2,575
386.86	3,404	2,643
386.88	3,419	2,711
386.90	3,434	2,779
386.92	3,450	2,848
386.94	3,465	2,917
386.96	3,481	2,987
386.98	3,496	3,057
387.00	3,511	3,127
387.02	3,527	3,197
387.04	3,542	3,268
387.06	3,557	3,339
387.08	3,573	3,410
387.10	3,588	3,482
387.12	3,604	3,554
387.14	3,619	3,626
387.16	3,634	3,698
387.18	3,650	3,771
387.20	3,665	3,844
387.22	3,681	3,918
387.24	3,696	3,992
387.26	3,711	4,066
387.28	3,727	4,140
387.30	3,742	4,215
387.32	3,758	4,290
387.34	3,773	4,365
387.36	3,788	4,441
387.38	3,804	4,517
387.40	3,819	4,593
387.42	3,834	4,669
387.44	3,850	4,746
387.46	3,865	4,823
387.48	3,881	4,901
387.50	**3,896**	**4,979**

Summary for Link 2L: Sheet flow to West Wetlands

Inflow Area = 9.198 ac, 1.75% Impervious, Inflow Depth > 2.99" for 25-Year event
Inflow = 19.2 cfs @ 12.37 hrs, Volume= 2.294 af
Primary = 19.2 cfs @ 12.37 hrs, Volume= 2.294 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs

Link 2L: Sheet flow to West Wetlands

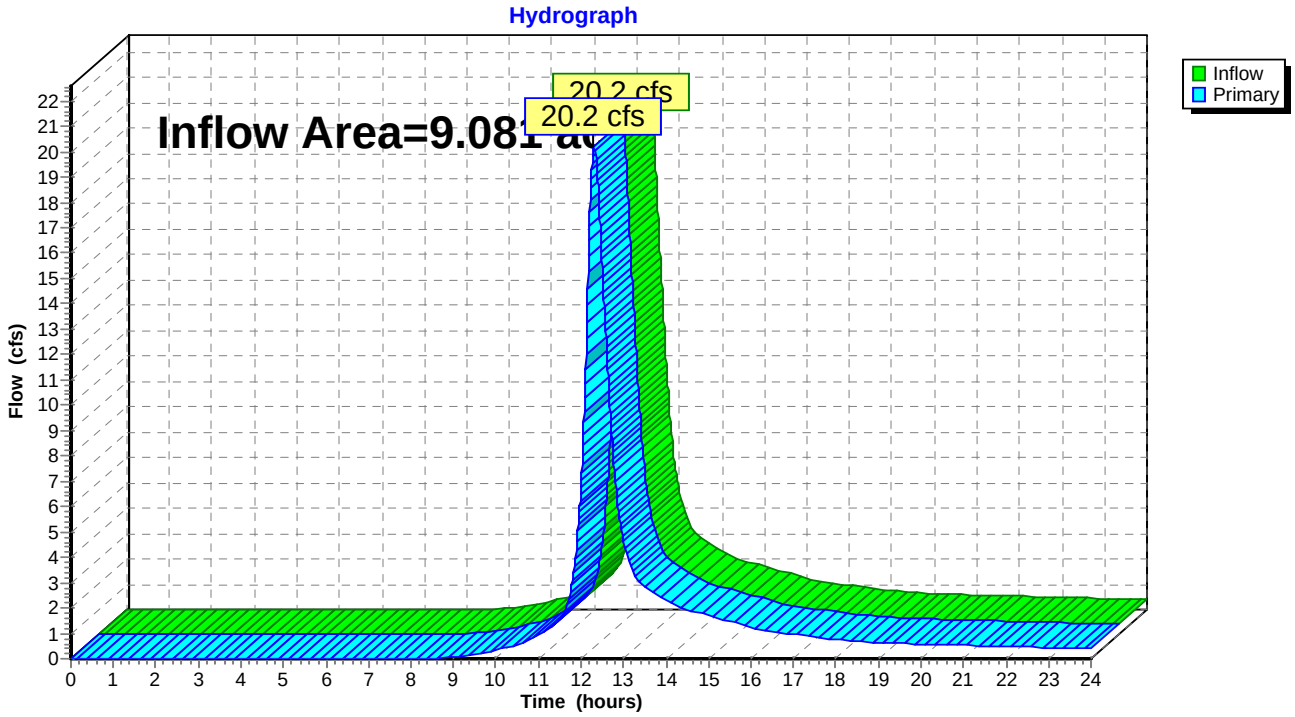


Summary for Link 5L: Sheet Flow to Stott Avenue

Inflow Area = 9.081 ac, 1.16% Impervious, Inflow Depth > 2.92" for 25-Year event
Inflow = 20.2 cfs @ 12.30 hrs, Volume= 2.210 af
Primary = 20.2 cfs @ 12.30 hrs, Volume= 2.210 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs

Link 5L: Sheet Flow to Stott Avenue

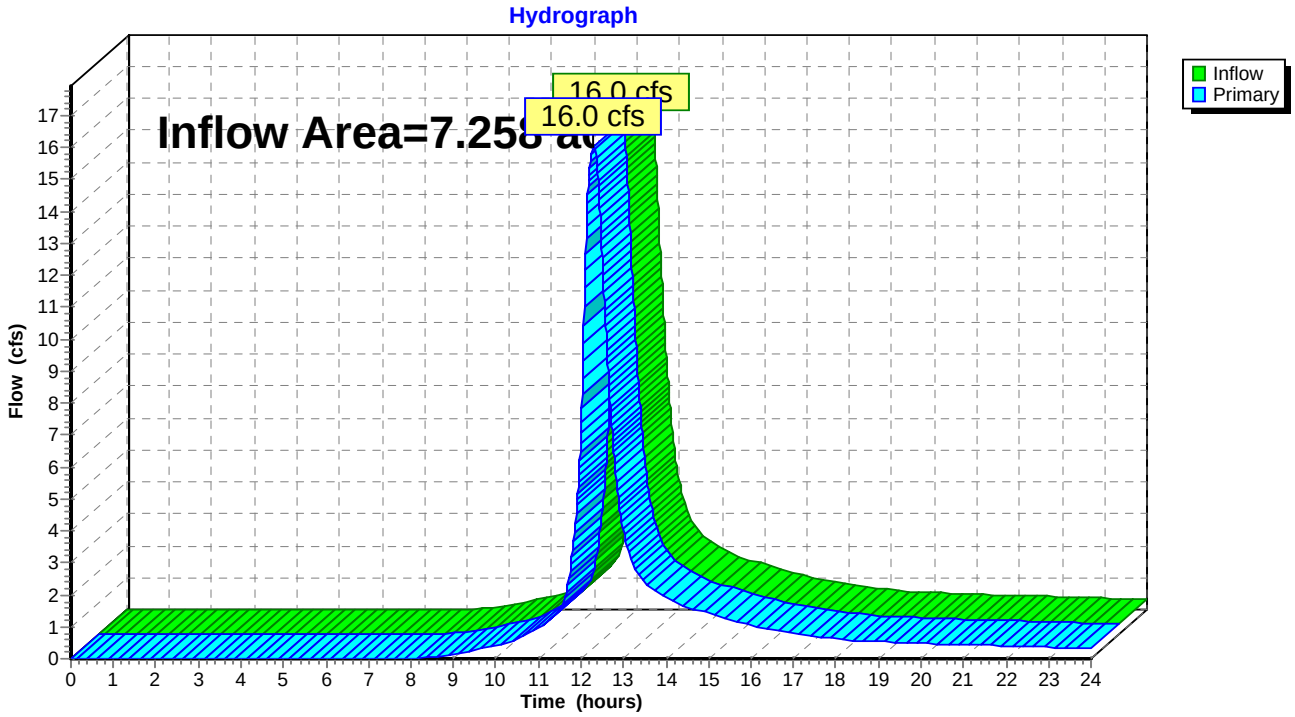


Summary for Link 6L: Sheet flow to North West

Inflow Area = 7.258 ac, 7.14% Impervious, Inflow Depth > 3.20" for 25-Year event
Inflow = 16.0 cfs @ 12.30 hrs, Volume= 1.938 af
Primary = 16.0 cfs @ 12.30 hrs, Volume= 1.938 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs

Link 6L: Sheet flow to North West



Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: DA-1A Runoff Area=5.321 ac 9.74% Impervious Runoff Depth>3.72"
Flow Length=943' Tc=24.8 min UI Adjusted CN=77 Runoff=14.4 cfs 1.651 af

Subcatchment 2S: DA-1B Runoff Area=1.937 ac 0.00% Impervious Runoff Depth>3.74"
Flow Length=712' Tc=10.0 min CN=77 Runoff=7.4 cfs 0.603 af

Subcatchment 3S: DA-2A Runoff Area=3.321 ac 4.03% Impervious Runoff Depth>3.73"
Flow Length=993' Tc=21.0 min UI Adjusted CN=77 Runoff=9.6 cfs 1.031 af

Subcatchment 6S: DA-3 Runoff Area=9.081 ac 1.16% Impervious Runoff Depth>3.42"
Flow Length=900' Tc=22.1 min CN=74 Runoff=23.7 cfs 2.590 af

Subcatchment 12S: DA-2B Runoff Area=5.877 ac 0.46% Impervious Runoff Depth>3.62"
Flow Length=1,409' Tc=31.7 min CN=76 Runoff=13.9 cfs 1.771 af

Pond 7P: Water Quality Basin #1 Peak Elev=393.09' Storage=1,919 cf Inflow=9.6 cfs 1.031 af
Outflow=9.6 cfs 0.991 af

Pond 9P: Water Quality Basin #2 Peak Elev=387.10' Storage=3,495 cf Inflow=13.9 cfs 1.771 af
Outflow=13.8 cfs 1.699 af

Link 2L: Sheet flow to West Wetlands Inflow=22.3 cfs 2.690 af
Primary=22.3 cfs 2.690 af

Link 5L: Sheet Flow to Stott Avenue Inflow=23.7 cfs 2.590 af
Primary=23.7 cfs 2.590 af

Link 6L: Sheet flow to North West Inflow=18.6 cfs 2.254 af
Primary=18.6 cfs 2.254 af

Total Runoff Area = 25.537 ac Runoff Volume = 7.647 af Average Runoff Depth = 3.59"
96.93% Pervious = 24.753 ac 3.07% Impervious = 0.784 ac

Summary for Subcatchment 1S: DA-1A

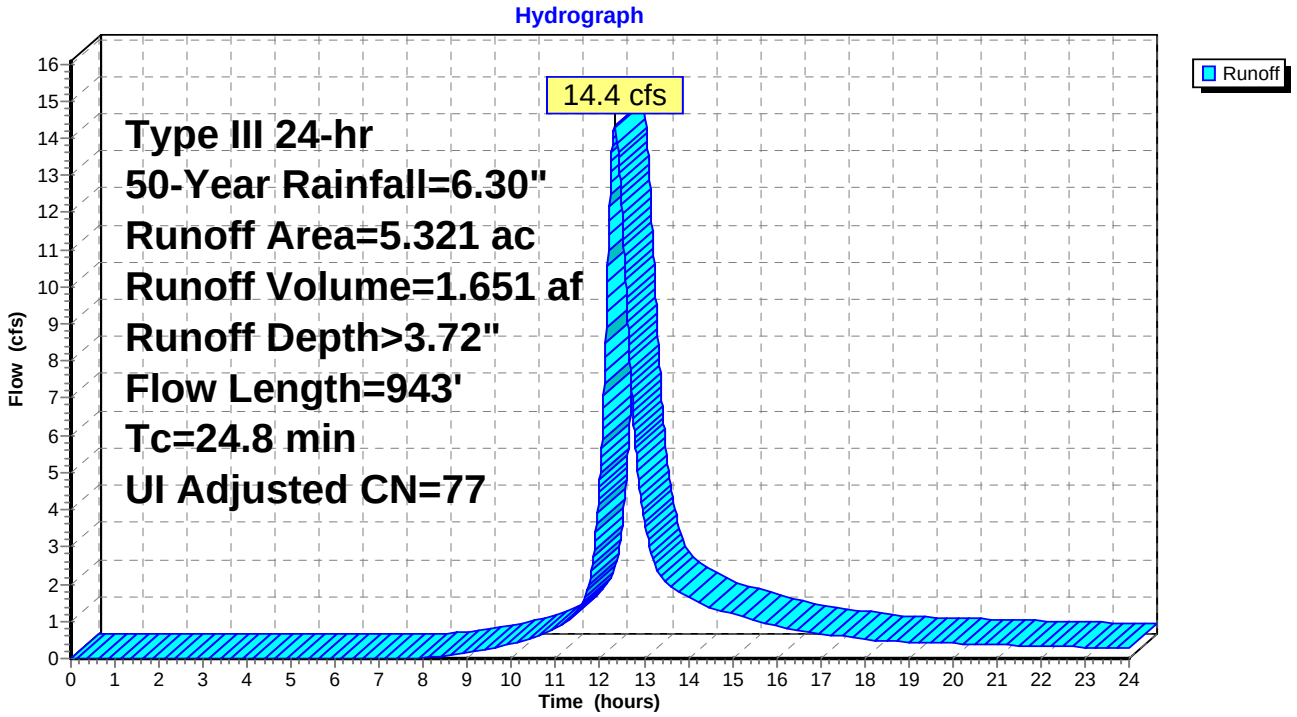
Runoff = 14.4 cfs @ 12.34 hrs, Volume= 1.651 af, Depth> 3.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 50-Year Rainfall=6.30"

	Area (ac)	CN	Adj	Description
	0.518	98		Unconnected roofs, HSG C
	1.337	74		>75% Grass cover, Good, HSG C
*	2.240	74		Solar Arrays, >75% Grass cover, Good, HSG C
	0.331	74		Pasture/grassland/range, Good, HSG C
	0.895	87		Dirt roads, HSG C
	5.321	79	77	Weighted Average, UI Adjusted
	4.803			90.26% Pervious Area
	0.518			9.74% Impervious Area
	0.518			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0233	0.13		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
2.5	138	0.0179	0.94		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
1.1	96	0.0417	1.43		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
3.3	218	0.0252	1.11		**Shallow Concentrated Flow, Pasture** Short Grass Pasture Kv= 7.0 fps
4.0	281	0.0285	1.18		**Shallow Concentrated Flow, Check Dam** Short Grass Pasture Kv= 7.0 fps
0.9	110	0.0909	2.11		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
24.8	943	Total			

Subcatchment 1S: DA-1A



Summary for Subcatchment 2S: DA-1B

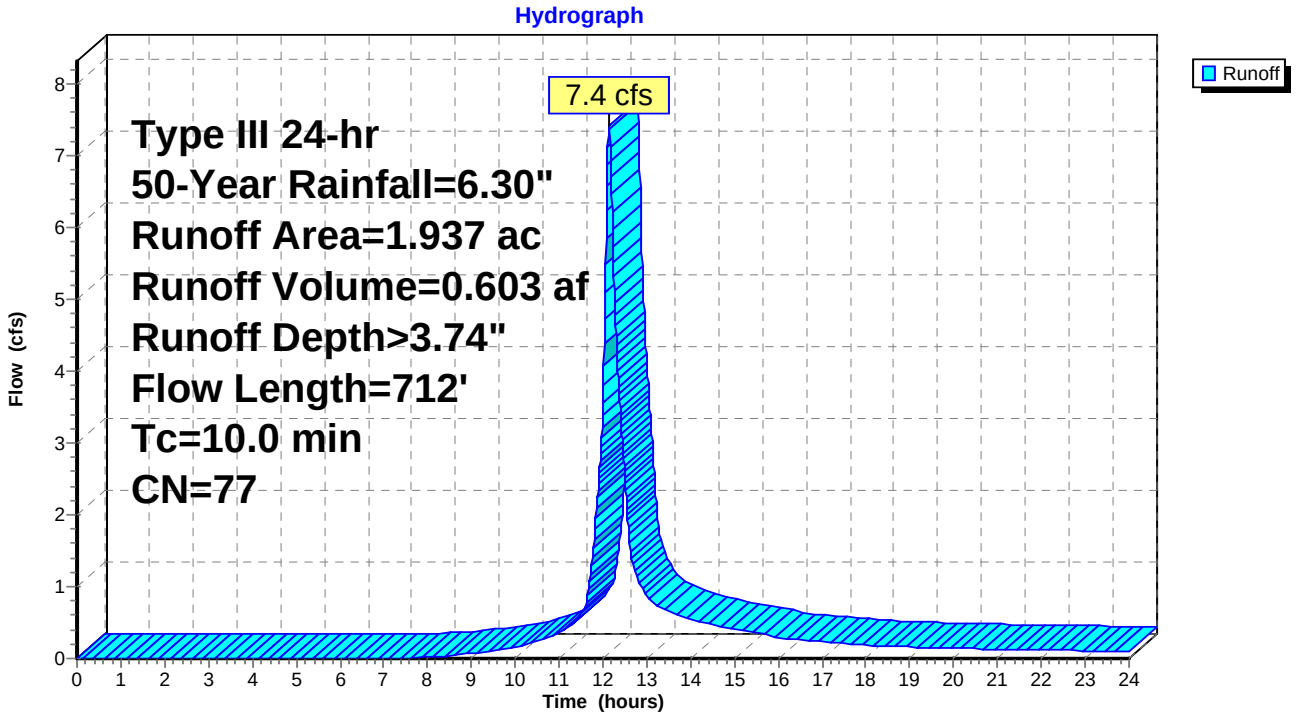
Runoff = 7.4 cfs @ 12.14 hrs, Volume= 0.603 af, Depth> 3.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 50-Year Rainfall=6.30"

Area (ac)	CN	Description
1.231	74	>75% Grass cover, Good, HSG C
0.531	82	Farmsteads, HSG C
0.175	87	Dirt roads, HSG C
1.937	77	Weighted Average
1.937		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		**Sheet Flow, Dirt Drive** Smooth surfaces n= 0.011 P2= 3.40"
0.8	124	0.0242	2.50		**Shallow Concentrated Flow, Dirt Drive** Unpaved Kv= 16.1 fps
0.2	60	0.1000	5.09		**Shallow Concentrated Flow, Dirt Drive** Unpaved Kv= 16.1 fps
3.7	307	0.0391	1.38		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
0.7	121	0.1488	2.70		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
7.0	712	Total, Increased to minimum Tc = 10.0 min			

Subcatchment 2S: DA-1B



Summary for Subcatchment 3S: DA-2A

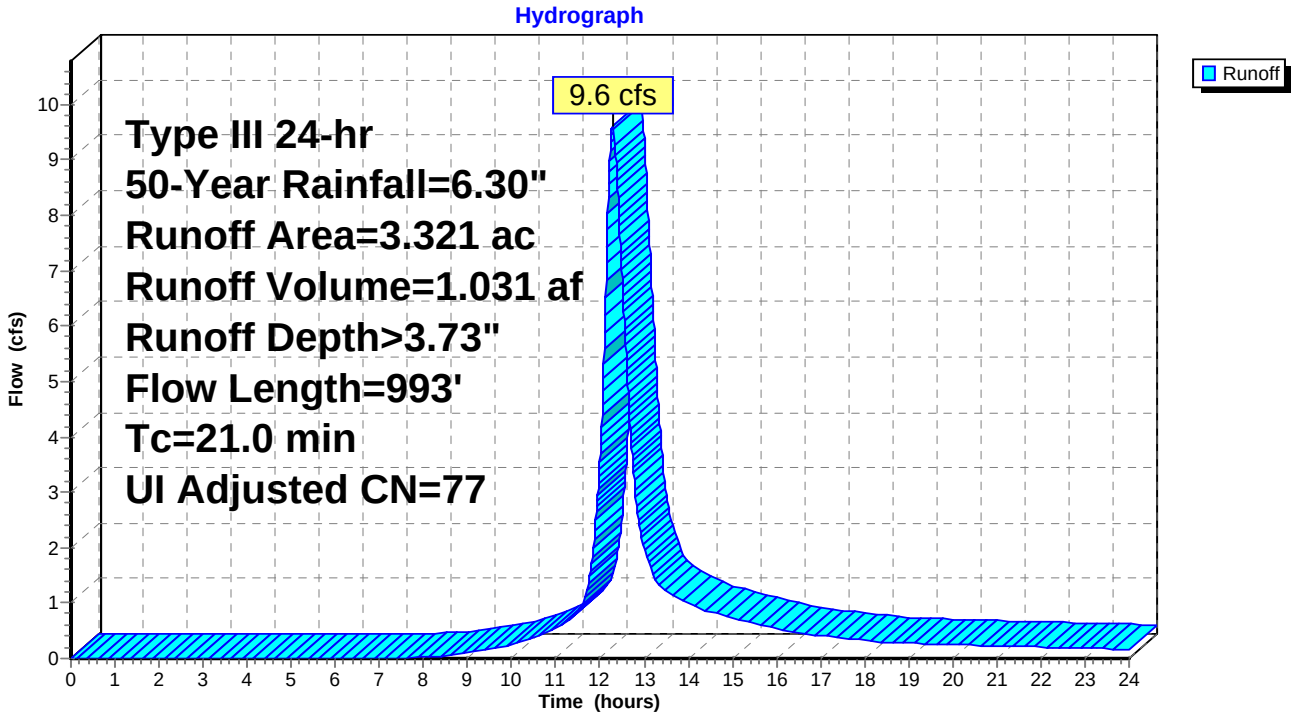
Runoff = 9.6 cfs @ 12.29 hrs, Volume= 1.031 af, Depth> 3.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 50-Year Rainfall=6.30"

	Area (ac)	CN	Adj	Description
	0.229	70		Woods, Good, HSG C
	0.134	98		Unconnected roofs, HSG C
	0.720	82		Farmsteads, HSG C
*	1.865	74		Solar Arrays, >75% Grass cover, Good, HSG C
	0.373	87		Dirt roads, HSG C
	3.321	78	77	Weighted Average, UI Adjusted
	3.187			95.97% Pervious Area
	0.134			4.03% Impervious Area
	0.134			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	66	0.0189	0.11		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
0.4	34	0.0267	1.28		**Sheet Flow, Dirt** Smooth surfaces n= 0.011 P2= 3.40"
0.5	109	0.0619	4.01		**Shallow Concentrated Flow, Dirt** Unpaved Kv= 16.1 fps
3.9	252	0.0238	1.08		**Shallow Concentrated Flow, Grassed** Short Grass Pasture Kv= 7.0 fps
2.0	114	0.0351	0.94		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
3.2	296	0.0473	1.52		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
0.8	122	0.1475	2.69		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
21.0	993	Total			

Subcatchment 3S: DA-2A



Summary for Subcatchment 6S: DA-3

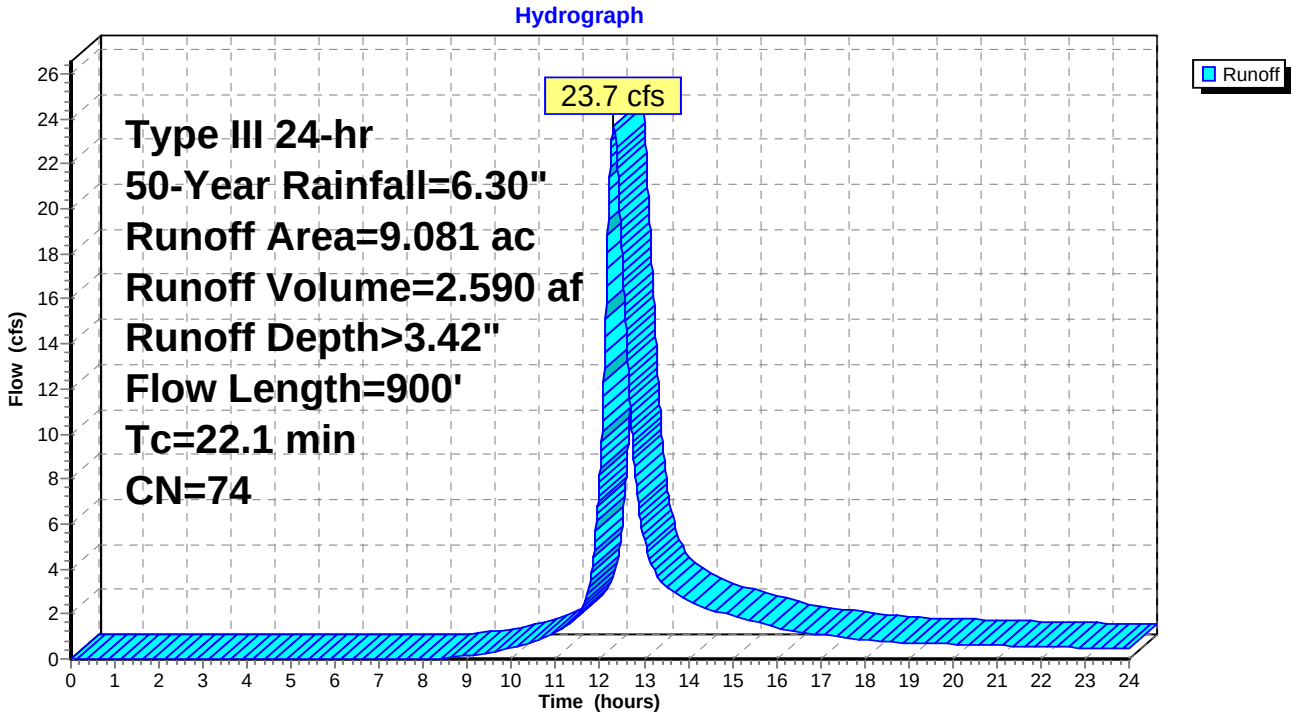
Runoff = 23.7 cfs @ 12.30 hrs, Volume= 2.590 af, Depth> 3.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 50-Year Rainfall=6.30"

	Area (ac)	CN	Description
	0.105	98	Unconnected roofs, HSG C
	0.523	70	Woods, Good, HSG C
	0.958	74	>75% Grass cover, Good, HSG C
	0.240	87	Dirt roads, HSG C
*	7.255	74	Solar Arrays, >75% Grass cover, Good, HSG C
	9.081	74	Weighted Average
	8.976		98.84% Pervious Area
	0.105		1.16% Impervious Area
	0.105		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0333	0.15		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
10.8	800	0.0312	1.24		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
22.1	900	Total			

Subcatchment 6S: DA-3



Summary for Subcatchment 12S: DA-2B

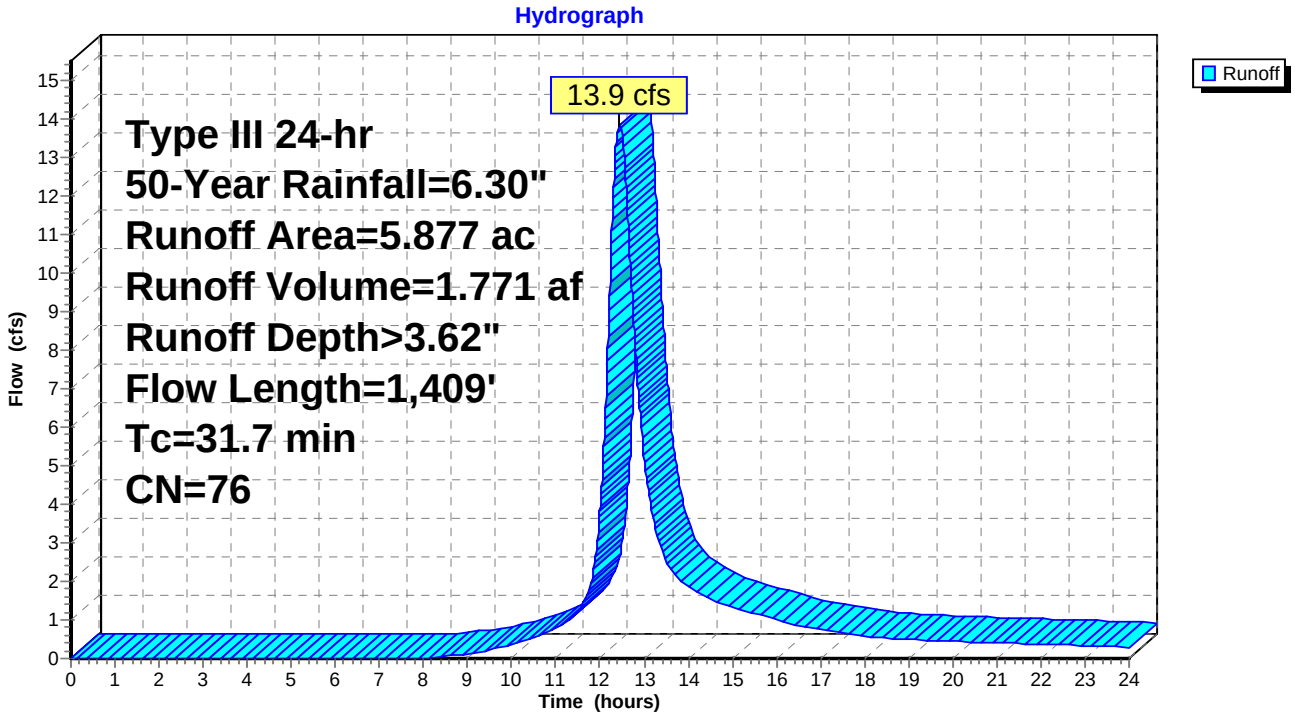
Runoff = 13.9 cfs @ 12.44 hrs, Volume= 1.771 af, Depth> 3.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 50-Year Rainfall=6.30"

	Area (ac)	CN	Description
	0.984	70	Woods, Good, HSG C
	0.027	98	Unconnected roofs, HSG C
	0.269	82	Farmsteads, HSG C
	1.131	81	Row crops, C + CR, Good, HSG C
	0.174	74	>75% Grass cover, Good, HSG C
*	3.006	74	Solar Arrays, >75% Grass cover, Good, HSG C
	0.286	87	Dirt roads, HSG C
	5.877	76	Weighted Average
	5.850		99.54% Pervious Area
	0.027		0.46% Impervious Area
	0.027		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	100	0.0200	0.12		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
3.9	230	0.0196	0.98		**Shallow Concentrated Flow, Grassed** Short Grass Pasture Kv= 7.0 fps
2.4	233	0.0327	1.63		**Shallow Concentrated Flow, Field** Cultivated Straight Rows Kv= 9.0 fps
2.1	151	0.0281	1.17		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
4.1	230	0.0348	0.93		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
1.2	106	0.0472	1.52		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
1.7	194	0.0773	1.95		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
0.3	47	0.1277	2.50		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
2.2	118	0.0169	0.91		**Shallow Concentrated Flow, Check Dam** Short Grass Pasture Kv= 7.0 fps
31.7	1,409	Total			

Subcatchment 12S: DA-2B



Summary for Pond 7P: Water Quality Basin #1

Inflow Area = 3.321 ac, 4.03% Impervious, Inflow Depth > 3.73" for 50-Year event
Inflow = 9.6 cfs @ 12.29 hrs, Volume= 1.031 af
Outflow = 9.6 cfs @ 12.30 hrs, Volume= 0.991 af, Atten= 0%, Lag= 0.2 min
Primary = 9.6 cfs @ 12.30 hrs, Volume= 0.991 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs / 2
Peak Elev= 393.09' @ 12.30 hrs Surf.Area= 2,128 sf Storage= 1,919 cf

Plug-Flow detention time= 31.4 min calculated for 0.991 af (96% of inflow)
Center-of-Mass det. time= 10.1 min (840.9 - 830.9)

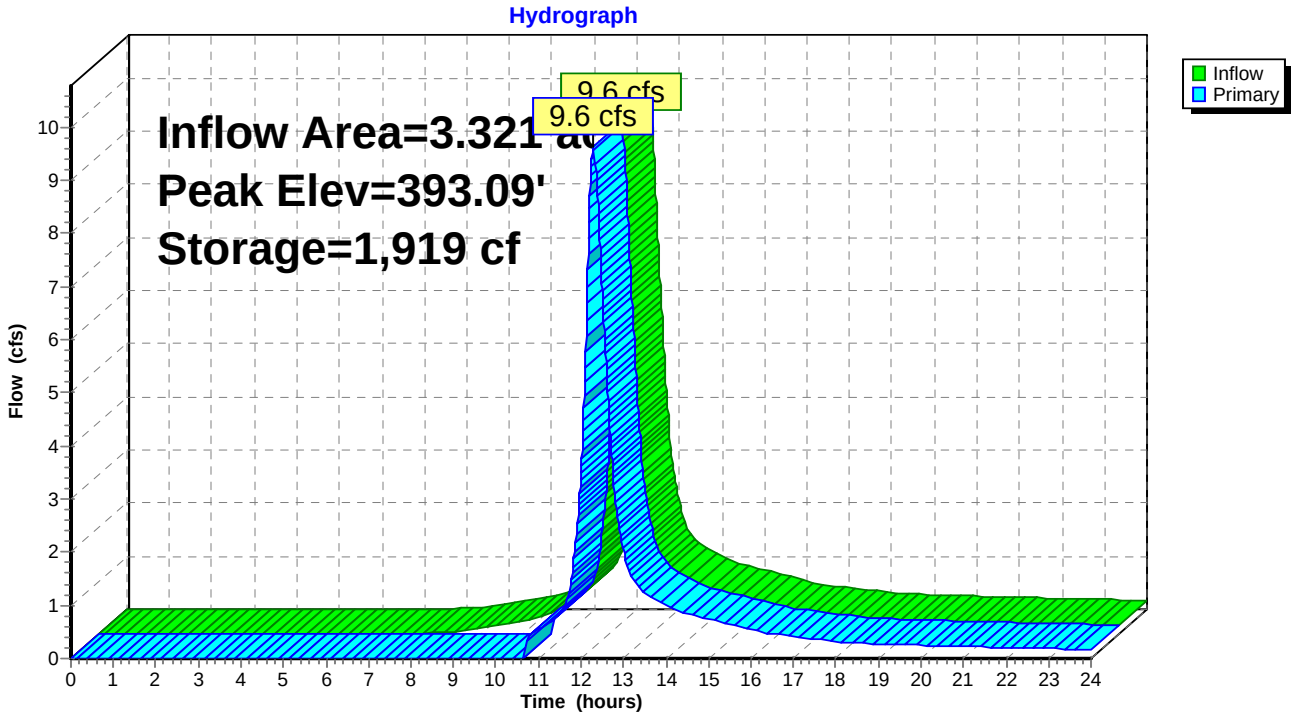
Volume	Invert	Avail.Storage	Storage Description
#1	392.00'	2,848 cf	**Basin (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
392.00	1,392	0	0
393.50	2,405	2,848	2,848

Device	Routing	Invert	Outlet Devices
#1	Primary	393.00'	**150.0' 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

Primary OutFlow Max=9.6 cfs @ 12.30 hrs HW=393.09' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 9.6 cfs @ 0.71 fps)

Pond 7P: Water Quality Basin #1



Stage-Area-Storage for Pond 7P: Water Quality Basin #1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
392.00	1,392	0
392.02	1,406	28
392.04	1,419	56
392.06	1,433	85
392.08	1,446	114
392.10	1,460	143
392.12	1,473	172
392.14	1,487	201
392.16	1,500	231
392.18	1,514	262
392.20	1,527	292
392.22	1,541	323
392.24	1,554	354
392.26	1,568	385
392.28	1,581	416
392.30	1,595	448
392.32	1,608	480
392.34	1,622	512
392.36	1,635	545
392.38	1,649	578
392.40	1,662	611
392.42	1,676	644
392.44	1,689	678
392.46	1,703	712
392.48	1,716	746
392.50	1,730	780
392.52	1,743	815
392.54	1,757	850
392.56	1,770	885
392.58	1,784	921
392.60	1,797	957
392.62	1,811	993
392.64	1,824	1,029
392.66	1,838	1,066
392.68	1,851	1,103
392.70	1,865	1,140
392.72	1,878	1,177
392.74	1,892	1,215
392.76	1,905	1,253
392.78	1,919	1,291
392.80	1,932	1,330
392.82	1,946	1,368
392.84	1,959	1,408
392.86	1,973	1,447
392.88	1,986	1,486
392.90	2,000	1,526
392.92	2,013	1,566
392.94	2,027	1,607
392.96	2,040	1,648
392.98	2,054	1,688
393.00	2,067	1,730
393.02	2,081	1,771
393.04	2,094	1,813
393.06	2,108	1,855
393.08	2,121	1,897
393.10	2,135	1,940
393.12	2,148	1,983
393.14	2,162	2,026
393.16	2,175	2,069
393.18	2,189	2,113
393.20	2,202	2,157
393.22	2,216	2,201
393.24	2,229	2,245
393.26	2,243	2,290
393.28	2,256	2,335
393.30	2,270	2,380
393.32	2,283	2,426
393.34	2,297	2,472
393.36	2,310	2,518
393.38	2,324	2,564
393.40	2,337	2,611
393.42	2,351	2,658
393.44	2,364	2,705
393.46	2,378	2,752
393.48	2,391	2,800
393.50	**2,405**	**2,848**

Summary for Pond 9P: Water Quality Basin #2

Inflow Area = 5.877 ac, 0.46% Impervious, Inflow Depth > 3.62" for 50-Year event
Inflow = 13.9 cfs @ 12.44 hrs, Volume= 1.771 af
Outflow = 13.8 cfs @ 12.44 hrs, Volume= 1.699 af, Atten= 0%, Lag= 0.4 min
Primary = 13.8 cfs @ 12.44 hrs, Volume= 1.699 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs / 2
Peak Elev= 387.10' @ 12.44 hrs Surf.Area= 3,591 sf Storage= 3,495 cf

Plug-Flow detention time= 32.3 min calculated for 1.698 af (96% of inflow)
Center-of-Mass det. time= 10.3 min (852.1 - 841.7)

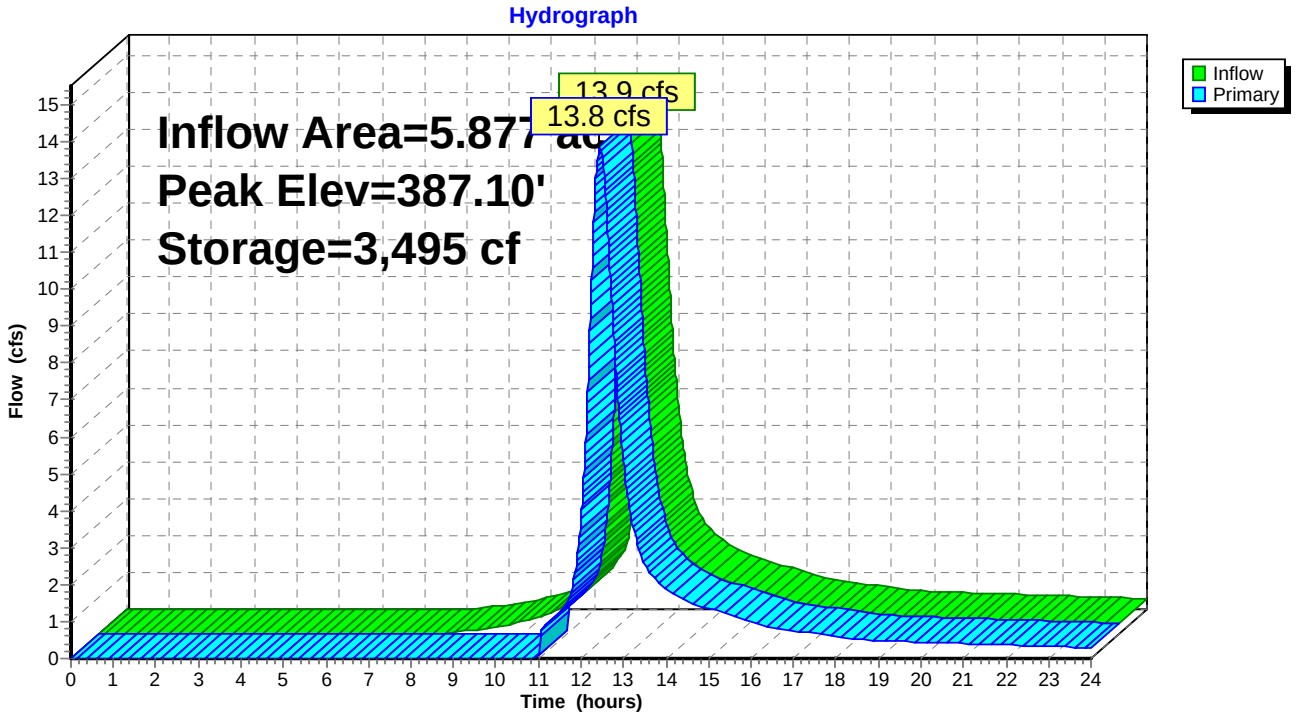
Volume	Invert	Avail.Storage	Storage Description
#1	386.00'	4,979 cf	**Basin (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
386.00	2,742	0	0
387.50	3,896	4,979	4,979

Device	Routing	Invert	Outlet Devices
#1	Primary	387.00'	**175.0' 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

Primary OutFlow Max=13.8 cfs @ 12.44 hrs HW=387.10' TW=0.00' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 13.8 cfs @ 0.76 fps)

Pond 9P: Water Quality Basin #2



Stage-Area-Storage for Pond 9P: Water Quality Basin #2

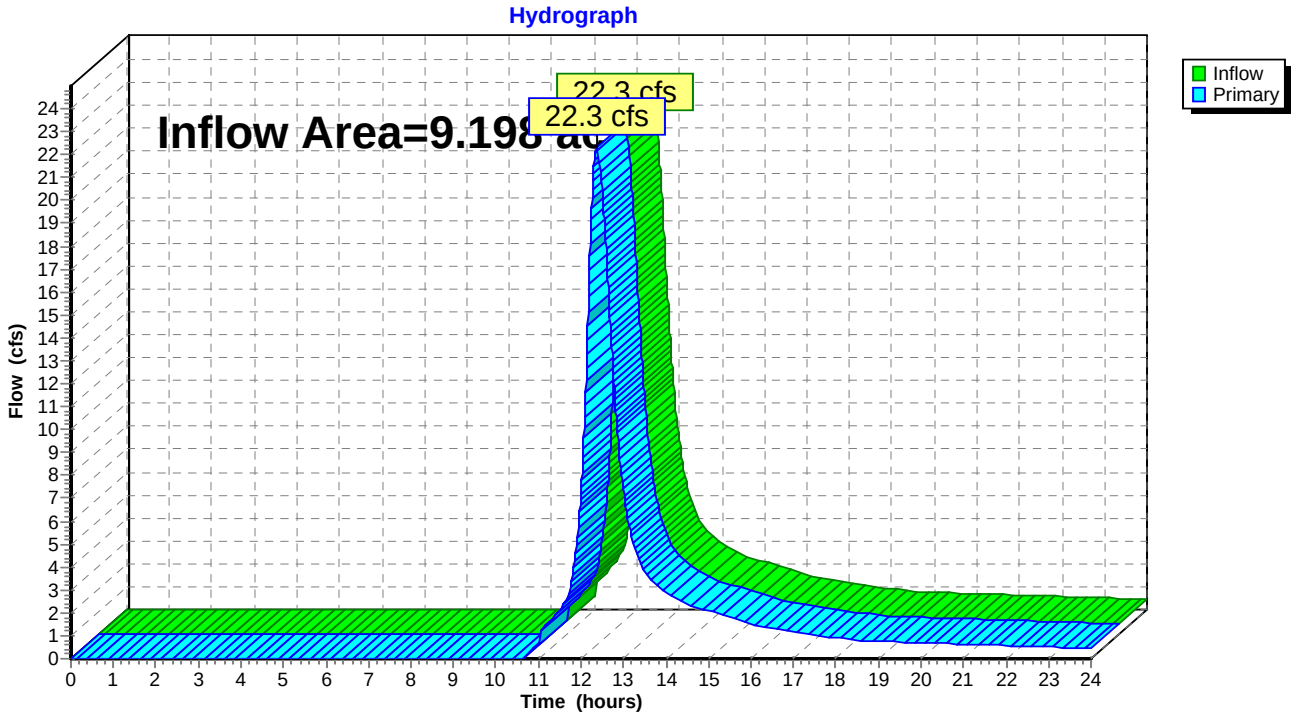
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
386.00	2,742	0
386.02	2,757	55
386.04	2,773	110
386.06	2,788	166
386.08	2,804	222
386.10	2,819	278
386.12	2,834	335
386.14	2,850	391
386.16	2,865	449
386.18	2,880	506
386.20	2,896	564
386.22	2,911	622
386.24	2,927	680
386.26	2,942	739
386.28	2,957	798
386.30	2,973	857
386.32	2,988	917
386.34	3,004	977
386.36	3,019	1,037
386.38	3,034	1,098
386.40	3,050	1,158
386.42	3,065	1,219
386.44	3,081	1,281
386.46	3,096	1,343
386.48	3,111	1,405
386.50	3,127	1,467
386.52	3,142	1,530
386.54	3,157	1,593
386.56	3,173	1,656
386.58	3,188	1,720
386.60	3,204	1,784
386.62	3,219	1,848
386.64	3,234	1,912
386.66	3,250	1,977
386.68	3,265	2,042
386.70	3,281	2,108
386.72	3,296	2,174
386.74	3,311	2,240
386.76	3,327	2,306
386.78	3,342	2,373
386.80	3,357	2,440
386.82	3,373	2,507
386.84	3,388	2,575
386.86	3,404	2,643
386.88	3,419	2,711
386.90	3,434	2,779
386.92	3,450	2,848
386.94	3,465	2,917
386.96	3,481	2,987
386.98	3,496	3,057
387.00	3,511	3,127
387.02	3,527	3,197
387.04	3,542	3,268
387.06	3,557	3,339
387.08	3,573	3,410
387.10	3,588	3,482
387.12	3,604	3,554
387.14	3,619	3,626
387.16	3,634	3,698
387.18	3,650	3,771
387.20	3,665	3,844
387.22	3,681	3,918
387.24	3,696	3,992
387.26	3,711	4,066
387.28	3,727	4,140
387.30	3,742	4,215
387.32	3,758	4,290
387.34	3,773	4,365
387.36	3,788	4,441
387.38	3,804	4,517
387.40	3,819	4,593
387.42	3,834	4,669
387.44	3,850	4,746
387.46	3,865	4,823
387.48	3,881	4,901
387.50	**3,896**	**4,979**

Summary for Link 2L: Sheet flow to West Wetlands

Inflow Area = 9.198 ac, 1.75% Impervious, Inflow Depth > 3.51" for 50-Year event
Inflow = 22.3 cfs @ 12.37 hrs, Volume= 2.690 af
Primary = 22.3 cfs @ 12.37 hrs, Volume= 2.690 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs

Link 2L: Sheet flow to West Wetlands

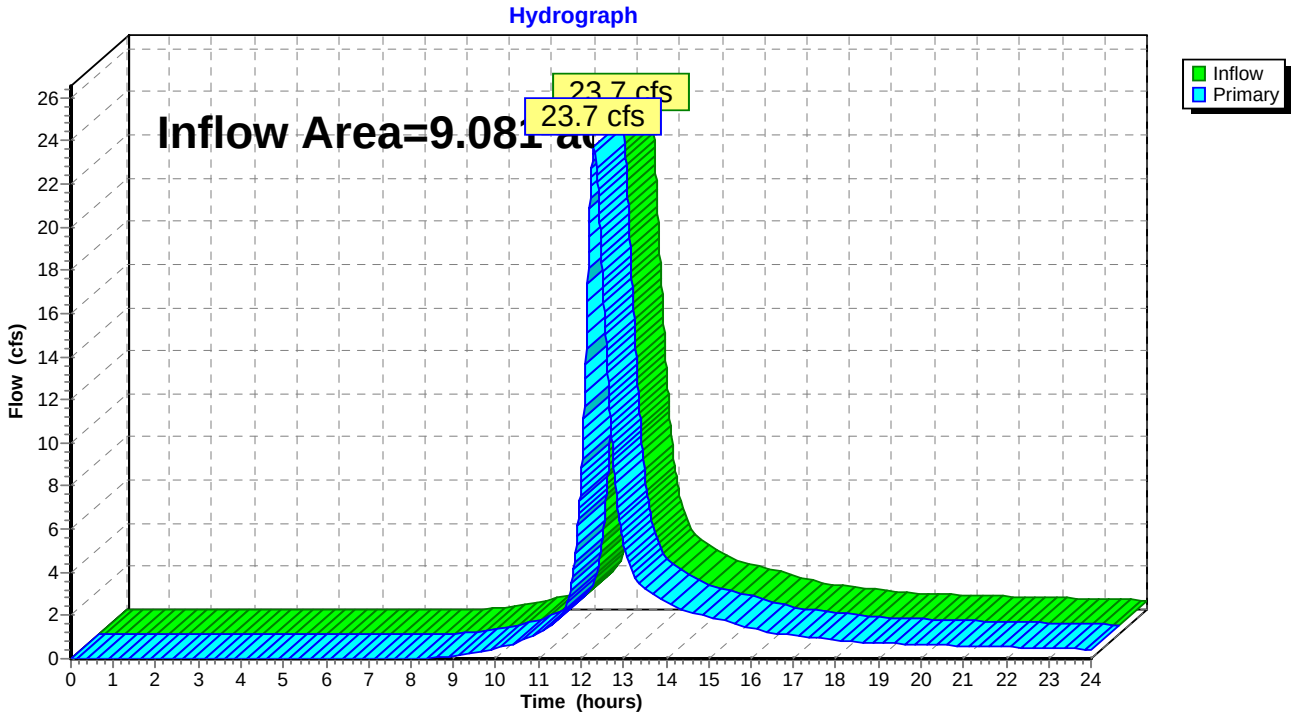


Summary for Link 5L: Sheet Flow to Stott Avenue

Inflow Area = 9.081 ac, 1.16% Impervious, Inflow Depth > 3.42" for 50-Year event
Inflow = 23.7 cfs @ 12.30 hrs, Volume= 2.590 af
Primary = 23.7 cfs @ 12.30 hrs, Volume= 2.590 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs

Link 5L: Sheet Flow to Stott Avenue

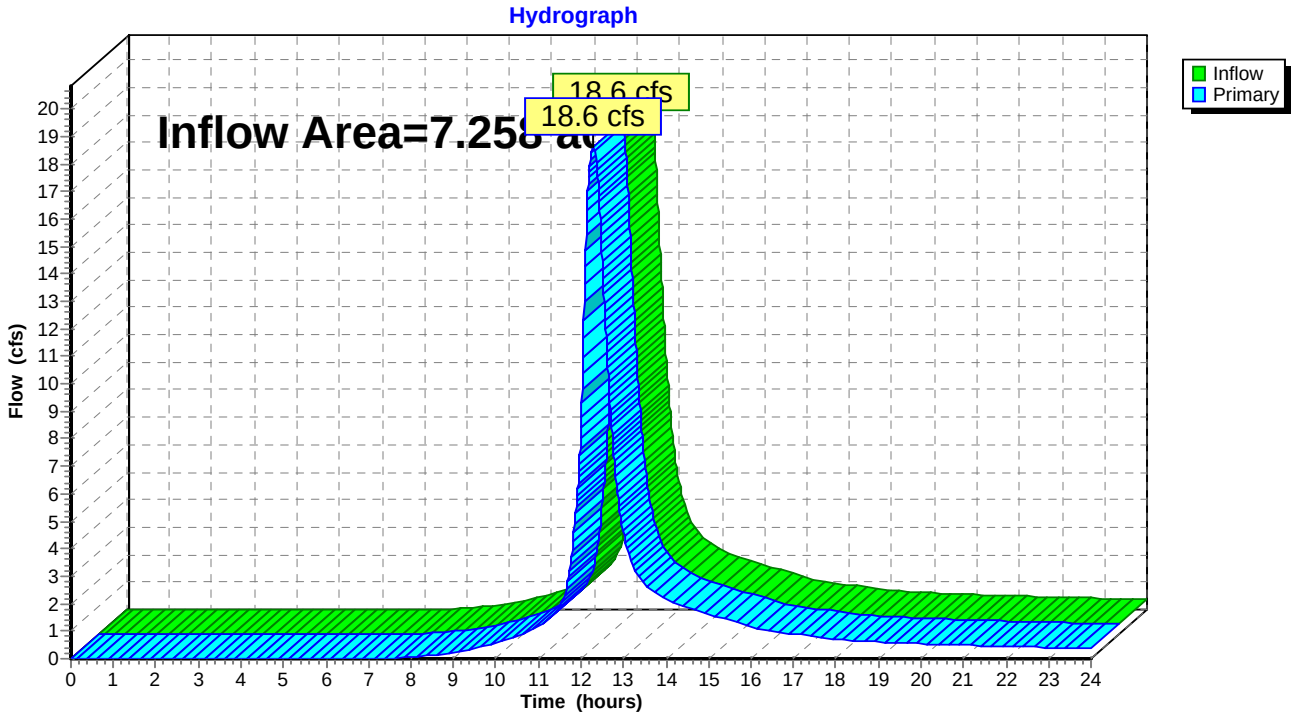


Summary for Link 6L: Sheet flow to North West

Inflow Area = 7.258 ac, 7.14% Impervious, Inflow Depth > 3.73" for 50-Year event
Inflow = 18.6 cfs @ 12.29 hrs, Volume= 2.254 af
Primary = 18.6 cfs @ 12.29 hrs, Volume= 2.254 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs

Link 6L: Sheet flow to North West



Time span=0.00-24.00 hrs, dt=0.010 hrs, 2401 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: DA-1A Runoff Area=5.321 ac 9.74% Impervious Runoff Depth>4.43"
Flow Length=943' Tc=24.8 min UI Adjusted CN=77 Runoff=17.1 cfs 1.966 af

Subcatchment 2S: DA-1B Runoff Area=1.937 ac 0.00% Impervious Runoff Depth>4.45"
Flow Length=712' Tc=10.0 min CN=77 Runoff=8.8 cfs 0.718 af

Subcatchment 3S: DA-2A Runoff Area=3.321 ac 4.03% Impervious Runoff Depth>4.44"
Flow Length=993' Tc=21.0 min UI Adjusted CN=77 Runoff=11.4 cfs 1.228 af

Subcatchment 6S: DA-3 Runoff Area=9.081 ac 1.16% Impervious Runoff Depth>4.11"
Flow Length=900' Tc=22.1 min CN=74 Runoff=28.5 cfs 3.111 af

Subcatchment 12S: DA-2B Runoff Area=5.877 ac 0.46% Impervious Runoff Depth>4.32"
Flow Length=1,409' Tc=31.7 min CN=76 Runoff=16.5 cfs 2.115 af

Pond 7P: Water Quality Basin #1 Peak Elev=393.10' Storage=1,942 cf Inflow=11.4 cfs 1.228 af
Outflow=11.4 cfs 1.188 af

Pond 9P: Water Quality Basin #2 Peak Elev=387.12' Storage=3,541 cf Inflow=16.5 cfs 2.115 af
Outflow=16.5 cfs 2.043 af

Link 2L: Sheet flow to West Wetlands Inflow=26.6 cfs 3.231 af
Primary=26.6 cfs 3.231 af

Link 5L: Sheet Flow to Stott Avenue Inflow=28.5 cfs 3.111 af
Primary=28.5 cfs 3.111 af

Link 6L: Sheet flow to North West Inflow=22.1 cfs 2.684 af
Primary=22.1 cfs 2.684 af

Total Runoff Area = 25.537 ac Runoff Volume = 9.139 af Average Runoff Depth = 4.29"
96.93% Pervious = 24.753 ac 3.07% Impervious = 0.784 ac

Summary for Subcatchment 1S: DA-1A

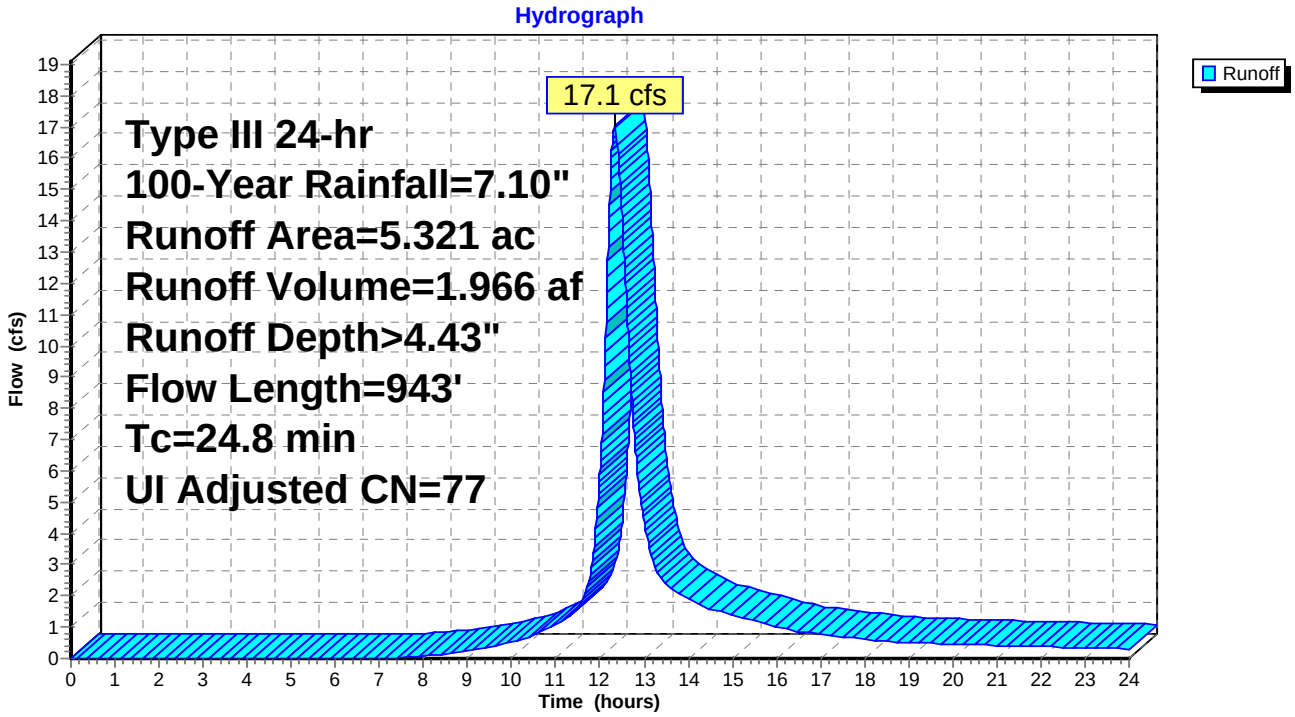
Runoff = 17.1 cfs @ 12.34 hrs, Volume= 1.966 af, Depth> 4.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (ac)	CN	Adj	Description
	0.518	98		Unconnected roofs, HSG C
	1.337	74		>75% Grass cover, Good, HSG C
*	2.240	74		Solar Arrays, >75% Grass cover, Good, HSG C
	0.331	74		Pasture/grassland/range, Good, HSG C
	0.895	87		Dirt roads, HSG C
	5.321	79	77	Weighted Average, UI Adjusted
	4.803			90.26% Pervious Area
	0.518			9.74% Impervious Area
	0.518			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0233	0.13		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
2.5	138	0.0179	0.94		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
1.1	96	0.0417	1.43		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
3.3	218	0.0252	1.11		**Shallow Concentrated Flow, Pasture** Short Grass Pasture Kv= 7.0 fps
4.0	281	0.0285	1.18		**Shallow Concentrated Flow, Check Dam** Short Grass Pasture Kv= 7.0 fps
0.9	110	0.0909	2.11		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
24.8	943	Total			

Subcatchment 1S: DA-1A



Summary for Subcatchment 2S: DA-1B

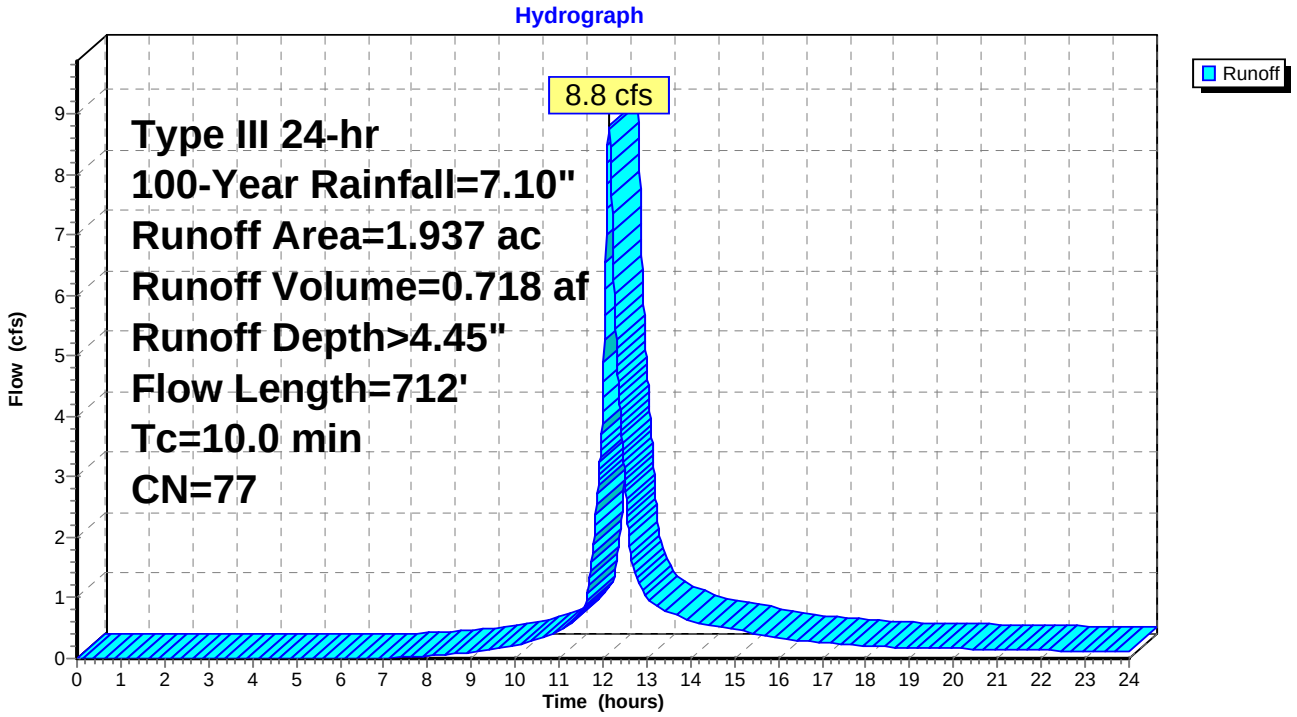
Runoff = 8.8 cfs @ 12.14 hrs, Volume= 0.718 af, Depth> 4.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 100-Year Rainfall=7.10"

Area (ac)	CN	Description
1.231	74	>75% Grass cover, Good, HSG C
0.531	82	Farmsteads, HSG C
0.175	87	Dirt roads, HSG C
1.937	77	Weighted Average
1.937		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.07		**Sheet Flow, Dirt Drive** Smooth surfaces n= 0.011 P2= 3.40"
0.8	124	0.0242	2.50		**Shallow Concentrated Flow, Dirt Drive** Unpaved Kv= 16.1 fps
0.2	60	0.1000	5.09		**Shallow Concentrated Flow, Dirt Drive** Unpaved Kv= 16.1 fps
3.7	307	0.0391	1.38		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
0.7	121	0.1488	2.70		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
7.0	712	Total, Increased to minimum Tc = 10.0 min			

Subcatchment 2S: DA-1B



Summary for Subcatchment 3S: DA-2A

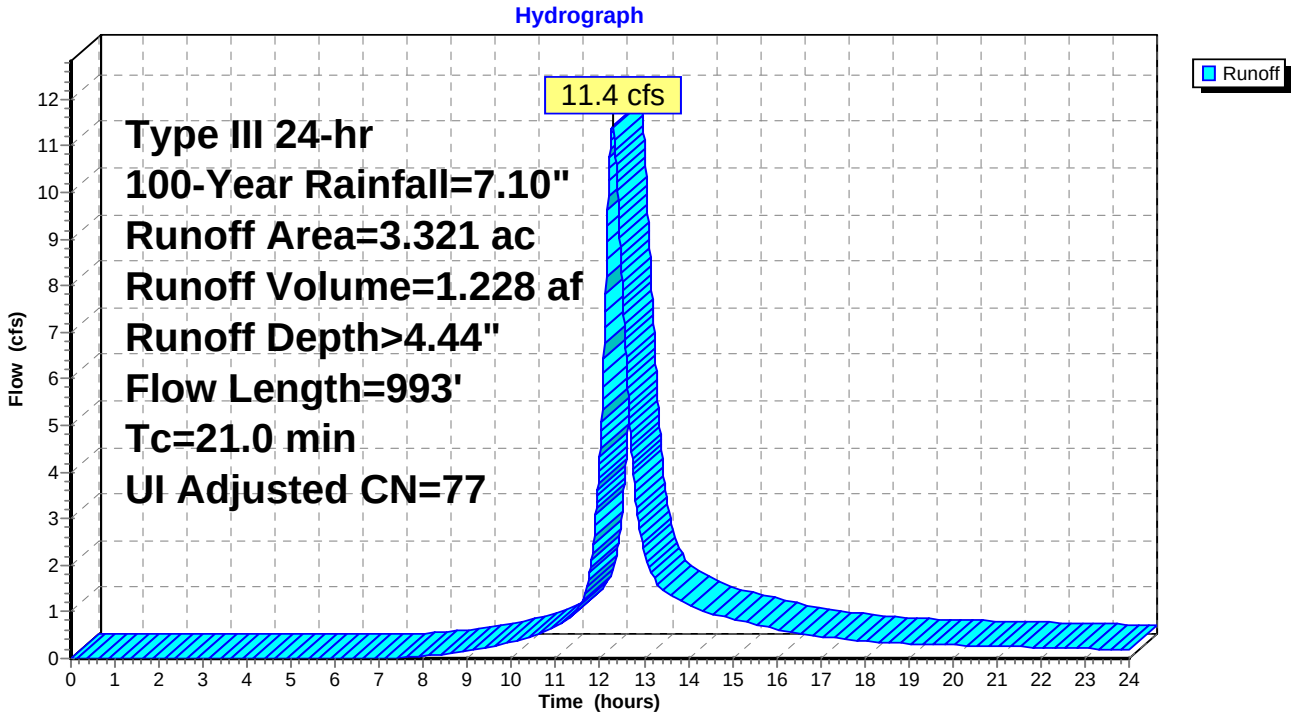
Runoff = 11.4 cfs @ 12.29 hrs, Volume= 1.228 af, Depth> 4.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (ac)	CN	Adj	Description
	0.229	70		Woods, Good, HSG C
	0.134	98		Unconnected roofs, HSG C
	0.720	82		Farmsteads, HSG C
*	1.865	74		Solar Arrays, >75% Grass cover, Good, HSG C
	0.373	87		Dirt roads, HSG C
	3.321	78	77	Weighted Average, UI Adjusted
	3.187			95.97% Pervious Area
	0.134			4.03% Impervious Area
	0.134			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.2	66	0.0189	0.11		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
0.4	34	0.0267	1.28		**Sheet Flow, Dirt** Smooth surfaces n= 0.011 P2= 3.40"
0.5	109	0.0619	4.01		**Shallow Concentrated Flow, Dirt** Unpaved Kv= 16.1 fps
3.9	252	0.0238	1.08		**Shallow Concentrated Flow, Grassed** Short Grass Pasture Kv= 7.0 fps
2.0	114	0.0351	0.94		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
3.2	296	0.0473	1.52		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
0.8	122	0.1475	2.69		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
21.0	993	Total			

Subcatchment 3S: DA-2A



Summary for Subcatchment 6S: DA-3

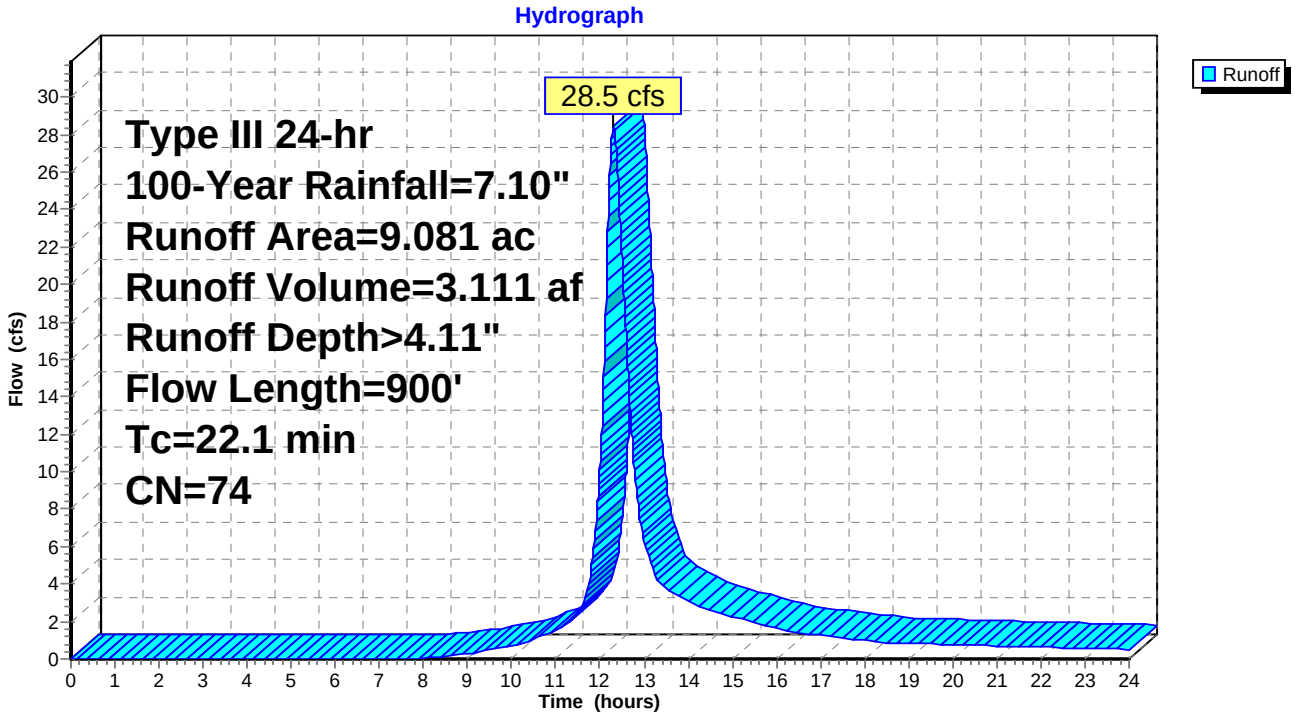
Runoff = 28.5 cfs @ 12.30 hrs, Volume= 3.111 af, Depth> 4.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (ac)	CN	Description
	0.105	98	Unconnected roofs, HSG C
	0.523	70	Woods, Good, HSG C
	0.958	74	>75% Grass cover, Good, HSG C
	0.240	87	Dirt roads, HSG C
*	7.255	74	Solar Arrays, >75% Grass cover, Good, HSG C
	9.081	74	Weighted Average
	8.976		98.84% Pervious Area
	0.105		1.16% Impervious Area
	0.105		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0333	0.15		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.40"
10.8	800	0.0312	1.24		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
22.1	900	Total			

Subcatchment 6S: DA-3



Summary for Subcatchment 12S: DA-2B

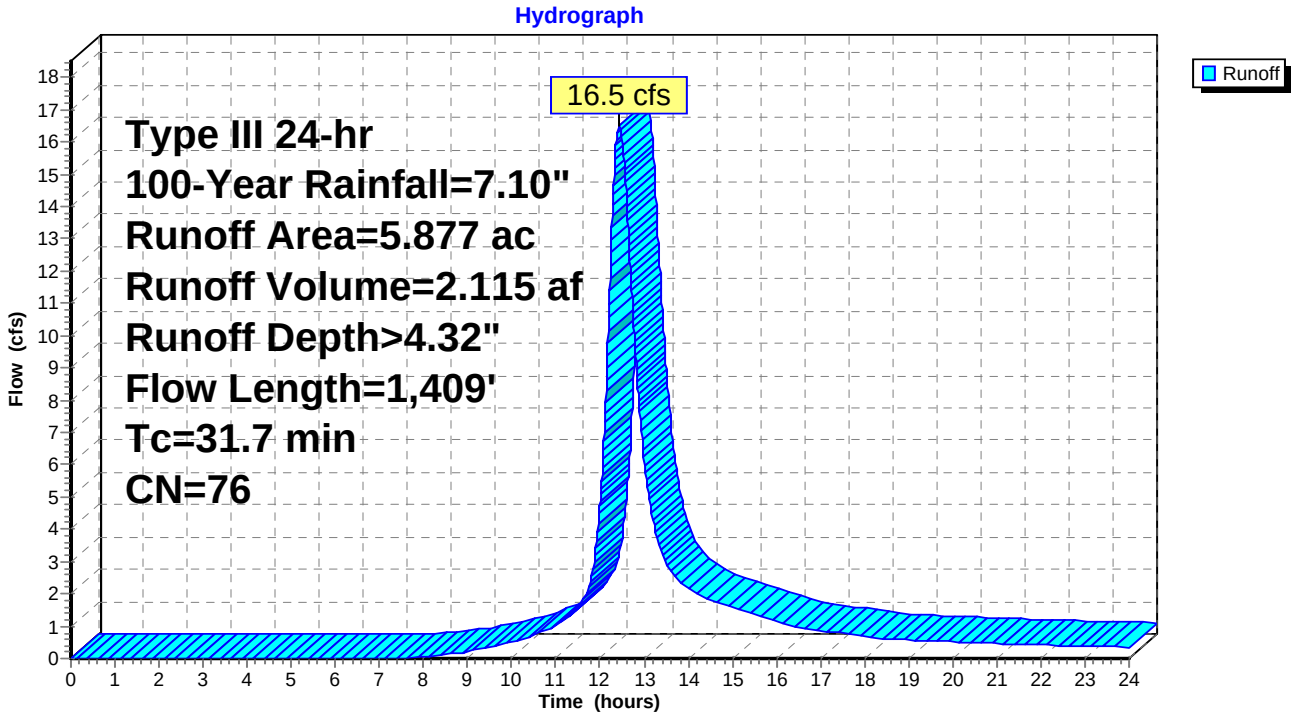
Runoff = 16.5 cfs @ 12.43 hrs, Volume= 2.115 af, Depth> 4.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs
Type III 24-hr 100-Year Rainfall=7.10"

	Area (ac)	CN	Description
	0.984	70	Woods, Good, HSG C
	0.027	98	Unconnected roofs, HSG C
	0.269	82	Farmsteads, HSG C
	1.131	81	Row crops, C + CR, Good, HSG C
	0.174	74	>75% Grass cover, Good, HSG C
*	3.006	74	Solar Arrays, >75% Grass cover, Good, HSG C
	0.286	87	Dirt roads, HSG C
	5.877	76	Weighted Average
	5.850		99.54% Pervious Area
	0.027		0.46% Impervious Area
	0.027		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	100	0.0200	0.12		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"
3.9	230	0.0196	0.98		**Shallow Concentrated Flow, Grassed** Short Grass Pasture Kv= 7.0 fps
2.4	233	0.0327	1.63		**Shallow Concentrated Flow, Field** Cultivated Straight Rows Kv= 9.0 fps
2.1	151	0.0281	1.17		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
4.1	230	0.0348	0.93		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
1.2	106	0.0472	1.52		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
1.7	194	0.0773	1.95		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
0.3	47	0.1277	2.50		**Shallow Concentrated Flow, Solar Arrays** Short Grass Pasture Kv= 7.0 fps
2.2	118	0.0169	0.91		**Shallow Concentrated Flow, Check Dam** Short Grass Pasture Kv= 7.0 fps
31.7	1,409	Total			

Subcatchment 12S: DA-2B



Summary for Pond 7P: Water Quality Basin #1

Inflow Area = 3.321 ac, 4.03% Impervious, Inflow Depth > 4.44" for 100-Year event
Inflow = 11.4 cfs @ 12.29 hrs, Volume= 1.228 af
Outflow = 11.4 cfs @ 12.29 hrs, Volume= 1.188 af, Atten= 0%, Lag= 0.2 min
Primary = 11.4 cfs @ 12.29 hrs, Volume= 1.188 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs / 2
Peak Elev= 393.10' @ 12.29 hrs Surf.Area= 2,136 sf Storage= 1,942 cf

Plug-Flow detention time= 27.5 min calculated for 1.188 af (97% of inflow)
Center-of-Mass det. time= 9.2 min (835.1 - 825.9)

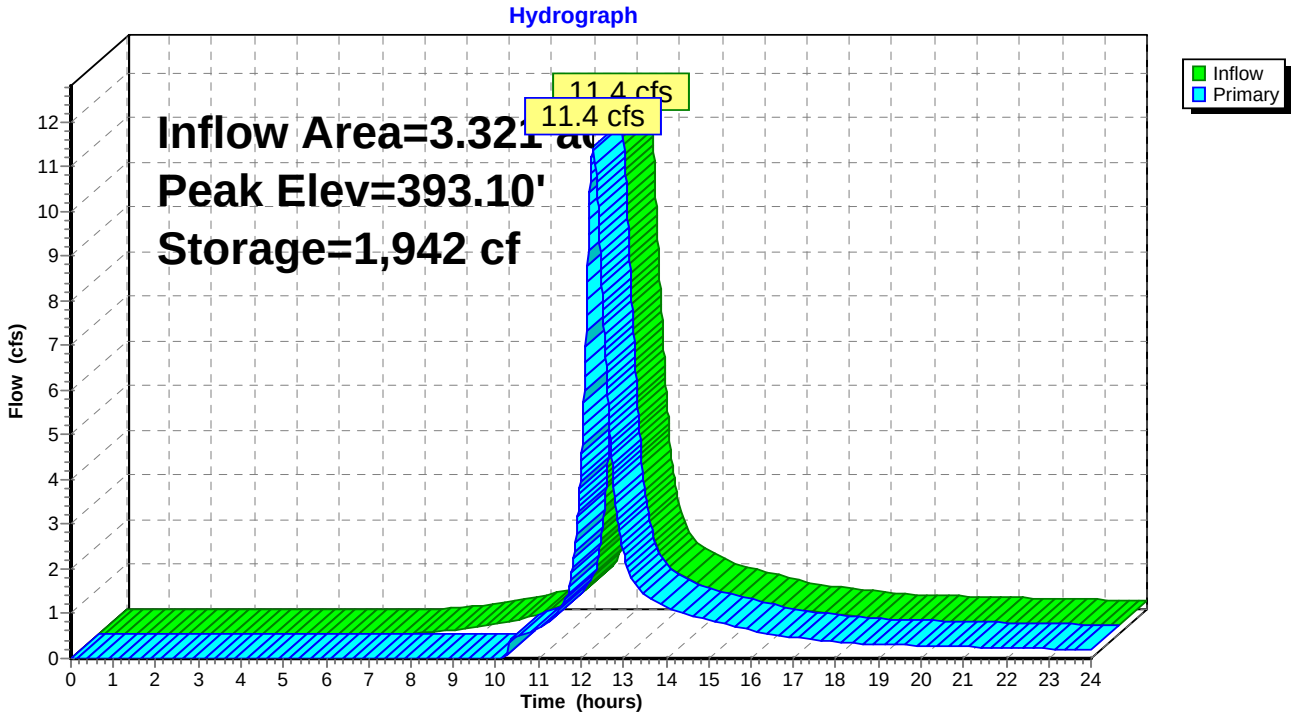
Volume	Invert	Avail.Storage	Storage Description
#1	392.00'	2,848 cf	**Basin (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
392.00	1,392	0	0
393.50	2,405	2,848	2,848

Device	Routing	Invert	Outlet Devices
#1	Primary	393.00'	**150.0' 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

Primary OutFlow Max=11.4 cfs @ 12.29 hrs HW=393.10' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 11.4 cfs @ 0.75 fps)

Pond 7P: Water Quality Basin #1



Stage-Area-Storage for Pond 7P: Water Quality Basin #1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
392.00	1,392	0
392.02	1,406	28
392.04	1,419	56
392.06	1,433	85
392.08	1,446	114
392.10	1,460	143
392.12	1,473	172
392.14	1,487	201
392.16	1,500	231
392.18	1,514	262
392.20	1,527	292
392.22	1,541	323
392.24	1,554	354
392.26	1,568	385
392.28	1,581	416
392.30	1,595	448
392.32	1,608	480
392.34	1,622	512
392.36	1,635	545
392.38	1,649	578
392.40	1,662	611
392.42	1,676	644
392.44	1,689	678
392.46	1,703	712
392.48	1,716	746
392.50	1,730	780
392.52	1,743	815
392.54	1,757	850
392.56	1,770	885
392.58	1,784	921
392.60	1,797	957
392.62	1,811	993
392.64	1,824	1,029
392.66	1,838	1,066
392.68	1,851	1,103
392.70	1,865	1,140
392.72	1,878	1,177
392.74	1,892	1,215
392.76	1,905	1,253
392.78	1,919	1,291
392.80	1,932	1,330
392.82	1,946	1,368
392.84	1,959	1,408
392.86	1,973	1,447
392.88	1,986	1,486
392.90	2,000	1,526
392.92	2,013	1,566
392.94	2,027	1,607
392.96	2,040	1,648
392.98	2,054	1,688
393.00	2,067	1,730
393.02	2,081	1,771
393.04	2,094	1,813
393.06	2,108	1,855
393.08	2,121	1,897
393.10	2,135	1,940
393.12	2,148	1,983
393.14	2,162	2,026
393.16	2,175	2,069
393.18	2,189	2,113
393.20	2,202	2,157
393.22	2,216	2,201
393.24	2,229	2,245
393.26	2,243	2,290
393.28	2,256	2,335
393.30	2,270	2,380
393.32	2,283	2,426
393.34	2,297	2,472
393.36	2,310	2,518
393.38	2,324	2,564
393.40	2,337	2,611
393.42	2,351	2,658
393.44	2,364	2,705
393.46	2,378	2,752
393.48	2,391	2,800
393.50	**2,405**	**2,848**

Summary for Pond 9P: Water Quality Basin #2

Inflow Area = 5.877 ac, 0.46% Impervious, Inflow Depth > 4.32" for 100-Year event
Inflow = 16.5 cfs @ 12.43 hrs, Volume= 2.115 af
Outflow = 16.5 cfs @ 12.44 hrs, Volume= 2.043 af, Atten= 0%, Lag= 0.4 min
Primary = 16.5 cfs @ 12.44 hrs, Volume= 2.043 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs / 2
Peak Elev= 387.12' @ 12.44 hrs Surf.Area= 3,601 sf Storage= 3,541 cf

Plug-Flow detention time= 28.3 min calculated for 2.042 af (97% of inflow)
Center-of-Mass det. time= 9.4 min (846.2 - 836.8)

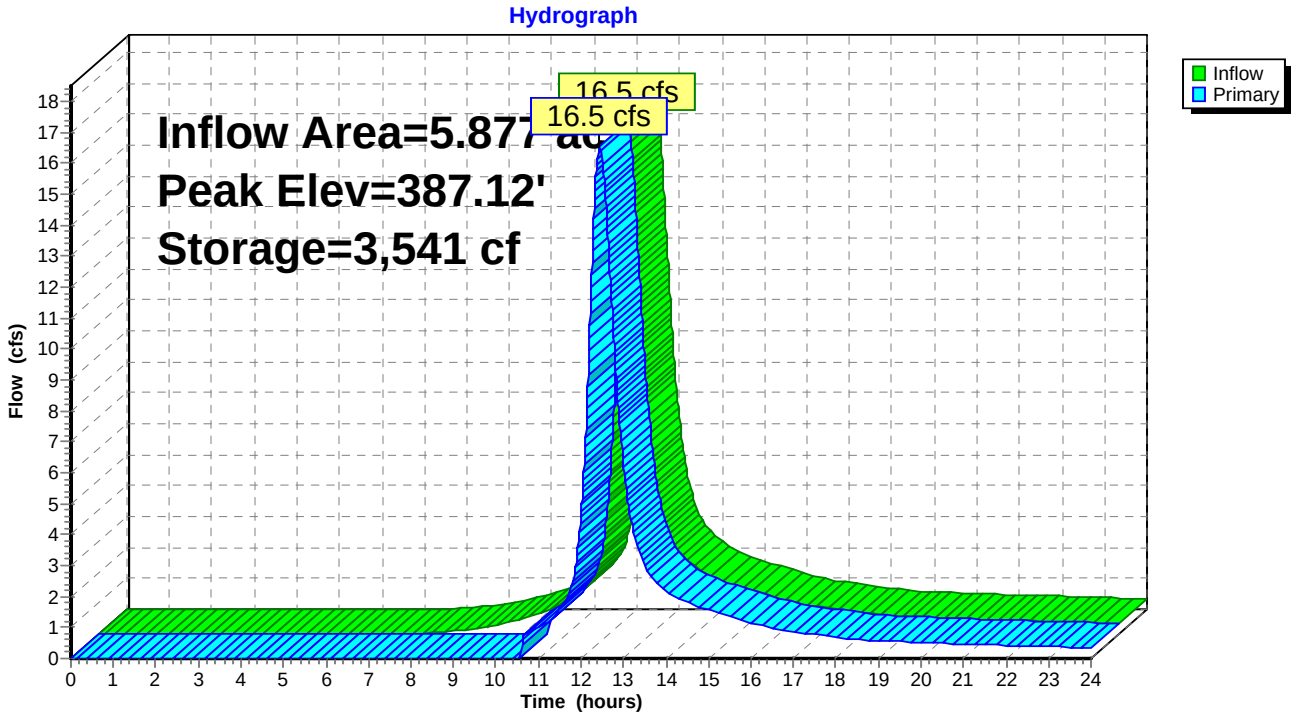
Volume	Invert	Avail.Storage	Storage Description
#1	386.00'	4,979 cf	**Basin (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
386.00	2,742	0	0
387.50	3,896	4,979	4,979

Device	Routing	Invert	Outlet Devices
#1	Primary	387.00'	**175.0' 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

Primary OutFlow Max=16.5 cfs @ 12.44 hrs HW=387.12' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 16.5 cfs @ 0.81 fps)

Pond 9P: Water Quality Basin #2



Stage-Area-Storage for Pond 9P: Water Quality Basin #2

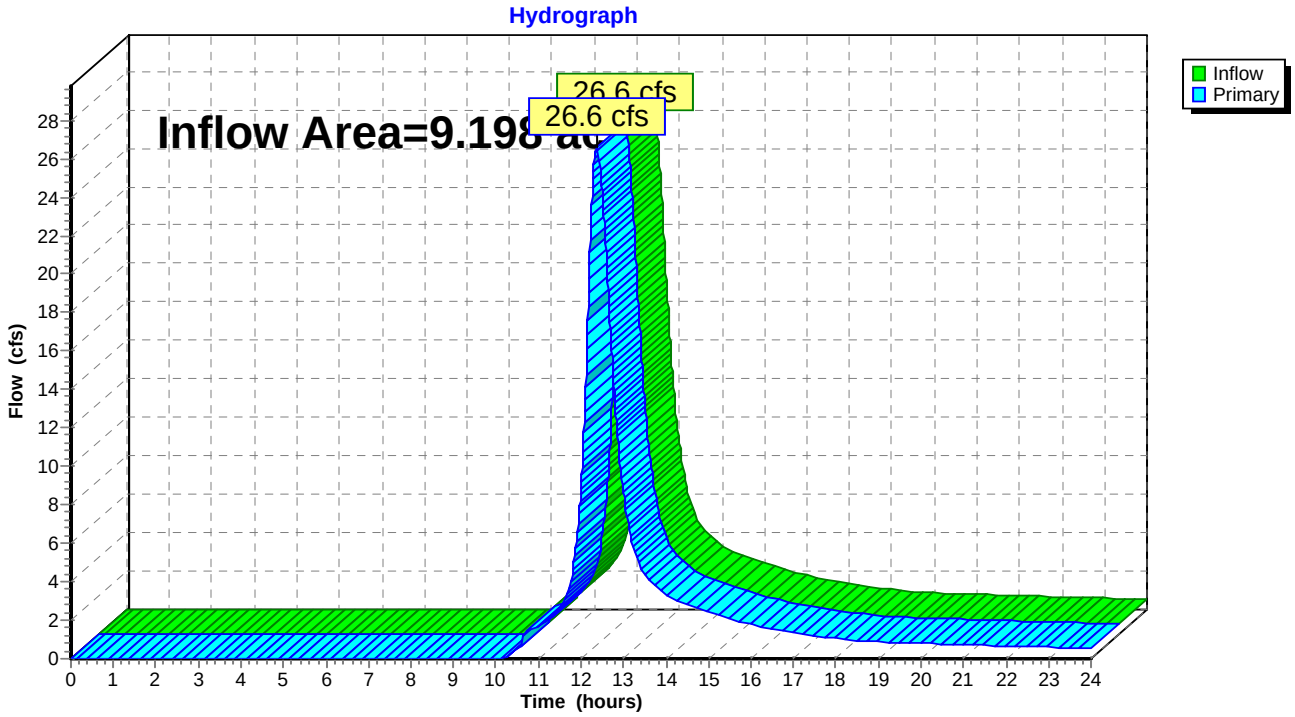
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
386.00	2,742	0
386.02	2,757	55
386.04	2,773	110
386.06	2,788	166
386.08	2,804	222
386.10	2,819	278
386.12	2,834	335
386.14	2,850	391
386.16	2,865	449
386.18	2,880	506
386.20	2,896	564
386.22	2,911	622
386.24	2,927	680
386.26	2,942	739
386.28	2,957	798
386.30	2,973	857
386.32	2,988	917
386.34	3,004	977
386.36	3,019	1,037
386.38	3,034	1,098
386.40	3,050	1,158
386.42	3,065	1,219
386.44	3,081	1,281
386.46	3,096	1,343
386.48	3,111	1,405
386.50	3,127	1,467
386.52	3,142	1,530
386.54	3,157	1,593
386.56	3,173	1,656
386.58	3,188	1,720
386.60	3,204	1,784
386.62	3,219	1,848
386.64	3,234	1,912
386.66	3,250	1,977
386.68	3,265	2,042
386.70	3,281	2,108
386.72	3,296	2,174
386.74	3,311	2,240
386.76	3,327	2,306
386.78	3,342	2,373
386.80	3,357	2,440
386.82	3,373	2,507
386.84	3,388	2,575
386.86	3,404	2,643
386.88	3,419	2,711
386.90	3,434	2,779
386.92	3,450	2,848
386.94	3,465	2,917
386.96	3,481	2,987
386.98	3,496	3,057
387.00	3,511	3,127
387.02	3,527	3,197
387.04	3,542	3,268
387.06	3,557	3,339
387.08	3,573	3,410
387.10	3,588	3,482
387.12	3,604	3,554
387.14	3,619	3,626
387.16	3,634	3,698
387.18	3,650	3,771
387.20	3,665	3,844
387.22	3,681	3,918
387.24	3,696	3,992
387.26	3,711	4,066
387.28	3,727	4,140
387.30	3,742	4,215
387.32	3,758	4,290
387.34	3,773	4,365
387.36	3,788	4,441
387.38	3,804	4,517
387.40	3,819	4,593
387.42	3,834	4,669
387.44	3,850	4,746
387.46	3,865	4,823
387.48	3,881	4,901
387.50	**3,896**	**4,979**

Summary for Link 2L: Sheet flow to West Wetlands

Inflow Area = 9.198 ac, 1.75% Impervious, Inflow Depth > 4.22" for 100-Year event
Inflow = 26.6 cfs @ 12.37 hrs, Volume= 3.231 af
Primary = 26.6 cfs @ 12.37 hrs, Volume= 3.231 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs

Link 2L: Sheet flow to West Wetlands

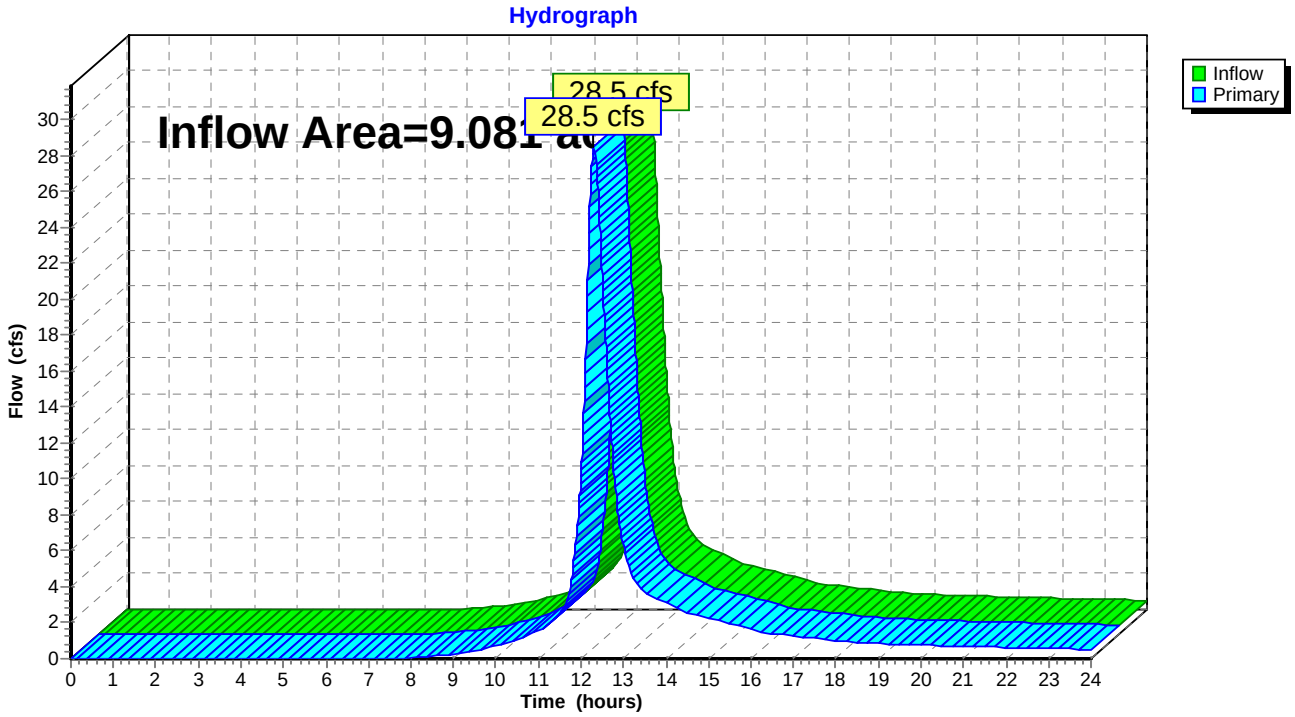


Summary for Link 5L: Sheet Flow to Stott Avenue

Inflow Area = 9.081 ac, 1.16% Impervious, Inflow Depth > 4.11" for 100-Year event
Inflow = 28.5 cfs @ 12.30 hrs, Volume= 3.111 af
Primary = 28.5 cfs @ 12.30 hrs, Volume= 3.111 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs

Link 5L: Sheet Flow to Stott Avenue

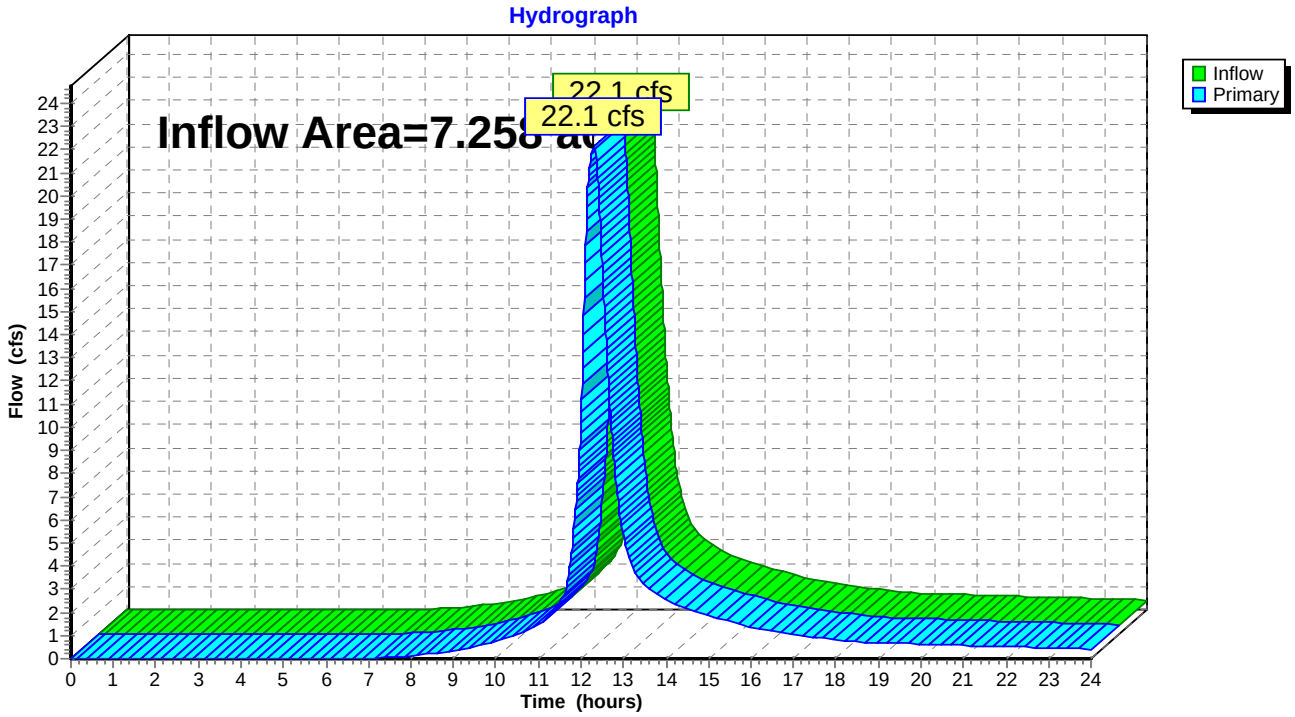


Summary for Link 6L: Sheet flow to North West

Inflow Area = 7.258 ac, 7.14% Impervious, Inflow Depth > 4.44" for 100-Year event
Inflow = 22.1 cfs @ 12.29 hrs, Volume= 2.684 af
Primary = 22.1 cfs @ 12.29 hrs, Volume= 2.684 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.010 hrs

Link 6L: Sheet flow to North West



Appendix C
Stormwater Quality Calculations

Appendix C
Stormwater Quality Calculations

Groundwater Recharge Volume (GRV)

GRV = (D)(A)(I)/12

GRV = Groundwater Recharge Volume (acre-feet)

D = Depth of Runoff to be Recharged (inches)

A = Site Area (acres)

I = Post-Development Imperviousness (decimal)

D=	0.10	inches	(from Table 7-4, Chapter 7, Stormwater Quality Manual)
A =	14.80	acres	
I =	0.03		(See Table 2, Stormwater Mangement Report for new impervious)

GRV =	0.003	acre-feet
=	**139.48**	**cubic feet**

Water Quality Volume (WQV)

WQV = (1")(R)(A)/12

WQV = Water Quality Volume (acre-feet)

R = Runoff Co-Efficient = 0.005 + 0.009(I)

I = Impervious Area (%)

A = Site Area (acres)

IA=	0.38	
I =	2.60	%
R =	0.03	
A =	14.80	

WQV =	0.03	acre-feet
=	**1,523.97**	**cubic feet**

Required Treatment Volume

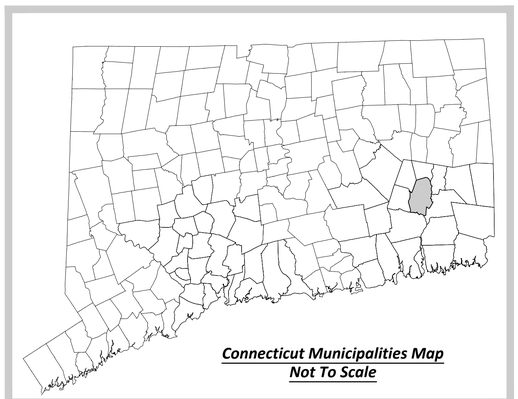
Water Quality Basins (WQB) are sized to treat both the GRV and the WQV.
WQV requirements are reduced by the amount of GRV provided.
Treatment volume provided taken from HydroCAD stage-storage results.
Required treatement volume = (WQV - GRV) + GRV

Volume Required	**1,523.97**	**cubic feet**	
WQB #1 Volume Provided	**1,730**	**cubic feet**	(Up to elevation 393.0)
WQB #2 Volume Provided	**3,127**	**cubic feet**	(Up to elevation 387.0)
Total Volume Provided	**4,857**	**cubic feet**	(Exceeds required volume)

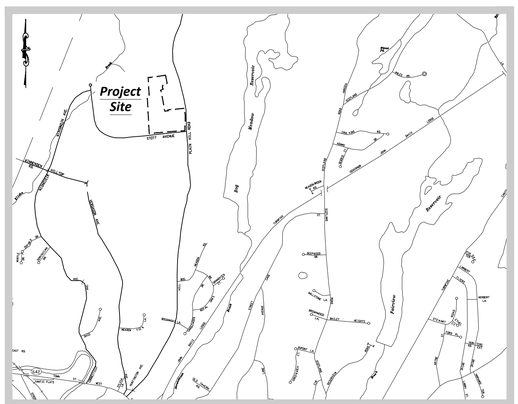
Appendix D
Site Development Plans

STOTT AVENUE SOLAR PROJECT
SITE DEVELOPMENT AND MANAGEMENT PLAN
SolarCity Corporation
9 Stott Avenue & 292 Plain Hill Road
Norwich, Connecticut
August 2015

Revision "A" - Development & Management Plan Submittal - 10/15/15



Connecticut Municipalities Map
Not To Scale



Site Location Map
Scale: 1"=2000'



Site Location Aerial View
Not To Scale

Project Information	
Developed By:	***Electrical Engineer:***
Brightfields Development, LLC *40 Walnut Street, Suite 301* *Wellesley, MA 02481*	*SolarCity Corporation* *714 Brook Street* *Rocky Hill, CT 06067*
SolarCity Corporation *714 Brook Street* *Rocky Hill, CT 06067*	***Host:*** *Kelvin H. Stott & Frances S. Stott* *9 Stott Avenue* *292 Plain Hill Road* *Norwich, CT 06360*
Civil Engineer: *Boundaries LLC* *179 Pachaug River Drive* *Griswold, CT 06351*	***Utility:*** *Norwich Public Utilities* *173 North Main Street* *Norwich, CT 06360*

Index To Drawings	
Sheet	*Sheet Title*
1	*Cover Sheet*
2-3	*Topographic Survey-Existing Conditions*
4	*Lease Plan*
5-6	*Site Preparation and Demolition Plan*
7-8	*Site Development Plan Solar Modules and Infrastructure*
9	*Erosion & Sediment Control Narrative and Details*
10	*Site Details*

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Match Mark - See Sheet #3

N\F
The William W. Backus Hospital
Volume 2610 Page 296

N5°21'13"W 355.11'
N5°21'13"W 540.11'

Rebar Rec

WF #20
WF #15
WF #10
WF #1
WF #4
WF #2-1
WF #2-35
WF #2-05
WF #2-30
WF #2-25
WF #2-10
WF #2-20
WF #2-15
WF #2-17

25' Buffer Area (See Note 5)

Boulders

Edge Of Lawn Area

Inv 4 PVC=394.65

Inv 8" PVC=390.31

Box Wire Fence

"Concrete Pad (Batting Cages)"

Transformer on Concrete Pad

1Sty Building

"Paver Patio"

Concrete Sidewalk

Gravel Parking Area

Cross Hatched Portion Denotes The Limits Of A Drainage Easement in Favor of the City of Norwich Volume 445 Page 312

Cross Hatched Portion Denotes The Limits Of A 20' Wide Permanent and Perpetual Easement and Right of Way For Ingress and Egress Across Lands of Norwich Community Development Corporation Incorporated Volume 2356 Page 310

Inv 30" RCP FEU=378.70

Inv 32" RCP FEU=377.91

Subject Property #1
N/F Kelvin H. Stott
9 Stott Ave.
Vol. 1258 Pg. 227

479.15'
S5°21'13"E 884.75'

20' Buffer Area (See Note 5)

Cross Hatched Portion Denotes The Limits Of A Land Lease In Favor Of SBA Towers, Inc Volume 1477 Page 343

N84°39'06"E 100.00'
S5°21'54"E 100.00'
S84°38'06"W 100.00'
N5°21'54"W 100.00'

Transformer
Chain-Link Fence
Electrical Panel
HHC

N87°21'14"E 133.11' (Tie Line Only)

Limits of Inland Wetlands (Typ)

Boulder

EMH TF=414.03

Cross Hatched Portion Denotes The Approximate Limits Of A 40' Electric Distribution Easement In Favor Of The City of Norwich Department of Public Utilities Volume 1430 Page 219

Gravel Drive Subject to Rights Of Others For Ingress and Egress

Edge Of Lawn Area

Gravel Drive

Underground Electric Marked Out in Field (Typ)

Subject Property #2
N/F Kelvin H. Stott &
Frances S. Stott
292 Plain Hill Road
Volume 1691 Page 144

N\F
Susan E. Ferguson &
Mark J. Ferguson
Volume 1109 Page 32

S10°05'01"E 200.00'
S11°16'05"E 200.00'
N79°00'20"E 210.96'
S11°16'05"E 207.12'

Rebar Rec
Edge Of Lawn Area

SNET 2478
Sign "No Parking"
NPUD 227
HHC
NPUD 226
Sign "Speed Limit 25"
51°52'49"E 55.30'

(Assumed Street Line Along Face of Wall)
S22°24'47"W 127.08'

S22°33'57"W 7.48'
R=24.84'
L=3.14'
R=24.84'
L=34.11'

Drill Hole Rec
NPUD 22 W/UG
BENCHMARK
Nail Rec in NPUD 22
Elev=407.79

Sign "Right Turn Ahead"
CB Type "C" TF=414.5
CB Type "CL" TF=414.23
CB Type "C" TF=407.58
CB Type "CL" TF=406.26

Plain Hill Road

N5°21'13"W 20.00'
Mon Rec
Rebar Rec
S85°18'15"W 208.50'
S85°18'05"W 500.62'
292.12'
S85°18'05"W 500.00'
N5°21'13"W 20.00'
Mon Rec
207.88'
S85°18'05"W 568.78'
336.32'
S85°18'05"W

SMH TF=384.29
CB Type "C" TF=383.39
Inv 30" RCP(N)=378.95
Inv 30" RCP(S)=378.63

CB Type "C"
Inv 30" RCP(N)=378.61
Inv 30" RCP(W)=379.30
Inv 30" RCP(S)=378.43

EMH TF=384.36
Sign "No Parking"
CB Type "C" TF=389.52
HHC
EMH TF=393.76
CB Type "C" TF=393.90
Bituminous Apron
CB Type "C" TF=401.26
CB Type "C" TF=401.18
Sign "No Parking"
BCLC
Transformer on Concrete Pad
EMH TF=409.18
Sign "Speed Limit 30"
Existing Streetline
Sign "No Parking"
EMH TF=404.53
CB Type "C" TF=404.65
CB Type "C" TF=403.73
R=24.84'
L=37.26'
TAN=23.14'
Δ=85°56'14"
CHD=33.86'
CH BRG=S42°19'58"W

Stott Avenue

N\F
Norwich Community Development Corporation, Inc.
Volume 369 Page 783

NPUD S1 W/UG

GRAPHIC SCALE
80 40 20 0 40
(IN FEET)
1 inch = 40 ft.

"TO MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON."

70016
JOHN U. FAULISE JR. L.S. LICENSE NO. DATE

NOTE: SEE SHEET 3 FOR SURVEY NOTES AND LEGEND

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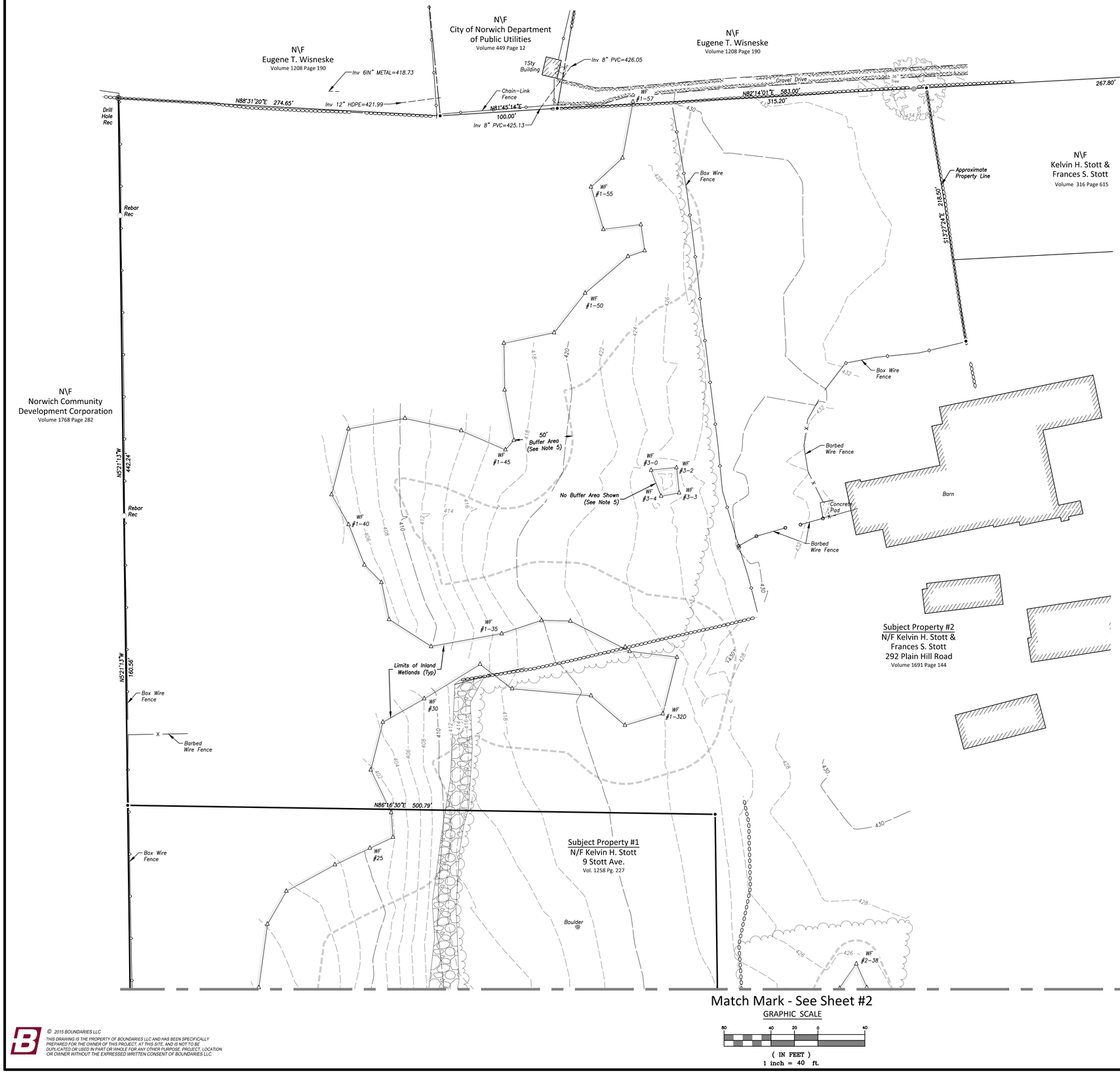
SolarCity Corporation
Site Development and Management Plan
9 Stott Avenue & 292 Plain Hill Road
Norwich, Connecticut
Topographic Survey-Existing Conditions

SCALE: 1"=40'
DATE: August 2015
JOB I.D. NO. 15-2327

Revisions
Rev. A - Development & Management Plan Submittal - 10/15/15

SHEET NO.
2
10



LEGEND & ABBREVIATIONS

±	MORE OR LESS		TREELINE
TYP	TYPICAL		STONEWALL
PVC	POLYVINYL CHLORIDE		STONEWALL REMAINS
RCP	REINFORCED CONCRETE PIPE	•	ANGLE POINT
HDPE	HIGH DENSITY POLYETHYLENE PIPE	○	IRON PIN
S.F.	SQUARE FEET	◉	DRILL HOLE
SMH	SANITARY MANHOLE	⊡	MONUMENT
CB	CATCH BASIN	○	FENCE POST
TF	TOP OF FRAME		UTILITY POLE
INV	INVERT		UTILITY POLE WITH LIGHT
WV	WATER VALVE		GUY WIRE
HH	HANDHOLE	[N]	CATCH BASIN
WF #1	WETLAND FLAG		SANITARY MANHOLE
MON	MONUMENT		ELECTRIC MANHOLE
REC	RECOVERED	⋈	WATER VALVE
NPUD	NORWICH PUBLIC UTILITIES		SIGN
N/F	NOW OR FORMERLY	△	WETLAND FLAG
320	EXISTING CONTOUR		

REFERENCE MAPS

A. RESUBDIVISION SURVEY PROPERTY OF KELVIN H. STOTT, PLAIN HILL ROAD NORWICH, CONNECTICUT, DATED FEBRUARY 1996, SCALE: 1"= 100', PREPARED BY CLA ENGINEERS, INC.

B. LOT LINE RECONFIGURATION PROPERTY OF HILLTOP INVESTMENTS, LLC, #11 STOTT AVENUE NORWICH, CONNECTICUT, DATED 1/15/03, SCALE: 1"= 50', PREPARED BY CLA ENGINEERS, INC.

C. LOT LINE REVISION OF 292 PLAIN HILL ROAD, NORWICH, CONNECTICUT, PREPARED FOR KELVIN H. STOTT DECEMBER 16, 1998, SCALE: 1"= 100', PREPARED BY GESICK & ASSOCIATES P.C.

D. BOUNDARY SURVEY PROPERTY TO BE CONVEYED TO THE WM. W. BACKUS HOSPITAL, #11 STOTT AVENUE, NORWICH, CONNECTICUT, DATED APRIL 2010, SCALE 1"= 40' PREPARED BY CLA ENGINEERS, INC.

E. EXISTING CONDITIONS OF PROPOSED LEASE PARCEL, 292 PLAIN HILL ROAD NORWICH, CONNECTICUT, DATED DECEMBER 17, 1998, SCALE: 1"= 50', SBA, INC., PREPARED BY GESICK & ASSOCIATES P.C.

F. COMPREHENSIVE SITE PLAN SBA SITE #8618/NORWICH, 292 PLAIN HILL ROAD NORWICH, CONNECTICUT, DATED 3/19/99, SCALE: 1"= 50', SBA, INC., PREPARED BY GESICK & ASSOCIATES P.C.

G. KELVIN STOTT BASEBALL BATTING RANGE SITE PLAN, 292 PLAIN HILL ROAD NORWICH, CONNECTICUT, DATED JANUARY 1996, REVISED 2/13/96, SCALE: 1"= 20', PREPARED BY CLA ENGINEERS, INC.

H. SUBDIVISION PLAN #313 PROPERTY OF KELVIN H. STOTT, PLAIN HILL ROAD, NORWICH, CT., DATED 6/24/92, SCALE: 1"=40', PREPARED BY CLA ENGINEERS, INC.

I. CITY OF NORWICH, CONNECTICUT, NORWICH INDUSTRIAL PARK PLAN OF ROADS TO BE CONVEYED BY THE NORWICH COMMUNITY DEVELOPMENT CORPORATION, INC. TO THE CITY OF NORWICH, STOTT AVENUE, DATED JANUARY 1976, SCALE: 1"= 40', SHEETS 1 AND 2 OF 7, PREPARED BY CE MAGUIRE, INC.

J. LAND TO BE CONVEYED BY MICHAEL AND BLANCHE WISNESKE TO THE NORWICH COMMUNITY DEVELOPMENT CORPORATION INCORPORATED, CITY OF NORWICH, CONNECTICUT, SCALE: 1"= 20', REVISED 6/9/72, PREPARED BY C.E. MAGUIRE, INC.

K. MONUMENTED PROPERTY SURVEY PLAN PREPARED FOR STATE OF CONNECTICUT DEPARTMENT OF AGRICULTURE FARMLAND PRESERVATION PROGRAM, PROPERTY OF EUGENE WISNESKE, PLAIN HILL ROAD, DATED 03-11-08, SCALE: 1"= 100', SHEET 4 OF 4, PREPARED BY F.A. HESKETH & ASSOCIATES, INC.

SURVEY NOTES

1. THIS SURVEY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300B-1 THROUGH 20-300B-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES AND "STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED FOR USE BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996. IT IS A PROPERTY AND TOPOGRAPHIC SURVEY BASED ON RESURVEY AND CONFORMS TO HORIZONTAL CLASS A-2 AND TOPOGRAPHIC CLASS T-2 ACCURACY STANDARDS. IT IS INTENDED TO DEPICT EXISTING SITE CONDITIONS FOR THE BASIS OF FUTURE DEVELOPMENT.

2. ACTUAL FIELD SURVEY WAS COMPLETED ON APRIL 23, 2015. LAND RECORDS RESEARCH WAS COMPLETED ON FEBRUARY 18, 2015.

3. NORTH ORIENTATION DEPICTED HEREON IS BASED ON APPROXIMATE CONNECTICUT GRID NORTH, NAD 1983, VERTICAL DATUM IS BASED ON NGVD 1988 DERIVED FROM GLOBAL POSITIONING OBSERVATIONS TAKEN FEBRUARY 2014.

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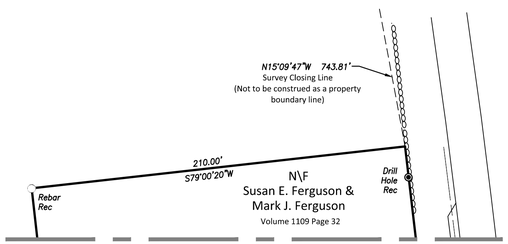
5. LIMITS OF INLAND WETLANDS DEPICTED HEREON WERE DELINEATED BY DEAN E. GUSTAFSON P.S.S., ALL POINTS TECHNOLOGY CORPORATION. 20' TO 50' BUFFER AREAS DEPICTED HEREON ARE PREDICATED ON RECOMMENDED SETBACKS PROVIDED BY ALL POINTS TECHNOLOGY CORPORATION BASED FIELD EVALUATION OF SAID INLAND WETLANDS. THE CITY OF NORWICH INLAND WETLAND REGULATIONS REQUIRES AN UPLAND REGULATED AREA OF 100'.



GRAPHIC SCALE

80 40 20 0 40

(IN FEET)
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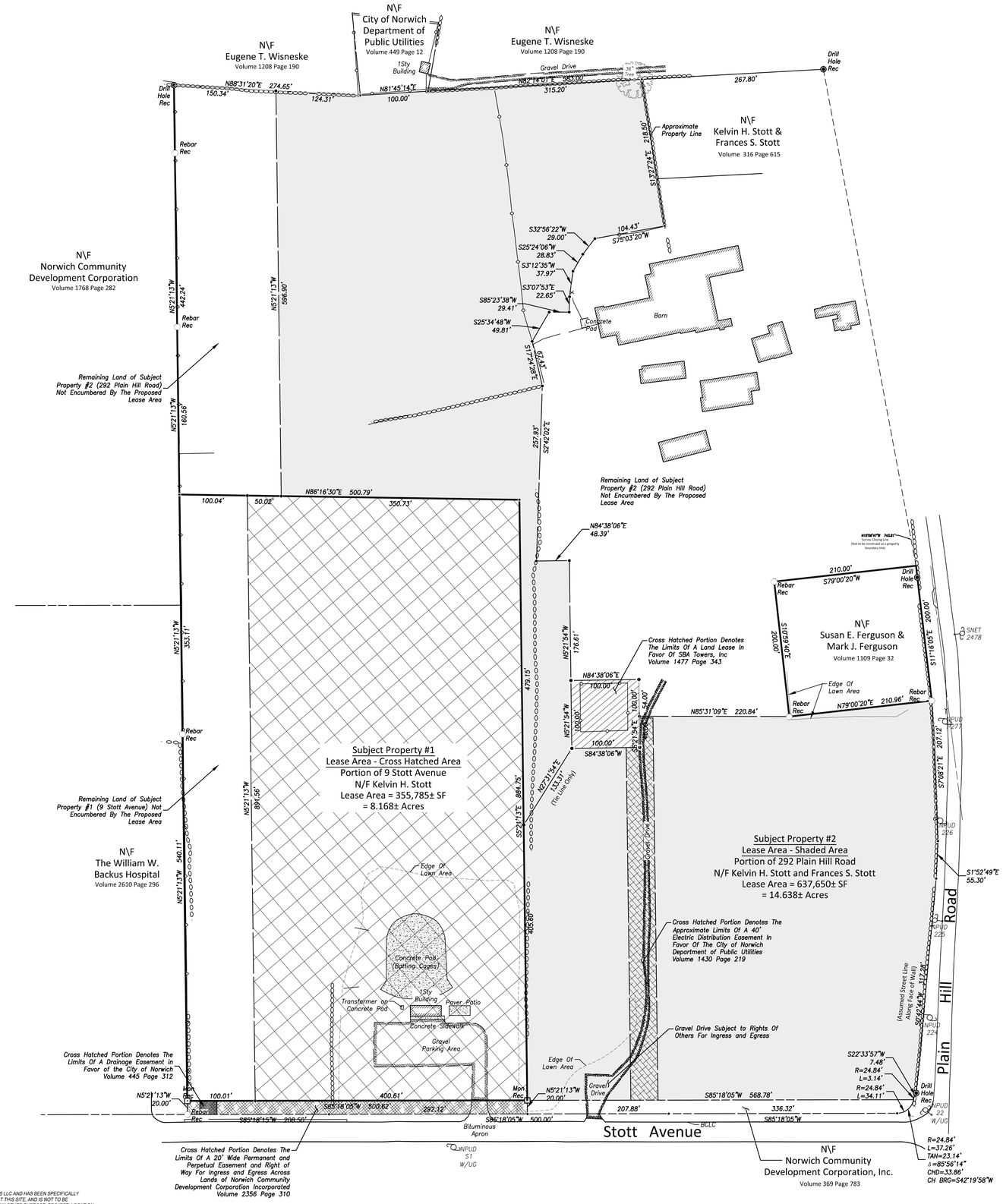
SHEET NO.

3 / 10



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LEGEND & ABBREVIATIONS

±	*MORE OR LESS*
TYP	*TYPICAL*
S.F.	*SQUARE FEET*
MON	*MONUMENT*
REC	*RECOVERED*
NPUD	*NORWICH PUBLIC UTILITIES*
N/F	*NOW OR FORMERLY*
	STONEWALL
	STONEWALL REMAINS
•	*ANGLE POINT*
	IRON PIN
◉	*DRILL HOLE*
⊡	*MONUMENT*
○	*FENCE POST*
	UTILITY POLE
	UTILITY POLE WITH LIGHT
	GUY WIRE

GRAPHIC SCALE

160 80 40 0 80

(IN FEET)
1 inch = 80 ft.

"TO MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON."

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Lease Plan

SCALE: 1"=80'

DATE: August 2015

JOB I.D. NO. 15-2327

Revisions

Rev. A - Development & Management Plan Submittal - 10/15/15

SHEET NO.

4

10

Match Mark - See Sheet #6

DEMOLITION NOTES:

(ALL WORK TO BE PERFORMED IN ACCORDANCE WITH CONNECTICUT GENERAL STATUES SEC. 29-402 THUR SEC. 29-414.)

1. OBTAIN DEMOLITION PERMIT AND PROVIDE REQUIRED BOND.
2. PROVIDE CERTIFICATE OF NOTICE FROM ALL PUBLIC UTILITY COMPANIES STATING THAT SERVICE CONNECTIONS HAVE BEEN TERMINATED.
3. DEMOLITION MATERIALS TO BE REMOVED FROM THE SITE BY THE CONTRACTOR AND DELIVERED FOR DISPOSAL TO A SITE APPROVED TO RECEIVE SUCH MATERIALS.
4. ALL ATTEMPTS SHOULD BE MADE TO LIMIT THE TIME THAT CRAWL SPACES OR FOUNDATIONS UNCOVERED DURING DEMOLITION ARE LEFT OPEN.
5. THE CONTRACTOR IS TO SEGREGATE RECYCLABLE MATERIALS AND DELIVER SUCH MATERIALS TO THE APPROPRIATE RECYCLING CENTER.
6. DUST CONTROL TO BE ACCOMPLISHED BY SPRAYING WITH WATER.
7. EXISTING UTILITY LOCATIONS ARE APPROXIMATE. CONTACT CALL BEFORE YOU DIG: 1-800-922-4455 PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES.

PROPOSED CLEARING LIMITS AND LIMITS OF DISTURBANCE LINE (TYP.) ALONG THE PROPOSED 50' WETLAND BUFFER LINE. NOTE THAT BUFFER TRANSITIONS FROM 25' TO 50' AT THIS LOCATION.

DISTURBANCE LINE TO BE STAKED AND MAINTAINED WITH A CONTINUOUS LINE OF SEDIMENT AND EROSION CONTROL BERM OR SEDIMENT FENCE IMMEDIATELY FOLLOWING CLEARING ACTIVITIES (SEE DETAIL).

BOTTOM OF WATER QUALITY BASIN = 392.0
TOP OF GRAVEL BERM = 393.0
STORAGE VOLUME = 1,730± CF

PROVIDE WATER QUALITY BASIN FORMED WITH 12-INCH HIGH GRAVEL BERM CONSTRUCTED AND INTEGRATED WITH THE NORTHEASTERLY FACE OF THE RELOCATED BOULDER WALL (SEE DETAILS)

25' Buffer Area (See Note 5)

PROVIDE CONTINUOUS CRUSHED STONE CHECK DAM. CONSTRUCT AGAINST THE NORTHEASTERLY FACE OF THE RELOCATED BOULDER WALL (SEE DETAIL)

PROPOSED CLEARING LIMITS AND LIMITS OF DISTURBANCE LINE (TYP.) ALONG THE PROPOSED 25' WETLAND BUFFER LINE.

DISTURBANCE LINE TO BE STAKED AND MAINTAINED WITH A CONTINUOUS LINE OF WOOD CHIP BERM OR SEDIMENT FENCE, IMMEDIATELY FOLLOWING CLEARING ACTIVITIES (SEE DETAIL).

BOTTOM OF WATER QUALITY BASIN = 386.0
TOP OF GRAVEL BERM = 387.0
STORAGE VOLUME = 3,130± CF

PROVIDE WATER QUALITY BASIN FORMED WITH 12-INCH HIGH GRAVEL BERM CONSTRUCTED AND INTEGRATED WITH THE NORTHEASTERLY FACE OF THE RELOCATED BOULDER WALL (SEE DETAILS)

DEMOLISH ALL EXISTING SITE IMPROVEMENTS IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS (SEE NOTES). FOLLOWING COMPLETION ALL AREAS ARE TO BE LOAMED, SEEDED AND MULCHED.

EXISTING STONE WALL TO REMAIN

PROVIDE 4,965' CHAIN LINK FENCE (SEE DETAIL)

Cross Hatched Portion Denotes The Limits Of A Drainage Easement in Favor of the City of Norwich Volume 445 Page 312

Cross Hatched Portion Denotes The Limits Of A 20' Wide Permanent and Perpetual Easement and Right of Way For Ingress and Egress Across Lands of Norwich Community Development Corporation Incorporated Volume 2356 Page 310

ALL AREAS LOCATED WITHIN THE LIMITS OF CLEARING TO BE CLEARED, STUMPS REMOVED, AND GRUBBED. DISTURBED AREAS TO BE LOAMED, SEEDED AND MULCHED.

FEASIBLE TOPSOIL STOCKPILE LOCATION (PROVIDE AND MAINTAIN CONTINUOUS SEDIMENT FENCE AROUND STOCKPILE)

EXISTING BOULDERS TO BE REMOVED. UTILIZE AND RELOCATE BOULDERS TO FORM A SINGLE CONTINUOUS BOULDER WALL (920'±) ALONG THE NORTHEASTERLY LIMITS OF THE PROPOSED 25' BUFFER AREA. EXCESS MATERIAL TO EITHER BE PROCESSED ON SITE FOR USE IN THE CONSTRUCTION OF THE STONE CHECK DAMS/GRAVEL BERMS OR REMOVED FROM THE SITE.

EXISTING BOULDERS AND STONE WALL TO BE REMOVED. EXCESS MATERIAL TO EITHER BE PROCESSED ON SITE FOR USE IN THE CONSTRUCTION OF THE STONE CHECK DAMS/GRAVEL BERMS OR REMOVED FROM THE SITE.

PROVIDE 12' WIDE PERMANENT GRAVEL ACCESS DRIVEWAY (SEE DETAIL)

REMAINS OF EXISTING STONE WALL TO REMAIN OUTSIDE OF PROPOSED FENCE LINE

PROVIDE DESIGNATED CONCRETE TRUCK WASHOUT AREA (10'X10' AREA MIN.)

ALL UTILITY SERVICES ARE TO BE ABANDONED AND CAPPED IN ACCORDANCE WITH THE REQUIREMENTS OF NORWICH DPU. CALL BEFORE YOU DIG: 1-800-922-4455

EXISTING GRAVEL PARKING AREA TO BE UTILIZED FOR STAGING, LAYDOWN, AND THE PROCESSING/LOADING OF BOULDERS DURING CONSTRUCTION. GRAVEL IS TO BE REMOVED FOLLOWING THE COMPLETION OF SITE PREPARATION/ DEMOLITION ACTIVITIES, AND THE AREA LOAMED, SEEDED AND MULCHED.

PROVIDE 15' WIDE ACCESS GATE (TYP. FOR 2) (SEE DETAIL)

PROPOSED TEMPORARY CONSTRUCTION ACCESS DRIVEWAY. PROVIDE AND MAINTAIN A ANTI-TRACKING PAD THROUGHOUT CONSTRUCTION.

Cross Hatched Portion Denotes The Limits Of A Land Lease In Favor Of SBA Towers, Inc Volume 1477 Page 343

Cross Hatched Portion Denotes The Approximate Limits Of A 40' Electric Distribution Easement In Favor Of The City of Norwich Department of Public Utilities Volume 1430 Page 219

PROVIDE 1,900' CHAIN LINK FENCE (SEE DETAIL)

EXISTING BOULDERS TO BE REMOVED. EXCESS MATERIAL TO EITHER BE PROCESSED ON SITE FOR USE IN THE CONSTRUCTION OF THE STONE CHECK DAMS/GRAVEL BERMS OR REMOVED FROM THE SITE.

PROVIDE STONE CHECK DAM (SEE DETAIL)

ALL AREAS LOCATED WITHIN THE LIMITS OF CLEARING TO BE CLEARED, STUMPS REMOVED, AND GRUBBED. DISTURBED AREAS TO BE LOAMED, SEEDED AND MULCHED.

Gravel Drive Subject to Rights Of Others For Ingress and Egress

PROVIDE CONTINUOUS ARBORVITAE LANDSCAPED BUFFER ALONG PLAIN HILL ROAD AND THE PROPOSED LEASE LINE (SEE LANDSCAPE SCHEDULE AND DETAILS)

PROVIDE CONTINUOUS CANADA YEW LANDSCAPED BUFFER ALONG STOTT AVENUE (SEE LANDSCAPE SCHEDULE AND DETAILS)

PROVIDE CONTINUOUS SEDIMENT FENCE LINE DOWNGRADIENT OF PROPOSED WORK (TYP) (SEE DETAIL)

Stott Avenue

Plain Hill Road

GRAPHIC SCALE
80 40 20 0 40
(IN FEET)
1 inch = 40 ft.

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29102
DAVID C. McKAY, P.E. — LICENSE NO. — DATE

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SCALE: 1"=40'
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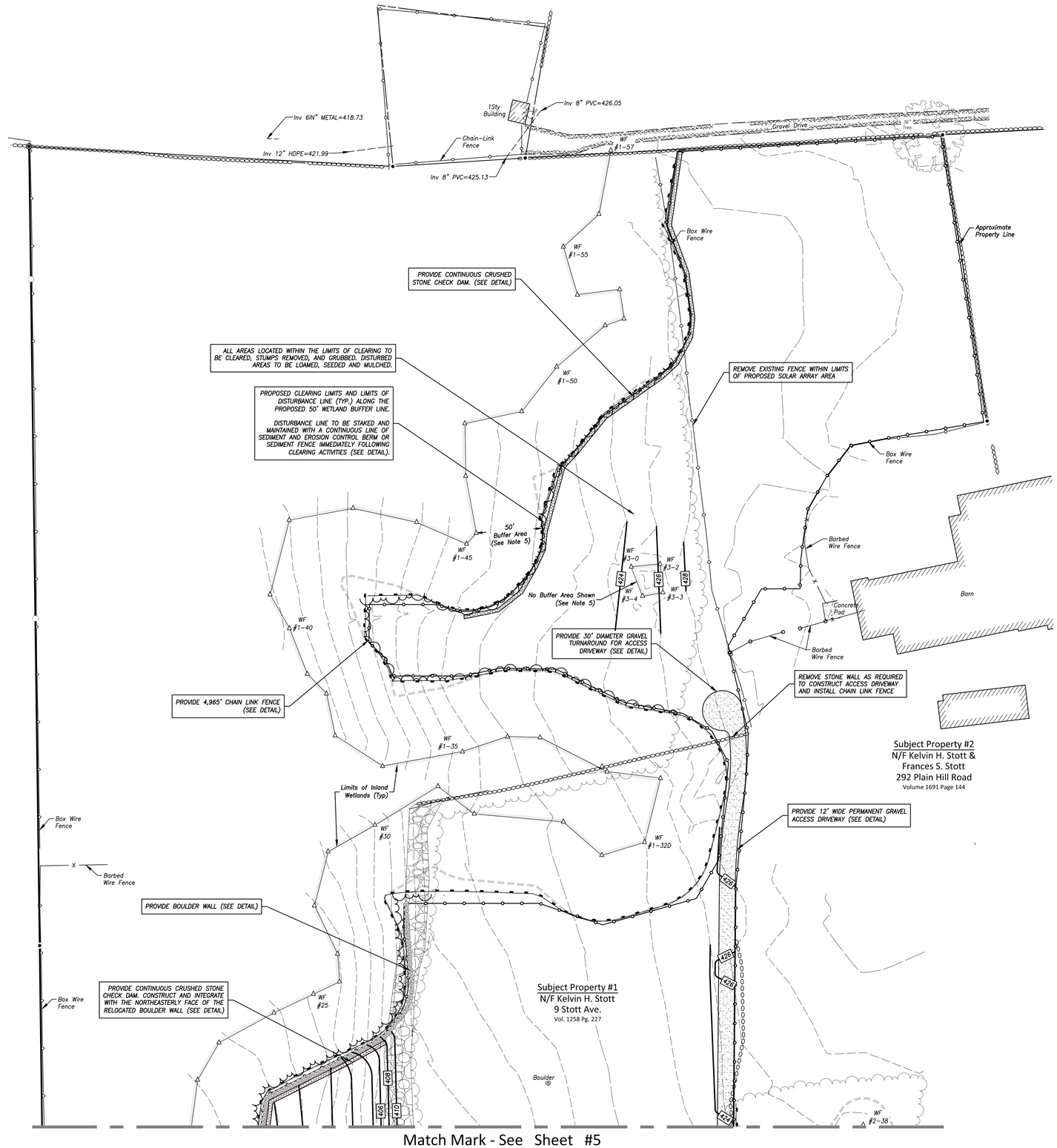
SHEET NO.
5
10



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10

Match Mark - See Sheet #8

LIMITS OF PERIMETER IMPROVEMENTS COMPLETED DURING SITE PREPARATION AND DEMOLITION (CHAIN LINK FENCE, BOULDER WALL, WATER QUALITY BASINS, STONE CHECK DAM, AND GRAVEL BERM)

PROPOSED SOLAR PHOTOVOLTAIC SYSTEM

PROVIDE CONCRETE PAD FOR ELECTRICAL INVERTER EQUIPMENT (SEE ELECTRICAL DRAWINGS)

PROVIDE ELECTRICAL CONDUIT (TYP) (SEE ELECTRICAL DRAWINGS)

PROVIDE CONCRETE PAD FOR BATTERY SYSTEM AND PV SYSTEM UTILITY INTERCONNECTION POINT (SEE ELECTRICAL DRAWINGS)

Chain-Link Fence

Electrical Panel

Transformer

Box Wire Fence

Underground Electric Marked Out In Field (Typ)

Gravel Drive

Transformer on Concrete Pad EMH TF=409.18

Rebar Rec

Sign "Speed Limit 25"

Sign "Right Turn Ahead"

Sign "No Parking"

Sign "Speed Limit 30"

CB Type "C" TF=414.5

CB Type "CL" TF=414.23

CB Type "C" TF=407.58

CB Type "CL" TF=406.26

CB Type "C" TF=404.65

CB Type "C" TF=403.73

CB Type "C" TF=401.26

CB Type "C" TF=401.18

CB Type "C" TF=393.90

CB Type "C" TF=389.52

CB Type "C" TF=383.39
Inv 30" RCP(N)=378.95
Inv 30" RCP(S)=378.63

SMH TF=384.29

CB Type "C"
Inv 30" RCP(N)=378.61
Inv 30" RCP(W)=379.30
Inv 30" RCP(S)=378.43

EMH TF=384.36

EMH TF=393.76

EMH TF=404.53

EMH TF=414.03

BCLC

HHC

HHT

NPUD 227

NPUD 226

NPUD 225

NPUD 224

NPUD 22 W/UG

NPUD S1 W/UG

Stott Avenue

Plain Hill Road

GRAPHIC SCALE

80 40 20 0 40

(IN FEET)
1 inch = 40 ft.

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29102
DAVID C. McKAY, P.E. LICENSE NO. DATE

CIVIL ENGINEERING LAND SURVEYING LAND DEVELOPMENT PLANNING GIS CAD/BIM
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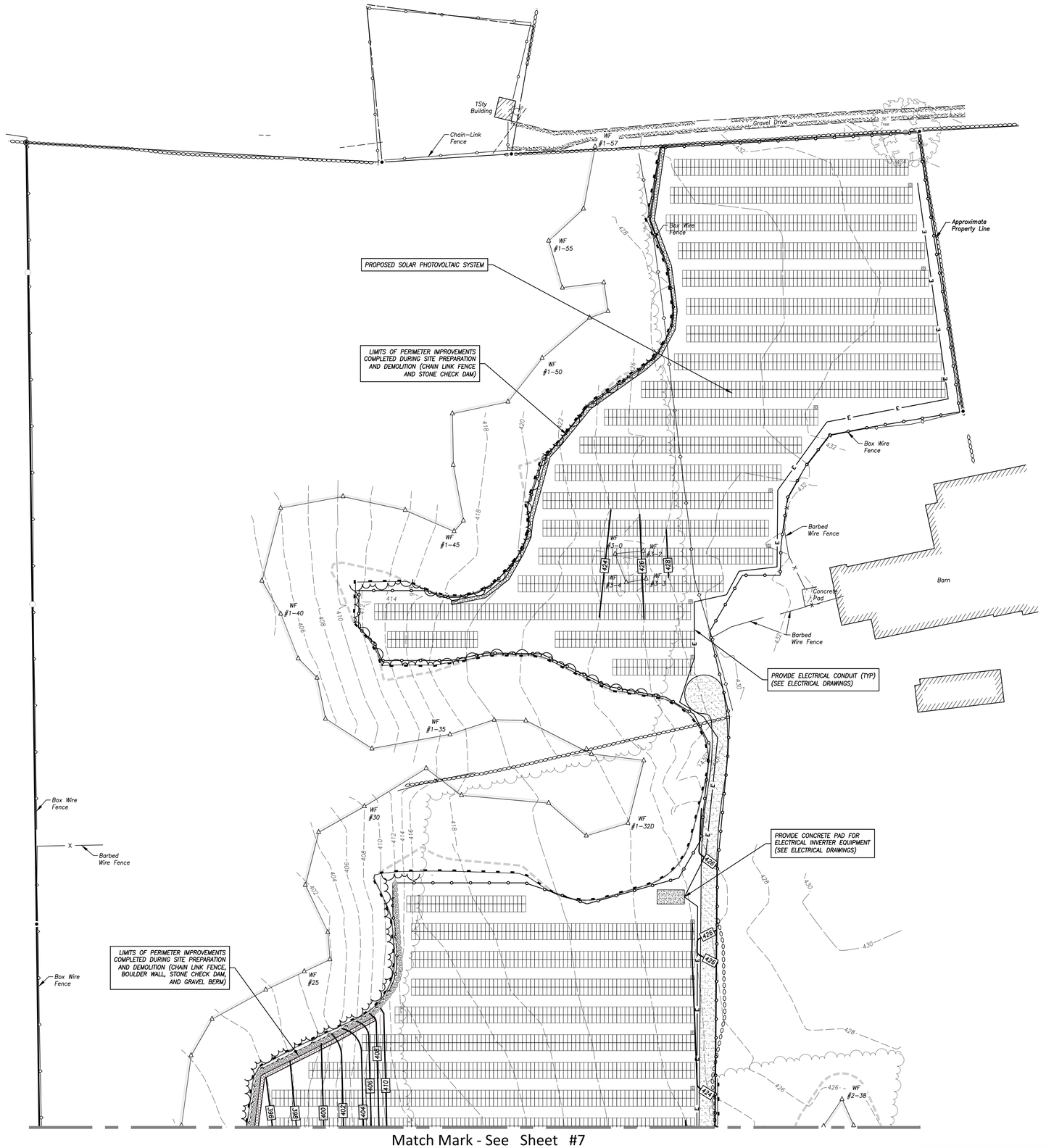
SolarCity
714 Brook Street
Rocky Hill, CT 06067
www.solarcity.com

SolarCity Corporation
Site Development and Management Plan
9 Stott Avenue & 292 Plain Hill Road
Norwich, Connecticut
Site Development Plan Solar Modules and Infrastructure

SCALE: 1"=40'
DATE: August 2015
JOB I.D. NO. 15-2327
Revisions
Rev. A - Development & Management Plan Submittal - 10/15/15

SHEET NO.
7
10



Match Mark - See Sheet #7

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Site Development and Management Plan
9 Stott Avenue & 292 Plain Hill Road
Norwich, Connecticut
Site Preparation and Demolition Plan

SCALE: 1"=40'
DATE: August 2015
JOB I.D. NO. 15-2327

Revisions
Rev. A - Development & Management Plan Submittal - 10/15/15

SHEET NO.
8
10

Reference Is Made To:
1. Connecticut Guidelines For Soil Erosion and Sediment Control, MAY 2002.
2. Soil Survey Of New London County Connecticut, U.S.D.A. Soil Conservation Service.

Development Schedule:
Prior to the start of construction, the contractor is to schedule a mandatory preconstruction meeting on site to discuss issues as they relate to the proposed project. These issues will include but not be limited to:
1. Resource Protection.
2. Construction Vehicle Access and Parking.
3. Construction Methods and Scheduling.
4. Existing site utilities and mark-out coordination.
5. Material delivery and stockpiling.
6. Site Inspection procedures and As-Built drawings.

General Sequence of Construction:
1. Secure all necessary local, state, and federal permits. Register for all applicable state and federal permits as required.
2. Install anti-tracking pad at construction entrance and sediment fence in vicinity of proposed access drive.
3. Rough grade (cut and fill as required) access drive. Place and compact driveway base and install traffic bound gravel surface for access drive. Stabilize all side slopes as soon as completed by loaming all disturbed areas (4" minimum), seed with grass/hydroseed and mulch.
4. Clear and remove all trees within the proposed clearing limits. Chip trees for use as sediment and erosion control berms.
5. Install sediment and erosion control berms or sediment fence as shown down gradient of proposed development area prior to grubbing operations.
6. Install chain link security fence along entire perimeter of development area and access road.
7. Grub stumps and strip topsoil in cleared areas and proposed grading areas stockpile all topsoil at the locations indicated or other approved location. Seed these stockpiles with ryegrass and surround with sediment fence or sediment and erosion control berm. All stumps are to be ground or disposed of off-site.
8. Install boulder barriers, stormwater basins/temporary sediment traps, and crushed stone check dams, and grade as shown within the cleared areas (13% maximum within the solar array area and 3H:1V maximum in other areas), place 4" of topsoil (minimum), seed and mulch disturbed areas.
9. Demolish existing structures in accordance with local, state, and federal requirements.
10. Grade remainder of site to the grades shown (13% maximum within the solar array area and 3H:1V maximum in other areas), place 4" of topsoil (minimum), seed and mulch disturbed areas.
11. Install final landscaping improvements and proposed solar array system. Install conduit, concrete utility pads and electrical equipment as required for harvesting power.
12. After all areas have been permanently stabilized, remove erosion control measures. Sediment and erosion control berms may be left in place at the option of the Contractor.

Soil Disturbance Phasing:
The project results in an estimated total soil disturbance of 4.91 acres as a result of the following activities:
1. Access drive construction and grading – 0.77 acres
2. Clearing, grubbing, and grading of cleared areas – 2.70 acres
3. Existing structure demolition and grading – 1.29 acres
4. Miscellaneous site improvements (landscaping, utilities, etc.) – 0.15 acres

Sediment and erosion control measures shall be installed on the downgradient limit of the project area prior to the initiation of any soil disturbing activities.

Construction Notes:
1. The Contractor shall Call Before You Dig at 811 or 1-800-922-4455 at least 72 hours, Saturdays, Sundays, and holidays excluded, prior to excavation at any location. A copy of the Call Before You Dig project reference number(s) shall be given to the Owner prior to excavation.
2. Locations of existing pipes, conduits, utilities, foundations and other underground objects are not warranted to be correct and the Contractor shall have no claim on that account should they be other than that shown.
3. Stone walls, fences, curbs, etc. shall be removed and replaced as necessary to perform the work. Unless otherwise indicated, all such work shall be incidental to construction of the project.
4. All other areas disturbed by the Contractor beyond payment limits shall be restored at no additional cost to the Owner.
5. The wetland buffer line shall be staked out in the field prior to any clearing operations.
6. All work shall be done in accordance with OSHA requirements and the contractor is responsible for compliance with these requirements. In addition, it shall be the responsibility of the Contractor to provide any excavation safeguards, necessary barricades, flagmen, etc. for traffic control and site safety.
7. All erosion & sedimentation control measures shall be installed prior to the start of construction.
8. All fuel, oil, paint or other hazardous materials used during construction should be stored in a secondary container and removed to a locked indoor area with an impervious floor during non-work hours.
9. No waste materials (such as stumps) are allowed to be buried on site. All waste materials shall be disposed of off-site at an appropriate location in accordance with all local, state, and federal regulations.

Erosion Control Operation & Maintenance:

The applicant shall be responsible for the installation and maintenance of erosion and sediment control measures throughout the project. No construction shall proceed until proper sedimentation and erosion control methods have been installed as the sequence of construction necessitates.

Every precaution shall be used during construction to prevent and minimize the degradation of the existing water quality from stormwater runoff during construction. All activities shall be in conformance to and consistent with all applicable water quality standards and management practices as set forth by local, state and federal agencies.

The applicant shall appoint an onsite agent who shall be personally responsible for implementing this erosion and sediment control plan and enforcing the prescribed safeguards during the excavation and operation period.

This responsibility includes the installation and maintenance of control measures throughout the project, informing all parties engaged on site of the requirements and objectives of the plan, notifying the proper agency and officials of any transfer of this responsibility.

All erosion and sediment control measures shall be repaired, cleaned and/or replaced as necessary throughout the project in order to maintain complete and integral erosion and sediment control protection. Once in place, all erosion and sediment control measures are to remain in place in proper condition and be continuously maintained until final site restoration has been completed. Following such permanent stabilization, the erosion and sediment control measures shall be dismantled, removed, and disposed of in an approved manner. Additional erosion and sediment control measures beyond those shown on the plans or prescribed herein shall be put in place, whenever necessary, to address field conditions and/or as ordered by the engineer.

Qualified personnel provided by the applicant shall inspect disturbed areas and the locations where vehicles enter and leave the site. These areas shall be inspected at least once every seven calendar days and within twenty-four hours at the end of a storm that is 0.5 inches or greater. Additional measures beyond those indicated and/or shown on this plan set or prescribed herein shall be put in place, whenever necessary, To address field conditions and/or as ordered by the engineer. where sites have been temporarily or finally stabilized, such inspection shall be conducted at least once every month for three consecutive months.

No soil, fill or other materials shall be deposited in surrounding inland wetlands.

All temporary storage and/or stockpile areas shall be properly stabilized to prevent erosion and suitably contained to prevent turbid runoff.

Dumping of oil or other deleterious materials on the ground is forbidden. The applicant shall provide a means of catching, retaining and properly disposing of drained oil, removed oil filters, or other deleterious material from equipment used on site. Vehicle maintenance shall be completed off site. All oil spills shall be immediately reported to the department of energy and environmental protection/hazardous materials office. Failure to do so may result in the imposition of fines under the applicable Connecticut General Statutes.

During construction, the applicant shall be responsible for site inspection and maintenance to assure proper performance of erosion control measures. Inspection and maintenance shall include, at a minimum, the following:

- Inspect all sediment fence, sediment and erosion control berms and other erosion control measures. Repair or replace any damaged portion in order to insure its proper and effective operation. Remove accumulated sediment if required (greater than 4" depth).
- Inspect all stockpiles. Repair or replace any damaged portion of erosion control measures surrounding these areas in order to prevent sedimentation downgradient.
- Inspect grass restored areas. Revegetate any eroded or disturbed areas to provide permanent stabilization. Reseed and/or revegetate any areas that do not have a suitable stand of grass or any scoured areas to provide permanent stabilization.
- Inspect anti-tracking pad. Remove and dispose of pad and replace if pad is no longer functioning efficiently or accumulated sediment is to a depth of 2" below the stone surface.
- Inspect all stone check dams. Remove accumulated sediment if required (blocking more than 3" depth of flow).
- Inspect all temporary and permanent stormwater basins. Remove accumulated sediment if required (greater than 6" depth), revegetate if necessary to provide stabilization.
- Inspect downgradient areas of all outlets and solar arrays. Stabilize any eroded areas if found.

Erosion and Sediment Control
Best Management Practices (BMP'S)

Minimize Disturbed Area and Protect Natural Features and Soil:

Topsoil:

Topsoil will be removed and stockpiled on site and utilized for final grading. Additional topsoil, if required will be supplied from an off-site source. Excess materials resulting from "cut slopes" in the areas of the proposed construction that are not intended for reuse will be immediately removed from the site. When soil is stockpiled, the slope of the stockpile will not exceed 2 horizontal to 1 vertical.

Installation Schedule: As noted, excavated topsoil will be stockpiled on site. Sediment fence will be placed around any stockpiles that are not immediately removed from the site to protect the existing drainage ditches and off site areas.

Maintenance and Inspection: The cut and fill areas will be inspected weekly for erosion. These areas will be stabilized immediately with erosion controls or graded to avoid possible disturbance to the existing drainage ditches or off site areas. See also maintenance and inspection procedures for silt fence.

Control Stormwater Flowing Onto and Through the Project:

Area for Silt to accumulate:

BMP/Installation Schedule: Before any grading operations begin, a sediment and erosion control berm or sediment fence will be installed adjacent to the areas under construction just outside the limits of disturbance.

Other adjacent off site areas will always be protected by a sediment fence or another BMP until final stabilization is achieved.

Maintenance and Inspection: The graded areas and sediment fence will be inspected weekly to ensure that there are no structural failures and immediately after rain events.

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Construction Specifications

Sediment and Erosion Control Berm
1. The material for sediment and erosion control berms will be acquired in conjunction with the removal and chipping of trees located within the project area.

Installation

Erect sediment and erosion control berm in a continuous fashion at the specified height and width.

Maintenance:
1. Sediment should be removed once it has accumulated to a depth of 4".
2. Berm should be repaired if it has been breached.
3. Berm can be left in place permanently and left to deteriorate.
4. All sediment accumulated at the berm should be removed and properly disposed of if the berm is to be removed.

Sediment Fence
1. The material for sediment fences should be a pervious sheet of synthetic fabric such as polypropylene, nylon, polyester, or polyethylene yarn.
2. The stakes used to anchor the filter fabric should be wood or metal. Wooden stakes should be at least 3 feet long and have a minimum diameter of 2 inches if a hardwood like oak is used. Stakes from soft woods like pine should be at least 4 inches in diameter.
3. Erect sediment fence in a continuous fashion from a single roll of fabric to eliminate gaps in the fence. If a continuous roll of fabric is not available, overlap the fabric from both directions only at stakes or posts. Overlap at least 6 inches. Excavate a trench to bury the bottom of the fabric fence at least 6 inches below the ground surface. This helps to prevent gaps from forming near the ground surface. Gaps would make the fencing useless as a sediment barrier.
4. The height of the fence posts should be 16 to 34 inches above the original ground surface. Space the posts no more than 10 feet apart.
5. The fence should be designed to withstand the runoff from a 10-year peak storm event. Once installed, it should remain in place until all areas upslope have been permanently stabilized by vegetation or other means.

Installation:
1. Dig a 6" deep trench on the uphill side of the proposed barrier location.
2. Position the posts on the downhill side of the fabric barrier and drive the post 1.5 feet into the ground.
3. Lay the bottom 6" of the fabric barrier in the trench to prevent undermining and backfill.

Maintenance:
1. Sediment should be removed once it has accumulated to 4" depth.
2. Filter fabric should be replaced whenever it has deteriorated to such an extent that the effectiveness of the fabric is reduced (approximately six months).
3. Sediment fence should remain in place until disturbed areas have been permanently stabilized.
4. All sediment accumulated at the fence should be removed and properly disposed of before the fence is removed.

Inspection:
1. Inspect sediment fence before anticipated storm events (or series of storm events such as intermittent showers over one or more days) and within 24 hours after the end of a storm event of 0.5 inches or greater, and at least once every seven calendar days, at least 72 hours apart.
2. Where sites have been finally or temporarily stabilized, such inspections may be conducted once per month.

Straw Bale Barrier

Installation
1. Excavate trench 4" and place material upslope of trench.
2. Place bales in a single row in the trench, lengthwise, with ends of adjacent bales tightly abutting one another and the bindings oriented around the sides rather than along the tops and bottoms of the bales (to avoid premature rotting of the bindings).
3. Anchor each bale with at least 2 stakes, driving the first stake in each bale toward the previously laid bale to force the bales together. Stakes must be driven a minimum of 18 inches into the ground. Fill any gaps between the bales with straw to prevent water from escaping between the bales.
4. Backfill the bales with the excavated trench material to a minimum depth of 4 inches on the uphill side of the bales. Tamp by hand or machine and compact the soil. Loose straw scattered over the disturbed area immediately uphill from the hay bale barrier tends to increase barrier efficiency.

Maintenance
1. Inspect the straw bale barrier at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inch or greater to determine maintenance needs. For dewatering operations, inspect frequently before, during, and after pumping operations. Remove the sediment deposits when sediment deposits reach approximately one half the height of the barrier.
2. Replace or repair the barrier within 24 hours of observed failure. Failure of the barrier has occurred when sediment fails to be retained by the barrier because:
   (a) the barrier has been overtopped, undercut or bypassed by runoff water,
   (b) the barrier has been moved out of position, or
   (c) the straw bales have deteriorated or been damaged.
3. When repetitive failures occur at the same location, review conditions and limitations for use and determine if additional controls are needed to reduce failure rate or replace straw bale barrier.
4. Maintain the straw bale barrier until the contributing area is stabilized. After the upslope areas have been permanently stabilized, pull the stakes out of the hay bales. Remove sediment.

Dust Control:

Dust from the site will be controlled by using a mobile pressure-type distributor truck that will apply potable water at rate of 300 gallons per acre and minimized as needed to avoid ponding.

Installation Schedule: Dust control will be implemented as needed once site grading has been initiated, and during windy conditions exceeding 20mph, while site grading is occurring. Spraying of potable water will be performed once per day during the months of March through May and no more than three times per day from June to September or whenever dryness of soil warrants it.

Maintenance Schedule: At least one mobile unit will be available at all times during construction to apply potable water. Each mobile unit shall be equipped with a positive shutoff valve to prevent over watering of disturbed areas.

Soil Stabilization:

Temporary Stabilization:

BMP Description: Hydromulching will be used on slopes where construction will cease for more than 14 days and over the winter months to stabilize erodible materials. Straw mulch and wood fiber will be mixed with a tackifier and applied uniformly by machine with an application rate of 2 tons (100-200 bales) per acre. The contractor will use crimping equipment to bind the mulch to the soil if the tackifier is not effective. Netting will be used on small areas with steep slopes. In areas where hydromulching is inaccessible, straw mulch will be applied by hand at the same application rate.

Temporary Seeding will be used on any area where construction activity is suspended for more than twenty-one days to stabilize erodible materials. Refer to the Erosion Control Plan for guidance on seeding mixtures, rates, and acceptable planting dates for temporary seeding.

Installation Schedule: Portions of the site where construction activities will temporarily cease for more than 14 days will be stabilized with mulch. Where construction activities will temporarily cease for more than 21 days it will be temporarily seeded. Winter stabilization will be provided between December 25 and March 30.

Maintenance and Inspection: Mulched areas will be inspected weekly to ensure that adequate coverage is provided. Repairs will be conducted as needed.

Seed Mixture For Temporary Seeding

	LBS./ACRE	LBS./1000 S.F.
Annual Ryegrass	40	1.0

See Figure TS-2 in the 2002 Guidelines for additional temporary seed mixes.

Final Stabilization:

Permanent seeding should be applied immediately after the final design grades are achieved at the site but no later than 14 days after construction activities have permanently ceased. After the entire site is stabilized, any sediment that has accumulated will be removed and hauled off site to a licensed landfill facility. Construction debris, trash, and temporary BMP's will also be removed and any areas disturbed during removal will be seeded immediately.

Seedbed Preparation:
1. Topsoil will be spread over final graded areas at a minimum depth of four inches. Topsoil shall inclusively mean a soil meeting one of the following soil textural classes established by the United States Department of Agriculture classification system based upon the proportion of sand, silt, and clay size particles after passing a 2 millimeter (mm) sieve and subjected to a particle size analysis:

1.1. Loamy sand, including coarse, loamy fine, and loamy very fine sand, sandy loam, including coarse, fine and very fine sandy loam, loam, or silt loam with not more than 60% silt;

1.2. Containing not less than 6% and not more than 20% organic matter as determined by loss-on-ignition of oven dried samples dried at 105 degrees centigrade;

1.3. Possessing a ph range of 6.0-7.5, except if the vegetative practice being used specifically requires a lower ph, then ph may be adjusted accordingly;

1.4. Having soluble salts not exceeding 500 ppm;

1.5. And that is loose and friable and free from refuse, stumps, roots, brush, weeds, frozen particles, rocks, and stones over 1.25 inches in diameter, and any material that will prevent the formation of a suitable seedbed or prevent seed germination and plant growth.

2. Fertilizer will be applied to the seedbed as needed. Fertilizers will be commercial type of uniform composition, free-flowing and conforming to the applicable State and Federal laws. Choose native species that are adapted to local weather and soil conditions wherever possible to reduce water and fertilizer inputs and lower maintenance overall.
3. Topsoil will be loosened by raking, tilling or other suitable methods.

Final stabilization should be installed on portions of the site where construction activities have permanently ceased but no later than 14 days after construction ceases.

All seeded areas will be inspected weekly during construction activities for failure until a dense cover of vegetation has been established. If failure is noticed on the seeded area, the area will be reseeded, fertilized and mulched immediately. After construction is complete at the site permanent stabilization measures will be monitored until final stabilization is reached.

Seed Mixture For Upland Areas

	LBS./ACRE	LBS./1000 S.F.
Kentucky Bluegrass	20	0.45
Creeping Red Fescue	20	0.45
Perennial Ryegrass	5	0.10
	45	1.00

The recommended seeding dates are: April 1-June 15 and August 1-September 15

ENVIRONMENTAL NOTES
(PREPARED BY ALL POINTS TECHNOLOGY)

Wetland Protection Program

Portions of the proposed Project are located in close proximity to wetlands. As a result, the following protective measures shall be followed to help avoid degradation of the nearby wetland system.

It is of the utmost importance that the Contractor complies with the requirement for the installation of protective measures and the education of its employees and subcontractors performing work on the project site. These measures will also provide protection to a nearby wetland system. This protection program shall be implemented regardless of time of year the construction activities occur. All-Points Technology Corporation, P.C. ("APT") will serve as the Environmental Monitor for this project to ensure that wetland protection measures are implemented properly. The Contractor shall contact Dean Gustafson, Senior Environmental Scientist at APT, at least 5 business days prior to the pre-construction meeting. Mr. Gustafson can be reached by telephone at (860) 663-1697 ext. 201 or via email at dgustafson@allpointstech.com.

The wetland protection program consists of several components: use of appropriate erosion control measures to control and contain erosion while avoiding/minimizing wildlife entanglement; periodic inspection and maintenance of isolation structures and erosion control measures; education of all contractors and sub-contractors prior to initiation of work on the site; protective measures; and, reporting.

1. Erosion and Sedimentation Controls

   a. Plastic netting used in a variety of erosion control products (i.e., erosion control blankets, fiber rolls [wattles], reinforced silt fence) has been found to entangle wildlife, including reptiles, amphibians, birds and small mammals. No permanent erosion control products or reinforced silt fence will be used on the project. Temporary Erosion control products will use either erosion control blankets and fiber rolls composed of processed fibers mechanically bound together to form a continuous matrix (net less) or netting composed of planar woven natural biodegradable fiber to avoid/minimize wildlife entanglement.

   b. Installation of erosion control measures shall be performed by the Contractor prior to any earthwork. The Environmental Monitor will inspect the work zone area prior to and following barrier installation to ensure erosion controls are properly installed.

   c. In addition to required daily inspection by the Contractor, the fencing will be inspected for tears or breeches in the fabric following installation periodically by the Environmental Monitor throughout the course of the construction project.

   d. The extent of the erosion controls will be as shown on the site plans. The Contractor shall have additional erosion control materials should field conditions warrant extending the fencing as directed by the Environmental Monitor.

   e. All silt fencing and other erosion control devices shall be removed within 30 days of completion of work and permanent stabilization of site soils. If fiber rolls/wattles, straw bales, or other natural material erosion control products are used, such devices will not be left in place to biodegrade and shall be promptly removed after soils are stable so as not to create a barrier to migrating wildlife. Seed from seeding of soils should not spread over fiber rolls/wattles as it makes them harder to remove once soils are stabilized by vegetation.

2. Contractor Education

   a. Prior to work on site, the Contractor shall attend an educational session at the pre-construction meeting with the Environmental Monitor. This orientation and educational session will consist of an introductory meeting with the Environmental Monitor to understand the environmentally sensitive nature of the development site and the need to follow these protective measures.

3. Petroleum Materials Storage and Spill Prevention

   a. Certain precautions are necessary to store petroleum materials, refuel and contain and properly clean up any inadvertent fuel or petroleum (i.e., oil, hydraulic fluid, etc.) spill due to the project's location in proximity to sensitive wetlands.

   b. A spill containment kit consisting of a sufficient supply of absorbent pads and absorbent material will be maintained by the Contractor at the construction site throughout the duration of the project. In addition, a waste drum will be kept on site to contain any used absorbent pads/material for proper and timely disposal off site in accordance with applicable local, state and federal laws.

   c. The following petroleum and hazardous materials storage and refueling restrictions and spill response procedures will be adhered to by the Contractor.

   i. Petroleum and Hazardous Materials Storage and Refueling

1. Refueling of vehicles or machinery shall occur a minimum of 100 feet from wetlands or watercourses and shall take place on an impervious pad with secondary containment designed to contain fuels.
2. Any fuel or hazardous materials that must be kept on site shall be stored on an impervious surface utilizing secondary containment a minimum of 100 feet from wetlands or watercourses.

   ii. Initial Spill Response Procedures

1. Stop operations and shut off equipment.
2. Remove any sources of spark or flame.
3. Contain the source of the spill.
4. Determine the approximate volume of the spill.
5. Identify the location of natural flow paths to prevent the release of the spill to sensitive nearby waterways or wetlands.
6. Ensure that fellow workers are notified of the spill.

   iii. Spill Clean Up & Containment

1. Obtain spill response materials from the on-site spill response kit. Place absorbent materials directly on the release area.
2. Limit the spread of the spill by placing absorbent materials around the perimeter of the spill.
3. Isolate and eliminate the spill source.
4. Contact appropriate local, state and/or federal agencies, as necessary.
5. Contact a disposal company to properly dispose of contaminated materials.

   iv. Reporting

1. Complete an incident report.
2. Submit a completed incident report to appropriate local, state and/or federal agencies, as necessary.

4. Herbicide and Pesticide Restrictions

   a. In the event herbicides and/or pesticides are required at the proposed facility, their use will be used in accordance with Integrated Pest Management ("IPM") principles with particular attention to minimize applications within 100 feet of wetland or watercourse resources. No applications of herbicides or pesticides are allowed within actual wetland or watercourse resources.

5. Reporting

   a. Any incidents of sediment release into the nearby wetland will be reported to the Connecticut Siting Council.

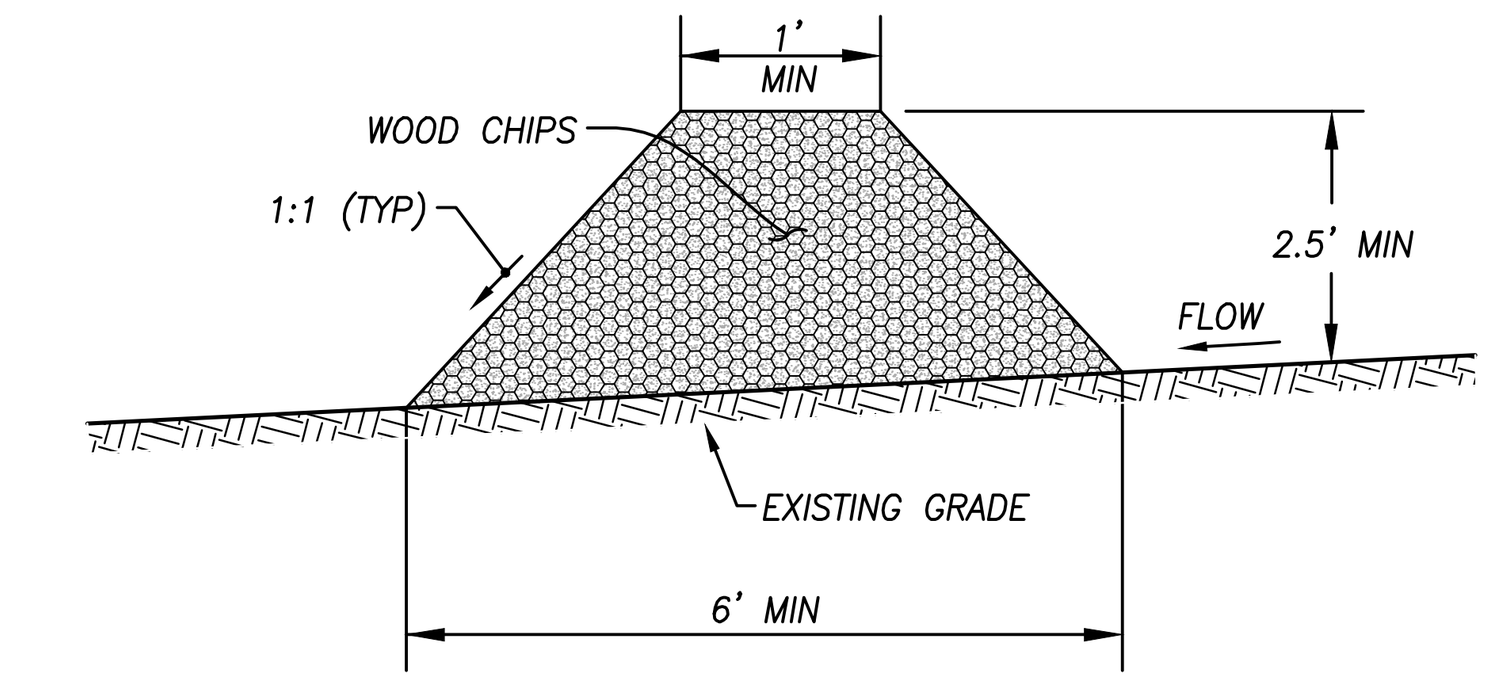
Wildlife Habitat Enhancement Measures

Areas located between the perimeter fence and forest edge (including forest areas that will be cleared to prevent shading of the proposed solar array), shall be managed as follows to enhance wildlife habitat. The relatively narrow strip of land (generally 25 feet in most areas with an expansion to 50 feet for developed areas for areas bordering vegetated community types) located between the perimeter fence and the newly-created forest edge shall be mowed on a rotational basis every 4 to 7 years. Mowing shall not occur between March 1 and November 1 to minimize potential for wildlife impact. This mowing regime will allow the area to revert to a late old field habitat cover and create a "soft" ecotone that will provide cover and habitat for a number of wildlife species that utilize this "edge" habitat, particularly nesting bird species.

Bat and Avian Protection Program

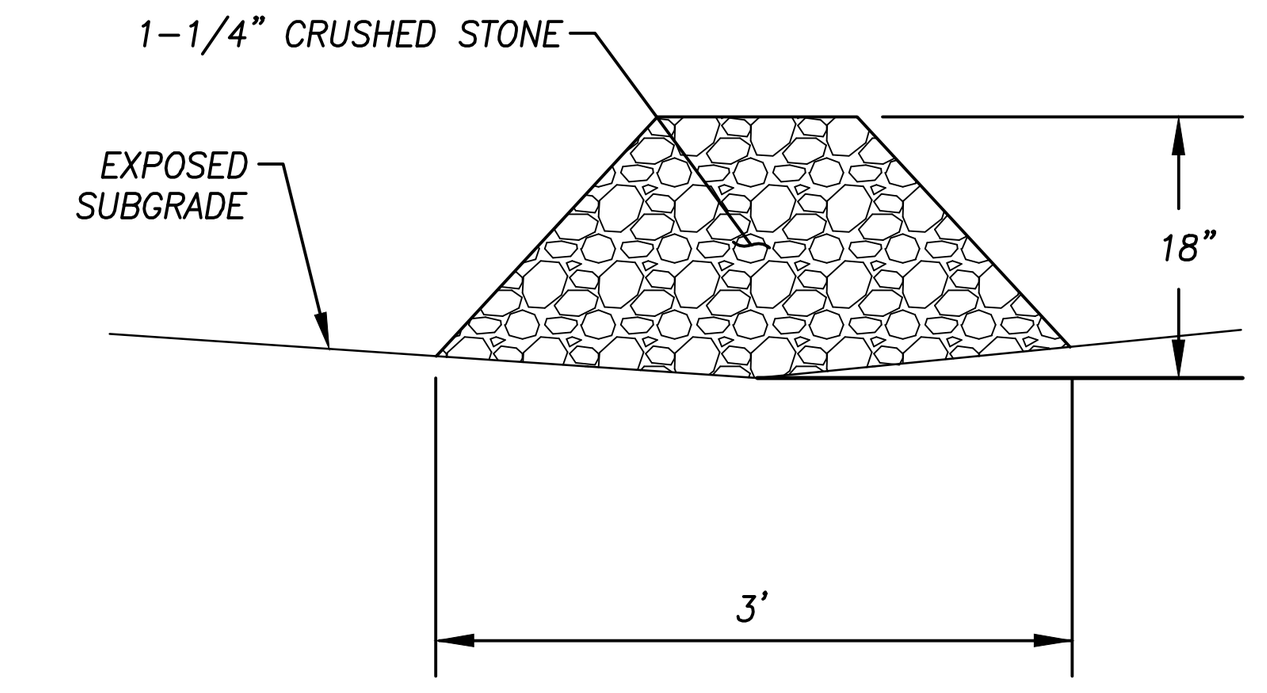
The proposed construction activities will result in the clearing of trees, shrubs and mature vegetation that has the potential to support breeding birds. In addition, depending on the type and timing of forest management activities there is potential for mortality and temporary removal or degradation of roosting and foraging habitat for northern long-eared bat. Northern long-eared bat is a federally-listed Threatened Species and a state-listed Endangered Species.

In order to limit disturbance to tree roosting and breeding habitat utilized by northern long-eared bat and various bird species, the Contractor shall not perform tree clearing activities between April 15 and August 31.



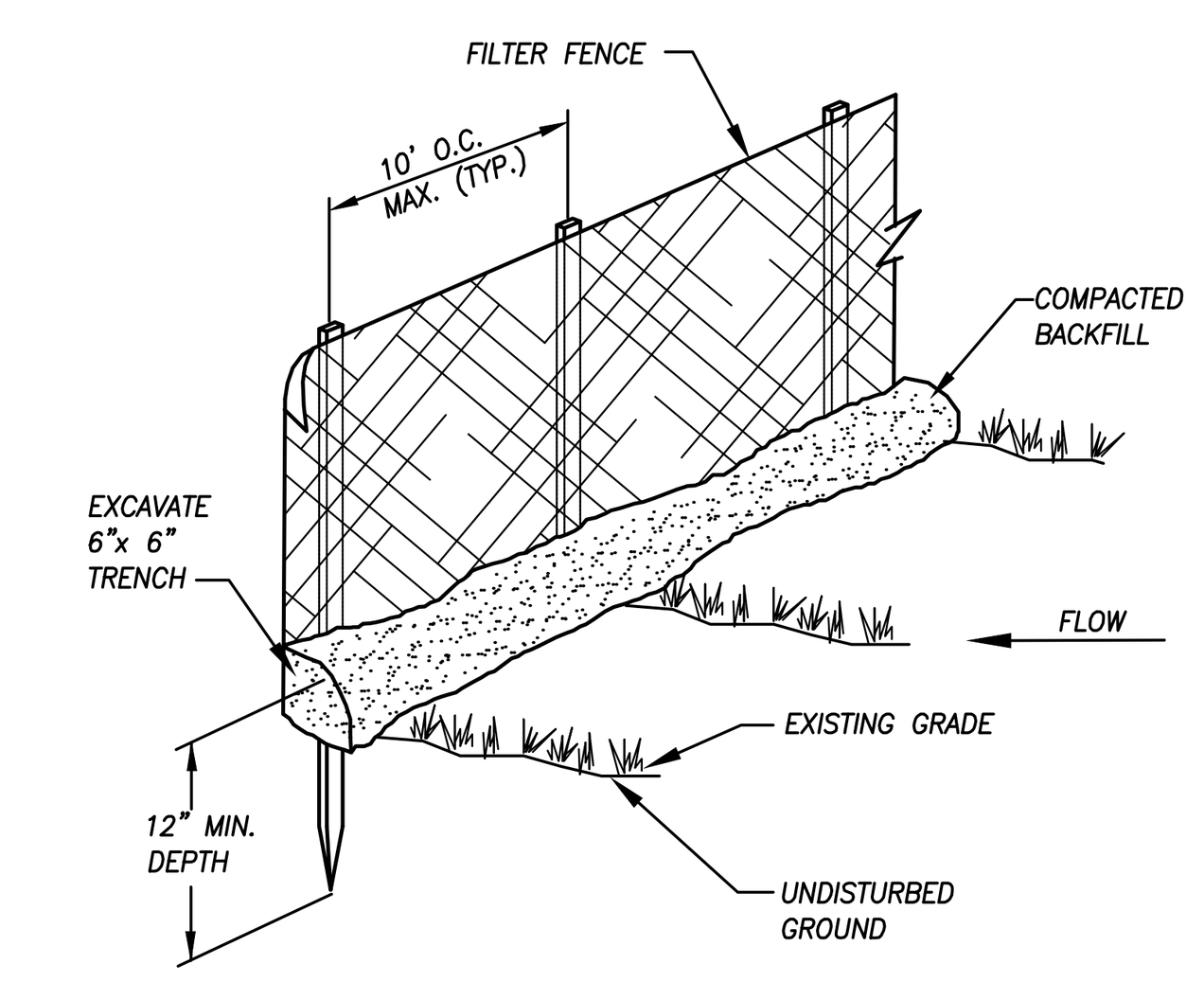
SEDIMENT AND EROSION CONTROL BERM

NOT TO SCALE



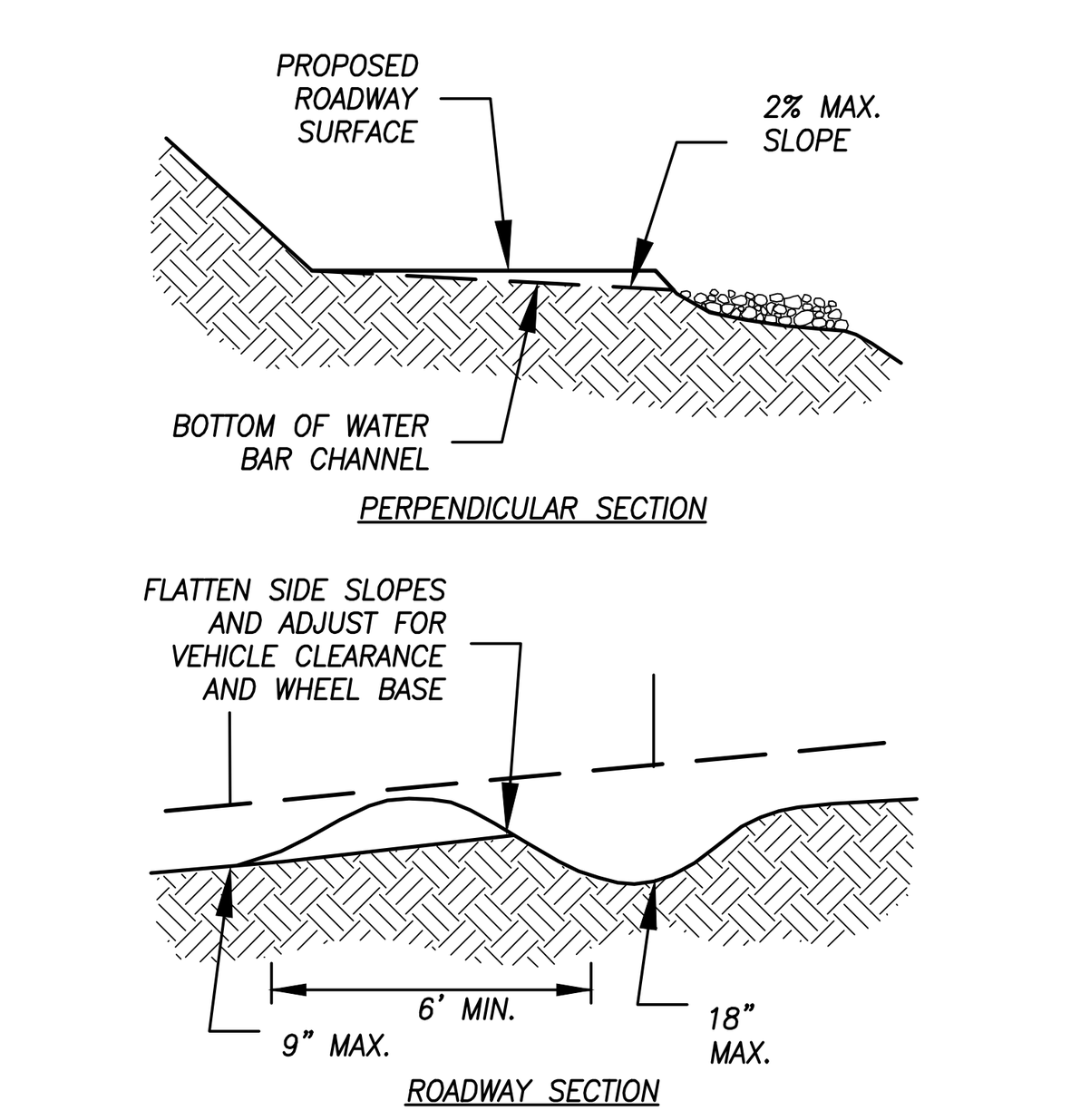
STONE CHECK DAM SECTION

NOT TO SCALE



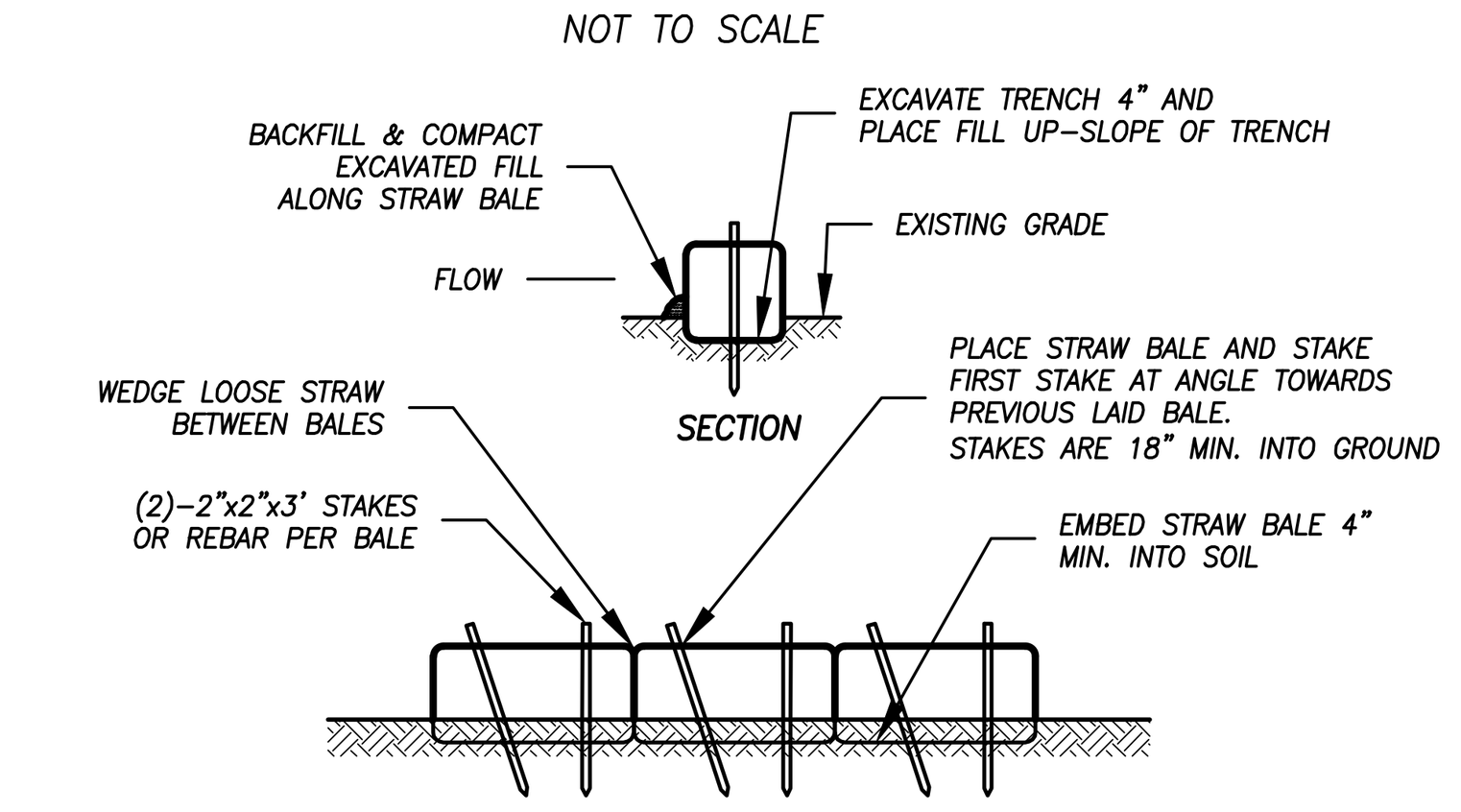
SEDIMENT FENCE DETAIL

NOT TO SCALE



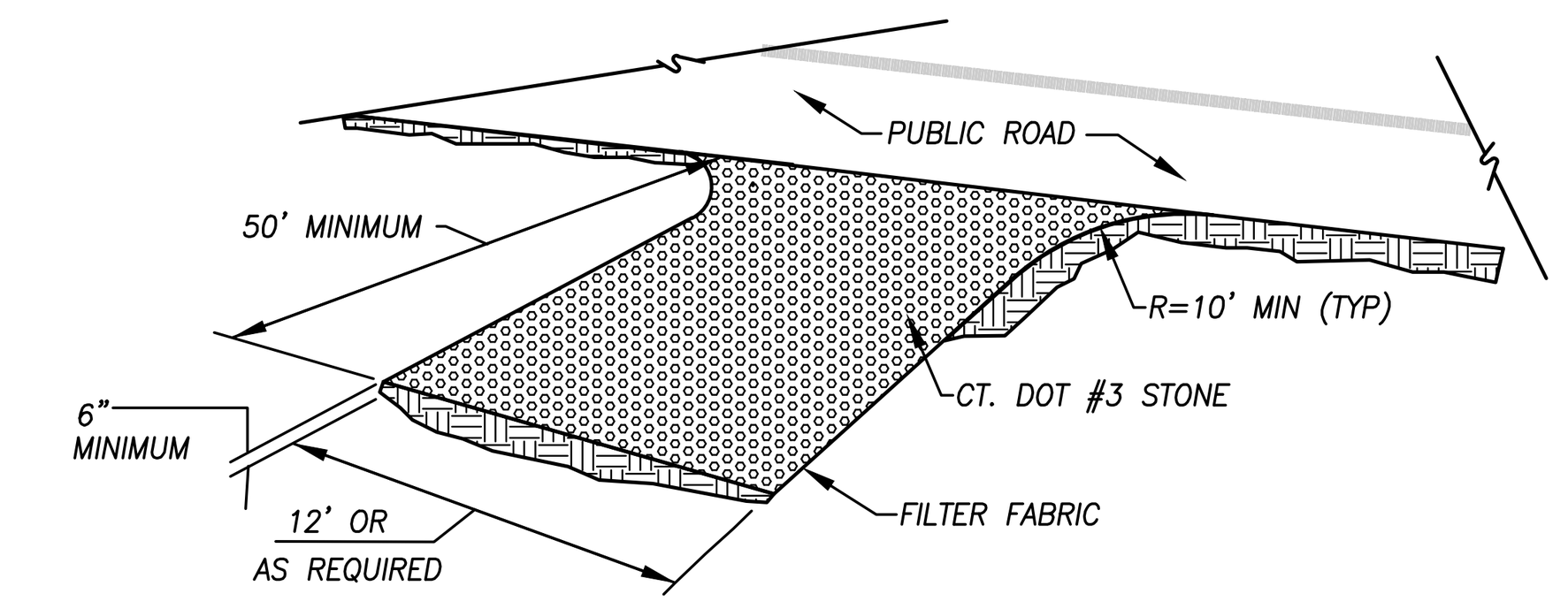
WATER BAR DETAIL

NOT TO SCALE



STRAW BALE BARRIER DETAIL

NOT TO SCALE



ANTI-TRACKING PAD

NOT TO SCALE

29102

DAVID C. McKAY, P.E. LICENSE NO. DATE

BOUNDARIES
CIVIL ENGINEERING LAND SURVEYING LAND USE PLANNING SOIL SCIENCE
Boundaries LLC
179 Pachaug River Drive, Griswold, CT 06351
T 860.376.2006 | www.boundariesllc.net

BRIGHTFIELDS DEVELOPMENT LLC
40 Walnut Street Suite 301
Wellesley, MA 02481
www.solarbrownfields.com

SolarCity
714 Brook Street
Rocky Hill, CT 06067
www.solarcity.com

SolarCity Corporation
Site Development and Management Plan
9 Stott Avenue & 292 Plain Hill Road
Norwich, Connecticut
Erosion and Sediment Control Narrative & Details

SCALE: As Noted

DATE: August 2015

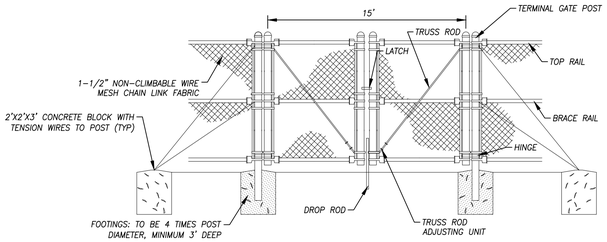
JOB I.D. NO. 15-2327

Revisions

Rev. A - Development & Management Plan Submittal - 10/15/15

SHEET NO.

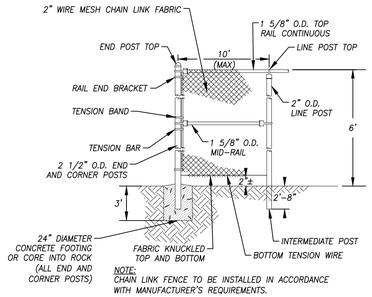
9 / 10



NOTE:
SWING GATES TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

6' HIGH GALVANIZED SWING GATE DETAIL

NOT TO SCALE



NOTE:
CHAIN LINK FENCE TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

GALVANIZED CHAIN LINK FENCE DETAIL

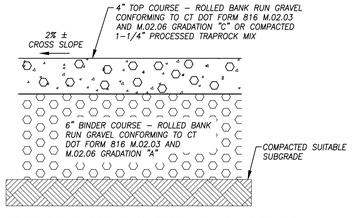
NOT TO SCALE



NOTE:
1. SIGNS MOUNTED ON GATES AT ALL ENTRANCES.
2. SIGNS TO BE RATED FOR OUTDOOR ENVIRONMENTS.

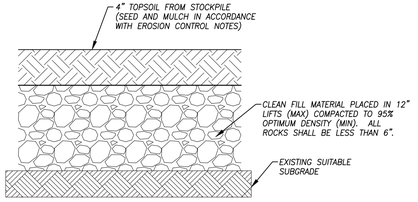
IDENTIFICATION SIGNAGE

NOT TO SCALE



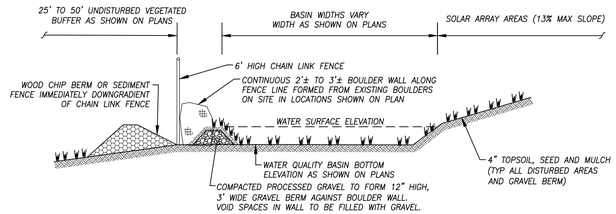
TRAFFIC BOUND GRAVEL SURFACE

NOT TO SCALE



FILL PLACEMENT DETAIL

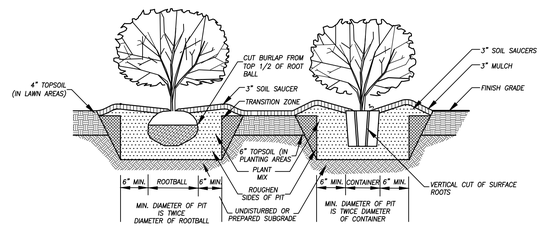
NOT TO SCALE



NOTES:
ALL GRAVEL FILL FOR WATER QUALITY BASIN BERM TO MEET THE REQUIREMENTS OF CT DOT FORM 816 M.02.06 GRADATION A.

WATER QUALITY BASIN DETAIL

NOT TO SCALE



NOTES:
1. SET CROWN OF ROOTBALL 2" ABOVE FINISH GRADE.
2. FOR CONTAINER GROWN STOCK USE FINGERS OR A SHARP KNIFE TO LOOSEN ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL; THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER.
3. AT PLANTING THOROUGHLY SOAK THE ROOT MASS AND ADJACENT SOIL. REPEAT SEVERAL TIMES DURING THE FIRST MONTH AND THROUGHOUT THE FOLLOWING TWO SUMMERS.

SHRUB PLANTING DETAIL

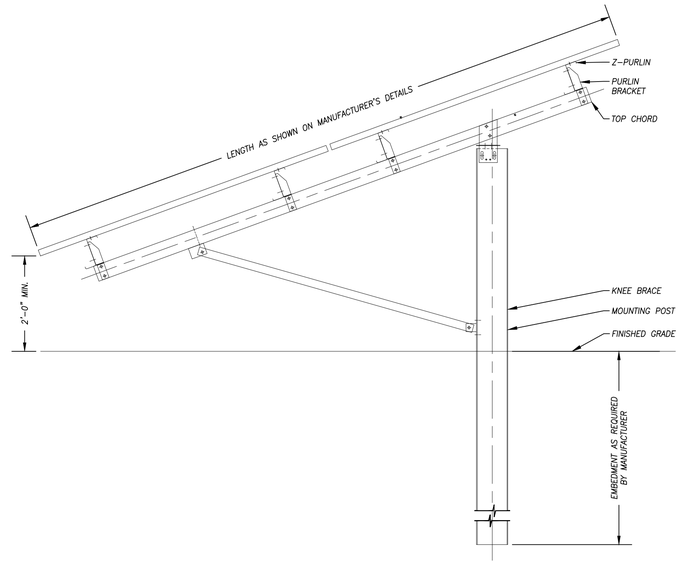
NOT TO SCALE

LANDSCAPE SCHEDULE

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY	COMMENT
TREES AND SHRUBS					
THOC2	Thuja Occidentalis	"Emerald Green" Arborvitae	5' Height	238	C.G.
TACA7	Taxus Canadensis	Canada Yew	2-3' Height	62	C.G.

Planting Specifications:

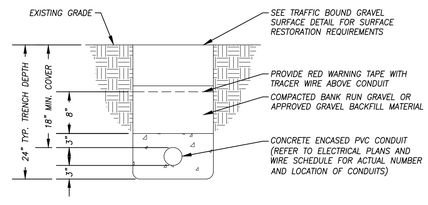
1. *All materials and construction methods shall conform to the requirements of the Connecticut Association of Landscape Contractors Specification. All plants shall be nursery grown and conform to the latest edition of ANSI 260.1, AMERICAN STANDARD FOR NURSERY STOCK and also the minimum guidelines established for nursery stock published by the American Association of Nurserymen, Inc.*
2. *No substitution of plant materials will be allowed without the prior written consent of the Project Owner. Where a plant size range is provided at least 50% of the plants shall be of the larger size.*
3. *All lawn and planting area soil preparation shall be fertilized and amended according to recommendations of a soil analysis provided by an approved soil testing laboratory.*
4. *All exterior ground areas disturbed by construction and not covered by buildings, structures, paving, continuous planting beds or other site improvements shall be graded, topsoiled to a minimum depth of 4" and grass seeded. Provide lawn development in all areas of selective clearing as directed.*
5. *All plant pits must be free draining. Break up the bottom of the hole by fork if necessary to ensure plant has proper drainage.*
6. *Set all plants in center of plant pits, plumb and straight and as detailed on the drawing. All plant material shall bear the same relationship to finished grade as to original planting grade prior to digging. Trees shall be planted with the junction of roots and stem level with finished grade.*
7. *Handle balled and burlapped plants from the ball only. Once positioned in the hole, remove the top 1/3 of the burlap from the root ball without disturbing the roots.*
8. *Face each plant to give the best appearance. Final location of plant material should be approved by the Project Owner in the field.*
9. *Fill plant pits 2/3 their depth with prepared planting mixture, water thoroughly and allow to settle. Complete back-filling, water thoroughly to eliminate any voids and air pockets. Provide additional back-fill as necessary to conform to required elevation and as detailed.*
10. *Form saucer and install mulch over entire plant pit and saucer area as detailed.*
11. *All tree staking or guying shall be completed immediately after planting, but in no instance more than 24 hours after planting. See staking/guying detail. At the completion of the maintenance period remove all stakes, flags, guys, tree wrap, and anchors.*
12. *Mulch all new shrub beds and plant pits to achieve a 3" depth after settlement. Mulch all ground cover beds to achieve a 2" depth after settlement. Mulch for saucers and planting areas to be a double shredded bark mulch.*
13. *All plants shall be guaranteed for a period of one full year after inspection and acceptance by the Owner's representative, and shall have at least 80% healthy growth at the end of the guarantee period.*
14. *Landscape planting materials as proposed by this plan are Connecticut native and/or non-invasive species. This landscape plan has been designed to incorporate species which are prolific in USDA plant hardiness zone 6b and which require minimal energy input for upkeep and maintenance. References utilized for Connecticut native and non-invasive species selection include the Connecticut Botanical Society, the Connecticut agricultural experiment station, the U.S. Department of Transportation Federal Highway Administration, 2004 Connecticut Stormwater Quality Manual, New England Wetland Plants, Inc., and other sources.*



NOTES:
SEE MANUFACTURER'S DETAIL SHEETS FOR ADDITIONAL INFORMATION REGARDING RACKING SYSTEM REQUIREMENTS AND INSTALLATION PROCEDURES. RACKING SYSTEM TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

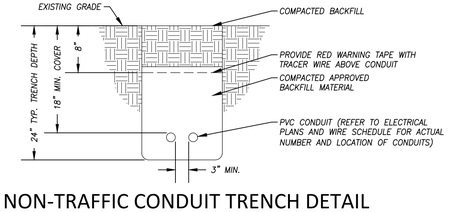
TYPICAL POST MOUNTED RACKING SYSTEM DETAIL

NOT TO SCALE



CONDUIT TRENCH THROUGH GRAVEL DRIVE DETAIL

NOT TO SCALE



NON-TRAFFIC CONDUIT TRENCH DETAIL

NOT TO SCALE

29102

DAVID C. McKAY, P.E. — LICENSE NO. — DATE

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714 Brook Street
Rocky Hill, CT 06067
www.solarcity.com

SolarCity Corporation
Site Development and Management Plan
9 Stott Avenue & 292 Plain Hill Road
Norwich, Connecticut
Site Details

SCALE: As Noted
DATE: August 2015
JOB I.D. NO. 15-2327

Revisions
Rev. A - Development & Management Plan Submittal - 10/15/15

SHEET NO.
10
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EXHIBIT C – Decommissioning Plan

Decommissioning Plan

9 Stott Ave and 292 Plain Hill Road Solar Project
Norwich, CT

This Decommissioning Plan establishes the approach to conduct decommissioning activities for the permanent closure of the solar panels and appurtenant equipment (Project or Facility) at the end of the Facility's useful life or the permanent cessation of the Facility's' operation, whichever comes first. This Plan also describes the approach for removal and/or abandonment of facilities and equipment associated with the Facility's and describes anticipated land-restoration activities.

As background, the Site License Agreement (SLA) for the Facility site requires that no later than 90 days after its expiration all tangible personal property comprising the Facility must be removed from the site. The SLA also requires that the site be returned to its original condition, excepting ordinary wear and tear, including the removal of mounting pads or other support structures for the solar modules.

DECOMMISSIONING ACTIVITIES

In accordance with the SLA, decommissioning will involve removal and disposal or recycling of all Project components. All recyclable materials will be transported to the appropriate nearby recycling facilities. Any non-recyclable materials will be properly disposed of at a nearby landfill. 95% or greater of the Facility's components will be recyclable.

Decommissioning Preparation

The first step in the decommissioning process will be to prepare the site for decommissioning. Site decommissioning and equipment removal can take up to eight months to complete for a project of this size. Therefore, access roads, fencing, and electrical power will temporarily remain in place for use by the decommissioning and site restoration workers until no longer needed. Demolition debris will be placed in temporary on-site storage areas pending final transportation and disposal/recycling according to the procedures listed below.

PV Equipment Removal and Recycling

During decommissioning, all Facility components that will not be used by the site owner will be removed from the site. Equipment removal will include all pad-mounted cabinets, wiring, solar modules, solar module racking, inverters, batteries, and panel boards. Steel posts that supported the module racking will be removed and any resulting holes will be backfilled with locally imported soil to match existing site soil conditions. The concrete transformer and interconnection equipment pads will be broken up and removed.

The demolition debris and removed equipment may be cut or dismantled into pieces that can be safely lifted or carried with the on-site equipment being used. The majority of glass, steel and aluminum will be processed for transportation and delivery to a licensed off-site recycling center. The solar modules will be transported to and recycled at the nearest facility that will accept them. Minimal non-recyclable materials are anticipated; these will be properly disposed of at the nearest qualified disposal facility.

Internal Power Collection System

The DC and AC power collection system will be dismantled and removed. All conduit and cabling that is removed will be recycled.

Access Roads

The onsite access driveway will remain in place to accomplish decommissioning at the end of the Facility's life. At the time of decommissioning, if the landowner determines that this road will be beneficial for the future use of the site, the access road may remain after decommissioning. The future use of the site is undetermined at this time. Roads that will not be used will be restored to pre-construction conditions by removal of the aggregate base material, fill of the compacted base section with locally imported soil to match existing onsite soils, and hydroseeding with a seed mix to match existing onsite groundcover.

Security Fence

The 6-foot high chain link perimeter security fence will remain in place during decommissioning activities for site safety and security purposes. At the time of decommissioning, if the landowner determines that this fence will be beneficial for the future use of the site, the fence may remain after decommissioning. The future use of the site is undetermined at this time. If the fence will not be used, it will be removed and transported to the nearest recycling facility. Holes left behind by the fence support posts will be backfilled with locally imported soil to match existing onsite soils, and hydroseeded with a seed mix to match existing onsite groundcover.

Landscaping

The double row of screening vegetation along certain areas of the perimeter of the Site will remain in place during decommissioning activities for site safety and security purposes. At the time of decommissioning, if the landowner determines that this landscaping will be beneficial for the future use of the site, the landscaping may remain. The future use of the site is undetermined at this time. If the landscaping will not be used by the landowner, it will be removed and transported to the nearest plant material disposal facility for composting or mulching. Shrubs, bushes, and trees would be stump cut to ground level.

Interconnection Line

The overhead interconnection cabling that connects the Project to the Norwich Public Utilities distribution network will remain in place during decommissioning activities to provide electric service onsite during decommissioning. At the time of decommissioning, if the landowner determines that this electric service line will be beneficial for the future use of the site, the line may remain after decommissioning. If the line is not used, it will be removed per Norwich Public Utilities guidelines and transported offsite to the nearest recycling facility.

SITE RECLAMATION

After the Project is completely decommissioned, and all Project equipment has been removed from the Site, additional activities will be performed to return the property back to its pre-construction conditions, excepting ordinary wear and tear,

Restoration Process

The decommissioning process will remove Project-related structures and infrastructure as described in the previous sections. Following decommissioning, site reclamation activities will occur. Reclamation will restore landform features, vegetative cover, and hydrologic function after the closure of the facility. The process will involve (where needed) the replacement of topsoil and vegetation, as well as modification of site topography where necessary to bring the Site back to substantially pre-construction conditions compatible with the adjacent surroundings.

Any excavated areas remain after removal of equipment pads or access road base material, will be backfilled and compacted with locally imported soil to match existing onsite soils, and hydroseeded with a seed mix to match existing onsite groundcover. Any other areas of lower than average ground surface level will receive similar treatment.

If any soils are compacted at levels that would affect successful re-vegetation, they will be de-compacted. The method of de-compaction will depend on how compacted the soil has become over the life of the Project. Following de-compaction, re-contouring of the site will be conducted, if necessary, to return the Site to approximately match the pre-construction surface conditions and the surrounding area conditions. Original site drainage characteristics will be restored if they have not been maintained. It is unlikely that a significant amount of earthwork will be required, because the Project construction plan calls for minimal disturbance of the Site during Project construction. Grading activities will be limited to areas as shown on the design plans that require re-contouring. Efforts will be made to disturb as little of the natural drainages and existing natural vegetation that remain post-decommissioning as possible.

Any remaining bare earth areas will be hydroseeded with a seed mix to match existing onsite groundcover. Site restoration activities are anticipated to be limited, because the pre-construction conditions of the site are not planned to be significantly altered during Project construction. Also, any other activities that become necessary, will be performed to return the Site to a pre-construction condition.

Monitoring Activities

The Site will be monitored by SolarCity after site restoration activities are complete to confirm that any earthwork and re-vegetation were performed correctly. The Site will be periodically inspected (at least quarterly) to check for any eroded earthwork or failed vegetation. Any deficiencies will be promptly corrected. This monitoring will continue for a period of one year, or until the Site is re-developed for another future purpose, whichever comes first.

EXHIBIT D - U.S. Army Corps of Engineers Programmatic General Permit for Wetland Number 3

CGP Category 1 Certification

October 19, 2015 **APT Project No.: CT443110**

Permits & Enforcement Branch B (CT)
Army Corps of Engineers
New England District
696 Virginia Road
Concord, Massachusetts 01742-2751

Attn: Robert J. DeSista, Chief

Re: CGP Category 1 Certification Eligibility
Proposed SolarCity Solar Array Facility
9 Stott Avenue & 292 Plain Hill Road
Norwich, Connecticut

Dear Chief DeSista,

On behalf of SolarCity Corporation, All-Points Technology Corporation, P.C. ("APT") is pleased to submit this letter requesting a determination of Category 1 Certification eligibility under the Connecticut General Permit ("CGP") for the proposed installation of a 4.93 megawatt ("MW") solar-based electric generating facility in the City of Norwich, Connecticut (the "Project"). The Project would be located at 9 Stott Avenue and 292 Plain Hill Road in Norwich, Connecticut ("Site"). Combined, these two (2) parcels encompass approximately 27.41 acres. The Site lies at the northeast end of an industrial business park and is bounded to west and south by commercial development, including Dodd Stadium across Stott Avenue to the south. Agricultural land and sparse residential development lies to the north and east of the Site.

In support of the Category 1 Certification eligibility request, the following materials are provided.

- Attachment A – Appendix 1A: Category 1 Certification Form;
- Attachment B – Figures;
- Attachment C – Photo Documentation;
- Attachment D – Wetland Investigation Report;
- Attachment E – CTDEEP Natural Diversity Data Base Letter, dated June 19, 2015;
- Attachment F – Connecticut SHPO Letter, dated August 19, 2015; and,
- Attachment G – Project Site Plans, dated August 2015, rev. A 10/15/15.

A large part of the Site is currently undeveloped, agricultural land. The Site does house a number of structures. Farm buildings associated with the Mountain Ash Dairy Farm are located in the northeast portion adjacent to Plain Hill Road in the northeast corner of the Site, fronting Plain Hill Road. A 180-foot tall communications tower and associated ground equipment compound are centrally located on the Site. The southwestern portion of the Site, adjacent to Stott Avenue, is developed with a batting cage operation.

Existing access to the Project can be gained via driveways originating off Stott Avenue in the southern portion of the Site. The residence and outbuildings occupying the Site can also be access from Plain Hill Road. The proposed solar array ("facility") would be comprised of approximately 15,912 Trina 310 watt

modules and six (6) Solectria SGI inverters. The facility would utilize an RBI Solar post-driven mounting system with individual panels placed at a 25° tilt to the south.

The Project encompasses approximately 15 acres in the western and southeast portions of the Site, a majority of which is cultivated agricultural fields. The batting cage operation would be removed to accommodate the Project. Three (3) wetland areas are located within and bordering the Site. These resources (referred to herein as Wetland 1, 2, and 3) consist respectively of Wetland 1 - primarily of a large forested wetland with interior intermittent stream and bordering hillside seep scrub/shrub habitat; Wetland 2 - a small, perched, wooded wetland system (formed in either flat or moderately sloping, dense glacial till); and, Wetland 3 - a small isolated artificially constructed wetland 'pit'. All of these wetland resources are assumed to be classified as Waters of the United States.

Wetland 3 is proposed to be completely filled by the Project. Wetland 3 consists of a small (415 square feet), isolated, depression dominated by invasive herbaceous species. Due to its location within the proposed facility, its small size and isolated disturbed nature, alternatives considered to avoid impact to this wetland feature were deemed impractical. This wetland resource is of anthropogenic origin likely constructed as a result of excavation in association with the agricultural use of the Site, which intercepted the seasonal high groundwater table. Hydrology is neither substantial enough, nor persists long enough to support vernal pool habitat. While wetlands of artificial construction occasionally provide principle or secondary functions and values, Wetland 3 does not currently provide functions or values at either level. Therefore, the proposed filling of Wetland 3 is not considered to result in a likely adverse effect on Waters of the United States resources.

The Connecticut Department of Energy & Environmental Protection Natural Diversity Data Base ("NDDB") was consulted for this Project and determined in a July 29, 2015 letter that they "...do not anticipate negative impacts to State-listed species (RCSA Sec. 26-306) resulting from your proposed activity at the site..." A copy of the NDDB letter is provided in Attachment E. Although the upland forest habitat on the Site is highly fragmented due to its agricultural usage and surrounding industrial and residential development, tree clearing along the margins of the facility to eliminate shadowing effects will be restricted from occurring between April 15 and August 31 in order to limit disturbance to potential tree roosting and breeding habitat utilized by northern long-eared bat.

APT has consulted with the State Historic Preservation Office ("SHPO") to determine if the Project has any potential effects on historic properties. SHPO responded in an August 19, 2015 letter stating that "SHPO requests that a professional cultural resources assessment and reconnaissance survey be completed prior to construction" because "SHPO also considers this type of environmental setting to be archeologically sensitive". The Applicant is currently coordinating with the SHPO to ensure the Project will not result in an adverse effect on historic properties or archeological resources.

The Connecticut Siting Council is currently considering a petition (Petition No. 1181)[1] for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the proposed construction and operation of the referenced Project.

[1] CSC Petition application and other documents can be found at http://www.ct.gov/csc/cwp/view.asp?a=895&q=318776

Thank you for your consideration of this Category 1 Certification eligibility request. If you have any questions regarding the above-referenced information or need additional information, please feel free to contact me by telephone at (860) 663-1697 ext. 202 or via email at mgustafson@allpointstech.com.

Sincerely,

All-Points Technology Corporation, P.C.



Matthew Gustafson

Registerd Soil Scientist

Enclosures

cc: Nichole Seidell, SolarCity Corporation
Philip M. Small, Brown Rudnick LLP

Attachment A

Appendix 1A: Category 1 Certification Form

US Army Corps of Engineers®
New England District

Appendix 1A: Category 1 Certification Form
(Required for all Inland Projects in Connecticut)

Submit this form **before** work commences to the following addresses:

U.S. Army Corps of Engineers, Permits & Enforcement Branch B (CT), 696 Virginia Road, Concord, MA 01742-2751

CT DEP, Inland Water Resources Division, 79 Elm Street, Hartford, CT 06106-5127 (not required if work is done within exterior boundaries of Mashantucket)

Permittee Name & Address: SolarCity Corporation, 714 Brook Street, Rocky Hill, CT 06067

Phone number & Email address: Attn: Nichole Seidell; (503) 329-2543; nseidell@solarcity.com

Work Location/Address: 9 Stott Avenue and 292 Plain Hill Road Norwich, CT

Latitude/Longitude coordinates: 41°34'42.16"N/ 72° 6'16.98"W

Waterway name: N/A

Contractor Name & Address: TBD

Phone number & Email address:

Proposed Work Dates: Start: December 2015 Finish: August 2016

Work will be done within Inland Waters & Wetlands under the following categories – refer to Appendix 1 (check all that apply):

__✓_ 1.A. New Fill and/or Fill Associated with Excavation

_ __1.B. Stream Bank Stabilization

__ _ 1.C. Repair & Maintenance of Existing Authorized or Grandfathered Fill.

Wetland impact: 415 square feet (sf) Waterway impact: 0 sf and/or 0 linear feet

Brief Project Description SolarCity Corporation, proposes installation of a 4.93 megawatt ("MW") solar-based electric generating facility. The Project encompasses approximately 15 acres in the western and southeast portions of the Site, a majority of which is cultivated agricultural fields.

Project purpose: Develop a solar electrical generating facility to provide renewable energy to the City of Norwich Public Utilities.

Secondary Impacts include but are not limited to impacts to inland waters or wetlands drained, dredged, flooded, cleared or degraded resulting from a single and complete project. See General Condition 3.

Does your project include any of these secondary impacts? Y/N – If yes, please describe them:
No

Your signature below, as permittee, indicates that you accept and agree to comply with the terms, eligibility criteria, and general conditions of Category 1 of this Connecticut General Permit.

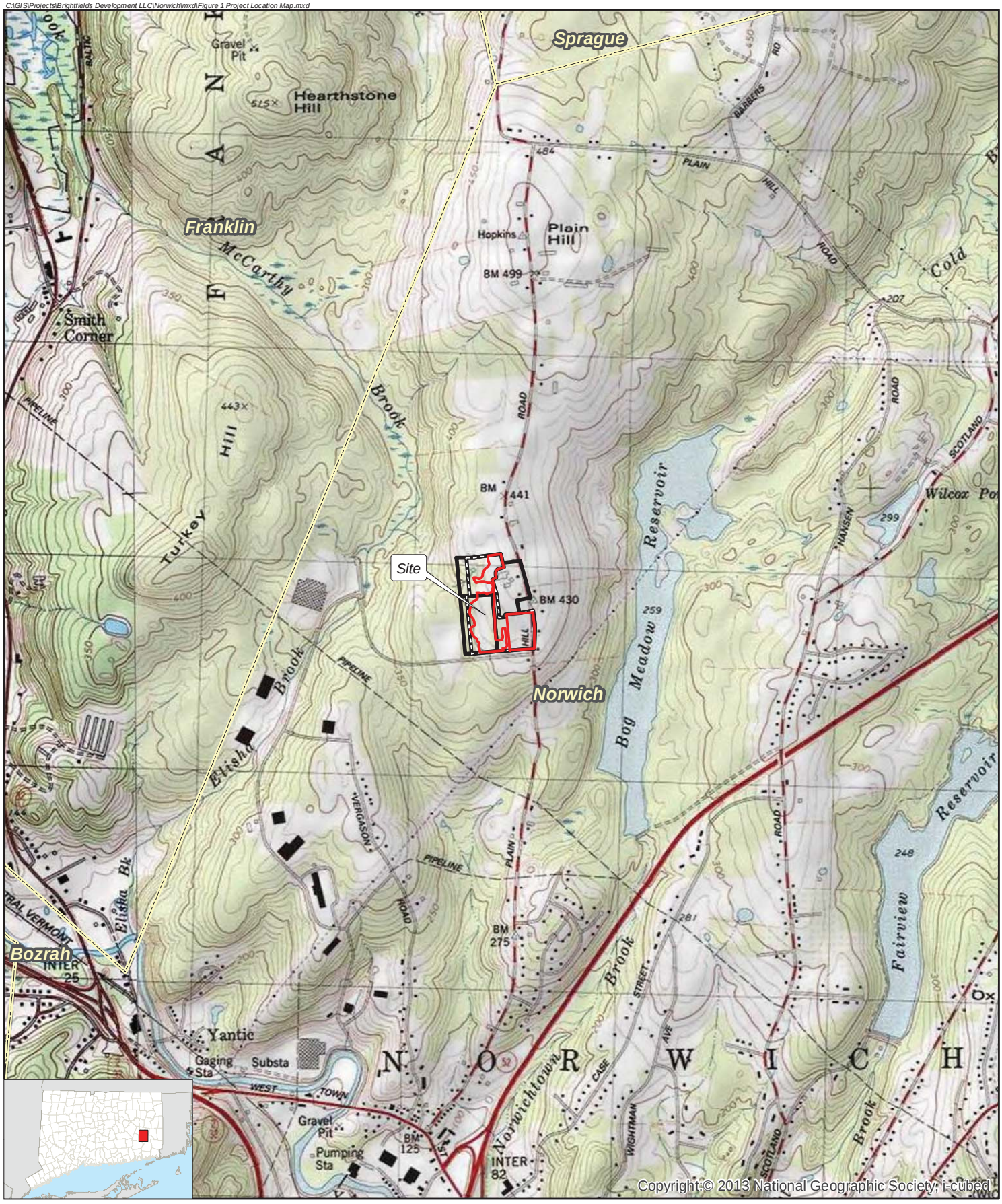
Permittee Signature: Nichole Seidell Digitally signed by Nichole Seidell DN: dc=local, dc=SolarCity, ou=SolarCity Users, ou=HQ, cn=Nichole Seidell, email=nseidell@solarcity.com Date: 2015.10.16 17:16:31 -04'00' **Date:** 10/16/15

Attachment B

Figures

- Site Location Map
- Existing Conditions Map
- Proposed Conditions Map

C:\GIS\Projects\Brightfields Development LLC\Norwich\mxd\Figure 1 Project Location Map.mxd



Legend

- Project Area (+/-15.03 acres)
- Proposed Lease Area (+/-22.80 acres)
- Site Property Boundary

Map Notes:
Base Map Source: USGS 7.5 Minute Topographic Quadrangle Map, Norwich (1983), CT
Map Scale: 1:24,000
Map Date: July 2015

1,000 500 0 1,000 Feet

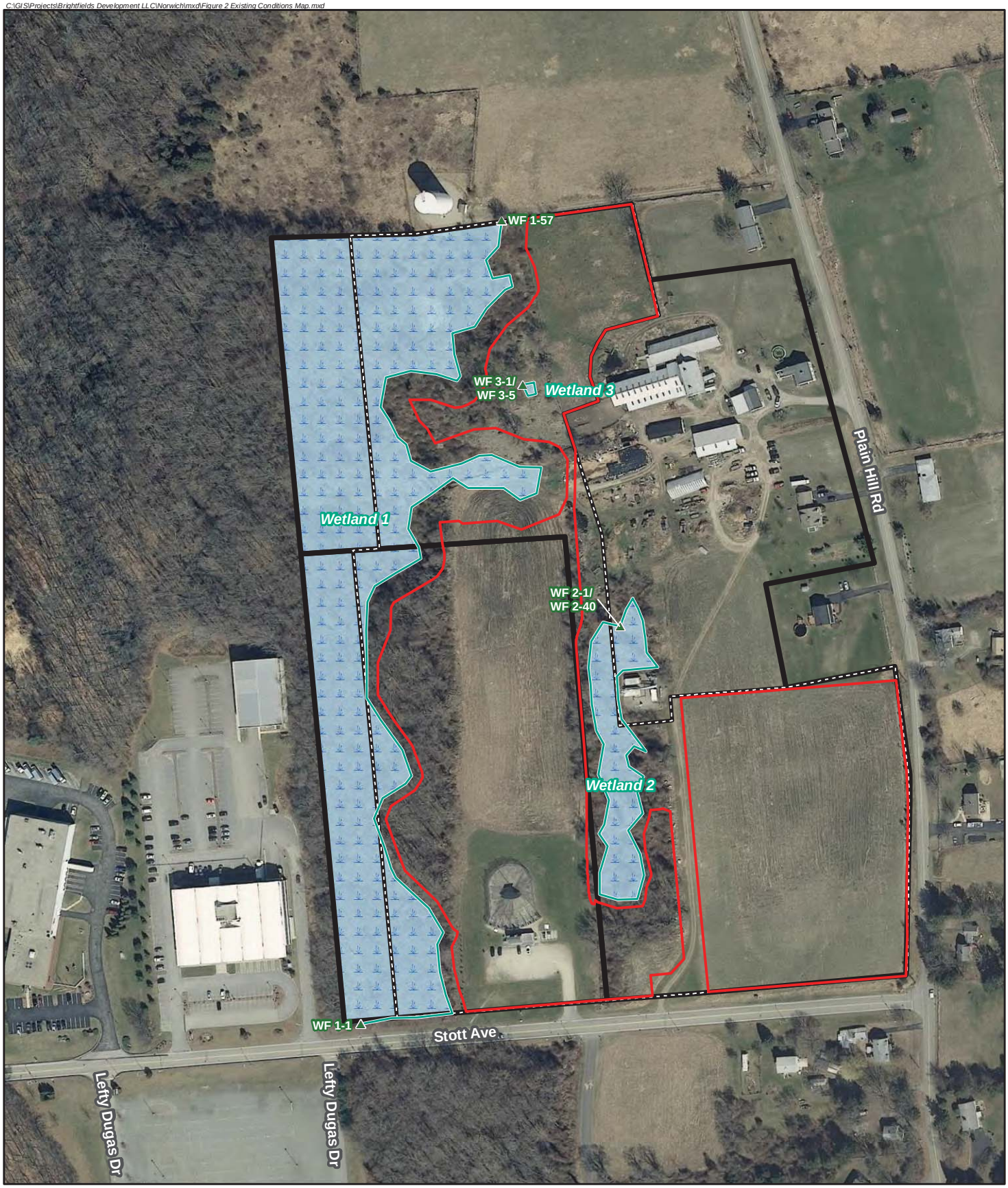
Project Location Map

Proposed Solar Facility
9 Stott Avenue
Norwich, Connecticut

BRIGHTFIELDS DEVELOPMENT LLC

ALL-POINTS TECHNOLOGY CORPORATION

C:\GIS\Projects\Brightfields Development LLC\Norwich\mxd\Figure 2 Existing Conditions Map.mxd



Legend

- Project Area (+/-15.03 acres)
- Proposed Lease Area (+/-22.80 acres)
- Site Property Boundary
- Start/End Wetland Flag
- Wetland Boundary
- Wetland Area

Existing Conditions Map

Proposed Solar Facility
9 Stott Avenue
Norwich, Connecticut

Map Notes:
Base Map Source: 2012 Aerial Photograph (CTECO)
Map Scale: 1 inch = 250 feet
Map Date: July 2015

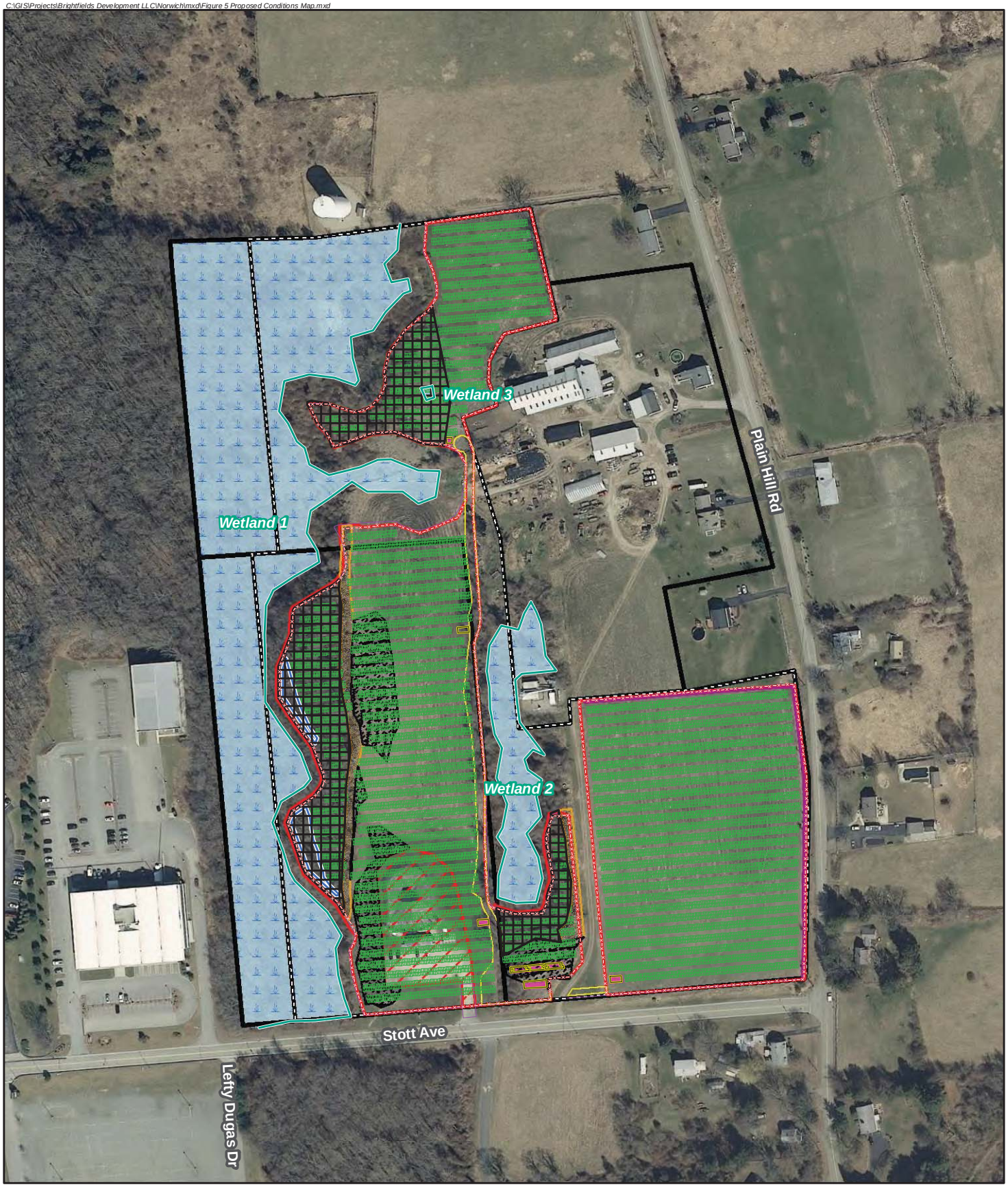
250 125 0 250 Feet

N W E S

BRIGHTFIELDS DEVELOPMENT LLC

ALL-POINTS TECHNOLOGY CORPORATION

C:\GIS\Projects\Brightfields Development LLC\Norwich\mxd\Figure 5 Proposed Conditions Map.mxd



Legend

- Project Area (+/-15.03 acres)
- Proposed Lease Area (+/-22.80 acres)
- Site Property Boundary
- Proposed Fence
- Proposed Silt Fence
- Proposed Solar Modules
- Proposed Equipment
- Proposed Stormwater Basin Limits
- Proposed Access Drive Installation
- Proposed Additional Grading Area
- Area of Boulders to be Relocated
- Proposed Clearing and Grubbing Area
- Proposed Demolition Area
- Proposed Site Improvement Area
- Wetland Boundary
- Wetland Area

Map Notes:
Base Map Source: 2012 Aerial Photograph (CTECO)
Map Scale: 1 inch = 250 feet
Map Date: July 2015

250 125 0 250 Feet

N W E S

Proposed Conditions Map

Proposed Solar Facility
9 Stott Avenue
Norwich, Connecticut

BRIGHTFIELDS DEVELOPMENT LLC

ALL-POINTS TECHNOLOGY CORPORATION

Attachment C

Photo Documentation



Photo 1: View of proposed solar field north, looking south, at existing fallow field.



Photo 2: View of additional solar field south, looking north, at existing cultivated (corn) field.



Photo 3: View of additional solar field south, looking west, at existing cultivated (corn) field.



Photo 4: View of upland intrusion of Wetland 1 (flags WF 1-32B-E), looking west, at cultivated (corn) field.



Photo 5: View of manure storage area and barn, looking east.



Photo 6: View of silage bunker runoff into wetland flag WF 32B-E area, looking east.



Photo7: Overview of PFO Wetland 1, south section, looking west.



Photo 8: Overview of PFO/PSS Wetland 1, north section, looking southeast.



Photo 9: View of PSS Wetland 2, looking east.



Photo 10: View of Wetland 3, looking south.

Attachment D

Wetland Investigation Report

WETLAND INVESTIGATION

August 10, 2015

Brightfields Development, LLC
40 Walnut Street, Suite 301
Wellesley, MA 02481

APT Project No.: CT443100

Attn: Michael Singer

Re: Proposed 4.93 MW Solar Array Project
9 Stott Avenue and 292 Plain Hill Road
Norwich, Connecticut

To Mr. Singer,

All-Points Technology Corporation, P.C. ("APT") understands that a solar array project ("Project") is proposed by Brightfields Development, LLC ("Brightfields") at 9 Stott Avenue and 292 Plain Hill Road in Norwich, Connecticut ("Subject Property"). At your request, Matthew Gustafson, a Connecticut registered Soil Scientist with APT conducted inspections of the Subject Property on January 22 and 23, 2015 to determine the presence or absence of wetlands and watercourses within approximately 200 feet of proposed development activities ("Study Area"). A follow-up inspection was performed to confirm the wetland boundary on April 8, 2015. The delineation methodology followed was consistent with both the Connecticut Inland Wetlands and Watercourses Act (IWWA) and the *Corps of Engineers Wetland Delineation Manual* (1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*, Version 2.0 (January 2012). The results of this wetland investigation are provided below.

Site and Project Description

The Subject Property consists of 2 parcels identified as 9 Stott Avenue and 292 Plain Hill Road totaling approximately 27.41-acres. The 9 Stott Avenue parcel (west) hosts an outdoor batting cages facility along the frontage of Stott Avenue, a large open agricultural field (cultivated in corn last season) to the north, and forested wetland and upland areas to the west. The 292 Plain Hill Road property (east) primarily consists of open agricultural fields (cultivated in corn last season) and associated barns, a residency, and forested wetland and upland complexes to the west.

Based on site plan information provided by Brightfields to APT (SolarCity Layout, dated 6/26/15), the area proposed for the Project is generally within existing open agricultural fields to the south and historically cleared scrub/shrub west facing hillsides to the north. Access to the Project is proposed to be gained from Stott Avenue via existing disturbed travel ways. The Study Area is dominated by complexes of upland forested and scrub/shrub habitats, bordering hillside seep wetland areas with interior intermittent stream systems, open agricultural fields, associated agricultural infrastructure, the batting cages, and residential development. The surrounding land use generally consists of residential development to the south and east, agricultural fields to the north, south, and east, narrow forested wetlands to the west adjacent to commercial development, and Dodd Stadium parking areas to the southwest.

Three wetland areas were delineated within the Study Area consisting of bordering forested and scrub/shrub hillside seep wetland systems with interior intermittent stream systems to the north and west, a depressional, perched

scrub/shrub wetland area located along the east/west property boundary between the two identified parcels, and a small, isolated, artificially constructed wetland 'pit'. Please refer to the enclosed Wetland Delineation Map for the approximate locations of the identified wetland resource areas. Wetlands were marked with pink and blue plastic flagging tape numbered with the following sequence: WF 1-01 to 1-1-67 and WF 2-01 to 2-18. General weather conditions encountered during the January inspections ranged from low to high 30° F temperatures with partly cloudy skies.

Regulation of Wetlands

Wetlands and watercourses are regulated by local, state and federal regulations, with each regulatory agency differing slightly in their definition and regulatory authority of resource areas, as discussed below. Siting approval of the proposed Facility is under the exclusive jurisdiction of the State of Connecticut Siting Council and therefore exempt from local regulation, although local wetland regulations are considered by the Siting Council. If wetlands are identified on the Subject Property and direct impact is proposed, those wetlands may be considered Waters of the United States and therefore the activity may also be subject to jurisdiction by the U.S. Army Corps of Engineers ("ACOE") New England District.

City of Norwich

The City of Norwich regulates activities within wetlands and watercourses and within 100 feet of wetlands and watercourses through administration of the Connecticut Inland Wetlands and Watercourses Act (IWWA).

State of Connecticut

Freshwater Wetlands: The IWWA requires the regulation of activities affecting or having the potential to affect wetlands under Sec. 22a-36 through 22a-45 of the Connecticut General Statutes. The IWWA is administered through local municipalities. The IWWA defines wetlands as areas of poorly drained, very poorly drained, floodplain, and alluvial soils, as delineated by a soil scientist. Watercourses are defined as bogs, swamps, or marshes, as well as lakes, ponds, rivers, streams, etc., whether natural or man-made, permanent or intermittent. Intermittent watercourse determinations are based on the presence of a defined permanent channel and bank, and two of the following characteristics: (1) evidence of scour or deposits of recent alluvium or detritus; (2) the presence of standing or flowing water for a duration longer than a particular storm incident; and (3) the presence of hydrophytic vegetation.

ACOE

The U.S. Army Corps of Engineers regulates the discharge of dredged or fill material into waters of the United States under Section 404 of the Clean Water Act. Waters of the United States are navigable waters, tributaries to navigable waters, wetlands adjacent to those waters, and/or isolated wetlands that have a demonstrated interstate commerce connection. The ACOE Wetlands Delineation Manual defines wetlands as "[t]hose areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) prohibits the unauthorized obstruction or alteration of any navigable water of the United States. This section provides that the construction of any structure in or over any navigable water of the United States, or the accomplishment of any other work affecting the course, location, condition, or physical capacity of such waters is unlawful unless the work has been approved by the ACOE.

Soil Description

Soil types encountered throughout the Study Area were generally consistent with digitally available soil survey information obtained from the Natural Resources Conservation Service ("NRCS")[1]. Wetland soils field identified consist of Ridgebury, Leicester, and Whitman soils. The non-wetland soils were examined along the wetland boundary and more distant upland areas during the delineation, including the proposed Facility location. They are dominated by Woodbridge fine sandy loam and Paxton and Montauk fine sandy loams. Detailed descriptions of wetland and upland soil types are provided below.

Wetland Soils

The **Leicester** series consists of very deep, poorly drained loamy soils formed in friable till. They are nearly level or gently sloping soils in drainageways and low-lying positions on hills. Depth to bedrock is commonly more than 6 feet. Rock fragments range from 5 to 35 percent by volume to a depth of 40 inches and up to 50 percent below 40 inches. Leicester soils have a water table at or near the surface much of the year.

The **Ridgebury** series consists of very deep, somewhat poorly and poorly drained soils formed in glacial till derived mainly from granite, gneiss and schist. They are nearly level to gently sloping soils in low areas in uplands. This series includes phases that are poorly drained and the wetter part of somewhat poorly drained. A perched, fluctuating water table above the dense till saturates the solum[2] to or near the surface for 7 to 9 months of the year.

The **Whitman** series consists of very deep, very poorly drained soils formed in glacial till derived mainly from granite, gneiss, and schist. They are nearly level or gently sloping soils in depressions and drainageways on uplands. Depth to dense till is 12 to 30 inches. Some pedons[3] have organic horizons overlying the A horizon. They are fibric hemic or sapric material (peat-like), and are up to 5 inches thick. Whitman soils are found on nearly level and gently sloping soils in depressions and in drainage ways of glacial uplands. Slopes are typically 0 to 2 percent but range up to 8 percent where wetness is due to seepage water. This soil is very poorly drained. A perched water table, or excess seepage water, is at or near the surface for about 9 months of the year.

Upland Soils

The **Woodbridge** series consists of moderately well drained loamy soils formed in compact, subglacial till. They are very deep to bedrock. They are nearly level to moderately steep soils on till plains, hills, and drumlins. Depth to the compact layer (hardpan) is 18 to 40 inches. Depth to bedrock is commonly more than 6 feet. Woodbridge soils have a seasonal high water table on top of the compact layer (18-40") from fall through late spring.

[1] NRCS Web Soil Survey, http://websoilsurvey.nrcs.usda.gov/app/, accessed on March 17, 2015.

[2] The solum in soil science consists of the surface and subsoil layers that have undergone the same soil forming conditions. The base of the solum is the relatively unweathered parent material. Solum and soils are not synonymous. Some soils include layers that are not affected by soil formation.

[3] a three-dimensional sample of a soil just large enough to show the characteristics of all its horizons.

Wetlands Discussion

Wetland 1 Classification Summary

Wetland 1[4] (WF 1-01 to 1-67)	System Palustrine	Subsystem	Class Forested/Scrub Shrub	Subclass Broad-leaved Deciduous	Water Regime Temporarily Flooded	Special Modifier Farmed
Watercourse Type (unnamed)	Perennial ☐	Intermittent ☒	Tidal ☐	**Special Aquatic Habitat** (None)	Vernal Pool ☐	Other ☐

Wetland 1 Description

Wetland 1 is located along the western edge of the Subject Property consisting of complexes of forested and scrub/shrub hillside seep wetland systems and interior intermittent stream systems generally draining west and south. This wetland system extends off the Subject Property to the west, north, and south, eventually draining south under Stott Avenue via a 24-inch reinforced concrete pipe culvert. Forested wetland areas are focused along the western Subject Property boundary, while scrub/shrub habitats are concentrated along west facing hillside seep areas historically cleared for farming activities. Two interior intermittent streams are identified with one draining east to west across the northern extent of the Subject Property, and a second draining north to south along the western Subject Property boundary. Both intermittent stream systems contain areas of seasonal open water areas/emergent habitats within depressions. Evidence of historic anthropogenic influences is readily apparent through much of Wetland 1 consisting of old access roads, stone walls, scrub/shrub habitats dominated by multiflora monocultures, and understory forested wetland areas dominated by Japanese barberry monocultures. . Eastern portions of this wetland system extend into the northeast corner of an existing agricultural field.

Wetland 1 Dominant Vegetation

Dominant Wetland Species Common Name (Latin Name)	Dominant Adjacent Upland Species Common Name (Latin Name)
Red Maple (Acer rubrum)	Red Maple (Acer rubrum)
Reed Canarygrass* (Phalaris arundinacea)	Spicebush (Lindera benzoin)
Spicebush (Lindera benzoin)	Japanese Barberry* (Berberis thunbergii)
Sweet Pepperbush (Clethera alnifolia)	Yellow Birch (Betula alleghaniensis)
Sensitive Fern (Onoclea sensibilis)	Black Birch (Betula lenta)
Multiflora Rose* (Rosa multiflora)	Goldenrod (Solidago spp.)
Japanese Barberry* (Berberis thunbergii)	Multiflora Rose* (Rosa multiflora)
Sphagnum moss (Sphagnum sp.)	Raspberry (Rubus sp.)
Asiatic Bittersweet* (Celastrus orbiculatus)	
Soft Rush (Juncus effuses)	
Fox Grape (Vitis labrusca)	

* denotes Connecticut Invasive Plants Council invasive species

[4] Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Jamestown, ND: Northern Prairie Wildlife Research Center Online. http://www.npwrc.usgs.gov/resource/wetlands/classwet/index.htm - contents.

Wetland 2 Classification Summary

Wetland 2 (WF 2-01 to 2-18)	**System** Palustrine	**Subsystem**	**Class** Forested & Scrub/Shrub	**Subclass** Broad-leaved Deciduous	**Water Regime** Saturated	**Special Modifier** Farmed
Watercourse Type (unnamed)	Perennial ☐	Intermittent ☒	Tidal ☐	**Special Aquatic Habitat** (None)	Vernal Pool ☐	Other ☐

Wetland 2 Description

Wetland 2 is located in between two agricultural fields with a stone wall generally confining the western boundary of the wetland system. Western edges of the wetland area are dominated by forest (red maple), while eastern portions are primarily scrub/shrub dominant (multiflora rose). Wetland 2 is formed as a perched system in dense glacial till generally draining north to south. Narrow diffuse/inconspicuous intermittent stream channels were noted during the inspection. Based on time of year field conditions, it was not readily apparent if these flow paths were consistent with a regulated intermittent stream or a result stormwater runoff.

Wetland 2 Dominant Vegetation

Dominant Wetland Species Common Name (Latin Name)	**Dominant Adjacent Upland Species** Common Name (Latin Name)
Multiflora Rose* (Rosa multiflora)	Red Maple (Acer rubrum)
Asiatic Bittersweet* (Celastrus orbiculatus)	Spicebush (Lindera benzoin)
Fox Grape (Vitis labrusca)	Japanese Barberry* (Berberis thunbergii)
Red Maple (Acer rubrum)	Yellow Birch (Betula alleghaniensis)
Raspberry (Rubus sp.)	Black Birch (Betula lenta)
Sphagnum moss (Sphagnum sp.)	Goldenrod (Solidago spp.)
	Multiflora Rose* (Rosa multiflora)
	Raspberry (Rubus sp.)

* denotes Connecticut Invasive Plants Council invasive species

Wetland 3 Classification Summary

Wetland 1[5] (WF 3-01 to 3-05)	System Palustrine	Subsystem	Class Emergent	Subclass Persistent	Water Regime Artificially Flooded	Special Modifier Artifical
Watercourse Type (None)	Perennial ☐	Intermittent ☐	Tidal ☐	**Special Aquatic Habitat** (None)	Vernal Pool ☐	Other ☐

Wetland 3 Description

Wetland 3 is a small, isolated, depressional pocket wetland. This wetland was historically created through a small excavation pit that now retains water as a result of the underlying dense glacial till. Water depth at the time of the second inspection was recorded at 1-3 inches. Hydrology is not significant enough, or persists long enough to support vernal pool breeding habitat.

Wetland 3 Dominant Vegetation

Dominant Wetland Species Common Name (Latin Name)	Dominant Adjacent Upland Species Common Name (Latin Name)
Broad-Leaf Cattail (Typha latifolia)	Asiatic Bittersweet* (Celastrus orbiculatus)
Reed Canarygrass* (Phalaris arundinacea)	Fox Grape (Vitis labrusca)
	Japanese Barberry* (Berberis thunbergii)
	Virginia Creeper (Parthenosisus quinquefolia)
	Spicebush (Lindera benzoin)
	Goldenrod (Solidago spp.)
	Multiflora Rose* (Rosa multiflora)
	Raspberry (Rubus sp.)

* denotes Connecticut Invasive Plants Council invasive species

[5] Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Jamestown, ND: Northern Prairie Wildlife Research Center Online. http://www.npwrc.usgs.gov/resource/wetlands/classwet/index.htm - contents.

Summary

Based on APT's understanding of the proposed Brightfields' development, direct impact to wetlands will result from the proposed activity consisting of the filling of Wetland 3. As a result, an Army Corp of Engineers, Connecticut General Permit Category 1A Inland Self-Certification, will be filed and secured prior to start of construction. In addition, the proposed development will be in close proximity to Wetlands 1 and 2. APT has provided an evaluation of the project's wetland impacts under separate cover (Environmental Assessment).

If you have any questions regarding the above-referenced information, please feel free to contact me by telephone at (860) 663-1697 ext. 202 or via email at mgustafson@allpointstech.com.

Sincerely,

All-Points Technology Corporation, P.C.

Delineation Performed by:



Matthew Gustafson
Registered Soil Scientist

Enclosure

Wetland Delineation Map

C:\GIS\Projects\Brightfields Development LLC\Norwich\mxd\Wetland Inspection Map.mxd



Legend

- Project Area (+/-15.03 acres)
- Proposed Lease Area (+/-22.80 acres)
- Site Property Boundary
- Start/End Wetland Flag
- Wetland Boundary
- Wetland Area

Wetland Inspection Map

Proposed Solar Facility
9 Stott Avenue
Norwich, Connecticut

Map Notes:
Base Map Source: 2012 Aerial Photograph (CTECO)
Map Scale: 1 inch = 250 feet
Map Date: July 2015

250 125 0 250 Feet

N W E S

BRIGHTFIELDS DEVELOPMENT LLC

ALL-POINTS TECHNOLOGY CORPORATION

Attachment E

CTDEEP Natural Diversity Data Base Letter, dated June 19, 2015

Connecticut Department of

ENERGY &
ENVIRONMENTAL
PROTECTION

July 29, 2015

Dean Gustafson
All-Points Technology Corporation, P.C.
3 Saddlebrook Dr
Killingworth, CT 06419
dgustafson@allpointstech.com

Project: Construction of 5.02 MW Solar Facility located at 9 Stott Ave in Norwich
NDDB Determination No.: 201504771

Dear Dean Gustafson,

I have reviewed Natural Diversity Data Base (NDDB) maps and files regarding the area delineated on the map provided for the proposed Construction of 5.02 MW Solar Facility located at 9 Stott Ave in Norwich, Connecticut. I do not anticipate negative impacts to State-listed species (RCSA Sec. 26-306) resulting from your proposed activity at the site based upon the information contained within the NDDB. The result of this review does not preclude the possibility that listed species may be encountered on site and that additional action may be necessary to remain in compliance with certain state permits. This determination is good for one year. Please re-submit an NDDB Request for Review if the scope of work changes or if work has not begun on this project by July 29, 2016.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey and cooperating units of DEEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substitutes for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available.

Please contact me if you have further questions at (860) 424-3592, or dawn.mckay@ct.gov . Thank you for consulting the Natural Diversity Data Base.

Sincerely,

Dawn M. McKay

Dawn M. McKay
Environmental Analyst 3

Attachment F

Connecticut SHPO Letter, dated August 19, 2015

August 19, 2015

Ms. Nicole Castro
All-Points Technology Corporation, PC
3 Saddlebrook Drive
Killingworth, CT 06419

Subject: Brightfields Development, LLC – Solar City
9 Stott Avenue and 292 Plain Hill Road
Norwich, Connecticut

Dear Ms. Castro:

The State Historic Preservation Office (SHPO) is in receipt of your request for our comments on the potential effects of the referenced project on historic properties. SHPO understands that Brightfields Development, LLC plans to construct a 5.02 MW photovoltaic renewable energy system comprised of approximately 15.41 acres within a 27.41 acre parcel. The proposed activities are under the jurisdiction of the Connecticut Siting Council.

As shown in your review submission, one of the barns on the Connecticut Barn Survey is located within the project parcel, as well as the historic home associated with it. Although there are no properties listed on the National Registers of Historic Places recorded within the Area of Potential Effects (APE) for this project, SHPO requests that a professional cultural resources assessment and reconnaissance survey be completed prior to construction that considers the effects of the project on these potentially significant historic buildings. SHPO also considers this type of environmental setting to be archeologically sensitive. Based on the known archaeological resources in the vicinity and the environmental characteristics of the project site, it is SHPO's opinion that the Area of Potential Effect has an elevated potential to contain significant archaeological resources. Subsurface testing should assess all areas of anticipated ground disturbance, unless sufficient research or fieldwork documents that this level of effort is unwarranted. All work should be in compliance with our *Environmental Review Primer for Connecticut's Archaeological Resources* and no construction or other project-related ground disturbance should be initiated until SHPO has had an opportunity to review and comment upon the requested survey.

This office appreciates the opportunity to review and comment upon this project. These comments are provided in accordance with the Connecticut Environmental Policy Act. For additional information, please contact Catherine Labadia, Environmental Reviewer, at (860) 256-2764 or catherine.labadia@ct.gov.

Sincerely,

Mary B. Dunne

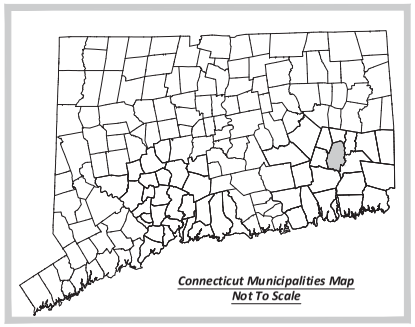
Mary B. Dunne
Deputy State Historic Preservation Officer

Attachment G

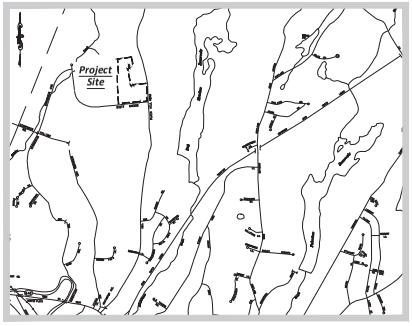
Project Site Plans (11”x17”), dated August 2015 rev. A 10/15/15

STOTT AVENUE SOLAR PROJECT
SITE DEVELOPMENT AND MANAGEMENT PLAN
SolarCity Corporation
9 Stott Avenue & 292 Plain Hill Road
Norwich, Connecticut
August 2015

Revision "A" - Development & Management Plan Submittal - 10/15/15



Connecticut Municipalities Map
Not To Scale



Site Location Map
Scale: 1"=2000'



Site Location Aerial View
Not To Scale

Project Information

Developed By:

Brightfields Development, LLC
40 Walnut Street, Suite 301
Wellesley, MA 02481

SolarCity Corporation
714 Brook Street
Rocky Hill, CT 06067

Civil Engineer:

Boundaries LLC
179 Pachaug River Drive
Griswold, CT 06351

Electrical Engineer:

SolarCity Corporation
714 Brook Street
Rocky Hill, CT 06067

Host:

Kelvin H. Stott & Frances S. Stott
9 Stott Avenue
292 Plain Hill Road
Norwich, CT 06360

Utility:

Norwich Public Utilities
173 North Main Street
Norwich, CT 06360

Index To Drawings

Sheet	Sheet Title
1	Cover Sheet
2-3	Topographic Survey-Existing Conditions
4	Lease Plan
5-6	Site Preparation and Demolition Plan
7-8	Site Development Plan Solar Modules and Infrastructure
9	Erosion & Sediment Control Narrative and Details
10	Site Details

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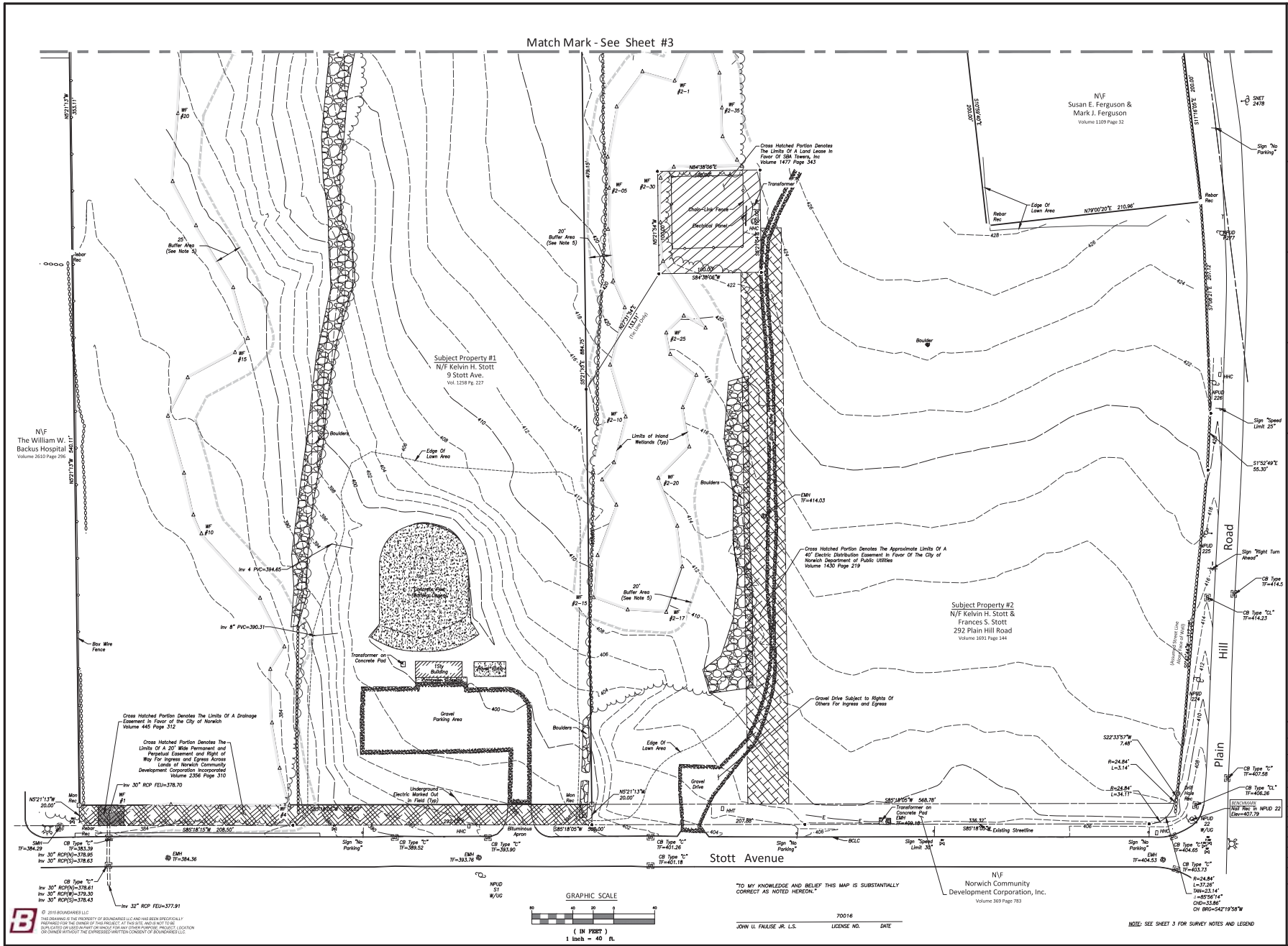

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BOUNDARIES
Boundaries LLC
1778 Ponding Brook Drive, Glastonbury, CT 06033
T 860.376.2004 | www.boundariesllc.net

BRIGHTFIELDS
DEVELOPMENT LLC
40 Walnut Street Suite 301
Wellesley, MA 02481
www.solarcitywellfields.com

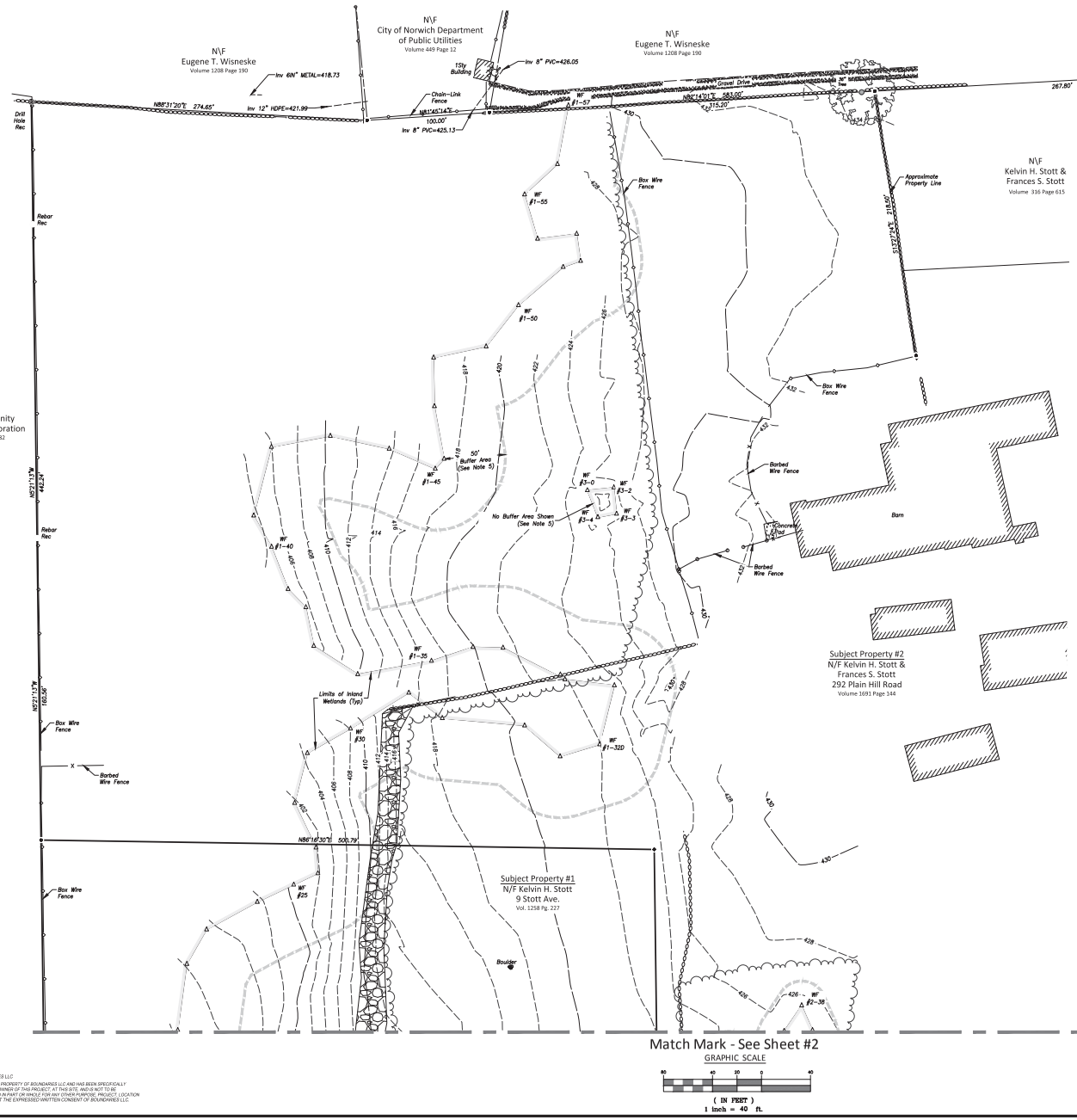
SolarCity
714 Brook Street
Rocky Hill, CT 06067
www.solarcity.com

SolarCity Corporation
Site Development and Management Plan
9 Stott Avenue & 292 Plain Hill Road
Norwich, Connecticut
Topographic Survey-Existing Conditions

SCALE: 1"=40'
DATE: August 2015
JOB I.D. NO. 15-2327

Revisions
Rev. A - Development & Management Plan Submittal - 10/15/15

SHEET NO.
2
10



Match Mark - See Sheet #2

GRAPHIC SCALE

(IN FEET)
1 inch = 40 ft.

LEGEND & ABBREVIATIONS

±	MORE OR LESS		TREELINE
TYP	TYPICAL		STONEWALL
PVC	POLYVINYL CHLORIDE		STONEWALL REMAINS
RCP	REINFORCED CONCRETE PIPE	•	ANGLE POINT
HDPE	HIGH DENSITY POLYETHYLENE PIPE		IRON PIN
S.F.	SQUARE FEET	⊗	DRILL HOLE
SMH	SANITARY MANHOLE	⊡	MONUMENT
CB	CATCH BASIN	○	FENCE POST
TF	TOP OF FRAME		UTILITY POLE
INV	INVERT		UTILITY POLE WITH LIGHT
WV	WATER VALVE		GUY WIRE
HH	HANDHOLE	CB	CATCH BASIN
WF #1	WETLAND FLAG	S	SANITARY MANHOLE
MON	MONUMENT	E	ELECTRIC MANHOLE
REC	RECOVERED		WATER VALVE
NPUD	NORWICH PUBLIC UTILITIES		SIGN
N/F	NOW OR FORMERLY		WETLAND FLAG
320	EXISTING CONTOUR		

REFERENCE MAPS

A. RESUBDIVISION SURVEY PROPERTY OF KELVIN H. STOTT, PLAIN HILL ROAD NORWICH, CONNECTICUT, DATED FEBRUARY 1996, SCALE: 1"= 100', PREPARED BY CLA ENGINEERS, INC.

B. LOT LINE RECONFIGURATION PROPERTY OF: HILLTOP INVESTMENTS, LLC, #11 STOTT AVENUE NORWICH, CONNECTICUT, DATED 1/15/03, SCALE: 1"= 50', PREPARED BY CLA ENGINEERS, INC.

C. LOT LINE REVISION OF 292 PLAIN HILL ROAD, NORWICH, CONNECTICUT, PREPARED FOR KELVIN H. STOTT DECEMBER 16, 1998, SCALE: 1"= 100', PREPARED BY GESICK & ASSOCIATES P.C.

D. BOUNDARY SURVEY PROPERTY TO BE CONVEYED TO THE WM. W. BACKUS HOSPITAL, #11 STOTT AVENUE, NORWICH, CONNECTICUT, DATED APRIL 2010, SCALE 1"= 40' PREPARED BY CLA ENGINEERS, INC.

E. EXISTING CONDITIONS OF PROPOSED LEASE PARCEL, 292 PLAIN HILL ROAD NORWICH, CONNECTICUT, DATED DECEMBER 17, 1998, SCALE: 1"= 50', SBA, INC., PREPARED BY GESICK & ASSOCIATES P.C.

F. COMPREHENSIVE SITE PLAN SBA SITE #8618/NORWICH, 292 PLAIN HILL ROAD NORWICH, CONNECTICUT, DATED 3/19/99, SCALE: 1"= 50', SBA, INC., PREPARED BY GESICK & ASSOCIATES P.C.

G. KELVIN STOTT BASEBALL BATTING RANGE SITE PLAN, 292 PLAIN HILL ROAD NORWICH, CONNECTICUT, DATED JANUARY 1996, REVISED 2/13/96, SCALE: 1"= 20', PREPARED BY CLA ENGINEERS, INC.

H. SUBDIVISION PLAN #313 PROPERTY OF KELVIN H. STOTT, PLAIN HILL ROAD, NORWICH, CT., DATED 6/24/92, SCALE: 1"=40', PREPARED BY CLA ENGINEERS, INC.

I. CITY OF NORWICH, CONNECTICUT, NORWICH INDUSTRIAL PARK PLAN OF ROADS TO BE CONVEYED BY THE NORWICH COMMUNITY DEVELOPMENT CORPORATION, INC. TO THE CITY OF NORWICH, STOTT AVENUE, DATED JANUARY 1976, SCALE: 1"= 40', SHEETS 1 AND 2 OF 7, PREPARED BY CE MAGUIRE, INC.

J. LAND TO BE CONVEYED BY MICHAEL AND BLANCHE WISNESKE TO THE NORWICH COMMUNITY DEVELOPMENT CORPORATION INCORPORATED, CITY OF NORWICH, CONNECTICUT, SCALE: 1"= 20', REVISED 6/8/72, PREPARED BY C.E. MAGUIRE, INC.

K. MONUMENTED PROPERTY SURVEY PLAN PREPARED FOR STATE OF CONNECTICUT DEPARTMENT OF AGRICULTURE FARMLAND PRESERVATION PROGRAM, PROPERTY OF EUGENE WISNESKE, PLAIN HILL ROAD, DATED 03-11-08, SCALE: 1"= 100', SHEET 4 OF 4, PREPARED BY F.A. HESKETH & ASSOCIATES, INC.

SURVEY NOTES

1. THIS SURVEY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300B-1 THROUGH 20-300B-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES AND STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT AS ADOPTED FOR USE BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996. IT IS A PROPERTY AND TOPOGRAPHIC SURVEY BASED ON RESURVEY AND CONFORMS TO HORIZONTAL CLASS A-2 AND TOPOGRAPHIC CLASS T-2 ACCURACY STANDARDS. IT IS INTENDED TO DEPICT EXISTING SITE CONDITIONS FOR THE BASIS OF FUTURE DEVELOPMENT.

2. ACTUAL FIELD SURVEY WAS COMPLETED ON APRIL 23, 2015. LAND RECORDS RESEARCH WAS COMPLETED ON FEBRUARY 16, 2015.

3. NORTH ORIENTATION DEPICTED HEREON IS BASED ON APPROXIMATE CONNECTICUT GRID NORTH, NAD 1983, VERTICAL DATUM IS BASED ON NGVD 1988 DERIVED FROM GLOBAL POSITIONING OBSERVATIONS TAKEN FEBRUARY 2014.

4. THE SUBJECT PROPERTIES ARE IDENTIFIED AS 9 STOTT AVENUE AND 292 PLAIN HILL ROAD, NORWICH, CONNECTICUT. FURTHER REFERENCE MAY BE MADE TO ASSESSORS MAP 28, BLOCK 1, LOTS 10 AND 13.

5. LIMITS OF INLAND WETLANDS DEPICTED HEREON WERE DELINEATED BY DEAN E. GUSTAFSON P.S.S., ALL POINTS TECHNOLOGY CORPORATION. 20' TO 50' BUFFER AREAS DEPICTED HEREON ARE PREDICATED ON RECOMMENDED SETBACKS PROVIDED BY ALL POINTS TECHNOLOGY CORPORATION BASED FIELD EVALUATION OF SAID INLAND WETLANDS. THE CITY OF NORWICH INLAND WETLAND REGULATIONS REQUIRES AN UPLAND REGULATED AREA OF 100'.

"TO MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON."

70016

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SolarCity Corporation
Site Development and Management Plan
9 Stott Avenue & 292 Plain Hill Road
Norwich, Connecticut
Topographic Survey-Existing Conditions

SCALE: 1"=40'
DATE: August 2015
JOB I.D. NO.: 15-2327

Revisions

Rev. A - Development & Management Plan Submittal - 10/15/15

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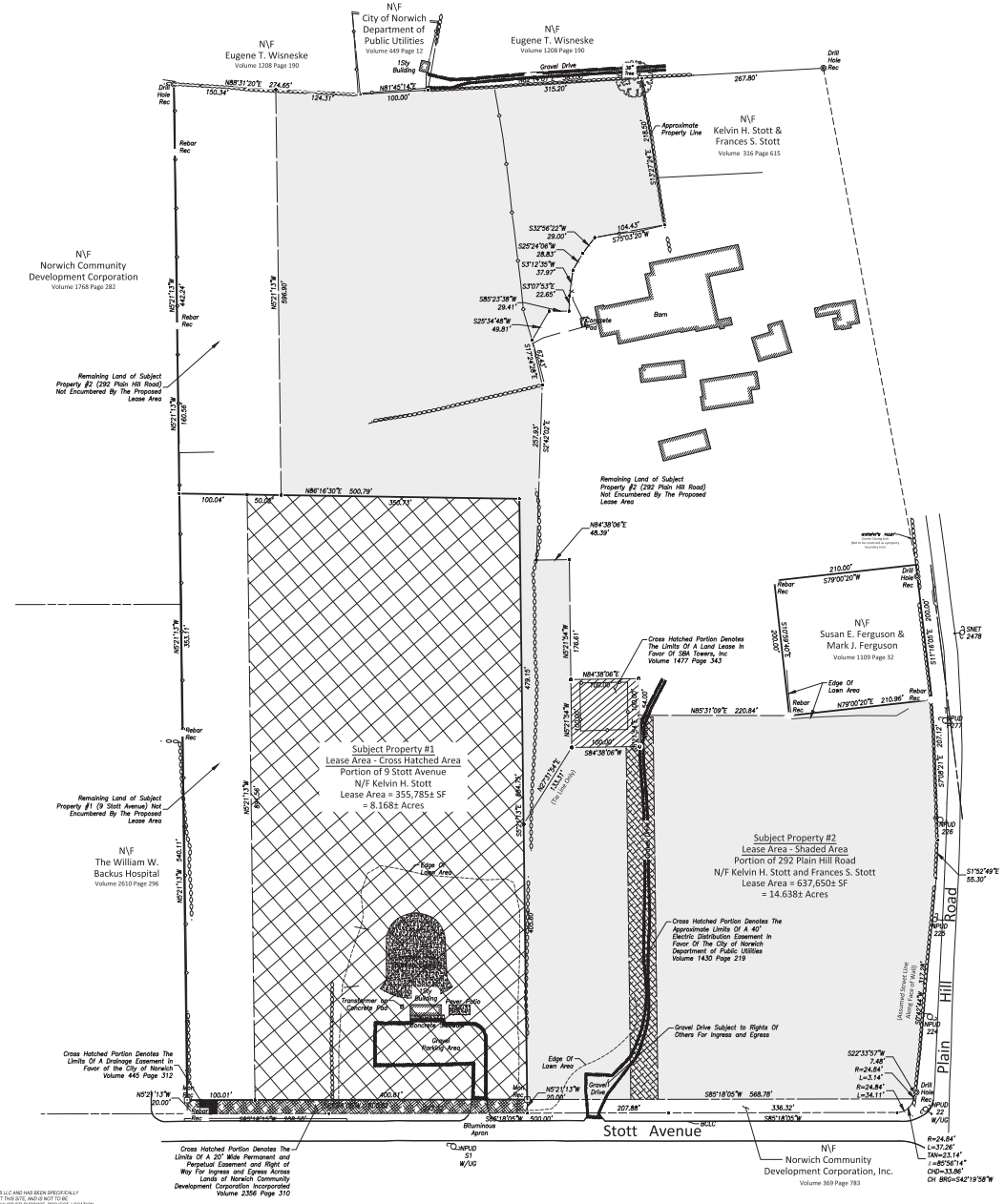
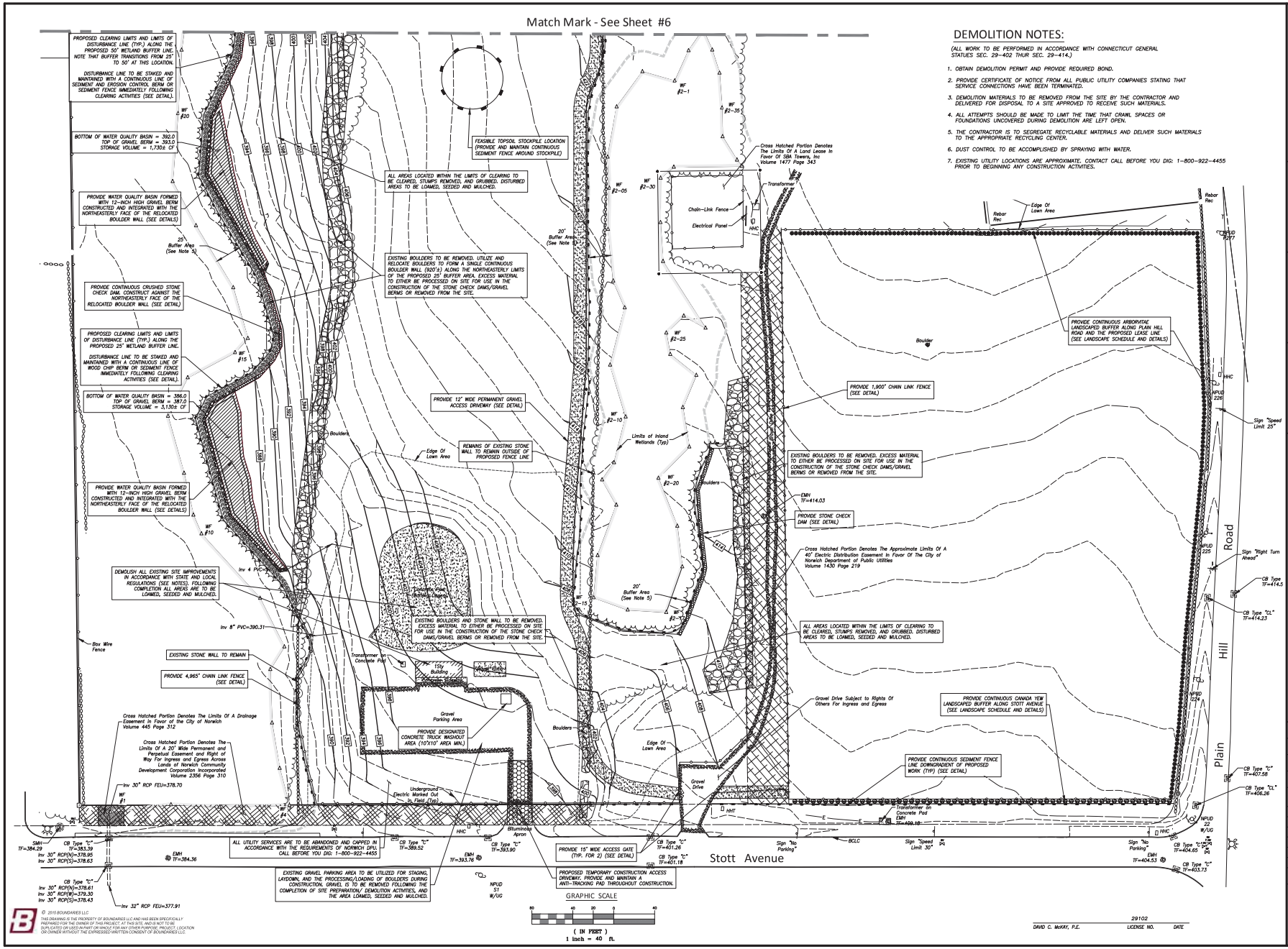

N\F
City of Norwich
Department of
Public Utilities
Volume 449 Page 12
N\F
Eugene T. Wisneske
Volume 1208 Page 190
N\F
Eugene T. Wisneske
Volume 1208 Page 190
N\F
Kelvin H. Stott &
Frances S. Stott
Volume 316 Page 615
N\F
Norwich Community
Development Corporation
Volume 1768 Page 282
N\F
Susan E. Ferguson &
Mark J. Ferguson
Volume 1109 Page 32
N\F
The William W.
Backus Hospital
Volume 2610 Page 296
N\F
Norwich Community
Development Corporation, Inc.
Volume 369 Page 783
Subject Property #1
Lease Area - Cross Hatched Area
Portion of 9 Stott Avenue
N/F Kelvin H. Stott
Lease Area = 355,785± SF
= 8.168± Acres
Subject Property #2
Lease Area - Shaded Area
Portion of 292 Plain Hill Road
N/F Kelvin H. Stott and Frances S. Stott
Lease Area = 637,650± SF
= 14.638± Acres
Stott Avenue
Plain Hill Road
Barn
Concrete
Gravel Drive
Edge Of Lawn Area
Rebar Rec
Drill Hole Rec
Remaining Land of Subject Property #2 (292 Plain Hill Road) Not Encumbered By The Proposed Lease Area
Remaining Land of Subject Property #1 (9 Stott Avenue) Not Encumbered By The Proposed Lease Area
Cross Hatched Portion Denotes The Limits Of A Land Lease In Favor Of SBA Towers, Inc Volume 1477 Page 343
Cross Hatched Portion Denotes The Approximate Limits Of A 40' Electric Distribution Easement In Favor Of The City of Norwich Department of Public Utilities Volume 1430 Page 219
Cross Hatched Portion Denotes The Limits Of A Drainage Easement In Favor of the City of Norwich Volume 445 Page 312
Cross Hatched Portion Denotes The Limits Of A 20' Wide Permanent and Perpetual Easement and Right of Way For Ingress and Egress Across Lands of Norwich Community Development Corporation Incorporated Volume 2356 Page 310
Gravel Drive Subject to Rights Of Others For Ingress and Egress
Transformer on Concrete Pole
Utility Pole
Bituminous Apron
Approximate Property Line
(Assumed Street Line 30' From Face of Wall)
N79°00'20"E 210.96'
N85°31'09"E 220.84'
S84°38'06"W 500.00'
S85°18'05"W 568.78'
N5°21'13"W 20.00'
S79°00'20"W 210.00'
N84°38'06"E 48.39'
N5°21'54"W 100.00'
S5°21'54"E 100.00'
N5°21'13"W 596.80'
N5°21'13"W 442.24'
N5°21'13"W 160.56'
N5°21'13"W 355.11'
N5°21'13"W 89.56'
N5°21'13"W 540.11'
N86°16'30"E 500.79'
N86°31'20"E 274.65'
N81°45'14"E 100.00'
S17°27'24"E 248.50'
S75°01'29"W 104.43'
S32°56'22"W 29.00'
S25°24'06"W 28.83'
S3°12'35"W 37.97'
S3°07'53"E 22.65'
S85°23'38"W 29.41'
S25°34'48"W 49.81'
S24°42'02"E 251.65'
S17°52'49"E 55.30'
S22°33'57"W 7.48'
R=24.84'
L=3.14'
R=24.84'
L=34.11'
R=24.84'
L=37.26'
TAN=23.14'
Δ=85°56'14"
CHD=33.86'
CH BRG=S42°19'58"W
S76°02'11"E 207.12'
S79°00'20"E 200.00'
S11°59'40"W 200.00'
NPUD 227
NPUD 225
NPUD 22 W/UG
NPUD 21 W/UG
BCLL
Mon Rec
Edge Of Lawn Area
Edge Of Lawn Area
Gravel Parking Area
Gravel Drive
Bituminous Apron
Drill Hole Rec
Rebar Rec
Mon Rec
Barn
Concrete
Building
Power Pole
Transformer on Concrete Pole
Utility Pole
Gravel Parking Area
Gravel Drive
Edge Of Lawn Area
Edge Of Lawn Area
Rebar Rec
Drill Hole Rec
Rebar Rec
Rebar Rec
Rebar



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SolarCity Corporation
Site Development and Management Plan
9 Stott Avenue & 292 Plain Hill Road
Norwich, Connecticut
Site Preparation and Demolition Plan

SCALE: 1"=40'
DATE: August 2015
JOB I.D. NO.: 15-2327
Revisions
Rev. A - Development & Management Plan Submittal - 10/15/15

SHEET NO.
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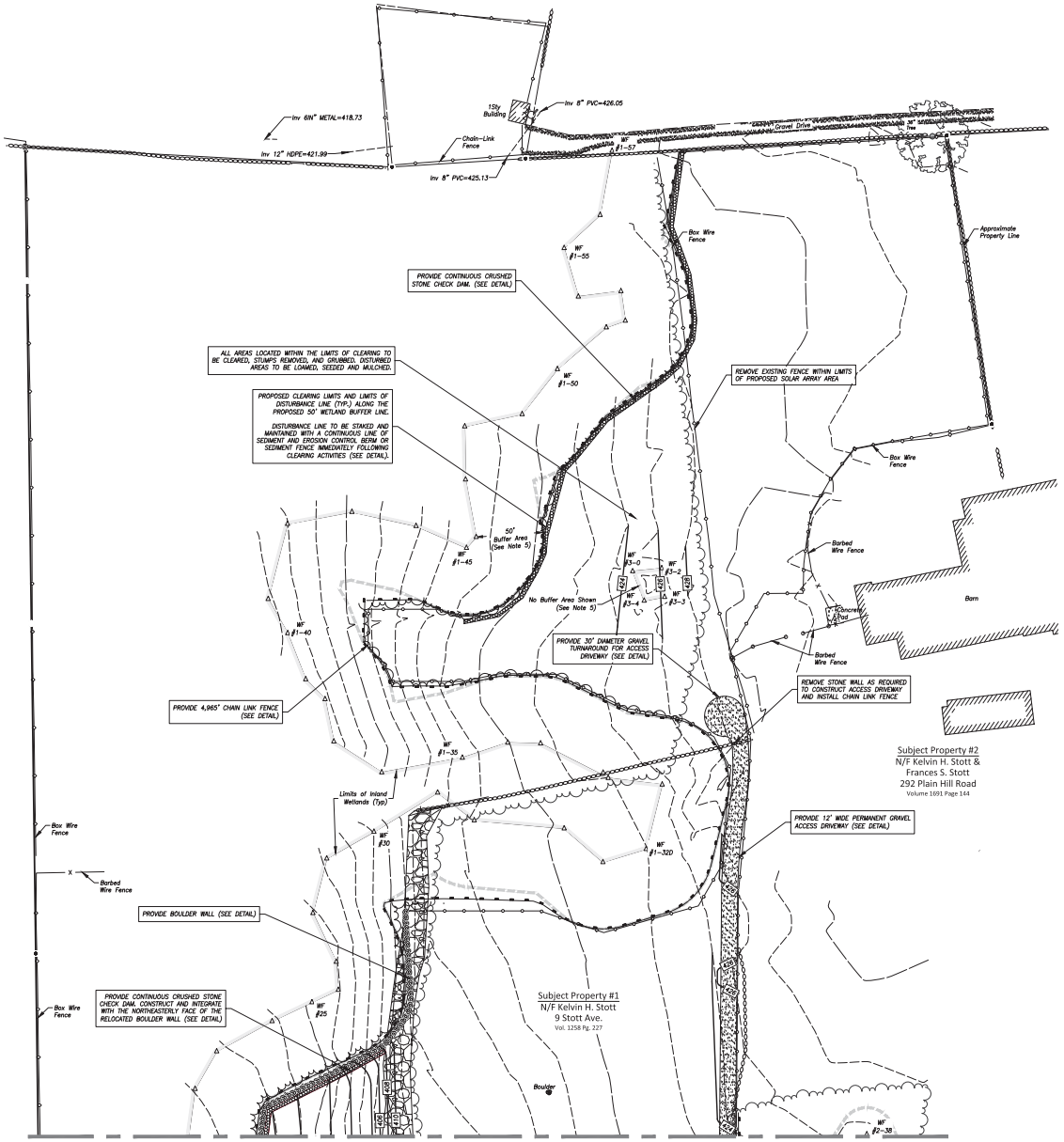

Match Mark - See Sheet #5

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Revisions
Rev. A - Development & Management Plan Submittal - 10/15/15

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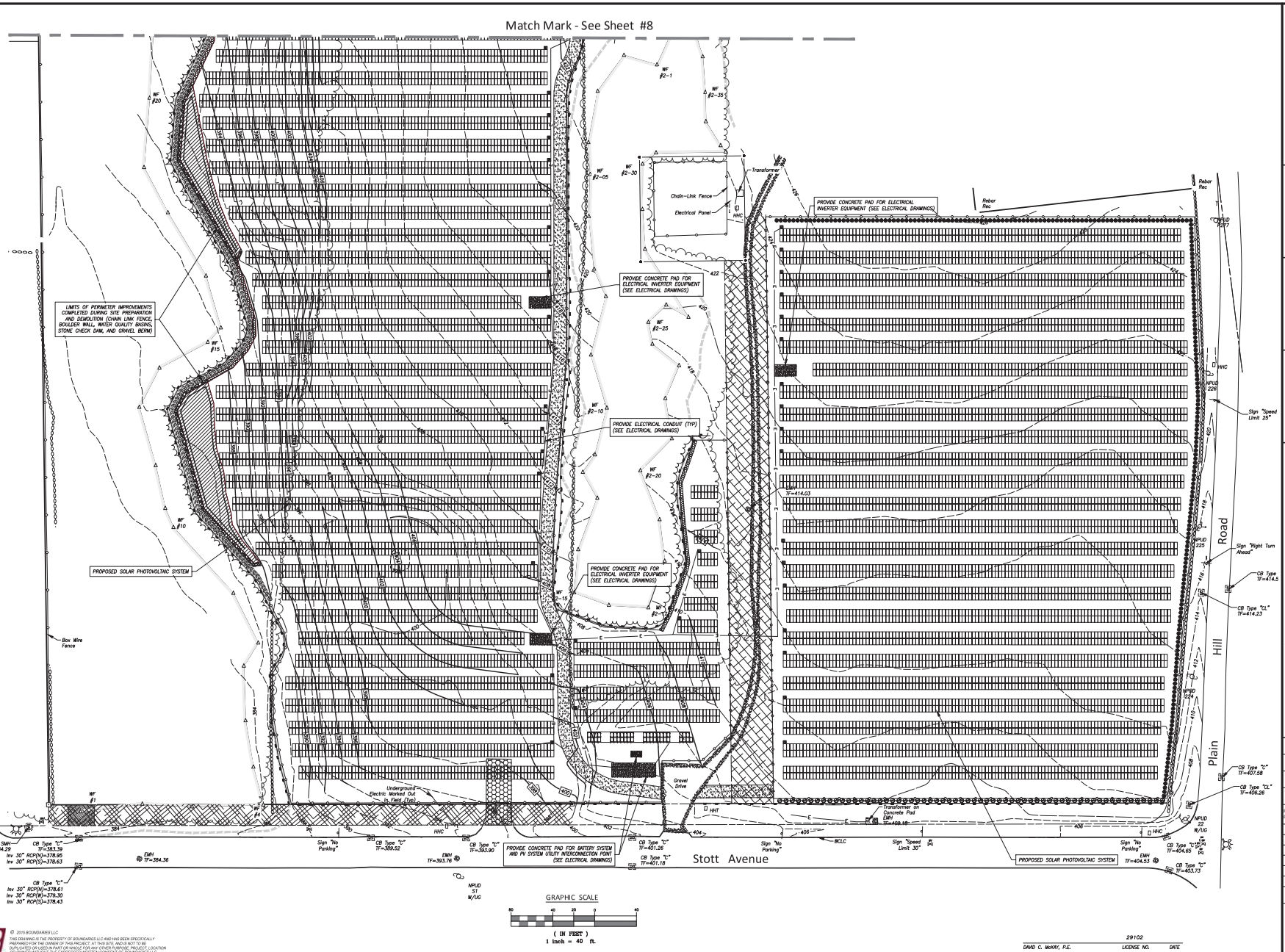

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SolarCity Corporation
Site Development and Management Plan
9 Stott Avenue & 292 Plain Hill Road
Norwich, Connecticut
Site Development Plan Solar Modules and Infrastructure

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Revisions
Rev. A - Development & Management Plan Submittal - 10/15/15

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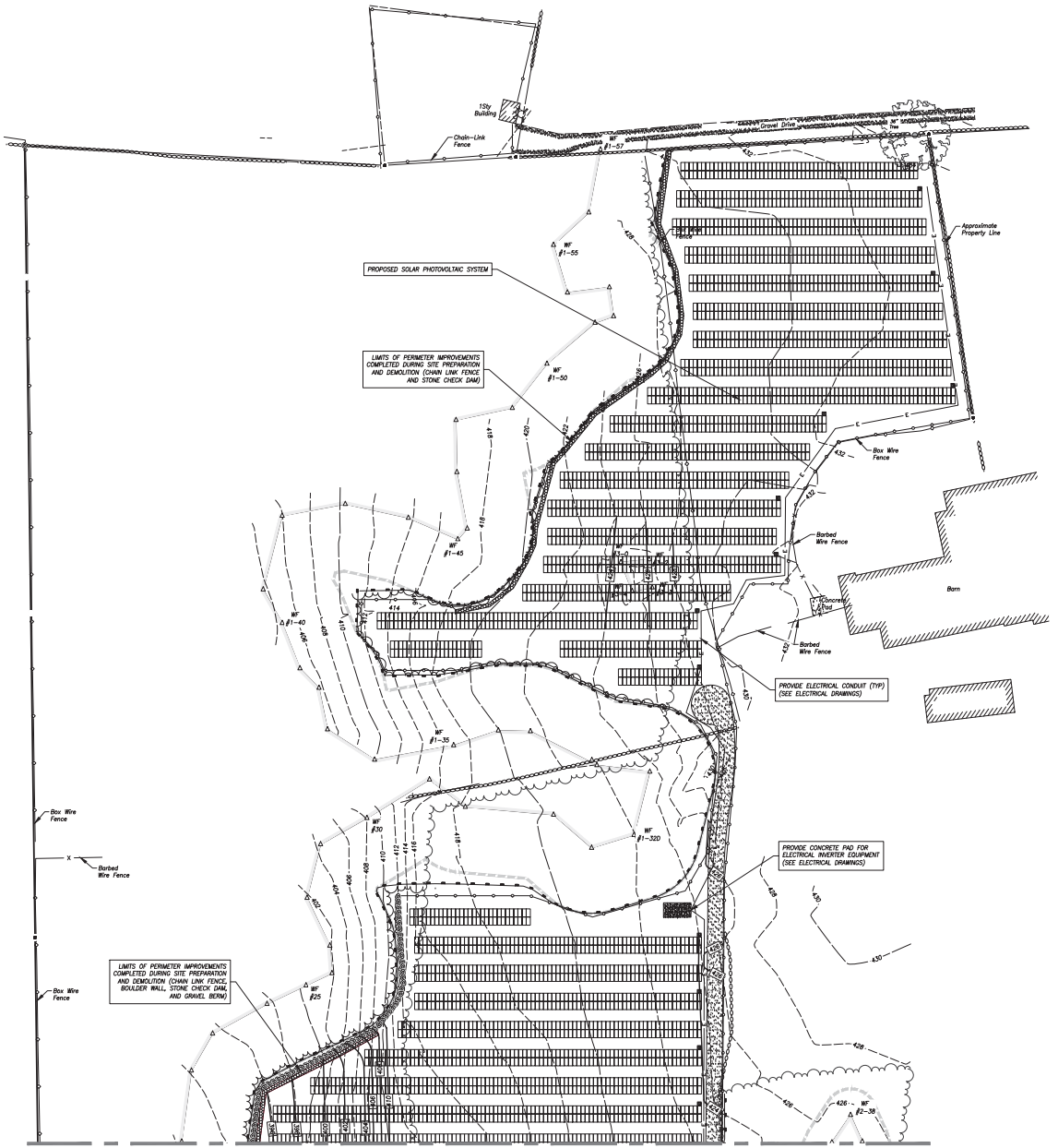

Match Mark - See Sheet #7

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Reference Is Made To:
1. Connecticut Guidelines For Soil Erosion and Sediment Control, MAY 2002.
2. Soil Survey Of New London County Connecticut, U.S.D.A. Soil Conservation Service.

Development Schedule:
Prior to the start of construction, the contractor is to schedule a mandatory preconstruction meeting on site to discuss issues as they relate to the proposed project. These issues will include but not be limited to:
1. Resource Protection.
2. Construction Vehicle Access and Parking.
3. Construction Methods and Scheduling.
4. Existing site utilities and mark-out coordination.
5. Material delivery and stockpiling.
6. Site Inspection procedures and As-Built drawings.

General Sequence of Construction:
1. Secure all necessary local, state, and federal permits. Register for all applicable state and federal permits as required.
2. Install anti-tracking pad at construction entrance and sediment fence in vicinity of proposed access drive.
3. Rough grade (cut and fill as required) access drive. Place and compact driveway base and install traffic bound gravel surface for access drive. Stabilize all side slopes as soon as completed by loaming all disturbed areas (4" minimum), seed with grass/hydroseed and mulch.
4. Clear and remove all trees within the proposed clearing limits. Chip trees for use as sediment and erosion control berms.
5. Install sediment and erosion control berms or sediment fence as shown down gradient of proposed development area prior to grubbing operations.
6. Install chain link security fence along entire perimeter of development area and access road.
7. Grub stumps and strip topsoil in cleared areas and proposed grading areas stockpile all topsoil at the locations indicated or other approved location. Seed these stockpiles with ryegrass and surround with sediment fence or sediment and erosion control berm. All stumps are to be ground or disposed of off-site.
8. Install boulder barriers, stormwater basins/temporary sediment traps, and crushed stone check dams, and grade as shown within the cleared areas (13% maximum within the solar array area and 3H:1V maximum in other areas), place 4" of topsoil (minimum), seed and mulch disturbed areas.
9. Demolish existing structures in accordance with local, state, and federal requirements.
10. Grade remainder of site to the grades shown (13% maximum within the solar array area and 3H:1V maximum in other areas), place 4" of topsoil (minimum), seed and mulch disturbed areas.
11. Install final landscaping improvements and proposed solar array system. Install conduit, concrete utility pads and electrical equipment as required for harvesting power.
12. After all areas have been permanently stabilized, remove erosion control measures. Sediment and erosion control berms may be left in place at the option of the Contractor.

Soil Disturbance Phasing:
The project results in an estimated total soil disturbance of 4.91 acres as a result of the following activities:
1. Access drive construction and grading – 0.77 acres
2. Clearing, grubbing, and grading of cleared areas – 2.70 acres
3. Existing structure demolition and grading – 1.29 acres
4. Miscellaneous site improvements (landscaping, utilities, etc.) – 0.15 acres

Sediment and erosion control measures shall be installed on the downgradient limit of the project area prior to the initiation of any soil disturbing activities.

Construction Notes:
1. The Contractor shall Call Before You Dig at 811 or 1-800-922-4455 at least 72 hours, Saturdays, Sundays, and holidays excluded, prior to excavation at any location. A copy of the Call Before You Dig project reference number(s) shall be given to the Owner prior to excavation.
2. Locations of existing pipes, conduits, utilities, foundations and other underground objects are not warranted to be correct and the Contractor shall have no claim on that account should they be other than that shown.
3. Stone walls, fences, curbs, etc. shall be removed and replaced as necessary to perform the work. Unless otherwise indicated, all such work shall be incidental to construction of the project.
4. All other areas disturbed by the Contractor beyond payment limits shall be restored at no additional cost to the Owner.
5. The wetland buffer line shall be staked out in the field prior to any clearing operations.
6. All work shall be done in accordance with OSHA requirements and the contractor is responsible for compliance with these requirements. In addition, it shall be the responsibility of the Contractor to provide any excavation safeguards, necessary barricades, flagmen, etc. for traffic control and site safety.
7. All erosion & sedimentation control measures shall be installed prior to the start of construction.
8. All fuel, oil, paint or other hazardous materials used during construction should be stored in a secondary container and removed to a locked indoor area with an impervious floor during non-work hours.
9. No waste materials (such as stumps) are allowed to be buried on site. All waste materials shall be disposed of off-site at an appropriate location in accordance with all local, state, and federal regulations.

Erosion Control Operation & Maintenance:

The applicant shall be responsible for the installation and maintenance of erosion and sediment control measures throughout the project. No construction shall proceed until proper sedimentation and erosion control methods have been installed as the sequence of construction necessitates.

Every precaution shall be used during construction to prevent and minimize the degradation of the existing water quality from stormwater runoff during construction. All activities shall be in conformance to and consistent with all applicable water quality standards and management practices as set forth by local, state and federal agencies.

The applicant shall appoint an onsite agent who shall be personally responsible for implementing this erosion and sediment control plan and enforcing the prescribed safeguards during the excavation and operation period.

This responsibility includes the installation and maintenance of control measures throughout the project, informing all parties engaged on site of the requirements and objectives of the plan, notifying the proper agency and officials of any transfer of this responsibility.

All erosion and sediment control measures shall be repaired, cleaned and/or replaced as necessary throughout the project in order to maintain complete and integral erosion and sediment control protection. Once in place, all erosion and sediment control measures are to remain in place in proper condition and be continuously maintained until final site restoration has been completed. Following such permanent stabilization, the erosion and sediment control measures shall be dismantled, removed, and disposed of in an approved manner. Additional erosion and sediment control measures beyond those shown on the plans or prescribed herein shall be put in place, whenever necessary, to address field conditions and/or as ordered by the engineer.

Qualified personnel provided by the applicant shall inspect disturbed areas and the locations where vehicles enter and leave the site. These areas shall be inspected at least once every seven calendar days and within twenty-four hours at the end of a storm that is 0.5 inches or greater. Additional measures beyond those indicated and/or shown on this plan set or prescribed herein shall be put in place, whenever necessary, To address field conditions and/or as ordered by the engineer. where sites have been temporarily or finally stabilized, such inspection shall be conducted at least once every month for three consecutive months.

No soil, fill or other materials shall be deposited in surrounding inland wetlands.

All temporary storage and/or stockpile areas shall be properly stabilized to prevent erosion and suitably contained to prevent turbid runoff.

Dumping of oil or other deleterious materials on the ground is forbidden. The applicant shall provide a means of catching, retaining and properly disposing of drained oil, removed oil filters, or other deleterious material from equipment used on site. Vehicle maintenance shall be completed off site. All oil spills shall be immediately reported to the department of energy and environmental protection/hazardous materials office. Failure to do so may result in the imposition of fines under the applicable Connecticut General Statutes.

During construction, the applicant shall be responsible for site inspection and maintenance to assure proper performance of erosion control measures. Inspection and maintenance shall include, at a minimum, the following:

- Inspect all sediment fence, sediment and erosion control berms and other erosion control measures. Repair or replace any damaged portion in order to insure its proper and effective operation. Remove accumulated sediment if required (greater than 4" depth).
- Inspect all stockpiles. Repair or replace any damaged portion of erosion control measures surrounding these areas in order to prevent sedimentation downgradient.
- Inspect grass restored areas. Revegetate any eroded or disturbed areas to provide permanent stabilization. Reseed and/or revegetate any areas that do not have a suitable stand of grass or any scoured areas to provide permanent stabilization.
- Inspect anti-tracking pad. Remove and dispose of pad and replace if pad is no longer functioning efficiently or accumulated sediment is to a depth of 2" below the stone surface.
- Inspect all stone check dams. Remove accumulated sediment if required (blocking more than 3" depth of flow).
- Inspect all temporary and permanent stormwater basins. Remove accumulated sediment if required (greater than 6" depth), revegetate if necessary to provide stabilization.
- Inspect downgradient areas of all outlets and solar arrays. Stabilize any eroded areas if found.

Erosion and Sediment Control
Best Management Practices (BMP'S)

Minimize Disturbed Area and Protect Natural Features and Soil:

Topsoil:
Topsoil will be removed and stockpiled on site and utilized for final grading. Additional topsoil, if required will be supplied from an off-site source. Excess materials resulting from "cut slopes" in the areas of the proposed construction that are not intended for reuse will be immediately removed from the site. When soil is stockpiled, the slope of the stockpile will not exceed 2 horizontal to 1 vertical.
Installation Schedule: As noted, excavated topsoil will be stockpiled on site. Sediment fence will be placed around any stockpiles that are not immediately removed from the site to protect the existing drainage ditches and off site areas.
Maintenance and Inspection: The cut and fill areas will be inspected weekly for erosion. These areas will be stabilized immediately with erosion controls or graded to avoid possible disturbance to the existing drainage ditches or off site areas. See also maintenance and inspection procedures for silt fence.

Control Stormwater Flowing Onto and Through the Project:

Area for Silt to accumulate:
BMP/Installation Schedule: Before any grading operations begin, a sediment and erosion control berm or sediment fence will be installed adjacent to the areas under construction just outside the limits of disturbance.
Other adjacent off site areas will always be protected by a sediment fence or another BMP until final stabilization is achieved.
Maintenance and Inspection: The graded areas and sediment fence will be inspected weekly to ensure that there are no structural failures and immediately after rain events.

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Construction Specifications
Sediment and Erosion Control Berm
1. The material for sediment and erosion control berms will be acquired in conjunction with the removal and chipping of trees located within the project area.

Installation
Erect sediment and erosion control berm in a continuous fashion at the specified height and width.

Maintenance:
1. Sediment should be removed once it has accumulated to a depth of 4".
2. Berm should be repaired if it has been breached.
3. Berm can be left in place permanently and left to deteriorate.
4. All sediment accumulated at the berm should be removed and properly disposed of if the berm is to be removed.

Sediment Fence
1. The material for sediment fences should be a pervious sheet of synthetic fabric such as polypropylene, nylon, polyester, or polyethylene yarn.
2. The stakes used to anchor the filter fabric should be wood or metal. Wooden stakes should be at least 3 feet long and have a minimum diameter of 2 inches if a hardwood like oak is used. Stakes from soft woods like pine should be at least 4 inches in diameter.
3. Erect sediment fence in a continuous fashion from a single roll of fabric to eliminate gaps in the fence. If a continuous roll of fabric is not available, overlap the fabric from both directions only at stakes or posts. Overlap at least 6 inches. Excavate a trench to bury the bottom of the fabric fence at least 6 inches below the ground surface. This helps to prevent gaps from forming near the ground surface. Gaps would make the fencing useless as a sediment barrier.
4. The height of the fence posts should be 16 to 34 inches above the original ground surface. Space the posts no more than 10 feet apart.
5. The fence should be designed to withstand the runoff from a 10-year peak storm event. Once installed, it should remain in place until all areas upslope have been permanently stabilized by vegetation or other means.

Installation:
1. Dig a 6" deep trench on the uphill side of the proposed barrier location.
2. Position the posts on the downhill side of the fabric barrier and drive the post 1.5 feet into the ground.
3. Lay the bottom 6" of the fabric barrier in the trench to prevent undermining and backfill.

Maintenance:
1. Sediment should be removed once it has accumulated to 4" depth.
2. Filter fabric should be replaced whenever it has deteriorated to such an extent that the effectiveness of the fabric is reduced (approximately six months).
3. Sediment fence should remain in place until disturbed areas have been permanently stabilized.
4. All sediment accumulated at the fence should be removed and properly disposed of before the fence is removed.

Inspection:
1. Inspect sediment fence before anticipated storm events (or series of storm events such as intermittent showers over one or more days) and within 24 hours after the end of a storm event of 0.5 inches or greater, and at least once every seven calendar days, at least 72 hours apart.
2. Where sites have been finally or temporarily stabilized, such inspections may be conducted once per month.

Straw Bale Barrier
Installation
1. Excavate trench 4" and place material upslope of trench.
2. Place bales in a single row in the trench, lengthwise, with ends of adjacent bales tightly abutting one another and the bindings oriented around the sides rather than along the tops and bottoms of the bales (to avoid premature rotting of the bindings).
3. Anchor each bale with at least 2 stakes, driving the first stake in each bale toward the previously laid bale to force the bales together. Stakes must be driven a minimum of 18 inches into the ground. Fill any gaps between the bales with straw to prevent water from escaping between the bales.
4. Backfill the bales with the excavated trench material to a minimum depth of 4 inches on the uphill side of the bales. Tamp by hand or machine and compact the soil. Loose straw scattered over the disturbed area immediately uphill from the hay bale barrier tends to increase barrier efficiency.

Maintenance
1. Inspect the straw bale barrier at least once a week and within 24 hours of the end of a storm with a rainfall amount of 0.5 inch or greater to determine maintenance needs. For dewatering operations, inspect frequently before, during, and after pumping operations. Remove the sediment deposits when sediment deposits reach approximately one half the height of the barrier.
2. Replace or repair the barrier within 24 hours of observed failure. Failure of the barrier has occurred when sediment fails to be retained by the barrier because:
   (a) the barrier has been overtopped, undercut or bypassed by runoff water,
   (b) the barrier has been moved out of position, or
   (c) the straw bales have deteriorated or been damaged.
3. When repetitive failures occur at the same location, review conditions and limitations for use and determine if additional controls are needed to reduce failure rate or replace straw bale barrier.
4. Maintain the straw bale barrier until the contributing area is stabilized. After the upslope areas have been permanently stabilized, pull the stakes out of the hay bales. Remove sediment.

Dust Control:
Dust from the site will be controlled by using a mobile pressure-type distributor truck that will apply potable water at rate of 300 gallons per acre and minimized as needed to avoid ponding.
Installation Schedule: Dust control will be implemented as needed once site grading has been initiated, and during windy conditions exceeding 20mph, while site grading is occurring. Spraying of potable water will be performed once per day during the months of March through May and no more than three times per day from June to September or whenever dryness of soil warrants it.
Maintenance Schedule: At least one mobile unit will be available at all times during construction to apply potable water. Each mobile unit shall be equipped with a positive shutoff valve to prevent over watering of disturbed areas.

Soil Stabilization:

Temporary Stabilization:
BMP Description: Hydromulching will be used on slopes where construction will cease for more than 14 days and over the winter months to stabilize erodible materials. Straw mulch and wood fiber will be mixed with a tackifier and applied uniformly by machine with an application rate of 2 tons (100-200 bales) per acre. The contractor will use crimping equipment to bind the mulch to the soil if the tackifier is not effective. Netting will be used on small areas with steep slopes. In areas where hydromulching is inaccessible, straw mulch will be applied by hand at the same application rate.
Temporary Seeding will be used on any area where construction activity is suspended for more than twenty-one days to stabilize erodible materials. Refer to the Erosion Control Plan for guidance on seeding mixtures, rates, and acceptable planting dates for temporary seeding.

Installation Schedule: Portions of the site where construction activities will temporarily cease for more than 14 days will be stabilized with mulch. Where construction activities will temporarily cease for more than 21 days it will be temporarily seeded. Winter stabilization will be provided between December 25 and March 30.
Maintenance and Inspection: Mulched areas will be inspected weekly to ensure that adequate coverage is provided. Repairs will be conducted as needed.

Seed Mixture For Temporary Seeding

	LBS./ACRE	LBS./1000 S.F.
Annual Ryegrass	40	1.0

See Figure TS-2 in the 2002 Guidelines for additional temporary seed mixes.

Final Stabilization:

Permanent seeding should be applied immediately after the final design grades are achieved at the site but no later than 14 days after construction activities have permanently ceased. After the entire site is stabilized, any sediment that has accumulated will be removed and hauled off site to a licensed landfill facility. Construction debris, trash, and temporary BMP's will also be removed and any areas disturbed during removal will be seeded immediately.

Seedbed Preparation:
1. Topsoil will be spread over final graded areas at a minimum depth of four inches. Topsoil shall inclusively mean a soil meeting one of the following soil textural classes established by the United States Department of Agriculture classification system based upon the proportion of sand, silt, and clay size particles after passing a 2 millimeter (mm) sieve and subjected to a particle size analysis:
1.1. Loamy sand, including coarse, loamy fine, and loamy very fine sand, sandy loam, including coarse, fine and very fine sandy loam, loam, or silt loam with not more than 60% silt;
1.2. Containing not less than 6% and not more than 20% organic matter as determined by loss-on-ignition of oven dried samples dried at 105 degrees centigrade;
1.3. Possessing a ph range of 6.0-7.5, except if the vegetative practice being used specifically requires a lower ph, then ph may be adjusted accordingly;
1.4. Having soluble salts not exceeding 500 ppm;
1.5. And that is loose and friable and free from refuse, stumps, roots, brush, weeds, frozen particles, rocks, and stones over 1.25 inches in diameter, and any material that will prevent the formation of a suitable seedbed or prevent seed germination and plant growth.
2. Fertilizer will be applied to the seedbed as needed. Fertilizers will be commercial type of uniform composition, free-flowing and conforming to the applicable State and Federal laws. Choose native species that are adapted to local weather and soil conditions wherever possible to reduce water and fertilizer inputs and lower maintenance overall.
3. Topsoil will be loosened by raking, tilling or other suitable methods.

Final stabilization should be installed on portions of the site where construction activities have permanently ceased but no later than 14 days after construction ceases.
All seeded areas will be inspected weekly during construction activities for failure until a dense cover of vegetation has been established. If failure is noticed on the seeded area, the area will be reseeded, fertilized and mulched immediately. After construction is complete at the site permanent stabilization measures will be monitored until final stabilization is reached.

Seed Mixture For Upland Areas

	LBS./ACRE	LBS./1000 S.F.
Kentucky Bluegrass	20	0.45
Creeping Red Fescue	20	0.45
Perennial Ryegrass	5	0.10
	45	1.00

The recommended seeding dates are: April 1-June 15 and August 1-September 15

ENVIRONMENTAL NOTES
(PREPARED BY ALL POINTS TECHNOLOGY)

Wetland Protection Program

Portions of the proposed Project are located in close proximity to wetlands. As a result, the following protective measures shall be followed to help avoid degradation of the nearby wetland system.

It is of the utmost importance that the Contractor complies with the requirement for the installation of protective measures and the education of its employees and subcontractors performing work on the project site. These measures will also provide protection to a nearby wetland system. This protection program shall be implemented regardless of time of year the construction activities occur. All-Points Technology Corporation, P.C. ("APT") will serve as the Environmental Monitor for this project to ensure that wetland protection measures are implemented properly. The Contractor shall contact Dean Gustafson, Senior Environmental Scientist at APT, at least 5 business days prior to the pre-construction meeting. Mr. Gustafson can be reached by telephone at (860) 663-1697 ext. 201 or via email at dgustafson@allpointstech.com.

The wetland protection program consists of several components: use of appropriate erosion control measures to control and contain erosion while avoiding/minimizing wildlife entanglement; periodic inspection and maintenance of isolation structures and erosion control measures; education of all contractors and sub-contractors prior to initiation of work on the site; protective measures; and, reporting.

1. Erosion and Sedimentation Controls

a. Plastic netting used in a variety of erosion control products (i.e., erosion control blankets, fiber rolls [wattles], reinforced silt fence) has been found to entangle wildlife, including reptiles, amphibians, birds and small mammals. No permanent erosion control products or reinforced silt fence will be used on the project. Temporary Erosion control products will use either erosion control blankets and fiber rolls composed of processed fibers mechanically bound together to form a continuous matrix (net less) or netting composed of planar woven natural biodegradable fiber to avoid/minimize wildlife entanglement.

b. Installation of erosion control measures shall be performed by the Contractor prior to any earthwork. The Environmental Monitor will inspect the work zone area prior to and following barrier installation to ensure erosion controls are properly installed.

c. In addition to required daily inspection by the Contractor, the fencing will be inspected for tears or breeches in the fabric following installation periodically by the Environmental Monitor throughout the course of the construction project.

d. The extent of the erosion controls will be as shown on the site plans. The Contractor shall have additional erosion control materials should field conditions warrant extending the fencing as directed by the Environmental Monitor.

e. All silt fencing and other erosion control devices shall be removed within 30 days of completion of work and permanent stabilization of site soils. If fiber rolls/wattles, straw bales, or other natural material erosion control products are used, such devices will not be left in place to biodegrade and shall be promptly removed after soils are stable so as not to create a barrier to migrating wildlife. Seed from seeding of soils should not spread over fiber rolls/wattles as it makes them harder to remove once soils are stabilized by vegetation.

2. Contractor Education

a. Prior to work on site, the Contractor shall attend an educational session at the pre-construction meeting with the Environmental Monitor. This orientation and educational session will consist of an introductory meeting with the Environmental Monitor to understand the environmentally sensitive nature of the development site and the need to follow these protective measures.

3. Petroleum Materials Storage and Spill Prevention

a. Certain precautions are necessary to store petroleum materials, refuel and contain and properly clean up any inadvertent fuel or petroleum (i.e., oil, hydraulic fluid, etc.) spill due to the project's location in proximity to sensitive wetlands.

b. A spill containment kit consisting of a sufficient supply of absorbent pads and absorbent material will be maintained by the Contractor at the construction site throughout the duration of the project. In addition, a waste drum will be kept on site to contain any used absorbent pads/material for proper and timely disposal off site in accordance with applicable local, state and federal laws.

c. The following petroleum and hazardous materials storage and refueling restrictions and spill response procedures will be adhered to by the Contractor.

i. Petroleum and Hazardous Materials Storage and Refueling

1. Refueling of vehicles or machinery shall occur a minimum of 100 feet from wetlands or watercourses and shall take place on an impervious pad with secondary containment designed to contain fuels.

2. Any fuel or hazardous materials that must be kept on site shall be stored on an impervious surface utilizing secondary containment a minimum of 100 feet from wetlands or watercourses.

ii. Initial Spill Response Procedures

1. Stop operations and shut off equipment.
2. Remove any sources of spark or flame.
3. Contain the source of the spill.
4. Determine the approximate volume of the spill.
5. Identify the location of natural flow paths to prevent the release of the spill to sensitive nearby waterways or wetlands.
6. Ensure that fellow workers are notified of the spill.

iii. Spill Clean Up & Containment

1. Obtain spill response materials from the on-site spill response kit. Place absorbent materials directly on the release area.
2. Limit the spread of the spill by placing absorbent materials around the perimeter of the spill.
3. Isolate and eliminate the spill source.
4. Contact appropriate local, state and/or federal agencies, as necessary.
5. Contact a disposal company to properly dispose of contaminated materials.

iv. Reporting

1. Complete an incident report.
2. Submit a completed incident report to appropriate local, state and/or federal agencies, as necessary.

4. Herbicide and Pesticide Restrictions

a. In the event herbicides and/or pesticides are required at the proposed facility, their use will be used in accordance with Integrated Pest Management ("IPM") principles with particular attention to minimize applications within 100 feet of wetland or watercourse resources. No applications of herbicides or pesticides are allowed within actual wetland or watercourse resources.

5. Reporting

a. Any incidents of sediment release into the nearby wetland will be reported to the Connecticut Siting Council.

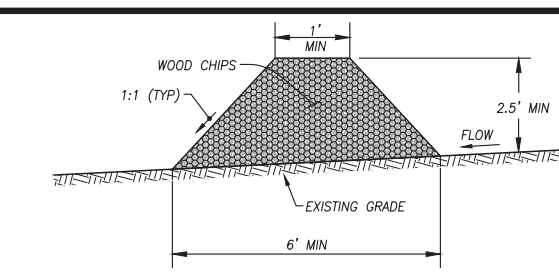
Wildlife Habitat Enhancement Measures

Areas located between the perimeter fence and forest edge (including forest areas that will be cleared to prevent shading of the proposed solar array), shall be managed as follows to enhance wildlife habitat. The relatively narrow strip of land (generally 25 feet in most areas with an expansion to 50 feet for developed areas for areas bordering vegetated community types) located between the perimeter fence and the newly-created forest edge shall be mowed on a rotational basis every 4 to 7 years. Mowing shall not occur between March 1 and November 1 to minimize potential for wildlife impact. This mowing regime will allow the area to revert to a late old field habitat cover and create a "soft" ecotone that will provide cover and habitat for a number of wildlife species that utilize this "edge" habitat, particularly nesting bird species.

Bat and Avian Protection Program

The proposed construction activities will result in the clearing of trees, shrubs and mature vegetation that has the potential to support breeding birds. In addition, depending on the type and timing of forest management activities there is potential for mortality and temporary removal or degradation of roosting and foraging habitat for northern long-eared bat. Northern long-eared bat is a federally-listed Threatened Species and a state-listed Endangered Species.

In order to limit disturbance to tree roosting and breeding habitat utilized by northern long-eared bat and various bird species, the Contractor shall not perform tree clearing activities between April 15 and August 31.



SEDIMENT AND EROSION CONTROL BERM
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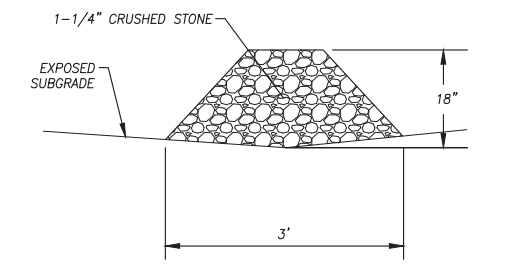

STONE CHECK DAM SECTION
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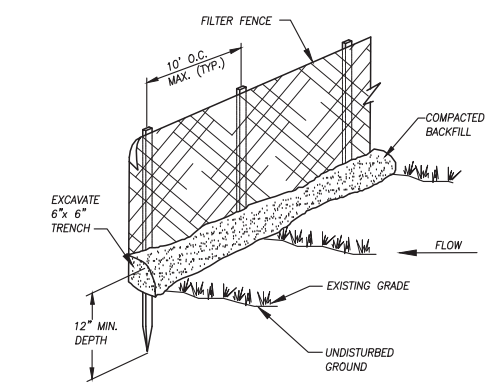

SEDIMENT FENCE DETAIL
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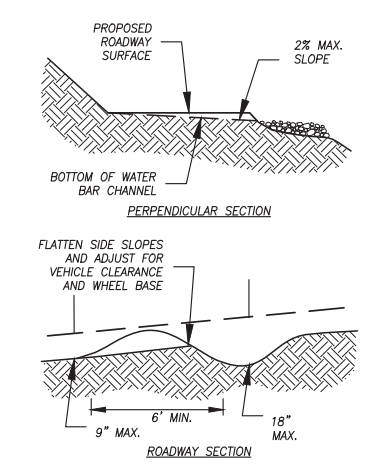

WATER BAR DETAIL
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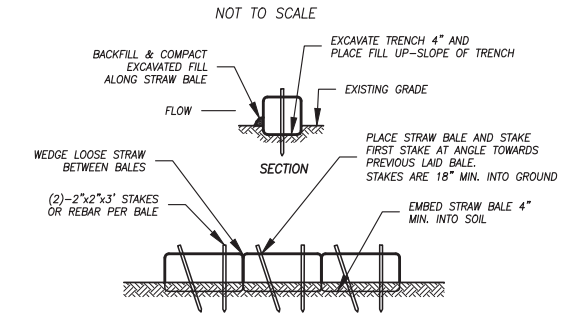

STRAW BALE BARRIER DETAIL
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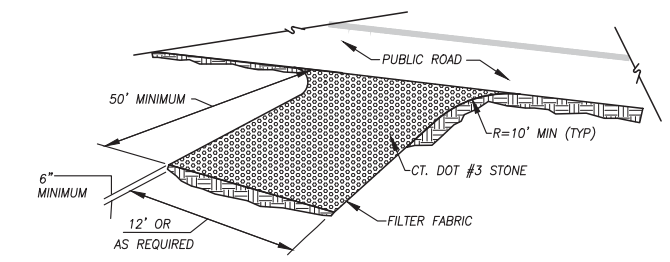

ANTI-TRACKING PAD
NOT TO SCALE

29102
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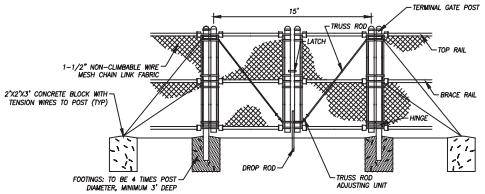
SolarCity
714 Brook Street
Rocky Hill, CT 06067
www.solarcity.com

SolarCity Corporation
Site Development and Management Plan
9 Stott Avenue & 292 Plain Hill Road
Norwich, Connecticut
Erosion and Sediment Control Narrative & Details

SCALE:	As Noted
DATE:	August 2015
JOB I.D. NO.	15-2327
Revisions	
Rev. A - Development & Management Plan Submittal - 10/15/15	

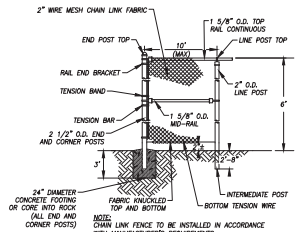
SHEET NO.
9 / 10



NOTE:
SWING GATES TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

6' HIGH GALVANIZED SWING GATE DETAIL

NOT TO SCALE



NOTE:
CHAIN LINK FENCE TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

GALVANIZED CHAIN LINK FENCE DETAIL

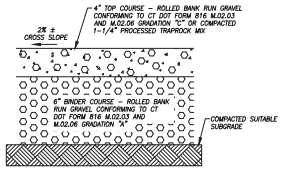
NOT TO SCALE



NOTE:
1. SIGNS MOUNTED ON GATES AT ALL ENTRANCES.
2. SIGNS TO BE RATED FOR OUTDOOR ENVIRONMENTS.

IDENTIFICATION SIGNAGE

NOT TO SCALE



TRAFFIC BOUND GRAVEL SURFACE

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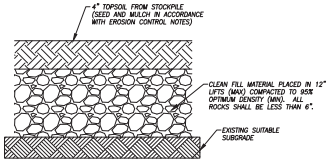

FILL PLACEMENT DETAIL

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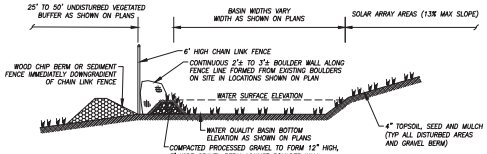
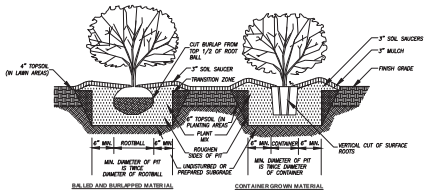


NOTES:
ALL GRAVEL FILL FOR WATER QUALITY BASIN BERM TO MEET THE REQUIREMENTS OF CT DOT FORM 816 M.02.06 GRADATION A.

WATER QUALITY BASIN DETAIL

NOT TO SCALE



NOTES:
1. SET CROWN OF ROOTBALL 2" ABOVE FINISH GRADE.
2. FOR CONTAINER GROWN STOCK USE FINGERS OR A SHARP KNIFE TO LOOSEN ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL. THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER.
3. AT PLANTING THOROUGHLY SOAK THE ROOT MASS AND ADJACENT SOIL. REPEAT SEVERAL TIMES DURING THE FIRST MONTH AND THROUGHOUT THE FOLLOWING TWO SUMMERS.

SHRUB PLANTING DETAIL

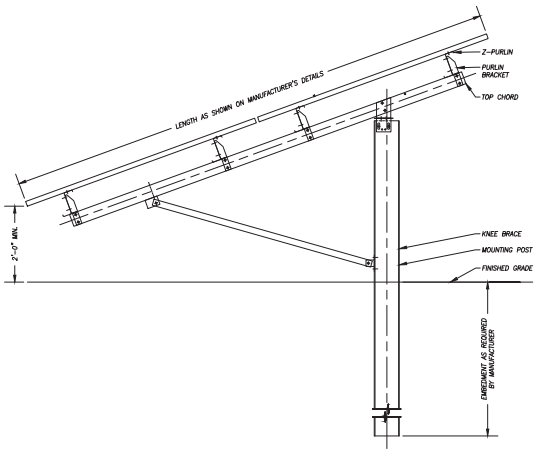
NOT TO SCALE

LANDSCAPE SCHEDULE

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY	COMMENT
TREES AND SHRUBS					
THOC2	Thuja Occidentalis	"Emerald Green" Arborvitae	5' Height	238	C.G.
TACA7	Taxus Canadensis	Canada Yew	2-3' Height	62	C.G.

Planting Specifications:

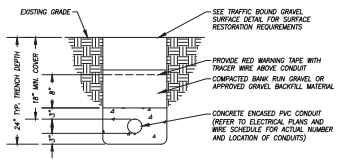
1. *All materials and construction methods shall conform to the requirements of the Connecticut Association of Landscape Contractors Specification. All plants shall be nursery grown and conform to the latest edition of ANSI Z60.1, AMERICAN STANDARD FOR NURSERY STOCK and also the minimum guidelines established for nursery stock published by the American Association of Nurserymen, Inc.*
2. *No substitution of plant materials will be allowed without the prior written consent of the Project Owner. Where a plant size range is provided at least 50% of the plants shall be of the larger size.*
3. *All lawn and planting area soil preparation shall be fertilized and amended according to recommendations of a soil analysis provided by an approved soil testing laboratory.*
4. *All exterior ground areas disturbed by construction and not covered by buildings, structures, paving, continuous planting beds or other site improvements shall be graded, topsoiled to a minimum depth of 4" and grass seeded. Provide lawn development in all areas of selective clearing as directed.*
5. *All plant pits must be free draining. Break up the bottom of the hole by fork if necessary to ensure plant has proper drainage.*
6. *Set all plants in center of plant pits, plumb and straight and as detailed on the drawing. All plant material shall bear the same relationship to finished grade as to original planting grade prior to digging. Trees shall be planted with the junction of roots and stem level with finished grade.*
7. *Handle balled and burlapped plants from the ball only. Once positioned in the hole, remove the top 1/3 of the burlap from the root ball without disturbing the roots.*
8. *Face each plant to give the best appearance. Final location of plant material should be approved by the Project Owner in the field.*
9. *Fill plant pits 2/3 their depth with prepared planting mixture, water thoroughly and allow to settle. Complete back-filling, water thoroughly to eliminate any voids and air pockets. Provide additional back-fill as necessary to conform to required elevation and as detailed.*
10. *Form saucer and install mulch over entire plant pit and saucer area as detailed.*
11. *All tree staking or guying shall be completed immediately after planting, but in no instance more than 24 hours after planting. See staking/guying detail. At the completion of the maintenance period remove all stakes, flags, guys, tree wrap, and anchors.*
12. *Mulch all new shrub beds and plant pits to achieve a 3" depth after settlement. Mulch all ground cover beds to achieve a 2" depth after settlement. Mulch for saucers and planting areas to be a double shredded bark mulch.*
13. *All plants shall be guaranteed for a period of one full year after inspection and acceptance by the Owner's representative, and shall have at least 80% healthy growth at the end of the guarantee period.*
14. *Landscape planting materials as proposed by this plan are Connecticut native and/or non-invasive species. This landscape plan has been designed to incorporate species which are prolific in USDA plant hardiness zone 6b and which require minimal energy input for upkeep and maintenance. References utilized for Connecticut native and non-invasive species selection include the Connecticut Botanical Society, the Connecticut agricultural experiment station, the U.S. Department of Transportation Federal Highway Administration, 2004 Connecticut Stormwater Quality Manual, New England Wetland Plants, Inc., and other sources.*



NOTES:
SEE MANUFACTURER'S DETAIL SHEETS FOR ADDITIONAL INFORMATION REGARDING RACKING SYSTEM REQUIREMENTS AND INSTALLATION PROCEDURES. RACKING SYSTEM TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

TYPICAL POST MOUNTED RACKING SYSTEM DETAIL

NOT TO SCALE



CONDUIT TRENCH THROUGH GRAVEL DRIVE DETAIL

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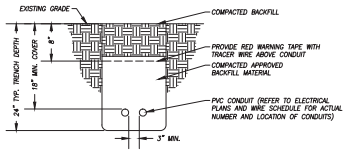

NON-TRAFFIC CONDUIT TRENCH DETAIL

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29102
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SolarCity Corporation
Site Development and Management Plan
9 Stott Avenue & 292 Plain Hill Road
Norwich, Connecticut
Site Details

SCALE: As Noted
DATE: August 2015
JOB I.D. NO.: 15-2327

Revisions

Rev. A - Development & Management Plan Submittal - 10/15/15

SHEET NO.
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