Residential Development Plans

Assessor's Parcel 220-87-2
74 EMERY STREET
&
Assessor's Parcel 220-87-3
64 EMERY STREET
Portsmouth, New Hampshire

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN DATE

Issued:

NOVEMBER 6, 2018	PLANNING BOARD APROVAL
~~OCTOBER 9, 2018~~	~~PLANNING BOARD SUBMISSION~~
~~SEPTEMBER 14, 2018~~	~~TAC Submission~~

Owner/Applicant:

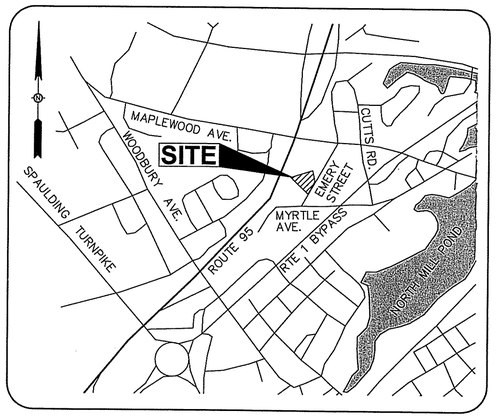
HAPPY MOUNTAIN HOLDINGS, LLC

901 N. MARKET STREET
SUITE 705
WILMINGTON, DE 19801

Civil Engineer:

ALTUS ENGINEERING, INC.

133 COURT STREET PORTSMOUTH, NH 03801
(603) 433-2335 www.ALTUS-ENG.com



LOCUS MAP

1" = 1,000 FEET +/-

Sheet Index Title	*Sheet No.:*	*Rev.*	*Date*
Existing Conditions Plan (by Civil Consultants, Inc.)	EC-1	0	09/27/13
Site Plan	C-1	3	11/06/18
Grading Plan	C-2	3	11/06/18
Utilities Plan	C-3	3	11/06/18
General Notes & Sitework Details	C-4	1	10/09/18
Sitework Details	C-5	0	09/14/18

P4916

REFERENCE PLANS:

1) PROPOSED DIVISION OF LAND OF CATHERINE T. MORETTI, 261 MYRTLE AVENUE, PORTSMOUTH, ROCKINGHAM COUNTY, NEW HAMPSHIRE, DATED APRIL 2, 2013, BY CIVIL CONSULTANTS AND ALTUS ENGINEERING, INC., RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS AS PLAN D-37764.

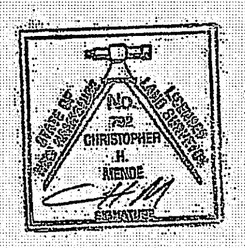
2) SEE PLAN REFERENCES 1-13 ON ABOVE REFERENCED PLAN.

CERTIFICATION:

THIS SURVEY WAS PERFORMED UNDER MY DIRECTION IN ACCORDANCE WITH THE ETHICS AND STANDARDS ESTABLISHED BY THE NEW HAMPSHIRE BOARD OF LICENSURE FOR LAND SURVEYORS ON JANUARY 1, 2009 FOR A STANDARD PROPERTY SURVEY, URBAN CLASSIFICATION. (SEE NOTES HEREON).

SEPTEMBER 27, 2013

CHRISTOPHER H. MENDE DATE:
NEW HAMPSHIRE LICENSED LAND SURVEYOR #792
CIVIL CONSULTANTS SOUTH BERWICK, MAINE 03908



NOTES:

1) CIVIL CONSULTANTS DID NOT SEARCH FOR A LAYOUT FOR MYRTLE AVENUE. THE ROAD LINE AS SHOWN IS BASED ON THE DEEDS AND PLANS REFERENCED HEREON. SEE NOTES AND PLAN REFERENCES HEREON REGARDING THE ROAD LINES FOR ROUTE 95 AND CENTRAL AVENUE. ALL ARE PUBLIC ROADS.

2) RECORDS RESEARCH FOR THIS SURVEY WAS LIMITED TO THE PERIOD FROM 1638 TO JANUARY 21, 2013.

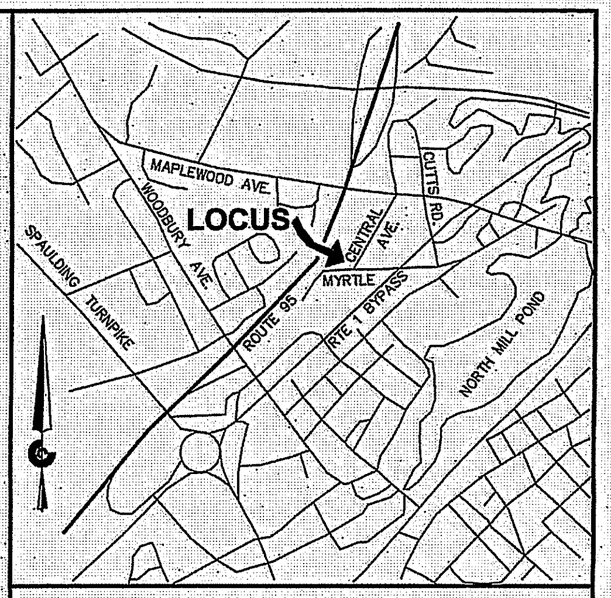
3) UTILITY INFORMATION DEPICTED HEREON IS COMPILED USING PHYSICAL EVIDENCE LOCATED IN THE FIELD. UTILITIES DEPICTED HEREON MAY NOT NECESSARILY REPRESENT ALL EXISTING UTILITIES. CONTRACTORS NEED TO CONTACT DIGSAFE AND FIELD-VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION OR EXCAVATION. NO INVESTIGATION FOR UNDERGROUND UTILITIES WAS CONDUCTED. SEE EASEMENT DEEDS RELATING TO ELECTRIC POWER LINES REFERENCED HEREON.

4) THE FIELD SURVEY WAS CONDUCTED ON JANUARY 23 AND 28, 2013 USING AN ELECTRONIC TOTAL STATION AND PRECISE, SURVEY-GRADE GPS EQUIPMENT. TRAVERSE MISCLOSURE WAS BETTER THAN 1:15,000.

5) BEARINGS, DISTANCES AND COORDINATES AS SHOWN ARE BASED ON THE NEW HAMPSHIRE STATE PLANE COORDINATE SYSTEM, NAD83. COORDINATES OF SURVEY CONTROL POINTS WERE DERIVED BY PRECISE GPS OBSERVATIONS PROCESSED ON THE N.G.S. OPUS WEBSITE USING THE FOLLOWING BASE STATIONS: BOSTON WAAS 1 CORS ARP (DF9215 ZBW1), BARTLETT CORS ARP (AJ1630 BARN) AND BRUNSWICK 2 CORS ARP (AF9585 BRU2). THE REFERENCE FRAME IS NAD83 (CORS96) (EPOCH: 2002.0000). UNITS ARE U.S. SURVEY FEET. TO SCALE GRID DISTANCES TO GROUND DISTANCES, MULTIPLY BY AN AVERAGE COMBINED SCALE FACTOR OF 0.999966981.

6) ALL ELEVATIONS FOR THIS PROJECT ARE BASED ON NAVD88 DERIVED FROM THE SAME GPS SURVEY OBSERVATIONS (SEE NOTE 5 ABOVE). SEE BENCH MARKS HEREON

NH STATE PLANE COORDINATE SYSTEM NAD83



LOCATION PLAN

(NOT TO SCALE)

LEGEND:

△	FOUND RAILROAD SPIKE	CONC.	CONCRETE
●	SET 5/8" DIA. REBAR W/ CAP	OHW	OVERHEAD WIRE
⊙	FOUND IRON PIPE	1252/125	DEED BOOK/PAGE
◎	FOUND REBAR OR IRON ROD	R.C.R.D.	ROCKINGHAM REGISTRY OF DEEDS
⊡	FOUND BOUND AS NOTED	N	PARCELS IN SAME OWNERSHIP
Ⓢ	SEWER MAN HOLE		DECIDUOUS TREE
	UTILITY POLE		LOCUS PARCEL BOUNDARY
	CATCH BASIN		ABUTTING PARCEL BOUNDARY
INV.=14.25	INVERT ELEVATION		EASEMENT BOUNDARY
	CURB STOP VALVE		BUILDING SETBACK
WV	WATER GATE		PROPOSED LOT BOUNDARY
	FIRE HYDRANT		
RET. WALL	RETAINING WALL		

CITY OF PORTSMOUTH, PLANNING BOARD

CHAIRMAN DATE

MAP 220, LOT 88
N/F SEAMANS SUPPLY COMPANY, INC.
R.C.R.D. 2909/977
(SEE 290/269 FOR ORIGIN OF LINE COMMON TO LOCUS AT STONE WALL)

MAP 220, LOT 90
N/F PAUL MCINNIS & CHRISTOPHER D. MCINNIS, TRUSTEES OF PORTSMOUTH CITY INVESTMENT REALTY TRUST
R.C.R.D. 5358/207
(SEE 640/100 & 640/100 FOR ORIGIN OF LINE COMMON TO LOCUS)

FOUND 5"x5", FLUSH CONCRETE NHDOT BOUND N26°46'W, 0.17' FROM CORNER

PSCNH 339 33

FOUND 1"x3" IRON PIPE

SEE EASEMENT DEED FROM MAINE-NH INTERSTATE BRIDGE AUTHORITY TO NEW HAMPSHIRE GAS & ELECTRIC CO. AT R.C.R.D. 975/490 (80 FEET WIDE)

21-311-9

FOUND 5/8"x3" REBAR W/CAP "KNIGHT HILL"

S 10°47'38" E 8.02'

S 12°42'58" E 47.31'

3171 33

OVERHEAD WIRES

N 71°18'39" E 153.74'

2072 S.F.

BOUNDARY SHOWN ON REF. PLAN 1 (AREA OF OVERLAP W/ R.C.R.D PLAN D-31278

SEE ALSO EASEMENT DEED FROM ADOLPH F. ANDERSON TO PORTSMOUTH POWER COMPANY AT R.C.R.D. 836/116 (33 FEET WIDE) LOCATION NOT DISCERNABLE

MAP 220, LOT 88
R.C.R.D. 2909/977

SEE EASEMENT DEED FROM EDITH M. CARKIN TO NEW HAMPSHIRE GAS & ELECTRIC COMPANY AT R.C.R.D. 1146/297 (45 FEET WIDE)

45.00'

5.00'

5/8" DIA. REBAR SET

N 71°18'39" E 153.73'

5.46'

PSCNH 339 34

OVERHEAD WIRES

FOUND 5/8"x6" REBAR W/CAP "KNIGHT HILL"

0.42'

3171 34

SEE EASEMENT DEED FROM ETHEL B. ANDERSON TO NEW HAMPSHIRE GAS & ELECTRIC COMPANY AT R.C.R.D. 1137/357 (55 FEET WIDE) (SEE REF. PLAN 12)

55.00'

FOUND 3/8" DRILL HOLE

S 14°25'35" E 51.02'

5/8" DIA. REBAR SET

BUILDING SETBACK LINE AND POLE LINE EASEMENT BOUNDARY

N 24°20'58" E 75.24'

30' REAR SETBACK (TYP)

N 24°20'58" E 87.57'

S 68°22'35" W 4.18'

5/8" DIA. REBARS SET

SEE R.C.R.D. 1929/490 FOR COMMISSIONERS' RETURN OF HIGHWAY LAYOUT

FOUND 2"x48" IRON PIPE 2.12' OFF LINE

4' WIRE MESH FENCE

N 18°36'25" W 61.96'

10' SIDE SETBACK (TYP)

LAWN

FOUND 5"x5", FLUSH CONCRETE NHDOT BOUND S86°50'W, 0.17' FROM CORNER

S 24°20'58" W 38.67'

5/8" DIA. REBAR SET

S 87°19'46" W 144.71'

5/8" DIA. REBAR SET

S 45°29'20" E 46.46'

ARBOR

BARN

WOODED

MAP 220, LOT 87-1
N/F JOHN & JULIANA FLINTOSH
R.C.R.D. 5477/2909
(SEE REF. PLAN 1)

2.5 STORY HOUSE

6' CHAINLINK FENCE

158.39'

S 32°08'51" W

6' STOCKADE FENCE

FOUND 2"x36" IRON PIPE

141.49'

GRAVEL DRIVE

S 03°26'46" W

30' FRONT SETBACK (TYP)

INV=37.4±

4' WIRE MESH FENCE REMAINS

S 28°23'29" W 169.07'

12" CMP CULVERT INV=37.7

MAP 220, LOT 93
N/F THE INGEBORG C. PENTA REVOCABLE TRUST
R.C.R.D. 4976/488

MAP 220, LOT 92
N/F THE DIANA FRYE MARTEN REVOCABLE TRUST OF 2009
R.C.R.D. 5173/228

(SEE R.C.R.D. 1380/385)
(SEE R.C.R.D. 595/373)

FOUND 2"x20" IRON PIPE WITH MUSHROOMED TOP N10°15'W, 2.81' FROM CORNER

21-188-13A

CONC. WALK

SEE EASEMENT DEED FROM MARSHALL & DOROTHY CHALK TO NEW HAMPSHIRE ELECTRIC CO. AND NET&T AT R.C.R.D. 1520/412 (NO WIDTH)

FOUND 5"x5", FLUSH CONCRETE NHDOT BOUND S29°03'W, 0.16' FROM CORNER

MAP 220, LOT 86
N/F THOMAS E. & DYAN D. KOZIKOWSKI
R.C.R.D. 4131/1979
(SEE 595/373 & 1380/385 FOR ORIGIN OF LINES COMMON TO LOCUS)

STONE RET. WALL

P.K. NAIL FOUND

5/8" DIA. REBARS SET

21.60'

S 89°59'28" W

100.00'

S 89°59'28" W

FOUND 5"x5", FLUSH CONCRETE NHDOT BOUND S84°27'W, 0.12' FROM CORNER

N 88°00'21" E 179.36'

INV=37.5
6" PVC DRAIN

RIM=40.87
INV=39.0

MAP 220, LOT 87-2
93,050 S.F.
2.1361 ACRES
(18,149 S.F. IN POLE LINE EASEMENT)

INTERSTATE ROUTE 95

CENTRAL AVENUE

MAP 220, LOT 91
N/F JCMC, INC.
R.C.R.D. 3479/2670

FOUND 5/8"x12" REBAR W/CAP "JAMES VERRA"

FOUND 1"x12" IRON PIPE

S 28°23'29" W 104.14'

100.00'

S 28°23'29" W

EDGE OF PAVEMENT - PER CITY RECORDS

GRAVEL

EDGE OF PAVEMENT

15' HIGH LEDGE OUTCROP

6" WATER MAIN - PER CITY RECORDS

GRAN. CURB

PAINTED GAS LOCATION

8" PVC

RIM=47.34
INV=40.1>
INV=<40.2

MYRTLE AVENUE (PAVED)

6" C.I. MAIN - PER CITY RECORDS

NETT 20/12 CMP 188/13

CONC. HEAD WALL INV=37.0±

NETT 120 10" VIT. CLAY PIPE W/ LAMP

RIM=42.35
INV=36.1

PAINTED GAS LOCATION

FOUND 1"x5" IRON PIPE, LEANING - AT BASE

NHG&E 21-188-14

FOUND STEEL "T" STAKE W/ CAP "LLS 738"

FOUND 5/8" FLUSH REBAR

FOUND 4"x4"x2" GRANITE BOUND

FOUND R.R. SPIKE

TBM=45.86 NUT ON TOP HYDR. FLANGE STREET SIDE

FOUND 1"x5" IRON PIPE, LEANING - AT BASE

MAP 220, LOT 101
N/F KENNETH E. SMITH & DEBORAH S. BOUCHARD-SMITH
R.C.R.D. 3117/2797

MAP 220, LOT 100
N/F DAVID C. LEAR
R.C.R.D. 4830/221

MAP 220, LOT 99
N/F CHARLES E. SHULTZ & KATHERINE CAHILL
R.C.R.D. 5325/2844

MAP 220, LOT 98-1
N/F DEVIN GLADSTONE
R.C.R.D. 4431/343

CONSULTING ENGINEER:

ALTUS ENGINEERING, INC.

133 COURT STREET
PORTSMOUTH, NH 03801
(603) 433-2335
WWW.ALTUS-ENG.COM

GRAPHIC SCALE

30 0 10 30 60 120

(IN FEET)
1 inch = 30 ft.

THIS SHEET NOT PREPARED FOR RECORDING

TAX MAP 220, LOT 87-2

NO.	REVISIONS	INT.	DATE
8			
7			
6			
5			
4			
3			
2			
1			

DRAWN CHM | CALC. CHM
DATE SEPTEMBER 27, 2013
CHECKED MPP
APPROVED CHM
SCALE 1"=30'
FIELD BOOK NB 413A, PAGE 11, 20

© CIVIL CONSULTANTS

CIVIL CONSULTANTS
Engineers
Planners
Surveyors
P.O. Box 100
South Berwick
Maine 03908
207-384-2550
civcon@civcon.com

PROPOSED DIVISION OF LAND OF CATHERINE T. MORETTI
PHASE 2 - MYRTLE AVENUE & CENTRAL AVENUE
PORTSMOUTH, ROCKINGHAM COUNTY, NEW HAMPSHIRE

PREPARED FOR:
CATHERINE T. MORETTI
MAILING ADDRESS: 261 MYRTLE AVENUE, PORTSMOUTH, NEW HAMPSHIRE 03801

SHEET NUMBER: **EC1**
EXISTING CONDITIONS
SHEET 1 OF 1
PROJ # 13-101.01

STAMP: SEPTEMBER 27, 2013/13:00 DRAWING LOCATION: J:\AAA\2013\1310101\CARLSON\DRAWING\PHASE2-EXISTING-CONDITIONS-09-21-2013.DWG FILE: J:\AAA\2013\1310100\CARLSON\POINTS\BOUNDARY2013NHSPC.CRD

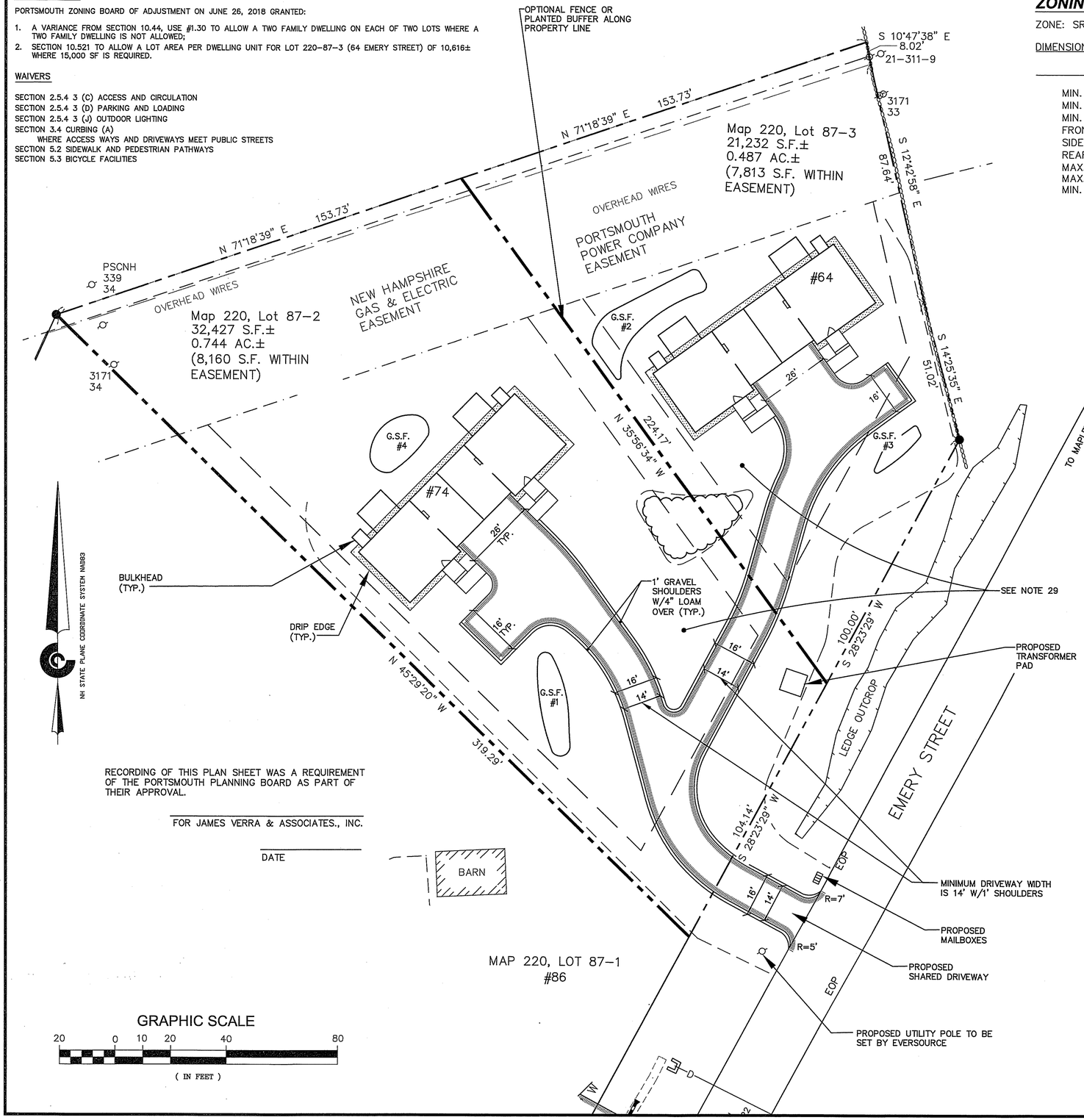
ZONING RELIEF

PORTSMOUTH ZONING BOARD OF ADJUSTMENT ON JUNE 26, 2018 GRANTED:

1. A VARIANCE FROM SECTION 10.44, USE #1.30 TO ALLOW A TWO FAMILY DWELLING ON EACH OF TWO LOTS WHERE A TWO FAMILY DWELLING IS NOT ALLOWED;
2. SECTION 10.521 TO ALLOW A LOT AREA PER DWELLING UNIT FOR LOT 220-87-3 (64 EMERY STREET) OF 10,616± WHERE 15,000 SF IS REQUIRED.

WAIVERS

SECTION 2.5.4 3 (C) ACCESS AND CIRCULATION
SECTION 2.5.4 3 (D) PARKING AND LOADING
SECTION 2.5.4 3 (J) OUTDOOR LIGHTING
SECTION 3.4 CURBING (A)
WHERE ACCESS WAYS AND DRIVEWAYS MEET PUBLIC STREETS
SECTION 5.2 SIDEWALK AND PEDESTRIAN PATHWAYS
SECTION 5.3 BICYCLE FACILITIES



RECORDING OF THIS PLAN SHEET WAS A REQUIREMENT OF THE PORTSMOUTH PLANNING BOARD AS PART OF THEIR APPROVAL.

FOR JAMES VERRA & ASSOCIATES., INC.

DATE

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

ZONING SUMMARY

ZONE: SRB (SINGLE RESIDENCE B)

DIMENSIONAL REQUIREMENTS	REQUIRED	PROVIDED ASSESSOR'S PARCEL 220-87-2	PROVIDED ASSESSOR'S PARCEL 220-87-3
MIN. LOT AREA:	15,000 S.F.	32,427 SF	21,232 S.F.
MIN. STREET FRONTAGE:	100'	104'±	100'
MIN. LOT DEPTH:	100'	224'±	146'±
FRONT SETBACK:	30'	125'±	56'±
SIDE SETBACK:	10'	14'±	14'±
REAR SETBACK:	30'	75'±	57'±
MAX. HEIGHT:	35'	<35'	<35'
MAX. BUILDING COVERAGE:	20%	8.2%±	12.5%±
MIN. OPEN SPACE:	40%	71%±	74%±

DWELLING DENSITY PER LOT:

LOT 220-87-2: 16,213.5 SF/DWELLING UNIT

LOT 220-87-3: 10,616 SF/DWELLING UNIT

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN DATE

SITE NOTES

1. THE INTENT OF THIS PLAN SET IS TO PROVIDE THE NECESSARY INFORMATION FOR THE REVIEW, PERMITTING AND DEVELOPMENT OF TWO RESIDENTIAL DUPLEXES ON TWO ABUTTING LOTS. THESE PLANS PROVIDE DETAILED INFORMATION FOR THE SITE LAYOUT, GRADING, UTILITIES, STORMWATER MANAGEMENT, AND LANDSCAPE IMPROVEMENTS.
2. DO NOT BEGIN CONSTRUCTION UNTIL ALL STATE, LOCAL AND FEDERAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED. THE LANDOWNER (CITY OF PORTSMOUTH) AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH LOCAL, STATE AND FEDERAL WETLAND PERMITTING REQUIREMENTS INCLUDING PROTECTION OF NATURAL RESOURCES AND THEIR BUFFERS.
3. CONTRACTOR SHALL CALL DIG SAFE AT 1 (800) DIG-SAFE AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO COMMENCING CONSTRUCTION.
4. CONTRACTOR SHALL NOTIFY CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES.
5. CONTRACTOR SHALL INSTALL AND MAINTAIN TEMPORARY SEDIMENT AND EROSION CONTROL ITEMS TO PREVENT SEDIMENT FROM CONSTRUCTION ACTIVITIES FROM LEAVING THE SITE. CONTROLS SHALL BE INSPECTED ON A REGULAR BASIS AND AFTER ALL RAIN EVENTS OF 0.25 INCHES OR GREATER. ANY DEFICIENCIES IN THE CONTROLS SHALL BE ADDRESSED IMMEDIATELY AND BROUGHT TO THE ATTENTION OF THE OWNER. ALL STORMS DRAINS WITHIN OR ADJACENT TO THE WORK AREA, WITH THE POTENTIAL TO RECEIVE RUNOFF FROM EXPOSED CONSTRUCTION AREAS, SHALL RECEIVE STORM DRAIN INLET PROTECTION.
6. CONTRACTOR SHALL PREVENT TRACKING OF DIRT ONTO ANY PUBLIC OR PRIVATE ROADWAYS. IF TRACKING OF DIRT FROM CONSTRUCTION VEHICLES IS PRESENT ON THE OPEN STREETS, CONTRACTOR WILL BE REQUIRED TO SWEEP THE ROADWAY AT NO ADDITIONAL EXPENSE TO THE OWNER.
7. SEE DETAIL SHEET FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
8. ALL BONDS AND FEES SHALL BE PAID/POSTED PRIOR TO INITIATING CONSTRUCTION.
9. DRIVEWAY TO BE A MINIMUM OF 16' WIDE WITH 2' SHOULDERS. SHOULDERS SHALL BE PLOWED.
10. ALL CONSTRUCTION SHALL MEET THE MINIMUM CONSTRUCTION STANDARDS OF THE CITY OF PORTSMOUTH & NHDOT'S STANDARD SPECIFICATIONS FOR ROAD & BRIDGE, LATEST EDITION. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
11. CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAWCUT LINE WITH RS-1 IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.
12. THE CONTRACTOR SHALL VERIFY ALL BENCHMARKS AND TOPOGRAPHY IN THE FIELD PRIOR TO CONSTRUCTION.
13. THE CONTRACTOR SHALL VERIFY ALL BUILDING DIMENSIONS WITH THE ARCHITECTURAL AND STRUCTURAL PLANS PRIOR TO CONSTRUCTION. ALL DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER FOR RESOLUTION.
14. AREA OF DISTURBANCE IS UNDER 43,560 SF, COVERAGE UNDER EPA NPDES PHASE II CONSTRUCTION GENERAL PERMIT IS NOT REQUIRED.
15. THE CONTRACTOR SHALL VERIFY ALL BUILDING DIMENSIONS WITH THE ARCHITECTURAL AND STRUCTURAL DRAWINGS PRIOR TO CONSTRUCTION. ANY AND ALL DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF BOTH THE ARCHITECT AND CIVIL ENGINEER FOR RESOLUTION.
16. ALL DRAINAGE IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES TO THE STORMWATER MANAGMENT ASPECTS OF THIS DEVELOPMENT SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.
17. TRASH AND RECYCLING SHALL BE STORED INSIDE THE HOMES.
18. STREET ADDRESSES FOR EACH UNIT SHALL BE DETERMINED BY FIRE DEPARTMENT & PORTSMOUTH DPW.
19. BICYCLE RACKS WILL NOT BE PROVIDED.
20. PARKING REQUIREMENTS
    EACH UNIT WILL HAVE A SINGLE SPACE IN THE GARAGE AND SPACE STACKED BEHIND THE GARAGE. ONE ADDITONAL SPACE PER LOT IS PROVIDED FOR A TOTAL OF 10 SPACES FOR 4 RESIDENTIAL UNITS.
21. COMMERCIAL OUTDOOR LIGHTING WILL NOT BE PROVIDED. OUTDOOR LIGHTING WILL BE LIMITED TO BUILDING MOUNTED LIGHTS AT ENTRIES AND POTENTIALLY RESIDENTIAL SCALED LIGHTS ALONG THE DRIVEWAY. ALL LIGHTS WILL BE DARK SKY FRIENDLY.
22. SNOW STORAGE IS NOT DEPICTED ON THE PLANS. IT WILL BE STORED ALONG THE EDGE OF THE DRIVEWAY ON PRIVATE PROPERTY AND IN LOCATIONS AS NOT TO IMPEDE SITE DISTANCE AT THE DRIVEWAY.
23. THERE ARE NO WETLANDS ON THE PROPERTY OR WITHIN 100-FEET OF ANY PROPOSED SITE DISTRUBANCES.
24. NO BURNING SHALL BE PERMITTED PER LOCAL REGULATIONS.
25. HAZARDOUS MATERIALS ENCOUNTERED DURING CONSTRUCTION ACTIVITIES SHALL BE ABATED IN STRICT ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL REGULATIONS.
26. SHOULD GROUNDWATER BE ENCOUNTERED DURING SITEWORK EXCAVATION, BEST MANAGEMENT PRACTICES SHALL BE EMPLOYED TO ENSURE SEDIMENT LADEN WATER IS NOT DISCHARGED INTO THE CITY DRAINAGE SYSTEM. CONTRACTOR SHALL USE SILT BAGS OR OTHER APPROVED DPW DEVICES.
27. SALT STORAGE FOR DEICING SHALL BE LOCATED INDOORS.
28. PERIMETER FOUNDATION DRAINS IF PROVIDED MAY REQUIRE PUMPING TO DAYLIGHT.
29. ALL AREAS WITHIN CLEARING LIMITS NOT INTENDED TO BE OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED, FERTILIZER AND MULCH. SEE GRADING PLAN FOR LIMITS.
30. THE SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
31. ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.
32. SEE COMPLETE SET OF APPROVED SITE PLANS TITLED "RESIDENTIAL DEVELOPMENT PLANS, ASSESSOR'S PARCEL 220-87-2, 74 EMERY STREET & ASSESSOR'S PARCEL 220-87-3 , 64 EMERY STREET, PORTSMOUTH, NH", DATED NOVEMBER 6 , 2018 ON FILE WITH THE CITY OF PORTSMOUTH PLANNING DEPARTMENT FOR ALL PROPOSED IMPROVEMENTS AND CONDITIONS OF APPROVAL.

P4916

ALTUS ENGINEERING, INC.
133 COURT STREET PORTSMOUTH, NH 03801
(603) 433-2335 www.ALTUS-ENG.com

STATE OF NEW HAMPSHIRE 15,7634 LICENSED PROFESSIONAL ENGINEER
11/6/18

ISSUED FOR: PLANNING BOARD APPROVAL

ISSUE DATE: NOVEMBER 6, 2018

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	EDW	08/07/18
1	PER TAC COMMENTS	EDW	09/14/18
2	PB APPROVAL	EDW	10/09/18
3	PER PB COMMENTS	EDW	11/05/18

DRAWN BY: RLH
APPROVED BY: EDW
DRAWING FILE: 4916 SITE.DWG

SCALE:
11"x17": 1" = 40'
22"x 34": 1" = 20'

APPLICANT/OWNER:

HAPPY MOUNTAIN HOLDINGS, LLC

901 N. MARKET STREET
SUITE 705
WILMINGTON, DE 19801

PROJECT:

RESIDENTIAL DEVELOPMENT

ASSESSOR'S PARCEL 220-87-2
74 EMERY STREET
&
ASSESSOR'S PARCEL 220-87-3
64 EMERY STREET

PORTSMOUTH, NEW HAMPSHIRE

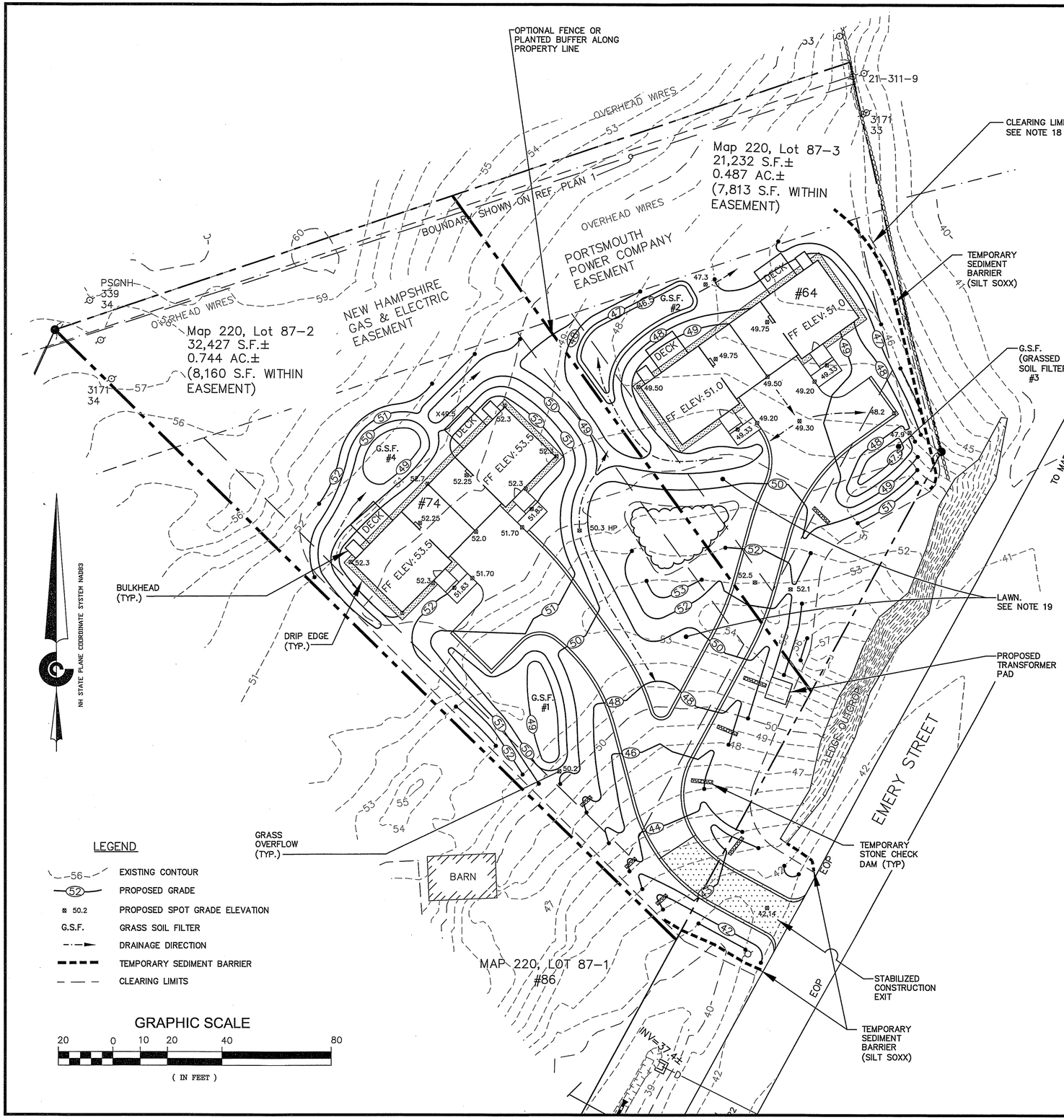
TITLE:

RECORDING SITE PLAN

NOTE: SEE COMPLETE SET OF APPROVED SITE PLANS ON FILE WITH THE CITY OF PORTSMOUTH

SHEET NUMBER:

C - 1



LEGEND

- 56 — EXISTING CONTOUR
- 52 — PROPOSED GRADE
- ⊠ 50.2 — PROPOSED SPOT GRADE ELEVATION
- G.S.F. — GRASS SOIL FILTER
- DRAINAGE DIRECTION
- TEMPORARY SEDIMENT BARRIER
- CLEARING LIMITS

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN DATE

GRASS SOIL FILTERS

G.S.F. #1 – BOTTOM AREA: 615 S.F.
BOTTOM ELEV.: 49.0
GRASSED OVERFLOW WEIR: 50.2

G.S.F. #2 – BOTTOM AREA: 500 S.F.
BOTTOM ELEV.: 46.5
GRASSED OVERFLOW WEIR: 47.3

G.S.F. #3 – BOTTOM AREA: 110 S.F.
BOTTOM ELEV.: 47.5
GRASSED OVERFLOW WEIR: 47.9

GRADING NOTES

1. DETAILED INFORMATION FOR THE SITE LAYOUT, GRADING, UTILITIES, STORMWATER MANAGEMENT, AND LANDSCAPE IMPROVEMENTS.
2. DO NOT BEGIN CONSTRUCTION UNTIL ALL STATE, LOCAL AND FEDERAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED. THE LANDOWNER (CITY OF PORTSMOUTH) AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH LOCAL, STATE AND FEDERAL WETLAND PERMITTING REQUIREMENTS INCLUDING PROTECTION OF NATURAL RESOURCES AND THEIR BUFFERS.
3. CONTRACTOR SHALL CALL DIG SAFE AT 1 (800) DIG–SAFE AT LEAST SEVENTY–TWO (72) HOURS PRIOR TO COMMENCING CONSTRUCTION.
4. CONTRACTOR SHALL NOTIFY CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES.
5. CONTRACTOR SHALL INSTALL AND MAINTAIN TEMPORARY SEDIMENT AND EROSION CONTROL ITEMS TO PREVENT SEDIMENT FROM CONSTRUCTION ACTIVITIES FROM LEAVING THE SITE. CONTROLS SHALL BE INSPECTED ON A REGULAR BASIS AND AFTER ALL RAIN EVENTS OF 0.25 INCHES OR GREATER. ANY DEFICIENCIES IN THE CONTROLS SHALL BE ADDRESSED IMMEDIATELY AND BROUGHT TO THE ATTENTION OF THE OWNER. ALL STORMS DRAINS WITHIN OR ADJACENT TO THE WORK AREA, WITH THE POTENTIAL TO RECEIVE RUNOFF FROM EXPOSED CONSTRUCTION AREAS, SHALL RECEIVE STORM DRAIN INLET PROTECTION.
6. CONTRACTOR SHALL PREVENT TRACKING OF DIRT ONTO ANY PUBLIC OR PRIVATE ROADWAYS. IF TRACKING OF DIRT FROM CONSTRUCTION VEHICLES IS PRESENT ON THE OPEN STREETS, CONTRACTOR WILL BE REQUIRED TO SWEEP THE ROADWAY AT NO ADDITIONAL EXPENSE TO THE OWNER.
7. SEE DETAIL SHEET FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
8. ALL BONDS AND FEES SHALL BE PAID/POSTED PRIOR TO INITIATING CONSTRUCTION.
9. ALL CONSTRUCTION SHALL MEET THE MINIMUM CONSTRUCTION STANDARDS OF THE CITY OF PORTSMOUTH & NHDOT'S STANDARD SPECIFICATIONS FOR ROAD & BRIDGE, LATEST EDITION. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
10. CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAWCUT LINE WITH RS–1 IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.
11. THE CONTRACTOR SHALL VERIFY ALL BENCHMARKS AND TOPOGRAPHY IN THE FIELD PRIOR TO CONSTRUCTION.
12. THE CONTRACTOR SHALL VERIFY ALL BUILDING DIMENSIONS WITH THE ARCHITECTURAL AND STRUCTURAL PLANS PRIOR TO CONSTRUCTION. ALL DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER FOR RESOLUTION.
13. AREA OF DISTURBANCE IS UNDER 43,560 SF, COVERAGE UNDER EPA NPDES PHASE II CONSTRUCTION GENERAL PERMIT IS NOT REQUIRED.
14. THE CONTRACTOR SHALL VERIFY ALL BUILDING DIMENSIONS WITH THE ARCHITECTURAL AND STRUCTURAL DRAWINGS PRIOR TO CONSTRUCTION. ANY AND ALL DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF BOTH THE ARCHITECT AND CIVIL ENGINEER FOR RESOLUTION.
15. ALL DRAINAGE IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES TO THE STORMWATER MANAGMENT ASPECTS OF THIS DEVELOPMENT SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.
16. PERIMETER FOUNDATION DRAINS IF PROVIDED MAY REQUIRE PUMPING TO DAYLIGHT.
17. A DRAINAGE STUDY WAS PREPARED BY ALTUS ENGINEERING, INC. FOR THIS SITE. LOW IMPACT DEVELOPMENT PRACTICES ARE PROPOSED AND PEAK FLOW RATES ARE MANAGED TO REPLICATE THE EXISTING FLOW CONDITIONS, WITH A VARIANCE OF 0.1± CFS FOR THE 2" STORM THROUGH THE 25 YEAR STORM EVENT. THERE IS A MINOR INCREASE OF LESS THAN 1 CFS FOR THE NET 50 PEAK FLOW DISCHARGE FOR THE 50 YEAR STORM EVENT. AS DISCUSSED IN THE DRAINAGE STUDY, THE ANALYSIS IS CONSERVATIVE AND DOES NOT INCLUDE THE ROOF DRIP EDGE THAT WILL INFILTRATE THE MAJORITY OF THE ROOF RUNOFF.
18. PRIOR TO CLEARING SITE, A LICENSED LAND SURVEYOR SHALL BE ENGAGED TO STAKE THE CLEARING LIMITS TREE PROTECTION SHALL BE IMPLEMENTED TO ENSURE THAT HEALTHY TREES SCHEDULED TO REMAIN ARE NOT DISTURBED BY THE CONSTRUCTION ACTIVITIES.
19. ALL AREAS WITHIN CLEARING LIMITS NOT INTENDED TO BE OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED, FERTILIZER AND MULCH.

ALTUS ENGINEERING, INC.
133 COURT STREET PORTSMOUTH, NH 03801
(603) 433–2335 www.ALTUS–ENG.com

ERIC D. WEINRIEB No. 7634 LICENSED PROFESSIONAL ENGINEER – STATE OF NEW HAMPSHIRE
11/6/18

ISSUED FOR: PLANNING BOARD APPROVAL

ISSUE DATE: NOVEMBER 6, 2018

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	EDW	08/07/18
1	PER TAC COMMENTS	EDW	09/14/18
2	PB APPROVAL	EDW	10/09/18
3	PER PB COMMENTS	EDW	11/06/18

DRAWN BY: RLH
APPROVED BY: EDW
DRAWING FILE: 4916 SITE.DWG

SCALE:
11"x17": 1" = 40'
22"x 34": 1" = 20'

APPLICANT/OWNER:

HAPPY MOUNTAIN HOLDINGS, LLC
901 N. MARKET STREET
SUITE 705
WILMINGTON, DE 19801

PROJECT:

RESIDENTIAL DEVELOPMENT
ASSESSOR'S PARCEL 220–87–2
74 EMERY STREET
&
ASSESSOR'S PARCEL 220–87–3
64 EMERY STREET
PORTSMOUTH, NEW HAMPSHIRE

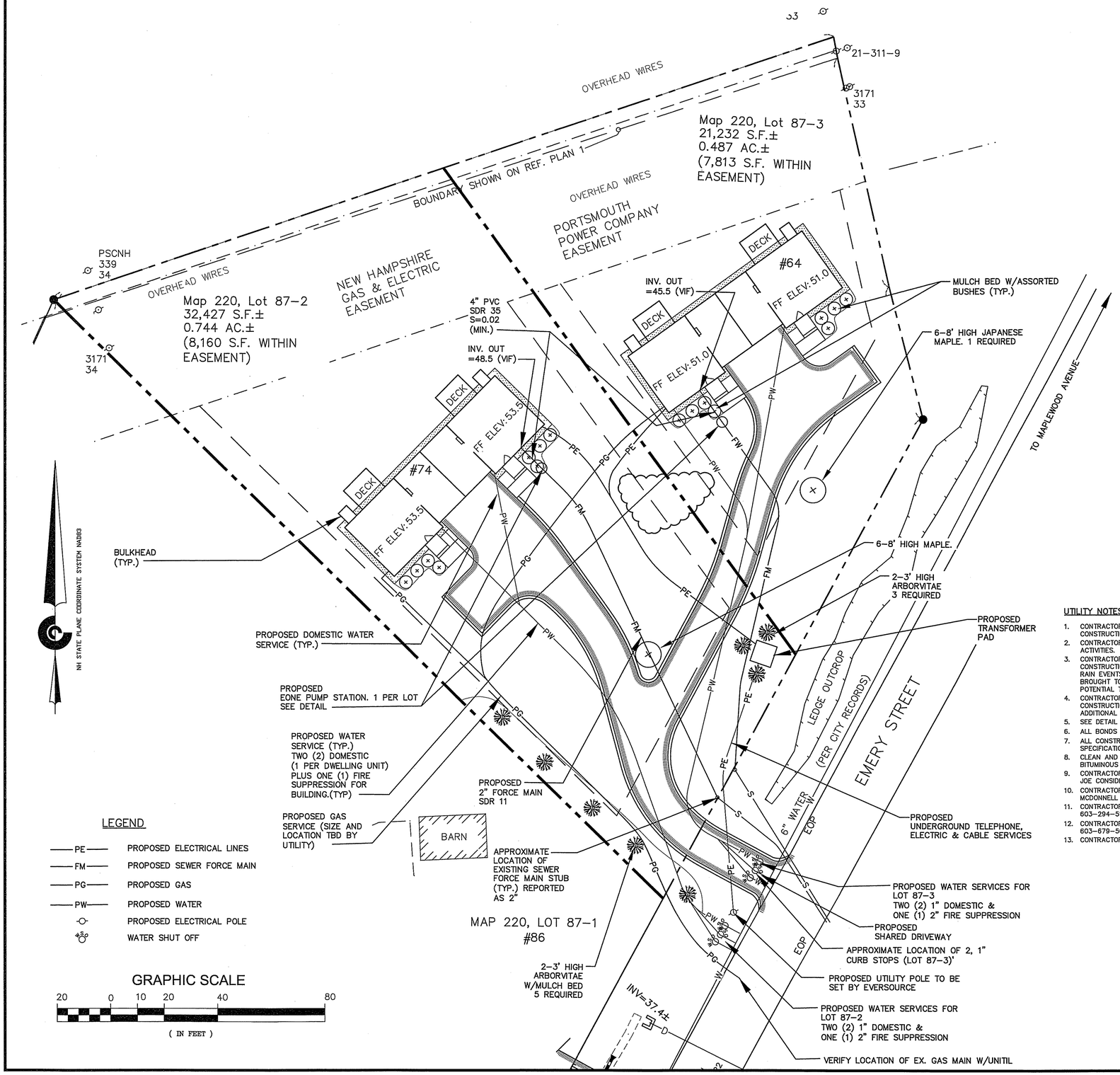
TITLE:

GRADING PLAN

SHEET NUMBER:

C - 2

P4916



UTILITY NOTES

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8. CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAWCUT LINE WITH RS-1 IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.
9. CONTRACTOR SHALL COORDINATE ALL TELE-COMMUNICATION DISCONNECTIONS AND INSTALLATION WITH CONSOLIDATED. CONTACT JOE CONSIDINE @ 603-427-5525.
10. CONTRACTOR SHALL COORDINATE ALL ELECTRICAL CONNECTIONS/INSTALLATIONS WITH EVERSOURCE. CONTACT: CASEY MCDONNELL @ 603-436-7708 EXT 5555641.
11. CONTRACTOR SHALL COORDINATE ALL NATURAL GAS INSTALLATIONS WITH UNITIL CORPORATION. CONTACT: JANET OLIVER @ 603-294-5174
12. CONTRACTOR SHALL COORDINATE ALL CABLE CONNECTIONS/INSTALLATIONS WITH COMCAST. CONTACT: MIKE COLLINS @ 603-679-5695, EXT. 1037
13. CONTRACTOR SHALL LOCATE EXISTING SEWER SERVICE. CONFIRM SIZE & INVERT ELEVATION WITH ENGINEER.

P4916

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STATE OF NEW HAMPSHIRE
ERIC D. WEINRIEB
No. 7634
LICENSED PROFESSIONAL ENGINEER
11/6/18

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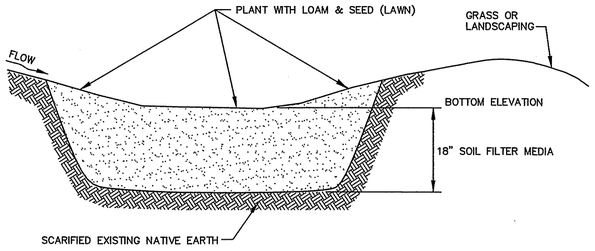
RESIDENTIAL DEVELOPMENT
ASSESSOR'S PARCEL 220-87-2
74 EMERY STREET
&
ASSESSOR'S PARCEL 220-87-3
64 EMERY STREET
PORTSMOUTH, NEW HAMPSHIRE

TITLE:
UTILITIES PLAN

SHEET NUMBER:
C - 3



FILTER MEDIA MIXTURES			
Component Material	Percent of Mixture by Volume	Gradation of material	
		Sieve No.	Percent by Weight Passing Standard Sieve
Filter Media			
ASTM C-33 concrete sand	30		
Loamy sand topsoil, with fines as indicated	70	200	15 to 25

NOTES

1. CONTRACTOR SHALL EXCAVATE THE POND AREA TO SUBGRADE AND DESIGN ENGINEER SHALL PERFORM SUBSURFACE EVALUATION PRIOR TO THE PLACEMENT OF ANY SELECT MATERIAL OR OTHER BACKFILL.
2. SOIL FILTER MEDIA SHALL BE PER THE DESIGN FILTER MIXTURE. IF AN ALTERNATIVE MIXTURE IS PROPOSED, IT SHALL BE APPROVED BY THE DESIGN ENGINEER.
3. DO NOT PLACE THE POND INTO SERVICE UNTIL THE BMP HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
4. DO NOT DISCHARGE SEDIMENT-LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUNOFF, WATER FROM EXCAVATIONS) TO THE POND AREA DURING ANY STAGE OF CONSTRUCTION.
5. DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM.

MAINTENANCE REQUIREMENTS

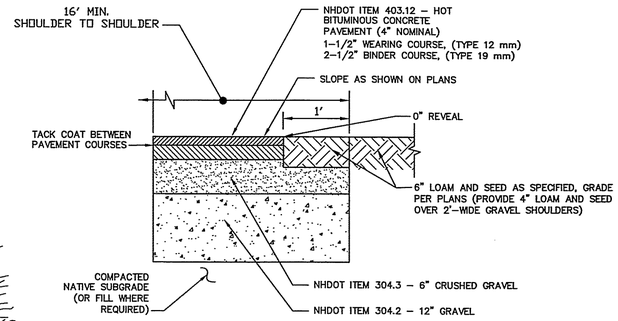
- PONDS SHOULD BE INSPECTED ANNUALLY, AND FOLLOWING ANY RAINFALL EXCEEDING 2.5 INCHES IN A 24-HOUR PERIOD, WITH MAINTENANCE OR REHABILITATION CONDUCTED AS WARRANTED BY SUCH INSPECTION.
- AT LEAST ONCE ANNUALLY, SYSTEM SHOULD BE INSPECTED FOR DRAWDOWN TIME. IF POND DOES NOT DRAIN WITHIN 72-HOURS FOLLOWING A RAINFALL EVENT, THEN A QUALIFIED PROFESSIONAL SHOULD ASSESS THE CONDITION OF THE FACILITY TO DETERMINE MEASURES REQUIRED TO RESTORE FILTRATION FUNCTION OR INFILTRATION FUNCTION (AS APPLICABLE), INCLUDING BUT NOT LIMITED TO REMOVAL OF ACCUMULATED SEDIMENTS OR RECONSTRUCTION OF THE FILTER MEDIA.
- VEGETATION SHOULD BE INSPECTED AT LEAST ANNUALLY, AND MAINTAINED IN HEALTHY CONDITION, INCLUDING, PRUNING, REMOVAL, AND REPLACEMENT OF DEAD OR DISEASED VEGETATION, AND REMOVAL OF INVASIVE SPECIES.

GRASS SOIL FILTER

NOT TO SCALE

GRADING & DRAINAGE NOTES

1. UNLESS OTHERWISE AGREED IN WRITING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING TEMPORARY BENCHMARKS (TBMS) AND PERFORMING ALL CONSTRUCTION SURVEY LAYOUT.
2. DEWATERING ACTIVITIES SHALL BE DONE IN ACCORDANCE WITH EPA AND NHDES REGULATIONS.
3. PROTECTION OF SUBGRADE: THE CONTRACTOR SHALL BE REQUIRED TO MAINTAIN STABLE, DEWATERED SUBGRADES FOR FOUNDATIONS, PAVEMENT AREAS, UTILITY TRENCHES, AND OTHER AREAS DURING CONSTRUCTION. SUBGRADE DISTURBANCE MAY BE INFLUENCED BY EXCAVATION METHODS, MOISTURE, PRECIPITATION, GROUNDWATER CONTROL, AND CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PREVENT SUBGRADE DISTURBANCE. SUCH PRECAUTIONS MAY INCLUDE DIVERTING STORMWATER RUNOFF AWAY FROM CONSTRUCTION AREAS, REDUCING TRAFFIC IN SENSITIVE AREAS, AND MAINTAINING AN EFFECTIVE DEWATERING PROGRAM. SOILS EXHIBITING HEAVING OR INSTABILITY SHALL BE OVER EXCAVATED TO MORE COMPETENT BEARING SOIL AND REPLACED WITH FREE DRAINING STRUCTURAL FILL. IF THE EARTHWORK IS PERFORMED DURING FREEZING WEATHER, EXPOSED SUBGRADES ARE SUSCEPTIBLE TO FROST. NO FILL OR UTILITIES SHALL BE PLACED ON FROZEN GROUND. THIS WILL LIKELY REQUIRE REMOVAL OF A FROZEN SOIL CRUST AT THE COMMENCEMENT OF EACH DAY'S OPERATIONS. THE FINAL SUBGRADE ELEVATION WOULD ALSO REQUIRE AN APPROPRIATE DEGREE OF INSULATION AGAINST FREEZING.
4. IF SUITABLE, EXCAVATED MATERIALS SHALL BE PLACED AS FILL WITHIN UPLAND AREAS ONLY AND SHALL NOT BE PLACED WITHIN WETLANDS. PLACEMENT OF BORROW MATERIALS SHALL BE PERFORMED IN A MANNER THAT PREVENTS LONG TERM DIFFERENTIAL SETTLEMENT. EXCESSIVELY WET MATERIALS SHALL BE STOCKPILED AND ALLOWED TO DRAIN BEFORE PLACEMENT. FROZEN MATERIAL SHALL NOT BE USED FOR CONSTRUCTION.
5. ALL DRAINAGE PIPE SHALL BE ADS N-12 OR EQUAL APPROVED BY THE ENGINEER.
6. ALL SPOT GRADES ARE AT FINISH GRADE AND BOTTOM OF CURB WHERE APPLICABLE.
7. UNLESS OTHERWISE SPECIFIED, ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE A MINIMUM OF SIX (6") INCHES OF LOAM, LIMESTONE, FERTILIZER, SEED, AND HAY MULCH USING APPROPRIATE SOIL STABILIZATION TECHNIQUES. SEE DETAILS FOR ADDITIONAL INFORMATION.
8. IN ORDER TO PROVIDE VISUAL CLARITY ON THE PLANS, DRAINAGE AND OTHER UTILITY STRUCTURES MAY NOT BE DRAWN TO SCALE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER SIZING AND LOCATION OF ALL STRUCTURES AND IS DIRECTED TO RESOLVE ANY POTENTIAL DISCREPANCY WITH THE ENGINEER PRIOR TO CONSTRUCTION.



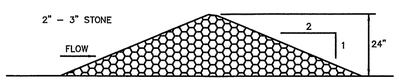
MINIMUM DRIVEWAY WIDTH TO BE 14' WITH 1' SHOULDER EACH SIDE.

NOTE: SUBGRADE AREA TO BE PROOF ROLLED.

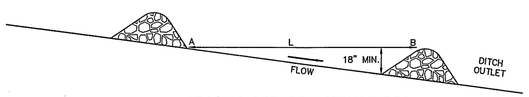
PAVEMENT CROSS SECTION

NOT TO SCALE

CROSS-SECTION



STRUCTURE DETAIL



SPACING BETWEEN STRUCTURES

1. L = DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION
2. CHECK DAM SHALL BE CONSTRUCTED OF 2" TO 3" STONE WITH COMPLETE COVERAGE OF DITCH OR SWALE TO INSURE THAT THE CENTER OF THE STRUCTURE IS LOWER THAN THE EDGES.

MAINTENANCE

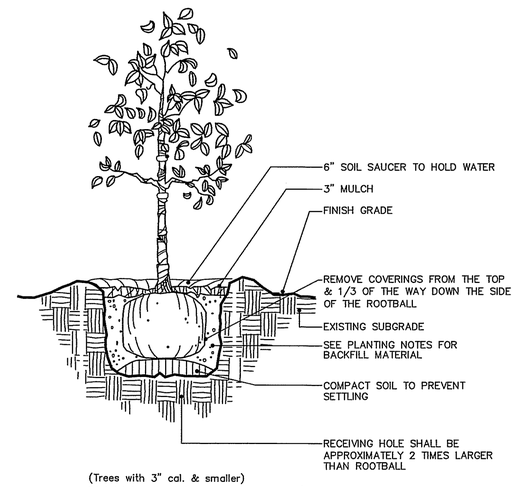
TEMPORARY GRADE STABILIZATION STRUCTURES SHOULD BE CHECKED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED STORMS. ANY NECESSARY REPAIRS SHOULD BE MADE IMMEDIATELY. PARTICULAR ATTENTION SHOULD BE GIVEN TO END RUN AND EROSION AT THE DOWNSTREAM TOE OF THE STRUCTURE. WHEN THE STRUCTURES ARE REMOVED, THE DISTURBED PORTION SHOULD BE BROUGHT TO THE EXISTING CHANNEL GRADE AND THE AREAS PREPARED, SEEDED, AND MULCHED. WHILE THIS PRACTICE IS NOT INTENDED TO BE USED PRIMARILY FOR SEDIMENT TRAPPING, SOME SEDIMENT WILL ACCUMULATE BEHIND THE STRUCTURES, SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURES WHEN IT HAS ACCUMULATED TO ONE HALF OF THE ORIGINAL HEIGHT OF THE STRUCTURE.

CONSTRUCTION SPECIFICATIONS

1. STRUCTURES SHALL BE INSTALLED ACCORDING TO THE DIMENSIONS SHOWN ON THE PLANS AT THE APPROPRIATE SPACING.
2. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER SO THAT EROSION AND AIR AND WATER POLLUTION WILL BE MINIMIZED.
3. SEEDING, FERTILIZING, AND MULCHING SHALL CONFORM TO THE RECOMMENDATIONS IN THE APPROPRIATE VEGETATIVE BMP.
4. STRUCTURES SHALL BE REMOVED FROM THE CHANNEL WHEN THEIR USEFUL LIFE HAS BEEN COMPLETED.

STONE CHECK DAM

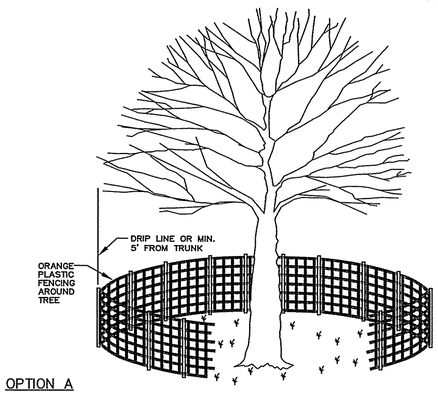
NOT TO SCALE



(Trees with 3" cal. & smaller)

SMALL TREE PLANTING/STAKING DETAIL

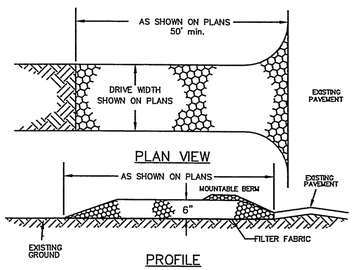
NOT TO SCALE



OPTION A

TREE PROTECTION DETAILS

NOT TO SCALE



PROFILE

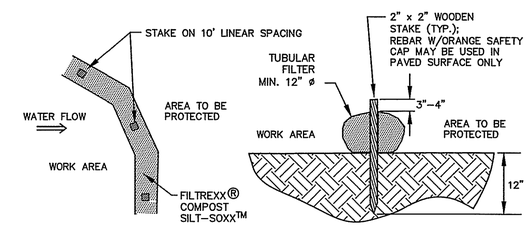
STONE GRADATION TABLE	
SIEVE SIZE	% PASSING BY WEIGHT
2 Inch	100
1 1/2 Inch	90-100
1 Inch	20-55
3/4 Inch	0-15
3/8 Inch	0-5

CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - NHDOT STANDARD STONE SIZE #4 - SECTION 703 OF NHDOT STANDARD.
2. LENGTH - DETAILED ON PLANS (50 FOOT MINIMUM).
3. THICKNESS - SIX (6) INCHES (MINIMUM).
4. WIDTH - FULL DRIVE WIDTH UNLESS OTHERWISE SPECIFIED.
5. FILTER FABRIC - MIRAFI 600X OR EQUAL APPROVED BY ENGINEER.
6. SURFACE WATER CONTROL: - ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS WILL REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEELS SHALL BE CLEANED TO REMOVE MUD PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. STABILIZED CONSTRUCTION EXITS SHALL BE INSTALLED AT ALL ENTRANCES TO PUBLIC RIGHTS-OF-WAY, AT LOCATIONS SHOWN ON THE PLANS, AND/OR WHERE AS DIRECTED BY THE ENGINEER.

STABILIZED CONSTRUCTION EXIT

NOT TO SCALE



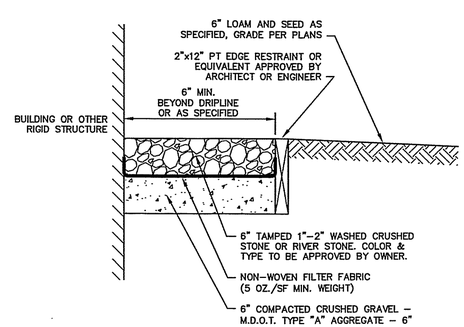
PLAN VIEW SECTION

NOTES:

1. SILTSOXX OR APPROVED EQUAL SHALL BE USED FOR TUBULAR SEDIMENT BARRIERS.
2. ALL MATERIAL TO MEET MANUFACTURER'S SPECIFICATIONS.
3. COMPOST/SOIL/ROCK/SEED FILL MATERIAL SHALL BE ADJUSTED AS NECESSARY TO MEET THE REQUIREMENTS OF THE SPECIFIC APPLICATION.
4. ALL SEDIMENT TRAPPED BY BARRIER SHALL BE DISPOSED OF PROPERLY.
5. STUMPS GRINDINGS MAY BE SUBSTITUTED W/PRIOR APPROVAL FROM ENGINEER,

SILT SOXX BARRIER

NOT TO SCALE



STONE DRIP EDGE

NOT TO SCALE

P4916

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STATE OF NEW HAMPSHIRE - ERIC D. WEINRIEB No. 7634 LICENSED PROFESSIONAL ENGINEER - 10/9/18

ISSUED FOR:
PLANNING BOARD APPROVAL

ISSUE DATE:
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GENERAL NOTES & SITEWORK DETAILS

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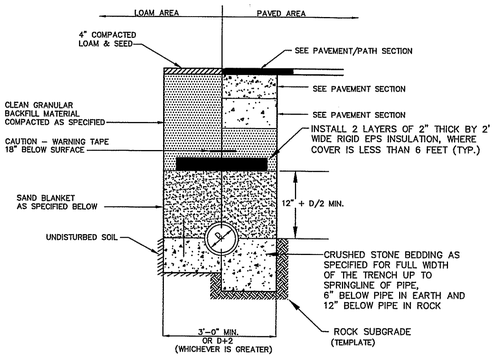


BACKFILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T99, METHOD C. SUITABLE BACKFILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.

SAND BLANKET

SIEVE SIZE	% FINER BY WEIGHT
1/2"	90 – 100
200	0 – 15

CRUSHED STONE BEDDING *

SIEVE SIZE	% PASSING BY WEIGHT
1"	100
3/4"	90 – 100
3/8"	20 – 55
# 4	0 – 10
# 8	0 – 5

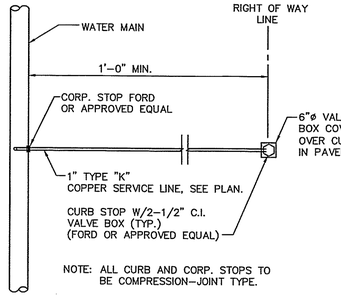
* EQUIVALENT TO STANDARD STONE SIZE #67 – SECTION 703 OF NHDOT STANDARD SPECIFICATIONS

SEWER TRENCH SECTION

NOT TO SCALE

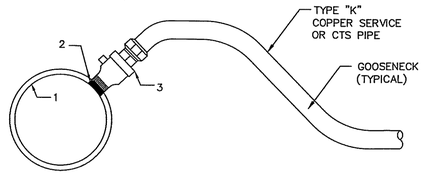
STANDARD TRENCH NOTES:

1. ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE: BACKFILL AS STATED IN THE TECHNICAL SPECIFICATIONS OR AS SHOWN OF THE DRAWING.
2. BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33, STONE SIZE NO. 67.
   100% PASSING 1 INCH SCREEN
   90 – 100% PASSING 3/4 INCH SCREEN
   20 – 55% PASSING 3/8 INCH SCREEN
   0–10% PASSING #4 SIEVE
   0–5% PASSING #8 SIEVE
   WHERE ORDERED BY THE ENGINEER TO STABILIZE THE BASE, SCREENED GRAVEL OR CRUSHED STONE 1–1/2 INCH TO 1/2 INCH SHALL BE USED.
3. SAND BLANKET: CLEAN SAND FREE FROM ORGANIC MATTER, SO GRADED THAT 90 – 100% PASSES 1/2 INCH SIEVE AND NOT MORE THAN 15% WILL PASS A #200 SIEVE. BLANKET MAY BE OMITTED FOR CAST–IRON, DUCTILE IRON, AND REINFORCED CONCRETE PIPE PROVIDED HOWEVER, THAT NO STONE LARGER THAN 2" IS IN CONTACT WITH THE PIPE.
4. SUITABLE MATERIAL: IN ROADS, ROAD SHOULDERS, WALKWAYS AND TRAVELED WAYS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS; PIECES OF PAVEMENT; ORGANIC MATTER; TOP SOIL; ALL WET OR SOFT MUCK, PEAT, OR CLAY; ALL EXCAVATED LEDGE MATERIAL; ALL ROCKS OVER 6 INCHES IN LARGEST DIMENSION; AND ANY MATERIAL WHICH, AS DETERMINED BY THE ENGINEER, WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION.
5. BASE COURSE AND PAVEMENT SHALL MEET THE REQUIREMENTS OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION'S LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES – DIVISIONS 300 AND 400 RESPECTIVELY.
6. SHEETING, IF REQUIRED: WHERE SHEETING IS PLACED ALONGSIDE THE PIPE AND EXTENDS BELOW MID–DIAMETER, IT SHALL BE CUT OFF AND LEFT IN PLACE TO AN ELEVATION 1 FOOT ABOVE THE TOP OF PIPE. WHERE SHEETING IS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE, IT SHALL BE CUT OFF AT LEAST 3 FEET BELOW FINISHED GRADE, BUT NOT LESS THAT 1 FOOT ABOVE THE TOP OF THE PIPE.
7. W = MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12 INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES. FOR PIPES GREATER THAN 15 INCHES IN NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE OUTSIDE DIAMETER (O.D.) ALSO, W SHALL BE THE PAYMENT WIDTH FOR LEDGE EXCAVATION AND FOR ORDERED EXCAVATION BELOW GRADE.
8. FOR CROSS COUNTRY CONSTRUCTION, BACKFILL OR FILL SHALL BE MOUNDED TO A HEIGHT OF 6 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
9. CONCRETE FOR ENCASEMENT SHALL CONFORM TO THE NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS STANDARD SPECIFICATION REQUIREMENTS FOR CLASS A (3000#) CONCRETE AS FOLLOWS:
   CEMENT: 6.0 BAGS PER CUBIC YARD
   WATER: 5.75 GALLONS PER BAG CEMENT
   MAXIMUM SIZE OF AGGREGATE: 1 INCH
   CONCRETE ENCASEMENT IS NOT ALLOWED FOR PVC PIPE.
10. CONCRETE FULL ENCASEMENT: IF FULL ENCASEMENT IS UTILIZED, DEPTH OF CONCRETE BELOW PIPE SHALL BE 1/4 I.D. (4" MINIMUM). BLOCK SUPPORT SHALL BE SOLID CONCRETE BLOCKS.
11. NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES DESIGN STANDARDS REQUIRE TEN FEET (10') SEPARATION BETWEEN WATER AND SEWER. REFER TO CITY'S STANDARD SPECIFICATIONS FOR METHODS OF PROTECTION IN AREAS THAT CANNOT MEET THESE REQUIREMENTS.



WATER SERVICE CONNECTION TYPICAL

NOTES:
1. REPORTED 6"
2. REPORTED 6" x 1" OR 2" TAP. (PER PLANS)
3. CORPORATION STOP, FORD OR APPROVED EQUAL TO BE INSTALLED.

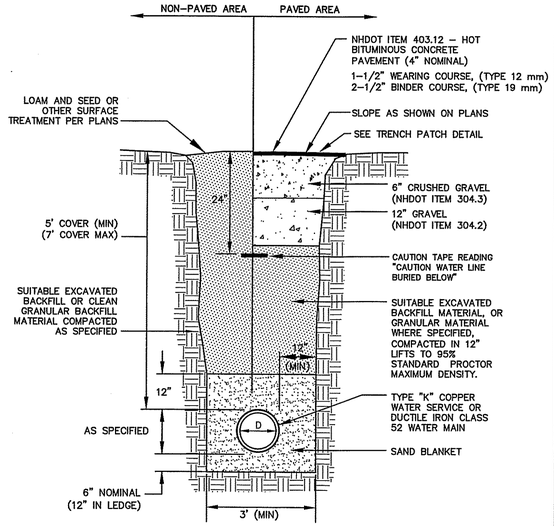


SERVICE TO MAIN CONNECTION DETAIL

NOT TO SCALE

GRADING & DRAINAGE NOTES

1. UNLESS OTHERWISE AGREED IN WRITING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING TEMPORARY BENCHMARKS (TBMS) AND PERFORMING ALL CONSTRUCTION SURVEY LAYOUT.
2. DEWATERING ACTIVITIES SHALL BE DONE IN ACCORDANCE WITH EPA AND NHDES REGULATIONS.
3. PROTECTION OF SUBGRADE: THE CONTRACTOR SHALL BE REQUIRED TO MAINTAIN STABLE, DEWATERED SUBGRADES FOR FOUNDATIONS, PAVEMENT AREAS, UTILITY TRENCHES, AND OTHER AREAS DURING CONSTRUCTION. SUBGRADE DISTURBANCE MAY BE INFLUENCED BY EXCAVATION METHODS, MOISTURE, PRECIPITATION, GROUNDWATER CONTROL, AND CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PREVENT SUBGRADE DISTURBANCE. SUCH PRECAUTIONS MAY INCLUDE DIVERTING STORMWATER RUNOFF AWAY FROM CONSTRUCTION AREAS, REDUCING TRAFFIC IN SENSITIVE AREAS, AND MAINTAINING AN EFFECTIVE DEWATERING PROGRAM. SOILS EXHIBITING HEAVING OR INSTABILITY SHALL BE OVER EXCAVATED TO MORE COMPETENT BEARING SOIL AND REPLACED WITH FREE DRAINING STRUCTURAL FILL. IF THE EARTHWORK IS PERFORMED DURING FREEZING WEATHER, EXPOSED SUBGRADES ARE SUSCEPTIBLE TO FROST. NO FILL OR UTILITIES SHALL BE PLACED ON FROZEN GROUND. THIS WILL LIKELY REQUIRE REMOVAL OF A FROZEN SOIL CRUST AT THE COMMENCEMENT OF EACH DAY'S OPERATIONS. THE FINAL SUBGRADE ELEVATION WOULD ALSO REQUIRE AN APPROPRIATE DEGREE OF INSULATION AGAINST FREEZING.
4. IF SUITABLE, EXCAVATED MATERIALS SHALL BE PLACED AS FILL WITHIN UPLAND AREAS ONLY AND SHALL NOT BE PLACED WITHIN WETLANDS. PLACEMENT OF BORROW MATERIALS SHALL BE PERFORMED IN A MANNER THAT PREVENTS LONG TERM DIFFERENTIAL SETTLEMENT. EXCESSIVELY WET MATERIALS SHALL BE STOCKPILED AND ALLOWED TO DRAIN BEFORE PLACEMENT. FROZEN MATERIAL SHALL NOT BE USED FOR CONSTRUCTION.
5. ALL DRAINAGE PIPE SHALL BE ADS N–12 OR EQUAL APPROVED BY THE ENGINEER.
6. ALL SPOT GRADES ARE AT FINISH GRADE AND BOTTOM OF CURB WHERE APPLICABLE.
7. UNLESS OTHERWISE SPECIFIED, ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE A MINIMUM OF SIX (6") INCHES OF LOAM, LIMESTONE, FERTILIZER, SEED, AND HAY MULCH USING APPROPRIATE SOIL STABILIZATION TECHNIQUES. SEE DETAILS FOR ADDITIONAL INFORMATION.
8. IN ORDER TO PROVIDE VISUAL CLARITY ON THE PLANS, DRAINAGE AND OTHER UTILITY STRUCTURES MAY NOT BE DRAWN TO SCALE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER SIZING AND LOCATION OF ALL STRUCTURES AND IS DIRECTED TO RESOLVE ANY POTENTIAL DISCREPANCY WITH THE ENGINEER PRIOR TO CONSTRUCTION.



SAND BLANKET/BARRIER

SIEVE SIZE	% FINER BY WEIGHT
1/2"	90 – 100
200	0 – 15

NOTES

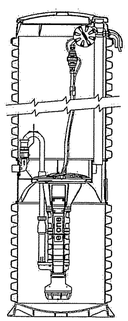
1. BACKFILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T 99, METHOD C. SUITABLE BACKFILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.
2. WATER MAINS SHALL BE POLY WRAPPED.
3. WATER MAINS SHALL HAVE 3 WEDGES PER JOINT.

WATER MAIN TRENCH

NOT TO SCALE

E/ONE EXTREME SERIES

DH071/DR071



General Features

The model DH071 or DR071 grinder pump station is a complete unit that includes: the grinder pump, check valve, HDPE (high density polyethylene) tank, controls, and alarm panel. A single DH071 or DR071 is a popular choice for one, average single-family home and can also be used for up to two average single-family homes where codes allow and with consent of the factory.

- Rated for flows of 700 gpd (2650 lpd)
- 70 gallons (265 liters) of capacity
- Indoor or outdoor installation
- Standard outdoor heights range from 61 inches to 160 inches

The DH071 is the "hardwired," or "wired," model where a cable connects the motor controls to the level controls through watertight penetrations.

The DR071 is the "radio frequency identification" (RFID), or "wireless," model that uses wireless technology to communicate between the level controls and the motor controls.

Operational Information

Motor
1 hp, 1,725 rpm, high torque, capacitor start, thermally protected, 120/240V, 60 Hz, 1 phase

Inlet Connections
4-inch inlet grommet standard for DWV pipe. Other inlet configurations available from the factory.

Discharge Connections
Pump discharge terminates in 1.25-Inch NPT female thread. Can easily be adapted to 1.25-Inch PVC pipe or any other material required by local codes.

Discharge
15 gpm at 0 psig (0.95 lps at 0 m)
11 gpm at 40 psig (0.69 lps at 28 m)
7.8 gpm at 80 psig (0.49 lps at 56 m)

Accessories

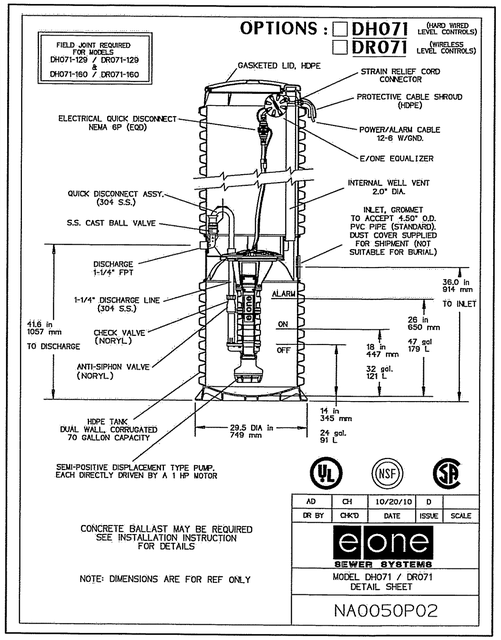
E/One requires that the Uni-Lateral, E/One's own stainless steel check valve, be installed between the grinder pump station and the street main for added protection against backflow.

Alarm panels are available with a variety of options, from basic monitoring to advanced notice of service requirements.

The Remote Sentry is ideal for installations where the alarm panel may be hidden from view.

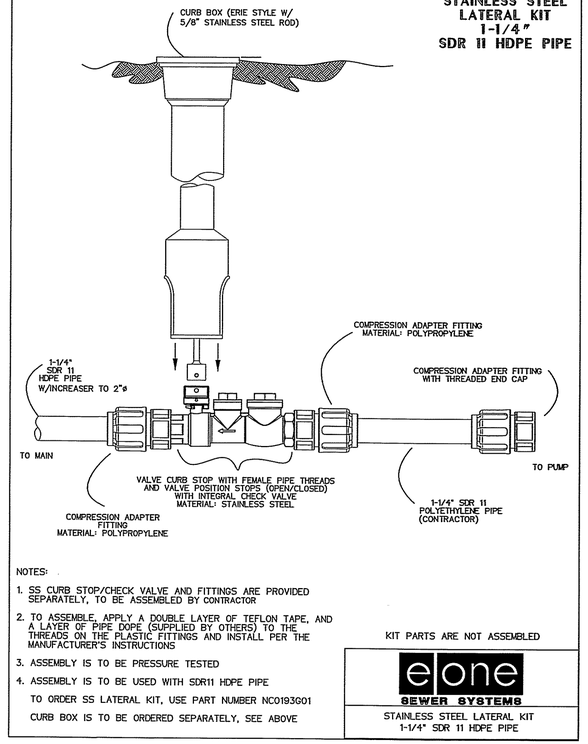
Patent Numbers: 5,752,315
5,562,254 5,439,180

NA0050P01 Rev C



SEWER PUMP STATION (E-ONE) DETAILS

NOT TO SCALE



NOTES:
1. SS CURB STOP/CHECK VALVE AND FITTINGS ARE PROVIDED SEPARATELY, TO BE ASSEMBLED BY CONTRACTOR
2. TO ASSEMBLE, APPLY A DOUBLE LAYER OF TEFLON TAPE, AND A LAYER OF PIPE DOPE (SUPPLIED BY OTHERS) TO THE THREADS ON THE PLASTIC FITTINGS AND INSTALL PER THE MANUFACTURER'S INSTRUCTIONS
3. ASSEMBLY IS TO BE PRESSURE TESTED
4. ASSEMBLY IS TO BE USED WITH SDR11 HDPE PIPE

TO ORDER SS LATERAL KIT, USE PART NUMBER NC0193G01
CURB BOX IS TO BE ORDERED SEPARATELY, SEE ABOVE

KIT PARTS ARE NOT ASSEMBLED

e|one SEWER SYSTEMS
STAINLESS STEEL LATERAL KIT 1–1/4" SDR 11 HDPE PIPE

STAINLESS STEEL LATERAL KIT – 1 1/4" SDR 11 HDPE PIPE

NOT TO SCALE

P4916

ALTUS ENGINEERING, INC.
133 COURT STREET PORTSMOUTH, NH 03801
(603) 433–2335 www.ALTUS–ENG.com

STATE OF NEW HAMPSHIRE
ERIC D. WEINRIEB
No. 7634
LICENSED PROFESSIONAL ENGINEER
10/9/18

ISSUED FOR:
PLANNING BOARD APPROVAL

ISSUE DATE:
SEPTEMBER 14, 2018

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	EDW	09/14/18

DRAWN BY: RLH
APPROVED BY: EDW
DRAWING FILE: 4916 DETAILS.DWG

SCALE:
22"x 34": N.T.S.

APPLICANT/OWNER:
HAPPY MOUNTAIN HOLDINGS, LLC
901 N. MARKET STREET
SUITE 705
WILMINGTON, DE 19801

PROJECT:
RESIDENTIAL DEVELOPMENT
ASSESSOR'S PARCEL 220–87–2
74 EMERY STREET
&
ASSESSOR'S PARCEL 220–87–3
64 EMERY STREET
PORTSMOUTH, NEW HAMPSHIRE

TITLE:
SITEWORK DETAILS

SHEET NUMBER:
C - 5

ALTUS
ENGINEERING, INC.

Civil
Site Planning
Environmental
Engineering

133 Court Street
Portsmouth, NH
03801-4413

November 6, 2018

Juliet T. H. Walker, AICP, Planning Director
City of Portsmouth Municipal Complex
Planning Department
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: **Application for Site Plan Review - Planning Board Approval**
Assessor's Map 220, Lots 87-2 and 87-3
74 and 64 Emery Street
Altus Project P4916

Dear Juliet:

At the October 18th Planning Board meeting, the Board voted to postpone the application for Site Plan Approval to the November 15th meeting to allow the applicant to address the issues raised by the Board. The enclosed submittal addresses the following:

- Additional landscaping has been depicted on the plans;
- The drainage computations were amended;
- The landscape and recording waivers have been withdrawn;
- The plan notes have been revised to include the recording requirements.

Enclosed are twelve (12) copies of the following items for consideration at the November 15th Planning Board Meeting:

- Site Plans (two full size (22" x 34") and ten half size (11" x 17"))
- Revised Waiver Requests
- Revised Drainage Study (two full copies and ten summaries)
- CD with pdf copies of the revised application package.

We look forward to presenting the revised application package to the Planning Board. Please contact me directly if you have any questions or need any additional information.

Sincerely,

Eric D. Weinrieb, PE
President

wde/4916-PB cvr ltr 11-06-18

Enclosure

Ecopy: Corey Cawthorn

ALTUS
ENGINEERING, INC.

Civil
Site Planning
Environmental
Engineering

133 Court Street
Portsmouth, NH
03801-4413

WAIVER REQUESTS
Assessor's Map 220
Lot 87-2 (74 Emery Street)
&
Lot 87-3 (64 Emery Street)
Altus Project P4916
Revised November 6, 2018

On behalf of Happy Mountain Holdings, LLC, Altus Engineering, Inc. request the following waivers from the City of Portsmouth, New Hampshire Site Plan Review Regulations.

Section 2.5.4 3 (C) Access and circulation
Section 2.5.4 3 (D) Parking and loading
Section 2.5.4 3 (J) Outdoor lighting
Section 3.4 Curbing (A) where access ways and driveways meet public streets
Section 5.2 Sidewalk and Pedestrian Pathways
Section 5.3 Bicycle Facilities

This project is unique in the fact that it is the development of two duplex homes on two abutting lots. Because four residential housing units are proposed, the project falls under the criteria for Site Plan Review Regulations. As such, the duplex homes do not require loading, outdoor lighting, curbing at the entrance, bicycle racks and other types of development features that normally are depicted on commercial site developments. We have combined all the waiver requests with a single explanation.

The intent of the above sections of the Site Plan Review Regulations are intended for projects where the public will be visiting the property. It is unreasonable to require outdoor bike racks for a duplex. Bicycles will be stored inside the homes just like any other duplex residential unit in Portsmouth. Likewise, the requirement to having loading facilities, curbing at the entrance and sidewalks as well as dedicated pedestrian pathways are not reasonable requests for this property. There will be building mounted lights at the entry doors, garages, and other locations that are typically seen on a residential development.

Tel: (603) 433-2335 E-mail: Altus@altus-eng.com

Two Residential Duplexes

64 & 74 Emery Street
Portsmouth, NH
Assessor's Map 220, Lots 87-2 & 87-3

DRAINAGE STUDY

NOVEMBER 2018

Prepared For:

HAPPY MOUNTAIN HOLDINGS, LLC
901 N. MARKET STREET
SUITE 705
WILMINGTON, DE 19801
C/O:
Corey Cawthron
750 Lafayette Road
Portsmouth, NH 03801

Prepared By:

ALTUS ENGINEERING, INC.
133 Court Street
Portsmouth, NH 03801
Phone: (603) 433-2335

Emery St.
Portsmouth, NH

DRAINAGE STUDY

EXECUTIVE SUMMARY

Happy Mountain Holdings, LLC and Corey Cawthron are planning to develop two residential lots that have recently been approved by the Board of Adjustment to allow each to have a duplex housing. The project involves just lot development as the utility services are available in the public right-of-way. There are no wetlands on the lot or within 100-feet of the lot lines. The lots are encumbered with a utility easement at the rear of the site. No site improvements are proposed in the easement. However, it is expected that the homeowners will mow and maintain the easement areas. The two lots that will be developed are:

Assessor's Parcel	Lot Area
220-87-2	32,427 SF
2220-87-3	21,232 SF

The two lots are 53,659 square feet in size (1.23 acres) and are predominantly wooded lots. The lots were created in 2013. At that time, the City approved the development with a shared driveway and utility cross easements to allow Lot 87-3 to be developed without impacting the ledge outcrop in the Emery Street right-of-way. The two lots are approved developable lots that could be developed with up to 60% impervious area based on zoning regulations, which would allow over 30,000 sf of impervious area. The proposed development will provide approximately 12,000 sf of combined impervious areas as well as three stormwater management ponds to reduce peak flows and provide stormwater treatment.

The proposed project will include the two duplexes, a shared driveway, new utility services and associated site improvements, including; site grading, drainage improvements, and utility service connections. Stormwater ponds will be constructed on each of the two residential lots to manage the storm water flow and provide treatment. The ponds will consist of a depressed lawn area with a loamy-sand material that will promote infiltration, drainage, and provide treatment.

DRAINAGE ANALYSIS

This drainage study is intended to show that the proposed development will manage and treat the stormwater to improve the existing site conditions and minimize impacts from the development. The project was analyzed to compare the ½", 2, 10, 25, and 50 year storm events. As a conservative design approach, which exceeds the city Site Plan Review Regulations, Altus has designed the site following the NHDES Alteration of Terrain rainfall criteria by adding 15-percent to the 24-hour rainfall precipitation for each storm event modeled.

The pre-development subcatchments were modeled and input into HydroCAD for analysis. The "Pre-Development Watershed Plan" illustrates the subcatchments that were modeled for the existing stormwater system. The existing site drains towards the Emery Street right-of-way with a high point near the proposed driveway that directs a portion of the flow to the south towards Myrtle Ave and a portion of the flow to the north towards Maplewood Avenue.

The "Post-Development Watershed Plan" illustrates the proposed stormwater management system. The original subcatchments have been divided into smaller areas to emulate the proposed grading and stormwater management system proposed for construction. The post-development conditions were analyzed at the same primary discharge points examined in the pre-development modeling.

For existing soil conditions the NRCS Web Soil Survey tool was used to determine the existing hydrologic soil groups. The entire site is listed as a type 799 soil series, urban land -canton complex. Utilizing canton as the underlying soil conditions, Hydrologic Soil Group (HSG) Type B was used for the entire site. Referencing the Ksat Values for NH Soils, the low C Ksat value for Canton is 6.0, which is typically multiplied by 0.5 to determine the infiltration design rate. For this analysis, an infiltration design rate of 1.0 was used as a conservative design approach.

The following Stormwater Modelling Summary compares pre-development and post-development peak rates of runoff for all analyzed storm events:

Stormwater Modeling Summary

The Stormwater Modeling Summary Table below shows the results for the peak flow rates for stormwater discharge for the ½" Inch, 2 year, 10 year, 25 year, and 50 year storm events:

Stormwater Modeling Summary Table
(Pre vs. Post-Development Stormwater Peak Runoff Rates)

	1/2"- Storm (0.5 inch)	2-Yr Storm (3.69 inch)	10-Yr Storm (5.60 inch)	25-Yr Storm (7.10 inch)	50-Yr Storm (8.50 inch)
POA #1					
Pre	0.0	0.3	1.5	2.8	4.3
Post	0.0	0.3	1.2	2.6	4.3
Change	0.0	-0.0	-0.3	-0.2	-0.0
POA #2					
Pre	0.0	0.1	0.3	0.5	0.7
Post	0.0	0.1	0.3	0.4	0.5
Change	0.0	-0.0	-0.0	-0.1	-0.2
Net Change	**0.0**	**-0.0**	**-0.3**	**-0.3**	**-0.2**

- HydroCAD results are rounded to the nearest 0.1 cfs for modeling tolerances.

As the Stormwater Modeling Summaries demonstrate, the proposed project will manage the stormwater runoff to mitigate impacts to the surrounding areas. The peak flow rates are managed to replicate the existing conditions.

CONCLUSION

The proposed project will not have an adverse effect on abutting properties and infrastructure as a result of stormwater runoff. As the stormwater summary indicates, the peak flow rates discharging from the site will be managed to minimize impacts to the surrounding areas. Four grass soil filter ponds will be constructed to provide retention and treatment of stormwater on site prior discharging to the Emery Street drainage. As noted in the drainage report, the stormwater model utilizes a number of conservative design approaches. Although not a City of Portsmouth requirement, a 15-percent increase was added to each rainfall event, similar to the requirements of NHDES Alteration of Terrain permitting. All of the other storm events analyzed indicate and equal or decreased peak flow rate at both points of analysis and illustrate that the stormwater is being managed to replicated the pre-development conditions and not adversely impact the abutting properties.

In addition to the permanent stormwater management practices, appropriate steps will be taken to properly mitigate erosion and sedimentation during construction through the use of temporary Best Management Practices for sediment and erosion control. In summary, the proposed development will manage stormwater runoff during construction and post development so that there is no adverse impact to the surrounding area as a result of this development.

Methodology

The drainage study was completed using the USDA SCS TR-20 Method within the HydroCAD Stormwater Modeling System. Reservoir routing was performed with the Dynamic Storage Indication method which automates the calculation of Tailwater conditions. A Type III 24-hour rainfall distribution was utilized in analyzing the data for the 0.5", 2, 10, 25, and 50 year 24-hour storm events using rainfall data obtained from the Northeast Regional Climate Center (NRCC) Extreme Precipitation Tables. As a conservative measure, 15-percent has been added to each rainfall mimic the requirements of NHDES Alteration of Terrain Permitting requirements. Site topography, existing features, proposed site improvements, proposed grading, drainage and erosion control measures are shown on the accompanying plans. Recommended erosion control measures are based upon the December 2008 edition of the "New Hampshire Stormwater Manual Volumes 1 through 3" prepared by NHDES and Comprehensive Environmental, Inc. as amended.

Stormwater Modeling Disclaimer

Altus Engineering, Inc. notes that stormwater modeling is limited in its capacity to precisely predict peak rates of runoff and flood elevations. Results should not be considered to represent actual storm events due to the number of variables and assumptions involved in the modeling effort. Surface roughness coefficients (n), entrance loss coefficients (ke), velocity factors (kv) and times of concentration (Tc) are based on subjective field observations and engineering judgment using available data. For design purposes, curve numbers (Cn) describe the average conditions. However, curve numbers will vary from storm to storm depending on the antecedent runoff conditions (ARC) including saturation and frozen ground. Also, higher water elevations than predicted by modeling could occur if drainage channels, closed drain systems or culverts are not maintained and/or become blocked by debris before and/or during a storm event as this will impact flow capacity of the structures. Structures should be re-evaluated if future changes occur within relevant drainage areas in order to assess any required design modification.

APPENDIX

A. Site Maps

   a. USGS Map

   b. Aerial Image

B. HydroCAD Modeling Results

   a. Extreme Precipitation Table

   b. Pre-Development (2, 10, 25, & 50 Year Storms)

   c. Post Development (2, 10, 25, & 50 Year Storms)

C. Web Soil Survey

D. Plans

   - Project Site Plans (Separate Submittal)
   - Pre-Development Watershed Plan
   - Post-Development Watershed Plan

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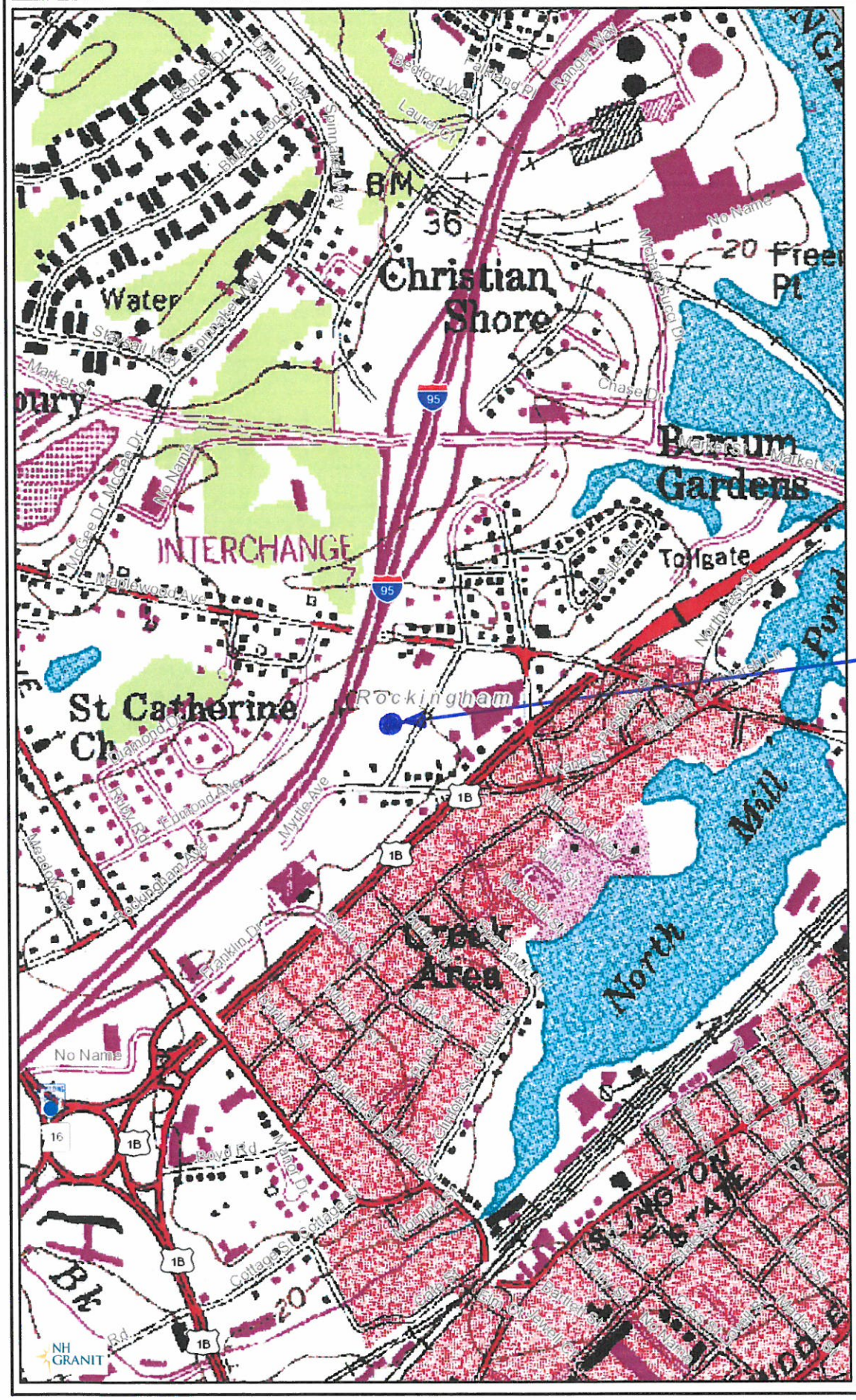
Map by NH GRANIT



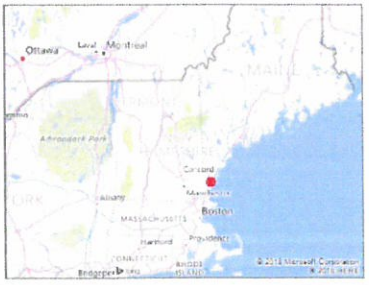
Legend

- State
- County
- City/Town

Map Scale
1: 10,000

Map Generated: 9/14/2018

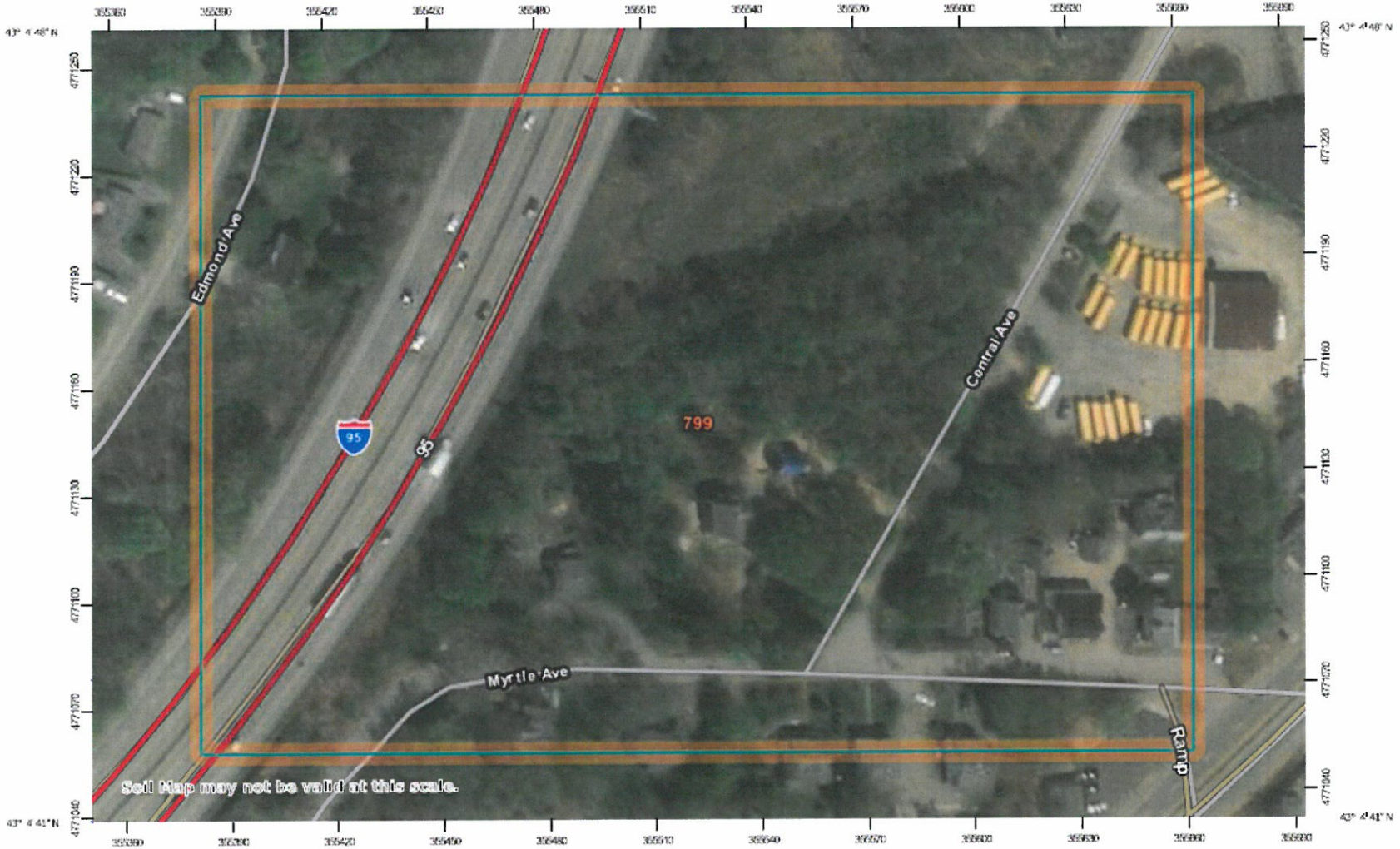
Notes



AERIAL PHOTOGRAPH

LOTS 87-2 AND 87-3

Soil Map—Rockingham County, New Hampshire
(P4916)



Map Scale: 1:1,560 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 20 40 80 120

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N 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 1:24,000.

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

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

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

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

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

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

Soil Survey Area: Rockingham County, New Hampshire
Survey Area Data: Version 19, Sep 11, 2017

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

Date(s) aerial images were photographed: Dec 31, 2009—Jun 26, 2016

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

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
799	Urban land-Canton complex, 3 to 15 percent slopes	12.8	100.0%
Totals for Area of Interest		**12.8**	**100.0%**

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.763 degrees West
Latitude	43.072 degrees North
Elevation	0 feet
Date/Time	Mon, 30 Jul 2018 11:50:36 -0400

Extreme Precipitation Estimates

Add 15%

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr			1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.81	1.04	**1yr**	0.70	0.98	1.21	1.56	2.03	2.66		**1yr**	2.35	2.81	3.22	3.94	4.55	**1yr**
2yr	0.32	0.50	0.62	0.81	1.02	1.30	**2yr**	0.88	1.18	1.52	1.94	2.49	3.21	3.69	**2yr**	2.84	3.43	3.94	4.68	5.33	**2yr**
5yr	0.37	0.58	0.73	0.98	1.25	1.61	**5yr**	1.08	1.47	1.89	2.43	3.14	4.07		**5yr**	3.60	4.40	5.04	5.94	6.70	**5yr**
10yr	0.41	0.65	0.82	1.12	1.45	1.89	**10yr**	1.25	1.73	2.23	2.89	3.75	4.87	5.60	**10yr**	4.31	5.32	6.09	7.11	7.98	**10yr**
25yr	0.48	0.76	0.97	1.34	1.77	2.34	**25yr**	1.53	2.14	2.78	3.63	4.74	6.17	7.10	**25yr**	5.46	6.83	7.80	9.03	10.05	**25yr**
50yr	0.54	0.86	1.10	1.54	2.07	2.76	**50yr**	1.79	2.53	3.29	4.32	5.66	7.39	8.50	**50yr**	6.54	8.25	9.42	10.81	11.98	**50yr**
100yr	0.60	0.97	1.25	1.77	2.42	3.26	**100yr**	2.09	2.98	3.90	5.16	6.77	8.85	10.18	**00yr**	7.83	9.98	11.38	12.96	14.27	**100yr**
200yr	0.67	1.10	1.43	2.05	2.82	3.83	**200yr**	2.44	3.52	4.62	6.13	8.08	10.61		**200yr**	9.39	12.07	13.76	15.55	17.02	**200yr**
500yr	0.80	1.31	1.71	2.48	3.48	4.76	**500yr**	3.00	4.38	5.76	7.70	10.22	13.48		**500yr**	11.93	15.52	17.67	19.78	21.49	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.72	0.88	1yr	0.63	0.86	0.92	1.33	1.68	2.24	2.49	1yr	1.98	2.40	2.87	3.18	3.90	1yr
2yr	0.31	0.49	0.60	0.81	1.00	1.19	2yr	0.86	1.16	1.37	1.82	2.34	3.06	3.45	2yr	2.71	3.32	3.82	4.55	5.08	2yr
5yr	0.35	0.54	0.67	0.92	1.17	1.40	5yr	1.01	1.37	1.61	2.12	2.73	3.79	4.19	5yr	3.35	4.03	4.72	5.53	6.24	5yr
10yr	0.39	0.59	0.73	1.03	1.33	1.60	10yr	1.14	1.56	1.80	2.39	3.06	4.37	4.86	10yr	3.87	4.67	5.44	6.41	7.20	10yr
25yr	0.44	0.67	0.83	1.19	1.56	1.90	25yr	1.35	1.86	2.10	2.75	3.53	4.72	5.89	25yr	4.18	5.66	6.65	7.79	8.68	25yr
50yr	0.48	0.73	0.91	1.31	1.76	2.17	50yr	1.52	2.12	2.35	3.07	3.93	5.33	6.80	50yr	4.72	6.54	7.72	9.04	10.02	50yr
100yr	0.54	0.81	1.01	1.47	2.01	2.47	100yr	1.73	2.41	2.63	3.41	4.35	6.00	7.85	100yr	5.31	7.55	8.98	10.51	11.56	100yr
200yr	0.59	0.89	1.13	1.63	2.28	2.81	200yr	1.96	2.75	2.93	3.78	4.79	6.72	9.06	200yr	5.95	8.71	10.42	12.22	13.37	200yr
500yr	0.68	1.02	1.31	1.90	2.71	3.36	500yr	2.34	3.29	3.41	4.31	5.45	7.82	10.94	500yr	6.92	10.52	12.69	14.96	16.19	500yr

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.54	0.72	0.89	1.08	1yr	0.77	1.06	1.26	1.74	2.21	2.98	3.16	1yr	2.64	3.04	3.58	4.37	5.04	1yr
2yr	0.34	0.52	0.64	0.86	1.07	1.27	2yr	0.92	1.24	1.48	1.96	2.51	3.42	3.70	2yr	3.03	3.56	4.09	4.84	5.63	2yr
5yr	0.40	0.62	0.77	1.05	1.34	1.62	5yr	1.15	1.58	1.88	2.53	3.25	4.34	4.96	5yr	3.84	4.77	5.38	6.37	7.16	5yr
10yr	0.47	0.72	0.89	1.25	1.61	1.98	10yr	1.39	1.93	2.28	3.11	3.95	5.34	6.20	10yr	4.72	5.96	6.82	7.84	8.75	10yr
25yr	0.58	0.88	1.09	1.56	2.05	2.57	25yr	1.77	2.51	2.95	4.07	5.15	7.78	8.34	25yr	6.88	8.02	9.15	10.34	11.41	25yr
50yr	0.67	1.02	1.27	1.83	2.46	3.13	50yr	2.12	3.06	3.60	5.00	6.32	9.74	10.46	50yr	8.62	10.06	11.44	12.72	13.96	50yr
100yr	0.79	1.19	1.49	2.16	2.96	3.81	100yr	2.55	3.72	4.37	6.16	7.76	12.18	13.10	100yr	10.78	12.60	14.31	15.69	17.09	100yr
200yr	0.92	1.39	1.76	2.55	3.56	4.65	200yr	3.07	4.55	5.34	7.58	9.54	15.28	16.44	200yr	13.53	15.81	17.92	19.35	20.92	200yr
500yr	1.15	1.71	2.19	3.19	4.53	6.04	500yr	3.91	5.90	6.93	10.02	12.56	20.65	22.20	500yr	18.27	21.34	24.13	25.51	27.34	500yr

POA #1

POA #2

Subcat Reach Pond Link

Routing Diagram for 4916 pre
Prepared by Altus Engineering, Inc., Printed 9/14/2018

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.634	48	Brush, Good, HSG B (1S)
1.629	55	Woods, Good, HSG B (1S, 2S)
2.263	**53**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
2.263	HSG B	1S, 2S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
2.263		**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	0.634	0.000	0.000	0.000	0.634	Brush, Good	1S
0.000	1.629	0.000	0.000	0.000	1.629	Woods, Good	1S, 2S
0.000	**2.263**	**0.000**	**0.000**	**0.000**	**2.263**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: POA #1 Runoff Area=88,216 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=425' Tc=21.5 min CN=53 Runoff=0.00 cfs 0.000 af

Subcatchment 2S: POA #2 Runoff Area=10,360 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=100' Slope=0.1000 '/' Tc=10.5 min CN=55 Runoff=0.00 cfs 0.000 af

Total Runoff Area = 2.263 ac Runoff Volume = 0.000 af Average Runoff Depth = 0.00"
100.00% Pervious = 2.263 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: POA #1

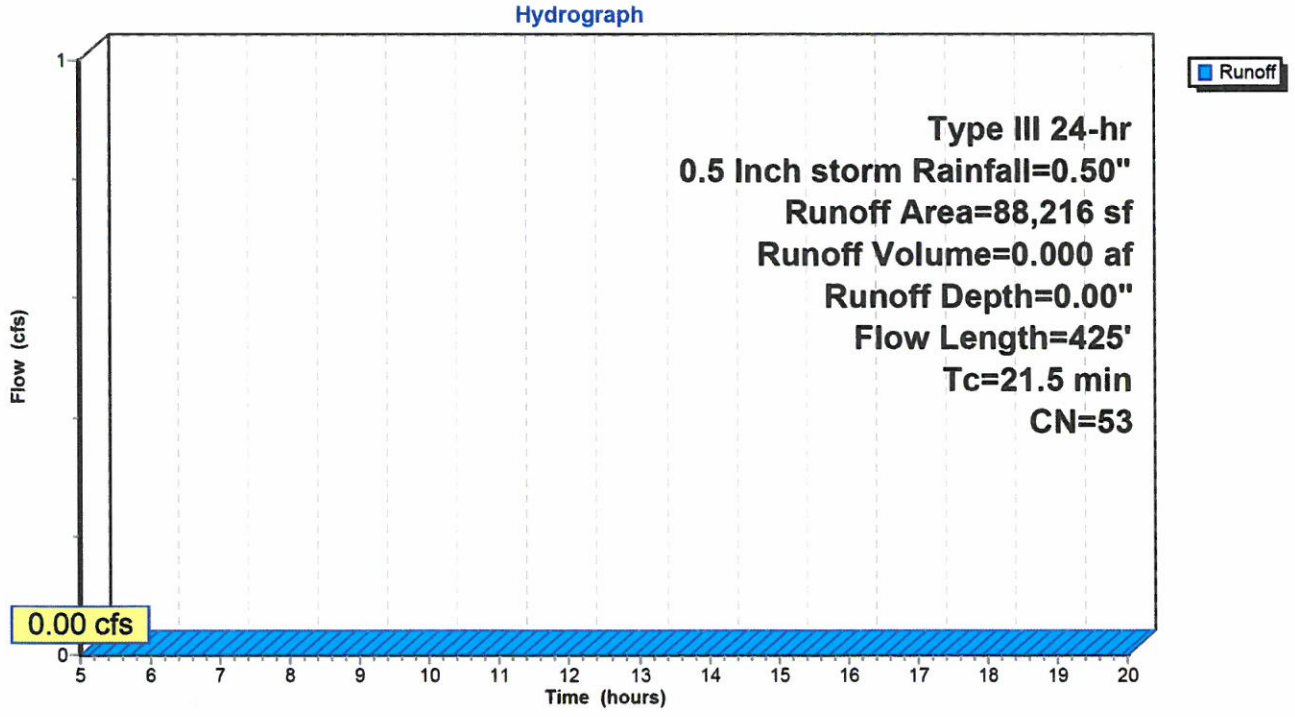
Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 0.5 Inch storm Rainfall=0.50"

Area (sf)	CN	Description
27,600	48	Brush, Good, HSG B
60,616	55	Woods, Good, HSG B
88,216	53	Weighted Average
88,216		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	100	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
6.3	325	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.5	425	Total			

Subcatchment 1S: POA #1



Summary for Subcatchment 2S: POA #2

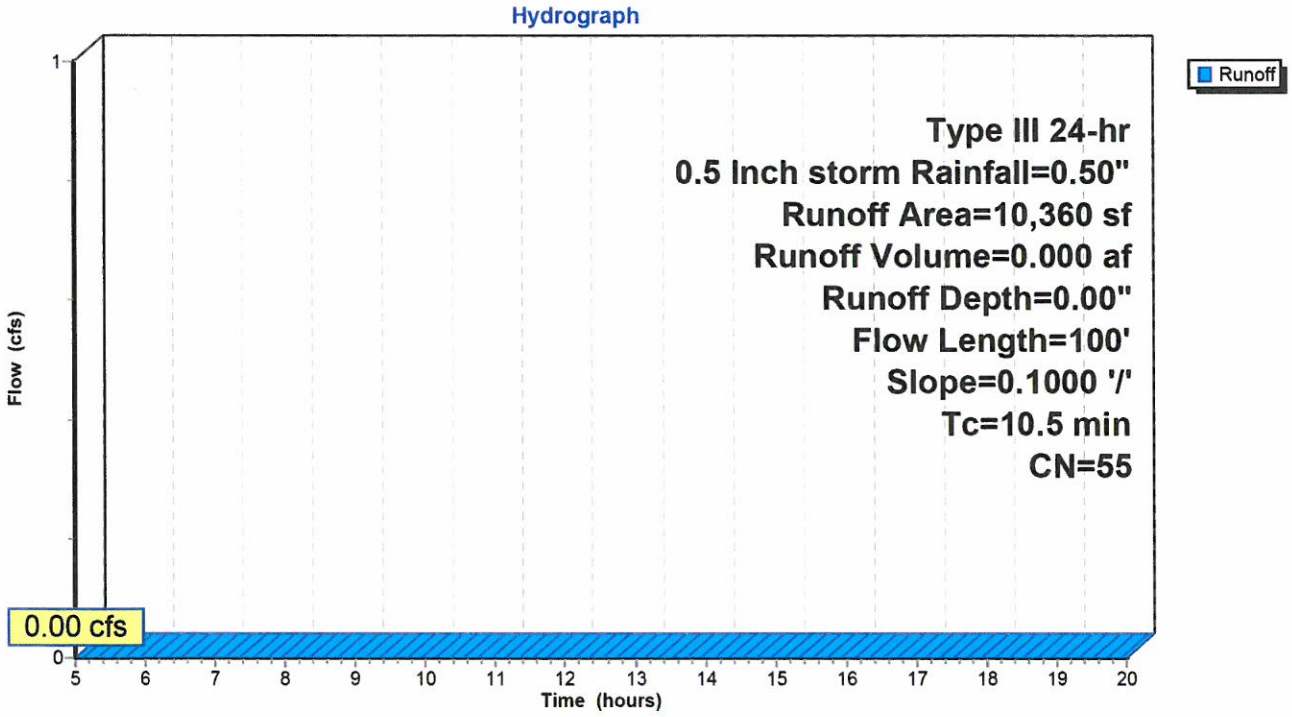
Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 0.5 Inch storm Rainfall=0.50"

Area (sf)	CN	Description
10,360	55	Woods, Good, HSG B
10,360		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.1000	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"

Subcatchment 2S: POA #2



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: POA #1 Runoff Area=88,216 sf 0.00% Impervious Runoff Depth>0.29"
Flow Length=425' Tc=21.5 min CN=53 Runoff=0.27 cfs 0.048 af

Subcatchment2S: POA #2 Runoff Area=10,360 sf 0.00% Impervious Runoff Depth>0.35"
Flow Length=100' Slope=0.1000 '/' Tc=10.5 min CN=55 Runoff=0.05 cfs 0.007 af

Total Runoff Area = 2.263 ac Runoff Volume = 0.055 af Average Runoff Depth = 0.29"
100.00% Pervious = 2.263 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: POA #1

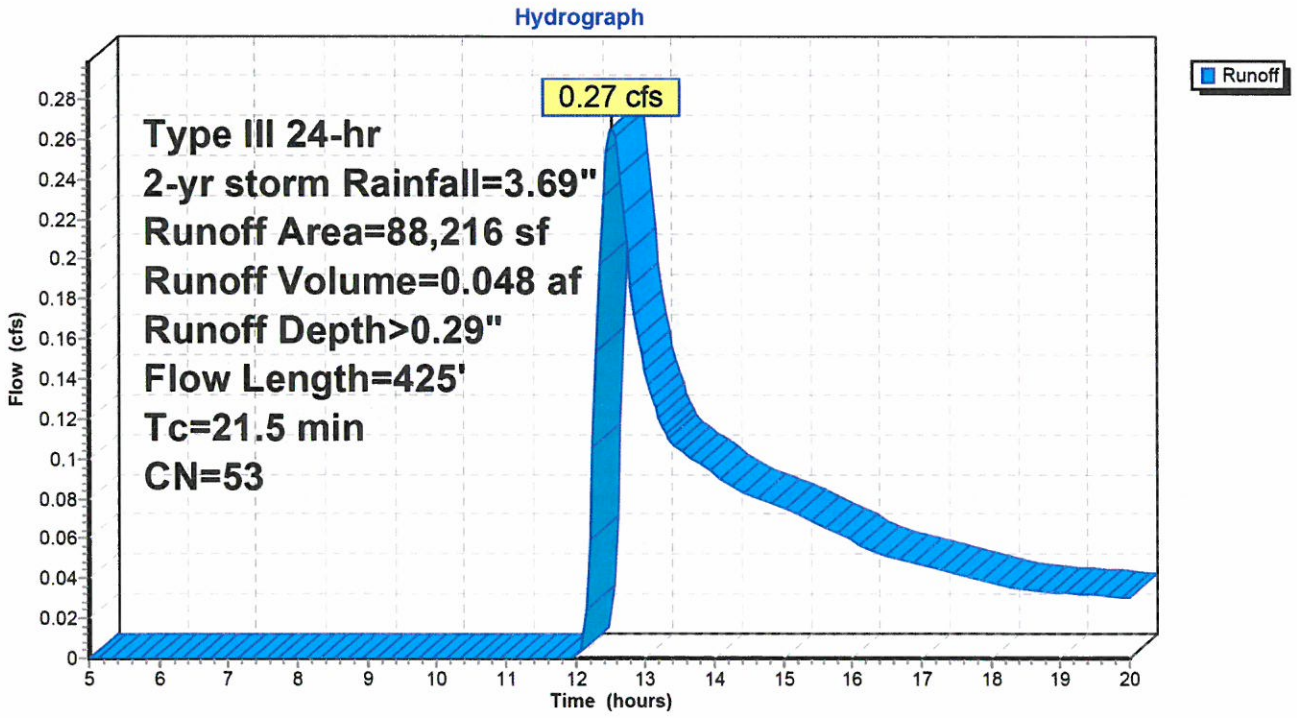
Runoff = 0.27 cfs @ 12.53 hrs, Volume= 0.048 af, Depth> 0.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr storm Rainfall=3.69"

Area (sf)	CN	Description
27,600	48	Brush, Good, HSG B
60,616	55	Woods, Good, HSG B
88,216	53	Weighted Average
88,216		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	100	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
6.3	325	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.5	425	Total			

Subcatchment 1S: POA #1



Summary for Subcatchment 2S: POA #2

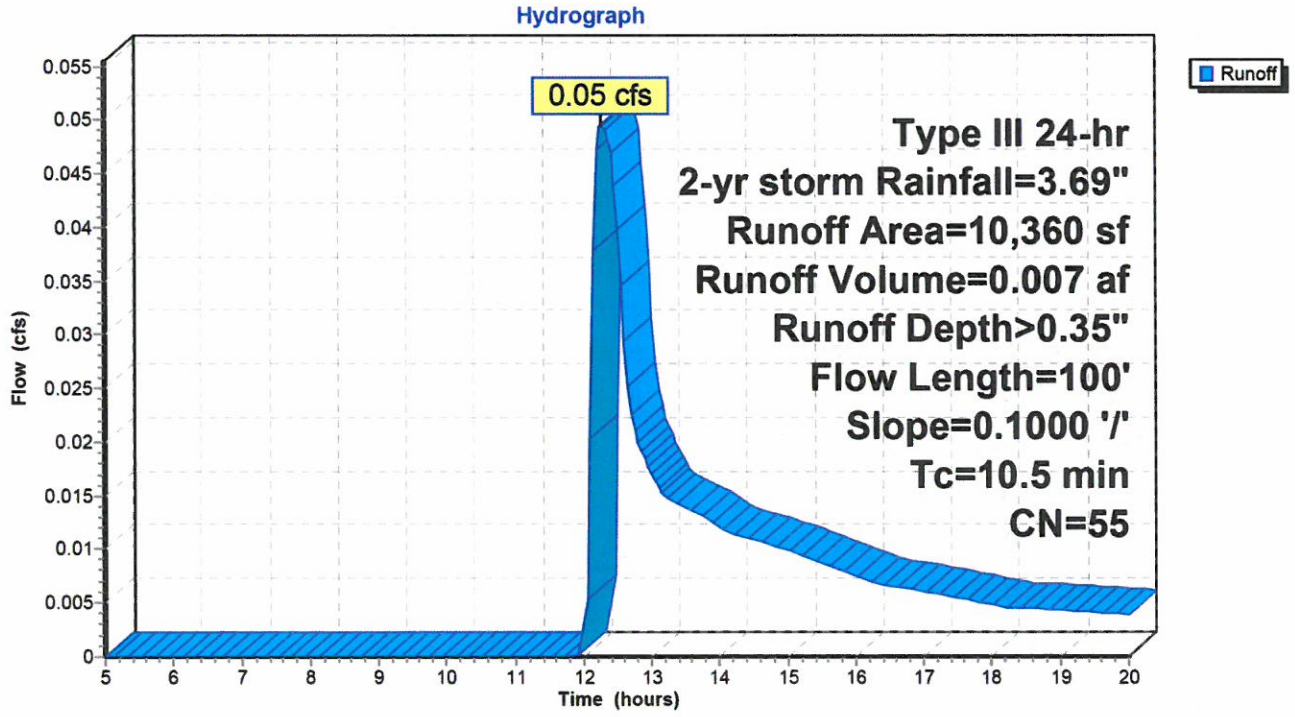
Runoff = 0.05 cfs @ 12.28 hrs, Volume= 0.007 af, Depth> 0.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr storm Rainfall=3.69"

Area (sf)	CN	Description
10,360	55	Woods, Good, HSG B
10,360		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.1000	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"

Subcatchment 2S: POA #2



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: POA #1 Runoff Area=88,216 sf 0.00% Impervious Runoff Depth>1.02"
Flow Length=425' Tc=21.5 min CN=53 Runoff=1.46 cfs 0.172 af

Subcatchment 2S: POA #2 Runoff Area=10,360 sf 0.00% Impervious Runoff Depth>1.16"
Flow Length=100' Slope=0.1000 '/' Tc=10.5 min CN=55 Runoff=0.26 cfs 0.023 af

Total Runoff Area = 2.263 ac Runoff Volume = 0.195 af Average Runoff Depth = 1.04"
100.00% Pervious = 2.263 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: POA #1

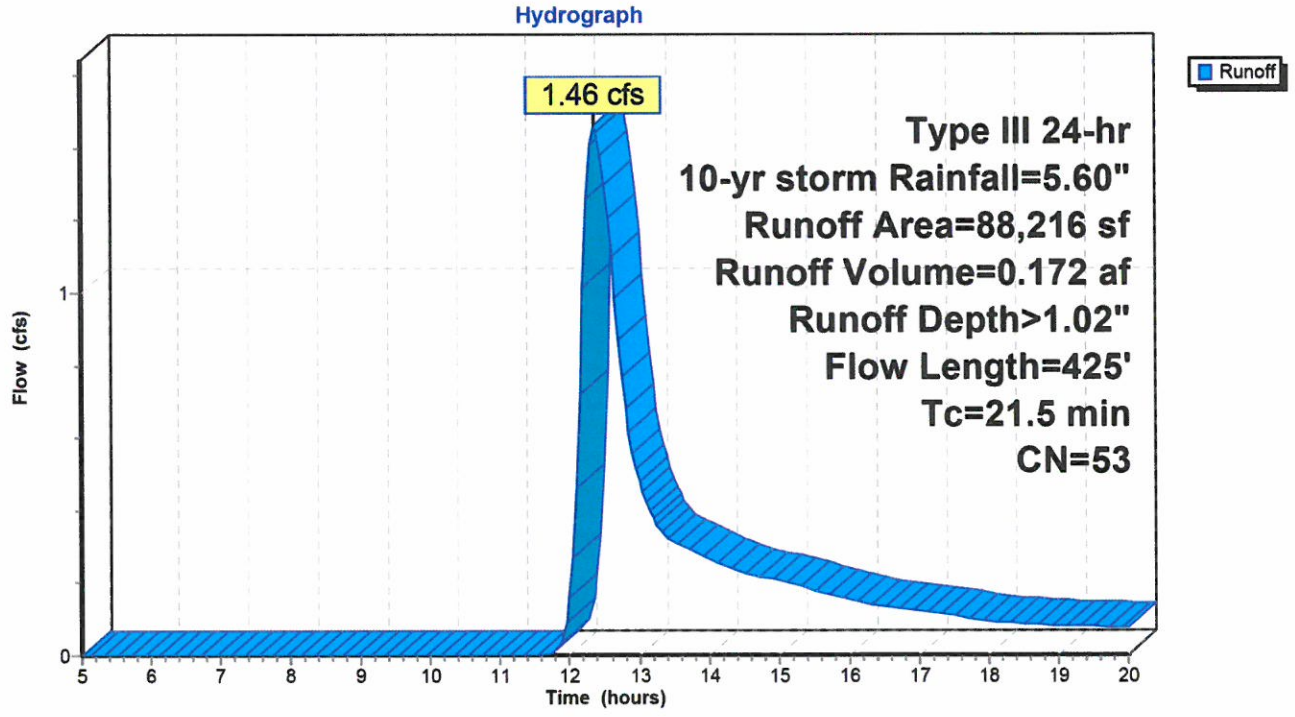
Runoff = 1.46 cfs @ 12.36 hrs, Volume= 0.172 af, Depth> 1.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr storm Rainfall=5.60"

Area (sf)	CN	Description
27,600	48	Brush, Good, HSG B
60,616	55	Woods, Good, HSG B
88,216	53	Weighted Average
88,216		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	100	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
6.3	325	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.5	425	Total			

Subcatchment 1S: POA #1



Summary for Subcatchment 2S: POA #2

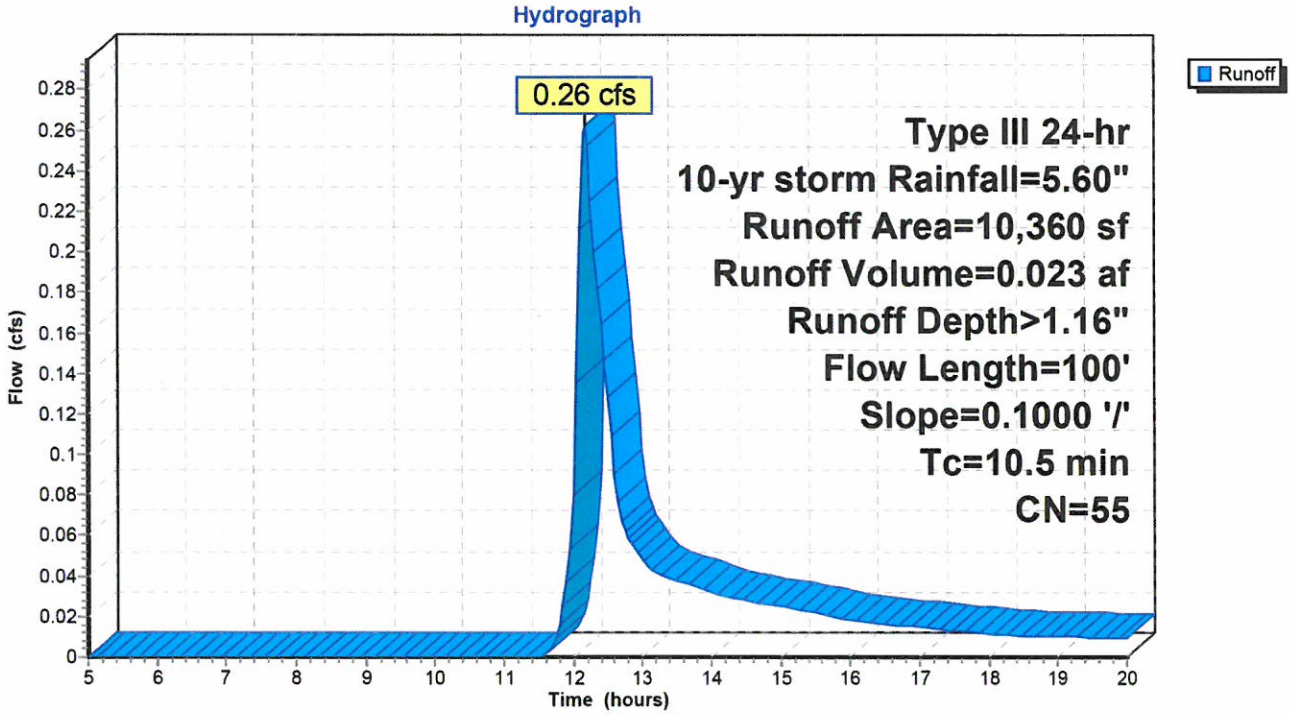
Runoff = 0.26 cfs @ 12.17 hrs, Volume= 0.023 af, Depth> 1.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr storm Rainfall=5.60"

Area (sf)	CN	Description
10,360	55	Woods, Good, HSG B
10,360		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.1000	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"

Subcatchment 2S: POA #2



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: POA #1 Runoff Area=88,216 sf 0.00% Impervious Runoff Depth>1.80"
Flow Length=425' Tc=21.5 min CN=53 Runoff=2.82 cfs 0.303 af

Subcatchment2S: POA #2 Runoff Area=10,360 sf 0.00% Impervious Runoff Depth>1.99"
Flow Length=100' Slope=0.1000 '/' Tc=10.5 min CN=55 Runoff=0.49 cfs 0.039 af

Total Runoff Area = 2.263 ac Runoff Volume = 0.343 af Average Runoff Depth = 1.82"
100.00% Pervious = 2.263 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: POA #1

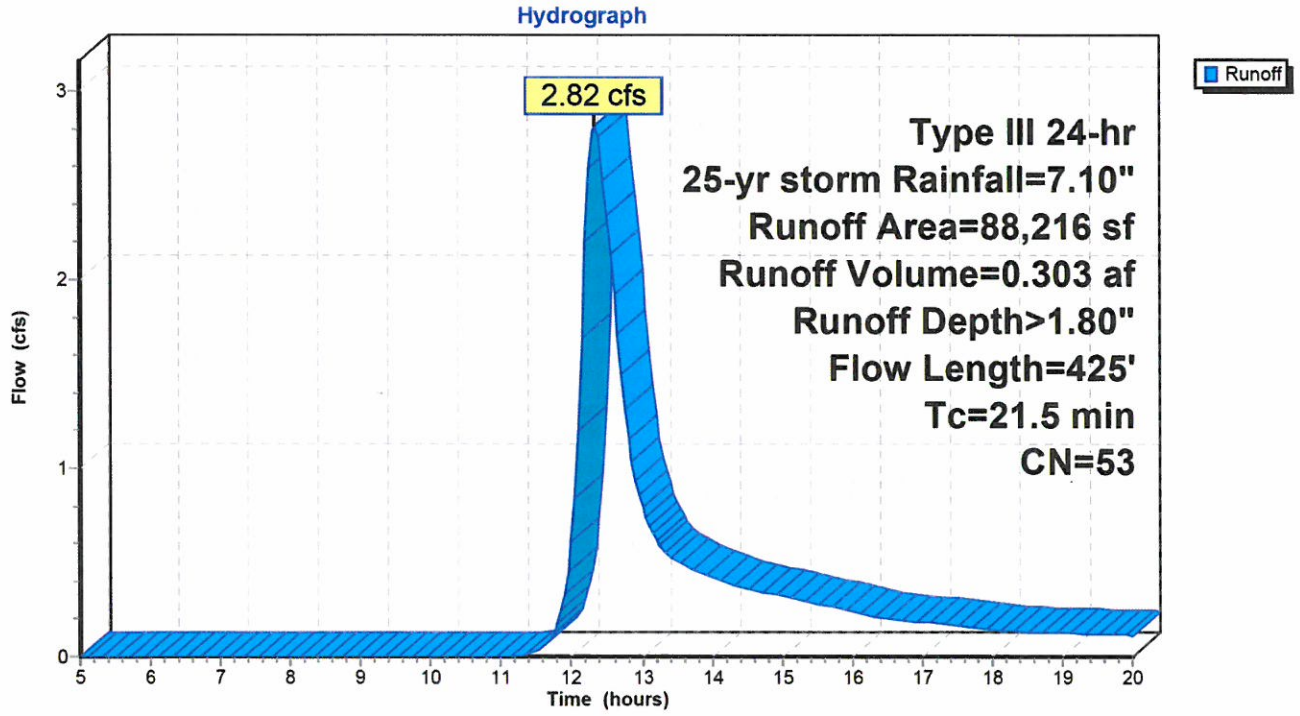
Runoff = 2.82 cfs @ 12.33 hrs, Volume= 0.303 af, Depth> 1.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr storm Rainfall=7.10"

Area (sf)	CN	Description
27,600	48	Brush, Good, HSG B
60,616	55	Woods, Good, HSG B
88,216	53	Weighted Average
88,216		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	100	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
6.3	325	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.5	425	Total			

Subcatchment 1S: POA #1



Summary for Subcatchment 2S: POA #2

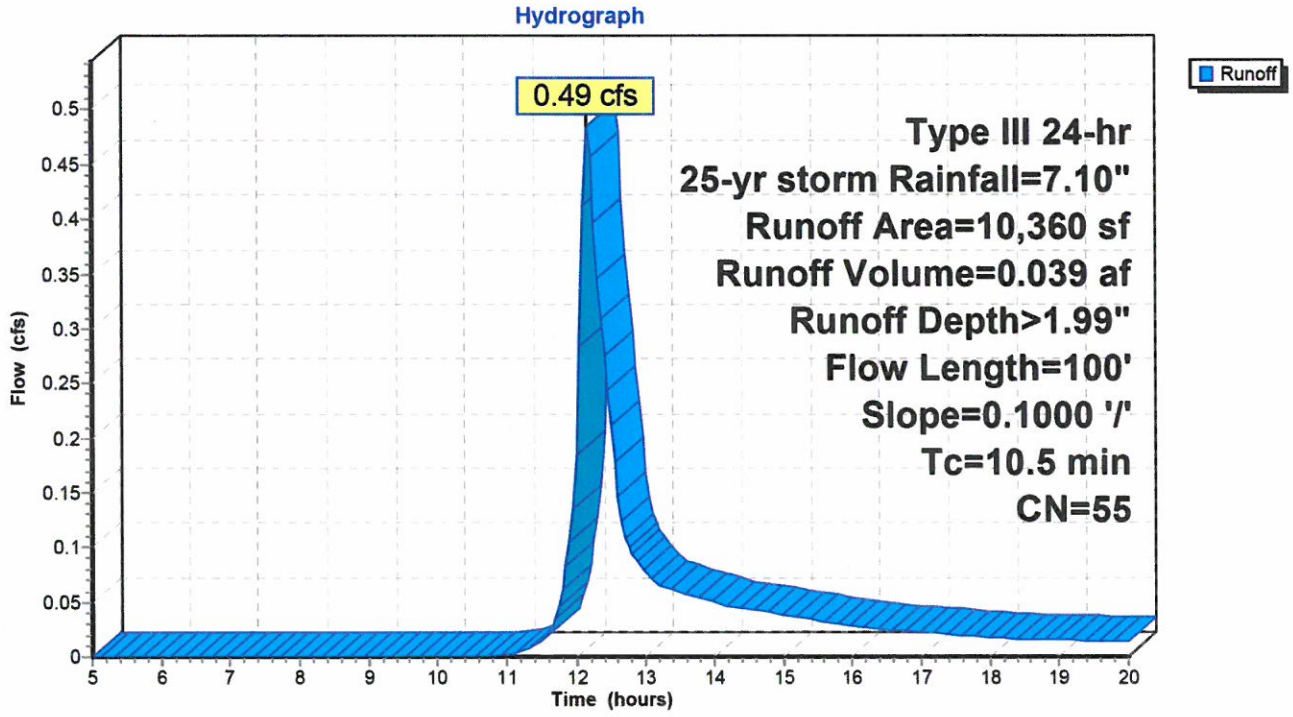
Runoff = 0.49 cfs @ 12.16 hrs, Volume= 0.039 af, Depth> 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr storm Rainfall=7.10"

Area (sf)	CN	Description
10,360	55	Woods, Good, HSG B
10,360		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.1000	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"

Subcatchment 2S: POA #2



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: POA #1 Runoff Area=88,216 sf 0.00% Impervious Runoff Depth>2.63"
Flow Length=425' Tc=21.5 min CN=53 Runoff=4.28 cfs 0.445 af

Subcatchment 2S: POA #2 Runoff Area=10,360 sf 0.00% Impervious Runoff Depth>2.87"
Flow Length=100' Slope=0.1000 '/' Tc=10.5 min CN=55 Runoff=0.72 cfs 0.057 af

Total Runoff Area = 2.263 ac Runoff Volume = 0.501 af Average Runoff Depth = 2.66"
100.00% Pervious = 2.263 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: POA #1

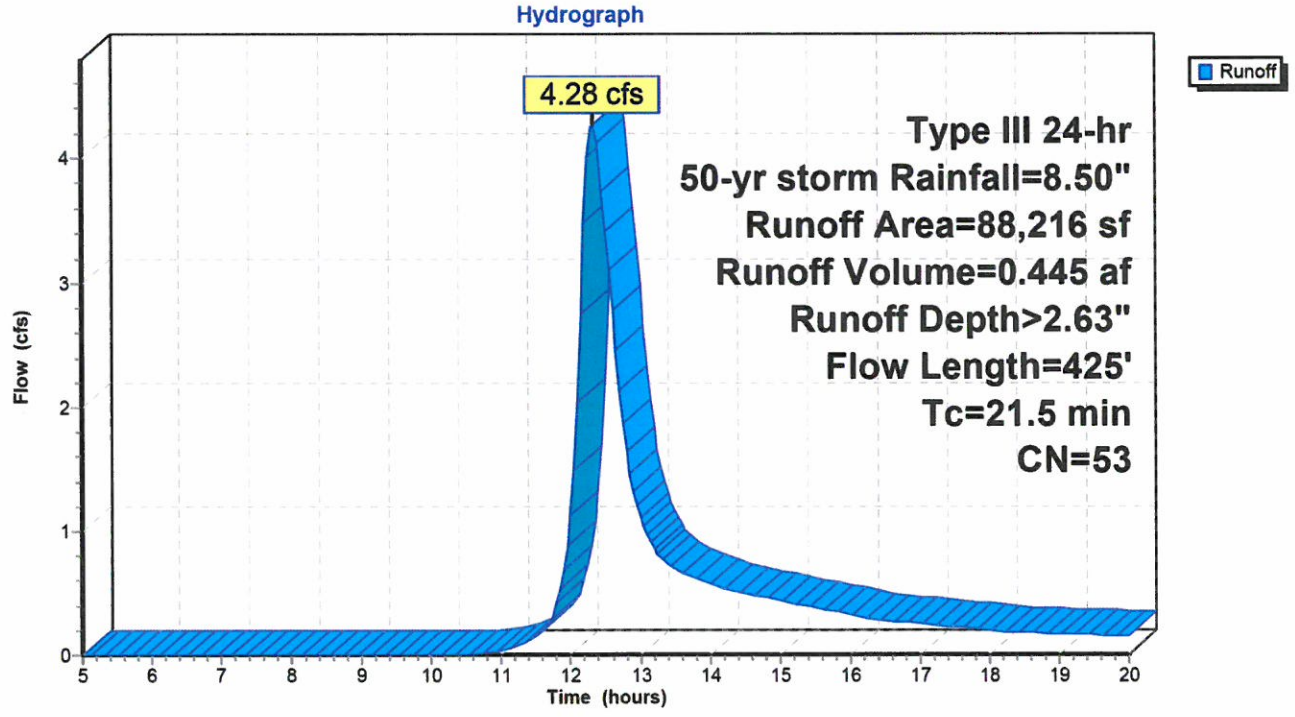
Runoff = 4.28 cfs @ 12.32 hrs, Volume= 0.445 af, Depth> 2.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr storm Rainfall=8.50"

Area (sf)	CN	Description
27,600	48	Brush, Good, HSG B
60,616	55	Woods, Good, HSG B
88,216	53	Weighted Average
88,216		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	100	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
6.3	325	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.5	425	Total			

Subcatchment 1S: POA #1



Summary for Subcatchment 2S: POA #2

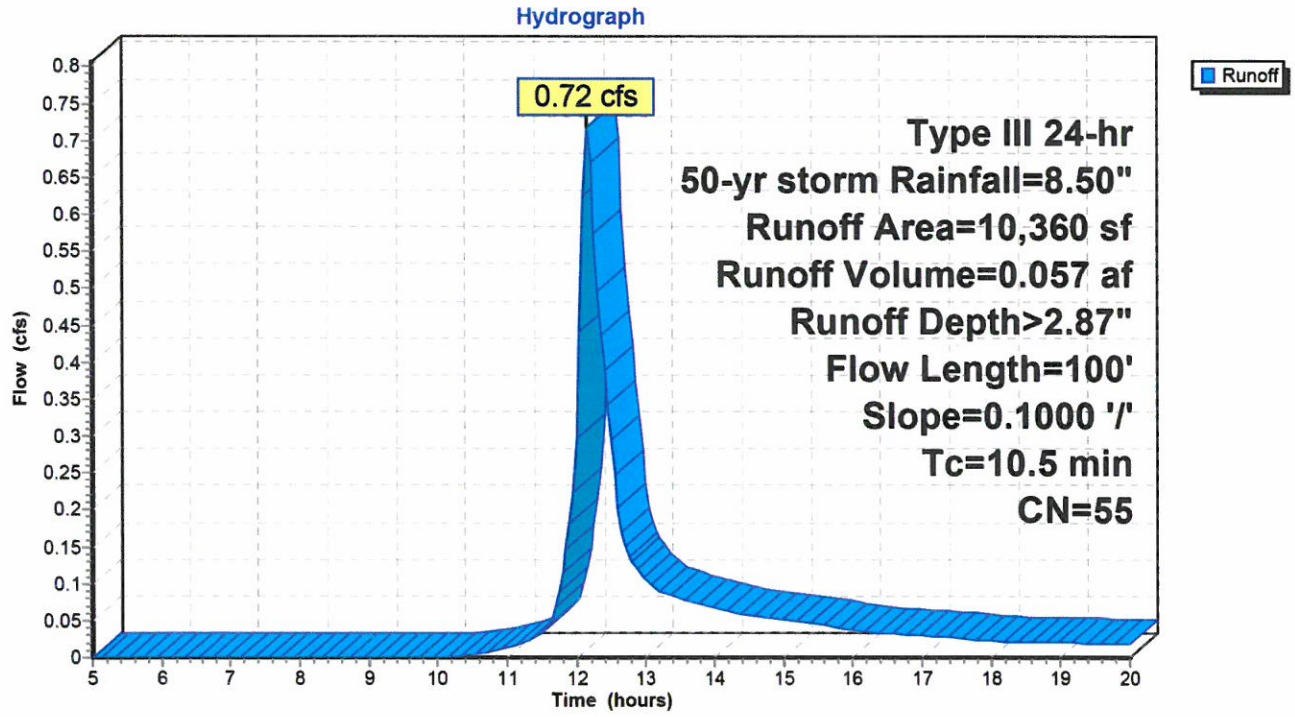
Runoff = 0.72 cfs @ 12.16 hrs, Volume= 0.057 af, Depth> 2.87"

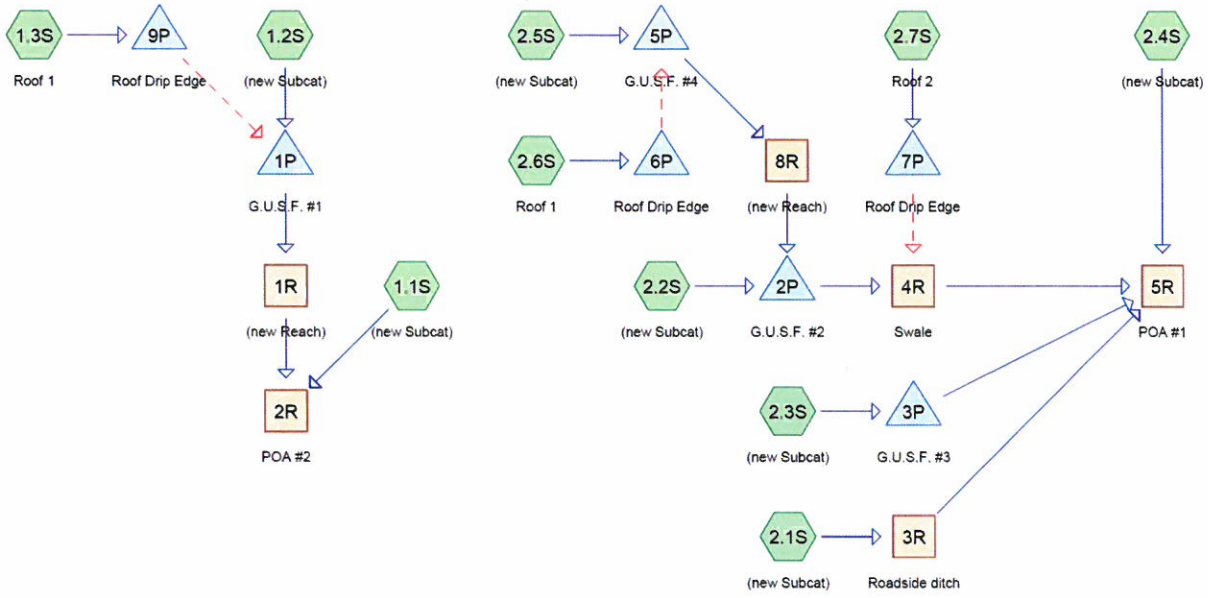
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr storm Rainfall=8.50"

Area (sf)	CN	Description
10,360	55	Woods, Good, HSG B
10,360		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.1000	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"

Subcatchment 2S: POA #2





Subcat Reach Pond Link

Routing Diagram for 4916 post-REVIESD_102018
Prepared by Altus Engineering, Inc., Printed 11/2/2018
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.479	61	>75% Grass cover, Good, HSG B (1.1S, 1.2S, 1.3S, 2.1S, 2.2S, 2.3S, 2.4S, 2.5S, 2.6S, 2.7S)
0.587	48	Brush, Good, HSG B (2.2S, 2.4S, 2.5S)
0.166	98	Paved parking, HSG B (1.1S, 1.2S, 2.1S, 2.2S, 2.3S, 2.4S)
0.093	98	Roofs, HSG B (1.2S, 1.3S, 2.2S, 2.3S, 2.6S, 2.7S)
0.939	55	Woods, Good, HSG B (1.1S, 1.2S, 2.1S, 2.3S, 2.4S, 2.5S)
2.263	**59**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
2.263	HSG B	1.1S, 1.2S, 1.3S, 2.1S, 2.2S, 2.3S, 2.4S, 2.5S, 2.6S, 2.7S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
2.263		**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	0.479	0.000	0.000	0.000	0.479	>75% Grass cover, Good	1.1S, 1.2S, 1.3S, 2.1S, 2.2S, 2.3S, 2.4S, 2.5S, 2.6S, 2.7S
0.000	0.587	0.000	0.000	0.000	0.587	Brush, Good	2.2S, 2.4S, 2.5S
0.000	0.166	0.000	0.000	0.000	0.166	Paved parking	1.1S, 1.2S, 2.1S, 2.2S, 2.3S, 2.4S
0.000	0.093	0.000	0.000	0.000	0.093	Roofs	1.2S, 1.3S, 2.2S, 2.3S, 2.6S, 2.7S
0.000	0.939	0.000	0.000	0.000	0.939	Woods, Good	1.1S, 1.2S, 2.1S, 2.3S, 2.4S, 2.5S
0.000	**2.263**	**0.000**	**0.000**	**0.000**	**2.263**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1.1S: (new Subcat) Runoff Area=3,988 sf 25.45% Impervious Runoff Depth=0.00"
Flow Length=130' Slope=0.0750 '/' Tc=6.0 min CN=70 Runoff=0.00 cfs 0.000 af

Subcatchment 1.2S: (new Subcat) Runoff Area=5,446 sf 25.27% Impervious Runoff Depth=0.00"
Flow Length=230' Tc=18.1 min CN=69 Runoff=0.00 cfs 0.000 af

Subcatchment 1.3S: Roof 1 Runoff Area=410 sf 85.37% Impervious Runoff Depth>0.10"
Tc=6.0 min CN=93 Runoff=0.00 cfs 0.000 af

Subcatchment 2.1S: (new Subcat) Runoff Area=8,038 sf 36.17% Impervious Runoff Depth=0.00"
Flow Length=95' Tc=6.0 min CN=73 Runoff=0.00 cfs 0.000 af

Subcatchment 2.2S: (new Subcat) Runoff Area=10,052 sf 9.19% Impervious Runoff Depth=0.00"
Flow Length=200' Tc=12.3 min CN=61 Runoff=0.00 cfs 0.000 af

Subcatchment 2.3S: (new Subcat) Runoff Area=3,804 sf 34.23% Impervious Runoff Depth=0.00"
Flow Length=65' Tc=6.0 min CN=72 Runoff=0.00 cfs 0.000 af

Subcatchment 2.4S: (new Subcat) Runoff Area=19,654 sf 0.74% Impervious Runoff Depth=0.00"
Flow Length=130' Tc=7.5 min CN=50 Runoff=0.00 cfs 0.000 af

Subcatchment 2.5S: (new Subcat) Runoff Area=43,461 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=320' Tc=17.7 min CN=54 Runoff=0.00 cfs 0.000 af

Subcatchment 2.6S: Roof 1 Runoff Area=1,740 sf 87.36% Impervious Runoff Depth>0.10"
Tc=6.0 min CN=93 Runoff=0.00 cfs 0.000 af

Subcatchment 2.7S: Roof 2 Runoff Area=2,000 sf 86.00% Impervious Runoff Depth>0.10"
Tc=6.0 min CN=93 Runoff=0.00 cfs 0.000 af

Reach 1R: (new Reach) Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.022 L=100.0' S=0.1020 '/' Capacity=6.31 cfs Outflow=0.00 cfs 0.000 af

Reach 2R: POA #2 Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.022 L=1.0' S=0.1000 '/' Capacity=6.24 cfs Outflow=0.00 cfs 0.000 af

Reach 3R: Roadside ditch Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.022 L=160.0' S=0.0125 '/' Capacity=2.21 cfs Outflow=0.00 cfs 0.000 af

Reach 4R: Swale Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.022 L=85.0' S=0.0624 '/' Capacity=4.93 cfs Outflow=0.00 cfs 0.000 af

Reach 5R: POA #1 Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.022 L=1.0' S=0.1000 '/' Capacity=6.24 cfs Outflow=0.00 cfs 0.000 af

Reach 8R: (new Reach) Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.022 L=80.0' S=0.0250 '/' Capacity=3.12 cfs Outflow=0.00 cfs 0.000 af

Pond 1P: G.U.S.F. #1 Peak Elev=48.50' Storage=0 cf Inflow=0.00 cfs 0.000 af
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond 2P: G.U.S.F. #2 Peak Elev=45.00' Storage=0 cf Inflow=0.00 cfs 0.000 af
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond 3P: G.U.S.F. #3 Peak Elev=46.00' Storage=0 cf Inflow=0.00 cfs 0.000 af
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond 5P: G.U.S.F. #4 Peak Elev=48.50' Storage=0 cf Inflow=0.00 cfs 0.000 af
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond 6P: Roof Drip Edge Peak Elev=50.02' Storage=1 cf Inflow=0.00 cfs 0.000 af
Discarded=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond 7P: Roof Drip Edge Peak Elev=48.01' Storage=2 cf Inflow=0.00 cfs 0.000 af
Discarded=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond 9P: Roof Drip Edge Peak Elev=50.01' Storage=0 cf Inflow=0.00 cfs 0.000 af
Discarded=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Total Runoff Area = 2.263 ac Runoff Volume = 0.001 af Average Runoff Depth = 0.00"
88.58% Pervious = 2.005 ac 11.42% Impervious = 0.258 ac

Summary for Subcatchment 1.1S: (new Subcat)

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

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 0.5 Inch storm Rainfall=0.50"

Area (sf)	CN	Description
1,015	98	Paved parking, HSG B
2,373	61	>75% Grass cover, Good, HSG B
600	55	Woods, Good, HSG B
3,988	70	Weighted Average
2,973		74.55% Pervious Area
1,015		25.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	130	0.0750	4.11		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.5	130	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 1.2S: (new Subcat)

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

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 0.5 Inch storm Rainfall=0.50"

Area (sf)	CN	Description
150	98	Roofs, HSG B
1,226	98	Paved parking, HSG B
2,570	61	>75% Grass cover, Good, HSG B
1,500	55	Woods, Good, HSG B
5,446	69	Weighted Average
4,070		74.73% Pervious Area
1,376		25.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	100	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
2.7	100	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	30	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
18.1	230	Total			

Summary for Subcatchment 1.3S: Roof 1

Runoff = 0.00 cfs @ 12.11 hrs, Volume= 0.000 af, Depth> 0.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 0.5 Inch storm Rainfall=0.50"

Area (sf)	CN	Description
350	98	Roofs, HSG B
60	61	>75% Grass cover, Good, HSG B
410	93	Weighted Average
60		14.63% Pervious Area
350		85.37% Impervious Area

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

Summary for Subcatchment 2.1S: (new Subcat)

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

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 0.5 Inch storm Rainfall=0.50"

Area (sf)	CN	Description
2,907	98	Paved parking, HSG B
3,899	61	>75% Grass cover, Good, HSG B
1,232	55	Woods, Good, HSG B
8,038	73	Weighted Average
5,131		63.83% Pervious Area
2,907		36.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	60	0.2000	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
0.2	35	0.0600	3.67		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
5.5	95	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 2.2S: (new Subcat)

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

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 0.5 Inch storm Rainfall=0.50"

Area (sf)	CN	Description
150	98	Roofs, HSG B
774	98	Paved parking, HSG B
6,280	61	>75% Grass cover, Good, HSG B
2,848	48	Brush, Good, HSG B
10,052	61	Weighted Average
9,128		90.81% Pervious Area
924		9.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0800	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
0.8	100	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
12.3	200	Total			

Summary for Subcatchment 2.3S: (new Subcat)

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

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 0.5 Inch storm Rainfall=0.50"

Area (sf)	CN	Description
150	98	Roofs, HSG B
1,152	98	Paved parking, HSG B
1,622	61	>75% Grass cover, Good, HSG B
880	55	Woods, Good, HSG B
3,804	72	Weighted Average
2,502		65.77% Pervious Area
1,302		34.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	40	0.1500	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
0.1	25	0.1800	6.36		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
4.4	65	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 2.4S: (new Subcat)

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

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 0.5 Inch storm Rainfall=0.50"

Area (sf)	CN	Description
145	98	Paved parking, HSG B
1,100	61	>75% Grass cover, Good, HSG B
17,252	48	Brush, Good, HSG B
1,157	55	Woods, Good, HSG B
19,654	50	Weighted Average
19,509		99.26% Pervious Area
145		0.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	50	0.0875	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
1.1	80	0.0625	1.25		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.5	130	Total			

Summary for Subcatchment 2.5S: (new Subcat)

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

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 0.5 Inch storm Rainfall=0.50"

Area (sf)	CN	Description
2,480	61	>75% Grass cover, Good, HSG B
5,450	48	Brush, Good, HSG B
35,531	55	Woods, Good, HSG B
43,461	54	Weighted Average
43,461		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	100	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
1.2	50	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.3	170	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
17.7	320	Total			

Summary for Subcatchment 2.6S: Roof 1

Runoff = 0.00 cfs @ 12.11 hrs, Volume= 0.000 af, Depth> 0.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 0.5 Inch storm Rainfall=0.50"

Area (sf)	CN	Description
1,520	98	Roofs, HSG B
220	61	>75% Grass cover, Good, HSG B
1,740	93	Weighted Average
220		12.64% Pervious Area
1,520		87.36% Impervious Area

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

Summary for Subcatchment 2.7S: Roof 2

Runoff = 0.00 cfs @ 12.11 hrs, Volume= 0.000 af, Depth> 0.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 0.5 Inch storm Rainfall=0.50"

Area (sf)	CN	Description
1,720	98	Roofs, HSG B
280	61	>75% Grass cover, Good, HSG B
2,000	93	Weighted Average
280		14.00% Pervious Area
1,720		86.00% Impervious Area

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

Summary for Reach 1R: (new Reach)

Inflow Area = 0.125 ac, 25.27% Impervious, Inflow Depth = 0.00" for 0.5 Inch storm event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 5.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 6.31 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 100.0' Slope= 0.1020 '/'
Inlet Invert= 50.20', Outlet Invert= 40.00'

Summary for Reach 2R: POA #2

Inflow Area = 0.217 ac, 25.34% Impervious, Inflow Depth = 0.00" for 0.5 Inch storm event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 5.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 6.24 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 1.0' Slope= 0.1000 '/'
Inlet Invert= 40.00', Outlet Invert= 39.90'

Summary for Reach 3R: Roadside ditch

Inflow Area = 0.185 ac, 36.17% Impervious, Inflow Depth = 0.00" for 0.5 Inch storm event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 5.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 2.21 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 160.0' Slope= 0.0125 '/'
Inlet Invert= 42.00', Outlet Invert= 40.00'

Summary for Reach 4R: Swale

Inflow Area = 1.228 ac, 1.73% Impervious, Inflow Depth = 0.00" for 0.5 Inch storm event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 5.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 4.93 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 85.0' Slope= 0.0624 '/'
Inlet Invert= 47.30', Outlet Invert= 42.00'

Summary for Reach 5R: POA #1

Inflow Area = 1.952 ac, 6.21% Impervious, Inflow Depth = 0.00" for 0.5 Inch storm event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 5.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 6.24 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 1.0' Slope= 0.1000 '/'
Inlet Invert= 40.00', Outlet Invert= 39.90'

Summary for Reach 8R: (new Reach)

Inflow Area = 0.998 ac, 0.00% Impervious, Inflow Depth = 0.00" for 0.5 Inch storm event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 5.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 3.12 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 80.0' Slope= 0.0250 '/'
Inlet Invert= 50.00', Outlet Invert= 48.00'

Summary for Pond 1P: G.U.S.F. #1

Inflow Area = 0.125 ac, 25.27% Impervious, Inflow Depth = 0.00" for 0.5 Inch storm event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 48.50' @ 5.00 hrs Surf.Area= 300 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	48.50'	1,552 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.50	300	0.0	0	0
49.00	300	40.0	60	60
50.00	1,115	100.0	708	768
50.60	1,500	100.0	785	1,552

Device	Routing	Invert	Outlet Devices
#1	Discarded	48.50'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	50.20'	**4.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.00 cfs @ 5.00 hrs HW=48.50' (Free Discharge)
└**1=Exfiltration** (Passes 0.00 cfs of 0.01 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=48.50' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: G.U.S.F. #2

Inflow Area = 1.228 ac, 1.73% Impervious, Inflow Depth = 0.00" for 0.5 Inch storm event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 45.00' @ 5.00 hrs Surf.Area= 500 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	45.00'	1,236 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.00	500	0.0	0	0
46.50	500	40.0	300	300
47.00	697	100.0	299	599
47.75	1,000	100.0	636	1,236

Device	Routing	Invert	Outlet Devices
#1	Discarded	45.00'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	47.30'	**4.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.00 cfs @ 5.00 hrs HW=45.00' (Free Discharge)
↑**1=Exfiltration** (Passes 0.00 cfs of 0.01 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=45.00' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 3P: G.U.S.F. #3

Inflow Area = 0.087 ac, 34.23% Impervious, Inflow Depth = 0.00" for 0.5 Inch storm event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 46.00' @ 5.00 hrs Surf.Area= 110 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	46.00'	347 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
46.00	110	0.0	0	0
47.50	110	40.0	66	66
48.00	302	100.0	103	169
48.50	410	100.0	178	347

Device	Routing	Invert	Outlet Devices
#1	Discarded	46.00'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	47.90'	**4.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.00 cfs @ 5.00 hrs HW=46.00' (Free Discharge)
↑**1=Exfiltration** (Passes 0.00 cfs of 0.00 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=46.00' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 5P: G.U.S.F. #4

Inflow Area = 0.998 ac, 0.00% Impervious, Inflow Depth = 0.00" for 0.5 Inch storm event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 48.50' @ 5.00 hrs Surf.Area= 300 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	48.50'	1,540 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.50	300	0.0	0	0
49.00	300	40.0	60	60
50.00	1,100	100.0	700	760
50.60	1,500	100.0	780	1,540

Device	Routing	Invert	Outlet Devices
#1	Discarded	48.50'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	50.00'	**4.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.00 cfs @ 5.00 hrs HW=48.50' (Free Discharge)
↑—**1=Exfiltration** (Passes 0.00 cfs of 0.01 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=48.50' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6P: Roof Drip Edge

Inflow Area = 0.040 ac, 87.36% Impervious, Inflow Depth > 0.10" for 0.5 Inch storm event
Inflow = 0.00 cfs @ 12.11 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 12.21 hrs, Volume= 0.000 af, Atten= 28%, Lag= 6.2 min
Discarded = 0.00 cfs @ 12.21 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 50.02' @ 12.21 hrs Surf.Area= 220 sf Storage= 1 cf

Plug-Flow detention time= 7.2 min calculated for 0.000 af (99% of inflow)
Center-of-Mass det. time= 5.7 min (840.9 - 835.2)

Volume	Invert	Avail.Storage	Storage Description
#1	50.00'	286 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
50.00	220	0.0	0	0
52.00	220	40.0	176	176
52.50	220	100.0	110	286

Device	Routing	Invert	Outlet Devices
#1	Discarded	50.50'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Discarded	50.00'	**1.000 in/hr Exfiltration over Surface area**
#3	Secondary	52.00'	**110.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Discarded OutFlow Max=0.01 cfs @ 12.21 hrs HW=50.02' (Free Discharge)
↑—**1=Orifice/Grate** (Controls 0.00 cfs)
└—**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=50.00' (Free Discharge)
↑—**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 7P: Roof Drip Edge

Inflow Area = 0.046 ac, 86.00% Impervious, Inflow Depth > 0.10" for 0.5 Inch storm event
Inflow = 0.00 cfs @ 12.11 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 12.21 hrs, Volume= 0.000 af, Atten= 28%, Lag= 6.2 min
Discarded = 0.00 cfs @ 12.21 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 48.01' @ 12.21 hrs Surf.Area= 280 sf Storage= 2 cf

Plug-Flow detention time= 7.2 min calculated for 0.000 af (99% of inflow)
Center-of-Mass det. time= 5.7 min (840.9 - 835.2)

Volume	Invert	Avail.Storage	Storage Description
#1	48.00'	364 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	280	0.0	0	0
50.00	280	40.0	224	224
50.50	280	100.0	140	364

Device	Routing	Invert	Outlet Devices
#1	Discarded	48.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	48.00'	**1.000 in/hr Exfiltration over Surface area**
#3	Secondary	50.00'	**140.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Discarded OutFlow Max=0.01 cfs @ 12.21 hrs HW=48.01' (Free Discharge)
└**1=Orifice/Grate** (Controls 0.00 cfs)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=48.00' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 9P: Roof Drip Edge

Inflow Area = 0.009 ac, 85.37% Impervious, Inflow Depth > 0.10" for 0.5 Inch storm event
Inflow = 0.00 cfs @ 12.11 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 12.21 hrs, Volume= 0.000 af, Atten= 28%, Lag= 6.2 min
Discarded = 0.00 cfs @ 12.21 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 50.01' @ 12.21 hrs Surf.Area= 60 sf Storage= 0 cf

Plug-Flow detention time= 7.2 min calculated for 0.000 af (99% of inflow)
Center-of-Mass det. time= 5.7 min (840.9 - 835.2)

Volume	Invert	Avail.Storage	Storage Description
#1	50.00'	78 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
50.00	60	0.0	0	0
52.00	60	40.0	48	48
52.50	60	100.0	30	78

Device	Routing	Invert	Outlet Devices
#1	Discarded	50.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	50.00'	**1.000 in/hr Exfiltration over Surface area**
#3	Secondary	52.00'	**110.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.00 cfs @ 12.21 hrs HW=50.01' (Free Discharge)
↑—**1=Orifice/Grate** (Controls 0.00 cfs)
└—**2=Exfiltration** (Exfiltration Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=50.00' (Free Discharge)
↑—**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1.1S: (new Subcat) Runoff Area=3,988 sf 25.45% Impervious Runoff Depth>1.03"
Flow Length=130' Slope=0.0750 '/' Tc=6.0 min CN=70 Runoff=0.11 cfs 0.008 af

Subcatchment 1.2S: (new Subcat) Runoff Area=5,446 sf 25.27% Impervious Runoff Depth>0.97"
Flow Length=230' Tc=18.1 min CN=69 Runoff=0.10 cfs 0.010 af

Subcatchment 1.3S: Roof 1 Runoff Area=410 sf 85.37% Impervious Runoff Depth>2.76"
Tc=6.0 min CN=93 Runoff=0.03 cfs 0.002 af

Subcatchment 2.1S: (new Subcat) Runoff Area=8,038 sf 36.17% Impervious Runoff Depth>1.20"
Flow Length=95' Tc=6.0 min CN=73 Runoff=0.27 cfs 0.018 af

Subcatchment 2.2S: (new Subcat) Runoff Area=10,052 sf 9.19% Impervious Runoff Depth>0.58"
Flow Length=200' Tc=12.3 min CN=61 Runoff=0.11 cfs 0.011 af

Subcatchment 2.3S: (new Subcat) Runoff Area=3,804 sf 34.23% Impervious Runoff Depth>1.14"
Flow Length=65' Tc=6.0 min CN=72 Runoff=0.12 cfs 0.008 af

Subcatchment 2.4S: (new Subcat) Runoff Area=19,654 sf 0.74% Impervious Runoff Depth>0.20"
Flow Length=130' Tc=7.5 min CN=50 Runoff=0.04 cfs 0.008 af

Subcatchment 2.5S: (new Subcat) Runoff Area=43,461 sf 0.00% Impervious Runoff Depth>0.32"
Flow Length=320' Tc=17.7 min CN=54 Runoff=0.16 cfs 0.027 af

Subcatchment 2.6S: Roof 1 Runoff Area=1,740 sf 87.36% Impervious Runoff Depth>2.76"
Tc=6.0 min CN=93 Runoff=0.13 cfs 0.009 af

Subcatchment 2.7S: Roof 2 Runoff Area=2,000 sf 86.00% Impervious Runoff Depth>2.76"
Tc=6.0 min CN=93 Runoff=0.15 cfs 0.011 af

Reach 1R: (new Reach) Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.022 L=100.0' S=0.1020 '/' Capacity=6.31 cfs Outflow=0.00 cfs 0.000 af

Reach 2R: POA #2 Avg. Flow Depth=0.08' Max Vel=2.86 fps Inflow=0.11 cfs 0.008 af
n=0.022 L=1.0' S=0.1000 '/' Capacity=6.24 cfs Outflow=0.11 cfs 0.008 af

Reach 3R: Roadside ditch Avg. Flow Depth=0.18' Max Vel=1.78 fps Inflow=0.27 cfs 0.018 af
n=0.022 L=160.0' S=0.0125 '/' Capacity=2.21 cfs Outflow=0.25 cfs 0.018 af

Reach 4R: Swale Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.022 L=85.0' S=0.0624 '/' Capacity=4.93 cfs Outflow=0.00 cfs 0.000 af

Reach 5R: POA #1 Avg. Flow Depth=0.11' Max Vel=3.70 fps Inflow=0.26 cfs 0.027 af
n=0.022 L=1.0' S=0.1000 '/' Capacity=6.24 cfs Outflow=0.26 cfs 0.027 af

Reach 8R: (new Reach) Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.022 L=80.0' S=0.0250 '/' Capacity=3.12 cfs Outflow=0.00 cfs 0.000 af

Pond 1P: G.U.S.F. #1 Peak Elev=49.22' Storage=214 cf Inflow=0.10 cfs 0.010 af
Discarded=0.01 cfs 0.007 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.007 af

Pond 2P: G.U.S.F. #2 Peak Elev=46.11' Storage=223 cf Inflow=0.11 cfs 0.011 af
Discarded=0.01 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.008 af

Pond 3P: G.U.S.F. #3 Peak Elev=47.92' Storage=152 cf Inflow=0.12 cfs 0.008 af
Discarded=0.01 cfs 0.004 af Primary=0.03 cfs 0.001 af Outflow=0.03 cfs 0.005 af

Pond 5P: G.U.S.F. #4 Peak Elev=49.82' Storage=636 cf Inflow=0.16 cfs 0.027 af
Discarded=0.02 cfs 0.013 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.013 af

Pond 6P: Roof Drip Edge Peak Elev=50.58' Storage=51 cf Inflow=0.13 cfs 0.009 af
Discarded=0.13 cfs 0.009 af Secondary=0.00 cfs 0.000 af Outflow=0.13 cfs 0.009 af

Pond 7P: Roof Drip Edge Peak Elev=48.72' Storage=81 cf Inflow=0.15 cfs 0.011 af
Discarded=0.14 cfs 0.011 af Secondary=0.00 cfs 0.000 af Outflow=0.14 cfs 0.011 af

Pond 9P: Roof Drip Edge Peak Elev=50.60' Storage=14 cf Inflow=0.03 cfs 0.002 af
Discarded=0.03 cfs 0.002 af Secondary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.002 af

Total Runoff Area = 2.263 ac Runoff Volume = 0.112 af Average Runoff Depth = 0.59"
88.58% Pervious = 2.005 ac 11.42% Impervious = 0.258 ac

Summary for Subcatchment 1.1S: (new Subcat)

Runoff = 0.11 cfs @ 12.10 hrs, Volume= 0.008 af, Depth> 1.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr storm Rainfall=3.69"

Area (sf)	CN	Description
1,015	98	Paved parking, HSG B
2,373	61	>75% Grass cover, Good, HSG B
600	55	Woods, Good, HSG B
3,988	70	Weighted Average
2,973		74.55% Pervious Area
1,015		25.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	130	0.0750	4.11		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.5	130	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 1.2S: (new Subcat)

Runoff = 0.10 cfs @ 12.28 hrs, Volume= 0.010 af, Depth> 0.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr storm Rainfall=3.69"

Area (sf)	CN	Description
150	98	Roofs, HSG B
1,226	98	Paved parking, HSG B
2,570	61	>75% Grass cover, Good, HSG B
1,500	55	Woods, Good, HSG B
5,446	69	Weighted Average
4,070		74.73% Pervious Area
1,376		25.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	100	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
2.7	100	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	30	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
18.1	230	Total			

Summary for Subcatchment 1.3S: Roof 1

Runoff = 0.03 cfs @ 12.09 hrs, Volume= 0.002 af, Depth> 2.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr storm Rainfall=3.69"

Area (sf)	CN	Description
350	98	Roofs, HSG B
60	61	>75% Grass cover, Good, HSG B
410	93	Weighted Average
60		14.63% Pervious Area
350		85.37% Impervious Area

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

Summary for Subcatchment 2.1S: (new Subcat)

Runoff = 0.27 cfs @ 12.10 hrs, Volume= 0.018 af, Depth> 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr storm Rainfall=3.69"

Area (sf)	CN	Description
2,907	98	Paved parking, HSG B
3,899	61	>75% Grass cover, Good, HSG B
1,232	55	Woods, Good, HSG B
8,038	73	Weighted Average
5,131		63.83% Pervious Area
2,907		36.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	60	0.2000	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
0.2	35	0.0600	3.67		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
5.5	95	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 2.2S: (new Subcat)

Runoff = 0.11 cfs @ 12.22 hrs, Volume= 0.011 af, Depth> 0.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr storm Rainfall=3.69"

Area (sf)	CN	Description
150	98	Roofs, HSG B
774	98	Paved parking, HSG B
6,280	61	>75% Grass cover, Good, HSG B
2,848	48	Brush, Good, HSG B
10,052	61	Weighted Average
9,128		90.81% Pervious Area
924		9.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0800	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
0.8	100	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
12.3	200	Total			

Summary for Subcatchment 2.3S: (new Subcat)

Runoff = 0.12 cfs @ 12.10 hrs, Volume= 0.008 af, Depth> 1.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr storm Rainfall=3.69"

Area (sf)	CN	Description
150	98	Roofs, HSG B
1,152	98	Paved parking, HSG B
1,622	61	>75% Grass cover, Good, HSG B
880	55	Woods, Good, HSG B
3,804	72	Weighted Average
2,502		65.77% Pervious Area
1,302		34.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	40	0.1500	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
0.1	25	0.1800	6.36		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
4.4	65	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 2.4S: (new Subcat)

Runoff = 0.04 cfs @ 12.39 hrs, Volume= 0.008 af, Depth> 0.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr storm Rainfall=3.69"

Area (sf)	CN	Description
145	98	Paved parking, HSG B
1,100	61	>75% Grass cover, Good, HSG B
17,252	48	Brush, Good, HSG B
1,157	55	Woods, Good, HSG B
19,654	50	Weighted Average
19,509		99.26% Pervious Area
145		0.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	50	0.0875	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
1.1	80	0.0625	1.25		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.5	130	Total			

Summary for Subcatchment 2.5S: (new Subcat)

Runoff = 0.16 cfs @ 12.45 hrs, Volume= 0.027 af, Depth> 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr storm Rainfall=3.69"

Area (sf)	CN	Description
2,480	61	>75% Grass cover, Good, HSG B
5,450	48	Brush, Good, HSG B
35,531	55	Woods, Good, HSG B
43,461	54	Weighted Average
43,461		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	100	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
1.2	50	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.3	170	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
17.7	320	Total			

Summary for Subcatchment 2.6S: Roof 1

Runoff = 0.13 cfs @ 12.09 hrs, Volume= 0.009 af, Depth> 2.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr storm Rainfall=3.69"

Area (sf)	CN	Description
1,520	98	Roofs, HSG B
220	61	>75% Grass cover, Good, HSG B
1,740	93	Weighted Average
220		12.64% Pervious Area
1,520		87.36% Impervious Area

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

Summary for Subcatchment 2.7S: Roof 2

Runoff = 0.15 cfs @ 12.09 hrs, Volume= 0.011 af, Depth> 2.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr storm Rainfall=3.69"

Area (sf)	CN	Description
1,720	98	Roofs, HSG B
280	61	>75% Grass cover, Good, HSG B
2,000	93	Weighted Average
280		14.00% Pervious Area
1,720		86.00% Impervious Area

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

Summary for Reach 1R: (new Reach)

Inflow Area = 0.125 ac, 25.27% Impervious, Inflow Depth = 0.00" for 2-yr storm event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 5.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 6.31 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 100.0' Slope= 0.1020 '/'
Inlet Invert= 50.20', Outlet Invert= 40.00'

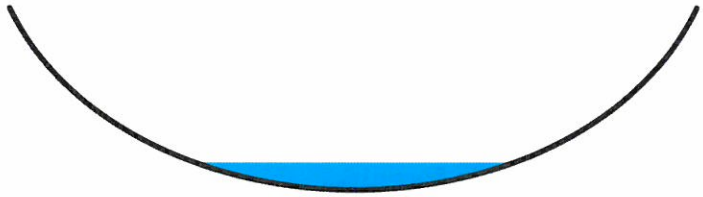
Summary for Reach 2R: POA #2

Inflow Area = 0.217 ac, 25.34% Impervious, Inflow Depth > 0.43" for 2-yr storm event
Inflow = 0.11 cfs @ 12.10 hrs, Volume= 0.008 af
Outflow = 0.11 cfs @ 12.10 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.86 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 1.23 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.08'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 6.24 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 1.0' Slope= 0.1000 '/'
Inlet Invert= 40.00', Outlet Invert= 39.90'



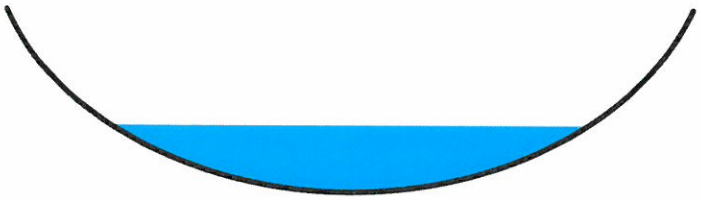
Summary for Reach 3R: Roadside ditch

Inflow Area = 0.185 ac, 36.17% Impervious, Inflow Depth > 1.20" for 2-yr storm event
Inflow = 0.27 cfs @ 12.10 hrs, Volume= 0.018 af
Outflow = 0.25 cfs @ 12.15 hrs, Volume= 0.018 af, Atten= 6%, Lag= 2.9 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.78 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 0.75 fps, Avg. Travel Time= 3.6 min

Peak Storage= 23 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.18'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 2.21 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 160.0' Slope= 0.0125 '/'
Inlet Invert= 42.00', Outlet Invert= 40.00'



Summary for Reach 4R: Swale

Inflow Area = 1.228 ac, 1.73% Impervious, Inflow Depth = 0.00" for 2-yr storm event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 5.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 4.93 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 85.0' Slope= 0.0624 '/'
Inlet Invert= 47.30', Outlet Invert= 42.00'

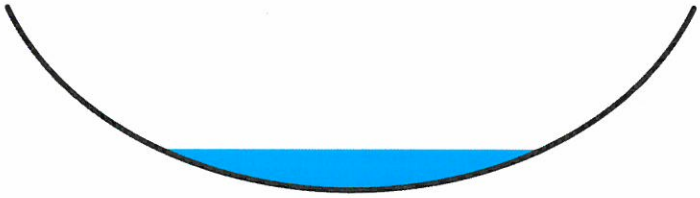
Summary for Reach 5R: POA #1

Inflow Area = 1.952 ac, 6.21% Impervious, Inflow Depth > 0.17" for 2-yr storm event
Inflow = 0.26 cfs @ 12.16 hrs, Volume= 0.027 af
Outflow = 0.26 cfs @ 12.16 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.70 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 1.81 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.11'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 6.24 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 1.0' Slope= 0.1000 '/'
Inlet Invert= 40.00', Outlet Invert= 39.90'



Summary for Reach 8R: (new Reach)

Inflow Area = 0.998 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-yr storm event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 5.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 3.12 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 80.0' Slope= 0.0250 '/'
Inlet Invert= 50.00', Outlet Invert= 48.00'

Summary for Pond 1P: G.U.S.F. #1

Inflow Area = 0.125 ac, 25.27% Impervious, Inflow Depth > 0.97" for 2-yr storm event
Inflow = 0.10 cfs @ 12.28 hrs, Volume= 0.010 af
Outflow = 0.01 cfs @ 14.76 hrs, Volume= 0.007 af, Atten= 89%, Lag= 148.9 min
Discarded = 0.01 cfs @ 14.76 hrs, Volume= 0.007 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 49.22' @ 14.76 hrs Surf.Area= 477 sf Storage= 214 cf

Plug-Flow detention time= 192.2 min calculated for 0.007 af (69% of inflow)
Center-of-Mass det. time= 120.2 min (952.7 - 832.4)

Volume	Invert	Avail.Storage	Storage Description
#1	48.50'	1,552 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.50	300	0.0	0	0
49.00	300	40.0	60	60
50.00	1,115	100.0	708	768
50.60	1,500	100.0	785	1,552

Device	Routing	Invert	Outlet Devices
#1	Discarded	48.50'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	50.20'	**4.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.01 cfs @ 14.76 hrs HW=49.22' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=48.50' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: G.U.S.F. #2

Inflow Area =	1.228 ac,	1.73% Impervious,	Inflow Depth >	0.11" for 2-yr storm event
Inflow =	0.11 cfs @	12.22 hrs, Volume=	0.011 af	
Outflow =	0.01 cfs @	12.05 hrs, Volume=	0.008 af,	Atten= 89%, Lag= 0.0 min
Discarded =	0.01 cfs @	12.05 hrs, Volume=	0.008 af	
Primary =	0.00 cfs @	5.00 hrs, Volume=	0.000 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 46.11' @ 15.59 hrs Surf.Area= 500 sf Storage= 223 cf

Plug-Flow detention time= 186.9 min calculated for 0.008 af (69% of inflow)
Center-of-Mass det. time= 110.8 min (960.3 - 849.4)

Volume	Invert	Avail.Storage	Storage Description
#1	45.00'	1,236 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.00	500	0.0	0	0
46.50	500	40.0	300	300
47.00	697	100.0	299	599
47.75	1,000	100.0	636	1,236

Device	Routing	Invert	Outlet Devices
#1	Discarded	45.00'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	47.30'	**4.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.01 cfs @ 12.05 hrs HW=45.03' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=45.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 3P: G.U.S.F. #3

Inflow Area = 0.087 ac, 34.23% Impervious, Inflow Depth > 1.14" for 2-yr storm event
Inflow = 0.12 cfs @ 12.10 hrs, Volume= 0.008 af
Outflow = 0.03 cfs @ 12.52 hrs, Volume= 0.005 af, Atten= 71%, Lag= 25.2 min
Discarded = 0.01 cfs @ 12.52 hrs, Volume= 0.004 af
Primary = 0.03 cfs @ 12.52 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 47.92' @ 12.52 hrs Surf.Area= 271 sf Storage= 152 cf

Plug-Flow detention time= 163.4 min calculated for 0.005 af (66% of inflow)
Center-of-Mass det. time= 87.8 min (904.2 - 816.4)

Volume	Invert	Avail.Storage	Storage Description
#1	46.00'	347 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
46.00	110	0.0	0	0
47.50	110	40.0	66	66
48.00	302	100.0	103	169
48.50	410	100.0	178	347

Device	Routing	Invert	Outlet Devices
#1	Discarded	46.00'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	47.90'	**4.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.01 cfs @ 12.52 hrs HW=47.92' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.02 cfs @ 12.52 hrs HW=47.92' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.02 cfs @ 0.32 fps)

Summary for Pond 5P: G.U.S.F. #4

Inflow Area = 0.998 ac, 0.00% Impervious, Inflow Depth > 0.32" for 2-yr storm event
Inflow = 0.16 cfs @ 12.45 hrs, Volume= 0.027 af
Outflow = 0.02 cfs @ 17.50 hrs, Volume= 0.013 af, Atten= 86%, Lag= 302.9 min
Discarded = 0.02 cfs @ 17.50 hrs, Volume= 0.013 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 49.82' @ 17.50 hrs Surf.Area= 958 sf Storage= 636 cf

Plug-Flow detention time= 214.4 min calculated for 0.013 af (48% of inflow)
Center-of-Mass det. time= 105.5 min (986.0 - 880.5)

Volume	Invert	Avail.Storage	Storage Description
#1	48.50'	1,540 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.50	300	0.0	0	0
49.00	300	40.0	60	60
50.00	1,100	100.0	700	760
50.60	1,500	100.0	780	1,540

Device	Routing	Invert	Outlet Devices
#1	Discarded	48.50'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	50.00'	**4.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.02 cfs @ 17.50 hrs HW=49.82' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=48.50' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6P: Roof Drip Edge

Inflow Area = 0.040 ac, 87.36% Impervious, Inflow Depth > 2.76" for 2-yr storm event
Inflow = 0.13 cfs @ 12.09 hrs, Volume= 0.009 af
Outflow = 0.13 cfs @ 12.10 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.7 min
Discarded = 0.13 cfs @ 12.10 hrs, Volume= 0.009 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 50.58' @ 12.10 hrs Surf.Area= 220 sf Storage= 51 cf

Plug-Flow detention time= 47.3 min calculated for 0.009 af (98% of inflow)
Center-of-Mass det. time= 40.9 min (799.4 - 758.5)

Volume	Invert	Avail.Storage	Storage Description
#1	50.00'	286 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
50.00	220	0.0	0	0
52.00	220	40.0	176	176
52.50	220	100.0	110	286

Device	Routing	Invert	Outlet Devices
#1	Discarded	50.50'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Discarded	50.00'	**1.000 in/hr Exfiltration over Surface area**
#3	Secondary	52.00'	**110.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Discarded OutFlow Max=0.13 cfs @ 12.10 hrs HW=50.58' (Free Discharge)
↑—**1=Orifice/Grate** (Weir Controls 0.12 cfs @ 0.94 fps)
└—**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=50.00' (Free Discharge)
↑—**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 7P: Roof Drip Edge

Inflow Area = 0.046 ac, 86.00% Impervious, Inflow Depth > 2.76" for 2-yr storm event
Inflow = 0.15 cfs @ 12.09 hrs, Volume= 0.011 af
Outflow = 0.14 cfs @ 12.12 hrs, Volume= 0.011 af, Atten= 5%, Lag= 1.8 min
Discarded = 0.14 cfs @ 12.12 hrs, Volume= 0.011 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 48.72' @ 12.12 hrs Surf.Area= 280 sf Storage= 81 cf

Plug-Flow detention time= 51.2 min calculated for 0.011 af (100% of inflow)
Center-of-Mass det. time= 49.4 min (807.9 - 758.5)

Volume	Invert	Avail.Storage	Storage Description
#1	48.00'	364 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	280	0.0	0	0
50.00	280	40.0	224	224
50.50	280	100.0	140	364

Device	Routing	Invert	Outlet Devices
#1	Discarded	48.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	48.00'	**1.000 in/hr Exfiltration over Surface area**
#3	Secondary	50.00'	**140.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Discarded OutFlow Max=0.13 cfs @ 12.12 hrs HW=48.72' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.13 cfs @ 1.58 fps)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=48.00' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 9P: Roof Drip Edge

Inflow Area = 0.009 ac, 85.37% Impervious, Inflow Depth > 2.76" for 2-yr storm event
Inflow = 0.03 cfs @ 12.09 hrs, Volume= 0.002 af
Outflow = 0.03 cfs @ 12.10 hrs, Volume= 0.002 af, Atten= 1%, Lag= 0.8 min
Discarded = 0.03 cfs @ 12.10 hrs, Volume= 0.002 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 50.60' @ 12.10 hrs Surf.Area= 60 sf Storage= 14 cf

Plug-Flow detention time= 50.0 min calculated for 0.002 af (100% of inflow)
Center-of-Mass det. time= 48.9 min (807.4 - 758.5)

Volume	Invert	Avail.Storage	Storage Description
#1	50.00'	78 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
50.00	60	0.0	0	0
52.00	60	40.0	48	48
52.50	60	100.0	30	78

Device	Routing	Invert	Outlet Devices
#1	Discarded	50.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	50.00'	**1.000 in/hr Exfiltration over Surface area**
#3	Secondary	52.00'	**110.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.03 cfs @ 12.10 hrs HW=50.60' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.03 cfs @ 1.06 fps)
└—**2=Exfiltration** (Exfiltration Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=50.00' (Free Discharge)
↑—**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1.1S: (new Subcat) Runoff Area=3,988 sf 25.45% Impervious Runoff Depth>2.30"
Flow Length=130' Slope=0.0750 '/' Tc=6.0 min CN=70 Runoff=0.26 cfs 0.018 af

Subcatchment 1.2S: (new Subcat) Runoff Area=5,446 sf 25.27% Impervious Runoff Depth>2.21"
Flow Length=230' Tc=18.1 min CN=69 Runoff=0.24 cfs 0.023 af

Subcatchment 1.3S: Roof 1 Runoff Area=410 sf 85.37% Impervious Runoff Depth>4.52"
Tc=6.0 min CN=93 Runoff=0.05 cfs 0.004 af

Subcatchment 2.1S: (new Subcat) Runoff Area=8,038 sf 36.17% Impervious Runoff Depth>2.56"
Flow Length=95' Tc=6.0 min CN=73 Runoff=0.58 cfs 0.039 af

Subcatchment 2.2S: (new Subcat) Runoff Area=10,052 sf 9.19% Impervious Runoff Depth>1.58"
Flow Length=200' Tc=12.3 min CN=61 Runoff=0.35 cfs 0.030 af

Subcatchment 2.3S: (new Subcat) Runoff Area=3,804 sf 34.23% Impervious Runoff Depth>2.47"
Flow Length=65' Tc=6.0 min CN=72 Runoff=0.27 cfs 0.018 af

Subcatchment 2.4S: (new Subcat) Runoff Area=19,654 sf 0.74% Impervious Runoff Depth>0.84"
Flow Length=130' Tc=7.5 min CN=50 Runoff=0.34 cfs 0.032 af

Subcatchment 2.5S: (new Subcat) Runoff Area=43,461 sf 0.00% Impervious Runoff Depth>1.09"
Flow Length=320' Tc=17.7 min CN=54 Runoff=0.84 cfs 0.090 af

Subcatchment 2.6S: Roof 1 Runoff Area=1,740 sf 87.36% Impervious Runoff Depth>4.52"
Tc=6.0 min CN=93 Runoff=0.20 cfs 0.015 af

Subcatchment 2.7S: Roof 2 Runoff Area=2,000 sf 86.00% Impervious Runoff Depth>4.52"
Tc=6.0 min CN=93 Runoff=0.23 cfs 0.017 af

Reach 1R: (new Reach) Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.022 L=100.0' S=0.1020 '/' Capacity=6.31 cfs Outflow=0.00 cfs 0.000 af

Reach 2R: POA #2 Avg. Flow Depth=0.11' Max Vel=3.69 fps Inflow=0.26 cfs 0.018 af
n=0.022 L=1.0' S=0.1000 '/' Capacity=6.24 cfs Outflow=0.26 cfs 0.018 af

Reach 3R: Roadside ditch Avg. Flow Depth=0.26' Max Vel=2.25 fps Inflow=0.58 cfs 0.039 af
n=0.022 L=160.0' S=0.0125 '/' Capacity=2.21 cfs Outflow=0.55 cfs 0.039 af

Reach 4R: Swale Avg. Flow Depth=0.18' Max Vel=3.89 fps Inflow=0.53 cfs 0.053 af
n=0.022 L=85.0' S=0.0624 '/' Capacity=4.93 cfs Outflow=0.54 cfs 0.053 af

Reach 5R: POA #1 Avg. Flow Depth=0.23' Max Vel=5.72 fps Inflow=1.18 cfs 0.134 af
n=0.022 L=1.0' S=0.1000 '/' Capacity=6.24 cfs Outflow=1.18 cfs 0.134 af

Reach 8R: (new Reach) Avg. Flow Depth=0.23' Max Vel=2.89 fps Inflow=0.58 cfs 0.056 af
n=0.022 L=80.0' S=0.0250 '/' Capacity=3.12 cfs Outflow=0.58 cfs 0.056 af

Pond 1P: G.U.S.F. #1 Peak Elev=49.71' Storage=566 cf Inflow=0.24 cfs 0.023 af
Discarded=0.02 cfs 0.013 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.013 af

Pond 2P: G.U.S.F. #2 Peak Elev=47.44' Storage=976 cf Inflow=0.74 cfs 0.086 af
Discarded=0.02 cfs 0.013 af Primary=0.53 cfs 0.053 af Outflow=0.55 cfs 0.066 af

Pond 3P: G.U.S.F. #3 Peak Elev=48.00' Storage=169 cf Inflow=0.27 cfs 0.018 af
Discarded=0.01 cfs 0.005 af Primary=0.30 cfs 0.010 af Outflow=0.30 cfs 0.015 af

Pond 5P: G.U.S.F. #4 Peak Elev=50.15' Storage=958 cf Inflow=0.84 cfs 0.090 af
Discarded=0.03 cfs 0.017 af Primary=0.58 cfs 0.056 af Outflow=0.61 cfs 0.073 af

Pond 6P: Roof Drip Edge Peak Elev=50.61' Storage=54 cf Inflow=0.20 cfs 0.015 af
Discarded=0.20 cfs 0.014 af Secondary=0.00 cfs 0.000 af Outflow=0.20 cfs 0.014 af

Pond 7P: Roof Drip Edge Peak Elev=48.79' Storage=89 cf Inflow=0.23 cfs 0.017 af
Discarded=0.23 cfs 0.017 af Secondary=0.00 cfs 0.000 af Outflow=0.23 cfs 0.017 af

Pond 9P: Roof Drip Edge Peak Elev=50.63' Storage=15 cf Inflow=0.05 cfs 0.004 af
Discarded=0.05 cfs 0.003 af Secondary=0.00 cfs 0.000 af Outflow=0.05 cfs 0.003 af

Total Runoff Area = 2.263 ac Runoff Volume = 0.286 af Average Runoff Depth = 1.52"
88.58% Pervious = 2.005 ac 11.42% Impervious = 0.258 ac

Summary for Subcatchment 1.1S: (new Subcat)

Runoff = 0.26 cfs @ 12.10 hrs, Volume= 0.018 af, Depth> 2.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr storm Rainfall=5.60"

Area (sf)	CN	Description
1,015	98	Paved parking, HSG B
2,373	61	>75% Grass cover, Good, HSG B
600	55	Woods, Good, HSG B
3,988	70	Weighted Average
2,973		74.55% Pervious Area
1,015		25.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	130	0.0750	4.11		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.5	130	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 1.2S: (new Subcat)

Runoff = 0.24 cfs @ 12.26 hrs, Volume= 0.023 af, Depth> 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr storm Rainfall=5.60"

Area (sf)	CN	Description
150	98	Roofs, HSG B
1,226	98	Paved parking, HSG B
2,570	61	>75% Grass cover, Good, HSG B
1,500	55	Woods, Good, HSG B
5,446	69	Weighted Average
4,070		74.73% Pervious Area
1,376		25.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	100	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
2.7	100	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	30	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
18.1	230	Total			

Summary for Subcatchment 1.3S: Roof 1

Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 4.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr storm Rainfall=5.60"

Area (sf)	CN	Description
350	98	Roofs, HSG B
60	61	>75% Grass cover, Good, HSG B
410	93	Weighted Average
60		14.63% Pervious Area
350		85.37% Impervious Area

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

Summary for Subcatchment 2.1S: (new Subcat)

Runoff = 0.58 cfs @ 12.09 hrs, Volume= 0.039 af, Depth> 2.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr storm Rainfall=5.60"

Area (sf)	CN	Description
2,907	98	Paved parking, HSG B
3,899	61	>75% Grass cover, Good, HSG B
1,232	55	Woods, Good, HSG B
8,038	73	Weighted Average
5,131		63.83% Pervious Area
2,907		36.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	60	0.2000	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
0.2	35	0.0600	3.67		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
5.5	95	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 2.2S: (new Subcat)

Runoff = 0.35 cfs @ 12.19 hrs, Volume= 0.030 af, Depth> 1.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr storm Rainfall=5.60"

Area (sf)	CN	Description
150	98	Roofs, HSG B
774	98	Paved parking, HSG B
6,280	61	>75% Grass cover, Good, HSG B
2,848	48	Brush, Good, HSG B
10,052	61	Weighted Average
9,128		90.81% Pervious Area
924		9.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0800	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
0.8	100	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
12.3	200	Total			

Summary for Subcatchment 2.3S: (new Subcat)

Runoff = 0.27 cfs @ 12.09 hrs, Volume= 0.018 af, Depth> 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr storm Rainfall=5.60"

Area (sf)	CN	Description
150	98	Roofs, HSG B
1,152	98	Paved parking, HSG B
1,622	61	>75% Grass cover, Good, HSG B
880	55	Woods, Good, HSG B
3,804	72	Weighted Average
2,502		65.77% Pervious Area
1,302		34.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	40	0.1500	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
0.1	25	0.1800	6.36		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
4.4	65	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 2.4S: (new Subcat)

Runoff = 0.34 cfs @ 12.14 hrs, Volume= 0.032 af, Depth> 0.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr storm Rainfall=5.60"

Area (sf)	CN	Description
145	98	Paved parking, HSG B
1,100	61	>75% Grass cover, Good, HSG B
17,252	48	Brush, Good, HSG B
1,157	55	Woods, Good, HSG B
19,654	50	Weighted Average
19,509		99.26% Pervious Area
145		0.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	50	0.0875	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
1.1	80	0.0625	1.25		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.5	130	Total			

Summary for Subcatchment 2.5S: (new Subcat)

Runoff = 0.84 cfs @ 12.29 hrs, Volume= 0.090 af, Depth> 1.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr storm Rainfall=5.60"

Area (sf)	CN	Description
2,480	61	>75% Grass cover, Good, HSG B
5,450	48	Brush, Good, HSG B
35,531	55	Woods, Good, HSG B
43,461	54	Weighted Average
43,461		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	100	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
1.2	50	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.3	170	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
17.7	320	Total			

Summary for Subcatchment 2.6S: Roof 1

Runoff = 0.20 cfs @ 12.09 hrs, Volume= 0.015 af, Depth> 4.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr storm Rainfall=5.60"

Area (sf)	CN	Description
1,520	98	Roofs, HSG B
220	61	>75% Grass cover, Good, HSG B
1,740	93	Weighted Average
220		12.64% Pervious Area
1,520		87.36% Impervious Area

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

Summary for Subcatchment 2.7S: Roof 2

Runoff = 0.23 cfs @ 12.09 hrs, Volume= 0.017 af, Depth> 4.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr storm Rainfall=5.60"

Area (sf)	CN	Description
1,720	98	Roofs, HSG B
280	61	>75% Grass cover, Good, HSG B
2,000	93	Weighted Average
280		14.00% Pervious Area
1,720		86.00% Impervious Area

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

Summary for Reach 1R: (new Reach)

Inflow Area = 0.125 ac, 25.27% Impervious, Inflow Depth = 0.00" for 10-yr storm event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 5.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 6.31 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 100.0' Slope= 0.1020 '/'
Inlet Invert= 50.20', Outlet Invert= 40.00'

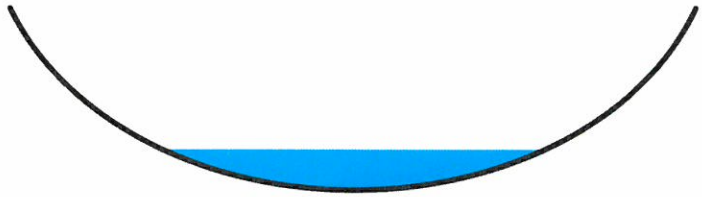
Summary for Reach 2R: POA #2

Inflow Area = 0.217 ac, 25.34% Impervious, Inflow Depth > 0.97" for 10-yr storm event
Inflow = 0.26 cfs @ 12.10 hrs, Volume= 0.018 af
Outflow = 0.26 cfs @ 12.10 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.69 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 1.46 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.11'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 6.24 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 1.0' Slope= 0.1000 '/'
Inlet Invert= 40.00', Outlet Invert= 39.90'



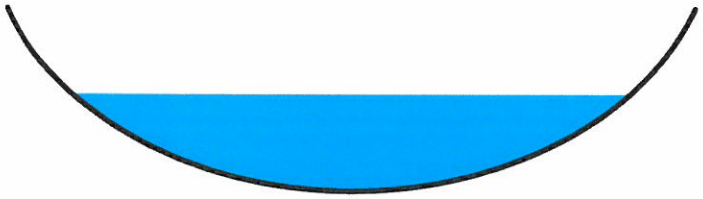
Summary for Reach 3R: Roadside ditch

Inflow Area = 0.185 ac, 36.17% Impervious, Inflow Depth > 2.56" for 10-yr storm event
Inflow = 0.58 cfs @ 12.09 hrs, Volume= 0.039 af
Outflow = 0.55 cfs @ 12.13 hrs, Volume= 0.039 af, Atten= 6%, Lag= 2.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.25 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 0.88 fps, Avg. Travel Time= 3.0 min

Peak Storage= 41 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.26'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 2.21 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 160.0' Slope= 0.0125 '/'
Inlet Invert= 42.00', Outlet Invert= 40.00'



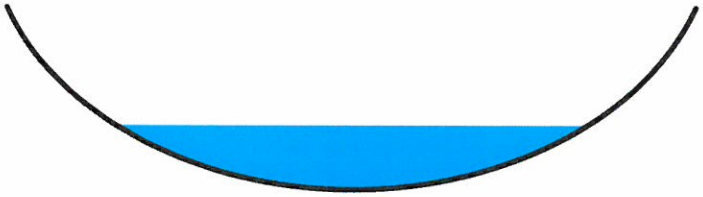
Summary for Reach 4R: Swale

Inflow Area = 1.228 ac, 1.73% Impervious, Inflow Depth > 0.52" for 10-yr storm event
Inflow = 0.53 cfs @ 12.72 hrs, Volume= 0.053 af
Outflow = 0.54 cfs @ 12.72 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.89 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.99 fps, Avg. Travel Time= 0.7 min

Peak Storage= 12 cf @ 12.71 hrs
Average Depth at Peak Storage= 0.18'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 4.93 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 85.0' Slope= 0.0624 '/'
Inlet Invert= 47.30', Outlet Invert= 42.00'



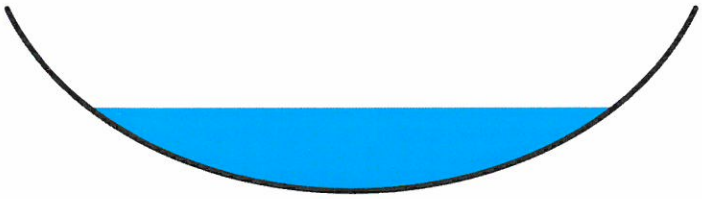
Summary for Reach 5R: POA #1

Inflow Area = 1.952 ac, 6.21% Impervious, Inflow Depth > 0.83" for 10-yr storm event
Inflow = 1.18 cfs @ 12.12 hrs, Volume= 0.134 af
Outflow = 1.18 cfs @ 12.12 hrs, Volume= 0.134 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.72 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.61 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.23'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 6.24 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 1.0' Slope= 0.1000 '/'
Inlet Invert= 40.00', Outlet Invert= 39.90'



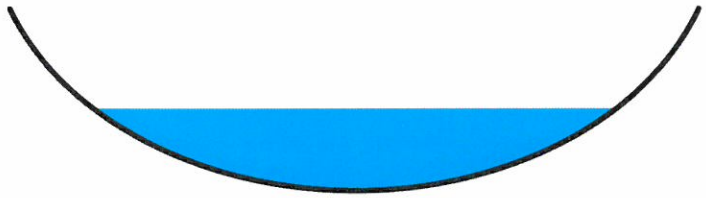
Summary for Reach 8R: (new Reach)

Inflow Area = 0.998 ac, 0.00% Impervious, Inflow Depth > 0.67" for 10-yr storm event
Inflow = 0.58 cfs @ 12.54 hrs, Volume= 0.056 af
Outflow = 0.58 cfs @ 12.56 hrs, Volume= 0.056 af, Atten= 0%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.89 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.48 fps, Avg. Travel Time= 0.9 min

Peak Storage= 16 cf @ 12.55 hrs
Average Depth at Peak Storage= 0.23'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 3.12 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 80.0' Slope= 0.0250 '/'
Inlet Invert= 50.00', Outlet Invert= 48.00'



Summary for Pond 1P: G.U.S.F. #1

Inflow Area = 0.125 ac, 25.27% Impervious, Inflow Depth > 2.21" for 10-yr storm event
Inflow = 0.24 cfs @ 12.26 hrs, Volume= 0.023 af
Outflow = 0.02 cfs @ 14.99 hrs, Volume= 0.013 af, Atten= 92%, Lag= 163.5 min
Discarded = 0.02 cfs @ 14.99 hrs, Volume= 0.013 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 49.71' @ 14.99 hrs Surf.Area= 882 sf Storage= 566 cf

Plug-Flow detention time= 209.7 min calculated for 0.013 af (57% of inflow)
Center-of-Mass det. time= 130.1 min (944.2 - 814.1)

Volume	Invert	Avail.Storage	Storage Description
#1	48.50'	1,552 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.50	300	0.0	0	0
49.00	300	40.0	60	60
50.00	1,115	100.0	708	768
50.60	1,500	100.0	785	1,552

Device	Routing	Invert	Outlet Devices
#1	Discarded	48.50'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	50.20'	**4.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.02 cfs @ 14.99 hrs HW=49.71' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=48.50' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: G.U.S.F. #2

Inflow Area = 1.228 ac, 1.73% Impervious, Inflow Depth > 0.84" for 10-yr storm event
Inflow = 0.74 cfs @ 12.54 hrs, Volume= 0.086 af
Outflow = 0.55 cfs @ 12.72 hrs, Volume= 0.066 af, Atten= 25%, Lag= 10.7 min
Discarded = 0.02 cfs @ 12.72 hrs, Volume= 0.013 af
Primary = 0.53 cfs @ 12.72 hrs, Volume= 0.053 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 47.44' @ 12.72 hrs Surf.Area= 876 sf Storage= 976 cf

Plug-Flow detention time= 87.8 min calculated for 0.066 af (77% of inflow)
Center-of-Mass det. time= 34.7 min (877.0 - 842.3)

Volume	Invert	Avail.Storage	Storage Description
#1	45.00'	1,236 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.00	500	0.0	0	0
46.50	500	40.0	300	300
47.00	697	100.0	299	599
47.75	1,000	100.0	636	1,236

Device	Routing	Invert	Outlet Devices
#1	Discarded	45.00'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	47.30'	**4.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.02 cfs @ 12.72 hrs HW=47.44' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.52 cfs @ 12.72 hrs HW=47.44' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.52 cfs @ 0.91 fps)

Summary for Pond 3P: G.U.S.F. #3

Inflow Area = 0.087 ac, 34.23% Impervious, Inflow Depth > 2.47" for 10-yr storm event
Inflow = 0.27 cfs @ 12.09 hrs, Volume= 0.018 af
Outflow = 0.30 cfs @ 12.11 hrs, Volume= 0.015 af, Atten= 0%, Lag= 1.1 min
Discarded = 0.01 cfs @ 12.12 hrs, Volume= 0.005 af
Primary = 0.30 cfs @ 12.11 hrs, Volume= 0.010 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 48.00' @ 12.12 hrs Surf.Area= 302 sf Storage= 169 cf

Plug-Flow detention time= 76.4 min calculated for 0.015 af (81% of inflow)
Center-of-Mass det. time= 25.4 min (824.5 - 799.1)

Volume	Invert	Avail.Storage	Storage Description
#1	46.00'	347 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
46.00	110	0.0	0	0
47.50	110	40.0	66	66
48.00	302	100.0	103	169
48.50	410	100.0	178	347

Device	Routing	Invert	Outlet Devices
#1	Discarded	46.00'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	47.90'	**4.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.01 cfs @ 12.12 hrs HW=47.99' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.27 cfs @ 12.11 hrs HW=47.99' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.27 cfs @ 0.73 fps)

Summary for Pond 5P: G.U.S.F. #4

Inflow Area = 0.998 ac, 0.00% Impervious, Inflow Depth > 1.09" for 10-yr storm event
Inflow = 0.84 cfs @ 12.29 hrs, Volume= 0.090 af
Outflow = 0.61 cfs @ 12.54 hrs, Volume= 0.073 af, Atten= 28%, Lag= 14.7 min
Discarded = 0.03 cfs @ 12.54 hrs, Volume= 0.017 af
Primary = 0.58 cfs @ 12.54 hrs, Volume= 0.056 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 50.15' @ 12.54 hrs Surf.Area= 1,202 sf Storage= 958 cf

Plug-Flow detention time= 85.4 min calculated for 0.072 af (80% of inflow)
Center-of-Mass det. time= 32.4 min (876.9 - 844.5)

Volume	Invert	Avail.Storage	Storage Description
#1	48.50'	1,540 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.50	300	0.0	0	0
49.00	300	40.0	60	60
50.00	1,100	100.0	700	760
50.60	1,500	100.0	780	1,540

Device	Routing	Invert	Outlet Devices
#1	Discarded	48.50'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	50.00'	**4.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.03 cfs @ 12.54 hrs HW=50.15' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.57 cfs @ 12.54 hrs HW=50.15' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.57 cfs @ 0.95 fps)

Summary for Pond 6P: Roof Drip Edge

Inflow Area = 0.040 ac, 87.36% Impervious, Inflow Depth > 4.52" for 10-yr storm event
Inflow = 0.20 cfs @ 12.09 hrs, Volume= 0.015 af
Outflow = 0.20 cfs @ 12.10 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.6 min
Discarded = 0.20 cfs @ 12.10 hrs, Volume= 0.014 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 50.61' @ 12.10 hrs Surf.Area= 220 sf Storage= 54 cf

Plug-Flow detention time= 35.9 min calculated for 0.014 af (96% of inflow)
Center-of-Mass det. time= 19.7 min (768.9 - 749.2)

Volume	Invert	Avail.Storage	Storage Description
#1	50.00'	286 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
50.00	220	0.0	0	0
52.00	220	40.0	176	176
52.50	220	100.0	110	286

Device	Routing	Invert	Outlet Devices
#1	Discarded	50.50'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Discarded	50.00'	**1.000 in/hr Exfiltration over Surface area**
#3	Secondary	52.00'	**110.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Discarded OutFlow Max=0.20 cfs @ 12.10 hrs HW=50.61' (Free Discharge)
↑**1=Orifice/Grate** (Weir Controls 0.20 cfs @ 1.10 fps)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=50.00' (Free Discharge)
↑**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 7P: Roof Drip Edge

Inflow Area = 0.046 ac, 86.00% Impervious, Inflow Depth > 4.52" for 10-yr storm event
Inflow = 0.23 cfs @ 12.09 hrs, Volume= 0.017 af
Outflow = 0.23 cfs @ 12.11 hrs, Volume= 0.017 af, Atten= 4%, Lag= 1.4 min
Discarded = 0.23 cfs @ 12.11 hrs, Volume= 0.017 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 48.79' @ 12.11 hrs Surf.Area= 280 sf Storage= 89 cf

Plug-Flow detention time= 40.8 min calculated for 0.017 af (96% of inflow)
Center-of-Mass det. time= 25.5 min (774.7 - 749.2)

Volume	Invert	Avail.Storage	Storage Description
#1	48.00'	364 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	280	0.0	0	0
50.00	280	40.0	224	224
50.50	280	100.0	140	364

Device	Routing	Invert	Outlet Devices
#1	Discarded	48.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	48.00'	**1.000 in/hr Exfiltration over Surface area**
#3	Secondary	50.00'	**140.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Discarded OutFlow Max=0.22 cfs @ 12.11 hrs HW=48.79' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.21 cfs @ 1.83 fps)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=48.00' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 9P: Roof Drip Edge

Inflow Area = 0.009 ac, 85.37% Impervious, Inflow Depth > 4.52" for 10-yr storm event
Inflow = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af
Outflow = 0.05 cfs @ 12.10 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.7 min
Discarded = 0.05 cfs @ 12.10 hrs, Volume= 0.003 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 50.63' @ 12.10 hrs Surf.Area= 60 sf Storage= 15 cf

Plug-Flow detention time= 40.2 min calculated for 0.003 af (96% of inflow)
Center-of-Mass det. time= 25.6 min (774.8 - 749.2)

Volume	Invert	Avail.Storage	Storage Description
#1	50.00'	78 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
50.00	60	0.0	0	0
52.00	60	40.0	48	48
52.50	60	100.0	30	78

Device	Routing	Invert	Outlet Devices
#1	Discarded	50.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	50.00'	**1.000 in/hr Exfiltration over Surface area**
#3	Secondary	52.00'	**110.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.05 cfs @ 12.10 hrs HW=50.63' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.05 cfs @ 1.21 fps)
└—**2=Exfiltration** (Exfiltration Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=50.00' (Free Discharge)
↑—**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1.1S: (new Subcat) Runoff Area=3,988 sf 25.45% Impervious Runoff Depth>3.44"
Flow Length=130' Slope=0.0750 '/' Tc=6.0 min CN=70 Runoff=0.39 cfs 0.026 af

Subcatchment1.2S: (new Subcat) Runoff Area=5,446 sf 25.27% Impervious Runoff Depth>3.33"
Flow Length=230' Tc=18.1 min CN=69 Runoff=0.37 cfs 0.035 af

Subcatchment1.3S: Roof 1 Runoff Area=410 sf 85.37% Impervious Runoff Depth>5.90"
Tc=6.0 min CN=93 Runoff=0.06 cfs 0.005 af

Subcatchment2.1S: (new Subcat) Runoff Area=8,038 sf 36.17% Impervious Runoff Depth>3.75"
Flow Length=95' Tc=6.0 min CN=73 Runoff=0.85 cfs 0.058 af

Subcatchment2.2S: (new Subcat) Runoff Area=10,052 sf 9.19% Impervious Runoff Depth>2.54"
Flow Length=200' Tc=12.3 min CN=61 Runoff=0.59 cfs 0.049 af

Subcatchment2.3S: (new Subcat) Runoff Area=3,804 sf 34.23% Impervious Runoff Depth>3.65"
Flow Length=65' Tc=6.0 min CN=72 Runoff=0.39 cfs 0.027 af

Subcatchment2.4S: (new Subcat) Runoff Area=19,654 sf 0.74% Impervious Runoff Depth>1.55"
Flow Length=130' Tc=7.5 min CN=50 Runoff=0.74 cfs 0.058 af

Subcatchment2.5S: (new Subcat) Runoff Area=43,461 sf 0.00% Impervious Runoff Depth>1.89"
Flow Length=320' Tc=17.7 min CN=54 Runoff=1.59 cfs 0.157 af

Subcatchment2.6S: Roof 1 Runoff Area=1,740 sf 87.36% Impervious Runoff Depth>5.90"
Tc=6.0 min CN=93 Runoff=0.26 cfs 0.020 af

Subcatchment2.7S: Roof 2 Runoff Area=2,000 sf 86.00% Impervious Runoff Depth>5.90"
Tc=6.0 min CN=93 Runoff=0.30 cfs 0.023 af

Reach 1R: (new Reach) Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.022 L=100.0' S=0.1020 '/' Capacity=6.31 cfs Outflow=0.00 cfs 0.000 af

Reach 2R: POA #2 Avg. Flow Depth=0.13' Max Vel=4.17 fps Inflow=0.39 cfs 0.026 af
n=0.022 L=1.0' S=0.1000 '/' Capacity=6.24 cfs Outflow=0.39 cfs 0.026 af

Reach 3R: Roadside ditch Avg. Flow Depth=0.32' Max Vel=2.52 fps Inflow=0.85 cfs 0.058 af
n=0.022 L=160.0' S=0.0125 '/' Capacity=2.21 cfs Outflow=0.81 cfs 0.058 af

Reach 4R: Swale Avg. Flow Depth=0.31' Max Vel=5.57 fps Inflow=1.78 cfs 0.136 af
n=0.022 L=85.0' S=0.0624 '/' Capacity=4.93 cfs Outflow=1.82 cfs 0.136 af

Reach 5R: POA #1 Avg. Flow Depth=0.33' Max Vel=7.30 fps Inflow=2.62 cfs 0.270 af
n=0.022 L=1.0' S=0.1000 '/' Capacity=6.24 cfs Outflow=2.62 cfs 0.270 af

Reach 8R: (new Reach) Avg. Flow Depth=0.35' Max Vel=3.75 fps Inflow=1.45 cfs 0.121 af
n=0.022 L=80.0' S=0.0250 '/' Capacity=3.12 cfs Outflow=1.44 cfs 0.121 af

Pond 1P: G.U.S.F. #1 Peak Elev=50.10' Storage=901 cf Inflow=0.37 cfs 0.035 af
Discarded=0.03 cfs 0.018 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.018 af

Pond 2P: G.U.S.F. #2 Peak Elev=47.62' Storage=1,123 cf Inflow=1.83 cfs 0.170 af
Discarded=0.02 cfs 0.014 af Primary=1.78 cfs 0.136 af Outflow=1.80 cfs 0.150 af

Pond 3P: G.U.S.F. #3 Peak Elev=48.01' Storage=174 cf Inflow=0.39 cfs 0.027 af
Discarded=0.01 cfs 0.005 af Primary=0.37 cfs 0.018 af Outflow=0.38 cfs 0.023 af

Pond 5P: G.U.S.F. #4 Peak Elev=50.28' Storage=1,122 cf Inflow=1.59 cfs 0.157 af
Discarded=0.03 cfs 0.018 af Primary=1.45 cfs 0.121 af Outflow=1.48 cfs 0.139 af

Pond 6P: Roof Drip Edge Peak Elev=50.64' Storage=56 cf Inflow=0.26 cfs 0.020 af
Discarded=0.26 cfs 0.019 af Secondary=0.00 cfs 0.000 af Outflow=0.26 cfs 0.019 af

Pond 7P: Roof Drip Edge Peak Elev=48.84' Storage=94 cf Inflow=0.30 cfs 0.023 af
Discarded=0.29 cfs 0.022 af Secondary=0.00 cfs 0.000 af Outflow=0.29 cfs 0.022 af

Pond 9P: Roof Drip Edge Peak Elev=50.64' Storage=15 cf Inflow=0.06 cfs 0.005 af
Discarded=0.06 cfs 0.004 af Secondary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.004 af

Total Runoff Area = 2.263 ac Runoff Volume = 0.456 af Average Runoff Depth = 2.42"
88.58% Pervious = 2.005 ac 11.42% Impervious = 0.258 ac

Summary for Subcatchment 1.1S: (new Subcat)

Runoff = 0.39 cfs @ 12.09 hrs, Volume= 0.026 af, Depth> 3.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr storm Rainfall=7.10"

Area (sf)	CN	Description
1,015	98	Paved parking, HSG B
2,373	61	>75% Grass cover, Good, HSG B
600	55	Woods, Good, HSG B
3,988	70	Weighted Average
2,973		74.55% Pervious Area
1,015		25.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	130	0.0750	4.11		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.5	130	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 1.2S: (new Subcat)

Runoff = 0.37 cfs @ 12.26 hrs, Volume= 0.035 af, Depth> 3.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr storm Rainfall=7.10"

Area (sf)	CN	Description
150	98	Roofs, HSG B
1,226	98	Paved parking, HSG B
2,570	61	>75% Grass cover, Good, HSG B
1,500	55	Woods, Good, HSG B
5,446	69	Weighted Average
4,070		74.73% Pervious Area
1,376		25.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	100	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
2.7	100	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	30	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
18.1	230	Total			

Summary for Subcatchment 1.3S: Roof 1

Runoff = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af, Depth> 5.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr storm Rainfall=7.10"

Area (sf)	CN	Description
350	98	Roofs, HSG B
60	61	>75% Grass cover, Good, HSG B
410	93	Weighted Average
60		14.63% Pervious Area
350		85.37% Impervious Area

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

Summary for Subcatchment 2.1S: (new Subcat)

Runoff = 0.85 cfs @ 12.09 hrs, Volume= 0.058 af, Depth> 3.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr storm Rainfall=7.10"

Area (sf)	CN	Description
2,907	98	Paved parking, HSG B
3,899	61	>75% Grass cover, Good, HSG B
1,232	55	Woods, Good, HSG B
8,038	73	Weighted Average
5,131		63.83% Pervious Area
2,907		36.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	60	0.2000	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
0.2	35	0.0600	3.67		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
5.5	95	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 2.2S: (new Subcat)

Runoff = 0.59 cfs @ 12.18 hrs, Volume= 0.049 af, Depth> 2.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr storm Rainfall=7.10"

Area (sf)	CN	Description
150	98	Roofs, HSG B
774	98	Paved parking, HSG B
6,280	61	>75% Grass cover, Good, HSG B
2,848	48	Brush, Good, HSG B
10,052	61	Weighted Average
9,128		90.81% Pervious Area
924		9.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0800	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
0.8	100	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
12.3	200	Total			

Summary for Subcatchment 2.3S: (new Subcat)

Runoff = 0.39 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr storm Rainfall=7.10"

Area (sf)	CN	Description
150	98	Roofs, HSG B
1,152	98	Paved parking, HSG B
1,622	61	>75% Grass cover, Good, HSG B
880	55	Woods, Good, HSG B
3,804	72	Weighted Average
2,502		65.77% Pervious Area
1,302		34.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	40	0.1500	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
0.1	25	0.1800	6.36		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
4.4	65	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 2.4S: (new Subcat)

Runoff = 0.74 cfs @ 12.12 hrs, Volume= 0.058 af, Depth> 1.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr storm Rainfall=7.10"

Area (sf)	CN	Description
145	98	Paved parking, HSG B
1,100	61	>75% Grass cover, Good, HSG B
17,252	48	Brush, Good, HSG B
1,157	55	Woods, Good, HSG B
19,654	50	Weighted Average
19,509		99.26% Pervious Area
145		0.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	50	0.0875	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
1.1	80	0.0625	1.25		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.5	130	Total			

Summary for Subcatchment 2.5S: (new Subcat)

Runoff = 1.59 cfs @ 12.27 hrs, Volume= 0.157 af, Depth> 1.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr storm Rainfall=7.10"

Area (sf)	CN	Description
2,480	61	>75% Grass cover, Good, HSG B
5,450	48	Brush, Good, HSG B
35,531	55	Woods, Good, HSG B
43,461	54	Weighted Average
43,461		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	100	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
1.2	50	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.3	170	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
17.7	320	Total			

Summary for Subcatchment 2.6S: Roof 1

Runoff = 0.26 cfs @ 12.09 hrs, Volume= 0.020 af, Depth> 5.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr storm Rainfall=7.10"

Area (sf)	CN	Description
1,520	98	Roofs, HSG B
220	61	>75% Grass cover, Good, HSG B
1,740	93	Weighted Average
220		12.64% Pervious Area
1,520		87.36% Impervious Area

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

Summary for Subcatchment 2.7S: Roof 2

Runoff = 0.30 cfs @ 12.09 hrs, Volume= 0.023 af, Depth> 5.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr storm Rainfall=7.10"

Area (sf)	CN	Description
1,720	98	Roofs, HSG B
280	61	>75% Grass cover, Good, HSG B
2,000	93	Weighted Average
280		14.00% Pervious Area
1,720		86.00% Impervious Area

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

Summary for Reach 1R: (new Reach)

Inflow Area = 0.125 ac, 25.27% Impervious, Inflow Depth = 0.00" for 25-yr storm event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 5.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 6.31 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 100.0' Slope= 0.1020 '/'
Inlet Invert= 50.20', Outlet Invert= 40.00'

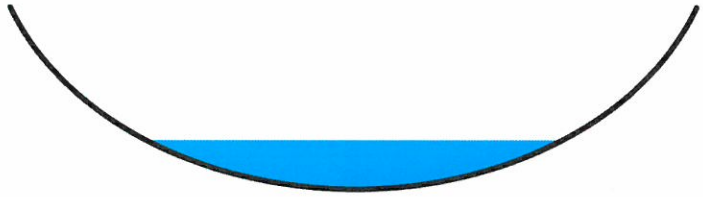
Summary for Reach 2R: POA #2

Inflow Area = 0.217 ac, 25.34% Impervious, Inflow Depth > 1.46" for 25-yr storm event
Inflow = 0.39 cfs @ 12.09 hrs, Volume= 0.026 af
Outflow = 0.39 cfs @ 12.09 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.17 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 1.59 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.13'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 6.24 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 1.0' Slope= 0.1000 '/'
Inlet Invert= 40.00', Outlet Invert= 39.90'



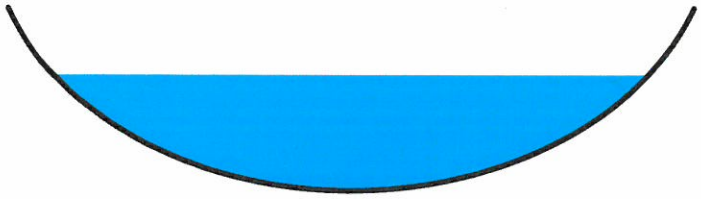
Summary for Reach 3R: Roadside ditch

Inflow Area = 0.185 ac, 36.17% Impervious, Inflow Depth > 3.75" for 25-yr storm event
Inflow = 0.85 cfs @ 12.09 hrs, Volume= 0.058 af
Outflow = 0.81 cfs @ 12.12 hrs, Volume= 0.058 af, Atten= 5%, Lag= 1.8 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.52 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 0.95 fps, Avg. Travel Time= 2.8 min

Peak Storage= 54 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.32'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 2.21 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 160.0' Slope= 0.0125 '/'
Inlet Invert= 42.00', Outlet Invert= 40.00'



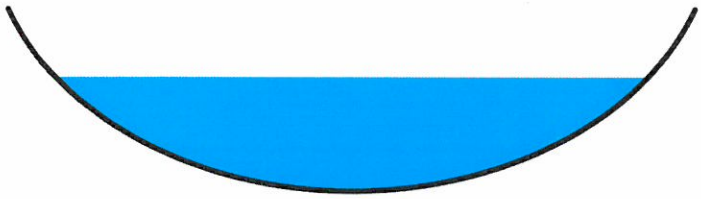
Summary for Reach 4R: Swale

Inflow Area = 1.228 ac, 1.73% Impervious, Inflow Depth > 1.33" for 25-yr storm event
Inflow = 1.78 cfs @ 12.42 hrs, Volume= 0.136 af
Outflow = 1.82 cfs @ 12.42 hrs, Volume= 0.136 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.57 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.59 fps, Avg. Travel Time= 0.5 min

Peak Storage= 28 cf @ 12.41 hrs
Average Depth at Peak Storage= 0.31'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 4.93 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 85.0' Slope= 0.0624 '/'
Inlet Invert= 47.30', Outlet Invert= 42.00'



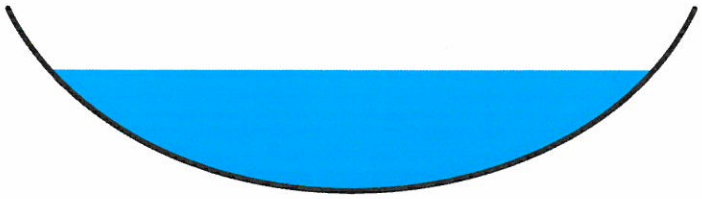
Summary for Reach 5R: POA #1

Inflow Area = 1.952 ac, 6.21% Impervious, Inflow Depth > 1.66" for 25-yr storm event
Inflow = 2.62 cfs @ 12.41 hrs, Volume= 0.270 af
Outflow = 2.62 cfs @ 12.41 hrs, Volume= 0.270 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.30 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.01 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 12.41 hrs
Average Depth at Peak Storage= 0.33'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 6.24 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 1.0' Slope= 0.1000 '/'
Inlet Invert= 40.00', Outlet Invert= 39.90'



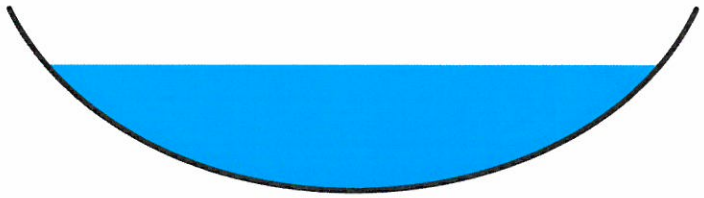
Summary for Reach 8R: (new Reach)

Inflow Area = 0.998 ac, 0.00% Impervious, Inflow Depth > 1.46" for 25-yr storm event
Inflow = 1.45 cfs @ 12.36 hrs, Volume= 0.121 af
Outflow = 1.44 cfs @ 12.37 hrs, Volume= 0.121 af, Atten= 1%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.75 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.82 fps, Avg. Travel Time= 0.7 min

Peak Storage= 31 cf @ 12.37 hrs
Average Depth at Peak Storage= 0.35'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 3.12 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 80.0' Slope= 0.0250 '/'
Inlet Invert= 50.00', Outlet Invert= 48.00'



Summary for Pond 1P: G.U.S.F. #1

Inflow Area = 0.125 ac, 25.27% Impervious, Inflow Depth > 3.33" for 25-yr storm event
Inflow = 0.37 cfs @ 12.26 hrs, Volume= 0.035 af
Outflow = 0.03 cfs @ 15.15 hrs, Volume= 0.018 af, Atten= 93%, Lag= 173.4 min
Discarded = 0.03 cfs @ 15.15 hrs, Volume= 0.018 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 50.10' @ 15.15 hrs Surf.Area= 1,180 sf Storage= 901 cf

Plug-Flow detention time= 216.2 min calculated for 0.018 af (53% of inflow)
Center-of-Mass det. time= 136.7 min (941.7 - 805.0)

Volume	Invert	Avail.Storage	Storage Description
#1	48.50'	1,552 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.50	300	0.0	0	0
49.00	300	40.0	60	60
50.00	1,115	100.0	708	768
50.60	1,500	100.0	785	1,552

Device	Routing	Invert	Outlet Devices
#1	Discarded	48.50'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	50.20'	**4.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.03 cfs @ 15.15 hrs HW=50.10' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=48.50' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: G.U.S.F. #2

Inflow Area = 1.228 ac, 1.73% Impervious, Inflow Depth > 1.66" for 25-yr storm event
Inflow = 1.83 cfs @ 12.36 hrs, Volume= 0.170 af
Outflow = 1.80 cfs @ 12.42 hrs, Volume= 0.150 af, Atten= 2%, Lag= 3.6 min
Discarded = 0.02 cfs @ 12.42 hrs, Volume= 0.014 af
Primary = 1.78 cfs @ 12.42 hrs, Volume= 0.136 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 47.62' @ 12.42 hrs Surf.Area= 946 sf Storage= 1,123 cf

Plug-Flow detention time= 50.4 min calculated for 0.150 af (88% of inflow)
Center-of-Mass det. time= 16.6 min (846.0 - 829.5)

Volume	Invert	Avail.Storage	Storage Description
#1	45.00'	1,236 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.00	500	0.0	0	0
46.50	500	40.0	300	300
47.00	697	100.0	299	599
47.75	1,000	100.0	636	1,236

Device	Routing	Invert	Outlet Devices
#1	Discarded	45.00'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	47.30'	**4.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.02 cfs @ 12.42 hrs HW=47.61' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=1.74 cfs @ 12.42 hrs HW=47.61' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Weir Controls 1.74 cfs @ 1.39 fps)

Summary for Pond 3P: G.U.S.F. #3

Inflow Area =	0.087 ac, 34.23% Impervious, Inflow Depth > 3.65"		for 25-yr storm event	
Inflow =	0.39 cfs @	12.09 hrs, Volume=	0.027 af	
Outflow =	0.38 cfs @	12.11 hrs, Volume=	0.023 af,	Atten= 4%, Lag= 1.1 min
Discarded =	0.01 cfs @	12.11 hrs, Volume=	0.005 af	
Primary =	0.37 cfs @	12.11 hrs, Volume=	0.018 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 48.01' @ 12.11 hrs Surf.Area= 305 sf Storage= 174 cf

Plug-Flow detention time= 56.6 min calculated for 0.023 af (87% of inflow)
Center-of-Mass det. time= 18.0 min (808.2 - 790.3)

Volume	Invert	Avail.Storage	Storage Description
#1	46.00'	347 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
46.00	110	0.0	0	0
47.50	110	40.0	66	66
48.00	302	100.0	103	169
48.50	410	100.0	178	347

Device	Routing	Invert	Outlet Devices
#1	Discarded	46.00'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	47.90'	**4.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.01 cfs @ 12.11 hrs HW=48.01' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.36 cfs @ 12.11 hrs HW=48.01' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.36 cfs @ 0.81 fps)

Summary for Pond 5P: G.U.S.F. #4

Inflow Area = 0.998 ac, 0.00% Impervious, Inflow Depth > 1.89" for 25-yr storm event
Inflow = 1.59 cfs @ 12.27 hrs, Volume= 0.157 af
Outflow = 1.48 cfs @ 12.36 hrs, Volume= 0.139 af, Atten= 7%, Lag= 5.3 min
Discarded = 0.03 cfs @ 12.36 hrs, Volume= 0.018 af
Primary = 1.45 cfs @ 12.36 hrs, Volume= 0.121 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 50.28' @ 12.36 hrs Surf.Area= 1,285 sf Storage= 1,122 cf

Plug-Flow detention time= 53.2 min calculated for 0.139 af (88% of inflow)
Center-of-Mass det. time= 18.5 min (849.9 - 831.4)

Volume	Invert	Avail.Storage	Storage Description
#1	48.50'	1,540 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.50	300	0.0	0	0
49.00	300	40.0	60	60
50.00	1,100	100.0	700	760
50.60	1,500	100.0	780	1,540

Device	Routing	Invert	Outlet Devices
#1	Discarded	48.50'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	50.00'	**4.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.03 cfs @ 12.36 hrs HW=50.28' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=1.44 cfs @ 12.36 hrs HW=50.28' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Weir Controls 1.44 cfs @ 1.30 fps)

Summary for Pond 6P: Roof Drip Edge

Inflow Area = 0.040 ac, 87.36% Impervious, Inflow Depth > 5.90" for 25-yr storm event
Inflow = 0.26 cfs @ 12.09 hrs, Volume= 0.020 af
Outflow = 0.26 cfs @ 12.10 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.6 min
Discarded = 0.26 cfs @ 12.10 hrs, Volume= 0.019 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 50.64' @ 12.10 hrs Surf.Area= 220 sf Storage= 56 cf

Plug-Flow detention time= 30.6 min calculated for 0.019 af (96% of inflow)
Center-of-Mass det. time= 13.4 min (758.4 - 745.0)

Volume	Invert	Avail.Storage	Storage Description
#1	50.00'	286 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
50.00	220	0.0	0	0
52.00	220	40.0	176	176
52.50	220	100.0	110	286

Device	Routing	Invert	Outlet Devices
#1	Discarded	50.50'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Discarded	50.00'	**1.000 in/hr Exfiltration over Surface area**
#3	Secondary	52.00'	**110.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Discarded OutFlow Max=0.26 cfs @ 12.10 hrs HW=50.64' (Free Discharge)
└**1=Orifice/Grate** (Weir Controls 0.26 cfs @ 1.20 fps)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=50.00' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 7P: Roof Drip Edge

Inflow Area = 0.046 ac, 86.00% Impervious, Inflow Depth > 5.90" for 25-yr storm event
Inflow = 0.30 cfs @ 12.09 hrs, Volume= 0.023 af
Outflow = 0.29 cfs @ 12.11 hrs, Volume= 0.022 af, Atten= 3%, Lag= 1.4 min
Discarded = 0.29 cfs @ 12.11 hrs, Volume= 0.022 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 48.84' @ 12.11 hrs Surf.Area= 280 sf Storage= 94 cf

Plug-Flow detention time= 35.4 min calculated for 0.022 af (96% of inflow)
Center-of-Mass det. time= 18.1 min (763.2 - 745.0)

Volume	Invert	Avail.Storage	Storage Description
#1	48.00'	364 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	280	0.0	0	0
50.00	280	40.0	224	224
50.50	280	100.0	140	364

Device	Routing	Invert	Outlet Devices
#1	Discarded	48.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	48.00'	**1.000 in/hr Exfiltration over Surface area**
#3	Secondary	50.00'	**140.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Discarded OutFlow Max=0.29 cfs @ 12.11 hrs HW=48.84' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.28 cfs @ 1.98 fps)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=48.00' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 9P: Roof Drip Edge

Inflow Area = 0.009 ac, 85.37% Impervious, Inflow Depth > 5.90" for 25-yr storm event
Inflow = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af
Outflow = 0.06 cfs @ 12.10 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.6 min
Discarded = 0.06 cfs @ 12.10 hrs, Volume= 0.004 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 50.64' @ 12.10 hrs Surf.Area= 60 sf Storage= 15 cf

Plug-Flow detention time= 34.4 min calculated for 0.004 af (96% of inflow)
Center-of-Mass det. time= 17.5 min (762.5 - 745.0)

Volume	Invert	Avail.Storage	Storage Description
#1	50.00'	78 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
50.00	60	0.0	0	0
52.00	60	40.0	48	48
52.50	60	100.0	30	78

Device	Routing	Invert	Outlet Devices
#1	Discarded	50.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	50.00'	**1.000 in/hr Exfiltration over Surface area**
#3	Secondary	52.00'	**110.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.06 cfs @ 12.10 hrs HW=50.64' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.06 cfs @ 1.29 fps)
└—**2=Exfiltration** (Exfiltration Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=50.00' (Free Discharge)
↑—**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1.1S: (new Subcat) Runoff Area=3,988 sf 25.45% Impervious Runoff Depth>4.57"
Flow Length=130' Slope=0.0750 '/' Tc=6.0 min CN=70 Runoff=0.51 cfs 0.035 af

Subcatchment 1.2S: (new Subcat) Runoff Area=5,446 sf 25.27% Impervious Runoff Depth>4.44"
Flow Length=230' Tc=18.1 min CN=69 Runoff=0.49 cfs 0.046 af

Subcatchment 1.3S: Roof 1 Runoff Area=410 sf 85.37% Impervious Runoff Depth>7.19"
Tc=6.0 min CN=93 Runoff=0.08 cfs 0.006 af

Subcatchment 2.1S: (new Subcat) Runoff Area=8,038 sf 36.17% Impervious Runoff Depth>4.92"
Flow Length=95' Tc=6.0 min CN=73 Runoff=1.11 cfs 0.076 af

Subcatchment 2.2S: (new Subcat) Runoff Area=10,052 sf 9.19% Impervious Runoff Depth>3.53"
Flow Length=200' Tc=12.3 min CN=61 Runoff=0.82 cfs 0.068 af

Subcatchment 2.3S: (new Subcat) Runoff Area=3,804 sf 34.23% Impervious Runoff Depth>4.81"
Flow Length=65' Tc=6.0 min CN=72 Runoff=0.51 cfs 0.035 af

Subcatchment 2.4S: (new Subcat) Runoff Area=19,654 sf 0.74% Impervious Runoff Depth>2.33"
Flow Length=130' Tc=7.5 min CN=50 Runoff=1.18 cfs 0.087 af

Subcatchment 2.5S: (new Subcat) Runoff Area=43,461 sf 0.00% Impervious Runoff Depth>2.75"
Flow Length=320' Tc=17.7 min CN=54 Runoff=2.39 cfs 0.228 af

Subcatchment 2.6S: Roof 1 Runoff Area=1,740 sf 87.36% Impervious Runoff Depth>7.19"
Tc=6.0 min CN=93 Runoff=0.32 cfs 0.024 af

Subcatchment 2.7S: Roof 2 Runoff Area=2,000 sf 86.00% Impervious Runoff Depth>7.19"
Tc=6.0 min CN=93 Runoff=0.37 cfs 0.028 af

Reach 1R: (new Reach) Avg. Flow Depth=0.06' Max Vel=2.43 fps Inflow=0.06 cfs 0.006 af
n=0.022 L=100.0' S=0.1020 '/' Capacity=6.31 cfs Outflow=0.06 cfs 0.006 af

Reach 2R: POA #2 Avg. Flow Depth=0.15' Max Vel=4.53 fps Inflow=0.51 cfs 0.041 af
n=0.022 L=1.0' S=0.1000 '/' Capacity=6.24 cfs Outflow=0.51 cfs 0.041 af

Reach 3R: Roadside ditch Avg. Flow Depth=0.36' Max Vel=2.72 fps Inflow=1.11 cfs 0.076 af
n=0.022 L=160.0' S=0.0125 '/' Capacity=2.21 cfs Outflow=1.06 cfs 0.076 af

Reach 4R: Swale Avg. Flow Depth=0.39' Max Vel=6.32 fps Inflow=2.88 cfs 0.224 af
n=0.022 L=85.0' S=0.0624 '/' Capacity=4.93 cfs Outflow=2.85 cfs 0.224 af

Reach 5R: POA #1 Avg. Flow Depth=0.42' Max Vel=8.40 fps Inflow=4.26 cfs 0.413 af
n=0.022 L=1.0' S=0.1000 '/' Capacity=6.24 cfs Outflow=4.26 cfs 0.413 af

Reach 8R: (new Reach) Avg. Flow Depth=0.43' Max Vel=4.28 fps Inflow=2.29 cfs 0.191 af
n=0.022 L=80.0' S=0.0250 '/' Capacity=3.12 cfs Outflow=2.28 cfs 0.191 af

Pond 1P: G.U.S.F. #1 Peak Elev=50.23' Storage=1,074 cf Inflow=0.49 cfs 0.046 af
Discarded=0.03 cfs 0.020 af Primary=0.06 cfs 0.006 af Outflow=0.09 cfs 0.026 af

Pond 2P: G.U.S.F. #2 Peak Elev=47.73' Storage=1,218 cf Inflow=2.89 cfs 0.259 af
Discarded=0.02 cfs 0.015 af Primary=2.88 cfs 0.224 af Outflow=2.90 cfs 0.239 af

Pond 3P: G.U.S.F. #3 Peak Elev=48.04' Storage=182 cf Inflow=0.51 cfs 0.035 af
Discarded=0.01 cfs 0.005 af Primary=0.49 cfs 0.026 af Outflow=0.50 cfs 0.032 af

Pond 5P: G.U.S.F. #4 Peak Elev=50.37' Storage=1,244 cf Inflow=2.39 cfs 0.228 af
Discarded=0.03 cfs 0.019 af Primary=2.29 cfs 0.191 af Outflow=2.32 cfs 0.210 af

Pond 6P: Roof Drip Edge Peak Elev=50.65' Storage=58 cf Inflow=0.32 cfs 0.024 af
Discarded=0.32 cfs 0.023 af Secondary=0.00 cfs 0.000 af Outflow=0.32 cfs 0.023 af

Pond 7P: Roof Drip Edge Peak Elev=48.89' Storage=100 cf Inflow=0.37 cfs 0.028 af
Discarded=0.35 cfs 0.026 af Secondary=0.00 cfs 0.000 af Outflow=0.35 cfs 0.026 af

Pond 9P: Roof Drip Edge Peak Elev=50.66' Storage=16 cf Inflow=0.08 cfs 0.006 af
Discarded=0.08 cfs 0.005 af Secondary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.005 af

Total Runoff Area = 2.263 ac Runoff Volume = 0.633 af Average Runoff Depth = 3.35"
88.58% Pervious = 2.005 ac 11.42% Impervious = 0.258 ac

Summary for Subcatchment 1.1S: (new Subcat)

Runoff = 0.51 cfs @ 12.09 hrs, Volume= 0.035 af, Depth> 4.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr storm Rainfall=8.50"

Area (sf)	CN	Description
1,015	98	Paved parking, HSG B
2,373	61	>75% Grass cover, Good, HSG B
600	55	Woods, Good, HSG B
3,988	70	Weighted Average
2,973		74.55% Pervious Area
1,015		25.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	130	0.0750	4.11		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.5	130	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 1.2S: (new Subcat)

Runoff = 0.49 cfs @ 12.25 hrs, Volume= 0.046 af, Depth> 4.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr storm Rainfall=8.50"

Area (sf)	CN	Description
150	98	Roofs, HSG B
1,226	98	Paved parking, HSG B
2,570	61	>75% Grass cover, Good, HSG B
1,500	55	Woods, Good, HSG B
5,446	69	Weighted Average
4,070		74.73% Pervious Area
1,376		25.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	100	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
2.7	100	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	30	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
18.1	230	Total			

Summary for Subcatchment 1.3S: Roof 1

Runoff = 0.08 cfs @ 12.09 hrs, Volume= 0.006 af, Depth> 7.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr storm Rainfall=8.50"

Area (sf)	CN	Description
350	98	Roofs, HSG B
60	61	>75% Grass cover, Good, HSG B
410	93	Weighted Average
60		14.63% Pervious Area
350		85.37% Impervious Area

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

Summary for Subcatchment 2.1S: (new Subcat)

Runoff = 1.11 cfs @ 12.09 hrs, Volume= 0.076 af, Depth> 4.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr storm Rainfall=8.50"

Area (sf)	CN	Description
2,907	98	Paved parking, HSG B
3,899	61	>75% Grass cover, Good, HSG B
1,232	55	Woods, Good, HSG B
8,038	73	Weighted Average
5,131		63.83% Pervious Area
2,907		36.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	60	0.2000	0.19		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
0.2	35	0.0600	3.67		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
5.5	95	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 2.2S: (new Subcat)

Runoff = 0.82 cfs @ 12.18 hrs, Volume= 0.068 af, Depth> 3.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr storm Rainfall=8.50"

Area (sf)	CN	Description
150	98	Roofs, HSG B
774	98	Paved parking, HSG B
6,280	61	>75% Grass cover, Good, HSG B
2,848	48	Brush, Good, HSG B
10,052	61	Weighted Average
9,128		90.81% Pervious Area
924		9.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0800	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
0.8	100	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
12.3	200	Total			

Summary for Subcatchment 2.3S: (new Subcat)

Runoff = 0.51 cfs @ 12.09 hrs, Volume= 0.035 af, Depth> 4.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr storm Rainfall=8.50"

Area (sf)	CN	Description
150	98	Roofs, HSG B
1,152	98	Paved parking, HSG B
1,622	61	>75% Grass cover, Good, HSG B
880	55	Woods, Good, HSG B
3,804	72	Weighted Average
2,502		65.77% Pervious Area
1,302		34.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	40	0.1500	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
0.1	25	0.1800	6.36		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
4.4	65	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 2.4S: (new Subcat)

Runoff = 1.18 cfs @ 12.12 hrs, Volume= 0.087 af, Depth> 2.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr storm Rainfall=8.50"

Area (sf)	CN	Description
145	98	Paved parking, HSG B
1,100	61	>75% Grass cover, Good, HSG B
17,252	48	Brush, Good, HSG B
1,157	55	Woods, Good, HSG B
19,654	50	Weighted Average
19,509		99.26% Pervious Area
145		0.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	50	0.0875	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
1.1	80	0.0625	1.25		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.5	130	Total			

Summary for Subcatchment 2.5S: (new Subcat)

Runoff = 2.39 cfs @ 12.26 hrs, Volume= 0.228 af, Depth> 2.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr storm Rainfall=8.50"

Area (sf)	CN	Description
2,480	61	>75% Grass cover, Good, HSG B
5,450	48	Brush, Good, HSG B
35,531	55	Woods, Good, HSG B
43,461	54	Weighted Average
43,461		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	100	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.69"
1.2	50	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.3	170	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
17.7	320	Total			

Summary for Subcatchment 2.6S: Roof 1

Runoff = 0.32 cfs @ 12.09 hrs, Volume= 0.024 af, Depth> 7.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr storm Rainfall=8.50"

Area (sf)	CN	Description
1,520	98	Roofs, HSG B
220	61	>75% Grass cover, Good, HSG B
1,740	93	Weighted Average
220		12.64% Pervious Area
1,520		87.36% Impervious Area

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

Summary for Subcatchment 2.7S: Roof 2

Runoff = 0.37 cfs @ 12.09 hrs, Volume= 0.028 af, Depth> 7.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr storm Rainfall=8.50"

Area (sf)	CN	Description
1,720	98	Roofs, HSG B
280	61	>75% Grass cover, Good, HSG B
2,000	93	Weighted Average
280		14.00% Pervious Area
1,720		86.00% Impervious Area

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

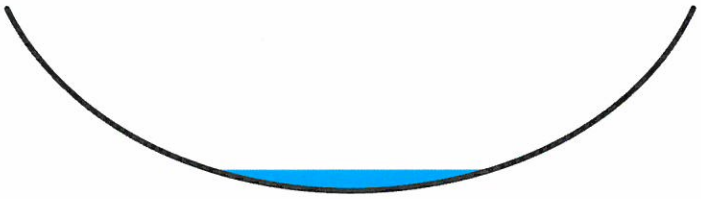
Summary for Reach 1R: (new Reach)

Inflow Area = 0.125 ac, 25.27% Impervious, Inflow Depth = 0.57" for 50-yr storm event
Inflow = 0.06 cfs @ 12.97 hrs, Volume= 0.006 af
Outflow = 0.06 cfs @ 13.00 hrs, Volume= 0.006 af, Atten= 1%, Lag= 1.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.43 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 1.58 fps, Avg. Travel Time= 1.1 min

Peak Storage= 3 cf @ 12.99 hrs
Average Depth at Peak Storage= 0.06'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 6.31 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 100.0' Slope= 0.1020 '/'
Inlet Invert= 50.20', Outlet Invert= 40.00'



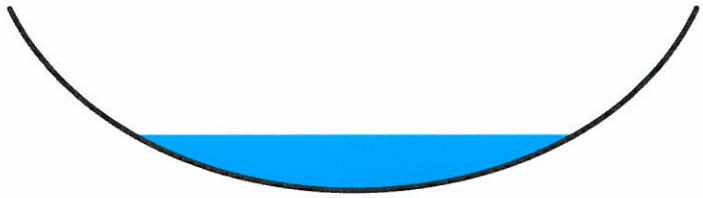
Summary for Reach 2R: POA #2

Inflow Area = 0.217 ac, 25.34% Impervious, Inflow Depth > 2.26" for 50-yr storm event
Inflow = 0.51 cfs @ 12.09 hrs, Volume= 0.041 af
Outflow = 0.51 cfs @ 12.09 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.53 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 1.76 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.15'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 6.24 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 1.0' Slope= 0.1000 '/'
Inlet Invert= 40.00', Outlet Invert= 39.90'



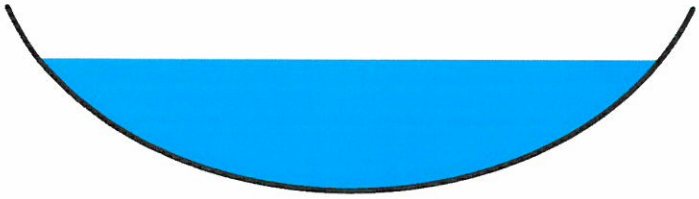
Summary for Reach 3R: Roadside ditch

Inflow Area = 0.185 ac, 36.17% Impervious, Inflow Depth > 4.92" for 50-yr storm event
Inflow = 1.11 cfs @ 12.09 hrs, Volume= 0.076 af
Outflow = 1.06 cfs @ 12.12 hrs, Volume= 0.076 af, Atten= 5%, Lag= 1.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.72 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.01 fps, Avg. Travel Time= 2.7 min

Peak Storage= 65 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.36'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 2.21 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 160.0' Slope= 0.0125 '/'
Inlet Invert= 42.00', Outlet Invert= 40.00'



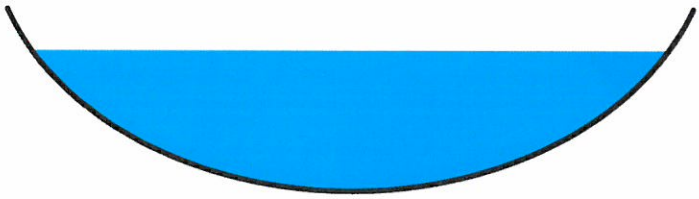
Summary for Reach 4R: Swale

Inflow Area = 1.228 ac, 1.73% Impervious, Inflow Depth > 2.19" for 50-yr storm event
Inflow = 2.88 cfs @ 12.32 hrs, Volume= 0.224 af
Outflow = 2.85 cfs @ 12.33 hrs, Volume= 0.224 af, Atten= 1%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.32 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.97 fps, Avg. Travel Time= 0.5 min

Peak Storage= 39 cf @ 12.32 hrs
Average Depth at Peak Storage= 0.39'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 4.93 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 85.0' Slope= 0.0624 '/'
Inlet Invert= 47.30', Outlet Invert= 42.00'



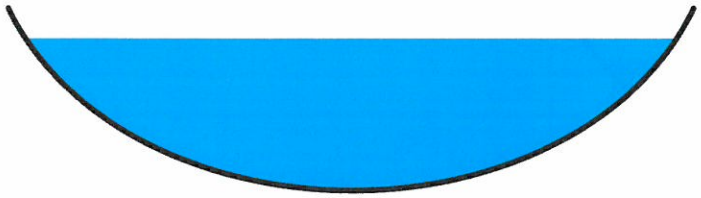
Summary for Reach 5R: POA #1

Inflow Area = 1.952 ac, 6.21% Impervious, Inflow Depth > 2.54" for 50-yr storm event
Inflow = 4.26 cfs @ 12.30 hrs, Volume= 0.413 af
Outflow = 4.26 cfs @ 12.30 hrs, Volume= 0.413 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.40 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.25 fps, Avg. Travel Time= 0.0 min

Peak Storage= 1 cf @ 12.30 hrs
Average Depth at Peak Storage= 0.42'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 6.24 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 1.0' Slope= 0.1000 '/'
Inlet Invert= 40.00', Outlet Invert= 39.90'



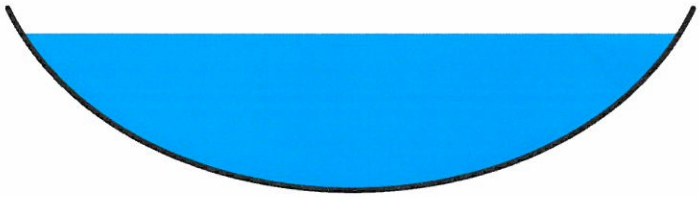
Summary for Reach 8R: (new Reach)

Inflow Area = 0.998 ac, 0.00% Impervious, Inflow Depth > 2.30" for 50-yr storm event
Inflow = 2.29 cfs @ 12.31 hrs, Volume= 0.191 af
Outflow = 2.28 cfs @ 12.32 hrs, Volume= 0.191 af, Atten= 1%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.28 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.05 fps, Avg. Travel Time= 0.6 min

Peak Storage= 43 cf @ 12.31 hrs
Average Depth at Peak Storage= 0.43'
Bank-Full Depth= 0.50' Flow Area= 0.7 sf, Capacity= 3.12 cfs

2.00' x 0.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 80.0' Slope= 0.0250 '/'
Inlet Invert= 50.00', Outlet Invert= 48.00'



Summary for Pond 1P: G.U.S.F. #1

Inflow Area = 0.125 ac, 25.27% Impervious, Inflow Depth > 4.44" for 50-yr storm event
Inflow = 0.49 cfs @ 12.25 hrs, Volume= 0.046 af
Outflow = 0.09 cfs @ 12.97 hrs, Volume= 0.026 af, Atten= 81%, Lag= 43.1 min
Discarded = 0.03 cfs @ 12.97 hrs, Volume= 0.020 af
Primary = 0.06 cfs @ 12.97 hrs, Volume= 0.006 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 50.23' @ 12.97 hrs Surf.Area= 1,265 sf Storage= 1,074 cf

Plug-Flow detention time= 185.8 min calculated for 0.026 af (57% of inflow)
Center-of-Mass det. time= 108.8 min (907.3 - 798.5)

Volume	Invert	Avail.Storage	Storage Description
#1	48.50'	1,552 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.50	300	0.0	0	0
49.00	300	40.0	60	60
50.00	1,115	100.0	708	768
50.60	1,500	100.0	785	1,552

Device	Routing	Invert	Outlet Devices
#1	Discarded	48.50'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	50.20'	**4.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.03 cfs @ 12.97 hrs HW=50.23' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.06 cfs @ 12.97 hrs HW=50.23' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.06 cfs @ 0.45 fps)

Summary for Pond 2P: G.U.S.F. #2

Inflow Area =	1.228 ac,	1.73% Impervious,	Inflow Depth >	2.53" for 50-yr storm event
Inflow =	2.89 cfs @	12.29 hrs, Volume=	0.259 af	
Outflow =	2.90 cfs @	12.32 hrs, Volume=	0.239 af,	Atten= 0%, Lag= 1.5 min
Discarded =	0.02 cfs @	12.32 hrs, Volume=	0.015 af	
Primary =	2.88 cfs @	12.32 hrs, Volume=	0.224 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 47.73' @ 12.32 hrs Surf.Area= 991 sf Storage= 1,218 cf

Plug-Flow detention time= 35.4 min calculated for 0.238 af (92% of inflow)
Center-of-Mass det. time= 11.2 min (833.0 - 821.9)

Volume	Invert	Avail.Storage	Storage Description
#1	45.00'	1,236 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.00	500	0.0	0	0
46.50	500	40.0	300	300
47.00	697	100.0	299	599
47.75	1,000	100.0	636	1,236

Device	Routing	Invert	Outlet Devices
#1	Discarded	45.00'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	47.30'	**4.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.02 cfs @ 12.32 hrs HW=47.73' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=2.84 cfs @ 12.32 hrs HW=47.73' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Weir Controls 2.84 cfs @ 1.67 fps)

Summary for Pond 3P: G.U.S.F. #3

Inflow Area =	0.087 ac, 34.23% Impervious, Inflow Depth > 4.81"		for 50-yr storm event	
Inflow =	0.51 cfs @	12.09 hrs, Volume=	0.035 af	
Outflow =	0.50 cfs @	12.11 hrs, Volume=	0.032 af,	Atten= 2%, Lag= 1.1 min
Discarded =	0.01 cfs @	12.11 hrs, Volume=	0.005 af	
Primary =	0.49 cfs @	12.11 hrs, Volume=	0.026 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 48.04' @ 12.11 hrs Surf.Area= 310 sf Storage= 182 cf

Plug-Flow detention time= 47.4 min calculated for 0.031 af (90% of inflow)
Center-of-Mass det. time= 15.9 min (799.8 - 783.9)

Volume	Invert	Avail.Storage	Storage Description
#1	46.00'	347 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
46.00	110	0.0	0	0
47.50	110	40.0	66	66
48.00	302	100.0	103	169
48.50	410	100.0	178	347

Device	Routing	Invert	Outlet Devices
#1	Discarded	46.00'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	47.90'	**4.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.01 cfs @ 12.11 hrs HW=48.03' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.48 cfs @ 12.11 hrs HW=48.04' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.48 cfs @ 0.89 fps)

Summary for Pond 5P: G.U.S.F. #4

Inflow Area = 0.998 ac, 0.00% Impervious, Inflow Depth > 2.75" for 50-yr storm event
Inflow = 2.39 cfs @ 12.26 hrs, Volume= 0.228 af
Outflow = 2.32 cfs @ 12.31 hrs, Volume= 0.210 af, Atten= 3%, Lag= 2.8 min
Discarded = 0.03 cfs @ 12.31 hrs, Volume= 0.019 af
Primary = 2.29 cfs @ 12.31 hrs, Volume= 0.191 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 50.37' @ 12.31 hrs Surf.Area= 1,348 sf Storage= 1,244 cf

Plug-Flow detention time= 39.4 min calculated for 0.209 af (92% of inflow)
Center-of-Mass det. time= 13.7 min (836.7 - 823.1)

Volume	Invert	Avail.Storage	Storage Description
#1	48.50'	1,540 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.50	300	0.0	0	0
49.00	300	40.0	60	60
50.00	1,100	100.0	700	760
50.60	1,500	100.0	780	1,540

Device	Routing	Invert	Outlet Devices
#1	Discarded	48.50'	**1.000 in/hr Exfiltration over Surface area**
#2	Primary	50.00'	**4.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.03 cfs @ 12.31 hrs HW=50.37' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=2.28 cfs @ 12.31 hrs HW=50.37' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 2.28 cfs @ 1.54 fps)

Summary for Pond 6P: Roof Drip Edge

Inflow Area = 0.040 ac, 87.36% Impervious, Inflow Depth > 7.19" for 50-yr storm event
Inflow = 0.32 cfs @ 12.09 hrs, Volume= 0.024 af
Outflow = 0.32 cfs @ 12.10 hrs, Volume= 0.023 af, Atten= 0%, Lag= 0.6 min
Discarded = 0.32 cfs @ 12.10 hrs, Volume= 0.023 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 50.65' @ 12.10 hrs Surf.Area= 220 sf Storage= 58 cf

Plug-Flow detention time= 26.6 min calculated for 0.023 af (96% of inflow)
Center-of-Mass det. time= 10.4 min (752.8 - 742.4)

Volume	Invert	Avail.Storage	Storage Description
#1	50.00'	286 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
50.00	220	0.0	0	0
52.00	220	40.0	176	176
52.50	220	100.0	110	286

Device	Routing	Invert	Outlet Devices
#1	Discarded	50.50'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Discarded	50.00'	**1.000 in/hr Exfiltration over Surface area**
#3	Secondary	52.00'	**110.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Discarded OutFlow Max=0.31 cfs @ 12.10 hrs HW=50.65' (Free Discharge)
↑**1=Orifice/Grate** (Weir Controls 0.31 cfs @ 1.28 fps)
└**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=50.00' (Free Discharge)
↑└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 7P: Roof Drip Edge

Inflow Area = 0.046 ac, 86.00% Impervious, Inflow Depth > 7.19" for 50-yr storm event
Inflow = 0.37 cfs @ 12.09 hrs, Volume= 0.028 af
Outflow = 0.35 cfs @ 12.11 hrs, Volume= 0.026 af, Atten= 3%, Lag= 1.3 min
Discarded = 0.35 cfs @ 12.11 hrs, Volume= 0.026 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 48.89' @ 12.11 hrs Surf.Area= 280 sf Storage= 100 cf

Plug-Flow detention time= 31.6 min calculated for 0.026 af (96% of inflow)
Center-of-Mass det. time= 14.4 min (756.8 - 742.4)

Volume	Invert	Avail.Storage	Storage Description
#1	48.00'	364 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
48.00	280	0.0	0	0
50.00	280	40.0	224	224
50.50	280	100.0	140	364

Device	Routing	Invert	Outlet Devices
#1	Discarded	48.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	48.00'	**1.000 in/hr Exfiltration over Surface area**
#3	Secondary	50.00'	**140.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Discarded OutFlow Max=0.35 cfs @ 12.11 hrs HW=48.88' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.34 cfs @ 2.11 fps)
└—**2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=48.00' (Free Discharge)
↑—**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 9P: Roof Drip Edge

Inflow Area = 0.009 ac, 85.37% Impervious, Inflow Depth > 7.19" for 50-yr storm event
Inflow = 0.08 cfs @ 12.09 hrs, Volume= 0.006 af
Outflow = 0.08 cfs @ 12.10 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.6 min
Discarded = 0.08 cfs @ 12.10 hrs, Volume= 0.005 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 50.66' @ 12.10 hrs Surf.Area= 60 sf Storage= 16 cf

Plug-Flow detention time= 30.4 min calculated for 0.005 af (96% of inflow)
Center-of-Mass det. time= 13.3 min (755.7 - 742.4)

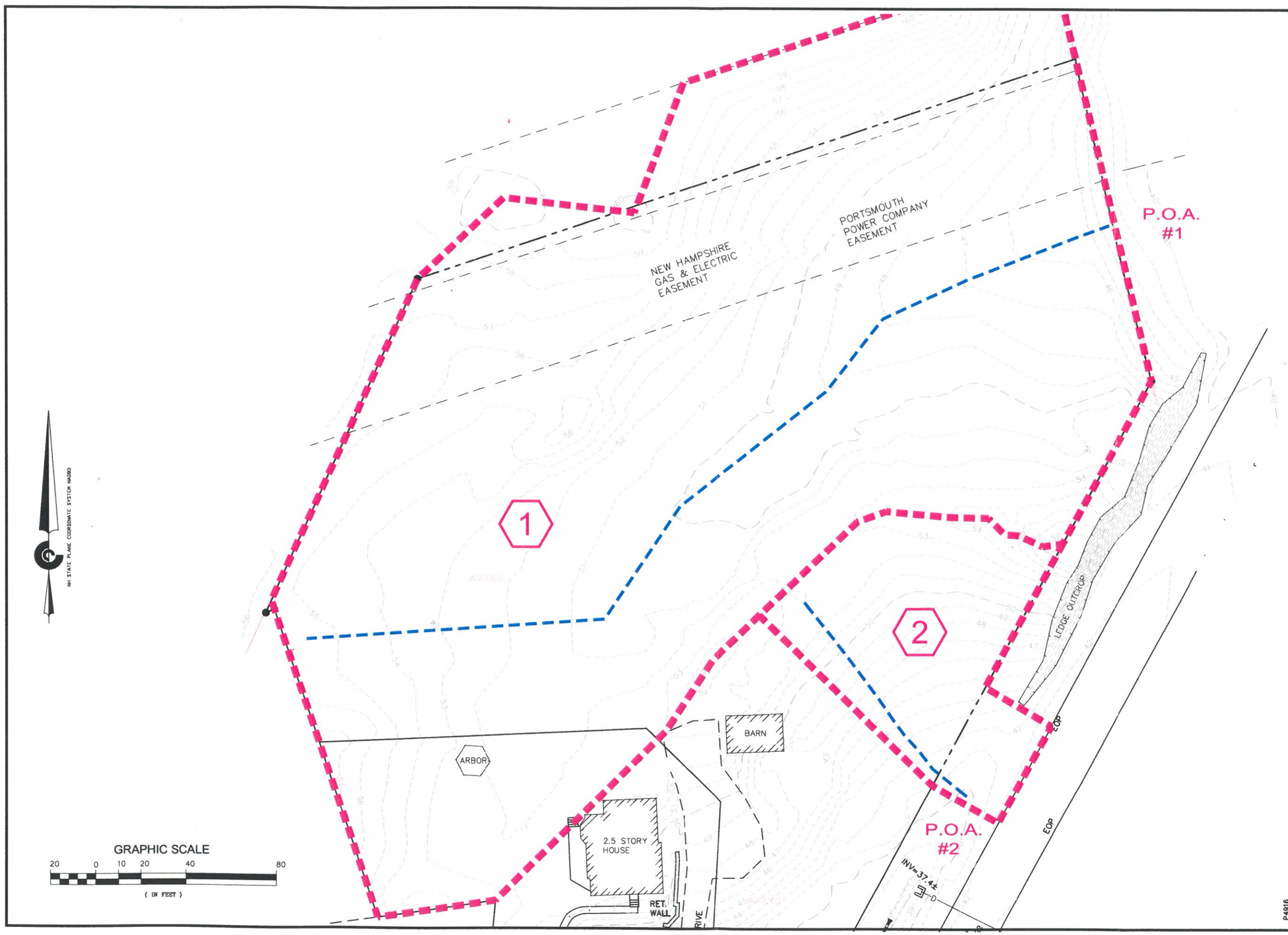
Volume	Invert	Avail.Storage	Storage Description
#1	50.00'	78 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
50.00	60	0.0	0	0
52.00	60	40.0	48	48
52.50	60	100.0	30	78

Device	Routing	Invert	Outlet Devices
#1	Discarded	50.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	50.00'	**1.000 in/hr Exfiltration over Surface area**
#3	Secondary	52.00'	**110.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.07 cfs @ 12.10 hrs HW=50.66' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.07 cfs @ 1.36 fps)
└—**2=Exfiltration** (Exfiltration Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=50.00' (Free Discharge)
↑—**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)



ALTUS ENGINEERING, INC.
133 COURT STREET PORTSMOUTH, NH 03801
(603) 433-2335 www.ALTUS-ENG.com

ISSUED FOR: TAC

ISSUE DATE: SEPTEMBER 14, 2018

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	EDW	08/07/18
1	PER TAC COMMENTS	EDW	09/14/18

DRAWN BY: RLH
APPROVED BY: EDW
DRAWING FILE: 4916 SITE.DWG

SCALE:
11"x17": 1" = 40'
22"x 34": 1" = 20'

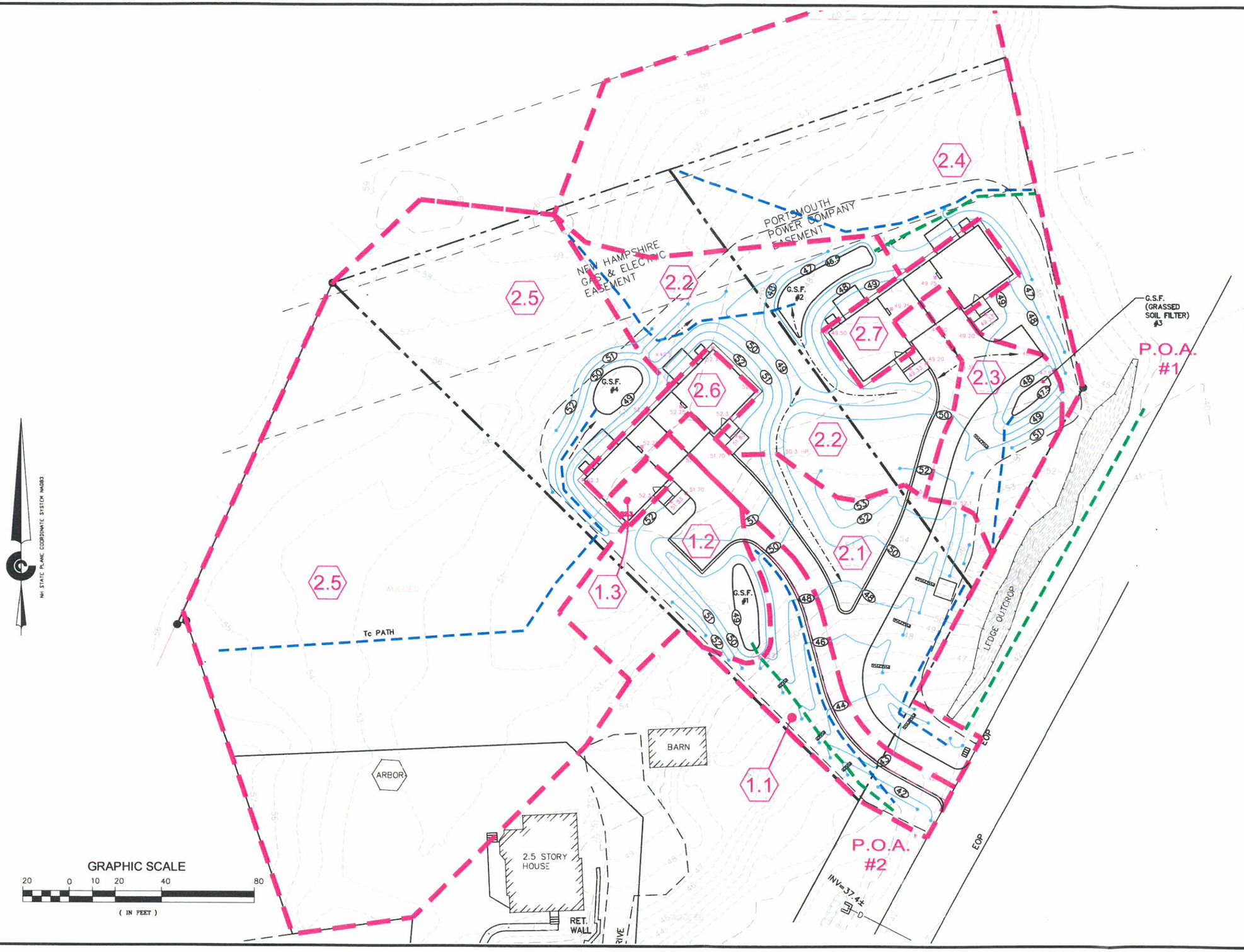
APPLICANT/OWNER:
HAPPY MOUNTAIN HOLDINGS, LLC
901 N. MARKET STREET
SUITE 705
WILMINGTON, DE 19801

PROJECT:
RESIDENTIAL DEVELOPMENT
ASSESSOR'S PARCEL 220-87-2
74 EMERY STREET
&
ASSESSOR'S PARCEL 220-87-3
64 EMERY STREET
PORTSMOUTH, NEW HAMPSHIRE

TITLE:
PRE-DEVELOPMENT WATERSHED PLAN

SHEET NUMBER:
DS - 1

P4916



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ISSUED FOR:
DRAINAGE REPORT

ISSUE DATE:
OCTOBER 30, 2018

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	EDW	08/07/18
1	PER TAC COMMENTS	EDW	09/14/18
2	PER PB COMMENTS	EDW	10/30/18

DRAWN BY: RLH
APPROVED BY: EDW
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PROJECT:
RESIDENTIAL DEVELOPMENT
ASSESSOR'S PARCEL 220-87-2
74 EMERY STREET
&
ASSESSOR'S PARCEL 220-87-3
64 EMERY STREET
PORTSMOUTH, NEW HAMPSHIRE

TITLE:
POST-DEVELOPMENT WATERSHED PLAN

SHEET NUMBER:
DS - 2

P4916